

WASHINGTON STREET CORRIDOR IMPROVEMENTS

IN THE TOWN OF
HOLLISTON
MIDDLESEX COUNTY

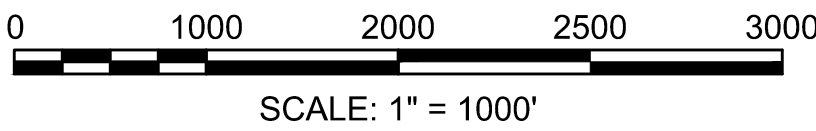
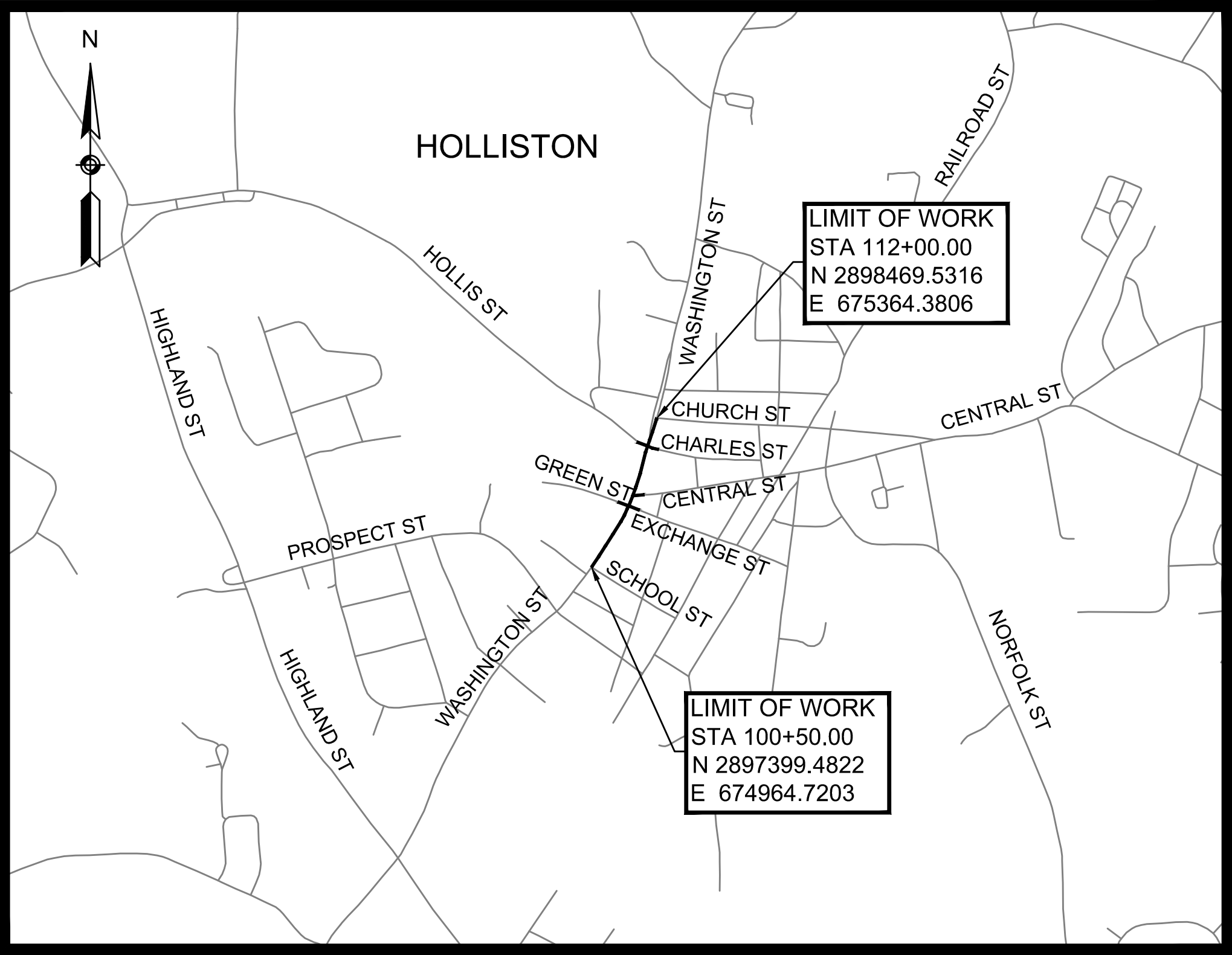
HOLLISTON
WASHINGTON ST CORRIDOR IMPROVEMENTS

SHEET NO.	TOTAL SHEETS
1	22

TITLE SHEET AND INDEX

INDEX

SHEET NO	DESCRIPTION
1	TITLE SHEET AND INDEX
2	LEGEND AND ABBREVIATIONS
3	TYPICAL SECTIONS
4 - 8	CONSTRUCTION DETAILS (1 - 5)
9 - 10	CONSTRUCTION PLANS (1 - 2)
11 - 12	TRAFFIC SIGN AND PAVEMENT MARKING PLANS (1 - 2)
13	TRAFFIC SIGN SUMMARY
14	TRAFFIC SIGNAL PLAN - EXCHANGE ST/GREEN ST/CENTRAL ST (1)
15	TRAFFIC SIGNAL PLAN - EXCHANGE ST/GREEN ST/CENTRAL ST (2)
16	TRAFFIC SIGNAL PLAN - CHARLES ST/HOLLIS ST (3)
17 - 20	TRAFFIC SIGNAL DETAILS (1 - 4)
21 - 22	TEMPORARY TRAFFIC CONTROL PLANS (1 - 2)

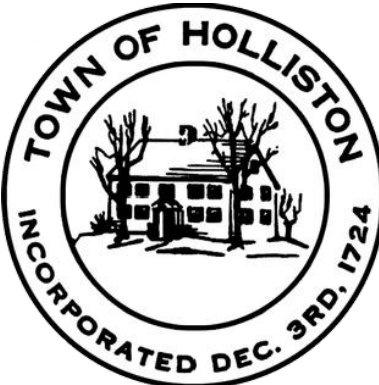


LENGTH OF PROJECT = 1450.00 FEET = 0.275 MILES

THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED JULY 1, 2015, THE LATEST EDITION OF THE SUPPLEMENTAL SPECIFICATIONS, THE DECEMBER 2016 CONSTRUCTION STANDARD DETAILS, THE 1996 CONSTRUCTION AND TRAFFIC STANDARD DETAILS (AS RELATES TO TRAFFIC STANDARD DETAILS ONLY), THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

JUNE 21, 2017

PREPARED FOR:



TOWN OF HOLLISTON
703 WASHINGTON STREET
HOLLISTON, MA 01746

PREPARED BY:



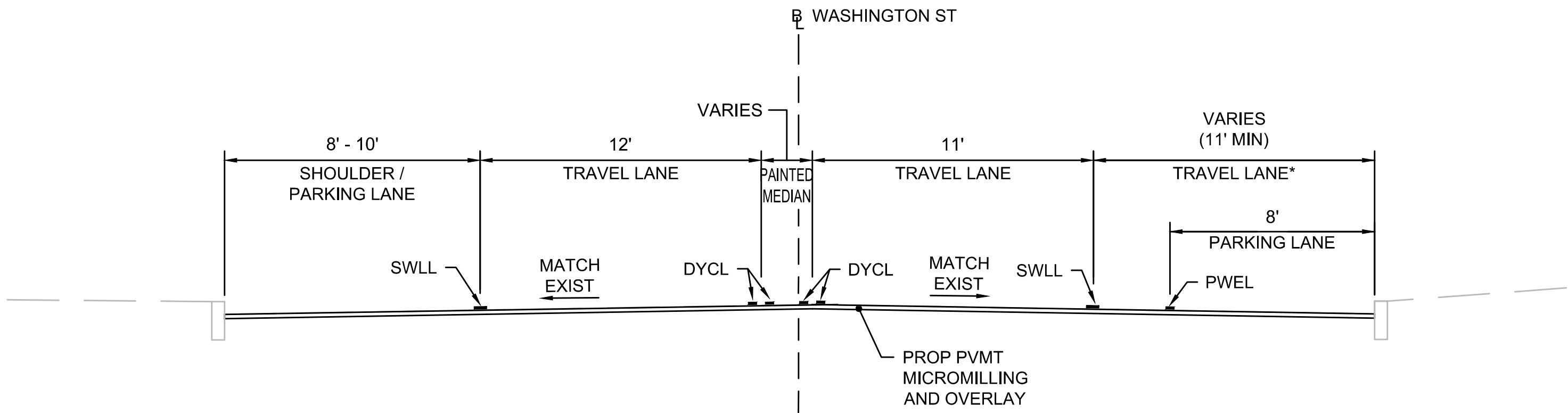
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GENERAL SYMBOLS			TRAFFIC SYMBOLS			ABBREVIATIONS		HOLLISTON WASHINGTON ST CORRIDOR IMPROVEMENTS	
EXISTING	PROPOSED	DESCRIPTION	EXISTING	PROPOSED	DESCRIPTION	GENERAL		SHEET NO. TOTAL SHEETS	
		JERSEY BARRIER			CONTROLLER PHASE ACTUATED	AADT	ANNUAL AVERAGE DAILY TRAFFIC	2	22
		CATCH BASIN			TRAFFIC SIGNAL HEAD (SIZE AS NOTED)	ABAN	ABANDON	LEGEND AND ABBREVIATIONS	
		CATCH BASIN CURB INLET			WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)	ADJ	ADJUST		
		FLAG POLE			VIDEO DETECTION CAMERA	APPROX	APPROXIMATE	ABBREVIATIONS (cont)	
		GAS PUMP			MICROWAVE DETECTOR	AC	ASPHALT CONCRETE		
		MAIL BOX			PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE	ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE	GENERAL	
		POST SQUARE			EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT	BIT	BITUMINOUS		
		POST CIRCULAR			VEHICULAR SIGNAL HEAD	BC	BOTTOM OF CURB	PWW	PAVED WATER WAY
		WELL			VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED	BD	BOUND	R	RADIUS OF CURVATURE
		ELECTRIC HANDHOLE			FLASHING BEACON	BL	BASELINE	R&D	REMOVE AND DISPOSE
		FENCE GATE POST			PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)	BLDG	BUILDING	RCP	REINFORCED CONCRETE PIPE
		GAS GATE			RAILROAD SIGNAL	BM	BENCHMARK	RD	ROAD
		BORING HOLE			SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)	BO	BY OTHERS	RDWY	ROADWAY
		MONITORING WELL			MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)	BOS	BOTTOM OF SLOPE	REM	REMOVE
		TEST PIT			HIGH MAST POLE OR TOWER	BRCI	BRIDGE	RET	RETAIN
		HYDRANT			SIGN AND POST	CC	CEMENT CONCRETE	RET WALL	RETAINING WALL
		LIGHT POLE			SIGN AND POST (2 POSTS)	CCM	CEMENT CONCRETE MASONRY	ROW	RIGHT OF WAY
		COUNTY BOUND			MAST ARM WITH LUMINAIRE	CEM	CEMENT	RR	RAILROAD
		GPS POINT			OPTICAL PRE-EMPTION DETECTOR	CI	CURB INLET	R&R	REMOVE AND RESET
		CABLE MANHOLE			CONTROL CABINET, GROUND MOUNTED	CIP	CAST IRON PIPE	R&S	REMOVE AND STACK
		DRAINAGE MANHOLE			CONTROL CABINET, POLE MOUNTED	CLF	CHAIN LINK FENCE	RT	RIGHT
		ELECTRIC MANHOLE			FLASHING BEACON CONTROL AND METER PEDESTAL	CL	CENTERLINE	SB	STONE BOUND
		GAS MANHOLE			LOAD CENTER ASSEMBLY	CMP	CORRUGATED METAL PIPE	SHLD	SHOULDER
		MISC MANHOLE			PULL BOX 12"x12" (OR AS NOTED)	CSP	CORRUGATED STEEL PIPE	SMH	SEWER MANHOLE
		SEWER MANHOLE			ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)	CO	COUNTY	ST	STREET
		TELEPHONE MANHOLE	-----			CONC	CONCRETE	STA	STATION
		WATER MANHOLE	-----			CONT	CONTINUOUS	SSD	STOPPING SIGHT DISTANCE
		MASSACHUSETTS HIGHWAY BOUND	-----			CONST	CONSTRUCTION	SHLO	STATE HIGHWAY LAYOUT LINE
		MONUMENT	-----			CR GR	CROWN GRADE	SW	SIDEWALK
		STONE BOUND	-----			DHV	DESIGN HOURLY VOLUME	T	TANGENT DISTANCE OF CURVE/TRUCK %
		TOWN OR CITY BOUND	-----			DI	DROP INLET	TAN	TANGENT
		TRAVERSE OR TRIANGULATION STATION	-----			DIA	DIAMETER	TEMP	TEMPORARY
		TROLLEY POLE OR GUY POLE	-----			DIP	DUCTILE IRON PIPE	TC	TOP OF CURB
		TRANSMISSION POLE	-----			DWY	DRIVEWAY	TOS	TOP OF SLOPE
		UTILITY POLE W/ FIREBOX	-----			ELEV (or EL)	ELEVATION	TYP	TYPICAL
		UTILITY POLE WITH DOUBLE LIGHT	-----			EMB	EMBANKMENT	UP	UTILITY POLE
		UTILITY POLE W / 1 LIGHT	-----			EOP	EDGE OF PAVEMENT	VAR	VARIES
		UTILITY POLE	-----			EXIST (or EX)	EXISTING	VERT	VERTICAL
		BUSH	-----			EXC	EXCAVATION	VC	VERTICAL CURVE
		TREE	-----			F&C	FRAME AND COVER	VGC	VERTICAL GRANITE CURB
		STUMP	-----			F&G	FRAME AND GRATE	WCR	CURB RAMP
		SWAMP / MARSH	-----			FDN	FOUNDATION	WG	WATER GATE
		WATER GATE	-----			FLDSTN	FIELDSTONE	WIP	WROUGHT IRON PIPE
		PARKING METER	-----			GAR	GARAGE	WM	WATER METER/WATER MAIN
		OVERHEAD CABLE/WIRE	-----			GD	GROUND	X-SECT	CROSS SECTION
		CURBING	-----			GG	GAS GATE	TRAFFIC SIGNAL	
		CONTOURS (ON-THE-GROUND SURVEY DATA)	-----			GI	GUTTER INLET		
		CONTOURS (PHOTOGRAMMETRIC DATA)	-----			GIP	GALVANIZED IRON PIPE	GENERAL	
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)	-----			GRAN	GRANITE		
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)	-----			GRAV	GRAVEL	TRAFFIC SIGNAL	
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)	-----			GRD	GUARD		
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)	-----			HMA	HOT MIX ASPHALT	CAB	CABINET
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)	-----			HOR	HORIZONTAL	CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)	-----			HYD	HYDRANT	DW	STEADY DON'T WALK
		BALANCED STONE WALL	-----			INV	INVERT	EB	EASTBOUND
		GUARD RAIL - STEEL POSTS	-----			JCT	JUNCTION	FDW	FLASHING DON'T WALK
		GUARD RAIL - WOOD POSTS	-----			L	LENGTH OF CURVE	FR	FLASHING CIRCULAR RED
		CHAIN LINK OR METAL FENCE	-----			LB	LEACH BASIN	FRL	FLASHING RED LEFT ARROW
		WOOD FENCE	-----			LP	LIGHT POLE	FRR	FLASHING RED RIGHT ARROW
		TREE LINE	-----			LT	LEFT	FY	FLASHING CIRCULAR AMBER
		SAWCUT LINE	-----			MAX	MAXIMUM	FYL	FLASHING AMBER LEFT ARROW
		TOP OR BOTTOM OF SLOPE	-----			MB	MAILBOX	FYR	FLASHING AMBER RIGHT ARROW
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE AND OVERLAY	-----			MH	MANHOLE	G	STEADY CIRCULAR GREEN
		BANK OF RIVER OR STREAM	-----			MHB	MASSACHUSETTS HIGHWAY BOUND	GL	STEADY GREEN LEFT ARROW
		BORDER OF WETLAND	-----			MIN	MINIMUM	GR	STEADY GREEN RIGHT ARROW
		100 FT WETLAND BUFFER	-----			NIC	NOT IN CONTRACT	GSL	STEADY GREEN SLASH LEFT ARROW
		200 FT RIVERFRONT BUFFER	-----			NO	NUMBER	GSR	STEADY GREEN SLASH RIGHT ARROW
		STATE HIGHWAY LAYOUT	-----			PBS	PAINTED BOTH SIDES	GV	STEADY GREEN VERTICAL ARROW
		TOWN OR CITY LAYOUT	-----			PC	POINT OF CURVATURE	OL	OVERLAP
		COUNTY LAYOUT	-----			PCC	POINT OF COMPOUND CURVATURE	NB	NORTHBOUND
		RAILROAD SIDELINE	-----			PGL	PROFILE GRADE LINE	PED	PEDESTRIAN
		TOWN OR CITY BOUNDARY LINE	-----			PI	POINT OF INTERSECTION	PTZ	PAN, TILE, ZOOM
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE	-----			POC	POINT ON CURVE	R	STEADY CIRCULAR RED
		EASEMENT	-----			POT	POINT ON TANGENT	RL	STEADY RED LEFT ARROW
			-----			PRC	POINT OF REVERSE CURVATURE	RR	STEADY RED RIGHT ARROW
			-----			PROJ	PROJECT	SB	SOUTHBOUND
			-----			PROP	PROPOSED	SY	SOLID CIRCULAR AMBER
			-----			PSB	PLANTABLE SOIL BORROW	TR SIG	TRAFFIC SIGNAL
			-----			PT	POINT OF TANGENCY	TSC	TRAFFIC SIGNAL CONDUIT
			-----			PVC	POINT OF VERTICAL CURVATURE	W	STEADY WALK
			-----			PVI	POINT OF VERTICAL INTERSECTION	WB	WESTBOUND
			-----			PVT	POINT OF VERTICAL TANGENCY	Y	STEADY CIRCULAR AMBER
			-----			PVMT	PAVEMENT	YL	STEADY AMBER LEFT ARROW
			-----			PWEL	PARKING WHITE EDGE LINE - 4"		

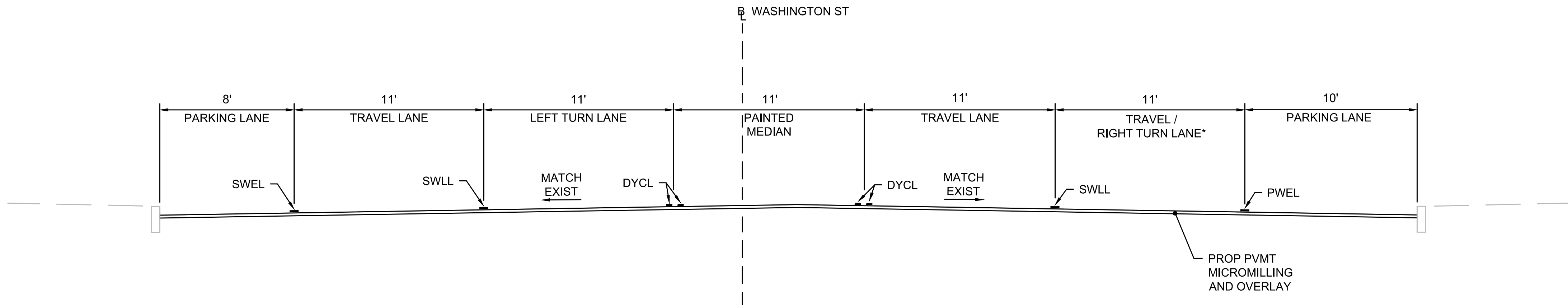
SHEET NO.	TOTAL SHEETS
3	22

TYPICAL SECTIONS



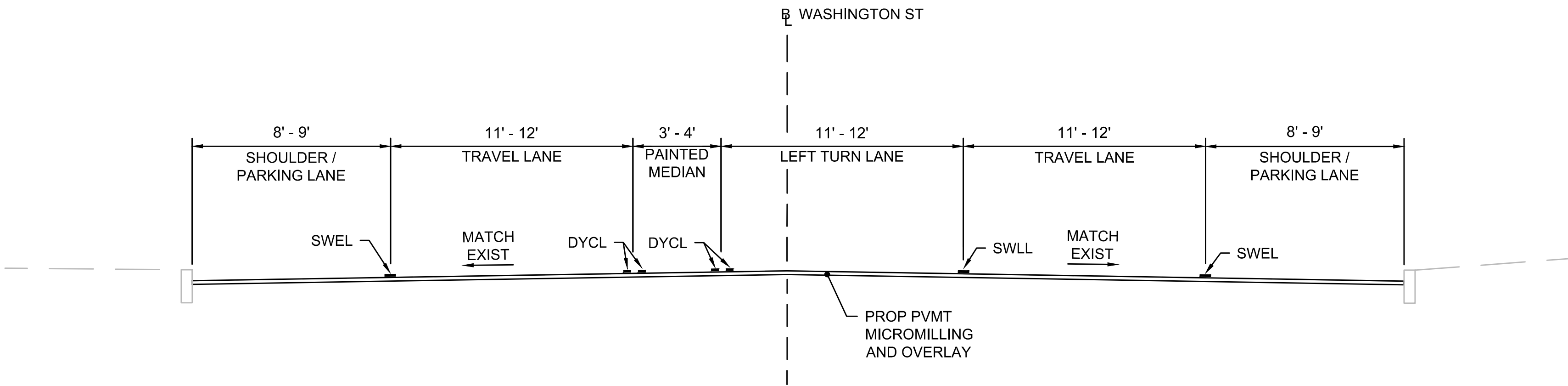
* TRAVEL PERMITTED IN THIS LANE DURING PEAK PERIODS ONLY

WASHINGTON ST
SOUTH OF GREEN ST/EXCHANGE ST



* THROUGH TRAVEL PERMITTED IN THIS LANE DURING PEAK PERIODS ONLY

WASHINGTON ST
GREEN ST/EXCHANGE ST TO CENTRAL ST



WASHINGTON ST
CENTRAL ST TO HOLLIS ST/CHARLES ST

PAVEMENT NOTES

PROPOSED PAVEMENT MICROMILLING AND OVERLAY

SURFACE: 2" SUPERPAVE SURFACE COURSE 12.5 (SSC-12.5) OVER ASPHALT EMULSION FOR TACK COAT (RS-1H) AT 0.07 GAL/SY OVER MILLED PAVEMENT
2" PAVEMENT MICROMILLING

PROPOSED HMA DRIVEWAY

SURFACE: 1.5" SUPERPAVE SURFACE COURSE 9.5 (SSC-9.5) OVER 2" SUPERPAVE INTERMEDIATE COURSE 12.5 (SSC-12.5) OVER

SUB-BASE: 8" GRAVEL BORROW FOR SUB-BASE COURSE

PROPOSED CEMENT CONCRETE SIDEWALK AND WHEELCHAIR RAMPS

SURFACE: 4" CEMENT CONCRETE (4,000 PSI, 3/4", 610) OVER

FOUNDATION: 8" GRAVEL BORROW (TYPE b)

PROPOSED BRICK WALK

SURFACE: BRICK PAVERS (MATCH EXIST)* OVER 1" COMPACTED STONE DUST OVER

SUB-BASE: 8" GRAVEL BORROW (TYPE b)

*BRICK WALK PATTERN, TYPE, AND COLOR TO MATCH EXIST.





WCR #	CURB RAMP LOCATION		RAMP WIDTH	LEVEL LANDING WIDTH	RAMP LENGTH	ROADWAY GUTTER SLOPE
	STATION	OFFSET				
5	104+51	44' R	6' - 0"	4' - 0"	7' - 8"	0.4%
15	110+63	31' L	5' - 0"	4' - 0"	9' - 0"	1.4%

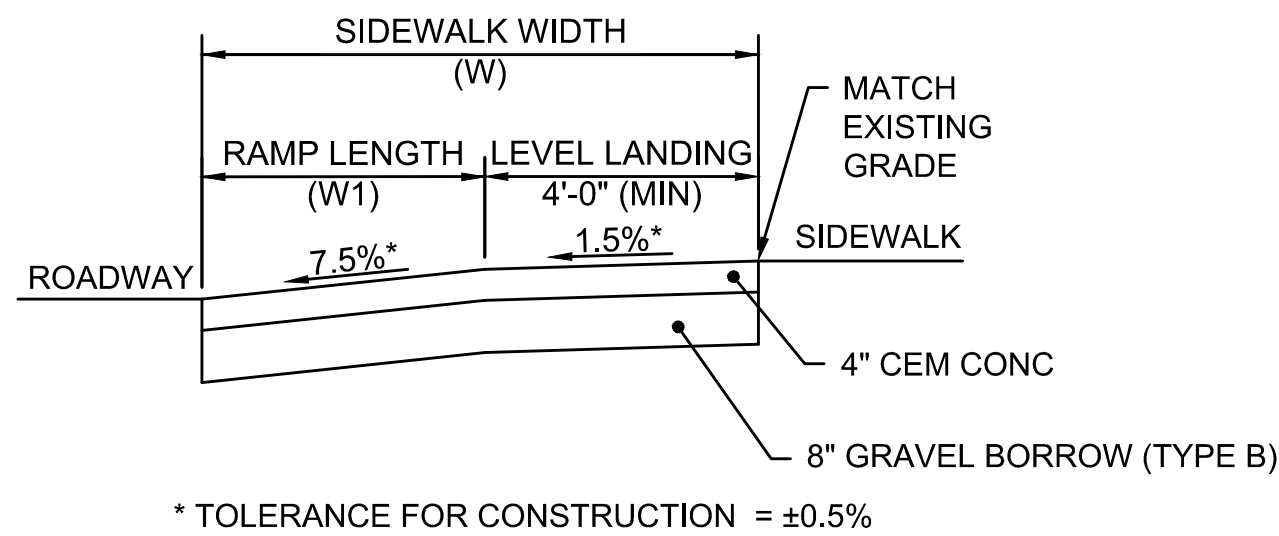
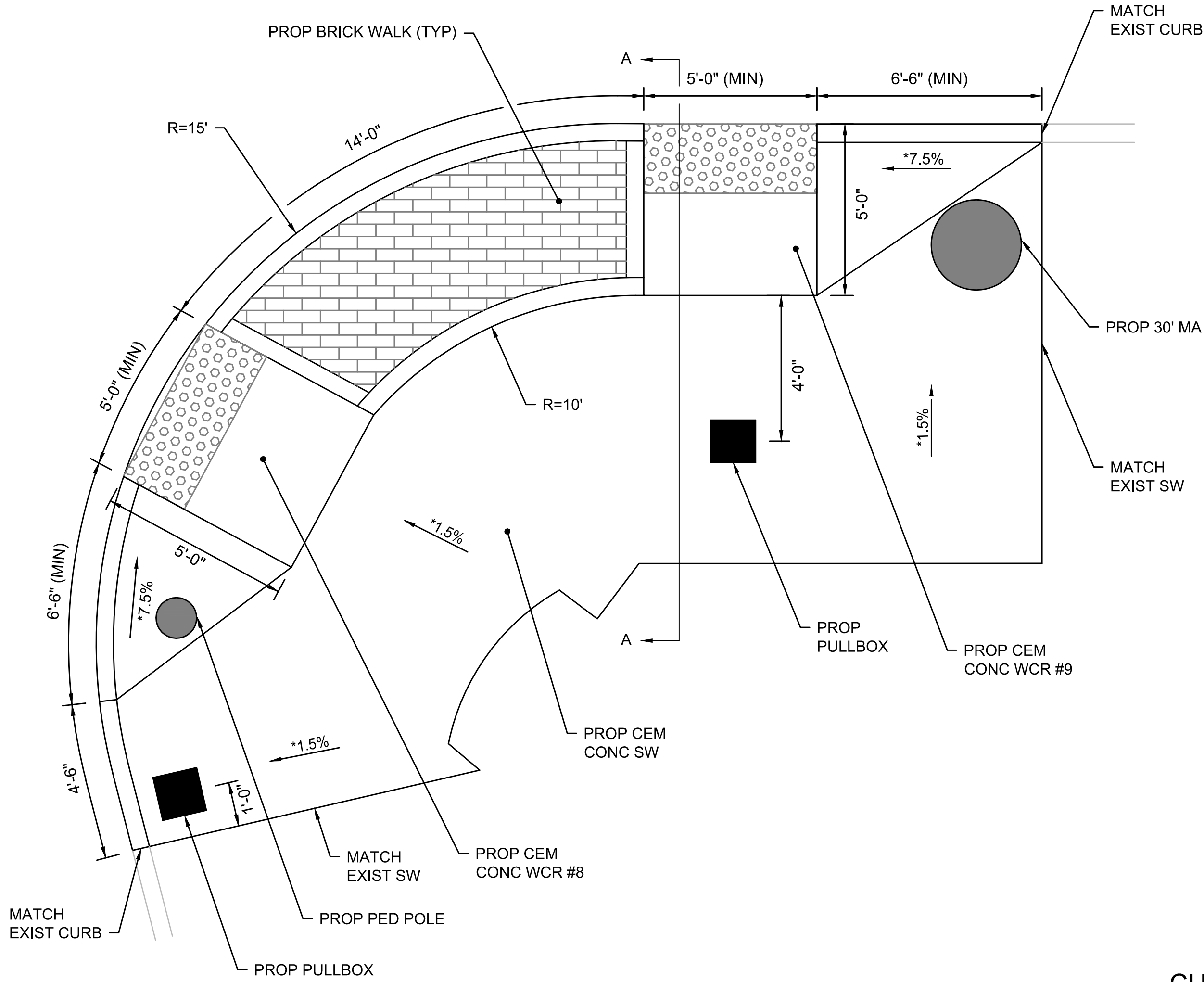
CURB RAMPS #5 AND #15
NOT TO SCALE



CURB RAMPS #6, #7, AND #12
NOT TO SCALE

SHEET NO.	TOTAL SHEETS
6	22

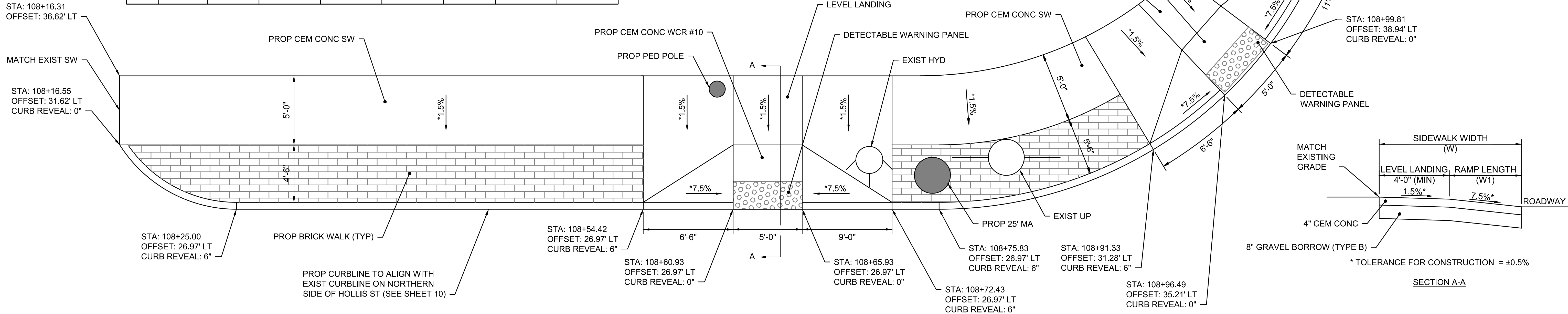
CONSTRUCTION DETAILS
SHEET 3 OF 5



WCR #	CURB RAMP LOCATION		SIDEWALK WIDTH (W)	LEVEL LANDING WIDTH	RAMP LENGTH (W1)	ROADWAY GUTTER SLOPE	TRANSITION LENGTH	
	STATION	OFFSET					LEFT SIDE	RIGHT SIDE
8	105+31	49' R	12' - 6"	7' - 6"	5' - 0"	1.0%	-	6' - 6"
9	105+45	39' R	12' - 6"	7' - 6"	5' - 0"	1.5%	6' - 6"	-

CURB RAMPS #8 AND #9
NOT TO SCALE

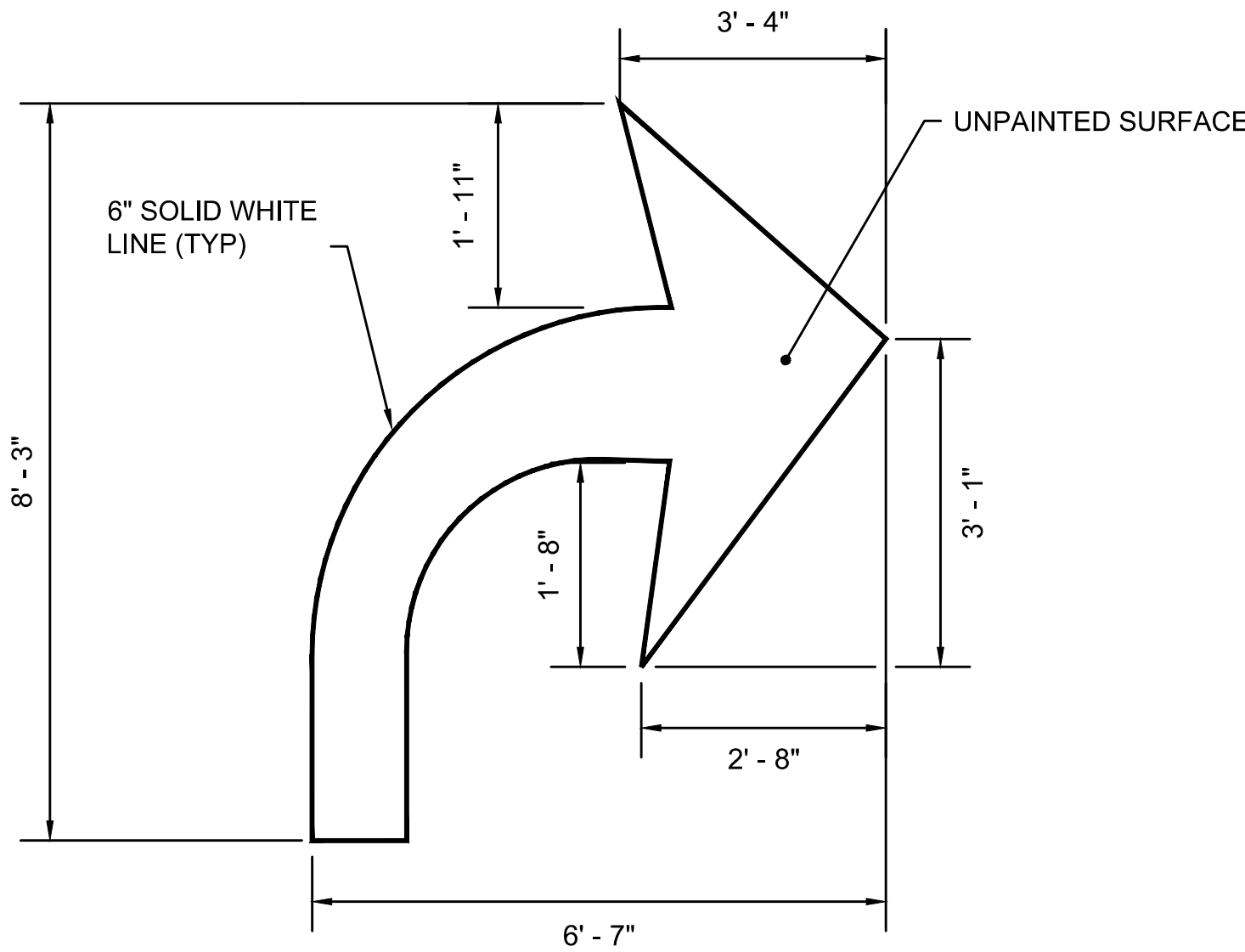
WCR #	CURB RAMP LOCATION		SIDEWALK WIDTH (W)	LEVEL LANDING WIDTH	RAMP LENGTH (W1)	ROADWAY GUTTER SLOPE	TRANSITION LENGTH	
	STATION	OFFSET					LEFT SIDE	RIGHT SIDE
10	108+62	31' L	6' - 0"	4' - 0"	2' - 0"	1.6%	6' - 6"	9' - 0"
11	108+98	37' L	5' - 6"	5' - 6"	4' - 6"	2.3%	6' - 6"	11' - 0"



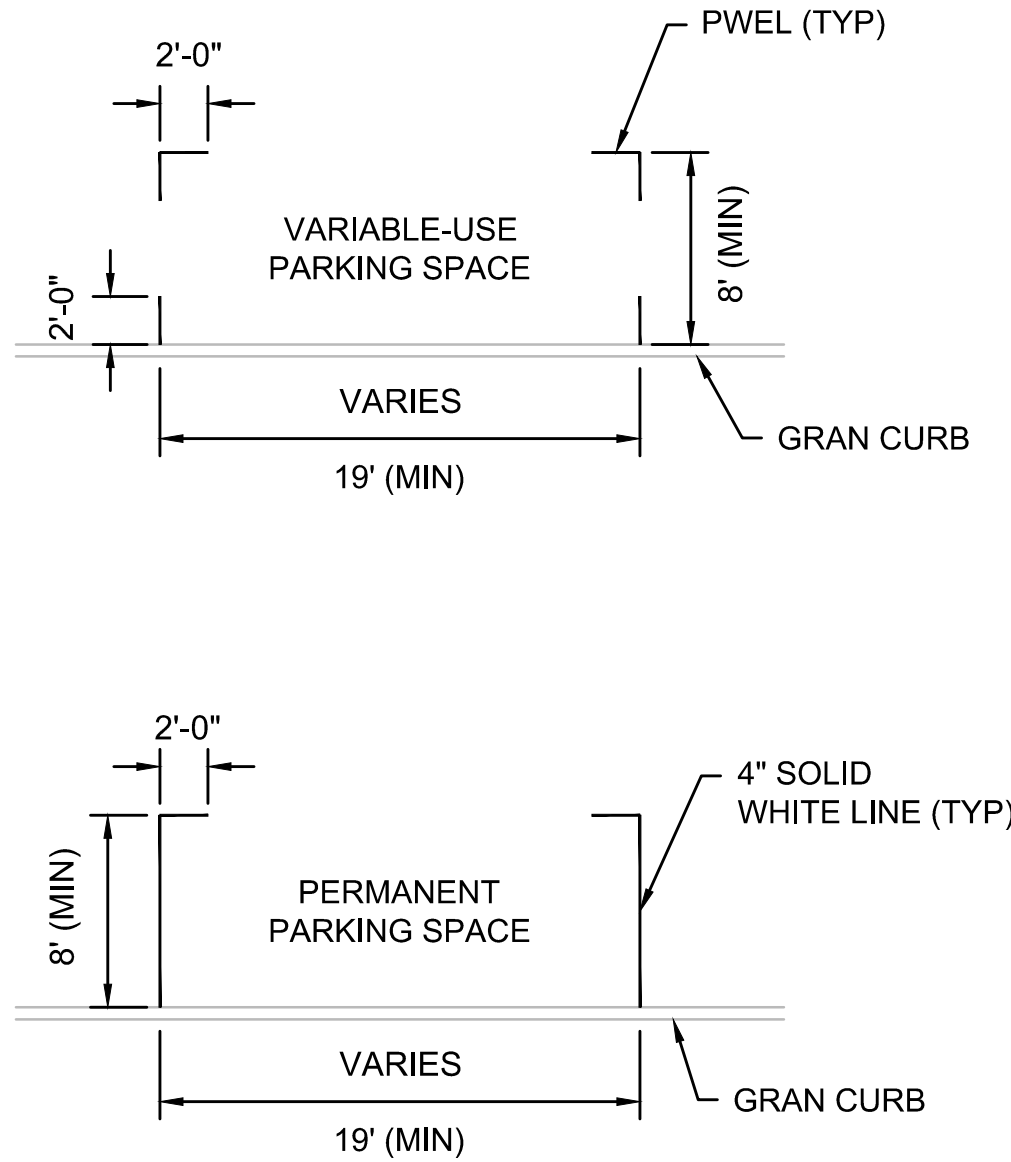
CURB RAMPS #10 AND #11
NOT TO SCALE

SECTION A-A

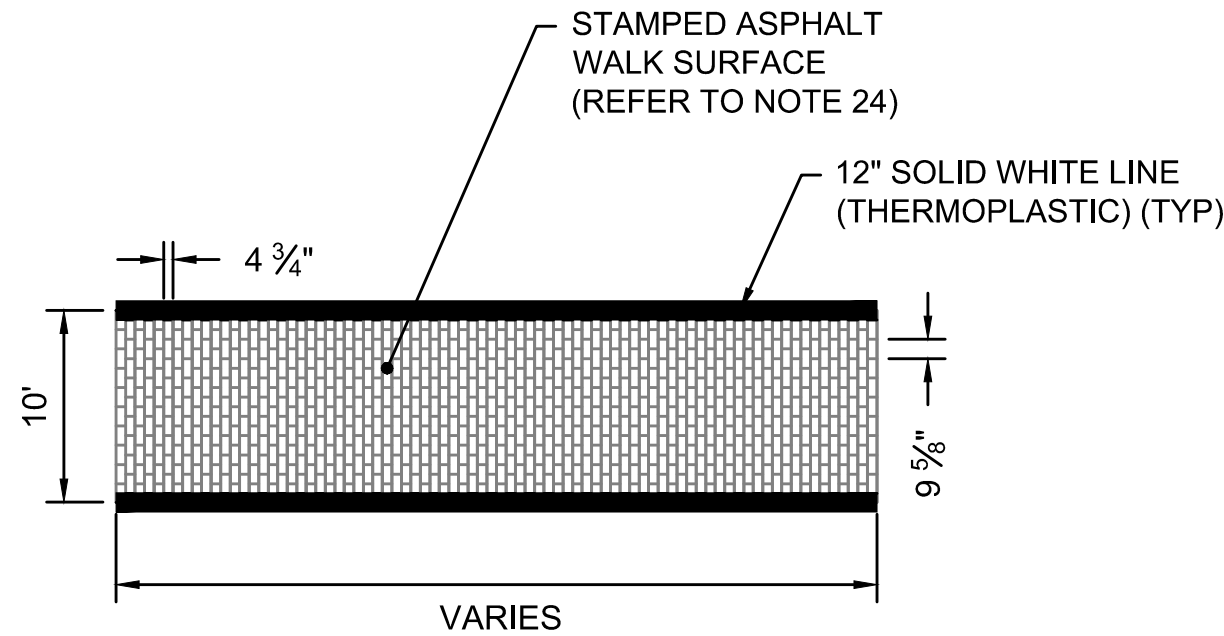
SHEET NO.	TOTAL SHEETS
8	22



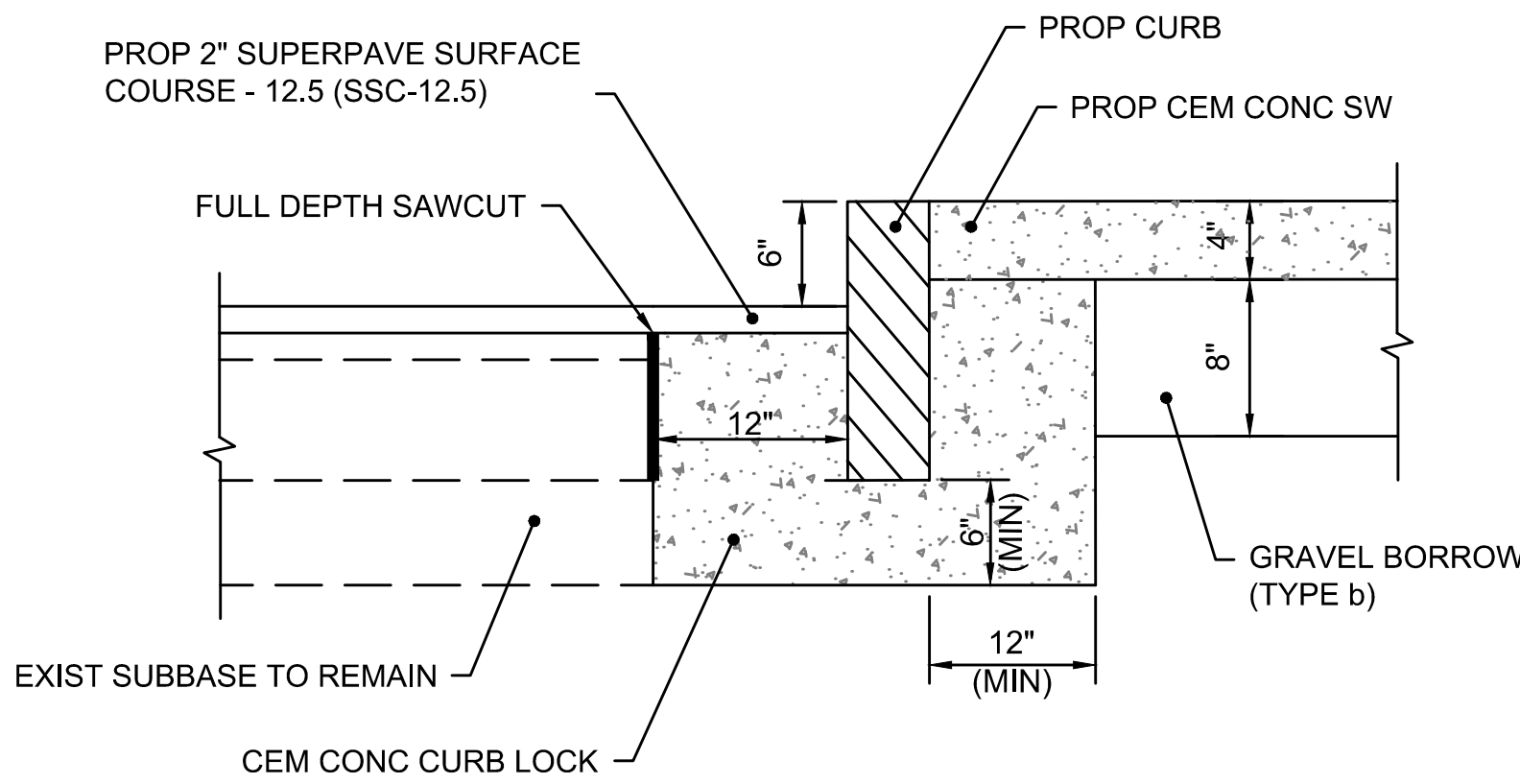
VARIABLE TURN ARROW
PAVEMENT MARKING
NOT TO SCALE



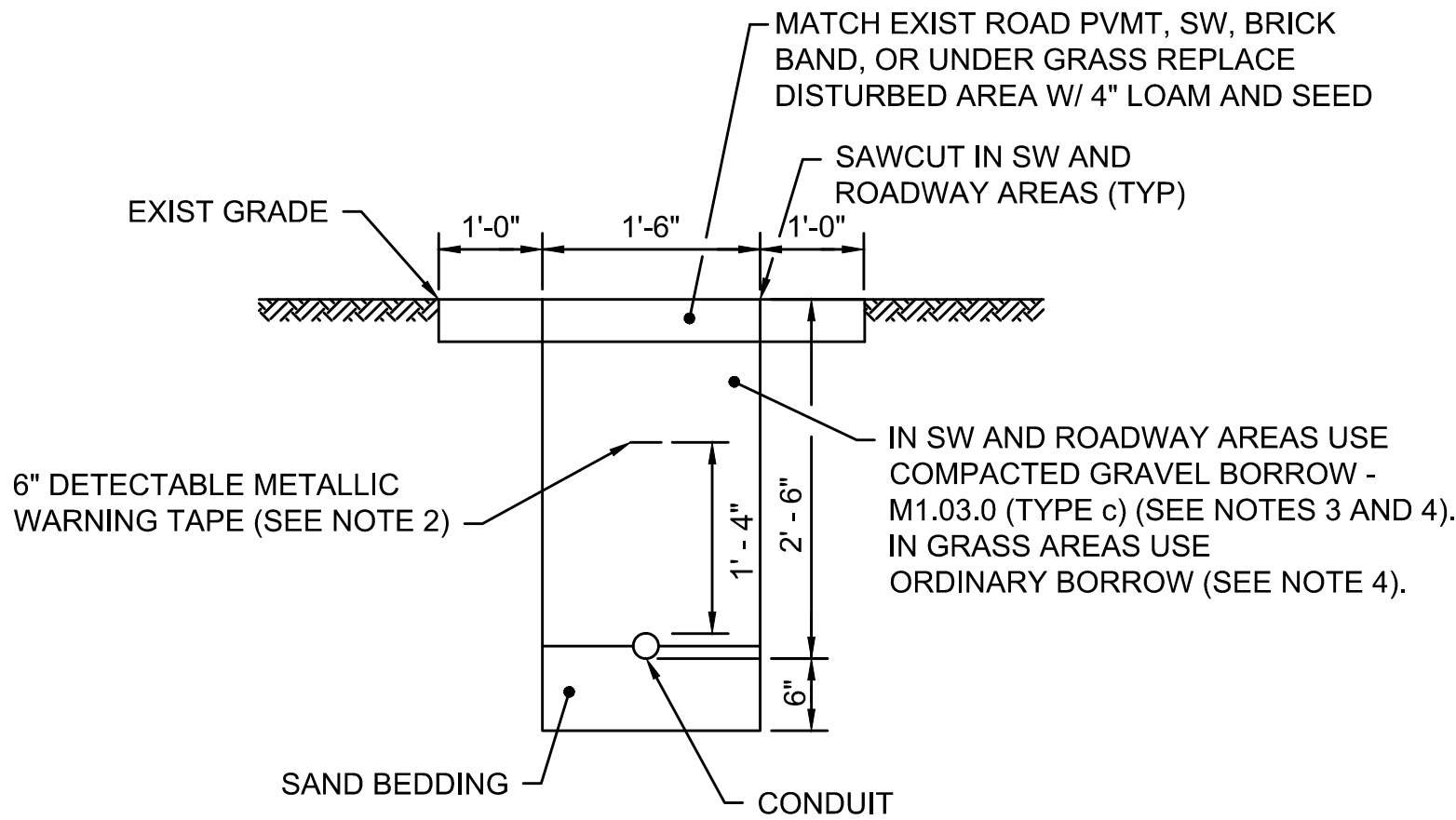
PARKING SPACE
PAVEMENT MARKINGS
NOT TO SCALE



STAMPED ASPHALT CROSSWALK
NOT TO SCALE



CURB SETTING
NOT TO SCALE



- NOTES:
1. SCHEDULE 80 ELECTRICAL CONDUIT TYPE NM-PLASTIC (UL) W/ PULL ROPE.
 2. WARNING TAPE SHALL BE PER CURRENT APWA STANDARDS.
 3. CONTROL DENSITY FILL SHALL BE USED IN ROADWAY AREAS AS DETERMINED BY THE ENGINEER AND MEET THE REQUIREMENTS OF SUBSECTION M4.08.0
 4. ALL STONES TO BE LESS THAN 2" UNDER SW AND ROADWAY. ALL STONES TO BE LESS THAN 3" UNDER GRASS.

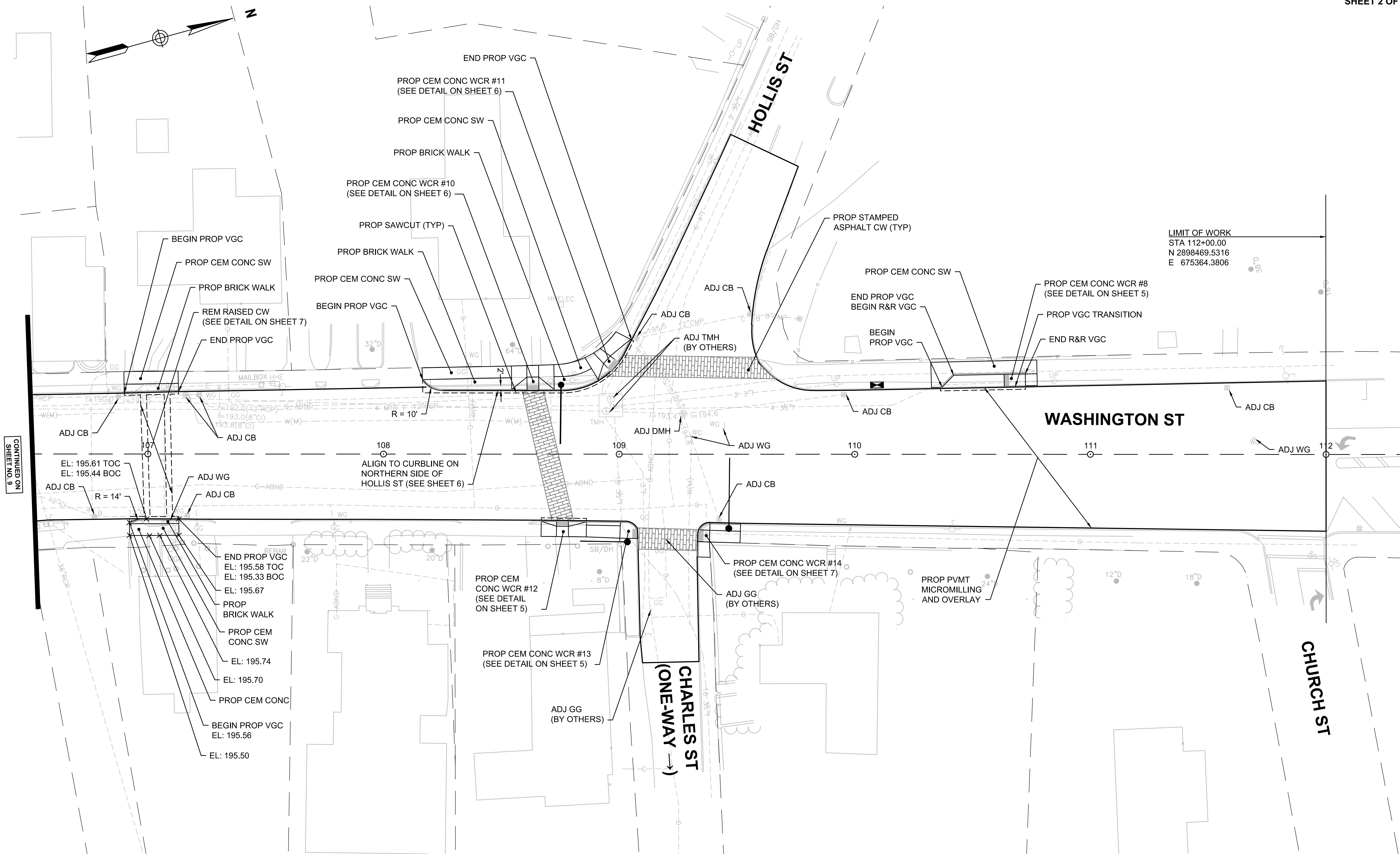
CONDUIT INSTALLATION
NOT TO SCALE

- NOTES:
1. THE CONTRACTOR SHALL VERIFY, PRIOR TO CONSTRUCTION, THE EXISTING CONDITIONS WITHIN THE PROJECT AREA AND IMMEDIATELY NOTIFY THE ENGINEER OF DISCREPANCIES WHICH ARE FOUND.
 2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY "DIG-SAFE" AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO ANY EXCAVATION WITHIN THE PROJECT AREA.
 3. ALL SITE FEATURES WHICH ARE TO BE DISPOSED OF, INCLUDING EXISTING PAVEMENT, SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
 4. ALL AREAS DISTURBED BY CONSTRUCTION SHALL BE RESTORED TO THEIR ORIGINAL CONDITION, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. EXISTING AND NEWLY CONSTRUCTED DRAINAGE SYSTEMS IN THE PROXIMITY OF THE CONSTRUCTION SHALL BE LEFT CLEAN AND IN GOOD OPERABLE CONDITION.
 5. NO EXCAVATIONS SHALL BE LEFT UNPROTECTED AT THE END OF ANY WORK PERIOD. A STEEL PLATE OR DECKING SHALL BE TEMPORARILY PLACED OVER ALL EXCAVATIONS WHEN NOT ACTIVELY IN USE.
 6. ALL EXISTING FEATURES WHICH ARE "TO REMAIN" AND WHICH ARE DISTURBED BY THE CONTRACTOR SHALL BE RESTORED TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
 7. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.
 8. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, THE LOCATION, ELEVATION AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED TO THE ENGINEER FOR RESOLUTION OF THE CONFLICT.
 9. THE CONTRACTOR SHALL ALTER THE MASONRY OF THE TOP SECTION OF ALL EXISTING DRAINAGE AND SANITARY SEWER STRUCTURES AS NECESSARY FOR CHANGES IN GRADE, AND ADJUST ALL WATER AND DRAINAGE FRAMES, GRATES AND BOXES TO THE PROPOSED FINISH SURFACE GRADE. REQUIRED NEW MASONRY SHALL BE CLAY BRICK CONFORMING TO M4.05.2.
 10. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
 11. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT NO EXPENSE TO THE OWNER.
 12. THE TERM "PROPOSED" (PROP) MEANS WORK TO BE CONSTRUCTED USING NEW MATERIALS OR, WHERE APPLICABLE, RE-USING EXISTING MATERIALS IDENTIFIED AS "REMOVE AND RESET" (R&R).
 13. JOINTS BETWEEN NEW HOT MIX ASPHALT ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN AND BACKSANDS.
 14. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
 15. THE CONTRACTOR SHALL MAINTAIN ALL EXISTING ROADWAY LIGHTING WITHIN THE PROJECT LIMITS UNTIL OTHERWISE DIRECTED IN WRITING BY THE ENGINEER.
 16. ALL EXISTING STATE, COUNTY, CITY, AND TOWN LOCATION LINES AND PRIVATE PROPERTY LINES HAVE BEEN ESTABLISHED FROM AVAILABLE INFORMATION AND THEIR EXACT LOCATION ARE NOT GUARANTEED.
 17. ALL TREE PROTECTION IS TO BE LOCATED WITHIN THE EXISTING STATE AND/OR TOWN LAYOUTS.
 18. ALL CURB RAMP CONSTRUCTION SHALL CONFORM TO MASSDOT ENGINEERING DIRECTIVE E-12-005.
 19. DETECTABLE WARNING PANELS ARE REQUIRED ON ALL PROPOSED CURB RAMPS AND SHALL CONFORM TO THE DIMENSIONS SHOWN IN MASSDOT CONSTRUCTION STANDARD E 107.6.5R.
 20. ALL PEDESTRIAN PATHS OF TRAVEL SHALL PROVIDE A 3' MINIMUM CLEARANCE AS REQUIRED BY ADA/AAB.
 21. ALL SAWCUTTING FOR SIDEWALK RECONSTRUCTION SHALL BE PERFORMED AT THE EXISTING SIDEWALK PANEL JOINTS TO THE EXTENT POSSIBLE.
 22. ALL OF THE REMOVED LIGHT POSTS AND MAST ARMS SHALL REMAIN PROPERTY OF THE TOWN OF HOLLISTON AND STACKED AT THE HOLLISTON HIGHWAY DEPARTMENT. (REFER TO SPECIAL PROVISIONS)
 23. STAMPED ASPHALT WALK SURFACE SHALL CONFORM TO THE PATTERN, COLOR, AND CONSTRUCTION METHODS DETAILED IN THE SPECIAL PROVISIONS UNDER ITEM 701.3 STAMPED ASPHALT CROSSWALK.

HOLLISTON
WASHINGTON ST CORRIDOR IMPROVEMENTS

SHEET NO.	TOTAL SHEETS
10	22

CONSTRUCTION PLAN
SHEET 2 OF 2



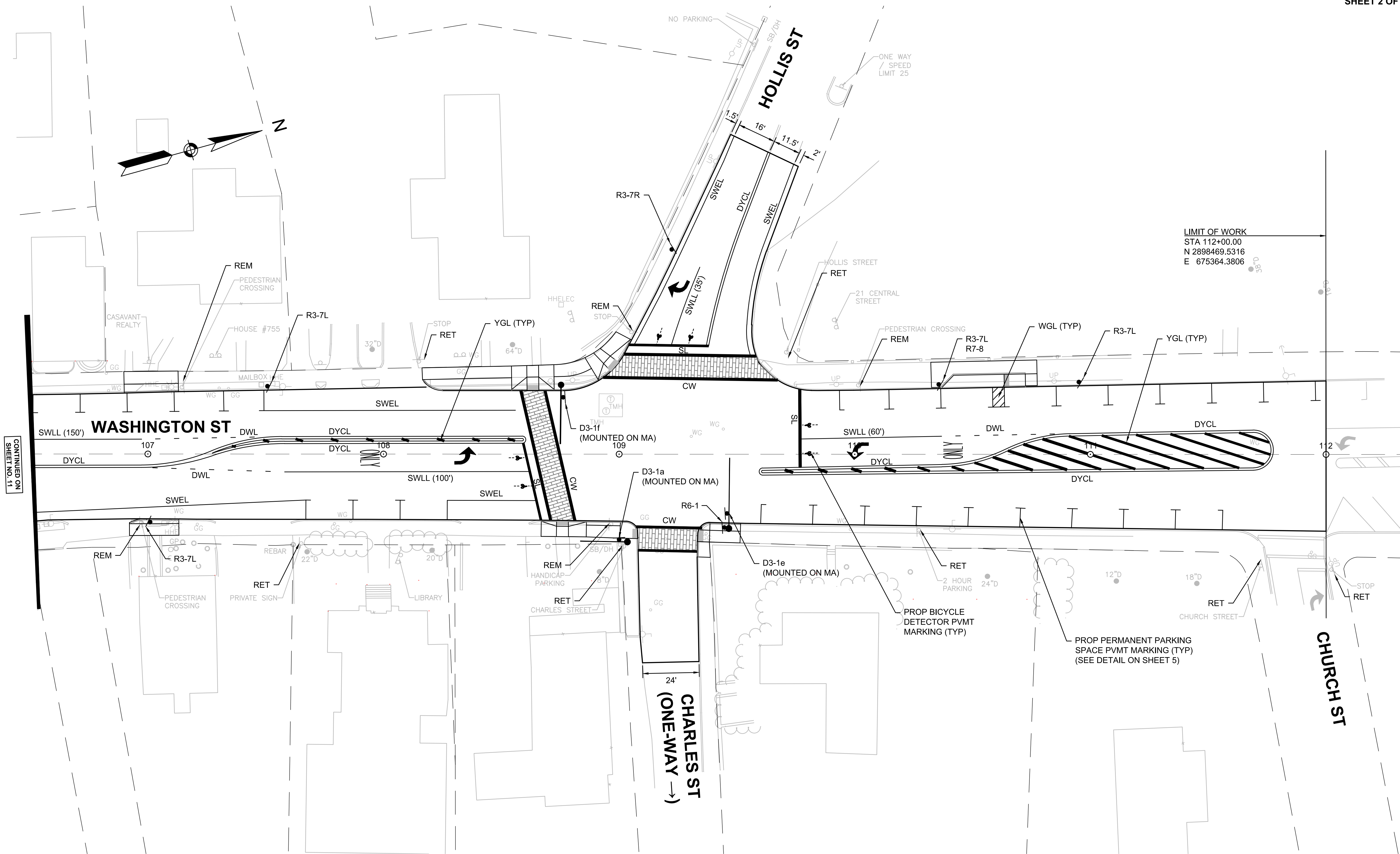
CONTINUED ON
SHEET NO. 9



HOLLISTON
WASHINGTON ST CORRIDOR IMPROVEMENTS

SHEET NO.	TOTAL SHEETS
12	22









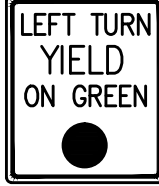
TRAFFIC SIGN AND PAVEMENT MARKING PLAN
SHEET 2 OF 2



CONTINUED ON
SHEET NO. 11

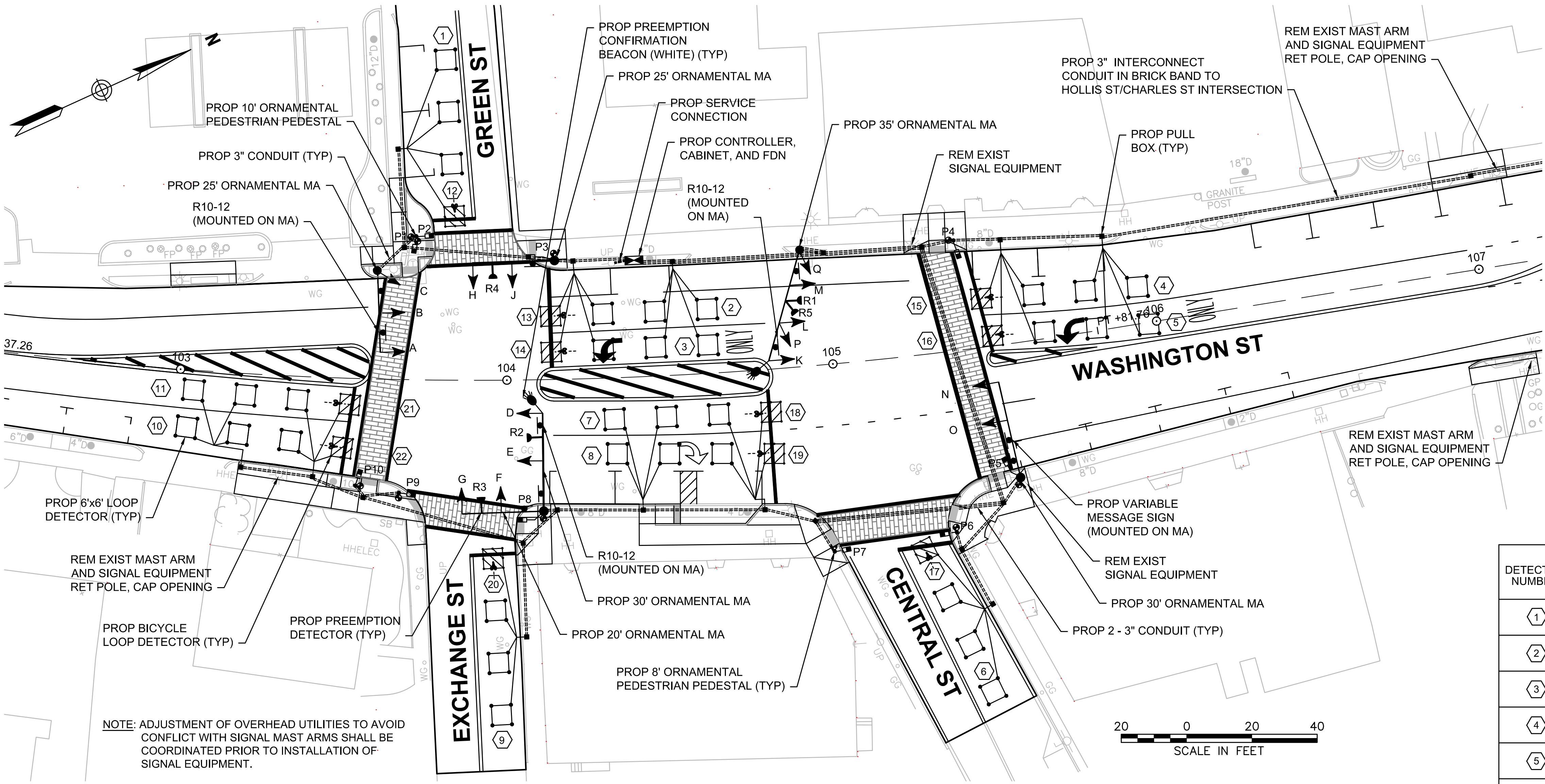


TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (SF)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE MKR		BACK- GROUND	LEGEND	BORDER			
R3-7L	36"	36"		SEE 2009 MUTCD			4	SEE 2009 MUTCD			P5 - 1 4 - REQ	9.00	36.00
R3-7R	36"	36"					1				P5 - 1 1 - REQ	9.00	9.00
R6-1 (PBS)	36"	12"					1				1-MOUNT ON MA POST	3.00	3.00
R7-2aL	12"	18"					2				P5 - 1 2 - REQ	1.50	3.00
R7-2aR	12"	18"					2				P5 - 1 2 - REQ	1.50	3.00
R7-8	12"	18"					2				P5 - 1 2 - REQ	1.50	3.00
R7-8P	12"	6"					1				1 - MOUNT W/ R7-8	0.50	0.50
R7-11	12"	18"					1				P5 - 1 1 - REQ	1.50	1.50
R10-12	30"	36"					3				3 - MOUNT ON MA	9.00	27.00
D3-1a (PBS)	TBD	18"	<div>Washington St</div>	SEE HOLLISTON STANDARDS			4	SEE HOLLISTON STANDARDS			3 - MOUNT ON MA P5 - 1 1 - REQ	-	-
D3-1b (PBS)	TBD	18"	<div>Exchange St</div>				1				1-MOUNT ON MA	-	-
D3-1c (PBS)	TBD	18"	<div>Green St</div>				1				1-MOUNT ON MA	-	-
D3-1d (PBS)	TBD	18"	<div>Central St</div>				2				1-MOUNT ON MA	-	-
D3-1e (PBS)	TBD	18"	<div>Charles St</div>				1				1-MOUNT ON MA	-	-
D3-1f (PBS)	TBD	18"	<div>Hollis St</div>				1				1-MOUNT ON MA	-	-
												TOTAL: 86.00 SF	

SHEET NO.	TOTAL SHEETS
14	22

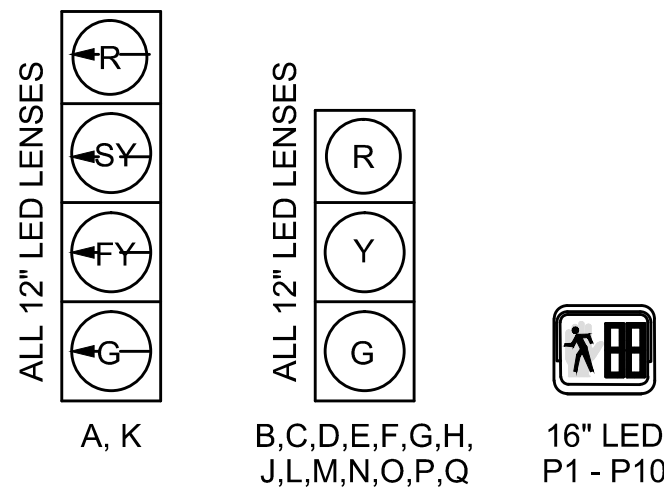
TRAFFIC SIGNAL PLAN
EXCHANGE ST/GREEN ST/CENTRAL ST
SHEET 1 OF 3



NOTE: ADJUSTMENT OF OVERHEAD UTILITIES TO AVOID
CONFLICT WITH SIGNAL MAST ARMS SHALL BE
COORDINATED PRIOR TO INSTALLATION OF
SIGNAL EQUIPMENT.

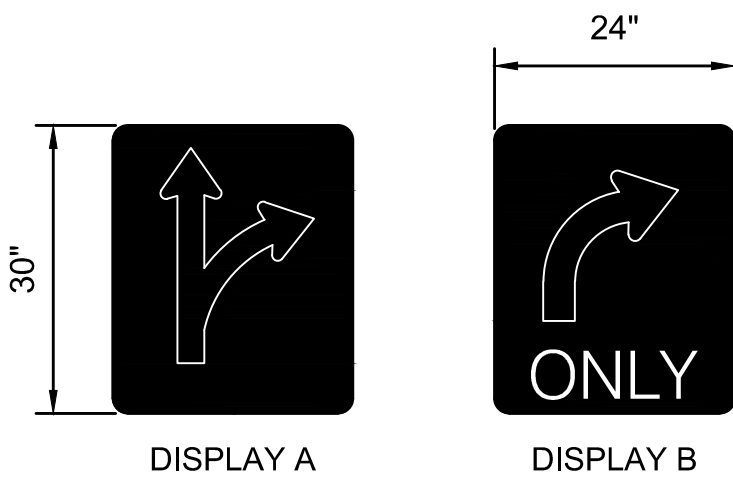


SIGNAL IDENTIFICATION



- NOTES:
- ALL SIGNALS SHALL HAVE CUT AWAY VISORS.
 - ALL SIGNALS SHALL HAVE 5" LOUVERED BACK PLATES WITH 3" RETROREFLECTIVE BORDERS.

VARIABLE MESSAGE SIGN



- NOTES:
- VARIABLE MESSAGE SIGN TO BE OVERHEAD MOUNTED ON MAST ARM.
 - DISPLAY A SHALL BE SHOWN ON WEEKDAYS FROM 6:00 AM - 9:00 AM.
 - DISPLAY B SHALL BE SHOWN AT ALL OTHER TIMES.

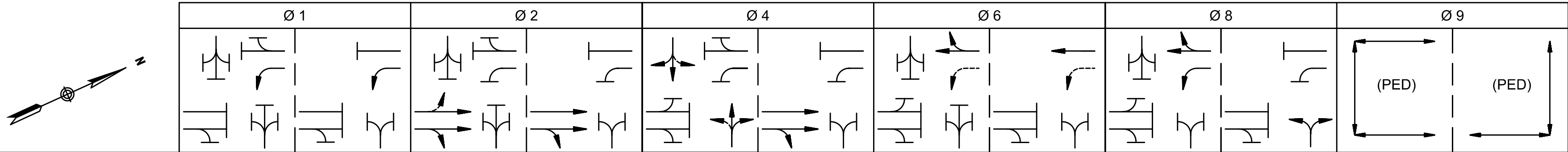
LOOP DETECTOR DATA

DETECTOR NUMBER	AMPLIFIER NUMBER	CHANNEL NUMBER	LOOP SIZE	NUM OF TURNS	Ø CALLED	Ø EXT	MODE A=PULSE B=PRES	DELAY TIME	EXT TIME
1	1	1	3@6'X6"	3	4	4	B	5	0
2	1	2	3@6'X6"	3	6	6	B	0	0
3	2	1	3@6'X6"	3	1	6	B	0	0
4	2	2	3@6'X6"	3	6	6	B	0	0
5	3	1	3@6'X6"	3	1	6	B	0	0
6	3	2	3@6'X6"	3	8	8	B	5	0
7	4	1	3@6'X6"	3	2	4	B	0	0
8	4	2	3@6'X6"	3	2	4	B	0	0
9	5	1	3@6'X6"	3	4	4	B	5	0
10	5	2	3@6'X6"	3	2	2	B	0	0
11	6	1	3@6'X6"	3	2	2	B	0	0
12	6	2	1@6'X6"	D-2	4	4	BICYCLE	5	0
13	7	1	1@6'X6"	D-2	6	6	BICYCLE	0	0
14	7	2	1@6'X6"	D-2	1	1	BICYCLE	0	0
15	8	1	1@6'X6"	D-2	6	6	BICYCLE	0	0
16	8	2	1@6'X6"	D-2	1	1	BICYCLE	0	0
17	9	1	1@6'X6"	D-2	8	8	BICYCLE	5	0
18	9	2	1@6'X6"	D-2	2	2	BICYCLE	0	0
19	10	1	1@6'X6"	D-2	2	2	BICYCLE	0	0
20	10	2	1@6'X6"	D-2	4	4	BICYCLE	5	0
21	11	1	1@6'X6"	D-2	2	2	BICYCLE	0	0
22	11	2	1@6'X6"	D-2	2	2	BICYCLE	0	0

PAY ITEM	MAJOR ITEMS REQUIRED	
	QUANTITY	ITEM
815.1	1	NEMA TS2 (TYPE 1) CONTROLLER, CABINET AND FDN
	1	SERVICE CONNECTION
	1	TWO-WAY, ORNAMENTAL MAST ARM ASSEMBLY W/ 20 FT AND 30 FT MAST ARMS, BASE AND FDN
	2	25 FT ORNAMENTAL MAST ARM ASSEMBLY, BASE AND FDN
	1	30 FT ORNAMENTAL MAST ARM ASSEMBLY, BASE AND FDN
	1	35 FT ORNAMENTAL MAST ARM ASSEMBLY, BASE AND FDN
	10	PEDESTRIAN SIGNAL HEAD, SINGLE SECTION W/ COUNTDOWN TIMER
	5	8' ORNAMENTAL PEDESTRIAN PEDESTAL, BASE AND FDN
	1	10' ORNAMENTAL PEDESTRIAN PEDESTAL, BASE AND FDN
	10	ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSH BUTTON ASSEMBLY
	14	1 WAY, 3 SECTION, SIGNAL HOUSING (12" LED)
	2	1 WAY, 4 SECTION, SIGNAL HOUSING (12" LED)
	16	5" LOUVERED SIGNAL BACKPLATES W/ RETROREFLECTIVE BORDERS
	11	DUAL CHANNEL LOOP DETECTOR AMPLIFIER
	33	LOOP DETECTOR (6'X6')
	11	BICYCLE LOOP DETECTOR (6'X6')
	5	OPTICOM OPTICAL DETECTOR, UNIDIRECTIONAL, SINGLE CHANNEL
	4	OPTICOM PHASE SELECTOR MODULE-DUAL CHANNEL
	2	OPTICOM CARD RACK
	2	EMERGENCY PREEMPTION CONFIRMATION BEACON (WHITE)
	PLUS ALL NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.	

SHEET NO.	TOTAL SHEETS
15	22

TRAFFIC SIGNAL PLAN
EXCHANGE ST/GREEN ST/CENTRAL ST
SHEET 2 OF 3



SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (ISOLATED)																					
STREET	DIRECTION	HEAD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	FLASH OP
WASHINGTON ST AT EXCHANGE ST	SB LEFT	A	← G—	← SY—	← R—	← R—	← R—	← R—	← R—	← R—	← R—	← FY—	← SY—	← R—	← G—	← SY—	← R—	← R—	← R—	← R—	← FR—
WASHINGTON ST AT CENTRAL ST	SB LEFT	K	← G—	← SY—	← R—	← R—	← R—	← R—	← R—	← R—	← R—	← FY—	← SY—	← R—	← R—	← R—	← R—	← R—	← R—	← R—	← FR—
WASHINGTON ST AT EXCHANGE ST	SB	B,C	R	R	R	R	R	R	R	R	R	G	Y	R	G	Y	R	R	R	R	FY
WASHINGTON ST AT CENTRAL ST	SB	L,M	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	FY
WASHINGTON ST AT EXCHANGE ST	NB	D,E	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	FY
WASHINGTON ST AT CENTRAL ST	NB	N,O	R	R	R	G	Y	R	G	Y	R	R	R	R	R	R	R	R	R	R	FY
GREEN ST	EB	F,G	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	FR
EXCHANGE ST	WB	H,J	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	FR
CENTRAL ST	WB	P,Q	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	FR
PEDESTRIAN	P1 - P10	ALL	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OUT
TIMING IN SECONDS																					
MINIMUM GREEN (INITIAL)			7			10			7			10			7						EMERGENCY ONLY
PASSAGE TIME (VEHICLE)			2			4			4			4			4						
MAXIMUM 1			10			25			10			35			10						
MAXIMUM 2			9			36			10			47			12						
YELLOW CLEARANCE				3			3			3			3			3					
RED CLEARANCE					1			1			1			1			1				
WALK (W)																		7			
PEDESTRIAN CLEARANCE																			18	1	
RECALL			NONE			SOFT			NONE			SOFT			NONE			NONE			
MEMORY			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			NON-LOCK			LOCK			
COORDINATION DATA			COORDINATION PHASE TIMING (SEC)																		
TIMING PLAN	CYCLE LENGTH	REF/OFFSET	Ø 1			Ø 2			Ø 4			Ø 6			Ø 8			Ø 9			
TP1 (M-F 6 AM - 9 AM)	100	0	11			40			11			51			12			26			
TP2 (M-F 4 PM - 6 PM)	100	88	11			33			14			44			16			26			
TP3 (ALL OTHER TIMES)	FREE	-																			

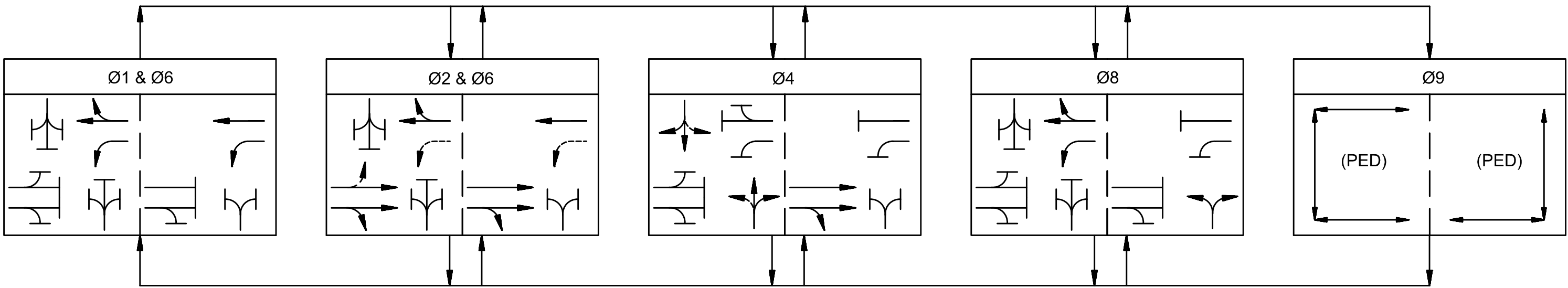
- COORDINATION NOTES:
- OFFSET TO BEGINNING OF FIRST COORDINATED PHASE TO THE BEGINNING OF GREEN.
 - PHASE 2 TO BE COORDINATED PHASE.
 - ALL COORDINATION PHASE TIMES INCLUDE YELLOW AND RED CLEARANCE TIME.
 - COORDINATED PHASE DETECTORS SHALL BE DISABLED DURING COORDINATION.
 - COORDINATION MODE SHALL BE PERMISSIVE. FLOATING FORCE OFFS SHALL BE IN EFFECT DURING COORDINATION.
 - OFFSET SEEKING SHALL BE THE SHORTWAY METHOD.
 - MAXIMUM GREEN #1 FOR FREE OPERATION. MAXIMUM GREEN #2 IN EFFECT DURING COORDINATION.

EMERGENCY PREEMPTION SCHEDULE

APPROACH	PREEMPTION PHASE	NEXT PHASE CALLED
NORTHBOUND	Ø 2	Ø 4
SOUTHBOUND	Ø 1 & Ø 6	Ø 2 & Ø 6
EASTBOUND	Ø 4	Ø 8
WESTBOUND	Ø 8	Ø 1 & Ø 6

- EMERGENCY PREEMPTION OPERATION:
- EMERGENCY VEHICLE PREEMPTION SHALL BE ACTUATED BY AN OPTICAL SIGNAL FROM AN OPTICAL EMITTER MOUNTED ON AN EMERGENCY VEHICLE AND RECEIVED BY AN OPTICAL DETECTOR LOCATED AT INTERSECTION. A SEPARATE RECEIVING DETECTOR IS REQUIRED FOR EACH DETECTED APPROACH.
 - PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
 - IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL TIME THE CLEARANCE INTERVALS OF THE ACTIVE PHASE (IF DIFFERENT THAT TO BE SERVICED) AND ADVANCE TO AND/OR HOLD IN EMERGENCY VEHICLE PREEMPTION PHASE UNTIL PREEMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME CLEARANCES AND SIMILARLY SERVICE OTHER EMERGENCY VEHICLE PREEMPTION SEQUENCES IN THE ORDER RECEIVED (IF RECEIVED). OTHERWISE, RESUME NORMAL PREFERENTIAL PHASE SEQUENCE.
 - PREEMPTION MINIMUM GREENS SHALL BE 6 SECONDS.
 - NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
 - ACTUAL TIMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT.

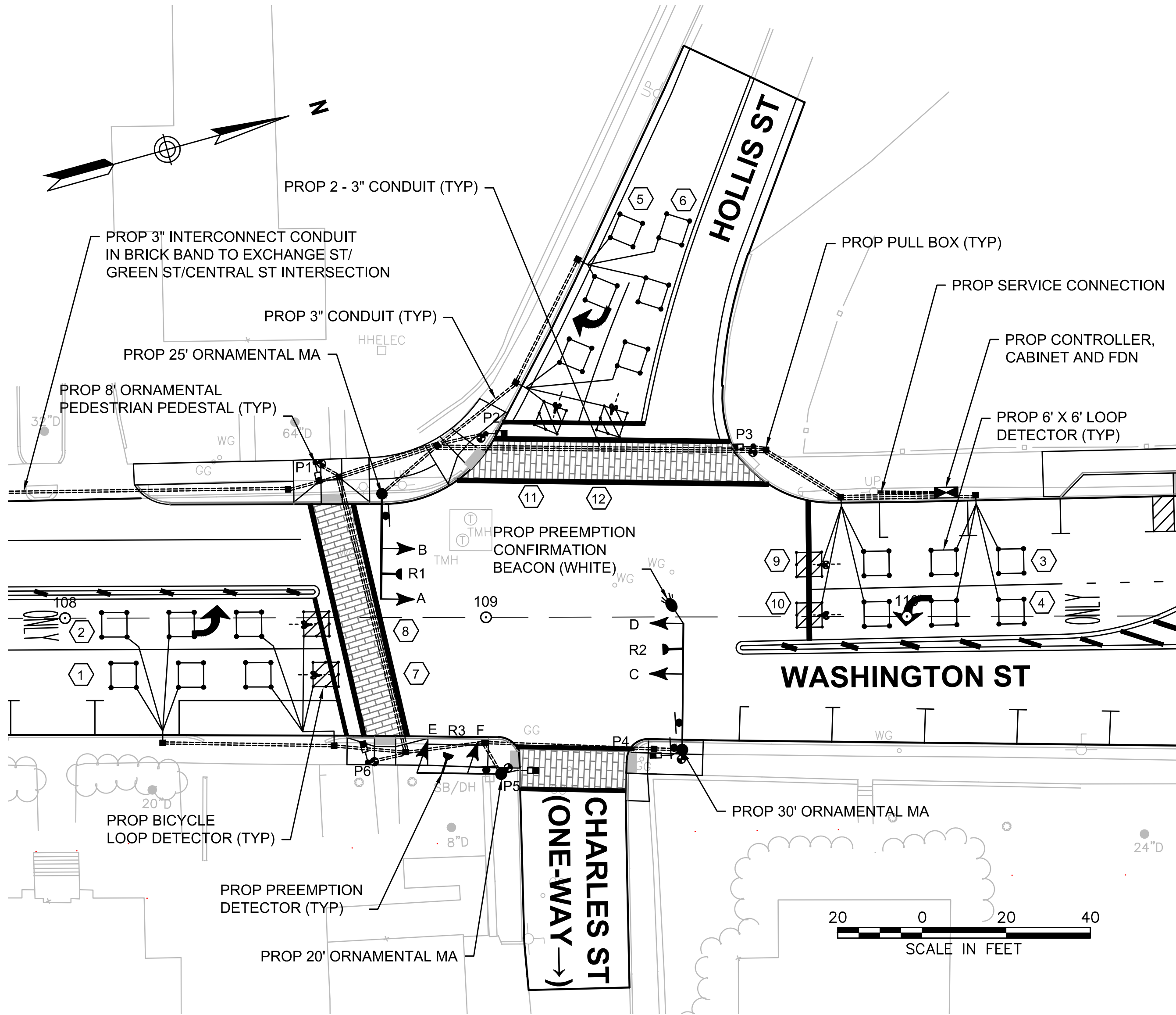
PREFERENTIAL PHASING SEQUENCE



HOLLISTON
WASHINGTON ST CORRIDOR IMPROVEMENTS

SHEET NO.	TOTAL SHEETS
16	22

TRAFFIC SIGNAL PLAN
CHARLES ST/HOLLIS ST
SHEET 3 OF 3



NOTE: ADJUSTMENT OF OVERHEAD UTILITIES TO AVOID CONFLICT WITH SIGNAL MAST ARMS SHALL BE COORDINATED PRIOR TO INSTALLATION OF SIGNAL EQUIPMENT.

EMERGENCY PREEMPTION SCHEDULE

APPROACH	PREEMPTION PHASE	NEXT PHASE CALLED
NORTHBOUND	Ø 6	Ø 2 & Ø 6
SOUTHBOUND	Ø 2	Ø 2 & Ø 6
EASTBOUND	Ø 4	Ø 2 & Ø 6

- EMERGENCY PREEMPTION OPERATION:
- EMERGENCY VEHICLE PREEMPTION SHALL BE ACTUATED BY AN OPTICAL SIGNAL FROM AN OPTICAL EMITTER MOUNTED ON AN EMERGENCY VEHICLE AND RECEIVED BY AN OPTICAL DETECTOR LOCATED AT THE INTERSECTION. A SEPARATE RECEIVING DETECTOR IS REQUIRED FOR EACH DETECTED APPROACH.
 - PREEMPTION SIGNALS FROM MULTIPLE APPROACHES SHALL BE SERVICED ON A FIRST DETECTED FIRST SERVED BASIS.
 - IN RESPONSE TO A PREEMPTION SIGNAL RECEIVED AT AN INTERSECTION BY AN OPTICAL DETECTOR, THE CONTROLLER SHALL TIME THE CLEARANCE INTERVALS OF THE ACTIVE PHASE (IF DIFFERENT FROM THAT TO BE SERVICED) AND ADVANCE TO AND/OR HOLD IN EMERGENCY VEHICLE PREEMPTION PHASE UNTIL PREEMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME CLEARANCES AND SIMILARLY SERVICE OTHER EMERGENCY VEHICLE PREEMPTION SEQUENCES IN THE ORDER RECEIVED (IF RECEIVED). OTHERWISE, RESUME NORMAL PREFERENTIAL PHASE SEQUENCE.
 - PREEMPTION MINIMUM GREENS SHALL BE 6 SECONDS.
 - NORMAL CLEARANCES SHALL BE PROVIDED ON PHASES THAT ARE TERMINATED BY PREEMPTION DEMAND.
 - ACTUAL TIMING FOR PREEMPTION SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE FIRE DEPARTMENT.

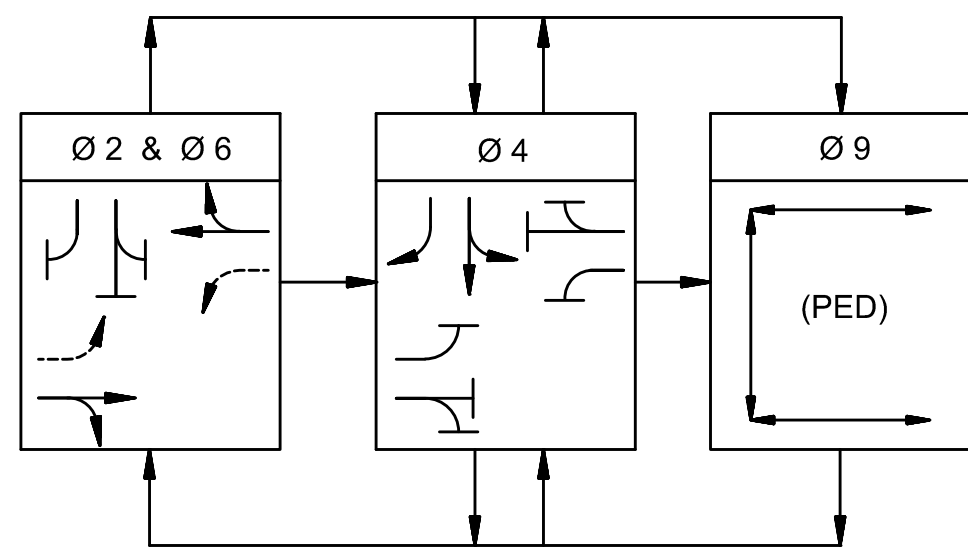
- COORDINATION NOTES:
- OFFSET TO BEGINNING OF FIRST COORDINATED PHASE TO THE BEGINNING OF GREEN.
 - PHASES 2 AND 6 TO BE COORDINATED PHASES.
 - ALL COORDINATION PHASE TIMES INCLUDE YELLOW AND RED CLEARANCE TIME.
 - COORDINATED PHASE DETECTORS SHALL BE DISABLED DURING COORDINATION.
 - COORDINATION MODE SHALL BE PERMISSIVE. FLOATING FORCE OFFS SHALL BE IN EFFECT DURING COORDINATION.
 - OFFSET SEEKING SHALL BE THE SHORTWAY METHOD.
 - MAXIMUM GREEN #1 FOR FREE OPERATION. MAXIMUM GREEN #2 IN EFFECT DURING COORDINATION.

SEQUENCE AND TIMING FOR FULL ACTUATED CONTROL (ISOLATED)															
STREET	DIRECTION	HSGS	1	2	3	4	5	6	7	8	9	10	11	12	FLASH OP
WASHINGTON ST	SB	A,B	G	Y	R	R	R	R	R	R	R	R	R	R	FY
WASHINGTON ST	NB	C,D	R	R	R	R	R	R	G	Y	R	R	R	R	FY
HOLLIS ST	EB	E,F	R	R	R	G	Y	R	R	R	R	R	R	R	FR
PEDESTRIAN	P1 - P6	ALL	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OUT
MINIMUM GREEN (INITIAL)			10			7			10						EMERGENCY ONLY
PASSAGE TIME (VEHICLE)			4			4			4						
MAXIMUM 1			25			10			25						
MAXIMUM 2			58			16			58						
YELLOW CLEARANCE				3			3			3					
RED CLEARANCE					1			1			1				
WALK (W)												7			
PEDESTRIAN CLEARANCE													16	1	
RECALL			SOFT			NONE			SOFT			NONE			
MEMORY			NON-LOCK			NON-LOCK			NON-LOCK			LOCK			
COORDINATION DATA			COORDINATION PHASE TIMING (SEC)												
TIMING PLAN	CYCLE LENGTH	REF/OFFSET	Ø 2			Ø 4			Ø 6			Ø 9			
TP1 (M-F 6 AM - 9 AM)	100	0	56			20			56			24			
TP2 (M-F 4 PM - 6 PM)	100	0	62			14			62			24			
TP3 (ALL OTHER TIMES)	FREE	-													

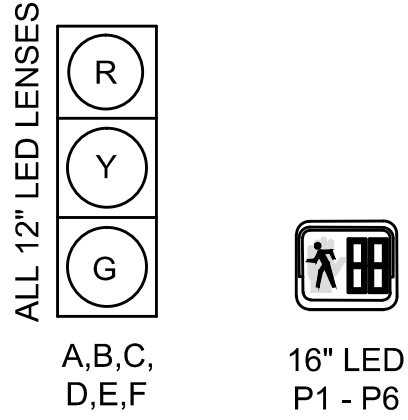
LOOP DETECTOR DATA

DETECTOR NUMBER	AMPLIFIER NUMBER	CHANNEL NUMBER	LOOP SIZE	NUM OF TURNS	Ø CALLED	Ø EXT	MODE A=PULSE B=PRES	DELAY TIME	EXT TIME
1	1	1	3@6'X6"	3	6	6	B	0	0
2	1	2	3@6'X6"	3	6	6	B	0	0
3	2	1	3@6'X6"	3	2	2	B	0	0
4	2	2	3@6'X6"	3	2	2	B	0	0
5	3	1	3@6'X6"	3	4	4	B	0	5
6	3	2	3@6'X6"	3	4	4	B	0	0
7	4	1	1@6'X6"	D-2	6	6	BICYCLE	0	0
8	4	2	1@6'X6"	D-2	6	6	BICYCLE	0	0
9	5	1	1@6'X6"	D-2	2	2	BICYCLE	0	0
10	5	2	1@6'X6"	D-2	2	2	BICYCLE	0	0
11	6	1	1@6'X6"	D-2	4	4	BICYCLE	0	5
12	6	2	1@6'X6"	D-2	4	4	BICYCLE	0	0

PREFERENTIAL PHASING SEQUENCE

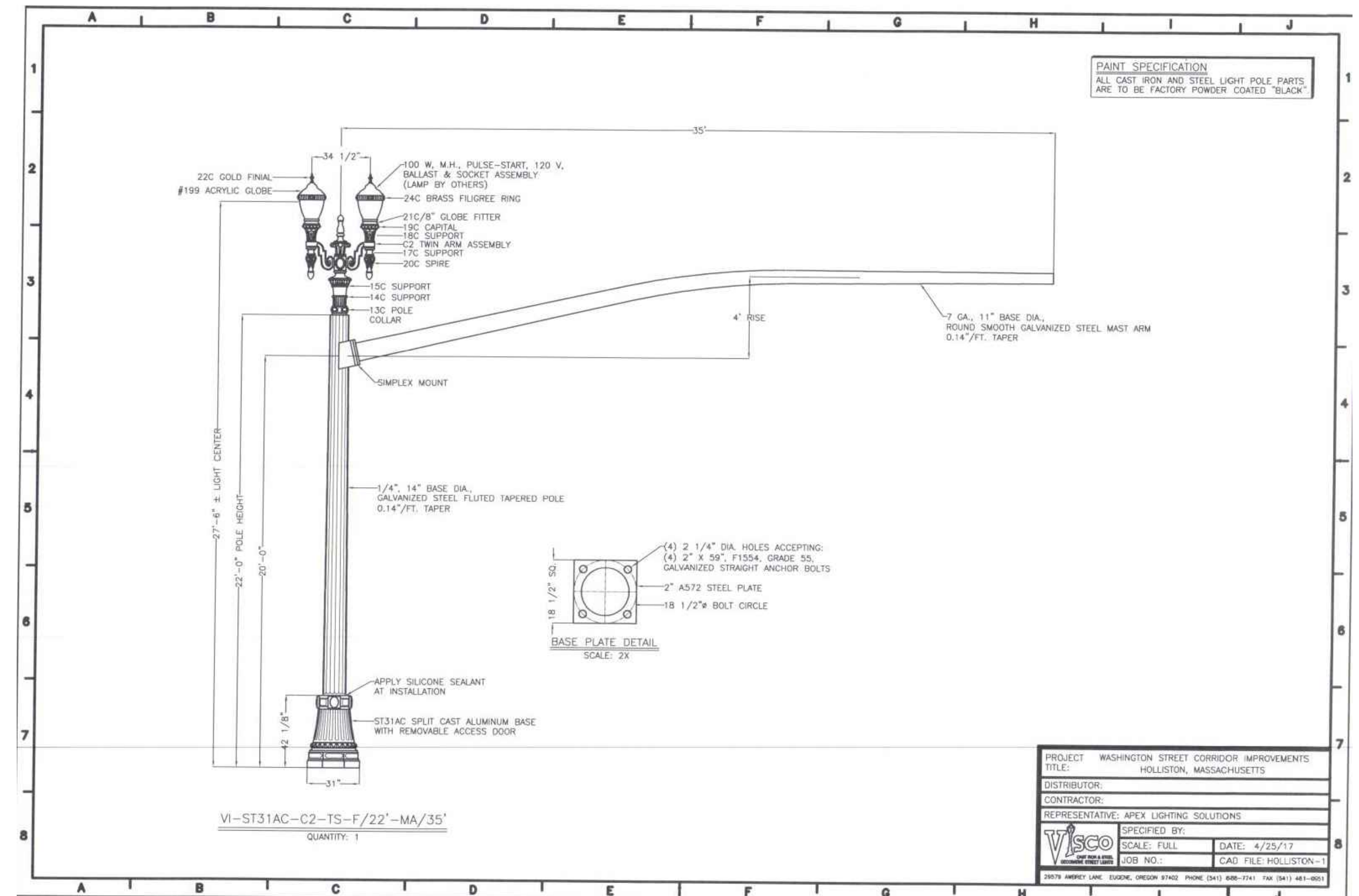
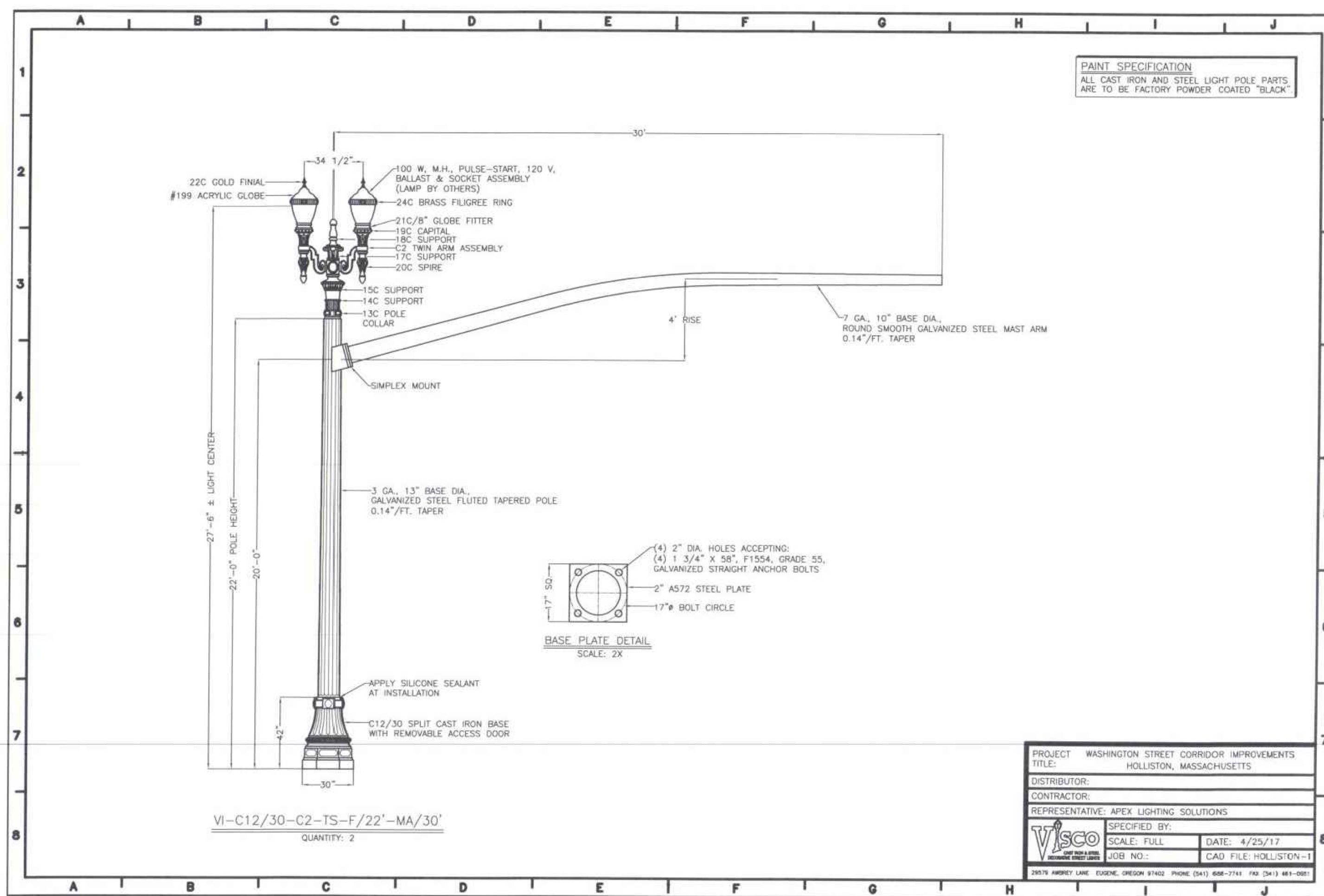
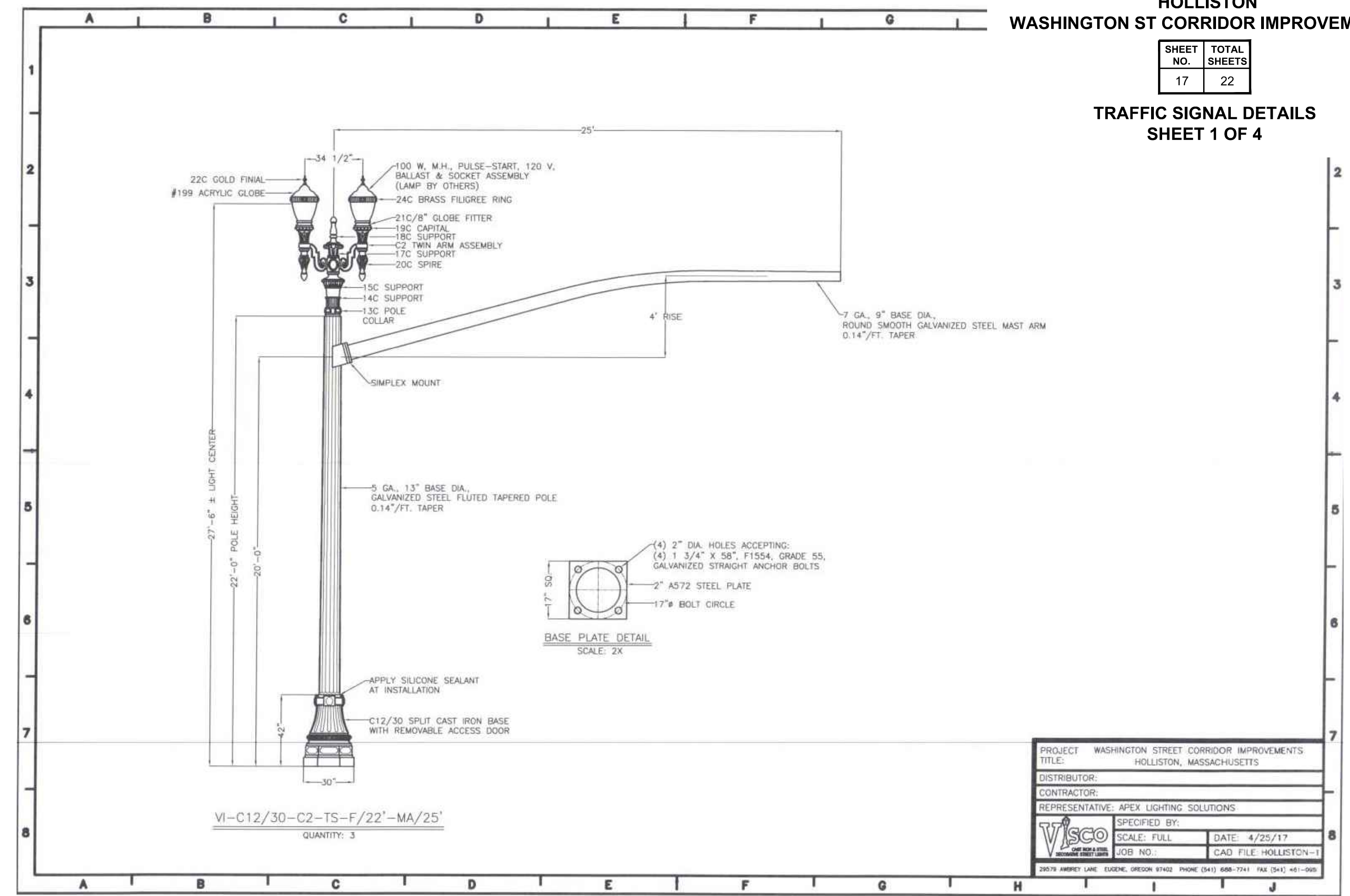
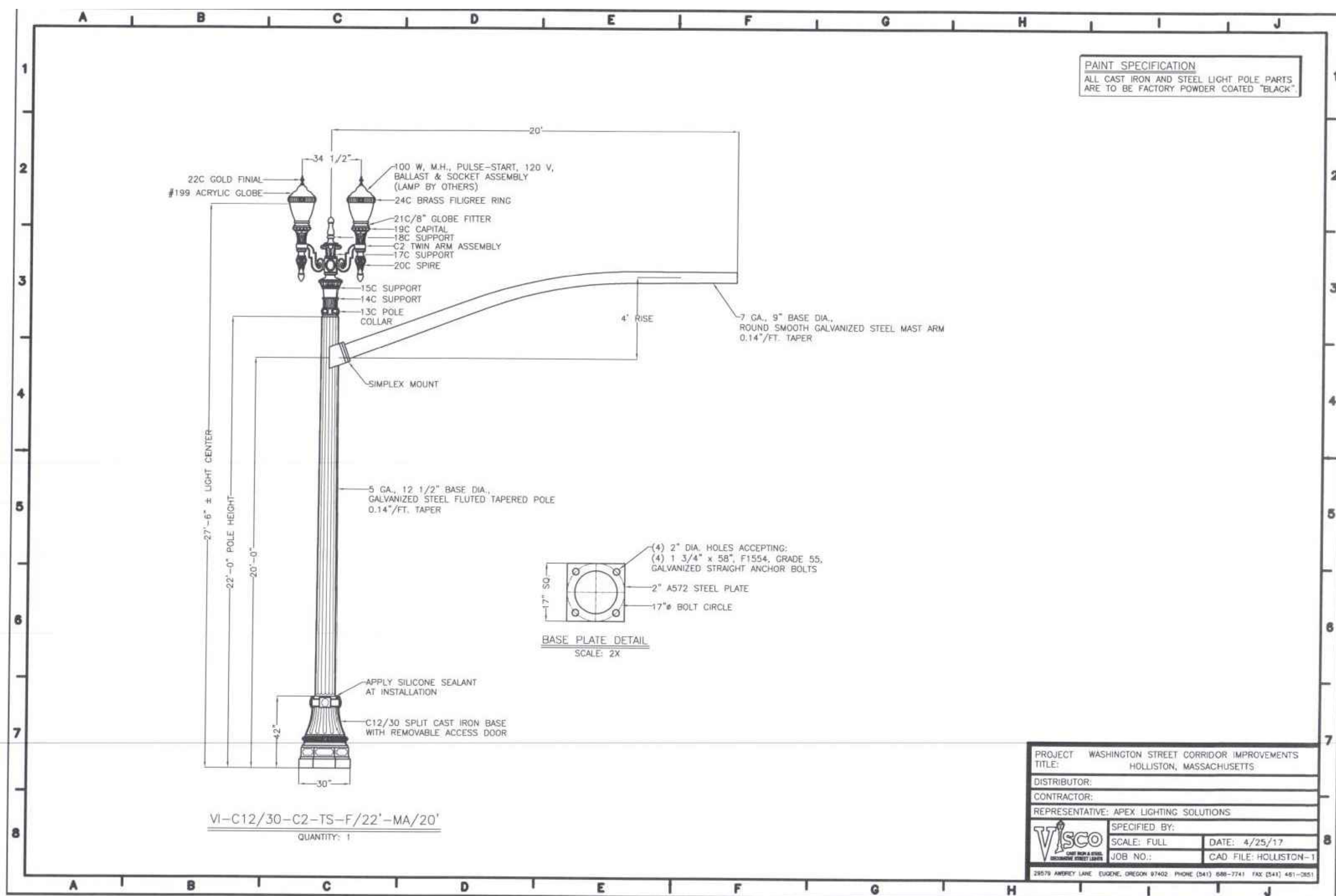


SIGNAL IDENTIFICATION



- NOTES:
- ALL SIGNALS SHALL HAVE CUT AWAY VISORS.
 - ALL SIGNALS SHALL HAVE 5\"/>

MAJOR ITEMS REQUIRED		
PAY ITEM	QUANTITY	ITEM
815.2	1	NEMA TS2 (TYPE 1) CONTROLLER, CABINET AND FDN
	1	SERVICE CONNECTION
	1	20 FT ORNAMENTAL MAST ARM ASSEMBLY, BASE AND FDN
	1	25 FT ORNAMENTAL MAST ARM ASSEMBLY, BASE AND FDN
	1	30 FT ORNAMENTAL MAST ARM ASSEMBLY, BASE AND FDN
	6	PEDESTRIAN SIGNAL HEAD, SINGLE SECTION W/ COUNTDOWN TIMER
	4	8\"/>
	6	ACCESSIBLE PEDESTRIAN SIGNAL (APS) PUSH BUTTON ASSEMBLY
	6	1 WAY, 3 SECTION, SIGNAL HOUSING (12\"/>
	6	5\"/>
	18	LOOP DETECTOR (6\"/>
	6	BICYCLE LOOP DETECTOR (6\"/>
	6	DUAL CHANNEL LOOP DETECTOR AMPLIFIER
	3	OPTICOM OPTICAL DETECTOR, UNIDIRECTIONAL, SINGLE CHANNEL
	2	OPTICOM PHASE SELECTOR MODULE-DUAL CHANNEL
	1	OPTICOM CARD RACK
	1	EMERGENCY PREEMPTION CONFIRMATION BEACON (WHITE)
PLUS ALL NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.		



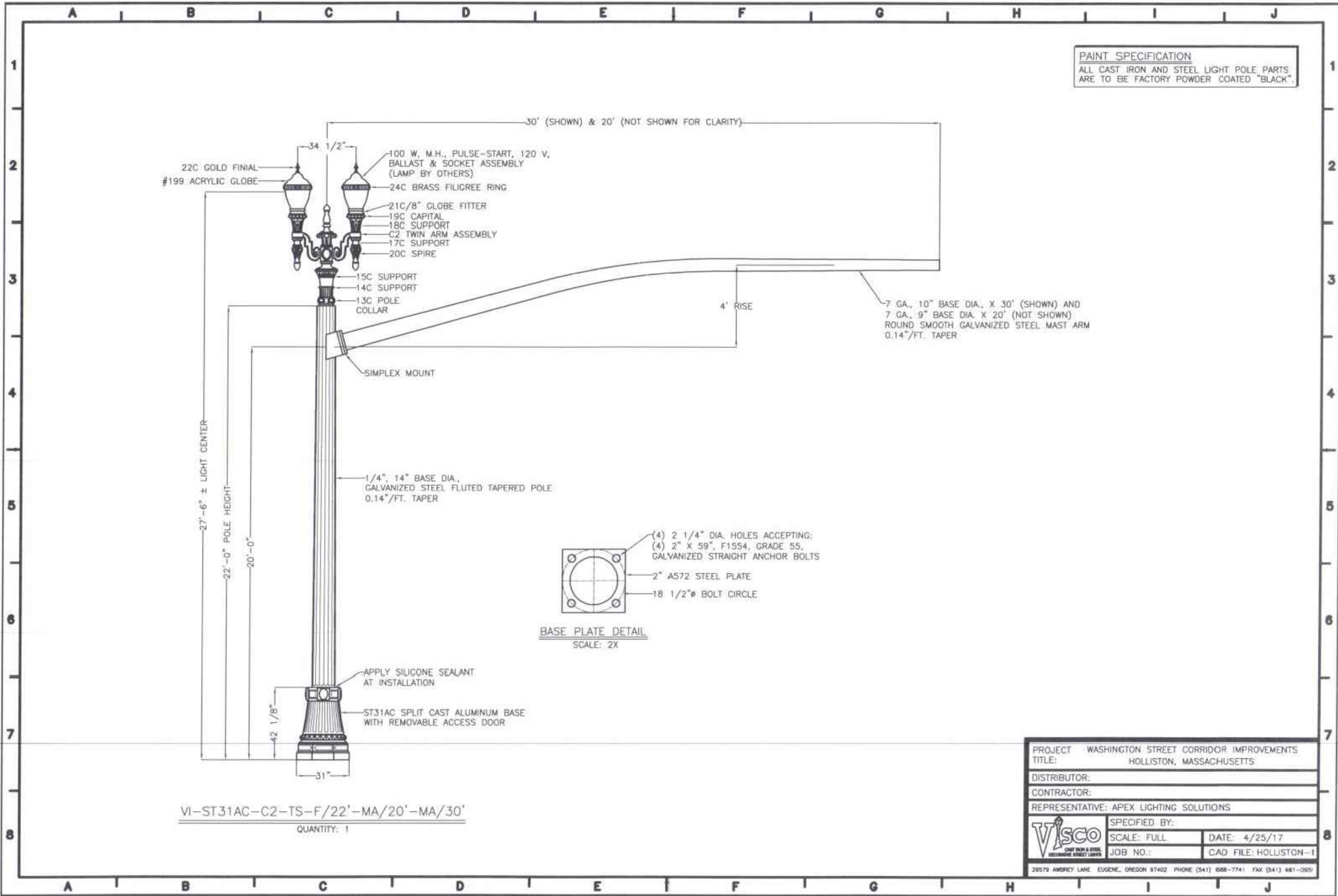
HOLLISTON
WASHINGTON ST CORRIDOR IMPROVEMENTS

SHEET NO.	TOTAL SHEETS
17	22

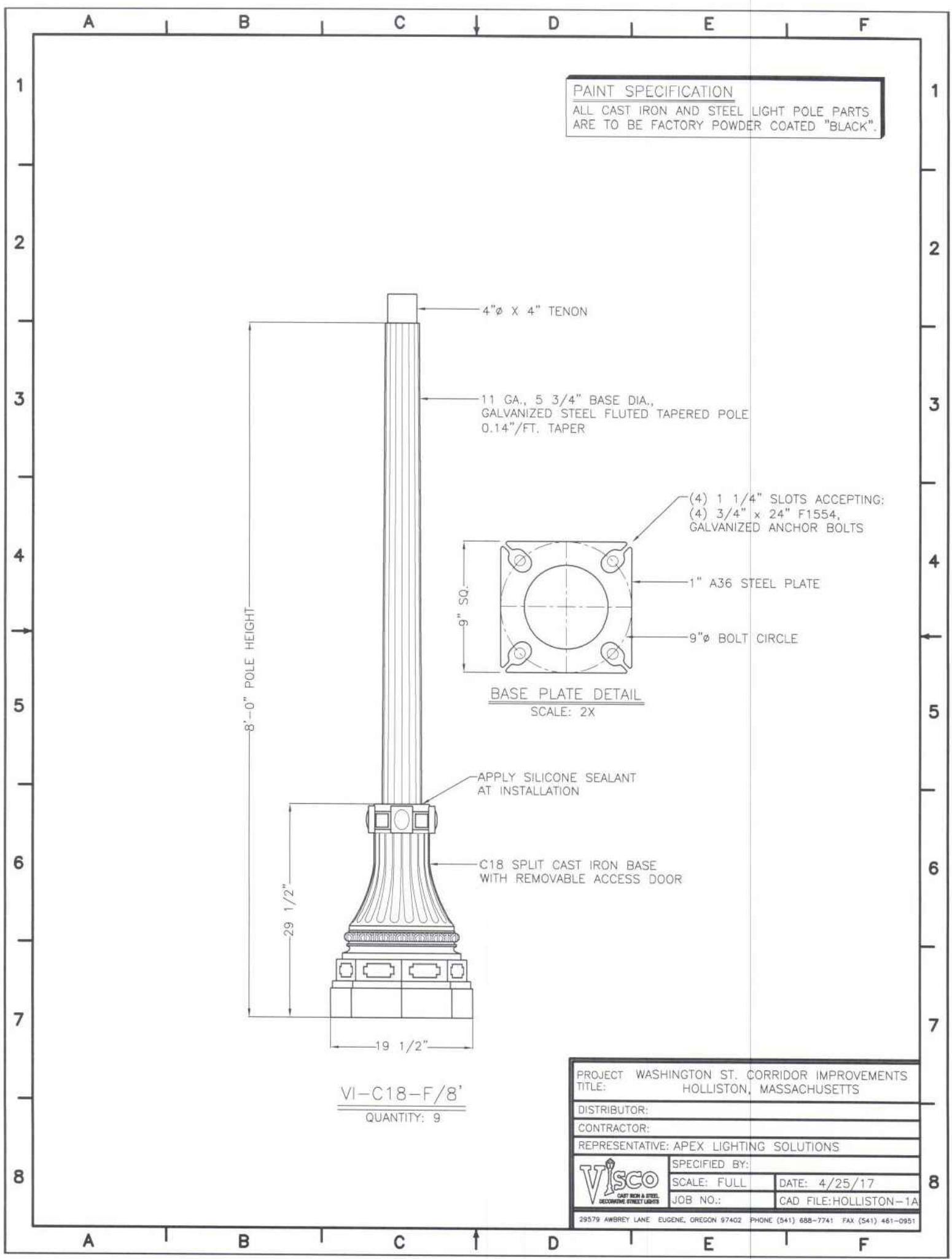
TRAFFIC SIGNAL DETAILS
SHEET 1 OF 4

PROJECT: WASHINGTON STREET CORRIDOR IMPROVEMENTS
TITLE: HOLLISTON, MASSACHUSETTS
DISTRIBUTOR:
CONTRACTOR:
REPRESENTATIVE: APEX LIGHTING SOLUTIONS
SPECIFIED BY:
SCALE: FULL
DATE: 4/25/17
JOB NO.:
CAD FILE: HOLLISTON-1

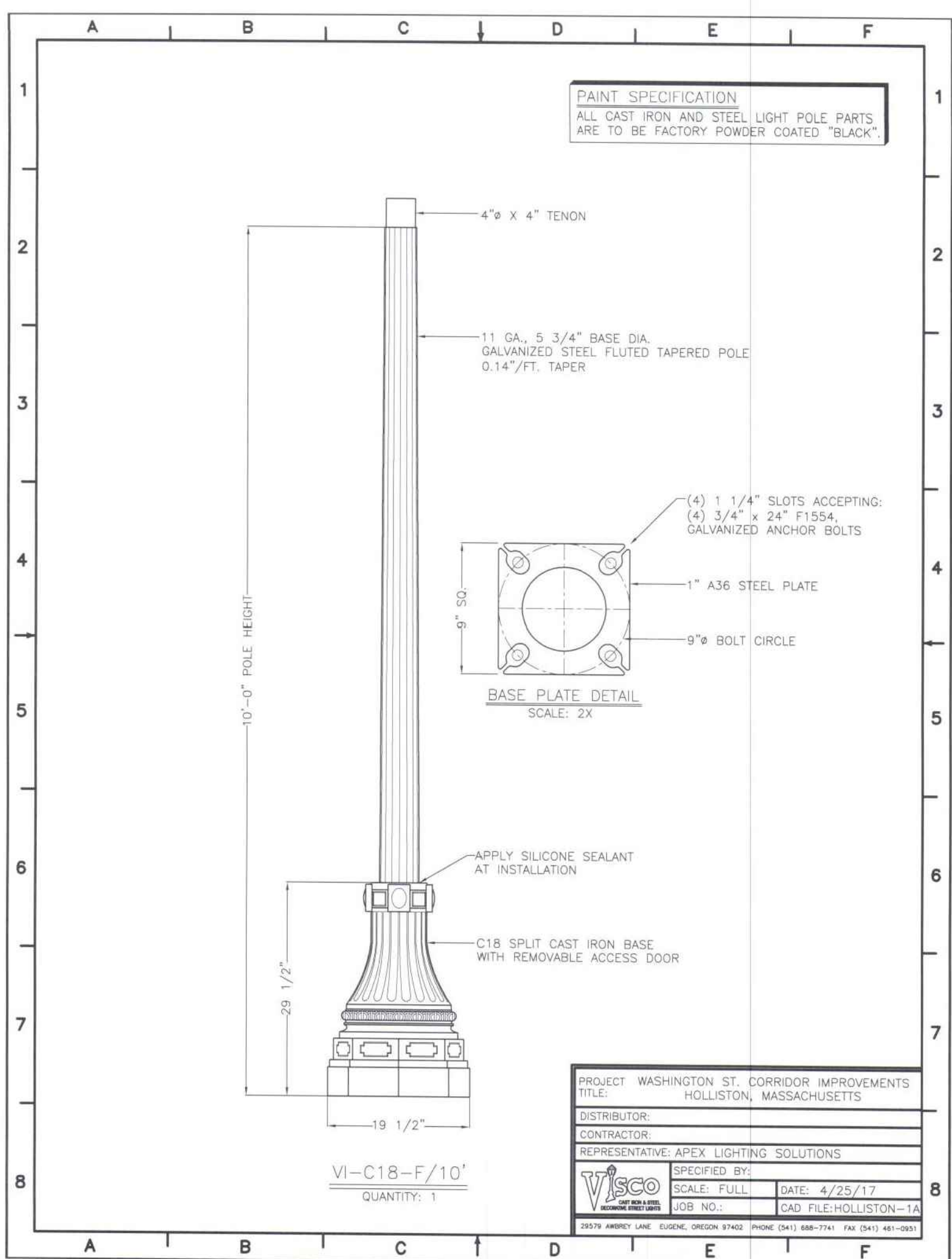
SHEET NO.	TOTAL SHEETS
18	22



20' & 30' ORNAMENTAL MAST ARM



8' ORNAMENTAL PEDESTRIAN PEDESTAL



10' ORNAMENTAL PEDESTRIAN PEDESTAL

SECTION THRU LOOP DETECTOR

SAWCUT SLOT DEPTH GUIDE		
TURNS OF WIRE	SLOT SIZE	
	DEPTH (IN)	WIDTH (IN)
1	1.5	0.5
2	1.5	0.5
3	1.5	0.5
4	2.0	0.5
5	2.0	0.5
6	2.0	0.5
7	2.0	0.5
8	2.0	0.5

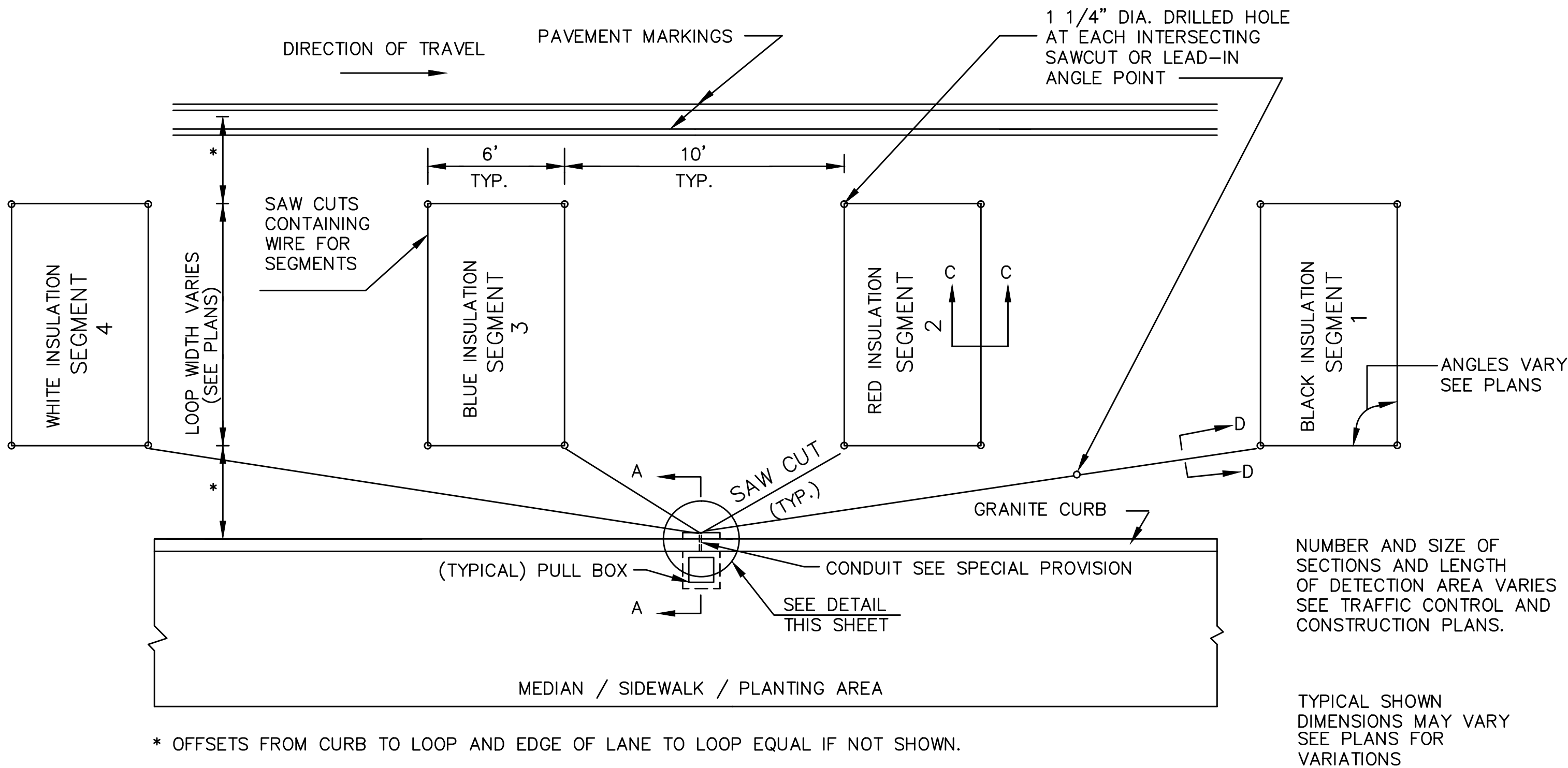
SHEET NO.	TOTAL SHEETS
20	22

TRAFFIC SIGNAL DETAILS
SHEET 4 OF 4

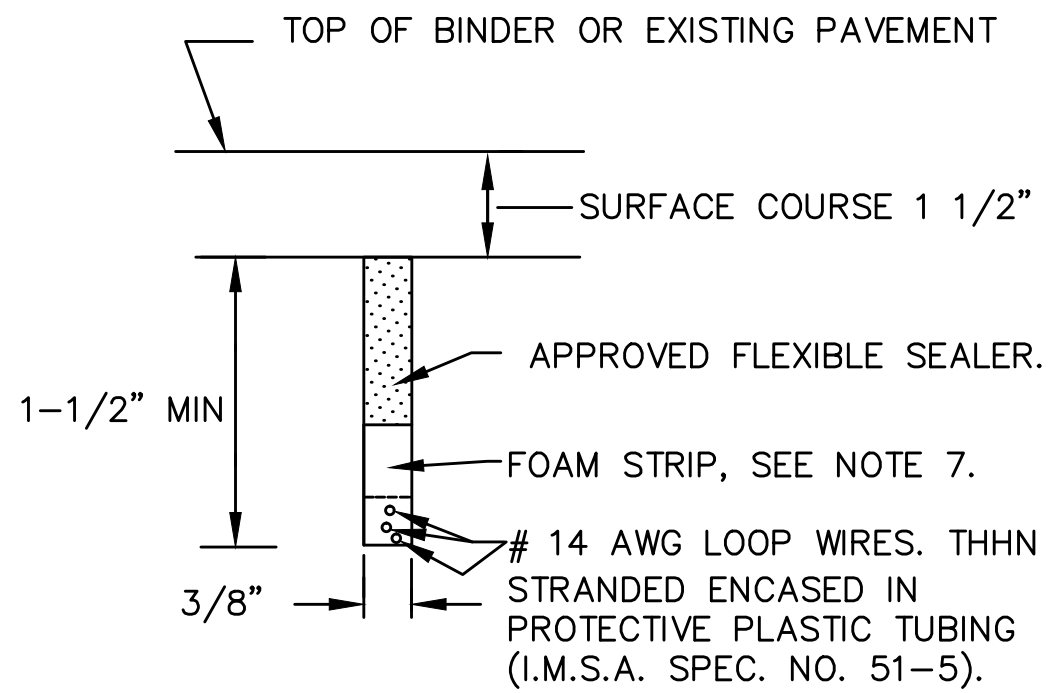
DETECTOR NOTES

1. IN HANDHOLE, SPLICE ALL SEGMENTS TO TYPE II--SHIELDED LOOP DETECTOR DETECTOR LEAD-IN CABLE. SEGMENTS SHALL BE SPLICED IN PARALLEL, IN SERIES, OR IN A COMBINATION OF PARALLEL & SERIES AS SHOWN ON THE PLAN SHEET FOR EACH DETECTOR. NUMBER OF TURNS OF WIRE SHALL ALSO BE AS SHOWN ON THE PLAN SHEET FOR EACH DETECTOR. SEE NOTE 12.
2. SEE SPECIAL PROVISIONS FOR REQUIREMENTS OF DETECTOR AMPLIFIER
3. LEAD IN WIRES SHALL BE TWISTED FROM SEGMENT TO SPLICE WITH SHIELDED CABLE FIVE TURNS PER FOOT. LEAD-IN SHALL BE TYPE II (M8. 16. II).
4. BEFORE STARTING ANY SPLICING, THE ELECTRICAL CONTRACTOR SHALL FURNISH DATA SHEETS ON THE MATERIALS AND/OR METHODS TO BE USED IN ACCORDANCE WITH THE DEPARTMENTS STANDARD OPERATING PROCEDURES FOR APPROVAL OF SHOP DRAWINGS SEE SECTION 815.64, ESPECIALLY PARAGRAPH 1.
5. THE METALLIC SHIELD WHICH SHALL ENCASE THE DETECTOR LEADS FROM A SPLICE (TYPICALLY LOCATED IN A PULL BOX NEAR THE ROADWAY COMPONENT OF THE DETECTOR) THE METALLIC SHIELD WHICH SHALL INCASE THE DETECTOR LEADS FROM A SPLICE (TYPICALLY LOCATED IN A PULL BOX NEAR THE ROADWAY COMPONENT OF THE DETECTOR) OT THE CONTROLLER, AND THE DRAIN WIRE UNDER THE METALLIC SHIELD, SHALL NOT BE GROUNDED TO THE EARTH GROUNDING BUSS IN THE CONTROLLER, AND THE SHIELD AND DRAIN WIRE SHALL BE CAREFULLY INSULATED FROM THE TRANSFORMER NEUTRAL OR FROM EARTH GROUND AT ALL POINTS ALONG IT'S LENGTH. SPECIFICALLY, THIS INCLUDES CAREFUL INSULATION OF THE EXPOSED PORTION OF THE SHIELD AND THE AND THE DRAIN WIRE AT THE END AWAY FROM THE CONTROLLER WHERE IT IS SPLICED TO WIRES LEADING TO THE ROADWAY COMPONENT OF THE DETECTOR. THIS IS IMPORTANT TO AVOID A GROUND RETURN LOOP.
6. FILL ALL CONDUIT OPENINGS WITH DUCT SEAL.
7. AFTER SAW CUTS ARE COMPLETE, BLOW OUT WATER WITH OIL - FREE COMPRESSED AIR UNTIL CUTS ARE CLEAN AND DRY. INSERT WIRE INTO CLEAN SLOT WITH A BLUNT, SMOOTH, ROUND EGED TOOL OF WOOD OR PLASTIC SUCH AS A PAINT STIRRER. DO NOT USE A SCREWDRIVER, THEN INSERT FOAM PLASTIC HOLD DOWN STRIPS, SIMILAR TO ETHA FOAM SB. STRIPS SHALL BE ABOUT 2" LONG, PLACED IN THE SLOT ABOUT EVERY 2 FEET THEN POUR SEALER, TAKING CARE TO ELIMINATE BUBBLES.
8. THE COMBINED ROADWAY LOOP, TWISTED LEAD-IN WIRES, SPLICE AND SHIELDED LEAD-IN CABLE SHALL HAVE A RESISTANCE TO GROUND OF AT LEAST 100 MEGOHMS. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
9. FOR INSTALLATION OF SINGLE (ONE SEGMENT) SMALL WIRE LOOP DETECTOR DETAIL IS THE SAME
10. CUT LOOPS IN BINDER AND FILL WITH APPROVED FLEXIBLE SEALER.
11. DETECTOR WIRE SHALL BE A DIFFERENT COLOR FOR EACH SEGMENT OF A DETECTOR GROUP. SEE DETAIL
12. SPLICING PATTERN P = SERIES/PARALLEL: SPLICE SEGMENTS 1 AND 3 OF AN INDIVIDUAL DETECTOR IN SERIES. SPLICE SEGMENTS 2 AND 4 IN SERIES. SPLICE THE RESULTANT TWO GROUPS IN PARALLEL. SPLICE THE RESULTANT COMBINATION TO ONE LEAD-IN CABLE. CONNECT THIS CABLE TO AN OTHERWISE UNUSED AMPLIFIER CHANNEL.

SPLICING PATTERN S = SERIES: SPLICE ALL SEGMENTS (TYPICALLY FOUR, BUT MAY BE LESS) OF AN INDIVIDUAL DETECTOR IN SERIES. SPLICE THE RESULTANT COMBINATION TO ONE LEAD-IN CABLE TO AN OTHERWISE UNUSED AMPLIFIER CHANNEL.

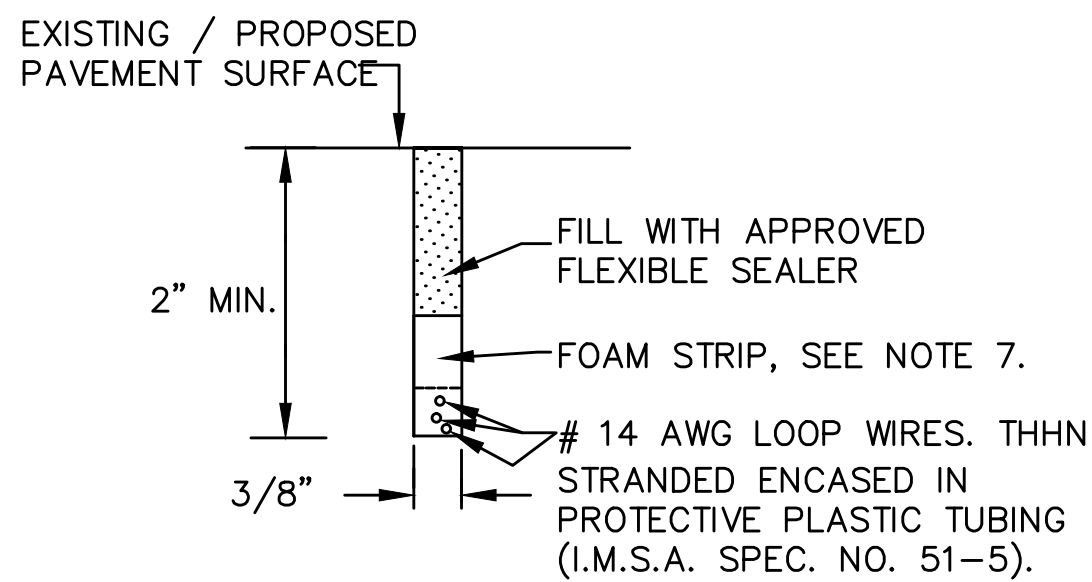


PLAN OF SEGMENTED DETECTOR DETAIL
NOT TO SCALE



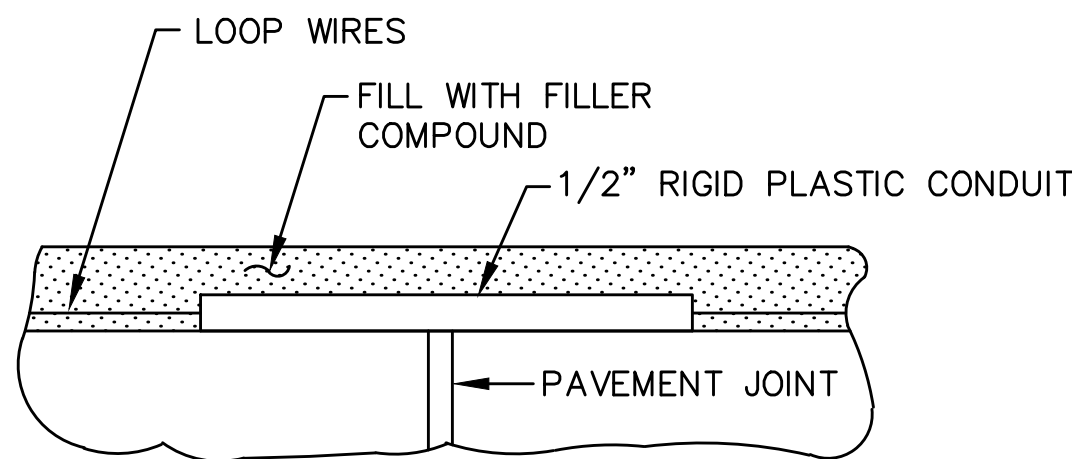
SECTION C-C & D-D

LOOPS IN BINDER COURSE OR EXISTING PAVEMENT TO BE RESURFACED
NOT TO SCALE

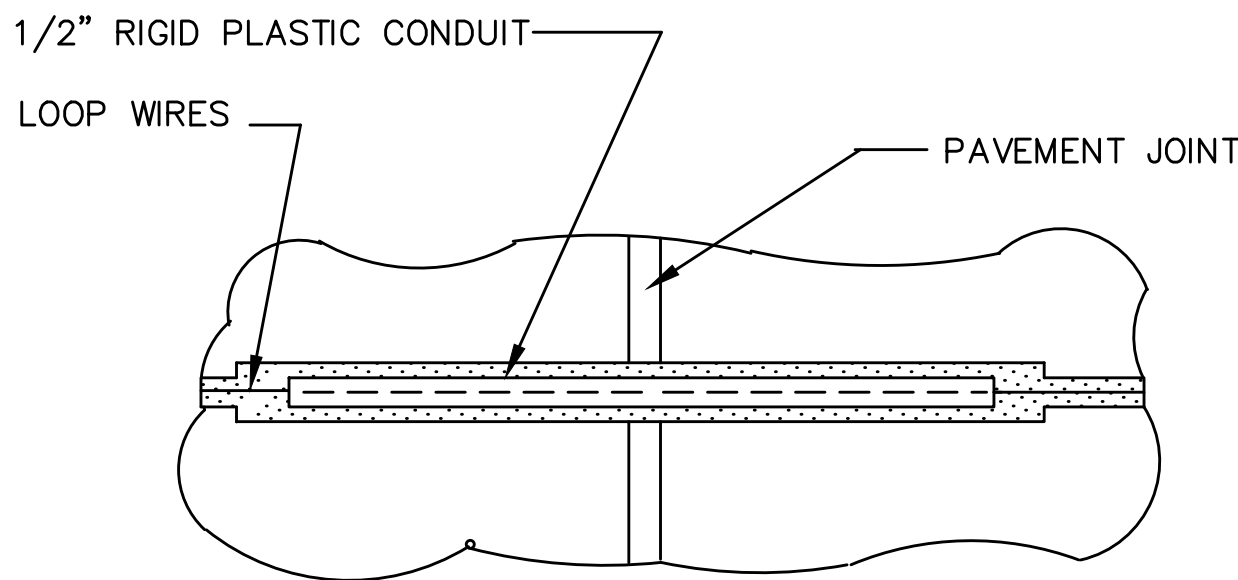


SECTION C-C & D-D

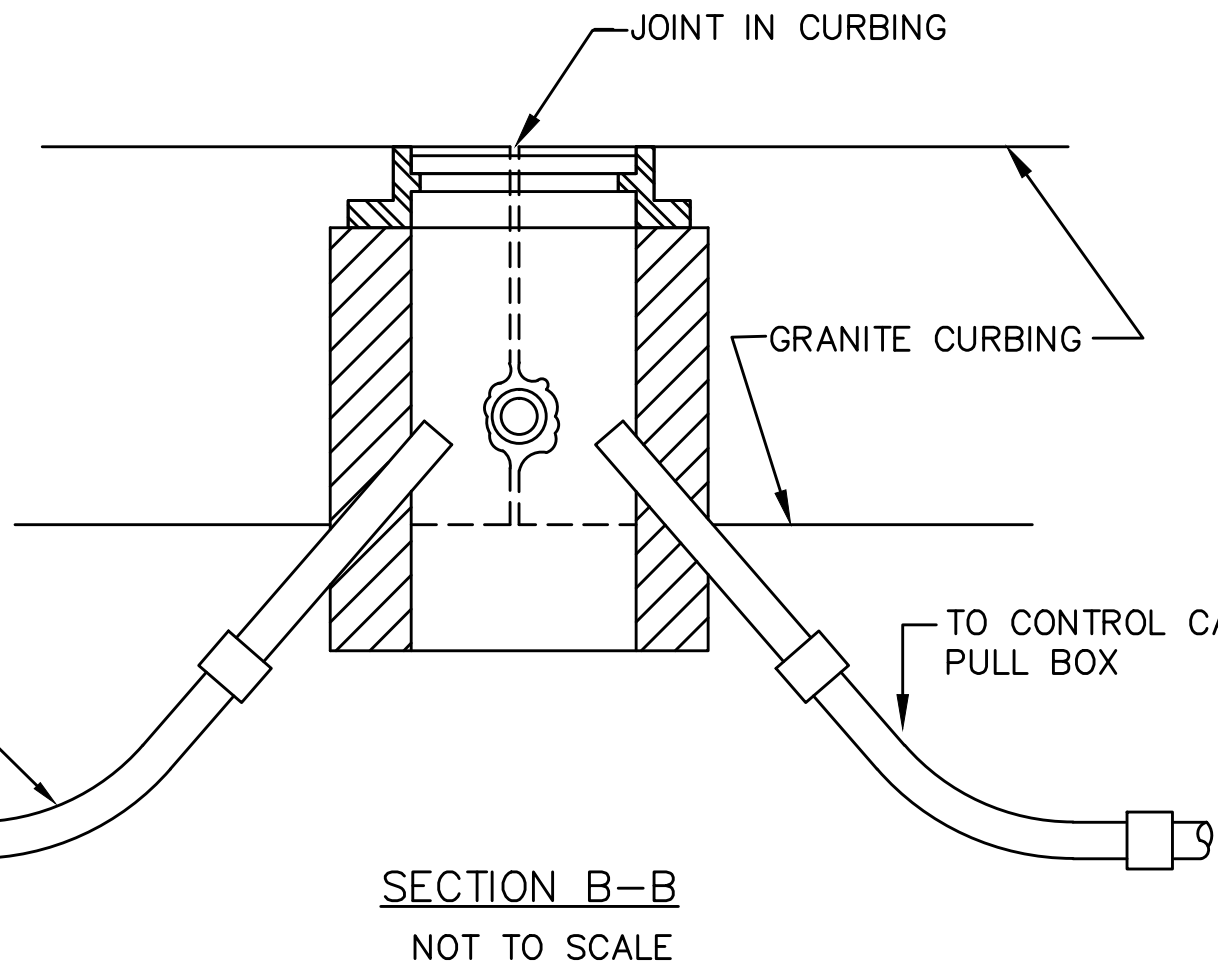
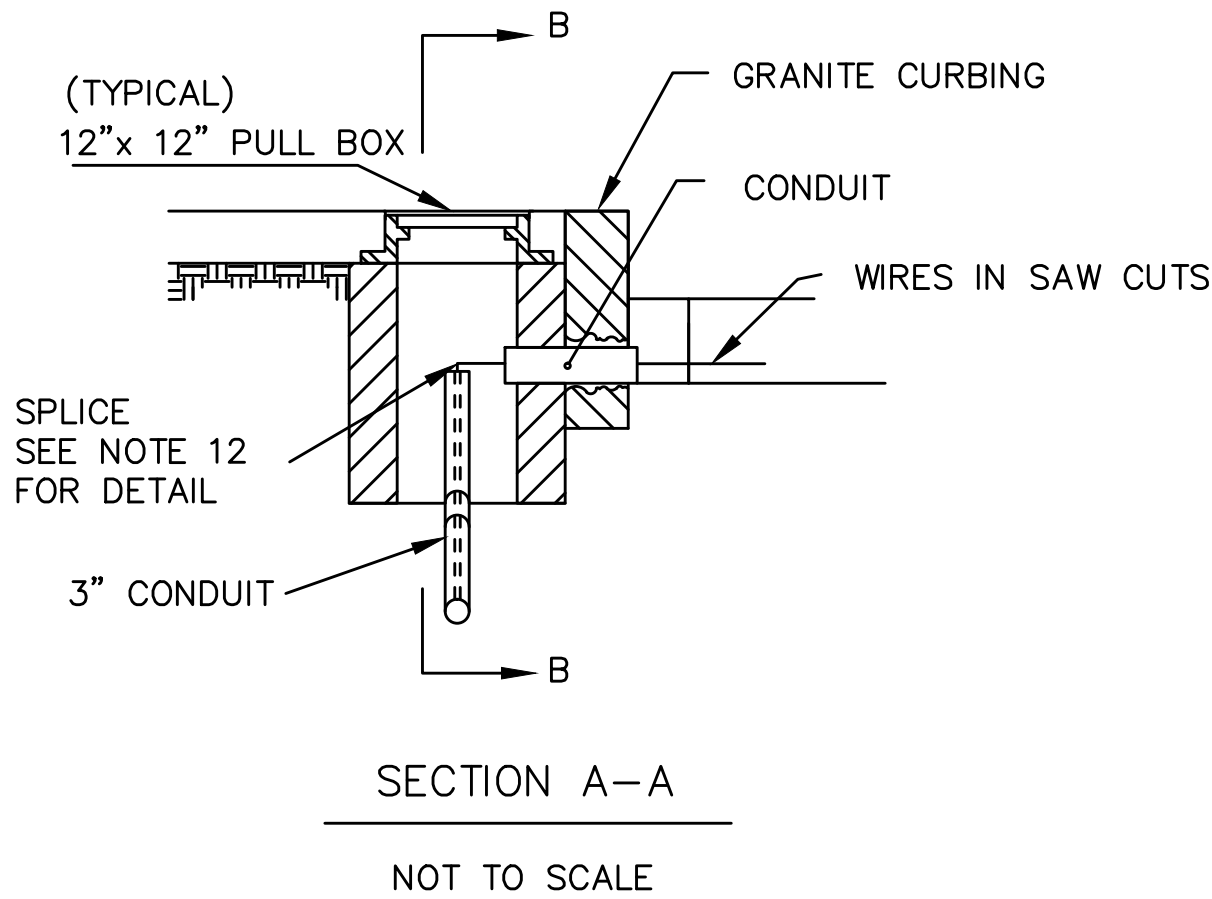
LOOPS IN SURFACE COURSE
NOT TO SCALE



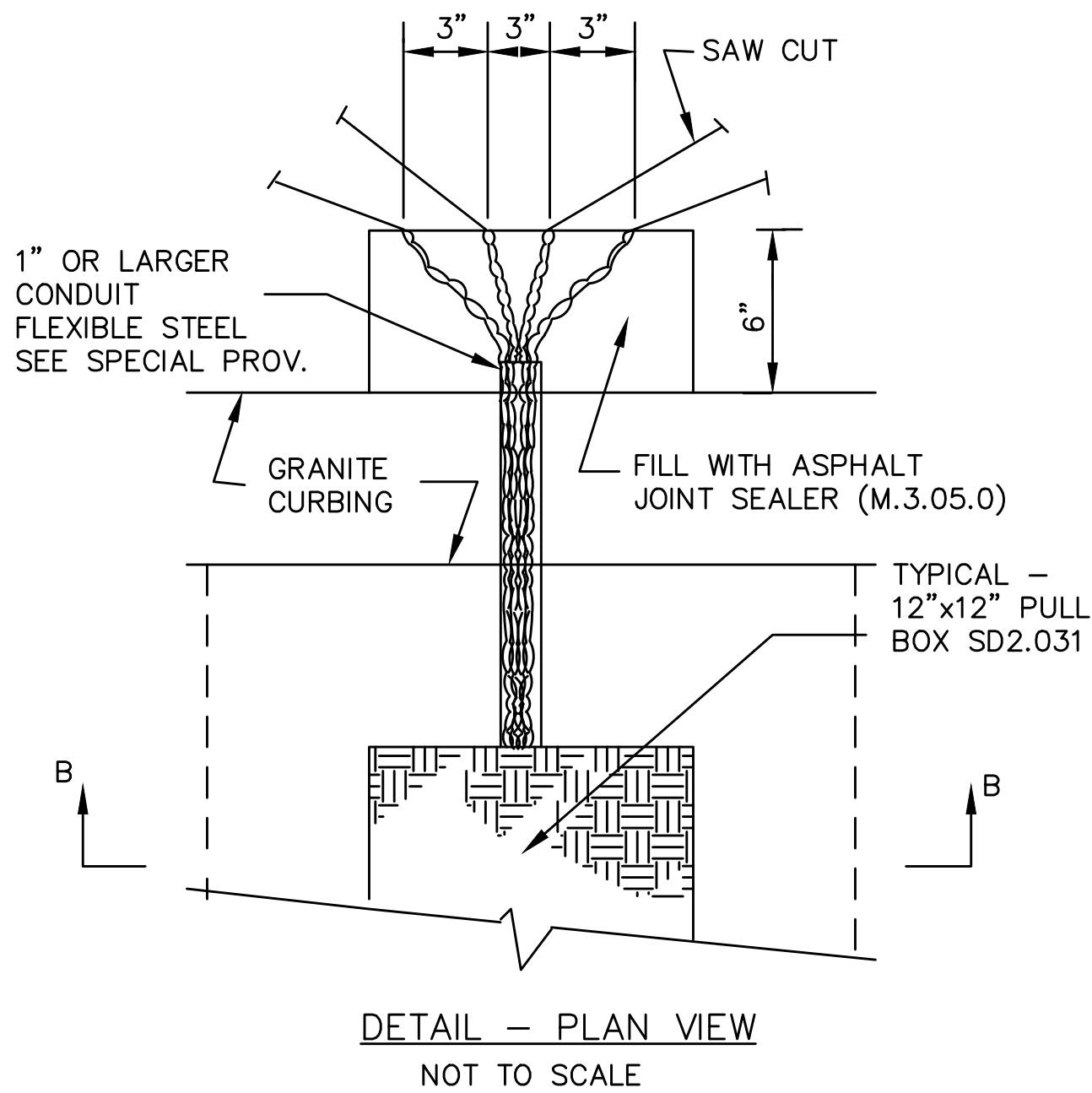
VERTICAL SECTION
TREATMENT AT PAVEMENT JOINTS
NOT TO SCALE



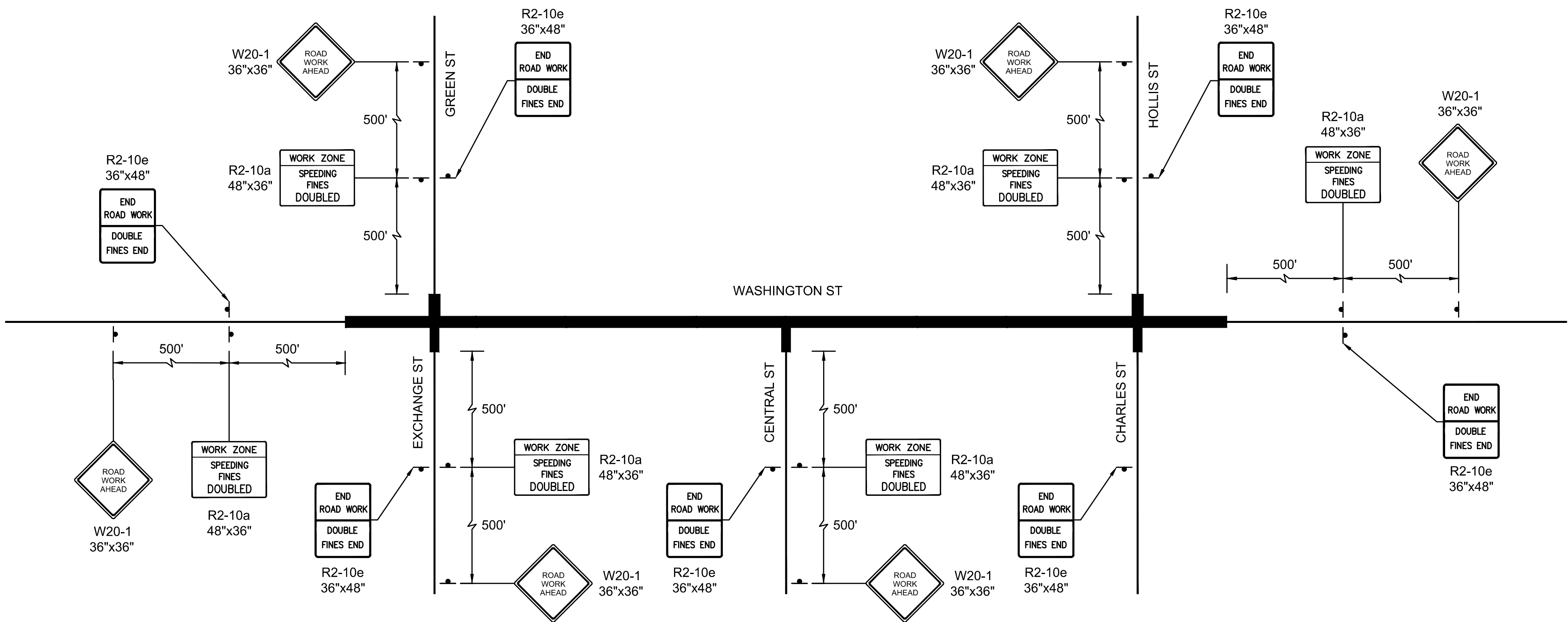
PLAN
TREATMENT AT PAVEMENT JOINTS
NOT TO SCALE



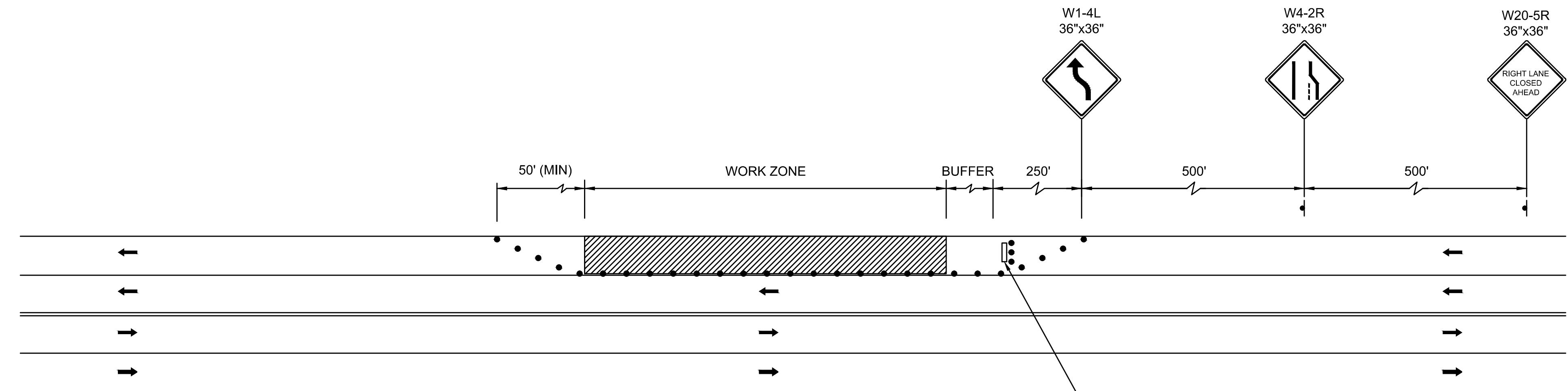
TO ADDITIONAL LOOP
IF ANY



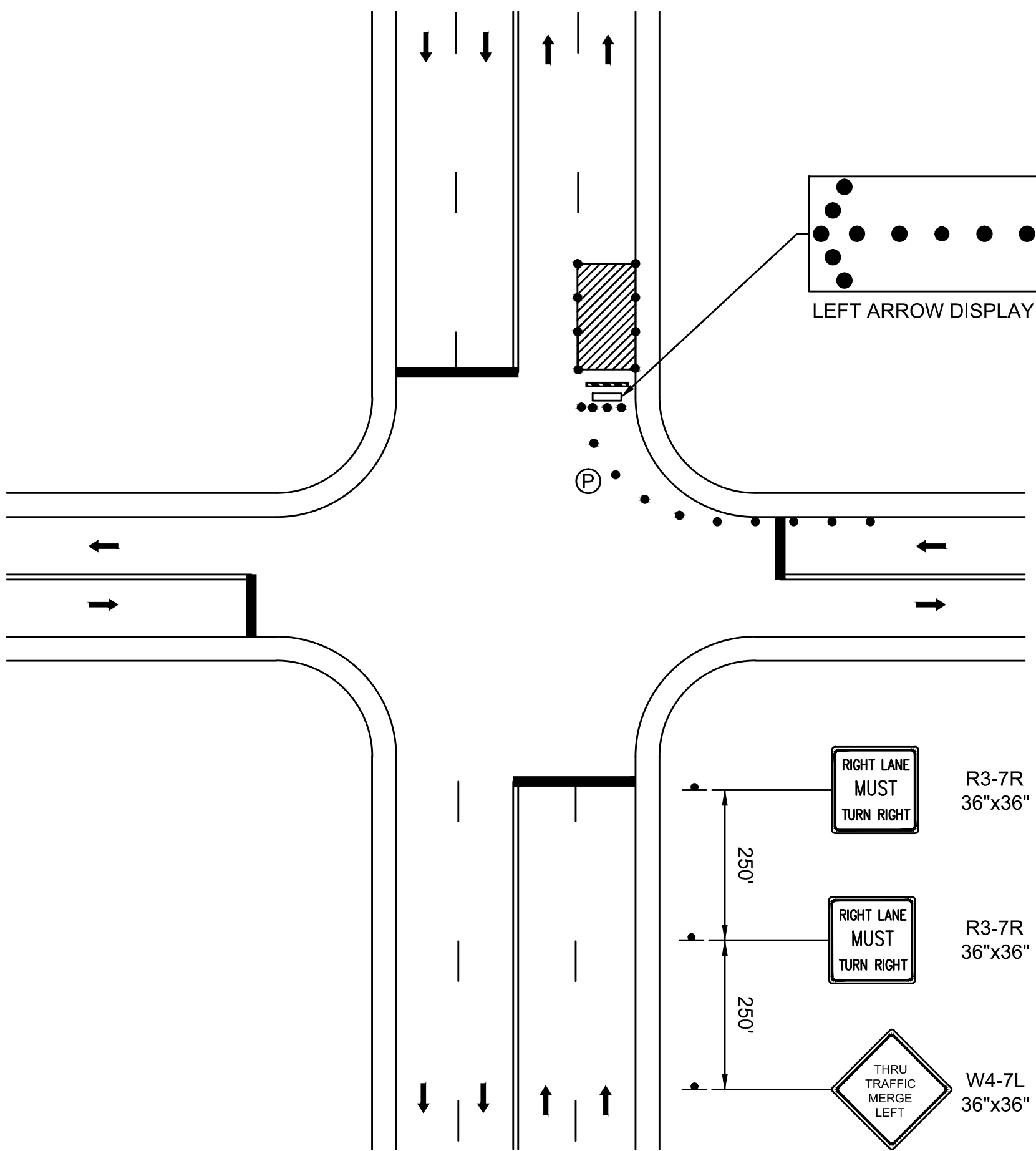
SHEET NO.	TOTAL SHEETS
21	22



PROJECT LIMIT SIGNING
NOT TO SCALE



MULTIPLE LANE ROAD - RIGHT LANE CLOSURE
NOT TO SCALE



DOUBLE LANE APPROACH FAR SIDE RIGHT LANE CLOSURE
NOT TO SCALE

LEGEND:

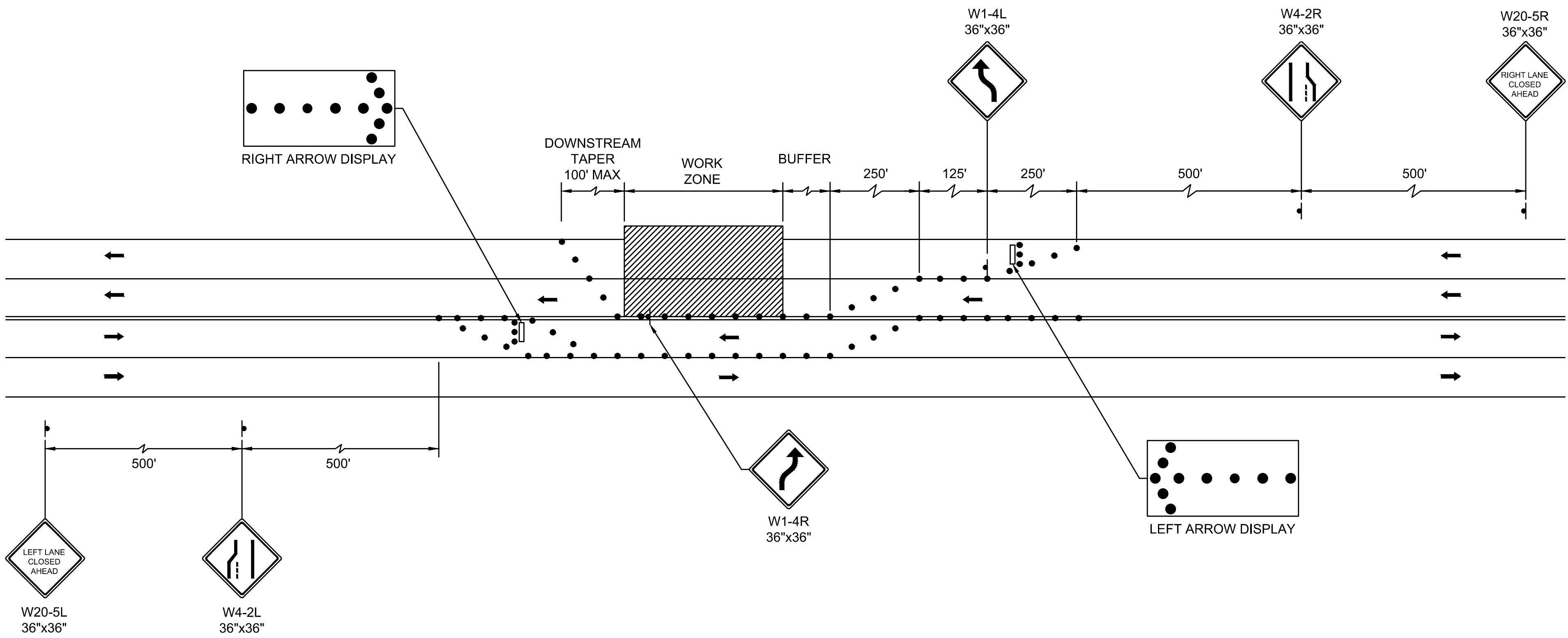
- WORK AREA
- SIGN
- CHANNELIZING DEVICE
- FLASHING ARROW BOARD
- TYPE III BARRICADE
- POLICE
- ARROW PANEL SUPPORT TRAILER
- FLOW DIRECTION
- TEMPORARY PEDESTRIAN RAMP

NOTES:

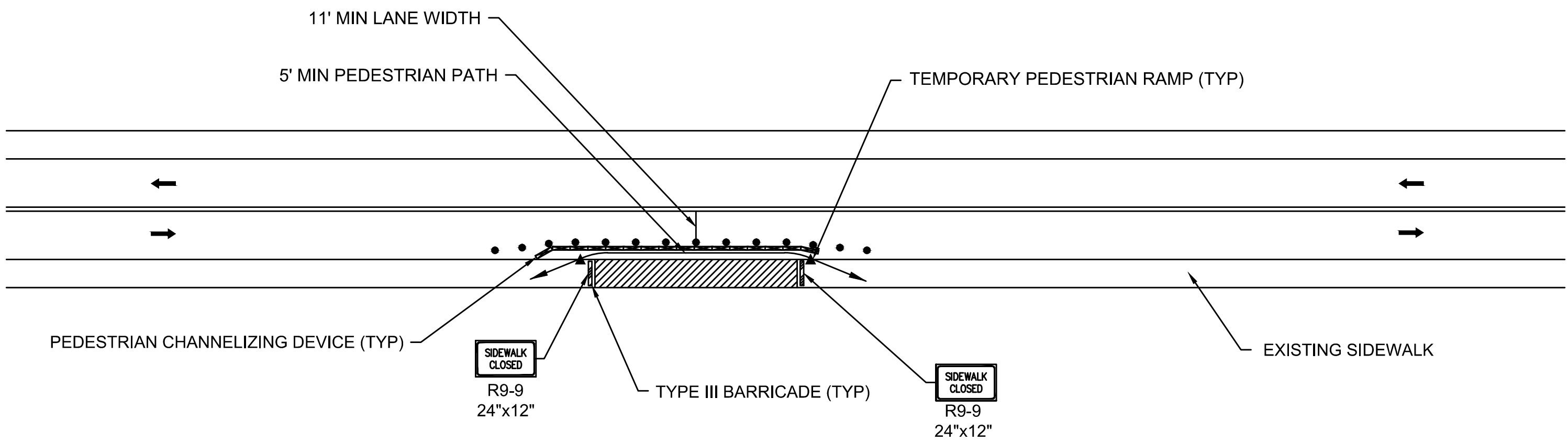
- ALL TRAFFIC CONTROL DEVICES AND WORK ZONE SET-UPS ARE TO BE IN ACCORDANCE WITH MUTCD AND MASSDOT STANDARDS.
- MAXIMUM SPACING OF TRAFFIC CONTROL DEVICES (DRUMS AND CONES) SHALL BE 35 FEET.
- ALL SIGNS SHOWN SHALL BE MOUNTED ON SUITABLE TEMPORARY SUPPORTS SUCH THAT SIGNS ARE CLEARLY VISIBLE TO APPROACHING TRAFFIC.
- MAINTAIN ACCESS TO ALL DRIVEWAYS AND PEDESTRIAN SIDEWALKS AT ALL TIMES, UNLESS OTHERWISE NOTED.
- THE FIRST FIVE PLASTIC DRUMS OF A TAPER MAY BE MOUNTED WITH TYPE A LIGHTS.
- DISTANCES ARE A GUIDE AND MAY BE ADJUSTED IN THE FIELD BY THE ENGINEER.
- MINIMUM LANE WIDTH IS 10 FEET, MEASURED FROM THE EDGE OF DRUMS OR MEDIAN BARRIER.
- TEMPORARY PEDESTRIAN ACCESS ROUTE SHALL BE PROVIDED IN ACCORDANCE WITH MUTCD AND MASSDOT STANDARDS WHERE WORK IMPACTS THE EXISTING PEDESTRIAN ACCESS ROUTE.
- ALL CONSTRUCTION OF FULL DEPTH PAVEMENT AND MICROMILLING AND PAVEMENT OVERLAY SHALL BE CONDUCTED DURING NIGHTTIME TO MINIMIZE IMPACT TO TRAFFIC OPERATIONS ALONG WASHINGTON STREET.
- SIDEWALK RECONSTRUCTION SHALL BE CONDUCTED IN A SEQUENCE THAT MINIMIZES IMPACT TO BUSINESS OPERATIONS AND MAINTAIN PEDESTRIAN ACCESS DURING ALL TIMES THAT BUSINESSES ARE OPERATIONAL. ALL PEDESTRIAN ACCESS ROUTES SHALL BE ADA COMPLIANT.

SHEET NO.	TOTAL SHEETS
22	22

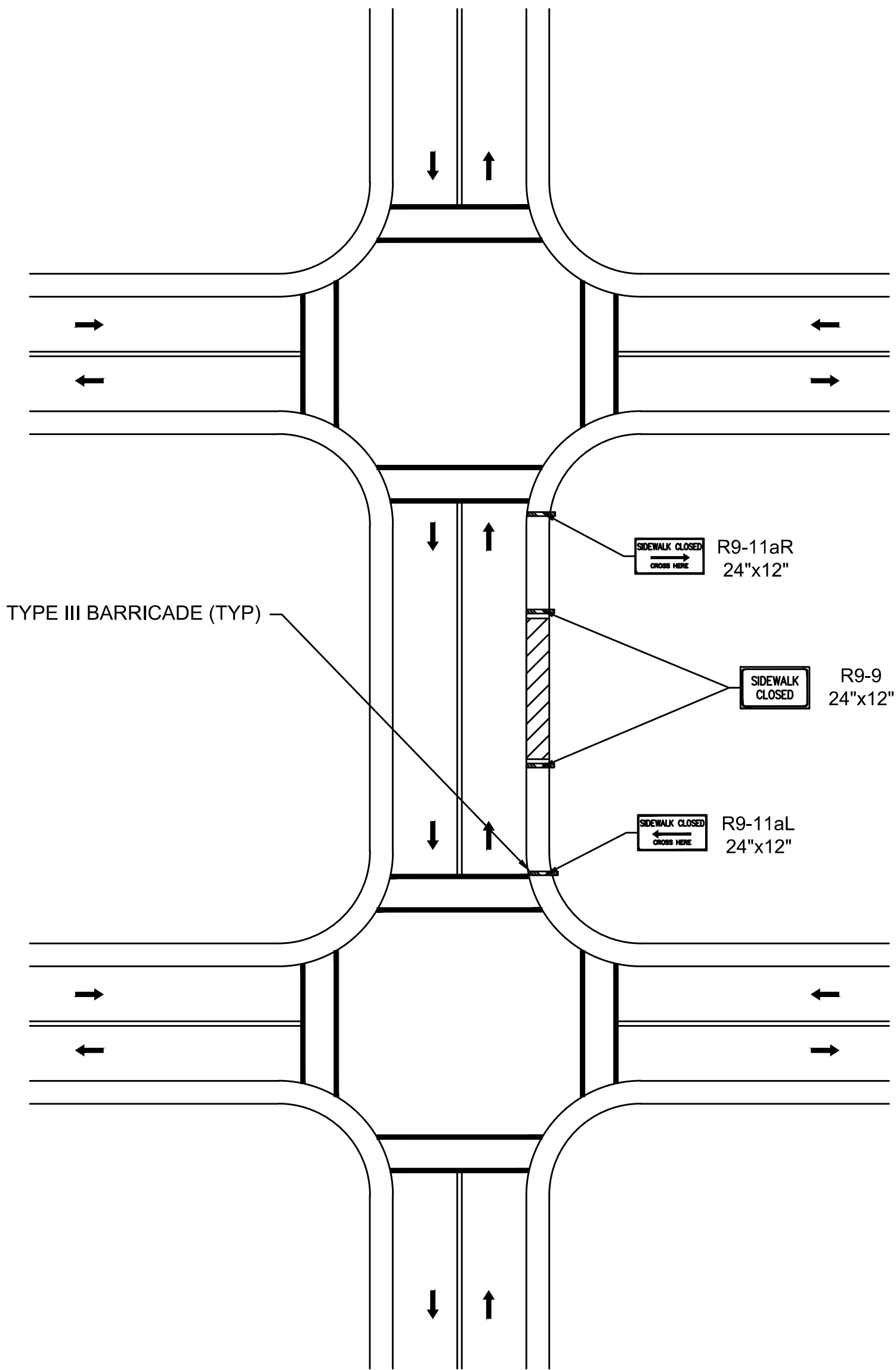
TEMPORARY TRAFFIC CONTROL PLAN
SHEET 2 OF 2



MULTIPLE LANE ROAD - 1/2 ROAD CLOSURE
NOT TO SCALE



PEDESTRIAN DETOUR - TYPE I
NOT TO SCALE



PEDESTRIAN DETOUR - TYPE II
NOT TO SCALE

LEGEND:

- WORK AREA
- SIGN
- CHANNELIZING DEVICE
- FLASHING ARROW BOARD
- TYPE III BARRICADE
- POLICE
- ARROW PANEL SUPPORT TRAILER
- FLOW DIRECTION
- TEMPORARY PEDESTRIAN RAMP

NOTES:

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