

WKE

Nov 09, 2021

ORDER OF SHEETS

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

TOTAL SHEETS = 118



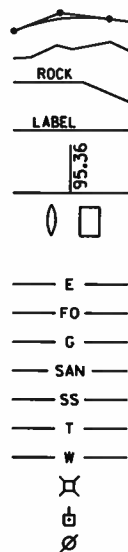
DESIGN DESIGNATION

A.A.D.T. 2019 = 17,300
 A.A.D.T. 2035 = 19,844
 D.H.V. =
 D.D. =
 T. =
 DESIGN SPEED = 35MPH
 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



STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

E. NORTH AVENUE

OVER OAK LEAF TRAIL (B-40-0502)

LOCAL STREET

MILWAUKEE COUNTY

STATE PROJECT NUMBER
 2445-09-71

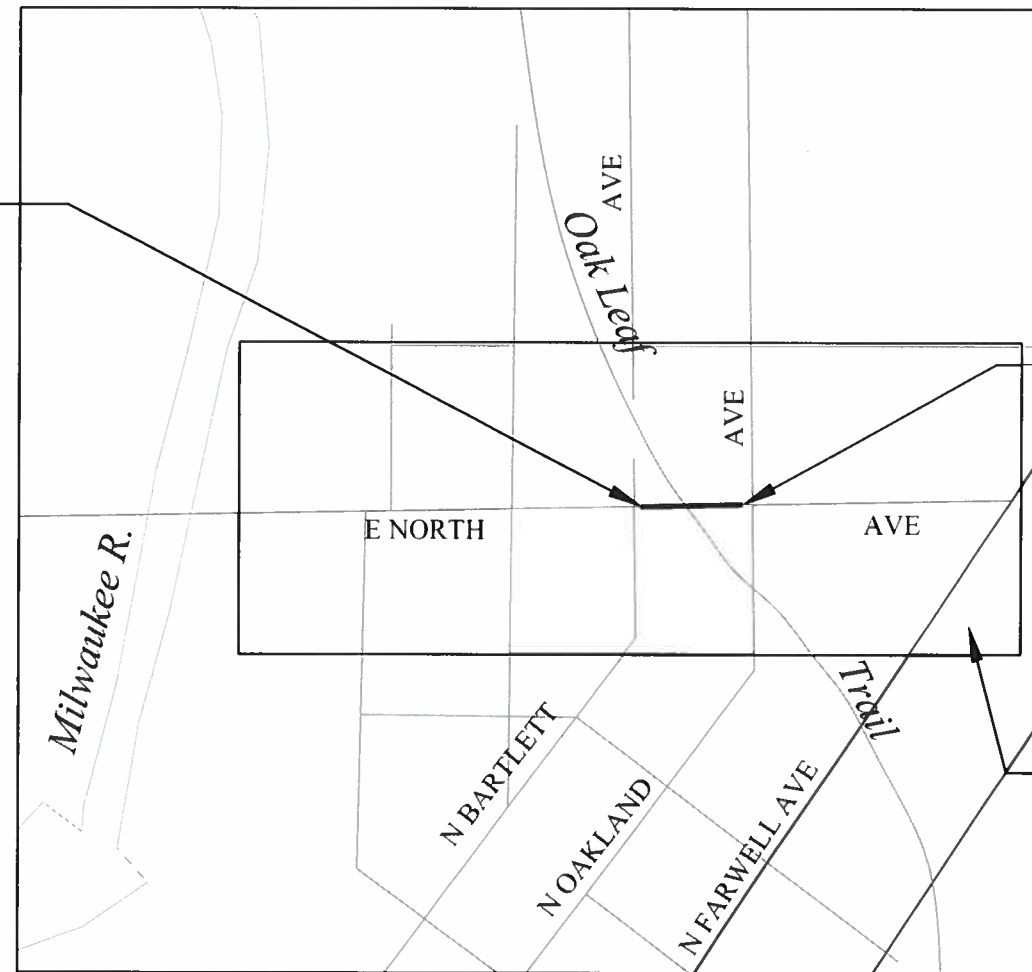
R-22-E

BEGIN PROJECT
STA 5+99.48

END PROJECT
STA 7+66.16

STRUCTURES
B-40-0502

PROJECT LOCATION



LAYOUT
 SCALE 0 300 FT
 TOTAL NET LENGTH OF CENTERLINE = 0.0316 miles

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COUNTY COORDINATES, MILWAUKEE COUNTY, NAD83 (2007), IN U.S. SURVEY FEET. VALUES ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES MAY BE USED AS GROUND DISTANCES.

ELEVATIONS SHOWN ON THIS PLAN ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM NAVD88 (2007).

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
2445-09-71	WISC 2022009	1

ACCEPTED FOR
 MILWAUKEE COUNTY
 DEPARTMENT OF TRANSPORTATION

7/19/2021 *[Signature]*
 (Date) DIRECTOR OF TRANSPORTATION ENGINEERING
 7/20/2021 *[Signature]*
 (Date) DIRECTOR OF MILWAUKEE COUNTY DEPARTMENT OF TRANSPORTATION

ORIGINAL PLANS PREPARED BY



7/19/2021 *[Signature]*
 (Date) (Signature)

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

PREPARED BY
 Surveyor BLOOM COMPANIES, LLC
 Designer BLOOM COMPANIES, LLC
 Project Manager MICHAEL BAIRD
 Regional Examiner
 Regional Supervisor JEFF BOHEN

APPROVED FOR THE DEPARTMENT
 DATE: 7/23/21 *[Signature]*
 (Signature)

E

PROJECT ID: 2445-09-71

COUNTY: MILWAUKEE

GENERAL NOTES:

DETAILS OF CONSTRUCTION NOT SHOWN SHALL BE IN ACCORDANCE WITH THE PERTINENT REQUIREMENTS OF STANDARD SPECIFICATIONS.

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

THE BUS STOP ON NORTH AVENUE LOCATED JUST WEST OF THE INTERSECTION WITH OAKLAND AVENUE WILL BE MOVED TEMPORARILY FOR THE ENTIRE DURATION OF THE CONSTRUCTION.

PARKING ON NORTH AVENUE WITHIN THE CONSTRUCTION WORK AREA AND TRAFFIC CONTROL LIMITS, CAMBRIDGE AVENUE, NEWHALL STREET AND WINDSOR PLACE AS SHOWN ON THE DETOUR PLANS TO BE TEMPORARILY PROHIBITED FOR THE ENTIRE DURATION OF THE CONSTRUCTION.

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

CONTRACTORS SHALL NOTIFY DIGGERS HOTLINE AND HAVE UTILITIES IDENTIFIED AND MARKED IN THE FIELD PRIOR TO CONSTRUCTION.

DIMENSIONS SHOWN ARE MEASURED APPROXIMATE. CONTRACTOR TO FIELD VERIFY MEASUREMENTS AS NECESSARY.



Dial **811** or (800)242-8511

www.DiggersHotline.com

UTILITIES:

AT&T

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ENGINEERING MGR.
2005 PEWAUKEE RD.
WAUKESHA, WI 53188
OFFICE: (262) 896-7669
MOBILE: (414) 491-2855
jb5175@att.com

CHARTER COMMUNICATIONS

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MILWAUKEE, WI 53212
PHONE: (414) 758-9241
Beau.Abuya@charter.com
wis.engineering@charter.com

CITY OF MILWAUKEE

MR. DAVID TAPIA, P.E.
MAJOR PROJECTS MANAGER
INFRASTRUCTURE SERVICES DIVISION
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MILWAUKEE, WI 53202
PHONE: (414) 286-2453
dtapia@milwaukee.gov

MILWAUKEE COUNTY TRANSIT SYSTEM

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COORDINATOR OF STREET SUPERVISION
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MR. ANDREW TILLMAN
TRANSIT PLANNER II
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MILWAUKEE, WI 53205
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ATillman@mcts.org

MIDWEST FIBER NETWORKS

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PLANNING AND DESIGN MANAGER
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GLENDALE, WI 53209
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rtrgovec@midwestfibernetworks.com

MILWAUKEE COUNTY DEPARTMENT OF TRANSPORTATION

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MILWAUKEE COUNTY PARKS

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MILWAUKEE METROPOLITAN SEWERAGE DISTRICT (MMSD)

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MILWAUKEE, WI 53204
PHONE: (414) 225-2178
MKlappaSullivan@mmsd.com

MCI FIBER

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TELCOM CONSTRUCTION INC.
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MILWAUKEE, WI 53223
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MOBILE: (262) 599-1966
mike.hoffmann@telcomconstruction.com

SOUTHEASTERN REGIONAL PLANNING COMMISSION (SEWRPC)

MR. ROB MERRY
W239 N1812 ROCKWOOD DR.
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WAUKESHA, WI 53187-1607
PHONE: (262) 547-6722 , EXT. 289
RMerry@sewrpc.org

TDS METROCOM

MATHEW SCHULTE
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NEW BERLIN, WI 53151
matt.schulte@tdstelecom.com

WE ENERGIES

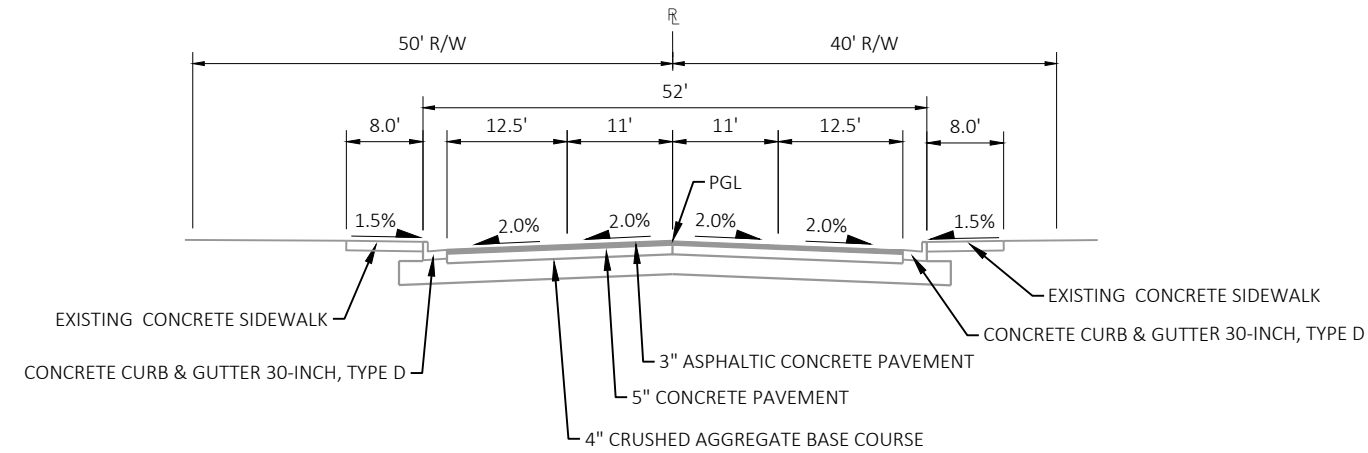
ATTN. MR. DAN SANDE
333 W. EVERETT ST. A-299
MILWAUKEE, WI 53203
PHONE: (414) 221-4578
Dan.Sande@we-energies.com
WE-Utility-Relocations@we-energies.com

SECTION 2 ORDER OF SHEETS:

- GENERAL NOTES
- TYPICAL SECTIONS
- LIMITS OF CONTAMINATED SOILS REMOVALS
- PAVEMENT MARKING
- STREET LIGHTING AND TRAFFIC SIGNAL DESIGN
- CITY UNDERGROUND CONDUIT
- TRAFFIC CONTROL
- DETOURS

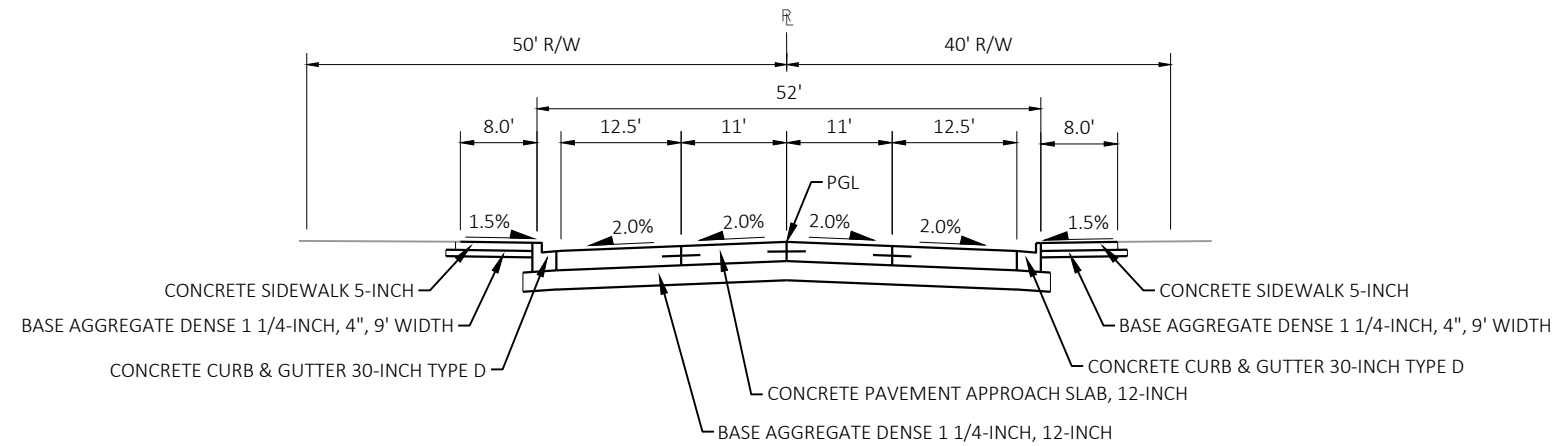
DESIGN CONSULTANT

YAN NENAYDYKH
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OFFICE: (414) 292-4599
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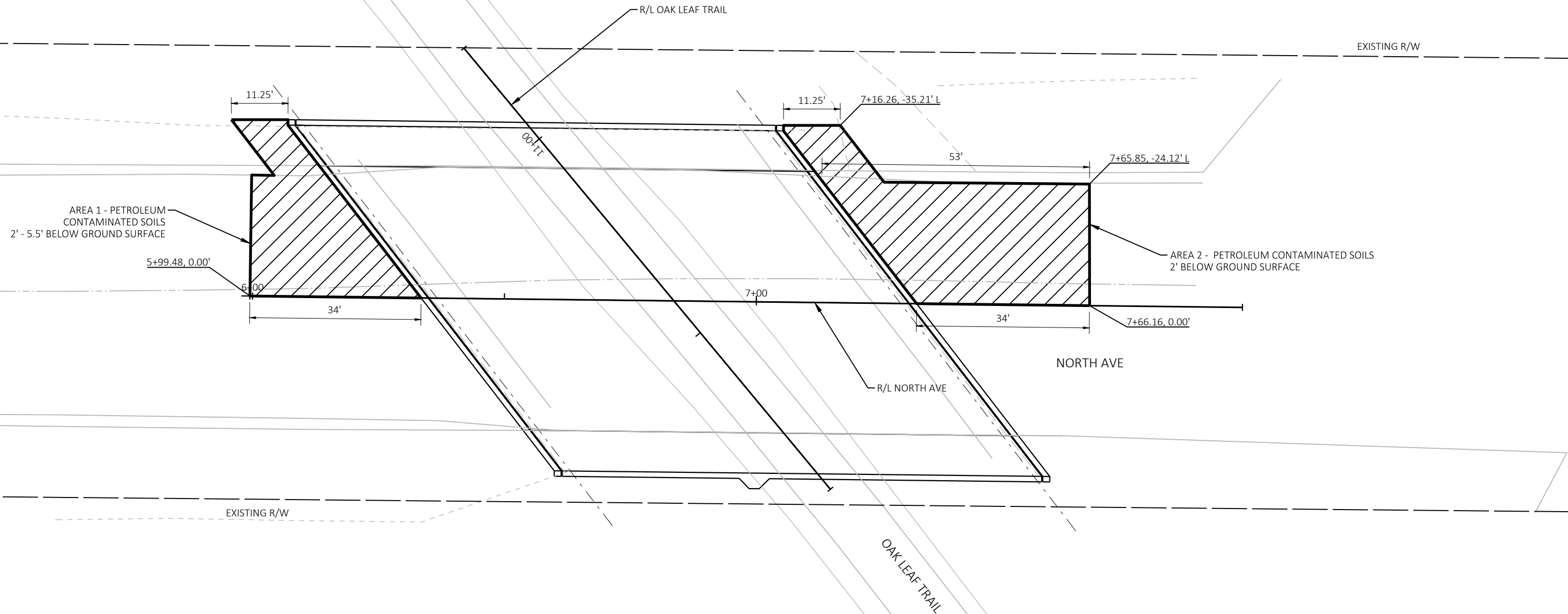
TYPICAL EXISTING SECTION
NORTH AVE

STA 5 + 99.48 TO STA 6 + 60.28
STA 7 + 04.99 TO STA 7 + 66.16



TYPICAL PROPOSED SECTION
NORTH AVE

STA 5 + 99.48 TO STA 6 + 60.28
STA 7 + 04.99 TO STA 7 + 66.16



NOTES

- 1. REPLACE EXCAVATED PETROLEUM CONTAMINATED SOILS WITH SELECT CRUSHED MATERIAL, TO BOTTOM OF BASE AGGREGATE DENSE 1 1/4-INCH.

LEGEND



APPROXIMATE EXTENT OF HAZMAT SOILS WHICH MAY BE ENCOUNTERED DURING EXCAVATION OPERATIONS

STREET LIGHTING GENERAL NOTES:

PRIOR TO CONSTRUCTION, THE LOCATION OF UNDERGROUND UTILITIES SHALL BE DETERMINED IN THE FIELD BY CONTACTING "DIGGERS HOTLINE."

STREET LIGHTING SHALL BE INSTALLED IN COMPLIANCE WITH WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS SECTION 652 EXCEPT:

THE CONTRACTOR IS RESPONSIBLE FOR ALL COSTS INCLUDING REPAIRS, REPLACEMENT OR RELOCATION ETC. OF STREET LIGHTING FACILITIES IF THE CONTRACTOR DOES ANY DEVIATION FROM THE STREET LIGHTING DESIGN WITHOUT THE STREET LIGHTING ENGINEERS SIGNED PERMISSION.

- 1 DETAILS OF CONSTRUCTION MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.
- 2 LOCATIONS OF THE PVC CONDUITS WHERE THEY ARE REQUIRED ARE IDENTIFIED IN THE PRINTS. HOWEVER, INSTALLATION MAY REQUIRE INTEGRATION WITH EXISTING FIELD CONDITIONS. APPROPRIATE ADJUSTMENT ON CONDUIT LOCATIONS MAY BE MADE IF THE FIELD CONDITIONS ARE SUCH THAT THE CONDUIT CANNOT BE INSTALLED AT THE SPECIFIED LOCATIONS. ANY RELOCATIONS MUST BE APPROVED BY THE ENGINEER. FIELD MARK EACH CONDUIT LOCATION BY STAMPING AND PAINTING WITH RED PAINT ON TOP AND BACKSIDE OF CURB.
- 3 TYPICAL CONDUIT INSTALLED UP TO DIRECT BURIED STREET LIGHT POLES IS AS FOLLOWS 3-INCH OR 2.5-INCH (AS NOTED) SCHEDULE 40 RIGID PVC TO STREET LIGHTING METAL HOUSING (PEDESTAL), THE 1.5-INCH SCHEDULE 40 RIGID PVC TO STREET LIGHT POLE CABLE SLOT, AND THE 2-INCH SCHEDULE 40 RIGID PVC TO SIGNAL STANDARD BASE AND RISER FOR TRAFFIC SIGNAL ON STREET LIGHT POLE.
- 4 DEPTH OF CONDUIT INSTALLED BELOW THE STREETS, HIGHWAYS, ROADS, AND ALLEYS SHALL BE 24-INCHES MINIMUM AND 36-INCHES MAXIMUM. (MEASURED FROM FINISHED FLANGE LINE)
- 5 CONDUIT INSTALLED BEHIND CURB, AND UNDER DRIVEWAYS SHALL BE INSTALLED AT A DISTANCE OF 6 INCHES AWAY FROM THE BACK OF CURB TO THE CENTER LINE OF CONDUIT, AND 18 INCHES DOWN MEASURED FROM THE TOP OF CURB OR FINISHED GRADE TO THE TOP OF CONDUIT.
- 6 WHEN THERE IS MORE THAN ONE CONDUIT TO BE INSTALLED, PLACE ALL CONDUITS IN THE SAME TRENCH.
- 7 ANY EXCEPTION TO THE MINIMUM OR MAXIMUM DEPTH SHALL BE ONLY WITH THE WRITTEN APPROVAL OF THE ENGINEER.
- 8 THE CONTRACTOR OR HIS SUBCONTRACTOR MUST MAKE SURE THE AREA BEHIND CURB AND/OR TRENCH SHALL BE FREE OF DEBRIS AND OVERPOUR AND SHALL NOT BE BACKFILLED PRIOR TO INSPECTION OF THE CONDUIT.
- 9 BENDING OF PVC ELECTRICAL CONDUIT SHALL BE ACCOMPLISHED BY USING A BLANKET OR EMERSION TYPE TANK DESIGNED FOR THE PURPOSE OF BENDING PVC ELECTRICAL CONDUIT.
- 10 ALL CUT ENDS SHALL BE TRIMMED INSIDE AND OUTSIDE TO REMOVE ALL ROUGH EDGES ON ALL CONDUITS. (SEE NEC 352.28 2008 CODE)
- 11 PRIOR TO CONDUIT ACCEPTANCE, ALL CONDUIT ENDS SHALL BE THOROUGHLY CLEANED AND BE CAPPED IMMEDIATELY AFTER INSTALLATION WITH THE APPROPRIATE CAST PLASTIC CAP WHICH FITS SNUGGLY ON THE CONDUIT, BUT EASILY REMOVED IN THE FUTURE. DUCT TAPE OR ANY OTHER CAPPING METHOD IS NOT ACCEPTABLE.
- 12 ALL CONDUIT BEING FURNISHED AND INSTALLED SHALL HAVE THE U.L. LABEL FIRMLY ATTACHED.
- 13 CONDUIT RUNS SHALL BE THE SAME SIZE PIPE FROM ONE END TO THE OTHER (FROM PULL BOX TO PULL BOX OR JUNCTION BOX OR BASE TO BASE, ETC.).
- 14 PULL ROPE (3/8-INCH NYLON) SHALL BE INSTALLED IN ALL NEW CONDUIT.
- 15 ALL CONDUIT RUNS SHALL BE STRAIGHT (WITHOUT BENDS) FROM PULL BOX TO PULL BOX, PULL BOX TO BASE AND BASE TO BASE AS SHOWN ON THE PLANS UNLESS OTHERWISE APPROVED BY THE STREET LIGHTING ENGINEER.
- 16 WHEN ENDS OF CONDUIT DO NOT CONNECT TO A PULL BOX / VAULT AND WILL END UP UNDER CONCRETE WALK. THE CONTRACTOR IS REQUIRED TO LEAVE A 24" X 24" BOX FORM CENTERED OVER THE END OF CONDUIT AND FILL THE BOXFORM WITH CRUSHED GRAVEL. (PER WISDOT SPEC 209.2.1(1) GRANULAR BACKFILL)
- 17 ALL PIPE CROSSINGS AND PULL BOXES / VAULTS SHALL BE AT LEAST SIX (6) FEET AWAY FROM FIRE HYDRANTS, UNLESS NOTED OTHERWISE, OR APPROVED BY THE STREET LIGHTING ENGINEER.
- 18 ALL POLES AND TRAFFIC STANDARDS IN CONCRETE ARE REQUIRED TO HAVE A 30"X30" BOX SHAPED JOINT PLACED AROUND THEM USING AN EXPANSION JOINT FILLER. UNLESS NOTED OTHERWISE (SEE DETAIL 122)
- 19 TYPICAL RECTANGULAR PULL BOXES / VAULTS SHOULD BE INSTALLED AS SHOWN ON PLANS, BUT WHEN IT IS NOT POSSIBLE, A 5 FT. TO 6 FT. OFFSET FROM STREET LIGHT POLES, SIGNAL STANDARDS AND FIRE HYDRANTS SHOULD BE USED, OTHERWISE APPROVED BY THE STREET LIGHTING ENGINEER.

STREET LIGHTING GENERAL NOTES:

20 LIGHT POLES AND TRAFFIC STANDARDS INSTALLED BEHIND THE CURB MUST MEET A MINIMUM DISTANCE OF 24 INCHES FROM THE FACE OF CURB TO THE CURB SIDE FACE OF THE POLE OR TRAFFIC STANDARD.

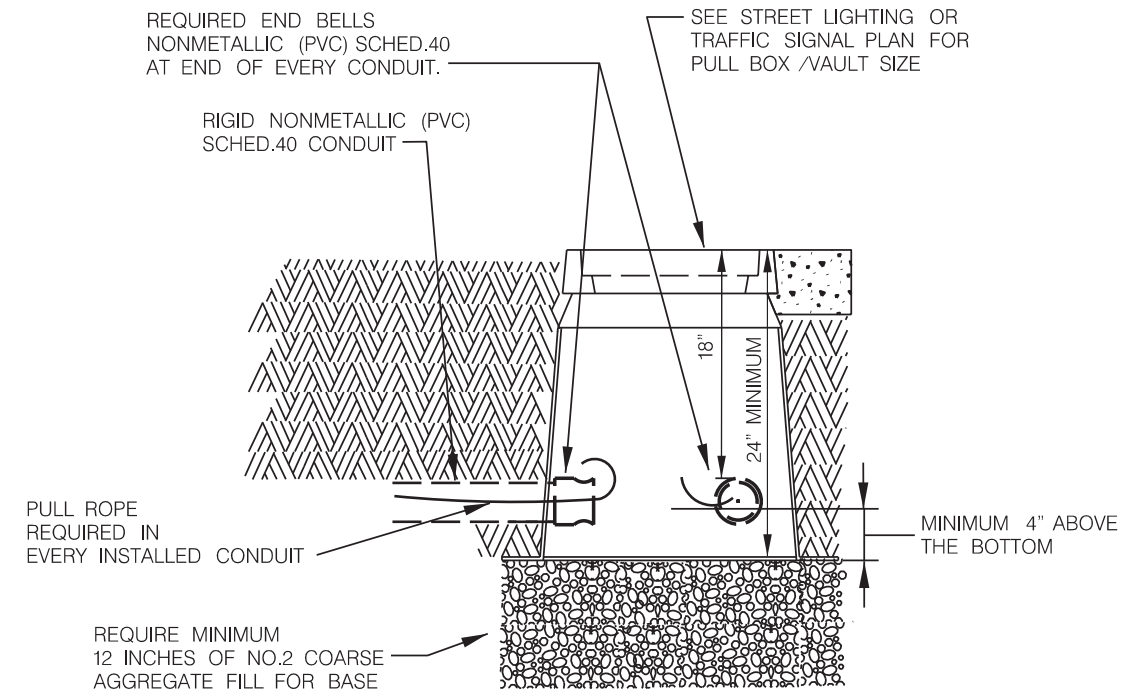
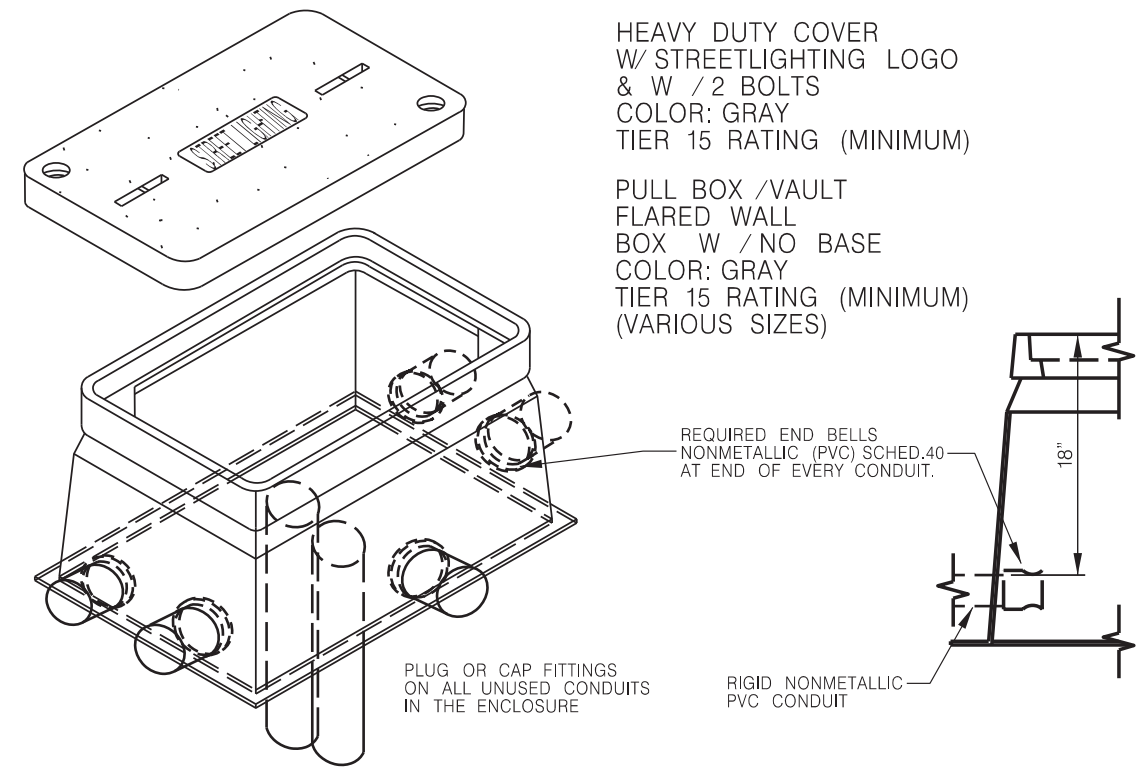
21 A PLAQUE WITH THE POLE NUMBER AS SHOWN ON THE PLANS SHALL BE AFFIXED ONTO THE POLE SHAFT.

22 COORDINATE NEW CONDUIT CONNECTIONS WITH EXISTING CONDUIT, DUCT PACKAGES, AND PULL BOXES/ VAULTS/ MANHOLES WITH CITY OF MILWAUKEE STREET LIGHTING. THE CITY REQUIRES THREE WORKING DAYS ADVANCED NOTICE. CONTACT ELECTRICAL SUPERVISOR STREET LIGHTING - MORGAN MONNOT (OFFICE 414-286-5942 (CELL) 414-708-4251) STREET LIGHTING - MARK MACRAE (OFFICE) 414-286-5928 (CELL) 414-708-0434 STREET LIGHTING - DISPATCHER @ 414-286-5944

23 IMMEDIATELY AFTER THE CONTRACTOR HAS COMPLETED ALL THE ELECTRICAL PULL BOXES / VAULTS, CONDUIT AND CONDUIT CONNECTIONS, AND JUST BEFORE ELECTRICAL WORK IS COVERED UP WITH CONCRETE, SOIL, OR ETC. THE CONTRACTOR IS REQUIRED TO CONTACT THE CITY OF MILWAUKEE ELECTRICAL SHOP SUPERVISORS FOR FINAL INSPECTION AND APPROVAL OF ALL WORK. STREET LIGHTING - MORGAN MONNOT (OFFICE 414-286-5942 (CELL) 414-708-4251) STREET LIGHTING - MARK MACRAE (OFFICE) 414-286-5928 (CELL) 414-708-0434 STREET LIGHTING - NEAL KARWEIK (OFFICE) 414-286-5943 (CELL) 414-708-4245 STREET LIGHTING - THOMAS HUGHES (OFFICE) 414-286-3457 (CELL) 414-708-3175 STREET LIGHTING - DISPATCHER @ 414-286-5944

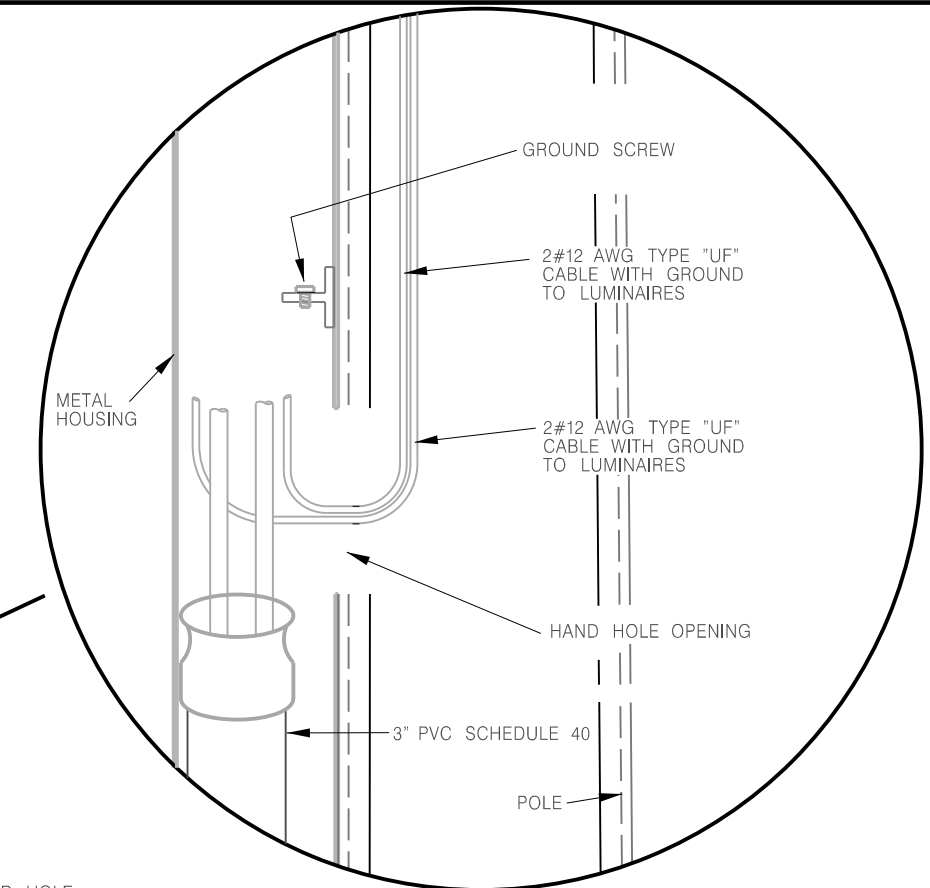
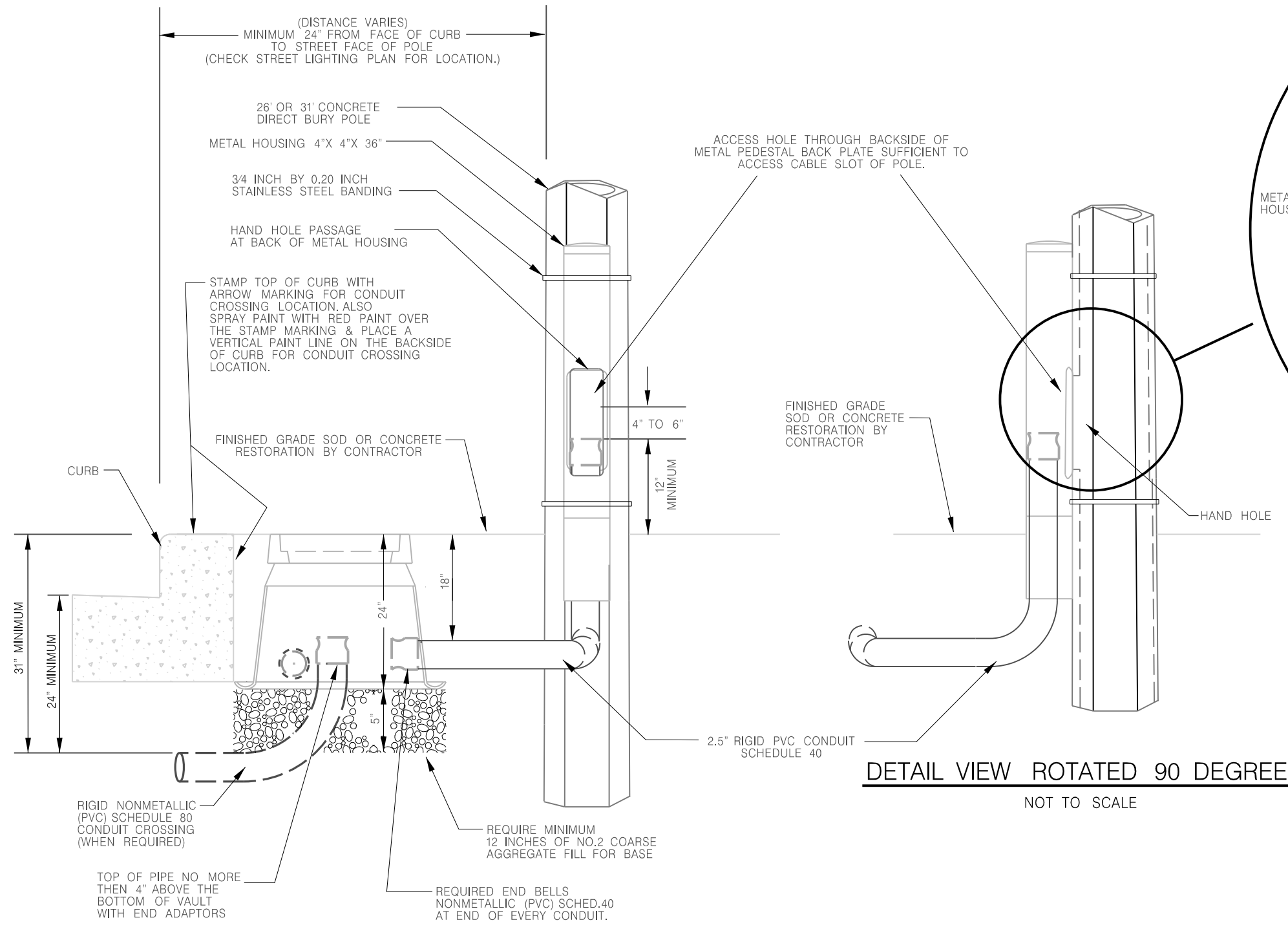
24 CONDUIT WILL ONLY BE INSTALLED AFTER THE CURB IS POURED, UNLESS APPROVED BY BOTH THE ENGINEER & STREET LIGHTING SHOP SUPERVISOR.

PROVIDE AS-BUILT DRAWINGS DETAILING THE FINAL PLACEMENT OF CONDUIT, CABLING, EQUIPMENT, AND GEOMETRIC MODIFICATIONS UNDER THE CONTRACT. PROVIDE PDF COPY CONFORMING TO CMM 1-65.14, OR RECORD ALL CHANGES IN RED INK ONLY ON THE AS-LET (DESIGN) PAPER DRAWINGS. THE CITY OF MILWAUKEE DPW ENGINEER WILL REJECT AS-BUILTS WITH INCOMPLETE OR INCORRECT CONTENT OR NOT CONFORMING TO CMM STANDARDS.



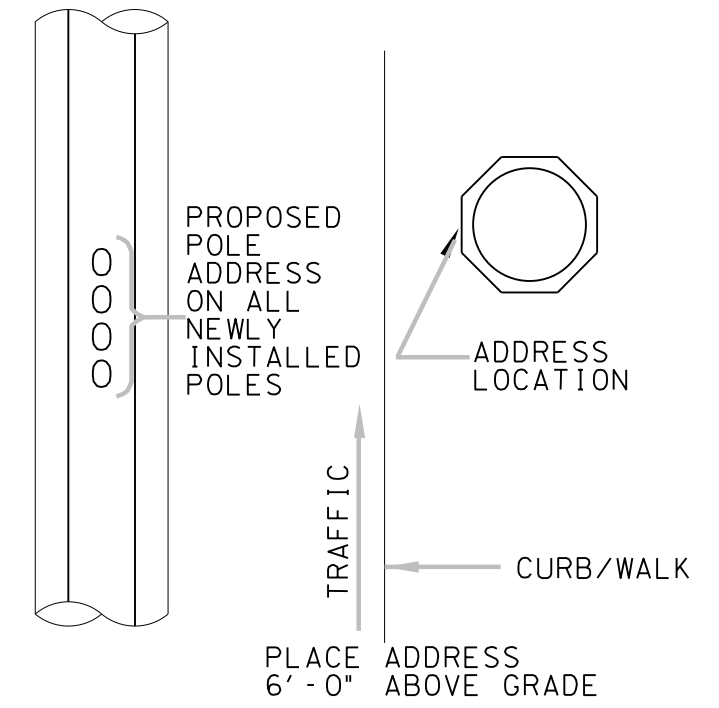
112 DETAIL NOT TO SCALE
TYPICAL PULL BOX /VAULT INSTALLATION
IN EITHER PAVEMENT OR GRASS AREAS

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.



DETAIL
CABLES WITHIN
METAL HOUSING
NOT TO SCALE

DETAIL VIEW ROTATED 90 DEGREES
NOT TO SCALE



108
DETAIL
TYPICAL CONDUIT INSTALLATION
FROM PULLBOX TO METAL HOUSING
ON POLE

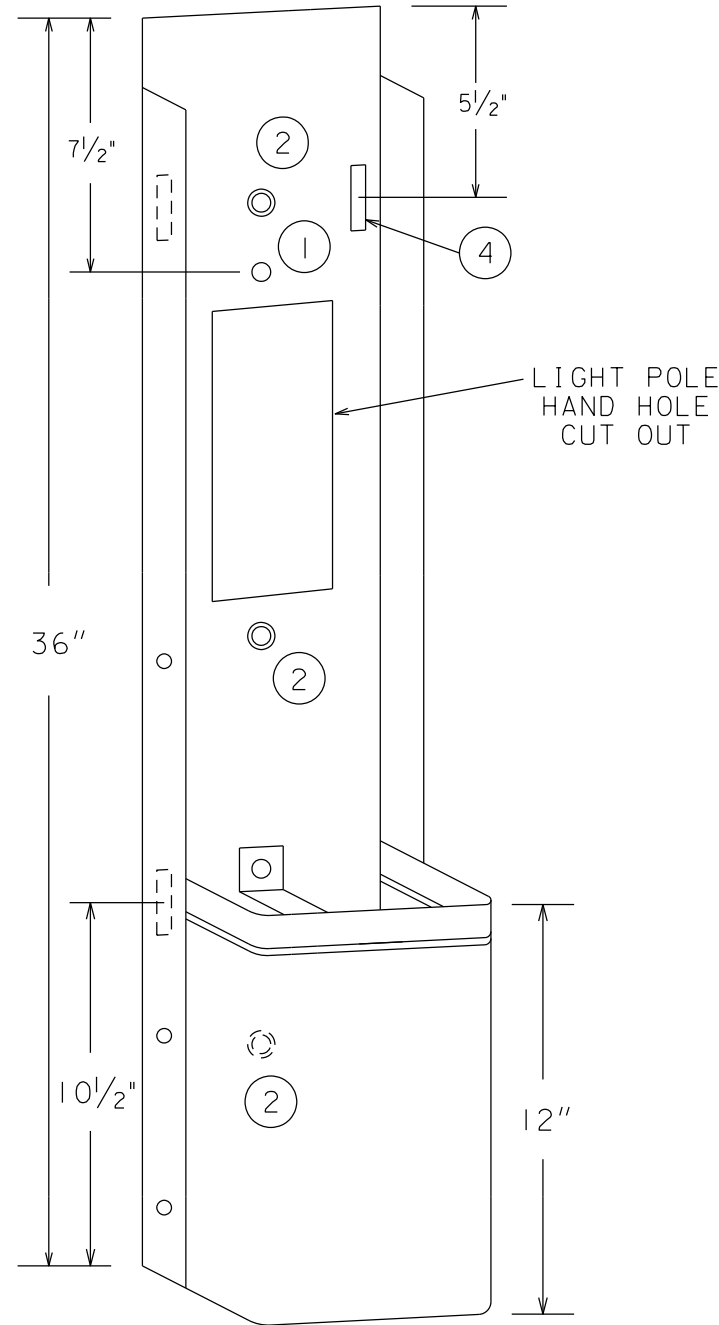
ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

NOTES:

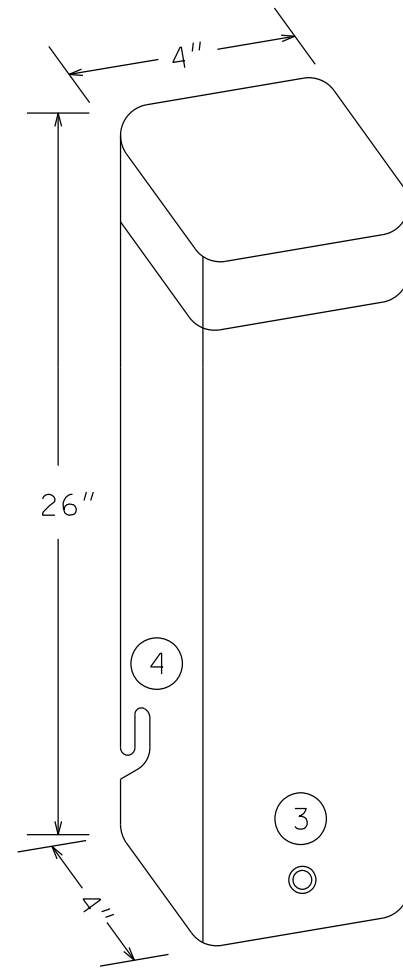
- 1. STAINLESS 1/4 X 20 X 1" CARRIAGE BOLT FOR GROUNDING IN BACK PANEL 1/2" DIA. AREA FREE OF PAINT AROUND BOLT.
- 2. EXTERNAL DIMPLES TO PROVIDE BACK PANEL CLEARANCE TO POLE FOR OPENING AND CLOSING UPPER PANEL.
- 3. RECESSED CUP PERMITS RECESSING 5/16 HEX HEAD LOCKING BOLT. THIS BOLT FITS PRESENT CITY OF MILWAUKEE TOOLING, LOCKING BOLT IS HELD IN PLACE WITH RETAINING RING. THIS BOLT MAY BE REPLACED BY A SECURITY BOLT IF DESIRED.

- 4. 1/4 X 1-1/4" SLOT (4) FOR BANDING ACCESS.
- 5. DOGLEG SLOT PREVENTS PULLING COVER OUTWARD WHILE LOCKED.
- 6. HORIZONTAL SLOT PREVENTS PULLING COVER UPWARD WHILE LOCKED.
- 7. SHOULDER RIVETS PROVIDE FOR SECURITY IN UNIT WHEN USED IN CONJUNCTION WITH ITEMS 5 & 6.

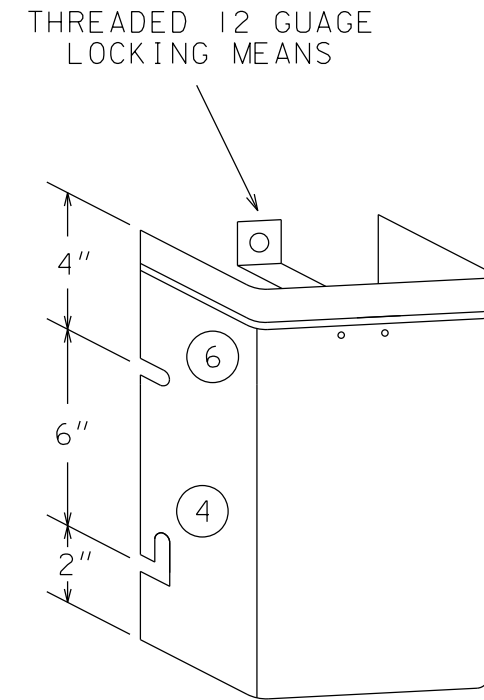
NOT TO SCALE



BACK PANEL WITH LOWER INSTALLED



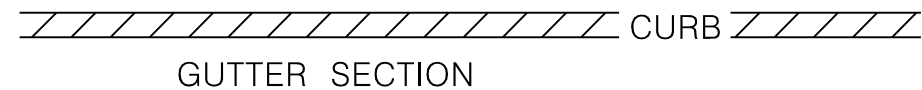
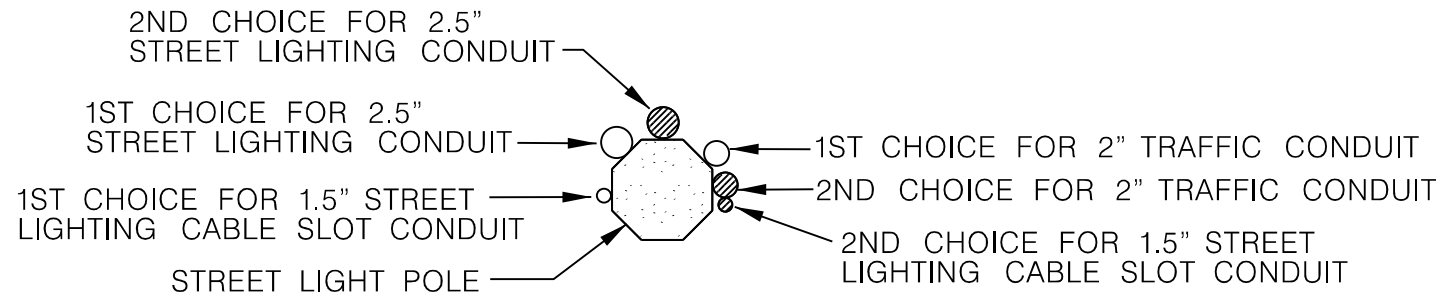
UPPER FRONT REMOVED



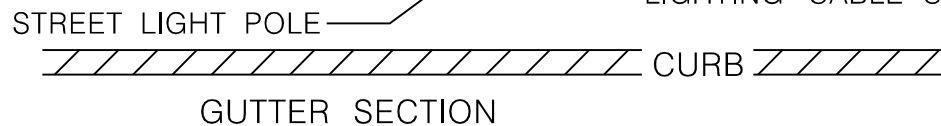
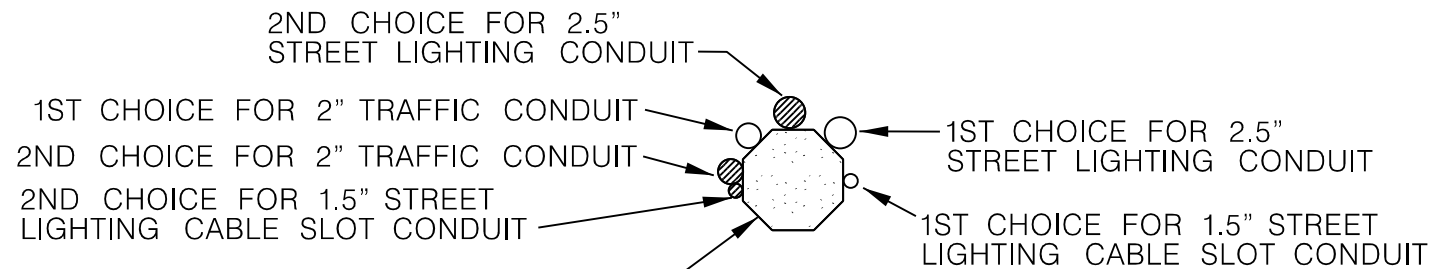
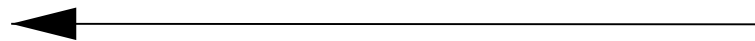
LOWER REMOVED

METAL HOUSING	
INFRASTRUCTURE SERVICES DIVISION TRAFFIC & LIGHTING DESIGN	
JUNE 3, 2004	DRG.# B-04-10

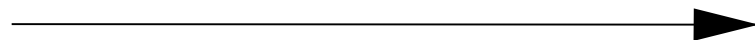
NOTE: CAP FITTINGS ON CONDUIT ENDS



DIRECTION OF TRAFFIC AT CURB



DIRECTION OF TRAFFIC AT CURB



104

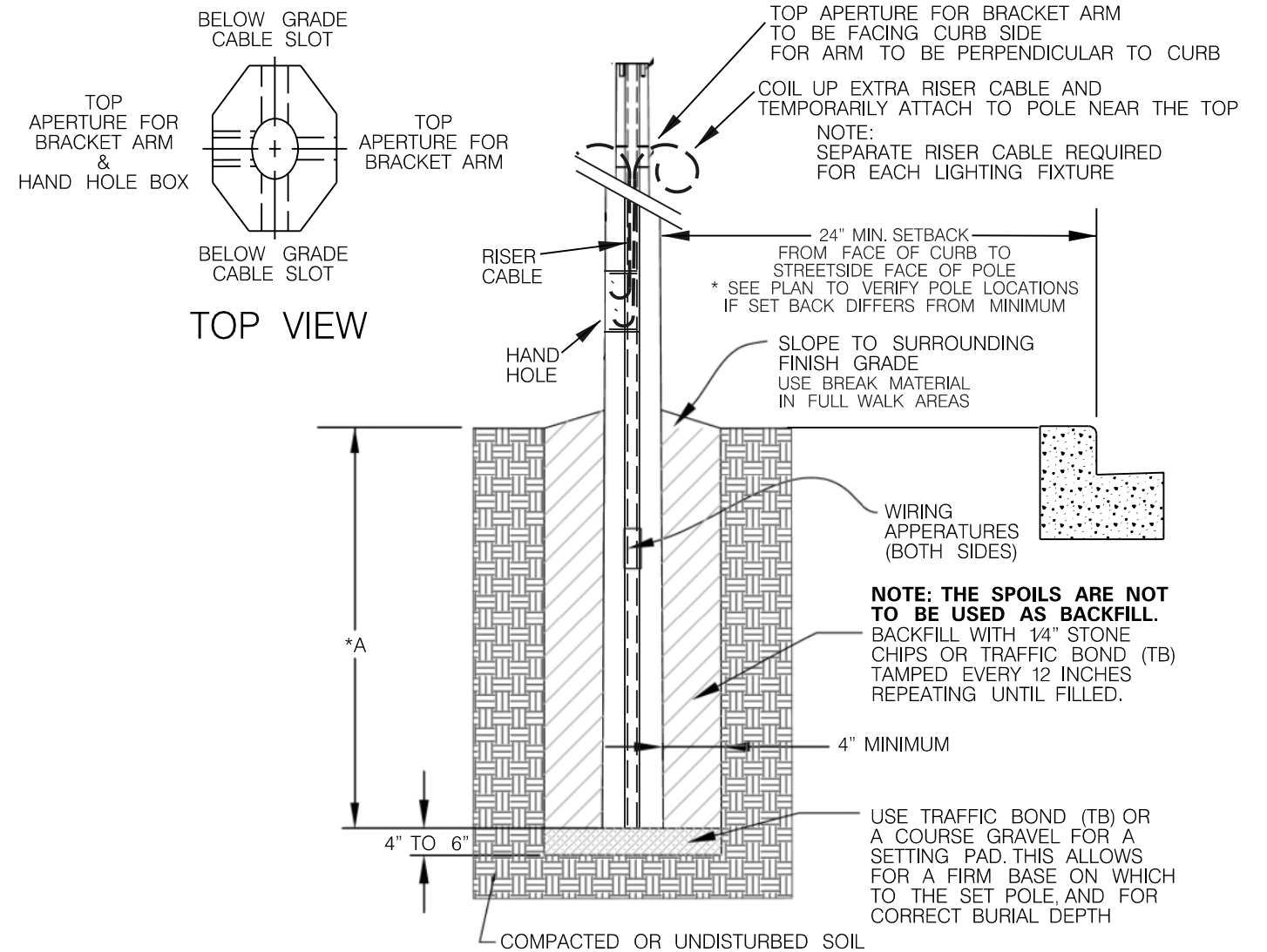
DETAIL

TYPICAL TRAFFIC SIGNAL RISER AND STREET LIGHTING CONDUIT LOCATIONS ON LIGHT POLES DEPENDING ON DIRECTION OF TRAFFIC AT CURB

NOT TO SCALE

21 14:33

ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM TRAFFIC / STREET LIGHTING FORCES. CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.



Pole Type Burial Depth Chart

FOR DIMENSION *A USE THE FOLLOWING BURIAL DEPTHS DEPENDING ON THE LENGTH OF THE POLE.

A21 = 26 FT. POLE LENGTH
BURIED DEPTH = 5 FT.

A26 = 31 FT. POLE LENGTH
BURIED DEPTH = 5 FT. - 6 INCHES

A31 = 36 FT. 10 INCHES POLE LENGTH
BURIED DEPTH = 6 FT. - 4 INCHES

RISER CABLE LENGTH CHART

INTERNAL RISER CABLE IS COPPER 2#12UF WITH GROUND

A21 = 30 FT. OF CABLE

A26 = 35 FT. OF CABLE

A31 = 40 FT. OF CABLE

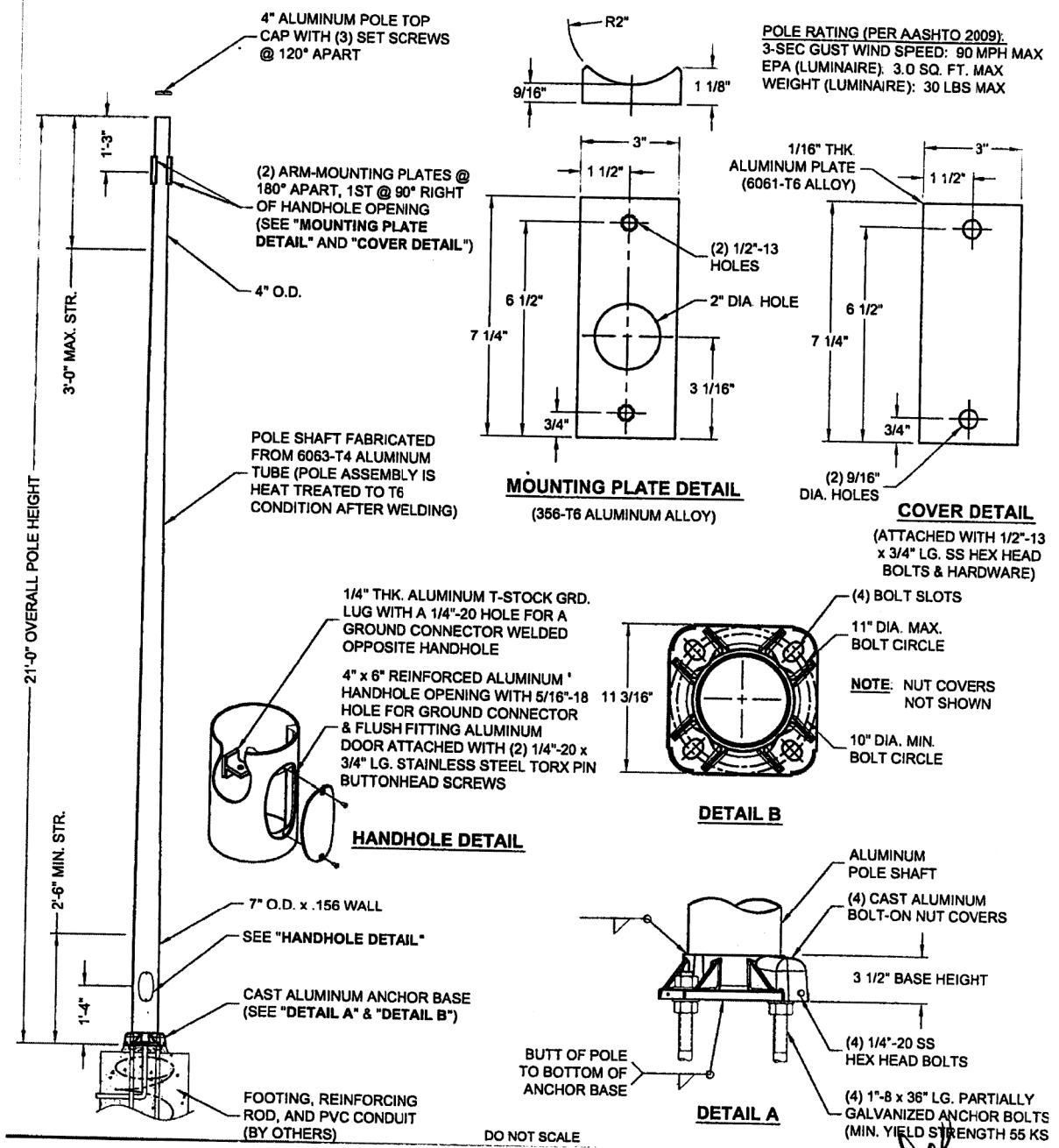
130A

DETAIL

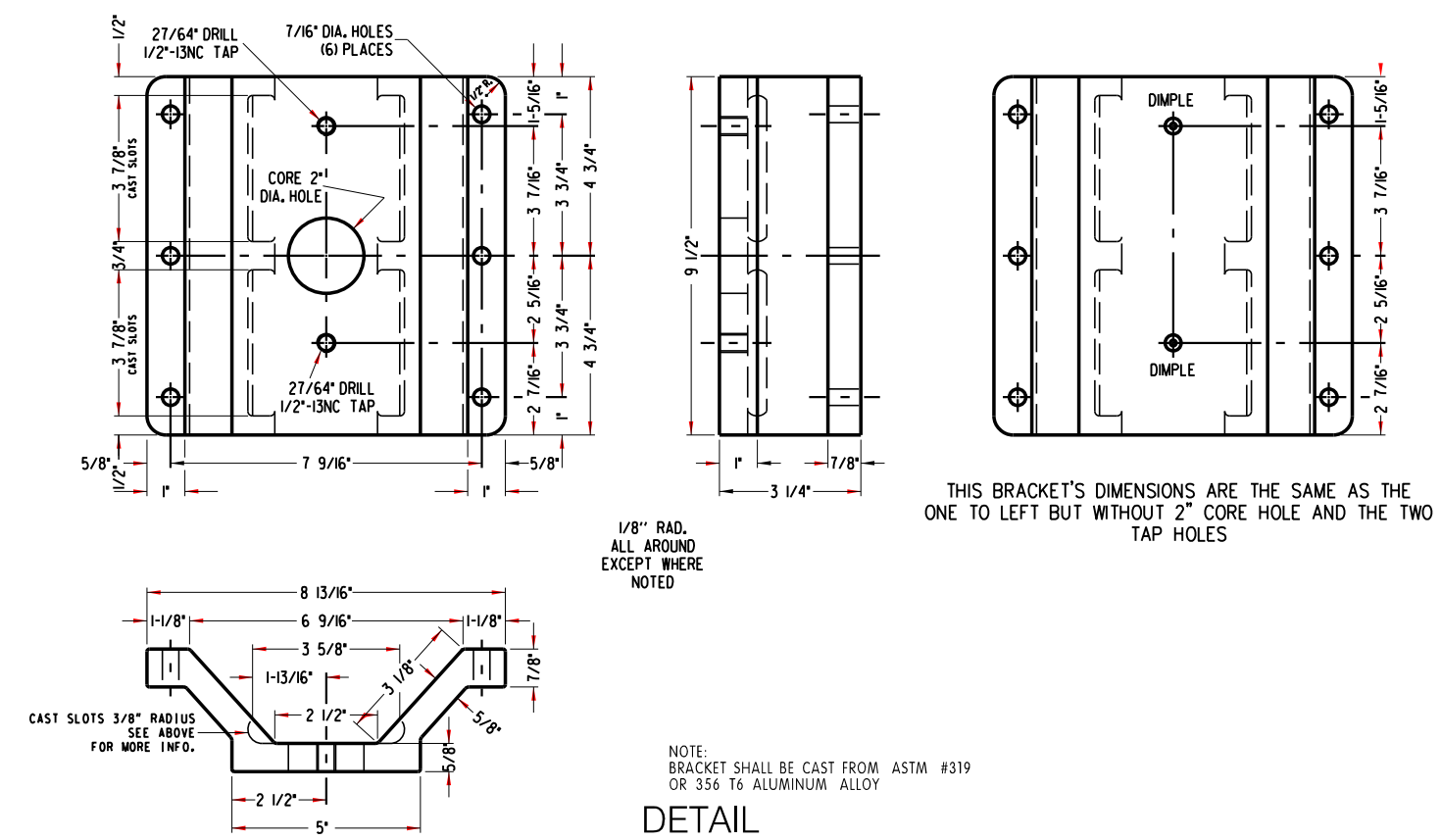
TYPICAL CONCRETE POLE INSTALLATION

NOT TO SCALE

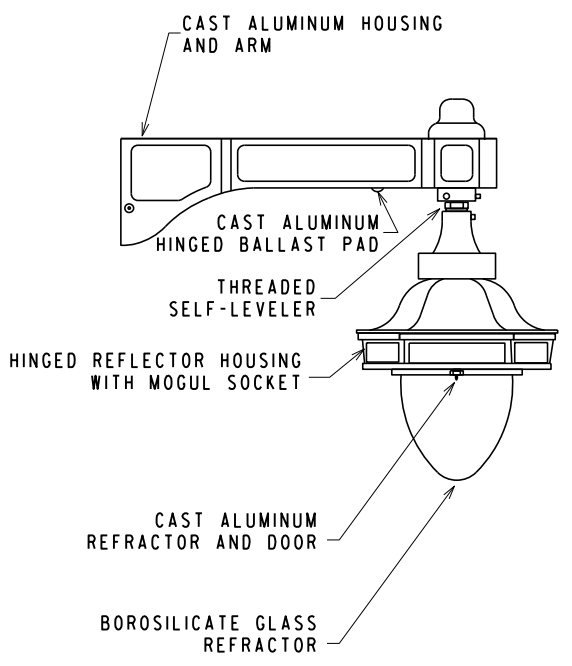
ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES. CONTACT DISPATCHER AT (414) (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.



DETAIL
BOLT DOWN ALUMINUM POLE

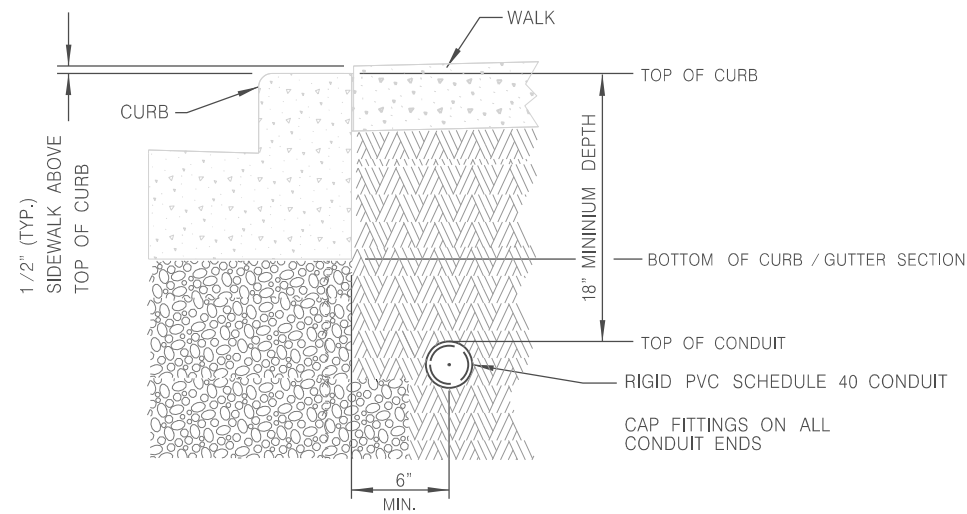


A26 BRACKET (BLACK)



DETAIL
MILWAUKEE LANTERN

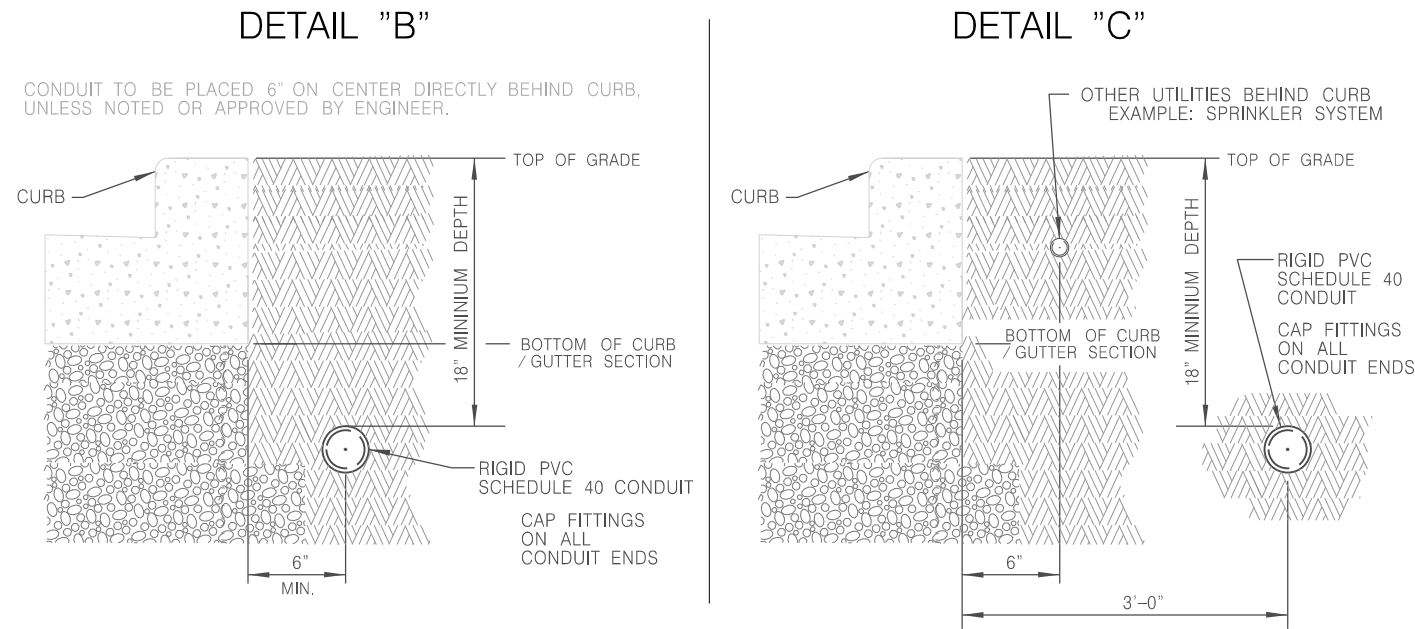
NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.
2.) CONDUIT TO BE PLACED 6 INCHES ON CENTER DIRECTLY BEHIND CURB, UNLESS NOTED OR APPROVED BY ENGINEER.



100 DETAIL "A"
TYPICAL CONDUIT INSTALLATION
BEHIND CURB NOT TO SCALE

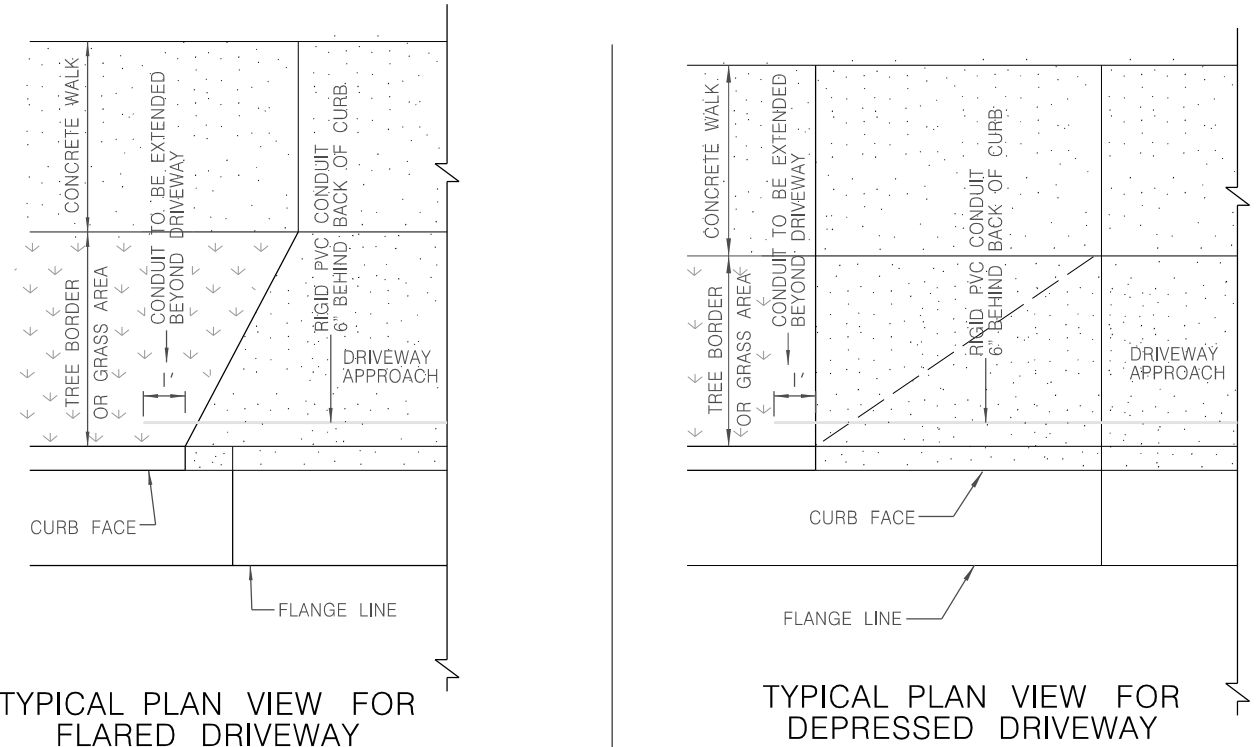
ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.



100 DETAIL "B" & "C"
TYPICAL CONDUIT INSTALLATION
BEHIND CURB NOT TO SCALE

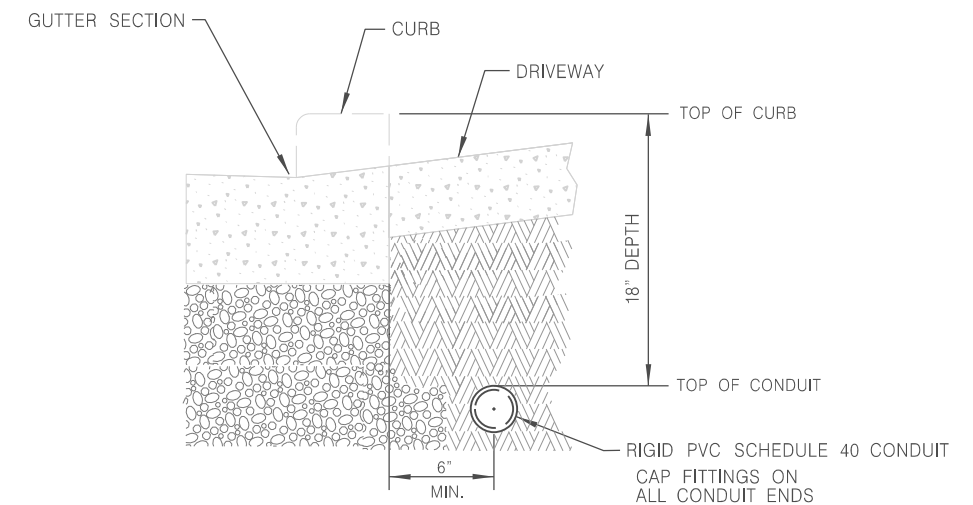
ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.



TYPICAL PLAN VIEW FOR
FLARED DRIVEWAY

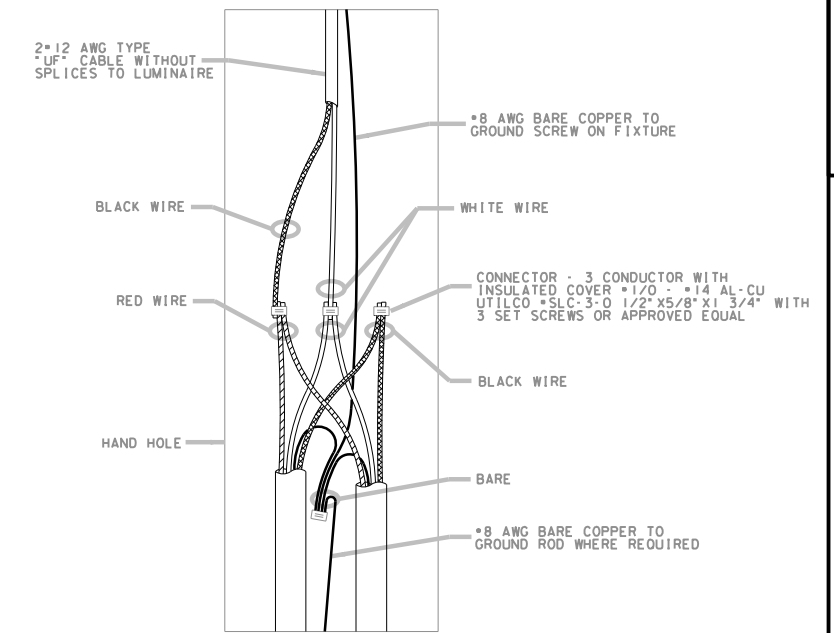
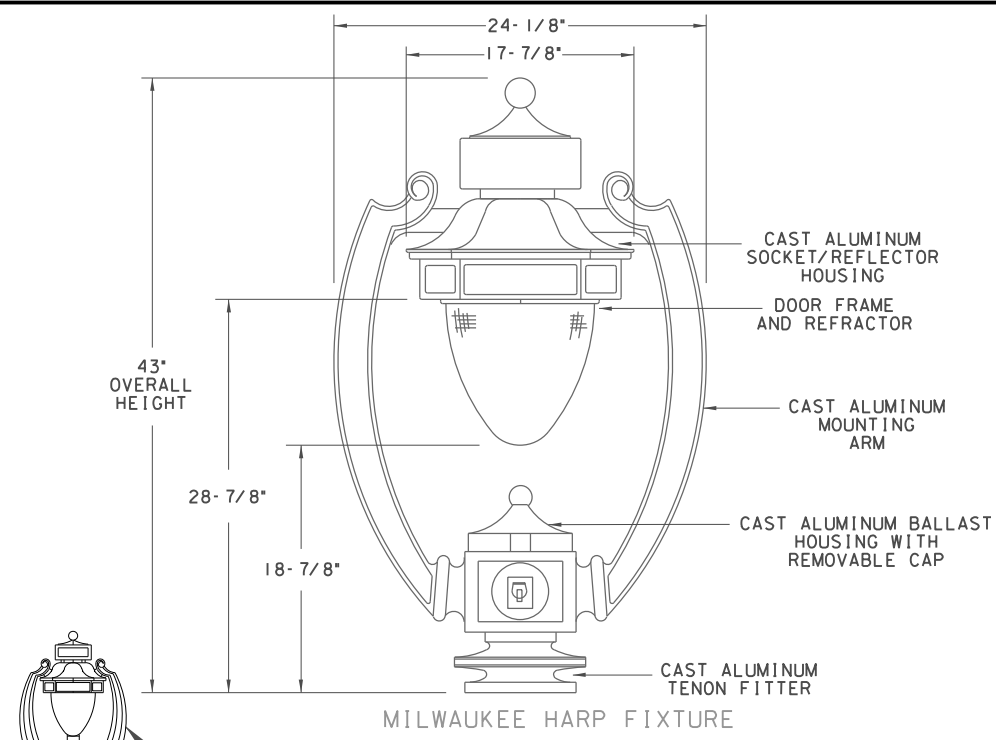
TYPICAL PLAN VIEW FOR
DEPRESSED DRIVEWAY

NOTE: 1.) KEEP AREA BEHIND CURB FREE OF DEBRIS AND CONCRETE OVERPOUR.
2.) CONDUIT TO BE PLACED 6 INCHES ON CENTER DIRECTLY BEHIND CURB, UNLESS NOTED OR APPROVED BY ENGINEER.

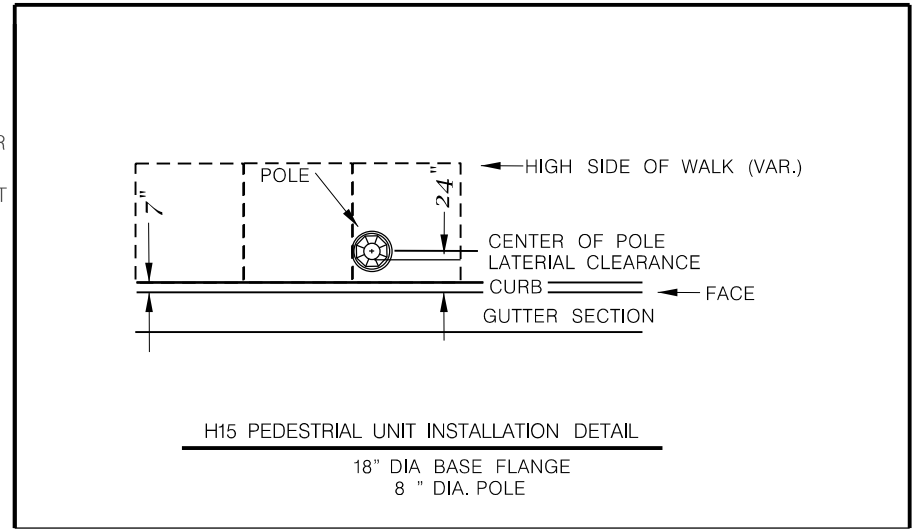
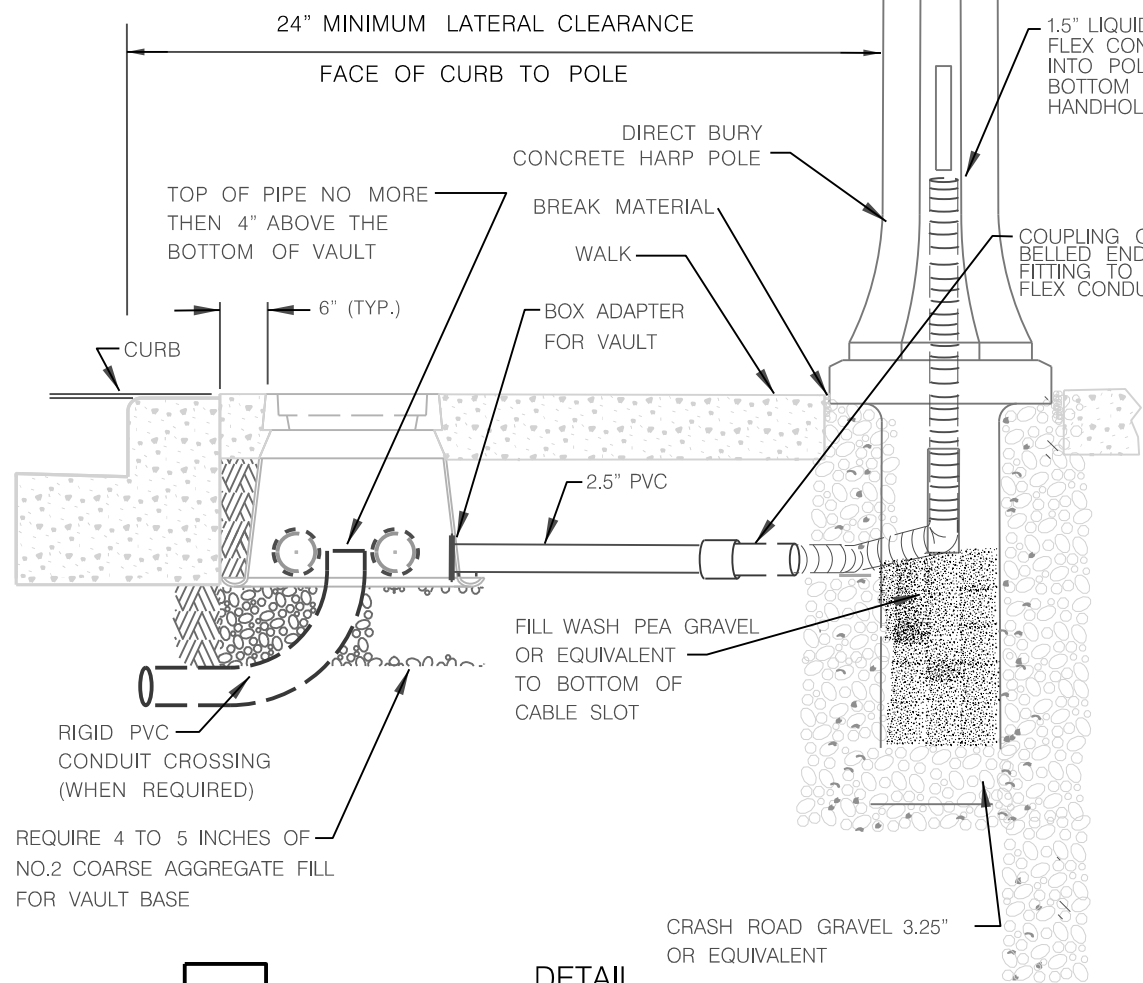
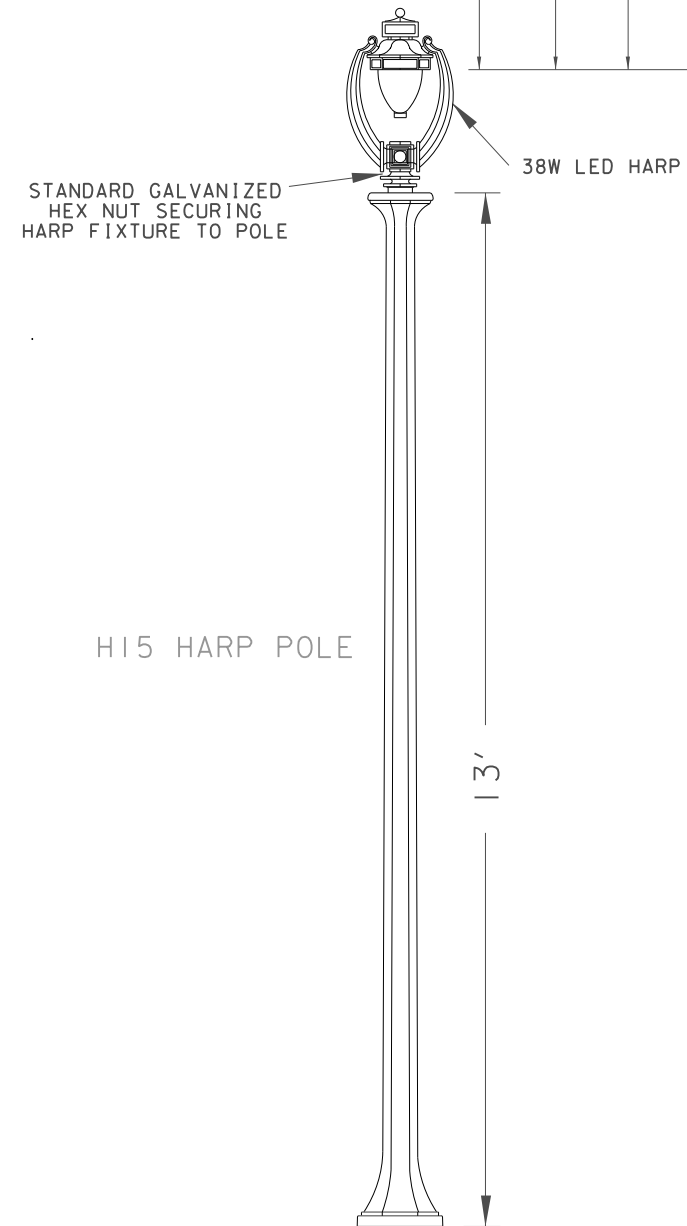


101 DETAIL
TYPICAL CONDUIT INSTALLATION
UNDER DRIVEWAYS OR PEDESTRIAN RAMPS NOT TO SCALE

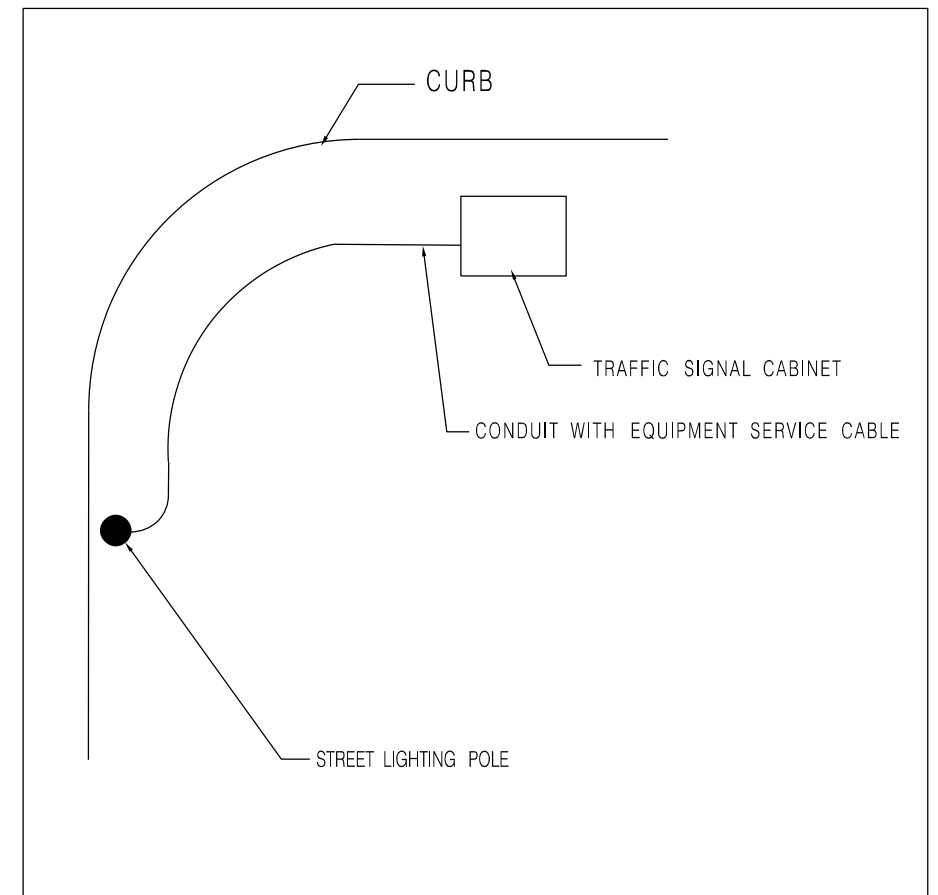
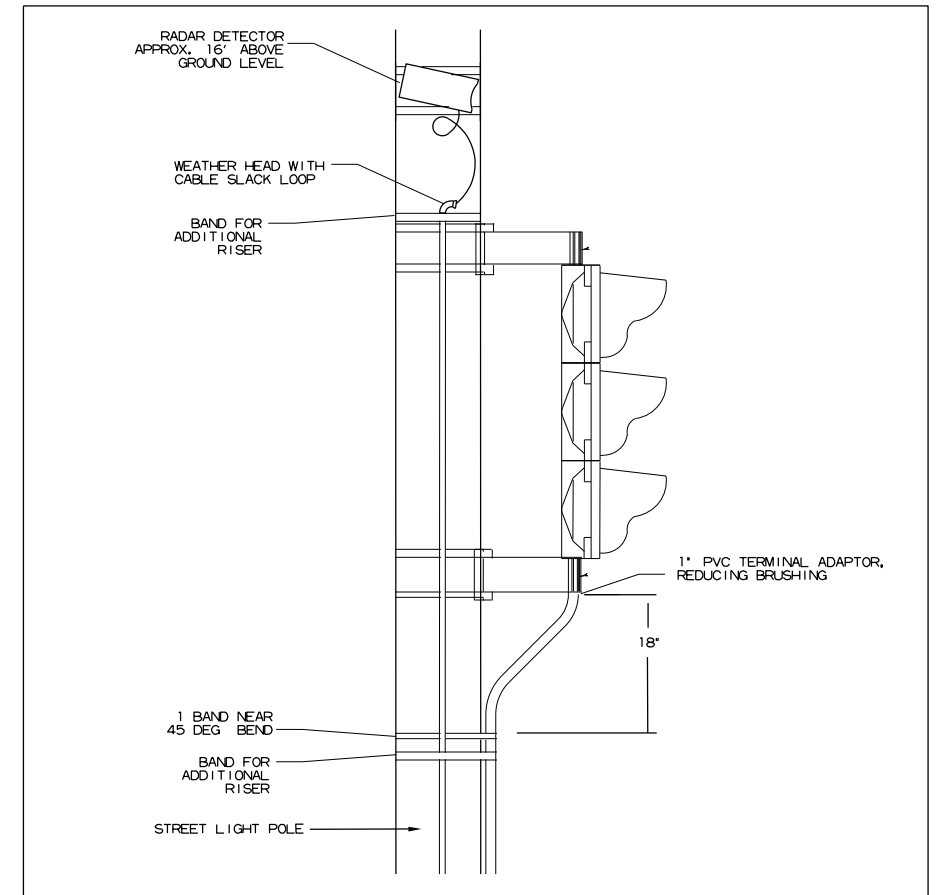
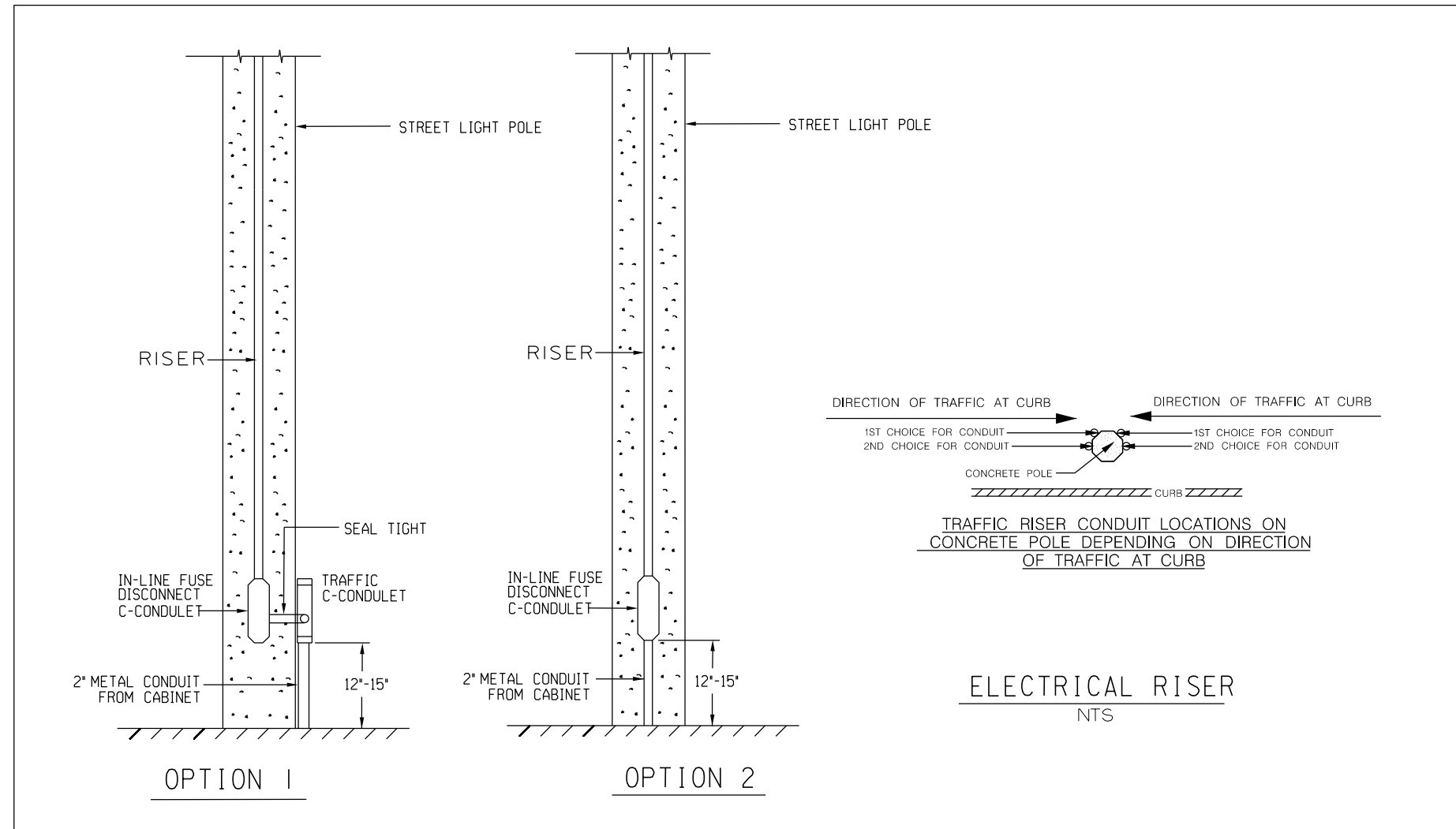
ANY DEVIATIONS FROM DETAIL WILL REQUIRE PERMISSION FROM STREET LIGHTING FORCES.
CONTACT DISPATCHER AT (414) 286-5944 FOR THE APPROPRIATE SHOP SUPERVISOR.

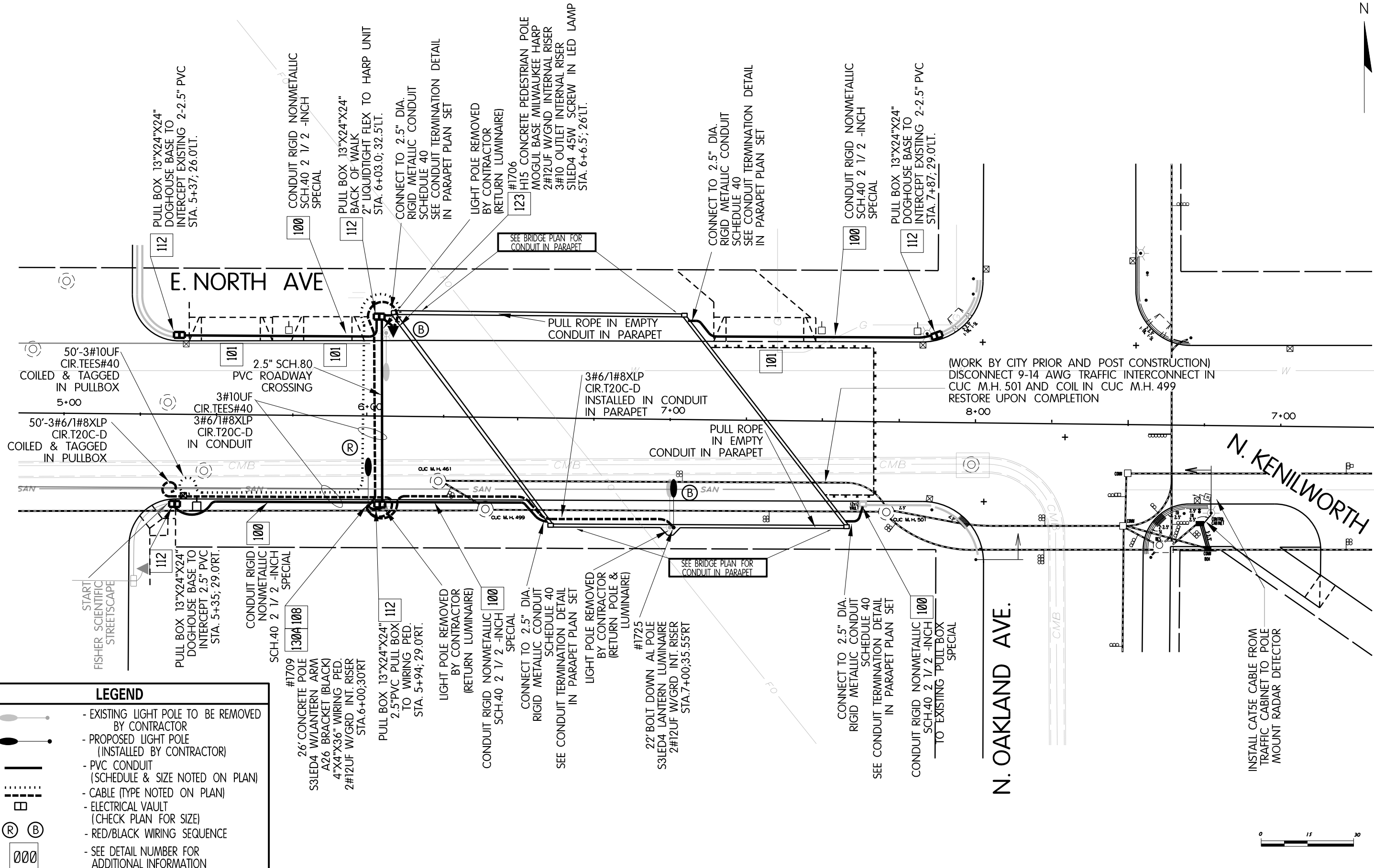


DETAIL CONNECTIONS WITHIN HAND HOLE

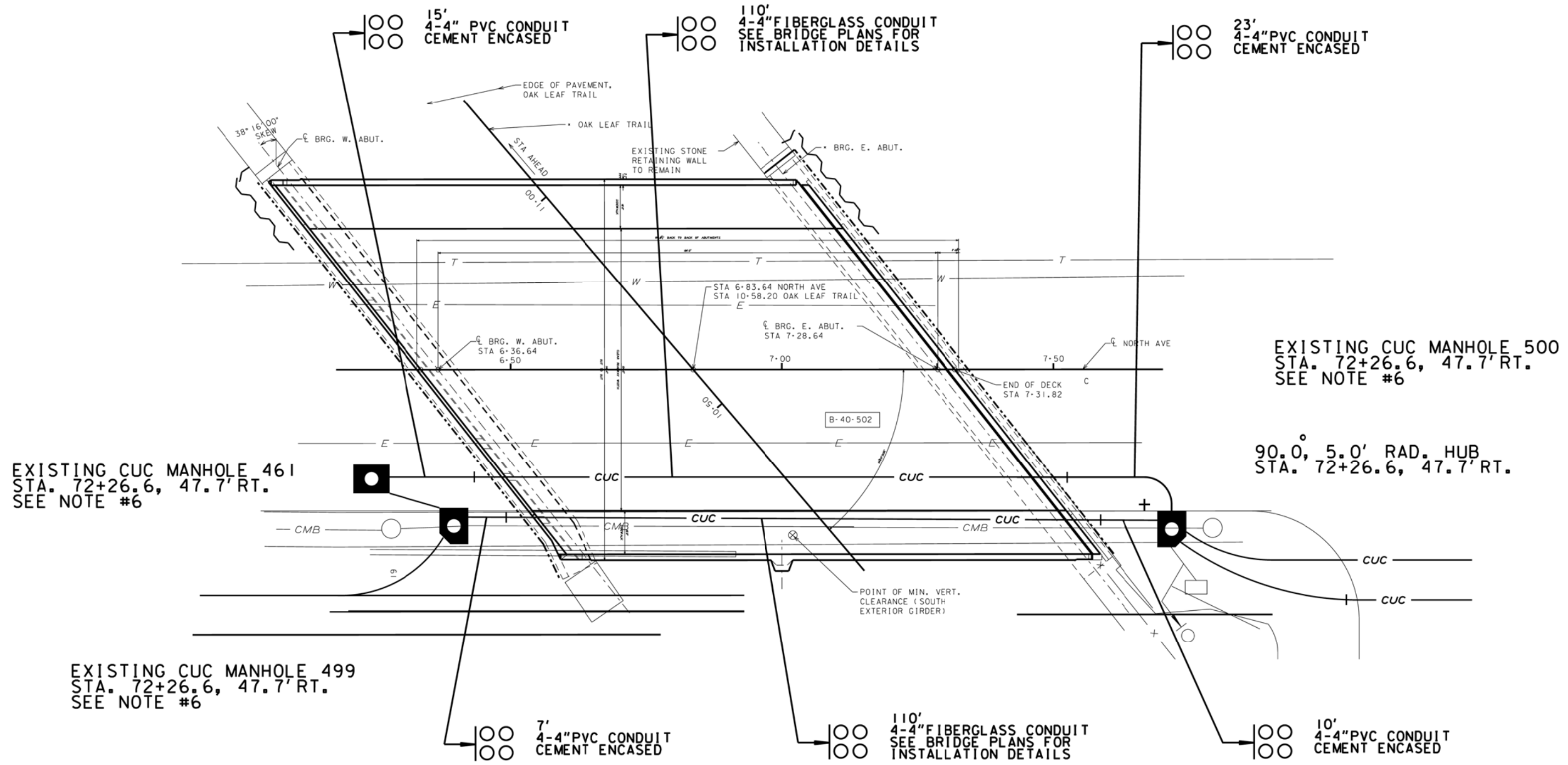


123 TYPICAL CONDUIT INSTALLATION FROM VAULT TO CONCRETE HARP POLE





LEGEND	
	- EXISTING LIGHT POLE TO BE REMOVED BY CONTRACTOR
	- PROPOSED LIGHT POLE (INSTALLED BY CONTRACTOR)
	- PVC CONDUIT (SCHEDULE & SIZE NOTED ON PLAN)
	- CABLE (TYPE NOTED ON PLAN)
	- ELECTRICAL VAULT (CHECK PLAN FOR SIZE)
	- RED/BLACK WIRING SEQUENCE
	- SEE DETAIL NUMBER FOR ADDITIONAL INFORMATION

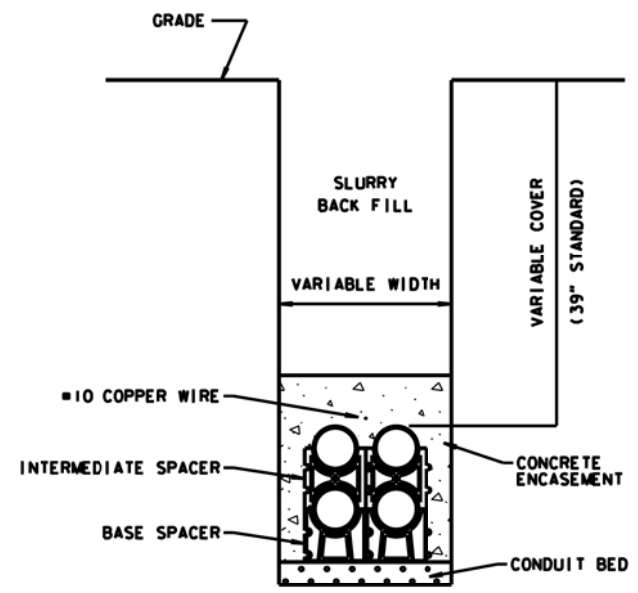


NOTES:

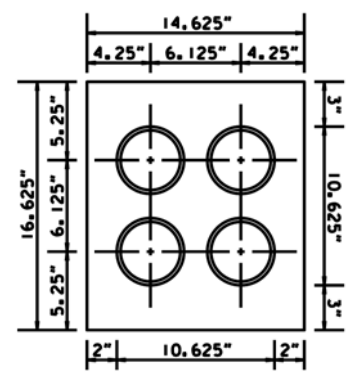
- 1) CONSTRUCTION STAKING FOR THE CITY UNDERGROUND CONDUIT (CUC) FACILITIES IS TO BE INCLUDED IN AND PAID FOR UNDER THE BID ITEM 650.8500 CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS
- 2) THE LOCATION OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS IS APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA WHICH ARE NOT SHOWN.
- 3) THE LOCATION OF THE EXISTING AND PROPOSED UTILITY INSTALLATIONS SHALL BE FIELD VERIFIED BY THE CONTRACTOR.
- 4) DIMENSIONS SHOWN ARE TO CENTER OF MANHOLE, DUCT PACKAGE OR UTILITY.
- 5) MAINTAIN A STANDARD DEPTH OF 39-INCHES BETWEEN FINISHED GRADE AND TOP OF CONDUIT.
- 6) REMOVE ABANDONED CONDUIT FROM MANHOLE WALL AND INSTALL THE PROPOSED CONDUIT INTO THE MANHOLE AT THE SAME LOCATION.
- 7) REMOVE ABANDONED CONDUIT AS NEEDED FOR PROPOSED INSTALLATION.

LEGEND

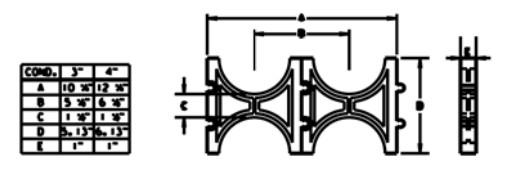
- CUC — PROPOSED 4-INCH CEMENT ENCASED NONMETALLIC CONDUIT, NUMBER OF RUNS AS NOTED.
- PROPOSED CUC MANHOLE
- ◼ EXISTING CUC MANHOLE
- CUC — EXISTING CONDUIT
- - - - ABANDONED CONDUIT



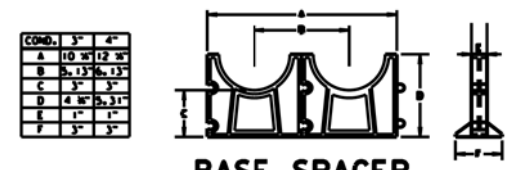
TRENCH CROSS SECTION VIEW
N. T. S.



CROSS SECTION VIEW
N. T. S.

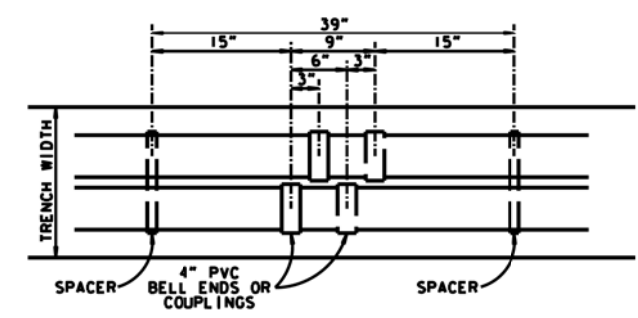


INTERMEDIATE SPACER

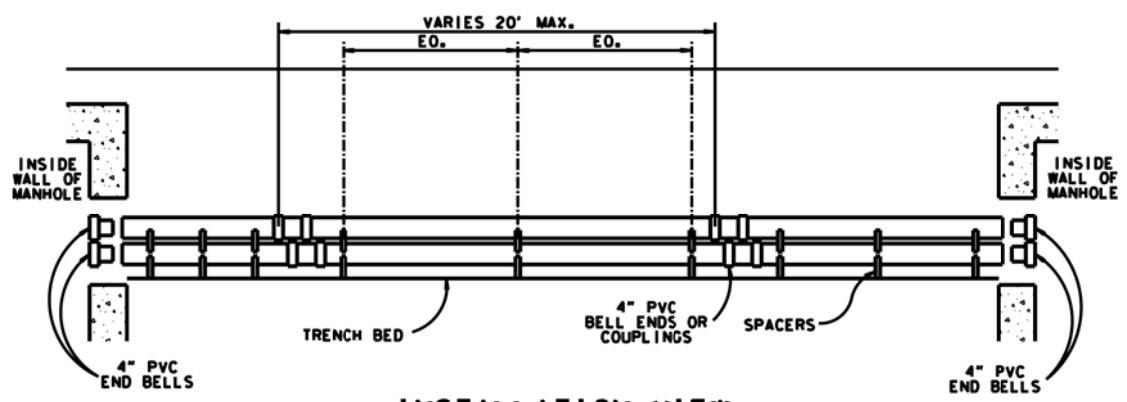


BASE SPACER

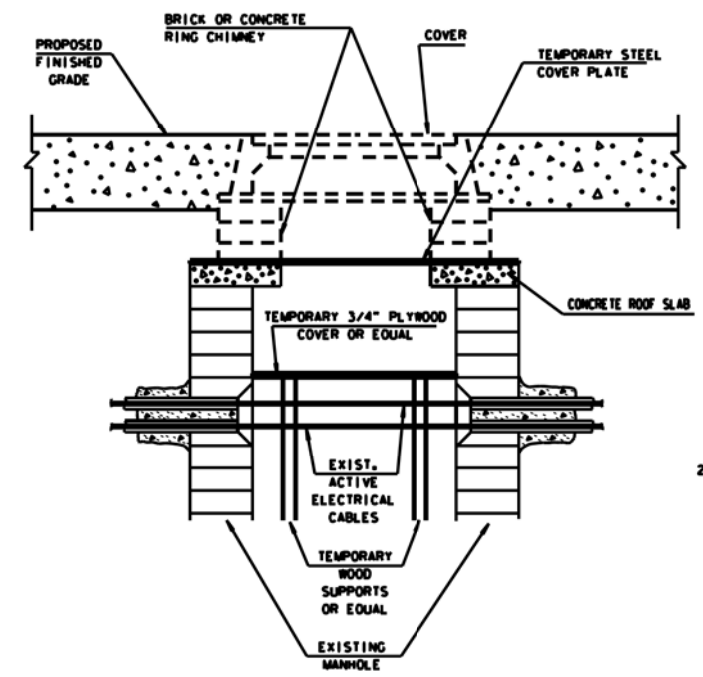
INTERMEDIATE AND BASE SPACER DETAIL



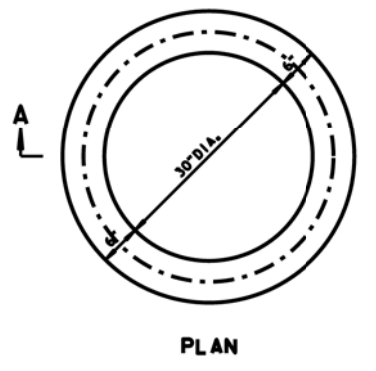
PLAN VIEW



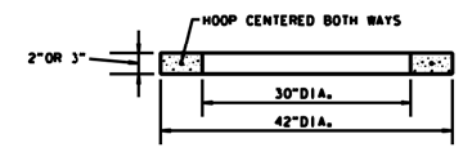
INSTALLATION VIEW
DUCT INSTALLATION DETAIL



BLOCK OR PRECAST MANHOLE



PLAN



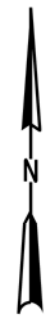
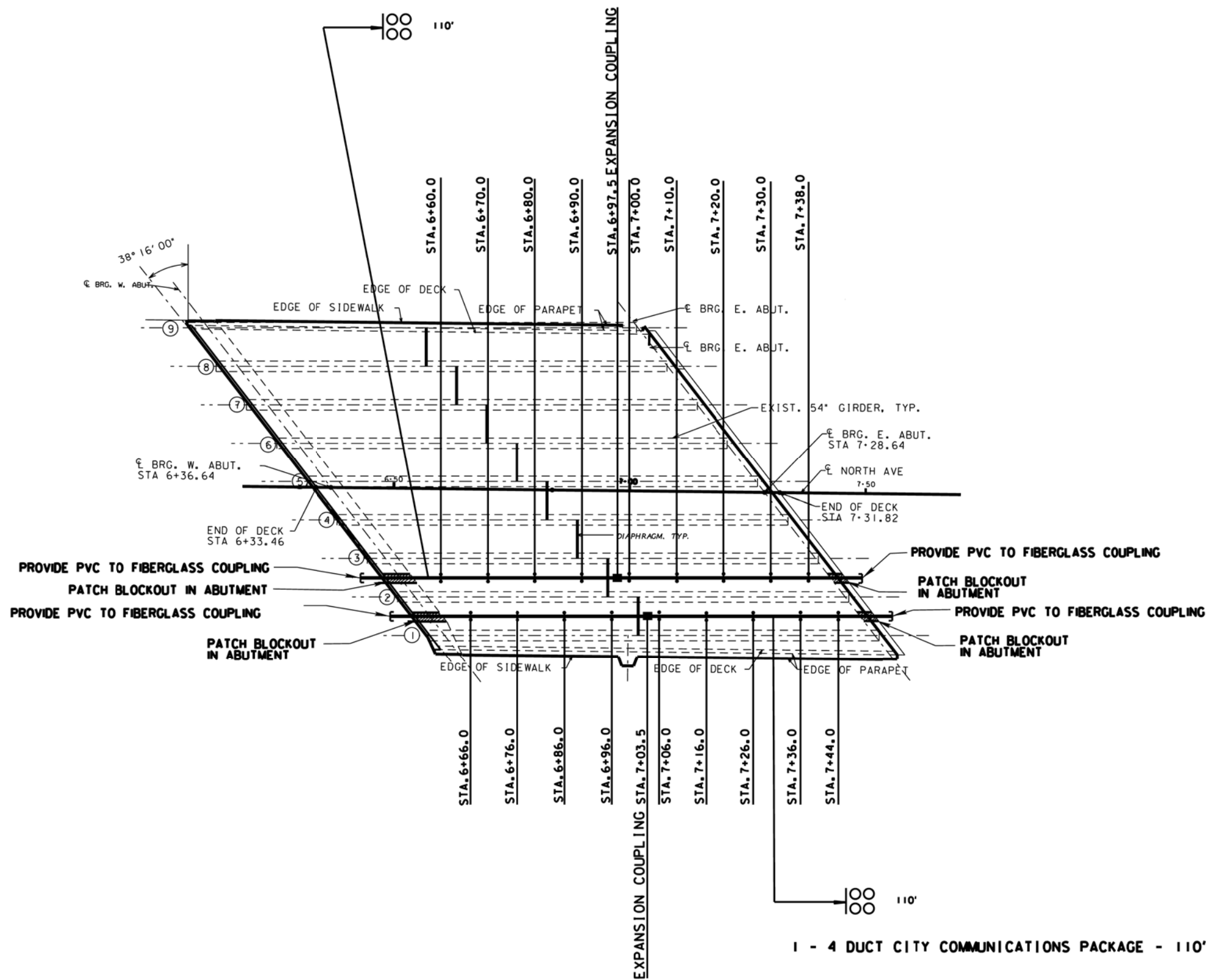
SECTION A-A

THE ADJUSTING RING SHALL BE 2" OR 3" IN HEIGHT.
THE CIRCUMFERENTIAL STEEL SHALL BE CENTERED WITHIN THE RING.
AREA OF CIRCUMFERENTIAL STEEL = 0.07 SQ. INCH PER VERTICAL FOOT WITH A MINIMUM OF .024 SQ. INCH IN ANY ONE RING.
THE MINIMUM COMPRESSIVE STRENGTH OF THE CONCRETE CORE SHALL BE 4000 P.S.I.

CONCRETE ADJUSTING RING

ADJUSTING CUC MANHOLES

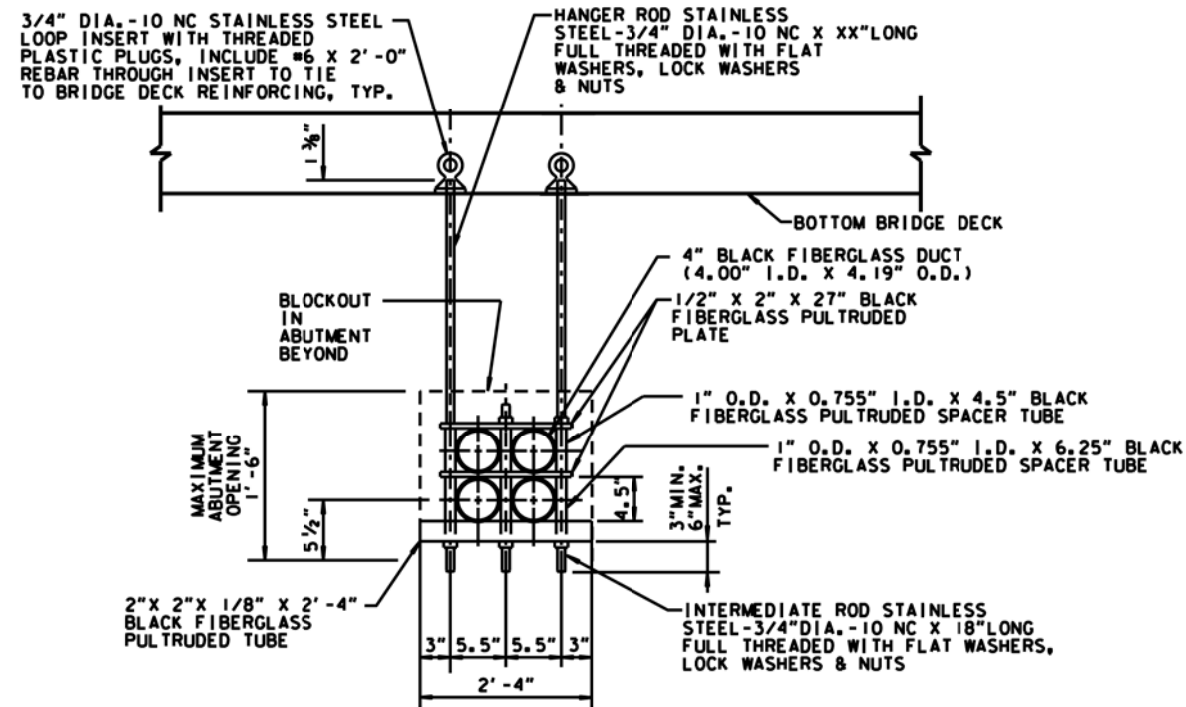
1 - 4 DUCT CITY ELECTRICAL PACKAGE - 110' - 5' BEYOND ABUTMENT TO 5' BEYOND ABUTMENT



GENERAL NOTES

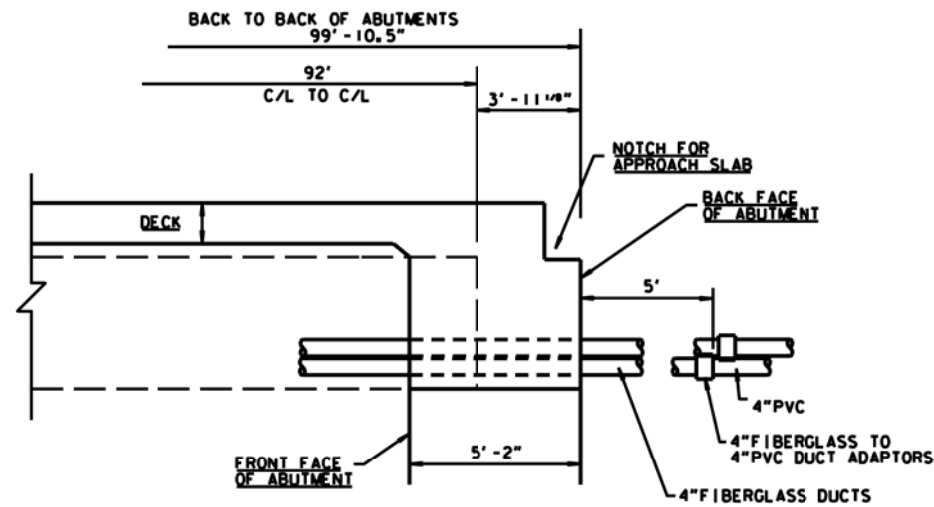
- DRAWINGS SHALL NOT BE SCALED.
- ALL DIMENSIONS ARE IN FEET AND INCHES UNLESS OTHERWISE NOTED.
- ALL STATIONS ARE IN FEET AND ARE ALONG THE R/L FOR E. NORTH AVE.
- ALL COMPONENTS SHALL HAVE A MINIMUM 75 YEAR DESIGN LIFE.
- EACH 4" DIA. CONDUIT WEIGHS 9 LBS.
- ALL HORIZONTAL SUPPORT MEMBERS TO BE MADE OF BLACK FIBERGLASS PULTRUDED MATERIAL.
- FIBERGLASS MEMBERS SHALL COMPLY WITH THE REQUIREMENTS OF ASTM E-84, CLASS 1 FLAME RATING AND SELF-EXTINGUISHING REQUIREMENTS OF ASTM D-635, A SURFACE VEIL SHALL BE APPLIED DURING PULTRUSION TO INSURE A RESIN RICH SURFACE AND ULTRAVIOLET RESISTANCE.
- ALL CUTS AND HOLES SHOULD BE PROPERLY SEALED PER MANUFACTURERS RECOMMENDATIONS TO PREVENT CORROSION.
- ALL METAL HANGER MEMBERS SHALL BE STAINLESS STEEL.
- FURNISH CONCRETE FOR BRIDGES CONFORMING TO SECTION 501, GRADE E. CONTRACTOR MAY USE PREMIXED BAG CEMENT PER ENGINEER'S APPROVAL.
- SPACE HANGERS A MAXIMUM 10'-0". LOCATE CONDUIT HANGERS BETWEEN GIRDERS 1 & 2 FOR THE 4 DUCT CITY COMMUNICATIONS PACKAGE. LOCATE CONDUIT HANGERS BETWEEN GIRDERS 2 & 3 FOR THE 4 DUCT CITY ELECTRICAL PACKAGE. SEE B-40-502 BRIDGE PLANS.
- ALL FIBERGLASS JOINTS SHALL BE EPOXIED PER MANUFACTURER'S SPECIFICATIONS.
- EXTEND CONDUIT 5'-0" FROM BACK FACE OF ABUTMENT. PROVIDE PVC TO FIBERGLASS COUPLING.
- INSTALL EXPANSION JOINT PER LOCATION ON THE PLAN. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION.

1 - 4 DUCT CITY COMMUNICATIONS PACKAGE - 110' - 5' BEYOND ABUTMENT TO 5' BEYOND ABUTMENT

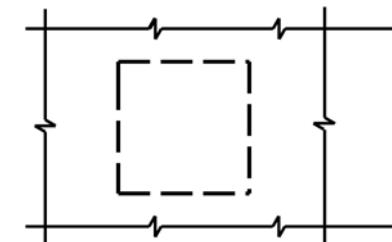
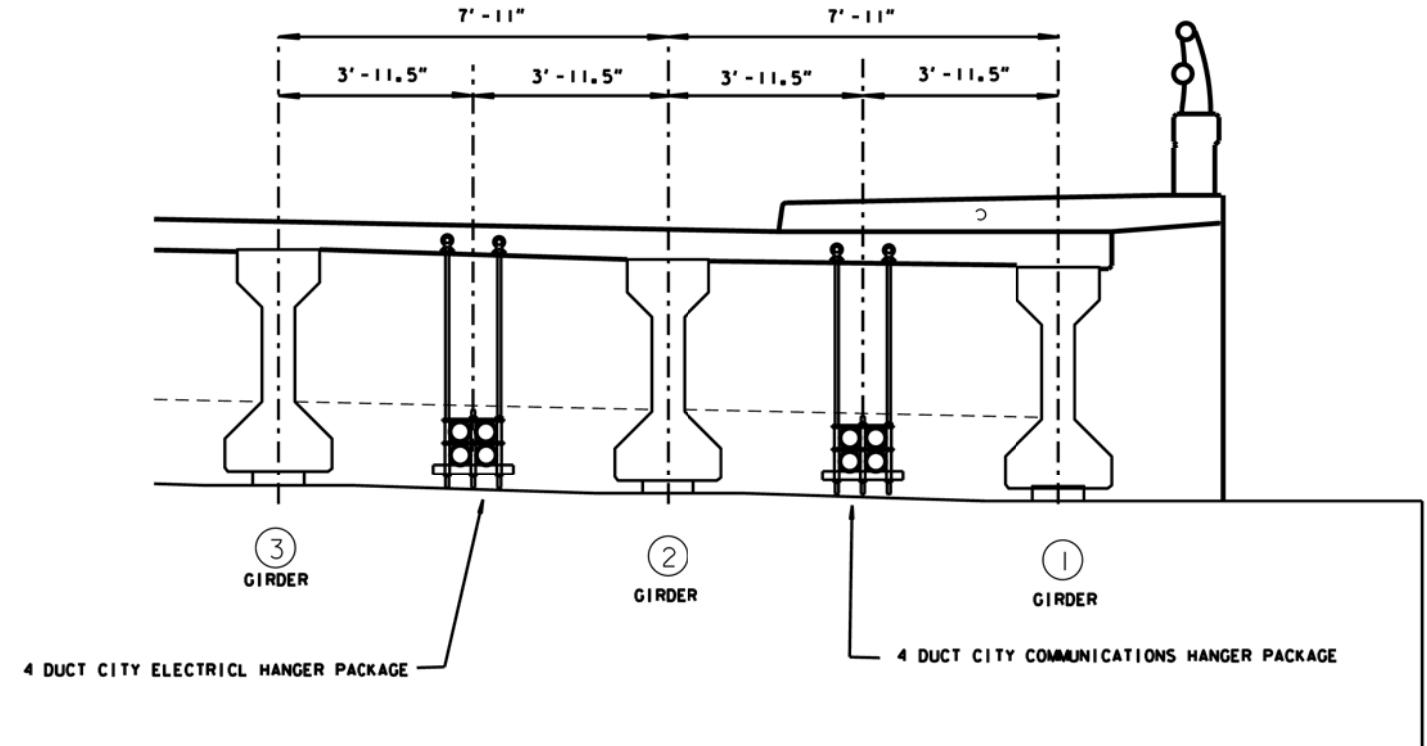


4 DUCT CITY HANGER PACKAGE DETAIL TYP.

THE CONTRACTOR SHALL FIELD VERIFY HANGER LENGTHS IN ORDER TO AVOID CONFLICTS WITH DIAPHRAM CROSSING.

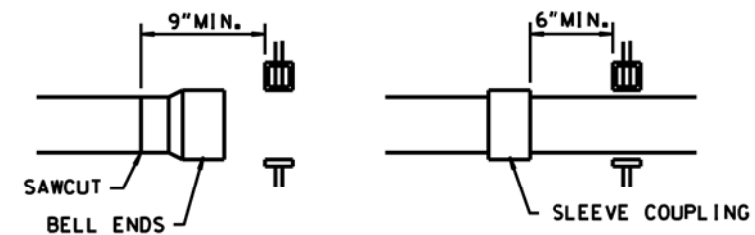


TYPICAL SECTION AT ABUTMENTS



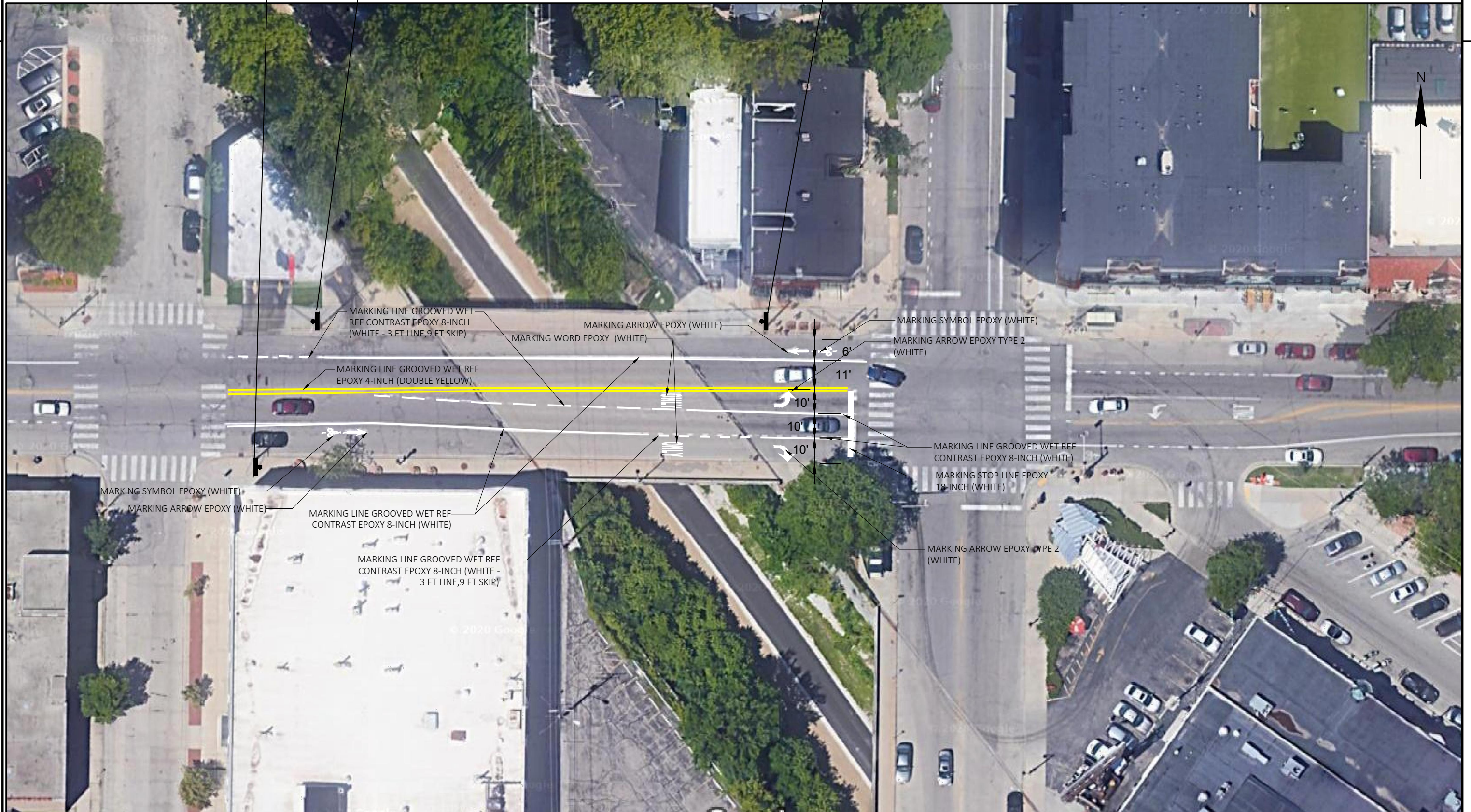
BLOCKOUT PATCH DETAIL

(1'-3" X 1'-3" BLOCKOUT)



CLEARANCES FOR SLEEVE COUPLINGS AND BELL ENDS

NOTES:
A BELLED END OR COUPLING SHOULD BE NO CLOSER THAN 6" ON EITHER SIDE OF A SUPPORT AS SHOWN ABOVE. A TAPE MEASURE CAN BE USED TO PREDETERMINE THESE LOCATIONS AND THE CONDUIT CAN BE SAW CUT TO THE PROPER LENGTH BEFORE IT IS THREADED THROUGH THE HANGERS AS SHOWN ABOVE.



PROJECT NO: 2445-09-71	HWY: E. NORTH AVENUE	COUNTY: MILWAUKEE	PAVEMENT MARKING	SHEET	E
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LEGEND

- ↑ TYPE III BARRICADE WITH TWO TYPE A LIGHTS
- ↑ TYPE III BARRICADE WITH ATTACHED SIGN AND TWO TYPE A LIGHTS
- TRAFFIC CONTROL DRUM
- TRAFFIC CONTROL DRUM WITH TYPE C STEADY BURN LIGHT
- ▬ SIGN ON PERMANENT SUPPORT
- ▨ WORK AREA
- ▬ TEMPORARY CONCRETE BARRIER
- DIRECTION OF TRAFFIC
- ① SEE TRAFFIC CONTROL SIGNING DETAILS

GENERAL NOTES FOR TRAFFIC CONTROL SIGNING

1. THE EXACT LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.
2. ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE TRAFFIC CONTROL ZONE, INCLUDING PRE-EXISTING SIGNING IN THE VICINITY, SHALL BE COVERED OR REMOVED AS SPECIFIED IN THE PLANS AND/OR AS DIRECTED BY THE ENGINEER.
3. ALL EXISTING SIGNS THAT NEED TO BE COVERED SHALL BE COVERED WITH A BLANK ORANGE PANEL.
4. THE ERECTION AND PLACEMENT OF SIGNS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
5. THE TRAFFIC IN AND OUT OF CHIROPRACTOR WILL BE CONTROLLED USING A FLAGGER. AS NEEDED DURING BUSINESS HOURS AND KEEPING ACCESS OPEN OVERNIGHT. FLAGGER TO BE PROVIDED BY CONTRACTOR. THIS WILL BE PAID UNDER BID ITEM 643.5000 TRAFFIC CONTROL

PROJECT NO: 2445-09-71

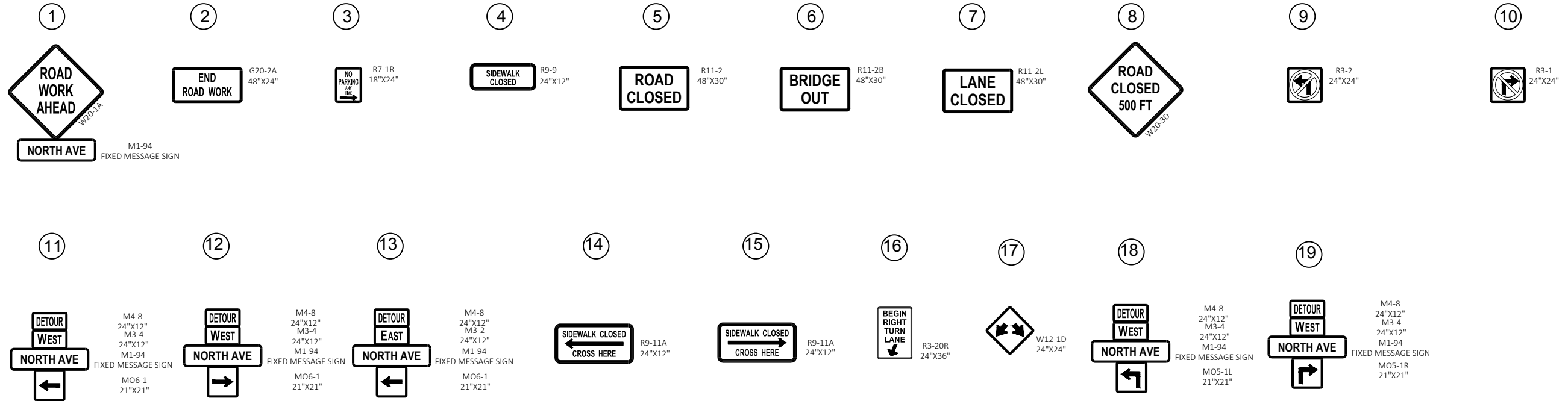
HWY: E. NORTH AVENUE

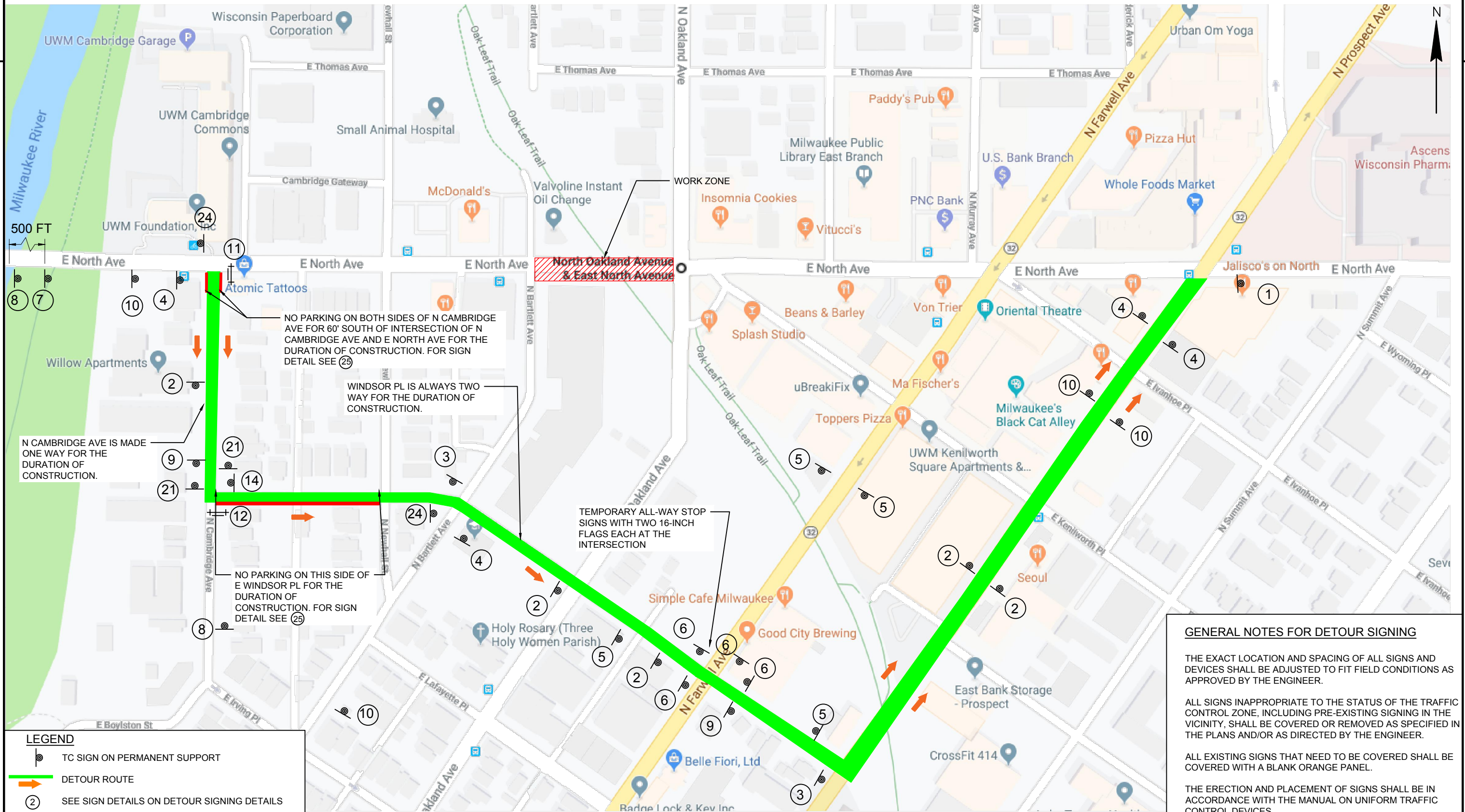
COUNTY: MILWAUKEE

TRAFFIC CONTROL SIGNING AND ACCESS CONTROL

SHEET

E





LEGEND

- TC SIGN ON PERMANENT SUPPORT
- DETOUR ROUTE
- SEE SIGN DETAILS ON DETOUR SIGNING DETAILS
- WORK ZONE
- TYPE III BARRICADE WITH SIGN

GENERAL NOTES FOR DETOUR SIGNING

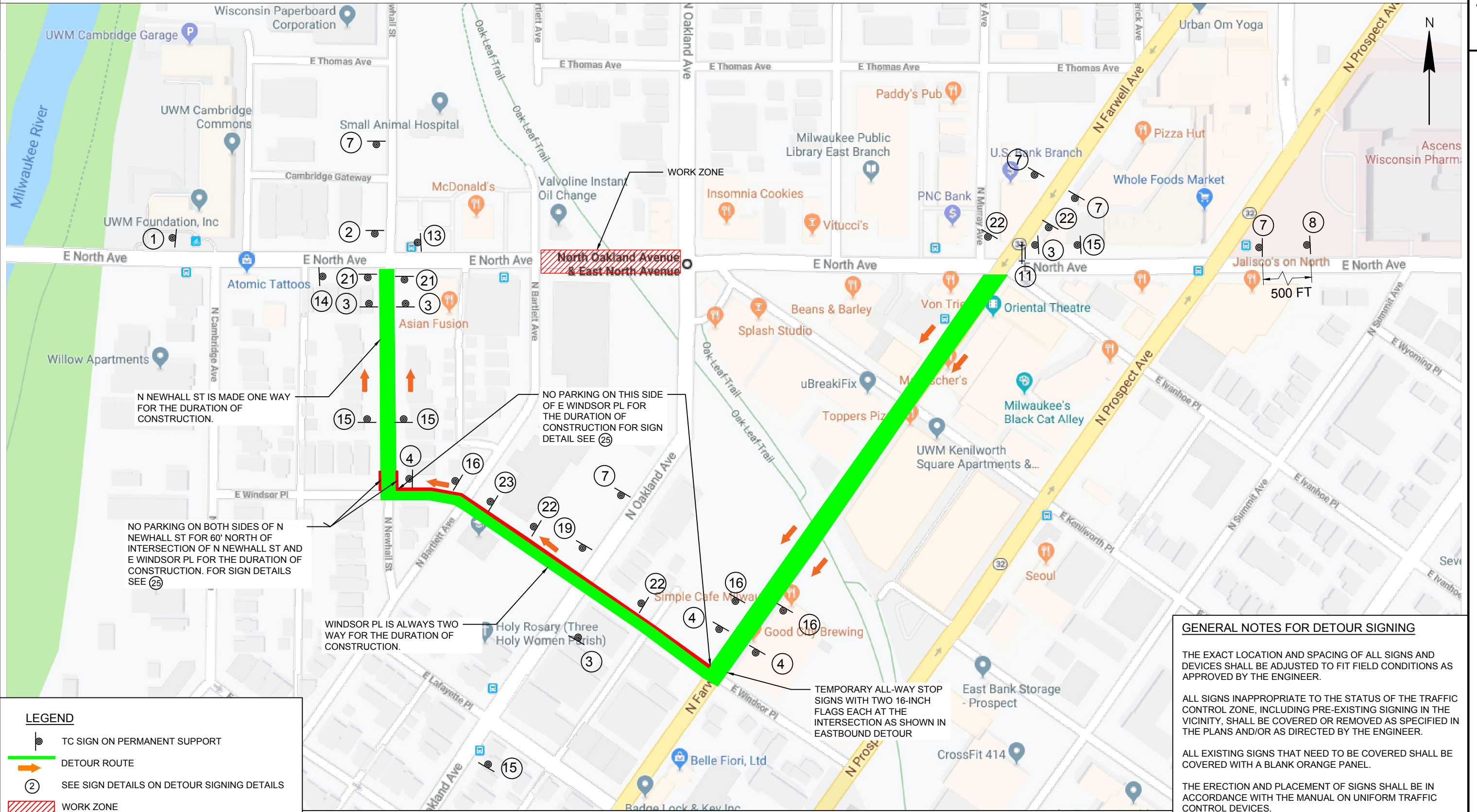
THE EXACT LOCATION AND SPACING OF ALL SIGNS AND DEVICES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE TRAFFIC CONTROL ZONE, INCLUDING PRE-EXISTING SIGNING IN THE VICINITY, SHALL BE COVERED OR REMOVED AS SPECIFIED IN THE PLANS AND/OR AS DIRECTED BY THE ENGINEER.

ALL EXISTING SIGNS THAT NEED TO BE COVERED SHALL BE COVERED WITH A BLANK ORANGE PANEL.

THE ERECTION AND PLACEMENT OF SIGNS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

DETOUR SIGNING SHALL BE PERFORMED BY THE CONTRACTOR.



GENERAL NOTES FOR DETOUR SIGNING

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

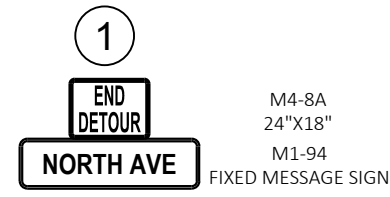
ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE TRAFFIC CONTROL ZONE, INCLUDING PRE-EXISTING SIGNING IN THE VICINITY, SHALL BE COVERED OR REMOVED AS SPECIFIED IN THE PLANS AND/OR AS DIRECTED BY THE ENGINEER.

ALL EXISTING SIGNS THAT NEED TO BE COVERED SHALL BE COVERED WITH A BLANK ORANGE PANEL.

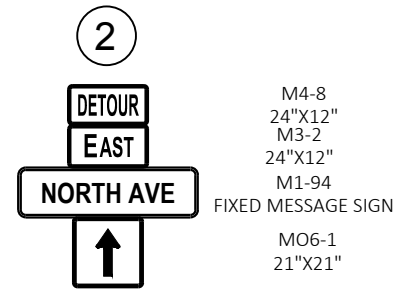
THE ERECTION AND PLACEMENT OF SIGNS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

DETOUR SIGNING SHALL BE PERFORMED BY THE CONTRACTOR.

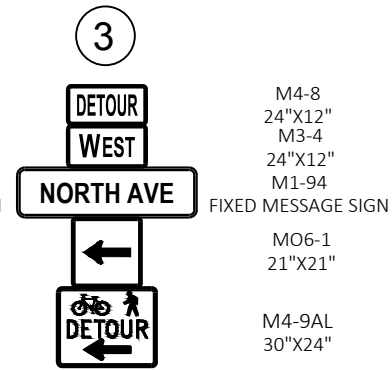
- LEGEND**
- TC SIGN ON PERMANENT SUPPORT
 - DETOUR ROUTE
 - DETOUR ROUTE
 - SEE SIGN DETAILS ON DETOUR SIGNING DETAILS
 - WORK ZONE
 - TYPE III BARRICADE WITH SIGN



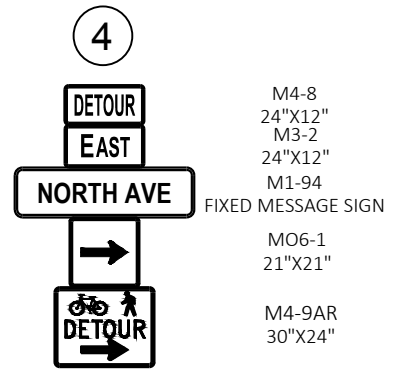
M4-8A
24"x18"
M1-94
FIXED MESSAGE SIGN



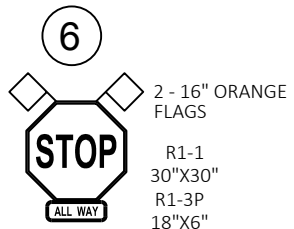
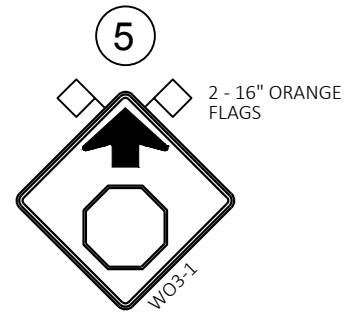
M4-8
24"x12"
M3-2
24"x12"
M1-94
FIXED MESSAGE SIGN
MO6-1
21"x21"



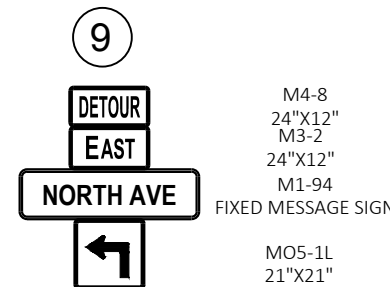
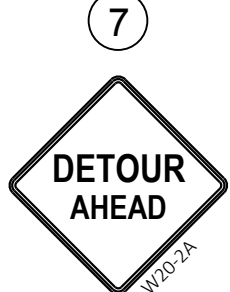
M4-8
24"x12"
M3-4
24"x12"
M1-94
FIXED MESSAGE SIGN
MO6-1
21"x21"
M4-9AL
30"x24"



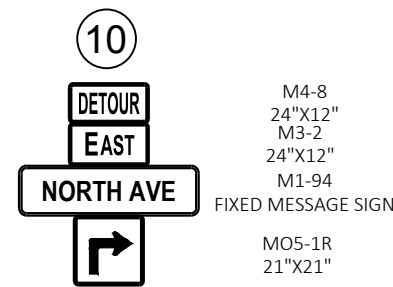
M4-8
24"x12"
M3-2
24"x12"
M1-94
FIXED MESSAGE SIGN
MO6-1
21"x21"
M4-9AR
30"x24"



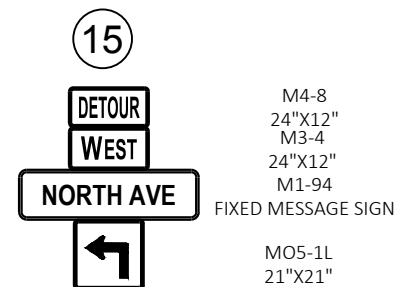
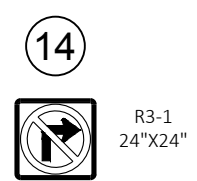
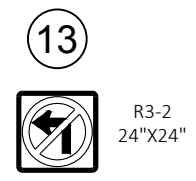
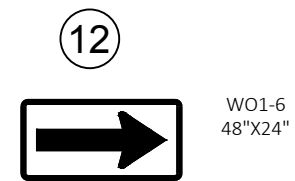
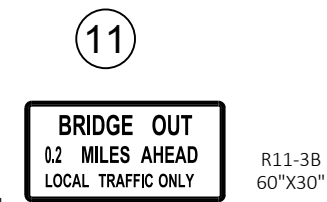
R1-1
30"x30"
R1-3P
18"x6"



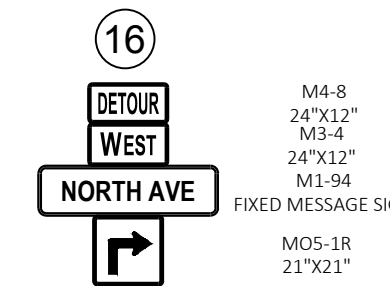
M4-8
24"x12"
M3-2
24"x12"
M1-94
FIXED MESSAGE SIGN
MO5-1L
21"x21"



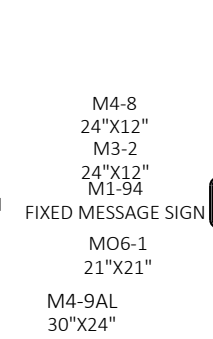
M4-8
24"x12"
M3-2
24"x12"
M1-94
FIXED MESSAGE SIGN
MO5-1R
21"x21"



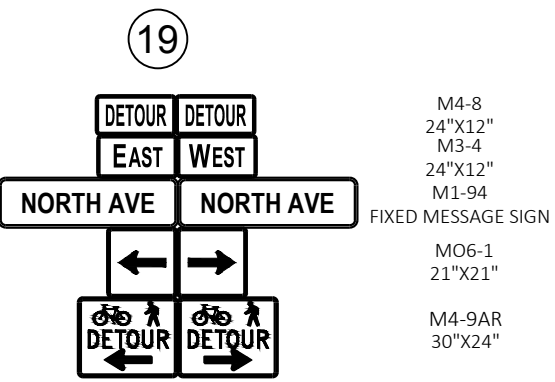
M4-8
24"x12"
M3-4
24"x12"
M1-94
FIXED MESSAGE SIGN
MO5-1L
21"x21"



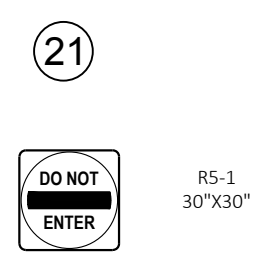
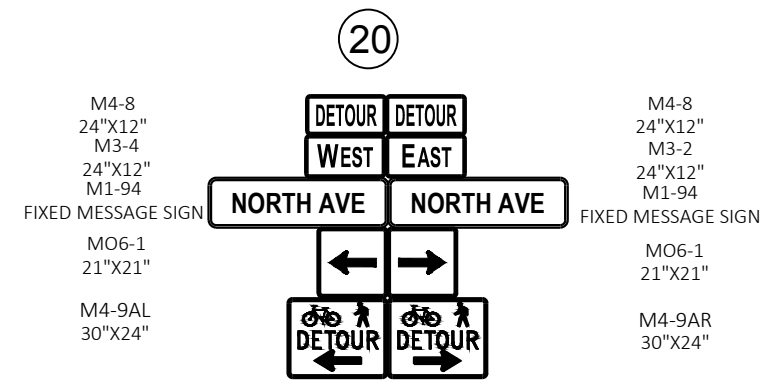
M4-8
24"x12"
M3-4
24"x12"
M1-94
FIXED MESSAGE SIGN
MO5-1R
21"x21"



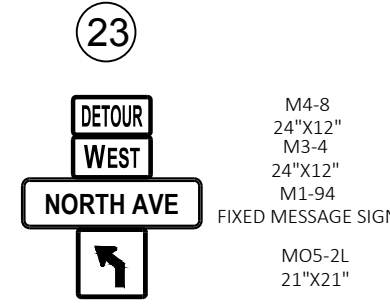
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M3-2
24"x12"
M1-94
FIXED MESSAGE SIGN
MO6-1
21"x21"
M4-9AL
30"x24"



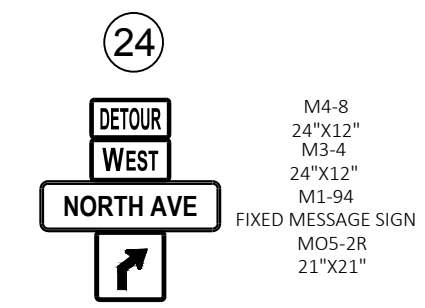
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24"x12"
M3-4
24"x12"
M1-94
FIXED MESSAGE SIGN
MO6-1
21"x21"
M4-9AR
30"x24"



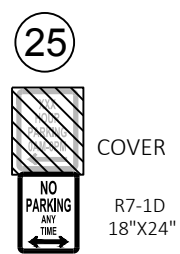
M4-8
24"x12"
M3-4
24"x12"
M1-94
FIXED MESSAGE SIGN
MO6-1
21"x21"



M4-8
24"x12"
M3-4
24"x12"
M1-94
FIXED MESSAGE SIGN
MO5-2L
21"x21"



M4-8
24"x12"
M3-4
24"x12"
M1-94
FIXED MESSAGE SIGN
MO5-2R
21"x21"



GENERAL NOTES FOR DETOUR SIGNING

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

ALL SIGNS INAPPROPRIATE TO THE STATUS OF THE TRAFFIC CONTROL ZONE, INCLUDING PRE-EXISTING SIGNING IN THE VICINITY, SHALL BE COVERED OR REMOVED AS SPECIFIED IN THE PLANS AND/OR AS DIRECTED BY THE ENGINEER.

ALL EXISTING SIGNS THAT NEED TO BE COVERED SHALL BE COVERED WITH A BLANK ORANGE PANEL.

THE ERECTION AND PLACEMENT OF SIGNS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

DETOUR SIGNING SHALL BE PERFORMED BY THE CONTRACTOR.

Estimate Of Quantities

2445-09-71

Line	Item	Item Description	Unit	Total	Qty
0002	203.0220	Removing Structure (structure) 01. B-40-502	EACH	1.000	1.000
0004	203.0330	Debris Containment (structure) 01. B-40-502	EACH	1.000	1.000
0006	204.0100	Removing Concrete Pavement	SY	365.000	365.000
0008	204.0130	Removing Curb	LF	45.000	45.000
0010	204.0155	Removing Concrete Sidewalk	SY	345.000	345.000
0012	205.0100	Excavation Common	CY	40.000	40.000
0014	205.0501.S	Excavation, Hauling, and Disposal of Petroleum Contaminated Soil 01. 2445-09-71	TON	197.000	197.000
0016	206.1000	Excavation for Structures Bridges (structure) 01. B-40-502	LS	1.000	1.000
0018	210.1500	Backfill Structure Type A	TON	488.000	488.000
0020	213.0100	Finishing Roadway (project) 01. 2445-09-71	EACH	1.000	1.000
0022	305.0110	Base Aggregate Dense 3/4-Inch	TON	50.000	50.000
0024	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	260.000	260.000
0026	312.0110	Select Crushed Material	TON	70.000	70.000
0028	415.0410	Concrete Pavement Approach Slab	SY	365.000	365.000
0030	502.0100	Concrete Masonry Bridges	CY	295.000	295.000
0032	502.3101	Expansion Device	LF	86.000	86.000
0034	502.3200	Protective Surface Treatment	SY	774.000	774.000
0036	502.3210	Pigmented Surface Sealer	SY	79.000	79.000
0038	502.4205	Adhesive Anchors No. 5 Bar	EACH	103.000	103.000
0040	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	58,740.000	58,740.000
0042	506.2610	Bearing Pads Elastomeric Laminated	EACH	9.000	9.000
0044	506.4000	Steel Diaphragms (structure) 01. B-40-502	EACH	8.000	8.000
0046	506.7050.S	Removing Bearings (structure) 01. B-40-502	EACH	9.000	9.000
0048	509.1500	Concrete Surface Repair	SF	50.000	50.000
0050	509.9020.S	Epoxy Crack Sealing	LF	110.000	110.000
0052	511.1200	Temporary Shoring (structure) 01. B-40-502	SF	693.000	693.000
0054	513.7021	Railing Steel Type C4	LF	195.000	195.000
0056	514.2625	Downspout 6-Inch	LF	40.000	40.000
0058	516.0500	Rubberized Membrane Waterproofing	SY	19.000	19.000
0060	531.8990	Anchor Assemblies Poles on Structures	EACH	1.000	1.000
0062	601.0411	Concrete Curb & Gutter 30-Inch Type D	LF	45.000	45.000
0064	602.0410	Concrete Sidewalk 5-Inch	SF	345.000	345.000
0066	603.8000	Concrete Barrier Temporary Precast Delivered	LF	115.000	115.000
0068	603.8125	Concrete Barrier Temporary Precast Installed	LF	115.000	115.000
0070	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	187.000	187.000
0072	619.1000	Mobilization	EACH	1.000	1.000
0074	634.0812	Posts Tubular Steel 2x2-Inch X 12-FT	EACH	3.000	3.000
0076	637.0620	Sign Flags Permanent Type II	EACH	20.000	20.000
0078	637.2210	Signs Type II Reflective H	SF	17.500	17.500
0080	642.5401	Field Office Type D	EACH	1.000	1.000
0082	643.0300	Traffic Control Drums	DAY	2,360.000	2,360.000
0084	643.0420	Traffic Control Barricades Type III	DAY	1,720.000	1,720.000
0086	643.0705	Traffic Control Warning Lights Type A	DAY	3,435.000	3,435.000
0088	643.0715	Traffic Control Warning Lights Type C	DAY	505.000	505.000
0090	643.0900	Traffic Control Signs	DAY	20,020.000	20,020.000
0092	643.0920	Traffic Control Covering Signs Type II	EACH	15.000	15.000
0094	643.5000	Traffic Control	EACH	1.000	1.000
0096	646.1545	Marking Line Grooved Wet Ref Contrast Epoxy 4-Inch	LF	550.000	550.000
0098	646.3545	Marking Line Grooved Wet Ref Contrast Epoxy 8-Inch	LF	545.000	545.000

Estimate Of Quantities

2445-09-71

Line	Item	Item Description	Unit	Total	Qty
0100	646.5020	Marking Arrow Epoxy	EACH	4.000	4.000
0102	646.5120	Marking Word Epoxy	EACH	2.000	2.000
0104	646.5220	Marking Symbol Epoxy	EACH	2.000	2.000
0106	646.6120	Marking Stop Line Epoxy 18-Inch	LF	30.000	30.000
0108	650.4500	Construction Staking Subgrade	LF	67.000	67.000
0110	650.6500	Construction Staking Structure Layout (structure) 01. B-40-502	LS	1.000	1.000
0112	650.7000	Construction Staking Concrete Pavement	LF	67.000	67.000
0114	650.8500	Construction Staking Electrical Installations (project) 01. 2445-09-71	LS	1.000	1.000
0116	652.0130	Conduit Rigid Metallic 2 1/2-Inch	LF	24.000	24.000
0118	652.0230	Conduit Rigid Nonmetallic Schedule 40 2 1/2-Inch	LF	362.000	362.000
0120	652.0330	Conduit Rigid Nonmetallic Schedule 80 2 1/2-Inch	LF	80.000	80.000
0122	652.0610	Conduit Special 2 1/2-Inch	LF	250.000	250.000
0124	653.0210	Junction Boxes 10x10x6-Inch	EACH	4.000	4.000
0126	653.0220	Junction Boxes 18x6x6-Inch	EACH	1.000	1.000
0128	655.0305	Cable Type UF 2-12 AWG Grounded	LF	100.000	100.000
0130	655.0320	Cable Type UF 2-10 AWG Grounded	LF	150.000	150.000
0132	674.0300	Remove Cable	LF	20.000	20.000
0134	715.0415	Incentive Strength Concrete Pavement	DOL	500.000	500.000
0136	715.0502	Incentive Strength Concrete Structures	DOL	1,770.000	1,770.000
0138	999.1001.S	Seismograph 01. 2445-09-71	EACH	1.000	1.000
0140	999.1501.S	Crack and Damage Survey	EACH	7.000	7.000
0142	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	800.000	800.000
0144	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	900.000	900.000
0146	SPV.0035	Special 01. Removing and Resetting Stones of Masonry Stone Wall	CY	7.000	7.000
0148	SPV.0060	Special 01. Pull Boxes 13-Inch x 24-Inch x 24-Inch	EACH	5.000	5.000
0150	SPV.0060	Special 02. Poles Type A-26	EACH	1.000	1.000
0152	SPV.0060	Special 03. Poles Type 22 Aluminum BD	EACH	1.000	1.000
0154	SPV.0060	Special 04. Remove Poles Complete	EACH	3.000	3.000
0156	SPV.0060	Special 05. Installing City-Furnished A-26 Bracket (Black)	EACH	1.000	1.000
0158	SPV.0060	Special 06. Installing City-Furnished Metal Wiring Pedestal	EACH	1.000	1.000
0160	SPV.0060	Special 07. Luminaire Historic Milwaukee Lantern	EACH	2.000	2.000
0162	SPV.0060	Special 08. Vehicular Microwave Detection System	EACH	1.000	1.000
0164	SPV.0060	Special 09. Luminaire Historic Milwaukee Harp	EACH	1.000	1.000
0166	SPV.0060	Special 10. Poles Type H-15 Direct Bury	EACH	1.000	1.000
0168	SPV.0060	Special 11. Adjusting CUC Manhole Covers	EACH	3.000	3.000
0170	SPV.0060	Special 12. Installing Conduit Into Existing Manhole	EACH	4.000	4.000
0172	SPV.0060	Special 13. Underdeck Utility Structure B-40-502 City of Milwaukee Communications Conduit	EACH	1.000	1.000
0174	SPV.0060	Special 14. Underdeck Utility Structure B-40-502 City of Milwaukee Electrical Conduit	EACH	1.000	1.000
0176	SPV.0060	Special 16. Install WE Energies Furnished Deck Inserts	EACH	18.000	18.000
0178	SPV.0060	Special 17. Cleaning and Painting Bearings	EACH	9.000	9.000
0180	SPV.0060	Special 18. Pedestrian Protection Enclosure	EACH	1.000	1.000
0182	SPV.0060	Special 19. Removing and Resetting Chain Link Fence	EACH	3.000	3.000
0184	SPV.0090	Special 01. Electrical Cable Type 3#6/1#8 XLP	LF	300.000	300.000
0186	SPV.0090	Special 02. 1 1/2-Inch Liquid-Tight Flexible Non-Metallic Conduit Type-B	LF	25.000	25.000
0188	SPV.0090	Special 03. 4-Duct Conduit Cement Encased 4 Inch Rigid Nonmetallic Conduit DB-60	LF	55.000	55.000
0190	SPV.0090	Special 04. Pointing Stone Masonry Joints	LF	1,251.000	1,251.000
0192	SPV.0165	Special 01. Stone Masonry Surface Repair	SF	655.000	655.000
0194	SPV.0180	Special 01. Abutment Seat Cleaning and Sealing	SY	34.000	34.000

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CONCRETE REMOVAL ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	204.0100 REMOVING CONCRETE PAVEMENT SY	204.0130 REMOVING CURB LF	204.0155 REMOVING CONCRETE SIDEWALK SY
0020	5+99	-	7+66	LT & RT	365	45	345
				TOTAL 0020	365	45	345

EXCAVATION COMMON

CATEGORY	STATION	TO	STATION	LOCATION	205.0100 CY
0020	BEGIN	-	END	LT & RT	40
				TOTAL 0020	40

FINISHING ROADWAY 2445-09-71

CATEGORY	STATION	TO	STATION	LOCATION	213.0100.01 EACH
0020	BEGIN	-	END	LT & RT	1
				TOTAL 0020	1

BASE AGGREGATE ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4- INCH TON	312.0110 SELECT CRUSHED MATERIAL TON
0020	BEGIN	-	END	LT & RT	50	260	70
				TOTAL 0020	50	260	70

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3

CONCRETE ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	415.0410	601.0411	602.0410
					CONCRETE PAVEMENT APPROACH SLAB SY	CONCRETE CURB & GUTTER 30-INCH TYPE D LF	CONCRETE SIDEWALK 5-INCH SF
0020	5+99	-	7+66	LT & RT	365	45	345
				TOTAL 0020	365	45	345

CONCRETE BARRIER TEMPORARY

CATEGORY	STATION	TO	STATION	LOCATION	603.8000	603.8125
					CONCRETE BARRIER TEMPORARY PRECAST DELIVERED LF	CONCRETE BARRIER TEMPORARY PRECAST INSTALLED LF
0020	BEGIN	-	END	LT & RT	115	115
				TOTAL 0020	115	115

MOBILIZATION

CATEGORY	STATION	TO	STATION	LOCATION	619.1000 EACH
0020	BEGIN	-	END	LT & RT	1
				TOTAL 0020	1

FIELD OFFICE

CATEGORY	STATION	TO	STATION	LOCATION	642.5401 FIELD OFFICE TYPE D EACH
0020	BEGIN	-	END	LT & RT	1
				TOTAL 0020	1

3

3

PERMANENT SIGNING

CATEGORY	STATION	TO	STATION	LOCATION	SIGN CODE	SIGN TYPE	SIGN MESSAGE	TYPE II SIGN SIZE W X H IN X IN	634.0812 POSTS TUBULAR STEEL 2X2-INCH X 12-FT EACH	637.2210 SIGNS TYPE II REFLECTIVE H SF
0020	BEGIN	-	END	E. NORTH AVE	R3-17	II	BIKE LANE(BIKE SYMBOL)	30X24	1	5.00
					R3-17	II	BIKE LANE(BIKE SYMBOL)	30X24	1	5.00
					R4-4	II	BEGIN RIGHT TURN LANE - YIELD TO BIKES	36X30	1	7.50
				TOTAL 0020					3	17.50

TRAFFIC CONTROL ITEMS

CATEGORY	STAGE	DAYS	LOCATION	637.0620	643.0300	643.0420	643.0705	643.0715	643.0900					
				SIGN FLAGS PERMANENT TYPE II EACH	TRAFFIC CONTROL DRUMS EACH ** DAY	TRAFFIC CONTROL BARRICADES TYPE III EACH ** DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE A EACH ** DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE C EACH ** DAY	TRAFFIC CONTROL SIGNS EACH ** DAY					
0020	1	65	E. NORTH AVENUE	16	33	2,145	24	1,560	48	3,120	7	455	280	18,200
UNDISTRIBUTED				4		215		160		315		50		1,820
TOTAL 0020				20		2,360		1,720		3,435		505		20,020

** FOR INFORMATION ONLY

SIGN COVERS

CATEGORY	STAGE	SIGN COVERED	LOCATION	643.0920 TRAFFIC CONTROL COVERING SIGNS TYPE II EACH
0020	1	R1-1, R6-2	N CAMBRIDGE AVE & E NORTH AVE	2
		R7-6	N CAMBRIDGE AVE	3
		R7-7	E WINDSOR PL	4
		R1-1	N NEWHALL ST & E WINDSOR PL	1
UNDISTRIBUTED				5
TOTAL 0020				15

TRAFFIC CONTROL

CATEGORY	STATION	TO	STATION	LOCATION	643.5000 EACH
0020	BEGIN	-	END	LT & RT	1
TOTAL 0020					1

MARKING ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	646.1545	646.3545	646.5020	646.5120	646.5220	646.6120		
					MARKING LINE GROOVED WET REF CONTRAST EPOXY 4-INCH	MARKING LINE GROOVED WET REF CONTRAST EPOXY 8-INCH	MARKING ARROW EPOXY	MARKING WORD EPOXY	MARKING SYMBOL EPOXY	MARKING STOP LINE EPOXY		
					DOUBLE YELLOW LF	WHITE LF	3-FT LINE, 9-FT SKIP LF	TYPE 2 EACH	BIKE LANE EACH	ONLY EACH	BIKE LANE EACH	18-INCH LF
0020	BEGIN	-	END	LT & RT	550	500	45	2	2	2	2	30
				TOTAL 0020	550	545		4		2	2	30

STAKING ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	650.4500	650.7000
					CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING CONCRETE PAVEMENT LF
0020	BEGIN	-	END	LT & RT	67	67
				TOTAL 0020	67	67

CONTAMINATED SOILS ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	205.0501.S EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL TON
0030	5+99.48	-	6+35.00	LT & RT	120
0030	7+10.00	-	7+66.16	LT & RT	77
				TOTAL 0030	197

3

CONSTRUCTION STAKING ELECTRICAL INSTALLATIONS

CATEGORY	STATION	TO	STATION	LOCATION	650.8500 LS
0040	BEGIN	-	END	LT & RT	1
TOTAL 0040					1

CONDUIT ITEMS

CATEGORY	STATION	TO	STATION	LOCATION	652.0230 CONDUIT RIGID NONMETALLIC SCHEDULE 40 2 1/2-INCH LF	652.0330 CONDUIT RIGID NONMETALLIC SCHEDULE 80 2 1/2-INCH LF	652.0610 CONDUIT SPECIAL 2 1/2- INCH LF
0040	BEGIN	-	END	LT & RT	175	80	250
TOTAL 0040					175	80	250

3

TRAFFIC & STREET LIGHTING ITEMS

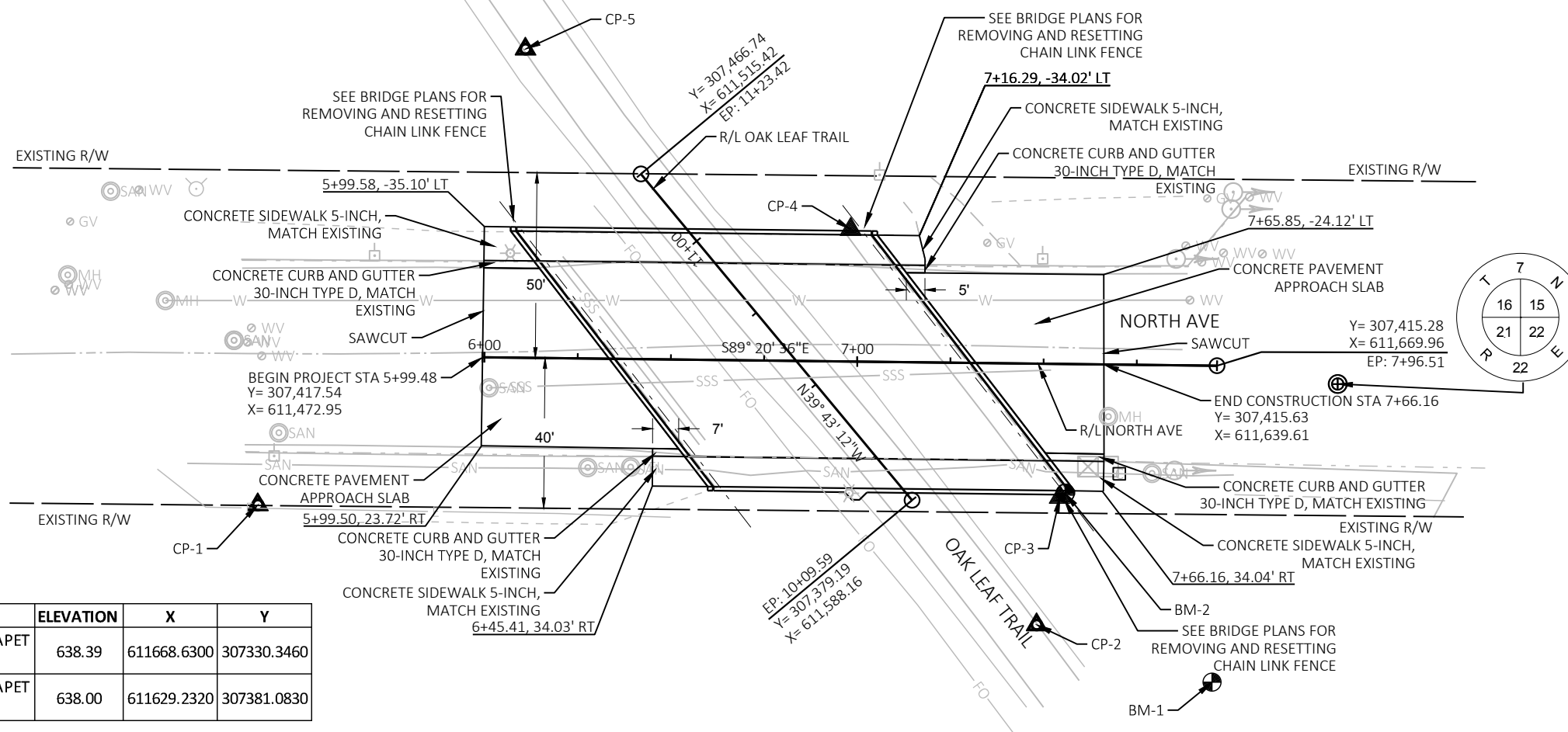
CATEGORY	STATION	TO	STATION	LOCATION	655.0305 CABLE TYPE UF 2- 12 AWG GROUNDED LF	655.0320 CABLE TYPE UF 2- 10 AWG GROUNDED LF	674.0300 REMOVE CABLE LF	SPV.0060.01 SPECIAL (01. PULL BOXES 13-INCH X 24-INCH X 24-INCH) EACH	SPV.0060.02 SPECIAL (02. POLES TYPE A-26) EACH	SPV.0060.03 SPECIAL (03. POLES TYPE 22 ALUMINUM BD) EACH	SPV.0060.04 SPECIAL (04. REMOVE POLES COMPLETE) EACH	SPV.0060.05 SPECIAL (05. INSTALLING CITY- FURNISHED A-26 BRACKET (BLACK)) EACH	SPV.0060.06 SPECIAL (06. INSTALLING CITY- FURNISHED METAL WIRING PEDESTAL) EACH	SPV.0060.07 SPECIAL (07. LUMINAIRE HISTROIC MILWAUKEE LANTERN) EACH	SPV.0060.08 SPECIAL (08. VEHICULAR MICROWAVE DETECTION SYSTEM) EACH	SPV.0060.09 SPECIAL (09. LUMINAIRE HISTORIC MILWAUKEE HARP) EACH	SPV.0060.10 SPECIAL (10. POLES TYPE H-15 DIRECT BURY) EACH	SPV.0090.01 SPECIAL (01. ELECTRICAL CABLE TYPE 3#6/1#8 XLP) LF	SPV.0090.02 SPECIAL (02. 1 1/2- INCH LIQUID-TIGHT FLEXIBLE NON- METALLIC CONDUIT TYPE-B) LF	
0040	BEGIN	-	END	LT & RT	100	150	20	5	1	1	3	1	1	2	1	1	1	1	300	25
TOTAL 0040					100	150	20	5	1	1	3	1	1	2	1	1	1	1	300	25

CITY UNDERGROUND CONDUIT

CATEGORY	LOCATION	SPV.0060.11 SPECIAL (11. ADJUSTING CUC MANHOLE COVERS) EACH	SPV.0060.12 SPECIAL (12. INSTALLING CONDUIT INTO EXISTING MANHOLE) EACH	SPV.0060.13 SPECIAL (13. UNDERDECK UTILITY STRUCTURE B-40-502 CITY OF MILWAUKEE COMMUNICATIONS CONDUIT) EACH	SPV.0060.14 SPECIAL (14. UNDERDECK UTILITY STRUCTURE B-40-502 CITY OF MILWAUKEE ELECTRICAL CONDUIT) EACH	SPV.0090.03 SPECIAL (03. 4- DUCT CONDUIT CEMENT ENCASED 4 INCH DB-60) LF
0040	MANHOLE 461 - STA 6+24.3, 19.8' RT	1	1	--	--	--
0040	MANHOLE 461 - 5' WEST OF ABUTMENT	--	--	--	--	15
0040	5' WEST OF ABUTMENT - 5' EAST OF ABUTMENT	--	--	--	1	--
0040	5' EAST OF ABUTMENT - MANHOLE 500	--	--	--	--	23
0040	MANHOLE 499 - STA 6+39.5, 47.7' RT	1	1	--	--	--
0040	MANHOLE 499 - 5' WEST OF ABUTMENT	--	--	1	--	7
0040	5' WEST OF ABUTMENT - 5' EAST OF ABUTMENT	--	--	--	--	--
0040	5' EAST OF ABUTMENT - MANHOLE 601	--	--	--	--	--
0040	MANHOLE 500 - STA 7+71.9, 29.5' RT	1	2	--	--	10
		<u>3</u>	<u>4</u>	<u>1</u>	<u>1</u>	<u>55</u>

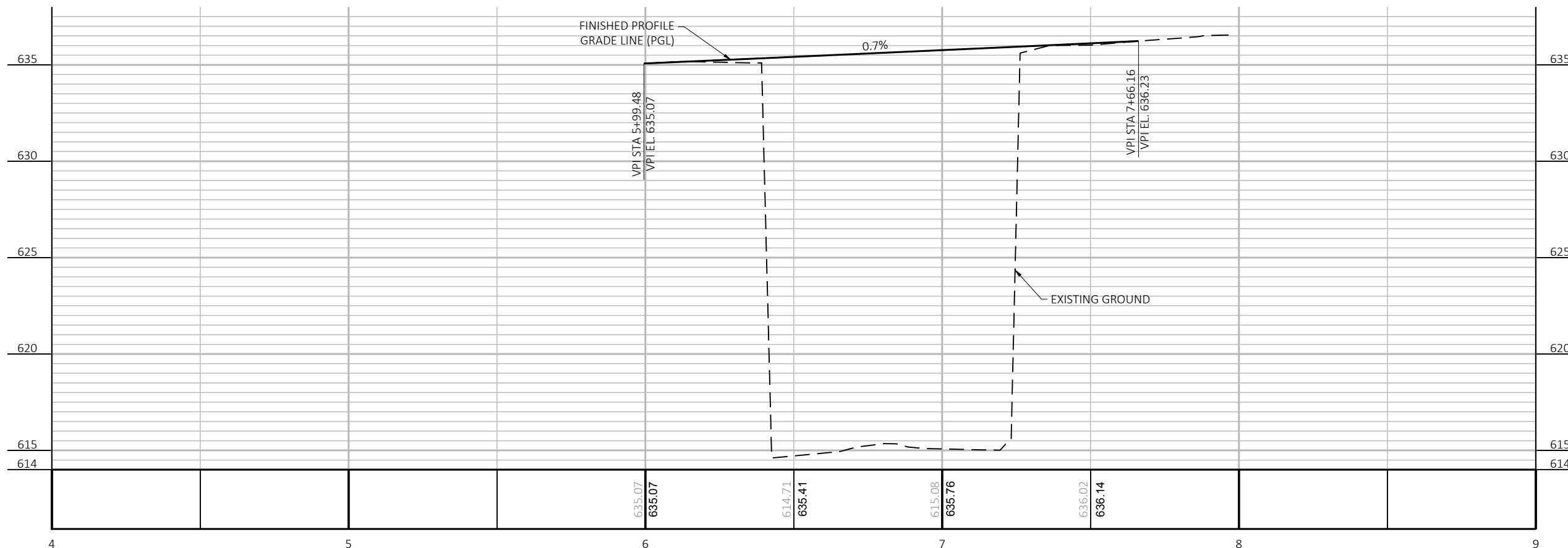
CONTROL POINT DATA

NO.	X	Y
CP-1	611412.6590	307377.9700
CP-2	611621.5770	307345.7560
CP-3	611627.8350	307380.0460
CP-4	611571.7280	307451.9170
CP-5	611484.4460	307500.2550



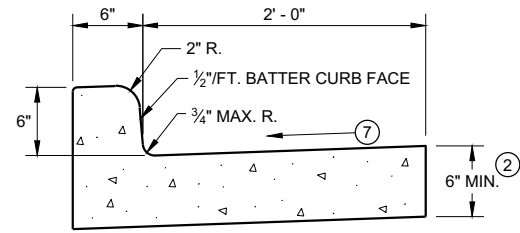
BENCHMARK DATA

NO.	STATION	DESCRIPTION	ELEVATION	X	Y
BM-1	7+96.51 NORTH AVE, 85.11' RT.	CHISELED "X" ON TOP OF PARAPET OF BRIDGE B-40-503	638.39	611668.6300	307330.3460
BM-2	7+56.40 NORTH AVE, 34.60' RT	CHISELED "X" ON TOP OF PARAPET OF BRIDGE B-40-502	638.00	611629.2320	307381.0830

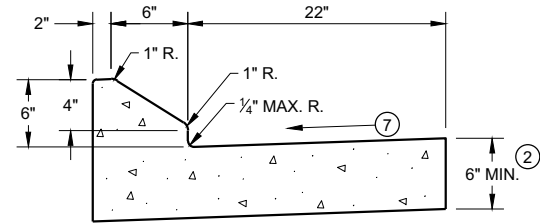


Standard Detail Drawing List

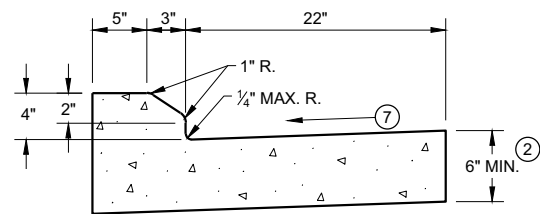
08D01-22A	CONCRETE CURB & GUTTER
08D01-22B	CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS
09B02-10	CONDUIT
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
14B07-15A	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15B	CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"
14B07-15C	CONCRETE BARRIER TEMPORARY PRECAST, 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"
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C07-15A	PAVEMENT MARKING SYMBOLS
15C07-15B	PAVEMENT MARKING WORDS
15C07-15C	PAVEMENT MARKING ARROWS
15C07-15E	PAVEMENT MARKING FOR BIKE LANES
15C08-20A	LONGITUDINAL MARKING (MAINLINE)
15C11-09B	CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS
15C33-04	STOP LINE AND CROSSWALK PAVEMENT MARKING
15D20-05B	TRAFFIC CONTROL, SINGLE RIGHT LANE CLOSURE, UNDIVIDED NON-FREEWAY/EXPRESSWAY
15D28-04	TRAFFIC CONTROL, WORK ON SHOULDER OR PARKING LANE, UNDIVIDED ROADWAY
15D31-03	TRAFFIC CONTROL, TEMPORARY BYPASS ROADWAY
15D38-02A	TEMPORARY TRAFFIC CONTROL SIGN MOUNTING
15D38-02B	ATTACHMENT OF SIGNS TO POSTS



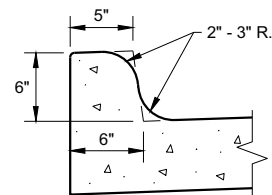
TYPES A^① & D



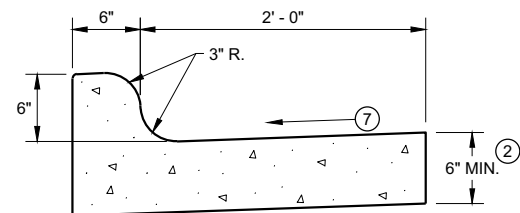
6" SLOPED CURB TYPES G^① & J



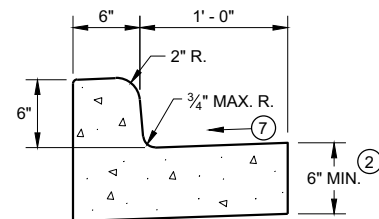
4" SLOPED CURB TYPES G^① & J



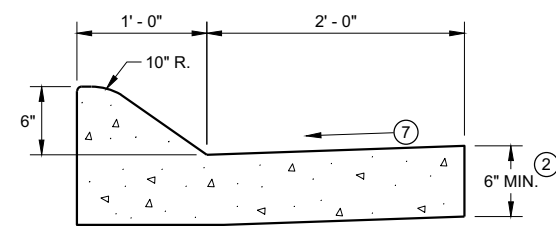
TYPES K^① & L
(OPTIONAL CURB SHAPE)



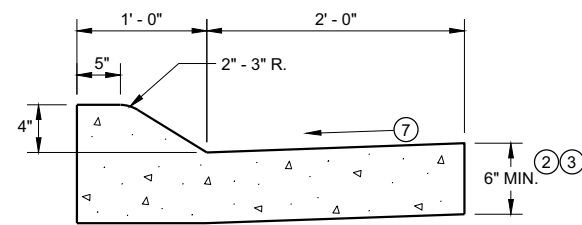
TYPES K^① & L
CONCRETE CURB AND GUTTER 30"



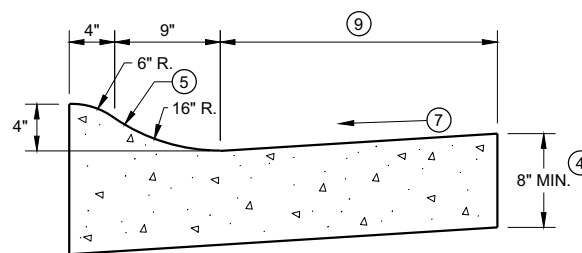
TYPES A^① & D
CONCRETE CURB AND GUTTER 18"



6" SLOPED CURB TYPES A^① & D

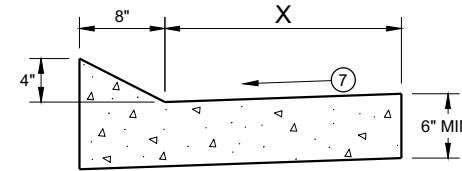


4" SLOPED CURB TYPES A^① & D
CONCRETE CURB AND GUTTER 36"



4" SLOPED CURB TYPES R^① & T

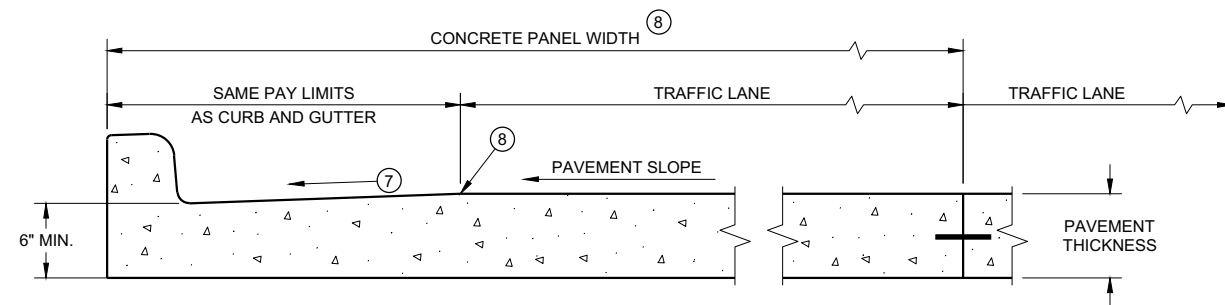
TBT & TBTT	X
30"	22"
36"	28"



TYPES TBT & TBTT^①
CONCRETE CURB AND GUTTER

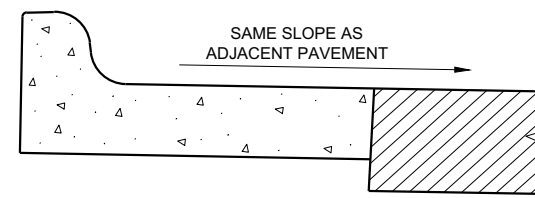
PAVEMENT THICKNESS
AND MAXIMUM CONCRETE
PANEL WIDTH TABLE

PAVEMENT THICKNESS	MAXIMUM PANEL WIDTH
LESS THAN 10"	12'
10" & ABOVE	15'



PARTIAL SECTION OF PAVEMENT *
WITH INTEGRAL CURB AND GUTTER

* BIKE LANE IS NOT SHOWN



REVERSE SLOPE GUTTER^⑥
(TYPICAL FOR ALL CURB & GUTTER TYPES)

GENERAL NOTES

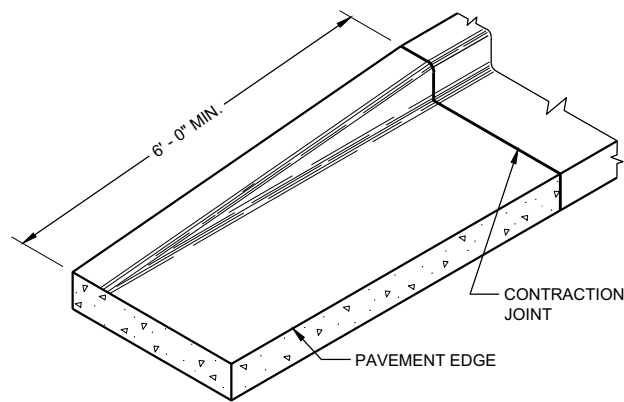
DETAILS OF CONSTRUCTION AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE CONTRACT.

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

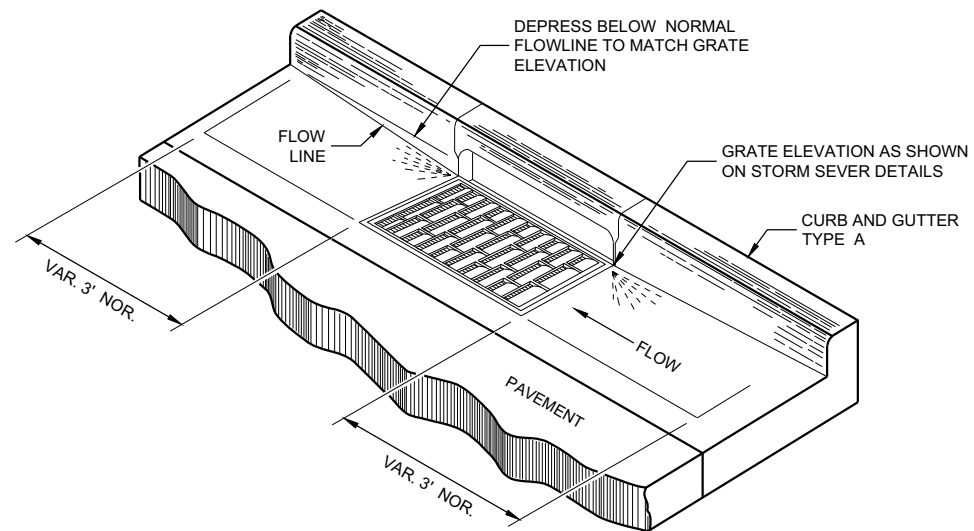
INTEGRAL CURB AND GUTTER SHALL CONFORM TO THE DETAILS SHOWN FOR CONCRETE CURB AND GUTTER INCLUDING THE TRANSVERSE GUTTER SLOPE.

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

- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ③ USE 8" MINIMUM GUTTER THICKNESS WHEN USED WITH AN ADJACENT CONCRETE TRUCK APRON PLACED BEHIND BACK OF CURB.
- ④ THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 8" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑤ UNLESS OTHERWISE NOTED, FOR STAKING PURPOSES THE FACE OF CURB IS 6" FROM THE BACK OF CURB.
- ⑥ WHEN REVERSE SLOPE GUTTER IS REQUIRED, THE LOCATION(S) WILL BE SHOWN ELSEWHERE IN THE PLAN.
- ⑦ USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
- ⑧ INCLUDE LONGITUDINAL JOINT AND TIE BARS ALONG LANE EDGE WHEN CONCRETE PANEL WIDTH EXCEEDS THE MAXIMUM WIDTH PER TABLE BELOW. LONGITUDINAL JOINT(S) ARE NOT ALLOWED WITHIN TRAFFIC LANES AND BIKE LANES. LONGITUDINAL JOINT MAY BE SAWED.
- ⑨ CONCRETE CURB AND GUTTER 4-INCH SLOPED 30-INCH TYPE "R" AND "T" = 17 INCHES
CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE "R" AND "T" = 23 INCHES



END SECTION CURB AND GUTTER



DETAIL OF CURB AND GUTTER AT INLETS
(TYPICAL H INLET COVER SHOWN)

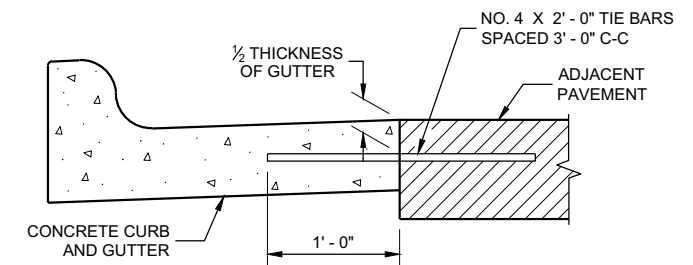
GENERAL NOTES

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

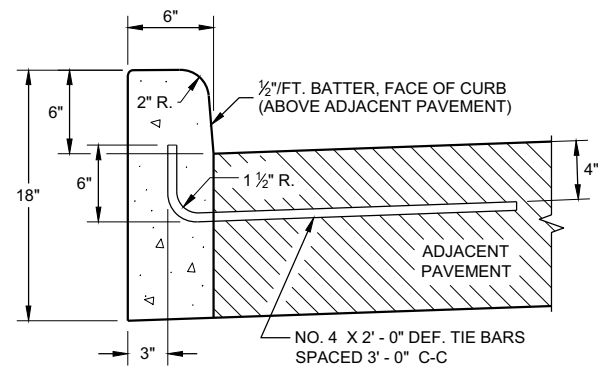
PAVEMENT TIES AND TIE BARS SHALL BE EPOXY COATED IN CONFORMANCE WITH SUBSECTION 505.2.6.2 OF THE STANDARD SPECIFICATIONS.

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

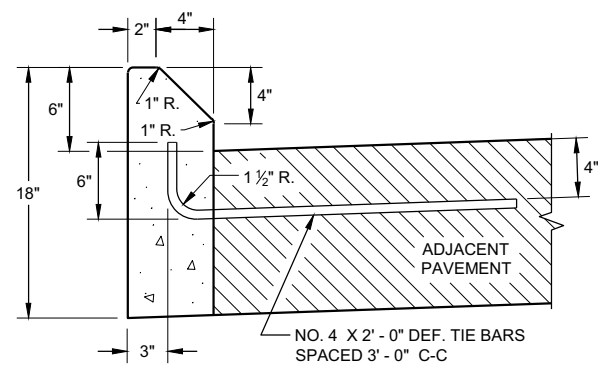
- ① TIE BARS ARE REQUIRED FOR CURB AND GUTTERS TYPES A, G, K, R, AND TBTT.
- ② THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MINIMUM GUTTER THICKNESS IS MAINTAINED.
- ⑨ REFER TO SDD 08D18 AND 08D19 FOR ADDITIONAL DRIVEWAY ENTRANCE CURB DETAILS.



TYPICAL TIE BAR LOCATION ①

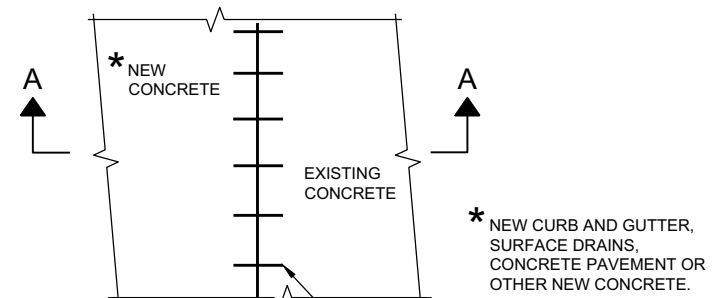


TYPES A ① & D

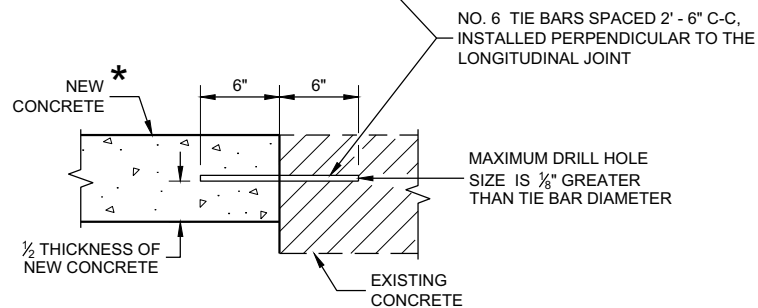


TYPES G ① & J

CONCRETE CURB

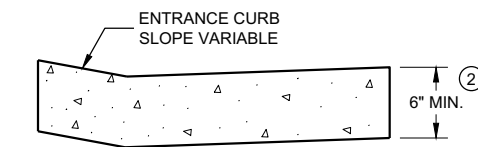


PLAN VIEW



SECTION A - A

TIE BARS DRILLED INTO EXISTING PAVEMENT



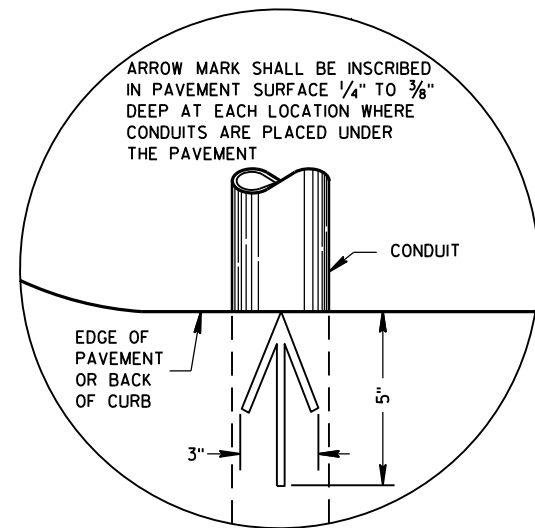
DRIVEWAY ENTRANCE CURB ⑨
(WHEN DIRECTED BY THE ENGINEER)

CONCRETE CURB, TIES AND CURB AND GUTTER APPLICATIONS

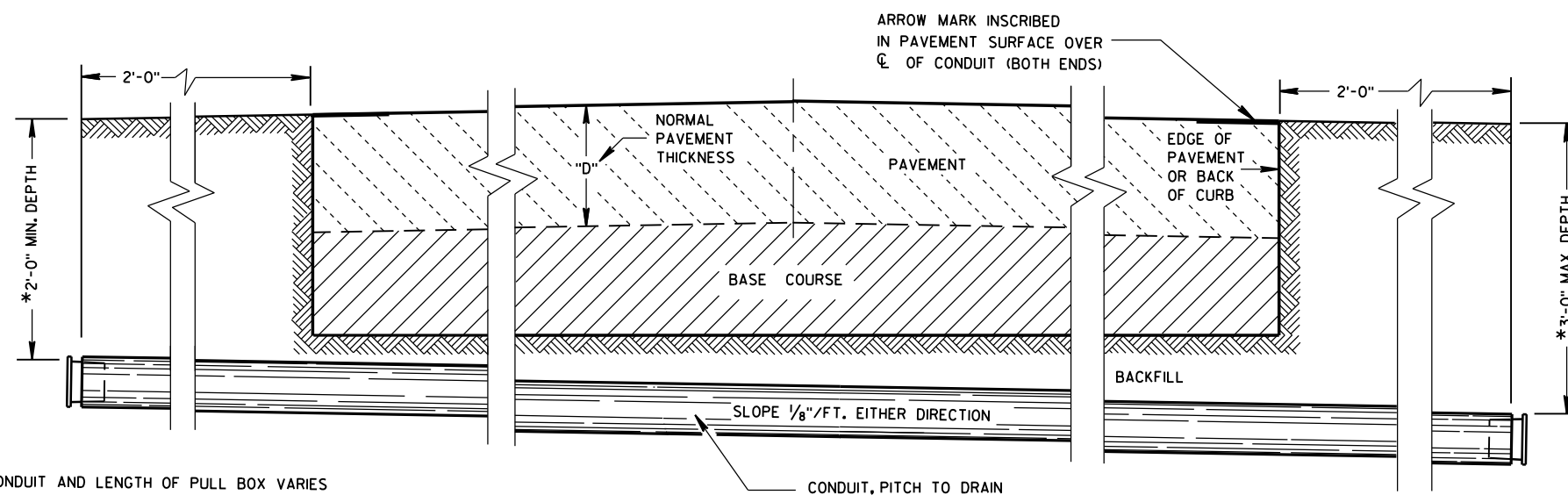
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2021 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA



**PLAN VIEW
ARROW MARK**



**SIDE ELEVATION
DETAIL FOR CONDUIT UNDER PAVED HIGHWAYS**

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

GENERAL NOTES

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

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

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

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

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

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

ALL METALLIC CONDUIT RACEWAY ENDS SHALL BE REAMED AND THREADED.

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

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

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

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

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

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

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

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

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

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

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

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

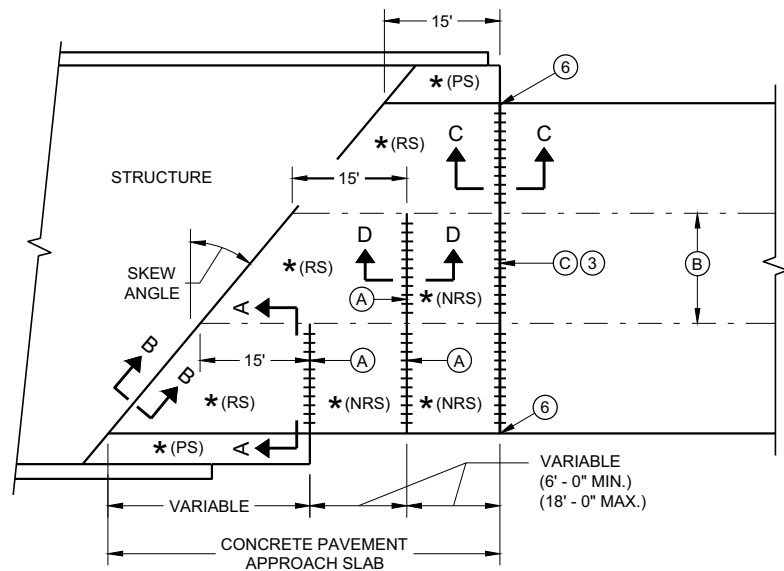
6

6

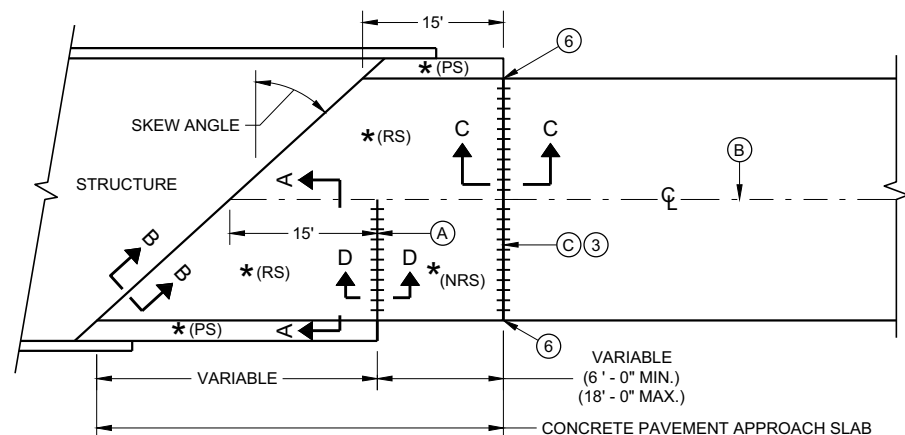
S.D.D. 9 B 2-10

S.D.D. 9 B 2-10

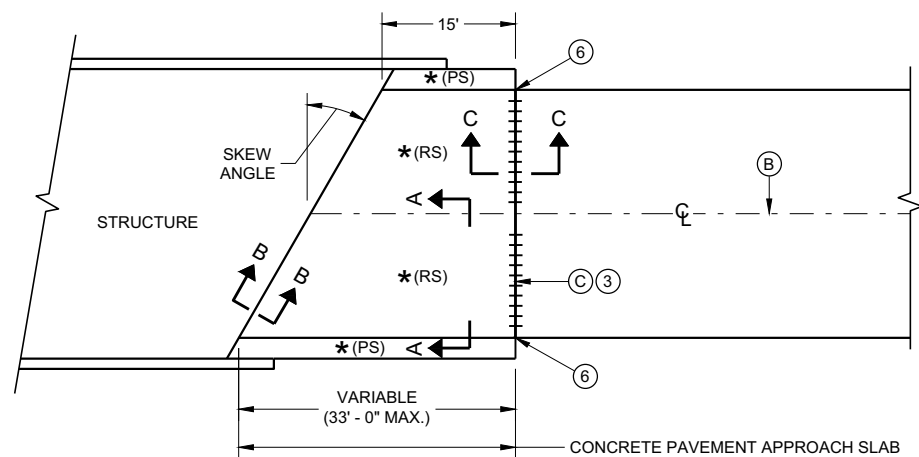
CONDUIT	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED March, 2017 DATE	/S/ Ahmet Demirbilek STATE ELECTRICAL ENGINEER
FHWA	



**SKewed Approach
(PAVEMENT MORE THAN TWO LANES)**

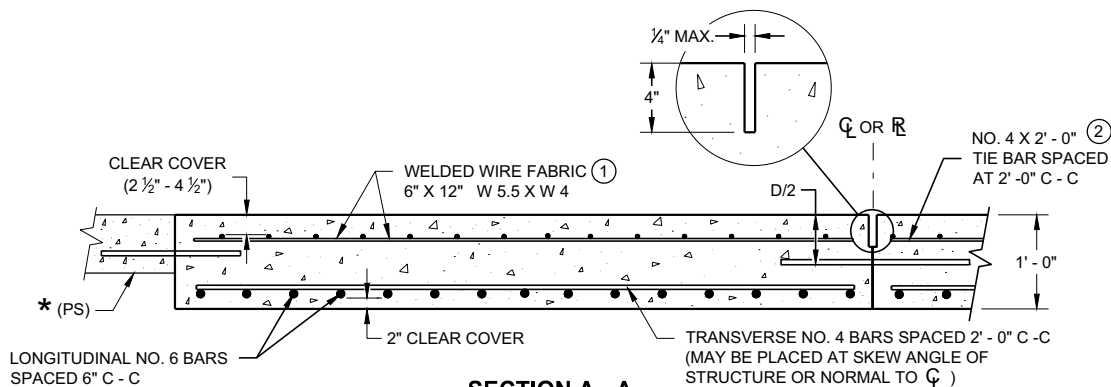


**SKews > 20°
(PAVEMENT WIDTH ≤ 30')**

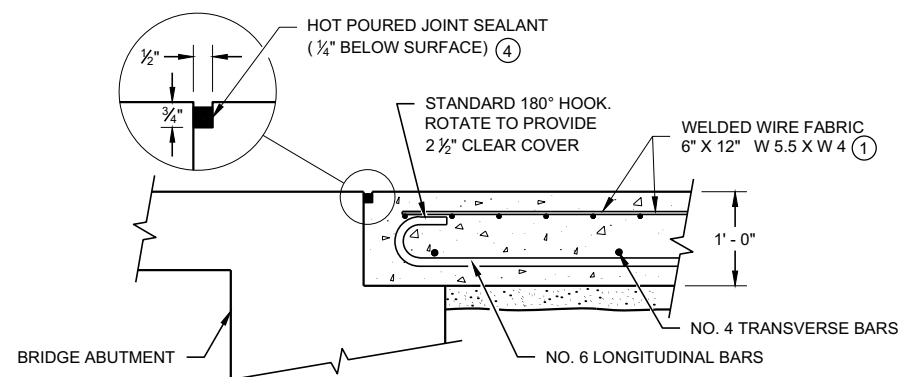


**SKews ≤ 20°
(PAVEMENT WIDTH ≤ 30')**
APPROACH SLAB AND ADJACENT PAVEMENT

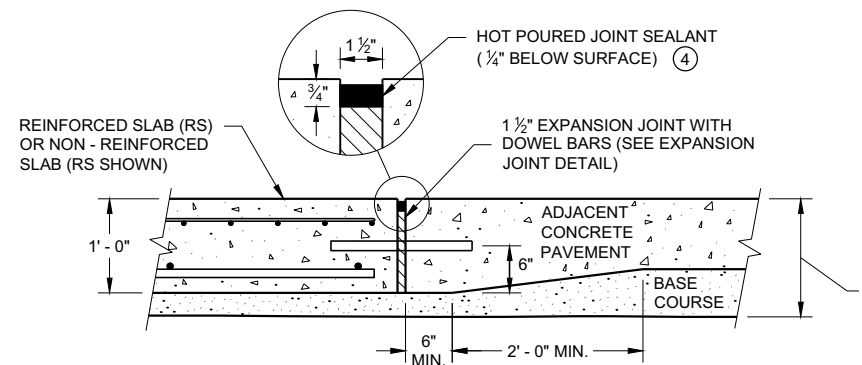
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



**SECTION B - B
BEND DETAIL
BOTTOM REINFORCEMENT**



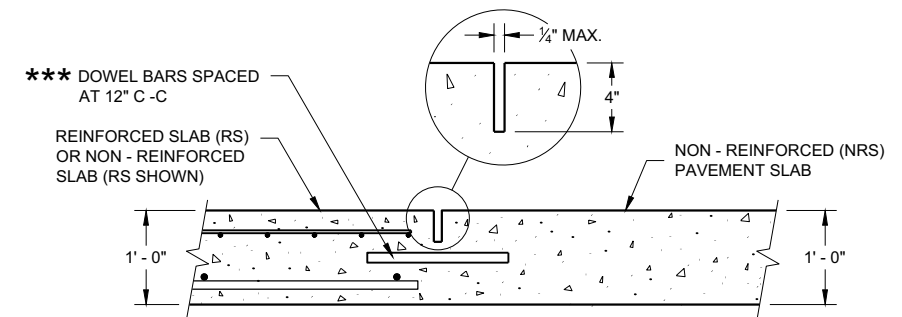
**SECTION C - C
TRANSITION DETAIL
APPROACH SLAB TO ADJACENT PAVEMENT**

GENERAL NOTES

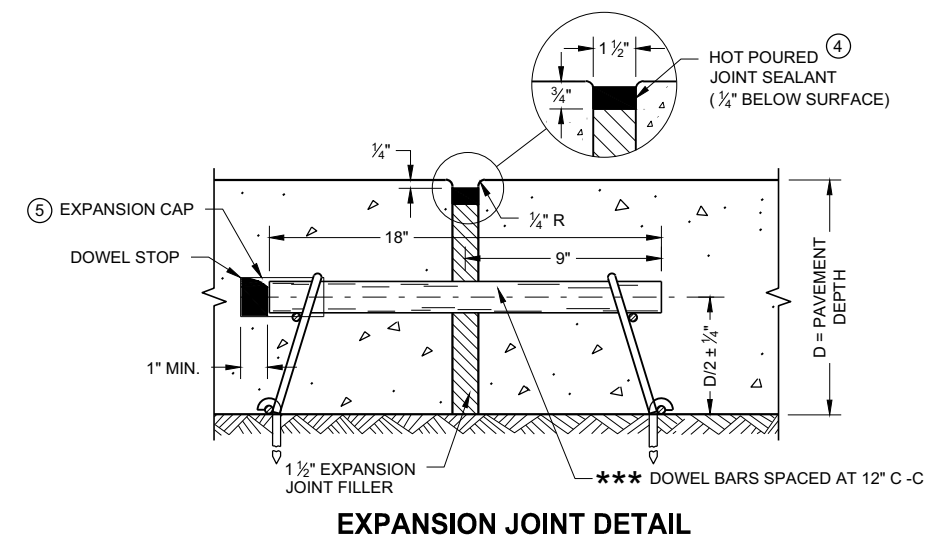
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

- ① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0" C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- ② THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- ④ USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.
- ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
- (A) STANDARD CONTRACTION JOINT NORMAL TO \mathcal{C} OR \mathcal{R} .
- (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
- (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO \mathcal{C} OR \mathcal{R} .



**SECTION D - D
CONTRACTION JOINT**



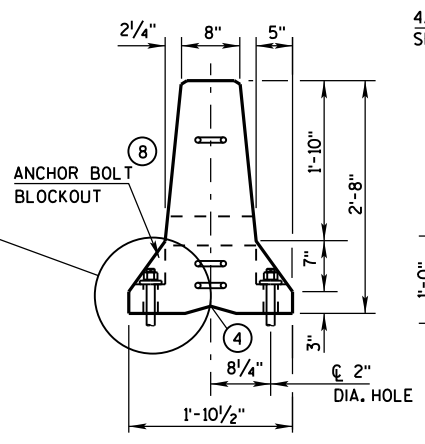
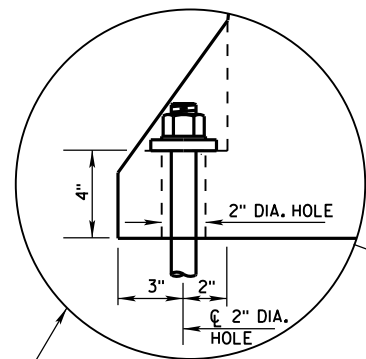
EXPANSION JOINT DETAIL

**CONCRETE PAVEMENT
APPROACH SLAB**

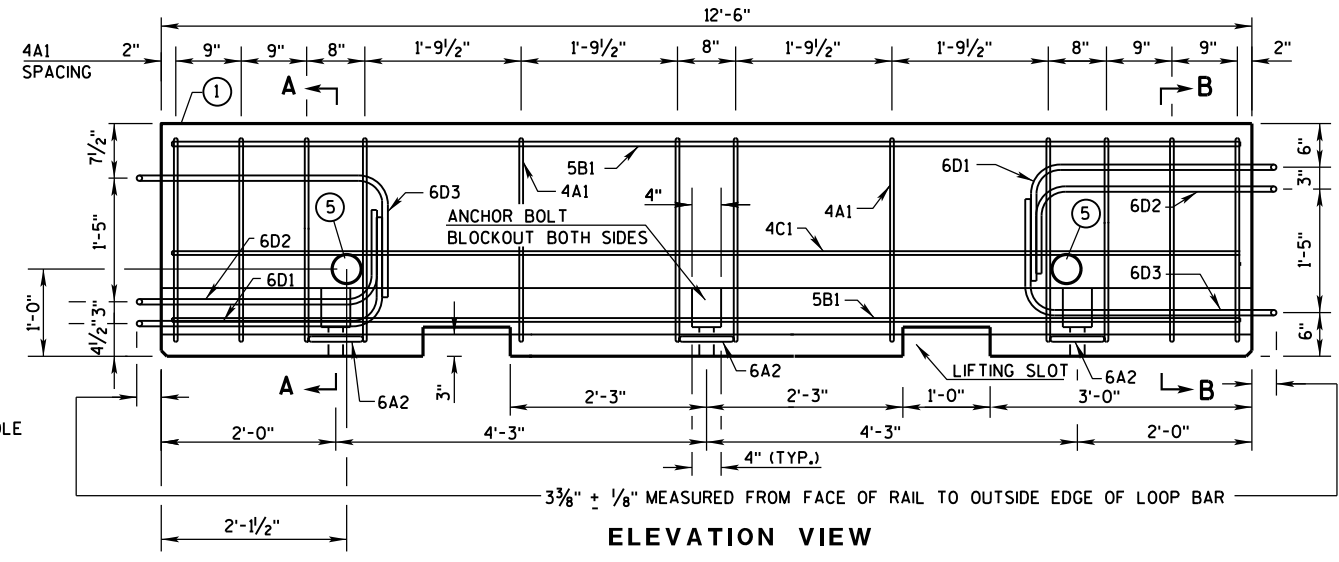
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Peter Kemp, P.E.
DATE DATE PAVEMENT SUPERVISOR

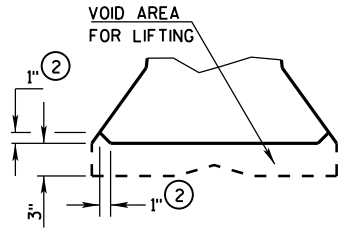
FHWA



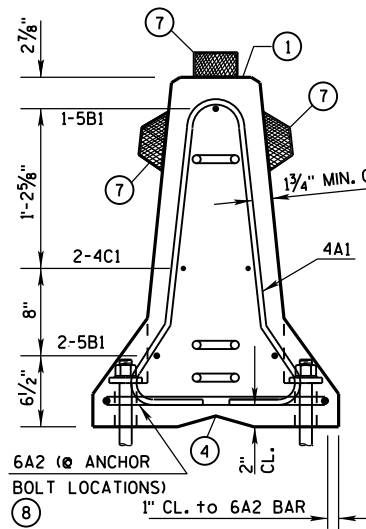
END VIEW



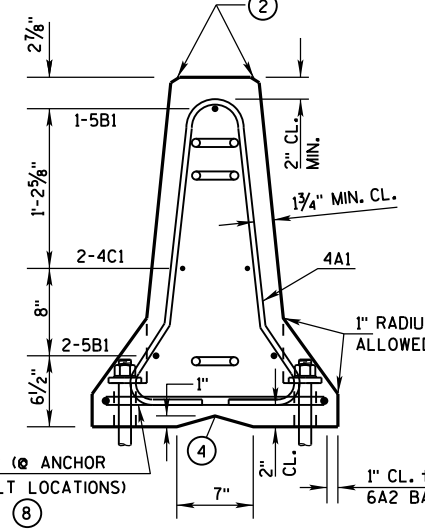
ELEVATION VIEW



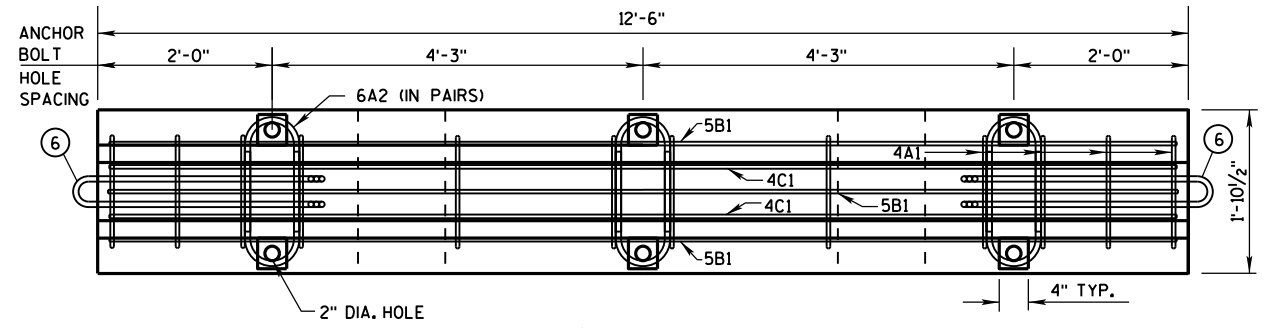
DETAIL "B"
LIFTING SLOT DETAIL



SECTION A-A
(STIRRUP PLACEMENT)



SECTION B-B
(STIRRUP PLACEMENT)



PLAN VIEW

DETAILS OF BARRIER SECTION

GENERAL NOTES

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

DO NOT INTERMIX CONCRETE BARRIER TEMPORARY PRECAST, 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 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 3-1/2" PIN BEND DIAMETER FOR BEND TESTS. THE LOOPS SHALL BE INSTALLED WITHIN 1/8" OF THE PLAN DIMENSION.

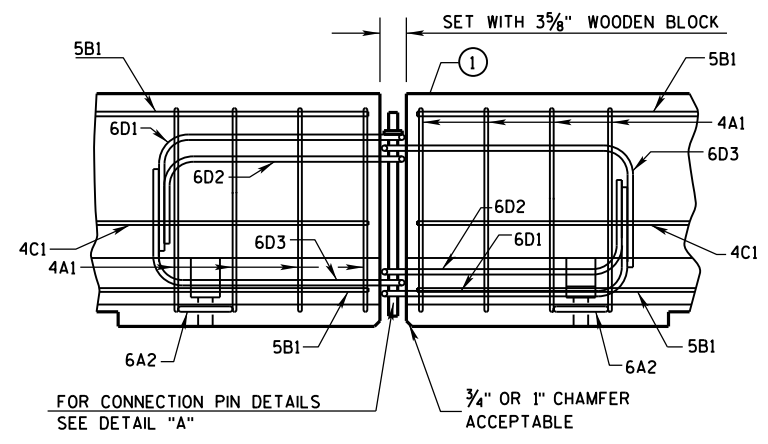
CONSTRUCT LIFTING SLOTS AS SPECIFIED ON THE PLANS TO FACILITATE THE DRAINAGE OF WATER AFTER INSTALLATION.

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

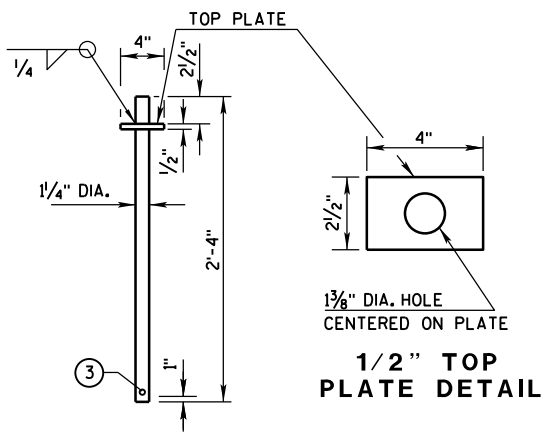
INSTALL MECHANICAL OR ADHESIVE ANCHORS PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE MANUFACTURER'S INFORMATION TO PROJECT ENGINEER.

- 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 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 MANUFACTURER'S 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.

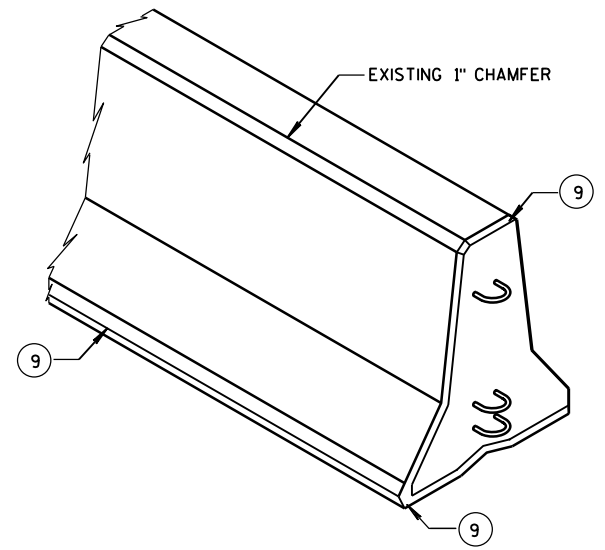
f'c = 4,000 psi



DETAILS OF BARRIER CONNECTION

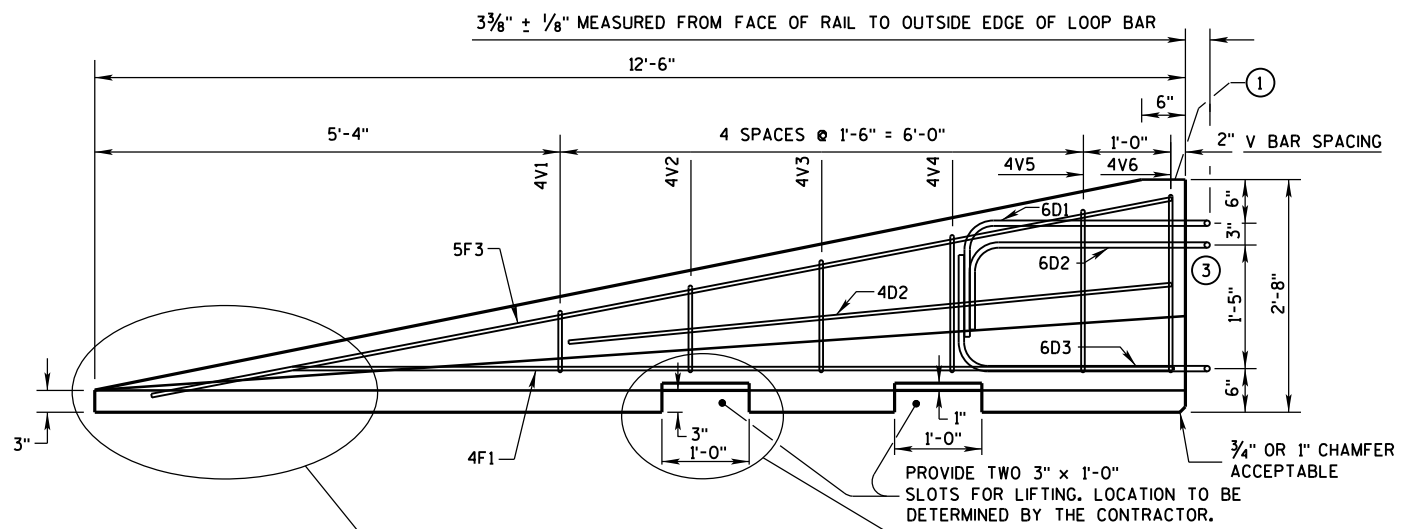


DETAIL "A"
CONNECTION PIN
(A36 STEEL (10.9 LB EACH))

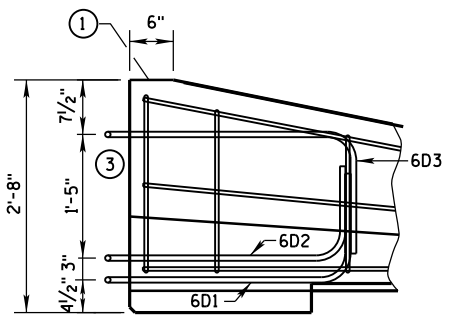


CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

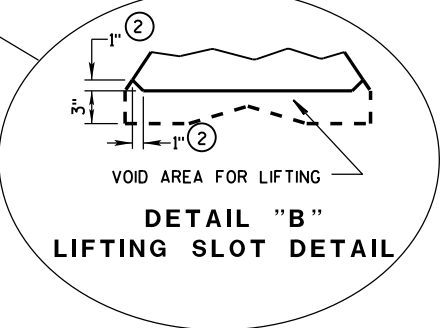


SIDE ELEVATION
(FOR CONNECTION TO LEFT END OF BARRIER)



SIDE ELEVATION

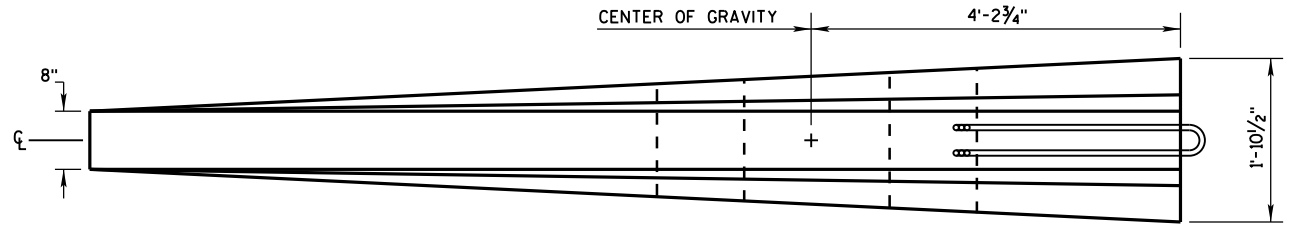
LOOP BAR ASSEMBLY INVERTED FOR OPPOSITE END.
(FOR CONNECTION TO RIGHT END OF BARRIER)



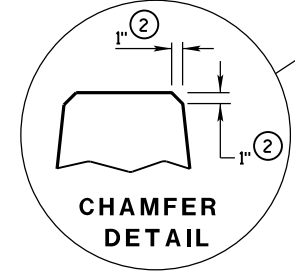
DETAIL "B"
LIFTING SLOT DETAIL

GENERAL NOTES

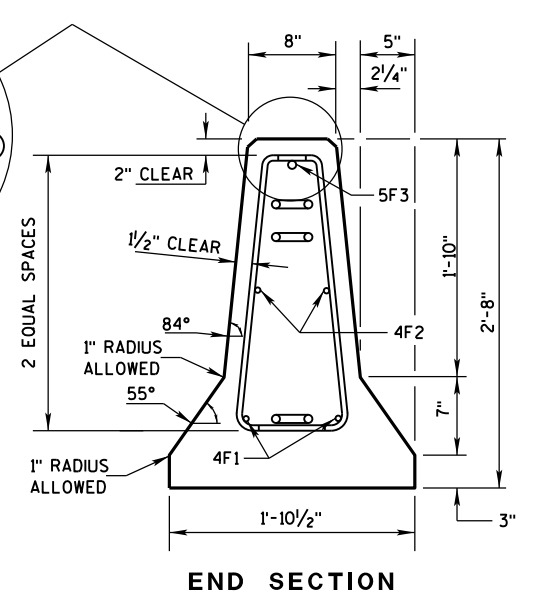
- ① MARK ONE END OF EACH BARRIER PERMANENTLY BY FORMING INTO THE BARRIER THE FOLLOWING INFORMATION:
 - a. TYPE WICBTP
 - b. MANUFACTURER
 - c. DATE MANUFACTURED (MONTH AND YEAR)
- ② 1" CHAMFER TO PREVENT SPALLING.
- ③ NEVER USE LOOP BARS (6D1, 6D2 OR 6D3) TO LIFT, MOVE OR REPOSITION THE BARRIER.



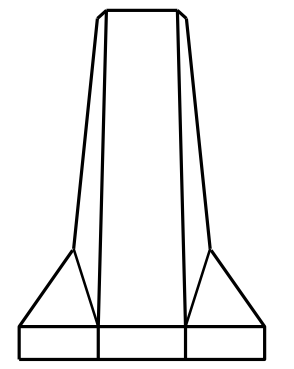
PLAN VIEW



CHAMFER DETAIL

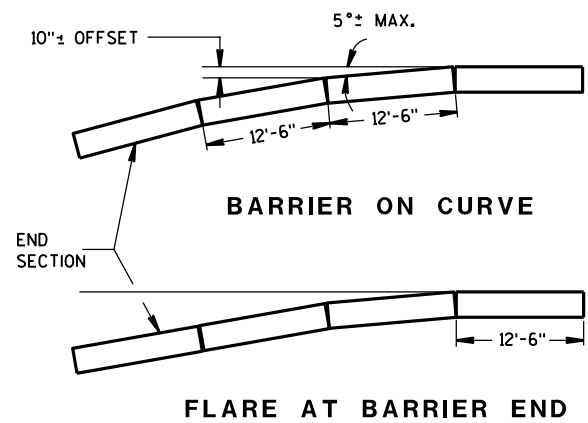


END SECTION



FRONT ELEVATION

DETAILS OF BARRIER TAPER SECTION



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

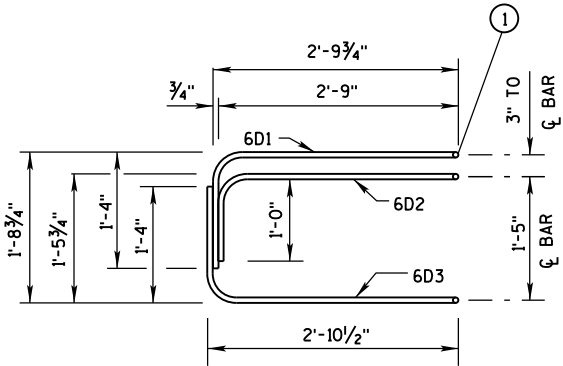
GENERAL NOTES

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

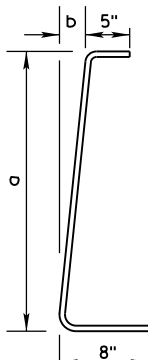
**BARRIER TAPER SECTION
BILL OF MATERIALS**
(PER 12'-6" BARRIER TAPER SECTION)

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"

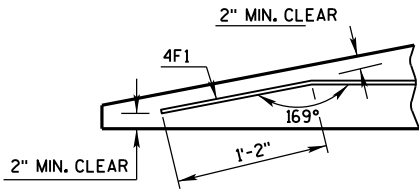


**ELEVATION
LOOP BAR ASSEMBLY**



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"

4V BARS
2 AT EACH SIZE REQUIRED
FOR STIRRUP ASSEMBLY



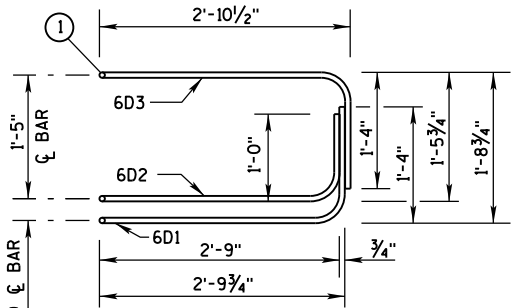
**DETAIL "C"
BENT BAR DETAIL**

TAPER BARRIER SECTION

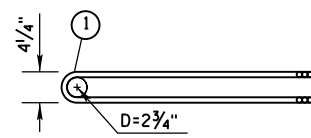
**BARRIER SECTION
BILL OF MATERIALS**
(PER 12'-6" BARRIER SECTION)

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"

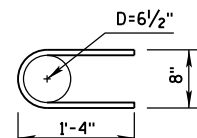
LOOP ASSEMBLY			
6D1	6	2	8'-5"
6D2	6	2	7'-7"
6D3	6	2	8'-6"



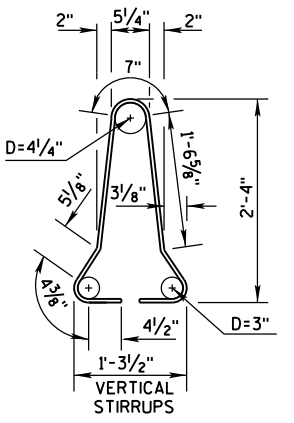
ELEVATION VIEW



**PLAN VIEW
LOOP BAR ASSEMBLY**
(MARKED END SHOWN, INVERT FOR OTHER END)



6A2

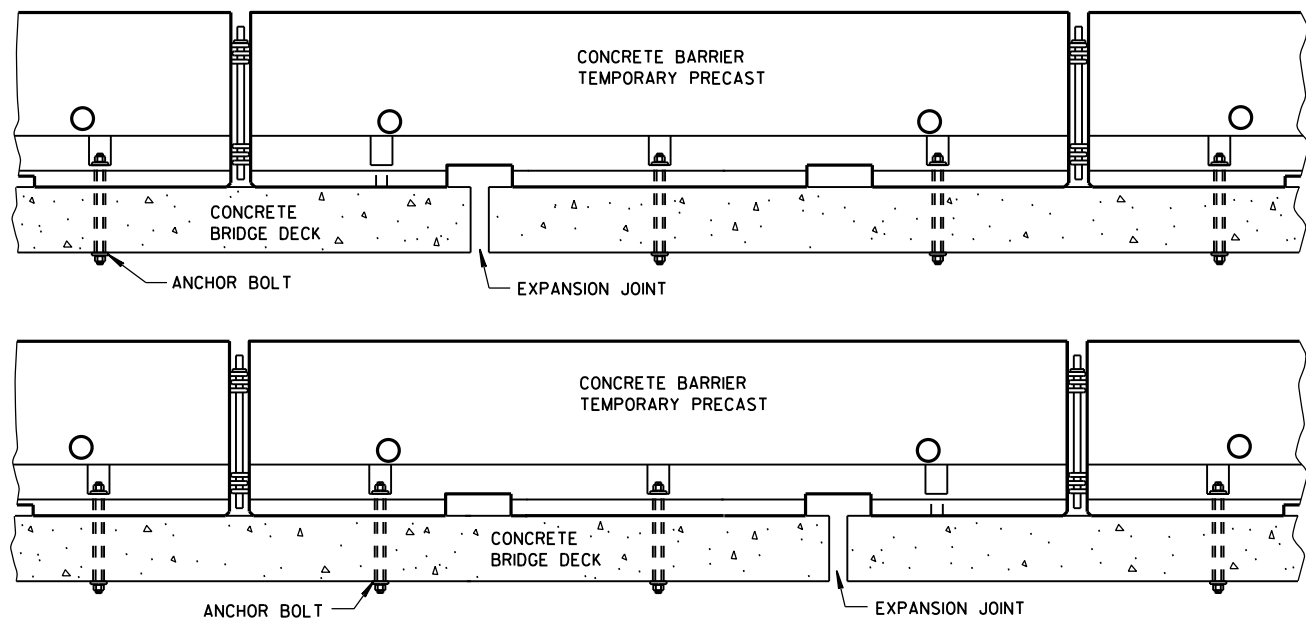


4A1

BARRIER SECTION

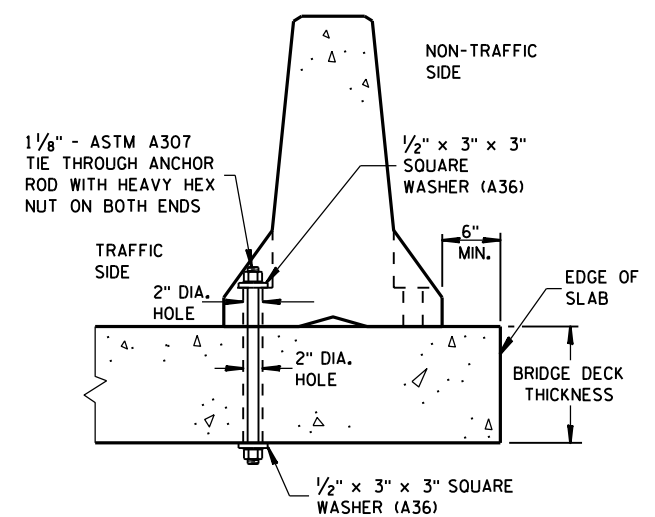
CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



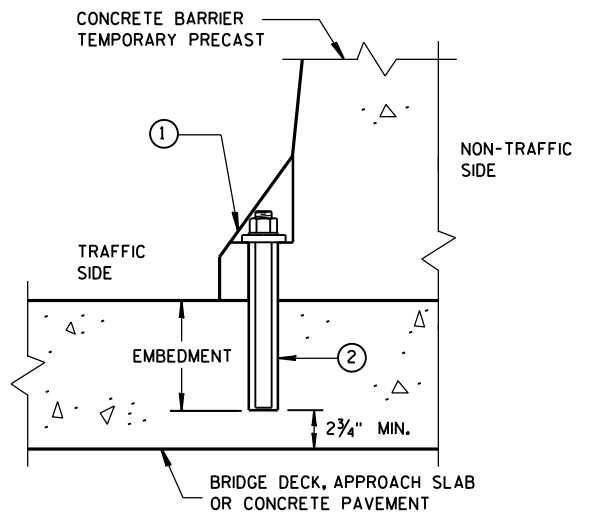
TREATMENT AT BRIDGE DECK EXPANSION JOINTS

(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

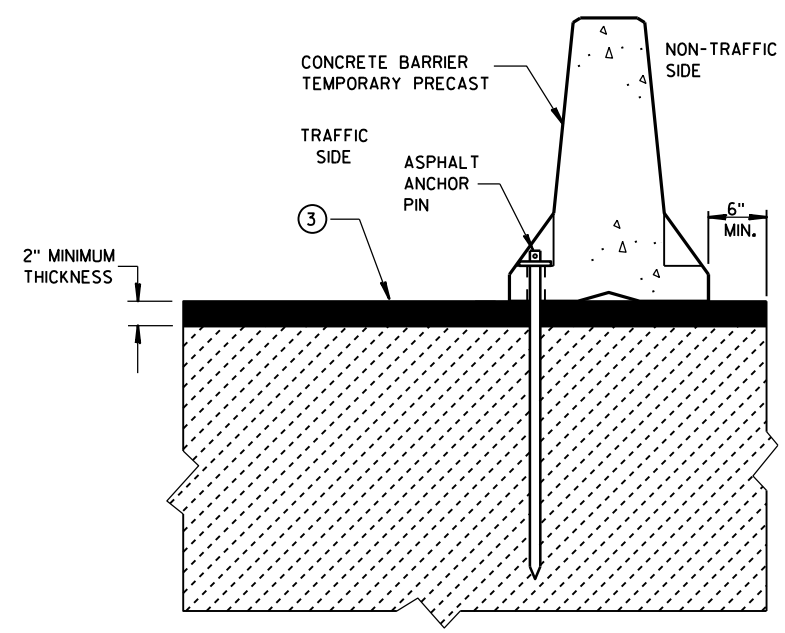
(DO NOT USE ON CONCRETE WITH AN ASPHALTIC OVERLAY)

GENERAL NOTES

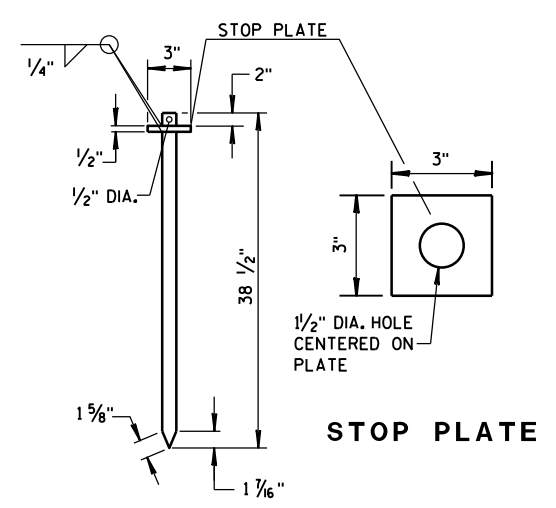
SEE SHEET E FOR WHEN TO ANCHOR. OTHER PARTS OF THE PLAN MAY SHOW ADDITIONAL LOCATIONS REQUIRING ANCHORING.

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.

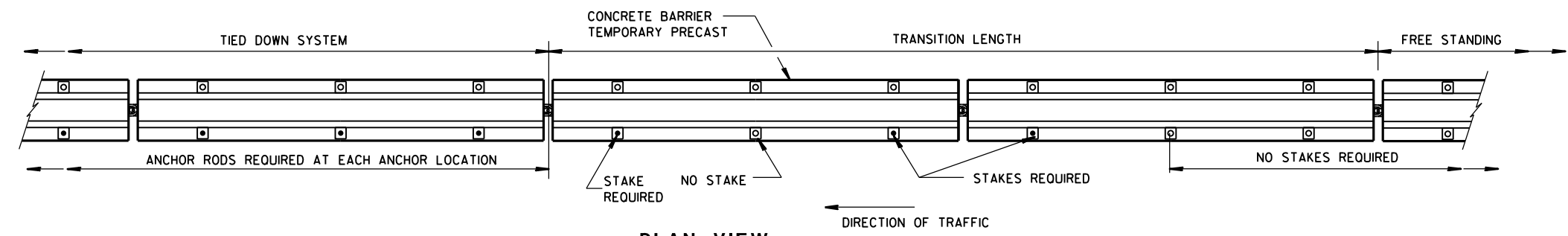
- ① 1/8" DIAMETER A307 THREADED ROD, 1/2" X 3" X 3" SQUARE PLATE WASHER WITH ASTM A36 STEEL, ASTM A563A HEAVY HEX NUT.
- ② ADHESIVE ANCHORS WITH A MINIMUM BOND STRENGTH OF 1,800 PSI AND 5/4" EMBEDMENT. SEE 603.2 AND 603.3.1.2 OF THE WISCONSIN STANDARD SPECIFICATIONS FOR MORE INFORMATION ON ADHESIVE ANCHORS.
- 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)



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.)

CONCRETE BARRIER TEMPORARY PRECAST, 12'-6"

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

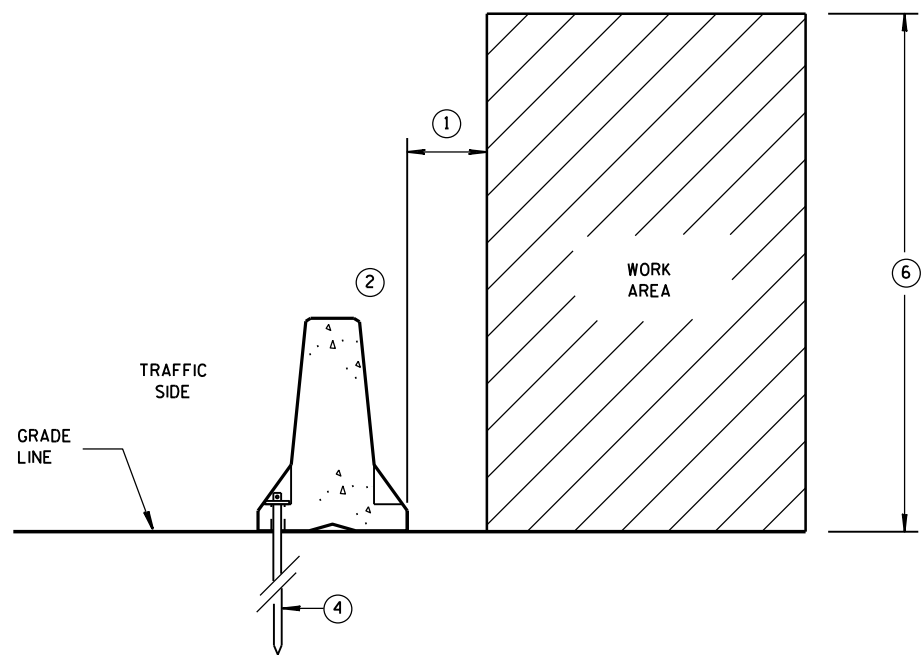
6

S.D.D. 14 B 7-15d

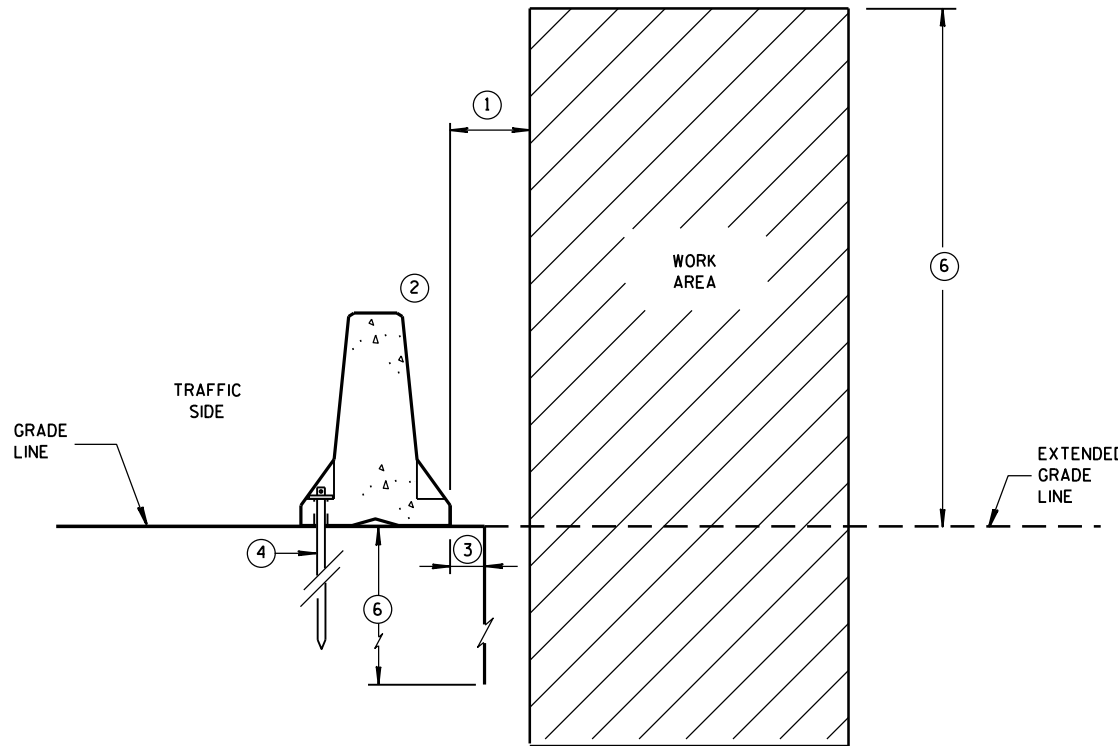
S.D.D. 14 B 7-15d

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".

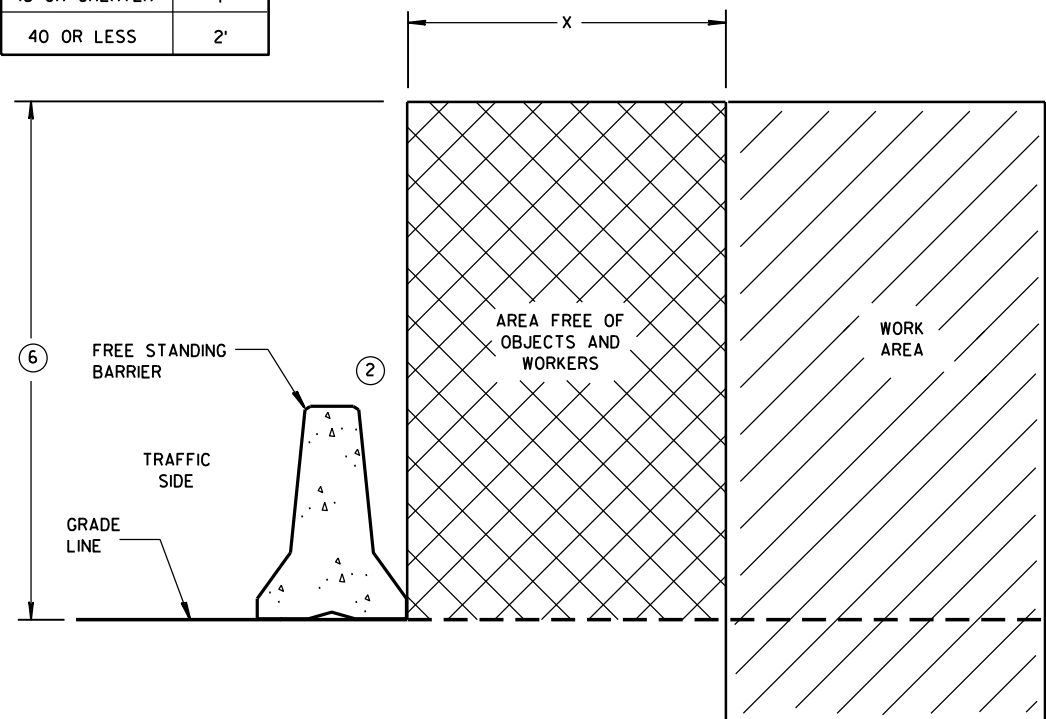


ANCHORED BARRIER SPACE REQUIREMENTS FOR HAZARDS EXTENDED ABOVE THE GRADE LINE

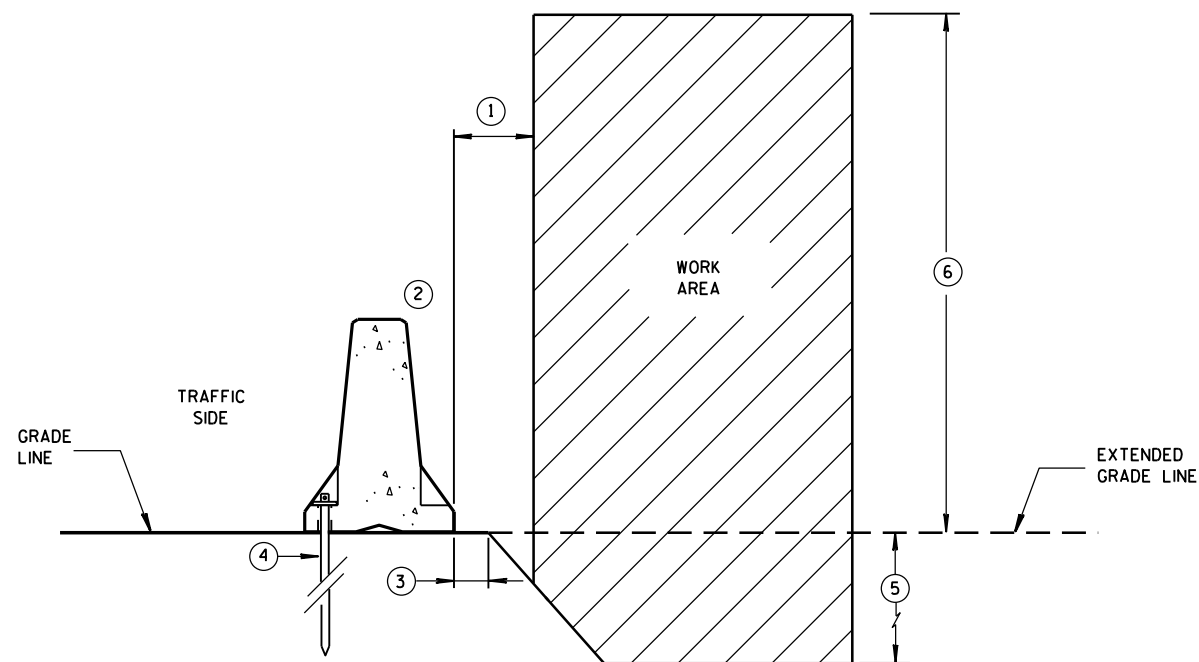


ANCHORED BARRIER SPACE REQUIREMENTS ON VERTICAL DROP OFFS

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



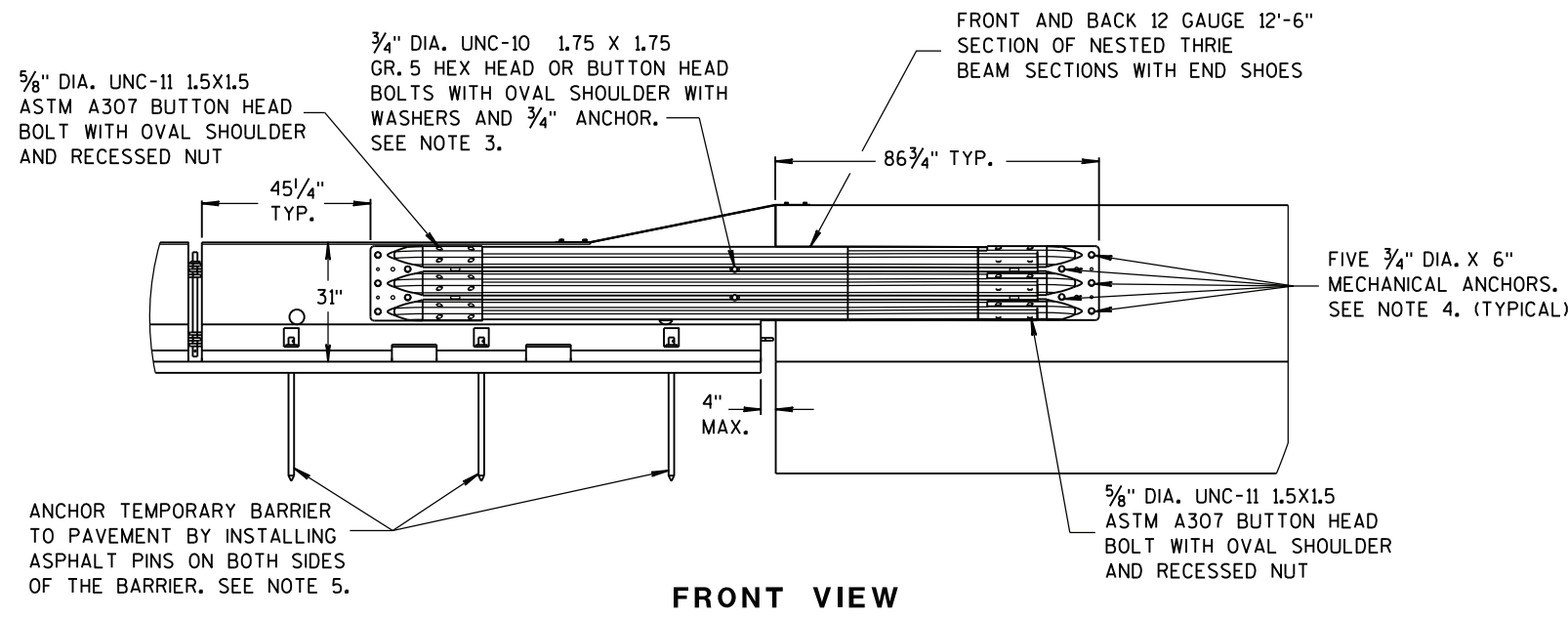
FREE STANDING BARRIER SPACE REQUIREMENTS



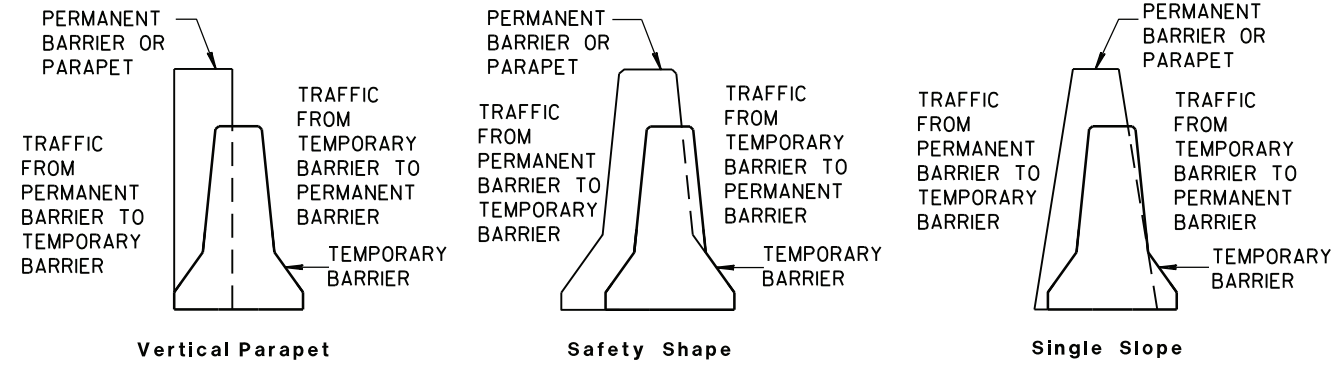
ANCHORED BARRIER SPACE REQUIREMENTS ON SLOPES

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

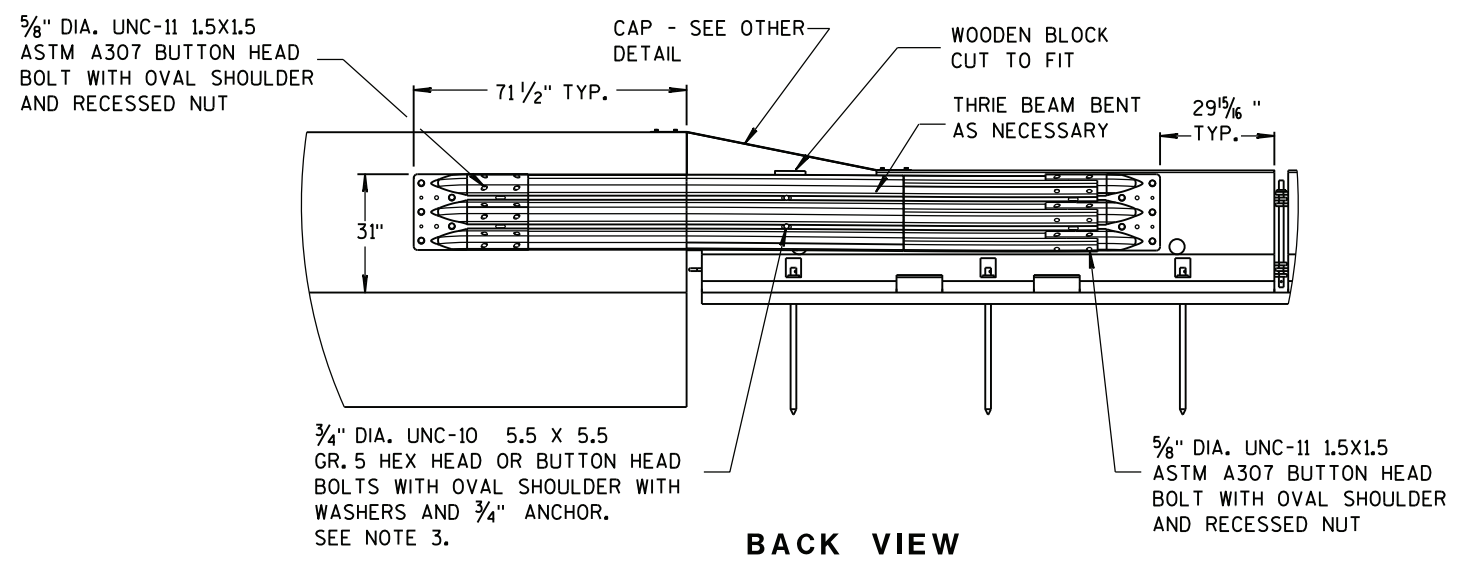


FRONT VIEW

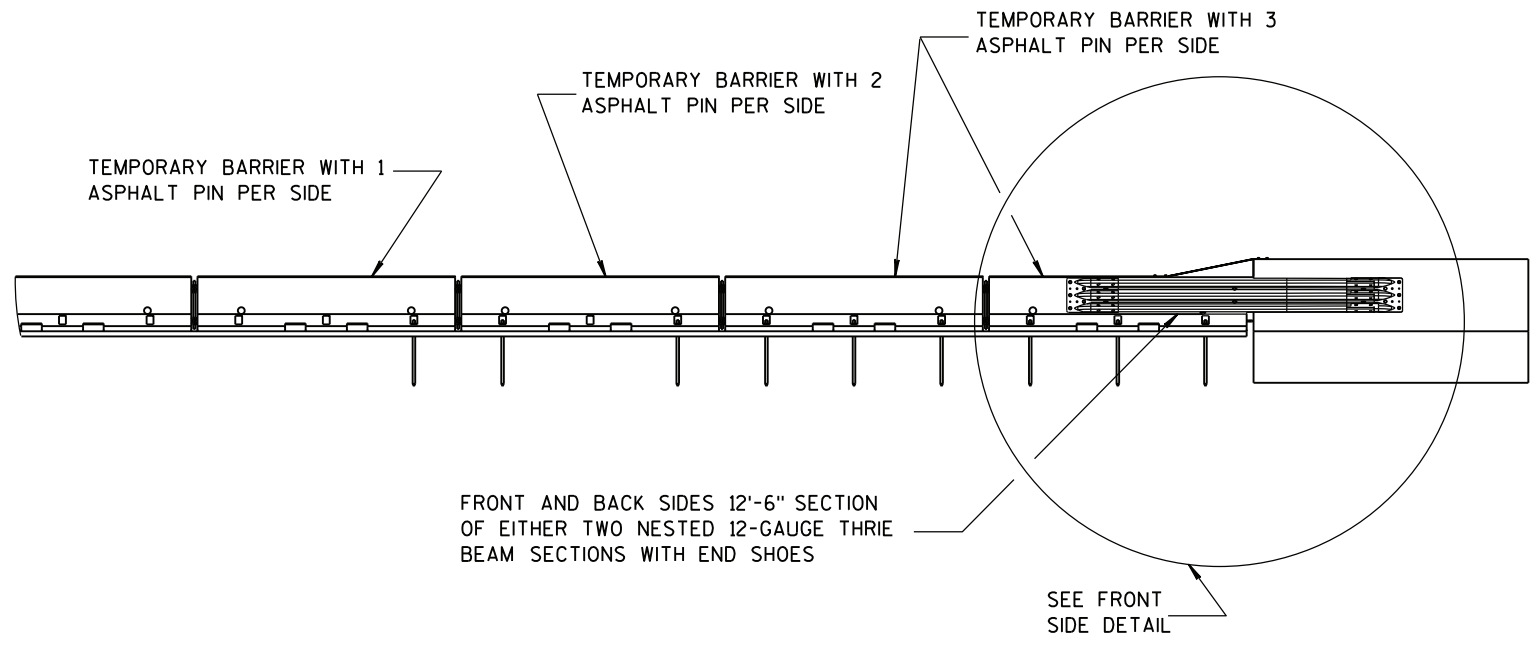


TEMPORARY BARRIER PLACEMENT FOR TRANSITION TO TIED DOWN SYSTEM

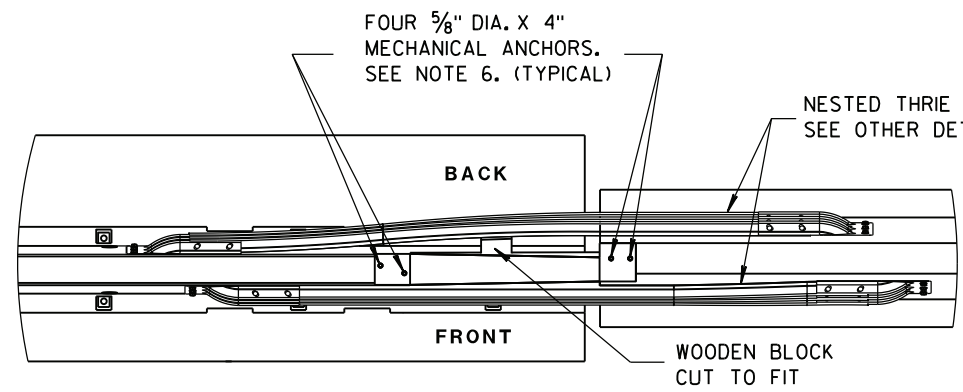
- NOTES**
- NESTED THRIE BEAM IS REQUIRED ON BOTH SIDES OF THE TEMPORARY BARRIER FOR ALL INSTALLATIONS REGARDLESS OF TRAFFIC.
- CAP END PLATE PLACED FLUSH WITH UPSTREAM END OF PERMANENT BARRIER OR PARAPET.
 - THRIE BEAM PIECES ARE OFFSET 15 1/4" TO PREVENT INTERFERENCE FROM THE ANCHORS ON OPPOSING SIDES.
 - MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 9.48 KIPS AND ULTIMATE SHEAR LOAD 10.48 KIPS.
 - MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 17.9 KIPS AND ULTIMATE SHEAR LOAD 21.96 KIPS.
 - MAY BE USED ON CONCRETE OR ASPHALT PAVEMENTS. ASPHALT OPTION SHOWN. FOR CONCRETE OPTION SEE OTHER DETAILS.
 - MINIMUM MECHANICAL OR ADHESIVE ANCHOR STRENGTH REQUIREMENTS: ULTIMATE TENSILE LOAD 12.14 KIPS AND ULTIMATE SHEAR LOAD 17.5 KIPS.



BACK VIEW



FRONT VIEW

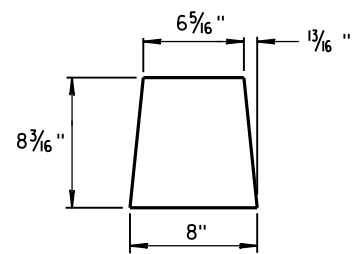


PLAN VIEW

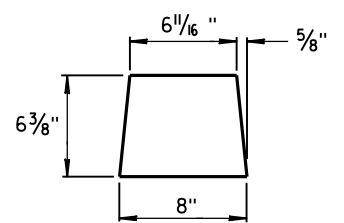
**CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

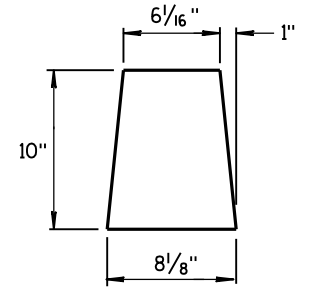
TRANSITION TO TIED DOWN SYSTEM



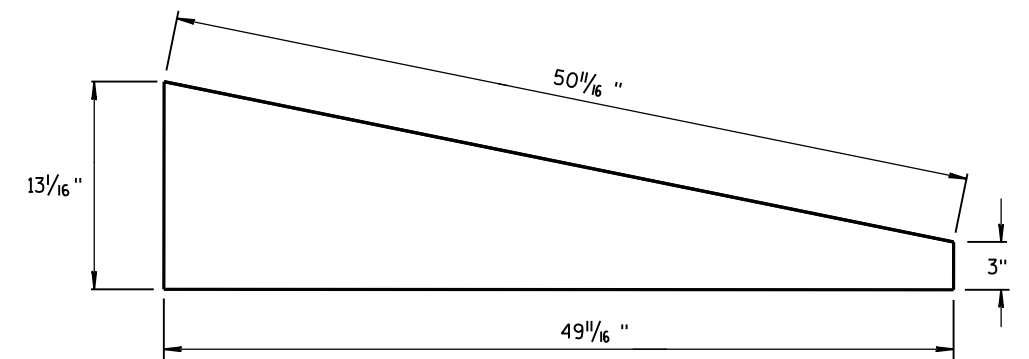
GUSSET 1



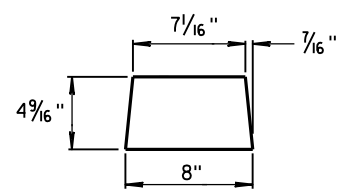
GUSSET 2



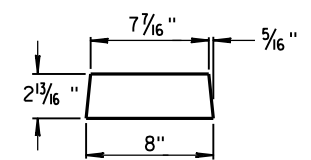
END PLATE



SIDE PLATE

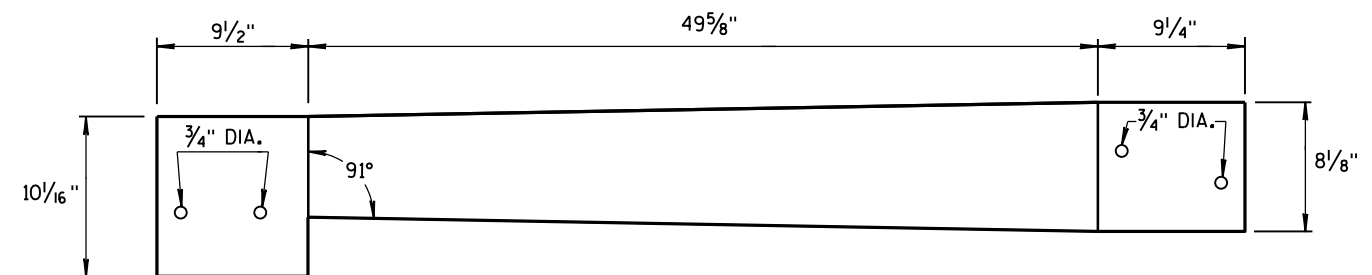


GUSSET 3

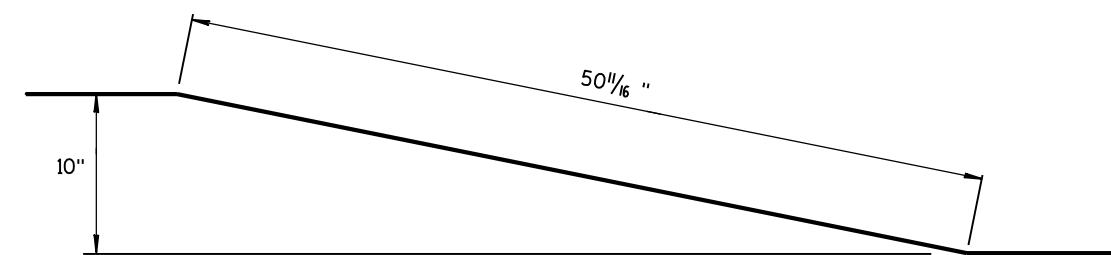


GUSSET 4

GUSSETS

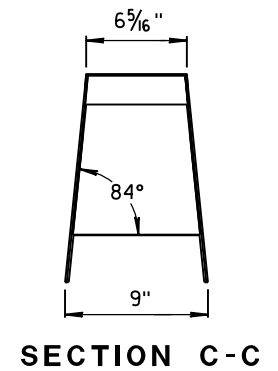
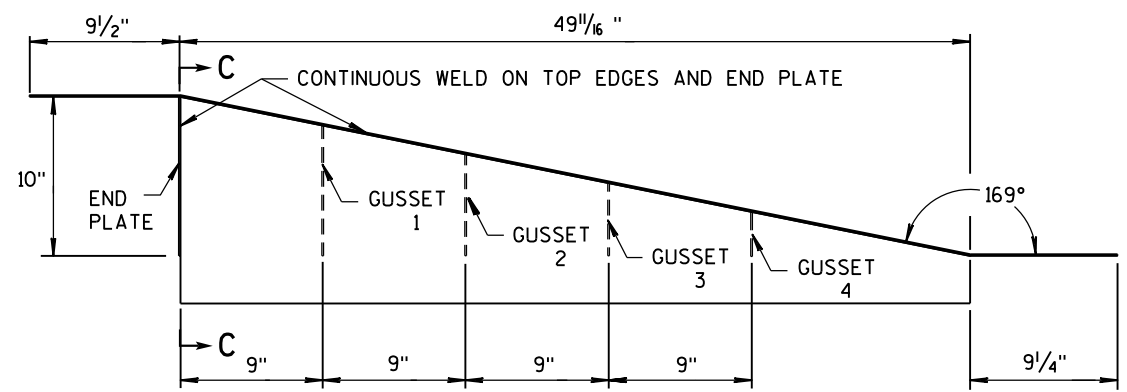
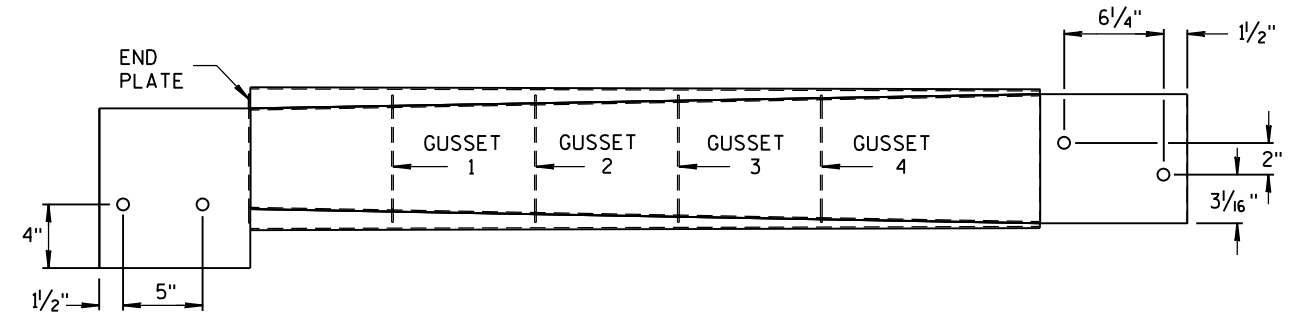


TOP PLATE



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

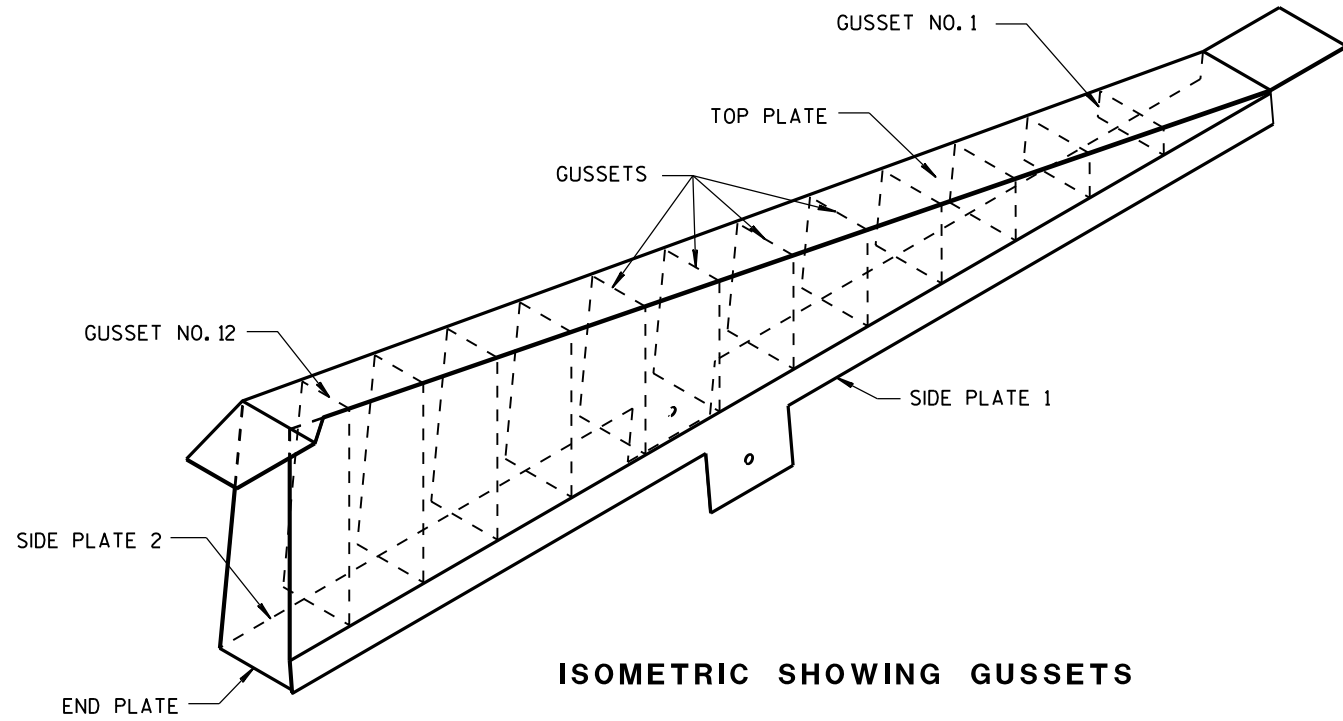
NOTES

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.

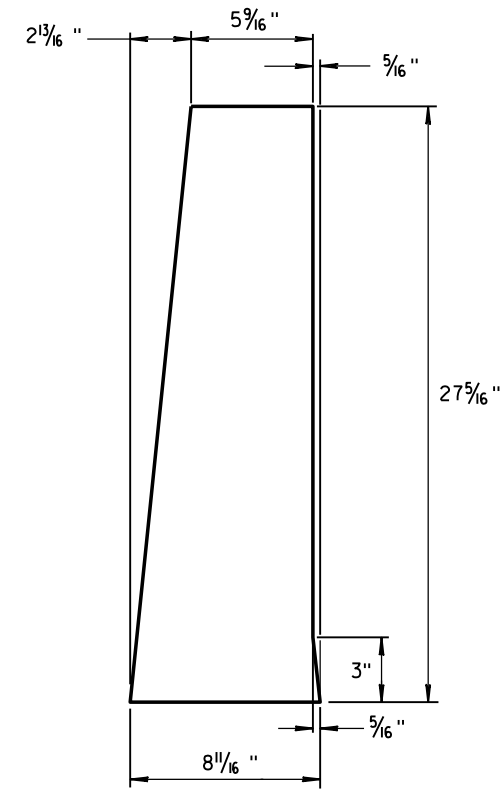
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 42" PERMANENT CONCRETE BARRIER

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

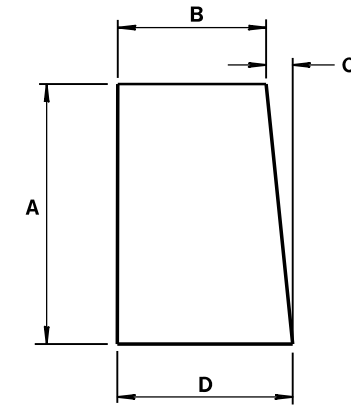


ISOMETRIC SHOWING GUSSETS



END PLATE

1/8" STEEL PLATE



GUSSETS 1 - 12

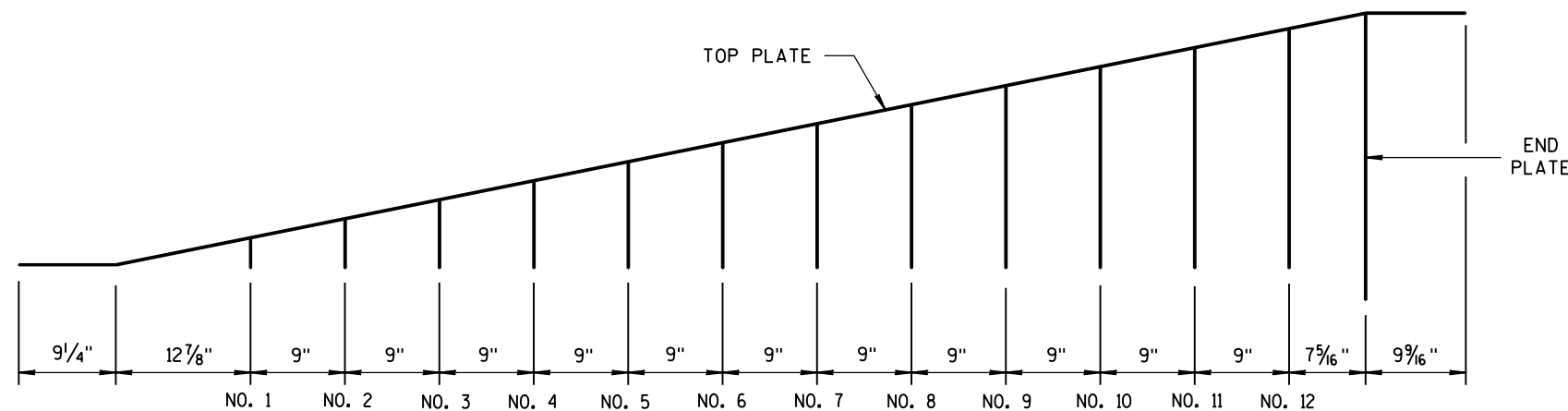
ALL GUSSETS 1/8" STEEL PLATE

GUSSET DIMENSIONS

GUSSET NO.	A	B	C	D
1	2 7/8"	7 3/4"	1/4"	8
2	4 1/16"	7 7/16"	1/2"	8
3	6 1/2"	7 3/8"	11/16"	8 1/16"
4	8 5/8"	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 3/16"	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.

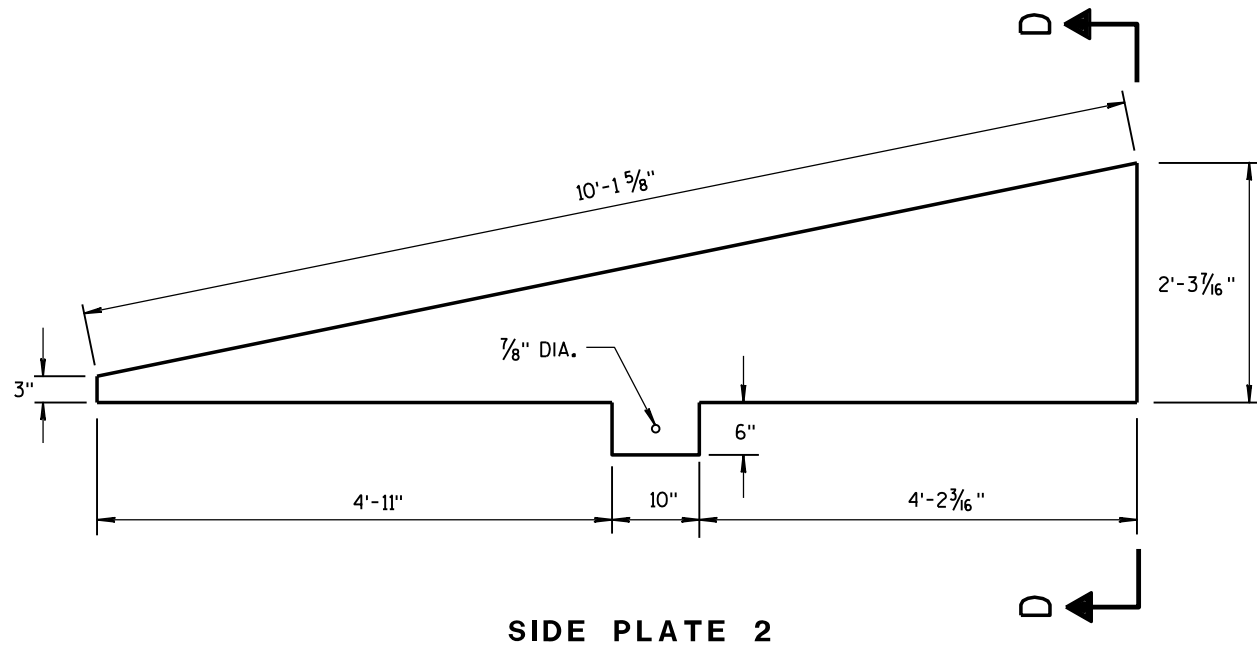


GUSSET LOCATION

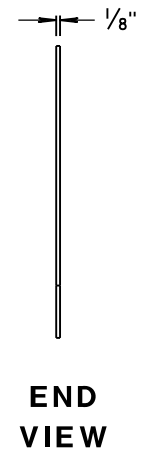
CAP DETAILS FOR TEMPORARY CONCRETE BARRIER TO 56" PERMANENT CONCRETE BARRIER

CONCRETE BARRIER
TEMPORARY PRECAST, 12'-6"

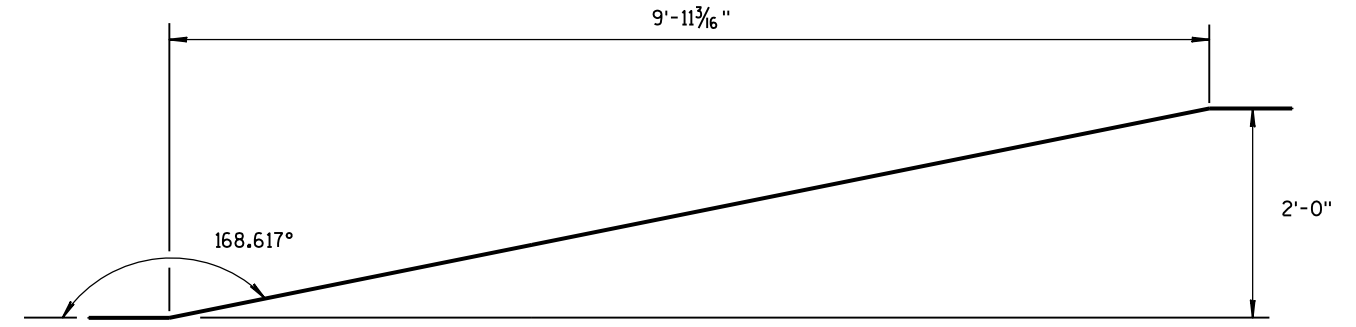
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



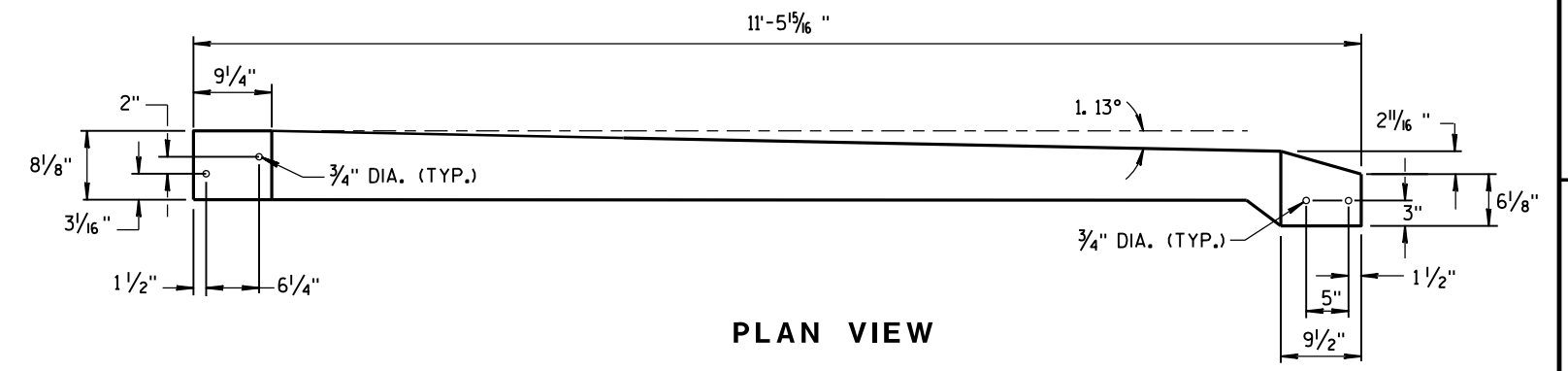
SIDE PLATE 2



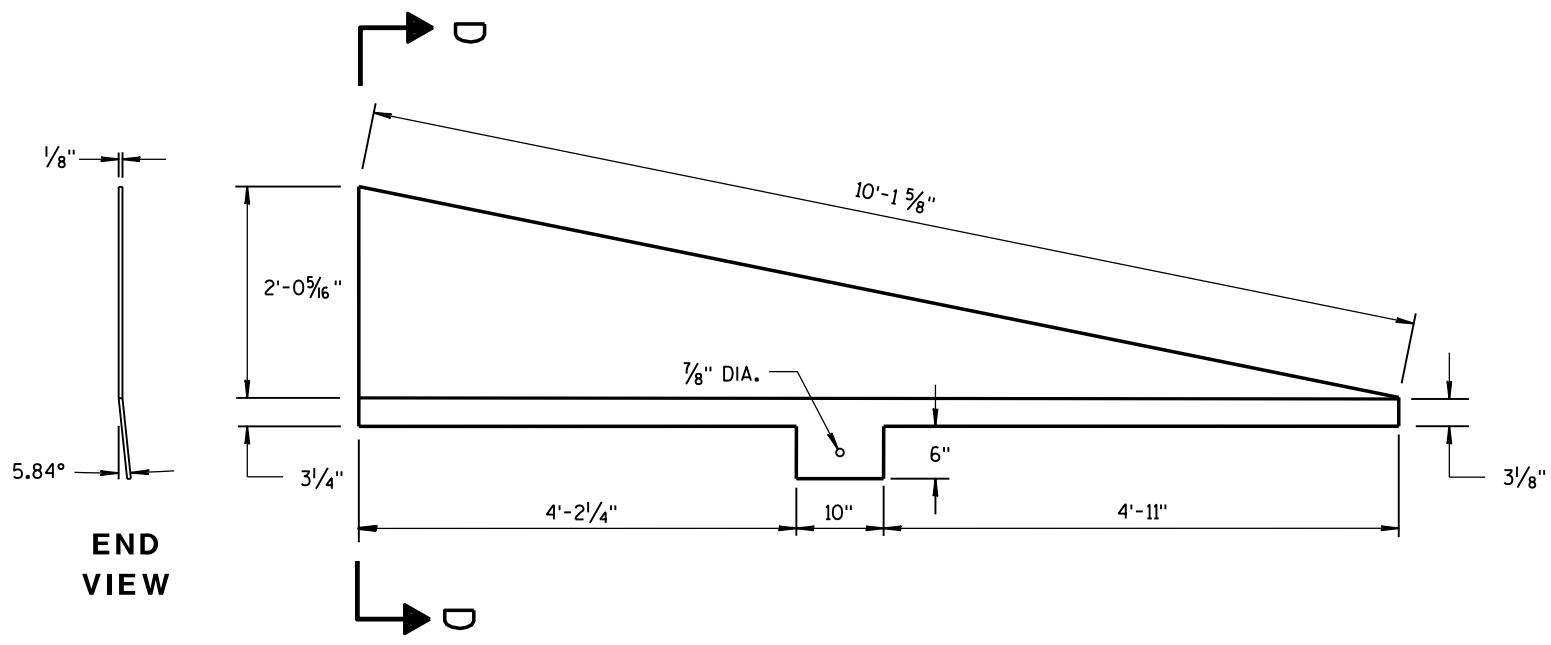
END VIEW



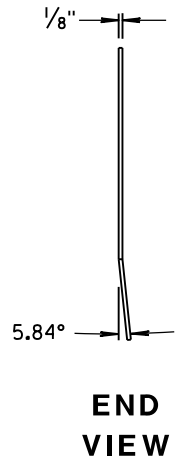
**SIDE VIEW
TOP PLATE**



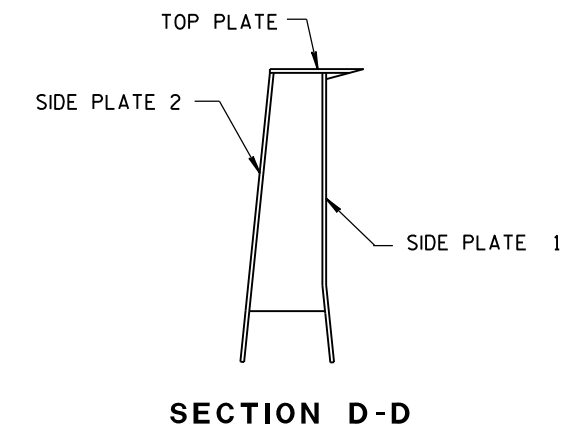
**PLAN VIEW
TOP PLATE**



SIDE PLATE 1



END VIEW



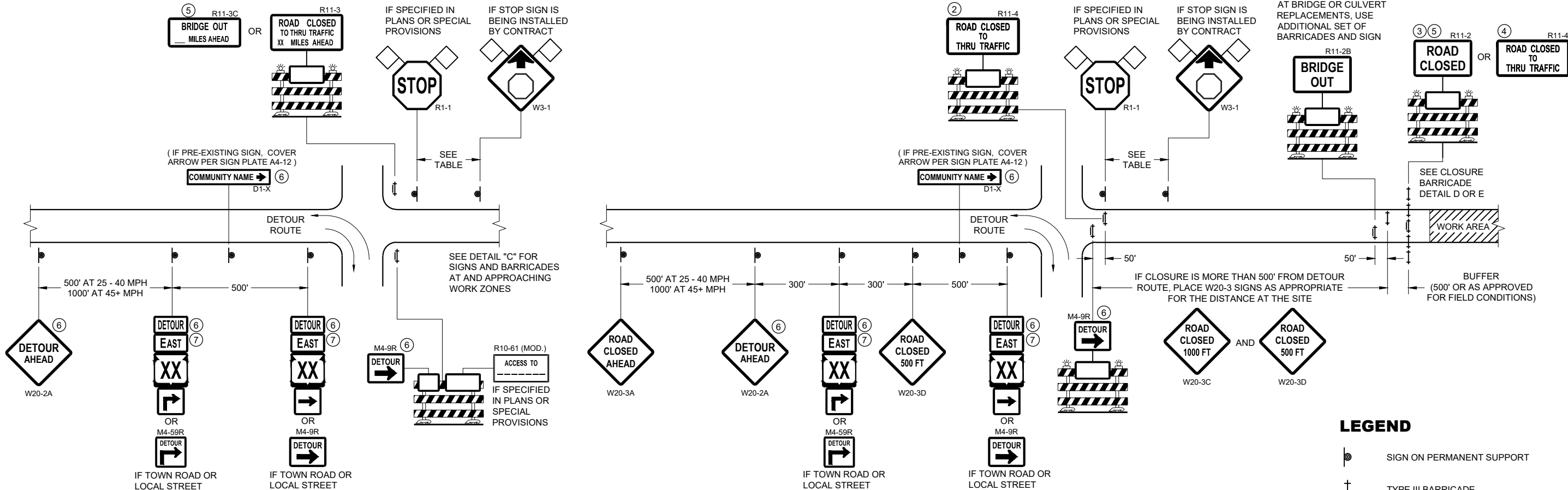
SECTION D-D

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 DEVELOPMENT
FHWA UNIT SUPERVISOR



**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**

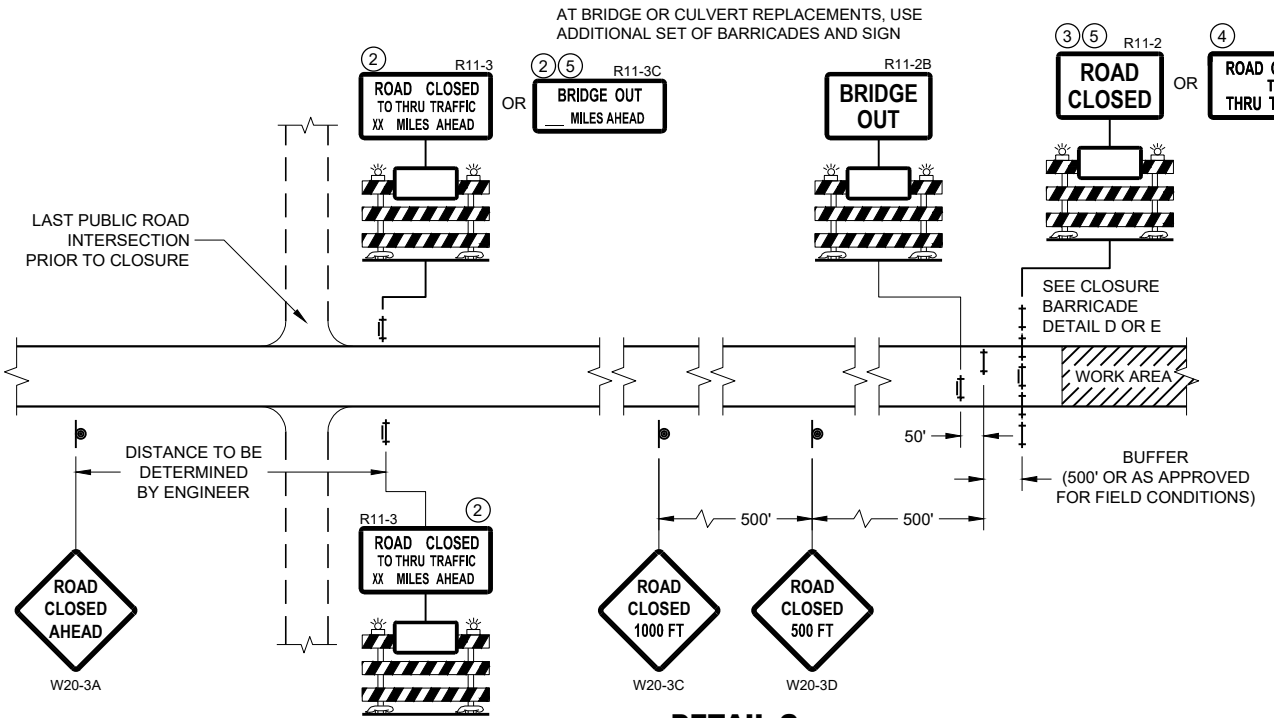
WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

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)

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

- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1



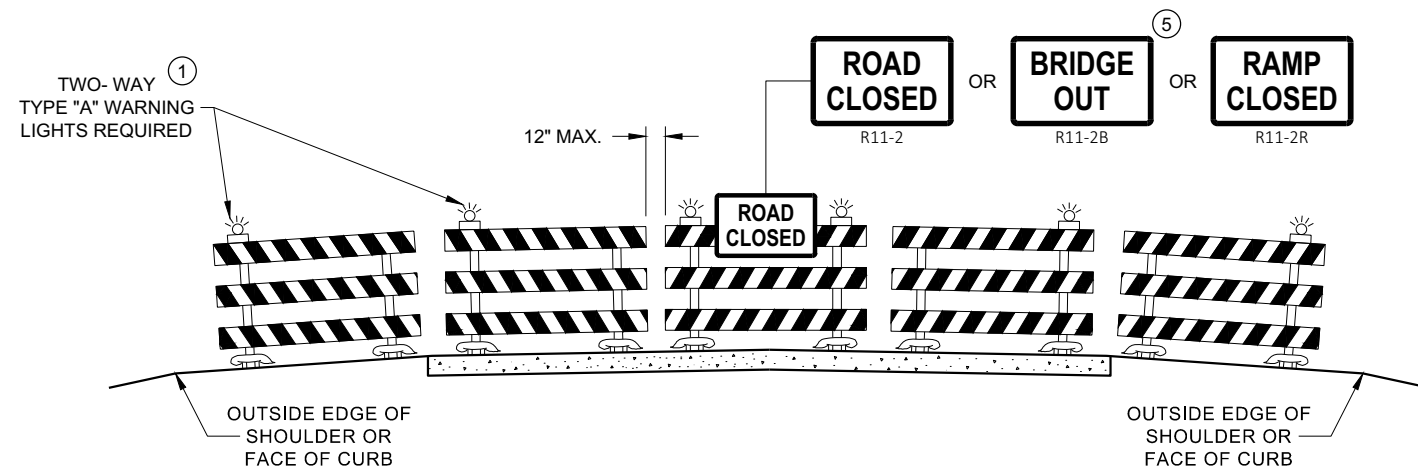
**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

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

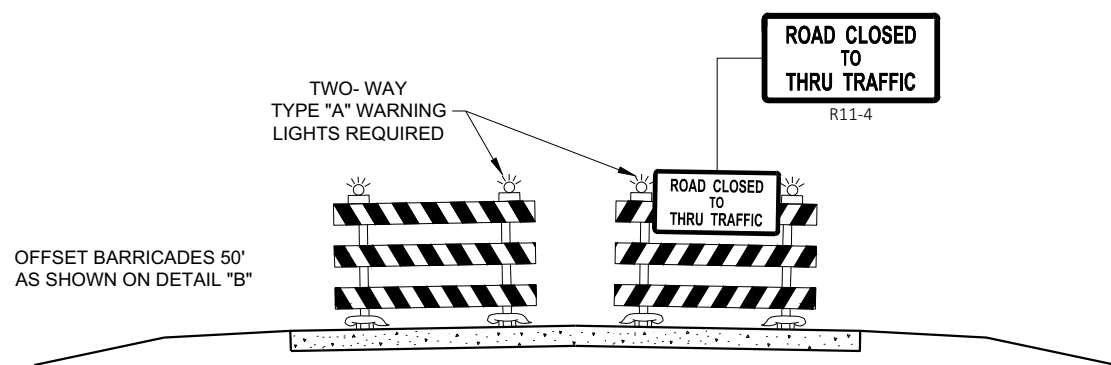
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
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APPROVED
February 2020 /S/ Andrew Heidtke
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**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"

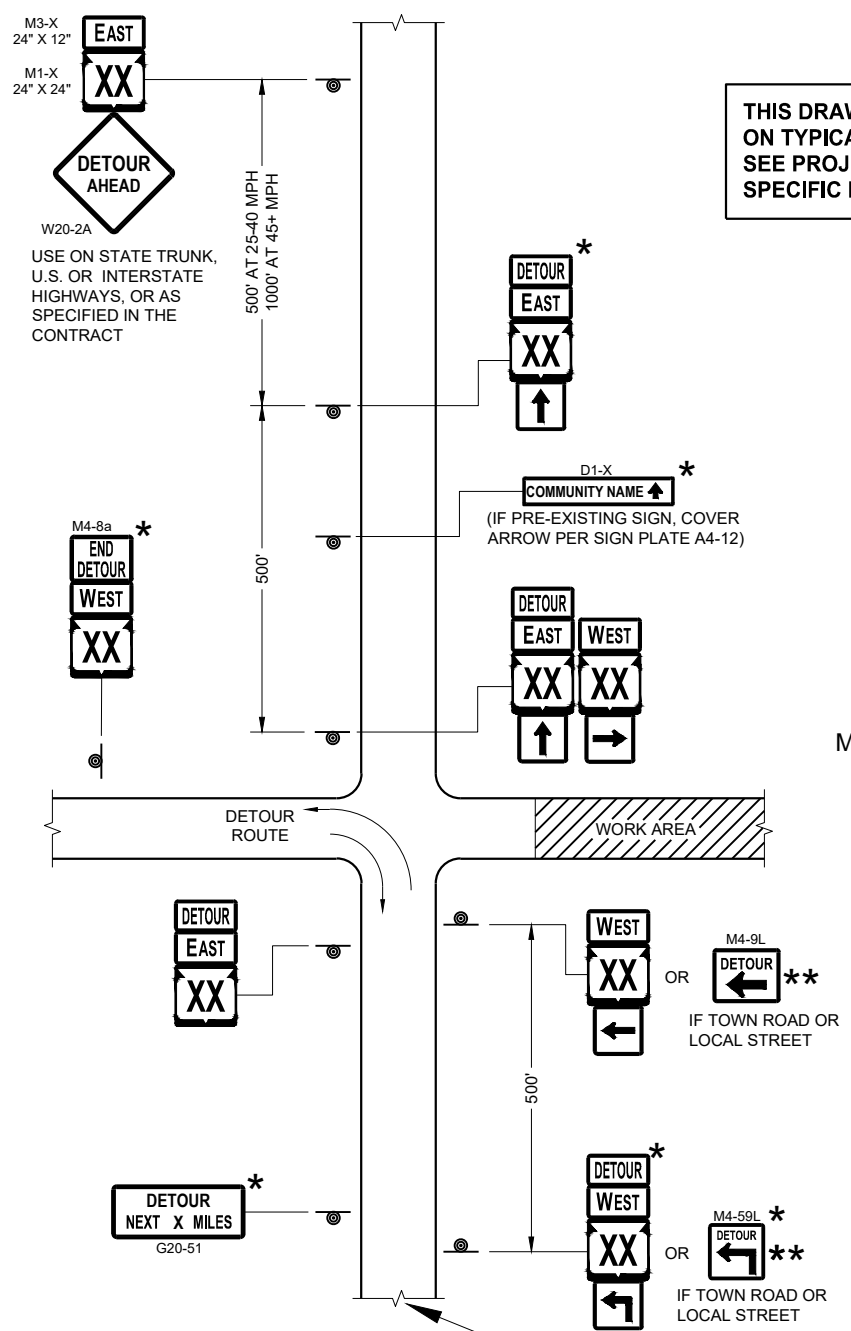
- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS 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**

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SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS AND DETAIL A OR B ON SDD SHEET 15C02 - SHEET "a"

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

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1
- M06 - 1

GENERAL NOTES

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

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

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

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

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

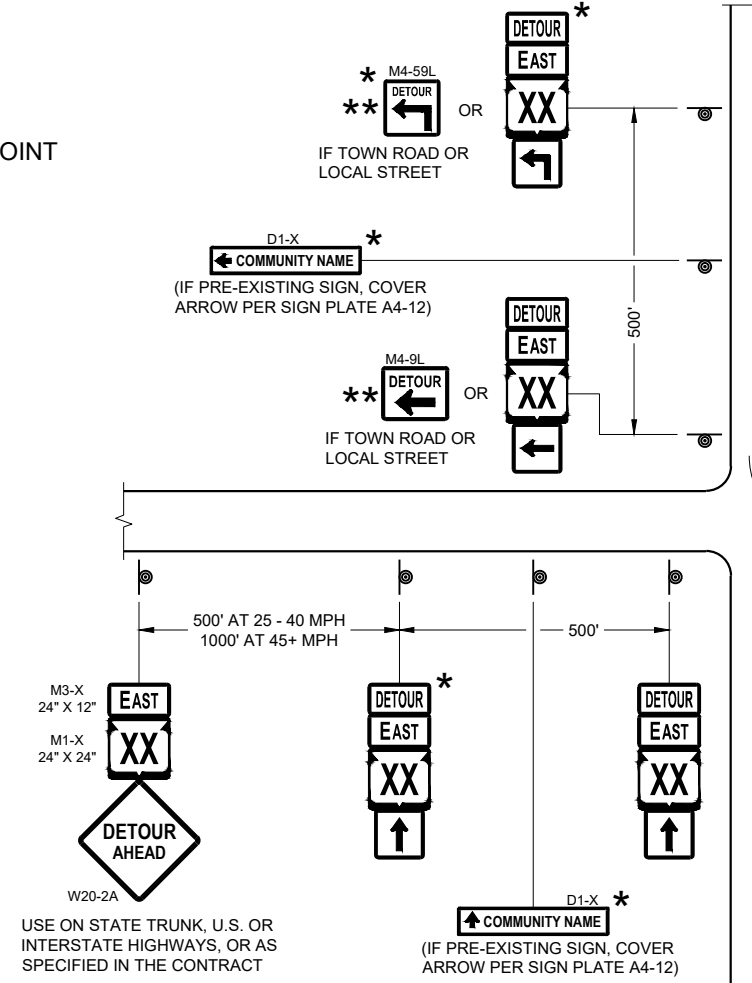
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

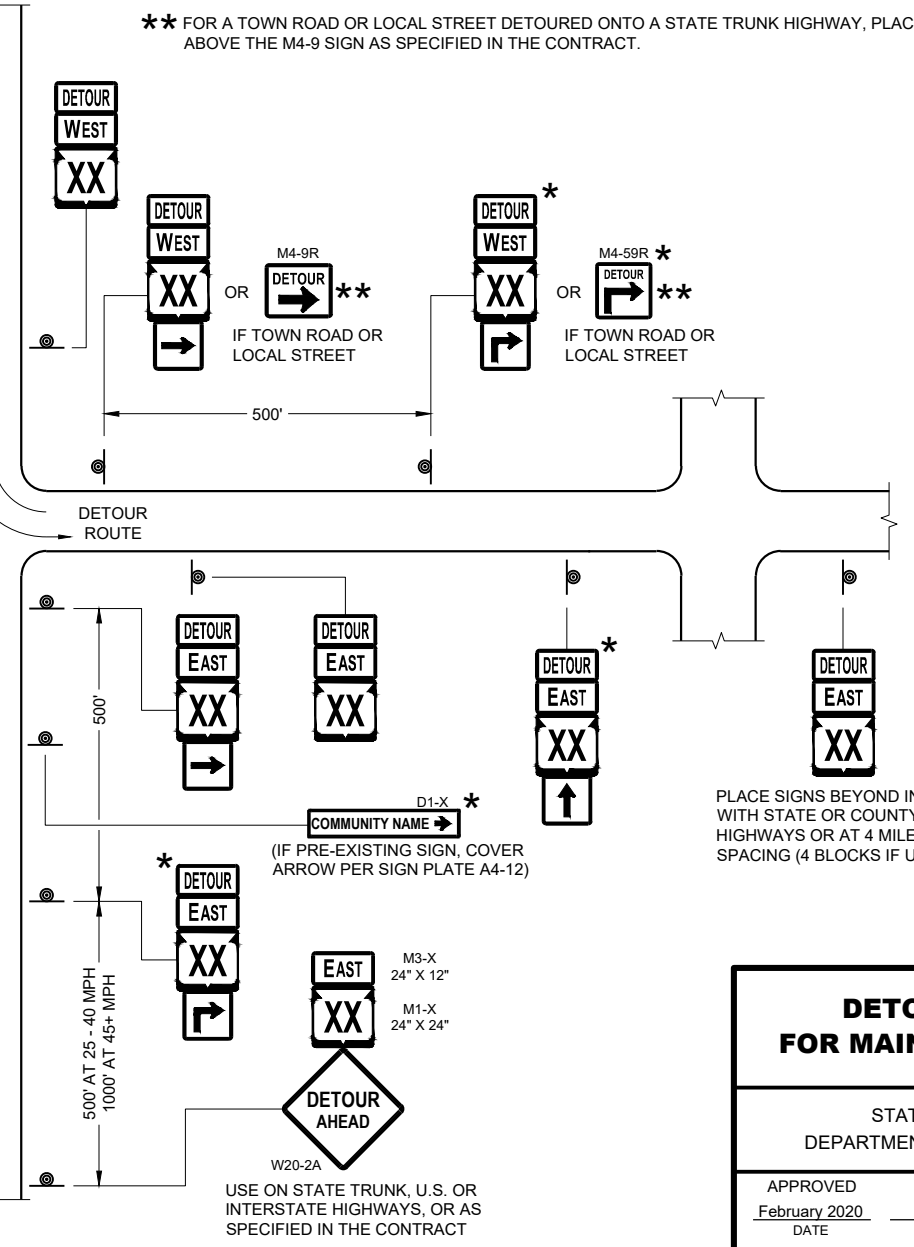
- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-59 SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

- * OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- ** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.

MATCH POINT



**DETAIL F
DETOUR SIGNING**



**DETOUR SIGNING
FOR MAINLINE CLOSURES**

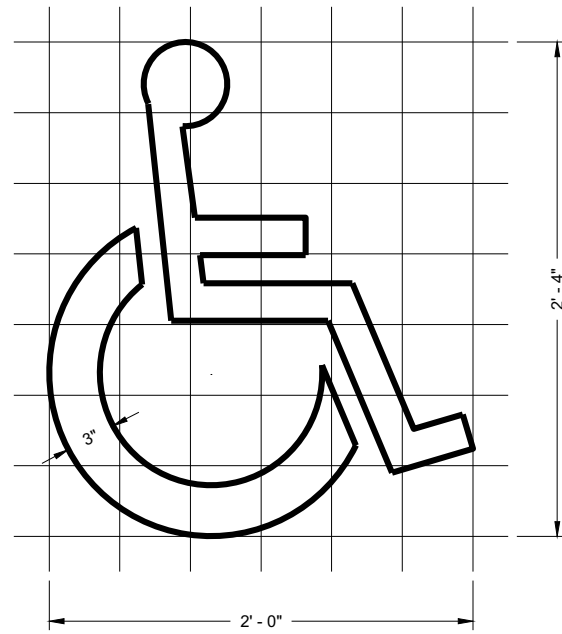
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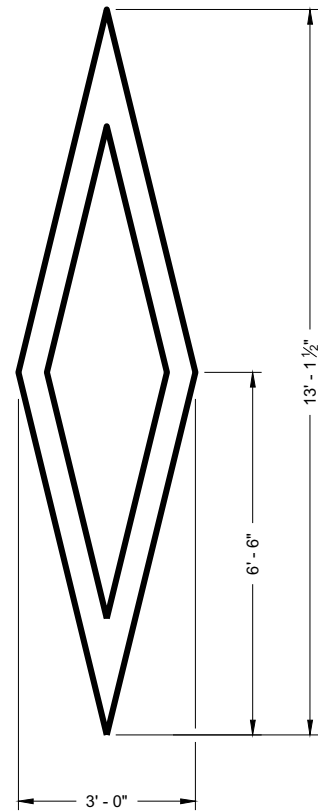
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GENERAL NOTES

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



HANDICAP SYMBOL



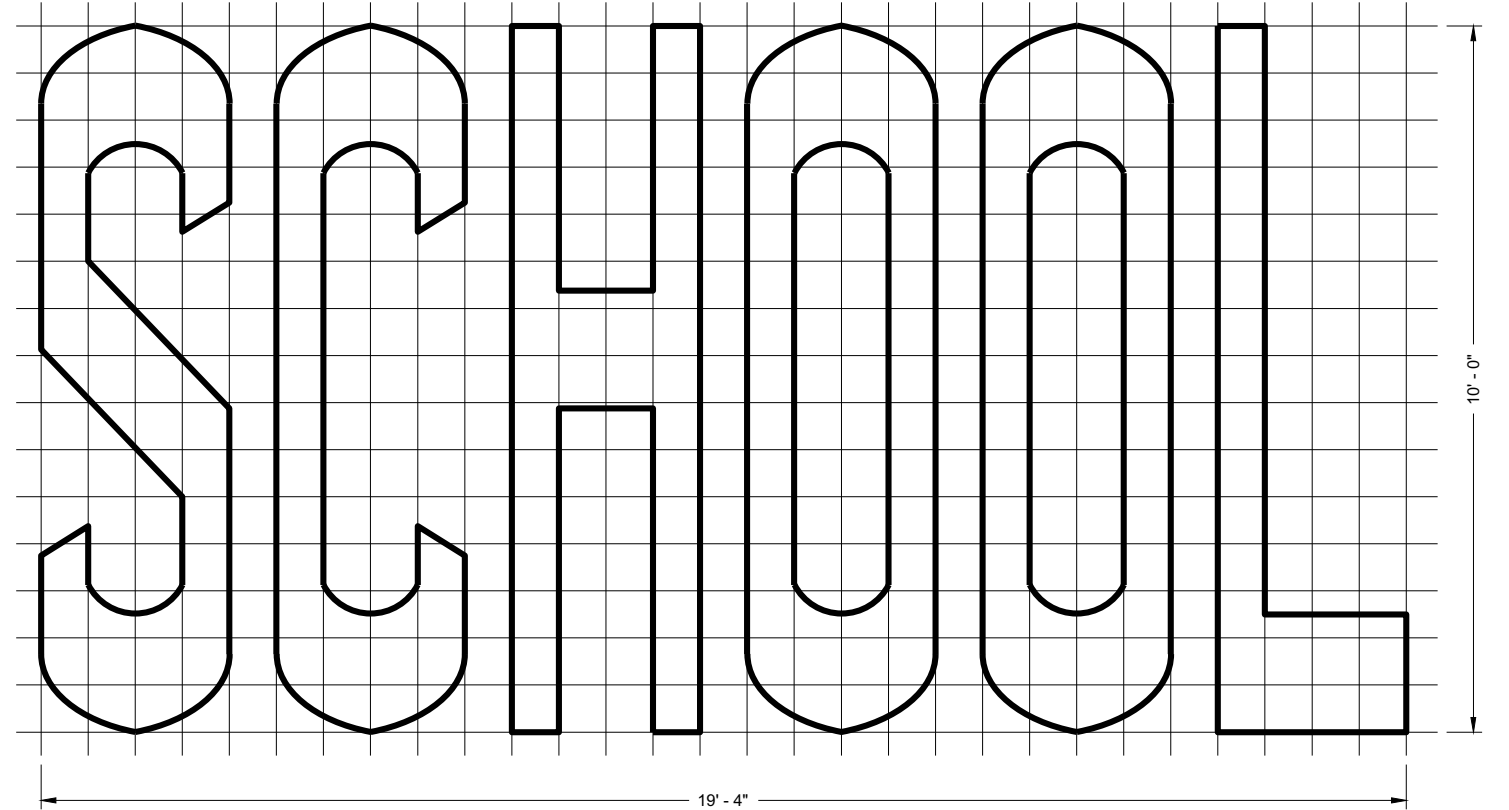
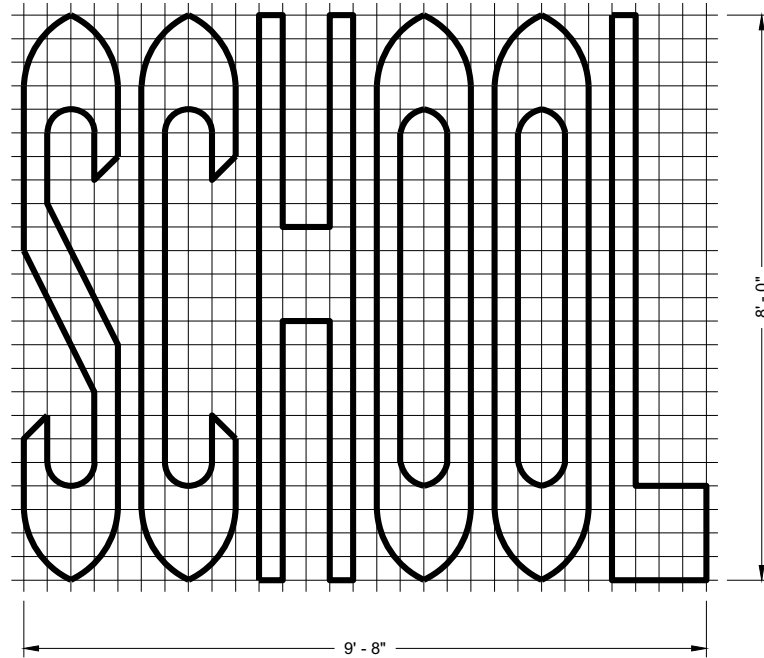
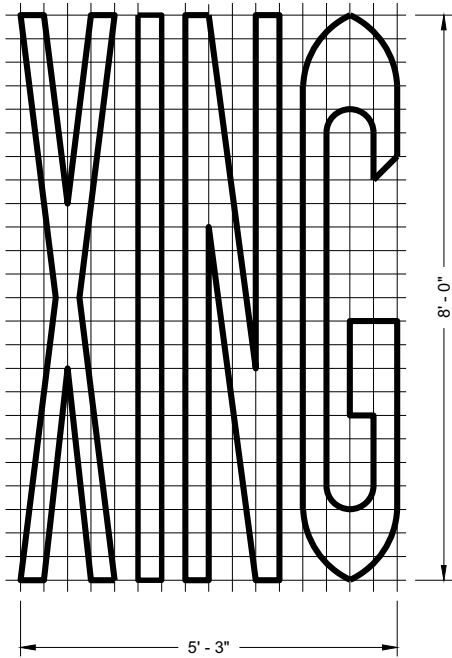
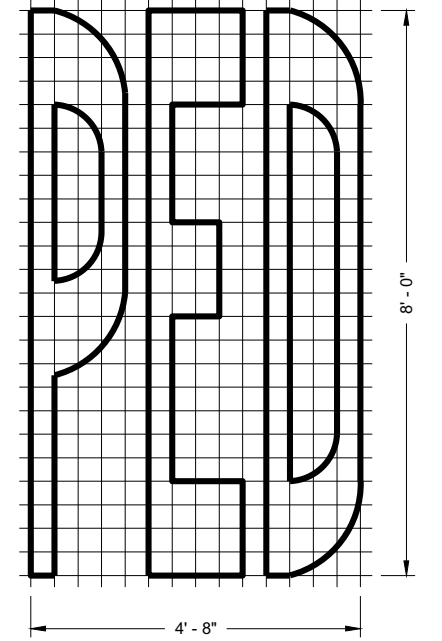
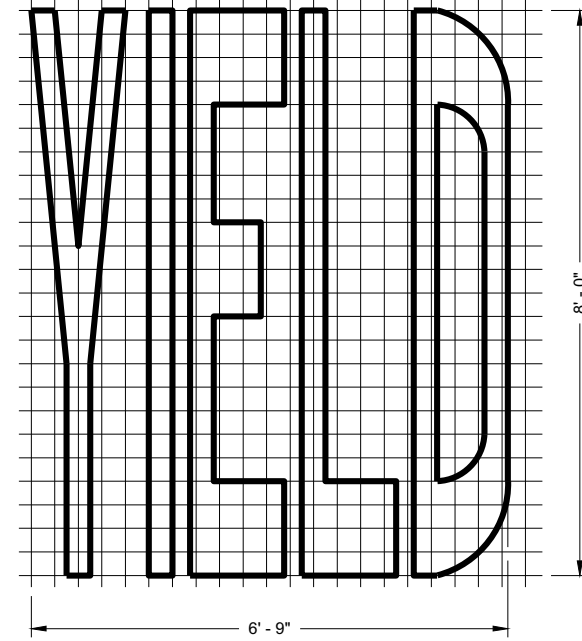
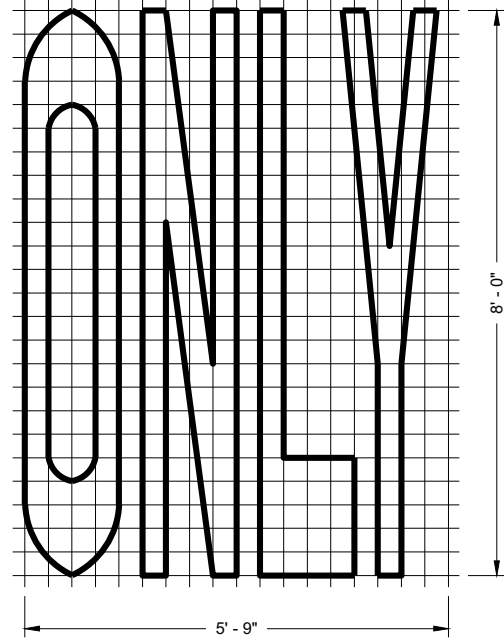
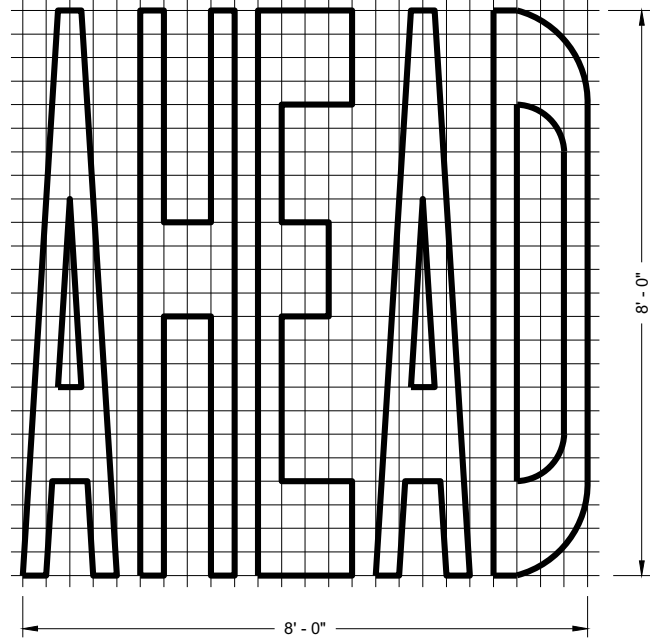
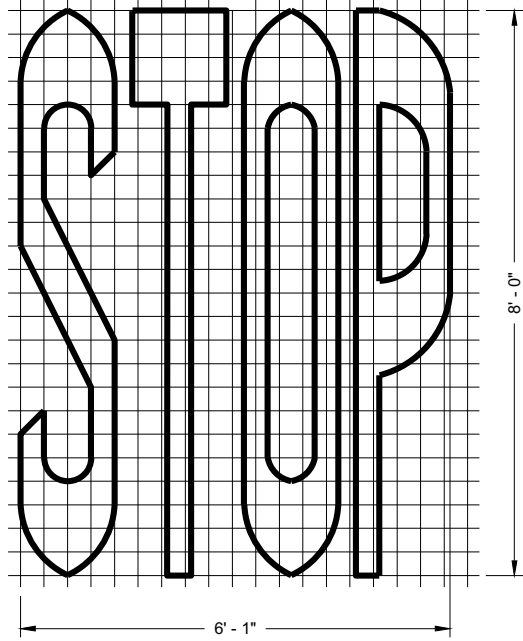
PREFERENTIAL LANE SYMBOL

PAVEMENT MARKING SYMBOLS

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SINGLE LANE

TWO - LANE

GENERAL NOTES

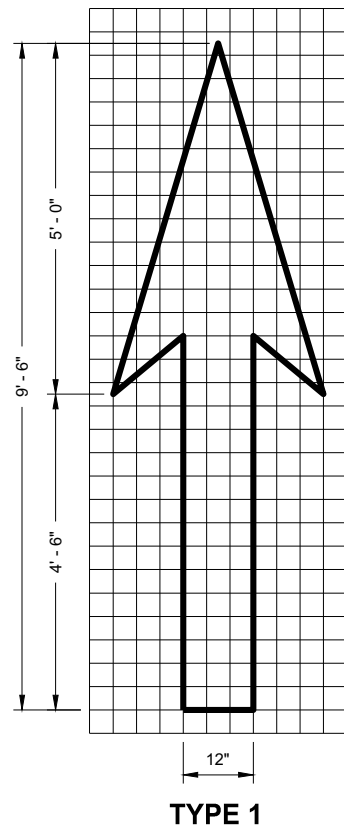
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

PAVEMENT MARKING WORDS

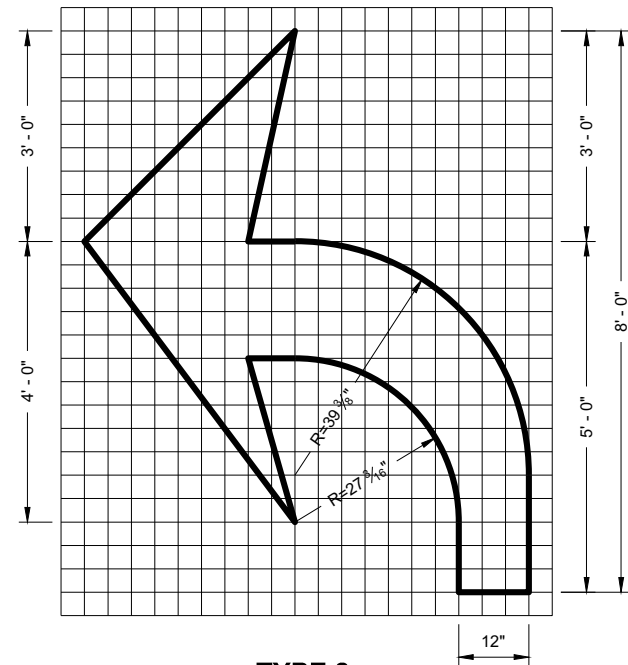
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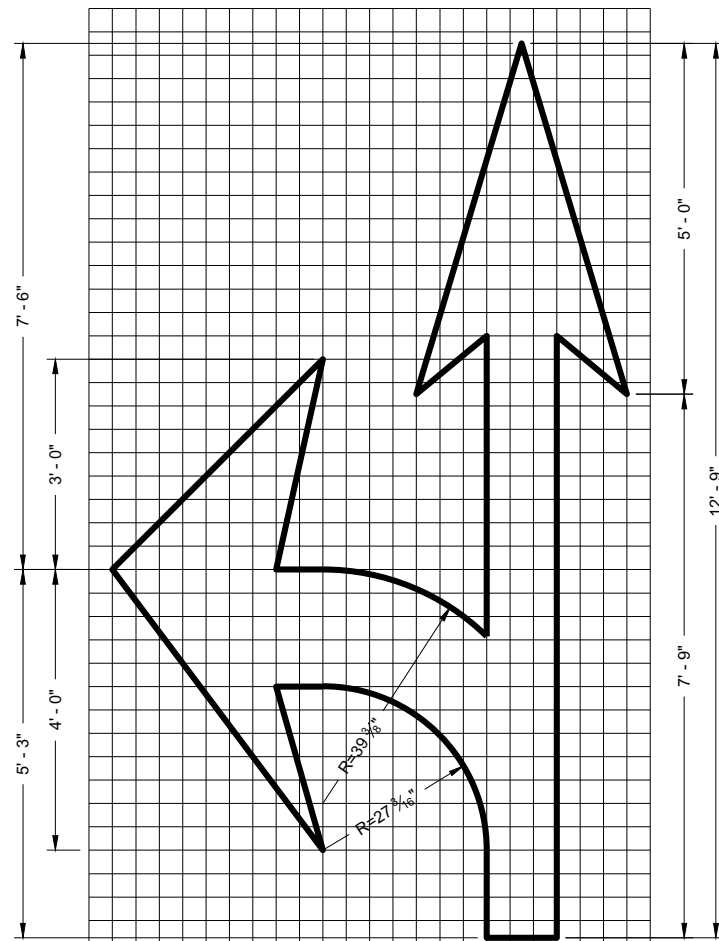
FHWA



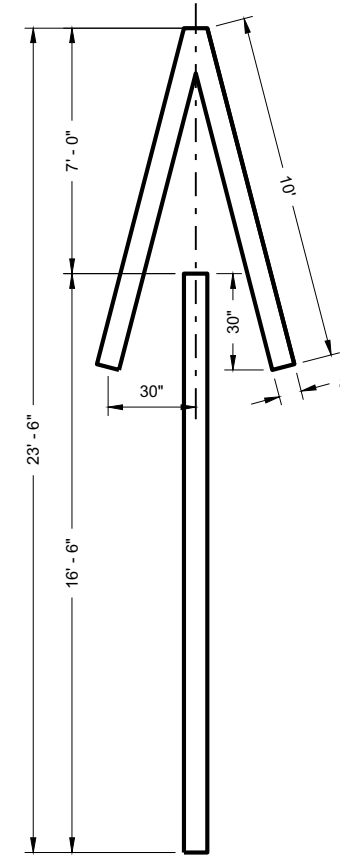
TYPE 1



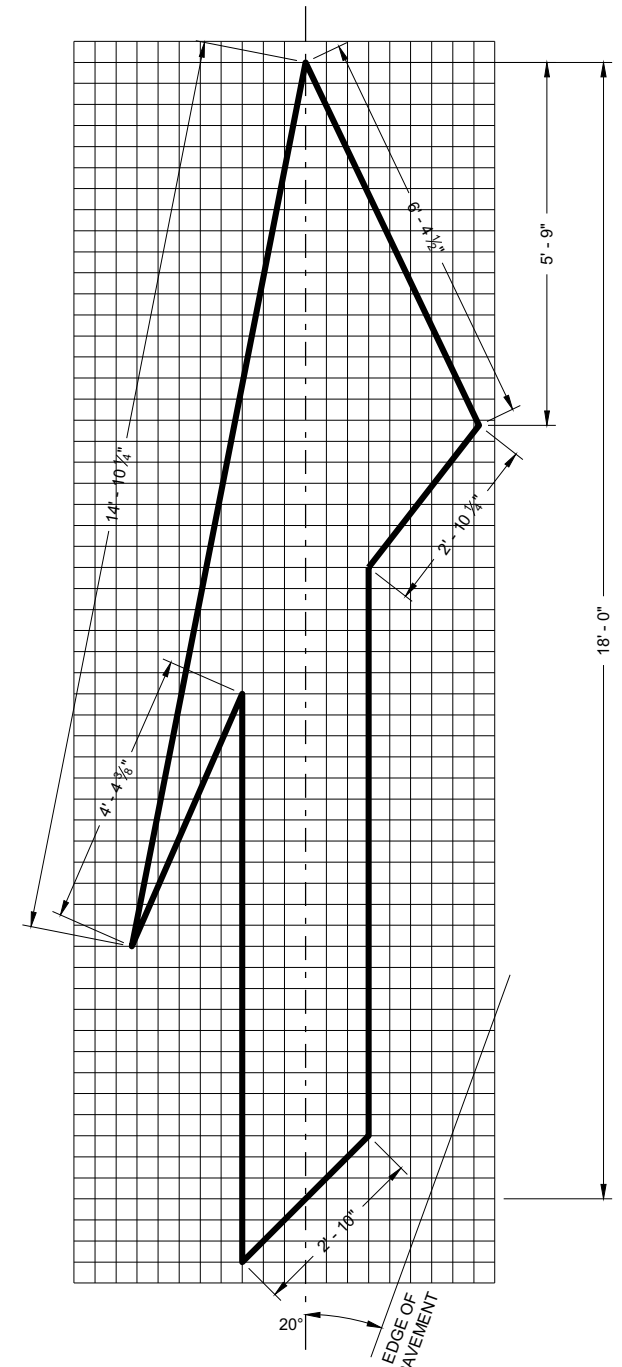
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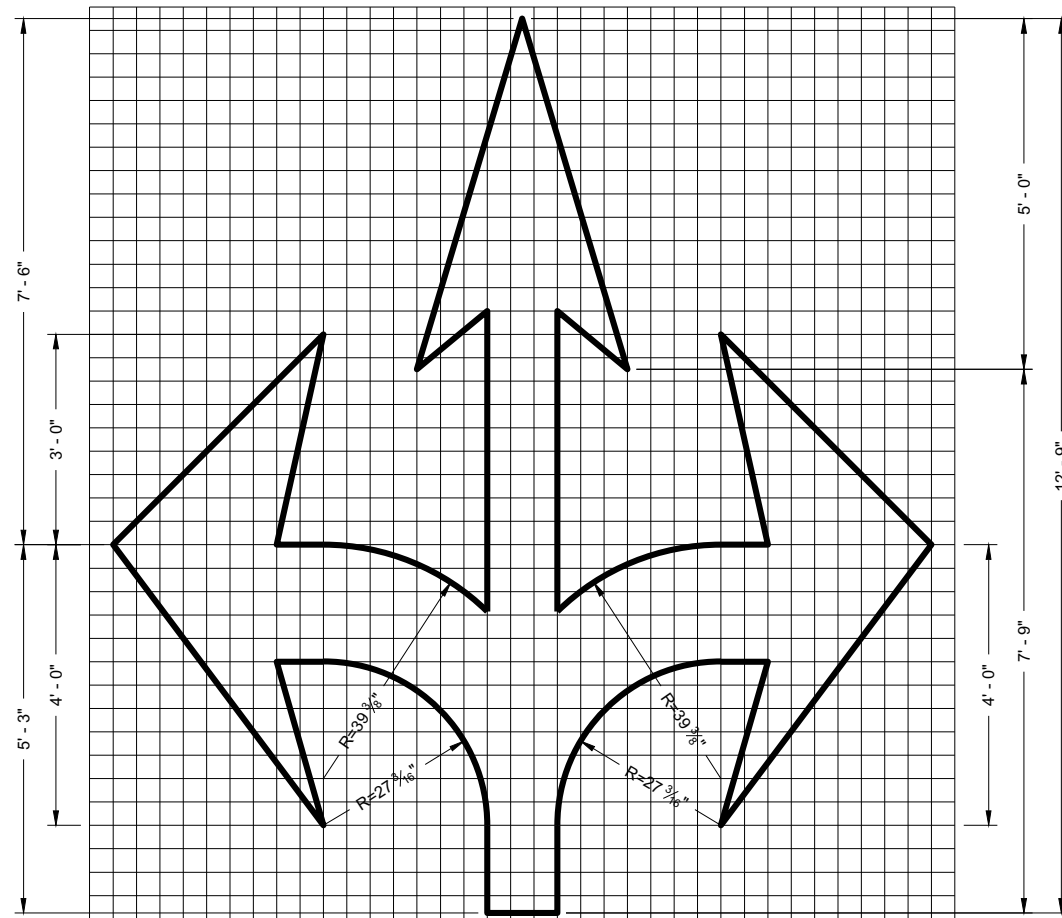
TYPE 3



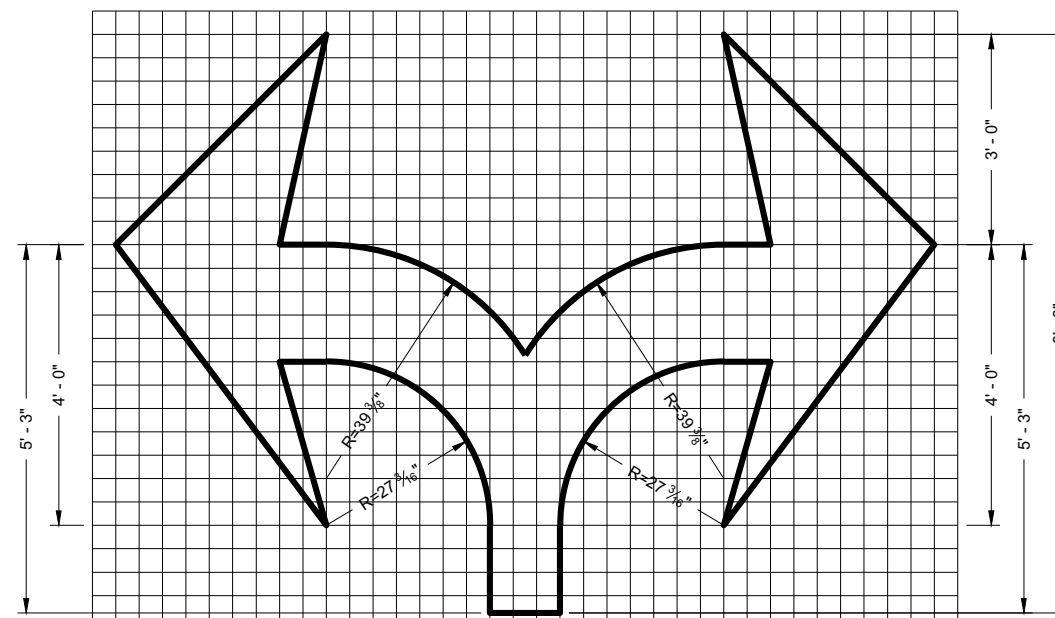
TYPE 4



TYPE 5 LANE DROP ARROW



TYPE 6



TYPE 7

GENERAL NOTES

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

PAVEMENT MARKING ARROWS

STATE OF WISCONSIN
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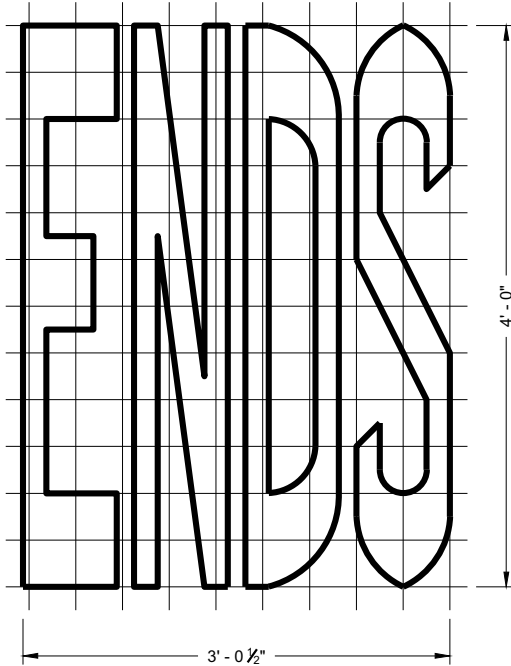
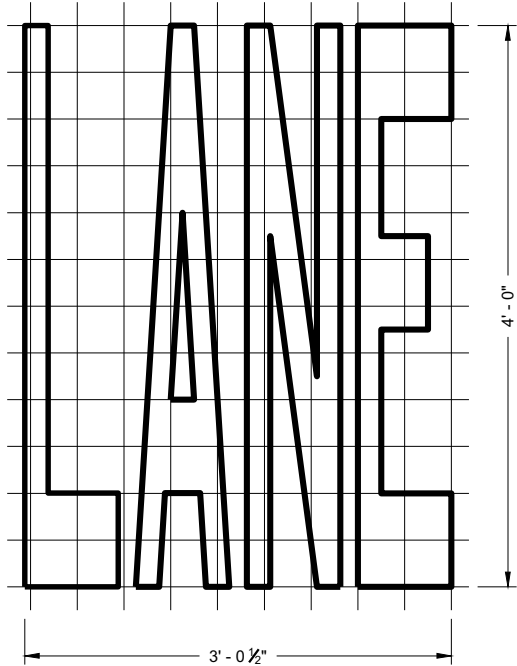
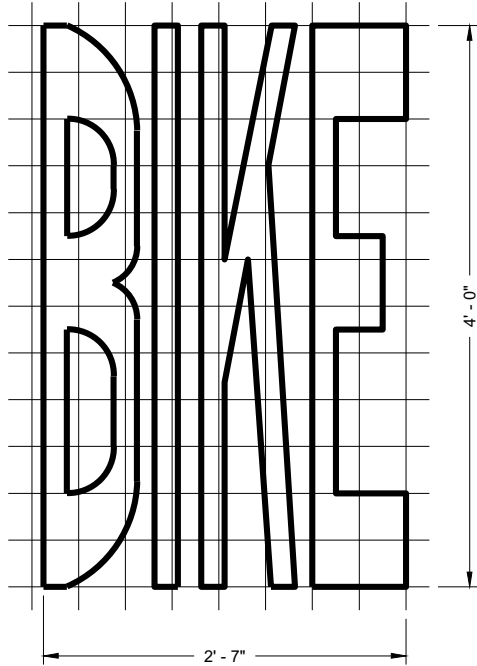
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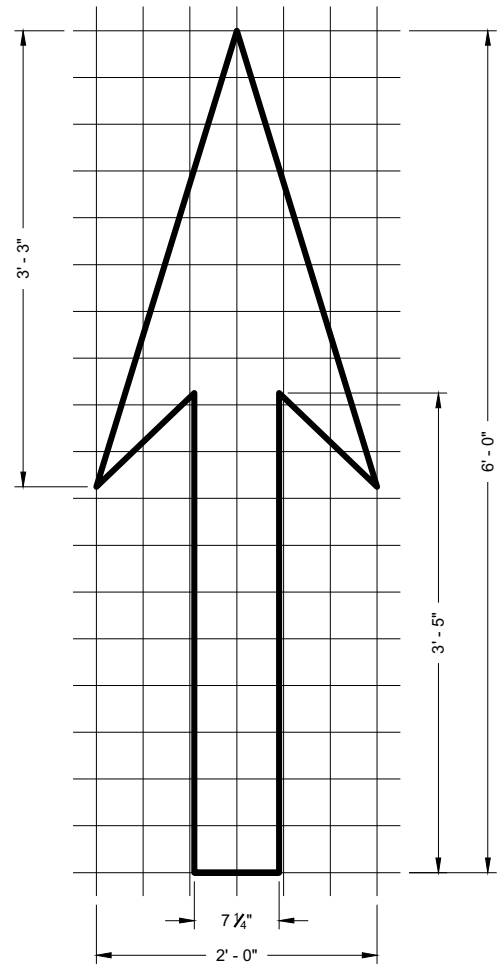
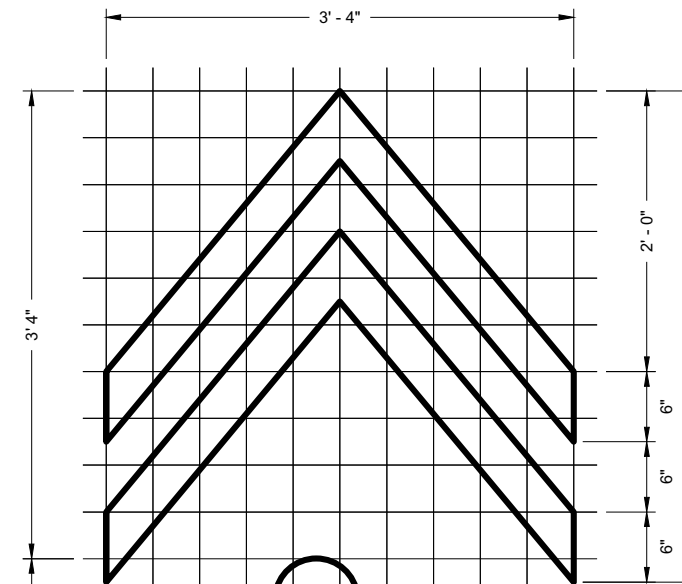
/S/ Matthew Rauch
STATE SIGNING AND MARKING
ENGINEER



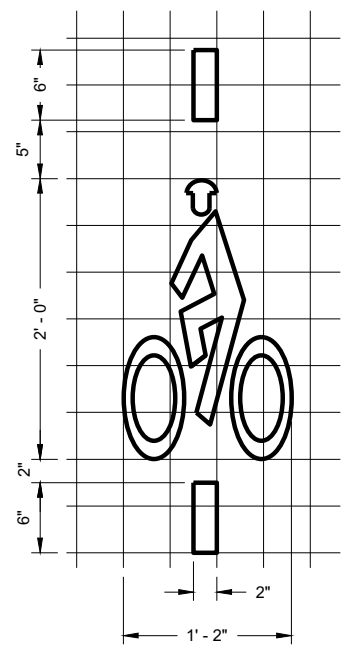
BIKE LANE WORDS

GENERAL NOTES

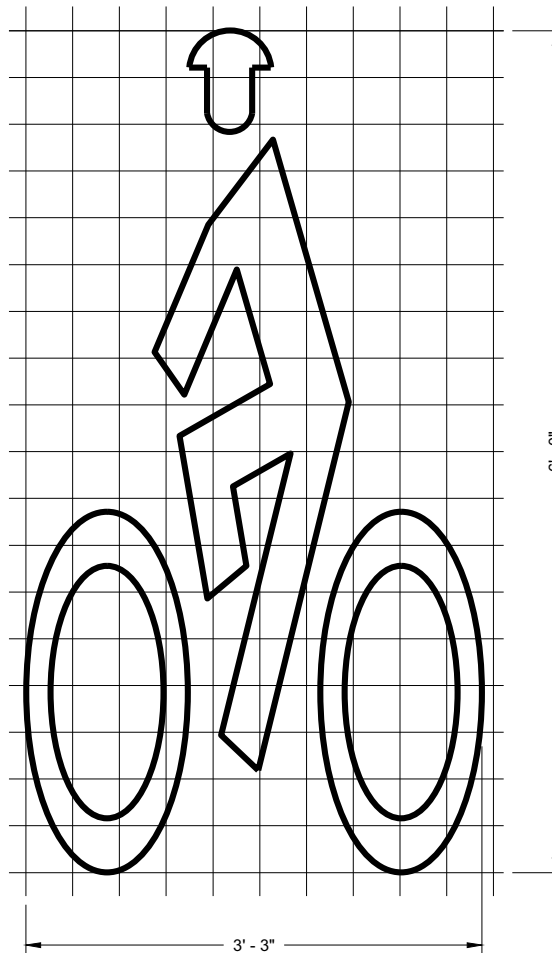
DETAILS OF INSTALLATION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.



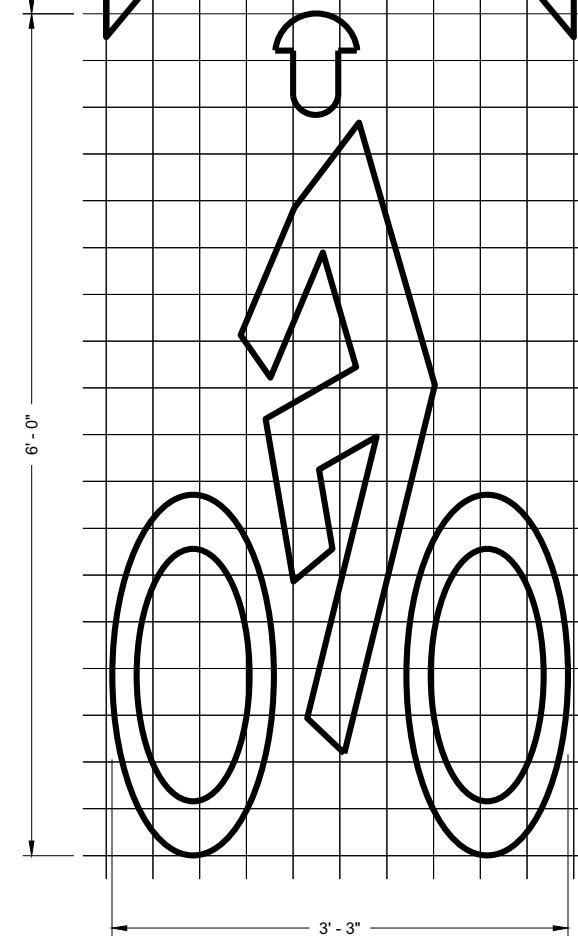
BIKE LANE ARROW



BIKE DETECTOR PAVEMENT MARKING



BIKE LANE SYMBOL



BIKE LANE SYMBOL FOR SHARED LANE

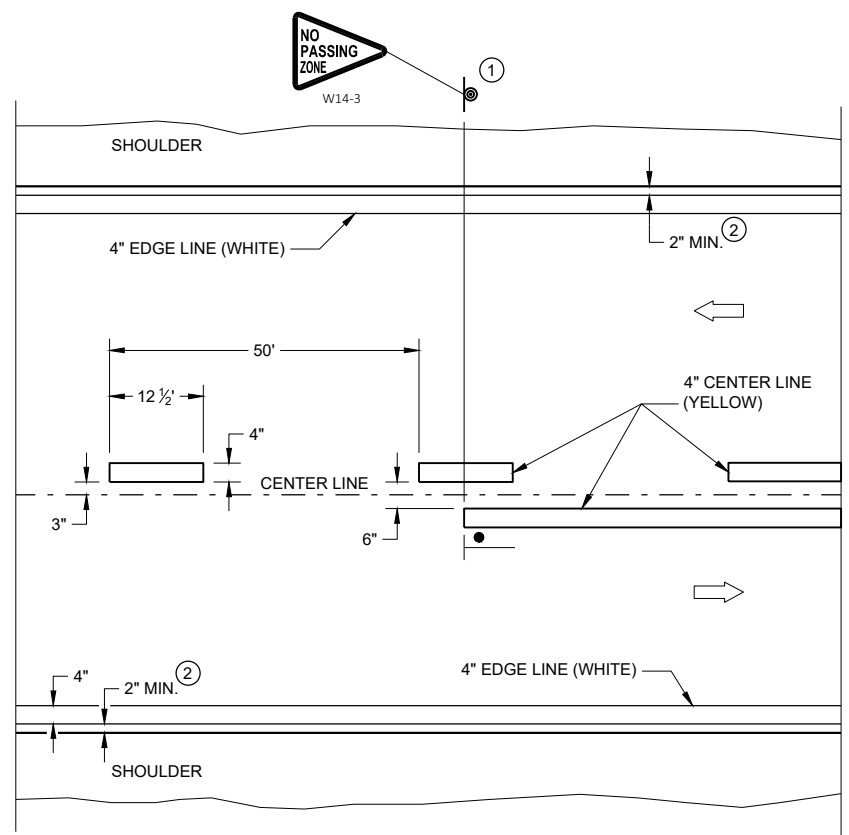
6

6

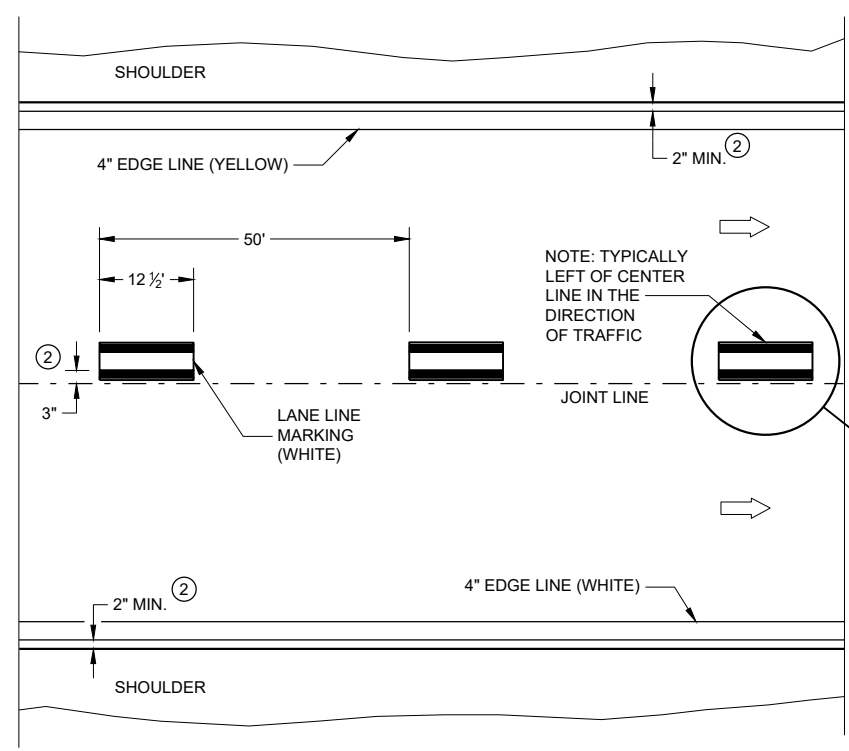
PAVEMENT MARKING FOR BIKE LANES

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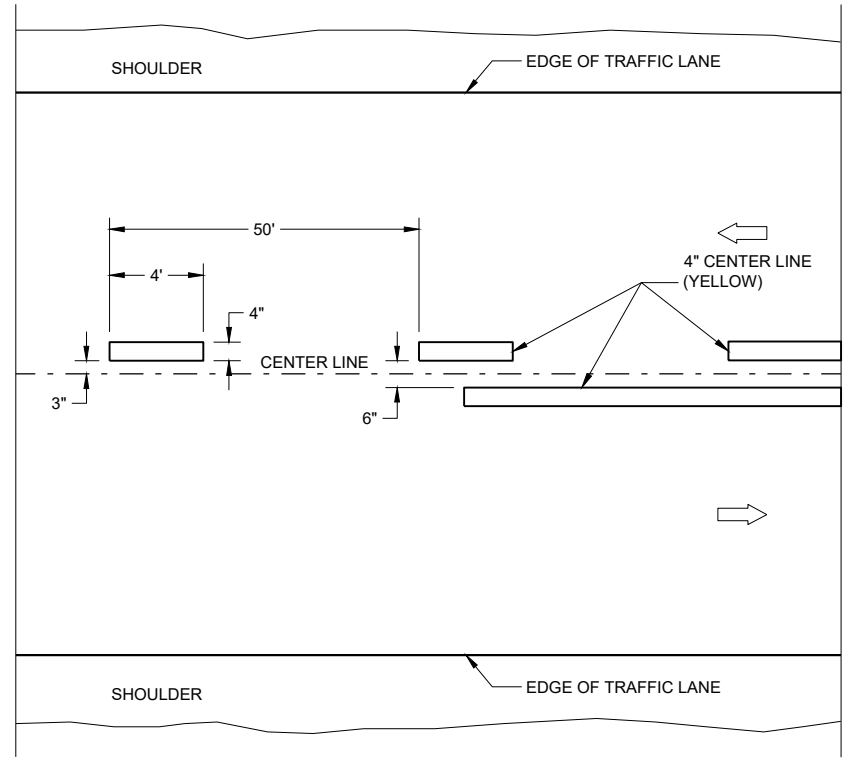


TWO WAY TRAFFIC

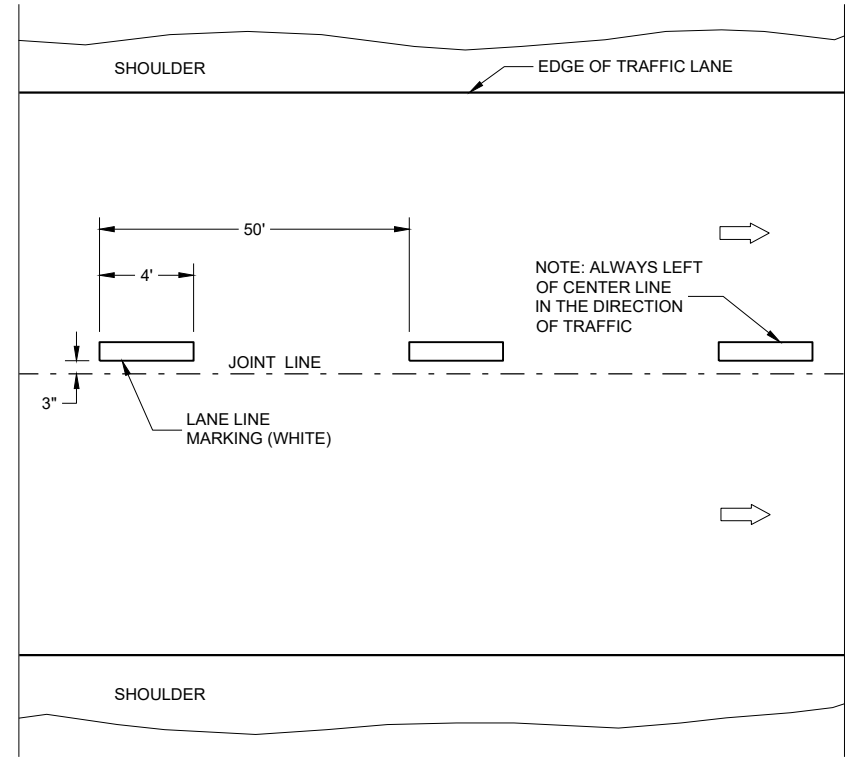


ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



TWO WAY TRAFFIC



ONE WAY TRAFFIC

TEMPORARY PAVEMENT MARKING

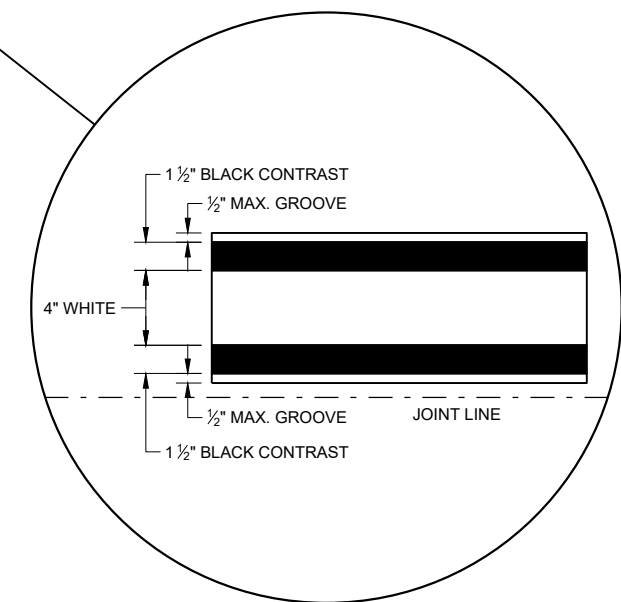
GENERAL NOTES

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

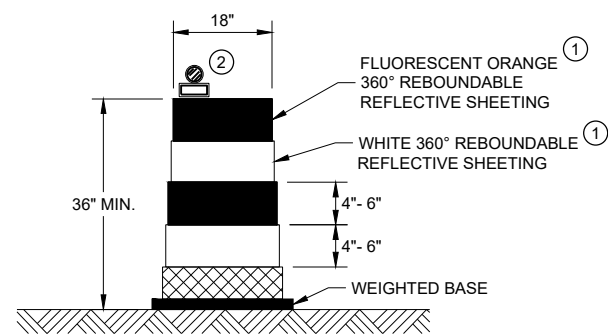
- "T" MARKING
- SIGN ON PERMANENT SUPPORT
- DIRECTION OF TRAFFIC



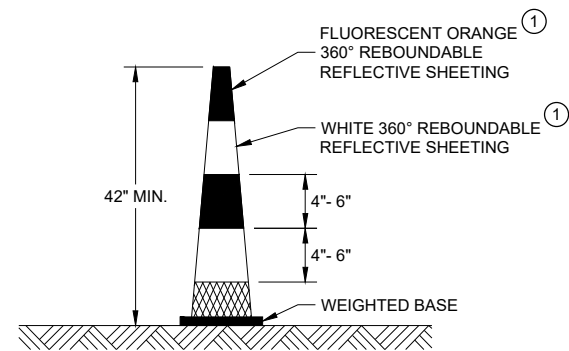
LONGITUDINAL MARKING (MAINLINE)

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DRUM

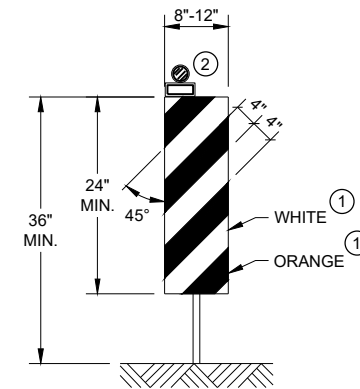


42" CONE

DO NOT USE IN TAPERS
1/2 SPACING OF DRUMS

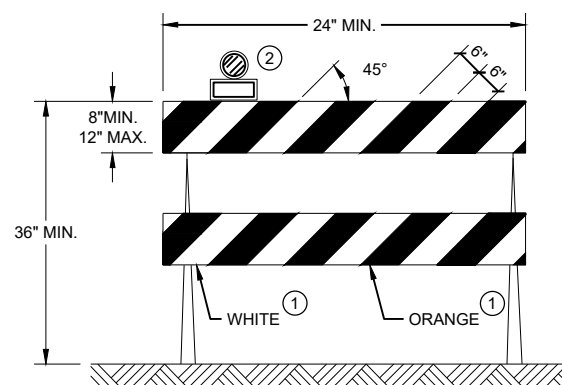
GENERAL NOTES

- 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.



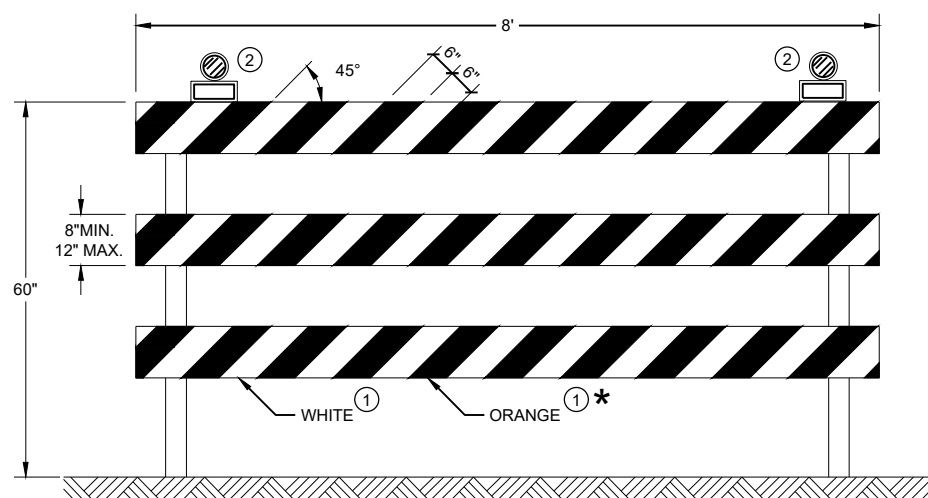
VERTICAL PANEL

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.

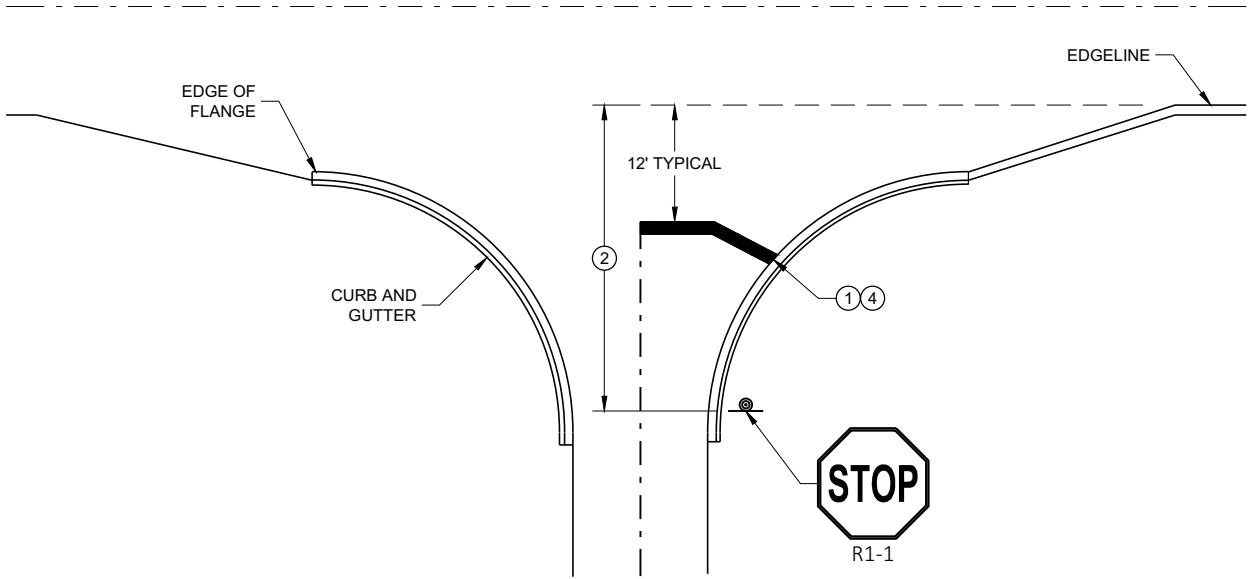
* IF USED FOR A PERMANENT APPLICATION USE RED SHEETING.

CHANNELIZING DEVICES DRUMS, CONES, BARRICADES AND VERTICAL PANELS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
<small>FHWA</small>	

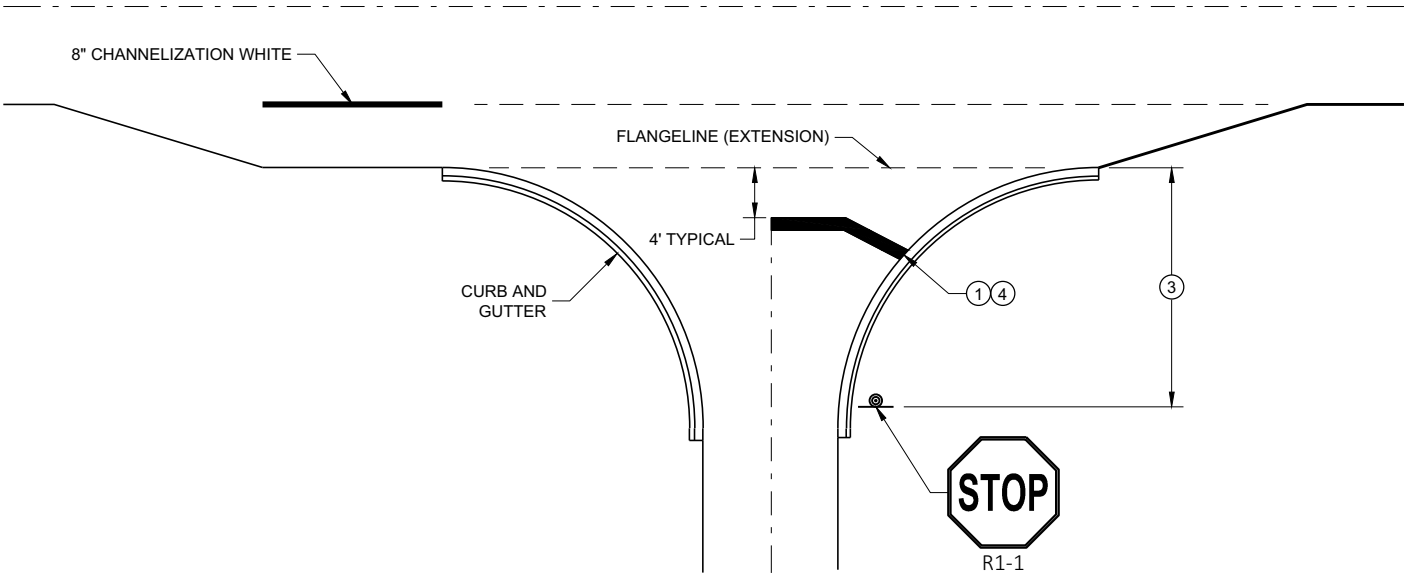
GENERAL NOTES

STOP SIGN SHALL BE PLACED A MINIMUM OF 6 FEET TO A MAXIMUM OF 50 FEET FROM THE EDGELINE LOCATION.

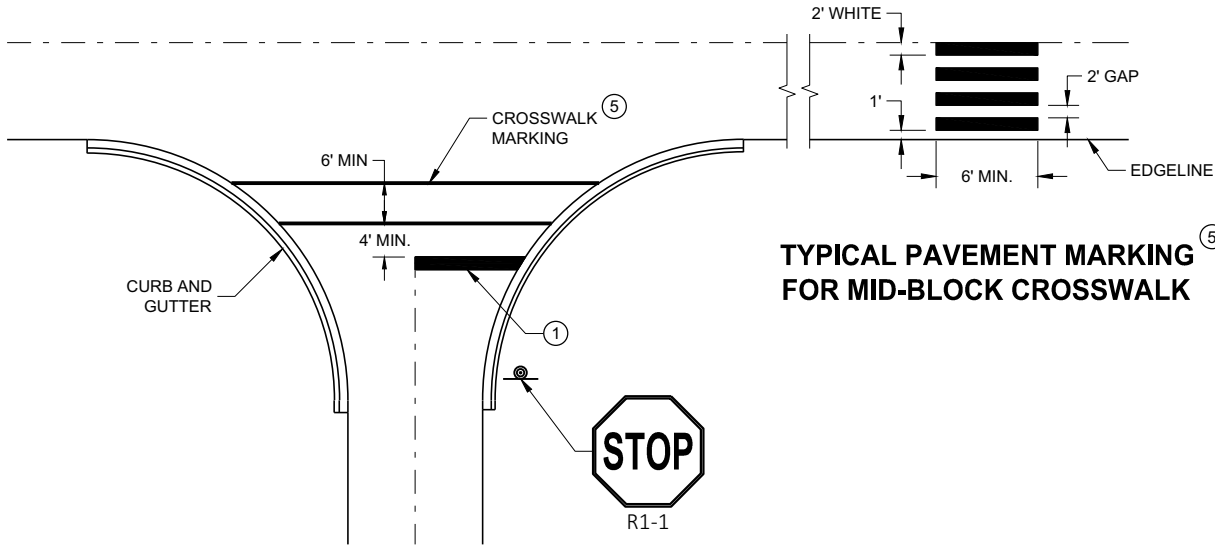
- ① 18-INCH STOP LINES MAY BE DELETED OR ADDED BY THE REGION MARKING ENGINEER BASED ON VISIBILITY AND SIGHT LINES.
- ② NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 40 FEET FROM THE EDGELINE.
- ③ NO STOP LINE IS REQUIRED IF STOP SIGN IS LESS THAN OR EQUAL TO 30 FEET FROM THE FLANGELINE EXTENSION.
- ④ MOVE CLOSER TO THE EDGE OF TRAVEL LINE AS NEEDED FOR VISIBILITY AND SIGHT LINES (NO CLOSER THAN 4 FEET).
- ⑤ LADDER BAR CROSSWALKS SHOULD ONLY BE USED FOR MID BLOCK CROSSINGS. USE 2 - 6" TRANSVERSE LINES INSTEAD.



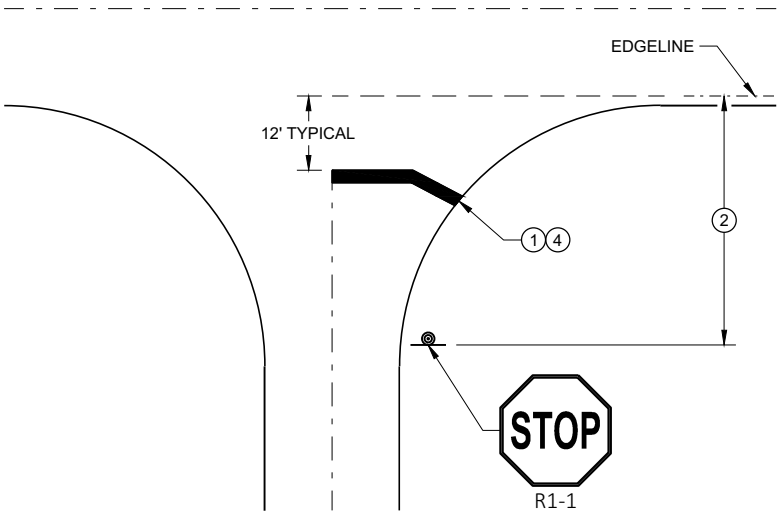
TYPICAL STOP LINE PAVEMENT MARKING WITH CURB AND GUTTER



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH RIGHT TURN LANE



TYPICAL STOP LINE PAVEMENT MARKING FOR SIDEROADS WITH CROSSWALK MARKING



TYPICAL STOP LINE PAVEMENT MARKING WITHOUT CURB AND GUTTER

TYPICAL PAVEMENT MARKING FOR MID-BLOCK CROSSWALK










STOP LINE AND CROSSWALK PAVEMENT MARKING

STATE OF WISCONSIN
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APPROVED
November 2019 /S/ Matthew Rauch
DATE STATE SIGNING AND MARKING ENGINEER

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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)
-  FLASHING ARROW BOARD
-  DIRECTION OF TRAFFIC
-  REMOVE PAVEMENT MARKING (SEE GENERAL NOTES)
-  WORK AREA

GENERAL NOTES

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

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

"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.

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

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 TO PROVIDE A MINIMUM OF 200 FEET (500' DESIRABLE) DISTANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE

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

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

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

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

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

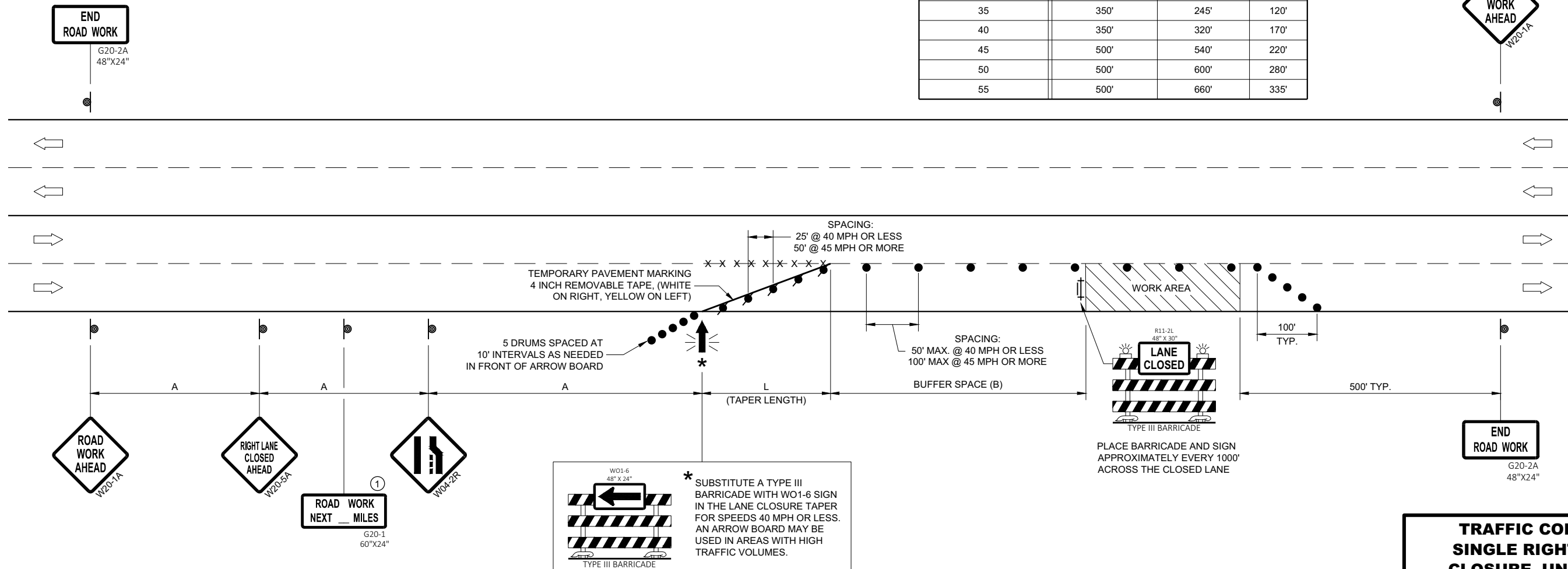
WARNING LIGHTS ARE NOT REQUIRED IF THE LANE CLOSURE IS A DAYTIME ONLY OPERATION.

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

POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	TAPER LENGTH (12 FT. LANE) (L) FEET	BUFFER SPACE (B) FEET
25	200'	125'	55'
30	200'	180'	85'
35	350'	245'	120'
40	350'	320'	170'
45	500'	540'	220'
50	500'	600'	280'
55	500'	660'	335'

6

6



**TRAFFIC CONTROL,
SINGLE RIGHT LANE
CLOSURE, UNDIVIDED
NON-FREEWAY/EXPRESSWAY**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION





APPROVED
May 2020 DATE /S/ Andrew Heidtke
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

FHWA

SDD 15D20 - 05b

SDD 15D20 - 05b

LEGEND

-  SIGN ON PERMANENT SUPPORT
-  TRAFFIC CONTROL DRUM
-  DIRECTION OF TRAFFIC
-  WORK ZONE

GENERAL NOTES

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

"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.

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

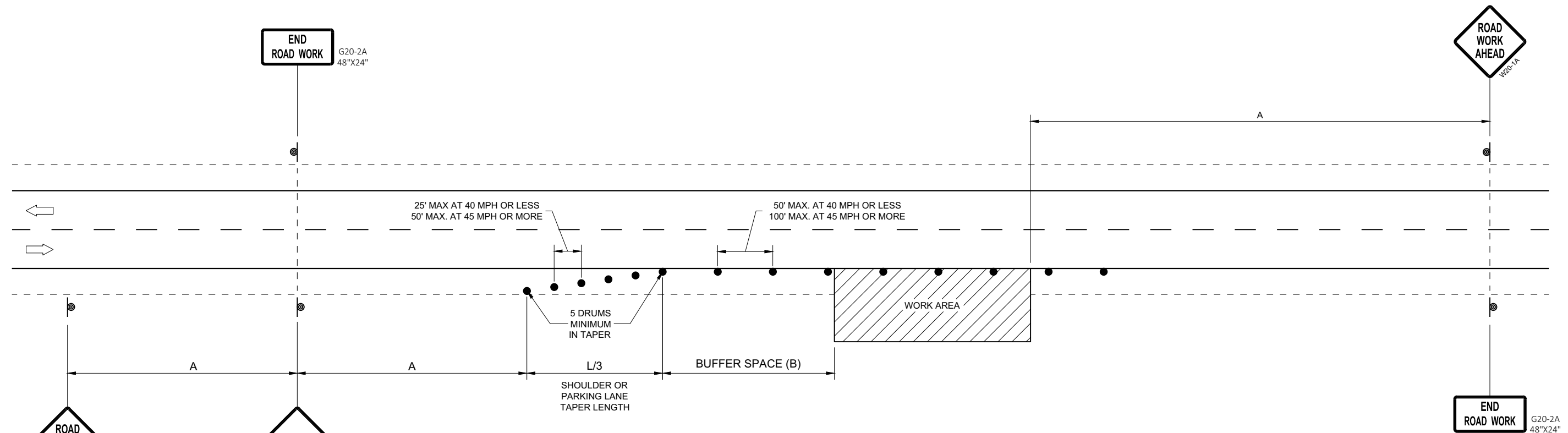
CHANNELIZING DEVICES PLACED ADJACENT TO WORK AREA SHALL BE PULLED BACK FROM THE TRAVEL LANE WHEN WORK IS NOT IN PROGRESS.

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

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

6

6



OR
IF TRAFFIC CONTROL DEVICES
ENCROACH ONTO TRAVELED WAY, USE



POSTED SPEED LIMIT PRIOR TO WORK STARTING (MPH)	ADVANCE WARNING SIGN SPACING (A) FEET	SHOULDER TAPER L / 3 W, LATERAL OFFSET (FT)						BUFFER SPACE (B) FEET
		3	4	5	6	7	8	
25	200'	10	14	17	21	24	28	55
30	200'	15	20	25	30	35	40	85
35	350'	20	27	34	40	47	54	120
40	350'	26	35	44	53	62	70	170
45	500'	45	59	74	89	104	119	220
50	500'	50	66	83	99	116	132	280
55	500'	54	73	91	109	127	145	335'

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

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
May 2020 /S/ Andrew Heidtke
DATE STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

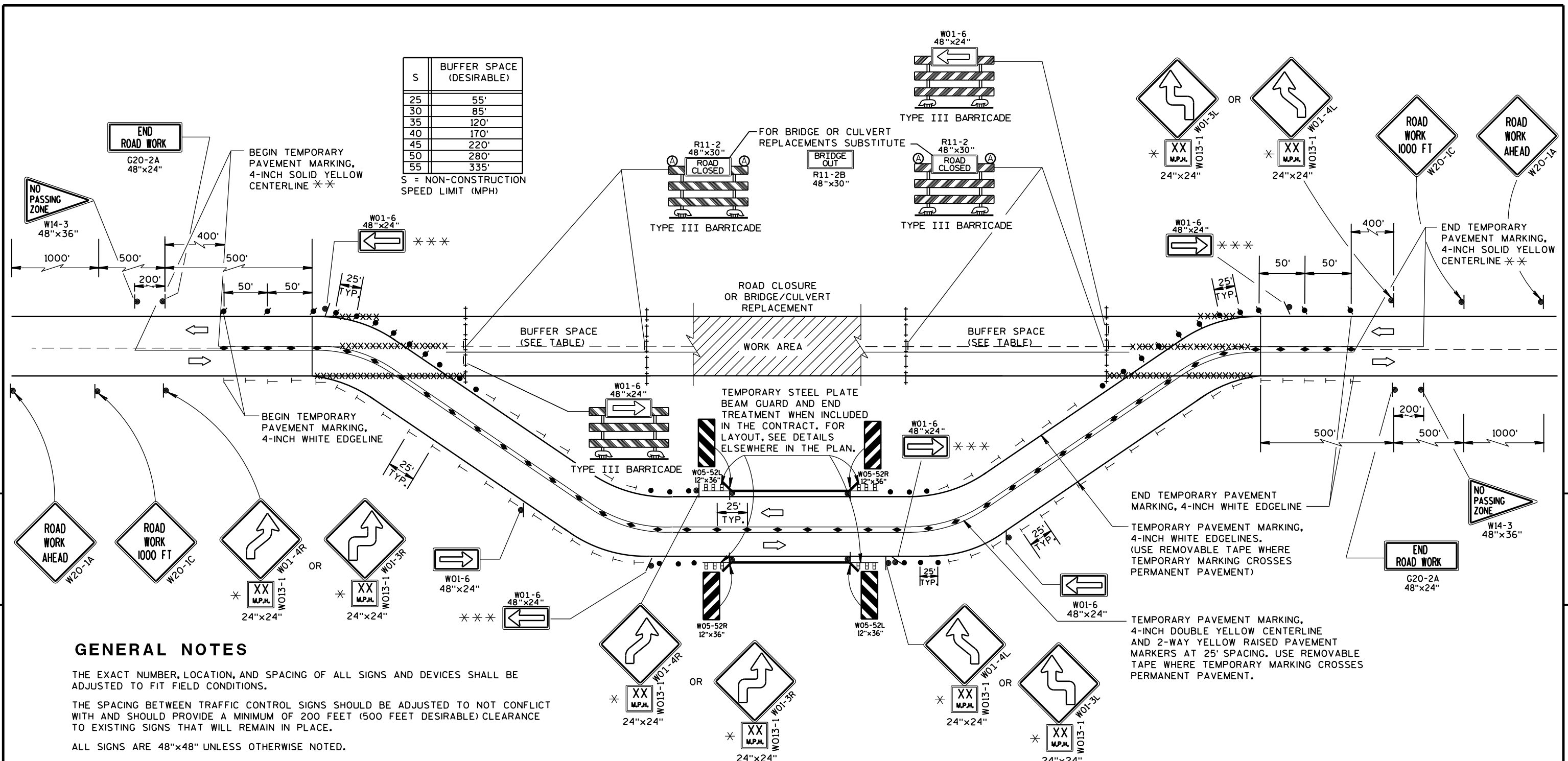
FHWA

SDD 15D28 - 04

SDD 15D28 - 04

S	BUFFER SPACE (DESIRABLE)
25	55'
30	85'
35	120'
40	170'
45	220'
50	280'
55	335'

S = NON-CONSTRUCTION SPEED LIMIT (MPH)



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"x48" UNLESS OTHERWISE NOTED.

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

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

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

EQUIPMENT, VEHICLES, OR MATERIAL SHOULD NOT BE STORED IN BUFFER SPACE.

* IF ADVISORY SPEED IS GREATER THAN 30 MPH, USE THE W01-4 SIGN. IF ADVISORY SPEED IS 30 MPH OR LESS, USE THE W01-3 SIGN.

** WHEN THE DISTANCE TO/FROM THE NEXT CLOSEST NO-PASSING ZONE IS LESS THAN THE MINIMUM DISTANCE BETWEEN ZONES AS INDICATED IN THE SPECIFICATIONS, THE TWO ZONES SHALL BE CONNECTED.

*** OMIT THESE W01-6 SIGNS IF THE ADVISORY SPEED OF THE CURVE IS GREATER THAN 30 MPH.

LEGEND

- SIGN ON PERMANENT SUPPORT
- ⦿ TRAFFIC CONTROL DRUM WITH TYPE "C" STEADY-BURN LIGHT
- TRAFFIC CONTROL DRUM
- ⊥ TYPE III BARRICADE
- ⊥ TYPE III BARRICADE WITH ATTACHED SIGN
- Ⓐ TYPE "A" WARNING LIGHT (FLASHING)
- TEMPORARY DELINEATOR, (WHITE) (SINGLE DELINEATOR)
- ◆ TEMPORARY RAISED PAVEMENT MARKERS (TWO-WAY YELLOW)
- XXX REMOVE PAVEMENT MARKING
- ➡ DIRECTION OF TRAFFIC
- ▬▬▬ TEMPORARY STEEL PLATE BEAM GUARD AND END TREATMENT
- ▨ WORK AREA

TRAFFIC CONTROL, TEMPORARY BYPASS ROADWAY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: Sept. 2015 /S/ Peter Amakobe Atepe
STATEWIDE WORK ZONE TRAFFIC SAFETY ENGINEER

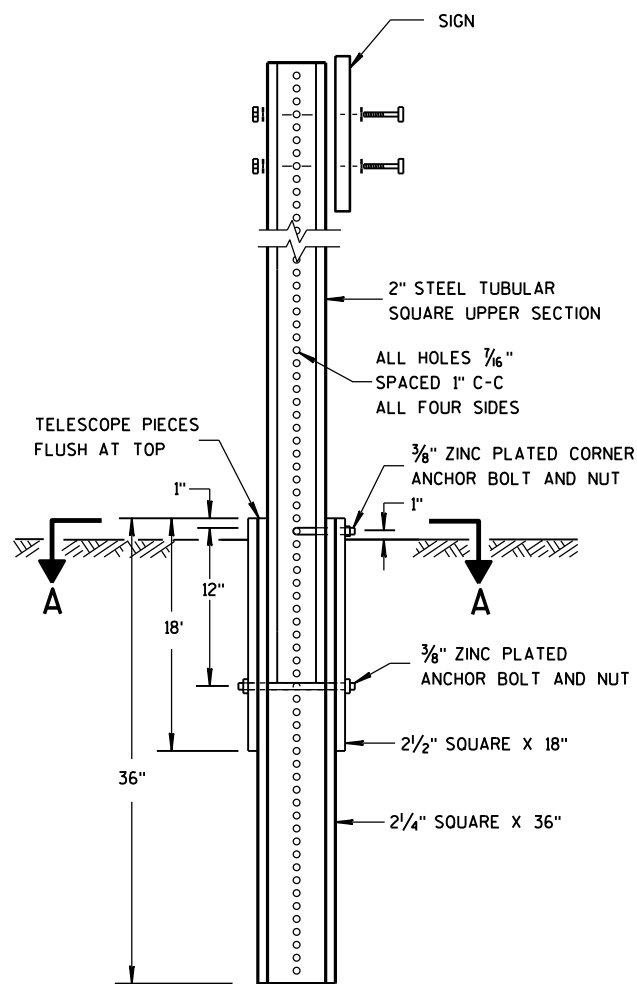
FHWA

6

6

S.D.D. 15 D 31-3

S.D.D. 15 D 31-3



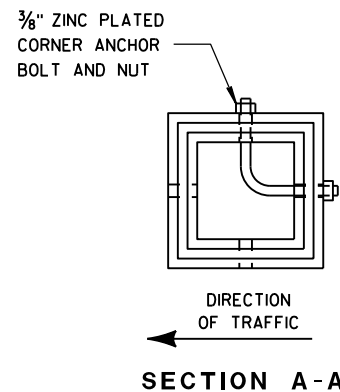
DETAIL OF TUBULAR STEEL SIGN POST

TUBULAR STEEL POSTS

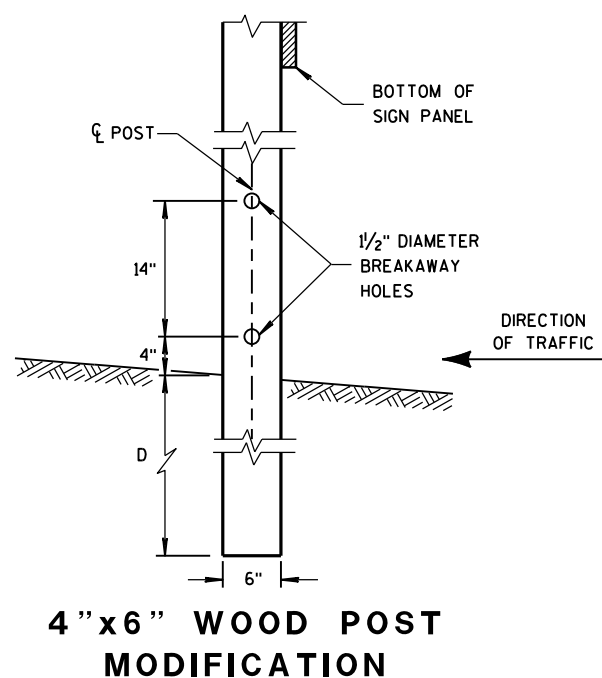
AREA OF SIGN INSTALLATION (SQ. FT.)	NUMBER OF REQUIRED TUBULAR STEEL POSTS
9 OR LESS	1
GREATER THAN 9 LESS THAN OR EQUAL TO 18	2
GREATER THAN 18 LESS THAN OR EQUAL TO 27	3

SIGNS WIDER THAN 3 FEET OR LARGER THAN 9 SQ. FT. SHALL BE MOUNTED ON MULTIPLE POSTS (SEE ABOVE TABLE).

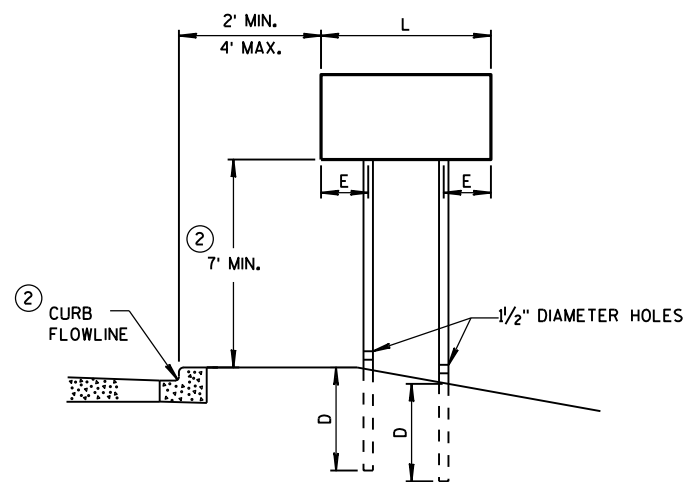
SIGNS LARGER THAN 27 SQ. FT. SHALL NOT BE MOUNTED ON TUBULAR STEEL POSTS.



SECTION A-A



4" X 6" WOOD POST MODIFICATION

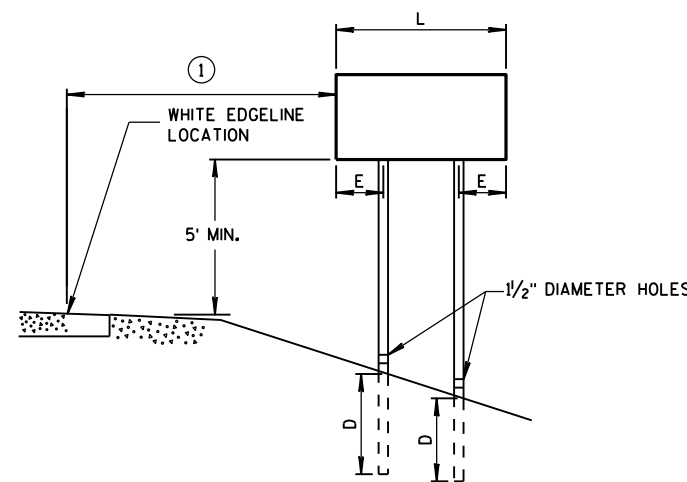


URBAN AREA

POST MOUNTING DETAIL FOR TEMPORARY TRAFFIC CONTROL FIXED MESSAGE SIGNS

WOOD POST EMBEDMENT DEPTH

AREA OF SIGN INSTALLATION (SQ. FT.)	D (MIN)
20 OR LESS	4'
GREATER THAN 20	5'



RURAL AREA

POST SPACING REQUIREMENTS		NUMBER OF WOOD POSTS REQUIRED
L	E	
48" OR LESS AND LESS THAN 20 SQ. FT.	-	1
LESS THAN 60"	12"	2
60" TO 120"	L/5	2
GREATER THAN 120" LESS THAN 168"	12"	3
168" AND GREATER	12"	4

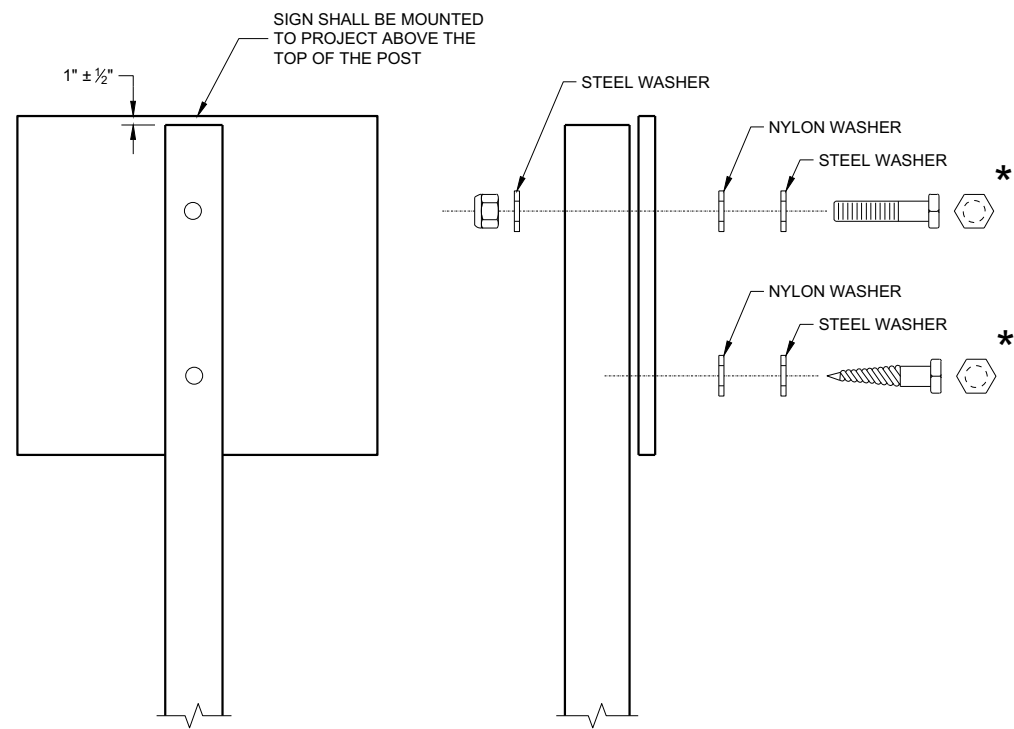
SEE NOTE ③

GENERAL NOTES

- ① 6 FEET FROM THE EDGE OF PAVEMENT (EDGE LINE LOCATION) UNLESS OTHERWISE DIRECTED BY THE PROJECT ENGINEER. LATERAL OFFSET SHOULD BE ADJUSTED TO AVOID THE DITCH FLOWLINE.
- ② THE EXISTENCE OF CURB AND GUTTER DOES NOT IN ITSELF MANDATE THE VERTICAL CLEARANCE ILLUSTRATED. THAT HEIGHT IS TYPICALLY MEASURED WHERE THERE IS SIDEWALK ADJACENT TO THE ROADWAY OR PARKING IS PERMITTED. IN THE ABSENCE OF SIDEWALK, VERTICAL CLEARANCE IS MEASURED FROM THE TOP OF THE CURB. IF NO SIDEWALK AND NO PARKING, VERTICAL CLEARANCE MAY BE REDUCED TO 5 FOOT MINIMUM. OFFSET OF SIGNS IS MEASURED FROM THE CURB FLOWLINE.
- ③ FOR SIGNS REQUIRING 4 POSTS, SPACE INTERMEDIATE POSTS EVENLY.

TEMPORARY TRAFFIC CONTROL SIGN MOUNTING

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



NUTS, BOLTS AND LAGS USED FOR MOUNTING SIGNS SHALL HAVE HEXAGONAL HEADS AND SHALL BE EITHER:

- A. HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: A 153, CLASS D, OR SC 3
- B. ELECTRO-GALVANIZED IN ACCORDANCE WITH ASTM DESIGNATION: B 633, TYPE III, SC 3

THREADS ON BOLTS AND NUTS SHALL BE MANUFACTURED WITH SUFFICIENT ALLOWANCE FOR THE CADMIUM PLATE OR GALVANIZED COATING TO PERMIT THE NUTS TO RUN FREELY ON THE BOLTS.

WOOD POST (4" x 6")
 LAG SCREWS - 3/8" x 3"
 MACHINE BOLTS - 5/16" x 6 1/2" OR 7" LENGTH W/NUTS

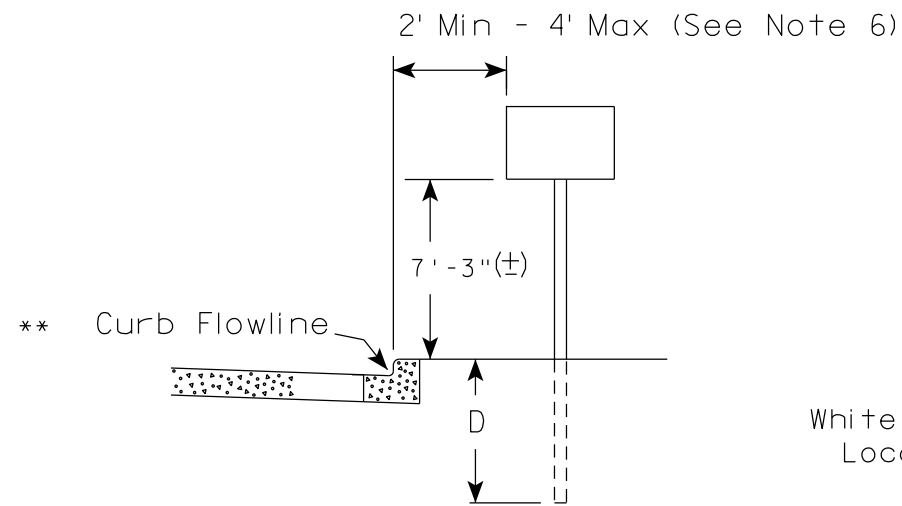
SQUARE STEEL POST (2" x 2")
 MACHINE BOLTS - 3/8" x 3 1/4" LENGTH W/NUTS
 RIVETS - 3/32" (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM
 BODY/MANDREL O.D. FLANGE 0.720 - 0.765 INCH,
 GRIP RANGE 0.042 - 0.375 INCH

WASHERS (ALL POSTS) -
 1 1/4" O.D. x 3/8" I.D. x 1/16" STEEL
 1 1/4" O.D. x 3/8" I.D. x 0.080 NYLON

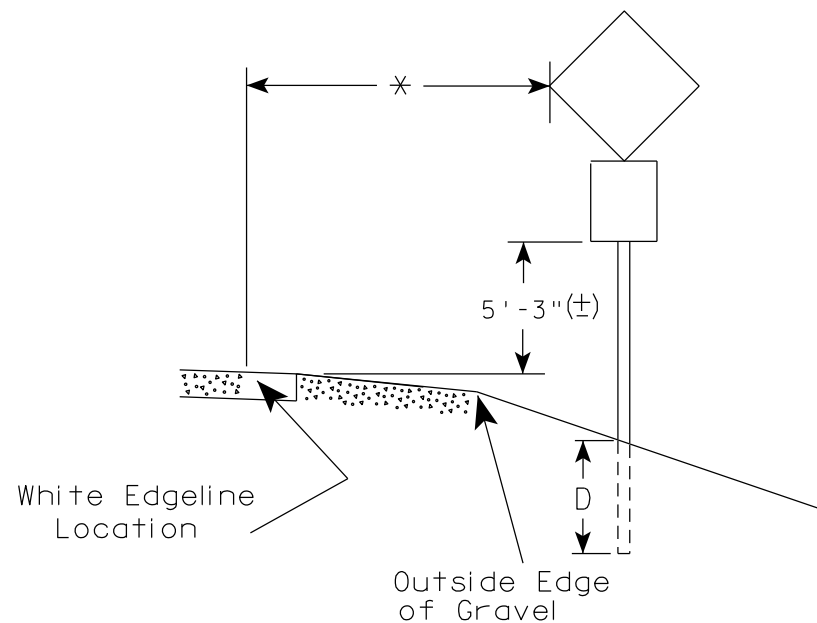
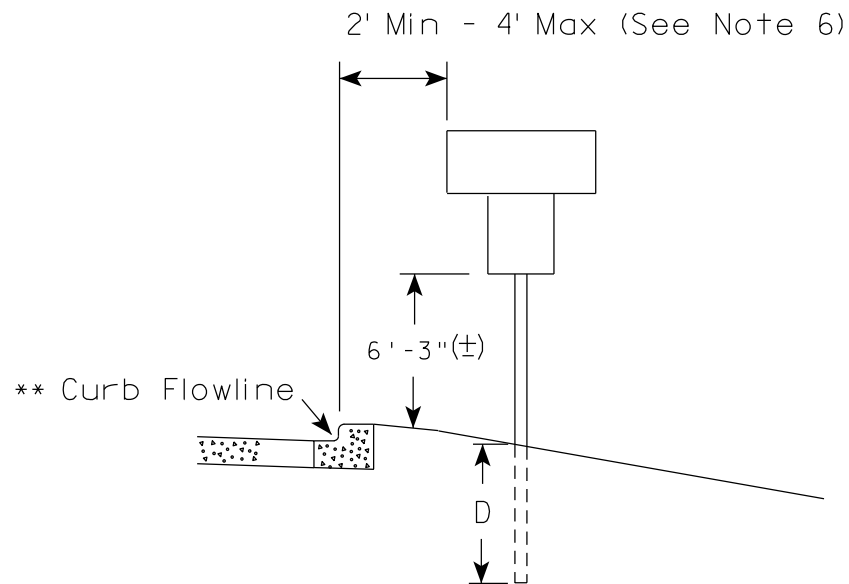
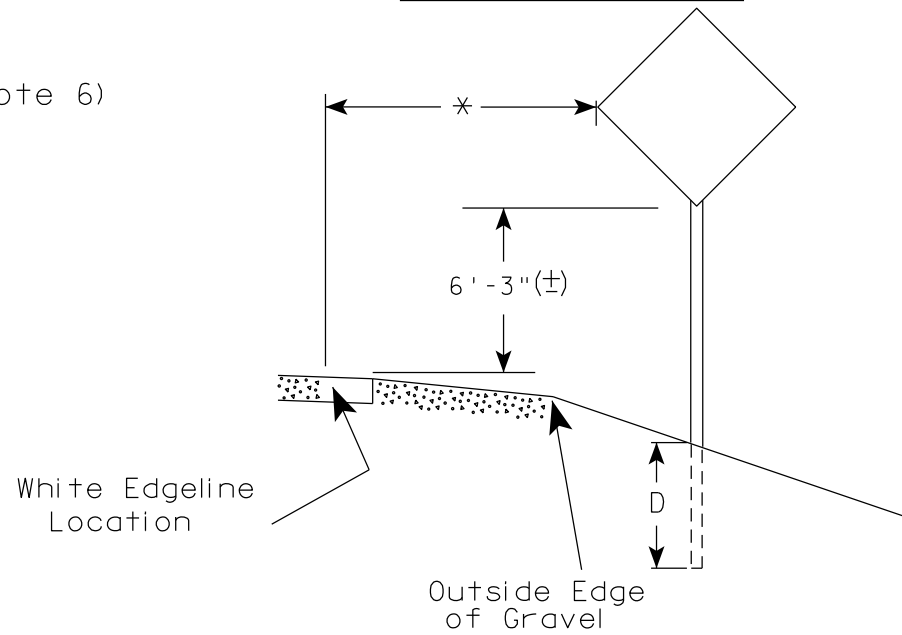
* TWO DIFFERENT FASTENING SYSTEMS ARE SHOWN FOR ILLUSTRATION PURPOSES. ON ANY INDIVIDUAL SIGN, EITHER ONE OR THE OTHER SYSTEM SHALL BE USED. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA. FOR A SINGLE POST INSTALLATION, ALL SIGNS GREATER THAN 9 SQ. FT. REQUIRE THE USE OF 3 FASTENERS.

ATTACHMENT OF SIGNS TO POSTS	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED June 2017 DATE	/S/ Andrew Heidtke WORK ZONE ENGINEER
FHWA	

URBAN AREA



RURAL AREA (See Note 2)



POST EMBEDMENT DEPTH

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

GENERAL NOTES

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

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

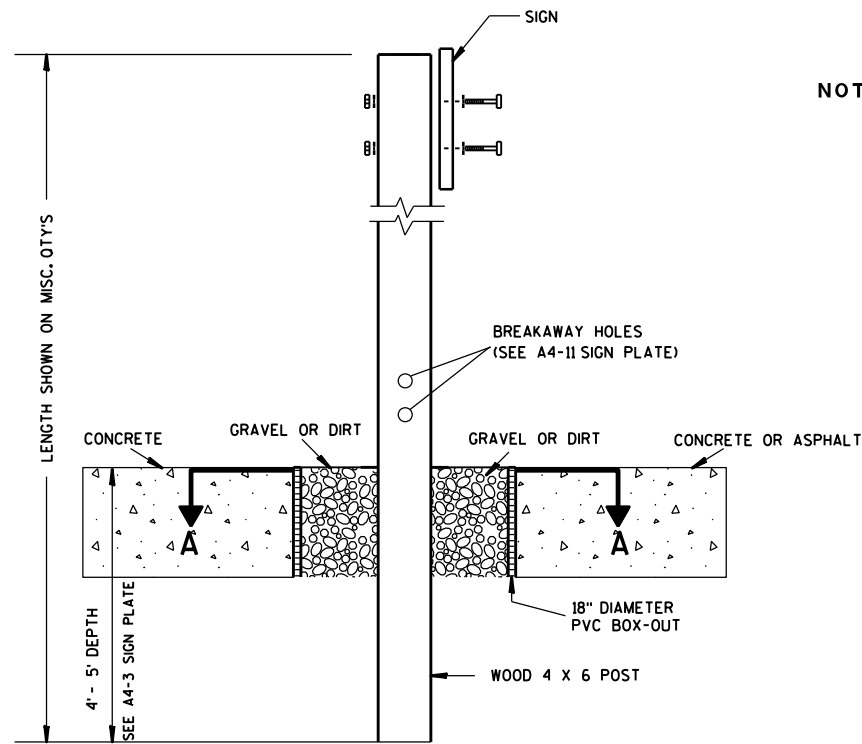
* 6 feet from edge of a paved shoulder or 12 feet from the edge of pavement (edge line location) or 2 feet from outside edge of gravel, whichever is greater unless directed by project engineer.

TYPICAL INSTALLATION OF PERMANENT TYPE II SIGNS ON SINGLE POSTS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

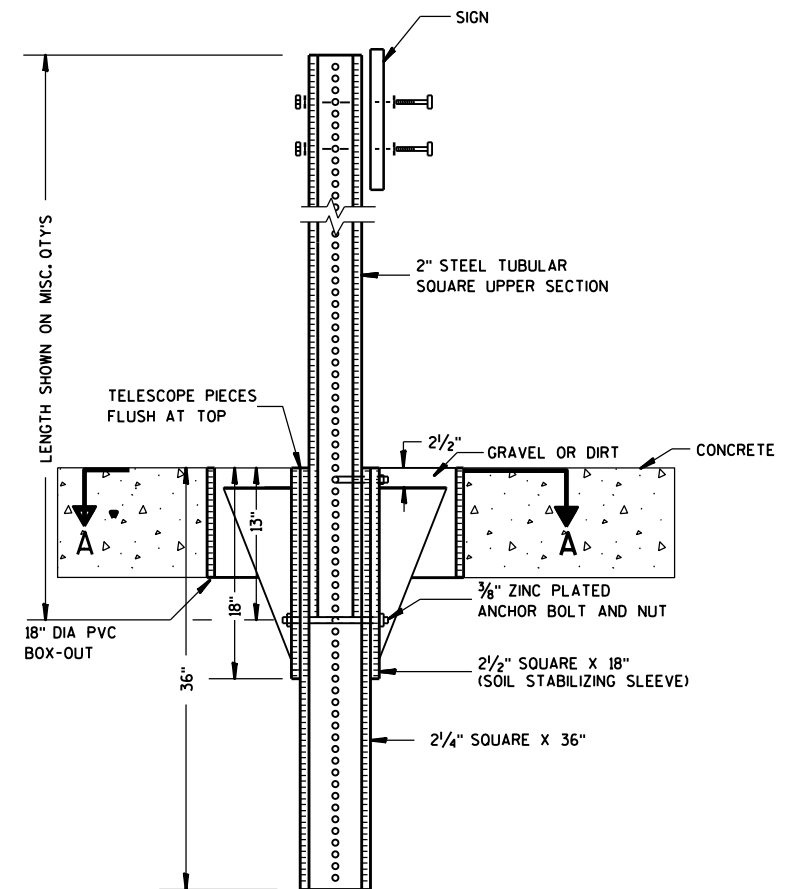
DATE 5/13/2020 PLATE NO. A4-3.22



ELEVATION VIEW

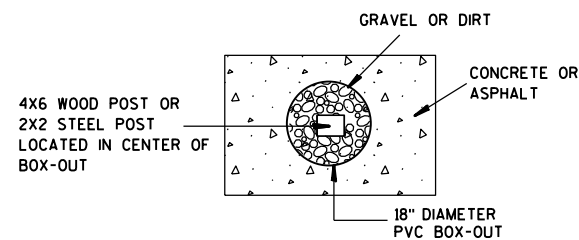
DETAIL OF WOOD 4 X 6 SIGN POST IN BOX-OUT

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



ELEVATION VIEW

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



PLAN VIEW

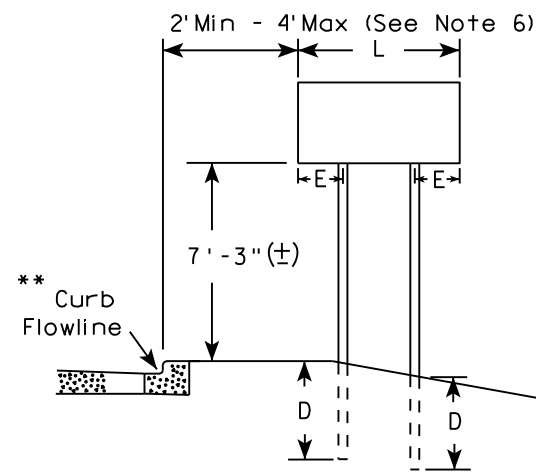
FOR NEW CONCRETE/ ASPHALT INSTALLATIONS

SIGN POST BOX-OUTS A4-3B	
<small>WISCONSIN DEPT OF TRANSPORTATION</small>	
APPROVED <i>Matthew R. Rauch</i> <small>for State Traffic Engineer</small>	
<small>DATE 1/27/14</small>	<small>PLATE NO. A4-3B.1</small>

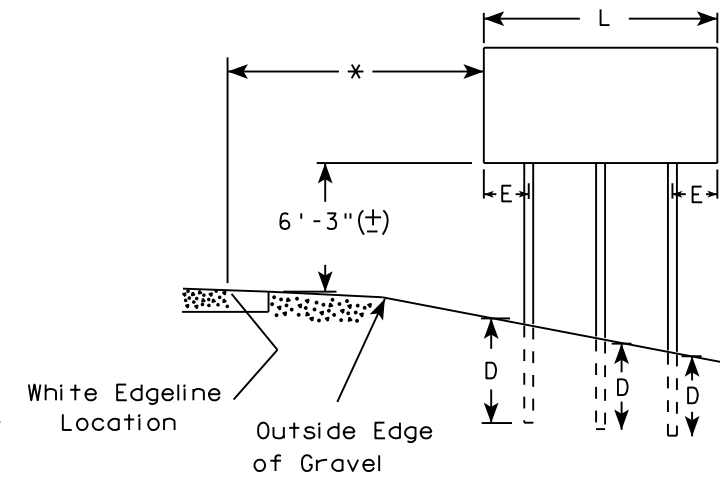
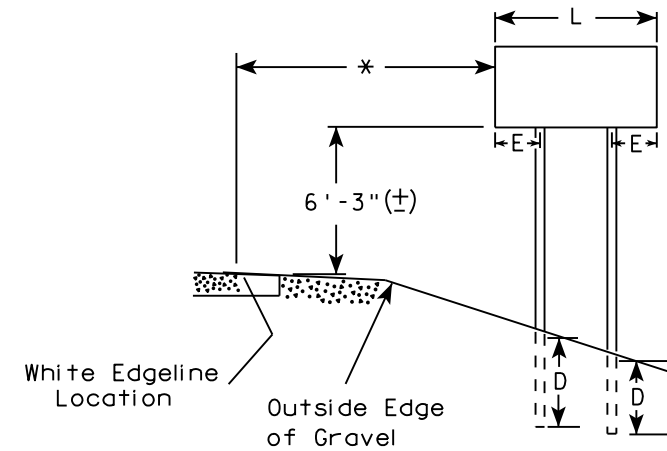
GENERAL NOTES

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

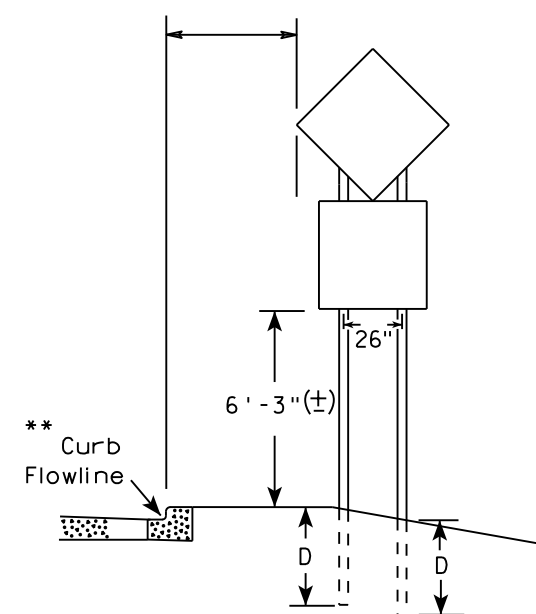
URBAN AREA



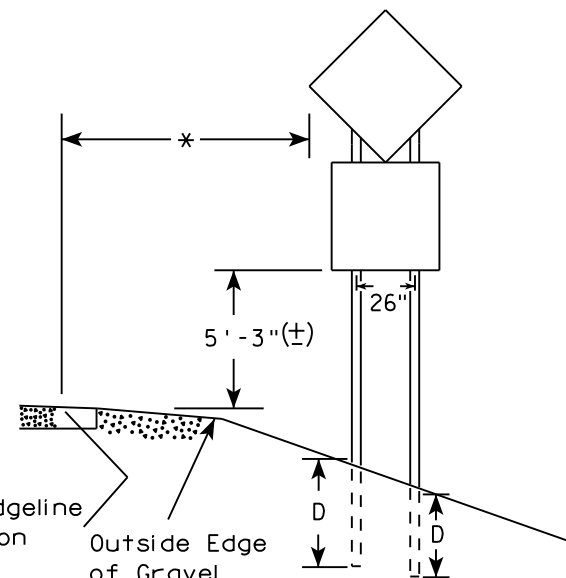
RURAL AREA (See Note 3)



2' Min - 4' Max (See Note 6)



48" DIAMOND WARNING SIGN



48" DIAMOND WARNING SIGN

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

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

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

SIGN SHAPE OTHER THAN DIAMOND (TWO POSTS REQUIRED)	
L	E
Greater than 48" Less than 60"	12"
60" to 108"	L/5

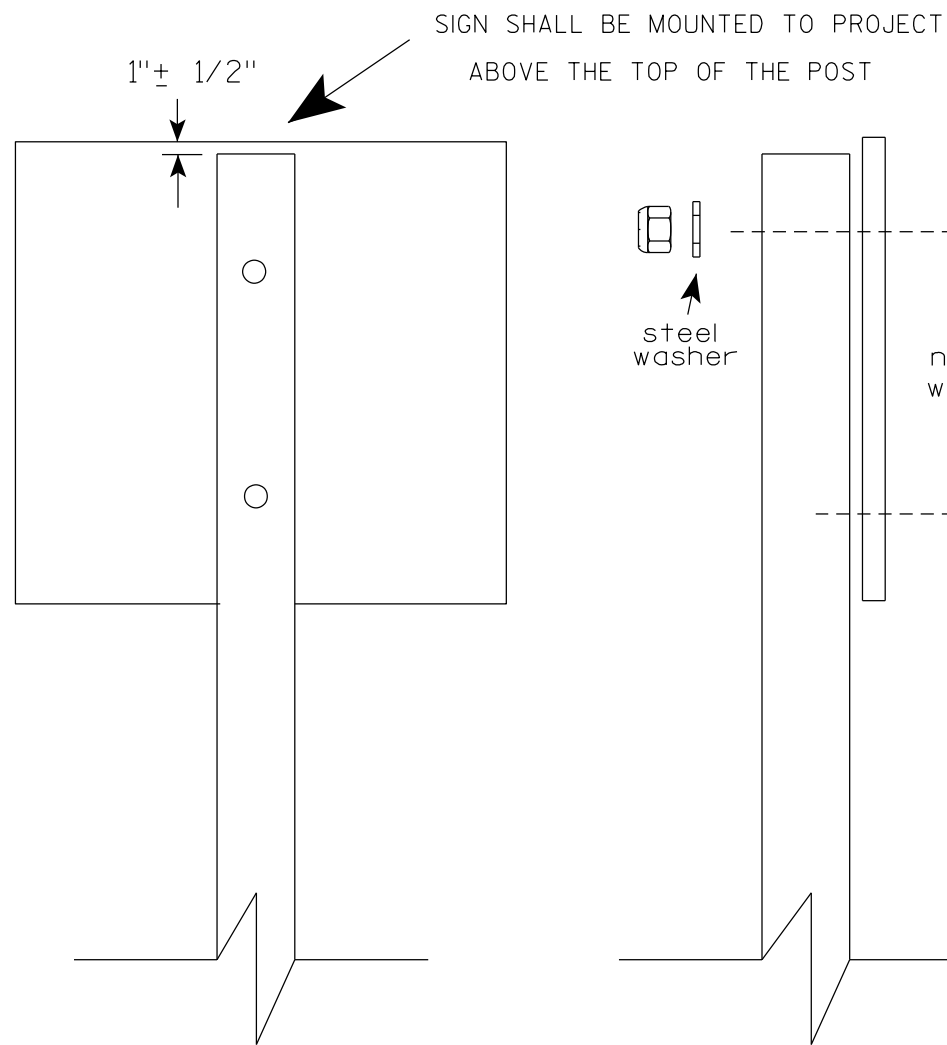
SIGN SHAPE OTHER THAN DIAMOND (THREE POSTS REQUIRED)	
L	E
Greater than 108" to 144"	12"

POST EMBEDMENT DEPTH

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

TYPICAL INSTALLATION OF TYPE II SIGNS ON MULTIPLE POSTS

WISCONSIN DEPT OF TRANSPORTATION
 APPROVED *Matthew R. Rauch*
 For State Traffic Engineer
 DATE 8/21/17 PLATE NO. A4-4.15



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

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

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

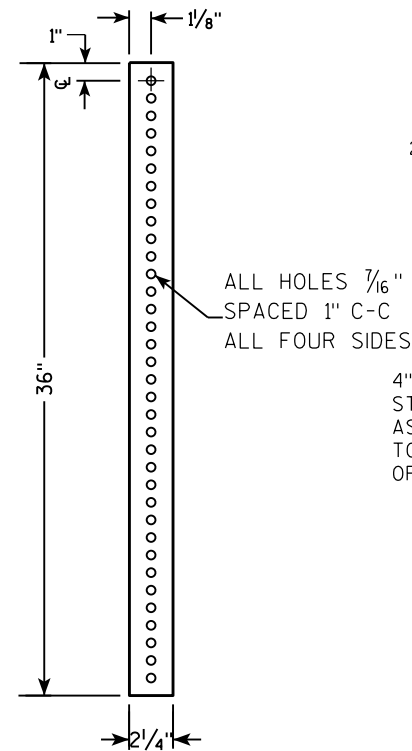
- STRINGER BOLTING TO ALUMINUM SIGNS (SEE SIGN PLATE A4-18)
- MACHINE BOLTS - $\frac{5}{16}$ " X 1-3/4" Length w/ lock nuts
- WOOD POSTS (4" x 6")
- LAG SCREWS - $\frac{3}{8}$ " X 3" (NO STRINGERS ON BACK OF SIGN)
 $\frac{3}{8}$ " X 4" (STRINGERS ON BACK OF SIGN)
- SQUARE STEEL POSTS (2" x 2")
- MACHINE BOLTS - $\frac{3}{8}$ " X 3-1/4" Length w/ nuts (NO STRINGER ON BACK OF SIGN)
 $\frac{3}{8}$ " X 5" Length w/ nuts (STRINGERS ON BACK OF SIGN)
- RIVETS - $\frac{9}{32}$ " (6605-9-6) BULB-TITE, TRI-FOLD, ALUMINUM BODY/MANDREL
 O.D. FLANGE .720-.765 INCH, GRIP RANGE .042-.375 INCH
- WASHERS (ALL POSTS) -
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X $\frac{1}{16}$ " STEEL
- 1-1/4" O.D. X $\frac{3}{8}$ " I.D. X .080 NYLON

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

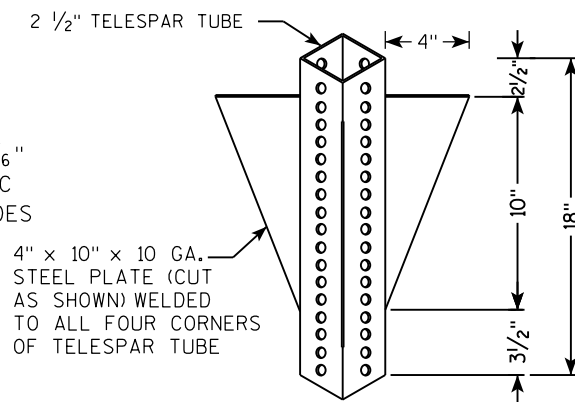
ATTACHMENT OF SIGNS TO POSTS	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> For State Traffic Engineer
DATE 4/1/2020	PLATE NO. A4-8.9

**TELESCOPIC TUBING ANCHORS
TWO PIECE SYSTEM**

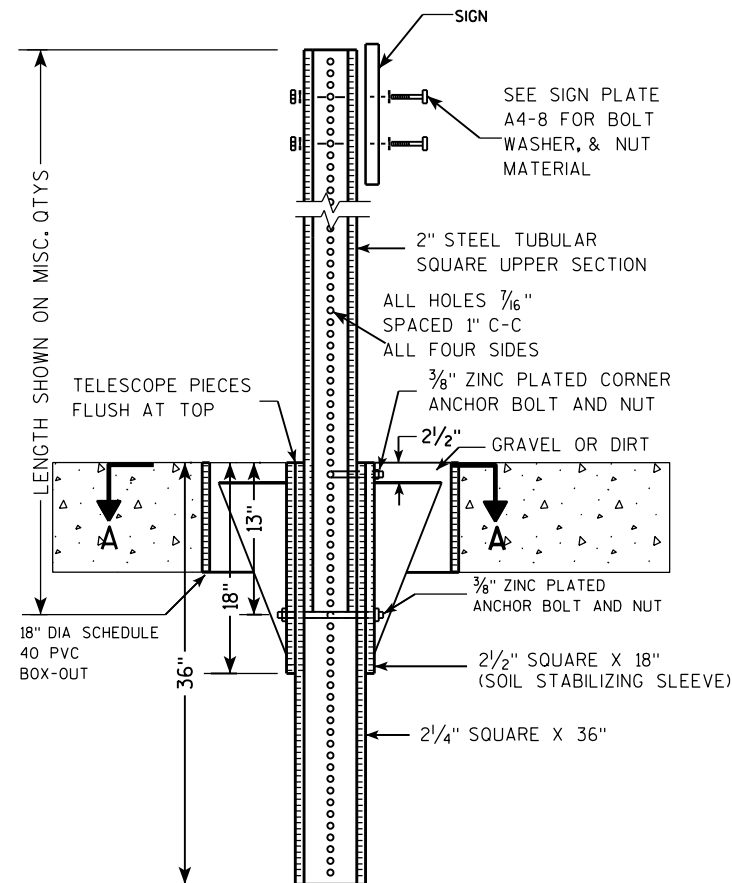
2 1/4" SQUARE
12 GAUGE
PERFORATED
GALVANIZED FINISH



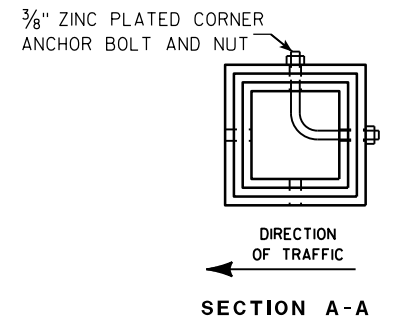
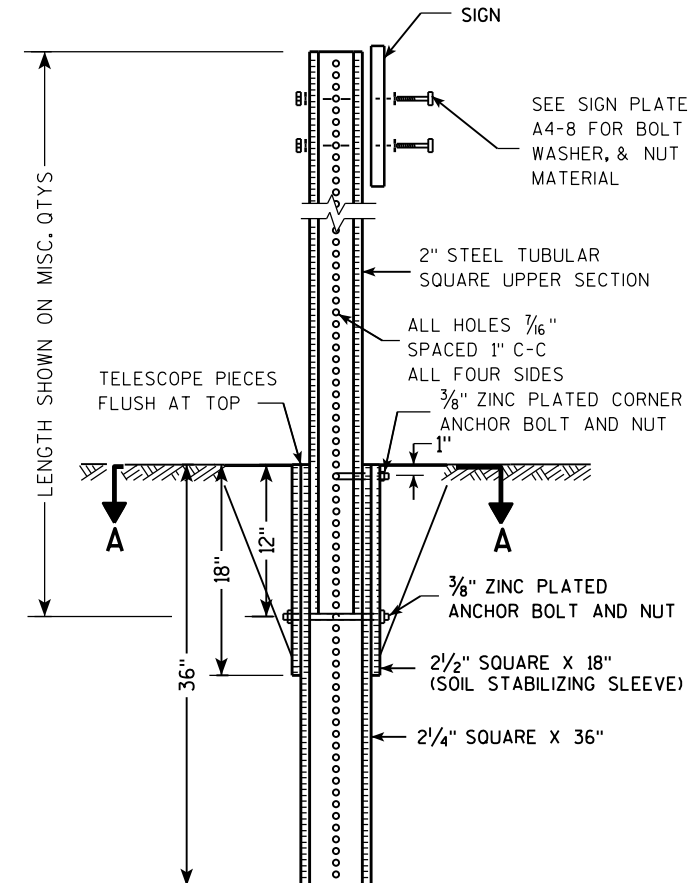
2 1/2" SQUARE
12 GAUGE
OMNI-DIRECTIONAL
PERFORATED
SOIL STABILIZING SLEEVE
GALVANIZED FINISH



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



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



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

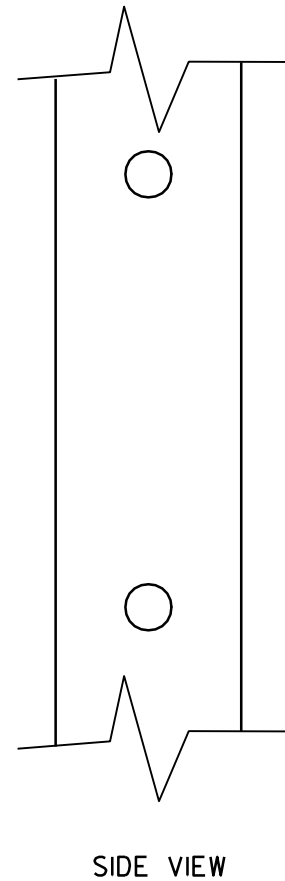
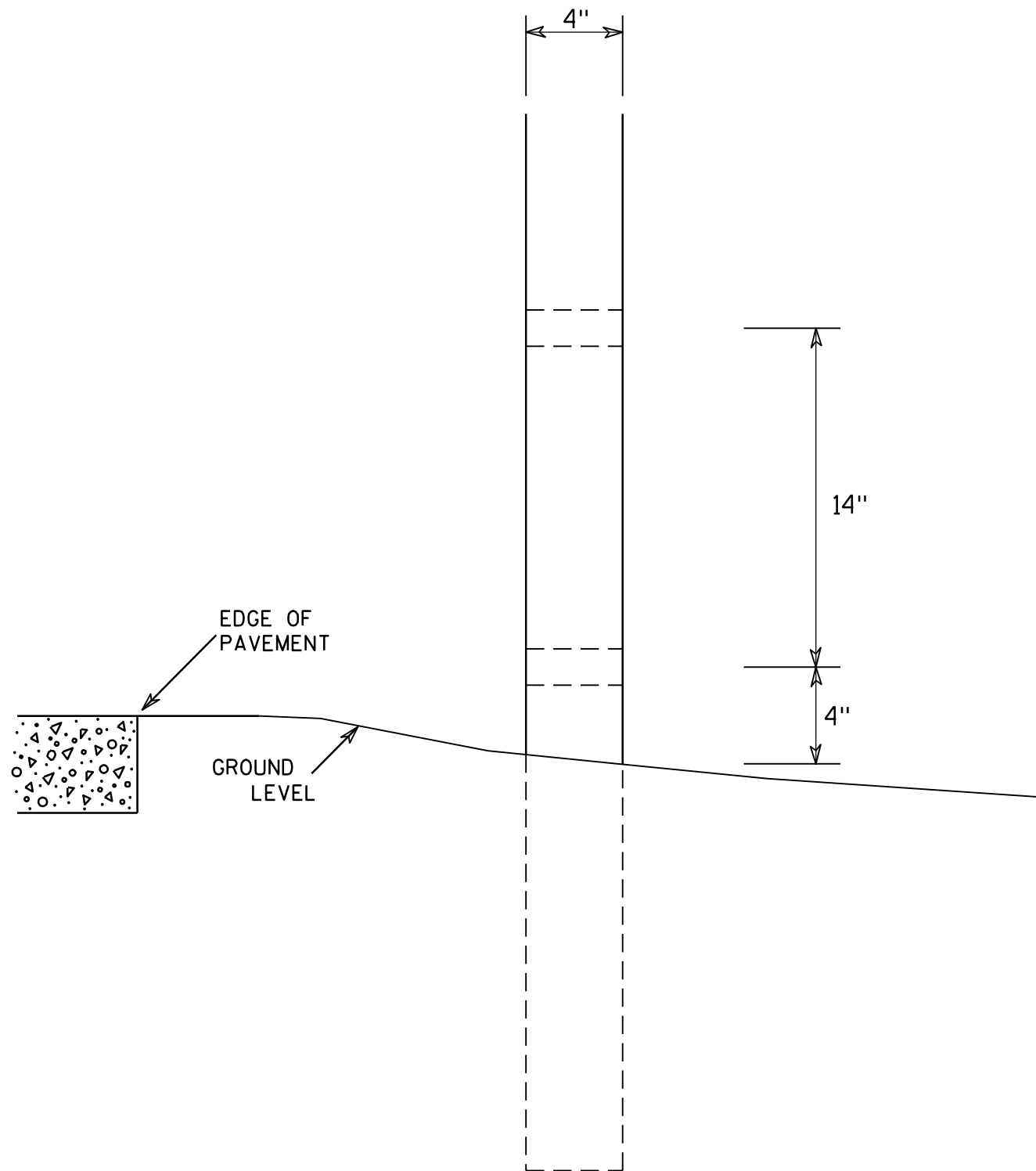
Signs wider than 3 feet or larger than 9 sq. ft shall be mounted on multiple posts (see above table).

**TUBULAR STEEL
SIGN POST
A4-9**

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
for State Traffic Engineer

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



GENERAL NOTES

1. All 4 x 6 Wood Posts shall be modified by having two 1½" diameter holes drilled perpendicular to the roadway centerline.

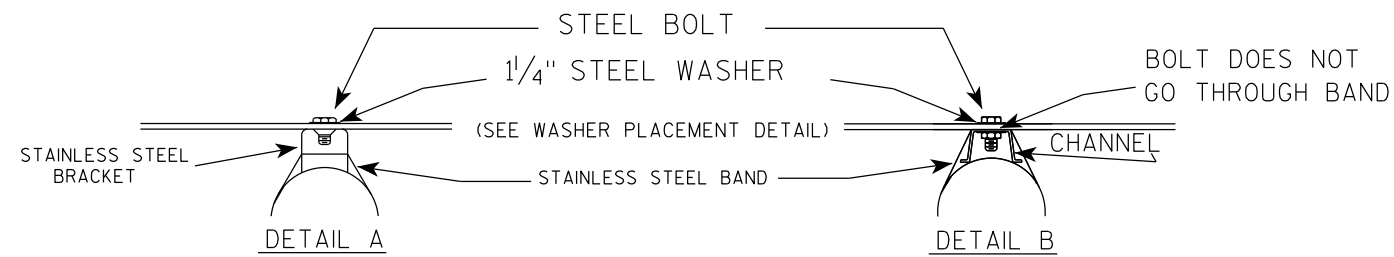
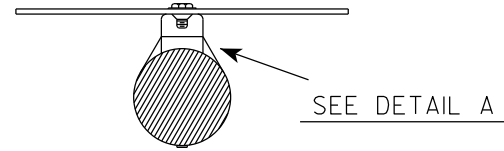
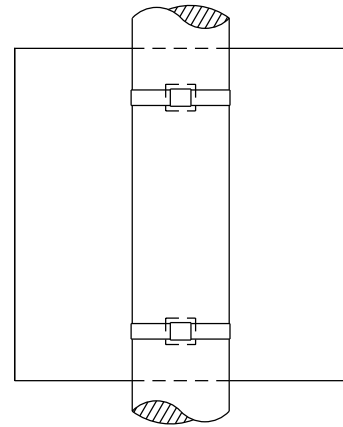
7

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4 X 6 WOOD POST MODIFICATIONS	
<i>WISCONSIN DEPT OF TRANSPORTATION</i>	
APPROVED	<i>Chester J Spang</i> for State Traffic Engineer
DATE 3/27/97	PLATE NO. A4-11.2

BANDING

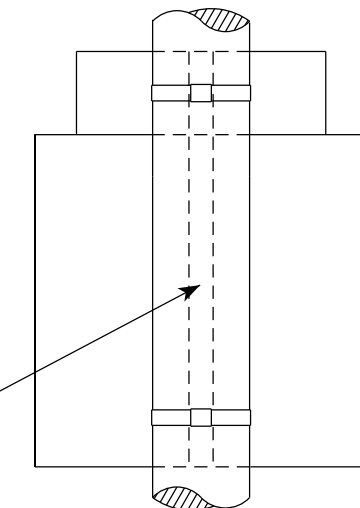
SINGLE SIGN



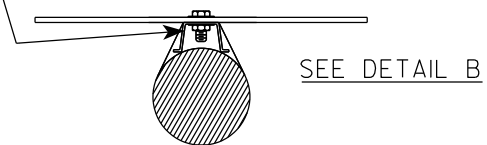
GENERAL NOTES

1. Any sign over 3 feet in width shall use the V-Block banding method. See A5-10 standard plate.
2. Signs 3 feet or greater in height shall have three bracket bands installed. Signs less than 3 feet in height shall have two bracket bands installed.
3. Banding and assembly bracket shall be stainless steel. All bands shall be 3/4" in width and 0.025" thickness.
4. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM designation: B 633, Type III, SC 3

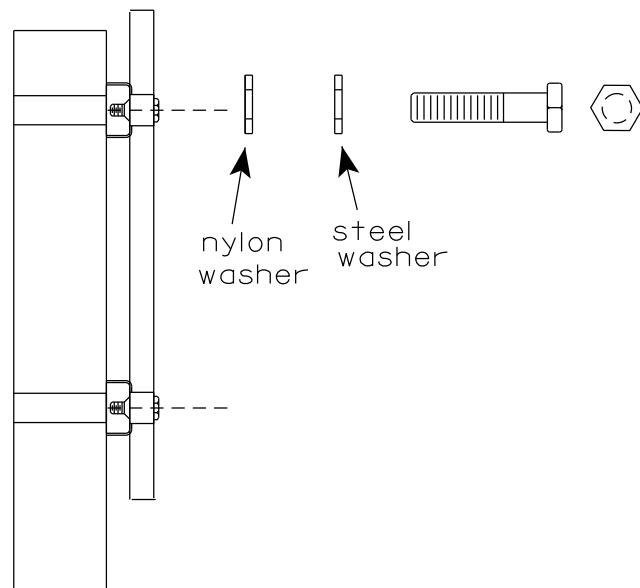
"J" ASSEMBLY



CHANNEL
SEE TYPICAL PANEL
INSTALLATION SHEET



WASHER PLACEMENT



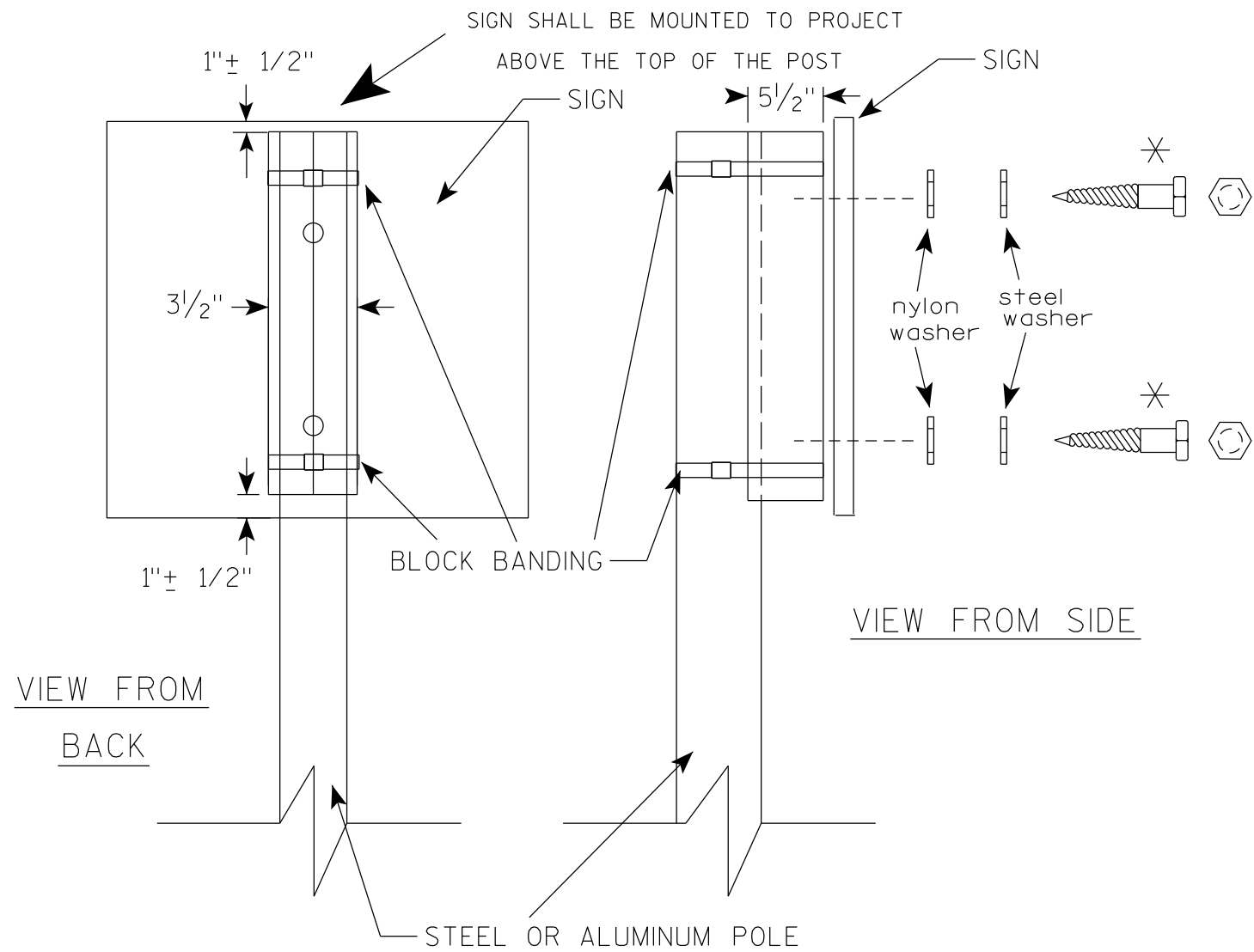
WASHERS (ALL POSTS) -
1-1/4" O.D. X 3/8" I.D. X 1/16" STEEL
1-1/4" O.D. X 3/8" I.D. X .080 NYLON
FOR ALL TYPE H SIGNS

STANDARD SIGN
SIGN BANDING DETAILS

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

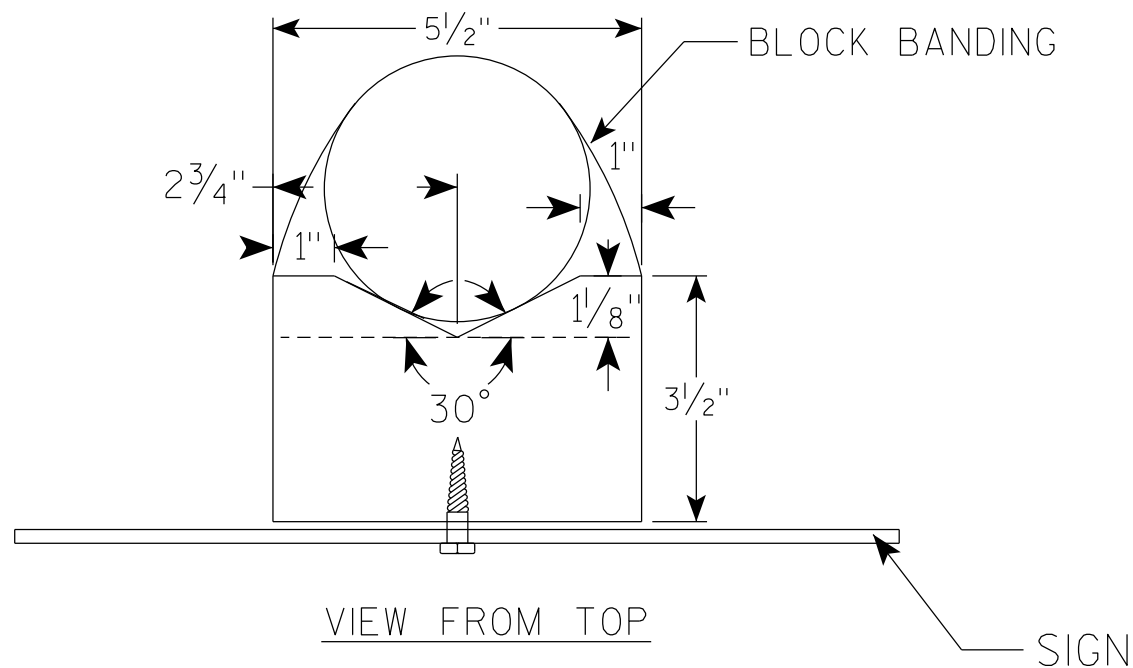
DATE 6/10/19 PLATE NO. A5-9.4



GENERAL NOTES

1. WOOD 4"X6" POST MATERIAL SHALL CONFORM TO 507.2.2 OF THE WisDOT STANDARD SPECIFICATIONS
2. BLOCK BANDING AND CLIPS SHALL BE STAINLESS STEEL, 3/4" WIDTH AND 0.025" THICKNESS
3. SIGNS 3' OR GREATER IN HEIGHT SHALL UTILIZE 3 BLOCK BANDS. SIGNS UNDER 3' IN HEIGHT SHALL UTILIZE 2 BLOCK BANDS
4. ACTUAL NUMBER OF FASTENERS PER SIGN VARIES WITH THE SIGN AREA, BUT NORMALLY THERE ARE TWO. FOR SIGNS GREATER THAN 9 S.F. 3 FASTENERS SHALL BE USED.
5. ALL SIGN MOUNTING BOLTS AND WASHERS SHALL BE EITHER:
 - a. Hot dip or mechanically galvanized in accordance with ASTM Designation: A 153, Class D
 - b. Electro-galvanized in accordance with ASTM Designation : B 633, TYPE III, SC 3
6. ALL BOLTS SHALL HAVE HEXAGONAL HEADS.
7. STEEL WASHERS SHALL BE 1/4" O.D. X 3/8" I.D. X 1/16"
8. NYLON WASHERS SHALL BE 1/4" O.D. X 3/8" I.D. X .080 FOR TYPE H OR TYPE F FACE SIGN

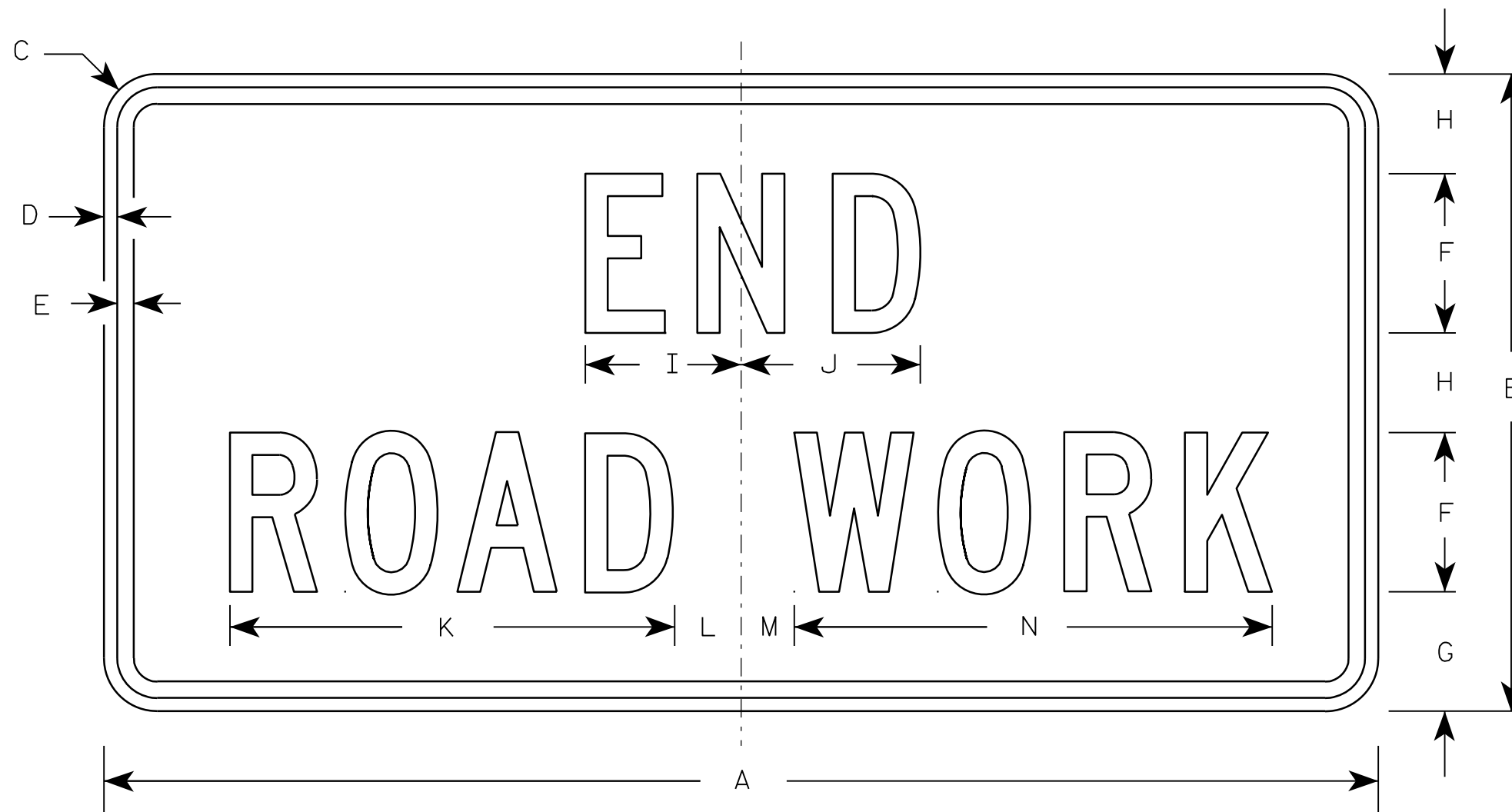
✱ LAG BOLTS SHALL BE 3/8" X 2 1/2"



BLOCK BANDING DETAIL (V-BLOCK OPTION)	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R Rauch</i> For State Traffic Engineer
DATE 6/10/19	PLATE NO. A5-10.2

NOTES

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



G20-2A

7

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Metric equivalent for this sign is:

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

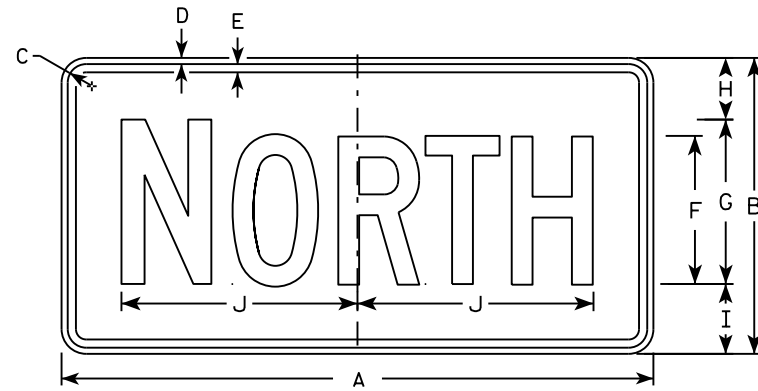
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.	Area sq.
1	36	18	1 1/8	3/8	1/2	4	3 3/4	2 1/2	4 1/8	4 1/8	11 1/8	2	1	12 1/8													4.5	0.41
2	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8	6 3/4	16 3/4	2 1/2	1 3/4	18 1/2													8.0	0.72
3	48	24	1 1/2	1/2	5/8	6	4 1/2	3 3/4	5 7/8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

STANDARD SIGN G20-2A	
WISCONSIN DEPT OF TRANSPORTATION	
APPROVED	<i>Matthew R. Rauch</i> For State Traffic Engineer
DATE 9/30/09	PLATE NO. G20-2A.8

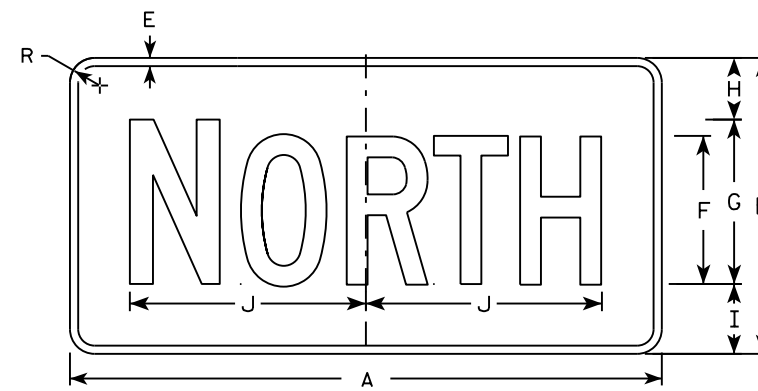
PROJECT NO:	HWY:	COUNTY:	SHEET NO:	E
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NOTES

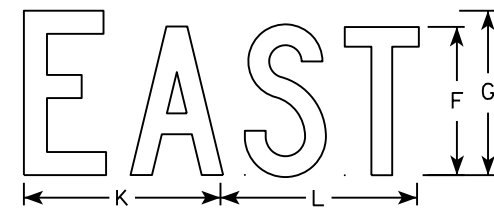
- All Signs Type II - Type H
- Color:
 - Background - See note 5
 - Message - See note 5
- Message Series - C
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M3-1 thru M3-4 Background - White
 Message - Black
 MB3-1 thru MB3-4 Background - Blue
 Message - White
 MK3-1 thru MK3-4 Background - Green
 Message - White
 MM3-1 thru MM3-4 Background - White
 Message - Green
 MN3-1 thru MN3-4 Background - Brown
 Message - White
 MP3-1 thru MP3-4 Background - White
 Message - Blue
- Note the first letter of each direction is larger than the remainder of the message.



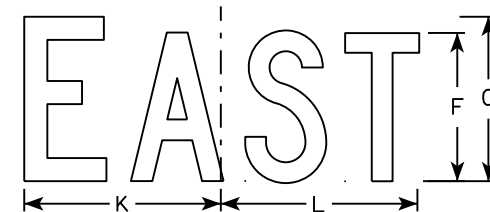
M3-1
MM3-1
MP3-1



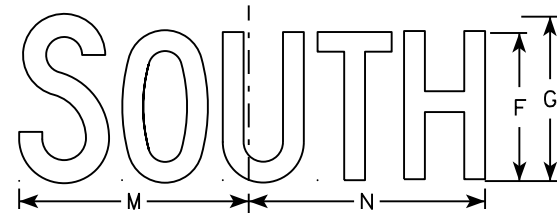
MB3-1
MK3-1
MN3-1



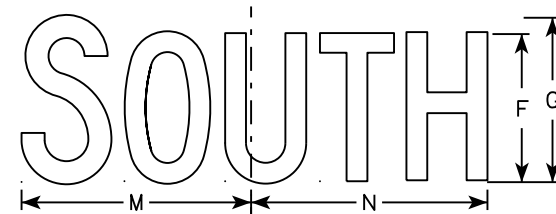
M3-2
MM3-2
MP3-2



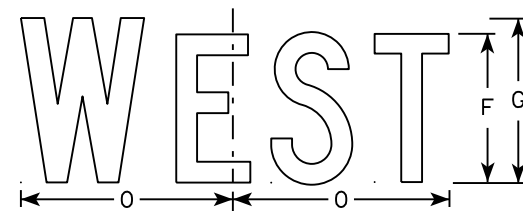
MB3-2
MK3-2
MN3-2



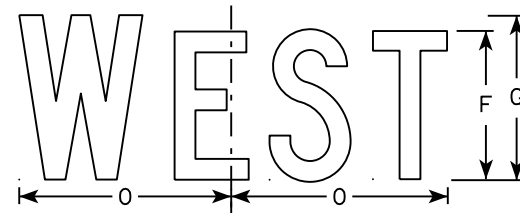
M3-3
MM3-3
MP3-3



MB3-3
MK3-3
MN3-3



M3-4
MM3-4
MP3-4



MB3-4
MK3-4
MN3-4

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	7	2 1/4	2 3/4	10 1/4	7 7/8	8 3/8	10 1/4	9 3/4	8 3/4			1 1/2									2.00
3	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
4	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5
5	36	18	1 1/8	3/8	1/2	9	10	3 3/4	4 1/4	14 3/8	12	12 1/8	14	14 1/8	13			1 1/2									4.5

STANDARD SIGNS
M3-1 thru M3-4
SERIES

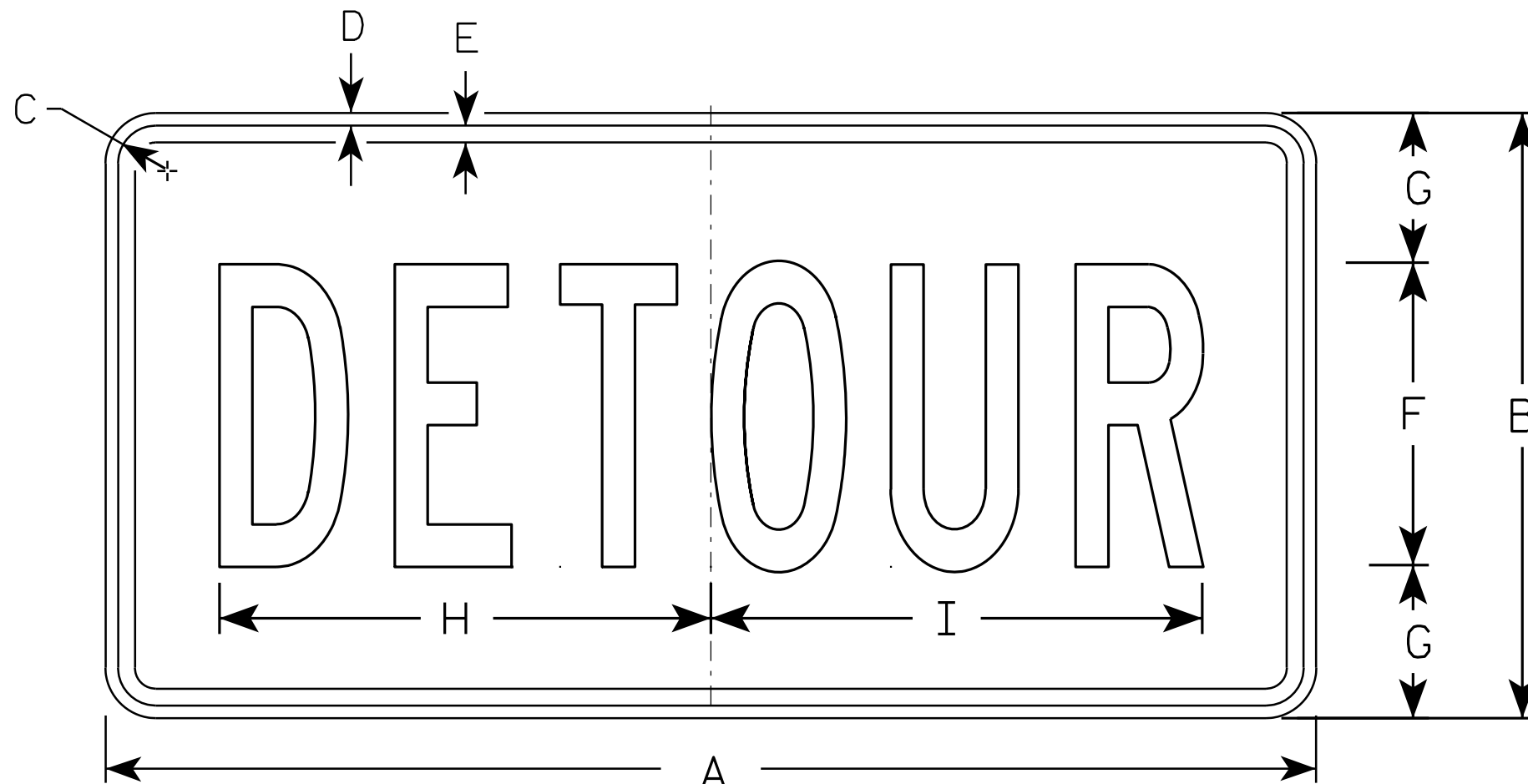
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M3-1.14

NOTES

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



M4-8

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	12	1 1/8	3/8	3/8	6	3	10	10 1/4																		2.0
3	36	18	1 1/8	3/8	1/2	9	4 1/2	14 5/8	14 1/2																		4.5
4																											
5																											

STANDARD SIGN
M4-8

WISCONSIN DEPT OF TRANSPORTATION

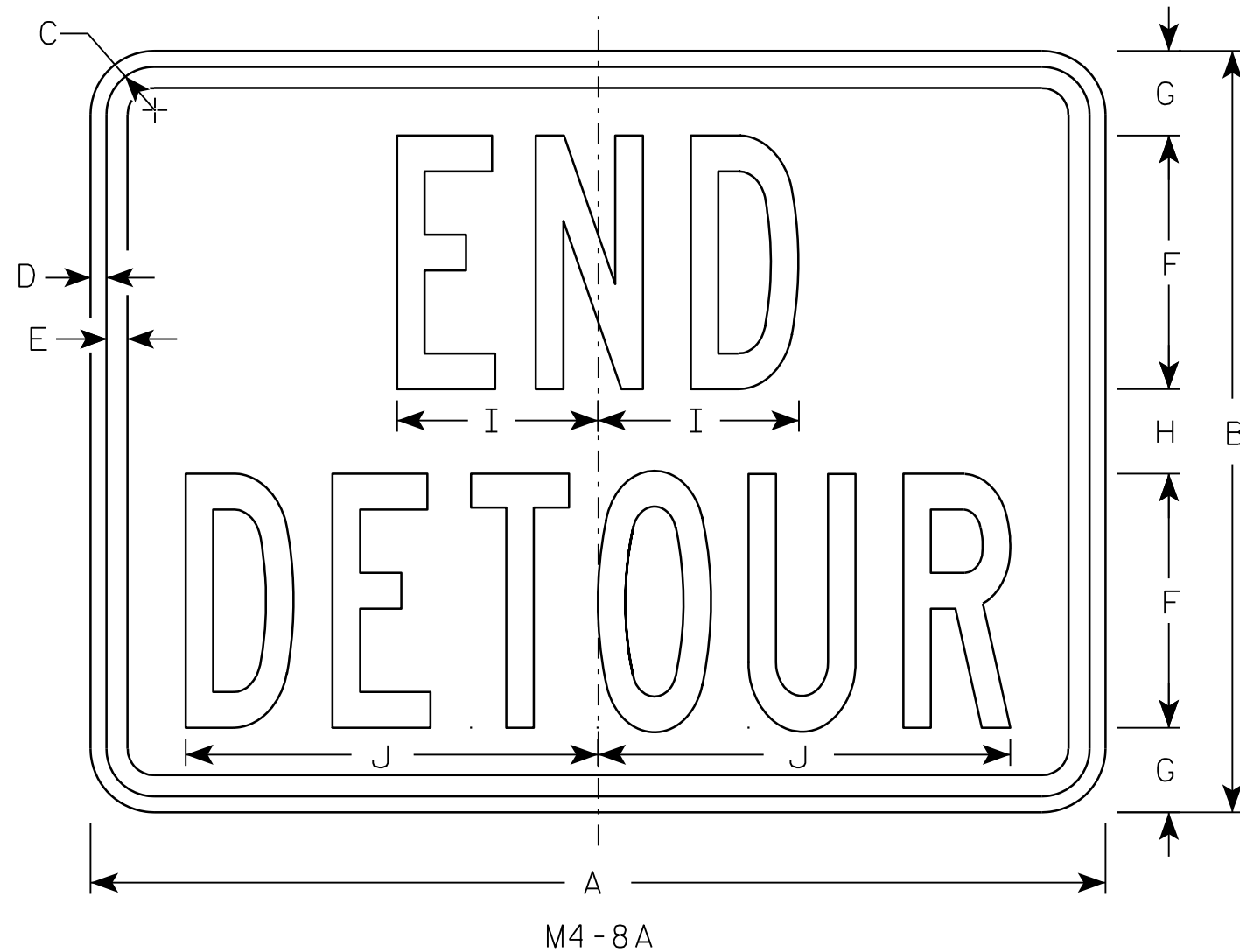
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/10/10 PLATE NO. M4-8.2

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

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



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	24	18	1 1/8	3/8	1/2	6	2	2	4 3/4	9 3/4																	3.0
3	30	24	1 1/8	3/8	1/2	8	2 1/2	3	6 3/4	13																	5.0
4																											
5																											

STANDARD SIGN
M4-8A

WISCONSIN DEPT OF TRANSPORTATION

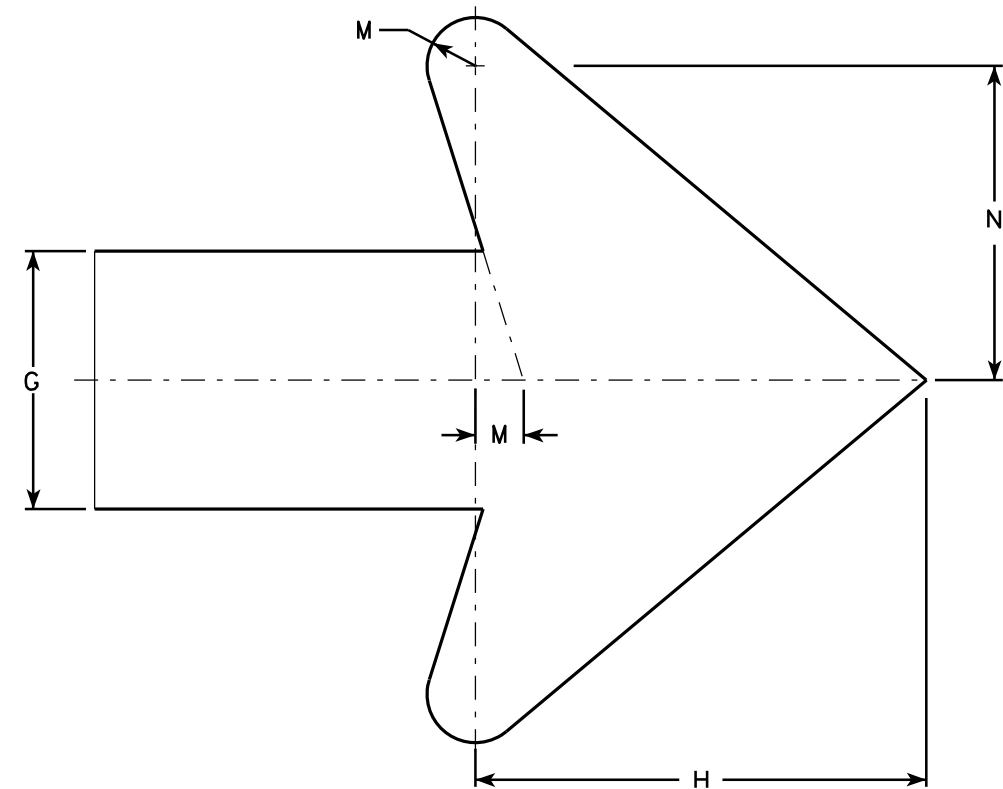
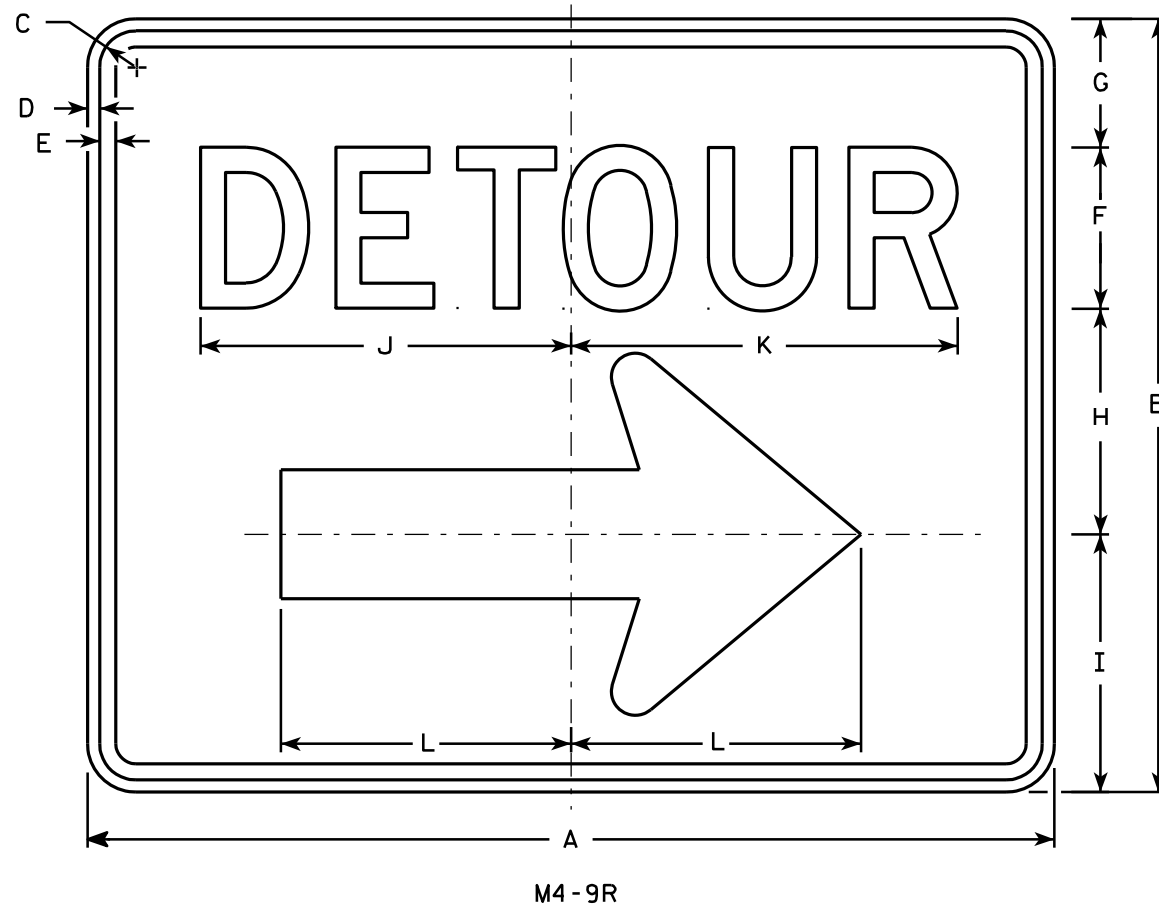
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-8A.2

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

1. Sign is Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Orange
Message - Black
3. Message Series - D
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. M4-9L is the same as M4-9R except the arrow is reversed.



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	30	24	1 1/8	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
3	30	24	1 1/8	3/8	1/2	5	4	7	8	11 1/2	12	9	3/4	4 7/8													5.00
4	48	36	1 3/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0
5	48	36	1 3/8	1/2	5/8	8	6	10 1/2	11 5/8	20 5/8	20 1/2	13 1/4	1 1/8	6 7/8													12.0

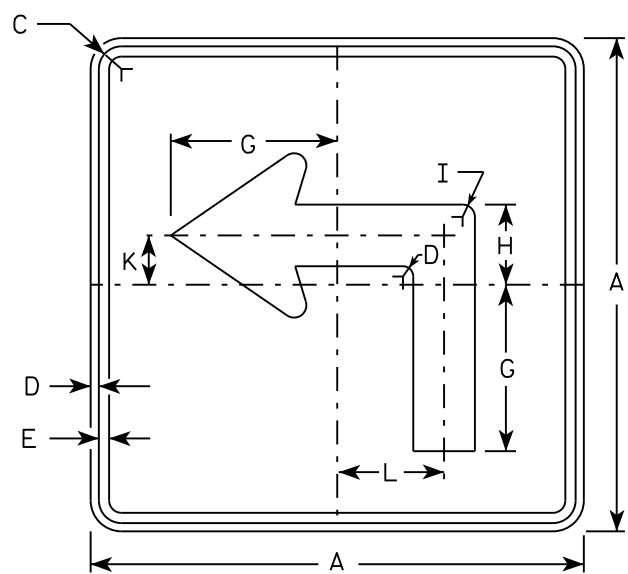
STANDARD SIGN
M4-9 R & L

WISCONSIN DEPT OF TRANSPORTATION

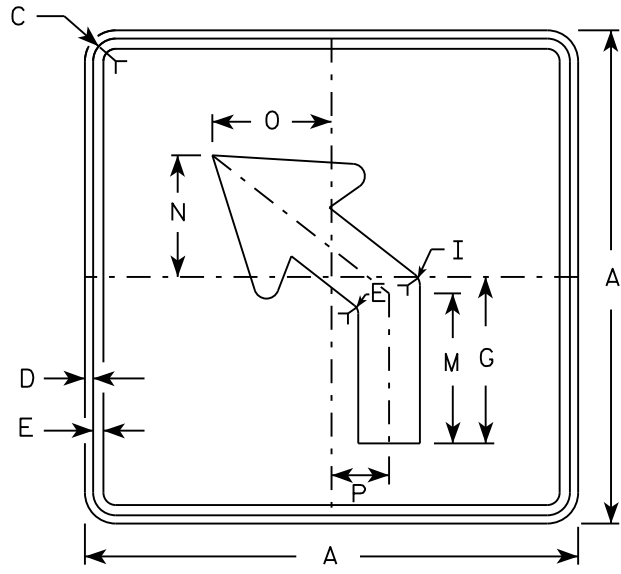
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/9/11 PLATE NO. M4-9R.4

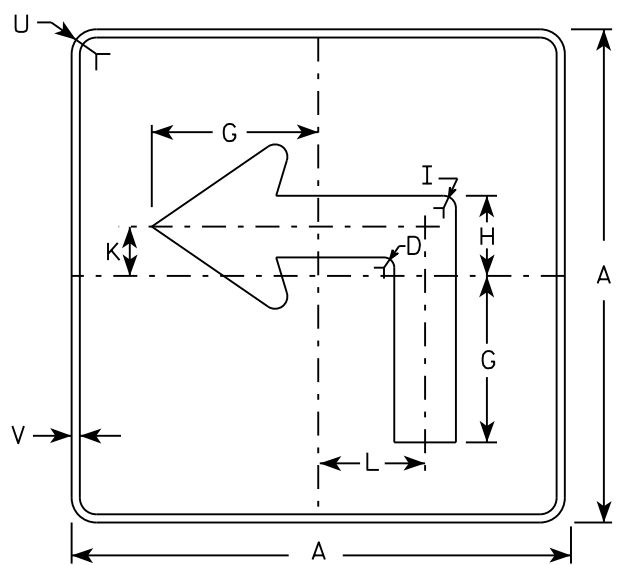
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



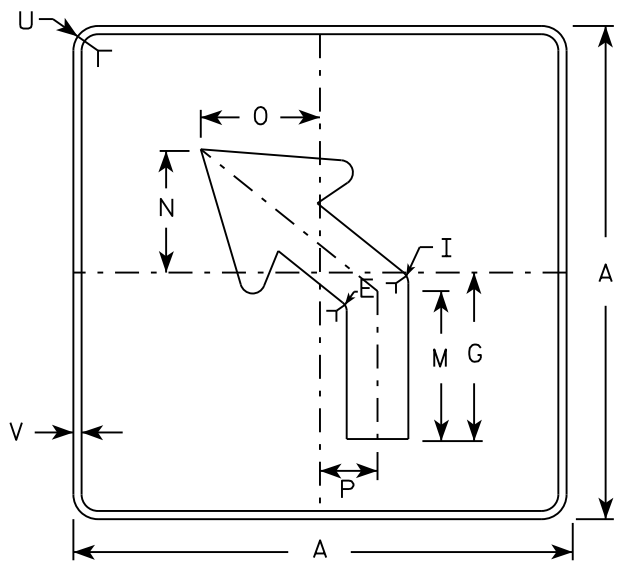
M5-1L
MM5-1L
M05-1L
MP5-1L



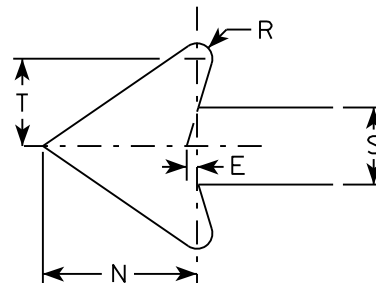
M5-2L
MM5-2L
M05-2L
MP5-2L



MB5-1L
MK5-1L
MN5-1L
MR5-1L



MB5-2L
MK5-2L
MN5-2L
MR5-2L



NOTES

- Signs are Type II - Type H reflective except as shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- | | |
|-----------------|---|
| M5-1 and M5-2 | Background - White |
| | Message - Black |
| MB5-1 and MB5-2 | Background - Blue |
| | Message - White |
| MK5-1 and MK5-2 | Background - Green |
| | Message - White |
| MM5-1 and MM5-2 | Background - White |
| | Message - Green |
| MN5-1 and MN5-2 | Background - Brown |
| | Message - White |
| M05-1 and M05-2 | Background - Orange - Type F Reflective |
| | Message - Black |
| MP5-1 and MP5-2 | Background - White - Type H Reflective |
| | Message - Blue |
| MR5-1 and MR5-2 | Background - Brown |
| | Message - Yellow |
- M5-1R same as M5-1L except arrow points right.
- M5-2R same as M5-2L except arrow tilts right.

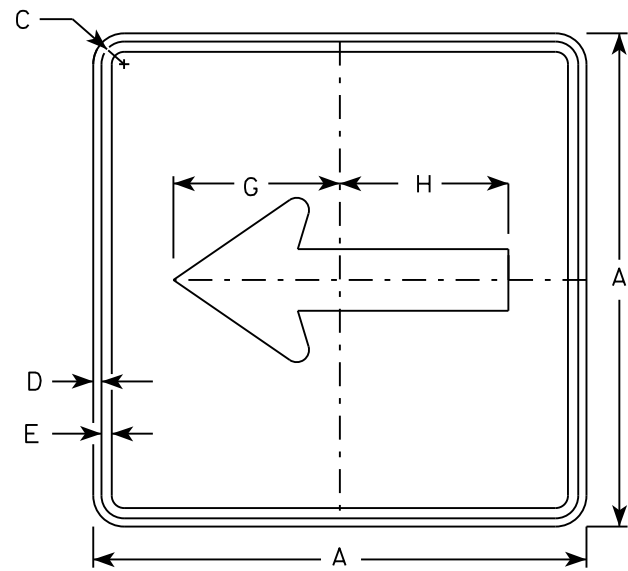
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2	21		1 1/8	3/8	3/8		7	3 3/8	5/8		2 1/8	4 1/2	6 3/8	5 1/4	5	2 1/2		1/2	2 5/8	3	1 1/2	1/2					3.06
3	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
4	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25
5	30		1 3/8	1/2	5/8		10 1/8	4 7/8	7/8		3	6 1/2	9 1/8	7 1/2	7 1/4	3 1/2		3/4	3 3/4	4 1/4	1 7/8	1/2					6.25

STANDARD SIGN
M5-1 & M5-2

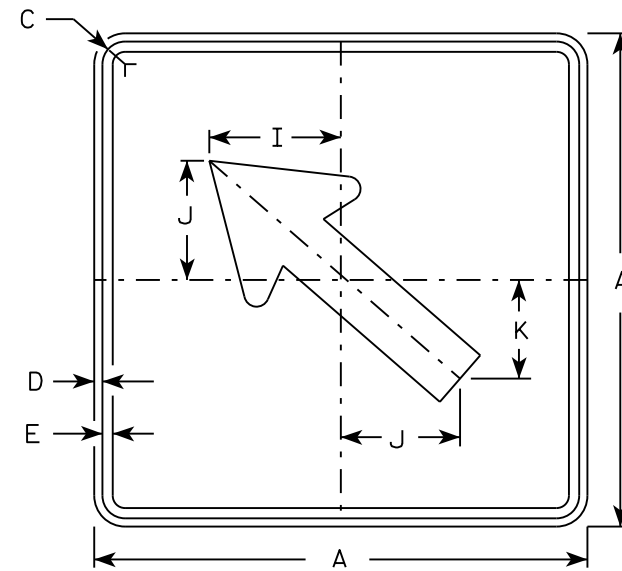
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

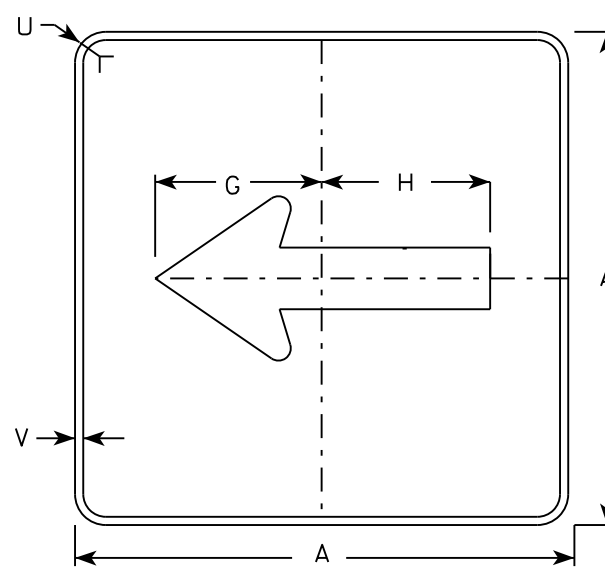
DATE 10/15/15 PLATE NO. M5-1.13



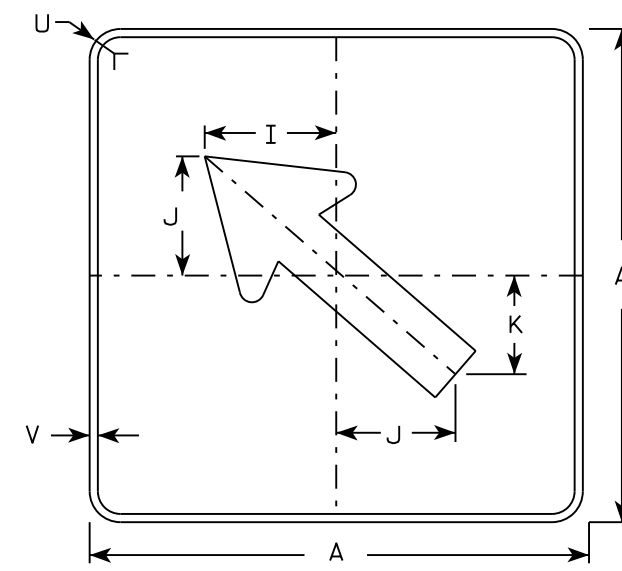
M6-1
MM6-1
M06-1
MP6-1



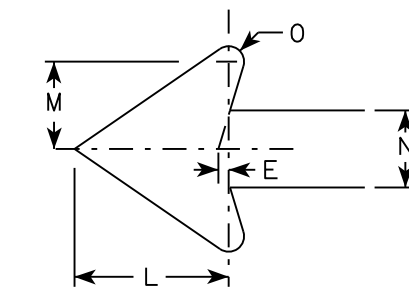
M6-2
MM6-2
M06-2
MP6-2



MB6-1
MK6-1
MN6-1
MR6-1



MB6-2
MK6-2
MN6-2
MR6-2



NOTES

- Signs are Type II - Type H except as Shown
- Color:
Background - See note 4
Message - See note 4
- Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
- M6-1 and M6-2 Background - White
Message - Black
MB6-1 and MB6-2 Background - Blue
Message - White
MK6-1 and MK6-2 Background - Green
Message - White
MM6-1 and MM6-2 Background - White
Message - Green
MN6-1 and MN6-2 Background - Brown
Message - White
M06-1 and M06-2 Background - Orange - Type F Reflective
Message - Black
MP6-1 and MP6-2 Background - White
Message - Blue
MR6-1 and MR6-2 Background - Brown
Message - Yellow

7

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

STANDARD SIGN
M6-1 & M6-2
SERIES

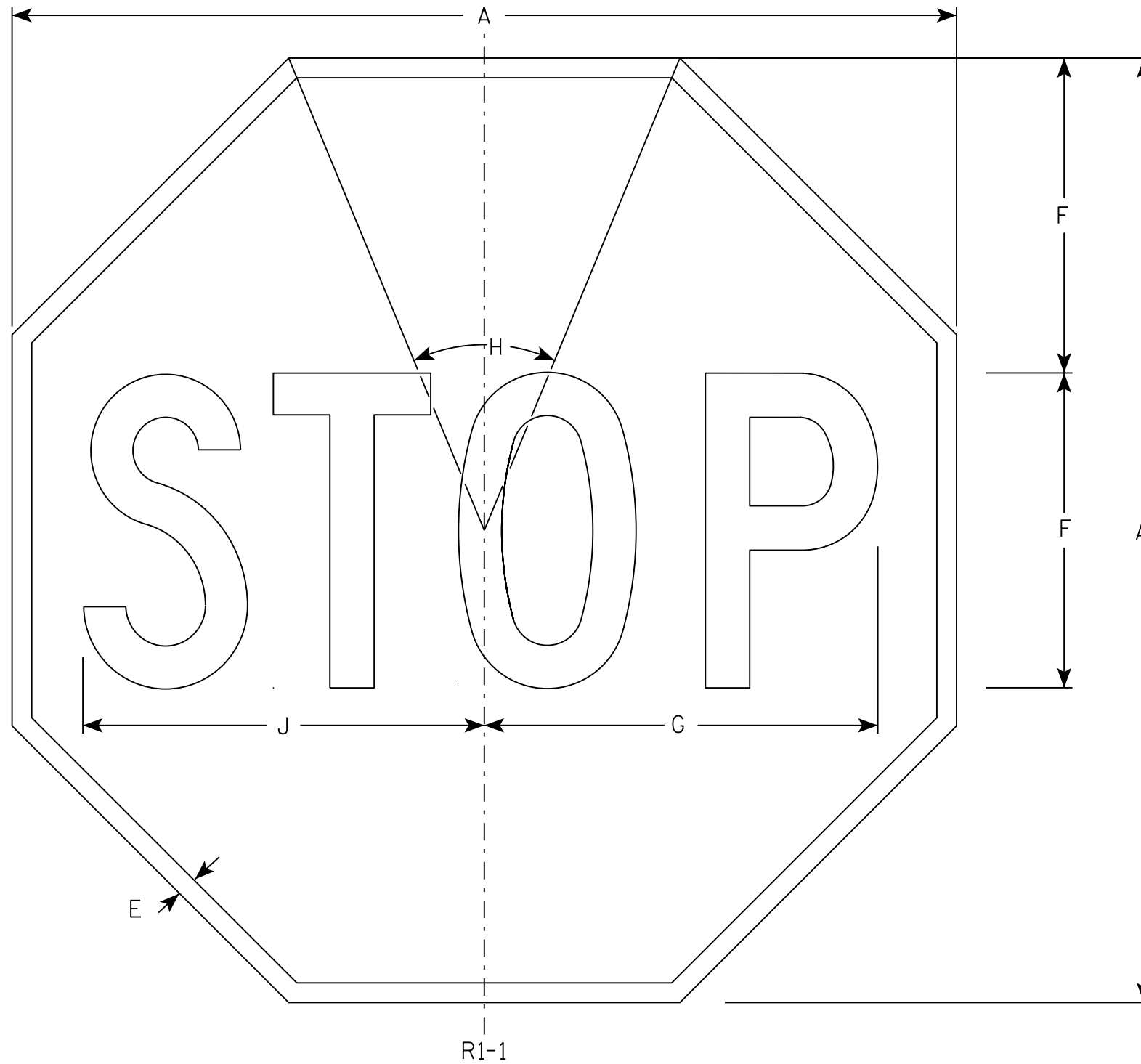
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 10/15/15 PLATE NO. M6-1.15

NOTES

1. Sign is Type II - Type H Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
Background - Red
Message - White
3. Message Series - C



7

7

R1-1

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2S	30				5/8	10	12 1/2	45°		12 3/4																	5.18
2M	36				3/4	12	15	45°		15 3/8																	7.46
3	36				3/4	12	15	45°		15 3/8																	7.46
4	48				1	16	20	45°		20 1/2																	13.25
5	48				1	16	20	45°		20 1/2																	13.25
6	18				3/8	6	7 3/4	45°		7 3/4																	1.86
7	12				1/4	4	5	45°		5 1/8																	0.78

STANDARD SIGN
R1-1

WISCONSIN DEPT OF TRANSPORTATION

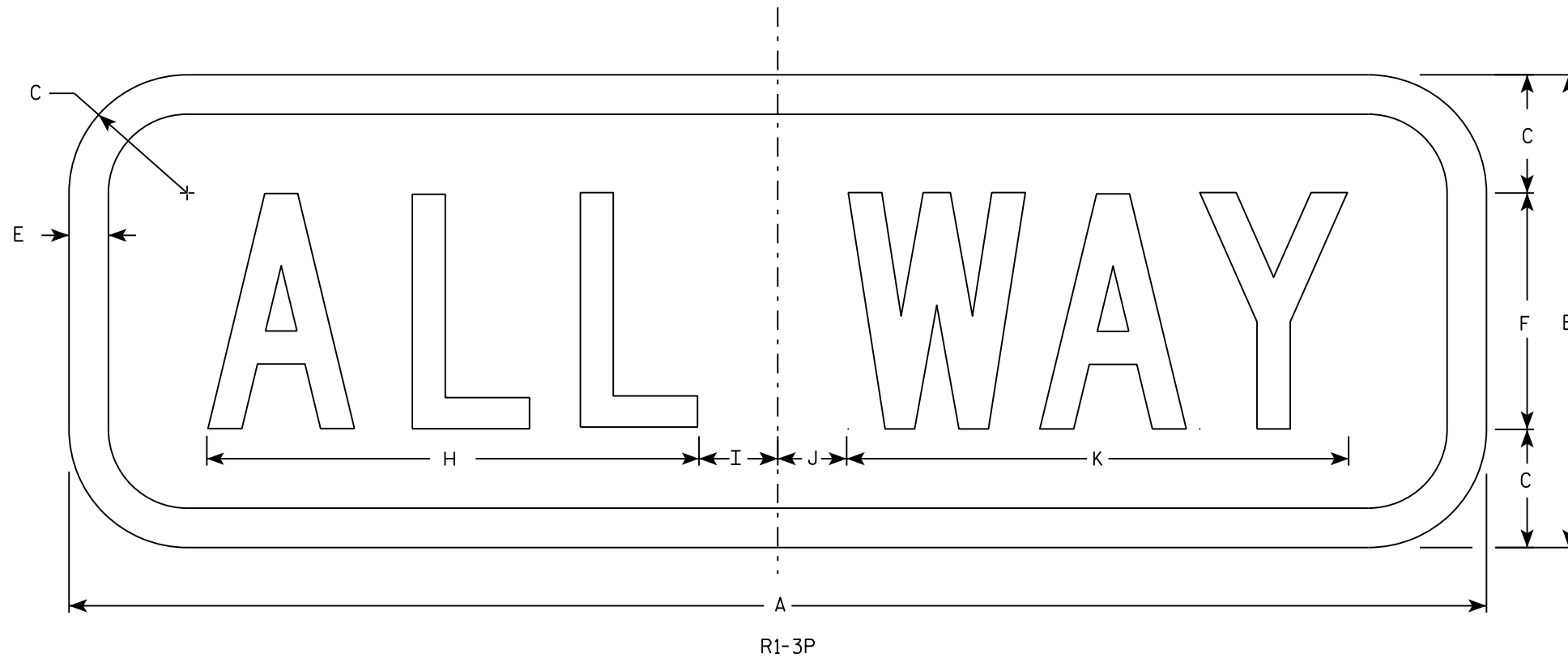
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/12/15 PLATE NO. R1-1.13

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - Red
Message - White
3. Message Series - C
4. For 30"x30" R1-1 use 18"x6" R1-3P sign
For 36"x36" R1-1 use 24"x9" R1-3P sign
For 48"x48" R1-1 use 30"x12" R1-3P sign



7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	18	6	1 1/2		1/2	3		6 1/4	1 1/4	7/8	6 3/8																0.75
2S	18	6	1 1/2		1/2	3		6 1/4	1 1/4	7/8	6 3/8																1.5
2M	24	9	1 1/2		1/2	5		9 1/4	1 1/4	3/4	9 3/4																1.5
3	24	9	1 1/2		1/2	5		9 1/4	1 1/4	3/4	9 3/4																1.5
4	30	12	2 1/4		5/8	6		11	2 1/4	1 1/2	11 3/4																2.5
5	30	12	2 1/4		5/8	6		11	2 1/4	1 1/2	11 3/4																2.5

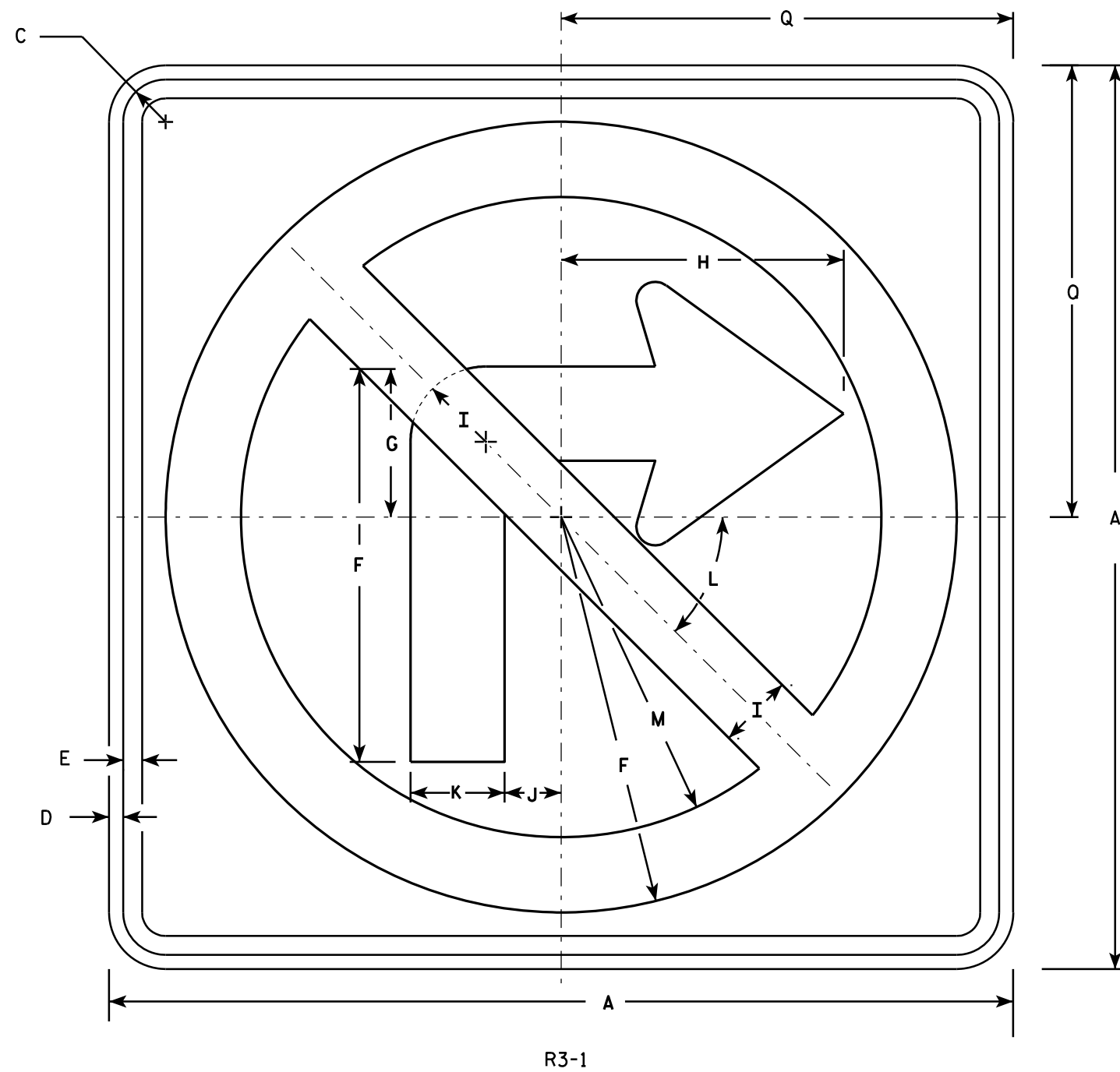
STANDARD SIGN
R1-3P

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
for State Traffic Engineer

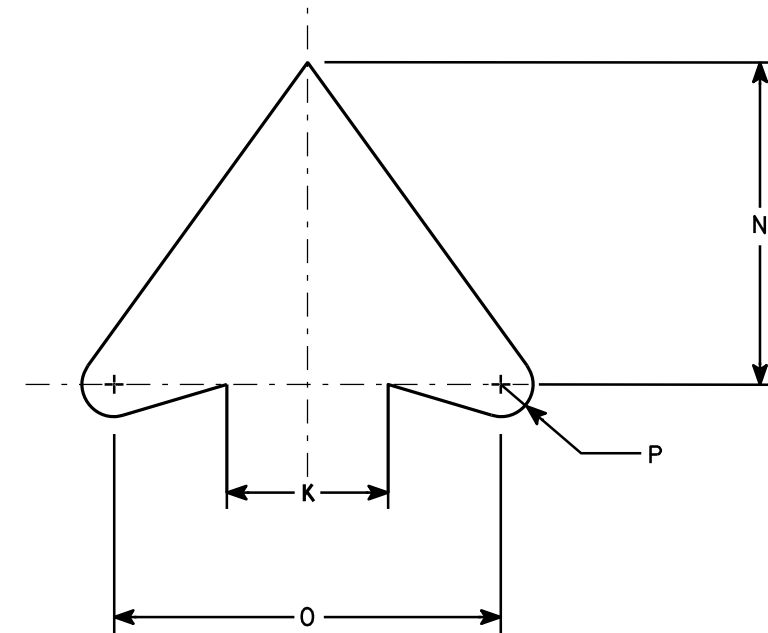
DATE 11/29/16 PLATE NO. R1-3P.3

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



NOTES

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



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45	8 1/2	5	6	1/2	12										4.0
2S	24		1 1/8	3/8	1/2	10 1/2	4	7 1/2	2	1 1/2	2 1/2	45°	8 1/2	5	6	1/2	12										4.0
2M	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
3	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45	12 3/4	7 1/2	9	3/4	18										9.0
4	36		1 5/8	5/8	3/4	15 3/4	6	11 1/4	3	2 1/4	3 3/4	45°	12 3/4	7 1/2	9	3/4	18										9.0
5	48		2 1/4	3/4	1	21	8	15	4	3	5	45°	17	10	12	1	24										16.0

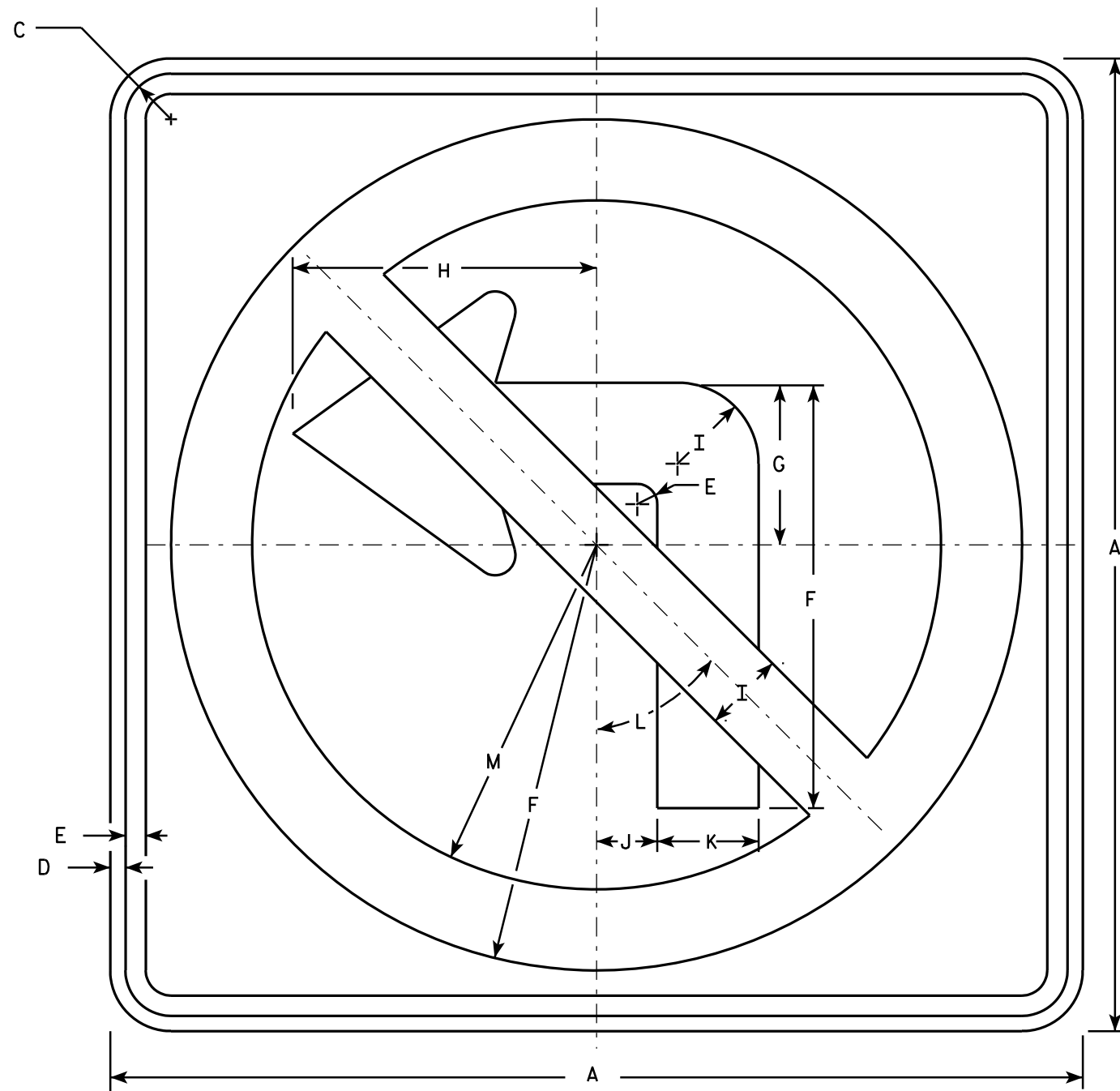
STANDARD SIGN
R3-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 12/08/10 PLATE NO. R3-1.5

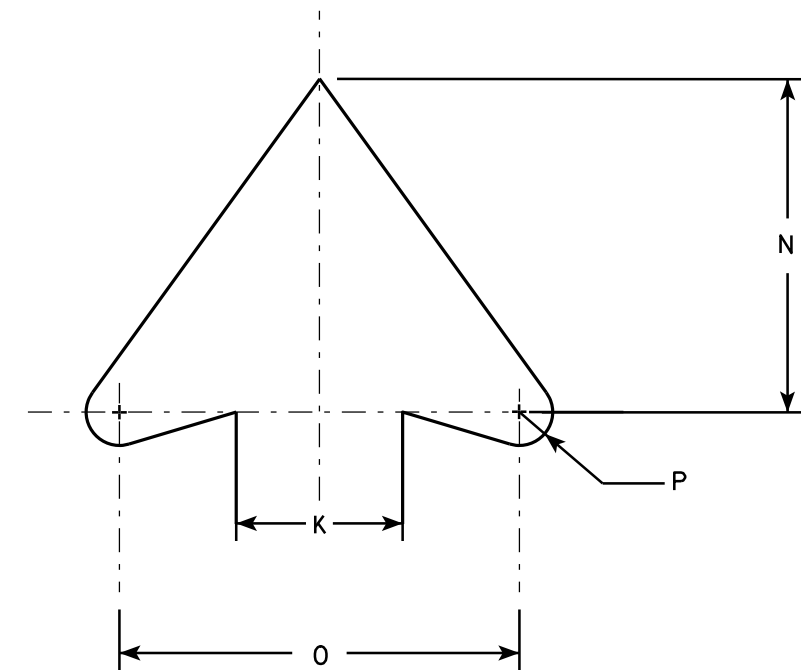
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ **E**



R3-2

NOTES

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



ARROW DETAIL

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

STANDARD SIGN
R3-2

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

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

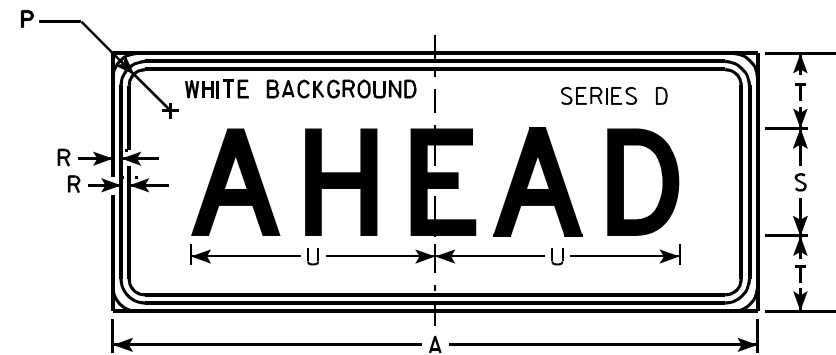
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



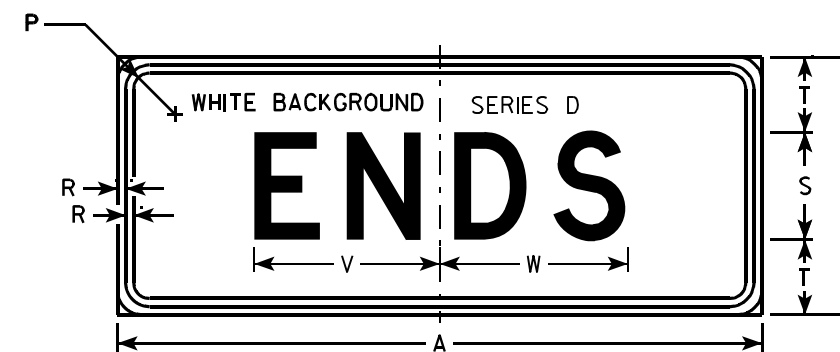
R3-17

NOTES

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



R3-17ap



R3-17bp

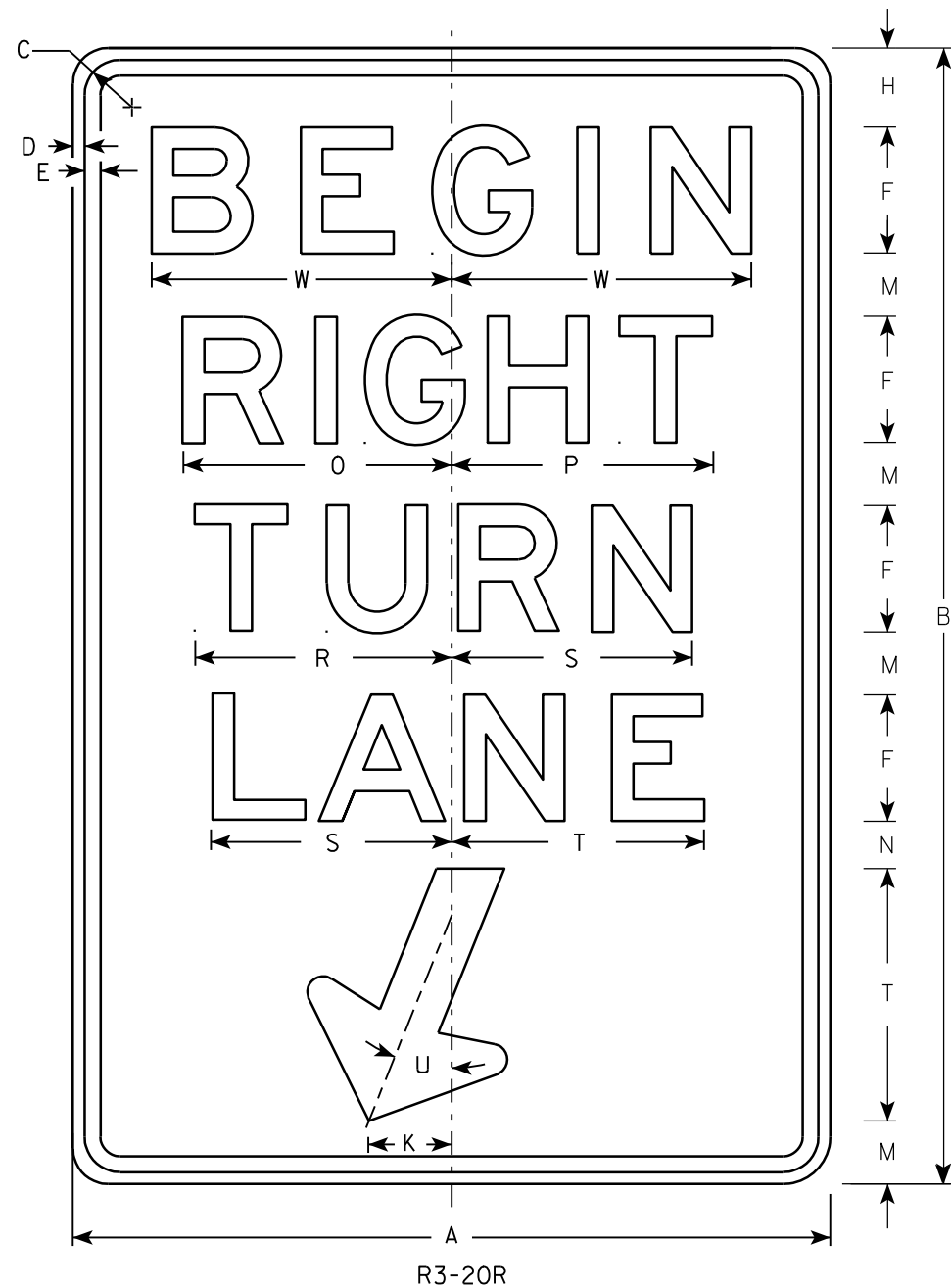
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	R3-17 Area sq. ft.	R3-17ap Area sq. ft.	R3-17bp Area sq. ft.
1																													
2S	30	24	1 1/8	3/8	1/2	2	4	4 1/8	7 7/8	6 3/8	9 1/2	2 5/8	7/8	13	12	1 1/8	3 3/8	3/8	5	3 1/2	11 3/8	8 5/8	8 3/4	2 3/8	15 5/8	8	5.0	2.5	2.5
2M	30	24	1 1/8	3/8	1/2	2	4	4 1/8	7 7/8	6 3/8	9 1/2	2 5/8	7/8	13	12	1 1/8	3 3/8	3/8	5	3 1/2	11 3/8	8 5/8	8 3/4	2 3/8	15 5/8	8	5.0	2.5	2.5
3																													
4																													
5																													

STANDARD SIGN
R3-17 & R3-17a&bp

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

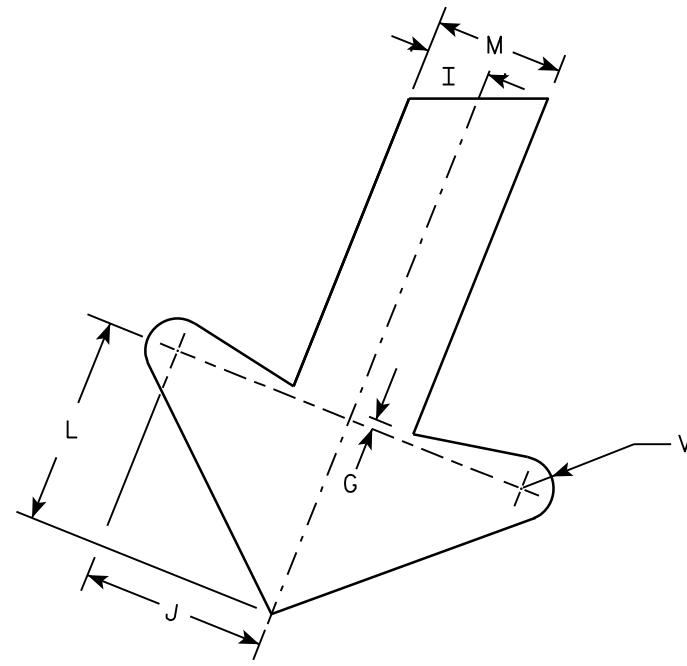
DATE 4/12/2011 PLATE NO. R3-17.2



R3-20R

NOTES

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



ARROW DETAIL

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	8 1/2	8 1/4		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
2M	24	36	1 1/8	3/8	1/2	4	1/4	2 1/2	1	2 7/8	2 5/8	3 1/4	2	1 1/2	8 1/2	8 1/4		8 1/8	7 5/8	8	22°	1/2	9 1/2				6.0
3	36	54	1 3/4	1/2	5/8	6	3/8	3 3/4	1 1/2	4 1/4	4	4 7/8	3	2 1/4	12 3/4	12 1/2		12 1/4	11 1/2	12	22°	3/4	13 1/4				13.5
4																											
5																											

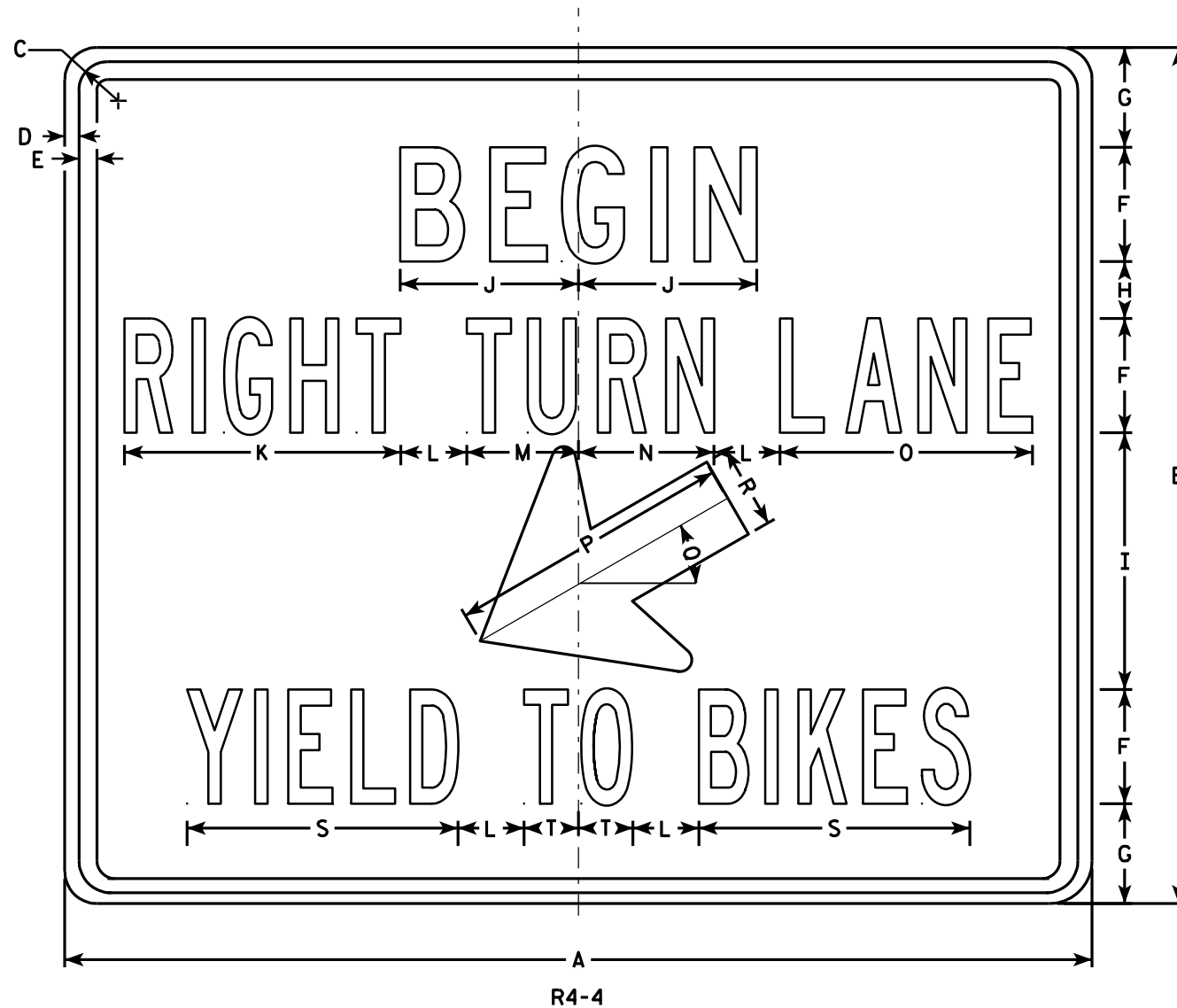
STANDARD SIGN
R3-20R

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 10/18/10 PLATE NO. R3-20R.6

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



NOTES

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

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	36	30	1 3/8	1/2	5/8	4	3 1/2	2	9	6 1/4	9 3/4	2 3/8	3 7/8	4 3/4	8 7/8	10	30°	2 7/8	9 1/2	1 7/8							7.5
2M	36	30	1 3/8	1/2	5/8	4	3 1/2	2	9	6 1/4	9 3/4	2 3/8	3 7/8	4 3/4	8 7/8	10	30°	2 7/8	9 1/2	1 7/8							7.5
3																											
4																											
5																											

STANDARD SIGN
R4-4

WISCONSIN DEPT OF TRANSPORTATION

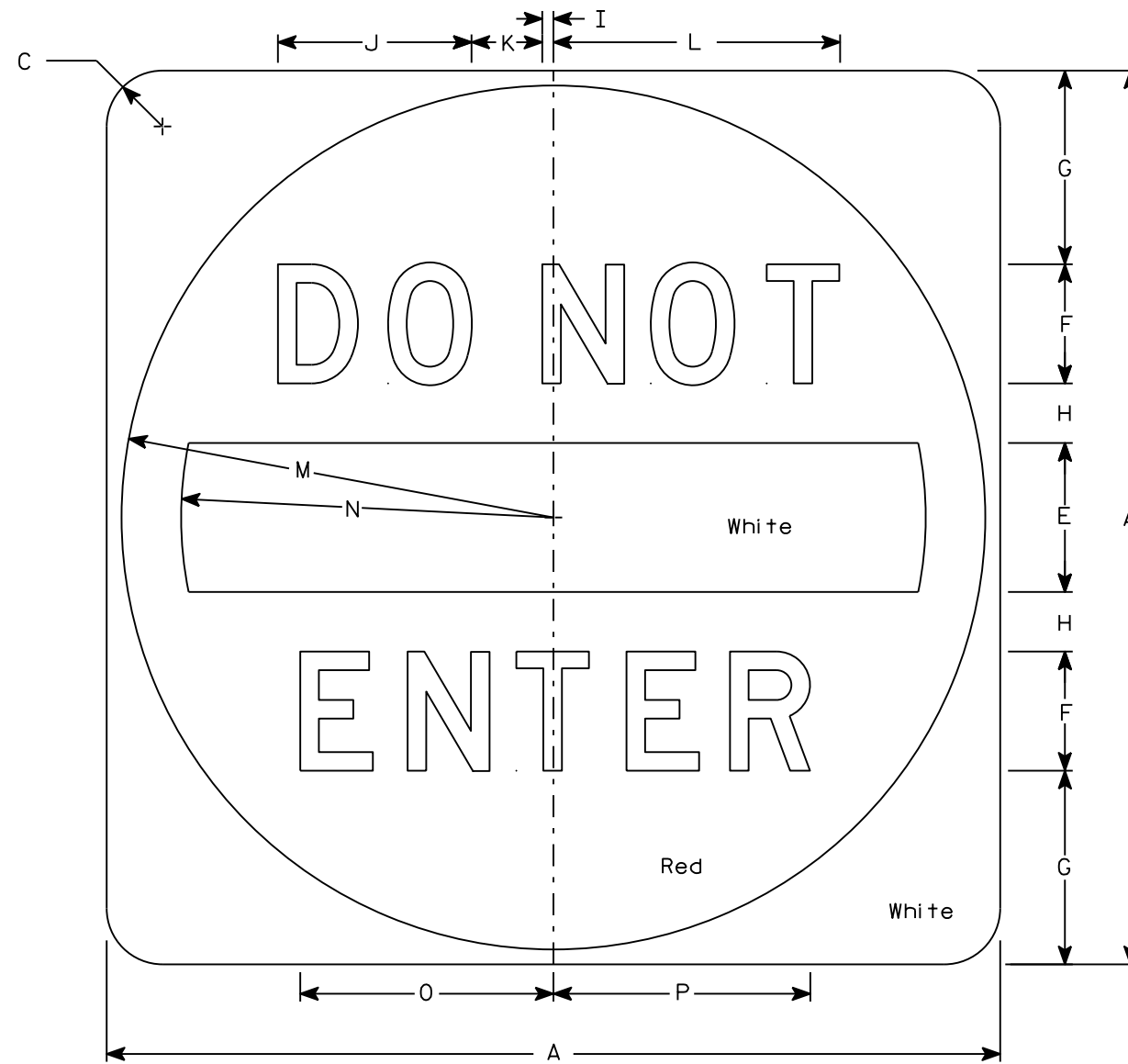
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/25/2011 PLATE NO. R4-4.2

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - See detail
Message - White
3. Message Series - D



R5-1

7

7

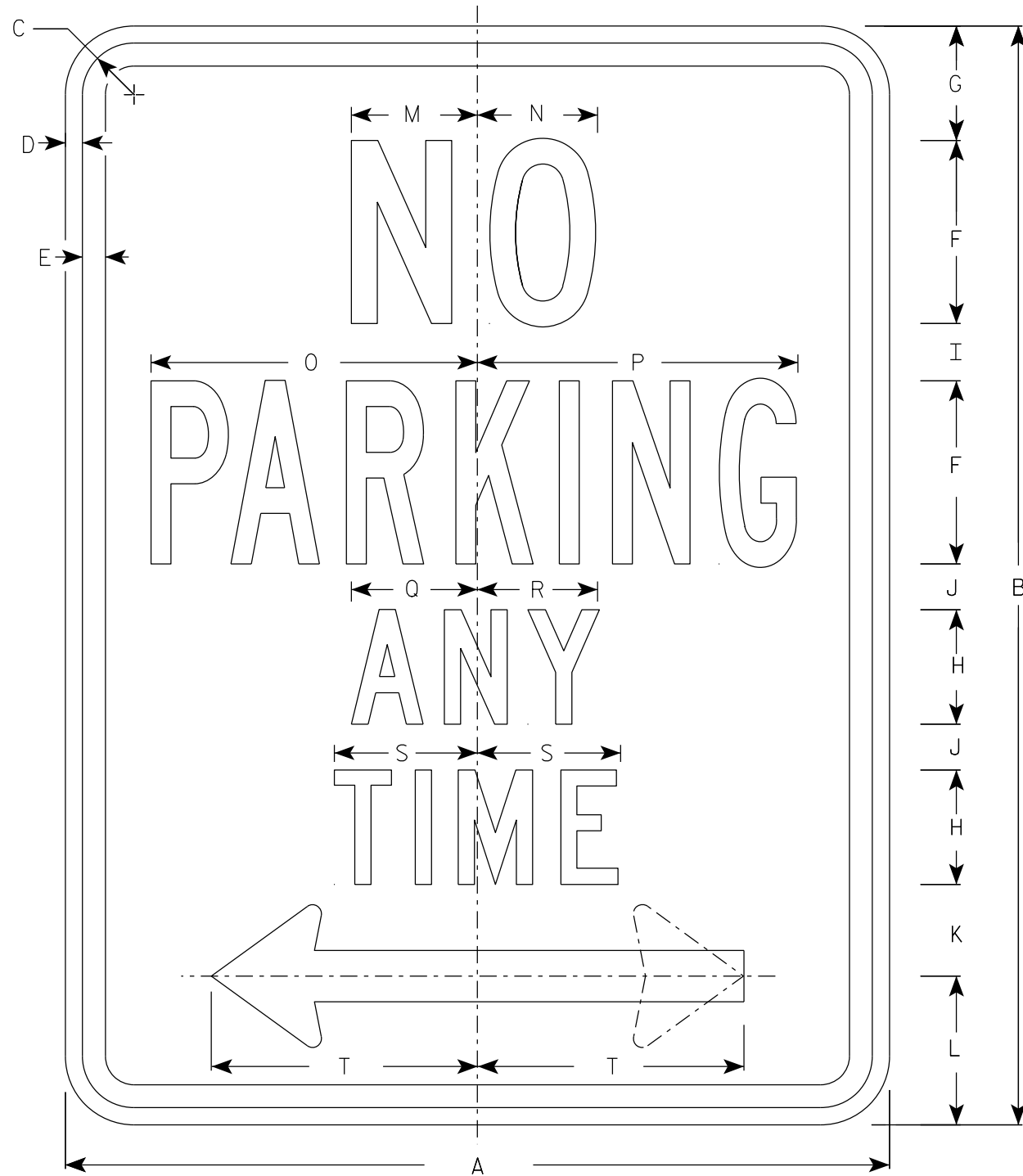
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	30		1 7/8		5	4	6 1/2	2	3/8	6 1/2	2 3/8	9 5/8	14 1/2	12 1/2	8 1/2	8 5/8											6.25
2M	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
3	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
4	36		2 1/4		6	5	7 1/2	2 1/2	1/2	8 1/8	3	12 1/8	17 1/2	15	10 5/8	10 3/4											9.0
5	48		3		8	6	11	3	5/8	9 3/4	3 5/8	14 1/2	23 1/2	20	12 3/4	12 7/8											16.0

STANDARD SIGN
R5-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

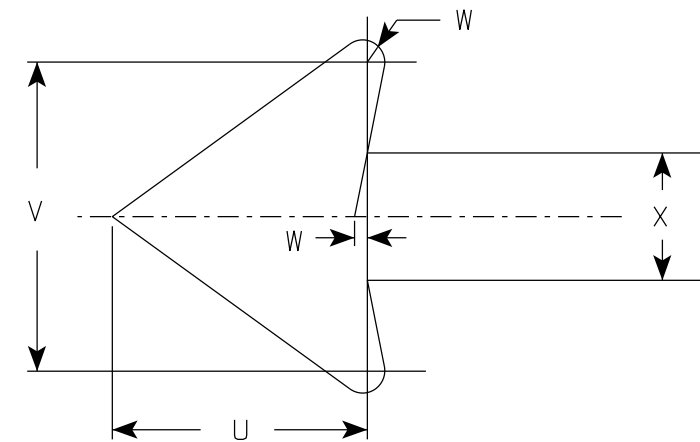
DATE 3/15/18 PLATE NO. R5-1.16



R7-1

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Red
3. Message Series - See Note 5
4. Lines 1, 3 and 4 are series C, line 2 is series B.
5. R7-1D (double arrow)
R7-1L (left arrow)
R7-1R (right arrow)



SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	12	18	1 1/8	3/8	3/8	3	1 7/8	2	7/8	5/8	1 1/2	2 1/2	2	2	4 7/8	4 7/8	2 1/4	2 1/8	2 1/2	3 7/8	1 1/2	1 3/4	1/8	3/4		1.5	
2S	18	24	1 1/8	3/8	1/2	4	2 1/2	2 1/2	1 1/4	1	2	3 1/4	2 3/4	2 5/8	7 1/8	7	2 3/4	2 5/8	3 1/8	5 7/8	2 1/4	2 5/8	1/4	1 1/8		3.0	
2M	24	30	1 1/8	3/8	1/2	5	3	3	2	1 1/4	2 1/2	4	3 1/4	3 3/8	9 1/4	9 1/4	3 1/4	3 1/4	3 3/4	7 3/4	3	3 1/2	1/4	1 1/2		5.0	
3	24	30	1 1/8	3/8	1/2	5	3	3	2	1 1/4	2 1/2	4	3 1/4	3 3/8	9 1/4	9 1/4	3 1/4	3 1/4	3 3/4	7 3/4	3	3 1/2	1/4	1 1/2		5.0	
4																											
5																											

STANDARD SIGN
R7-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R Rauch*
For State Traffic Engineer

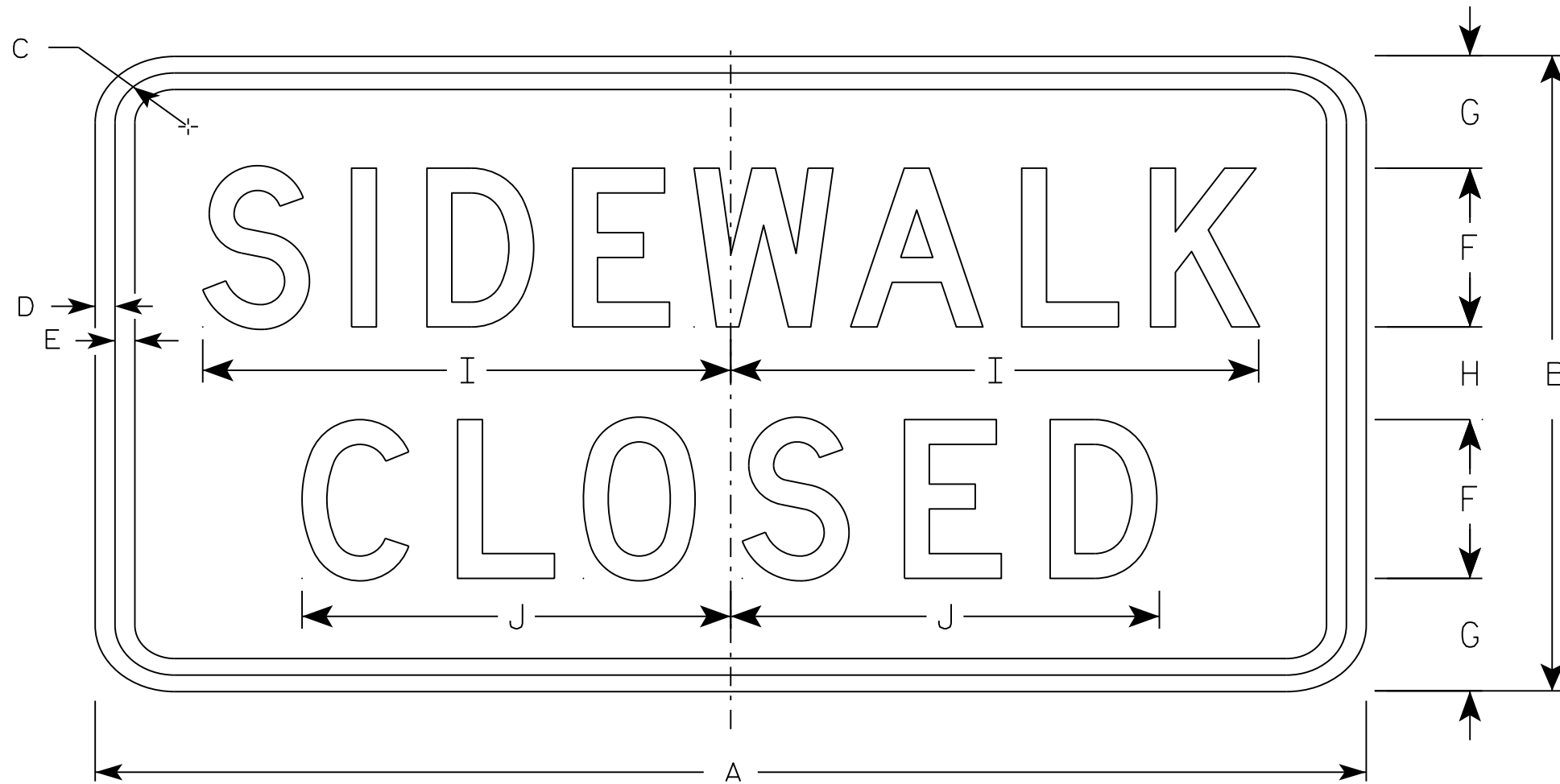
DATE 3/31/2021 PLATE NO. R7-1.10

7

7

NOTES

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



R9-9

7

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

STANDARD SIGN
R9-9

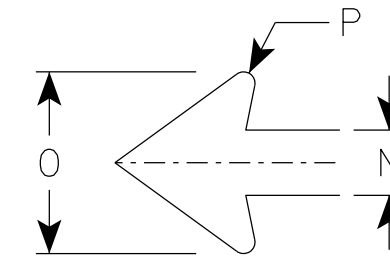
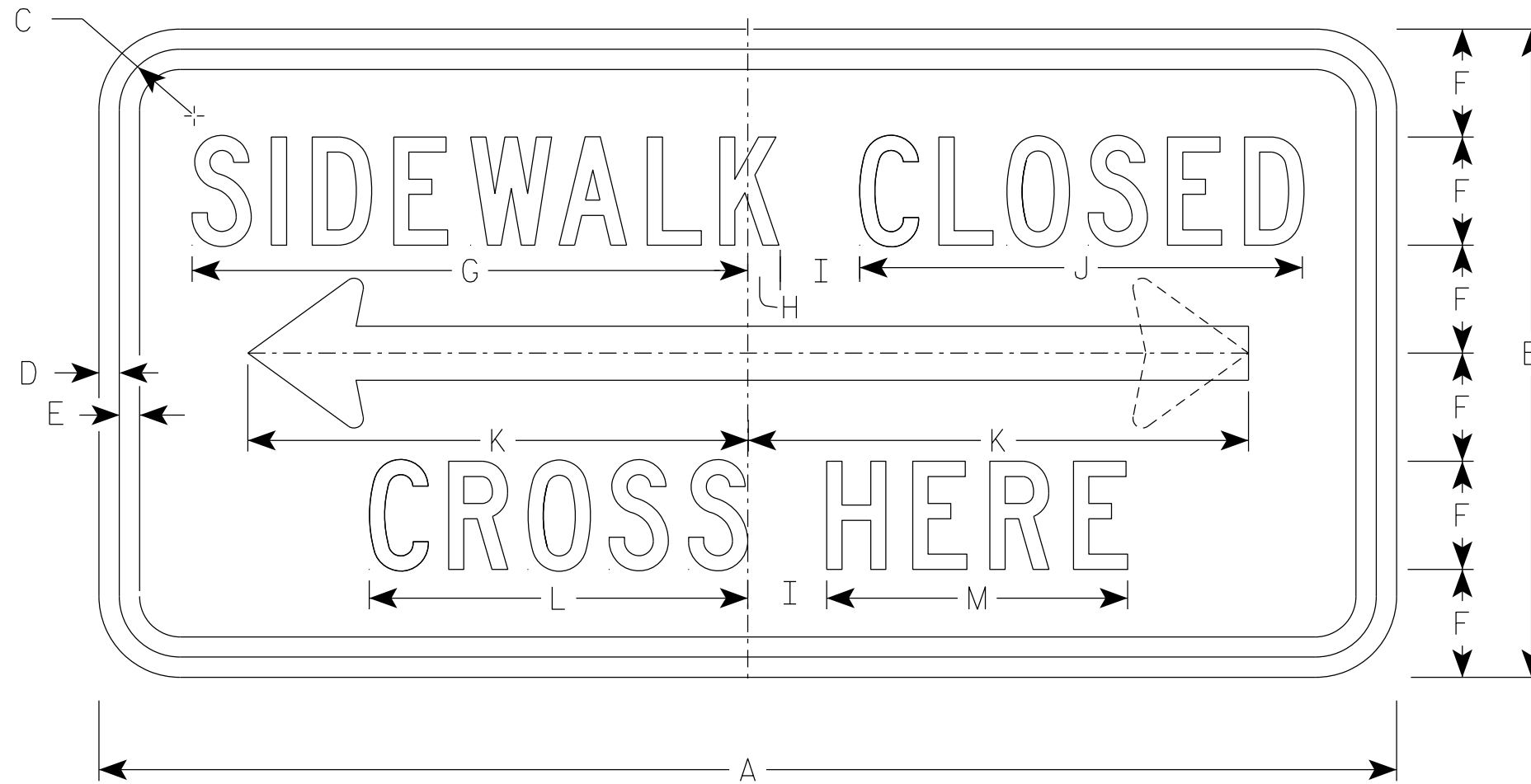
WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 8/11/16 PLATE NO. R9-9.6

NOTES

1. Sign is Type II - Type H Reflective
2. Color:
Background - White
Message - Black
3. Message Series - C
4. Corners may be square or rounded when base material is plywood but borders shall be rounded as shown. When base material is metal, the corners and borders shall be rounded.
5. Use Size 2 for Sidewalks. Use Size 3 for paths and Trails.
6. R9-11AD (double arrow)
R9-11AL (left arrow)
R9-11AR (right arrow)



ARROW DETAIL

R9-11A

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	24	12	1 1/8	3/8	3/8	2	10 1/4	5/8	1 1/2	8 1/4	9 1/4	7	5 5/8	1	2 3/4	1/8											2.0
2M	24	12	1 1/8	3/8	3/8	2	10 1/4	5/8	1 1/2	8 1/4	9 1/4	7	5 5/8	1	2 3/4	1/8											2.0
3	30	15	1 1/8	3/8	1/2	2 1/2	12 3/4	1/2	2	10 1/4	12 3/8	8 5/8	6 3/4	1 1/4	3 5/8	1/4											3.125
4																											
5																											

STANDARD SIGN
R9-11A

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 3/31/2021 PLATE NO. R9-11A.5

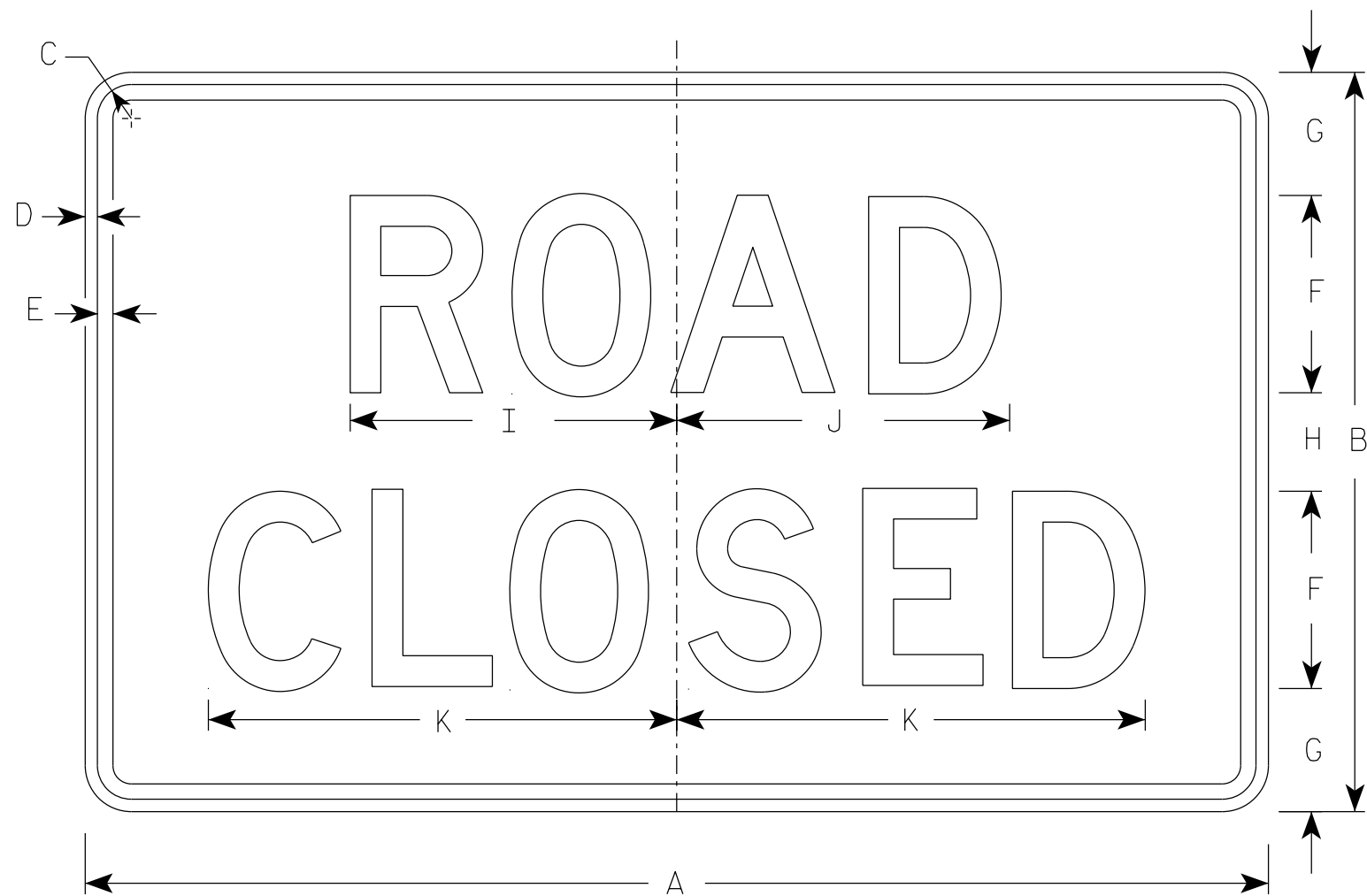
PROJECT NO:

HWY:

COUNTY:

SHEET NO:

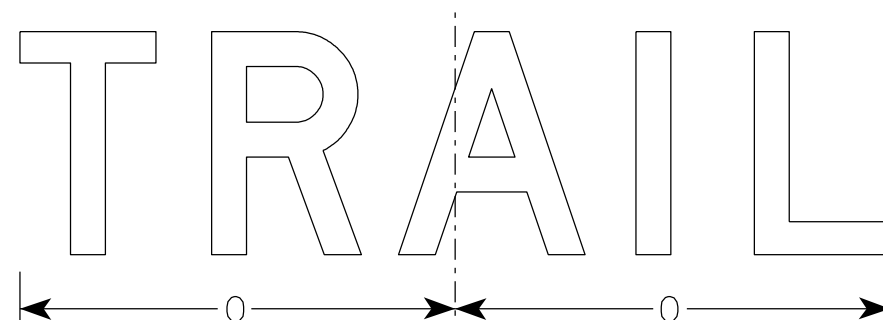
E



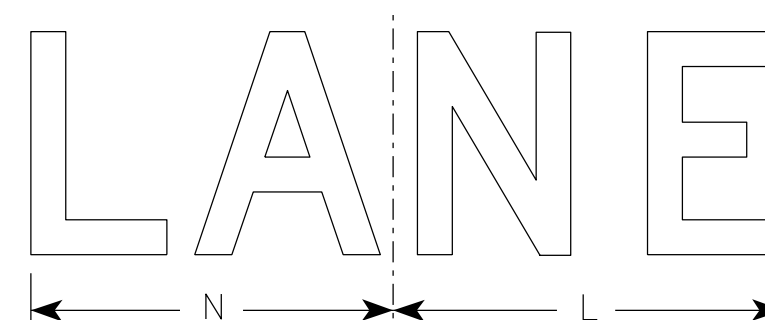
R11-2



R11-2R



R11-2T



R11-2L

NOTES

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

7

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

STANDARD SIGN
R11-2

WISCONSIN DEPT OF TRANSPORTATION

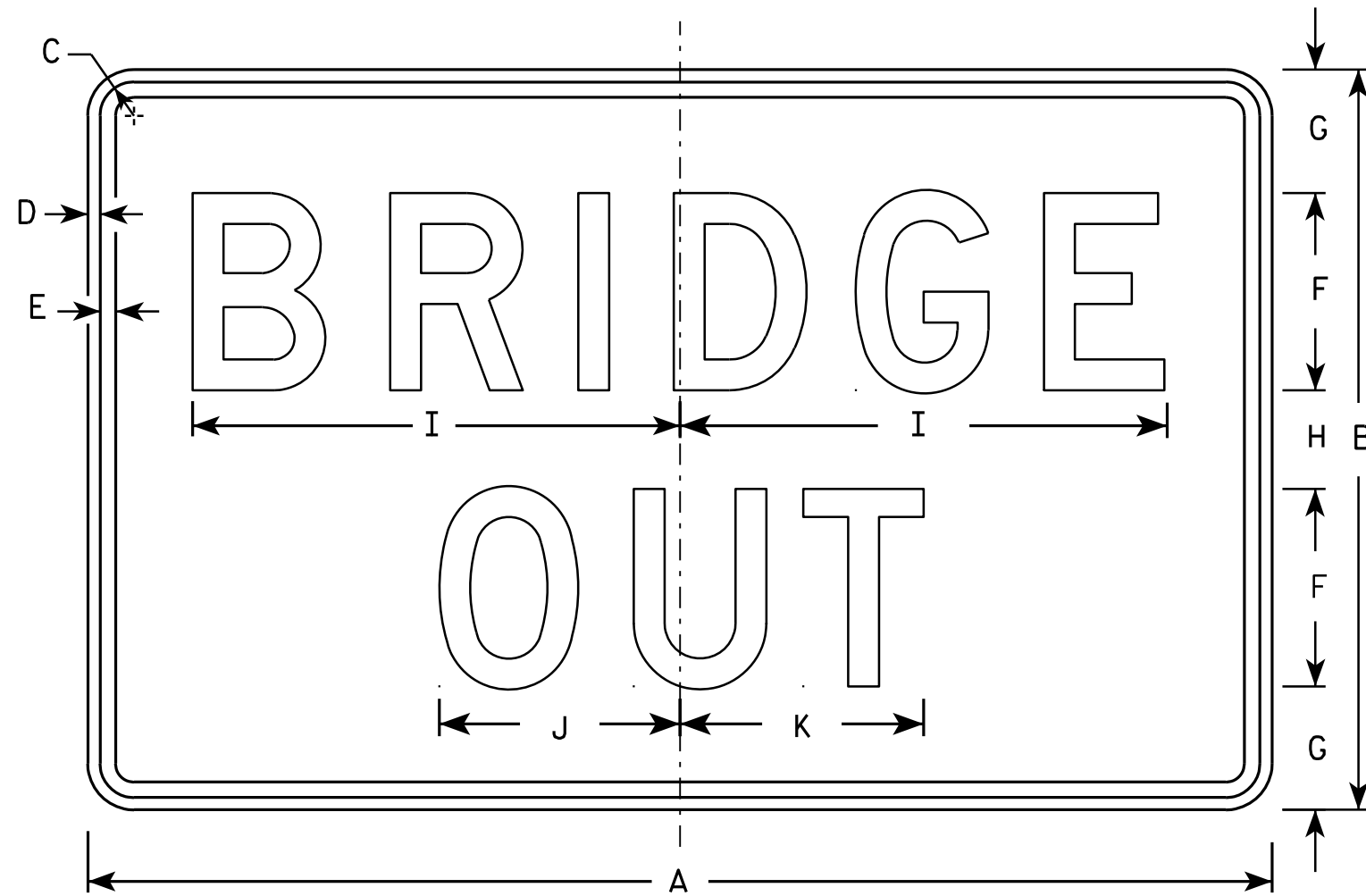
APPROVED *Matthew R Rauch*
For State Traffic Engineer

DATE 3/29/2021 PLATE NO. R11-2.11

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ **E**

NOTES

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



R11-2B

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1																											
2S	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
2M	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
3	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
4	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0
5	48	30	1 3/8	1/2	5/8	8	5	4	19 3/4	9 3/4	9 7/8																10.0

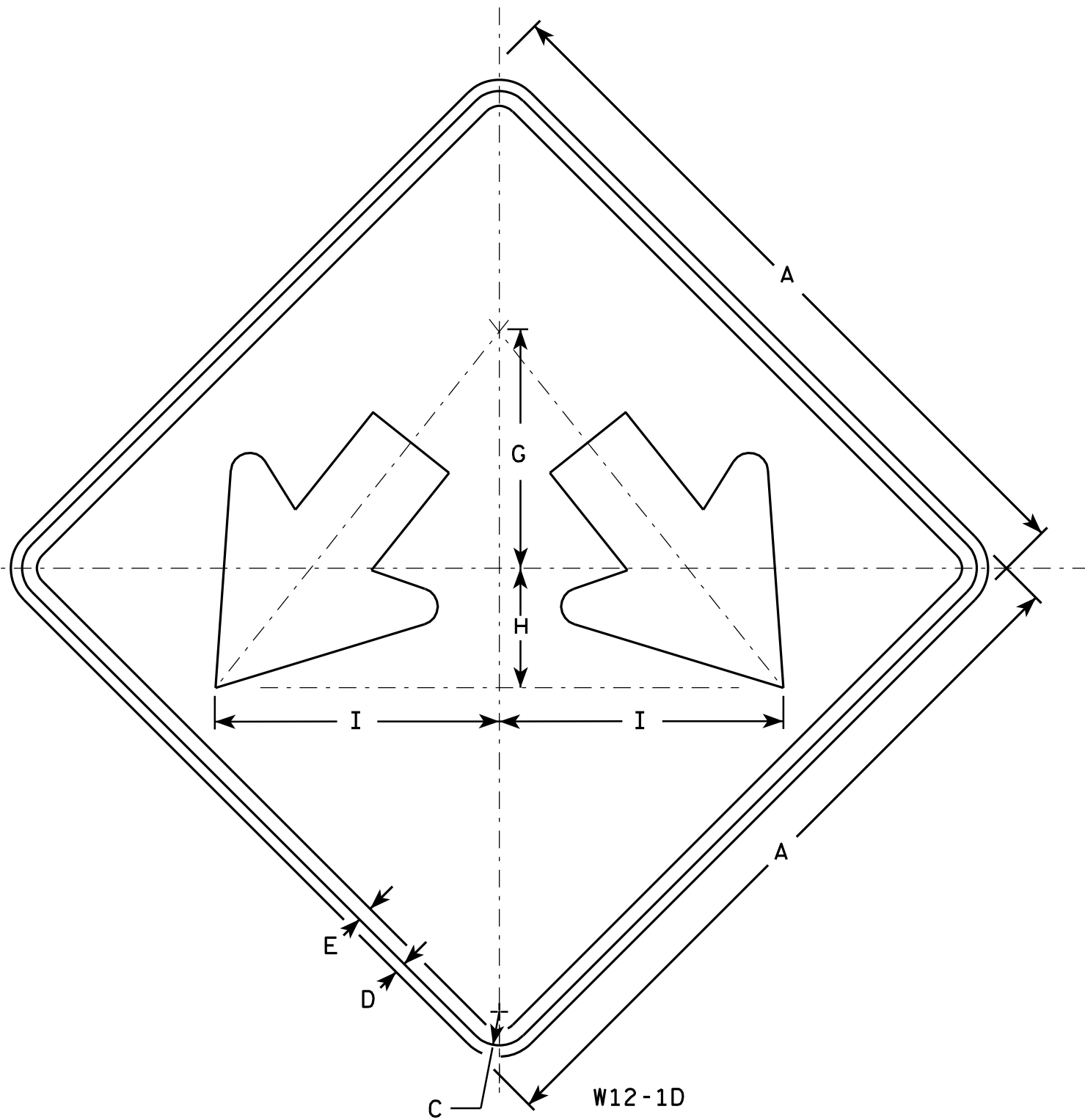
STANDARD SIGN
R11-2B

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

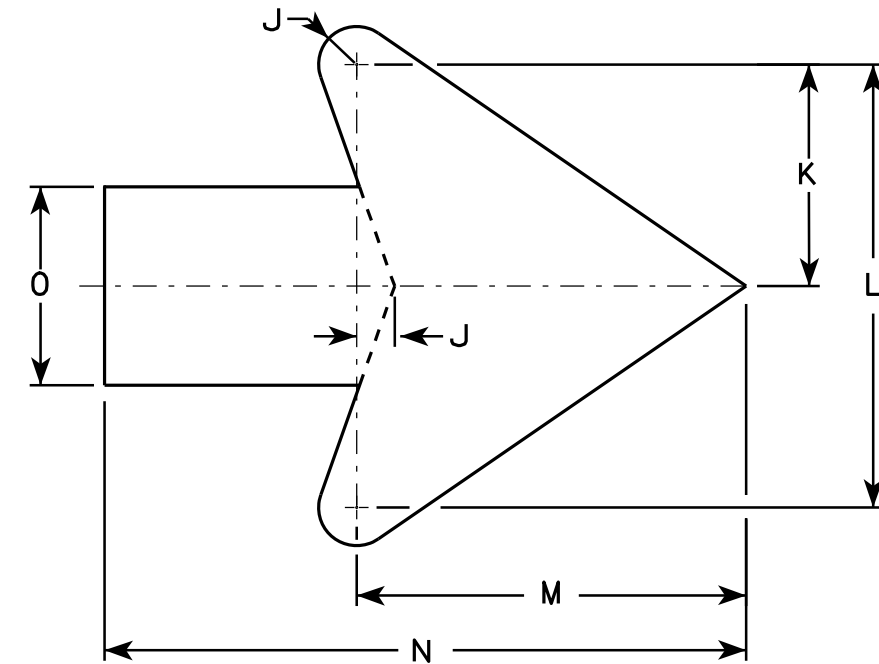
DATE 4/1/11 PLATE NO. R11-2B.2

PROJECT NO: _____ SHEET NO: _____ E



NOTES

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



Arrow Detail

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

STANDARD SIGN
W12-1D

WISCONSIN DEPT OF TRANSPORTATION

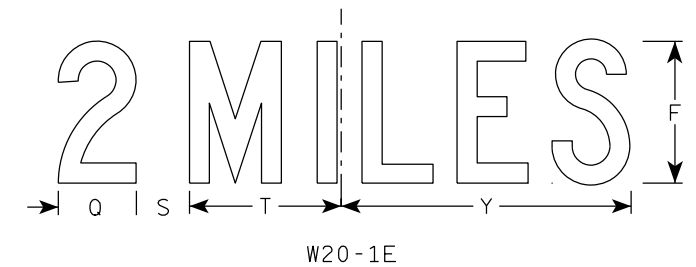
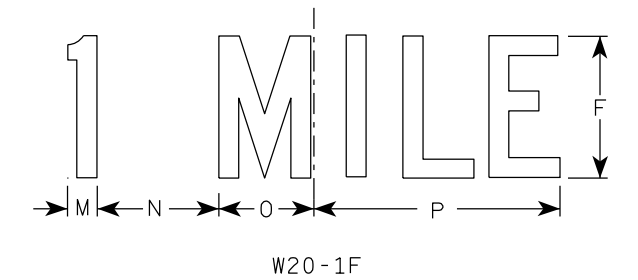
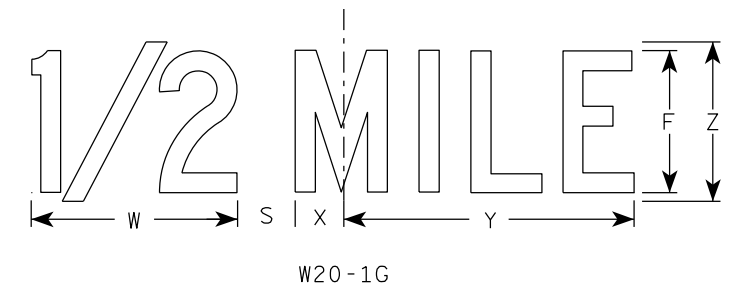
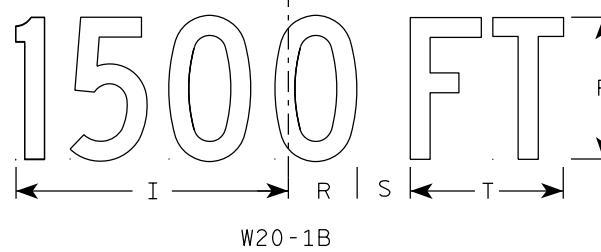
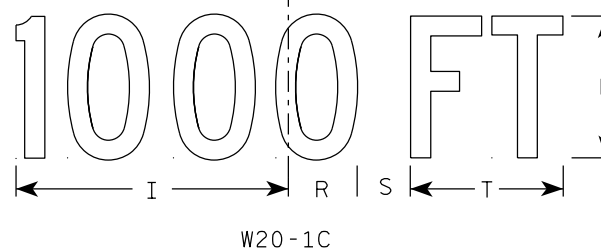
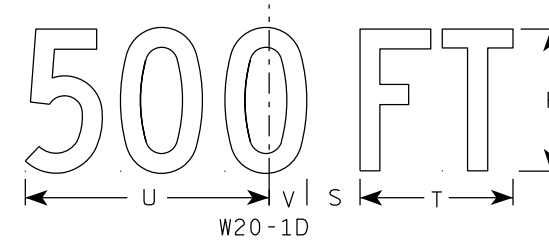
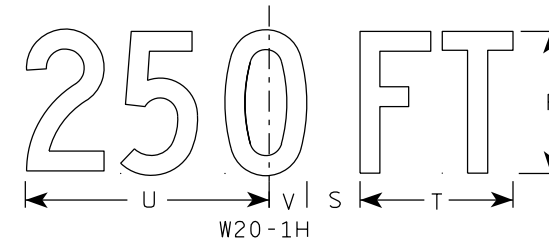
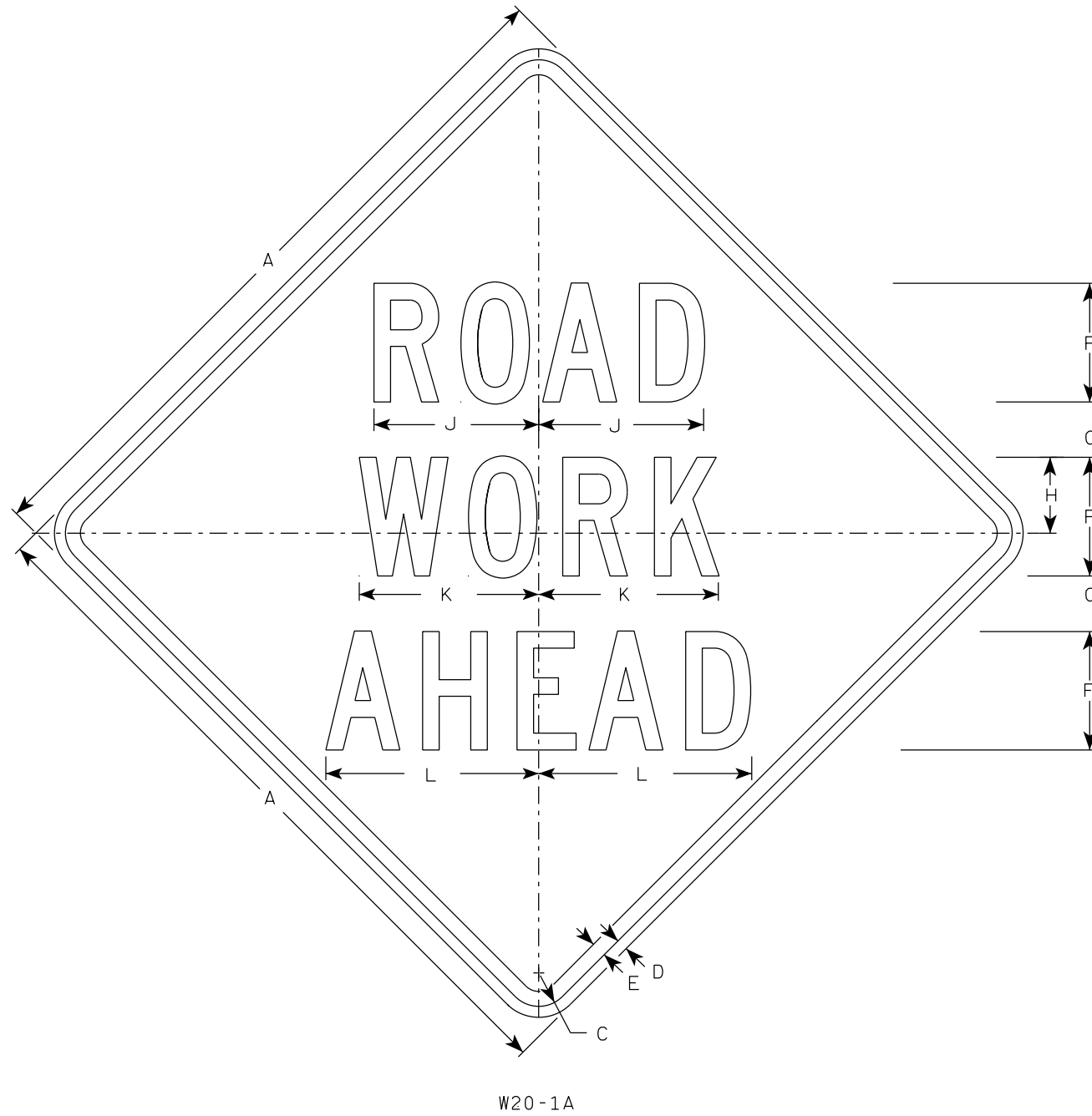
APPROVED *Matthew R. Rauch*
for State Traffic Engineer

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

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**

NOTES

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



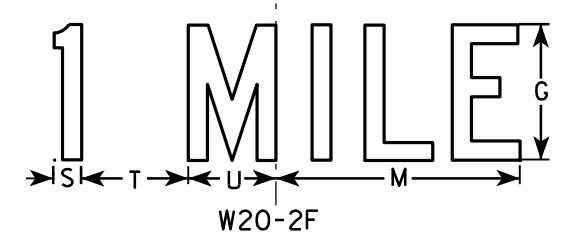
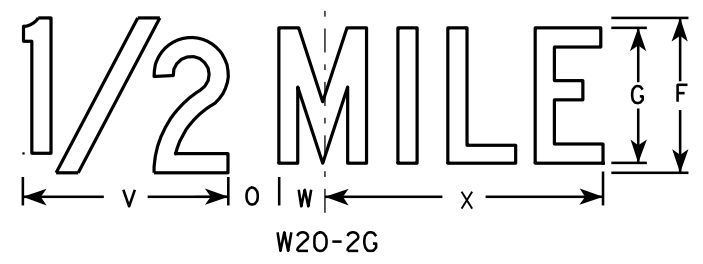
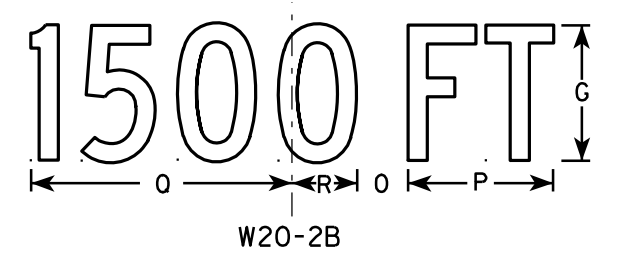
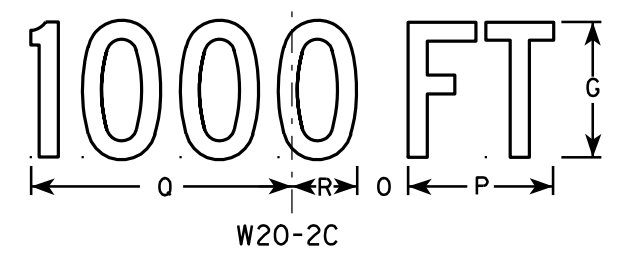
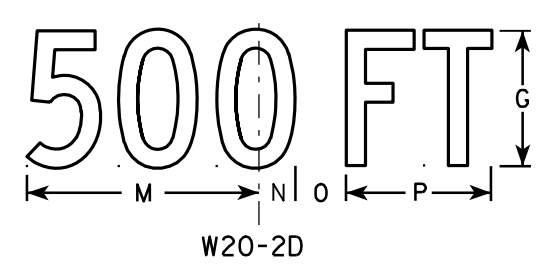
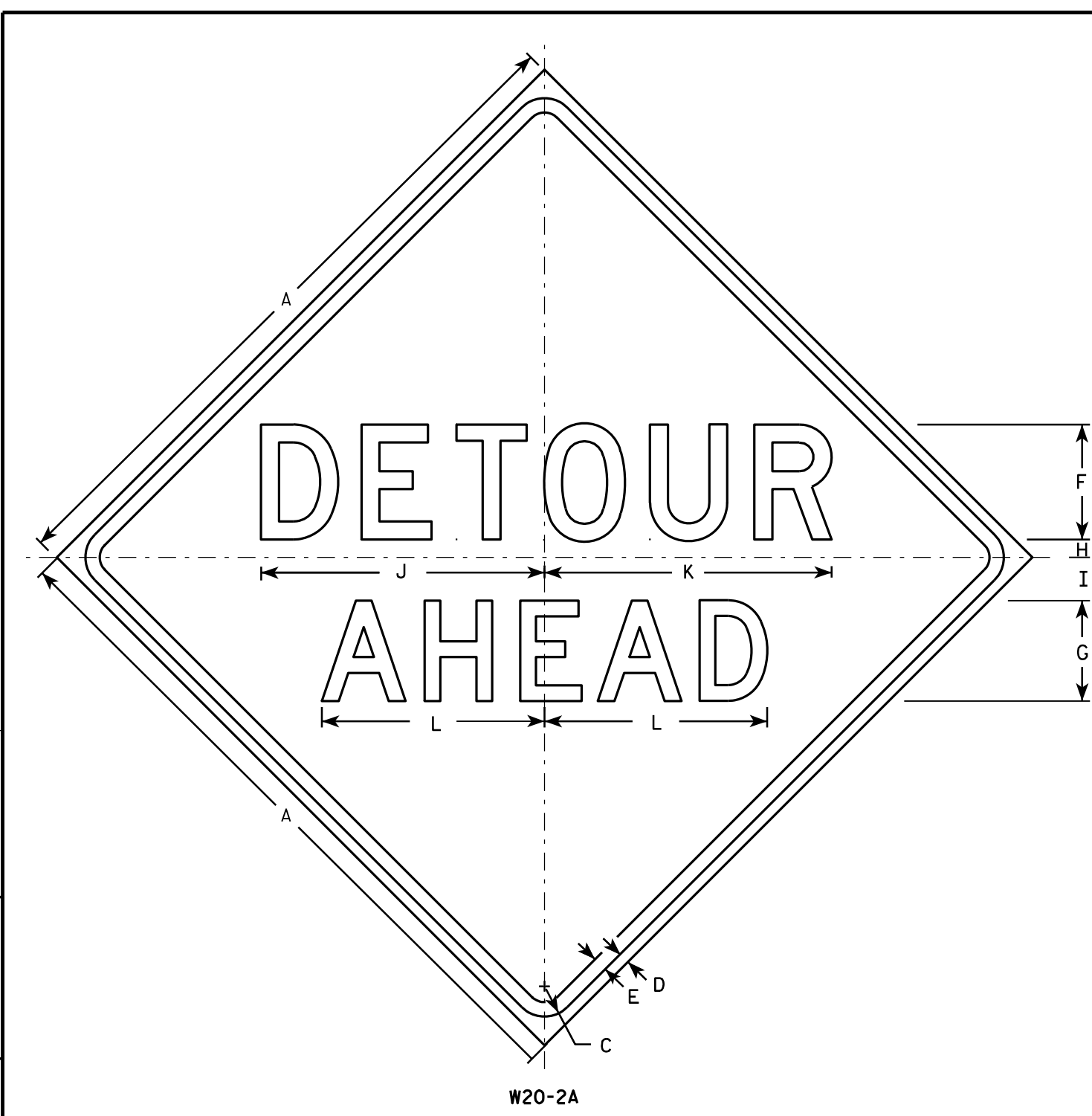
SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	2 5/8	3 1/4	10 1/8	7	7 5/8	8 7/8	1 1/8	4 1/2	3 1/2	9	3 1/4	2 1/2	2 1/4	5 5/8	9	1 3/8	8	1 3/4	10 3/4	6	9.0
2S	48		2 1/4	3/4	1	8	3 3/4	5 1/8	15 3/8	11 1/8	12 1/8	14 3/8	1 5/8	6 7/8	5 3/8	13 7/8	4 3/8	3 7/8	3	8 5/8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

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

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/25/2020 PLATE NO. W20-1.11



NOTES

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

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	6	5	1	2 1/4	14 3/4	15	11 5/8	9	1 3/8	1 7/8	5 5/8	10 1/8	2 1/2	1 1/8	4 1/2	3 1/2	8	1 3/4	10 3/4			9.0
2S	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
2M	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
3	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
4	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0
5	48		2 1/4	3/4	1	8	7	1 1/4	3	19 3/4	20	15 1/2	12	1 7/8	2 5/8	7 1/2	13 1/2	3 3/8	1 1/2	6	4 5/8	10 5/8	2 3/8	14 3/8			16.0

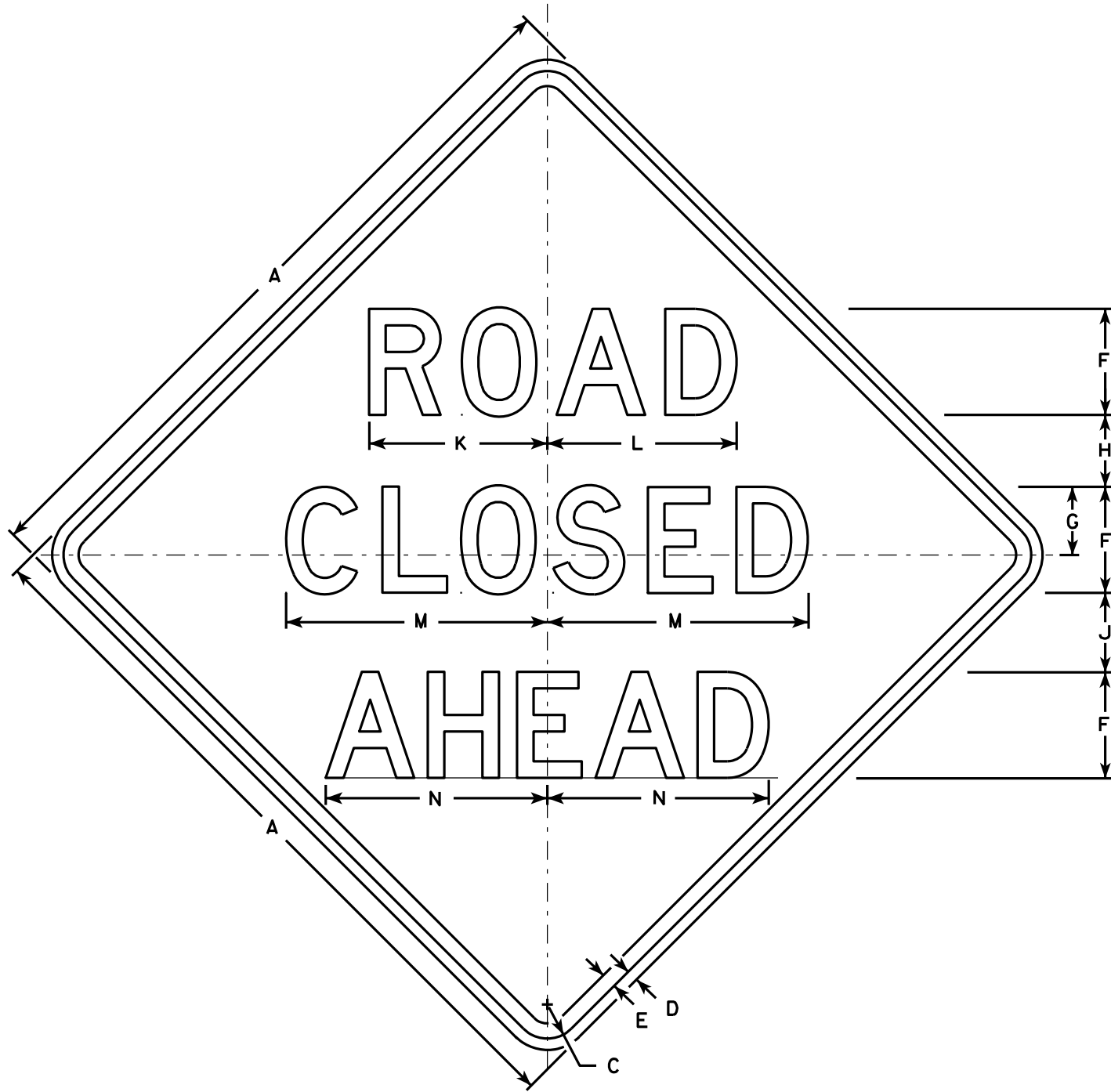
STANDARD SIGN
W20-2A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

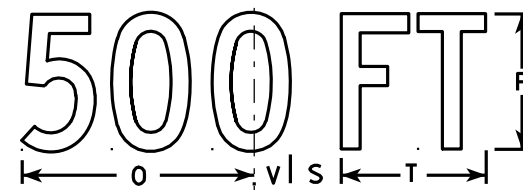
APPROVED *Matthew R. Raub*
for State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-2.6

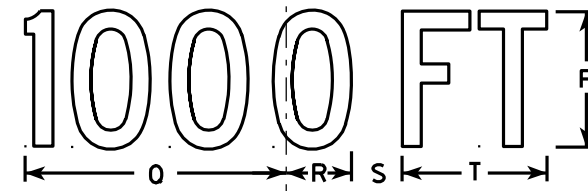
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E



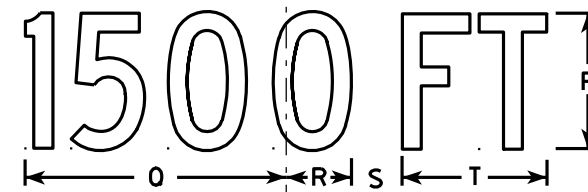
W20-3A



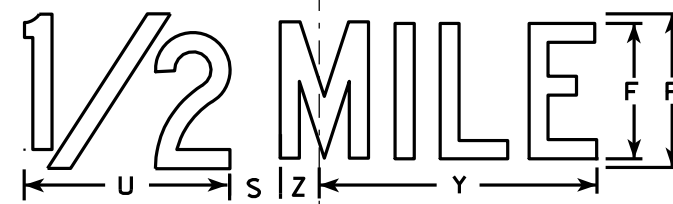
W20-3D



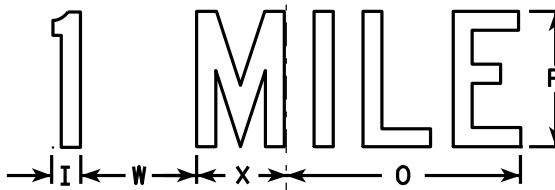
W20-3C



W20-3B



W20-3G



W20-3F

NOTES

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

7

7

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	5	3 3/8	3 1/2	1 1/8	4	8 3/8	8 7/8	12 1/2	11	9	6	10 1/8	2 1/2	1 7/8	5 5/8	8	1 3/8	4 1/2	3 1/2	10 3/4	1 3/4	9.0
2S	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
2M	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
3	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
4	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0
5	48		2 1/4	3/4	1	7	4 1/2	4 3/4	1 1/2	5 1/4	11 3/4	12 1/2	17 1/4	14 5/8	12	8	13 1/2	3 3/8	2 5/8	7 1/2	10 5/8	1 7/8	6	4 5/8	14 3/8	2 3/8	16.0

STANDARD SIGN
W20-3A, B, C, D, F & G

WISCONSIN DEPT OF TRANSPORTATION

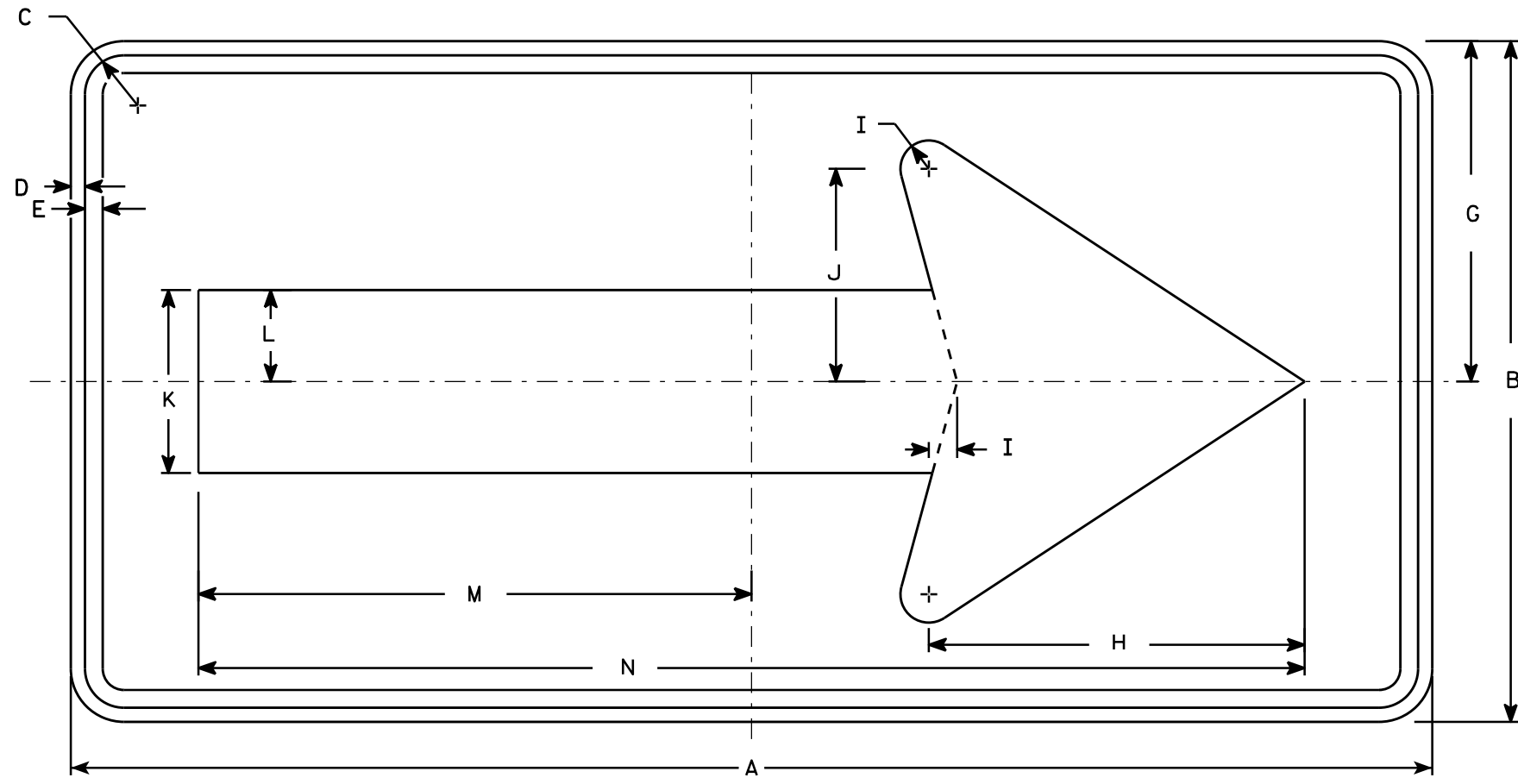
APPROVED *Matthew R. Rauch*
For State Traffic Engineer

DATE 3/18/11 PLATE NO. W20-3.7

PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: _____ E

NOTES

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



W01-6

7

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

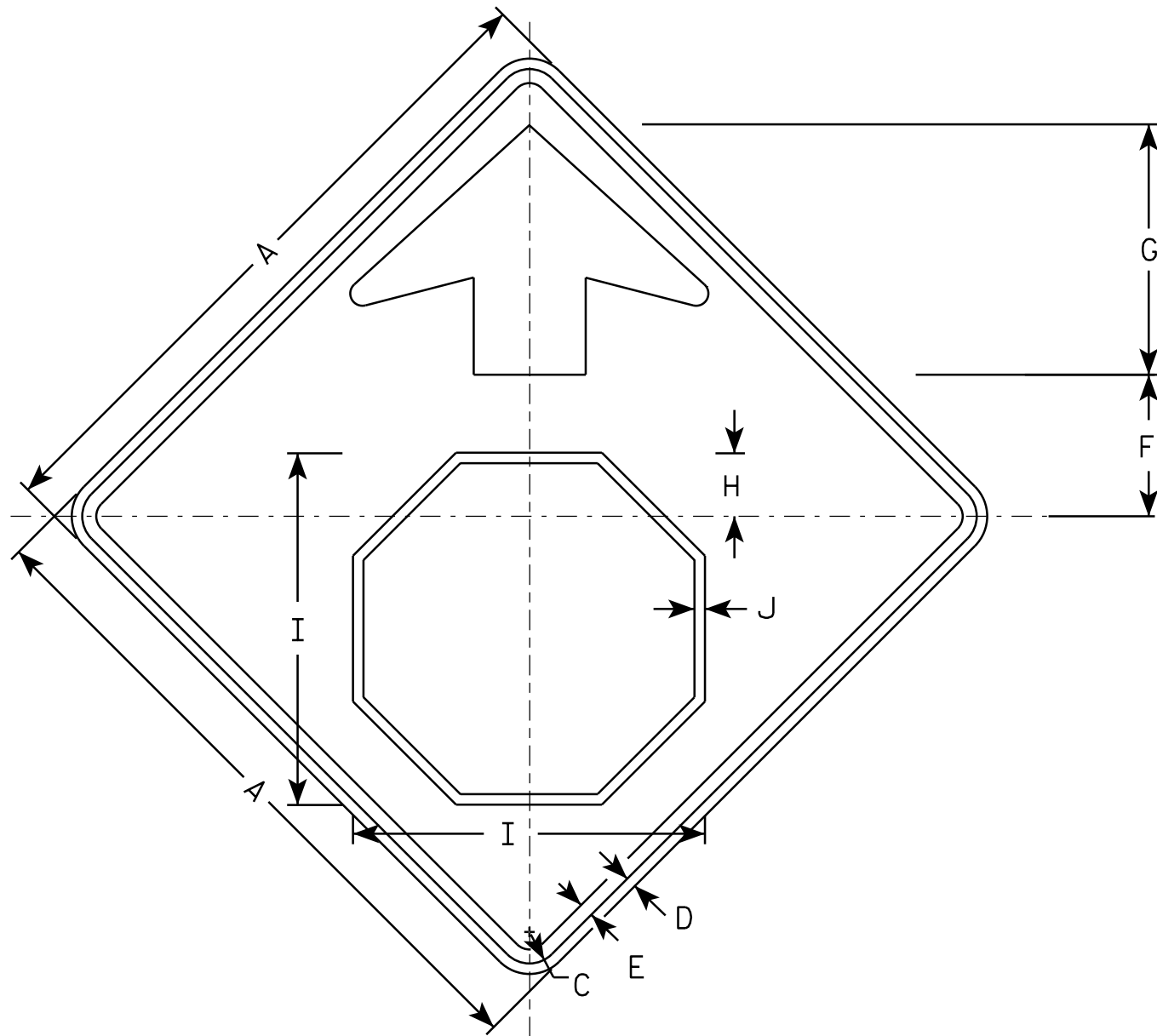
STANDARD SIGN
W01-6

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/18/13 PLATE NO. W01-6.1

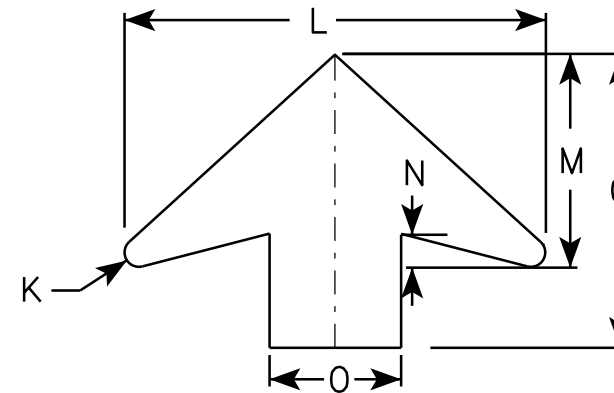
PROJECT NO: _____ HWY: _____ COUNTY: _____ SHEET NO: **E**



W03-1

NOTES

1. All Signs Type II - Type F Reflective - reference WIS DOT Standard Specification for HIGHWAY and STRUCTURE CONSTRUCTION latest edition.
2. Color:
 Background - ORANGE
 Arrow & Border - BLACK
 Stop Symbol - WHITE BORDER ON RED BACKGROUND



ARROW DETAIL

SIZE	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	Area sq. ft.
1	36		1 5/8	5/8	3/4	7 1/2	13 1/2	3 1/2	19	5/8	5/8	19 1/4	9 3/4	1 5/8	6												9.0
2S	48		2 1/4	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
2M	48		2 1/4	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
3	48		2 1/4	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
4	48		2 1/4	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0
5	48		2 1/4	3/4	1	10	17 7/8	4 1/2	25 1/8	3/4	7/8	25 5/8	13	2	8												16.0

STANDARD SIGN
W03-1

WISCONSIN DEPT OF TRANSPORTATION

APPROVED *Matthew R. Rauch*
for State Traffic Engineer

DATE 11/20/13 PLATE NO. W03-1.1

PROJECT NO:

SHEET NO:

E

DESIGN DATA

LIVE LOAD
 DESIGN LOAD: HS20
 INVENTORY RATING: HS24
 OPERATIONAL RATING: HS42
 WISCONSIN STANDARD PERMIT VEHICLE LOAD
 (WIS-SPV):.....250 KIPS

MATERIAL PROPERTIES

CONCRETE MASONRY
 SUPERSTRUCTURE.....f'c = 4,000 psi
 ALL OTHER.....f'c = 3,500 PSI
 BAR STEEL REINFORCEMENT, GRADE 60 fy = 60,000 psi

TRAFFIC DATA

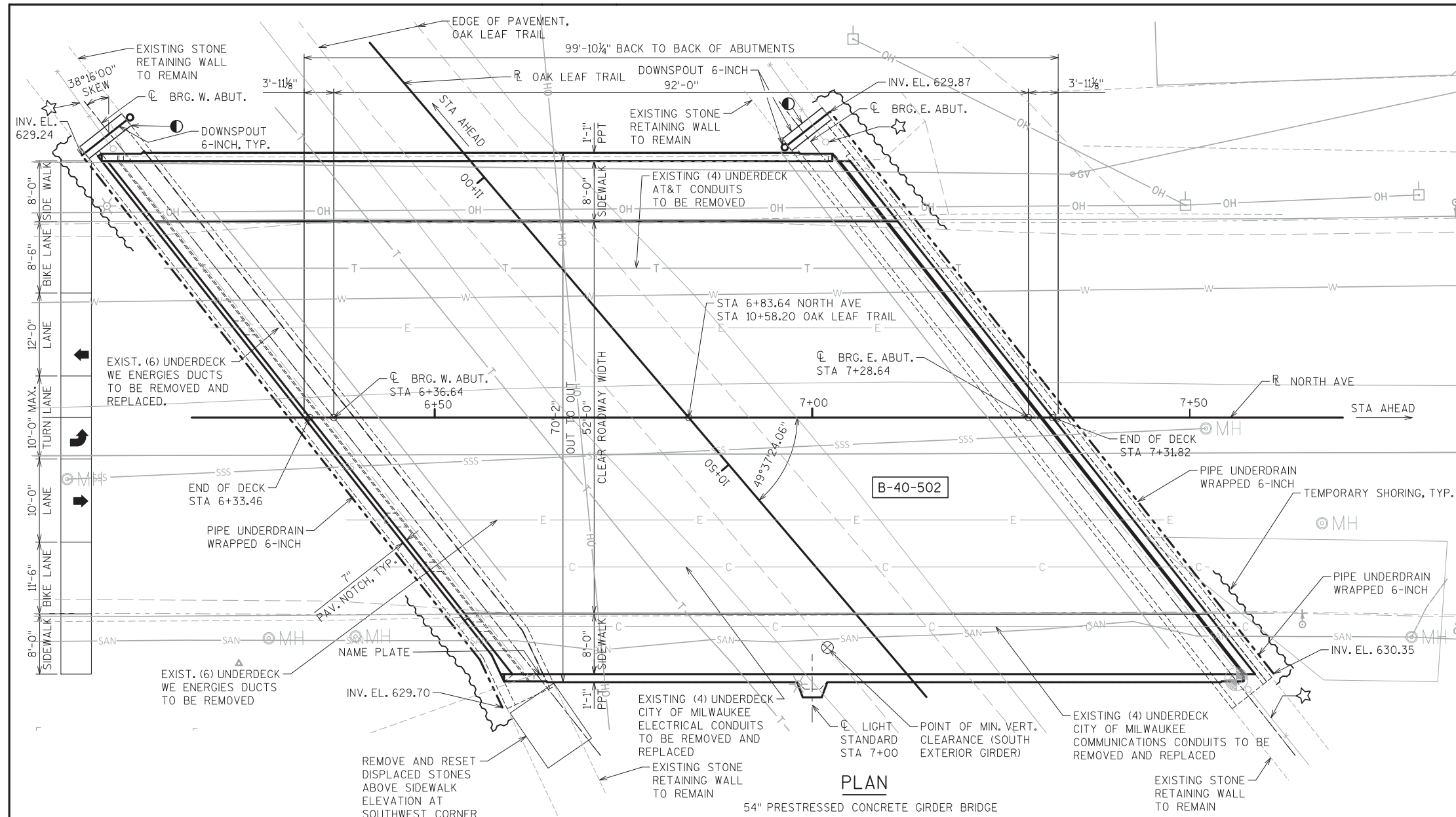
NORTH AVENUE
 A.D.T. (2019) = 17300
 A.D.T. (2035) = 19844
 DESIGN SPEED = 35 MPH

LIST OF DRAWINGS

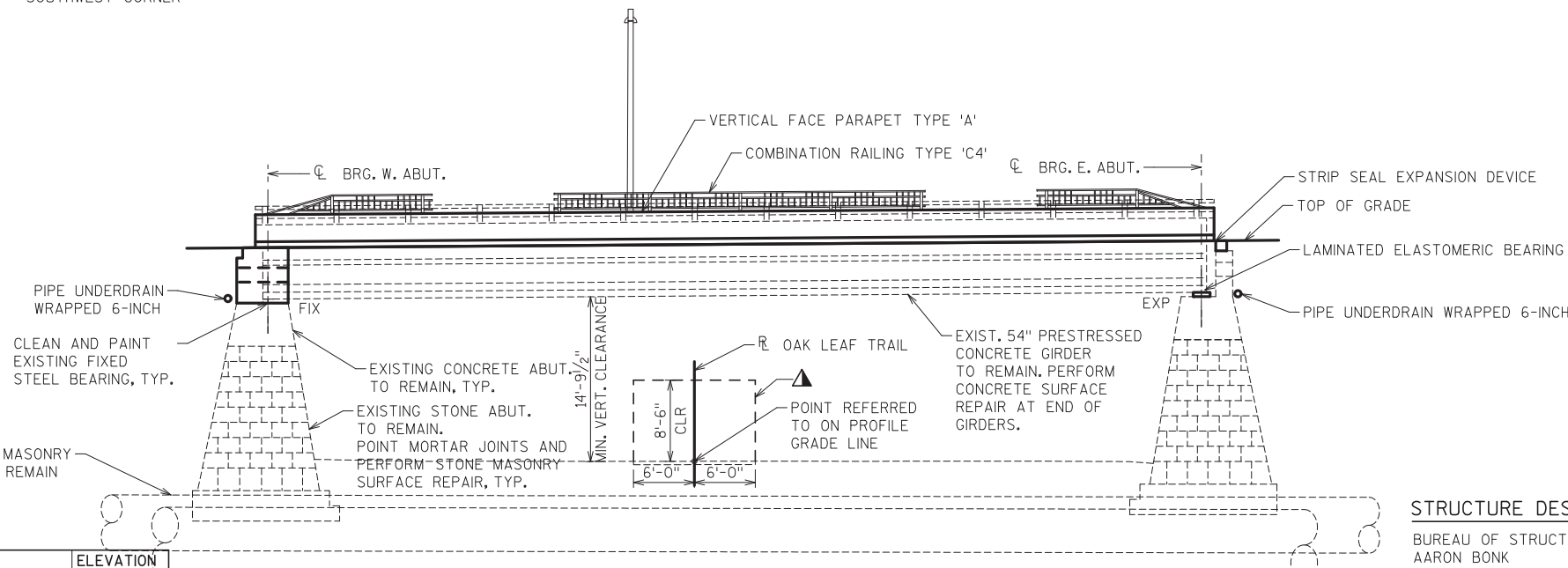
1. GENERAL PLAN AND ELEVATION
2. TYPICAL SECTION AND GENERAL NOTES
3. ESTIMATED QUANTITIES
4. SUBSTRUCTURE REMOVALS
5. SUPERSTRUCTURE (1 OF 4)
6. SUPERSTRUCTURE (2 OF 4)
7. SUPERSTRUCTURE (3 OF 4)
8. SUPERSTRUCTURE (4 OF 4)
9. INTERMEDIATE STEEL DIAPHRAGM
10. EXPANSION DEVICE (1 OF 2)
11. EXPANSION DEVICE (2 OF 2)
12. ELASTOMERIC BEARING
13. VERTICAL FACE PARAPET TYPE 'A'
14. LIGHT STANDARD
15. COMBINATION RAILING TYPE 'C4' MODIFIED (1 OF 3)
16. COMBINATION RAILING TYPE 'C4' MODIFIED (2 OF 3)
17. COMBINATION RAILING TYPE 'C4' MODIFIED (3 OF 3)
18. DOWNSPOUT
19. WEST ABUTMENT STONE MASONRY REPAIR
20. EAST ABUTMENT STONE MASONRY REPAIR

LEGEND

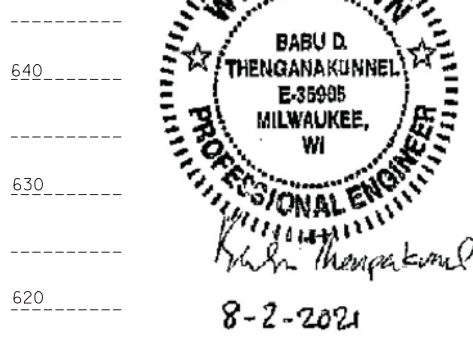
- ▲ PROTECTED BIKE PATH WITH PLYWOOD CEILING. OAK LEAF TRAIL SHALL REMAIN OPEN FOR PEDESTRIAN AND BICYCLE TRAFFIC FOR THE DURATION OF THE CONSTRUCTION. COST PAID UNDER THE BID ITEM "PEDESTRIAN PROTECTION ENCLOSURE".
- REMOVE ONE FOOT LENGTH OF STONE WALL. RESET STONES AFTER DOWNSPOUT INSTALLATION. REMOVE STONE WALL FROM TOP OF WALL TO BEAM SEAT ELEVATION. AT CONTRACTOR'S OPTION, THE WALL MAY BE CORED TO INSTALL THE DOWNSPOUT. PAYMENT WILL BE BASED ON REMOVING AND RESETTING THE EXISTING STONES.
- ☆ REMOVE AND REINSTALL END PORTION OF EXISTING CHAIN LINK FENCE. COST PAID UNDER THE BID ITEM "REMOVING AND RESETTING CHAIN LINK FENCE".



PLAN



ELEVATION
(LOOKING NORTH)



BENCHMARK DATA

NO.	STATION	DESCRIPTION	ELEVATION
BM-1	7+96.57 NORTH AVE, 85.11' RT.	CHISELED "X" ON TOP OF PARAPET OF BRIDGE B-40-503	638.39
BM-2	7+56.40 NORTH AVE, 34.60' RT.	CHISELED "X" ON TOP OF PARAPET OF BRIDGE B-40-502	638.00

STRUCTURE DESIGN CONTACTS

BUREAU OF STRUCTURES CONTACT:
 AARON BONK
 (608) 261-0261

CONSULTANT CONTACT:
 YAN NENAYDYKH
 (414) 292-4599

NO.	DATE	REVISION	BY

BLOOM COMPANIES, LLC
 Infrastructure Innovation and Ingenuity
 10501 W. Research Drive • Milwaukee, WI 53226
 Phone: (414) 771-3390 • Fax: (414) 771-4490

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

ACCEPTED: SDR. **08/05/21**
 CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-40-502

EAST NORTH AVE OVER OAK LEAF TRAIL

COUNTY	MILWAUKEE	CITY	MILWAUKEE
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DESIGN SPEC. REHABILITATION N/A

DESIGNED BY	BT	DESIGN CK'D.	JA	DRAWN BY	BT	PLANS CK'D.	JA/YNN
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GENERAL PLAN AND ELEVATION

SHEET 1 OF 20

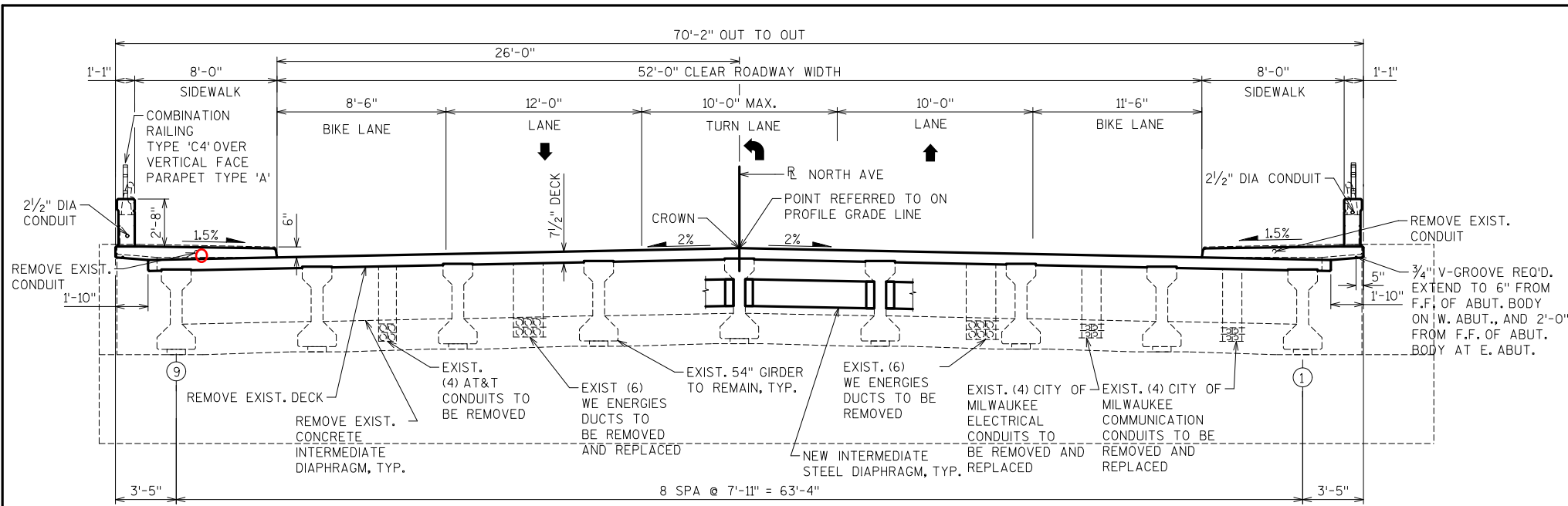
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 PLOTTED BY: bthengon

8

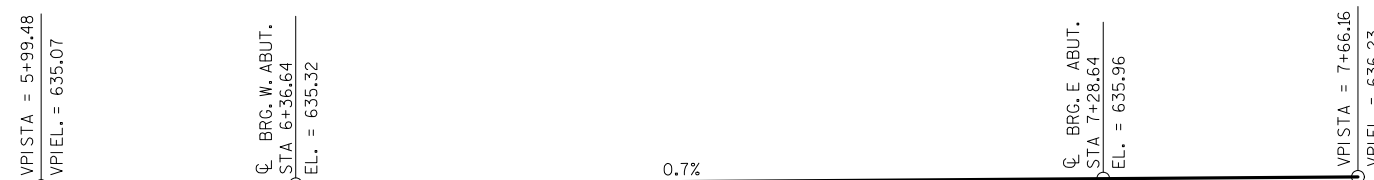
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GENERAL NOTES

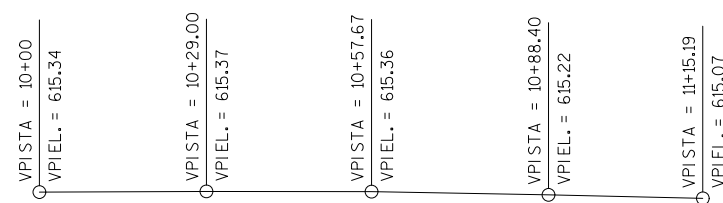
- DRAWINGS SHALL NOT BE SCALED.
- ALL STATIONS AND ALL ELEVATIONS ARE IN FEET.
- ALL DIMENSIONS ARE IN FEET AND INCHES.
- ALL NEW BAR STEEL REINFORCEMENT SHALL BE EPOXY COATED.
- BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCH CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
- THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
- BEVEL EXPOSED EDGES OF CONCRETE 3/4 INCH UNLESS OTHERWISE NOTED.
- EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS, HARDWARE, AND SIDEWALK COVER PLATES SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "EXPANSION DEVICE",L.F.
- DIMENSIONS SHOWN ARE BASED ON THE ORIGINAL STRUCTURE PLANS.
- VARIATIONS TO THE NEW GRADE LINE OVER 1/4 INCH MUST BE SUBMITTED BY THE FIELD ENGINEER TO THE STRUCTURES DESIGN SECTION FOR REVIEW.
- THE CONTRACTOR SHALL SUPPLY A NEW NAME PLATE IN ACCORDANCE WITH 502.3.11 OF THE STANDARD SPECIFICATIONS AND THE STANDARD DETAIL DRAWINGS. THE NEW NAME PLATE SHALL SHOW THE ORIGINAL CONSTRUCTION YEAR. ORIGINAL CONSTRUCTION YEAR IS 1925.
- THE UPPER LIMIT OF "EXCAVATION FOR STRUCTURES BRIDGES B-40-502" SHALL BE THE EXISTING GROUNDLINE.
- EXISTING SOIL NORTH OF R E. NORTH AVE IS CONTAMINATED. EXCAVATION OF THE CONTAMINATED SOIL WILL BE PAID FOR SEPARATELY UNDER THE BID ITEM " EXCAVATION, HAULING, AND DISPOSAL OF PETROLEUM CONTAMINATED SOIL" INCLUDED IN THE ROADWAY PLANS, AND THE BID PRICE FOR ITEM "EXCAVATION FOR STRUCTURES B-40-502" SHALL ACCOUNT FOR THIS SEPARATE PAYMENT.
- AT THE BACK FACE OF THE ABUTMENT ALL VOLUME NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TYPE A TO THE ELEVATION AND SECTION EXISTING PRIOR TO EXCAVATION.
- PROTECTIVE SURFACE TREATMENT SHALL BE APPLIED TO THE TOP OF DECK, TOP AND SIDES OF CURBS, TOP OF SIDEWALK, TOP AND SIDES OF PAVING NOTCH, AND TOP OF ABUTMENT AT SIDEWALK ELEVATION.
- PIGMENTED SURFACE SEALER SHALL BE APPLIED TO TOP AND INSIDE FACES OF PARAPETS.
- THE EXISTING DECK, PAVING BLOCK, SIDEWALKS, PARAPETS, RAILING, EXPANSION JOINTS, CONCRETE DIAPHRAGMS, WEST ABUTMENT BACKWALL, AND EAST ABUTMENT BEARINGS SHALL BE REMOVED IN THIS CONTRACT. EXISTING GIRDERS AND SUBSTRUCTURE UNITS SHALL REMAIN IN PLACE. WEST ABUTMENT BEARINGS SHALL BE CLEANED AND PAINTED.
- PLANS OF THE EXISTING BRIDGE ARE ON FILE AND ARE AVAILABLE FOR INSPECTION AT THE WISCONSIN DEPARTMENT OF TRANSPORTATION, SOUTHEAST REGION.
- INSTALL UTILITY INSERTS FURNISHED BY WE ENERGIES IN THE DECK. COST INCLUDED IN THE BID ITEM " INSTALL WE ENERGIES FURNISHED DECK INSERTS".
- SEE ROAD PLANS FOR INSTALLATION OF DECK INSERTS FOR CITY OF MILWAUKEE COMMUNICATIONS AND ELECTRICAL CONDUIT PACKAGES.
- HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE SUPERSTRUCTURE SHEET. TOP OF GIRDER IS PARTIALLY EMBEDDED IN THE NEW DECK FOR PART OF THE SPAN AND FALSEWORK SHALL BE DESIGNED TAKING THIS INTO CONSIDERATION.
- SEE SHEET 3 FOR ADDITIONAL GENERAL NOTES.



TYPICAL SECTION THRU ROADWAY
(LOOKING EAST)



PROFILE GRADE LINE - NORTH AVENUE



PROFILE GRADE LINE - OAK LEAF TRAIL
(BASED ON FIELD SURVEY)

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PEN TABLE: V8. STRUCTURAL_REV.TBL
Plotted by: bthengon

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
TYPICAL SECTION AND GENERAL NOTES			SHEET 2 OF 20

TOTAL ESTIMATED QUANTITIES

ITEM NUMBER	BID ITEMS	UNIT	WEST ABUTMENT	SUPER	EAST ABUTMENT	TOTAL
203.0220	REMOVING STRUCTURE B-40-502	EACH	-	-	-	1
203.0330	DEBRIS CONTAINMENT B-40-502	EACH	-	-	-	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-40-502	LS	-	-	-	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	231	-	257	488
502.0100	CONCRETE MASONRY BRIDGES	CY	-	291	4	295
502.3101	EXPANSION DEVICE	LF	-	-	86	86
502.3200	PROTECTIVE SURFACE TREATMENT	SY	-	774	-	774
502.3210	PIGMENTED SURFACE SEALER	SY	-	79	-	79
502.4205	ADHESIVE ANCHORS NO. 5 BAR	EACH	-	-	103	103
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	-	57900	840	58740
506.2610	BEARING PADS ELASTOMERIC LAMINATED	EACH	-	-	9	9
506.4000	STEEL DIAPHRAGMS B-40-502	EACH	-	8	-	8
506.7050.S	REMOVING BEARINGS B-40-502	EACH	-	-	9	9
509.1500	CONCRETE SURFACE REPAIR	SF	5	15	30	50
509.9020.S	EPOXY CRACK SEALING	LF	30	30	50	110
511.1200	TEMPORARY SHORING B-40-502	SF	329	-	364	693
513.7021	RAILING STEEL TYPE C4	LF	-	195	-	195
514.2625	DOWNSPOUT 6-INCH	LF	20	-	20	40
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	17	-	2	19
531.8990	ANCHOR ASSEMBLIES POLES ON STRUCTURES	EACH	-	1	-	1
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	92	-	95	187
652.0130	CONDUIT RIGID METALLIC 2 1/2-INCH	LF	-	24	-	24
652.0230	CONDUIT RIGID NONMETALLIC SCHEDULE 40 2 1/2-INCH	LF	-	187	-	187
653.0210	JUNCTION BOXES 10X10X6-INCH	EACH	-	4	-	4
653.0220	JUNCTION BOXES 18X6X6-INCH	EACH	-	1	-	1
999.1001.S	SEISMOGRAPH PROJECT 2445-09-71	EACH	-	-	-	1
999.1501.S	CRACK AND DAMAGE SURVEY	EACH	-	-	-	7
SPV.0035.01	REMOVING AND RESETTING STONES OF STONE MASONRY WALL	CY	5	-	2	7
SPV.0060.16	INSTALL WE ENERGIES FURNISHED DECK INSERTS	EACH	-	18	-	18
SPV.0060.17	CLEANING AND PAINTING BEARINGS	EACH	9	-	-	9
SPV.0060.18	PEDESTRIAN PROTECTION ENCLOSURE	EACH	-	-	-	1
SPV.0060.19	REMOVING AND RESETTING CHAIN LINK FENCE	EACH	1	-	2	3
SPV.0090.04	POINTING STONE MASONRY JOINTS	LF	1062	-	189	1251
SPV.0165.01	STONE MASONRY SURFACE REPAIR	SF	-	-	655	655
SPV.0180.01	ABUTMENT SEAT CLEANING AND SEALING	SY	-	-	34	34
	NON BID ITEMS					
	NAME PLATE	EACH				1
	FILLER	SIZE				1/2"

ALL ITEMS ARE CATEGORY 0010

GENERAL NOTES (CONTD..)

APPLY BRIDGE SEAT PROTECTION, PER SECTION 502.3.12 OF THE STANDARD SPECIFICATIONS, TO THE TOP SURFACES OF EAST ABUTMENT BELOW EXPANSION DEVICES. SEE SPECIAL PROVISIONS FOR PREPARATION OF SURFACE. COST INCLUDED IN THE BID ITEM "ABUTMENT SEAT CLEANING AND SEALING".

CONCRETE SURFACE REPAIR AND EPOXY CRACK SEALING REQUIRED IN AREAS AS DETERMINED BY THE ENGINEER IN THE FIELD.

REPAIR DETERIORATED ENDS OF EXISTING PRECAST CONCRETE GIRDERS AT BOTH ABUTMENTS. WORK PAID FOR UNDER THE BID ITEM "CONCRETE SURFACE REPAIR".

PERFORM EPOXY CRACK SEALING OF ENDS OF GIRDERS AT EAST ABUTMENT. WORK PAID FOR UNDER THE BID ITEM "EPOXY CRACK SEALING".

ALL CONCRETE REMOVAL SHALL BE DEFINED BY A 1 INCH DEEP SAW CUT, UNLESS SPECIFIED OTHERWISE. USE 1/2" DEEP SAW CUT FOR PRESTRESSED CONCRETE GIRDERS.

FILL ALL UNUSED OPENINGS IN THE BACK WALL OF EAST ABUTMENT WITH CONCRETE AS SHOWN ON SHEET 7.

REMOVE ALL EXISTING UNDERDECK CONDUITS INCLUDING CABLES AND CONDUIT HANGERS. REMOVE CONDUITS AND CONDUIT ENCASEMENT CONCRETE FROM EXISTING OPENINGS IN THE ABUTMENT BACKWALL. COST INCLUDED IN THE BID ITEM "REMOVING STRUCTURE B-40-502".

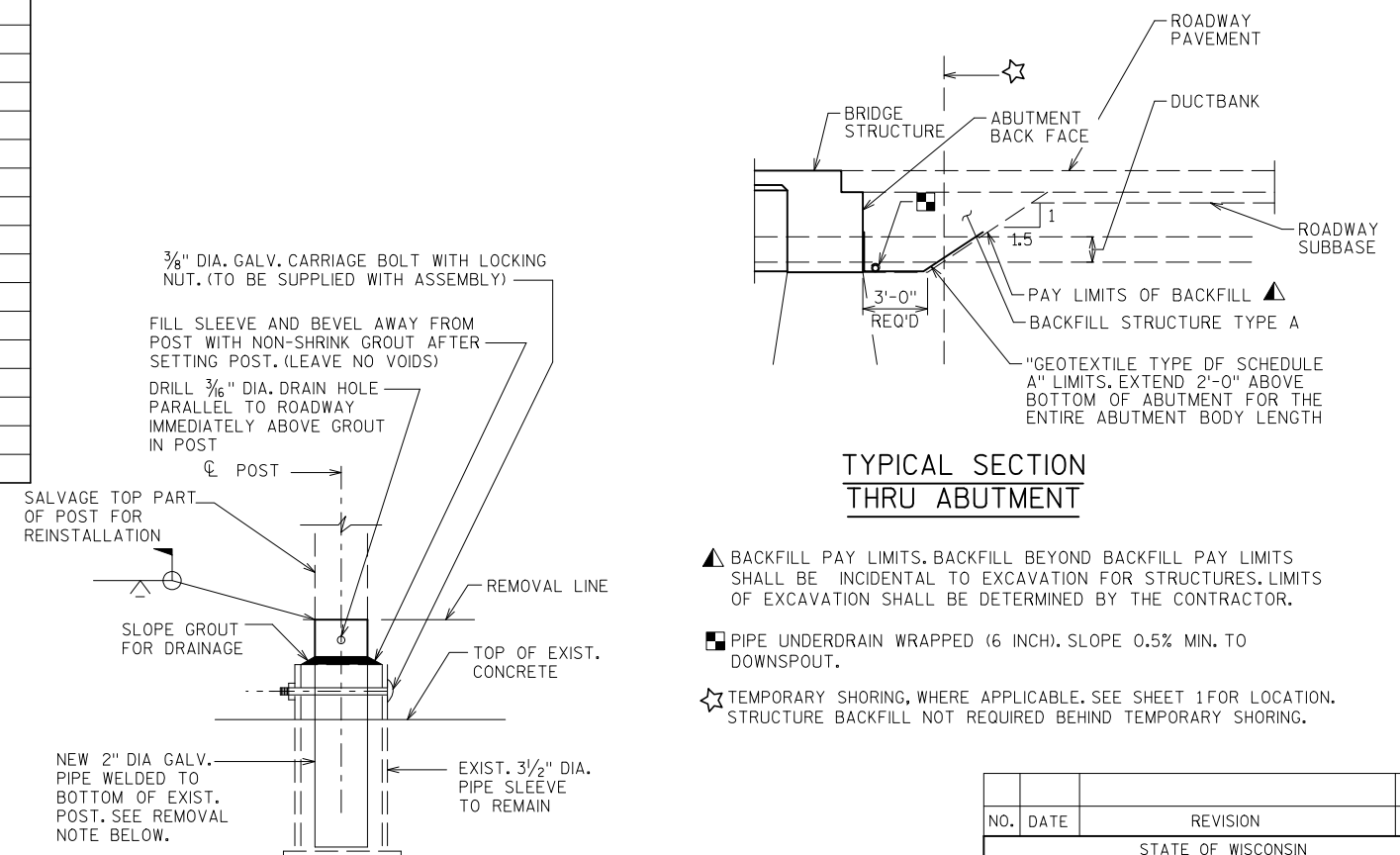
UTILIZE EXISTING BAR STEEL REINFORCEMENT WHERE SHOWN AND EXTEND 24 BAR DIAMETERS INTO NEW WORK, UNLESS SPECIFIED OTHERWISE.

SUBMIT A REMOVAL PLAN TO THE ENGINEER FOR APPROVAL. CONTACT THE FOLLOWING AT LEAST ONE WEEK BEFORE STARTING THE REMOVAL:

ANDREA WEDDLE-HENNING, MILWAUKEE COUNTY DOT, 414-257-5934, andrea.weddle-henning@milwaukeecountywi.gov
BRAD DREFCINSKI, MILWAUKEE COUNTY PARKS, 414-207-0308, bradford.drefcinski@milwaukeecountywi.gov

SEE SHEET 2 FOR ADDITIONAL GENERAL NOTES. MONITOR SAWCUTTING OF EXISTING BRIDGE DECK AND BLADE DEPTH SO THAT EXISTING UNDERLYING GIRDERS ARE NOT DAMAGED. EXERCISE CARE NOT TO DAMAGE THE TOP FLANGES OF GIRDERS WITH DEMOLITION EQUIPMENT. DO NOT DAMAGE EXISTING GIRDER STIRRUPS EMBEDDED IN EXISTING DECK.

SEE SHEET 2 FOR ADDITIONAL GENERAL NOTES.

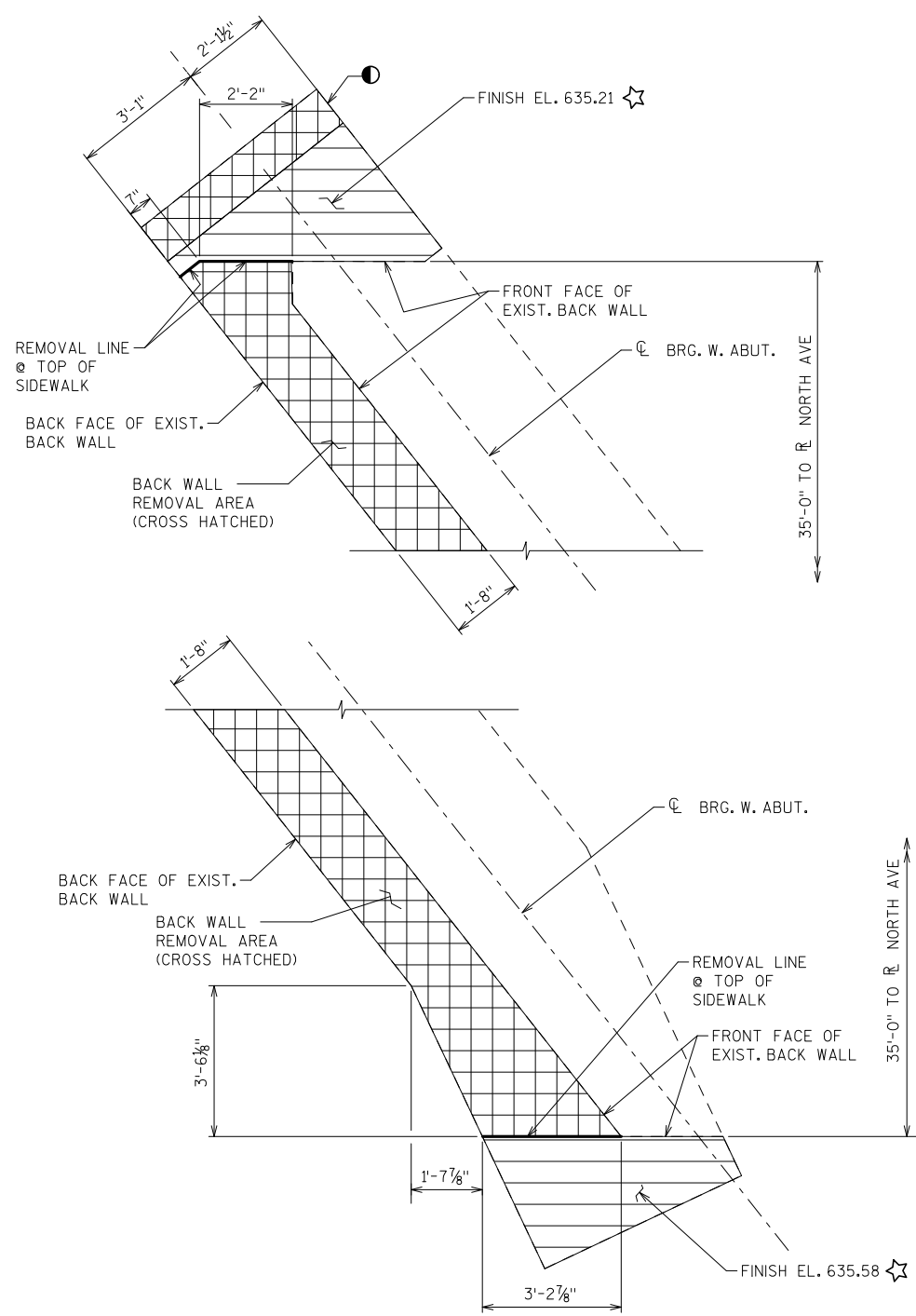


CHAIN LINK FENCE POST REPAIR DETAIL

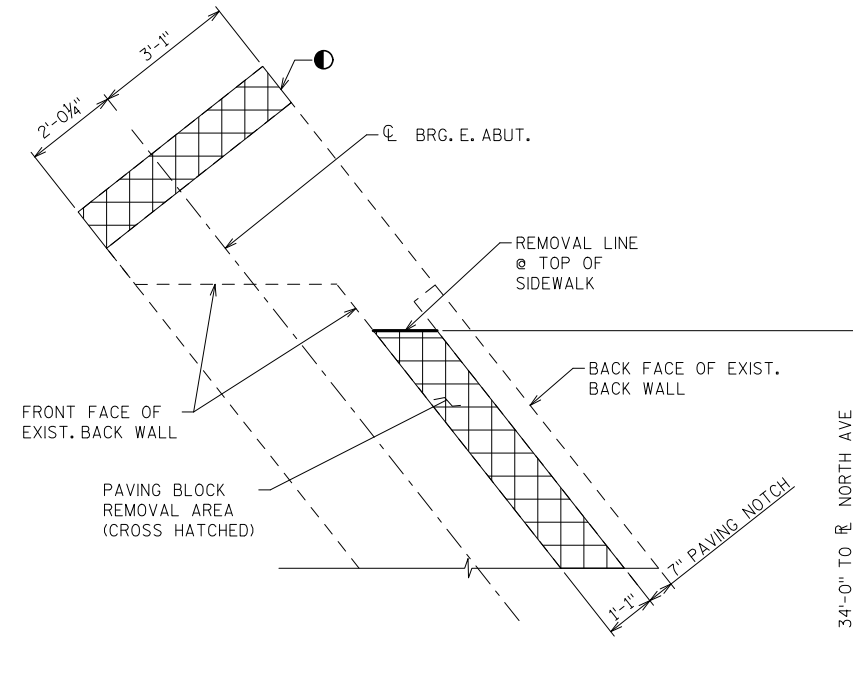
REMOVAL NOTE:
CUT EXIST. END POST SLIGHTLY ABOVE THE SLEEVE. REMOVE EXIST. BOLT CONNECTING POST AND SLEEVE. REMOVE GROUT AND BOTTOM PART OF POST FROM THE SLEEVE. EXISTING END POST NEED NOT BE CUT IF IT CAN BE REMOVED FROM THE SLEEVE WITHOUT DAMAGE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
ESTIMATED QUANTITIES			SHEET 3 OF 20

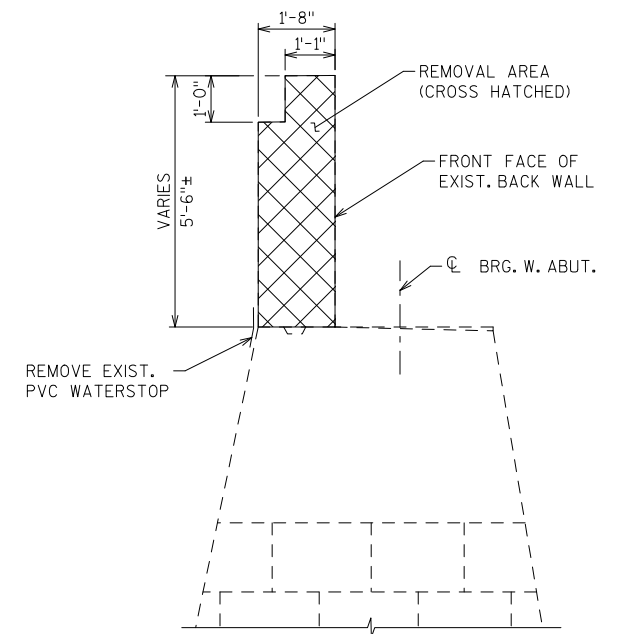
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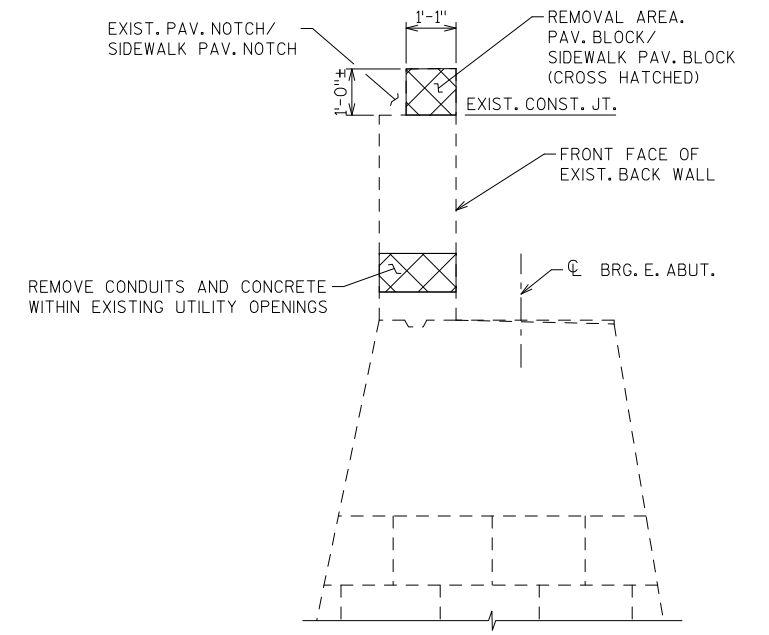
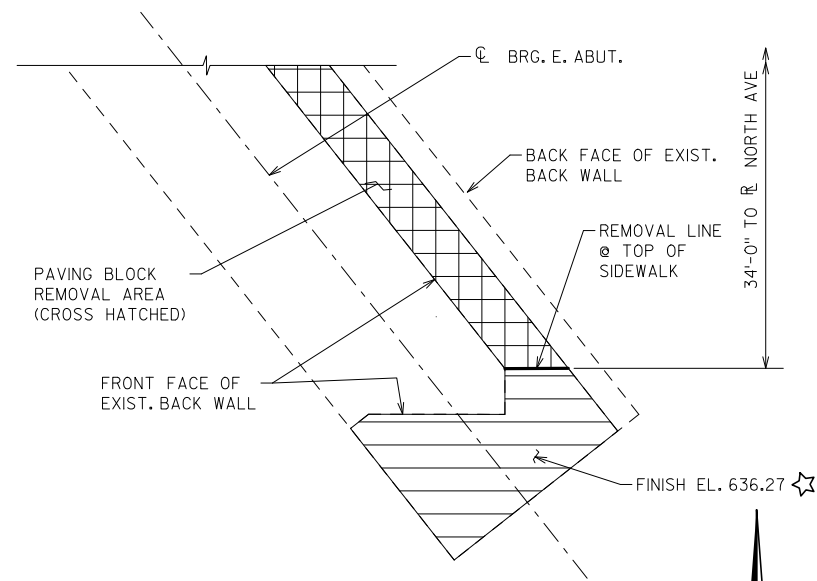
WEST ABUTMENT REMOVALS- SECTIONAL PLAN
 (PLAN AT BEAM SEAT)



EAST ABUTMENT REMOVALS- SECTIONAL PLAN
 (PLAN AT BEAM SEAT)



SECTION THRU WEST ABUTMENT
 (LOOKING NORTH, SHOWING REMOVALS)

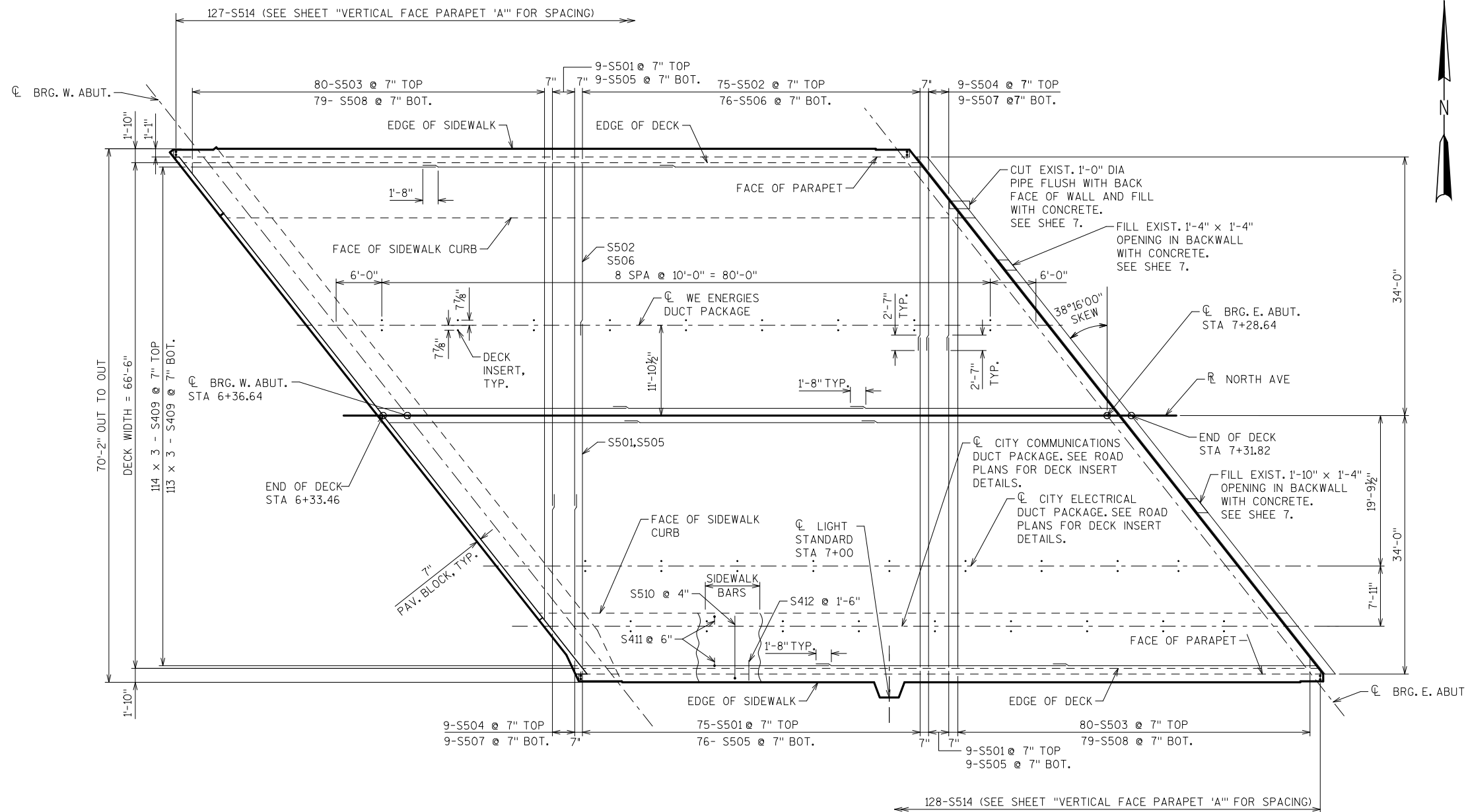


SECTION THRU EAST ABUTMENT
 (LOOKING SOUTH, SHOWING REMOVALS)

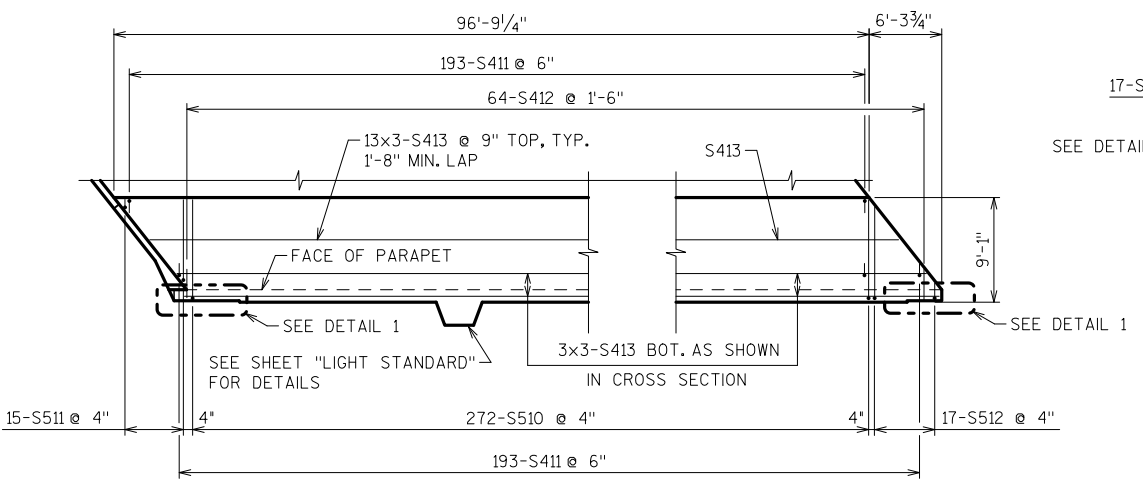
LEGEND

- REMOVE ONE FOOT LENGTH OF STONE WALL. RESET STONES AFTER DOWNSPOUT INSTALLATION. REMOVE STONE WALL FROM TOP OF WALL TO BEAM SEAT ELEVATION. AT CONTRACTOR'S OPTION, THE WALL MAY BE CORED TO INSTALL THE DOWNSPOUT. PAYMENT WILL BE BASED ON THE BID ITEM "REMOVING AND RESETTING STONES OF STONE MASONRY WALL".
- ☆ REMOVE APPROXIMATELY 3/2 INCHES OF CONCRETE FROM TOP OF ABUTMENT (HATCHED AREA). CUT ALL EXPOSED REINFORCEMENT. PLACE APPROXIMATELY 2 INCHES OF CONCRETE TO MATCH TOP OF NEW SIDEWALK. COST OF CONCRETE PAID FOR UNDER THE BID ITEM "CONCRETE SURFACE REPAIR".

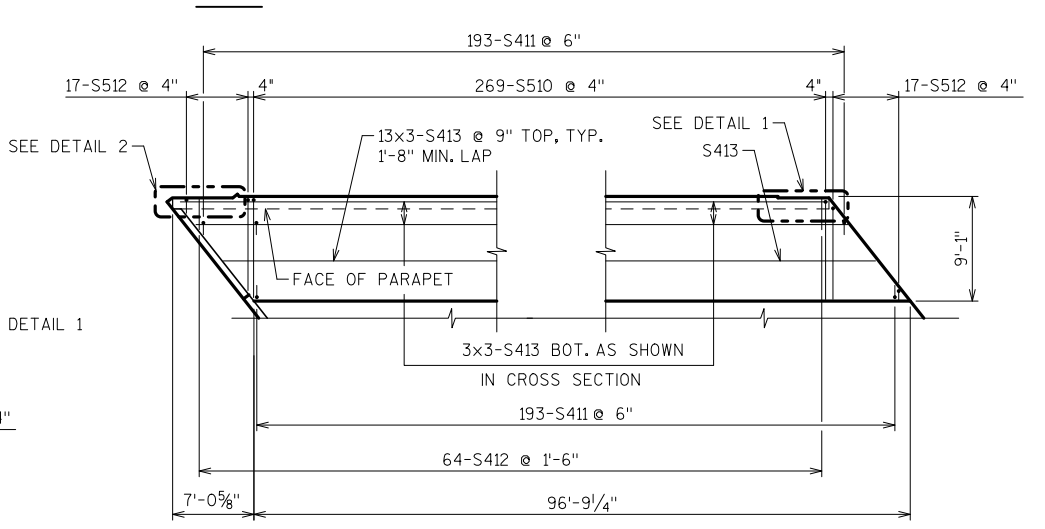
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
SUBSTRUCTURE REMOVALS			SHEET 4 OF 20



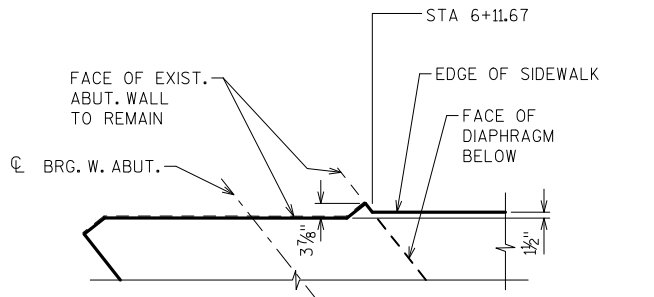
PLAN



SOUTH SIDEWALK PLAN

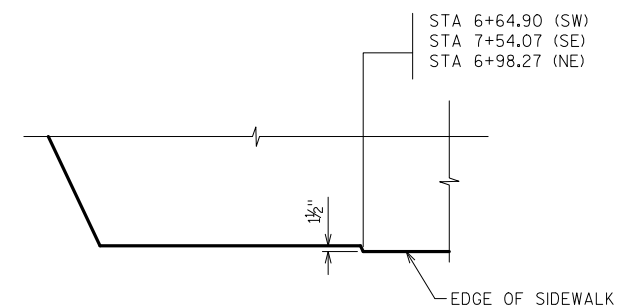


NORTH SIDEWALK PLAN



DETAIL 2

SEE SHEET "VERTICAL FACE PARAPET 'A'" FOR ADDITIONAL DETAILS



DETAIL 1

SW CORNER SHOWN, SE & NE CORNERS SIMILAR. SEE SHEET "VERTICAL FACE PARAPET 'A'" FOR ADDITIONAL DETAILS

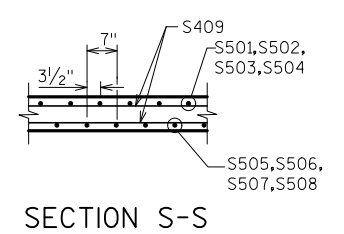
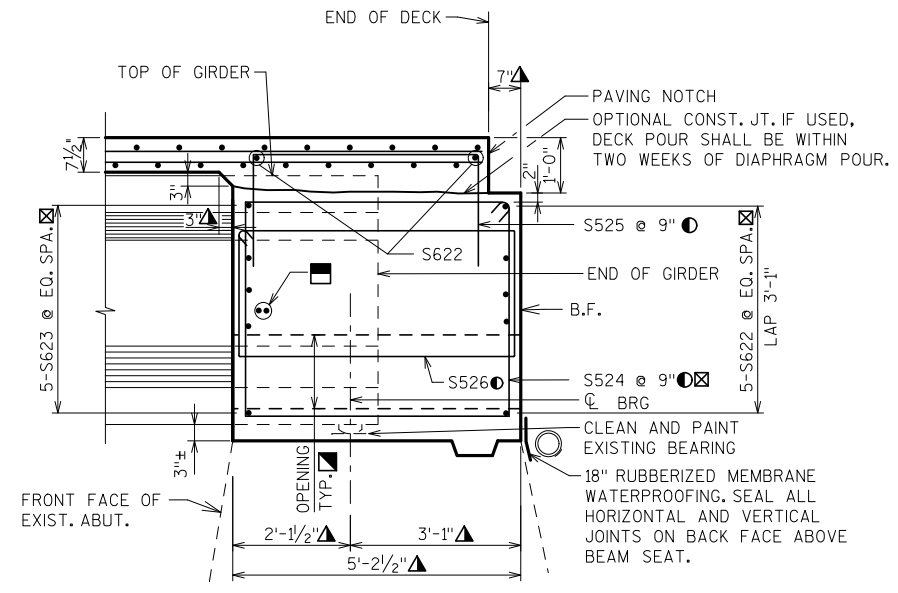
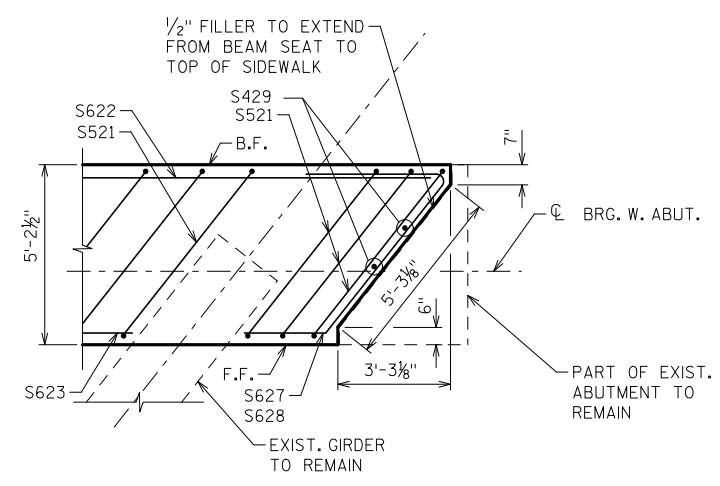
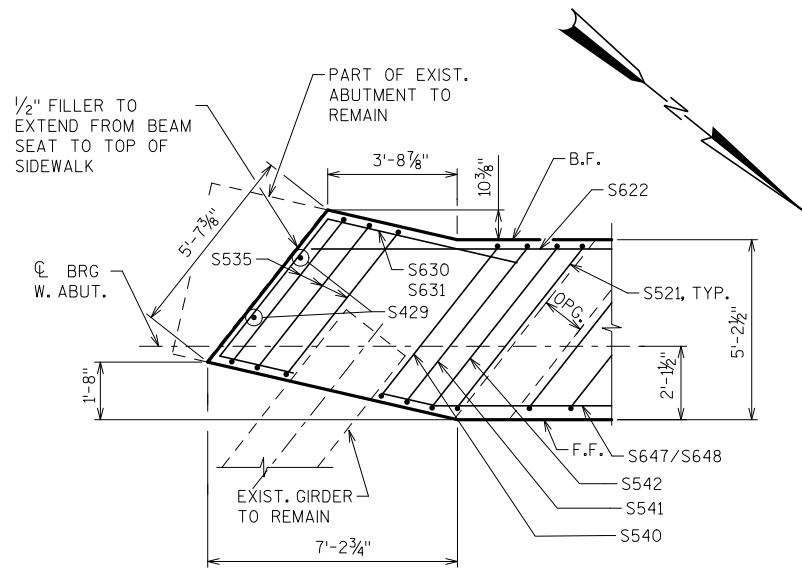
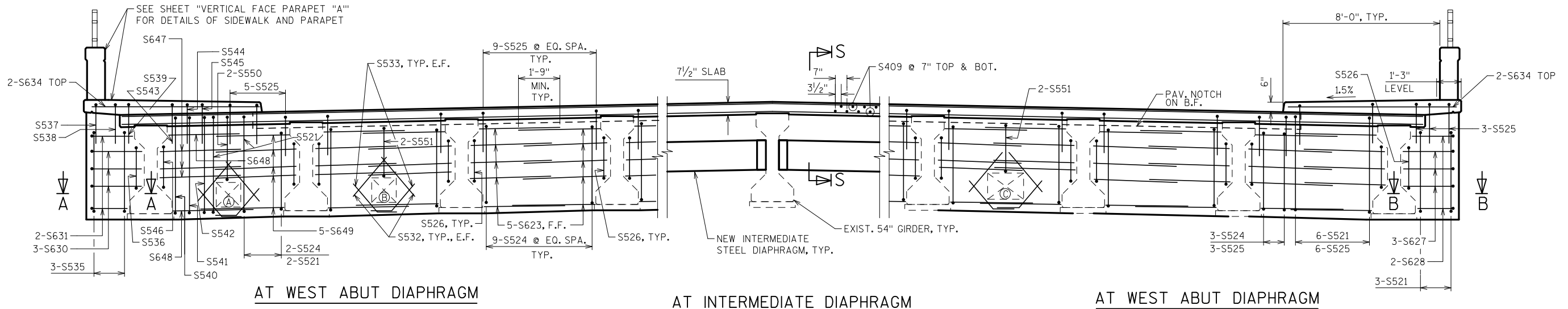
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8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
		DRAWN BY	PLANS CK'D.
		BT	JA
SUPERSTRUCTURE (1 OF 4)			SHEET 5 OF 20

FILE NAME: X:\BIM\3647 North Ave Bridge B-40-502\Design\Structures\Bridges\Current\plans\B-40-502 North Ava06_Superstructure 2.dgn
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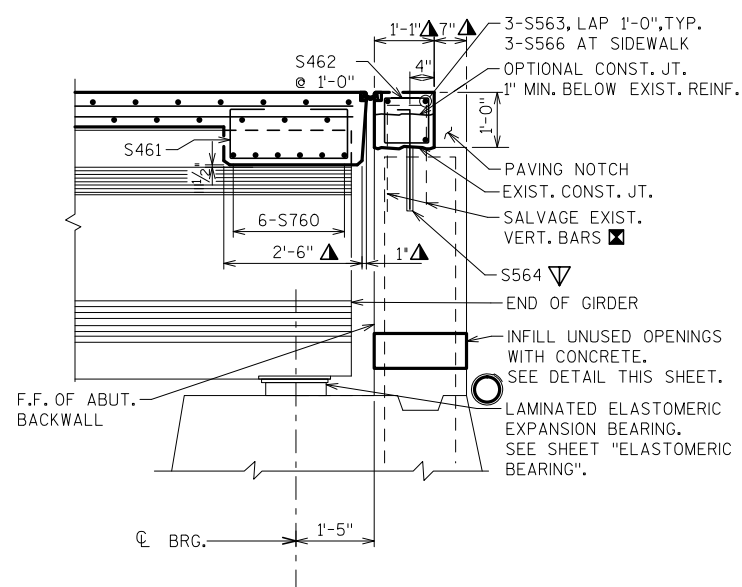
DIAPHRAGM OPENING SIZE

MARK	OPENING SIZE		ELEVATION OF BOTTOM OF OPENING
	WIDTH	HEIGHT	
A	1'-3"	1'-3"	630.14
B	1'-3"	1'-3"	630.22
C	1'-10"	1'-4"	630.20

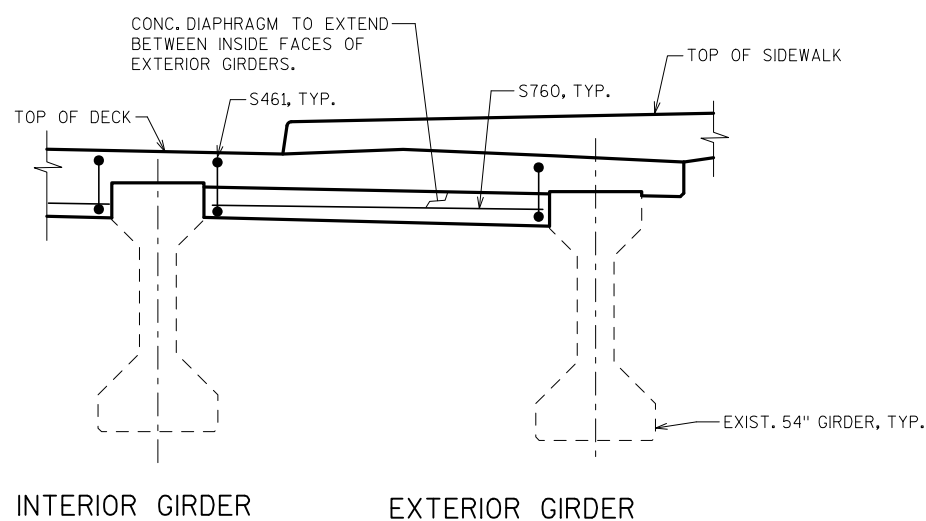
LEGEND

- ▲ DIMENSION IS TAKEN NORMAL TO CL SUBSTRUCTURE UNIT.
- BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO CL GIRDERS.
- ☒ DISPLACE BARS AT OPENINGS THRU DIAPHRAGM
- SEE TABLE FOR OPENING SIZE
- DRILL 1/2" DIA HOLE IN WEB FOR 2-S552 BARS. DO NOT DRILL THRU EXISTING REINFORCEMENT. PLACE S522 BARS SYM. ABOUT CL OF GIRDERS. FIELD BEND BARS ALONG SKEW.

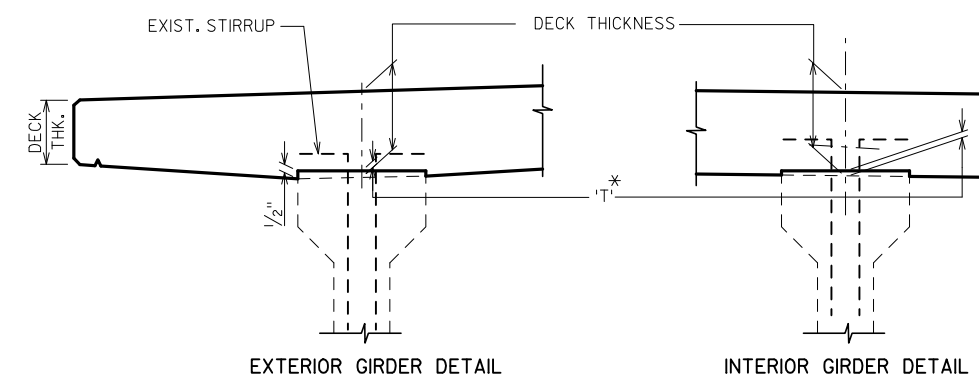
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
SUPERSTRUCTURE (2 OF 4)			SHEET 6 OF 20



DIAPHRAGM AT EAST ABUTMENT
(NORMAL TO CL BRG)



DIAPHRAGM AT EAST ABUTMENT
(SHOWING DIAPHRAGM BARS)



DECK HAUNCH DETAIL

HANUNCH HEIGHT VARIES FROM 3/4" AT END OF GIRDER TO (-)1/2" IN THE MIDDLE OF THE SPAN. THE GRADELINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR IF THE GIRDER PROJECTS MORE THAN 1/2" INTO THE PLAN DECK THICKNESS. NOTIFY STRUCTURES SECTION IF THE GRADELINE IS RAISED MORE THAN 1/4".

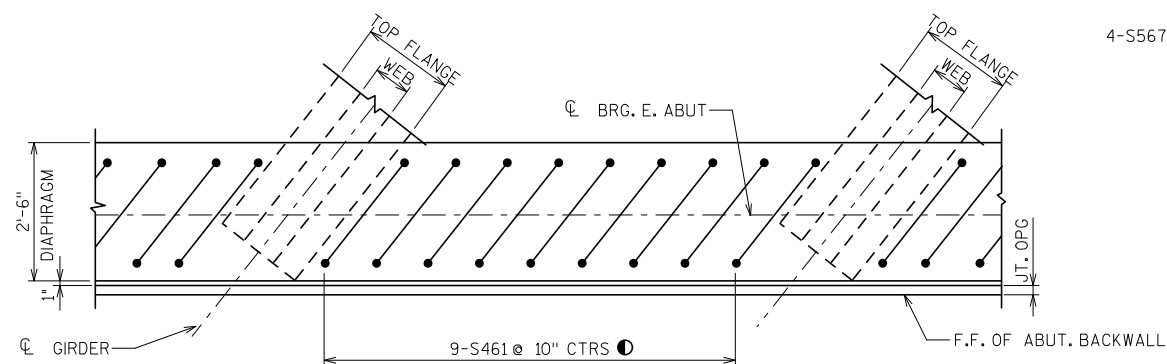
TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT CL OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

- TOP OF DECK ELEV. AT FINAL GRADE
- TOP OF GIRDER ELEVATION
- + DEAD LOAD DEFLECTION
- DECK THICKNESS
- = HAUNCH HEIGHT 'T'

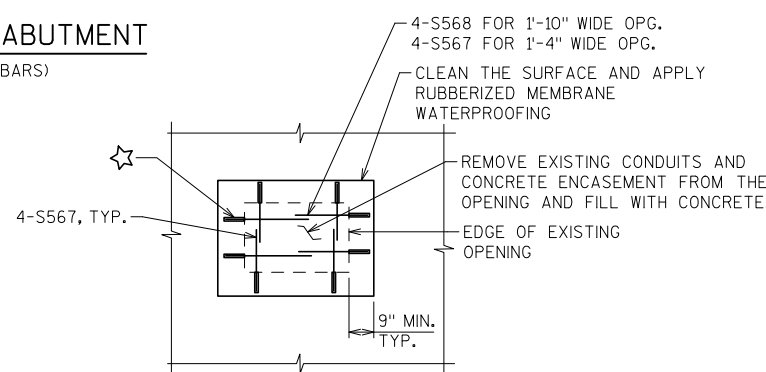
* NOTE:
NEGATIVE VALUE OF 'T' SHOWN AT MIDSPAN OF GIRDER. 'T' WILL TRANSITION FROM TO POSITIVE TOWARD THE ENDS OF THE GIRDER.
AN AVERAGE HAUNCH 'T' OF 0.5" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES"

DEAD LOAD DEFLECTION (IN)

SPAN	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10
1	1/4	1/2	3/4	7/8	7/8	7/8	3/4	1/2	1/4

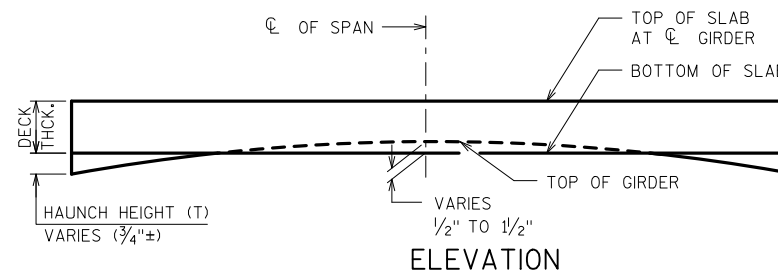


TOP VIEW OF DIAPHRAGM (EXPANSION END)
(SHOWING STIRRUPS)



DETAIL OF OPENING INFILL

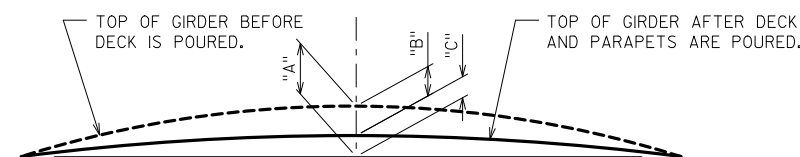
(LOOKING AT BACK FACE OF ABUT.)
NOTE: NO REINF. REQ'D FOR 1'-0" DIA. OPENING



ELEVATION

TOP OF DECK ELEVATIONS

GIRDER	CL BRG. W. ABUT.	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	CL BRG. E. ABUT.
NORTH EDGE	634.43	634.49	634.56	634.62	634.69	634.75	634.82	634.88	634.94	635.01	635.07
G9	634.52	634.58	634.64	634.71	634.77	634.84	634.90	634.97	635.03	635.09	635.16
FLOWLINE	634.66	634.73	634.79	634.85	634.92	634.98	635.05	635.11	635.17	635.24	635.30
G8	634.72	634.78	634.85	634.91	634.98	635.04	635.10	635.17	635.23	635.30	635.36
G7	634.92	634.98	635.05	635.11	635.18	635.24	635.31	635.37	635.43	635.50	635.56
G6	635.12	635.19	635.25	635.31	635.38	635.44	635.51	635.57	635.64	635.70	635.76
G5/PGL/CROWN	635.32	635.39	635.45	635.52	635.58	635.65	635.71	635.77	635.84	635.90	635.97
G4	635.21	635.27	635.34	635.40	635.47	635.53	635.59	635.66	635.72	635.79	635.85
G3	635.09	635.16	635.22	635.29	635.35	635.42	635.48	635.54	635.61	635.67	635.74
G2	634.98	635.04	635.11	635.17	635.24	635.30	635.36	635.43	635.49	635.56	635.62
FLOWLINE	634.95	635.01	635.08	635.14	635.20	635.27	635.33	635.40	635.46	635.52	635.59
G1	634.87	634.93	634.99	635.06	635.12	635.19	635.25	635.31	635.38	635.44	635.51
SOUTH EDGE	634.82	634.88	634.94	635.01	635.07	635.14	635.20	635.26	635.33	635.39	635.46



CAMBER & DEFLECTION DIAGRAM

- * "A" = PRESTRESS CAMBER
- * "B" = DEAD LOAD DEFLECTION
- * "C" = RESIDUAL CAMBER

LEGEND

- ☒ EXISTING BARS ARE LIKELY TO BE CORRODED AND/OR DAMAGED DURING CONCRETE REMOVAL. SALVAGE AND INCORPORATE AS MUCH REBAR AS PRACTICAL. SUPPLEMENT WITH THE BARS INDICATED BY ▽
- ▲ DIMENSION IS TAKEN NORMAL TO CL SUBSTRUCTURE UNIT.
- ▽ ADHESIVE ANCHOR NO.5 BAR. EMBED 1'-0" IN CONCRETE. SPACE AT 1'-0". TURN 10" LEG AS NECESSARY TO FIT.
- BARS PLACED PARALLEL TO GIRDERS. SPACING PERPENDICULAR TO CL GIRDERS.
- ☆ ADHESIVE ANCHOR NO. 5 BAR. EMBED 4" IN CONCRETE. LOCATE AT MIDDLE OF WALL THICKNESS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
SUPERSTRUCTURE (3 OF 4)			SHEET 7 OF 20

BILL OF BARS

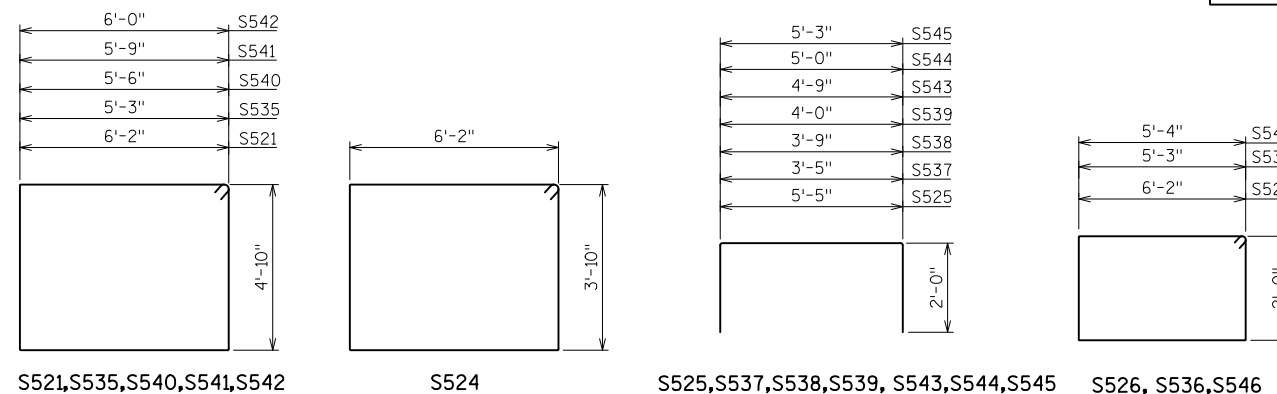
BAR MARK	COAT	NO.	LENGTH	BENT	BAR SERIES	LOCATION
S501	X	93	45'-0"	-	-	TOP TRANSVERSE
S502	X	75	23'-9"	-	-	TOP TRANSVERSE
S503	X	160	30'-2"	-	X	TOP TRANSVERSE
S504	X	18	20'-8"	-	X	TOP TRANSVERSE
S505	X	94	45'-0"	-	-	BOTT. TRANSVERSE
S506	X	76	23'-9"	-	-	BOTT. TRANSVERSE
S507	X	18	20'-3"	-	X	BOTT. TRANSVERSE
S508	X	158	30'-2"	-	X	BOTT. TRANSVERSE
S409	X	681	33'-3"	-	-	TOP & BOTT. LONGIT.
S510	X	541	9'-2"	X	-	SIDEWALK TOP TRANSV.
S411	X	772	2'-5"	X	-	SIDEWALK VERTICAL
S412	X	128	2'-10"	-	-	SIDEWALK BOTTOM TRANSV.
S413	X	96	33'-3"	-	-	SIDEWALK LONGIT.
S514	X	255	4'-4"	X	-	PARAPET VERTICAL
S521	X	11	22'-8"	X	-	W. DIAPHRAGM STIRRUP
S622	X	14	45'-11"	-	-	W. DIAPHRAGM LONGIT., B.F.
S623	X	80	5'-7"	-	-	W. DIAPHRAGM LONGIT., F.F.
S524	X	55	20'-8"	X	-	W. DIAPHRAGM STIRRUP
S525	X	71	9'-2"	X	-	W. DIAPHRAGM VERTICAL
S526	X	18	17'-0"	X	-	W. DIAPHRAGM STIRRUP
S627	X	3	11'-7"	X	-	W. DIAPHRAGM LONGIT., NORTH END
S628	X	2	10'-10"	X	-	W. DIAPHRAGM LONGIT., NORTH END
S429	X	4	4'-10"	-	-	W. DIAPHRAGM VERT., ENDS
S630	X	3	13'-8"	X	-	W. DIAPHRAGM LONGIT., SOUTH END
S631	X	2	12'-10"	X	-	W. DIAPHRAGM LONGIT., SOUTH END
S532	X	12	5'-0"	-	-	W. DIAPHRAGM DIAGONAL AT OPENING
S533	X	12	5'-0"	X	-	W. DIAPHRAGM DIAGONAL AT OPENING
S634	X	4	9'-11"	-	-	W. DIAPHRAGM TOP AT ENDS
S535	X	3	20'-10"	X	-	W. DIAPHRAGM STIRRUP SOUTH END
S536	X	1	15'-2"	X	-	W. DIAPHRAGM STIRRUP SOUTH END
S537	X	1	7'-2"	X	-	W. DIAPHRAGM VERT., SOUTH END
S538	X	1	7'-6"	X	-	W. DIAPHRAGM VERT., SOUTH END
S539	X	1	7'-9"	X	-	W. DIAPHRAGM VERT., SOUTH END
S540	X	1	21'-4"	X	-	W. DIAPHRAGM VERT., SOUTH END
S541	X	1	21'-10"	X	-	W. DIAPHRAGM VERT., SOUTH END
S542	X	1	22'-4"	X	-	W. DIAPHRAGM VERT., SOUTH END
S543	X	1	8'-6"	X	-	W. DIAPHRAGM VERT., SOUTH END
S544	X	1	8'-9"	X	-	W. DIAPHRAGM VERT., SOUTH END
S545	X	1	9'-0"	X	-	W. DIAPHRAGM VERT., SOUTH END
S546	X	1	15'-4"	X	-	W. DIAPHRAGM VERT., SOUTH END
S647	X	3	5'-9"	X	-	W. DIAPHRAGM HORIZ., SOUTH END
S648	X	2	5'-2"	X	-	W. DIAPHRAGM HORIZ., SOUTH END
S649	X	5	4'-5"	-	-	W. DIAPHRAGM HORIZ., SOUTH END
S550	X	2	11'-1"	X	-	W. DIAPHRAGM VERT., ABOVE OPENING
S551	X	4	9'-5"	X	-	W. DIAPHRAGM VERT., ABOVE OPENING
S552	X	18	6'-0"	-	-	W. DIAPHRAGM HORIZ. IN GIRDER HOLE
S760	X	48	7'-7"	-	-	E. DIAPHRAGM LONGIT.
S461	X	72	6'-0"	X	-	E. DIAPHRAGM VERTICAL
S462	X	87	3'-2"	X	-	E. PAVING BLOCK STIRRUP
S563	X	30	7'-9"	-	-	E. PAVING BLOCK LONGIT.
S564	X	87	2'-3"	X	-	E. PAVING BLOCK VERT.
S465	X	22	8'-3"	-	-	E. EXP. JT. HORIZONTAL
S566	X	6	10'-4"	-	-	E. PAV. BLOCK AT SIDEWALK
S567	X	12	1'-3"	-	-	E. ABUT. AT OPENING INFILL
S568	X	4	1'-9"	-	-	E. ABUT. AT OPENING INFILL

INCLUDED WITH
E. ABUT. QUANTITY

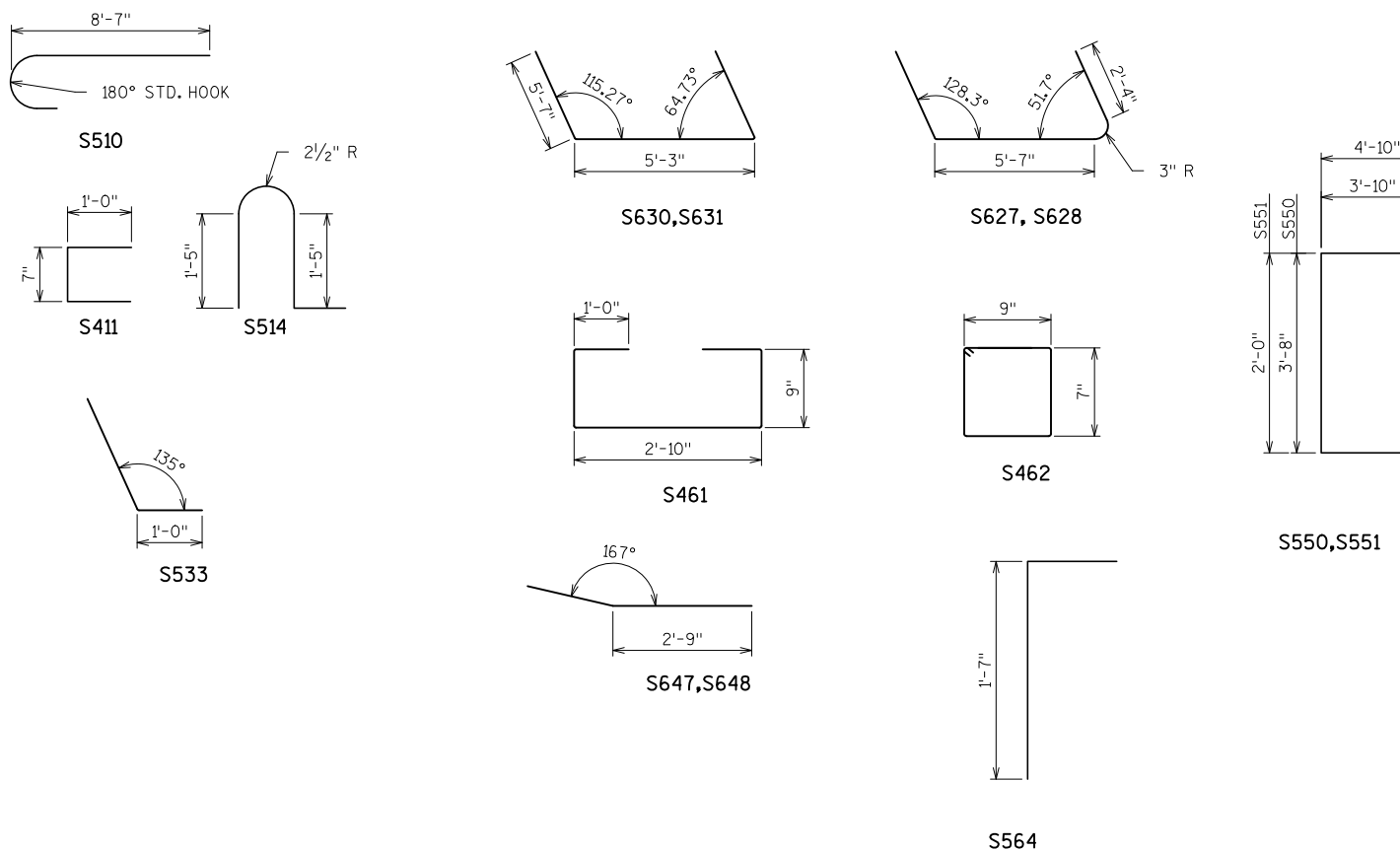
BAR SERIES TABLE

BAR MARK	NO. REQ'D	LENGTH
S504	2 SERIES OF 9	17'-9" TO 23'-8"
S503	2 SERIES OF 80	1'-0" TO 59'-4"
S507	2 SERIES OF 9	17'-4" TO 23'-3"
S508	2 SERIES OF 79	1'-4" TO 59'-0"

BUNDLE AND TAG EACH SERIES SEPARATELY



S521,S535,S540,S541,S542 S524 S525,S537,S538,S539, S543,S544,S545 S526, S536,S546



BENDING DIAGRAM

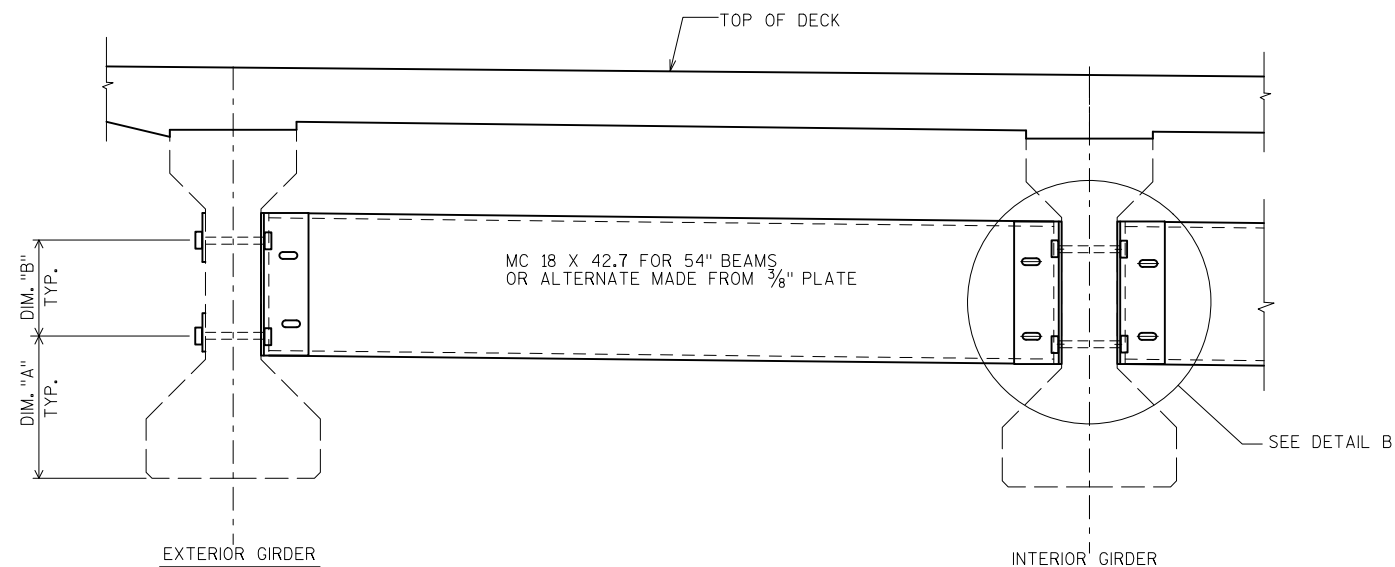
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DATE: 7/28/2021 8:05:07 AM PEN TABLE: V8_STRUCTUREAL_REV.TBL Plotted by: bthengon

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

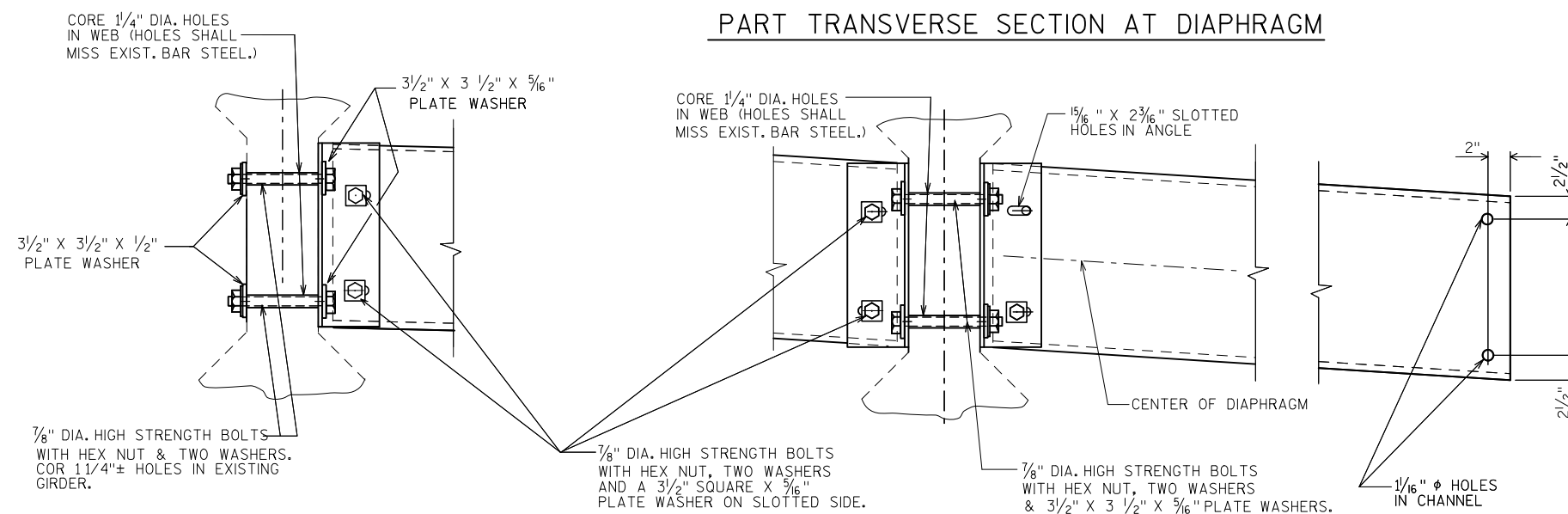
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
SUPERSTRUCTURE (4 OF 4)			SHEET 8 OF 20

TABLE

GIRDER HEIGHT	DIM. "A"	DIM. "B"	DIM. "L"	* DIM. "X"
28"	1'-0 ⁷ / ₈ "	5 ⁷ / ₈ "	9 ¹ / ₂ "	2 ¹ / ₄ "
36"	1'-2 ⁷ / ₈ "	9 ⁷ / ₈ "	1'-1 ¹ / ₂ "	3 ¹ / ₄ "
45"	1'-5 ³ / ₈ "	1'-1 ⁷ / ₈ "	1'-5 ¹ / ₂ "	2 ¹ / ₄ "
45W"	1'-9 ¹ / ₈ "	8 ⁷ / ₈ "	1'-0 ¹ / ₂ "	2 ³ / ₄ "
54"	1'-7 ⁷ / ₈ "	1'-5 ⁷ / ₈ "	1'-9 ¹ / ₂ "	4 ¹ / ₄ "
54W"	1'-9 ¹ / ₈ "	1'-5 ⁷ / ₈ "	1'-9 ¹ / ₂ "	4 ¹ / ₄ "



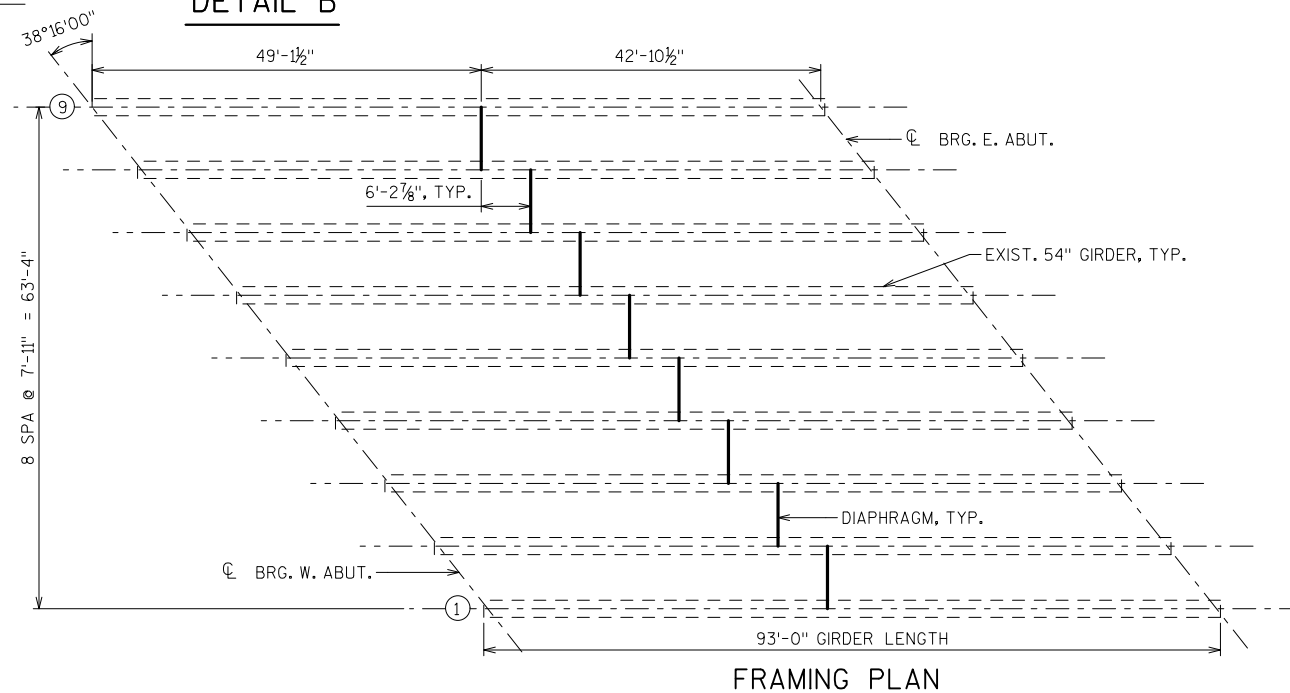
PART TRANSVERSE SECTION AT DIAPHRAGM



(FOR EXTERIOR GIRS. & STAGGERED DIAPHRAGMS)

(FOR CONTINUOUS LINE OF DIAPHRAGMS)

DETAIL B



NOTES

ALL DIAPHRAGM MATERIAL SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-40-502", EACH.

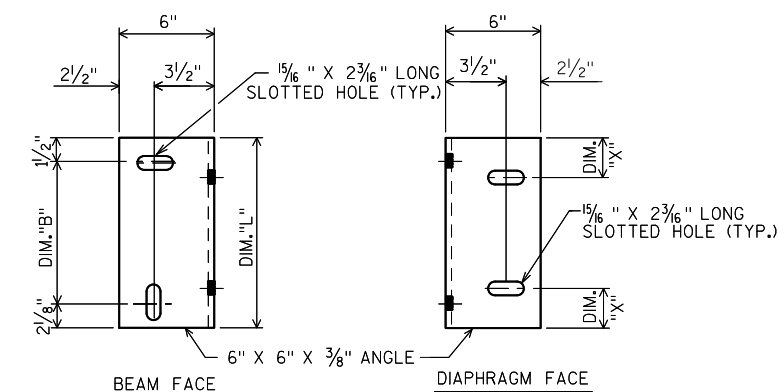
EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

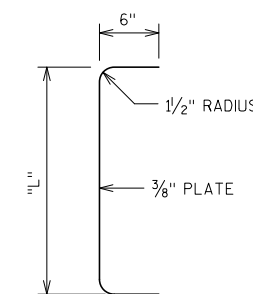
ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.

COST OF DRILLING HOLES IN EXISTING GIRDERS FOR DIAPHRAGM CONNECTION IS INCLUDED IN THE BID ITEM "STEEL DIAPHRAGMS B-40-502".



DIAPHRAGM SUPPORT

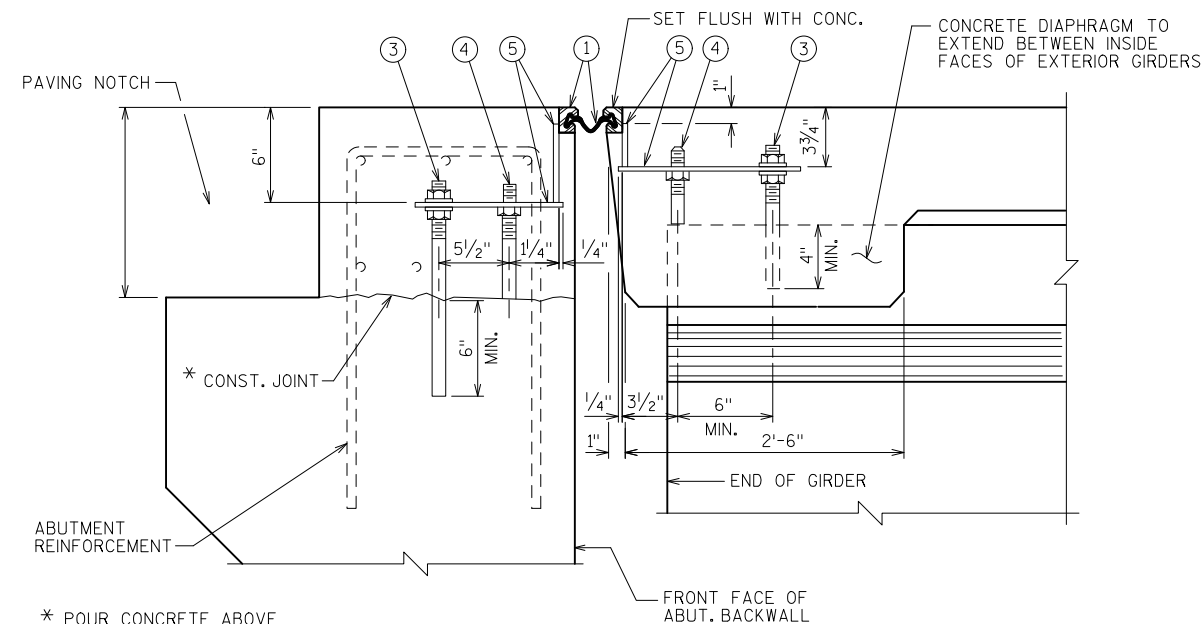


SECTION THRU ALTERNATE DIAPHRAGM

*DIM "X" = 2¹/₂" FOR ALTERNATE PLATE DIAPHRAGM

FILE NAME: X:\BMT\3647 North Ave Bridge B-40-502\5. Design\04. Structures\Bridges\Current\plans\B-40-502 North Ave\09. Intermediate\diaphragm.dgn
DATE: 7/28/2021 8:05:29 AM Plotted by: bthengon PEN TABLE: V8. STRUCTURAL_REV.TBL

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STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
INTERMEDIATE STEEL DIAPHRAGM			SHEET 9 OF 20

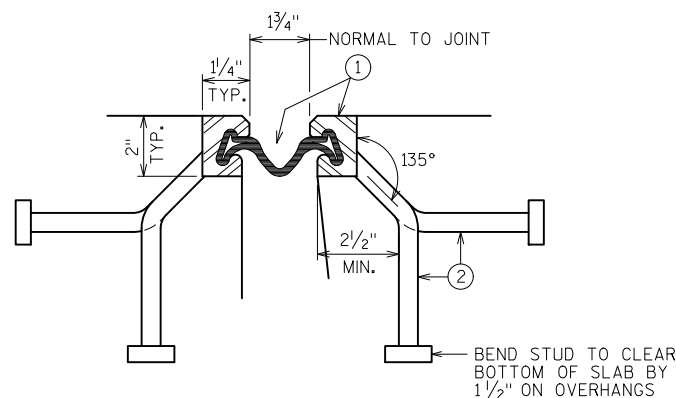


SECTION THRU JOINT AT ABUTMENT
NORMAL TO CL SUBSTRUCTURE

* POUR CONCRETE ABOVE THIS JOINT AFTER SUPERSTRUCTURE IS IN PLACE. STRIKE OFF AND LEAVE ROUGH.

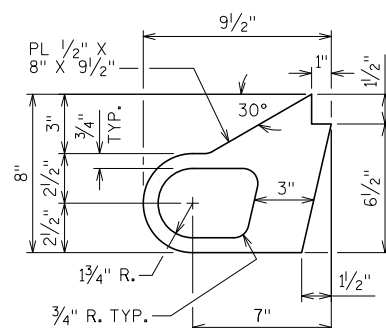
LEGEND

- ① NEOPRENE STRIP SEAL (5- INCH) AND STEEL EXTRUSIONS.
- ② STUDS 5/8"φ X 6 3/8" LONG AT 6" ALTERNATE CENTERS. WELD TO EXTRUSIONS AND BEND AS SHOWN AFTER WELDING.
- ②A 1/2" THICK ANCHOR PLATE WITH 5/8"φ ROD (OR ALTERNATE STRIP SEAL ANCHOR). WELD ROD TO ANCHOR PLATE, WELD ANCHOR PLATE TO NO. 1 AT 1'-6" CENTERS BETWEEN GIRDERS.
- ③ 3/4" φ THREADED ROD WITH 2 NUTS AND PLATE WASHERS. GROUT THREADED ROD INTO FIELD DRILLED HOLES ON CL OF GIRDER, ON ABUTMENT SIDE GROUT THREADED ROD INTO FIELD DRILLED HOLES IN ABUTMENT BACKWALL AS SHOWN.
- ④ 3/4"φ THREADED ROD WITH NUT. TACK WELD NUT TO NO. 5.
- ⑤ FABRICATE SUPPORT FROM 3" X 1/2" BAR AS SHOWN OR EQUIVALENT, ONE PER GIRDER PER SIDE. SHOP OR FIELD WELD TO NO. 1. IF FIELD WELDED, COVER WELDED AREAS WITH EPOXY-COATING MATERIAL. PROVIDE 1/2" φ HOLE FOR NO. 3 & 1" φ HOLE FOR NO. 4.
- ⑦ 3/2"φ X 1 1/2" STAINLESS STEEL SOCKET FLAT HEAD SCREWS WITH ANTI-SEIZE LUBRICANT. PLACE IN COUNTERSUNK HOLE. RECESS 1/16" BELOW PLATE SURFACE.
- ⑧ 3/4"φ X 4" GALVANIZED HEX HEAD BOLT. BEND 45°.
- ⑨ 3/4"φ X 2 1/4" GALVANIZED THREADED COUPLING.
- ⑩ 1" X 5" SLOTTED COUNTERSUNK HOLE FOR NO. 7. PLACE SLOT PARALLEL TO DIRECTION OF MOVEMENT.
- ⑪ SIDEWALK COVER PLATE 3/8" X 2'-0" X LIMITS SHOWN. BEND DOWN FACE OF SIDEWALK WITH HOLES FOR NO. 7. GALVANIZE PLATE AFTER SLIP-RESISTANT SURFACE IS APPLIED.

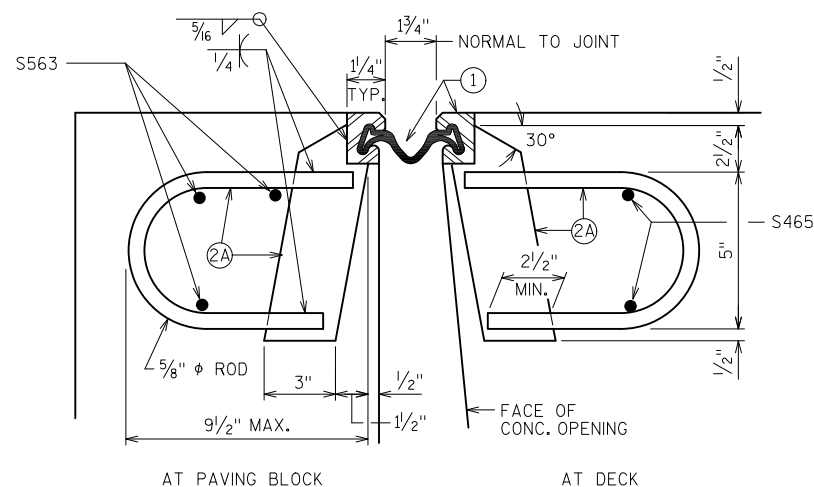


SECTION THRU JOINT

EXTERIOR GIRDER TO EDGE OF DECK AND AT PARAPETS, MEDIANS AND SIDEWALKS

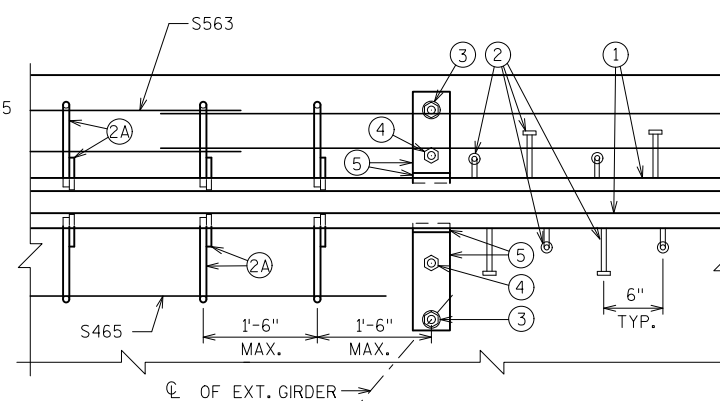


ALTERNATE STRIP SEAL ANCHOR



SECTION THRU JOINT

ROADWAY TRAFFIC AREA BETWEEN EXTERIOR GIRDERS.



PART PLAN

NOTES

ONE FIELD SPLICE PERMITTED IN STEEL EXTRUSIONS, UNLESS MORE ARE REQUIRED FOR STAGED CONSTRUCTION, HANDLING OR GALVANIZING REQUIREMENTS. IF USED, DETAILS SHALL BE SUBMITTED FOR APPROVAL. NO SPLICING PERMITTED IN NEOPRENE STRIP SEAL.

AFTER FABRICATION, BUT BEFORE SHIPMENT, STRAIGHTEN STEEL EXTRUSIONS SUCH THAT THEY SHALL BE FREE FROM WARP, TWIST AND SWEEP.

FABRICATOR SHALL PROVIDE MEANS OF KEEPING GALVANIZED EXTRUSIONS CLEAN AND SMOOTH DURING SHIPMENT AND PRIOR TO APPLYING LUBRICANT ADHESIVE FOR NEOPRENE GLAND INSTALLATION.

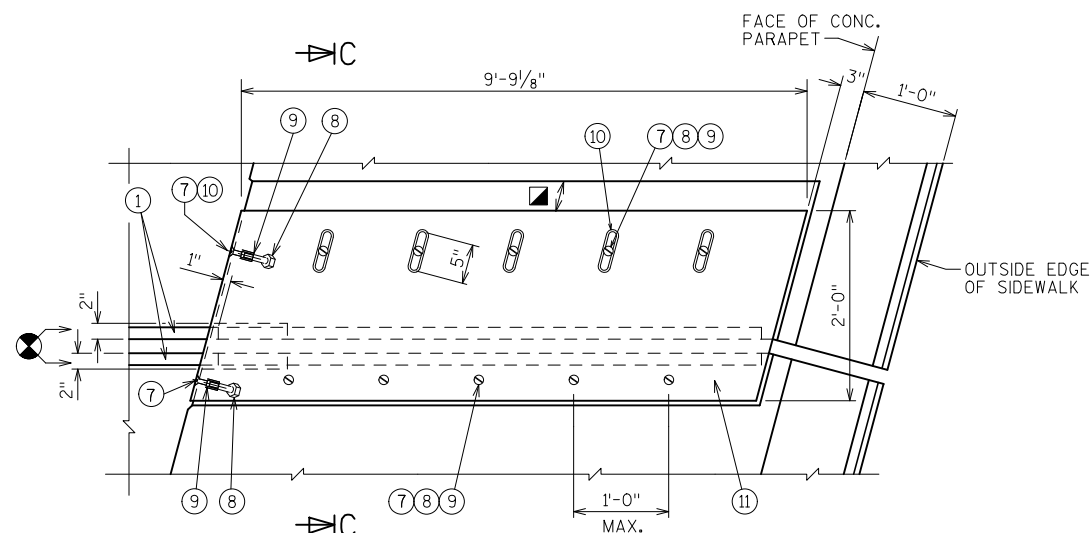
SANDBLAST PLATES, SUPPORTS AND EXTRUSIONS AFTER FABRICATION IN ACCORDANCE WITH SSPC SP. #6 "COMMERCIAL BLAST CLEANING". AFTER BLAST CLEANING, THE PLATES, SUPPORTS AND EXTRUSIONS SHALL BE HOT DIPPED GALVANIZED. SLIP-RESISTANT SURFACE IS APPLIED TO SIDEWALK COVER PLATES BY THE MANUFACTURER AND THEN HOT DIPPED GALVANIZED TO THEIR RECOMMENDATIONS TO MAINTAIN THE INTEGRITY OF THIS SURFACE.

ANCHOR SYSTEM NO. 8 AND NO. 9 SHALL CONFORM TO ASTM A307 AND SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 CLASS C AND D.

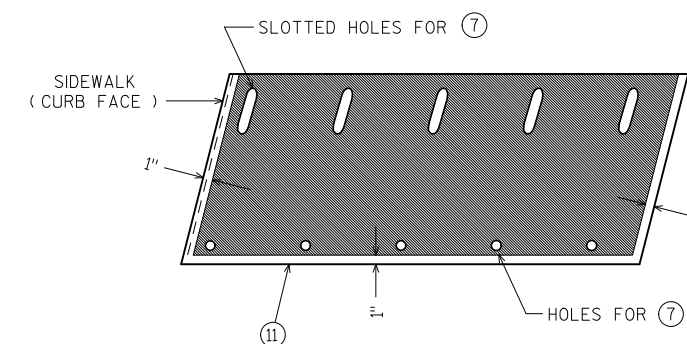
ALL MATERIAL IN THE EXPANSION JOINT ASSEMBLY, INCLUDING ANCHOR STUDS AND HARDWARE SHALL BE PAID AT THE UNIT PRICE BID FOR "EXPANSION DEVICE", LF.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
EXPANSION DEVICE (1 OF 2)			SHEET 10 OF 20

FILE NAME: X:\BIM\3647 North Ave Bridge B-40-502\5. Design\04. Structures\Bridges\Current\plans\B-40-502 North Av+10.exp J1.dgn
DATE: 7/28/2021 8:05:53 AM Plotted by: bthengon PEN TABLE: V8_STRUCTUREAL_REV.TBL



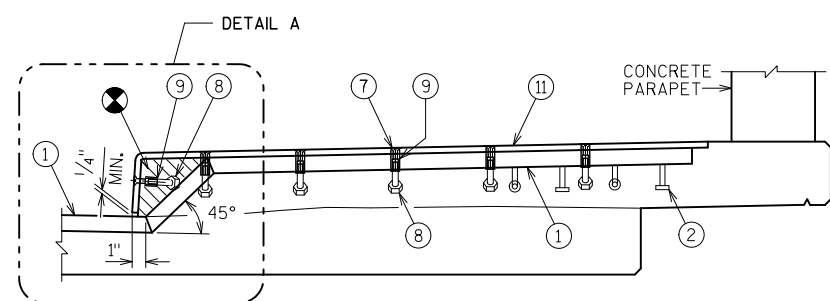
PLAN AT SIDEWALK



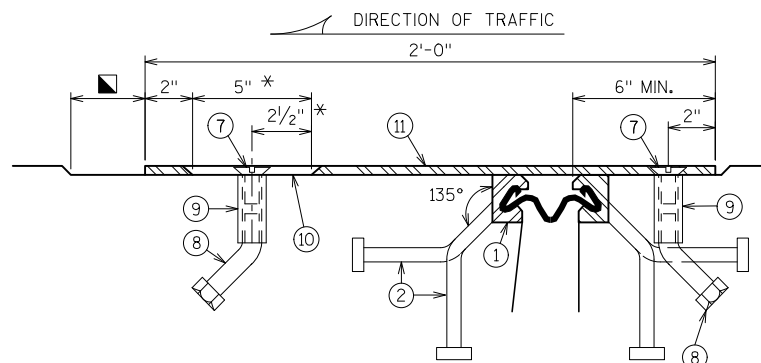
PLAN OF SIDEWALK COVER PLATE WITH SLIP-RESISTANT SURFACE

PLACE SLIP-RESISTANT SURFACE ON TOP WALKING SURFACE IN SHADED AREA ONLY (NOT ON CURB FACE).

APPROVED SLIP-RESISTANT APPLIED SURFACES FOR STEEL PLATES		
PRODUCT	MANUFACTURER	CONTACT AT
SLIPNOT GRADE 2, STEEL	W. S. MOLNAR COMPANY	1-800-SLIPNOT
ALGRIP, STEEL	ROSS TECHNOLOGY CORP.	1-800-345-8170

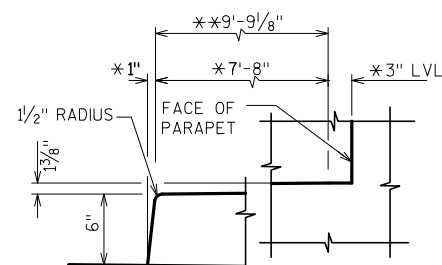


SECTION AT SIDEWALK



SECTION C-C

* DIMENSION ALONG DIRECTION OF MOVEMENT



DETAIL A

* DIMENSION NORMAL TO FACE OF PARAPET
 ** DIMENSION PARALLEL TO CL SUBSTRUCTURE UNIT

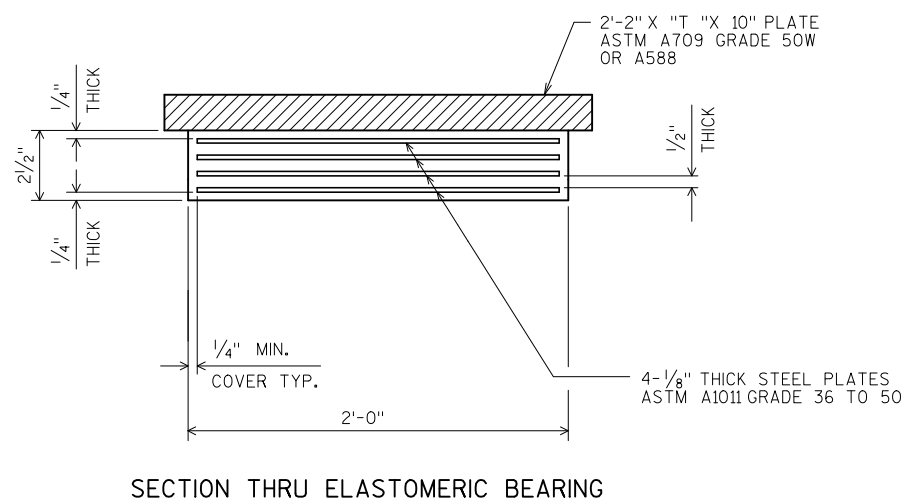
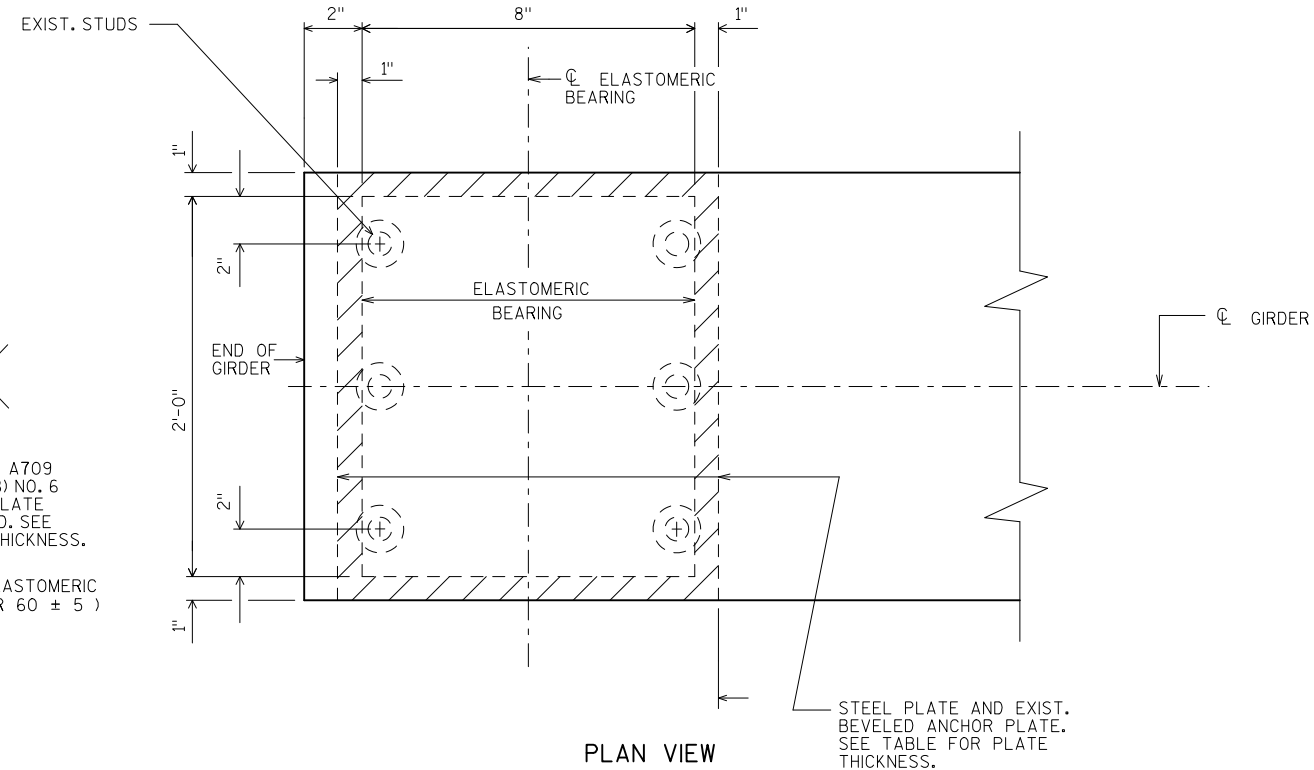
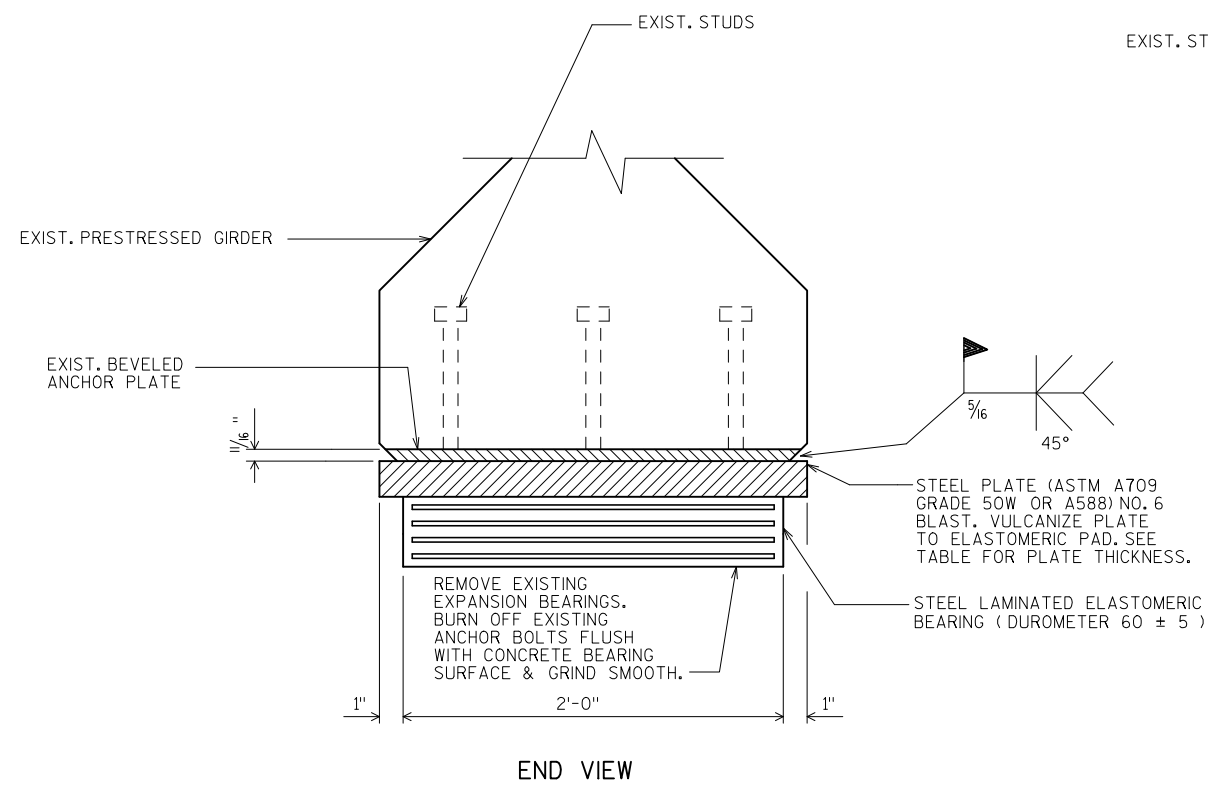
- ⊗ BLOCK OUT CONCRETE 2" EACH SIDE OF JOINT OPENING.
- ▣ JOINT OPENING DIMENSION ALONG SKEW PLUS 1/2".

FILE NAME: X:\BMT\3647 North Ave Bridge B-40-502\5.Design\04.Structures\Bridges\Current\plans\B-40-502 North Av+1Exp 11.dgn
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8

NO.	DATE	REVISION	BY
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STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
EXPANSION DEVICE (2 OF 2)			SHEET 11 OF 20



SECTION THRU ELASTOMERIC BEARING

NOTES

BEARINGS SHALL NOT BE PLACED AT A TEMPERATURE GREATER THAN 85° F.

ALL MATERIAL USED FOR BEARINGS SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "BEARING PADS ELASTOMERIC LAMINATED", EACH.

ALL STRUCTURAL STEEL BEARING PLATES SHALL BE FLAT ROLLED WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL.

ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.

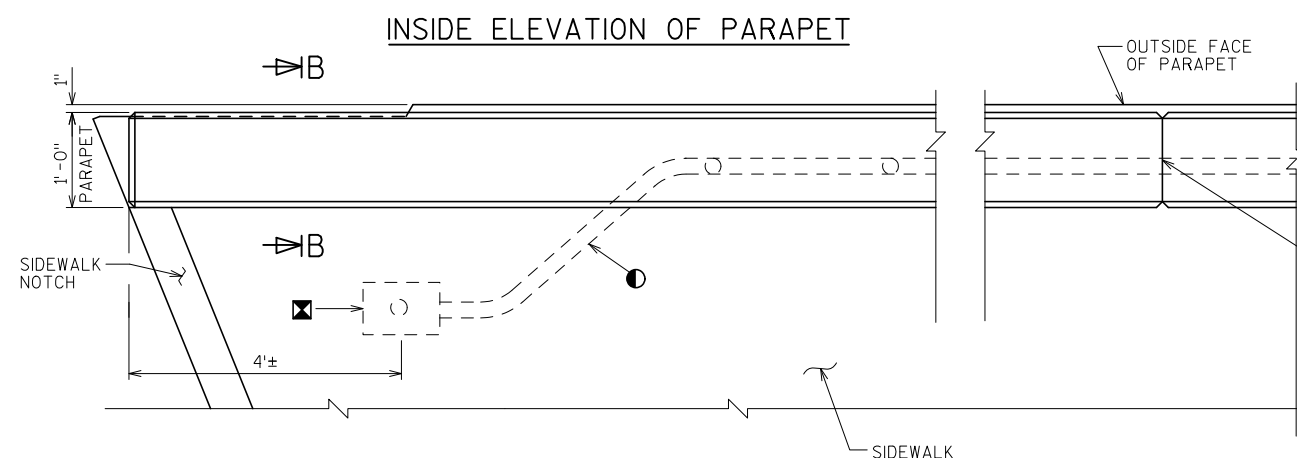
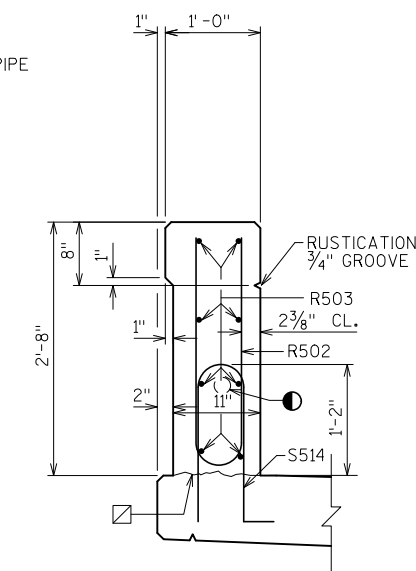
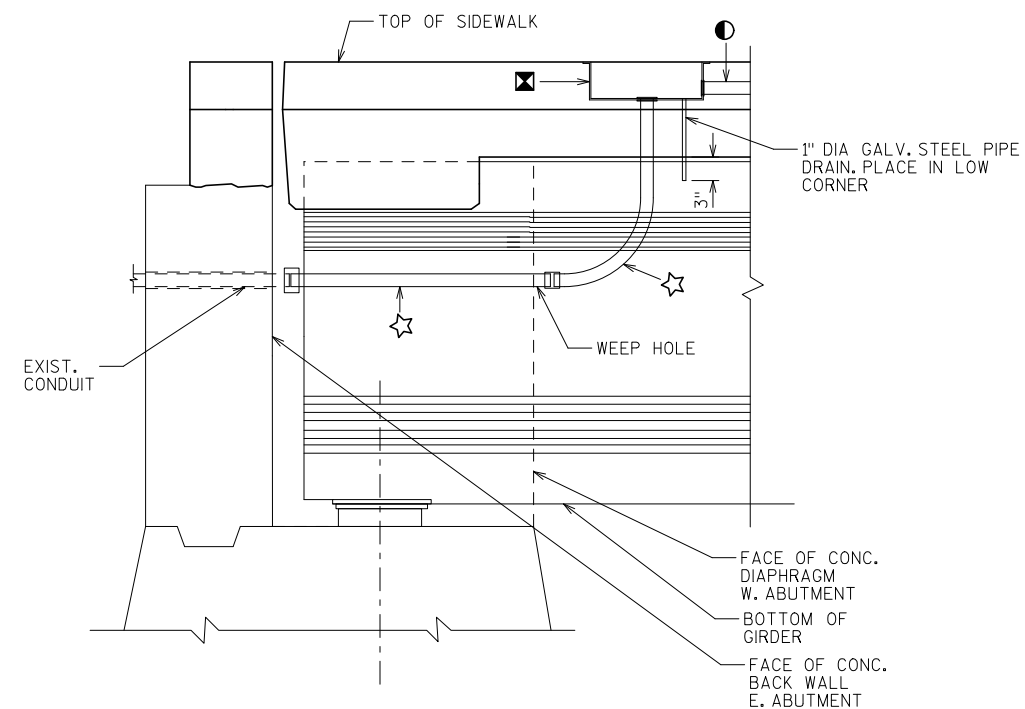
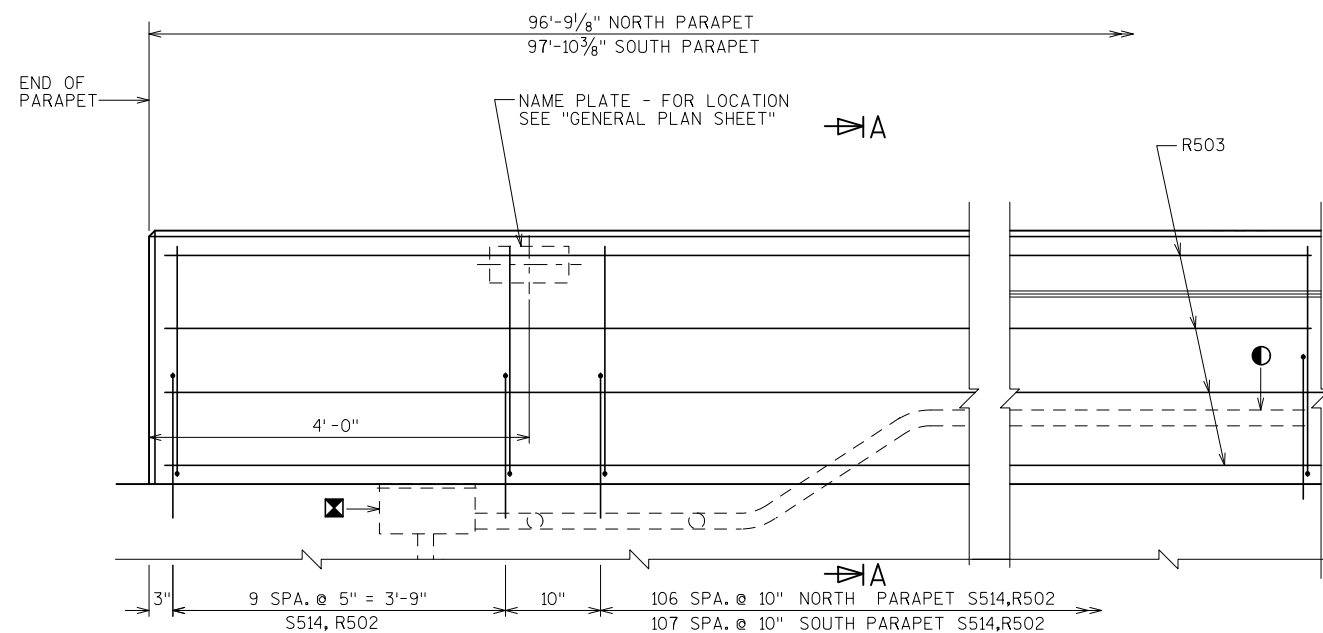
BLAST CLEAN EXISTING BEVELED ANCHOR PLATE AT THE BOTTOM OF GIRDERS BEFORE INSTALLING THE NEW BEARING. COST INCLUDED IN THE BID ITEM "BEARING PADS ELASTOMERIC LAMINATED", EACH.

PLATE THICKNESS "T"

GIRDER NO.	PLATE THICKNESS "T"
1	2 1/16 "
2,9	1 1/16 "
3	1 3/16 "
4	2"
5,6	1 5/16 "
7,8	1 7/8 "
5,6	1 5/16 "

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
ELASTOMERIC BEARING			SHEET 12 OF 20

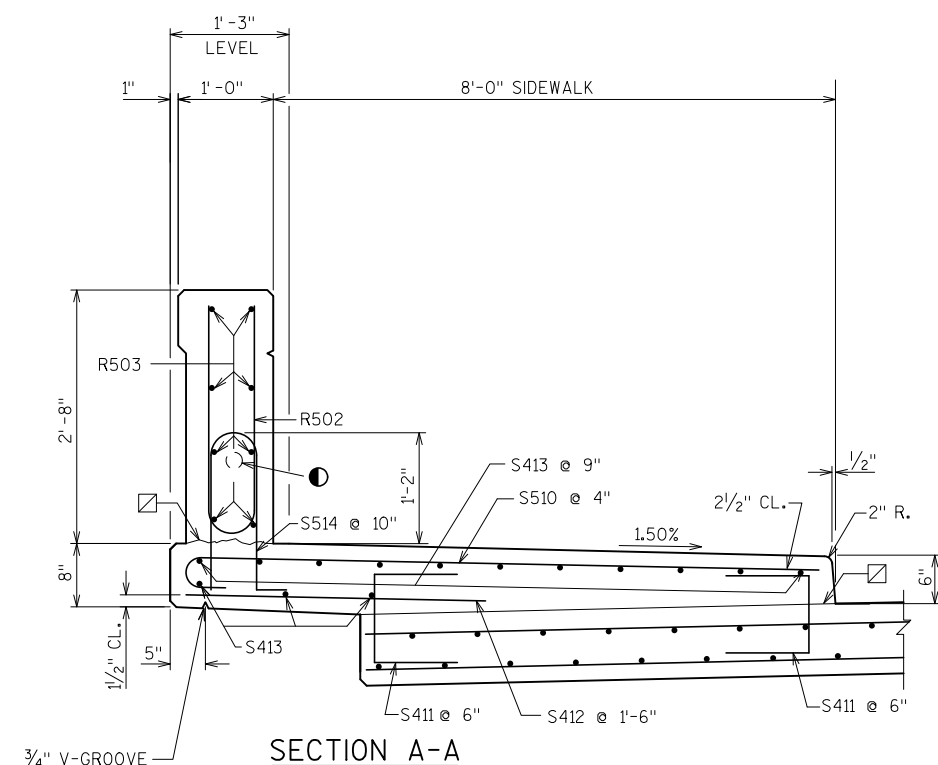
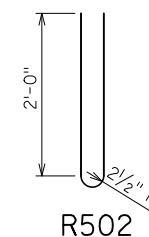
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DATE: 7/29/2021 1:45:11 PM
Plotted by: bthengon
PEN TABLE: V8.STRUCTURAL_REV.TBL



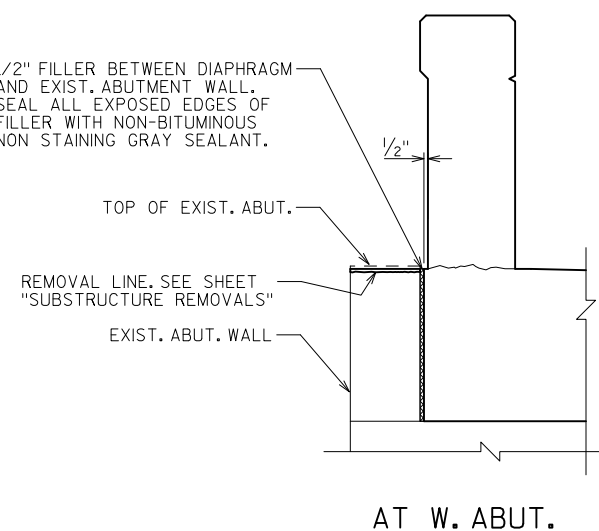
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED. RUN BAR REINF. THRU JOINT. LAP LONGIT. BARS A MIN. OF 1'-9\".

BILL OF BARS

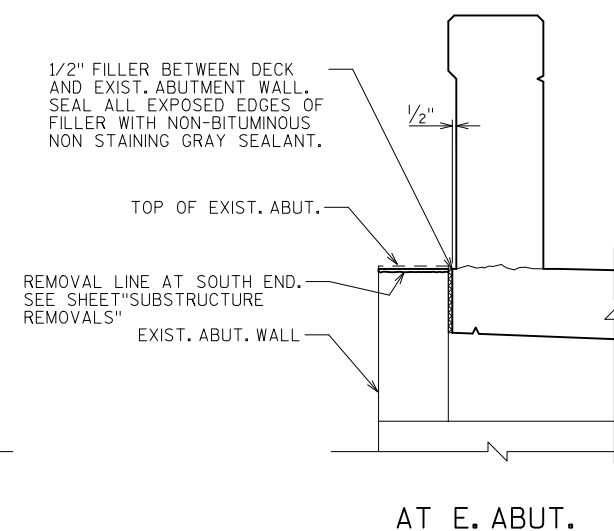
BAR MARK	COU'T	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
R501						NOT USED
R502	X	255	4'-9"	X		PARAPET VERT.
R503	X	48	33'-8"			PARAPET HORIZ.



1/2" FILLER BETWEEN DIAPHRAGM AND EXIST. ABUTMENT WALL. SEAL ALL EXPOSED EDGES OF FILLER WITH NON-BITUMINOUS NON STAINING GRAY SEALANT.



1/2" FILLER BETWEEN DECK AND EXIST. ABUTMENT WALL. SEAL ALL EXPOSED EDGES OF FILLER WITH NON-BITUMINOUS NON STAINING GRAY SEALANT.



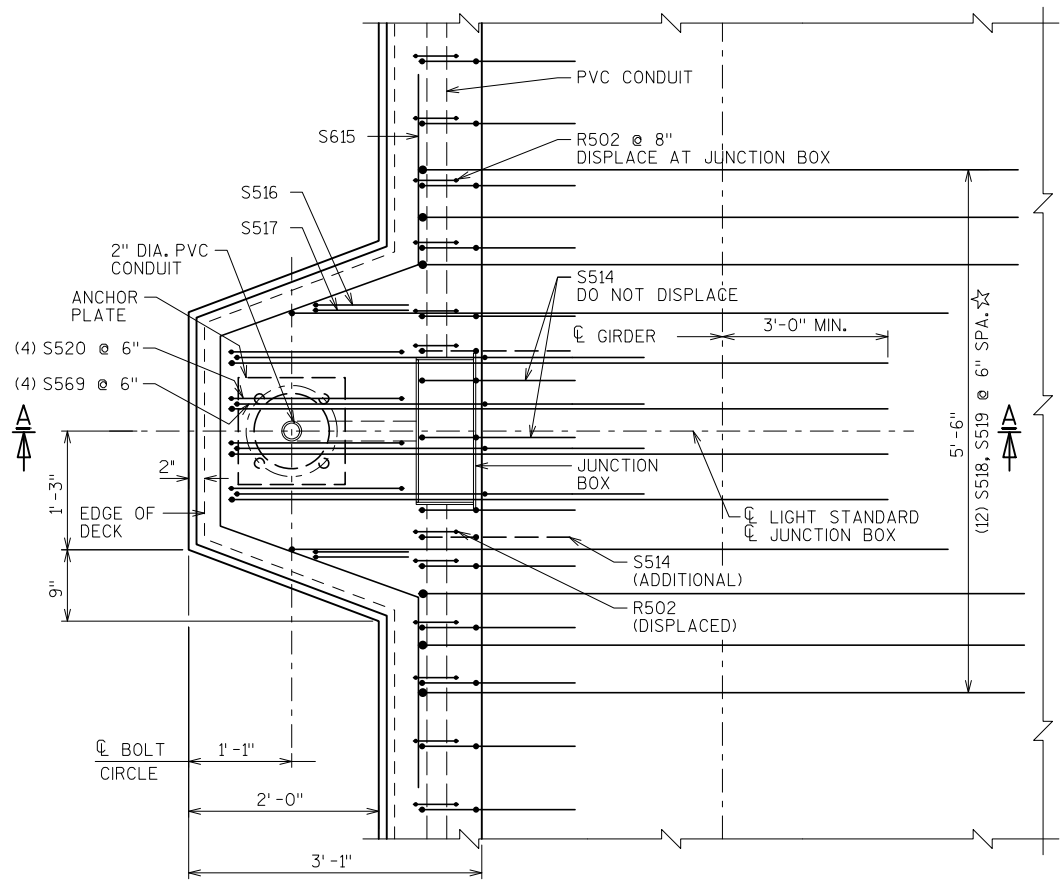
LEGEND

- ☒ CONST. JOINT - STRIKE OFF AS SHOWN AND LEAVE ROUGH.
- 2 1/2" DIA RIGID NONMETALLIC CONDUIT SCHEDULE 40
- ☆ 2 1/2" DIA GALV. RIGID METALLIC CONDUIT
- ☒ GALV. JUNCTION BOX 10X10X6 WITH CHECKERED TOP PLATE AT BOTH ENDS OF PARAPETS

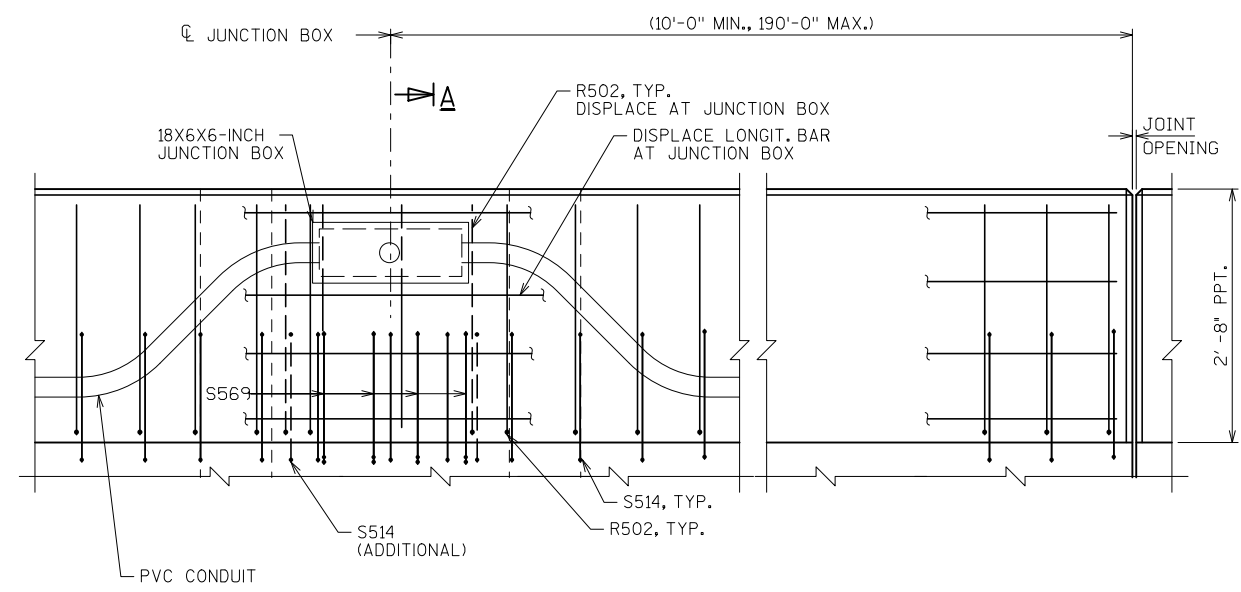
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
VERTICAL FACE PARAPET 'A'			SHEET 13 OF 20

FILE NAME: X:\BIM\3647 North Ave Bridge B-40-502\45.Design\04.Structures\Bridges\Current\plans\B-40-502 North Av\13.Parapet Type A.dgn
DATE: 7/29/2021 2:59:44 PM Plotted by: bthengon PEN TABLE: V8.STRUCTURAL_REV.TBL

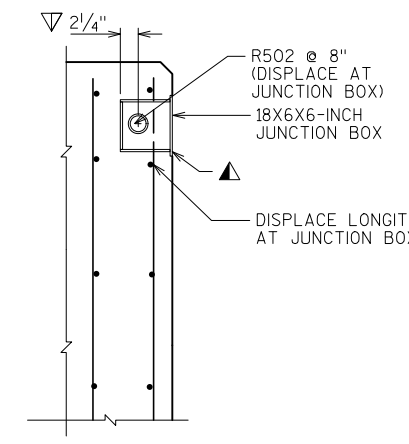
FILE NAME: X:\BIM\3647 North Ave Bridge B-40-502\5.Design\04.Structures\Bridges\Current\plans\B-40-502 North Av\Light_Standard.dgn
DATE: 7/28/2021 8:07:55 AM Plotted by: bthengon PEN TABLE: V8.STRUCTURAL_REV.TBL



PLAN AT LIGHT STANDARD
(DECK STEEL NOT SHOWN FOR CLARITY)



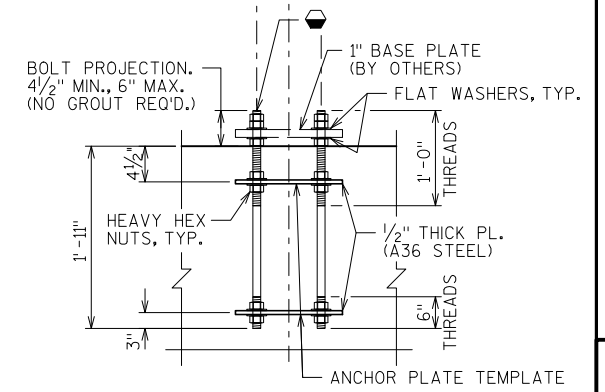
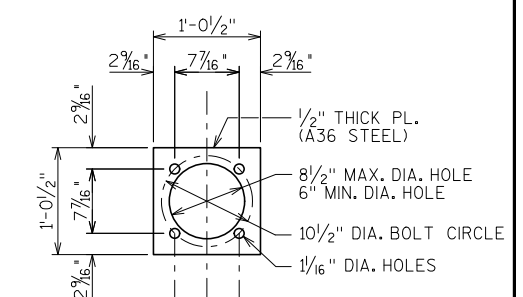
INSIDE ELEVATION AT JUNCTION BOX
(DECK STEEL NOT SHOWN FOR CLARITY)



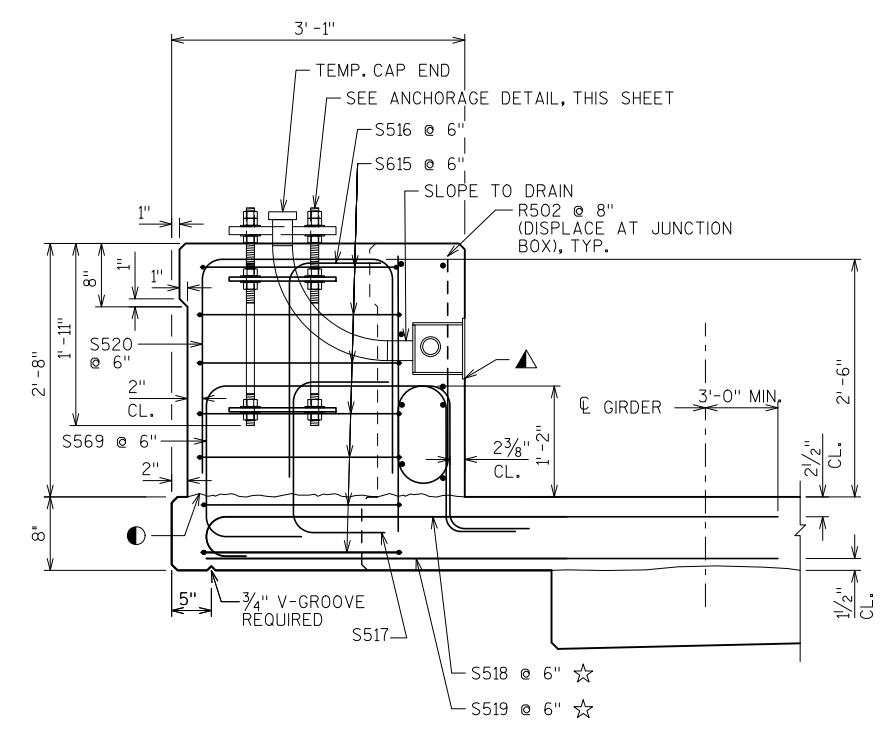
JUNCTION BOX DETAIL

- NOTES**
- CONDUIT SHALL BE EMBEDDED 2" CLEAR.
 - USE 2.5" DIA. RIGID NONMETALLIC CONDUIT (PVC) SCHEDULE 40 UNLESS NOTED OTHERWISE.
 - CONDUIT FITTINGS, CONDUIT BENDS, AND ADAPTER FITTINGS INCIDENTAL TO CONDUIT WORK.
 - PROVIDE JUNCTION BOXES FROM THE APPROVED PRODUCTS LIST.
 - SEE SHEET "VERTICAL FACE PARAPET 'A'" FOR ADDITIONAL INFORMATION.

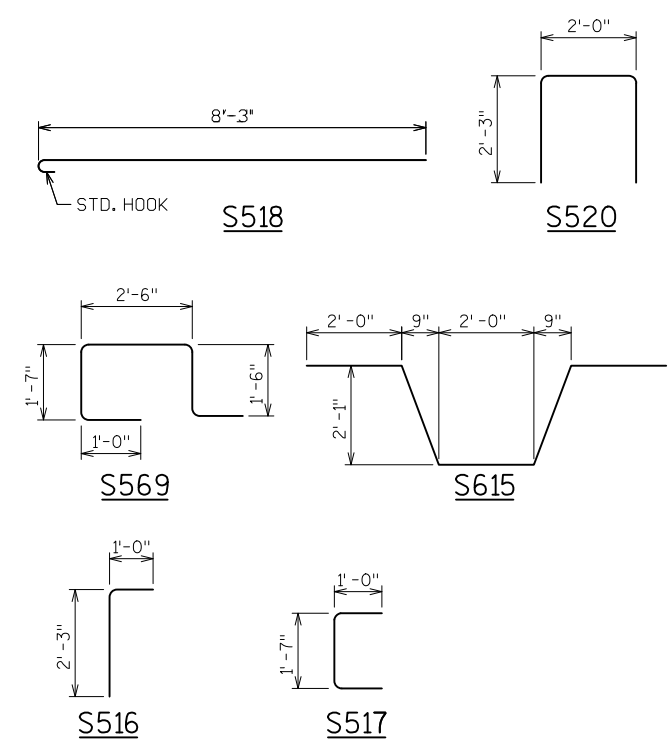
- LEGEND**
- CONSTRUCTION JOINT, STRIKE OFF AS SHOWN.
 - ▲ CUT OUT ± 1" OF GASKET AT BOTTOM OF JUNCTION BOX COVER TO ALLOW FOR DRAINAGE.
 - ▽ LOCATION OF CONDUIT IS MEASURED FROM OUTSIDE EDGE OF JUNCTION BOX.
- PVC = POLYVINYL CHLORIDE (RIGID NONMETALLIC) CONDUIT
- ☆ THESE BARS ARE IN ADDITION TO STANDARD TRANSVERSE BARS IN SIDEWALK.
- 1" DIA. THREADED ANCHOR BOLTS ASTM F1554 GR 55, HEAVY HEX NUTS ASTM A563, AND WASHERS ASTM F436. ANCHOR ASSEMBLIES SHALL BE GALVANIZED PER SECTION 531 OF THE STANDARD SPECIFICATION. PROVIDE (2) WASHERS AND (7) NUTS PER ANCHOR ROD.



ANCHORAGE DETAIL
(1 REQ'D.)



SECTION A-A



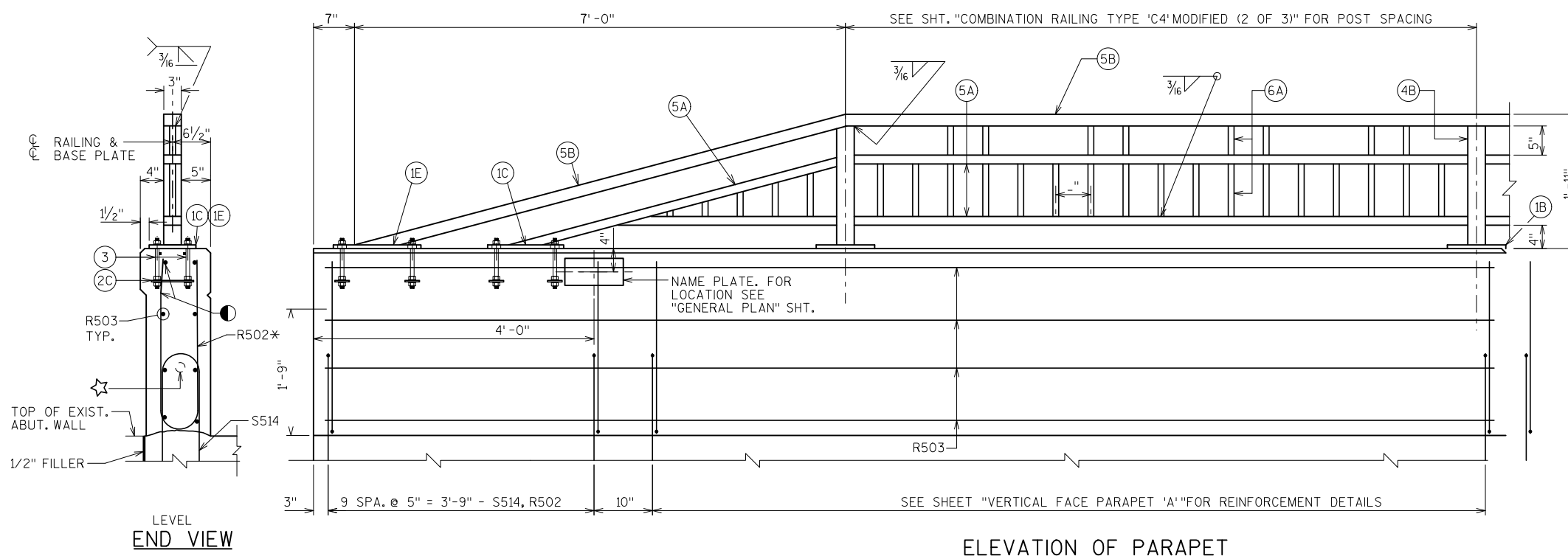
BENDING DIAGRAM

BILL OF BARS

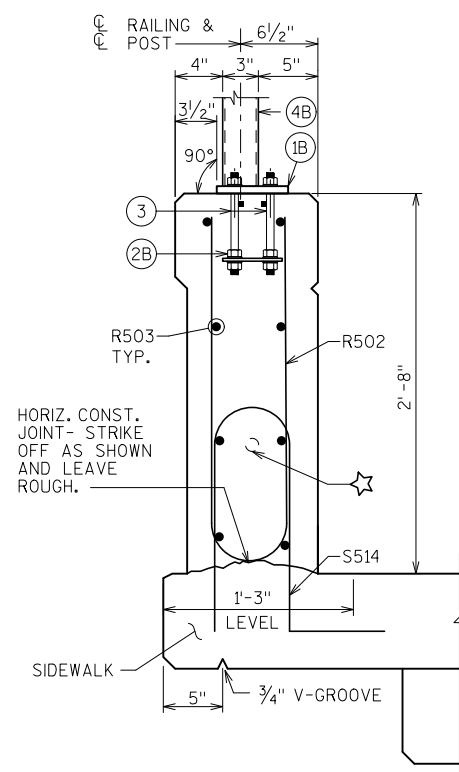
BAR MARK	COAT	NO.	LENGTH	BENT	BAR SERIES	LOCATION
S615	X	7	10'-0"	X	-	HORIZ. AT LIGHT STANDARD
S516	X	2	3'-2"	X	-	VERT. AT LIGHT STANDARD
S517	X	2	3'-4"	X	-	VERT. AT LIGHT STANDARD
S518	X	12	8'-10"	X	-	HORIZ. AT LIGHT STANDARD
S519	X	12	8'-3"	-	-	HORIZ. AT LIGHT STANDARD
S520	X	4	6'-3"	X	-	VERT. AT LIGHT STANDARD
S569	X	4	7'-1"	X	-	VERT. AT LIGHT STANDARD

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
LIGHT STANDARD			SHEET 14 OF 20

● WHEN ADHESIVE ANCHORS ARE USED, FIELD BEND AND/OR DISPLACE TO AVOID HITTING LONGITUDINAL BAR WHEN DRILLING FOR ADHESIVE ANCHORS.



LEVEL END VIEW



* ADJUST LOCATIONS OF BARS TO ALLOW PLACEMENT OF ANCHOR ASSEMBLY FOR RAILING.

LEGEND

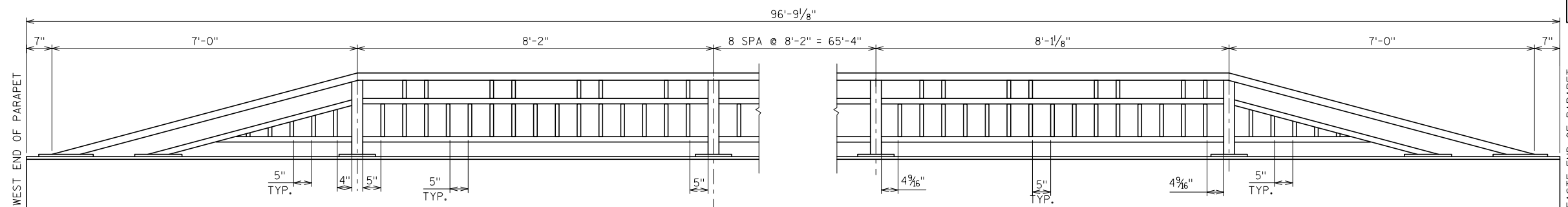
☆ 2 1/2" DIA NONMETALLIC CONDUIT SCHEDULE 40

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
COMBINATION RAIL TYPE 'C4' MODIFIED (1 OF 3)			SHEET 15 OF 20

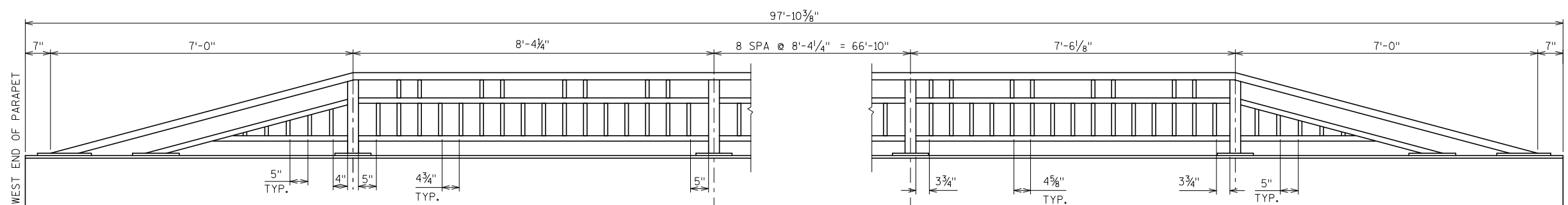
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DATE: 7/28/2021 8:07:56 AM Plotted by: bthengon PEN TABLE: V8.STRUCTURAL_REV.TBL

8

8



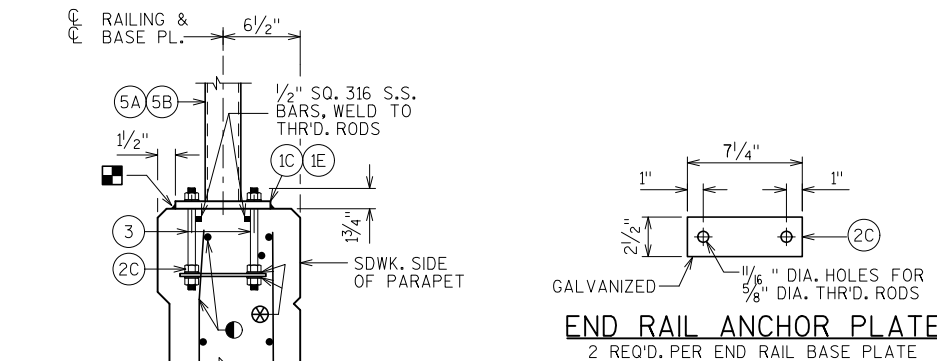
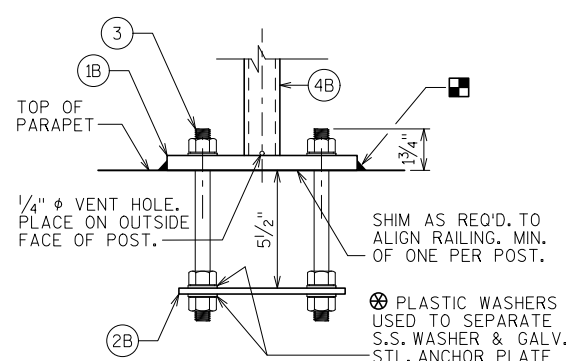
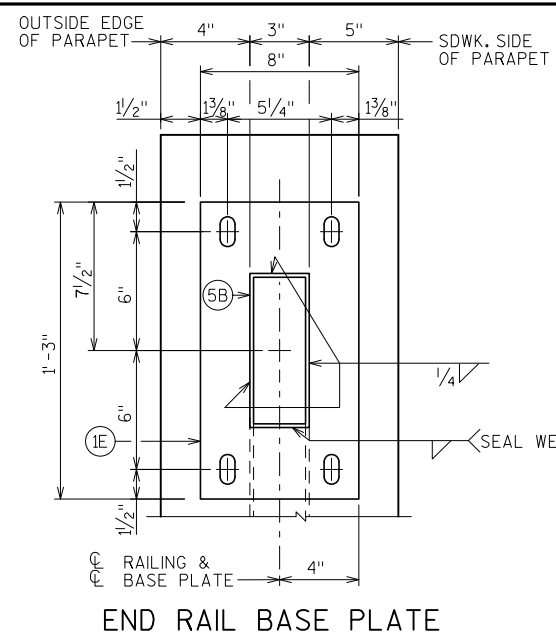
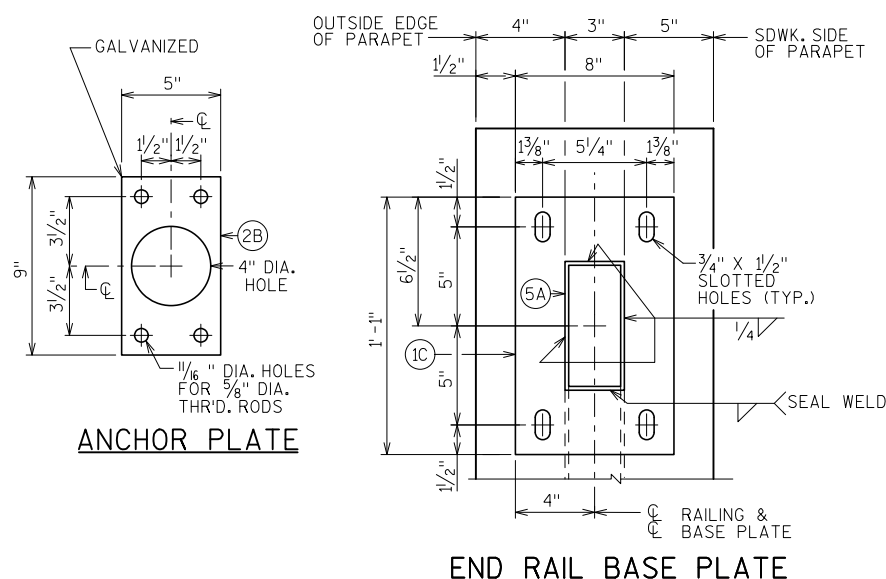
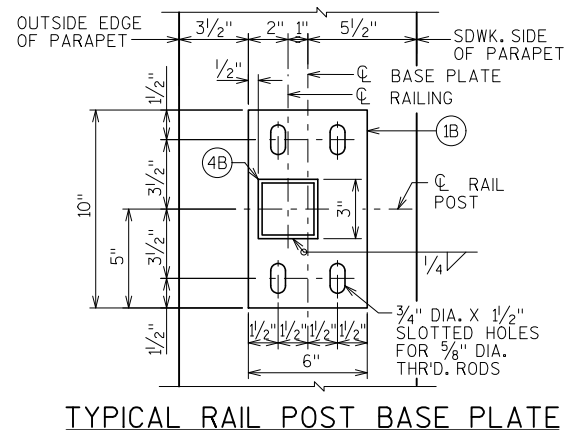
ELEVATION OF NORTH PARAPET



ELEVATION OF SOUTH PARAPET

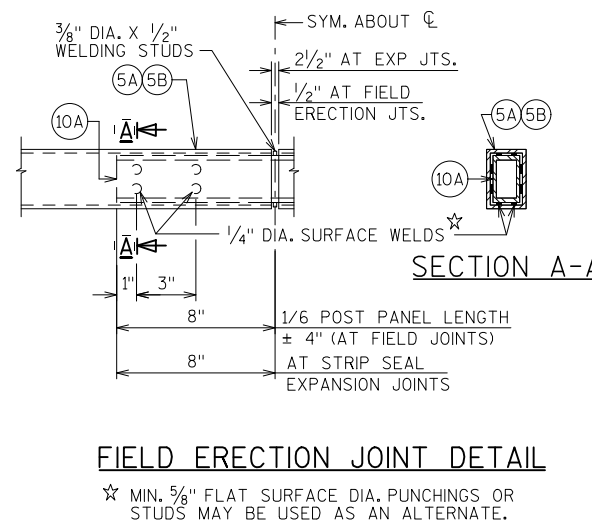
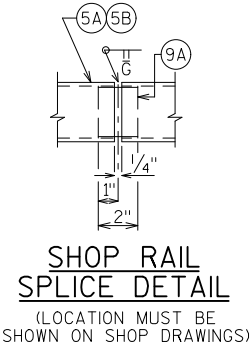
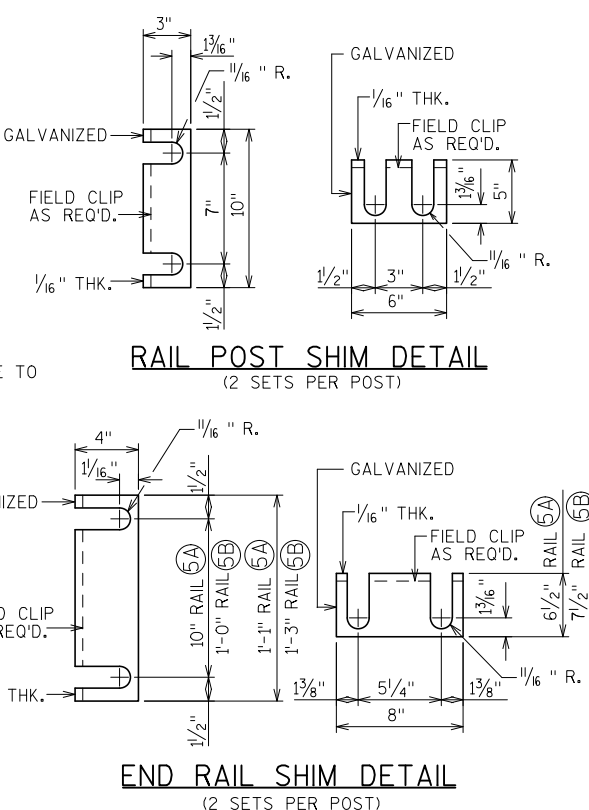
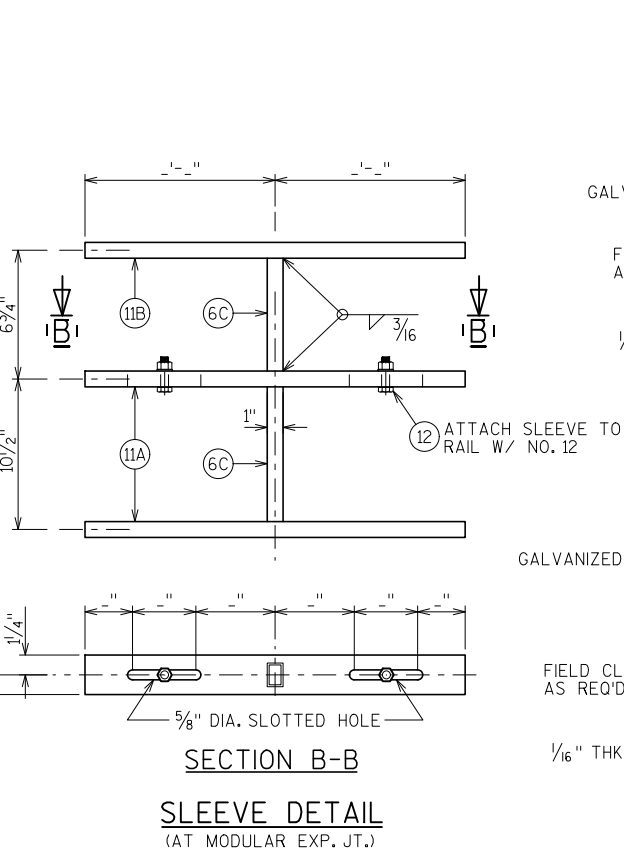
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 DATE: 7/28/2021 8:08:15 AM Plotted by: bthengon PEN TABLE: V8.STRUCTURAL_REV.TBL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
COMBINATION RAIL TYPE 'C4' MODIFIED (2 OF 3)			SHEET 16 OF 20



ANCHORAGE FOR RAIL POSTS
NOTE: ANCHOR PLATE NOT REQUIRED WHEN ADHESIVE ANCHORS ARE USED.

ANCHORAGE FOR END RAIL
NOTE: ANCHOR PLATES NOT REQ'D. WHEN ADHESIVE ANCHORS ARE USED.
○ WHEN ADHESIVE ANCHORS ARE USED, FIELD BEND AND/OR DISPLACE TO AVOID HITTING LONGITUDINAL BAR WHEN DRILLING FOR ADHESIVE ANCHORS.



LEGEND

- 1B) PLATE 5/8" X 6" X 10" WITH 3/4" X 1/2" SLOTTED HOLES.
- 1C) PLATE 5/8" X 8" X 1-1" WITH 3/4" X 1/2" SLOTTED HOLES.
- 1E) PLATE 5/8" X 8" X 1-3" WITH 3/4" X 1/2" SLOTTED HOLES.
- 2B) 1/4" X 5" X 9" ANCHOR PLATE WITH 1/16" DIA. HOLES FOR THRD. RODS NO. 3.
- 2C) 1/4" X 2 1/2" X 7 1/4" ANCHOR PLATE WITH 1/16" DIA. HOLES FOR THRD. RODS NO. 3.
- 3) 5/8" DIA. X 9" LONG, TYPE 316 STAINLESS STEEL THREADED RODS (MIN. TENSILE STRENGTH = 70 KSI) WITH NUT AND WASHERS OF SAME ALLOY GROUP. ALTERNATIVE ANCHORAGE: CONCRETE ADHESIVE ANCHORS 5/8-INCH. EMBED 7" IN CONCRETE FOR RAIL POSTS. EMBED 5" IN CONCRETE FOR END RAILS. ADHESIVE ANCHORS SHALL CONFORM TO SECTION 502.2.12 OF THE STANDARD SPECIFICATIONS.
- 4B) STRUCTURAL TUBING 3" X 3" X 3/16". PLACE VERTICAL. WELD TO NO.1 & 5.
- 5A) STRUCTURAL TUBING 3" X 1 1/2" X 3/16" RAILS. WELD TO NO.1 & NO.4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.
- 5B) STRUCTURAL TUBING 3" X 2" X 3/16" RAILS. WELD TO NO.1 & NO.4. INSIDE OF TUBE TO BE PAINTED AT ALL FIELD ERECTION & EXPANSION JOINTS.
- 6A) BAR 1" X 1" PICKETS. WELD TO NO.5. PLACE VERTICAL.
- 6C) BAR 1" X 1/2" PICKETS. WELD TO NO.11. PLACE VERTICAL.
- 9A) RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. PROVIDE "SLIDING FIT".
- 10A) RECTANGULAR SLEEVE FABRICATED FROM 3/16" PLATES. (1'-4" @ FIELD ERECTION JTS.) (1'-4" @ STRIP SEAL EXP. JTS.)
- 11A) BAR 2 1/2" X 1" X " - " - ".
- 11B) BAR 2 1/2" X 1 1/2" X " - " - ".
- 12) 1/2" DIA. STAINLESS STEEL BOLT WITH NUT AND LOCKWASHER.

RAILING NOTES

- BID ITEM SHALL BE "RAILING STEEL TYPE C4", WHICH SHALL INCLUDE ALL STEEL ITEMS SHOWN.
- POST BASE PLATES SHALL BE FLAT WITH ALL SURFACES SMOOTH AND FREE FROM WARP AND ALL EDGES SMOOTH, STRAIGHT AND VERTICAL. ALL PLATE CUTS SHALL BE MACHINE OR MACHINE FLAME CUTS.
- ALL PLATES, BARS, AND RECTANGULAR SLEEVES SHALL CONFORM TO ASTM A709 GRADE 36. ALL STRUCTURAL TUBING SHALL CONFORM TO ASTM A500 GRADE B.
- ANCHORAGES SHALL BE ACCURATELY PLACED TO PROVIDE CORRECT ALIGNMENT OF RAILING. SET NORMAL TO GRADE.
- CUT BOTTOM OF POST TO MAKE POST VERTICAL IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTION.
- STEEL SHIMS SHALL BE PROVIDED & USED UNDER BASE PLATES WHERE REQUIRED FOR ALIGNMENT, AND SHALL BE GALVANIZED.
- CAULK AROUND PERIMETER OF BASE PLATES, NO. 1, AND FILL BOLT SLOT OPENINGS IN SHIMS AND BASE PLATES WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER.
- ALL JOINTS AND RECESSES IN CONCRETE PARAPET ARE TO BE VERTICAL.
- ALL MATERIAL (EXCEPT NO. 3 & 12) SHALL BE GALVANIZED AFTER FABRICATION. PRIOR TO GALVANIZING, THE STEEL RAILING SHALL BE GIVEN A NO. 6 BLAST CLEANING PER SSPC SPECIFICATIONS. PAINT OVER GALVANIZING WITH AN APPROVED TIE COAT AND TOP COAT AS SPECIFIED IN THE CONTRACT DOCUMENTS. THE RAILING SHALL BE PAINTED AMS STD. COLOR NO. 27038, BLACK.
- VENT HOLES SHALL BE DRILLED IN POST AND RAIL MEMBERS AS REQUIRED TO FACILITATE GALVANIZING AND DRAINAGE.
- RAILING SHALL BE FABRICATED IN LENGTHS THAT INCLUDE 3 OR 4 POSTS.
- TOUCH-UP PAINTING TO BE DONE AT COMPLETION OF STEEL RAILING INSTALLATION TO THE SATISFACTION OF THE ENGINEER AT NO EXTRA COST.

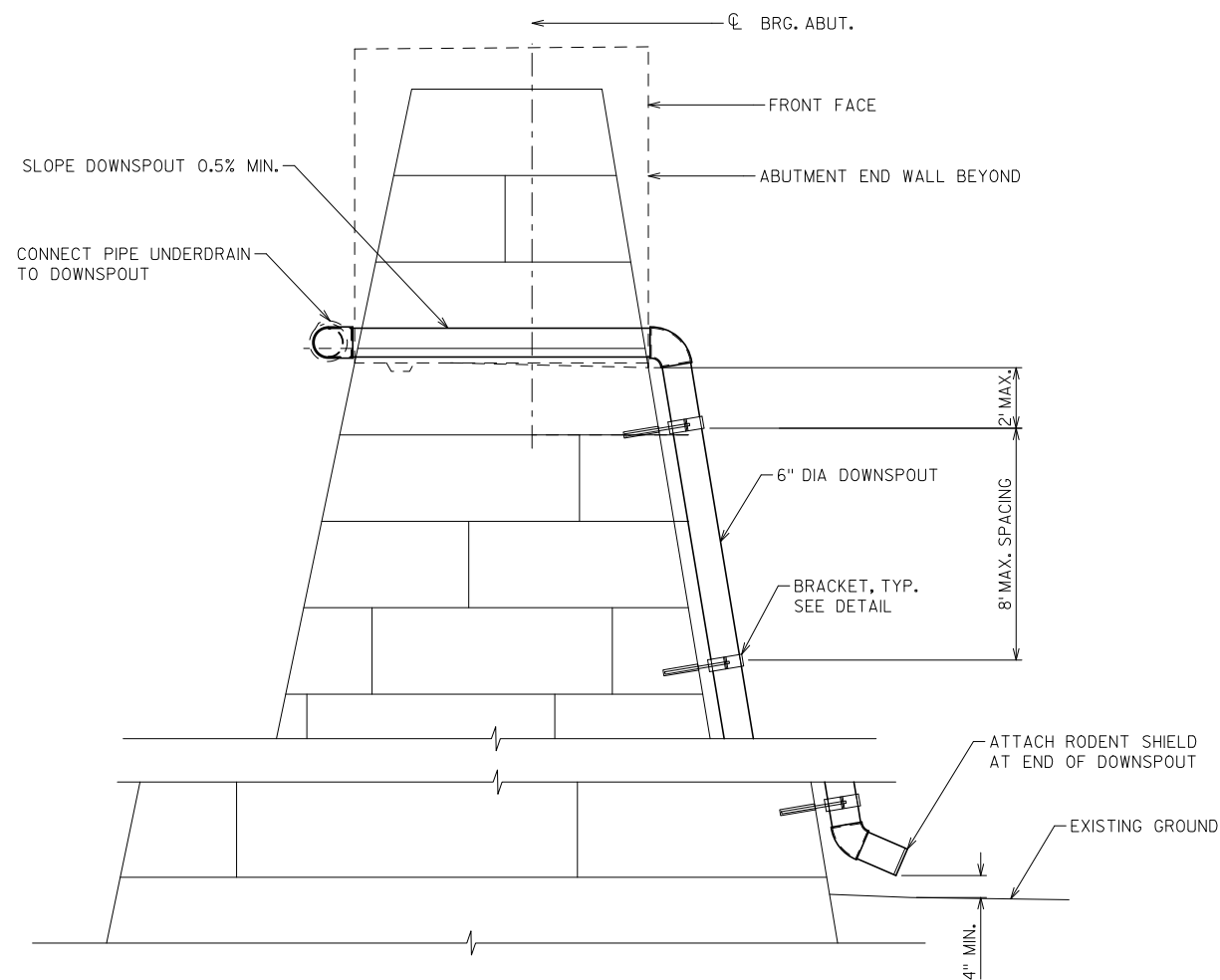
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
COMBINATION RAIL TYPE 'C4' MODIFIED (3 OF 3)			SHEET 17 OF 20

FILE NAME: X:\BIM\3647 North Ave Bridge B-40-502\45.Dwg\gn04.Structures.Bridges\Current\plan04-B-40-502-AVAT7-railcombed.dgn
DATE: 7/28/2021 8:08:35 AM
Plotted by: bthengon
PEN TABLE: V8_STRUCTUREAL_REV.TBL

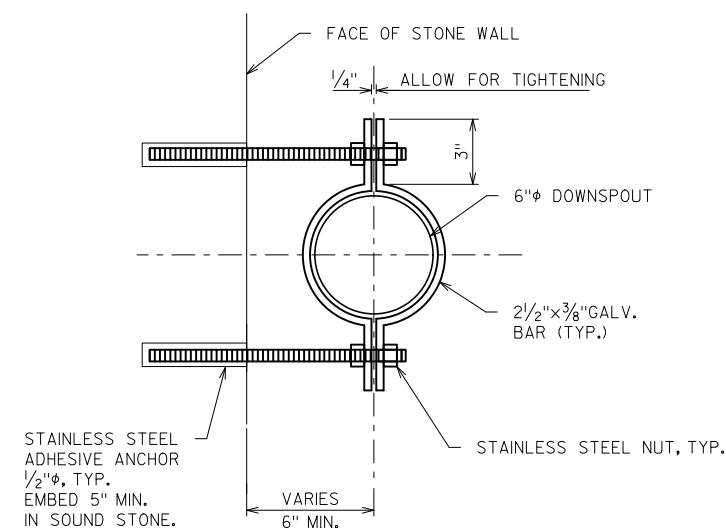
GENERAL NOTES

ALL MATERIAL FOR DOWNSPOUTS, DOWNSPOUT CONNECTIONS, RODENT SHIELD, AND BRACKETS TO BE INCLUDED IN THE BID ITEM "DOWNSPOUT 6-INCH".

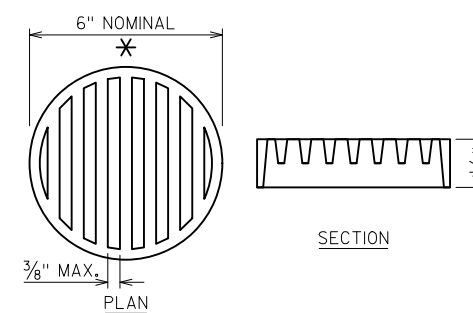
SEE "GENERAL PLAN AND ELEVATION" SHEET FOR LAYOUT OF PIPE UNDERDRAIN AND DOWNSPOUT.



SECTION THRU STONE RETAINING WALL



BRACKET DETAIL



RODENT SHIELD DETAIL

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

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

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

FILE NAME: X:\BIM\3647 North Ave Bridge B-40-502\45.Designs\04.Structures\Bridges\Current\plans\B-40-502 North Av\18_downspout.dgn
DATE: 7/28/2021 8:08:57 AM Plotted by: bthompson PEN TABLE: V8_STRUCTUREL_REV.TBL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
DOWNSPOUT			SHEET 18 OF 20

93'-4"± LENGTH OF CONCRETE ABUTMENT MEASURED ALONG FRONT FACE
LIMITS OF BID ITEM "POINTING STONE MASONRY JOINTS".

BOTTOM OF NEW CONC. DIAPHRAGM

CONCRETE SURFACE REPAIR, TYP.

SEAL EXIST. CRACKS BY EPOXY INJECTION, TYP.

BOTTOM OF EXIST. CONCRETE ABUTMENT

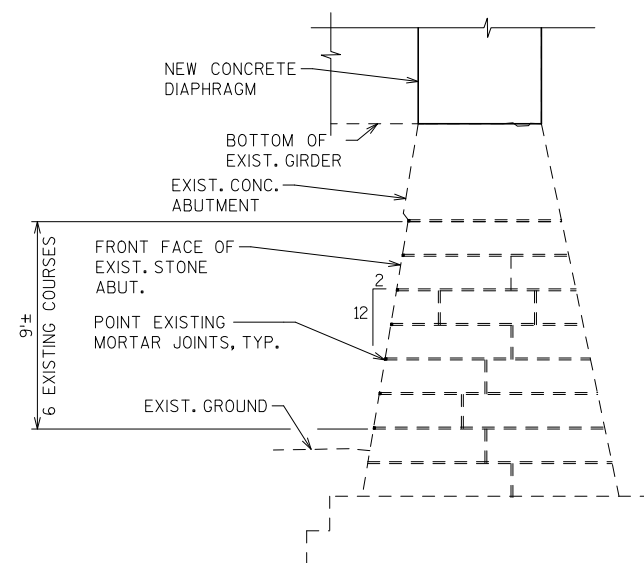
EXISTING GROUND LINE

EXISTING STONE MASONRY ABUTMENT

POINT ALL MORTAR JOINTS WITHIN THE LIMITS SHOWN, TYP.

WEST ABUTMENT ELEVATION

(LOOKING WEST)
(EXIST. GIRDERS NOT SHOWN FOR CLARITY)



SECTION THRU WEST ABUTMENT

(LOOKING SOUTH)

FILE NAME: X:\BMM\3647 North Ave Bridge B-40-502\45.Design\04.Structures\Bridges\Current\plans\B-40-502 North Av49_west abut stone masonry repair.dgn
DATE: 7/29/2021 15:47 PM Plotted by: bthengon PEN TABLE: V8.STRUCTURAL_REV.TBL

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
WEST ABUTMENT STONE MASONRY REPAIR			SHEET 19 OF 20

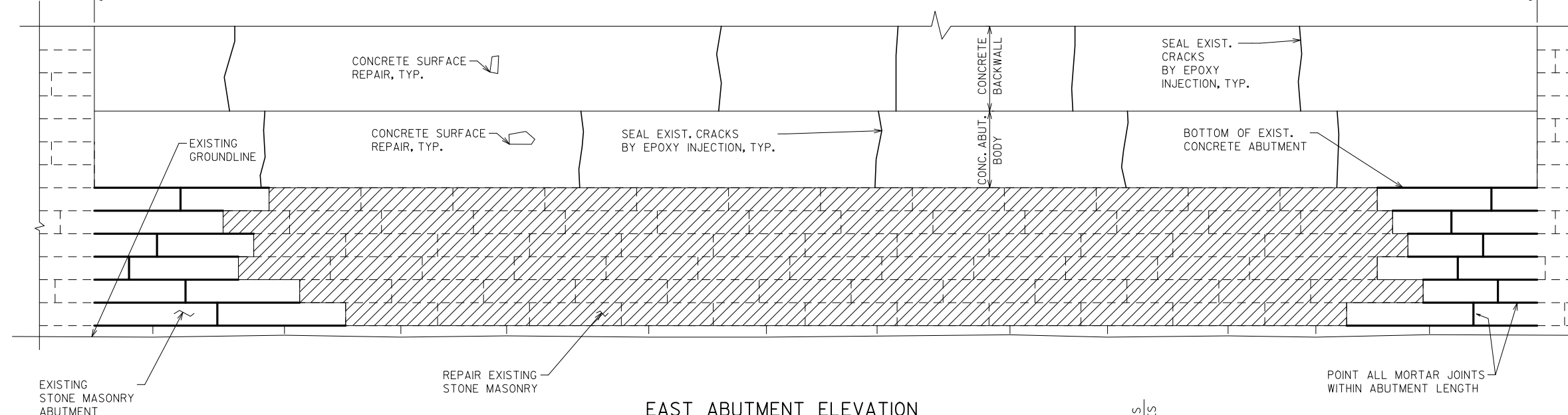
GENERAL NOTES

COLOR AND TEXTURE OF NEW STONE VENEER SHALL MATCH THOSE OF EXISTING STONES.

ALL MATERIAL FOR STONE MASONRY REPAIR INCLUDING SYONE VENEER, MORTAR, GROUT, AND ADHESIVE ANCHORS TO BE INCLUDED IN THE BID ITEM "STONE MASONRY SURFACE REPAIR".

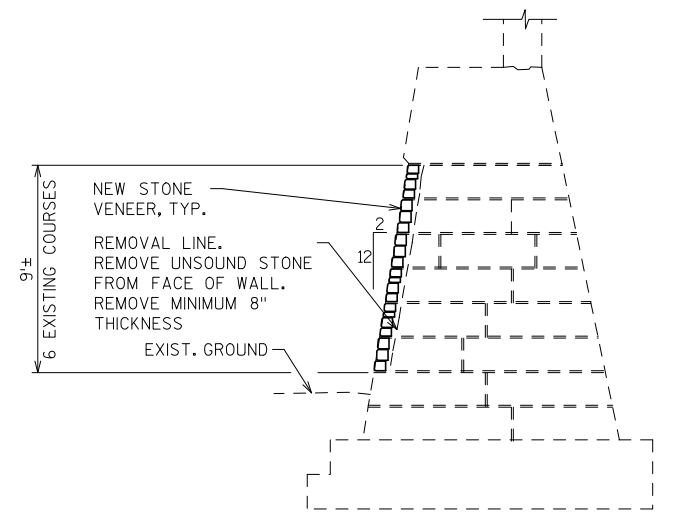
POINTING OF NEW STONE VENEER IS INCLUDED IN THE BID ITEM "STONE MASONRY SURFACE REPAIR".

94± LENGTH OF CONCRETE ABUTMENT MEASURED ALONG FRONT FACE



EAST ABUTMENT ELEVATION

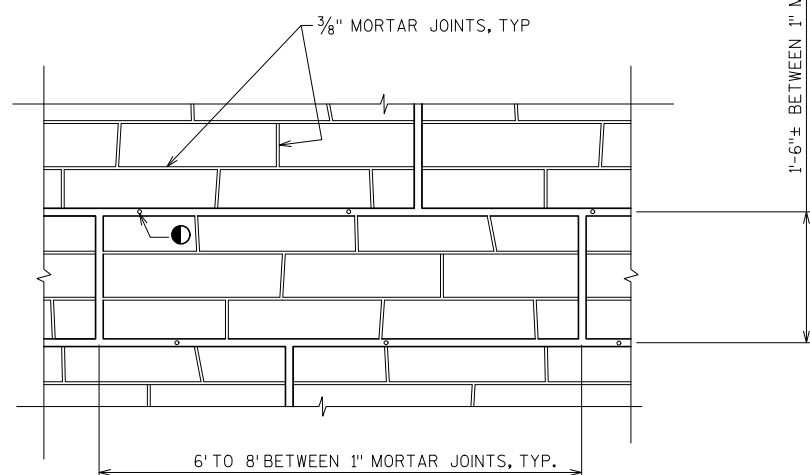
(LOOKING EAST)



SECTION THRU EAST ABUTMENT

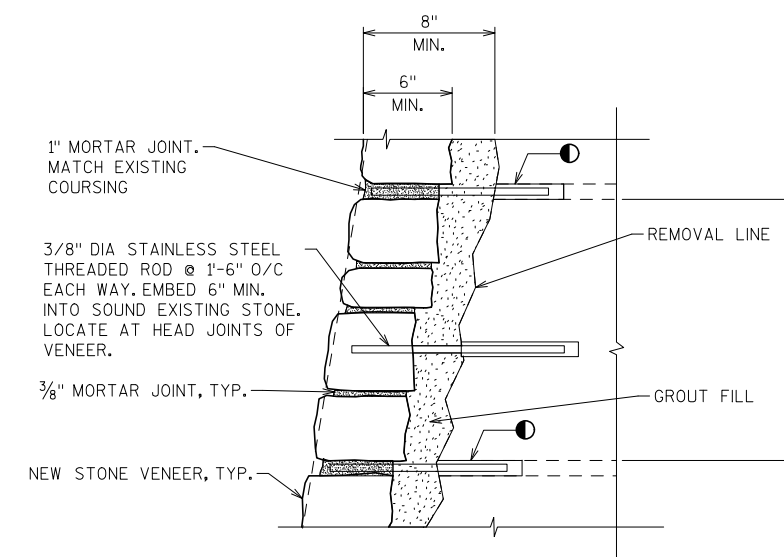
(LOOKING NORTH)

SHOWING STONE MASONRY SURFACE REPAIR



STONE VENEER ELEVATION

(LOOKING AT FRONT FACE)



SECTION THRU STONE VENEER

(LOOKING NORTH)



ELEVATION OF EXISTING STONE WALL

LEGEND

STONE MASONRY SURFACE REPAIR AREA

1/2" DIA. SCHEDULE 40 PVC WEEP DRAIN @ 2'-0" CENTERS HORIZONTALLY AT EVERY EXISTING MORTAR BED JOINT WITHIN THE STONE MASONRY SURFACE REPAIR LIMITS. INSERT MINIMUM 2 INCH INTO A 3" DEEP, 1" DIA. HOLE DRILLED INTO THE EXISTING BED JOINT. KEEP THE EXPOSED END OF WEEP 1/2" BEHIND THE FACE OF THE WALL. TEMPORARILY PLUG THE EXPOSED END TO PREVENT MORTAR/GROUT ENTERING THE WEEP. COST INCLUDED IN THE BID ITEM "STONE MASORY SURFACE REPAIR".

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION			
STRUCTURE B-40-502			
DRAWN BY		BT	PLANS CK'D. JA
EAST ABUTMENT STONE MASONRY REPAIR			SHEET 20 OF 20

FILE NAME: X:\BIM\3647 North Ave Bridge B-40-502\45.Design\04.Structures\Bridges\Current\plans\B-40-502 North Av+20-east about stone masonry repair.dgn
DATE: 7/29/2021 15:02:20 PM
Plotted by: bthengon
PEN TABLE: V8.STRUCTURAL_REV.TBL

Notes



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