

WASHINGTON COUNTY, MARYLAND

DIVISION OF ENGINEERING



SHOWALTER RD. AT CRAYTON BLVD.

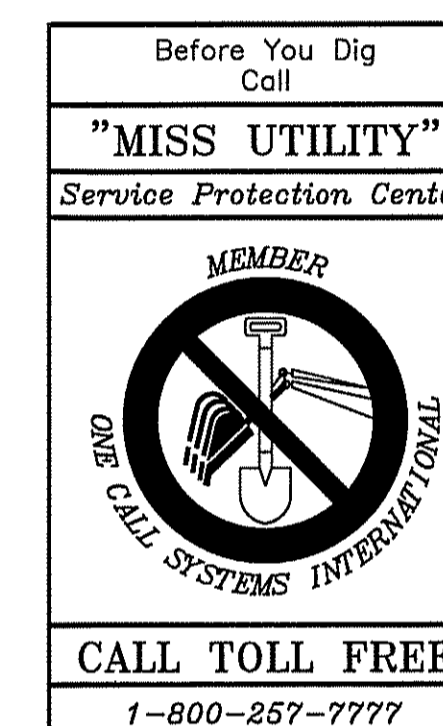
SIGNAL INTERSECTION IMPROVEMENTS

PROJECT NO. 16-040
CONTRACT NO. TS-SC-040-16

AASHTO DESIGN CRITERIA
 THIS PROJECT WAS DESIGNED IN ACCORDANCE WITH THE 2018 PUBLICATION OF AASHTO'S "A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS."

STANDARD SPECIFICATIONS BOOK, BOOK OF STANDARDS AND MUTCD
 ALL WORK ON THIS PROJECT SHALL CONFORM TO: THE MARYLAND DEPARTMENT OF TRANSPORTATION, STATE HIGHWAY ADMINISTRATIONS SPECIFICATIONS ENTITLED STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS DATED MAY 2017 REVISIONS THEREOF OR ADDITIONS THERETO; THE SPECIAL PROVISIONS INCLUDED IN THE INVITATION FOR BIDS BOOK; THE ADMINISTRATIONS BOOK OF STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES AND THE LATEST MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

ADA COMPLIANCE
 THE DESIGN OF THIS PROJECT HAS INCORPORATED FACILITIES IN COMPLIANCE WITH THE STATE AND FEDERAL LEGISLATION.



CALL TOLL FREE
 1-800-257-7777

SEAL:

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE No. 39252 EXPIRATION DATE: 6.21.22

APPROVED FOR CONSTRUCTION

Scott Hobbs 5/19/22
 SCOTT HOBBS, P.E.
 DIRECTOR OF ENGINEERING
 FOR WASHINGTON COUNTY, MD

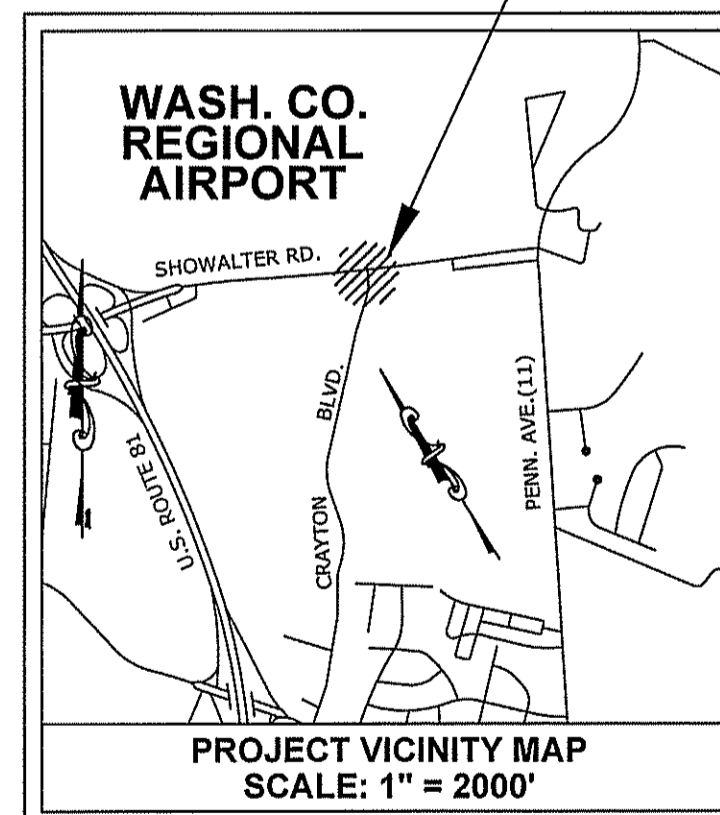
I/WE CERTIFY ALL / ANY PARTIES RESPONSIBLE FOR CLEARING, GRADING, CONSTRUCTION, AND / OR DEVELOPMENT WILL BE DONE PURSUANT TO THIS PLAN AND RESPONSIBLE PERSONNEL INVOLVED IN THE CONSTRUCTION PROJECT WILL HAVE A CERTIFICATE OF TRAINING AT A MARYLAND DEPARTMENT OF THE ENVIRONMENT APPROVED TRAINING PROGRAM FOR THE CONTROL OF SOIL EROSION AND SEDIMENT.

APPROVED FOR CONSTRUCTION.

Scott Hobbs 5/19/22
 SCOTT HOBBS, P.E.
 DIRECTOR OF ENGINEERING
 FOR WASHINGTON COUNTY, MD

OWNER/DEVELOPER:

BOARD OF COUNTY COMMISSIONERS
 FOR WASHINGTON COUNTY, MD
 AGENT: SCOTT HOBBS, P.E.
 DIRECTOR OF ENGINEERING
 747 NORTHERN AVENUE
 HAGERSTOWN, MARYLAND 21742
 PHONE: 240-313-2460
 FAX: 240-313-2401



BOARD OF COUNTY COMMISSIONERS:

JEFFREY A. CLINE, PRESIDENT
 TERRY L. BAKER, VICE PRESIDENT
 WAYNE K. KEEFER
 RANDALL E. WAGNER
 CHARLES A. BURKETT JR.

JOHN M. MARTIRANO, COUNTY ADMINISTRATOR
 SCOTT HOBBS, P.E., DIRECTOR OF ENGINEERING

DISTURBED AREA QUANTITY

THE TOTAL AREA TO BE DISTURBED SHOWN ON THESE PLANS HAS BEEN DETERMINED TO BE APPROXIMATELY .0124 ACRES AND THE TOTAL AMOUNT OF EXCAVATION AND FILL SHOWN ON THESE PLANS HAS BEEN DETERMINED TO BE APPROXIMATELY 20 CU. YDS. OF EXCAVATION AND APPROXIMATELY 10 CU. YDS. OF FILL.

INDEX OF SHEET(S):

- SHEET 01 COVER SHEET
- SHEET 02 GENERAL NOTES & LEGENDS
- SHEET 03 TRAFFIC SIGNAL PLAN
- SHEET 04 TRAFFIC SIGNAL WIRING PLAN AND SUMMARY OF QUANTITIES
- SHEET 05 - 07 MD-SHA TRAFFIC SIGNAL DETAILS
- SHEET 08 - 10 PAVEMENT MARKING PLAN
- SHEET 11 TRAFFIC CONTROL

K:\CADD\16-040 SHOWALTER - CRAYTON SIGNAL\DESIGN\CONSTRUCTION PLANS\A-COVER SHEET.SHEET 01.DWG Last Saved: 5/19/2022 8:07 AM

GENERAL NOTES

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE SPECIAL PROVISIONS, THE LATEST EDITION OF THE MDSHA STANDARD SPECIFICATIONS, AND SUPPLEMENTAL SPECIFICATIONS.
- WHERE REFERENCE IS MADE TO STANDARDS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE IN HIS POSSESSION THE MARYLAND SHA BOOK OF STANDARDS FOR HIGHWAY AND INCIDENTAL STRUCTURES WITH THE LATEST UP TO DATE MSHA STANDARDS AS OF THE DATE OF ADVERTISEMENT OF THIS PROJECT.
- IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HAVE THE LATEST APPROVED SET OF PLANS, SPECIFICATIONS, SPECIAL PROVISIONS, AND ANY REFERENCED MDSHA STANDARDS AS OF NOTICE TO PROCEED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING AND PROTECTING PROPERTY MARKERS, CONTROL POINTS AND BENCHMARKS FOR THE DURATION OF THE CONTRACT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE ANY OF THESE POINTS THAT ARE DISTURBED OR DAMAGED DURING THE CONSTRUCTION PROCESS. WHERE NECESSARY, POINTS SHALL BE REPLACED UNDER THE DIRECT SUPERVISION OF A REGISTERED SURVEYOR TO THE STANDARD WITH WHICH THEY WERE ESTABLISHED.
- DEFINITION OF TERMS:

PROPOSED RIGHT OF WAY:
DENOTES LAND BELONGING TO COUNTY OR STATE, WHICH CONTAINS THE ROADWAY AND SUPPORTING STRUCTURES.

PERPETUAL EASEMENT:
PORTIONS OF PRIVATE PROPERTY FOR WHICH THE COUNTY HAS ACQUIRED THE RIGHT TO UTILIZE FOR THE INSTALLATION AND MAINTENANCE OF UTILITIES, DRAINAGE STRUCTURES, ETC.

REVERTIBLE EASEMENT:
PORTIONS OF PRIVATE PROPERTY FOR WHICH THE COUNTY HAS ACQUIRED THE RIGHT TO CONSTRUCT AND MAINTAIN SUPPORTING SLOPES AND STRUCTURES FOR THE ROADWAY.

TEMPORARY CONSTRUCTION EASEMENT:
PORTIONS OF PRIVATE PROPERTY ON WHICH THE COUNTY HAS ACQUIRED THE RIGHT TO OCCUPY AND GRADE ON DURING THE PERIOD OF CONSTRUCTION.
- THE CONTRACTOR SHALL MAKE, CHECK, AND BE RESPONSIBLE FOR ALL MEASUREMENTS AND DIMENSIONS NECESSARY FOR THE PROPER CONSTRUCTION OF ALL WORK.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ACTUAL CONDITIONS AND PLANNING ALL CONSTRUCTION ACCORDINGLY. ALL DIMENSIONS SHOWN SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR BEFORE ANY WORK COMMENCES.
- ANY DAMAGE TO ADJACENT ROADS, YARDS, STRUCTURES, FENCES, SHRUBBERY, ETC., DURING CONSTRUCTION SHALL BE REPLACED IN KIND BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE COUNTY OR THE PROPERTY OWNERS BEFORE ANY WORK COMMENCES.
- MATERIALS SALVAGED FROM CONSTRUCTION SHALL BECOME THE CONTRACTOR'S PROPERTY UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS.
- WORK SITE SAFETY SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- THE CONTRACTOR SHALL MAINTAIN ACCESS TO PRIVATE PROPERTY AT ALL TIMES. IF ACCESS MUST BE INTERRUPTED FOR SHORT PERIODS OF TIME, THE INTERRUPTION SHALL BE COORDINATED WITH THE ENGINEER AND THE PROPERTY OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF TRAFFIC THROUGHOUT THE ENTIRE PERIOD OF CONSTRUCTION BY PROVIDING A REASONABLY SMOOTH AND EVEN SURFACE SATISFACTORY FOR THE USE OF PUBLIC TRAFFIC, AND BY PROVIDING ACCESS TO ALL PUBLIC ROADS AND RESIDENTIAL AND COMMERCIAL ENTRANCES AT ALL TIMES. CONTRACTOR TO FOLLOW MOT PLANS AND SHA STANDARDS FOR CONSTRUCTION ACCESS.
- THE CONTRACTOR MUST NOT OCCUPY ANY NON-PERMITTED WETLAND AREAS.

- IN ANY AREA WHERE ASPHALT THAT IS TO BE REMOVED ADJOINS ASPHALT THAT IS TO REMAIN, THE ASPHALT PAVING SHALL BE SAW CUT IN ORDER TO PROVIDE A CLEAN JOINT BETWEEN THAT WHICH IS TO BE REMOVED AND THAT WHICH IS TO REMAIN.
- IN AREAS WHERE CONCRETE THAT IS TO BE REMOVED ADJOINS CONCRETE THAT IS TO REMAIN, THE CONCRETE SHALL BE SAW CUT AT THE NEAREST JOINT AND A BITUMINOUS EXPANSION JOINT PROVIDED BETWEEN NEW AND EXISTING WORK. WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARDS SET FORTH IN THE SPECIFICATIONS AND ON THE APPROVED CONSTRUCTION DRAWINGS.
- CLEARING AND GRUBBING SHALL OCCUR INSIDE THE PLATTED RIGHT OF WAY UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- UTILITIES: THE LOCATIONS OF UNDERGROUND AND AERIAL UTILITIES SHOWN ON THE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT TO BE CONSIDERED COMPLETE OR ACCURATE. THE CONTRACTOR SHALL NOTIFY THE FOLLOWING UTILITIES AT LEAST FIVE (5) DAYS PRIOR TO STATING ANY WORK SHOWN ON THESE DRAWINGS. THE CONTRACTOR MUST PROTECT, IN PLACE, ALL ACTIVE UNDERGROUND UTILITIES UNLESS OTHERWISE NOTED ON THE PLANS.

Miss Utility 1-800-257-7777
 Washington County Division of Engineering 240-313-2460
 Washington County Dept. of Water Quality 240-313-2625
 Washington County Soil Conservation District 301-797-6821 (Ext.3)
 Potomac Edison (Allegheny Power) 301-582-5266
 Columbia Gas (Hagerstown) 240-420-2026
 Verizon 301-790-7135
 Antietam Cable 240-420-2082
 City of Hagerstown Utilities Dept. - Water & Wastewater Division 301-739-8577 (Ext. 650)
- IF DURING CONSTRUCTION THE CONTRACTOR FINDS THAT CLEARANCES BETWEEN EXISTING UTILITIES AND PROPOSED WORK IS LESS THAN THAT NOTED OR IS LESS THAN SIX INCHES, HE SHALL CONTACT THE ENGINEER FOR INSTRUCTIONS ON HOW TO PROCEED.
- THE CONTRACTOR MUST PROTECT IN PLACE ANY ACTIVE ABOVE GROUND AND OR UNDERGROUND UTILITIES FOUND UNLESS OTHER TREATMENT IS CALLED FOR. REPAIRS TO UTILITIES OR PROPERTY DAMAGE AS A RESULT OF THE CONTRACTOR'S NEGLIGENCE MUST BE MADE AT THE CONTRACTOR'S EXPENSE BEFORE PROCEEDING WITH CONSTRUCTION. THE COUNTY OR THE PROPERTY OWNER SHALL NOT BEAR ANY COST OR RESPONSIBILITY FOR DAMAGE TO UTILITIES OR PROPERTY AS THE RESULT OF THE CONTRACTOR'S NEGLIGENCE.
- THE CONTRACTOR SHALL PROTECT AND NOT INTERRUPT EXISTING UTILITY SERVICES DURING CONSTRUCTION, UNLESS AUTHORIZED BY THE ENGINEER. THE CONTRACTOR SHALL SUPPORT EXISTING UNDERGROUND UTILITIES DURING CONSTRUCTION AND THIS SUPPORT SHALL BE INCIDENTAL TO PERTINENT PAY ITEMS. THE LOCATION OF THE UTILITIES SHALL BE VERIFIED BY THE CONTRACTOR.

SYMBOL LEGEND

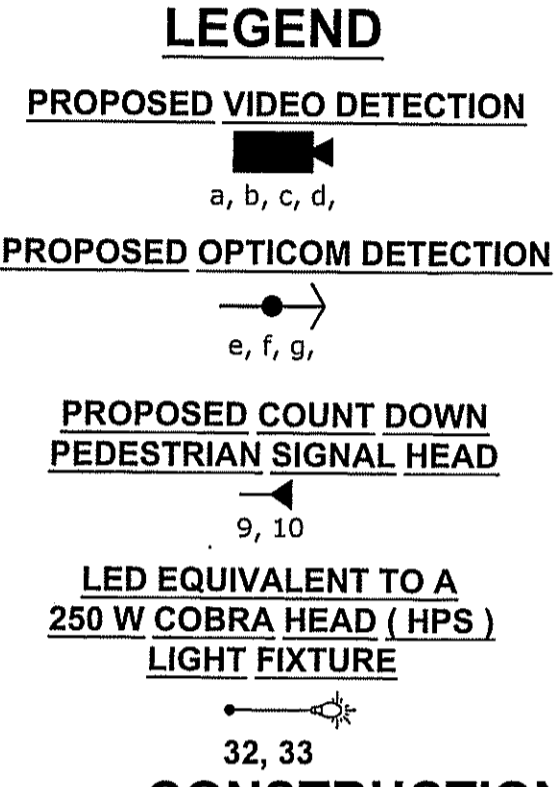
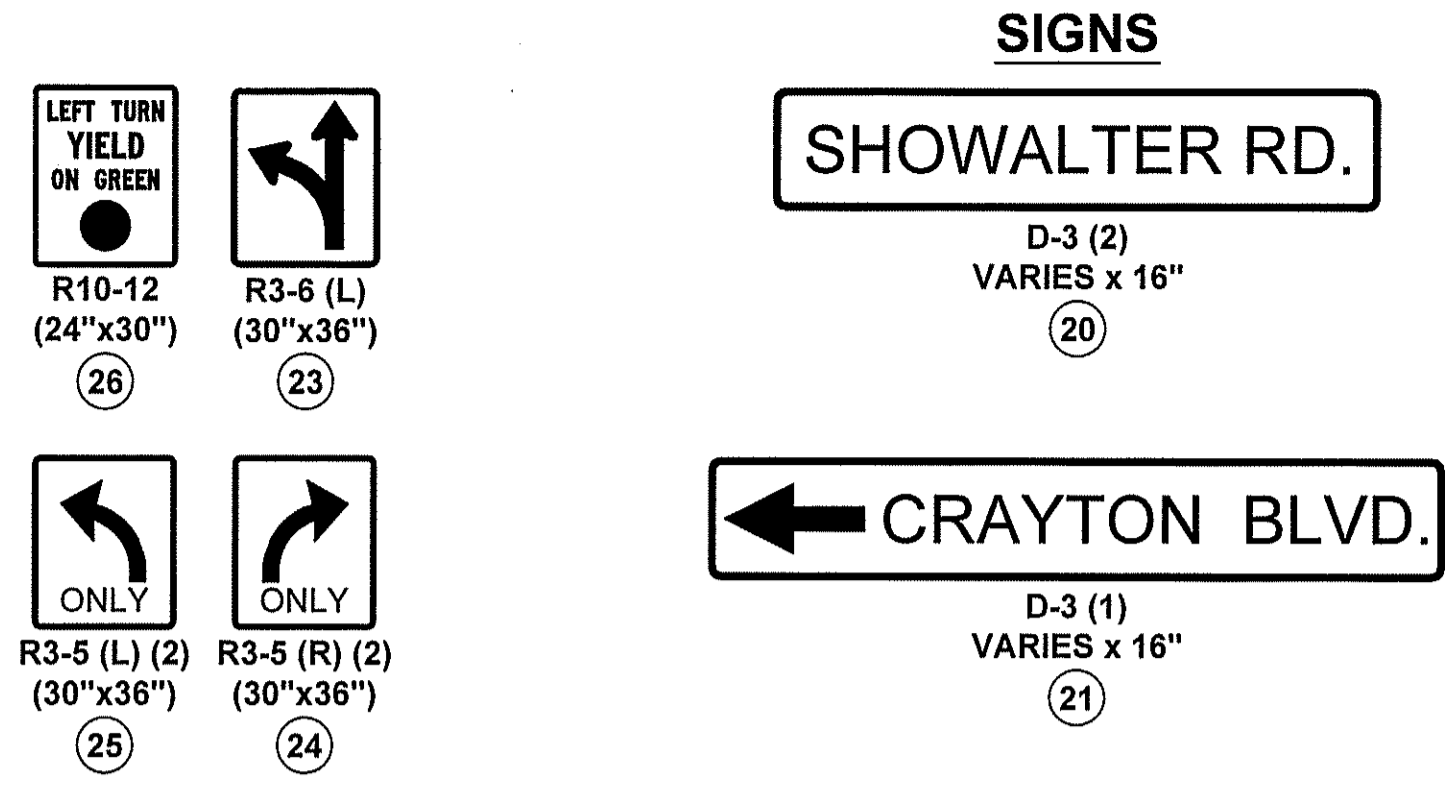
EXISTING	PROPOSED	
		PROPERTY LINE, CORNER
		RIGHT-OF-WAY LINE
		UTILITIES EASEMENT
		TEMP. CONSTRUCTION EASEMENT (T.C.E.)
		REVERTIBLE GRADING EASEMENT (R.G.E.)
		DRAINAGE EASEMENT
		FOREST EASEMENT
		STREAM EASEMENT
		CENTERLINE
		CONTOURS
		PROFILE GRADE LINE
		TREE LINE
		EDGE OF PAVEMENT
		CONCRETE CURB
		CONCRETE CURB & GUTTER
		FENCE LINE
		STREAM OR DITCH
		FLOW LINE
		WATER LINE
		SANITARY SEWER LINE, STUB
		GAS LINE
		FORCE MAIN
		STORM DRAIN, END SECTION
		WATER VALVE
		WATER CAP, REDUCER, BEND
		FIRE HYDRANT, METER
		OVERHEAD ELECTRIC LINE
		TRAFFIC BARRIER
		FLOODPLAIN
		BUILDINGS, HOUSES, GARAGES
		SANITARY SEWER MANHOLE
		STORM DRAIN INLET
		UTILITY POLE
		HANDICAP PARKING
		POLE LIGHT
		ROAD SIGN
		SPOT ELEVATION
		INLET NUMBERING
		END SECTION NUMBERING
		ENDWALL NUMBERING
		SOIL BORING LOCATION
		DIRECTIONAL FLOW ARROW

ABBREVIATIONS

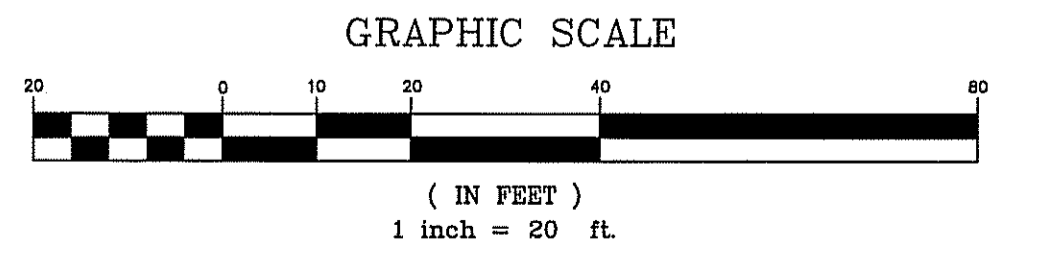
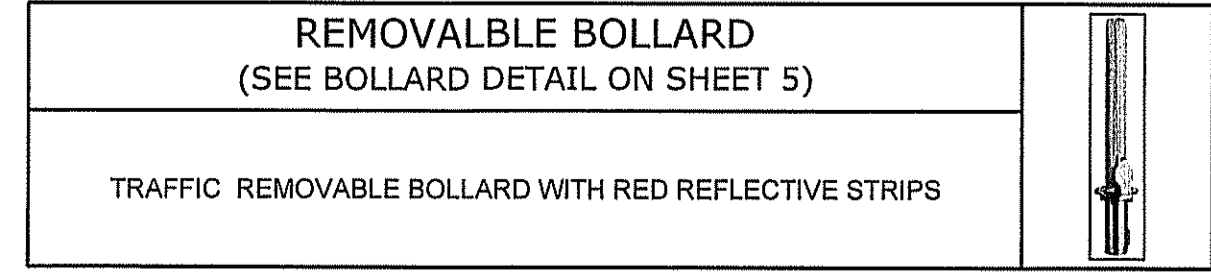
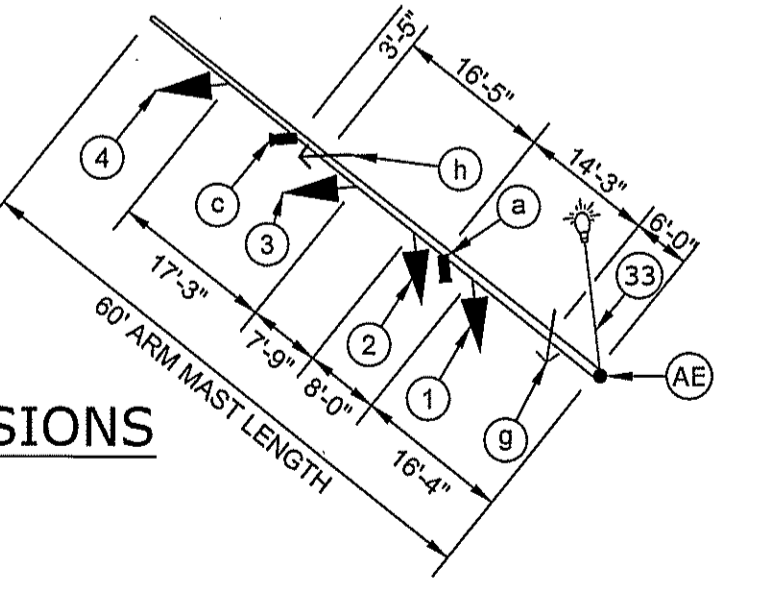
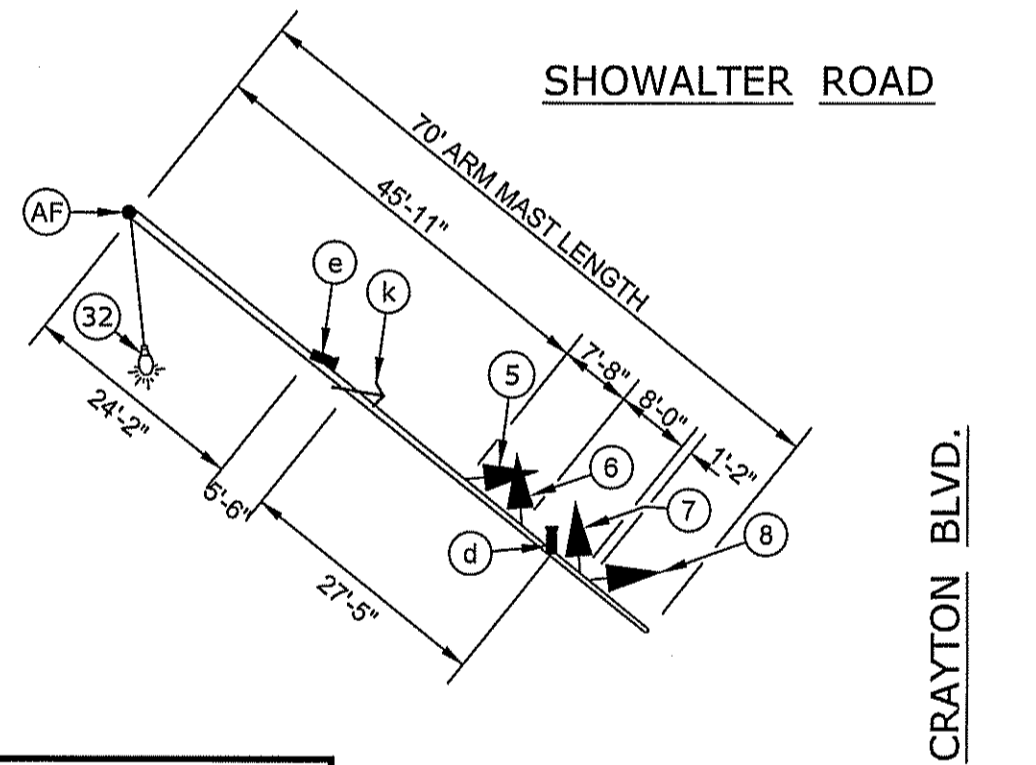
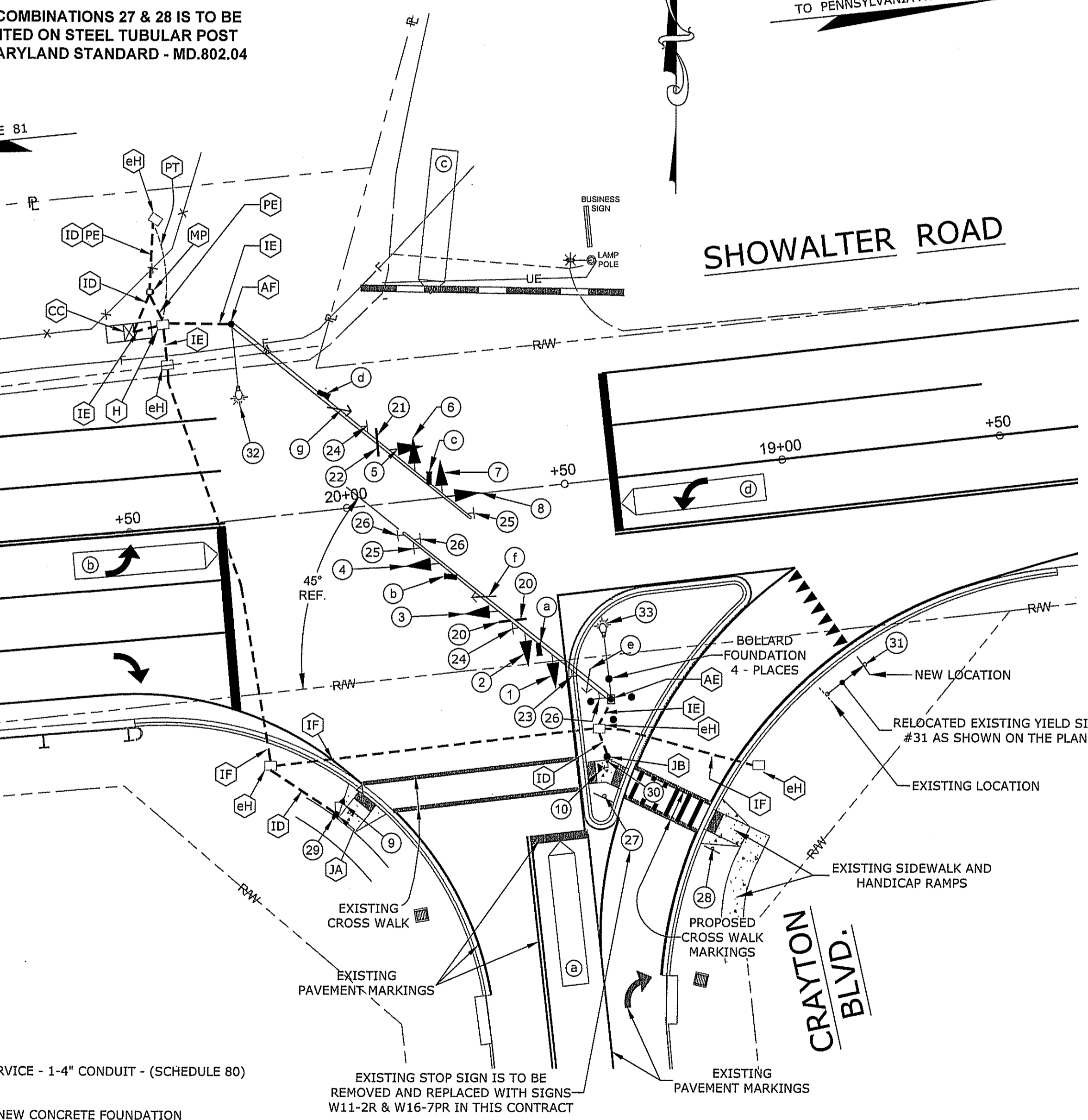
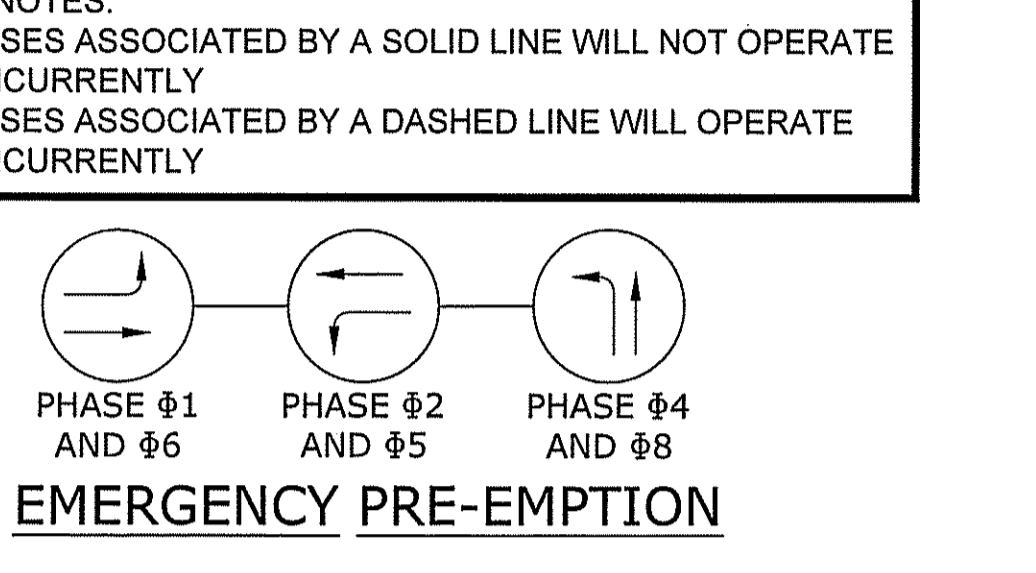
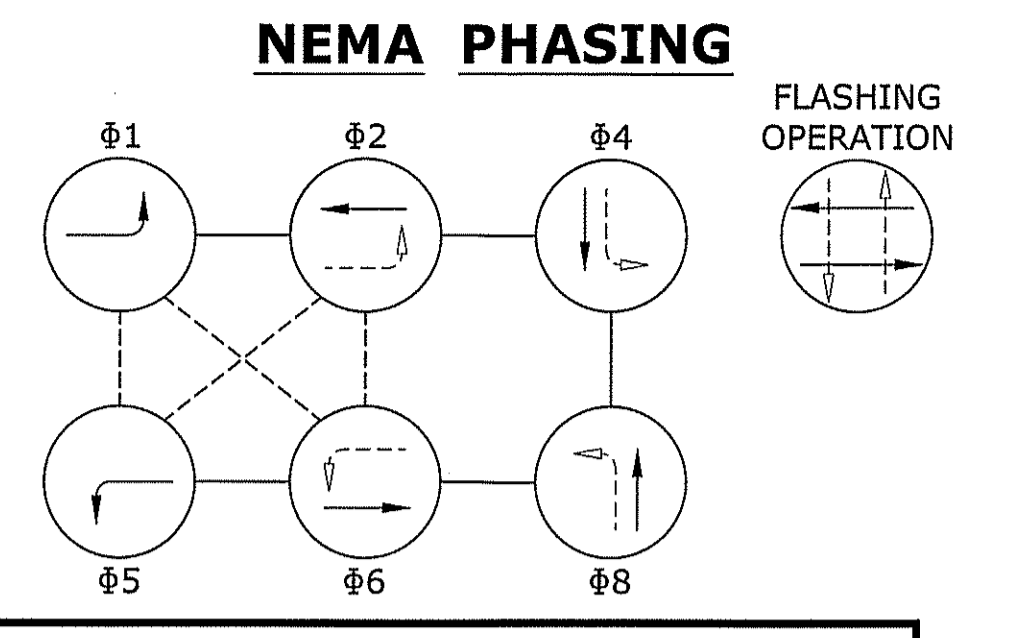
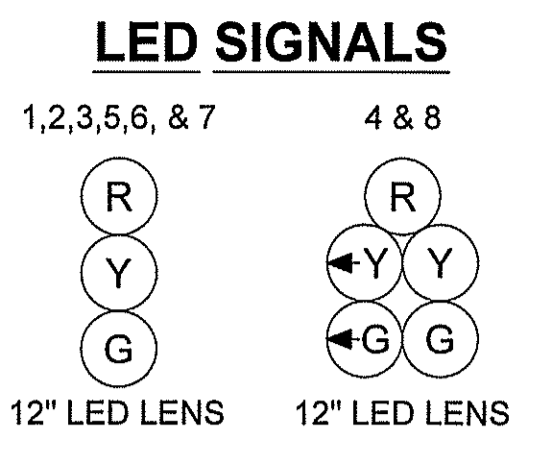
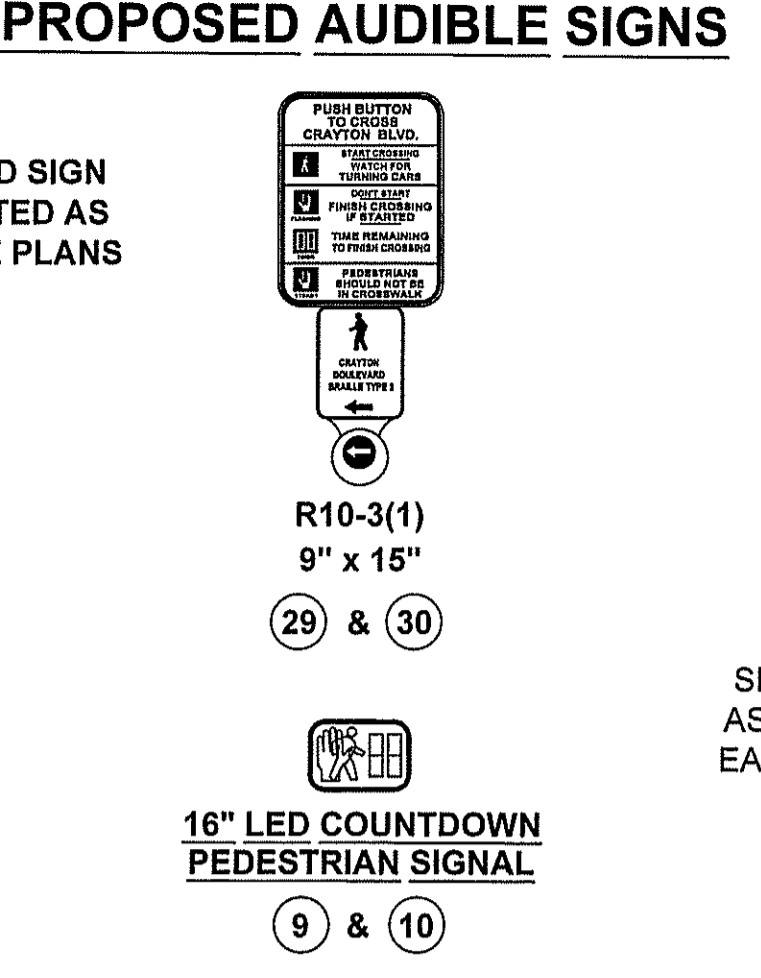
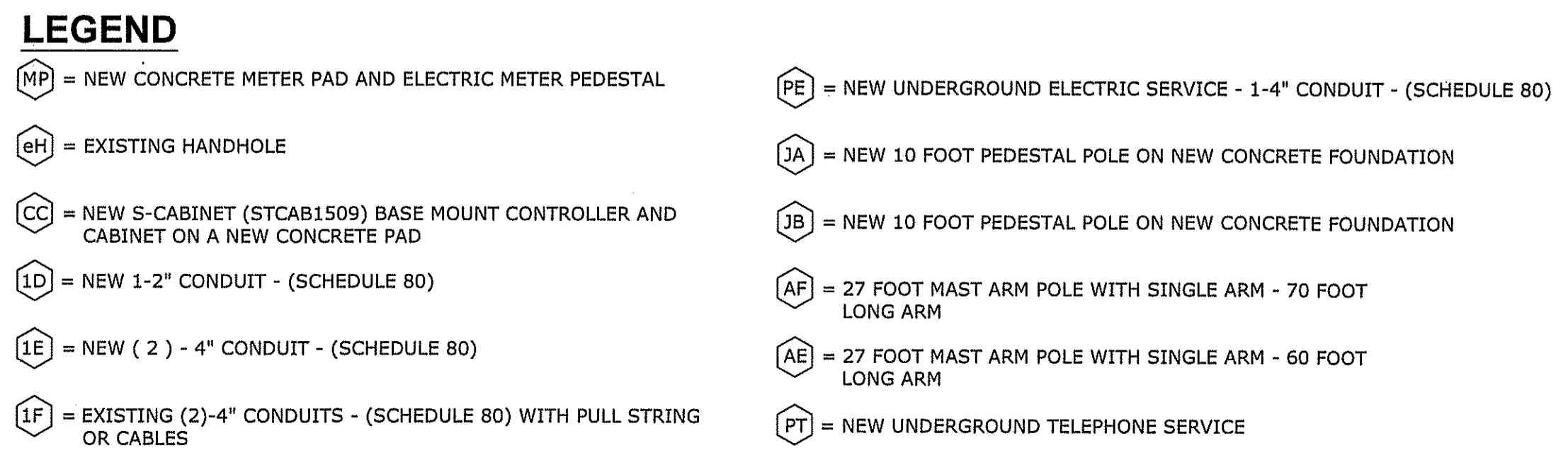
AASHTO	-AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS	G2	-GRADE 2	PVI	-POINT OF VERTICAL INTERSECTION
ADT	-AVERAGE DAILY TRAFFIC	H.S.D	-HEADLIGHT SIGHT DISTANCE	PVT	-POINT OF VERTICAL TANGENCY
B.C.	-BOTTOM OF CURB	HWALL	-HEADWALL	R.	-RADIUS
B.F.C.	-BOTTOM FACE OF CURB	INV.	-INVERT	RCP	-REINFORCED CONCRETE PIPE
B/L	-BASE LINE	K	-RATE OF CHANGE OF GRADE	R.G.E.	-REVERTIBLE GRADING EASEMENT
-C-	-CUT	L	-LENGTH	R.O.W.	-RIGHT OF WAY
C.B.	-CATCH BASIN	LOD	-LIMIT OF DISTURBANCE	S.B.	-SOUTH BOUND
CL	-CENTERLINE	LP	-LIGHTPOLE	S.D.	-STORM DRAIN
C/O	-CLEANOUT	LVC	-LENGTH OF VERTICAL CURVE	SHLD	-SHOULDER
CONC.	-CONCRETE	MPH	-MILES PER HOUR	S.S.D.	-STOPPING SIGHT DISTANCE
CORR.	-CORRECTION	MSHA	-MARYLAND STATE HIGHWAY ASSOCIATION	STA.	-STATION
CULV.	-CULVERT	N.P.	-NORTH BOUND	S/W	-SIDEWALK
Dc	-DEGREE OF CURVATURE	N.T.S.	-NOT TO SCALE	T	-TANGENT
DS.	-DESIGN SPEED	PC	-POINT OF CURVATURE	T.C.	-TOP OF CURB
E	-EXTERNAL	P.D.E.	-PERPETUAL DRAINAGE EASEMENT	T.C.E.	-TEMPORARY CONSTRUCTION EASEMENT
E.B.	-EAST BOUND	P.G.E.	-PROFILE GRADE ELEVATION	T.P.	-TEST PIT
EL., ELEV.	-ELEVATION	P.G.L.	-PROFILE GRADE LINE	TYP.	-TYPICAL
ESMT.	-EASEMENT	P.I.	-POINT OF INTERSECTION	U/BOX	-UTILITY BOX
EX.	-EXISTING	P/R	-POINT OF ROTATION	V.C.	-VERTICAL CURVE
-F-	-FILL	PROP.	-PROPOSED	W.B.	-WEST BOUND
G1	-GRADE 1	PT.	-POINT OF TANGENCY		
		PVC	-POINT OF VERTICAL CURVATURE		

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<p>WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING</p> <p>Washington County Administrative Annex, Building 747 North Washington Street, Hagerstown, Maryland, 21742 Phone: 240-313-2468 Fax: 240-313-2461</p>	<p>SHOWALTER ROAD AND CRAYTON BOULEVARD INTERSECTION</p> <p>GENERAL NOTES AND LEGENDS</p>
<p>SCALE: NONE</p>	
<p>SHEET NO. 02 OF 11</p>	
<p>PROJECT NO. 16-040</p>	



- ### CONSTRUCTION NOTES
1. CONSTRUCT A NEW CONCRETE MAST ARM POLE FOUNDATION WITH (1) - 4" PVC ELECTRICAL CONDUIT (SCHEDULE 80) IN THE FOUNDATION. (Sta. 21.72 ± @ 44.88 FT. RIGHT)
 2. INSTALL 27 FOOT STEEL MAST ARM POLE ON AN NEW CONCRETE FOUNDATION (SEE NOTE 1 ABOVE) WITH SINGLE MAST ARM (70 FOOT LONG) WITH TRAFFIC SIGNAL HEADS, VIDEO DETECTION CAMERAS, OPTICOM DETECTION EYE, AND SIGNS MOUNTED ON MAST ARM. INSTALL 20 FOOT STREET LIGHTING ARM WITH LED LUMINAIR.
 3. EXISTING CONCRETE MAST ARM POLE FOUNDATION THAT WAS PREVIOUSLY INSTALLED (BY OTHERS) WITH (1) - 4" PVC ELECTRICAL CONDUIT (SCHEDULE 80) IN THE FOUNDATION. (Sta. 19+45 ± @ 50 FT. LEFT)
 4. INSTALL 27 FOOT STEEL MAST ARM POLE ON AN EXISTING CONCRETE FOUNDATION (SEE NOTE 3 ABOVE) WITH SINGLE MAST ARM (60 FOOT LONG) WITH TRAFFIC SIGNAL HEADS, VIDEO DETECTION CAMERAS, OPTICOM DETECTION EYE, AND SIGNS MOUNTED ON MAST ARMS. INSTALL 20 FOOT STREET LIGHTING ARM WITH LED LUMINAIRE.
 5. CONSTRUCT TWO NEW CONCRETE PEDESTRIAN POLE FOUNDATIONS WITH A (1) - 4" PVC ELECTRICAL CONDUIT AND WITH A BREAKAWAY BASE (MD-SHA STANDARD No. 821.01-01) TO BE INSTALLED. THE FOUNDATION LOCATION MUST MEET THE LATEST REQUIREMENTS OF MD-MUTC AND NCHRP ADA PUBLICATIONS. EXACT LOCATION WILL BE FIELD APPROVED BY THE COUNTY ENGINEER. ALL EXCAVATION, BACKFILL, SEED, MULCH, CONCRETE ISLAND REPAIR AND THE 1/2 INCH EXPANSION JOINT BETWEEN EXISTING ISLAND AND CONCRETE POLE FOUNDATION WILL BE AN INCIDENTAL COST TO THE PEDESTRIAN POLE INSTALLATIONS.
 6. INSTALL A 10 FOOT STEEL PEDESTAL POLE ON AN EXISTING BREAKAWAY BASE (Sta. 20+09 @ 63.35 FT. LEFT ±) (MD-SHA STD. No. 821.01-01) AND CONCRETE FOUNDATION (SEE NOTE 5 ABOVE) WITH A COUNTDOWN PEDESTRIAN SIGNAL HEAD (#9), AUDIBLE / TACTILE PEDESTRIAN PUSH BUTTON WITH A VIBRATING ARROW POINTING LEFT AND A R10-3 (1) SIGN ALL MOUNTED ON THE POLE. (THE R10-3 (1) SIGN (#29) TO READ "PUSH BUTTON TO CROSS CRAYTON BOULEVARD").
 7. INSTALL A 10 FOOT STEEL PEDESTAL POLE ON AN EXISTING BREAKAWAY BASE (Sta. 19+47 @ 64+00 FT. LEFT ±) (MD-SHA STD. No. 821.01-01) AND CONCRETE FOUNDATION (SEE NOTE 5 ABOVE) WITH A COUNTDOWN PEDESTRIAN SIGNAL HEAD (#10), AUDIBLE / TACTILE PEDESTRIAN PUSH BUTTON WITH A VIBRATING ARROW POINTING LEFT AND A R10-3 (1) SIGN ALL MOUNTED ON THE POLE. (THE R10-3 (1) SIGN (#30) TO READ "PUSH BUTTON TO CROSS CRAYTON BOULEVARD").
 8. INSTALL NEW S-CABINET (STCAB1509) BASE MOUNT CONTROLLER AND CABINET ON A NEW CONCRETE PAD WITH AVAILABLE CONDUITS. EXACT LOCATION WILL BE FIELD APPROVED BY THE COUNTY ENGINEER.
 9. INSTALL ELECTRIC HANDHOLE
 10. INSTALL EMBEDDED METER SERVICE PEDESTAL (MD-SHA STANDARD 807.07-01) WITH 1-4" SCHEDULE 80, 90 DEGREE PVC CONDUIT BENDS IN PEDESTAL BASE.



DATE					
BY					
REVISION DESCRIPTION					
NO.					
DESIGNED BY: SH / PJM	DRAWN BY: GLJ	CHECKED BY: PJM / TP	DATE: 05-17-21		
WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING					
Washington County Administrative Annex, Building 747 Northern Avenue, Hagerstown, Maryland, 21742 Phone: 240-313-2460 Fax: 240-313-2401					
SHOWALTER ROAD AND CRAYTON BOULEVARD INTERSECTION TRAFFIC SIGNAL PLAN					
SHEET NO. 03 OF 11					
PROJECT NO. 16 - 040					

PROJECT DESCRIPTION

GENERAL:

THIS PROJECT INVOLVES THE INSTALLATION OF A TRAFFIC CONTROL SIGNAL AT THE INTERSECTION OF SHOWALTER ROAD AND CRAYTON BOULEVARD. THE SIGNAL WILL BE LOCATED WITHIN WASHINGTON COUNTY, MARYLAND RIGHT-OF-WAY. THE SIGNAL WILL BE OWNED BY THE COMMISSIONERS OF WASHINGTON COUNTY, MARYLAND AND OPERATED AND MAINTAINED THROUGH THE COUNTY'S DIVISION OF PUBLIC WORKS. ON THESE PLANS CRAYTON BOULEVARD IS SOUTH OF THE INTERSECTION AND A COMMERCIAL ENTRANCE TO THE NORTH.

INTERSECTION OPERATIONS:

AN EIGHT PHASE, FULL TRAFFIC ACTUATED CONTROLLER HOUSED IN A BASE MOUNTED CABINET IS TO BE INSTALLED ON A PROPOSED CONCRETE PAD WITH CONDUITS ALREADY IN PLACE WITHIN THE ROADWAY:

- 1) THE INTERSECTION WILL OPERATE IN A "TRUE" NEMA EIGHT PHASE OPERATION WITH AN EXCLUSIVE LEFT TURN PHASING FROM EACH APPROACH OF SHOWALTER ROAD, AND A THROUGH MOVEMENT PHASE WILL OPERATE CONCURRENTLY FROM EACH APPROACH OF SHOWALTER ROAD.
- 2) THE SOUTH - NORTH MOVEMENT WILL INCLUDE A SHARED PERMISSIVE LEFT AND CONCURRENT THROUGH WITH THE CRAYTON BOULEVARD APPROACH AND THE DRIVEWAY APPROACH.
- 3) THERE WILL BE A CONCURRENT PEDESTRIAN PHASE ACROSS CRAYTON BOULEVARD WITH THE GREEN CYCLE FOR SHOWALTER ROAD.
- 4) RIGHT-TURN-ON-RED WILL BE ALLOWED FOR EACH APPROACH TO THIS INTERSECTION.
- 5) EACH ROADWAY APPROACH WILL HAVE EMERGENCY VEHICLE PRE-EMPTION.

APS NOTES:

- 1) APS WILL FUNCTION AS FOLLOWS FOR CROSSING CRAYTON BOULEVARD:
 - a. WHEN A PEDESTRIAN LOCATES AND PRESSES PUSHBUTTON FOR AN EXTENDED TIME, THE PUSH BUTTON UNIT WILL ANNOUNCE THE FOLLOWING MESSAGE; "WAIT TO CROSS CRAYTON BOULEVARD @ SHOWALTER ROAD".
 - b. WHEN THE WALK PHASE BEGINS THE PUSH BUTTON UNIT WILL PROVIDE RAPID TICKS WHICH LAST THE DURATION OF THE WALK PHASE.

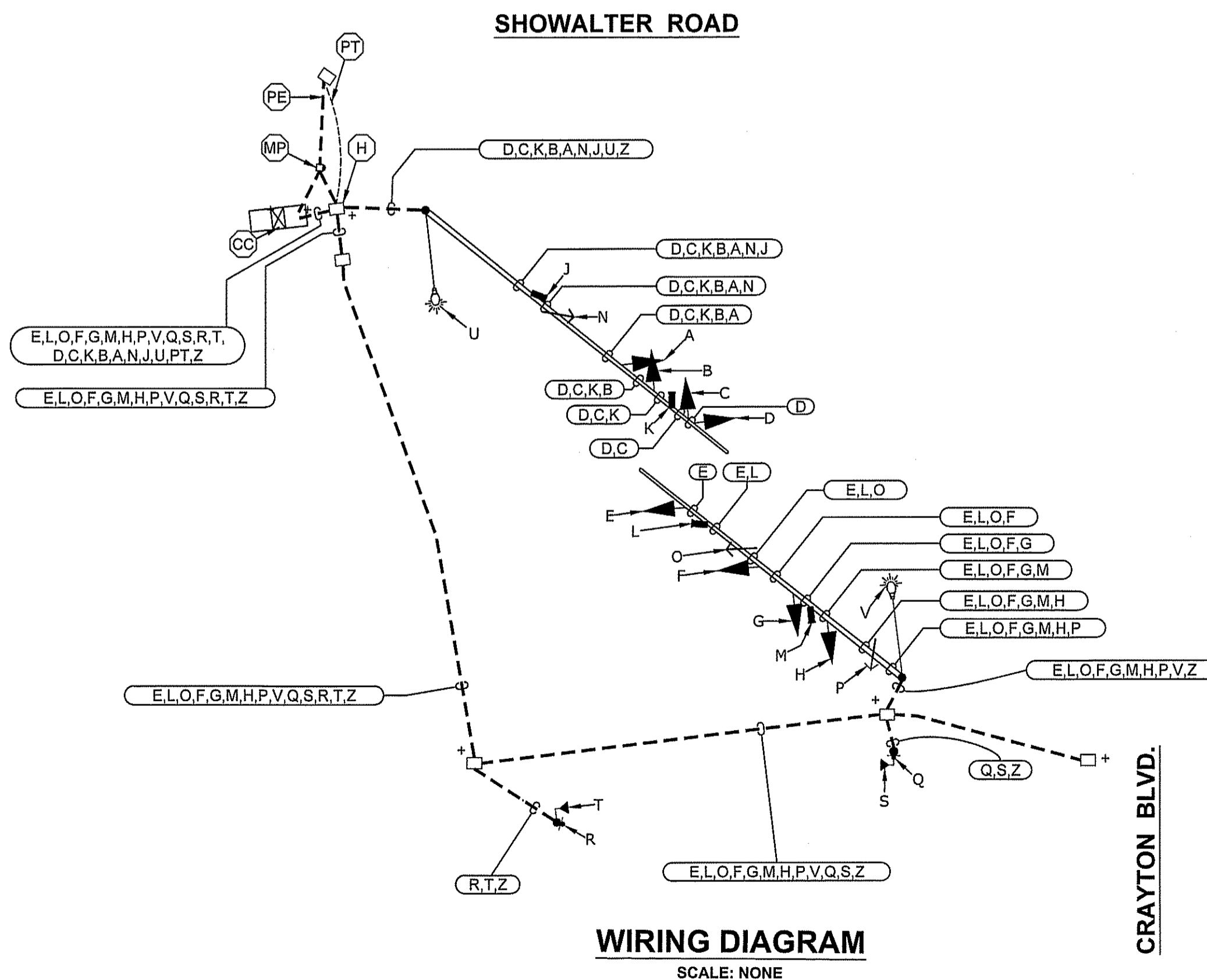
	1	2	3	4	5	6	7	8	9	10	
PHASE 1 AND 5 1 AND 5 CHANGE TO 1 & 6, 2 & 5, OR 2 & 6	R	R	R	←G R	R	R	R	←G R	DW	DW	
1 & 5 CHANGE TO 1 & 6 - 5 CHANGE	R	R	R	←G R	R	R	R	←Y R	DW	DW	
PHASE 1 & 6	R	R	G	←G G	R	R	R	- R	W	W	
PEDESTRIAN CLEARANCE	R	R	G	←G G	R	R	R	- R	FLDW	FLDW	
1 & 5 CHANGE TO 2 & 5 - 1 CHANGE	R	R	G	←Y G	R	R	R	←G R	DW	DW	
PHASE 2 & 5	R	R	R	- R	G	R	R	←G G	DW	DW	
1 & 5 CHANGE TO 2 & 6	R	R	R	←Y R	R	R	R	←Y R	DW	DW	
PHASE 2 & 6	R	R	G	- G	G	R	R	- G	W	W	
PEDESTRIAN CLEARANCE	R	R	G	- G	G	R	R	- G	FLDW	FLDW	
2 & 6 CHANGE	R	R	Y	- Y	Y	R	R	- Y	DW	DW	
PHASE 4 AND 8	G	G	R	- R	R	G	G	- R	DW	DW	
4 AND 8 CHANGE	Y	Y	R	- R	R	Y	Y	- R	DW	DW	
PRE-EMPTION (A) SHOWALTER RD. PHASE 1 & 6	R	R	G	- G	R	R	R	- R	DW	DW	
PRE-EMPTION (B) SHOWALTER RD. PHASE 2 & 5	R	R	R	- R	G	R	R	- G	DW	DW	
PRE-EMPTION (C) CRAYTON BLVD. PHASE 4 & 8	G	G	R	- R	R	R	R	- R	DW	DW	
FLASHING OPERATION	FR	FR	FY	- FY	FY	FR	FR	- FY	DARK	DARK	

COMMENTS:
1. THIS PHASE CHART INCLUDES ONLY A PORTION OF THE PHASE SEQUENCE POSSIBLE AT A FULLY ACTUATED 6 PHASE INTERSECTION.
2. THE 8 PHASE CONTROLLER AND CABINET PROVIDED SHALL BE CAPABLE OF PROCESSING ALL POTENTIAL SEQUENCES AND CHANGE INTERVALS.

PHASING CHART

SIGNAL GENERAL NOTES:

1. THE CONTRACTOR SHALL VERIFY ALL PROPOSED POLE LOCATIONS PRIOR TO INSTALLATION. ALL POLES, HANDHOLES, CONDUITS UNDER PAVEMENT, CABINETS AND METERED SERVICE PEDESTALS SHALL BE STAKED OUT AND EVERY LOCATION APPROVED BY THE ENGINEER BEFORE ANY WORK IS PERFORMED.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TERMINATING ALL SIGNAL CABLE TO THE APPROPRIATE TERMINALS AND PROPERLY LABELING EACH CABLE. TAGS SHALL BE INSTALLED ON EACH CABLE IN THE CONTROLLER CABINET AS WELL AS EACH HANDHOLE.
3. ALL UNUSED CABLE SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR.
4. NO. 6 AWG STRANDED BARE COPPER GROUND WIRE INSTALLED IN EACH SHA HANDHOLE SHALL CONNECT THE GROUNDING LUG ON THE LID / COLLAR TO THE GROUND ROD IN THE BASE OF THE HANDHOLE TO PROPERLY GROUND THE STRUCTURE.
5. ALL TRAFFIC SIGNAL FOUNDATIONS SHALL BE INSTALLED AT THE FINAL SIDEWALK OR CURB GRADE FOR CLOSED SECTIONS, HIGHEST ROADWAY PROFILE GRADE FOR OPEN SECTIONS, TO MEET CLEARANCES AS SPECIFIED IN SHA STANDARDS MD 818.03, MD 818.01, MD 818.02 AND MD 818.04. THE CONTRACTOR SHALL VERIFY ULTIMATE GRADES PRIOR TO THE INSTALLATION OF ALL SIGNAL EQUIPMENT.
6. UNDERGROUND UTILITIES SHOWN ON THESE PLANS ARE SCHEMATIC ONLY AND MAY NOT BE COMPLETE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING "MISS UTILITY" PRIOR TO CONSTRUCTION SO THAT ALL UTILITIES MAY BE LOCATED IN THE FIELD. IF THE CONTRACTOR PERCEIVES THAT A CONFLICT BETWEEN THE UTILITIES AND THE TRAFFIC SIGNAL WILL OCCUR, THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IMMEDIATELY SO THAT THE CONFLICT MAY BE RESOLVED.
7. ALL PEDESTAL FOUNDATION TOPS SHALL BE INSTALLED FLUSH WITH SIDEWALK GRADE OR BUILT INTO BACKER CURB.
8. THE CONTRACTOR SHALL INTEGRATE PROPOSED / EXISTING CONCRETE FOUNDATIONS WITH NEW CURB OR SIDEWALK RAMPS WHERE NECESSARY. THE FOUNDATIONS SHALL BE FLUSH WITH AND PART OF, THE FINAL CURB OR SIDEWALK GRADE TO INCREASE ACCESSIBILITY FOR PEDESTRIANS.
9. LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTONS MUST MEET LOCATION REQUIREMENTS OF MD MUTCD CHAPTER 4E "PEDESTRIAN CONTROL FEATURES" AND FIGURES 4E-3 AND 4E-4, AND THE LATEST NCHRP PUBLICATION, "ACCESSIBLE PEDESTRIAN SIGNALS GUIDE TO BEST PRACTICE".
10. PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18" FROM A 60" X 60" LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
11. THE 10' SEPARATION BETWEEN PUSHBUTTONS IS TO BE MEASURED FROM FACE OF PUSHBUTTON TO FACE OF PUSHBUTTON, NOT CENTER OF POLE TO CENTER OF POLE.
12. PUSHBUTTON ARROWS AND SIGNS ARE TO BE ORIENTED PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED.
13. VIDEO DETECTION CAMERA ALIGNMENT SHALL BE COORDINATED WITH THE ENGINEER.
14. DURING CONSTRUCTION, PROPOSED SIGNAL EQUIPMENT SHALL NOT BLOCK EXISTING SIGNAL EQUIPMENT.
15. WITHIN 36 IN. OF UNDERGROUND UTILITY LOCATIONS, THE CONTRACTOR SHALL BE REQUIRED TO EXCAVATE FOR FOUNDATION AND CONDUIT BY HAND.
16. HAND DIGGING FOR INSTALLATION OR REMOVAL OF SIGNAL EQUIPMENT, SIGNS, CURB AND SIDEWALK SHALL BE INCIDENTAL TO THE ITEMS IN THE EQUIPMENT LIST. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR HAND DIGGING.
17. THE CONTRACTOR SHALL EXCAVATE CONCRETE FOUNDATIONS AS NEEDED TO INSTALL NEW FOUNDATIONS. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR EXCAVATING TO THE REQUIRED DEPTH FOR NEW FOUNDATIONS.
18. ALL PROPOSED SIGNS MOUNTED ON TRAFFIC SIGNAL STRUCTURES SHALL BE MOUNTED IN ACCORDANCE WITH SHA TYPICAL TYP 813.99.01 AND TYP 813.99.04. ALL PROPOSED R10-3(1) SIGNS SHALL BE MOUNTED IN ACCORDANCE WITH SHA STANDARD MD 813.07. ALL MOUNTING HARDWARE SHALL BE INCIDENTAL TO SHEET ALUMINUM SIGNS ITEM.



WIRING KEY

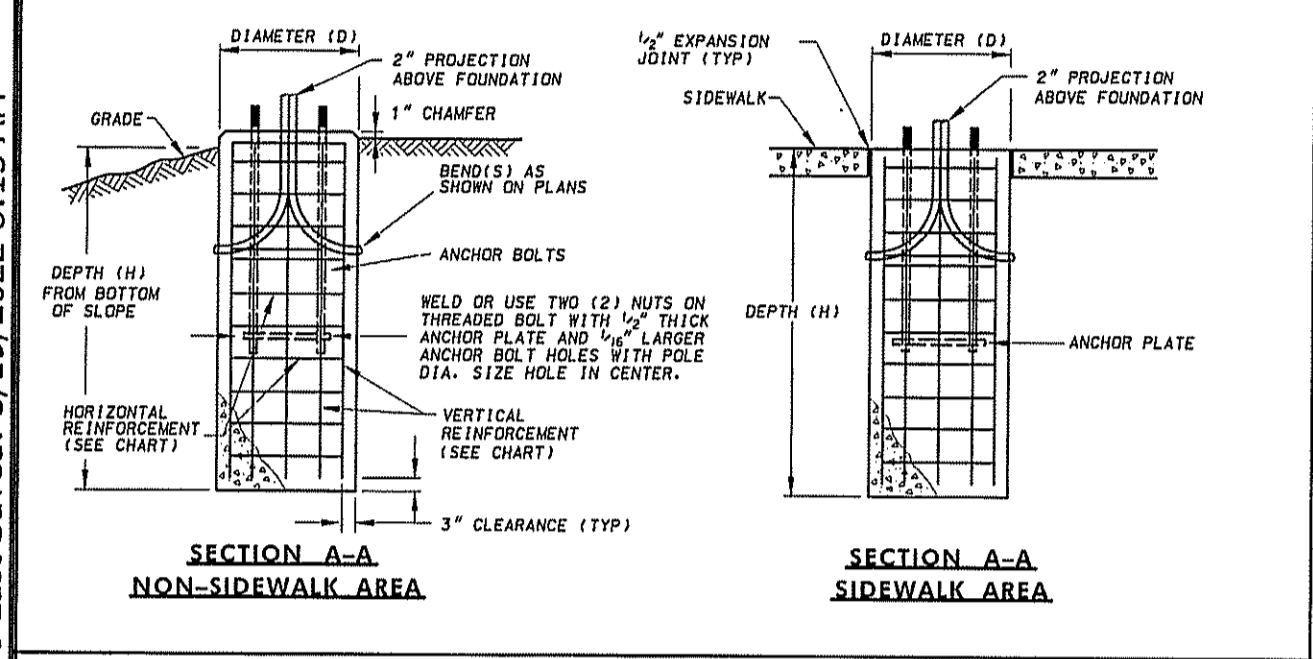
- A,B,C,D,E,F,G,H = 7 CONDUCTOR ELECTRIC CABLE (14 AWG) (SIGNAL HEAD)
- S,T = 5 CONDUCTOR ELECTRIC CABLE (14 AWG) (PEDESTRIAN LIGHT CROSS WALK)
- Q,R = 2 CONDUCTOR ELECTRIC CABLE (14 AWG) (PUSH BUTTON CROSS WALK)
- U,V = 3 CONDUCTOR ELECTRIC CABLE (12 AWG) TRAY CABLE, (OVERHEAD STREET LIGHT)
- N,O,P = 4 CONDUCTOR OPTICOM DETECTOR CABLE (20 AWG)
- J,K,L,M = 3 CONDUCTOR ELECTRIC CABLE (18 AWG.) (VIDEO CAMERA DETECTION LEAD-IN CABLE)
- Z = STRANDED BARE COPPER GROUND WIRE (6 AWG)
- PE = UNDERGROUND ELECTRIC SERVICE - 3 WIRE, 1 CONDUCTOR (4 AWG)
- PT = UNDERGROUND TELEPHONE SERVICE WITH 1 COMMUNICATION CABLE (4 AWG)
- + = 3/4" INCH X 10 FOOT GROUNDING ROD WITH 6 GIUGE SOLID COPPER WIRE TO THE HANDHOLE FRAME
- MP = METERED SERVICE PEDESTAL
- CC = CONTROLLER, CABINET, & CONCRETE PAD

DATE									
BY									
REVISION DESCRIPTION									
NO.									
DESIGNED BY:	DRAWN BY:	CHECKED BY:	DATE:						
SH / PJM	GLJ	PJM / TP	05-17-22						
WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING Washington County Administrative Annex, Building 747 Northern Avenue, Hagerstown, Maryland, 21742 Phone: 240-313-2460 Fax: 240-313-2401									
SHOWALTER ROAD AND CRAYTON BOULEVARD INTERSECTION TRAFFIC SIGNAL WIRING PLAN AND SIGNAL NOTES									
SCALE: NONE									
SHEET NO. 04 OF 11									
PROJECT NO. 16 - 040									

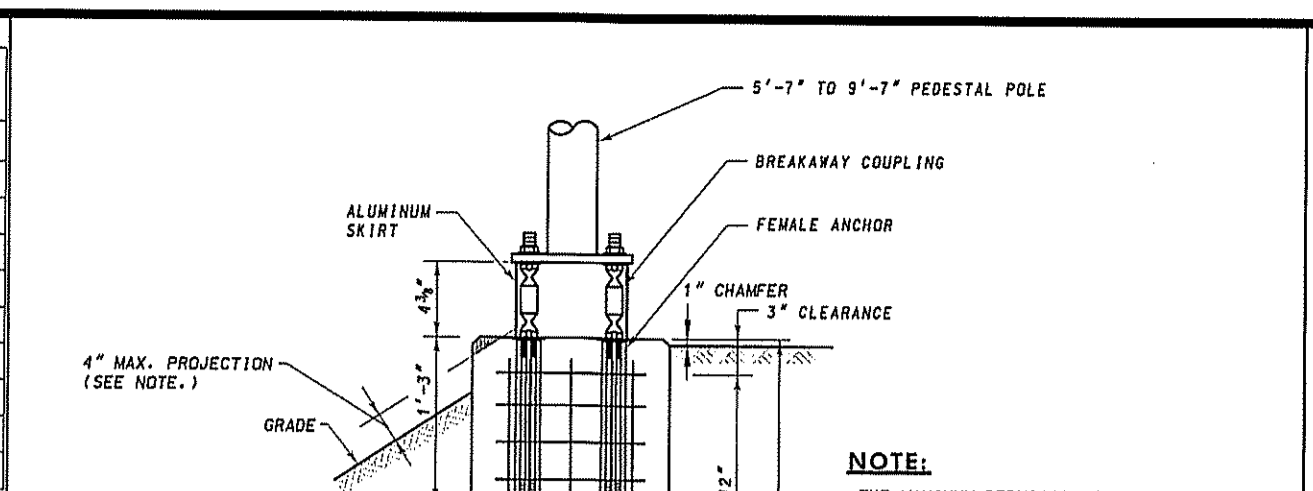
POLE TYPE	ARM LENGTH OR POLE SIZE	FOOTING	ANCHOR BOLT SIZE (NO. - DIA. IN. x IN.)	ANCHOR BOLT PROJECTION ABOVE FOUNDATION (MAX. 2 IN.)	DIAMETER (D)	DEPTH (H) OF FOUNDATION	VERTICAL REINFORCEMENT	HORIZONTAL REINFORCEMENT	CONCRETE REQUIRED (C.Y.)
BREAKAWAY PEDESTAL	6' - 10'	8	REFER TO NO. 801.01-02	FEMALE ANCHOR FOR COUPLING	1'-6"	3'-0"	6 NO. 6	NO. 3#12 C.C.	0.2
PEDESTAL	10' / 14' / 20'	11	4 - 1 x 3/4	3/4	2'-0"	6'-0"	6 NO. 8	NO. 3#12 C.C.	0.7
STRAIN	12" x 30"	16	4 - 1 1/2 x 8/8	7/8	3'-0"	10'-0"	6 NO. 10	NO. 4#12 C.C.	2.7
	14" x 32"	22	4 - 2 1/4 x 7/8	1 1/2	4'-0"	10'-0"	6 NO. 10	NO. 4#12 C.C.	4.7
	14" x 32"	22	4 - 2 1/4 x 7/8	1 1/2	4'-0"	10'-0"	6 NO. 10	NO. 4#12 C.C.	4.7
MAST ARM	50'-60' SINGLE	22	6 - 2 x 7/8	9	4'-0"	10'-0"	6 NO. 10	NO. 4#12 C.C.	4.7
	50'-60' 30'-60' THIN	22	6 - 2 x 7/8	9	4'-0"	10'-0"	6 NO. 10	NO. 4#12 C.C.	4.7
	70'-75' SINGLE	23 1/2	6 - 2 x 7/8	9	4'-0"	10'-0"	6 NO. 10	NO. 4#12 C.C.	4.7
	50'-60' 30'-75' THIN	23 1/2	6 - 2 x 7/8	9	4'-0"	10'-0"	6 NO. 10	NO. 4#12 C.C.	4.7
	50'-60' 10'-75' THIN	23 1/2	6 - 2 x 7/8	9	4'-0"	10'-0"	6 NO. 10	NO. 4#12 C.C.	4.7

NOTES:

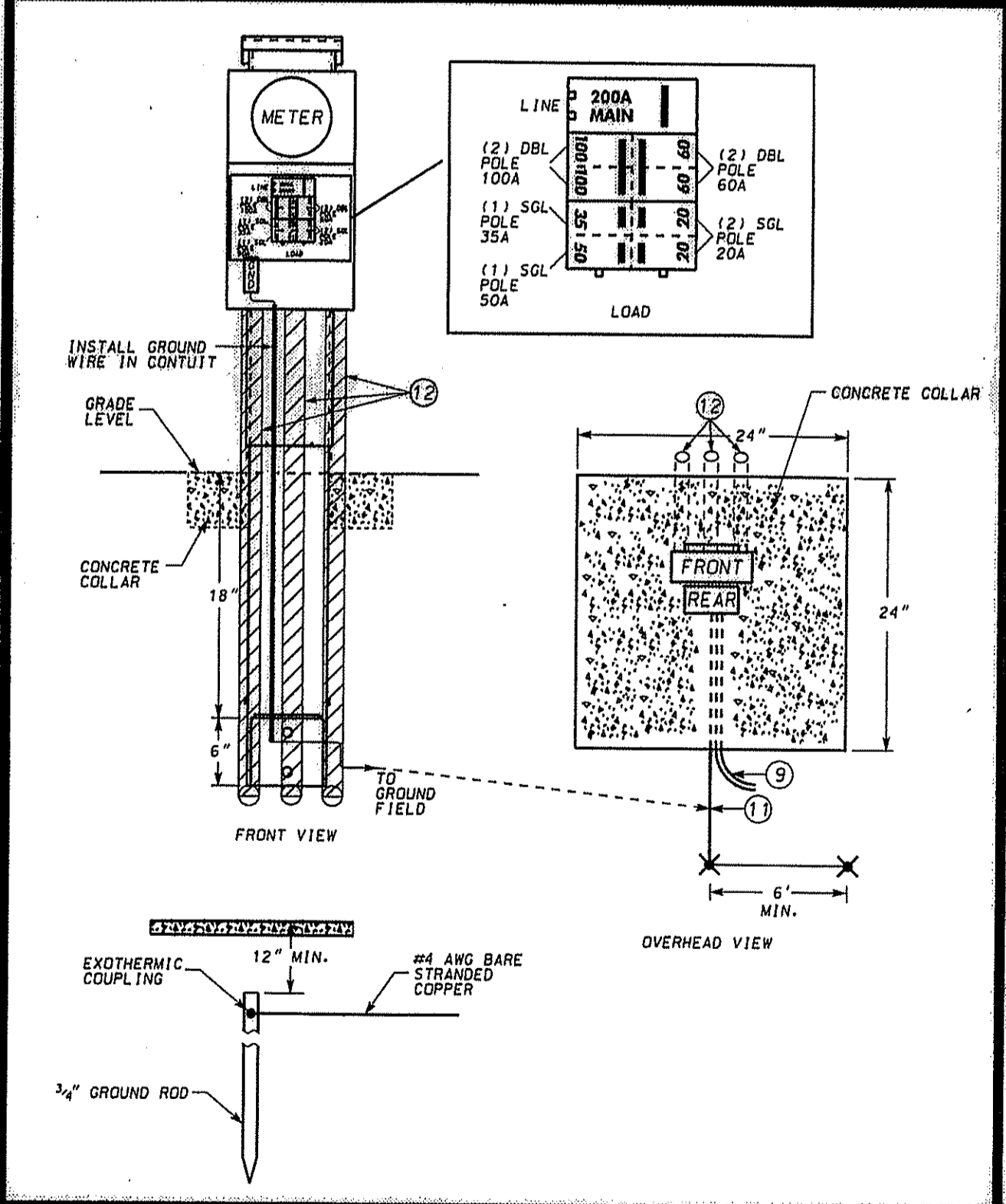
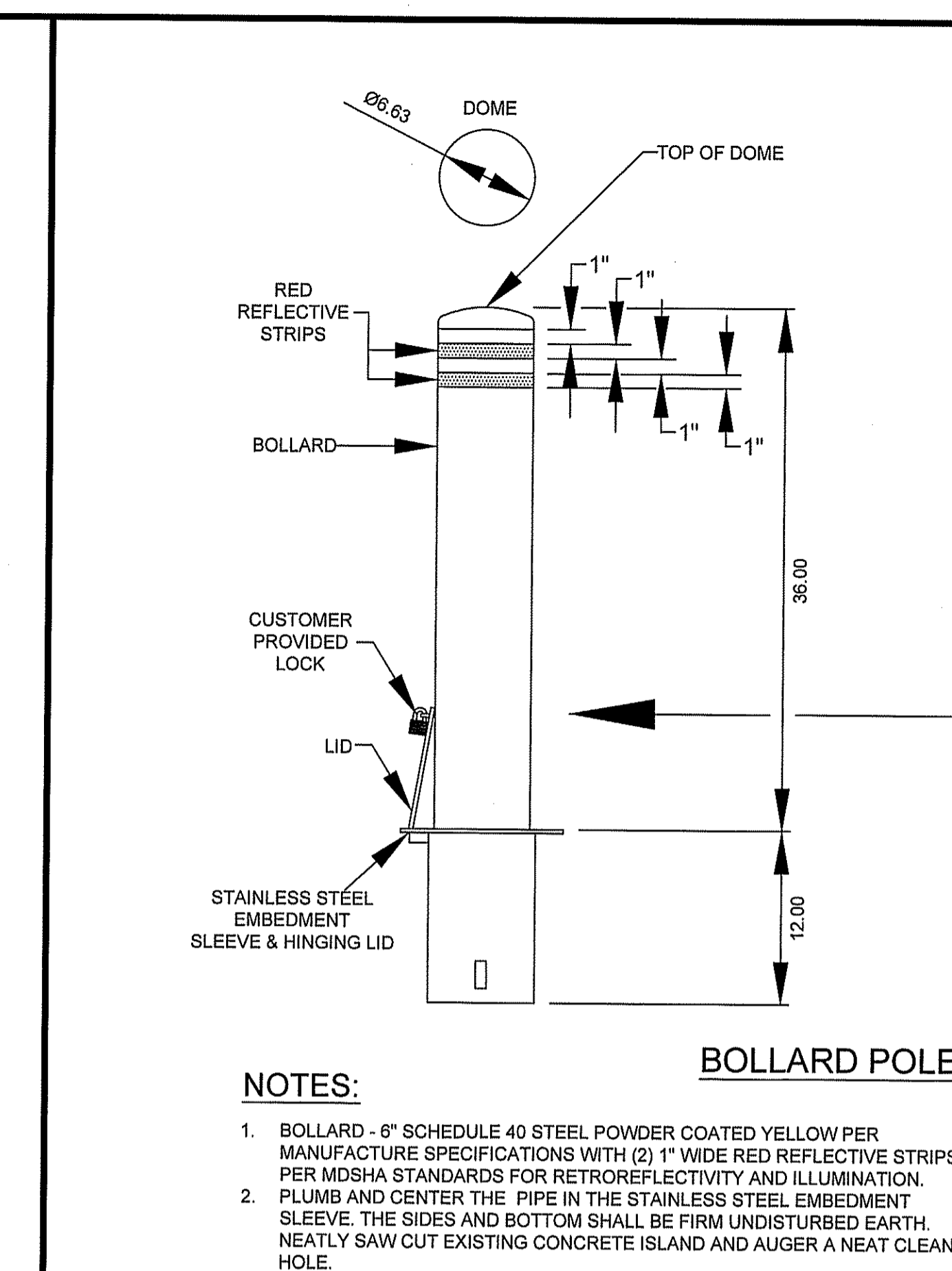
- MAST ARM POLE FOUNDATIONS SHALL PROJECT ABOVE GRADE TO PROVIDE MAINT. TO ROADWAY CLEARANCE OF 18" - 20" FULLY LOADED.
- ALL EXPOSED FOUNDATION FACES SHALL BE FINISHED SMOOTH.
- GRADE SHALL NOT BE INSTALLED BETWEEN THE BASE PLATE AND THE TOP OF THE FOUNDATION.
- 1/2" THICK STEEL TEMPLATE PLATE WITH 1/4" LARGER ANCHOR BOLT HOLE SHALL BE USED FOR INSTALLATION. BENDS (S) AS SHOWN ON PLANS.
- ANCHOR BOLTS SHALL BE PLUMB AND SHALL BE INSTALLED WITH MISALIGNMENT OF LESS THAN 1/4" FROM VERTICAL.



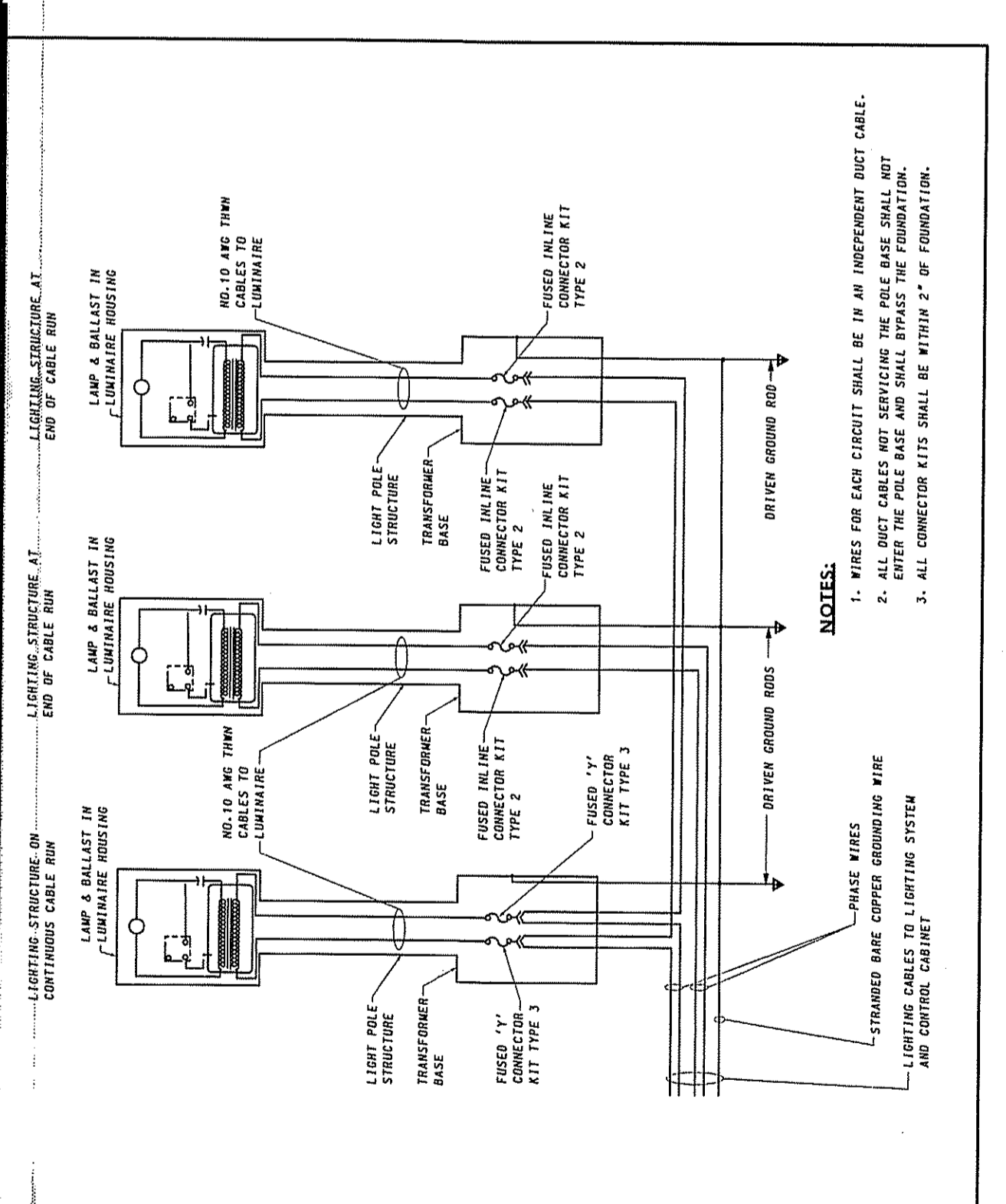
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801	801	[Signature]	11-20-19
MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES SIGNAL STRUCTURE FOUNDATIONS STANDARD NO. MD 801.01			



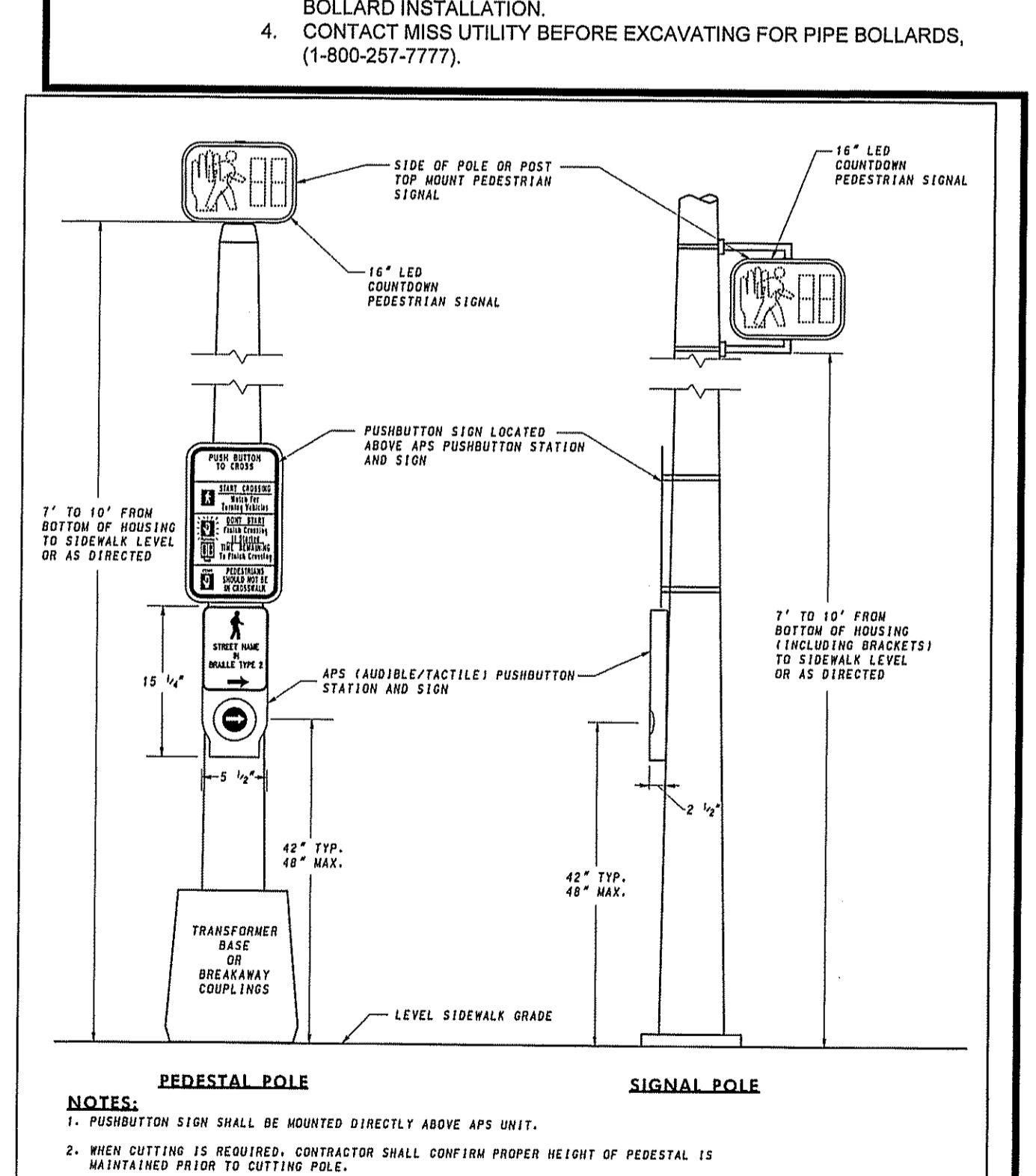
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801	801	[Signature]	11-20-19
MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES SIGNAL STRUCTURE FOUNDATIONS FOR PUSHBUTTON AND PEDESTRIAN SIGNAL POLE STANDARD NO. MD 801.01-01			



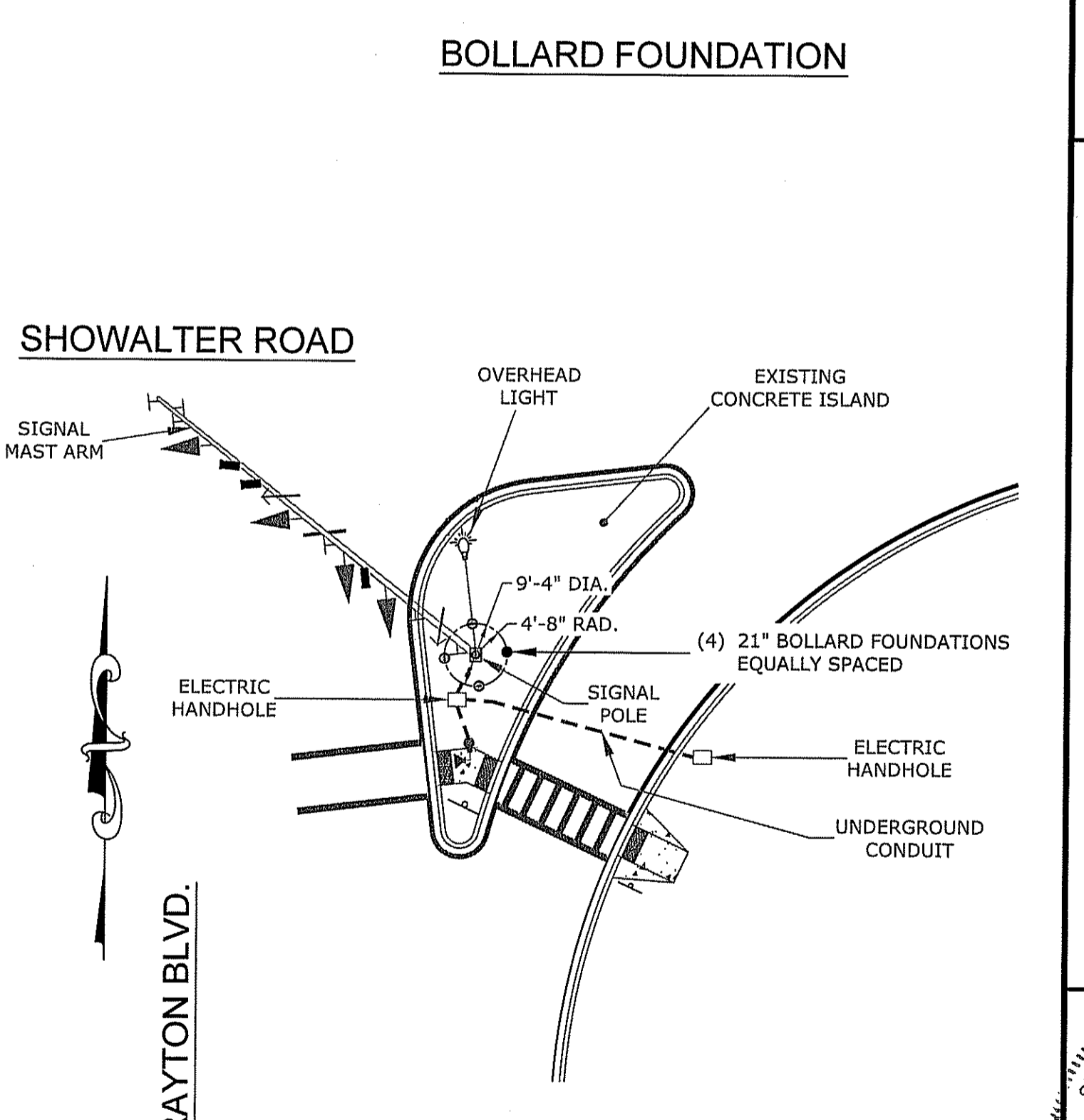
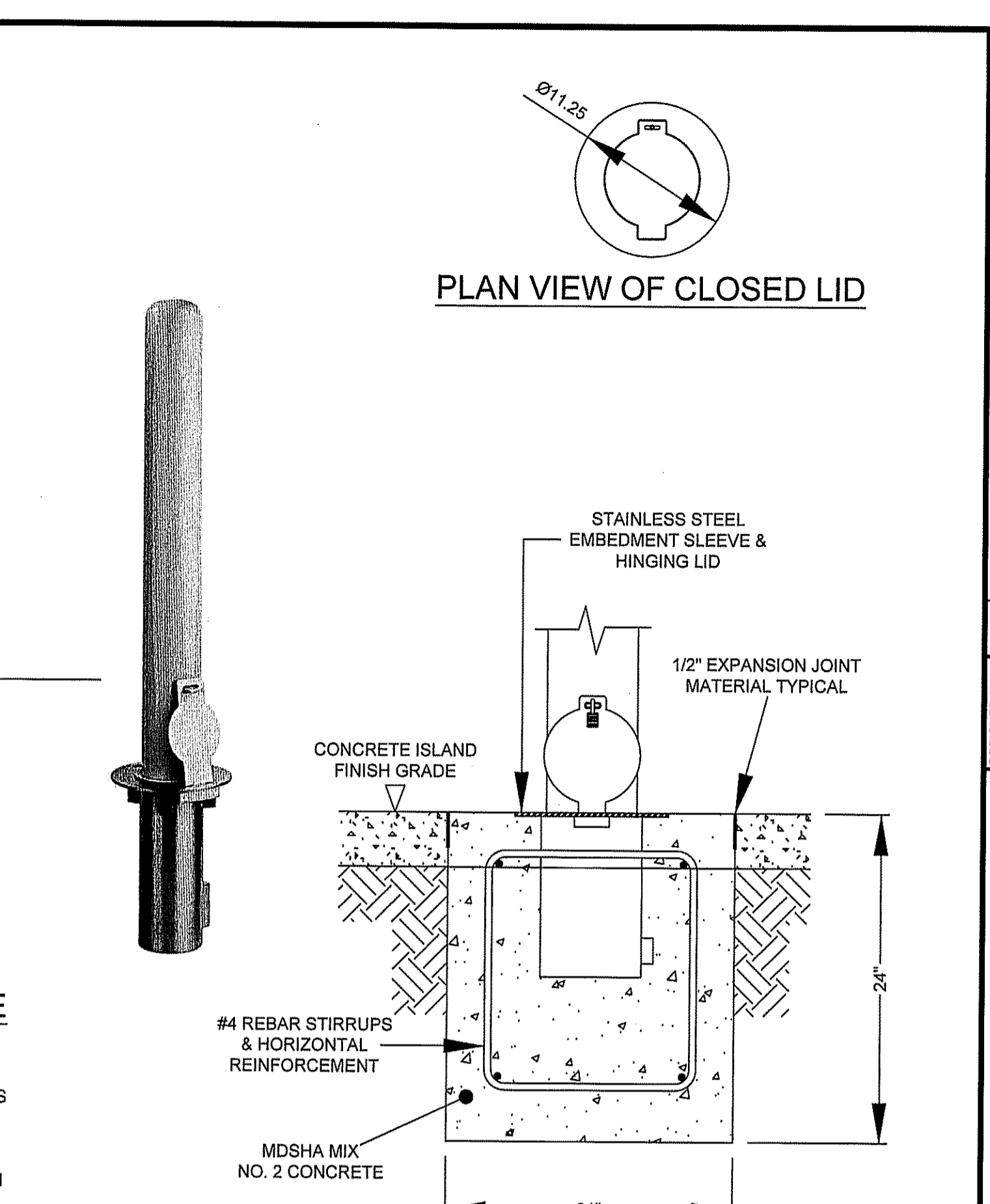
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810	810	[Signature]	11/16/18
MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION OFFICE OF TRAFFIC & SAFETY STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES ROADWAY LIGHTING 240 VOLT POLE CONNECTIONS STANDARD NO. MD 810.05			



SPECIFICATION	CATEGORY CODE ITEMS	APPROVED	DATE
817	817	[Signature]	11/16/18
MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSHBUTTON LOCATION ON POLE STANDARD NO. MD 817.01			



SPECIFICATION	CATEGORY CODE ITEMS	APPROVED	DATE
817	817	[Signature]	11/16/18
MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSHBUTTON LOCATION ON POLE STANDARD NO. MD 817.01			

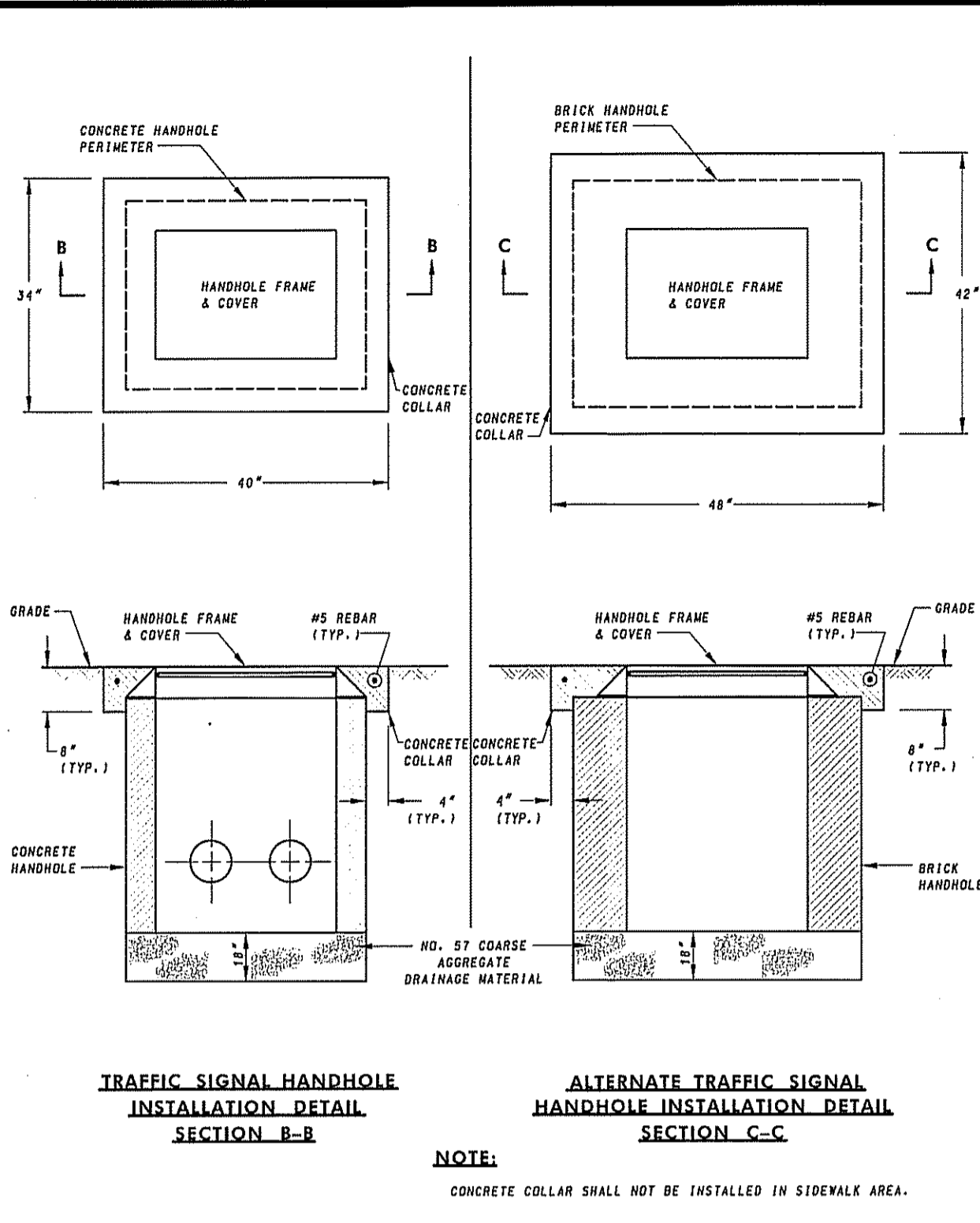


SPECIFICATION	CATEGORY CODE ITEMS	APPROVED	DATE
817	817	[Signature]	11/16/18
MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSHBUTTON LOCATION ON POLE STANDARD NO. MD 817.01			

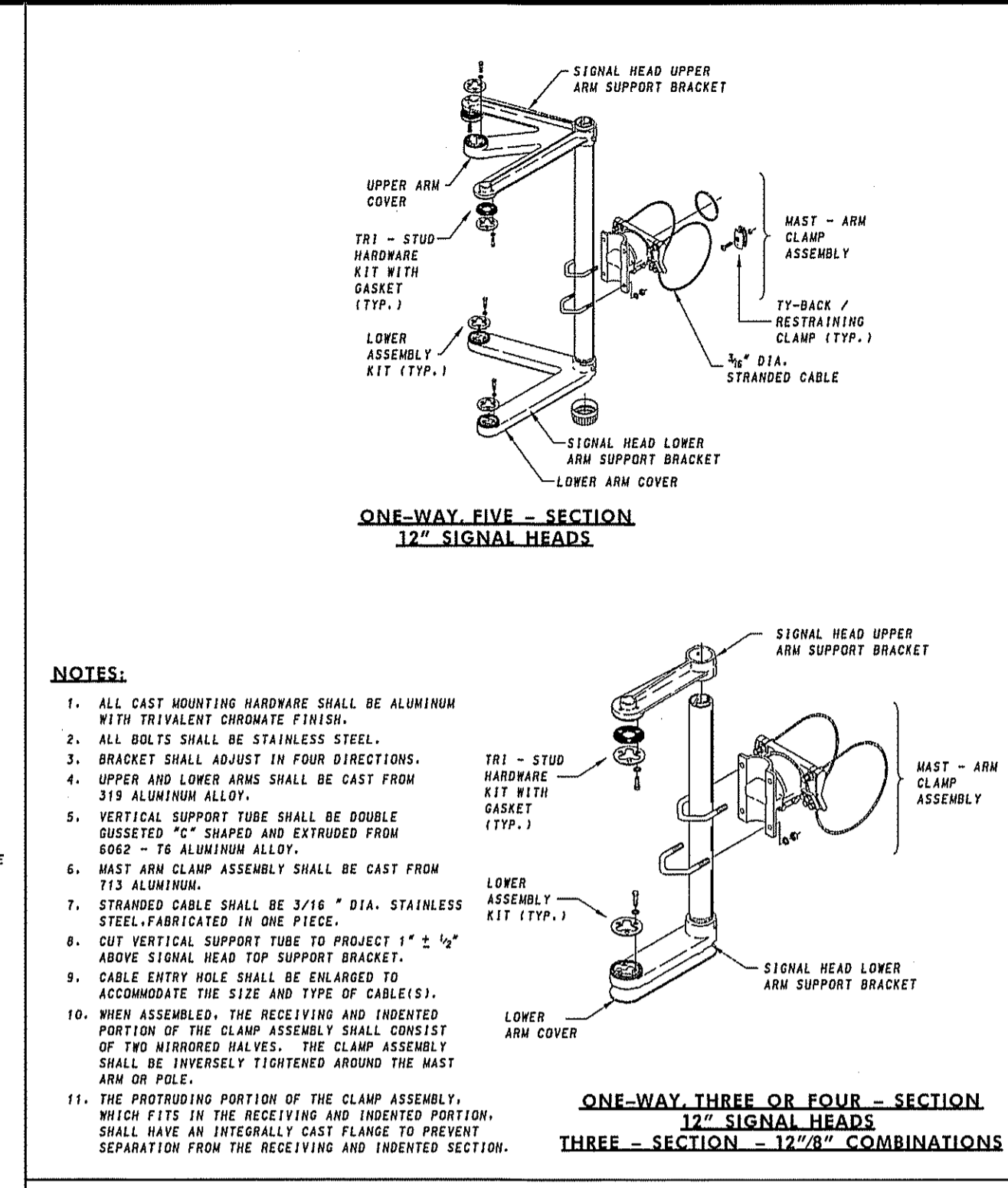
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DATE	
BY	
REVISION DESCRIPTION	
NO.	
DESIGNED BY: SHI/PJM	GLJ
DRAWN BY:	
CHECKED BY: PJM/TP	
DATE: 05-17-22	
WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING Washington County Administrative Annex, Building 747 North Annapolis Road, P.O. Box 17142 Phone: 240-315-2460 Fax: 240-315-2401	
SHOWALTER ROAD AND CRAYTON BOULEVARD INTERSECTION MD - SHA STANDARD DETAILS	
SCALE: NONE SHEET NO. 05 OF 11 PROJECT NO. 16 - 040	

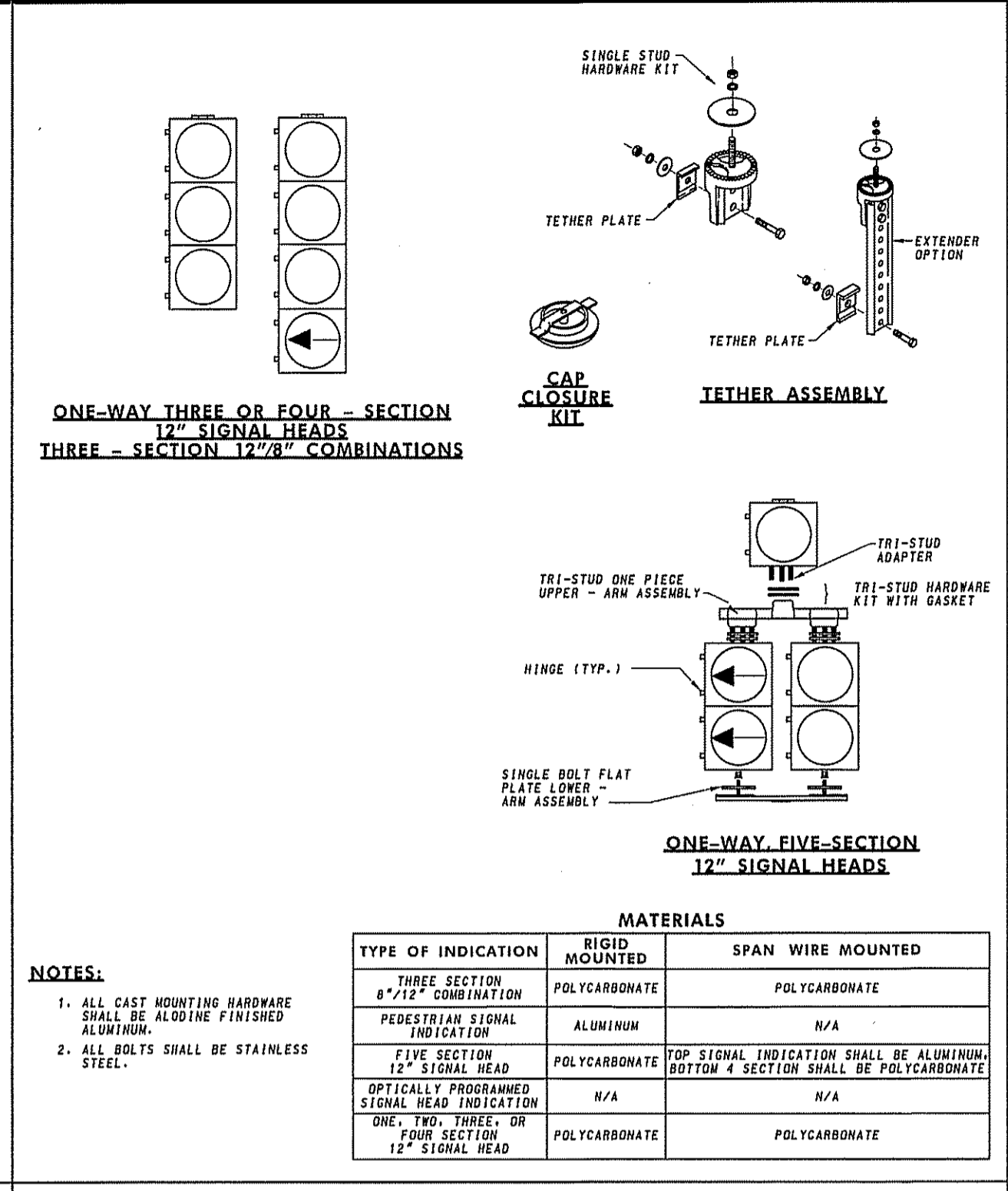
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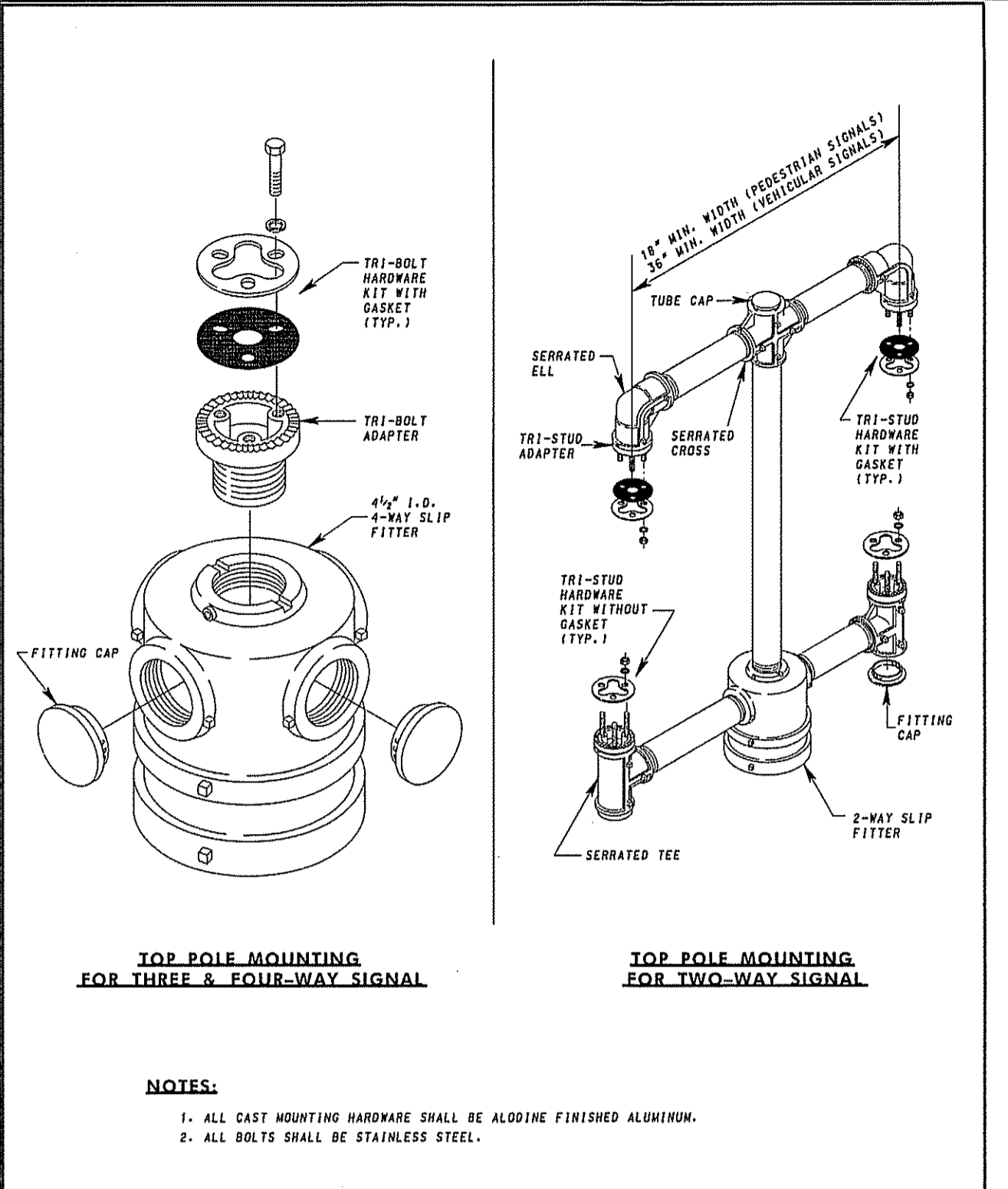
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811		
APPROVED	DIRECTOR - OFFICE OF TRAFFIC AND SAFETY	
APPROVAL	APPROVAL - SHA	
REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
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REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
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REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	



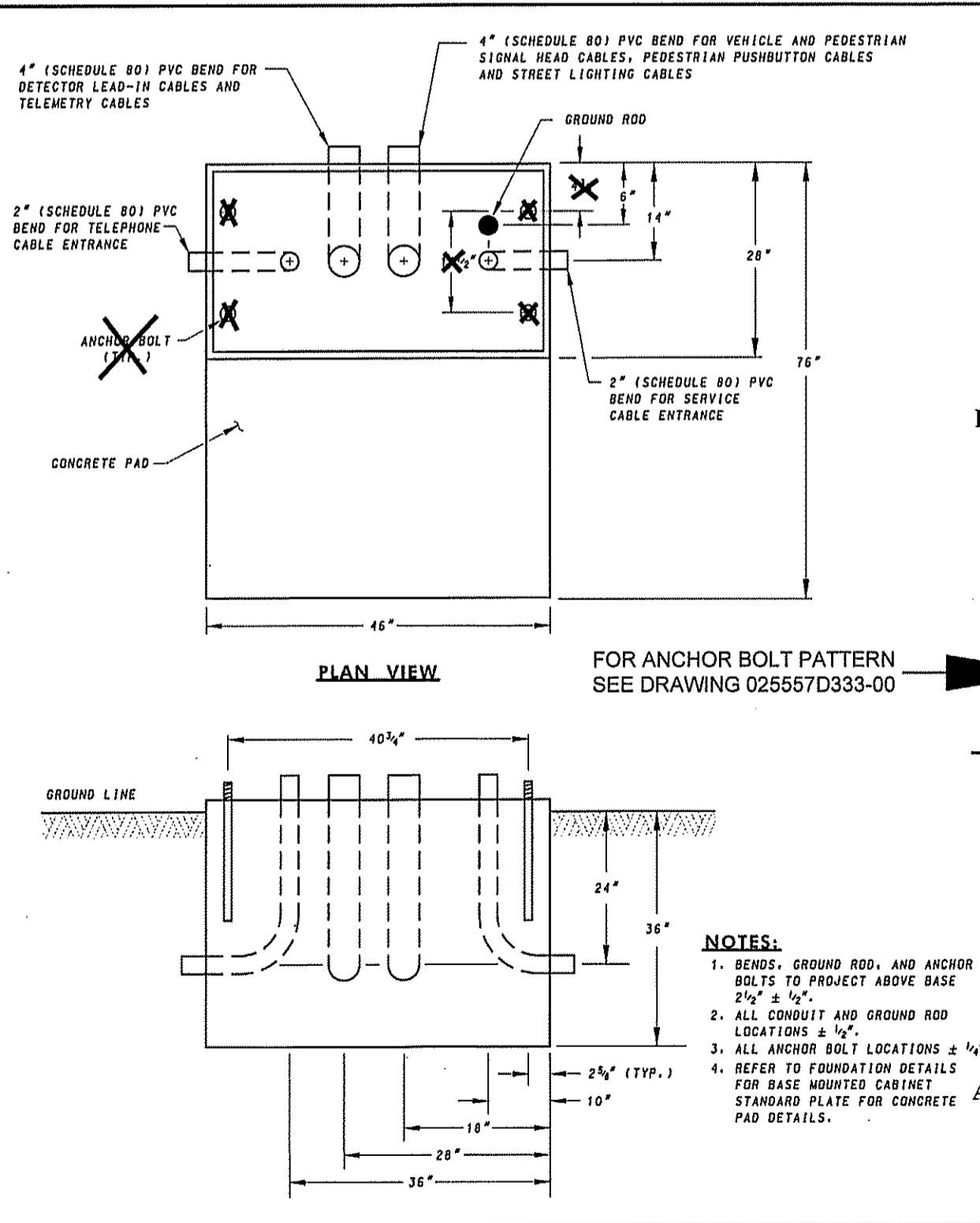
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814		
APPROVED	DIRECTOR - OFFICE OF TRAFFIC AND SAFETY	
APPROVAL	APPROVAL - SHA	
REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
APPROVAL	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
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REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	



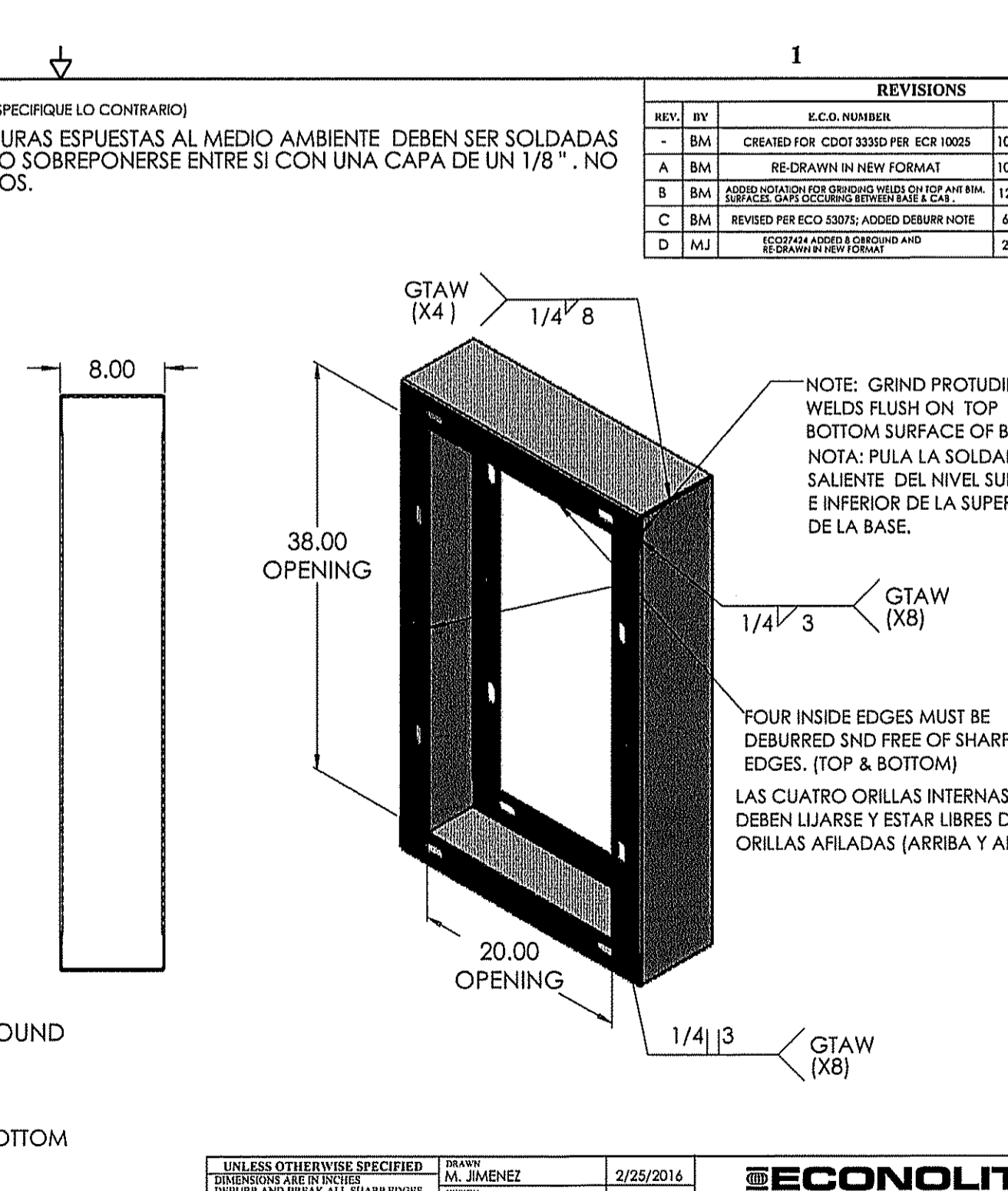
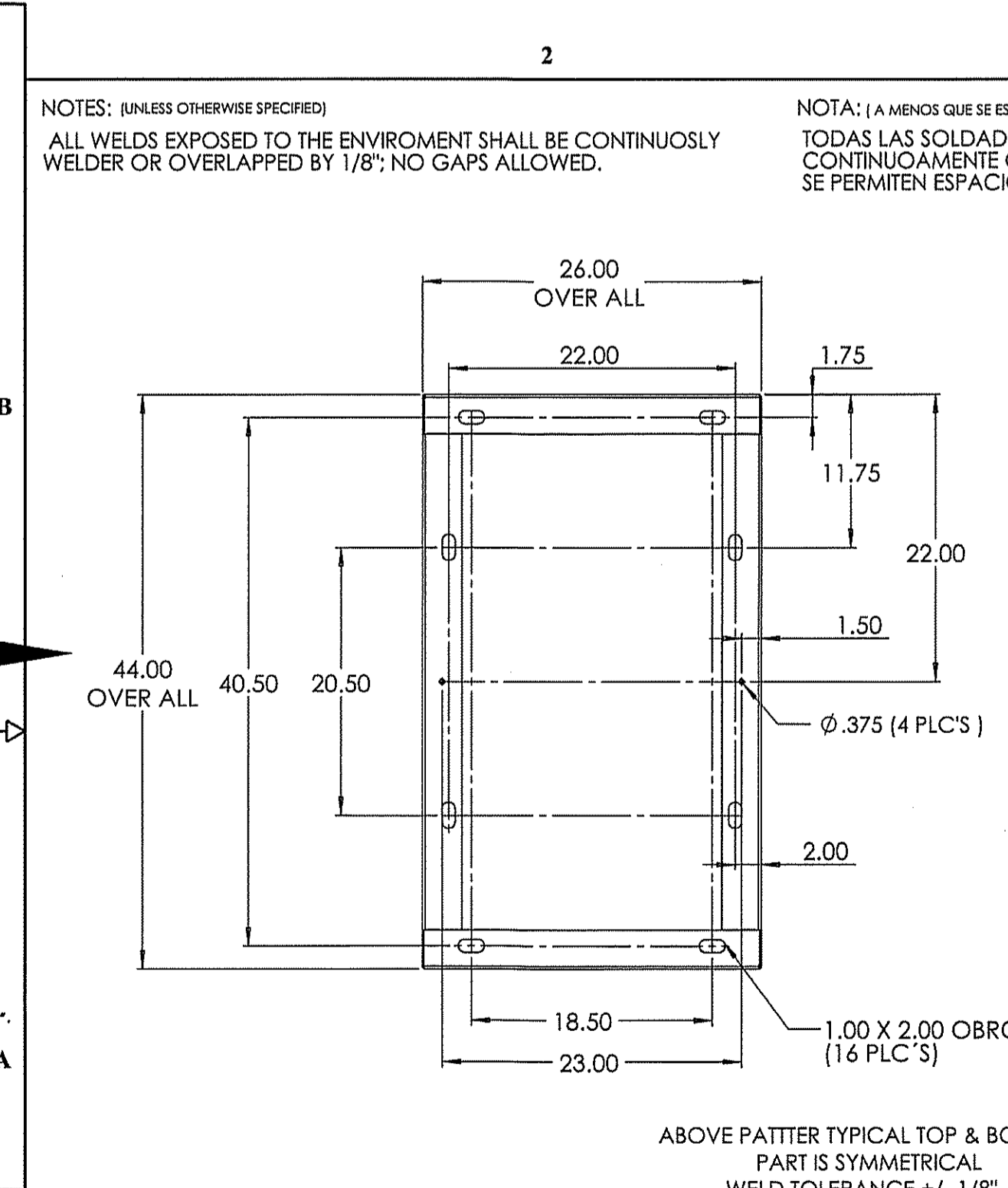
SPECIFICATION	CATEGORY CODE ITEMS	MARYLAND DEPARTMENT OF TRANSPORTATION STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES SIGNAL HEAD MOUNTING DETAILS STANDARD NO. MD 814.02
814		
APPROVED	DIRECTOR - OFFICE OF TRAFFIC AND SAFETY	
APPROVAL	APPROVAL - SHA	
REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
APPROVAL	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
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REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	



SPECIFICATION	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES TOP POLE MOUNTING FOR VEHICULAR AND PEDESTRIAN SIGNAL HEADS STANDARD NO. MD 814.04
814		
APPROVED	DIRECTOR - OFFICE OF TRAFFIC AND SAFETY	
APPROVAL	APPROVAL - SHA	
REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
APPROVAL	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
APPROVAL	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	



SPECIFICATION	CATEGORY CODE ITEMS	Maryland Department of Transportation STATE HIGHWAY ADMINISTRATION STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES NEMA SIZE 6 BASE MOUNTED CABINET LAYOUT STANDARD NO. MD 816.02
816		
APPROVED	DIRECTOR - OFFICE OF TRAFFIC AND SAFETY	
APPROVAL	APPROVAL - SHA	
REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
APPROVAL	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
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REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	



SPECIFICATION	CATEGORY CODE ITEMS	ECONOLITE 3360 E. LA PALMA, ANAHEIM, CA. 92806 333SD BASE WELDMENT (RISER) STANDARD NO. MD 814.02
814		
APPROVED	DIRECTOR - OFFICE OF TRAFFIC AND SAFETY	
APPROVAL	APPROVAL - SHA	
REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
APPROVAL	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
APPROVAL	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	
REVISIONS	APPROVAL - FEDERAL HIGHWAY ADMINISTRATION	

DESIGNED BY:	SH / PJM	DATE:	05-17-22
DRAWN BY:	GLJ	CHECKED BY:	PJM / TP
REVISION DESCRIPTION			
NO.			
DATE			

WASHINGTON COUNTY, MARYLAND
DIVISION OF ENGINEERING

Washington County Administrative Annex, Building
747 Northern Avenue, Hagerstown, Maryland, 21742
Phone: 280-313-2460 Fax: 240-315-2401

SHOWALTER ROAD AND
CRAYTON BOULEVARD INTERSECTION
MD - SHA
STANDARD DETAILS

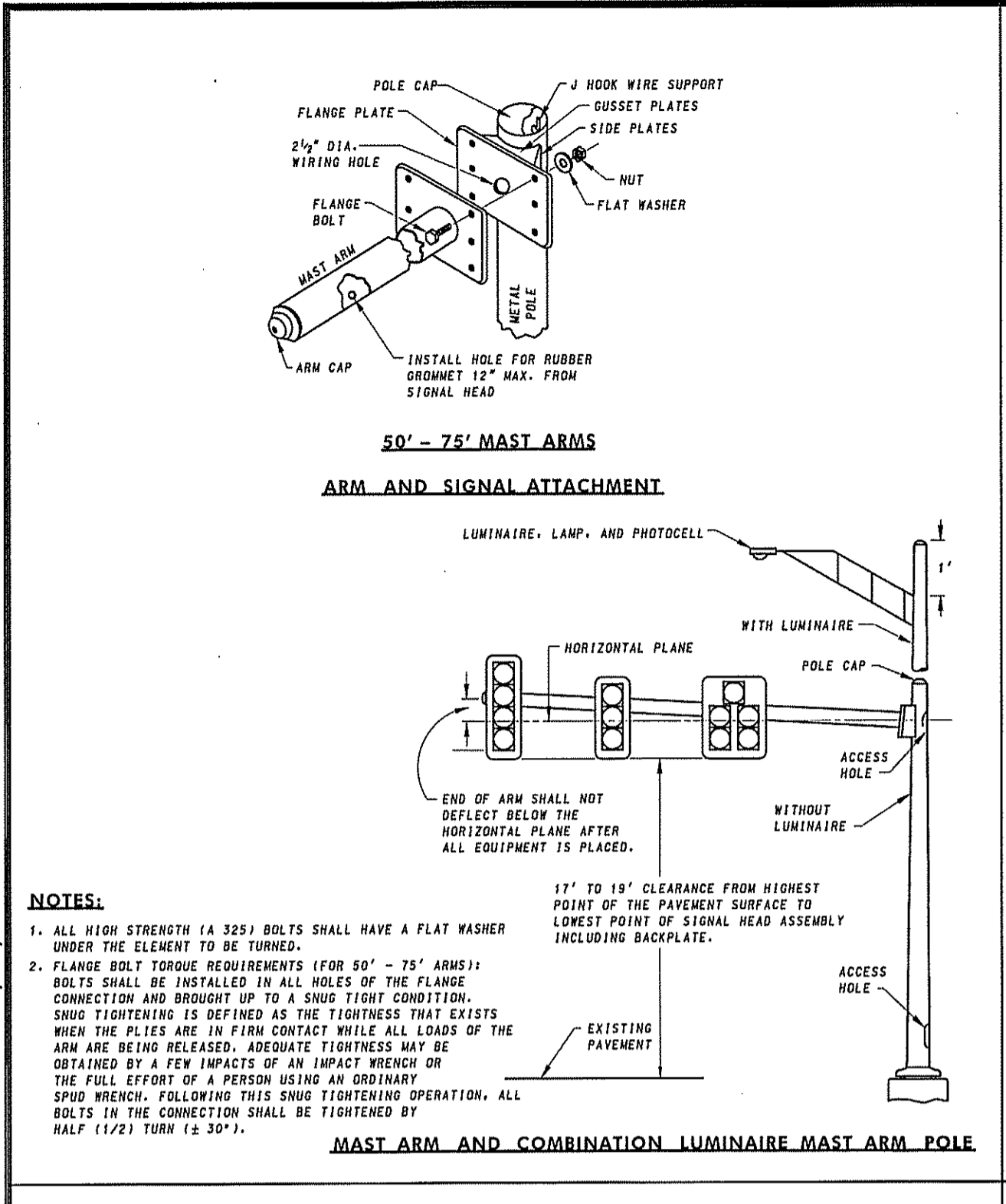
STATE OF MARYLAND
PAMELA JEAN HOGAN
PROFESSIONAL ENGINEER
No. 39252
Professional Seal

SCALE
NONE

SHEET NO.
06 OF 11

PROJECT NO.
16 - 040

K:\CAD\16-040 SHOWALTER - CRAYTON SIGNAL DESIGN\CONSTRUCTION PLANS-E-MD-SHA DETAILS\TRAFFIC SIGNAL MD-SHA



50' - 75' MAST ARMS
ARM AND SIGNAL ATTACHMENT

NOTES:

- ALL HIGH STRENGTH (A 305) BOLTS SHALL HAVE A FLAT WASHER UNDER THE ELEMENT TO BE TURNED.
- FLANGE BOLT TORQUE REQUIREMENTS (FOR 50' - 75' ARMS): BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE FLANGE CONNECTION AND BROUGHT UP TO A SNUG TIGHT CONDITION. SNUG TIGHTENING IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE PILES ARE IN FIRM CONTACT WITH ALL LOADS OF THE ARM ARE BEING RELEASED. ADEQUATE TIGHTNESS MAY BE OBTAINED BY A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF A PERSON USING AN ORDINARY SPUD WRENCH. FOLLOWING THIS SNUG TIGHTENING OPERATION, ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED BY HALF (1/2) TURN (± 30°).

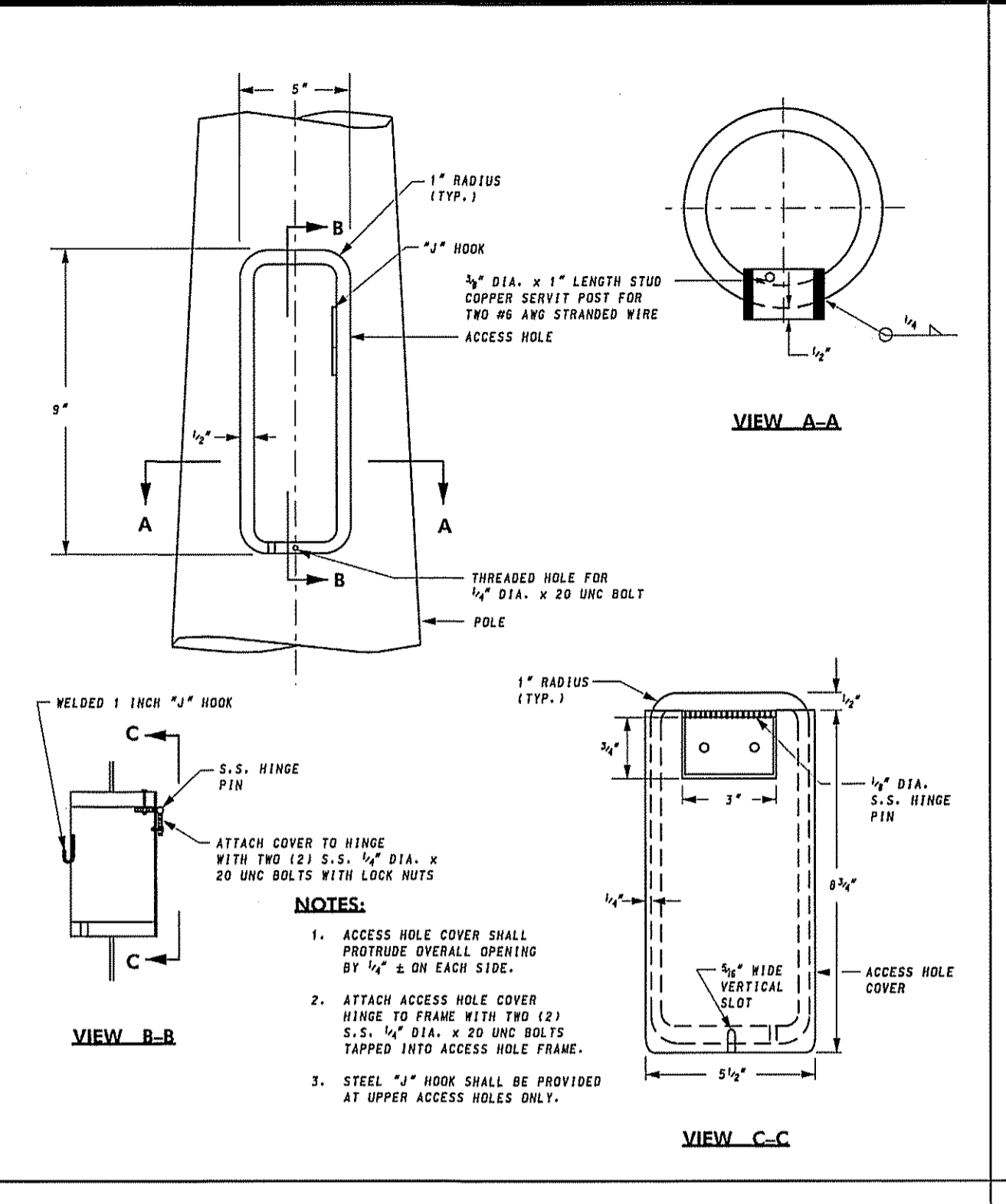
MAST ARM AND COMBINATION LUMINAIRE MAST ARM POLE

APPROVED: [Signature] DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL REVISIONS:

APPROVAL	7-1-94	APPROVAL	7-1-94
REVISION	10-1-01	REVISION	5-1-01
REVISION	11-20-03	REVISION	9-4-03

STANDARD NO. MD 818.02



ACCESS HOLE FOR TRAFFIC SIGNAL AND SIGN STRUCTURES

NOTES:

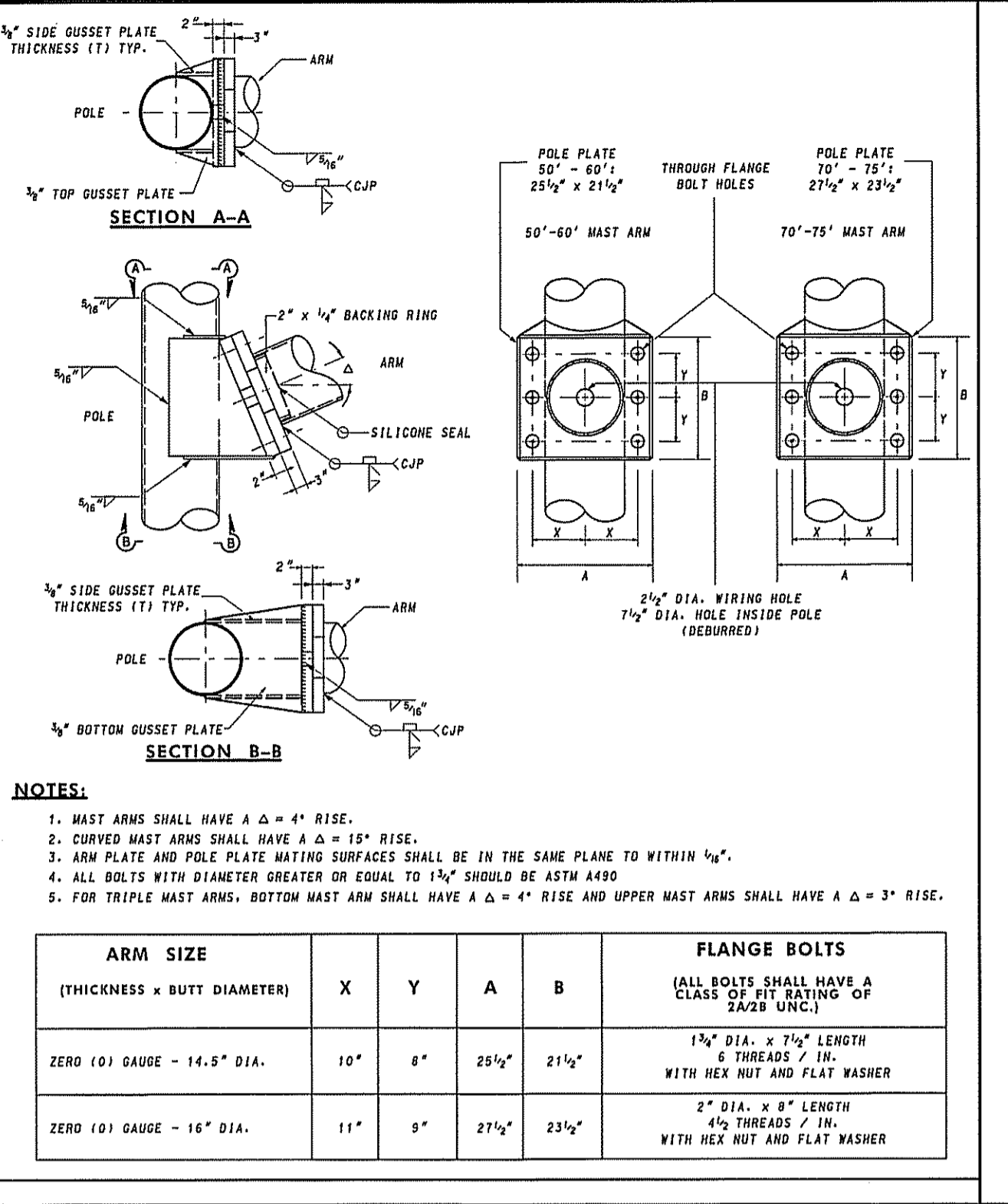
- ACCESS HOLE COVER SHALL PROVIDE OVERALL OPENING BY 1/4" ON EACH SIDE.
- ATTACH ACCESS HOLE COVER TO FRAME WITH TWO (2) 5/8" DIA. X 20 UNC BOLTS TAPPED INTO ACCESS HOLE FRAME.
- STEEL 1/2" HOOK SHALL BE PROVIDED AT UPPER ACCESS HOLES ONLY.

APPROVED: [Signature] DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL REVISIONS:

APPROVAL	7-1-94	APPROVAL	7-1-94
REVISION	5-17-07	REVISION	5-2-07
REVISION	11-20-13	REVISION	8-4-13

STANDARD NO. MD 818.11



MAST ARM FLANGE PLATES

NOTES:

- MAST ARMS SHALL HAVE A Δ = 4° RISE.
- CURVED MAST ARMS SHALL HAVE A Δ = 15° RISE.
- ARM PLATE AND POLE PLATE MATING SURFACES SHALL BE IN THE SAME PLANE TO WITHIN 1/4".
- ALL BOLTS WITH DIAMETER GREATER OR EQUAL TO 1/2" SHOULD BE ASTM A490.
- FOR TRIPLE MAST ARMS, BOTTOM MAST ARM SHALL HAVE A Δ = 4° RISE AND UPPER MAST ARMS SHALL HAVE A Δ = 3° RISE.

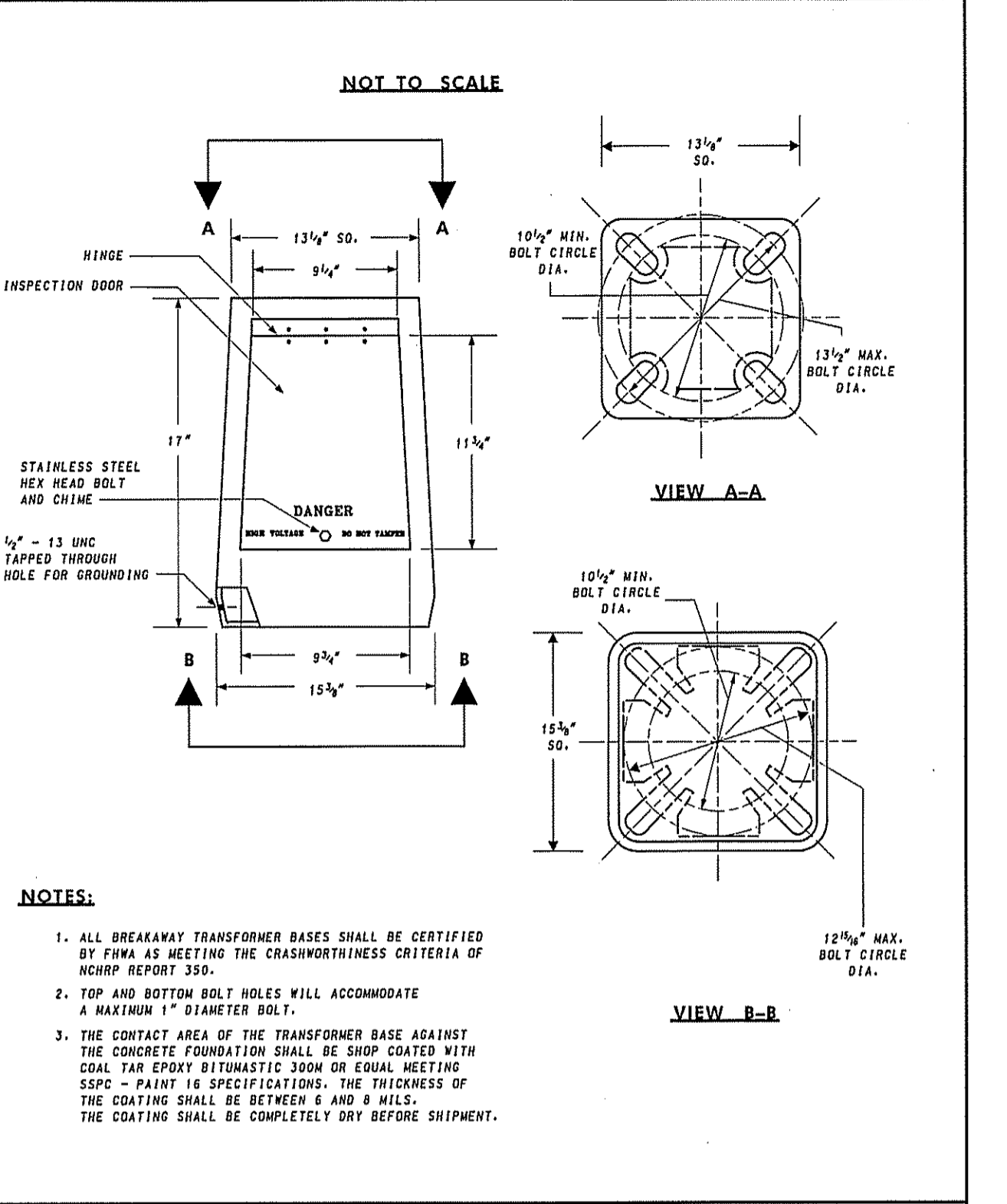
ARM SIZE (THICKNESS X BUTT DIAMETER)	X	Y	A	B	FLANGE BOLTS (ALL BOLTS SHALL HAVE A CLASS OF FIT RATING OF 2 AND UNC.)
ZERO (0) GAUGE - 14.5" DIA.	10"	6"	25 1/2"	21 1/2"	1 1/2" DIA. X 7 1/2" LENGTH 6 THREADS / IN. WITH HEX NUT AND FLAT WASHER
ZERO (0) GAUGE - 16" DIA.	11"	6"	27 1/2"	23 1/2"	2" DIA. X 8" LENGTH 4 1/2 THREADS / IN. WITH HEX NUT AND FLAT WASHER

APPROVED: [Signature] DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL REVISIONS:

APPROVAL	7-1-94	APPROVAL	7-1-94
REVISION	5-17-07	REVISION	5-2-07
REVISION	11-20-13	REVISION	8-4-13

STANDARD NO. MD 818.12



BREAKAWAY TRANSFORMER BASE FOR 10', 14' AND 20' PEDESTAL POLES

NOTES:

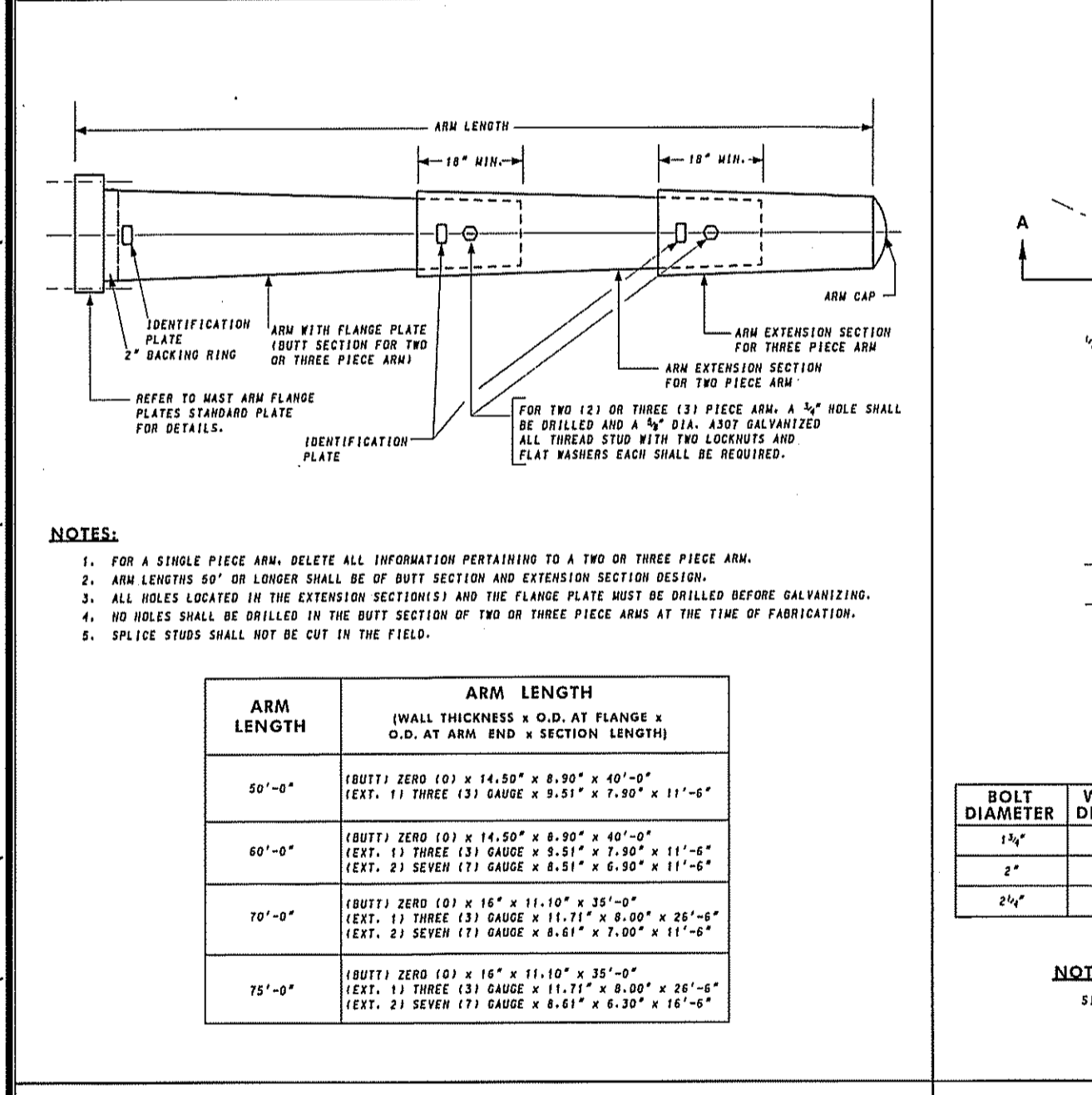
- ALL BREAKAWAY TRANSFORMER BASES SHALL BE CERTIFIED BY TWA AS MEETING THE CRASHWORTHINESS CRITERIA OF NCHRP REPORT 350.
- TOP AND BOTTOM BOLT HOLES WILL ACCOMMODATE A MAXIMUM 1" DIAMETER BOLT.
- THE CONTACT AREA OF THE TRANSFORMER BASE AGAINST THE CONCRETE FOUNDATION SHALL BE SHOP COATED WITH COAL TAR EPOXY BITUMASTIC 300M OR EQUAL MEETING SSPC - PAINT 16 SPECIFICATIONS. THE THICKNESS OF THE COATING SHALL BE BETWEEN 6 AND 8 MILS. THE COATING SHALL BE COMPLETELY DRY BEFORE SHIPMENT.

APPROVED: [Signature] DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL REVISIONS:

APPROVAL	7-1-94	APPROVAL	7-1-94
REVISION	5-17-07	REVISION	5-2-07
REVISION	11-20-13	REVISION	8-4-13

STANDARD NO. MD 821.01-01



MAST ARMS

NOTES:

- FOR A SINGLE PIECE ARM, DELETE ALL INFORMATION PERTAINING TO A TWO OR THREE PIECE ARM.
- ARM LENGTHS 50' OR LONGER SHALL BE OF BUTT SECTION AND EXTENSION SECTION DESIGN.
- ALL HOLES LOCATED IN THE EXTENSION SECTIONS AND THE FLANGE PLATE MUST BE DRILLED BEFORE GALVANIZING.
- NO HOLES SHALL BE DRILLED IN THE BUTT SECTION OF TWO OR THREE PIECE ARMS AT THE TIME OF FABRICATION.
- SPLICE STUBS SHALL NOT BE CUT IN THE FIELD.

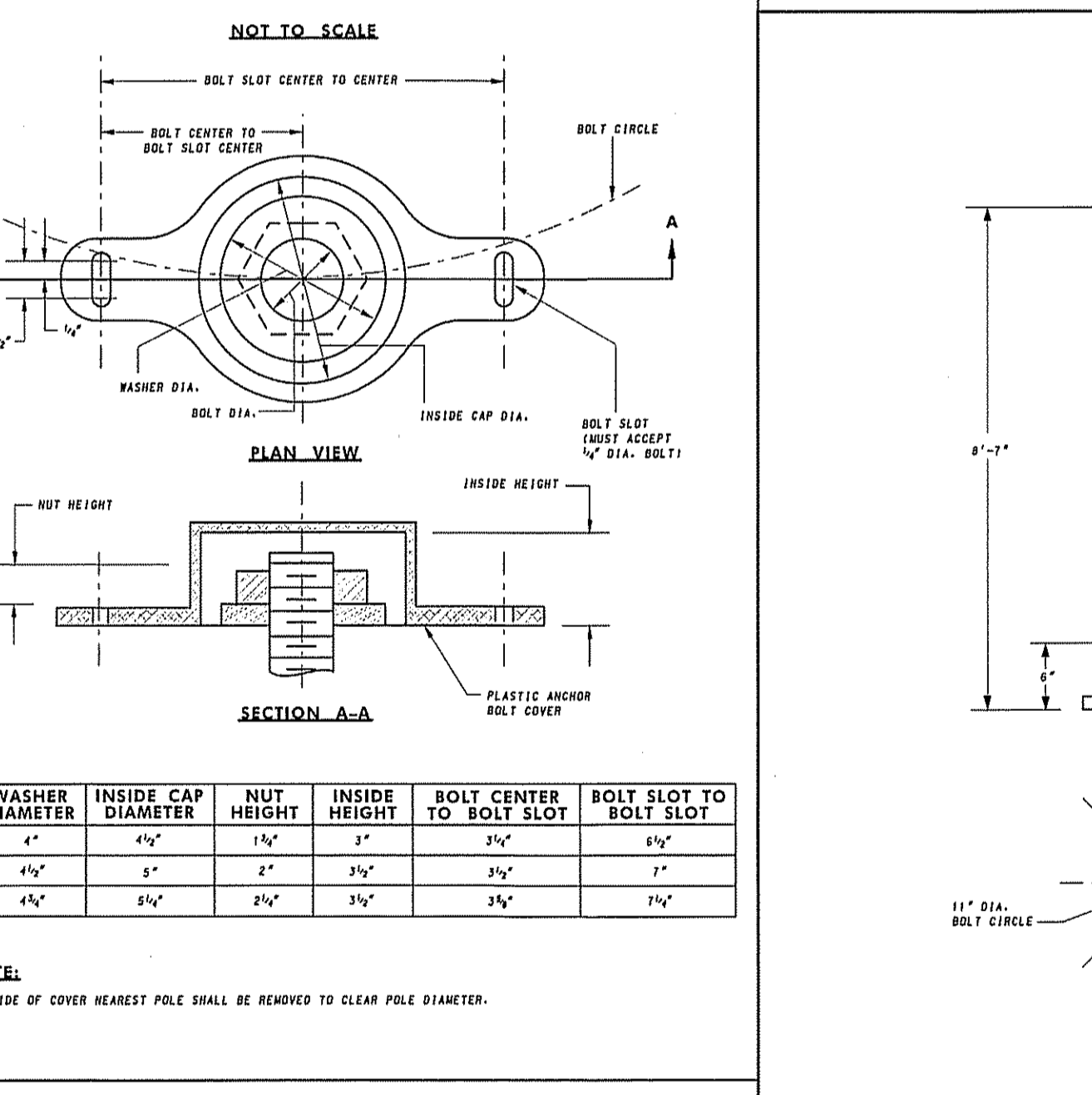
ARM LENGTH	ARM LENGTH (SMALL THICKNESS X O.D. AT FLANGE X O.D. AT ARM END X SECTION LENGTH)
50'-0"	(BUTT) ZERO (0) X 14.50" X 8.00" X 40'-0" (EXT. 1) THREE (3) GAUGE X 8.51" X 7.90" X 11'-6"
60'-0"	(BUTT) ZERO (0) X 14.50" X 8.00" X 40'-0" (EXT. 1) THREE (3) GAUGE X 8.51" X 7.90" X 11'-6" (EXT. 2) SEVEN (7) GAUGE X 8.51" X 8.90" X 11'-6"
70'-0"	(BUTT) ZERO (0) X 16" X 11.10" X 35'-0" (EXT. 1) THREE (3) GAUGE X 11.11" X 8.90" X 28'-6" (EXT. 2) SEVEN (7) GAUGE X 8.61" X 7.00" X 11'-6"
75'-0"	(BUTT) ZERO (0) X 16" X 11.10" X 35'-0" (EXT. 1) THREE (3) GAUGE X 11.11" X 8.90" X 28'-6" (EXT. 2) SEVEN (7) GAUGE X 8.61" X 8.30" X 16'-4"

APPROVED: [Signature] DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL REVISIONS:

APPROVAL	7-1-94	APPROVAL	7-1-94
REVISION	5-17-07	REVISION	5-2-07
REVISION	11-20-13	REVISION	8-4-13

STANDARD NO. MD 818.13



ANCHOR BOLT COVER

NOTES:

- SIDE OF COVER NEAREST POLE SHALL BE REMOVED TO CLEAR POLE DIAMETER.

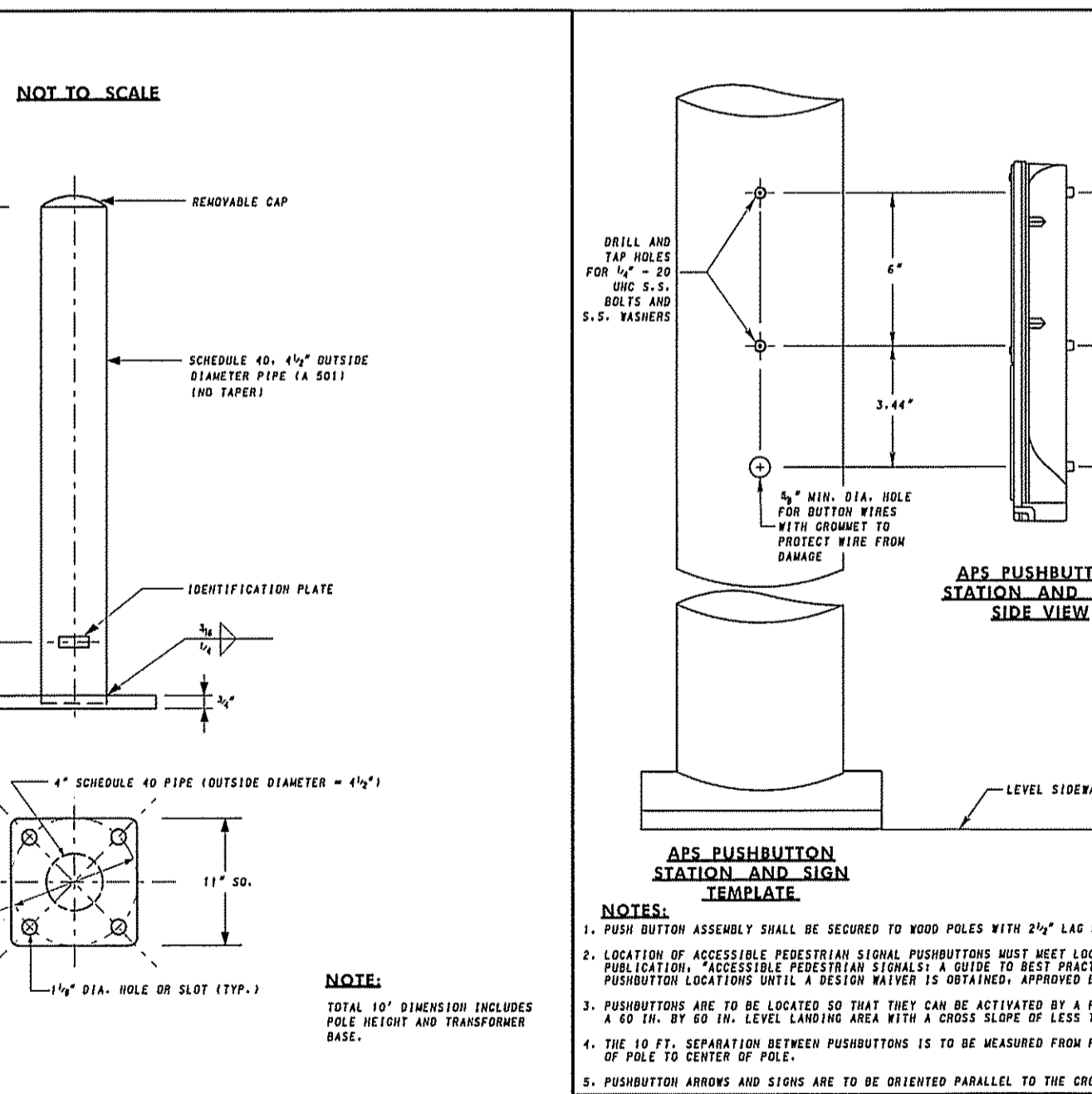
BOLT DIAMETER	WASHER DIAMETER	INSIDE CAP DIAMETER	NUT HEIGHT	INSIDE HEIGHT	BOLT CENTER TO BOLT SLOT	BOLT SLOT TO BOLT SLOT
1 1/2"	4"	4 1/2"	1 1/2"	3"	2 1/4"	6 1/2"
2"	4 1/2"	5"	2"	3 1/2"	2 1/2"	7"
2 1/2"	4 1/2"	5 1/4"	2 1/4"	3 3/4"	2 1/2"	7 1/4"

APPROVED: [Signature] DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL REVISIONS:

APPROVAL	7-1-94	APPROVAL	7-1-94
REVISION	5-17-07	REVISION	5-2-07
REVISION	11-20-13	REVISION	8-4-13

STANDARD NO. MD 818.14



10' PEDESTAL POLE

NOTES:

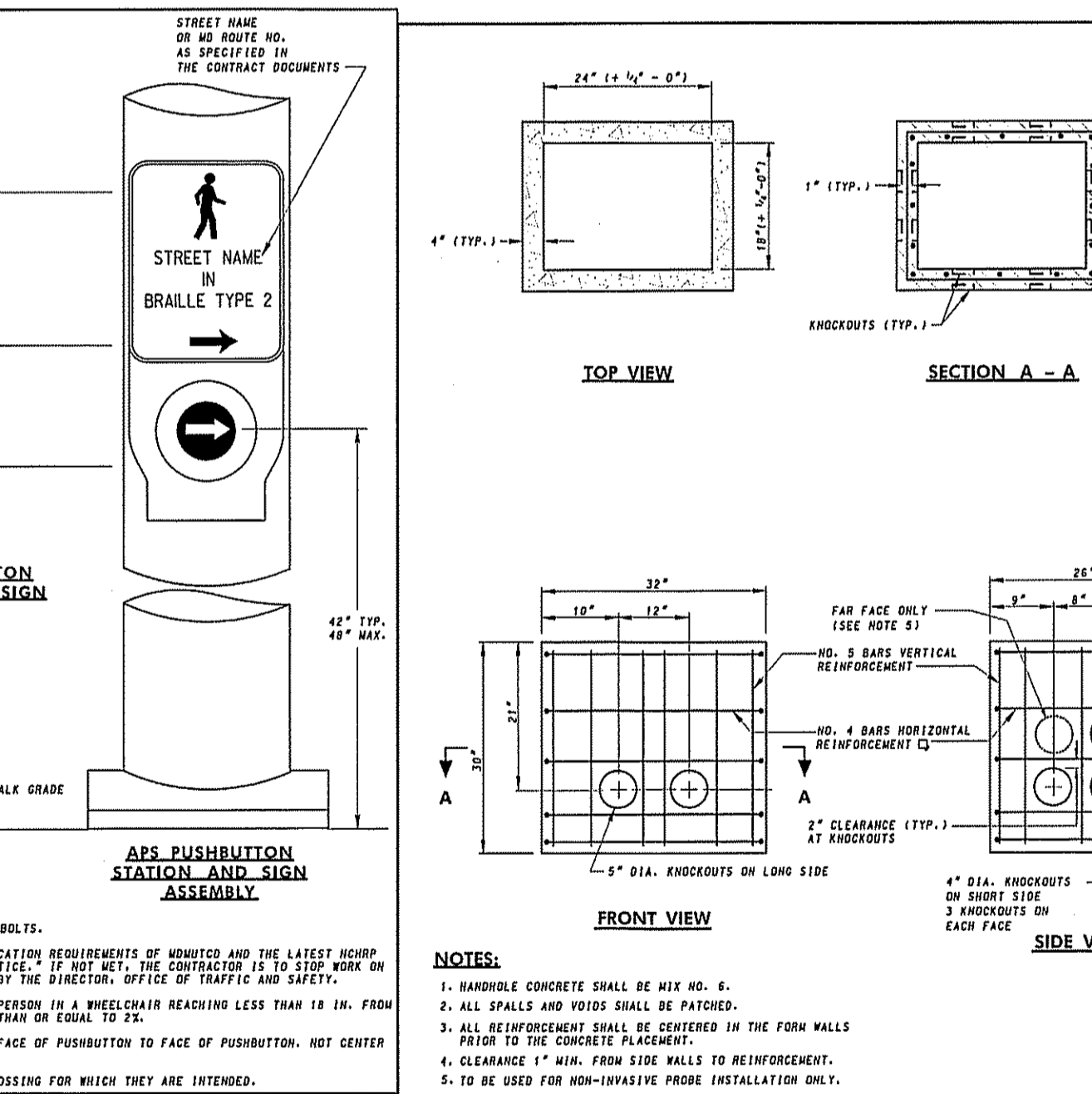
- PUSH BUTTON ASSEMBLY SHALL BE SECURED TO WOOD POLES WITH 2 1/2" LAG BOLTS.
- LOCATION OF ACCESSIBLE PEDESTRIAN SIGNAL PUSHBUTTONS MUST MEET LOCATION REQUIREMENTS OF 224 AND THE LATEST MHPD POSITIONING LOCATIONS UNTIL A DESIGN REVIEW IS OBTAINED. APPROVED BY THE DIRECTOR, OFFICE OF TRAFFIC AND SAFETY.
- PUSHBUTTONS ARE TO BE LOCATED SO THAT THEY CAN BE ACTIVATED BY A PERSON IN A WHEELCHAIR REACHING LESS THAN 18 IN. FROM A 50 IN. BY 60 IN. LEVEL LANDING AREA WITH A CROSS SLOPE OF LESS THAN OR EQUAL TO 2%.
- THE 18 IN. SEPARATION BETWEEN PUSHBUTTONS IS TO BE MEASURED FROM FACE OF PUSHBUTTON TO FACE OF PUSHBUTTON, NOT CENTER OF POLE TO CENTER OF POLE.
- PUSHBUTTON ARROWS AND SIGNS ARE TO BE ORIENTED PARALLEL TO THE CROSSING FOR WHICH THEY ARE INTENDED.

APPROVED: [Signature] DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL REVISIONS:

APPROVAL	7-1-94	APPROVAL	7-1-94
REVISION	5-17-07	REVISION	5-2-07
REVISION	11-20-13	REVISION	8-4-13

STANDARD NO. MD 818.15



PEDESTRIAN PUSH BUTTON ASSEMBLY

NOTES:

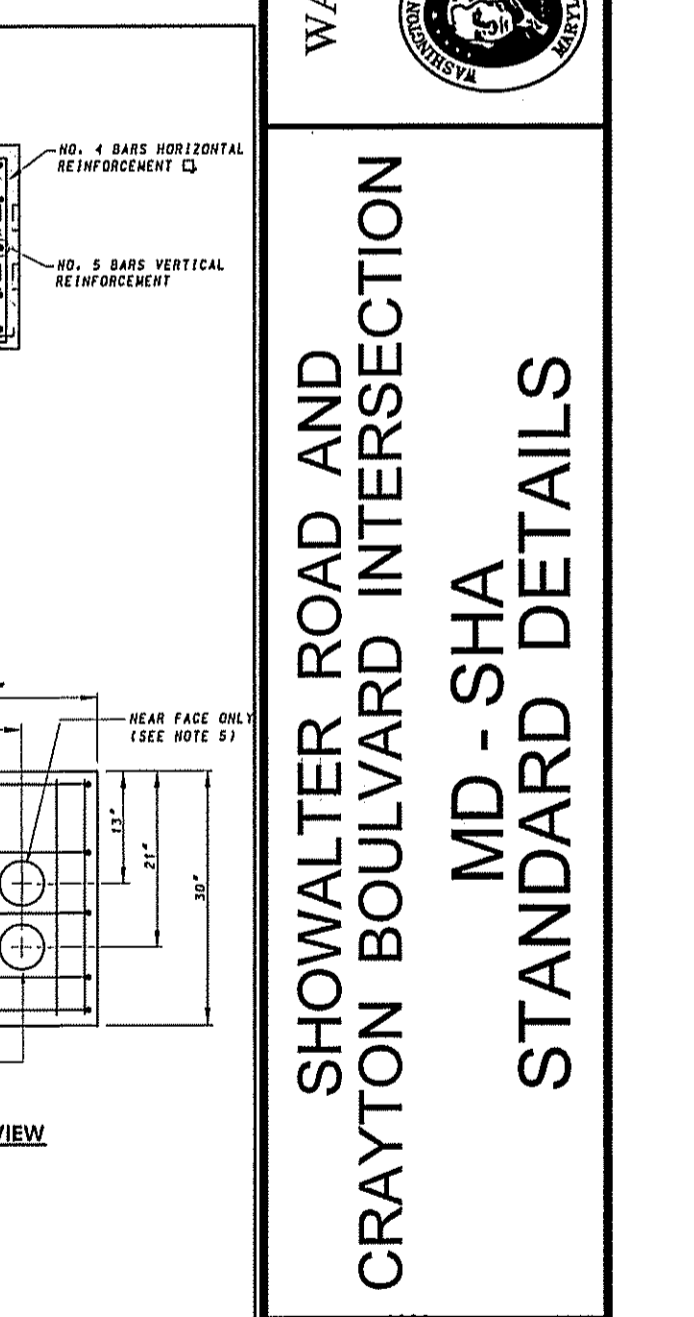
- HANDHOLE CONCRETE SHALL BE MIX NO. 6.
- ALL SPALLS AND HOLES SHALL BE PATCHED.
- ALL REINFORCEMENT SHALL BE CENTERED IN THE FORM WALLS PRIOR TO THE CONCRETE PLACEMENT.
- CLEARANCE 1" MIN. FROM SIDE WALLS TO REINFORCEMENT.
- TO BE USED FOR NON-INVASIVE PROBE INSTALLATION ONLY.

APPROVED: [Signature] DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL REVISIONS:

APPROVAL	7-1-94	APPROVAL	7-1-94
REVISION	5-17-07	REVISION	5-2-07
REVISION	11-20-13	REVISION	8-4-13

STANDARD NO. MD 817.02



HANDHOLE (MATERIALS DETAIL)

NOTES:

- HANDHOLE CONCRETE SHALL BE MIX NO. 6.
- ALL SPALLS AND HOLES SHALL BE PATCHED.
- ALL REINFORCEMENT SHALL BE CENTERED IN THE FORM WALLS PRIOR TO THE CONCRETE PLACEMENT.
- CLEARANCE 1" MIN. FROM SIDE WALLS TO REINFORCEMENT.
- TO BE USED FOR NON-INVASIVE PROBE INSTALLATION ONLY.

APPROVED: [Signature] DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL REVISIONS:

APPROVAL	7-1-94	APPROVAL	7-1-94
REVISION	5-17-07	REVISION	5-2-07
REVISION	11-20-13	REVISION	8-4-13

STANDARD NO. MD 811.01

WASHINGTON COUNTY, MARYLAND
DIVISION OF ENGINEERING

Washington County Administrative Annex, Building
747 Northham Avenue, Hagerstown, Maryland, 21742
Phone: 240-313-2460 Fax: 240-313-2401

DESIGNED BY: SH/PJM
DRAWN BY: GLJ
CHECKED BY: PJM/TP
DATE: 05-17-22

REVISION DESCRIPTION

NO.	REVISION DESCRIPTION	DATE
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SCALE: NONE

SHEET NO. 07 OF 11

PROJECT NO. 16 - 040

STATE OF MARYLAND
PAUL J. JEAN, GOVERNOR
PROFESSIONAL ENGINEER
No. 39229

K:\CADD\16-040 SHOWALTER - CRAYTON SIGNAL DESIGN\CONSTRUCTION PLANS\F-STRIPPING PLAN\STRIPPING PLAN.DWG Last Saved: 5/19/2022 8:18 AM

CRITERIA

THE CONTRACTOR SHALL BE GOVERNED BY THE STANDARDS AND REQUIREMENTS OF THE FOLLOWING PUBLICATIONS, EXCEPT AS MODIFIED BY THE SPECIAL PROVISIONS OF THIS CONTRACT:

DESIGN

MDOT SHA - "MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", 2011 EDITION AND SUBSEQUENT REVISIONS. (MDMUTCD)

A A S H T O - "HIGHWAY SAFETY DESIGN AND OPERATIONS GUIDE" -1997

A A S H T O - "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS LUMINAIRES AND TRAFFIC SIGNALS", 2001 EDITION (CATEGORY II FOR ALL OVERHEAD AND CANTILEVER SIGN STRUCTURES).

MATERIALS AND CONSTRUCTION

MDOT SHA - "STANDARD SPECIFICATIONS FOR CONSTRUCTION & MATERIALS", MOST CURRENT EDITION AND SUBSEQUENT REVISIONS AND SUPPLEMENTS.

MDOT SHA - "BOOK OF STANDARDS FOR HIGHWAY AND INCIDENTAL STRUCTURES", MOST CURRENT EDITION AND SUBSEQUENT REVISIONS AND SUPPLEMENTS.

DESIGN WIND

100 MPH - WOOD SUPPORTS
10 YEAR RECURRENCE INTERVAL

100 MPH - GROUND MOUNT SIGN STEEL SUPPORTS
10 YEAR RECURRENCE INTERVAL

100 MPH - OVERHEAD AND CANTILEVER STRUCTURES
50 YEAR RECURRENCE INTERVAL

} ALL DISTRICTS

DESIGN STRESS

SOIL BEARING PRESSURE - S = 3,000 P.S.F. (ASSUMED)

SEE MATERIAL & CONSTRUCTION ABOVE AND SPECIAL PROVISIONS FOR DESIGN STRESSES FOR STRUCTURAL STEEL, ALUMINUM, REINFORCING STEEL AND CONCRETE.

CHAMFER

ALL EXPOSED EDGES OF CONCRETE SHALL HAVE A 3/4" X 3/4" CHAMFER.

CLASSIFICATION OF SIGNS

SIGNS ARE DIVIDED INTO TWO (2) GENERAL CATEGORIES.

1. GUIDE SIGNS

- A) STRUCTURAL TYPES
 - OH - OVERHEAD
 - C - CANTILEVER
 - GM - GROUND MOUNT, BREAKAWAY OR NON-BREAKWAY
 - BM - BRIDGE MOUNTED

B) PANELS

- MATERIAL - EXTRUDED ALUMINUM COPY - DIRECT APPLIED
- 1) HIGH INTENSITY (NEW SIGNS AND REVISIONS TO EXISTING SIGNS)

2. STANDARD SIGNS (REGULATORY, WARNING, ETC.)

- A) STRUCTURAL TYPES
 - WOOD SUPPORTS
 - SQUARE TUBE

B) PANELS

- MATERIAL - SHEET ALUMINUM COPY - DIRECT APPLIED

IDENTIFICATION OF SIGNS AND PANELS

GUIDE SIGNS

EACH GUIDE SIGN IS IDENTIFIED BY A SIGN NUMBER ON THE PLANS AND IN THE TABULATIONS. (GM-1, GM-2, GM-3, etc)
SIGNS ON STRUCTURES ARE IDENTIFIED WITH A NUMBER AND WHERE VARIATIONS OCCUR, A LOWER CASE LETTER. (OH-1a, OH-1b, OH-1c)

STANDARD SIGNS

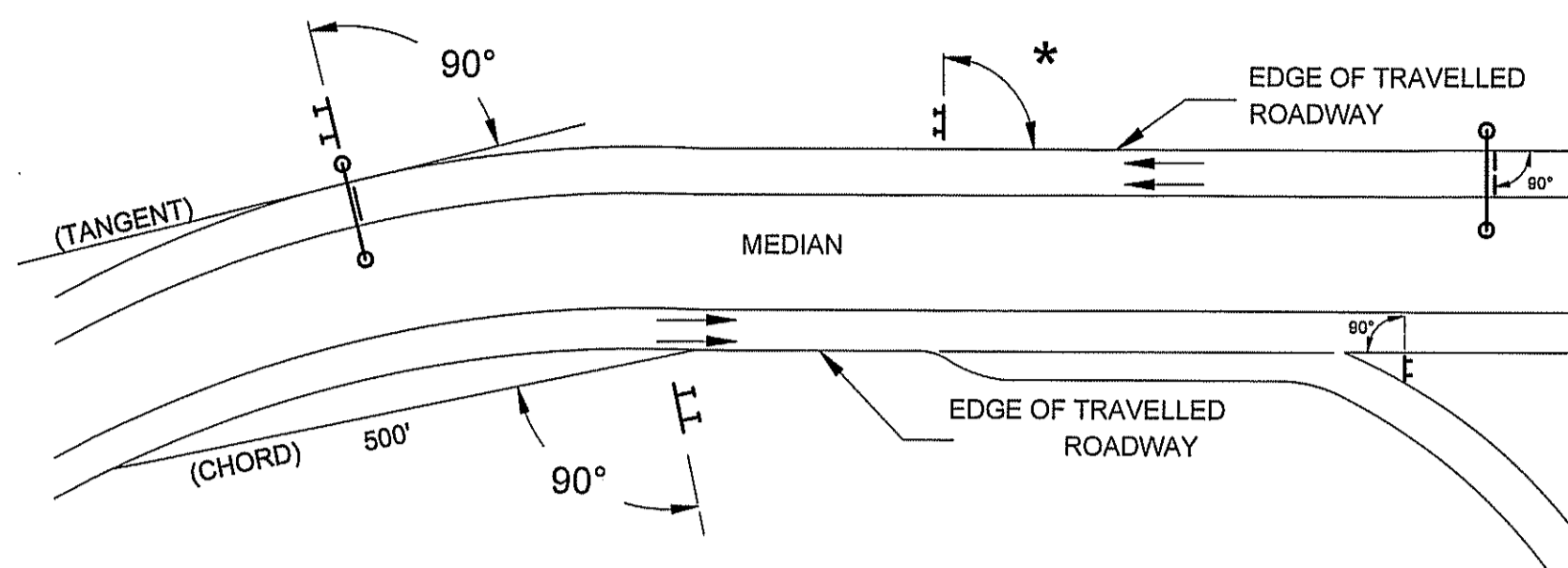
STANDARD SIGNS ARE IDENTIFIED BY PANEL NUMBERS AND ARE CLASSIFIED AS FOLLOWS
R - REGULATORY
W - WARNING
M - ROUTE MARKERS AND ACCESSORIES
D - DESTINATION AND MILEAGE PANELS
S - SCHOOL

PANELS SHALL BE DESIGNATED TO AGREE WITH MARYLAND STANDARD SIGN BOOK. EACH STANDARD SIGN IS IDENTIFIED FIRST BY THE SHEET NUMBER, THEN BY THE NUMERICAL ORDER OF THE SIGN AS IT APPEARS ON THE PLAN.
FOR EXAMPLE SHEET SN 2.1-101,102,103, ETC. SHEET SN 2.2-201,202,203,ETC.

PANEL LAYOUT AND ALPHABETS

1. GUIDE SIGN PANEL LAYOUTS ARE BASED ON THE A.A.S.H.T.O. MANUALS NOTED ABOVE.
2. STANDARD SIGN PANEL LAYOUTS ARE BASED ON THE MDMUTCD WITH SPECIFICATIONS DETAILED IN THE MARYLAND STATE HIGHWAY ADMINISTRATION PUBLICATION, "STANDARD SIGN BOOK", AVAILABLE ONLINE AT http://apps.roads.maryland.gov/businesswithsha/bizstdspecs/desmanualstpub/publicationonline/cots/internet_signbook.asp

ORIENTATION OF SIGN FACES



* UNDER 30 FEET FROM TRAVELLED ROADWAY TO NEAR EDGE OF SIGN - 93° AWAY FROM THE ROAD TO AVOID SPECULAR REFLECTION AS INDICATED IN 813.03 OF THE MARYLAND STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS.

OVER 30 FEET FROM TRAVELLED ROADWAY TO NEAR EDGE OF SIGN - 90°

REFLECTORIZATION

BACKGROUNDS, BORDERS, TEXTS AND ALL OTHER ELEMENTS OF SIGN PANELS SHALL BE REFLECTORIZED EXCEPT WHERE NOTED. REFER TO PROJECT REQUIREMENTS FOR MORE DETAIL.

SIGN LOCATIONS

1. GUIDE SIGNS ARE LOCATED ON THE PLANS BY DIMENSION TO SURVEY STATIONS, OR WHEN NECESSARY, TO IDENTIFIABLE PHYSICAL FEATURES.
2. ALL CHANGES IN THE LOCATIONS OF SIGNS AS SHOWN ON THE PLAN SHALL HAVE THE PRIOR APPROVAL OF THE ENGINEER.

EXISTING UTILITIES

THE ENGINEER DOES NOT WARRANT OR GUARANTEE THE ACCURACY OR COMPLETENESS OF UTILITY INFORMATION SHOWN ON THE PLAN. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND PROTECT ALL EXISTING FACILITIES WHICH MIGHT BE AFFECTED BY THIS WORK OR HIS OPERATION.

ROADSIDE SIGNS

1. VERTICAL ALIGNMENT
POSITION PANEL SO FACE IS PLUMB.
2. HORIZONTAL ALIGNMENT (SEE DIAGRAM ABOVE)
 - A) ON STRAIGHT ROADWAY SECTIONS, ANGLE OF SIGN FACE TO ROADWAY VARIES WITH DISTANCE FROM TRAVELLED ROADWAY TO NEAR EDGE OF SIGN - SEE DIAGRAM.
 - B) ON THE INSIDE OF HORIZONTAL CURVES, POSITION SIGN SO FACE OF PANEL MAKES AN ANGLE OF 90° WITH A CHORD BETWEEN A POINT ON NEAR EDGE OF PAVEMENT AT SIGN LOCATION AND A POINT ON EDGE OF PAVEMENT 500' IN ADVANCE OF SIGN.
 - C) ON THE OUTSIDE OF HORIZONTAL CURVES, POSITION SIGN SO FACE OF PANEL IS AT RIGHT ANGLES TO THE TANGENT OF THE CURVE AT THE SIGN LOCATION.
 - D) POSITIONING OF SIGNS AT GORES AND RAMP SEPARATIONS IS REFERRED TO THE NORMAL EDGE OF THE MAINLINE ROADWAY.

OVERHEAD SIGNS

1. VERTICAL ALIGNMENT
POSITION PANELS FOR ALL OVERHEAD STRUCTURES SO THAT PANEL FACE IS PLUMB.
2. OVERHEAD SIGN STRUCTURES SHALL NOT BE ERECTED WITHOUT ATTACHING LUMINAIRES, SUPPORTS, AND/OR SIGNS.
3. HORIZONTAL ALIGNMENT
 - A) POSITION ALL OVERHEAD SIGNS SO THAT THE FACE OF THE PANEL IS AT RIGHT ANGLES TO THE NORMAL EDGE OF ROADWAY, IF ON A STRAIGHT ROADWAY SECTION.
 - B) POSITION ALL OVERHEAD SIGNS SO THAT THE FACE OF THE PANEL IS AT RIGHT ANGLES TO THE TANGENT OF THE CURVE AT SIGN LOCATION, IF ON A HORIZONTAL CURVE.
 - C) POSITIONING OF SIGNS AT GORES AND RAMP SEPARATIONS IS REFERRED TO THE NORMAL EDGE OF THE MAINLINE ROADWAY.
4. VERTICAL CLEARANCE
 - A) OVERHEAD SIGNS SHALL HAVE A MINIMUM VERTICAL CLEARANCE OF 17'-9" FROM ROADWAY TO THE BOTTOM OF LIGHT FIXTURES. ALL LIGHT FIXTURES ARE TO BE AT THE SAME ELEVATION.
 - B) IF THE CONTRACTOR CANNOT OBTAIN 17'-9" (SEE 3A) CLEARANCE, HE IS TO CEASE WORK AND CONTACT THE PROJECT ENGINEER FOR FURTHER INSTRUCTIONS. THE PROJECT ENGINEER MAY CONTACT THE TRAFFIC ENGINEERING DESIGN DIVISION FOR ASSISTANCE.
 - C) ON ALL OVERHEAD SIGNS, THE MINIMUM CLEARANCE TO BOTTOM OF DESIGN SIGN: 20'-9".

PROJECT REQUIREMENTS

ALL NEW SIGNS ON THIS PROJECT SHALL BE FABRICATED FROM SHEETING WHICH MEETS ALL OF THE FOLLOWING REQUIREMENTS, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS DIRECTED BY THE ENGINEER:

1. SHEETING SHALL MEET THE REQUIREMENTS OF SECTIONS 813 AND 950.03 OF MDOT SHA'S STANDARD SPECIFICATIONS FOR CONSTRUCTION AND MATERIALS 2017 EDITION AND SUBSEQUENT REVISIONS AND SUPPLEMENTS.
2. LISTED ON MDOT SHA OFFICE OF TRAFFIC AND SAFETY'S QUALIFIED PRODUCTS LIST (QPL).

PROJECT REQUIREMENTS CONTINUED

3. THE FOLLOWING TYPES OF SHEETING SHALL BE USED FOR THE SPECIFIED SIGN CLASSIFICATIONS:

GENERAL NOTE: ALL COLORS SHALL BE RETROREFLECTIVE EXCEPT BLACK. BLACK TEXT, BORDERS, SYMBOLS OR ANY BLACK ELEMENTS OF ANY SIGN SHALL BE NON-REFLECTIVE. THIS APPLIES TO ALL MDOT SHA SIGNS AS SHOWN BELOW.

A) GUIDE, EXIT GORE, GENERAL INFORMATION, AND SERVICE SIGNS - FALL INTO TWO SUB CATEGORIES:

- (I). GROUND MOUNTED:
ALL RETROREFLECTIVE SHEETING ELEMENTS OF THESE SIGNS SHALL MEET OR EXCEED THE REQUIREMENTS FOR ASTM TYPE IX (9).
- (II). OVERHEAD STRUCTURE SIGNS AND OVERHEAD CANTILEVER SIGNS:
ALL RETROREFLECTIVE SHEETING ELEMENTS OF ALL OVERHEAD SIGNS SHALL MEET OR EXCEED THE REQUIREMENTS FOR ASTM TYPE XI (11). (THIS SECTION DOES NOT APPLY TO OVERHEAD SIGNALIZED INTERSECTION SIGNING; MAST ARM OR SPAN WIRE. FOLLOW THE REQUIREMENTS FOR THE RESPECTIVE SIGN CLASSIFICATION FOR SIGNAL SIGNING.)

B) WARNING SIGNS - RETROREFLECTIVE SHEETING FOR WARNING SIGNS (FLUORESCENT YELLOW AND FLUORESCENT ORANGE) SHALL MEET OR EXCEED THE REQUIREMENTS FOR ASTM TYPE IX (9). REGULATORY MESSAGES WITHIN WARNING SIGNS SHALL FOLLOW THE REQUIREMENTS FOR REGULATORY SIGNS.

C) SCHOOL SIGNS - RETROREFLECTIVE SHEETING FOR SCHOOL SIGNS (FLUORESCENT YELLOW AND FLUORESCENT YELLOW-GREEN) SHALL MEET OR EXCEED THE REQUIREMENTS FOR ASTM TYPE IX (9). REGULATORY MESSAGES WITHIN SCHOOL SIGNS SHALL FOLLOW THE REQUIREMENTS FOR REGULATORY SIGNS.

D) REGULATORY SIGNS - FALL INTO THREE SUBCATEGORIES:

- (I). "RED" REGULATORY SIGNS; (SPECIFICALLY - STOP, YIELD, DO NOT ENTER AND WRONG WAY). ALL RETROREFLECTIVE SHEETING ELEMENTS OF THESE SIGNS SHALL MEET OR EXCEED THE REQUIREMENTS FOR ASTM TYPE IX (9).
- (II). ALL R7 AND R8 SERIES PARKING RELATED SIGNS AND THEIR SUPPLEMENTAL PANELS, NO TRESPASSING SIGNS, AND SIGNS DIRECTED AT PEDESTRIANS AND BICYCLISTS ONLY. ALL RETROREFLECTIVE SHEETING ELEMENTS OF THESE SIGNS SHALL MEET THE REQUIREMENTS FOR ASTM TYPE IV (4).
- (III). ALL OTHER REGULATORY SIGNS - ALL RETROREFLECTIVE SHEETING ELEMENTS OF THESE SIGNS SHALL MEET ASTM TYPE IV (4) INCLUDING RED ELEMENTS. WARNING MESSAGES WITHIN REGULATORY SIGNS SHALL FOLLOW THE REQUIREMENTS FOR WARNING SIGNS.

E) ROUTE MARKERS (INDEPENDENT USE AND GUIDE SIGN USE)

INDEPENDENT USE: ALL RETROREFLECTIVE SHEETING ELEMENTS OF THESE SIGNS SHALL MEET BUT NOT TO EXCEED THE REQUIREMENTS FOR ASTM TYPE IV (4).

GUIDE SIGN USE: WHEN INCORPORATED IN THE BODY OF A GUIDE SIGN, ALL RETROREFLECTIVE SHEETING ELEMENTS OF THESE SIGNS SHALL MEET THE SHEETING REQUIREMENTS OF THE GUIDE SIGNS FOR WHICH THEY ARE TO BE APPLIED; GROUND MOUNT ASTM TYPE IX (9) OR OVERHEAD ASTM TYPE XI (11).


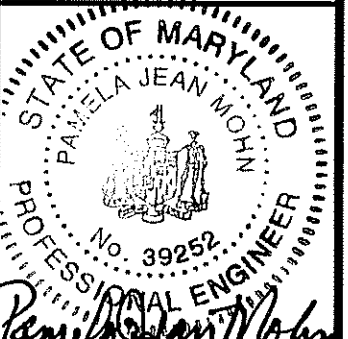
F) LOGOS AND / OR GRAPHICS - WITHIN SIGNS SHALL FOLLOW THE REQUIREMENTS FOR THE RESPECTIVE SIGN CLASSIFICATION UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS, OR AS DIRECTED BY THE ENGINEER.

G) SPECIFIC SERVICE (LOGO) SIGNING - ALL COPY, DIVIDER BORDERS, LOGOS AND ARROWS SHALL BE DEMOUNTABLE ALUMINUM OVERLAYS, .032 MINIMUM TO .063 MAXIMUM. ALL RETROREFLECTIVE SHEETING ELEMENTS OF THESE SIGNS SHALL MEET OR EXCEED THE REQUIREMENTS FOR ASTM TYPE IX (9). DISTANCES ON DIRECTIONAL ARROWS WHEN SPECIFIED SHALL BE BLACK. THE OVERLAYS ARE TO BE APPLIED WITH .125 ALUMINUM POP RIVETS TO THE BODY OF THE MAIN SIGN.

H) CIVIL DEFENSE SIGNS AND OTHER SIGNS - NOT SPECIFICALLY FALLING INTO ONE OF THE CATEGORIES ABOVE, SHALL FOLLOW THE GUIDELINES FOR THE SIGN CLASSIFICATION THAT MOST CLOSELY MATCHES THE COLOR(S) OF THE PROPOSED SIGN.

4. THE FOLLOWING MINIMUM THICKNESS SHALL BE USED FOR THE APPROPRIATE WIDTH OF SHEET ALUMINUM BLANKS:

LONGEST DIMENSION	MINIMUM THICKNESS
UP TO 12"	0.040"
GREATER THAN 12" TO 24"	0.063"
GREATER THAN 24" TO 36"	0.080"
GREATER THAN 36" TO 48"	0.100"
OVER 48"	0.125"

DATE						
BY						
REVISION DESCRIPTION						
NO.						
DESIGNED BY: SH/PJM	DRAWN BY: GLJ	CHECKED BY: PJM/TP	DATE: 05-17-22			
WASHINGTON COUNTY, MARYLAND DIVISION OF ENGINEERING  Washington County Administrative Annex, Building 747 Northern Avenue, Hagerstown, Maryland, 21742 Phone: 240-313-2460 Fax: 240-313-2401						
SHOWALTER ROAD AND CRAYTON BOULEVARD INTERSECTION TRAFFIC SIGNAL SIGNAGE NOTES						
 SCALE NONE						
SHEET NO.						
08 OF 11						
PROJECT NO.						
16 - 040						

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SQUARE FOOT AREAS OF SYMBOLS AND ARROWS		
SYMBOL	DESCRIPTION	AREA (SQ. FT.)
↑	THROUGH LANE-USE	12.5
↩	TURN LANE-USE (LEFT OR RIGHT)	15.5
↔	TURN AND THROUGH LANE-USE (LEFT OR RIGHT)	20.5
↻	LEFT AND RIGHT TURN LANE-USE	27.0
↻	ALL DIRECTIONS LANE-USE	38.5
↑	LANE-REDUCTION (LEFT OR RIGHT)	42.0
↑	FREEMAY, EXPRESSWAY AND RAMP ARROW	24.4
↑	WRONG WAY ARROW	23.8
↑	HOV LANE	13.5
♿	ACCESSIBILITY SYMBOL (BLUE BACKGROUND)	
♿	40"x40" (STANDARD)	11.5
♿	48"x48" (SPECIAL)	16.0
♿	RAILROAD-CROSSING	64.7 (TOTAL)
♿	10' (6" HIGH)	3.6 (EACH)
♿	2" (20" HIGH)	57.5
♿	YIELD AHEAD TRIANGLE	
♿	POSTED SPEED LIMIT 45 MPH OR GREATER	43.0
♿	POSTED SPEED LIMIT LESS THAN 45 MPH	34.0
♿	SHARKS TEETH	
♿	POSTED SPEED LIMIT LESS THAN 45 MPH	0.75
♿	24"x36" POSTED SPEED LIMIT 45 MPH OR GREATER	3.0
♿	BIKE LANE DETECTOR	1.0
♿	SHARED LANE (10'x112')	9.0
♿	BIKE LANE ARROW (24"x72')	5.0
♿	BIKE LANE (STANDARD) (40"x72')	5.0
♿	BIKE LANE (FOR USE ON PRIVATE ROADWAYS) (40"x72')	6.0

SQUARE FOOT AREAS OF LEGENDS		
LEGEND	SIZE/DESCRIPTION	AREA (SQ. FT.)
HEAD	8" HIGH	29.0
LANE LEFT	8" HIGH (STANDARD)	22.3
LANE LEFT ONLY	8" HIGH	18.2
PEDESTRIAN	8" HIGH	17.3
RIGHT	8" HIGH (STANDARD)	24.5
SCHOOL	8" HIGH (STANDARD)	32.3
	10" HIGH (ACROSS TWO LANES)	94.0
SLOW STOP	8" HIGH	22.8
TURN	8" HIGH	22.8
WING	8" HIGH	20.3
YIELD	8" HIGH	22.3

SQUARE FOOT AREAS OF NUMBERS		
SIZE	NUMBER	AREA (SQ. FT.)
SMALL (6 FT.)	1 2 3 4 5 6 7 8 9 0	1.5 3.3 3.3 2.9 3.5 3.5 2.2 3.8 3.5 3.4
LARGE (18 FT.)	1 2 3 4 5 6 7 8 9 0	2.6 5.8 5.8 5.1 6.1 6.2 3.8 6.2 6.2 6.0

SQUARE FOOT AREAS OF LETTERS		
SIZE	LETTER	AREA (SQ. FT.)
SMALL (6 FT.)	A B C D E F G H I J K	1.1 4.0 2.7 3.4 3.3 2.6 3.3 2.4 1.5 2.1 3.7
LARGE (18 FT.)	A B C D E F G H I J K	5.5 7.1 4.8 6.1 5.9 4.7 5.8 6.0 2.6 3.7 5.7
	L M N O P Q R S T U V W X Y Z	2.2 4.2 4.0 3.4 3.0 3.6 3.6 3.2 2.2 3.2 2.7 4.2 2.7 2.2 2.9 3.8 7.4 7.1 6.0 5.3 6.3 6.3 5.7 3.8 5.6 4.8 7.3 4.8 3.9 5.1

NOTE: REFER TO THE MOST RECENT VERSION OF THE MARYLAND MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND THE FHWA STANDARD HIGHWAY SIGNS MANUAL FOR DIMENSIONS OF ALL PAVEMENT MARKING LETTERS, SYMBOLS, ARROWS, AND NUMBERS.

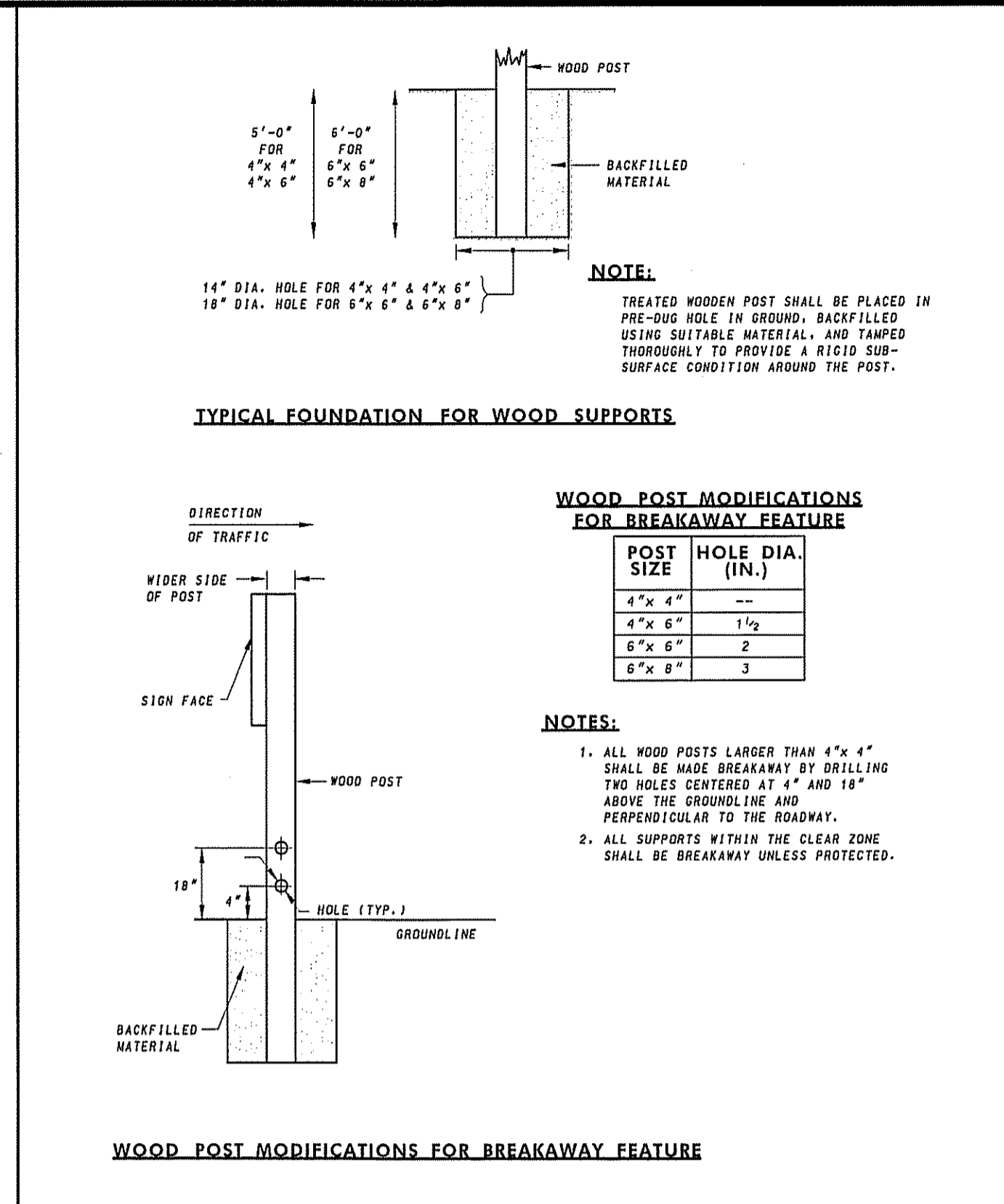
APPROVED: *[Signature]*
 DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL - SHA REVISIONS HIGHWAY ADMINISTRATION
 APPROVED: 5-21-14
 REVISIONS: 5-23-14

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

SQUARE FOOT AREAS OF PAVEMENT MARKING LETTERS, SYMBOLS, ARROWS AND NUMBERS

STANDARD NO. MD 550.01



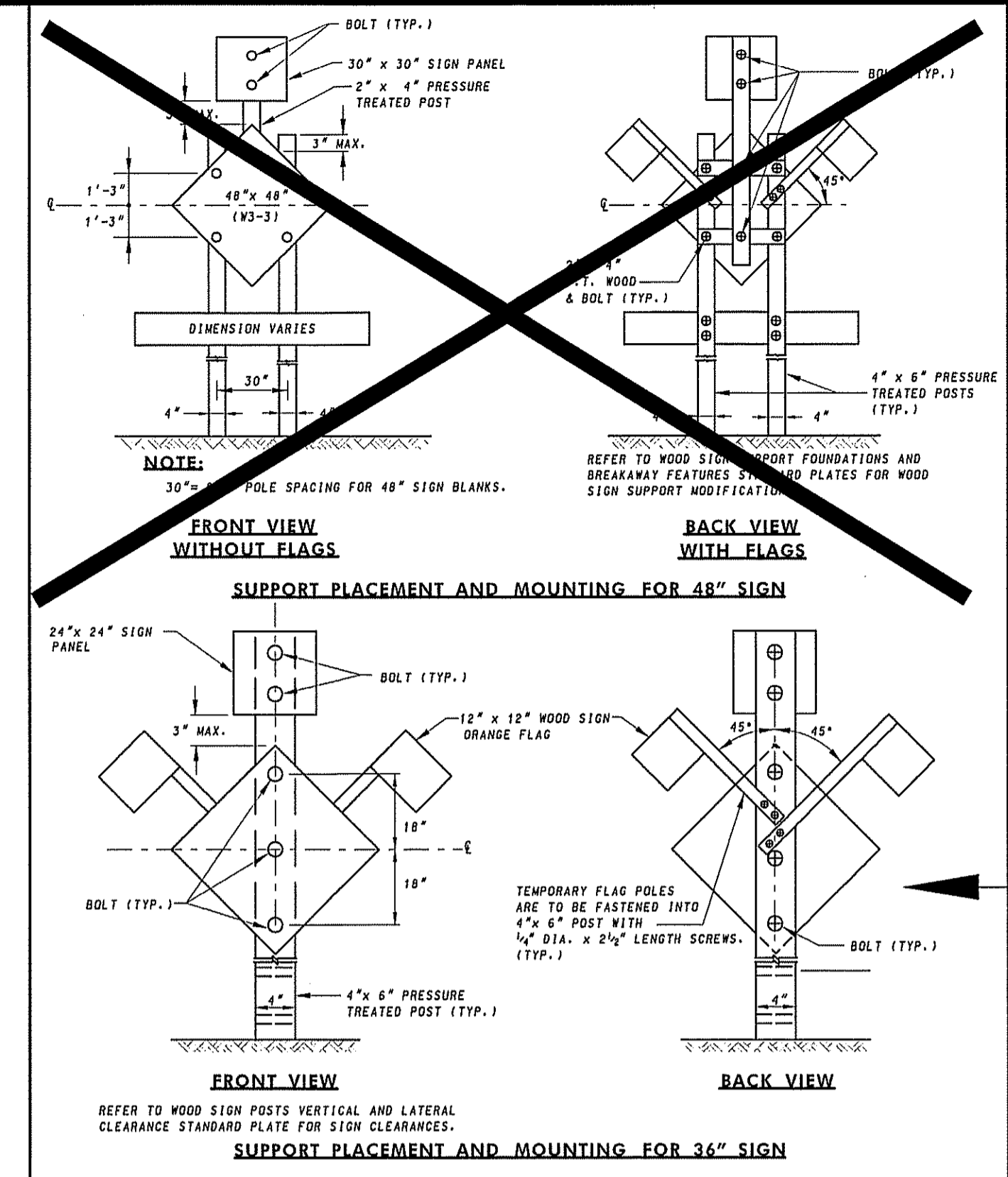
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APPROVAL - SHA REVISIONS HIGHWAY ADMINISTRATION
 APPROVED: 10-10-00
 REVISIONS: 5-17-07

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

WOOD SIGN SUPPORT FOUNDATIONS AND BREAKAWAY FEATURES

STANDARD NO. MD 812.01



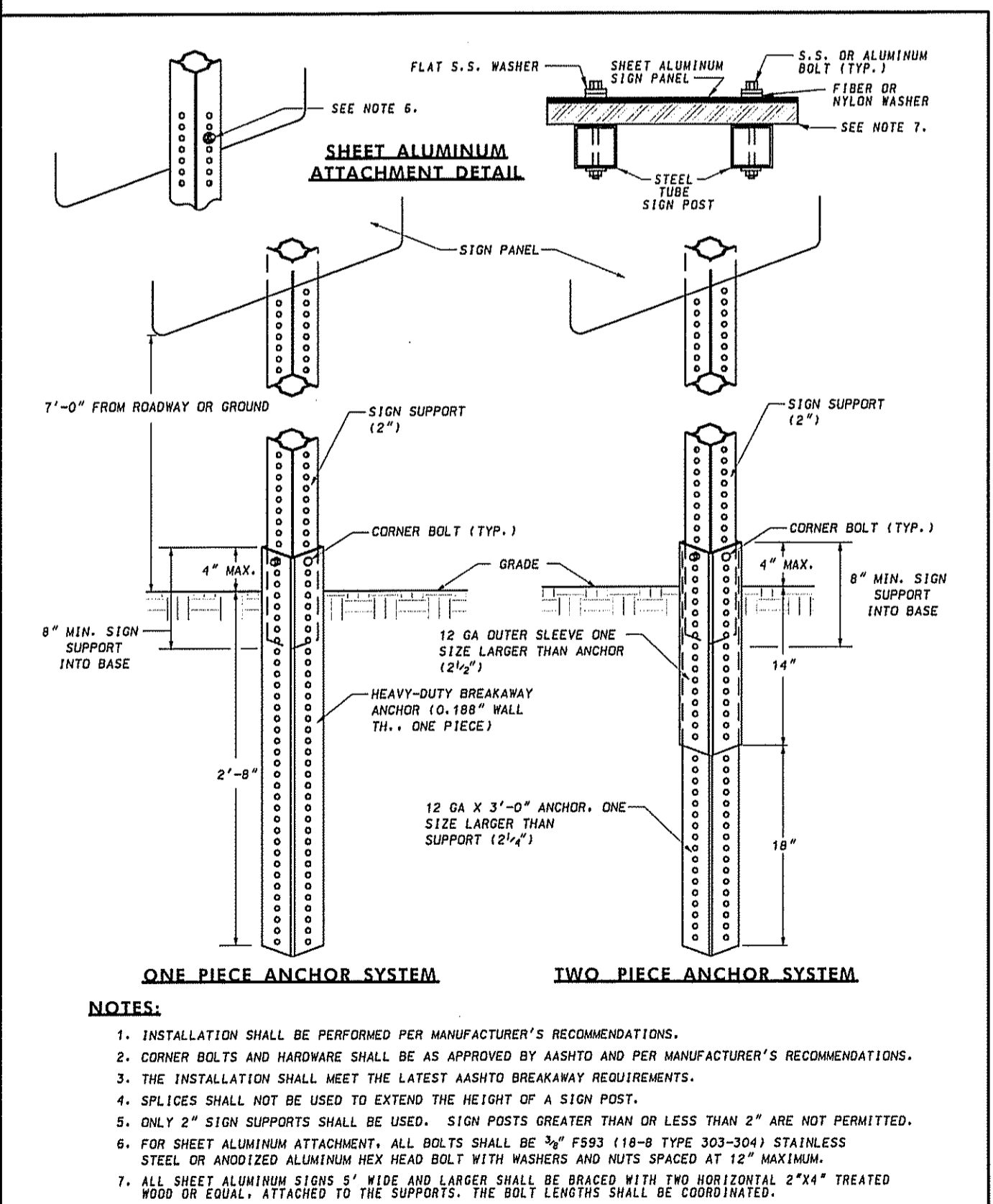
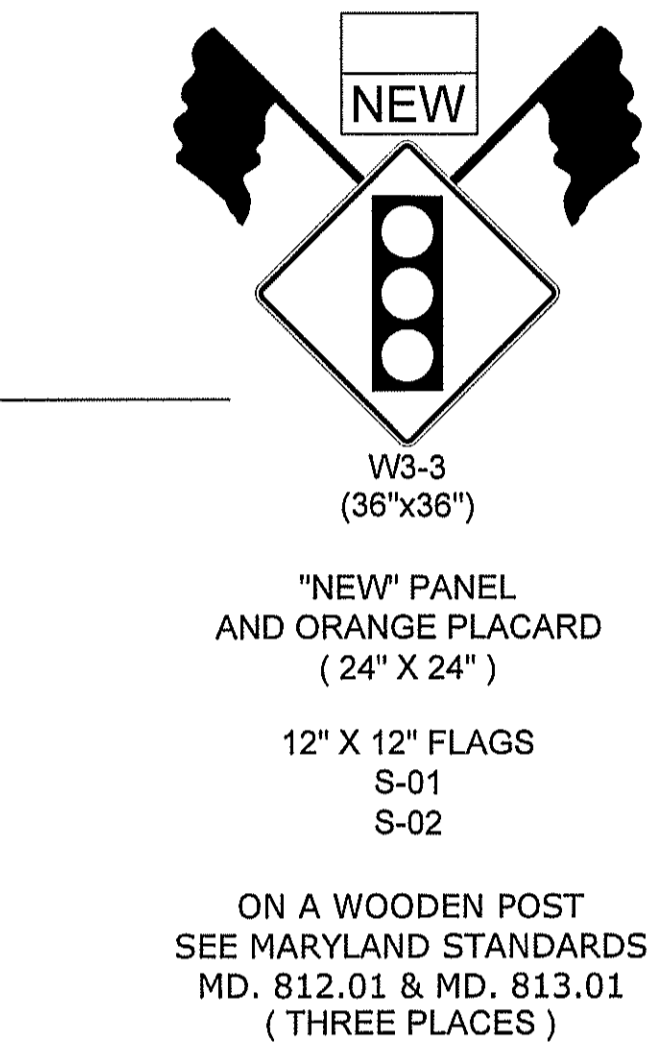
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 DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL - SHA REVISIONS HIGHWAY ADMINISTRATION
 APPROVED: 7-1-14
 REVISIONS: 5-17-07

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

GROUND MOUNTED SIGN DETAILS (W3-3 NEW)

STANDARD NO. MD 813.01



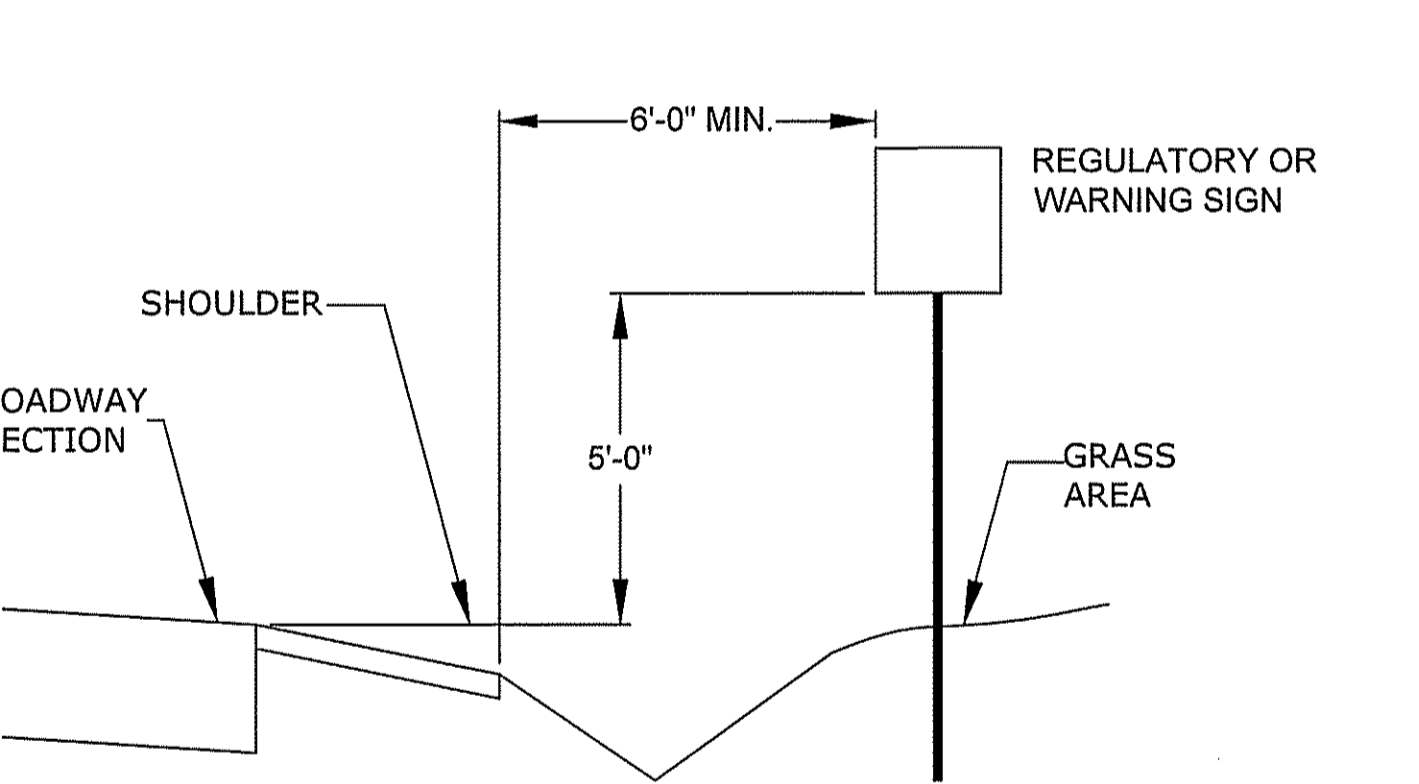
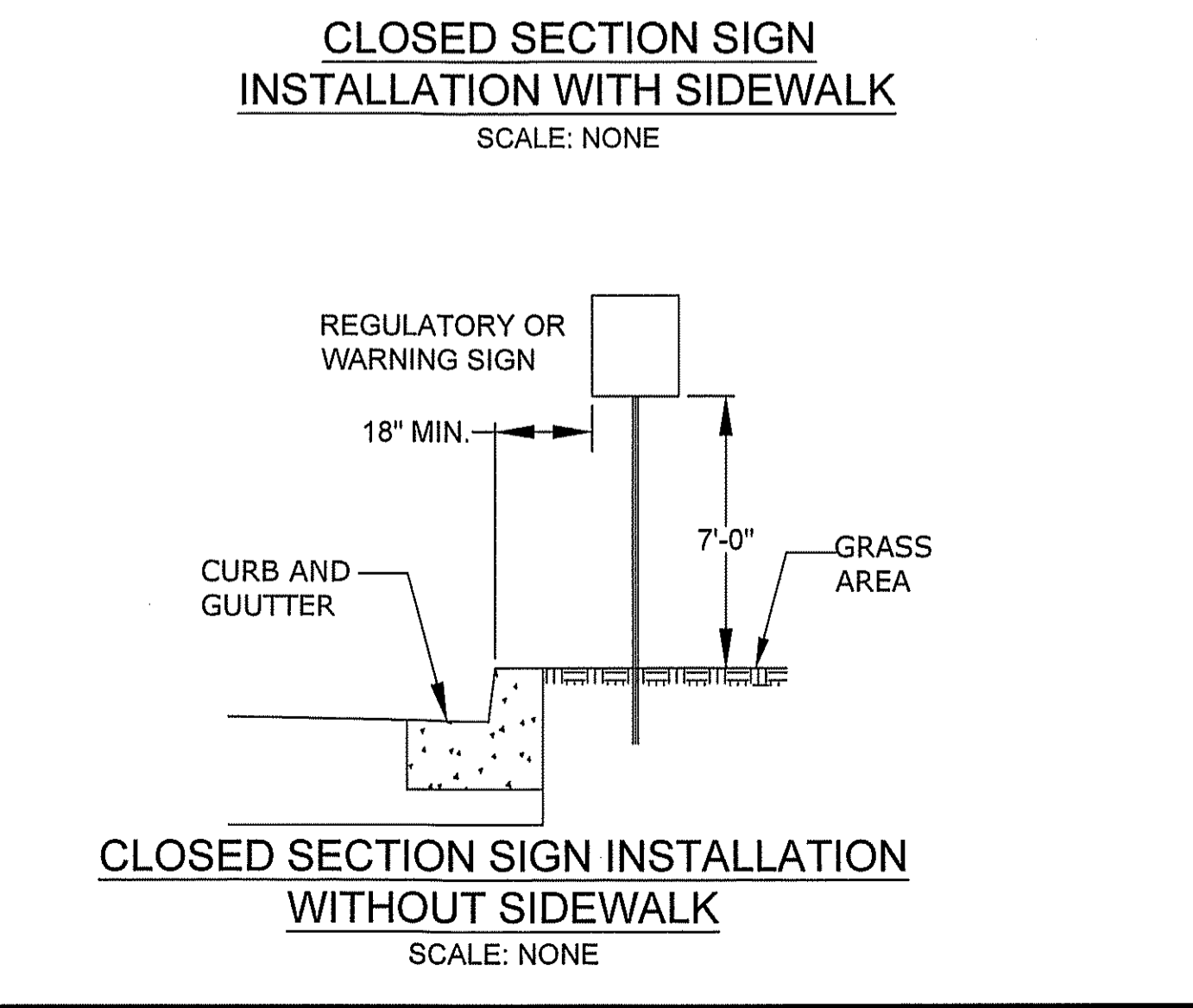
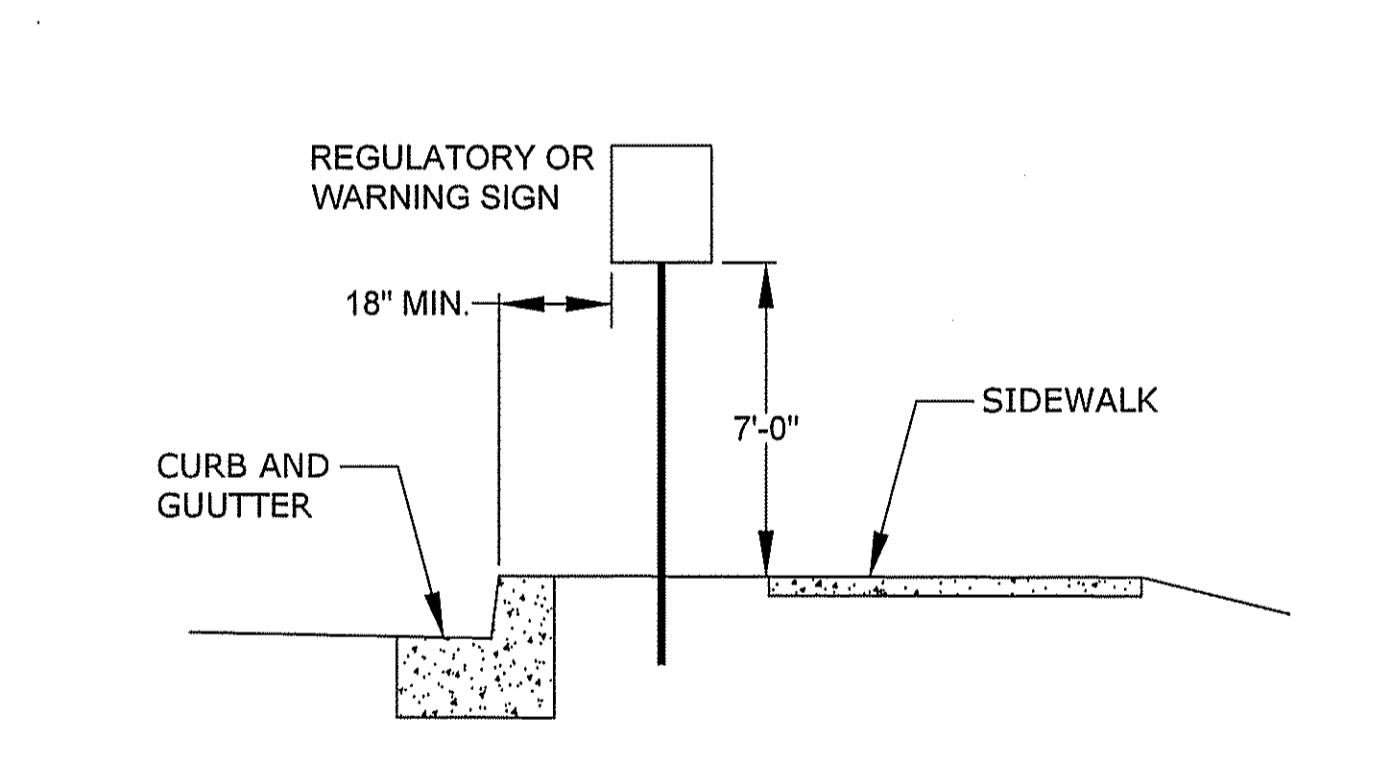
APPROVED: *[Signature]*
 DIRECTOR - OFFICE OF TRAFFIC AND SAFETY

APPROVAL - SHA REVISIONS HIGHWAY ADMINISTRATION
 APPROVED: 5-17-07
 REVISIONS: 5-23-07

Maryland Department of Transportation
STATE HIGHWAY ADMINISTRATION
 STANDARDS FOR HIGHWAYS AND INCIDENTAL STRUCTURES

BREAKAWAY TUBULAR STEEL SIGN SUPPORTS

STANDARD NO. MD 802.04



DATE	
BY	
REVISION DESCRIPTION	
NO.	
DESIGNED BY: SH / PJM	GLJ
DRAWN BY:	
CHECKED BY: PJM / TP	
DATE: 05-17-22	

WASHINGTON COUNTY, MARYLAND
 DIVISION OF ENGINEERING

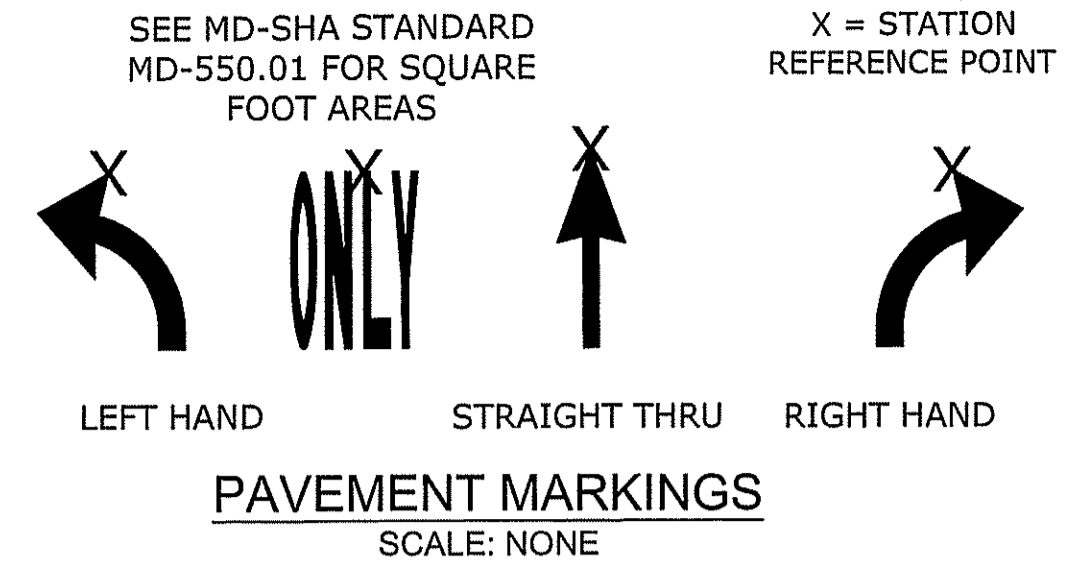
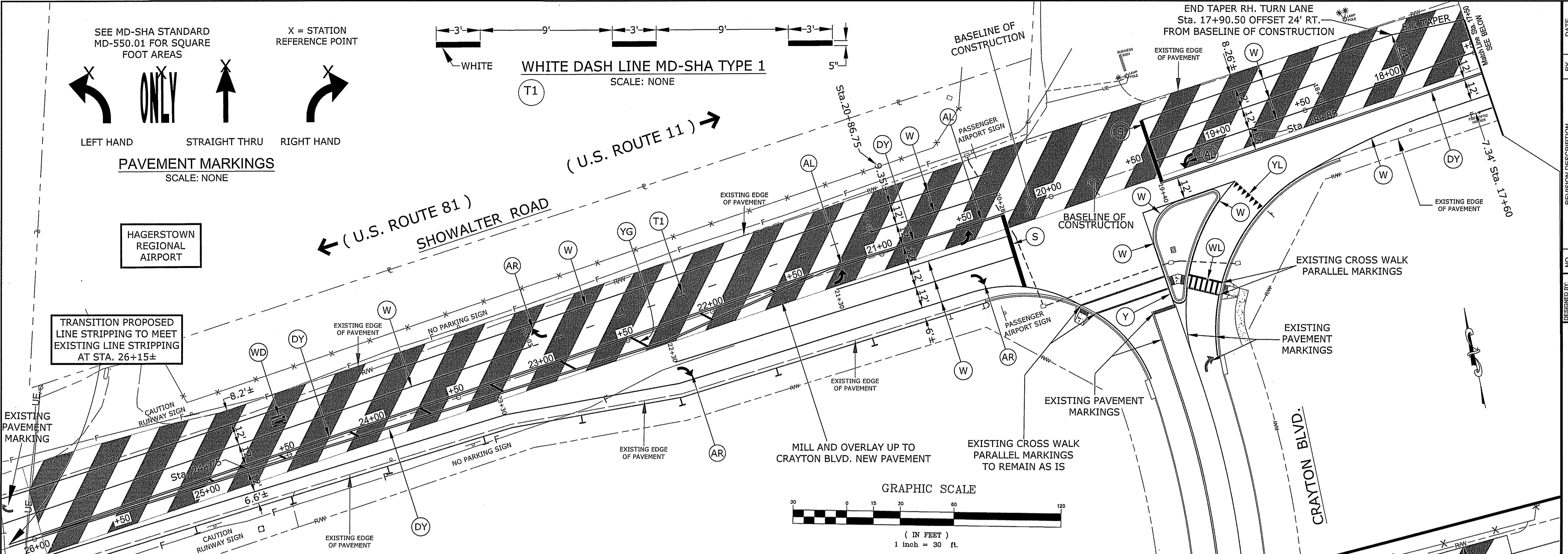
Washington County Administrative Annex, Building
 747 Northern Avenue, Hagerstown, Maryland, 21742
 Phone: 240-313-2460 Fax: 240-313-2401

STATE OF MARYLAND
 PROFESSIONAL ENGINEER
 No. 39250
 R. J. [Signature]

SCALE: NONE

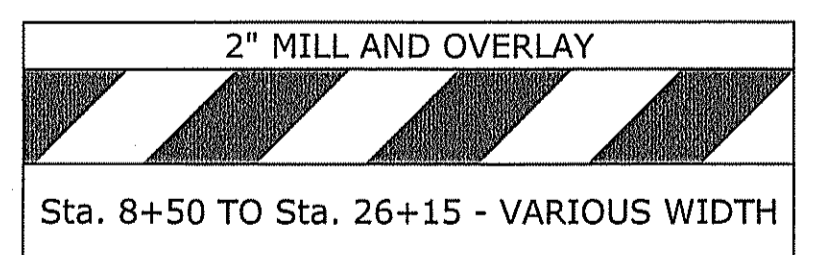
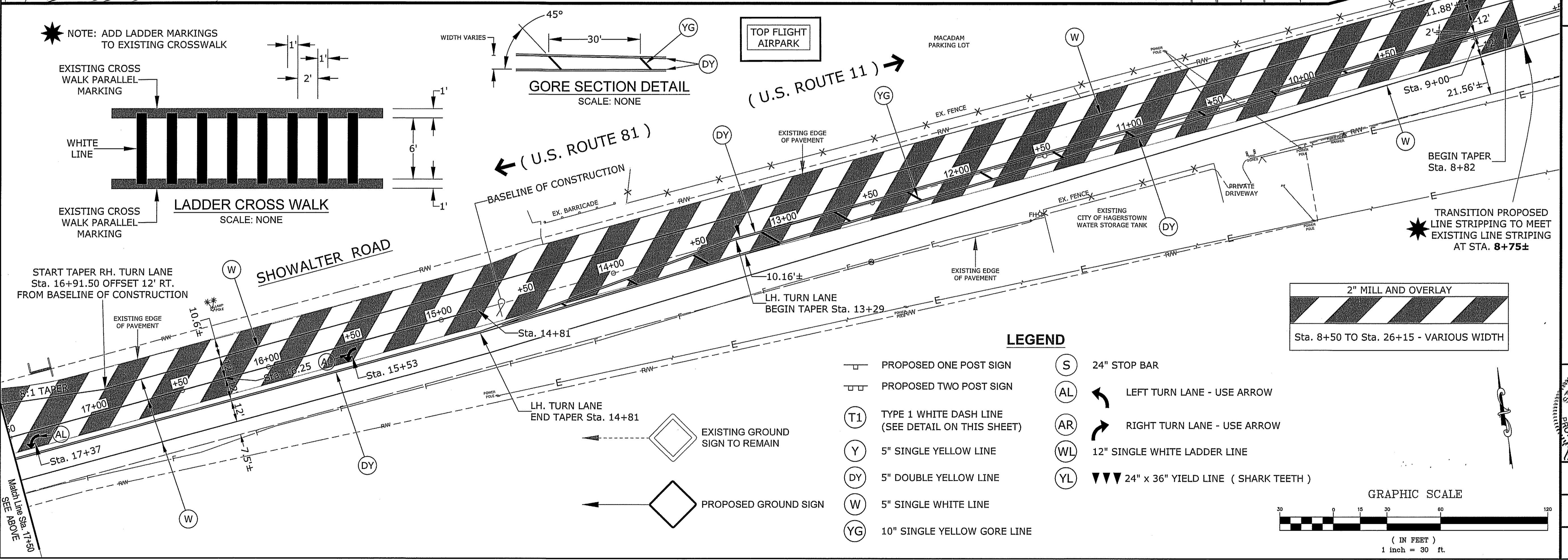
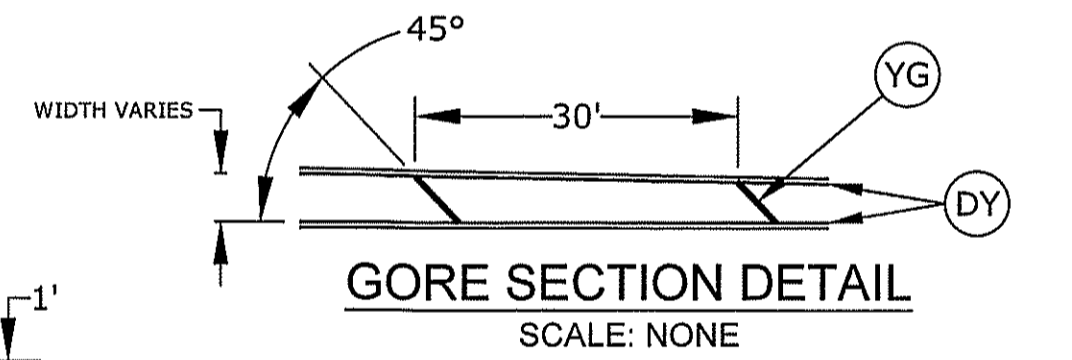
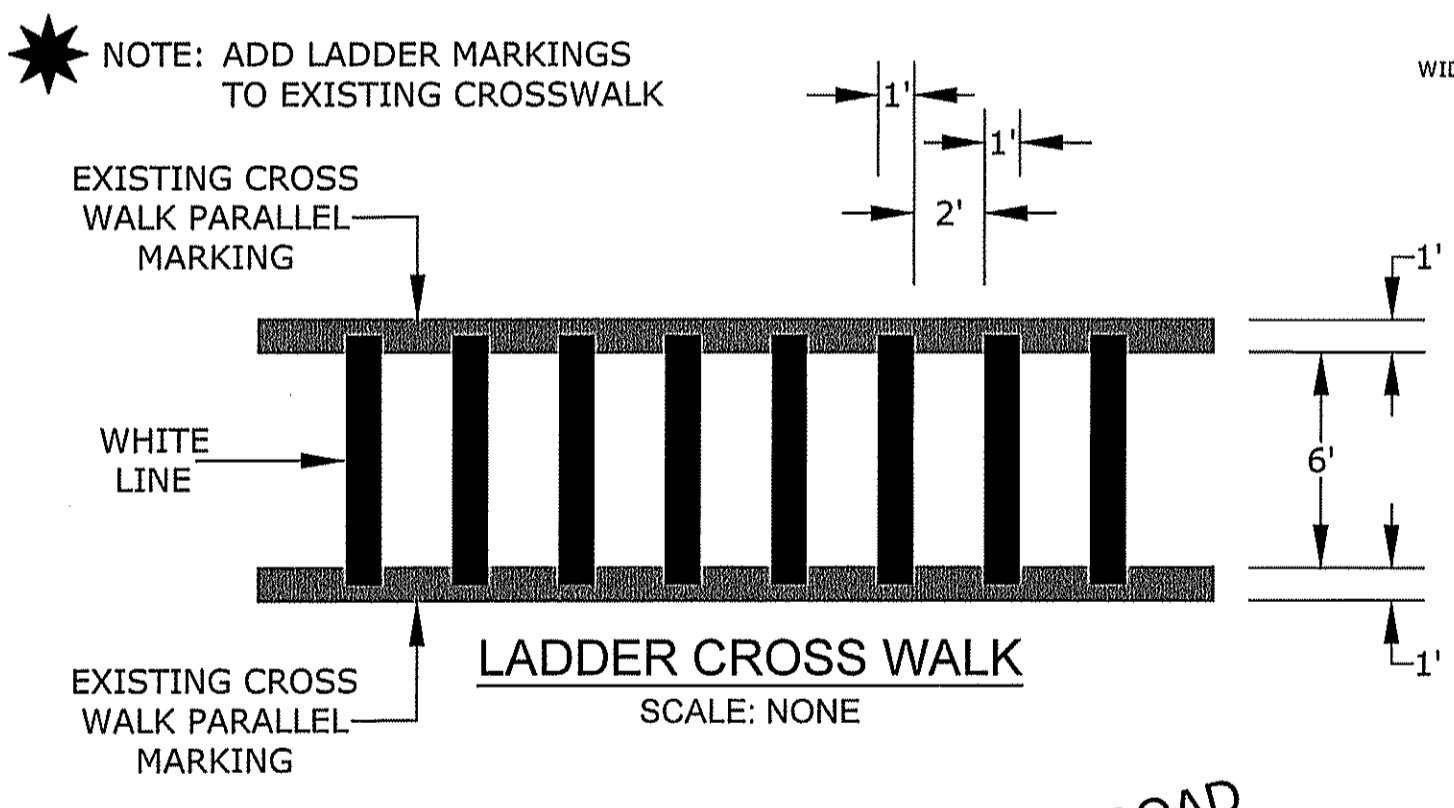
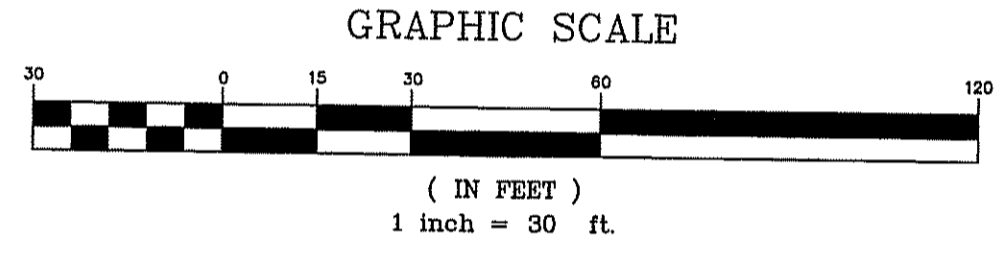
SHEET NO. 09 OF 11

PROJECT NO. 16-040

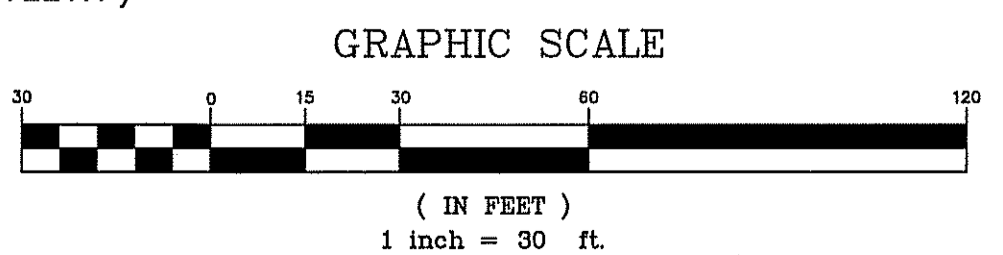


HAGERSTOWN REGIONAL AIRPORT

TRANSITION PROPOSED LINE STRIPPING TO MEET EXISTING LINE STRIPPING AT STA. 26+15±



- LEGEND**
- PROPOSED ONE POST SIGN
 - PROPOSED TWO POST SIGN
 - (T1) TYPE 1 WHITE DASH LINE (SEE DETAIL ON THIS SHEET)
 - (Y) 5" SINGLE YELLOW LINE
 - (DY) 5" DOUBLE YELLOW LINE
 - (W) 5" SINGLE WHITE LINE
 - (YG) 10" SINGLE YELLOW GORE LINE
 - (S) 24" STOP BAR
 - (AL) LEFT TURN LANE - USE ARROW
 - (AR) RIGHT TURN LANE - USE ARROW
 - (WL) 12" SINGLE WHITE LADDER LINE
 - (YL) 24" x 36" YIELD LINE (SHARK TEETH)
 - ◇ EXISTING GROUND SIGN TO REMAIN
 - ◇ PROPOSED GROUND SIGN



DATE	
BY	
REVISION DESCRIPTION	
NO.	
DESIGNED BY: SH / PJM	
DRAWN BY: GLJ	
CHECKED BY: PJM / TP	
DATE: 05-17-22	

WASHINGTON COUNTY, MARYLAND
DIVISION OF ENGINEERING

Washington County Administrative Annex Building
747 Northern Avenue, Hagerstown, Maryland, 21742
Phone: 240-313-2460 Fax: 240-313-2401

STATE OF MARYLAND
PAULINE BEAR BRADY
Professional Engineer
No. 39250
K. M. Johnson

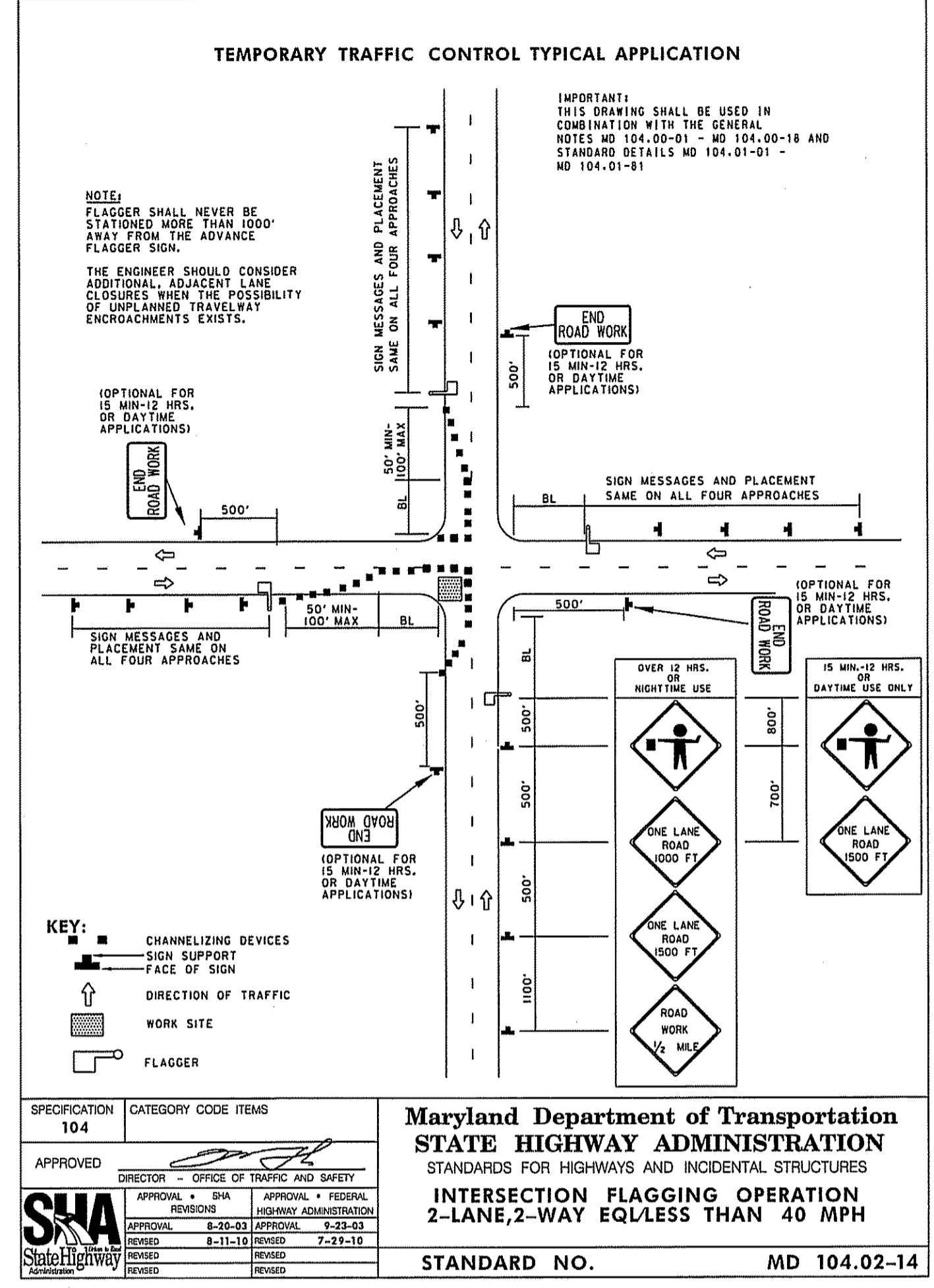
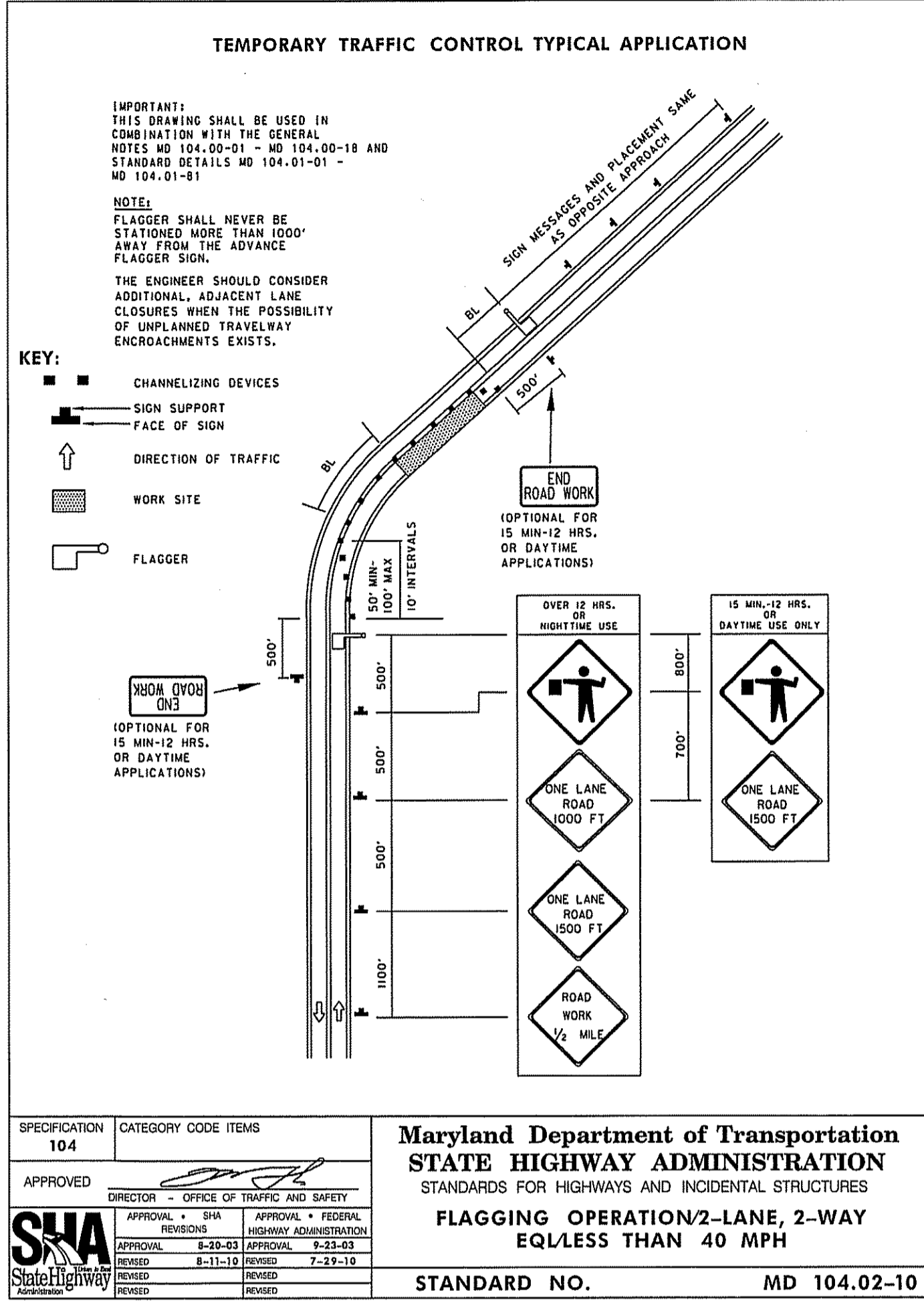
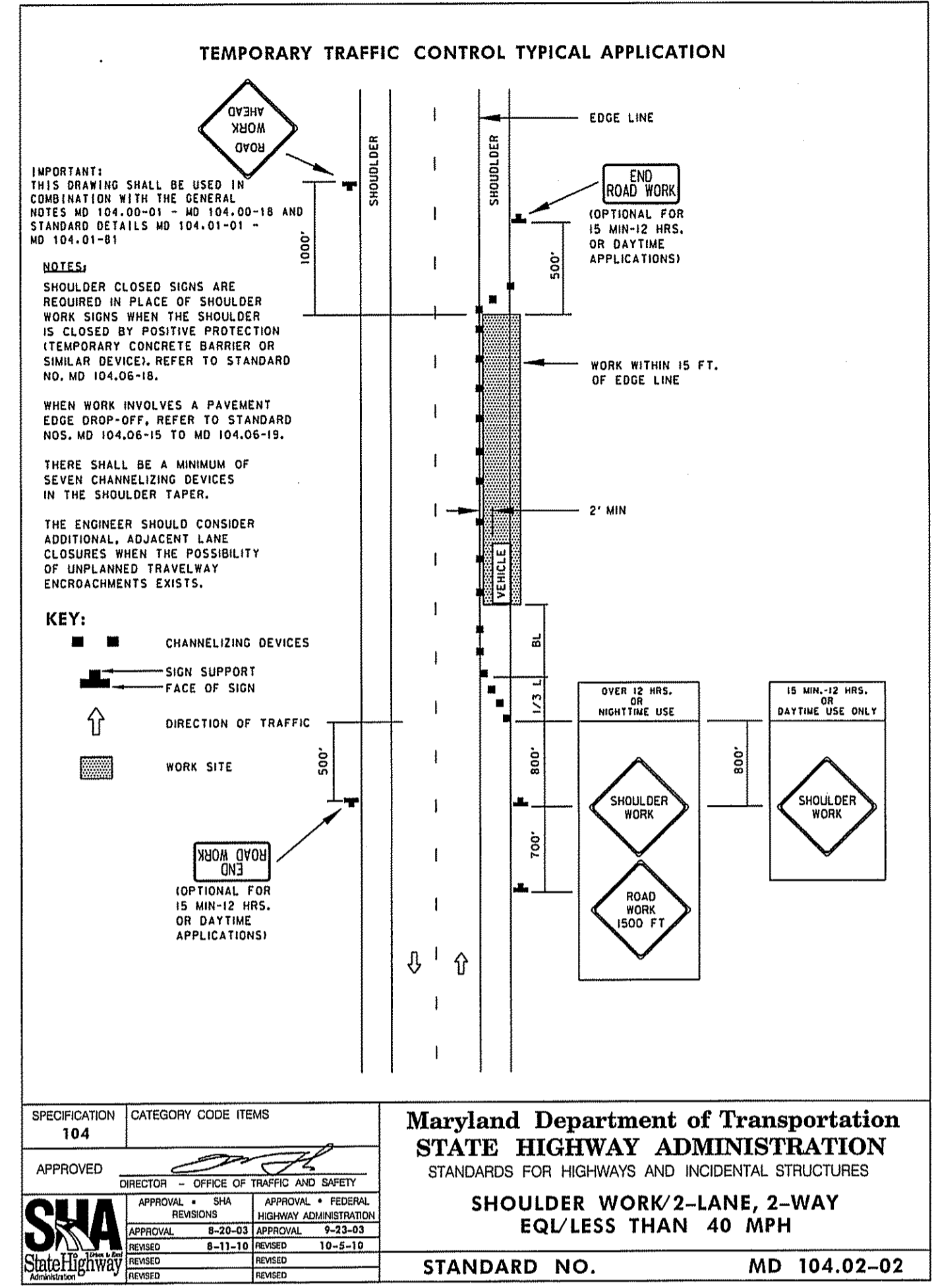
SCALE
1" = 30'

SHEET NO.
10 OF 11

PROJECT NO.
16 - 040

SHOWALTER ROAD AND
CRAYTON BOULEVARD INTERSECTION
PAVEMENT MARKING
& STRIPING PLAN

K:\CADD\16-040 SHOWALTER - CRAYTON SIGNAL DESIGN\CONSTRUCTION PLANS\G-TRAFFIC CONTROL\TRAFFIC CONTROL.DWG Last Saved: 5/19/2022 8:20 AM



MAINTENANCE OF TRAFFIC NOTES

- THE INTENT OF THESE NOTES & PLANS ARE TO PERFORM THE REQUIRED WORK WITH THE LEAST INCONVENIENCE TO THE TRAVELING PUBLIC AND THE MAXIMUM SAFETY OF THE CONTRACTOR. ALL CONSTRUCTION AND MATERIALS FOR THE TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH THE STANDARDS CONTAINED IN THE LATEST EDITION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), INCLUDING SUPPLEMENTAL REVISIONS, NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP), AND THE LATEST EDITION OF THE MDSHA STANDARD SPECIFICATIONS, AND SUPPLEMENTAL SPECIFICATIONS.
- SHOULD ANY PAVED AREAS NOT TO BE REMOVED, RECONSTRUCTED AND/OR RESURFACED BECOME DAMAGED OR DESTROYED, DUE TO THE CONTRACTOR'S NEGLIGENCE OR FAILURE TO PROVIDE ADEQUATE SIGNS, BARRICADES, CONES, FLAGGERS OR OTHER TRAFFIC CONTROL DEVICES, THE RESTORATION OF THE PAVED AREAS SHALL BE AT THE CONTRACTOR'S EXPENSE. THIS RESTORATION SHALL BE TO THE SATISFACTION OF THE ENGINEER.
- TRAVEL LANES SHALL BE A MINIMUM OF TEN FEET IN WIDTH AND TWELVE FEET ON INTERSTATE RAMP. IN THE EVENT THAT LANE CLOSURES ARE REQUIRED & APPROVED BY THE ENGINEER, THE APPROPRIATE SIGNING & FLAGGING OPERATION SHALL BE USED IN ACCORDANCE WITH MUTCD. ALL LANES SHALL BE REOPENED TO TWO WAY TRAFFIC WHEN WORK IS SUSPENDED.
- IF A PAVEMENT DROP-OFF MEASURES GREATER THAN 4", A 2:1 SLOPE OF COMPACTED CRUSHER GRAVEL WILL BE REQUIRED.
- ALL OPEN TRENCHES SHALL BE CLOSED WHEN WORK IS SUSPENDED. IF STEEL PLATES ARE TO BE USED, APPROPRIATE SIGNING WILL BE REQUIRED. ALL PLATES SHALL IN TRAFFIC LANES SHALL BE STAKED AND WEDGED WITH ASPHALT.
- ALL SIGNS THAT DO NOT APPLY SHALL BE COVERED.
- ACCESS SHALL BE PROVIDED TO ALL EXISTING DRIVEWAYS AND BUSINESSES AT ALL TIMES. DISTURBANCE TO LOCAL BUSINESS OPERATIONS SHALL BE KEPT TO A MINIMUM.
- ALL CONES, DRUMS, AND FLAGGERS SHALL BE MOVED IN ACCORDANCE WITH CONSTRUCTION PROGRESS.
- UNLESS OTHERWISE SPECIFIED, VEHICLES AND EQUIPMENT SHALL ALWAYS MOVE WITH, NOT ACROSS OR AGAINST THE FLOW OF TRAFFIC, AND SHALL NOT ENTER OR LEAVE WORK AREAS IN A MANNER WHICH WILL BE HAZARDOUS TO, OR INTERFERE WITH NORMAL TRAFFIC FLOW. PERSONAL VEHICLES WILL NOT BE PERMITTED TO PARK WITHIN THE RIGHT-OF-WAY OF A TRAVELED ROADWAY, EXCEPT IN AREAS DESIGNATED BY THE ENGINEER.
- THE CONTRACTOR SHALL PROVIDE, ERECT, MAINTAIN (PROPER POSITION, CLEAN, LEGIBLE, AND IN GOOD WORKING CONDITION), AND REMOVE LIGHTS, SIGNS, DRUMS, BARRICADES, AND ALL OTHER TRAFFIC CONTROL DEVICES NECESSARY FOR THE MAINTENANCE OF TRAFFIC. PLACEMENT OF ALL TRAFFIC CONTROL DEVICES SHALL START AND PROCEED IN THE DIRECTION OF THE FLOW OF TRAFFIC. REMOVAL OF TRAFFIC CONTROL DEVICES SHALL START AT THE END OF THE CONSTRUCTION AREA AND PROCEED TOWARD ONCOMING TRAFFIC. THE CONTRACTOR SHALL PROVIDE FOR THE INSTALLATION OF ALL NECESSARY TRAFFIC CONTROL DEVICES BEFORE BEGINNING WORK AND IMMEDIATELY REMOVE THESE DEVICES WHEN WORK IS SUSPENDED OR COMPLETED. THE CONTRACTOR SHALL ALSO PROVIDE A CONTACT AVAILABLE 24/7 FOR REPAIR AND MAINTENANCE.
- ALL FINAL PAVEMENT MARKINGS SHALL BE SPOTTED AND APPROVED BY THE ENGINEER PRIOR TO FINAL MARKINGS BEING APPLIED.
- ALL SIGNS, DRUMS AND BARRICADES SHALL BE NEW OR LIKE NEW CONDITION.

DESIGNED BY:	SM/TPM	DATE:	
DRAWN BY:	GLJ	REVISION DESCRIPTION:	
CHECKED BY:	PM/TP	NO.	
DATE:	05-17-22		

WASHINGTON COUNTY, MARYLAND
 DIVISION OF ENGINEERING

Washington County Administrative Annex, Building
 100 N. Main Street, P.O. Box 21742
 Fagersheim, Md. 21742
 Phone: 240-313-2460 Fax: 240-313-2401

WASHINGTON COUNTY, MARYLAND
 DIVISION OF ENGINEERING

SHOWALTER ROAD AND
 CRAYTON BOULEVARD INTERSECTION
 TRAFFIC CONTROL PLAN
 AND NOTES

STATE OF MARYLAND
 PAMELA JEAN HOOK
 No. 39259
 PROFESSIONAL ENGINEER

SCALE
 NONE

SHEET NO.
 11 OF 11

PROJECT NO.
 16-040