

GRE

APR 2016

WITH:

PROJECT ID:

1146-44-71

COUNTY:

OUTAGAMIE

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 = 170



DESIGN DESIGNATION

A.A.D.T. (2016)	= 27,100
A.A.D.T. (2036)	= 41,400
D.H.V.	= 4,300
D.D.	= 59/41
T.	= 5.3%
DESIGN SPEED	= 55 MPH
ESALS	= 5,679,400

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

STH 15, TOWN OF GRAND CHUTE

STH 15 & CASALOMA DRIVE

STH 15

OUTAGAMIE COUNTY

STATE PROJECT NUMBER

1146-44-71



LAYOUT
SCALE 0 1 MI

TOTAL NET LENGTH OF CENTERLINE = 0.071 MI

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE
NORTH AMERICAN VERTICAL DATUM OF 1988, NAVD 88 (2012).

HORIZONTAL COORDINATES ON THIS PLAN ARE REFERENCED TO THE
WISCONSIN COUNTY COORDINATES SYSTEM (WCCS), OUTAGAMIE COUNTY,
NAD 83 (1991).

STATE PROJECT

1146-44-71

FEDERAL PROJECT

PROJECT

WISC 2016098

CONTRACT

1

ENGINEERING, INC
Consultant Services



10/22/2015
(Date)

Andrew W. Block
(Signature)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor JT ENGINEERING

Designer JT ENGINEERING

Project Manager TIMOTHY VERHAGEN, PE

Regional Examiner

Regional Supervisor CHARLES KAROW, PE

APPROVED FOR THE DEPARTMENT

DATE: 10/22/2015

Tim Verhagen
(Signature)

E

GENERAL NOTES

CONTACT THE UTILITES AND DIGGERS HOTLINE TO LOCATE AND FIELD VERIFY UTILITIES PRIOR TO THE START OF WORK. THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. ANY LOCAL, MUNICIPAL, OR OTHER UTILITY THAT IS NOT A MEMBER OF DIGGERS HOTLINE SHALL BE CONTACTED SEPARATELY.

CROSS SECTIONS SHOWN INCLUDE THE THICKNESS OF TOPSOIL WHERE REQUIRED. TOPSOIL SHALL BE REPLACED WITH SPECIFIED THICKNESS AS OUTLINED IN THE STANDARD SPECIFICATIONS.

FILL AND COMPACT ALL HOLES OR OPENINGS BELOW SUBGRADE RESULTING FROM ABANDONMENT OR REMOVAL OF EXISTING STRUCTURES WITH GRANULAR BACKFILL. BACKFILLING IS INCIDENTAL TO CORRESPONDING ABANDONMENT OR REMOVAL ITEM.

A SAWED JOINT IS REQUIRED WHERE NEW HMA PAVEMENT MEETS EXISTING HMA PAVEMENT.

CURB AND GUTTER GRADES ARE GIVEN TO THE FLANGE. CURB AND GUTTER RADII ARE ALSO MEASURED TO THE FLANGE. GRADES ARE PROVIDED AT THE BACK OF CURB AT CURB RAMP LOCATIONS ADJACENT TO TRAVELED LANES, AND AT THE FACE OF PEDESTRIAN CURB.

FERTILIZER SHALL NOT BE USED NEAR NAVIGABLE WATERWAYS OR WETLANDS UNLESS THE AREAS ARE SEPARATED BY SILT FENCE.

ANY MESH MATERIAL THAT IS FOUND IN EXISTING PAVEMENT WILL BE INCIDENTAL TO THE REMOVAL OF THE PAVEMENT ITEM IN THAT SECTION. EXISTING PAVEMENT DEPTHS ARE BASED ON AS-BUILT DATA AND MAY VARY IN FIELD.

THE EROSION CONTROL FEATURES AS SHOWN ON THE PLANS ARE AT SUGGESTED LOCATIONS. EXACT LOCATION WILL BE DETERMINED BY THE ENGINEER.

PRIOR TO ORDERING DRAINAGE PIPES AND STRUCTURES, THE CONTRACTOR SHALL VERIFY RELATED DRAINAGE INFORMATION IN THE PLAN AND PROVIDE DOCUMENTATION TO THE ENGINEER IN ACCORDANCE WITH THE SPECIFICATIONS. THIS ALSO INCLUDES VERIFICATION OF INVERT ELEVATIONS AT ALL PROPOSED STORM SEWER CONNECTION POINTS TO EXISTING SYSTEMS.

REFER TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PART 6 FOR APPROPRIATE MEASURES NECESSARY FOR WORK IN THE VICINITY OF A RAILROAD GRADE CROSSING AND FOR VEHICLE QUEUES NEAR THE CROSSING.

ALIGNMENT IDENTIFIERS	
NC	NORTHBOUND CASALOMA DRIVE
A	STH 15 WESTBOUND
R	NORTHBOUND CASALOMA DRIVE RIGHT TURN
P	SIDEWALK (NORTH OF STH 15 ONLY)

ORDER OF SECTION 2 DETAIL SHEETS

- GENERAL NOTES
- PROJECT OVERVIEW
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- PLAN DETAILS
- EROSION CONTROL PLAN
- STORM SEWER PLAN
- SIGN REMOVALS
- PERMANENT SIGNING
- TEMPORARY TRAFFIC SIGNAL PLAN
- TRAFFIC SIGNAL PLAN
- PAVEMENT MARKING PLAN
- TRAFFIC CONTROL PLAN



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

UTILITY CONTACTS

ATC MANAGEMENT, LLC - ELECTRIC

MR. MIKE OLSEN
801 O'KEEFE RD
P.O. BOX 6113
DE PERE, WI 54115-6113
(920) 338-6582
MOLSEN@ATCLLC.COM

TOWN OF GRAND CHUTE – WATER AND
SANITARY SEWER (DISTRICT NO 2)

MR. TODD PRAHL
1900 GRAND CHUTE BLVD
APPLETON, WI 54913-9613
(920) 832-1581

WE ENERGIES – ELECTRIC

MR. KENNETH VAN OSS
800 S. LYNNDALE DR
APPLETON, WI 54912
(920) 380-3318
KENNETH.VAN-OSS@WE-ENERGIES.COM

WISCONSIN INDEPENDANT NETWORK –
COMMUNICATION

MR. JOHN LOUIS
SUITE 219
800 WISCONSIN AVE, BUILDING D02
EAU CLAIRE, WI 54703
(715) 838-4012
JLOUIS@WINS.NET

NET LEC - COMMUNICATION

MR. DENNIS LAFAVE
1700 INDUSTRIAL DR
GREEN BAY, WI 54302
(920) 619-9774
DLAFAVE@MI-TECH.US

AT&T WISCONSIN –COMMUNICATION LINE

MR. JOSEPH KASSAB
221 W WASHINGTON ST
APPLETON, WI 54911-4742
(920) 735-3206
JK572K@ATT.COM

TIME WARNER CABLE – COMMUNICATION
LINE

MR. VINCE ALBIN
3545 PLANK RD
APPLETON, WI 54915
(920) 831-9249
VINCE.ALBIN@TWCABLE.COM

WE ENERGIES – GAS

MR. CODY BECKMAN
800 S. LYNNDALE DR
APPLETON, WI 54912
(920) 380-3422
CODY.BECKMAN@WE-ENERGIES.COM

WINDSTREAM NTI - COMMUNICATION

MR. JIM KOSTUCH
13935 BISHOPS DR
BROOKFIELD, WI 53005
(262) 792-7938
JAMES.KOSTUCH@WINDSTREAM.COM

CANADIAN NATIONAL (WISCONSIN CENTRAL LTD) CONTACTS

RAILROAD FLAGGING CONTACT

MS. MARY ELLEN CARMODY
AUDIT OFFICER
2800 LIVERNOIS ROAD, SUITE 330
TROY, MI 48083
OFFICE: (248) 740-6227
FAX: (248) 740-6036
MARYELLEN.CARMODY@CN.CA

MAIN RAILROAD CONTACT

MS. JACKIE MACEWICZ
MANAGER PUBLIC WORKS
1625 DEPOT STREET
STEVENS POINT, WI 54481
OFFICE: (715) 345-2503
FAX: (715) 345-2534
JACKIE.MACEWICZ@CN.CA

24 HOUR EMERGENCY RAILROAD SIGNAL

1-800-616-3432

CALL BEFORE YOU DIG

CANADIAN NATIONAL (WISCONSIN CENTRAL LTD) IS NOT PART
OF DIGGERS HOTLINE
CALL CHRISTINE GRZESIAK, (715) 345-2506, WHEN DIGGING
ON RAILROAD R/W

ABBREVIATIONS

AEW	APRON END WALL	PE	PRIVATE ENTRANCE
AGG	AGGREGATE	PI	POINT OF INTERSECTION
BAD	BASE AGGREGATE DENSE	PLE	PERMANENT LIMITED EASMENT
BM	BENCH MARK	PT	POINT OF TANGENT
C&G	CURB AND GUTTER	R	RADIUS OF CURVE
C/L	CENTER OR CONSTRUCTION LINE	R/L	REFERENCE LINE
CMCP	CULVERT PIPE CORRUGATED METAL	R/W	RIGHT OF WAY
CONC	CONCRETE	RC	REVERSE CROWN
CP	CULVERT PIPE	RCAEW	APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE
CPRC	CULVERT PIPE REINFORCED CONCRETE	REQD	REQUIRED
CSD	CONCRETE SURFACE DRAIN	RHF	RIGHT HAND FORWARD
CY	CUBIC-YARD	RO	RUN OFF LENGTH
D	DEGREE OF CURVE	RRSP	RAILROAD SPIKE
Δ	DELTA	RT	RIGHT
DISCH	DISCHARGE	SALV	SALVAGED
EAT	ENERGY ABSORBING TERMINAL	SAPBC	SALVAGED ASPHALTIC PAVEMENT BASE COARSE
FE	FIELD ENTRANCE	SB	SOUTHBOUND
HMA	HOT MIX ASPHALT	SDD	STANDARD DETAIL DRAWINGS
INV	INVERT	SE	SUPER ELEVATION
L	LENGTH OF CURVE	SF	SQUARE FOOT
LHF	LEFT HAND FORWARD	SSPRC	STORM SEWER PIPE REINFORCED CONCRETE
LT	LEFT	STA	STATION
MIN	MINIMUM	SY	SQUARE YARD
M/L	MATCHLINE	T	TANGENT LENGTH
NB	NORTHBOUND	TLE	TEMPORARY LIMITED EASEMENT
NC	NORMAL CROWN	VCL	VERTICAL CURVE LENGTH
PAVT	PAVEMENT	VPC	POINT OF VERTICAL CURVE
PC	POINT OF CURVE	VPI	POINT OF VERTICAL INTERSECTION
PCC	POINT OF COMPOUND CURVE	VPT	POINT OF VERTICAL TANGENT

DNR AREA LIAISON

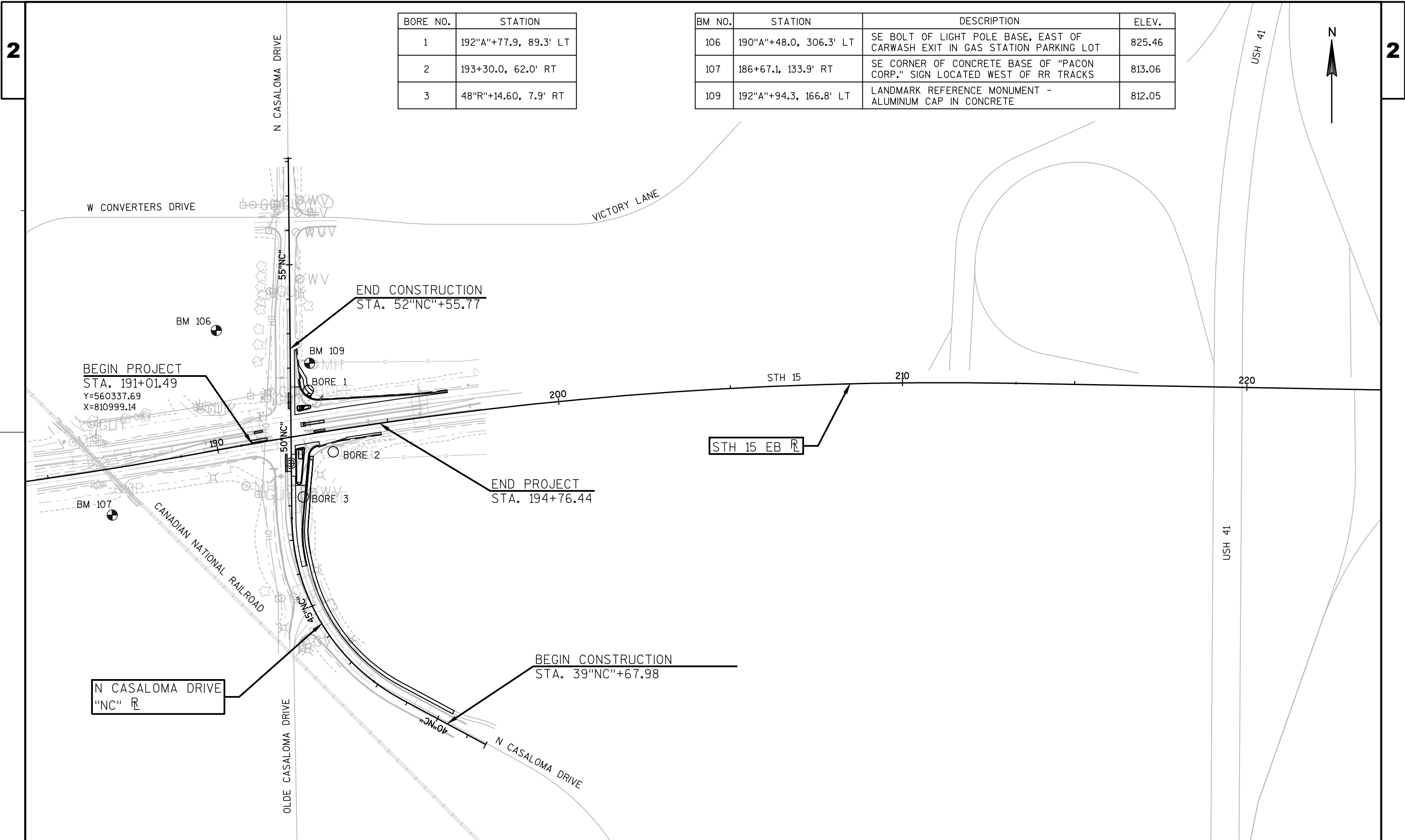
MR. MATT SCHAEVE
DEPARTMENT OF NATURAL RESOURCES
2984 SHAWANO AVENUE
GREEN BAY, WI 54313
(920) 662-5472
MATTHEW.SCHAEVE@WISCONSIN.GOV

US ARMY CORP OF ENGINEERS

MR. NICK DOMER
OLD FORT SQUARE
211 N. BROADWAY, STE 216
GREEN BAY, WI 54303
(920) 360-3784

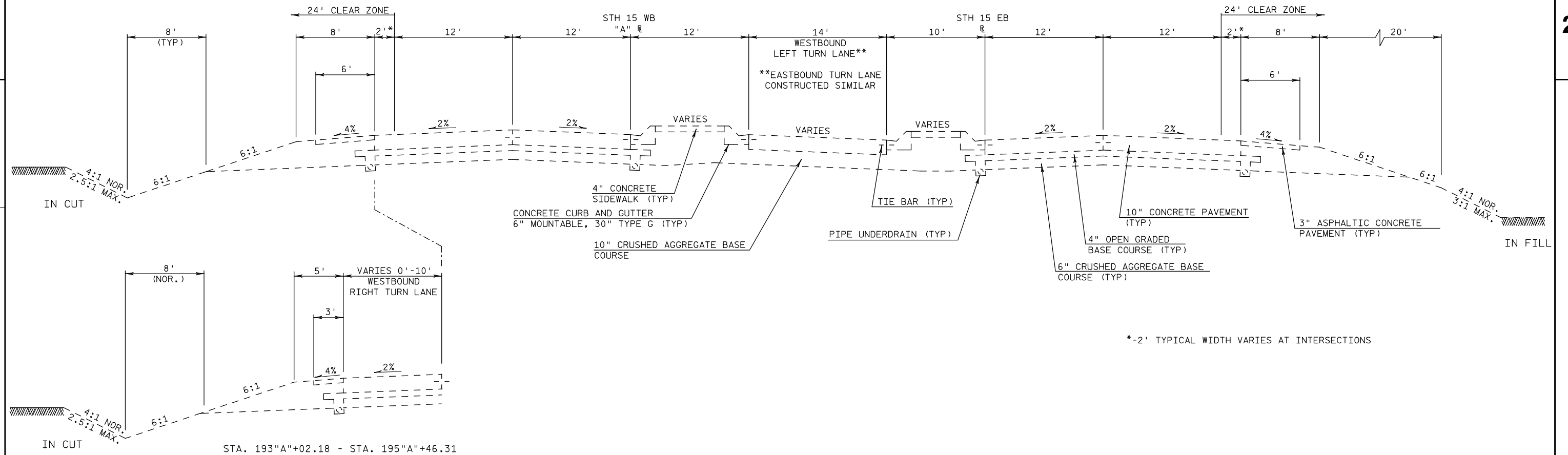
OUTAGAMIE COUNTY
HIGHWAY COMMISSIONER

MR. DEAN STEINGRABER
1313 HOLLAND ROAD
APPLETON, WI 54911-8947
(920) 832-5673
DEAN.STEINGRABER@OUTAGAMIE.ORG



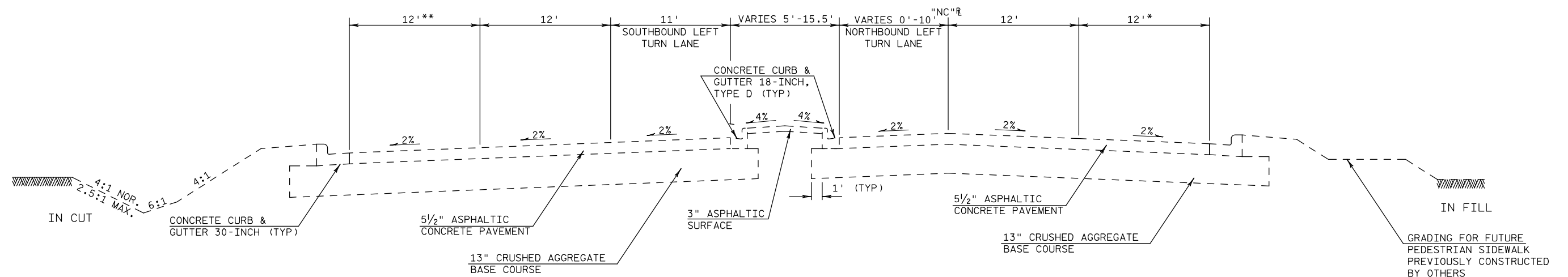
BORE NO.	STATION
1	192"A"+77.9, 89.3' LT
2	193+30.0, 62.0' RT
3	48"R"+14.60, 7.9' RT

BM NO.	STATION	DESCRIPTION	ELEV.
106	190"A"+48.0, 306.3' LT	SE BOLT OF LIGHT POLE BASE, EAST OF CARWASH EXIT IN GAS STATION PARKING LOT	825.46
107	186+67.1, 133.9' RT	SE CORNER OF CONCRETE BASE OF "PACON CORP." SIGN LOCATED WEST OF RR TRACKS	813.06
109	192"A"+94.3, 166.8' LT	LANDMARK REFERENCE MONUMENT - ALUMINUM CAP IN CONCRETE	812.05



EXISTING TYPICAL SECTION FOR STH 15

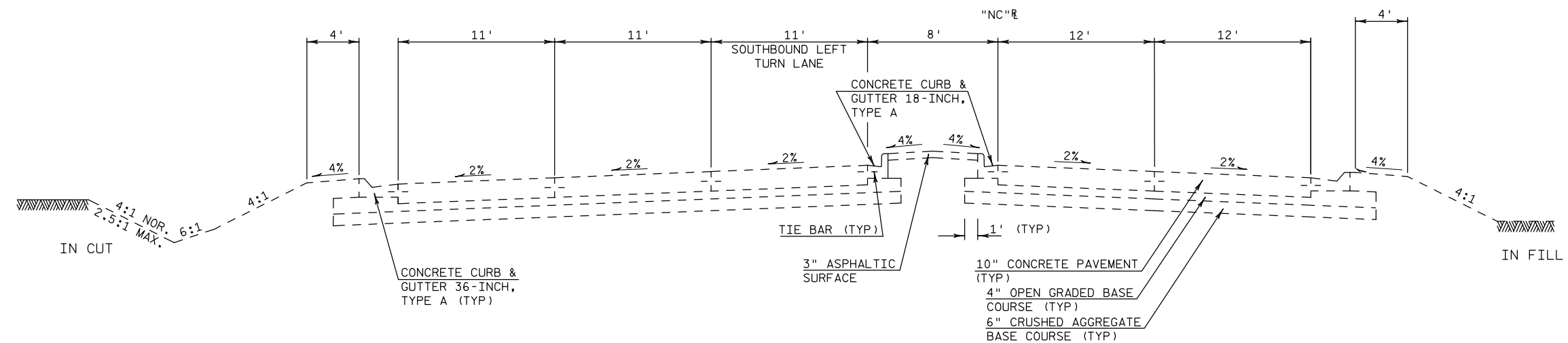
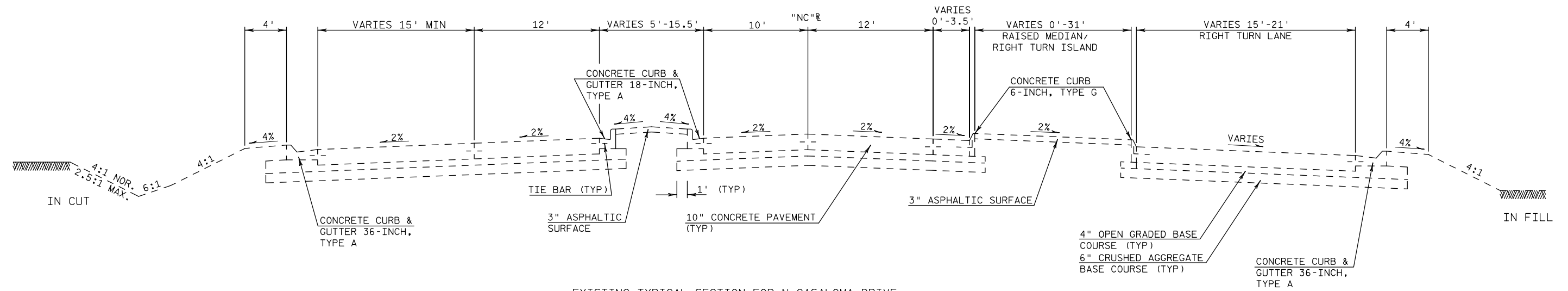
STA. 191+00.00 - STA. 197+00.00

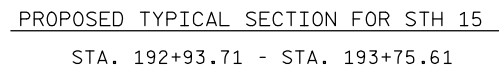
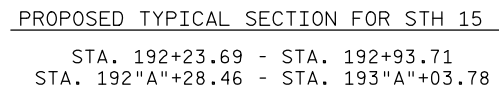


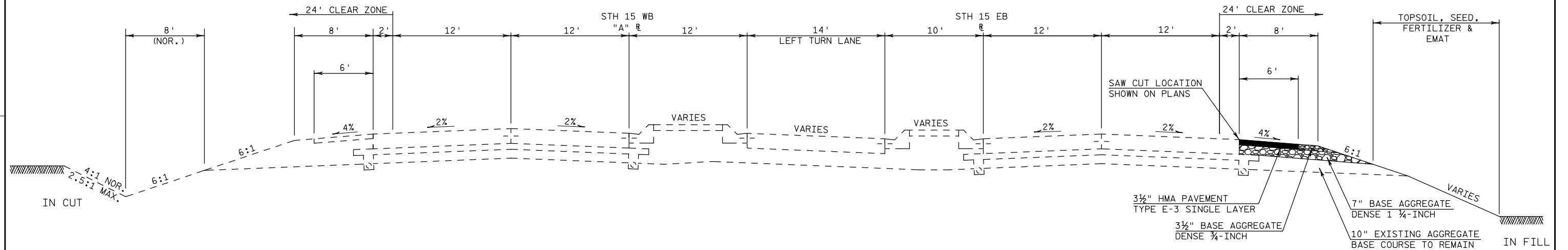
EXISTING TYPICAL SECTION FOR N CASALOMA DRIVE

STA. 39\"/>

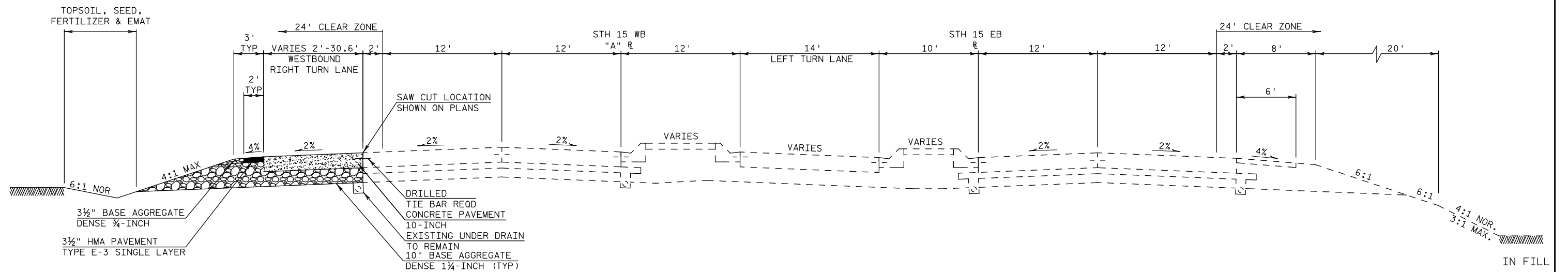
**TAPERS FROM 12' TO 15' FROM
STA. 48+57.71 LT - STA. 48+85.53 LT*TAPERS FROM 12' TO 15' FROM
STA. 47+61.00 RT - STA. 48+59.70 RTNOTE:
SOUTHBOUND CASALOMA DRIVE LANE WIDTHS
ARE 11' NORTH OF STH 15







PROPOSED TYPICAL SECTION FOR STH 15
STA. 193+75.61 - STA. 194+76.44



PROPOSED TYPICAL SECTION FOR STH 15
STA. 193"A"+03.78 - STA. 196"A'+75.16

2

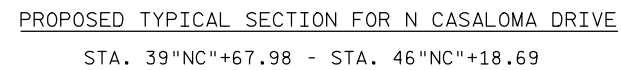


Diagram illustrating the proposed typical section for N Casaloma Drive, showing various pavement layers, dimensions, and stationing.

Dimensions and Stationing:

- Left side: 12'*, 12', VARIES, VARIES 0'-10' "NC"R, 12', VARIES 12'-14.2', VARIES 0'-14', 12'.
- Right side: VARIES 12'-16.1' "R"R, 12', VARIES 7.2'-2.5', 10', 1'.

Pavement Layers and Materials:

- EXISTING 13" CRUSHED AGGREGATE BASE COURSE TO REMAIN
- 5 1/2" HMA PAVEMENT TYPE E-3
- 2 1/2" UPPER LAYER
- 3" LOWER LAYER
- 13" BASE AGGREGATE DENSE 1 1/4-INCH
- 3" ASPHALTIC SURFACE SINGLE LAYER
- CONCRETE CURB & GUTTER 30-INCH, TYPE D

Grades and Slopes:

- 2% (multiple locations)
- 4% (multiple locations)
- 1.5% (multiple locations)
- 4% (multiple locations)

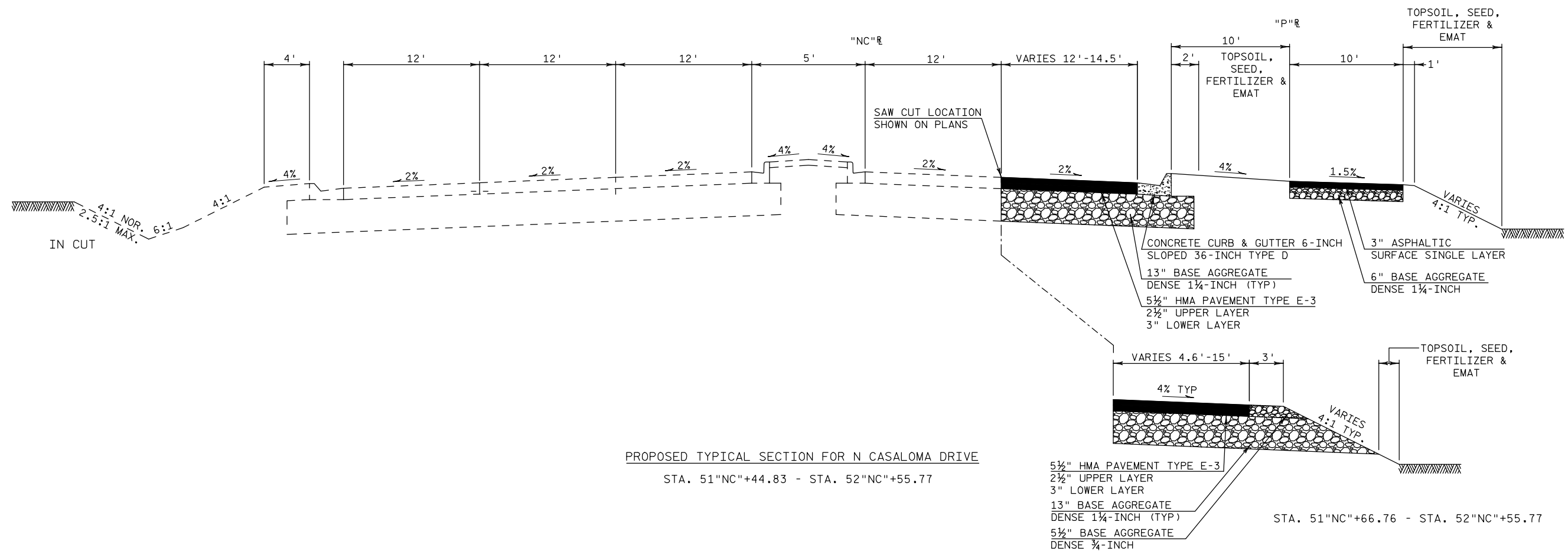
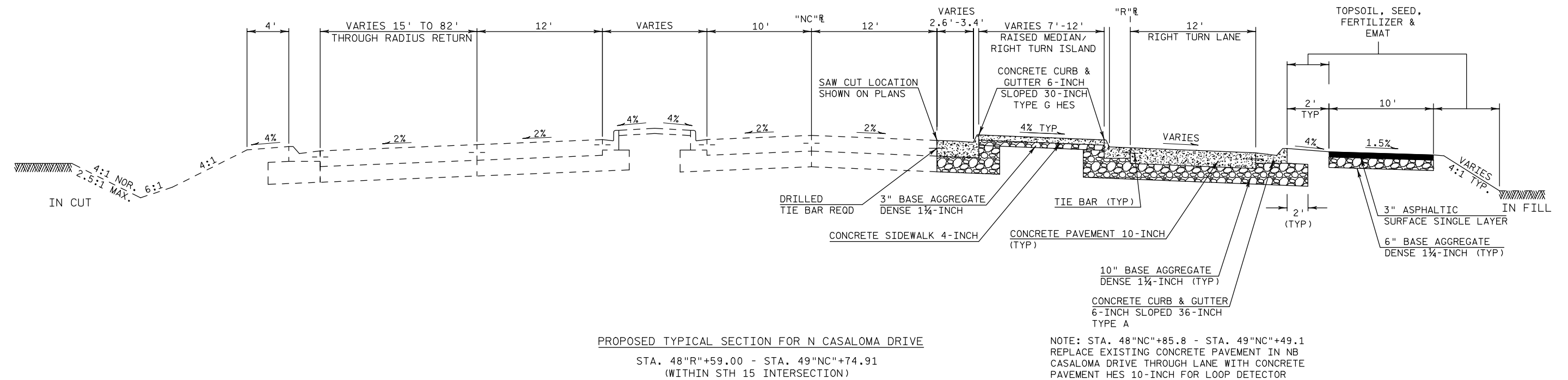
Other Features:

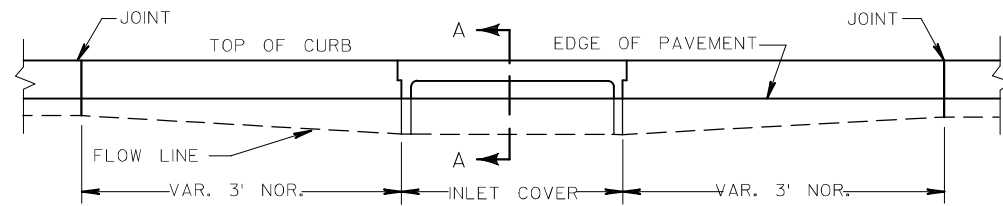
- IN CUT (Left side)
- IN FILL (Right side)
- TOPSOIL, SEED, FERTILIZER & EMAT (Right side)
- EXISTING LANE LINE SAW CUT REQD.
- EXISTING EDGE OF PAVEMENT LOCATION

Proposed Typical Section for N Casaloma Drive
 STA. 46"NC"+18.69 - STA. 48"NC"+59.00

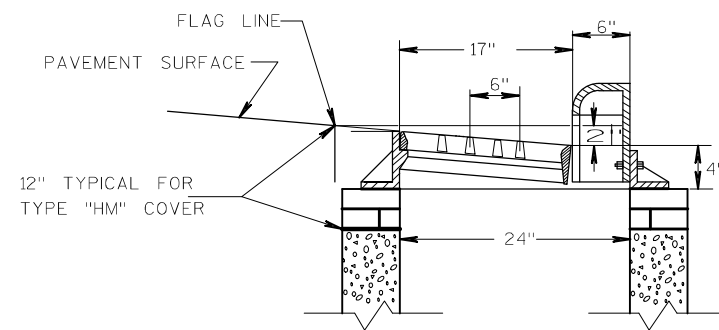
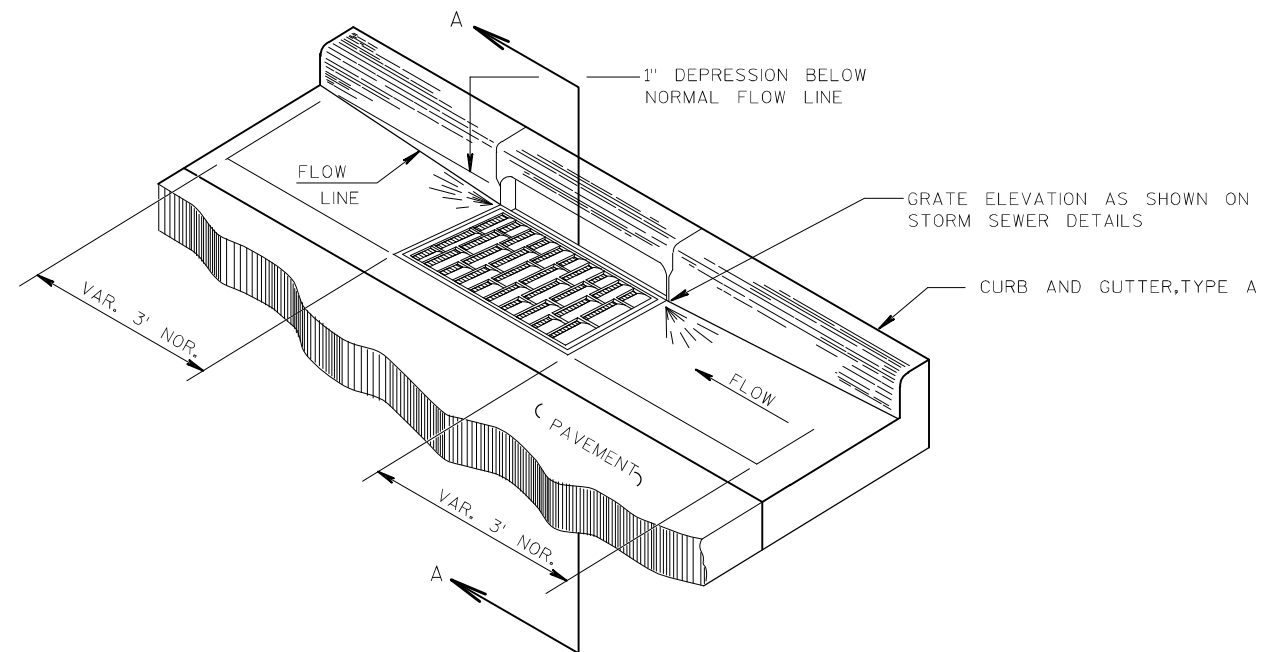
Stationing and Notes:

- STA. 46"NC"+18.69 TO STA. 47"NC"+50 +/- 6" BASE AGGREGATE GRADE PREVIOUSLY CONSTRUCTED BY OTHERS.
- STA. 47"NC"+50 TO STA. 48"NC"+59.11 6" BASE AGGREGATE DENSE 1 1/4-INCH



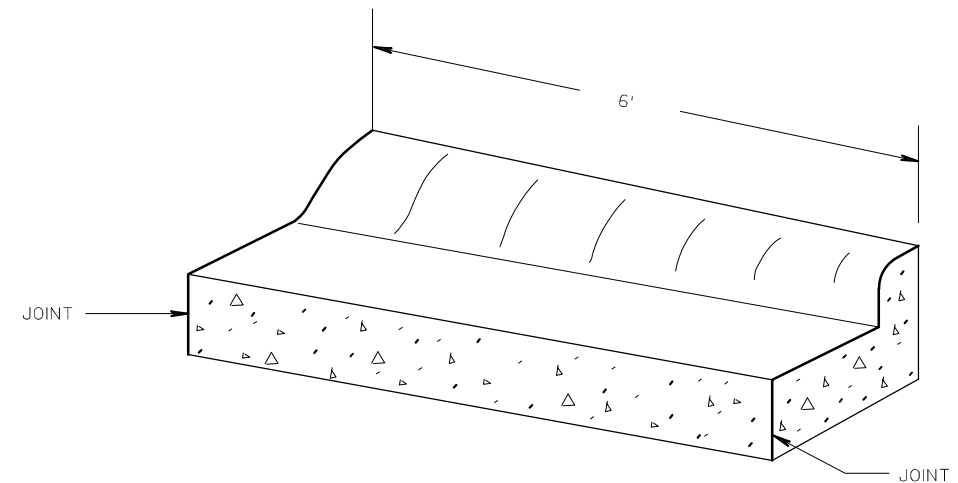


ELEVATION

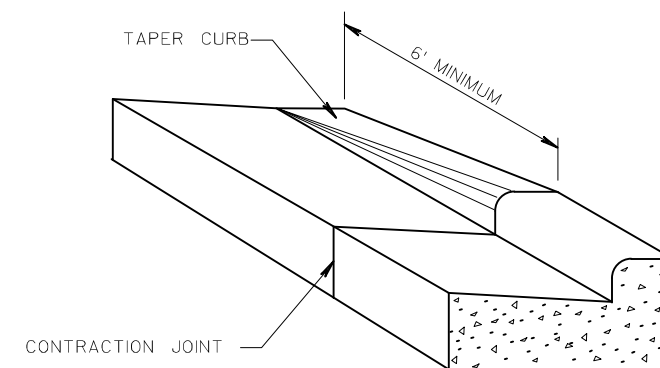


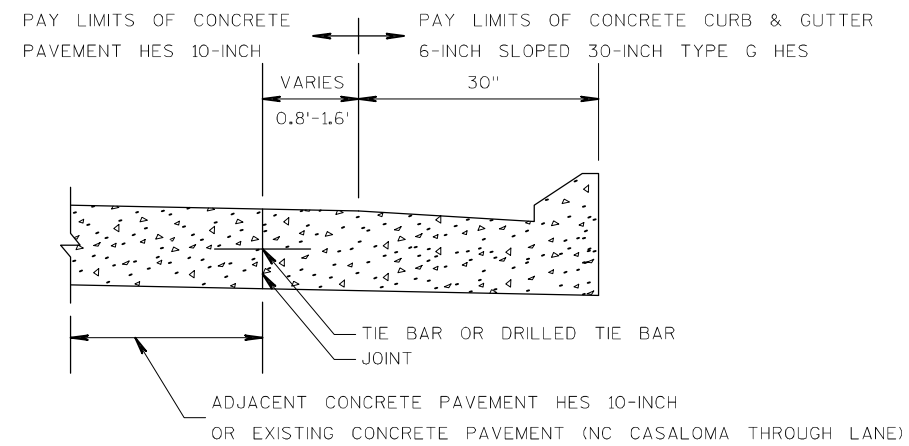
SECTION A-A

DETAIL OF CURB AND GUTTER AT INLETS
(INLET 2X3-H SHOWN)

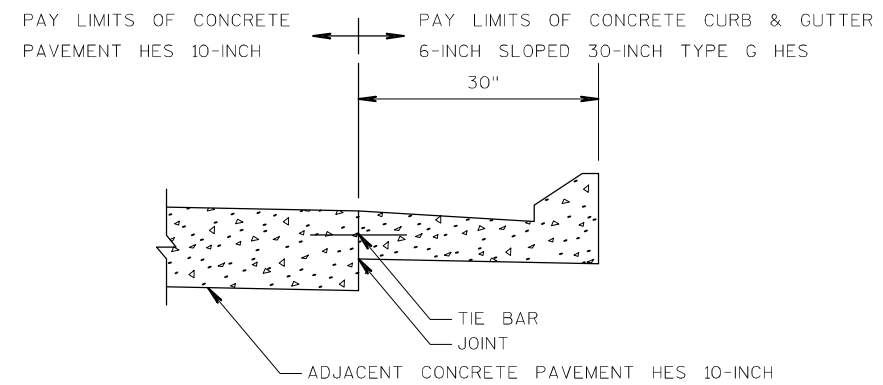
TRANSITION DETAIL

36" TYPE "A" CURB & GUTTER TO 30" TYPE "D" CURB & GUTTER
(TO BE MEASURED & PAID FOR AS 36" CONC. C&G)

DETAIL OF CURB & GUTTER TERMINI



STA. 48'NC'+69 - STA. 49'NC'+60, RT



TYPICAL LAYOUT

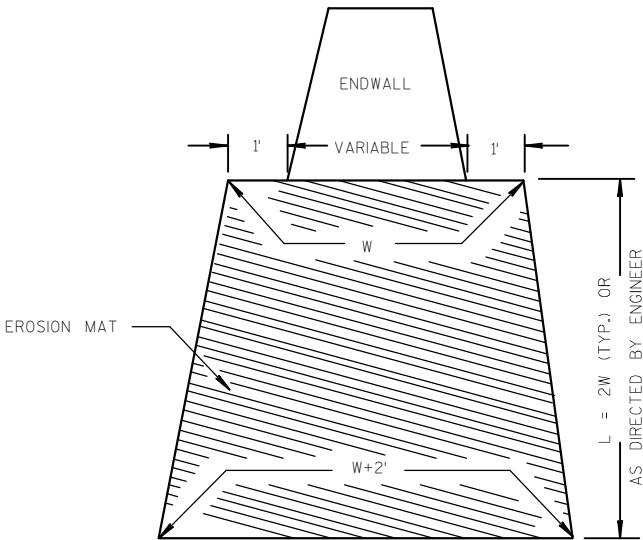
SEE SDD CONCRETE CURB, CONCRETE CURB & GUTTER AND TIES
FOR ADDITIONAL INFORMATION PERTAINING TO THE DIMENSIONS OF
CONCRETE CURB & GUTTER 6-INCH SLOPED 30-INCH TYPE G

CONCRETE CURB & GUTTER 6-INCH SLOPED 30-INCH TYPE G HES

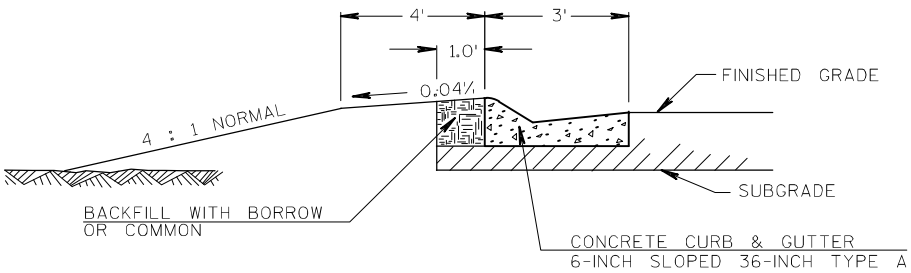
RUNOFF COEFFICIENT TABLE

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

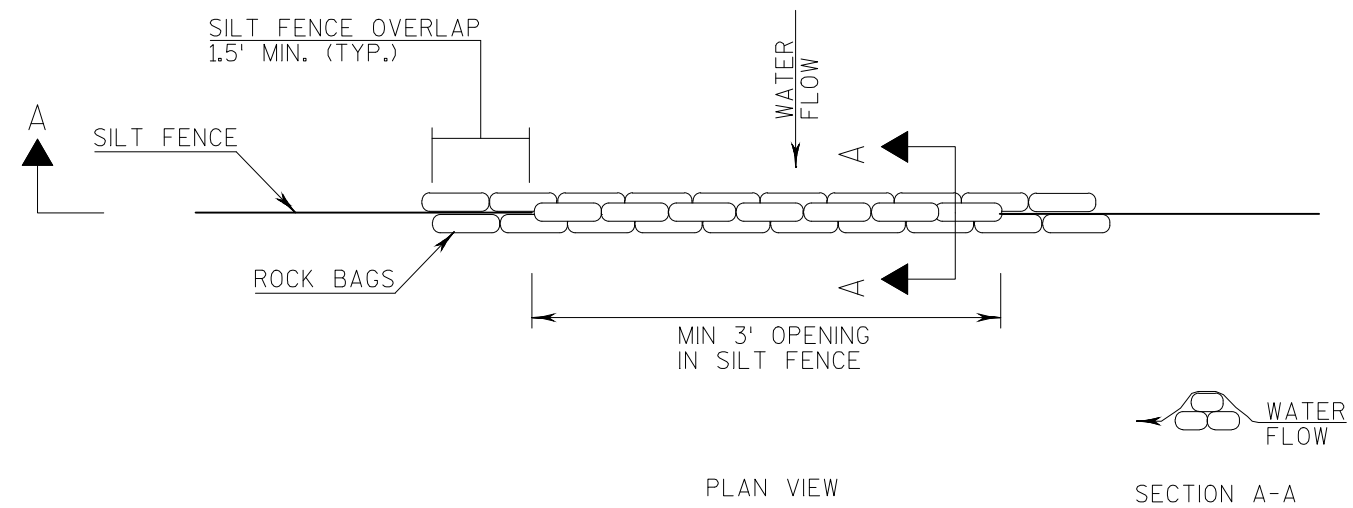
TOTAL PROJECT AREA = .43 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 0.45 ACRES



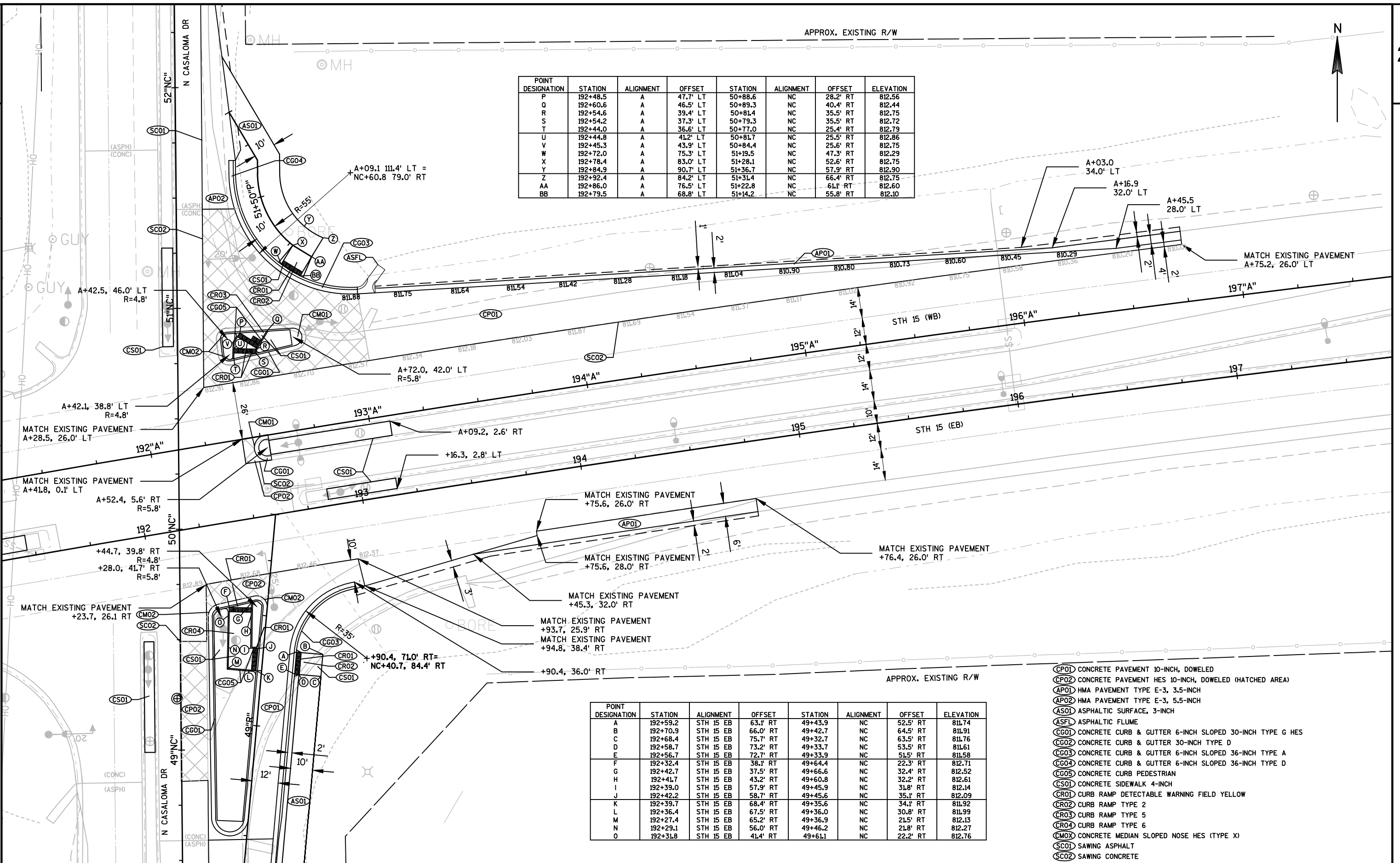
EROSION MAT TREATMENT AT CULVERTS

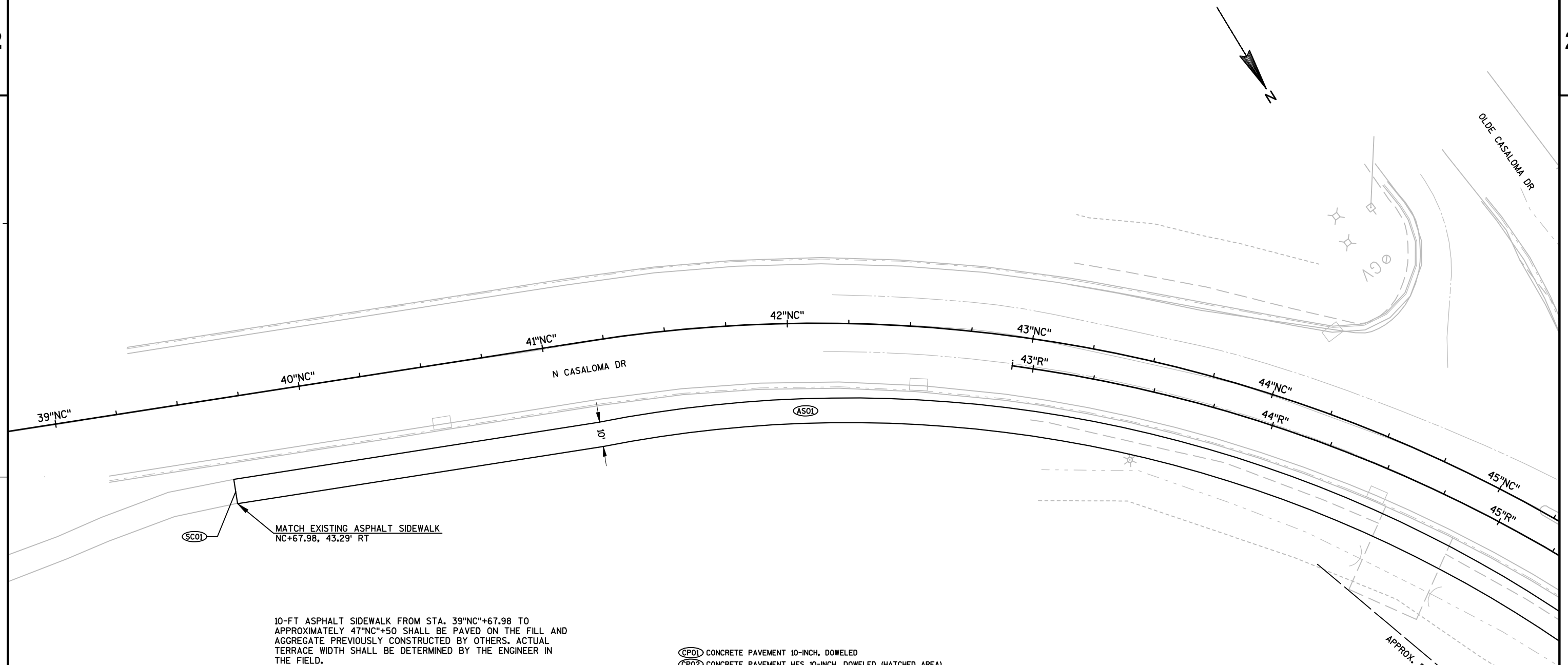


BERM DETAIL BEHIND CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A

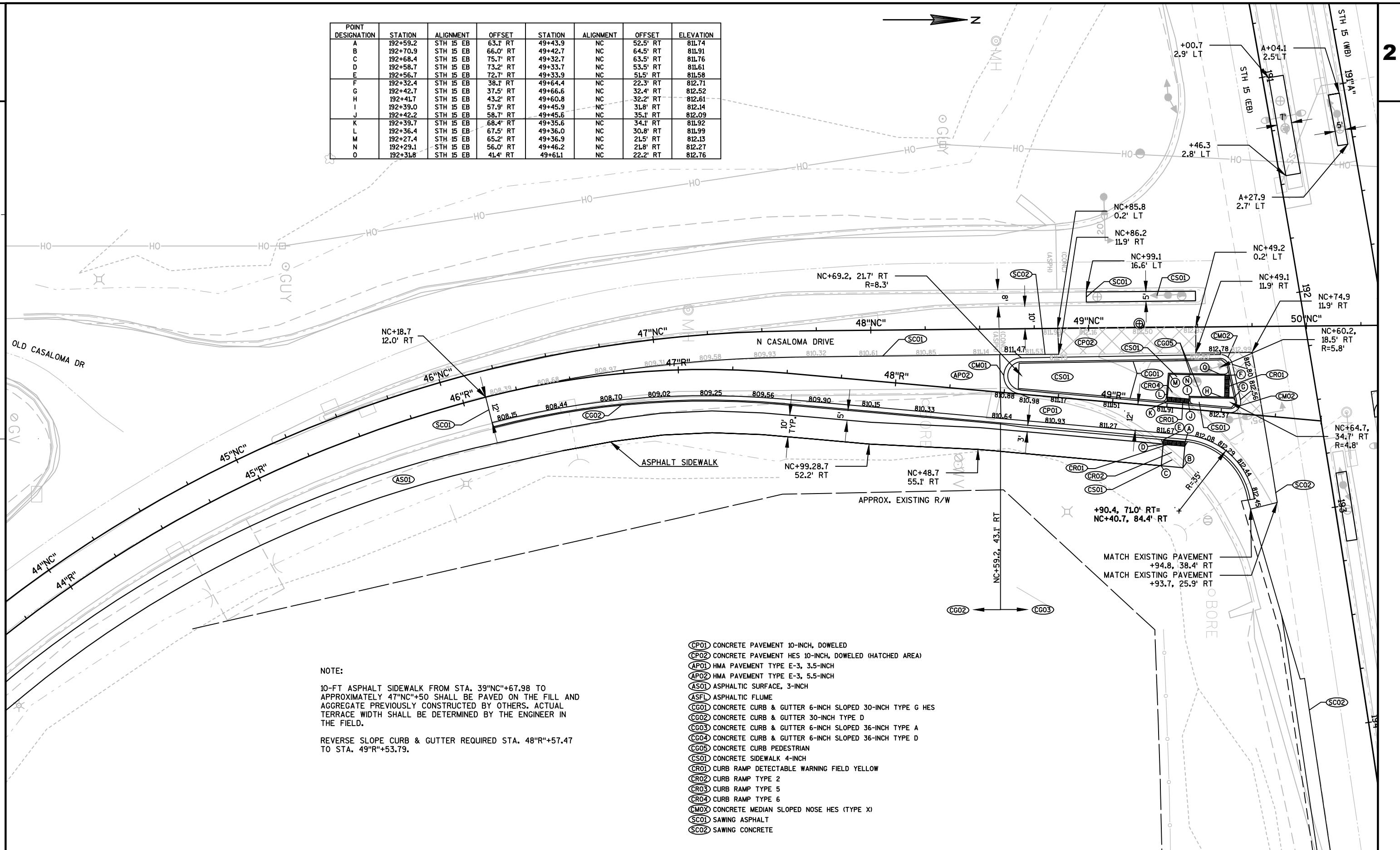


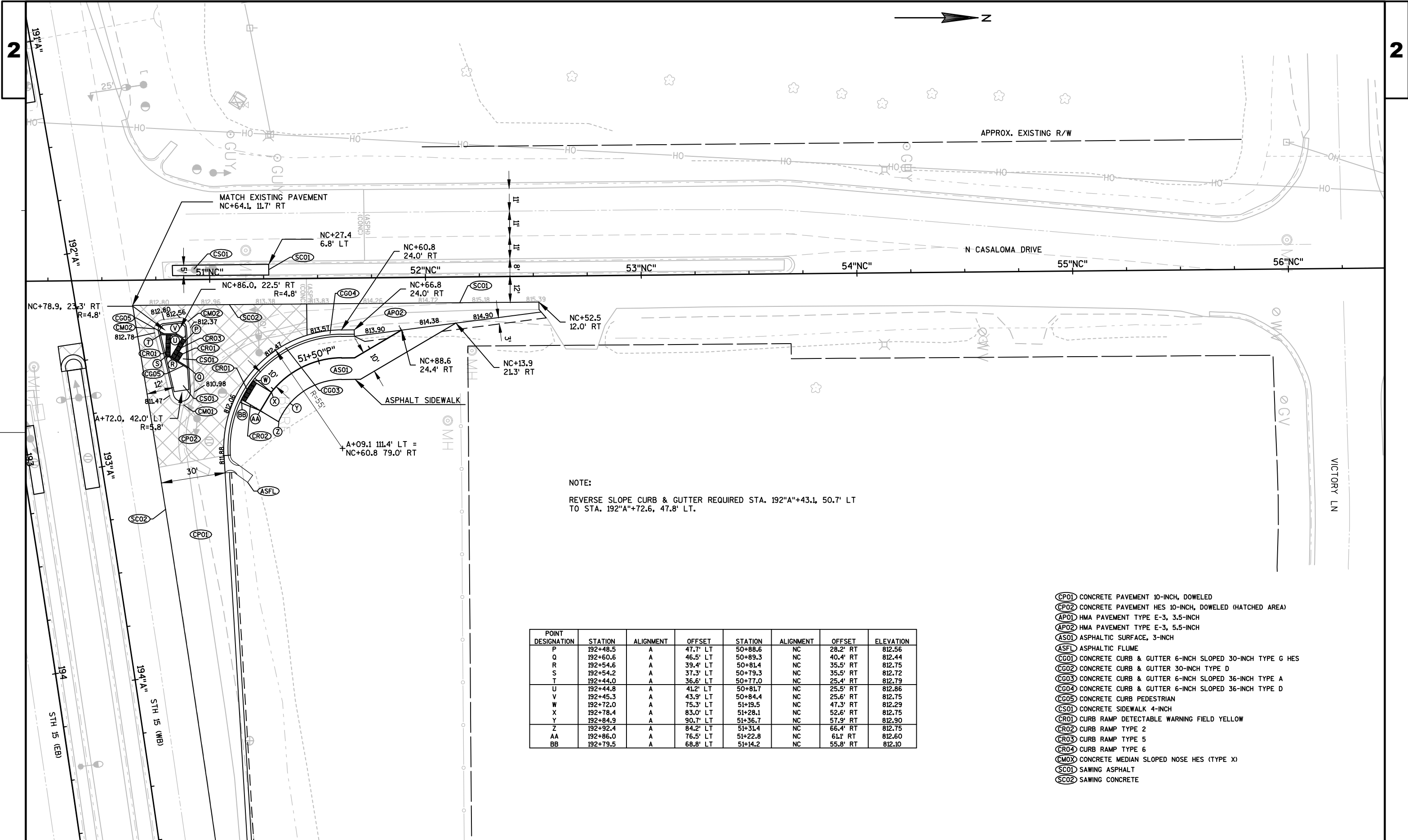
SILT FENCE RELIEF WITH ROCK BAGS





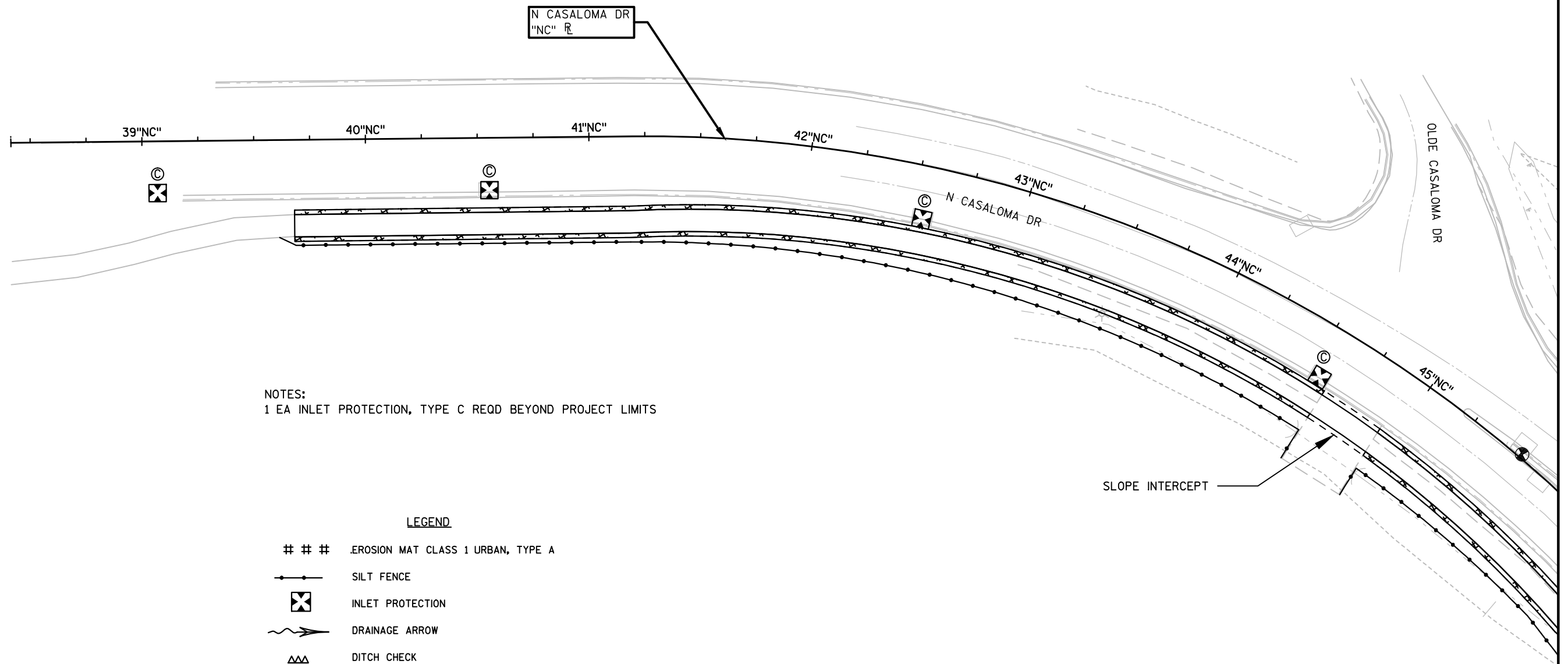
POINT DESIGNATION	STATION	ALIGNMENT	OFFSET	STATION	ALIGNMENT	OFFSET	ELEVATION
A	192+59.2	STH 15 EB	63.1' RT	49+43.9	NC	52.5' RT	811.74
B	192+70.9	STH 15 EB	66.0' RT	49+42.7	NC	64.5' RT	811.91
C	192+68.4	STH 15 EB	75.7' RT	49+32.7	NC	63.5' RT	811.76
D	192+58.7	STH 15 EB	73.2' RT	49+33.7	NC	53.5' RT	811.61
E	192+56.7	STH 15 EB	72.7' RT	49+33.9	NC	51.5' RT	811.58
F	192+32.4	STH 15 EB	38.1' RT	49+64.4	NC	22.3' RT	812.71
G	192+42.7	STH 15 EB	37.5' RT	49+66.6	NC	32.4' RT	812.52
H	192+41.7	STH 15 EB	43.2' RT	49+60.8	NC	32.2' RT	812.61
I	192+39.0	STH 15 EB	57.9' RT	49+45.9	NC	31.8' RT	812.14
J	192+42.2	STH 15 EB	58.7' RT	49+45.6	NC	35.1' RT	812.09
K	192+39.7	STH 15 EB	68.4' RT	49+35.6	NC	34.1' RT	811.92
L	192+36.4	STH 15 EB	67.5' RT	49+36.0	NC	30.8' RT	811.99
M	192+27.4	STH 15 EB	65.2' RT	49+36.9	NC	21.5' RT	812.13
N	192+29.1	STH 15 EB	56.0' RT	49+46.2	NC	21.8' RT	812.27
O	192+31.8	STH 15 EB	41.4' RT	49+61.1	NC	22.2' RT	812.76

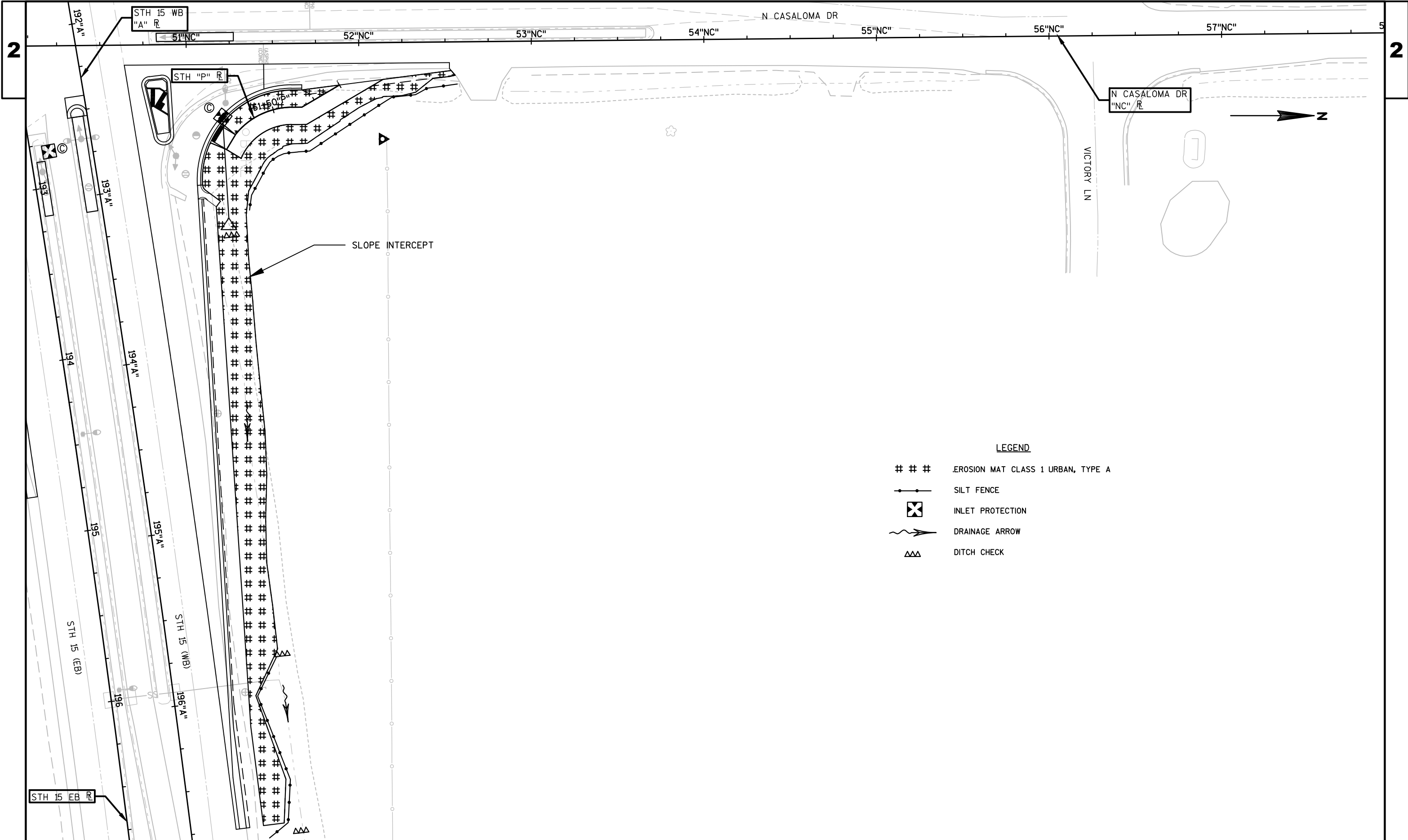




POINT DESIGNATION	STATION	ALIGNMENT	OFFSET	STATION	ALIGNMENT	OFFSET	ELEVATION
P	192+48.5	A	47.7' LT	50+88.6	NC	28.2' RT	812.56
Q	192+60.6	A	46.5' LT	50+89.3	NC	40.4' RT	812.44
R	192+54.6	A	39.4' LT	50+81.4	NC	35.5' RT	812.75
S	192+54.2	A	37.3' LT	50+79.3	NC	35.5' RT	812.72
T	192+44.0	A	36.6' LT	50+77.0	NC	25.4' RT	812.79
U	192+44.8	A	41.2' LT	50+81.7	NC	25.5' RT	812.86
V	192+45.3	A	43.9' LT	50+84.4	NC	25.6' RT	812.75
W	192+72.0	A	75.3' LT	51+19.5	NC	47.3' RT	812.29
X	192+78.4	A	83.0' LT	51+28.1	NC	52.6' RT	812.75
Y	192+84.9	A	90.7' LT	51+36.7	NC	57.9' RT	812.90
Z	192+92.4	A	84.2' LT	51+31.4	NC	66.4' RT	812.75
AA	192+86.0	A	76.5' LT	51+22.8	NC	61.1' RT	812.60
BB	192+79.5	A	68.8' LT	51+14.2	NC	55.8' RT	812.10

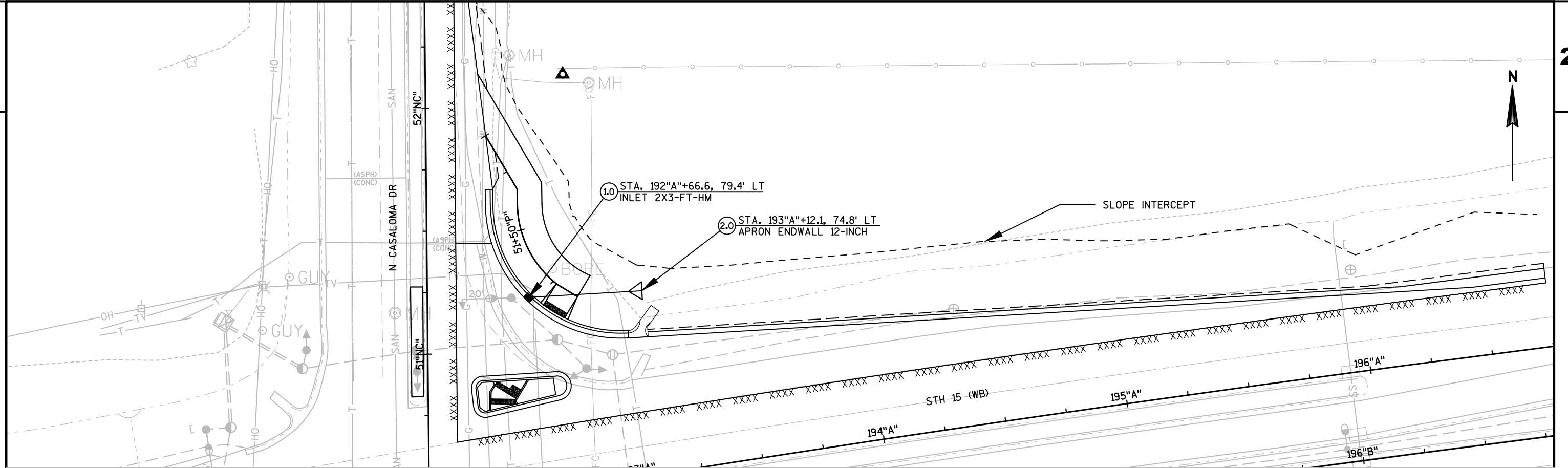
- CP01 CONCRETE PAVEMENT 10-INCH, DOWELED
- CP02 CONCRETE PAVEMENT HES 10-INCH, DOWELED (HATCHED AREA)
- AP01 HMA PAVEMENT TYPE E-3, 3.5-INCH
- AP02 HMA PAVEMENT TYPE E-3, 5.5-INCH
- AS01 ASPHALTIC SURFACE, 3-INCH
- ASFL ASPHALTIC FLUME
- CG01 CONCRETE CURB & GUTTER 6-INCH SLOPED 30-INCH TYPE G HES
- CG02 CONCRETE CURB & GUTTER 30-INCH TYPE D
- CG03 CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE A
- CG04 CONCRETE CURB & GUTTER 6-INCH SLOPED 36-INCH TYPE D
- CG05 CONCRETE CURB PEDESTRIAN
- CS01 CONCRETE SIDEWALK 4-INCH
- CR01 CURB RAMP DETECTABLE WARNING FIELD YELLOW
- CR02 CURB RAMP TYPE 2
- CR03 CURB RAMP TYPE 5
- CR04 CURB RAMP TYPE 6
- CM0X CONCRETE MEDIAN SLOPED NOSE HES (TYPE X)
- SC01 SAWING ASPHALT
- SC02 SAWING CONCRETE





2

2



PROJECT NO:1146-44-71

HWY: STH 15

COUNTY: OUTAGAMIE

STORM SEWER

SHEET

11

FILE NAME : X:\PROJECTS\OUTAGAMIE\1146-44-00 STH 15\DESIGN\C3D\SHEETSP\PLAN\STORM SEWER\022501_SS.DWG PLOT DATE : 1
LAYOUT NAME - ****

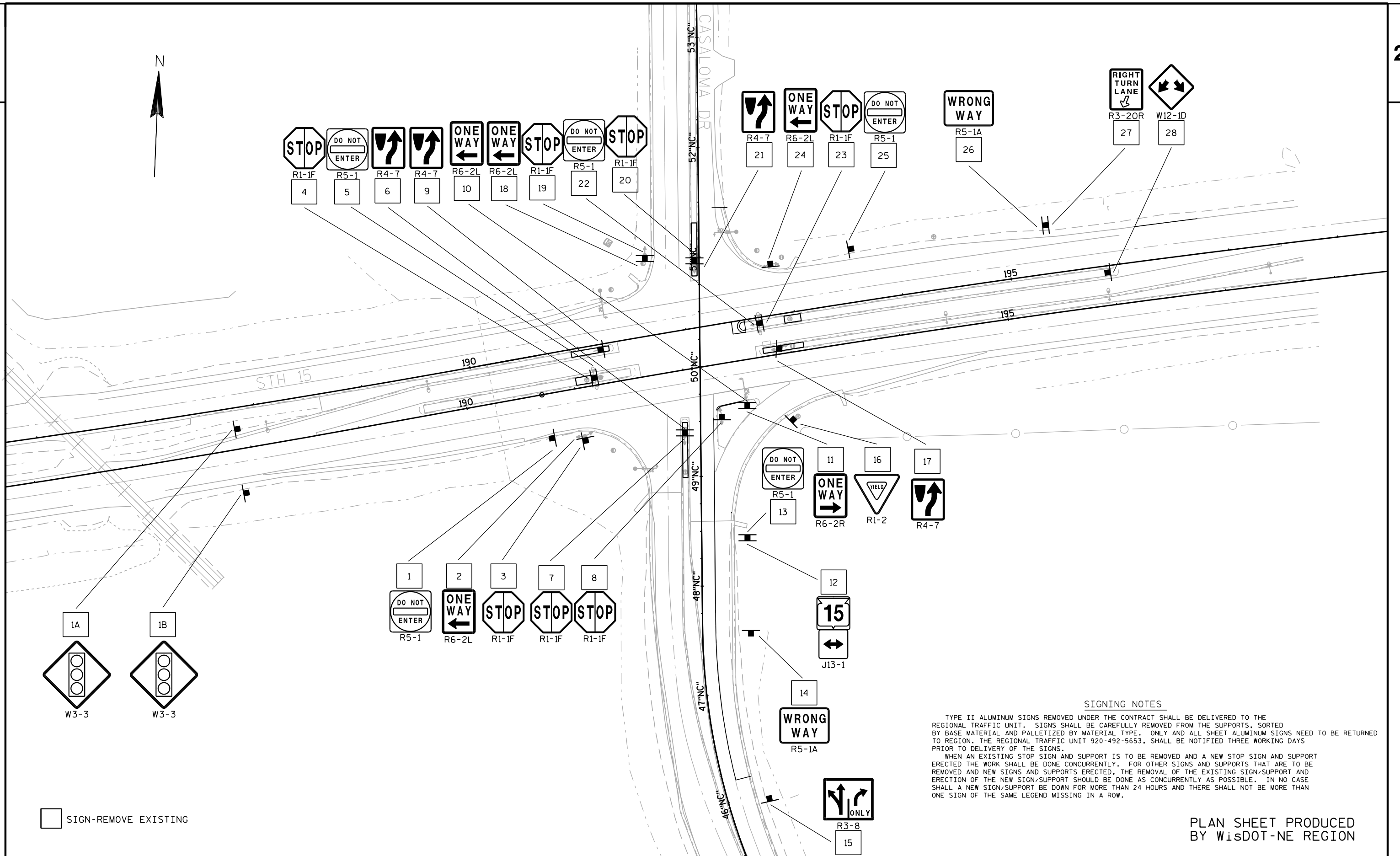
PLOT DATE : 1/25/2016 2:20 PM PLOT BY : ANDY BLOCK

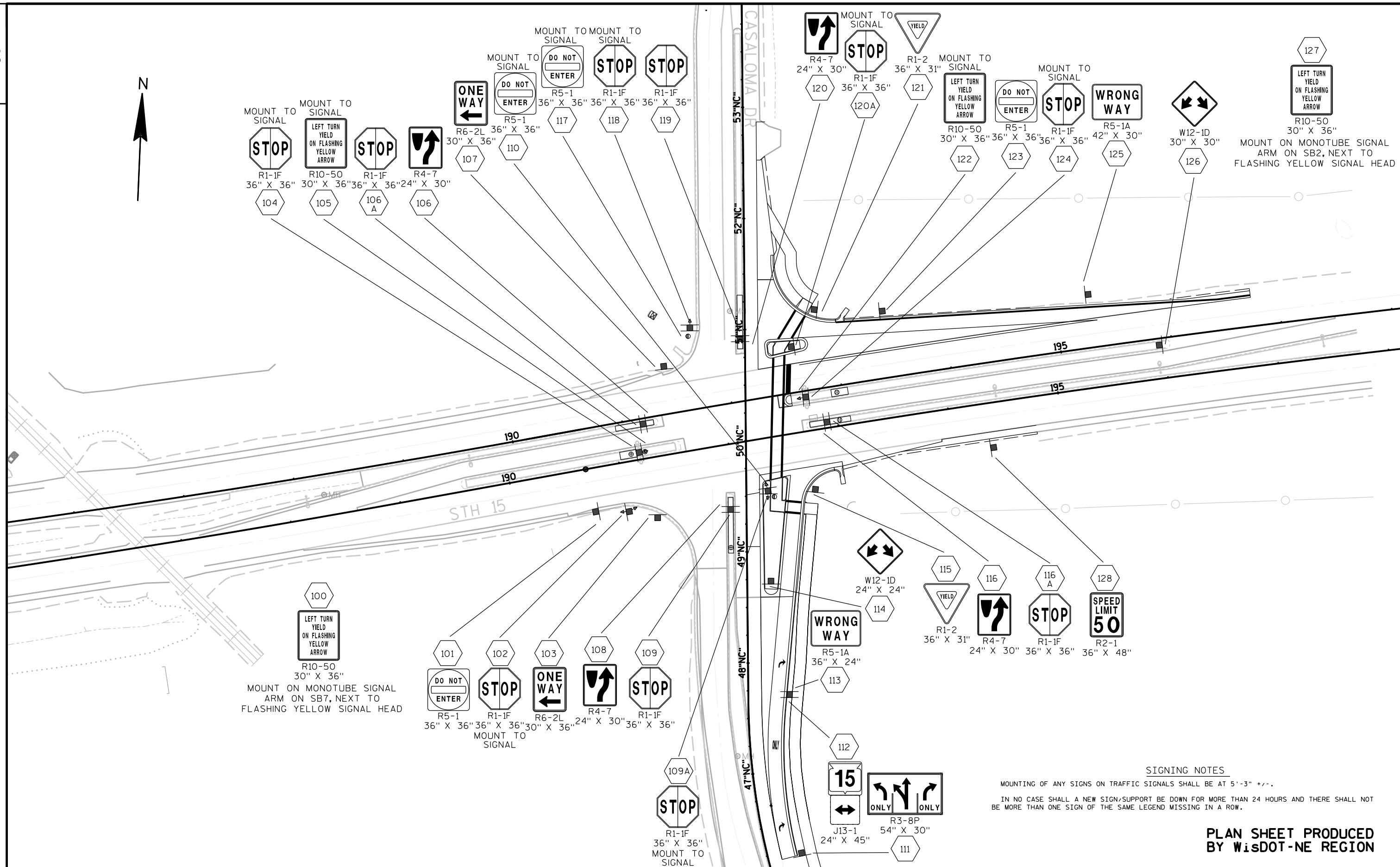
PLOT BY : ANDY BLOCK PLOT NAME :

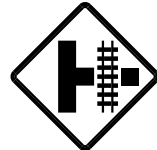
PLOT NAME : PLOT SCALE : 1" = 40' _XREF

PLOT SCALE : 1" = 40' _XREF WISDOT/CADDs SHEET 41

WISDOT/CADDS SHEET 41





W10-3
36" X 36"

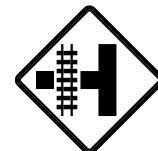
129

W10-1
36" X 36"

132

R8-8
24" X 30"

131

W10-3
36" X 36"

130

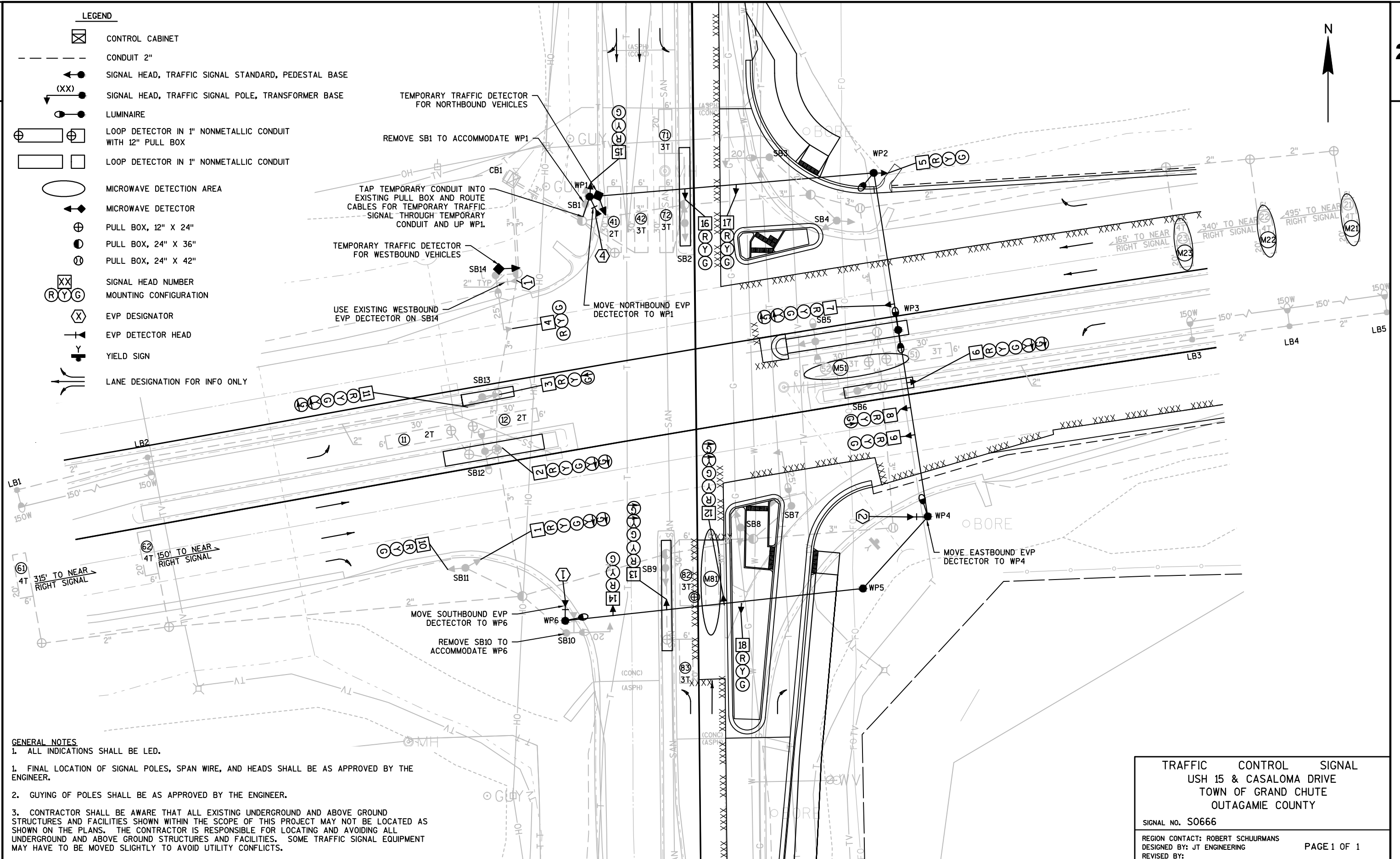
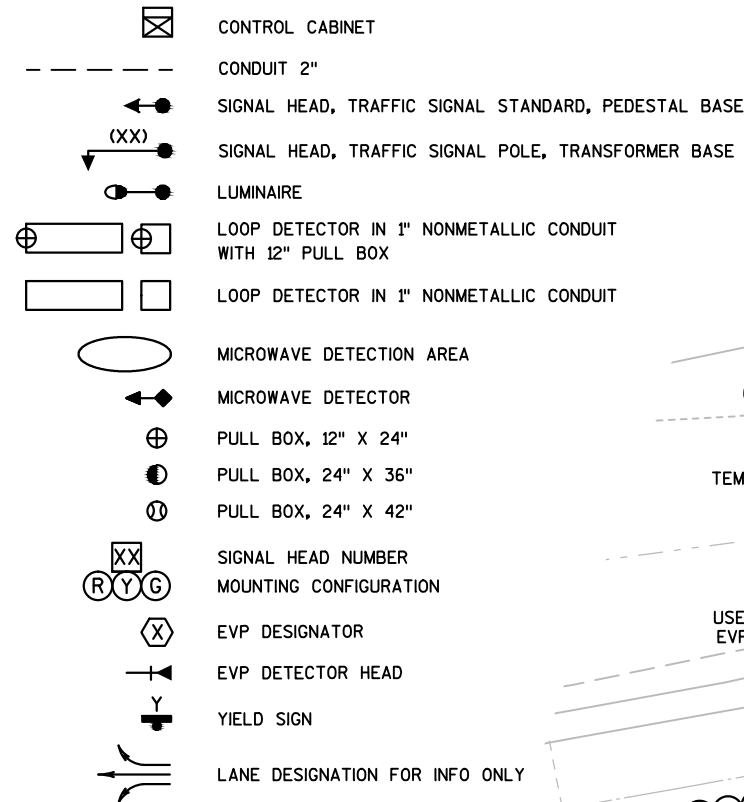
SIGNING NOTES

MOUNTING OF ANY SIGNS ON TRAFFIC SIGNALS SHALL BE AT 5'-3" +/-.

IN NO CASE SHALL A NEW SIGN/SUPPORT BE DOWN FOR MORE THAN 24 HOURS AND THERE SHALL NOT BE MORE THAN ONE SIGN OF THE SAME LEGEND MISSING IN A ROW.

PLAN SHEET PRODUCED
BY WISDOT-NE REGION

LEGEND



GENERAL NOTES

1. ALL INDICATIONS SHALL BE LED.

1. FINAL LOCATION OF SIGNAL POLES, SPAN WIRE, AND HEADS SHALL BE AS APPROVED BY THE ENGINEER.

2. GUYING OF POLES SHALL BE AS APPROVED BY THE ENGINEER.

3. CONTRACTOR SHALL BE AWARE THAT ALL EXISTING UNDERGROUND AND ABOVE GROUND STRUCTURES AND FACILITIES SHOWN WITHIN THE SCOPE OF THIS PROJECT MAY NOT BE LOCATED AS SHOWN ON THE PLANS. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING AND AVOIDING ALL UNDERGROUND AND ABOVE GROUND STRUCTURES AND FACILITIES. SOME TRAFFIC SIGNAL EQUIPMENT MAY HAVE TO BE MOVED SLIGHTLY TO AVOID UTILITY CONFLICTS.

TRAFFIC CONTROL SIGNAL
USH 15 & CASALOMA DRIVE
TOWN OF GRAND CHUTE
OUTAGAMIE COUNTY

SIGNAL NO. S0666

REGION CONTACT: ROBERT SCHUURMANS

DESIGNED BY: JT ENGINEERING

REVISED BY:

PAGE 1 OF 1

PROJECT NO: 1146-44-71

HWY: STH 15

COUNTY: OUTAGAMIE

TEMPORARY SIGNAL PLAN

SHEET

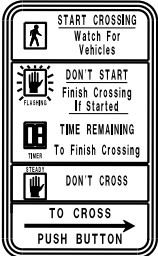
E

LEGEND

- PULL BOX 12" X 24" ⊕
- PULL BOX 24" X 42" ⊖
- SIGNAL STANDARD, PEDESTAL BASE
- PEDESTRIAN SIGNAL W/PUSH BUTTON
- SIGNAL POLE, MONOTUBE ARM
- LUMINAIRE
- CONTROL CABINET BASE
- 3" CONDUIT (2" from PB to T1 concrete base)
- SIGNAL HEAD NUMBER MOUNTING CONFIGURATION
- LOOP DETECTOR

CONFIGURATION WITH HEAD NUMBERS			
3-V	3, 4, 5 8, 9, 10 13, 14, 15 18, 19, 20	4-VLFY 1, 2 6, 7 11, 12 16, 17	1-P 21, 22
			EVP DETECTOR 1 2 3 4

MONOTUBE STRUCTURE NUMBERS	
SB2	S-44-0139
SB5	S-44-0140
SB7	S-44-0141
SB10	S-44-0142



Install on SB3 & SB6

STH 15 (Concrete)
50 MPH Posted Speed Limit

STH 15 (Concrete)
50 MPH Posted Speed Limit

NOTE

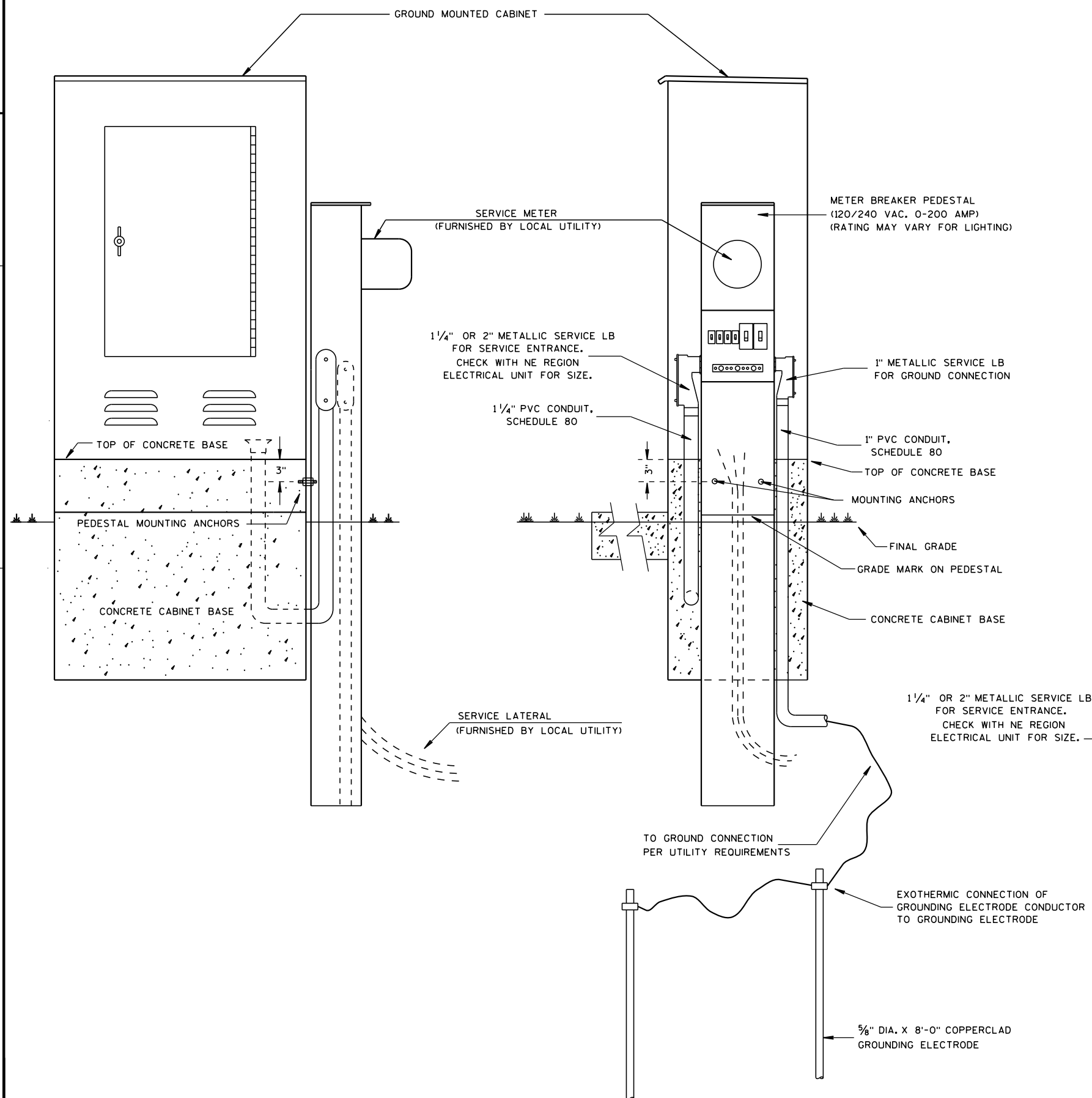
WISCONSIN DOT NE REGION ELECTRICAL UNIT SHALL APPROVE FINAL LOCATIONS FOR ALL LOOP DETECTORS AND CONCRETE BASES IN THE FIELD PRIOR TO CONSTRUCTION; MAKE WIRING TERMINATIONS IN THE SIGNAL CABINET. CONTACT THEM 3 DAYS IN ADVANCE AT (920) 492-5710.

GENERAL NOTES

THE LOCATION OF THE EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION.

REVISION			
Rev. No.	NEW TS2 CABINET, ADD PHASE 3, PED PHASE 8, FYA, MONOTUBES & CHANGE TO ALL RED FLASH		
	APPROVAL RECOMMENDED		APPROVED
	REGION	CENTRAL OFFICE	
3	Date	By	Date By
	2-13-2015	RJS	10-12-2015 JLB
12-17-07 ADD EVP, ALL 4 APPROACHES			
12-1-06 ADD SLOTTED LEFTS ON HWY 15, ADD PHASE 7, ADD ADDITIONAL LIGHTING, & RECONFIGURE LOOPS			

TRAFFIC CONTROL SIGNAL	
STH 15 & CASALOMA DRIVE TOWN OF GRAND CHUTE OUTAGAMIE COUNTY	
SIGNAL NO. 666	CONTROLLER TYPE: EPAC TS2
WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVAL RECOMMENDED	
Date 5-22-98	G. F. WESOLOWSKI REGION TRAFFIC ENGINEER
APPROVED	
Date 5-27-98	W. C. GILDING STATE TRAFFIC ENGINEER
Region Contact: RJS	
Designed by: RJS	



GENERAL NOTES

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

THE EXACT LOCATION OF THE METER BREAKER PEDESTAL SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

THE TYPE OF CONCRETE CABINET BASE TO BE INSTALLED SHALL BE AS CALLED FOR IN THE PLANS.

TO FACILITATE FLUSH MOUNTING OF THE METER BREAKER PEDESTAL AGAINST THE SIDE OF THE CABINET BASE (IF FLUSH MOUNTING POSSIBLE, CONFER WITH THE LOCAL UTILITY TO DETERMINE WHICH SIDE OF THE CONCRETE BASE THE ELECTRICAL SERVICE LATERAL WILL APPROACH, THEN FORM THAT INDICATED SIDE FOR FULL SIDE DEPTH.

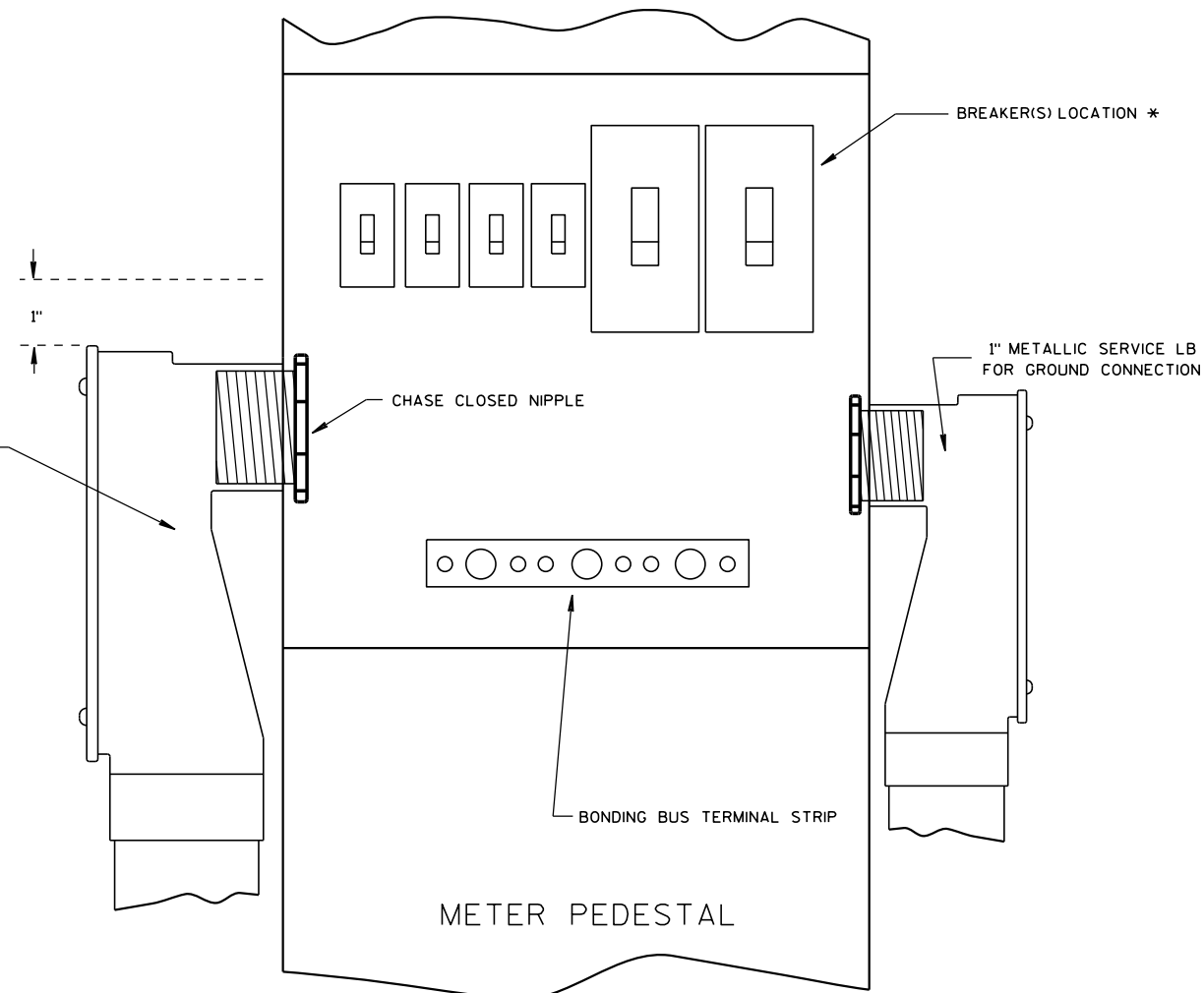
WHILE FLUSH MOUNTING IS THE MOST DESIRABLE MOUNTING CONFIGURATION UTILITY REQUIREMENTS MAY PRECLUDE THIS OPTION. CONTRACTOR MUST PROVIDE UTILITY APPROVED PEDESTAL AND INSTALL PER UTILITY AND MANUFACTURERS REQUIREMENTS.

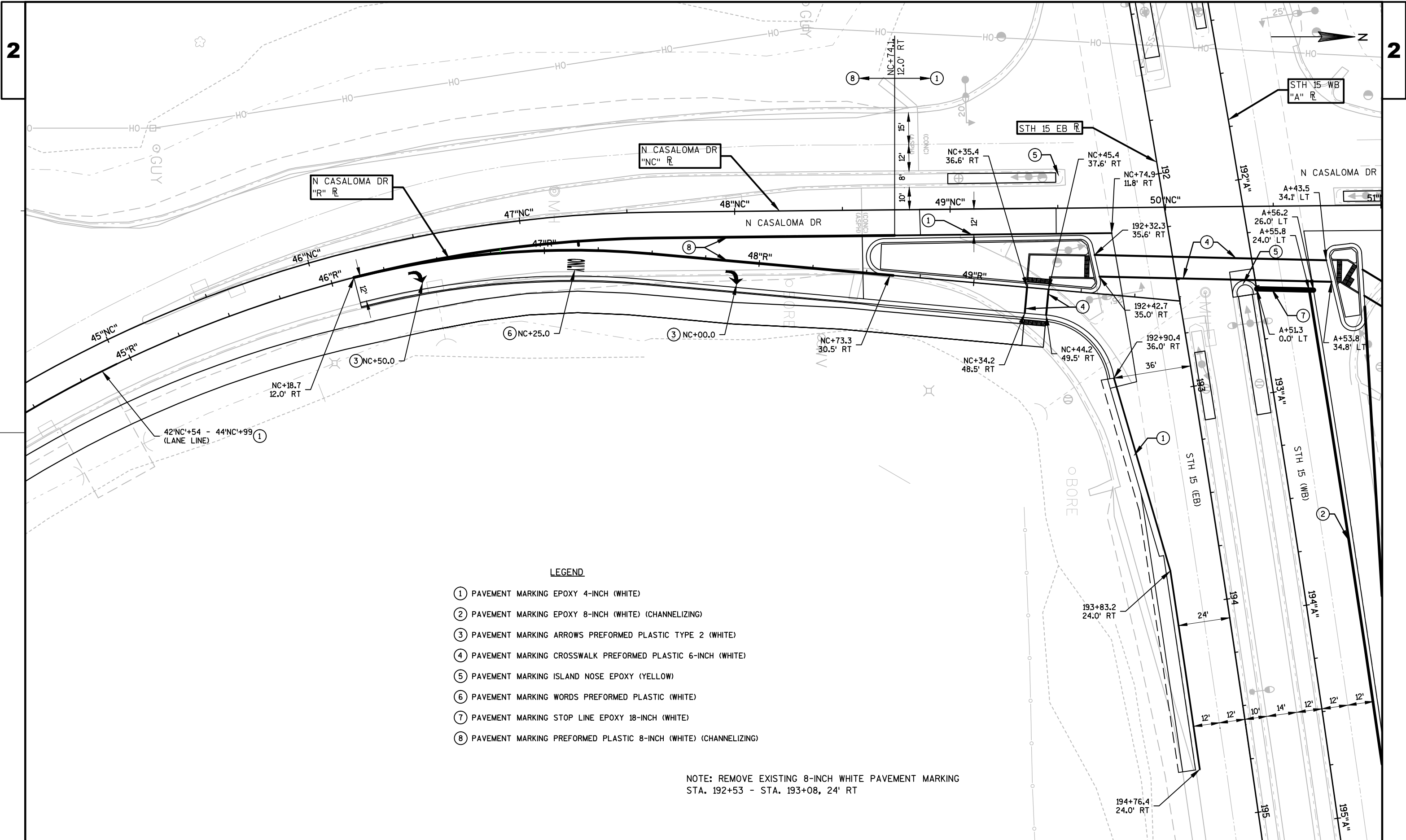
SERVICE CONDUCTOR ENTRANCES SHALL BE RIGID METALLIC CONDUIT OR SCHEDULE 80 PVC, NIPPLES AND/OR CONDULETS AS REQUIRED. CONDUIT LB SHALL BE OF METALLIC SERVICE ENTRANCE TYPE.

SERVICE CONDUCTOR ENTRANCES SHALL BE SIZED AND LOCATED AS REQUIRED BY THE LOCAL UTILITY AND IN ACCORDANCE WITH APPROPRIATE ARTICLES OF THE LATEST ACCEPTED NATIONAL ELECTRICAL CODE.

IF MORE THAN ONE GROUNDING ELECTRODE IS REQUIRED, THE DISTANCE APART SHALL BE 6 FEET OR PER NEC.

* SOME PEDESTAL LIGHTING PLANS SHOW MAIN LUGS ONLY.

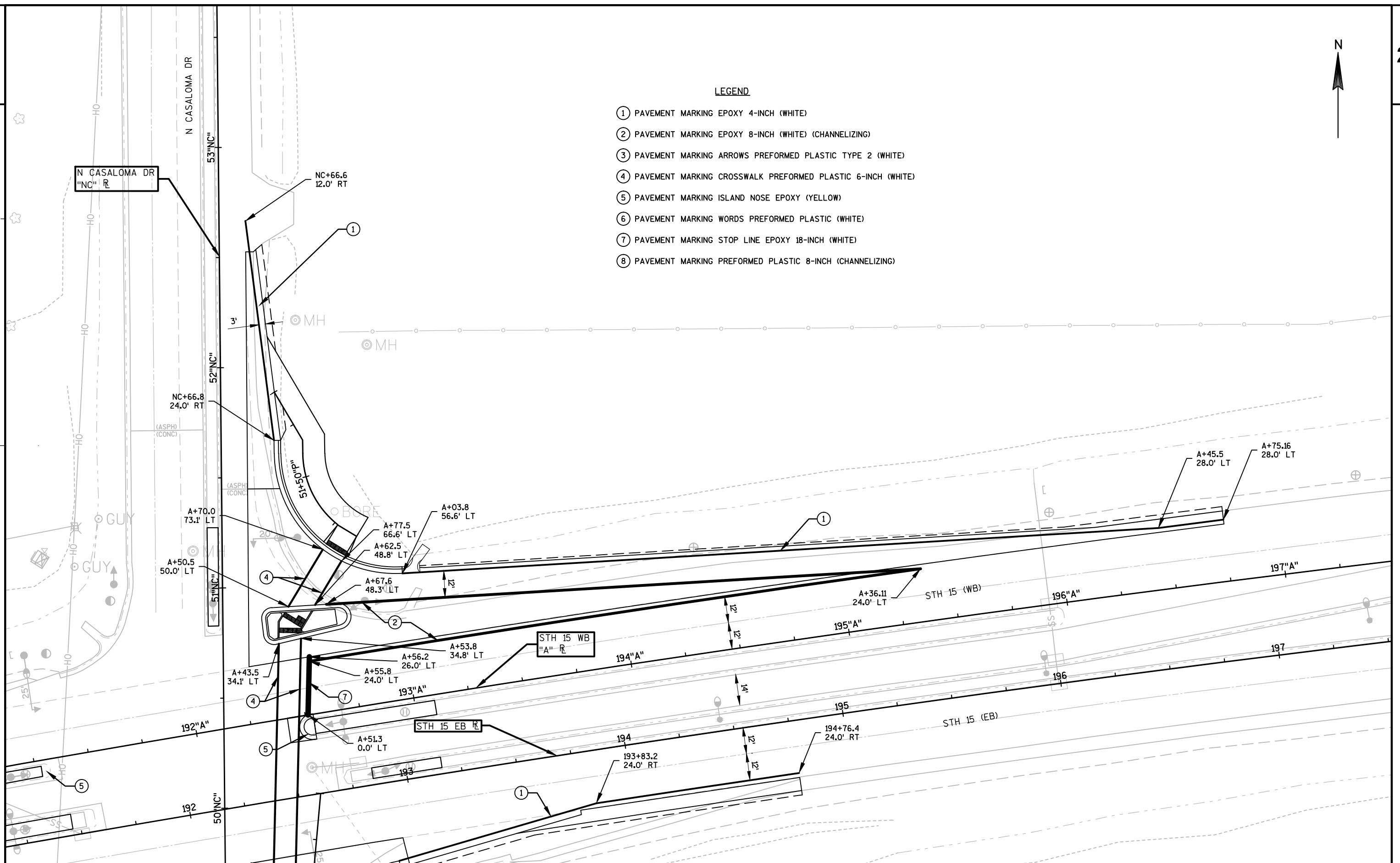


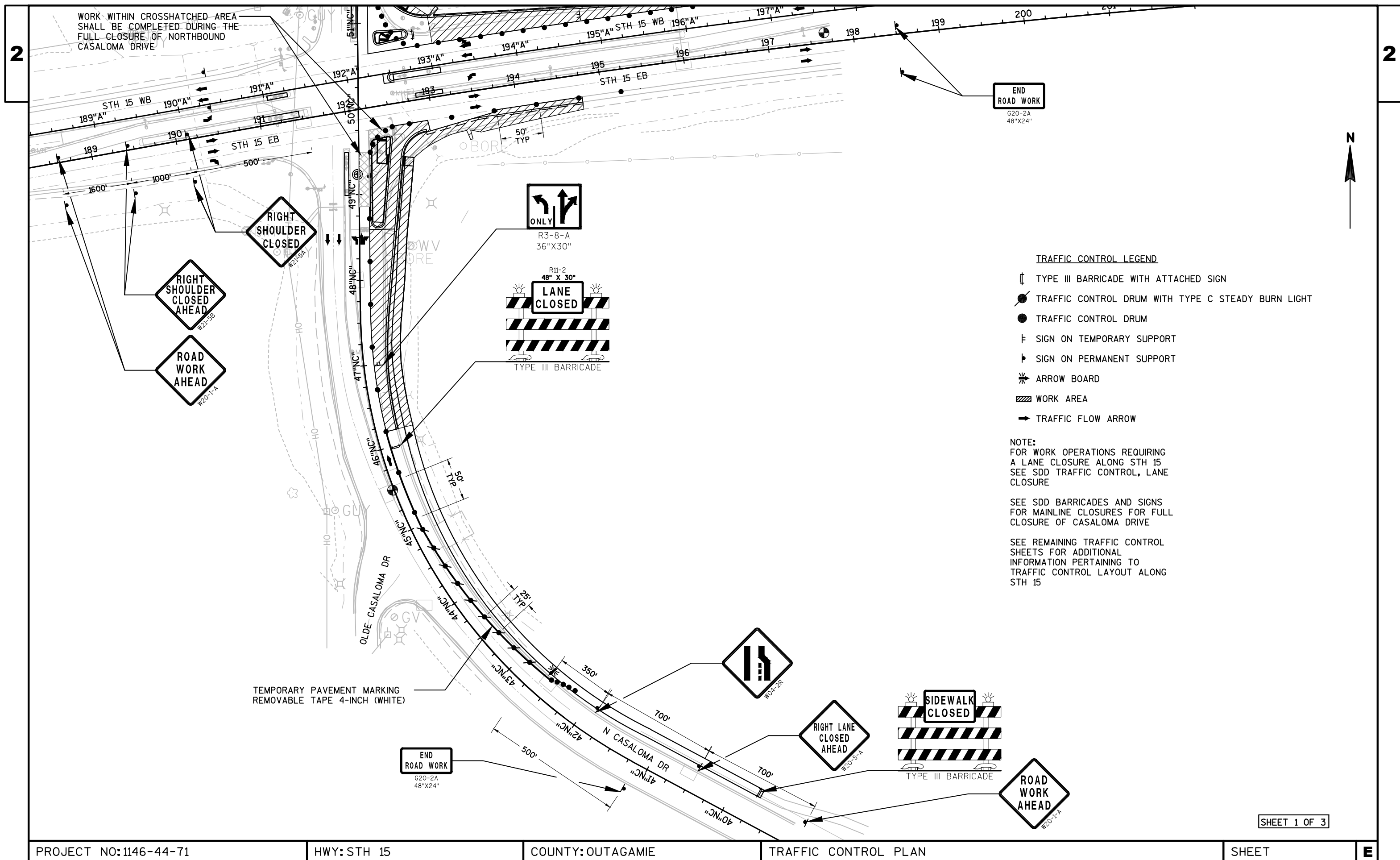


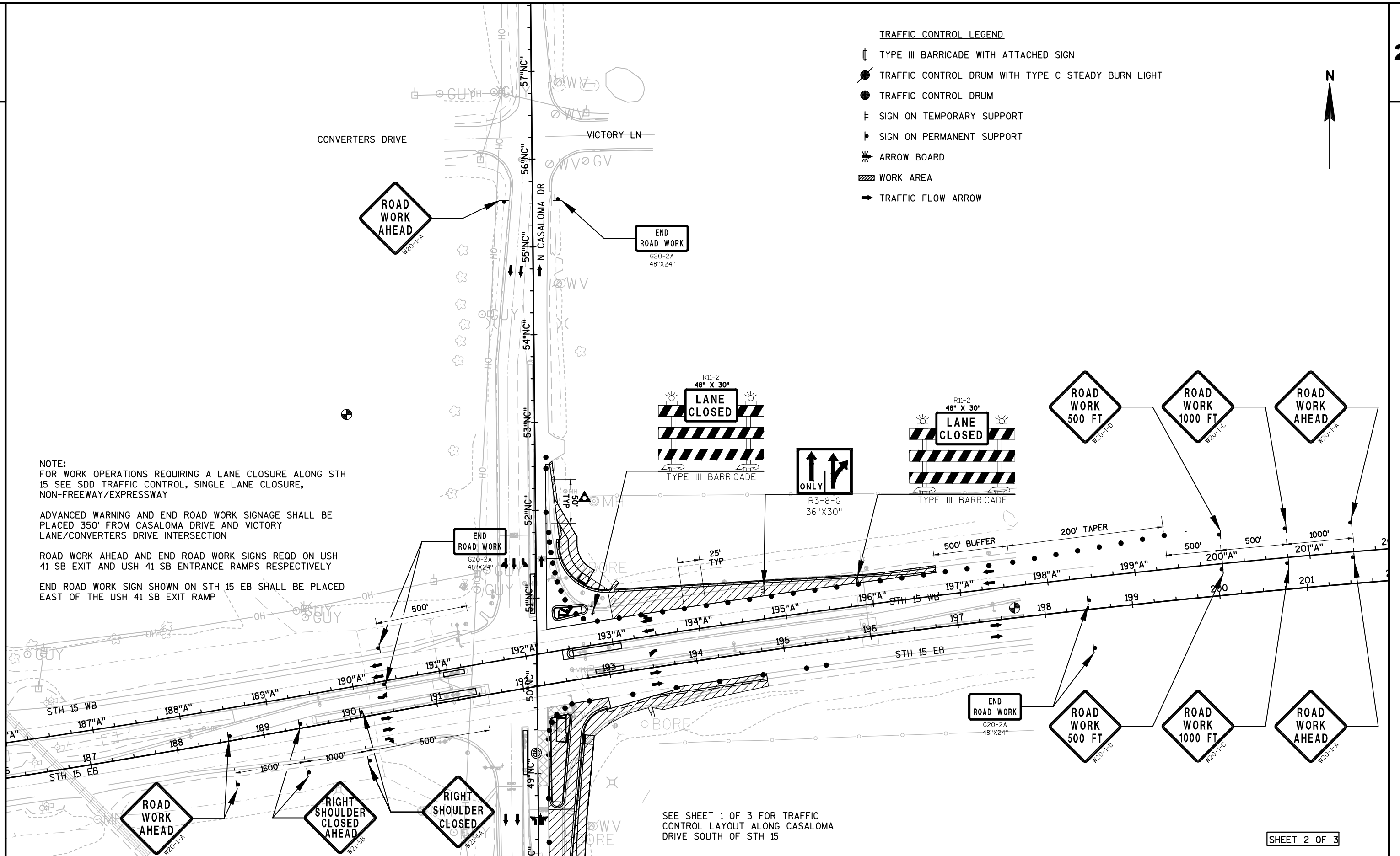
LEGEND

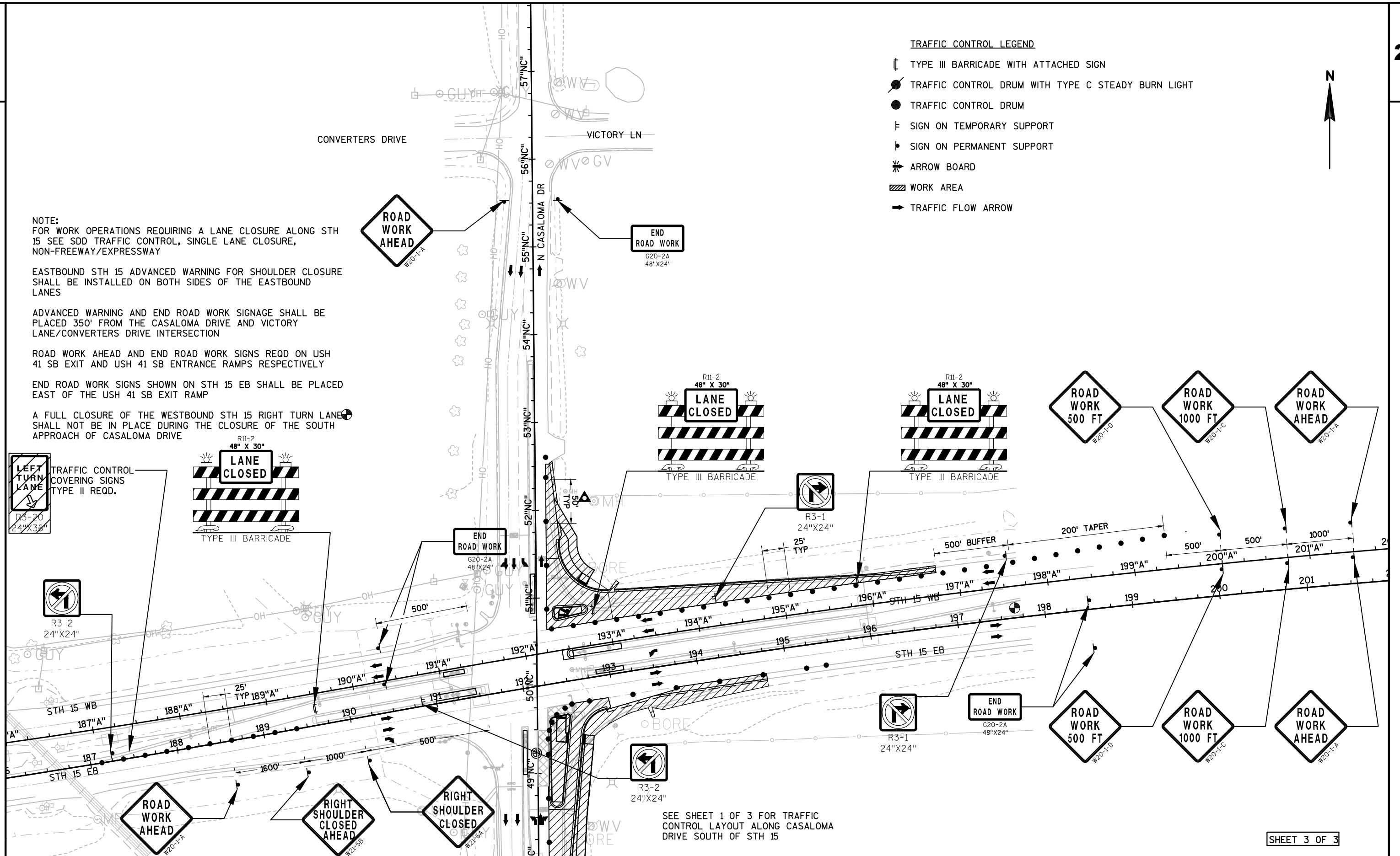
- ① PAVEMENT MARKING EPOXY 4-INCH (WHITE)
- ② PAVEMENT MARKING EPOXY 8-INCH (WHITE) (CHANNELIZING)
- ③ PAVEMENT MARKING ARROWS PREFORMED PLASTIC TYPE 2 (WHITE)
- ④ PAVEMENT MARKING CROSSWALK PREFORMED PLASTIC 6-INCH (WHITE)
- ⑤ PAVEMENT MARKING ISLAND NOSE EPOXY (YELLOW)
- ⑥ PAVEMENT MARKING WORDS PREFORMED PLASTIC (WHITE)
- ⑦ PAVEMENT MARKING STOP LINE EPOXY 18-INCH (WHITE)
- ⑧ PAVEMENT MARKING PREFORMED PLASTIC 8-INCH (WHITE) (CHANNELIZING)

NOTE: REMOVE EXISTING 8-INCH WHITE PAVEMENT MARKING
STA. 192+53 - STA. 193+08, 24' RT









DATE 05FEB16		E S T I M A T E O F Q U A N T I T I E S			
LINE					1146-44-71
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTI TY
0010	204.0100	Removing Pavement	SY	1,345.000	1,345.000
0020	204.0110	Removing Asphaltic Surface	SY	420.000	420.000
0030	204.0150	Removing Curb & Gutter	LF	235.000	235.000
0040	204.0155	Removing Concrete Sidewalk	SY	115.000	115.000
0050	204.0195	Removing Concrete Bases	EACH	11.000	11.000
0060	205.0100	Excavation Common	CY	1,355.000	1,355.000
0070	211.0100	Prepare Foundation for Asphaltic Paving (project) 01. 1146-44-71	LS	1.000	1.000
0080	213.0100	Finishing Roadway (project) 01. 1146-44-71	EACH	1.000	1.000
0090	305.0110	Base Aggregate Dense 3/4-Inch	TON	50.000	50.000
0100	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	1,750.000	1,750.000
0110	415.0100	Concrete Pavement 10-Inch	SY	820.000	820.000
0120	415.1100	Concrete Pavement HES 10-Inch	SY	490.000	490.000
0130	416.0610	Drilled Tie Bars	EACH	300.000	300.000
0140	416.0620	Drilled Dowel Bars	EACH	16.000	16.000
0150	455.0120	Asphaltic Material PG64-28	TON	12.400	12.400
0160	455.0605	Tack Coat	GAL	30.000	30.000
0170	460.1103	HMA Pavement Type E-3	TON	225.000	225.000
0180	460.2000	Incentive Density HMA Pavement	DOL	150.000	150.000
0190	465.0105	Asphaltic Surface	TON	190.000	190.000
0200	465.0315	Asphaltic Flumes	SY	10.000	10.000
0210	522.1012	Apron Endwalls for Culvert Pipe Reinforced Concrete 12-Inch	EACH	1.000	1.000
0220	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	235.000	235.000
0230	601.0555	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type A	LF	200.000	200.000
0240	601.0557	Concrete Curb & Gutter 6-Inch Sloped 36-Inch Type D	LF	22.000	22.000
0250	601.0600	Concrete Curb Pedestrian	LF	90.000	90.000
0260	602.0405	Concrete Sidewalk 4-Inch	SF	3,505.000	3,505.000
0270	602.0505	Curb Ramp Detectable Warning Field Yellow	SF	128.000	128.000
0280	608.0312	Storm Sewer Pipe Reinforced Concrete Class III 12-Inch	LF	40.000	40.000
0290	611.0627	Inlet Covers Type HM	EACH	1.000	1.000
0300	611.3230	Inlets 2x3-FT	EACH	1.000	1.000
0310	611.8115	Adjusting Inlet Covers	EACH	1.000	1.000
0320	618.0100	Maintenance And Repair of Haul Roads (project) 01. 1146-44-71	EACH	1.000	1.000
0330	619.1000	Mobilization	EACH	1.000	1.000
0340	624.0100	Water	MGAL	7.000	7.000
0350	625.0100	Topsoil	SY	2,100.000	2,100.000
0360	628.1504	Silt Fence	LF	1,600.000	1,600.000
0370	628.1520	Silt Fence Maintenance	LF	1,600.000	1,600.000
0380	628.1905	Mobilizations Erosion Control	EACH	2.000	2.000
0390	628.1910	Mobilizations Emergency Erosion Control	EACH	2.000	2.000
0400	628.2006	Erosion Mat Urban Class I Type A	SY	2,200.000	2,200.000
0410	628.7015	Inlet Protection Type C	EACH	11.000	11.000
0420	628.7504	Temporary Ditch Checks	LF	50.000	50.000
0430	628.7570	Rock Bags	EACH	40.000	40.000
0440	629.0210	Fertilizer Type B	CWT	1.500	1.500
0450	630.0130	Seeding Mixture No. 30	LB	40.000	40.000
0460	630.0200	Seeding Temporary	LB	30.000	30.000
0470	633.5200	Markers Culvert End	EACH	1.000	1.000

DATE 05FEB16		E S T I M A T E O F Q U A N T I T I E S			
LINE					1146-44-71
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0480	634.0612	Posts Wood 4x6-Inch X 12-FT	EACH	2.000	2.000
0490	634.0614	Posts Wood 4x6-Inch X 14-FT	EACH	17.000	17.000
0500	634.0616	Posts Wood 4x6-Inch X 16-FT	EACH	1.000	1.000
0510	637.2210	Signs Type II Reflective H	SF	161.140	161.140
0520	637.2215	Signs Type II Reflective H Folding	SF	74.600	74.600
0530	637.2230	Signs Type II Reflective F	SF	35.320	35.320
0540	638.2602	Removing Signs Type II	EACH	21.000	21.000
0550	638.3000	Removing Small Sign Supports	EACH	10.000	10.000
0560	642.5201	Field Office Type C	EACH	1.000	1.000
0570	643.0100	Traffic Control (project) 01. 1146-44-71	EACH	1.000	1.000
0580	643.0300	Traffic Control Drums	DAY	6,483.000	6,483.000
0590	643.0420	Traffic Control Barriades Type III	DAY	365.000	365.000
0600	643.0705	Traffic Control Warning Lights Type A	DAY	702.000	702.000
0610	643.0715	Traffic Control Warning Lights Type C	DAY	900.000	900.000
0620	643.0800	Traffic Control Arrow Boards	DAY	111.000	111.000
0630	643.0900	Traffic Control Signs	DAY	1,971.000	1,971.000
0640	643.0920	Traffic Control Covering Signs Type II	EACH	1.000	1.000
0650	643.1050	Traffic Control Signs PCMS	DAY	53.000	53.000
0660	646.0106	Pavement Marking Epoxy 4-Inch	LF	830.000	830.000
0670	646.0126	Pavement Marking Epoxy 8-Inch	LF	555.000	555.000
0680	646.0129	Pavement Marking Preformed Plastic 8-Inch	LF	500.000	500.000
0690	646.0600	Removing Pavement Markings	LF	185.000	185.000
0700	647.0169	Pavement Marking Arrows Preformed Plastic Type 2	EACH	2.000	2.000
0710	647.0359	Pavement Marking Words Preformed Plastic	EACH	1.000	1.000
0720	647.0566	Pavement Marking Stop Line Epoxy 18-Inch	LF	27.000	27.000
0730	647.0606	Pavement Marking Island Nose Epoxy	EACH	4.000	4.000
0740	647.0769	Pavement Marking Crosswalk Preformed Plastic 6-Inch	LF	310.000	310.000
0750	649.0400	Temporary Pavement Marking Removable Tape 4-Inch	LF	365.000	365.000
0760	650.4000	Construction Staking Storm Sewer	EACH	2.000	2.000
0770	650.4500	Construction Staking Subgrade	LF	1,248.000	1,248.000
0780	650.5000	Construction Staking Base	LF	532.000	532.000
0790	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	257.000	257.000
0800	650.7000	Construction Staking Concrete Pavement	LF	716.000	716.000
0810	650.9910	Construction Staking Supplemental Control (project) 01. 1146-44-71	LS	1.000	1.000
0820	650.9920	Construction Staking Slope Stakes	LF	1,248.000	1,248.000
0830	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	355.000	355.000
0840	652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	805.000	805.000
0850	652.0615	Conduit Special 3-Inch	LF	960.000	960.000
0860	652.0800	Conduit Loop Detector	LF	200.000	200.000
0870	653.0105	Pull Boxes Steel 12x24-Inch	EACH	2.000	2.000
0880	653.0140	Pull Boxes Steel 24x42-Inch	EACH	16.000	16.000
0890	653.0905	Removing Pull Boxes	EACH	8.000	8.000
0900	654.0101	Concrete Bases Type 1	EACH	2.000	2.000
0910	654.0113	Concrete Bases Type 13	EACH	4.000	4.000
0920	654.0217	Concrete Control Cabinet Bases Type 9 Special	EACH	1.000	1.000
0930	655.0230	Cable Traffic Signal 5-14 AWG	LF	1,870.000	1,870.000

DATE 05FEB16		E S T I M A T E O F Q U A N T I T I E S			
LINE					1146-44-71
NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	QUANTITY
0940	655.0240	Cable Traffic Signal 7-14 AWG	LF	890.000	890.000
0950	655.0260	Cable Traffic Signal 12-14 AWG	LF	1,700.000	1,700.000
0960	655.0305	Cable Type UF 2-12 AWG Grounded	LF	2,530.000	2,530.000
0970	655.0515	Electrical Wire Traffic Signals 10 AWG	LF	2,980.000	2,980.000
0980	655.0610	Electrical Wire Lighting 12 AWG	LF	600.000	600.000
0990	655.0700	Loop Detector Lead In Cable	LF	5,130.000	5,130.000
1000	655.0800	Loop Detector Wire	LF	540.000	540.000
1010	655.0900	Traffic Signal EVP Detector Cable	LF	1,240.000	1,240.000
1020	656.0200	Electrical Service Meter Breaker Pedestal (Location) 01. STH 15 & Casaloma	LS	1.000	1.000
1030	657.0100	Pedestal Bases	EACH	3.000	3.000
1040	657.0425	Traffic Signal Standards Aluminum 15-FT	EACH	3.000	3.000
1050	657.1360	Install Poles Type 13	EACH	4.000	4.000
1060	657.1535	Install Monotube Arms 35-FT	EACH	1.000	1.000
1070	657.1540	Install Monotube Arms 40-FT	EACH	1.000	1.000
1080	657.1550	Install Monotube Arms 50-FT	EACH	1.000	1.000
1090	657.1555	Install Monotube Arms 55-FT	EACH	1.000	1.000
1100	657.1812	Install Luminaire Arms Steel 12-FT	EACH	4.000	4.000
1110	658.0110	Traffic Signal Face 3-12 Inch Vertical	EACH	11.000	11.000
1120	658.0115	Traffic Signal Face 4-12 Inch Vertical	EACH	8.000	8.000
1130	658.0215	Backplates Signal Face 3 Section 12-Inch	EACH	12.000	12.000
1140	658.0220	Backplates Signal Face 4 Section 12-Inch	EACH	8.000	8.000
1150	658.0416	Pedestrian Signal Face 16-Inch	EACH	2.000	2.000
1160	658.0500	Pedestrian Push Buttons	EACH	2.000	2.000
1170	658.0600	Led Modules 12-Inch Red Ball	EACH	11.000	11.000
1180	658.0605	Led Modules 12-Inch Yellow Ball	EACH	11.000	11.000
1190	658.0610	Led Modules 12-Inch Green Ball	EACH	11.000	11.000
1200	658.0615	Led Modules 12-Inch Red Arrow	EACH	8.000	8.000
1210	658.0620	Led Modules 12-Inch Yellow Arrow	EACH	16.000	16.000
1220	658.0625	Led Modules 12-Inch Green Arrow	EACH	8.000	8.000
1230	658.0635	Led Modules Pedestrian Countdown Timer 16-Inch	EACH	2.000	2.000
1240	658.5069	Signal Mounting Hardware (Location) 01. STH 15 & Casaloma	LS	1.000	1.000
1250	659.1115	Luminaires Utility LED A	EACH	5.000	5.000
1260	659.1125	Luminaires Utility LED C	EACH	8.000	8.000
1270	661.0200	Temporary Traffic Signals for Intersections (Location) 01. STH 15 & Casaloma	LS	1.000	1.000
1280	690.0150	Sawing Asphalt	LF	380.000	380.000
1290	690.0250	Sawing Concrete	LF	940.000	940.000
1300	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
1310	ASP.1T0A	On-the-Job Training Apprentice at \$5. 00/HR	HRS	150.000	150.000
1320	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	300.000	300.000
1330	SPV.0090	Special 01. Concrete Curb & Gutter 6-Inch Sloped 30-Inch Type G HES	LF	340.000	340.000
1340	SPV.0105	Special 01. Remove Traffic Signal (STH 15 & Casaloma)	LS	1.000	1.000
1350	SPV.0105	Special 02. Concrete Pavement Joint Layout	LS	1.000	1.000
1360	SPV.0165	Special 01. Concrete Median Sloped Nose HES	SF	380.000	380.000

REMOVING PAVEMENT						
204. 0100						
CATEGORY	STATION	TO	STATION	LOCATION	SY	REMARKS
0010	48' NC' +59	-	50' NC' +12	RT	655	NB CASALOMA RIGHT TURN LANE
0010	48' NC' +86	-	49' NC' +49	RT	85	NB CASALOMA THROUGH LANE
0010	192+42	-	192+62	LT	15	STH 15 I SLAND NOSE
0010	192' A' +28	-	196' A' +00	LT	590	WB STH 15 RIGHT TURN LANE
TOTALS					1,345	

REMOVING CURB & GUTTER						
204. 0150						
CATEGORY	STATION	TO	STATION	LOCATION	LF	REMARKS
0010	46' NC' +19	-	48' NC' +59	RT	235	NB CASALOMA DRI VE
TOTALS					235	

REMOVING CONCRETE SIDEWALK						
204. 0155						
CATEGORY	STATION	TO	STATION	LOCATION	SY	REMARKS
0010	191+01	-	191+46	LT	34	STH 15 MEDI AN
0010	192+85	-	193+16	LT	17	STH 15 MEDI AN
0010	191' A' +04	-	191' A' +29	RT	14	STH 15 MEDI AN
0010	192' A' +54	-	193' A' +09	RT	40	STH 15 MEDI AN
0010	49' NC' +40	-	49' NC' +49	LT	5	CASALOMA DRI VE MEDI AN
0010	50' NC' +83	-	50' NC' +93	LT	5	CASALOMA DRI VE MEDI AN
TOTALS					115	

REMOVING ASPHALTIC SURFACE						
204. 0110						
CATEGORY	STATION	TO	STATION	LOCATION	SY	REMARKS
0010	46' NC' +19	-	48' NC' +59	RT	380	NB CASALOMA RIGHT TURN LANE
0010	48' NC' +99	-	49' NC' +40	LT	20	CASALOMA DRI VE MEDI AN
0010	50' NC' +93	-	51' NC' +27	LT	20	CASALOMA DRI VE MEDI AN
TOTALS					420	

REMOVING CONCRETE BASES			
204. 0195			
CATEGORY	LOCATION	EA	REMARKS
0010	STH 15 & CASALOMA (S-666)	11	
TOTALS		11	

EARTHWORK SUMMARY								
DIVISION	Location	Excavation Common (1) Item # 205.0100		Salvaged/ Unusable Material	Available Material (4)	Unexpanded Fill	Expanded Fill (5)	Mass Ordinate +/- (6)
		Cut (2)	EBS Excava tion (3)				Factor 1.30	
1	SE QUADRANT STH 15/CASALOMA DRIVE (CAT. 0010)	675	0	205	470	250	325	145
	NE QUADRANT STH 15/CASALOMA DRIVE (CAT. 0010)	680	0	165	515	170	221	294
Total		1,355	0		985		546	439
Total Common Ex 1,355								

- 1) Excavation Common is the sum of the Cut and EBS Excavation columns. Item number 205.0100
- 2) Salvaged/Unsuable Material is included in Cut. Volume of concrete pavement to be removed is included in salvaged/unusable material.
- 4) Available Material = Cut - Salvaged/Unusuable Material
- 5) Expanded Fill Factor = 1.30. Expanded Fill = Unexpanded Fill * Fill Factor. No Rock, Marsh, or EBS will be used in fill on this project.
- 6) The Mass Ordinate + or - Qty calculated for the Division. Plus quantity indicates an excess of material within the Division. Minus indicates a shortage of material within the Division.

PREPARE FOUNDATION FOR ASPHALTIC PAVING (1146-44-71)						
211.0100						
CATEGORY	STATION	TO	STATION	LOCATION	LS	REMARKS
0010	46' NC' +19	-	48' NC' +59	RT	0.25	NB CASALOMA DRIVE
0010	39' NC' +68	-	47' NC' +50	RT	0.75	SIDEWALK ALONG NB CASALOMA DRIVE
TOTALS					1	

AGGREGATE								
305.0110 305.0120 624.0000								
BASE BASE								
AGGREGATE AGGREGATE								
DENSE DENSE								
3/4-INCH 1 1/4-INCH WATER								
CATEGORY	STATION	TO	STATION	LOCATION	TON	TON	MGAL	REMARKS
0010	192+23	-	194+76	RT	15	60	0.2	
0010	46' NC' +19	-	49' NC' +69	RT	---	570	2.3	
0010	39' NC' +68		47' NC' +50	RT	---	20	0.1	SI DEWALK
0010	192' A' +28	-	196' A' +75	LT	25	900	3.6	
0010	50' NC' +64	-	52' NC' +56	RT	10	160	0.7	
0010	51' NC' +14	-	52' NC' +14	RT	---	40	0.1	SI DEWALK
TOTALS					50	1,750	7	

CONCRETE ITEMS										
					415. 0100	415. 1100	416. 0610	416. 0620	SPV. 0105. 02	
					CONCRETE	CONCRETE	DRI LLED	DRI LLED	CONCRETE	
					PAVEMENT	PAVEMENT	TI E	DOWEL	PAVEMENT	
					10-INCH	HES	BARS	BARS	JOI NT	
					10-INCH					LAYOUT
CATEGORY	STATION	TO	STATION	LOCATION	SY	SY	EA	EA	LS	REMARKS
0010	48' NC' +86	-	49' NC' +86	RT	225	130	78	16	1	
0010	192' A' +42	-	192' A' +54	RT	---	5	10	---		MEDI AN I SLAND NOSE REPLACEMENT
0010	192' A' +28	-	196' A' +75	LT	595	355	212	---		
TOTALS					820	490	300	16	1	

ASPHALT ITEMS										
					455. 0120	455. 0605	460. 1103	465. 0105	465. 0315	
					ASPHALTIC					
					MATERIAL	HMA				
					PG64-28	TACK	PAVEMENT	ASPHALTIC	ASPHALTIC	
					(AT 5. 5%)	COAT	TYPE E-3	SURFACE	FLUMES	
CATEGORY	STATION	TO	STATION	LOCATION	TON	GAL	TON	TON	SY	REMARKS
0010	193+45	-	194+76	RT	0. 8	---	15	---	---	
0010	39' NC' +68	-	46' NC' +19	RT	---	---	---	115	---	
0010	46' NC' +19	-	49' NC' +34	RT	8. 3	24	150	60	---	
0010	193' A' +12		197' A' +75	LT	1. 1	---	20	---	---	
0010	51' NC' +45	-	52' NC' +87	RT	2. 2	6	40	15	10	
TOTALS					12. 4	30	225	190	10	

CONCRETE CURB & GUTTER AND SIDEWALK													
		SPV. 0090. 01		601. 0411		601. 0555		601. 0557		601. 0600		602. 0405	
		CONCRETE		CONCRETE		CONCRETE		CONCRETE		CONCRETE		CURB RAMP	
		CURB & GUTTER		CONCRETE		CURB & GUTTER		CURB & GUTTER		CONCRETE		DETECTABLE	
		6-INCH SLOPED		CURB & GUTTER		6-INCH SLOPED		6-INCH SLOPED		CURB		SIDEWALK	
		TYPE G HES		30-INCH TYPE D		36-INCH TYPE A		36-INCH TYPE D		PEDESTRIAN		4-INCH	
		FIELD YELLOW		NOSE HES									
CATEGORY	STATION	TO	STATION	LOCATION	LF	LF	LF	LF	LF	SF	SF	SF	REMARKS
0010	48' NC' +66	-	49' NC' +68	RT	235	---	---	---	65	1, 590	40	115	
0010	46' NC' +19	-	48' NC' +59	RT	---	235	---	---	---	---	---	--	
0010	48' NC' +59	-	49' NC' +75	RT	---	---	130	---	---	125	20	---	
0010	191+01	-	191+46	LT	---	---	---	---	---	310	---	---	
0010	192+85	-	193+16	LT	---	---	---	---	---	155	---	---	
0010	191' A' +04	-	191' A' +29	RT	---	---	---	---	---	115	---	---	
0010	192' A' +46	-	193' A' +09	RT	15	---	---	---	---	360	---	70	
0010	48' NC' +99	-	49' NC' +49	LT	---	---	---	---	---	230	---	---	
0010	50' NC' +83	-	50' NC' +27	LT	---	---	---	---	---	220	---	---	
0010	50' NC' +76	-	50' NC' +90	RT	90	---	---	---	25	280	48	195	
0010	51' NC' +06	-	51' NC' +45	RT	---	---	70	---	---	120	20	---	
0010	51' NC' +45	-	51' NC' +67	RT	---	---	---	22	---	---	---	---	
TOTALS					340	235	200	22	90	3, 505	128	380	

STORM SEWER STRUCTURES														
		522. 1012		611. 0627		611. 3230		611. 8115		633. 5200				
		APRON ENDWALLS						ADJUSTI NG		MARKERS				
		FOR CULVERT PIPE						INLET		CULVERT				
		REINFORCED		INLET COVERS		INLETS		COVERS						
		CONCRETE 12-INCH		TYPE HM		2X3-FT								
CATEGORY	STRUCTURE	STATION	OFFSET	LOCATI ON	EA	EACH	EACH	EACH	EACH	END	RIM	OP STRUCT	FLOWLI NE	DEPTH
											ELEV.	ELEV.	ELEV	FT
0010	1. 0	192' A' +66. 6	79. 4'	LT	---	1	1	---	---	---	812. 35	811. 35	808. 38	2. 97
0010	2. 0	193' A' +12. 1	74. 8'	LT	1	---	---	---	1	---	---	---	807. 83	---
0010	---	46' NC' +56	24. 0'	RT	---	---	---	1	---	---	---	---	---	---
TOTALS					1	1	1	1	1	1				

STORM SEWER PIPE REINFORCED CONCRETE CONCRETE CLASS III 12-INCH				
		608. 0312		
CATEGORY	STRUCTURE	STRUCTURE	LF	REMARKS
0010	1. 0	2. 0	40	
TOTALS			40	

LANDSCAPE SUMMARY							
		625. 0100	629. 0210	630. 0130	630. 0200		
				SEED I NG MI XTURE	SEED I NG TEMPORARY		
		TOPSOI L	FERTI LI ZER	NO. 30			
CATEGORY	LOCATI ON	SY	CWT	LB	LB	REMARKS	
0010	SE QUADRANT STH 15/CASALOMA DRIVE	1, 150	0. 8	22	15		
0010	NW QUADRANT STH 15/CASALOMA DRIVE	10	0. 1	1	1		
0010	SW QUADRANT STH 15/CASALOMA DRIVE	10					
0010	NE QUADRANT STH 15/CASALOMA DRIVE	930	0. 6	17	14		
TOTALS		2, 100	1. 5	40	30		

EROSION CONTROL SUMMARY								
		628. 1504	628. 1520	628. 2006	628. 7015	628. 7504	628. 7570	REMARKS
		SILT	SILT	EROSI ON MAT	I NELT	TEMPORARY	ROCK BAGS	
		FENCE	FENCE	URBAN CLASS I	PROTECTI ON	DI TCH	(SILT FENCE	
		MAINTENANCE		TYPE A	TYPE C	CHECKS	RELI EF)	
CATEGORY	LOCATI ON	LF	LF	SY	EA	LF	EA	
0010	SE QUADRANT STH 15/CASALOMA DRIVE	1, 120	1, 120	1, 150	6	---	20	
0010	STH 15 MEDI AN	---	---	---	4	---	---	
0010	NW QUADRANT STH 15/CASALOMA DRIVE	80	80	10	---	---	---	
0010	SW QUADRANT STH 15/CASALOMA DRIVE	60	60	10	---	---	---	
0010	NE QUADRANT STH 15/CASALOMA DRIVE	270	270	930	1	40	---	
0010	UNDI STRI BUTED	70	70	100	---	10	20	
TOTALS		1, 600	1, 600	2, 200	11	50	40	

TRAFFIC CONTROL SUMMARY																	
			643. 0300		643. 0420		643. 0705		643. 0715		643. 0800		643. 0900		643. 0920		643. 1050
			TRAFFI C CONTROL		TRAFFI C CONTROL		TRAFFI C CONTROL		TRAFFI C CONTROL		TRAFFI C CONTROL		TRAFFI C CONTROL		TRAFFI C CONTROL		TRAFFI C CONTROL
			DRUMS		BARRI CADES		WARNI NG LIGHTS		WARNI NG LIGHTS		ARROW BOARDS		SIGNS		COVERI NG SIGNS		SIGNS PCMS
			TYPE I I I		TYPE A		TYPE C								TYPE I I		
CAT	LOCATI ON	APPROX. SERVICE DAYS	NO I N SERVICE	DAYS	NO I N SERVI NCE	DAYS	NO I N SERVICE	DAYS	NO I N SERVICE	DAYS	NO I N SERVICE	DAYS	NO I N SERVICE	DAYS	NO I N SERVICE	DAYS	
0010	STH 15 EB	56	6	336	1	56	2	112	---	---	---	---	8	448	---	1	7
0010	STH 15 EB LANE CLOSURES	15	45	675	2	30	4	60	13	195	2	30	9	135	---	---	---
0010	STH 15 WB INSIDE LANE CLOSURES	2	45	90	2	4	4	8	13	26	2	4	9	18	---	---	---
0010	CASALOMA DRIVE RIGHT LANE CLOSURE	51	29	1479	2	102	4	204	10	510	1	51	7	357	---	1	7
0010	CASALOMA DRIVE CLOSURE FOR HES PAVEMENT	5	---	---	4	20	4	20	---	---	---	---	5	25	---	1	5
0010	CLOSURE OF CASALOMA FOR SIGNALS	1	---	---	8	8	8	8	---	---	---	---	10	10	---	2	10
0010	STH 15 WB RT TURN LANE PARTIAL CLOSURE	49	54	2646	2	98	4	196	---	---	---	---	13	637	---	1	7
0010	STH 15 WB RT TURN LANE FULL CLOSURE (INCLUDES ADDI TIONAL REQUIRED I TEMS FOR STH 15 EB)	7	56	392	3	21	6	42	---	---	---	---	16	112	1	2	10
0010	N CASALOMA - NORTH OF STH 15	56	5	280	---	---	---	---	---	---	---	---	2	112	---	1	7
0010	STH 15 WB LANE CLOSURES	13	45	585	2	26	4	52	13	169	2	26	9	117	---	---	---
TOTALS			6, 483		365		702		900		111		1, 971		1		53

REMOVAL OF TYPE II SIGNS AND SUPPORTS

SIGN NO.	LOCATION	SIGN CODE	638. 2602 REMOVING SIGNS TYPE II EACH	638. 3000 REMOVING SMALL SIGN SUPPORTS EACH	REMARKS
1	STH 15, W. OF CASALOMA DR	R5-1	1	1	
1A	"	W3-3	1	1	
1B	"	W3-3	1	1	
2	"	R6-2L	1	---	BANDED TO SIGNAL
3	"	R1-1F	---	---	PART OF REMOVAL FOR SIGN #2, BASED ON LOCATION REMOVAL
4	"	R1-1F	1	---	BANDED TO SIGNAL
5	"	R5-1	---	---	PART OF REMOVAL FOR SIGN #4, BASED ON LOCATION REMOVAL
6	CASALOMA DR	R4-7	1	---	BANDED TO SIGNAL
7	"	R1-1F	---	---	PART OF REMOVAL FOR SIGN #6, BASED ON LOCATION REMOVAL
8	"	R1-1F	1	---	BANDED TO SIGNAL
9	STH 15, W. OF CASALOMA DR	R4-7	1	---	BANDED TO SIGNAL
10	CASALOMA DR	R6-2L	1	---	BANDED TO SIGNAL
11	"	R6-2R	---	---	PART OF REMOVAL FOR SIGN #10, BASED ON LOCATION REMOVAL
12	"	J13-1	1	1	
13	"	R5-1	---	---	PART OF REMOVAL FOR SIGN #12, BASED ON LOCATION REMOVAL
14	"	R5-1A	1	1	
15	"	R3-8	1	1	
16	"	R1-2	1	1	
17	STH 15, E. OF CASALOMA DR	R4-7	1	---	BANDED TO SIGNAL
18	CASALOMA DR	R6-2L	1	---	BANDED TO SIGNAL
19	"	R1-1F	---	---	PART OF REMOVAL FOR SIGN #18, BASED ON LOCATION REMOVAL
20	"	R1-1F	1	---	BANDED TO SIGNAL
21	"	R4-7	---	---	PART OF REMOVAL FOR SIGN #20, BASED ON LOCATION REMOVAL
22	STH 15, E. OF CASALOMA DR	R5-1	1	---	BANDED TO SIGNAL
23	"	R1-1F	---	---	PART OF REMOVAL FOR SIGN #22, BASED ON LOCATION REMOVAL
24	"	R6-2L	1	---	BANDED TO SIGNAL
25	"	R5-1	1	1	
26	"	R5-1A	1	1	
27	"	R3-20R	---	---	PART OF REMOVAL FOR SIGN #26, BASED ON LOCATION REMOVAL
28	"	W12-1D	1	1	

PROJECT TOTALS 21 10

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ERECTION OF TYPE II SIGNS AND SUPPORTS

SI GN NO.	LOCATION	SIGN CODE	W X H	637. 2210 SIGNS TYPE II REFLECTIVE H S. F.	637. 2215 FOLDING SIGNS TYPE II REFLECTIVE H S. F.	637. 2230 SIGNS TYPE II REFLECTIVE F S. F.	634. 0612 POSTS WOOD 4x6x12 EACH	634. 0614 POSTS WOOD 4x6x14 EACH	634. 0616 POSTS WOOD 4x6x16 EACH	REMARKS
100	CASALOMA DR, ON SB7 MONOTUBE SIGNAL	R10-50	30" X 36"	7. 50	---	---	---	---	---	MOUNT NEXT TO FLASHING YELLOW ARROW SIGNAL HEAD
101	STH 15, W. OF CASALOMA DR	R5-1	36" X 36"	9. 00	---	---	---	1	---	
102	"	R1-1F	36" X 36"	---	7. 46	---	---	---	---	MOUNT TO SIGNAL
103	"	R6-2L	30" X 36"	7. 50	---	---	---	1	---	
104	"	R1-1F	36" X 36"	---	7. 46	---	---	---	---	MOUNT TO SIGNAL
105	"	R10-50	30" X 36"	7. 50	---	---	---	---	---	MOUNT TO SIGNAL
106	"	R4-7	24" X 30"	5. 00	---	---	---	1	---	
106A	"	R1-1F	36" X 36"	---	7. 46	---	---	---	---	MOUNT ON BACK OF SIGN #106
107	"	R6-2L	30" X 36"	7. 50	---	---	---	1	---	
108	CASALOMA DR	R4-7	24" x 30"	5. 00	---	---	---	1	---	
109	"	R1-1F	36" X 36"	---	7. 46	---	---	---	---	MOUNT ON BACK OF SIGN #108
109A	"	R1-1F	36" X 36"	---	7. 46	---	---	---	---	MOUNT TO SIGNAL
110	"	R5-1	36" X 36"	9. 00	---	---	---	---	---	MOUNT TO SIGNAL
111	"	R3-8P	54" X 30"	11. 25	---	---	---	1	---	
112	"	J13-1	24" X 45"	7. 50	---	---	---	---	1	STH 15, SEE PLAN SHEET
113	"	R5-1A	36" X 24"	6. 00	---	---	---	---	---	MOUNT ON BACK OF SIGN #112
114	"	W12-1D	24" X 24"	---	---	4. 00	1	---	---	
115	"	R1-2	36" X 31"	3. 88	---	---	---	1	---	
116	STH 15, E. OF CASALOMA DR	R4-7	24" X 30"	5. 00	---	---	---	1	---	
116A	"	R1-1F	36" X 36"	---	7. 46	---	---	---	---	MOUNT ON BACK OF SIGN #116
117	CASALOMA DR	R5-1	36" X 36"	9. 00	---	---	---	---	---	MOUNT TO SIGNAL
118	"	R1-1F	36" X 36"	---	7. 46	---	---	---	---	MOUNT TO SIGNAL
119	"	R1-1F	36" X 36"	---	7. 46	---	---	1	---	
120	"	R4-7	24" X 30"	5. 00	---	---	---	---	---	MOUNT ON BACK OF SIGN #119
120A	STH 15, W. OF CASALOMA DR	R1-1F	36" X 36"	---	7. 46	---	---	---	---	MOUNT TO SIGNAL
121	"	R1-2	36" X 31"	3. 88	---	---	---	1	---	
122	"	R10-50	30" X 36"	7. 50	---	---	---	---	---	MOUNT TO SIGNAL
123	"	R5-1	36" X 36"	9. 00	---	---	---	1	---	
124	"	R1-1F	36" X 36"	---	7. 46	---	---	---	---	MOUNT TO SIGNAL
125	"	R5-1A	42" X 30"	8. 75	---	---	---	1	---	
126	"	W12-1D	30" X 30"	---	---	6. 25	1	---	---	
127	CASALOMA DR, ON SB2 MONOTUBE SIGNAL	R10-50	30" X 36"	7. 50	---	---	---	---	---	MOUNT NEXT TO FLASHING YELLOW ARROW SIGN HEAD
128	STH 15, W. OF CASALOMA DR	R2-1	36" X 48"	12. 00	---	---	---	1	---	50 MPH
129	CASALOMA DR	W10-3	36" X 36"	---	---	9. 00	---	1	---	
130	"	W10-3	36" X 36"	---	---	9. 00	---	1	---	
131	OLDE CASALOMA DR S. OF TRACKS	R8-8	24" X 30"	5. 00	---	---	---	1	---	MOUNT NEXT TO CROSSBUCK
132	"	W10-1	36" X 36"	---	---	7. 07	---	1	---	

PROJECT TOTALS159. 2674. 6035. 322171

ERECTION OF TYPE II SIGNS AND SUPPORTS CONT.

			637. 2210 SIGNS TYPE II REFLECTIVE H S. F.	
LOCATION	SIGN CODE	W X H		REMARKS
SB3	R10-3ER	9" X 15"	0. 94	
SB6	R10-3ER	9" X 15"	0. 94	

PROJECT TOTALS1. 88

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PAVEMENT MARKINGS SUMMARY															
				646.0600	646.0106	646.0126	646.0129	647.0169	647.0359	647.0566	647.0606	647.0769	649.0400		
				REMOVI NG	PAVEMENT	PAVEMENT	MARKI NG	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	PAVEMENT	TEMPORARY		
				PAVEMENT	EPOXY	EPOXY	PLASTI C	ARROWS	WORDS	STOP LI NE	I SLAND NOSE	CROSSWALK	PAVEMENT		
				MARKI NG	4-I NCH	8-I NCH	8-I NCH	PREFORMED	PREFORMED	EPOXY	NOSE	PREFORMED PLASTI C	REMOVABLE		
				MARKI NG	4-I NCH	8-I NCH	8-I NCH	PLASTI C	TYPE 2	PLASTI C	18-I NCH	EPOXY	6-I NCH	TAPE 4-I NCH	REMARKS
CATEGORY	STATION	TO	STATION	LOCATION	LF	LF	LF	LF	EA	EA	LF	EA	LF	LF	
0010	192+53	-	193+08	RT	110	---	---	---	---	---	---	---	---	---	55 LF OF 8-I NCH WHITE PAVEMENT MARKI NG
0010	191+53	-	194+76	RT & LT	---	185	---	---	---	---	27	4	250	---	
0010	42' NC' +54	-	46' NC' 19	RT	60	60	---	---	---	---	---	---	---	365	
0010	46' NC' +19	-	49' NC' +75	RT	---	110	---	500	2	1	---	---	---	---	
0010	192' A' +39	-	196' A' +75	LT	---	375	555	---	---	---	---	---	60	---	
0010	51' NC' +67	-	52' NC' +67	RT	15	100	---	---	---	---	---	---	---	---	
TOTALS					185	830	555	500	2	1	27	4	310	365	

Conduit Rigid Nonmetallic Schedule 40				
Location				
STH 15 & Casal oma	652. 0225	652. 0235	652. 0615	
	2-Inch	3-Inch	3-Inch	Special
FROM	TO	LF	LF	LF
CB1	PB1		40	
CB1	PB1		40	
PB1	PB2		30	
PB1	PB3			50
PB1	PB3			50
PB3	PB4		30	
PB3	PB5			60
PB3	PB5			60
PB5	SB2		10	
PB5	PB6		30	
PB5	PB6		30	
PB6	PB7		40	
PB7	SB3	10		
PB6	DRAIN	10		
PB6	PB22	130		
PB6	PB8			70
PB6	PB8			70
PB8	PB9		5	
PB8	PB10			30
PB8	PB10			30
PB10	PB11			50
PB10	PB11			50
PB11	SB5		10	
PB11	DRAIN	10		
PB11	PB12		70	
PB11	PB12		70	
PB12	PB13		40	
PB12	PB13		40	
PB13	SB6	30		
PB13	PB14			40
PB13	PB14			40
PB14	PB15		30	
PB14	PB23		20	
PB14	PB16			50
PB14	PB16			50
PB16	SB7		20	
PB16	PB17		40	
PB16	PB17		40	
PB17	SB8	10		
PB17	PB24	150		
PB17	PB18			50
PB17	PB18			50
PB18	PB25	5		
PB18	PB19		20	
PB18	PB20			30
PB18	PB20			30
PB20	PB21			50
PB20	PB21			50
PB21	SB10		10	
PB21	CB1		70	
PB21	CB1		70	
	TOTALS	355	805	960

ALL ITEMS CATEGORY 0010

Removing Pull Box	
	653. 0905
LOCATION	EACH
STH 15 & Casal oma (S-666)	8
TOTAL	8

ALL ITEMS CATEGORY 0010

Pull Boxes Steel		
	653. 0105	653. 0140
	12x24-Inch	24x42-Inch
LOCATION	EACH	EACH
STH 15 & Casal oma (S-666)	2	16
TOTALS	2	16

ALL ITEMS CATEGORY 0010

Concrete Bases			
			654. 0217
			Control
	654. 0101	654. 0113	Cabinet
	Type 1	Type 13	Type 9
			Special
LOCATION	EACH	EACH	EACH
STH 15 & Casal oma (S-666)	2	4	1
TOTALS	2	4	1

ALL ITEMS CATEGORY 0010

Loop Detectors					
			652. 0800	655. 0700	
			Conduit	Lead In	655. 0800
	LOOP	# OF		Cable	Wire
LOCATION	NO.	TURNS	LF	LF	LF
STH 15 & Casal oma (S-666)	11	2		180	
	12	2		180	
	21	5		660	
	22	4		500	
	23	4		320	
	31	3		340	
	41	2		90	
	42	3		90	
	51	3		280	
	52	3		280	
	61	4		540	
	62	4		380	
	71	3		110	
	72	3		140	
	81	3	100	350	270
	82	3	100	350	270
	83	3		340	
	TOTALS		200	5, 130	540

ALL ITEMS CATEGORY 0010

TRAFFIC SIGNALS								
	656.0200		657.0425					
	Electrical Service							
	Meter Breaker	657.0100	Traffic	657.1360	657.1535	657.1540	657.1550	657.1555
	Pedestal		Signal					
	(STH 15 & Casaloma)	Pedestal	Standard	Install	Install	Install	Install	Install
		Bases	Aluminum	Poles	Monotube	Monotube	Monotube	Monotube
	LS		15-FT	Type 13	Arms 35-FT	Arms 40-FT	Arms 50-FT	Arms 55-FT
LOCATION		EACH	EACH	EACH	EACH	EACH	EACH	EACH
	1							
STH 15 & Casaloma (S-666)	1	3	3	4	1	1	1	1
TOTALS	1	3	3	4	1	1	1	1

ALL ITEMS CATEGORY 0010

TRAFFIC SIGNALS								
	658.0110	658.0115	658.0416	658.0500	658.0600	658.0605	658.0610	
	Traffic	Traffic						
	Signal	Signal	Pedestrian	Pedestrian	LED Modules	LED Modules	LED Modules	
	Face	Face	Signal Face	Push	12-Inch	12-Inch	12-Inch	
	3-12 Inch	4-12 Inch	16-Inch	Buttons	Red Ball	Yellow Ball	Green Ball	
	Vertical	Vertical						
LOCATION	EACH	EACH	EACH	EACH	EACH	EACH	EACH	
STH 15 & Casaloma (S-666)	11	8	2	2	11	11	11	
TOTALS	11	8	2	2	11	11	11	

ALL ITEMS CATEGORY 0010

TRAFFIC SIGNALS						
	658.0615	658.0620	658.0625	658.0635	658.5069	SPV.0105.01
					Signal	Remove
	LED Modules	LED Modules	LED Modules	LED Modules	Mounting	Traffic
	12-Inch	12-Inch	12-Inch	Pedestrian Countdown	Hardware	Signal
	Red Arrow	Yellow Arrow	Green Arrow	Timer 16-Inch	(STH 15 & Casaloma)	(STH 15 & Casaloma)
LOCATION	EACH	EACH	EACH	EACH	LS	LS
STH 15 & Casaloma (S-666)	8	16	8	2	1	1
TOTALS	8	16	8	2	1	1

ALL ITEMS CATEGORY 0010

TRAFFIC SIGNAL CABLE									
STH 15 & Casal oma (S-666)	655. 0230	655. 0240	655. 0260		655. 0230	655. 0240	655. 0900	658. 0215	658. 0220
					Base to Head	Base to Head	EVP	Backpl ates	Backpl ates
	5-14	7-14	12-14	HEAD	5-14	7-14	Detector	Si gnal Face	Si gnal Face
	AWG	AWG	AWG	NO.	AWG	AWG	Cabl e	3 Secti on	4 Secti on
								12-I nch	12-I nch
From CB1 to	LF	LF	LF		LF	LF	LF	EACH	EACH
SB1			120	15	20			1	
				16		20			1
SB2			220	17		80			1
				18	70			1	
				19	20			1	
SB2				EVP 4			250		
SB3			300	5	20			1	
				6		20			1
SB3	300			22	10				
SB4		370		7		20			1
SB5	440			8	60			1	
				9	50			1	
SB5				EVP 2			470		
SB6			450	11		20			1
				20	20			1	
SB6	450			21	10				
SB7			340	12		80			1
				13	70			1	
				14	60			1	
SB7				EVP 3			370		
SB8			270	1		20			1
				10	20			1	
SB9		240		2		20			1
SB10	120			3	70			1	
				4	60			1	
SB10				EVP 1			150		
Sub Total	1, 310	610	1, 700		560	280	1, 240	12	8
TOTALS	1, 870	890	1, 700				1, 240	12	8

ALL ITEMS CATEGORY 0010

Signal IndicationConductor Color

Red	=	Red
Yel low	=	Orange
Green	=	Green
Red Arrow	=	Red w/Bl ack Tracer
Yellow Arrow	=	Bl ack w/Whi te
Yel low Flashi ng Arrow	=	Whi te w/Bl ack
Green Arrow	=	Bl ue w/Bl ack

PEDS

Wal k	=	Green
Don' t Wal k	=	Red
Button	=	Bl ack & Orange

NOTE: If there is a back to back 3 section with ball indications, then use solid colored conductors for NB & EB, and tracer conductors for SB & WB.

Electrical Wire Traffic Signals 10 AWG		
LOCATION		655.0515
STH 15 & Casaloma (S-666)		
		(Equipment Grounding Conductor)
		(Green)
		LF
FROM	TO	
CB1	SB1	120
SB1	PB1	70
SB1	SB2	220
SB2	PB3	100
SB2	PB5	40
SB2	SB3	140
SB3	PB6	80
SB3	PB7	40
SB3	SB4	220
SB4	PB8	80
SB4	SB5	200
SB5	PB10	100
SB5	PB11	40
SB5	SB6	200
SB6	PB12	110
SB6	PB13	60
SB6	SB7	200
SB7	PB14	100
SB7	PB16	50
SB7	SB8	110
SB8	PB17	40
SB8	SB9	150
SB9	PB18	60
SB9	SB10	190
SB10	PB20	100
SB10	PB21	40
SB10	CB1	120
	TOTAL	2,980

ALL ITEMS CATEGORY 0010

Lighting Summary			
	657.1812	659.1115	659.1125
	Install	Luminaires	Luminaires
	Luminaire	Utility	Utility
	Arms	LED-A	LED-C
	Steel 12-FT		
LOCATION	EACH	EACH	EACH
STH 15 & Casaloma (S-666)	4	5	8
TOTALS	4	5	8

ALL ITEMS CATEGORY 0010

Signal Lighting Cable		
		655.0305
LOCATION		Type UF
STH 15 & Casaloma (S-666)		
		2-12 AWG
		Grounded
FROM	TO	LF
CB1	SB2	220
CB1	SB4	370
CB1	LB3	500
CB1	SB5	440
CB1	SB7	340
CB1	SB9	240
CB1	LB2	300
CB1	SB10	120
	TOTAL	2530

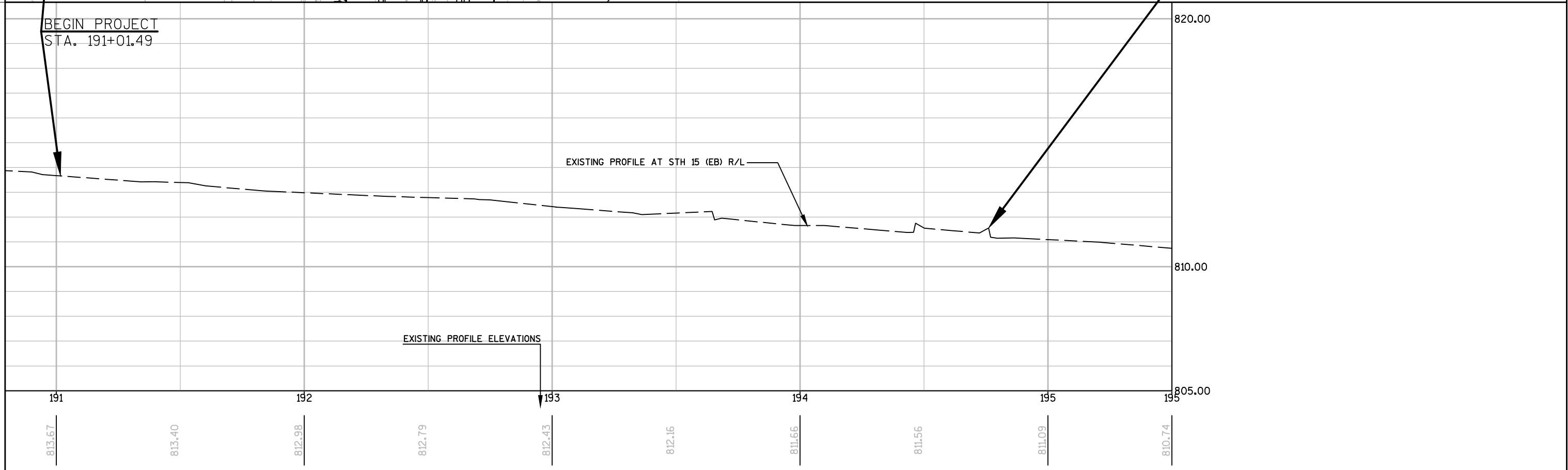
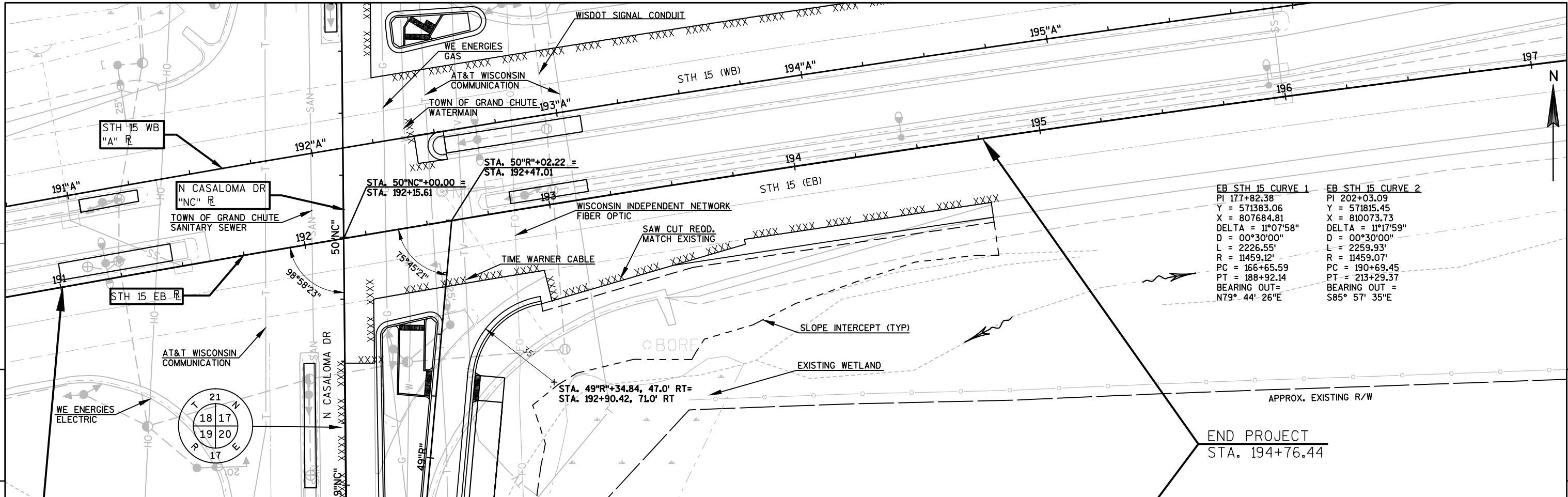
ALL ITEMS CATEGORY 0010

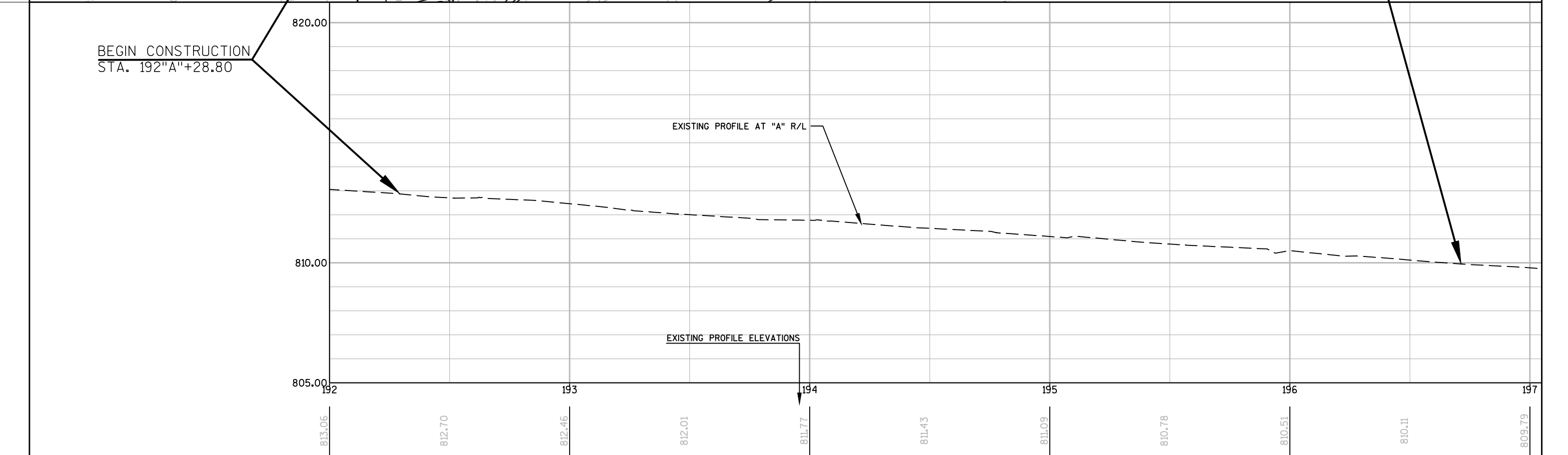
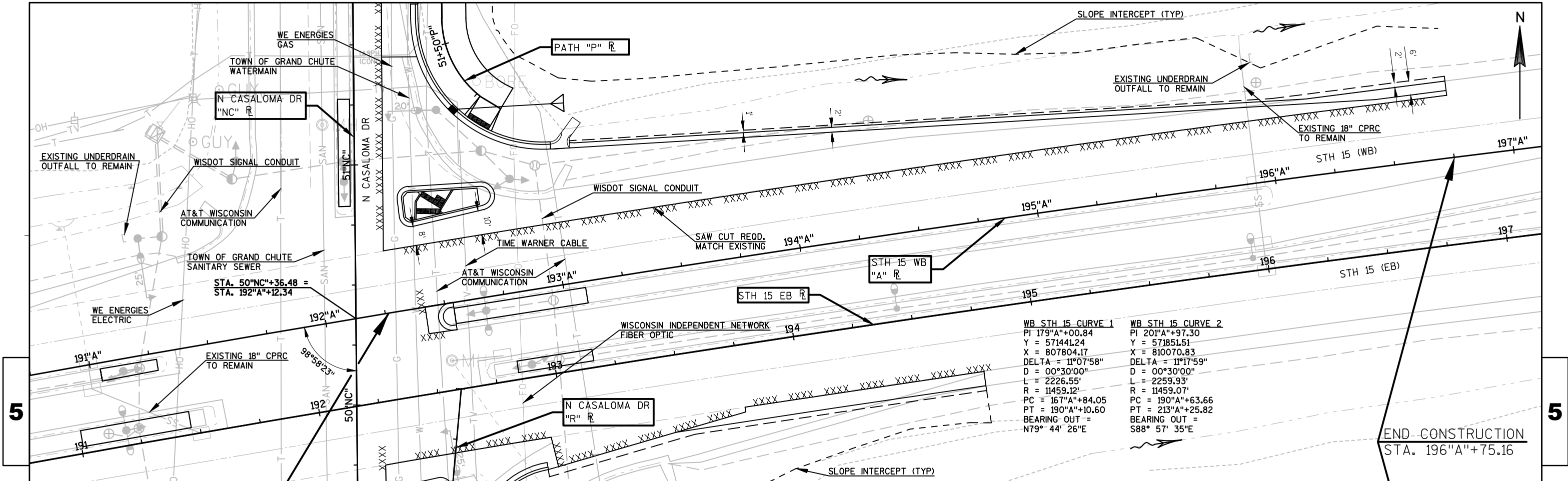
Electrical Wire Lighting 12 AWG		
LOCATION		
STH 15 & Casaloma (S-666)		
120 Volt System		655.0610
FROM	TO	LF
SB2	Luminaire	150
SB5	Luminaire	150
SB7	Luminaire	150
SB10	Luminaire	150
	TOTAL	600

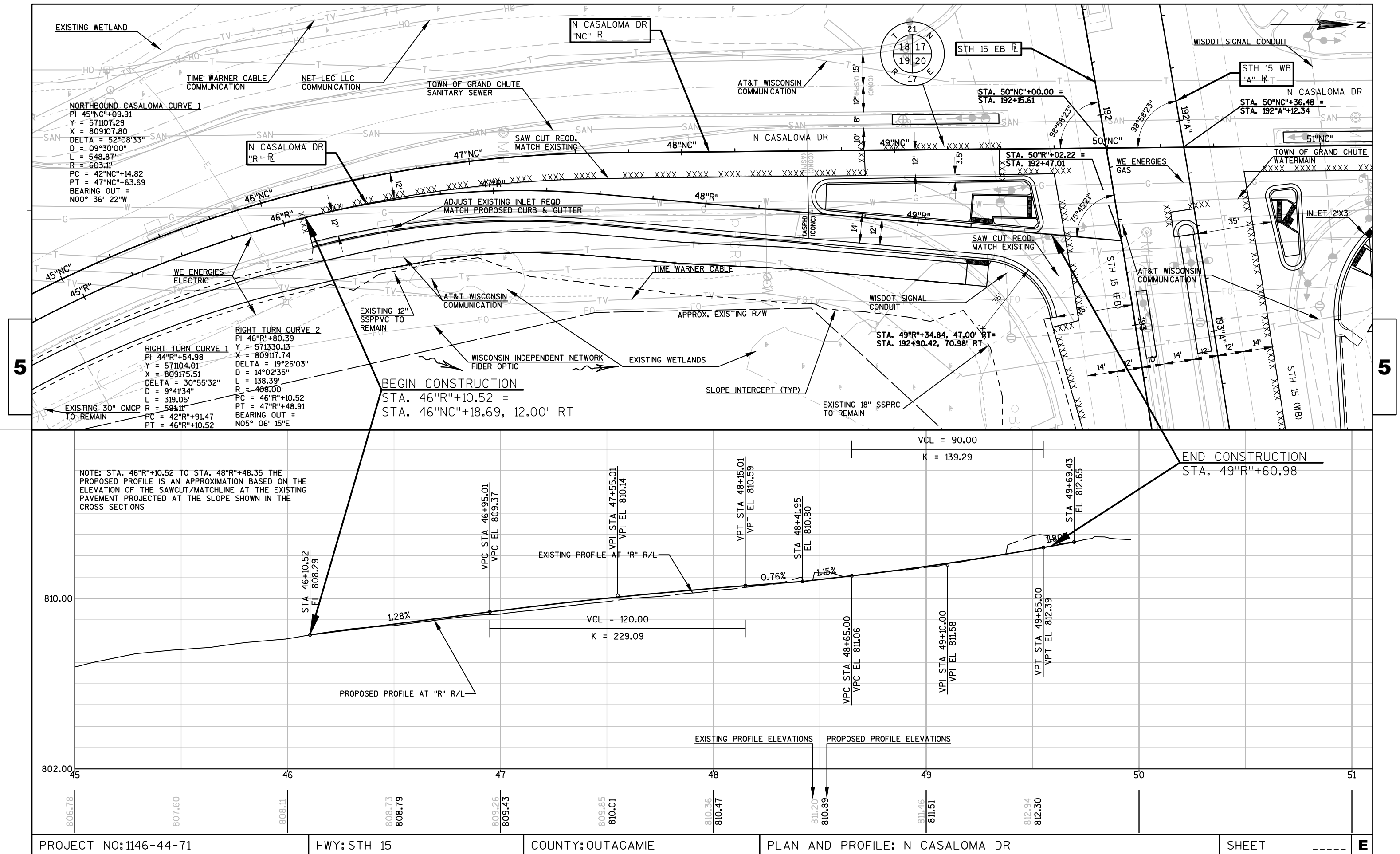
ALL ITEMS CATEGORY 0010

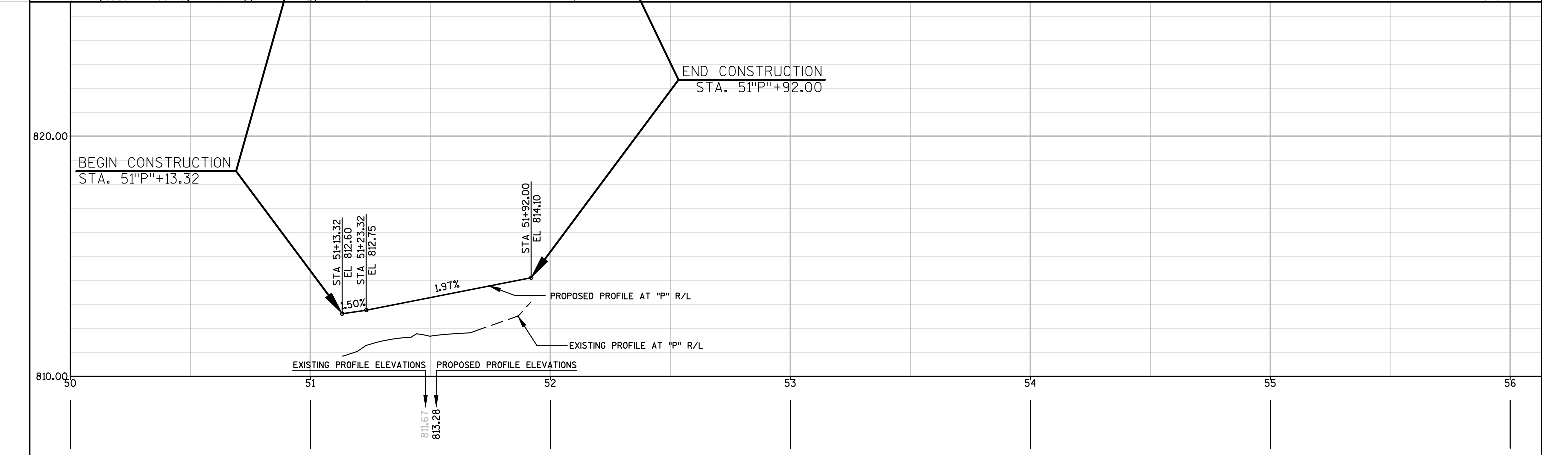
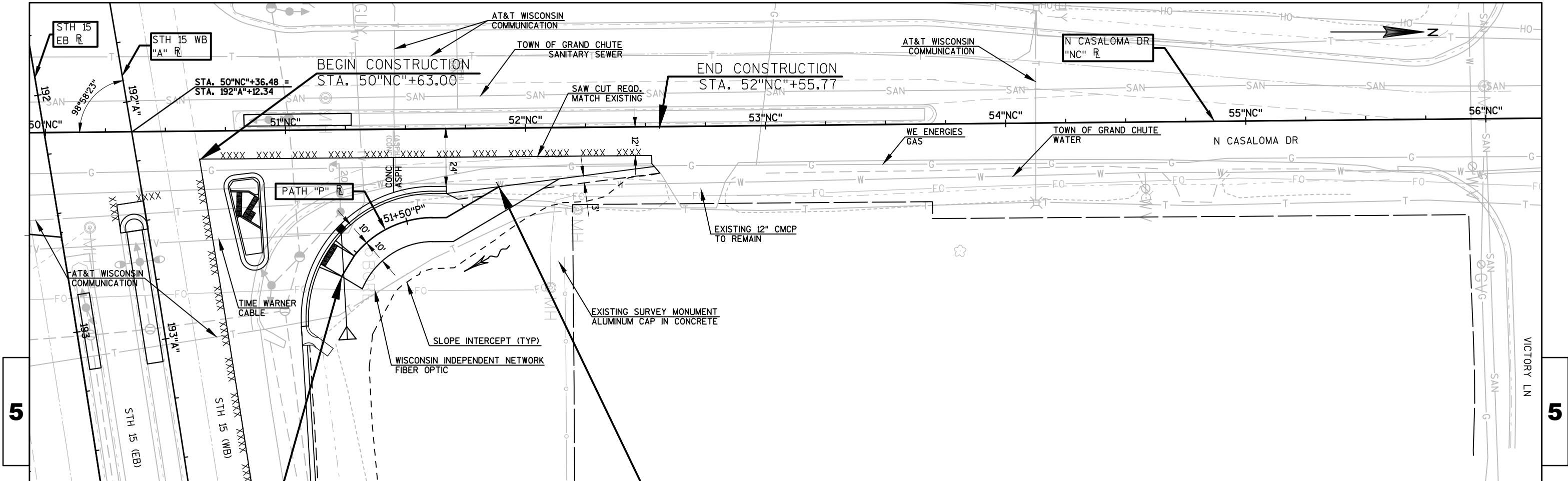
CONSTRUCTION STAKING											
				650. 4000		650. 4500		650. 5000		650. 5500	
				STORM		SUBGRADE		BASE		CURB GUTTER	
				SEWER				AND		CONCRETE	
				EA		LF		CURB & GUTTER		PAVEMENT	
				LOCATION		LF		LF		LF	
CATEGORY	STATION	TO	STATION	LOCATION	EA	LF	LF	LF	LF	LF	REMARKS
0010	192+23	-	194+76	RT	---	253	181	---	72	253	
0010	46' NC' +19	-	49' NC+75	RT	---	356	240	235	116	356	
0010	192' A' +28	-	196' A' +75	LT	2	447	---	---	447	447	
0010	50' NC+64	-	52' NC' +56	RT	---	192	111	22	81	192	
TOTALS					2	1, 248	532	257	716	1, 248	

SAWING SUMMARY							
				690. 0150		690. 0250	
				SAWI NG		SAWI NG	
				ASPHALT		CONCRETE	
CATEGORY	STATION	TO	STATION	LOCATION	LF	LF	REMARKS
0010	192+23	-	194+76	RT & LT	6	270	
0010	46' NC' +19	-	49' NC' +75	RT	255	140	
0010	192' A' +29	-	196' A' +75	RT	6	450	
0010	50' NC' +64	-	52' NC' +56	RT	113	80	
TOTALS					380	940	



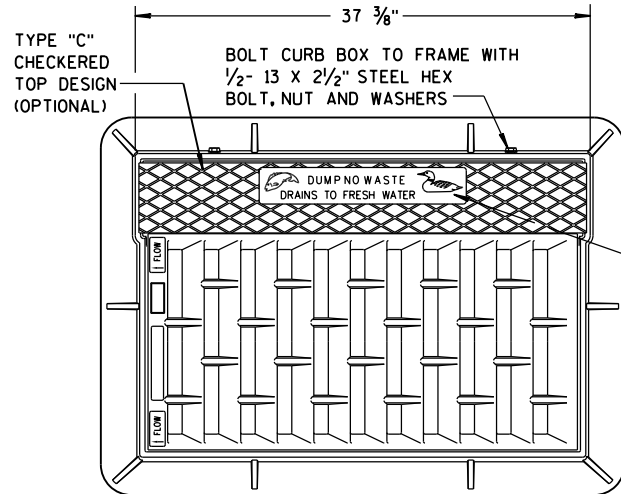




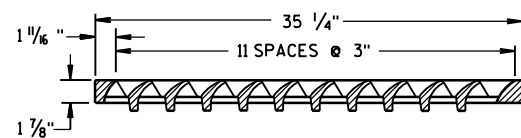
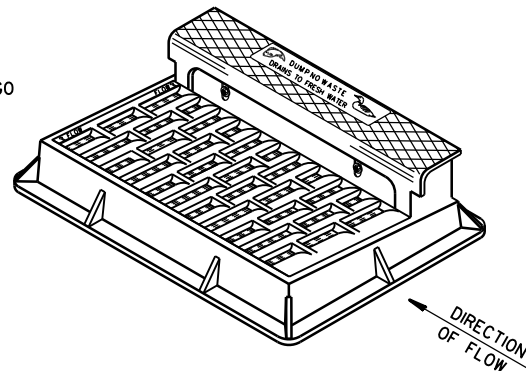


Standard Detail Drawing List

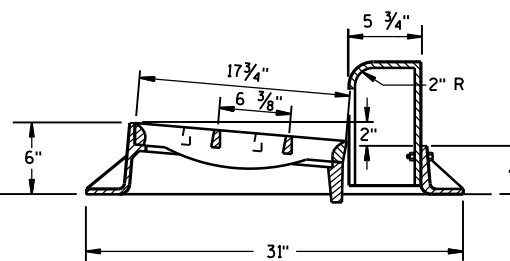
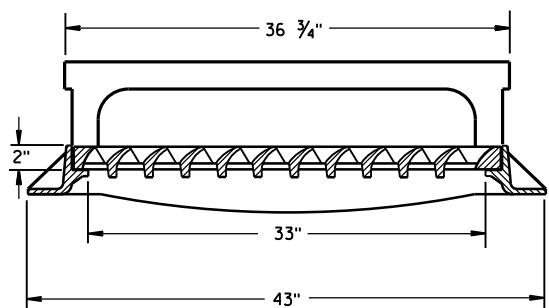
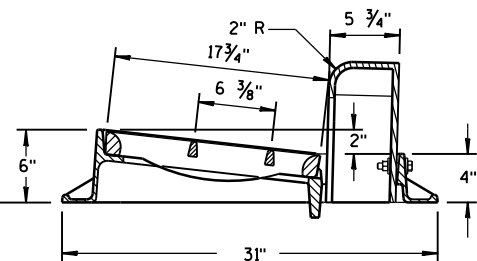
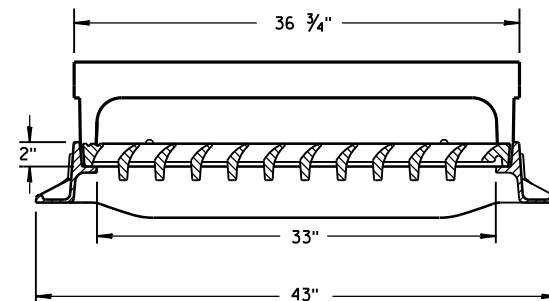
08A05-19C	INLET COVERS TYPE F, HM, HM-S, S, T, V, HM-GJ, & HM-GJ-S
08C07-01	INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT
08D01-18	CONCRETE CURB, CONCRETE CURB AND GUTTER AND TIES
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
08F04-07	JOINT TIES FOR CONCRETE PIPE AND CONCRETE COLLAR DETAIL
09B02-09	CONDUIT
09B04-11	PULL BOX
09C03-04	TRANSFORMER/PEDESTAL BASES
09C06-07	CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL
09C11-08	CONCRETE BASE TYPE 10
09C12-07A	CONCRETE BASE TYPE 13
09C13-02	CONCRETE BASE TYPE 10 & TYPE 13 EXTENSION
09E03-05	NON-FREEWAY LIGHTING UNIT POLE WIRING
09E06-05	TRAFFIC SIGNAL STANDARD POLY BRACKET MOUNTINGS (TYPICAL) 13 FT. OR 15 FT.
09E08-07A	TYPE 9 POLE 15' -30' MONOTUBE ARM
09E08-07C	TYPE 12 POLE 35' -55' MONOTUBE ARM
09E08-07E	GENERAL NOTES AND HARDWARE DETAILS FOR TYPE 9, 10, 12 & 13 POLES WITH MONOTUBE ARMS
09F09-04	LOOP DETECTOR PLACED IN CRUSHED AGGREGATE BASE (NEW CONCRETE PAVEMENT)
11B01-05	CONCRETE CORRUGATED MEDIAN
13C01-18	CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES
13C09-13A	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-13B	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C09-13C	CONCRETE PAVEMENT REPAIR AND REPLACEMENT
13C11-11A	RURAL DOWELED CONCRETE PAVEMENT
13C11-11B	RURAL DOWELED CONCRETE PAVEMENT
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
15A03-02A	FLEXIBLE MARKER POST FOR CULVERT END
15A03-02B	FLEXIBLE MARKER POST FOR CULVERT END
15C05-03	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 40 M. P. H. OR LESS
15C08-16A	PAVEMENT MARKING (MAINLINE)
15C08-16B	PAVEMENT MARKING (INTERSECTIONS)
15C08-16F	PAVEMENT MARKING (ISLANDS)
15C33-01	STOP LINE AND CROSSWALK PAVEMENT MARKING
15D20-03	TRAFFIC CONTROL, SINGLE LANE CLOSURE, NON-FREEWAY/EXPRESSWAY
15D21-03	TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE



NOTE:
GRATE IS REVERSIBLE.

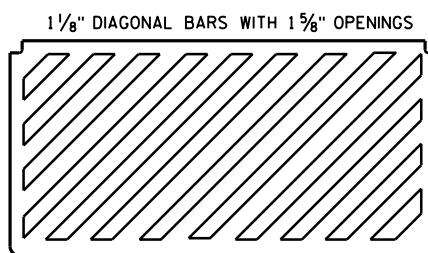


NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

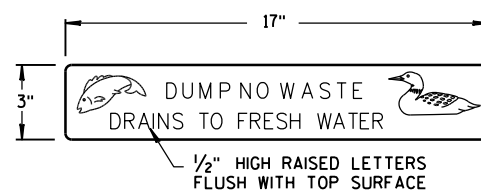


TYPE "H"

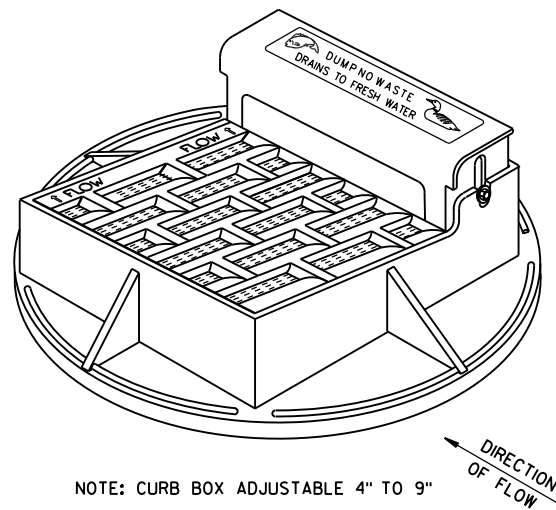
NOTE: EITHER CASTING IS ACCEPTABLE



SPECIAL GRATE FOR
TYPE "H" COVER
(MEASURES 35 1/4" X 17 3/4" X 2")
(NOTED AS TYPE H-S ON DRAINAGE TABLE)

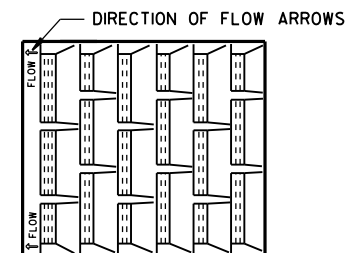


LOGO DETAIL

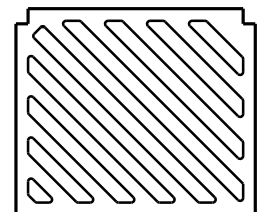


NOTE: CURB BOX ADJUSTABLE 4" TO 9"

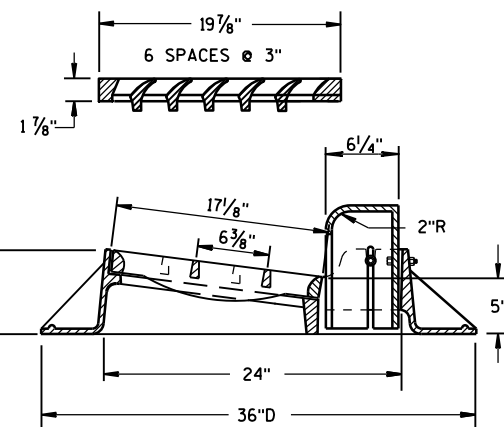
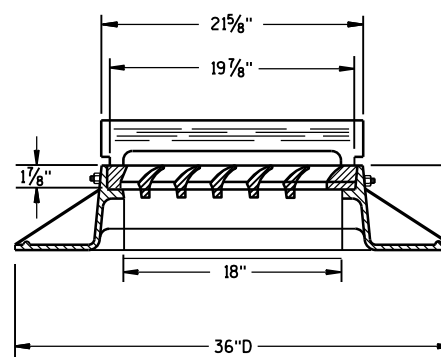
NOTE:
GRATE IS REVERSIBLE.



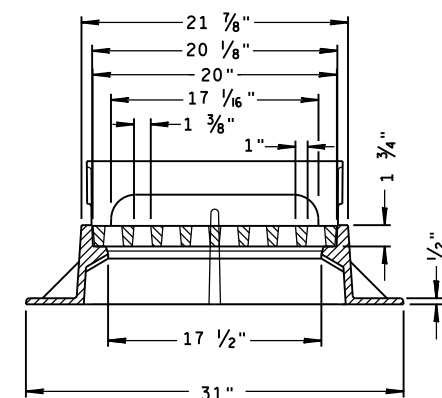
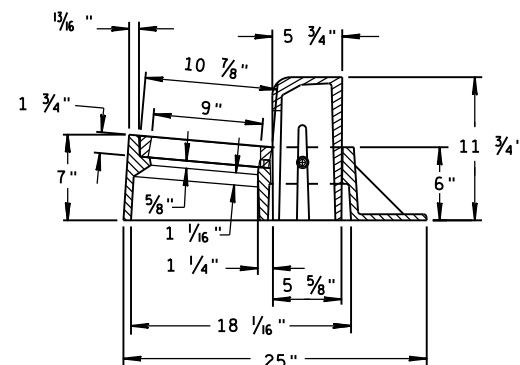
1" DIAGONAL BARS
WITH 1 1/2" OPENINGS



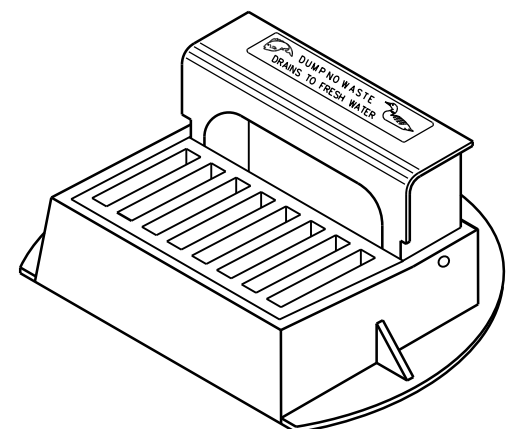
SPECIAL GRATE FOR
TYPE "A" COVER
(MEASURES 19 3/4" X 17" X 1 1/8")
(NOTED AS TYPE A-S ON DRAINAGE TABLE)



TYPE "A"



TYPE "Z"

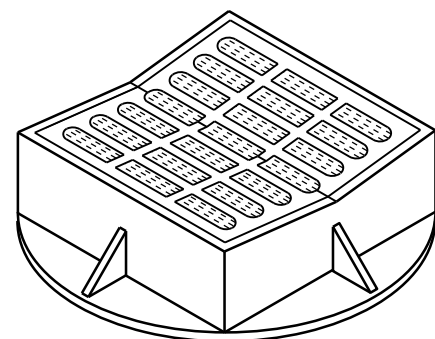
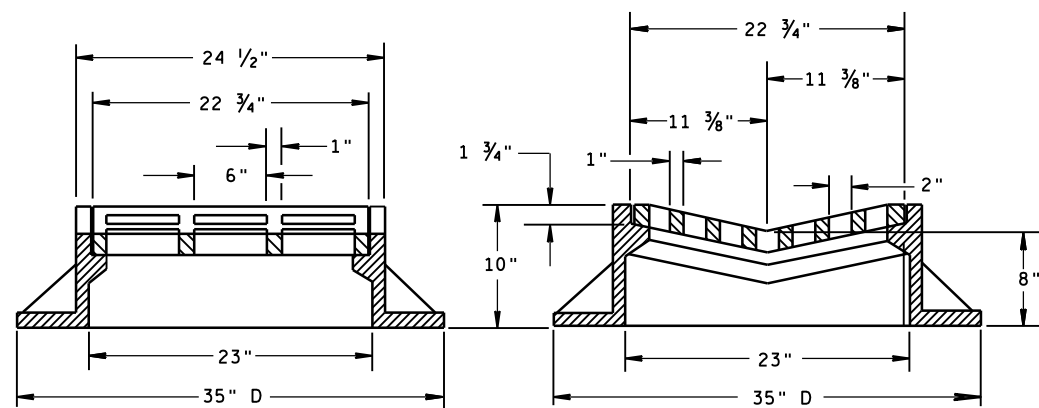


INLET COVERS
TYPE A, H, A-S, H-S & Z

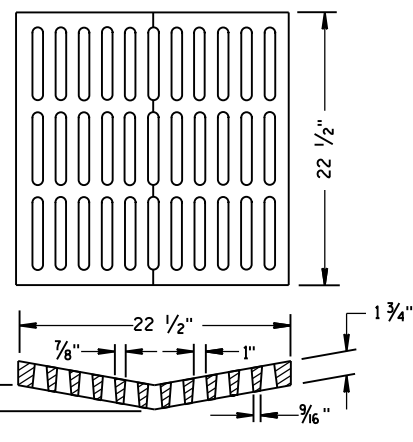
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11-27-13
DATE
FHWA

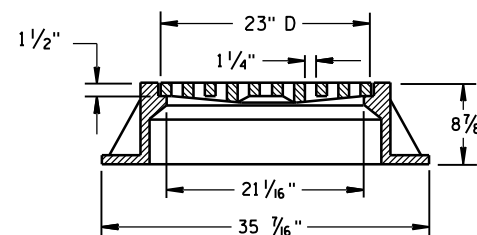
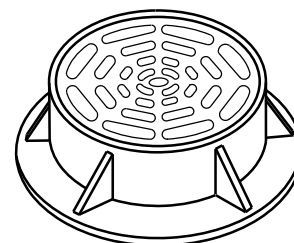
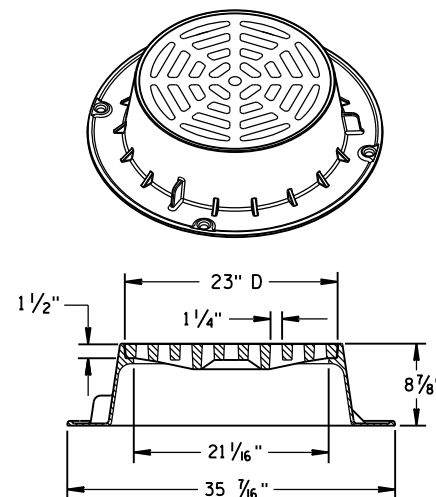
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



TYPE "B"

ALTERNATIVE GRATE FOR
TYPE "B" COVER

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS POSSIBLE.
 NOTED AS TYPE B-A ON THE DRAINAGE TABLE



TYPE "C"

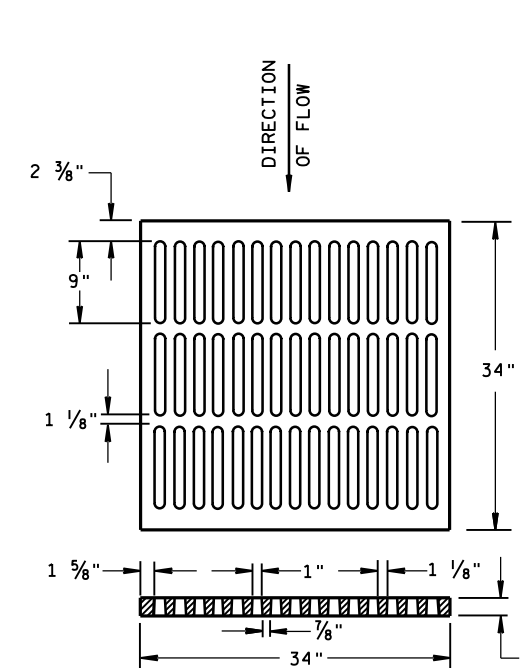
NOTE: EITHER CASTING IS ACCEPTABLE

GENERAL NOTES

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

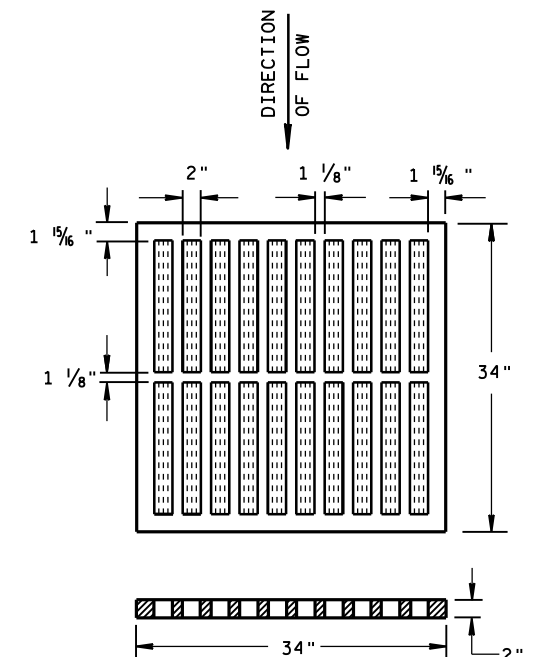
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR CATCH BASIN, MANHOLE AND INLET COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

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



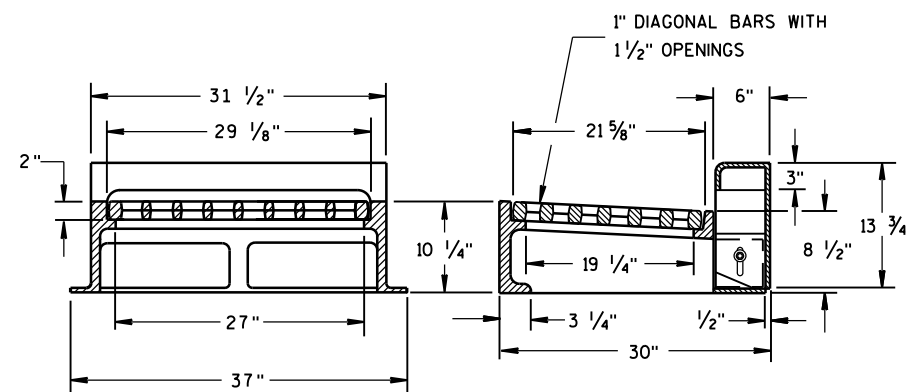
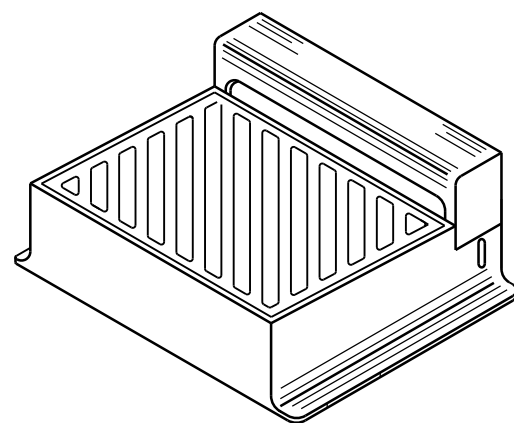
ALTERNATIVE TYPE "MS"

USE WHERE PEDESTRIAN OR BICYCLE TRAFFIC IS PERMITTED
 NOTED AS TYPE MS-A ON THE DRAINAGE TABLE



TYPE "MS"

USE ON FREEWAYS AND EXPRESSWAYS
 NOTED AS TYPE MS ON DRAINAGE TABLE



NOTE: CURB BOX HEIGHT ADJUSTABLE 6" TO 9"

TYPE "WM"

DIAGONAL SLOTS, SHALL BE ORIENTED
 TO THE DIRECTION OF FLOW AS ILLUSTRATED.
 GRATES ARE MANUFACTURED TO BE REVERSIBLE.

DIRECTION
OF FLOW

INLET COVERS
 TYPE B, B-A, C,
 MS, MS-A, & WM

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

APPROVED

11/27/2013

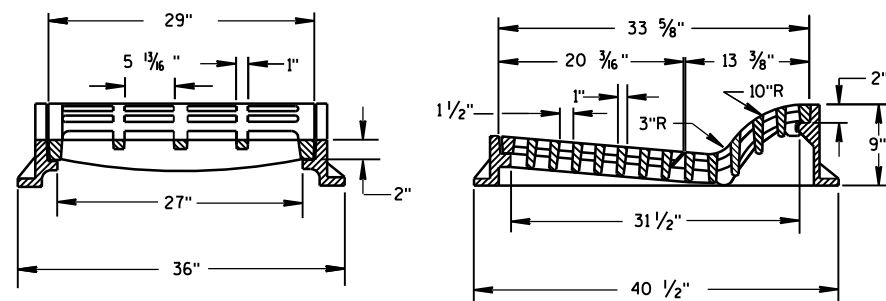
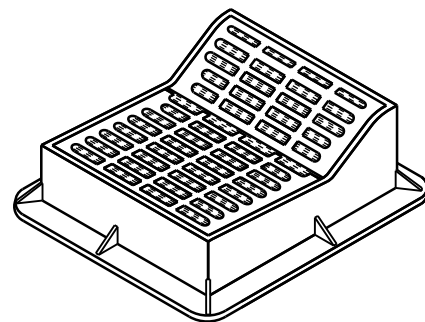
DATE

FHWA

/S/ Jerry H. Zogg

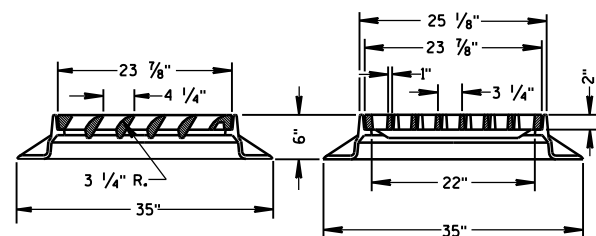
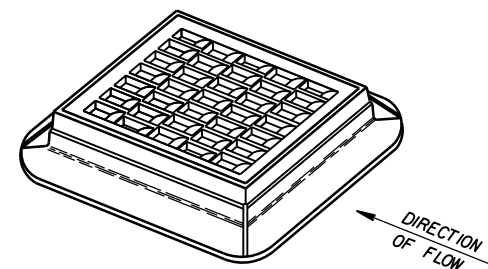
ROADWAY STANDARDS DEVELOPMENT

ENGINEER

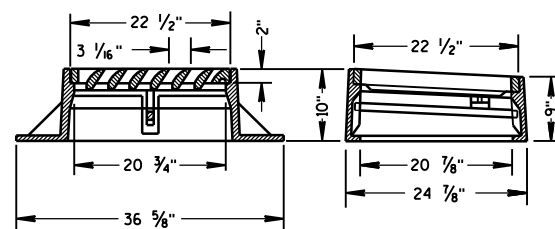
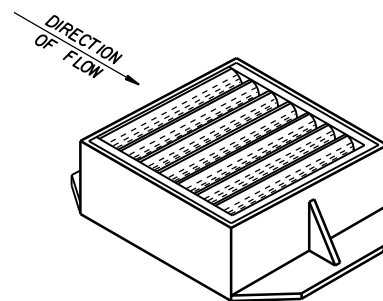


TYPE "F"

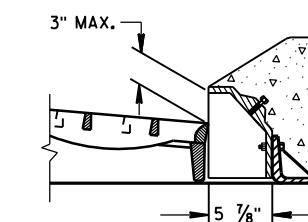
USE WITH TYPES A & D CONCRETE CURB & GUTTER, 36 INCH.



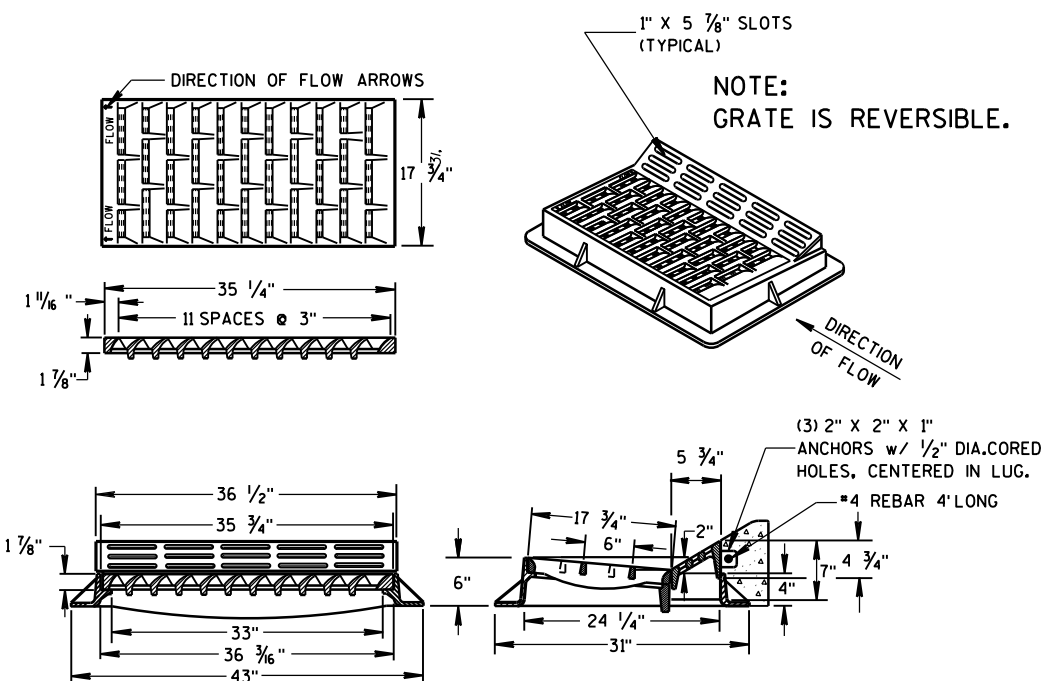
TYPE "S"



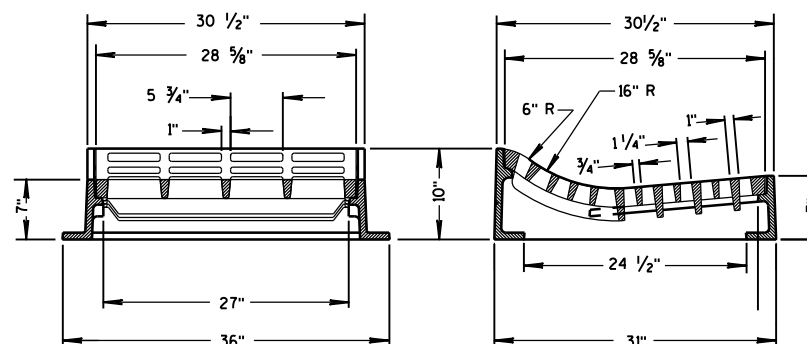
TYPE "V"

ALTERNATIVE CURB BOX
FOR TYPE "HM" COVERUSE WITH TYPES G & J CONCRETE CURB & GUTTER, 30 INCH
NOTED AS TYPE HM-GJ ON DRAINAGE TABLENOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM-GJ" COVER
NOTED AS TYPE HM-GJ-S ON DRAINAGE TABLE

GENERAL NOTES

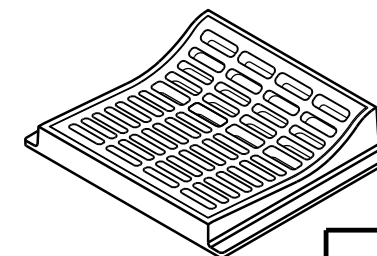
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING
SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND
THE APPLICABLE SPECIAL PROVISIONS.DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLET COVERS SHALL BE SUBMITTED
TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION
FOR EQUIVALENT CAPACITY AND STRENGTH.

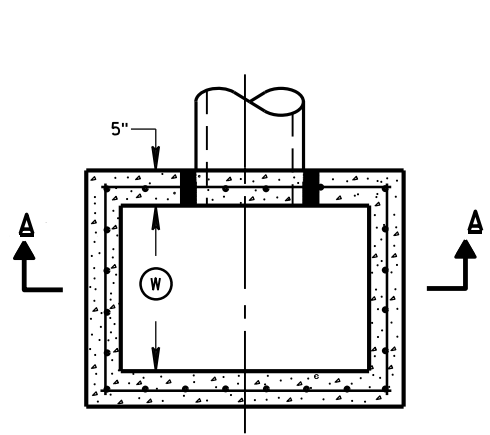
TYPE "HM"

USE WITH TYPES A & D CONCRETE
CURB & GUTTER, 36 INCH.NOTE:
SPECIAL GRATE FOR THE
TYPE "H" COVER MAY ALSO BE
USED FOR THE TYPE "HM" COVER
NOTED AS TYPE HM-S ON DRAINAGE TABLE

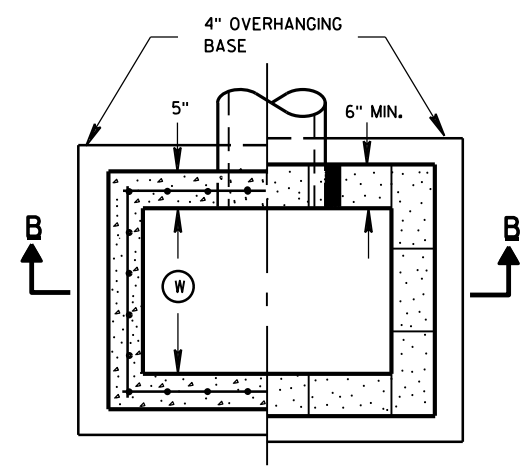
TYPE "T"

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

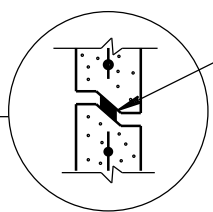
INLET COVERS
TYPE F, HM, HM-S, S, T, V,
HM-GJ, & HM-GJ-SSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATIONAPPROVED
11/27/2013
DATE
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA



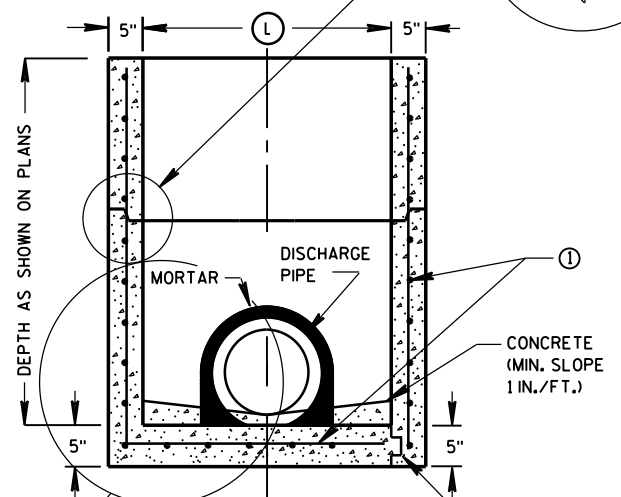
PLAN VIEW



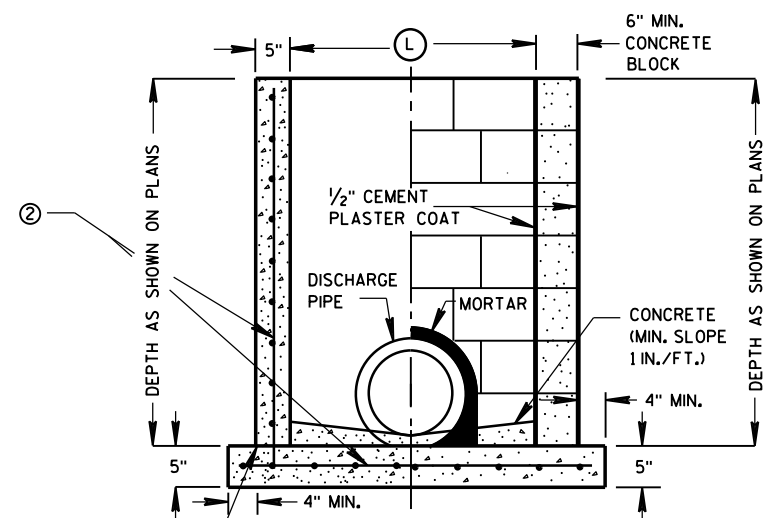
PLAN VIEW



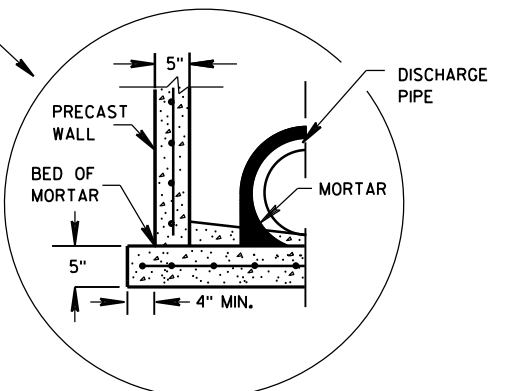
RISER JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



SECTION A-A



SECTION B-B



SEPARATE PRECAST REINFORCED CONCRETE BASE OPTION

INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

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 INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

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

ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATES 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.

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

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

4" OVERHANGING BASES ARE REQUIRED FOR CAST-IN-PLACE REINFORCED CONCRETE AND 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.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3 INCH CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

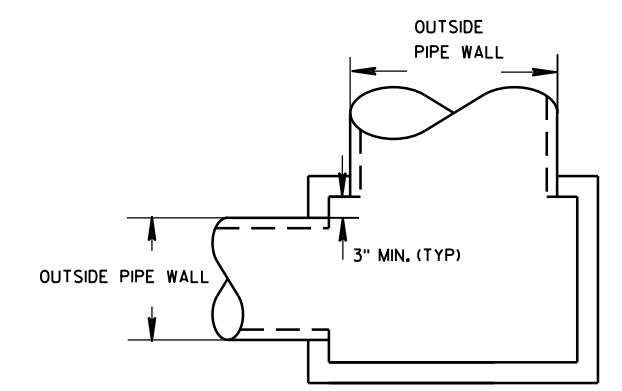
- ① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

INLET COVER MATRIX

INLET SIZE		INLET COVER TYPE	ALL A'S	ALL B'S	BW	F	ALL H'S	S	T	V	WM
	WIDTH ① (FT)	LENGTH ② (FT)									
2X2-FT	2	2	X	X				X		X	
2X2.5-FT	2	2.5			X			X	X	X	X
2X3-FT	2	3					X				
2.5X3-FT	2.5	3				X					

PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
2X2-FT	12	12
2X2.5-FT	12	18
2X3-FT	12	24
2.5X3-FT	18	24

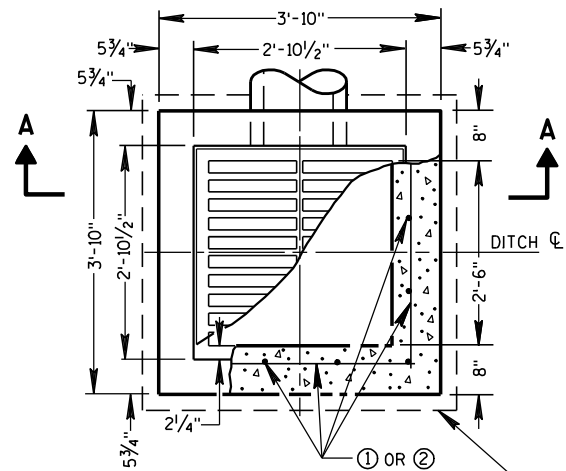


DETAIL "A"

INLETS 2X2-FT, 2X2.5-FT, 2X3-FT AND 2.5X3-FT

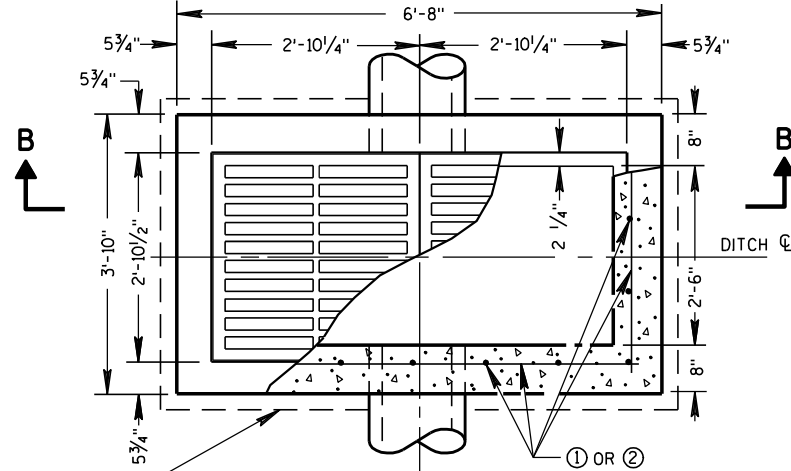
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

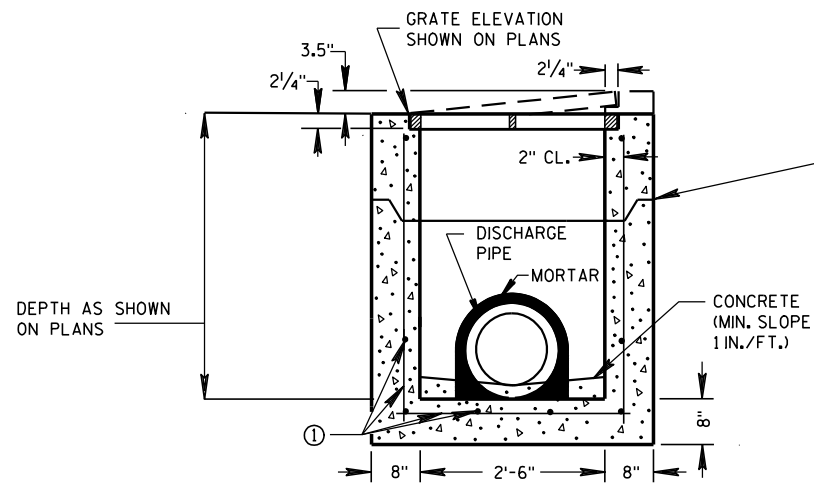


PLAN VIEW

4" OVERHANGING BASE ON REINFORCED CAST-IN-PLACE CONCRETE INLETS

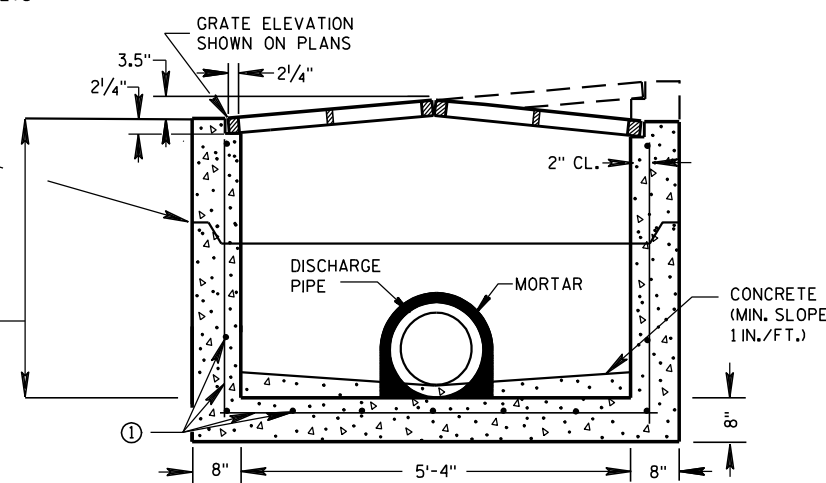


PLAN VIEW

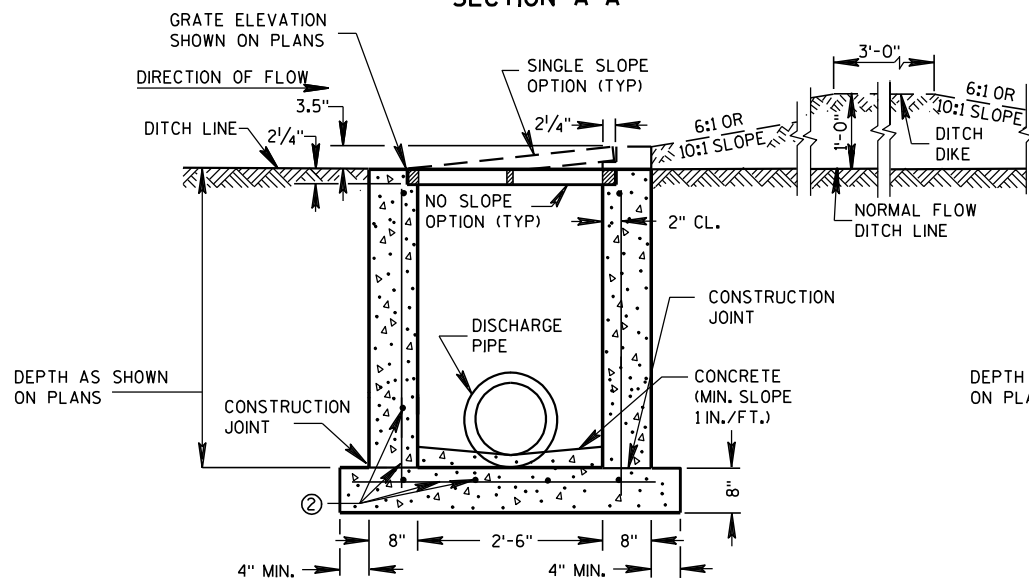


PRECAST REINFORCED CONCRETE SECTION A-A

SEE DETAIL "B"

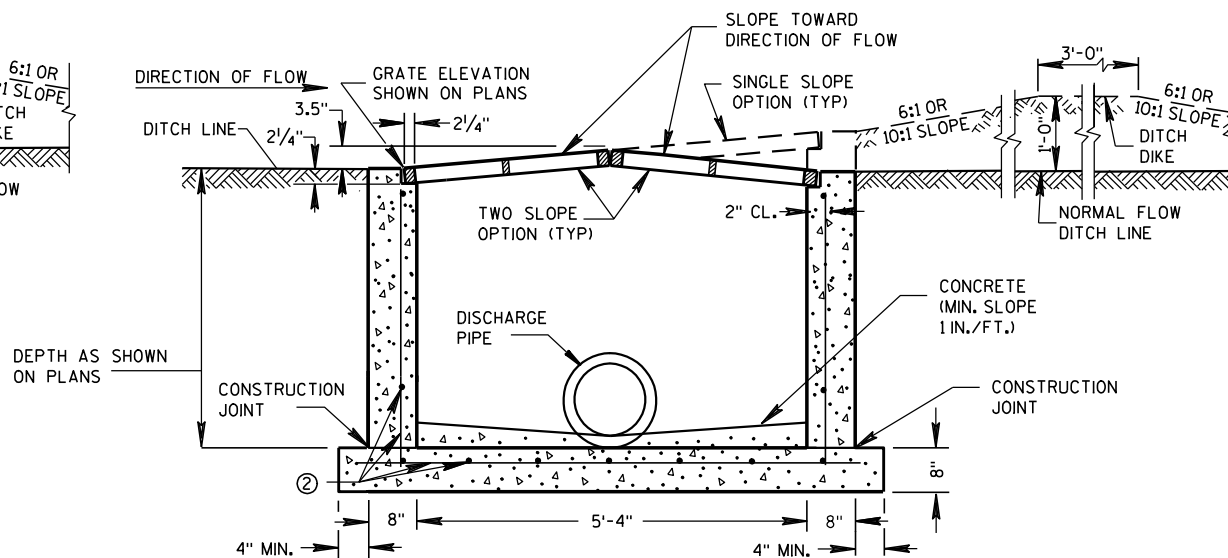


PRECAST REINFORCED CONCRETE SECTION B-B



REINFORCED CAST-IN-PLACE CONCRETE SECTION A-A

INLETS MEDIAN 1 GRATE



REINFORCED CAST-IN-PLACE CONCRETE SECTION B-B

INLETS MEDIAN 2 GRATE

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 INLET UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR INLETS WHICH MAY INCLUDE PRECAST REINFORCED CONCRETE INLETS, SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL MEDIAN INLETS ARE DESIGNATED ON THE PLANS AS "INLETS, IG-MS", ETC. THE FIRST NUMBER AND LETTER DESIGNATE THE TYPE OF STRUCTURE, AND THE FOLLOWING LETTERS DESIGNATE THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

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

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

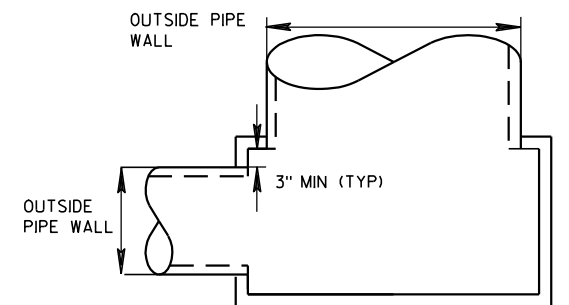
ALL PRECAST INLET UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF ASTM C 913.

MAXIMUM INSIDE PIPE DIAMETER DETERMINED BY 3" CLEARANCE ON EACH SIDE OF THE OUTSIDE WALL OF THE PIPE. SEE DETAIL "A". ASSUMES PIPE ENTERS PERPENDICULAR TO THE STRUCTURE.

- ① FOR PRECAST INLETS PROVIDE REINFORCING STEEL IN ACCORDANCE TO ASTM C 913.
- ② CONTRACTOR TO PROVIDE DRAWING(S) STAMPED BY A PROFESSIONAL ENGINEER FOR STEEL REINFORCING DESIGN FOR CAST-IN-PLACE STRUCTURES.

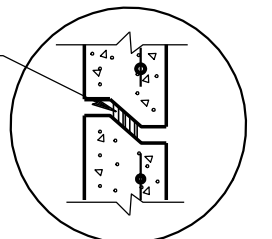
PIPE MATRIX

INLET SIZE	MAXIMUM INSIDE PIPE DIAMETER	
	WIDTH (IN)	LENGTH (IN)
1 GRATE	18	18
2 GRATE	18	42



DETAIL "A"

JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C 990 (TYP)



DETAIL "B"

INLETS MEDIAN 1 AND 2 GRATE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

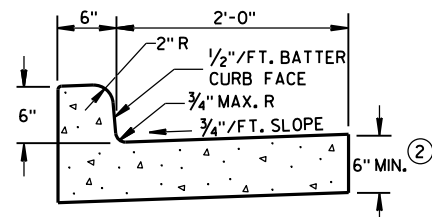
APPROVED

6/5/2012

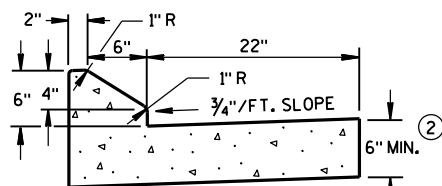
DATE

FHWA

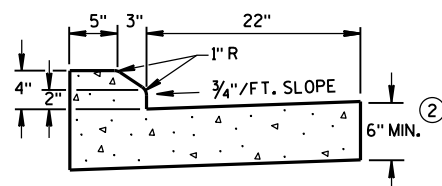
/s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



TYPES A & D ①

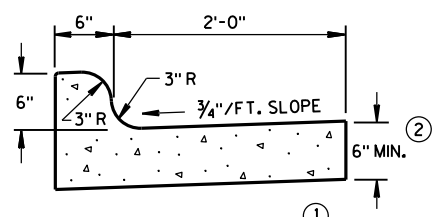


6" SLOPED CURB TYPES G & J ①



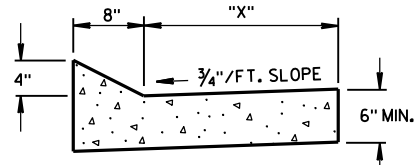
4" SLOPED CURB TYPES G & J ①

CONCRETE CURB & GUTTER 30"



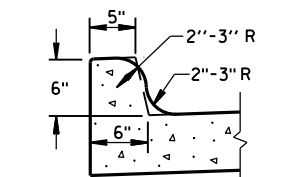
TYPES K & L ①

CONCRETE CURB & GUTTER 30"

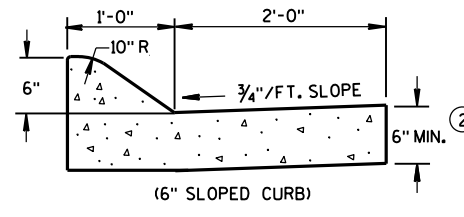


TYPES TBT & TBTT ①
CONCRETE CURB & GUTTER

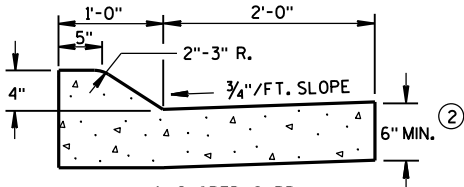
TBT & TBTT	"X"
30"	22"
36"	28"



OPTIONAL CURB SHAPE
FOR TYPES K & L ①

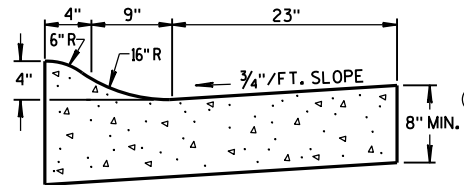


(6" SLOPED CURB)



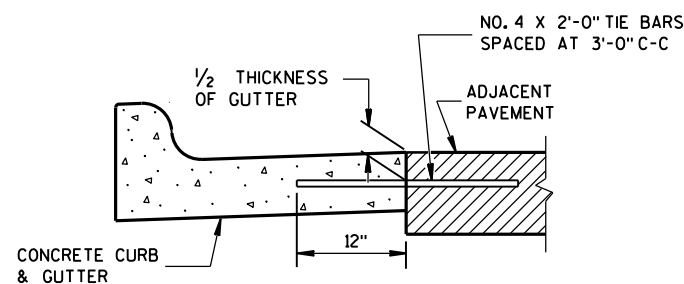
(4" SLOPED CURB)

TYPES A & D ①

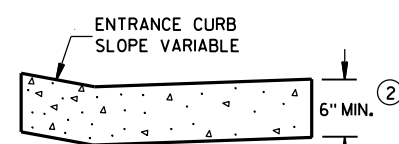


4" SLOPED CURB TYPES R & T ① ④

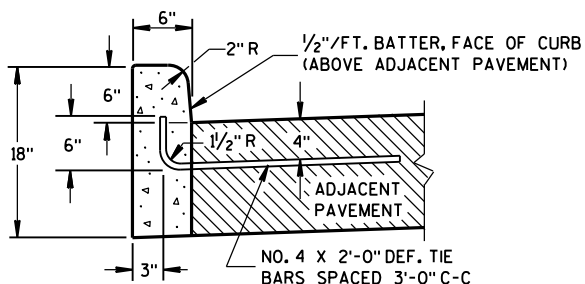
CONCRETE CURB & GUTTER 36"



TYPICAL TIE BAR LOCATION ①

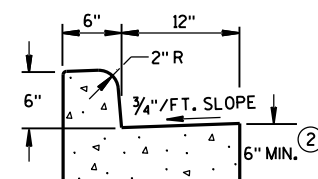


DRIVEWAY ENTRANCE CURB
(WHEN DIRECTED BY THE ENGINEER)

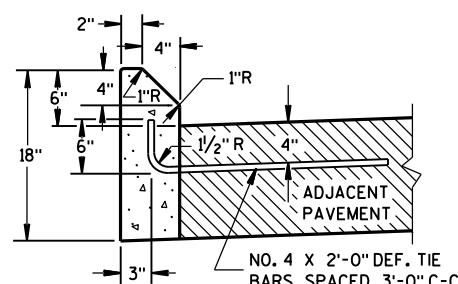


TYPES A & D ①

CONCRETE CURB



TYPES A & D
CONCRETE CURB & GUTTER 18"



TYPES G & J ①

GENERAL NOTES

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

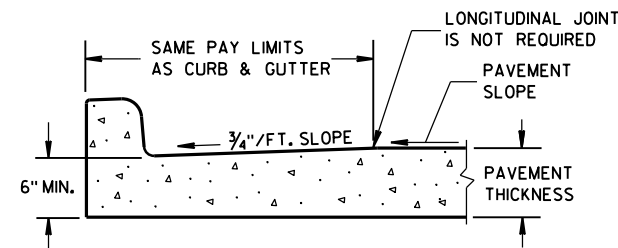
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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.

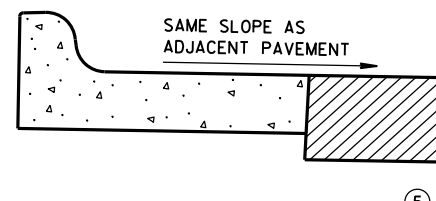
WHERE THE TRANSVERSE JOINTS IN THE PAVEMENT ARE REQUIRED TO BE SEALED, THE JOINTS IN THE INTEGRAL CURB AND GUTTER SHALL BE SEALED TO THE FACE OF CURB WITH THE SAME TYPE OF SEALANT. THE COST OF FURNISHING AND INSTALLING THIS SEALANT SHALL BE INCIDENTAL TO THE ITEM CONCRETE CURB AND GUTTER.

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

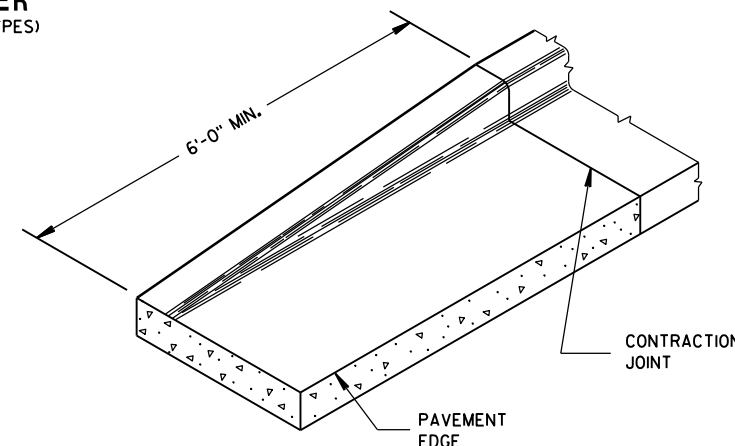
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTER TYPES A, G, K, R AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ④ THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑤ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.



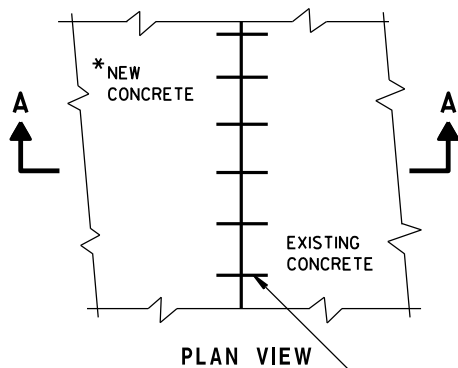
PARTIAL SECTION OF PAVEMENT
WITH INTEGRAL CURB & GUTTER



REVERSE SLOPE GUTTER
(TYPICAL FOR ALL CURB & GUTTER TYPES)



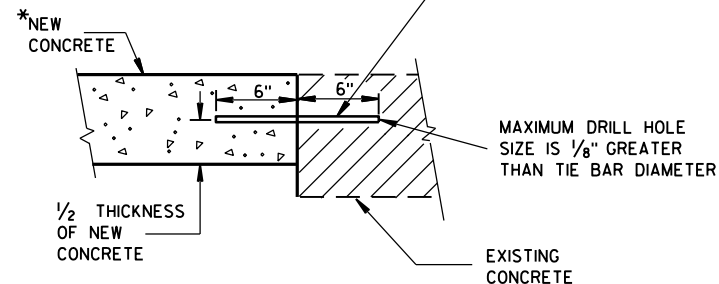
END SECTION CURB & GUTTER



PLAN VIEW

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

NO. 6 TIE BARS SPACED 2'-6" C-C,
INSTALLED PERPENDICULAR
TO THE LONGITUDINAL JOINT.



SECTION A-A
TIE BARS DRILLED
INTO EXISTING PAVEMENT

CONCRETE CURB, CONCRETE
CURB & GUTTER AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

6



PLAN VIEW
FLUME AT CURB END



6

S.D.D. 8 D 4-5

- ① JOINTS SHALL BE $\frac{1}{8}$ TO $\frac{1}{4}$ INCH WIDE BY $1\frac{1}{2}$ INCHES DEEP AND SPACED AT UNIFORM INTERVALS OF APPROXIMATELY 4 FEET.
- ② GEOTEXTILE FABRIC TYPE "R" SHALL UNDERLAY THE FULL LENGTH AND WIDTH OF THE CONCRETE SURFACE DRAIN AND RIPRAP.
- ③ CONCRETE SURFACE DRAIN WITHOUT CURB AND GUTTER MAY BE USED ON BACKSLOPES WHEN SPECIFIED

EXPANSION JOINT

CONCRETE CURB AND GUTTER

8'-0"

4'-0"

EDGE OF PAVEMENT

2" MIN. CURB HEIGHT

4" R

3'-0" MIN.

SURFACE DRAIN IS SYMMETRICAL WHEN CURB AND GUTTER IS CONTINUED

TAPER CURB TO FLOW LINE

JOINTS

SHOULDER OR BERM HINGE POINT

W3 WIRE MESH (SEE SECTION D-D)

RIPRAP

6'-0"

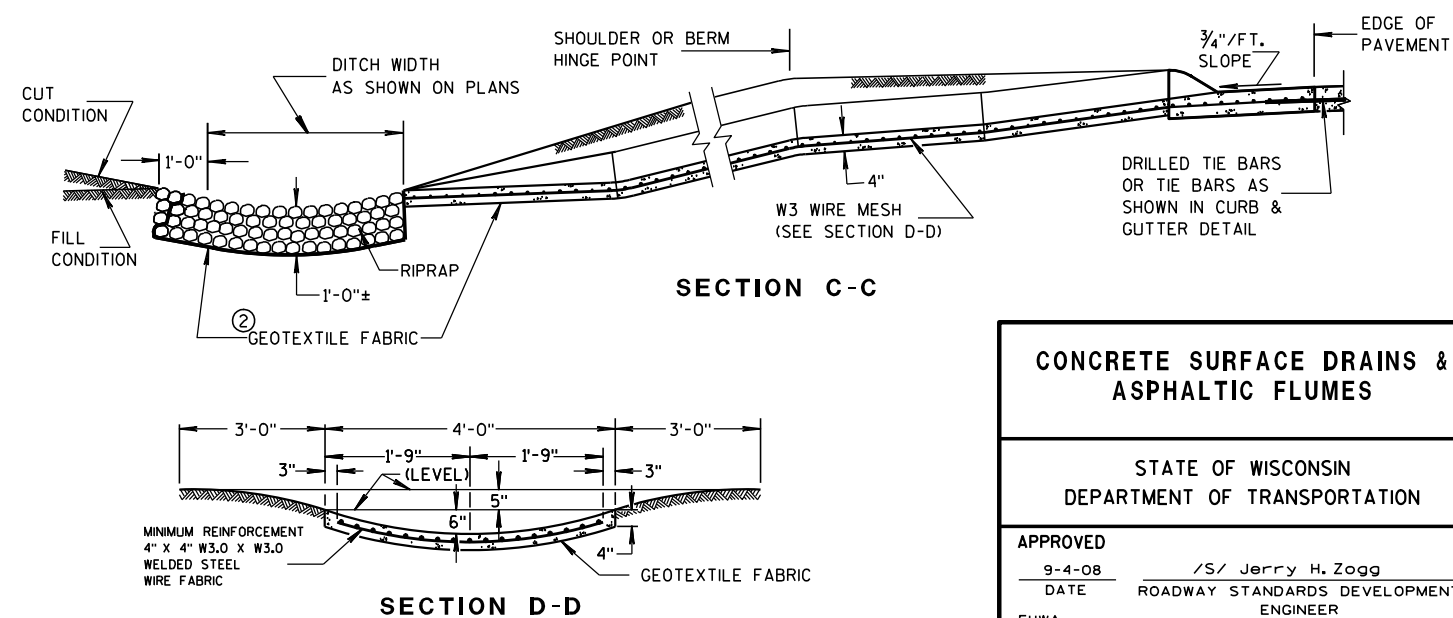
OR AS REQUIRED

1'-0" ON CUT SLOPE

DITCH

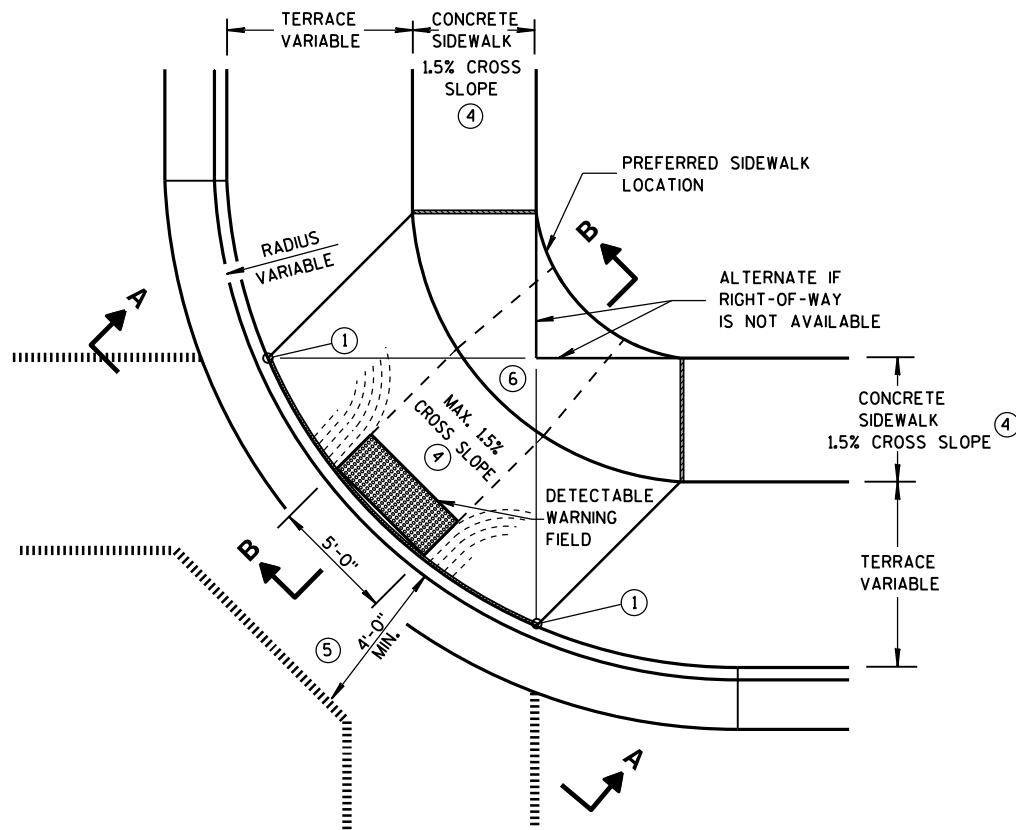
PLAN VIEW

PLAN VIEW

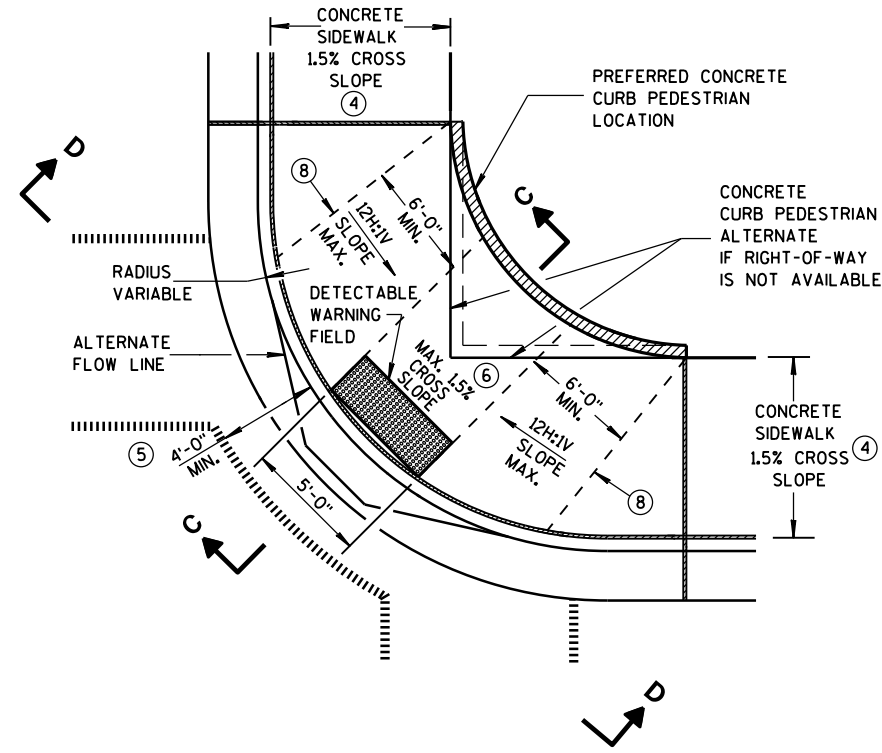


STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

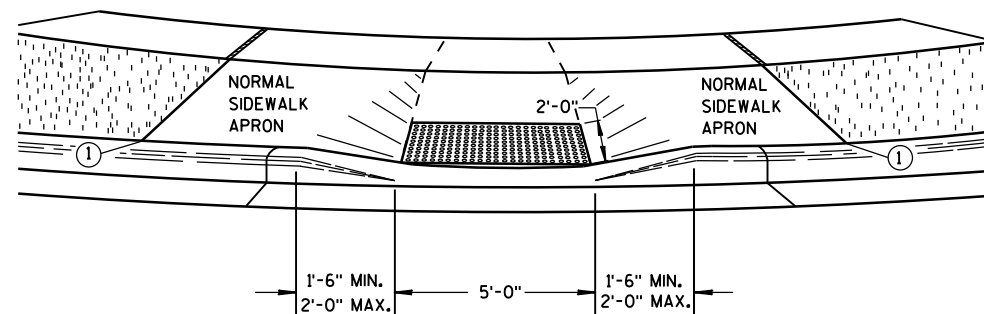
APPROVED
9-4-08 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER



**PLAN VIEW
TYPE 1 RAMP**
(CENTER OF CORNER RADIUS)

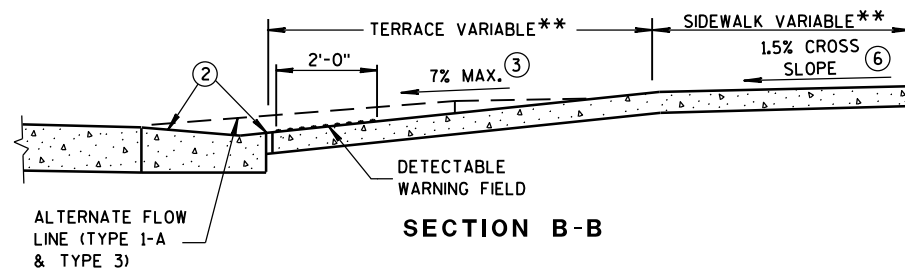


**PLAN VIEW
TYPE 1-A RAMP**
(NO TERRACE)

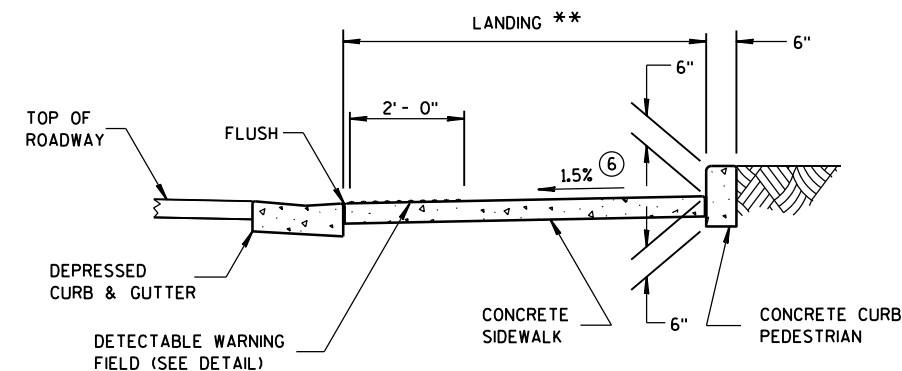


VIEW A-A

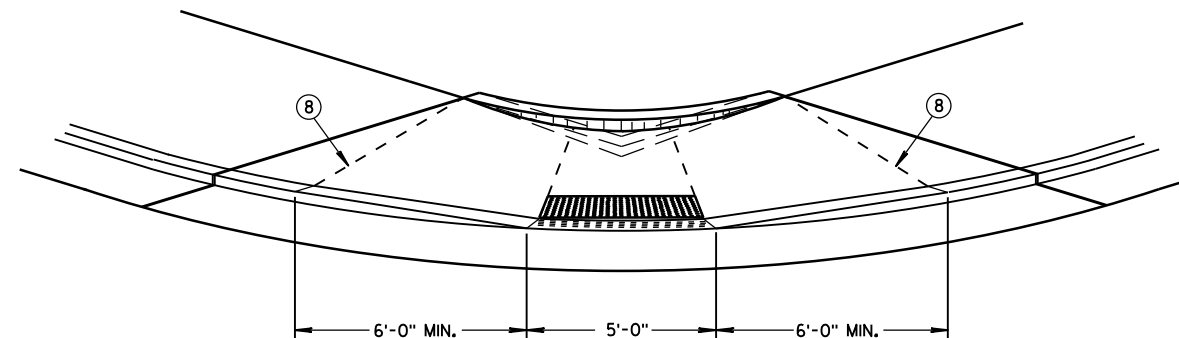
** WIDTH SHOWN ELSEWHERE
IN THE PLANS



SECTION B-B



SECTION C-C



VIEW D-D

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.

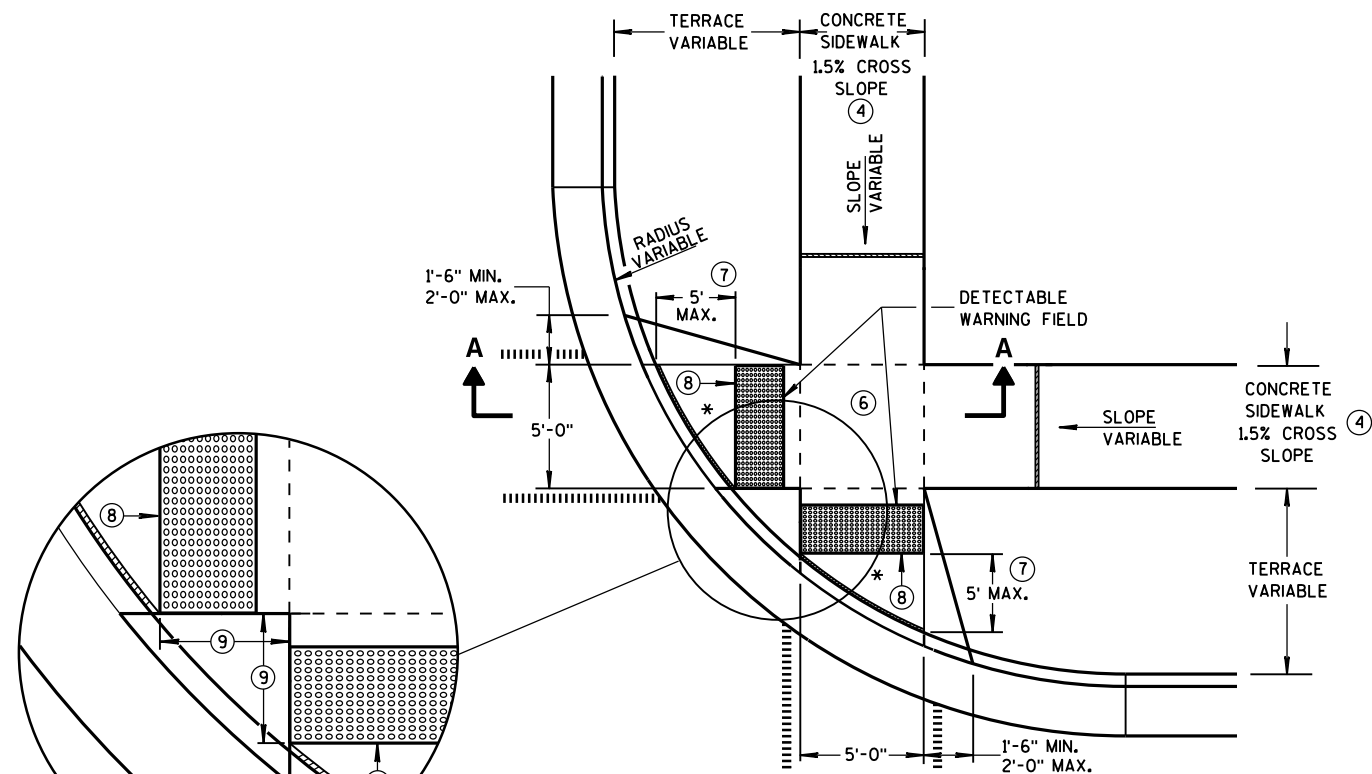
- ① THIS POINT IS AN EXTENSION OF OUTSIDE EDGE OF APPROACHING SIDEWALK WHERE IT MEETS THE BACK OF CONCRETE CURB.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.
- 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.

LEGEND

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

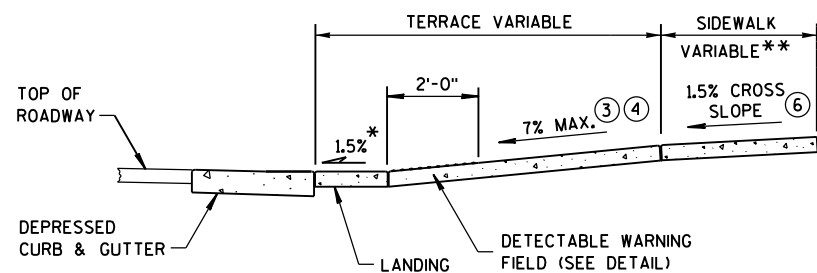
**CURB RAMPS
TYPES 1 AND 1-A**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



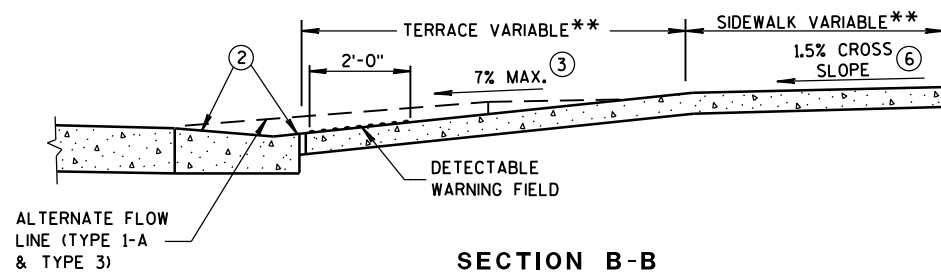
**PLAN VIEW
TYPE 2 RAMP**
(ON LINE WITH SIDEWALK)

* 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

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

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

② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.

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).

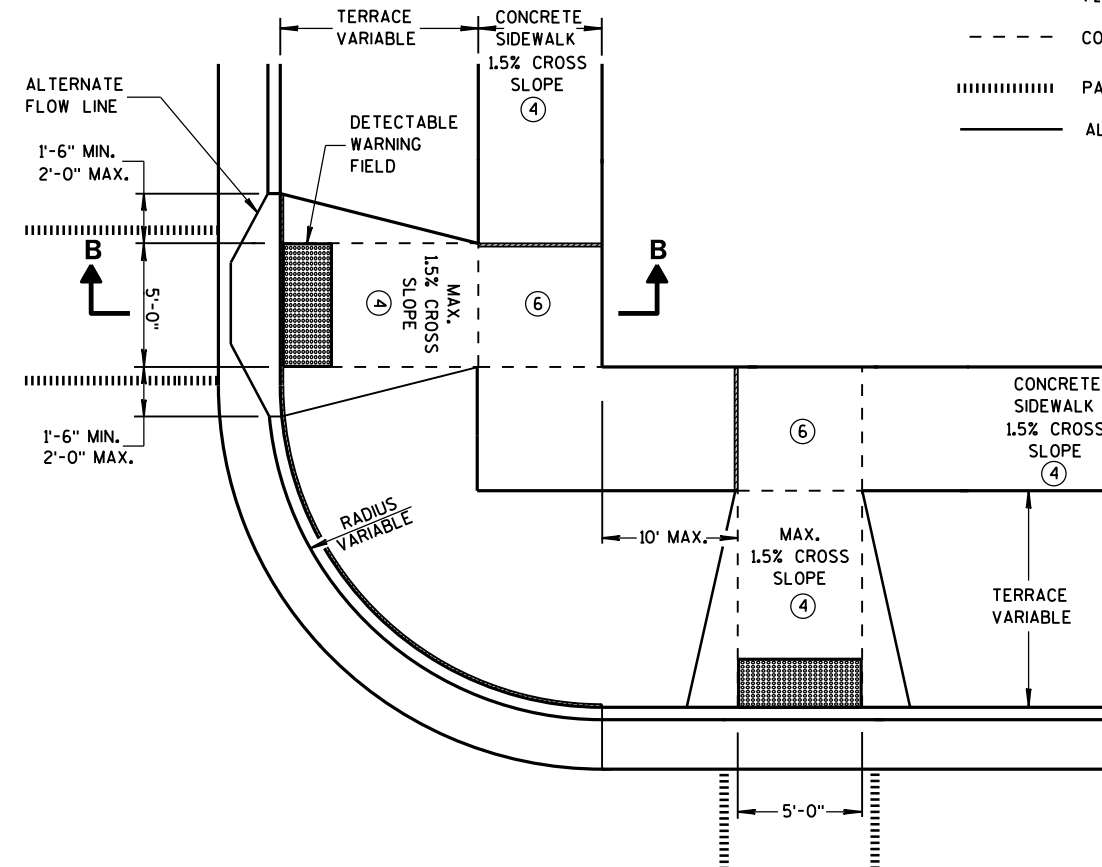
⑦ WHEN THIS DISTANCE EXCEEDS 5 FEET, USE MULTIPLE DETECTABLE WARNING PANELS ACROSS THE RAMP AND STAGGER ADDITIONAL DETECTABLE WARNING PANEL(S) FORWARD TO REDUCE THIS DISTANCE.

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. 2" MINIMUM CURB HEIGHT.

LEGEND

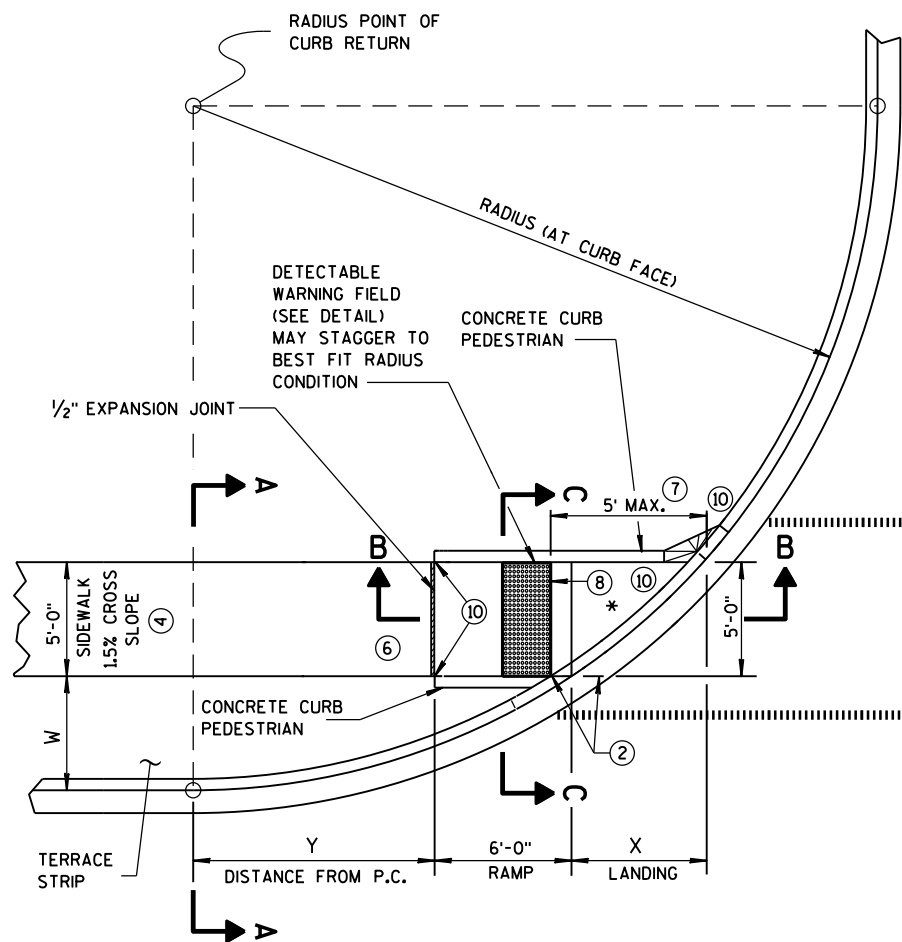
- 1/2" EXPANSION JOINT-SIDEWALK
- - - CONTRACTION JOINT FIELD LOCATED
- ||||| PAVEMENT MARKING CROSSWALK (WHITE)
- ALTERNATIVE LAYOUT



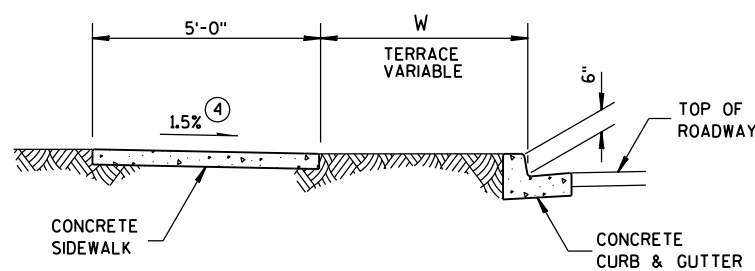
**PLAN VIEW
TYPE 3 RAMP**
(OUTSIDE OF CROSSWALK AREA)

**CURB RAMPS
TYPES 2 AND 3**

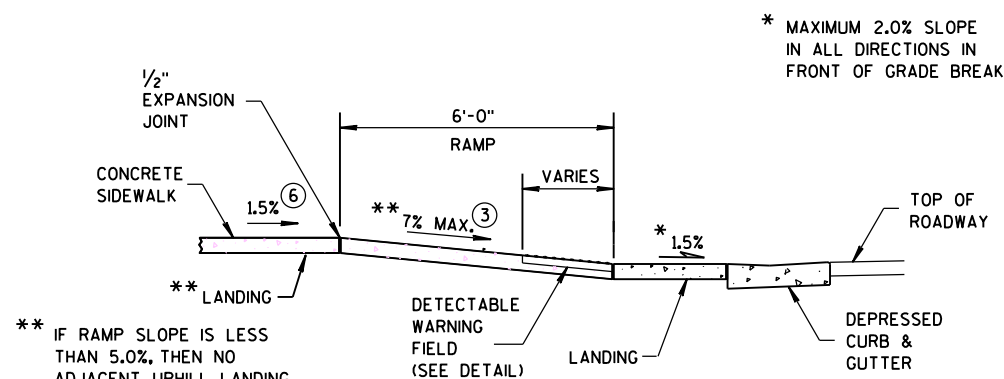
STATE OF WISCONSIN
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CURB RAMP TYPE 4B
PLAN VIEW

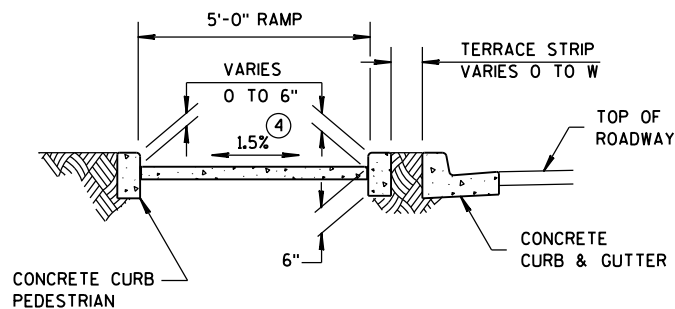


SECTION A-A FOR TYPE 4B

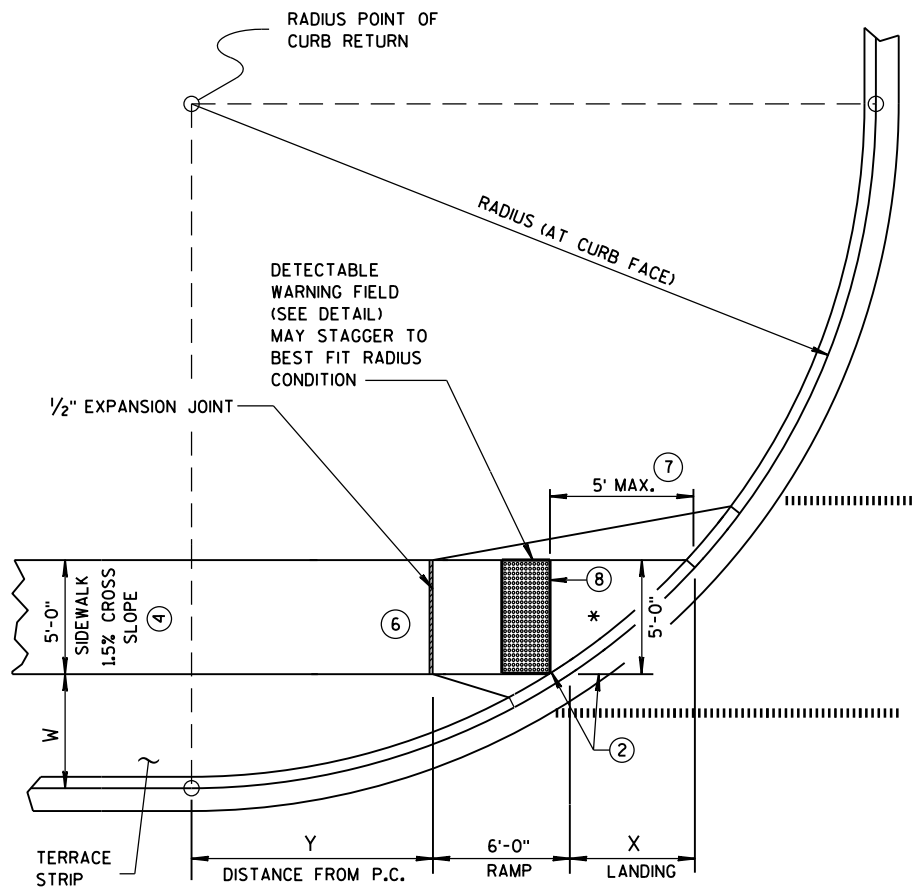


SECTION B-B FOR TYPE 4B

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



SECTION C-C FOR TYPE 4B

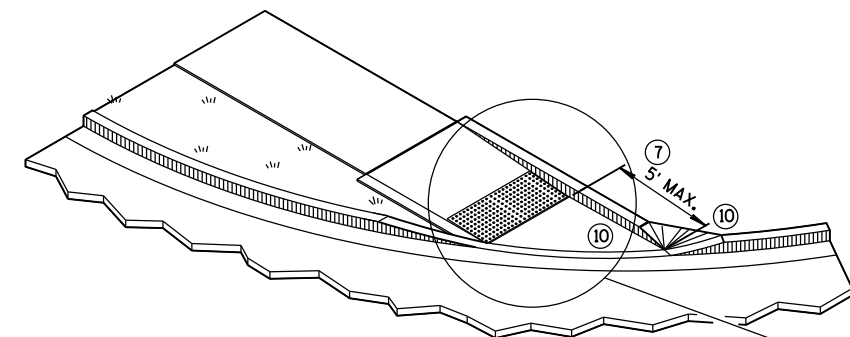


CURB RAMP TYPE 4B1
PLAN VIEW

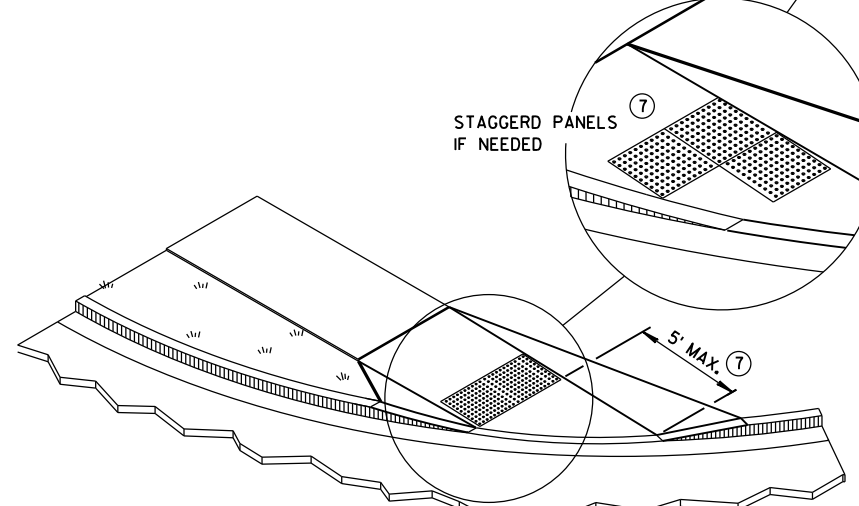
RADIUS (AT CURB FACE)	W = 3' - 0"		W = 4' - 0"		W = 5' - 0"		W = 6' - 0"		W = 7' - 0"	
	X	Y	X	Y	X	Y	X	Y	X	Y
20 FEET	5'-5 1/2"	4'-6 1/2"	4'-8 1/2"	6'-0"	4'-1"	7'-2 3/4"	3'-7"	8'-3 1/2"	3'-1 1/2"	9'-2 1/2"
30 FEET	7'-3 3/4"	7'-1"	6'-5 1/2"	8'-11 1/2"	5'-9 1/4"	10'-7"	5'-2 1/2"	12'-0"	4'-8 3/4"	13'-3 1/4"
40 FEET	8'-9 1/2"	9'-2 1/2"	7'-10"	11'-5 1/4"	7'-1"	13'-4 1/2"	6'-5 3/4"	15'-3/4"	5'-11 1/2"	16'-7 1/4"
50 FEET	10'-3/4"	11'-3/4"	9'-1/4"	13'-7 1/4"	8'-2 1/2"	15'-9 1/2"	7'-6 1/2"	17'-9"	6'-11 3/4"	19'-6 1/4"
60 FEET	11'-2 1/2"	12'-8 3/4"	10'-3/4"	15'-6 1/2"	9'-2 1/4"	17'-11 3/4"	8'-5 3/4"	20'-1 3/4"	7'-10 1/2"	22'-1 1/2"

GENERAL NOTES

- INTERMEDIATE RADII CAN BE INTERPOLATED
- 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.
- GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.
 - ABSOLUTE MAXIMUM 12H:1V (8.33%) CURB RAMP SLOPE IS ALLOWABLE WITH FLATTENED GUTTER FLAG SLOPE AND NOT TO EXCEED 11% GRADE CHANGE.
 - ±0.5% CONSTRUCTION TOLERANCE IN SIDEWALK CROSS SLOPE. THE SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2% WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
 - 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).
 - WHEN THIS DISTANCE EXCEEDS 5 FEET, USE MULTIPLE DETECTABLE WARNING PANELS ACROSS THE RAMP AND STAGGER ADDITIONAL DETECTABLE WARNING PANEL(S) FORWARD TO REDUCE THIS DISTANCE.
 - PROVIDE GRADE BREAK PERPENDICULAR TO DIRECTION OF WHEELCHAIR TRAVEL.
 - INSTALL TRANSITION NOSE. (INCIDENTAL TO OTHER PAY ITEMS). DO NOT MARK TRANSITION NOSE.



ISOMETRIC VIEW FOR TYPE 4B

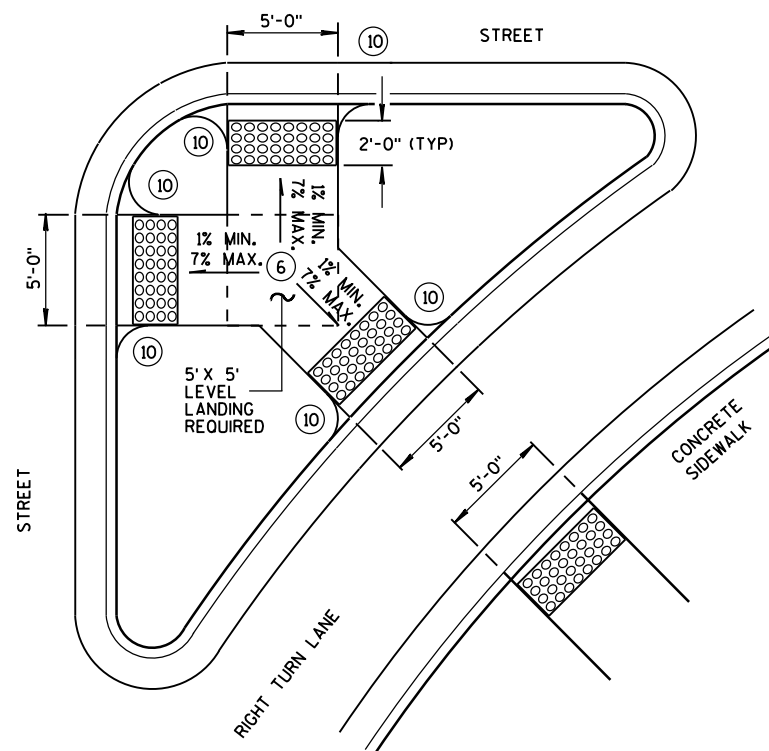


ISOMETRIC VIEW FOR TYPE 4B1

CURB RAMPS
TYPE 4B AND 4B1

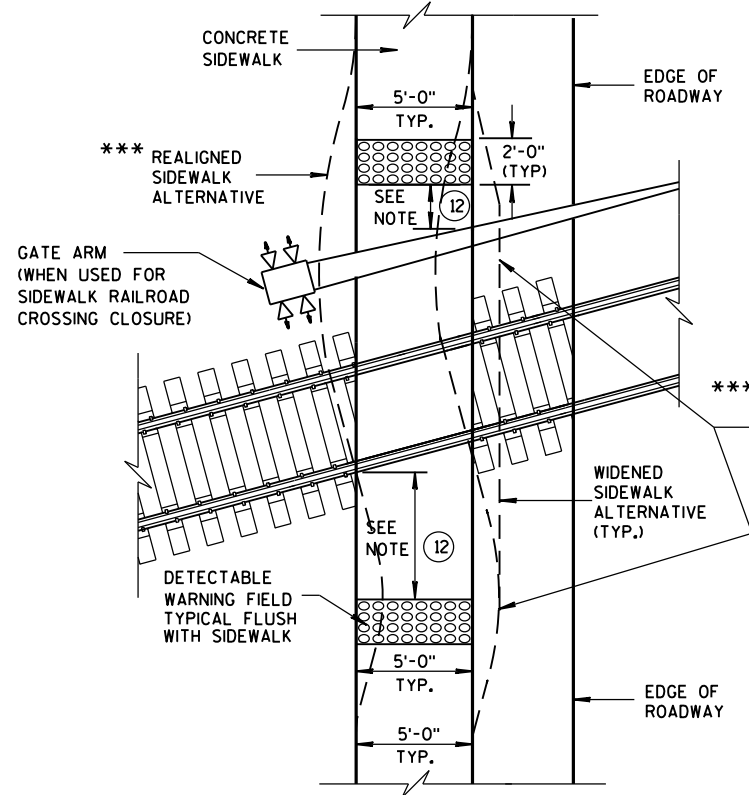
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

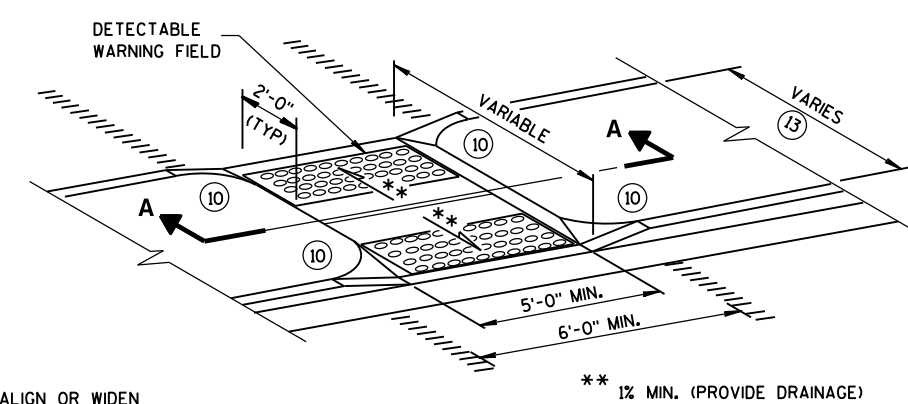


TYPE 6

DETECTABLE WARNING AT ISLANDS

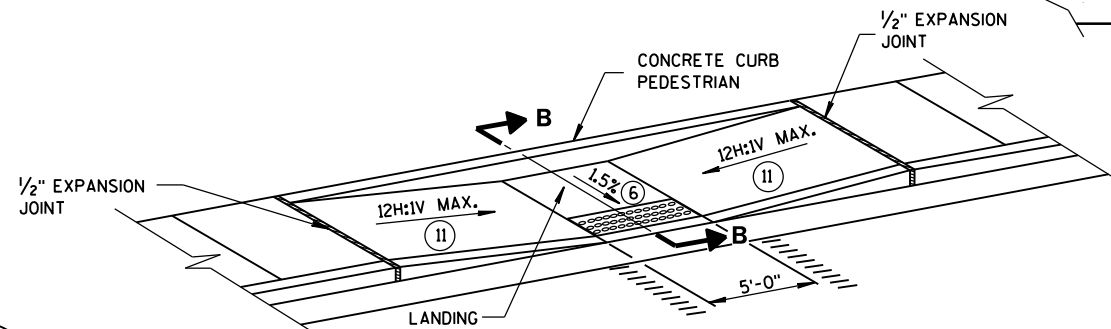


TYPE 8
DETECTABLE WARNINGS
AT RAILROAD CROSSING

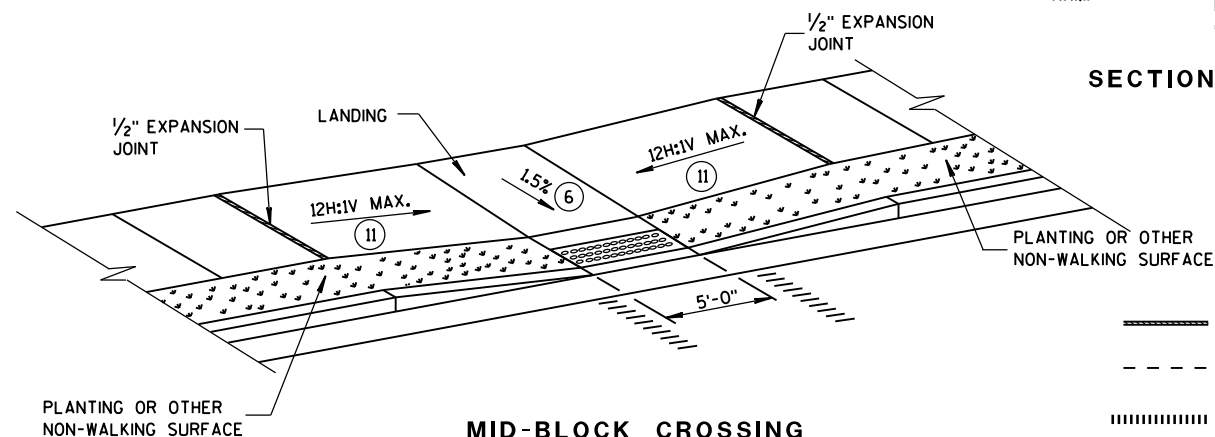


MEDIAN ISLAND
NON-ELEVATED CROSSING
TYPE 5

*** DETAILS TO BE DETERMINED
BY DESIGNER

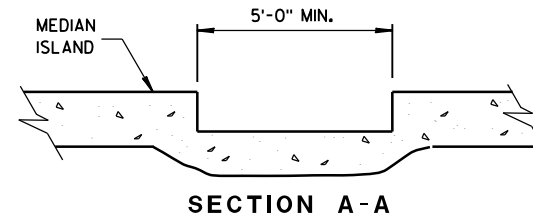


MID-BLOCK CROSSING
TYPE 7A

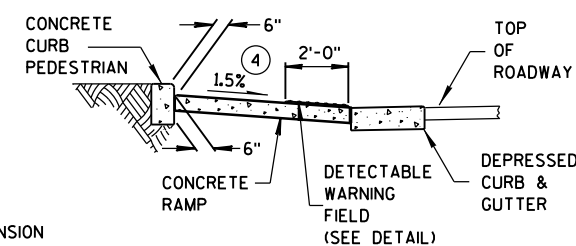


MID-BLOCK CROSSING
TYPE 7B

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



SECTION A-A



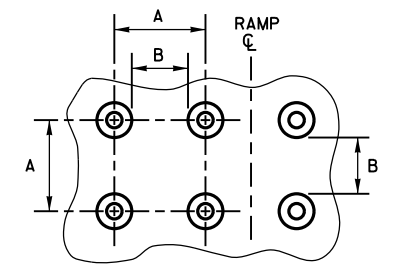
SECTION B-B

LEGEND

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

GENERAL NOTES

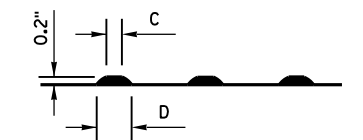
- SIDEWALK CROSS SLOPE SHALL NOT EXCEED 2%.
- DETECTABLE WARNING FIELDS THAT ARE INSTALLED AS A GROUP OR SIDE BY SIDE, SHALL BE FROM THE SAME MANUFACTURER.
- ② GRADE CHANGE BETWEEN GUTTER FLAG SLOPE AND THE CURB RAMP SLOPE SHALL NOT EXCEED 11%. MAXIMUM GUTTER FLAG SLOPE IS 4%. PROVIDE DRAINAGE AWAY FROM CURB RAMP AT GUTTER FLAG INTERFACE. NO VERTICAL LIPS OR DISCONTINUITIES GREATER THAN 1/4-INCH ARE ALLOWED.
- 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 15 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.



PLAN VIEW

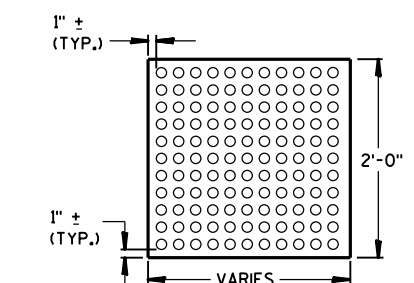
	MIN.	MAX.
A	1.6"	2.4"
B	0.65"	1.5"
C	*	*
D	0.9"	1.4"

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



ELEVATION VIEW

TRUNCATED DOMES
DETECTABLE WARNING PATTERN DETAIL



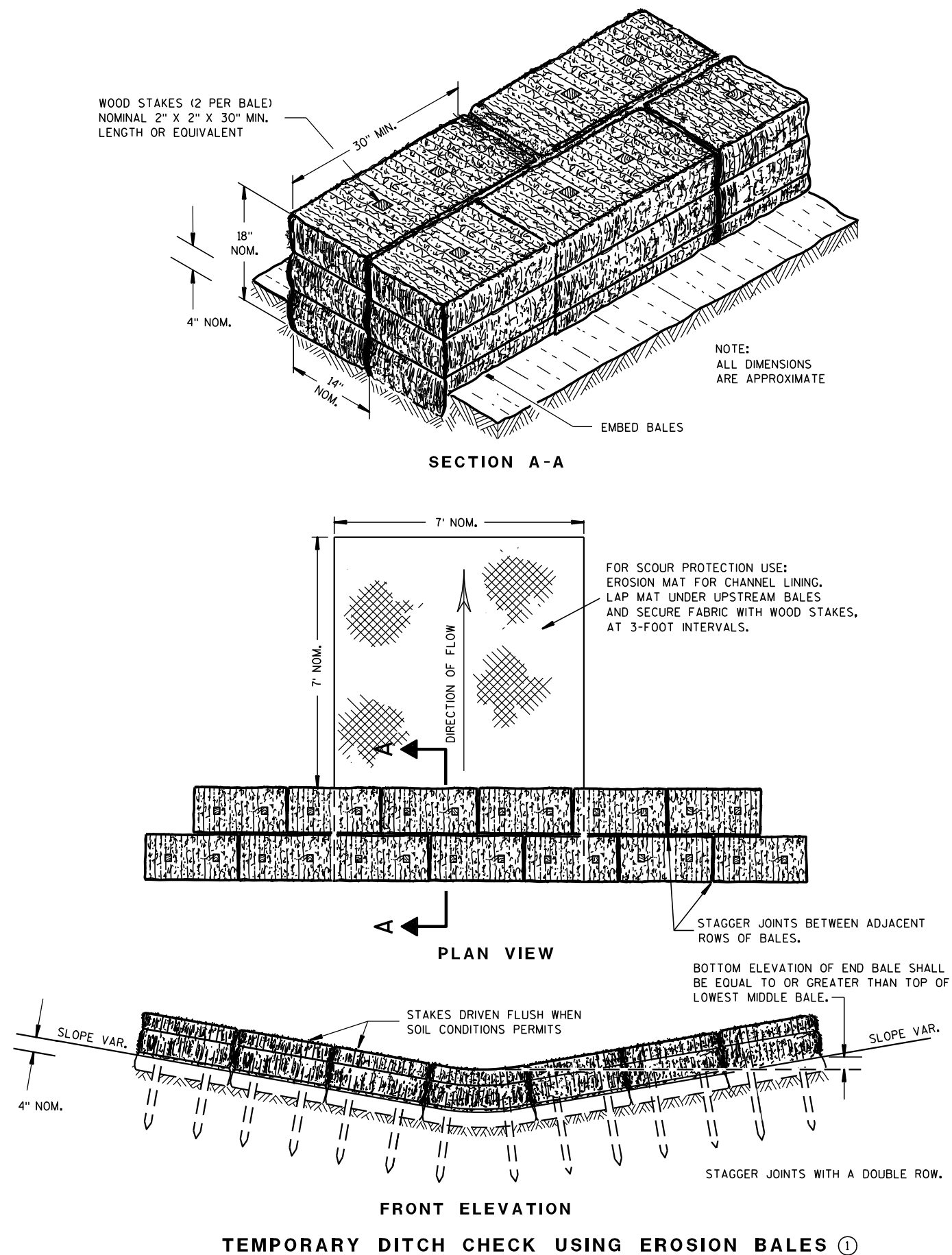
PLAN VIEW
DETECTABLE WARNING
FIELD (TYPICAL)

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
FHWA

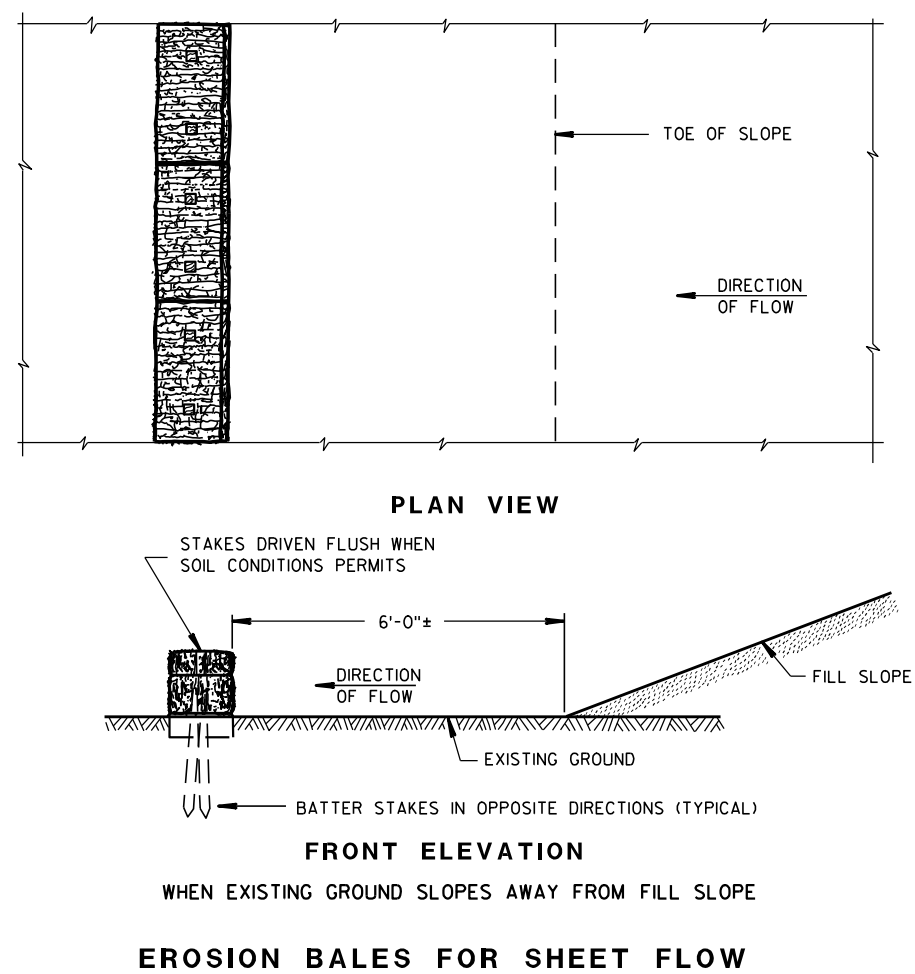
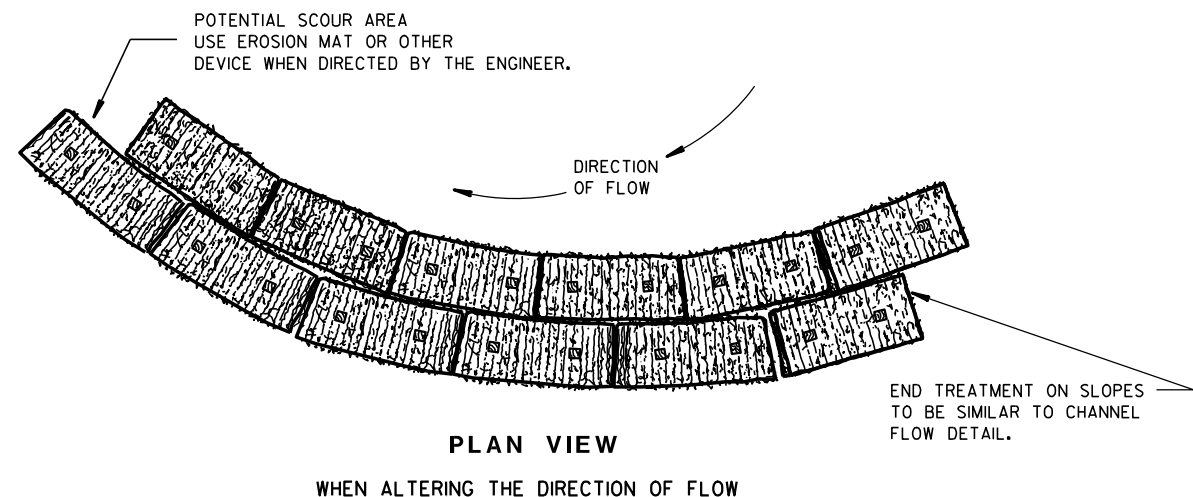
/s/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



GENERAL NOTES

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

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

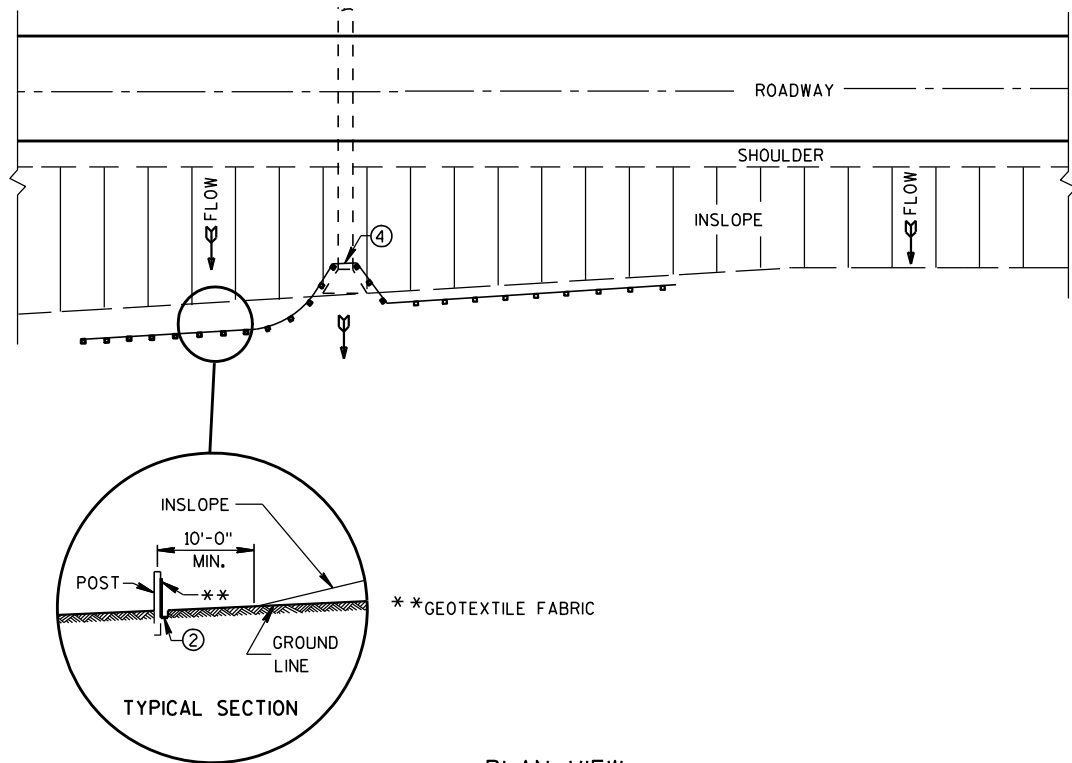
TYPICAL INSTALLATIONS OF
EROSION BALES / TEMPORARY
DITCH CHECKS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

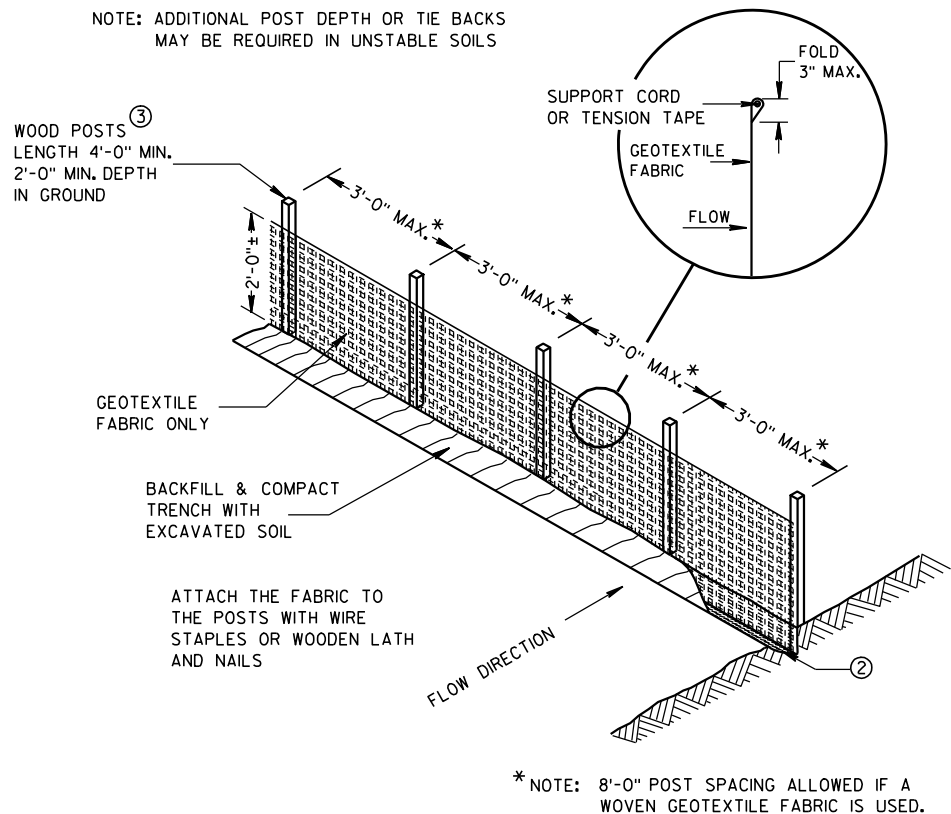
APPROVED

6/04/02
DATE/S/ Beth Canestra
CHIEF ROADWAY DEVELOPMENT ENGINEER

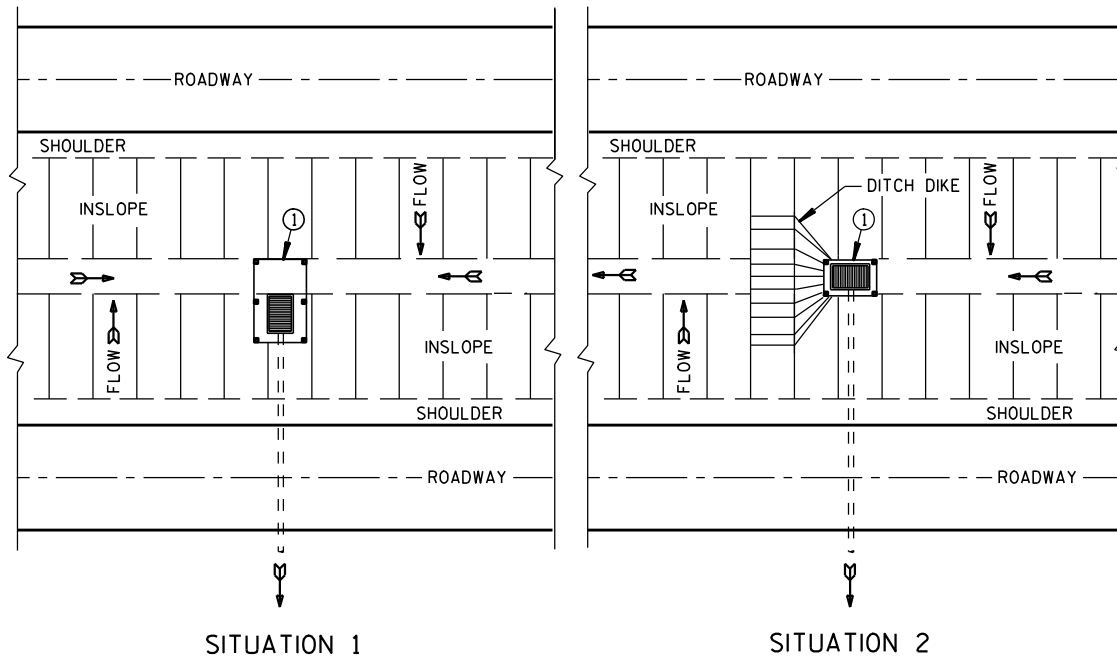
FHWA



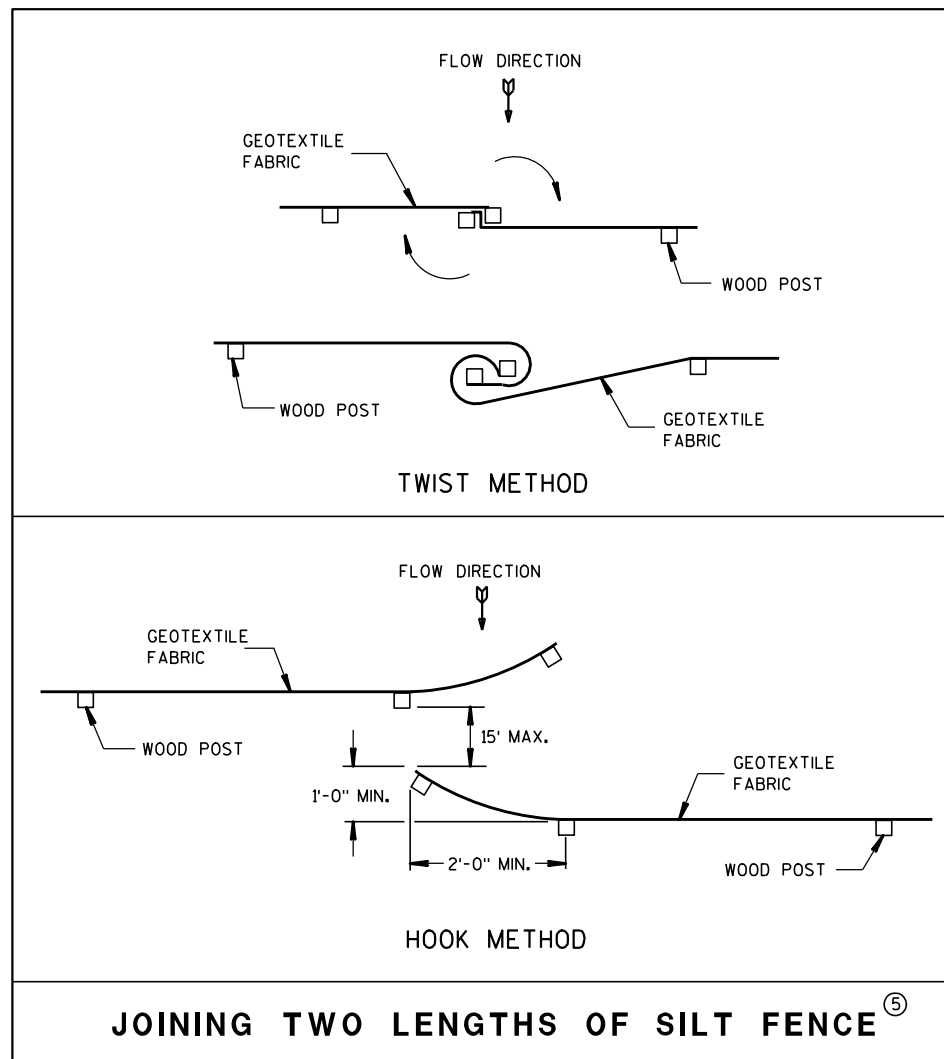
PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE



SILT FENCE



PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

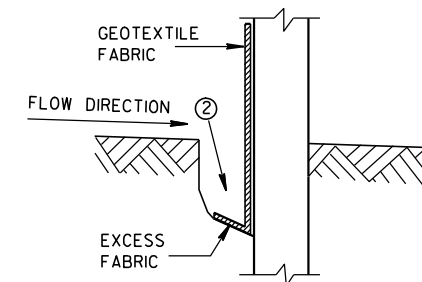


JOINING TWO LENGTHS OF SILT FENCE^⑤

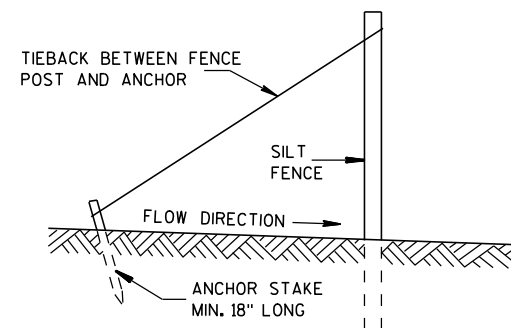
GENERAL NOTES

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 1 1/8" X 1 1/8" 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.

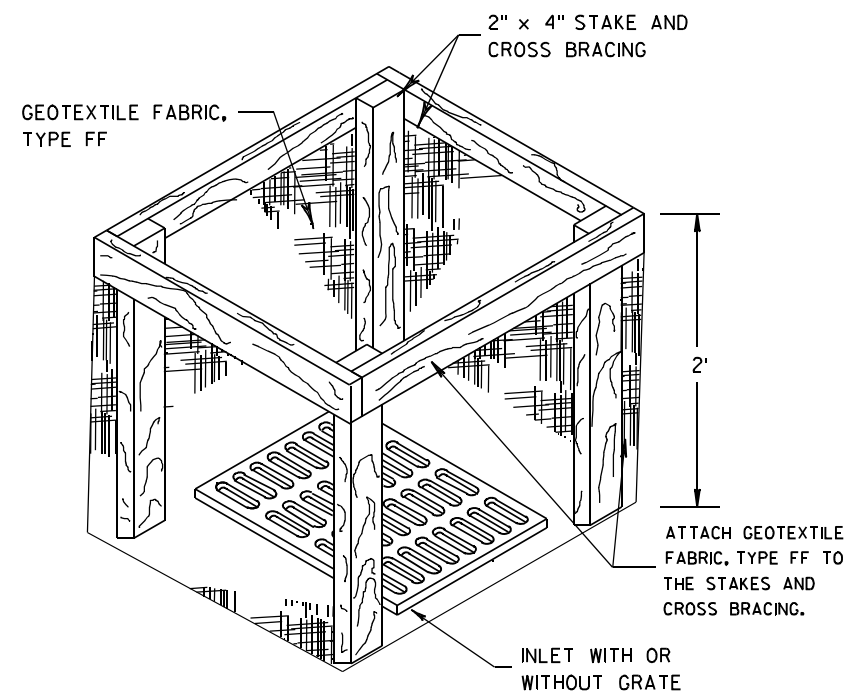
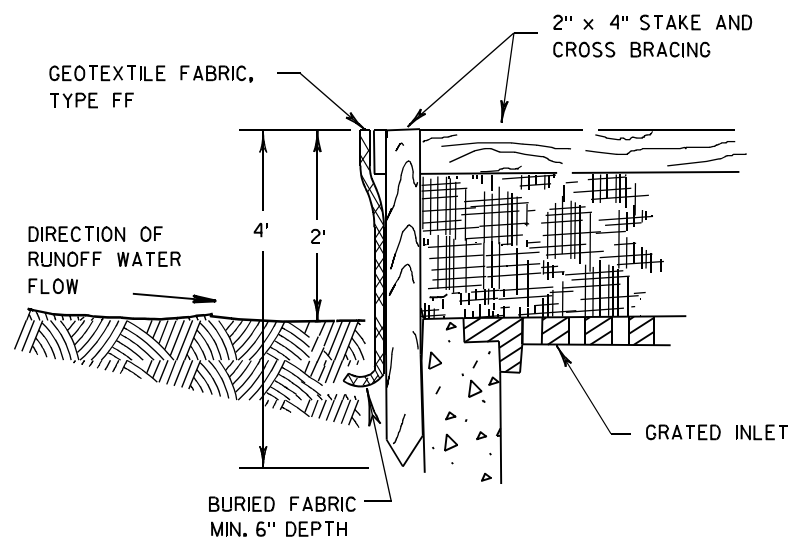


TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 DATE	/S/ Beth Canestra CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA	



INLET PROTECTION, TYPE A

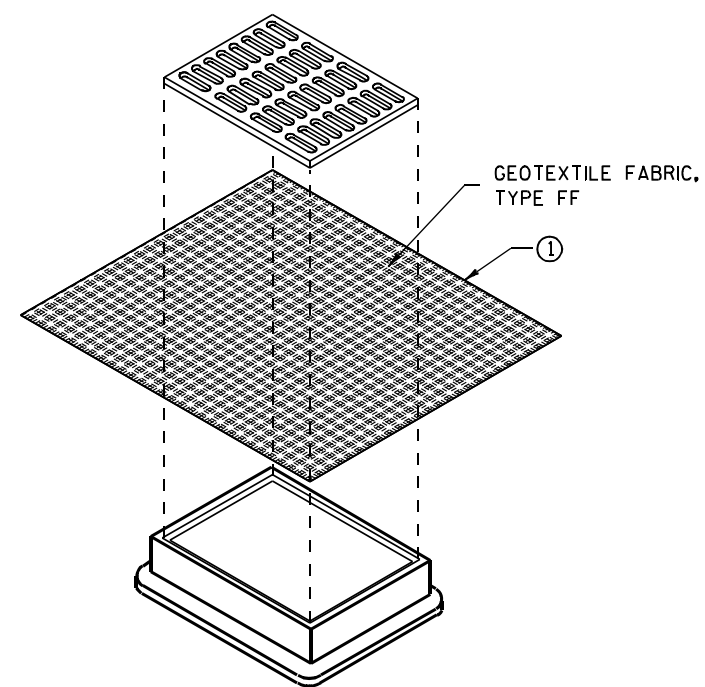
GENERAL NOTES

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

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

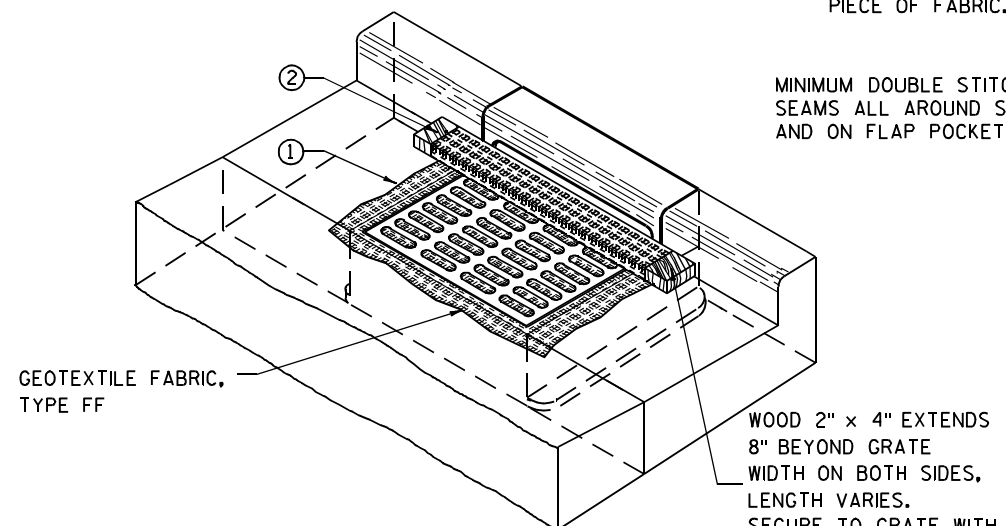
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- ① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.
- ② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.
- ③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.



**INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)**

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



INLET PROTECTION, TYPE C (WITH CURB BOX)

INSTALLATION NOTES

TYPE B & C

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

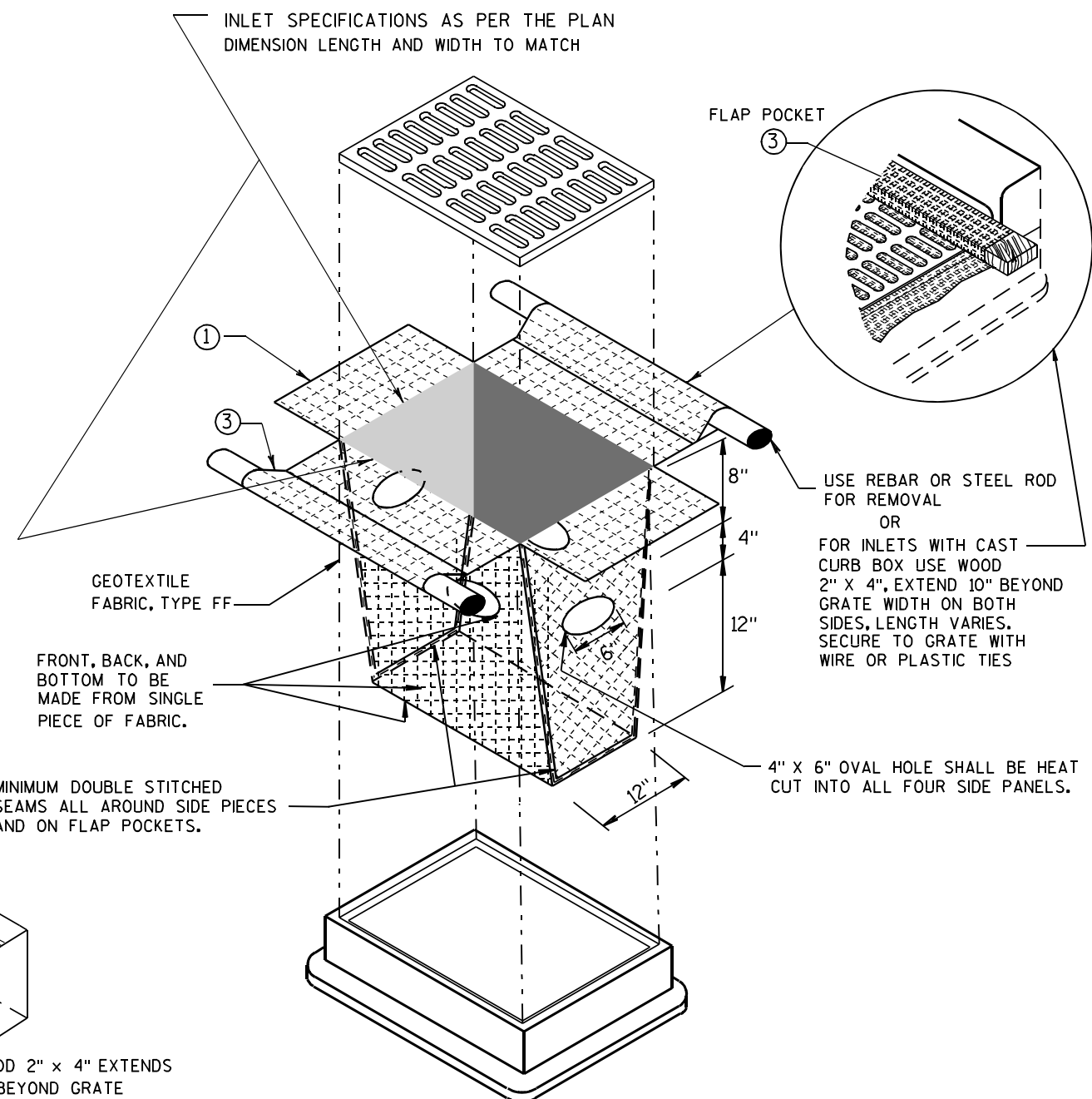
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

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



INLET PROTECTION, TYPE D

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

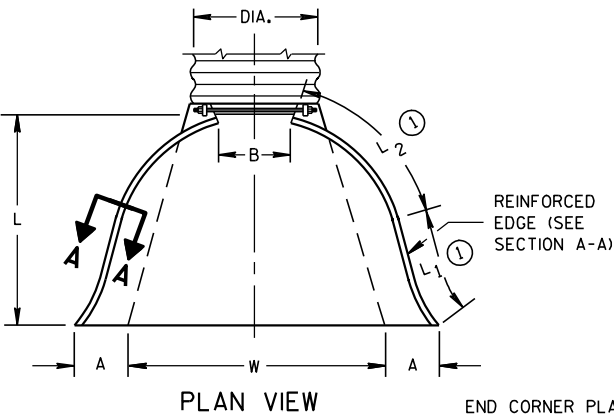
**INLET PROTECTION
TYPE A, B, C, AND D**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

METAL APRON ENDWALLS												
PIPE DIA. (IN.)	MIN. THICK. (Inches)		DIMENSIONS (Inches)							APPROX. SLOPE		BODY
	STEEL	ALUM.	A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")			
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	.109x	.105x	18	33	12	87	—	—	114	2 to 1		3 Pc.
66	.109x	.105x	18	36	12	87	—	—	120	2 to 1		3 Pc.
72	.109x	.105x	18	39	12	87	—	—	126	2 to 1		3 Pc.
78	.109x	.105x	18	42	12	87	—	—	132	1 1/2 to 1		3 Pc.
84	.109x	.105x	18	45	12	87	—	—	138	1 1/2 to 1		3 Pc.
90	.109x	.105x	18	37	12	87	—	—	144	1 1/2 to 1		3 Pc.
96	.109x	.105x	18	35	12	87	—	—	150	1 1/2 to 1		3 Pc.

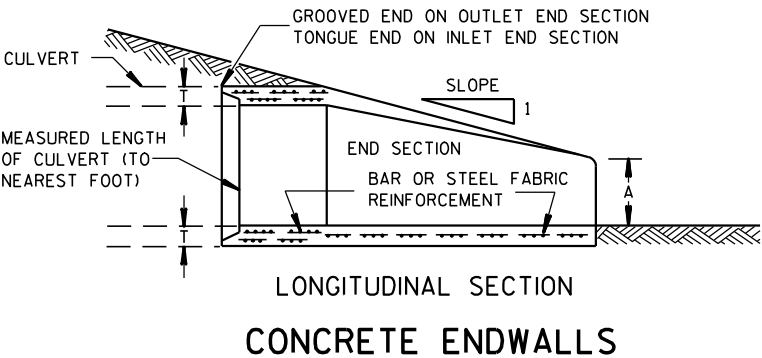
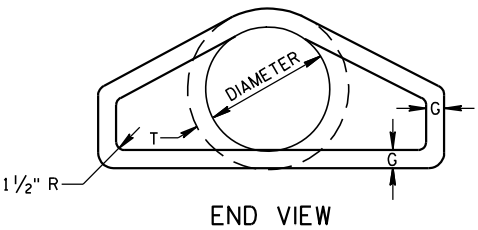
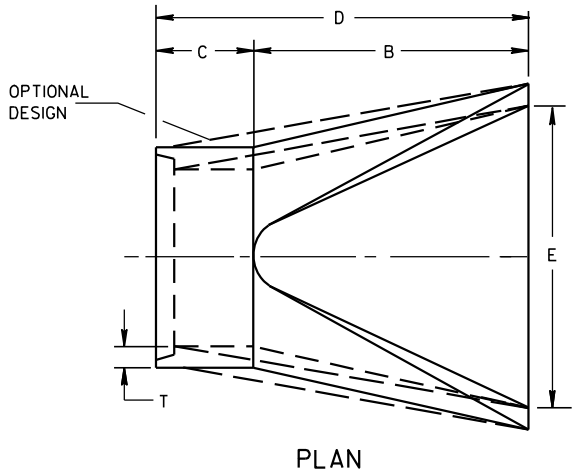
* EXCEPT CENTER PANEL
SEE GENERAL NOTES



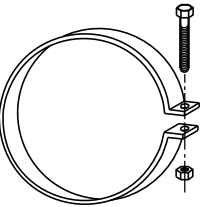
END CORNER PLATES MAY BE FASTENED TO APRON PROPER BY BOLTS, RIVETS, OR RESISTANCE SPOT WELDS WHICH WILL HOLD THE SURFACES TIGHTLY TOGETHER

REINFORCED CONCRETE APRON ENDWALLS												
PIPE DIA. (IN.)	DIMENSIONS (Inches)							APPROX. SLOPE				
	T	A	B	C	D	E	G					
12	2	4	24	48 7/8	72 7/8	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 1/2 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				

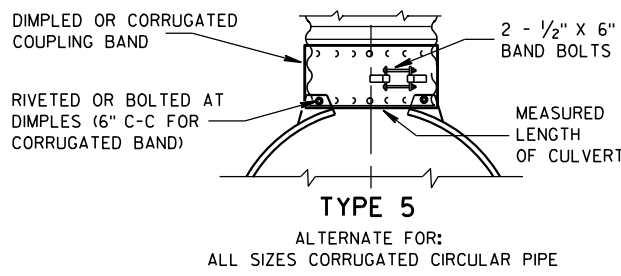
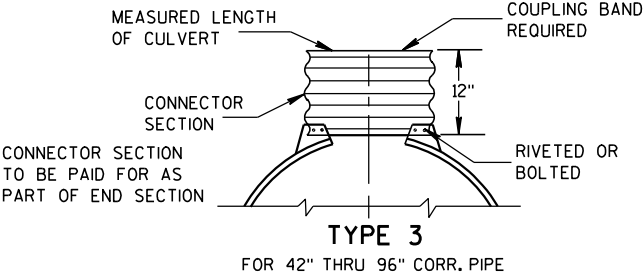
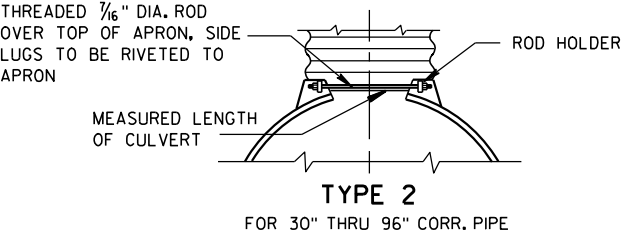
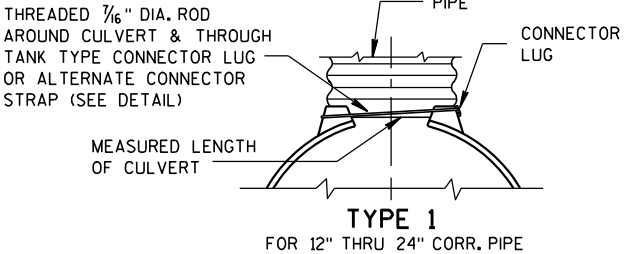
* MINIMUM
** MAXIMUM



1" WIDE, 12 GA. (0.109" THICK) GALVANIZED STRAP WITH STANDARD 6" X 1/2" BAND BOLT AND NUT



ALTERNATE FOR TYPE 1 CONNECTION
END SECTION CONNECTOR STRAP



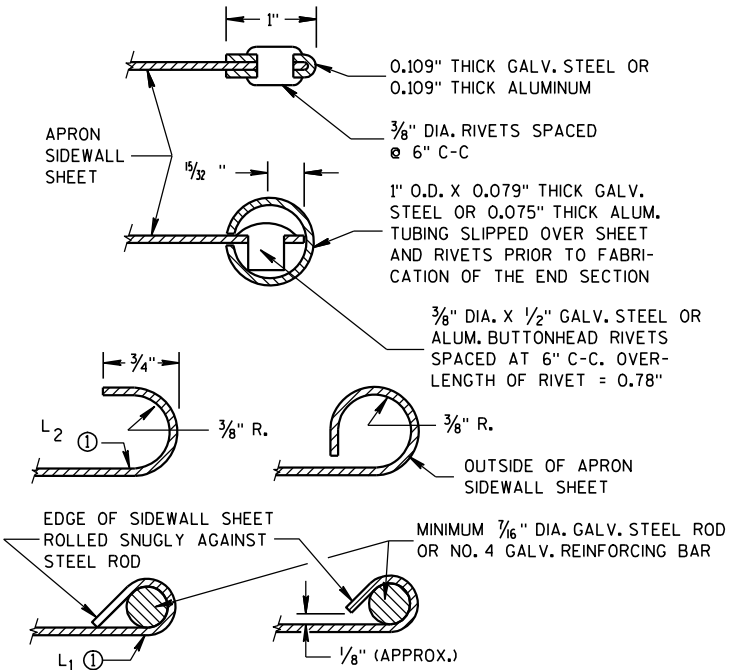
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL, AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

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.

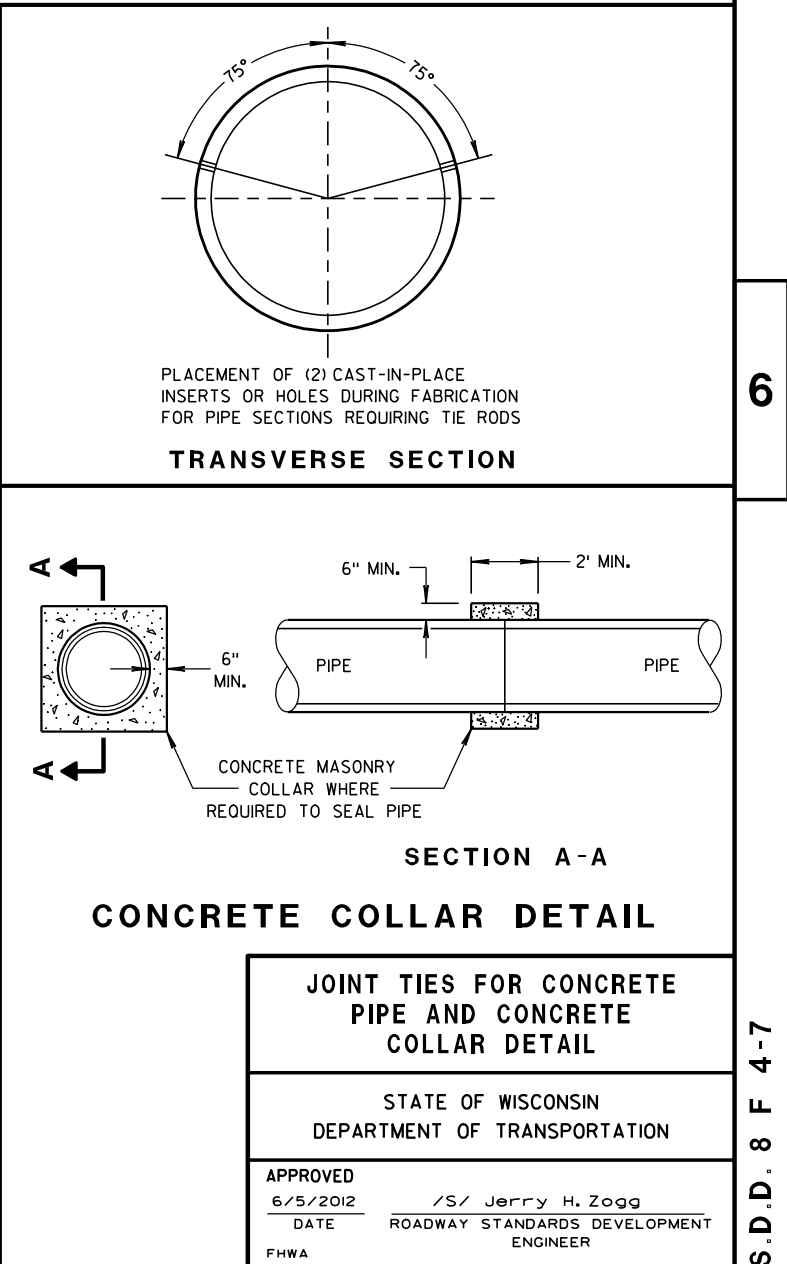
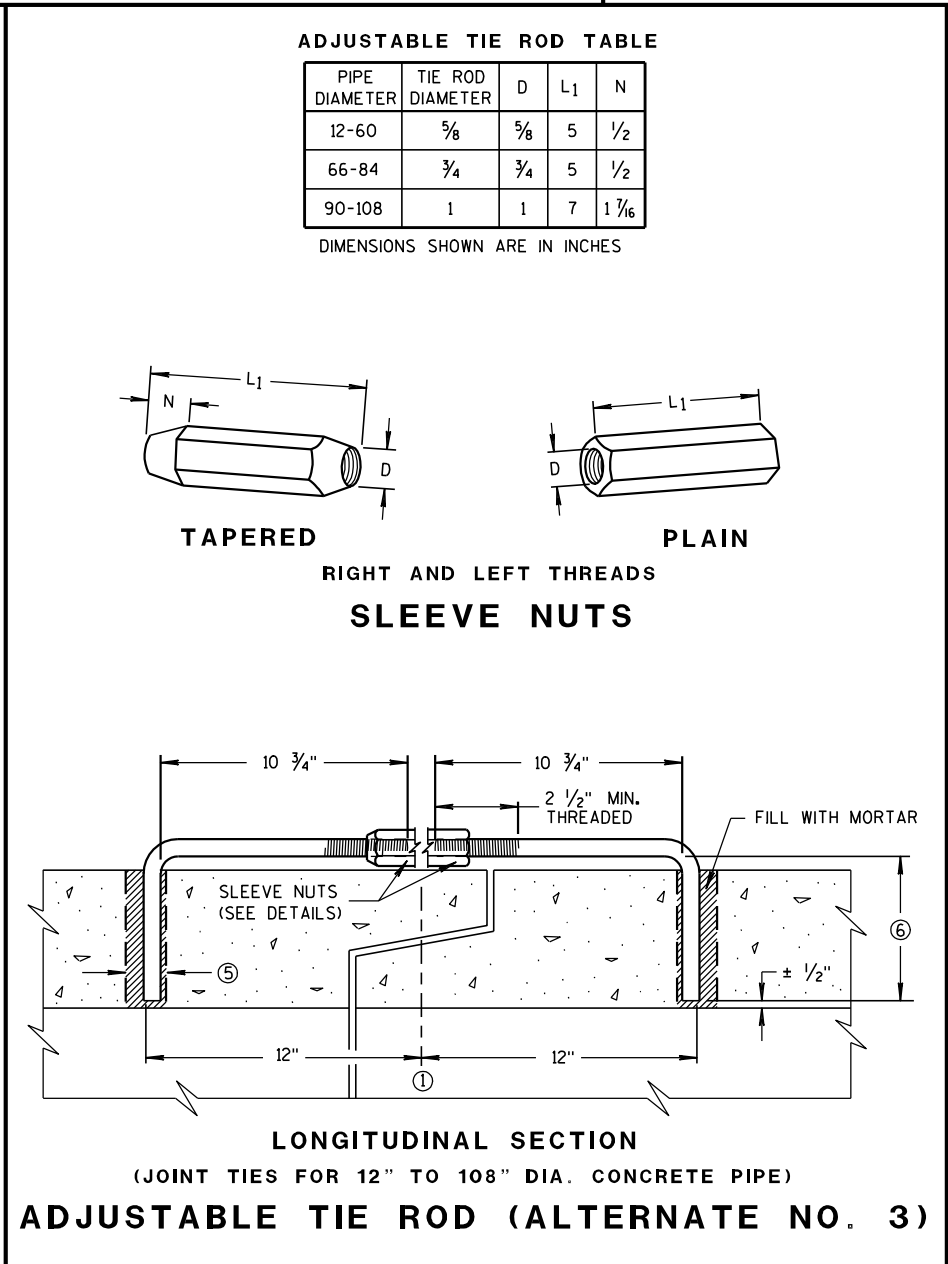
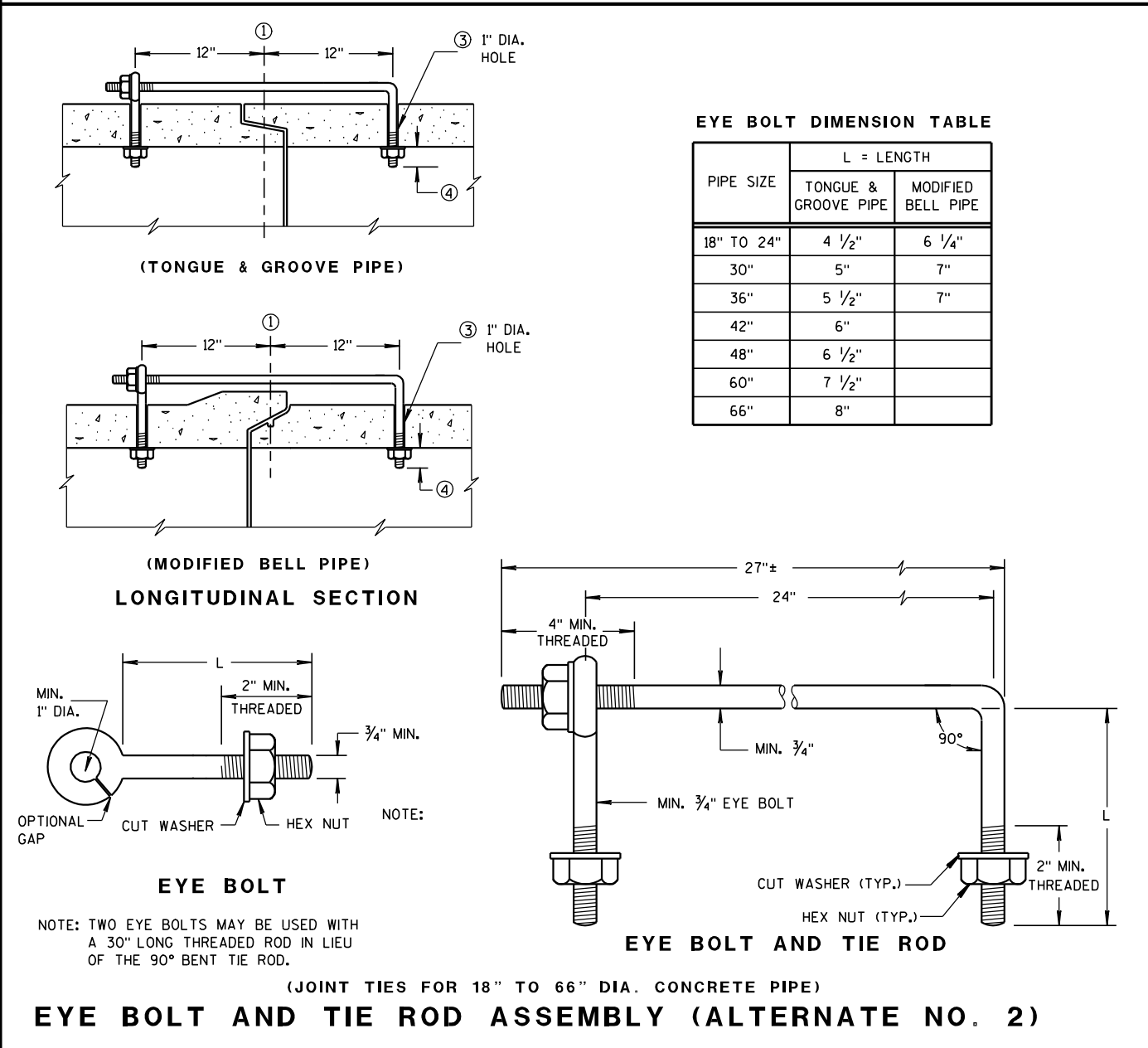
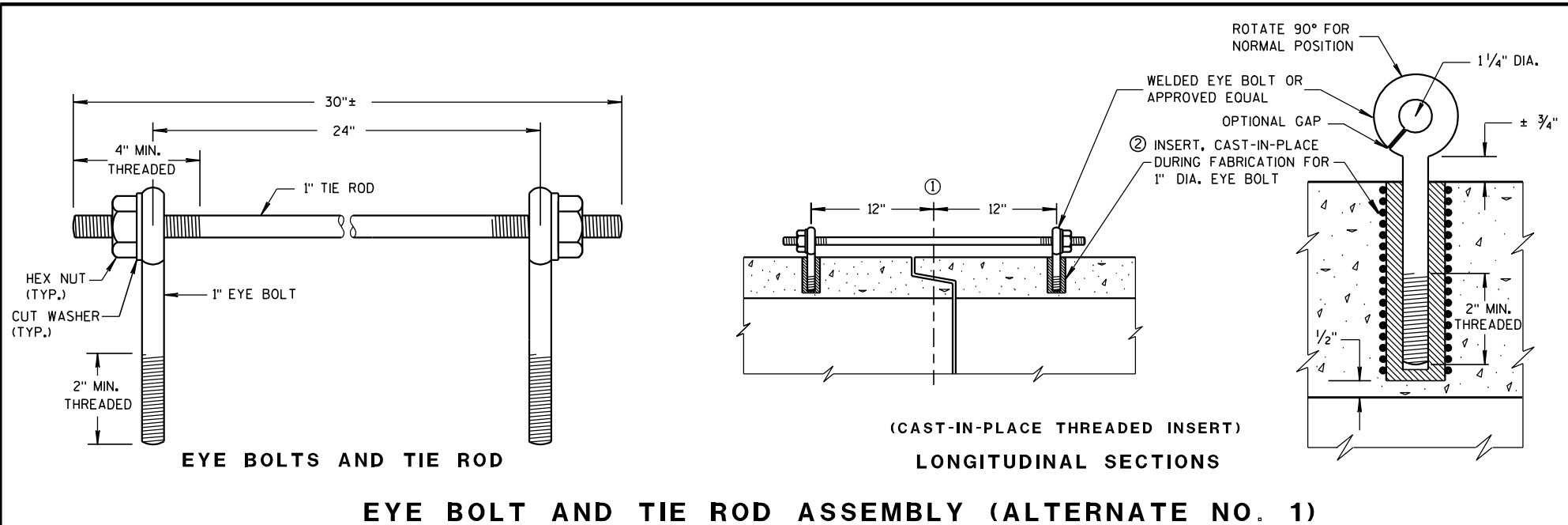
ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT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

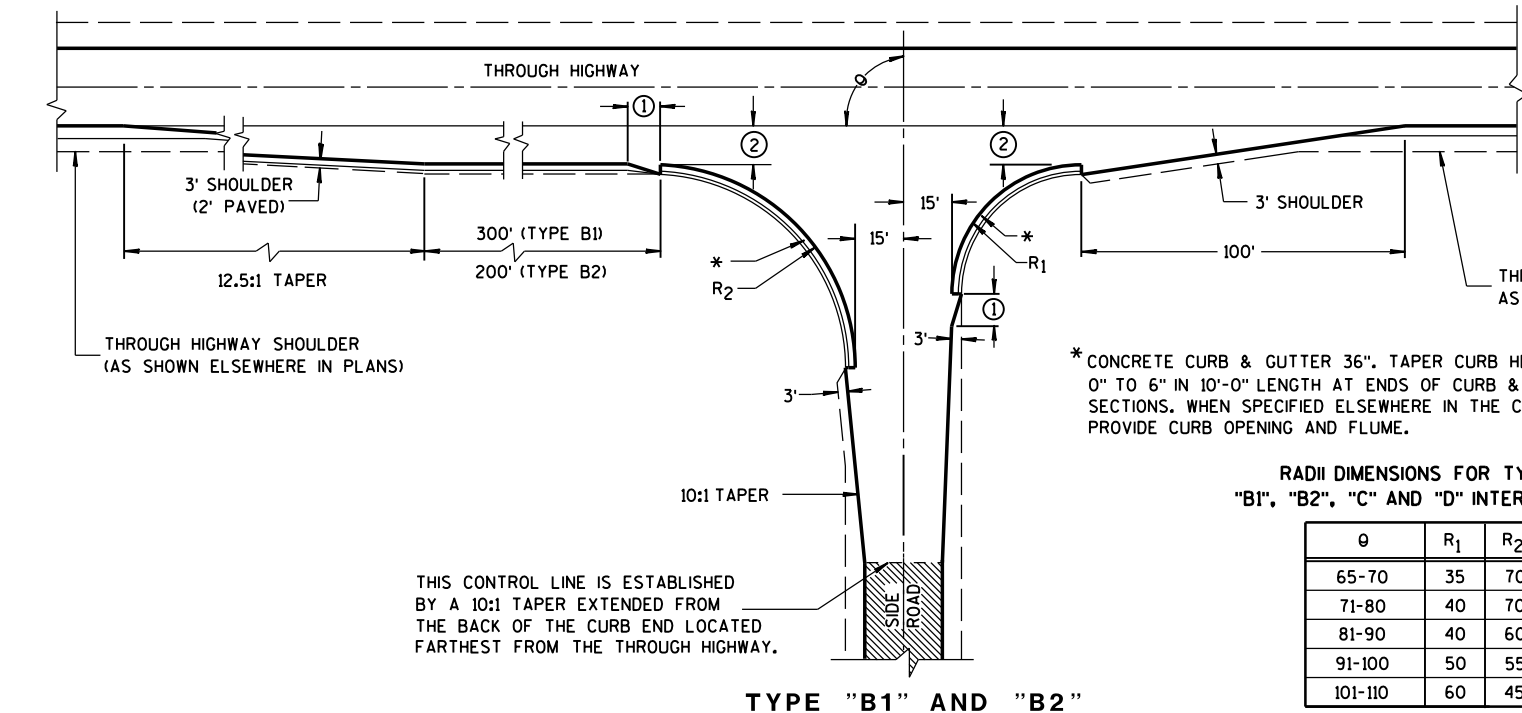
LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES.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





RADII DIMENSIONS FOR TYPES "B1", "B2", "C" AND "D" INTERSECTIONS

θ	R ₁	R ₂
65-70	35	70
71-80	40	70
81-90	40	60
91-100	50	55
101-110	60	45

GENERAL NOTES

DESIGNS MAY BE USED INTERCHANGEABLY IN COMBINATION OR SEPARATELY FOR ANY ONE COMPLETE INTERSECTION DEPENDING UPON INTERSECTION ANGLE AND SURFACING OF EACH APPROACH ROADWAY.

SIDE ROAD SURFACING NOTE

WHEN THE SIDE ROAD IS NOT PRESENTLY PAVED, PAVEMENT SHALL BE PLACED TO THE LIMITS SHOWN UNLESS OTHERWISE PROVIDED IN THE CONTRACT. WHERE THE CONSTRUCTION LIMITS ARE BEYOND THE PAVING LIMITS, CRUSHED AGGREGATE SURFACING SHALL BE PLACED BETWEEN THE PAVING LIMITS AND CONSTRUCTION LIMITS.

WHEN THE SIDE ROAD IS PRESENTLY PAVED, NEW PAVEMENT SHALL BE PLACED TO THE LIMITS OF DESIGN AS SHOWN AND BEYOND, IF NECESSARY, TO MEET EXISTING PAVEMENT.

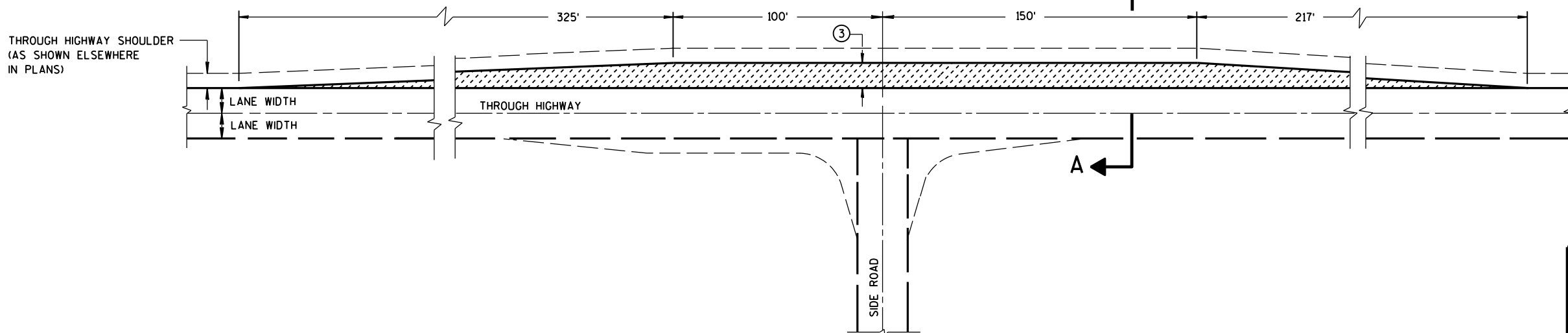
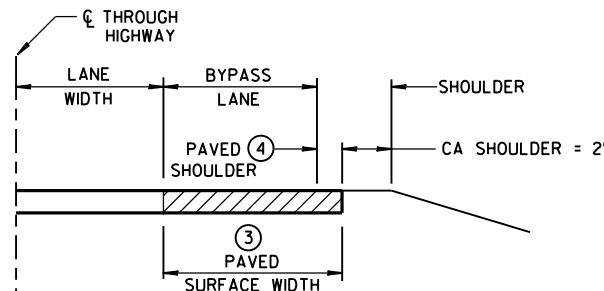
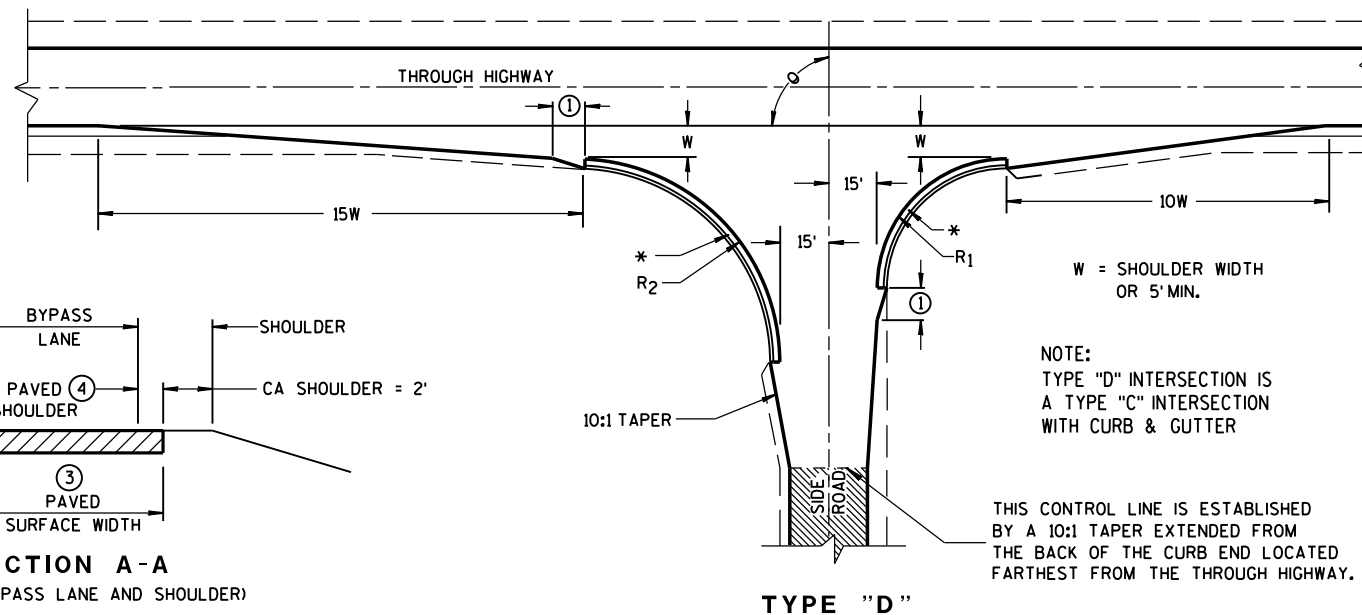
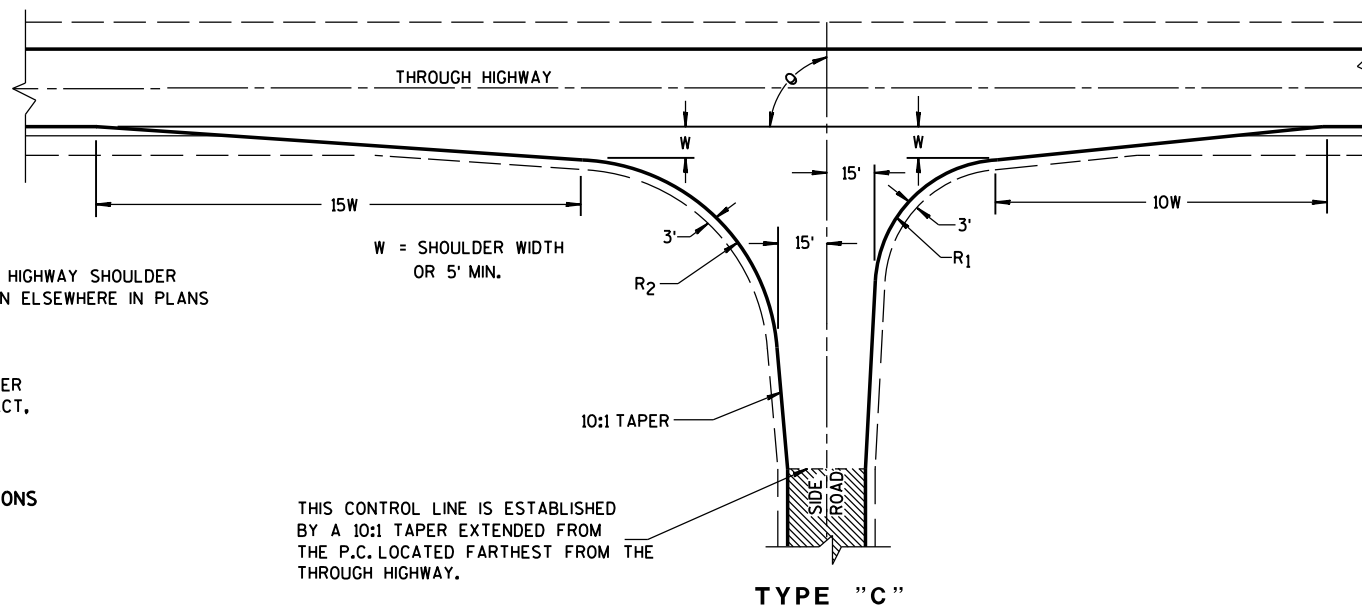
WHEN THE SIDE ROAD IS THE CONSTRUCTION PROJECT, THE INTERSECTION SURFACING SHALL BE THE SAME AS FOR THE PROJECT.

EXISTING PAVED SURFACE

BYPASS LANE

- 10-FT TYPICAL.
- 12-FT** PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLAN.

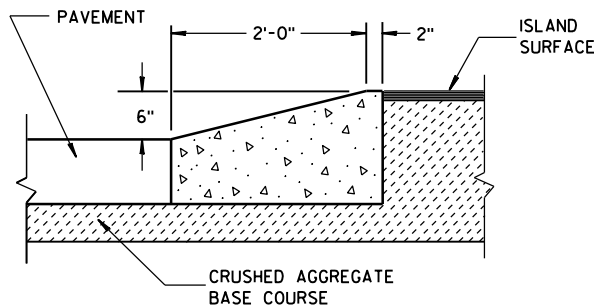
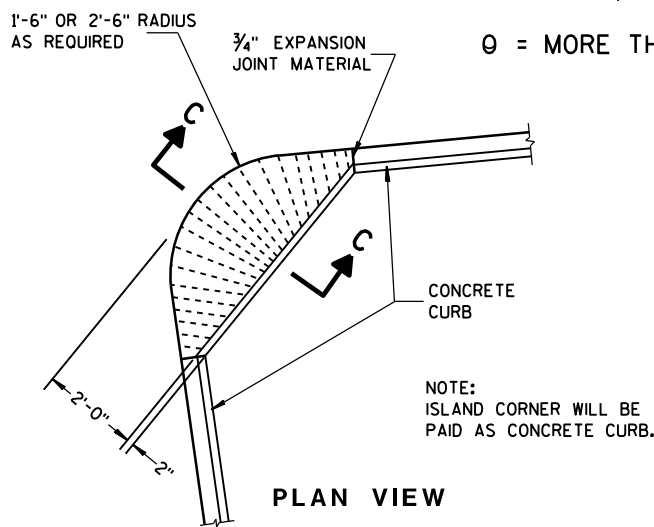
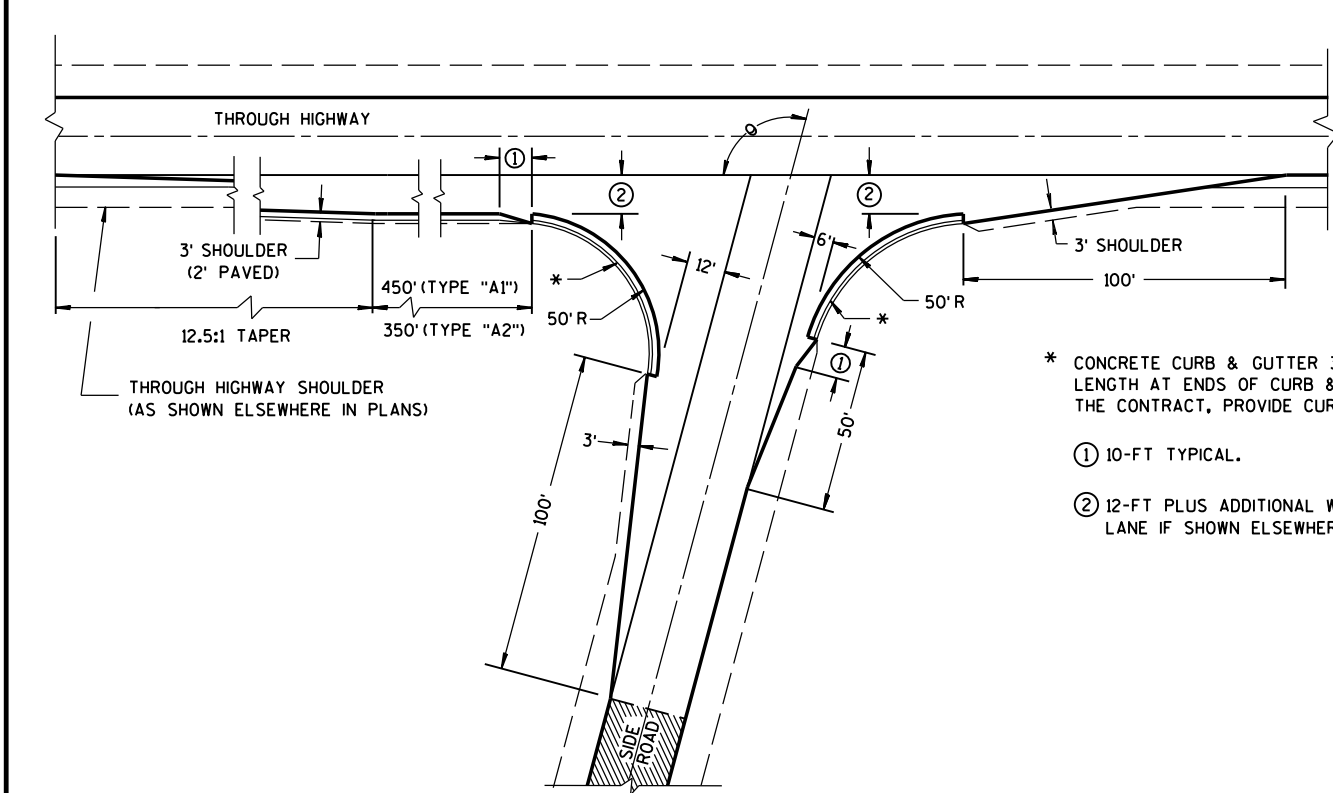
**10-FT MAY BE USED ON TYPE B2 ON RESURFACING PROJECTS IF SPECIFIED IN THE CONTRACT.
- BYPASS LANE PAVED SURFACE WIDTH OUTSIDE OF TRAVEL LANE
-ASPHALT = 12-FT PLUS PAVED SHOULDER WIDTH.
-PC CPNCRETE = 13-FT PLUS PAVED SHOULDER WIDTH.
- BYPASS LANE PAVED SHOULDER WIDTH = THE GREATER OF 1-FT OR THE PAVED SHOULDER WIDTH OF THE THROUGH HIGHWAY.



TEE INTERSECTION BYPASS LANE DETAIL

AT-GRADE SIDE ROAD INTERSECTION, TYPES "B1", "B2", "C" AND "D" AND TEE INTERSECTION BYPASS LANE

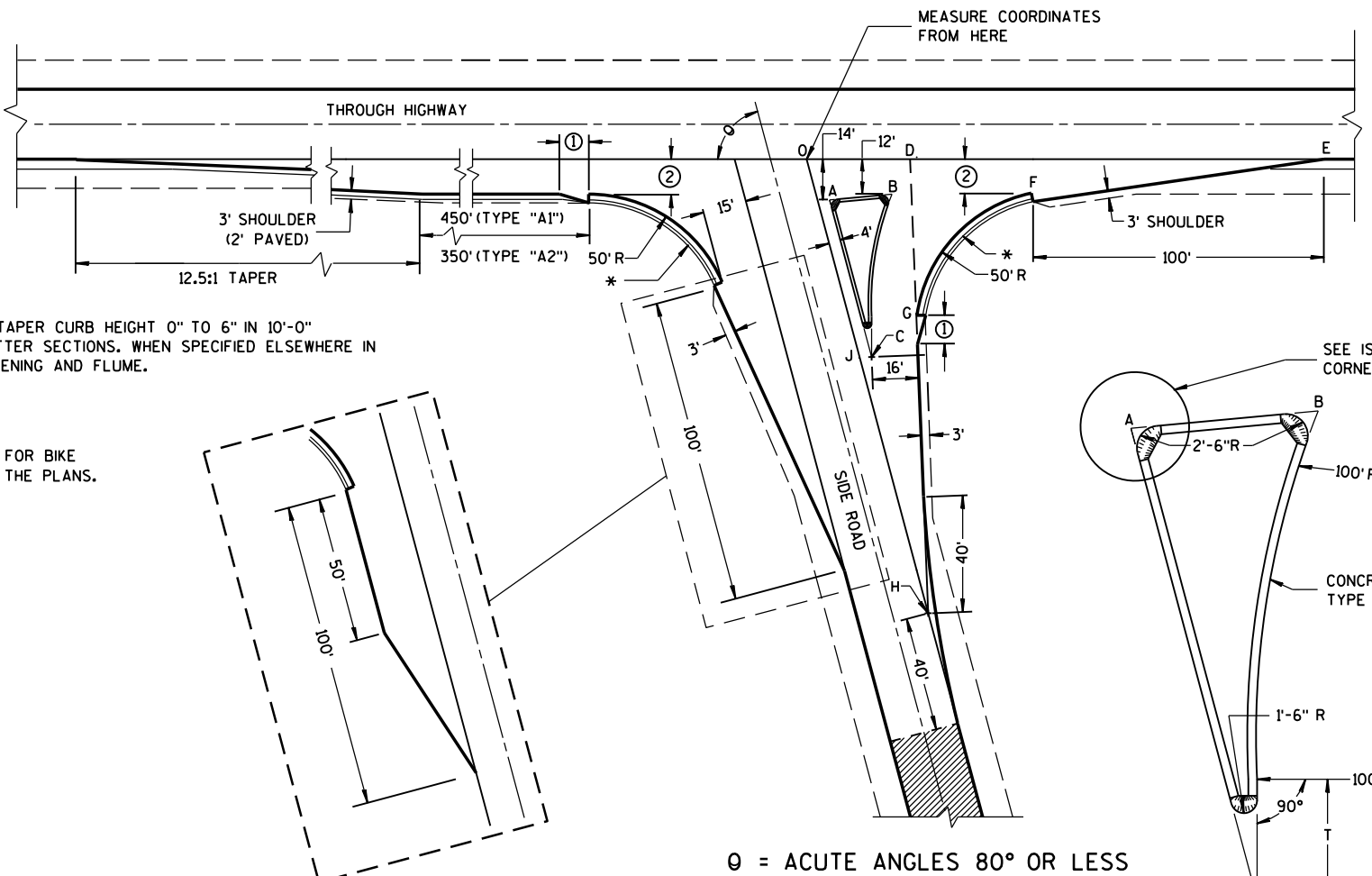
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



SECTION C-C

ISLAND CORNER DETAIL
(TO BE CONSTRUCTED AT ALL ISLAND CORNERS)

- * CONCRETE CURB & GUTTER 36". TAPER CURB HEIGHT 0" TO 6" IN 10'-0" LENGTH AT ENDS OF CURB & GUTTER SECTIONS. WHEN SPECIFIED ELSEWHERE IN THE CONTRACT, PROVIDE CURB OPENING AND FLUME.
- ① 10-FT TYPICAL.
- ② 12-FT PLUS ADDITIONAL WIDTH FOR BIKE LANE IF SHOWN ELSEWHERE IN THE PLANS.



SIDE ROAD WIDENING AND TAPER REQUIRED WHERE THE THROUGH HIGHWAY CARRIES TWO-WAY TRAFFIC
 θ = ACUTE ANGLES 70° OR LESS

TABLE OF DIMENSIONS FOR
VARIABLE SIDE ROAD INTERSECTION ANGLES
(INTERPOLATE VALUES FOR ANGLES NOT SHOWN)

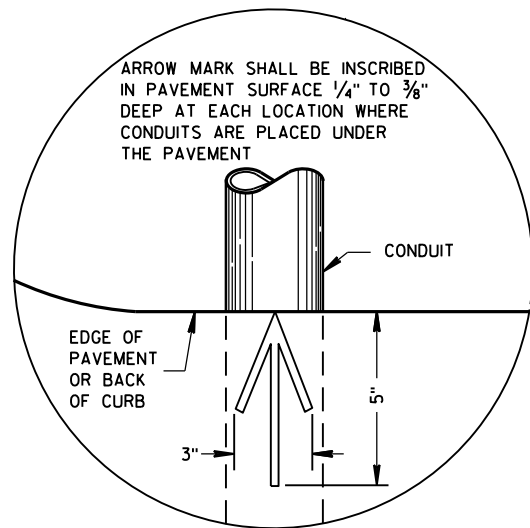
ANGLE θ DEGREES	COORDINATES IN FEET (MEASURED FROM POINT "O")								LENGTH IN FEET				
	A	B	C	D	E	F	G	H	AB	AC	T	OJ	OH
60	12.7 -14.0	44.9 -12.0	46.4 -72.4	41.9 0.0	205.0 0.0	104.6 -12.0	64.0 -75.5	85.0 -147.1	32.3	67.4	4.9	85.9	169.9
65	10.9 -14.0	39.0 -12.0	37.8 -71.6	39.4 0.0	196.1 0.0	95.7 -12.0	54.1 -71.5	70.5 -151.3	28.2	63.6	8.5	80.9	166.9
70	9.4 -14.0	33.9 -12.0	29.8 -70.1	37.4 0.0	188.3 0.0	87.8 -12.0	45.6 -67.5	56.1 -154.2	24.6	59.7	11.5	76.1	164.1
75	7.9 -14.0	29.3 -12.0	22.3 -67.9	35.7 0.0	181.2 0.0	80.7 -12.0	38.2 -63.4	41.8 -155.9	21.5	55.8	13.8	71.4	161.4
80	6.5 -14.0	25.4 -12.0	15.6 -65.2	34.4 0.0	174.8 0.0	74.4 -12.0	31.8 -59.3	27.6 -156.5	18.9	52.0	15.6	66.9	158.9

TYPE "A1" & "A2" SIDE ROAD INTERSECTION DETAILS

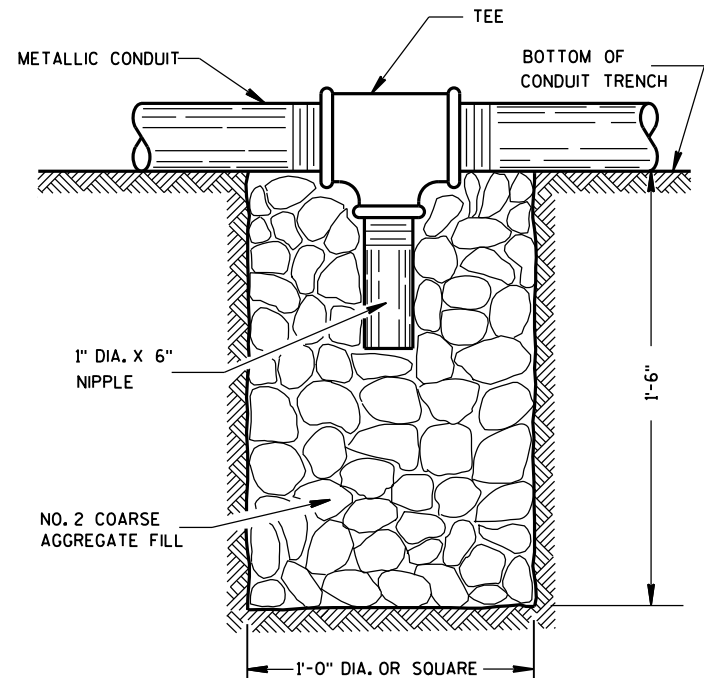
AT-GRADE SIDE ROAD
INTERSECTION, TYPE "A1" & "A2"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
12/18/12 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER
FHWA

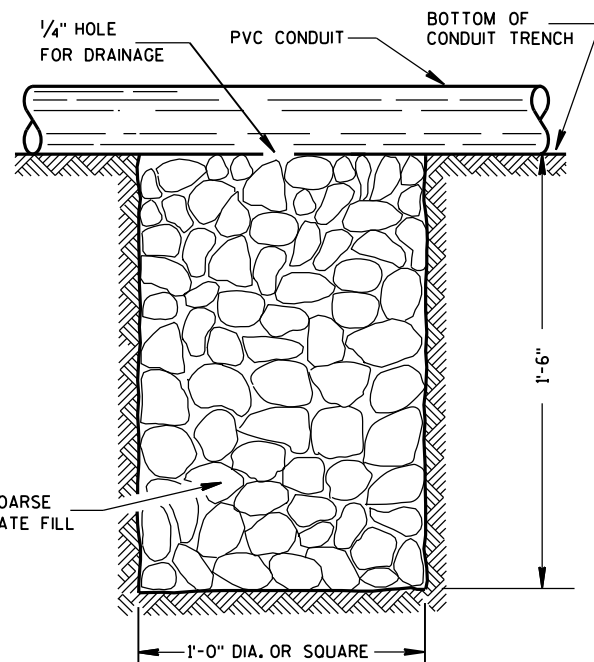


PLAN VIEW
ARROW MARK



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.

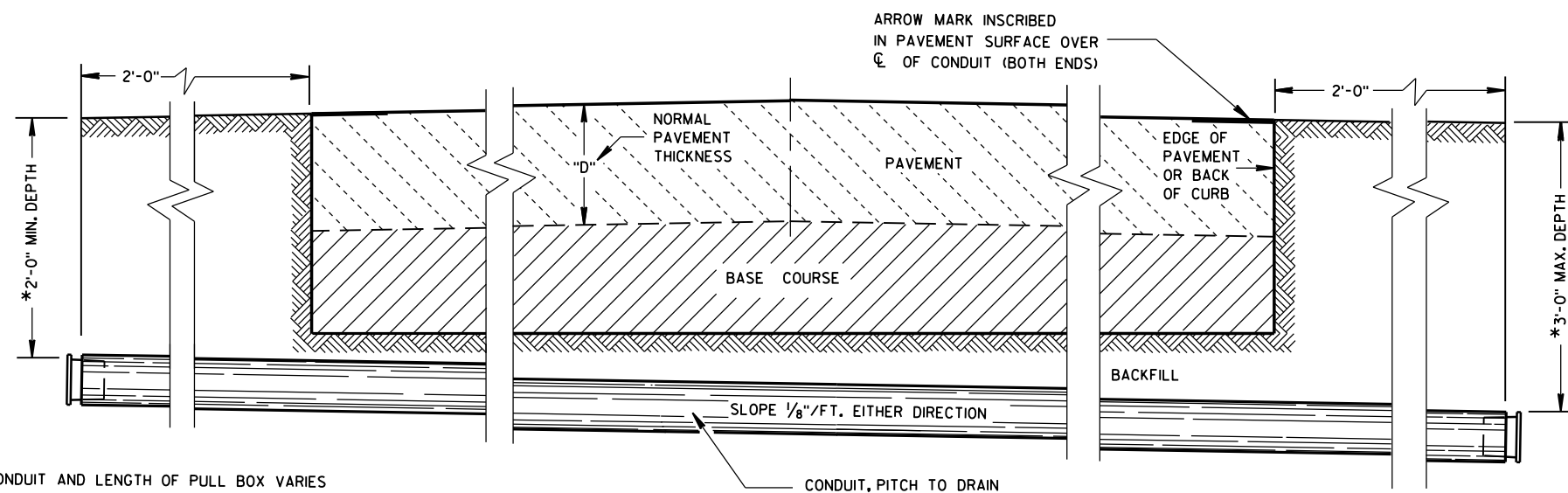
PRIOR TO CONDUIT ACCEPTANCE, CONDUIT CAPS OR PLUGS SHALL BE REMOVED, AND THE CAPS, PLUGS AND CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND THEN THE CAPS OR PLUGS REINSTALLED TO ENSURE THAT THE CAPS OR PLUGS CAN BE EASILY REMOVED IN THE FUTURE.

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 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL ENGINEER
FHWA

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

DIMENSION IN INCHES		CORRUGATED STEEL PIPE								
PIPE DIAMETER (INSIDE)	A	12	12	12	18	18	18	24	24	24
PIPE LENGTH **	B	24	30	36	24	30	36	36	42	48
WALL THICKNESS	C	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064	0.064
COVER	D	10 1/4	10 1/4	10 1/4	16 1/4	16 1/4	16 1/4	22 1/4	22 1/4	22 1/4
FRAME	E	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2	26 1/2	26 1/2	26 1/2
FRAME	F	8 1/2	8 1/2	8 1/2	14 1/2	14 1/2	14 1/2	20 1/2	20 1/2	20 1/2
FRAME	G	11 1/2	11 1/2	11 1/2	17 1/2	17 1/2	17 1/2	23 1/2	23 1/2	23 1/2
WEIGHT IN POUNDS *										
FRAME AND COVER		60	60	60	110	110	110	155	155	155

* THE ACTUAL WEIGHT OF THE MANHOLE FRAME AND COVER MAY VARY WITHIN 5 PERCENT PLUS OR MINUS OF THE WEIGHTS SHOWN.

** NORMALLY USED LENGTHS. THE PROJECT ENGINEER SHALL DETERMINE IF PIPE LENGTHS, OTHER THAN THOSE SPECIFIED, SHALL BE USED, TO A MAXIMUM OF 48" (CONTINUOUS LENGTH, NON-SPLICED). THE ADDITIONAL LENGTH SHALL BE INCIDENTAL TO THE PULL BOX BID PRICE.

GENERAL NOTES

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

ALL FRAMES AND COVERS SHALL BE HEAVY DUTY TYPE, SUITABLE FOR VEHICULAR TRAFFIC LOADS.

PULL BOXES LOCATED IN THE ROADWAYS SHALL HAVE LOCKING COVERS.

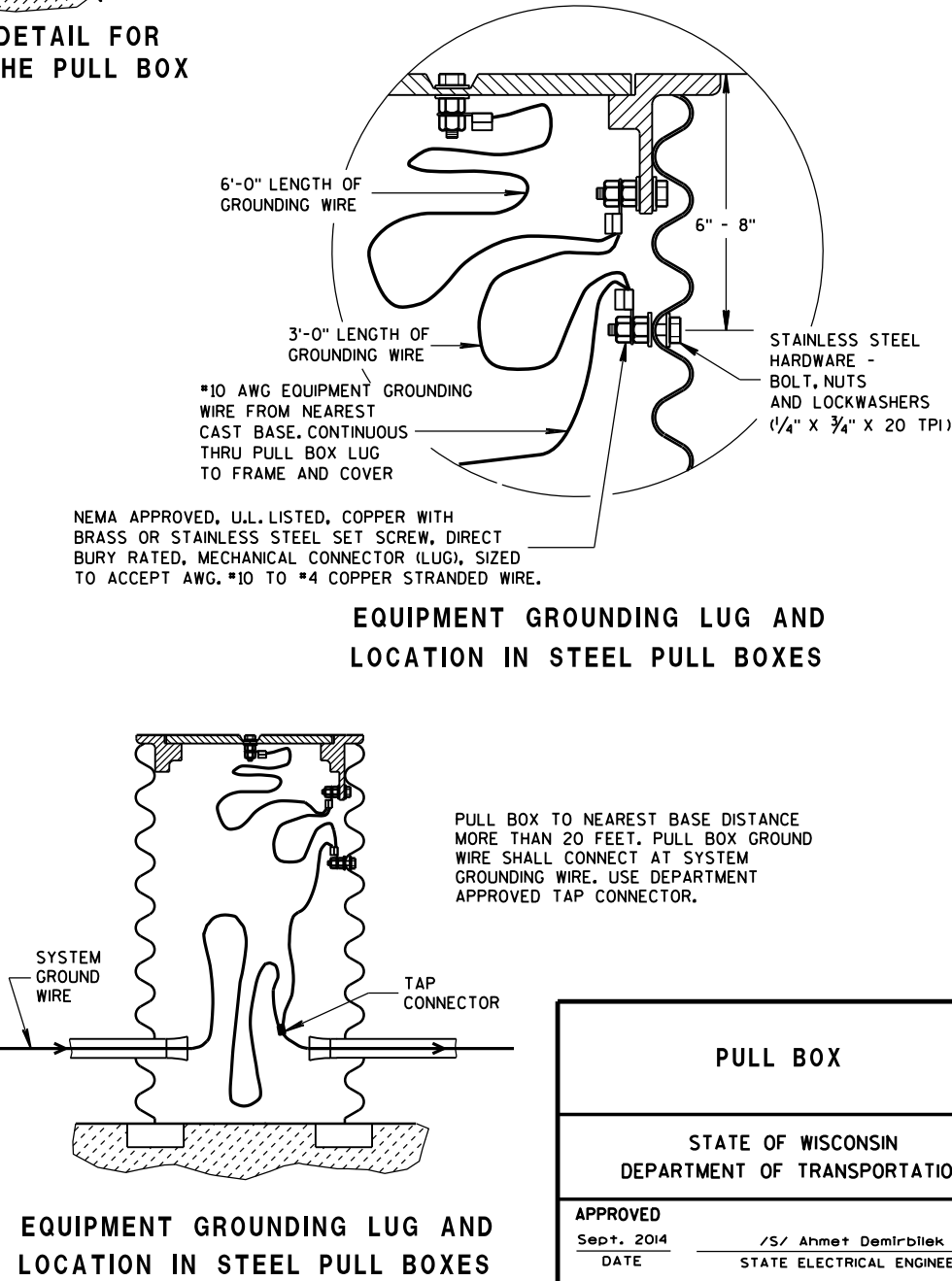
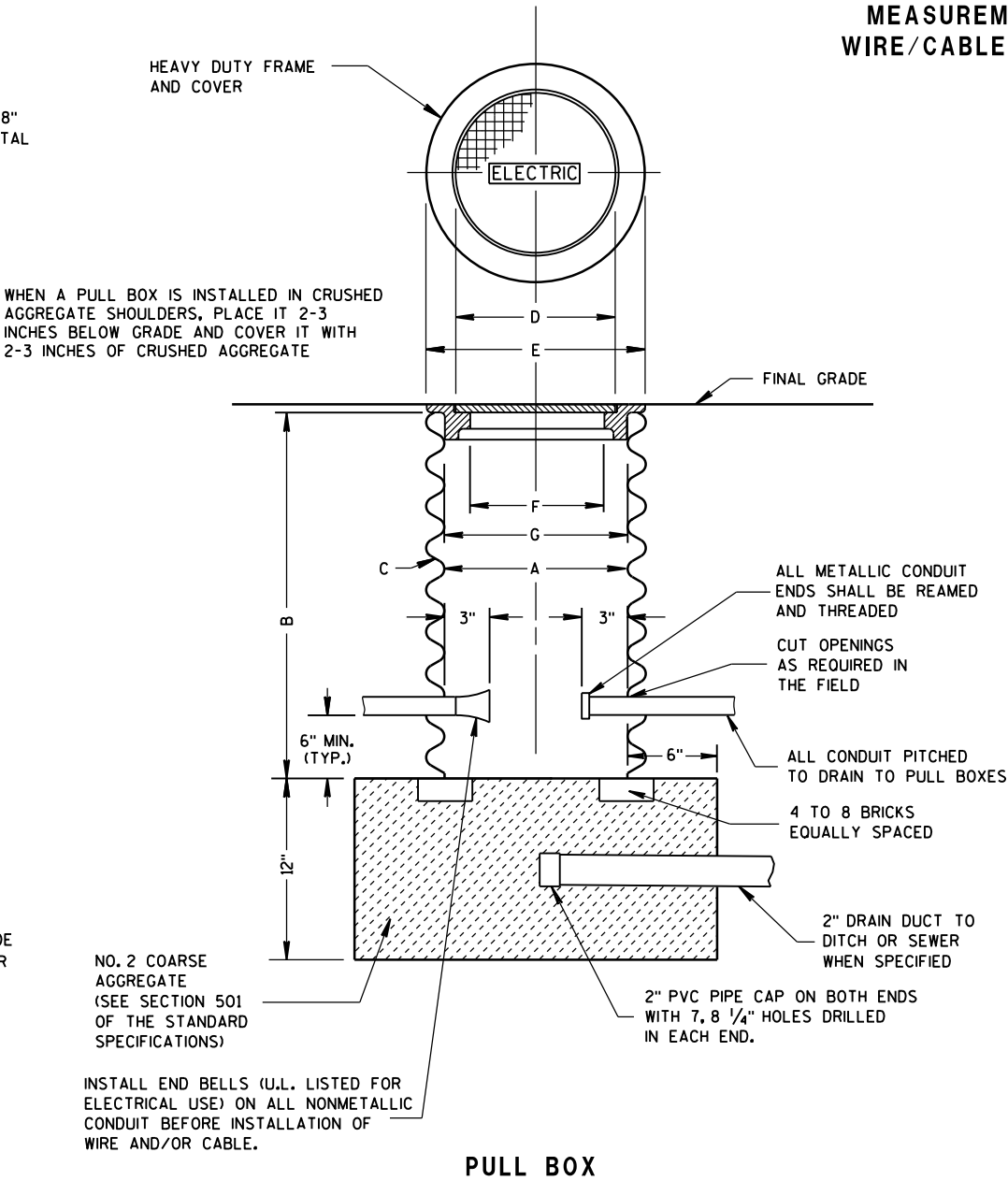
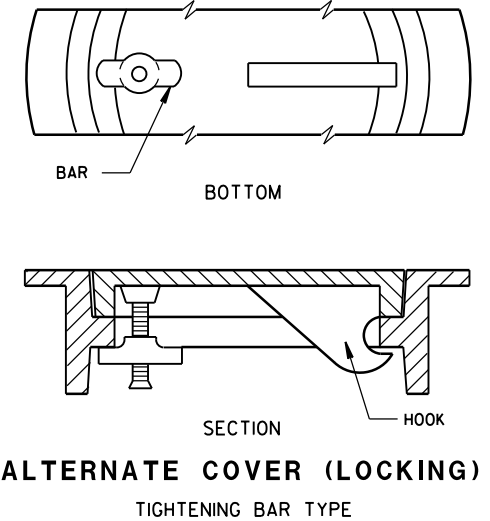
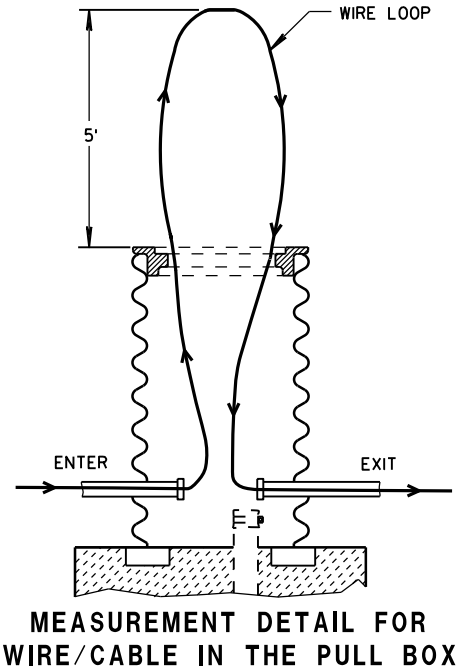
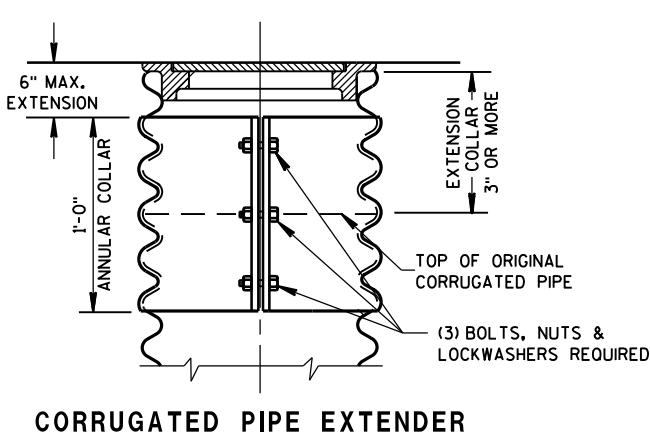
ENTRANCE HOLES INTO PULL BOXES SHALL BE CUT WITH A CIRCULAR HOLE SAW OR HYDRAULIC CONDUIT PUNCH. HOLE SIZE SHALL BE THE OUTSIDE DIAMETER OF THE CONDUIT THAT IS TO FIT IN THE OPENING PLUS NO MORE THAN 1/4".

THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

GROUNDING LUGS (MECHANICAL CONNECTORS) SHALL BE U.L. LISTED AND APPROVED FOR USE WITH COPPER WIRE.

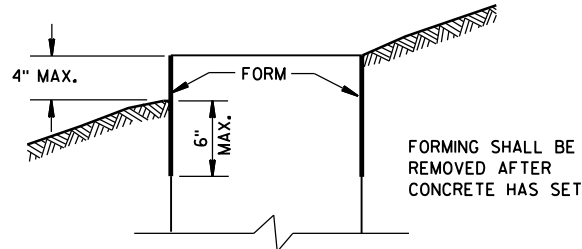
ALL METALLIC CONDUIT IN WHICH WIRE AND/OR CABLE IS TO BE INSTALLED, SHALL BE BUSHED BEFORE INSTALLATION OF THE WIRE AND/OR CABLE.

WHEN PULL BOXES ARE INSTALLED FOR FUTURE USE, DO NOT INSTALL THE EQUIPMENT GROUNDING LUG. THE EQUIPMENT GROUNDING LUG, THE EQUIPMENT GROUNDING ELECTRODE AND THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE REQUIRED AND INSTALLED UNDER A FUTURE WIRING CONTRACT.



PULL BOX	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED Sept. 2014 DATE	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER
FHWA	

FORM DEPTH SHALL BE NO MORE THAN 6" BELOW GRADE ON THE LOWER SIDE OF BASE



FORMING DETAIL

QUANTITY REQUIREMENTS	CONCRETE BASE TYPE		
	1	2	5 & 6
APPROX. CUBIC YARDS OF CONCRETE	0.40	0.57	0.40
LBS. OF HOOP BAR STEEL	NONE	23	16
LBS. OF VERTICAL BAR STEEL	NONE	60	18

GENERAL NOTES

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

BASES SHALL BE EXCAVATED BY USE OF A CIRCULAR AUGER.

TOP SURFACES OF CONCRETE BASES SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

CONDUIT SIZES AND LOCATIONS SHALL BE AS SHOWN ON THE PLANS.

THE FINAL OR TERMINATING CONCRETE BASE IN A CONDUIT RUN SHALL HAVE A 6" EXIT STUB INSTALLED FOR FUTURE CABLING USE. THE EXIT STUB SHALL BE SIZED AS USED THROUGHOUT THE CONDUIT RUN AS SHOWN AT THE ENTRANCE OF THE BASE.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 X THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASES SHALL BE 1 INCH. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

GENERAL NOTES (CONTINUED)

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION OF CABLE OR WIRE.

ENDS OF CONDUIT INSTALLED BELOW GRADE FOR FUTURE USE SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC.

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

IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE DIRT OR FILL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

A NO. 4 AWG, STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD) FOR TYPE 1, TYPE 2, TYPE 5, AND TYPE 6 BASES.

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE OF THE TYPE 2 AND TYPE 5 BASES THROUGH A 1 INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4 FOOT COIL OF WIRE ABOVE THE CONCRETE BASE. THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

ANCHOR RODS SHALL BE THREADED 12" IN LENGTH ON EACH END OF THE ROD. ANCHOR RODS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 654.2.1 OF THE STANDARD SPECIFICATIONS.

WASHERS AND LOCK WASHERS ARE REQUIRED ON ALL ANCHOR RODS.

WHEN ANCHOR RODS USING THE ALTERNATE "L" BEND ARE FURNISHED, THE 4" "L" BEND SHALL BE IN ADDITION TO THE SPECIFIED ANCHOR ROD BAR LENGTH. THE "L" BEND END SHALL NOT BE THREADED.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

WELDING OF THE ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TIE WIRES SHALL BE USED.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS (LATEST EDITION).

1 THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVELED WAY SHALL BE 24 INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18 INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36 INCHES EXCEPT WITH WRITTEN APPROVAL BY THE ENGINEER.

2 (4) 1" DIA. X 3'-6" ANCHOR RODS.

3 (4) 1" DIA. X 5'-0" ANCHOR RODS.

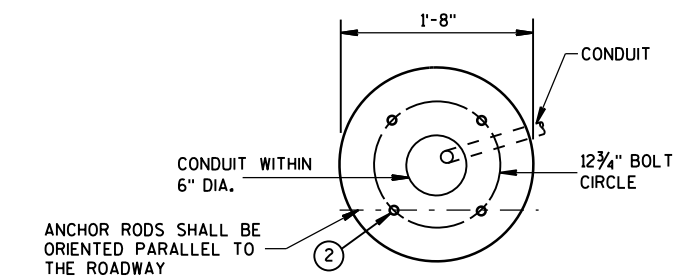
4 (6) NO. 6 X 6'-8" BAR STEEL REINFORCEMENT.

5 (7) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.

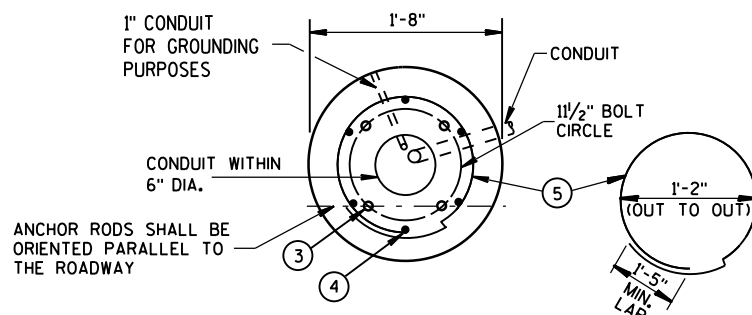
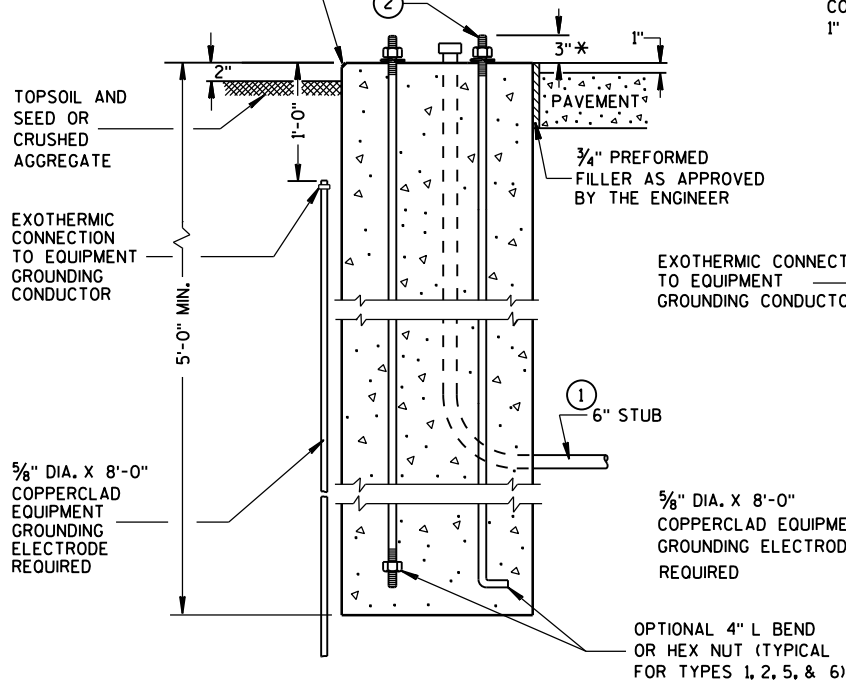
6 (4) 1" DIA. X 3'-6" ANCHOR RODS.

7 (6) NO. 4 X 4'-8" BAR STEEL REINFORCEMENT.

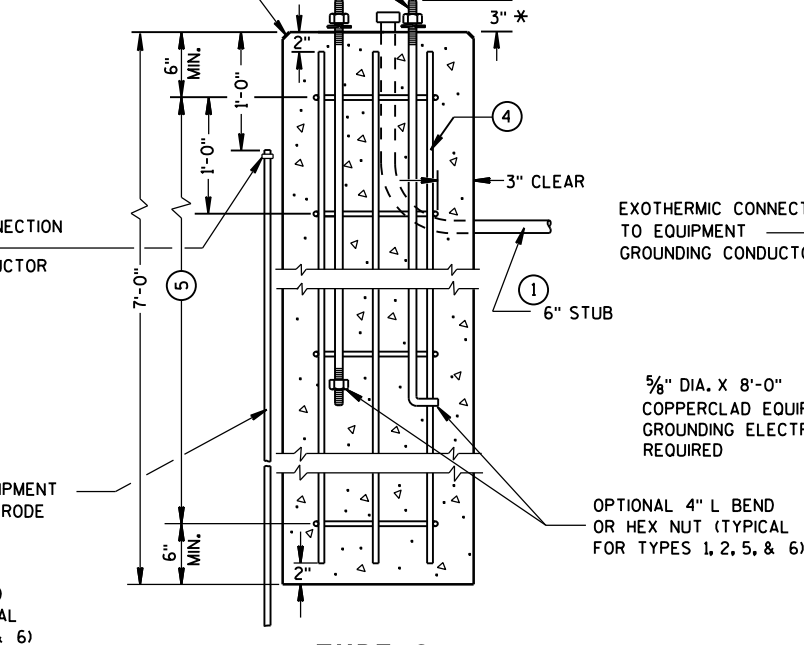
8 (5) NO. 4 X 5'-1" BAR STEEL REINFORCEMENT @ 1'-0" C-C.



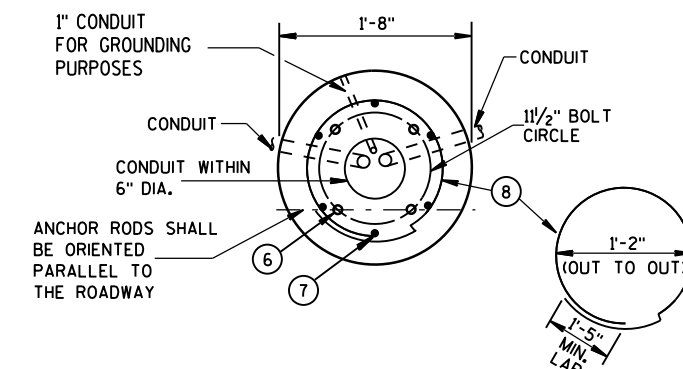
HALF SECTION IN UNPAVED AREA (TYPICAL FOR TYPES 1, 2, 5, & 6)



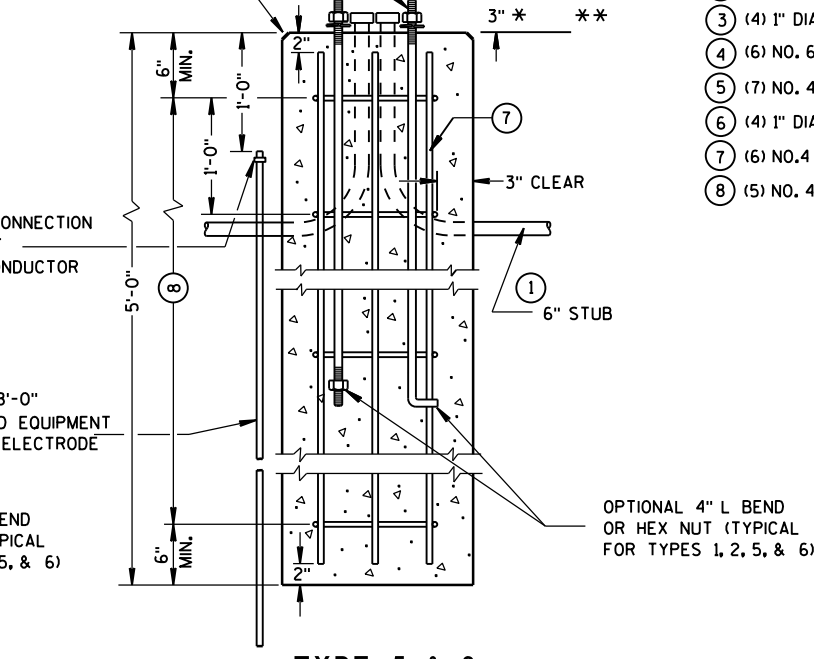
HALF SECTION IN PAVEMENT (TYPICAL FOR TYPES 1, 2, 5, & 6)



TYPE 2 CONCRETE BASES



HALF SECTION IN PAVEMENT (TYPICAL FOR TYPES 1, 2, 5, & 6)



TYPE 5 & 6

* ANY ANCHOR ROD PROJECTION SHORTER THAN 2 3/4" OR LONGER THAN 3 3/4" SHALL REQUIRE THE BASE TO BE REMOVED AND REPLACED AT THE CONTRACTORS EXPENSE.

** FOR NONBREAKAWAY INSTALLATIONS, 4 1/2" ± ANCHOR ROD PROJECTION WITH THE USE OF LEVELING NUTS. RODENT SCREEN REQUIRED.

CONCRETE BASES, TYPES 1, 2, 5, & 6

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2014

DATE

FHWA

/S/ Ahmet Demirbilek

STATE ELECTRICAL ENGINEER

GENERAL NOTES

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

FOUR (4) BOLTS SHALL BE FURNISHED WITH EACH TRANSFORMER BASE. BOLTS SHALL BE 1" DIAMETER, 4" IN LENGTH, WITH WASHERS, LOCK WASHERS AND NUTS. BOLTS, NUTS AND WASHERS SHALL BE MANUFACTURED IN ACCORDANCE WITH SECTION 641.2.2 OF THE STANDARD SPECIFICATIONS.

LEVELING SHIMS, IF NEEDED, SHALL BE DESIGNED FOR THE PURPOSE AND USED UNDER CAST BASES WHEN PLUMBING POLES OR STANDARDS DURING INSTALLATION. THE USE OF WASHERS IN LIEU OF PROPER LEVELING SHIMS IS NOT ACCEPTABLE.

SHIM LENGTH SHALL BE LONG ENOUGH TO COMPLETELY COVER THE AREA UNDER THE LENGTH AND WIDTH OF THE BASE MOUNTING FLANGE.

DOUBLE NUTTING IS NOT ACCEPTABLE FOR LEVELING OR MOUNTING PURPOSES.

A NEMA APPROVED, U.L. LISTED, COPPER WITH BRASS OR STAINLESS STEEL SET SCREW, DIRECT BURY RATED, MECHANICAL CONNECTOR (LUG), SIZED TO ACCEPT AWG. #10 TO #4 COPPER STRANDED WIRE SHALL BE FURNISHED AND INSTALLED IN THE PEDESTAL AND TRANSFORMER BASES.

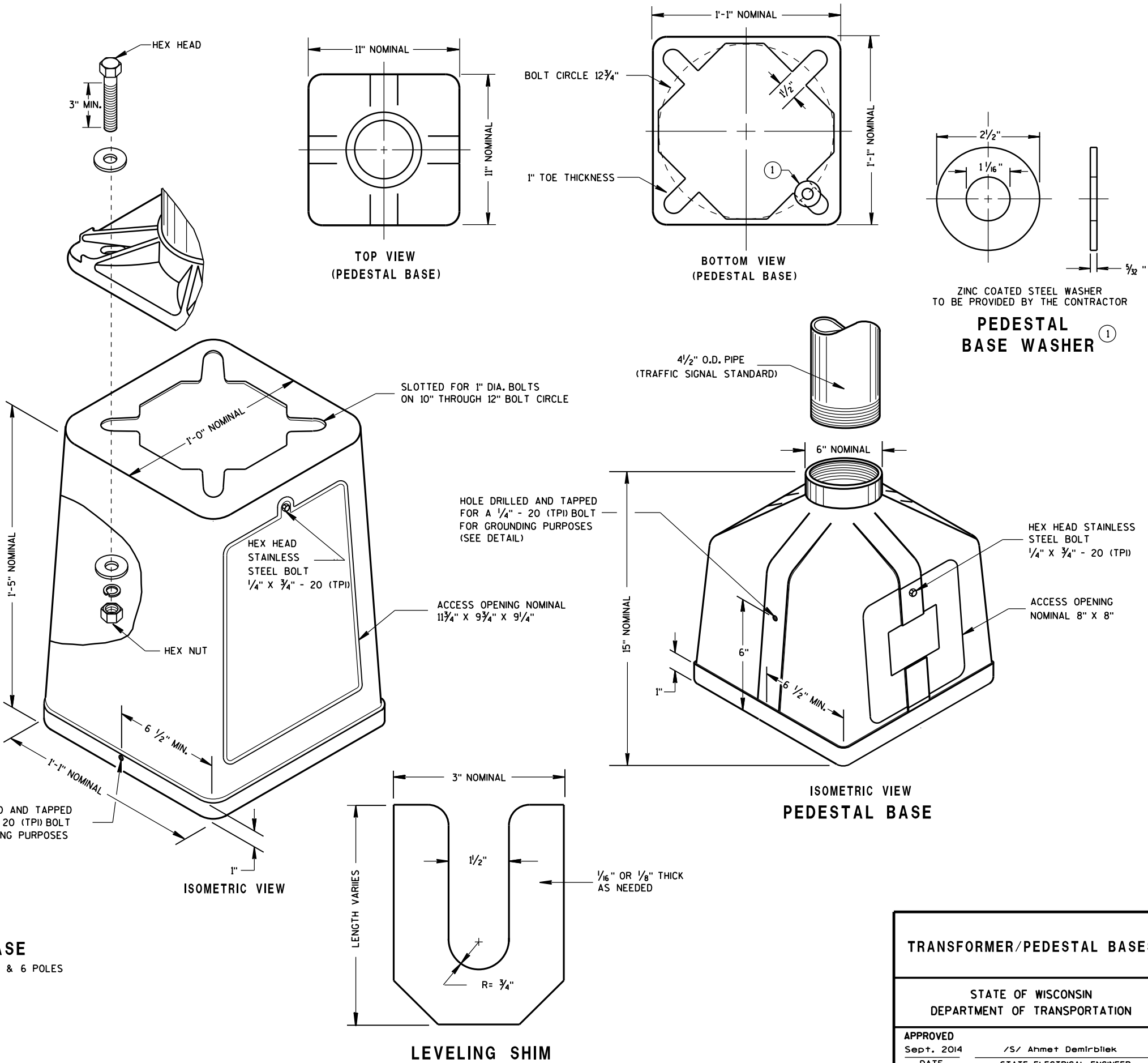
THE MECHANICAL CONNECTOR SHALL BE INSTALLED USING A 1/4" - 20 (TPI) STAINLESS STEEL HEX HEAD BOLT OF SUFFICIENT LENGTH TO FIRMLY ATTACH THE LUG TO THE BASE.

SHOULD THE MANNER OF ATTACHMENT OF THE LUG REQUIRE WASHERS, HEX NUTS, LOCK WASHER - THEY SHALL BE STAINLESS STEEL AS IS THE BOLT. THE MANNER OF ATTACHMENT SHALL NOT BLOCK ACCESSIBILITY TO WIRE PLACEMENT IN THE CONNECTOR.

PEDESTAL BASE COLLAR THREADING SHALL BE TAPERED AND IN ACCORDANCE WITH NATIONAL PIPE THREADING DIMENSIONS.

BASE COLLAR THREADING SHALL EXTEND INTO THE BASE COLLAR WITH SUFFICIENT DEPTH TO ACCEPT THE INSTALLATION OF TRAFFIC SIGNAL STANDARDS TO A DEPTH OF 1/2", THEN TIGHTENING TO A POINT OF BEING IMMOVABLE.

THE ACCESS DOOR SHALL BE OF THE SAME MATERIAL AS THE BASE.



TYPICAL MECHANICAL
CONNECTOR LUG
TO BE FURNISHED WITH EACH BASE

TRANSFORMER BASE
INTENDED FOR USE WITH TYPE 2, 3, 4, 5 & 6 POLES

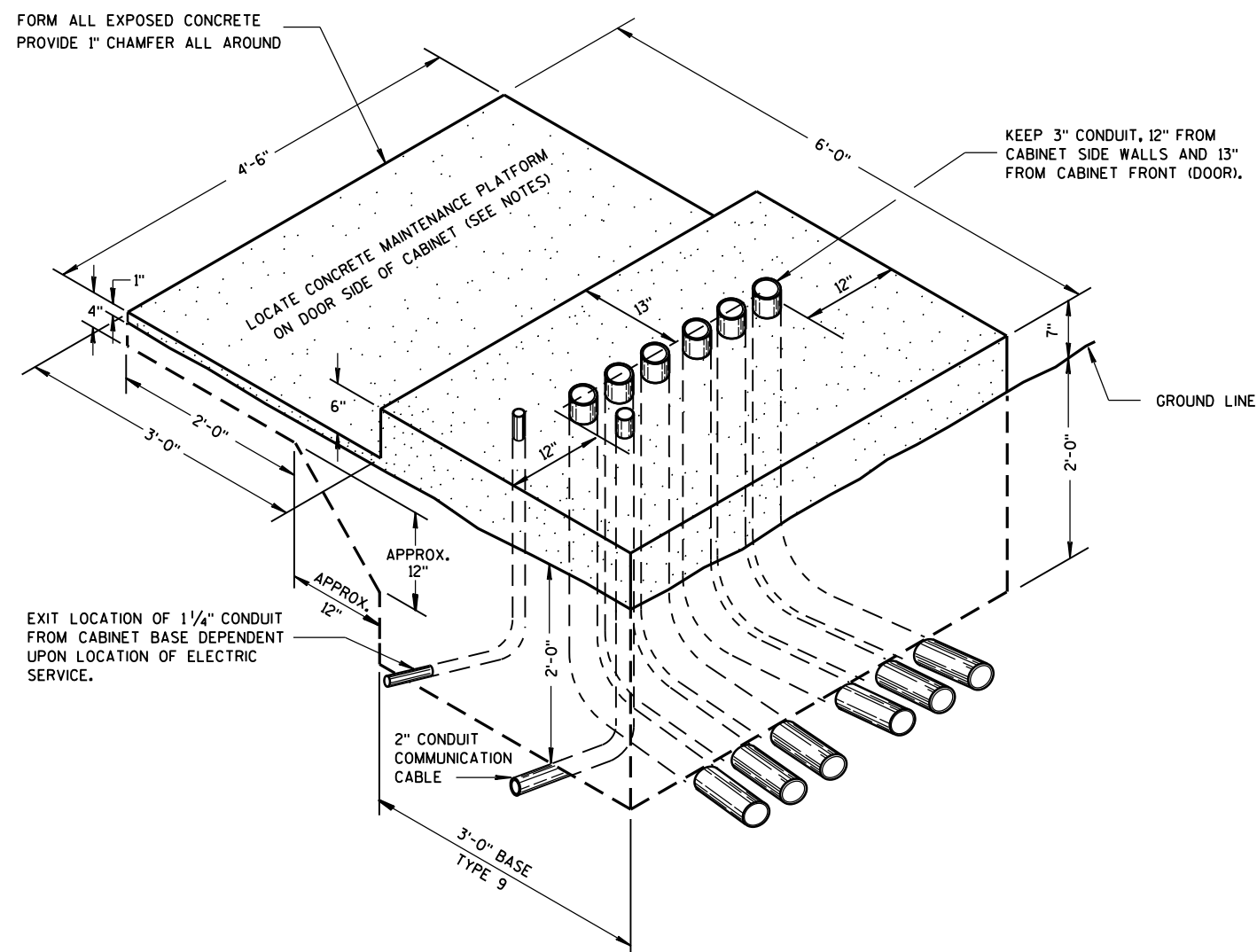
ISOMETRIC VIEW
PEDESTAL BASE

LEVELING SHIM

TRANSFORMER/PEDESTAL BASES

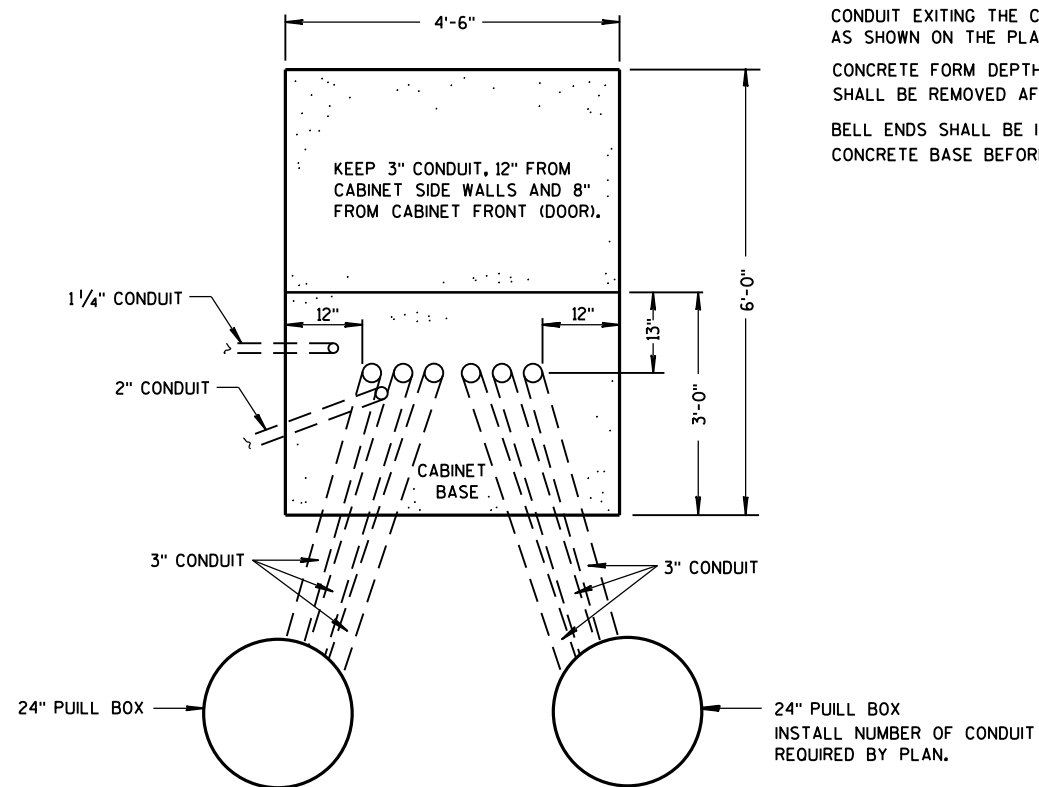
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2014 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL ENGINEER
FHWA



**ISOMETRIC VIEW
TYPE 9, SPECIAL**

(C.Y. CONCRETE = APPROX. 1.56)



PLAN VIEW

CONCRETE CONTROL CABINET BASE, TYPE 9, SPECIAL

GENERAL NOTES

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

INSTALL FOUR 1/2 INCH MINIMUM DIAMETER X 4 INCH MINIMUM LENGTH STAINLESS STEEL APPROVED CONCRETE MASONRY ANCHORS WITH A PULLOUT STRENGTH OF 9,000 LBS. TO ANCHOR THE CABINET TO TYPE 6, 7, 8, AND 9 BASES. THE ANCHOR STUDS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO PROPERLY ANCHOR THE CONTROL CABINET TO THE BASE.

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

CONDUIT HEIGHT ABOVE THE CONCRETE BASE SHALL BE 1 INCH.

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.

CONTROL CABINET BASE TOP SURFACE SHALL BE TROWEL FINISHED SMOOTH AND LEVEL.

MAINTENANCE PLATFORM SHALL BE FLOAT OR BROOM FINISHED AND BE LEVEL.

MAINTENANCE PLATFORMS ARE NOT REQUIRED WHEN THE SURROUNDING AREA IS PAVED.

MINIMUM BENDING RADIUS OF CONDUIT = 6 X THE DIAMETER.

ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED.

CAP ALL BELOW GRADE METALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.

PLUG ALL BELOW GRADE NONMETALLIC CONDUIT ENDS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED.

ALL CONDUIT ENDS AT THE TOP OF CONCRETE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

CONDUIT EXITING THE CONCRETE BASE (SIX THREE INCH) SHALL TERMINATE IN PULL BOXES AS SHOWN ON THE PLANS.

CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6" MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.

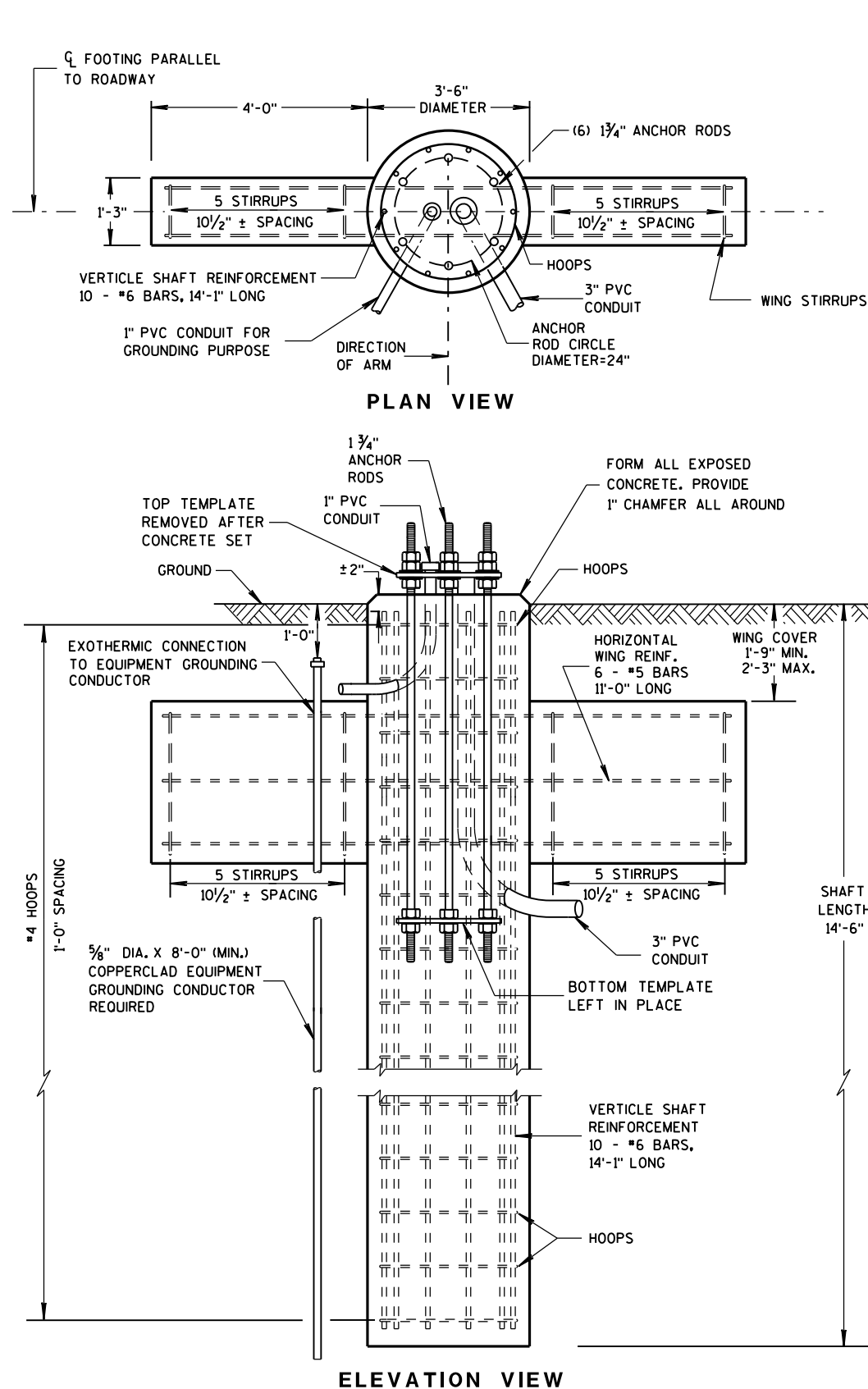
BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF THE CONCRETE BASE BEFORE INSTALLATION OF CABLE OR WIRE.

**CONCRETE CONTROL CABINET
BASE, TYPE 9, SPECIAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2014
DATE
FHWA

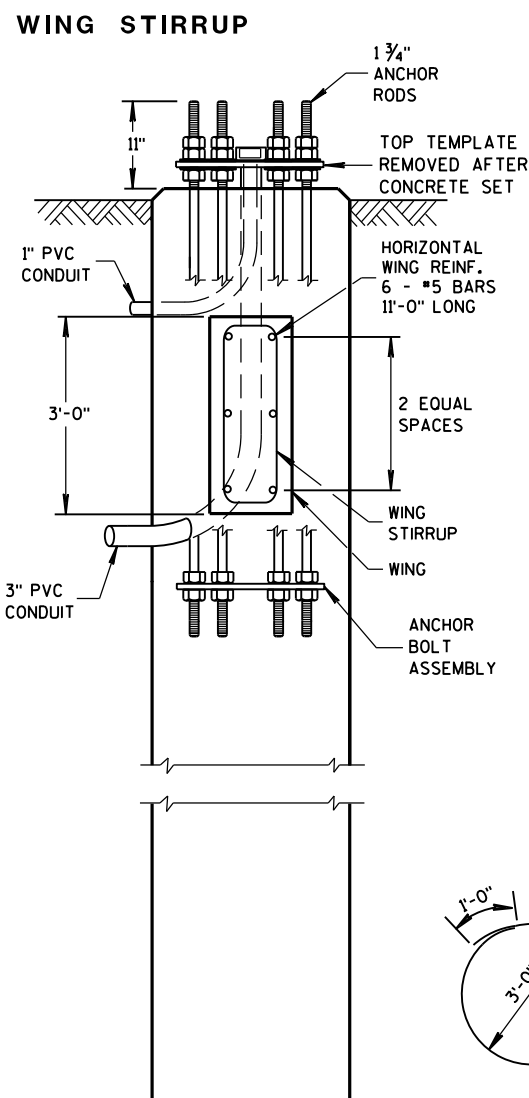
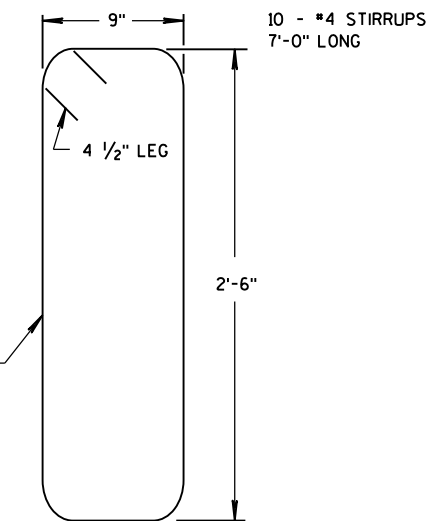
/S/ Ahmet Demirbilek
STATE ELECTRICAL ENGINEER



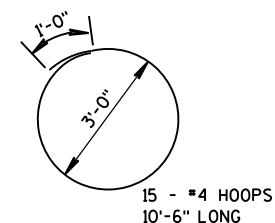
(FOR TYPE 12 & 13 POLES)

CONCRETE = 6.3 C.Y.
H.S. REINFORCEMENT = 433 LBS.

TO BE USED WHEN GROUND ELEVATION AT BASE EQUALS OR IS GREATER THAN HIGH POINT OF ROADWAY ELEVATION.
SEE S.D.D. 9C13-2 WHEN GROUND ELEVATION AT BASE IS LOWER THAN HIGH POINT OF ROADWAY ELEVATION.



DOES NOT SHOW HOOPS OR
VERTICAL SHAFT REINFORCEMENT

**GENERAL NOTES**

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

ORIENT ANCHOR RODS IN FOOTING AND PROVIDE ANCHOR ROD PROJECTION ABOVE TOP OF CONCRETE FOOTING BASE PER THIS SHEET.

BENDING DIMENSIONS FOR REINFORCING BARS ARE OUT TO OUT.

USE 3" CLEAR FOR ALL REINFORCEMENT UNLESS NOTED OTHERWISE.

THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF THE UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO.

WELDING OF ANCHOR RODS TO THE CAGE IS UNACCEPTABLE. TEMPLATES SHALL BE USED.

BASES (SHAFT), BELOW THE WING, SHALL BE EXCAVATED BY THE USE OF A CIRCULAR AUGER. IF A BASE REQUIRES A DEEP FORM BECAUSE OF LOOSE SOIL, THE FORM SHALL BE REMOVED BEFORE BACKFILLING AROUND THE BASE. BACKFILL SHALL BE TAMPED TIGHT AGAINST THE BARE CONCRETE BASE IN LAYERS OF 1 FOOT OR LESS.

TOP SURFACE OF THE CONCRETE BASE SHALL BE TROWEL FINISHED AND LEVEL.

CONDUIT SIZE AND LOCATIONS SHALL BE AS SHOWN ON THE PLANS.

MINIMUM BENDING RADIUS OF CONDUIT IS EQUAL TO 6 X THE DIAMETER.

CONDUIT HEIGHT ABOVE CONCRETE BASE SHALL BE 4 1/2" INCHES. ALL METALLIC CONDUIT ENDS SHALL BE REAMED AND THREADED. NONMETALLIC CONDUIT SHALL HAVE BELL ENDS INSTALLED. ALL CONDUIT SHALL SLOPE TO PULL BOX.

ALL CONDUIT ENDS AT THE TOP OF THE BASES SHALL BE CAPPED IF METALLIC OR PLUGGED IF NONMETALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

BELL ENDS SHALL BE INSTALLED ON ALL PVC CONDUIT EXPOSED AT THE TOP OF CONCRETE BASES BEFORE INSTALLATION OF CABLE OR WIRE.

WHEN REQUIRED TO CONNECT NONMETALLIC CONDUIT TO METALLIC CONDUIT, ONLY ADAPTOR FITTINGS, UL LISTED FOR ELECTRICAL USE, SHALL BE USED.

A NO. 4 AWG, STRANDED COPPER EQUIPMENT GROUNDING CONDUCTOR SHALL BE EXOTHERMICALLY WELDED TO THE EQUIPMENT GROUNDING ELECTRODE (GROUND ROD).

THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE FURNISHED AND INSTALLED TO ENTER THE BASE THROUGH A 1-INCH CONDUIT INSTALLED FOR GROUNDING PURPOSES, LEAVING A 4-FOOT COIL OF WIRE ABOVE THE CONCRETE BASE, THE EQUIPMENT GROUNDING CONDUCTOR SHALL BE NEATLY COILED AND THE COILS TIED TOGETHER.

BAR STEEL REINFORCEMENT SHALL BE COATED WITH POWDERED EPOXY RESIN IN ACCORDANCE WITH SECTION 505 OF THE STANDARD SPECIFICATIONS.

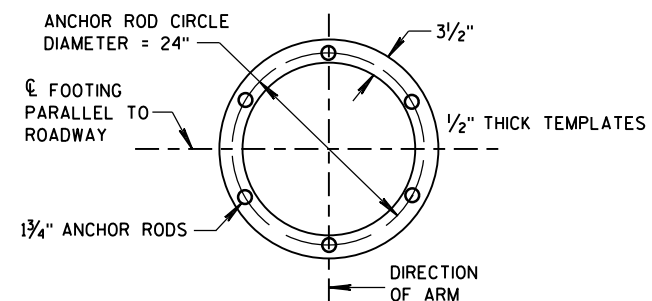
THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE AND INSTALLED BELOW THE TRAVEL WAY SHALL BE 24-INCHES. THE MINIMUM DEPTH OF CONDUIT EXITING THE CONCRETE BASE THAT IS NOT INSTALLED BELOW THE TRAVELED WAY SHALL BE 18-INCHES. THE MAXIMUM DEPTH OF ALL CONDUIT SHALL BE 36-INCHES, (GREATER THAN 36-INCHES IF INSTALLED IN BREAKER-RUN), EXCEPT WITH THE WRITTEN APPROVAL OF THE ENGINEER.

ANCHOR RODS SHALL BE INSTALLED WITH MISALIGNMENTS OF LESS THAN 1:40 FROM VERTICAL.

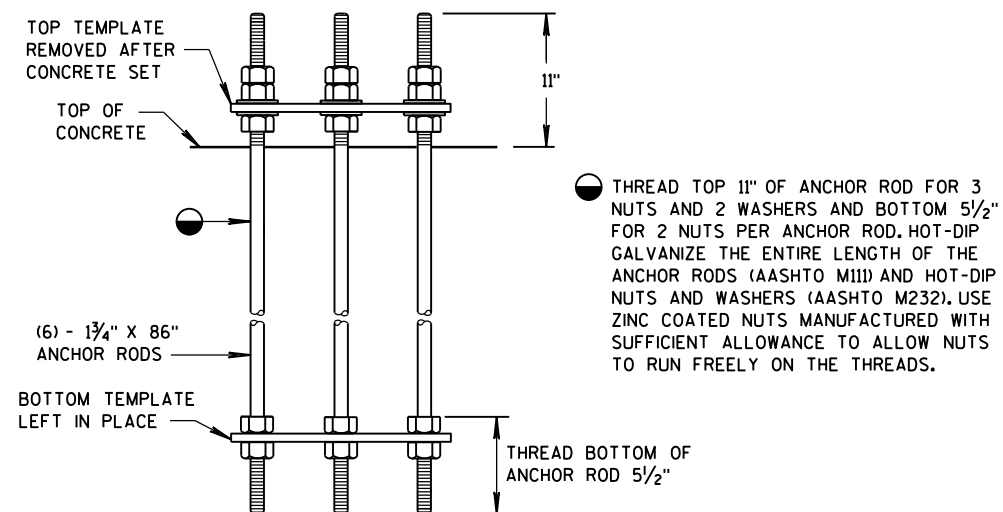
CONCRETE MASONRY	fc=3,500 p.s.i.
HIGH STRENGTH BAR STEEL REINFORCEMENT, GRADE 60	fy=60,000 p.s.i.
ANCHOR RODS, AASHTO M314 GRADE 55	fy=55,000 p.s.i.
TEMPLATES, ASTM A709 GRADE 36	fy=36,000 p.s.i.

CONCRETE BASE TYPE 13

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

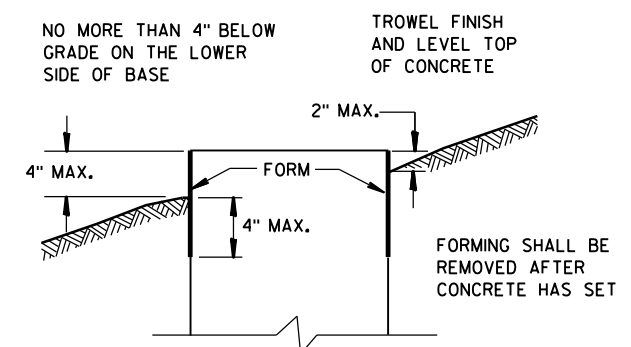


TOP AND BOTTOM TEMPLATES



ANCHOR BOLT ASSEMBLY DETAIL

CONCRETE BASE TYPE 13 ANCHOR ASSEMBLY



FORMING DETAIL

CONCRETE BASE TYPE 13

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Feb. 2015

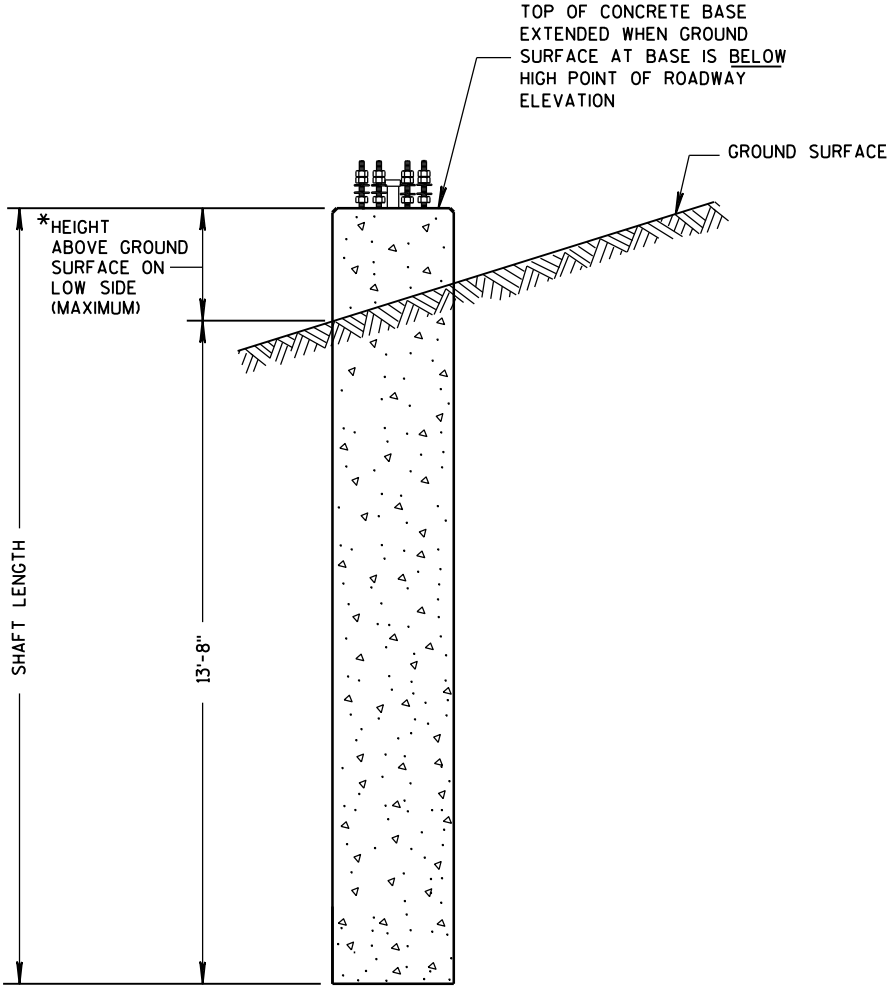
DATE

FHWA

/S/ Ahmet Demirelek
STATE ELECTRICAL ENGINEER

REINFORCEMENT AND CONCRETE QUANTITIES
ADJUSTED FOR EXTENDED TYPE 10 CONCRETE BASE

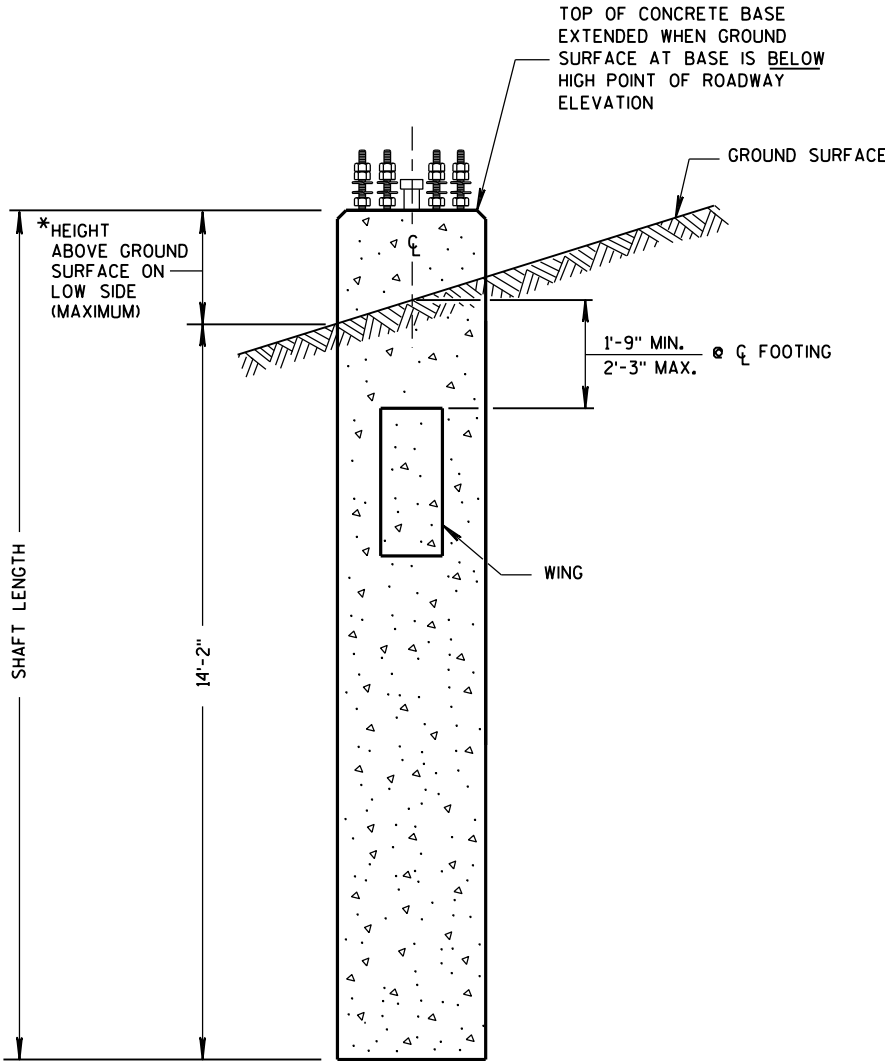
HEIGHT INCREASE REQUIRED	* HEIGHT ABOVE GROUND SURFACE ON LOW SIDE (MAXIMUM)	SHAFT LENGTH	LENGTH OF #6 VERTICAL REINF.	NO. OF #4 HOOPS	C.Y. OF CONCRETE	LBS. OF HOOP BAR STEEL	LBS. OF VERTICAL BAR STEEL
>0" TO 6"	10"	14'-6"	14'-1"	16	2.6	78	127
>6" TO 1'-0"	1'-4"	15'-0"	14'-7"	16	2.7	78	131
>1'-0" TO 1'-6"	1'-10"	15'-6"	15'-1"	17	2.8	83	136
>1'-6" TO 2'-0"	2'-4"	16'-0"	15'-7"	17	2.9	83	141



CONCRETE BASE TYPE 10 (EXTENDED)

REINFORCEMENT AND CONCRETE QUANTITIES
ADJUSTED FOR EXTENDED TYPE 13 CONCRETE BASE

HEIGHT INCREASE REQUIRED	* HEIGHT ABOVE GROUND SURFACE ON LOW SIDE (MAXIMUM)	SHAFT LENGTH	LENGTH OF #6 VERTICAL REINF.	NO. OF #4 HOOPS	C.Y. OF CONCRETE	LBS. OF H.S. BAR STEEL
>0" TO 6"	10"	15'-0"	14'-7"	16	6.5	447
>6" TO 1'-0"	1'-4"	15'-6"	15'-1"	16	6.6	454
>1'-0" TO 1'-6"	1'-10"	16'-0"	15'-7"	17	6.8	469
>1'-6" TO 2'-0"	2'-4"	16'-6"	16'-1"	17	7.0	476



CONCRETE BASE TYPE 13 (EXTENDED)

CONCRETE BASE
TYPE 10 & TYPE 13 EXTENSION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11-26-2013
DATE
/S/ Ahmet Demirbilek
STATE ELECTRICAL ENGINEER
FHWA



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

THE TYPE OF CONCRETE CABINET BASE TO BE INSTALLED SHALL BE AS CALLED FOR IN THE PLANS.

WHILE FLUSH MOUNTING IS THE MOST DESIRABLE MOUNTING CONFIGURATION UTILITY REQUIREMENTS MAY PRECLUDE THIS OPTION. CONTRACTOR MUST PROVIDE UTILITY APPROVED PEDESTAL AND INSTALL PER UTILITY AND MANUFACTURERS REQUIREMENTS.

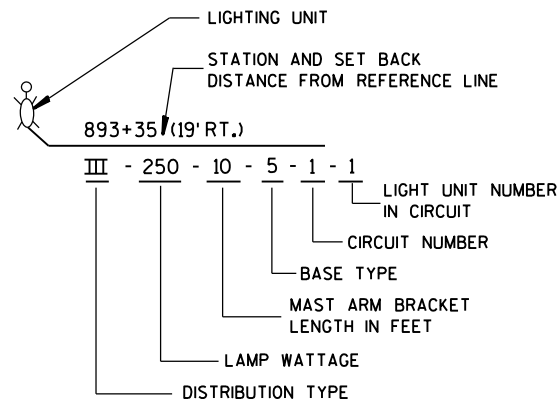
SERVICE CONDUCTOR ENTRANCES SHALL BE SIZED AND LOCATED AS REQUIRED BY THE LOCAL UTILITY AND IN ACCORDANCE WITH APPROPRIATE ARTICLES OF THE LATEST ACCEPTED NATIONAL ELECTRICAL CODE.

* SOME PEDESTAL LIGHTING PLANS SHOW MAIN LUGS ONLY.

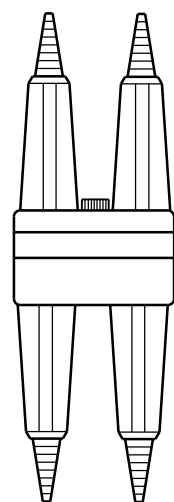
APPROVED
Sept. 2014
DATE

/S/ Ahmet Demirbilek
STATE ELECTRICAL ENGINEER

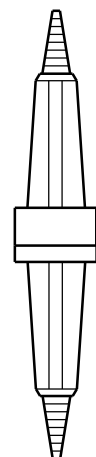
FHWA



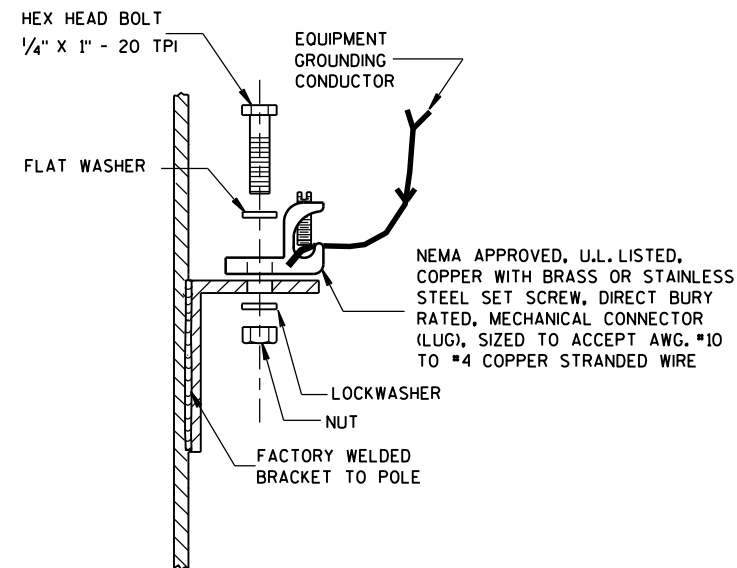
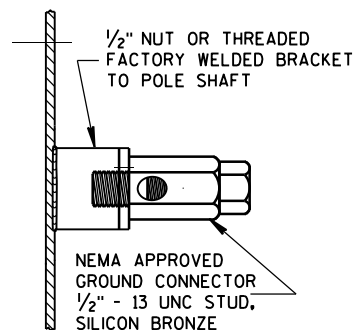
**LIGHTING UNIT CODE
(TYPICAL)**



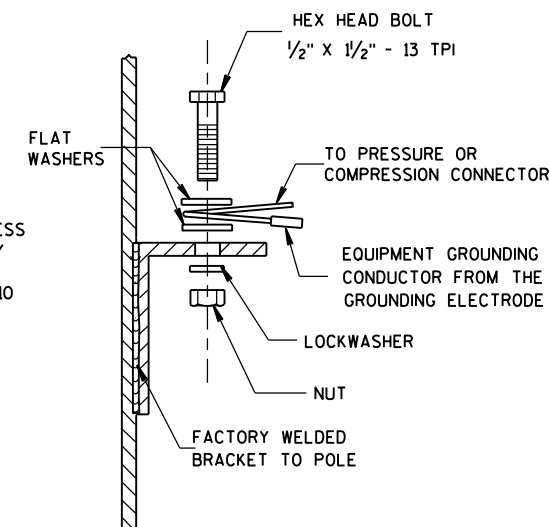
**DETAIL "A"
BREAKAWY
DOUBLE POLE WITH
WATERPROOF
INSULATING BOOT**



**DETAIL "B"
BREAKAWY
SINGLE POLE WITH
WATERPROOF
INSULATING BOOT**



TYPICAL GROUNDING CONNECTIONS
NUT, BOLT, WASHERS AND LOCKWASHERS SHALL BE STAINLESS STEEL



GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
THE EQUIPMENT GROUNDING CONNECTOR SHALL BE TAPED WITH 3 WRAPS (MINIMUM) OF APPROVED RUBBER TAPE AND THEN 3 WRAPS (MINIMUM) OF APPROVED VINYL TAPE TO COVER SHARP WIRE ENDS AFTER THE CONNECTION IS COMPLETED.
WHEN TRANSFORMER BASES ARE USED, ALL WIRING CONNECTIONS SHALL OCCUR WITHIN THE TRANSFORMER BASES.

ADDITIONAL CONDUCTORS
AND FUSE FOR TWIN
LIGHTING UNITS

EQUIPMENT GROUNDING
CONDUCTOR(S) TO LUMINAIRE(S)

APPROVED MECHANICAL TYPE
CONNECTOR FOR EQUIPMENT
GROUNDING CONDUCTORS.
COMPRESSION, CRIMP OR
WIRE NUT CONNECTORS ARE
NOT ALLOWED.

TYPICAL GROUNDING CONNECTION -
STAINLESS STEEL BOLT,
NUT AND WASHERS
1/2" X 1/2" - 13 TPI

AWG #4 (MIN.) BARE EQUIPMENT
GROUNDING CONDUCTOR.
NOTE: THIS WIRE SHALL BE
CONTINUOUS WITHOUT SPLICES
FROM THE GROUNDING ELECTRODE
TO THE EQUIPMENT GROUNDING
CONDUCTOR SPICE CONNECTOR.

INSULATED EQUIPMENT GROUNDING
CONDUCTORS FROM SYSTEM RACEWAY

EXOTHERMICALLY WELDED
TO GROUNDING ELECTRODE

CONDUCTORS TO
LUMINAIRES SHALL BE #12 AWG,
COPPER STRANDED, U.S.E. RATED,
XLP INSULATED. SINGLE
LIGHTING UNIT SHOWN

CIRCUIT TAGS, BOTH SIDES
OF ALL FUSES (TYPICAL)

IN LINE SINGLE POLE FUSE ASSEMBLY.
600 VAC, WITH 5 AMP FAST ACTING
FUSE (SEE DETAIL "B")
TAPE AND VARNISH
CRIMPED END FERRULES

HANDHOLE & COVER

18" PIGTAIL BETWEEN
CONNECTOR AND FUSEHOLDER

APPROVED INSULATED MULTITAP
TERMINAL BLOCK TYPE CONNECTORS.
COMPRESSION, CRIMP OR WIRE NUT
CONNECTORS ARE NOT ALLOWED.

INSULATED UNGROUNDED CIRCUIT
CONDUCTORS FROM SYSTEM RACEWAY

ALTERNATE PHASE UNGROUNDED
CIRCUIT CONDUCTOR PASSING
THROUGH THIS POLE

TWIN LIGHTING UNITS REQUIRE
INDIVIDUAL SETS OF UNGROUNDED
CONDUCTORS AND FUSE ASSEMBLY.

AWG #4 (MIN.) BARE EQUIPMENT
GROUNDING CONDUCTOR.
NOTE: THIS WIRE SHALL BE
CONTINUOUS WITHOUT SPLICES
FROM THE GROUNDING ELECTRODE
TO THE EQUIPMENT GROUNDING
CONDUCTOR SPICE CONNECTOR.

EQUIPMENT GROUNDING
CONDUCTOR(S) TO LUMINAIRE(S)

TYPICAL GROUNDING CONNECTION -
STAINLESS STEEL BOLT,
NUT AND WASHERS
1/2" X 1/2" - 13 TPI

APPROVED MECHANICAL TYPE
CONNECTOR FOR EQUIPMENT
GROUNDING CONDUCTORS.
COMPRESSION, CRIMP OR
WIRE NUT CONNECTORS ARE
NOT ALLOWED.

INSULATED EQUIPMENT GROUNDING
CONDUCTORS FROM SYSTEM RACEWAY

EXOTHERMICALLY WELDED
TO GROUNDING ELECTRODE

CIRCUIT TAGS, BOTH SIDES
OF ALL FUSES (TYPICAL)

IN LINE FUSE ASSEMBLY
TWO POLE, 600 VAC,
WITH 5 AMP FAST ACTING
FUSE (SEE DETAIL "A")
TAPE AND VARNISH
CRIMPED END FERRULES

HANDHOLE & COVER

18" PIGTAIL BETWEEN
CONNECTORS AND FUSEHOLDERS

APPROVED INSULATED MULTITAP
TERMINAL BLOCK TYPE CONNECTORS.
COMPRESSION, CRIMP OR WIRE NUT
CONNECTORS ARE NOT ALLOWED.

INSULATED UNGROUNDED CIRCUIT
CONDUCTORS FROM SYSTEM RACEWAY

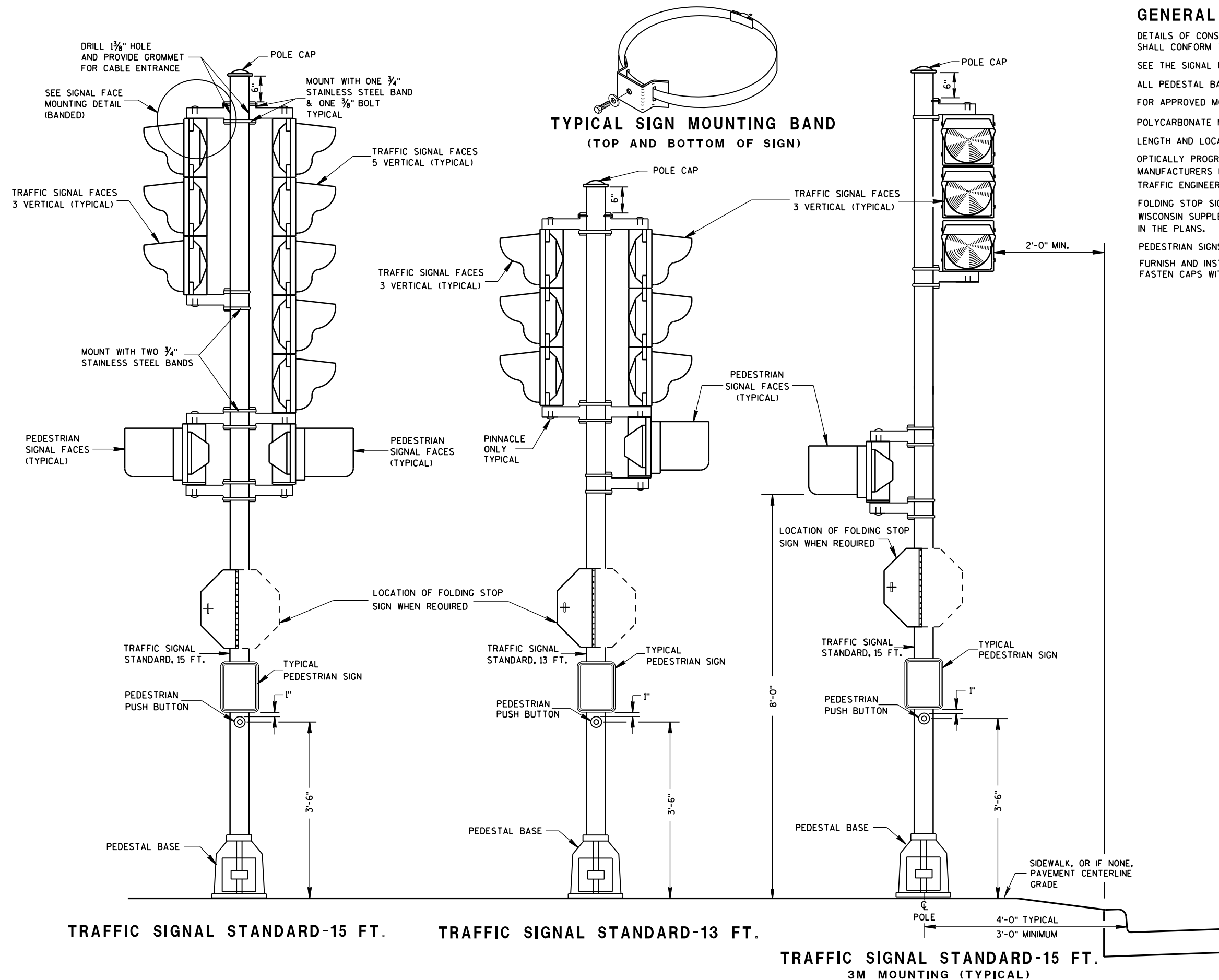
**3 WIRE - 120, 240 OR 480 VAC (UNGROUND CONDUCTOR)
WITH GROUNDED CONDUCTOR AND
WITH EQUIPMENT GROUNDING CONDUCTOR**

**2 WIRE - 240 OR 480 VAC (UNGROUND CONDUCTORS)
WITH EQUIPMENT GROUNDING CONDUCTOR**

**NON-FREEWAY LIGHTING UNIT
POLE WIRING**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Sept. 2014 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL ENGINEER
FHWA



GENERAL NOTES

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

SEE THE SIGNAL PLAN FOR REQUIRED SIGNAL FACE SIZES.

ALL PEDESTAL BASES SHALL BE MOUNTED ON CONCRETE BASE - TYPE 1.

FOR APPROVED MOUNTING HARDWARE, SEE THE CONTRACT SPECIAL PROVISIONS.

POLYCARBONATE MOUNTING BRACKETS SHALL BE USED.

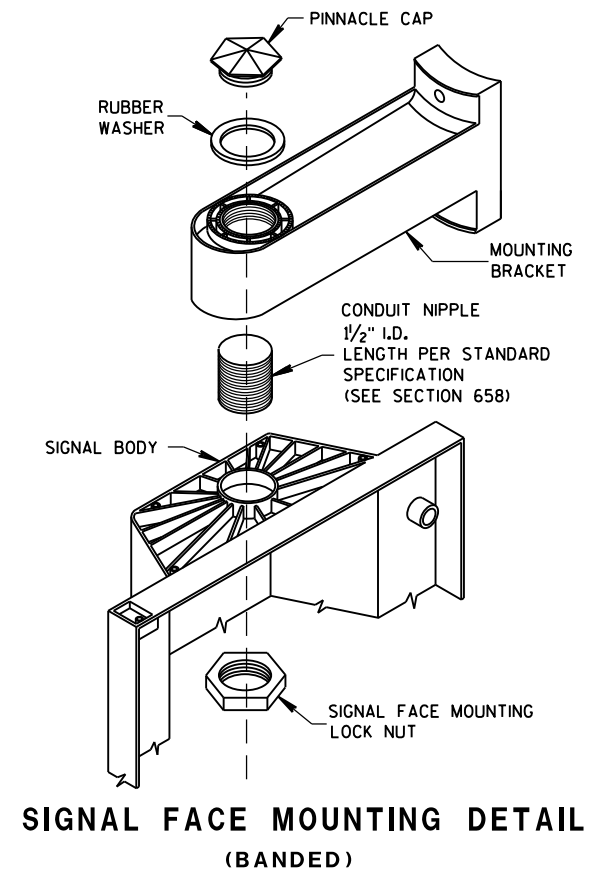
LENGTH AND LOCATION OF TRAFFIC SIGNAL STANDARDS SHALL BE AS SHOWN ON THE PLANS.

OPTICALLY PROGRAMMED SIGNAL FACES SHALL BE MASKED IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS, AND UNDER THE DIRECTIONS OF THE REGION TRAFFIC ENGINEER.

FOLDING STOP SIGNS SHALL BE IN ACCORDANCE WITH THE MUTCD AND/OR THE LATEST WISCONSIN SUPPLEMENT. THE SIGNS SHALL BE SIZED AND LOCATED AS CALLED FOR IN THE PLANS.

PEDESTRIAN SIGNS SHALL BE AS DESIGNATED IN THE PLANS.

FURNISH AND INSTALL VENTILATED, CAST, METALLIC (ALUMINUM ALLOY) CAPS. FASTEN CAPS WITH ONE (1) $\frac{1}{4}$ " X $\frac{3}{4}$ " - 20 TPI STAINLESS STEEL, HEX HEAD BOLT.



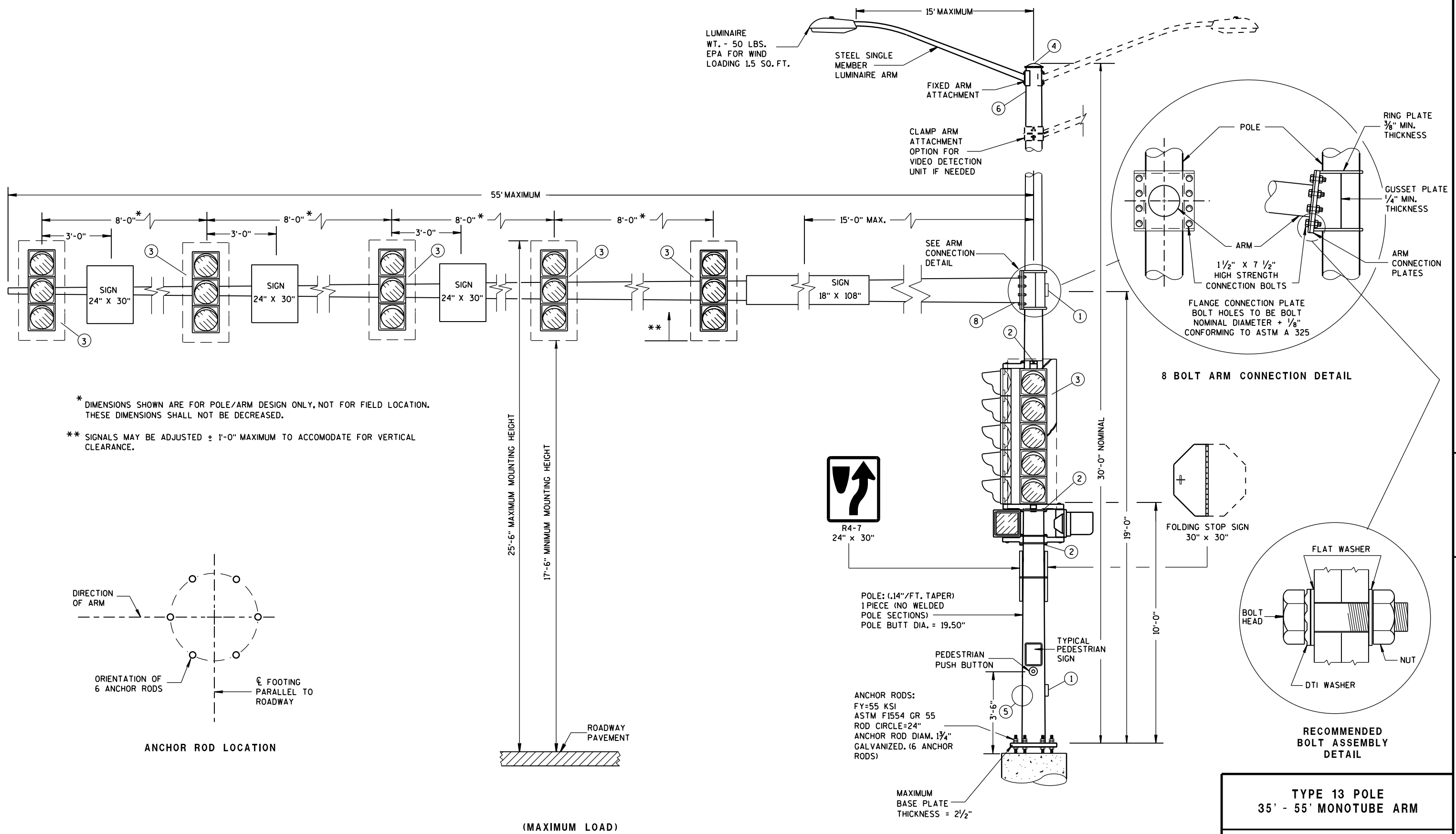
**TRAFFIC SIGNAL STANDARD
POLY BRACKET MOUNTINGS
(TYPICAL) 13 FT. OR 15 FT.**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
2/28/2013
DATE

/S/ Ahmet Demirbilek
STATE ELECTRICAL ENGINEER

FHWA



TYPE 13 POLE
35' - 55' MONOTUBE ARM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
FHWA

/S/ Ahmet Demirelek
STATE ELECTRICAL ENGINEER

GENERAL NOTES

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

POLE TYPES 9 AND 10 ARE FOR ARM LENGTHS 15-FOOT TO 30-FOOT.

POLE TYPES 12 AND 13 ARE FOR ARM LENGTHS 35-FOOT TO 55-FOOT.

MONOTUBE POLE AND ARM SHALL BE GALVANIZED STEEL.

RING-STIFFENED BUILT-UP BOX TYPE OF ATTACHMENT FOR TRAFFIC SIGNAL ARM.

ONE (1) PIECE POLE CONSTRUCTION (NO WELDED POLE SECTIONS).

STANDARD STRAIGHT ARM DESIGN (3 ½ ± RISE).

SECTION 657, POLES OF THE STANDARD SPECIFICATIONS SHALL APPLY TO THIS DRAWING.

PROVIDE WIREWAY THRU POLE WALL AND ARM CONNECTION PLATES. PROVIDE ROUND, SMOOTH INSIDE SURFACE.

MANUFACTURER'S SUBMITTED POLE DESIGNS AND DRAWINGS SHALL BE SIGNED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER AND CERTIFIED AS BEING IN COMPLIANCE WITH THE AASHTO 2013 6TH EDITION AND ALL PERTINENT WISDOT SPECIFICATIONS AND DRAWINGS FOR TRAFFIC AND LIGHTING STRUCTURES AND AS FOLLOWS:

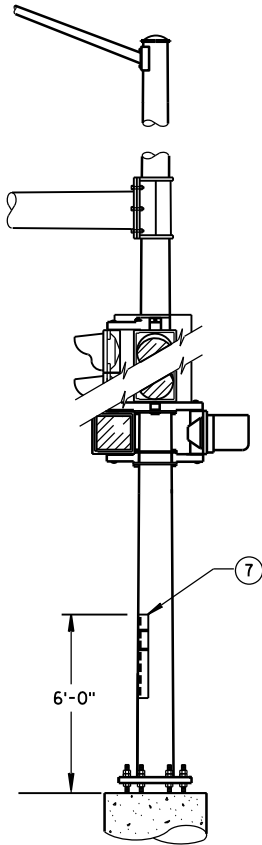
- CATEGORY III FATIGUE LOADS OF GALLOPING, TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 9 AND TYPE 10 STRUCTURES.
- CATEGORY II FATIGUE LOADS OF GALLOPING, TRUCK GUSTS (AT 45 MPH VEHICLE VELOCITY) AND NATURAL WIND GUSTS FOR DESIGN OF TYPE 12 AND TYPE 13 STRUCTURES.
- 90 MPH (3-SECOND GUST) WIND SPEED AND A 50 YEAR DESIGN LIFE.

SECURE THE OPENING BELOW THE BASE PLATE WITH STAINLESS STEEL OR GALVANIZED STEEL MESH AND SECURE THE MESH WITH ¾" S.S. BANDING AROUND THE LEVELING NUTS.

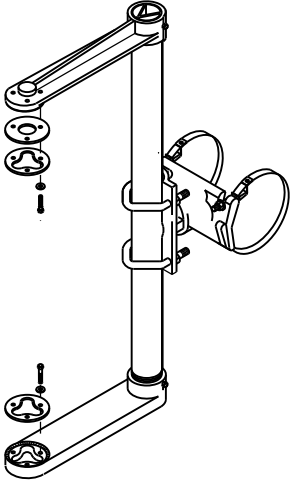
INDENT PRINT (NOMINAL ½" HIGH) THE POLE LENGTH AND FIRST TWO LETTERS OF THE MANUFACTURERS NAME ON TWO SIDES OF THE BASE PLATE 180 DEGREES APART, BEFORE GALVANIZING. THE ARM SHALL BE IDENTIFIED WITH THE SAME INFORMATION BY INDENT PRINT.

SIGNAL FACE SHALL BE MOUNTED 6 INCHES (NOMINAL) FROM THE END OF THE MONOTUBE ARM OR AS SHOWN ON THE PLAN CONSTRUCTION DETAIL OR AS DIRECTED BY THE PROJECT ENGINEER/ELECTRICAL OPERATIONS PERSONNEL. MOUNT ALL LIKE HEADS AT SAME ELEVATION.

SIGN MOUNTING BRACKETS SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 637 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION.

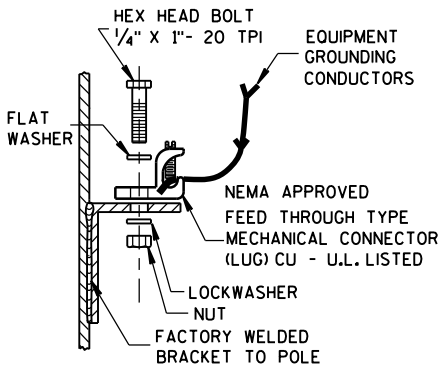


STRUCTURAL IDENTIFICATION
PLAQUE PLACEMENT



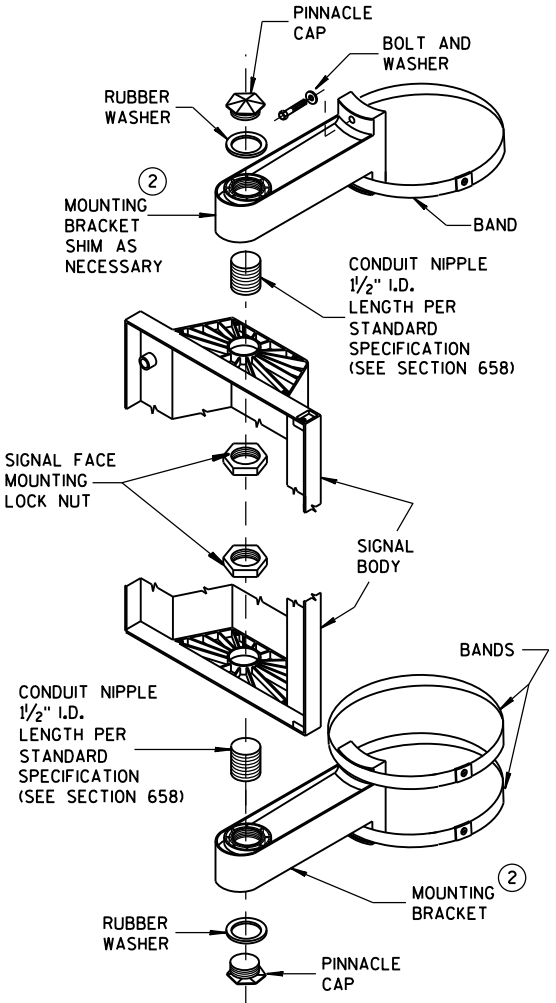
SIGNAL FACE MOUNTING BRACKET
DETAIL FOR MONOTUBE ARM

(MOUNT PER MANUFACTURER'S RECOMMENDATION)

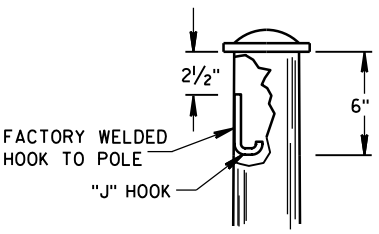


TYPICAL GROUNDING CONNECTIONS

NUT, BOLT AND WASHERS SHALL
BE STAINLESS STEEL



SIGNAL FACE
VERTICAL MOUNTING DETAIL



"J" HOOK WIRE SUPPORT

- ① DESIGN FOR MAXIMUM ALLOWABLE HANDHOLE WITH COVER ASSEMBLY WITH TWO ¼" x ¾" - 20 TPI STAINLESS STEEL HEX HEAD BOLTS.
- ② SIGNAL MOUNTING BRACKETS FOR POLE MOUNTING, MOUNT WITH CAP SCREW AND BANDING, (SEE SPECIFICATIONS SEC. 658).
- ③ SECURELY MOUNT BACKPLATES, PROJECTING 5" BEYOND ALL SIDES OF THE SIGNAL FACE HOUSING, PER MANUFACTURERS RECOMMENDATIONS.
- ④ THE TOP OF THE POLE SHAFT AND THE END OF THE MONOTUBE ARM SHALL BE EQUIPPED WITH A REMOVABLE, VENTILATED CAP HELD SECURELY IN PLACE WITH SET SCREWS.
- ⑤ FACTORY-WELDED BRACKET FOR GROUNDING LUG, OPPOSITE HANDHOLE, (LUG AND HARDWARE PAID UNDER SEPARATE ITEM). PROVIDE HOLE IN BRACKET FOR ¼" x ¾" - 20 TPI STAINLESS STEEL HEX HEAD BOLT.
- ⑥ FACTORY-WELDED "J" HOOK FOR STRAIN RELIEF FOR POLE LUMINAIRE WIRE.
- ⑦ INSTALL STRUCTURAL IDENTIFICATION PLAQUES.

STRUCTURAL IDENTIFICATION PLAQUES SHALL BE PLACED ON THE POLES IN THE SAME DIRECTION AS THE ARM.

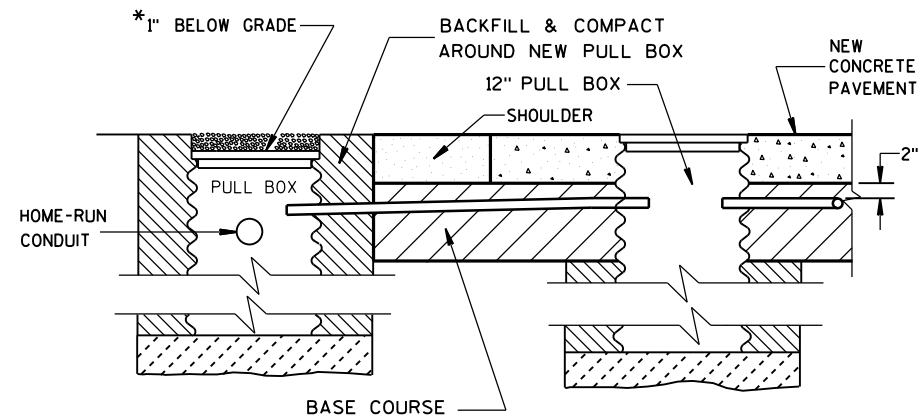
MOUNTING HEIGHT SHALL BE 6'-0" ABOVE THE CURB OR SHOULDER. ADJUST IF IT IS KNOWN THAT REQUIRED TRAFFIC SIGNS WILL BE OBSTRUCTED.

- ⑧ FACTORY DRILLED ½" DRAIN HOLE 2" FROM FLANGE CONNECTION PLATE.

GENERAL NOTES AND HARDWARE
DETAILS FOR TYPE 9, 10, 12 & 13
POLES WITH MONOTUBE ARMS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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



SECTION A-A
NO CURB & GUTTER

LOOP DETECTOR INSTALLATION DETAILS

*RECESS PULL BOX SO THAT THE COVER IS 3" BELOW GRADE IN SHOULDER AREAS OF CRUSHED AGGREGATE. BACKFILL OVER COVER WITH THE CRUSHED AGGREGATE TO BRING THE AREA TO GRADE LEVEL.

GENERAL NOTES

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

LOOP SIZE, LOCATION, NUMBER OF TURNS OF WIRE AND ASSOCIATED SIGNAL PHASE SHALL BE AS SHOWN ON THE PLANS.

PITCH LEAD OUT CONDUIT TO DRAIN TO ROADSIDE PULL BOX.

SPLICES SHALL BE INSTALLED BY USING CAST IN PLACE SPLICE KITS LISTED ON THE DEPARTMENTS APPROVED PRODUCTS LIST OR AN ENGINEER APPROVED EQUAL. NON-INSULATED BUTT SPLICES TO FIT #12 AWG STRANDED WIRE SHALL BE USED. SPLICES SHALL BE SOLDERED AND INSULATED FROM EACH OTHER AS PER INSTRUCTIONS INCLUDED IN THE SPLICE KIT.

MEASURE GROUND RESISTANCE USING A MEGGER. REPLACE LOOP WIRE NOT ATTAINING A READING OF INFINITY TO GROUND.

AFTER SPLICING THE LOOP WIRE TO THE LOOP LEAD-IN CABLE, THE CONTRACTOR SHALL MEASURE INDUCTANCE, GROUND RESISTANCE AND WIRE RESISTANCE AT THE CABINET END OF THE LEAD-IN CABLE AND FURNISH A COPY OF THE READINGS TO THE PROJECT ENGINEER FOR EVALUATION.

LOOP DETECTOR LEADS SHALL BE IDENTIFIED WITH THEIR ASSOCIATED LOOP BY USE OF WATERPROOF TAGS AT BOTH ENDS OF THE CABLE. A LISTING OF THE CABLE IDENTIFICATION PER INDIVIDUAL LOOP LEAD-IN SHALL BE PLACED IN THE CABINET.

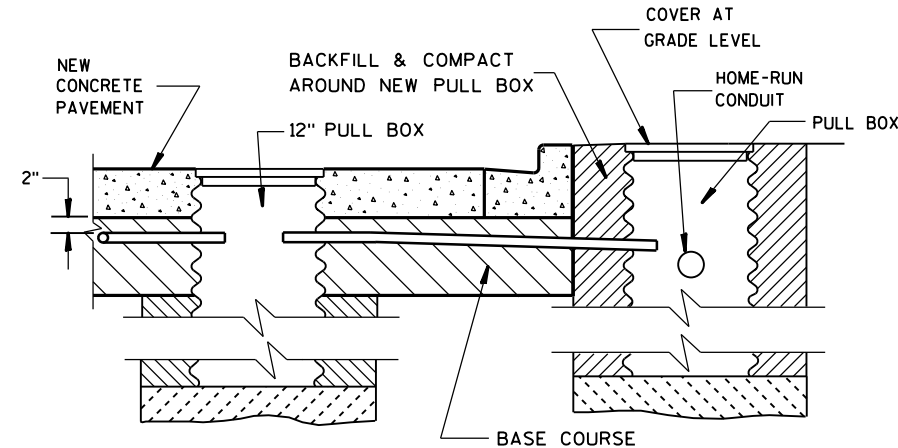
THE #12 AWG LOOP WIRE FROM THE LOOP TO THE ROADSIDE PULL BOX, SHALL BE HAND TWISTED AT LEAST 3 TWISTS PER FOOT BEFORE INSTALLATION.

SPLICES OF LOOP WIRE TO LEAD-IN CABLE SHALL BE MADE ONLY IN PULL BOXES AT THE SIDE OF THE ROAD.

THE #12 AWG LOOP WIRE SHALL BE INSTALLED FROM THE ROADSIDE PULL BOX, THROUGH THE LOOP DUCT, BACK TO THE ROADSIDE PULL BOX, AND BE INSTALLED IN ONE, NON-SPLICED, CONTINUOUS LENGTH.

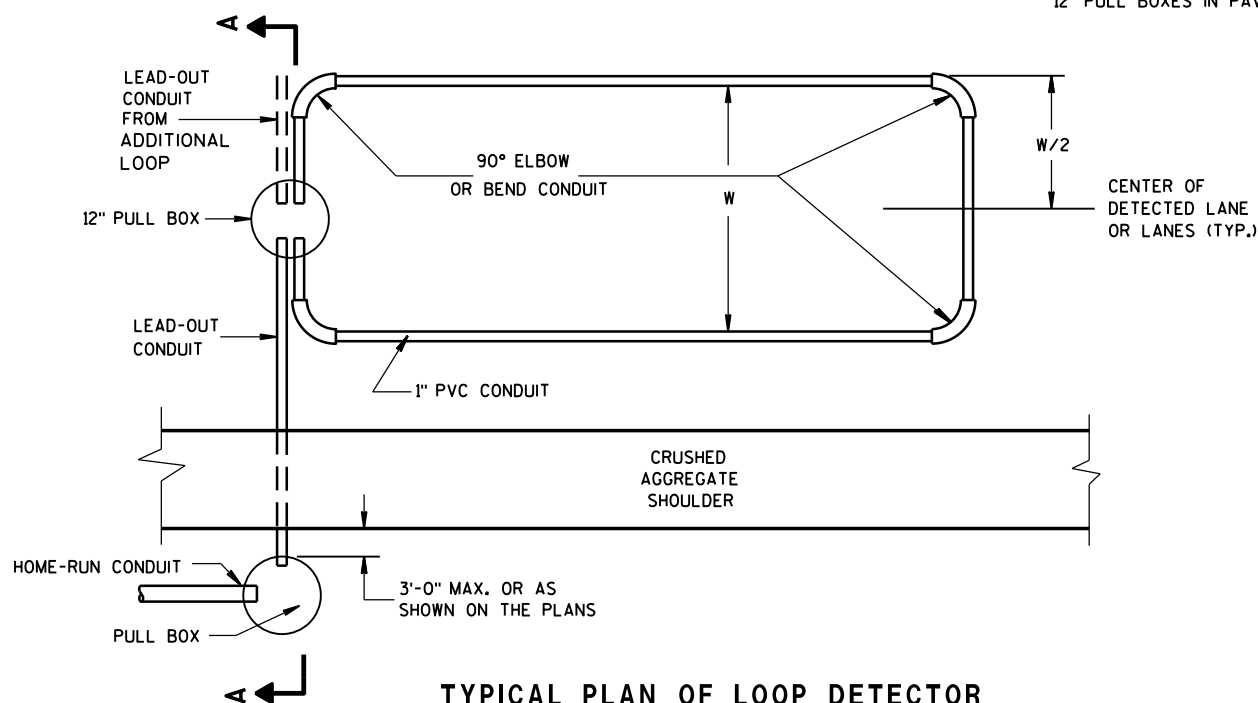
PROTECTION OF THE CONDUIT, CONDULET AND PULL BOX SHALL BE REQUIRED AFTER INSTALLATION AND BEFORE THE NEW CONCRETE PAVEMENT IS PLACED.

12" PULL BOXES IN PAVEMENT SHALL BE CORRUGATED STEEL ONLY.

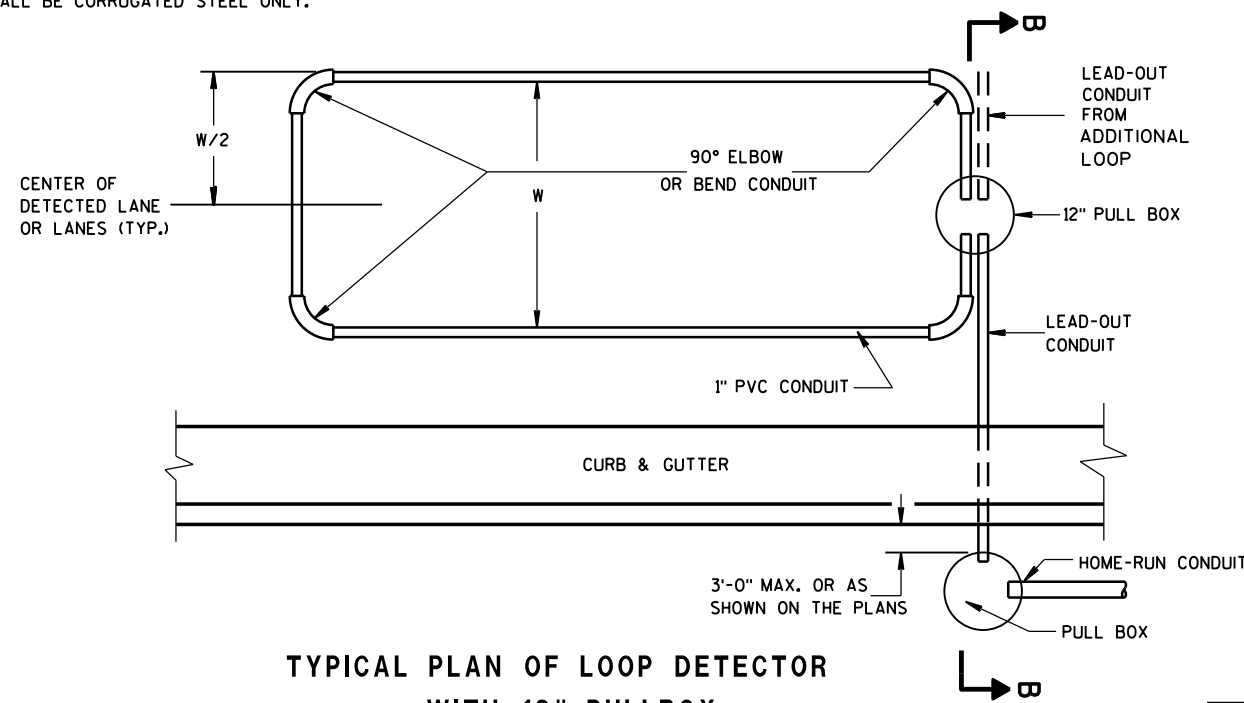


SECTION B-B
CURB & GUTTER

LOOP DETECTOR INSTALLATION DETAILS



TYPICAL PLAN OF LOOP DETECTOR
WITH 12" PULLBOX



TYPICAL PLAN OF LOOP DETECTOR
WITH 12" PULLBOX

LOOP DETECTOR PLACED
IN CRUSHED AGGREGATE BASE
(NEW CONCRETE PAVEMENT)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

Sept. 2014

DATE

FHWA

/S/ Ahmet Demirbilek

STATE ELECTRICAL ENGINEER

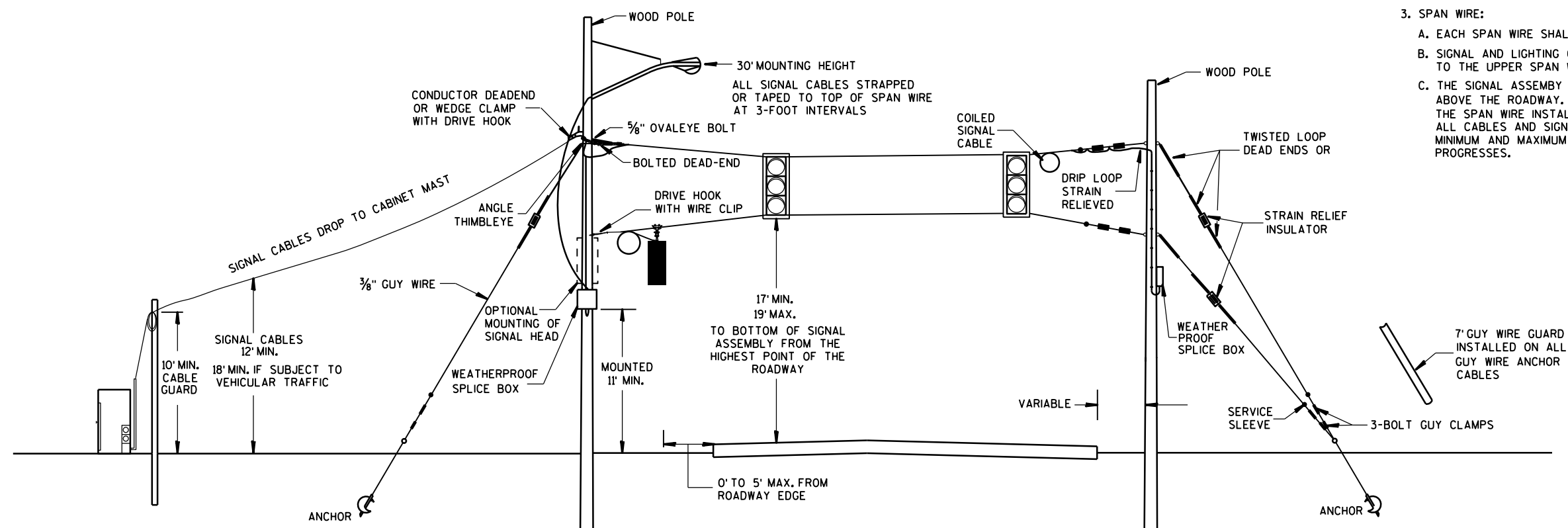
GENERAL NOTES

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

1. WOOD POLES SHALL BE CLASS 4, LENGTH DETERMINED BY SIGNAL PLAN.

2. SIGNAL FACES:
 A. ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
 B. EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
 C. EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
 D. NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.

3. SPAN WIRE:
 A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED.
 B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
 C. THE SIGNAL ASSEMBY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.



SPAN WIRE TEMPORARY SIGNALS

MINIMUM POLE LENGTHS	POLE BURIEL DEPTHS
25'	5'
30'	6'
35'	7'
40'	8'
45'	9'

SPAN WIRE TEMPORARY TRAFFIC SIGNAL

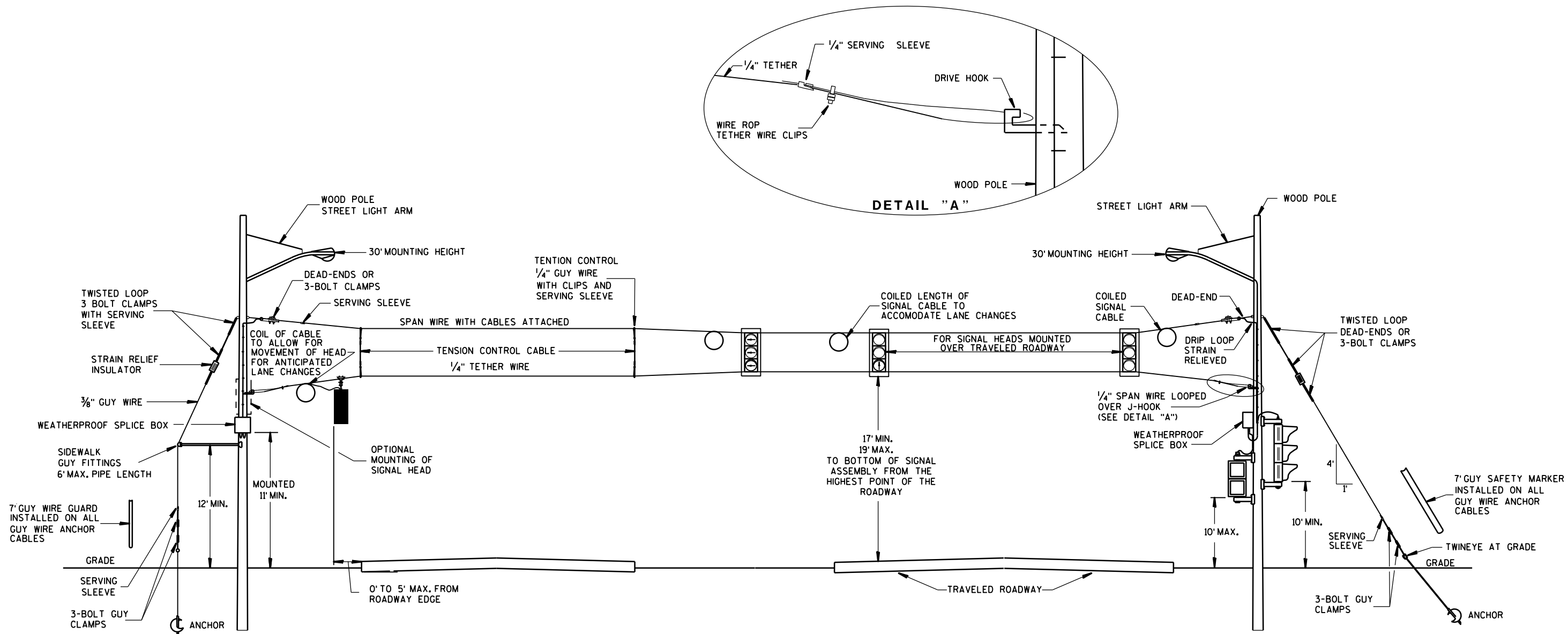
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2015
DATE

FHWA

/S/ Ahmet Demirbilek
STATE ELECTRICAL ENGINEER



GENERAL NOTES

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

1. WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.

2. SIGNAL FACES:

A. ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.

B. EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.

C. EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.

D. NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.

E. FAR INDICATION SHALL BE MAINTAINED OVER CENTER OF TRAFFIC LANE.

3. SPAN WIRE:

A. EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED.

B. SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.

C. THE SIGNAL ASSEMBLY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.

SPAN WIRE TEMPORARY SIGNALS 4 LANE ROADWAYS

MINIMUM POLE LENGTHS	CLASS	MIN. BURIAL DEPTHS
25'	V	5'
30'	V	6'
35'	IV	7'
40'	IV	8'
45'	IV	9'

SPAN WIRE TEMPORARY TRAFFIC SIGNAL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

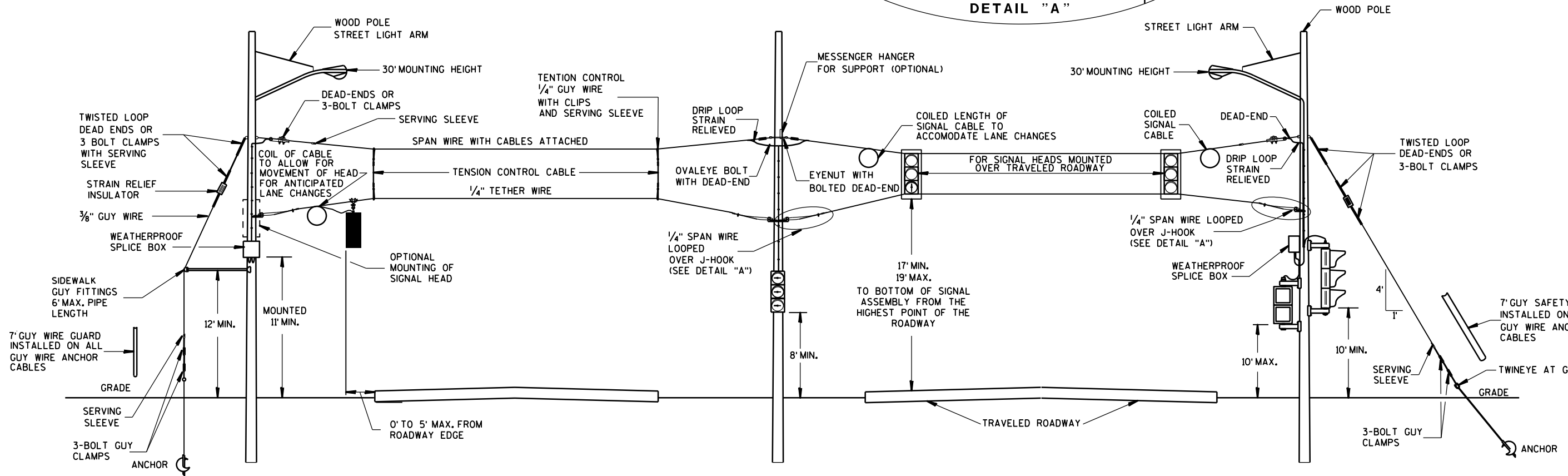
June, 2015

DATE

FHWA

/S/ Ahmet Demirbilek

STATE ELECTRICAL ENGINEER



SPAN WIRE
TEMPORARY SIGNALS
4 LANE ROADWAYS

GENERAL NOTES

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

- WOOD POLES SHALL BE CLASS 4. LENGTH DETERMINED BY SIGNAL PLAN.
- SIGNAL FACES:
 - ALL SECTIONS SHALL BE 12" AND POLYCARBONATE.
 - EACH SHALL CONTAIN A 5" WIDE DULL BLACK POLYCARBONATE BACKPLATE.
 - EACH SHALL BE WIRED FROM THE TOP SIGNAL MOUNTING BRACKET.
 - NEAR RIGHT SIGNAL FACE SUSPENDED ON THE TETHER (NO BACKPLATE) SHALL NOT BE OVER THE TRAVELED WAY. IF THE POLE IS WITHIN 5 FEET OF THE TRAVELED WAY MOUNT THE SIGNAL FACE ON THE WOOD POLE WITH BACKPLATE.
 - FAR INDICATION SHALL BE MAINTAINED OVER CENTER OF TRAFFIC LANE.

- SPAN WIRE:
 - EACH SPAN WIRE SHALL BE INDIVIDUALLY DOWN GUYED.
 - SIGNAL AND LIGHTING CABLES SHALL ONLY BE ATTACHED TO THE UPPER SPAN WIRE.
 - THE SIGNAL ASSEMBLY SHALL HAVE A 17' MIN. HEIGHT ABOVE THE ROADWAY. THIS SHALL BE MEASURED AFTER THE SPAN WIRE INSTALLATION IS COMPLETED WITH ALL CABLES AND SIGNAL FACES IN PLACE. MAINTAIN MINIMUM AND MAXIMUM HEIGHTS AS ROADWAY WORK PROGRESSES.

MINIMUM POLE LENGTHS	CLASS	MIN. BURIAL DEPTHS
25'	V	5'
30'	V	6'
35'	IV	7'
40'	IV	8'
45'	IV	9'

SPAN WIRE
TEMPORARY TRAFFIC SIGNAL

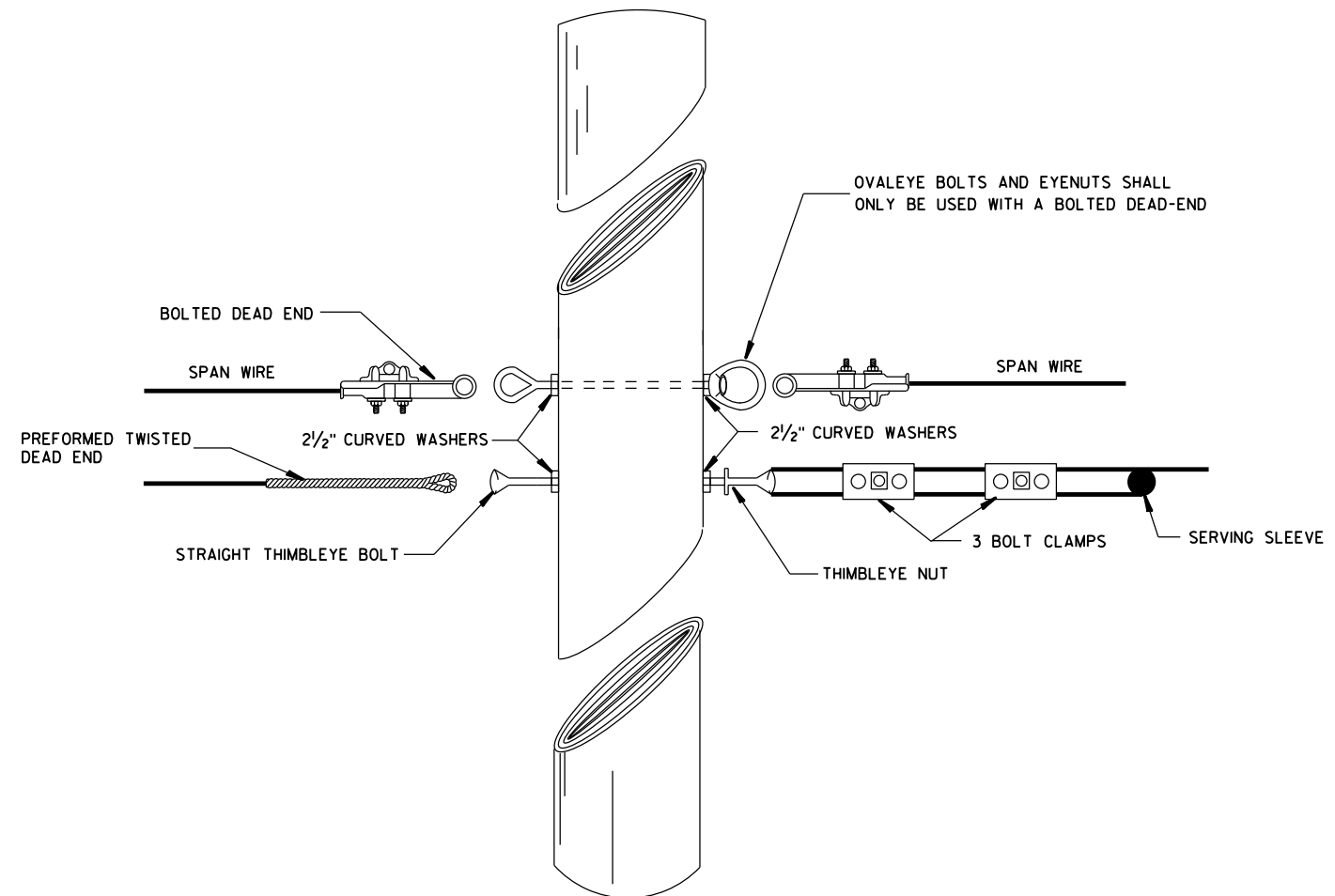
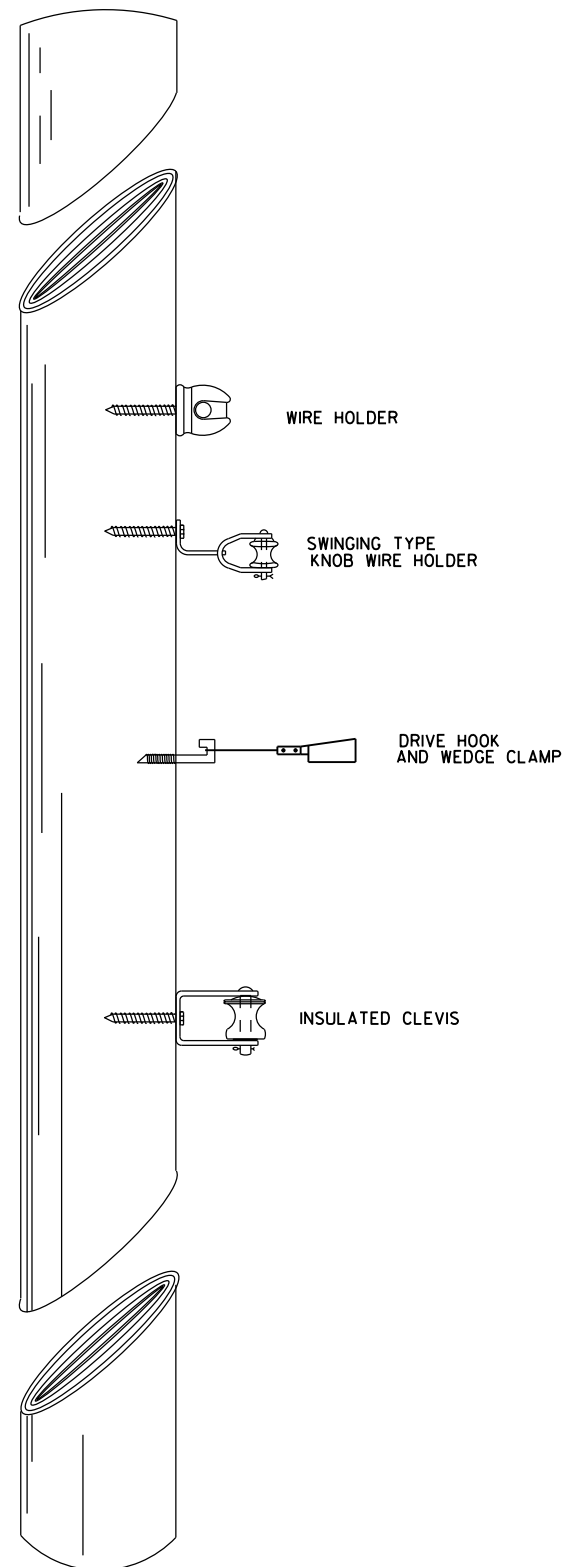
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE

/S/ Ahmet Demirbilek
STATE ELECTRICAL ENGINEER

FHWA

TYPICAL CABLE HANGERS



TYPICAL DEAD-ENDING

SPAN WIRE
TEMPORARY TRAFFIC SIGNAL

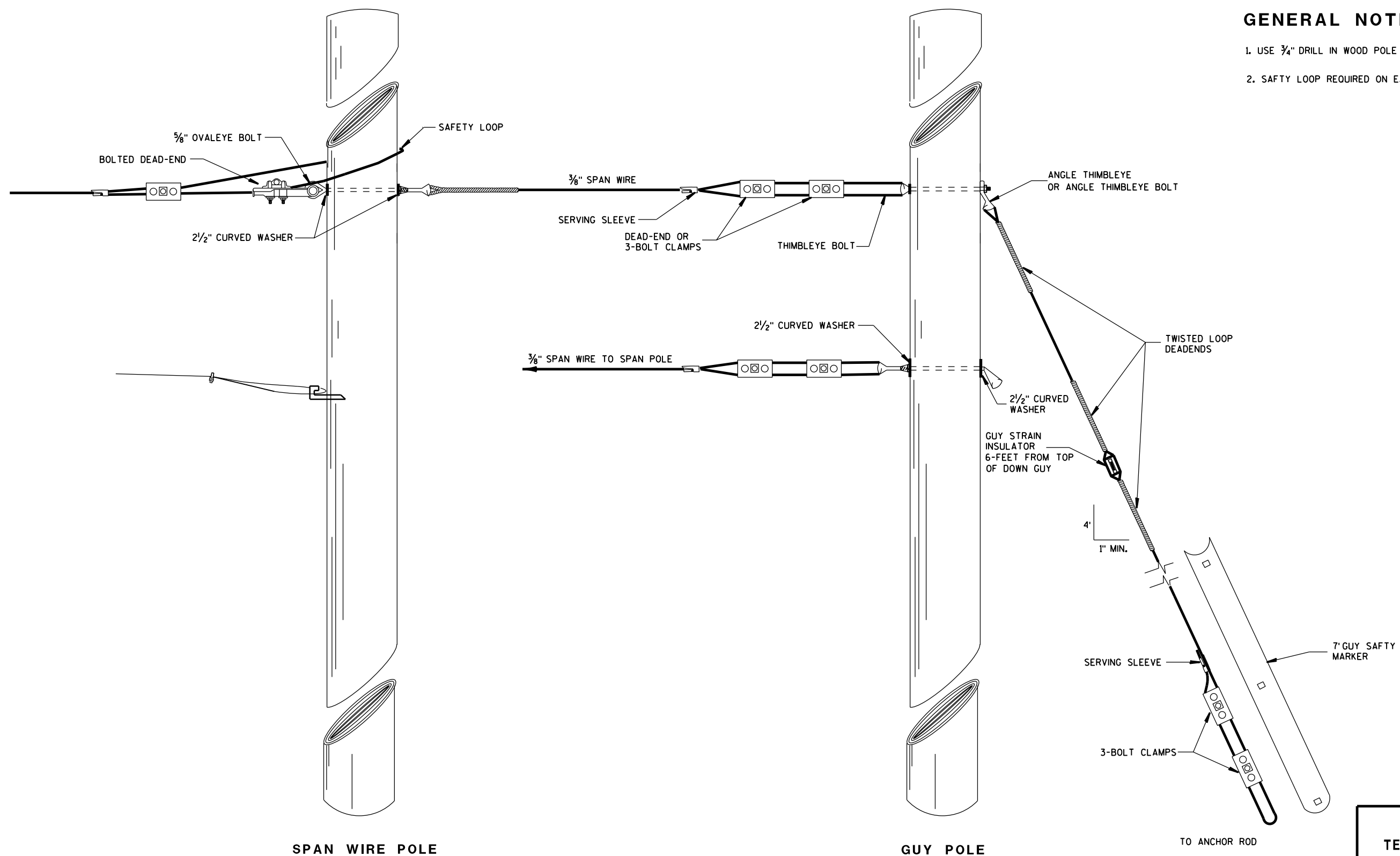
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

June, 2015
DATE

FHWA

/S/ Ahmet Demirblek
STATE ELECTRICAL ENGINEER



SPAN WIRE POLE

GUY POLE

TYPICAL DEAD-ENDINGS OR GUYING

GENERAL NOTES

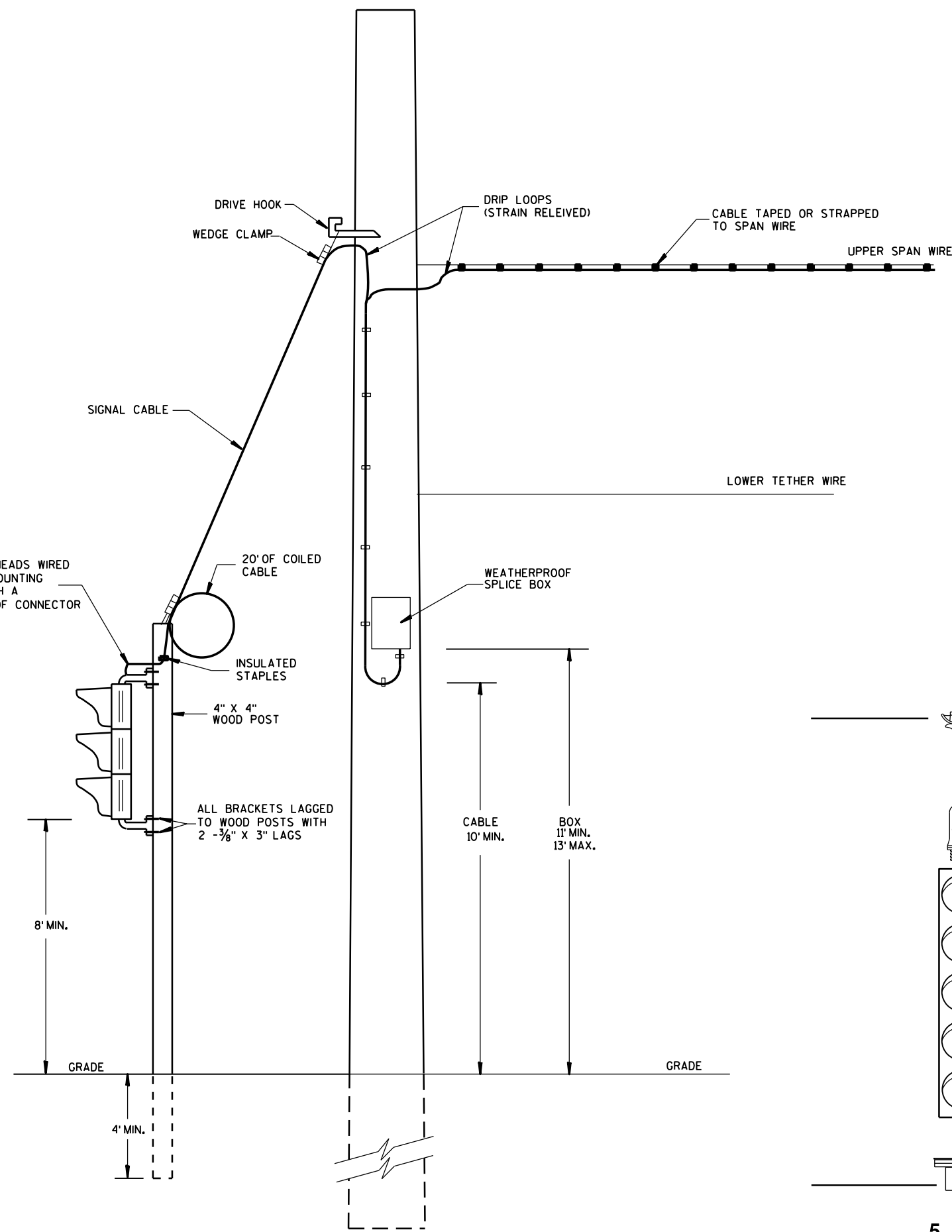
1. USE 3/4" DRILL IN WOOD POLE TO PROVIDE HOLE FOR 5/8" BOLTS.
2. SAFETY LOOP REQUIRED ON EACH END OF ALL SPAN WIRES.

SPAN WIRE
TEMPORARY TRAFFIC SIGNALSTATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

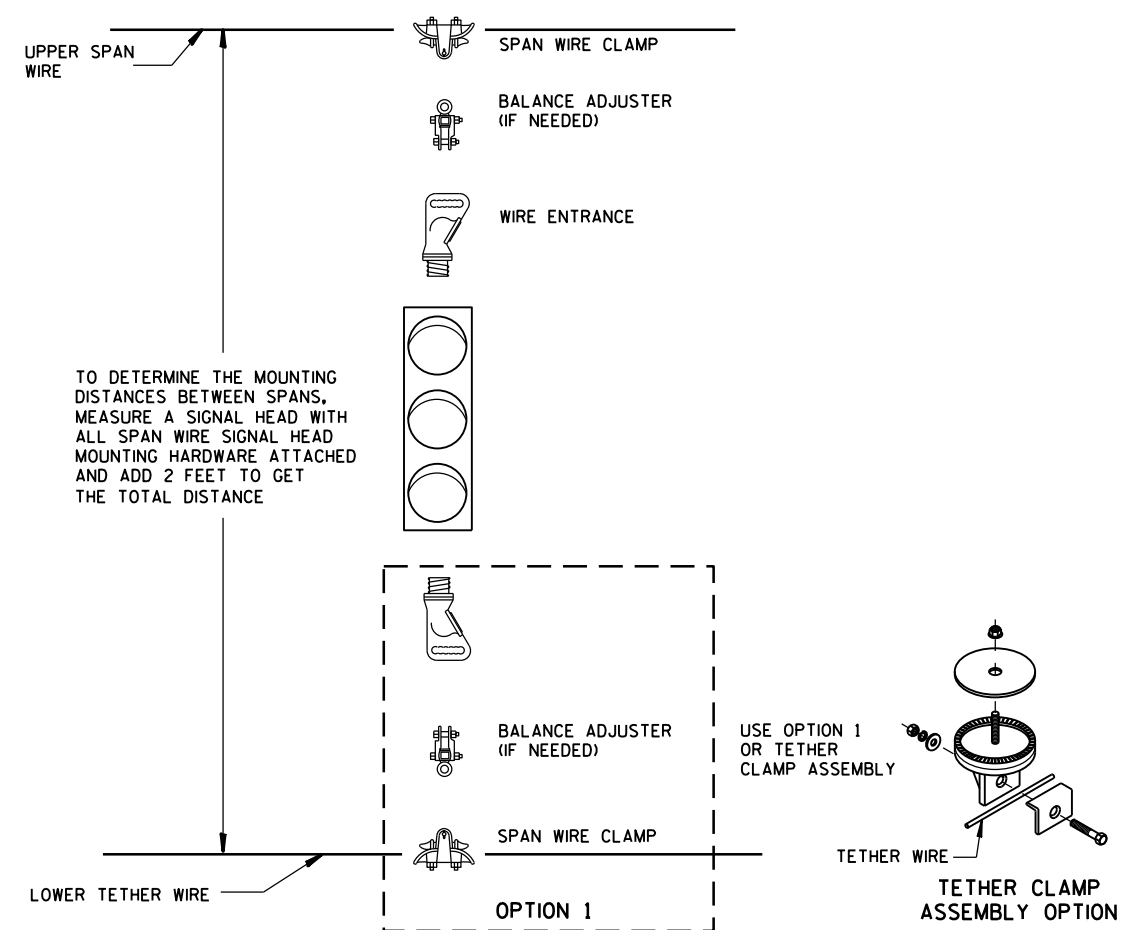
APPROVED

June, 2015
DATE/S/ Ahmet Demirelek
STATE ELECTRICAL ENGINEER

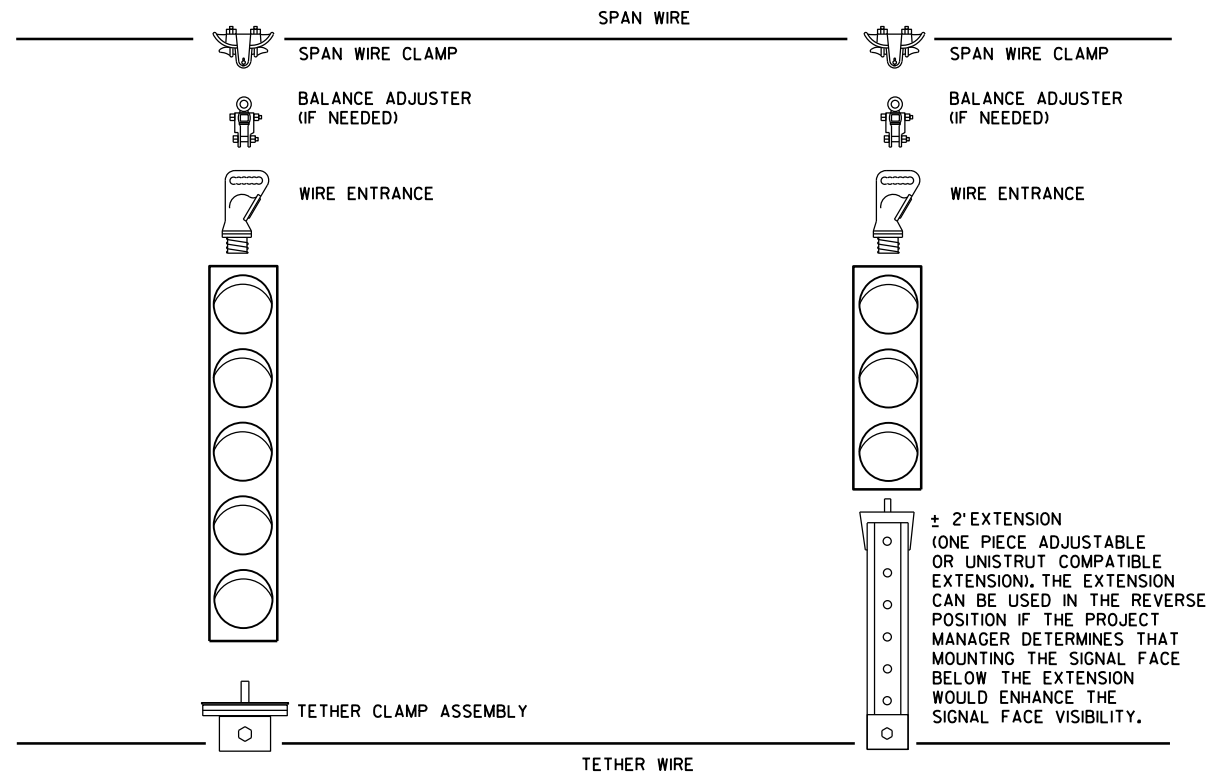
FHWA



TYPICAL DROP TO TEMPORARY MOVEABLE SIGNAL

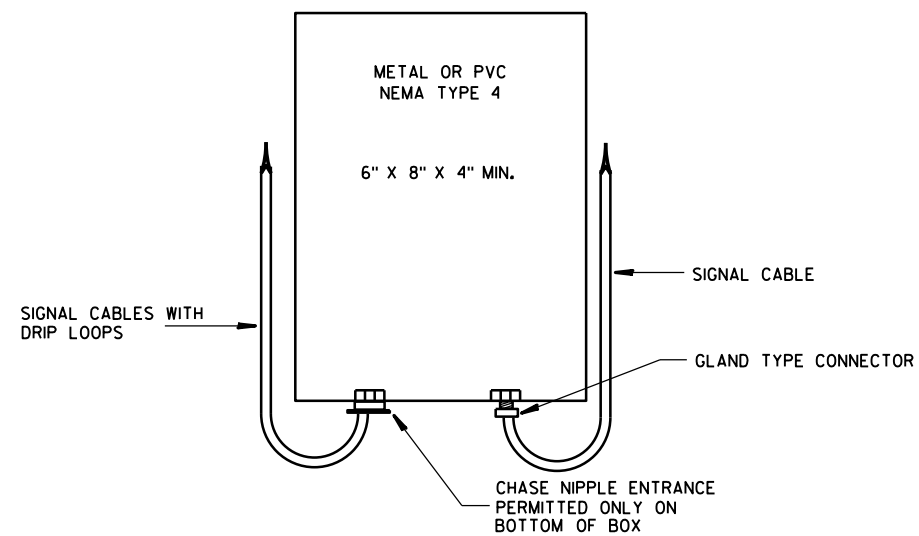
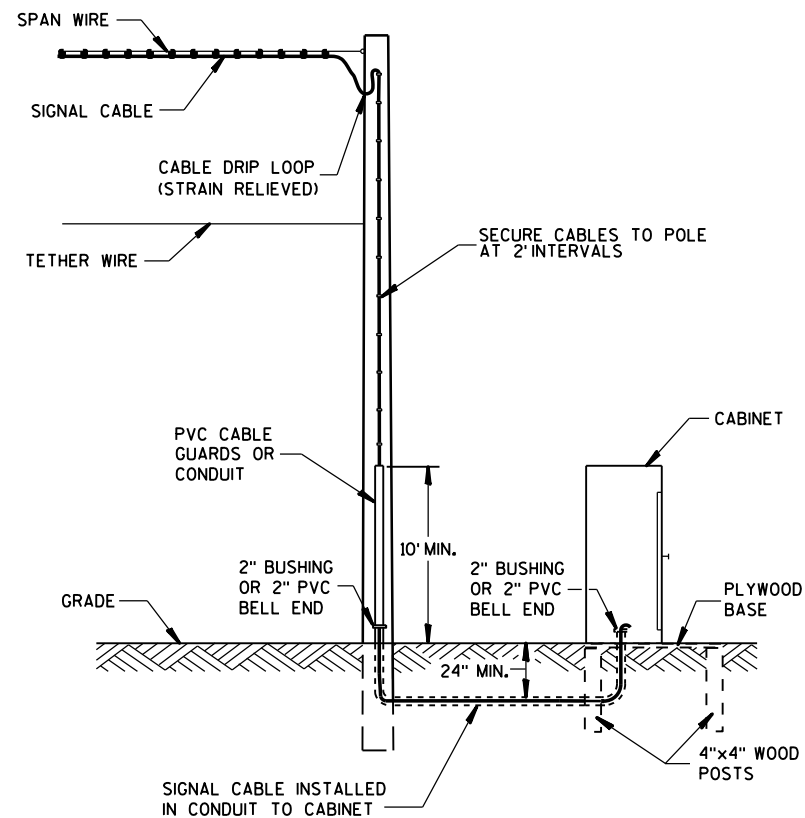


TYPICAL SPAN WIRE MOUNTING HARDWARE

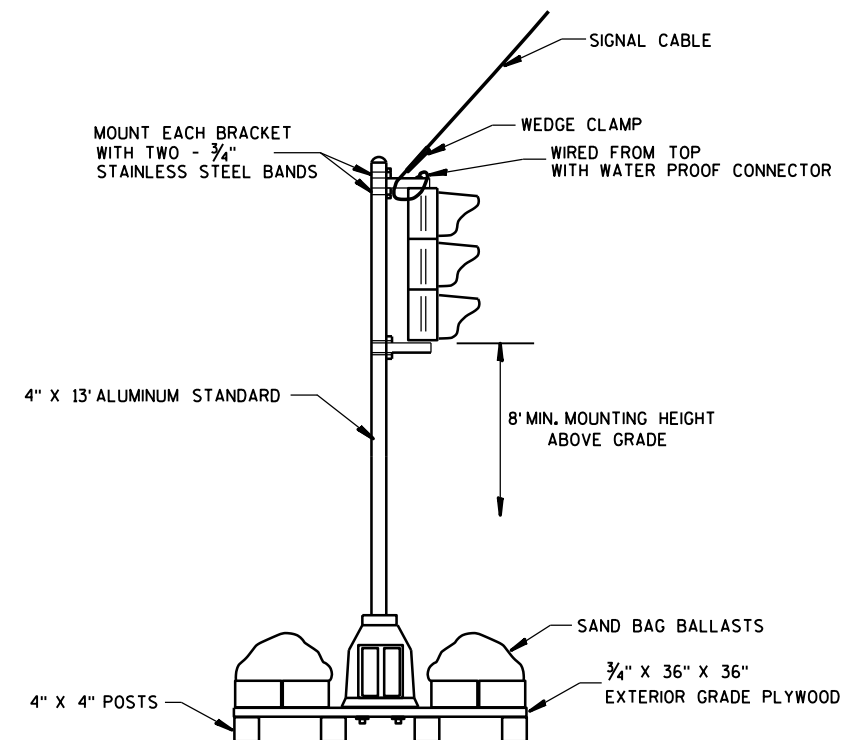


5 SECTION VERTICAL WITH 3 SECTION VERTICAL ON ONE SPAN WIRE

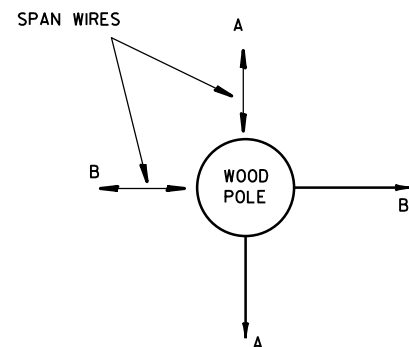
SPAN WIRE TEMPORARY TRAFFIC SIGNAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June, 2015 DATE	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER
FHWA	



SPLICE BOX

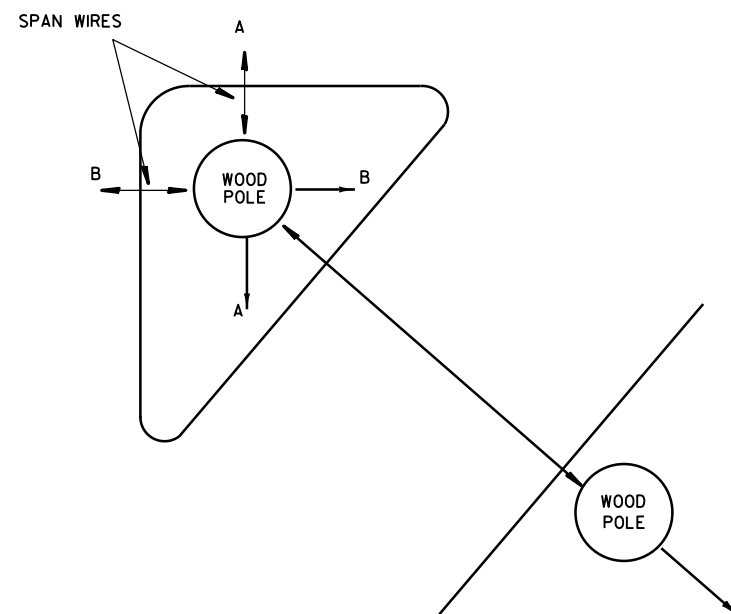


TYPICAL SKID TYPE TEMPORARY

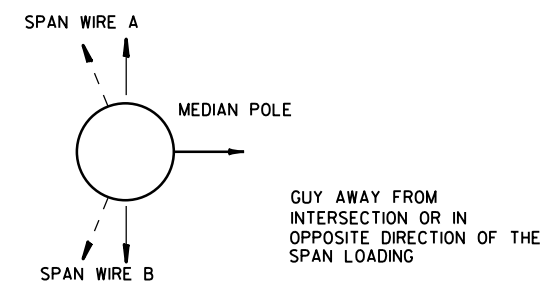


ALL DOWN OR SIDEWALK GUYS SHALL BE INSTALLED IN THE OPPOSITE DIRECTION OF THE STRAIN OF THE SPAN WIRE

CORNER POLES



ISLAND POLES

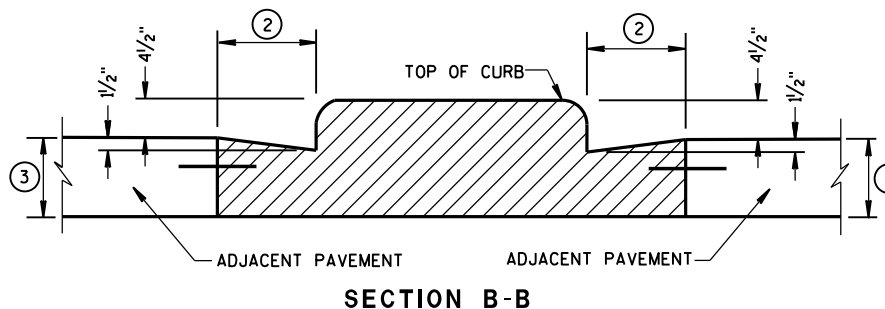
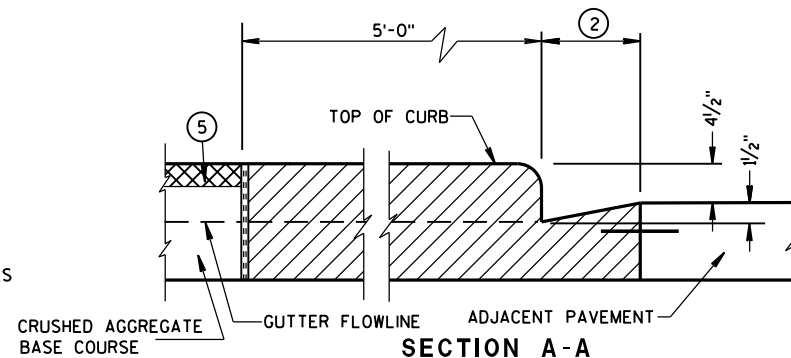
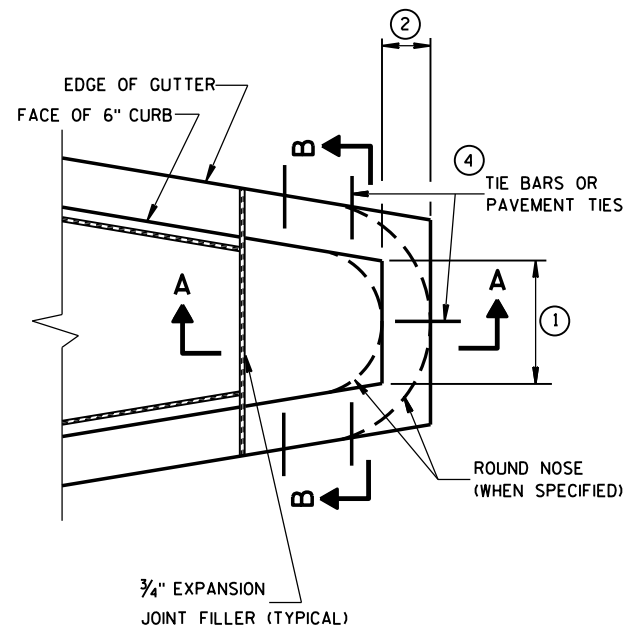
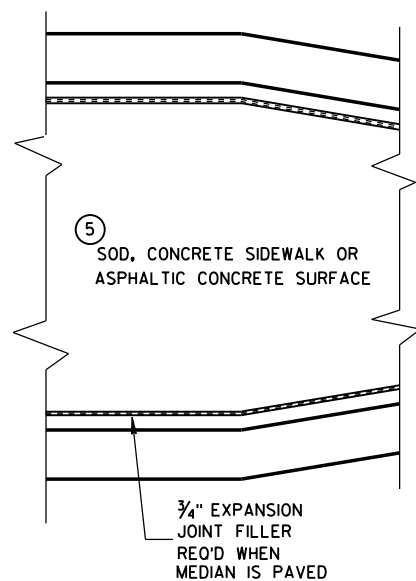


MEDIAN POLES

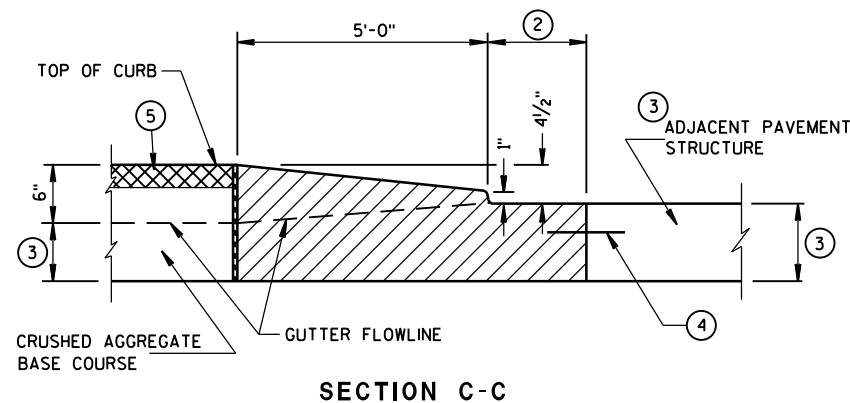
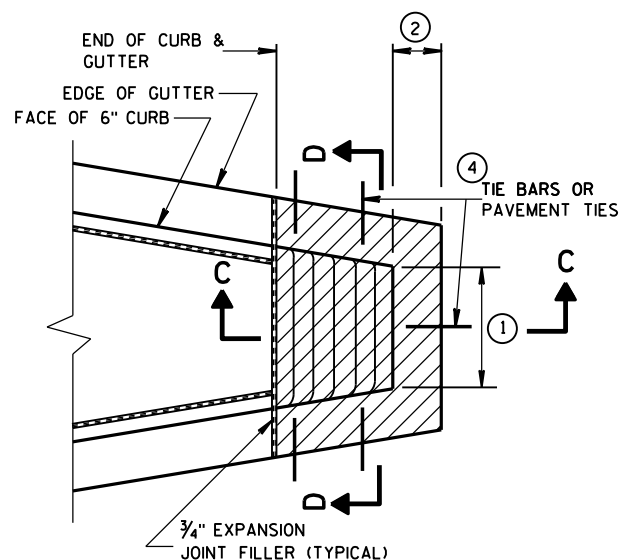
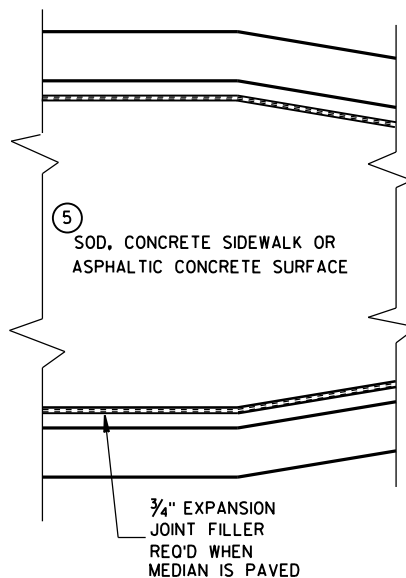
**SPAN WIRE
TEMPORARY TRAFFIC SIGNAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

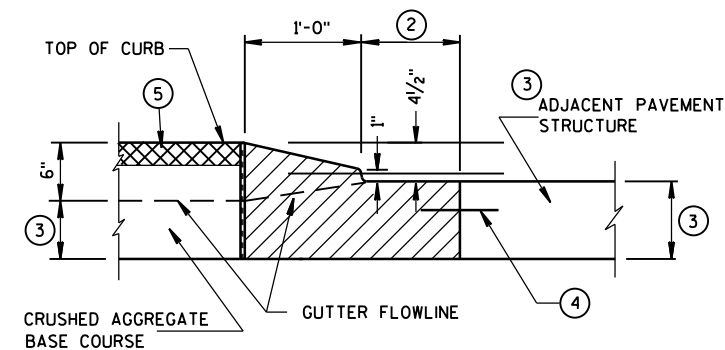
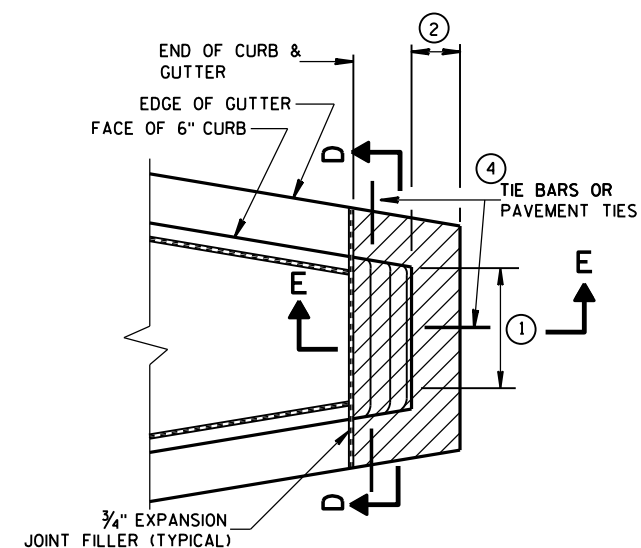
APPROVED
June, 2015 /S/ Ahmet Demirbilek
DATE STATE ELECTRICAL ENGINEER
FHWA



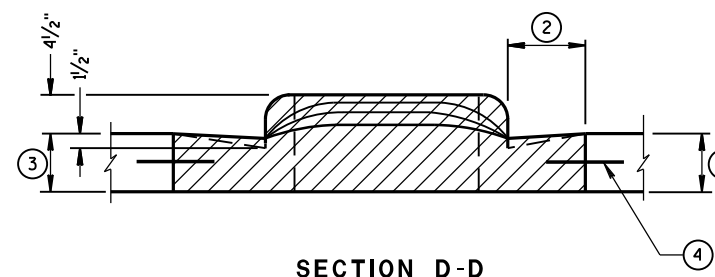
CONCRETE MEDIAN BLUNT NOSE DETAIL



CONCRETE MEDIAN SLOPED NOSE TYPE 1



CONCRETE MEDIAN SLOPED NOSE TYPE 2



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 NOSE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

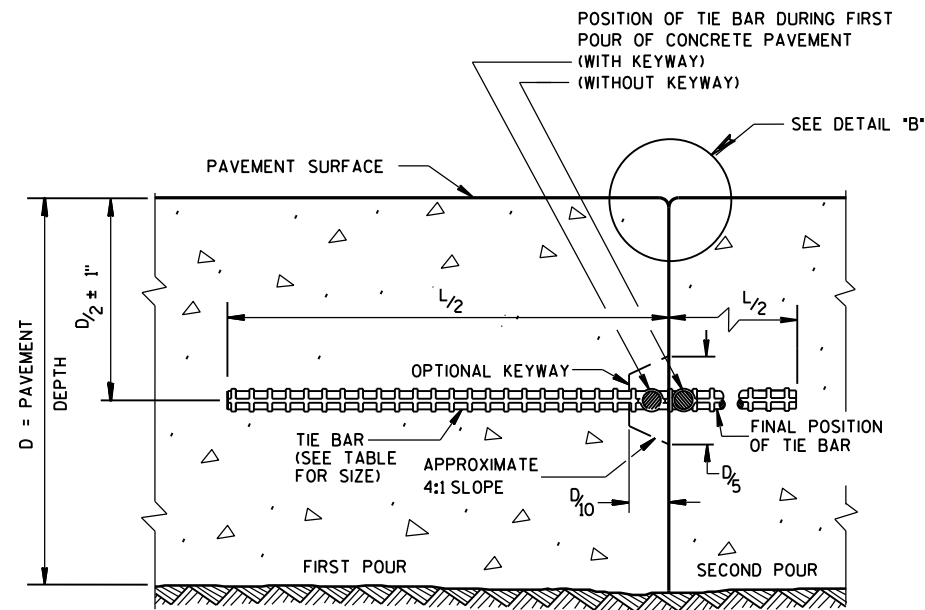
APPROVED

6/8/2006

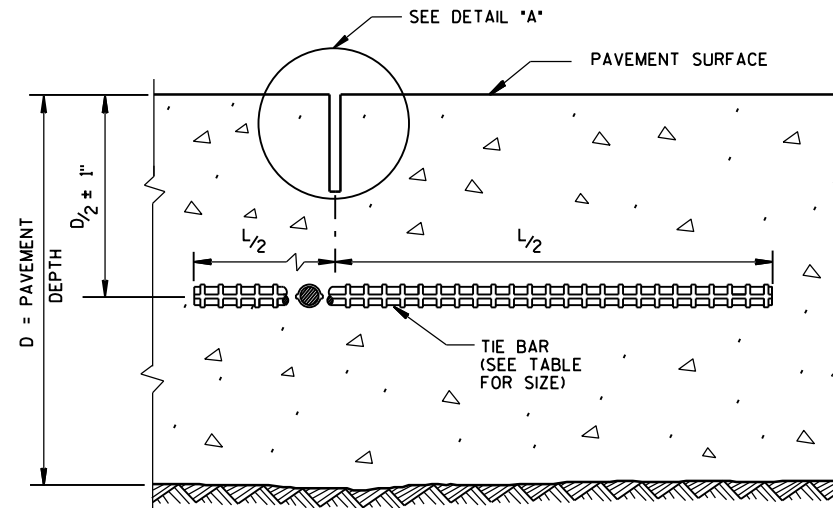
DATE

FHWA

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



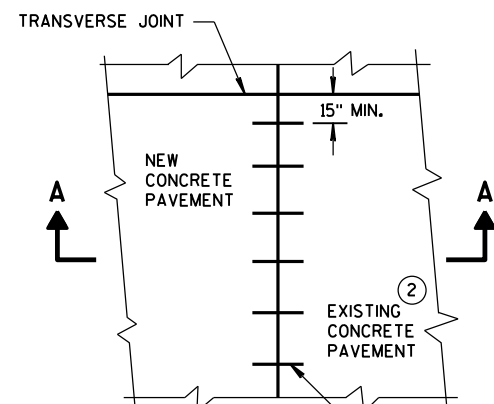
CONSTRUCTION JOINT



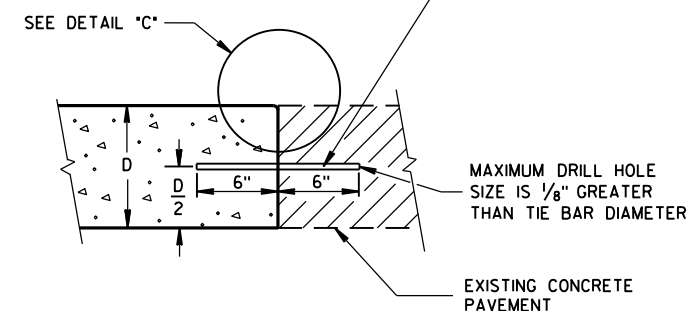
SAWED JOINT

GENERAL NOTES

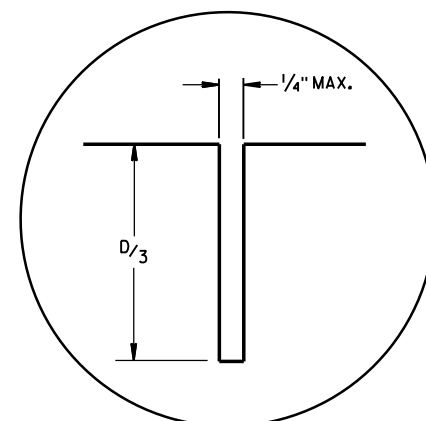
- DO NOT SEAL OR FILL LONGITUDINAL JOINTS.
- CREATE A LONGITUDINAL JOINT FOR PAVEMENT WIDTHS GREATER THAN 15 FEET.
- CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.
- ① ANCHOR TIE BARS INTO DRILLED HOLES WITH AN EPOXY.
- ② PAVEMENT THAT WAS IN PLACE PRIOR TO THE CONTRACT.



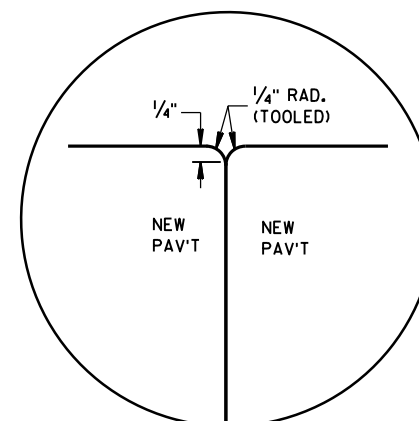
PLAN VIEW



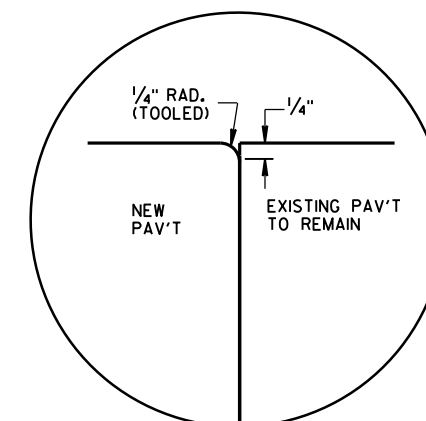
SECTION A-A
LONGITUDINAL CONSTRUCTION JOINT
TIE BARS ANCHORED
INTO EXISTING PAVEMENT



DETAIL "A"



DETAIL "B"

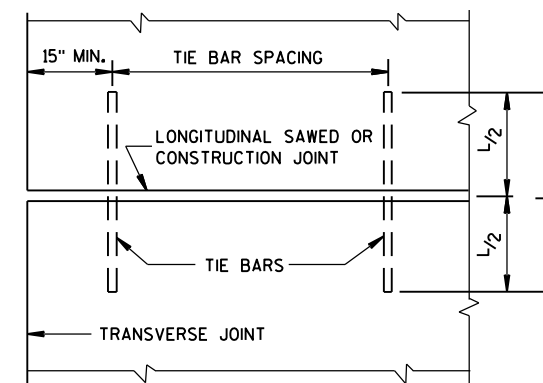


DETAIL "C"

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" MINIMUM SPACING FROM TRANSVERSE JOINTS; SPACING BETWEEN TIE BARS WILL BE 30" AT TRANSVERSE JOINTS.

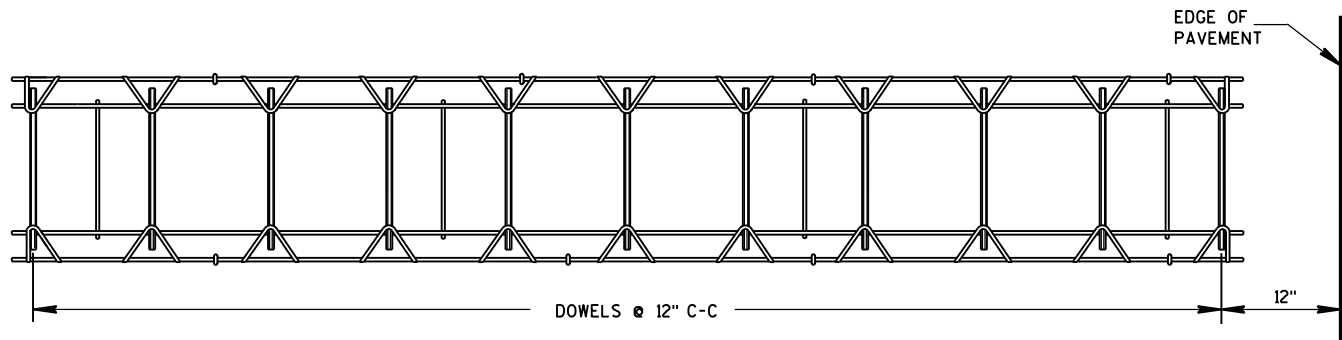


PLAN VIEW
SHOWING LOCATION OF TIE BARS

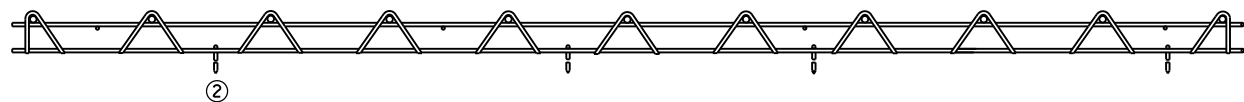
CONCRETE PAVEMENT LONGITUDINAL JOINTS AND TIES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

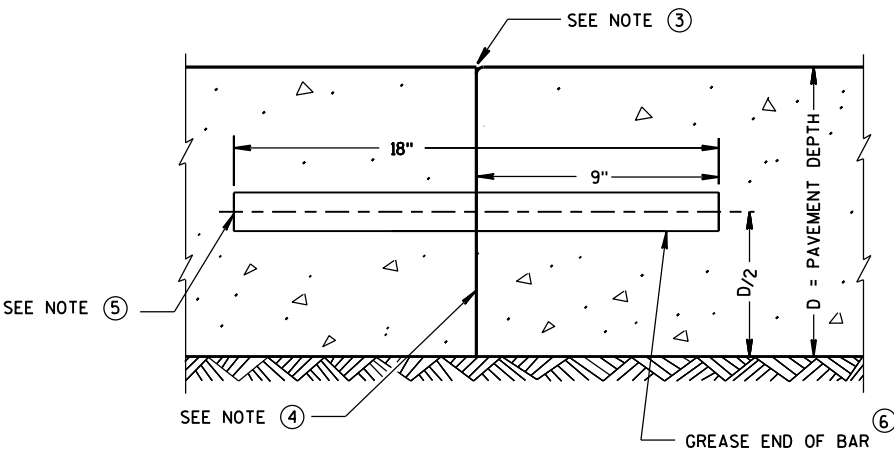
APPROVED
June, 2015 /S/ Peter Kemp, P.E.
DATE PAVEMENT SUPERVISOR
FHWA



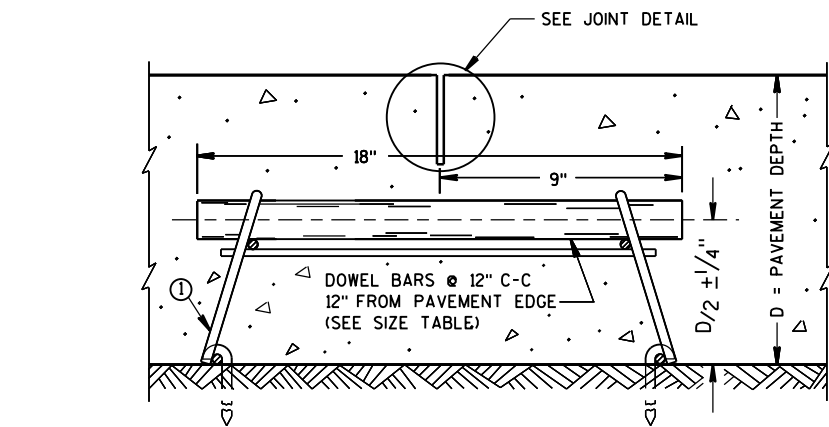
PLAN VIEW



SIDE VIEW
CONTRACTION JOINT DOWEL ASSEMBLY ①



TRANSVERSE CONSTRUCTION JOINT



DOWELED CONTRACTION JOINT

PAVEMENT DEPTH, DOWEL BAR SIZE
AND JOINT SPACING TABLE

PAVEMENT DEPTH (D)	DOWEL BAR DIAMETER	CONTRACTION JOINT SPACING
5 1/2", 6", 6 1/2"	NONE	12'
7", 7 1/2"	1"	14'
8", 8 1/2"	1 1/4"	15'
9", 9 1/2"	1 1/4"	15'
10" & ABOVE	1 1/2"	15'

GENERAL NOTES

CONTRACTION JOINTS

CONSTRUCT TRANSVERSE CONTRACTION JOINTS NORMAL TO THE CENTERLINE. SHOW THE LOCATION OF CONTRACTION JOINTS THROUGH INTERSECTIONS ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT SEAL OR FILL CONTRACTION JOINTS.

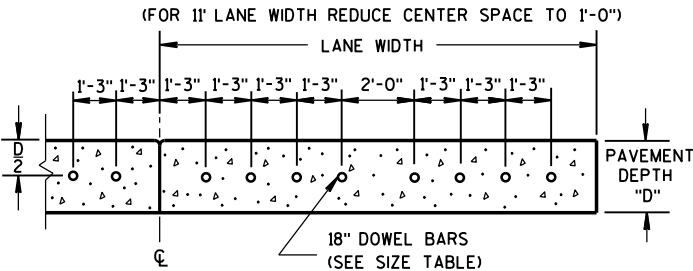
INSTALL DOWEL BARS PARALLEL TO THE PAVEMENT CENTERLINE AND PAVEMENT SURFACE.

FOR PAVEMENT SLABS OF VARYING WIDTHS, LOCATE THE OUTER MOST DOWEL BAR SO THAT THE CENTER OF THE BAR IS A MINIMUM OF 6 INCHES AND A MAXIMUM OF 18 INCHES FROM THE LONGITUDINAL JOINT AND THE FREE EDGE OF PAVEMENT.

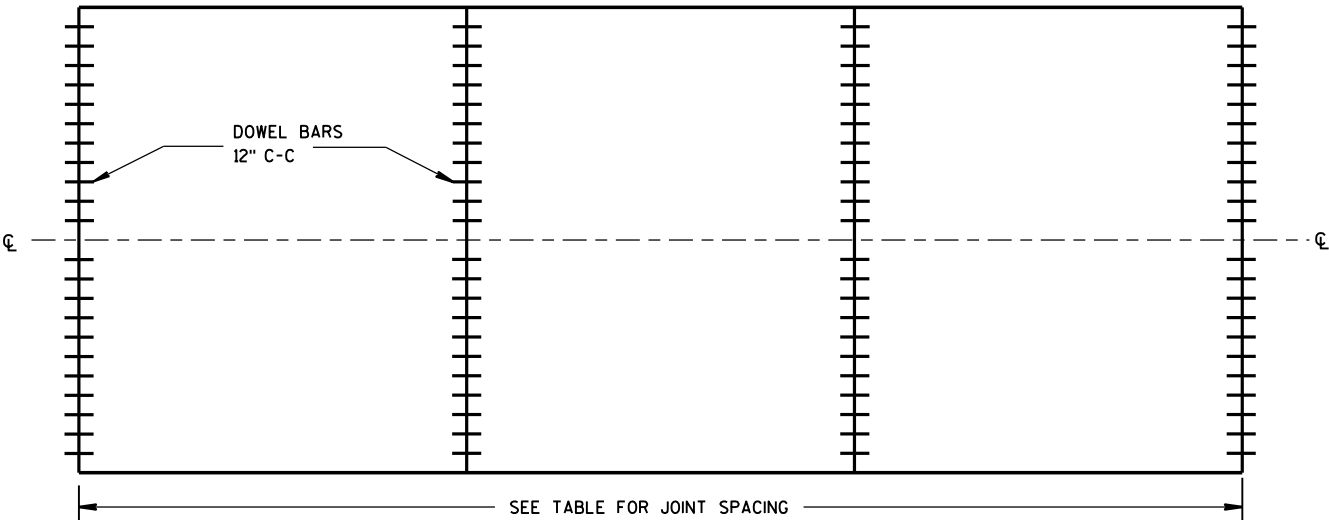
CONSTRUCTION JOINTS

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

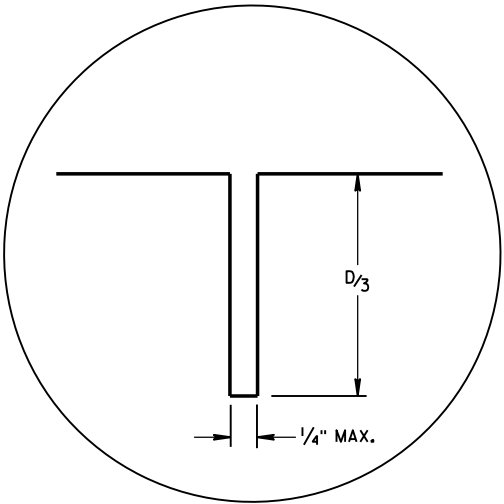
- ① OBTAIN THE ENGINEER'S APPROVAL FOR THE USE OF ALTERNATIVE DESIGNS OF THE DOWEL ASSEMBLY. USE MECHANICAL DOWEL BAR INSERTERS OR DOWEL ASSEMBLIES WHEN CONSTRUCTING CONTRACTION JOINTS.
- ② SECURE BASKETS WITH ANCHORS TO HOLD DOWEL BARS IN THE CORRECT POSITION AND ALIGNMENT. TYPE, LOCATION, NUMBER AND LENGTH OF ANCHORS ARE DEPENDENT UPON FIELD CONDITIONS.
- ③ FORM OR SAW CONSTRUCTION JOINTS. PROVIDE A 1/4-INCH RADIUS AT FORMED JOINTS.
- ④ PROVIDE A SMOOTH VERTICAL FACE FOR THE ENTIRE DEPTH OF THE PAVEMENT WHEN FORMING CONSTRUCTION JOINTS.
- ⑤ INSTALL DOWEL BARS AT CONSTRUCTION JOINTS BY FORMING OR DRILLING. INSTALL FORMED DOWEL BARS 12 INCHES C-C AND 12 INCHES FROM PAVEMENT EDGE. REMOVE EXCESS CONCRETE FROM THE FREE END OF THE DOWEL BAR IF DOWEL BARS ARE FORMED THROUGH A HEADER BOARD. INSTALL DRILLED DOWEL BARS ACCORDING TO *DRILLED DOWEL BAR CONSTRUCTION JOINT* DETAIL.
- ⑥ APPLY A THIN UNIFORM COATING OF SURFACE TREATMENT TO THE FREE END OF DOWEL BARS TO PREVENT BONDING.
- ⑦ ANCHOR DOWEL BARS INTO DRILLED HOLES WITH AN EPOXY. MAXIMUM DRILLED HOLE SIZE IS 1/8-INCH GREATER THAN DOWEL BAR DIAMETER, 9 INCHES IN LENGTH.



DRILLED DOWEL BAR CONSTRUCTION JOINT ⑦



CONTRACTION JOINT LOCATIONS

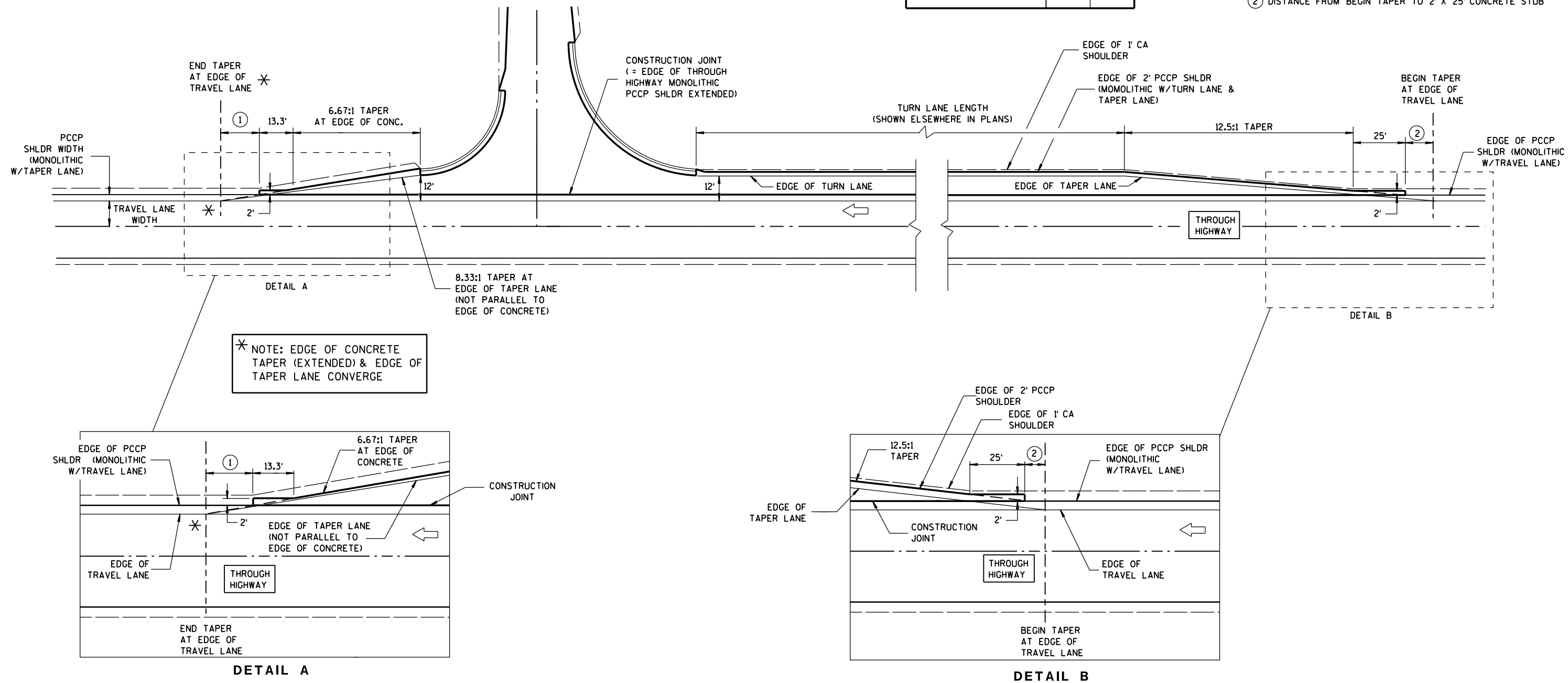


JOINT DETAIL

URBAN DOWELED
CONCRETE PAVEMENT

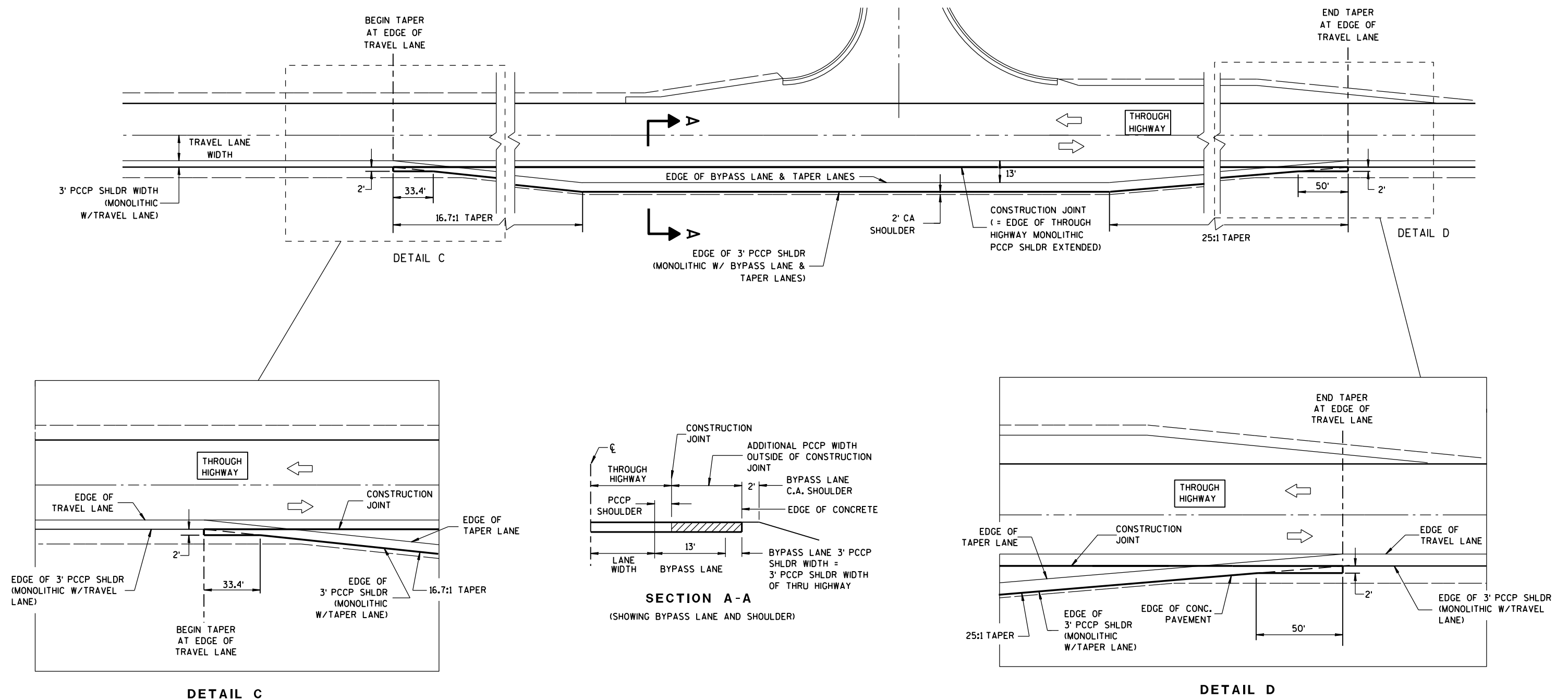
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
5/3/2013 /S/ Deb Bischoff
DATE PAVEMENT POLICY & DESIGN ENGINEER
FHWA



DETAIL FOR RIGHT TURN LANE/
TEE INTERSECTION BYPASS LANE
ON A CONCRETE ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



TWO LANE UNDIVIDED HIGHWAY TEE INTERSECTION BYPASS LANE

DETAIL FOR RIGHT TURN LANE/
TEE INTERSECTION BYPASS LANE
ON A CONCRETE ROADWAY

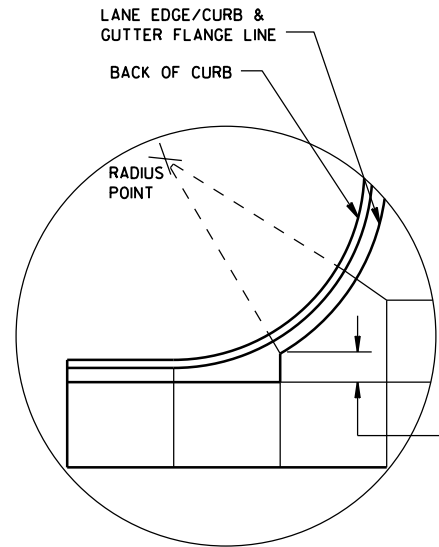
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

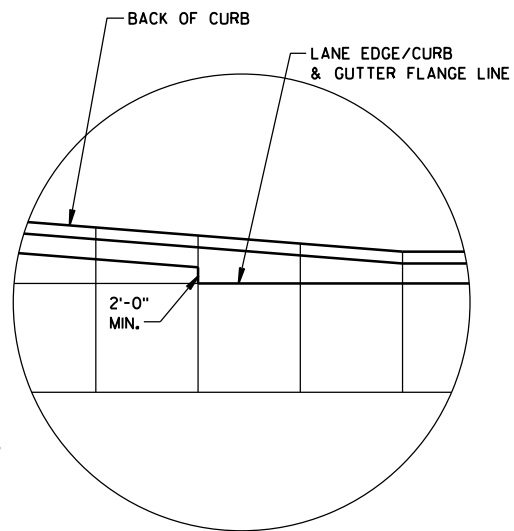
12/18/12
DATE

FHWA

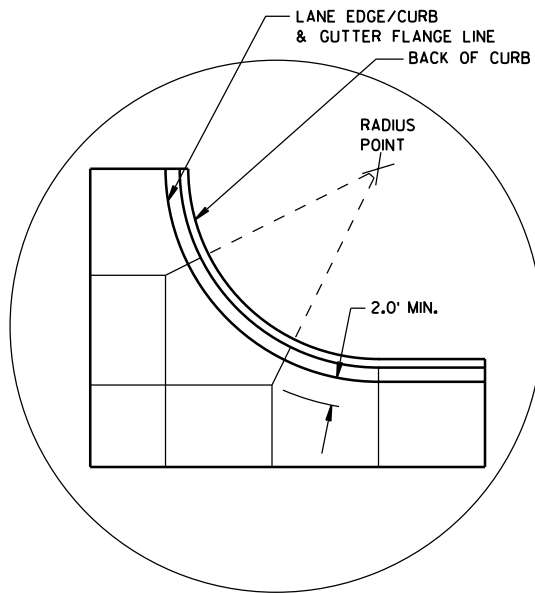
/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT
ENGINEER



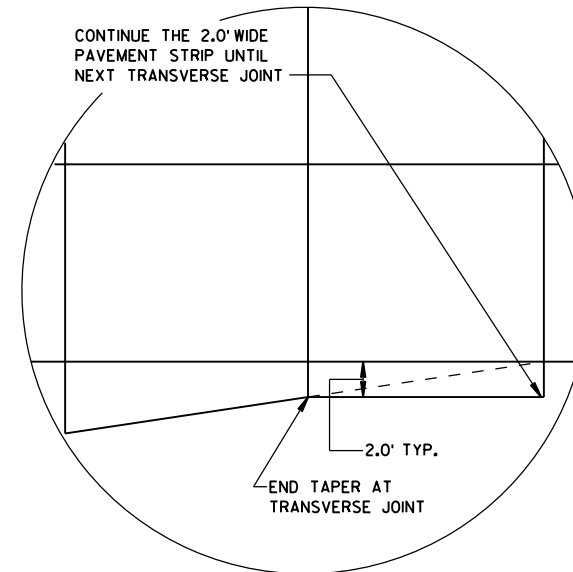
DETAIL "A"



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.

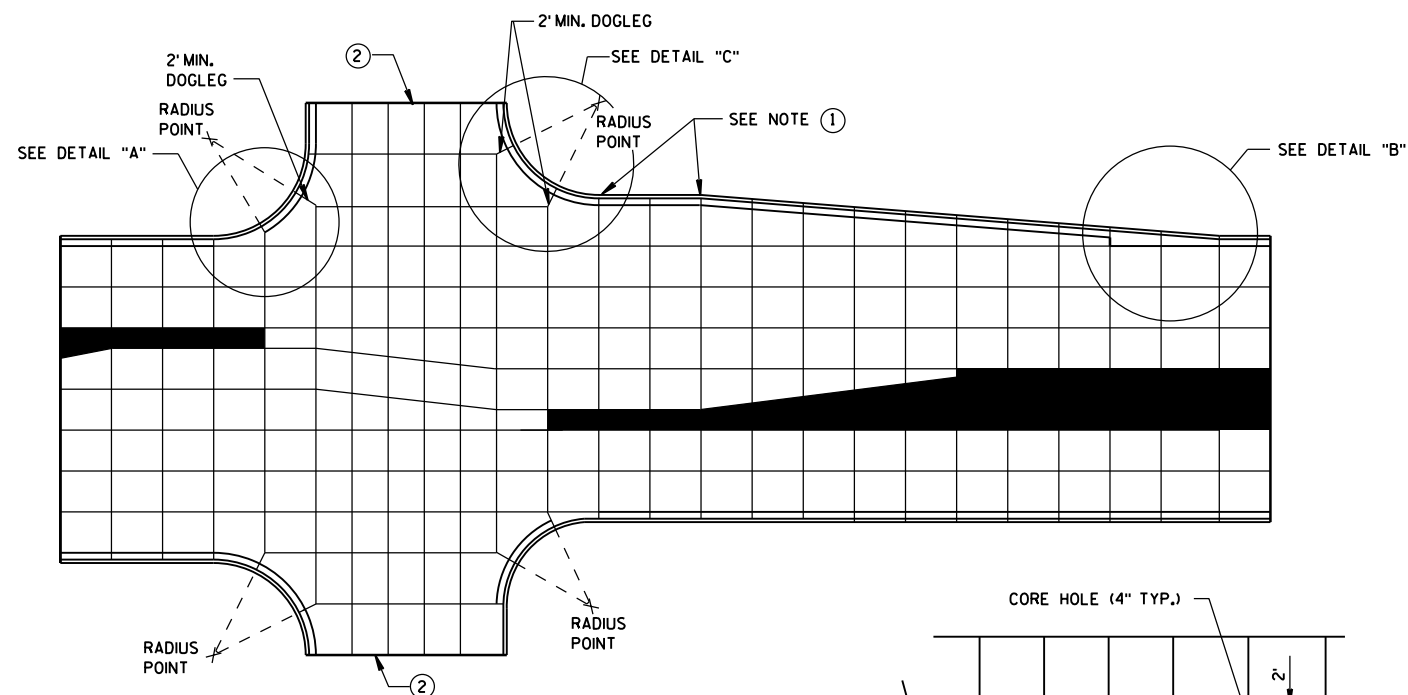
AVOID SLABS LESS THAN 2 FEET WIDE OR GREATER THAN 15 FEET WIDE.

SEE TABLE FOR TRANSVERSE JOINT SPACING. JOINT SPACING SPECIFIED IS MAXIMUM AND ACTUAL SPACING CAN BE ADJUSTED TO ACCOMMODATE INTERSECTIONS.

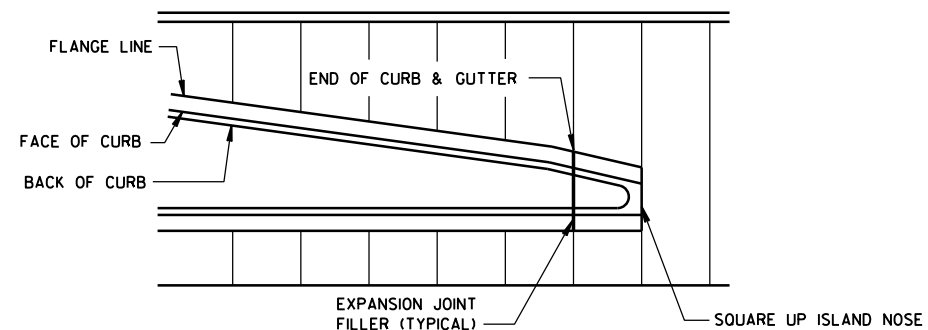
AVOID ANGLES LESS THAN 60° BY DOGLEGGING JOINTS THROUGH CURVE RADIUS POINTS. USE 90° ANGLES WHEN POSSIBLE.

CORRELATE LONGITUDINAL JOINTS WITH LANE LINES WHEN POSSIBLE.

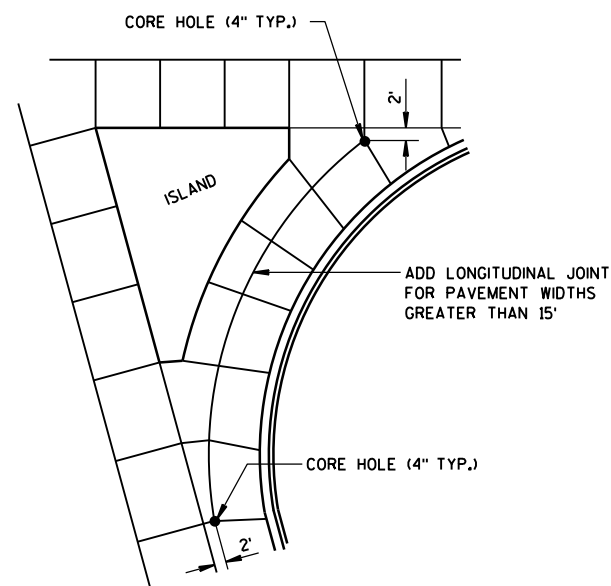
1. PROVIDE TRANSVERSE JOINTS AT ALL PAVEMENT WIDTH CHANGES.
2. CONSTRUCT DOWELED EXPANSION JOINT ON THE SIDE ROAD OF AN INTERSECTION IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH. ALIGN EXPANSION JOINT WITH EDGE OF RADIUS.
3. THE ENGINEER MAY APPROVE SLIGHT VARIATIONS FROM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



STANDARD INTERSECTION



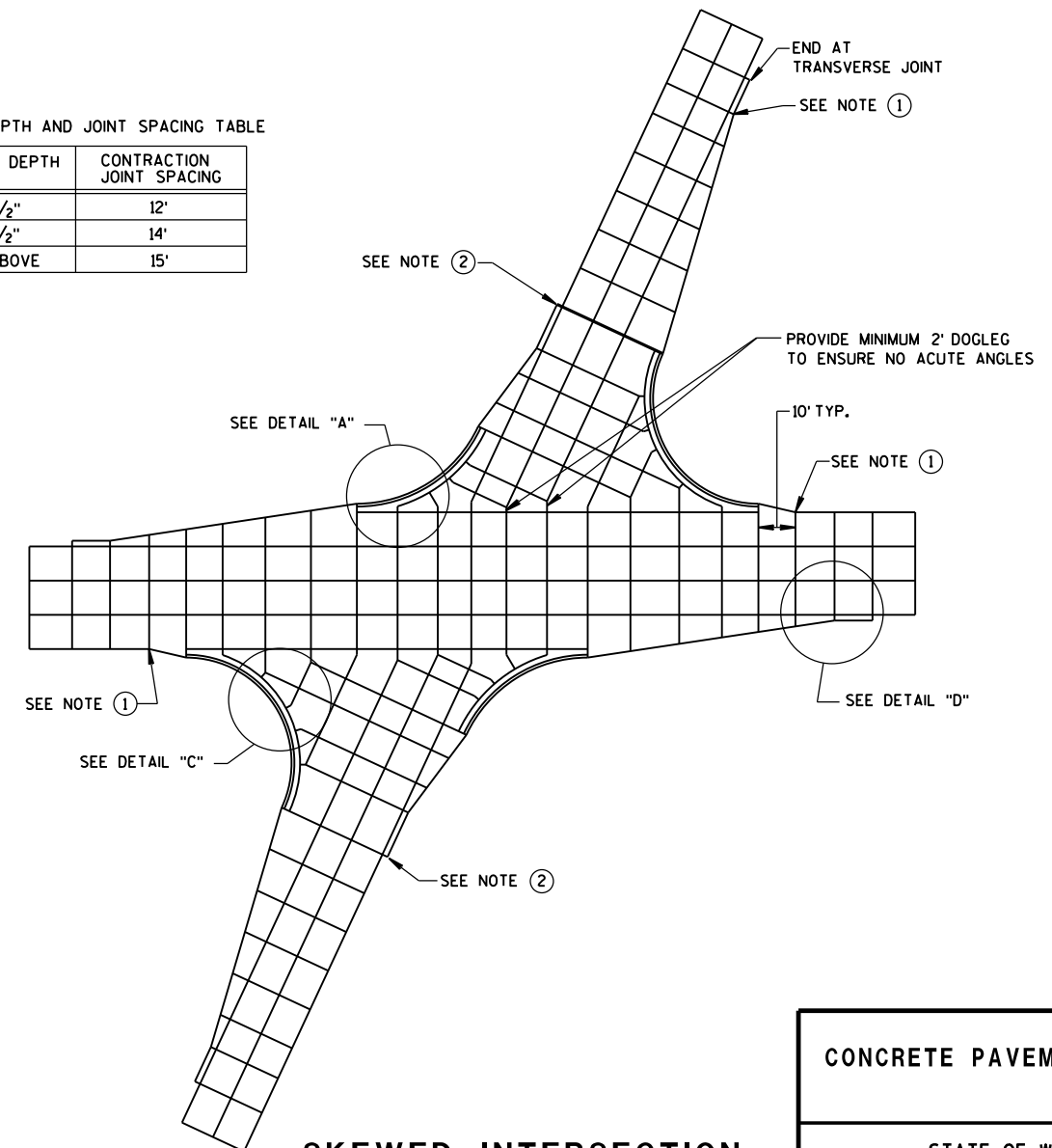
APPROACH TO MEDIAN



LARGE RIGHT TURN

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'



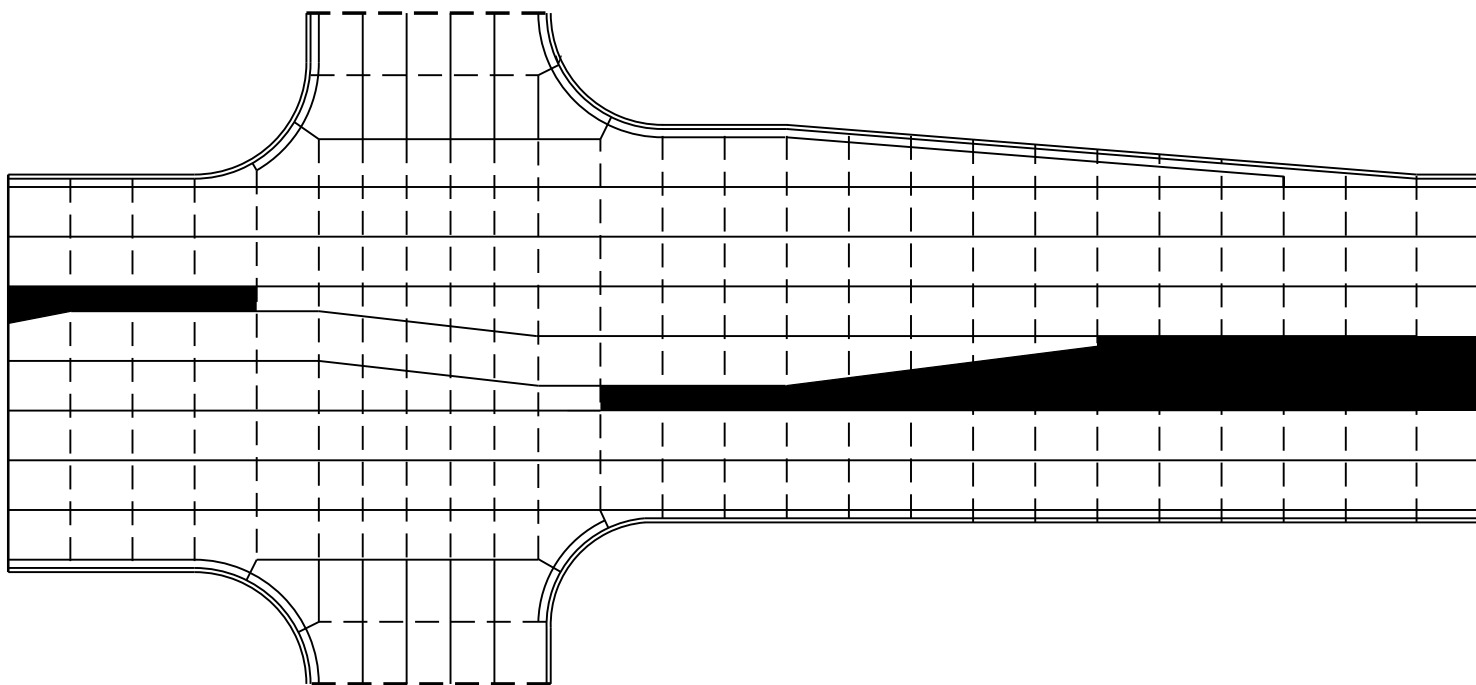
SKewed INTERSECTION

CONCRETE PAVEMENT JOINTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

LEGEND

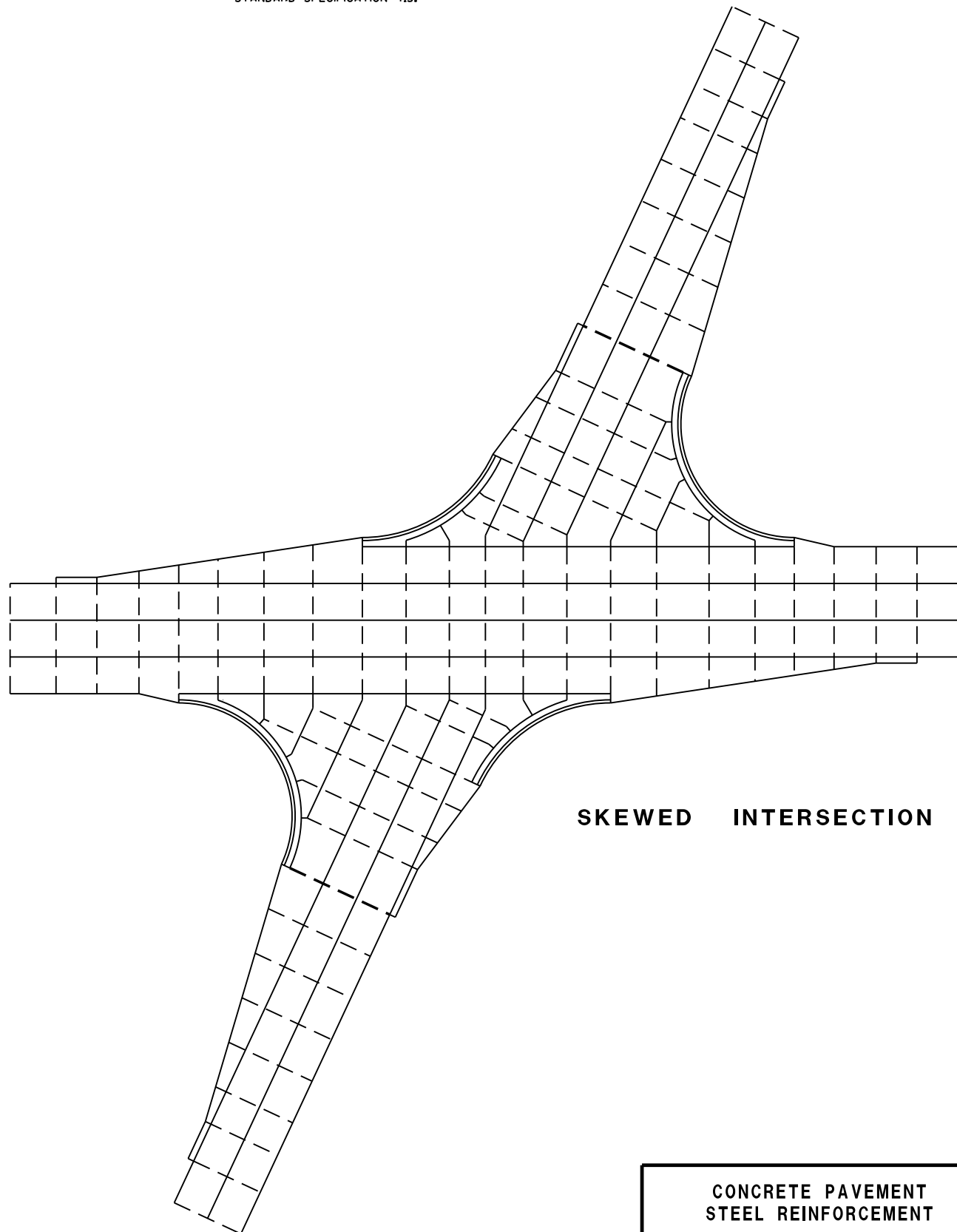
- POTENTIAL DOWELED EXPANSION JOINT
- DOWELED JOINT
- TIED JOINT



STANDARD INTERSECTION

GENERAL NOTES

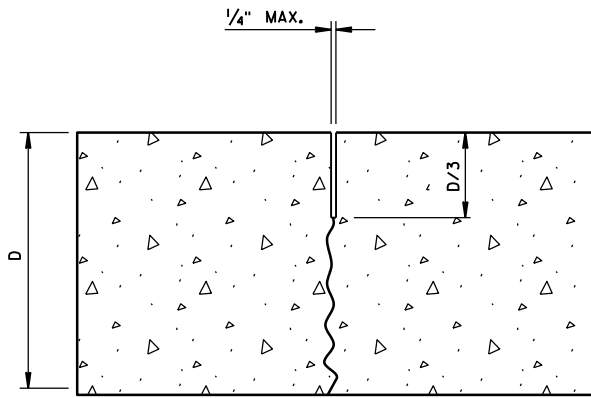
USE AN EXPANSION JOINT FILLER MEETING THE REQUIREMENTS OF STANDARD SPECIFICATION 415.



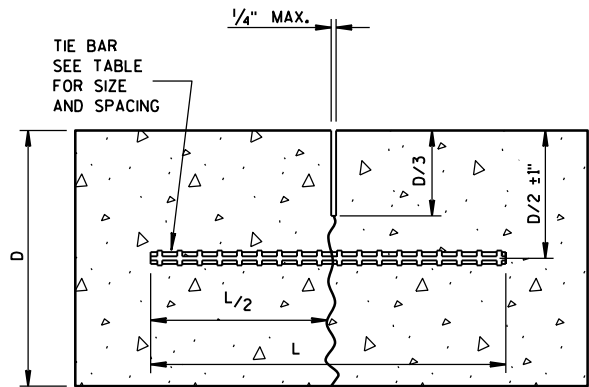
SKewed INTERSECTION

CONCRETE PAVEMENT
STEEL REINFORCEMENT

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



UNDOWELED-TRANSVERSE



TIED LONGITUDINAL

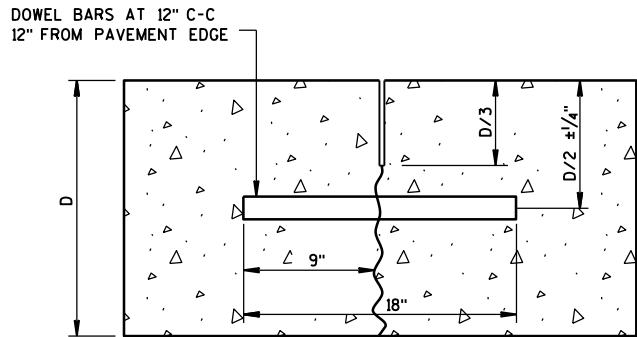
TIE BAR TABLE			
PAVEMENT DEPTH (D)	TIE BAR SIZE	TIE BAR LENGTH (L)	MAX. TIE BAR SPACING
< 10 1/2"	NO. 4	30"	36"
	NO. 5	36"	36"
≥ 10 1/2"	NO. 4 *	30"	24" **

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

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

GENERAL NOTES

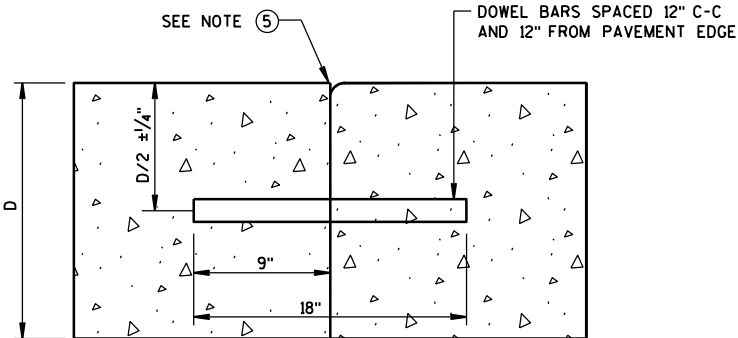
- 1 USE DOWELED EXPANSION JOINTS ON SIDE ROADS AT INTERSECTIONS (TO ISOLATE THE SIDE ROAD FROM THE THROUGH STREET) IF THE SIDE ROAD IS CONCRETE PAVEMENT AND GREATER THAN 300 FEET IN LENGTH.
- 2 SPACE CONTRACTION JOINTS IN ACCORDANCE WITH 13C4, 13C11 OR 13C13.
- 3 LOCATE CONSTRUCTION JOINTS A MINIMUM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



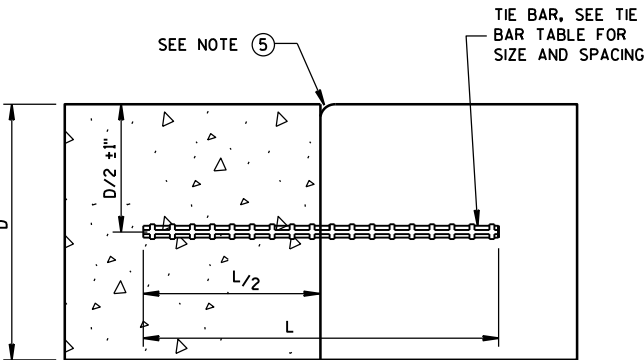
DOWELED-TRANSVERSE

CONTRACTION JOINTS

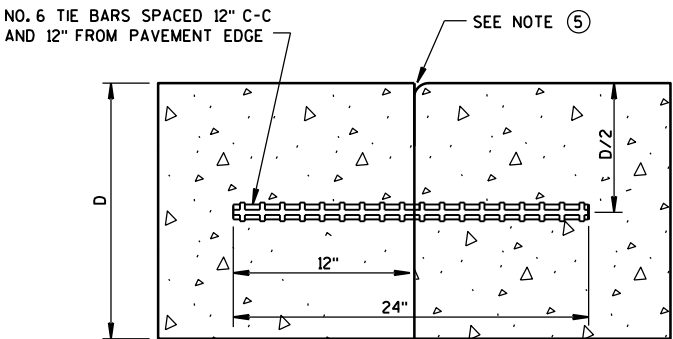
SEE NOTE 2



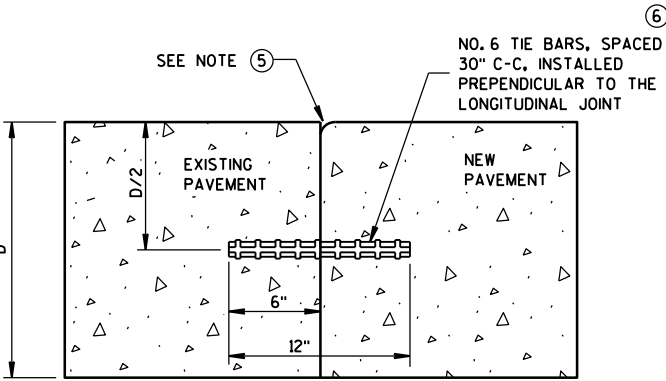
DOWELED TRANSVERSE 3



TIED LONGITUDINAL



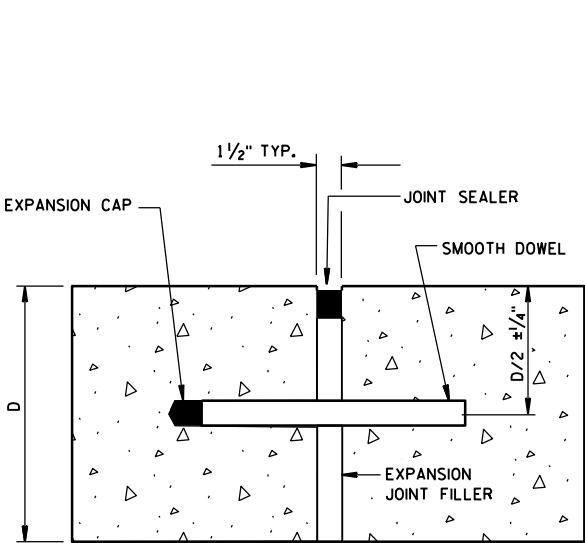
TIED TRANSVERSE 3
(FOR USE ON NON-DOWELED PAVEMENTS ONLY)



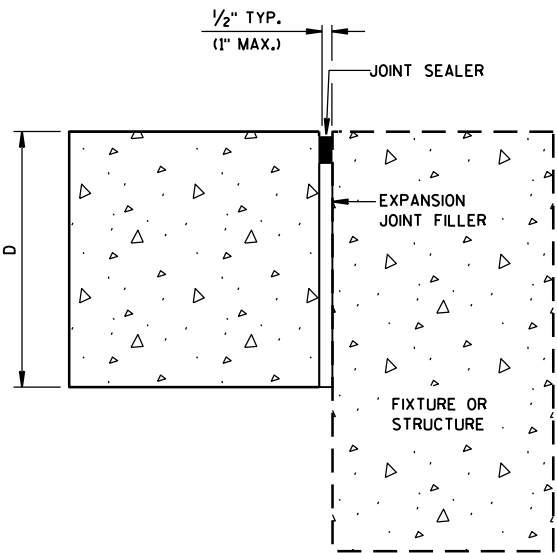
TIED LONGITUDINAL TO EXISTING

CONSTRUCTION JOINTS

SEE NOTE 4



DOWELED-TRANSVERSE
SEE NOTE 1

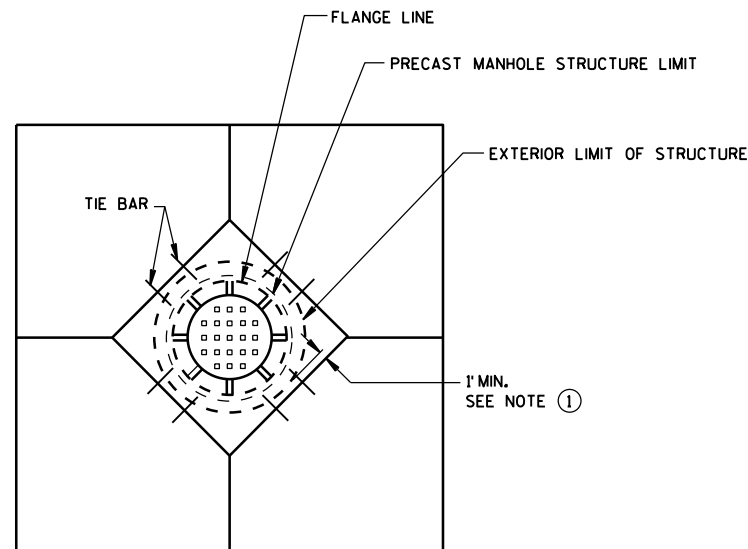


UNTIED-LONGITUDINAL

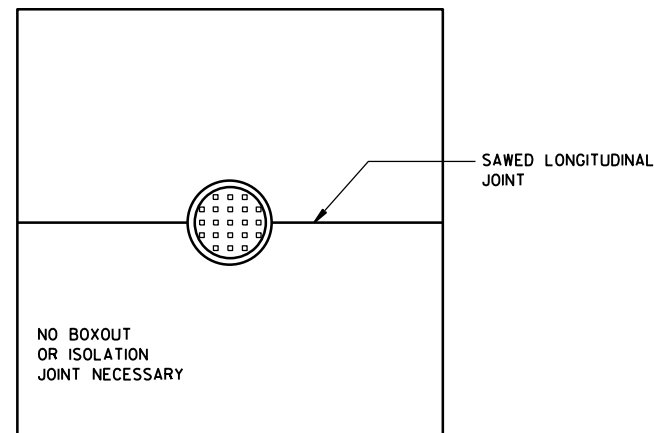
EXPANSION JOINTS

CONCRETE PAVEMENT
JOINT TYPES

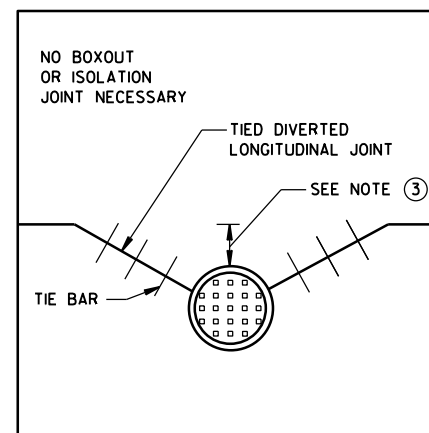
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



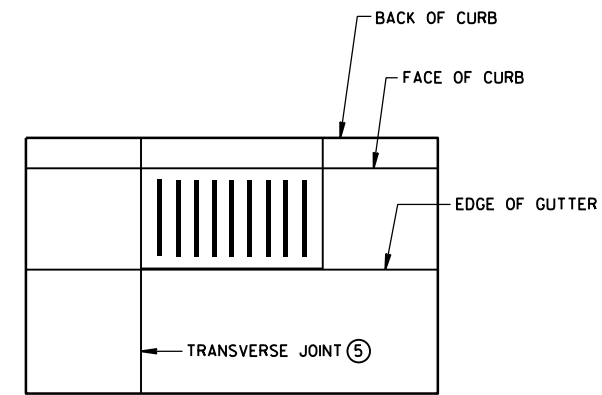
**DIAGONAL MANHOLE BOXOUT
FOR CONSTRUCTION JOINTS**



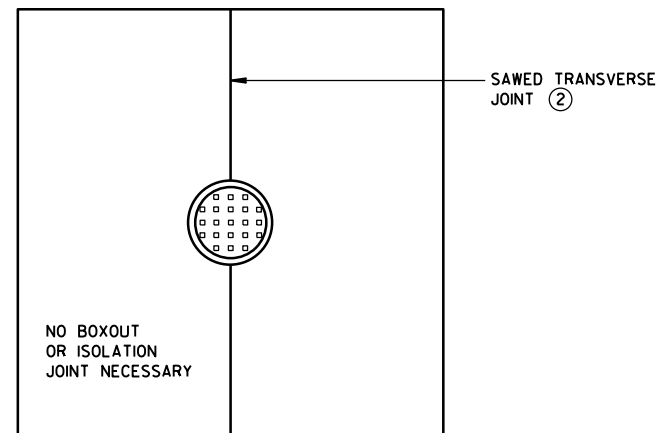
**MANHOLE WITH
LONGITUDINAL JOINT**



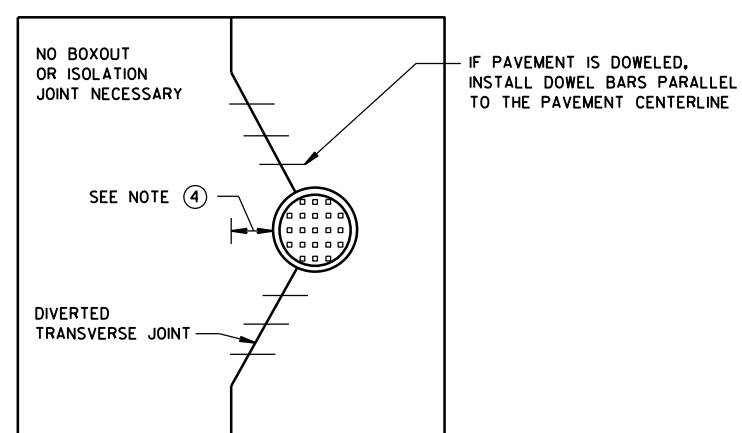
**MANHOLE WITH DIVERTED
LONGITUDINAL CONTRACTION JOINT**



**INLET WITH
TRANSVERSE JOINT**



**MANHOLE WITH
TRANSVERSE JOINT**



**MANHOLE WITH DIVERTED
TRANSVERSE CONTRACTION JOINT**

GENERAL NOTES

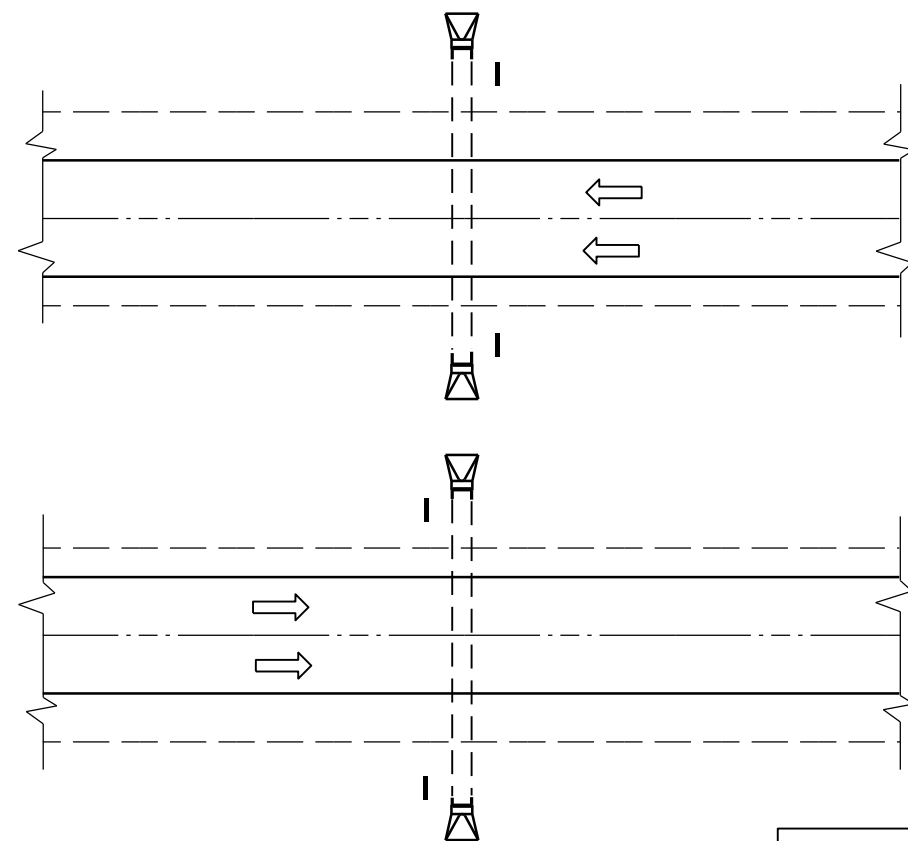
- ① USE BOXOUTS WHEN UTILITY STRUCTURE IS IN THE PATH OF CONSTRUCTION JOINTS. PROVIDE A 1-FOOT MINIMUM CLEARANCE BETWEEN THE EXTERIOR LIMIT OF THE STRUCTURE TO THE DIAMOND BOXOUT.
- ② ADJUST TRANSVERSE JOINT TO INTERSECT MANHOLE IF POSSIBLE.
- ③ IF DISTANCE BETWEEN THE LONGITUDINAL JOINT AND THE EDGE OF MANHOLE IS 2 FEET OR LESS, DIVERT THE LONGITUDINAL 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**

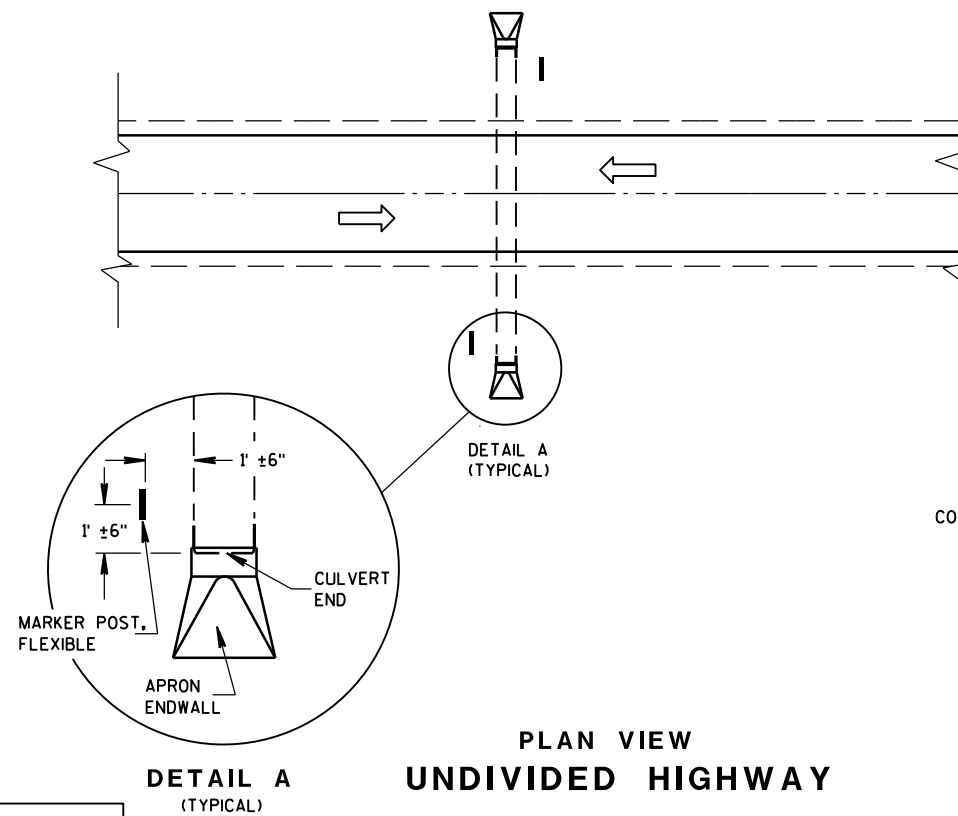
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015
DATE
FHWA

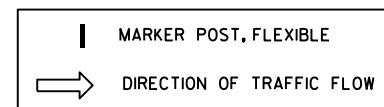
/S/ Peter Kemp, P.E.
PAVEMENT SUPERVISOR



PLAN VIEW
DIVIDED HIGHWAY



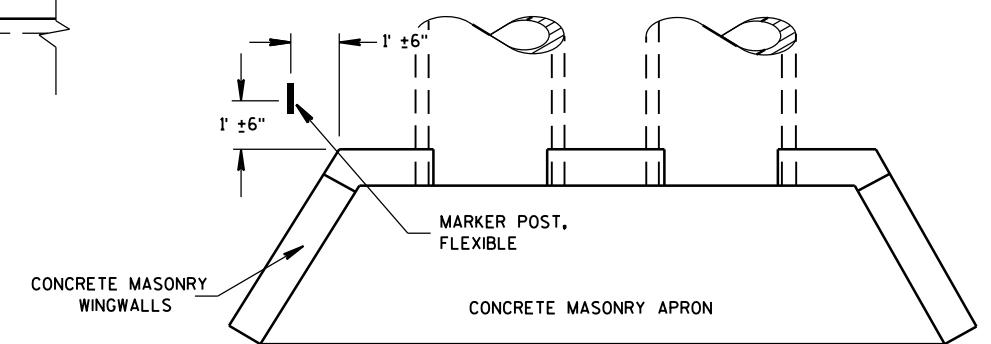
PLAN VIEW
UNDIVIDED HIGHWAY



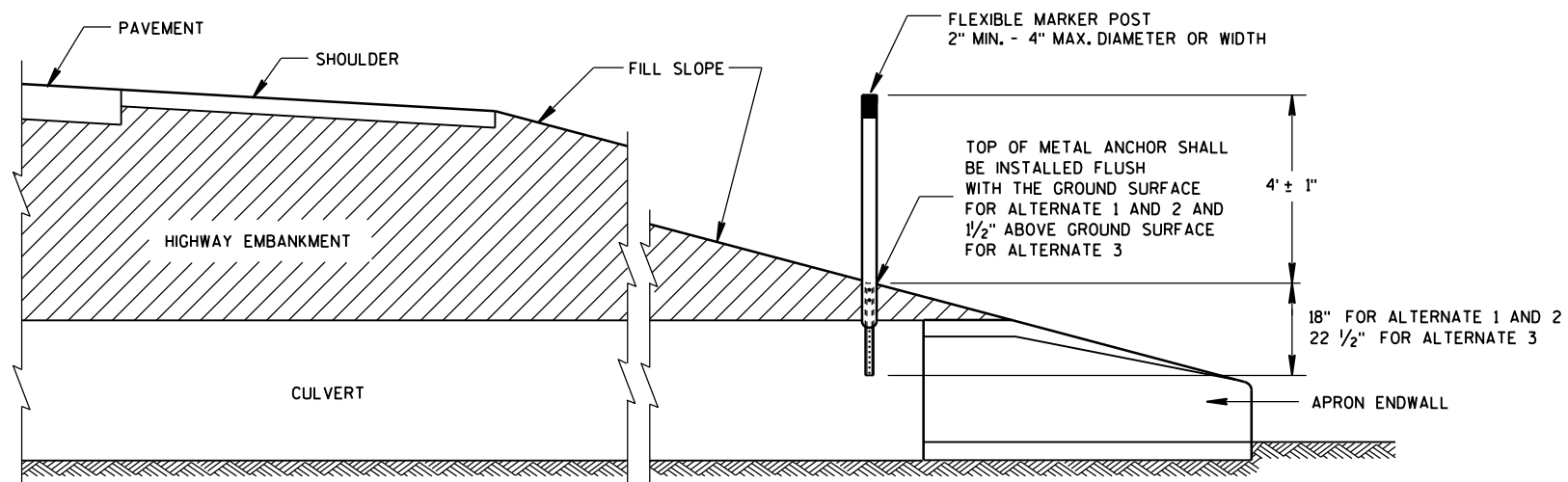
FLEXIBLE MARKER POST LOCATION

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.



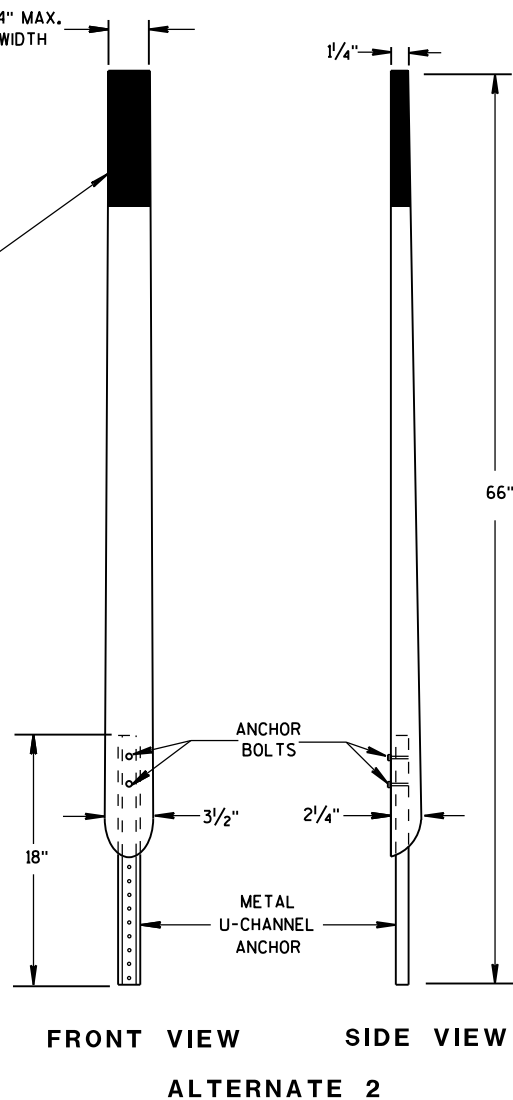
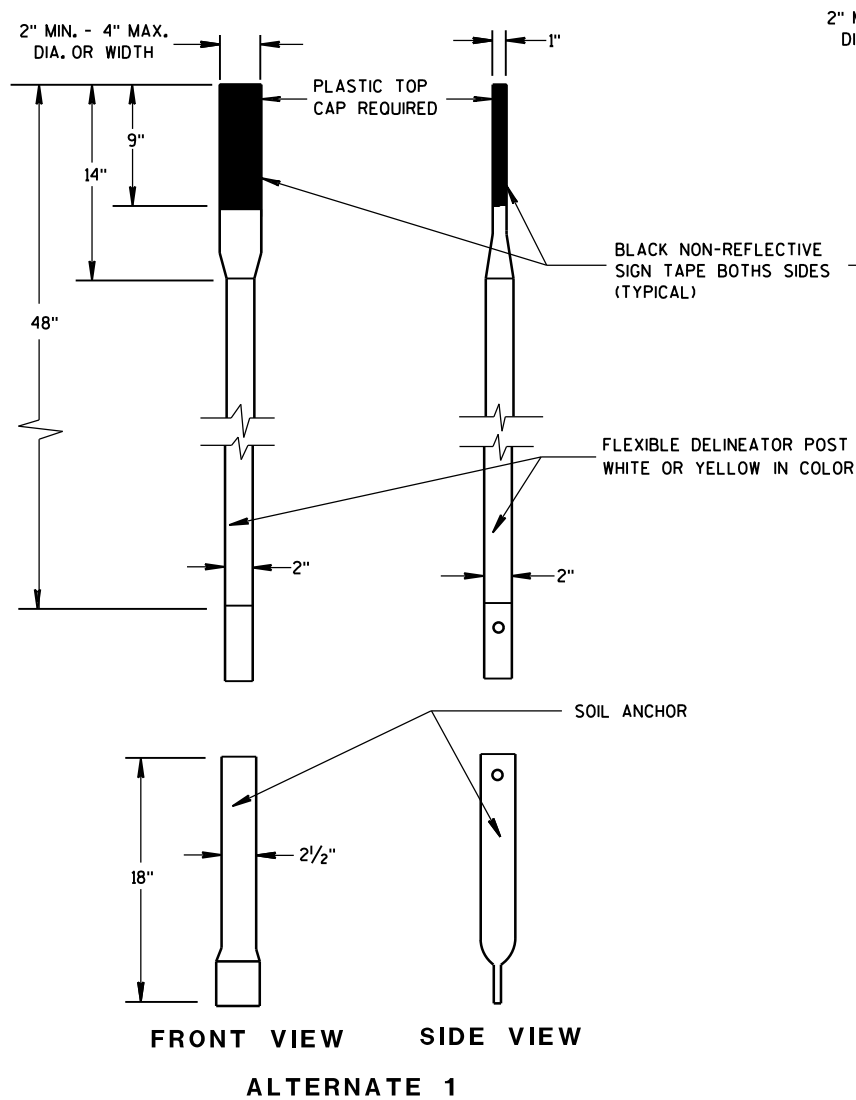
PLAN VIEW
CONCRETE MASONRY ENDWALLS FOR
CULVERT PIPE AND PIPE ARCH



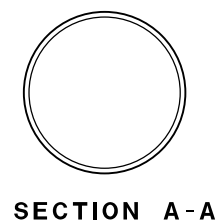
CROSS SECTION
FLEXIBLE MARKER POST

FLEXIBLE MARKER POST
FOR CULVERT END

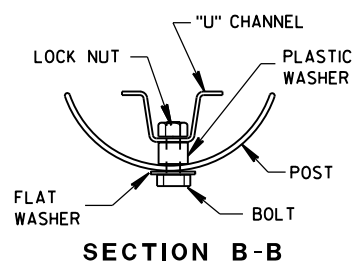
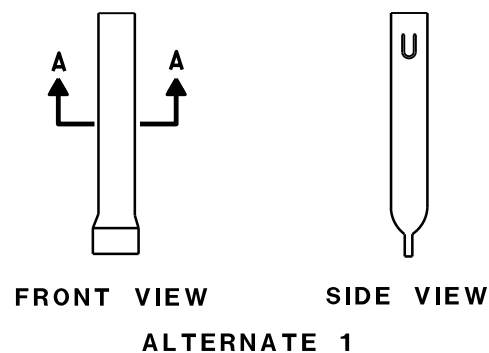
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



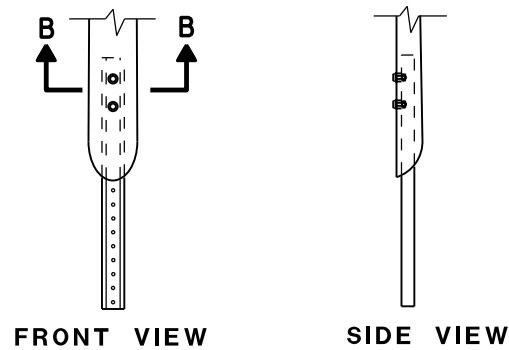
FLEXIBLE MARKER POSTS



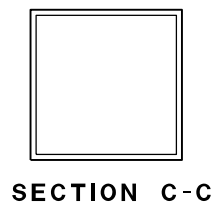
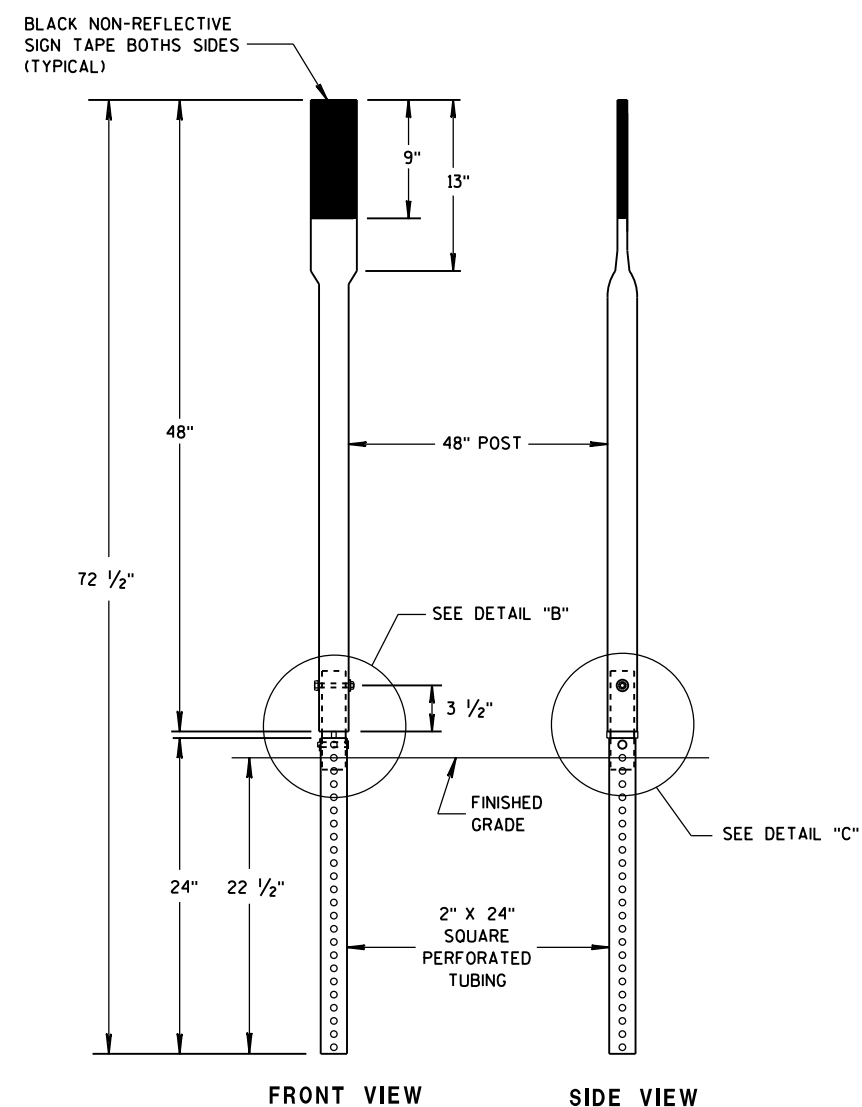
SECTION A-A



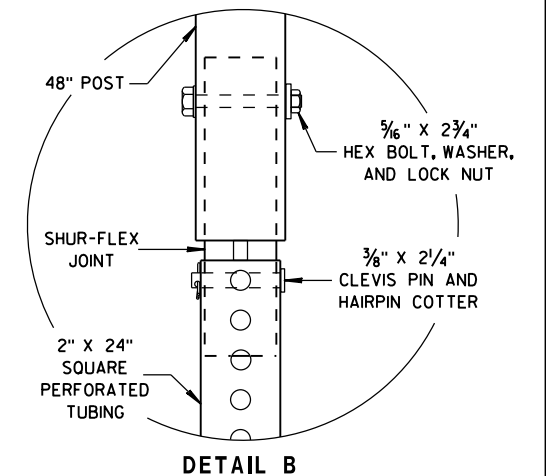
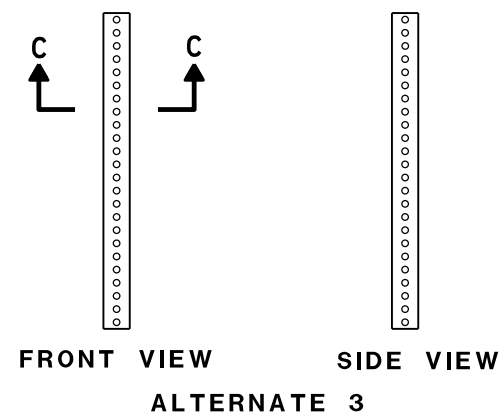
SECTION B-B



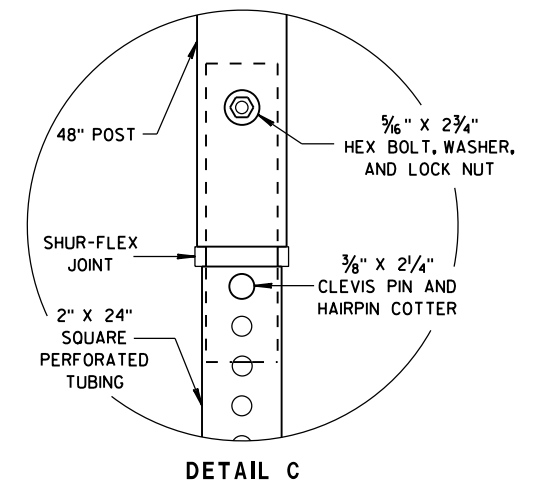
FLEXIBLE MARKER POST ANCHORS



SECTION C-C



DETAIL B

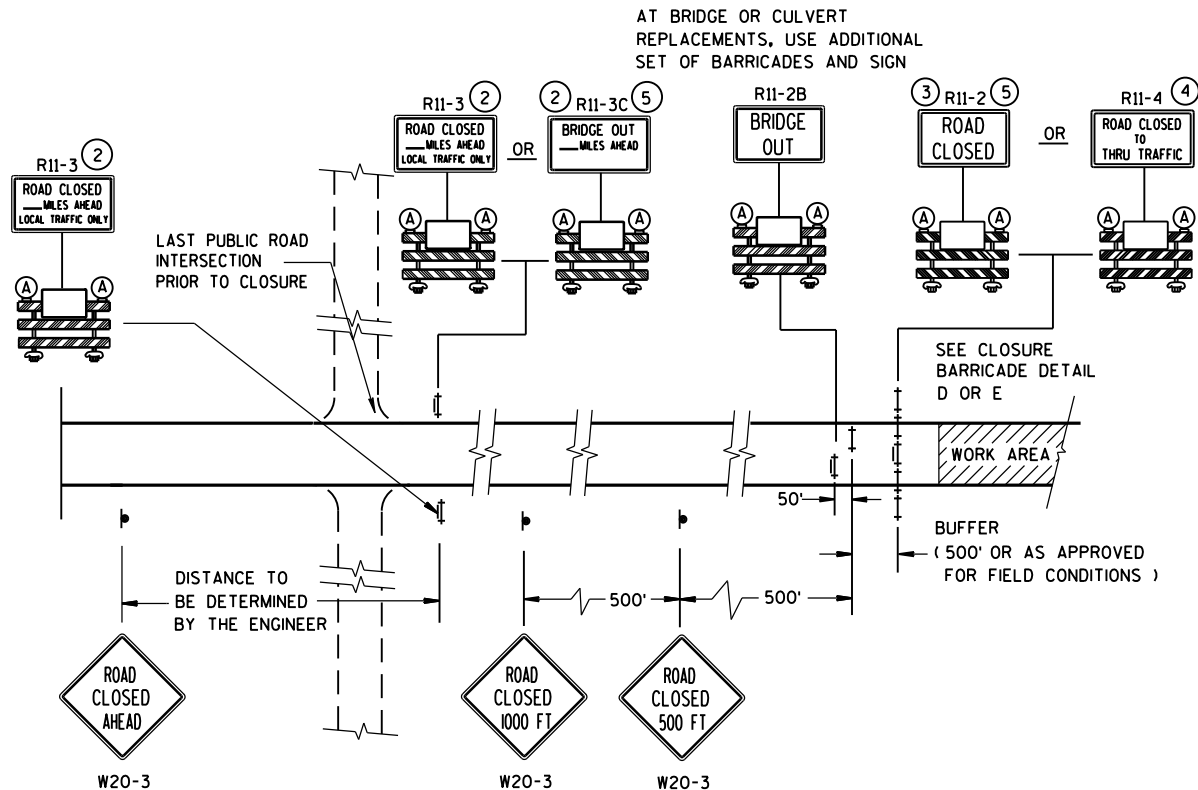
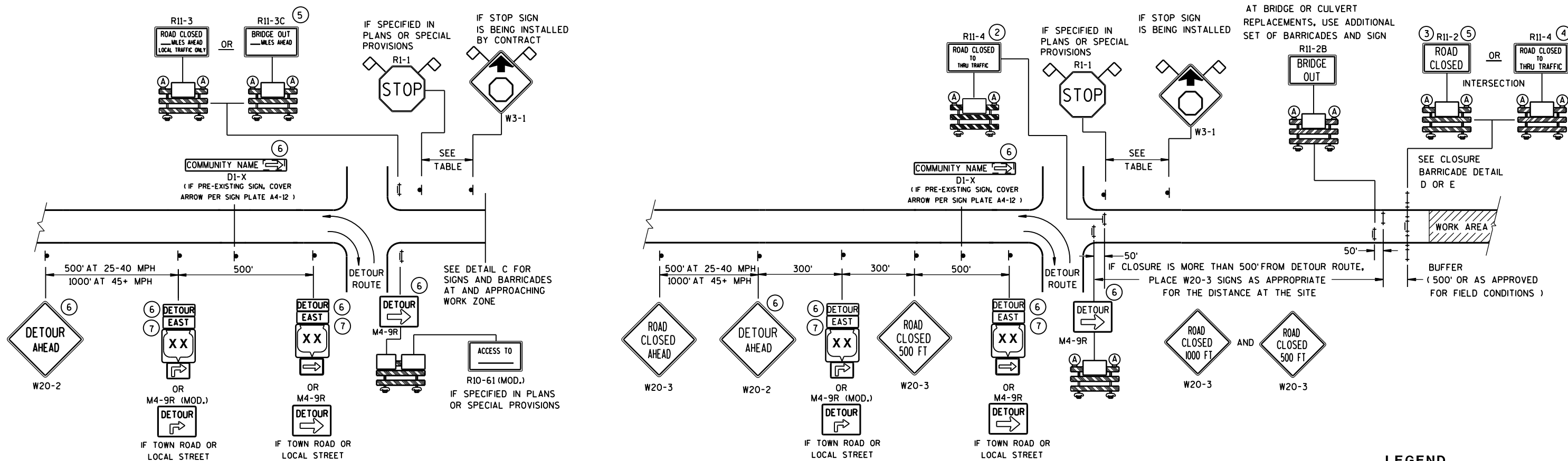


DETAIL C

FLEXIBLE MARKER POST FOR CULVERT END

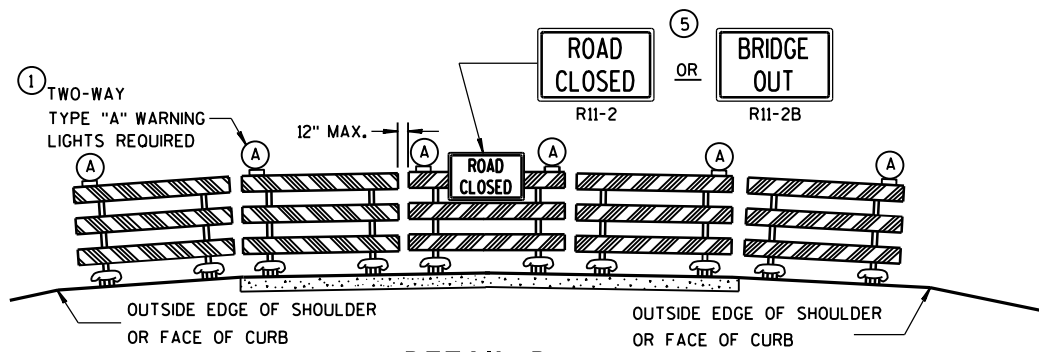
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DEPARTMENT OF TRANSPORTATION

APPROVED
10/1/2012 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA

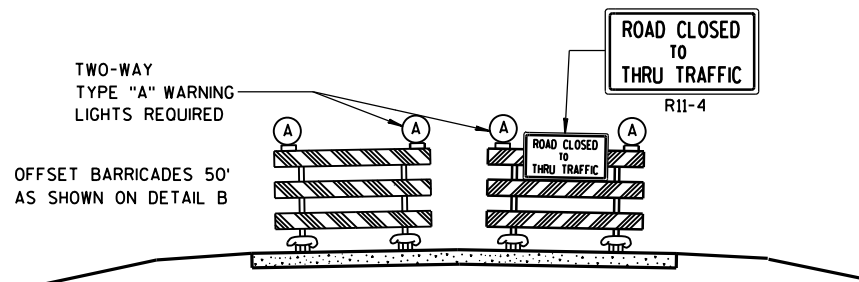


SEE SDD 15C2-SHEET "b"
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

BARRICADES AND SIGNS FOR MAINLINE CLOSURES	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
8/2013 DATE	/S/ Travis Feltes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW



DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW

SEE SDD 15C2-SHEET "a" FOR LEGEND

GENERAL NOTES

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

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

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

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

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

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

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

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

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

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

R11-2 SHALL BE 48" X 30".

R11-3, R11-4 AND R10-61 SHALL BE 60" X 30".

M4-9 SHALL BE 30" X 24".

M3-X SHALL BE 24" X 12". (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS.)

M4-8 SHALL BE 24" X 12". (30" X 15" IF NEEDED TO MATCH EXISTING SIGNS.)

M1-4, M1-5A, AND M1-6 SHALL BE 24" X 24". (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS.)

M05-1 AND M06-1 SHALL BE 21" X 21". (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS.)

D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

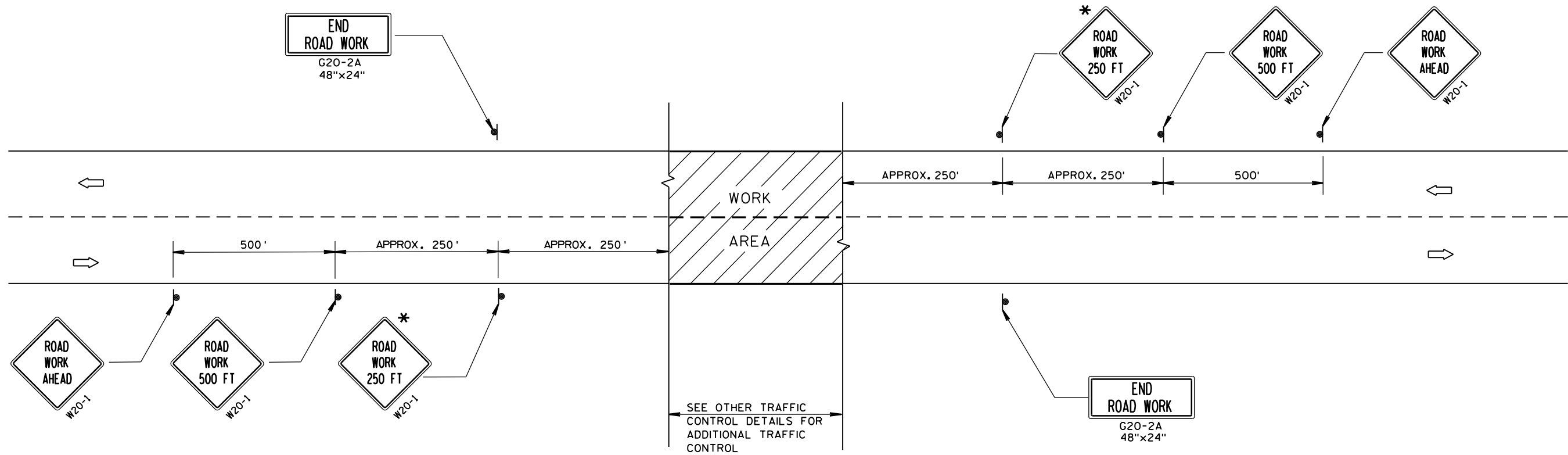
R1-1 SHALL BE 36" X 36".

- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8-FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT INTERSECTION.
- ③ FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL D.
- ④ FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE LANE CLOSURE BARRICADE DETAIL E.
- ⑤ FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11-2 AND R11-3 SIGNS.
- ⑥ INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- ⑦ "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

BARRICADES AND SIGNS FOR MAINLINE CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

8/2013 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



TYPICAL SIDEROAD APPROACH WARNING SIGN DETAIL

GENERAL NOTES

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

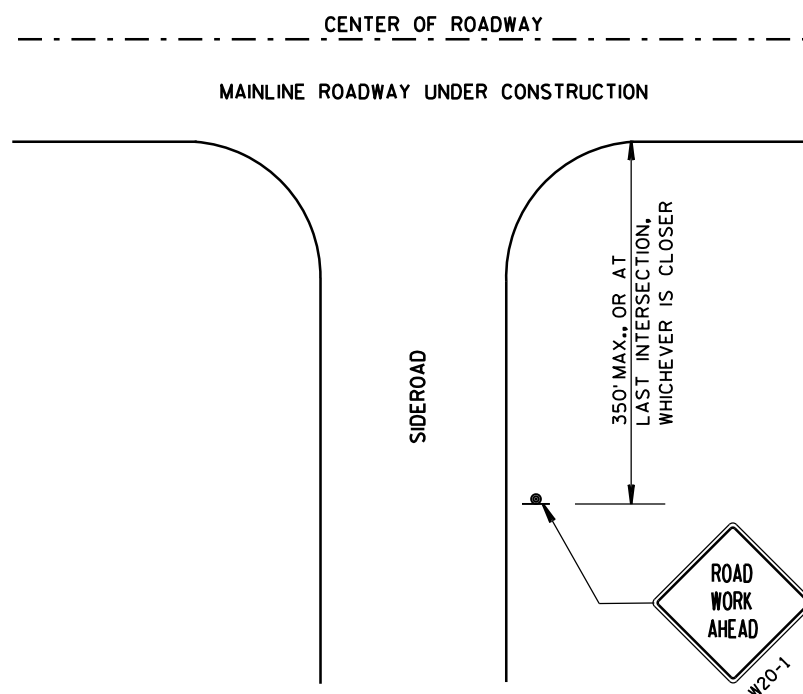
THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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

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

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

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



LEGEND

- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC
- WORK AREA

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

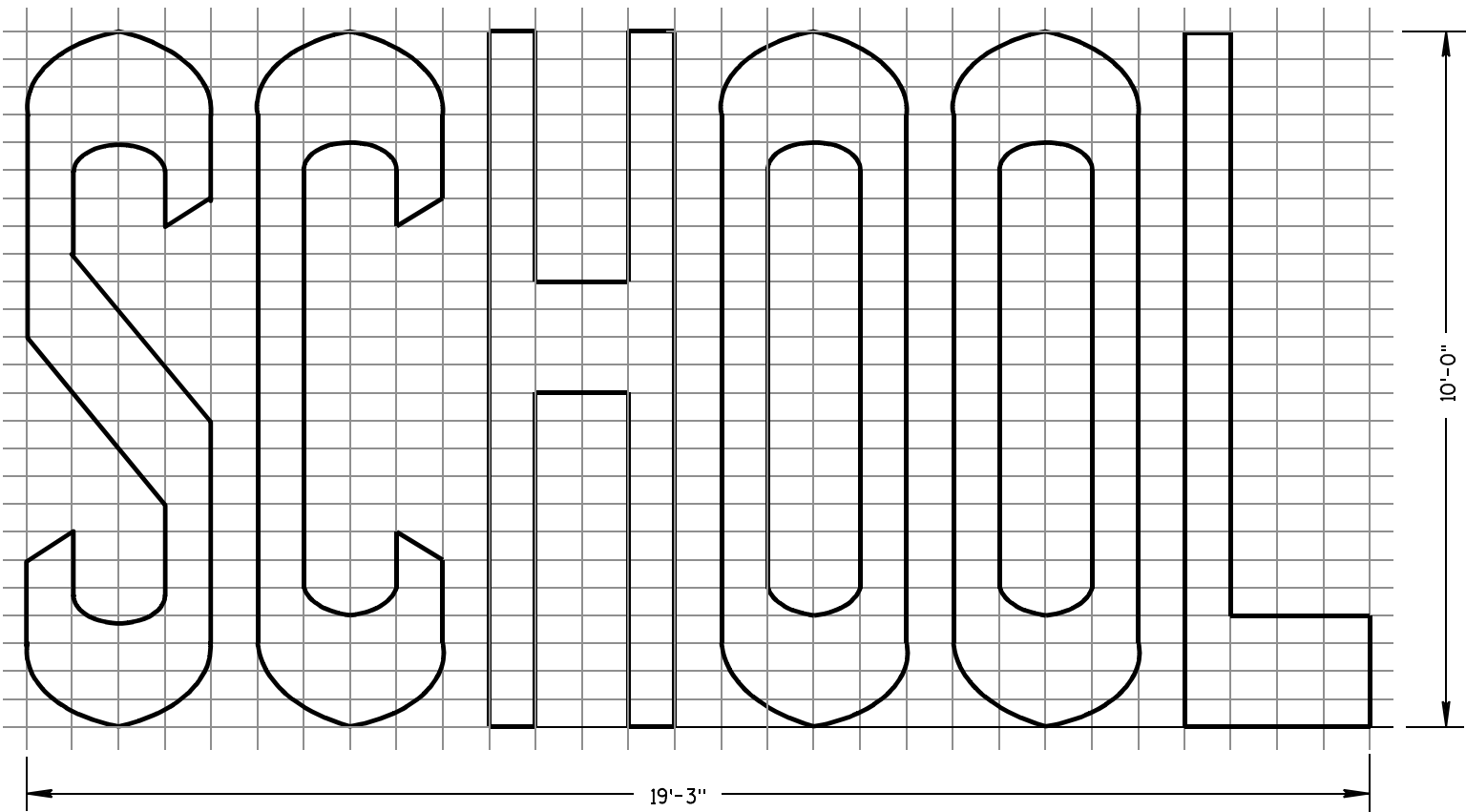
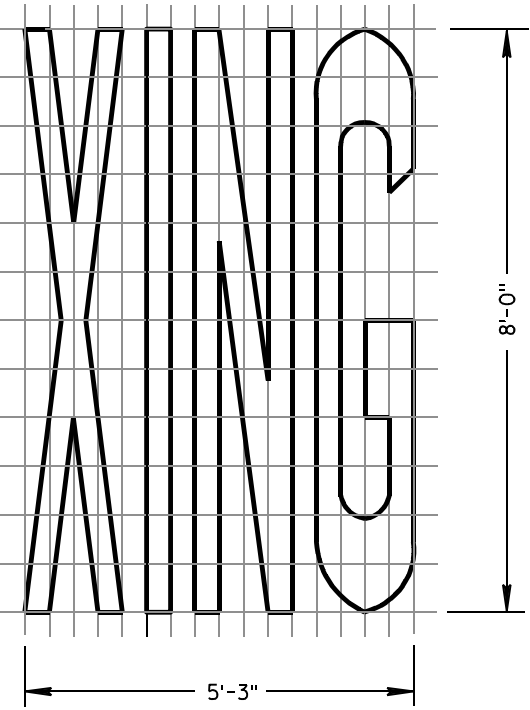
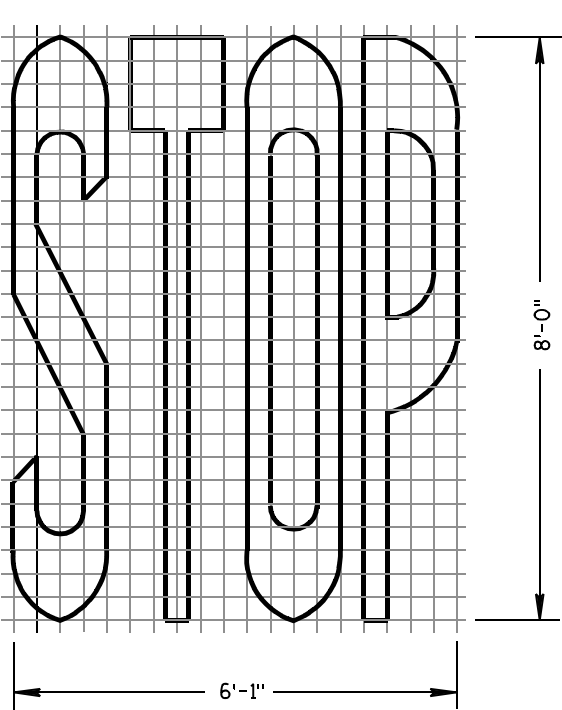
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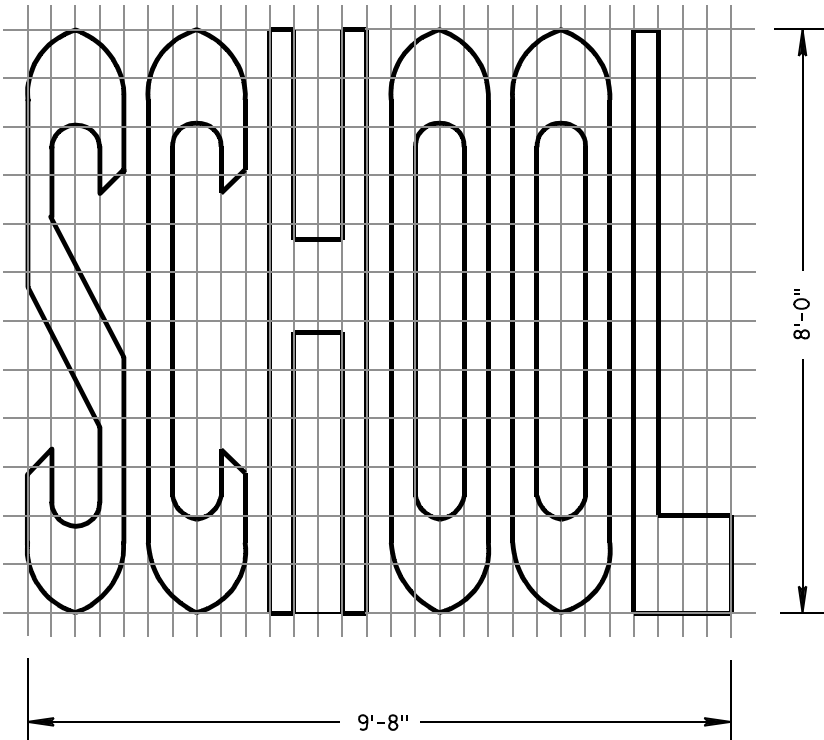
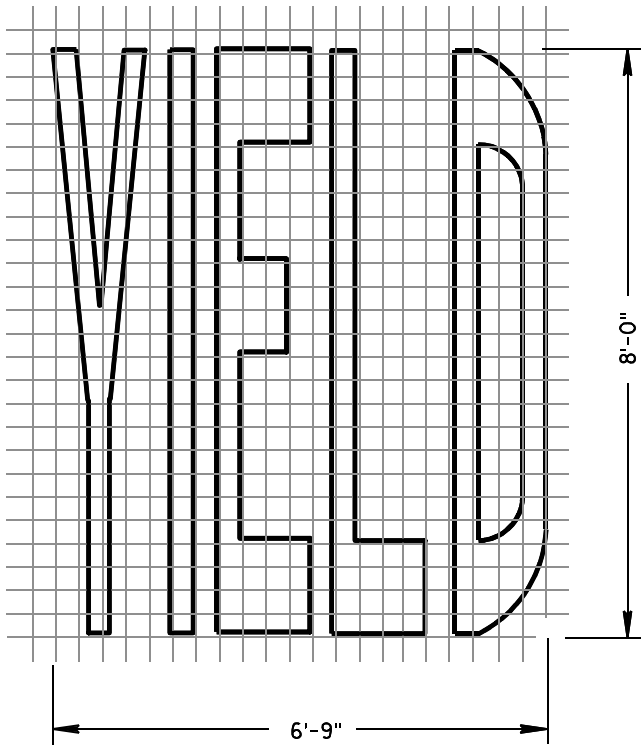
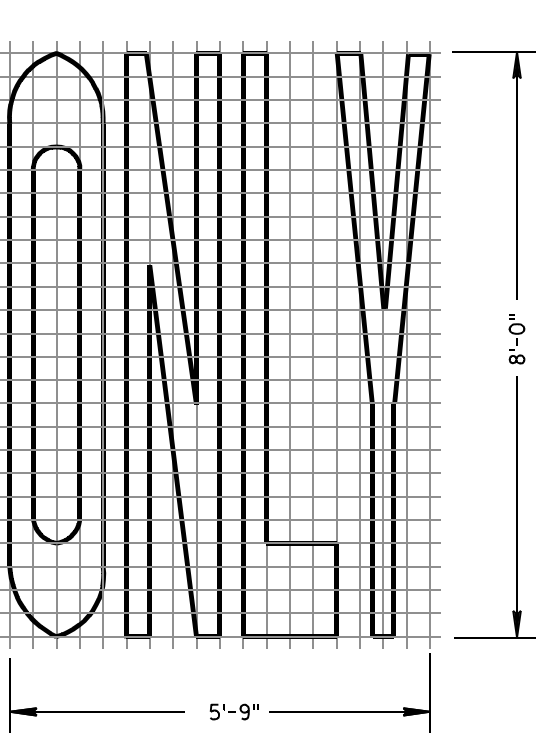
GENERAL NOTES

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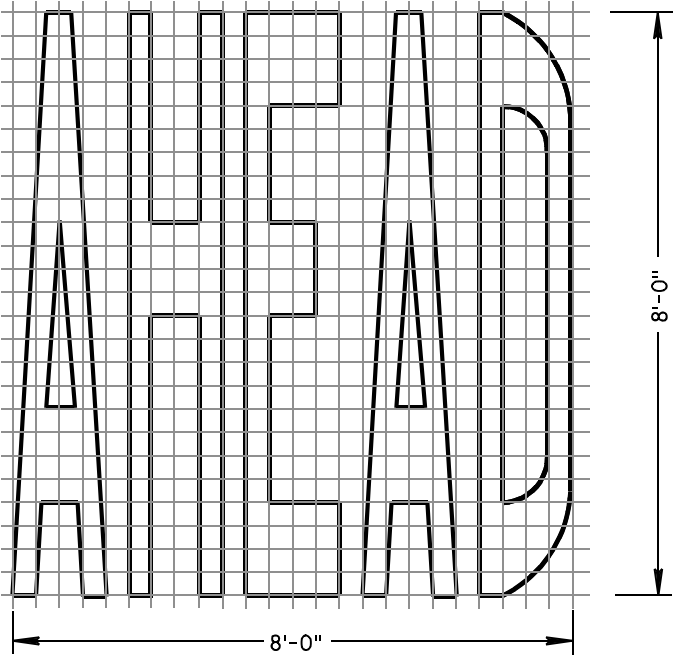
ALL LETTERS, ARROWS AND SYMBOLS SHALL BE IN CONFORMANCE WITH REQUIREMENTS INCLUDED IN "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKING" BOOK BY THE FEDERAL HIGHWAY ADMINISTRATION. ALL LETTERS, ARROWS AND SYMBOLS SHALL BE WHITE AND REFLECTORIZED. SMALL DIFFERENCES IN DIMENSIONS WITHIN THE TOLERANCES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



TWO-LANE



SINGLE-LANE



PAVEMENT MARKING WORDS

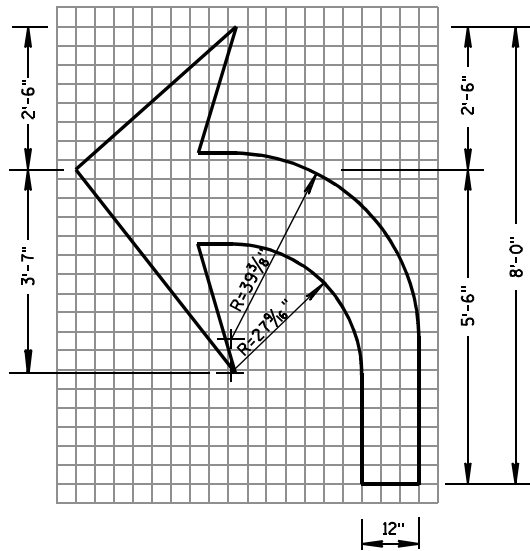
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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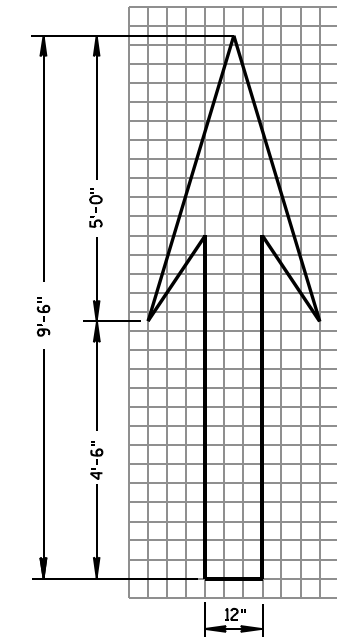
7-1-11
DATE

/S/ Thomas N. Notbohm
STATE TRAFFIC ENGINEER OF DESIGN

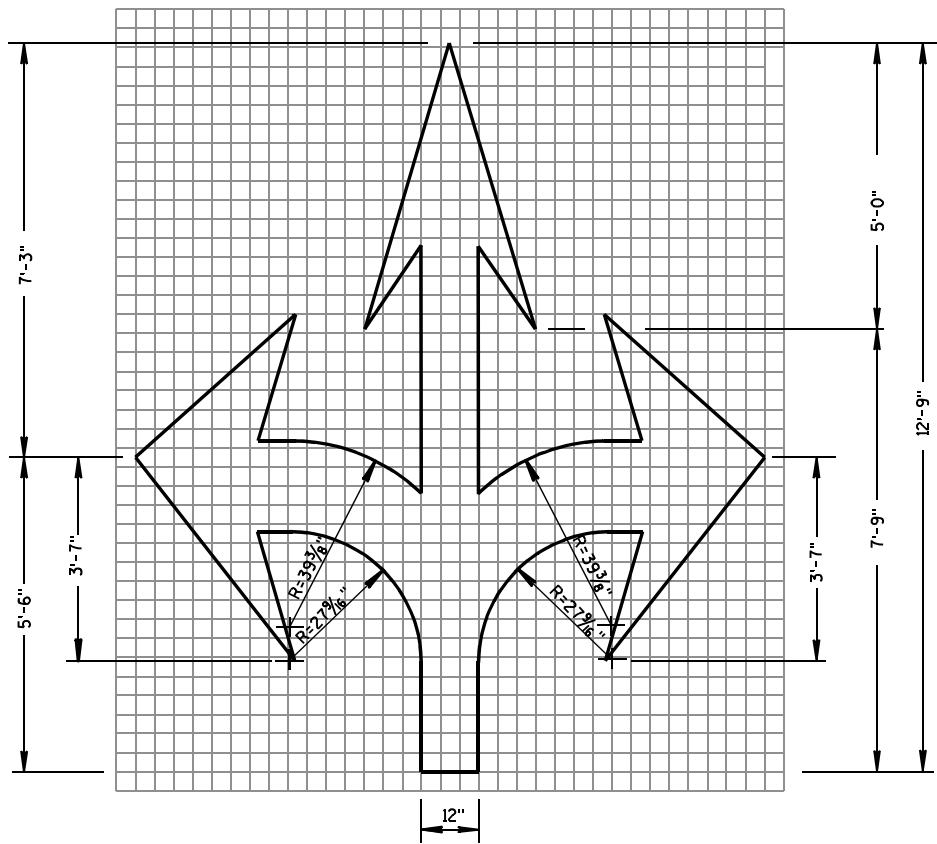
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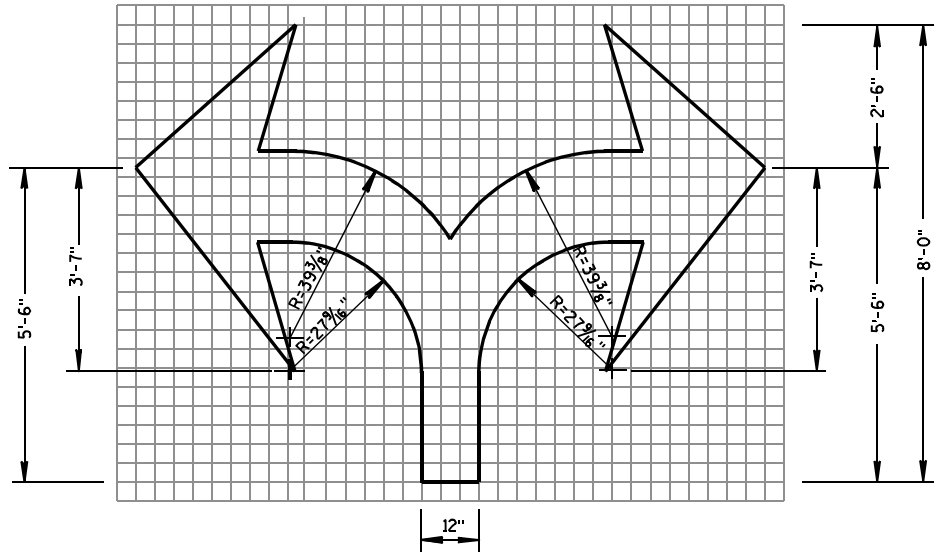
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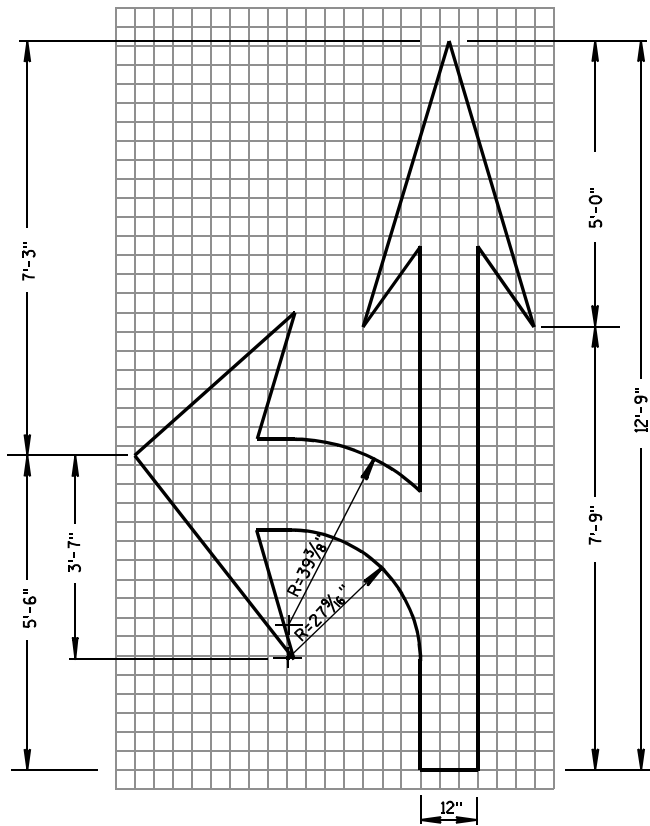
TYPE 1



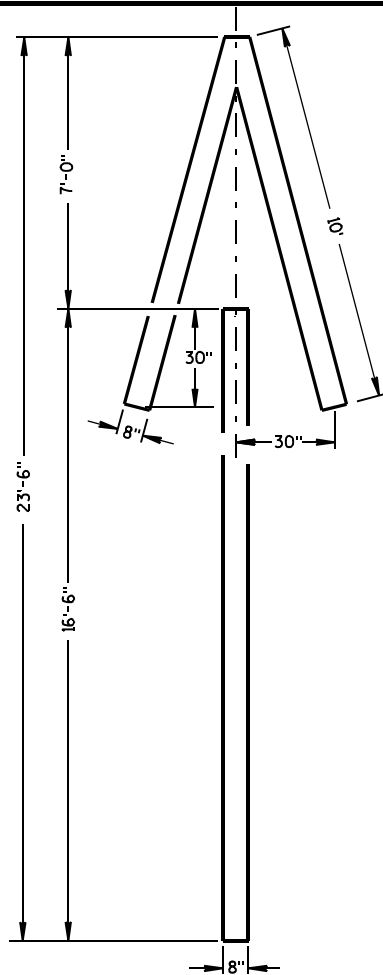
TYPE 6



TYPE 7



TYPE 3

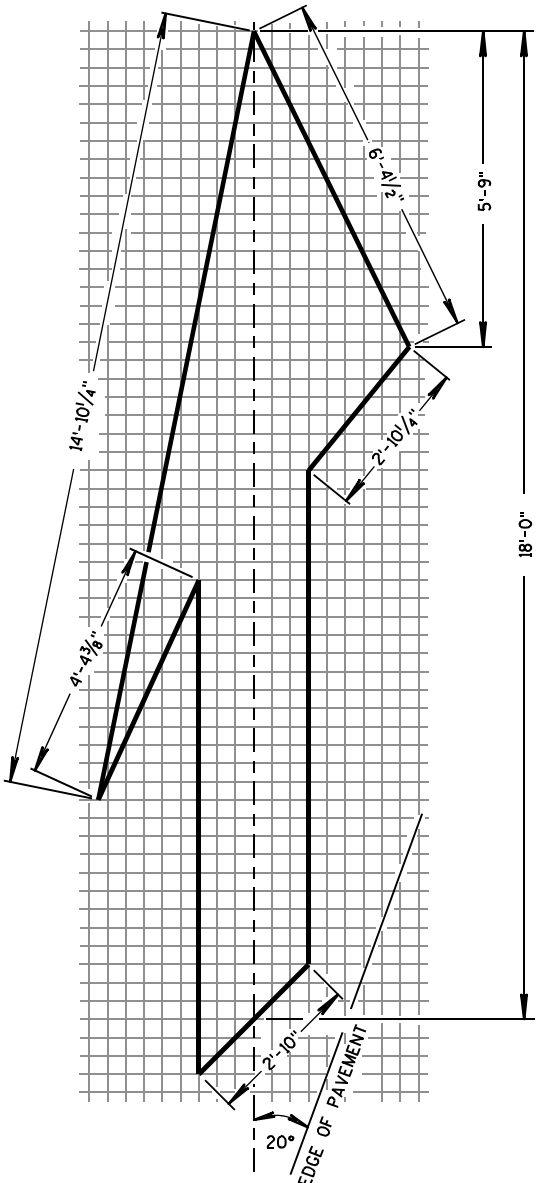


TYPE 4

GENERAL NOTES

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

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



TYPE 5 LANE DROP ARROW

PAVEMENT MARKING ARROWS

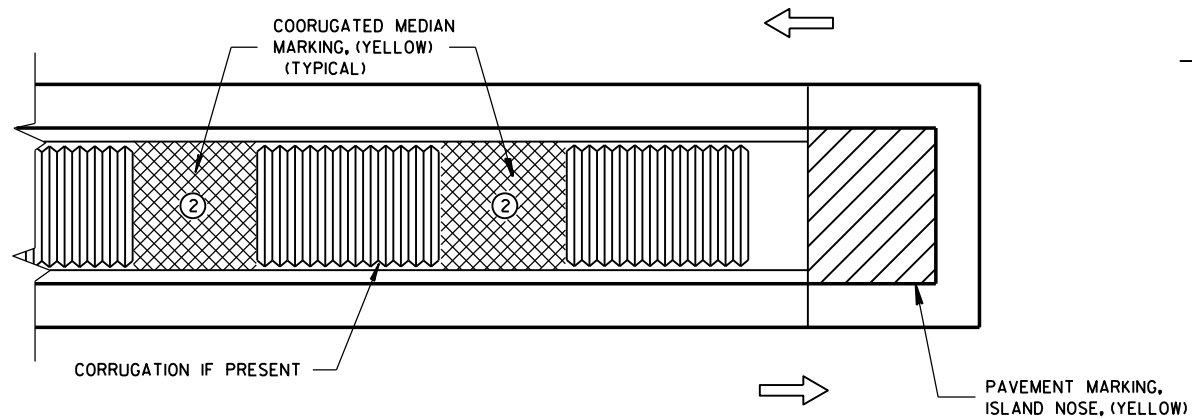
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

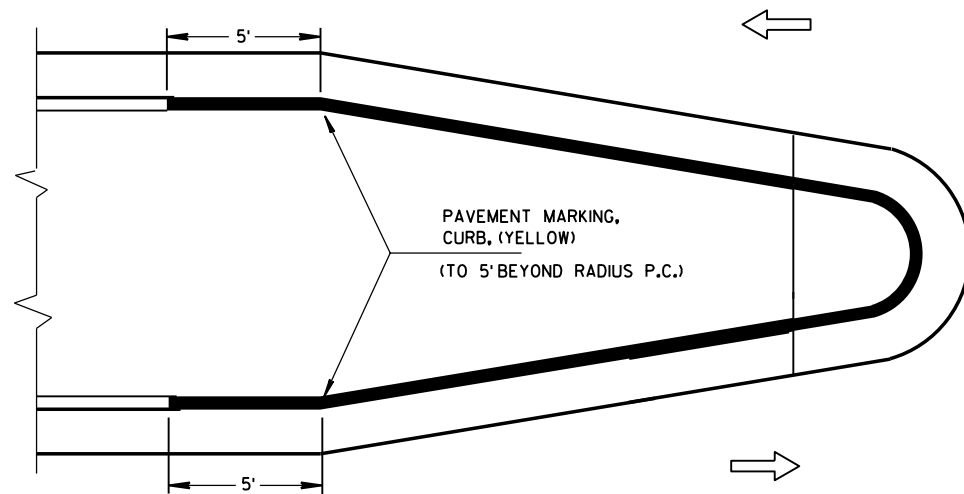
7/1/11
DATE

/S/ Thomas N. Notbohm
STATE TRAFFIC ENGINEER OF DESIGN

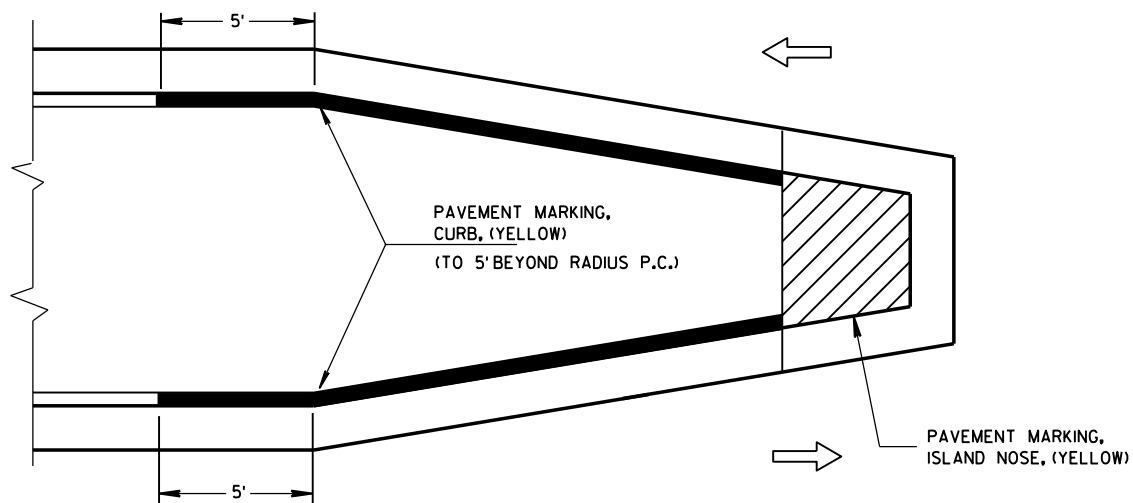
FHWA



MEDIAN ISLAND WITH SQUARE BLUNT NOSE

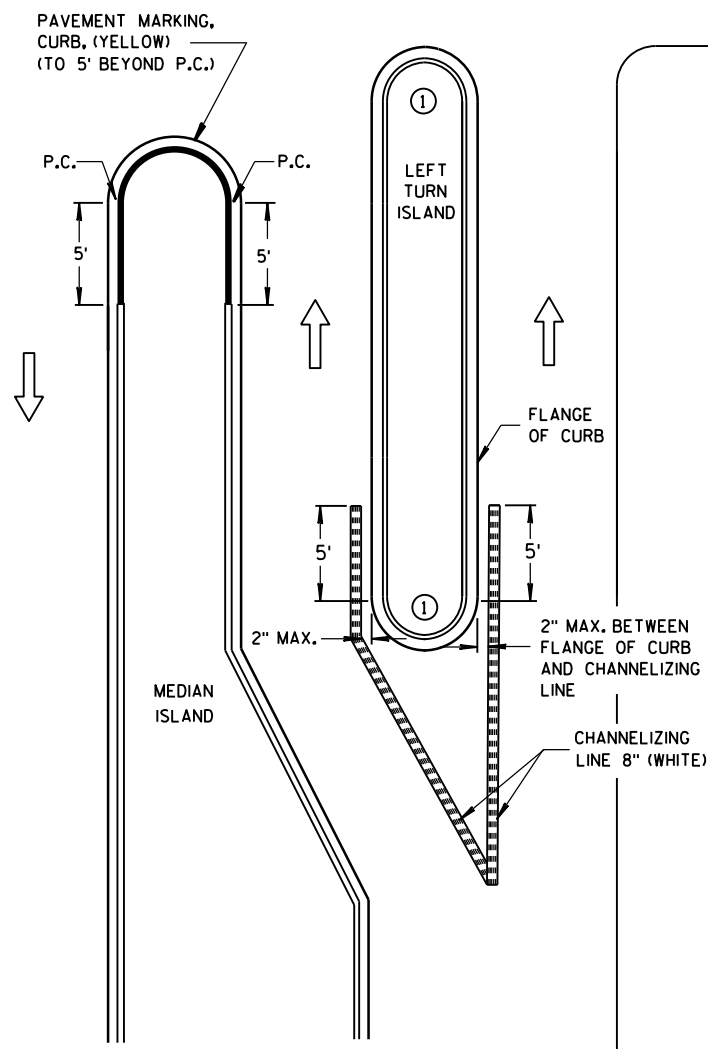


MEDIAN ISLAND WITH ROUND BLUNT NOSE



MEDIAN ISLAND WITH SLOPED NOSE

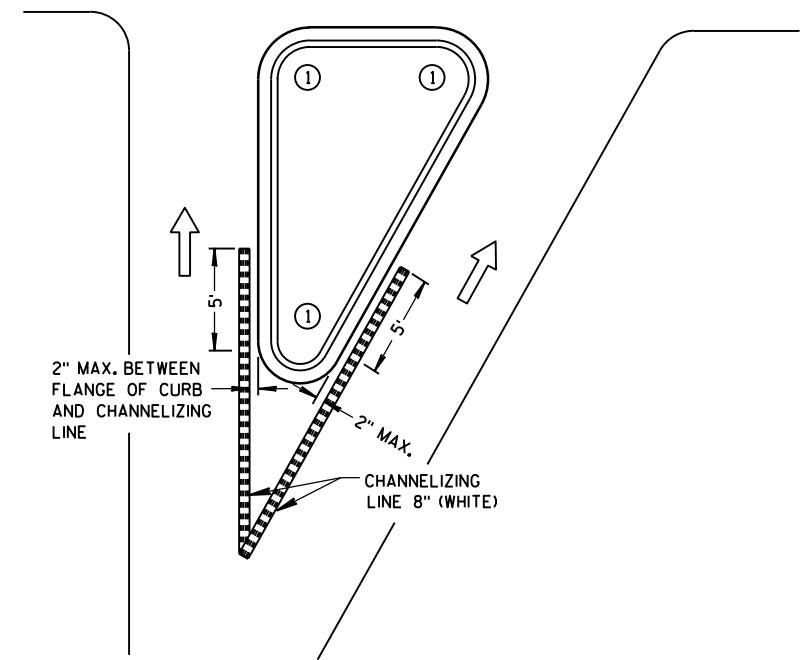
TYPICAL PLACEMENT OF PAVEMENT MARKING ON MEDIAN ISLANDS



LEFT TURN & MEDIAN ISLAND

GENERAL NOTES

- 1 DO NOT MARK CURB NOSES THAT SEPARATE LANES OF TRAFFIC TRAVELING IN THE SAME DIRECTION.
- 2 WHEN CONCRETE CORRUGATED MEDIAN IS CONSTRUCTED TO SEPARATE TRAFFIC OPERATING IN THE OPPOSING DIRECTION YELLOW PAVEMENT MARKING SHALL BE APPLIED TO THE FLAT PORTION OF THE CONCRETE CORRUGATED MEDIAN. THE ITEM OF PAVEMENT MARKING, CONCRETE CORRUGATED MEDIAN, WILL BE MEASURED IN PLACE AND AND ACCEPTED IN ACCORDANCE WITH THE CONTRACT AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT.



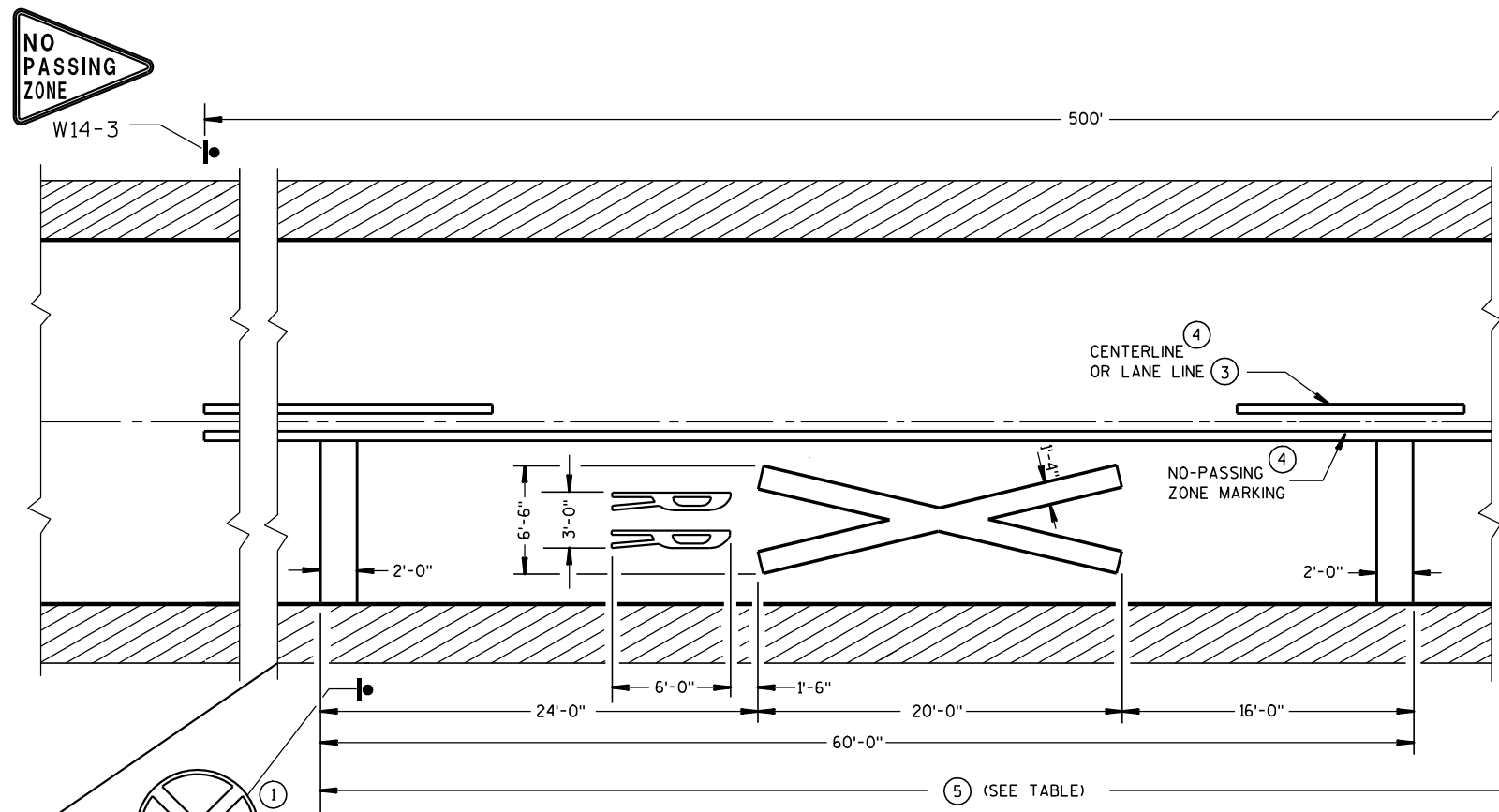
RIGHT TURN ISLAND

LEGEND

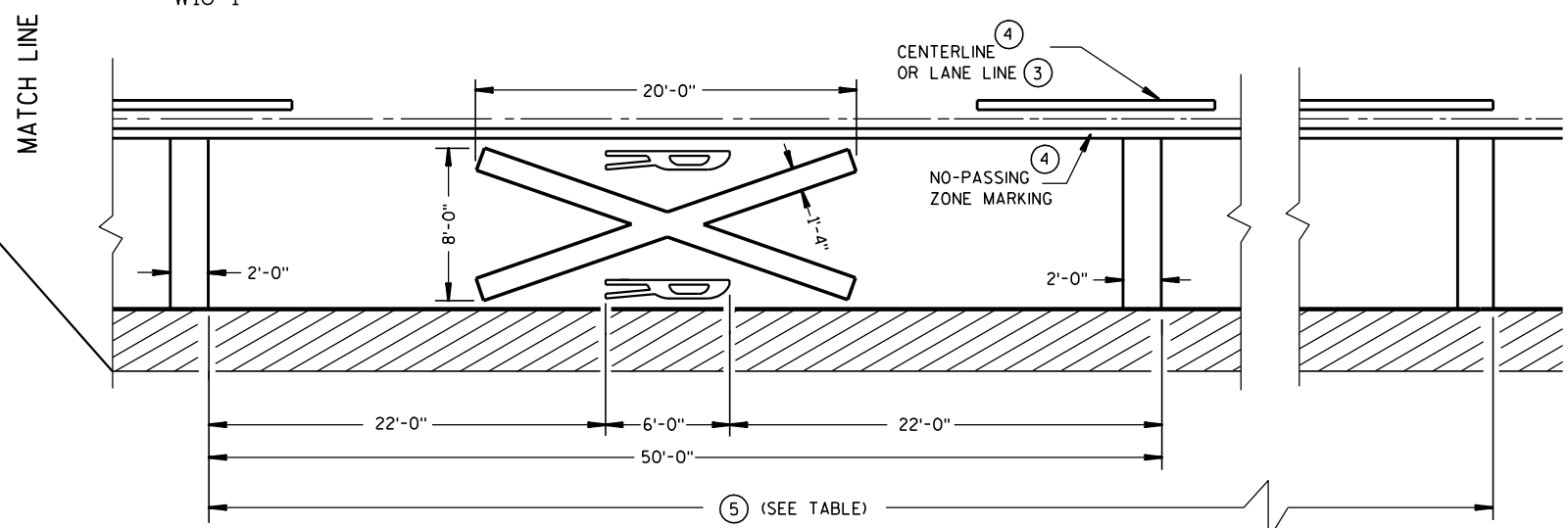
- ISLAND NOSE MARKING
- CURB MARKING
- CORRUGATED MEDIAN MARKING
- DIRECTION OF TRAVEL

PAVEMENT MARKING (ISLANDS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



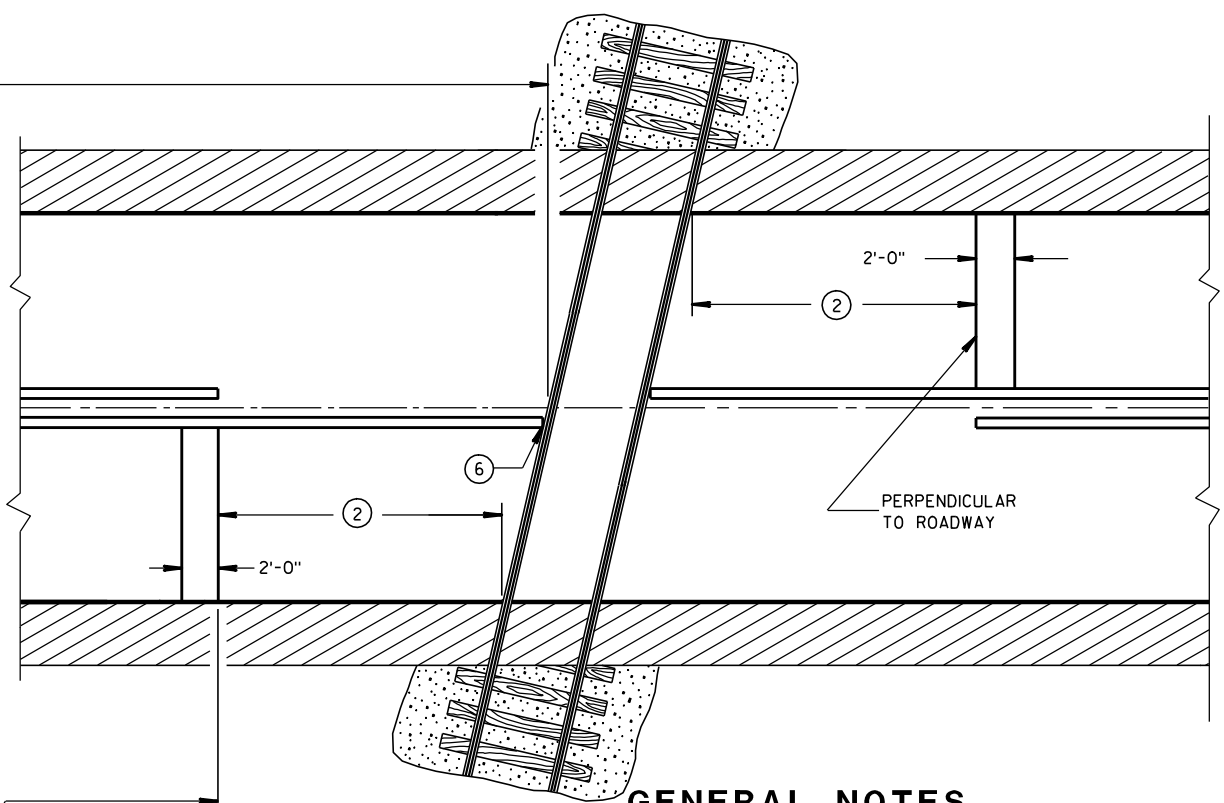
PREFERRED PAVEMENT MARKING



ALTERNATE PAVEMENT MARKING

Posted Speed (M.P.H.)	Dimension Range (Feet)
25	150*- 250
30	200*- 300
35	250*- 450
40	300*- 500
45	400*- 650
50	550*- 800
55	750*- 1000
60	1000*- 1250
65	1000*- 1250

* THE MINIMUM DISTANCES IN THE TABLE ARE DESIRABLE AND SHOULD BE USED. THE DISTANCES MAY BE INCREASED UP TO THE MAXIMUM TO ALLOW FOR FIELD CONDITIONS SUCH AS THE CLOSE PROXIMITY OF DRIVEWAYS, BRIDGES, SIDEROADS OR OTHER FEATURES THAT WOULD PROHIBIT THE MINIMUM DISTANCES FROM BEING USED.



GENERAL NOTES

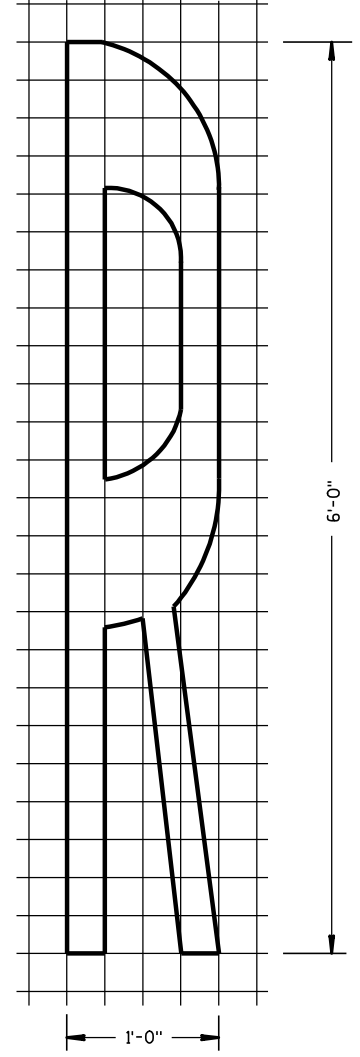
DETAILS OF CONSTRUCTION, MATERIALS, AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

A THREE-LANE ROADWAY SHOULD BE MARKED WITH A CENTERLINE FOR TWO-LANE APPROACH OPERATION ON THE APPROACH TO A CROSSING.

ON MULTI-LANE ROADS THE TRANSVERSE BANDS SHOULD EXTEND ACROSS ALL APPROACH LANES, AND INDIVIDUAL R X R SYMBOLS SHOULD BE USED IN EACH APPROACH LANE. ALL LETTERS AND SYMBOLS SHALL BE IN CONFORMANCE WITH THE "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" (ADOPTED BY THE FEDERAL HIGHWAY ADMINISTRATION).

CENTER OR LANE LINES AND NO-PASSING ZONE MARKINGS SHOWN ON THIS DRAWING ARE REQUIRED AND PAID FOR UNDER OTHER ITEMS IN THE CONTRACT.

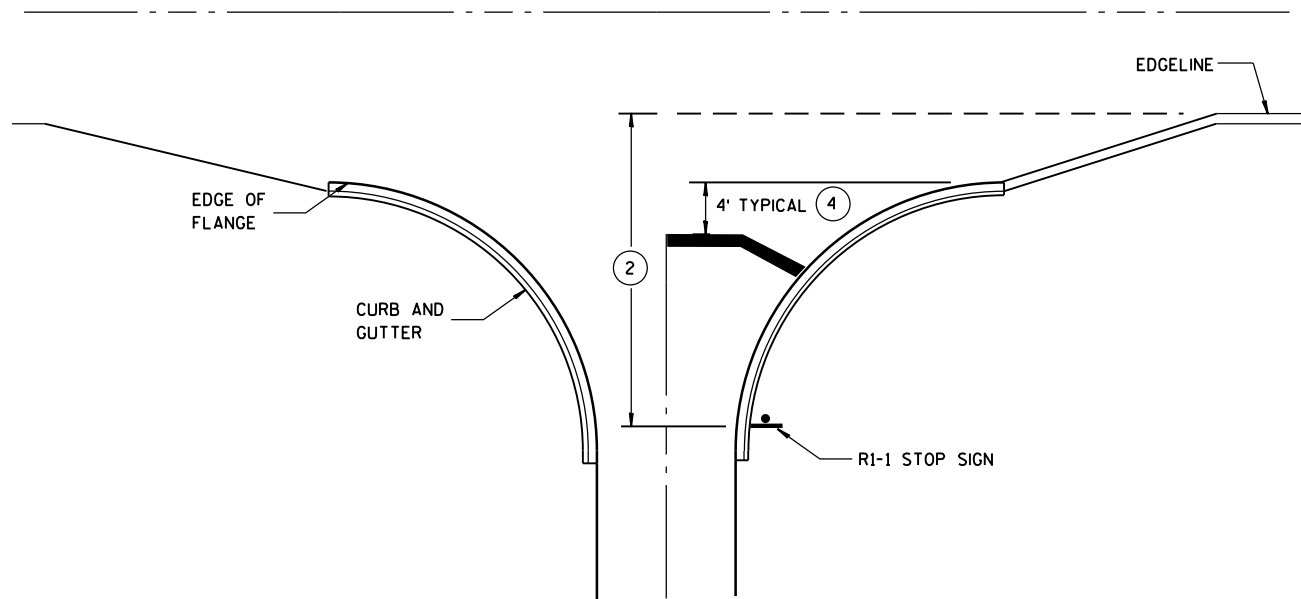
- 1 A PORTION OF THE PAVEMENT MARKING SYMBOL SHOULD BE DIRECTLY OPPOSITE THE ADVANCE WARNING SIGN (W10-1).
- 2 MINIMUM 8' FROM ANY RAILROAD WARNING DEVICES (SIGNALS, GATES, ETC.) OR 25' FROM THE NEAREST RAIL, WHICHEVER DISTANCE IS GREATER.
- 3 REFLECTIVE WHITE.
- 4 REFLECTIVE YELLOW 500' MINIMUM. MARKING LIMITS MAY BE EXTENDED AS DIRECTED BY THE ENGINEER TO MEET ADJACENT NO-PASSING ZONE MARKINGS.
- 5 TABLE BASED UPON 2C-4 WISCONSIN SUPPLEMENT OF MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
- 6 FOR MULTIPLE TRACK CROSSINGS, THE BARRIER LINE SHALL EXTEND TO THE NEAR RAIL OF THE FURTHEST TRACK IN THE DIRECTION OF HIGHWAY TRAVEL.



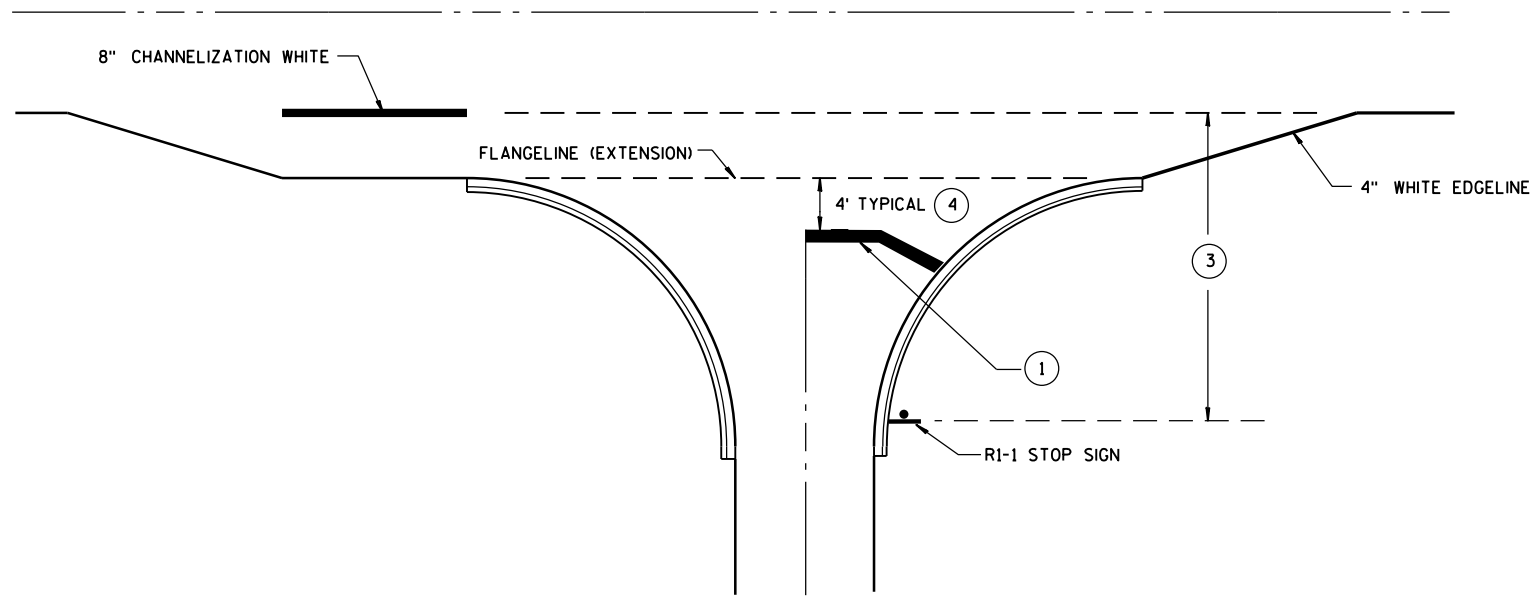
SIGNING AND PAVEMENT MARKING
DETAILS FOR RAILROAD-HIGHWAY
GRADE CROSSINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

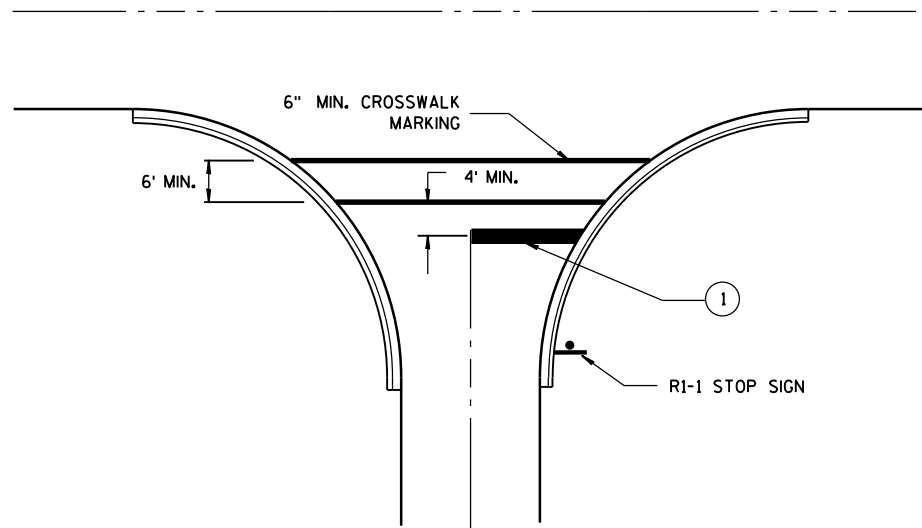
APPROVED
1-9-2012 /S/ Thomas N. Notbohm
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



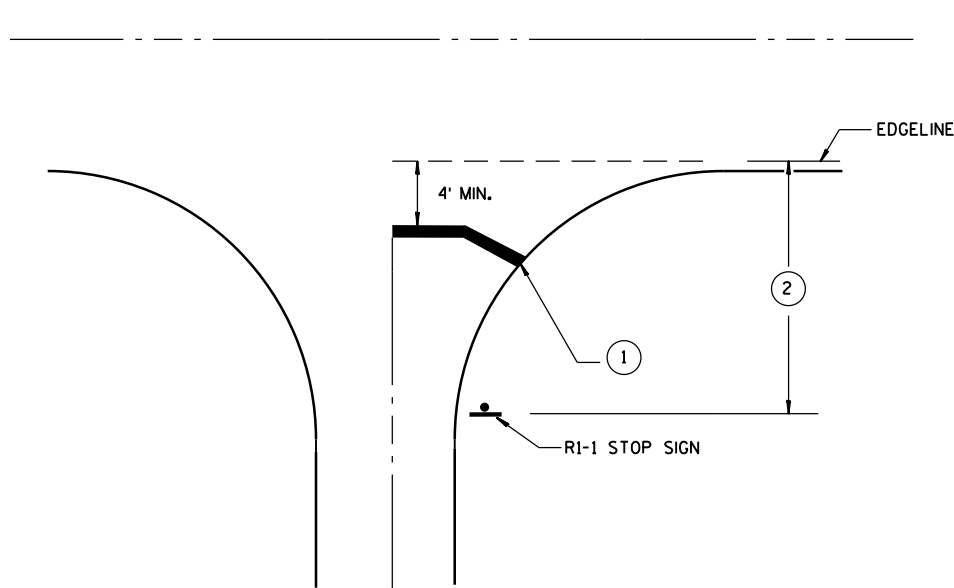
TYPICAL STOP LINE PAVEMENT MARKING
WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING
FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING
WITHOUT CURB AND GUTTER

GENERAL NOTES

- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE PROJECT ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGE LINE THAN NO STOP LINE IS REQUIRED.
- ③ IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION THAN NO STOP LINE IS REQUIRED.
- ④ MOVE CLOSER TO EDGE OF TRAVEL LANE AS NEEDED FOR VISIBILITY AND SIGHT LINES.

STOP LINE AND CROSSWALK PAVEMENT MARKING	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4/30/2013 DATE	/S/ Travis Feltz STATE TRAFFIC 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.

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

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

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

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

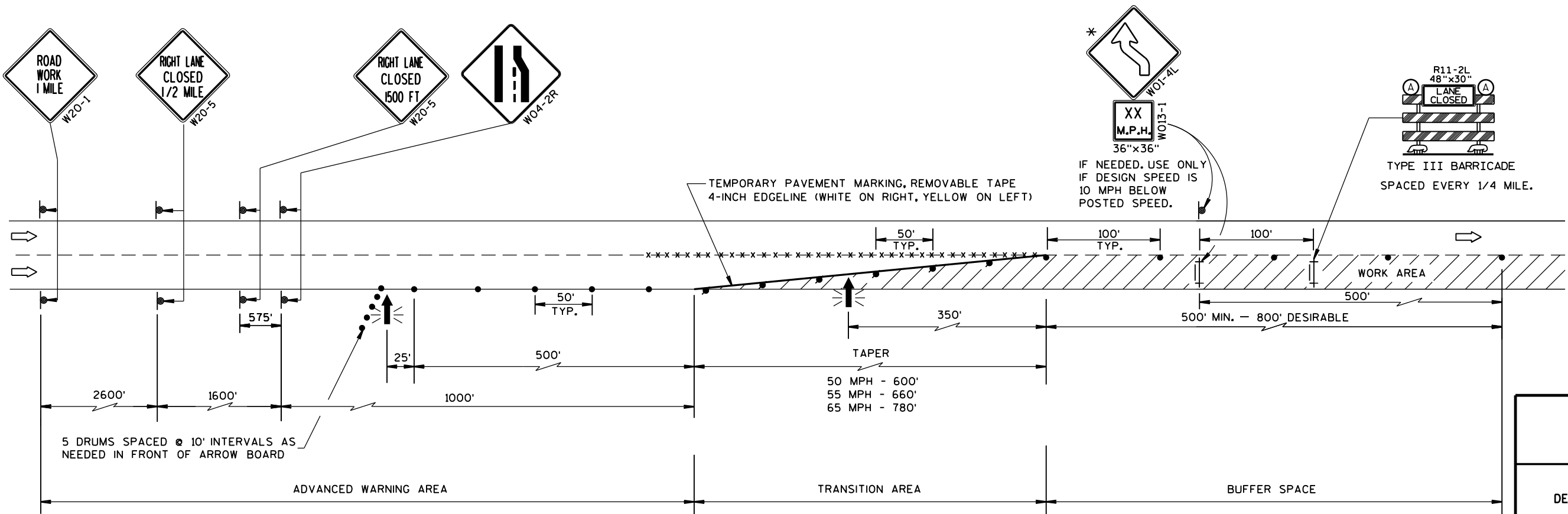
REMOVE PAVEMENT MARKINGS IF LANE CLOSURE IS TO BE IN PLACE FOR LONGER THAN 4 OR MORE DAYS AND NIGHTS.

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

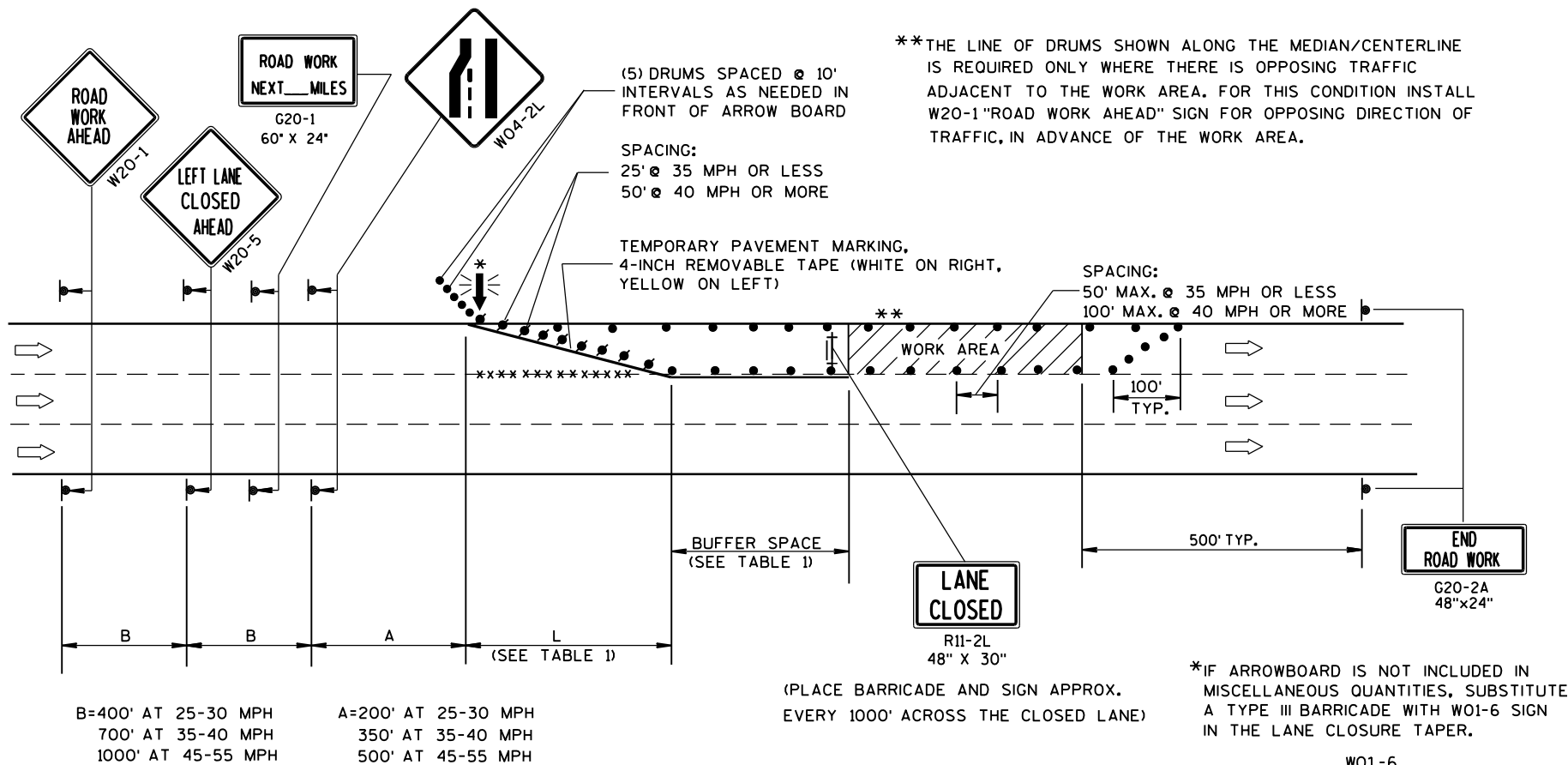
IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

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

* THE LEFT REVERSE CURVE SIGN (WO1-4L) IS ONLY REQUIRED WHEN THIS DETAIL IS USED IN COMBINATION WITH "SINGLE LANE CROSSOVER" DETAIL.



TRAFFIC CONTROL, LANE CLOSURE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED Feb. 2015 DATE	/S/ Travis Fettes STATE TRAFFIC ENGINEER OF DESIGN
FHWA	



GENERAL NOTES

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

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

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

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

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

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

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

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

REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING, REMOVABLE TAPE IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

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

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

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

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

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

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

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

TABLE 1
TAPER AND BUFFER SPACE
FOR 12' LANE WIDTH

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

FOR LANE WIDTH OTHER THAN 12':

L = WS AT 45 MPH OR GREATER

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

L = TAPER LENGTH IN FEET

S = NON-CONSTRUCTION SPEED LIMIT (MPH)

W = WIDTH OF LANE CLOSURE

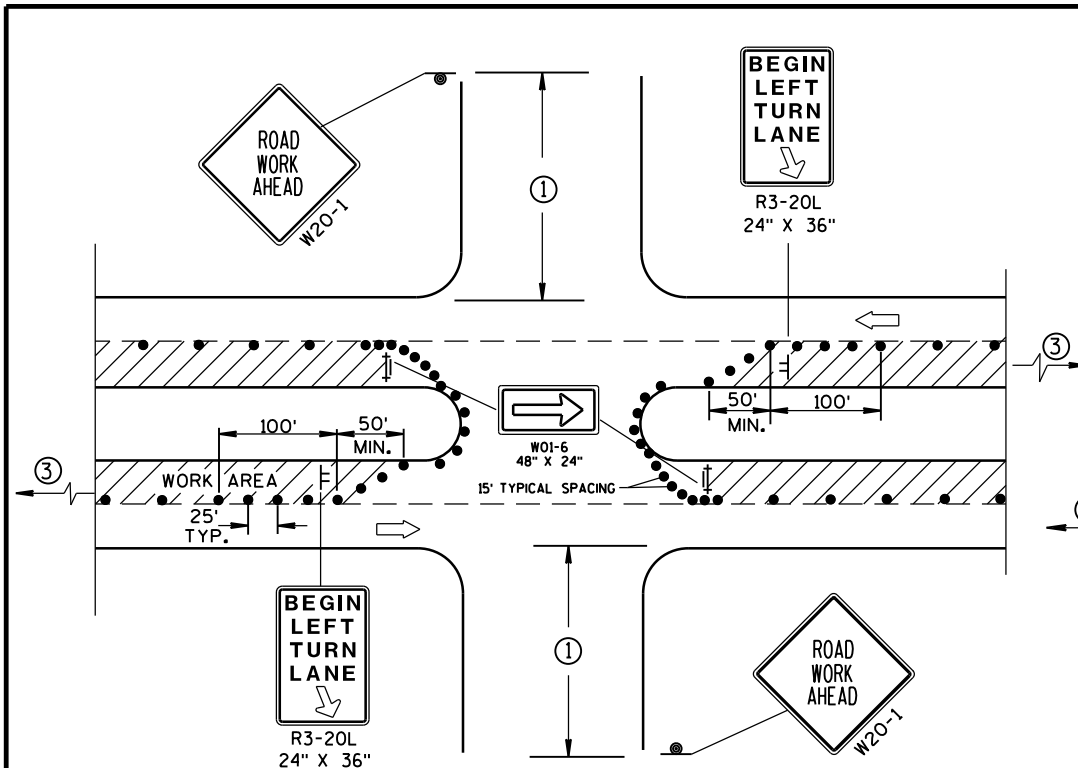
LEGEND

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

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

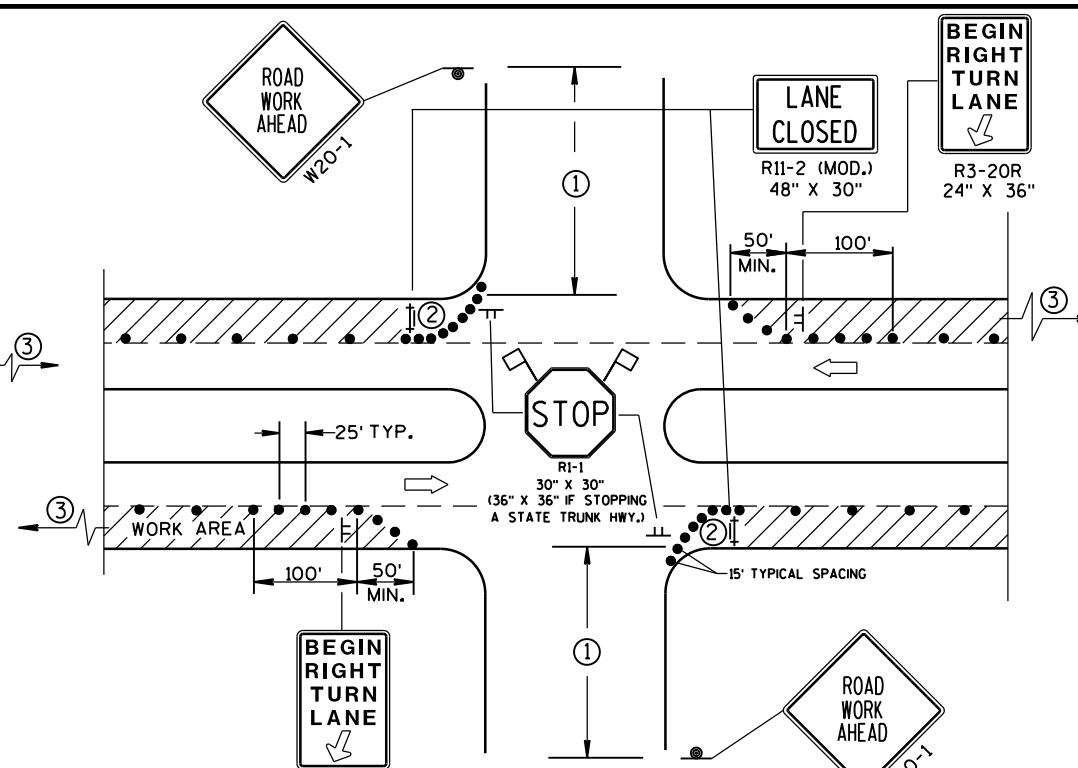
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Feb. 2015 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
FHWA



DETAIL A
FOR LEFT LANE CLOSURE AT
INTERSECTION OR MEDIAN OPENING

PROVIDE TURN LANES AT
INTERSECTIONS WHENEVER
STAGING OF WORK ALLOWS.
TAPER AND TURN LANE
LENGTHS BASED ON FIELD
CONDITIONS AS APPROVED
BY THE ENGINEER.



DETAIL B
FOR RIGHT LANE CLOSURE
AT INTERSECTION

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 SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ALL SIGNS ARE 48"X48" UNLESS OTHERWISE NOTED. IF NECESSARY DUE TO SPACE CONSTRAINTS IN URBAN AREAS, 36" X 36" SIGNS MAY BE USED IF APPROVED BY DISTRICT TRAFFIC UNIT.

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

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, OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

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

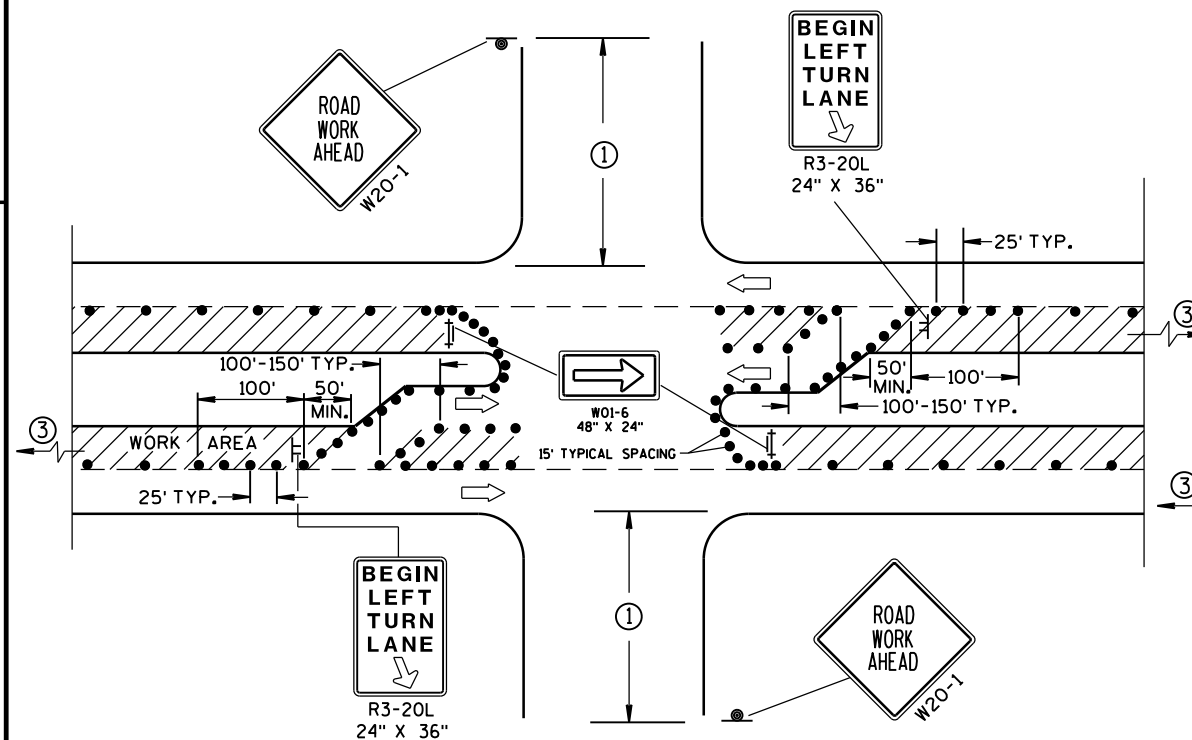
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

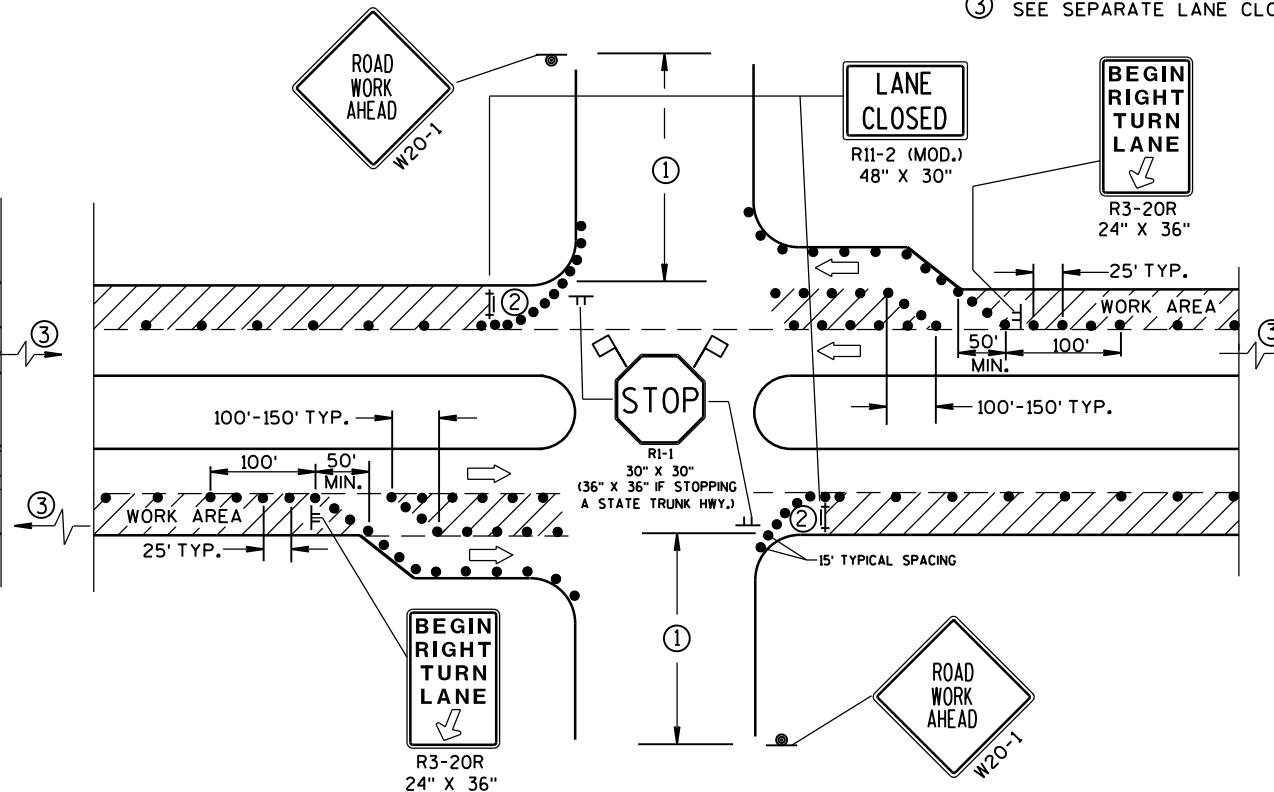
- 1 500' TYPICAL OR AT LAST INTERSECTION, WHICHEVER IS CLOSER.
350' IF 35-40 MPH.
200' IF 25-30 MPH.
- 2 ALSO USE BARRICADE AND 15-FOOT TYPICAL DRUM SPACING AT COMMERCIAL DRIVEWAYS.
- 3 SEE SEPARATE LANE CLOSURE DETAIL FOR ADDITIONAL TRAFFIC CONTROL.

LEGEND

- TRAFFIC CONTROL DRUM
- ⊙ SIGN ON PERMANENT SUPPORT
- ⊢ SIGN ON TEMPORARY SUPPORT (5' MIN. MOUNTING HEIGHT)
- ⊢ TYPE III BARRICADE WITH ATTACHED SIGN AND TYPE "A" WARNING LIGHT (FLASHING)
- ➡ DIRECTION OF TRAFFIC
- 🚩 FLAGS, 16" X 16" MIN., (ORANGE)
- ▨ WORK AREA



DETAIL C
FOR LEFT LANE CLOSURE AT INTERSECTION OR
MEDIAN OPENING (WITH LEFT TURN BAY OPEN)



DETAIL D
FOR RIGHT LANE CLOSURE AT INTERSECTION
(WITH RIGHT TURN BAY OPEN)

TRAFFIC CONTROL, INTERSECTION WITHIN SINGLE LANE CLOSURE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
Nov. 2014 /S/ Travis Feltes
DATE STATE TRAFFIC ENGINEER OF DESIGN
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.

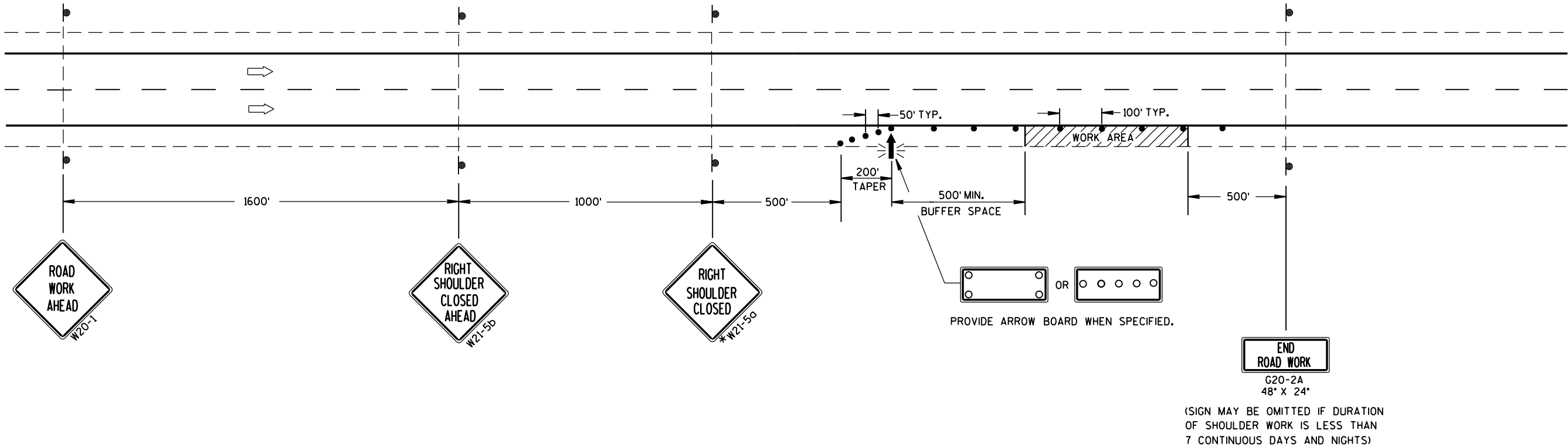
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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
8/2013 /S/ Travis Feltz
DATE STATE TRAFFIC ENGINEER OF DESIGN
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

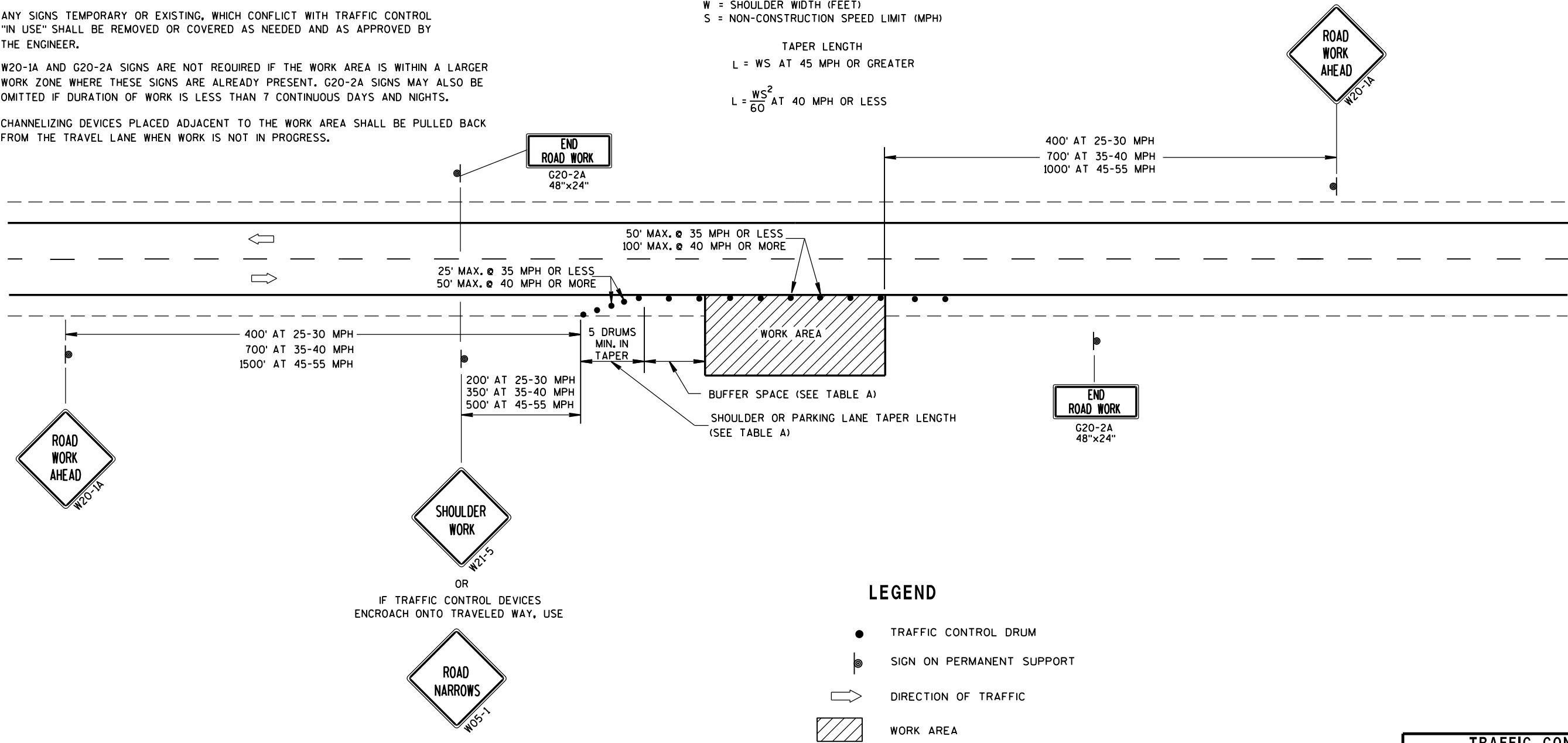
SHOULDER TAPER LENGTH (FEET)					BUFFER SPACE (FEET)
S	W	4	6	8	
30	20	30	40	50	200
35	30	45	55	70	250
40	40	55	75	90	305
45	60	90	120	150	360
50	70	100	135	170	425
55	75	110	150	185	495

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 = $\frac{1}{3}L$

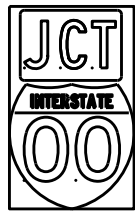


LEGEND

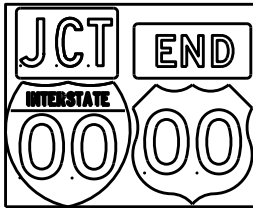
- TRAFFIC CONTROL DRUM
- ⦿ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAFFIC
- ▨ WORK AREA

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	

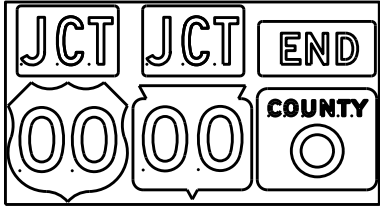
TYPICAL ASSEMBLIES



J1-1



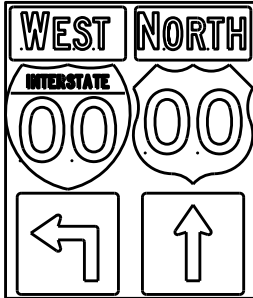
J1-2



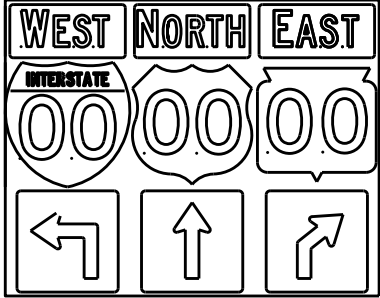
J1-3



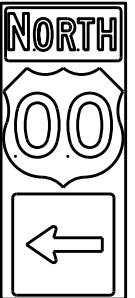
J2-1



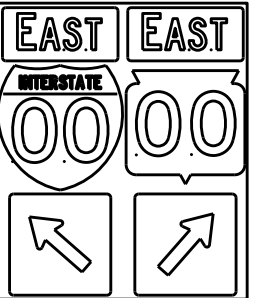
J2-2



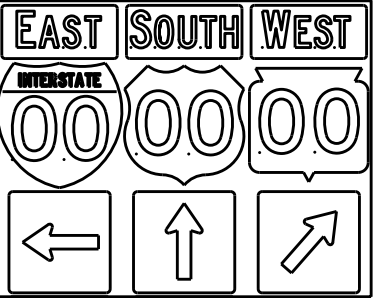
J2-3



J3-1



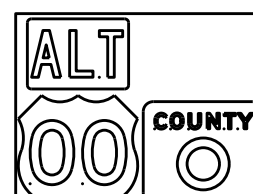
J3-2



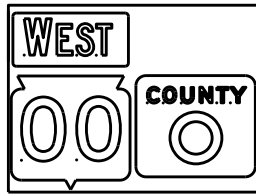
J3-3



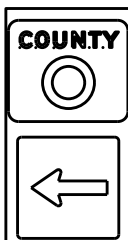
J4-1



J4-2



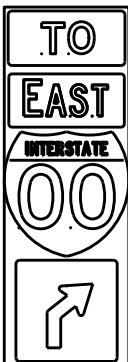
J4-2



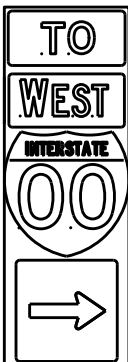
J13-1



J12-1



J32-1



J33-1



J23-1

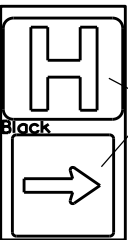


J22-1



JV

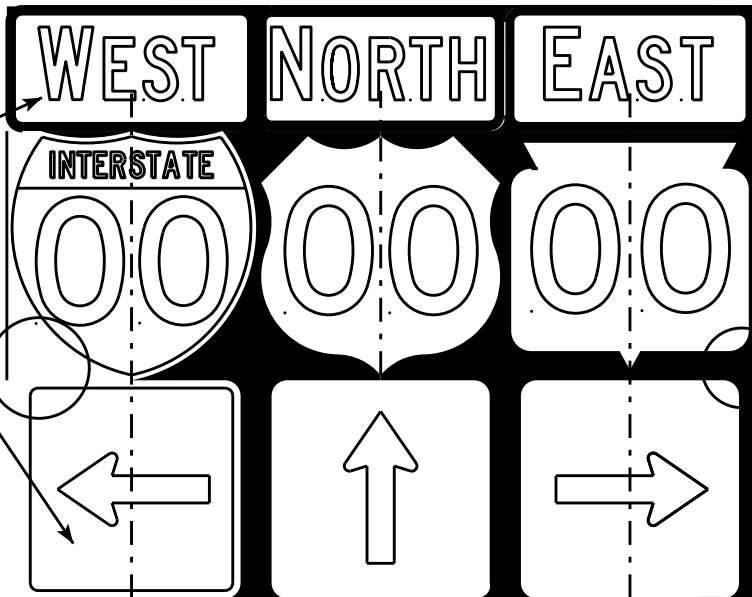
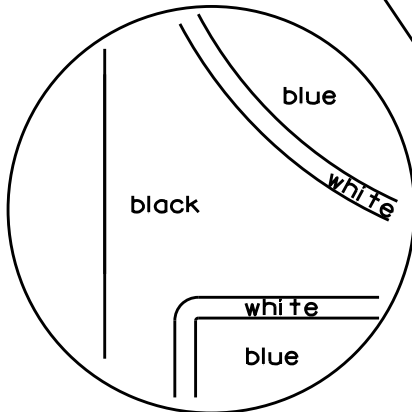
(Typical Vertical J-Assembly
See Note 10 and 11)



JH-1

Blue Background

[blue background
with interstate]



[black background]

ROUTE MARKERS & COMPONENTS
IN TYPICAL ASSEMBLIES

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 2/06/14 PLATE NO. A2-1S.8

NOTES

1. Signs are Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Black Non-reflective
Message - see Note 5
3. Message Series - See Note 5
4. Corners shall be square or rounded if base material is plywood. If base material is metal the corners shall be rounded.
5. The colors and message spacing on each marker shall be according to the applicable route marker panel specifications.
6. Certain marker heads require the component pieces to be the same color. As an example, all the components used with an M1-1 Interstate marker shall be blue.
7. Single panel j-assemblies shall only be used with route marker shields that are same size. If the route marker shields are different size use multiple piece component.
8. Route assemblies that have 24 inch route shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have one horizontal splice between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 inches or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
9. Route assemblies that have 36 inch shields and have dimensions greater than 48 inches (both vertical and horizontal) shall have two horizontal splices. One horizontal splice shall be between the cardinal direction and route shields and the other horizontal splice shall be between the arrows and route shields. Vertical splices shall not be used on route assemblies with a horizontal dimension of 144 or less. The contractor shall not use more than one vertical joint per sign and the joint shall be between route shields.
10. All Vertical J Assemblies are given a Sign Code of JV
11. For JV Assemblies that have a mixture of Interstate and non Interstate shields, arrows and cardinals shall be white on blue.

PROJECT NO:

FILE NAME : C:\CAEFiles\Projects\tr_stdplate\A21S.DGN

PLOT DATE : 06-FEB-2014 14:10

PLOT BY : mscs.ja

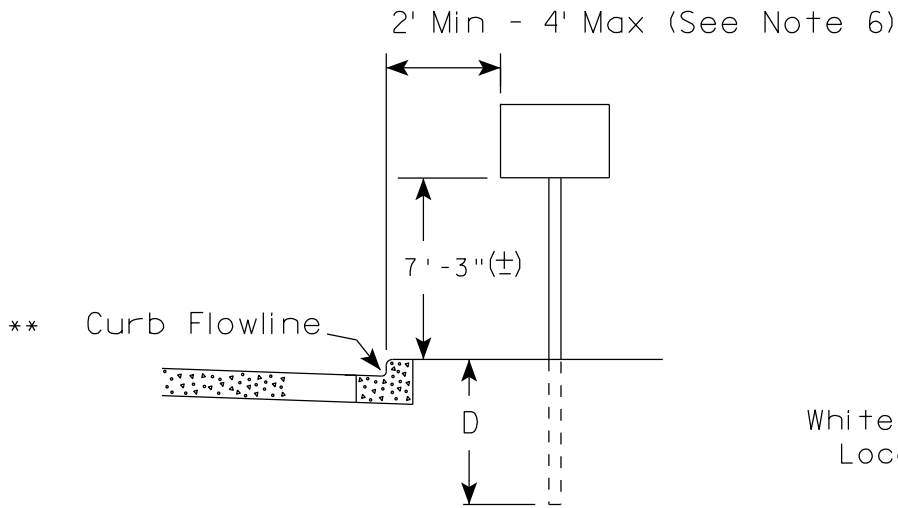
PLOT NAME :

SHEET NO:

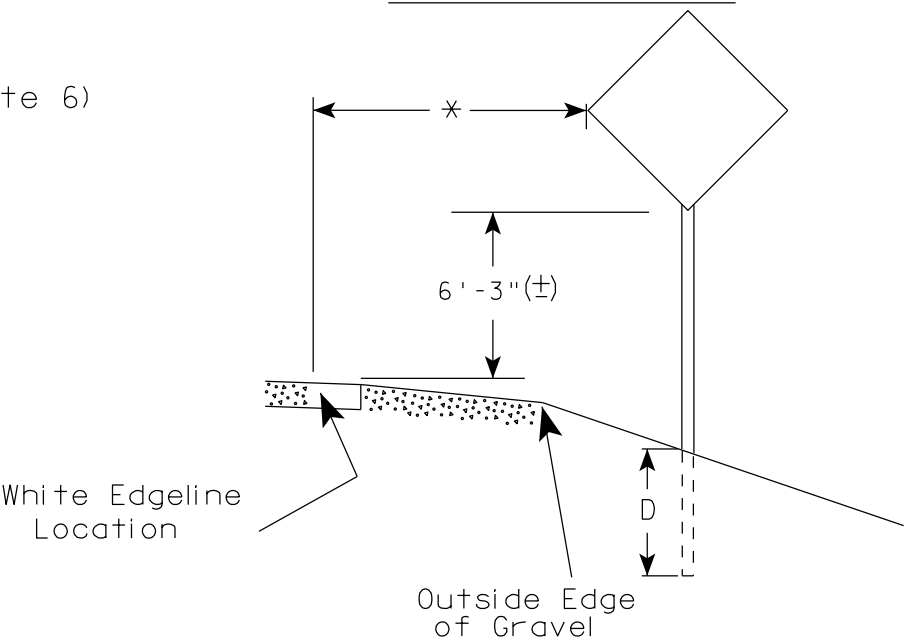
E

WISDOT/CADDs SHEET 42

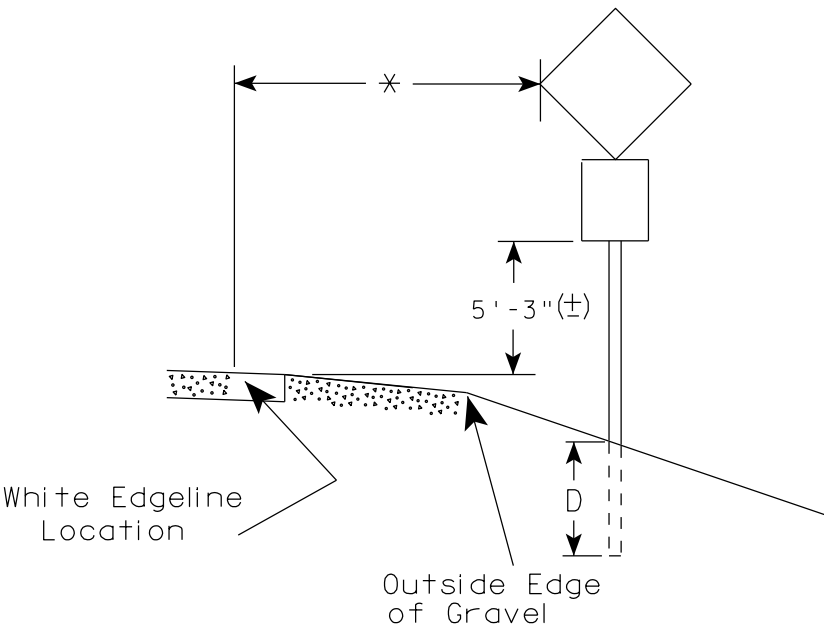
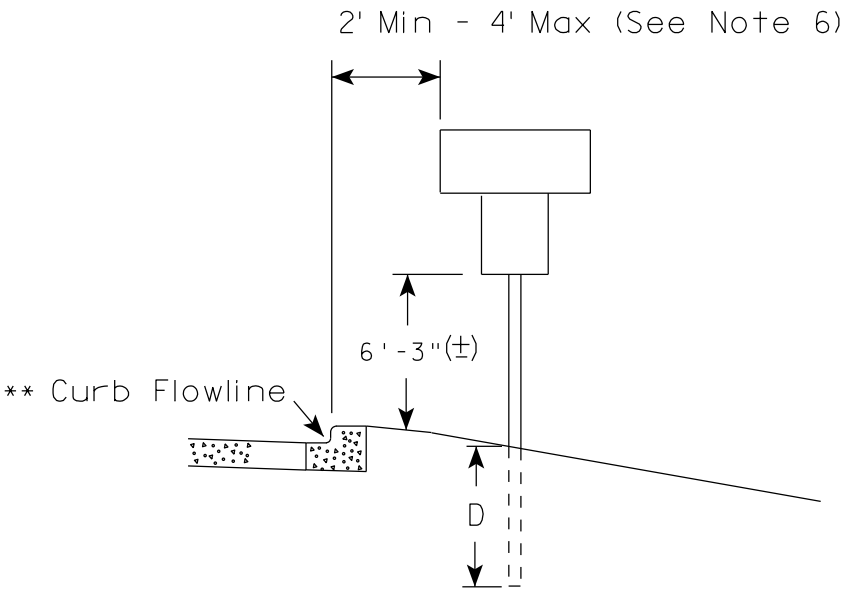
URBAN AREA



RURAL AREA (See Note 2)



- GENERAL NOTES
1. Signs wider than 4 feet or 20 sq.ft or larger, shall be mounted on multiple posts. Refer to plate A4-4.
 2. If signs are mounted on barrier wall, see A4-10 sign plate.
 3. For expressways and freeways, mounting height is 7'- 3" (±) or 6'-3" (±) depending upon existence of a sub-sign.
 4. Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
 5. Minimum mounting height for signs mounted on traffic signal poles is 5'- 3" (±).
 6. Offset distance shall be consistent with existing signs or consistent throughout length of project.
 7. The (±) tolerance for mounting height is 3 inches.
 8. Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the Engineer.
 9. The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Enhanced Reference Markers, Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).



POST EMBEDMENT DEPTH

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

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

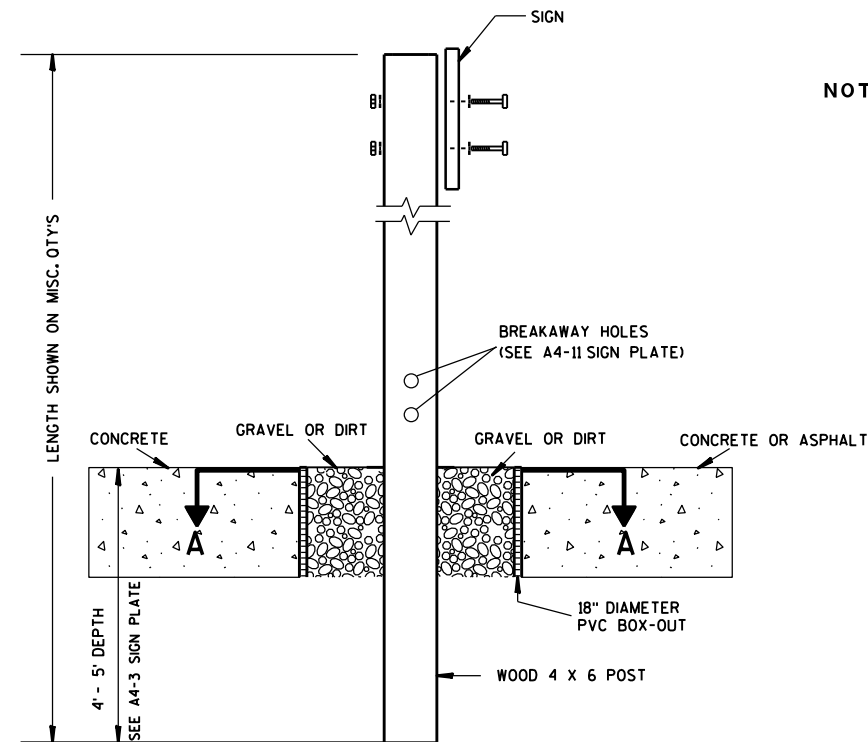
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION
OF PERMANENT TYPE II
SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

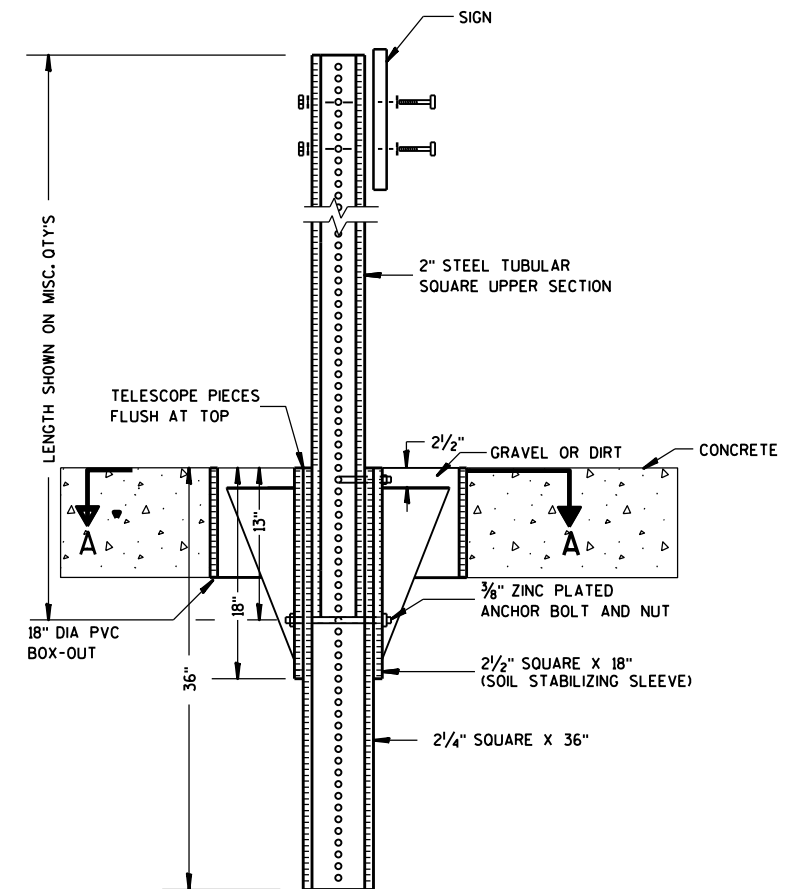
DATE 7/23/15 PLATE NO. A4-3.20



ELEVATION VIEW

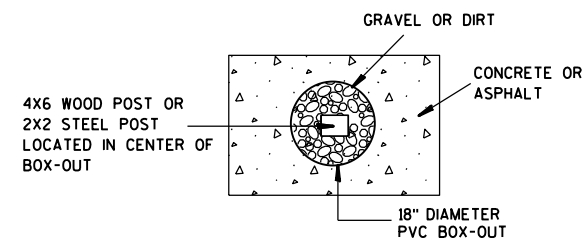
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

- NOTES: 1. ALL MATERIAL TO BE APPROVED BY ENGINEER PRIOR TO INSTALLATION
2. SEE SIGN PLATE A4-8 FOR SIGN HARDWARE REQUIREMENTS
3. 18 INCH X 18 INCH SQUARE BOX-OUTS MAY BE USED FOR INSTALLATIONS IN EXISTING CONCRETE OR ASPHALT LOCATIONS.



ELEVATION VIEW

DETAIL OF STEEL 2 X 2 SIGN POST IN BOX-OUT



PLAN VIEW

FOR NEW CONCRETE/ASPHALT INSTALLATIONS

SIGN POST
BOX-OUTS
A4-3B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 1/27/14 PLATE NO. A4-3B.1

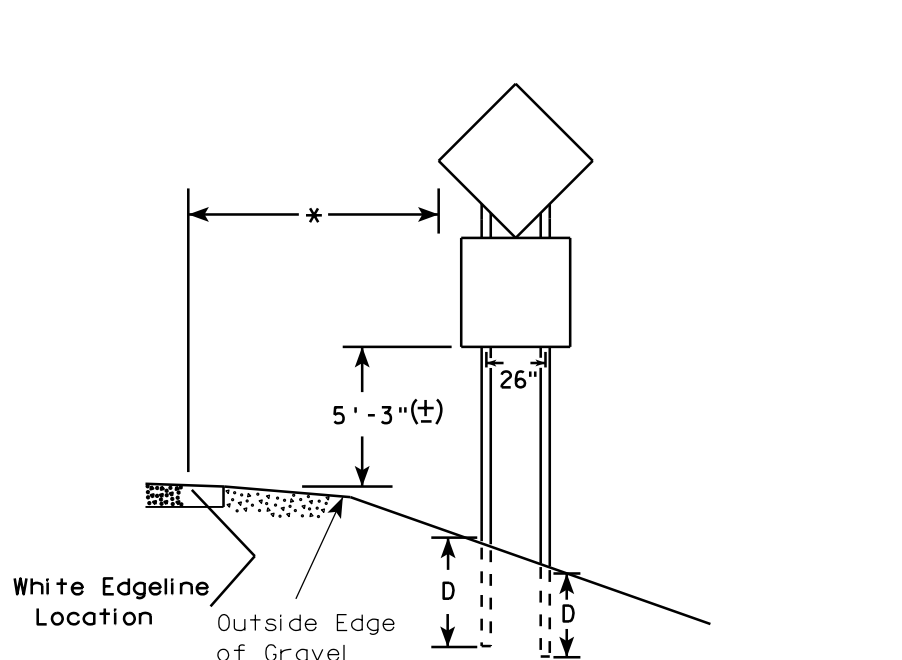
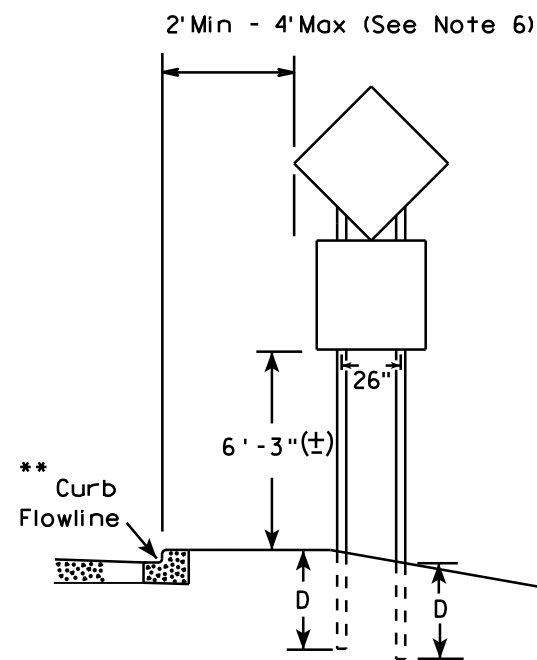
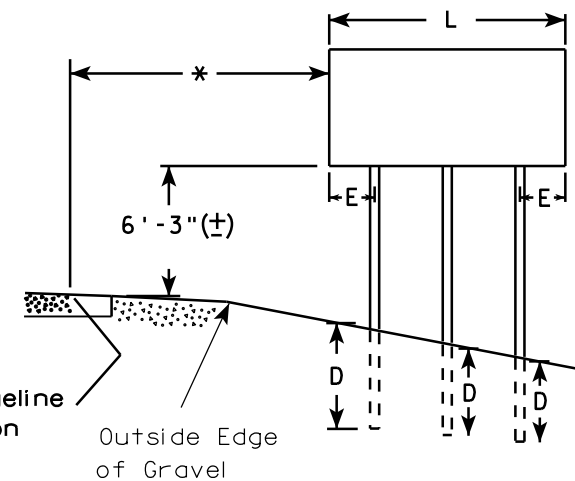
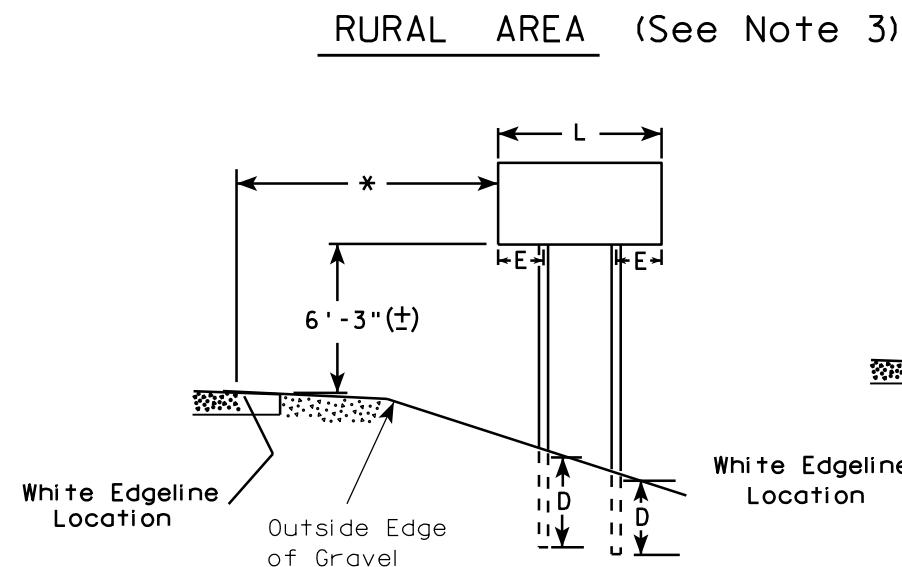
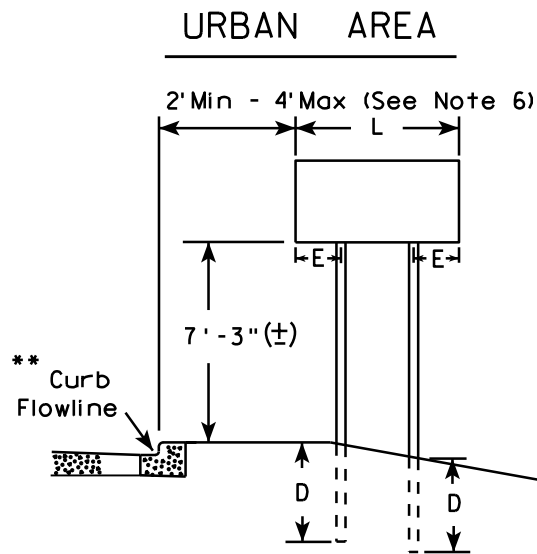
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E



48" DIAMOND WARNING SIGN

48" DIAMOND WARNING SIGN

- GENERAL NOTES**
- For 3 or 4 post installations, individual post spacing shall be greater than 3'-6".
 - See tables below for required number of posts.
 - For expressways and freeways, mounting height is 7'-3" (±) or 6'-3" (±) depending upon existence of sub-sign.
 - The (±) tolerance for mounting height is 3 inches.
 - Minimum mounting height for J assemblies (A2-1S) is 7'-3" (±) or 6'-3" (±) per urban or rural detail respectively.
 - Offset distance shall be consistent with existing signs or consistent throughout length of project.
 - Folding signs shall be mounted at a height of 5'-3" (±) or as directed by the engineer.
 - The Double Arrow sign (W12-1) shall be mounted at a height of 2'-3" (±). The Chevron sign (W1-8), Roundabout Chevron panel (R6-4B), Clearance Markers (W5-52), Mile Markers (D10 series), In Road Object Markers (W5-54) & End of Road Markers (W5-56) shall be mounted at a height of 4'-3" (±).

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

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

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

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

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

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

POST EMBEDMENT DEPTH

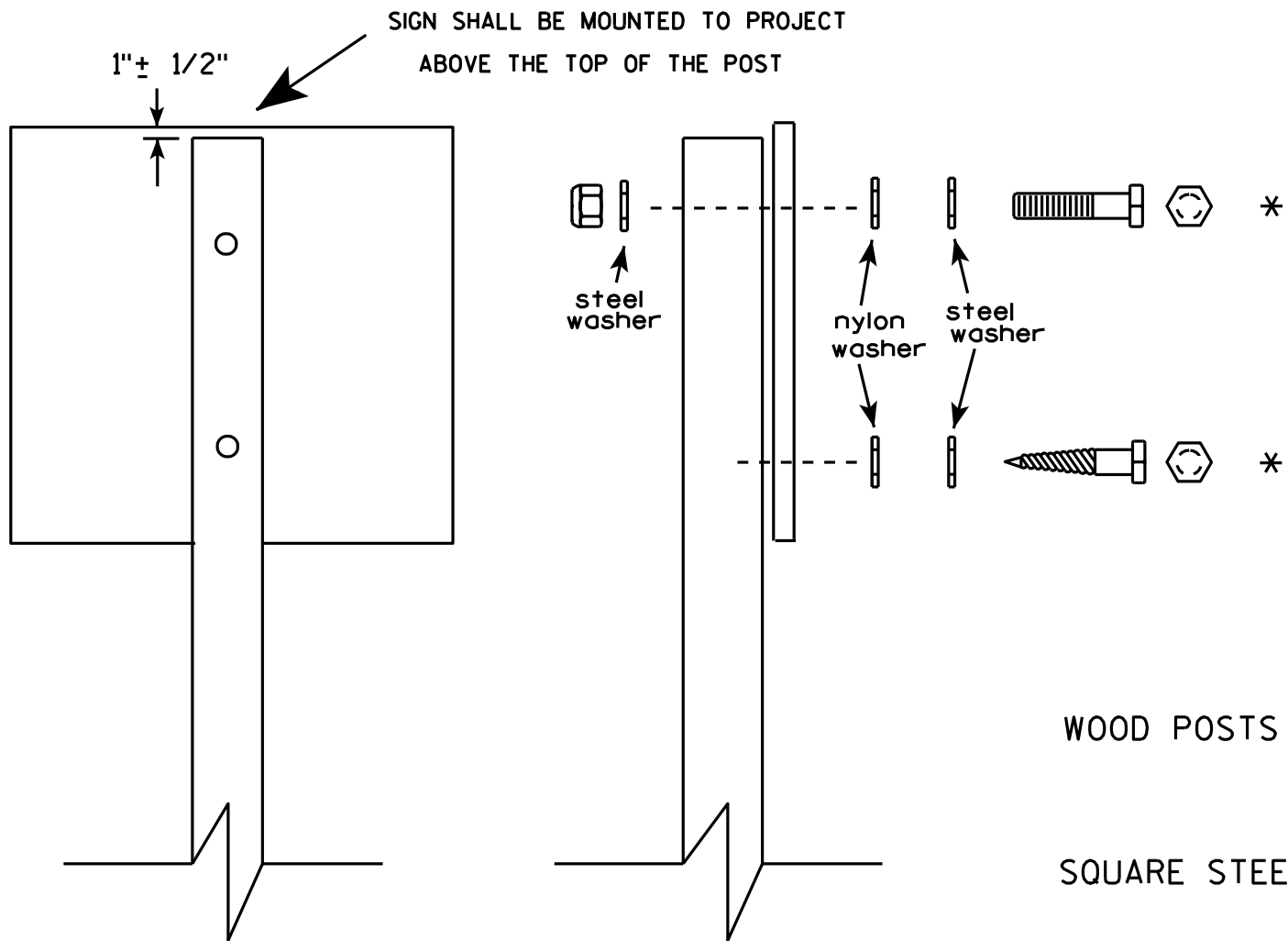
Area of Sign Installation (Sq.Ft.)	D (Min)
20 or Less	4'
Greater than 20	5'

TYPICAL INSTALLATION
OF TYPE II SIGNS
ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 7/23/15 PLATE NO. A4-4.14

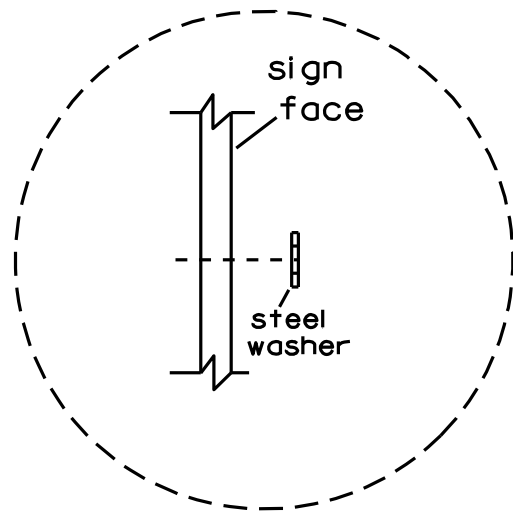


Nuts, bolts and lags used for mounting signs shall have hexagonal heads and shall be either :

- a. Hot dip galvanized in accordance with ASTM Designation: A 153, Class D, or SC 3
- b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3.

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

- WOOD POSTS (4" x 4" or 4" x 6")
LAG SCREWS - 3/8" X 3"
MACHINE BOLTS - 5/16" X 6-1/2" or 7" Length w/ nuts
- SQUARE STEEL POSTS (2" x 2")
MACHINE BOLTS - 3/8" X 3-1/4" Length w/ nuts
RIVETS - 9/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON for all Type H signs.

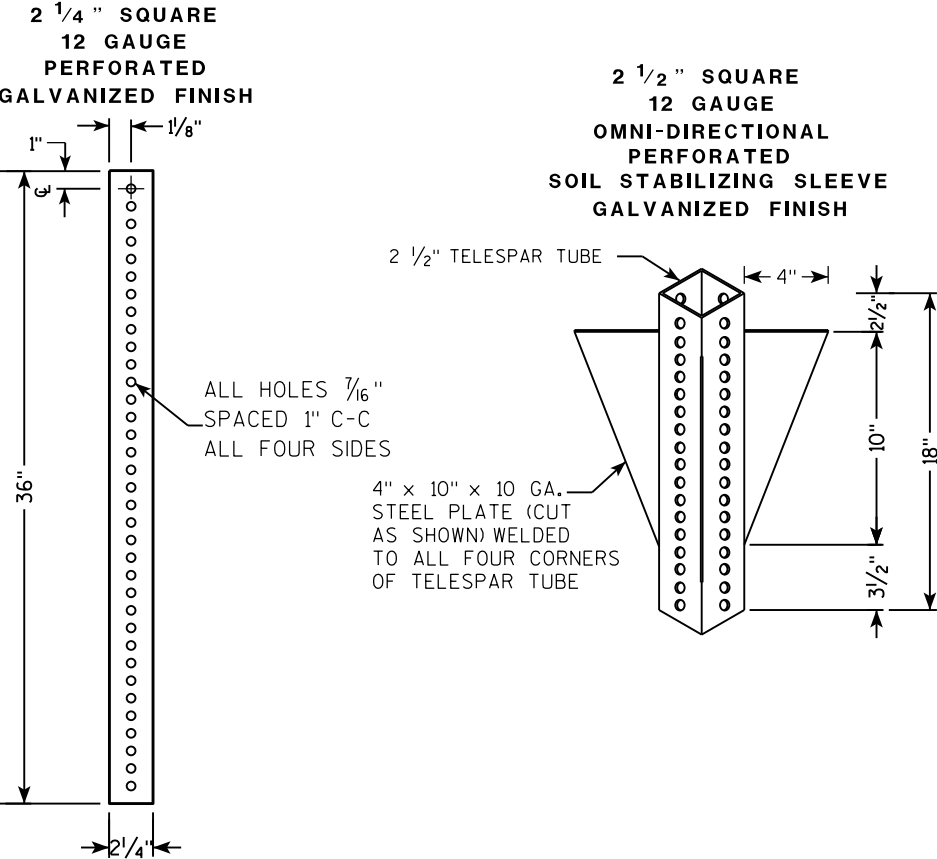


Washer Placement when Sign Has Other Than Type H or Type F Face

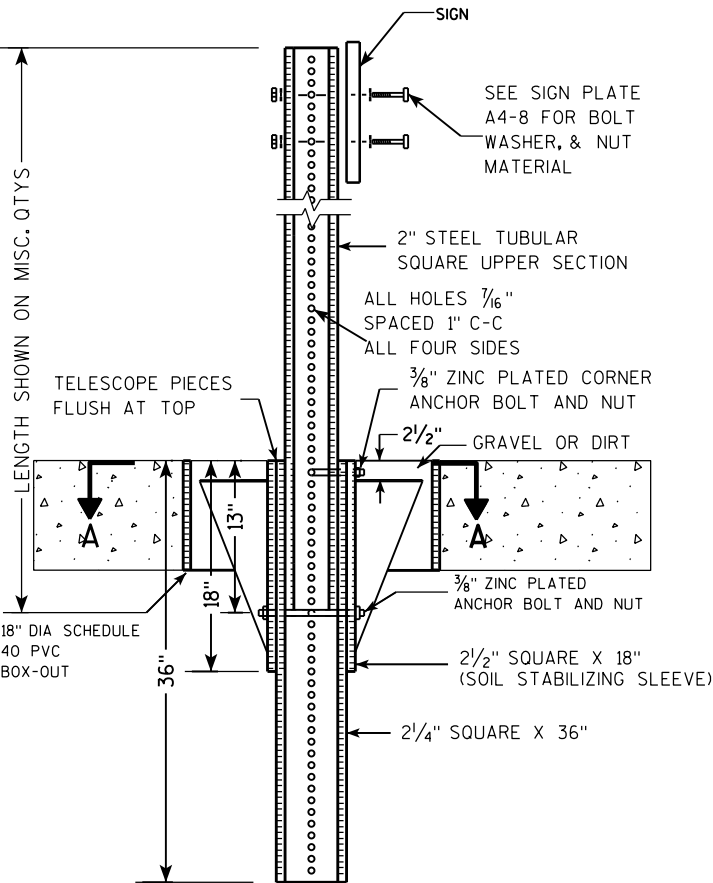
* Two different fastening systems are shown for illustration purposes. On any individual sign, either one or the other system shall be used. Actual number of fasteners per sign varies with the sign area, but normally there are two. For a single post installation, all signs greater than 9 sq. ft. require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

ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 3/23/10	PLATE NO. A4-8.7

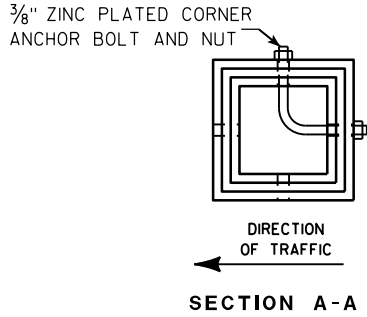
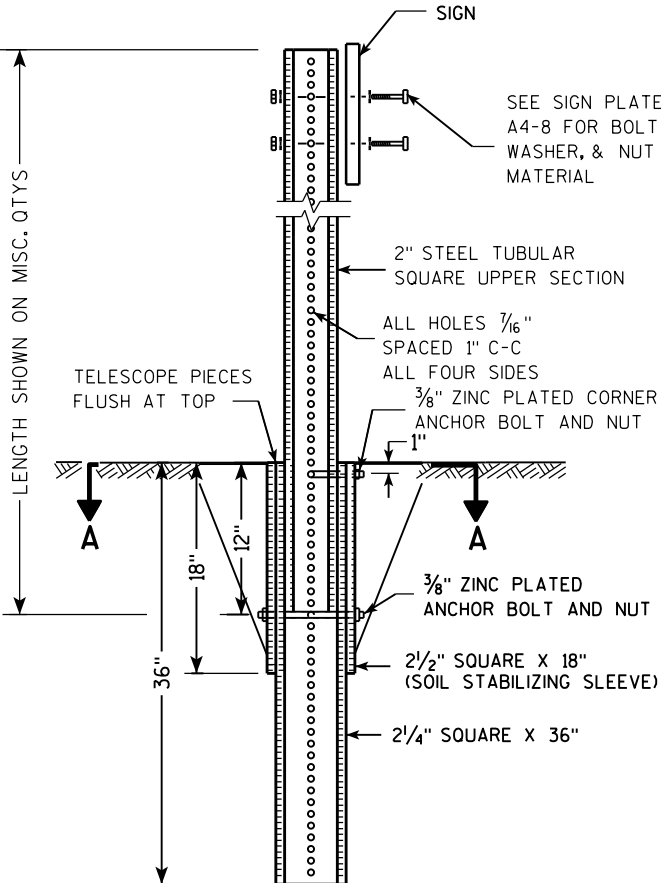
TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM



DETAIL OF TUBULAR STEEL SIGN POST
(IN POURED CONCRETE OR ASPHALT)



DETAIL OF TUBULAR STEEL SIGN POST
(IN LOCATIONS OTHER THAN POURED CONCRETE OR ASPHALT)



Area of Sign Installation (Sq. Ft.)	Number of Required Posts
9 or less	1
Greater than 9 less than or equal to 18	2
Greater than 18 less than or equal to 27	3

Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

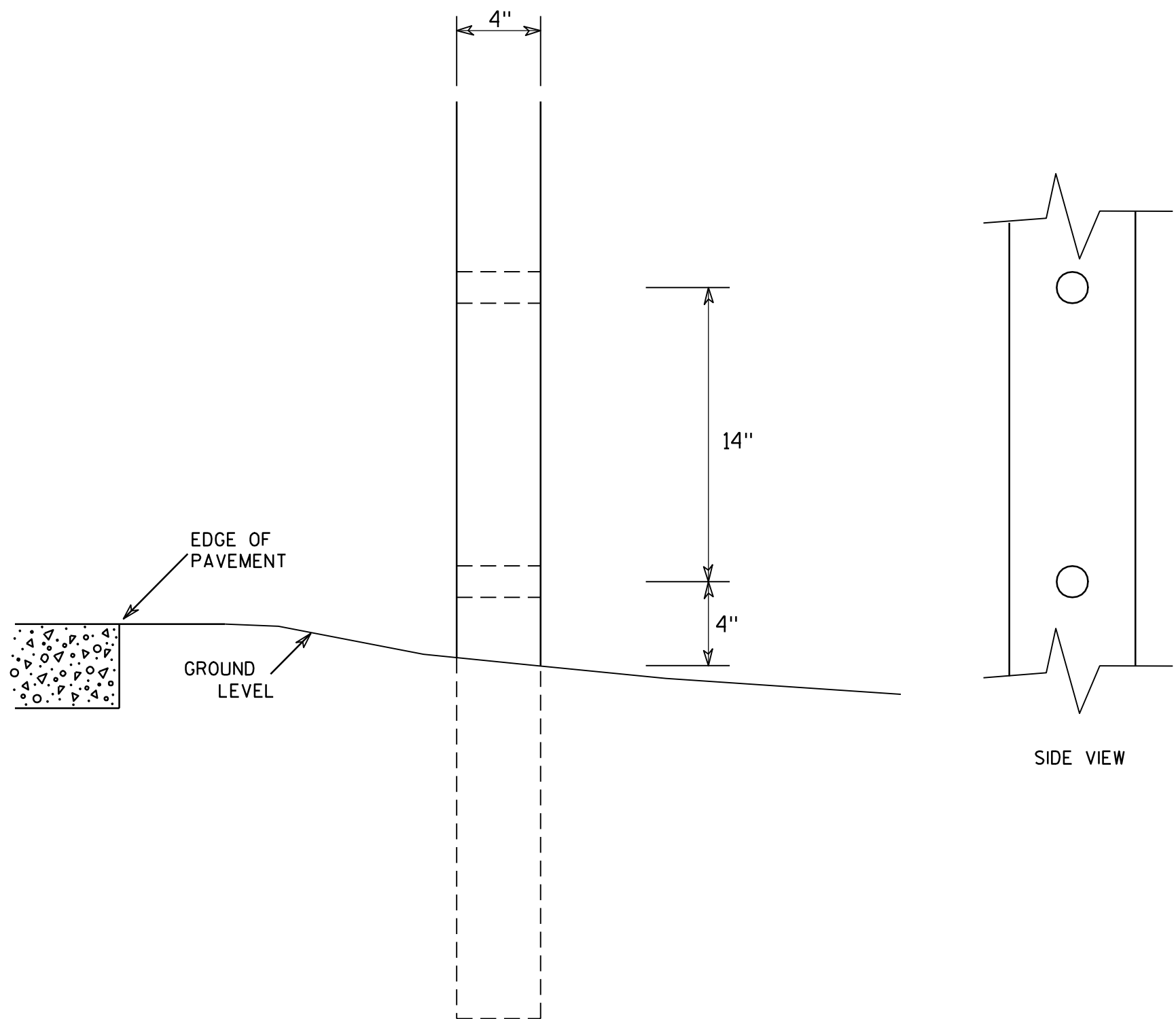
TUBULAR STEEL
SIGN POST
A4-9

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 2/05/15 PLATE NO. A4-9.9

7



GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1 1/2" diameter holes drilled perpendicular to the roadway centerline.

7

4 X 6 WOOD POST
MODIFICATIONS

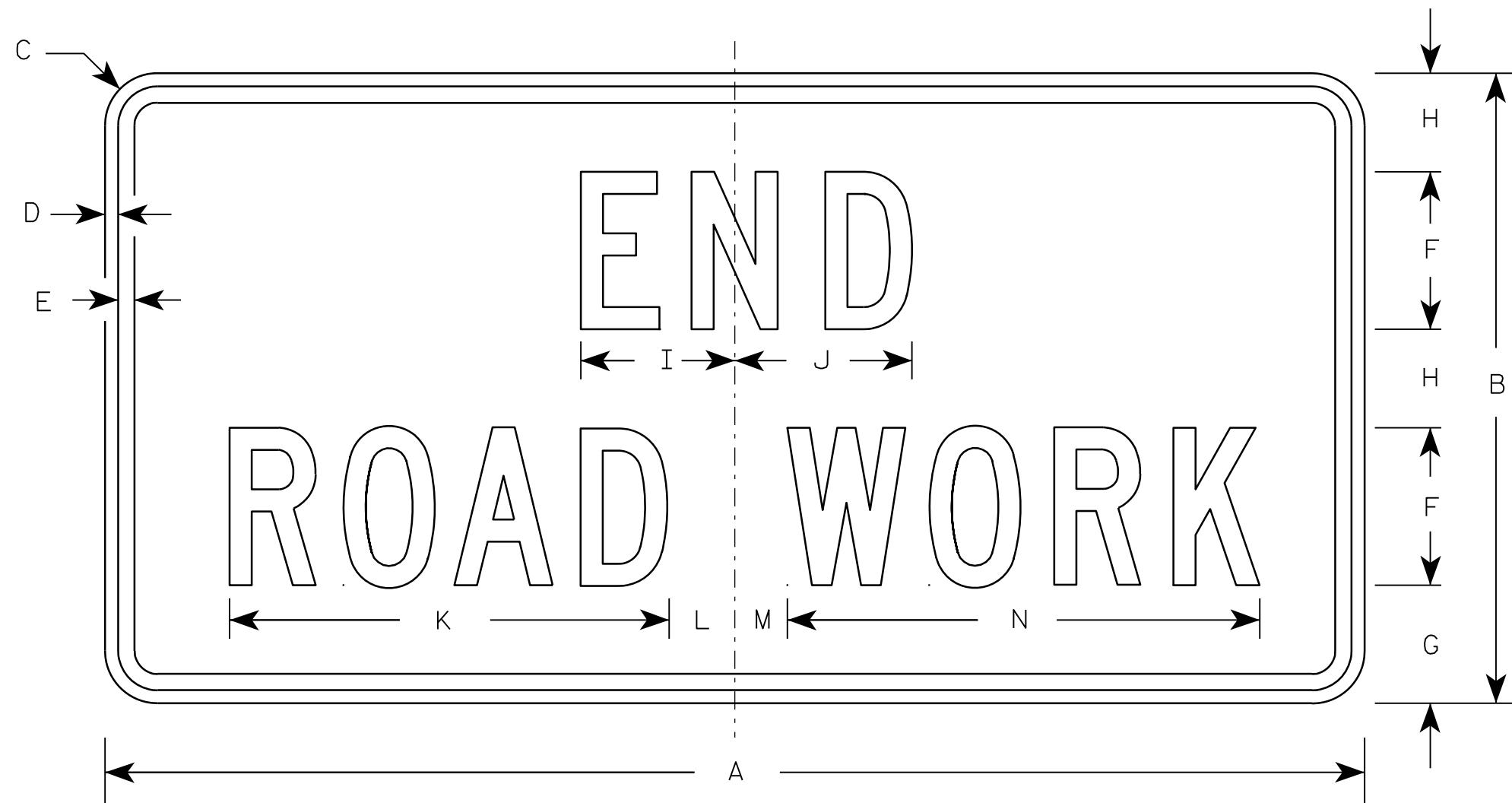
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Chester J. Spang*
for State Traffic Engineer

DATE 3/27/97 PLATE NO. A4-11.2

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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7



G20-2A

Metric equivalent
for this sign is:

SIZE	
1	900 mm X 450 mm
2	1200 mm X 600 mm
3	1200 mm X 600 mm
4	1200 mm X 600 mm
5	1200 mm X 600 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area sq. m.
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
4	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
5	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72

NOTES

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

7

PROJECT NO:

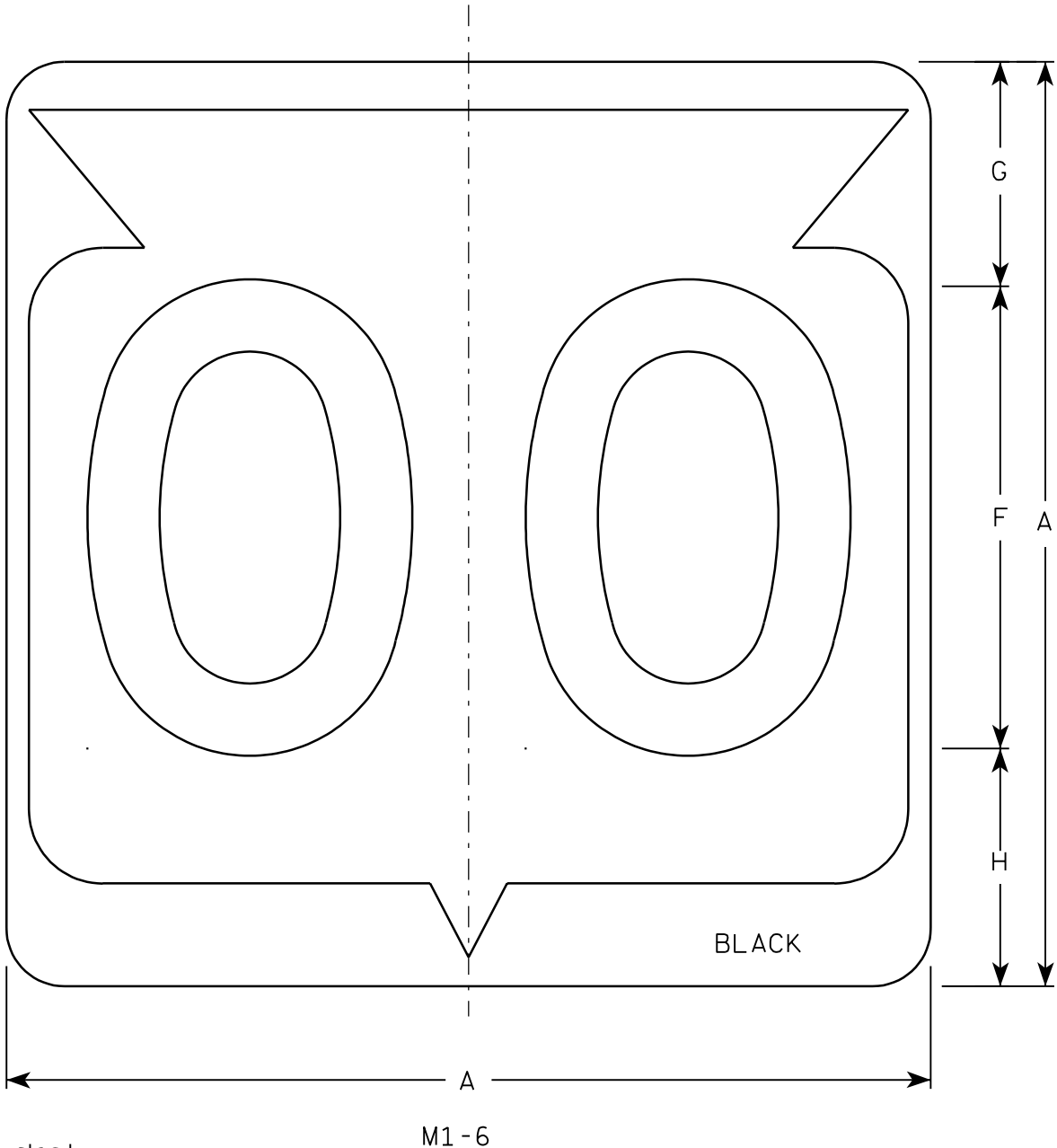
HWY:

COUNTY:

SHEET NO:

E

7



Metric equivalent
for this sign is:

SIZE	
1	
2	600 mm X 600 mm
3	900 mm X 900 mm
4	900 mm X 900 mm
5	900 mm X 900 mm

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area m ²
1																												
2	24		1 1/2			12	5 1/2	6 1/2	10 1/4	2 1/2	8 7/8	11 1/2	1	1 7/8	11 1/4	21 7/8											4.0	.36
3	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
4	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81
5	36		2 1/4			18	8 3/4	9 1/4	15 3/8	5 3/8	12 5/8	17 1/8	1 1/2	2 7/8	16 7/8	33											9.0	.81

PROJECT NO:

HWY:

COUNTY:

SHEET NO:

E

FILE NAME : C:\Users\Projects\tr_stdp\late\M16.DGN

PLOT DATE : 13-OCT-2005 14:55

PLOT BY : DITJPH

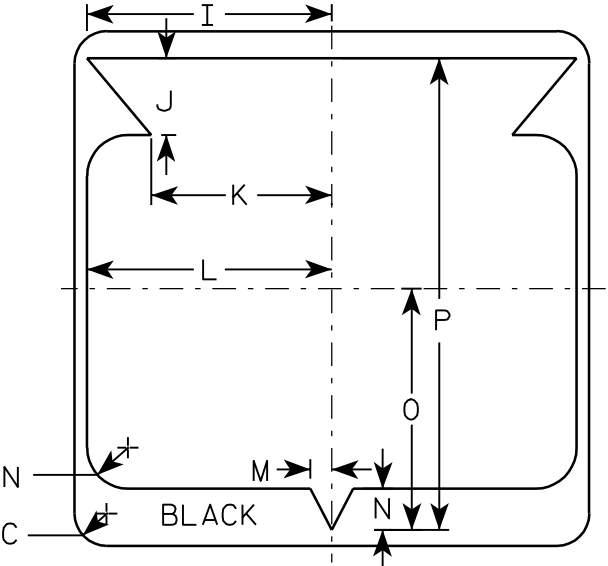
PLOT NAME :

PLOT SCALE : 6.715871:1.000000

WISDOT/CADDS SHEET 42

NOTES

1. Sign is Type II - See Note 6 - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White & Black - See Note 6
Message - Black
3. Message Series - See note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Substitute appropriate Series numerals and adjust spacing as per plate A10-1.
6. Permanent Signs
Background - Type H Reflective
Detour or temporary Signs
Background - Reflective



STATE ROUTE MARKER
M1-6 FOR ASSEMBLIES

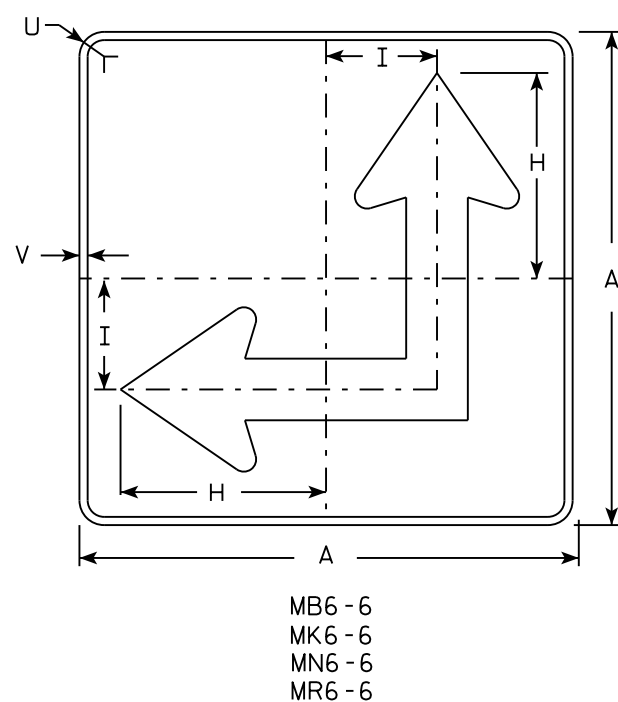
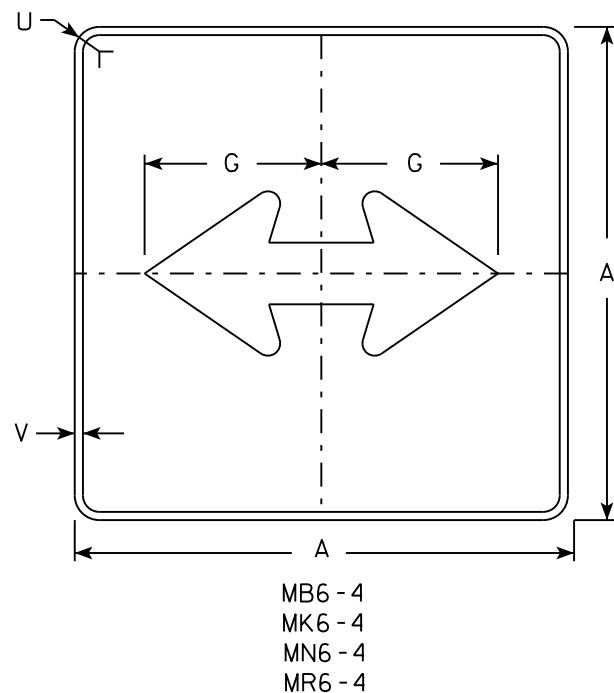
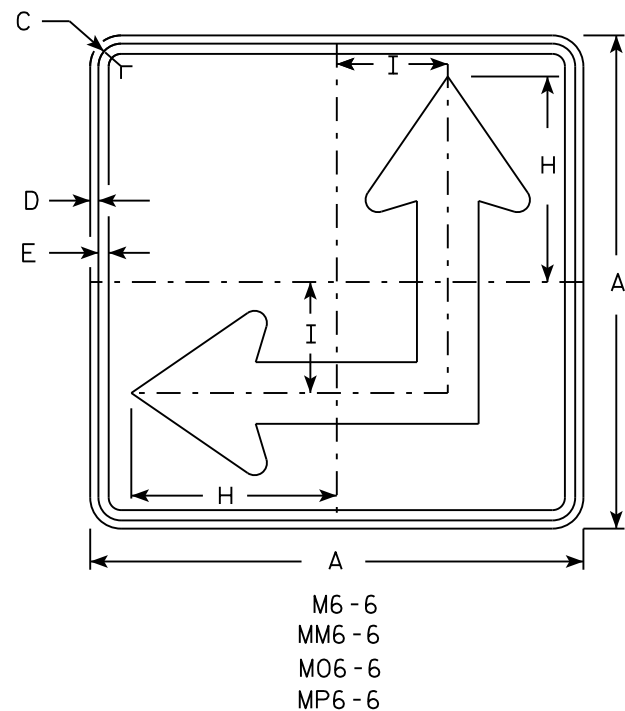
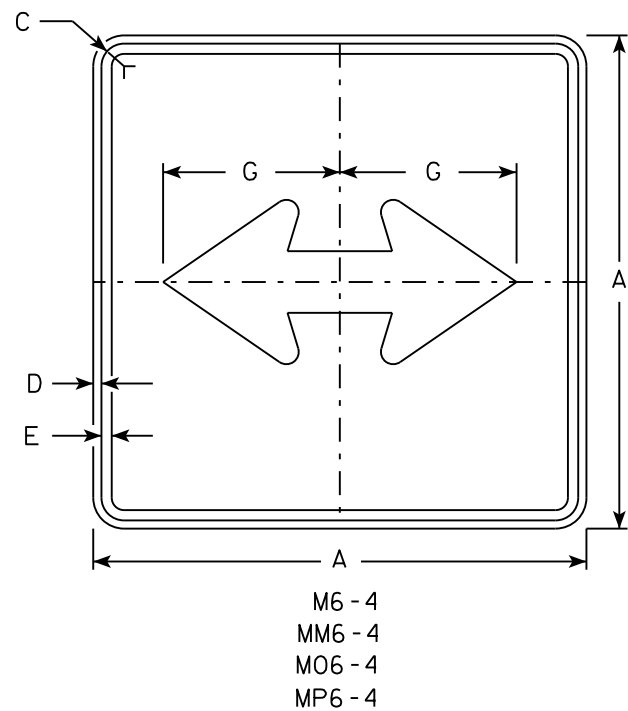
WISCONSIN DEPT OF TRANSPORTATION

APPROVED

Chester J. Spang
for State Traffic Engineer

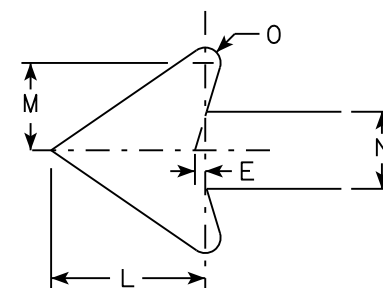
DATE 3/20/02

PLATE NO. M1-6.9



NOTES

- Signs are Type II - Type H except as Shown
- Color:
Background - See Note 4
Message - See Note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-4 and M6-6 Background - White
Message - Black
MB6-4 and MB6-6 Background - Blue
Message - White
MK6-4 and MK6-6 Background - Green
Message - White
MM6-4 and MM6-6 Background - White
Message - Green
MN6-4 and MN6-6 Background - Brown
Message - White
M06-4 and M06-6 Background - Orange - Type F Reflective
Message - Black
MP6-4 and MP6-6 Background - White
Message - Blue
MR6-4 and MR6-6 Background - Brown
Message - Yellow
- M6-6R same as M6-6L except arrow points ahead and right.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7 1/2	8 3/4	4 1/4			5 1/4	3	2 5/8	1/2						1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 3/4	12 1/2	6 3/4			7 1/2	4 1/4	3 3/4	3/4						1 7/8	1/2					6.25

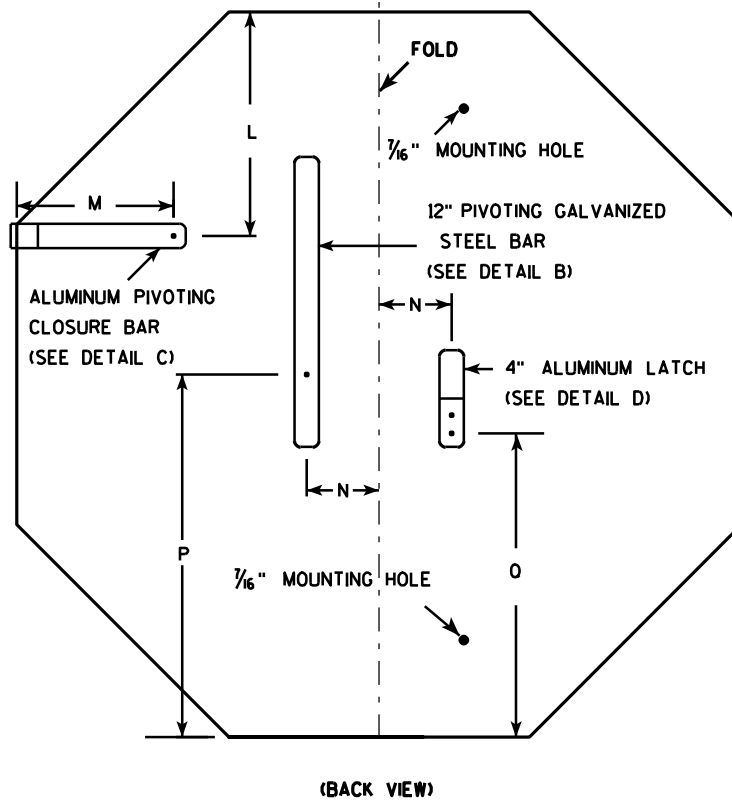
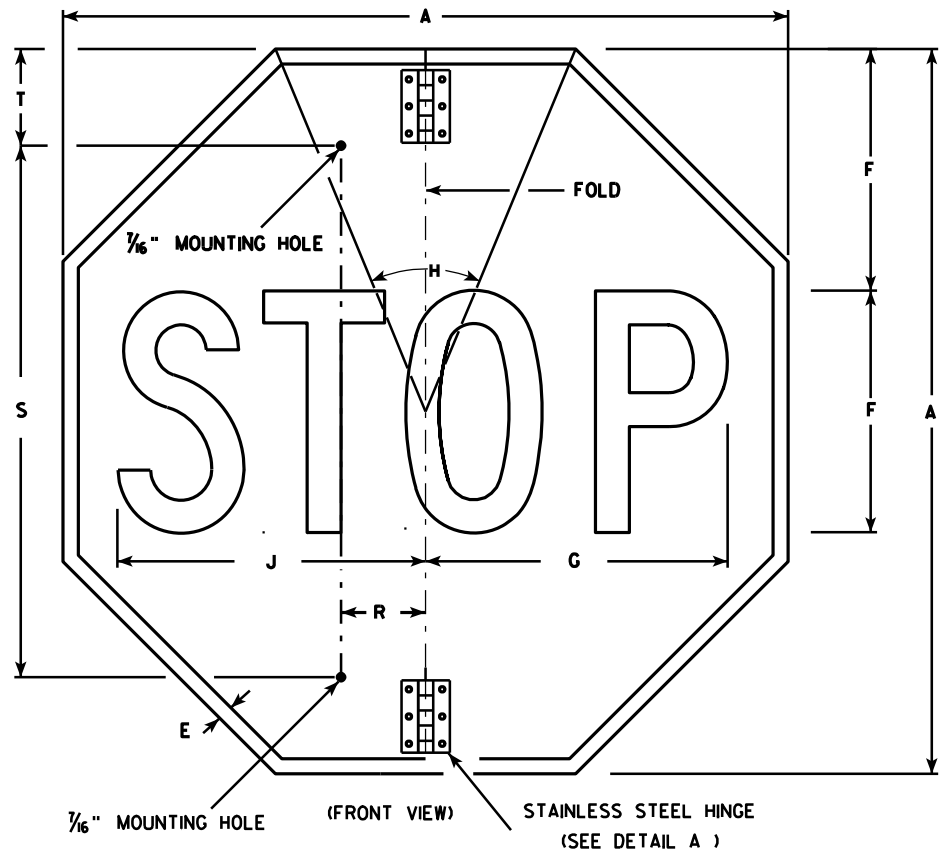
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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STANDARD SIGN
M6 - 4 & M6 - 6
SERIES

WISCONSIN DEPT OF TRANSPORTATION

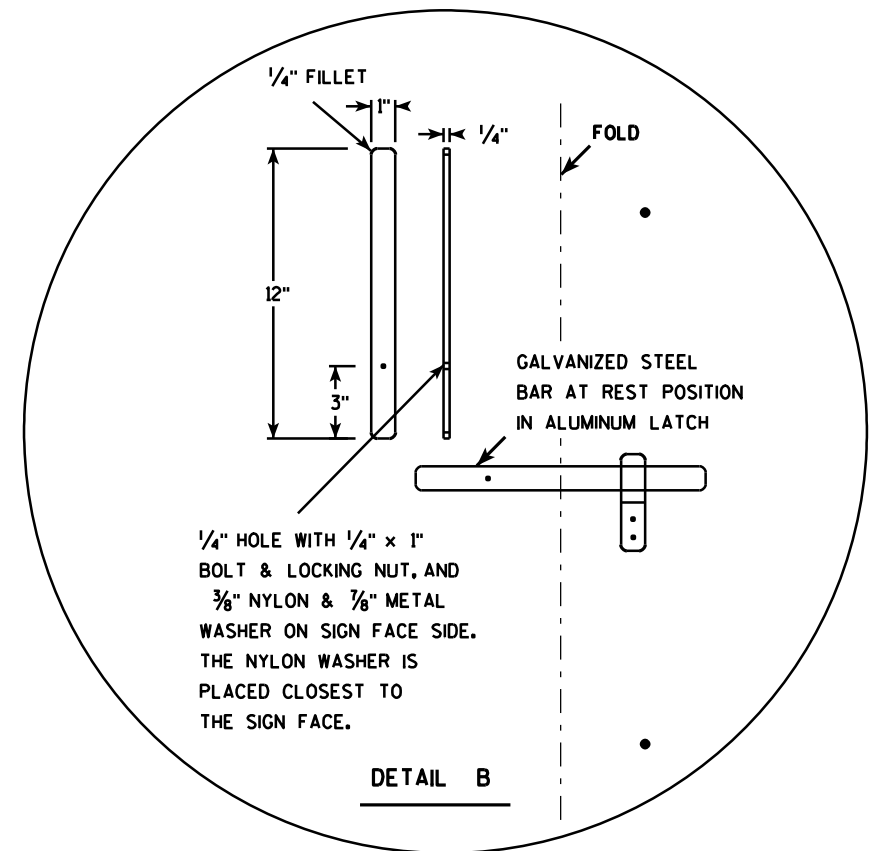
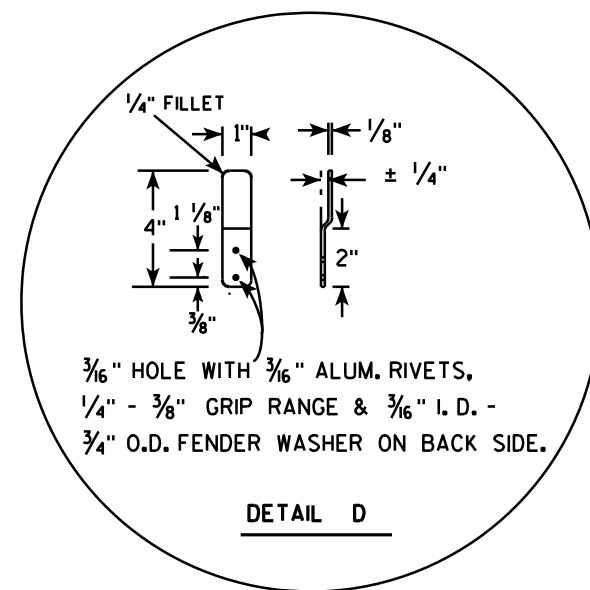
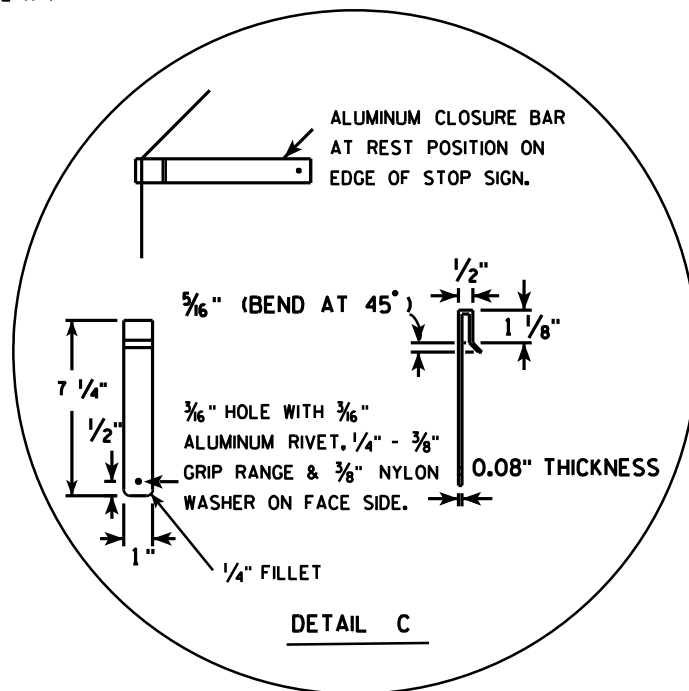
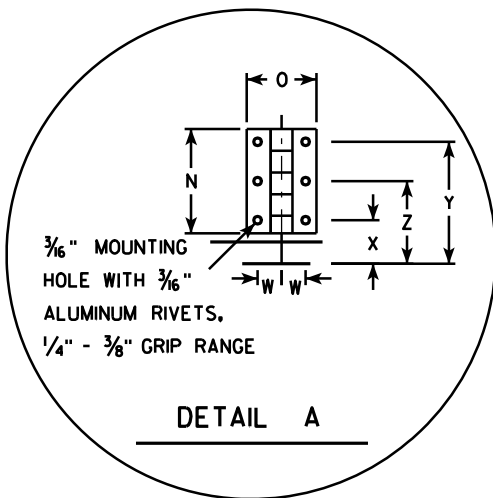
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M6-4.10



NOTES

- Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- Color:
Background - Red
Message - White
- Message Series - C
- All hardware used on the folding STOP sign installation shall conform to 637.2.4 of the WIS DOT Standard Specification.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30				5/8	10	12 1/2	45		12 3/4		9 1/4	6 1/2	3	2	15	12 3/8	2 1/2	22	5			11/8	1 1/4	3 1/2	2 3/8	5.18
2M	36				3/4	12	15	45		15 3/8		11	6 1/2	3	2	18	15 3/8	2 1/2	26	5			11/8	1 1/4	3 1/2	2 3/8	7.46
3	36				3/4	12	15	45		15 3/8		11	6 1/2	3	2	18	15 3/8	2 1/2	26	5			11/8	1 1/4	3 1/2	2 3/8	7.46
4																											
5																											

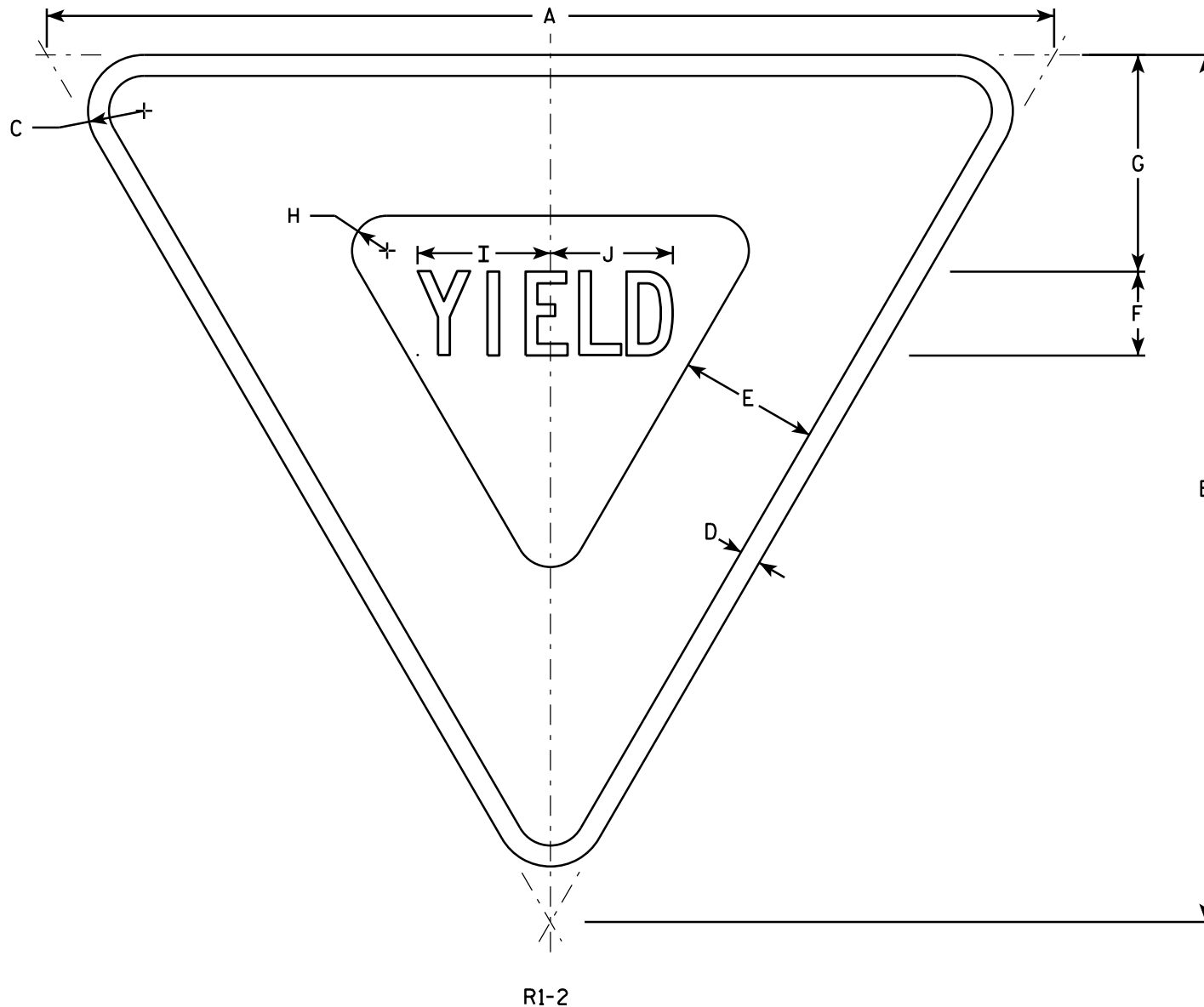
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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STANDARD SIGN R1-1F

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/03/10 PLATE NO. R1-1F.3



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - See note 5
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. The border strip and word message are reflectorized red.

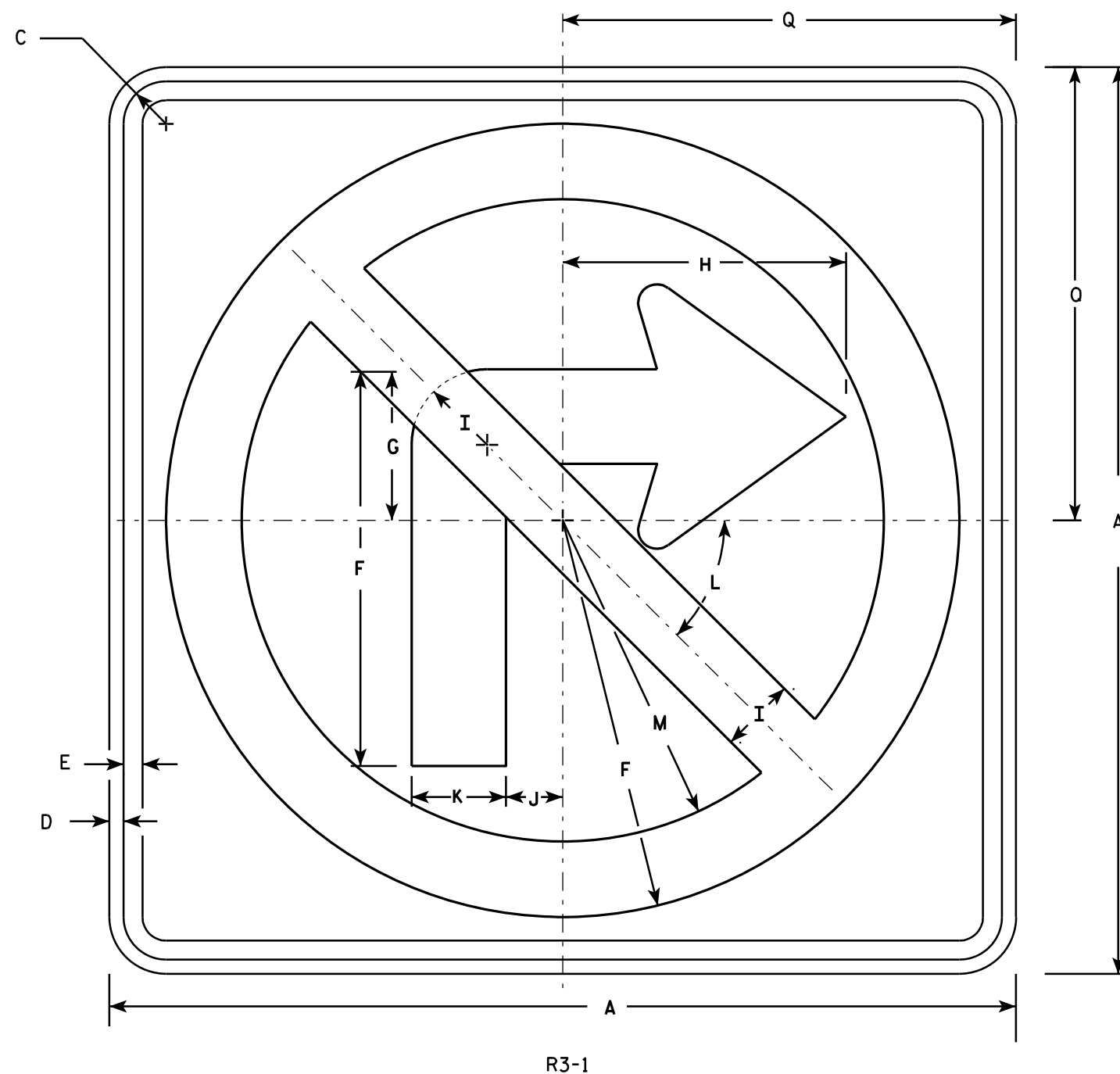
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30	26	1 1/2	5/8	4	2 1/2	6 3/8	7/8	4	3 5/8																	2.71
2S	36	31	2	3/4	5	3	7 3/4	1 1/4	4 3/4	4 3/8																	3.88
2M	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
3	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
4	48	42	3	1	6	4	9 3/4	2	6 1/4	5 7/8																	7.00
5	60	52	3	1 1/2	8	5	13	2 1/2	7 7/8	7 1/4																	10.83
6																											
7	18	15 1/2	1	3/8	2 1/2	1 1/2	3 7/8	5/8	2 3/8	2 1/4																	0.97

STANDARD SIGN
R1-2

WISCONSIN DEPT OF TRANSPORTATION

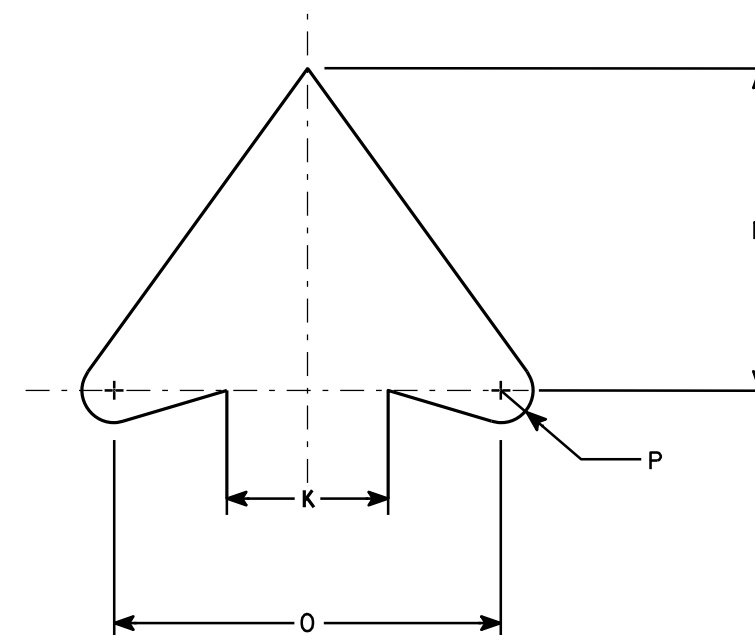
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/13/14 PLATE NO. R1-2.12



NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
 - Background - White
 - Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.

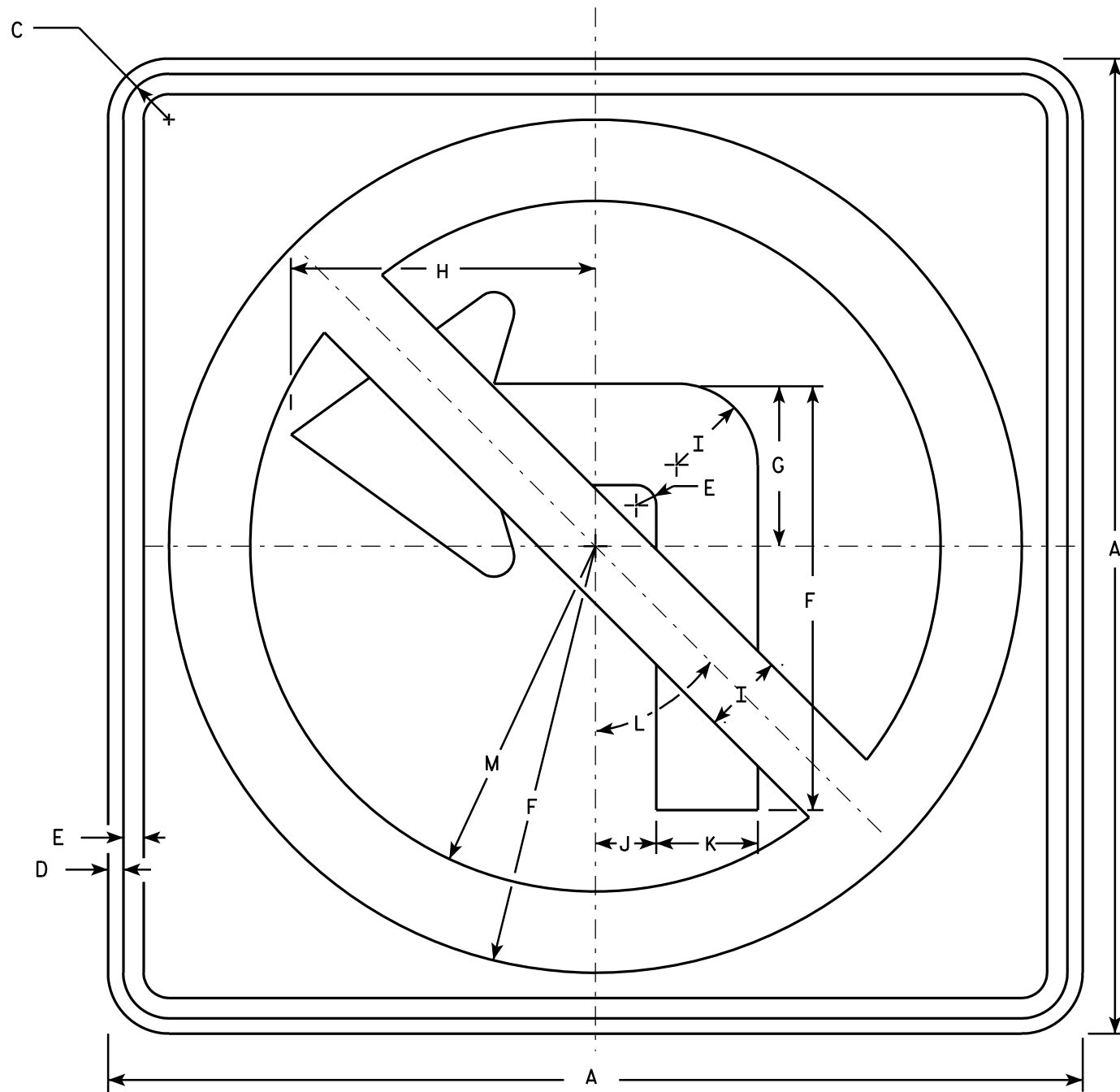


ARROW DETAIL

[illegible]

STANDARD SIGN	
R3-1	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> for State Traffic Engineer
DATE 12/08/10	PLATE NO. R3-1.5

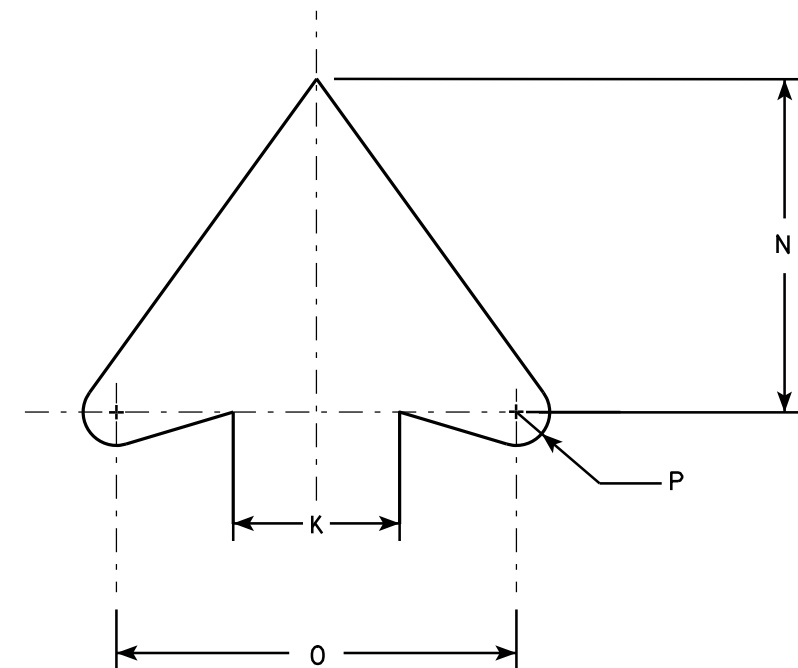
PROJECT NO:	HWY:	COUNTY:		SHEET NO:
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R3-2

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Border & Arrow are non reflective black, the circle with diagonal bar is reflective red.



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2											4.0
2S	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2											4.0
2M	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
3	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
4	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4											9.0
5	48		2 1/4	3/4	1	21	8	15	4	3	5	45°	17	10	12	1											16.0

STANDARD SIGN R3-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/08/10 PLATE NO. R3-2.10

PROJECT NO:

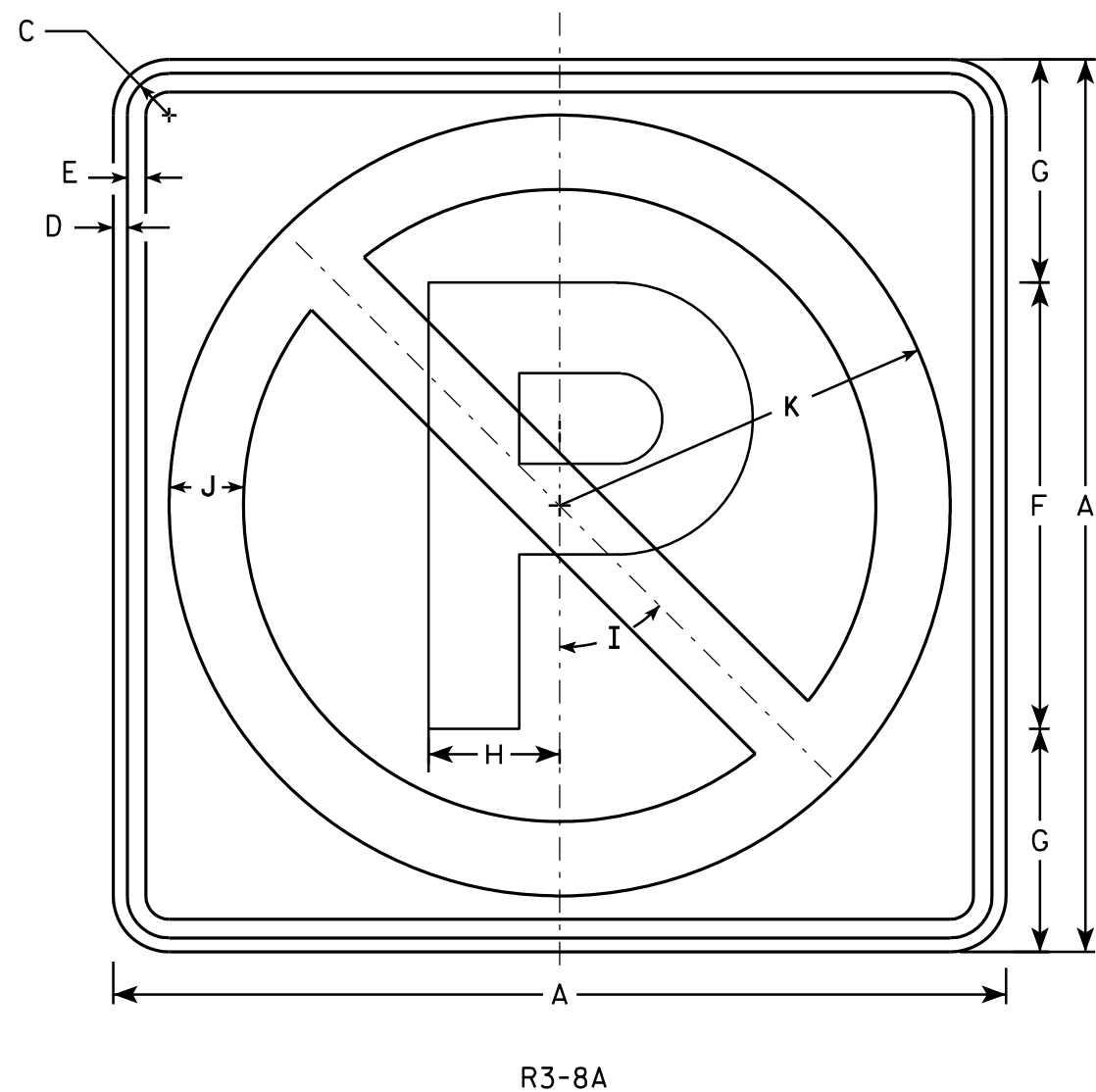
HWY:

COUNTY:

SHEET NO:

E

7



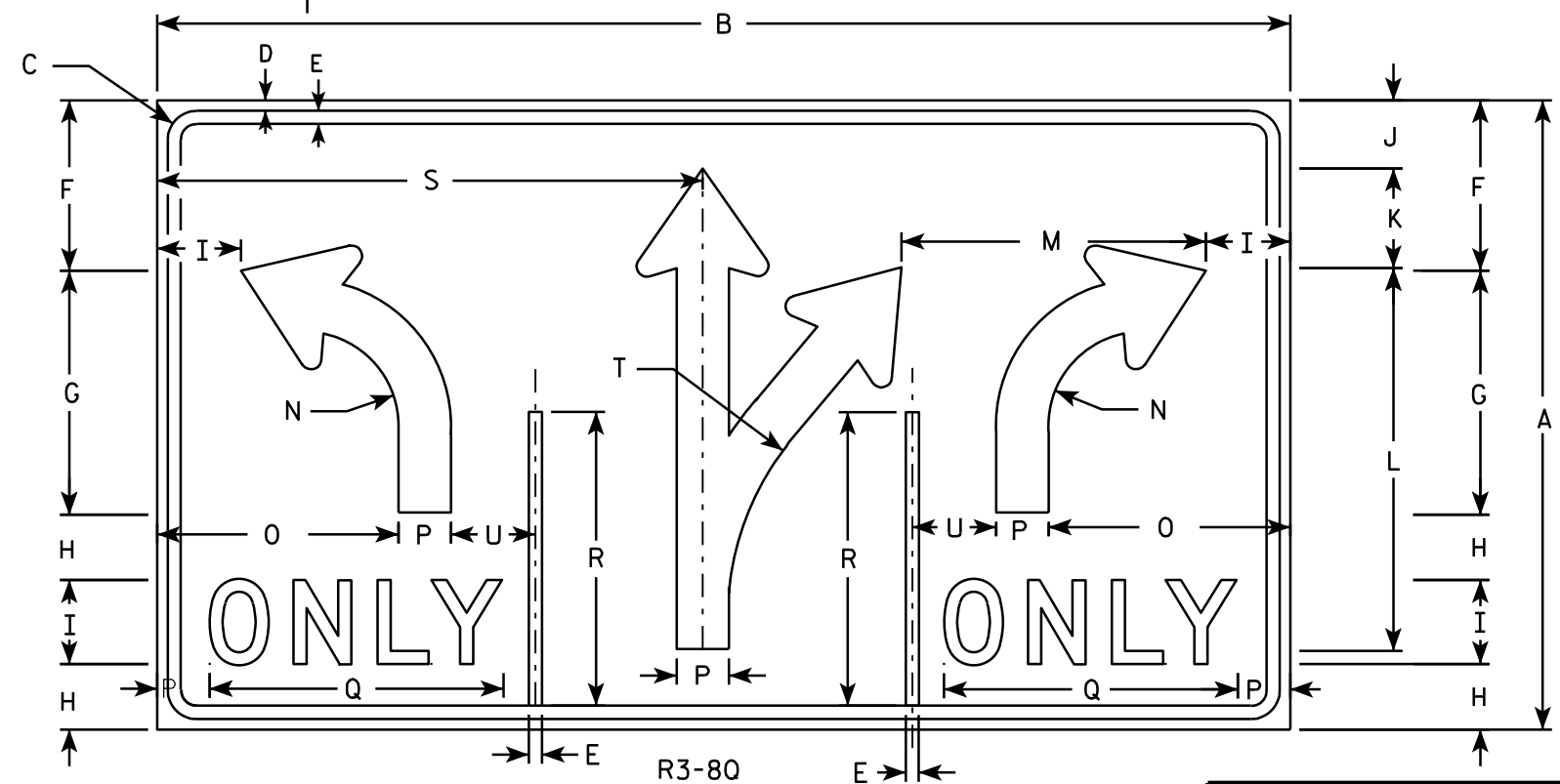
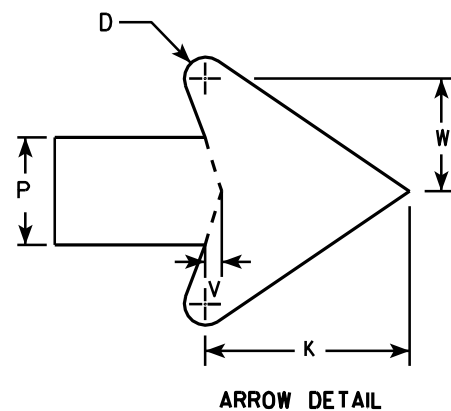
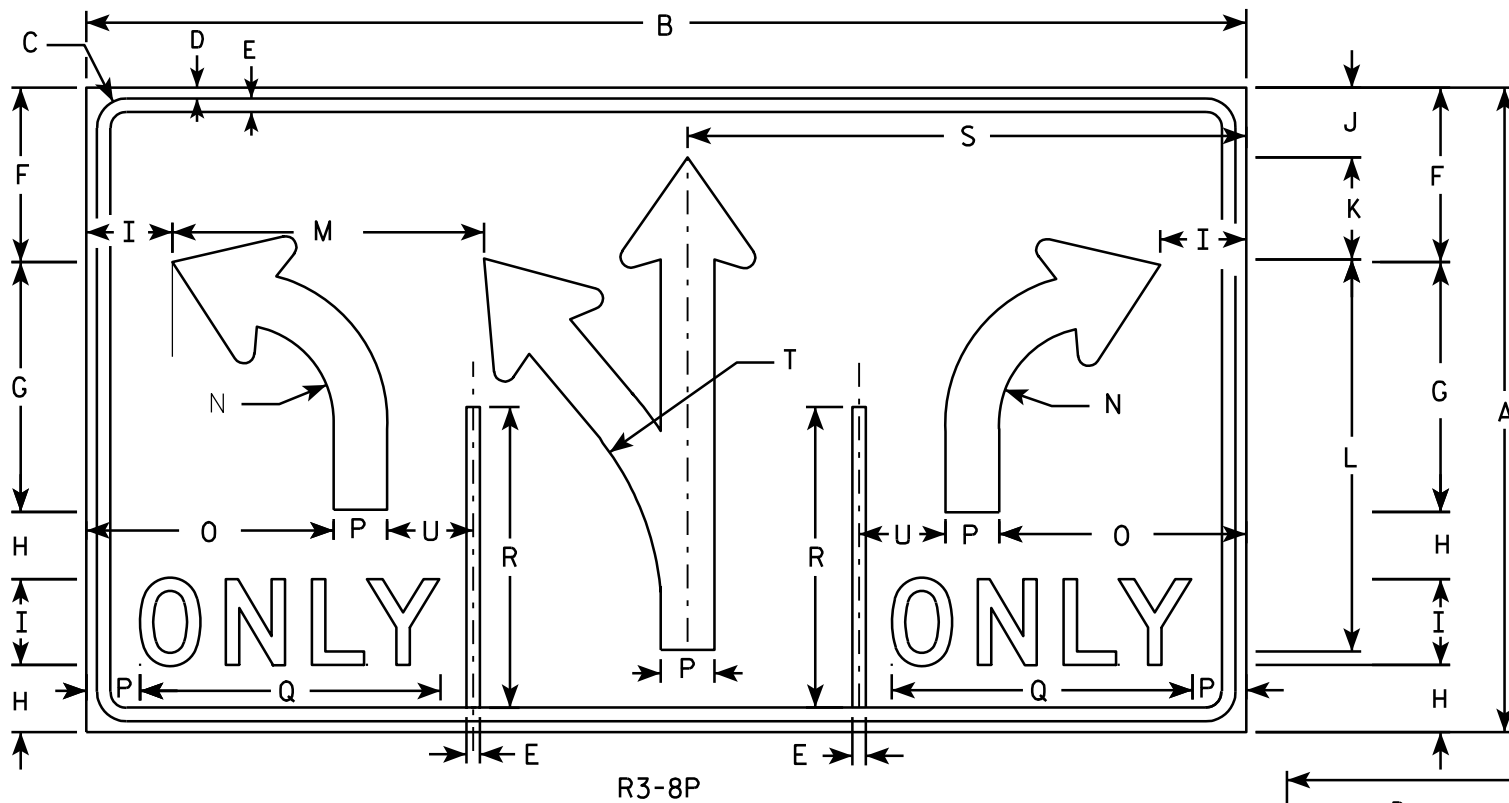
NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - See note 4
3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
4. Border & Letter P are non reflective black, the circle with diagonal bar is reflective red.

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24		1 1/8	3/8	1/2	12	6	3 1/2	45°	2	10 1/2															4.0	
2M	24		1 1/8	3/8	1/2	12	6	3 1/2	45°	2	10 1/2															4.0	
3																											
4																											
5																											

STANDARD SIGN R3-8A	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 8/01/12	PLATE NO. R3-8A.1



NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30	54	1 3⁄8	1⁄2	5⁄8	8 1⁄8	11 5⁄8	3 1⁄8	4	3 1⁄4	4 3⁄4	18 1⁄4	14 1⁄2	4 1⁄2	11 1⁄2	2 1⁄2	14	14	26	13 1⁄4	4	3⁄8	2 5⁄8				11.25
2M	30	54	1 3⁄8	1⁄2	5⁄8	8 1⁄8	11 5⁄8	3 1⁄8	4	3 1⁄4	4 3⁄4	18 1⁄4	14 1⁄2	4 1⁄2	11 1⁄2	2 1⁄2	14	14	26	13 1⁄4	4	3⁄8	2 5⁄8				11.25
3																											
4	48	84	2 1⁄4	3⁄4	1	13 1⁄4	18 1⁄2	5 1⁄8	6	5 1⁄4	7 1⁄8	29 1⁄8	22 5⁄8	7 1⁄4	17 1⁄4	3 3⁄4	20 5⁄8	22 3⁄8	40 3⁄4	21 7⁄8	7	5⁄8	4				28.0
5	48	84	2 1⁄4	3⁄4	1	13 1⁄4	18 1⁄2	5 1⁄8	6	5 1⁄4	7 1⁄8	29 1⁄8	22 5⁄8	7 1⁄4	17 1⁄4	3 3⁄4	20 5⁄8	22 3⁄8	40 3⁄4	21 7⁄8	7	5⁄8	4				28.0

STANDARD SIGN R3-8P & R3-80

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/24/2011 PLATE NO. R3-8P.2

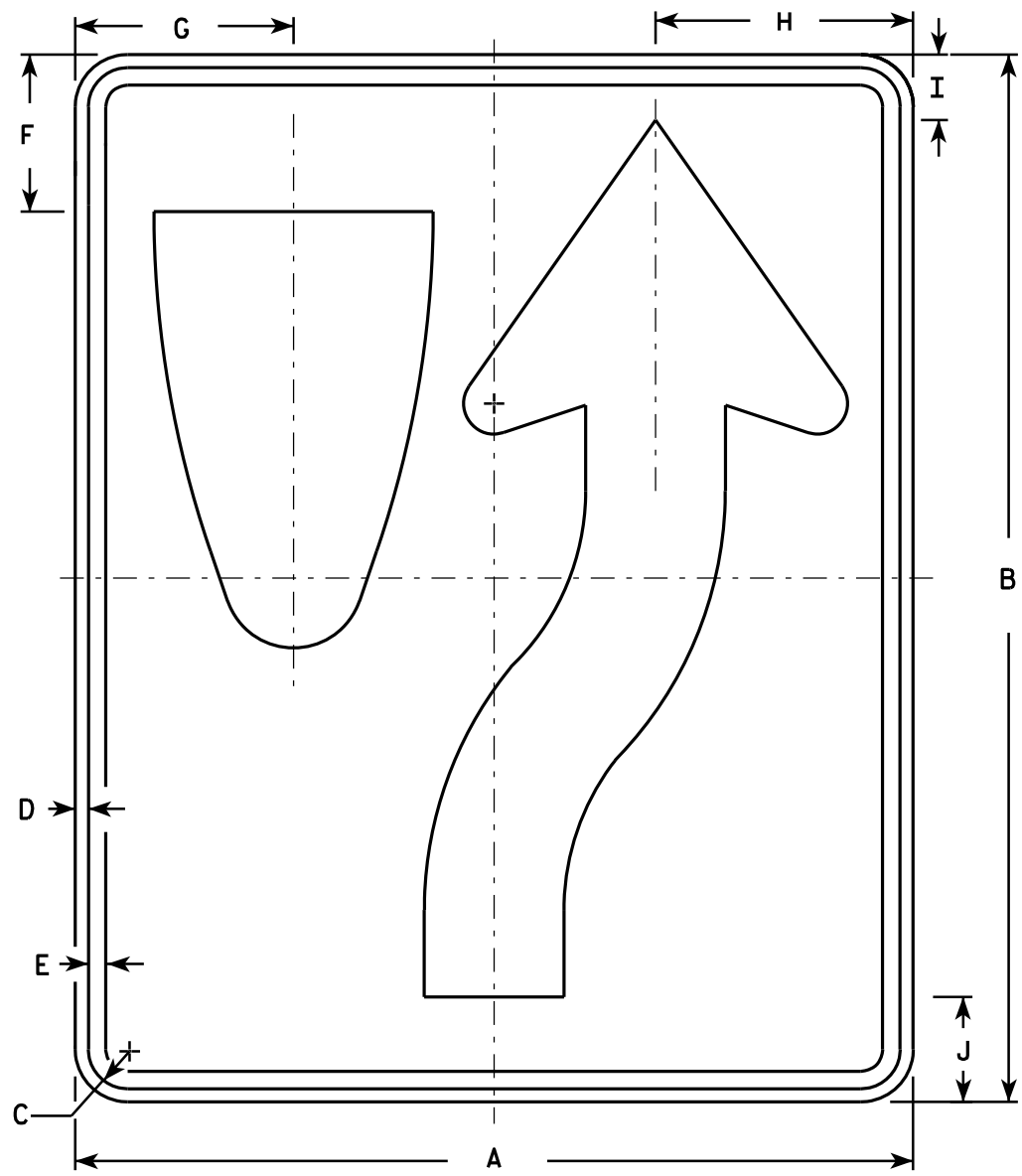
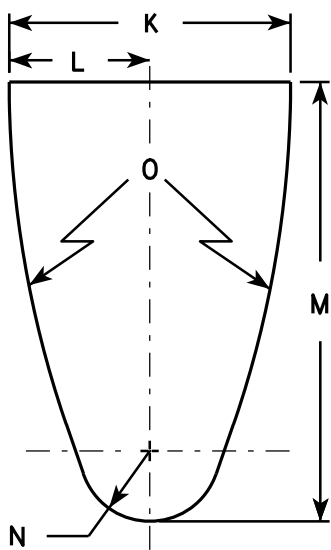
PROJECT NO:

SHEET NO:

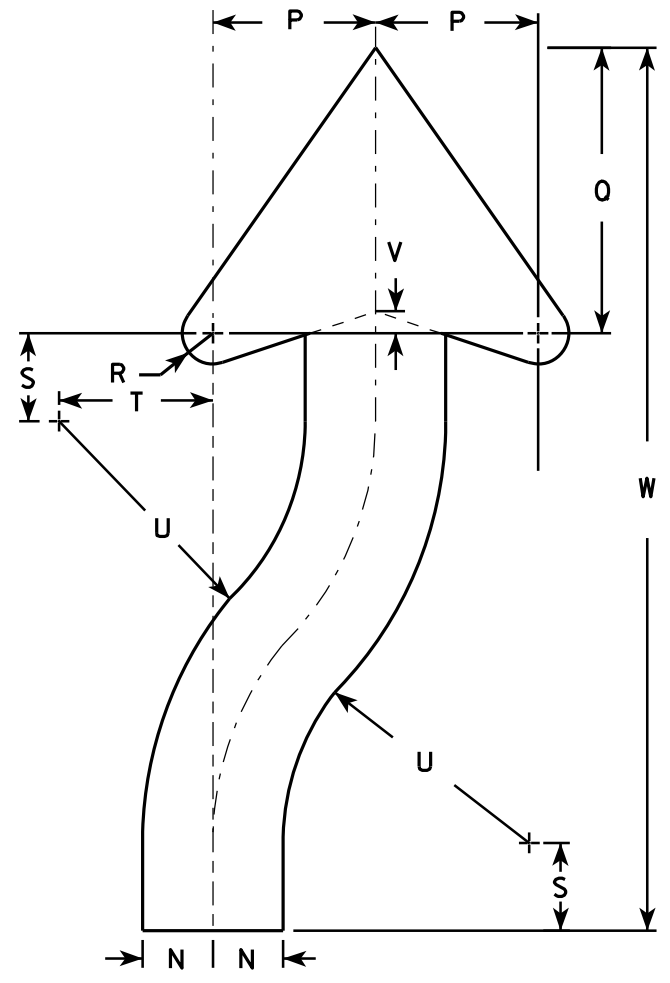
E

NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition. material is plywood but borders shall be rounded
- 2. Color:
Background - White
Message - Black
- 3. Corners may be square or rounded when base as shown. When base material is metal, the corners and borders shall be rounded.
- 4. R4-8 is the same as R4-7 except Legend is reversed.



R4-7



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	24	1 1/8	3/8	1/2	3 3/8	4 3/4	5 1/2	1 3/8	2 1/4	6	3	9 3/8	1 1/2	22 1/2	3 1/2	6 1/8	5/8	1 7/8	3 1/4	6 3/4	1/2	20 3/8				3.0
2S	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
2M	24	30	1 1/8	3/8	1/2	4 1/2	6 1/4	7 3/8	1 7/8	3	8	4	12 1/2	2	30	4 5/8	8 1/8	7/8	2 1/2	4 3/8	9	5/8	25 1/8				5.0
3	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
4	36	48	1 3/4	1/2	5/8	6 3/4	9 3/8	11 1/8	2 7/8	4 1/2	12	6	18 3/4	3	45	6 7/8	12 1/4	1 1/4	3 3/4	6 5/8	13 1/2	1	40 3/4				12.0
5	48	60	2 1/4	3/4	1	9	12 1/2	14 3/4	3 3/4	6	16	8	25	4	60	9 1/4	16 1/4	1 5/8	5	8 3/4	18	1 1/4	50 1/4				20.0

STANDARD SIGN

R4-7 & R4-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/25/2011 PLATE NO. R4-7.8

PROJECT NO:

HWY:

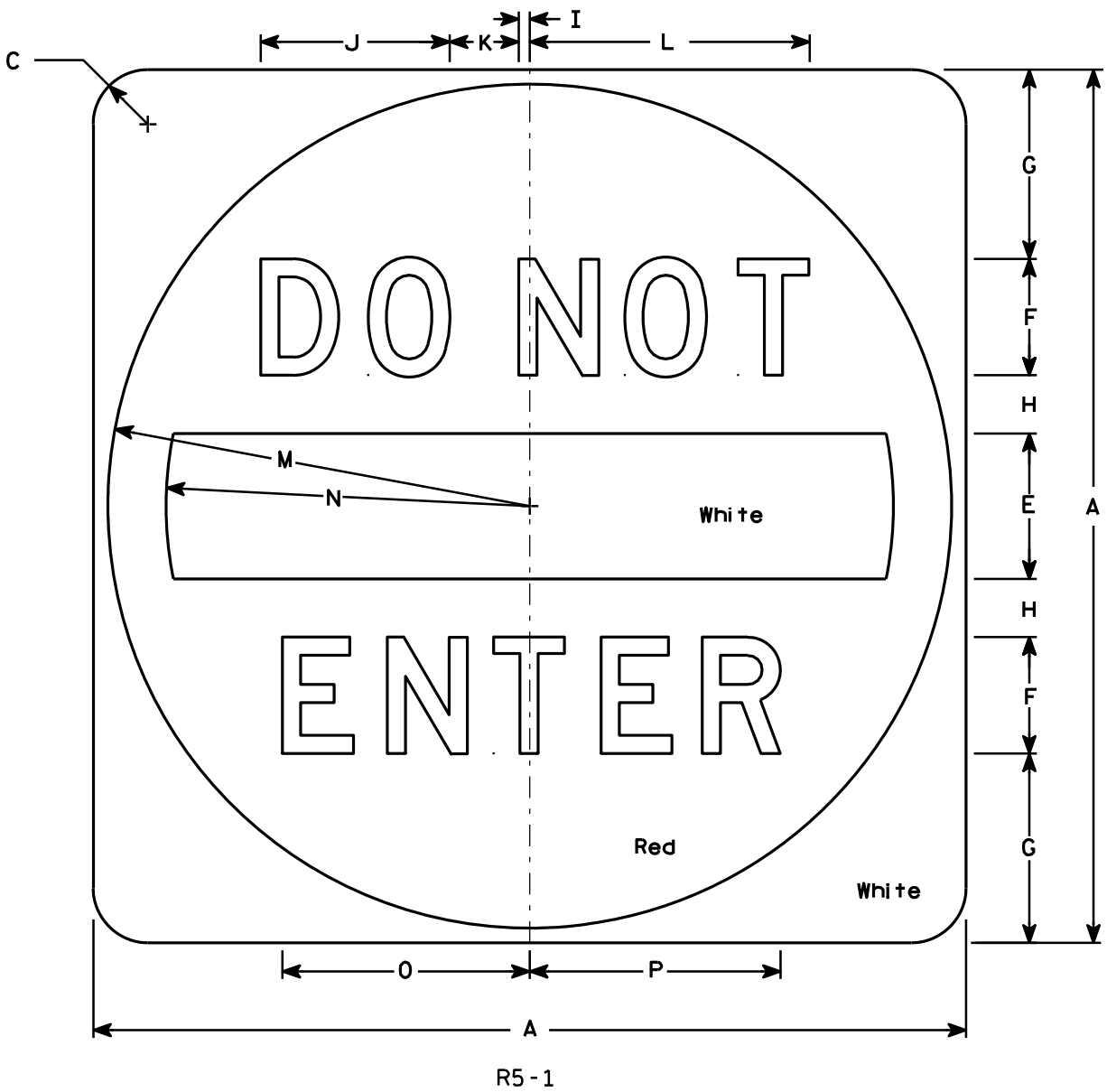
COUNTY:

SHEET NO:

E

NOTES

- 1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
 - Background - See detail
 - Message - White - Type H Reflective
- 3. Message Series - D
- 4. Corners may be square or rounded when base material is plywood but when base material is metal, the corners shall be rounded.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30		1 7⁄8		5	4	6 1⁄2	2	3⁄8	6 1⁄2	2 3⁄8	9 5⁄8	14 1⁄2	12 1⁄2	8 1⁄2	8 5⁄8											6.26
2M	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
3	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
4	36		2 1⁄4		6	5	7 1⁄2	2 1⁄2	1⁄2	8 1⁄8	3	12 1⁄8	17 1⁄2	15	10 5⁄8	10 3⁄4											9.0
5	48		3		8	6	11	3	5⁄8	9 3⁄4	3 5⁄8	14 1⁄2	23 1⁄2	20	12 3⁄4	12 7⁄8											16.0

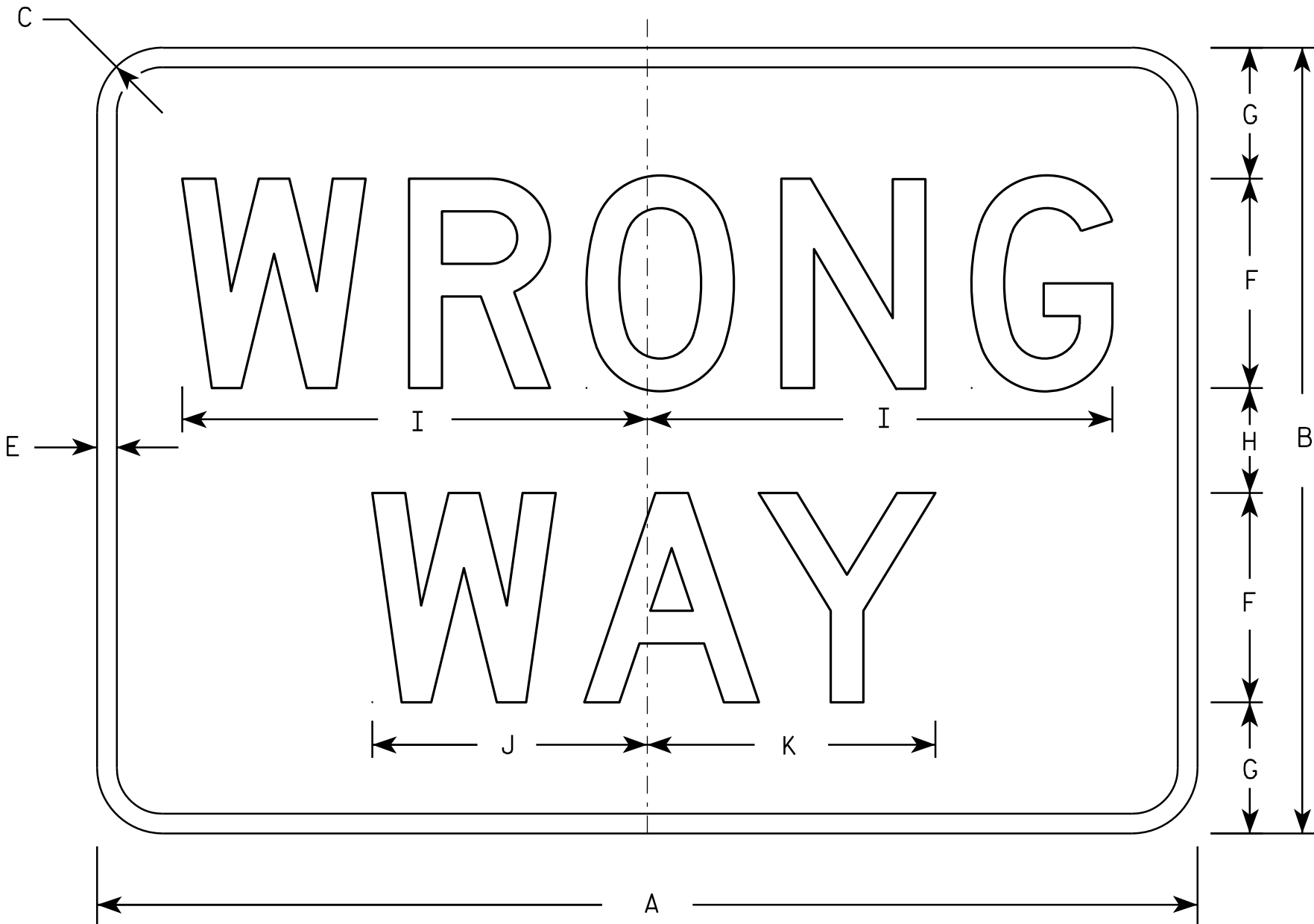
STANDARD SIGN

R5 - 1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/17/10 PLATE NO. R5-1.15



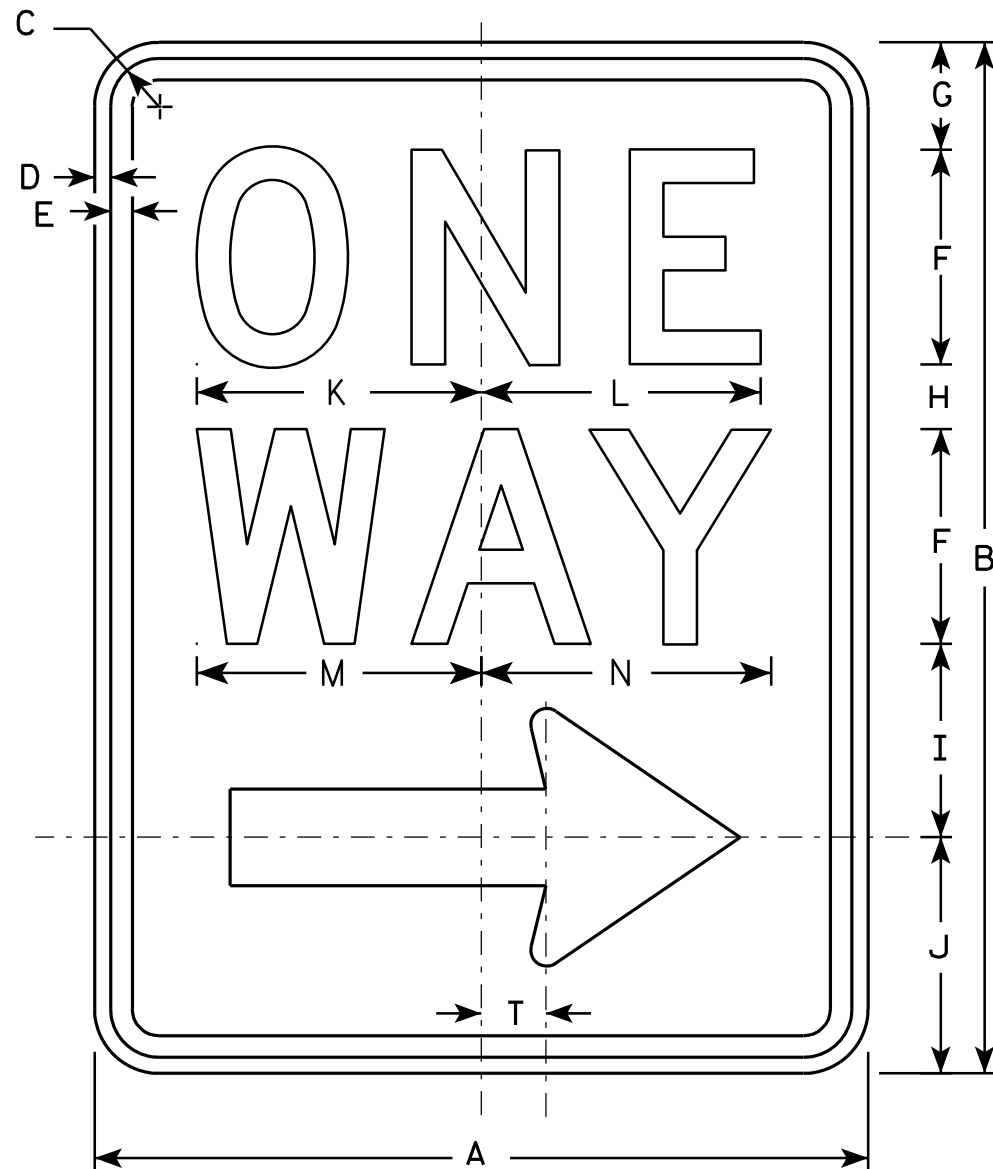
R5-1A

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30	18	1 1/2		1/2	5	3	2	11	6 1/2	6 7/8																3.75
2S	36	24	2		5/8	6	4 1/2	3	13 1/4	7 7/8	8 1/4																6.00
2M	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
3	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
4	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75
5	42	30	2 1/2		3/4	8	5	4	17 3/4	10 1/2	11																8.75

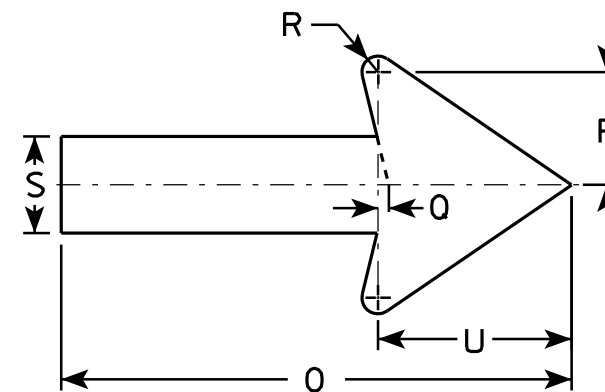
STANDARD SIGN R5-1A	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 12/17/10	PLATE NO. R5-1A.2



R6-2R

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. R6-2L same as R6-2R except arrow points to the left.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	O	R	S	T	U	V	W	X	Y	Z
1	18	24	1 1/8	3/8	1/2	5	2 1/2	1 1/2	4 1/2	5 1/2	6 5/8	6 1/2	6 5/8	6 3/4	11 7/8	2 5/8	1/4	3/8	2 1/4	1 1/2	4 1/2					
2S	24	30	1 1/8	3/8	1/2	6	3	2 1/2	5 1/2	7	8 1/8	8 1/8	8 1/2	8 5/8	16	3 1/2	3/8	1/2	3	2	6					
2M	30	36	1 3/8	1/2	5/8	8	2 1/2	2 5/8	6 7/8	8	10 1/2	10 1/2	11 1/4	11 1/4	20	4 3/8	1/2	5/8	3 3/4	2 1/2	7 1/2					
3	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
4	36	48	1 7/8	1/2	5/8	10	5 1/4	3 1/4	9	10 1/2	12 3/4	12 3/4	13 1/4	13 1/2	24	5 5/8	1/2	3/4	4 3/4	3	9					
5																										

PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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STANDARD SIGN

R6-2 R&L

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/2/10 PLATE NO. R6-2.8



R8-8

NOTES

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

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	30	1 1/8	3/8	1/2	4	3 5/8	2 1/4	9 1/4	9 5/8	6 5/8	3 5/8	10														5.0
2M	24	30	1 1/8	3/8	1/2	4	3 5/8	2 1/4	9 1/4	9 5/8	6 5/8	3 5/8	10														5.0
3	36	48	1 3/8	1/2	5/8	6	6	4	13 7/8	14 3/8	9 7/8	5 3/8	15														12.0
4	48	60	2 1/4	3/4	1	8	7 1/4	4 1/2	18 1/2	19 1/4	13 1/4	7 1/4	20														20.0
5																											

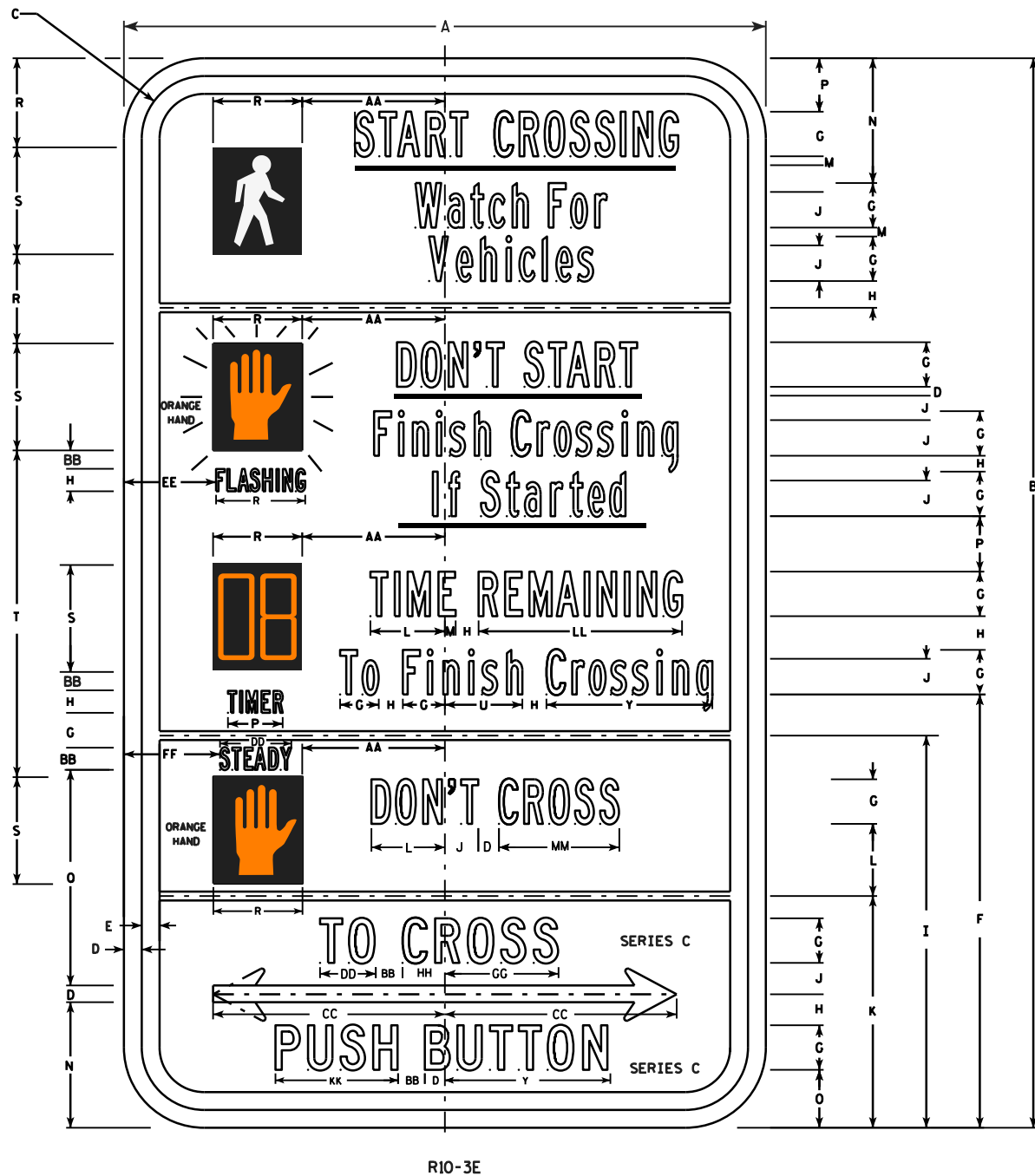
STANDARD SIGN R8-8

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

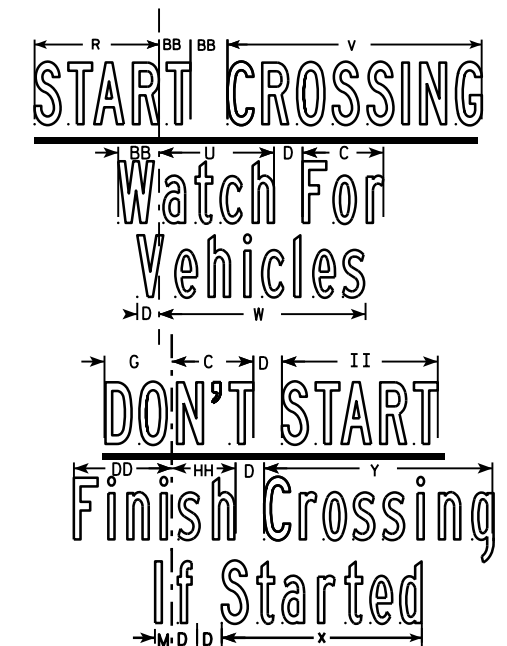
DATE 3/31/2011 PLATE NO. R8-8.4

PROJECT NO: HWY: COUNTY: SHEET NO: E



NOTES

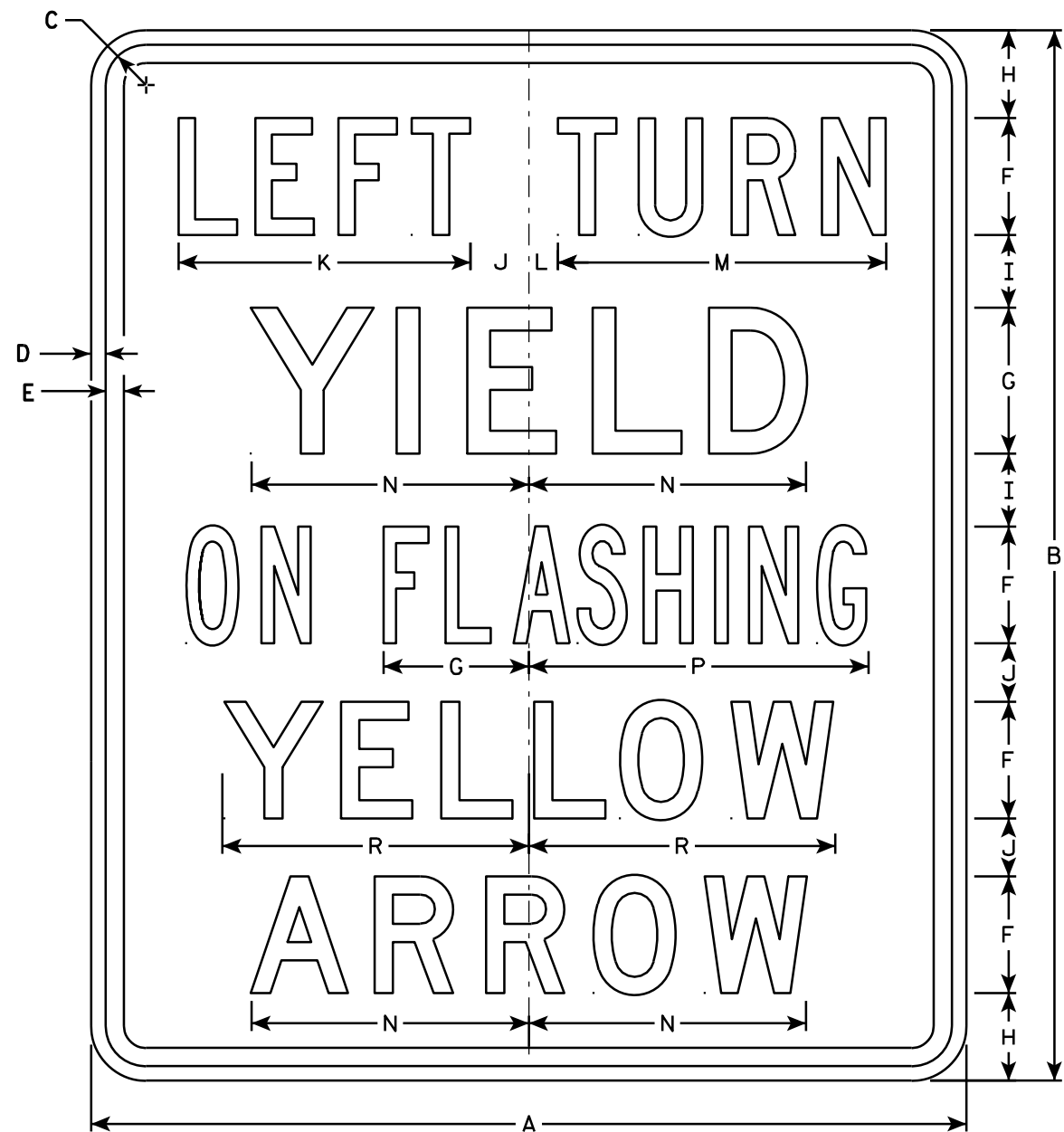
1. All Signs Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - WHITE
Message - BLACK except Hand Symbol which is Orange with black background.
3. Message Series - B or as noted on the sign.
4. R10-3ER (right arrow)
R10-3EL (left arrow)
R10-3ED (double arrow)



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	6	10	1/2	1/8	1/8	4	3/8	1/4	4 1/8	1/4	2 1/8	3/4	1/8	1 1/8	1/2	1/2	2 1/4	7/8	1	3	3/4	1 3/4	1 5/8	1 3/8	1 1/2	5/8	0.42
2S	9	15	7/8	1/4	1/4	6 1/8	5/8	3/8	5 1/2	1/2	3 1/4	1	1/8	1 3/4	7/8	3/4	3	1 1/4	1 1/2	4 5/8	1 1/8	2 5/8	2 1/8	2	2 3/8	1 3/8	0.94
2M	9	15	7/8	1/4	1/4	6 1/8	5/8	3/8	5 1/2	1/2	3 1/4	1	1/8	1 3/4	7/8	3/4	3	1 1/4	1 1/2	4 5/8	1 1/8	2 5/8	2 1/8	2	2 3/8	1 3/8	0.94
3																											
4																											

SIZE	AA	BB	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL	MM	NN	OO	PP	QQ	RR	SS	TT	UU	VV	WW	XX	YY	ZZ	Area sq. ft.
1	1 3/8	1/4	2 1/4	1/2	7/8	7/8	1 1/8	3/8	1	1/2	1 1/8	1 7/8	1 1/8														
2S	2	3/8	3 1/4	1	1 1/4	1 3/8	1 5/8	5/8	1 5/8	3/4	1 3/4	2 7/8	1 5/8														
2M	2	3/8	3 1/4	1	1 1/4	1 3/8	1 5/8	5/8	1 5/8	3/4	1 3/4	2 7/8	1 5/8														
3																											
4																											

STANDARD SIGN	
R10-3EL,R,D	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> for State Traffic Engineer
DATE 4/12/2011	PLATE NO. R10-3E.2

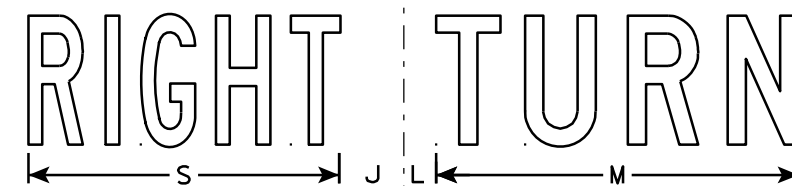


R10-50L

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - White
Message - Black
3. Message Series - see note 5
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Line 1 is Series C.
Lines 2, 4 and 5 are Series D.
Line 3 is Series B.

"RIGHT" Is Series B



R10-50R

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30	36	1 3⁄8	1⁄2	5⁄8	4	5	3	2 1⁄2	2	10	1	11 1⁄4	9 1⁄2	4 1⁄4	11 5⁄8		10 1⁄2	9 5⁄8								7.5
2M	30	36	1 3⁄8	1⁄2	5⁄8	4	5	3	2 1⁄2	2	10	1	11 1⁄4	9 1⁄2	4 1⁄4	11 5⁄8		10 1⁄2	9 5⁄8								7.5
3																											
4																											
5																											

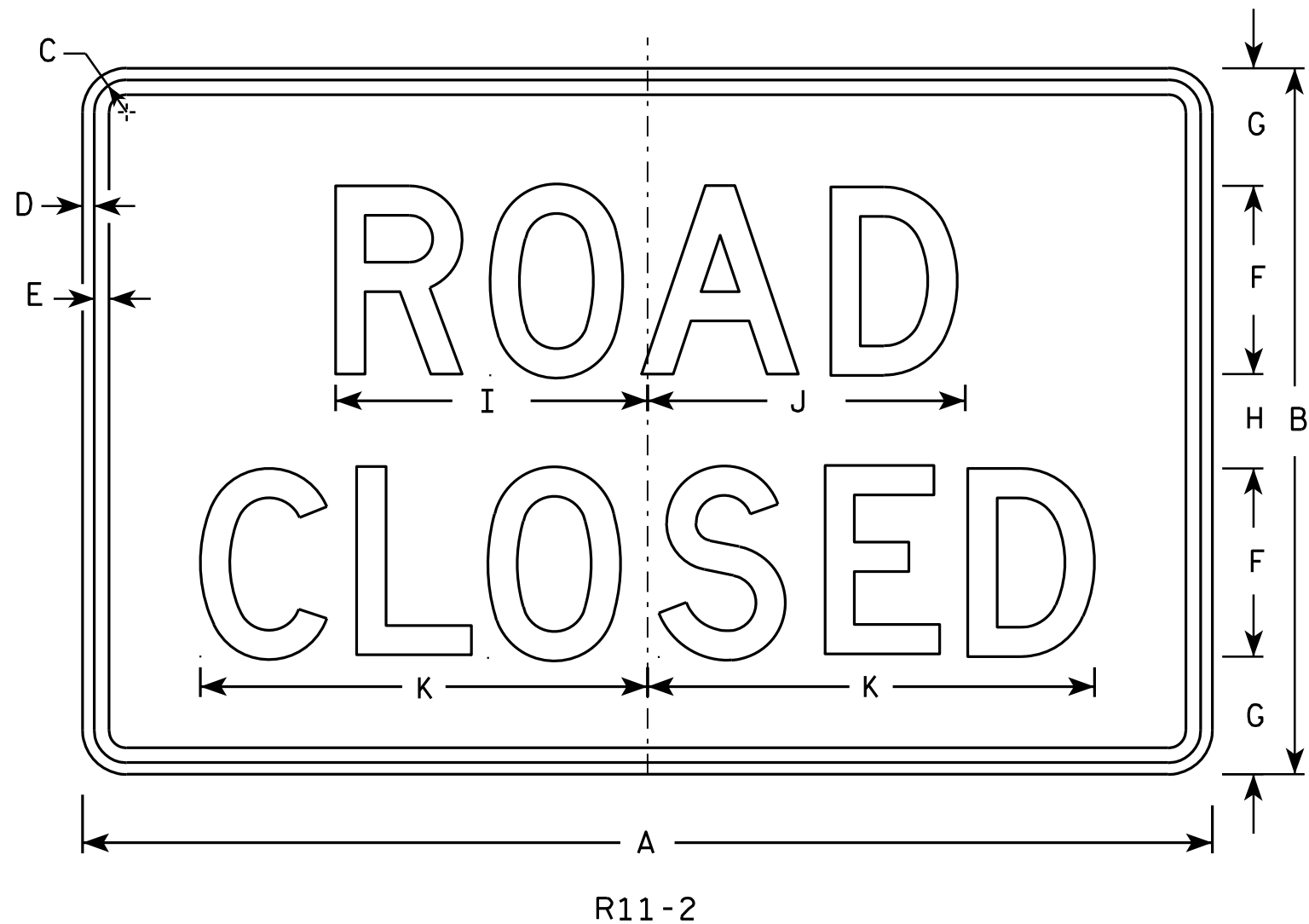
STANDARD SIGN R10-50

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

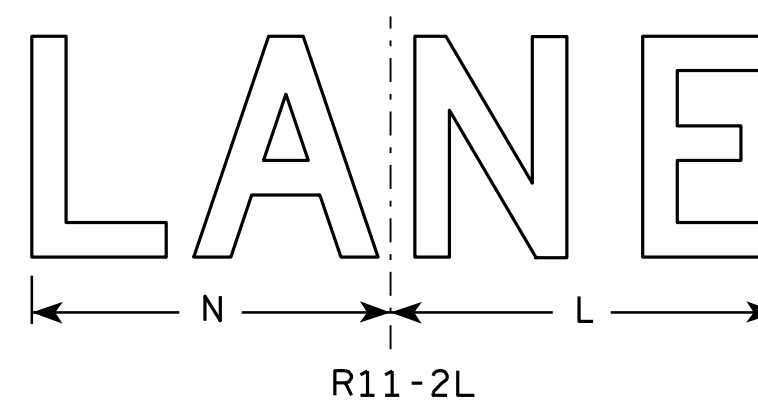
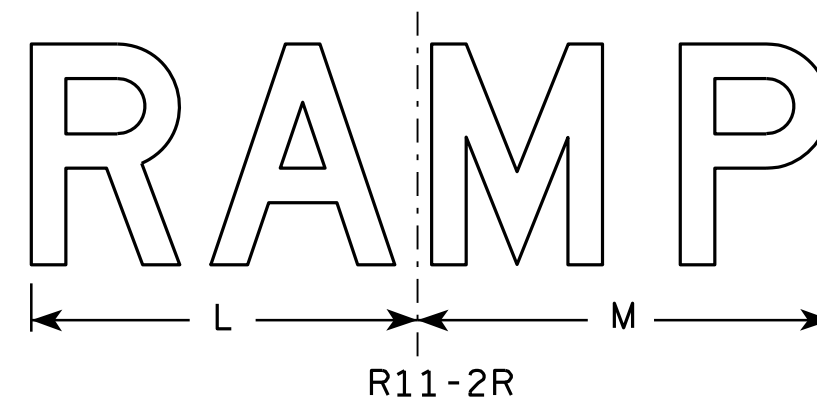
DATE 4/11/13 PLATE NO. R10-50.2

PROJECT NO: HWY: COUNTY: SHEET NO: E



NOTES

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

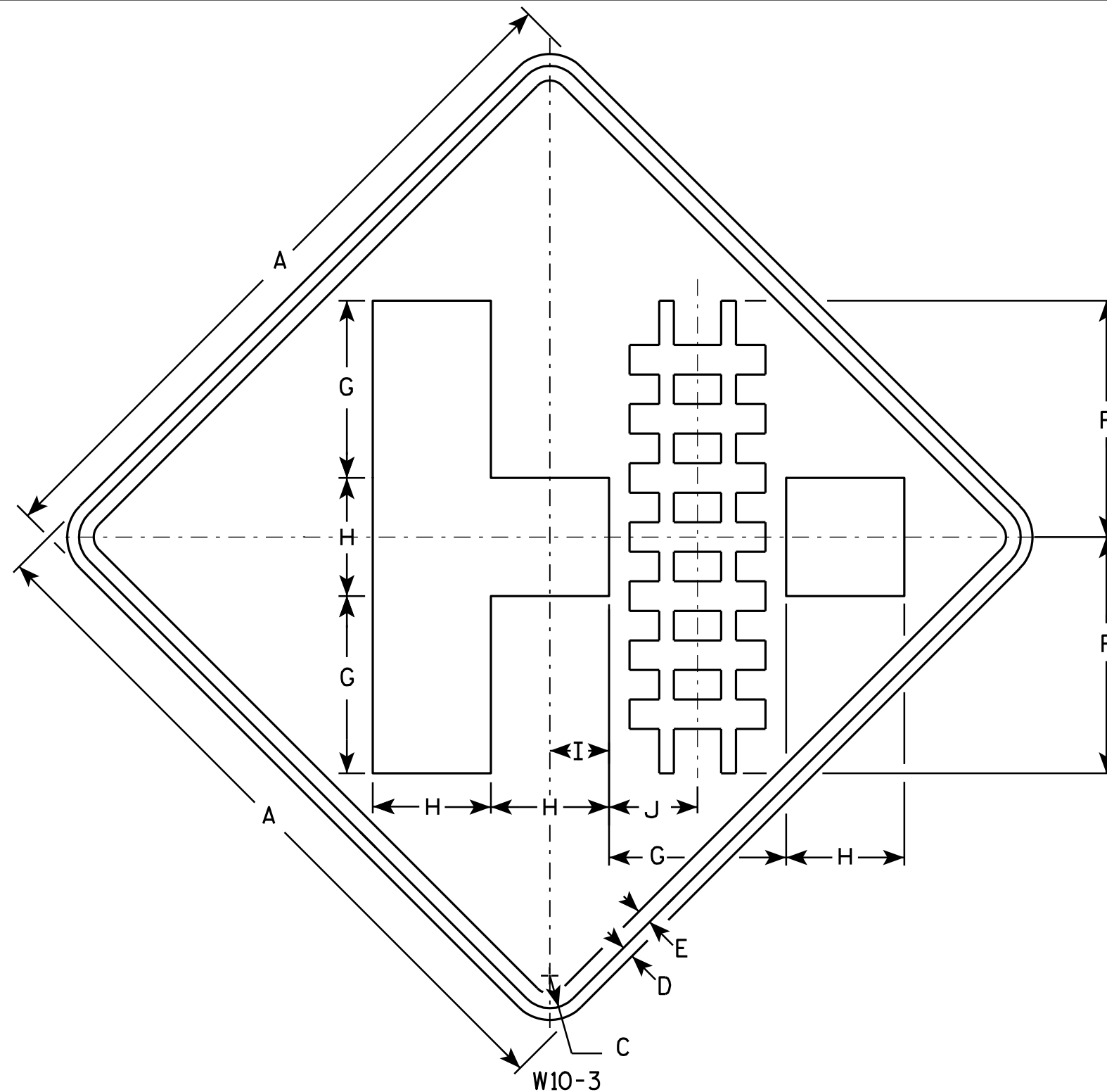


SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0
2M	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0
3	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0
4	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0
5	48	30	1 3⁄8	1⁄2	5⁄8	8	5	4	13 1⁄4	13 1⁄2	19	14	15	13													10.0

STANDARD SIGN R11-2

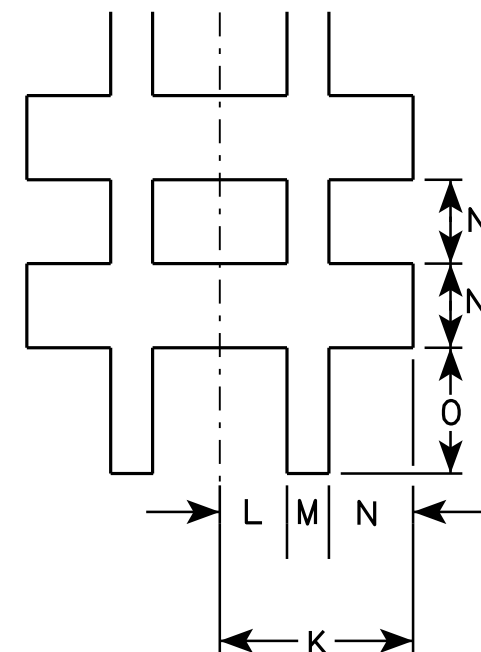
WISCONSIN DEPT OF TRANSPORTATION
APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 4/1/11 PLATE NO. R11-2.10

PROJECT NO: HWY: COUNTY: SHEET NO: E



NOTES

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



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30		1 3/8	1/2	5/8	10	7 1/2	5	2 1/2	3 3/4	2 7/8	1	5/8	1 1/4	1 7/8												6.25
2S	36		1 5/8	5/8	3/4	12	9	6	3	4 1/2	3 3/8	1 1/8	3/4	1 1/2	2 1/4												9.0
2M	36		1 5/8	5/8	3/4	12	9	6	3	4 1/2	3 3/8	1 1/8	3/4	1 1/2	2 1/4												9.0
3	36		1 5/8	5/8	3/4	12	9	6	3	4 1/2	3 3/8	1 1/8	3/4	1 1/2	2 1/4												9.0
4	48		2 1/4	3/4	1	16	12	8	4	6	4 1/2	1 1/2	1	2	3												16.0
5																											

STANDARD SIGN W10-3

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/13/13 PLATE NO. W10-3.8

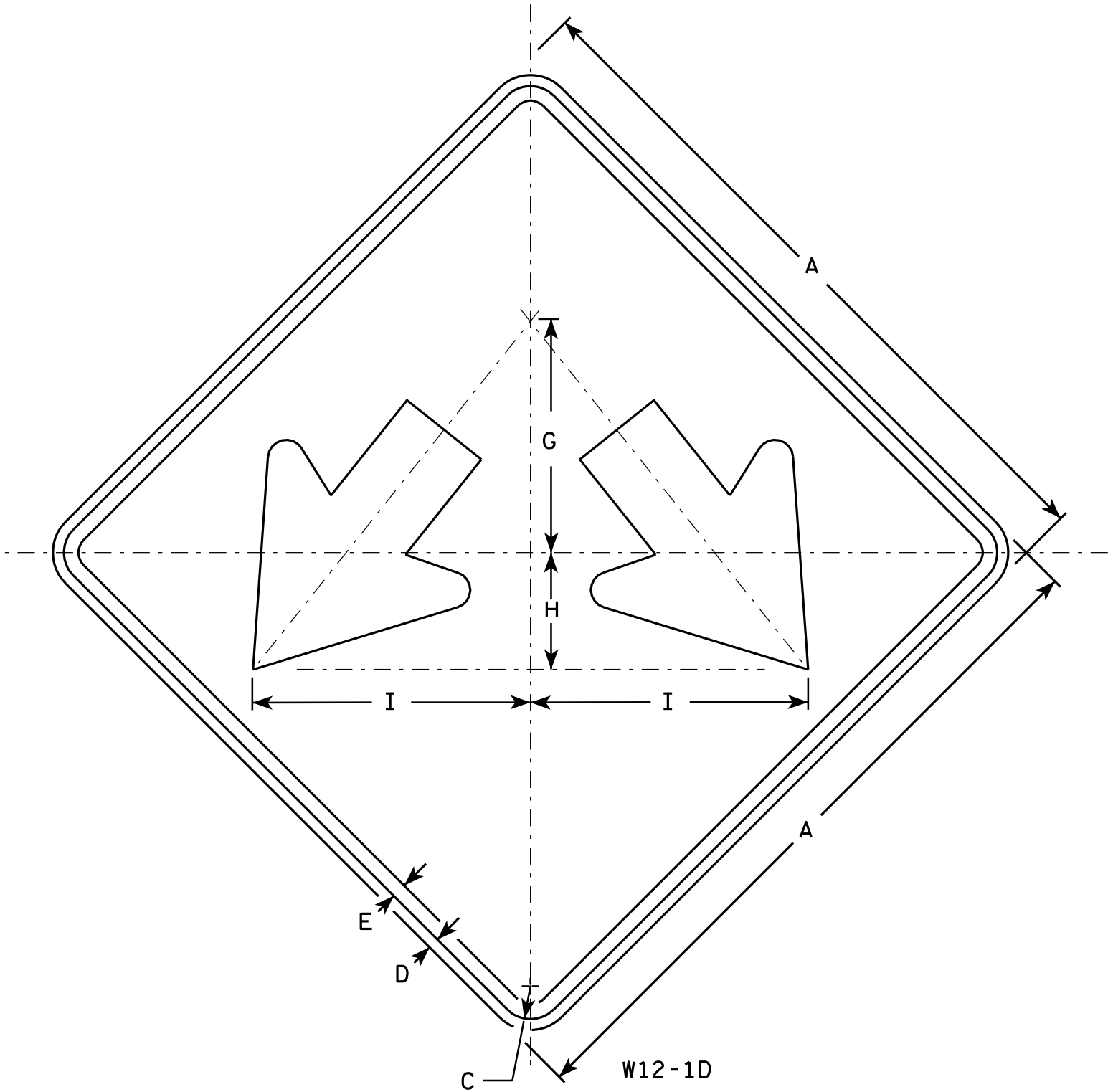
PROJECT NO:

HWY:

COUNTY:

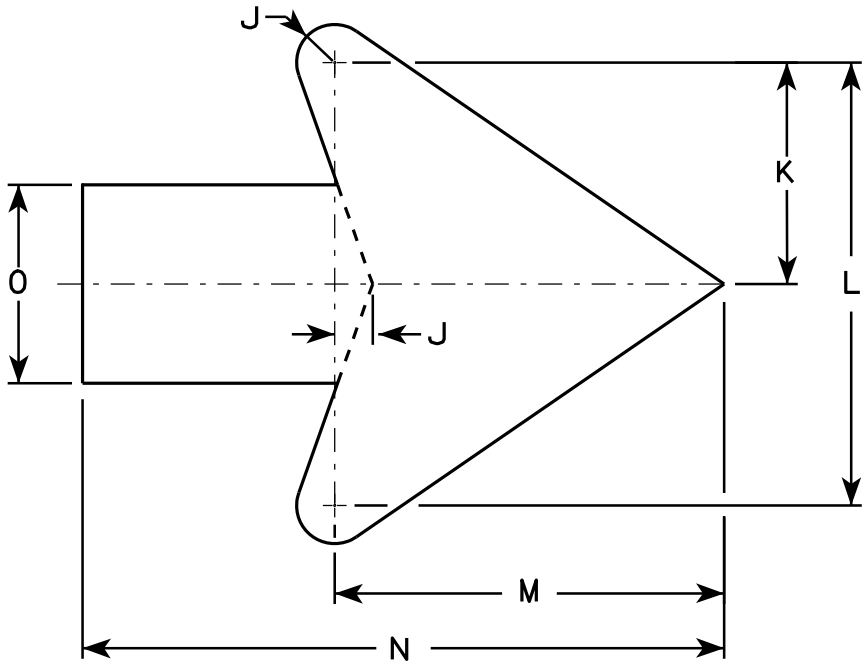
SHEET NO:

E



NOTES

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



Arrow Detail

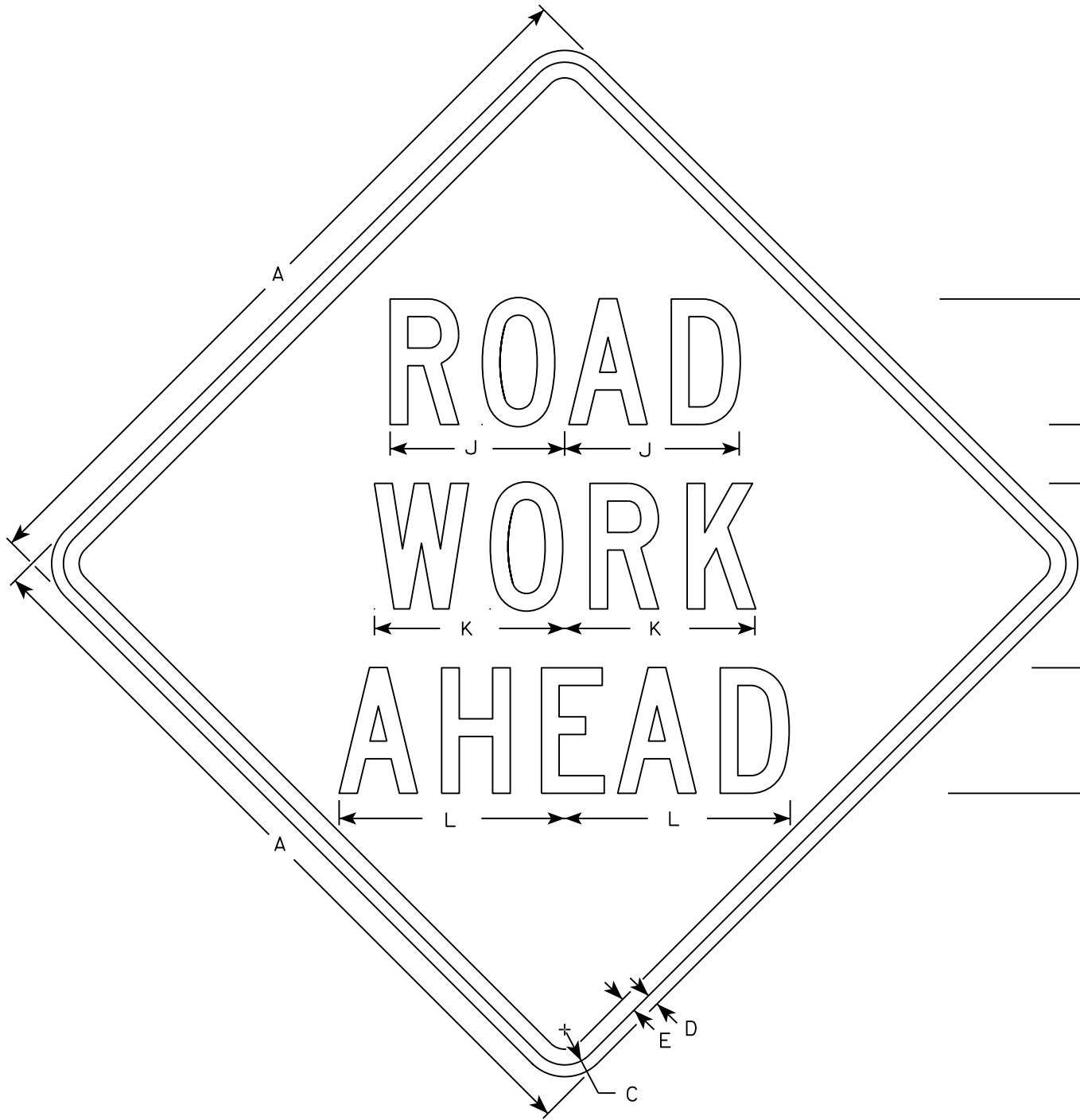
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
2M	24		1 1/8	1/2	3/8		8	4	9 1/2	3/8	3 3/8	7 1/4	6 3/8	10 3/8	3 1/4												4.0
3	30		1 3/8	1/2	5/8		10	5	11 7/8	3/4	4 1/2	9	7 7/8	13	4												6.25
4	36		1 3/8	1/2	5/8		12	6	14 1/4	1	5 1/2	10 7/8	9 5/8	15 3/4	4 3/4												9.0
5	48		2 1/4	3/4	1		16	8	19	1 1/4	7 1/4	14 1/2	12 3/4	21	6 1/4												16.0

STANDARD SIGN
W12-1D

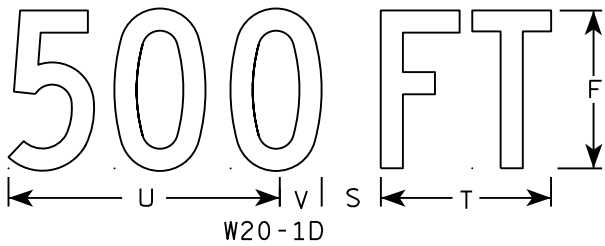
WISCONSIN DEPT OF TRANSPORTATION

APPROVED
Matthew R. Rauch
for State Traffic Engineer

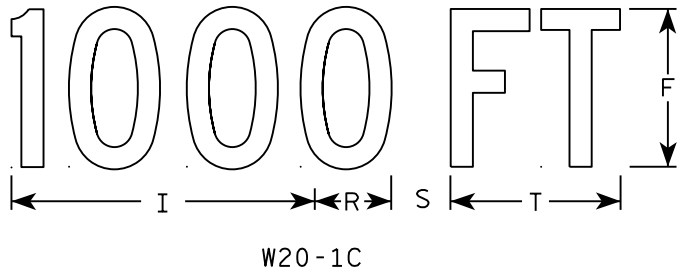
DATE 3/13/13 PLATE NO. W12-1D.15



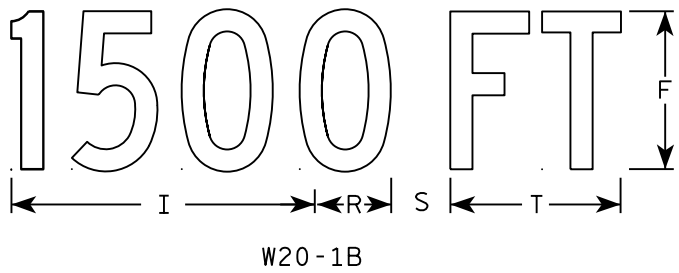
W20-1A



W20-1D



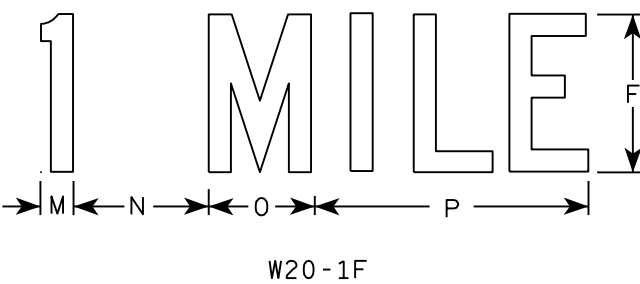
W20-1C



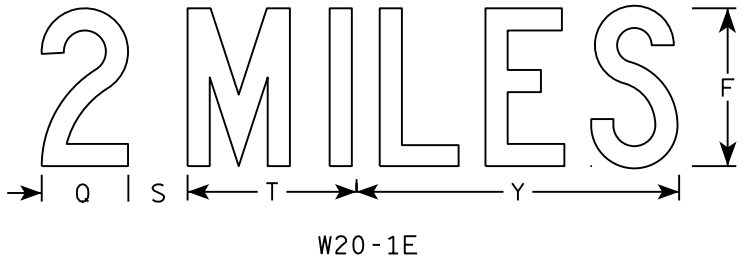
W20-1B



W20-1G



W20-1F



W20-1E

NOTES

- 1. Sign is Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - C
- 4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.

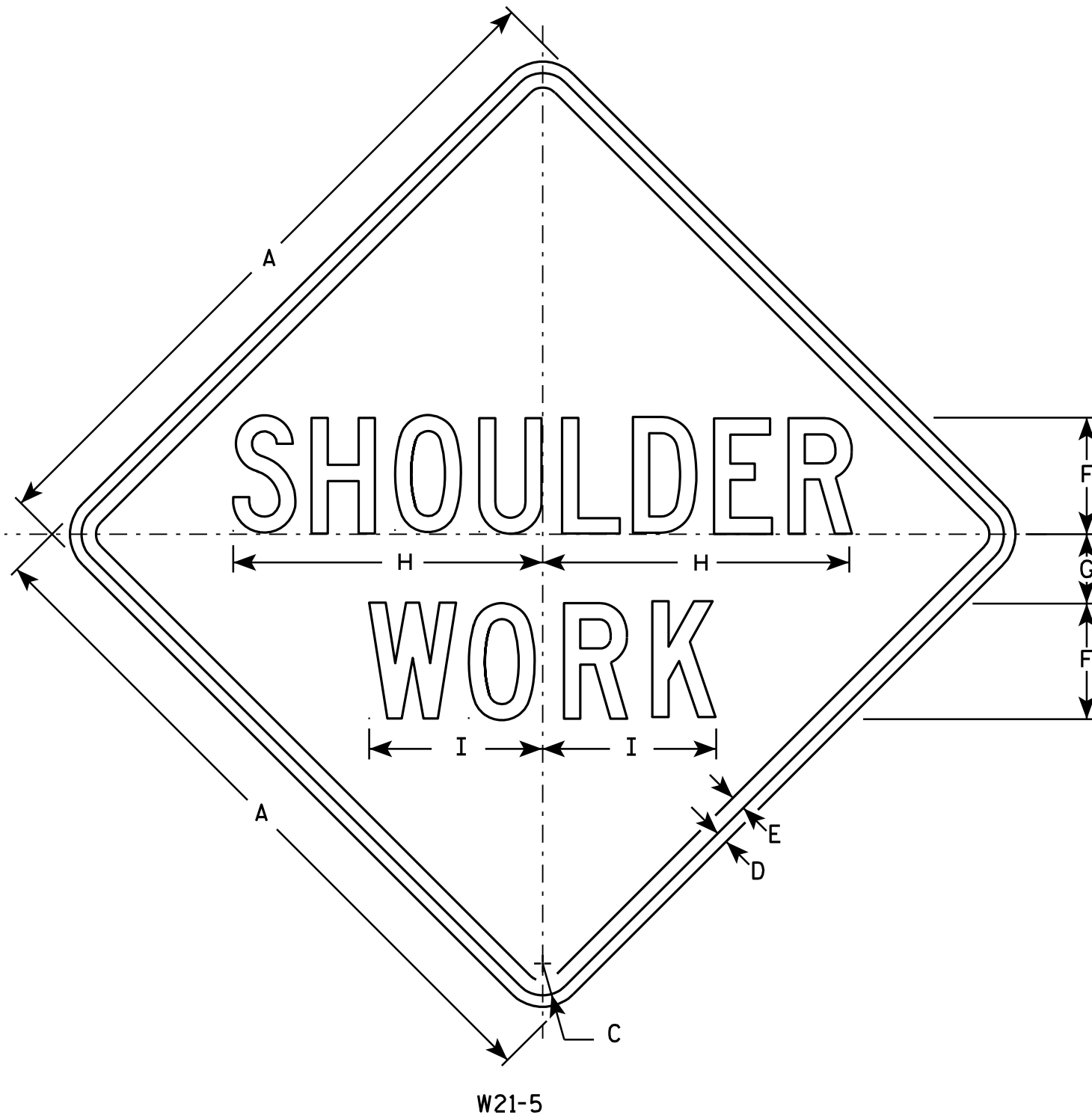
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 3/8	1/2	5/8	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9		2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
2M	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
3	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
4	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0
5	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8	13 3/4	2 1/8	11 7/8	2 3/4	16 3/8	9	16.0

STANDARD SIGN
W20-1A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 5/07/15 PLATE NO. W20-1.10



NOTES

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

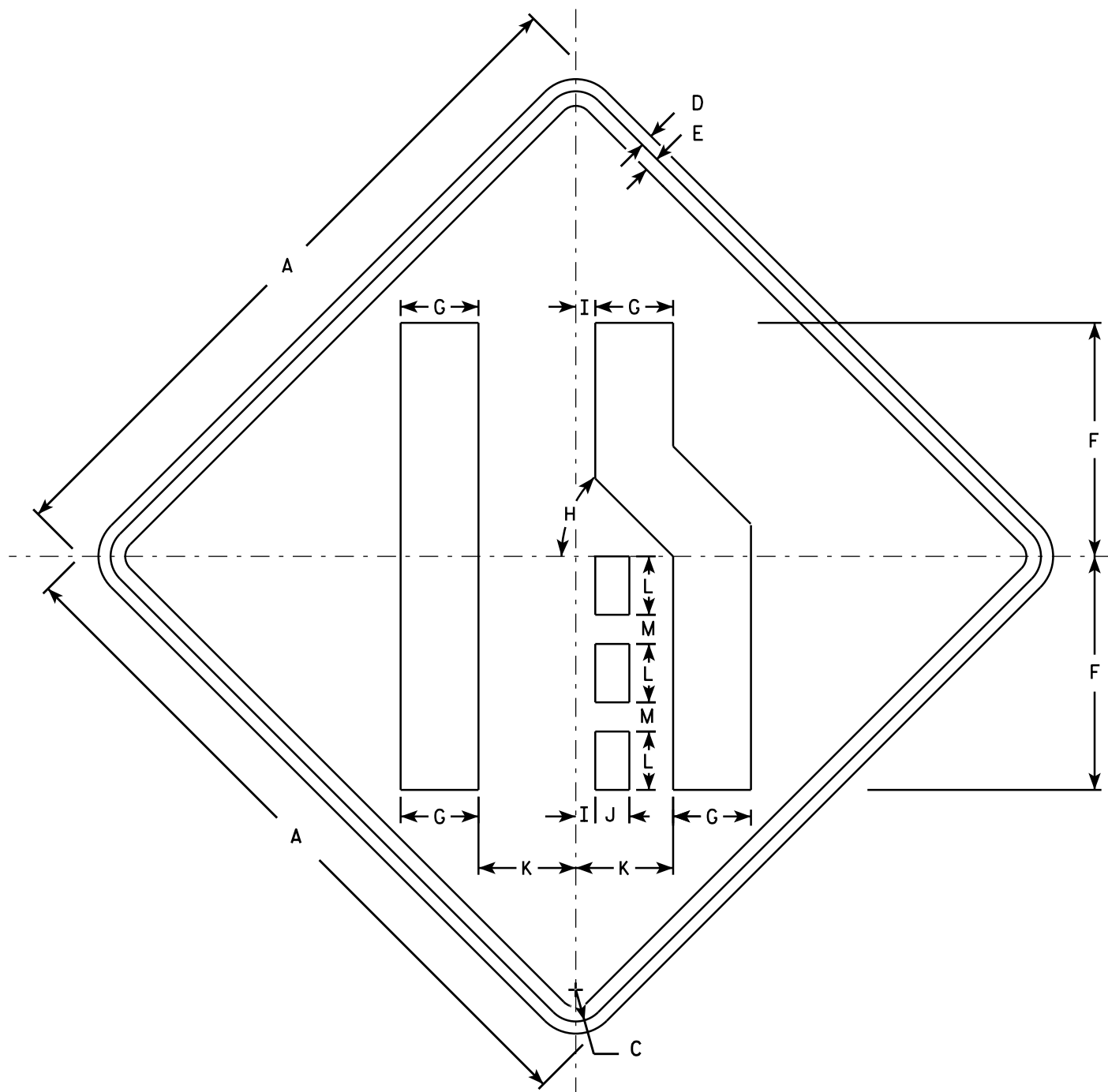
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	4	2 1/2	10 3/4	6																		4.0
2S	30		1 3/8	1/2	5/8	5	3	13 3/8	7 1/2																		6.25
2M	30		1 3/8	1/2	5/8	5	3	13 3/8	7 1/2																		6.25
3	36		1 5/8	5/8	3/4	6	3 1/2	16	9																		9.0
4	48		2 1/4	3/4	1	8	5	21 3/8	11 1/4																		16.0
5	48		2 1/4	3/4	1	8	5	21 3/8	11 1/4																		16.0

STANDARD SIGN W21-5

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer
DATE 3/21/11 PLATE NO. W21-5.5

PROJECT NO: HWY: COUNTY: SHEET NO: E



W04-2R

NOTES

- 1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
- 2. Color:
Background - Orange
Message - Black
- 3. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- 4. W04-2L is the same as W04-2R except the symbol is reversed along the vertical centerline.

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	12	4	45°	1	1 3/4	5	3	1 1/2														9.0
2S	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
2M	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
3	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
4	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0
5	48		2 1/4	3/4	1	16	5 3/8	45°	1 1/4	2 3/8	6 3/4	4	2														16.0

STANDARD SIGN

W04-2

WISCONSIN DEPT OF TRANSPORTATION

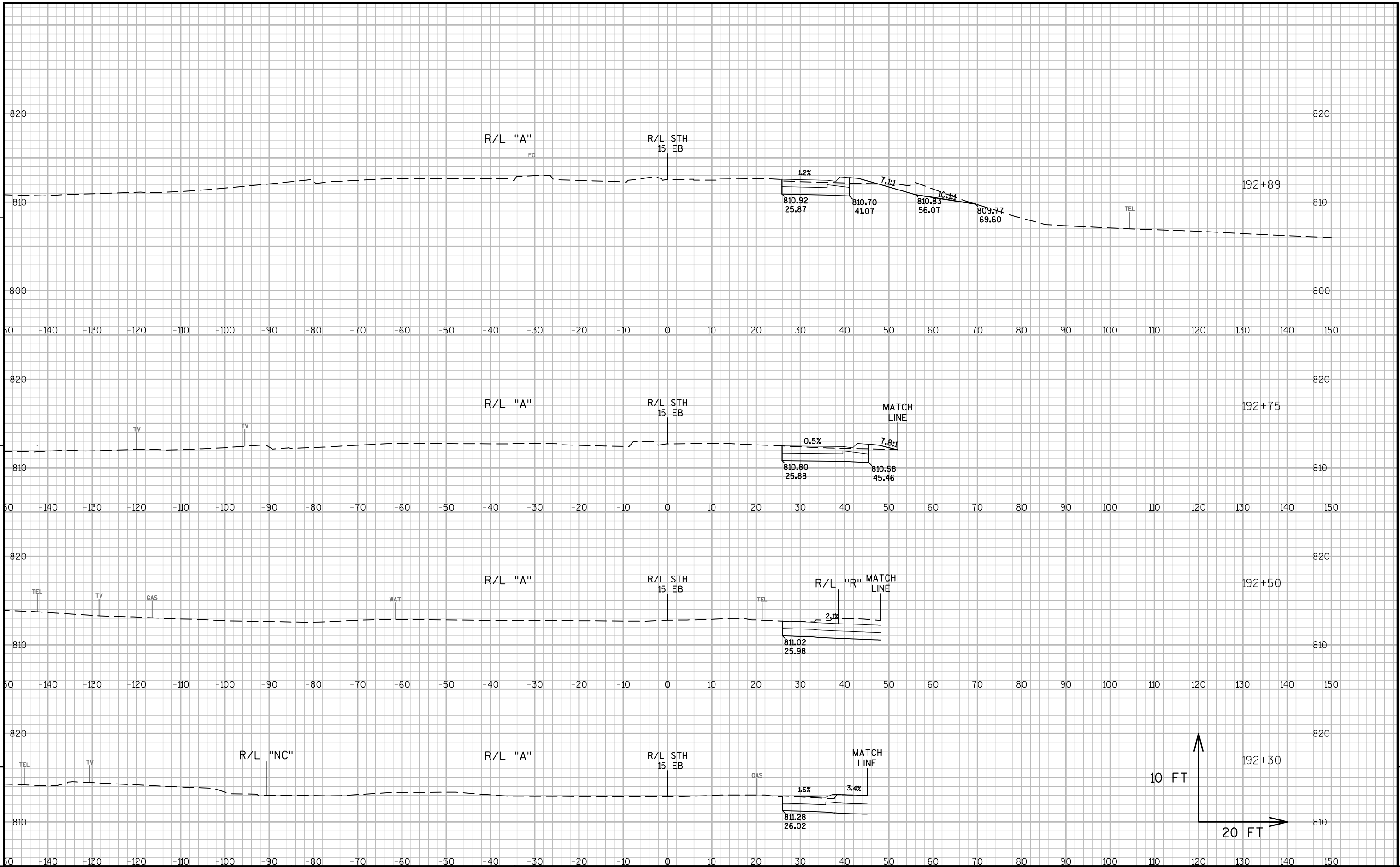
APPROVED

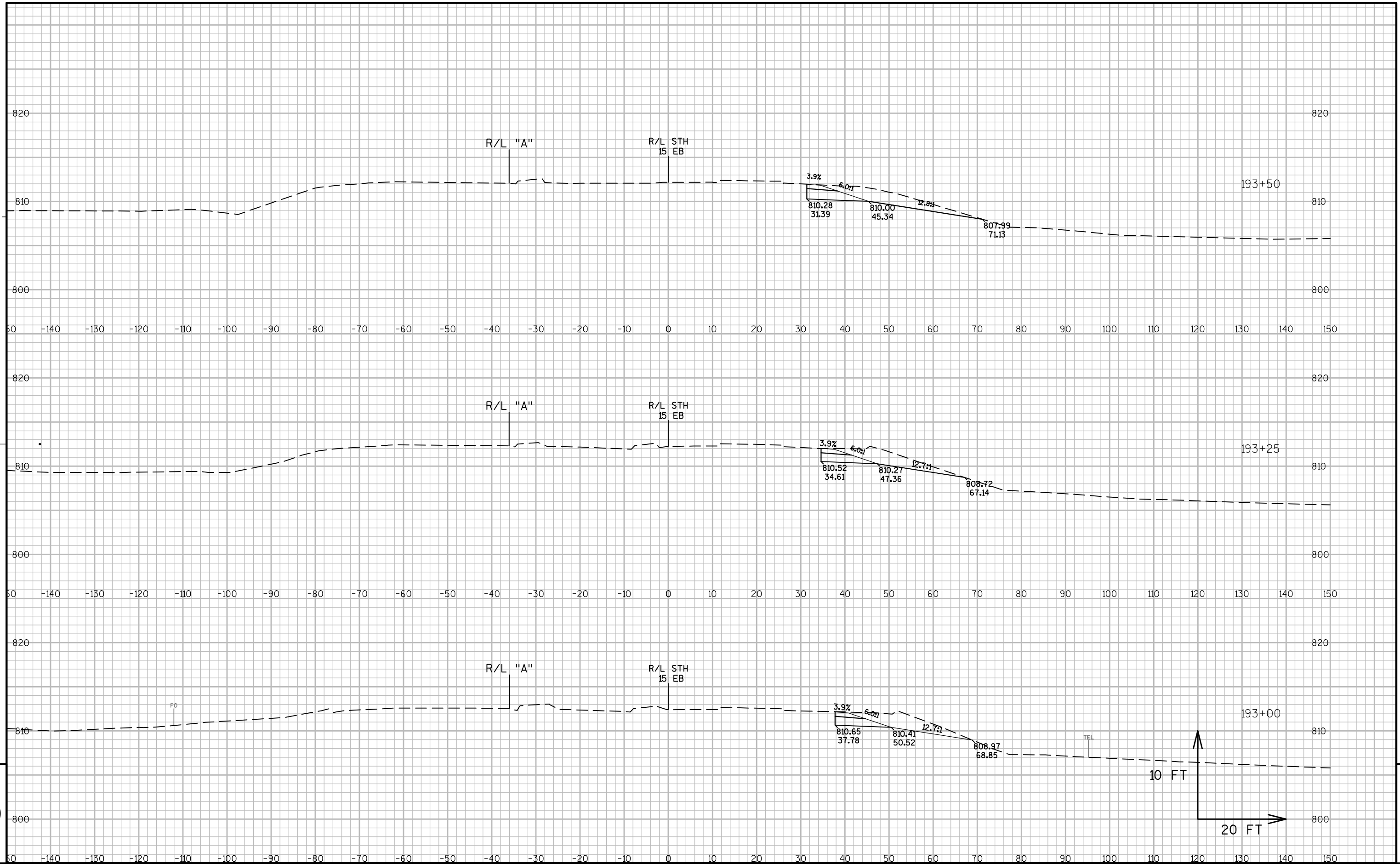
Matthew R. Rauch

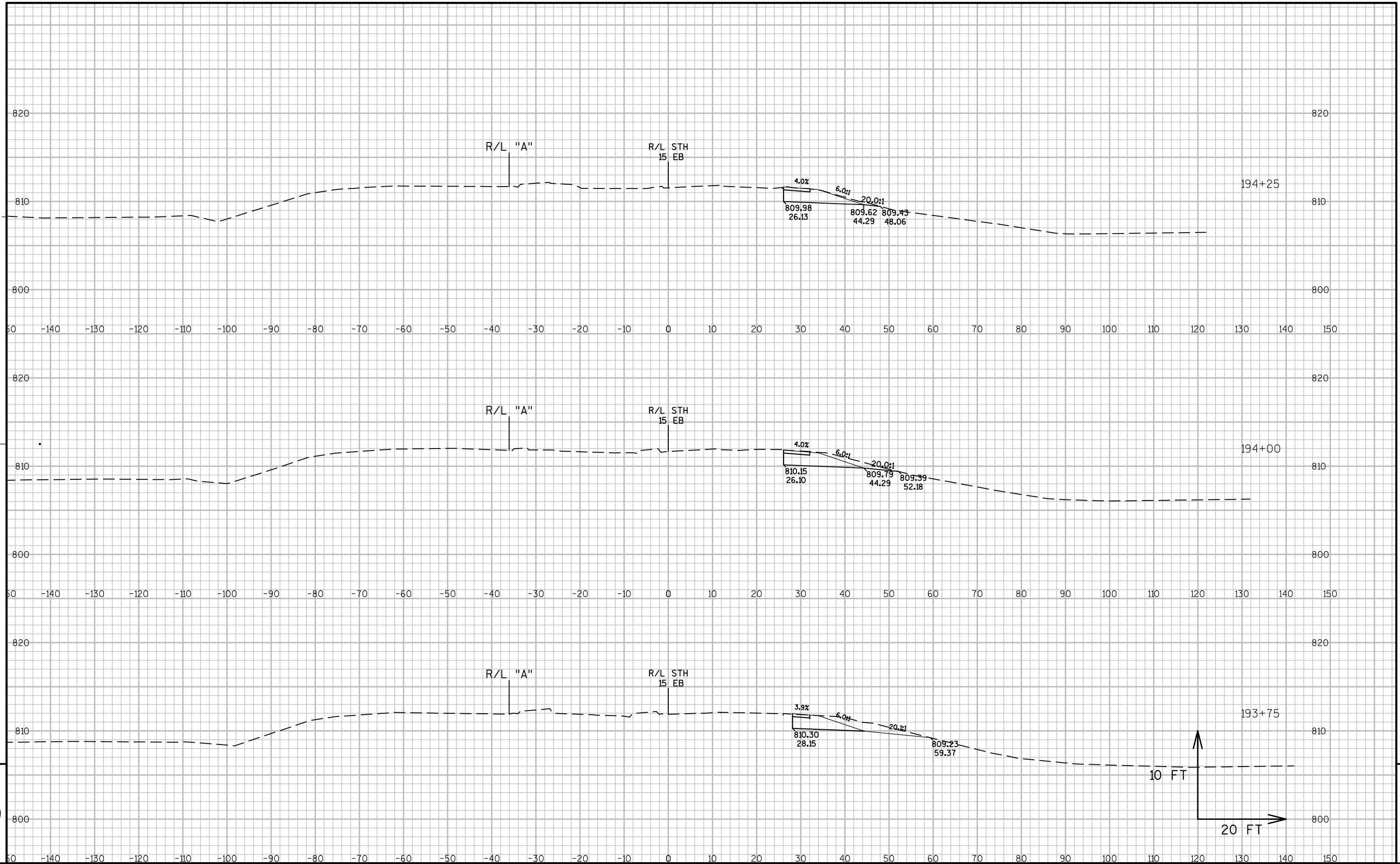
For State Traffic Engineer

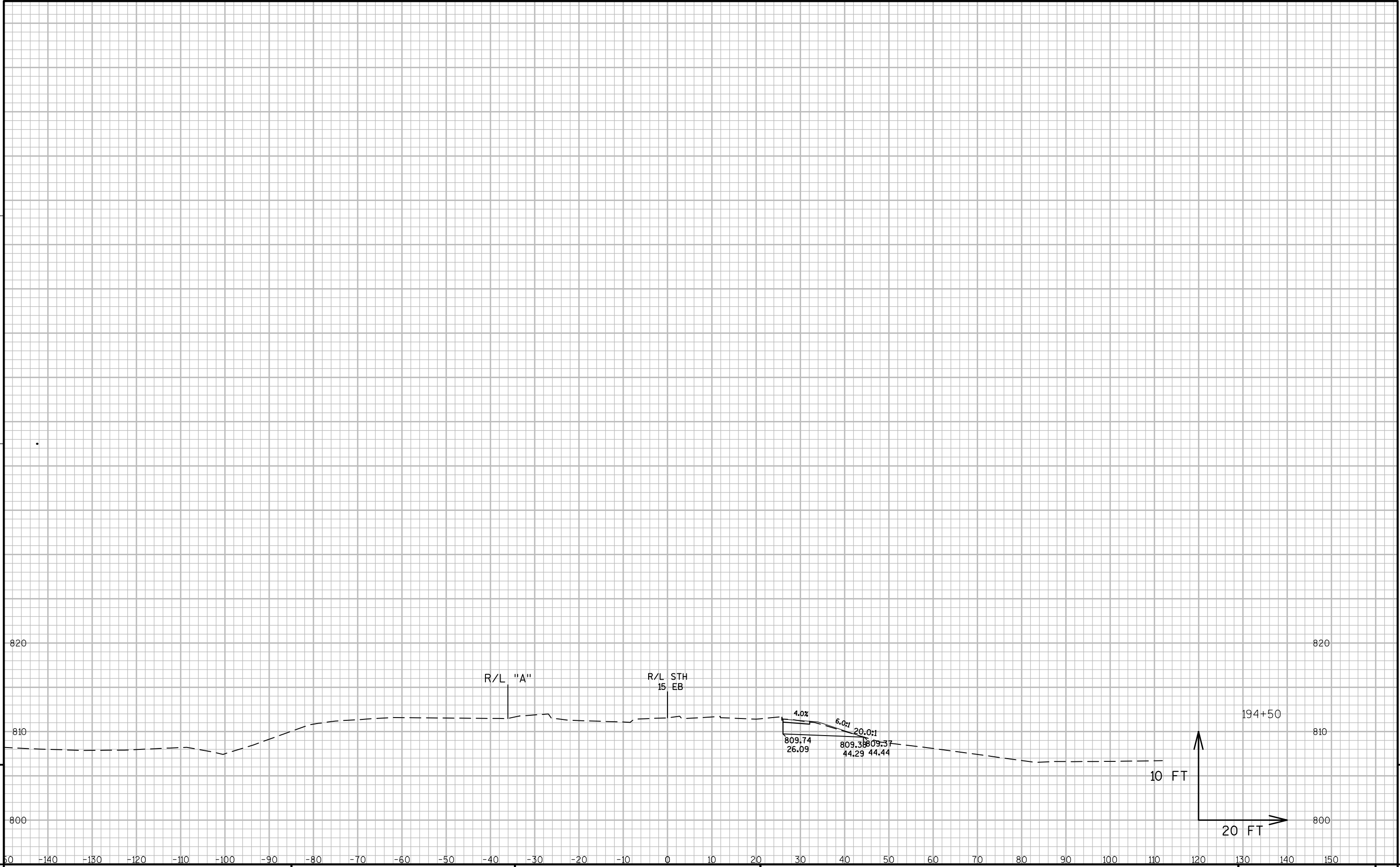
DATE 11/20/13

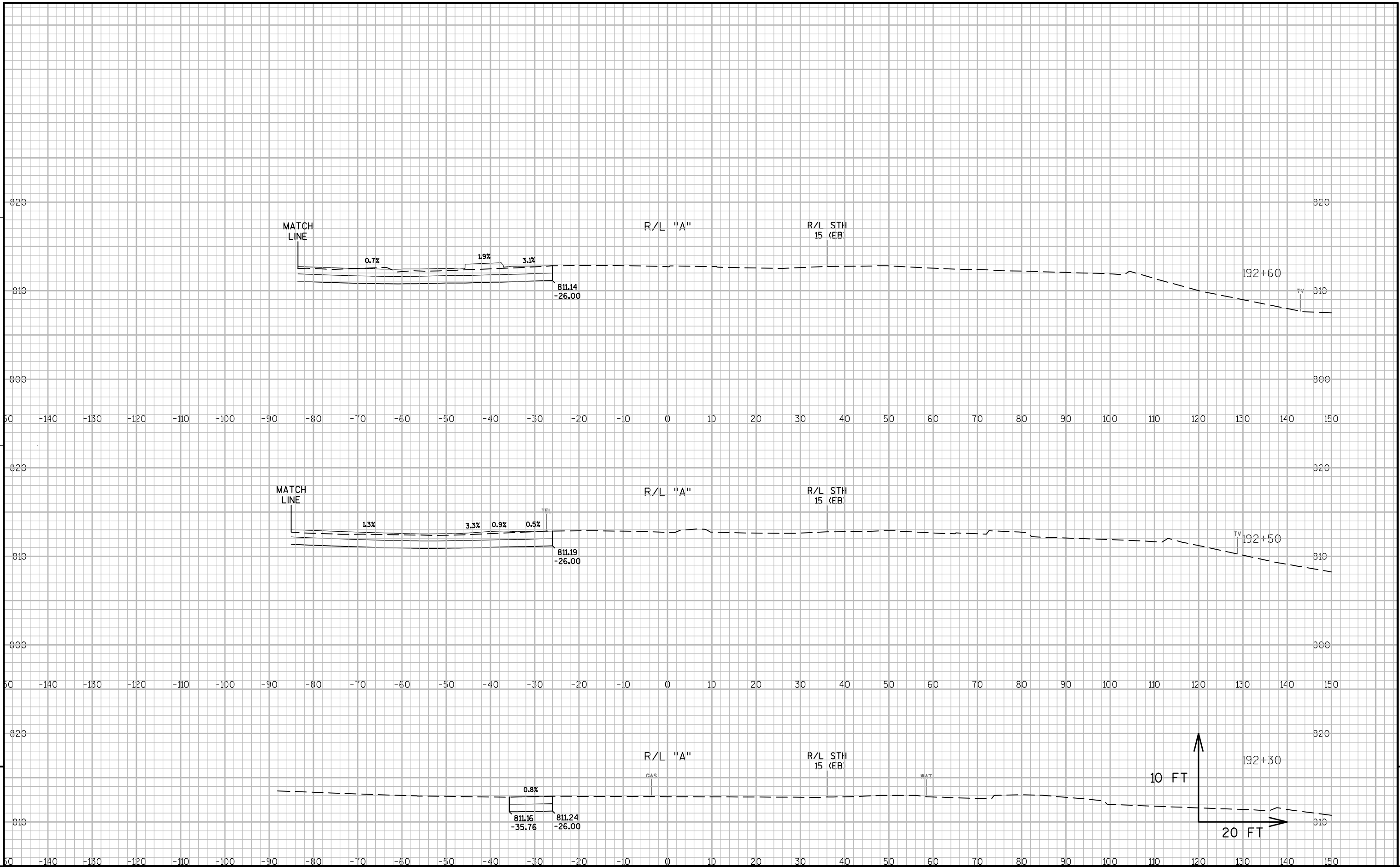
PLATE NO. W04-2.1

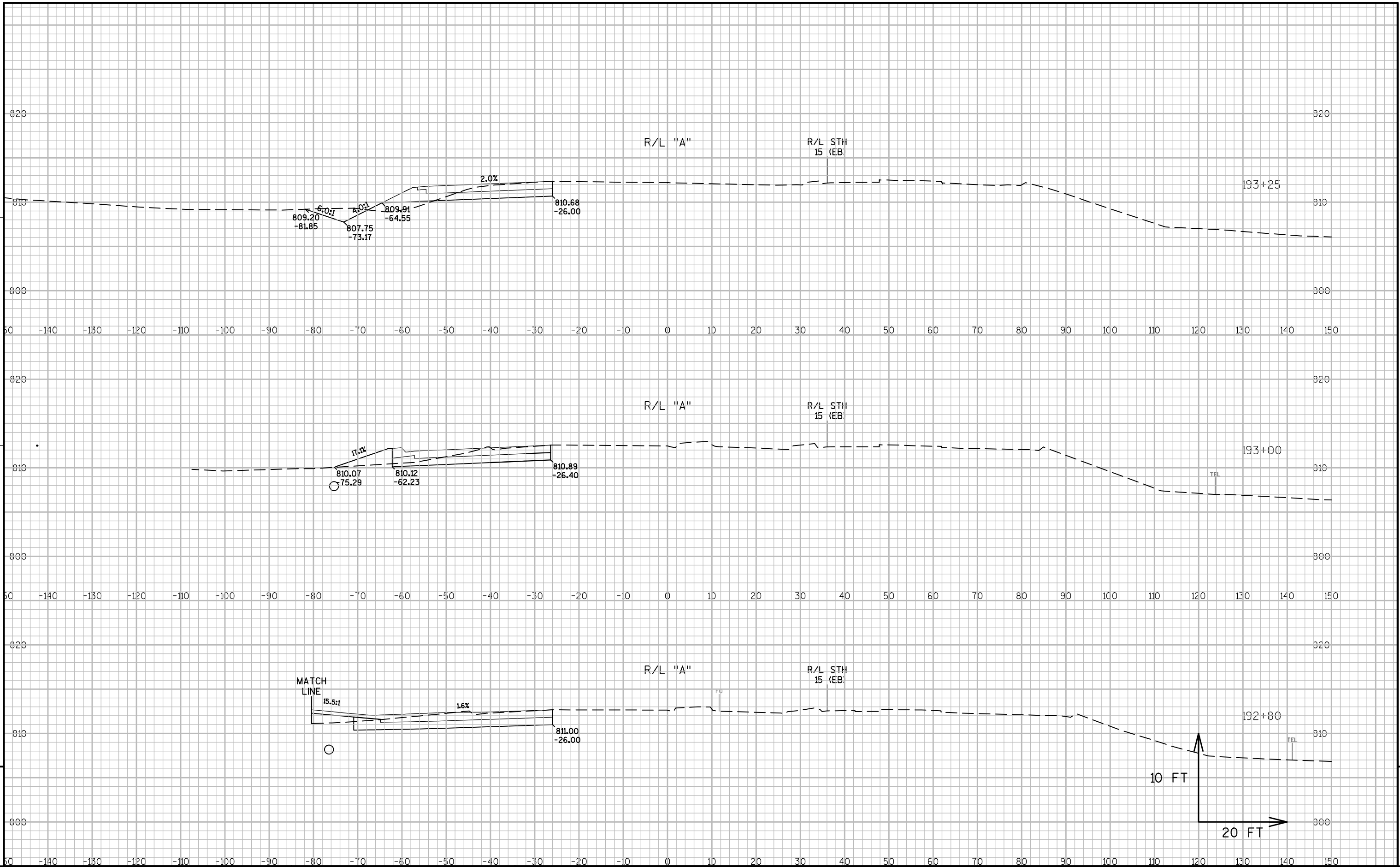


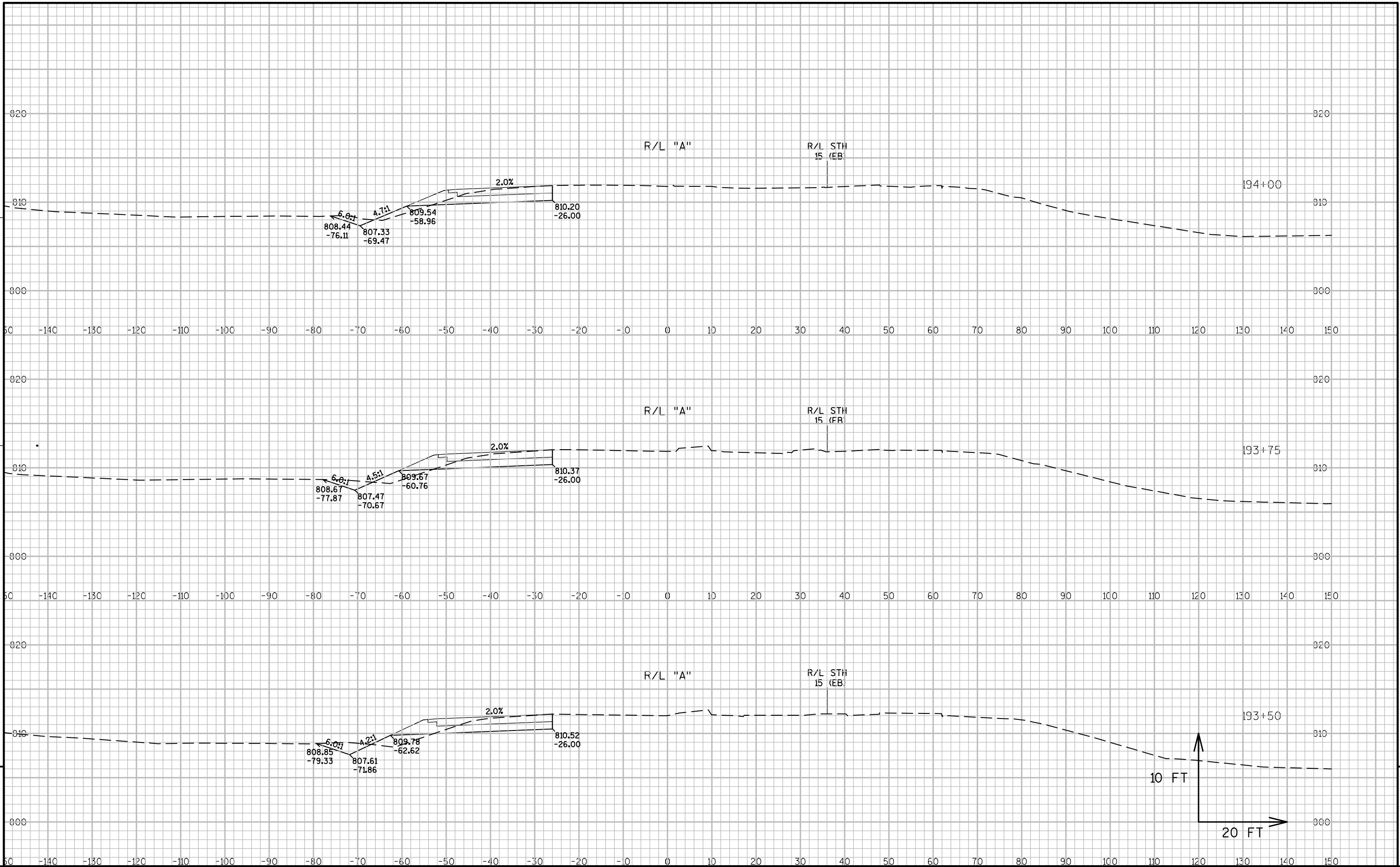


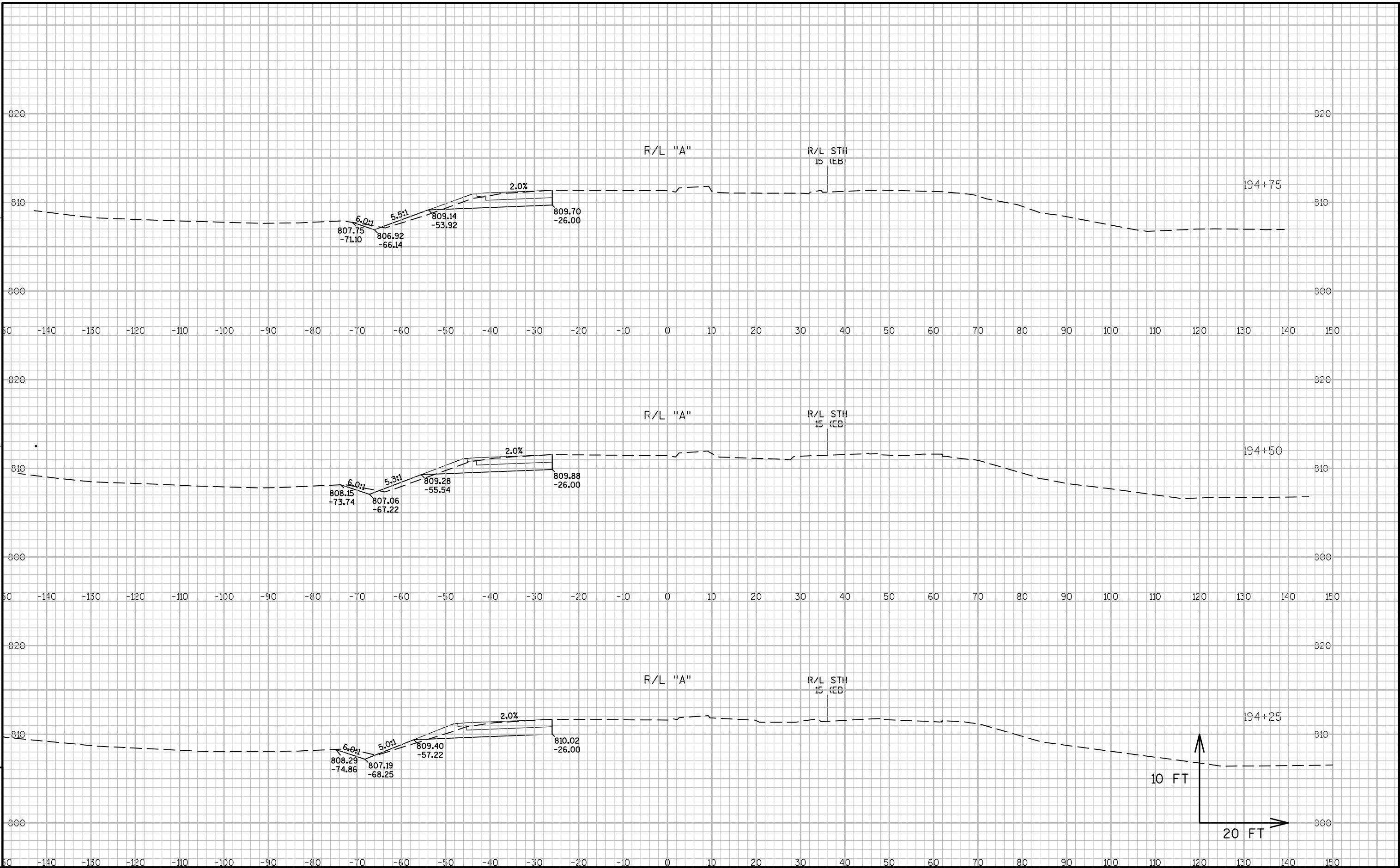


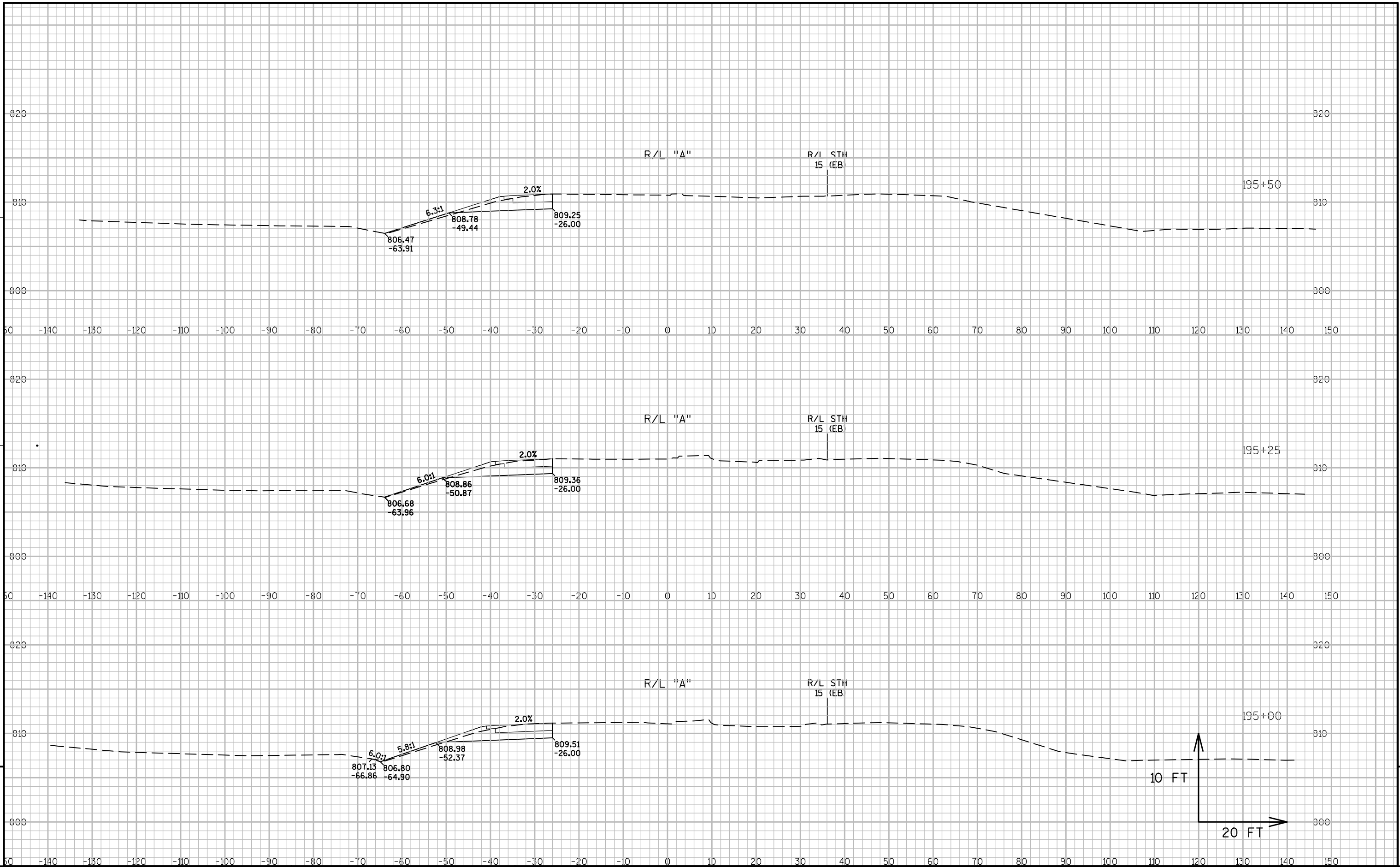


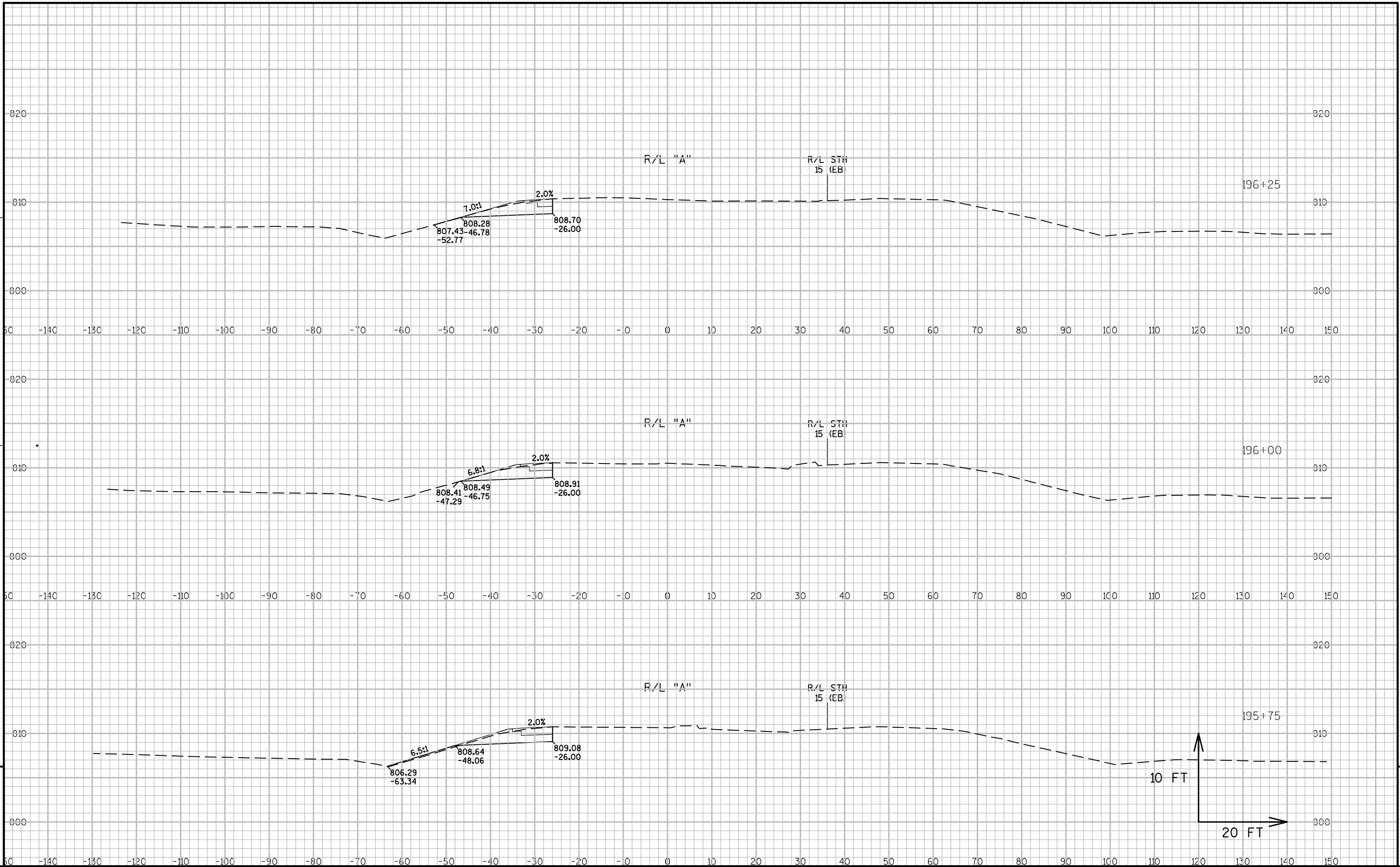


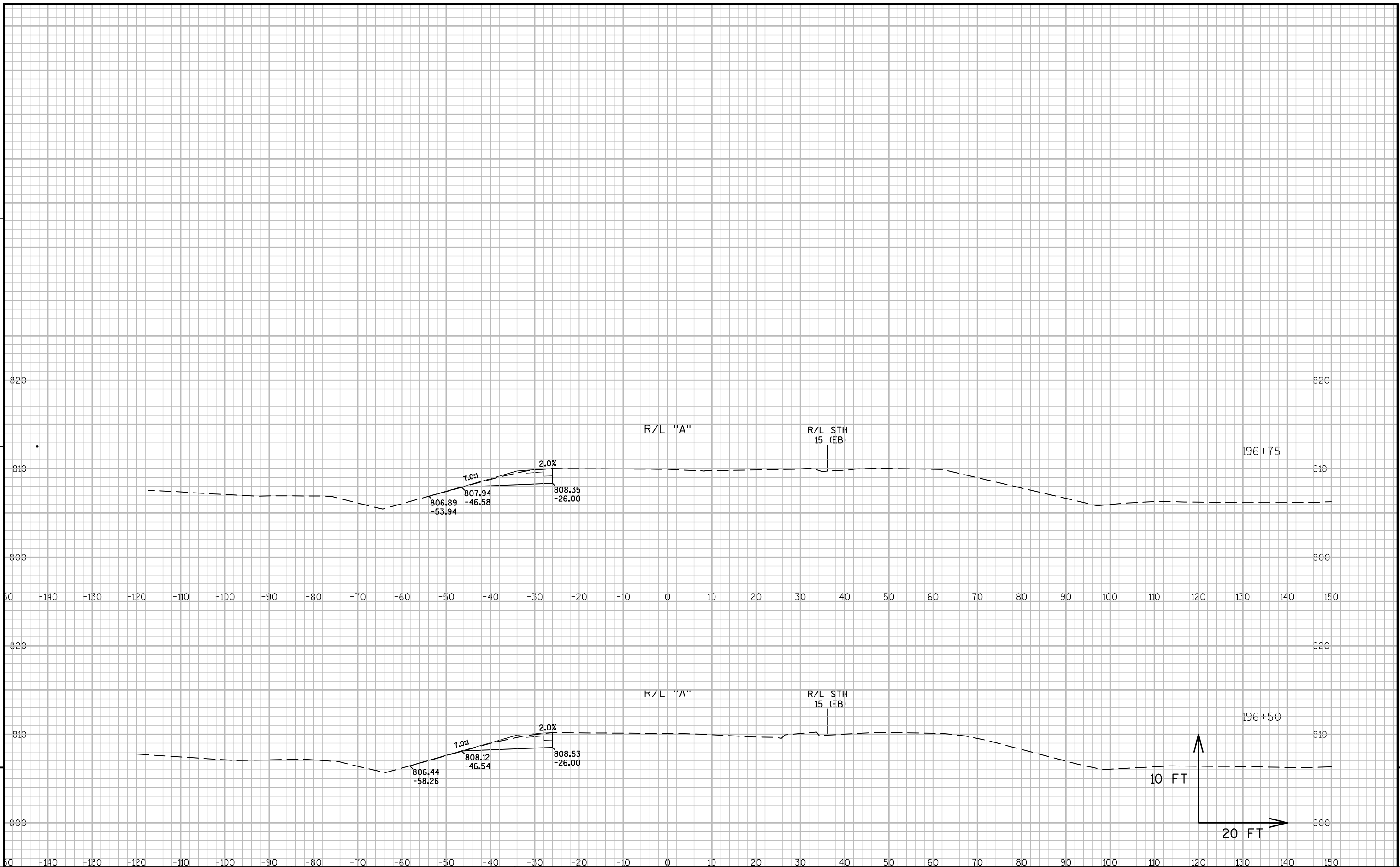


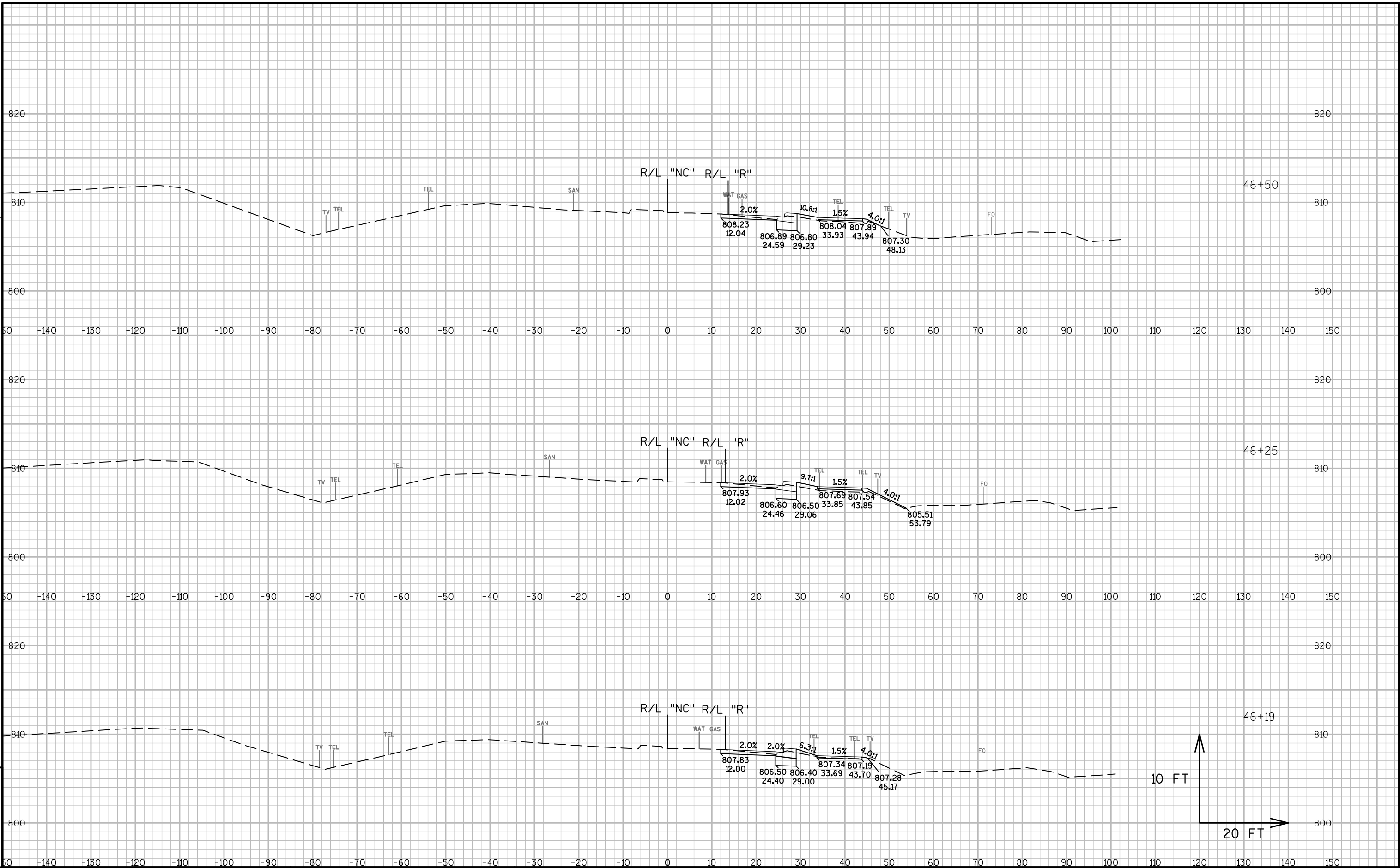


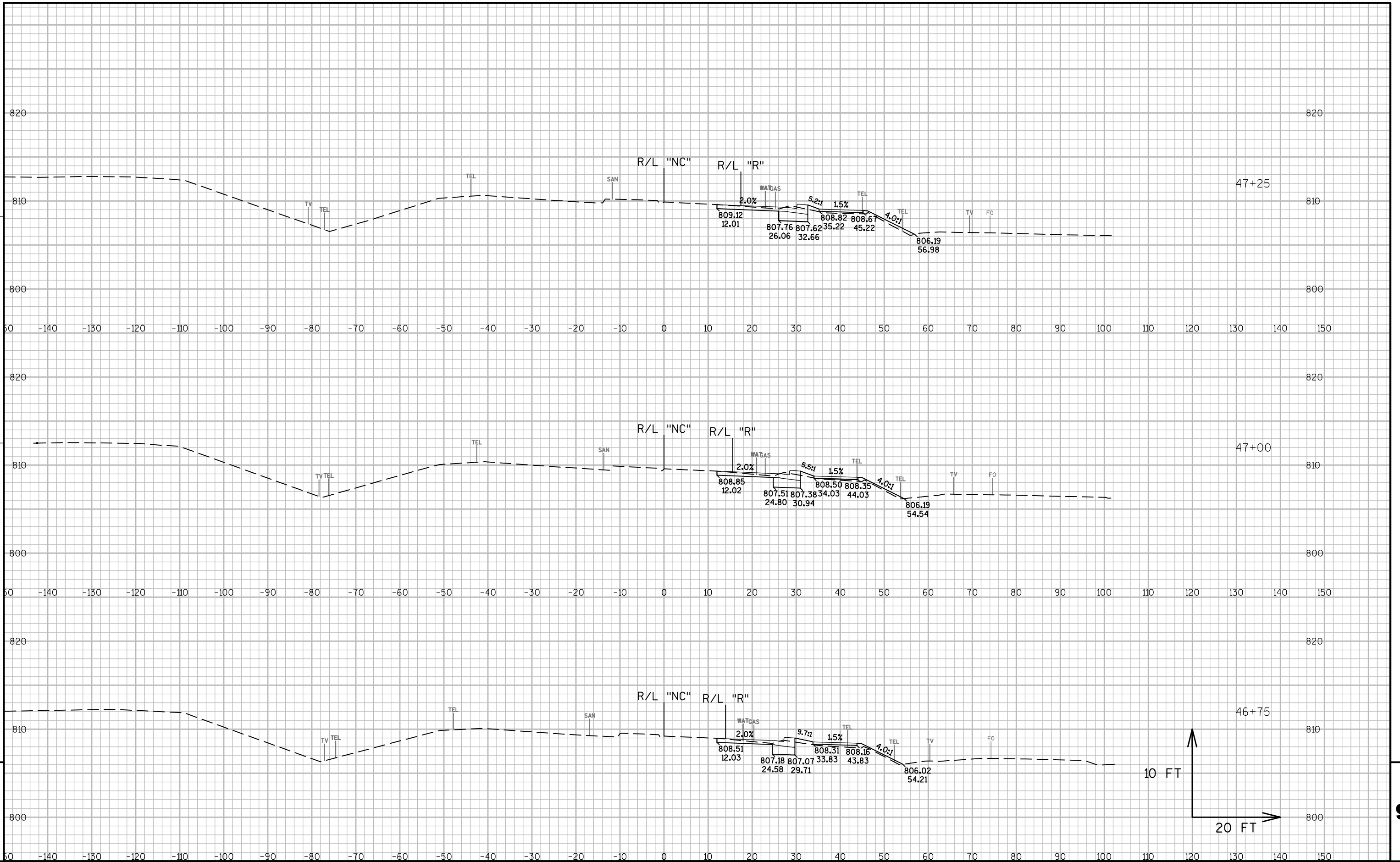


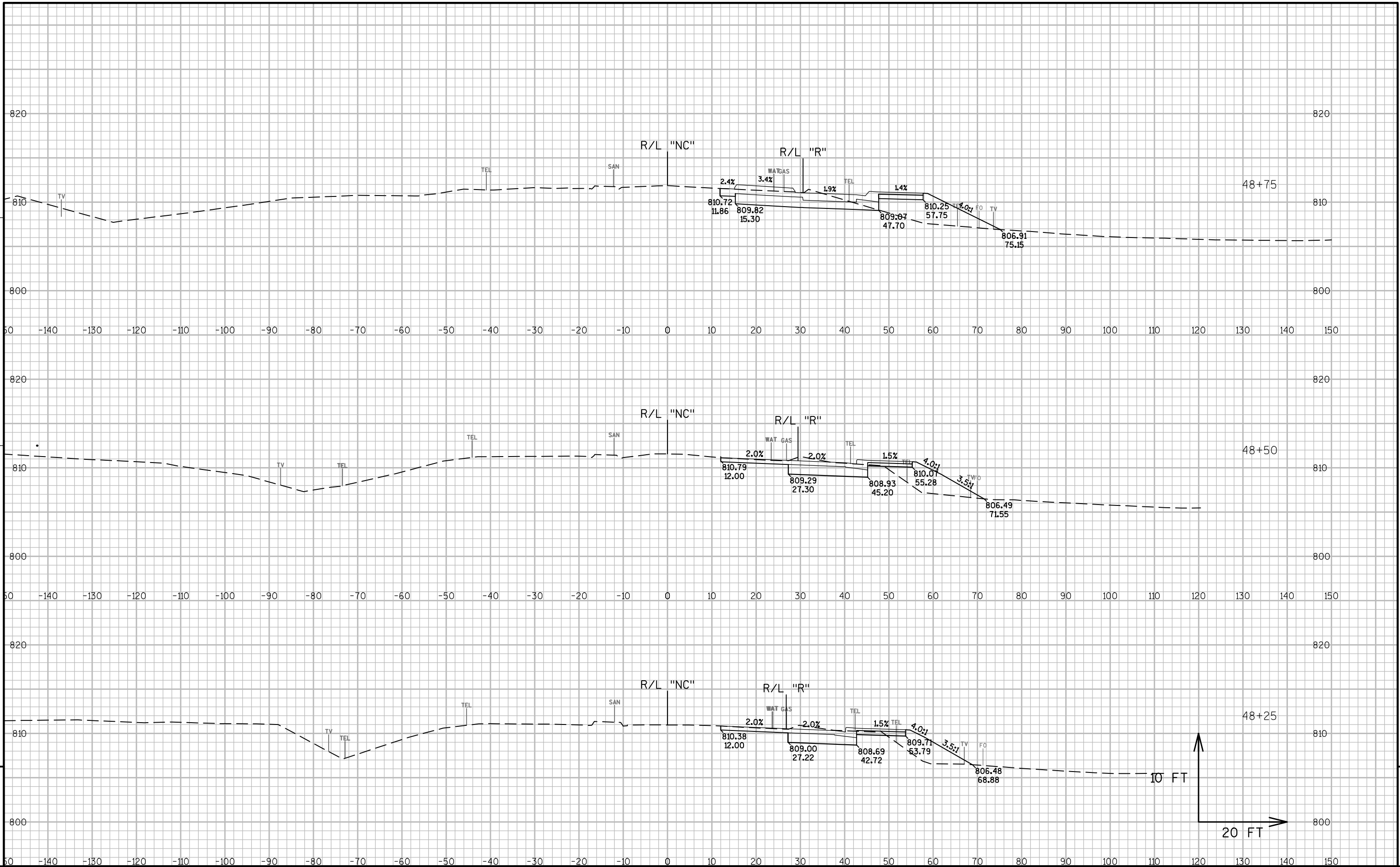


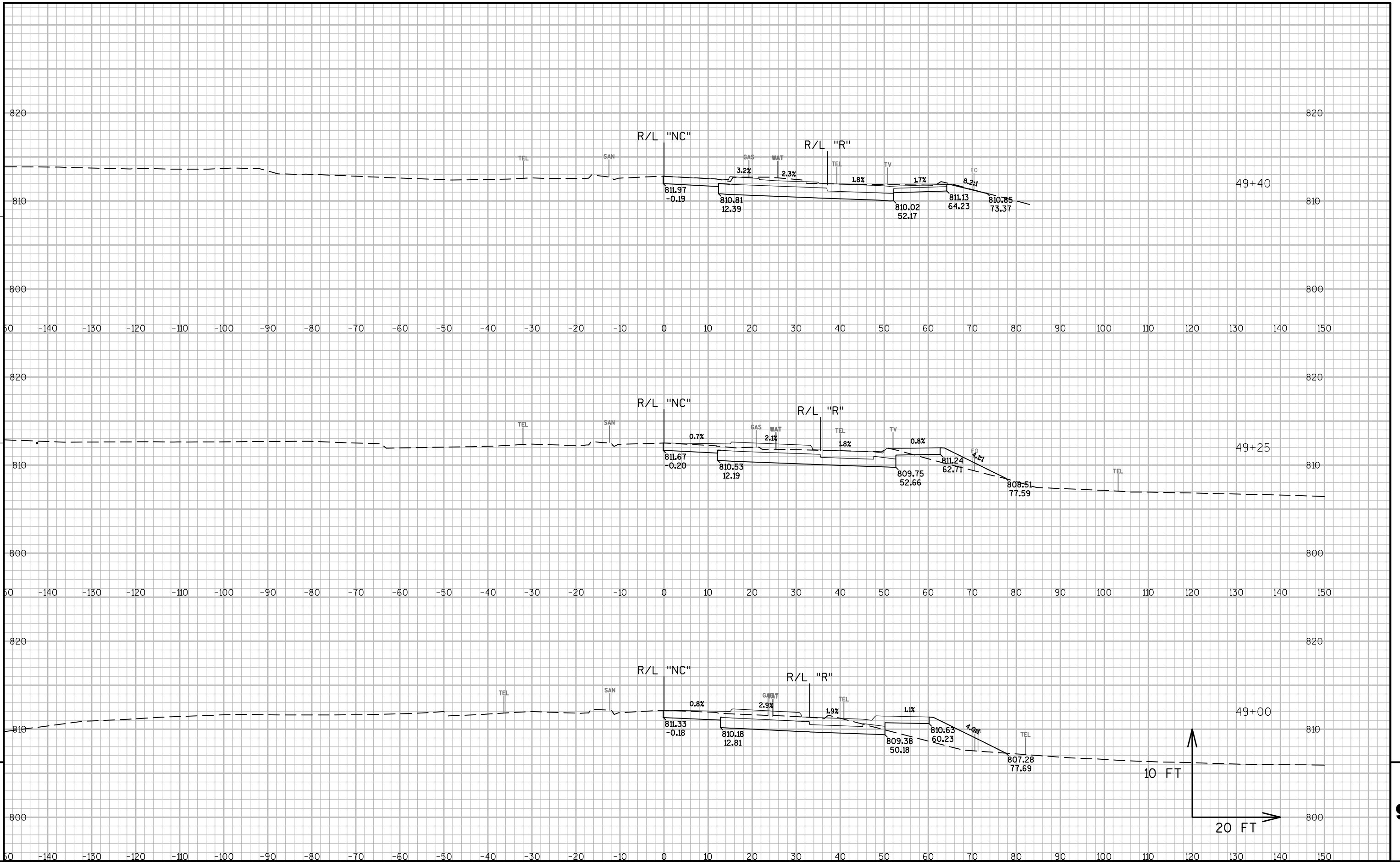


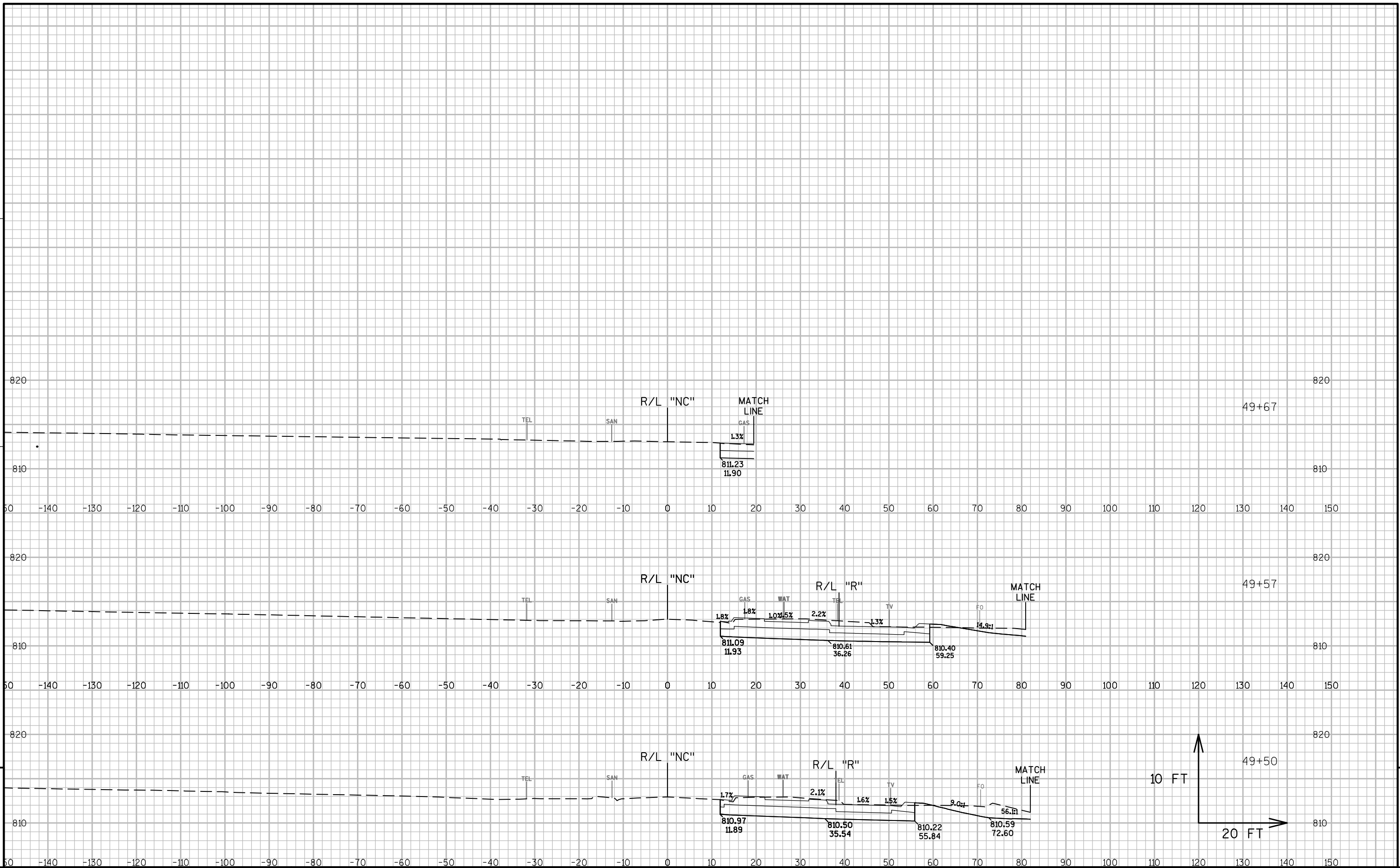


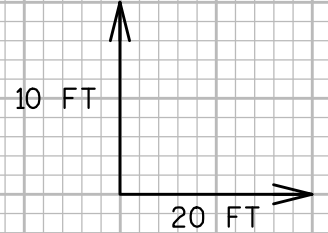
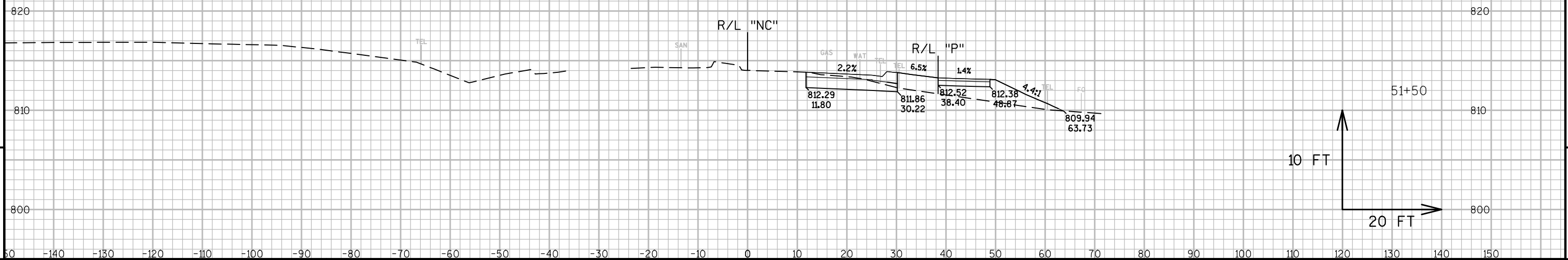


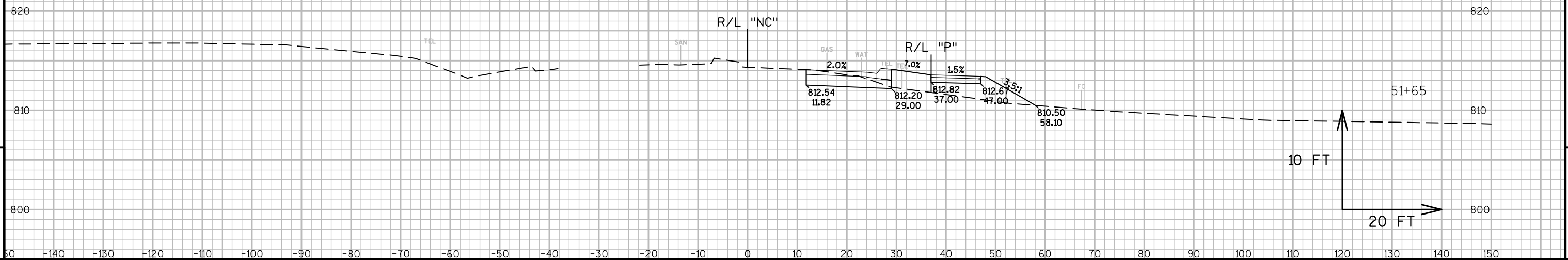


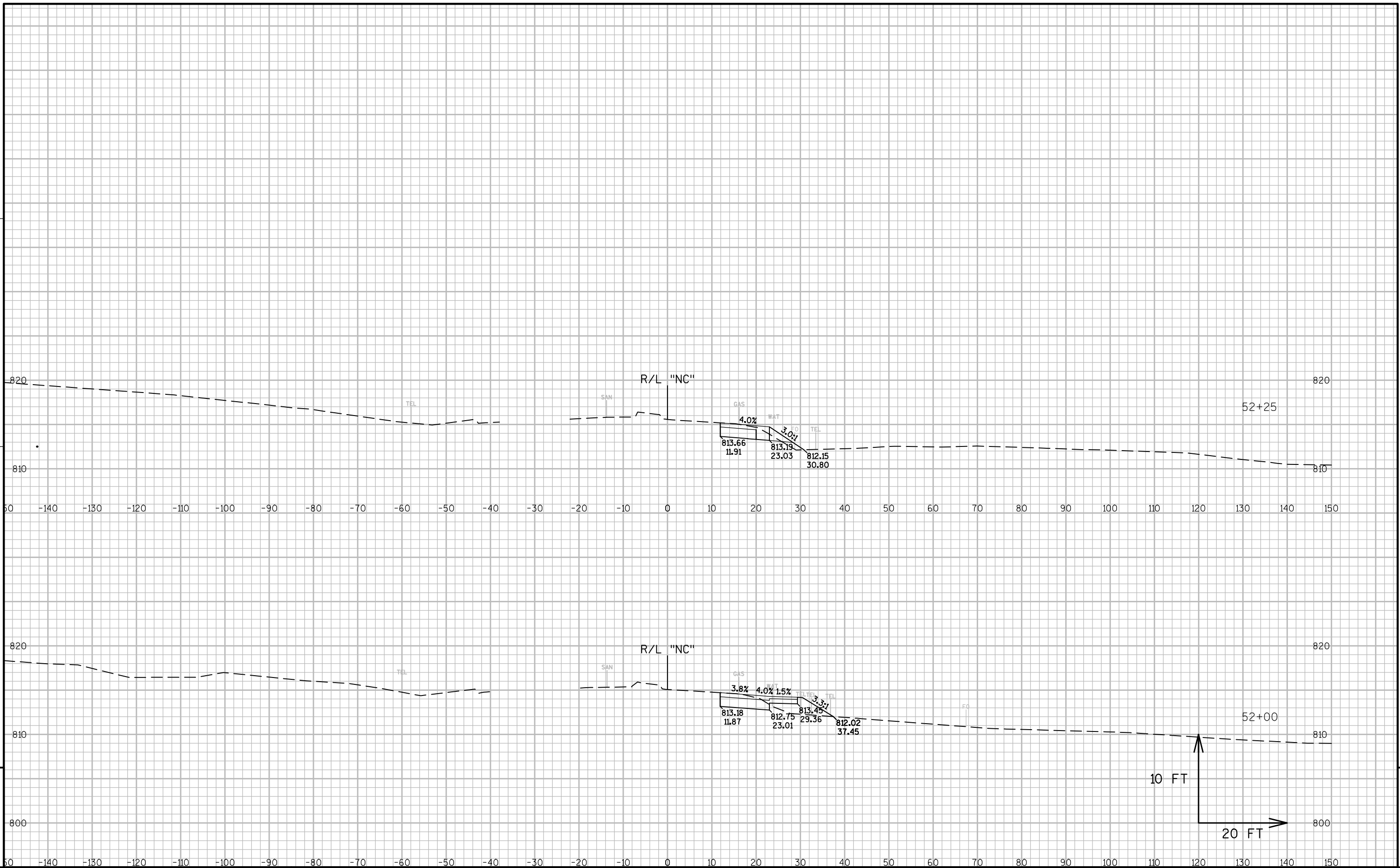


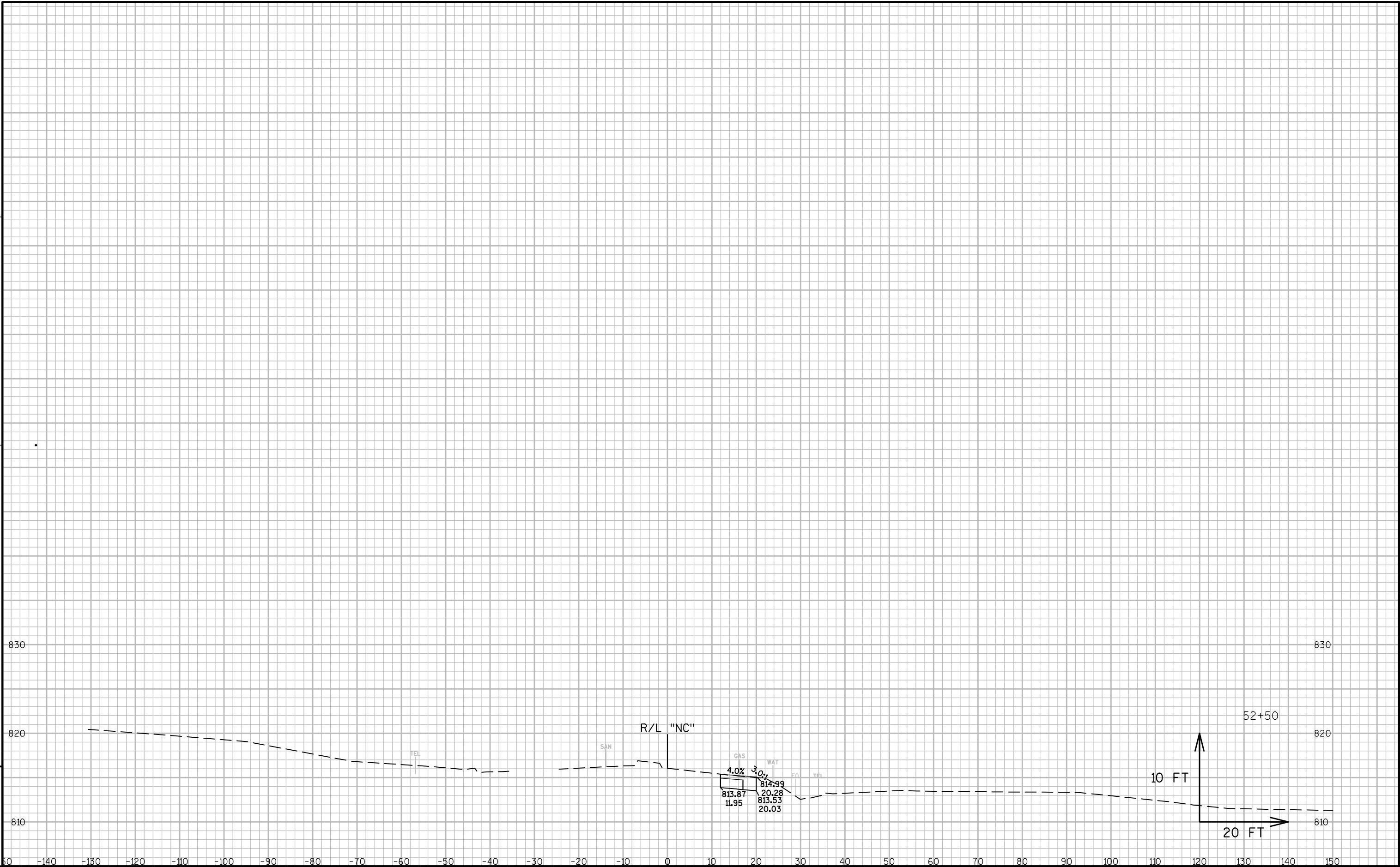














Wisconsin Department of Transportation

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