



MASSACHUSETTS DEPARTMENT OF TRANSPORTATION  
HIGHWAY DIVISION

WAREHAM  
CRANBERRY HIGHWAY (ROUTES 6 & 28)

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	01	81

PROJECT FILE NO. 117106

TITLE & INDEX SHEET

PLAN AND PROFILE OF  
CRANBERRY HIGHWAY (U.S. ROUTE 6 & STATE ROUTE 28)

IN THE TOWN OF  
WAREHAM  
PLYMOUTH COUNTY

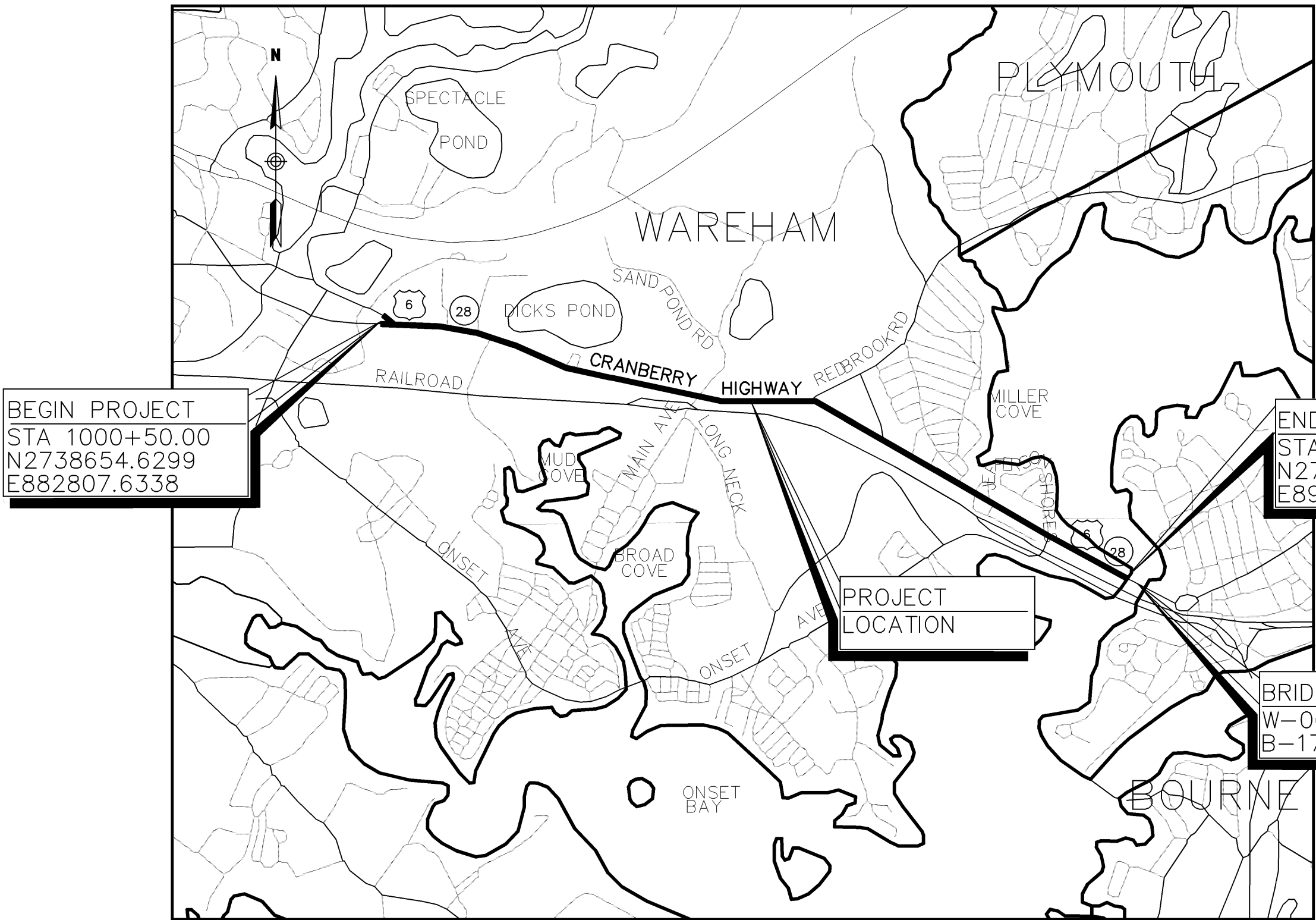
FEDERAL AID PROJECT NO:

INDEX

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REFERENCE MANUALS

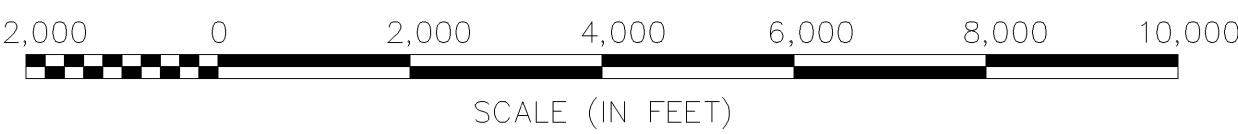
THE 1988 STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES AS SUPPLEMENTED AND AMENDED, THE 1977 CONSTRUCTION STANDARDS AND THE APRIL 2003 METRIC/ENGLISH SUPPLEMENTAL DRAWINGS AS AMENDED, THE 2003 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AS AMENDED, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, AS AMENDED, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING; AND THE 2004 EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, AS AMENDED, WILL GOVERN.



DESIGN DESIGNATION	ROUTE 6 & 28 WEST OF CRANBERRY PLAZA	ROUTE 6 & 28 WEST OF RED BROOK RD	ROUTE 6 & 28 WEST OF ONSET AVE
POSTED SPEED	= 35 MPH	35 MPH	35 MPH
DESIGN SPEED	= 40 MPH	40 MPH	40 MPH
ADT (2009)	= 32,281 VPD	30,590 VPD	25,059 VPD
ADT (2019)	= 33,932 VPD	32,154 VPD	26,341 VPD
K	= 8 %	8 %	8 %
D	= 51.6 % WB	55.4 % EB	51.6 % WB
T (PEAK HOUR)	= 1.5 %	0.8 %	0.8 %
T (AVERAGE DAY)	= 3.6 %	3.6 %	3.6 %
DHV	= 2,732 VPH	2,553 VPH	2,147 VPH
DDHV	= 1,409 VPH	1,415 VPH	1,108 VPH
FUNCTIONAL CLASSIFICATION	=	URBAN MINOR ARTERIAL	

CONVENTIONAL SIGNS

COUNTY, CITY OR TOWN BOUNDARY	-----
COUNTY, CITY OR TOWN SIDE LINE	-----
FENCE LINE	-x-x-x-x-x-
BASE LINE OR SURVEY LINE	75 N00°-31'-37"W 132.57
RIGHT OF WAY LINE	-----
CULVERT	=====
RETAINING WALL	~~~~~
GUARD RAIL	-T-T-T-T-T-
STONE WALL	o-o-o-o-o-o-o-o
TREE LINE	~~~~~
UTILITY POLE	⊙
ELEVATIONS	PROPOSED SURFACE EXISTING SURFACE EXIST 90.7 PROP 90.91 10+20



LENGTH OF PROJECT: 13,994.3 FEET = 2.65 MILES  
25% SUBMISSION

Date

VANASSE HANGEN BRUSTLIN, INC.

DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
APPROVED

DIVISION ADMINISTRATOR

Date

Moving Massachusetts Forward.  
**massDOT**  
Highway

RECOMMENDED FOR APPROVAL

CHIEF ENGINEER

Date

APPROVED

DIVISION ADMINISTRATOR

Date

PROJECT ENGINEER

STRUCTURAL REVIEW

TRAFFIC SIGNAL REVIEW

HIGHWAY DEPT. AUTHORIZATION

HIGHWAY TECH. REVIEW

CONSTRUCTION REVIEW

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	XXXX	02	81
PROJECT FILE NO. 117106			

LEGEND & GENERAL NOTES

GENERAL NOTES

- TOPOGRAPHICAL INFORMATION FROM A SURVEY BY LOCKWOOD MAPPING, INC. AND VANASSE HANGEN BRUSTLIN, INC. BETWEEN AUGUST 1992 AND OCTOBER 1992. UPDATED BY BHATTI GROUP BETWEEN SEPTEMBER 2009 AND FEBRUARY 2010.
- 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.
- 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.
- THE CONTRACTOR SHALL ALTER THE MASONRY OF THE TOP SECTION OF ALL EXISTING DRAINAGE STRUCTURES AS NECESSARY FOR CHANGES IN GRADE, AND RESET 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.
- THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
- EXISTING UTILITY POLES WILL BE RELOCATED BY OTHERS.
- TREES AND SHRUBS WITHIN THE LIMITS OF GRADING SHALL BE REMOVED ONLY UPON APPROVAL OF THE ENGINEER.
- 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.
- 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).
- JOINTS BETWEEN NEW HOT MIX ASPHALT ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH BITUMEN AND BACKSANDS.
- ALL EXISTING MAILBOXES WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND RESET UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
- ALL LATERAL DRAIN PIPES SHALL BE INSTALLED WITH A PITCH OF 0.01 FT/FT (MINIMUM) UNLESS NOTED OTHERWISE ON THE DRAWINGS.
- EXISTING GRANITE CURB & EDGING SUITABLE FOR REUSE SHALL BE RE-USED IN THE PROPOSED WORK, EXCEPT CURVED STONES OF A DIFFERENT RADIUS THAN PROPOSED CURB.
- 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.

GENERAL SYMBOLS

EXISTING	PROPOSED	
		CATCH BASIN (OR GUTTER INLET, OR LEACHING BASIN)
		CATCH BASIN (OR GUTTER INLET) WITH CURB INLET (GUTTERMOUTH)
		EDGESTONE-TYPE NOTED
		EDGE OF ROAD
		ELECTRIC HANDHOLE (NUMBER AS NOTED)
		ELECTRIC MANHOLE "
		TELEPHONE MANHOLE "
		WATER MANHOLE "
		SEWER MANHOLE "
		DRAINAGE MANHOLE "
		GAS GATE
		WATER GATE
		CURB STOP
		HYDRANT
		FIRE ALARM BOX
		PARKING METER
		STREET LIGHT POLE
		UTILITY POLE
		GUY POLE
		DRAIN PIPE (UNDER 24")
		DRAIN PIPE (DOUBLE LINE 24" AND OVER)
		SEWER MAIN " "
		ELECTRIC DUCT " "
		GAS MAIN " "
		WATER MAIN " "
		TELEPHONE DUCT " "
		MAIL BOX
		HIGHWAY GUARD (TYPE NOTED)
		FENCE (SIZE AND TYPE NOTED)
		HIGHWAY/PROPERTY BOUND (TYPE NOTED)
		CITY, TOWN, OR COUNTY LAYOUT
		STATE HIGHWAY LAYOUT (S.H.L.O.)
		EASEMENT LINE
		PROPERTY LINE
		CITY, TOWN, OR COUNTY BOUNDARY
		STATE BOUNDARY
		BASE OR SURVEY LINE
		CONSTRUCTION BASELINE
		TREE (SIZE AND TYPE NOTED)
		APPROXIMATE FULL DEPTH AREA
		BORINGS, PAVEMENT CORES
		TEST PIT
		HAYBALE

TRAFFIC SIGNAL SYMBOLS

EXISTING	PROPOSED	
		CONTROL CABINET GROUND MOUNTED (WITHOUT & WITH CONCRETE PAD)
		CONTROL CABINET POLE MOUNTED
		FLASHING BEACON CONTROL & METER PEDESTAL
		SIGNAL POST & BASE
		MAST ARM, SHAFT, & BASE (ARM LENGTH AS NOTED)
		VEHICULAR SIGNAL HEAD (ALPHA-NUMERIC DESIGNATION NOTED)
		VEHICULAR SIGNAL HEAD OPTICALLY PROGRAMMED "
		LIMIT OF VISIBILITY OF OPTICALLY PROGRAMMED SIGNAL HEAD
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD
		PULL BOX 12" x 12"
		PEDESTRIAN PUSH BUTTON
		PRE-EMPTION DETECTOR
		PRE-EMPTION STROBE
		VIDEO DETECTION CAMERA
		CONTROLLER PHASE
		INDUCTIVE LOOP DETECTOR
		MAGNETIC DETECTOR (LANE, MULTI-LANE, DIRECTIONAL AS NOTED)
		MAGNETOMETER
		CONDUIT (COND.)
		CONDUIT CROSSING ROADWAY WITH CONTROLLED DENSITY FILL
		"x" DUCT (CONCRETE ENCASED)
		OVERHEAD CABLE
		DIRECT BURIED CABLE

PAVEMENT MARKINGS AND SIGNING SYMBOLS

EXISTING	PROPOSED	
		PAVEMENT ARROW AND LEGEND
		CROSSWALK, 2-12" WHITE LINES (WIDTH NOTED)
		STOP LINE, 12" WHITE LINE 4.0' BEHIND CW (TYP)
		YIELD LINE, 24" x 36" WHITE TRIANGLE, 36" O.C.
		SOLID WHITE CHANNELIZING LINE-SIZE AS NOTED
		SOLID YELLOW CHANNELIZING LINE-SIZE AS NOTED
		BROKEN WHITE LANE LINE - 6"
		SOLID WHITE LANE LINE - 6"
		DOUBLE YELLOW CENTERLINE - 4"
		SOLID YELLOW EDGE LINE - 6"
		SOLID WHITE EDGE LINE - 6"
		BROKEN YELLOW LANE LINE - 6"
		BICYCLE LANE
		BICYCLE DETECTION LEGEND
		SIGN AND POST
		DELINEATOR

ABBREVIATIONS

GENERAL				UTILITIES				ALIGNMENT/GRADING				PROFILES				TRAFFIC SIGNAL SYSTEMS			
ABAN	ABANDON	NTS	NOT TO SCALE	ACOMP	ASHPALT COATED CORRIGATED METAL PIPE	CC	CENTER OF CURVE	A.D.	ALGEBRAIC DIFFERENCE IN RATES OF GRADE	R	STEADY CIRCULAR RED	ELEV	ELEVATION	Y	STEADY CIRCULAR YELLOW	G	STEADY CIRCULAR GREEN	FR	FLASHING CIRCULAR RED
ADJ	ADJUST	PGL	PROFILE GRADE LINE	CAP	CORRUGATED ALUMINUM PIPE	HP	HIGH POINT	ELEV	ELEVATION	Y	STEADY CIRCULAR YELLOW	HSD	HORIZONTAL SIGHT DISTANCE	G	STEADY CIRCULAR GREEN	FR	FLASHING CIRCULAR RED	-FR	FLASHING RED ARROW
APPROX	APPROXIMATE	PROP	PROPOSED	CIP	CAST IRON PIPE	LP	LOW POINT	K	RATE OF VERTICAL CURVATURE	FR	FLASHING RED ARROW	PVI	POINT OF VERTICAL INTERSECTION	FY	FLASHING CIRCULAR YELLOW	-FY	FLASHING YELLOW ARROW	FY	FLASHING CIRCULAR YELLOW
BIT	BITUMINOUS	PVM-T	PAVEMENT	CIT	CHANGE IN TYPE	PC	POINT OF CURVE	PVT	POINT OF VERTICAL TANGENT	-FY	FLASHING YELLOW ARROW	PVC	POINT OF VERTICAL CURVE	G	STEADY VERTICAL GREEN ARROW	X-	STEADY LEFT ARROW (RED, YELLOW OR GREEN PREFIX)	X-	STEADY RIGHT ARROW (RED, YELLOW OR GREEN PREFIX)
BOS	BOTTOM OF SLOPE	REL	RELOCATE	COND	CONDUIT	PI	POINT OF INTERSECTION	PVRC	POINT OF VERTICAL REVERSE CURVE	W	STEADY WALK-WHITE	PVCC	POINT OF VERTICAL COMPOUND CURVE	DW	STEADY DON'T WALK-PORTLAND ORANGE	W	STEADY WALK-WHITE	DW	STEADY DON'T WALK-PORTLAND ORANGE
(BO)	BY OTHERS	REM	REMOVE	DIP	DUCTILE IRON PIPE	PT	POINT OF TANGENT	SSD	STOPPING SIGHT DISTANCE	FDW	FLASHING DON'T WALK-PORTLAND ORANGE	SSD	STOPPING SIGHT DISTANCE						
CEM	CEMENT	REMOD	REMODEL	HOPE	HIGH DENSITY POLYETHYLENE PIPE	25.45	SPOT ELEVATION	VC	VERTICAL CURVE			VC	VERTICAL CURVE						
CLF	CHAINLINK FENCE	RET	RETAIN	HW	HEADWALL														
CONC	CONCRETE	R&D	REMOVE AND DISCARD	HYD	HYDRANT														
ELEV	ELEVATION	R&R	REMOVE AND RESET	INV	INVERT														
EOP	EDGE OF PAVEMENT	R&S	REMOVE AND STACK	PVC	POLYVINYLCHLORIDE PIPE														
EXIST	EXISTING	RT	RIGHT	PWW	PAVED WATER WAY														
FND	FOUNDATION	STA	STATION	RCP	REINFORCED CONCRETE PIPE														
GRAN	GRANITE	TEMP	TEMPORARY	TSV&B	TAPPING SLEEVE VALVE AND BOX														
HMA	HOT MIX ASPHALT	TOS	TOP OF SLOPE	UP	UTILITY POLE														
LOAM	LOAM BORROW	TYP	TYPICAL																
LT	LEFT																		
MAX	MAXIMUM																		
MIN	MINIMUM																		

