

SEPTMBER 2022

1220-21-60

COUNTY: **BROWN**

BROWN

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1220-21-60	WISC 2022463	1

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

IH 43, CITY OF GREEN BAY

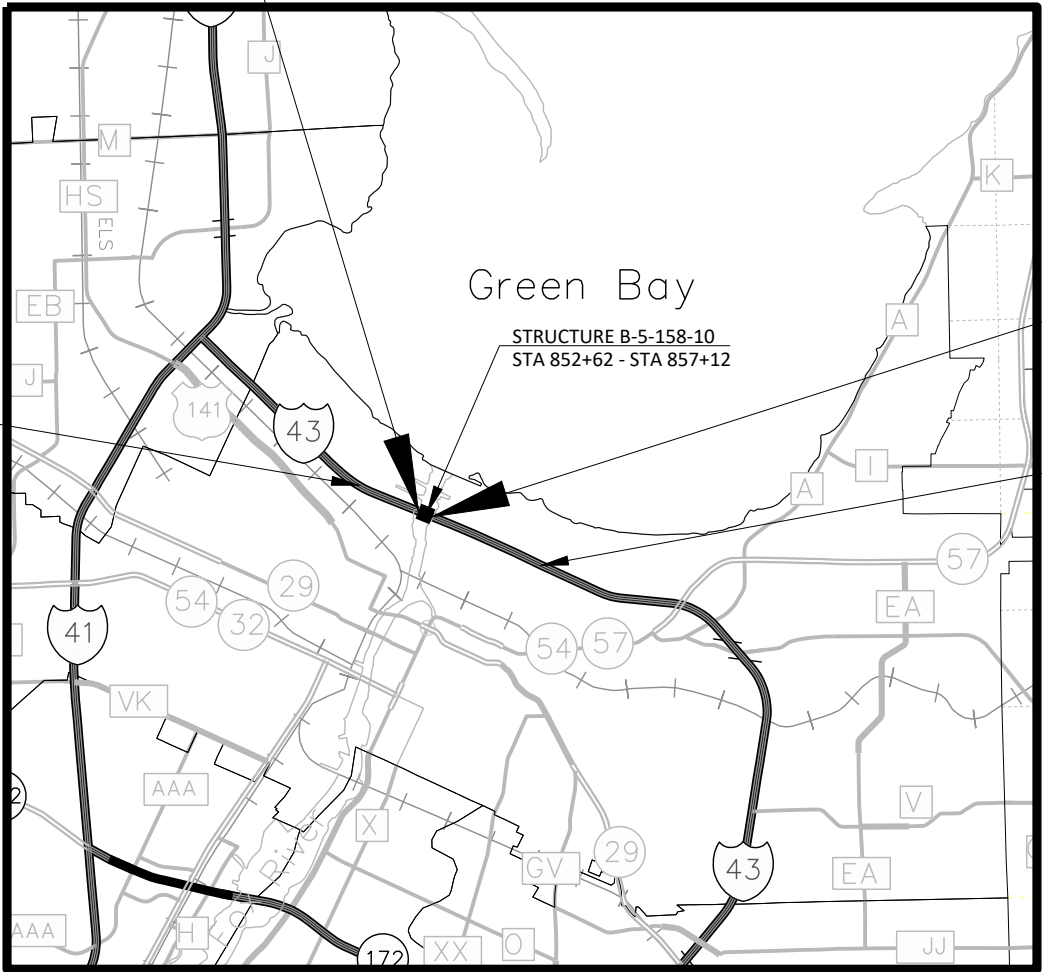
LEO FRIGO BRIDGE, B050158

IH 43

BROWN COUNTY

STATE PROJECT NUMBER
1220-21-60

END PROJECT
STA 857+12



BEGIN PROJECT
STA 852+62

$$Y = 573966.24$$
$$X = 101823.70$$

BEGIN CONSTRUCTION
STA 827+95

END CONSTRUCTION
STA 881+00

DESIGN DESIGNATION

A.A.D.T.	(2019)	=	43,400
D.H.V.		=	5.425
D.D.		=	54/46
T.		=	10.5%
DESIGN SPEED		=	75 MPH
ESALS		=	N/A

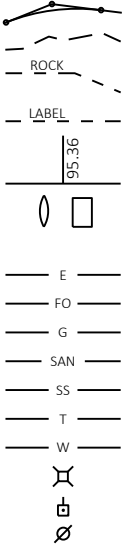
CONVENTIONAL SYMBOLS

PLAN

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



Green Bay

STRUCTURE B-5-158-10
STA 852+62 - STA 857+12

LAYOUT

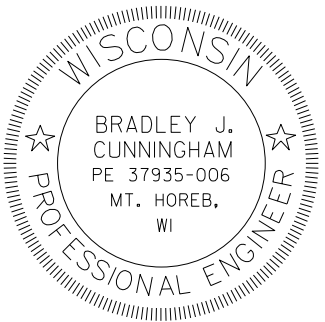
SCALE 0 2 M

TOTAL NET LENGTH OF CENTERLINE = 0.000 MILES

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), BROWN COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2017). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

ORIGINAL PLANS PREPARED BY

KL Engineering
[A] Better Experience



2/1/2022
(DATE)

Brady Wright
(SIGNATURE)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY	
Surveyor	KL ENGINEERING, INC.
Designer	KL ENGINEERING, INC.
Project Manager	ERIC GWIDT
Regional Examiner	ROB WAGNER
Regional Supervisor	REGIONAL SUPERVISOR

APPROVED FOR THE DEPARTMENT 

DATE: 11/18/22 _____
(Signature)

E

FILE NAME : G:\WDOTNE\20109-000 LEO FRIGO\CIVIL 3D\SHEETSPLAN\010101-TI.DWG

PLOT DATE : 9/2/2021 9:14 AM

PLOT BY : BRAD CUNNINGHAM

PLOT NAME :

UTILITY CONTACTS

COMMUNICATION LINE

ASTREA
ANDREW HEIGL
105 KENT ST
P.O. BOX 190
IRON MOUNTAIN, MI 49801
(906) 221-7536
andy.heigl@astreaconnect.com

ELECTRICITY-TRANSMISSION

ATC MANAGEMENT, INC.
DOUG VOSBERG
2489 RINDEN ROAD
COTTAGE GROVE, WI 53527
(608) 877-7650
dvosberg@atcllc.com

COMMUNICATION LINE

CENTURYLINK COMMUNICATIONS, LLC
(LUMEN TECHNOLOGIES)
BRAHIM GADDOUR
3235 INTERTECH DR. SUITE 600
BROOKFIELD, WI 53045
(414) 908-1027
brahim.gaddour@lumen.com
Relocations@lumen.com

COMMUNICATION LINE

MERIT NETWORK, INC.
DUSTIN LAPOINTE
880 TECHNOLOGY DRIVE, SUITE B
ANN ARBOR, MI 48104
(734) 476-6100
dlapoint@merit.edu

SEWER

NEW WATER
ROB REINHART
2231 NORTH QUINCY ST
GREEN BAY, WI 54302-1248
(920) 619-4917
reinhart@newwater.us

COMMUNICATION LINE

WINDSTREAM KDL, LLC
ERIC BECKER
314 N DANZ AVE
GREEN BAY, WI 54302-3526
(920) 461-9825
Eric.Becker@windstream.com

ELECTRICITY

WISCONSIN PUBLIC SERVICE CORPORATION
STU SENECA
2850 S. ASHLAND AVE
GREEN BAY, WI 54304
(920) 680-7803
stuart.senecal@wisconsinpublicservice.com

OTHER CONTACTS

COMMUNICATION LINE

WISCONSIN DEPARTMENT OF TRANSPORTATION
JEFF MADSON
STE. 300
433 W. ST. PAUL AVE.
MILWAUKEE, WI 53203-3007
(414) 225-3723
Jeffrey.Madson@dot.wi.gov

COMMUNICATION TOWER

WISCONSIN DOT RWIS PROGRAM
MIKE ADAMS
P.O. BOX 7986
MADISON, WI 53707-7986
(608) 266-5004
michael.adams@dot.wi.gov

GENERAL NOTES

THE LOCATIONS OF 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 COORDINATE HIS CONSTRUCTION ACTIVITIES WITH A CALL TO DIGGERS HOTLINE AND/OR A DIRECT CALL TO THE UTILITIES THAT HAVE FACILITIES IN THE AREA. NOT ALL UTILITIES ARE MEMBERS OF DIGGERS HOTLINE.

WETLANDS ARE PRESENT IN SEVERAL AREAS ADJACENT TO THE PROJECT. DO NOT OPERATE EQUIPMENT OUTSIDE THE SLOPE INTERCEPTS IN WETLAND AREAS UNLESS DIRECTED BY THE ENGINEER.

WISDOT CONTACTS

ERIC GwidT
PROJECT MANAGER
944 VANDERPERREN WAY
GREEN BAY, WI 54304
(920) 366-8896
Eric.Gwidt@dot.wi.gov

DESIGN CONTACTS

CHAD HALVERSON
KL ENGINEERING, INC.
5400 KING JAMES WAY, SUITE 200
MADISON, WI 53719
(608) 663-1218
chalveson@klengineering.com

DNR LIASON

JAMES DOPERALSKI, JR.
WDNR TRANSPORTATION LIAISON
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
2984 SHAWANO AVENUE
GREEN BAY, WI 54313-6727
(920) 412-0165
james.doperalski@wisconsin.gov

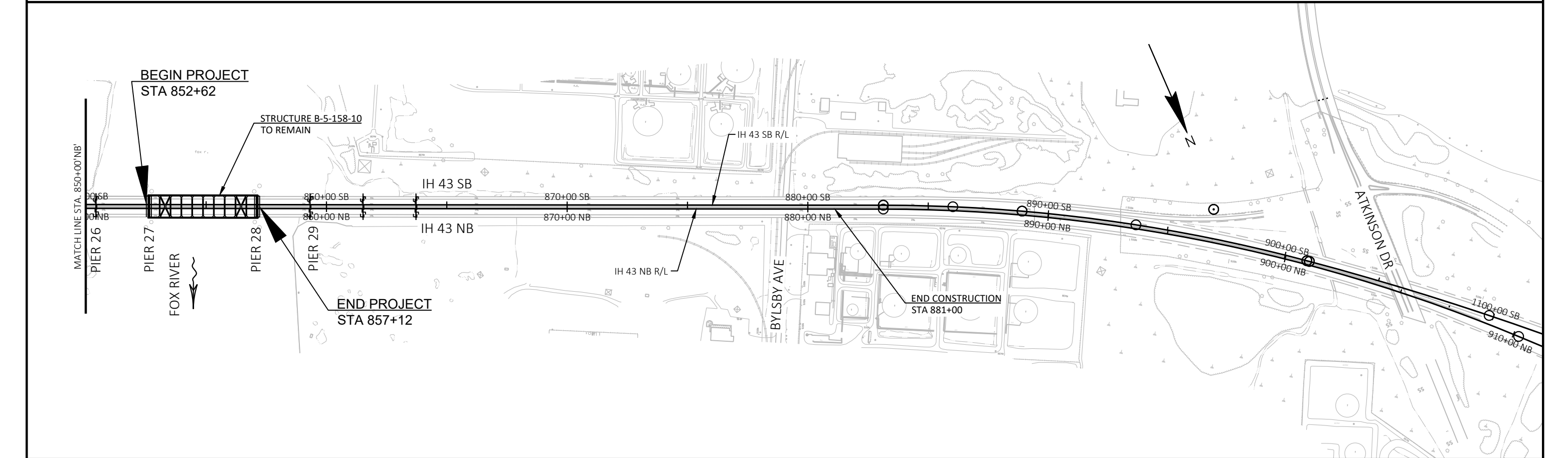
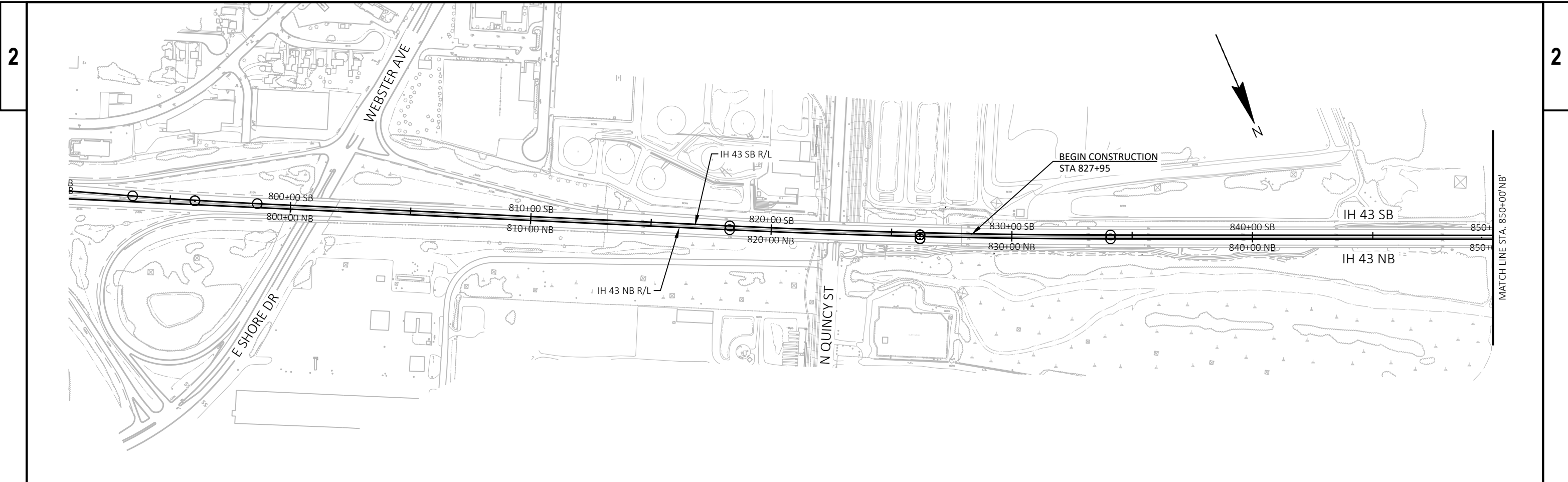
ABBREVIATIONS

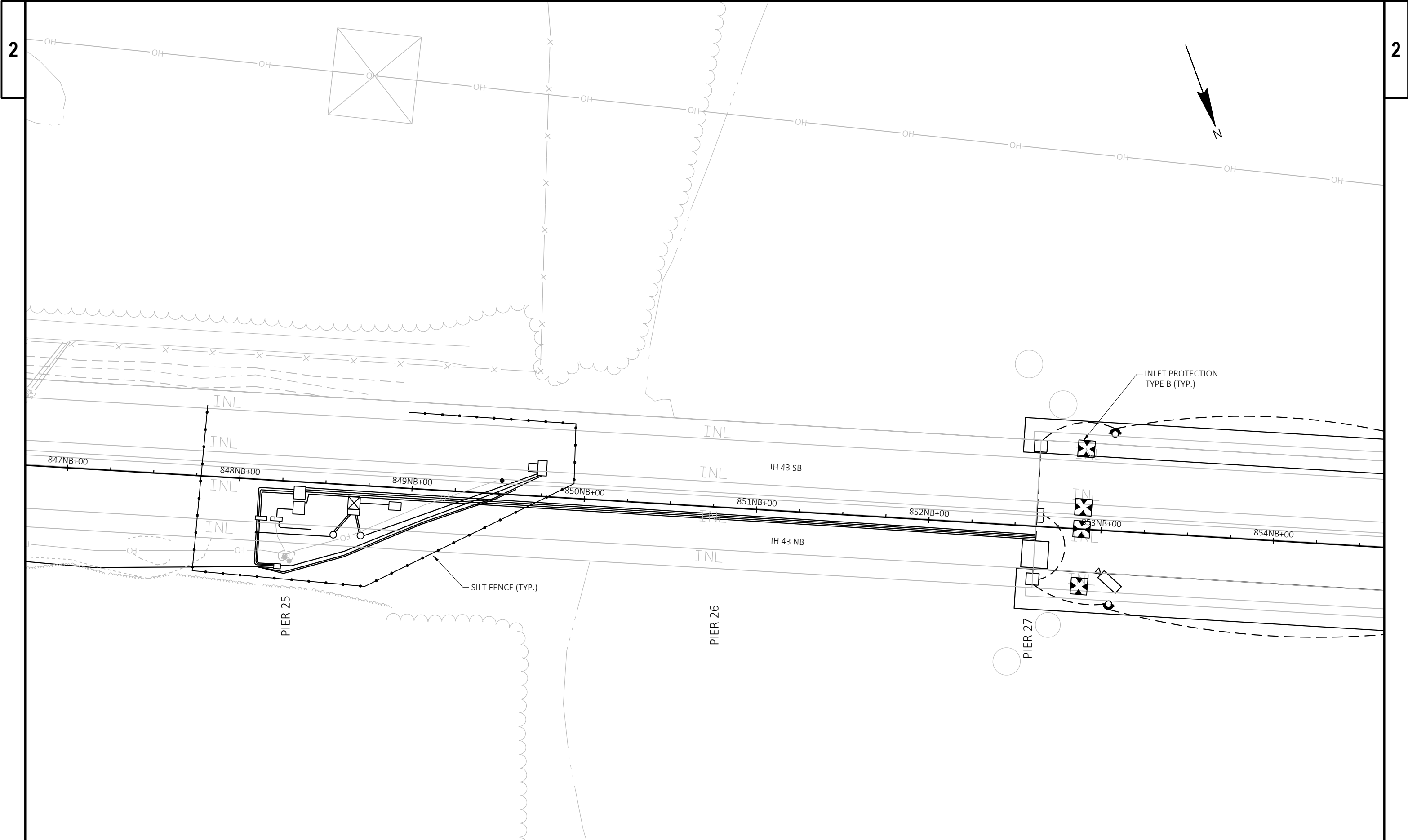
BAD	BASE AGGREGATE DENSE
BM	BENCH MARK
BLDG.	BUILDING
CBTP	CONCRETE BARRIER TEMPORARY PRECAST
CTR	CENTER
C/L	CENTERLINE
C.E.	COMMERCIAL ENTRANCE
CONC.	CONCRETE
CSW	CONCRETE SIDEWALK
CMCP	CORRUGATED METAL CULVERT PIPE
CP	CULVERT PIPE
CPCS	CULVERT PIPE CORRUGATED STEEL
CPRC	CULVERT PIPE REINFORCED CONCRETE
CPRCHE	CULVERT PIPE REINFORCED CONCRETE HORIZONTAL ELLIPTICAL
CPT	CONSTRUCTION PERMIT
DMS	DYNAMIC MESSAGE SIGN
EAT	ENERGY ABSORBING TERMINAL
EB	EASTBOUND
ELEC	ELECTRIC
IE	INVERT ELEVATION
EX. OR EXIST	EXISTING
FO	FIBER OPTIC
F.E.	FIELD ENTRANCE
GAS	GAS
HMA	HOT MIX ASPHALT
HSE.	HOUSE
LHF	LEFT HAND FORWARD
MH	MANHOLE
MAX.	MAXIMUM
MIN.	MINIMUM
NOR.	NORMAL
NTS	NOT TO SCALE
PLE	PERMANENT LIMITED EASEMENT
P.E.	PRIVATE ENTRANCE
P.L.	PROPERTY LINE
PRW	PROPOSED RIGHT-OF-WAY
RAD OR R	RADIUS
R/L	REFERENCE LINE
REQ'D.	REQUIRED
RHF	RIGHT HAND FORWARD
RW	RIGHT-OF-WAY LINE
SAN	SANITARY SEWER
SHLD	SHOULDER
SW	SIDEWALK
SF	SQUARE FEET
SY	SQUARE YARD
S.D.D.	STANDARD DETAIL DRAWING
STA	STATION
SS	STORM SEWER
TEL	TELEPHONE
TLE	TEMPORARY LIMITED EASEMENT
TYP	TYPICAL
WAT	WATER
WB	WESTBOUND

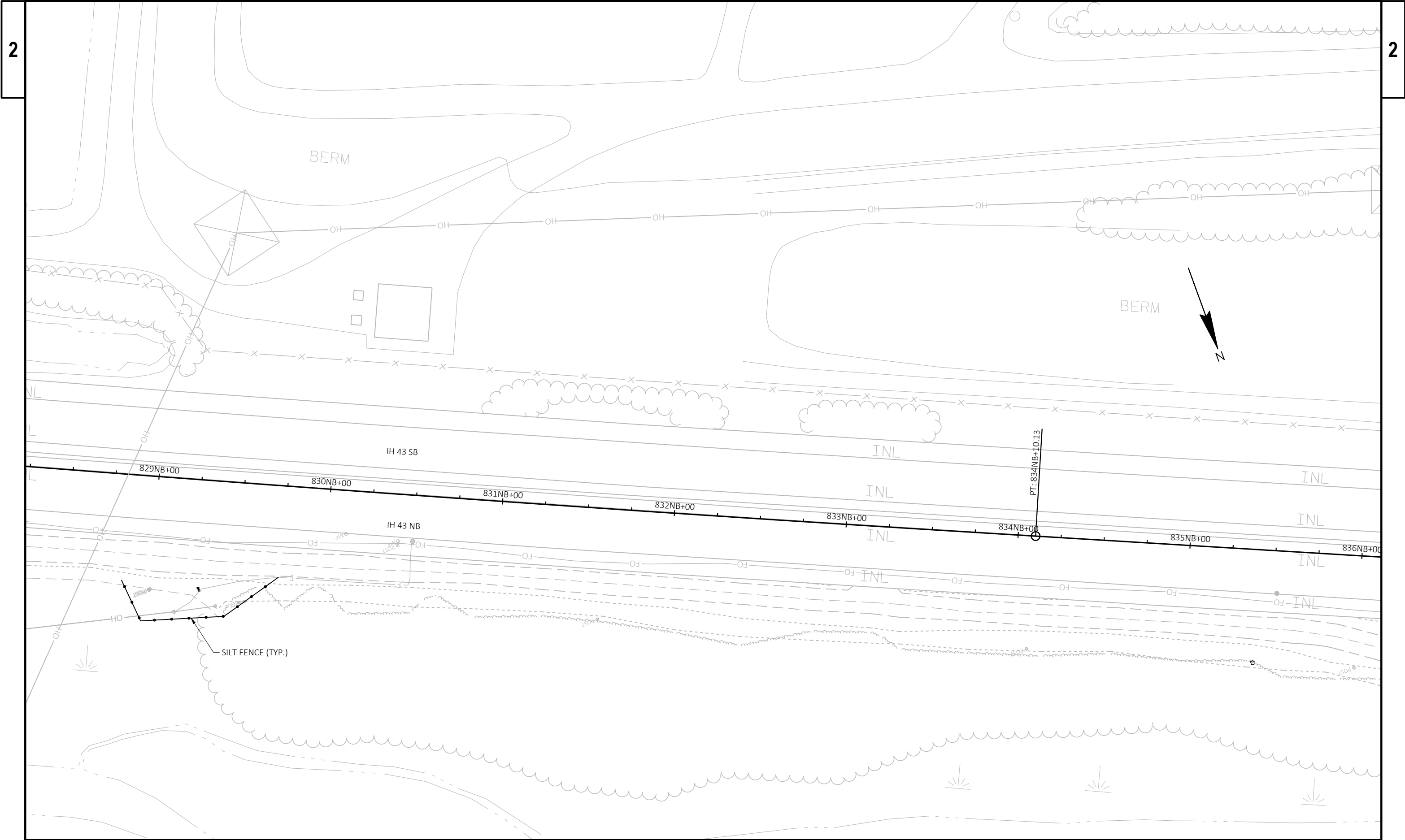


Dial 811 or (800)242-8511

www.DiggersHotline.com







PROJECT NO: 1220-21-30	HWY: IH 43	COUNTY: BROWN	EROSION CONTROL	SHEET 5	E
------------------------	------------	---------------	-----------------	---------	---

STAGE 1

TRAFFIC

IH 43 TRAFFIC IS REDUCED TO ONE LANE IN EACH DIRECTION. TRAFFIC WILL BE MOVED TO THE MEDIAN SHOULDERS WITH TWO 2-FOOT SHOULDERS AND ONE 12-FOOT DRIVING LANE.

ATKINSON DRIVE ENTRANCE RAMP TO IH 43 SB TO BE CLOSED AND DETOURED ALONG THE EXISTING IH 43 ALTERNATE ROUTE USH 141 TO WIS 57 TO WEBSTER AVE. SEE DETOUR PLANS.

ACCESS TO AND FROM E SHORE DRIVE SHALL REMAIN OPEN.

CONSTRUCTION

REMOVE OR MASK OUT EXISTING PAVEMENT MARKING IN CONFLICT WITH STAGE 1 TRAFFIC CONTROL.

INSTALL TEMPORARY MARKING LINE PAINT AND REMOVABLE TAPE.

INSTALL RIGGING ABOVE THE IH 43 STRUCTURE ON THE OUTSIDE LANES.

INSTALL RIGGING BELOW THE GIRDERS.

STAGE 2

TRAFFIC

IH 43 TRAFFIC IS REDUCED TO ONE LANE IN EACH DIRECTION. TRAFFIC WILL BE MOVED TO THE OUTSIDE SHOULDERS WITH TWO 2-FOOT SHOULDERS AND ONE 12-FOOT DRIVING LANE.

ATKINSON DRIVE ENTRANCE RAMP TO IH 43 SB TO BE CLOSED AND DETOURED ALONG THE EXISTING IH 43 ALTERNATE ROUTE USH 141 TO WIS 57 TO WEBSTER AVE. SEE DETOUR PLANS.

ACCESS TO AND FROM E SHORE DRIVE SHALL REMAIN OPEN.

CONSTRUCTION

REMOVE OR MASK OUT EXISTING AND TEMPORARY PAVEMENT MARKING IN CONFLICT WITH STAGE 2 TRAFFIC CONTROL.

INSTALL TEMPORARY MARKING LINE PAINT AND REMOVABLE TAPE.

INSTALL RIGGING ABOVE THE IH 43 STRUCTURE IN THE MEDIAN LANES.

STAGE 3 - OFF-PEAK

TRAFFIC

IH 43 SB TRAFFIC IS REDUCED TO ONE LANE AND WILL BE MOVED TO THE MEDIAN SHOULDER WITH TWO 2-FOOT SHOULDERS AND ONE 12-FOOT DRIVING LANE.

ATKINSON DRIVE ENTRANCE RAMP TO IH 43 SB TO BE CLOSED AND DETOURED ALONG THE EXISTING IH 43 ALTERNATE ROUTE USH 141 TO WIS 57 TO WEBSTER AVE. SEE DETOUR PLANS.

IH 43 NB TRAFFIC IS REDUCED TO ONE LANE AND WILL BE MOVED TO THE MEDIAN SHOULDER WITH TWO 2-FOOT SHOULDERS AND ONE 12-FOOT DRIVING LANE.

ACCESS TO AND FROM E SHORE DRIVE SHALL REMAIN OPEN.

PEAK / OFF-PEAK RESTRICTION TIMES CAN BE FOUND ON THE CONTRACT SPECIAL PROVISIONS.

CONSTRUCTION

REMOVE OR MASK OUT EXISTING AND TEMPORARY PAVEMENT MARKING IN CONFLICT WITH STAGE 3 TRAFFIC CONTROL.

INSTALL TEMPORARY MARKING LINE PAINT AND REMOVABLE TAPE.

INSTALL CONCRETE BARRIER TEMPORARY PRECAST ON IH 43 SB.

COMPLETE PAINTING OPERATIONS ABOVE AND BELOW THE IH 43 STRUCTURE.

REMOVE RIGGING ABOVE THE OUTSIDE LANES. REMOVE RIGGING BELOW THE GIRDERS.

COMPLETE ELECTRICAL INSTALLATIONS ON THE STRUCTURE.

STAGE 3 - PEAK

TRAFFIC

IH 43 SB TRAFFIC IS REDUCED TO ONE LANE AND WILL BE MOVED TO THE MEDIAN SHOULDER WITH TWO 2-FOOT SHOULDERS AND ONE 12-FOOT DRIVING LANE.

ATKINSON DRIVE ENTRANCE RAMP TO IH 43 SB TO BE CLOSED AND DETOURED ALONG THE EXISTING IH 43 ALTERNATE ROUTE USH 141 TO WIS 57 TO WEBSTER AVE. SEE DETOUR PLANS.

IH 43 NB TRAFFIC WILL REMAIN OPEN TO TWO LANES IN THIS DIRECTION BUT SHIFTED TO THE MEDIAN SHOULDER WITH TWO 2-FOOT SHOULDERS AND TWO 12-FOOT DRIVING LANES.

ACCESS TO AND FROM E SHORE DRIVE SHALL REMAIN OPEN.

PEAK / OFF-PEAK RESTRICTION TIMES CAN BE FOUND ON THE CONTRACT SPECIAL PROVISIONS.

CONSTRUCTION

COMPLETE PAINTING OPERATIONS ABOVE AND BELOW THE IH 43 STRUCTURE.

COMPLETE ELECTRICAL INSTALLATIONS ON THE STRUCTURE.

STAGE 4

TRAFFIC

IH 43 TRAFFIC IS REDUCED TO ONE LANE IN EACH DIRECTION. TRAFFIC WILL BE MOVED TO THE OUTSIDE SHOULDERS WITH TWO 2-FOOT SHOULDERS AND ONE 12-FOOT DRIVING LANE.

CONSTRUCTION

REMOVE CONCRETE BARRIER TEMPORARY PRECAST FROM IH 43 SB.

REMOVE OR MASK OUT EXISTING AND TEMPORARY PAVEMENT MARKING IN CONFLICT WITH STAGE 4 TRAFFIC CONTROL.

INSTALL TEMPORARY MARKING LINE PAINT AND REMOVABLE TAPE.

REMOVE RIGGING ABOVE THE IH 43 STRUCTURE IN THE MEDIAN LANES.

STAGE 5

TRAFFIC

IH 43 MOVED TO THE EXISTING LANES. TRAFFIC MAY BE REDUCED TO ONE LANE AS NECESSARY FOR CONSTRUCTION OPERATIONS. LANE CLOSURES SHALL NOT REMAIN IN PLACE IF NO CONSTRUCTION ACTIVITIES ARE BEING PERFORMED.

CONSTRUCTION

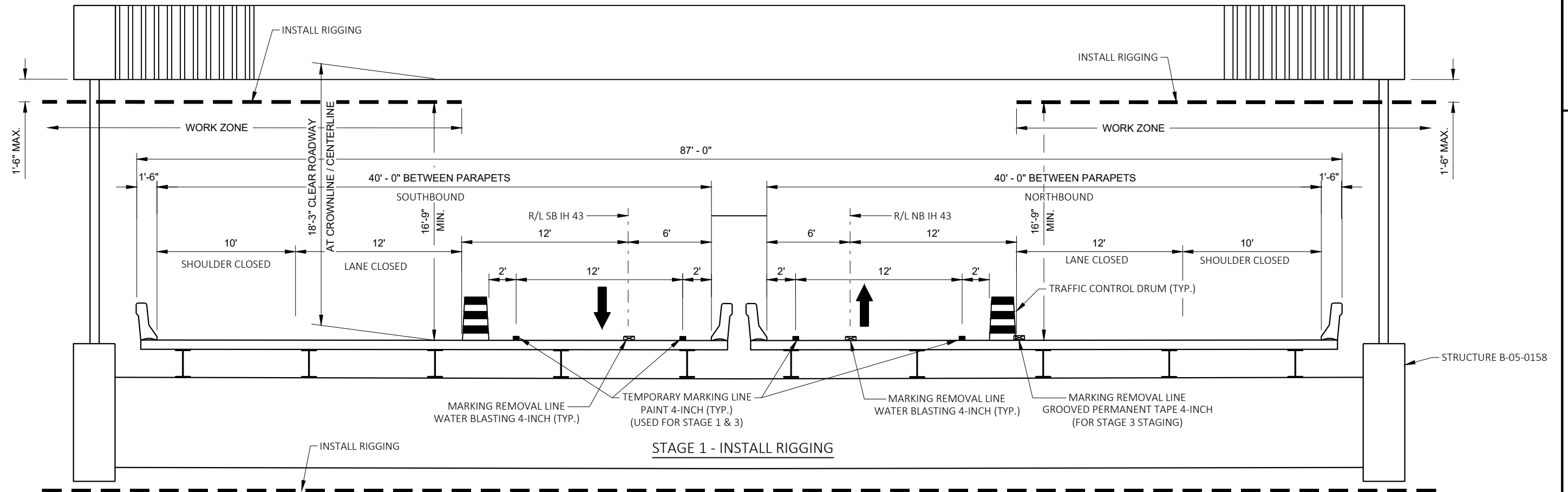
REMOVE TEMPORARY MARKING LINE AND TAPE.

INSTALL PAVEMENT MARKING LINE EPOXY AND MARKING LINE GROOVED PERMANENT TAPE.

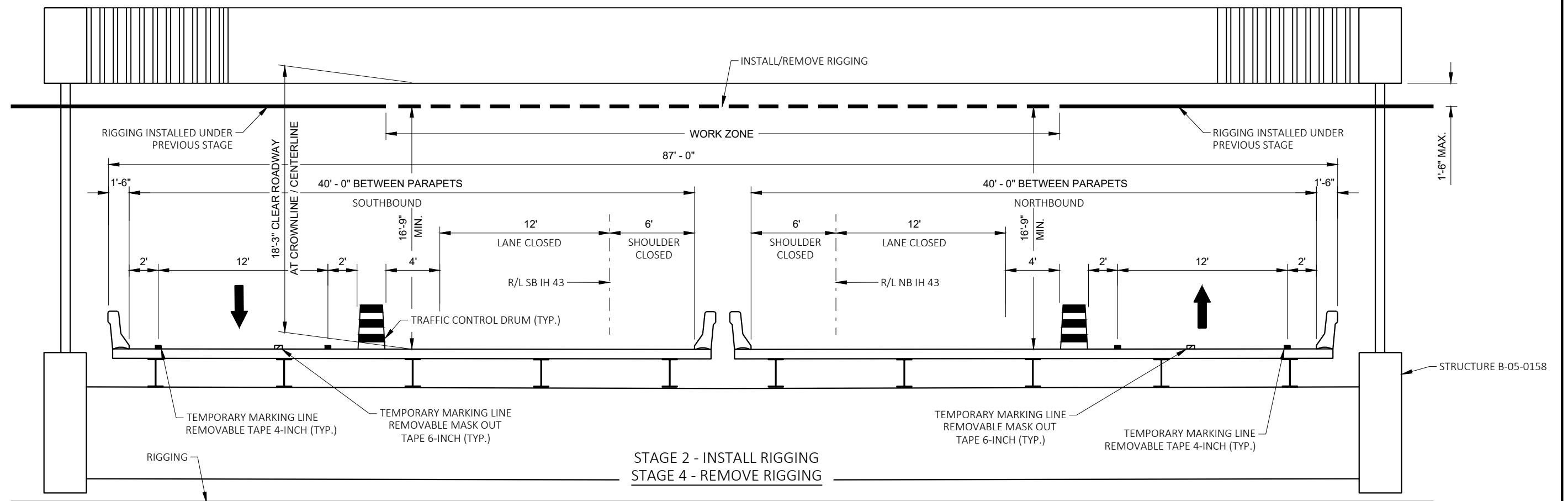
GENERAL NOTES FOR TRAFFIC CONTROL

1. ALL TRAFFIC CONTROL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED IN THE PLANS.
2. "WO" SIGNS ARE THE SAME AS "W" SIGNS EXCEPT THE BACKGROUND IS REFLECTIVE ORANGE.
3. SIGN LOCATIONS ARE APPROXIMATE. THE ACTUAL LOCATION AND SPACING MAY BE ADJUSTED AS DIRECTED BY THE ENGINEER TO MEET FIELD CONDITIONS.
4. ALL SIGNS, TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE TRAFFIC CONTROL "IN USE" SHALL BE COVERED OR REMOVED AS NEEDED AND/OR AS DIRECTED BY THE ENGINEER.
5. INSTALL W20-1 SIGNS NEAR THE RAMP TERMINALS ON ATKINSON AVE. ON RAMP TO IH43 SB AND THE WEBSTER AVE. ON RAMP TO IH43 NB AS DIRECTED BY THE ENGINEER.

2



2 |



PROJECT NO:	1220-21-60
-------------	------------

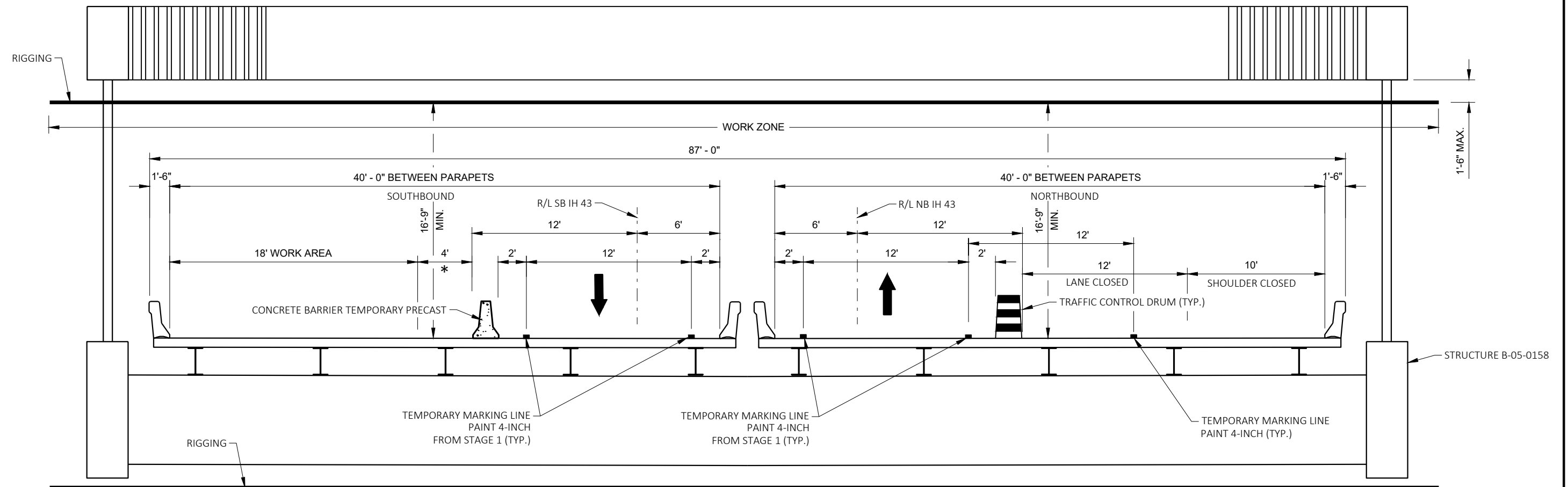
HWY: IH 43

COUNTY: BROWN

TRAFFIC CONTROL - TYPICAL SECTIONS - STAGING

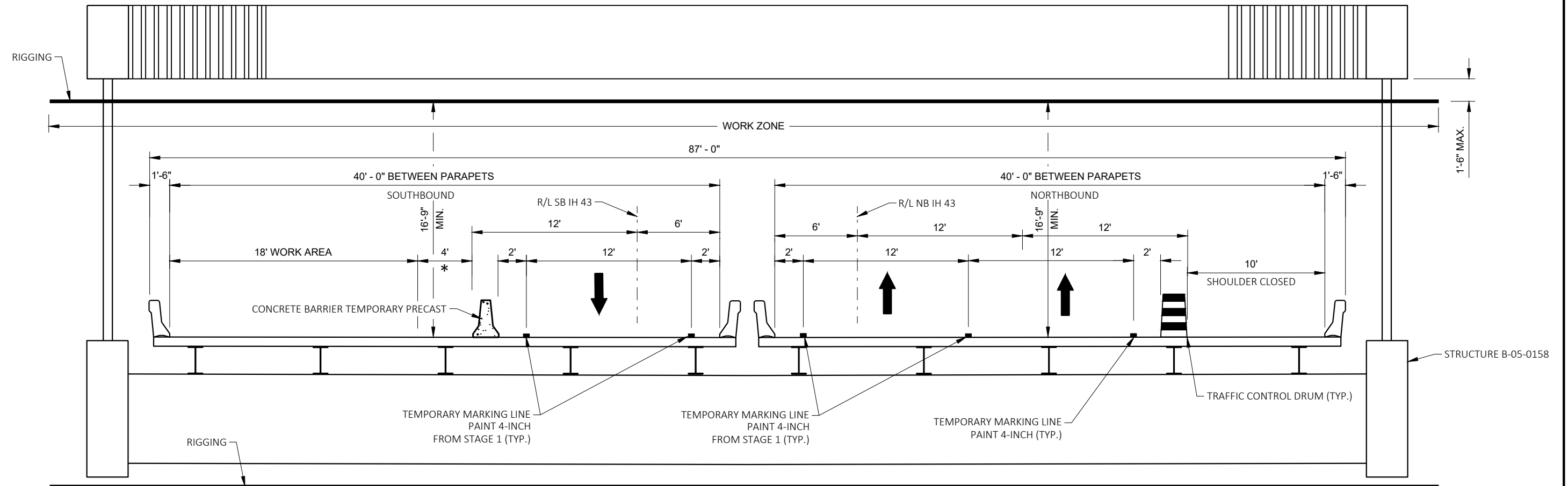
SHEET

■



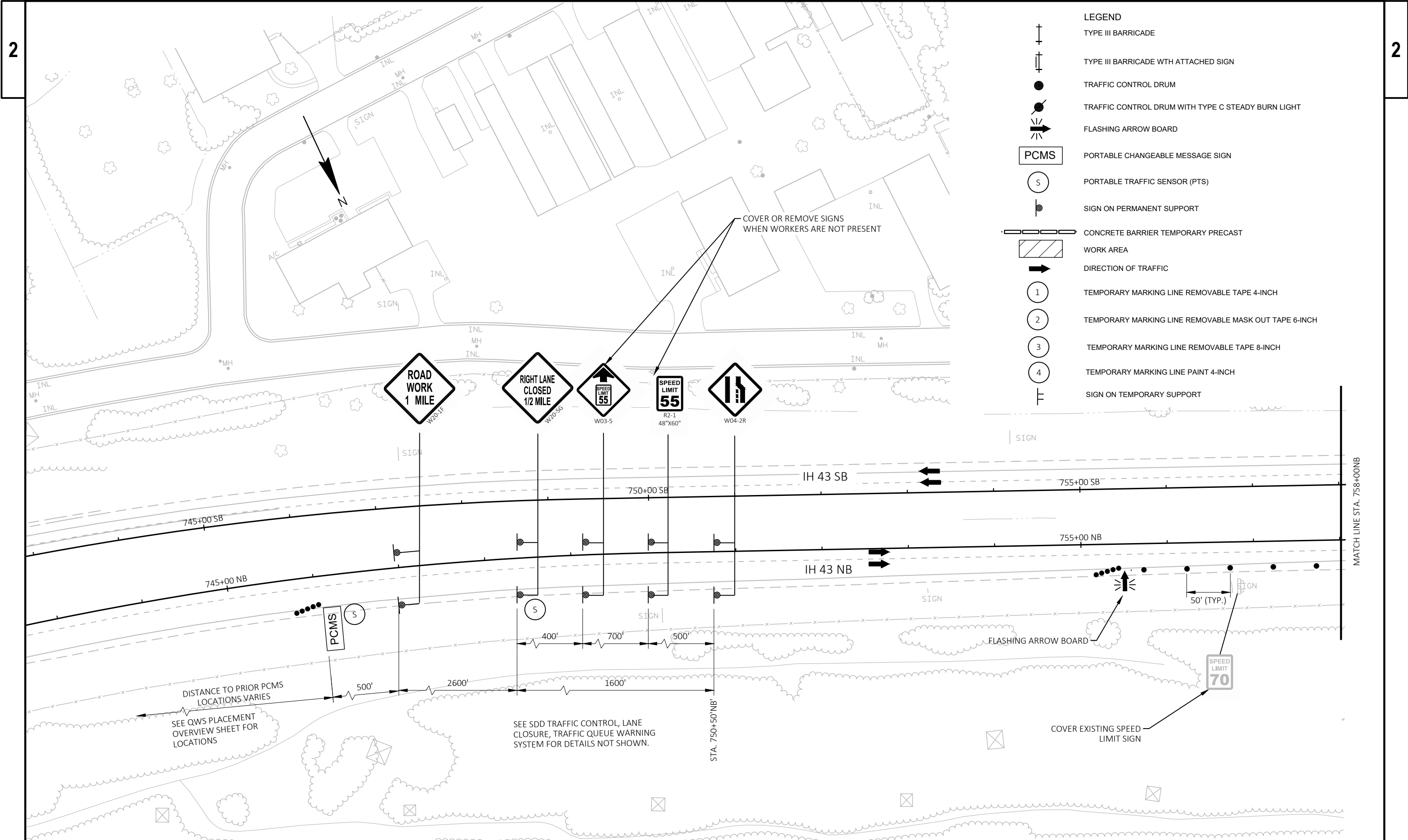
* AREA FREE OF OBJECTS AND WORKERS. SEE SDD:
"CONCRETE BARRIER TEMPORARY PRECAST 12'-6".

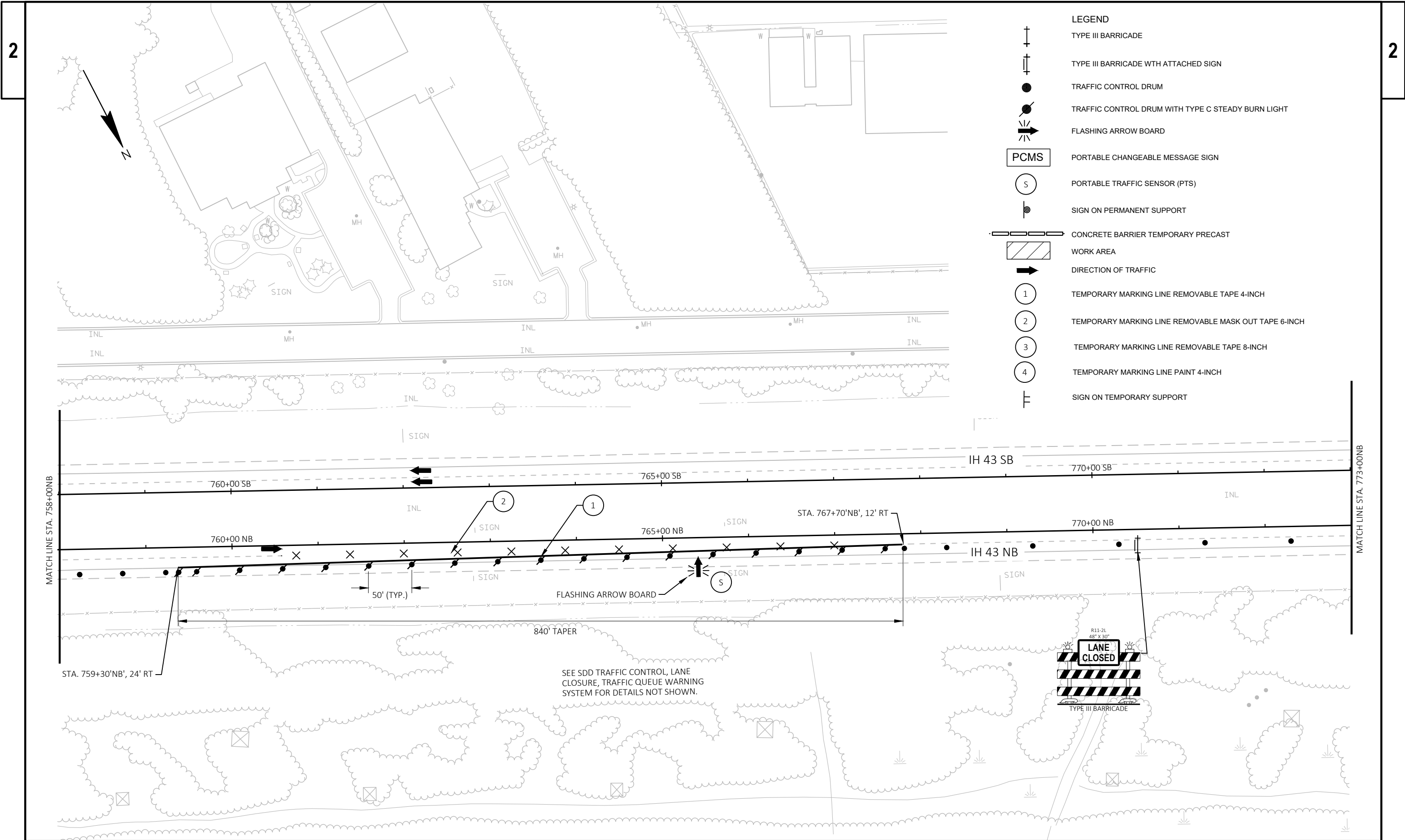
STAGE 3
STRUCTURAL PAINTING, REMOVE RIGGING, STRUCTURE ELECTRICAL
DURING OFF-PEAK TIMES

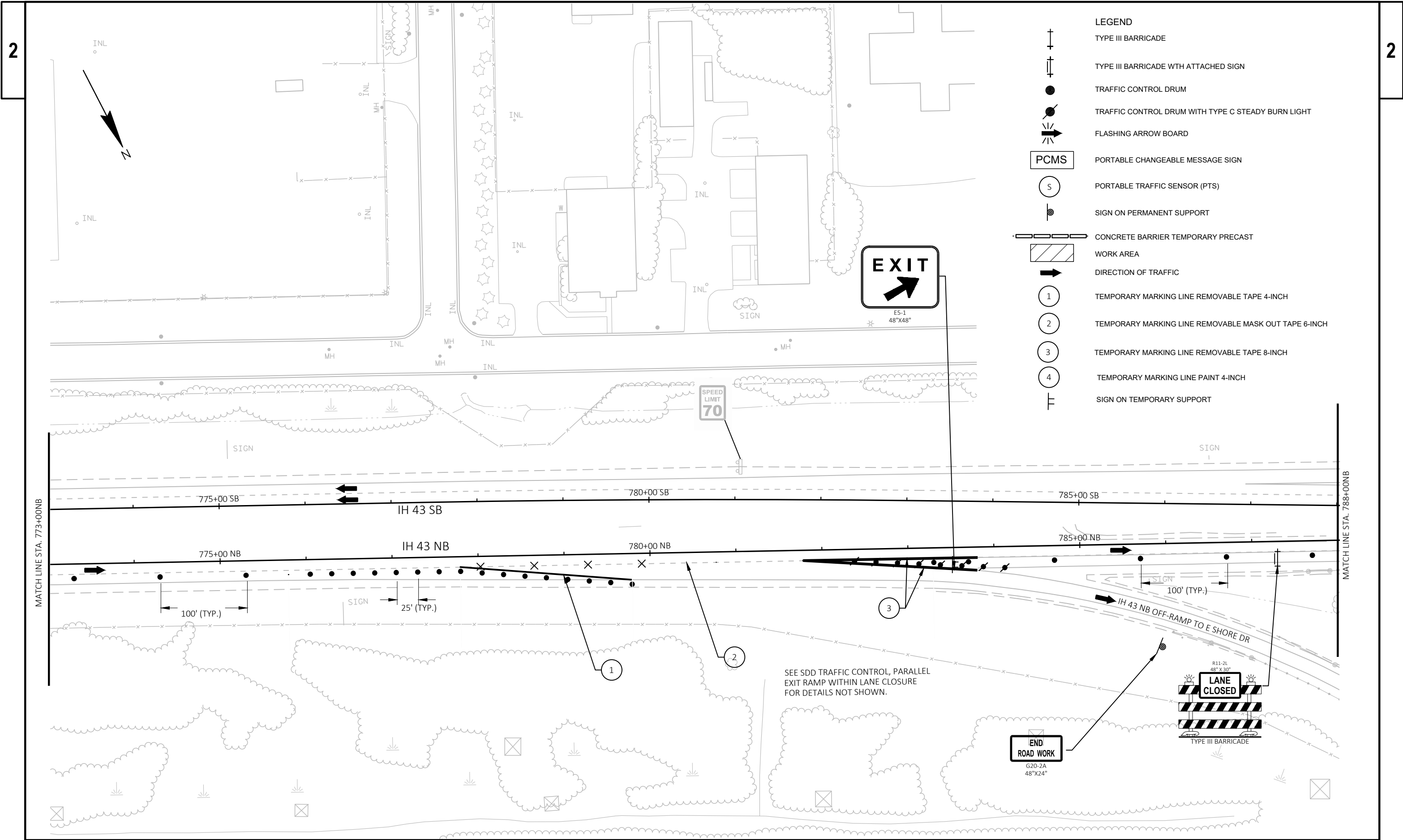


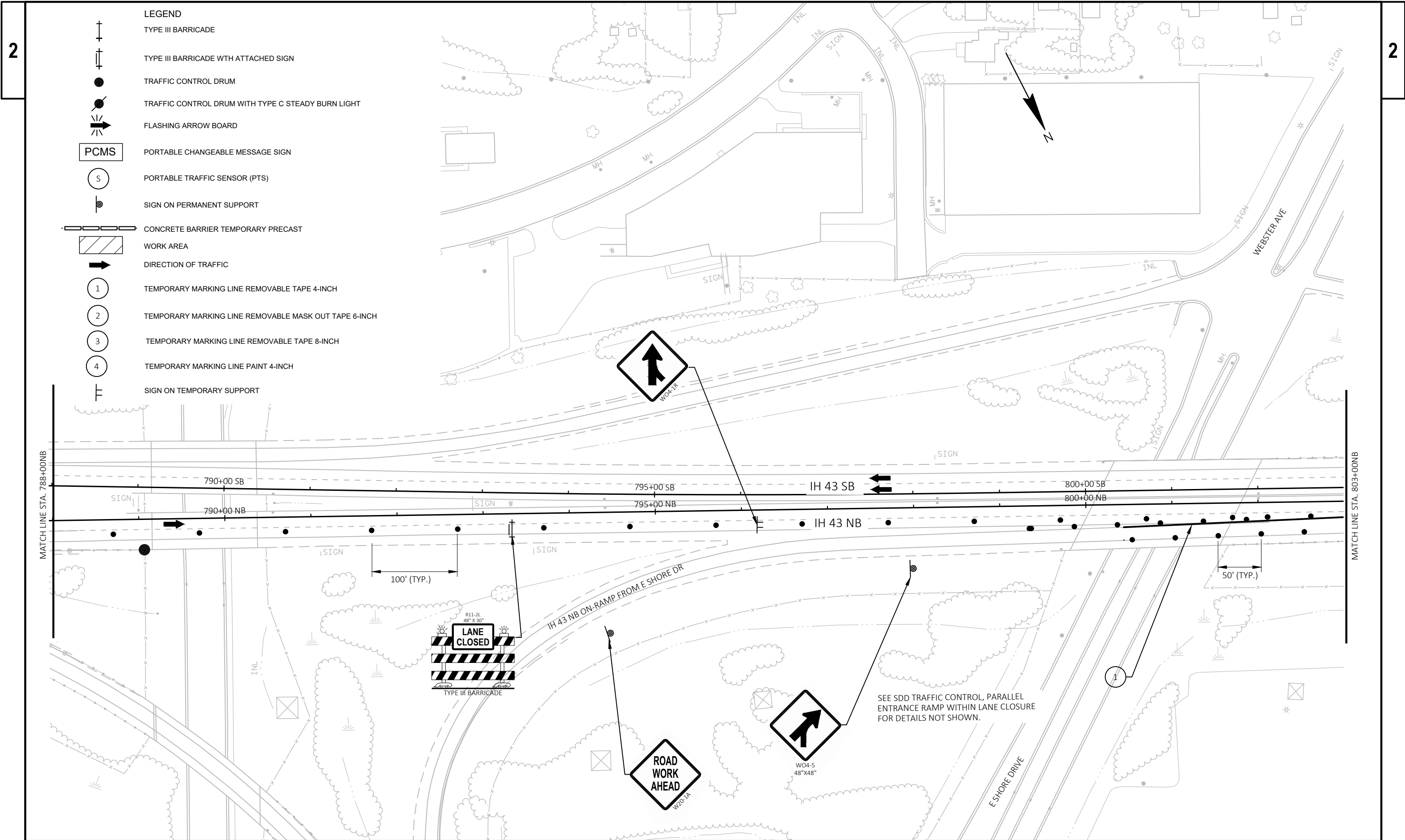
* AREA FREE OF OBJECTS AND WORKERS. SEE SDD:
"CONCRETE BARRIER TEMPORARY PRECAST 12'-6".

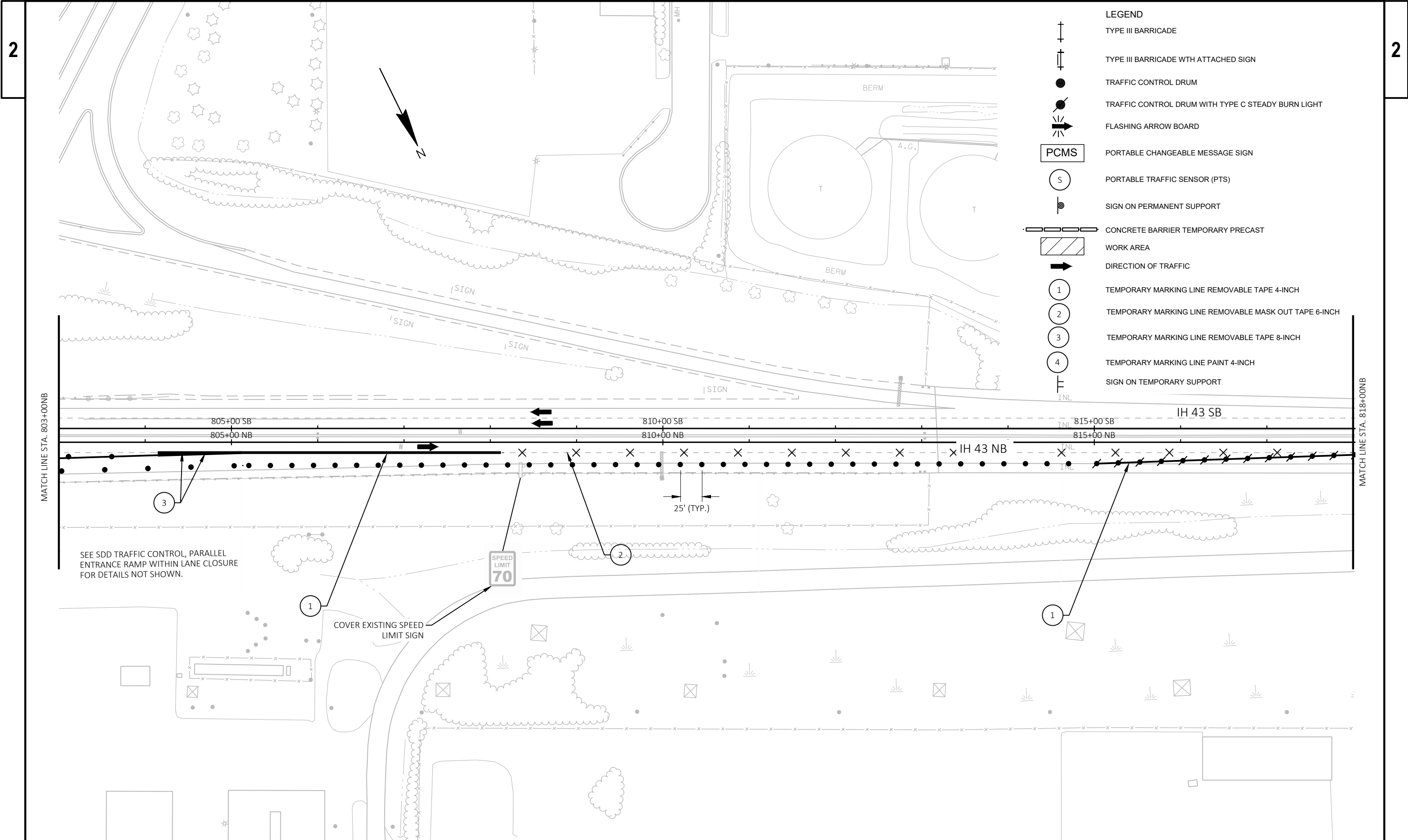
STAGE 3
STRUCTURAL PAINTING, REMOVE RIGGING, STRUCTURE ELECTRICAL
DURING PEAK TIMES



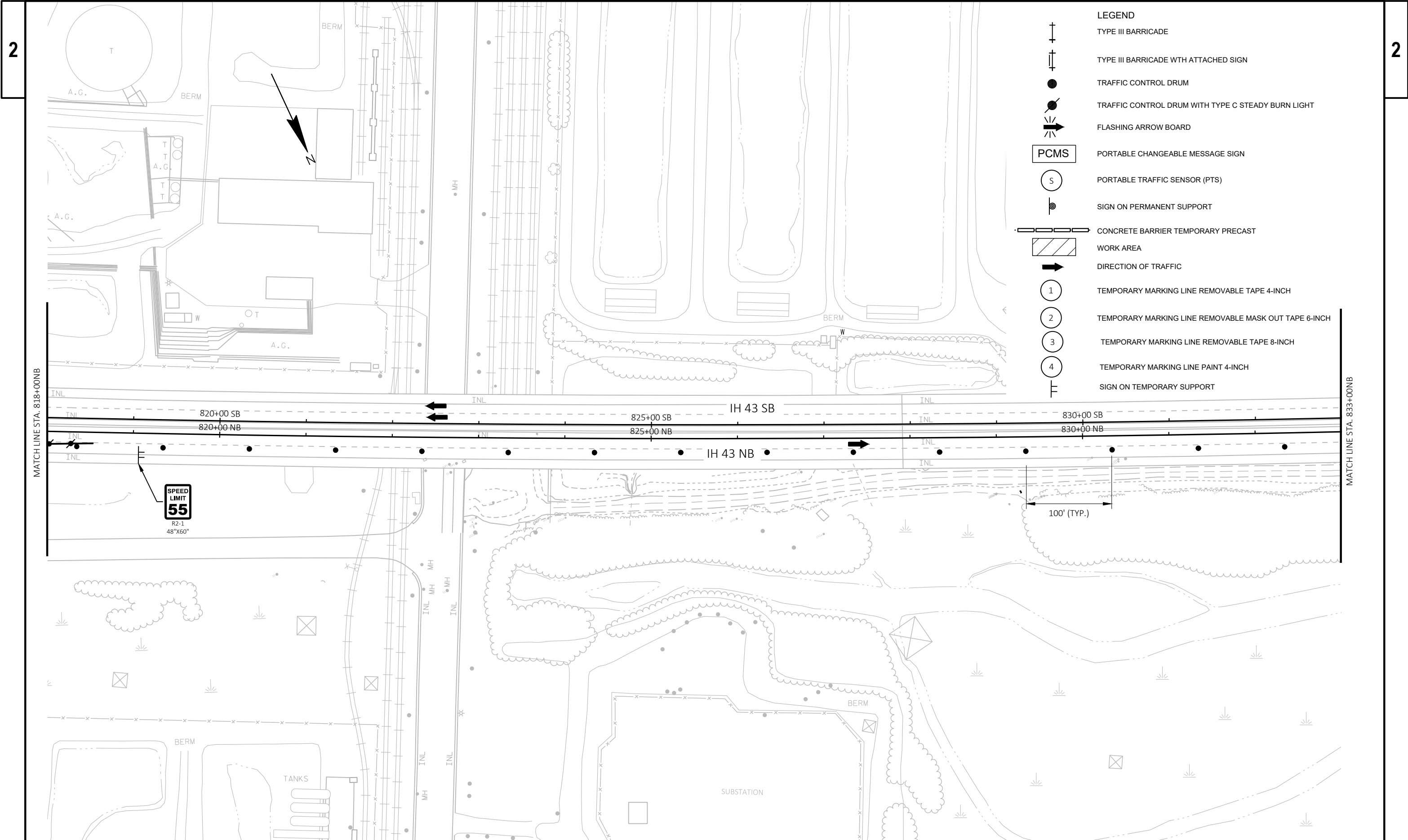




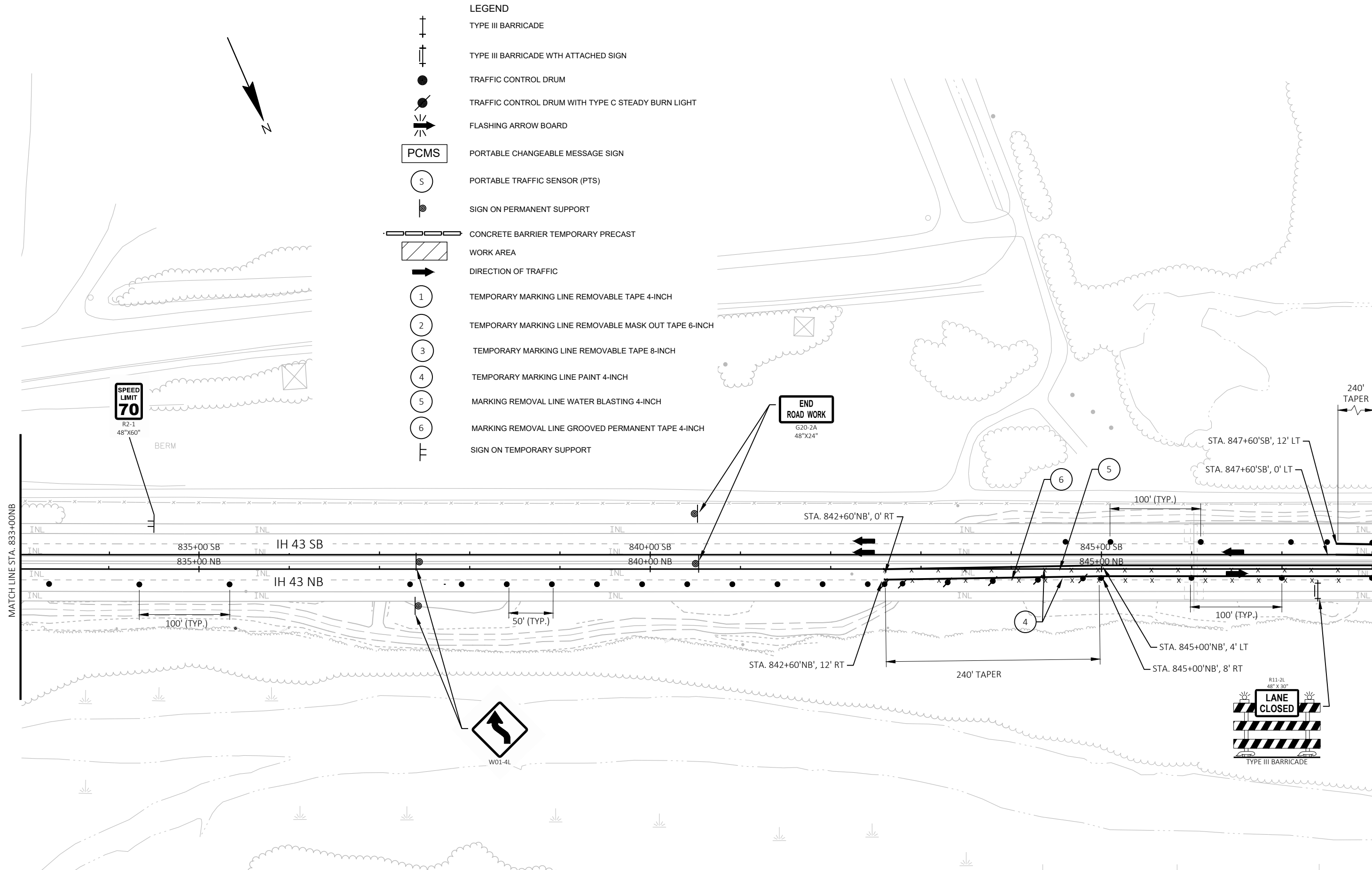


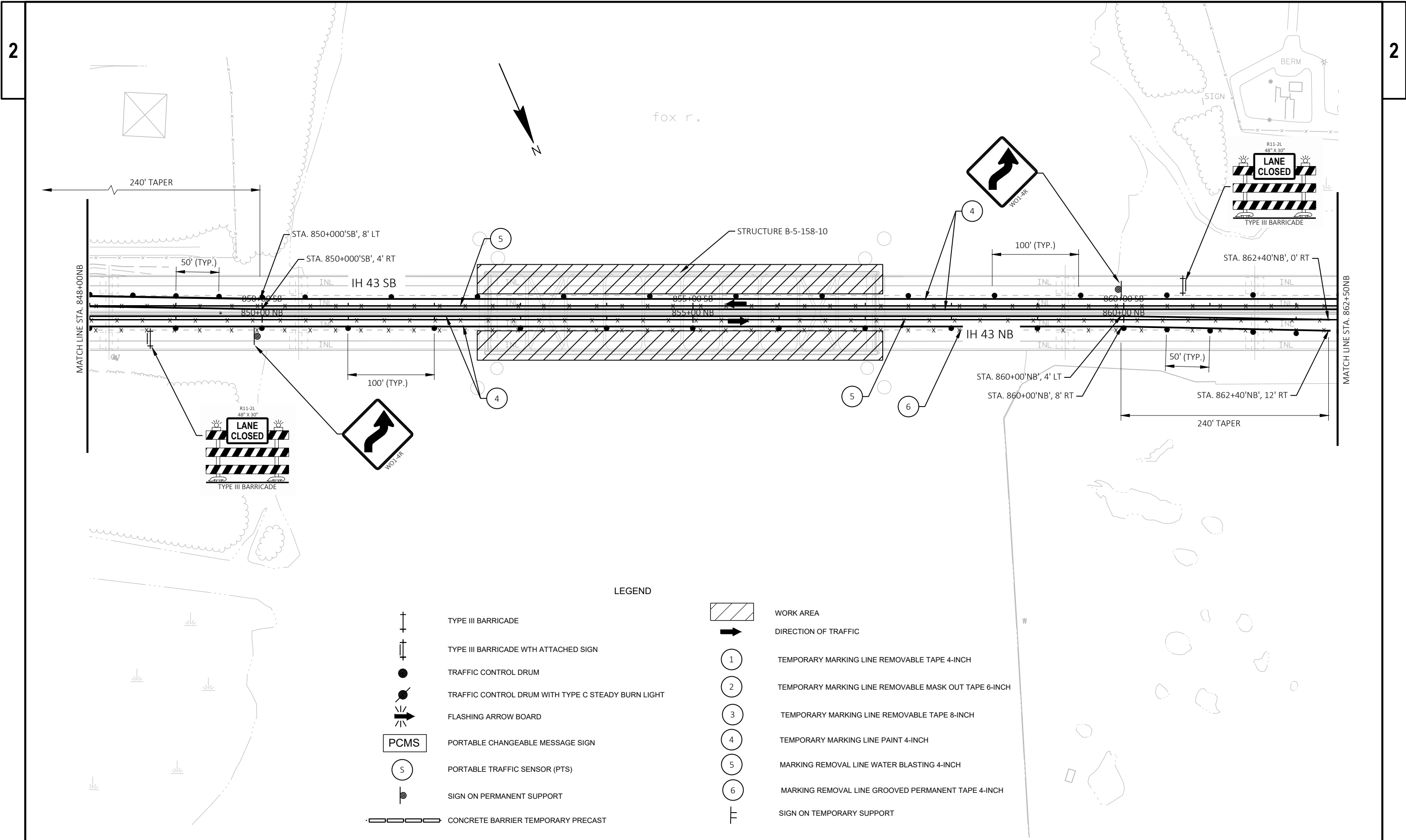


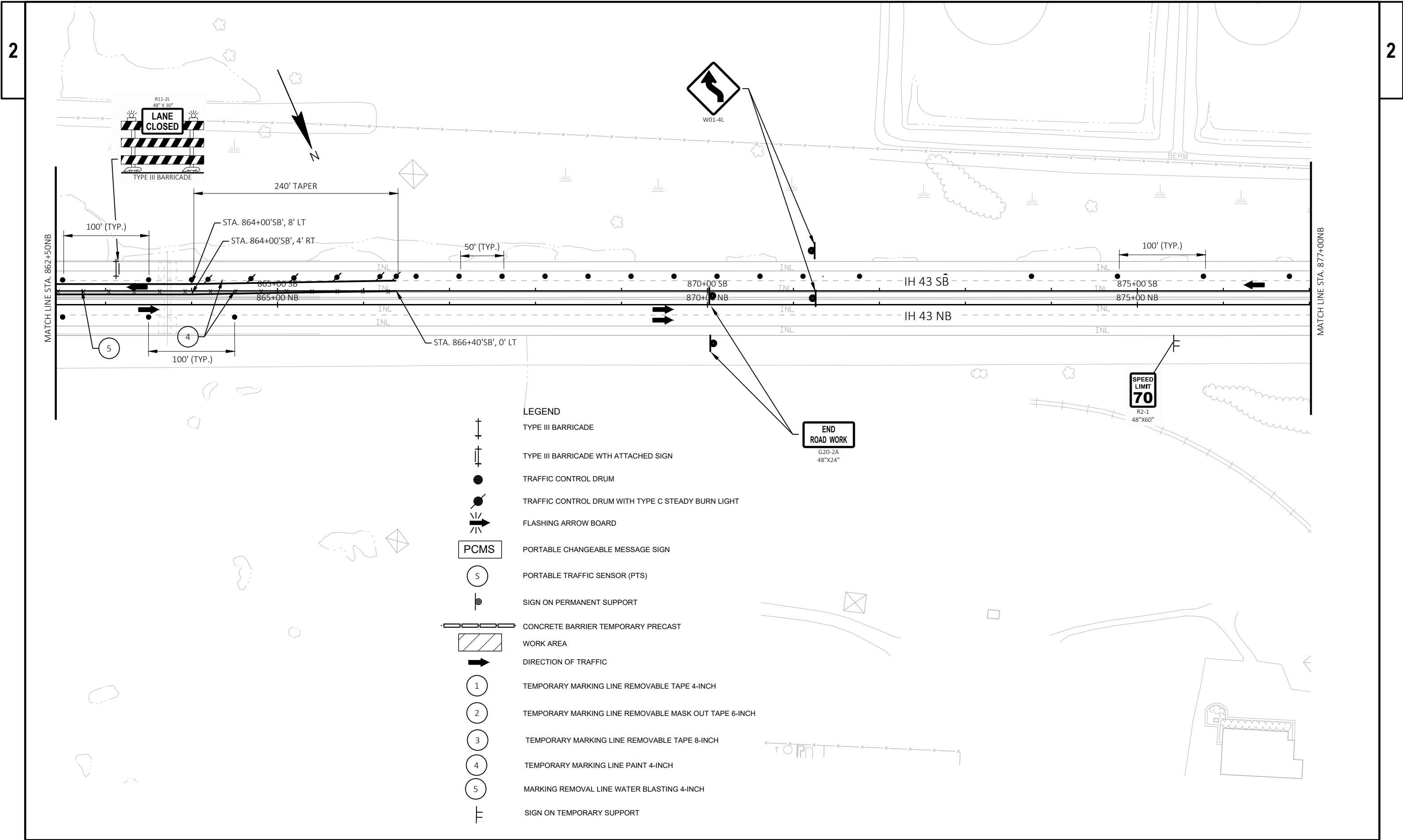
- LEGEND
- TYPE III BARRICADE
 - TYPE III BARRICADE WTH ATTACHED SIGN
 - TRAFFIC CONTROL DRUM
 - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
 - FLASHING ARROW BOARD
 - PCMS
 - PORTABLE CHANGEABLE MESSAGE SIGN
 - PORTABLE TRAFFIC SENSOR (PTS)
 - SIGN ON PERMANENT SUPPORT
 - CONCRETE BARRIER TEMPORARY PRECAST
 - WORK AREA
 - DIRECTION OF TRAFFIC
 - 1 TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH
 - 2 TEMPORARY MARKING LINE REMOVABLE MASK OUT TAPE 6-INCH
 - 3 TEMPORARY MARKING LINE REMOVABLE TAPE 8-INCH
 - 4 TEMPORARY MARKING LINE PAINT 4-INCH
 - SIGN ON TEMPORARY SUPPORT

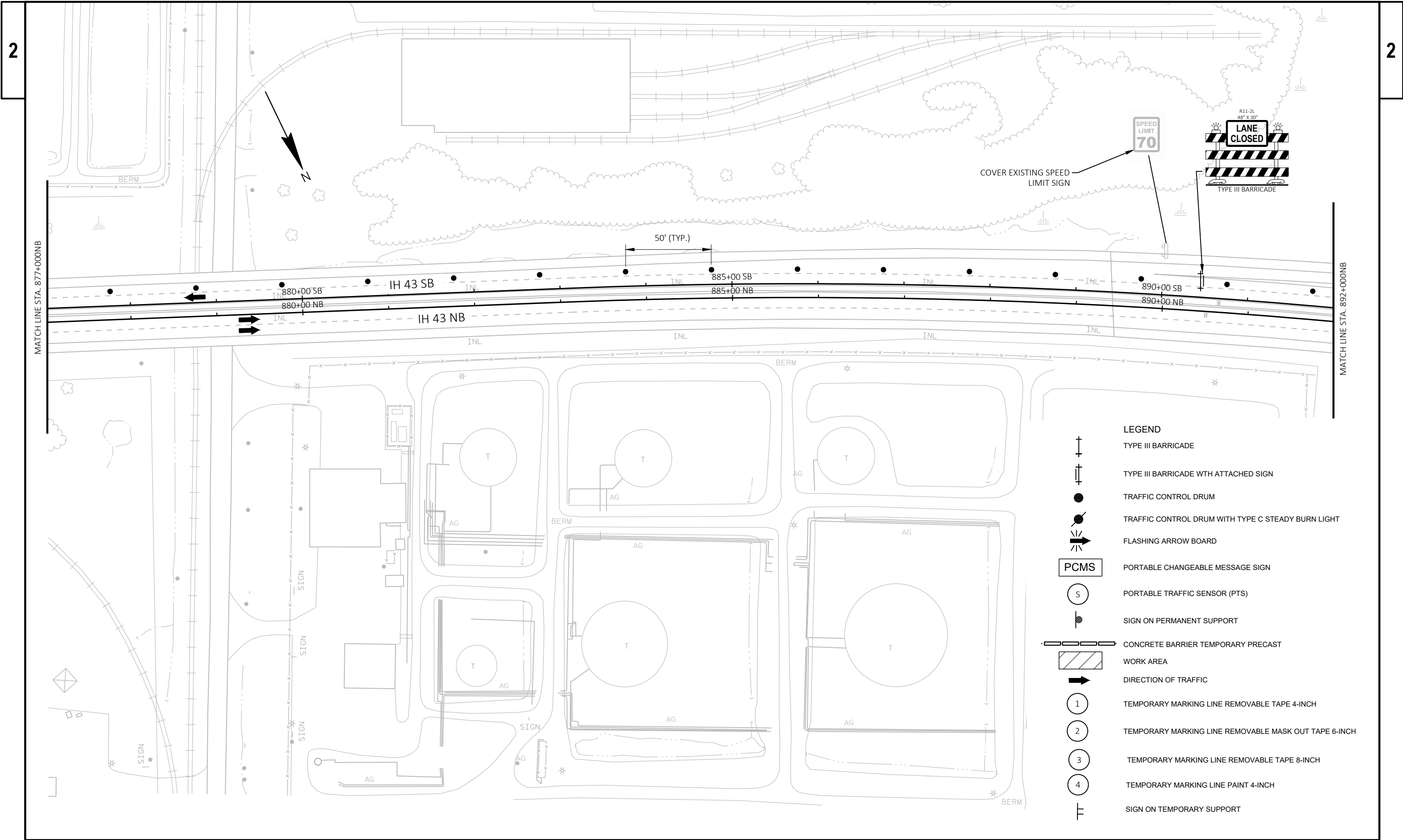


- LEGEND
- TYPE III BARRICADE
 - TYPE III BARRICADE WITH ATTACHED SIGN
 - TRAFFIC CONTROL DRUM
 - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
 - FLASHING ARROW BOARD
 - PCMS
 - PORTABLE CHANGEABLE MESSAGE SIGN
 - PORTABLE TRAFFIC SENSOR (PTS)
 - SIGN ON PERMANENT SUPPORT
 - CONCRETE BARRIER TEMPORARY PRECAST
 - WORK AREA
 - DIRECTION OF TRAFFIC
 - 1 TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH
 - 2 TEMPORARY MARKING LINE REMOVABLE MASK OUT TAPE 6-INCH
 - 3 TEMPORARY MARKING LINE REMOVABLE TAPE 8-INCH
 - 4 TEMPORARY MARKING LINE PAINT 4-INCH
 - SIGN ON TEMPORARY SUPPORT









PROJECT NO: 1220-21-60

HWY: IH 43

COUNTY: BROWN

TRAFFIC CONTROL - STAGING DETAILS - STAGE 1

SHEET

19

E

FILE NAME : G:\WDOT\NE\20109-000 LEO FRIGO\CIVIL 3D\SHEET\PLAN\025001-TC - STAGE 1.DWG
LAYOUT NAME - 08

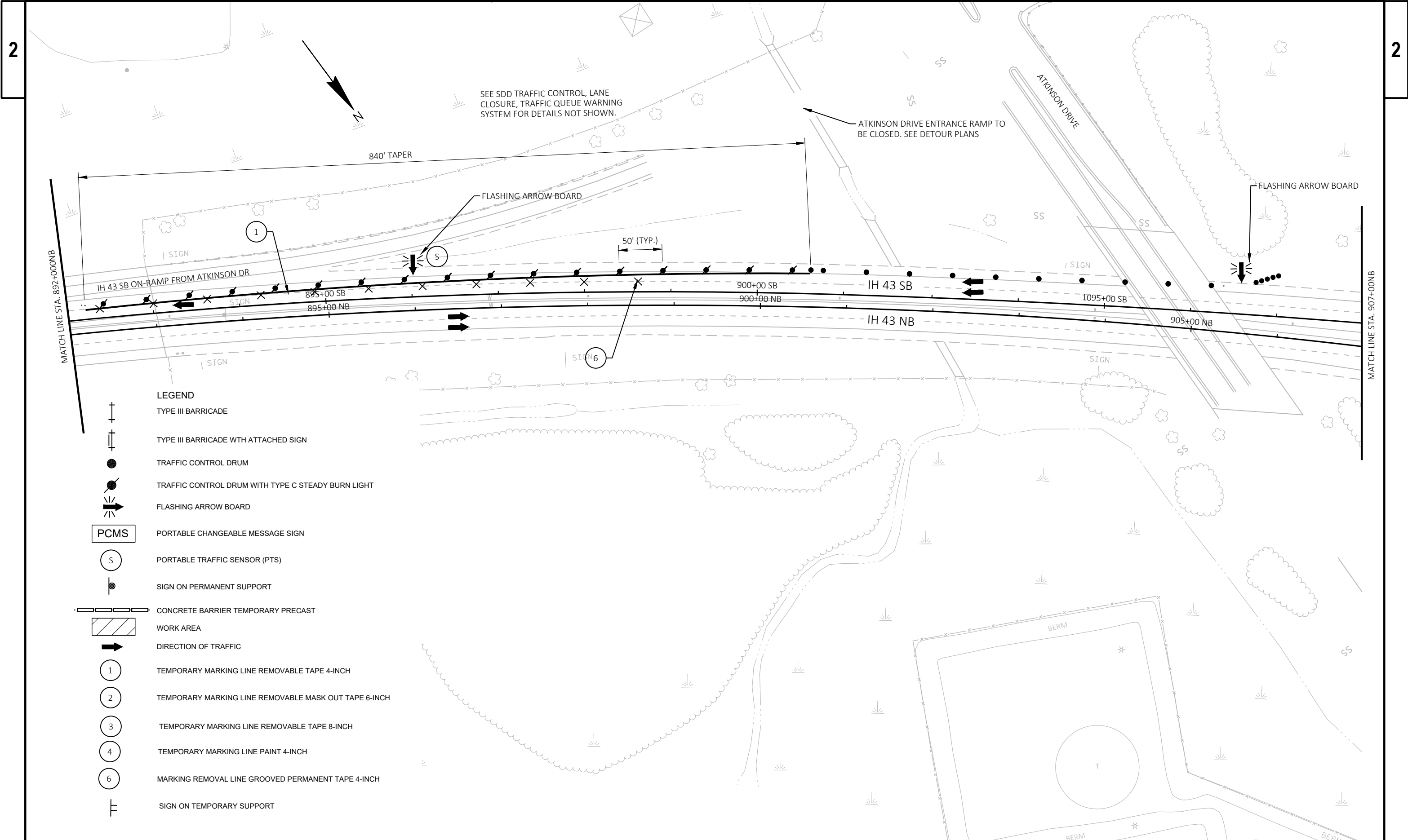
PLOT DATE : 3/9/2022 2:48 PM

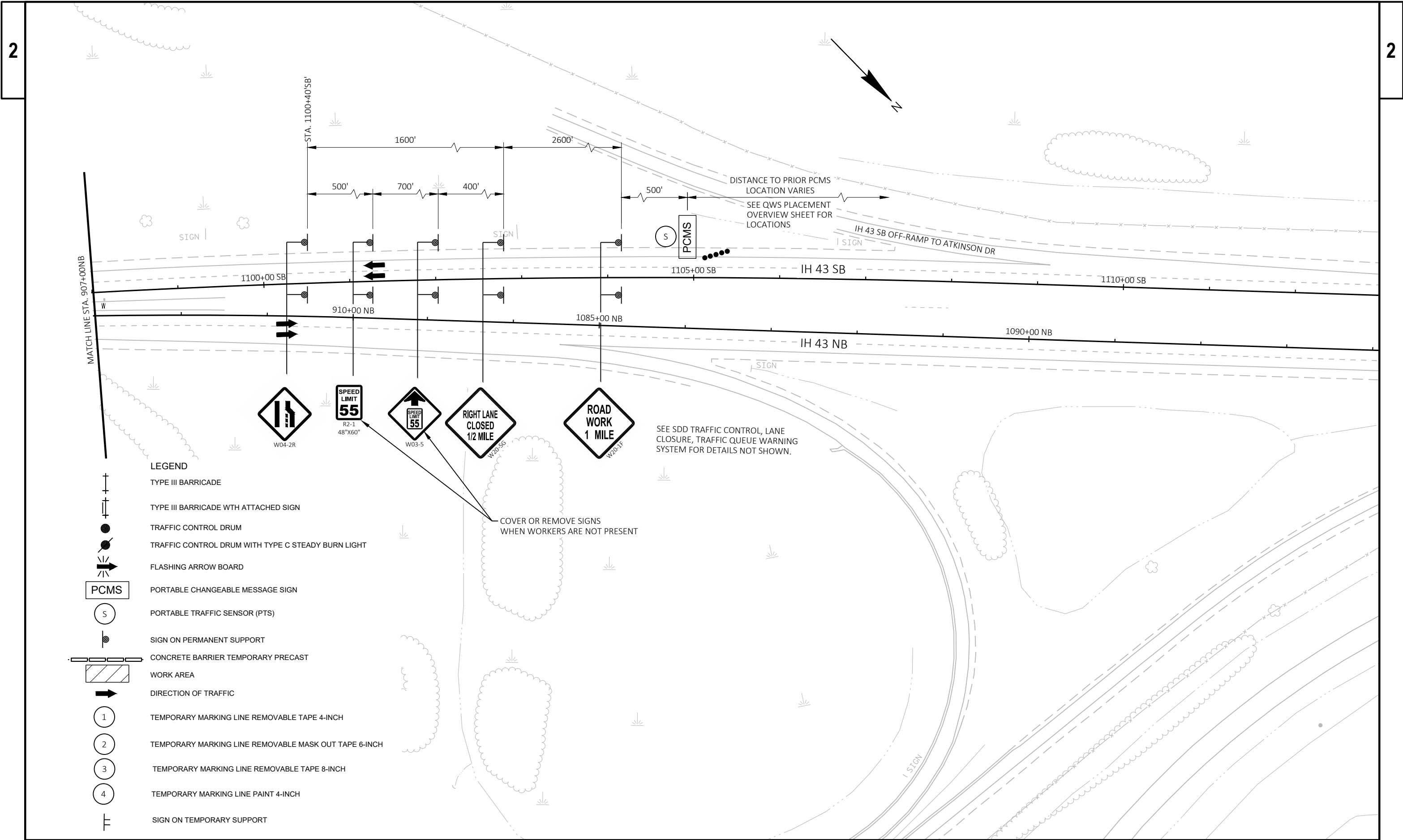
PLOT BY : KL ENGINEERING

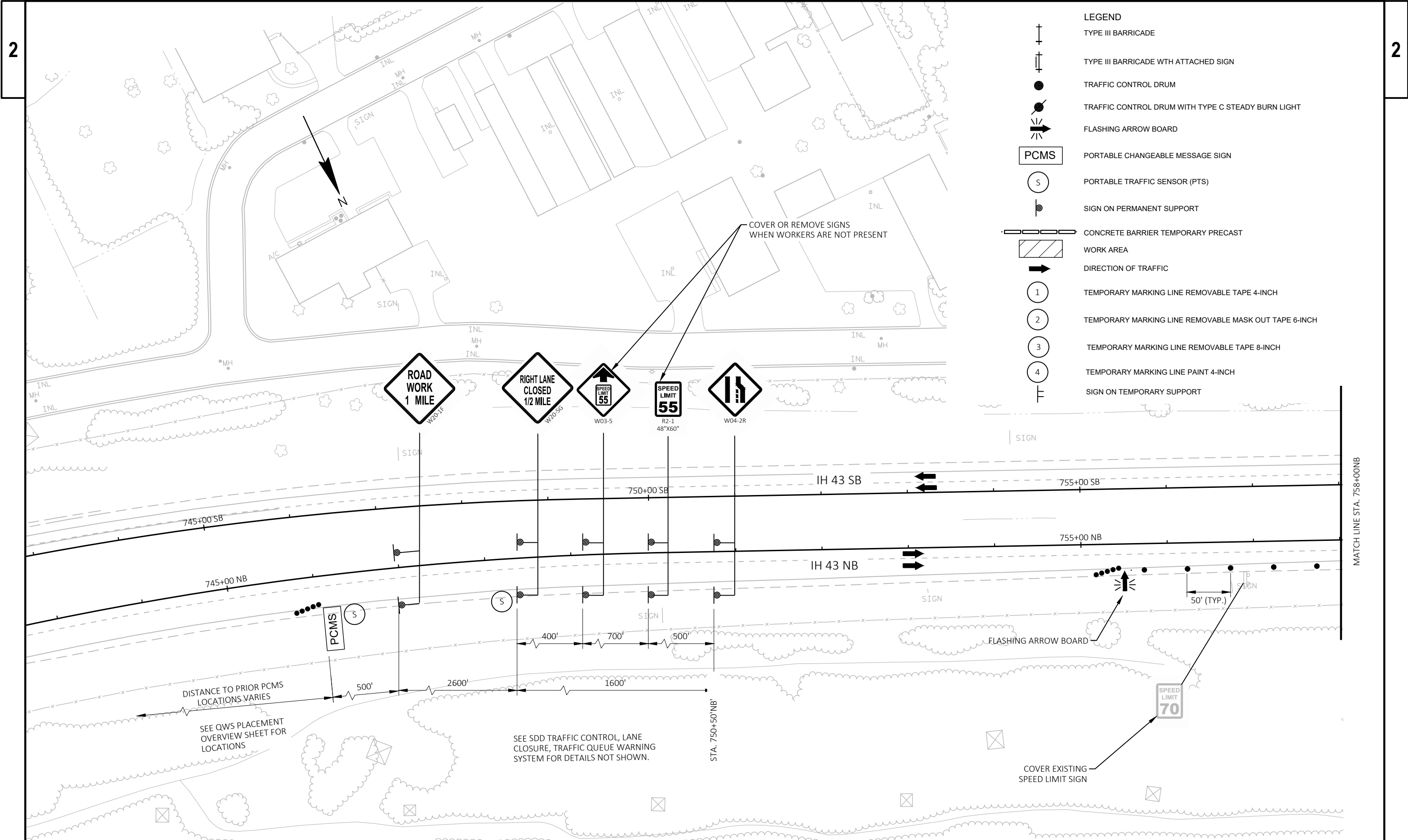
PLOT NAME :

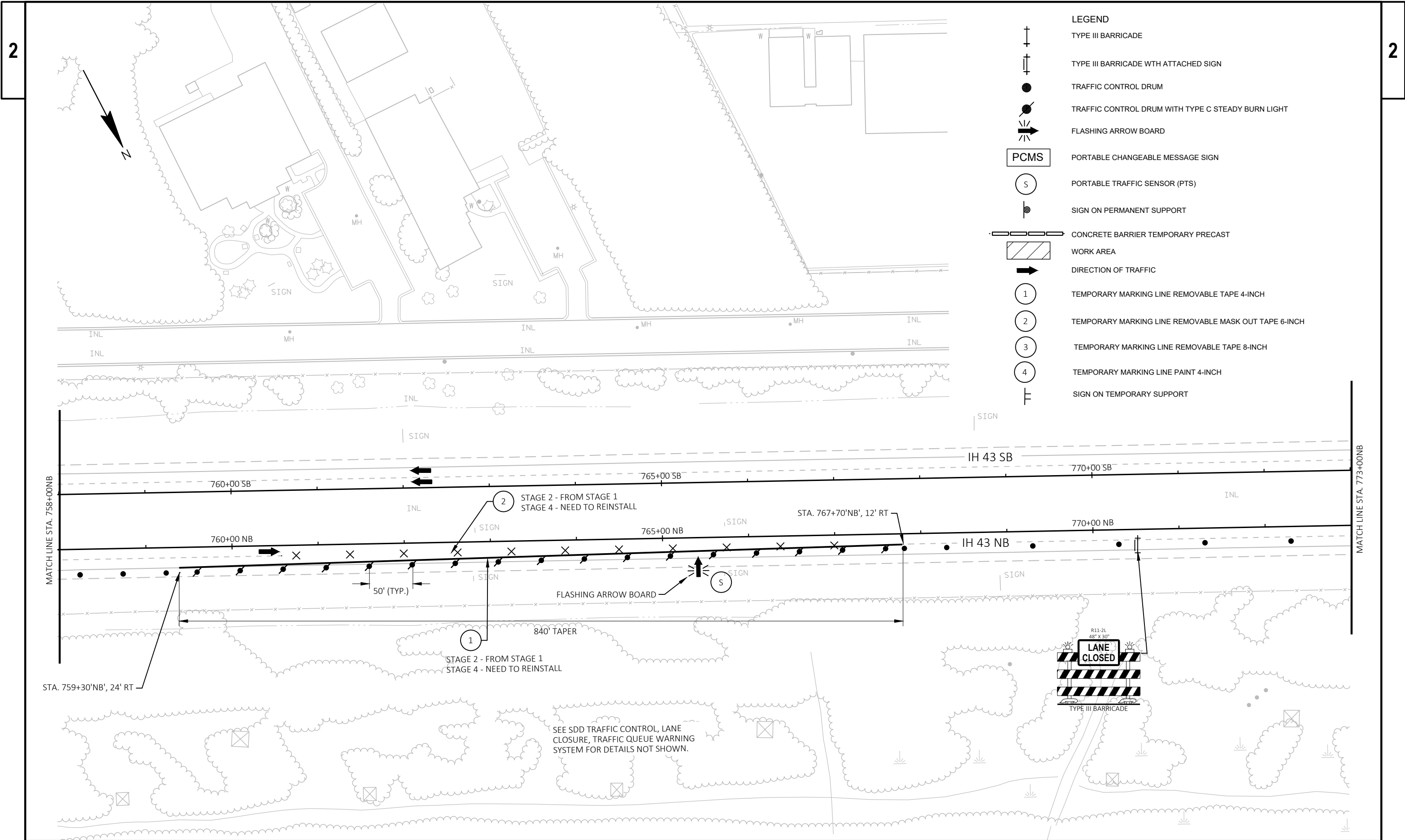
PLOT SCALE : 1 IN:100 FT

WISDOT/CADDs SHEET 42

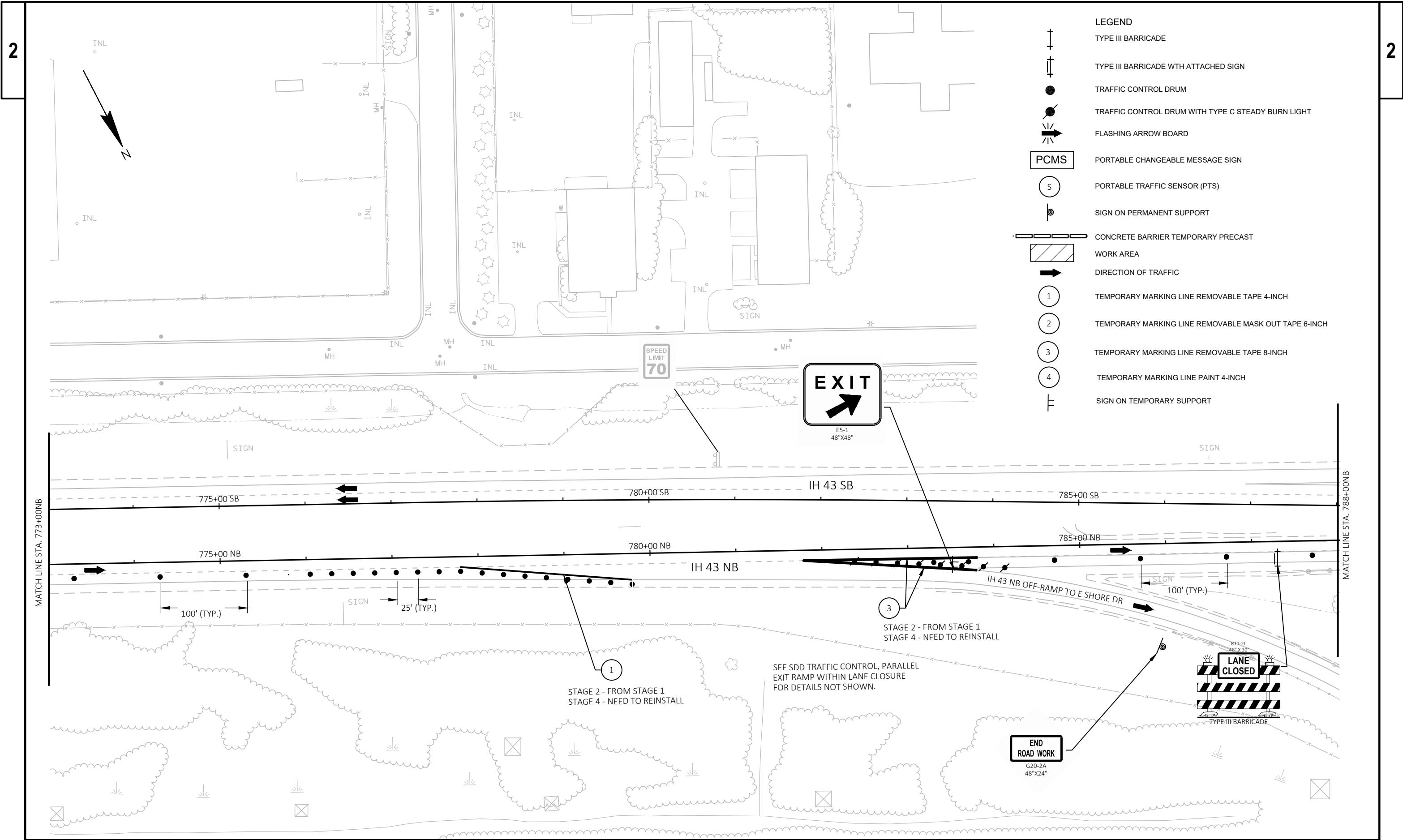


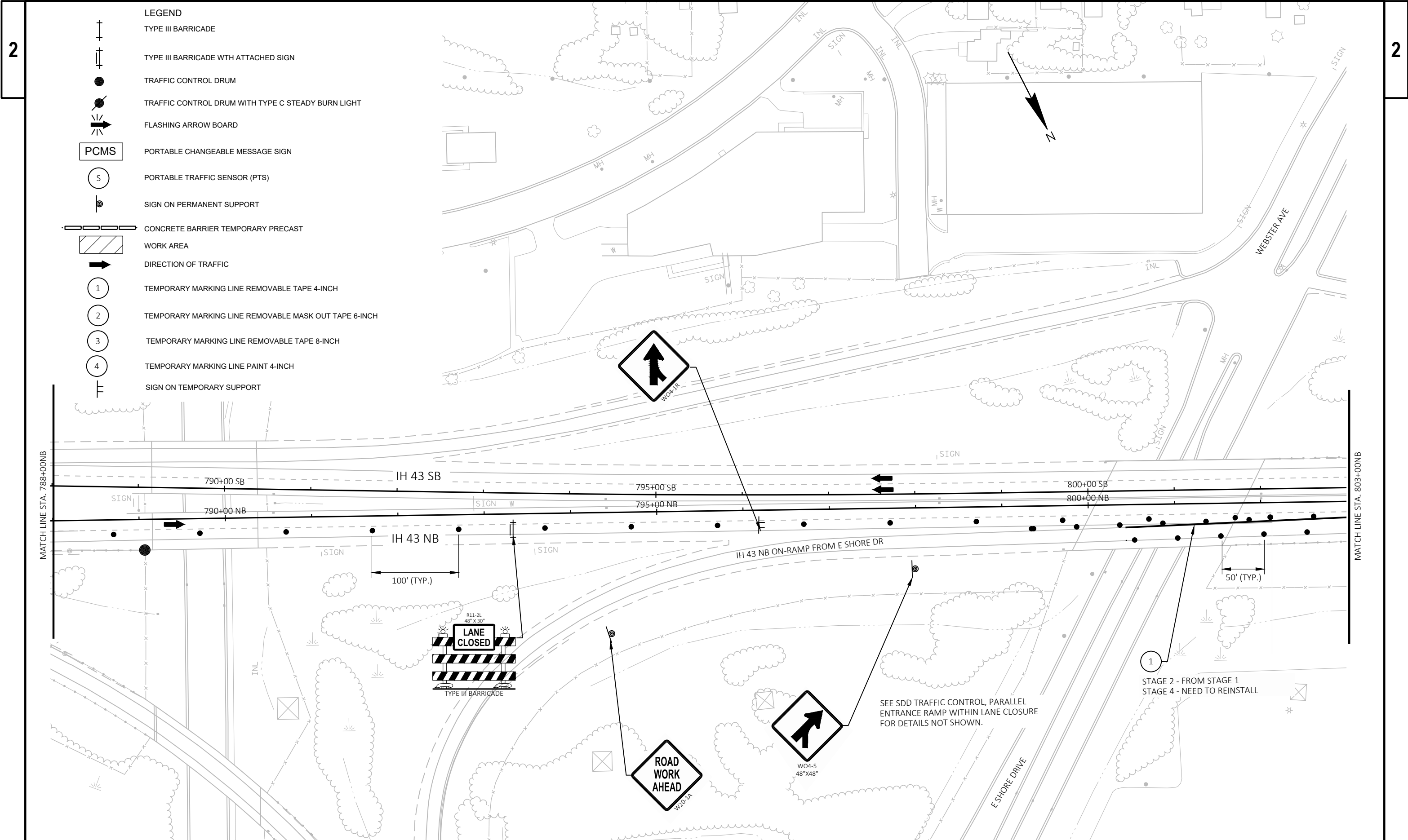


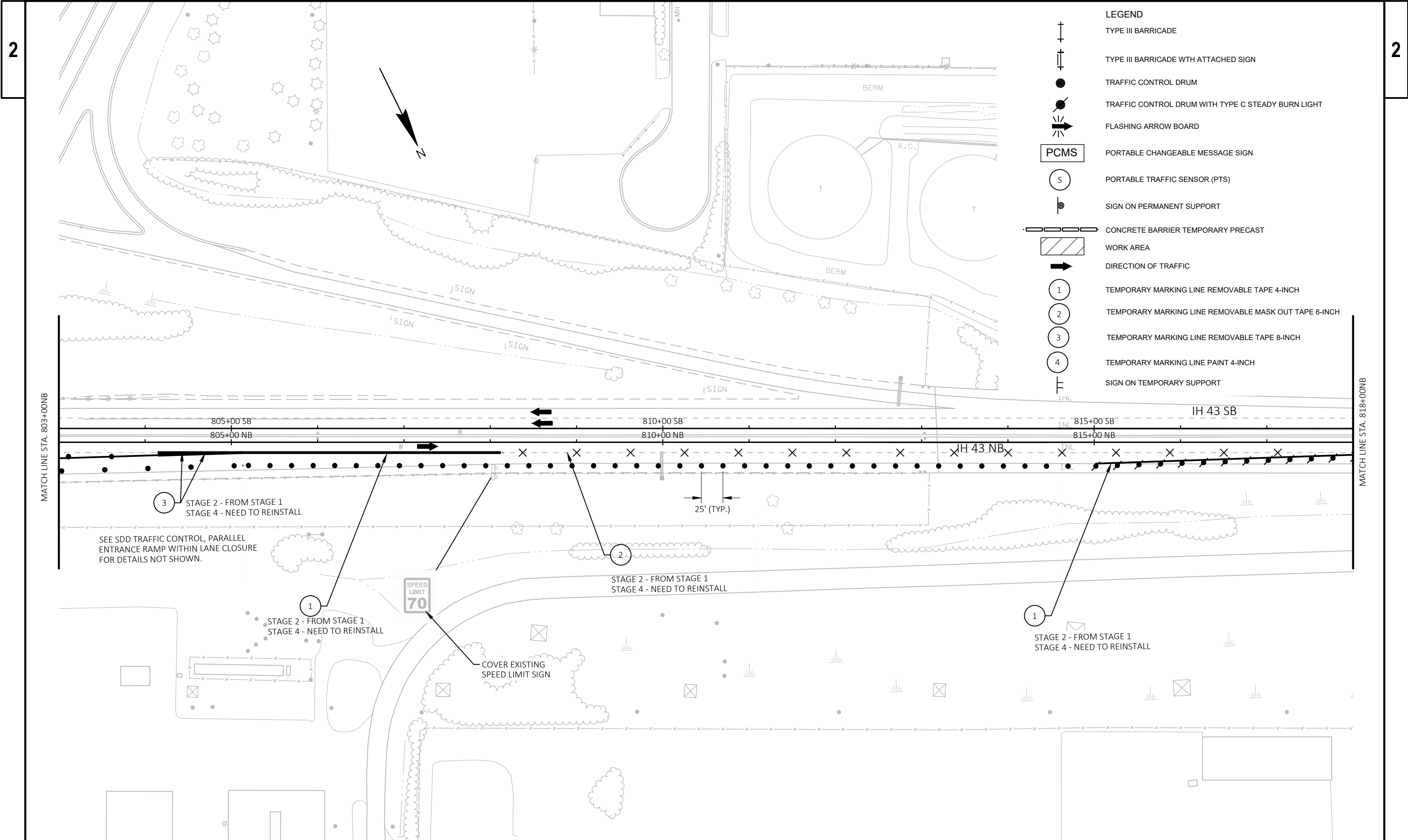




- LEGEND
- TYPE III BARRICADE
 - TYPE III BARRICADE WITH ATTACHED SIGN
 - TRAFFIC CONTROL DRUM
 - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
 - FLASHING ARROW BOARD
 - PCMS
 - PORTABLE CHANGEABLE MESSAGE SIGN
 - PORTABLE TRAFFIC SENSOR (PTS)
 - SIGN ON PERMANENT SUPPORT
 - CONCRETE BARRIER TEMPORARY PRECAST
 - WORK AREA
 - DIRECTION OF TRAFFIC
 - 1 TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH
 - 2 TEMPORARY MARKING LINE REMOVABLE MASK OUT TAPE 6-INCH
 - 3 TEMPORARY MARKING LINE REMOVABLE TAPE 8-INCH
 - 4 TEMPORARY MARKING LINE PAINT 4-INCH
 - SIGN ON TEMPORARY SUPPORT







- LEGEND
- +

+

TYPE III BARRICADE
- +

+

+
- TYPE III BARRICADE WITH ATTACHED SIGN

●

●

●

↗

PCMS

S

⦿

▬

▨

➡

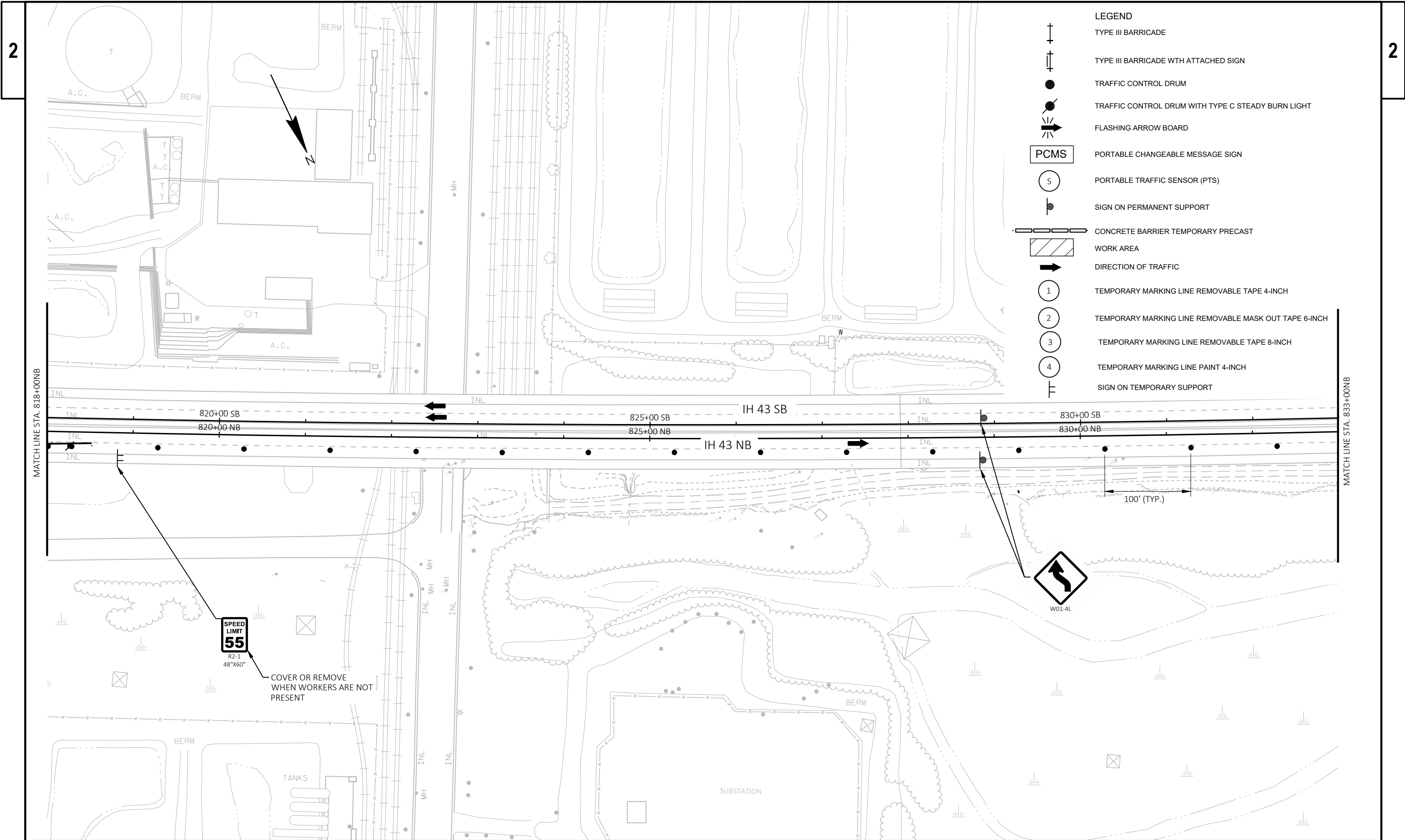
1

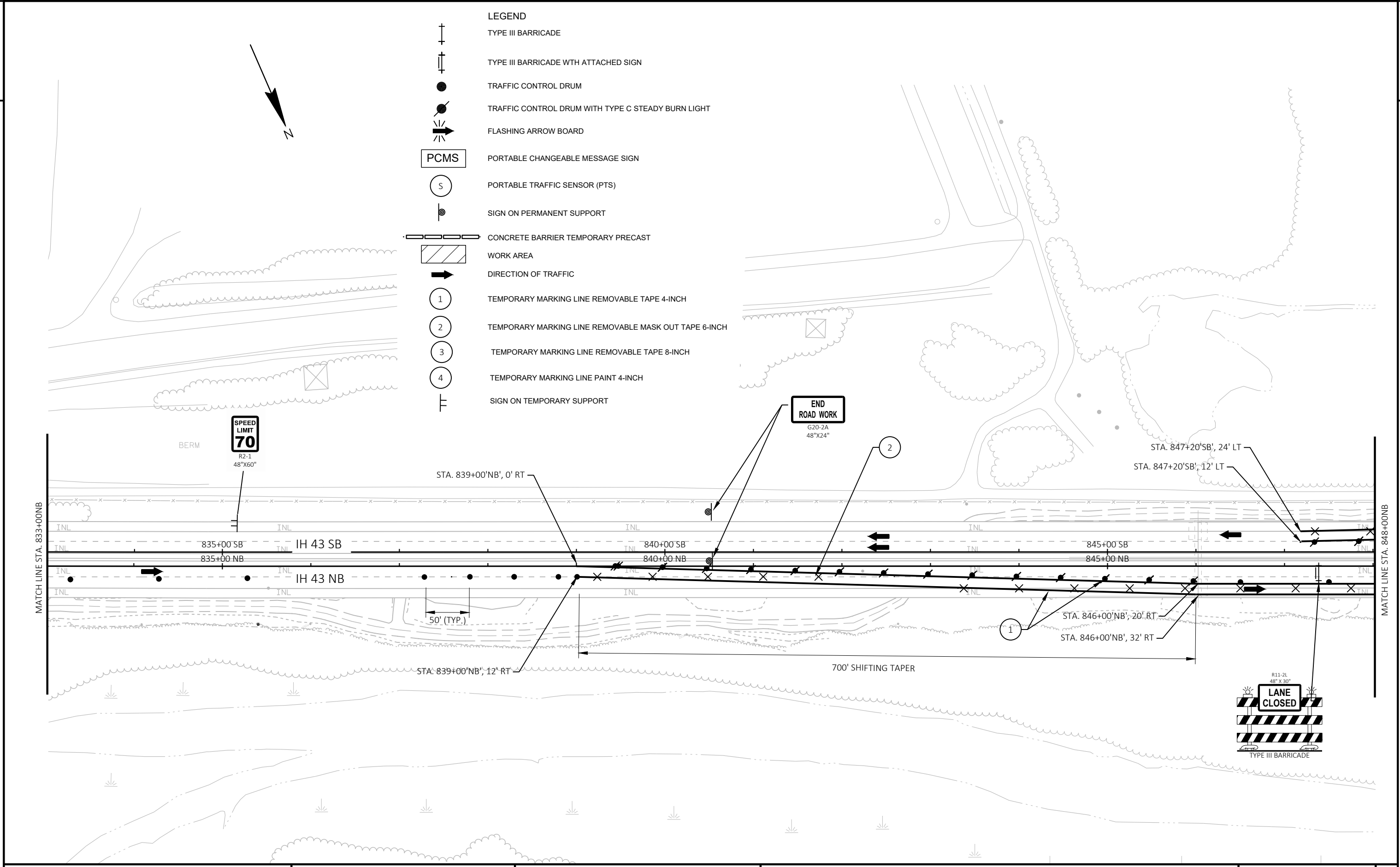
2

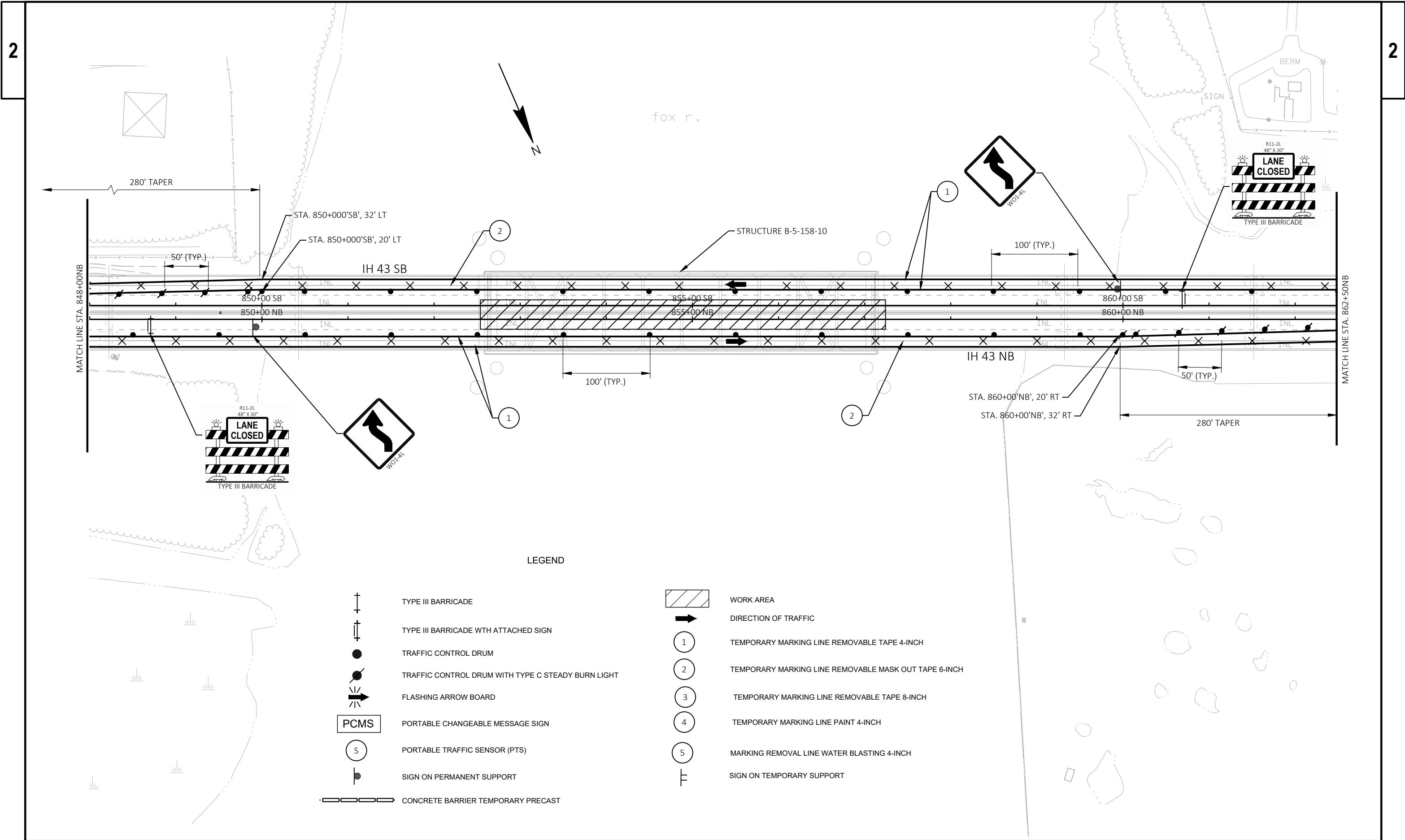
3

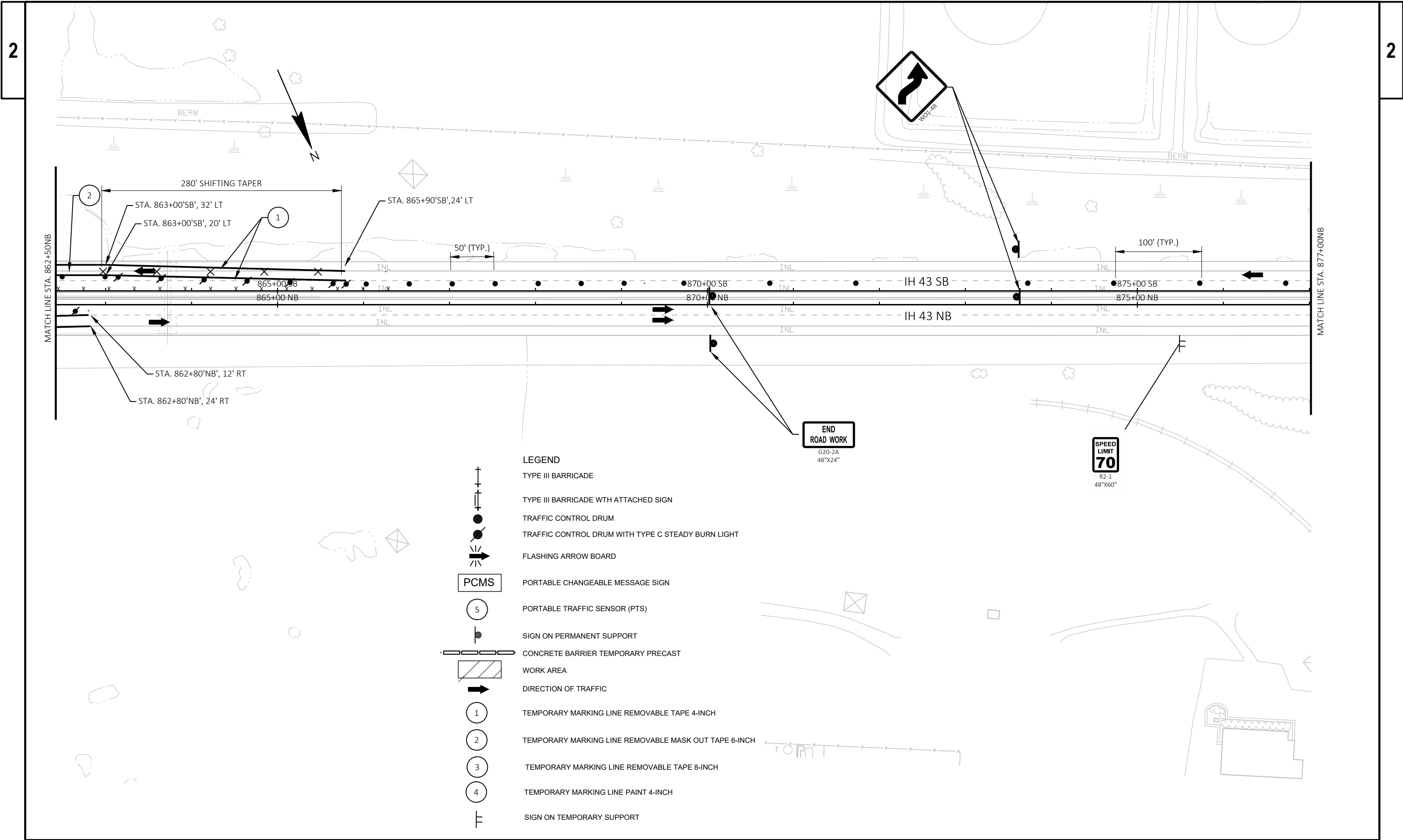
4

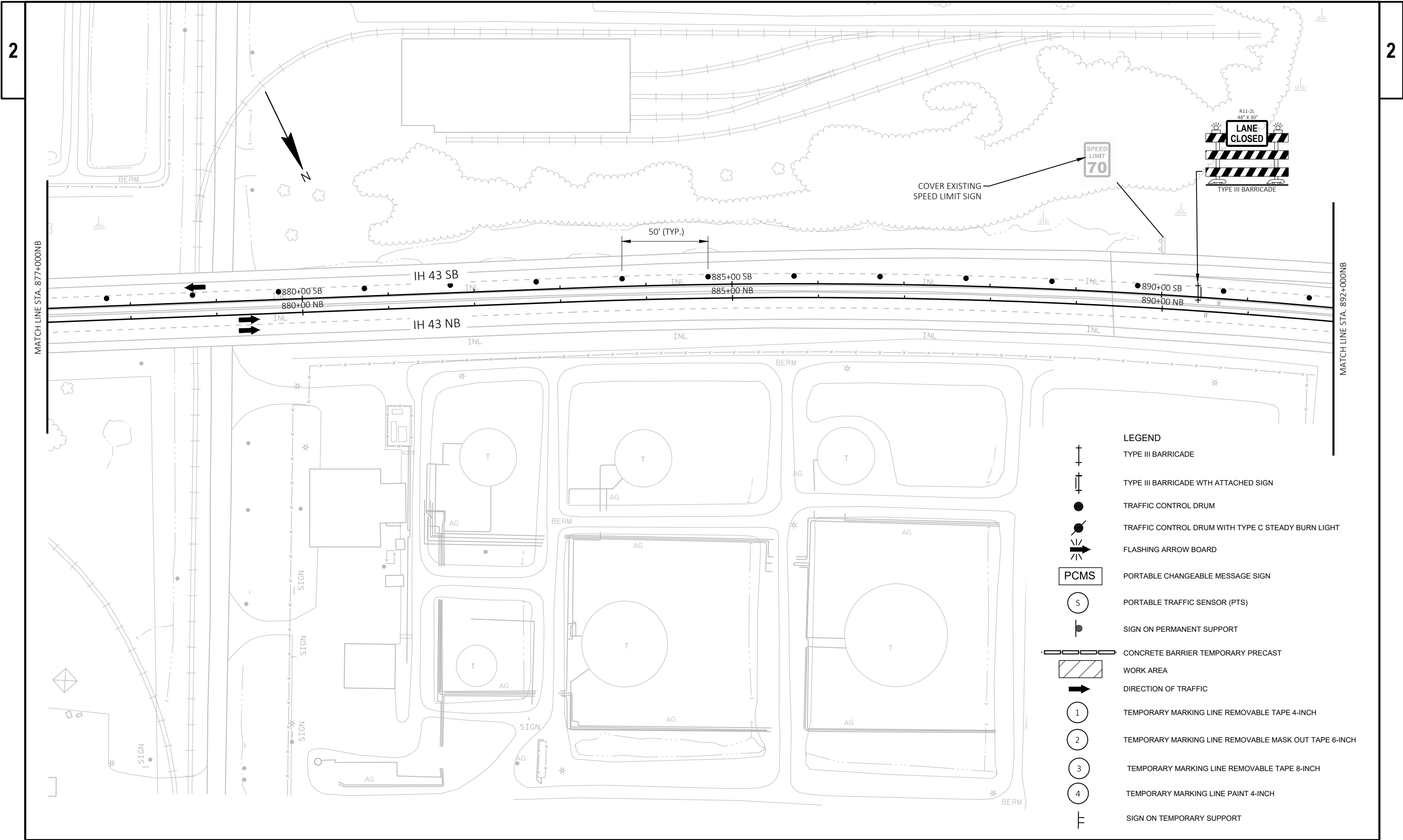
⦿

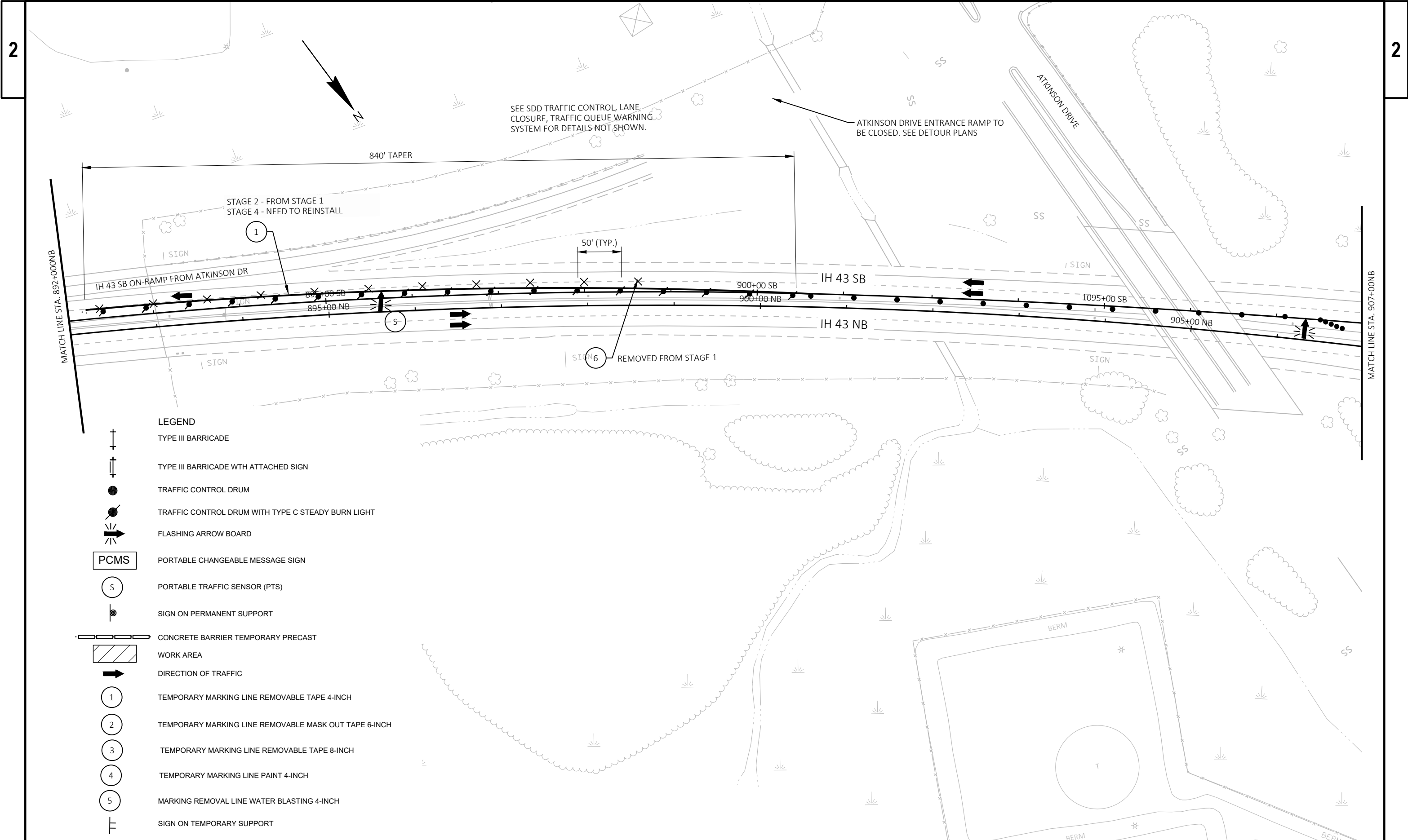




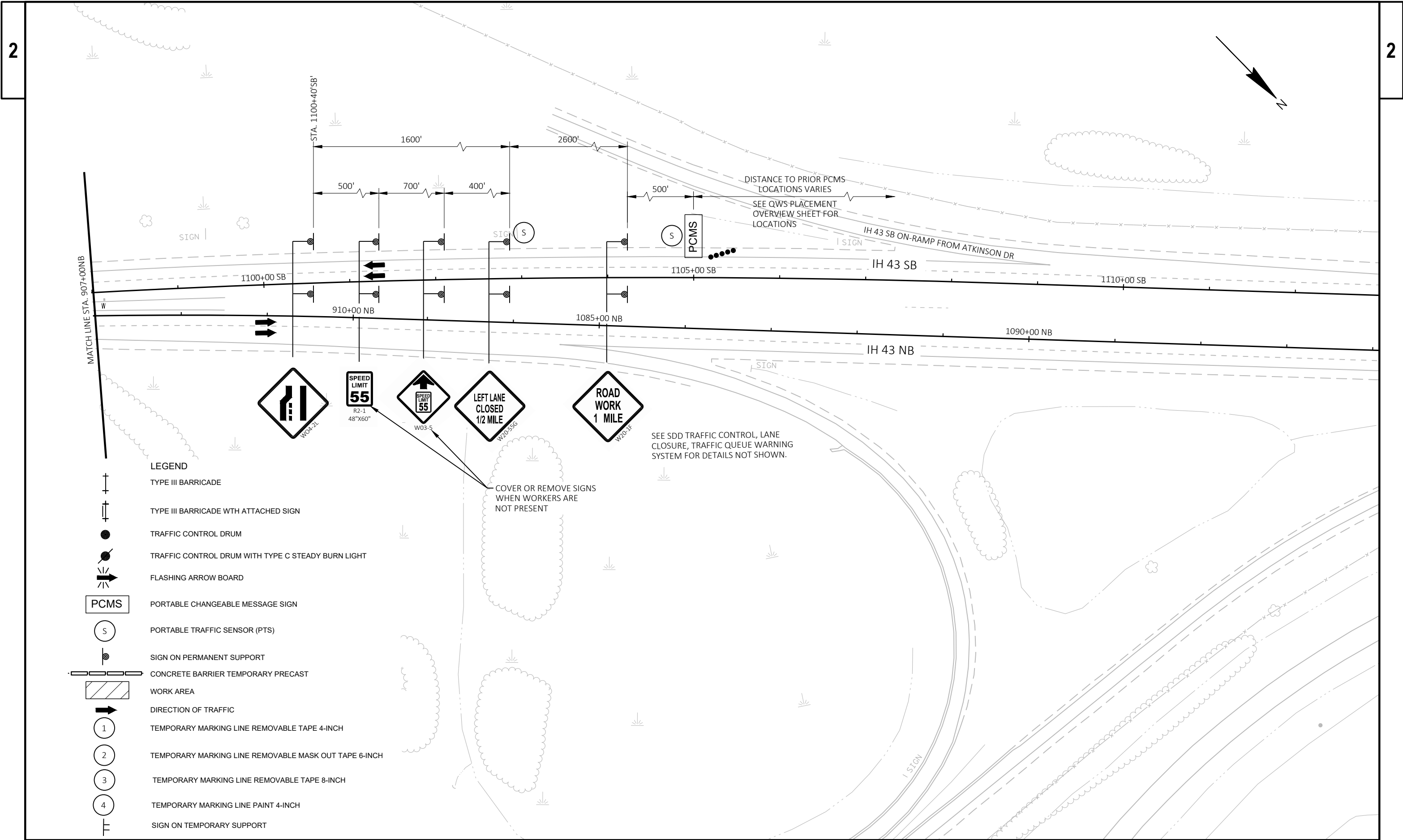


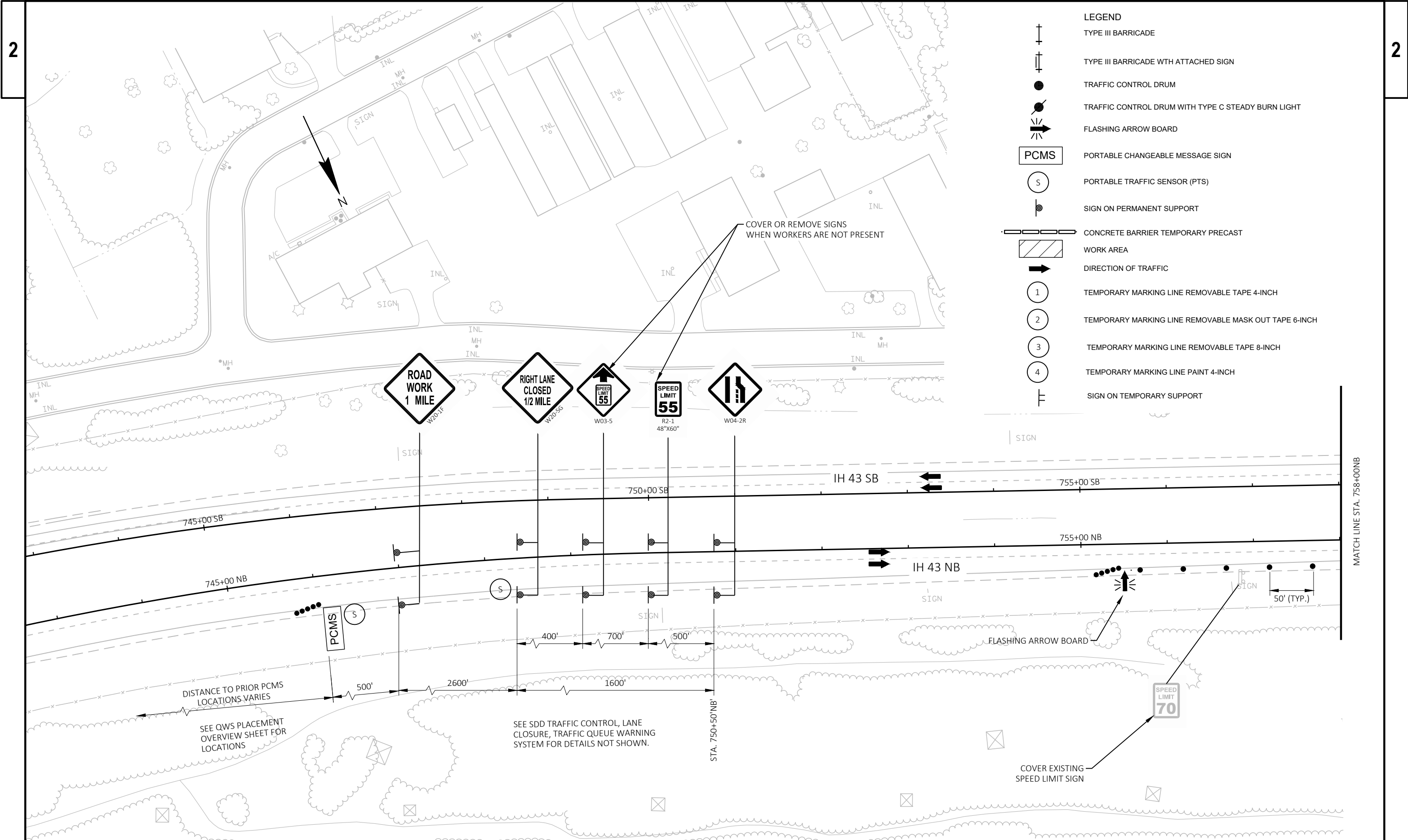






- LEGEND**
- TYPE III BARRICADE
 - TYPE III BARRICADE WTH ATTACHED SIGN
 - TRAFFIC CONTROL DRUM
 - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
 - FLASHING ARROW BOARD
 - PCMS
 - PORTABLE CHANGEABLE MESSAGE SIGN
 - PORTABLE TRAFFIC SENSOR (PTS)
 - SIGN ON PERMANENT SUPPORT
 - CONCRETE BARRIER TEMPORARY PRECAST
 - WORK AREA
 - DIRECTION OF TRAFFIC
 - TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH
 - TEMPORARY MARKING LINE REMOVABLE MASK OUT TAPE 6-INCH
 - TEMPORARY MARKING LINE REMOVABLE TAPE 8-INCH
 - TEMPORARY MARKING LINE PAINT 4-INCH
 - MARKING REMOVAL LINE WATER BLASTING 4-INCH
 - SIGN ON TEMPORARY SUPPORT

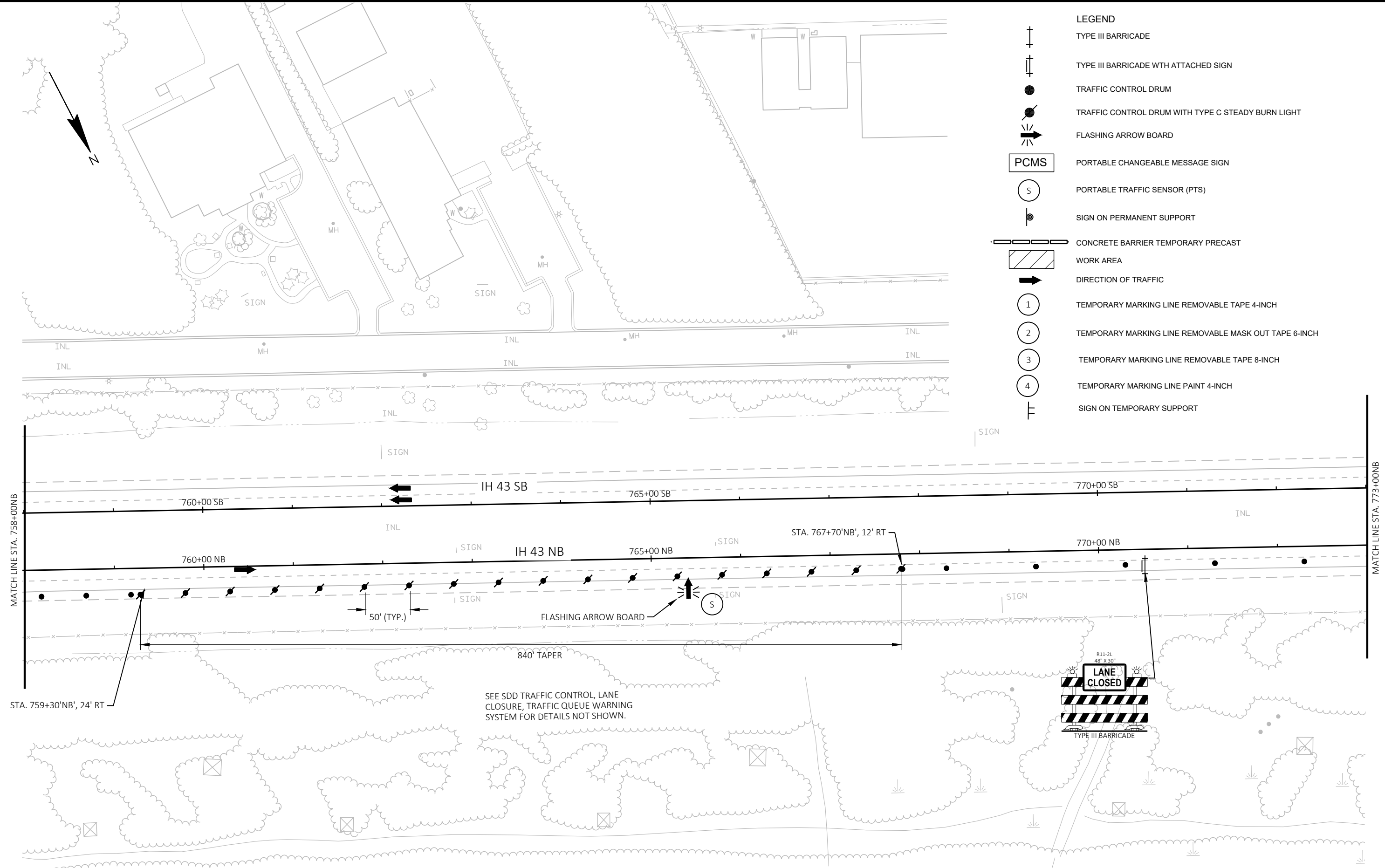


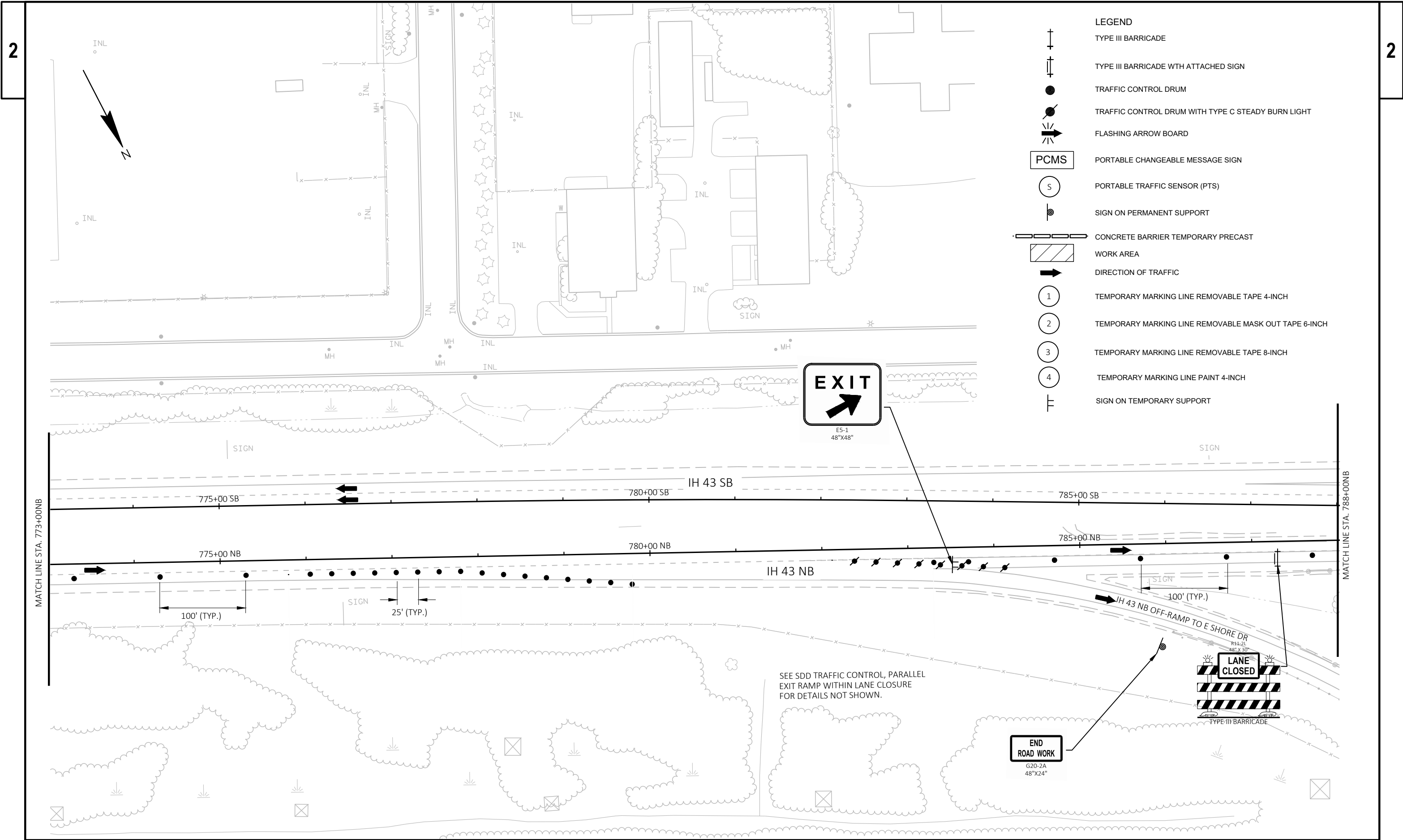


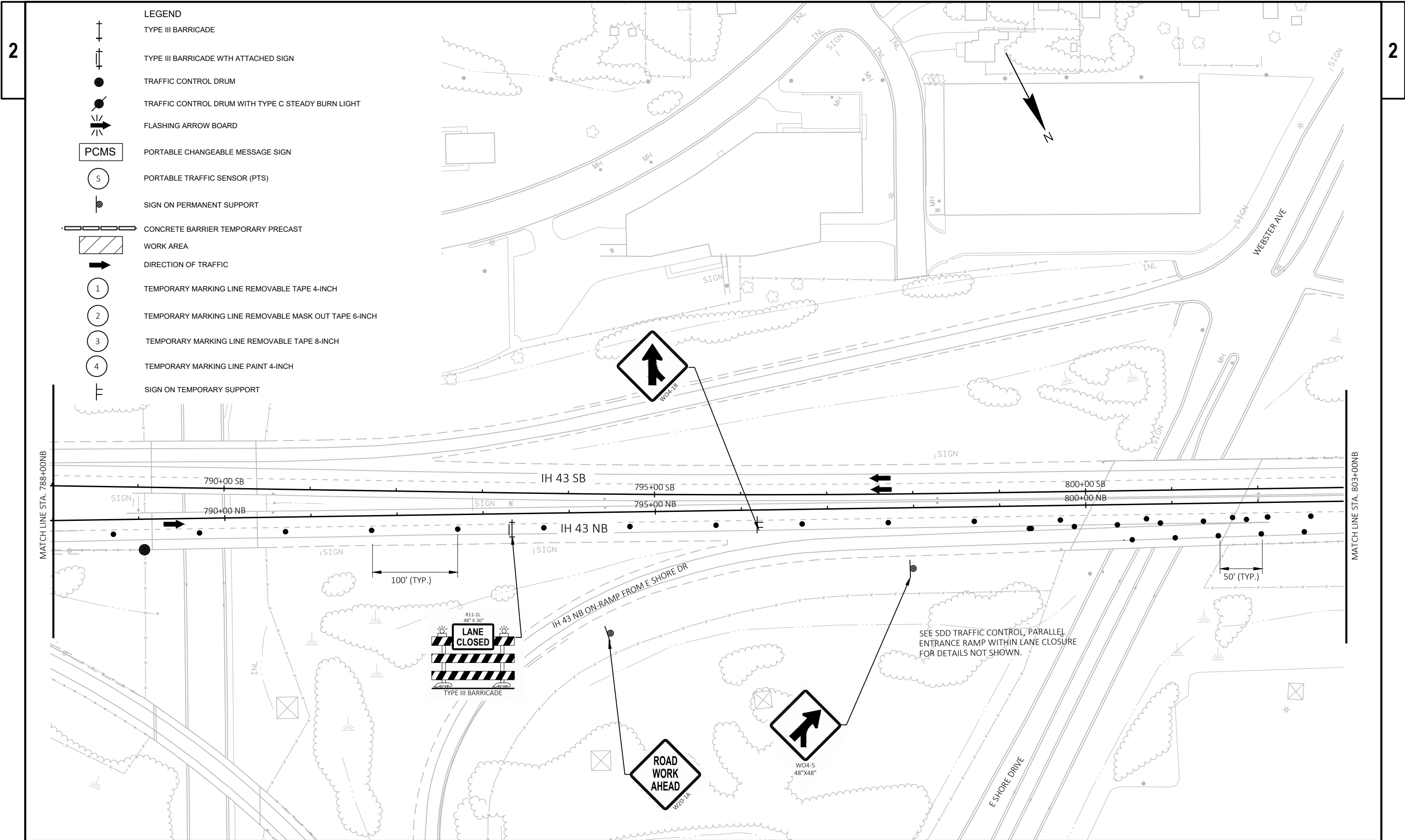
- LEGEND
- TYPE III BARRICADE
 - TYPE III BARRICADE WITH ATTACHED SIGN
 - TRAFFIC CONTROL DRUM
 - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
 - FLASHING ARROW BOARD
 - PCMS
 - PORTABLE CHANGEABLE MESSAGE SIGN
 - PORTABLE TRAFFIC SENSOR (PTS)
 - SIGN ON PERMANENT SUPPORT
 - CONCRETE BARRIER TEMPORARY PRECAST
 - WORK AREA
 - DIRECTION OF TRAFFIC
 - TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH
 - TEMPORARY MARKING LINE REMOVABLE MASK OUT TAPE 6-INCH
 - TEMPORARY MARKING LINE REMOVABLE TAPE 8-INCH
 - TEMPORARY MARKING LINE PAINT 4-INCH
 - SIGN ON TEMPORARY SUPPORT

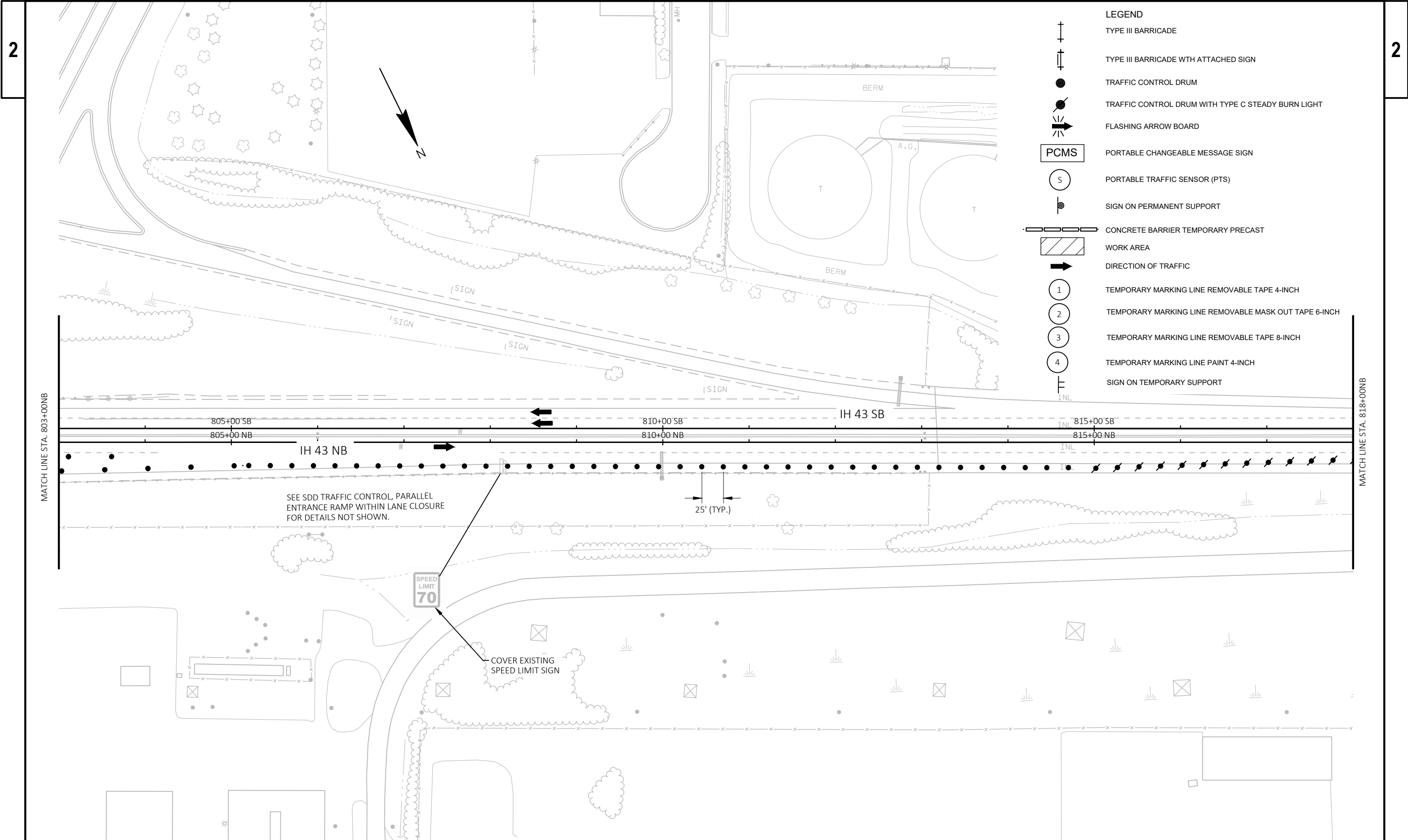
2

2

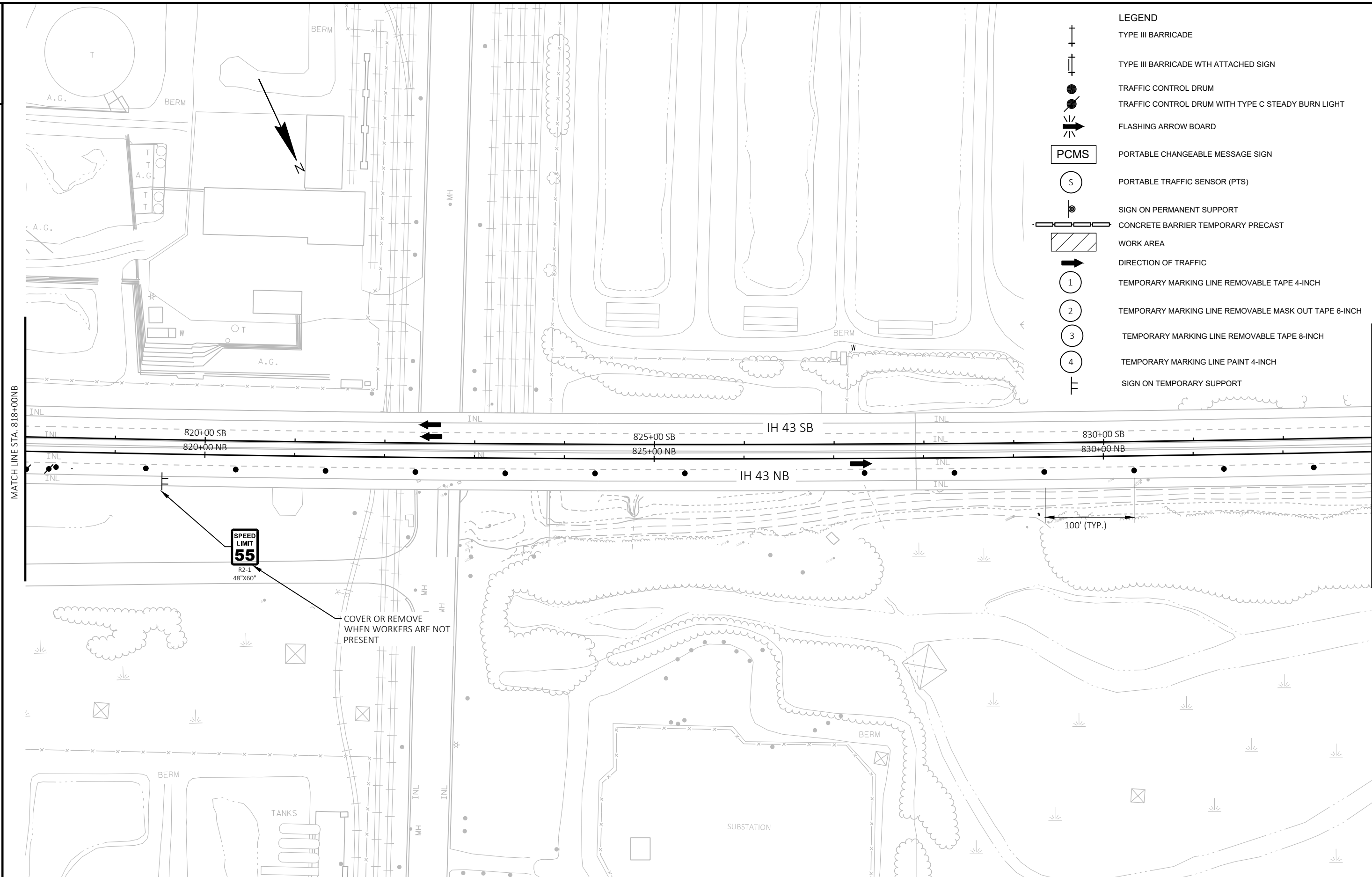


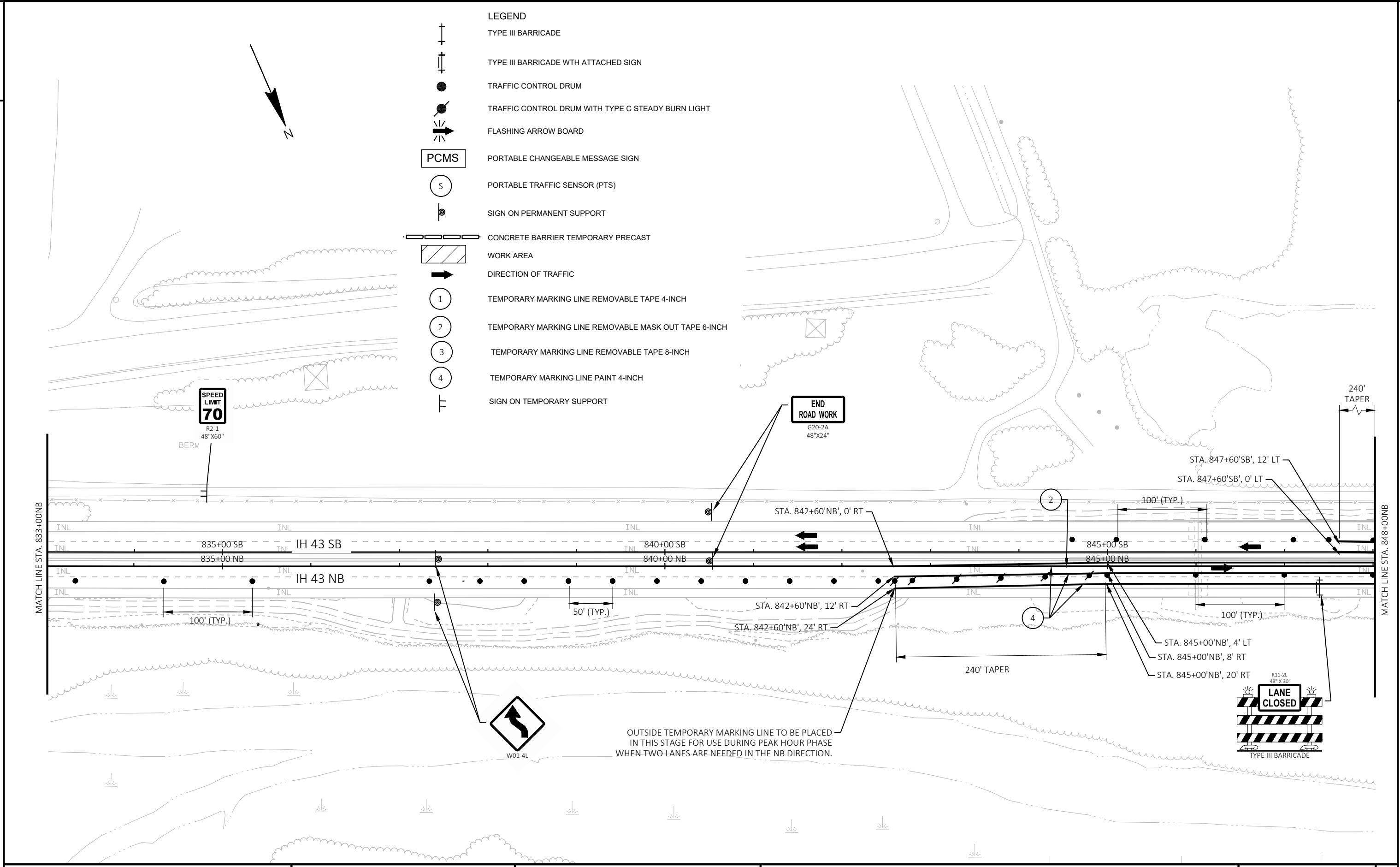


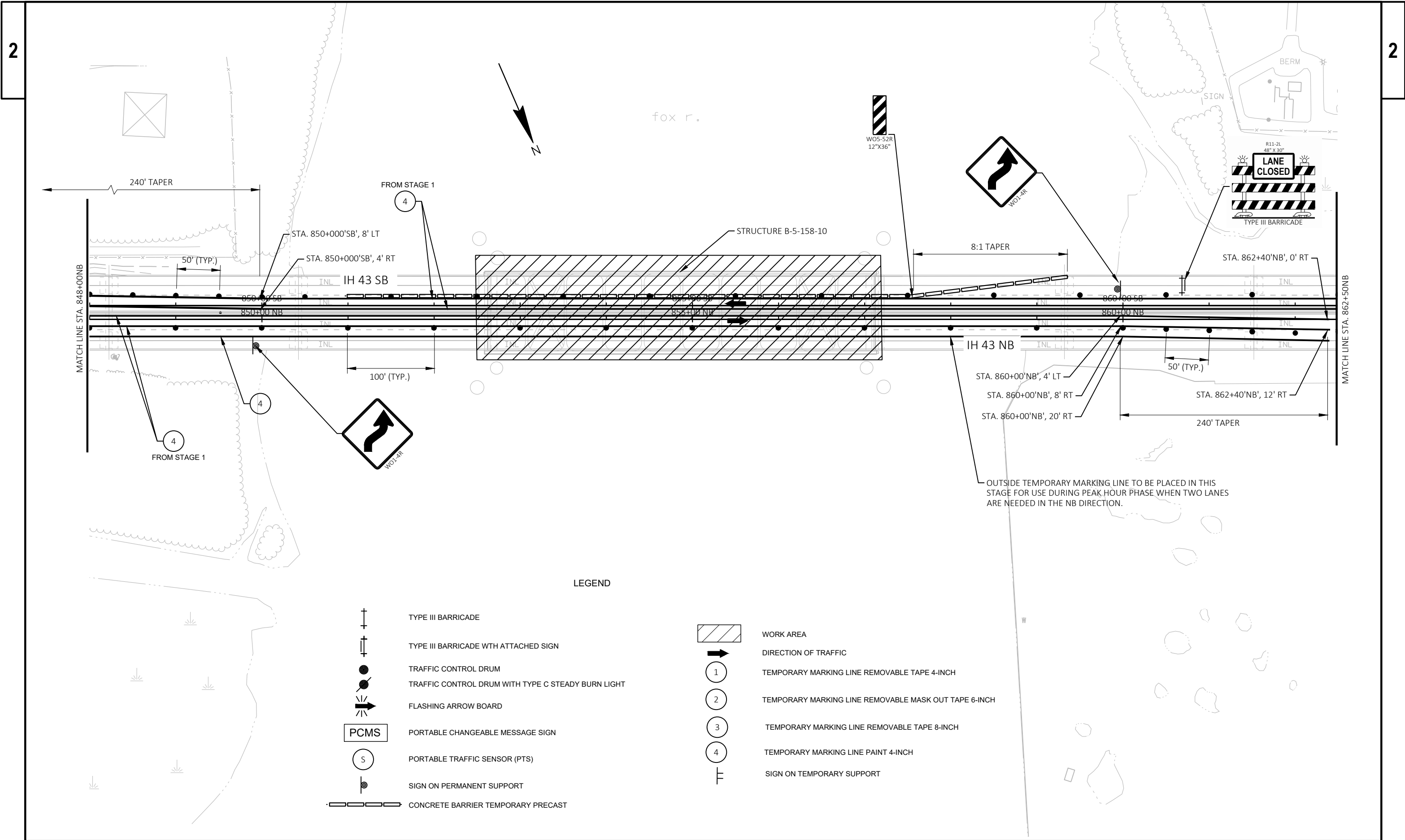




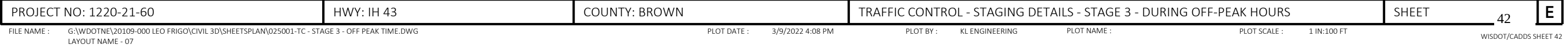
- LEGEND
- TYPE III BARRICADE
 - TYPE III BARRICADE WTH ATTACHED SIGN
 - TRAFFIC CONTROL DRUM
 - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
 - FLASHING ARROW BOARD
 - PCMS
 - PORTABLE CHANGEABLE MESSAGE SIGN
 - PORTABLE TRAFFIC SENSOR (PTS)
 - SIGN ON PERMANENT SUPPORT
 - CONCRETE BARRIER TEMPORARY PRECAST
 - WORK AREA
 - DIRECTION OF TRAFFIC
 - 1 TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH
 - 2 TEMPORARY MARKING LINE REMOVABLE MASK OUT TAPE 6-INCH
 - 3 TEMPORARY MARKING LINE REMOVABLE TAPE 8-INCH
 - 4 TEMPORARY MARKING LINE PAINT 4-INCH
 - SIGN ON TEMPORARY SUPPORT

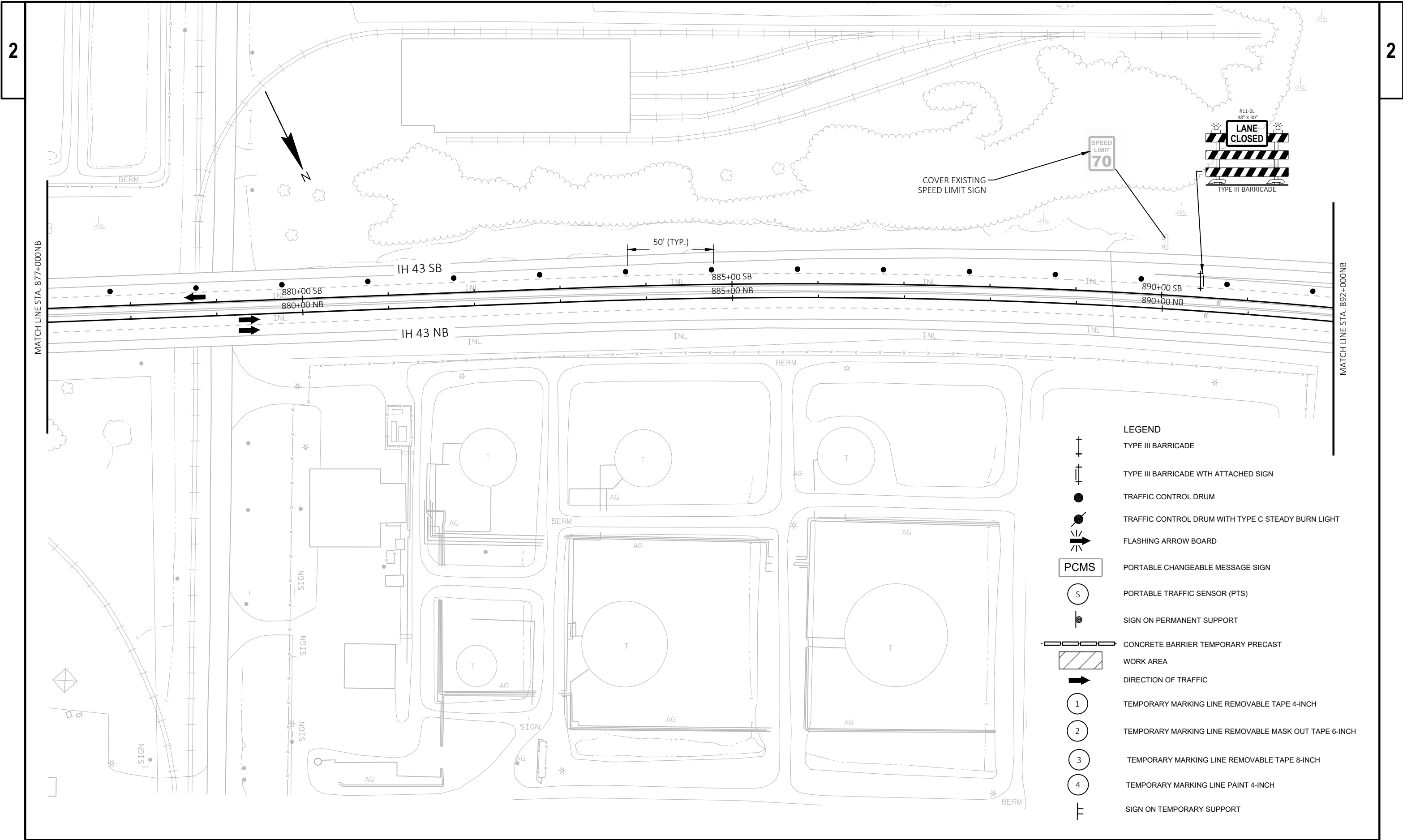


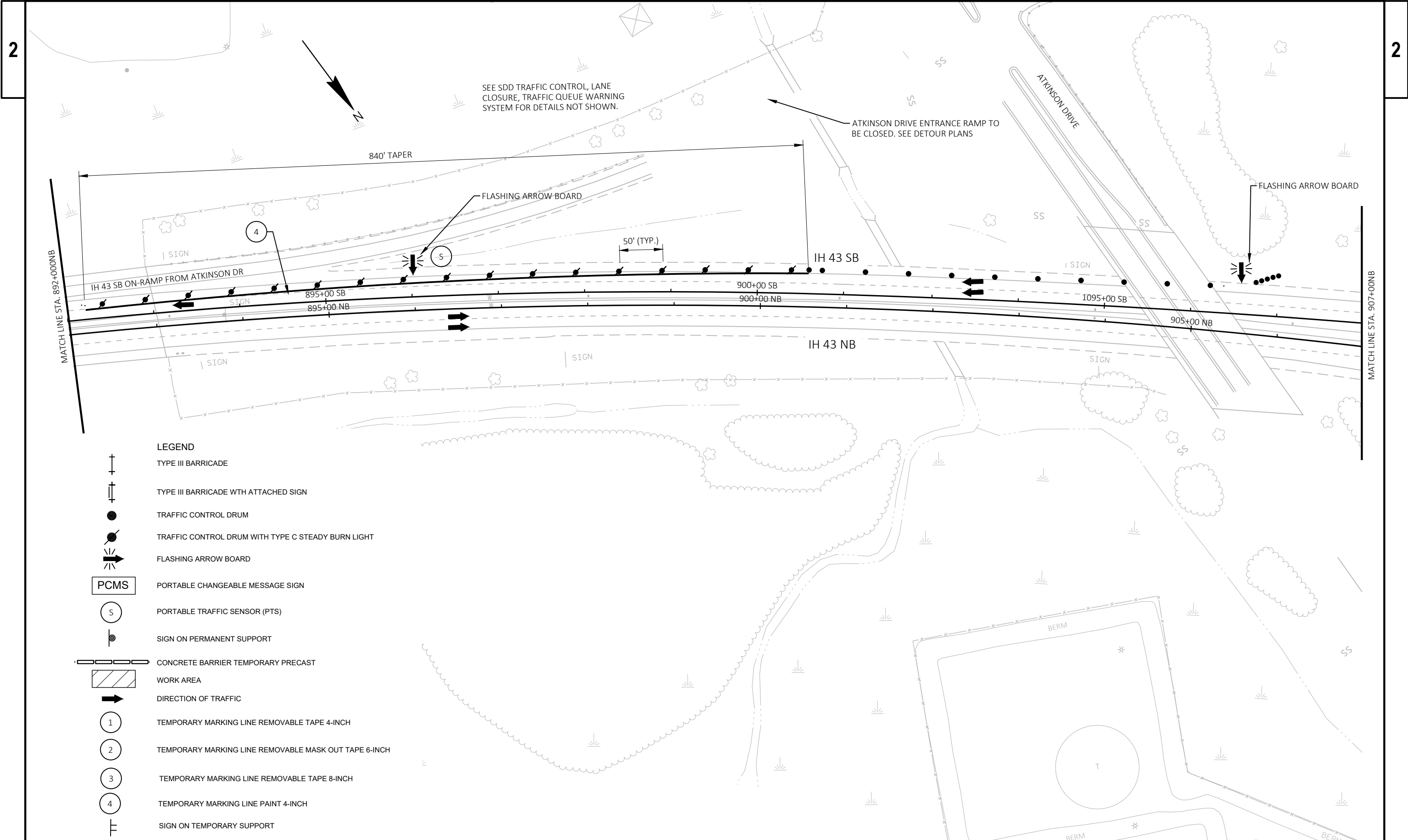




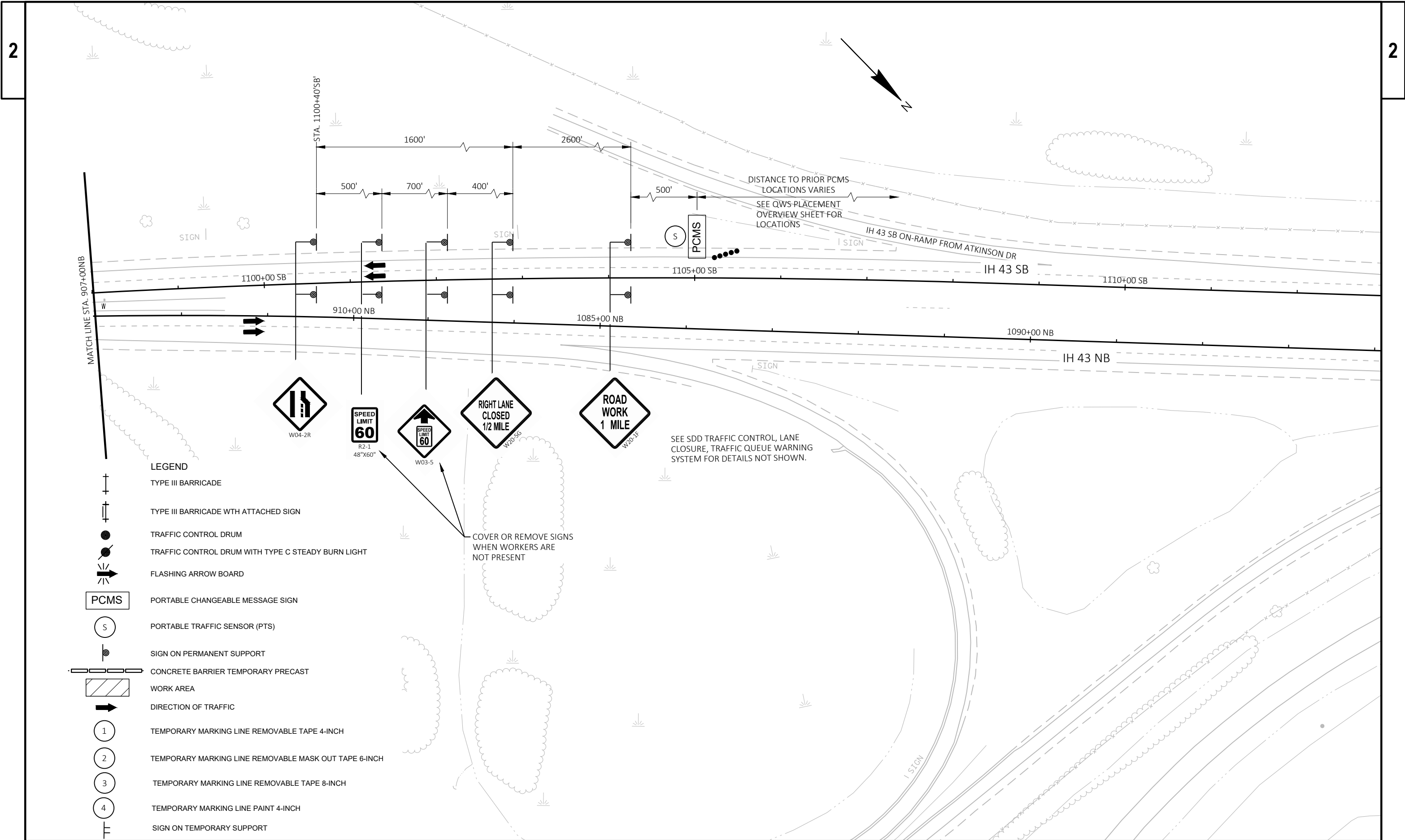
2

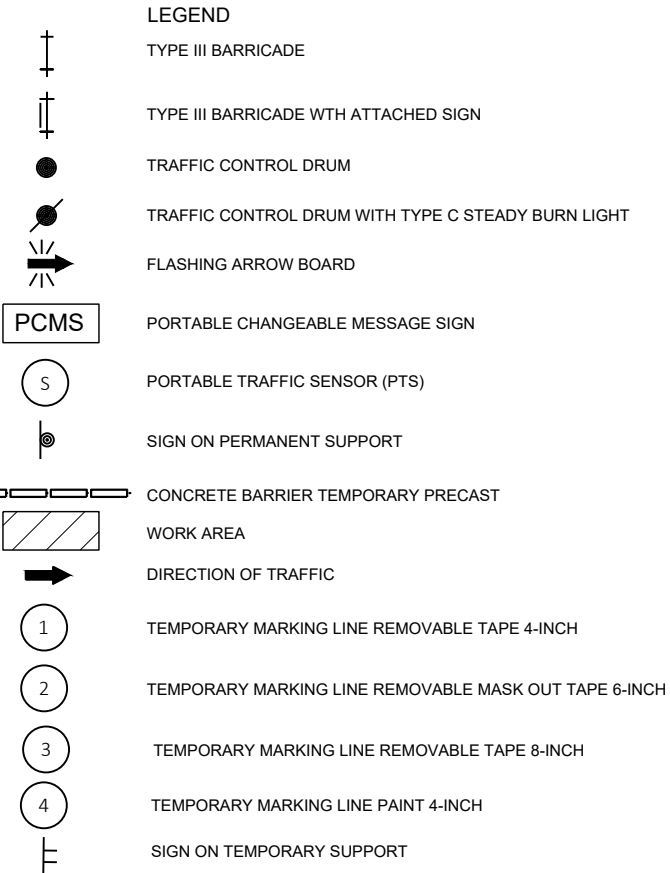


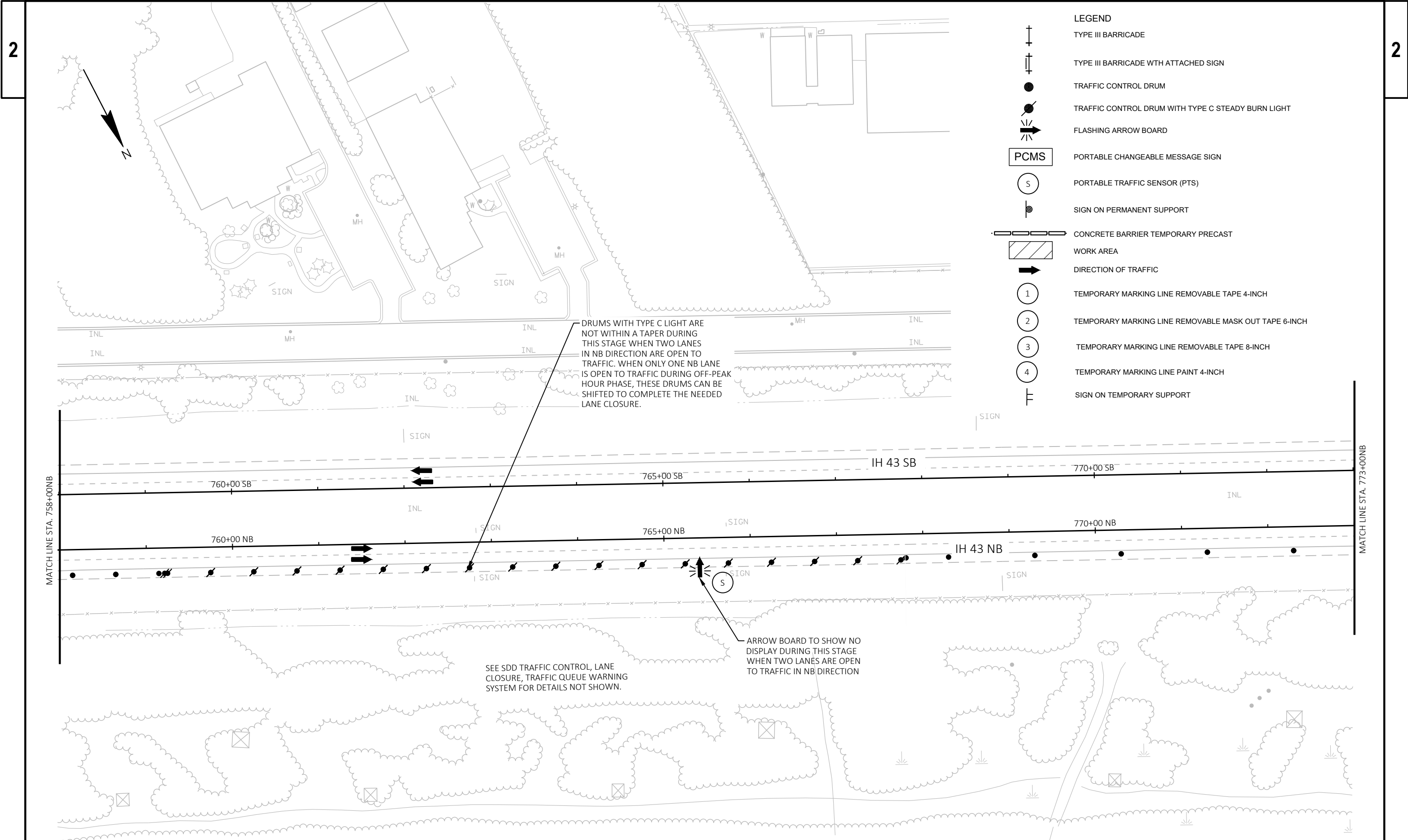




- LEGEND**
- TYPE III BARRICADE
 - TYPE III BARRICADE WTH ATTACHED SIGN
 - TRAFFIC CONTROL DRUM
 - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
 - FLASHING ARROW BOARD
 - PCMS PORTABLE CHANGEABLE MESSAGE SIGN
 - PORTABLE TRAFFIC SENSOR (PTS)
 - SIGN ON PERMANENT SUPPORT
 - CONCRETE BARRIER TEMPORARY PRECAST
 - WORK AREA
 - DIRECTION OF TRAFFIC
 - 1 TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH
 - 2 TEMPORARY MARKING LINE REMOVABLE MASK OUT TAPE 6-INCH
 - 3 TEMPORARY MARKING LINE REMOVABLE TAPE 8-INCH
 - 4 TEMPORARY MARKING LINE PAINT 4-INCH
 - SIGN ON TEMPORARY SUPPORT





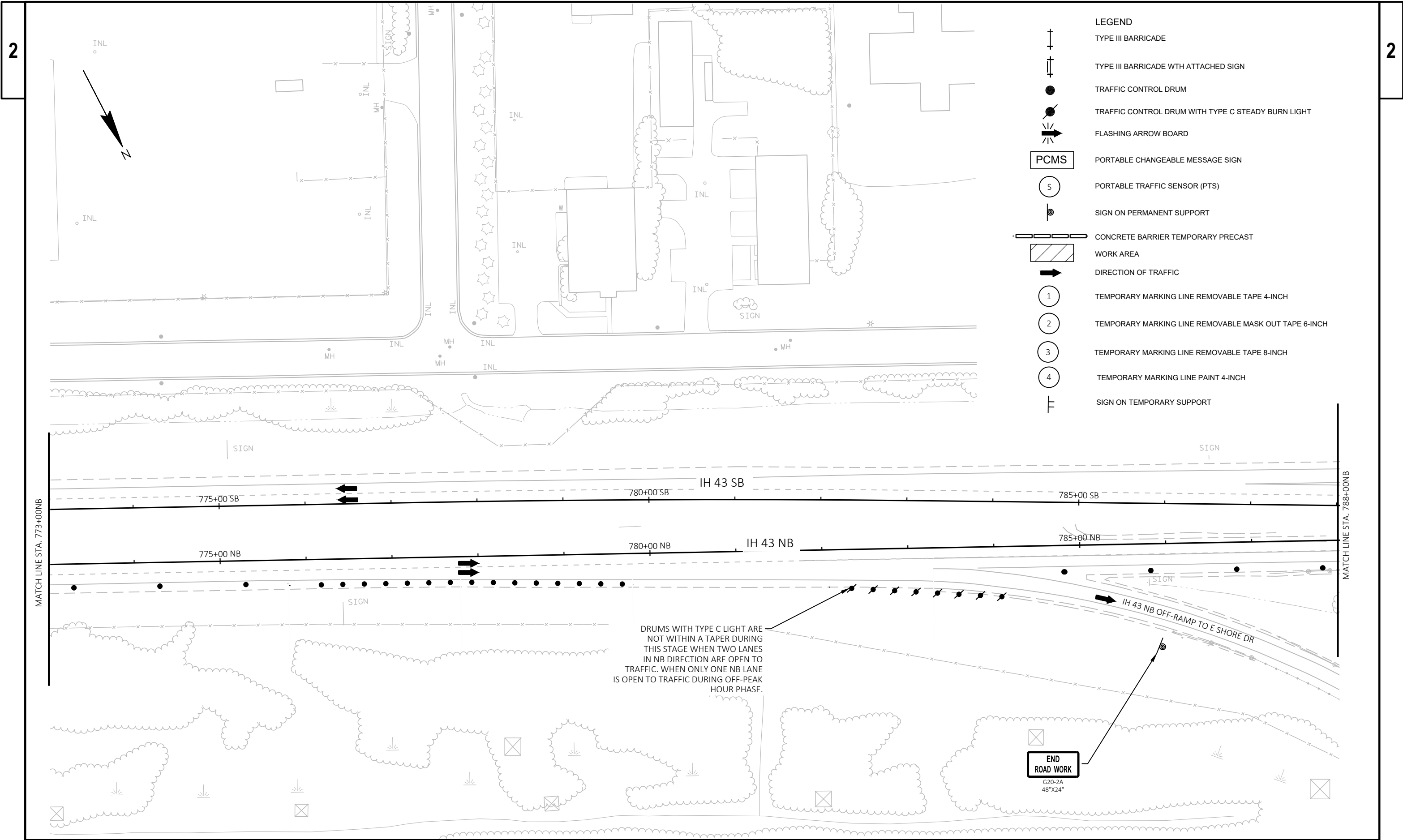


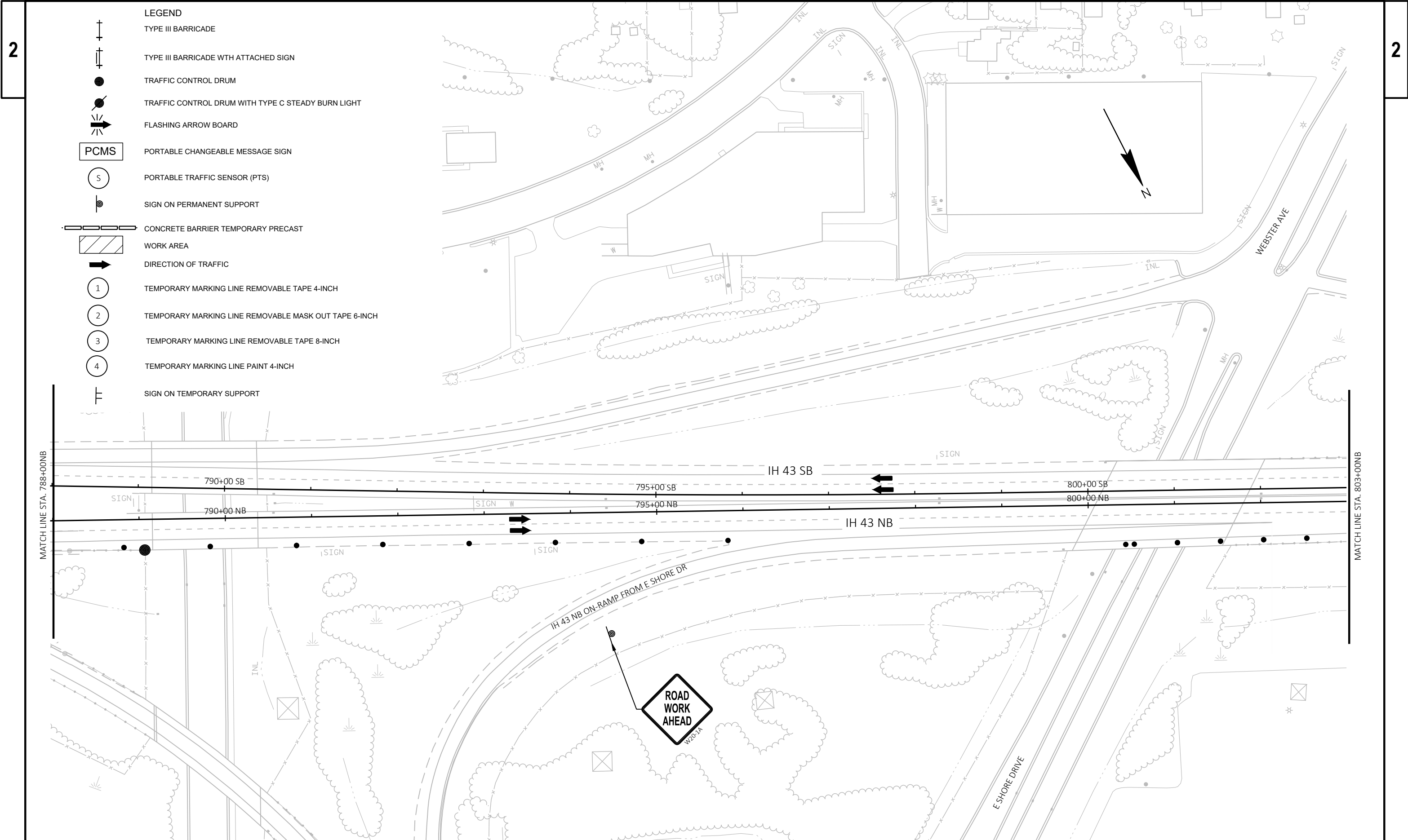
- LEGEND
- TYPE III BARRICADE
 - TYPE III BARRICADE WITH ATTACHED SIGN
 - TRAFFIC CONTROL DRUM
 - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
 - FLASHING ARROW BOARD
 - PCMS
 - PORTABLE CHANGEABLE MESSAGE SIGN
 - PORTABLE TRAFFIC SENSOR (PTS)
 - SIGN ON PERMANENT SUPPORT
 - CONCRETE BARRIER TEMPORARY PRECAST
 - WORK AREA
 - DIRECTION OF TRAFFIC
 - 1 TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH
 - 2 TEMPORARY MARKING LINE REMOVABLE MASK OUT TAPE 6-INCH
 - 3 TEMPORARY MARKING LINE REMOVABLE TAPE 8-INCH
 - 4 TEMPORARY MARKING LINE PAINT 4-INCH
 - SIGN ON TEMPORARY SUPPORT

DRUMS WITH TYPE C LIGHT ARE NOT WITHIN A TAPER DURING THIS STAGE WHEN TWO LANES IN NB DIRECTION ARE OPEN TO TRAFFIC. WHEN ONLY ONE NB LANE IS OPEN TO TRAFFIC DURING OFF-PEAK HOUR PHASE, THESE DRUMS CAN BE SHIFTED TO COMPLETE THE NEEDED LANE CLOSURE.

ARROW BOARD TO SHOW NO DISPLAY DURING THIS STAGE WHEN TWO LANES ARE OPEN TO TRAFFIC IN NB DIRECTION

SEE SDD TRAFFIC CONTROL, LANE CLOSURE, TRAFFIC QUEUE WARNING SYSTEM FOR DETAILS NOT SHOWN.

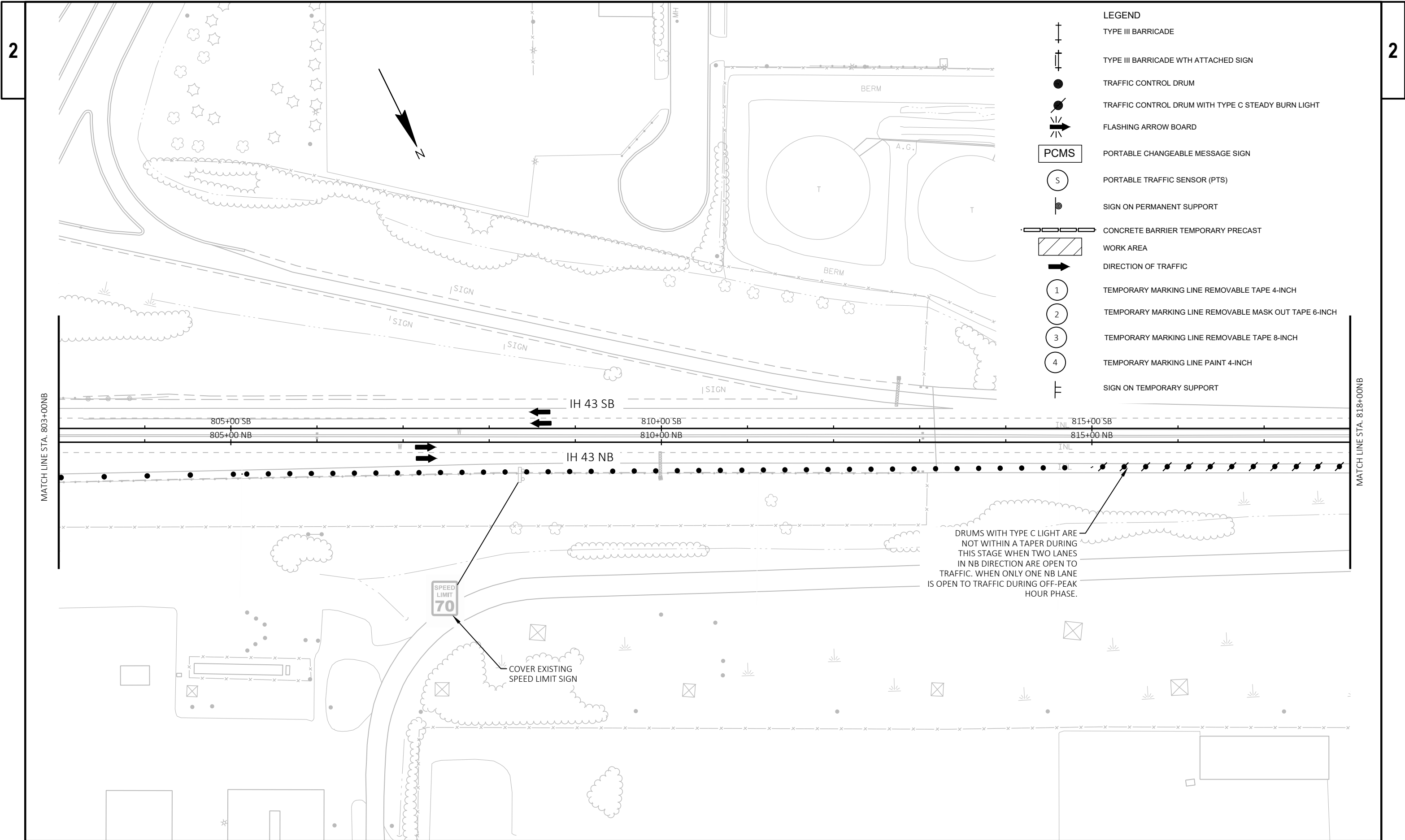




2

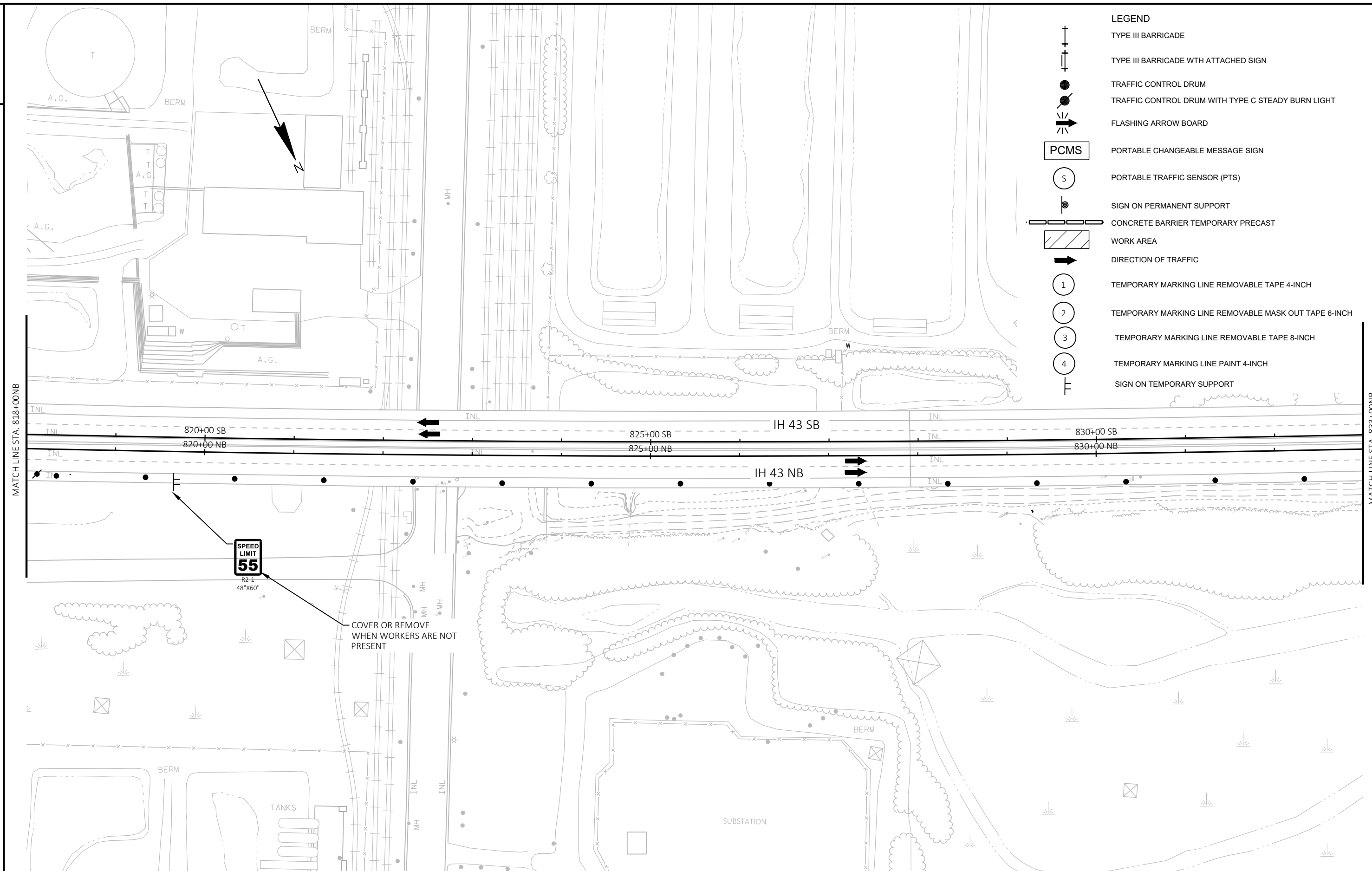
2

- LEGEND**
- TYPE III BARRICADE
 - TYPE III BARRICADE WTH ATTACHED SIGN
 - TRAFFIC CONTROL DRUM
 - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
 - FLASHING ARROW BOARD
 - PCMS
 - PORTABLE CHANGEABLE MESSAGE SIGN
 - PORTABLE TRAFFIC SENSOR (PTS)
 - SIGN ON PERMANENT SUPPORT
 - CONCRETE BARRIER TEMPORARY PRECAST
 - WORK AREA
 - DIRECTION OF TRAFFIC
 - 1 TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH
 - 2 TEMPORARY MARKING LINE REMOVABLE MASK OUT TAPE 6-INCH
 - 3 TEMPORARY MARKING LINE REMOVABLE TAPE 8-INCH
 - 4 TEMPORARY MARKING LINE PAINT 4-INCH
 - SIGN ON TEMPORARY SUPPORT

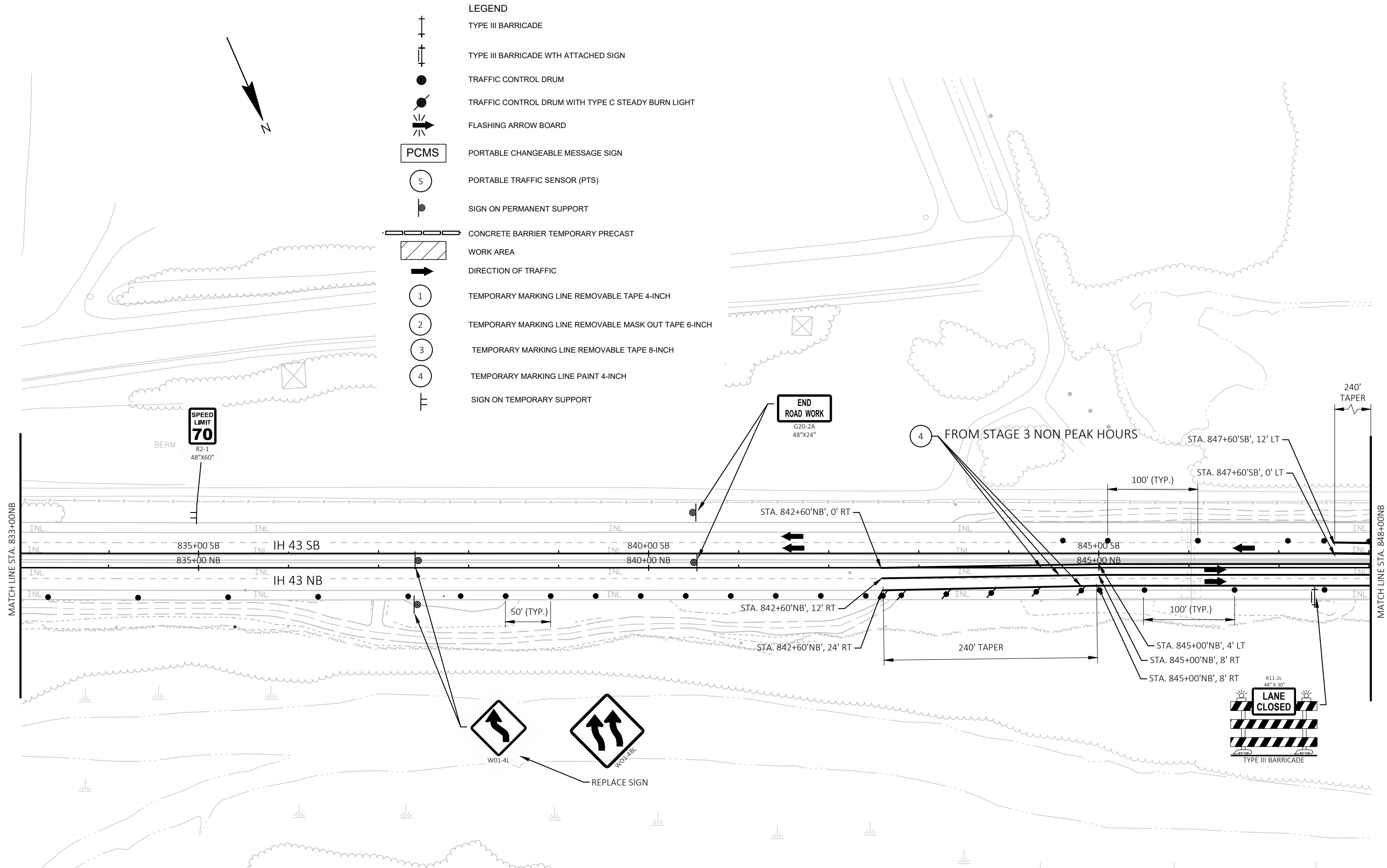


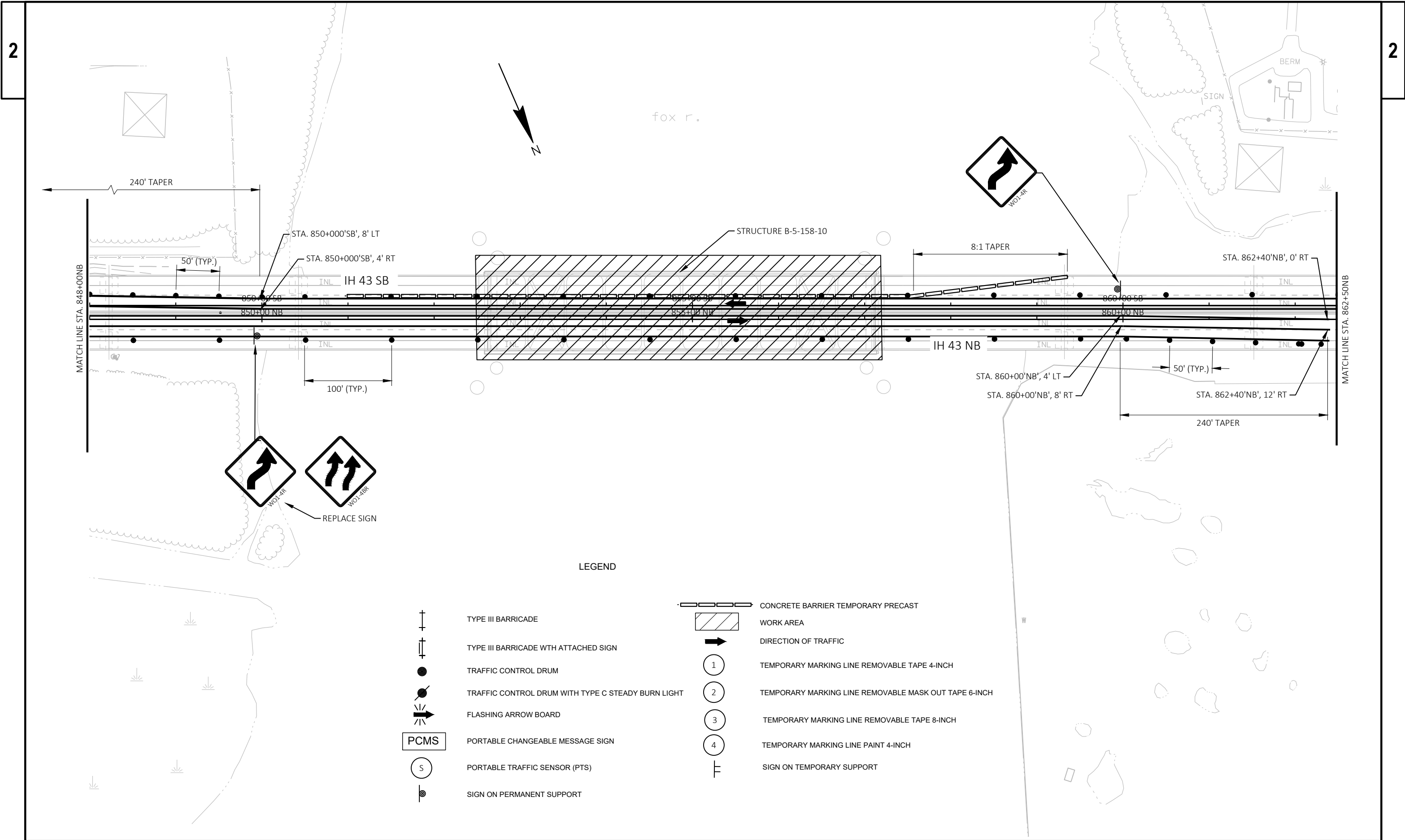
2

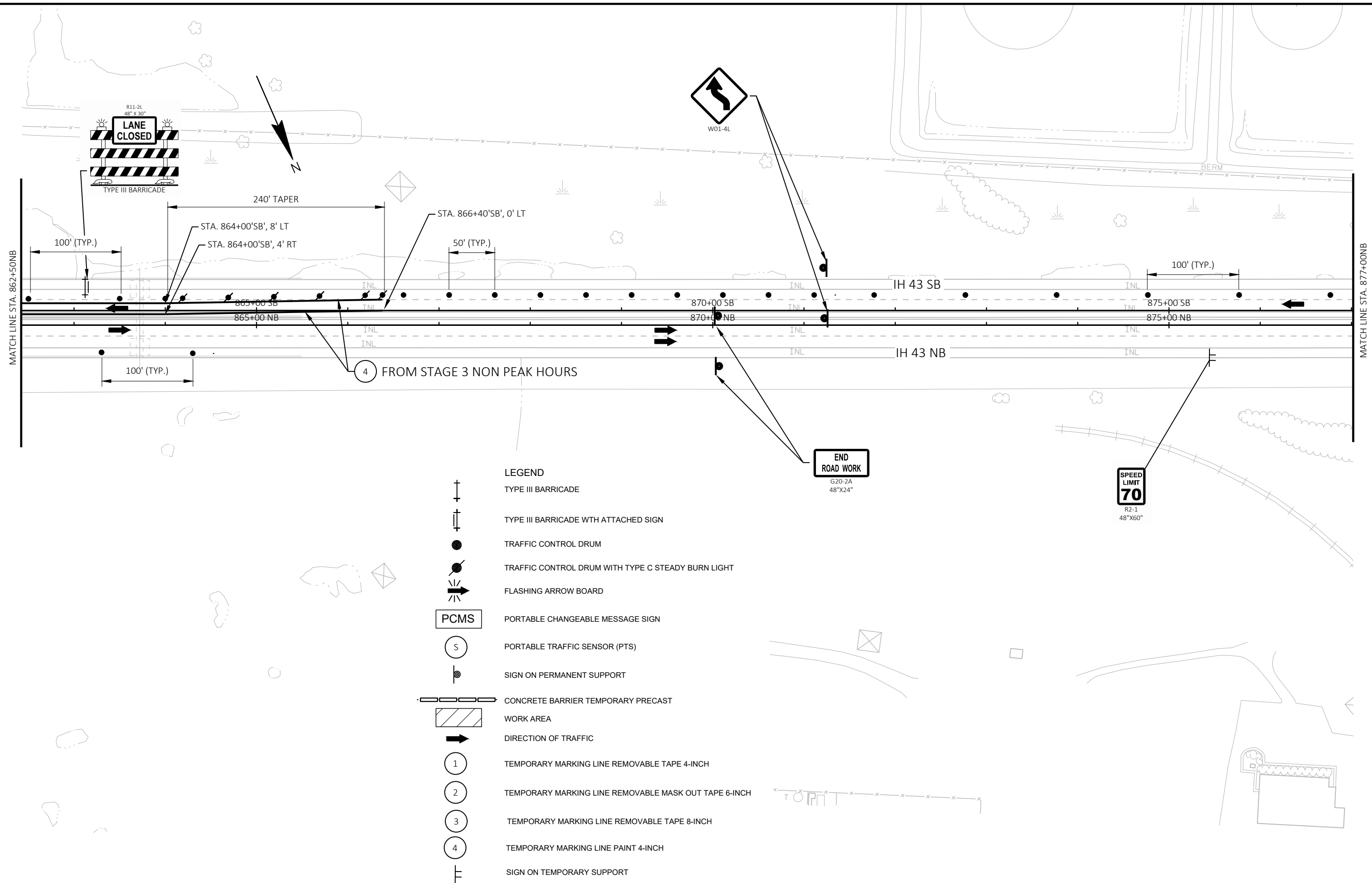
2 |

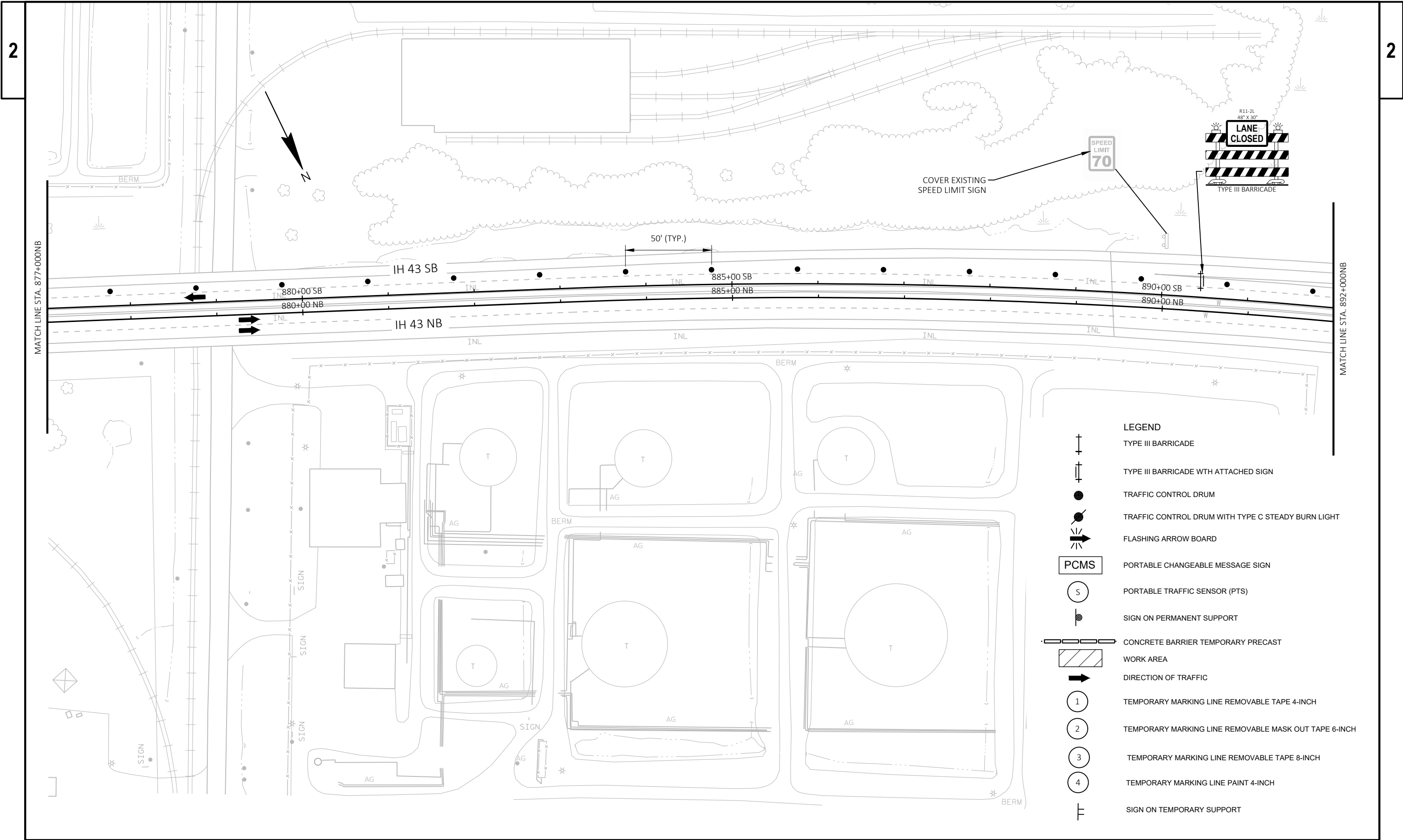


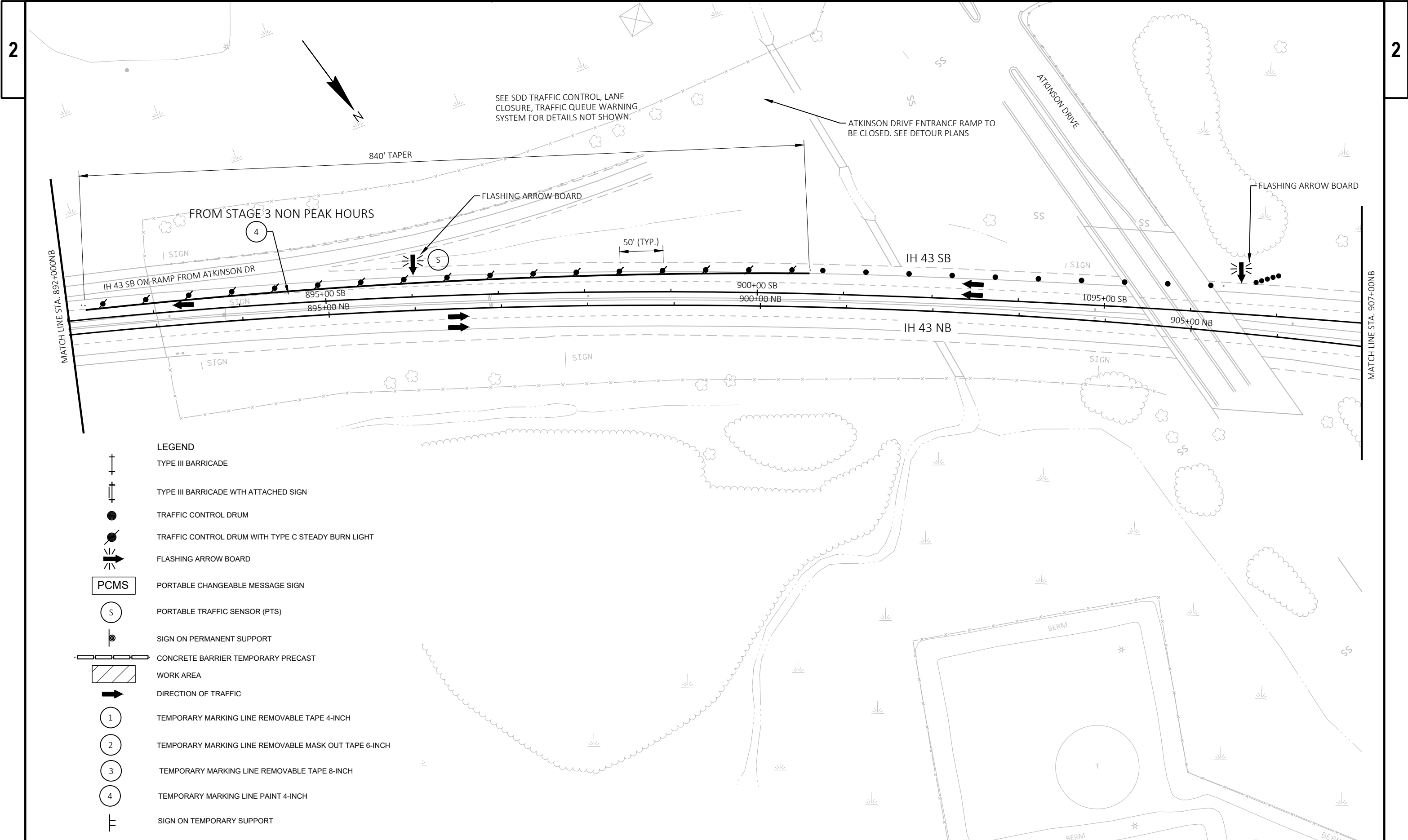
PROJECT NO: 1220-21-60		HWY: IH 43		COUNTY: BROWN		TRAFFIC CONTROL - STAGING DETAILS - STAGE 3 - DURING PEAK HOURS				SHEET 51		E
FILE NAME : G:\WDOTNE\20109-000 LEO FRIGO\CIVIL 3D\SHEETS\PLAN\025001-TC - STAGE 3 - PEAK TIME.DWG		PLOT DATE : 3/9/2022 4:43 PM		PLOT BY : KL ENGINEERING		PLOT NAME :		PLOT SCALE : 1 IN:100 FT		WISDOT/CADD5 SHEET 42		
LAYOUT NAME - 04												



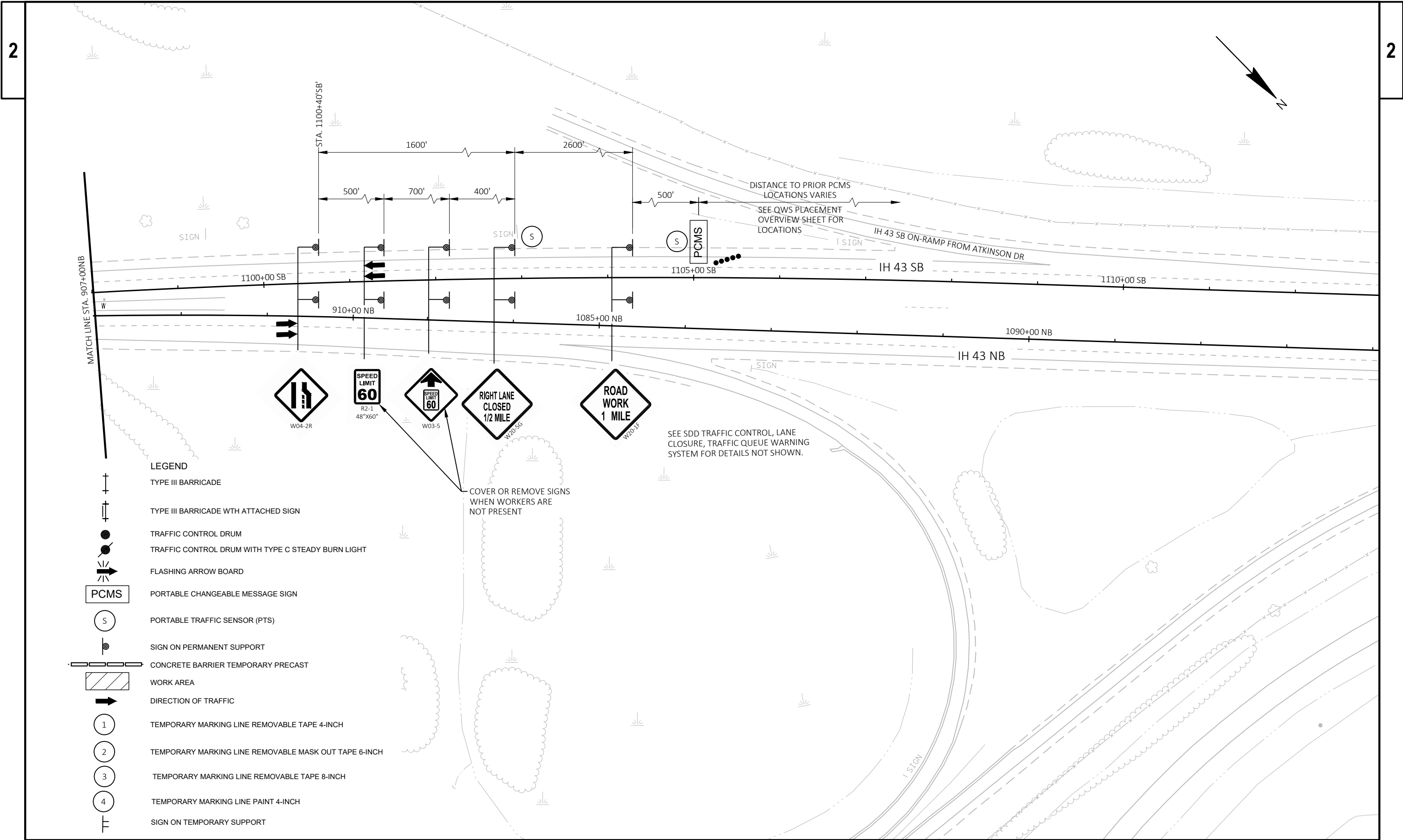








- LEGEND**
- TYPE III BARRICADE
 - TYPE III BARRICADE WTH ATTACHED SIGN
 - TRAFFIC CONTROL DRUM
 - TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
 - FLASHING ARROW BOARD
 - PCMS PORTABLE CHANGEABLE MESSAGE SIGN
 - PORTABLE TRAFFIC SENSOR (PTS)
 - SIGN ON PERMANENT SUPPORT
 - CONCRETE BARRIER TEMPORARY PRECAST
 - WORK AREA
 - DIRECTION OF TRAFFIC
 - 1 TEMPORARY MARKING LINE REMOVABLE TAPE 4-INCH
 - 2 TEMPORARY MARKING LINE REMOVABLE MASK OUT TAPE 6-INCH
 - 3 TEMPORARY MARKING LINE REMOVABLE TAPE 8-INCH
 - 4 TEMPORARY MARKING LINE PAINT 4-INCH
 - SIGN ON TEMPORARY SUPPORT







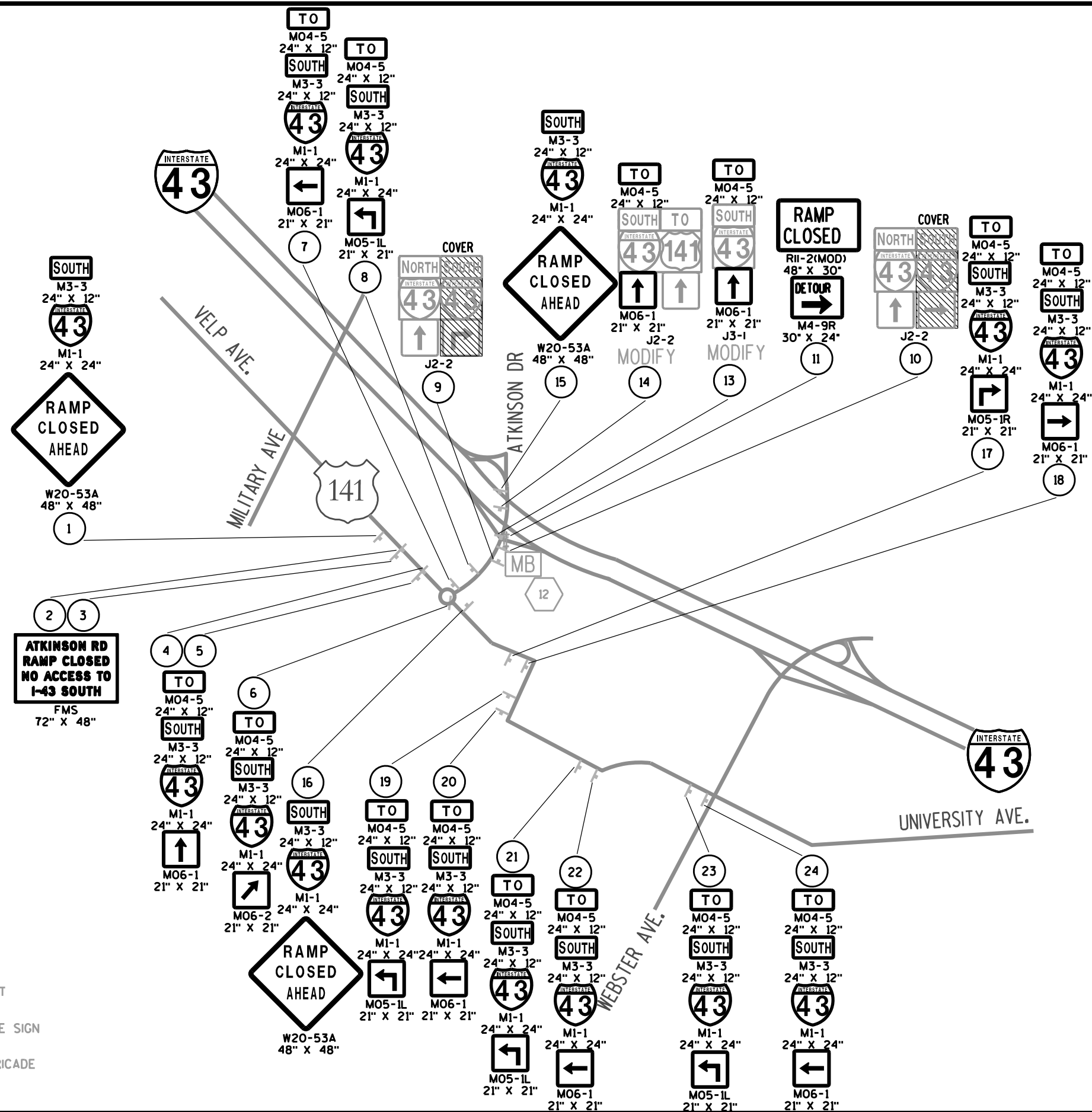
LEGEND

PCMS

PORTABLE CHANGEABLE MESSAGE SIGN

S

PORTABLE TRAFFIC SENSOR (PTS)



PLAN SHEET PRODUCED
BY WISDOT-NE REGION

GENERAL NOTES

1. PROPOSED TIE GIRDER AND ARCH ELECTRICAL POWER FEED FROM DISTRIBUTION CENTER LCP-1, 240/480V, 1P, 3W.
2. EXISTING NAVIGATION LIGHTING EQUIPMENT TO REMAIN IN PLACE.
3. THE TIE GIRDER AND ARCH LIGHTING SYSTEM SHALL BE INSTALLED PER MOST CURRENT NEC CODE FOR WIRING, GROUNDING, AND BONDING FOR MAIN DISTRIBUTION AND DERIVED POWER SUPPLY. THE SURGE PROTECTION SYSTEM SHALL BE PROVIDED PER CURRENT NEC AND UL 1449 3RD EDITION.
4. DESIGN INTENT IS TO PROVIDE (2) 1-1/2" SCH 80 PVC COMMON RACEWAY SYSTEM TO ACCOMODATE ALL WIRING WITHING THE TIR GIRDER. PROVIDE THE FOLLOWING WIRING:

(1) 1-1/2" SCH 80 PVC RACEWAY CONTAINS:

- #6 WIRE FOR THE GFCI RECPETACLES

- (1) #6 G WIRE

(1) 1-1/2" SCH 80 PVC RACEWAY CONTAINS:

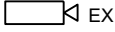
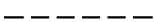
- #10 WIRE FOR THE TIE GIRDER LIGHTS

- #12 WIRE FOR THE ARCH ROPE LIGHTING SYSTEMS.

- #12 WIRE FOR THE MOMENTARY LIGHT SWITCHES

- (1) COMMON #10 G WIRE FOR MULTI-CCT'S SHARING A COMMON RACEWAY5.
5. PROVIDE STAINLESS STEEL CONDUIT HANGARS AND BEAM CLAMPS ATTACHED TO STIFFENERS FOR CONDUIT SUPPORTS USE OVERSIZE CONDUIT HANGAR STRAP LOOSELY TO CONDUIT TO ALLOW FOR EXPANSION AND CONTRACTION.

LEGEND

SYMBOL	DESCRIPTION
 E	EXISTING ELECTRICAL STATION TO REMAIN
 EX	EXISTING GREEN CENTER CHANNEL NAVIGATION LIGHT TO REMAIN
 EX	EXISTING RED CHANNEL MARGIN NAVIGATION LIGHT TO REMAIN
 EX	EXISTING SECURITY CAMERA
	VAPOR-TIGHT STYLE LED LIGHT FIXTURE
	LED ROPE LIGHTING
	120VAC DUPLEX RECEPTACLE/SPLIT
	120VAC SIMPLEX RECEPTACLE
	ON-OFF LIGHT SWITCH
	JUNCTION BOX, SIZE AND TYPE AS NOTED
	DATA ENABLER/BOX ENCLOSURE
	LOCAL MASTER CONTROLLER
	ELECTRICAL RIGID CONDUIT
	ELECTRICAL FLEXIBLE CONDUIT
	ELECTRICAL HANDHOLE

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
1P	1 PHASE
2W	2 WIRE
A	AMPERES
A.I.C.	AMPS INTERRUPTING CURRENT
AN	ABOVE NORMAL
AWG	AMERICAN WIRE GAUGE
B.N.	BELOW NORMAL
C	CONDUIT
CKT. OR CIRC.	CIRCUIT
DIA.	DIAMETER
EB	EAST BOUND
EPB	ELECTRIC PULL BOX
EXLPB	EXISTING LIGHTING PULL BOX
FT.	FEET
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HID	HIGH INTENSITY DISCHARGE
HPS	HIGH PRESSURE SODIUM
JB	JUNCTION BOX
L.E.D.	LIGHT EMITTING DIODE
LFNC	LIQUIDTIGHT FLEXIBLE NON-METALLIC CONDUIT
LT	LEFT
M.B.	MAIN BREAKER
M.L.O.	MAIN LUGS ONLY
NB	NORTH BOUND
NEMA	NATIONAL ELECTRICAL MANUFACTURES ASSOCIATION
No. / #	NUMBER
N.T.S.	NOT TO SCALE
P	POLE WHEN USED WITH CIRCUIT BREAKER
RT	RIGHT
RTRC	REINFORCED THERMOSETTING RESIN CONDUIT
SB	SOUTH BOUND
SPD	SURGE- PROTECTION DEVICES
SS	STAINLESS STEEL
STA.	STATION
UDL	UNDERDECK LIGHTING
VAC	VOLTS ALTERNATING CURRENT
WB	WEST BOUND
WP	WEATHERPROOF
W.S.C.S.	WISCONSIN STATE ELECTRICAL CODE
XFMR	TRANSFORMER

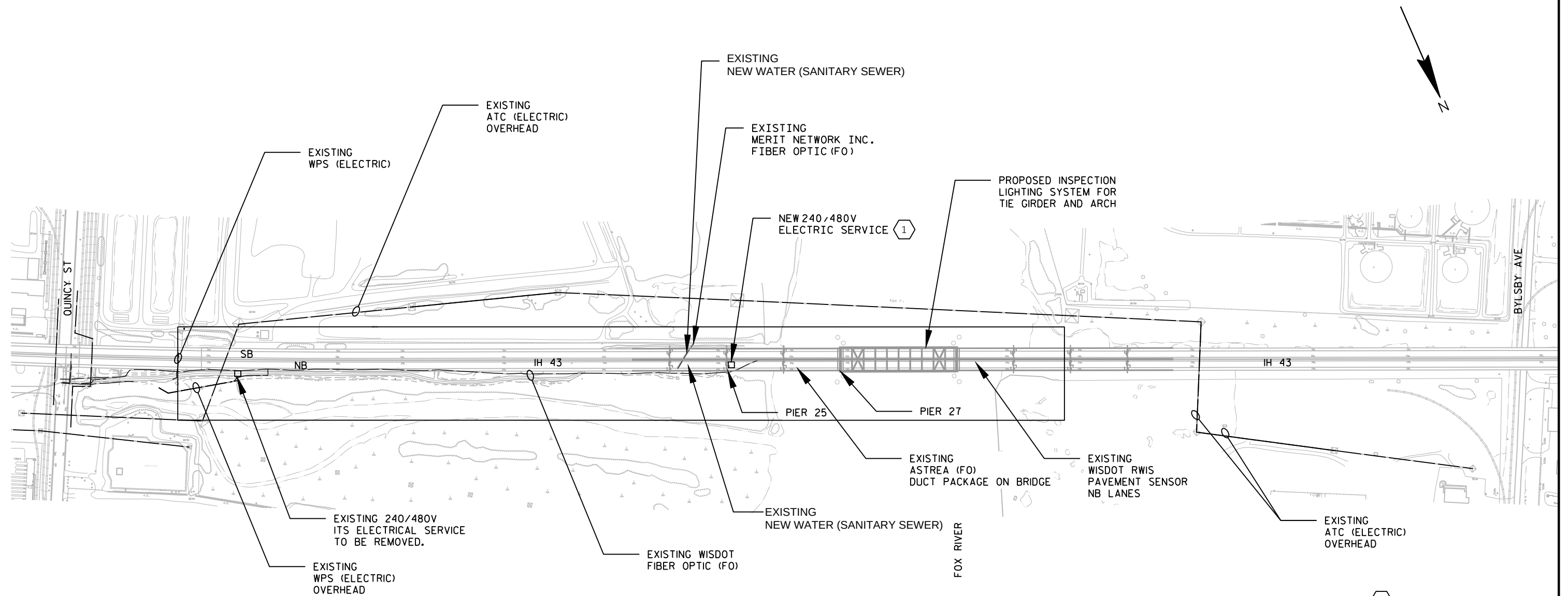
LIGHTING AND ELECTRICAL PLANS
PREPARED BY

SINGH

SINGH + ASSOCIATES, INC.
CONSULTING ENGINEERS
230 West Monroe, Suite 1400
Chicago, Illinois 60606



ROADWAY LIGHTING SHEETS SL-1 TO SL-23



KEY NOTES



1. NEW 240/480V SINGLE PHASE SERVICE TO BE INSTALLED BY UTILITY NEAR PIER 25. NEW UTILITY SERVICE WILL BE APPROXIMATELY 1900' FROM EXISTING ITS SERVICE LATERAL. COORDINATE EXACT LOCATION OF NEW SERVICE WITH UTILITY.

SL-02

PROJECT NO: 1220-21-60

HWY: IH 43

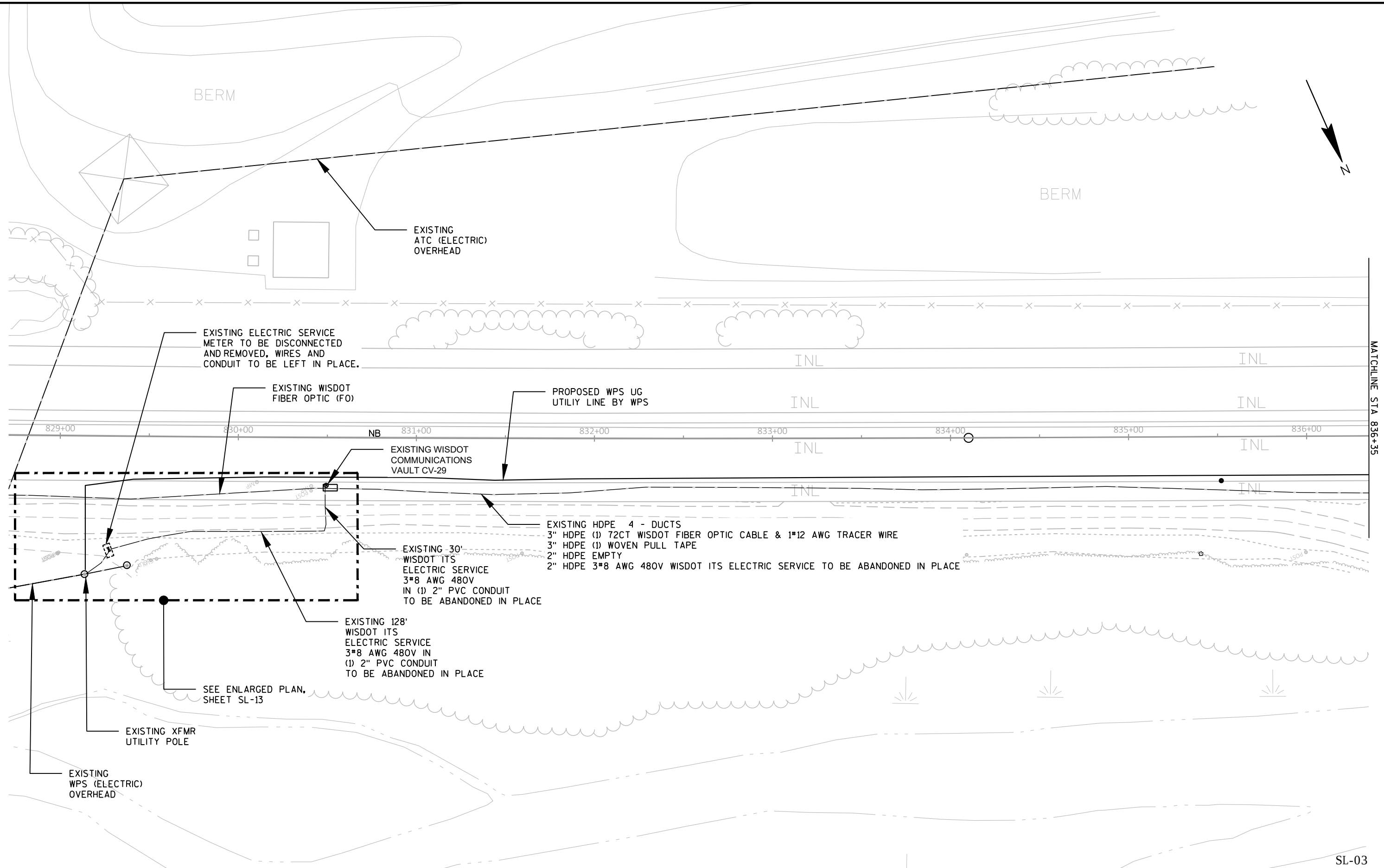
COUNTY: BROWN

LIGHTING PLANS - OVERVIEW

SHEET

62

E



PROJECT NO: 1220-21-60

HWY: IH 43

COUNTY: BROWN

LIGHTING PLANS - CONSTRUCTION DETAILS

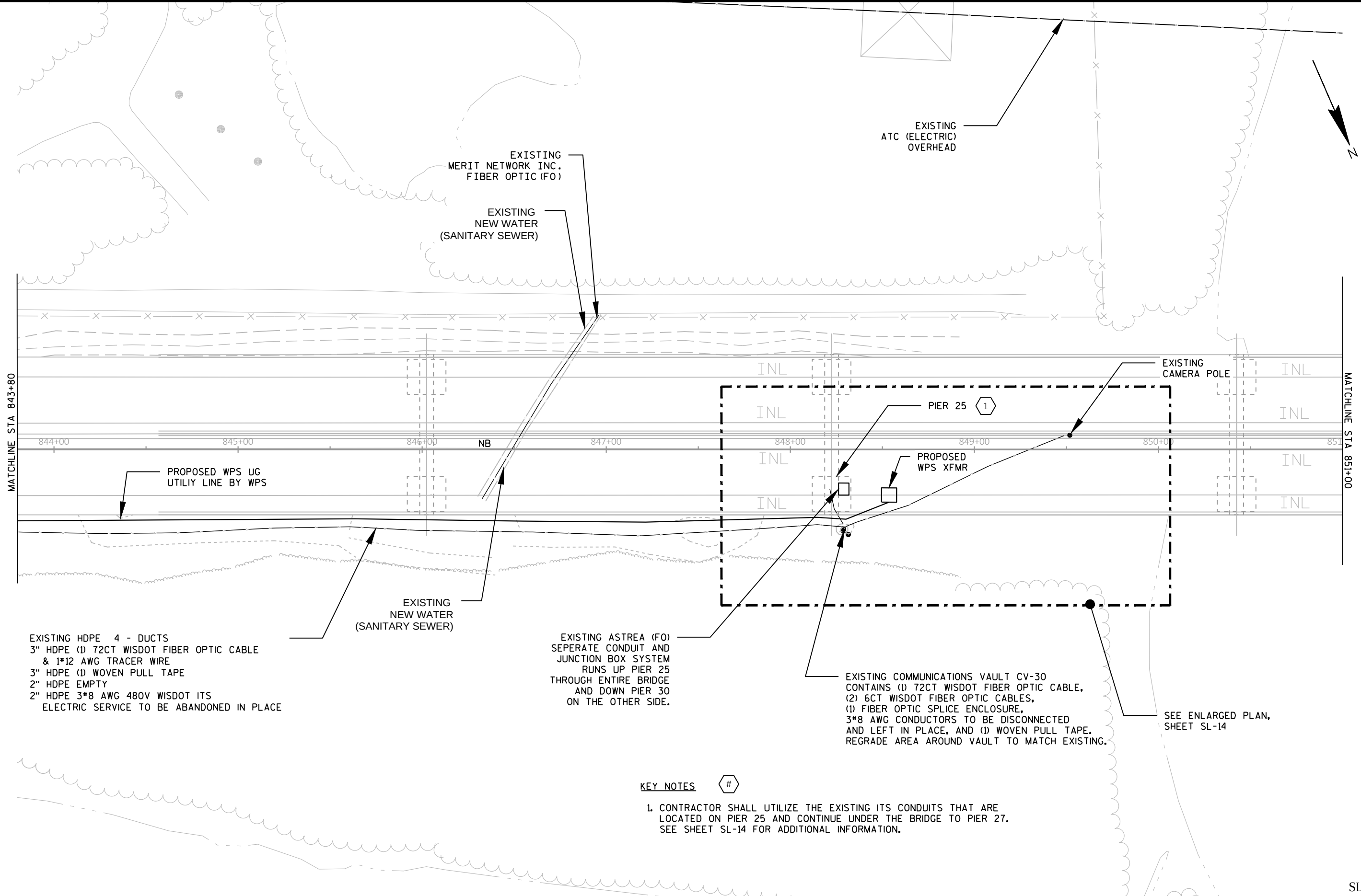
SHEET

63

E

2

2



KEY NOTES

1. CONTRACTOR SHALL UTILIZE THE EXISTING ITS CONDUITS THAT ARE LOCATED ON PIER 25 AND CONTINUE UNDER THE BRIDGE TO PIER 27. SEE SHEET SL-14 FOR ADDITIONAL INFORMATION.

PROJECT NO:	1220-21-60
-------------	------------

HWY: IH 43

COUNTY: BROWN

LIGHTING PLANS - CONSTRUCTION DETAILS

SHEET	65	E
-------	----	---

SL-05

FILE NAME : J:\20224\04_CADD\CADD_DRAWINGS\C3D\CADD DRAWINGS\023601_LP.DWG
LAYOUT NAME - 023603_lp

PLOT DATE : 1/28/2022 4:11 PM

PLOT BY : REEM DAWOOD

PLOT NAME :

PLOT SCALE : 1 IN:50 FT

WISDOT/CADDS SHEET 42

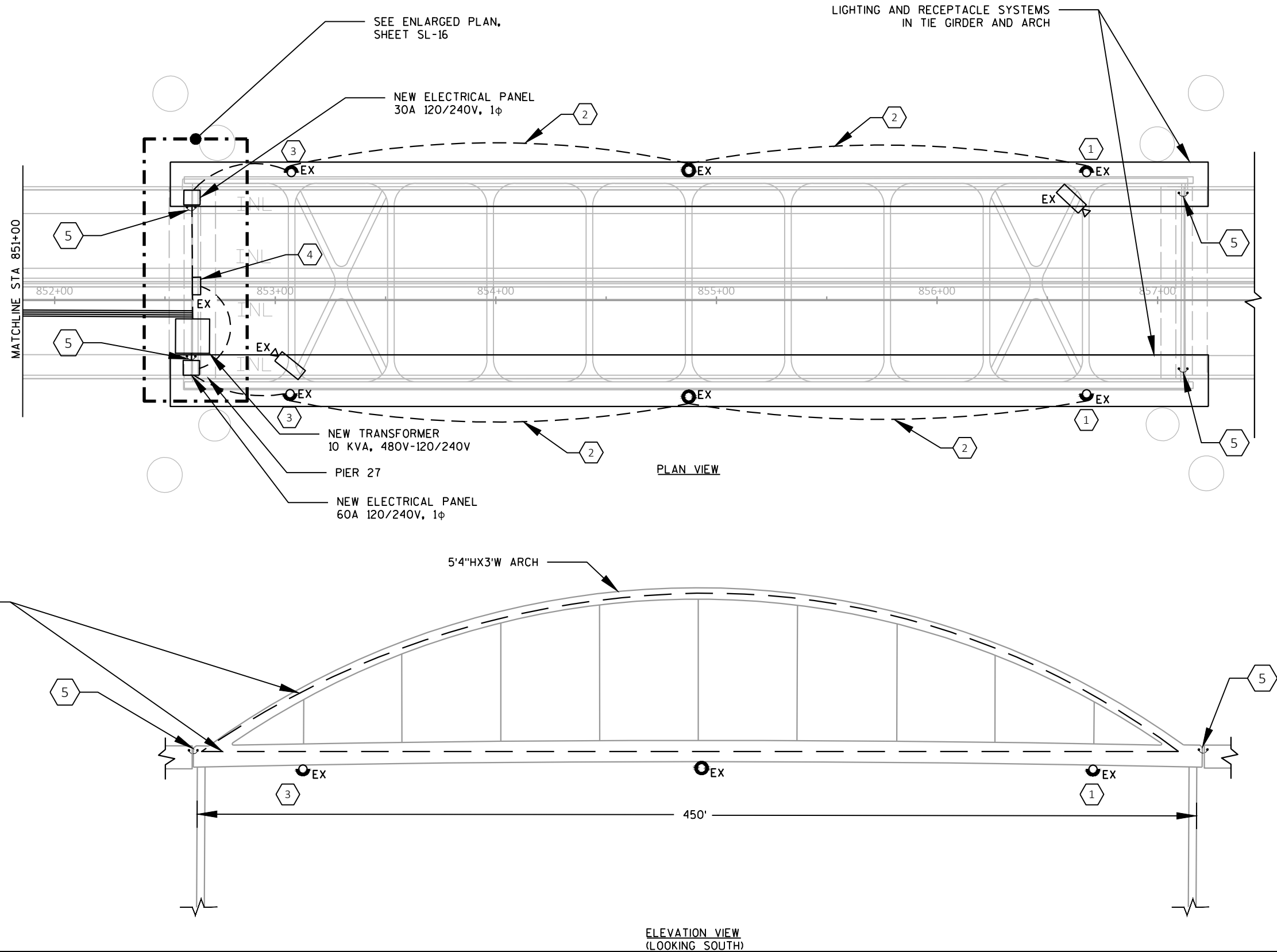
KEY NOTES

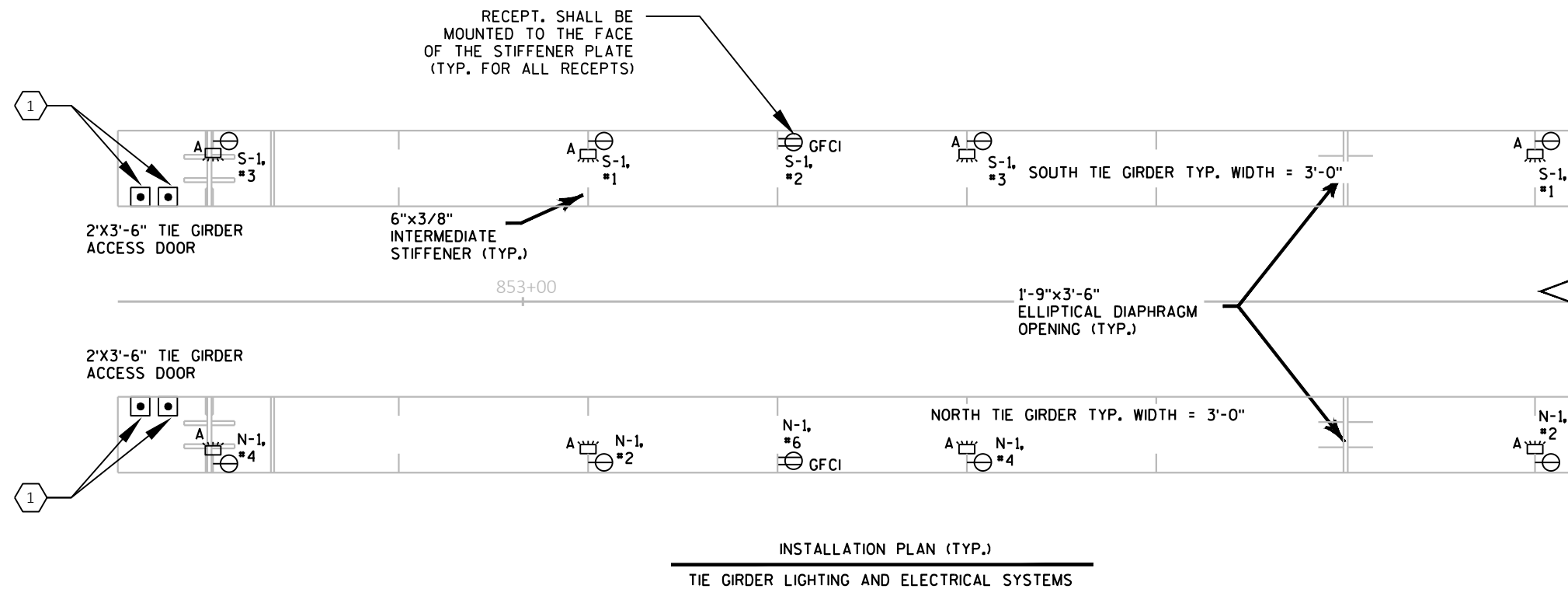


1. PRIOR TO REFEEDING THE NAVIGATION LIGHTS DISCONNECT EXISTING 120V CIRCUIT FORM FROM THE WEST END.
2. EXISTING CONDUIT AND WIRING TO REMAIN.
3. PROVIDE NEW SURFACE MOUNTED 1" RTRC CONDUIT WITH 2*10, 1*10G TO REFEED THE EXISTING NAVIGATION LIGHTING FROM PIER 27 ON THE NORTH AND SOUTH SIDES UP TO THE PARAPET THEN RUN APPROXIMATELY 75' TO THE FIRST NAVIGATION LIGHT. CONTRACTOR WILL INTERCEPT THE BOX AT THE NAVIGATION LIGHT AND REMOVE THE 1" PVC COATED RIGID STEEL LB FITTING AND INSTALL A 1" PVC COATED RIGID STEEL T-FITTING TO ALLOW THE NEW 1" PVC CONDUIT TO TIE IN.
4. EXISTING ITS CAMERA CABINET TO BE REFEED FROM NEW PANEL. PRIOR TO REFEEDING DISCONNECT THE EXISTING 120V POWER FROM THE CABINET. PROVIDE NEW SURFACE MOUNTED 1" RTRC CONDUIT WITH 2*10, 1*10G.
5. PROVIDE BONDING JUMPER SEE DETAILS ON SHEET SL-19. (TYP. OF 4 LOCATIONS)

GENERAL NOTES

1. CONNECT EXISTING ITS CAMERAS AND THE NAVIGATION LIGHTING SYSTEM TO THE NEW MAINTENANCE LIGHTING PANELS INSTALLED ON PIER 27.





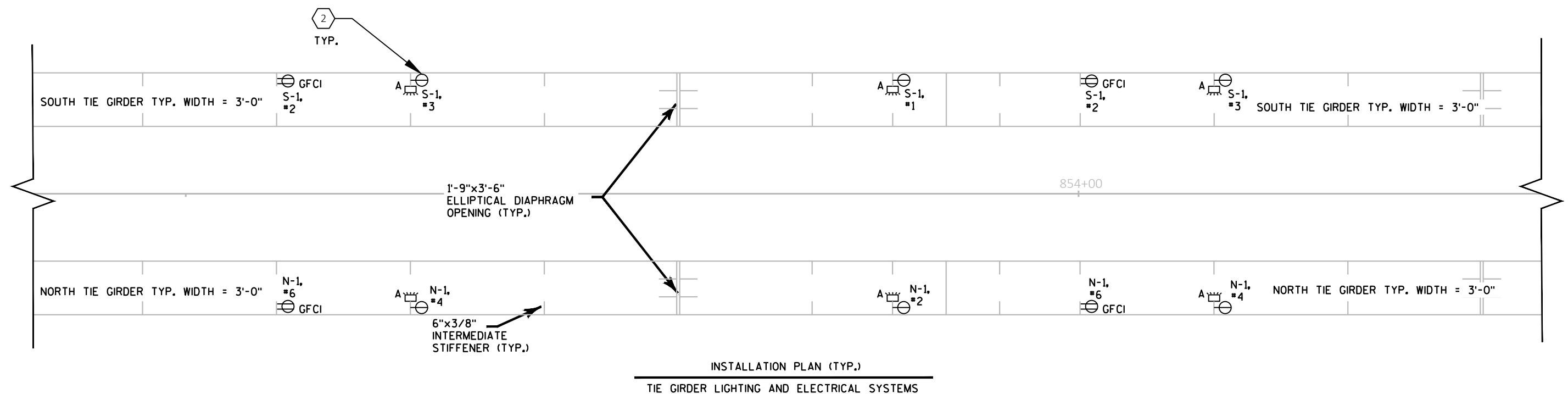
GENERAL NOTES

1. BEAM CLAMPS TO BE PROVIDED TO SECURE ELECTRICAL HARDWARE TO THE STIFFENERS AND DIAPHRAGM OPENINGS. DO NOT HANG FROM CEILING STRUCTURE.
2. ALL PROVIDED HARDWARE, FASTENERS, STRUT AND STRAPS INSIDE TIE-GIRDER SHALL BE STAINLESS STEEL.
3. ALL PROVIDED JUNCTION BOXES AND SWITCH BOXES TO BE WEATHERPROOF PVC MIN. 3R RATING. THE SWITCHES WILL HAVE A 2 GANG COVER.
4. ALL PROVIDED RECEPTACLE BOXES TO BE WEATHERPROOF 1 GANG DEEP PVC 22.5 CU IN WITH 3/4" HUBS.

KEY NOTES



1. PROVIDE (2) MOMENTARY LIGHT SWITCHES 20A 3-POSITION TOGGLE STYLE. ONE TO CONTROL THE TIE GIRDER LIGHTING AND THE OTHER FOR THE ARCH LIGHTING. SWITCHES TO BE USED AS INPUTS TO THE LIGHTING CONTACTORS.
2. PROVIDE 15A 120V L5-15R SINGLE TWIST LOCK RECEPTACLE TO BE MOUNTED TO THE FACE OF THE STIFFENER PLATE ADJACENT TO THE VAPOR TIGHT LIGHT FIXTURE. RECEPTACLE TO BE CONTROLLED BY THE LIGHT SWITCH INSTALLED WITHIN THE TIE-GIRDER.



SL-07

PROJECT NO: 1220-21-60

HWY: IH 43

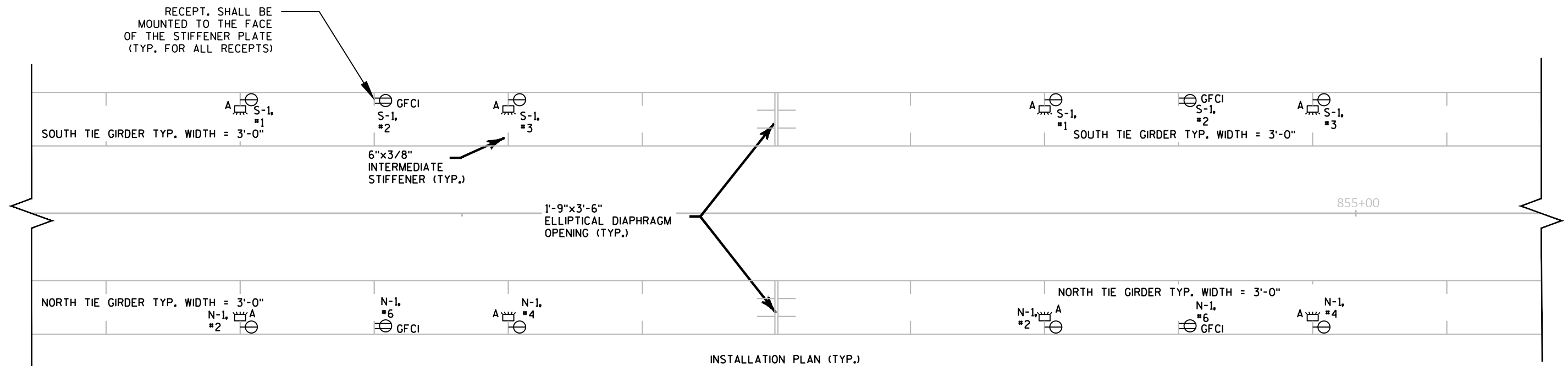
COUNTY: BROWN

LIGHTING PLANS - CONSTRUCTION DETAILS

SHEET

67

E



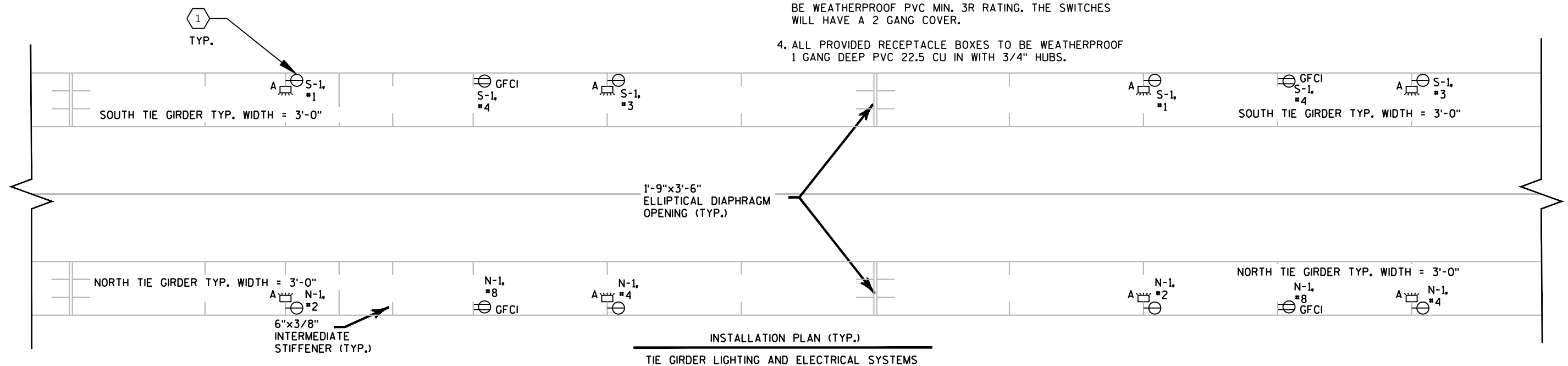
GENERAL NOTES

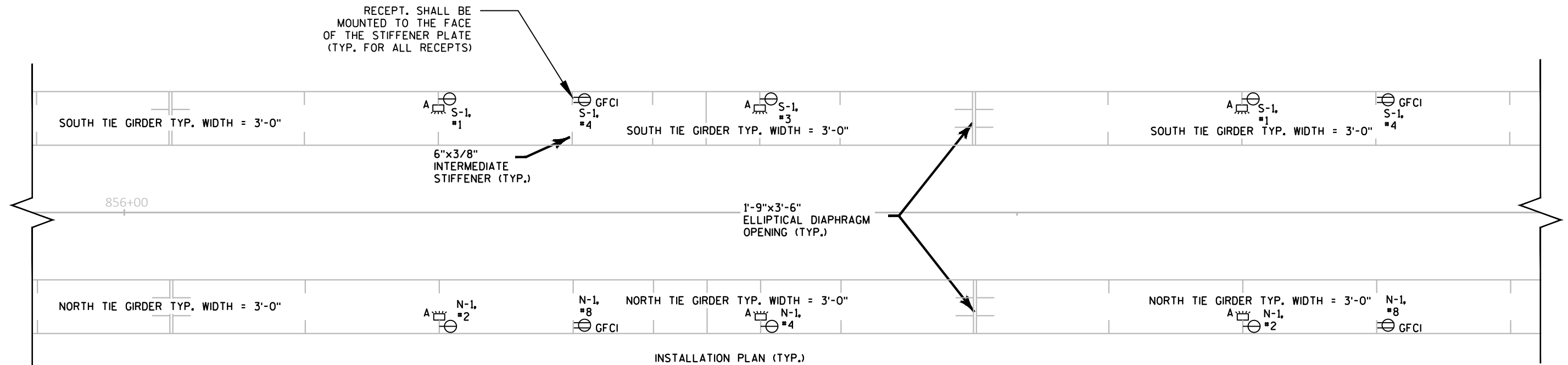
1. BEAM CLAMPS TO BE PROVIDED TO SECURE ELECTRICAL HARDWARE TO THE STIFFENERS AND DIAPHRAGM OPENINGS. DO NOT HANG FROM CEILING STRUCTURE.
2. ALL PROVIDED HARDWARE, FASTENERS, STRUT AND STRAPS SHALL BE STAINLESS STEEL.
3. ALL PROVIDED JUNCTION BOXES AND SWITCH BOXES TO BE WEATHERPROOF PVC MIN. 3R RATING. THE SWITCHES WILL HAVE A 2 GANG COVER.
4. ALL PROVIDED RECEPTACLE BOXES TO BE WEATHERPROOF 1 GANG DEEP PVC 22.5 CU IN WITH 3/4" HUBS.

KEY NOTES



1. PROVIDE 15A 120V L5-15R SINGLE TWIST LOCK RECEPTACLE TO BE MOUNTED TO THE FACE OF THE STIFFENER PLATE ADJACENT TO THE VAPOR TIGHT LIGHT FIXTURE. RECEPTACLE TO BE CONTROLLED BY THE LIGHT SWITCH INSTALLED WITHIN THE TIE-GIRDER.





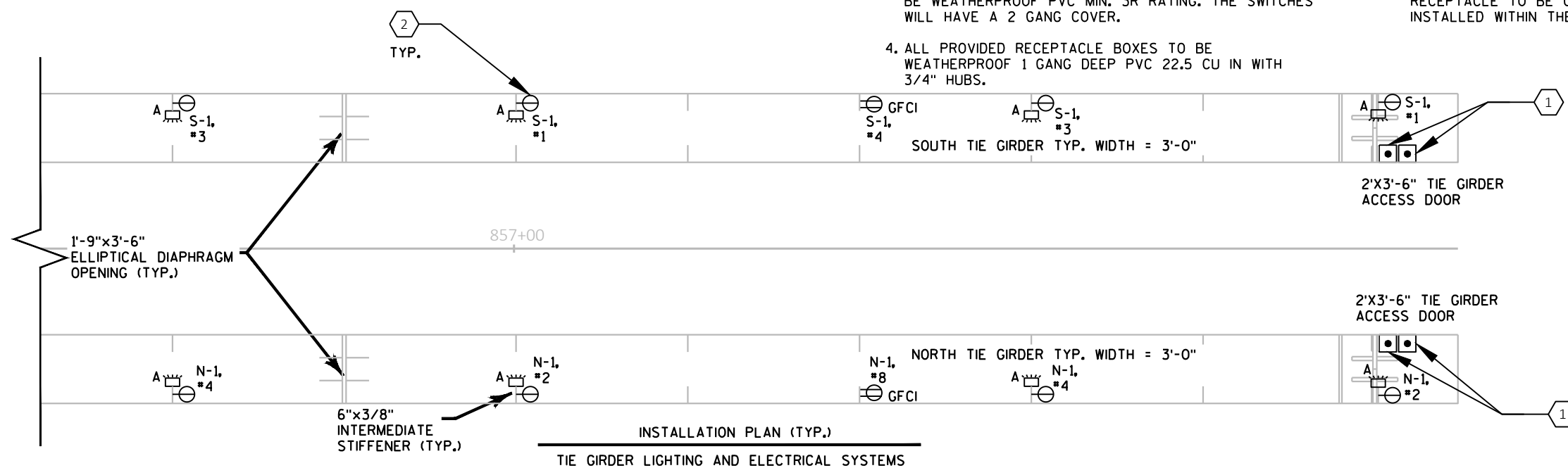
GENERAL NOTES

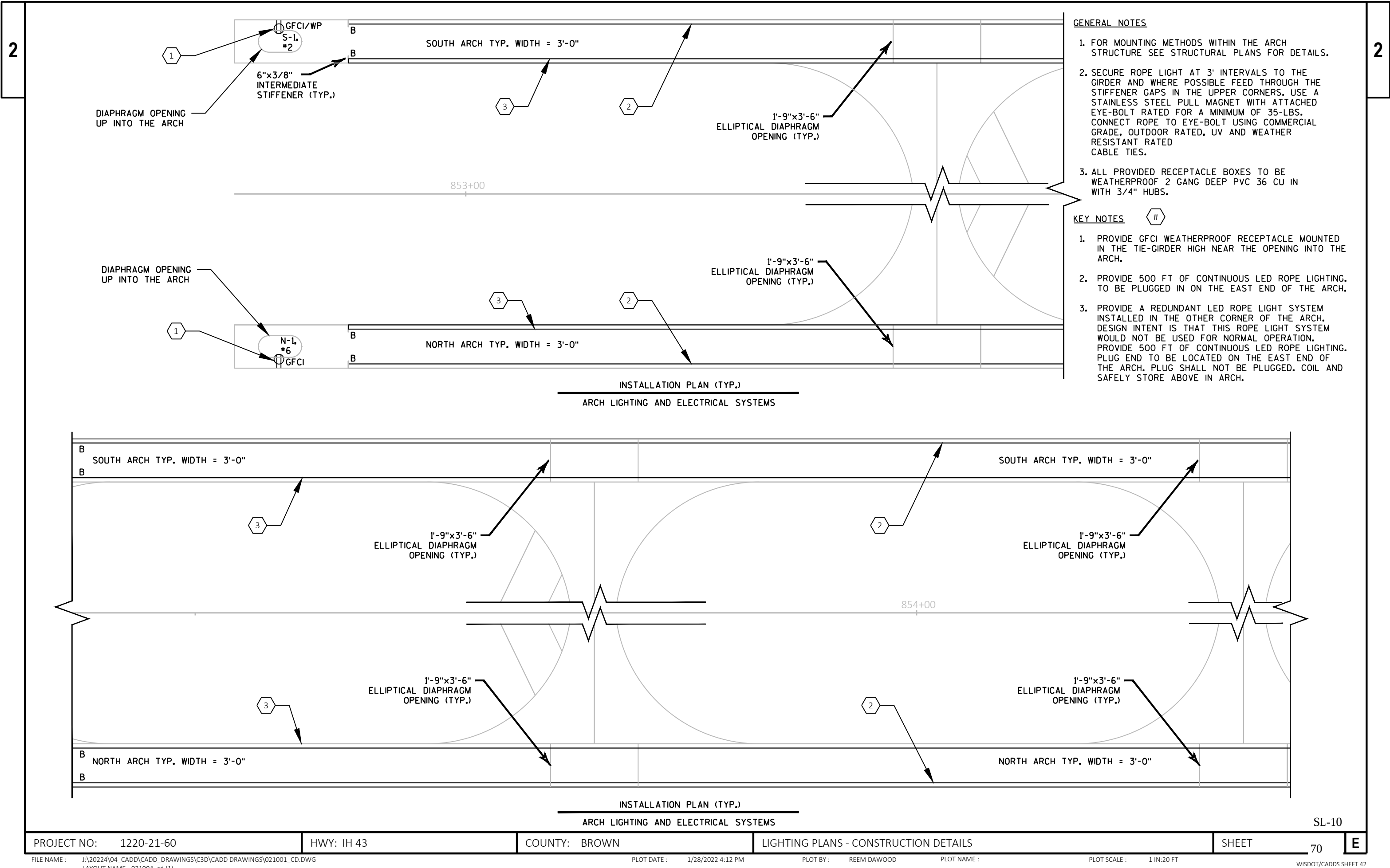
1. BEAM CLAMPS TO BE PROVIDED TO SECURE ELECTRICAL HARDWARE TO THE STIFFENERS AND DIAPHRAGM OPENINGS. DO NOT HANG FROM CEILING STRUCTURE.
2. ALL PROVIDED HARDWARE, FASTENERS, STRUT AND STRAPS SHALL BE STAINLESS STEEL.
3. ALL PROVIDED JUNCTION BOXES AND SWITCH BOXES TO BE WEATHERPROOF PVC MIN. 3R RATING. THE SWITCHES WILL HAVE A 2 GANG COVER.
4. ALL PROVIDED RECEPTACLE BOXES TO BE WEATHERPROOF 1 GANG DEEP PVC 22.5 CU IN WITH 3/4" HUBS.

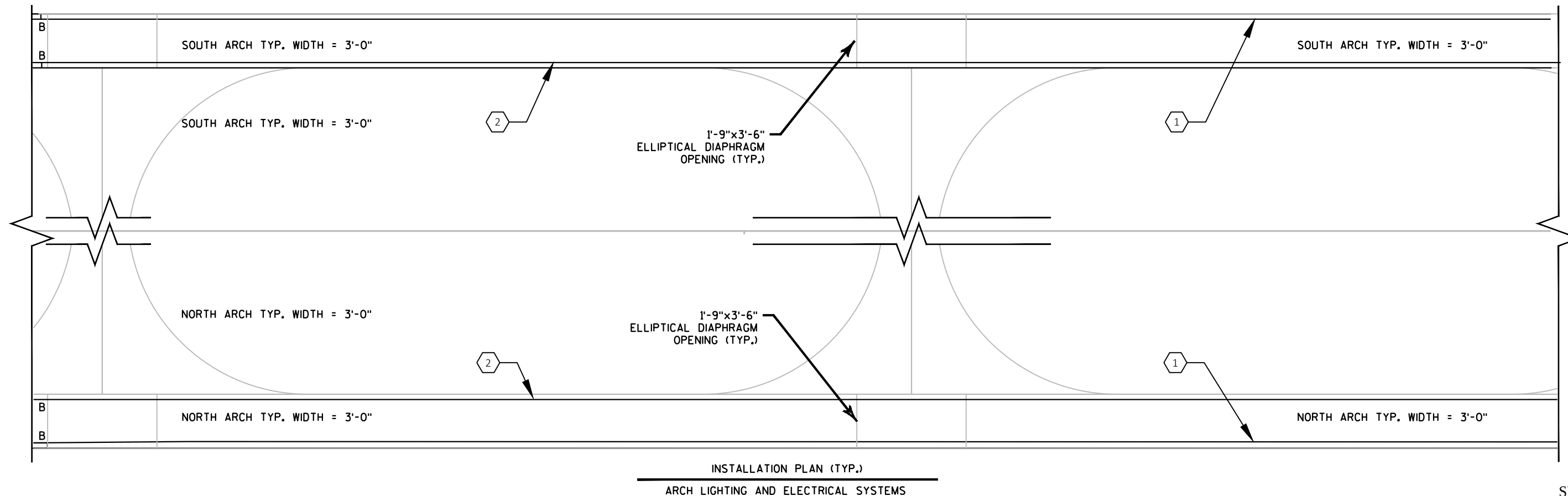
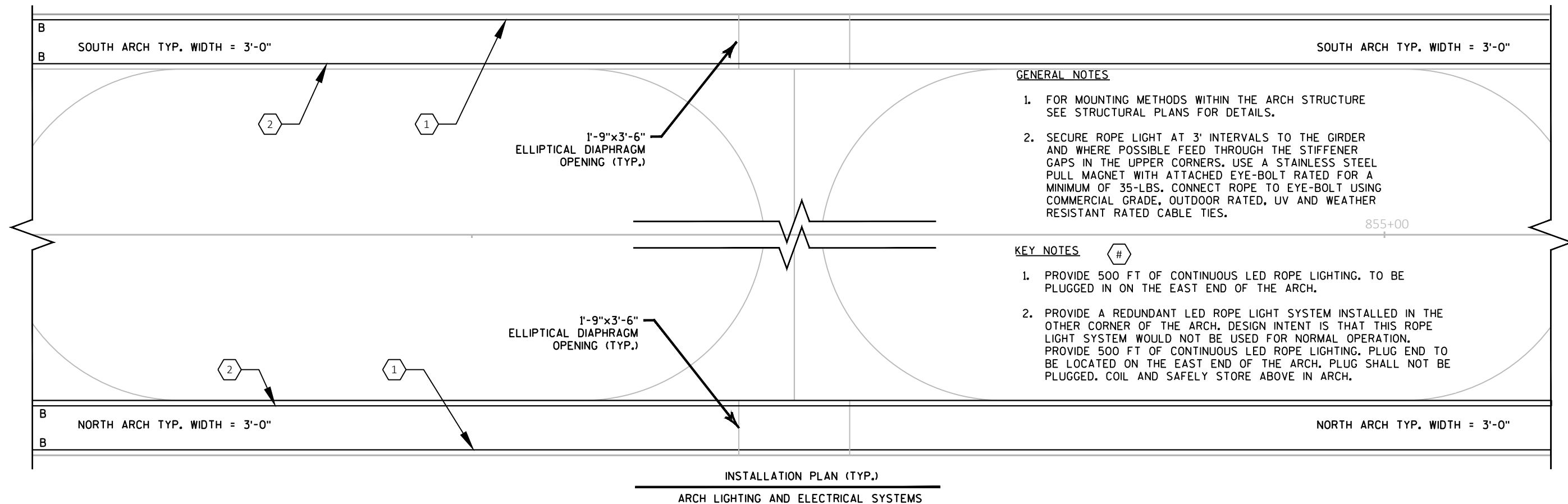
KEY NOTES



1. PROVIDE (2) MOMENTARY LIGHT SWITCHES 20A 3-POSITION TOGGLE STYLE. ONE TO CONTROL THE TIE GIRDER LIGHTING AND THE OTHER FOR THE ARCH LIGHTING. SWITCHES TO BE USED AS INPUTS TO THE LIGHTING CONTACTORS.
2. PROVIDE 15A 120V L5-15R SINGLE TWIST LOCK RECEPTACLE TO BE MOUNTED TO THE FACE OF THE STIFFENER PLATE ADJACENT TO THE VAPOR TIGHT LIGHT FIXTURE. RECEPTACLE TO BE CONTROLLED BY THE LIGHT SWITCH INSTALLED WITHIN THE TIE-GIRDER.







SL-11

PROJECT NO: 1220-21-60

HWY: IH 43

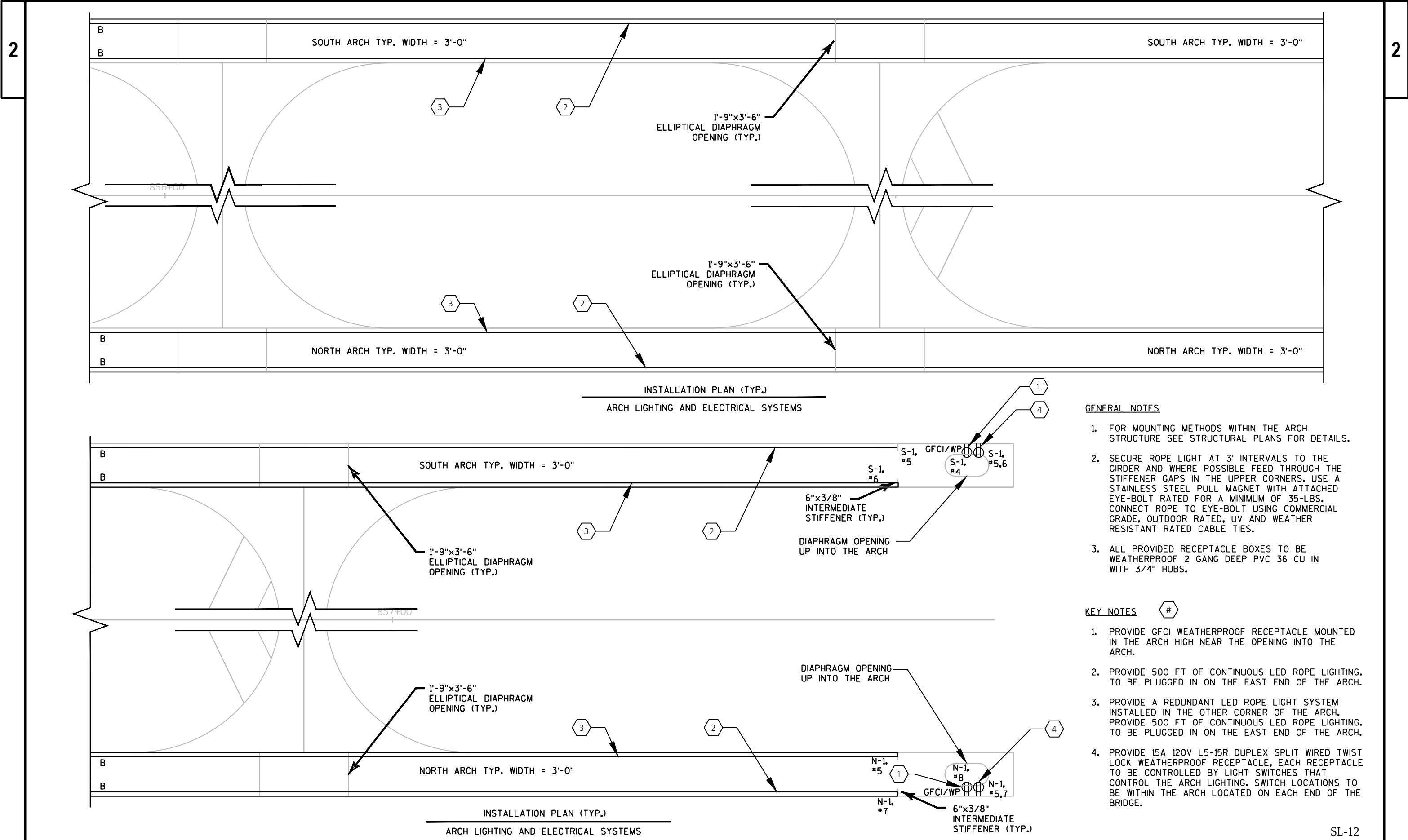
COUNTY: BROWN

LIGHTING PLANS - CONSTRUCTION DETAILS

SHEET

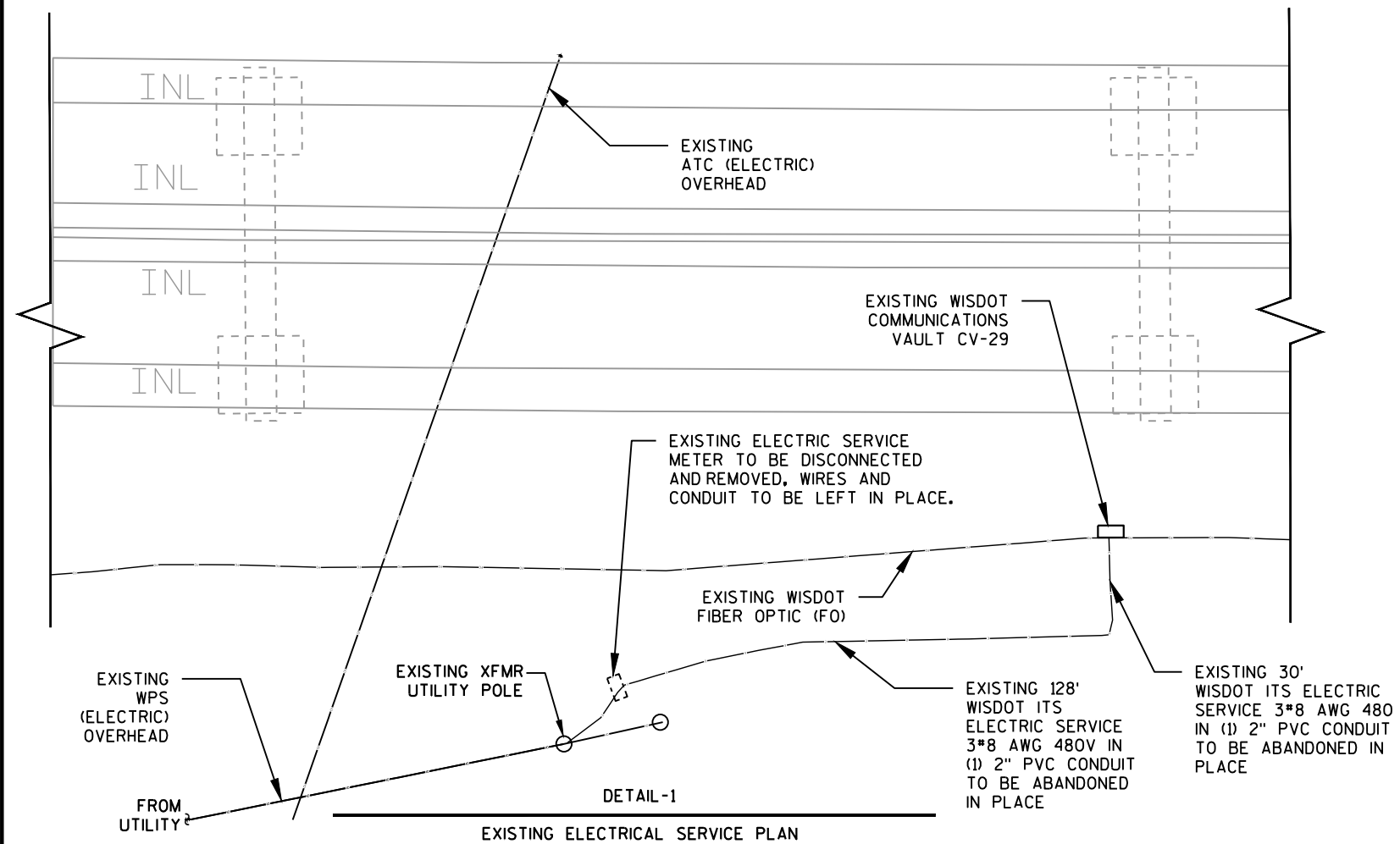
71

E



- GENERAL NOTES**
1. FOR MOUNTING METHODS WITHIN THE ARCH STRUCTURE SEE STRUCTURAL PLANS FOR DETAILS.
 2. SECURE ROPE LIGHT AT 3' INTERVALS TO THE GIRDER AND WHERE POSSIBLE FEED THROUGH THE STIFFENER GAPS IN THE UPPER CORNERS. USE A STAINLESS STEEL PULL MAGNET WITH ATTACHED EYE-BOLT RATED FOR A MINIMUM OF 35-LBS. CONNECT ROPE TO EYE-BOLT USING COMMERCIAL GRADE, OUTDOOR RATED, UV AND WEATHER RESISTANT RATED CABLE TIES.
 3. ALL PROVIDED RECEPTACLE BOXES TO BE WEATHERPROOF 2 GANG DEEP PVC 36 CU IN WITH 3/4" HUBS.

- KEY NOTES**
1. PROVIDE GFCI WEATHERPROOF RECEPTACLE MOUNTED IN THE ARCH HIGH NEAR THE OPENING INTO THE ARCH.
 2. PROVIDE 500 FT OF CONTINUOUS LED ROPE LIGHTING. TO BE PLUGGED IN ON THE EAST END OF THE ARCH.
 3. PROVIDE A REDUNDANT LED ROPE LIGHT SYSTEM INSTALLED IN THE OTHER CORNER OF THE ARCH. PROVIDE 500 FT OF CONTINUOUS LED ROPE LIGHTING. TO BE PLUGGED IN ON THE EAST END OF THE ARCH.
 4. PROVIDE 15A 120V L5-15R DUPLEX SPLIT WIRED TWIST LOCK WEATHERPROOF RECEPTACLE. EACH RECEPTACLE TO BE CONTROLLED BY LIGHT SWITCHES THAT CONTROL THE ARCH LIGHTING. SWITCH LOCATIONS TO BE WITHIN THE ARCH LOCATED ON EACH END OF THE BRIDGE.



PIC.-1

SL-13

PROJECT NO: 1220-21-60

HWY: IH 43

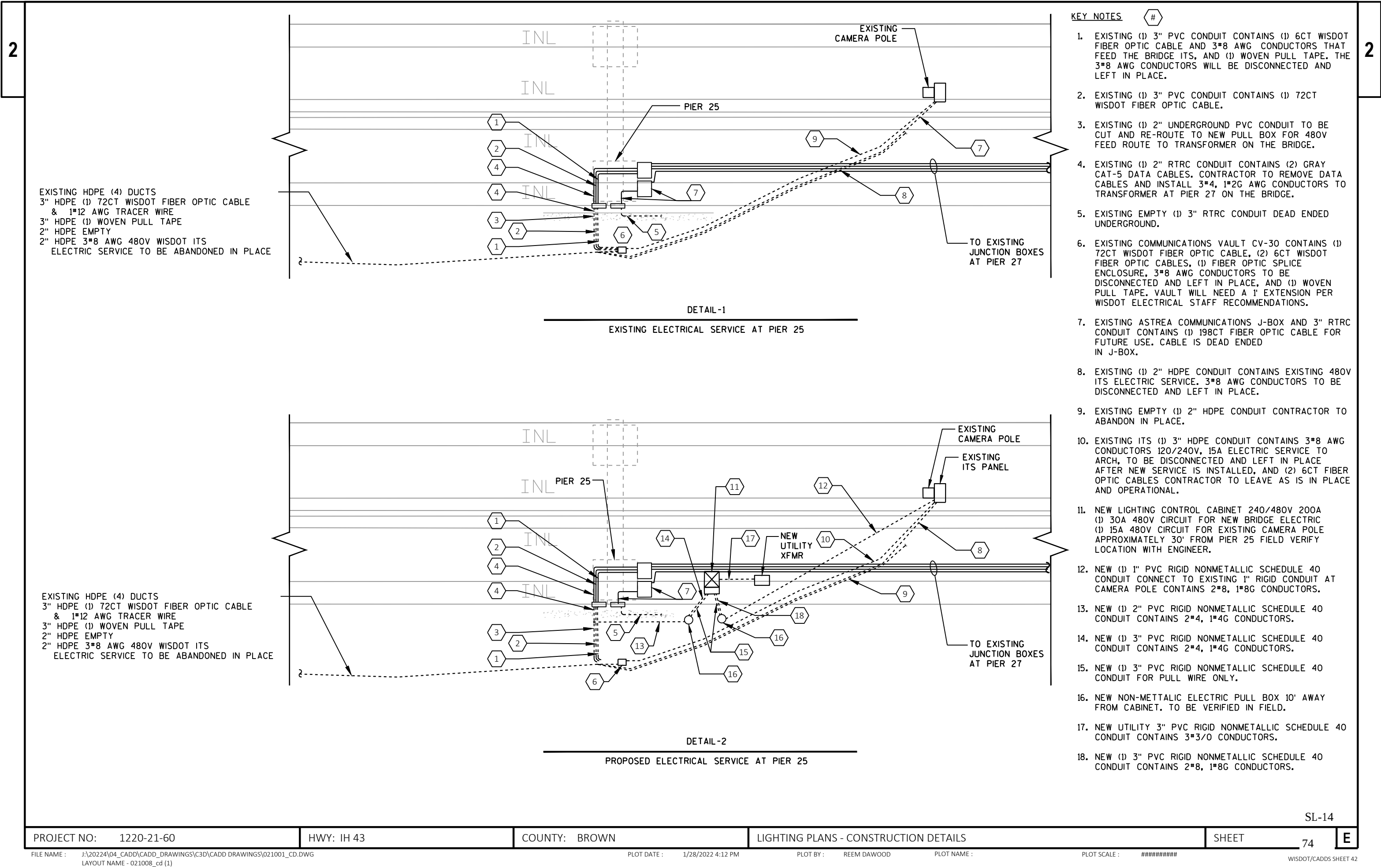
COUNTY: BROWN

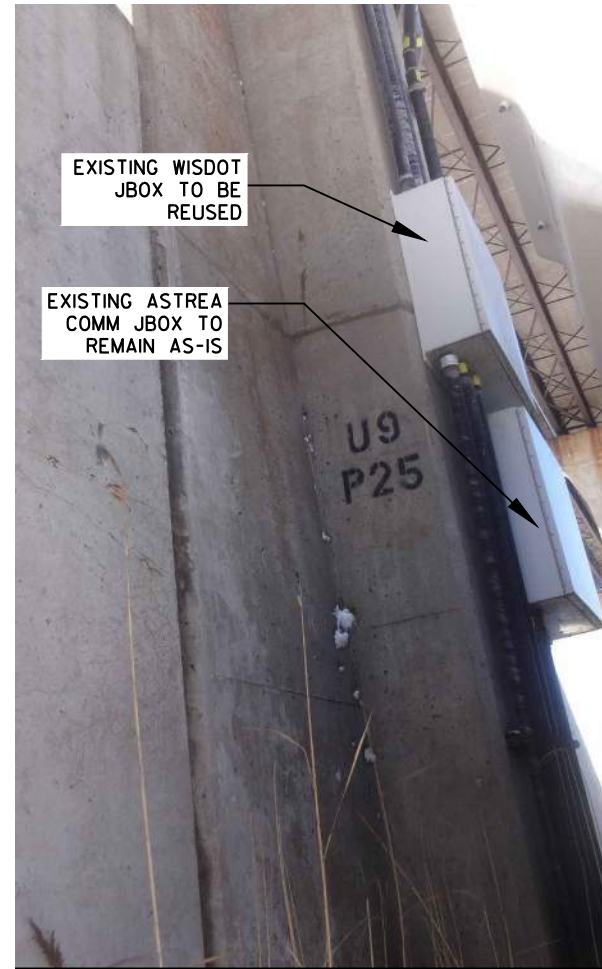
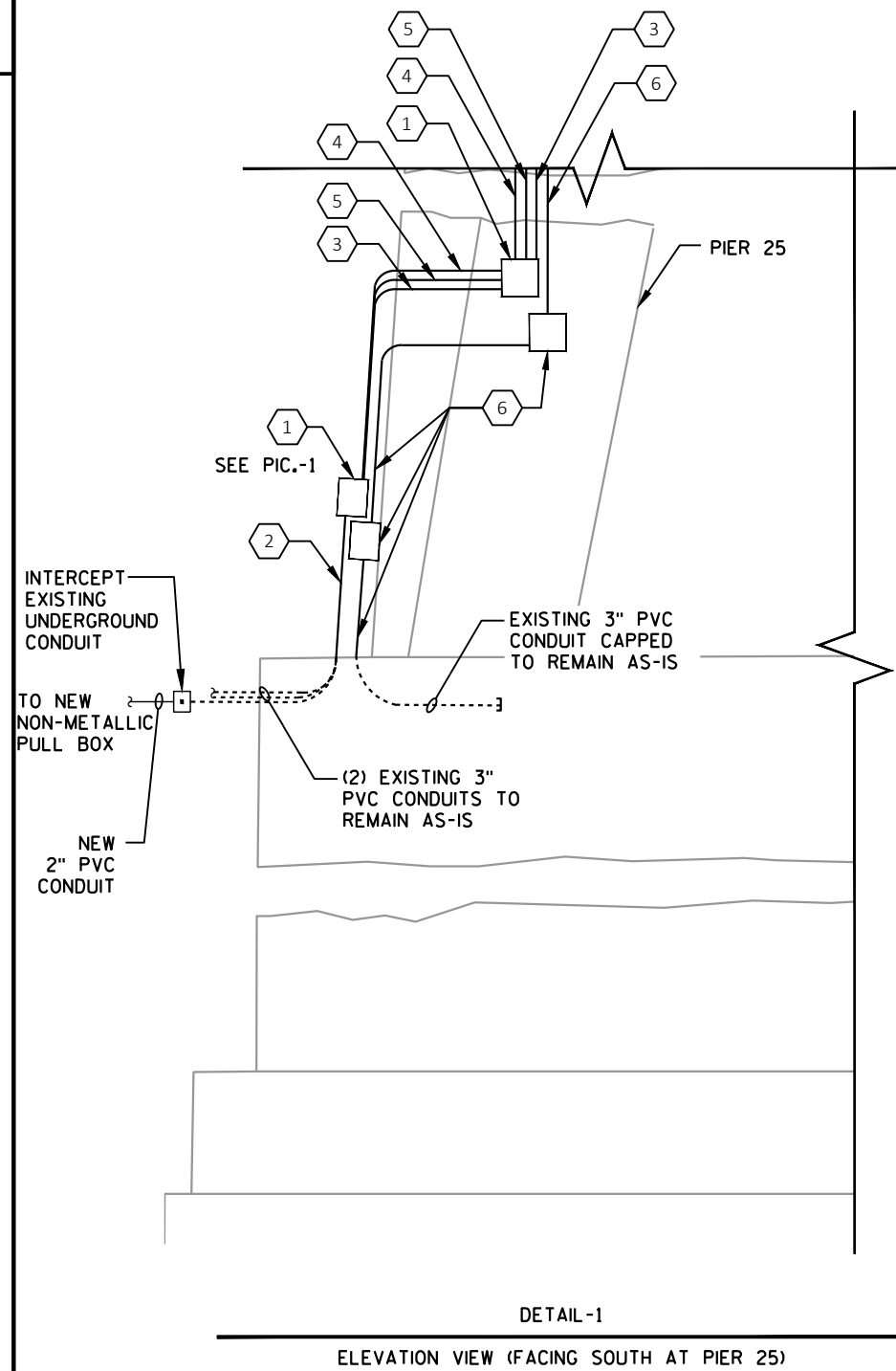
LIGHTING PLANS - CONSTRUCTION DETAILS

SHEET

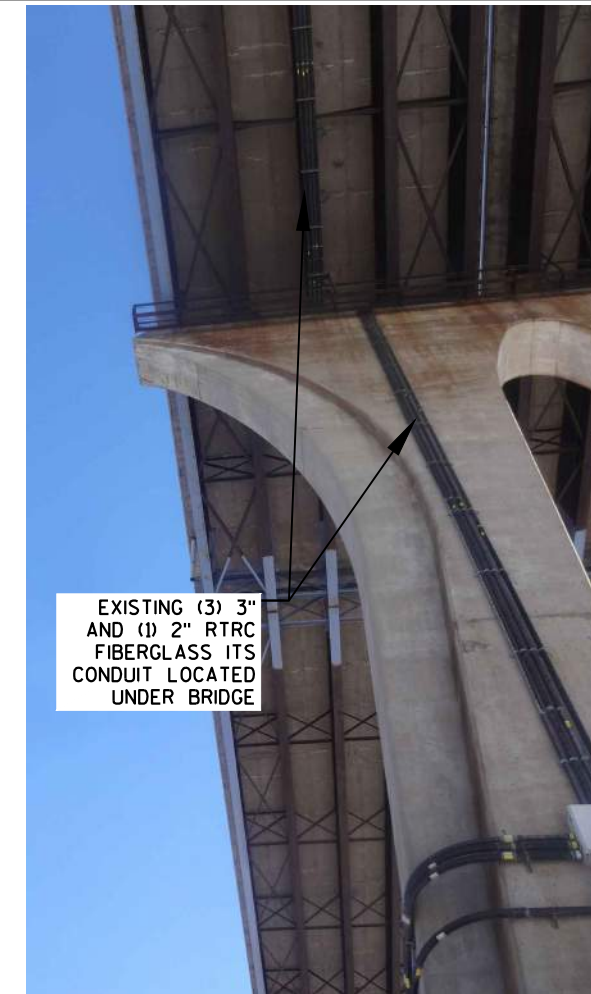
73

E





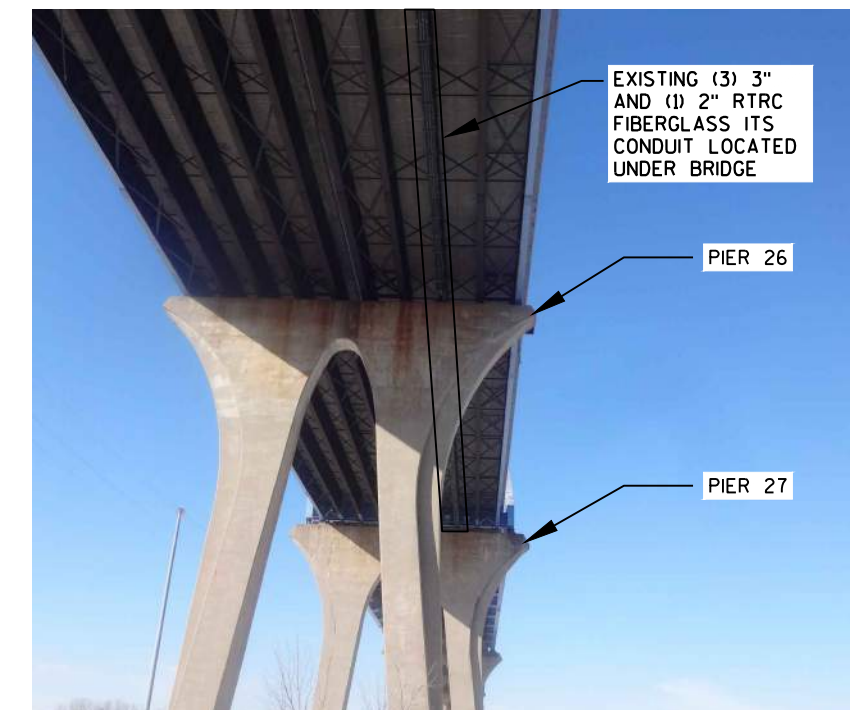
PIC.-1



PIC.-2



PIC.-3

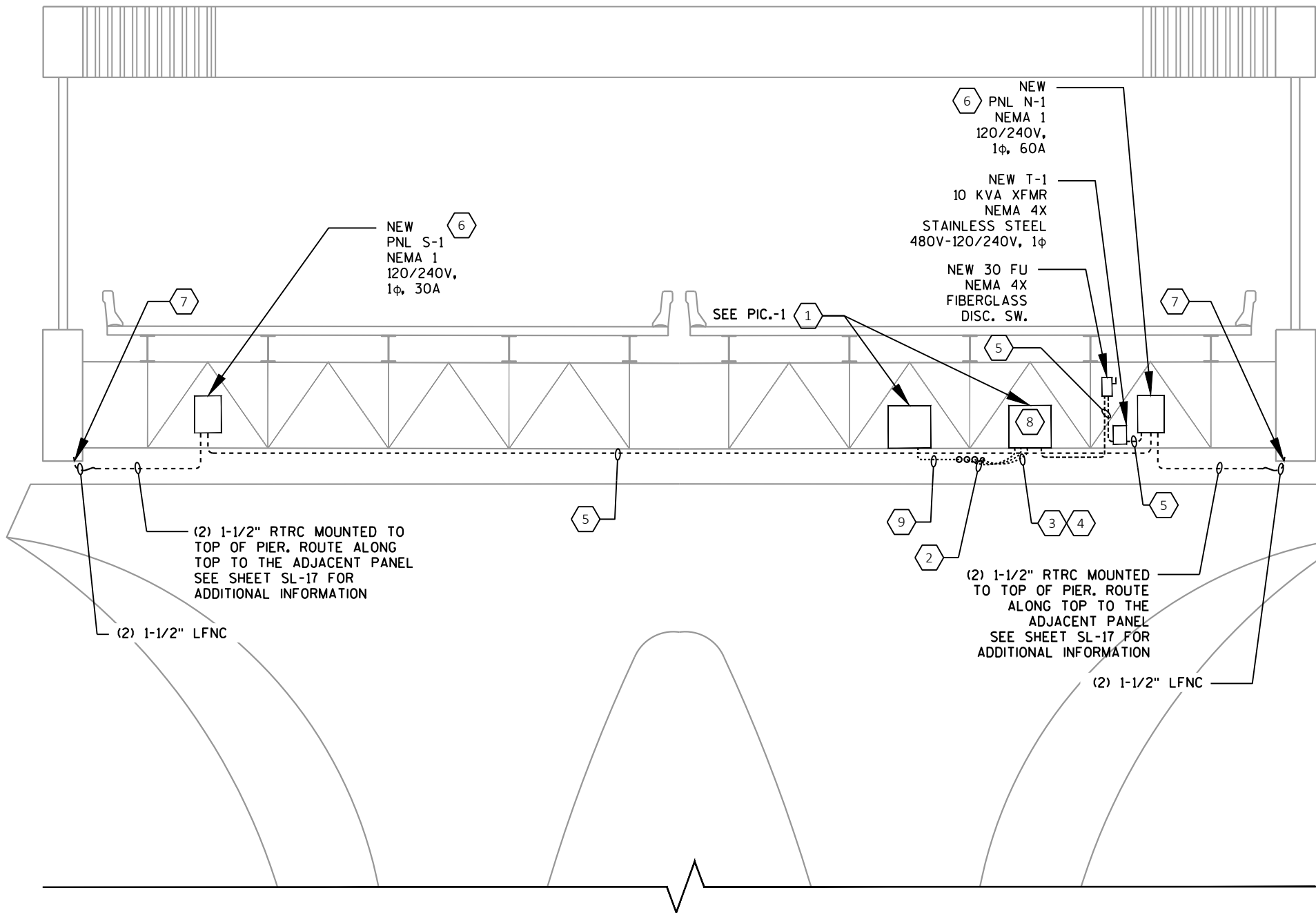


PIC.-4

KEY NOTES



1. EXISTING ITS FIBERGLASS JUNCTION BOX LOCATED AT PIER 25 TO BE REUSED.
2. NEW UNDERGROUND PVC CONDUIT TO BE TERMINATED AT EXISTING JUNCTION BOX.
3. EXISTING (1) 3" PVC CONDUIT CONTAINS (1) 6CT WISDOT FIBER OPTIC CABLE AND 3*8 AWG CONDUCTORS THAT FEED THE BRIDGE ITS, AND (1) WOVEN PULL TAPE. THE 3*8 AWG CONDUCTORS WILL BE DISCONNECTED AND LEFT IN PLACE.
4. EXISTING (1) 2" RTRC FIBERGLASS ITS CONDUIT AT PIER 25 TO BE REUSED. EXISTING (2) GRAY CAT-5 DATA CABLES WILL BE PERMANENTLY REMOVED FROM 2" RTRC CONDUIT THAT RUNS FROM PIER 25 TO THE ARCH AT PIER 27 TO ALLOW FOR NEW MAINTENANCE LIGHTING ELECTRICAL FEED 3*4, 1*2G AWG WIRES TO BE RUN TO THE NEW TRANSFORMER AT PIER 27.
5. EXISTING (1) 3" PVC CONDUIT CONTAINS (1) 72CT WISDOT FIBER OPTIC CABLE.
6. EXISTING ASTREA COMMUNICATIONS J-BOX AND 3" RTRC CONDUIT CONTAINS (1) 198CT FIBER OPTIC CABLE FOR FUTURE USE. CABLE IS DEAD ENDED IN J-BOX.



DETAIL-1
PANEL INSTALLATION DETAIL AT PIER 27

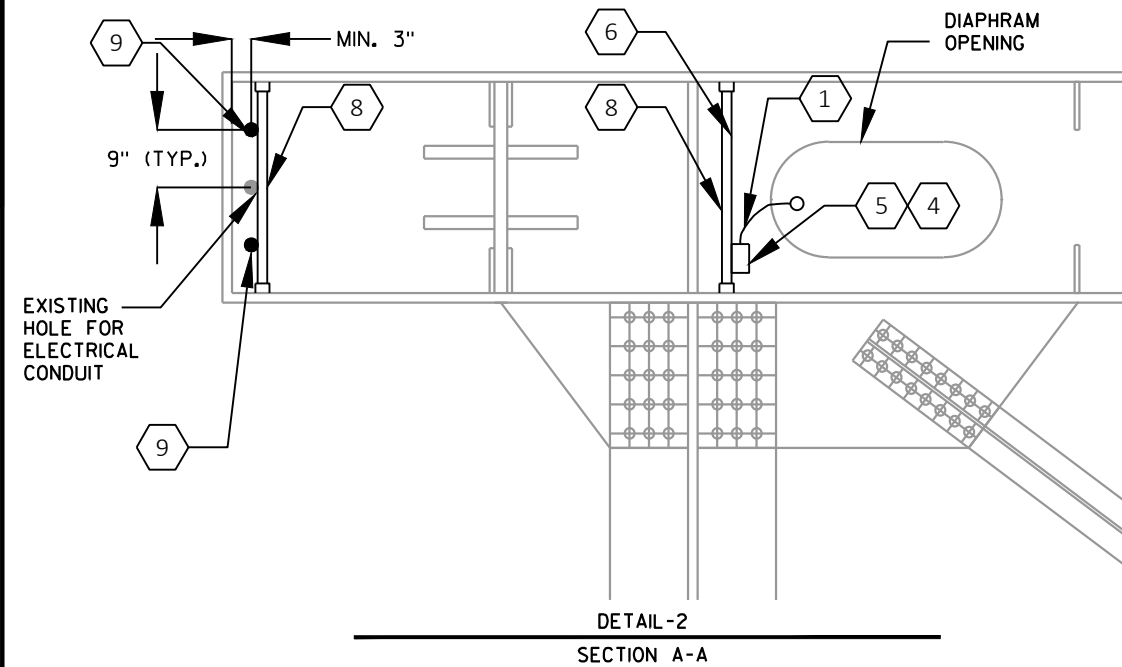
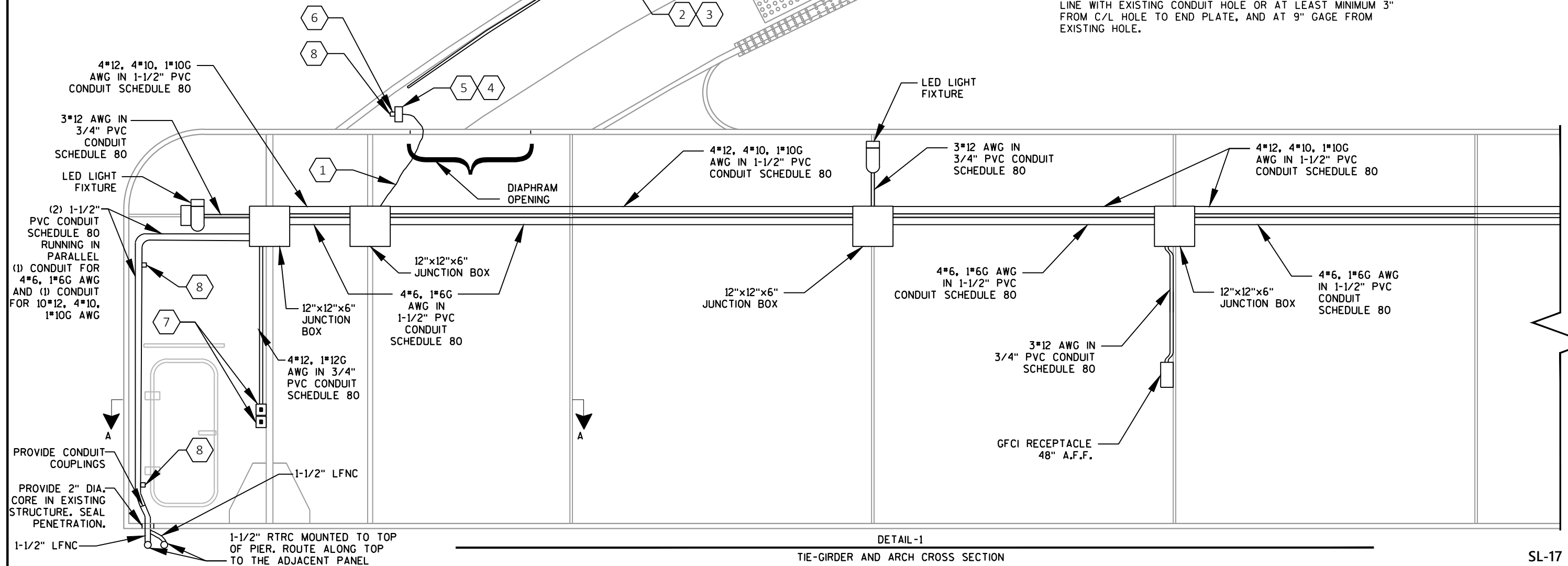


PIC.-1

KEY NOTES

1. EXISTING ITS FIBERGLASS JUNCTION BOX LOCATED UNDER BRIDGE AT PIER 27.
2. EXISTING (3) 3" RTRC FIBERGLASS ITS CONDUIT RUN UNDER BRIDGE AT PIER 27 FROM PULL BOX AT PIER 25.
3. EXISTING (1) 2" RTRC FIBERGLASS ITS CONDUIT RUN UNDER BRIDGE AT PIER 27 FROM PULL BOX AT PIER 25.
4. PROVIDE NEW 2*4, 1*4G, 1*2G IN THE EXISTING 2" RTRC CONDUIT TO BE RUN FROM THE NEW LIGHTING CONTROL CABINET THROUGH AN EXISTING 2 RTRC CONDUIT TO EX ITS FIBERGLASS JUNCTION BOX AT PIER 27 TO FEED THE TRANSFORMER FOR THE MAINTENANCE LIGHTING SYSTEM.
5. NEW RTRC CONDUIT. SEE ONE-LINE DIAGRAM ON SHEET SL-20 FOR ADDITIONAL INFORMATION.
6. PROVIDE A NEMA 4X FIBERGLASS ENCLOSURE 36"x36"x12" WITH STAINLESS STEEL MOUNTING BACK PLATE AND LOCKABLE HINGED COVER, HINGES AND LOCKABLE HASPS TO BE STAINLESS STEEL, AND MOUNT PANELBOARD AND LIGHTING CONTACTOR INSIDE.
7. CORE DRILL INTO TIE-GIRDER TO ROUTE POWER INSIDE FOR NEW RECEPTACLES AND LIGHTING SYSTEMS. PROVIDE ALL HARDWARE AND FITTING FOR A COMPLETE INSTALLATION. SEAL ALL PENETRATIONS.
8. PROVIDE A NEW 15A, 120V CIRCUIT FROM PNL N-1 TO RE-FEED THE EXISTING ITS ENCLOSURE.
9. EXISTING (1) 3" RTRC FIBERGLASS CONDUIT WITH FIBER TO REMAIN AS IS.

SL-16

DETAIL-2
SECTION A-A

KEY NOTES

#

1. PROVIDE LIQUID TIGHT FLEXIBLE CONDUIT WITH THE TWO CIRCUITS. 6*12, 1*12G AWG IN 3/4" LFNC CONDUIT.
2. PROVIDE 492 FT (MIN.) OF CONTINUOUS LED ROPE LIGHTING. TO BE PLUGGED IN ON THE EAST END OF THE ARCH.
3. PROVIDE A REDUNDANT LED ROPE LIGHT SYSTEM INSTALLED IN THE OTHER CORNER OF THE ARCH. DESIGN INTENT IS THAT THIS ROPE LIGHT SYSTEM WOULD NOT BE USED FOR NORMAL OPERATION. PROVIDE 500 FT OF CONTINUOUS LED ROPE LIGHTING. PLUG END TO BE LOCATED ON THE EAST END OF THE ARCH. PLUG SHALL NOT BE PLUGGED. COIL AND SAFELY STORE ABOVE IN ARCH.
4. PROVIDE DUPLEX SPLIT WIRED TWIST LOCK RECEPTACLE 15A 120V NEMA L5-15R, EACH RECEPTACLE TO BE CONTROLLED BY LIGHT SWITCHES THAT CONTROL THE ARCH LIGHTING. SWITCH LOCATIONS TO BE WITHIN THE TIE GIRDER LOCATED ON EACH END OF THE BRIDGE.
5. 2-GANG BOX TO BE PROVIDED WITH THE 2 WEATHERPROOF GFCI RECEPTACLES. PROVIDE STRUT TO SECURE BOX IN THE ARCH.
6. MOUNT LIGHT DRIVERS TO ROPE LIGHT STRUT SUPPORTS IN ARCH.
7. MOMENTARY LIGHT SWITCHES IN WEATHERPROOF PVC MIN. 3R RATING BOX.
8. PROVIDE COMPRESSION STRUT FOR CONDUIT SUPPORT.
9. LOCATE THE NEW 2" DIA. HOLE FOR ELECTRICAL CONDUIT IN LINE WITH EXISTING CONDUIT HOLE OR AT LEAST MINIMUM 3" FROM C/L HOLE TO END PLATE, AND AT 9" GAGE FROM EXISTING HOLE.

GENERAL NOTES

1. 4*6, 4*10, 1*6G AWG TO BE RUN INTO THE TRUNK LINE JUNCTION BOXES THEN SPLICE AND REDUCE TO *12 AWG TO RUN TO ALL DEVICES AND LUMINAIRES.

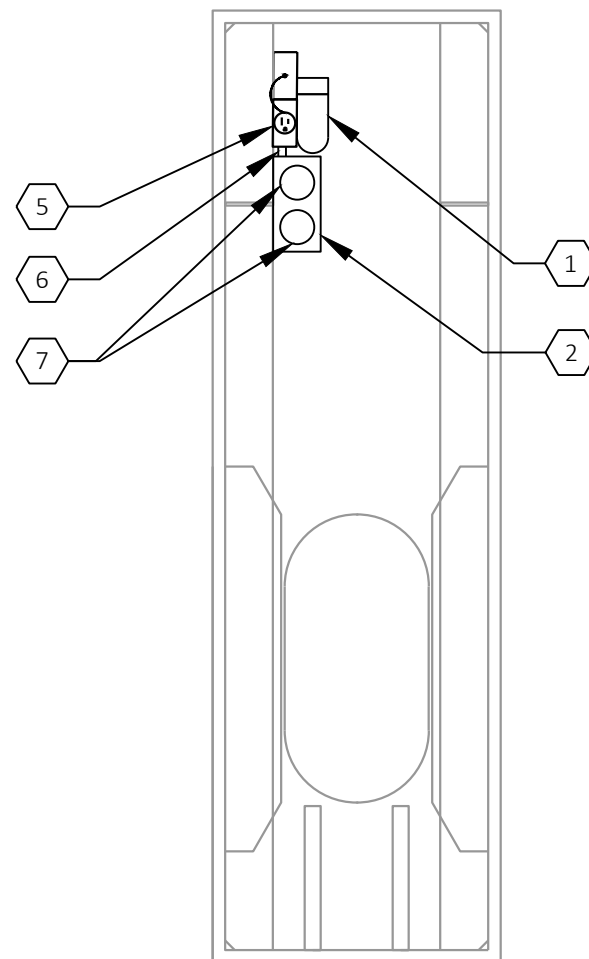
GENERAL NOTES

1. 4*6, 4*10, 1*6G WIRES TO BE RUN INTO THE TRUNK LINE JUNCTION BOXES THEN SPLICE AND REDUCE TO *12 AWG TO RUN TO ALL DEVICES AND LUMINAIRES.

KEY NOTES

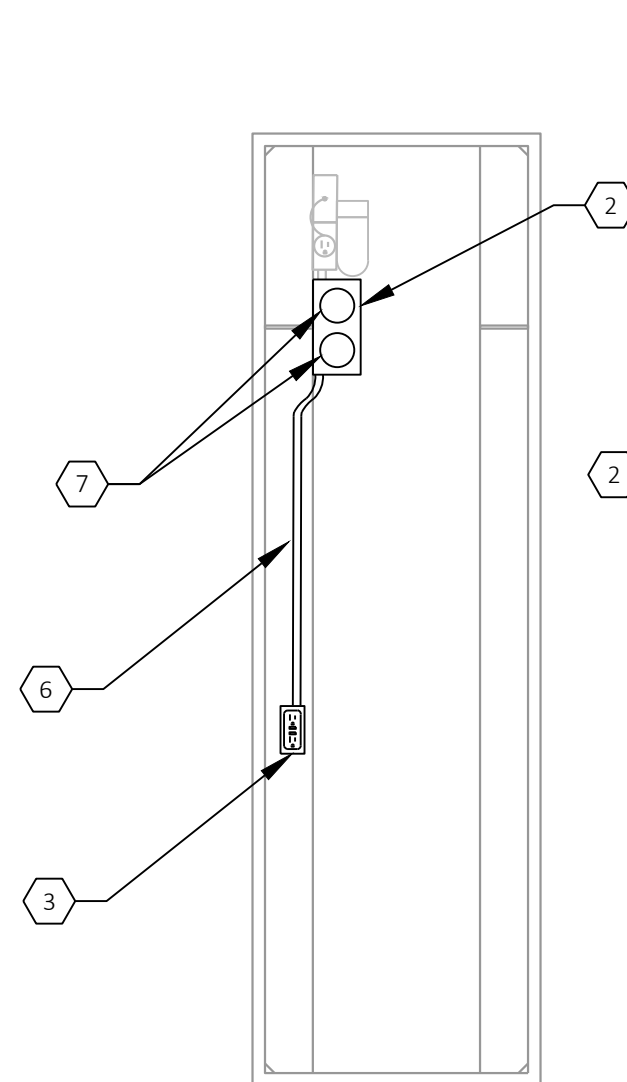


1. NEW VAPOR TIGHT LED LIGHT FIXTURE WITH BACK BOX TO BE INSTALLED IN TIE-GIRDER. SECURE TO VERTICAL STIFFENER. SEE LIGHT FIXTURE SCHEDULE ON SHEET SL-21 FOR ADDITIONAL INFORMATION.
2. NEW 12"x12"x6" WEATHERPROOF PVC 3R RATING JUNCTION BOX.
3. NEW GFCI WEATHERPROOF 120V RECEPTACLE TO BE MOUNTED TO THE FACE OF THE STIFFENER PLATE, 48" A.F.F.
4. (2) 1-1/2" PVC SCHEDULE 80 CONDUIT ATTACHED TO STIFFENER (1) CONTAINS 4*6, 1*6G FOR RECEPTACLES CIRCUITS AND (1) CONTAINS 10*12, 4*10, 1*10G FOR LIGHTING FIXTURES AND LIGHTING CONTROL CIRCUITS.
5. PROVIDE 15A 120V L5-15R SINGLE TWIST-LOCK WEATHERPROOF RECEPTACLE TO BE MOUNTED TO THE FACE OF THE STIFFENER PLATE ADJACENT TO THE VAPOR TIGHT LIGHT FIXTURE. RECEPTACLE TO BE CONTROLLED BY THE LIGHT SWITCH INSTALLED WITHIN THE TIE-GIRDER.
6. 3*12 AWG IN 3/4" PVC NONMETALLIC SCHEDULE 80 CONDUIT ATTACHED TO STIFFENER.
7. (2) 1-1/2" PVC SCHEDULE 80 CONDUIT ATTACHED TO STIFFENER (1) CONTAINS 4*6, 1*6G FOR RECEPTACLES CIRCUITS AND (1) CONTAINS 4*12, 4*10, 1*10G FOR LIGHTING FIXTURES AND LIGHTING CONTROL CIRCUITS.



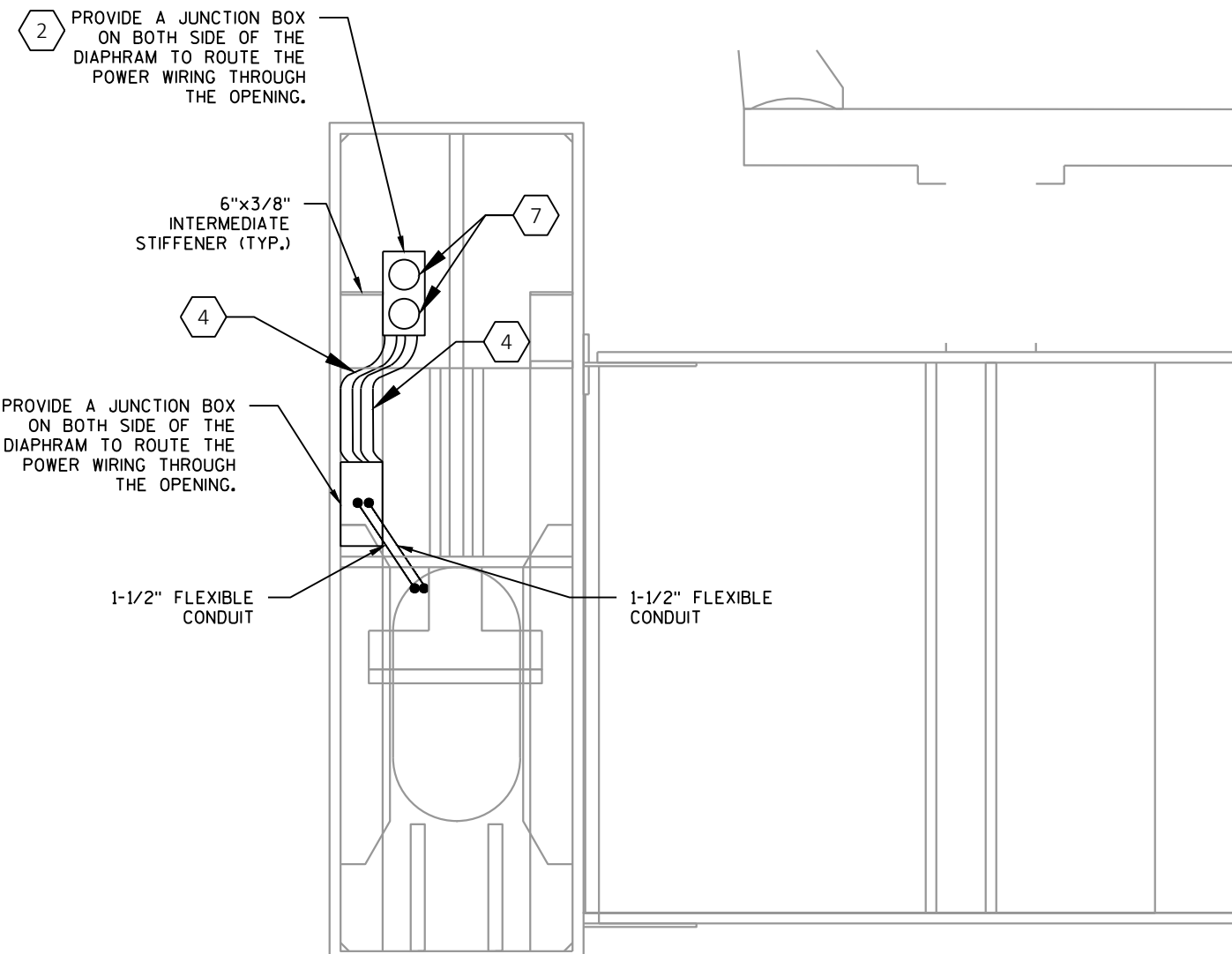
DETAIL-1

TIE GIRDER CROSS SECTION WITH DIAPHRAGM OPENING
(TYP.) LIGHTING INSTALLATION DETAIL



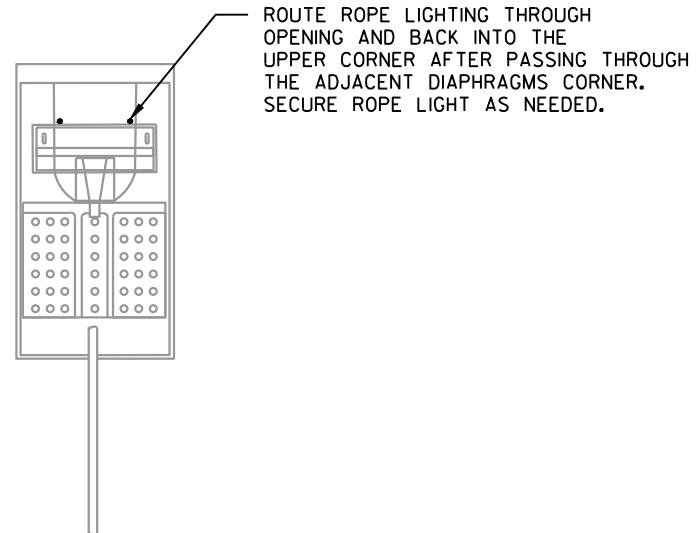
DETAIL-2

TIE GIRDER CROSS SECTION
(TYP.) RECEPTACLE INSTALLATION DETAIL

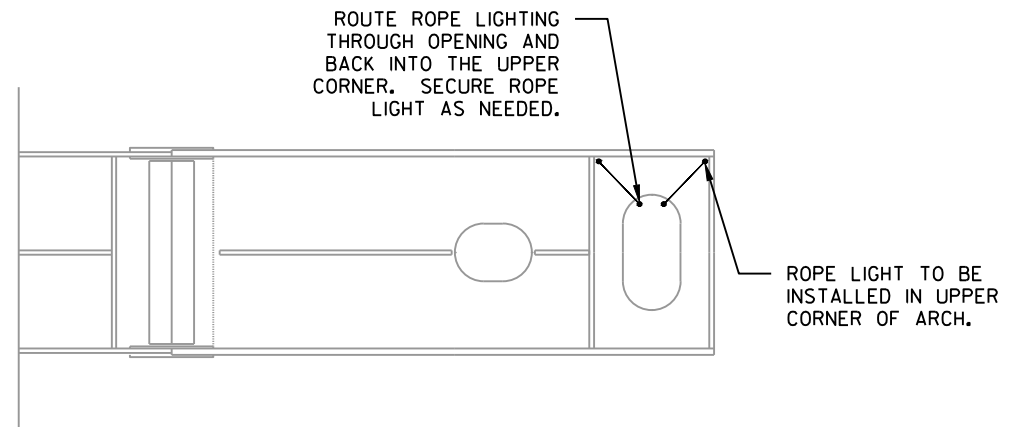


DETAIL-3

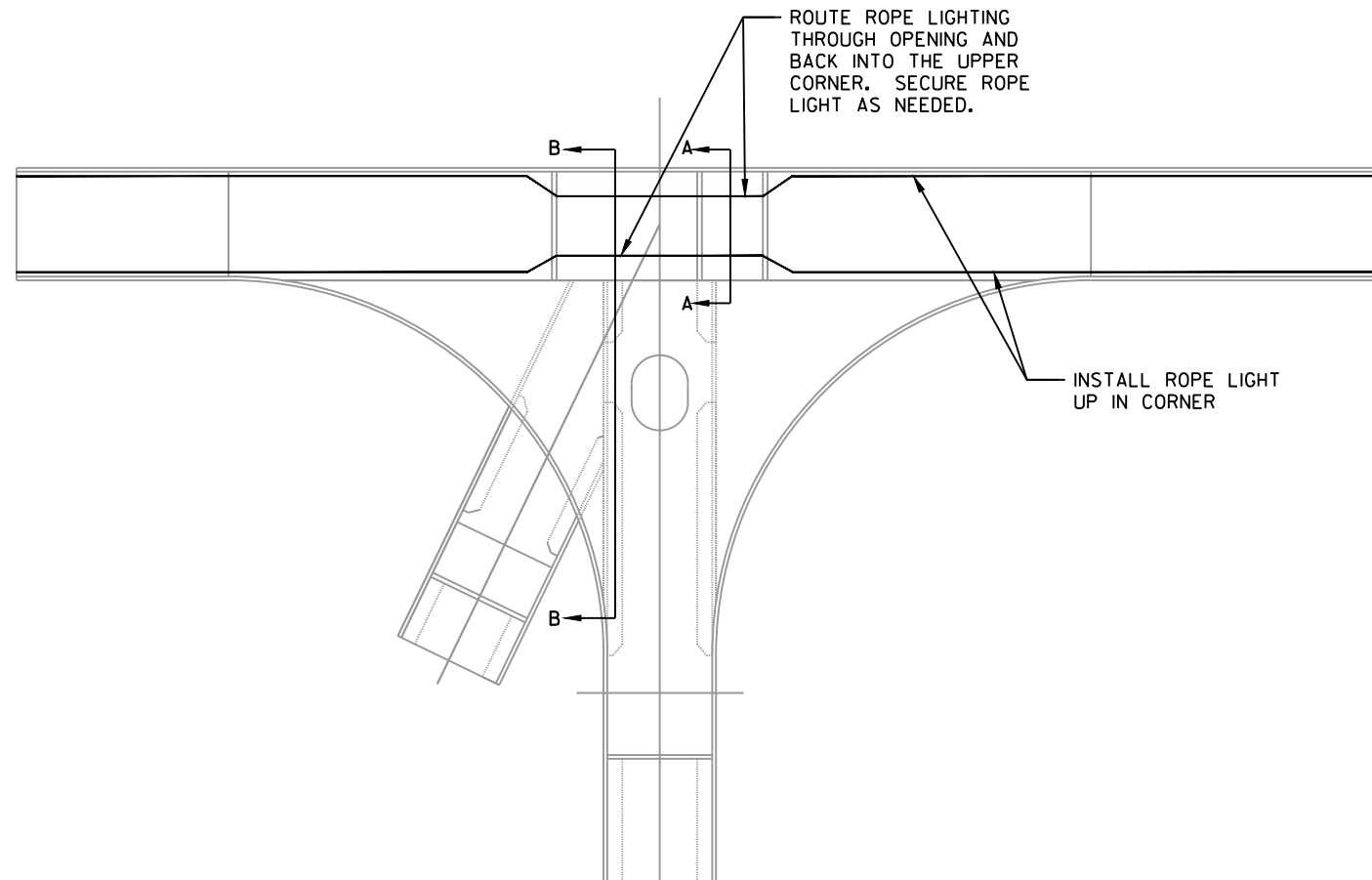
TIE GIRDER SECTION WITH DIAPHRAGM OPENING
(TYP.) CONDUIT ROUTING INSTALLATION DETAIL



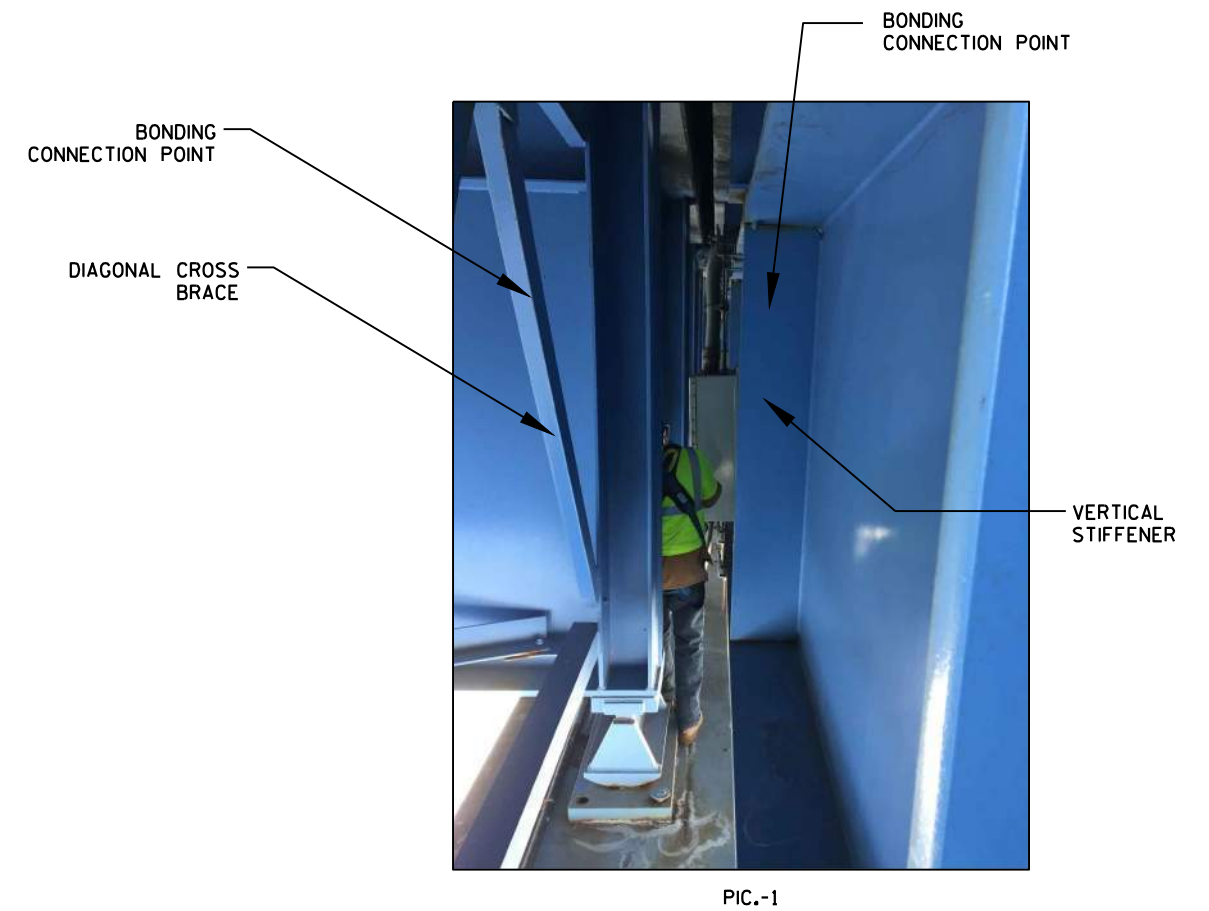
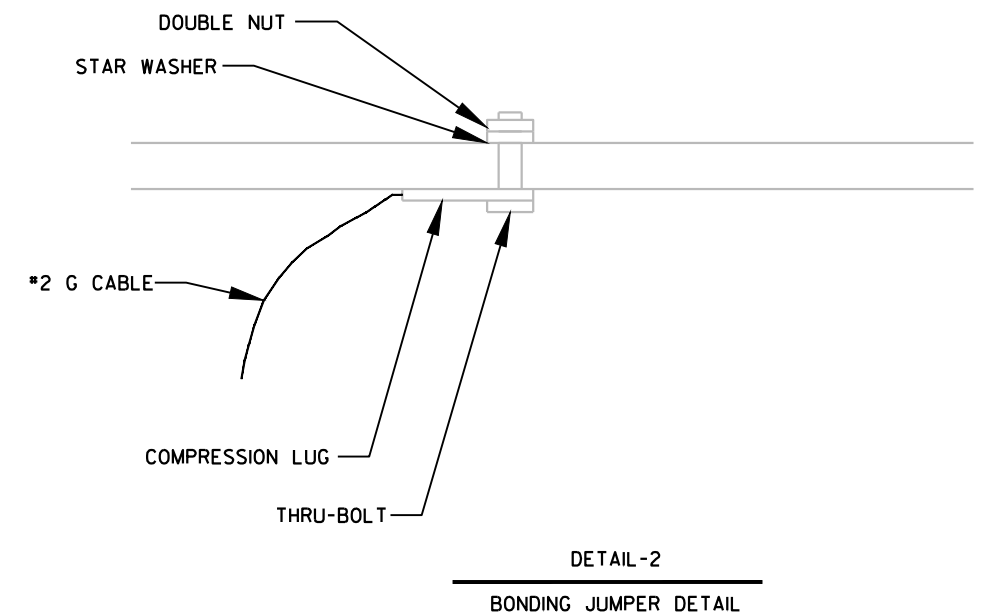
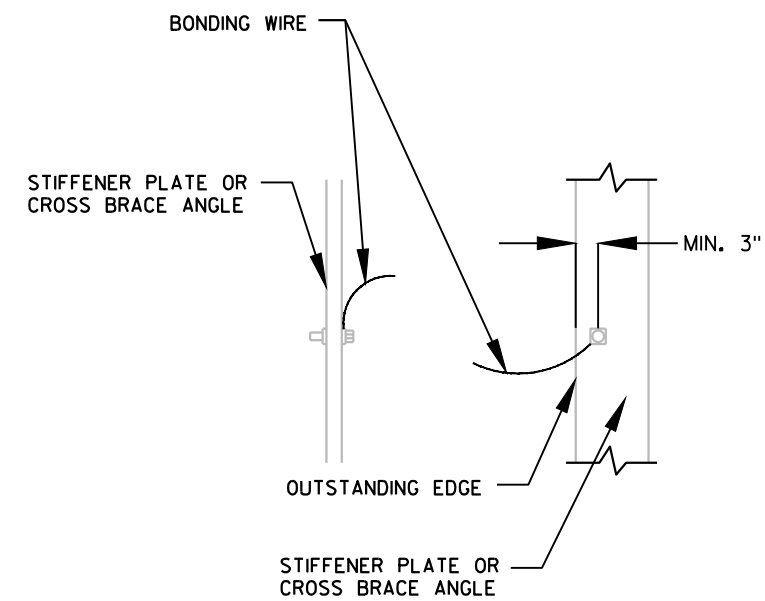
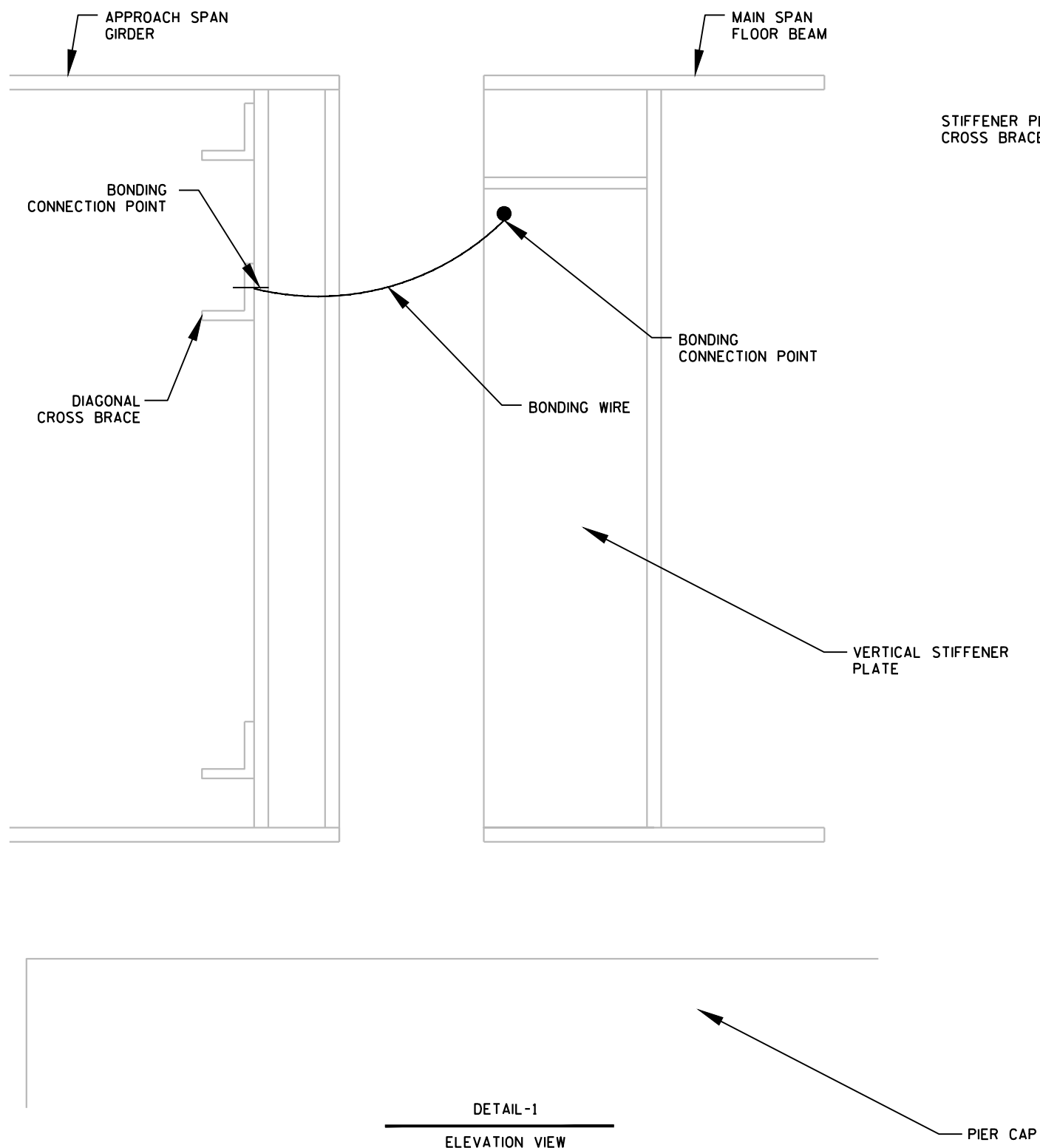
DETAIL-1
ARCH GIRDER DIAPHRAGM
SECTION A-A

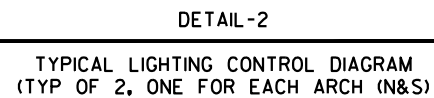


DETAIL-2
ARCH DIAPHRAGM
SECTION B-B

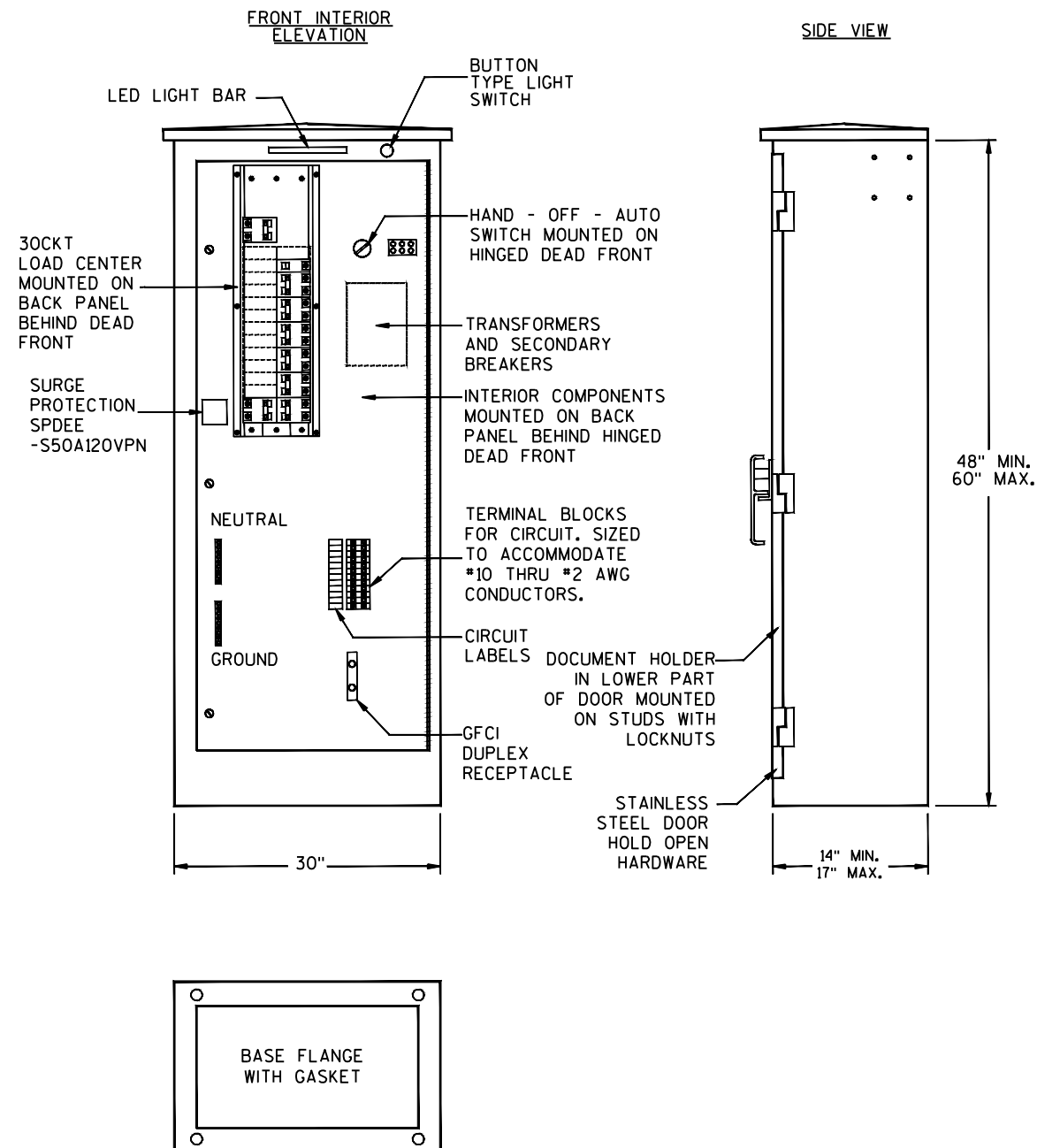


DETAIL-3
PLAN VIEW OF ARCH STRUT

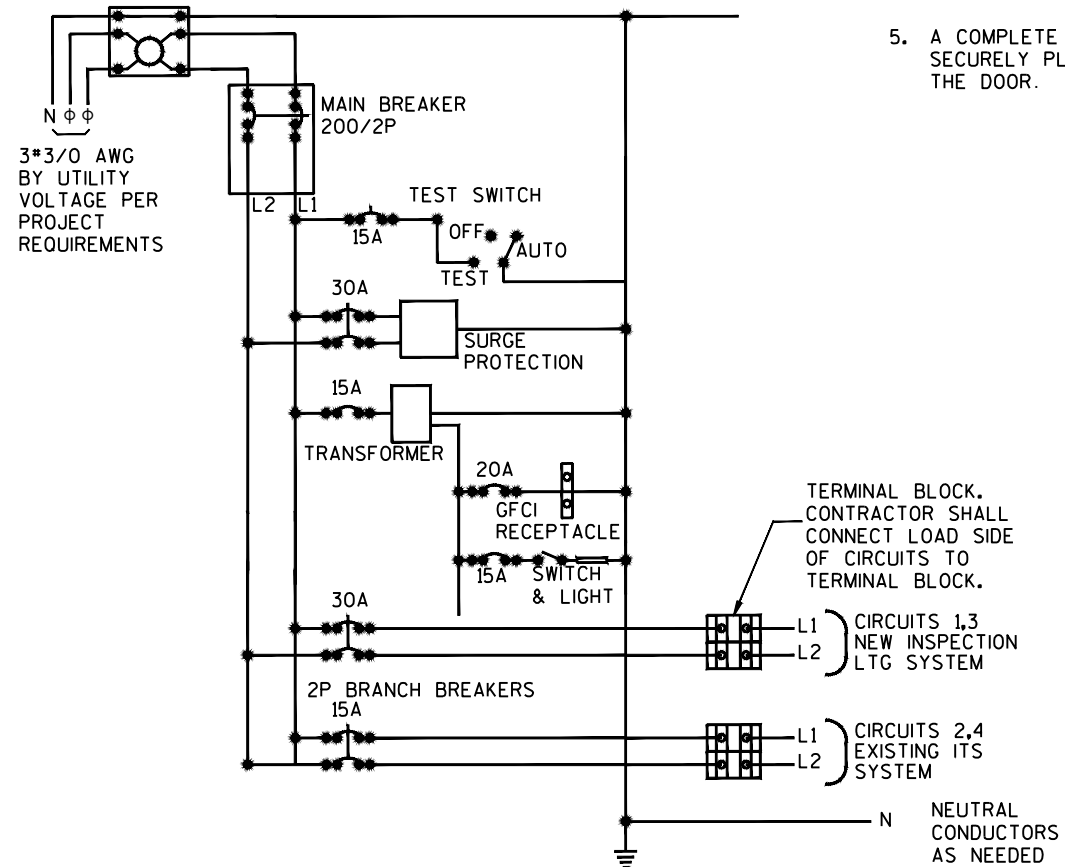




-
- The diagram illustrates the electrical connections for a camera pole system. It features two main panels: a new panel (PNL S-1) and an existing panel (PNL N-1). The power source is a new utility transformer (NEW UTILITY XFMR) connected to a new underground primary from the utility. The power flows through a new 30A fuse (NEW 30A FU) and a new line capacitor (NEW LCP) to the new panel. The existing panel is connected to the new panel via a 3" PVC conduit. The diagram also shows existing components like the existing transformer (EXISTING XFMR), existing feeder, and existing disc switch (EXISTING DISC. SW.).
- NEW PNL S-1**
120/240V
1 ϕ , 30A
- NEW PNL N-1**
120/240V
1 ϕ , 60A
- EXISTING PNL**
TO REMAIN
AS-IS
- NEW T-1**
10 KVA XFMR
480V-120/240V, 1 ϕ
- EXISTING XFMR**
TO REMAIN
AS-IS
- NEW 30A FU**
NEMA 4X
DISC. SW.
- EXISTING DISC. SW.**
TO REMAIN
AS-IS
- NEW LCP**
240/480V
200A
- 3" PVC CONDUIT**
- NEW UTILITY XFMR**
- NEW UNDERGROUND PRIMARY FROM UTILITY**
- 3*8, 1*10G IN 1" RTRC**
- 3*6, 1*10G IN 1" RTRC**
- 2*4, 1*4G IN 2" RTRC**
- 2*4, 1*4G IN 2" RTRC**
- 2*8, 1*8G IN 1" PVC CONDUIT. CONNECT TO EXISTING 1" GRS CONDUIT AT CAMERA POLE**
- EXISTING FEEDER TO REMAIN AS-IS**
- EXISTING FEEDER TO REMAIN AS-IS**
- PROVIDE PVC TO GRS COUPLER**
- DETAIL-3**
- ONE LINE DIAGRAM**



UTILITY METER PEDESTAL PROVIDED BY CONTRACTOR UNDER SEPARATE BID ITEM. MAY OR MAY NOT BE ATTACHED TO OUTSIDE OF CONTROL CABINET PER PROJECT REQUIREMENTS.



GENERAL NOTES

1. DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.
2. ALL INTERNAL ELECTRICAL COMPONENTS WILL BE PRE-WIRED BY THE CABINET MANUFACTURER.
3. ALL CONDUIT ENTRIES SHALL BE SEALED WITH AN APPROPRIATE DUCT SEALING COMPOUND.
4. THE CONTRACTOR SHALL TOUCH UP ANY DAMAGE TO THE ANODIZED FINISH CAUSED BY THE INSTALLATION PROCESS. COLOR MATCH PAINT SHALL BE USED.
5. A COMPLETE LIGHTING OR ELECTRICAL PLAN SHALL BE SECURELY PLACED IN THE DOCUMENT HOLDER ATTACHED TO THE DOOR.

L30 "LIGHTING CONTROL CABINET 240/480 30-INCH, SPECIAL"

SL-22

PROJECT NO: 1220-21-60

HWY: IH 43

COUNTY: BROWN

LIGHTING PLANS - CONSTRUCTION DETAILS

SHEET

82

E

LIGHTING FIXTURE SCHEDULE									
FIXTURE TYPE	DESCRIPTION	FIXTURE DATA					LAMP DATA		REF. NOTES
		MANUFACTURER	CATALOG NO.	MOUNTING	VOLTS	WATTAGE	QTY	TYPE	
A	LED VAPOR PROOF WALL MOUNT	C-LITE	C-VT B SMMVL 19L 40K GR	SURFACE	120V	26W	-	LED - 4000K	1
		RAB	VXBRLLED26NDG						
		SATCO NUVO	NUVO 65-223						
B	1/2" DIAMETER LED ROPE LIGHT	AQLIGHTING	Endura Rope - RLR-END-MW	SURFACE	120V	1.12 W/FT	-	LED - 4100K	2
		BRILLIANT BRAND LIGHTING	RLL120HW-45WW						
		SIGNATURE	LED-13MM-FR						
1. PROVIDE A 2 FT 14-3 SWOJ CORD WITH WEATHER PROOF CONNECTOR AND A 15A 120V NEMA L5-15P TWIST LOCK MALE PLUG AND A MATCHING SINGLE TWIST LOCK RECEPTACLE ADJACENT TO THE FIXTURE.									
2. CONTRACTOR TO PROVIDE A CONTINUOUS LENGTH OF ROPE LIGHT TO SPAN THE LENGTH OF THE ARCH. PROVIDE DRIVER RATED TO ACCOMMODATE THE CONTINUOUS LENGTH.									

SCHEDULE OF QUANTITIES				
ITEM DESCRIPTION	UNIT	QUANTITY (NORTH SIDE)	QUANTITY (SOUTH SIDE)	QUANTITY (TOTAL)
INSTALLATION OF ELECTRICAL AND LIGHTING SYSTEMS TIE GIRDER				
PANELBOARD 120/240V, 1ϕ, 30A	EACH	-	-	1
PANELBOARD 120/240V, 1ϕ, 60A	EACH	-	-	1
JUNCTION BOX 36X36X12-INCH (FIBERGLASS)	EACH	--	--	2
TRANSFORMER 10 KVA, 480V-120/240V, 1ϕ	EACH	-	-	1
FUSED DISCONNECT SWITCH 30A	EACH	-	-	1
ELECTRICAL WIRE LIGHTING 10 AWG	LF	-	-	130
ELECTRICAL WIRE LIGHTING 8 AWG	LF	-	-	840
ELECTRICAL WIRE LIGHTING 6 AWG	LF	-	-	50
ELECTRICAL WIRE LIGHTING 4 AWG	LF	-	-	40
120V DUPLEX RECEPTACLE, GFCI (TIE-GIRDER)	EACH	12	12	24
120V SIMPLEX RECEPTACLE	EACH	22	22	44
LED VAPORPROOF LIGHT FIXTURE	EACH	22	22	44
JUNCTION BOX 12X12X6-INCH (PVC WEATHERPROOF)	EACH	58	58	116
LIGHT SWITCH	EACH	4	4	8
LIGHTING CONTROLS	EACH	1	1	2
ELECTRICAL WIRE LIGHTING 12 AWG	LF	1230	1230	2460
ELECTRICAL WIRE LIGHTING 10 AWG	LF	2080	2080	4160
ELECTRICAL WIRE LIGHTING 10 AWG (GROUNDING)	LF	610	610	1220
ELECTRICAL WIRE LIGHTING 6 AWG	LF	1670	1670	3340
ELECTRICAL WIRE LIGHTING 6 AWG (GROUNDING)	LF	610	610	1220
CONDUIT REINFORCED THERMOSETTING RESIN 1-INCH	LF	-	-	115
CONDUIT REINFORCED THERMOSETTING RESIN 1 1/2-INCH	LF	50	50	100
CONDUIT REINFORCED THERMOSETTING RESIN 2-INCH	LF	-	-	20
CONDUIT RIGID NONMETALLIC SCHEDULE 80 3/4-INCH	LF	90	90	180
CONDUIT RIGID NONMETALLIC SCHEDULE 80 1 1/2-INCH	LF	1000	1000	2000
CONDUIT NON METTALIC FLEXIBLE 1-1/2-INCH	LF	120	120	240
INSTALLATION OF ELECTRICAL AND LIGHTING SYSTEMS ARCH				
120V DUPLEX RECEPTACLE (ARCH)	EACH	1	1	2
LED ROPE LIGHING SYSTEM	EACH	2	2	4
NOTES: 1. SCHEDULE OF QUANTITIES IS SHOWN FOR REFERENCE ONLY, SEE SPECIALS FOR MATERIALS ASSOCIATED WITH THE INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR ALL HARDWARE AND MATERIALS FOR A COMPLETE INSTALLATION.				

NEW PANEL S-1 -- 120/240V, 1PH, 3W, 30A MB								
CCT NO.	BRKR	DESCRIPTION	PHASE LOADING (KVA)		DESCRIPTION	BRKR	CCT NO.	
			A	B				
1	15	LIGHTING FIXTURES-TIE GIRDER	0.29	1.08	RECEPTACLES-TIE GIRDER	15	2	
3	15	LIGHTING FIXTURES-TIE GIRDER			RECEPTACLES-TIE GIRDER	15	4	
5	15	LIGHTING FIXTURES-ARCH	0.56	0.56	LIGHTING FIXTURES-ARCH (NOTE-2)	15	6	
7	15	CONTACTOR CONTROL CIRCUITS			(3) EXISTING NAVIGATION LTG'S	15	8	
9							10	
11							12	
CONNECTED LOAD					CALCULATED LOAD WITH NEC DEMAND			
PHASE A : 2.49 KVA					CONTINUOUS LOADS X 125% 1.42 KVA			
PHASE B : 1.50 KVA					NON-CONTINUOUS LOAD 0.10 KVA			
					EXISTING LOAD X 125% 0.04 KVA			
TOTAL KVA: 4.0 KVA					RECEPTACLE LOAD < 10 KVA 2.16 KVA			
TOTAL A : 16.6 AAT 240V, 1PH					RECEPTACLE LOAD > 10 KVA @ 50% 0.00 KVA			
1. PROVIDE NEMA 1 SQAURE D OR EQUAL PANELBOARD. 2. REDUNDANT ROPE LIGHT NOT TO BE ENERGIZED WHILE MAIN ROPE LIGHT IS IN USE.					PLUS 25% OF LARGEST MOTOR 0.00 KVA			
					TOTAL KVA 3.71 KVA			
					TOTAL AAT 240V, 1PH 15.47 A			

NEW PANEL N-1 -- 120/240V, 1PH, 3W, 60A MB								
CCT NO.	BRKR	DESCRIPTION	PHASE LOADING (KVA)		DESCRIPTION	BRKR	CCT NO.	
			A	B				
1	30	NEW PANEL S-1	2.49	0.29	LIGHTING FIXTURES-TIE GIRDER	15	2	
3				1.50	LIGHTING FIXTURES-TIE GIRDER	15	4	
5	15	LIGHTING FIXTURES-ARCH	0.56	1.08	RECEPTACLES-TIE GIRDER	15	6	
7	15	LIGHTING FIXTURES-ARCH (NOTE-2)		0.56	RECEPTACLES-TIE GIRDER	15	8	
9	15	CONTACTOR CONTROL CIRCUITS	0.10	0.03	(3) EXISTING NAVIGATION LTG'S	15	10	
11				0.24	EXISTING ITS CABINET	15	12	
13							14	
15							16	
17							18	
CONNECTED LOAD PHASE A : 4.54 KVA PHASE B : 3.66 KVA TOTAL KVA : 8.2 KVA TOTAL A : 34.2 A AT 240V, 1PH CALCULATED LOAD WITH NEC DEMAND CONTINUOUS LOADS X 125% 2.70 KVA NON-CONTINUOUS LOAD 0.20 KVA EXISTING LOAD X 125% 0.34 KVA RECEPTACLE LOAD < 10 KVA 4.32 KVA RECEPTACLE LOAD > 10 KVA @ 50% 0.00 KVA PLUS 25% OF LARGEST MOTOR 0.00 KVA TOTAL KVA 7.56 KVA TOTAL A AT 240V, 1PH 31.49 A								
1. PROVIDE NEMA 1 SQAURE D OR EQUAL PANELBOARD. 2. REDUNDANT ROPE LIGHT NOT TO BE ENERGIZED WHILE MAIN ROPE LIGHT IS IN USE.								

NEW LOAD CONTROL PANEL LCP -- 240/480V, 1PH, 3W, 200A MB									
CCT NO.	BRKR	DESCRIPTION	PHASE LOADING (KVA)				DESCRIPTION	BRKR	CCT NO.
			A		B				
1	30	NEW INSPECTION LTG SYSTEM	4.54	2.50			EXISTING ITS SYSTEM	15	2
3					3.66	2.50			4
5									6
7									8
9									10
11									12
CONNECTED LOAD PHASE A: 7.04 KVA PHASE B : 6.16 KVA TOTAL KVA: 13.2 KVA TOTAL A: 27.5 AAT 480V, 1PH CALCULATED LOAD WITH NEC DEMAND CONTINUOUS LOADS X 125% 2.70 KVA NON-CONTINUOUS LOAD 0.20 KVA EXISTING LOAD X 125% 6.73 KVA RECEPTACLE LOAD < 10 KVA 4.32 KVA RECEPTACLE LOAD > 10 KVA @ 50% 0.00 KVA PLUS 25% OF LARGEST MOTOR 0.00 KVA TOTAL KVA 13.95 KVA TOTAL AAT 480V, 1PH 29.06 A									
1. PROVIDE NEMA 1 SQAURE D OR EQUAL PANELBOARD.									

Estimate Of Quantities

1220-21-60

Line	Item	Item Description	Unit	Total	Qty
0002	204.9060.S	Removing (item description) 51. Removing Electrical Service Meter Breaker Pedestal	EACH	1.000	1.000
0004	204.9090.S	Removing (item description) 51. Removing Electrical Wires from Conduit	LF	470.000	470.000
0006	213.0100	Finishing Roadway (project) 01. 1220-21-60	EACH	1.000	1.000
0008	517.1801.S	Structure Repainting Recycled Abrasive (structure) 01. B-5-158-10	EACH	1.000	1.000
0010	517.3001.S	Structure Overcoating Cleaning and Priming (structure) 01. B-5-158-10	EACH	1.000	1.000
0012	517.4501.S	Negative Pressure Containment and Collection of Waste Materials (structure) 01. B-5-158-10	EACH	1.000	1.000
0014	517.6001.S	Portable Decontamination Facility	EACH	1.000	1.000
0016	603.8000	Concrete Barrier Temporary Precast Delivered	LF	1,126.000	1,126.000
0018	603.8125	Concrete Barrier Temporary Precast Installed	LF	1,326.000	1,326.000
0020	619.1000	Mobilization	EACH	1.000	1.000
0022	625.0500	Salvaged Topsoil	SY	500.000	500.000
0024	627.0200	Mulching	SY	500.000	500.000
0026	628.1504	Silt Fence	LF	600.000	600.000
0028	628.1520	Silt Fence Maintenance	LF	600.000	600.000
0030	628.7010	Inlet Protection Type B	EACH	10.000	10.000
0032	629.0210	Fertilizer Type B	CWT	0.500	0.500
0034	630.0130	Seeding Mixture No. 30	LB	10.000	10.000
0036	642.5201	Field Office Type C	EACH	1.000	1.000
0038	643.0300	Traffic Control Drums	DAY	48,000.000	48,000.000
0040	643.0420	Traffic Control Barricades Type III	DAY	1,080.000	1,080.000
0042	643.0705	Traffic Control Warning Lights Type A	DAY	2,260.000	2,260.000
0044	643.0715	Traffic Control Warning Lights Type C	DAY	10,500.000	10,500.000
0046	643.0800	Traffic Control Arrow Boards	DAY	550.000	550.000
0048	643.0900	Traffic Control Signs	DAY	14,760.000	14,760.000
0050	643.0920	Traffic Control Covering Signs Type II	EACH	4.000	4.000
0052	643.1000	Traffic Control Signs Fixed Message	SF	48.000	48.000
0054	643.1050	Traffic Control Signs PCMS	DAY	85.000	85.000
0056	643.1200.S	Portable Automated Real-Time Traffic Queue Warning System	DAY	129.000	129.000
0058	643.5000	Traffic Control	EACH	1.000	1.000
0060	646.1020	Marking Line Epoxy 4-Inch	LF	5,000.000	5,000.000
0062	646.1050	Marking Line Grooved Permanent Tape 4-Inch	LF	1,200.000	1,200.000
0064	646.9010	Marking Removal Line Water Blasting 4-Inch	LF	15,000.000	15,000.000
0066	646.9050	Marking Removal Line Grooved Permanent Tape 4-Inch	LF	1,200.000	1,200.000
0068	649.0105	Temporary Marking Line Paint 4-Inch	LF	11,000.000	11,000.000
0070	649.0150	Temporary Marking Line Removable Tape 4-Inch	LF	22,000.000	22,000.000
0072	649.0250	Temporary Marking Line Removable Tape 8-Inch	LF	2,000.000	2,000.000
0074	649.0960	Temporary Marking Removable Mask Out Tape 6-Inch	LF	7,550.000	7,550.000
0076	652.0210	Conduit Rigid Nonmetallic Schedule 40 1-Inch	LF	150.000	150.000
0078	652.0225	Conduit Rigid Nonmetallic Schedule 40 2-Inch	LF	50.000	50.000
0080	652.0235	Conduit Rigid Nonmetallic Schedule 40 3-Inch	LF	70.000	70.000
0082	653.0164	Pull Boxes Non-Conductive 24x42-Inch	EACH	2.000	2.000
0084	654.0230	Concrete Control Cabinet Bases Type L30	EACH	1.000	1.000
0086	655.0615	Electrical Wire Lighting 10 AWG	LF	600.000	600.000
0088	655.0620	Electrical Wire Lighting 8 AWG	LF	590.000	590.000
0090	655.0630	Electrical Wire Lighting 4 AWG	LF	1,780.000	1,780.000
0092	656.0400	Electrical Service Main Lugs Only Meter Pedestal (location) 51. Pier 25, STA 848+15 NB	LS	1.000	1.000
0094	999.2000.S	Installing and Maintaining Bird Deterrent System (station) 01. 854+88	EACH	1.000	1.000

Estimate Of Quantities

1220-21-60

Line	Item	Item Description	Unit	Total	Qty
0096	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	2,000.000	2,000.000
0098	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	1,320.000	1,320.000
0100	SPV.0060	Special 51. Installation of Electrical and Lighitng Systems Tie Girder	EACH	1.000	1.000
0102	SPV.0060	Special 52. Installation of Electrical and Lighting Systems Arch	EACH	1.000	1.000
0104	SPV.0060	Special 53. Modify Existing Navigation Lighting System B-5-158-10	EACH	1.000	1.000
0106	SPV.0060	Special 54. Bonding Existing Steel Bridge Structure	EACH	1.000	1.000
0108	SPV.0060	Special 55. Lighting Control Cabinets 240/480 30-Inch Special	EACH	1.000	1.000
0110	SPV.0060	Special 56. Remove and Reinstall Camera Assembly	EACH	2.000	2.000
0112	SPV.0090	Special 51. Conduit Reinforced Thermosetting Resin 1-Inch	LF	200.000	200.000
0114	SPV.0090	Special 52. Electrical Wire Lighting 3/0 AWG	LF	18.000	18.000

3

3

CATEGORY	STAGE	NO. OF DAYS (DAY)	TRAFFIC CONTROL										COMMENTS
			603.8000	603.8125	643.0300	*643.0420	*643.0705	643.0715	643.0800	*643.0900	*643.0920	*643.1050	
			CONCRETE BARRIER		DRUMS (DAY)	BARRICADES TYPE III (DAY)	WARNING LIGHTS		ARROW BOARDS (DAY)	SIGNS (DAY)	COVERING SIGNS TYPE II (EACH)	SIGNS PCMS (DAY)	
			TEMPORARY PRECAST DELIVERED (LF)	TEMPORARY PRECAST INSTALLED (LF)			TYPE A (DAY)	TYPE C (DAY)					
0010													
	PRIOR TO CONSTR	7	---	---	---	---	---	---	---	---	---	14	---
	STAGE 1	14	---	---	4760	98	196	1050	56	630	2**	14	---
	STAGE 2	14	---	---	4900	98	196	1400	56	630	---	14	---
	STAGE 3	80	1126	**1326	28800	560	1120	6000	320	3680	---	14	** INCLUDES 200 LF FOR REALIGNING CONCRETE BARRIER AT EXPANSION JOINTS
	STAGE 4	14	---	---	4900	98	196	1400	56	658	---	14	---
	STAGE 5	7	---	---	2380	49	98	525	28	329	---	---	---
	UNDISTRIBUTED	---	---	---	2260	47	194	125	34	573	---	5	
PROJECT 1220-21-60 TOTALS			1126	1326	48000	950	2000	10500	550	6500	2	75	
* ADDITIONAL QUANTITIES LISTED ELSEWHERE													
**COVERING SIGNS - ONE CYCLE: COVER DURING STAGE 1, UNCOVER DURING STAGE 5.													

PROJECT NO: 1220-21-60	HWY: IH 43	COUNTY: BROWN	MISCELLANEOUS QUANTITIES	SHEET 86	E
------------------------	------------	---------------	--------------------------	----------	----------

3

TRAFFIC CONTROL ALTERNATE ROUTE SIGN SUMMARY

SIGN NO.	LOCATION	SIGN CODE	SIZE W X H	NUMBER IN SERVICE	APPROX. SERVICE PERIOD 122 DAYS	*643.0900 SIGNS DAYS	*643.0420 BARRICADES TYPE III DAY	*643.0705 WARNING LIGHTS TYPE A DAY	643.1000 FIXED MESSAGE SIGN SF	*643.1050 SIGNS PORTABLE CHANGEABLE MESSAGE DAYS	NO. OF CYCLES	*643.0920 COVERING TYPE II SIGNS EACH	REMARKS
1	US 141, W. OF ATKINSON RD, PLACE 1000' W. OF ATKINSON RD RAB INTERSECTION	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	W 20-53A	48"X48"	1	122	122							
2	US 141, W. OF ATKINSON RD, PLACE 500' W. OF ATKINSON RD RAB INTERSECTION IN MEDIAN	FMS	72"X48"	1					24				SEE SIGN DETAIL SHEET
3	US 141, W. OF ATKINSON RD, PLACE 500' W. OF ATKINSON RD RAB INTERSECTION ON RIGHT SHOULDER	FMS	72"X48"	1					24				SEE SIGN DETAIL SHEET
4	US 141, W. OF ATKINSON RD, PLACE 200' W. OF ATKINSON RD RAB INTERSECTION IN MEDIAN	MO 4-5	24"X12"	1	122	122							
	"	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	MO 6-1	21"X21"	1	122	122							AHEAD
5	US 141, W. OF ATKINSON RD, PLACE 200' W. OF ATKINSON RD RAB INTERSECTION ON RIGHT SHOULDER	MO 4-5	24"X12"	1	122	122							
	"	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	MO 6-1	21"X21"	1	122	122							AHEAD
6	US 141, AT ATKINSON RD, PLACE ABOVE EXISTING RAB SPLITTER ISLAND SIGN	MO 4-5	24"X12"	1	122	122							
	"	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	MO 6-2	21"X21"	1	122	122							TILT RIGHT
7	ATKINSON RD, N. OF US 141, PLACE 200' N. OF US 141 RAB INTERSECTION	MO 4-5	24"X12"	1	122	122							
	"	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	MO 6-1	21"X21"	1	122	122							LEFT
8	ATKINSON RD, N. OF US 141, PLACE 200' N. OF US 141 RAB INTERSECTION	MO 4-5	24"X12"	1	122	122							
	"	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	MO 5-1L	21"X21"	1	122	122							
9	ATKINSON RD, S. OF I-43, COVER EXISTING J2-2 SIGN AS SHOWN										1	1	COVER "SOUTH 43 ADV RT"
10	ATKINSON RD, S. OF I-43, COVER EXISTING J3-2 SIGN AS SHOWN										1	1	COVER "SOUTH 43 RT"
11	ATKINSON RD ON-RAMP TO I-43 SB, PLACE AT RAMP INTERSECTION AT RAMP OPENING	R 11-2(MOD)	48"X30"	1	122	122	122	244					
	"	M 4-9R	30"X24"	1	122	122							
12	ATKINSON RD ON-RAMP TO I-43 SB, PLACE ON RIGHT SHOULDER, FIELD DETERMINE LOCATION	PCMS		1						7			PLACE IN ADVANCE OF CLOSURE
13	ATKINSON RD, AT I-43 SB RAMP, MODIFY EXISTING J3-1 SIGN AS SHOWN	MO 4-5	24"X12"	1	122	122							
	"	MO 6-1	21"X21"	1	122	122							AHEAD
14	ATKINSON RD, N. OF I-43 SB RAMP, MODIFY EXISTING J2-2 SIGN AS SHOWN	MO 4-5	24"X12"	1	122	122							
	"	MO 6-1	21"X21"	1	122	122							AHEAD
15	ATKINSON RD, N. OF I-43 SB RAMP, PLACE 1000' N. OF I-43 SB RAMP INTERSECTION	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	W 20-53A	48"X48"	1	122	122							
16	US 141, E. OF ATKINSON RD, PLACE 500' E. OF ATKINSON RD RAB INTERSECTION	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	W 20-53A	48"X48"	1	122	122							
17	US 141, W. OF BROADWAY, PLACE 650' W. OF BROADWAY INTERSECTION	MO 4-5	24"X12"	1	122	122							
	"	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	MO 5-1R	21"X21"	1	122	122							
18	US 141, W. OF BROADWAY, PLACE 150' W. OF BROADWAY INTERSECTION	MO 4-5	24"X12"	1	122	122							
	"	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	MO 6-1	21"X21"	1	122	122							RIGHT

PAGE SUBTOTALS

46

5,246

122

244

48

7

2

* ADDITIONAL QUANTITIES LISTED ELSEWHERE

PROJECT NO: 1220-21-60

HWY: IH 43

COUNTY: BROWN

MISCELLANEOUS QUANTITIES

SHEET

87

E

3

TRAFFIC CONTROL ALTERNATE ROUTE SIGN SUMMARY

SIGN NO.	LOCATION	SIGN CODE	SIZE W X H	NUMBER IN SERVICE	APPROX. SERVICE PERIOD 142 DAYS	*643.0900 SIGNS DAYS	*643.0420 BARRICADES TYPE III DAY	*643.0705 WARNING LIGHTS TYPE A DAY	643.1000 FIXED MESSAGE SIGN SF	*643.1050 SIGNS PORTABLE CHANGEABLE MESSAGE DAYS	NO. OF CYCLES	*643.0920 COVERING TYPE II SIGNS EACH	REMARKS
19	US 141, N. OF DOUSMAN ST, PLACE 650' N. OF DOUSMAN ST INTERSECTION	MO 4-5	24"X12"	1	122	122							
	"	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	MO 5-1L	21"X21"	1	122	122							
20	US 141, N. OF DOUSMAN ST, PLACE 150' N. OF DOUSMAN ST INTERSECTION	MO 4-5	24"X12"	1	122	122							
	"	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	MO 6-1	21"X21"	1	122	122							LEFT
21	US 141, W. OF UNIVERSITY AVE, PLACE 650' W. OF UNIVERSITY AVE INTERSECTION	MO 4-5	24"X12"	1	122	122							
	"	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	MO 5-1L	21"X21"	1	122	122							
22	US 141, W. OF UNIVERSITY AVE, PLACE 150' W. OF UNIVERSITY AVE INTERSECTION	MO 4-5	24"X12"	1	122	122							
	"	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	MO 6-1	21"X21"	1	122	122							LEFT
23	UNIVERSITY AVE, W. OF WEBSTER AVE, PLACE 650' W. OF WEBSTER AVE INTERSECTION	MO 4-5	24"X12"	1	122	122							
	"	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	MO 5-1L	21"X21"	1	122	122							
24	UNIVERSITY AVE, W. OF WEBSTER AVE, PLACE 150' W. OF WEBSTER AVE INTERSECTION	MO 4-5	24"X12"	1	122	122							
	"	M 3-3	24"X12"	1	122	122							
	"	M 1-1	24"X24"	1	122	122							43
	"	MO 6-1	21"X21"	1	122	122							LEFT
PAGE SUBTOTALS				24		2,928	0	0	0	0		0	
UNDISTRIBUTED						86	8	16		3			
ALTERNATE ROUTE TOTALS				70		8,260	130	260	48	10		2	

* ADDITIONAL QUANTITIES LISTED ELSEWHERE

3

LIGHTING - REMOVALS

CATEGORY	STAGE	SYSTEM	DESCRIPTION	FROM	TO	204.9060.S.51 REMOVING ELECTRICAL SERVICE METER BREAKER PEDESTAL	204.9090.S.51 REMOVING ELECTRICAL WIRES FROM CONDUIT	COMMENTS
						EACH	LF	
0030		EX. 480V	EX. PEDESTAL DATA CABLE	PIER 25	PIER 27	1 --	-- 470	AT EX. XFMR UTILITY POLE 3 - #8 AWG WISDOT ITS
0030			TOTALS			1	470	

MARKING LINE

		646.1020	646.1050		
		EPOXY 4-INCH	GROOVED PERMANENT TAPE 4-INCH		
		(YELLOW) (LF)	(WHITE) (LF)	(WHITE) (LF)	
CATEGORY	LOCATION				
0010					
	STAGE 5 NB				
	842+60 862+40	1980			
	842+60 862+40			495	SKIPS
	STAGE 5 SB				
	847+60 866+40	1880			
	847+60 866+40			470	SKIPS
	892+20 899+40			180	SKIPS
	UNDISTRIBUTED	340	800	55	
PROJECT 1220-21-60 TOTALS		5,000		1,200	

3

LIGHTING - CONDUIT AND WIRE

CATEGORY	STAGE	SYSTEM	CIRCUIT	FROM	TO	652.0210 CONDUIT RIGID NONMETALLIC SCHEDULE 40 1-INCH	652.0225 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2-INCH	652.0235 CONDUIT RIGID NONMETALLIC SCHEDULE 40 3-INCH	655.0615 ELECTRICAL WIRE LIGHTING 10 AWG	655.0620 ELECTRICAL WIRE LIGHTING 8 AWG	655.0630 ELECTRICAL WIRE LIGHTING 4 AWG	655.0635 ELECTRICAL WIRE LIGHTING 2 AWG	SPV.0090.51 CONDUIT REINFORCED THERMOSETTING RESIN 1-INCH
						LF	LF	LF	LF	LF	LF	LF	LF
0030		CB1 - LCP		LCP	PB1	--	--	40	--	130	--	--	--
				PB1	CCTV-05-0058	150	--	--	--	460	--	--	--
				LCP	PB2	--	--	30	--	--	120	60	--
				PB2	EX. 2" RTRC AT PIER 25 (BOTTOM)	--	50	--	--	--	180	80	--
				EX. 2" RTRC AT PIER 25 (BOTTOM)	EX. ITS JB AT PIER 27 (TOP)	--	--	--	--	--	1480	530	--
				PNL N-1	EX. ITS JB AT PIER 27 (TOP)	--	--	--	150	--	--	--	50
				PNL N-1	EX. NAV. NORTH	--	--	--	225	--	--	--	75
				PNL S-1	EX. NAV. SOUTH	--	--	--	225	--	--	--	75
0030				TOTALS		150	50	70	600	590	1,780	670	200

3

LIGHTING - PULL BOXES						
CATEGORY	STAGE	SYSTEM	DESCRIPTION	LOCATION STATION	653.0164 PULL BOXES NON-CONDUCTIVE 24X42-INCH	COMMENTS
					EACH	
0030	--	CB1 - LCP	PB1	NW PIER 25	1	CB1 - LCP (240/480V 200A)
			PB2	NW PIER 25	1	--
0030					2	

3

LIGHTING - STRUCTURE LIGHTING									
CATEGORY	STAGE	SYSTEM	DESCRIPTION	LOCATION	SPV.0060.S1 INSTALLATION OF ELECTRICAL AND LIGHTING SYSTEMS TIE GIRDER	SPV.0060.S2 INSTALLATION OF ELECTRICAL AND LIGHTING SYSTEMS ARCH	SPV.0060.S3 MODIFY EXISTING NAVIGATION LIGHTING SYSTEMS ARCH	SPV.0060.S6 REMOVE AND REINSTALL CAMERA ASSEMBLY	COMMENTS
					EACH	EACH	EACH	EACH	
0030	--	CB1 - LCP	STRUCTURE LIGHTING	TIE GIRDER	1	--	--	--	CB1 - LCP (120/240V)
				ARCH	--	1	1	2	--
0030				TOTALS	1	1	1	2	

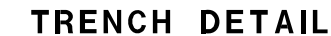
LIGHTING - CONTROL AND SERVICES									
CATEGORY	STAGE	DESCRIPTION	LOCATION	654.0230 CONCRETE CONTROL CABINET BASES TYPE L30	656.0400.51 ELECTRICAL SERVICE MAIN LUGS ONLY METER PEDESTAL (1220-21-60)	SPV.0090.52 ELECTRICAL WIRE LIGHTING 3/0 AWG	SPV.0060.54 BONDING EXISTING STEEL BRIDGE STRUCTURE	SPV.0060.55 LIGHTING CONTROL CABINET 240/480 30-INCH SPECIAL	
				EACH	LS	LF	EACH	EACH	
0030		CB1 - LCP	1220-21-60	1	1	18	1	1	
0030				TOTALS	1	1	1	1	
PLAQUE TEXT		CB1 - LCP 240/480 200A 2 - 480 VAC WARNING (2 REQUIRED PER LOCATION; METER PEDESTAL AND CABINET DOOR)							

Standard Detail Drawing List

08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
09B16-01	PULL BOX NON-CONDUCTIVE
09C14-03	CONCRETE CONTROL CABINET BASE, TYPE L
09D01-05	CABINET SERVICE INSTALLATION (METER BREAKER PEDESTAL)
14B07-15A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15C	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15D	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15E	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15F	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15G	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15H	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15I	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B08-02A	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02B	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02C	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02D	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
14B08-02E	CRASH CUSHION/SAND BARREL ARRAY AND OTHER TEMPORARY BARRIER LAYOUT DETAILS
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08D	ON RAMP LANE CLOSURE
15C04-05	TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45 M.P.H. OR GREATER TWO-WAY UNDIVIDED ROAD OPEN TO TRAFFIC
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C19-06C	MOVING PAVEMENT MARKING OPERATION MULTI-LANE DIVIDED ROADWAY
15C31-04A	PAVEMENT MARKING EXIT RAMP AND PARALLEL EXIT RAMP
15C31-04C	PAVEMENT MARKING ENTRANCE RAMP AND PARALLEL ENTRANCE RAMP
15D12-10B	TRAFFIC CONTROL, LANE CLOSURE, SPEED REDUCTION
15D12-10E	TRAFFIC CONTROL, LANE CLOSURE, TRAFFIC QUEUE WARNING SYSTEM
15D15-06A	TRAFFIC CONTROL, PARALLEL ENTRANCE RAMP WITHIN LANE CLOSURE
15D15-06E	TRAFFIC CONTROL, PARALLEL EXIT RAMP WITHIN LANE CLOSURE
15D40-03A	TRAFFIC CONTROL, FULL LANE SHIFT NON-FREEWAY OR MULTILANE DIVIDED 45 MPH AND UNDER
15D40-03D	TRAFFIC CONTROL, PARTIAL LANE SHIFT MULTILANE DIVIDED 50 MPH AND GREATER
15D41-02	TRAFFIC CONTROL, MULTIPLE LANE SHIFT, MULTILANE DIVIDED ROAD
15D47-01B	TRAFFIC CONTROL, INGRESS/EGRESS WITHOUT BARRIER



- 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.

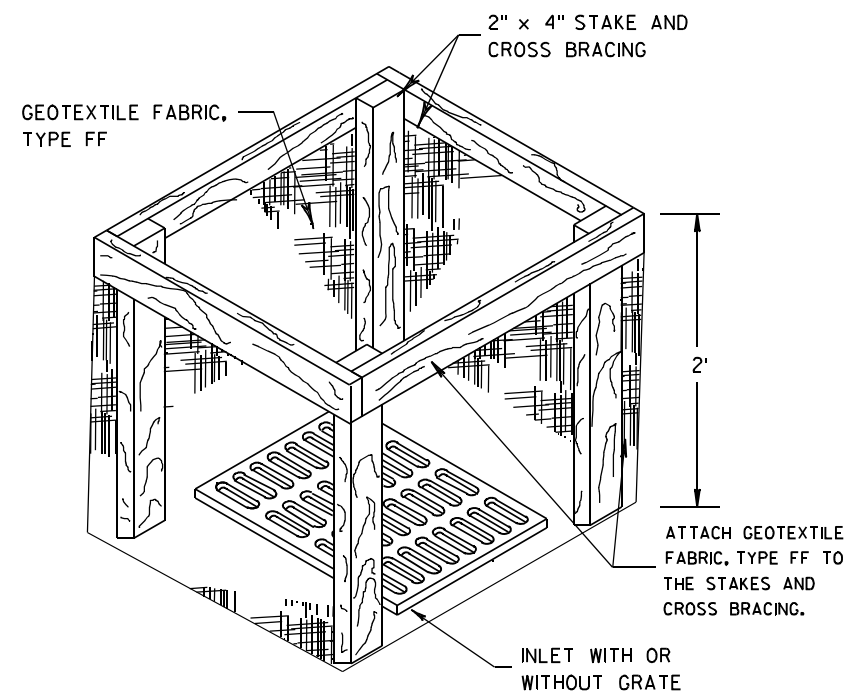
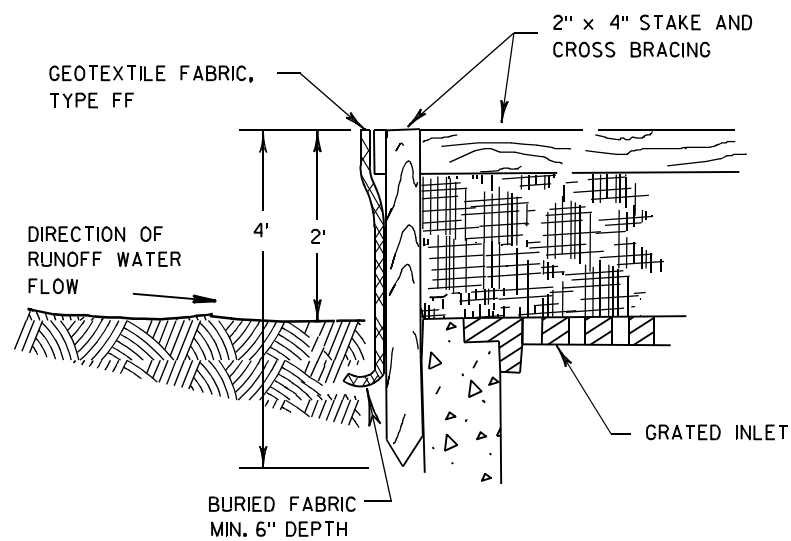


SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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

FHWA



INLET PROTECTION, TYPE A

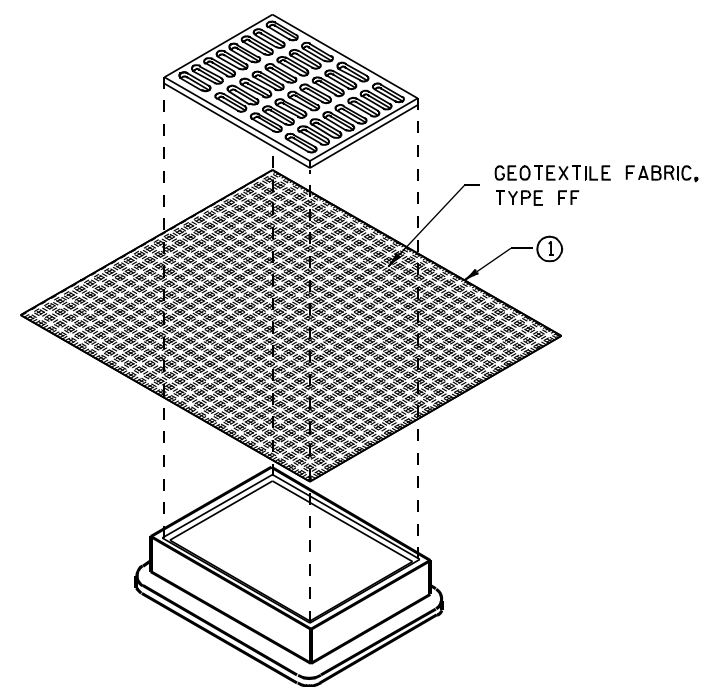
GENERAL NOTES

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.

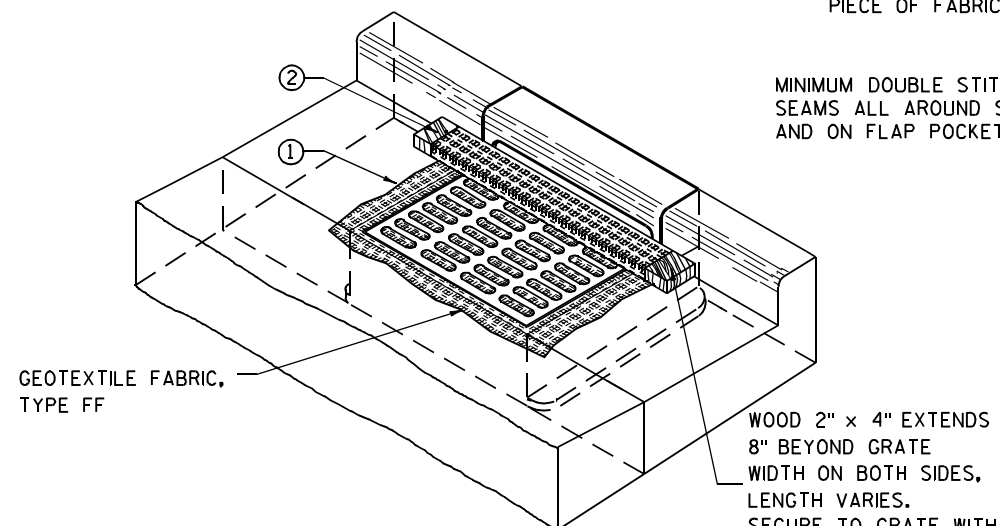
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

- 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.

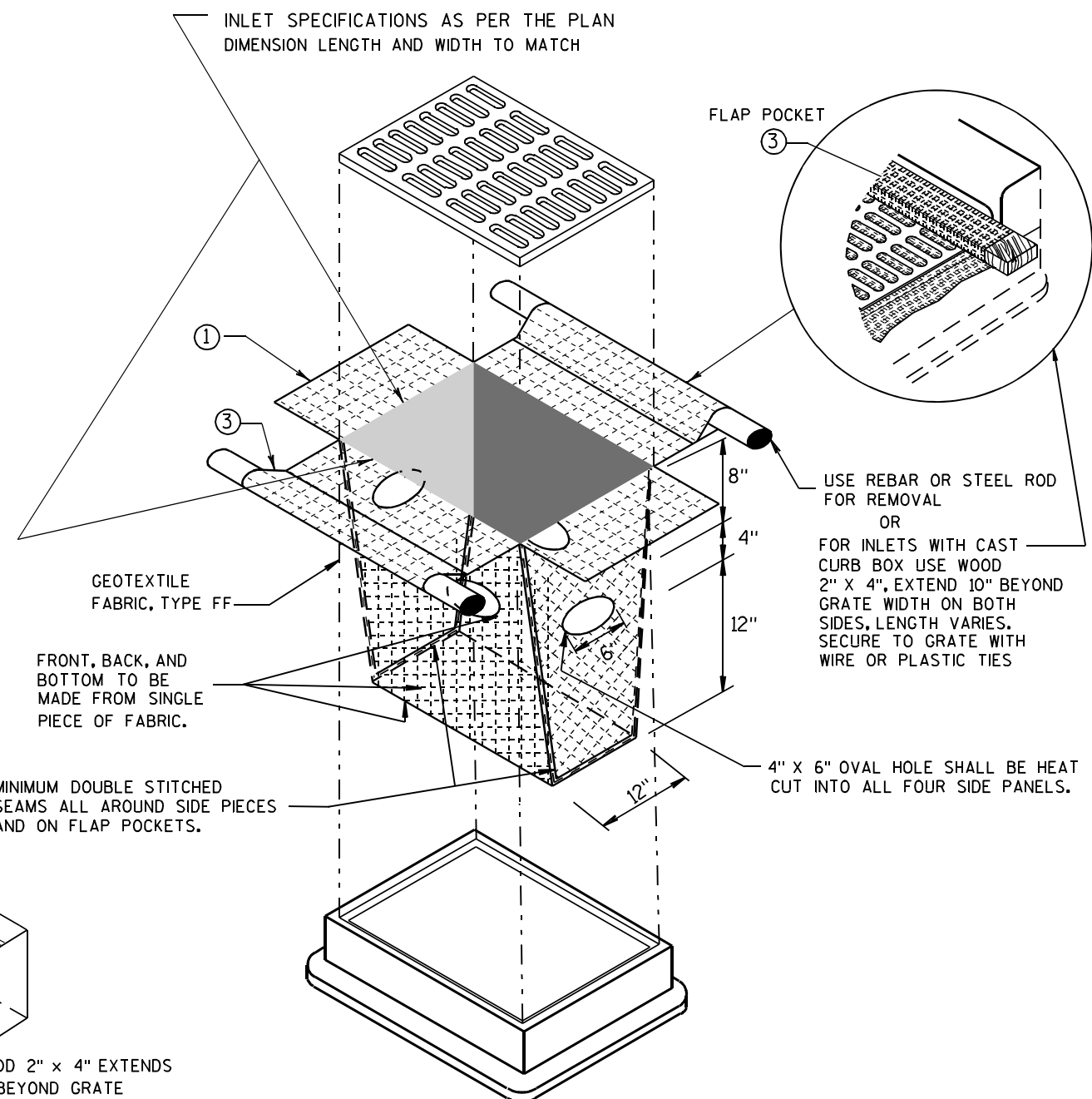
THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

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 Connolly
DATE
93
FHWA CHIEF ROADWAY DEVELOPMENT ENGINEER

TABLE OF NOMINAL DIMENSIONS AND WEIGHTS

DIMENSION IN INCHES		NON-CONDUCTIVE PULL BOX	
BOX DIAMETER ** (INSIDE)	A	24	24
BOX OVERALL OUTSIDE DIAMETER	B	27	27
BOX LENGTH	C	36	42
FRAME OPENING	D	22 1/2	22 1/2
WEIGHT IN POUNDS *			
COVER		50	50
BOX ONLY		75	85

* THE ACTUAL WEIGHT OF THE COVER OR BOX ONLY MAY VARY NOT TO EXCEED 100 LBS INDIVIDUALLY.

** DIAMETER VARIES FROM TOP TO BOTTOM WITH THE DIAMETER LARGER AT THE BOTTOM TO PREVENT FROST HEAVE

GENERAL NOTES

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

ALL BOXES, FRAMES AND COVERS SHALL BE SUITABLE FOR TIER 15 LOADING AS SPECIFIED IN ANSI/SCTE 77.

PROVIDE AN OPENING FOR TOOL ASSISTED COVER REMOVAL NOT LARGE ENOUGH TO PERMIT PASSAGE OF A SPHERE MORE THAN 1/2" DIAMETER

ENSURE COVER SURFACE IS SKID RESISTANT WITH A COEFFICIENT OF FRICTION OF AT LEAST 0.5 AND VERTICAL SURFACE DISCONTINUITIES LESS THAN 1/4".

COVER SHALL BE MAGNETICALLY LOCATABLE.

BOXES AND EXTENSIONS ARE TRIMMABLE FOR CUSTOM LENGTHS. TRIMMED PIECES SHALL MAINTAIN A UNIFORM LENGTH.

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".

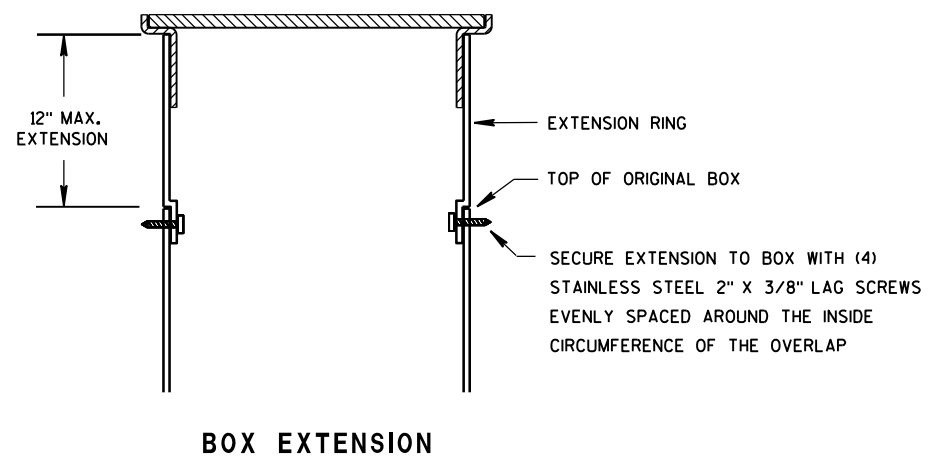
THE CONTRACTOR SHALL NOT INSTALL WIRE IN ANY PULL BOX UNTIL ITS INSTALLATION HAS BEEN INSPECTED AND ACCEPTED BY THE ENGINEER.

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

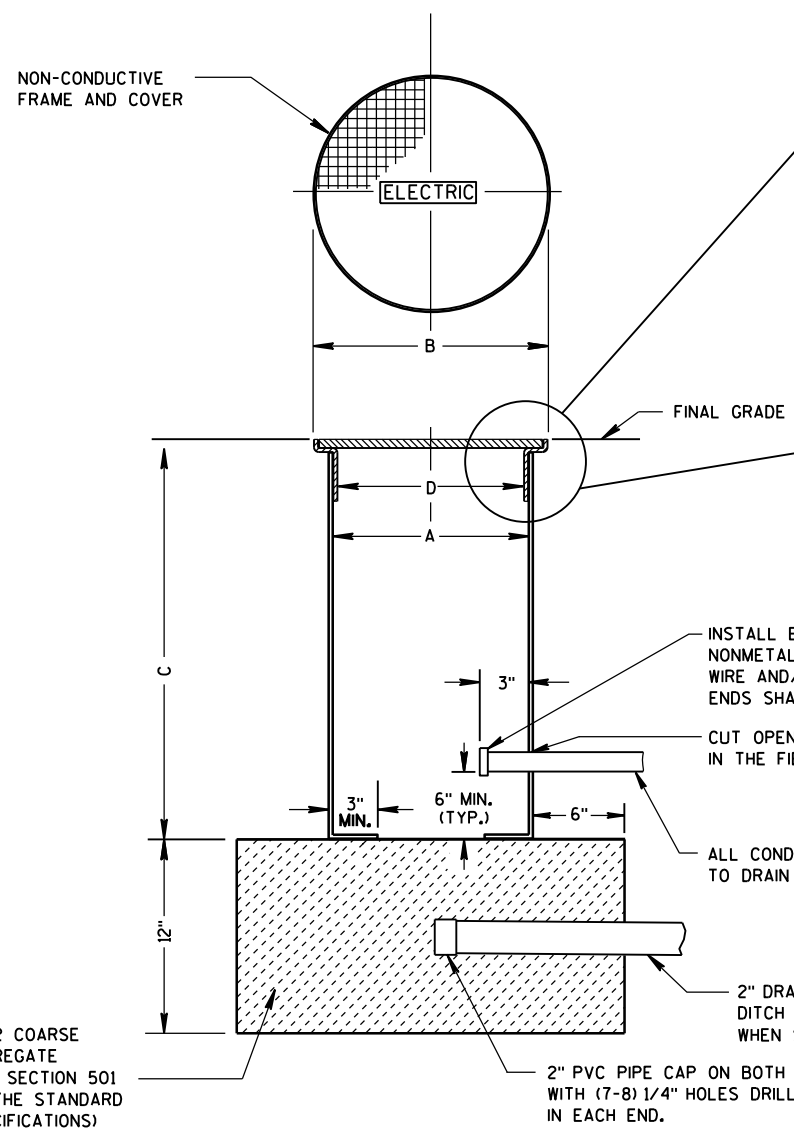
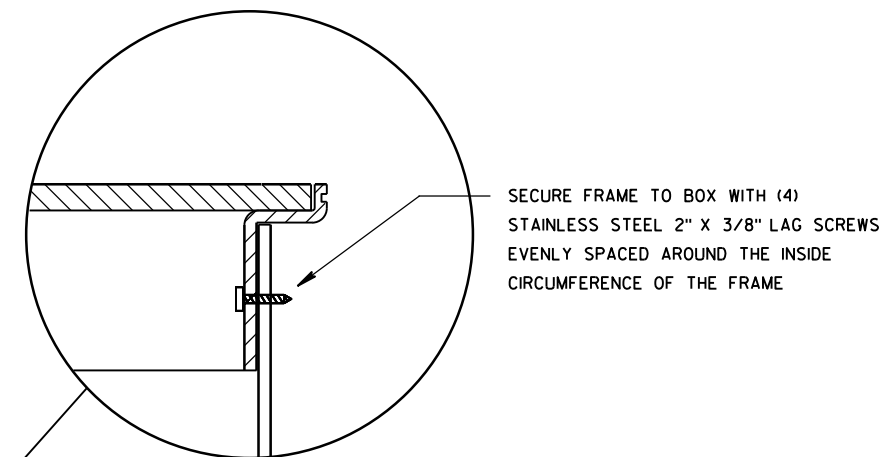
ENTIRE BOX MUST BE CONSTRUCTED OF NON-CONDUCTIVE MATERIALS WITH THE EXCEPTION OF STAINLESS STEEL FASTENERS AND MAGNETIC LOCATABLE DEVICE.

WHEN A PULL BOX IS INSTALLED IN CRUSHED AGGREGATE SHOULDERS, PLACE IT 2-3 INCHES BELOW GRADE AND COVER IT WITH 2-3 INCHES OF CRUSHED AGGREGATE

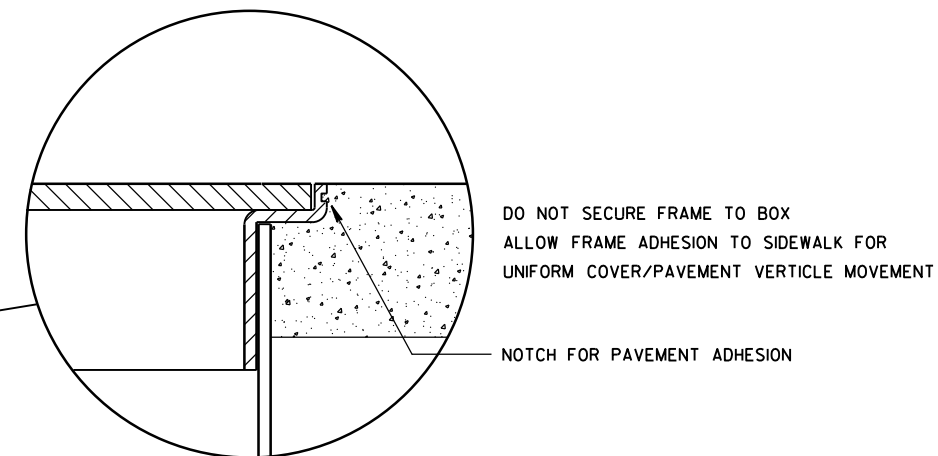
LABEL ON COVER SHALL READ "ELECTRIC" FOR SIGNAL AND LIGHTING SYSTEMS, "WISDOT ITS" FOR COMMUNICATIONS AND ITS EQUIPMENT SYSTEMS.



INSTALLED IN SOD OR CRUSHED AGGREGATE



INSTALLED IN SIDEWALK



NON-CONDUCTIVE PULL BOX

PULL BOX
NON-CONDUCTIVE

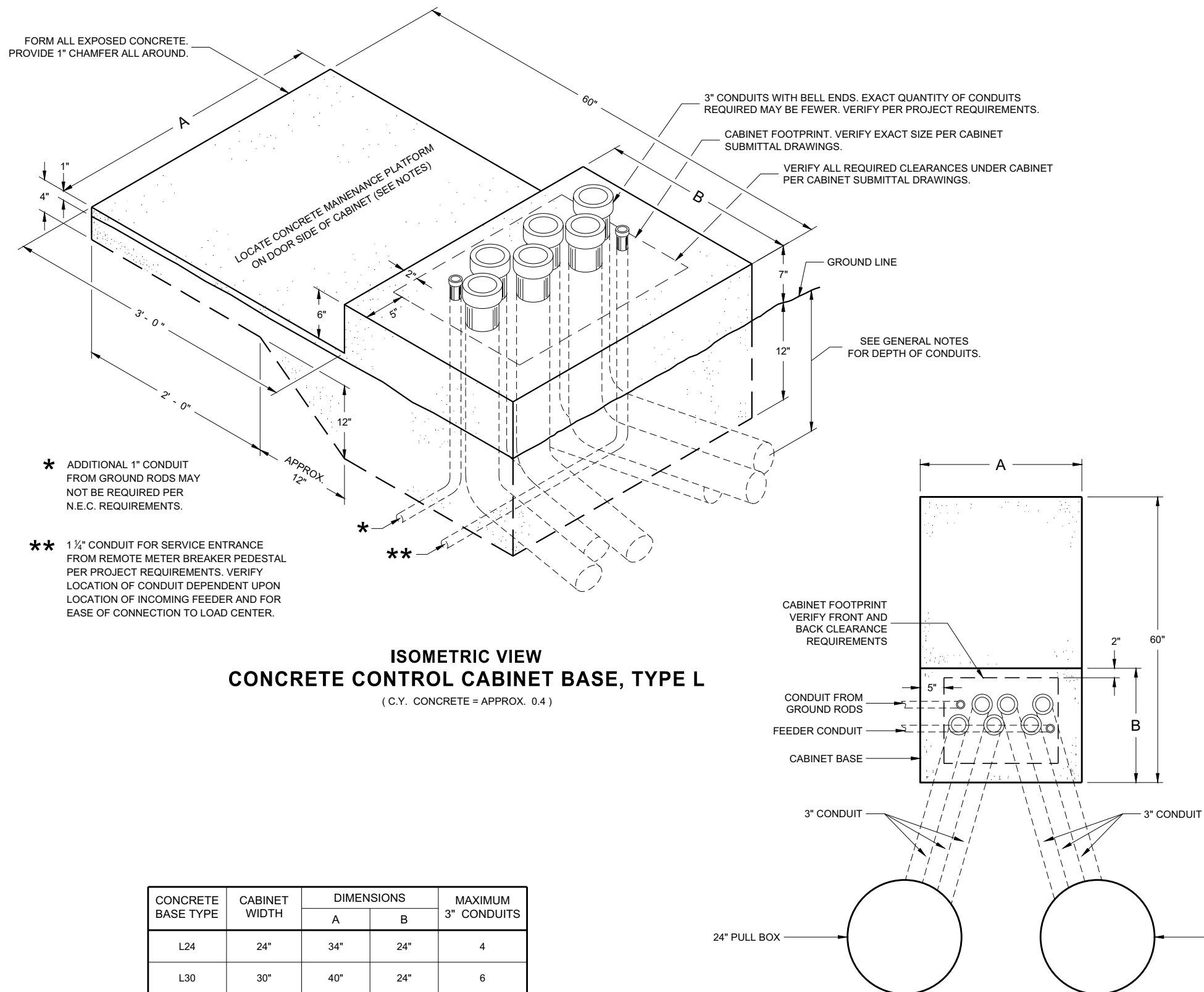
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

May 2017
DATE

FHWA

/S/ Ahmet Demirbilek
STATE ELECTRICAL 94



GENERAL NOTES

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

INSTALL FOUR STAINLESS STEEL APPROVED CONCRETE MASONRY ANCHORS TO ANCHOR THE CABINET BASES. THE ANCHORS SHALL BE LOCATED AS DIRECTED BY THE ENGINEER TO PROPERLY ANCHOR THE CONTROL CABINET TO THE BASE.

WHEN REQUIRED TO CONNECT NON - METALLIC 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.

LOCATIONS SHALL BE AS SHOWN ON THE PLANS UNLESS DETERMINED BY THE ENGINEER IN THE FIELD.

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

MAINTENANCE PLATFORM SHALL BE FLOAT OR BROOM FINISHED AND LEVEL.

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

MINIMUM BENDING RADIUS OF CONDUIT EQUALS 6 TIMES 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 NON - METALLIC 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 NON - METALLIC IMMEDIATELY AFTER PLACEMENT AND BEFORE CONCRETE IS POURED. CONDUITS IN WHICH WIRE OR CABLE IS NOT BEING INSTALLED SHALL REMAIN CAPPED OR PLUGGED.

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

CONDUIT EXITING THE CONCRETE BASE SHALL TERMINATE IN PULL BOXES AS SHOWN ON THE PLANS.

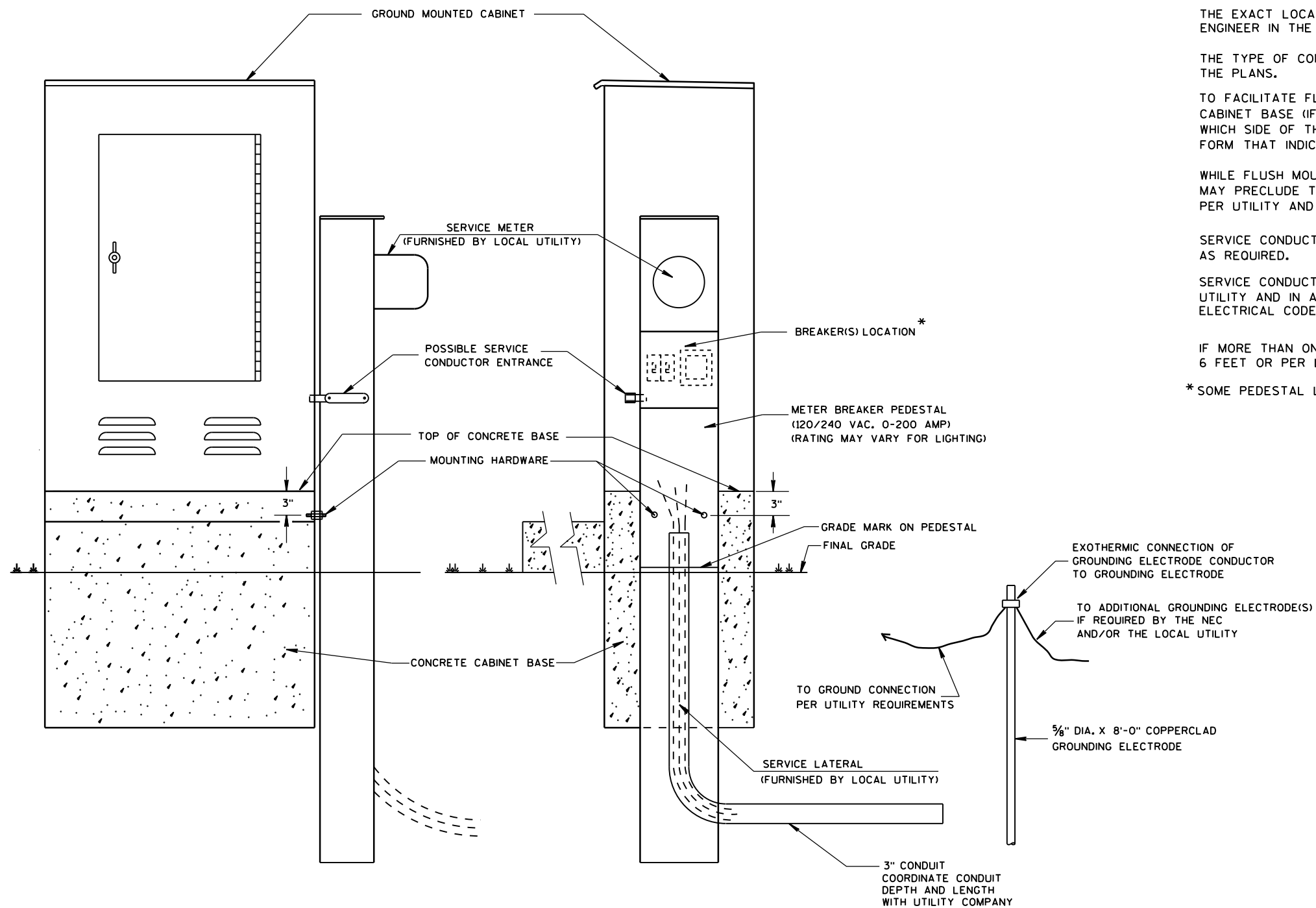
CONCRETE FORM DEPTH BELOW FINISHED GRADE SHALL BE 6 INCH MAXIMUM. CONCRETE FORMS SHALL BE REMOVED AFTER CONCRETE HAS SET.

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 L

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Ahmet Demirbilek
DATE
STATE ELECTRICAL ENGI 95
FHWA



TYPICAL CABINET SERVICE INSTALLATION

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, NIPPLES AND/OR CONDULETS AS REQUIRED.

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 LOCAL UTILITY REGULATIONS.

* SOME PEDESTAL LIGHTING PLANS SHOW MAIN LUGS ONLY.

CABINET SERVICE INSTALLATION
(METER BREAKER PEDESTAL)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

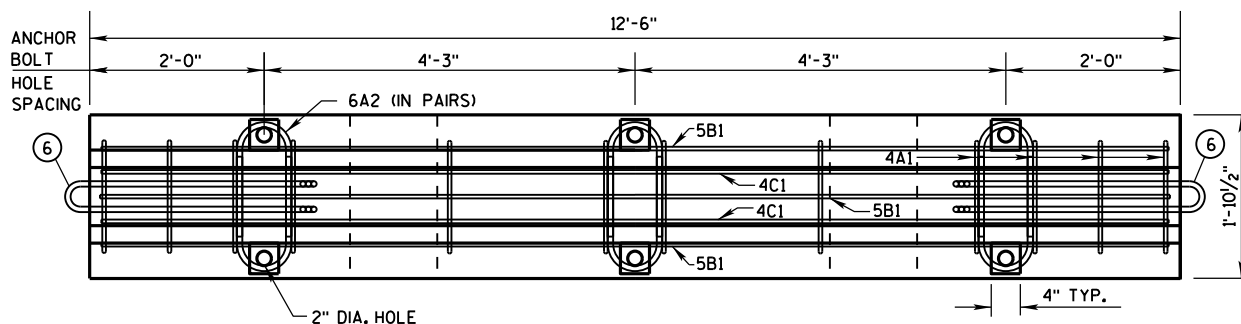
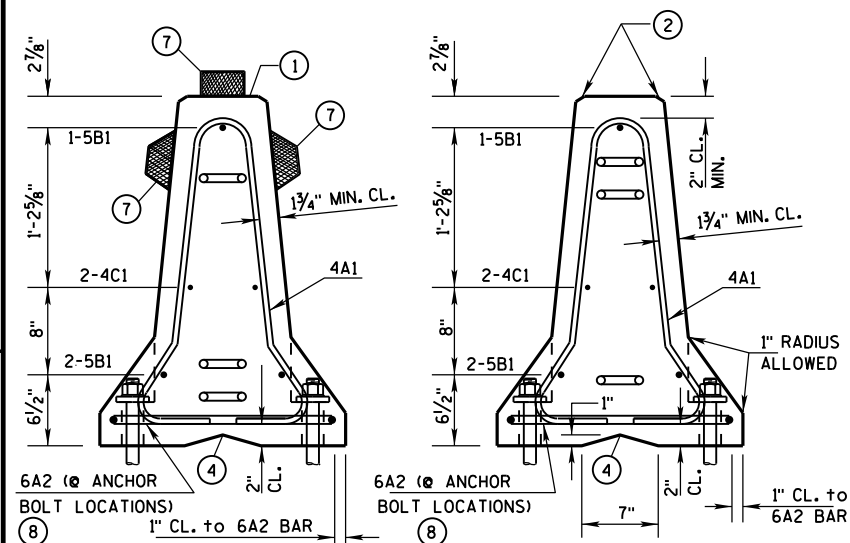
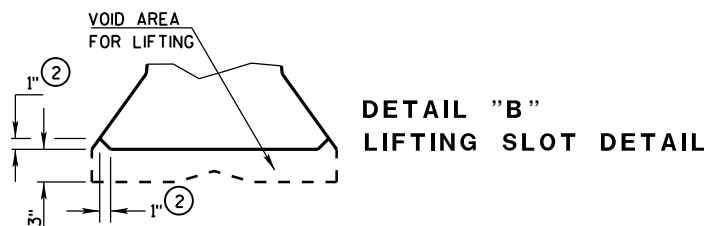
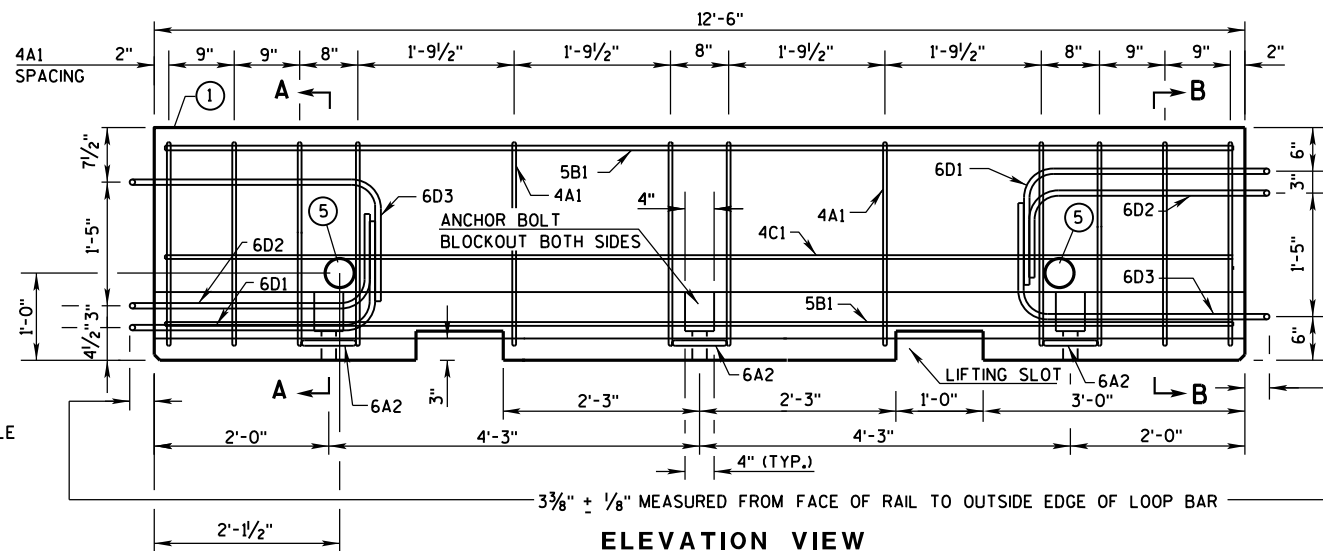
APPROVED

Sept. 2014

DATE

FHWA

/S/ Ahmet Demirbilek
STATE ELECTRICAL 96



THESE GENERAL NOTES APPLY TO SHEETS 14B7-15(a) THRU 14B7-15(i).

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRCAST, 12'-6" (CBTP12.5) WITH OTHER TEMPORARY CONCRETE BARRIERS.

USE ASTM A-615, GRADE 60, DEFORMED STEEL BARS FOR BARS 4A1, 6A2, 5B1 AND 4C1 IN THE BARRIER SECTION AND FOR 4V1, 4V2, 4V3, 4V4, 4V5, 4V6, 4F1, 4F2 AND 5F3 IN THE BARRIER TAPER SECTION.

LOOP BARS 6D1, 6D2 AND 6D3 SHALL BE $\frac{3}{4}$ " SMOOTH STEEL BARS WITH A MINIMUM YIELD STRENGTH OF 60 KSI, A TENSILE STRENGTH OF NOT LESS THAN 1.25 TIMES THE YIELD STRENGTH BUT A MINIMUM OF 80 KSI, A MINIMUM 14% ELONGATION IN 8 INCHES AND PASSING A 180 DEGREE BEND TEST USING A $3\frac{1}{2}$ " PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN $\frac{1}{4}$ " OF THE PLAN DIMENSION.

CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

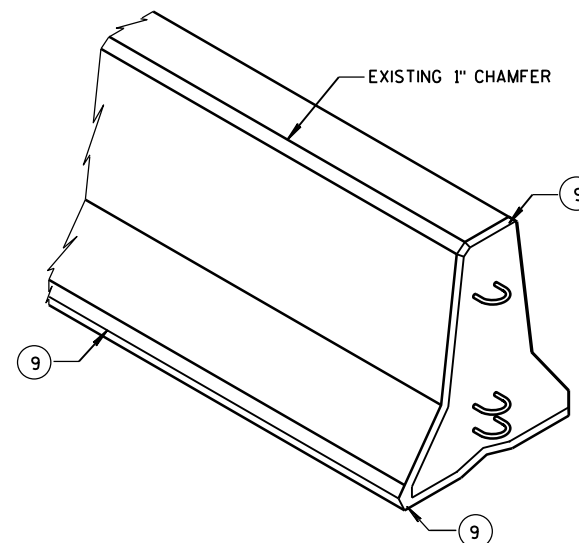
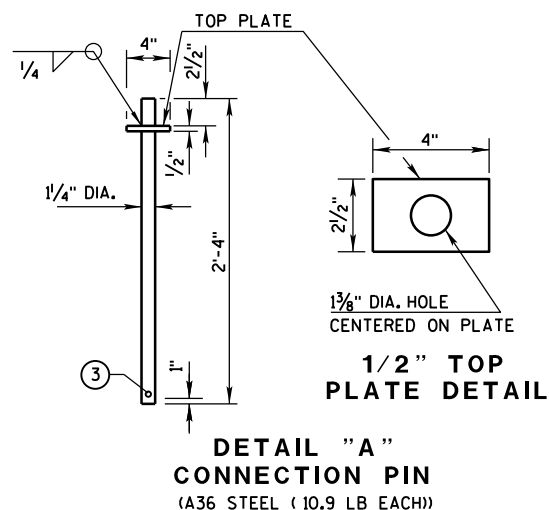
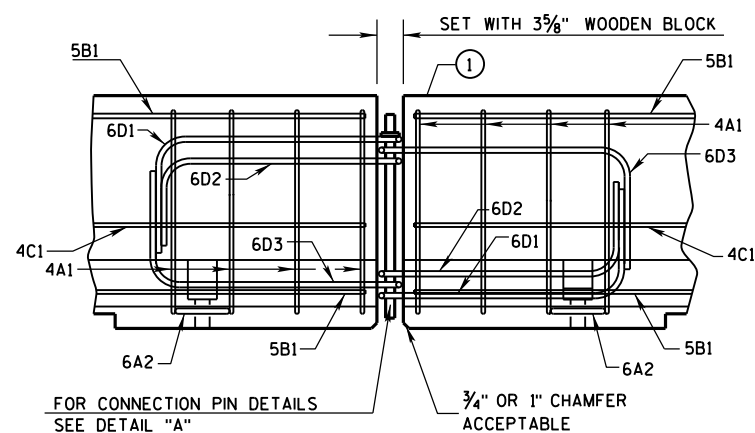
PLACE BARRIER ON A PAVED SURFACE. REMOVE ALL LOOSE DIRT AND SAND FROM THE ROADWAY SURFACE PRIOR TO PLACEMENT OF THE BARRIER.

INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS.
PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE: WICBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ A $\frac{3}{8}$ " HOLE IN THE CONNECTION PIN, AT THE LOCATION SHOWN, IS ACCEPTABLE, BUT NOT REQUIRED..
- ④ "V" NOTCH IS OPTIONAL.
- ⑤ THE 4" DIAMETER, 11 GAUGE STEEL, ROUND MECHANICAL TUBING SLEEVE FOR LIFTING (OPTIONAL).
- ⑥ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.
- ⑦ USE DELINEATORS CONFORMING TO SECTION 633 OF THE STANDARD SPECIFICATIONS. CONTRACTOR MAY USE ALTERNATE SHAPES AND HOUSING. INSTALL DELINEATORS ACCORDING TO MANUFACTURES INSTRUCTION. INSTALL YELLOW REFLECTORS WHEN BARRIER IS LOCATED TO THE LEFT OF TRAFFIC AND WHITE REFLECTORS WHEN BARRIER IS LOCATED TO THE RIGHT OF TRAFFIC. SPACE DELINEATORS A MAXIMUM OF 25 FEET APART. PROVIDE TOP MOUNTED DELINEATORS IN ADDITION TO THE SIDE MOUNTED DELINEATORS ON ALL BARRIER INSTALLATIONS LOCATED ON A CURVED ALIGNMENT LONGER THAN 200 FEET AND ON BARRIERS USED TO SEPARATE OPPOSING TRAFFIC.
- ⑧ SEE SHEET D FOR HOW TO ANCHOR BARRIER. SEE SHEET E FOR WHEN TO ANCHOR BARRIER.
- ⑨ 1" CHAMFER OPTIONAL.

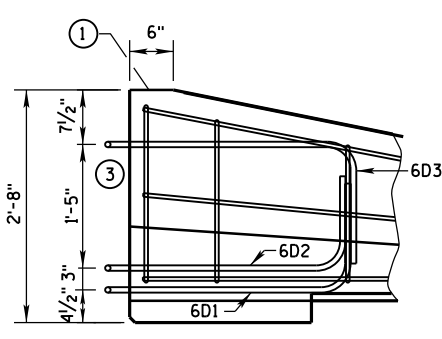
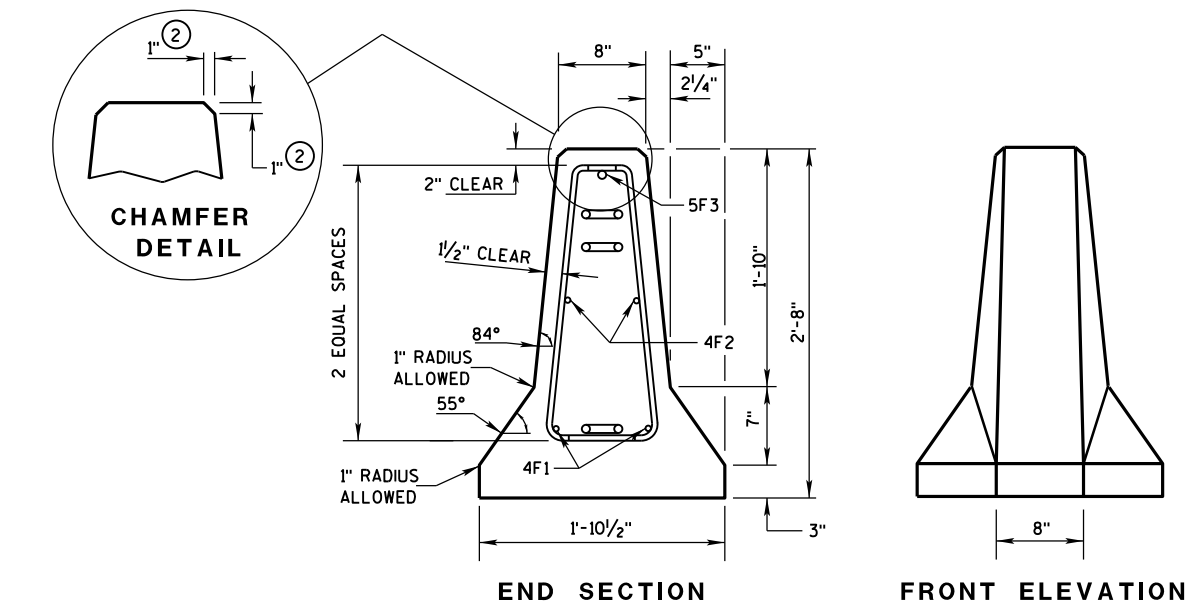
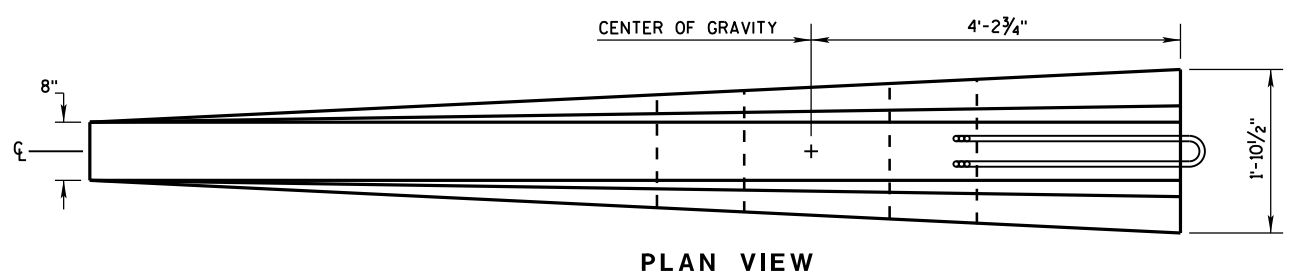
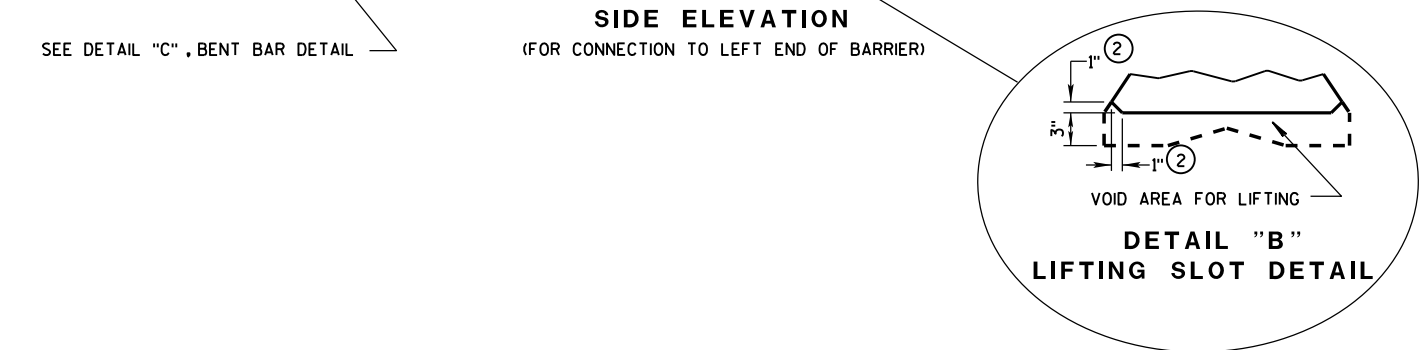
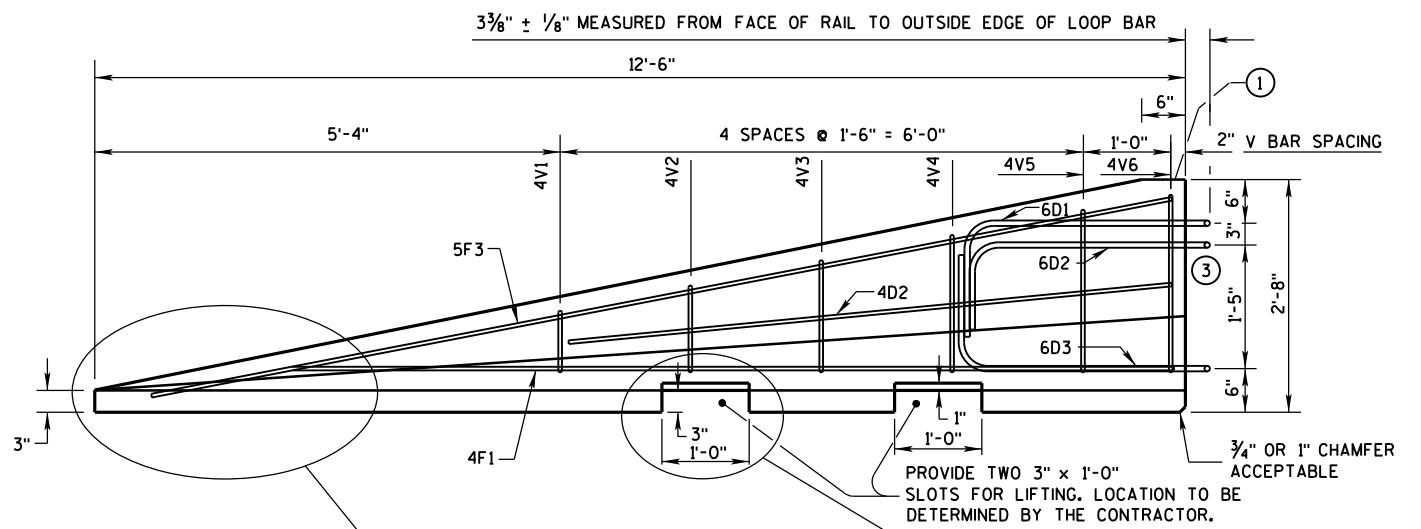
 $f'_c = 4,000 \text{ psi}$

DETAILS OF BARRIER SECTION



CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

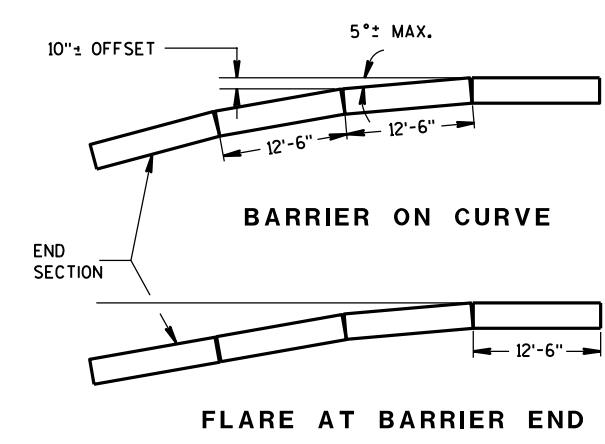
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 97



SIDE ELEVATION
LOOP BAR ASSEMBLY INVERTED
FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)

GENERAL NOTES

- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
a. TYPE WICBTP
b. MANUFACTURER
c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



POSTED SPEED, (MPH)	FLARE RATE
40 OR LESS	6:1
45 OR GREATER	8:1

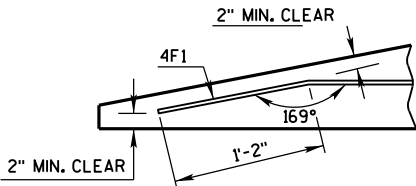
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

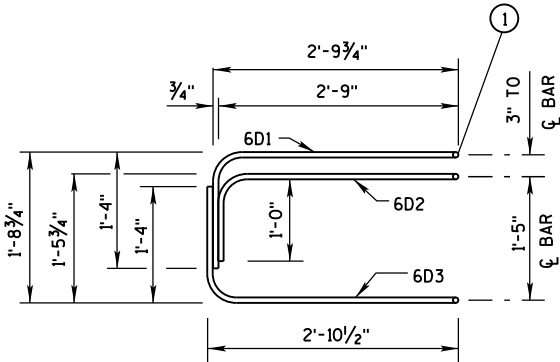
BARRIER TAPER SECTION
BILL OF MATERIALS

(PER 12'-6" BARRIER TAPER SECTION)

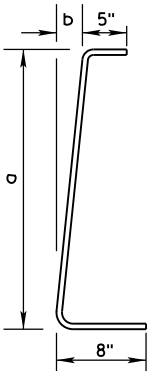
BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4V1	4	2	1'-11"
4V2	4	2	2'-2"
4V3	4	2	2'-6"
4V4	4	2	2'-9"
4V5	4	2	3'-2"
4V6	4	2	3'-4"
4F1	4	2	12'-0"
4F2	4	2	7'-6"
5F3	5	1	11'-9"
LOOP ASSEMBLY			
6D1	6	1	8'-5"
6D2	6	1	7'-7"
6D3	6	1	8'-6"



DETAIL "C"
BENT BAR DETAIL



ELEVATION
LOOP BAR ASSEMBLY



4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY

BAR	a	b
V1	10"	1"
V2	1'-1"	1 1/4"
V3	1'-5"	1 5/8"
V4	1'-8"	1 7/8"
V5	2'-0 1/2"	2 3/8"
V6	2'-3"	2 3/4"

TAPER BARRIER SECTION

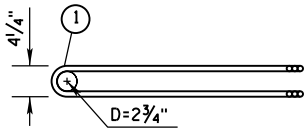
GENERAL NOTES

① NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.

BARRIER SECTION
BILL OF MATERIALS

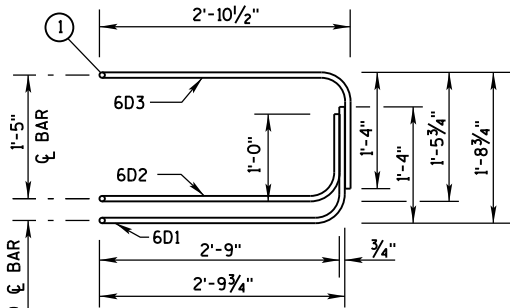
(PER 12'-6" BARRIER SECTION)

BAR	BAR SIZE	NO. OF BARS	LENGTH FT.
4A1	4	12	6'-0"
6A2	6	6	2'-11"
5B1	5	3	12'-2"
4C1	4	2	12'-2"
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"

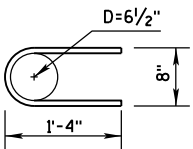


PLAN VIEW
LOOP BAR ASSEMBLY

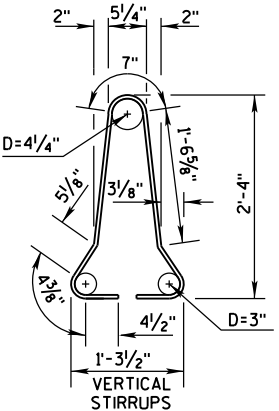
(MARKED END SHOWN, INVERT FOR OTHER END)



ELEVATION VIEW



6A2

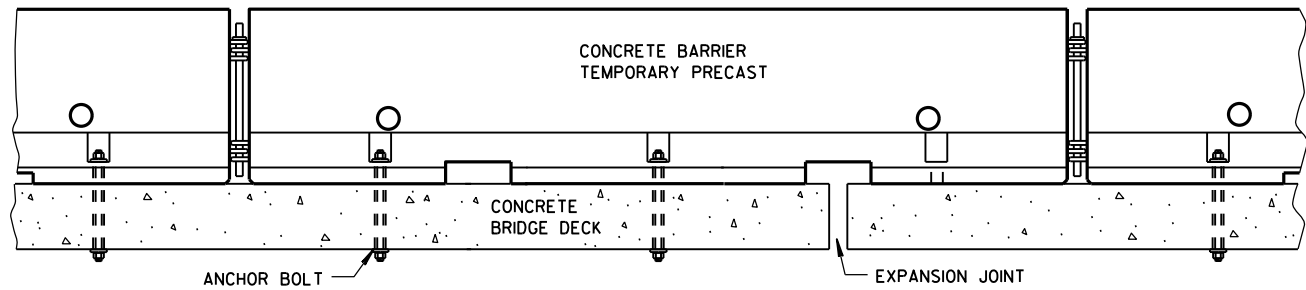
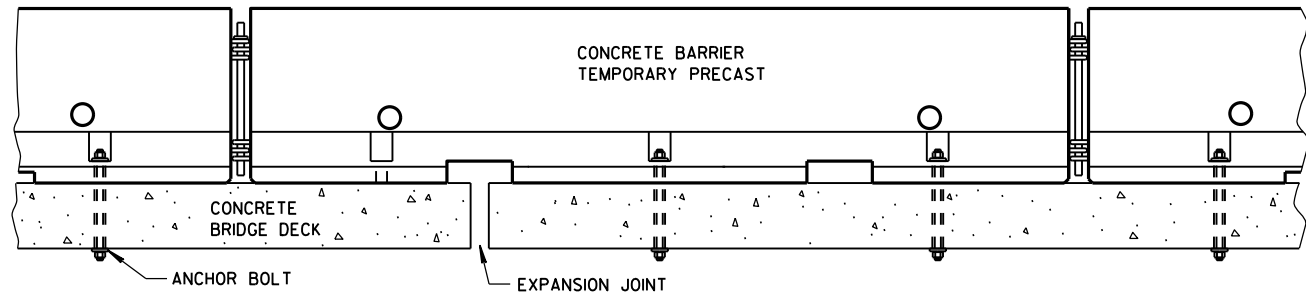


4A1

BARRIER SECTION

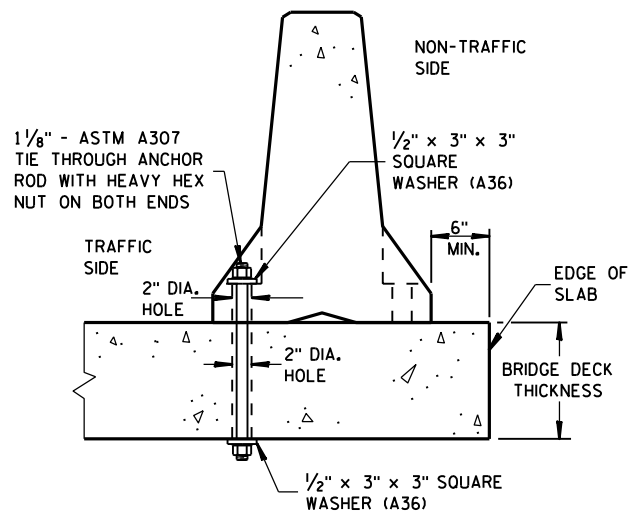
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



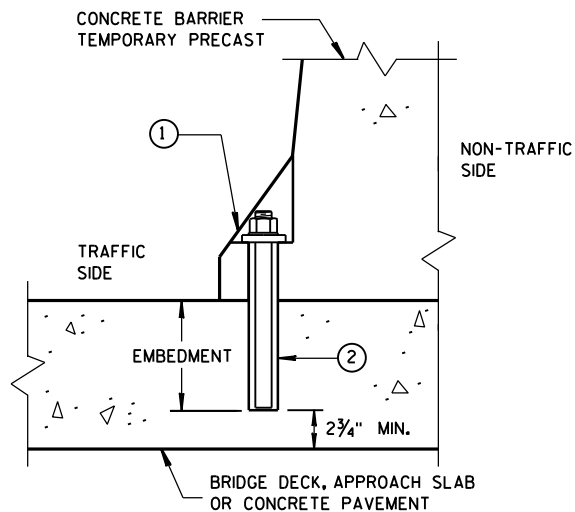
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(NO SINGLE CONCRETE BARRIER SECTION SHALL BE ANCHORED TO BOTH THE BRIDGE DECK AND THE APPROACH SLAB. ALL ANCHOR BOLT LOCATIONS SHALL BE ANCHORED TO THE DECK IN ACCORDANCE WITH THE DETAIL. NO MORE THAN ONE ANCHOR BOLT SHALL BE ELIMINATED FROM A BARRIER SECTION WHEN SPANNING AN EXPANSION JOINT.)



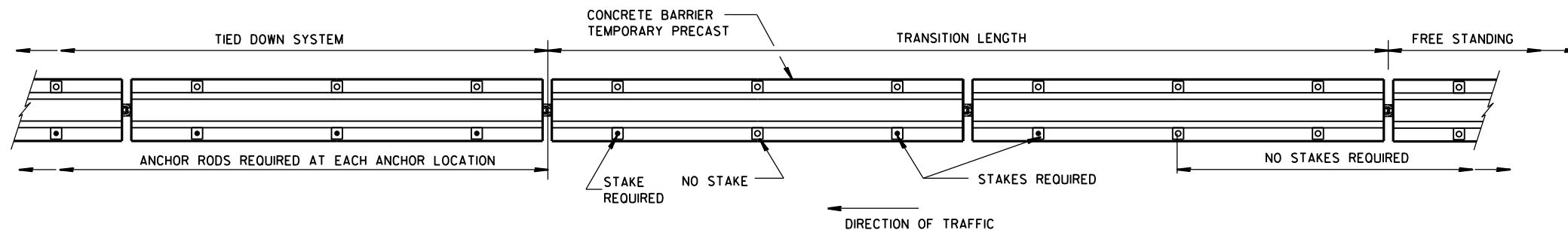
THROUGH BOLTED ANCHOR INSTALLATION ON BRIDGE DECK

(DO NOT USE ON CONCRETE BRIDGE DECK WITH ASPHALT OVERLAY)



REMOVABLE ADHESIVE ANCHOR INSTALLATION ON CONCRETE BRIDGE DECK, CONCRETE APPROACH SLAB, OR CONCRETE PAVEMENT

(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)



PLAN VIEW

FREE STANDING TRANSITION TO TIED-DOWN SYSTEM

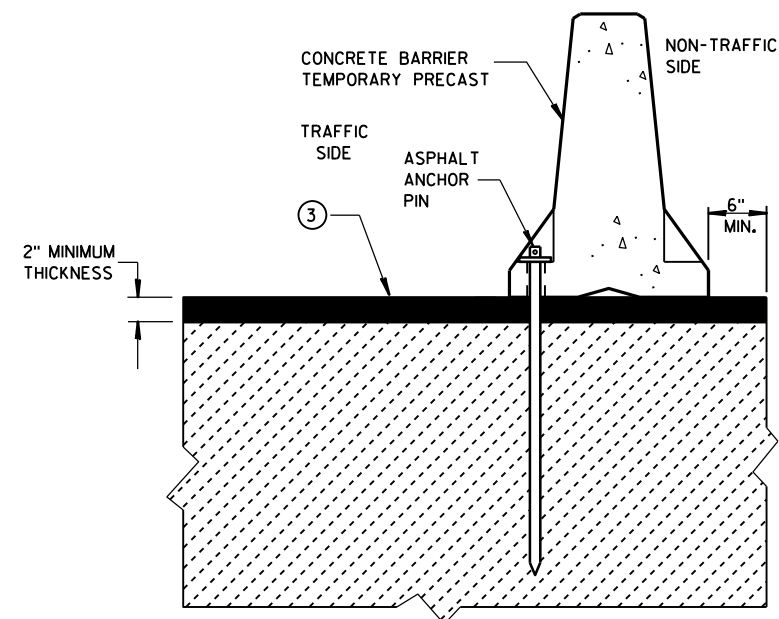
(PLACE TRANSITION IN A TANGENT SECTION OF BARRIER PARALLEL TO THE ROADWAY. IF TRANSITION OCCURS ON STRUCTURAL SLAB, ANCHOR AS SHOWN.)

GENERAL NOTES

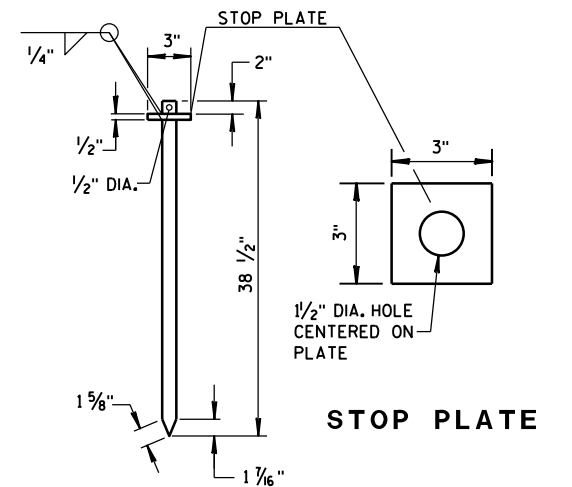
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

REMOVE ALL ANCHORS WHEN NO LONGER NEEDED. FILL CONCRETE PAVEMENTS, DECKS AND APPROACH SLABS WITH NON-SHRINK COMMERCIAL GROUT FROM THE APPROVED PRODUCT LIST. FILL ASPHALT PAVEMENTS WITH ASTM D6690 TYPE II RUBBERIZED CRACK FILLER.

- ① 1/8" DIAMETER A307 THREADED ROD, 1/2" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.
- ② ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2 AND 603.3.12 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.
- ③ ASPHALT SURFACE SHOWN. CONTRACTOR MAY DRILL THROUGH CONCRETE PAVEMENT AND THEN DRIVE ASPHALT ANCHOR PIN.



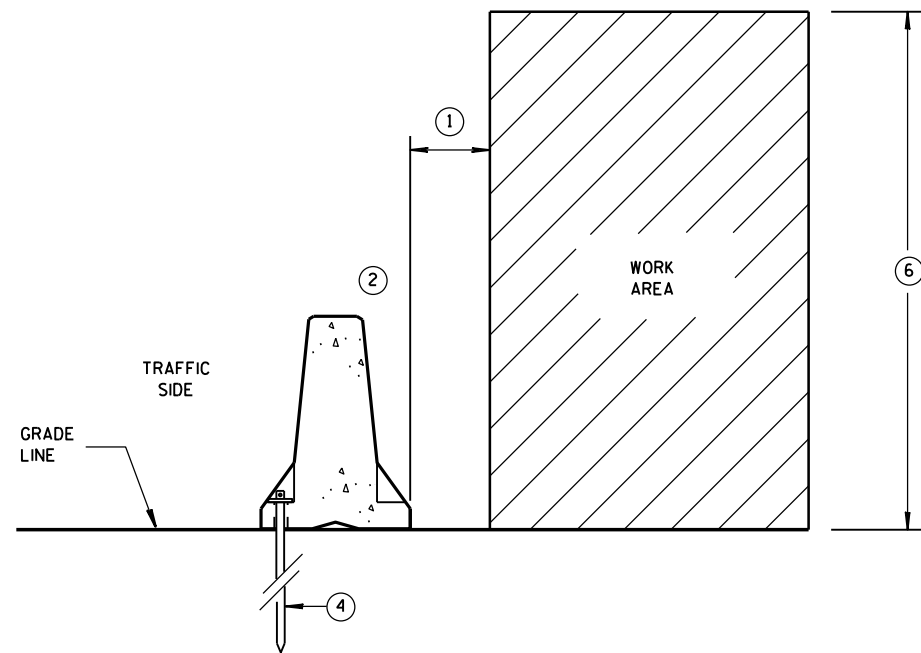
STAKE DOWN INSTALLATION FOR ASPHALTIC SURFACE



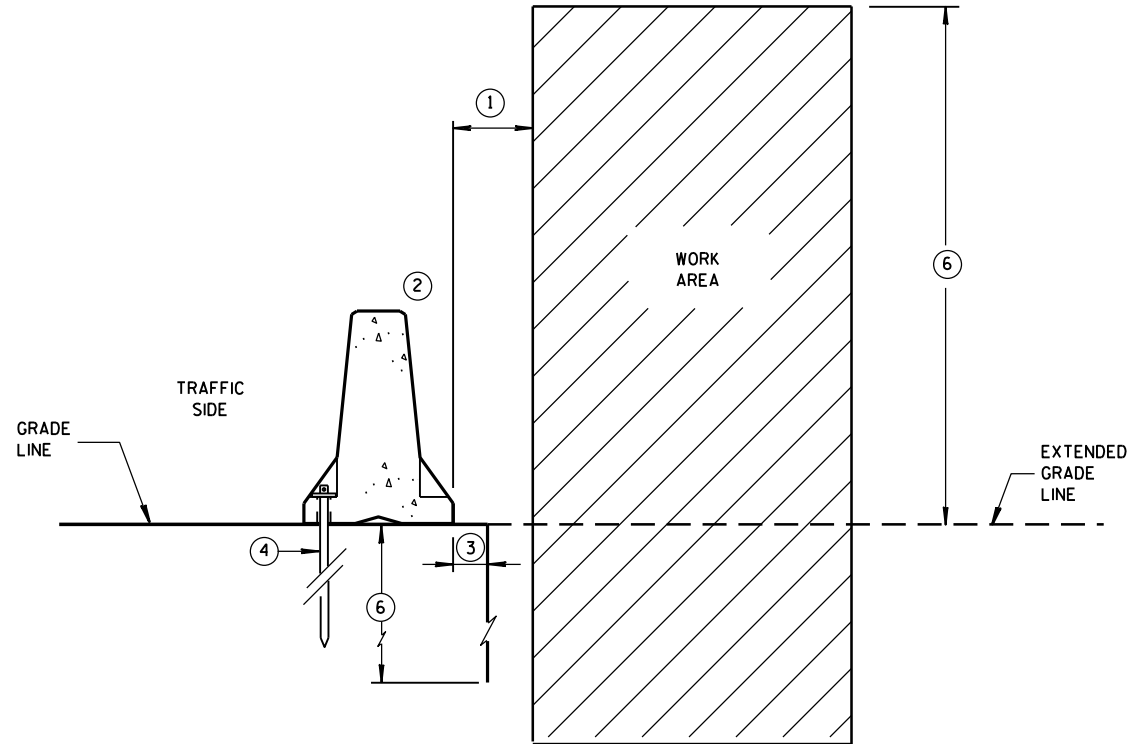
ASPHALT ANCHOR PIN (ASTM A36 STEEL)

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 100



**ANCHORED BARRIER SPACE REQUIREMENTS
FOR HAZARDS EXTENDED
ABOVE THE GRADE LINE**

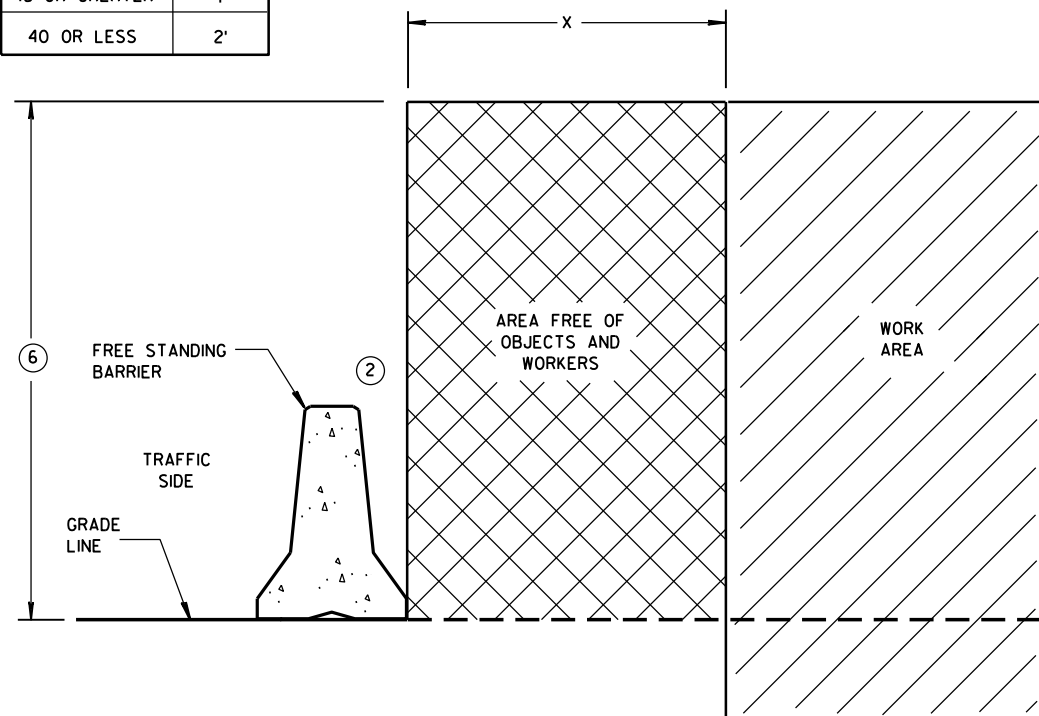


**ANCHORED BARRIER SPACE REQUIREMENTS
ON VERTICAL DROP OFFS**

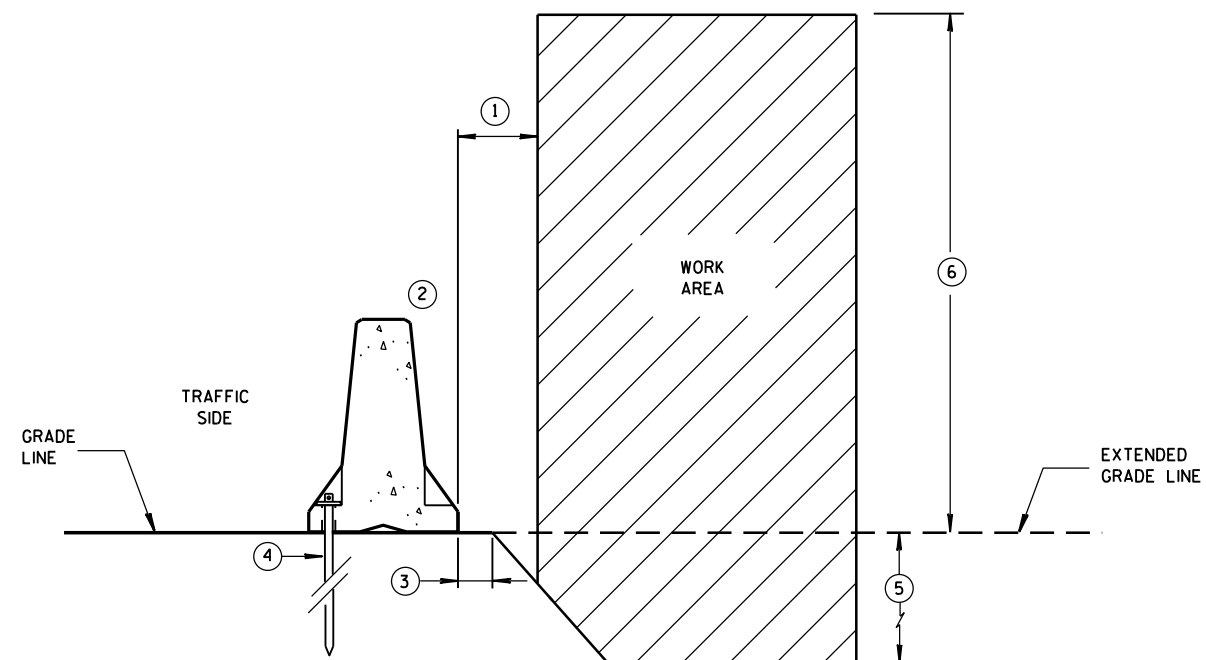
GENERAL NOTES

- ① WHEN OBJECTS EXTEND ABOVE THE GRADE, A MINIMUM OF 1 FOOT IS REQUIRED FROM BACK OF BARRIER TO OBJECT. SEE OTHER DETAILS FOR FOR THE MINIMUM OFFSET FROM BACK OF BARRIER TO SLOPES OR VERTICAL DROPS.
- ② OBJECTS ARE NOT TO BE PLACED ON, MOUNTED TO, OR LEANED AGAINST THE BARRIER WITHOUT PERMISSION OF THE PROJECT ENGINEER.
- ③ SEE OTHER DETAIL ON SHEET "D" FOR SPACE REQUIREMENTS.
- ④ SEE BOLT THROUGH DECK, REMOVABLE ADHESIVE ANCHOR, OR A STAKE DOWN FOR ASPHALTIC SURFACE TREATMENT DETAILS. ASPHALTIC ANCHOR SHOWN.
- ⑤ DEPTH OF 3 FEET OR MORE.
- ⑥ Y = 6'-6".

POSTED SPEED MPH	X
45 OR GREATER	4'
40 OR LESS	2'



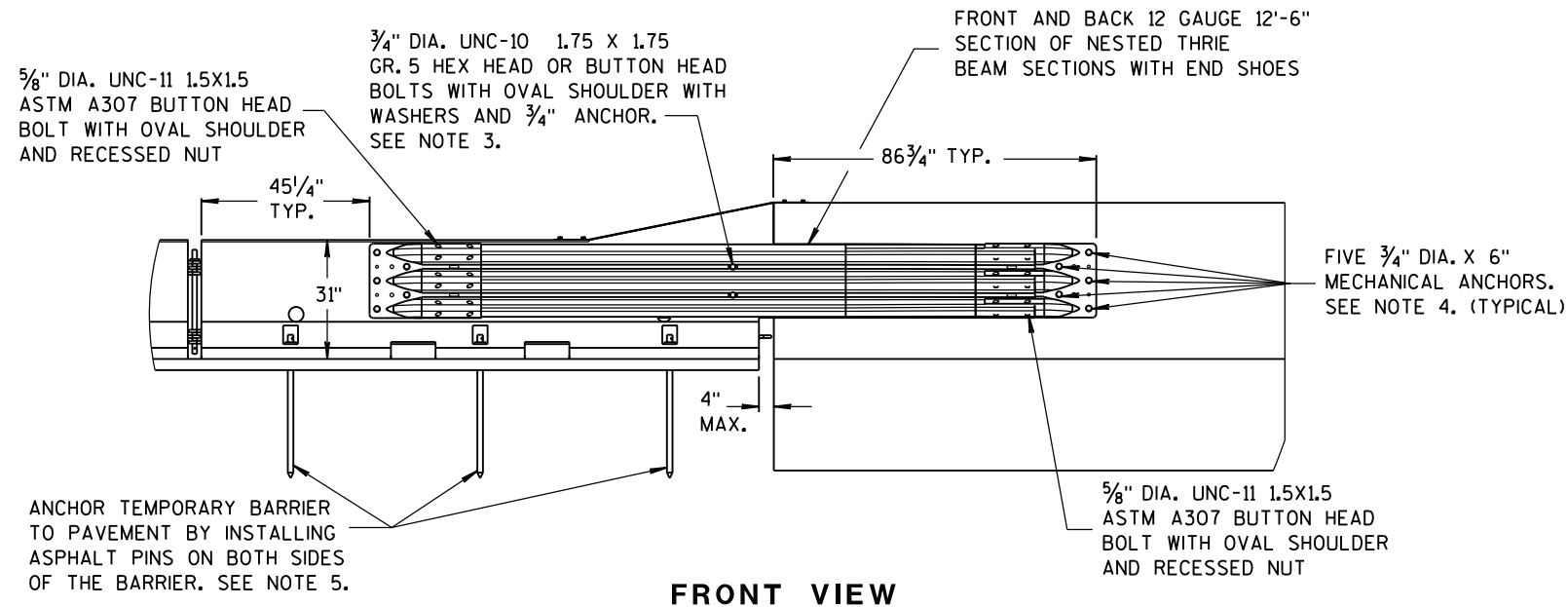
FREE STANDING BARRIER SPACE REQUIREMENTS



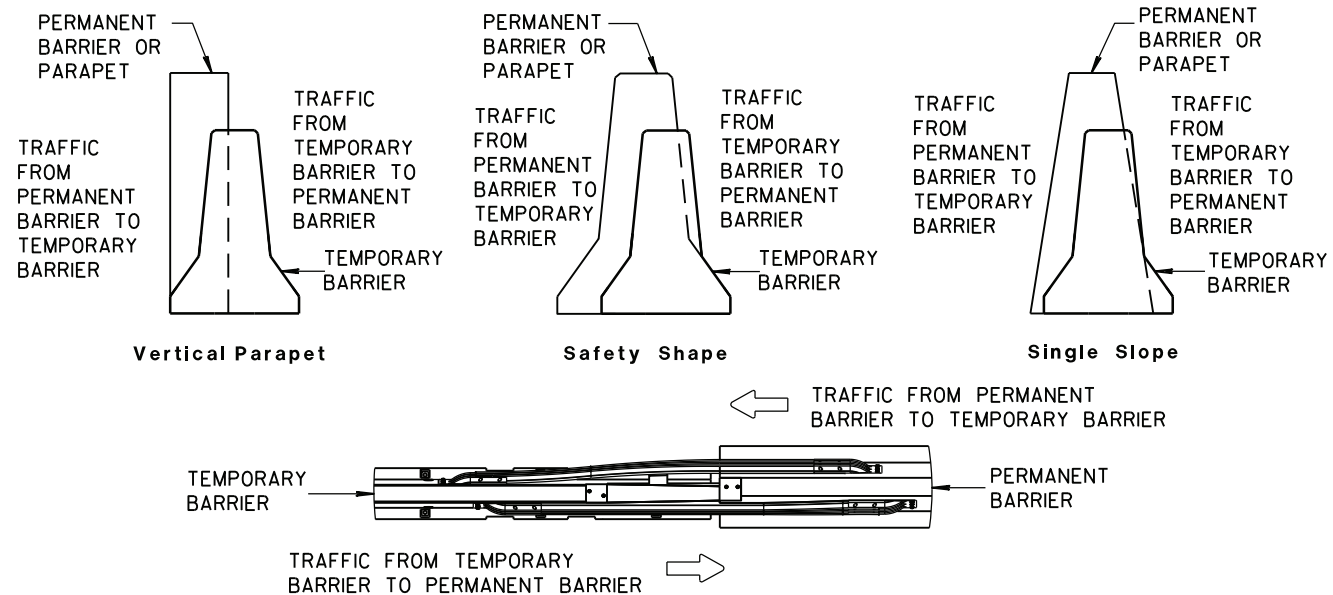
**ANCHORED BARRIER SPACE REQUIREMENTS
ON SLOPES**

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 101



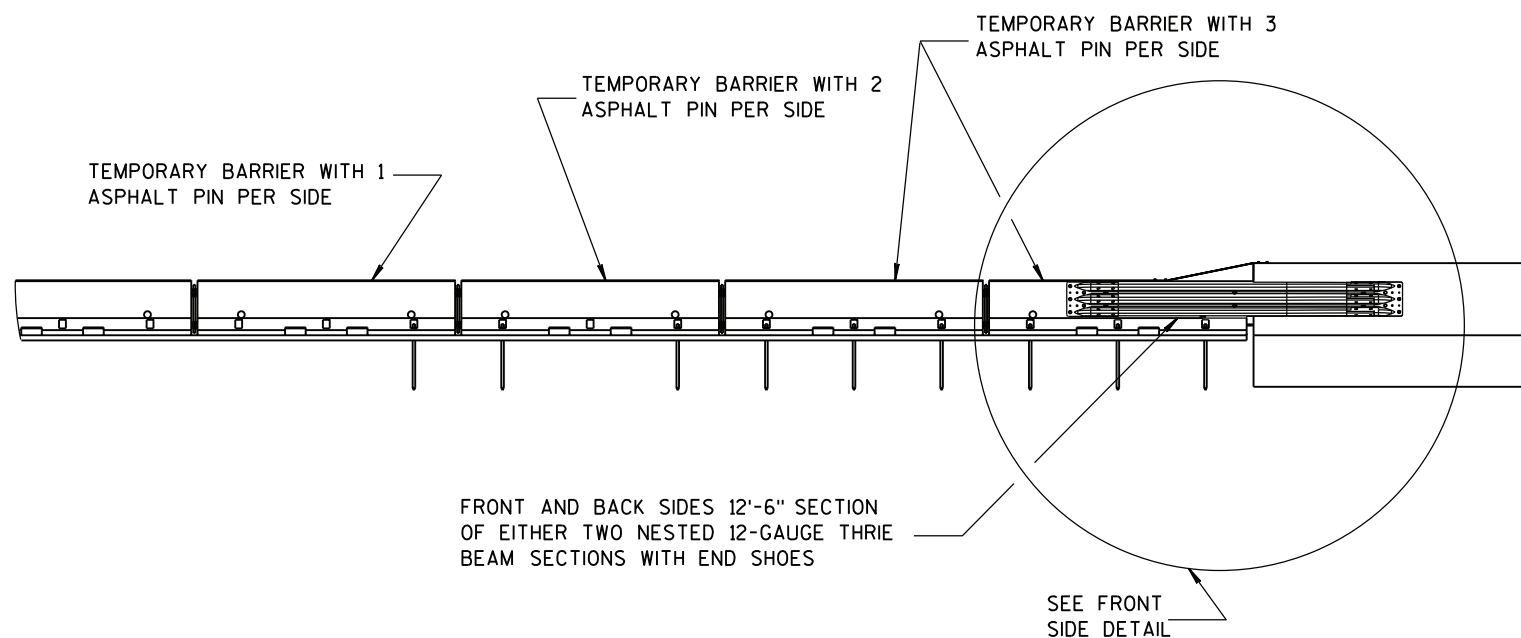
FRONT VIEW



TEMPORARY BARRIER PLACEMENT FOR TRANSITION TO TIED DOWN SYSTEM

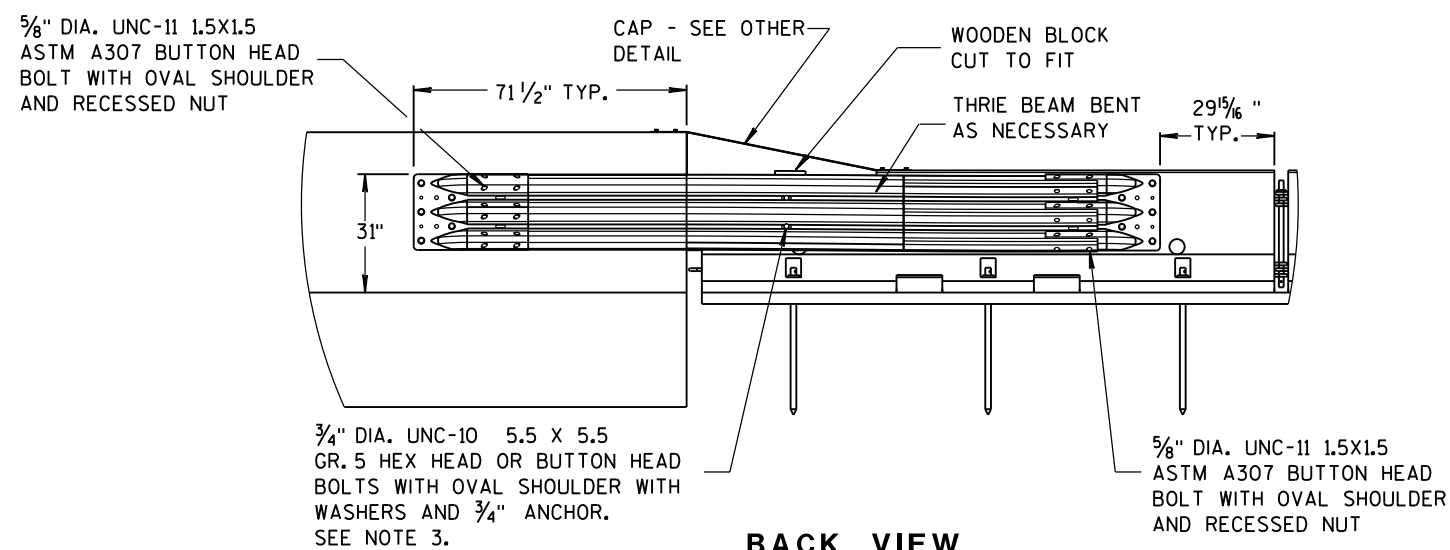
NOTES

1. CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
2. THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
3. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
4. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
5. MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
6. MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.

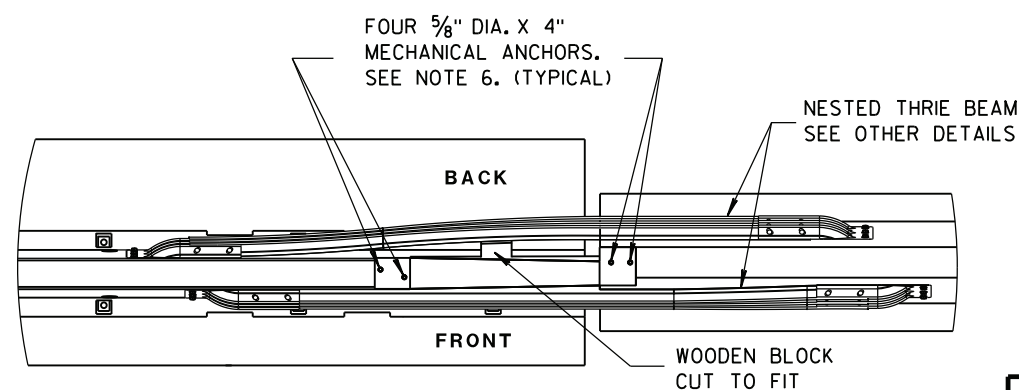


FRONT VIEW

TRANSITION TO TIED DOWN SYSTEM



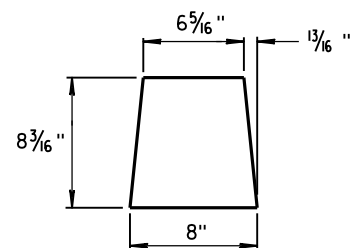
BACK VIEW



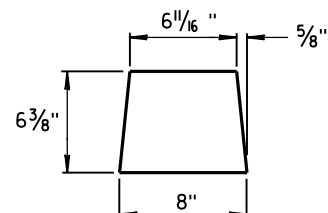
PLAN VIEW

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

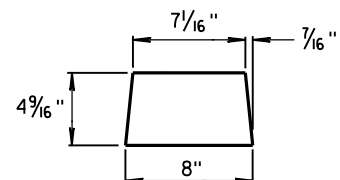
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 102



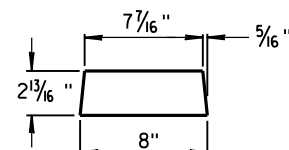
GUSSET 1



GUSSET 2

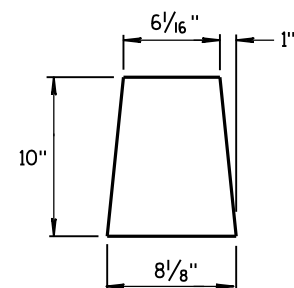


GUSSET 3

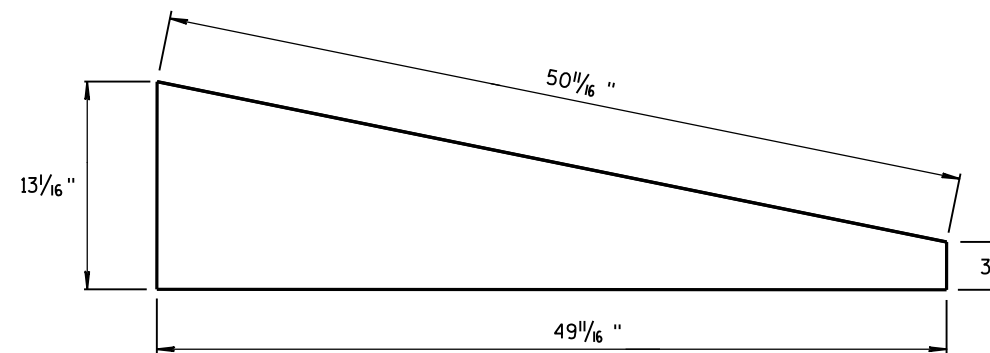


GUSSET 4

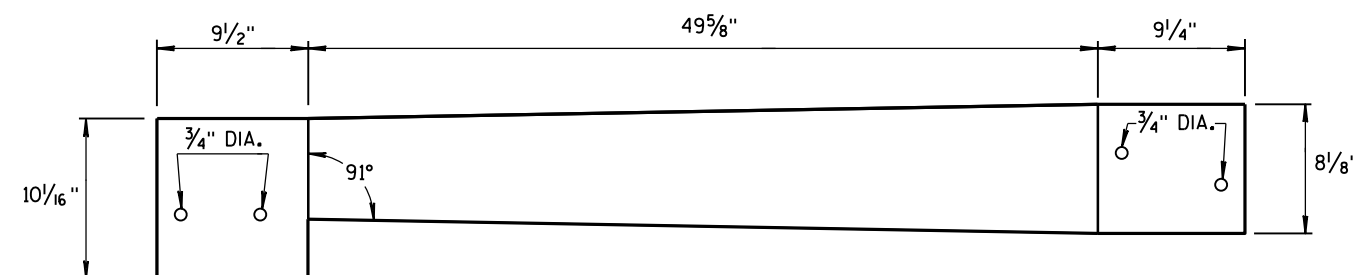
GUSSETS



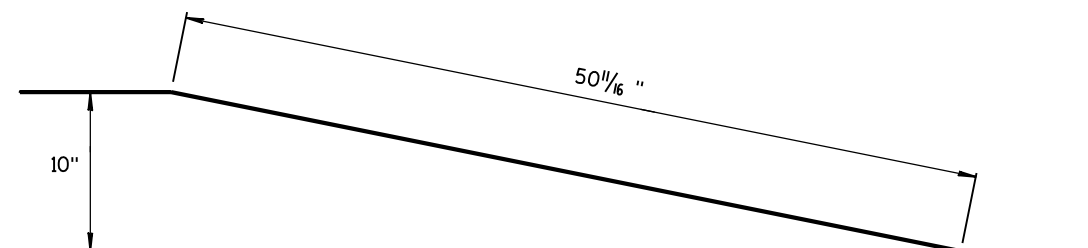
END PLATE



SIDE PLATE

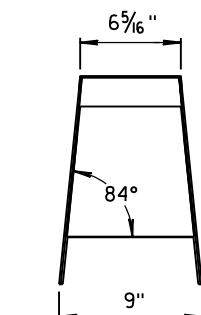
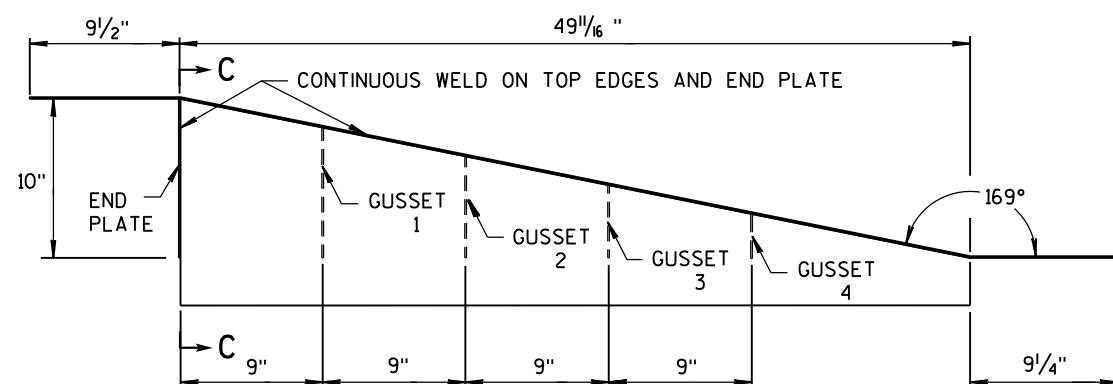
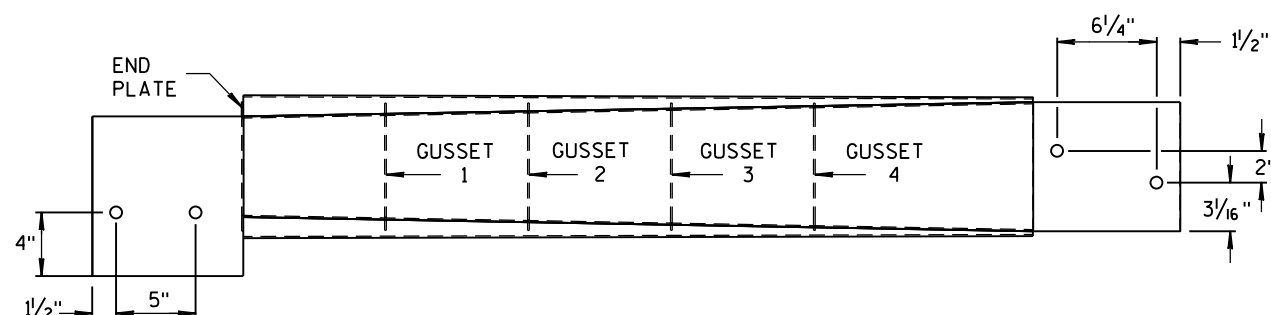


TOP PLATE



**SIDE, TOP AND END PLATES FOR CAP
FROM TEMPORARY CONCRETE BARRIER
TO 42" PERMANENT CONCRETE BARRIER**

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 GALVANIZED STEEL.



SECTION C-C

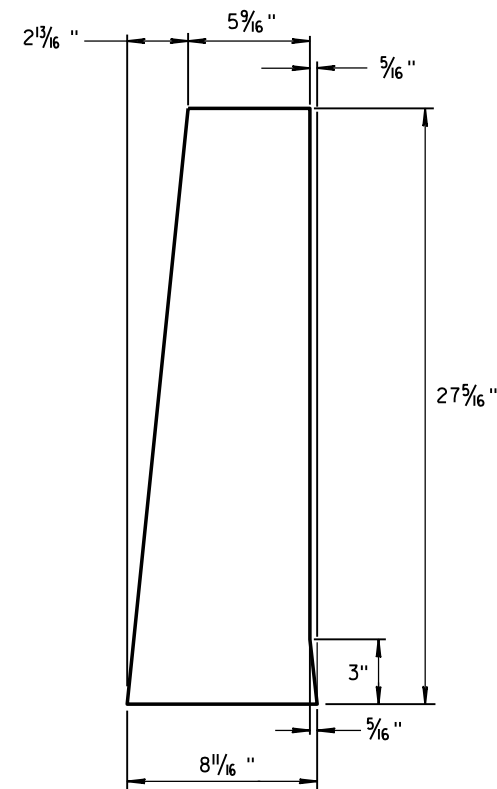
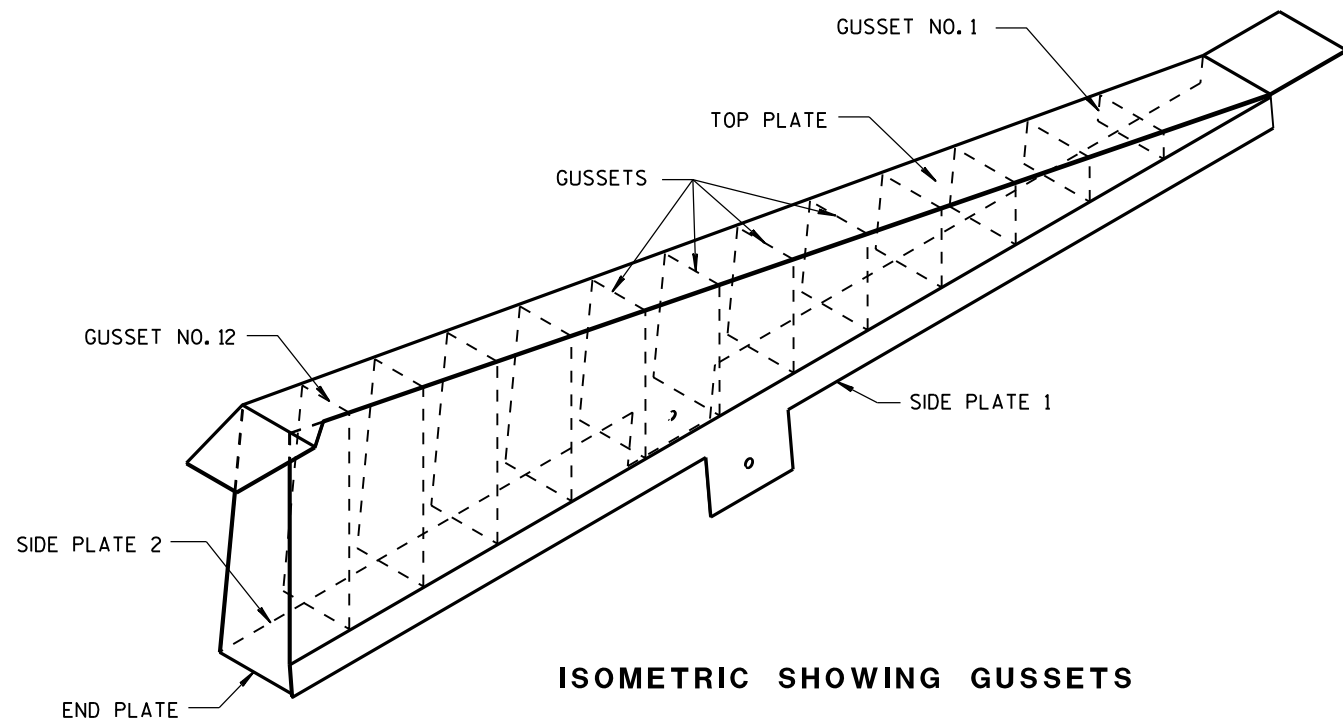
NOTES

1. FOUR GUSSETS AND END PLATE ARE STITCH WELDED ON THREE SIDES.
2. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE, AND GUSSETS.

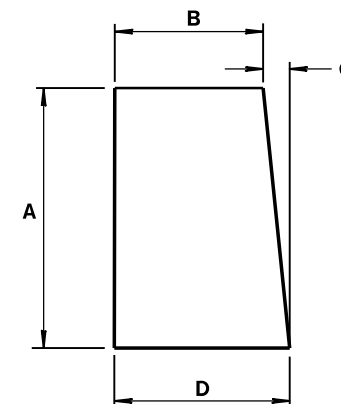
**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 42" PERMANENT CONCRETE BARRIER**

**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 103



1/8" STEEL PLATE

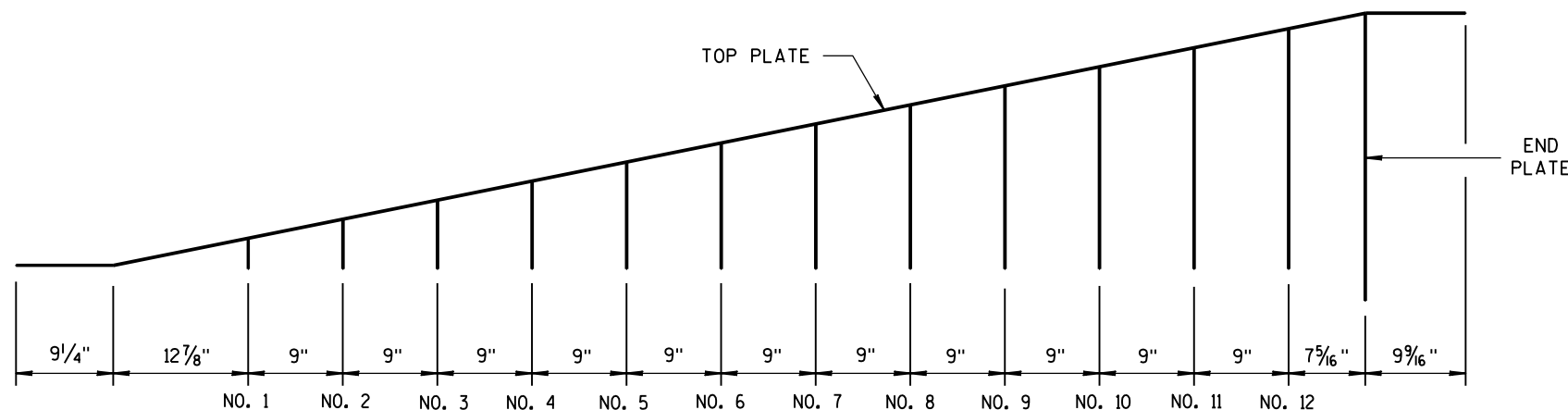


ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS				
GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 1/16 "	7 9/16 "	1/2"	8
3	6 1/2"	7 3/8 "	1 1/16 "	8 1/16 "
4	8 5/16 "	7 3/16 "	7/8"	8 1/16 "
5	10 1/8 "	7"	1 1/16 "	8 1/16 "
6	11 5/16 "	6 13/16 "	1 1/4"	8 1/16 "
7	13 3/4"	6 5/8 "	1 7/16 "	8 1/16 "
8	15 9/16 "	6 7/16 "	1 9/16 "	8 1/16 "
9	17 3/8"	6 1/4"	1 13/16 "	8 1/16 "
10	19 3/16 "	6 1/16 "	1 15/16 "	8 1/16 "
11	21"	5 7/8 "	2 3/16 "	8 1/16 "
12	22 13/16 "	5 11/16 "	2 5/16 "	8 1/16 "

SIDE PLATES, TOP PLATE, END PLATE AND GUSSETS ARE 12 GAUGE ASTM A36 STEEL AND GALVANIZED.

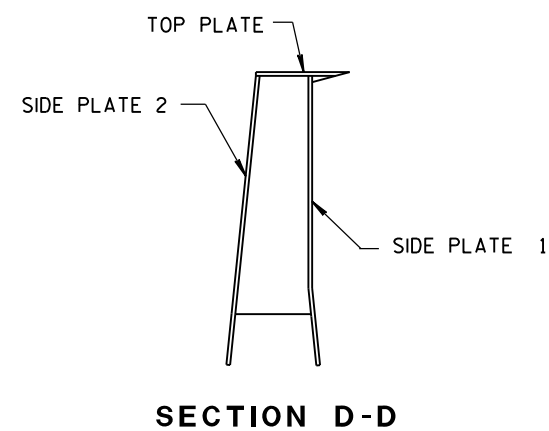
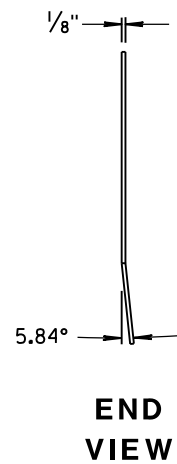
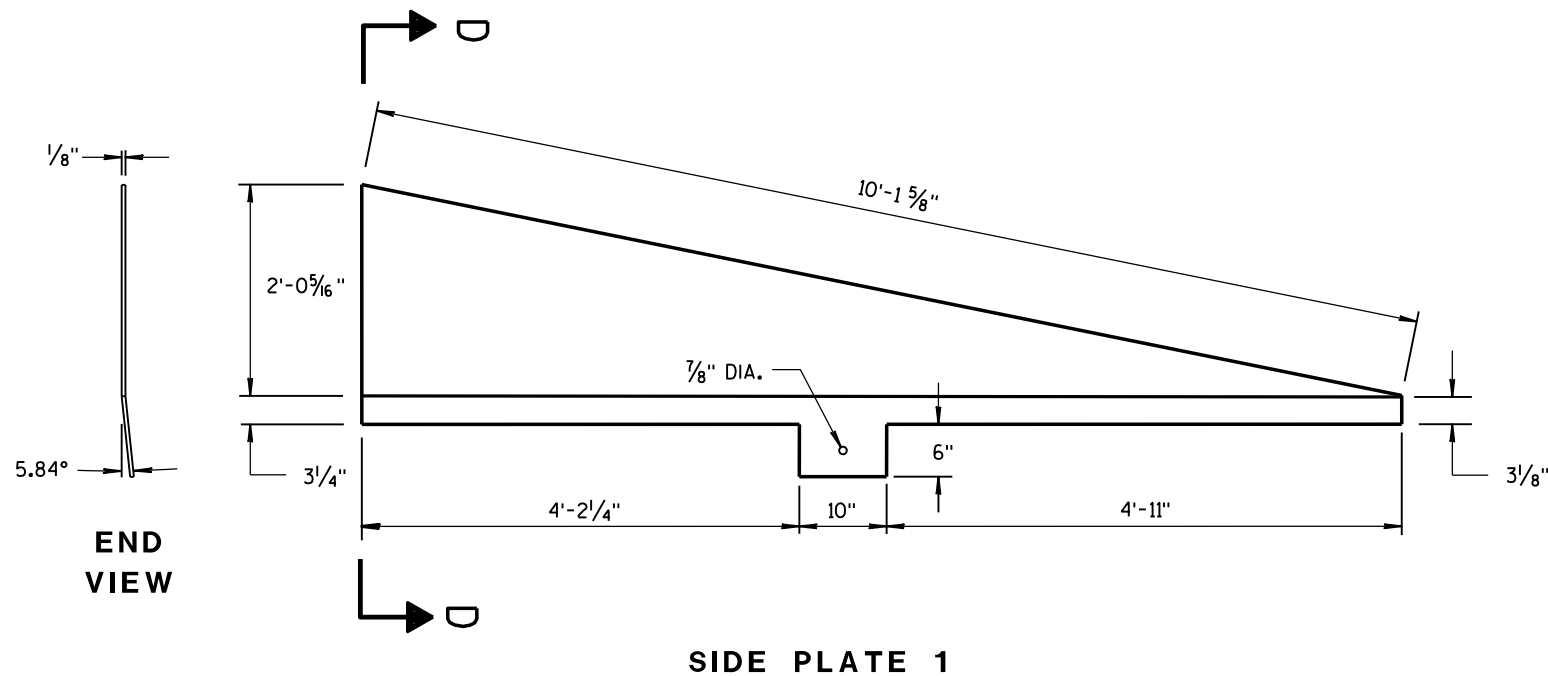
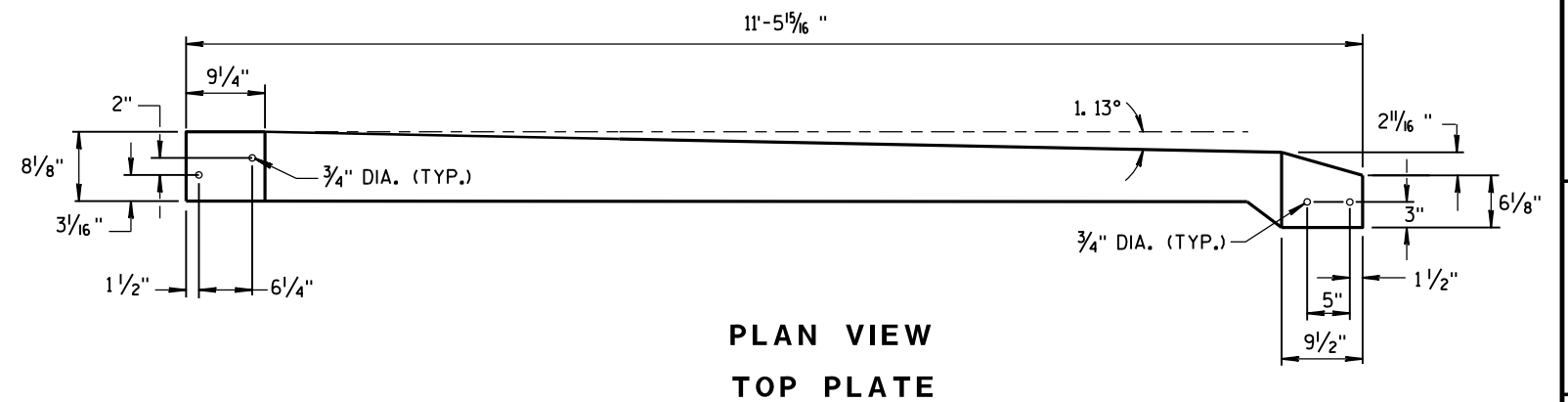
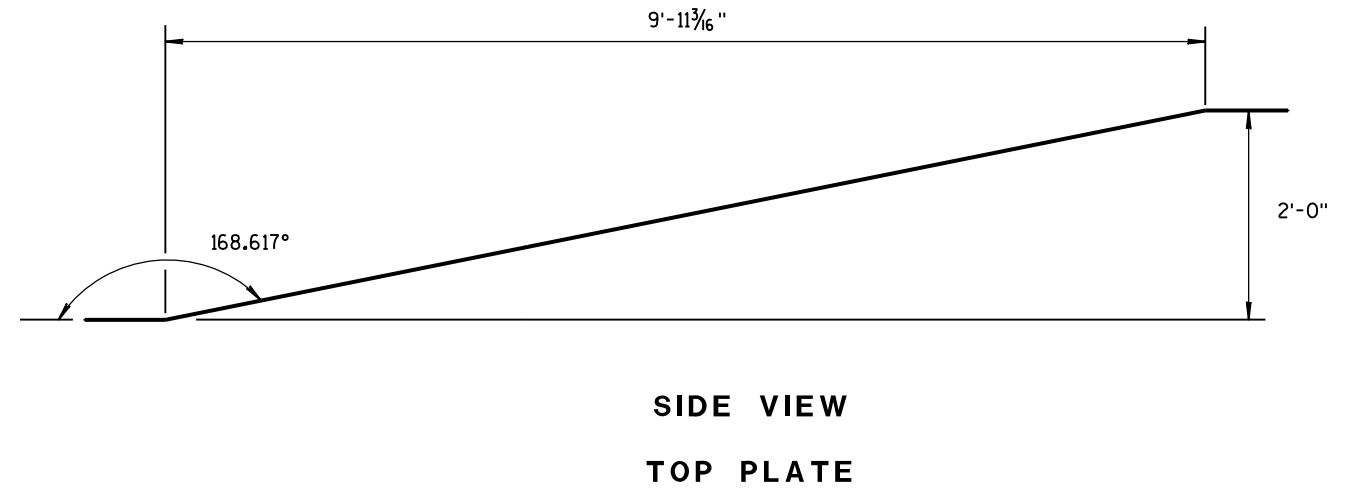
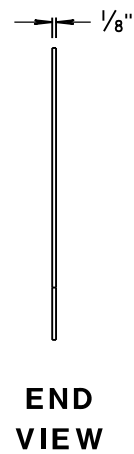
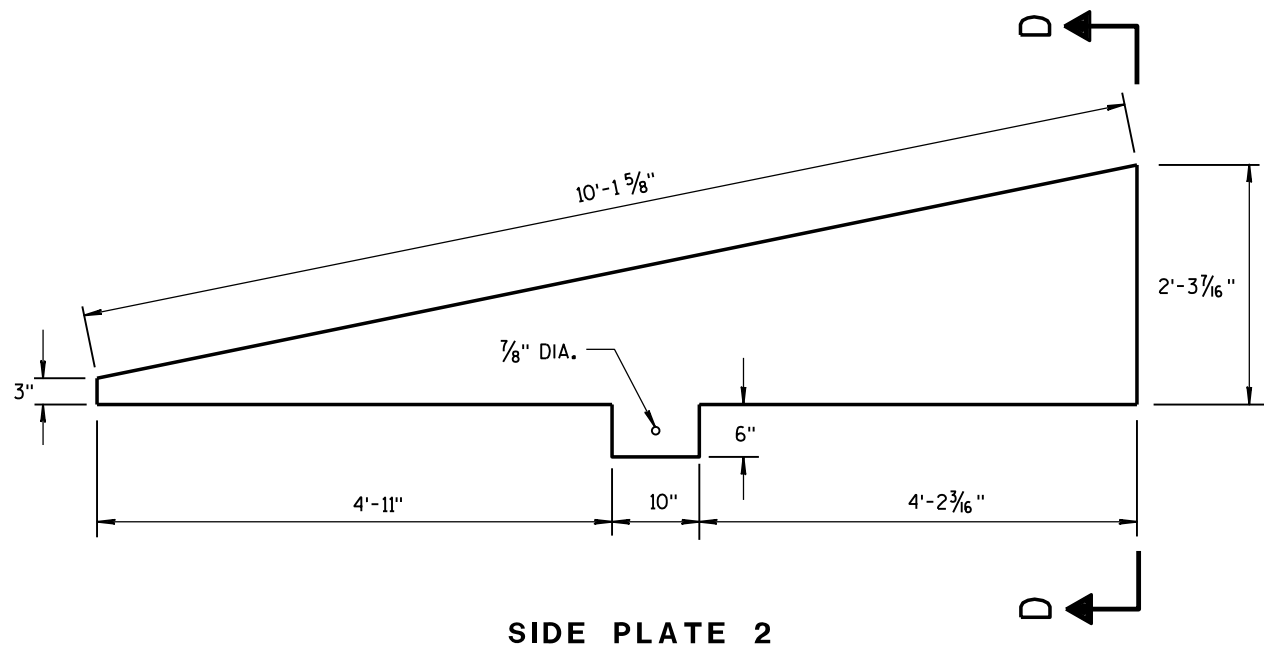
GUSSETS AND END PLATE ARE STITCH WELDED ON 3 SIDES. TWO TRIANGULAR SIDE PLATES ARE STITCH WELDED TO TOP PLATE, END PLATE AND GUSSETS.



CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

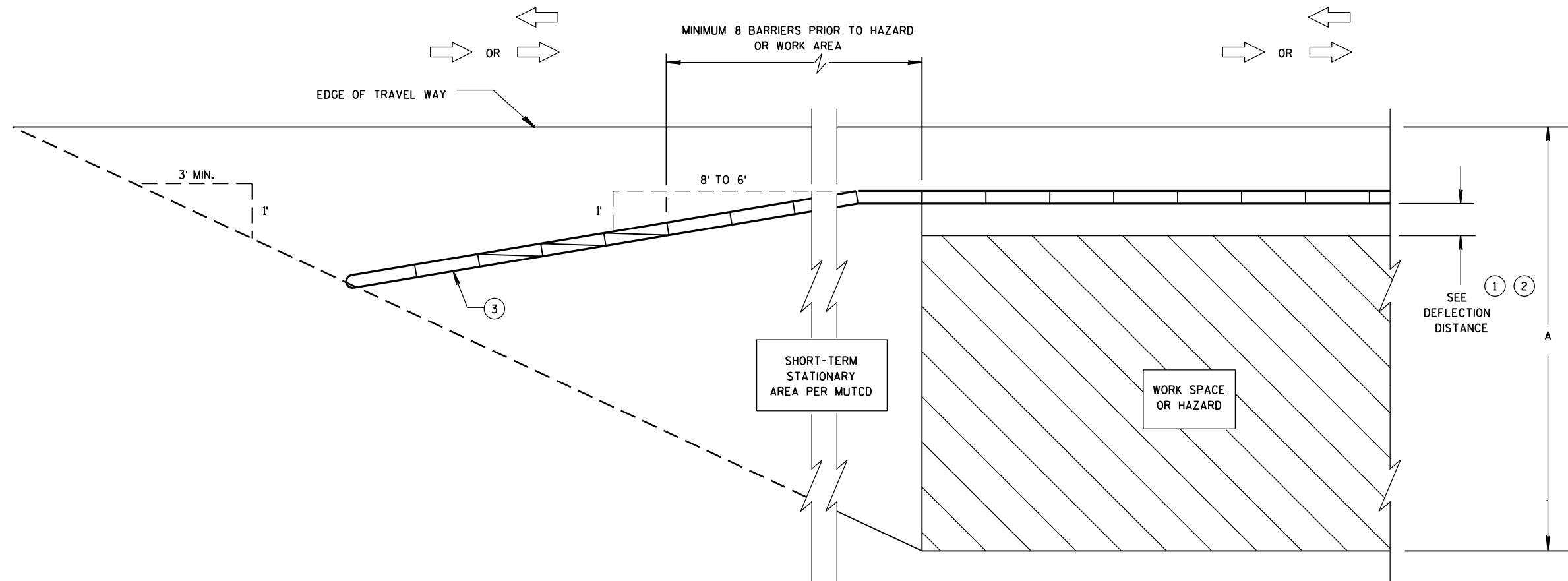
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 104

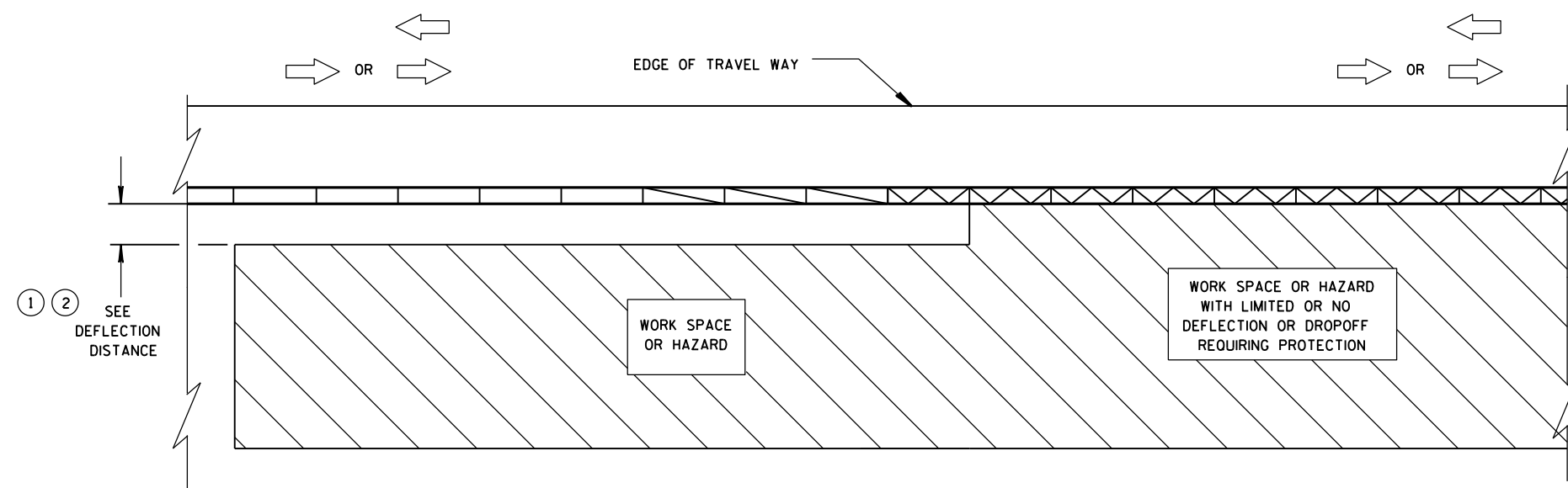


**CAP DETAILS FOR TEMPORARY CONCRETE
BARRIER TO 56" PERMANENT CONCRETE BARRIER**

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
APPROVED June 2017	/S/ Rodney Taylor		
DATE	ROADWAY STANDARD	105	ENT
FHWA	UNIT SUPERV		



**CRASH CUSHION/SAND BARREL ARRAY AND TEMPORARY BARRIER
INSTALLATION FOR TRAFFIC ON ONE SIDE - FLARED INSTALLATION**



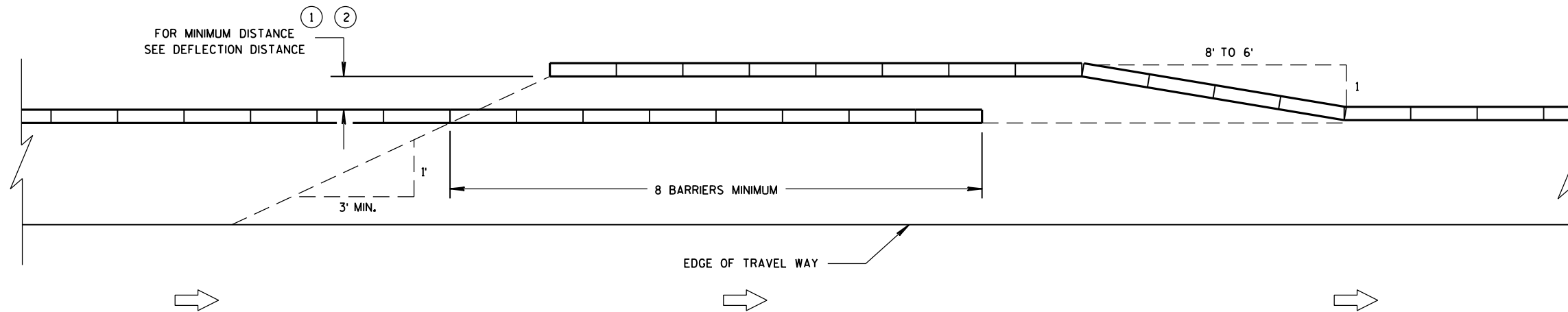
**TRANSITION FROM FREE STANDING TEMPORARY BARRIER
TO ANCHORED BARRIER**

LEGEND

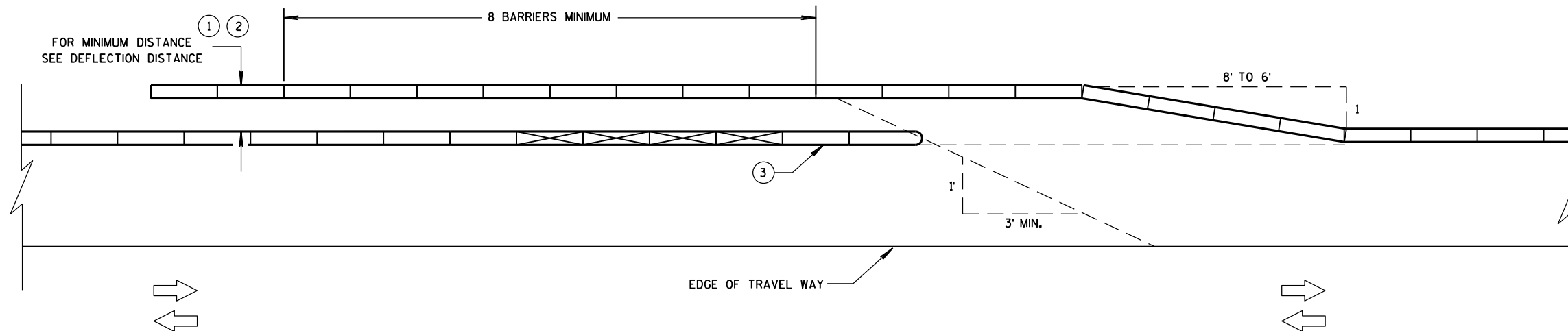
DIRECTION OF TRAVEL	
CRASH CUSHION OR SAND BARREL ARRAY	
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS	
SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS	
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER	
PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET	
FREE STANDING TEMPORARY BARRIER	

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

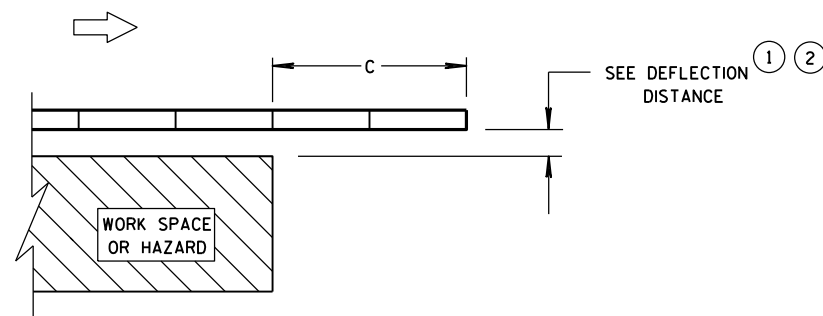
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 107



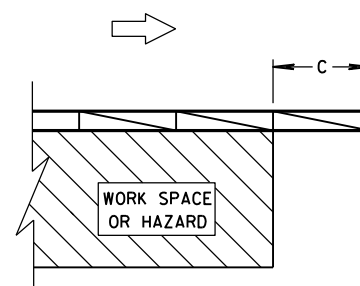
TEMPORARY BARRIER OVERLAP - ONE-WAY TRAFFIC



TEMPORARY BARRIER OVERLAP - TWO-WAY TRAFFIC



**ENDING TEMPORARY BARRIER
DOWNSTREAM - UNANCHORED**



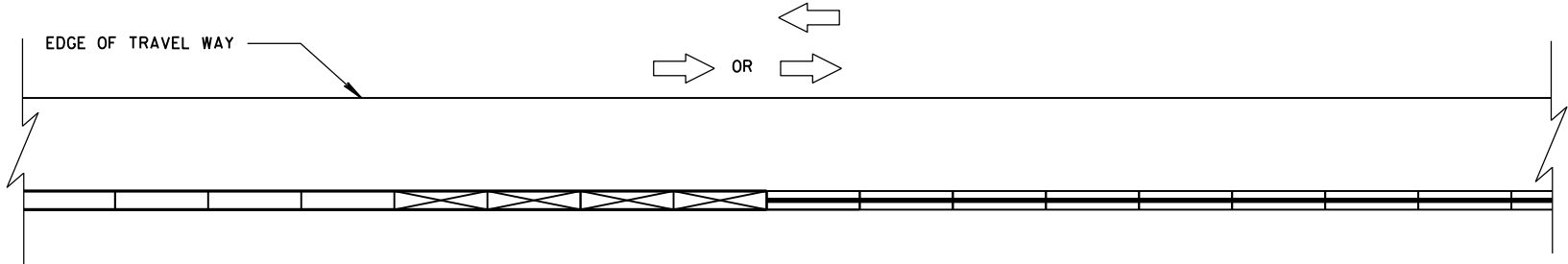
**ENDING TEMPORARY BARRIER
DOWNSTREAM - ANCHORED**

LEGEND

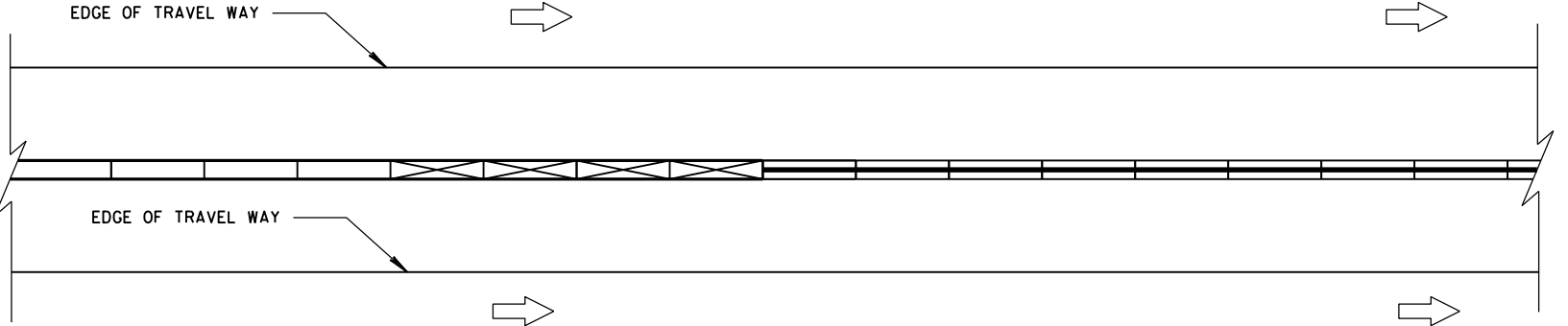
DIRECTION OF TRAVEL	
CRASH CUSHION OR SAND BARREL ARRAY	
SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS	
SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS	
3 PINS PLACED ON TRAFFIC SIDE OF BARRIER	
PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET	
FREE STANDING TEMPORARY BARRIER	

**CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 108



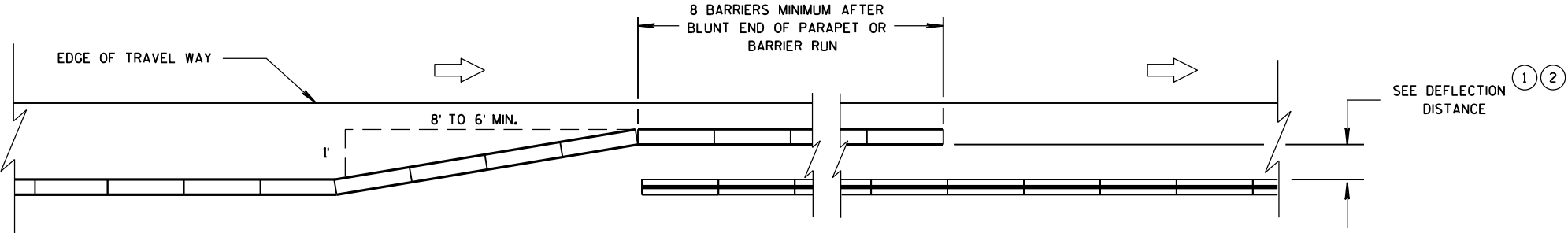
CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON ONE SIDE



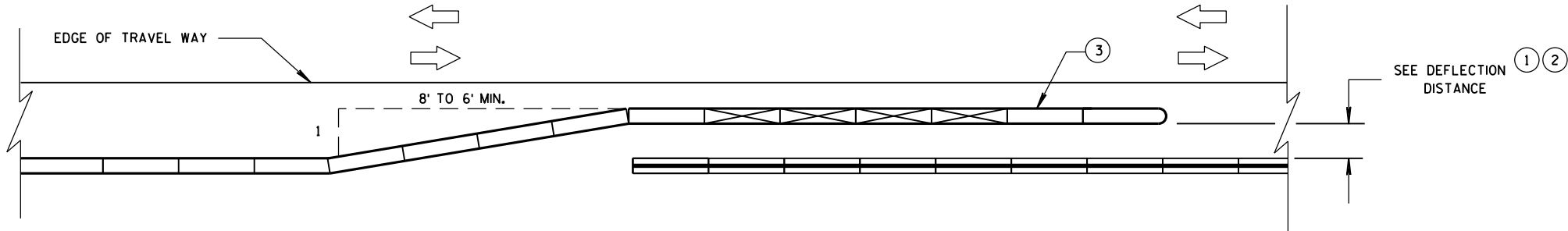
CONNECTING TEMPORARY BARRIER TO PERMANENT
CONCRETE BARRIER-TRAFFIC ON BOTH SIDES

LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
ONE WAY TRAFFIC



OVERLAPPING TEMPORARY BARRIER AND PERMANENT BARRIER -
TWO WAY TRAFFIC

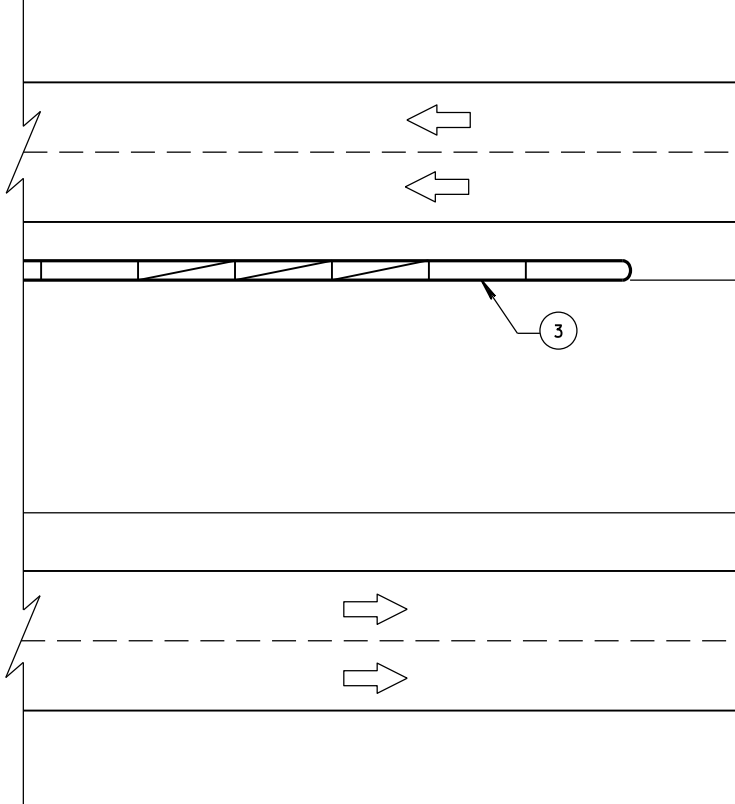
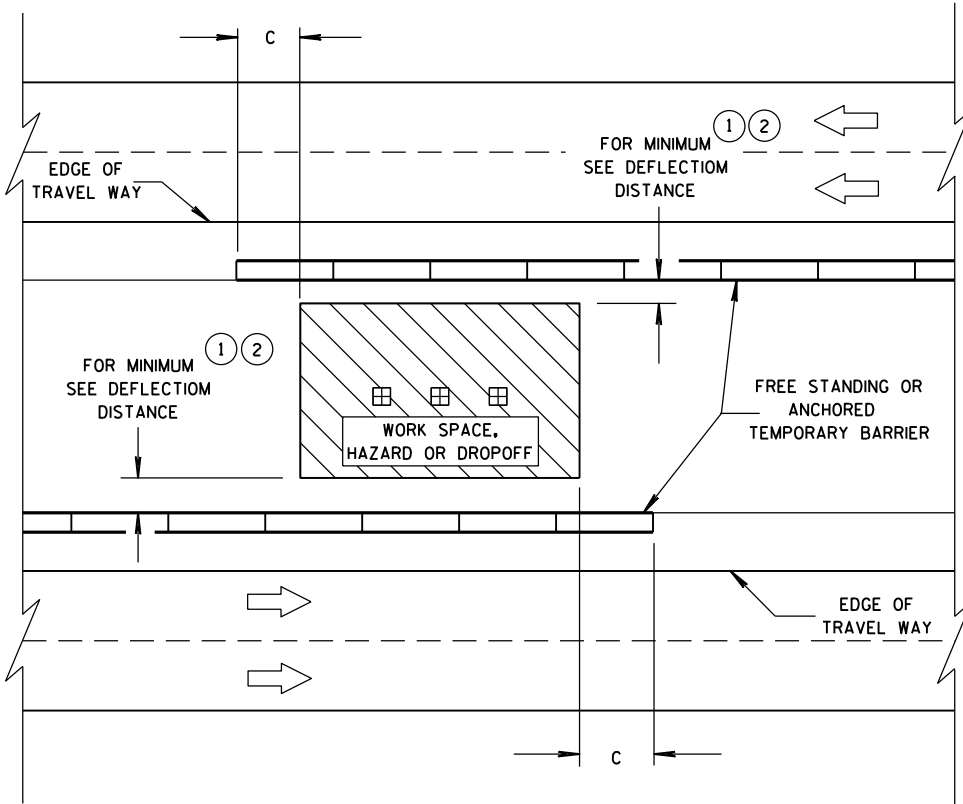
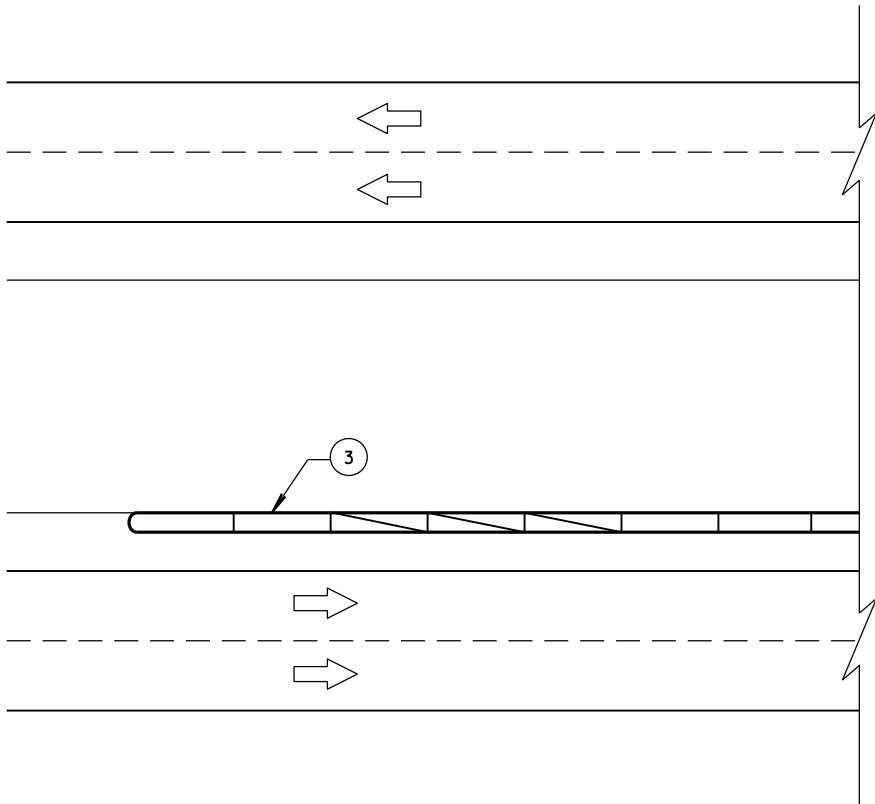
LEGEND

- DIRECTION OF TRAVEL
- CRASH CUSHION OR SAND BARREL ARRAY
- SEE FREE STANDING TRANSITION TO TIED-DOWN SYSTEM DETAILS
- SEE BI-DIRECTIONAL TRANSITION TO TIED-DOWN SYSTEM DETAILS
- 3 PINS PLACED ON TRAFFIC SIDE OF BARRIER
- PERMANENT CONCRETE BARRIER OR CONCRETE PARAPET
- FREE STANDING TEMPORARY BARRIER

DIMENSION C TABLE

AVAILABLE DEFLECTION DISTANCE	MINIMUM LENGTH OF BARRIER BEYOND HAZARD FT
GREATER THAN 8'	12.5
LESS THAN OR EQUAL TO 8' BUT GREATER THAN 4'	50
LESS THAN OR EQUAL TO 4'	100

6

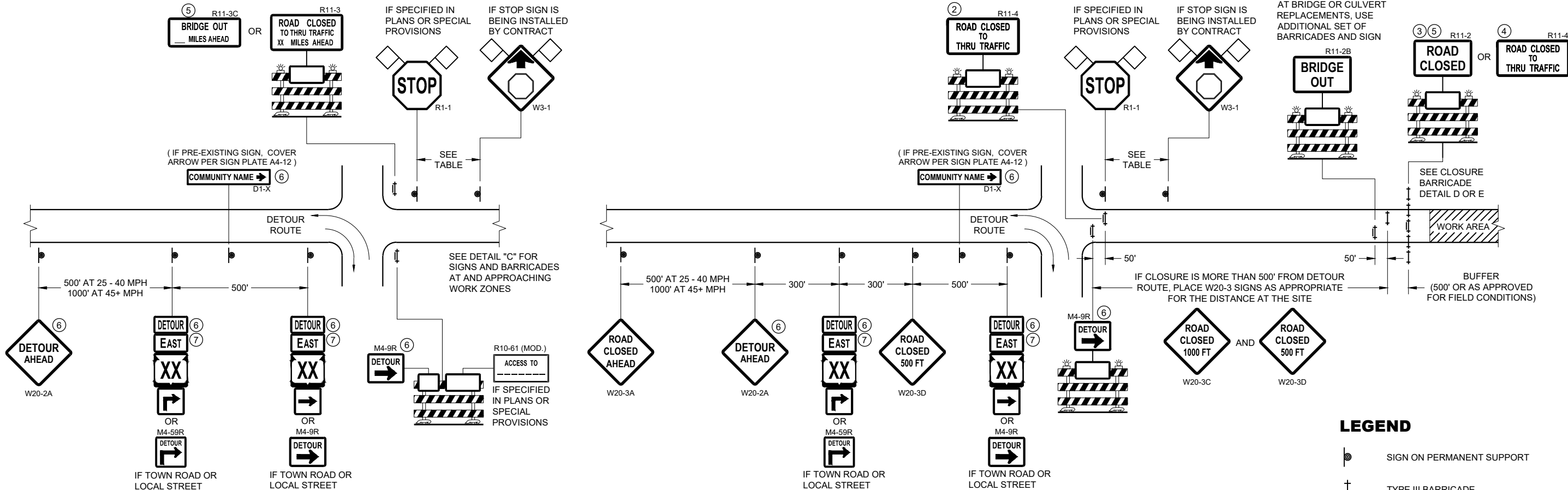


6

CRASH CUSHION/SAND BARREL
ARRAY AND OTHER TEMPORARY
BARRIER LAYOUT DETAILS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
June, 2015 /S/ Jerry H. Zogg
DATE ROADWAY STANDARDS ENGINEER 110 ENT
FHWA

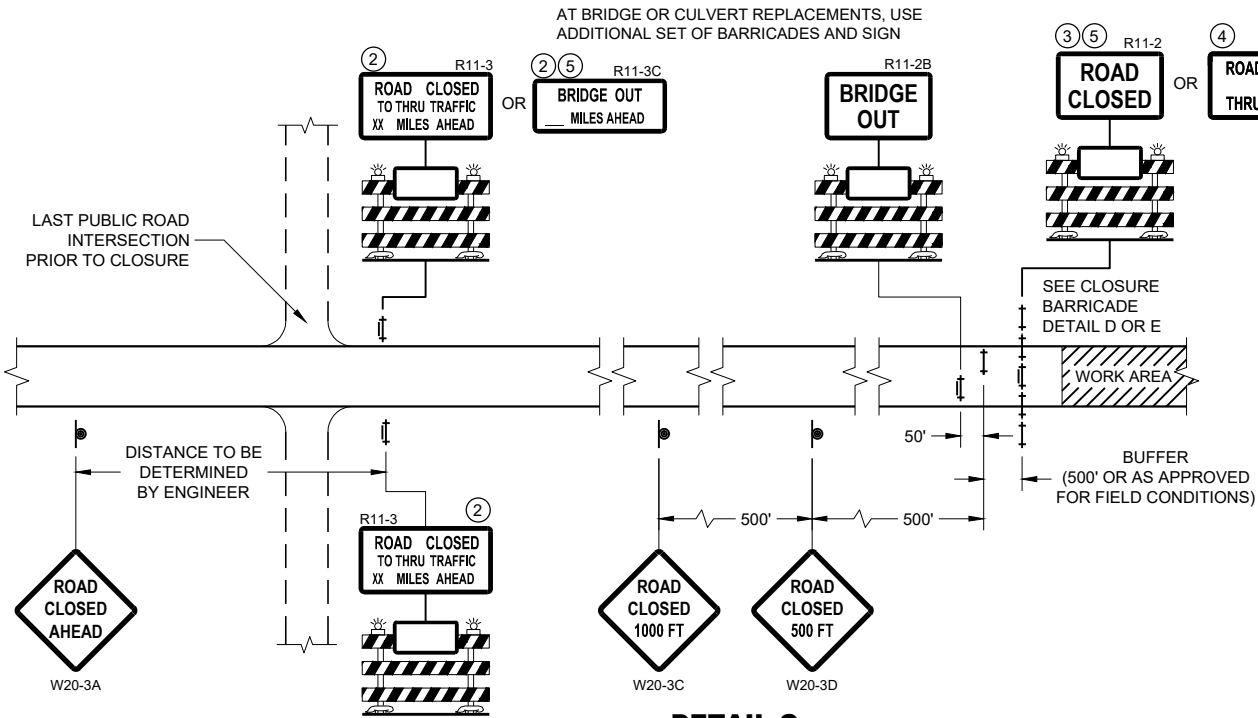


DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR

WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)



DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR

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

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

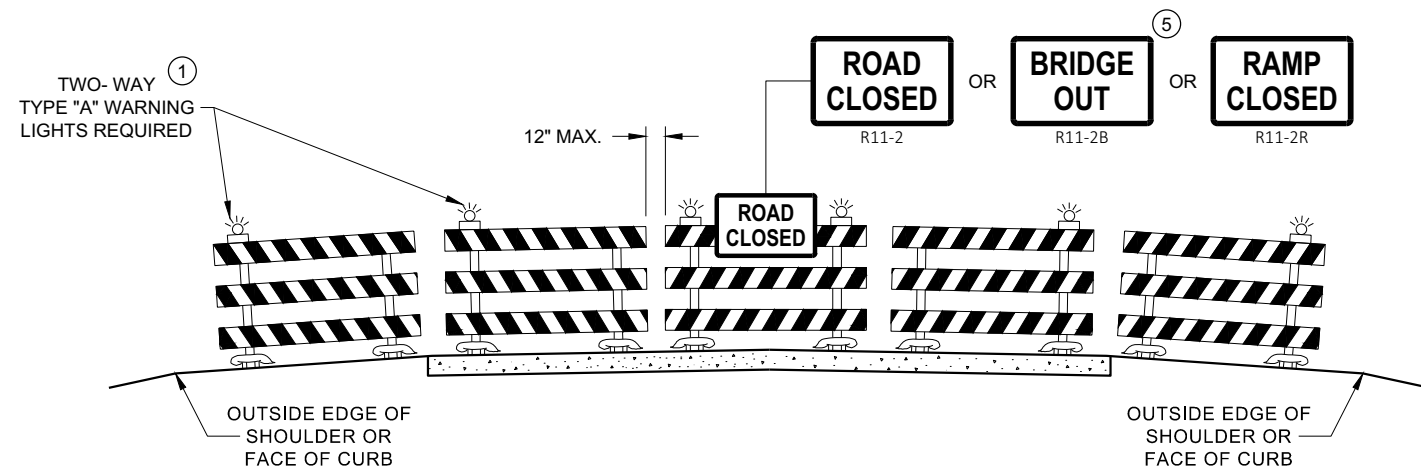
LEGEND

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

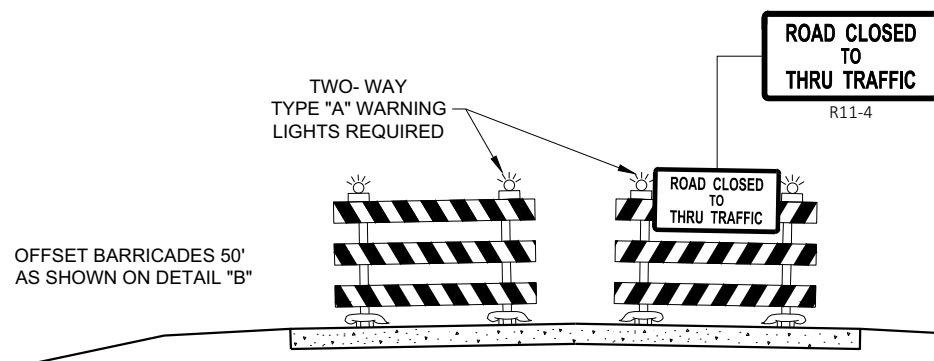
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 111
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 THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL 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:

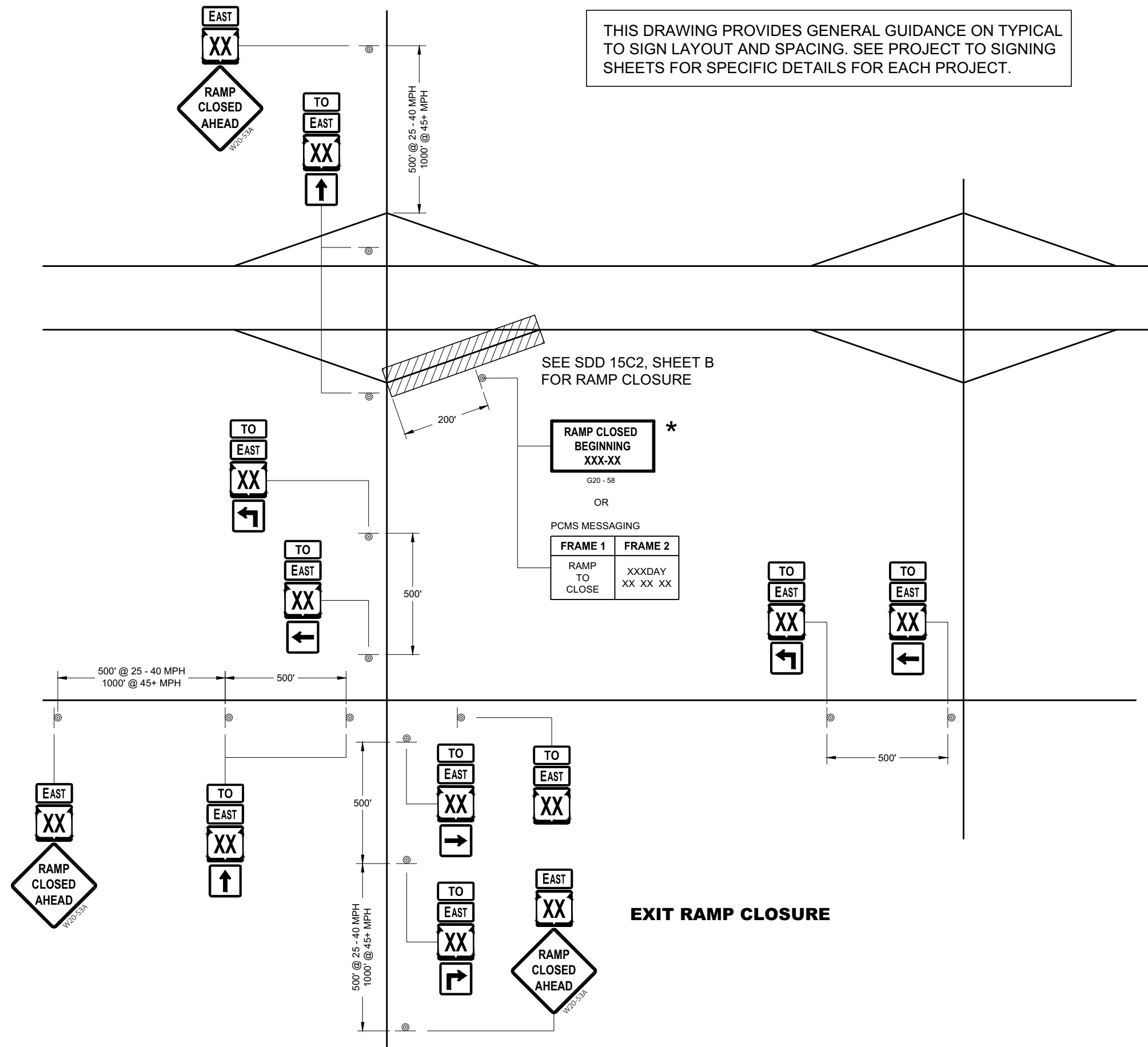
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60 " X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- 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 AN 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 ROAD 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 VARIOUS CLOSURES

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 112
FHWA



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 MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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

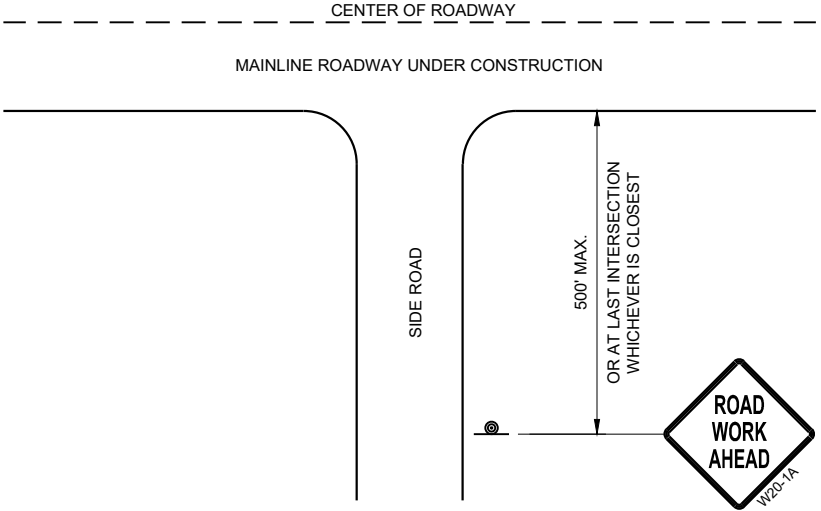
SIGNS THAT WILL BE IN PLACE LESS THAN SEVEN CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

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 REESTABLISHED.

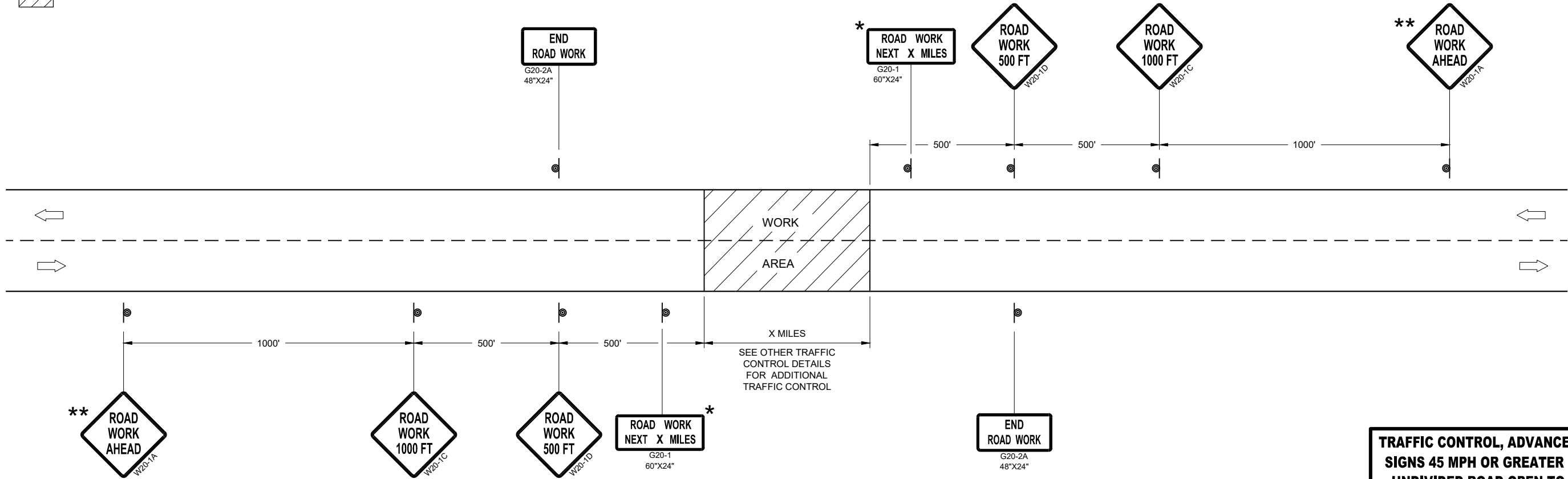
- * OMIT G20-1 SIGNS IF LENGTH OF WORK AREA IS 2 MILES OR LESS
- ** PLACE AN ADDITIONAL W20-1A "ROAD WORK AHEAD" SIGN IF WORK AREA WITHIN THE PROJECT IS SEPARATED BY MORE THAN 2 MILES FROM PREVIOUS WORK AREA.

LEGEND

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



TYPICAL SIDE ROAD APPROACH
WARNING SIGN DETAIL

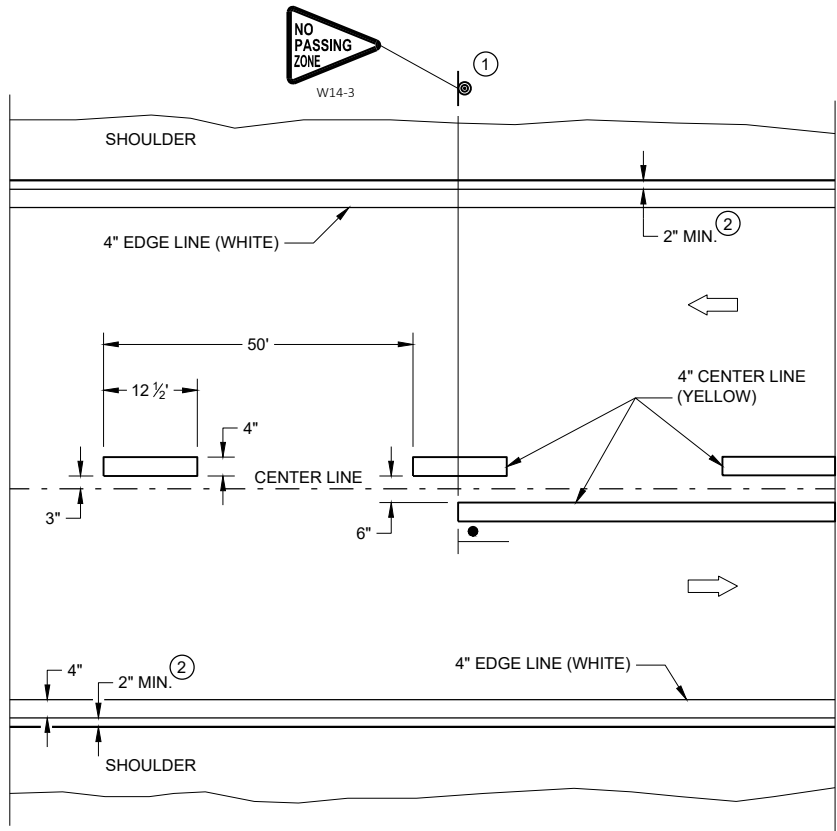


TRAFFIC CONTROL, ADVANCE WARNING SIGNS 45MPH OR GREATER

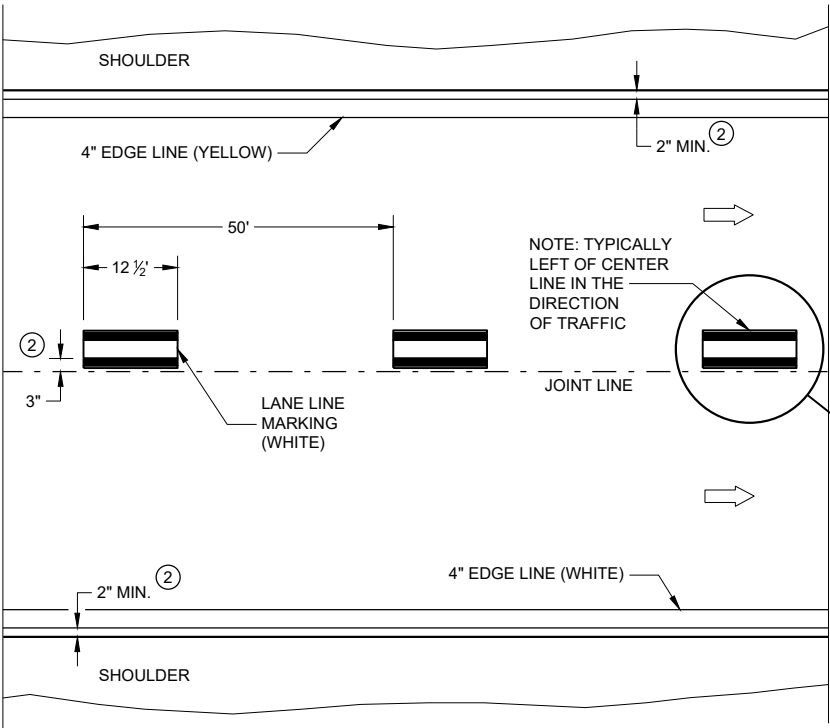
TRAFFIC CONTROL, ADVANCE WARNING
SIGNS 45 MPH OR GREATER TWO-WAY
UNDIVIDED ROAD OPEN TO TRAFFIC

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
July 2018 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 114
FHWA

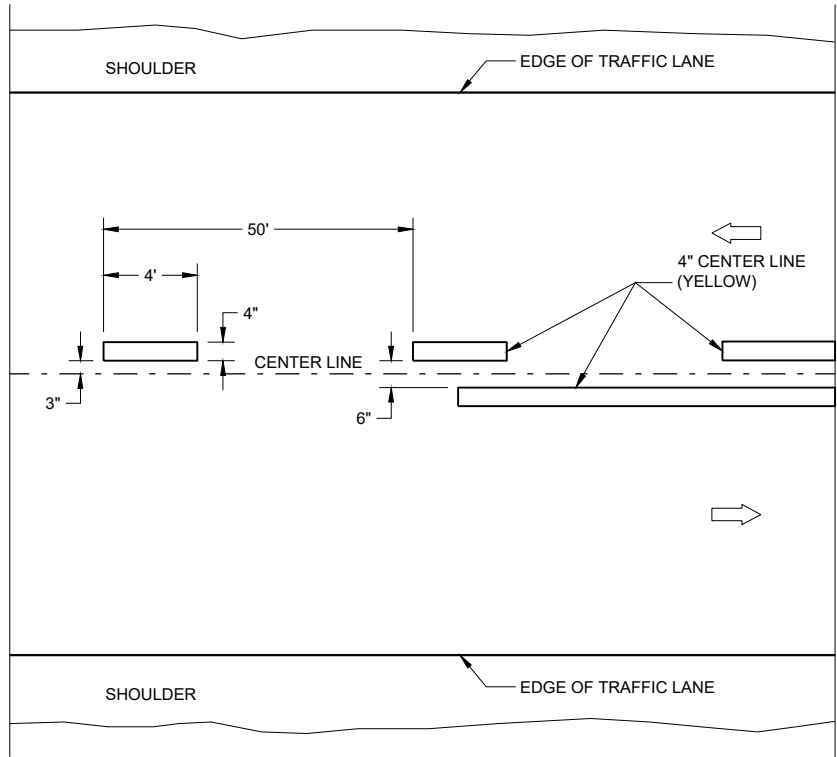


TWO WAY TRAFFIC

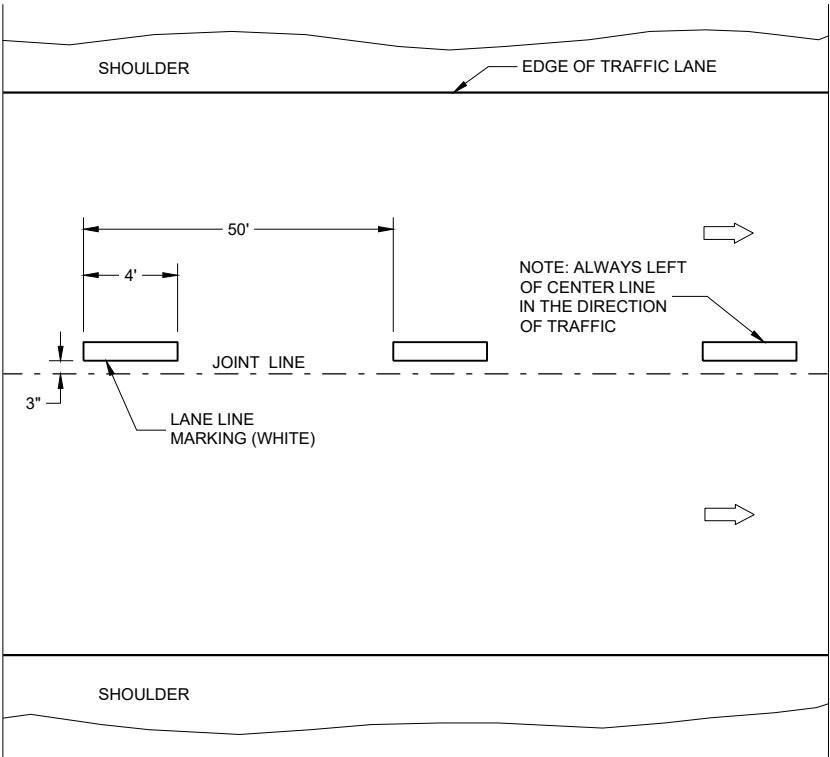


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

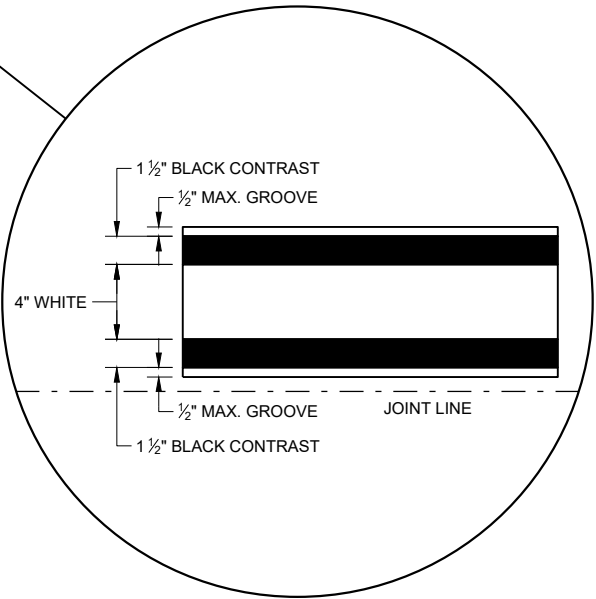
GENERAL NOTES

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

- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC

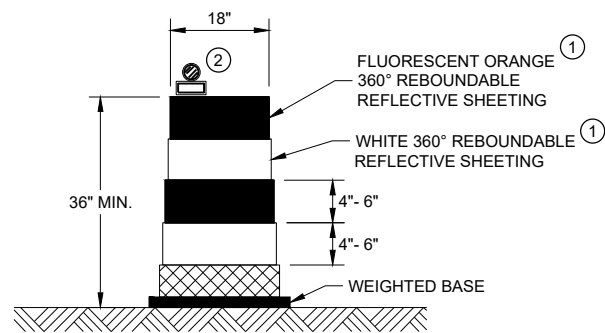


LONGITUDINAL MARKING
(MAINLINE)

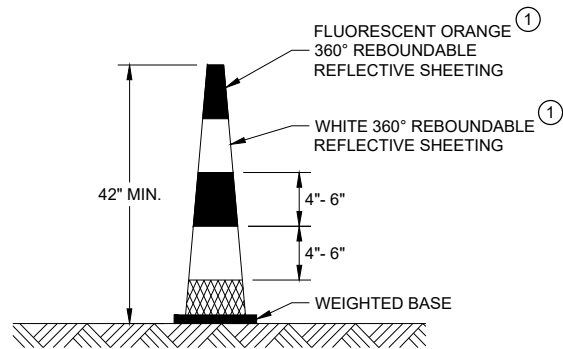
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Matthew Rauch
DATE STATEWIDE SIGNING AND N
ENGINEER 115

FHWA

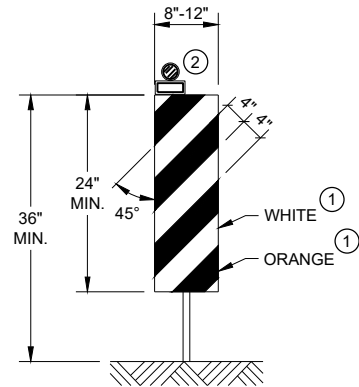


DRUM



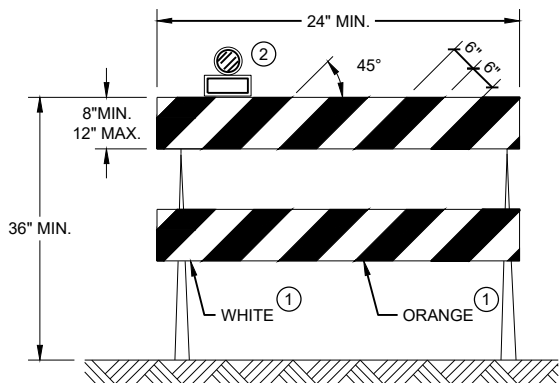
42" CONE

DO NOT USE IN TAPERS
½ SPACING OF DRUMS



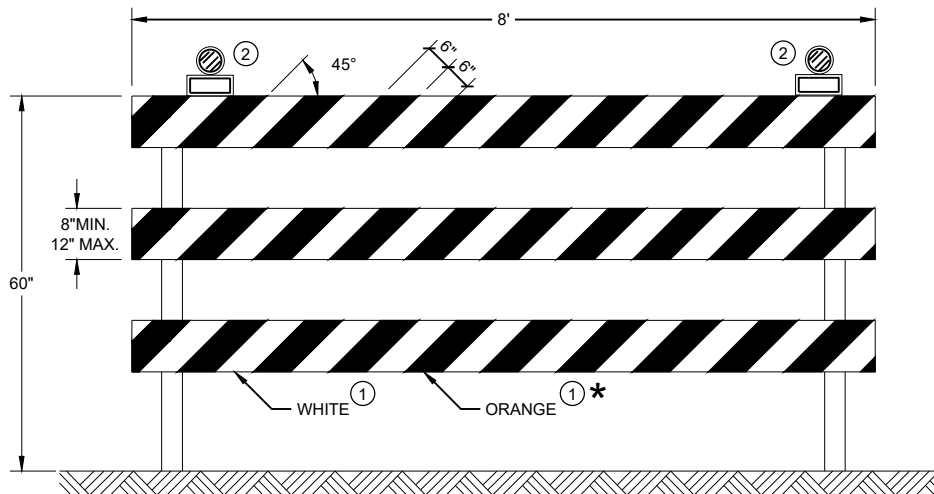
VERTICAL PANEL

THE STRIPES SHALL SLOPE DOWNWARD TO
THE TRAFFIC SIDE FOR CHANNELIZATION.



TYPE II BARRICADE

FOR RAILS LESS THAN 36" LONG, 4" WIDE STRIPES
MAY BE USED. ALL STRIPES SHALL SLOPE DOWNWARD
TO THE TRAFFIC SIDE FOR CHANNELIZATION.



TYPE III BARRICADE

IF SIGN MOUNTED, DO NOT COVER MORE THAN 50% OF THE TOP
TWO RAILS OR 33% OF THE TOTAL AREA OF THE THREE RAILS.

* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

GENERAL NOTES

- ① REFLECTIVE SHEETING SHALL FOLLOW THE REQUIREMENTS IN THE APPROVED PRODUCTS LISTING FOR SIGN SHEETING.
- ② LOCATION OF WARNING LIGHTS WHEN SHOWN ON THE PLAN.

CHANNELIZING DEVICES
DRUMS, CONES, BARRICADES
AND VERTICAL PANELS

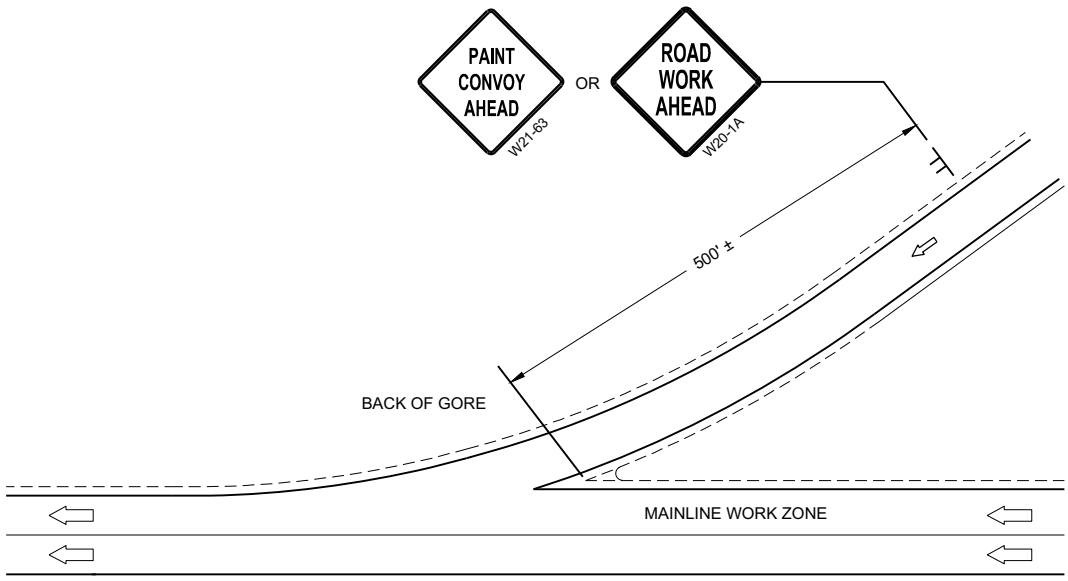
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2021 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 116

FHWA

LEGEND

- V1 MARKING VEHICLE
- V2 SHADOW VEHICLE
- V3 TRAIL VEHICLE
- TRUCK MOUNTED ATTENUATOR (TMA)
- SIGN ON TEMPORARY SUPPORT
- DIRECTION OF TRAFFIC
- FLASHING ARROW PANEL (MERGE)
- FLASHING ARROW PANEL (CAUTION)



GENERAL NOTES

ALL VEHICLES SHALL BE EQUIPPED WITH TWO 360 DEGREE HIGH INTENSITY YELLOW FLASHING LIGHTS OR STROBE LIGHTS AND OPERATED WITH HEADLIGHTS TURNED ON.

ALL VEHICLES SHALL BE EQUIPPED WITH REAR FACING TYPE B OR C FLASHING ARROW PANEL. SIGNS PLACED ON VEHICLES MUST NOT OBSCURE THE ARROW PANEL.

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

DISTANCE BETWEEN VEHICLES MAY VARY ACCORDING TO TERRAIN, SIGHT DISTANCE, PAINT DRYING TIME, AND OTHER FACTORS. WHENEVER ADEQUATE STOPPING SIGHT DISTANCE EXISTS TO THE REAR, SHADOW VEHICLES SHOULD MAINTAIN THE MINIMUM DISTANCE FROM THE WORK VEHICLE AND PROCEED AT THE SAME SPEED AS THE WORK VEHICLE. SHADOW VEHICLES SHOULD SLOW DOWN IN ADVANCE OF VERTICAL AND HORIZONTAL CURVES THAT RESTRICT SIGHT DISTANCE.

WHEN WORK ACTIVITY BLOCKS THE LEFT LANE, REVERSE TRAFFIC CONTROL.

WHEN A RAMP INTERSECTS THE FACILITY ON WHICH THE WORK IS BEING PERFORMED, PROVIDE ADDITIONAL TRAFFIC CONTROLS AS SPECIFIED IN THE CONTRACT OR AS APPROVED BY THE ENGINEER.

USE AN ATTENUATOR ON THE REARMOST VEHICLE THAT BLOCKS ALL OR PART OF THE TRAFFIC LANE.

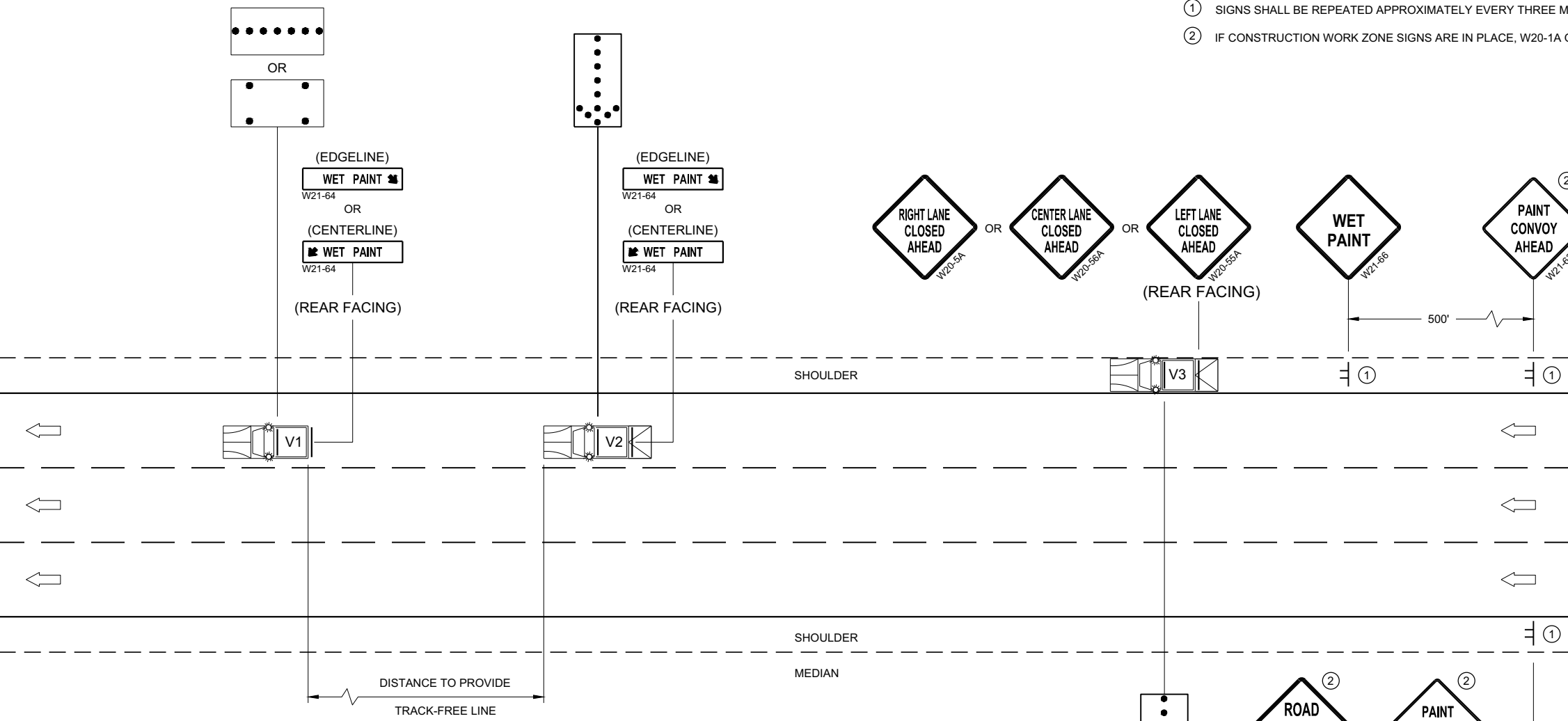
IF THE SHOULDER IS TOO NARROW TO ACCOMMODATE THE LAST TRAILING VEHICLE, THE VEHICLE SHOULD STRADDLE THE EDGE LINE.

WHEN NO WORK ACTIVITY IS TAKING PLACE, REMOVE OR LAY STATIONARY SIGNS AND SUPPORTS FLAT ON THE GRADE WITH UPRIGHTS ORIENTED PARALLEL TO AND DOWNSTREAM FROM TRAFFIC

CONES SHOULD BE USED BETWEEN THE MARKING AND SHADOW VEHICLE AT 100 FOOT SPACING. CONES MAY BE OMITTED ON PAINTED LINE IF APPROVED BY THE ENGINEER. CONSIDER PAVEMENT MARKING DRY OR CURE TIMES AND TRAFFIC VOLUME.

CONES SHALL BE A MINIMUM HEIGHT OF 18" FOR WET PAVEMENT MARKINGS

- ① SIGNS SHALL BE REPEATED APPROXIMATELY EVERY THREE MILES AND AFTER EVERY ON RAMP.
- ② IF CONSTRUCTION WORK ZONE SIGNS ARE IN PLACE, W20-1A OR W21-63 ARE NOT REQUIRED.



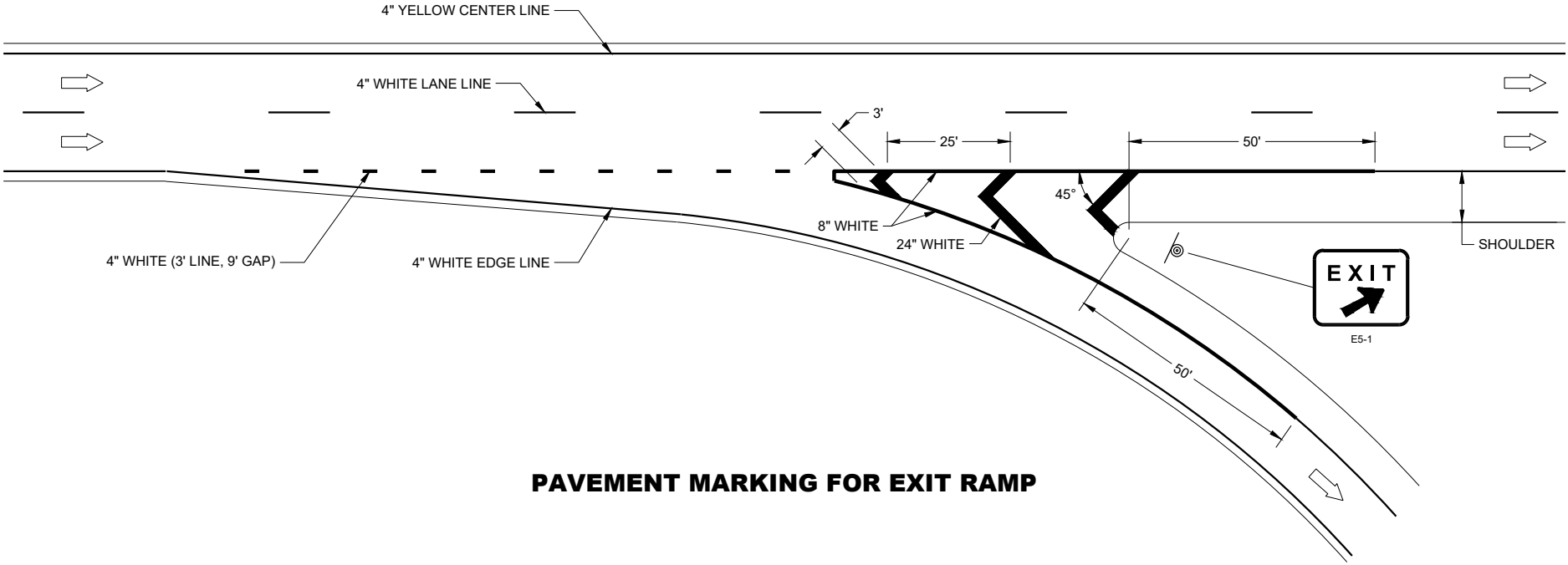
MOVING PAVEMENT MARKING OPERATIONS
MULTILANE DIVIDED ROADWAY

**MOVING PAVEMENT MARKING
OPERATION MULTI-LANE
DIVIDED ROADWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2019 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 117

FHWA



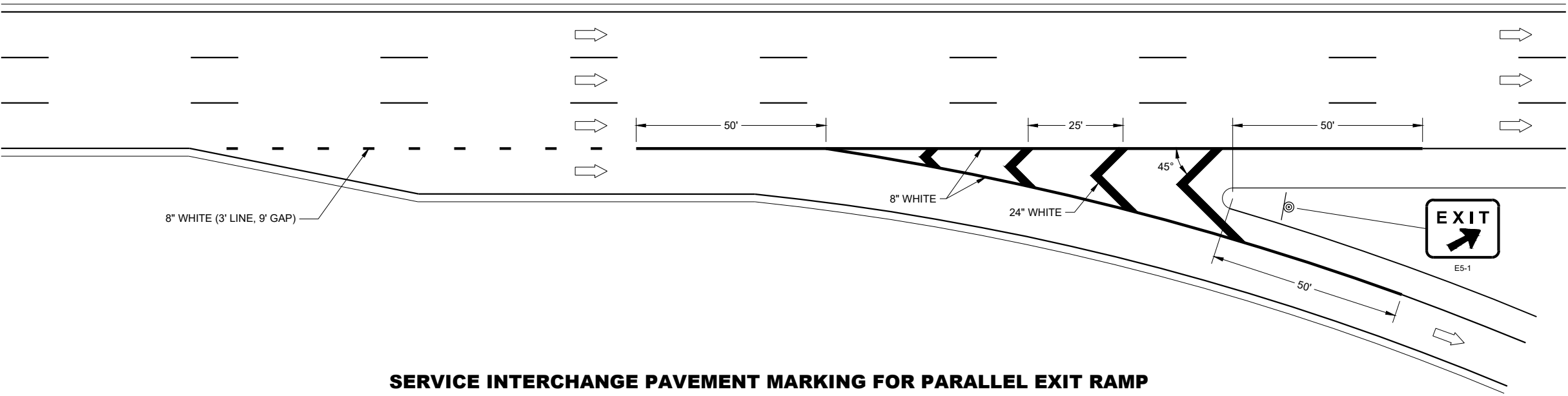
PAVEMENT MARKING FOR EXIT RAMP

GENERAL NOTES

PLACE GROOVE 3 INCHES LEFT OF JOINT.

LEGEND

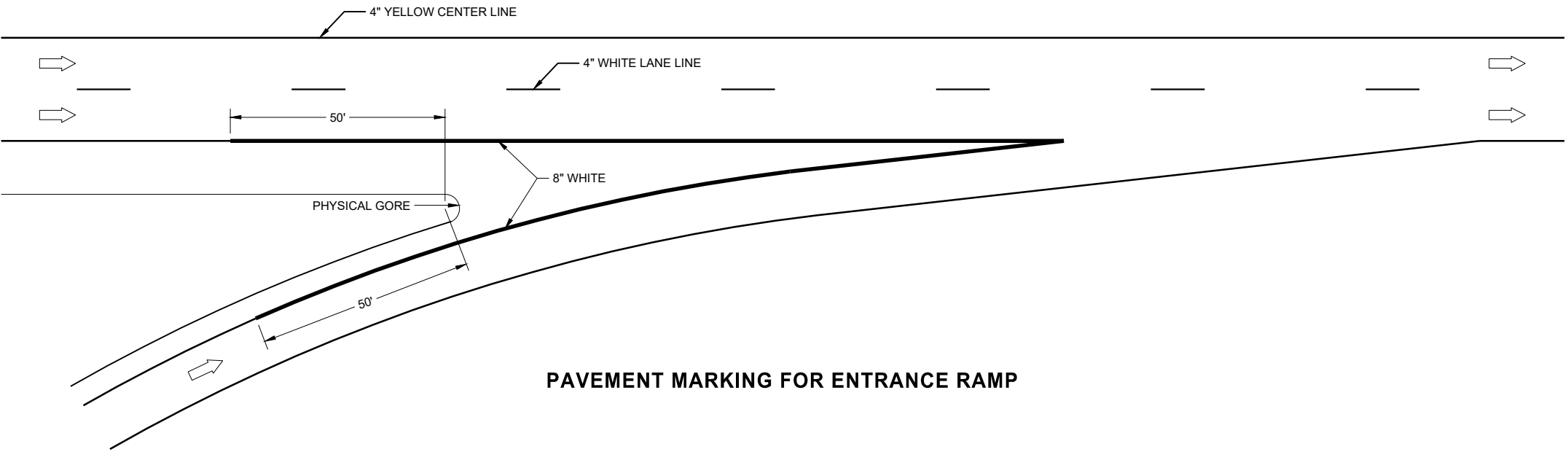
- ⊙ SIGN ON PERMANENT SUPPORT
- ➡ DIRECTION OF TRAVEL



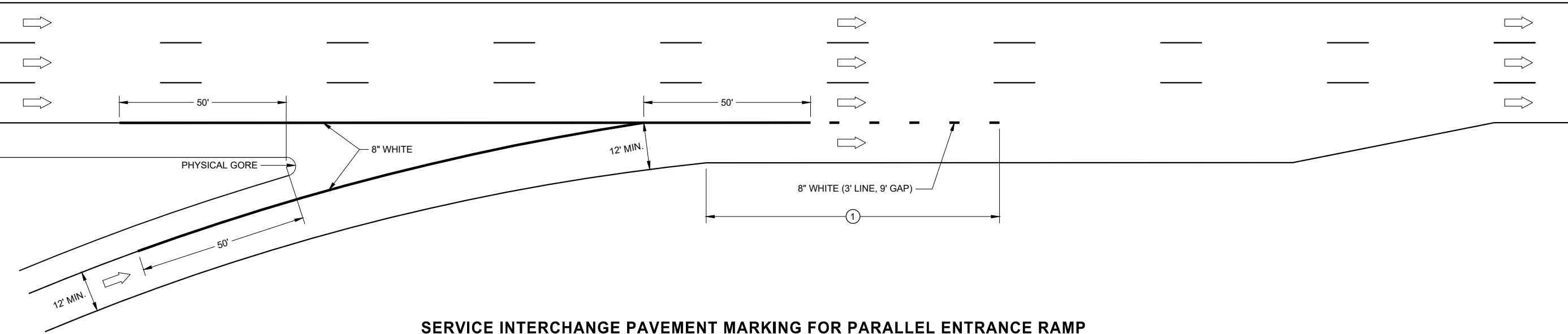
SERVICE INTERCHANGE PAVEMENT MARKING FOR PARALLEL EXIT RAMP

PAVEMENT MARKING,
EXIT RAMP AND
PARALLEL EXIT RAMP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION 118



PAVEMENT MARKING FOR ENTRANCE RAMP



SERVICE INTERCHANGE PAVEMENT MARKING FOR PARALLEL ENTRANCE RAMP

GENERAL NOTES

- PLACE GROOVE 3 INCHES LEFT OF JOINT.
- ① ½ LENGTH OF FULL WIDTH ACCELERATION LANE.

LEGEND

➡ DIRECTION OF TRAVEL

PAVEMENT MARKING,
ENTRANCE RAMP AND
PARALLEL ENTRANCE RAMP

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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 DESIRABLE) CLEARANCE TO EXISTING SIGNS.

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

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

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

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

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE 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 AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS 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 OR INTERSECTION. THE LANE CLOSURE 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 ONE HALF 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.

- 1 A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A RESUME SPEED LIMIT SIGN 200 FEET MINIMUM (500 FEET DESIRABLE) BEYOND THE "END OF ROADWORK" SIGN.

LEGEND

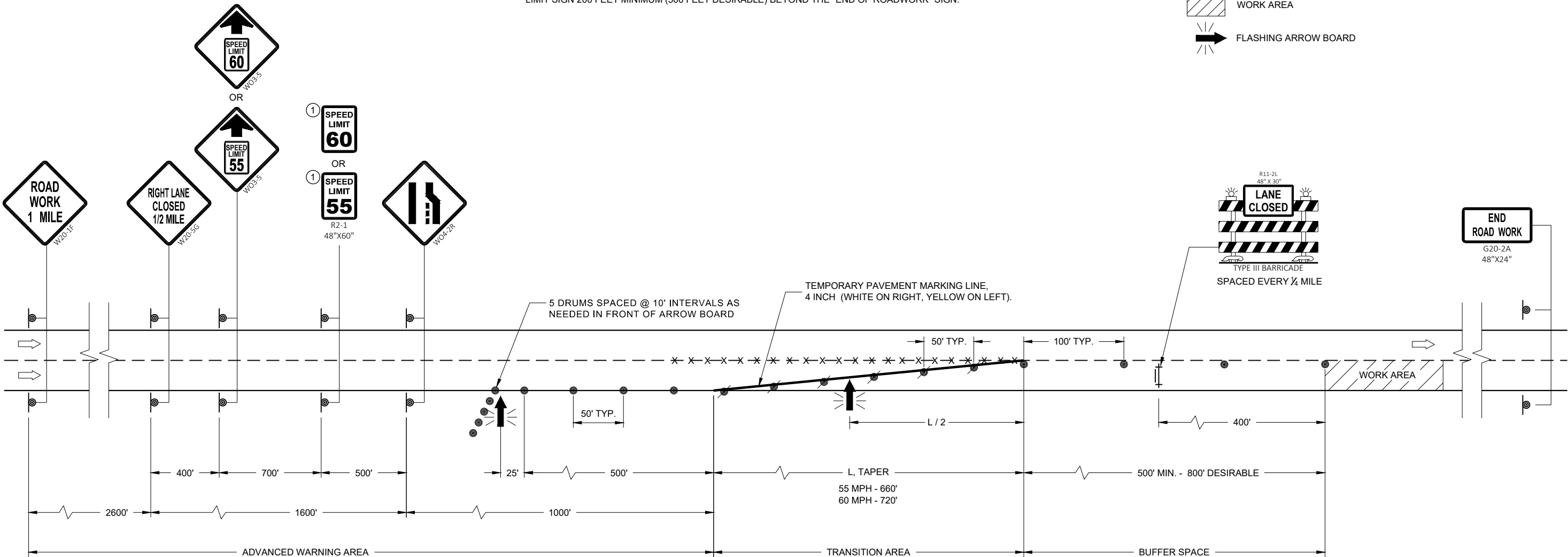
- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)

✕ ✕ ✕ REMOVING PAVEMENT MARKINGS

➡ DIRECTION OF TRAFFIC

WORK AREA

FLASHING ARROW BOARD



TRAFFIC CONTROL,
LANE CLOSURE,
SPEED REDUCTION

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 120

FHWA

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- REMOVING PAVEMENT MARKINGS
- DIRECTION OF TRAFFIC
- WORK AREA
- FLASHING ARROW BOARD
- PORTABLE CHANGEABLE MESSAGE SIGN
- PORTABLE TRAFFIC SENSOR (PTS)

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS, INCLUDING FBS 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 DESIRABLE) CLEARANCE TO EXISTING SIGNS.

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

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

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

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

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 AND PLACE TEMPORARY PAVEMENT MARKING LINE IF LANE CLOSURE IS TO BE IN PLACE 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

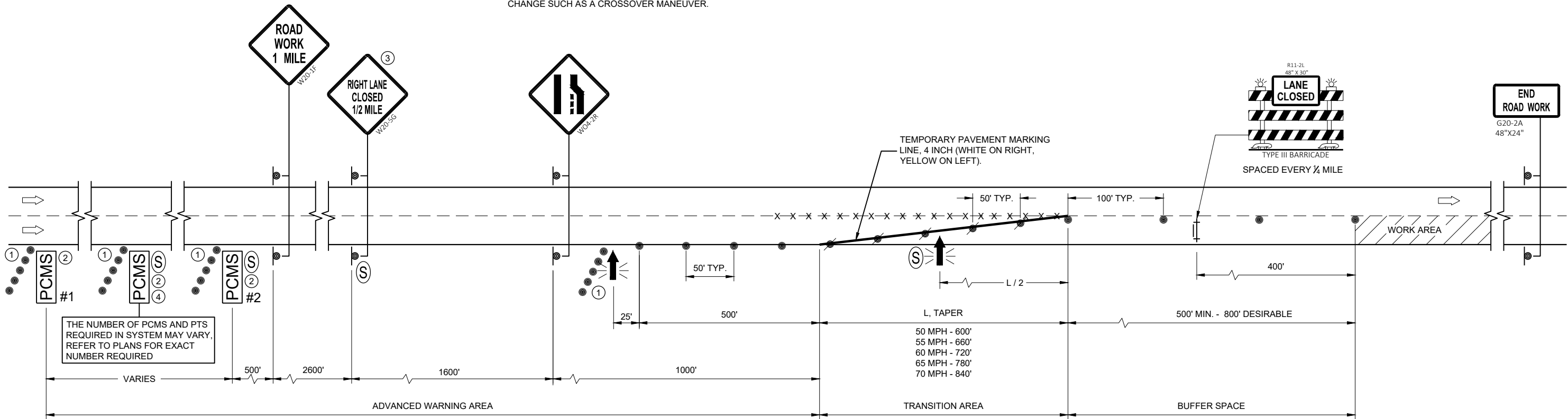
IF THE HORIZONTAL ALIGNMENT IS SUCH THAT A CURVE MAY REQUIRE ADDITIONAL DELINEATION, THE DEVICE SPACING MAY BE DECREASED TO 50 FEET.

ADJUSTMENTS IN BUFFER SPACE NEED TO BE INCORPORATED WHEN THE LANE CLOSURE OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP OR INTERSECTION. THE LANE CLOSURE 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 ONE HALF 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.

CONSIDER ROADWAY GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARD SO THE DRIVER HAS A CLEAR VIEW OF THE ARROW BOARD AND LANE CLOSURE DRUMS.

PORTABLE TRAFFIC SENSOR (PTS) MAY BE MOUNTED ON PCMS, ARROW BOARD OR OTHER TRAILER DEVICES.

- 5 DRUMS SPACED AT 10 FOOT INTERVALS AS NEEDED.
- IF THERE ARE MORE THAN TWO LANES OR IF SPECIFIED IN THE PLANS, PLACE PCMS ON BOTH SIDES OF THE ROADWAY.
- IF THERE IS AN APPROVED TEMPORARY SPEED DECLARATION, ADD WO-3-5 SIGNS 400 FEET AFTER THE W20-5G SIGNS AND ADD R2-1 SIGNS (48"x60") 700 FEET AFTER THE WO3-5 SIGNS. A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN A MINIMUM OF EVERY 3 MILES. INCLUDE A "RESUME SPEED LIMIT" SIGN 200 FEET MINIMUM (800 FEET DESIRABLE) BEYOND THE G30-3A "END ROAD WORK" SIGN.
- PLACE PCMS EVERY ONE MILE BETWEEN PCMS #1 AND PCMS #2, OR AS THE ENGINEER DIRECTS. THE NUMBER OF PCMS MAY BE MORE THAN SHOWN ON THIS DETAIL.
- PCMS SHALL FOLLOW ARROW BOARD STANDARDS WHEN DISPLAYING FLASHING FOUR CORNER CAUTION MODE OR FLASHING ARROW MERGE MODE.



⑤ PCMS MESSAGING					
SPEEDS 0 MPH TO 19 MPH		SPEEDS 20 MPH TO 39 MPH		SPEEDS 40 MPH AND GREATER	
FRAME 1	FRAME 2	FRAME 1	FRAME 2	 (FLASHING CAUTION MODE)	
STOPPED TRAFFIC AHEAD	EXPECT DELAYS	SLOW TRAFFIC AHEAD	PREPARE TO STOP		

TRAFFIC CONTROL, LANE CLOSURE, TRAFFIC QUEUE WARNING SYSTEM

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2022 /S/ Erin Schwark
DATE WORK ZONE ENGINEER 121

FHWA

LEGEND

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

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

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 MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS. USE SUPPORTS THAT PROVIDE A MINIMUM OF 5 FEET FROM THE BOTTOM OF THE SIGN TO THE PAVEMENT.

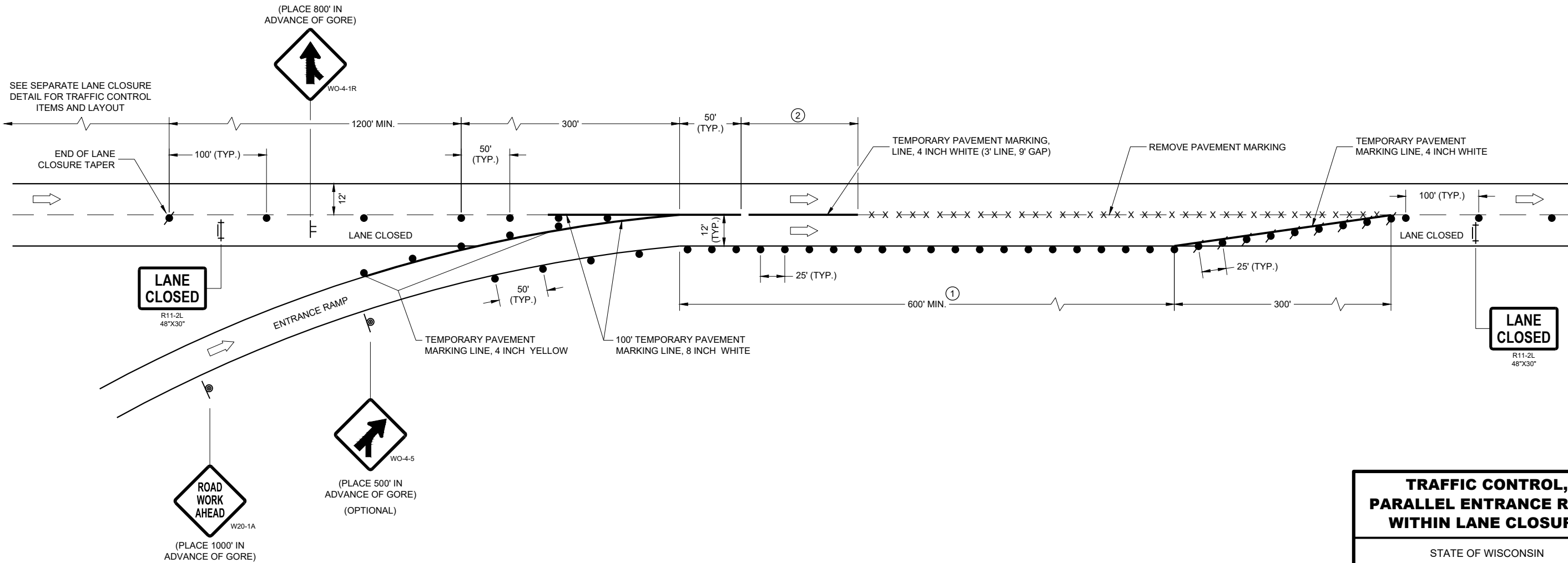
IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE ENTRANCE RAMP AND MAINLINE TRAFFIC.

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 LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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

- ① EXTEND THE LENGTH OF THE MERGE ARE IF THE ENTERING (DESIGN) SPEED IS LESS THAN 50MPH OR IF THE MAINLINE GRADE EXCEEDS ±2.2%.
- ② END TEMPORARY PAVEMENT MARKING LINE AT ½ THE LENGTH OF FULL WIDTH OF THE ACCELERATION LANE.



**TRAFFIC CONTROL,
PARALLEL ENTRANCE RAMP
WITHIN LANE CLOSURE**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 122

FHWA

LEGEND

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

GENERAL NOTES

THE INSTALLATIONS SHOWN ON THIS SHEET ARE TYPICAL EXAMPLES AND ARE NOT INTENDED TO REPRESENT ANY PARTICULAR RAMP. AT SPECIFIC FIELD LOCATIONS, SIMILAR INSTALLATIONS SHALL BE USED AND ADJUSTED TO THE GEOMETRICS OF THE RAMP AS COORDINATED WITH THE ENGINEER.

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 MINIMUM OF 200 FEET (500 FEET DESIRABLE) CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

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

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

SEE SEPARATE LANE CLOSURE DETAIL FOR TYPICAL SPACING OF TYPE III BARRICADES AND R11-2L "LANE CLOSED" SIGNS.

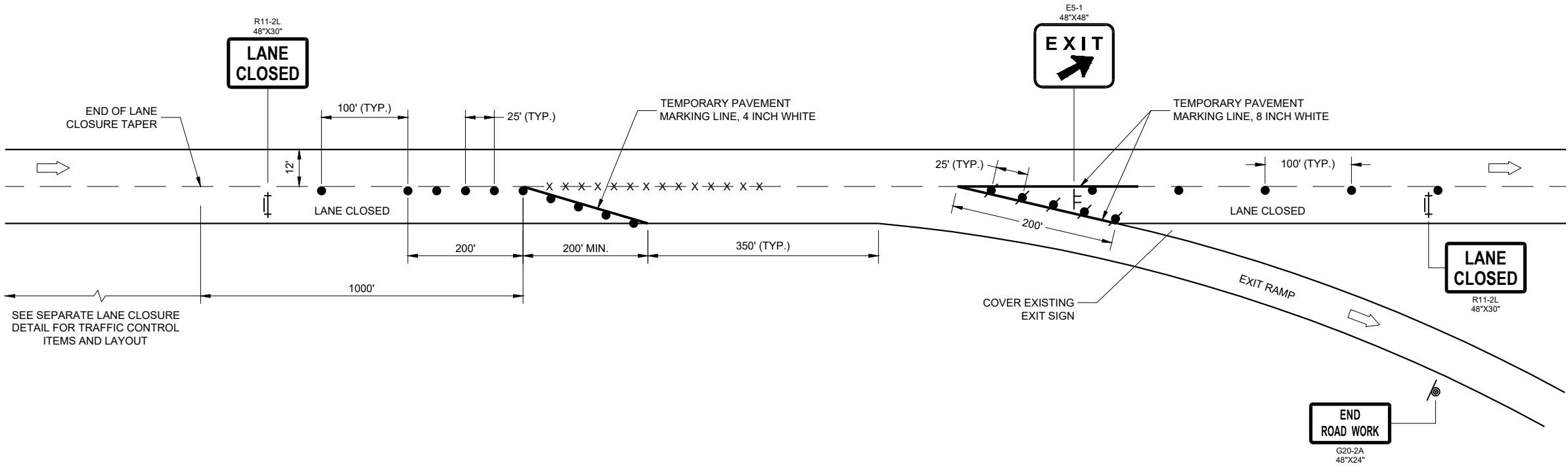
SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONSECUTIVE DAYS AND NIGHTS OR THAT WILL BE PLACED IN A CLOSED LANE, MAY BE MOUNTED ON PORTABLE SUPPORTS.

IF INDICATED IN MISCELLANEOUS QUANTITIES, SUBSTITUTE FLEXIBLE TUBULAR MARKERS FOR DRUMS IN THE GORE BETWEEN THE EXIT RAMP AND MAINLINE TRAFFIC.

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 LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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



TRAFFIC CONTROL,
PARALLEL EXIT RAMP
WITHIN LANE CLOSURE

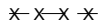
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2022
DATE

/S/ Andrew Heidtke
WORK ZONE ENGINEER 123

FHWA

LEGEND

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

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 DESIRABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR LANE SHIFT RIGHT - REVERSE FOR SHIFTING LEFT.

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 ANY "COVERED" OR "DOWNED" SIGNS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS 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.

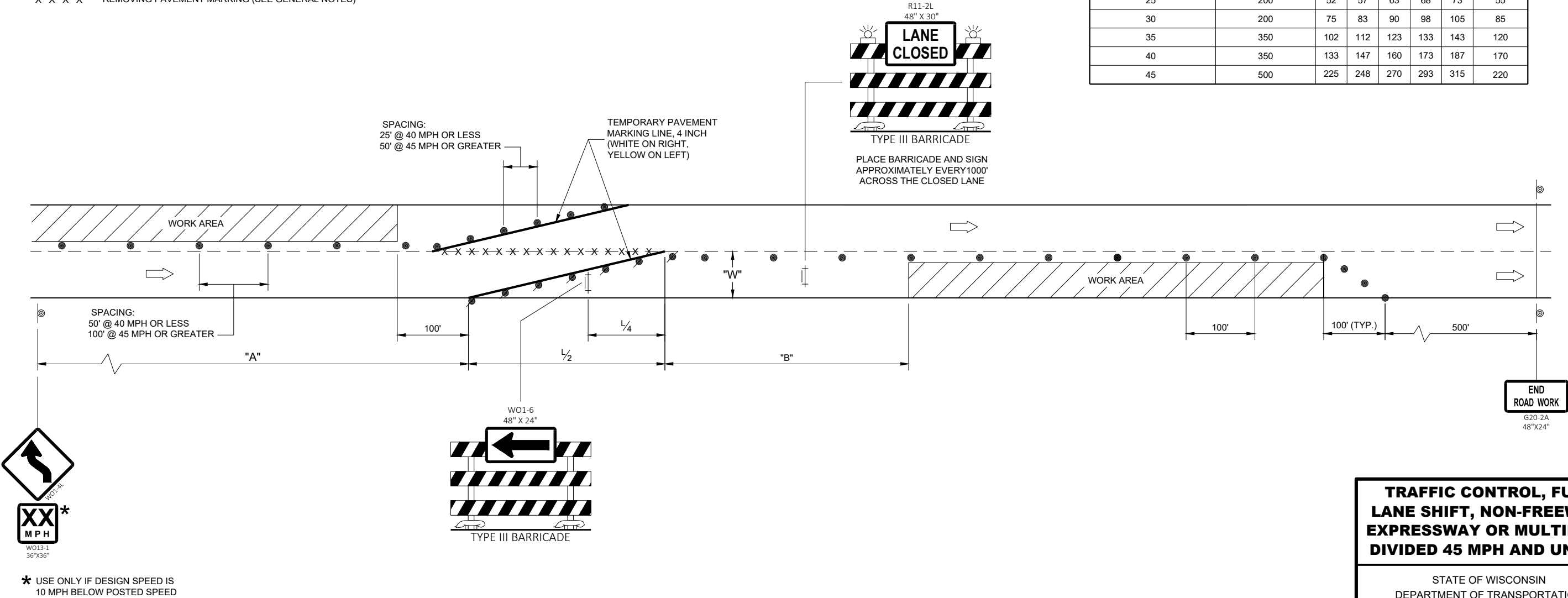
REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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 SHIFT OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE SHIFT 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.

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHIFTING TAPER $\frac{L}{2}$ W, LATERAL OFFSET (FT)					BUFFER SPACE (B) FEET
		10	11	12	13	14	
25	200	52	57	63	68	73	55
30	200	75	83	90	98	105	85
35	350	102	112	123	133	143	120
40	350	133	147	160	173	187	170
45	500	225	248	270	293	315	220



TRAFFIC CONTROL, FULL LANE SHIFT, NON-FREEWAY/ EXPRESSWAY OR MULTILANE DIVIDED 45 MPH AND UNDER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 124

FHWA

	TYPE III BARRICADE WITH ATTACHED SIGN
	SIGN ON PERMANENT SUPPORT
	TRAFFIC CONTROL DRUM
	TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
	TYPE "A" WARNING LIGHT (FLASHING)
	DIRECTION OF TRAFFIC
	WORK AREA
	REMOVE PAVEMENT MARKING

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 DESIRABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR LANE SHIFT LEFT - REVERSE FOR SHIFTING RIGHT.

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 ANY "COVERED" OR "DOWNED" SIGNS.

CONSIDER GEOMETRICS WHEN LOCATING SIGNS AND ARROW BOARDS 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 AND PLACE TEMPORARY PAVEMENT LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

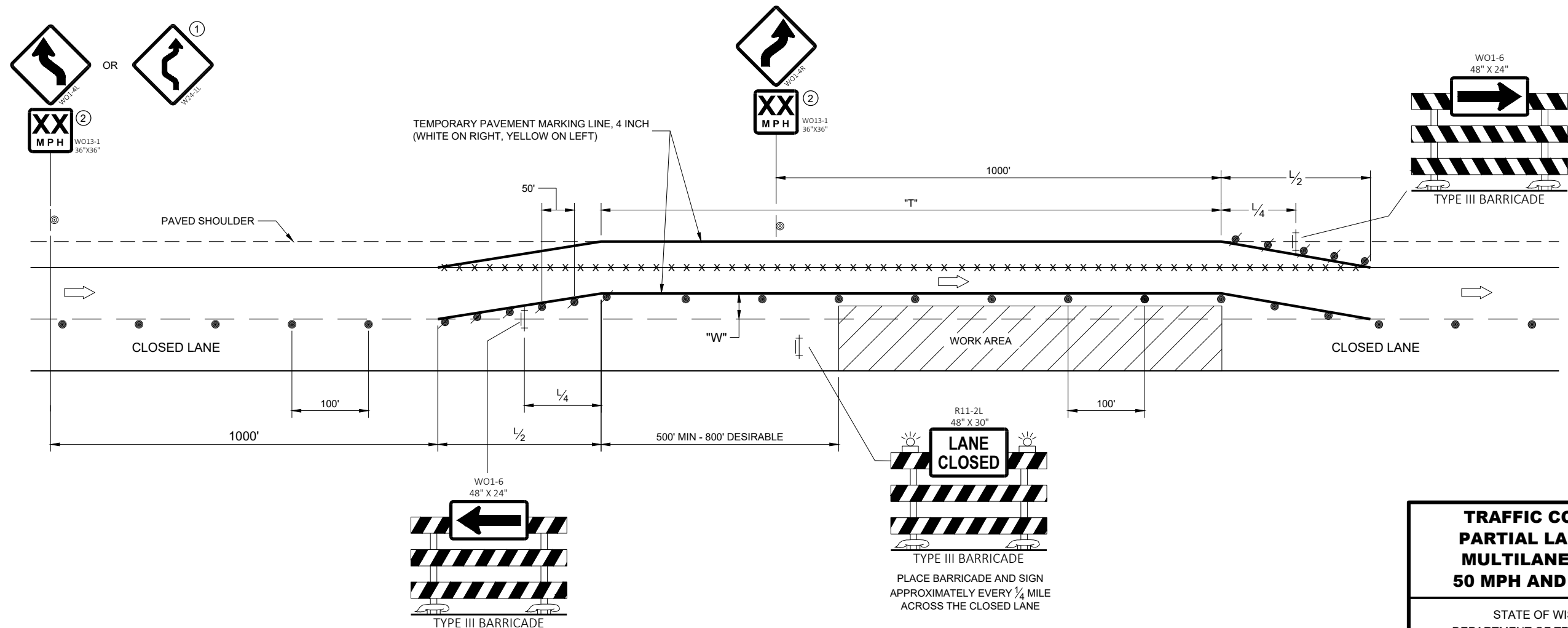
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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

① USE ONLY WHEN T<600', OMIT WO1-4R.

② IF NEEDED, USE ONLY IF DESIGN SPEED IS 10 MPH BELOW POSTED SPEED.

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	SHIFTING TAPER $\frac{L}{2}$								
	W, LATERAL OFFSET (FT)								
	1	2	3	4	5	6	7	8	9
50	25	50	75	100	125	150	175	200	225
55	28	55	83	110	138	165	193	220	248
60	30	60	90	120	150	180	210	240	270
65	33	65	98	130	163	195	228	260	293
70	35	70	105	140	175	210	245	280	315



APPROVED
February 2022 _____ /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 125

LEGEND

- 

TYPE III BARRICADE WITH ATTACHED SIGN
- 

SIGN ON PERMANENT SUPPORT
- 

TRAFFIC CONTROL DRUM
- 

DIRECTION OF TRAFFIC
- 

CONCRETE BARRIER TEMPORARY PRECAST
- 

TYPE "A" WARNING LIGHT (FLASHING)
- 

WORK AREA

- 

LOCATED 3000 FEET BEYOND THE "ROAD WORK 1 MILE" (W20-1F) SIGN
- OR
- 

(BLACK AND WHITE) LOCATED 700 FEET BEYOND THE W03-5 SIGN
- OR
- 

R2-1 48"x60"
- OR
- 

R2-1 48"x60"

IF THE REGULATORY SPEED HAS BEEN REDUCED, A SPEED LIMIT SIGN SHALL BE LOCATED 1500 FEET BEYOND THE END OF THE ACCELERATION LANE OF EACH ENTRANCE RAMP. PLACE A SPEED LIMIT SIGN INCORPORATED A MINIMUM OF EVERY 3 MILES.

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 DESIRABLE) DISTANCE TO EXISTING SIGNS.

THIS LANE CLOSURE IS TYPICAL FOR LANE SHIFT RIGHT - REVERSE FOR SHIFTING LEFT.

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.

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.

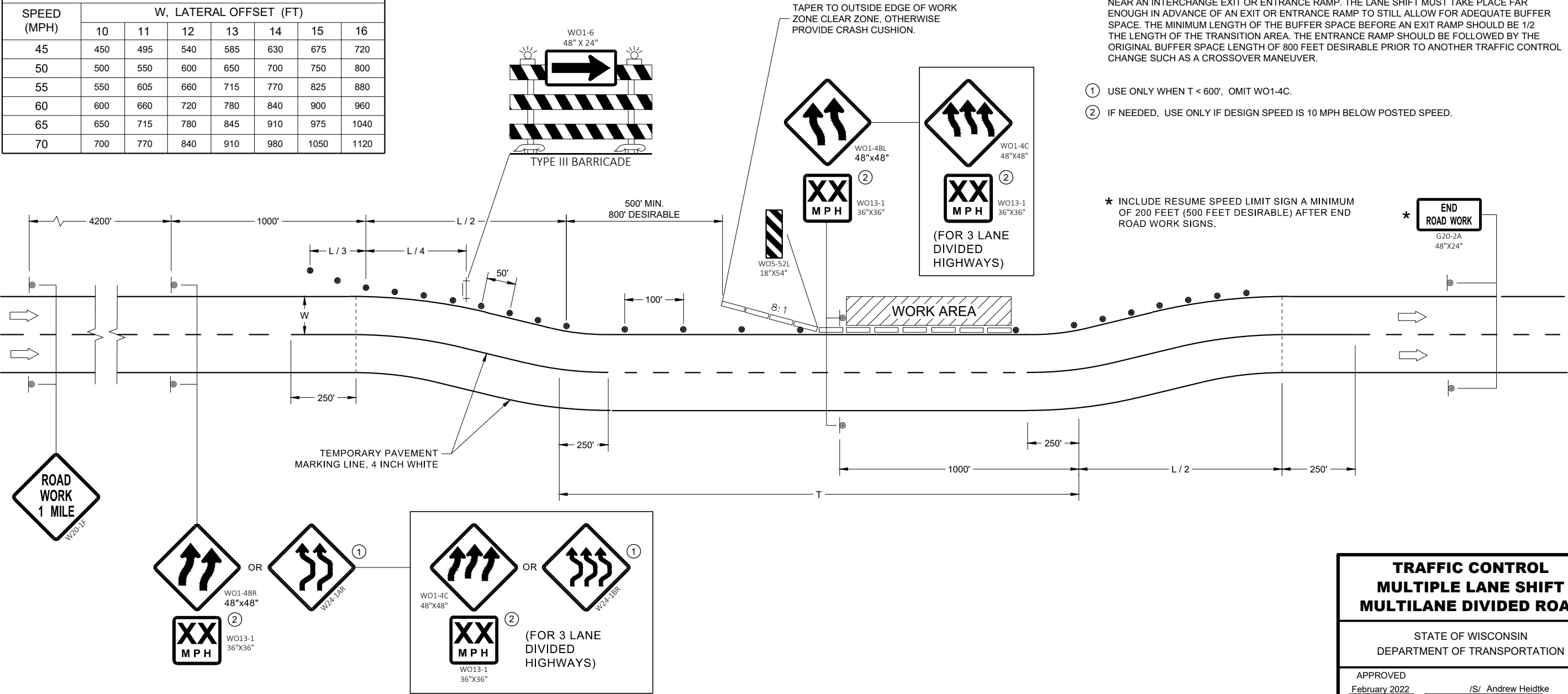
REMOVE PAVEMENT MARKINGS AND PLACE TEMPORARY PAVEMENT MARKING LINES IF LANE CLOSURE IS TO BE IN PLACE FOR 4 OR MORE CONTINUOUS DAYS AND NIGHTS.

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 SHIFT OCCURS NEAR AN INTERCHANGE EXIT OR ENTRANCE RAMP. THE LANE SHIFT 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.

- ① USE ONLY WHEN T < 600', OMIT W01-4C.
- ② IF NEEDED, USE ONLY IF DESIGN SPEED IS 10 MPH BELOW POSTED SPEED.

L, TAPER LENGTH (MPH)							
SPEED (MPH)	W, LATERAL OFFSET (FT)						
	10	11	12	13	14	15	16
45	450	495	540	585	630	675	720
50	500	550	600	650	700	750	800
55	550	605	660	715	770	825	880
60	600	660	720	780	840	900	960
65	650	715	780	845	910	975	1040
70	700	770	840	910	980	1050	1120



TRAFFIC CONTROL
MULTIPLE LANE SHIFT
MULTILANE DIVIDED ROAD

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2022 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER 126

FHWA

LEGEND

- SIGN ON PERMANENT SUPPORT
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY BURN LIGHT
- TYPE III BARRICADE WITH ATTACHED SIGN
- DIRECTION OF TRAFFIC
- CONSTRUCTION TRAFFIC
- WORK AREA

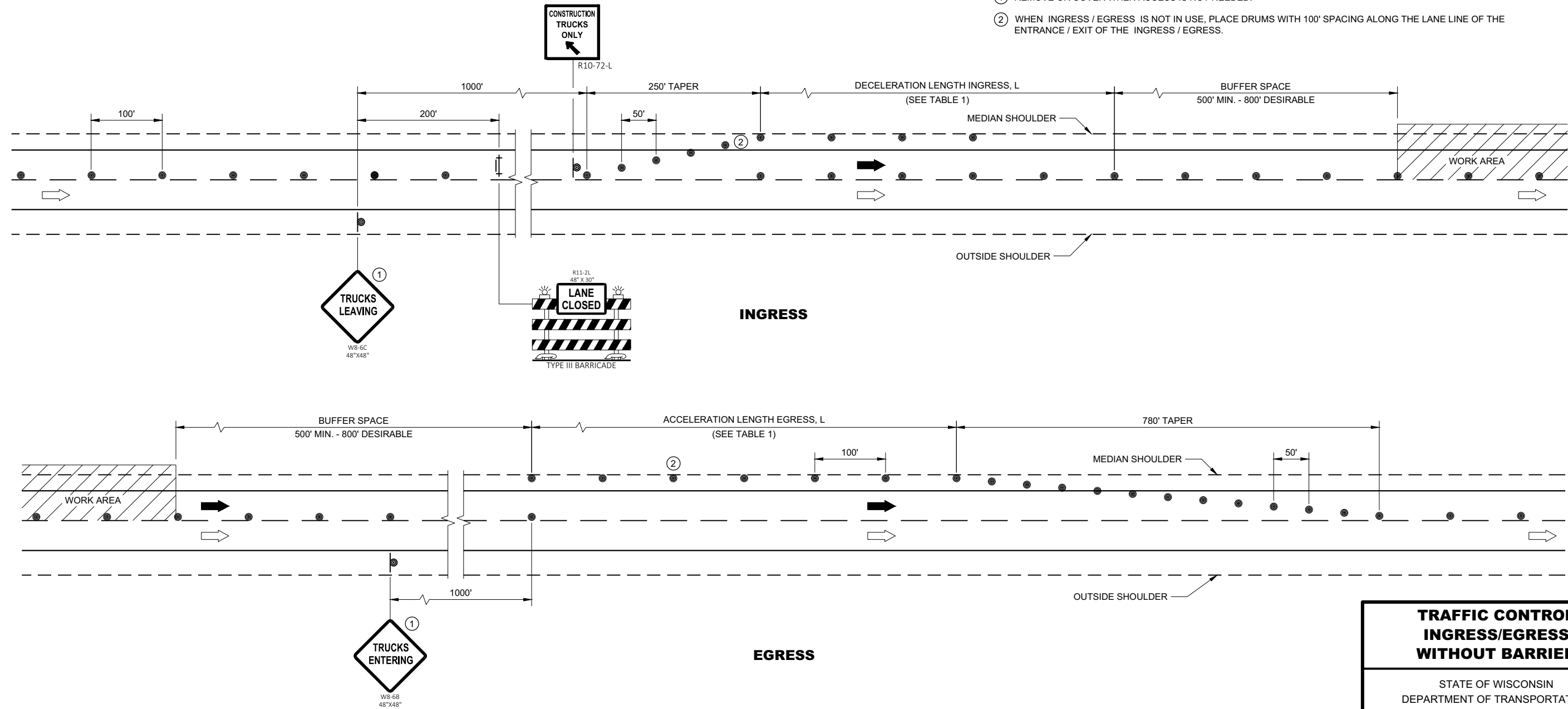
TABLE 1

S (MPH)	INGRESS, L	EGRESS, L
50	435'	720'
55	480'	960'
60	530'	1200'
65	570'	1410'
70	615'	1620'

LEGEND

- ALL SIGNS ARE 48"x48" UNLESS OTHERWISE NOTED.
- "WO" SIGN IS THE SAME AS "W" SIGN EXCEPT THE BACKGROUND IS ORANGE.
- ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH THE 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.
- THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
- WORK ZONE INGRESS/EGRESS LOCATIONS SHALL BE APPROVED BY THE ENGINEER. LOCATIONS FOR WORK ZONE ACCESS TO/FROM THE FREEWAY SHALL NOT BE USED FOR INGRESS AND EGRESS AT THE SAME TIME.
- THIS ACCESS DETAIL IS TYPICAL FOR LEFT LANE ACCESS, FOR RIGHT LANE ACCESS, REVERSE THE TRAFFIC CONTROL
- TEMPORARY SUPPORTS MAY BE USED IF PLACED BEHIND TEMPORARY BARRIER WALL
- TRUCKS SHALL USE FLASHING YELLOW BEACON WHEN ENTERING AND EXITING LIVE TRAFFIC.

- ① REMOVE OR COVER WHEN ACCESS IS NOT NEEDED.
- ② WHEN INGRESS / EGRESS IS NOT IN USE, PLACE DRUMS WITH 100' SPACING ALONG THE LANE LINE OF THE ENTRANCE / EXIT OF THE INGRESS / EGRESS.



TRAFFIC CONTROL
INGRESS/EGRESS
WITHOUT BARRIER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

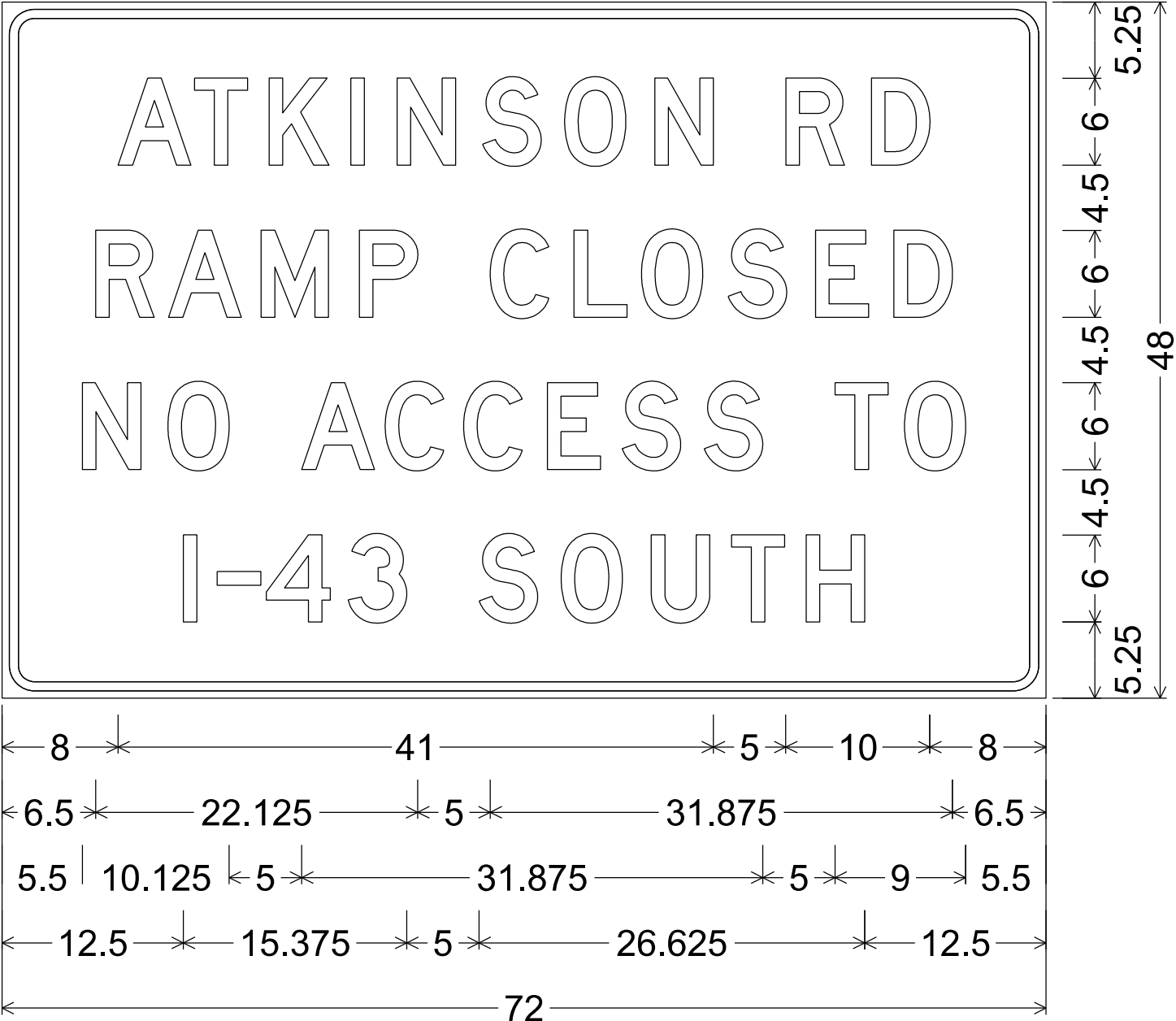
APPROVED
May 2020 /S/ Andrew Heidtke
DATE ROADWAY STANDARDS DEVELOPMENT ENGINEER 127

FHWA

7

NOTES

- 1. Fixed Message Signs Type II - Type F Reflective
- 2. Color:
Background - Orange
Message - Black
- 3. Message Series - D



2.250" Radius, 0.625" Border, 0.500" Indent

7

DESIGN DATA

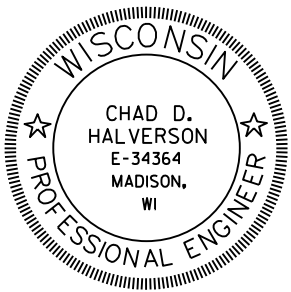
LIVE LOAD:
TAKEN FROM HSI, 01/07/2022
DESIGN LOADING: HS20
INVENTORY RATING: HS20
OPERATING RATING: HS33
WISCONSIN STANDARD PERMIT VEHICLE (WIS-SPV) = 190 KIPS

TRAFFIC DATA

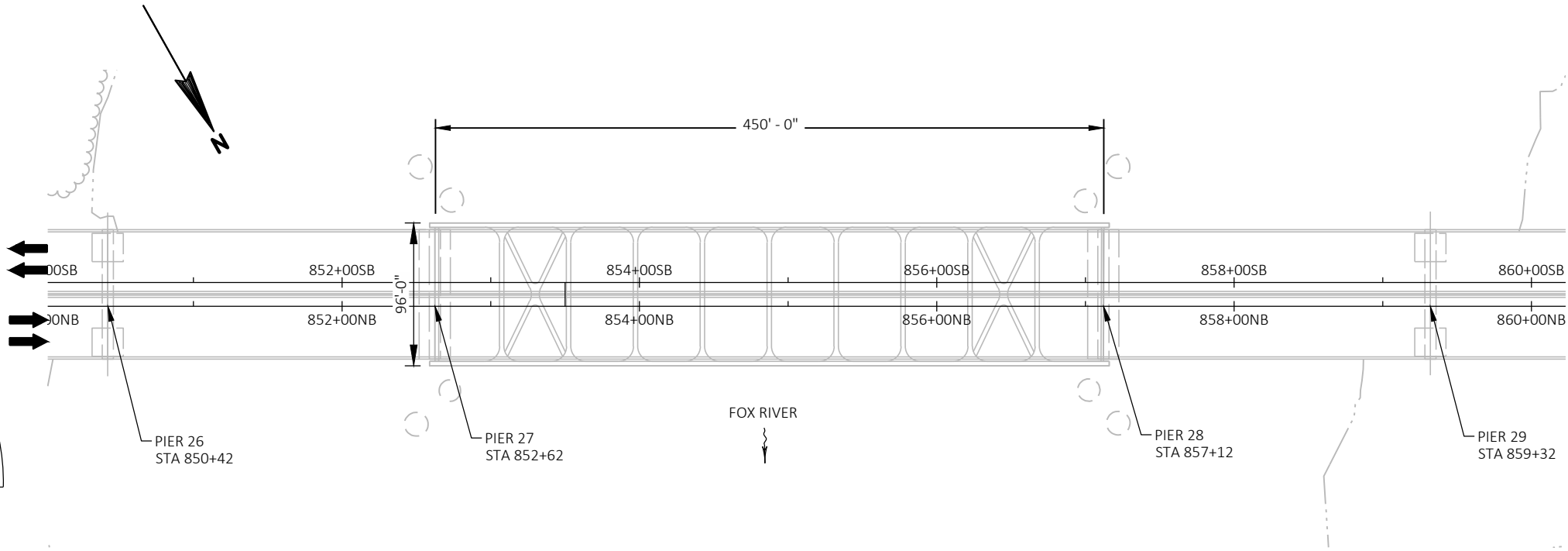
IH 43
A.A.D.T. = 43,300 (2020)

LIST OF DRAWINGS

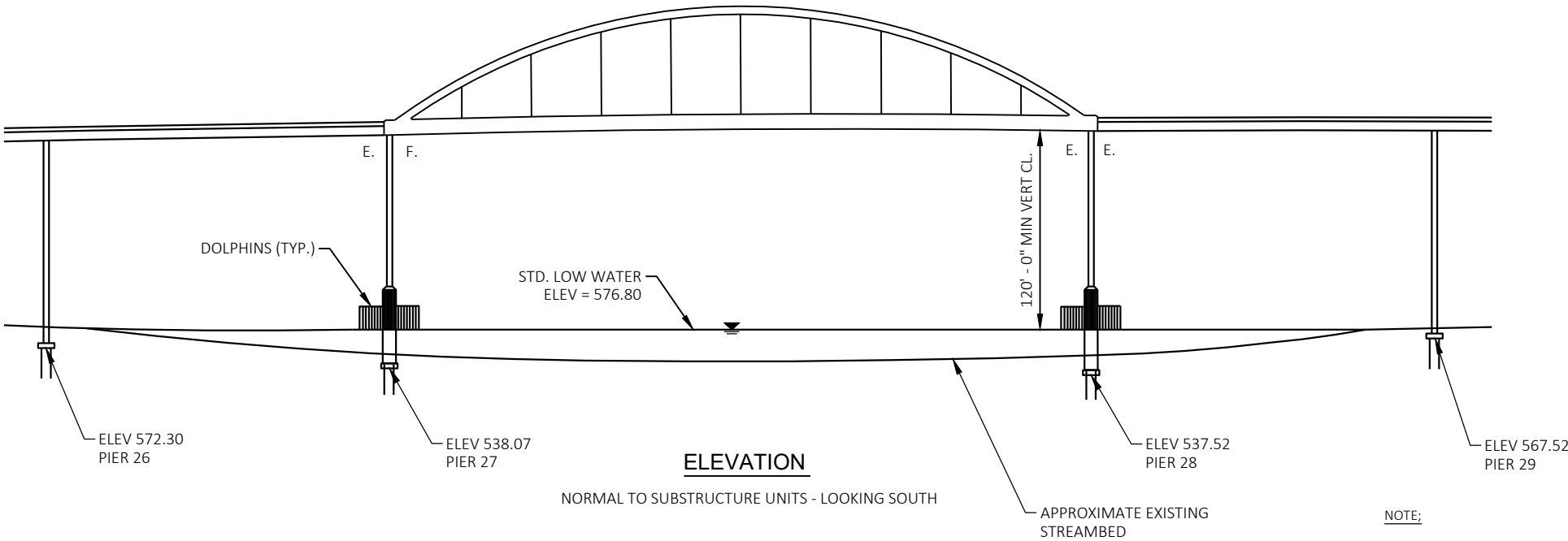
1. GENERAL PLAN
2. CROSS SECTION, NOTES & QUANTITIES
3. PAINTING DETAILS
4. LIGHTING DETAILS



Chad Halverson
July 18, 2022



PLAN
(REHAB - REPAINTING EXISTING ARCH & TIE GIRDERS)



ELEVATION

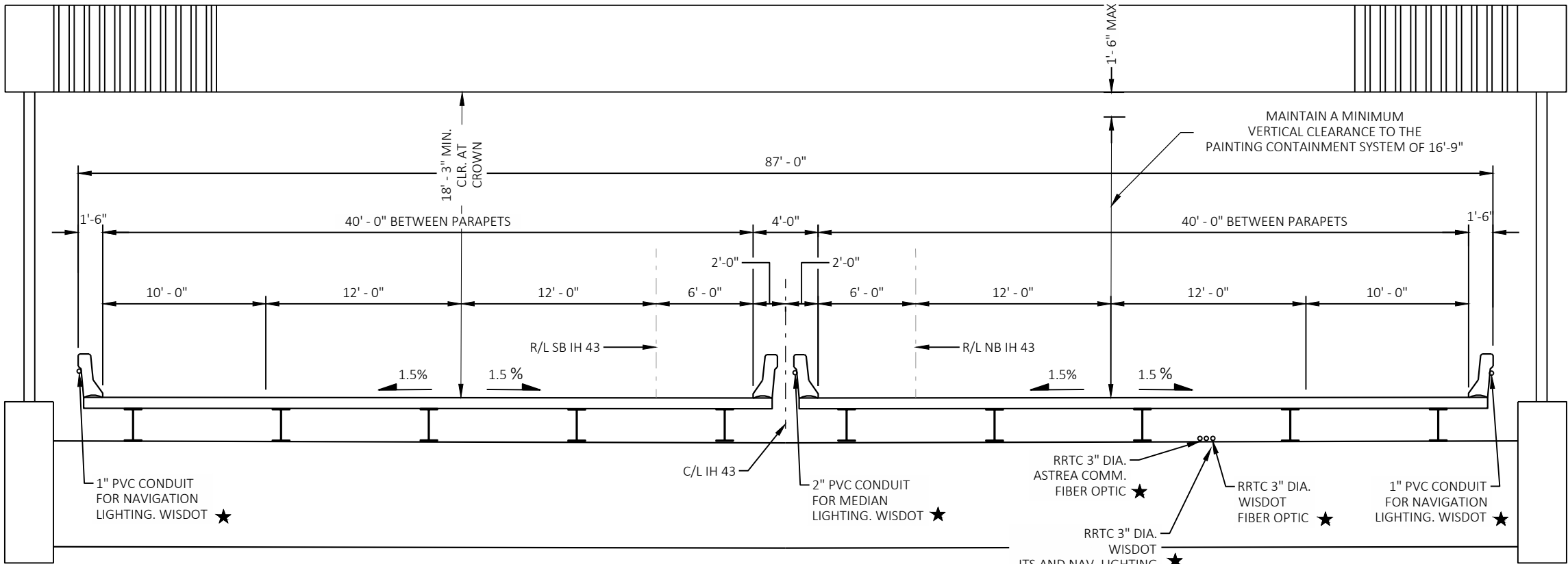
NORMAL TO SUBSTRUCTURE UNITS - LOOKING SOUTH

NOTE:
SEE ROAD PLANS FOR FURTHER LIGHTING DETAILS.

DESIGN CONTACT:
CHAD HALVERSON
(608) 663-1218

BRIDGE OFFICE CONTACT:
AARON BONK
(608) 261-0261

NO.	DATE	REVISION	BY
KL Engineering [A] Better Experience			
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
ACCEPTED	<i>Chad Halverson</i> SDR	07/18/22	DATE
CHIEF STRUCTURES DESIGN ENGINEER			
STRUCTURE B-5-158-10			
IH 43 LEO FRIGO BRIDGE OVER FOX RIVER			
COUNTY	BROWN	TOWN/CITY/VILLAGE	GREEN BAY
DESIGN SPEC. REHABILITATION N/A			
DESIGNED BY	CDH	DESIGN CK'D.	CAH
DRAWN BY	RMU	PLANS CK'D.	CDH
GENERAL PLAN			SHEET 1 OF 4 129



GENERAL NOTES

DRAWINGS SHALL NOT BE SCALED.

SEE ROAD PLANS FOR TRAFFIC CONTROL.

DIMENSIONS AND STATIONING SHOWN ARE BASED ON THE ORIGINAL PLANS.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS ARE NOT SHOWN.

PROVIDE 16-9" MIN. VERT. CLR. BETWEEN ROADWAY AND CONTAINMENT SYSTEM DURING CONSTRUCTION.

BOTTOM OF CONTAINMENT SYSTEM MAY EXTEND UP TO A MAXIMUM OF 3'-0" BELOW BOTTOM OF TIE GIRDER TO MAINTAIN NAVIGATIONAL CLEARANCE.

THIS PROJECT WILL PAINT THE EXISTING STRUCTURE, B-5-158-10, A SINGLE SPAN, 450-FOOT-LONG STEEL TIED ARCH BRIDGE. IMPROVEMENTS INCLUDE REPAINTING:

STRUCTURAL REPAINTING RECYCLED ABRASIVE, STRUCTURE B-5-158-10 INCLUDES THE FOLLOWING: (EST. 59,700 S.F.)

- ALL EXTERIOR OF THE 5' HIGH X 3' WIDE UPPER ARCHES (ABOVE THE TIE GIRDER). FULL REMOVAL AND REPLACEMENT (ESTIMATED AREA = 34,200 S.F.)
- OUTSIDE STRINGERS. FULL REMOVAL AND REPLACEMENT. (ESTIMATED AREA = 7,410 S.F.)
- FLOOR BEAM TO TIE GIRDERS CONNECTIONS. FULL REMOVAL AND REPLACEMENT / ZONE PAINTING. (ESTIMATED AREA = 4,100 S.F.)
- INSIDE STRINGERS. FULL REMOVAL AND REPLACEMENT. (ESTIMATED AREA = 7,410 S.F.)
- STRINGERS AT SHIP-LAP JOINT. FULL REMOVAL AND REPLACEMENT / ZONE PAINTING. (ESTIMATED AREA = 240 S.F.)
- FLOOR BEAM CROSS-BRACE CONNECTIONS UNDER THE MEDIAN GAP AND AT FLOOR BEAM TO TIE GIRDER CONNECTION. FULL REMOVAL AND REPLACEMENT / ZONE PAINTING. (ESTIMATED AREA = 6,340 S.F.)

STRUCTURAL OVERCOATING CLEANING AND PRIMING, STRUCTURE B-5-158-10 INCLUDES THE FOLLOWING: (EST. 2,200 S.F.)

- INTERNALS OF THE TIE GIRDERS. SPOT PAINTING AS NEEDED. (ESTIMATED AREA = 1,600 S.F.)
- INTERNALS OF THE ARCH AND STRUT/CROSS BRACE PORTALS. SPOT PAINTING (ESTIMATED AREA = 320 S.F.)
- FLOOR BEAM TO TIE GIRDER GUSSET CONNECTIONS (22 EACH). SPOT PAINTING. (ESTIMATED AREA = 120 S.F.)
- FLOOR BEAMS OVER PIERS (AT END OF TIED ARCH). SPOT PAINTING. (ESTIMATED AREA = 180 S.F.)

ESTIMATED STRUCTURAL STEEL SURFACE AREA TO BE PAINTED = 62,800 S.F.

THE COLOR OF THE FINISH URETHANE TOPCOAT FOR ALL STRUCTURAL STEEL AREAS SHALL BE AS NOTED BELOW OR SIMILAR COLOR APPROVED BY THE ENGINEER:

AMS STANDARD 595A
#25240 BLUE (EXTERIOR ARCH, TIE GIRDER, FLOOR BEAM ENDS AND EXTERIOR STRINGERS)
#20059 BROWN (INTERIOR ZONE FLOOR BEAMS, STRINGERS, CROSS BRACE CONNECTIONS)

THE COLOR OF THE FINISH URETHANE TOPCOAT FOR INTERIOR STRUCTURAL STEEL AREAS SHALL BE AS NOTED BELOW OR SIMILAR COLOR APPROVED BY THE ENGINEER:

#27925 WHITE (INTERIOR ARCH AND TIE GIRDER)

PROVIDE TOUCH UP PAINTING AT THE LOCATIONS OF ELECTRICAL BONDING. COORDINATE WITH ELECTRICAL CONTRACTOR.

CROSS SECTION THRU ROADWAY

LOOKING WEST

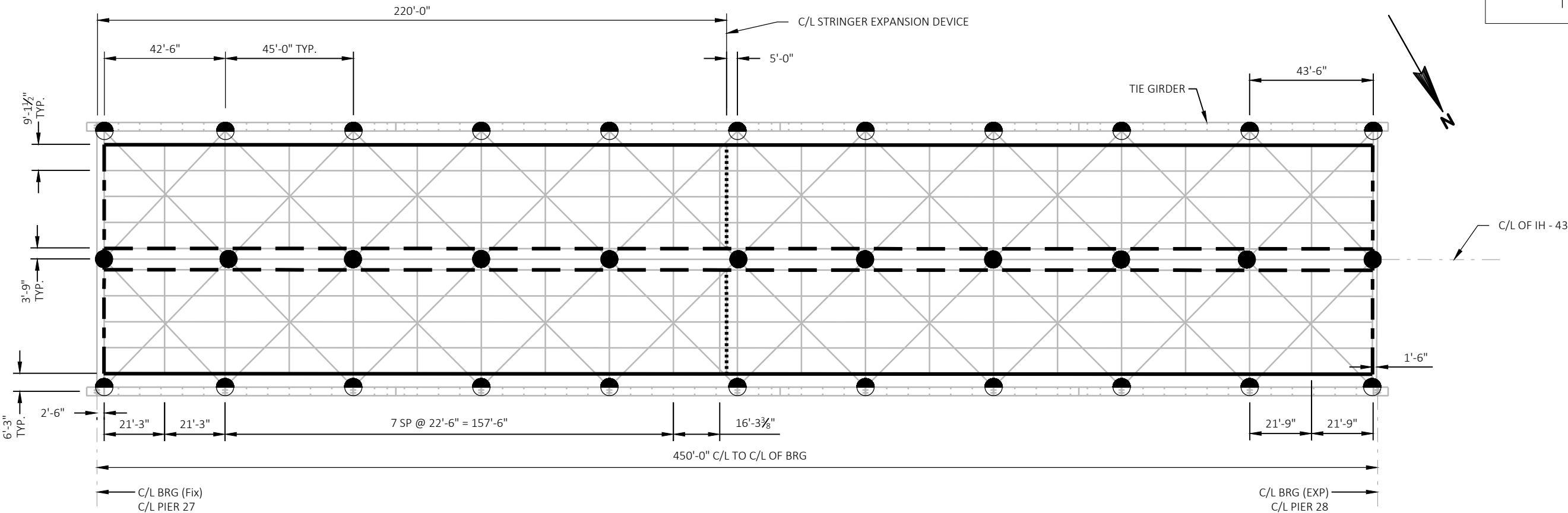
TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	ITEM DESCRIPTION	UNIT	TOTALS
517.1801.S	STRUCTURE REPAINTING RECYCLED ABRASIVE B-5-158-10	EACH	1
517.3001.S	STRUCTURE OVERCOATING CLEANING AND PRIMING B-5-158-10	EACH	1
517.4501.S	NEGATIVE PRESSURE CONTAINMENT AND COLLECTION OF WASTE MATERIALS B-5-158-10	EACH	1
517.6001.S	PORTABLE DECONTAMINATION FACILITY	EACH	1

LEGEND

- ★ CONDUIT SHOWN ON THE TYPICAL SECTION ARE EXISTING CONDUIT TO REMAIN.

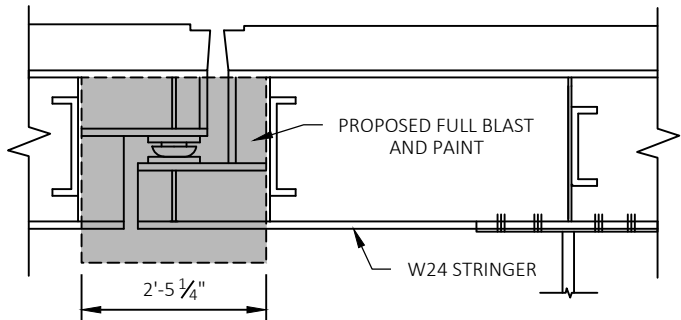
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-5-158-10			
	DRAWN BY	RMU	PLANS CK'D. CDH
CROSS SECTION, NOTES & QUANTITIES		SHEET 2 OF 4 130	



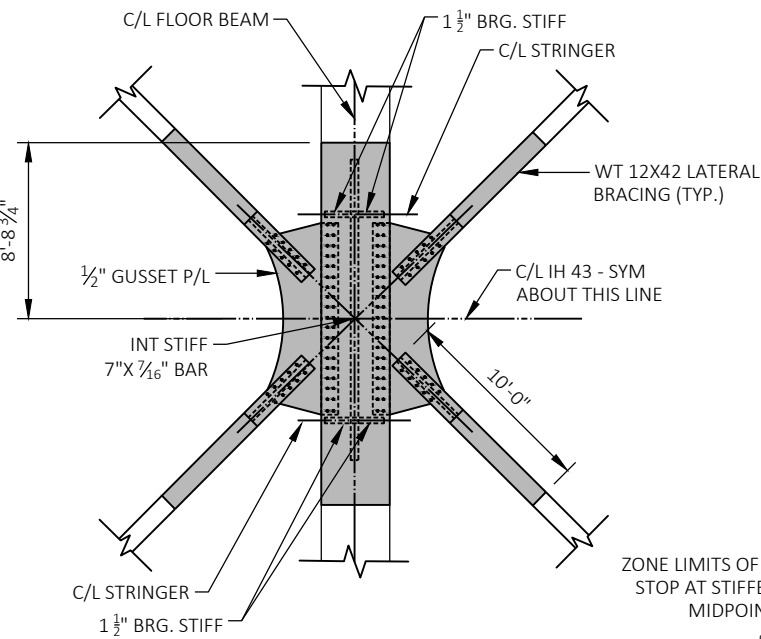
SUPERSTRUCTURE PAINTING PLAN

LEGEND

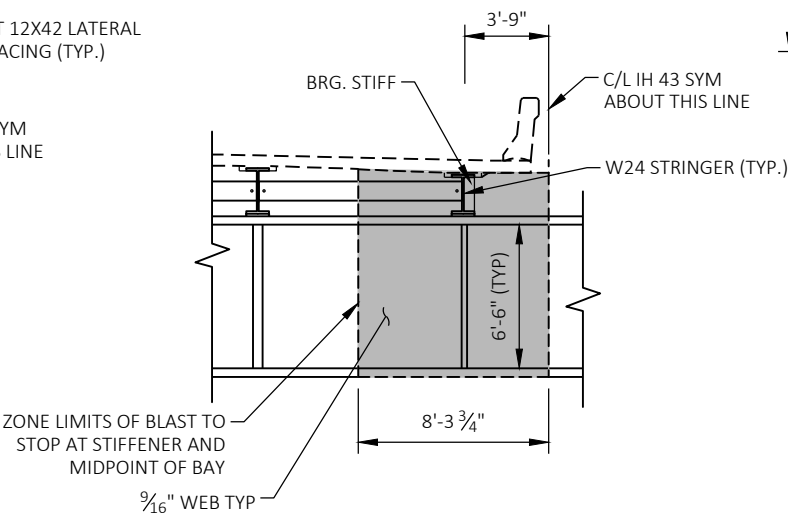
- FLOOR BEAM TO TIE GIRDER CONNECTIONS - SPOT PAINT - BLUE
- OUTSIDE STRINGERS AND FLOOR BEAMS - FULL PAINT - BLUE
- INSIDE STRINGERS, FLOOR BEAM, CROSS BRACE CONNECTIONS - FULL PAINT - BROWN
- FLOOR BEAM OVER PIER AT END OF TIED ARCH - SPOT PAINT - BLUE
- STRINGERS AT SHIP-LAP JOINT (UNDER CENTER SPAN JOINT) - FULL PAINT - BROWN



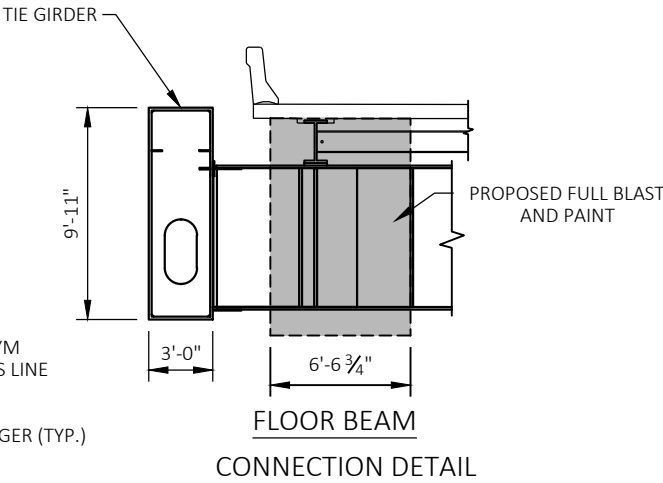
JOINT DETAIL



**LATERAL BRACING MEDIAN GAP
ZONE PAINTING LIMITS**

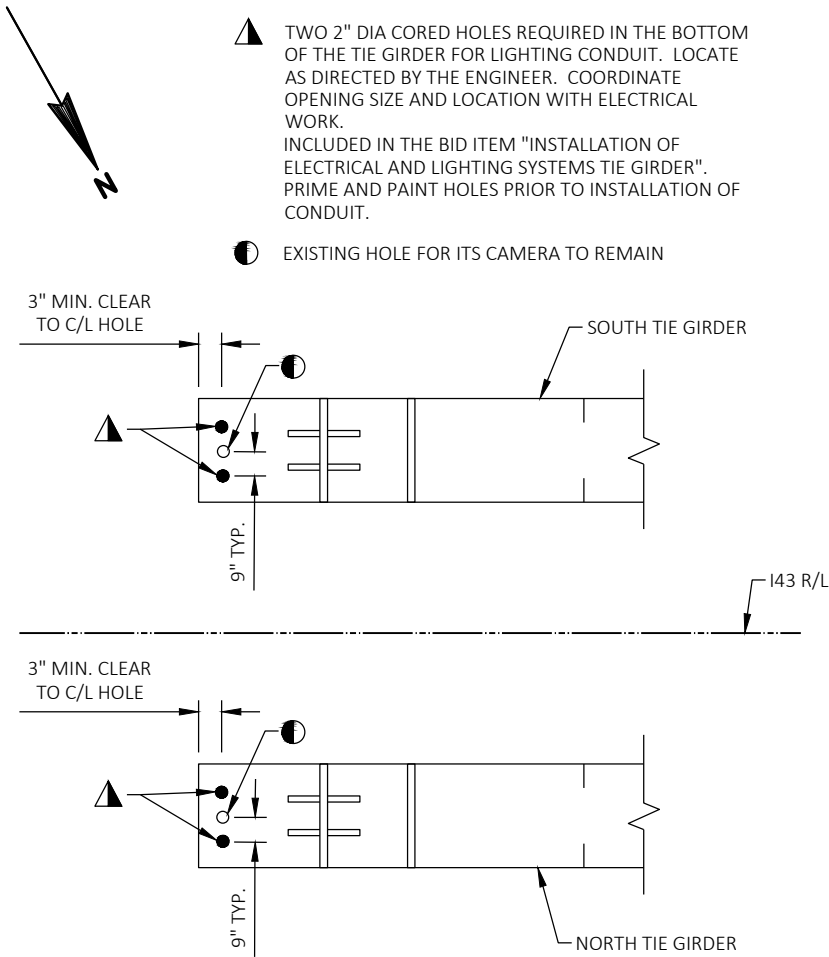


**FLOOR BEAM, MEDIAN GAP
ZONE PAINTING LIMITS**

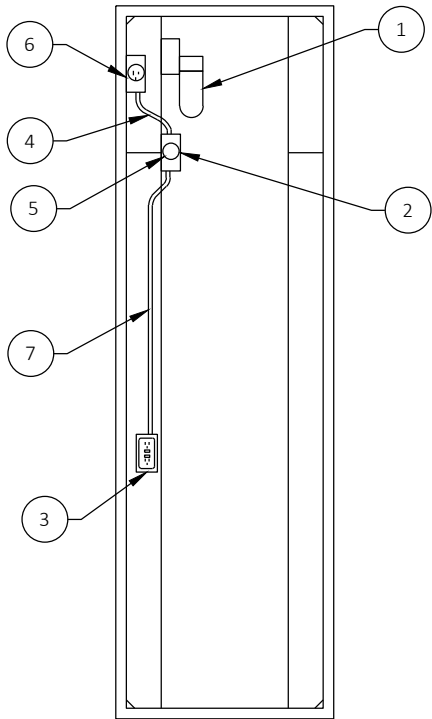


**FLOOR BEAM
CONNECTION DETAIL**

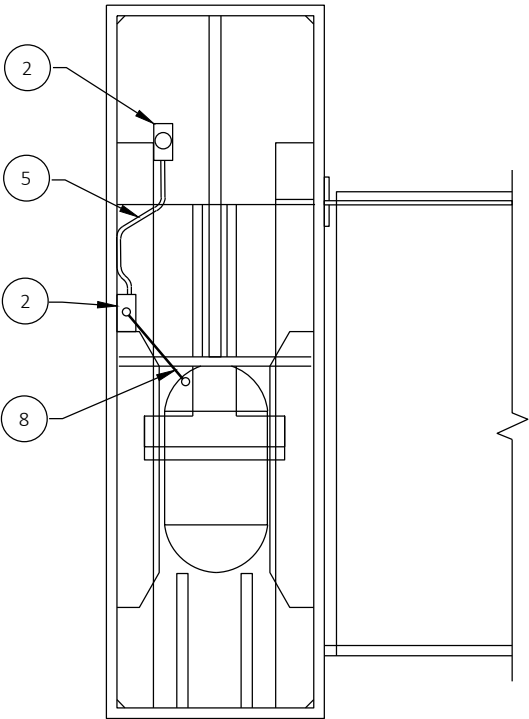
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-5-158-10			
DRAWN BY RMU		PLANS CK'D. CDH	
PAINTING DETAILS		SHEET 3 OF 4	
		131	



TIE GIRDER LIGHTING ACCESS DETAIL



TIE GIRDER CROSS SECTION



TIE GIRDER CROSS SECTION
AT PORTAL OPENING

LEGEND

1. LIGHT FIXTURE
2. JUNCTION BOX
3. 120V RECEPTACLE
4. 3/4" CONDUIT
5. 1 1/2" CONDUIT
6. 120V SINGLE PLUG RECEPTACLE
7. 3/4" CONDUIT
8. 1 1/2" FLEXIBLE CONDUIT

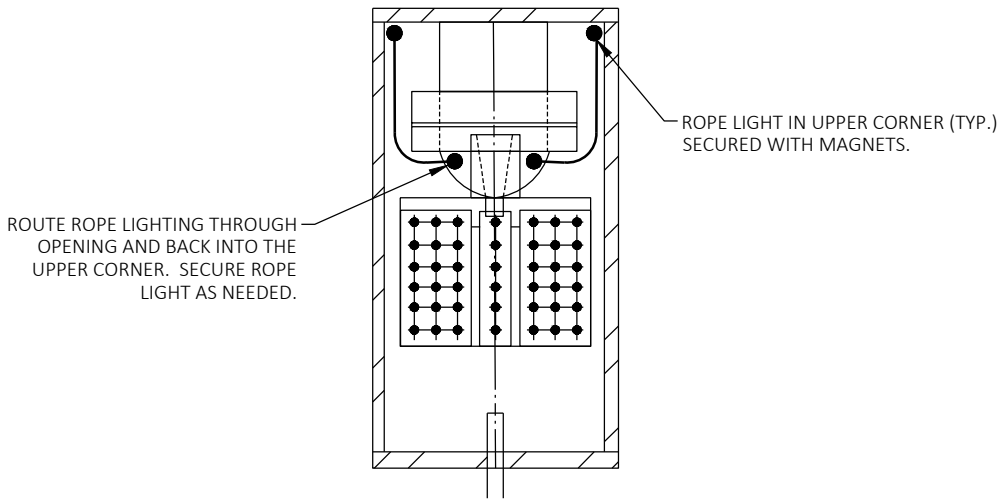
NOTES:

ALL ELECTRICAL CONNECTIONS IN TIE GIRDERS TO EXISTING STRUCTURE TO UTILIZE BEAM CLAMPS.

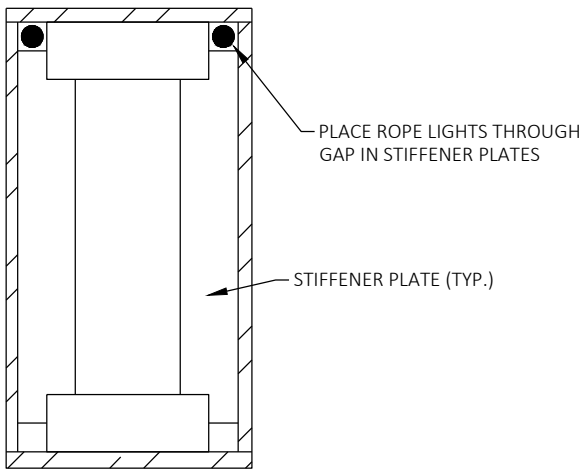
ALL ELECTRICAL CONNECTIONS IN ARCH TO UTILIZE MAGNETS.

SEE ELECTRICAL PLANS FOR ADDITIONAL DETAILS.

ALL ITEMS SHOWN ARE PART OF THE ELECTRICAL BID ITEMS.



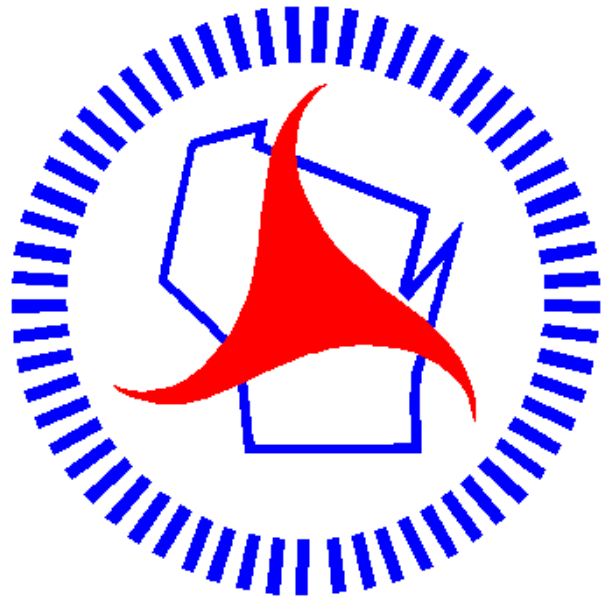
ARCH CROSS SECTION AT HANGER



ARCH CROSS SECTION AT STIFFENER

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-5-158-10			
DRAWN BY		RMU	PLANS CK'D. CDH
LIGHTING DETAILS		SHEET 4 OF 4 132	

Notes



Wisconsin Department of Transportation

Dedicated people creating transportation solutions through innovation and exceptional service.

<http://www.dot.wisconsin.gov>