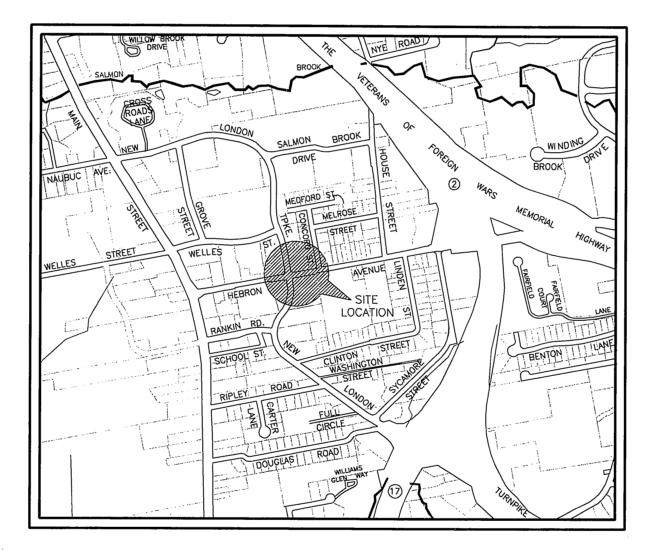
# TOWN OF GLASTONBURY **ENGINEERING DEPARTMENT** HEBRON AVENUE & NEW LONDON TURNPIKE INTERSECTION IMPROVEMENTS PW-1205 GLASTONBURY, CONNECTICUT

SHEET NO.	DESCRIPTION							
1	TITLE SHEET							
2	DETAILS AND TYPICAL SECTIONS							
3	ROADWAY CONSTRUCTION P	LAN						
4	PAVEMENT MARKING & SIGNING	G PLAN						
5,6,7	CROSS SECTIONS							
8	TRAFFIC SIGNAL PLAN							
9	MAST ARM SECTIONS/ELEVAT	TIONS						
10	MAST ARM ASSEMBLY ELEVA	TIONS						
11	MAST ARM ASSEMBLY DETAILS							
12	MAST ARM ASSEMBLY FOUNDATION DETAILS							
TR-1000_01	GENERAL CLAUSES ( TEST PROCEDURES )	CONNDOT						
TR-1001_01	TRENCHING & BACKFILLING, ELECTRICAL CONDUIT	CONNDOT						
TR-1002_01	TRAFFIC CONTROL FOUNDATIONS	CONNDOT						
TR-1010_01	CONCRETE HANDHOLE	CONNDOT						
TR-1102_01	PEDESTALS, PEDESTRIAN SIGNALS	CONNDOT						
TR-1107_01	PEDESTRIAN PUSH BUTTON	CONNDOT						
TR-1108_01	CONTROLLERS	CONNDOT						
TR-1111_02	VEHICLE DETECTION SYSTEMS	CONNDOT						
TR-1208_02	METAL SIGNS POSTS & MOUNTING	CONNDOT						
TR-1210_03	SPECIAL DETAILS & PAVEMENT MARKINGS FOR TWO-WAY HIGHWAY	CONNDOT						
TR-1220_01	SIGNS FOR CONSTRUCTION & PERMIT OPERATION	CONNDOT						
TR-1220_02	CONSTRUCTION SIGN SUPPORT AND CHANNELING DEVICES	CONNDOT						
HW 921-02	SIDEWALK RAMPS	CONNDOT						

SHEET INDEX



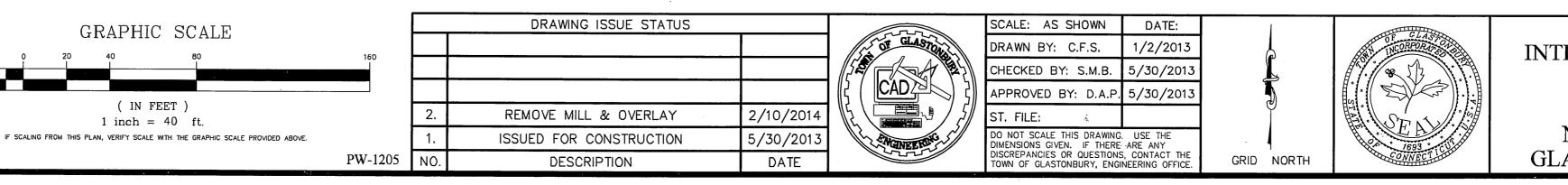
ALL UTILITY INFORMATION AND DATA SHOWN OR INDICATED IN THE CONTRACT DOCUMENTS ARE COMPLIED FROM MAPS AND DATA FURNISHED B OTHERS, ANY SUCH INFORMATION SHOULD NOT BE CONSTRUED AS ACCURATE OR COMPLETE AND THE CONTRACTOR SHALL VERIFY ALL LOCATIONS PRIOR TO CONSTRUCTION



# LOCATION MAP SCALE: 1"=1000'

# FEBRUARY 2014

# ISSUED FOR CONSTRUCTION



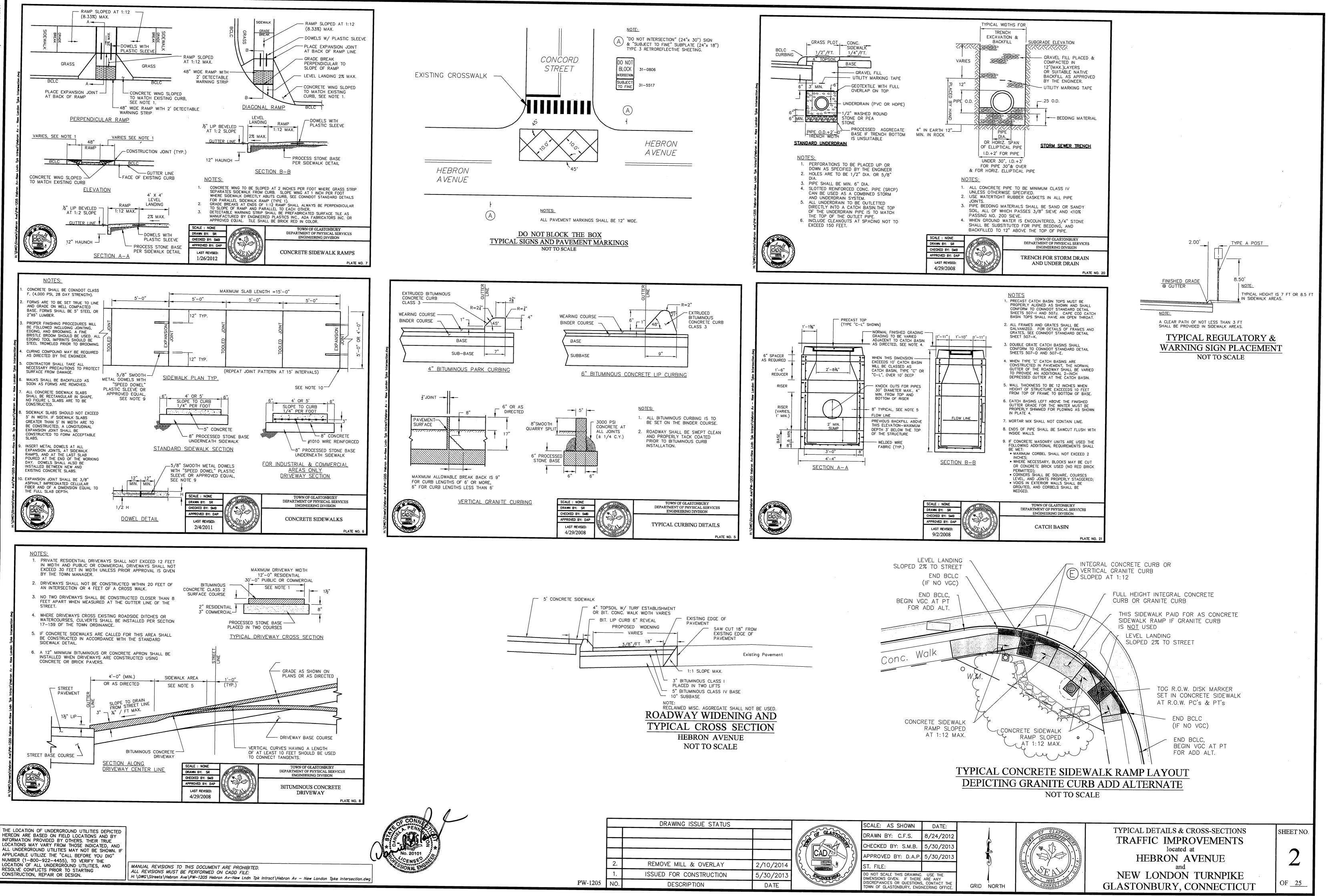
**RICHARD J. JOHNSON** TOWN MANAGER

DANIEL A. PENNINGTON TOWN ENGINEER/MANAGER OF PHYSICAL SERVICES

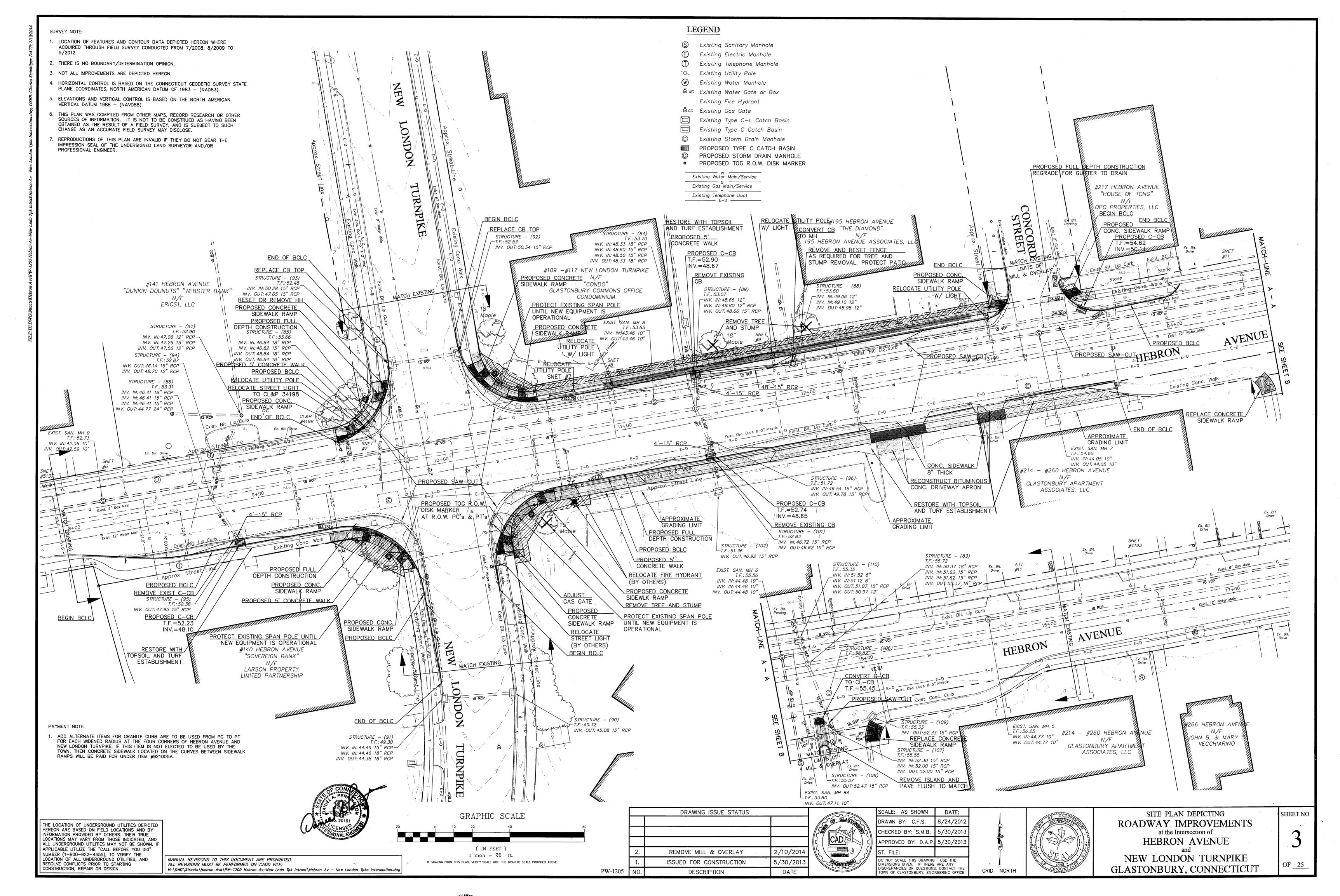
> TITLE SHEET INTERSECTION IMPROVEMENTS located at HEBRON AVENUE and NEW LONDON TURNPIKE GLASTONBURY, CONNECTICUT

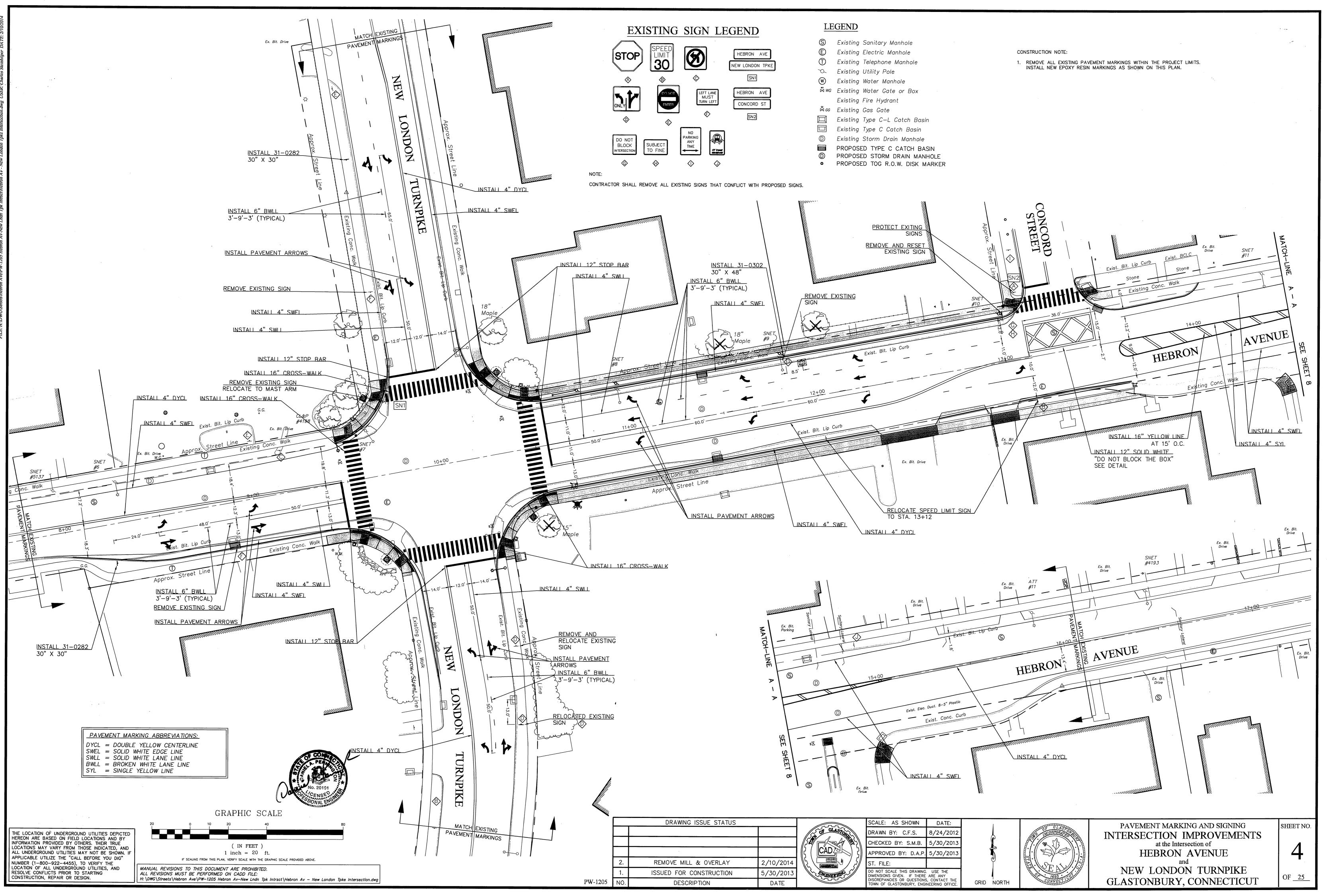
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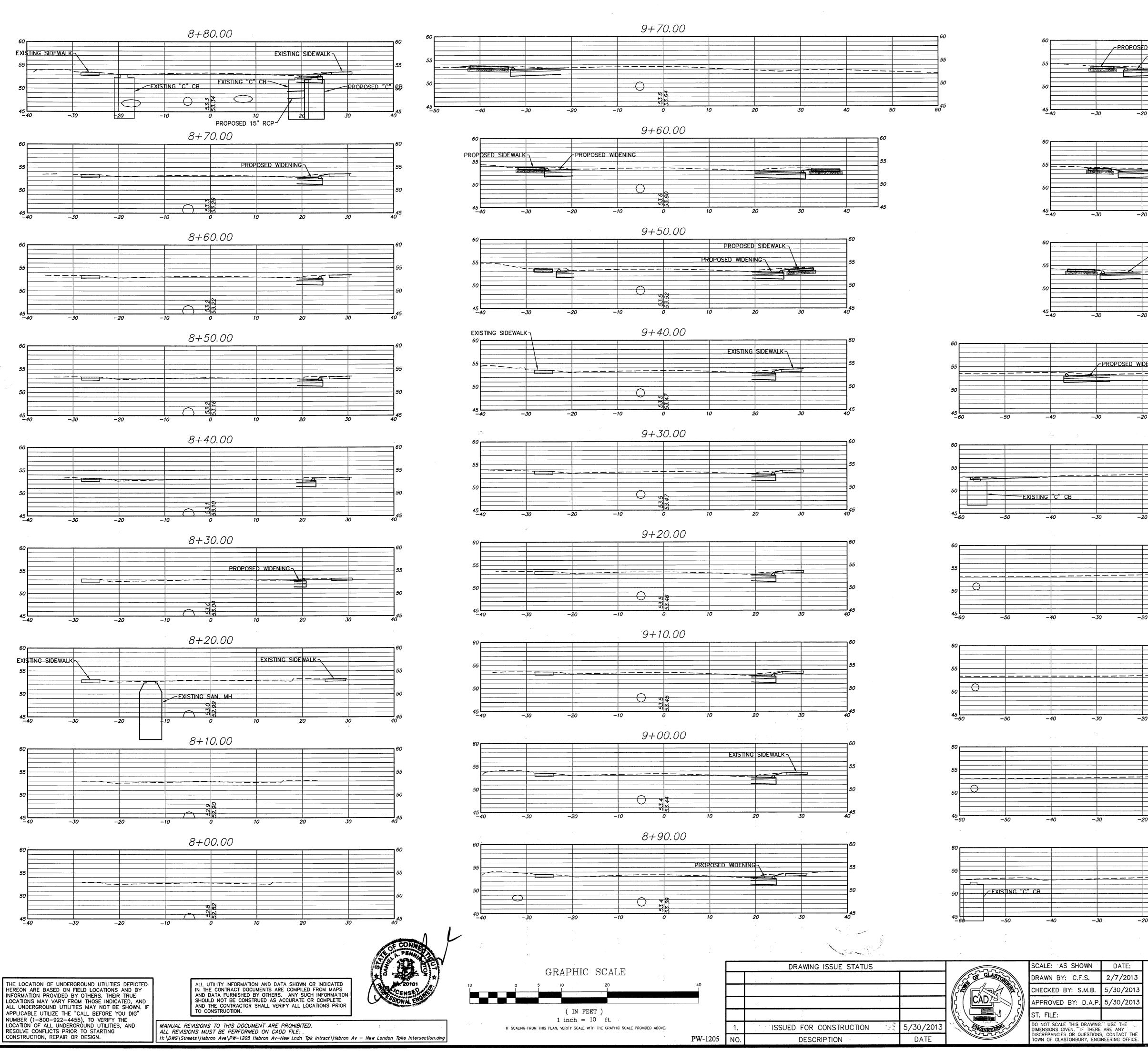
OF <u>25</u>



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					APPROVED BY: D.A.P.	<u> </u>
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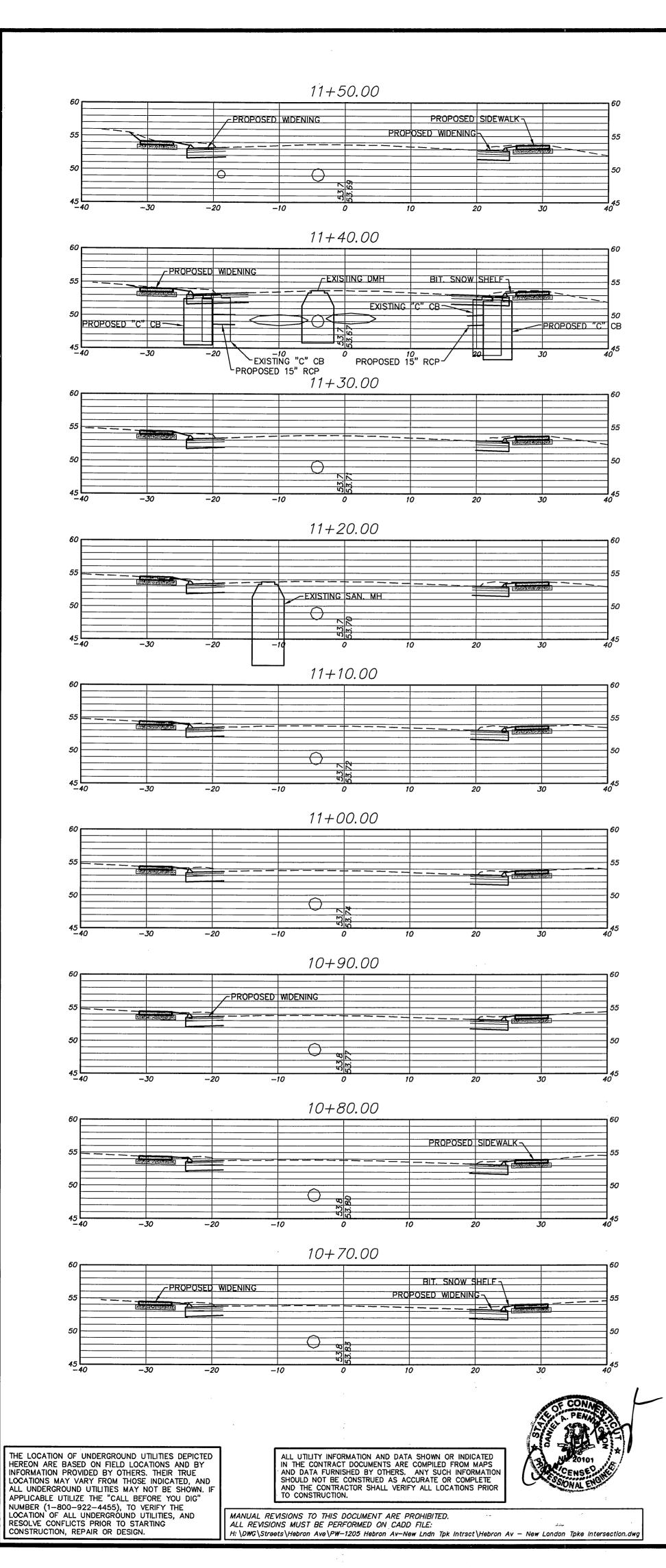




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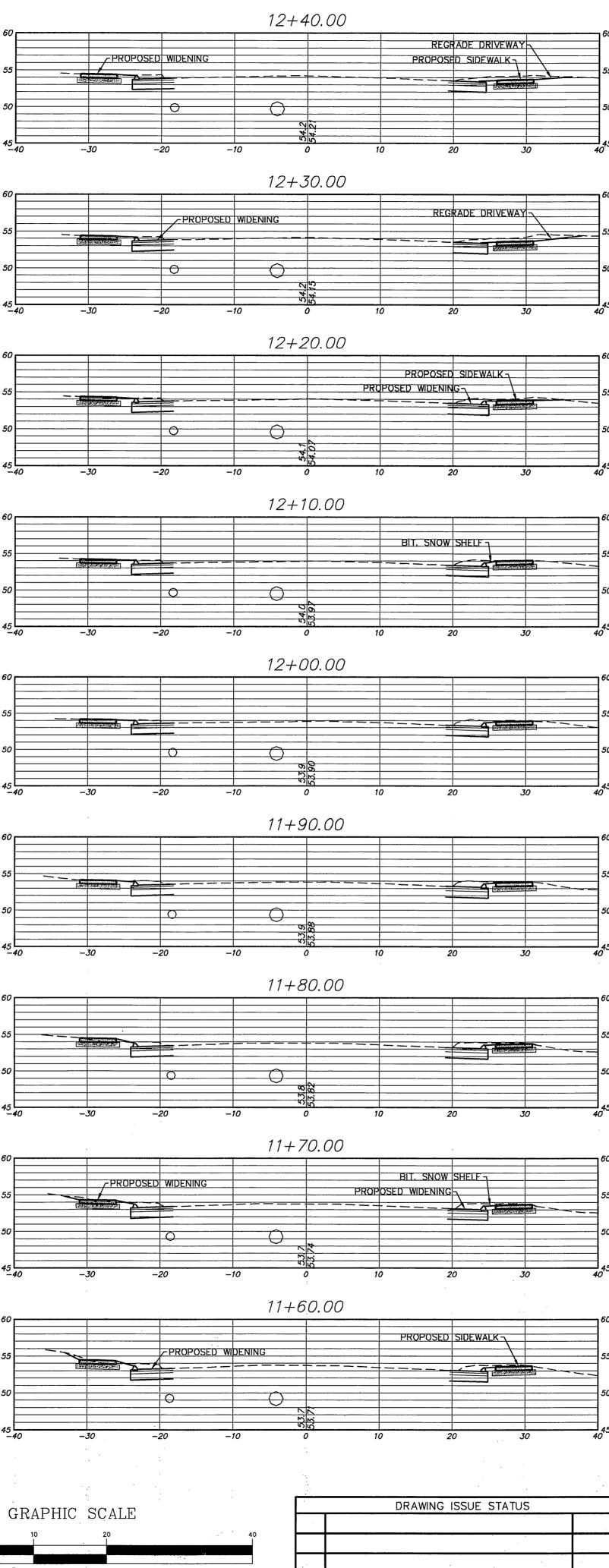
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IF SCALING FROM THIS PLAN, VERIFY SCALE WITH THE GRAPHIC SCALE PROVIDED ABOVE.

( IN FEET )

1 inch = 10 ft.

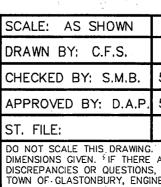


OF GLAST CAD ~ ENGINEED 5/30/2013 DATE

ISSUED FOR CONSTRUCTION

DESCRIPTION

PW-1205 NO.



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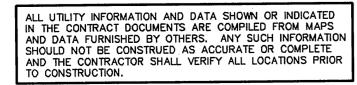
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THE LOCATION OF UNDERGROUND UTILITIES DEPICTED HEREON ARE BASED ON FIELD LOCATIONS AND BY INFORMATION PROVIDED BY OTHERS. THEIR TRUE LOCATIONS MAY VARY FROM THOSE INDICATED, AND ALL UNDERGROUND UTILITIES MAY NOT BE SHOWN. IF APPLICABLE UTILIZE THE "CALL BEFORE YOU DIG" NUMBER (1-800-922-4455), TO VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES, AND RESOLVE CONFLICTS PRIOR TO STARTING CONSTRUCTION, REPAIR OR DESIGN.



MANUAL REVISIONS TO THIS DOCUMENT ARE PROHIBITED. ALL REVISIONS MUST BE PERFORMED ON CADD FILE: H: \DWG\Streets\Hebron Ave\PW-1205 Hebron Av-New Lndn Tpk Intrsct\Hebron Av - New London Tpke Intersection.dwg

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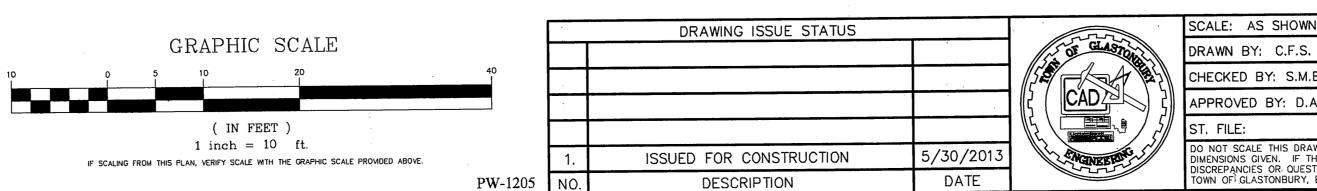
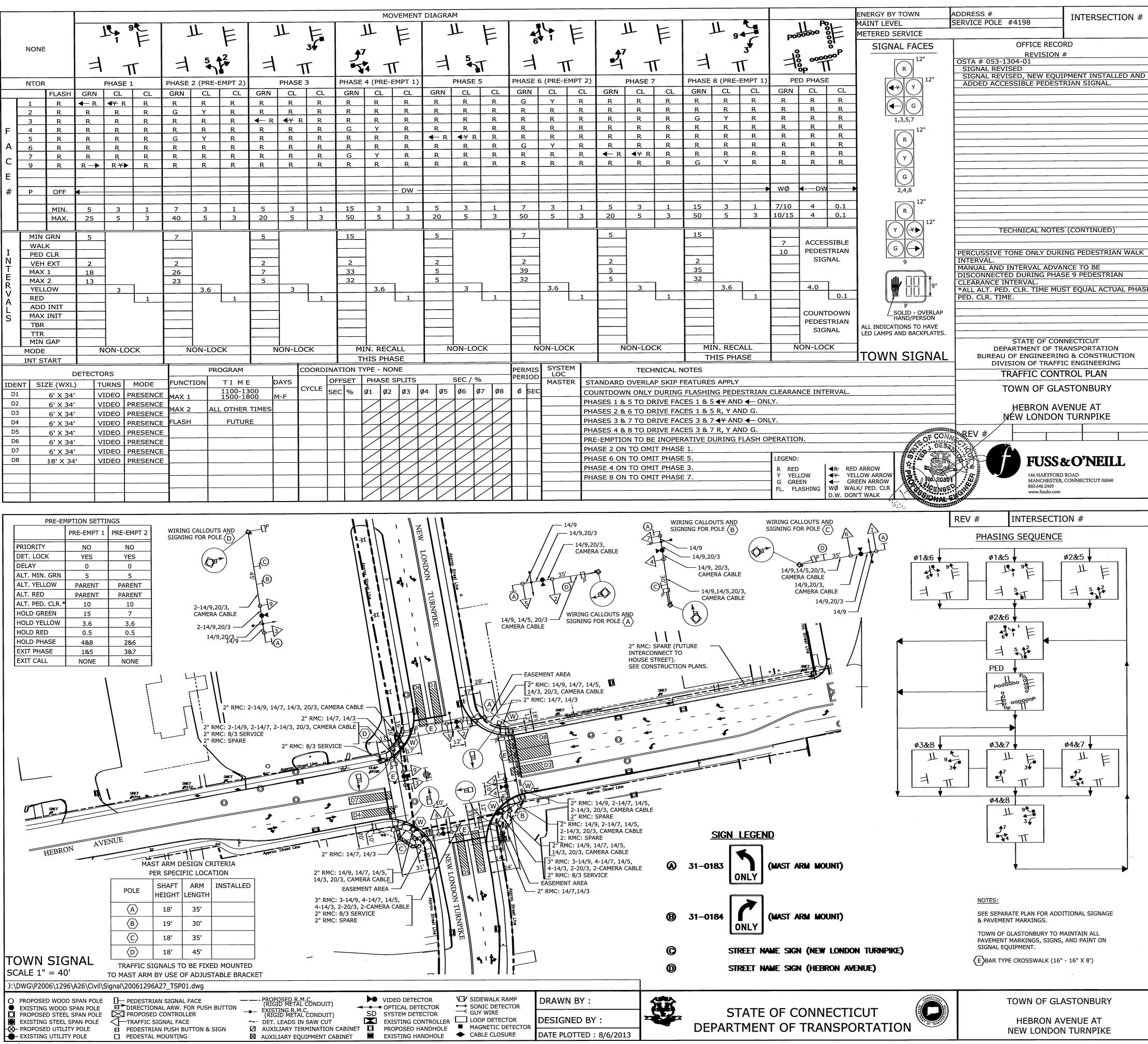


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DATE:       CROSS - SECTIONS       SHEET NO.         2/7/2013       INTERSECTION IMPROVEMENTS       SHEET NO.         8. 5/30/2013       F/30/2013       HEBRON AVENUE       7         AP. 5/30/2013       INTERV LONDON TURNPIKE       7								
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2/7/2013 B. 5/30/2013 A.P. 5/30/2013 A.P. 5/30/2013 DEFENSION IMPROVEMENTS at the Intersection of HEBRON AVENUE and NEW LONDON TURNPIKE								
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2/7/2013 B. 5/30/2013 A.P. 5/30/2013 A.P. 5/30/2013 DEFENSION IMPROVEMENTS at the Intersection of HEBRON AVENUE and NEW LONDON TURNPIKE								CHEET NO.
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and TURNPIKE					at the Intersec	venue		7
GLASTONBURY, CONNECTICUT		La construction de la constructi	EAN	NE	and W. LONDON	TURNPIKE	1	OF 25
	HERE ARE ANY TIONS, CONTACT THE ENGINEERING OFFICE	GRID NORTH	CONNECTICULA	GLAS	TONBURY, C	CONNECTIC	UT	Ur <u></u>

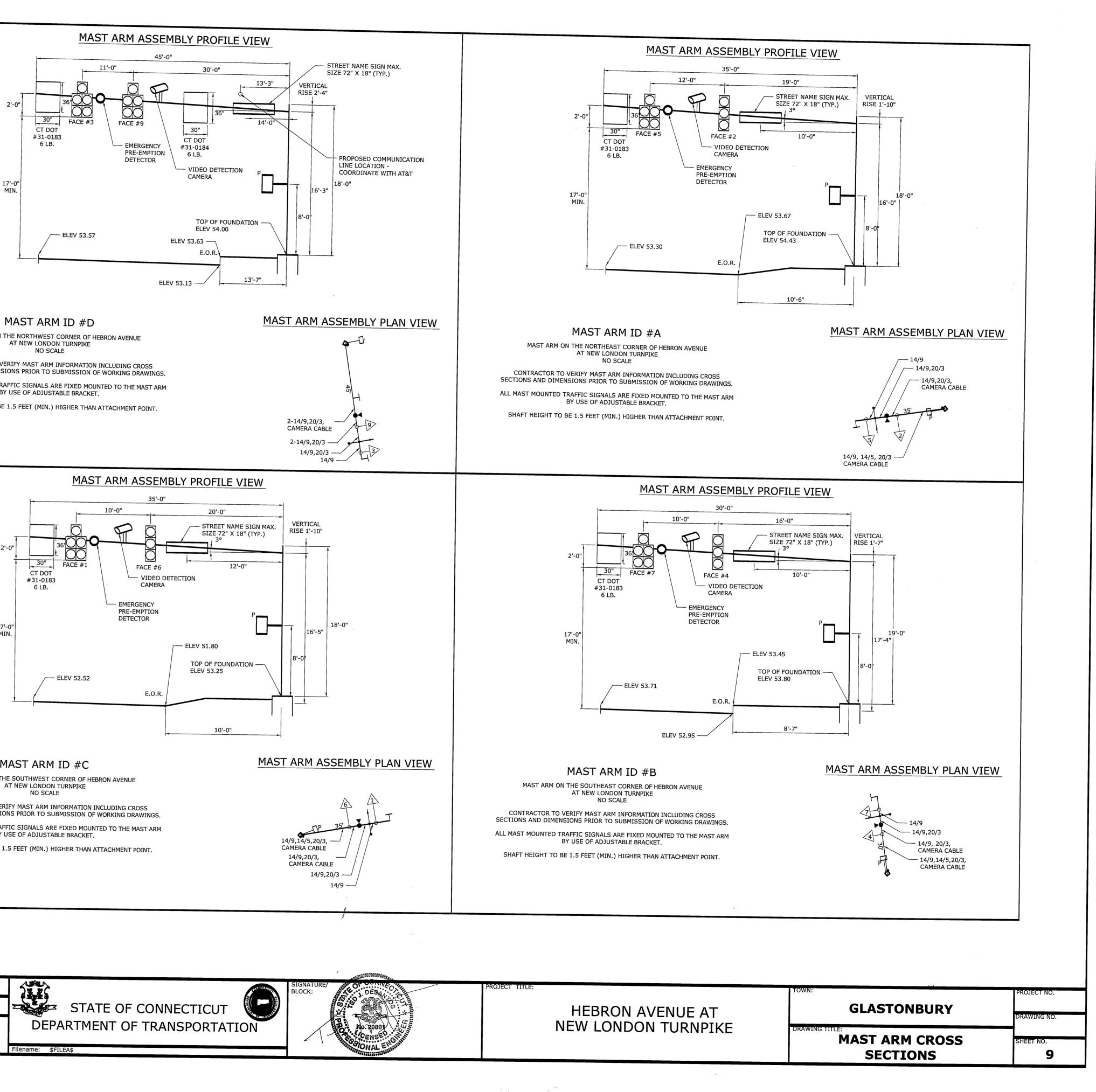
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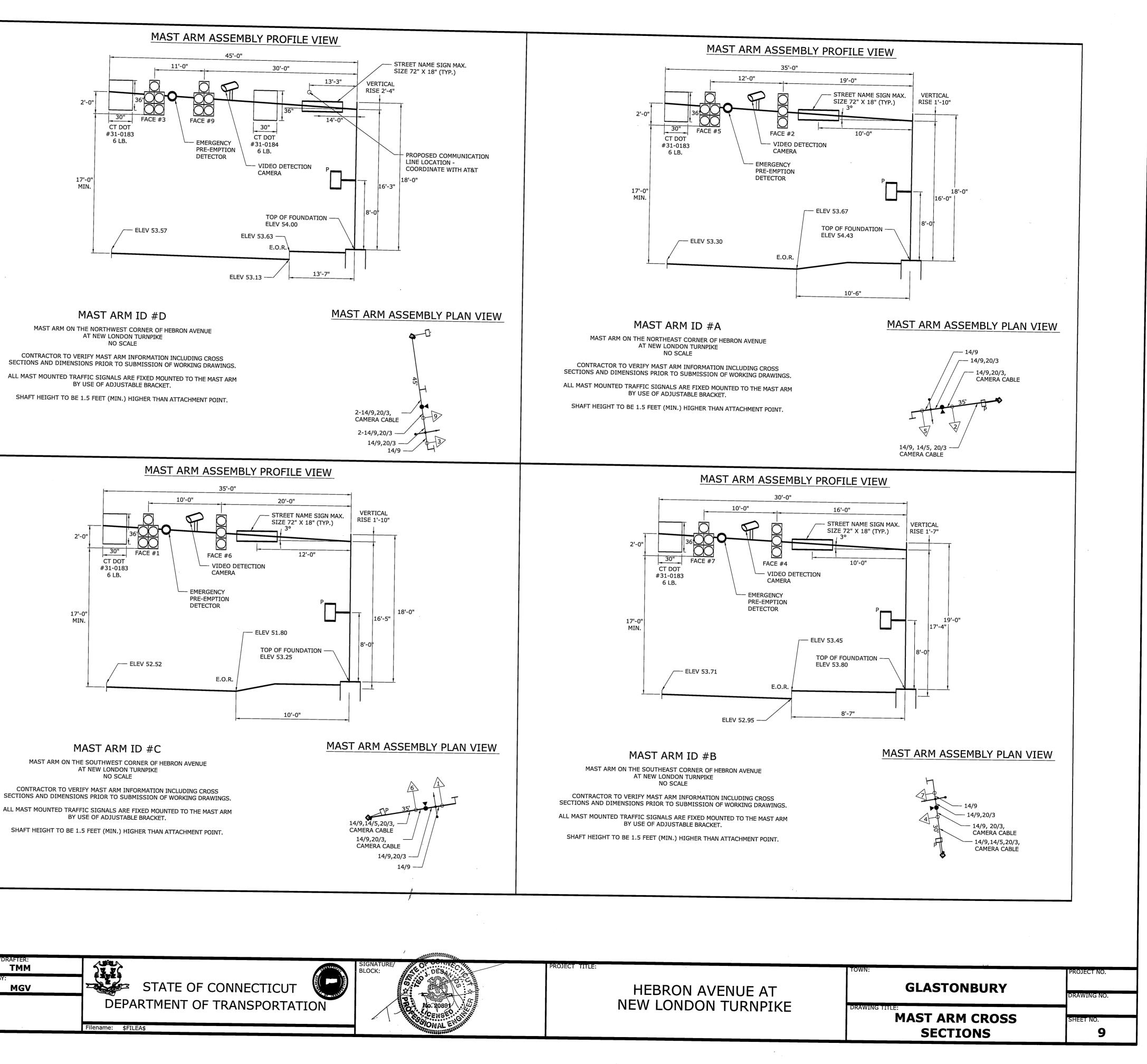


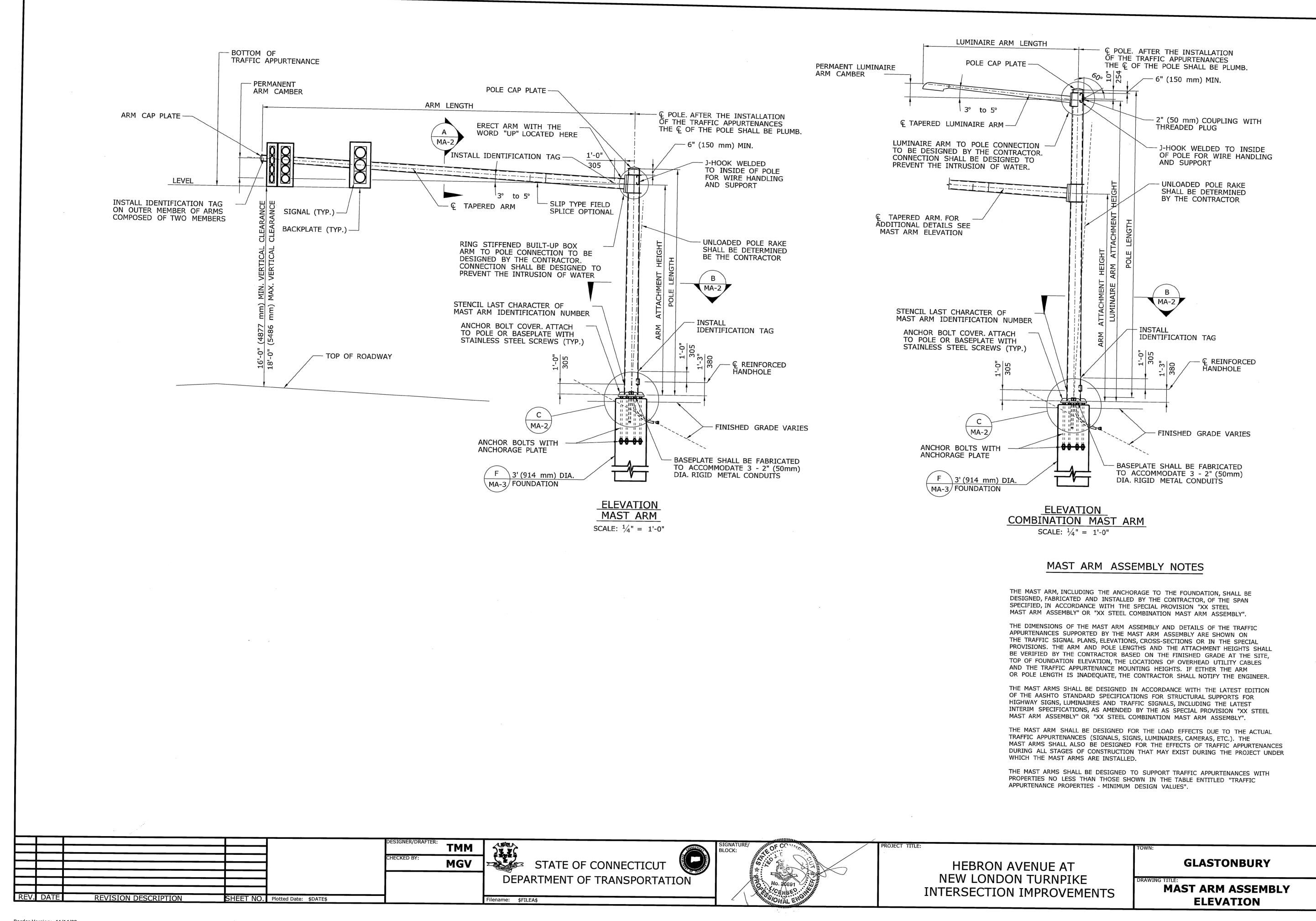
Border Version 11/08/10

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		CONSTRUCTION NOTES :	
ľ		ALL TRAFFIC SIGNAL EQUIPMENT IS NEW EXCEPT AS NOTED.	
	2.	ALL MATERIAL AND CONSTRUCTION METHODS SHALL CONFORM TO THE 2009 MAN UNIFORM TRAFFIC CONTROL DEVICES, TOWN OF GLASTONBURY STANDARDS AND T CURRENT DOT DOCUMENTS WHICH CAN BE ACCESSED ON THE DOT WEBSITE: STANDARD SPECIFICATIONS FOR ROADS, BRIDGES AND INCIDENTAL CONSTRUC- 816).	HE FOLLOWING
		SUPPLEMENTAL SPECIFICATIONS TO FORM 816. SPECIAL PROVISIONS TO FORM 816. STANDARD INSTALLATION AND GUIDE DETAIL SHEETS.	
	3.	THE CONTRACTOR SHALL STAKE ALL RIGHT OF WAY AND EASEMENTS PRIOR TO ALL WORK, INCLUDING ALL FOUNDATIONS, SHALL BE WITHIN THE ROW OR TOWN A EASEMENTS.	EXCAVATION. ACQUIRED
		UTILITY LOCATIONS ARE FOR INFORMATIONAL PURPOSES ONLY AND SHALL BE CO APPROXIMATE. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT 1-800-922-4455 PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR SHALL CO UTILITY REPRESENTATIVES AND TOWN AGENCIES FOUR WEEKS PRIOR TO EXCAVAT	CONTACT
	5.	THE CONTRACTOR SHALL REMOVE ALL ABANDONED TRAFFIC SIGNAL EQUIPMENT, BUT NOT LIMITED TO, FOUNDATIONS, HANDHOLES, CONDUIT RISERS AND CABLE, S AND STEEL POLES. ALL SALVAGEABLE EQUIPMENT SHALL BE RETURNED TO THE GLASTONBURY.	SIGNAL HEADS,
	6.	THE CONTRACTOR SHALL CONTACT MR. DANIEL PENNINGTON, TOWN OF GLASTONE ENGINEER AT (860) 652–7736 PRIOR TO ANY EXCAVATION AND DELIVERY OF AL MATERIAL.	BURY TOWN L SALVAGE
	7.	THE CONTRACTOR SHALL OBTAIN ALL NECESSARY TOWN PERMITS, INCLUDING BUTO: SIDEWALK, CURB, AND ROAD OPENING.	r not limited
	8.	ANY PROPOSED REVISIONS TO THE LOCATION OF THE APPURTENANCES SHOWN C MUST BE SUBMITTED FOR REVIEW AND APPROVAL BY THE TOWN ENGINEER PRIOF INSTALLATION.	N THE PLAN TO
	9.	SIGNAL APPURTENANCES, WHEN IN OR ADJACENT TO SIDEWALK, SHALL BE FIELD PROVIDE A FREE PATH OF NOT LESS THAN 4 FEET. IF A MINIMUM 4 FOOT FREE UNAVAILABLE, THE CONTRACTOR MUST CONTACT THE TOWN ENGINEER.	LOCATED TO PATH IS
	10.	ALL SIGNS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED IN KIND BY THE CONTRACTOR AT HIS EXPENSE.	ŧΕ
	11.	CONTRACTOR SHALL TRIM ALL NECESSARY BUSHES, SHRUBS, TREES, ETC. OBSTR TRAFFIC SIGNAL EQUIPMENT OR VISIBILITY OF SIGNAL HEADS.	RUCTING ANY
	12.	CONTRACTOR SHALL REMOVE ALL EXISTING SIGNS THAT CONFLICT WITH THE PRO	POSED SIGNS.
	13.	OPTICAL DETECTOR LOCATIONS, VIDEO DETECTION CAMERA LOCATIONS, AND DETE ARE FOR ILLUSTRATION ONLY. EXACT LOCATIONS SHALL BE DETERMINED BY THE MANUFACTURER OR THEIR DESIGNATED REPRESENTATIVE. OPTICAL DETECTOR AND CABLES ARE TO BE INSTALLED CONTINUOUS BETWEEN EACH VIDEO DETECTION CA OPTICAL DETECTOR AND THE SIGNAL CONTROLLER.	) VIDEO
	14.	THE CONTRACTOR SHALL REPLACE IN KIND ALL DISTURBED AREAS (CURBING, SIL ASSOCIATED WITH THE CONSTRUCTION OF SIGNAL EQUIPMENT AND ALSO RECONS EXISTING HANDICAP RAMPS WITH ADA COMPLIANT RAMPS AS SHOWN ON THE PL SIDEWALKS TO BE REPLACED TO NEAREST JOINT. THE LIMIT OF WORK ASSOCIATE CONSTRUCTION OF SIGNAL EQUIPMENT SHALL BE A MINIMUM OF TEN (10) FEET O OTHERWISE SPECIFIED.	ANS. D WITH
	15.	. A VERTICAL CLEARANCE OF 16 TO 18 FEET OVER ROADWAY PAVEMENT IS REQUI TRAFFIC SIGNAL HEADS.	RED FOR ALL
	16.	. CONTRACTOR TO PROVIDE FOUR SETS OF CABINET WIRING DIAGRAMS IN THE CAR	BINET.
	17.	. CONTRACTOR SHALL COORDINATE WITH UTILITY REPRESENTATIVES TO INSTALL 2" CL&P POLE #4198 FOR SERVICE TO THE SIGNAL CONTROLLER CABINET.	RMC RISER ON
		. CABINET DOOR TO OPEN FIELD SIDE.	ION AS SHOWN
	19.	. INSTALL CONCRETE SIDEWALK ON CABINET DOOR SIDE OF CONTROLLER FOUNDAT ON TYPICAL INSTALLATION DETAIL SHEET.	ION AS SHOWN
	l	. CONTRACTOR SHALL MAINTAIN EXISTING SIGNALIZATION DURING CONSTRUCTION.	
	21	. ALL MAST ARMS, SIGNAL HEADS, ATTACHMENT BRACKETS, PEDESTRIAN SIGNAL H BUTTON STATIONS, AND CONTROLLER CABINET SHALL BE PAINTED BLACK.	IEADS, PUSH
	22	. INSTALL PEDESTRIAN PUSHBUTTON SIGN NO. 31–0845 ON ALL PEDESTRIAN PUSI	H BUTTONS.
	23	5. TACTILE ARROWS ON PEDESTRIAN PUSH BUTTONS SHALL BE POINTING PARALLEL CROSSWALK.	. TO THE
	24	. UTILITY ENGINEERS CONSULTED DURING DESIGN: AT&T: TERRY SHEA (860) 725—1276 CL&P: JIM KING (860) 638—2320	- 
	W	ALL HANDHOLES TO BE TYPE I, 30" X 30".INSTALL HANDHOLES APPROX. 1' BEHIND CURB, UNLESS OTHERWISE SPECIFIED. HANDHOLES CONSTRUCTED IN SIDEWALK OR DRIVEWAY AREAS TO HAVE CAST IRON FRAMES AND COVERS.	REV #
			TION
			#
		TACTILE ARROW POINTING PARALLEL TO THE CROSSWALK	W POINTING STRIAN RAMP
	NO.	DATE INIT. DESCRIPTION REVISIONS	
	<b> </b>	TOWN:	PROJECT NO.
		GLASTONBURY	DRAWING NO.
		146 HARTFORD ROAD DRAWING TITLE:	SHEET NO.
		HEBRON AVENUE AT WWW.fando.com HEBRON TURNPIKE	8
	I		

				DESIGNER/DRAFTER: TMM
				CHECKED BY: MGV
REV. DATE	REVISION DESCRIPTION	SHEET NO. P	lotted Date: \$DATE\$	







Border Version: 11/14/08

DRAWING NO. MA-1 HEET NO. 10

ROJECT NO.

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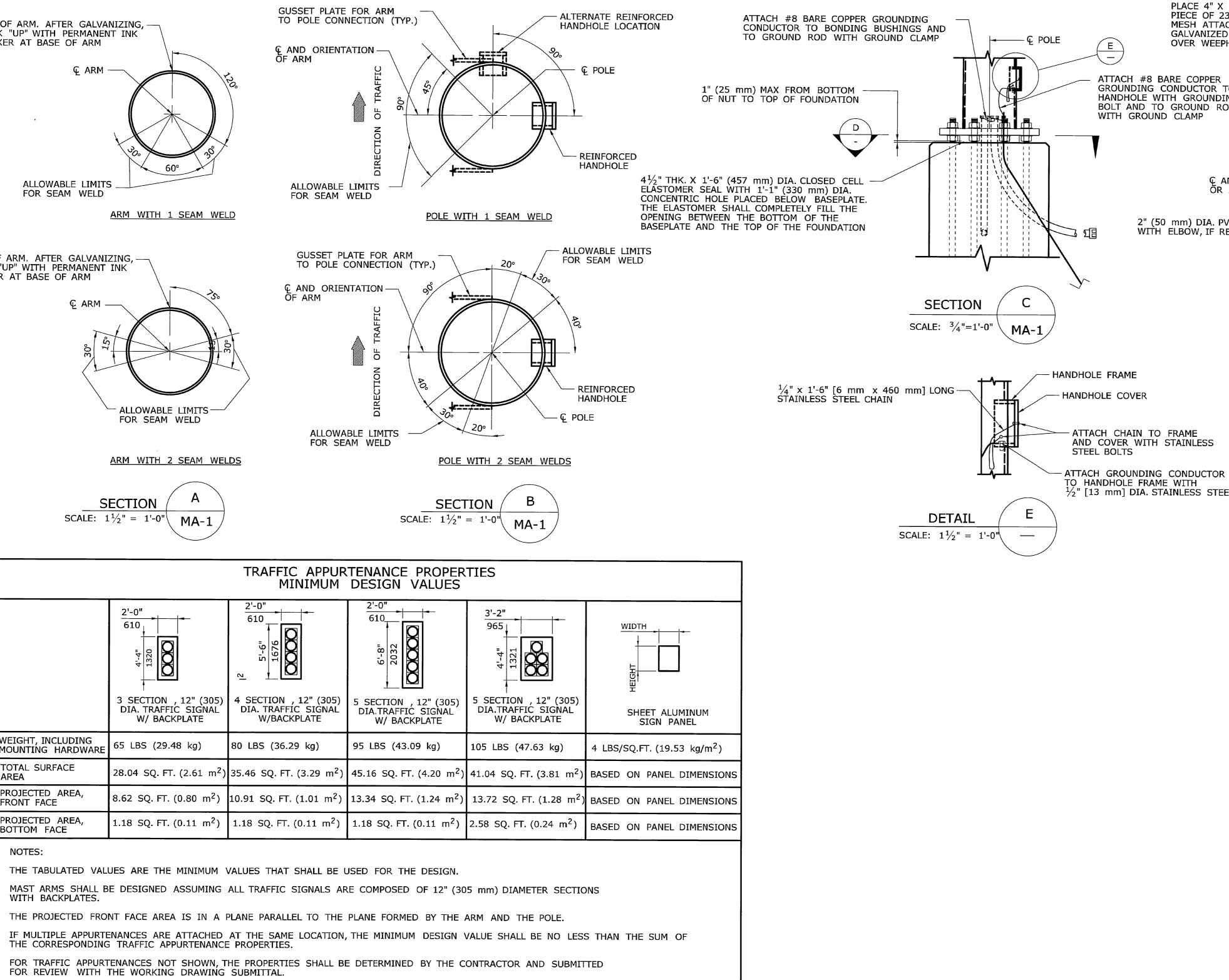
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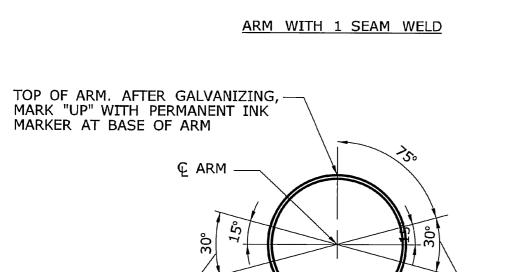
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REV.	DATE	REVISION DESCRIPTION	SHEET NO.	Plotted Date: \$DATE\$		

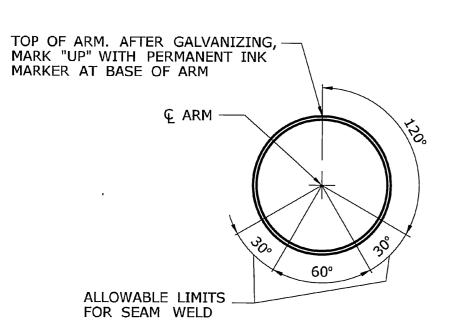
WITH BACKPLATES.

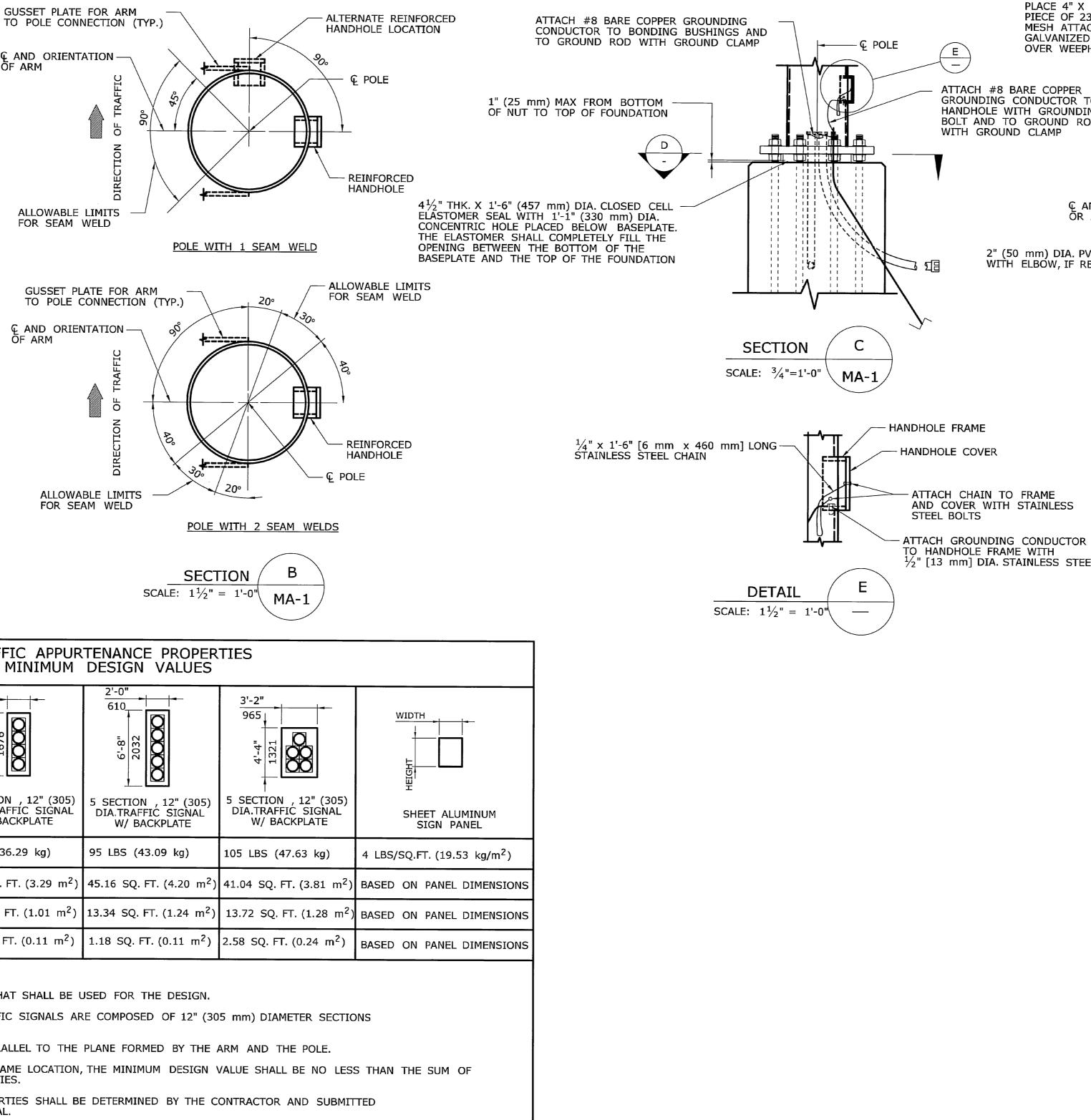
THE TABULATED VALUES ARE THE MINIMUM VALUES THAT SHALL BE USED FOR THE DESIGN.

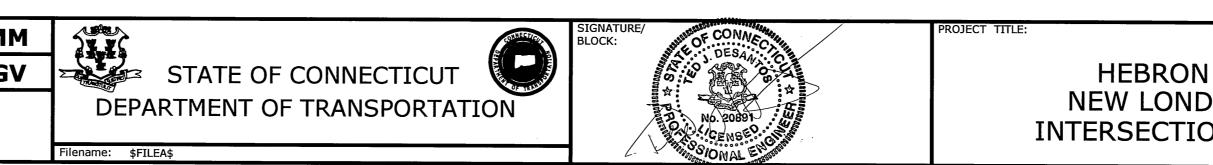
		MINIMUM	DESIGN VALUES	
	2'-0" 610 	2'-0" 610 92'9 92'9 10 10 10 10 10 10 10 10 10 10	2'-0" 610 8 5 5 5 5 5 5 5 5 5 5 5 5 5	5
WEIGHT, INCLUDING MOUNTING HARDWARE	65 LBS (29.48 kg)	80 LBS (36.29 kg)	95 LBS (43.09 kg)	1
TOTAL SURFACE AREA	28.04 SQ. FT. (2.61 m <sup>2</sup> )	35.46 SQ. FT. (3.29 m <sup>2</sup> )	45.16 SQ. FT. (4.20 m <sup>2</sup> )	4
PROJECTED AREA, FRONT FACE	8.62 SQ. FT. (0.80 m <sup>2</sup> )	10.91 SQ. FT. (1.01 m <sup>2</sup> )	13.34 SQ. FT. (1.24 m <sup>2</sup> )	1
PROJECTED AREA, BOTTOM FACE	1.18 SQ. FT. (0.11 m <sup>2</sup> )	1.18 SQ. FT. (0.11 m <sup>2</sup> )	1.18 SQ. FT. (0.11 m <sup>2</sup> )	2.
1				



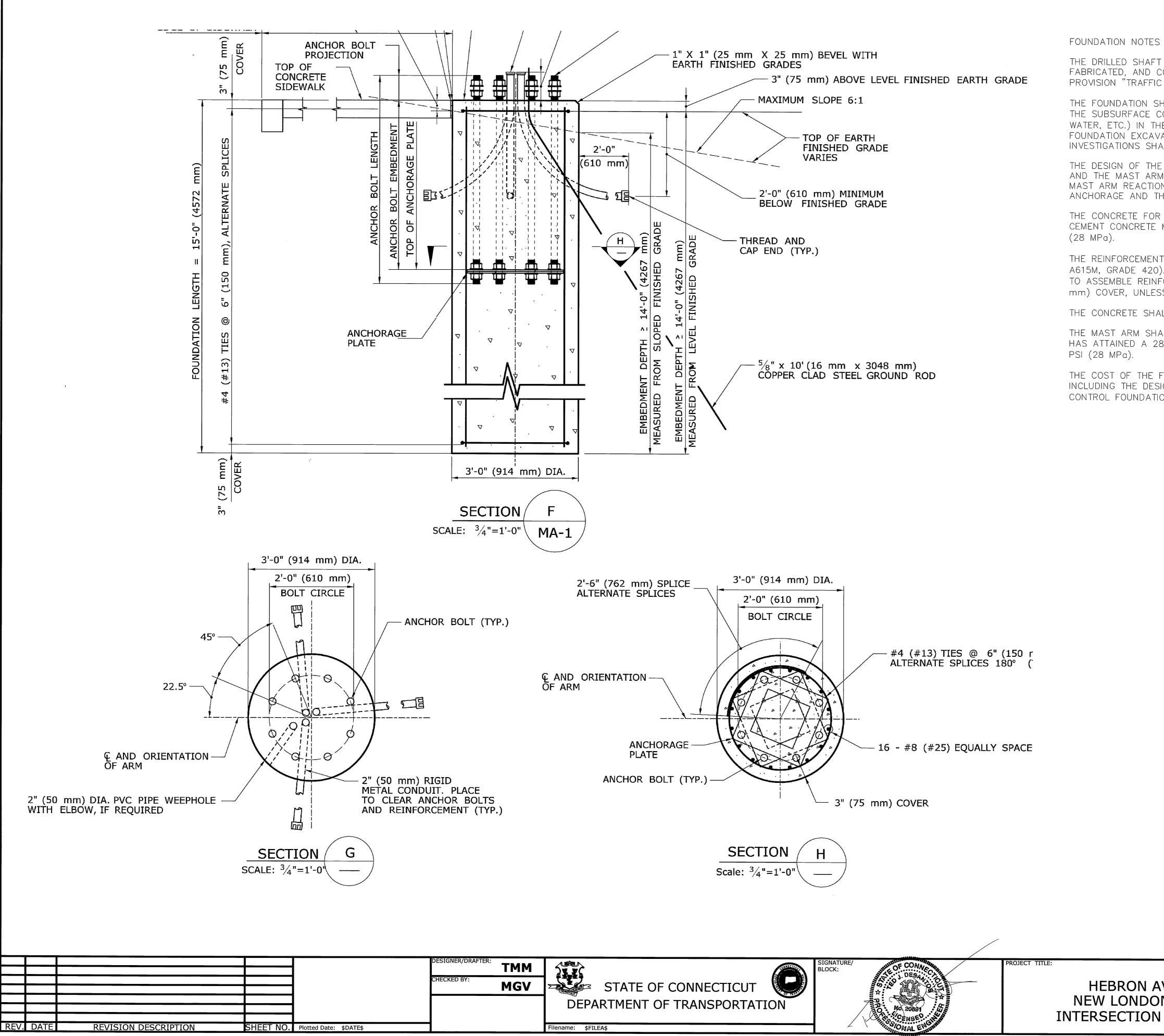








ON TORNPIKE ON IMPROVEMENTS	MAST ARM ASSEMBLY DETAILS	SHEET NO. 11
AVENUE AT OON TURNPIKE	TOWN: GLASTONBURY DRAWING TITLE:	PROJECT NO. DRAWING NO. MA-2
EL BOLT IDENTIFICAT NTS	TION TAG	
• IDENTIFICATION MANUFACTURER: DATE OF MANUFA ARM LENGTH: IN •	ACTURE: MM/YY	
ATTACH TAG TO POLE A WITH SELF-TAPPING TAM RESISTANT STAINLESS STEEL SCREWS (TYP.)		
<u>SECTION</u> SCALE: <sup>3</sup> / <sub>4</sub> "=1'-		
SECTION		
VC PIPE WEEPHOLE	2" (50 mm) RIGID METAL CONDUIT. PLACE TO CLEAR ANCHOR BOLTS AND REINFORCEMENT (TYP.)	
AND ORIENTATION		
TO ING DD		
CHED WITH 4 CONCRETE NAILS HOLE OPENING	CLOSED CELL ELASTOMER RING	
4" (100 mm X 100 mm) — 3 GAGE GALVANIZED		



Border Version: 11/14/08

THE DRILLED SHAFT FOUNDATION FOR THE MAST ARM ASSEMBLY SHALL BE DESIGNED, FABRICATED, AND CONSTRUCTED BY THE CONTRACTOR IN ACCORDANCE WITH THE SPECIAL PROVISION "TRAFFIC CONTROL FOUNDATION - MAST ARM."

THE FOUNDATION SHALL BE DESIGNED FOR THE SOILS AND ROCK PROPERTIES BASED ON THE SUBSURFACE CONDITIONS (CHARACTER OF THE SOIL AND ROCK, PRESENCE OF GROUND WATER, ETC.) IN THE LOCATION OF, ADJACENT TO AND BELOW THE DRILLED SHAFT FOUNDATION EXCAVATION. THE NEED AND EXTENT OF ALL SUBSURFACE EXPLORATIONS AND INVESTIGATIONS SHALL BE DETERMINED BY THE CONTRACTOR.

THE DESIGN OF THE FOUNDATION SHALL BE COORDINATED WITH THE MAST ARM ASSEMBLY AND THE MAST ARM ANCHORAGE TO ENSURE THAT THE FOUNDATION IS ADEQUATE FOR THE MAST ARM REACTIONS AND TO AVOID CONFLICTS BETWEEN THE EMBEDDED MAST ARM ANCHORAGE AND THE FOUNDATION REINFORCEMENT.

THE CONCRETE FOR THE FOUNDATION SHALL BE A CONTRACTOR DESIGNED PORTLAND CEMENT CONCRETE MIX WITH A MINIMUM 28 DAY COMPRESSIVE STRENGTH, f'c, OF 4,000 PSI

THE REINFORCEMENT SHALL BE UNCOATED AND CONFORM TO ASTM A615, GRADE 60 (ASTM A615M, GRADE 420). THE REINFORCEMENT SHALL BE ASSEMBLED WITH WIRE TIES. WELDING TO ASSEMBLE REINFORCEMENT IS NOT PERMITTED. ALL REINFORCEMENT SHALL HAVE 3" (75 mm) COVER, UNLESS OTHERWISE NOTED.

THE CONCRETE SHALL BE PLACED IN THE EXCAVATION AGAINST UNDISTURBED EARTH.

THE MAST ARM SHALL NOT BE ERECTED ON THE FOUNDATION UNTIL AFTER THE CONCRETE HAS ATTAINED A 28 DAY COMPRESSIVE STRENGTH, f'c, GREATER THAN OR EQUAL TO 4,000

THE COST OF THE FOUNDATION, INCLUDING EXCAVATION, CONCRETE AND REINFORCEMENT, INCLUDING THE DESIGN AND FABRICATION, SHALL BE PAID FOR UNDER THE ITEM "TRAFFIC CONTROL FOUNDATION - MAST ARM."

	TOWN:	PROJECT NO.
N AVENUE AT	GLASTONBURY	DRAWING NO.
DON TURNPIKE ON IMPROVEMENTS	DRAWING TITLE: MAST ARM ASSEMBLY FOUNDATION DETAILS	- MA-3 SHEET NO. 12

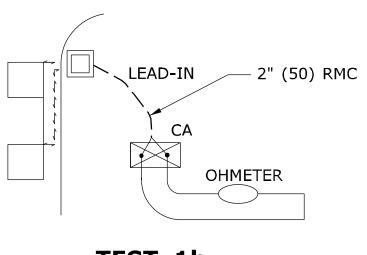
DOCUMENT ALL LOOP DETECTOR VALUES B	BOTH CALCULATE	D AND MEAS	URED.					
DEFINITIONS:								AD-IN
LOOP: #14 AWG WIRE IN SAWCUT, TERM LEAD-IN: 14/2 SHIELDED TWISTED PAIR LOOP CIRCUIT: LOOP SAWCUT WIRE SPL AMPLIFIER: ELECTRONIC DEVICE CONNEC FREQUENCY AND CREATES AN OUTPL MEGOHMETER: INSTRUMENT SPECIFICALL CIRCUIT. COMMON MANUFACTURERS:	CABLE FROM H ICED TO 14/2 L TED TO LOOP ( JT TO THE CON Y DESIGNED TO	ANDHOLE TO EAD-IN CABLI CIRCUIT. SENS FROLLER. TEST THE IN	CONTROLLER, IM E. SES CHANGE IN ISULATION RESIS	RESONANT	2.			CA MEGOH
<u>1: RESISTANCE:</u>							TEST	1a
1a: INSULATION RESISTANCE: PERFORM LOOP AMPLIFIER MUST BE DISCOM DAMAGED. THE RESISTANCE OF T	NECTED FROM	THE LOOP CIF	RCUIT OR THE LO	DOP AMPLIFIE	R WILL BE		<u>1L31</u>	
1b: WIRE RESISTANCE: MEASURE THE DISCONNECTED FROM THE AMPLIFI MEASURE THE DC RESISTANCE OF	ER. USING AN	OHMMETER CO	ONNECTED ACROS	SS THE LOOP	CIRCUIT,	[]		J-IN
NOTE: ALL TESTS SHALL BE DONE AT T PERFORM A PRELIMINARY MEGOHN SPLICING TO THE LEAD-IN. IF A	METER TEST AT '	THE HANDHOL	E PRIOR TO SE	ALING THE SA	AWCUT AND			CA
2: LOOP CIRCUIT INDUCTANCE:								ОНМЕТ
2a: CALCULATE INDUCTANCE OF LOOP (			,					
$\frac{\text{LOOP INDUCTANCE (ENGLISH)}}{\text{L}_{\text{LOOP}} = (P/4) (N^2 + N)}$	$\frac{\text{LOOP INDUCT}}{L_{1 \text{OOP}}} = (3)$	.28P/4) (N <sup>2</sup> +					TECT	' 1 h
LEAD-IN INDUCTANCE	2001	INDUCTANCE					<u>TEST</u>	
$L_{14/2} = (0.24 \mu\text{h/FT}) (\text{D})$	$L_{14/2} = ($	(0.78µh/m) (D	)					
WHERE:								
$L_{LOOP}$ = INDUCTANCE OF INDIVIDUAL $L_{14/2}$ = INDUCTANCE OF LEAD-IN CA		S IN MICROH	IENRIES (ሥ <sup>h</sup> ).	PROJEC TOWN:	T:		LOC	ATION:
P = PERIMETER OF INDIVIDUAL LOOP N = NUMBER OF TURNS.		EET OR METER	RS.	LOOP		TANCE MS	INDUCT MICROHEN	
D = LENGTH OF LEAD-IN CABLE FRO IN FEET OR METERS	M SPLICE IN HA	ANDHOLE TO	CONTROLLER,	NUMBER	TO GROUNE	LOOP WIRE	CALCULATED	MEASURED
$L_T = L_1 + L_2 + L_3$ etc., (TOTAL INDUCTANCE OF SE			SERIES )	D1 FRONT	(1a)	(1b)	(2a)	(2b)
$L_{T} = 1 / [(1 / L_{1}) + (1 / L_{2}) + (1 / L_{2})]$ (TOTAL INDUCTANCE OF SEGME	1 / L 3) + etc.],		-	D1 REAR				
WHERE:	INTED LOOP SPL	ICED IN PARA		D2A D2B				
			- \ 1	D4A FRONT	•			
$L_T$ = TOTAL INDUCTANCE OF $L_1, L_2, L_3$ = INDUCTANCE OF INDIVI			NT.	D4B REAR				
EXAMPLE: (IN ENGLISH)				D5 D6A				
6' x 6', 4 TURNS, APPROXIMATEL	Y 300' FROM TH	E CONTROLLEI	ર	D6B				
$L_{LOOP} = (24/4) (4^2 + L_{LOOP} = (6) (20) \\ L_{LOOP} = 120 \mu h$	L <sub>14</sub>	/2 = (0.24 µh/ /2 = (0.24) (3 /2 = 72 µh			<u>L0</u>	OP CIRC (EX	UIT TES AMPLE)	<u>F DATA</u>
2b: MEASURE INDUCTANCE OF LOOP AN INSTRUMENT DESIGNED TO MEASU	ID LEAD-IN AT (	CONTROLLER.						
3: POWER INTERRUPTION:								
AFTER THE AMPLIFIER HAS TUNED AND IS FUSE OR HARNESS CONNECTOR. RETURN F RE-TUNES AUTOMATICALLY WITHOUT ANY M	POWER TO THE	AMPLIFIER AN		NG				
			DUCTIVE LO	DOP TES	T PROCE	DURE		
	PIN		FUNCTION					
	Α	WHITE	110 VAC Neutral					
	B C		Output Relay Cor 110 VAC (Fused)		g contact)			
	D	RED	Loop					
	E		Output Relay Cor	•	-		-	-
	G H		Output Relay Cor Chassis Ground	ntact (Opens w	rith moving c	ontact when de	etecting vehic	le)
	J Ch		110 VAC Delay/E Ground (shall be			connector)		
	511	~						
EGEND AS SHOWN ON TRAFFIC CONTROL SIGNAL PLAN: INDUCTIVE LOOP DETECTOR SAW CUT RIGID METAL CONDUIT		<b>DETEC</b>	TOR AMPL	IFIER PI	N DESI	<u>GNATION</u>		
HANDHOLE		THE INFORMATION	INCLUDING ESTIMATED	DIMENSIONS ARE 3 & METRIC UNITS	(mm).	JU F(		
		QUANTITIES OF WO SHEETS IS BASED INVESTIGATIONS B	ORK, SHOWN ON THESE ON LIMITED Y THE STATE AND IS	METRIC DIMENSION - OVER 1" TO NE - UNDER 1" TO N	NŠ AŔE ROUNDED <b>:</b> EAREST 5 mm	ST	TATE OF	CONNE
		IN NO WAY WARR	ANTED TO INDICATE OF ACTUAL QUANTITIES WILL BE REQUIRED.	ΝΟΤ ΤΟ	SCALE	- SOLIT	MENT OI	
1 4-2012 MINOR REVISIONS.	7							

REVISION DESCRIPTION

Plotted Date: 4/25/2012

REV, DATE

LEAD-IN 2" (50) RMC
MEGOHMETER



AMPLIFIER

POWER

INTERRUPTION

PASS/FAIL

(3)

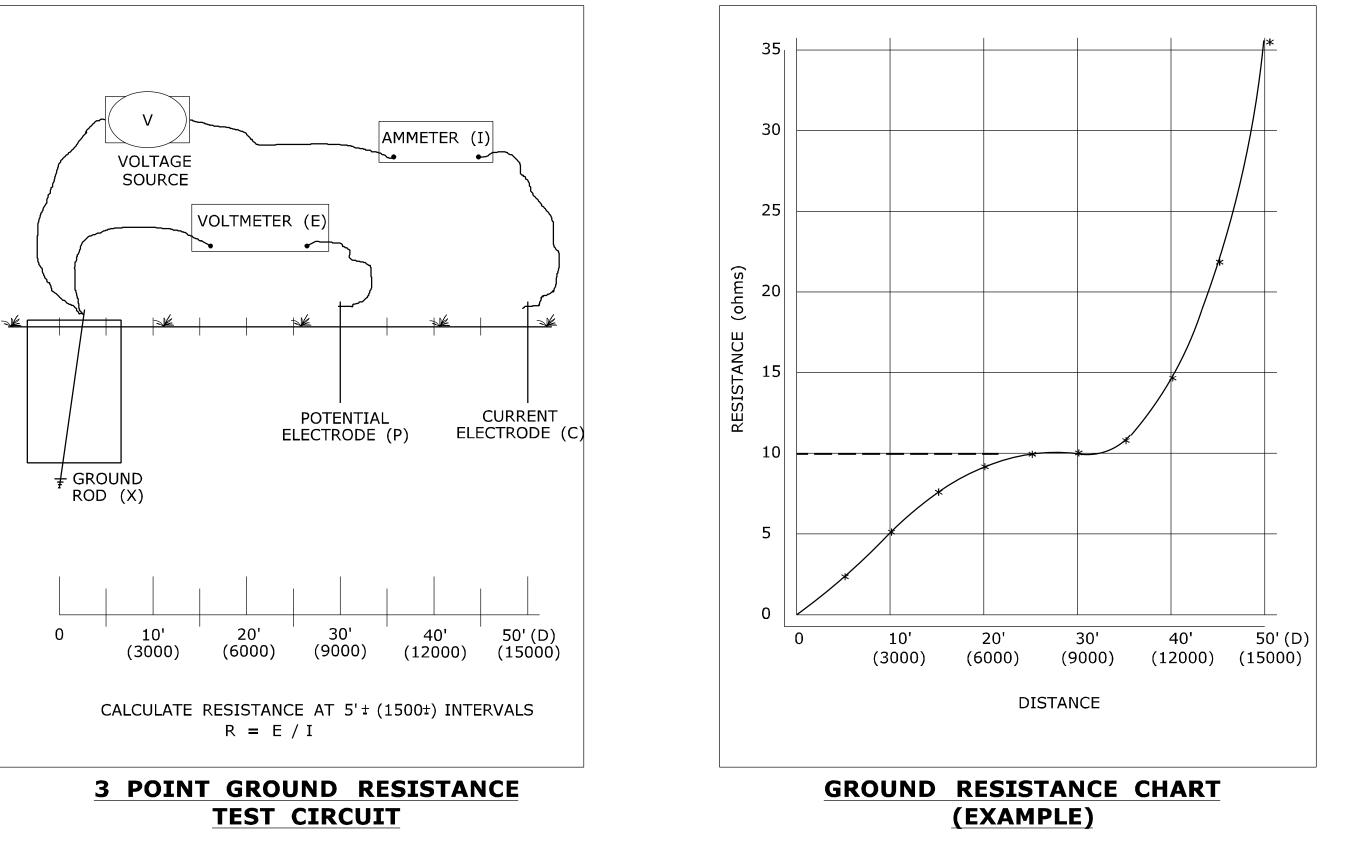
TEST PROCEDURE:

- MEASURE THE CURRENT FLOW (I) BETWEEN X AND C.
- MEASURE VOLTAGE (E) AT EACH LOCATION OF P.
- PLOT THE VALUES ON A RXD GROUND RESISTANCE CHART.

SUGGESTED CORRECTIVE ACTION:

- A. INSTALL ADDITIONAL 10' (3000) GROUND ROD(S). REFER TO NESC SECTION 09, RULE 94.B.2. MINIMUM 6' (1800) APART. WELDING TECHNIQUE. TOP OF ADDITIONAL GROUND ROD(S) SHALL BE 6" (150) BELOW GRADE.
- OR PLATES. REFER TO NESC SECTION 09, RULE 94.B.3. REFER TO NEC SECTION 250.
  - MINIMUM DEPTH OF 18" (450)

GRID CONNECTIONS AND BONDS ON GROUND GRID SHALL BE MADE BY CLAMPS DESIGNED FOR DIRECT BURIAL OR BY EXOTHERMIC WELDING TECHNIQUE.



# NOTES:

- AS A SPECIALIZED TEST INSTRUMENT.
- AND COMMUNCATIONS FACILITIES.
- 4. REFER TO NATIONAL ELECTRICAL CODE (NEC) CHAPTER 2, ARTICLE 250, GROUNDING.

## N DESIGNATION

# **3 POINT FALL-OF-POTENTIAL GROUND RESISTANCE TEST**

IN ENGLISH ('.") 5 (mm). DNS ARE ROUNDED: EAREST 5 mm NEAREST 1 mm.	STATE OF CONNECTICUT	SUBMITTED BY: Tracy L Fogarty APPROVED BY:	NAME/DATE/TIME: Tracy L. Fogarty 2012.05.01 12:54:11-04'00' NAME/DATE/TIME:	CTDOT STANDARD SI
) SCALE	DEPARTMENT OF TRANSPORTATION           Filename:         CTDOT_TRAFFIC_STD.dgn           Model:         TR-1000_01	TWilf	Timothy M. Wilson 2012.05.09 10:22:59-04'00'	OFFICE OF ENGIN

# PROCEDURE

- INSERT ELECTRODE (C) A DISTANCE (D) FROM THE FOUNDATION. RECOMMEND A MINIMUM 50'. - CONNECT A VOLTAGE SOURCE AND AMMETER BETWEEN THE FOUNDATION GROUND ROD (X) AND C. - INSERT POTENTIAL ELECTRODE (P) AT 5' (1500) INTERVALS IN A STRAIGHT LINE TO ELECTRODE C. - CALCULATE RESISTANCE (R) AT EACH LOCATION OF P USING THE FORMULA R=E/I.

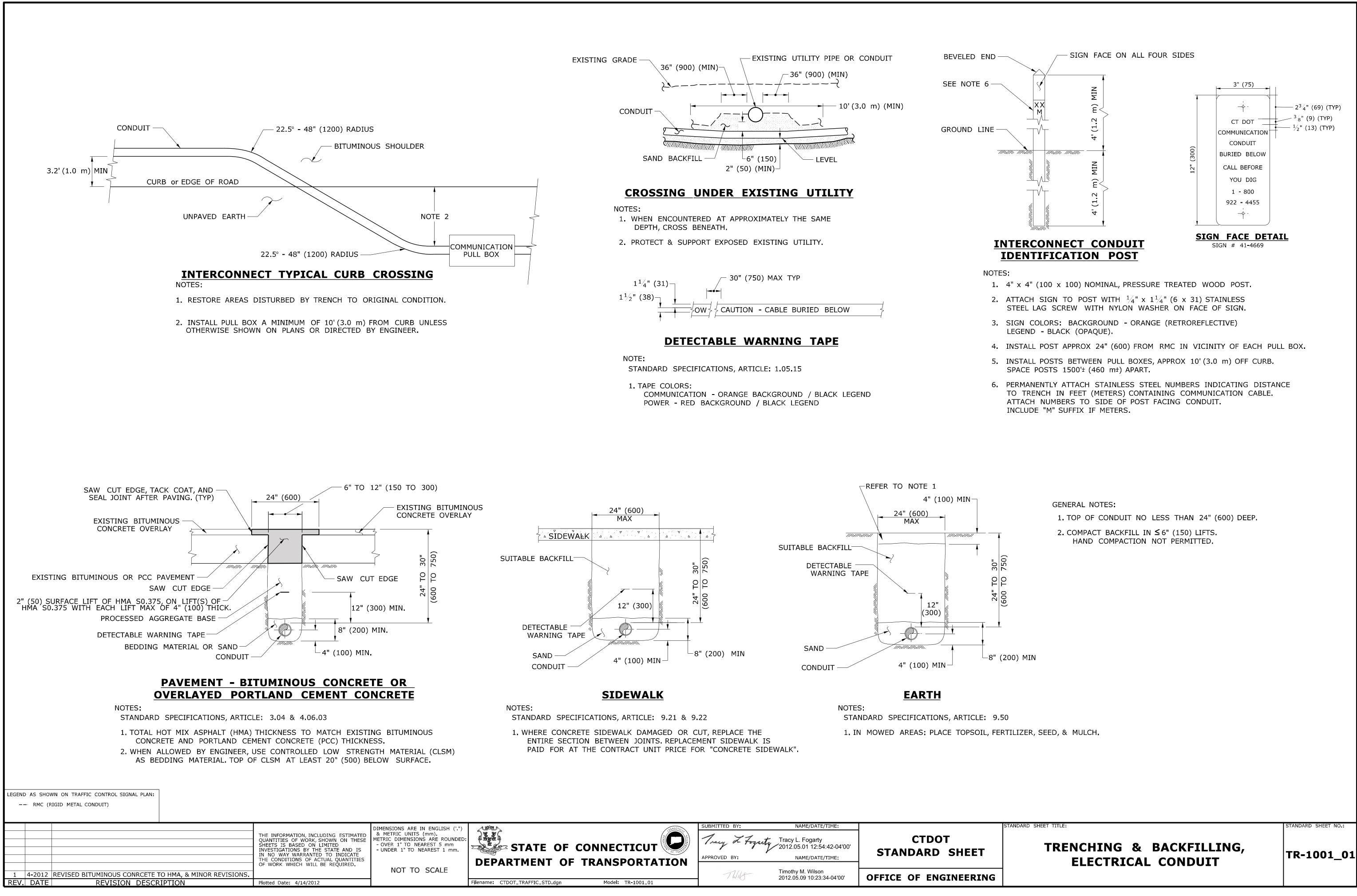
- THE ACTUAL GROUND RESISTANCE IS WHERE THE PLOTTED CURVE IS RELATIVELY FLAT, USUALLY AT 62%± OF D. SEE EXAMPLE CHART: CURVE FLATTENS OUT AT 10 OHMS, APPROXIMATELY 30' (9000) FROM FOUNDATION. - IF GROUND RESISTANCE IS GREATER THAN 10 OHMS, PERFORM CORRECTIVE ACTION AND RE-TEST.

DRIVE ADDITIONAL GROUND RODS NO CLOSER TO FOUNDATION THAN 6' (1800). IF MORE THAN ONE IS NEEDED, SPACE BONDS TO ADDITIONAL GROUND ROD(S) SHALL BE MADE BY A CLAMP DESIGN FOR DIRECT BURIAL OR BY EXOTHERMIC

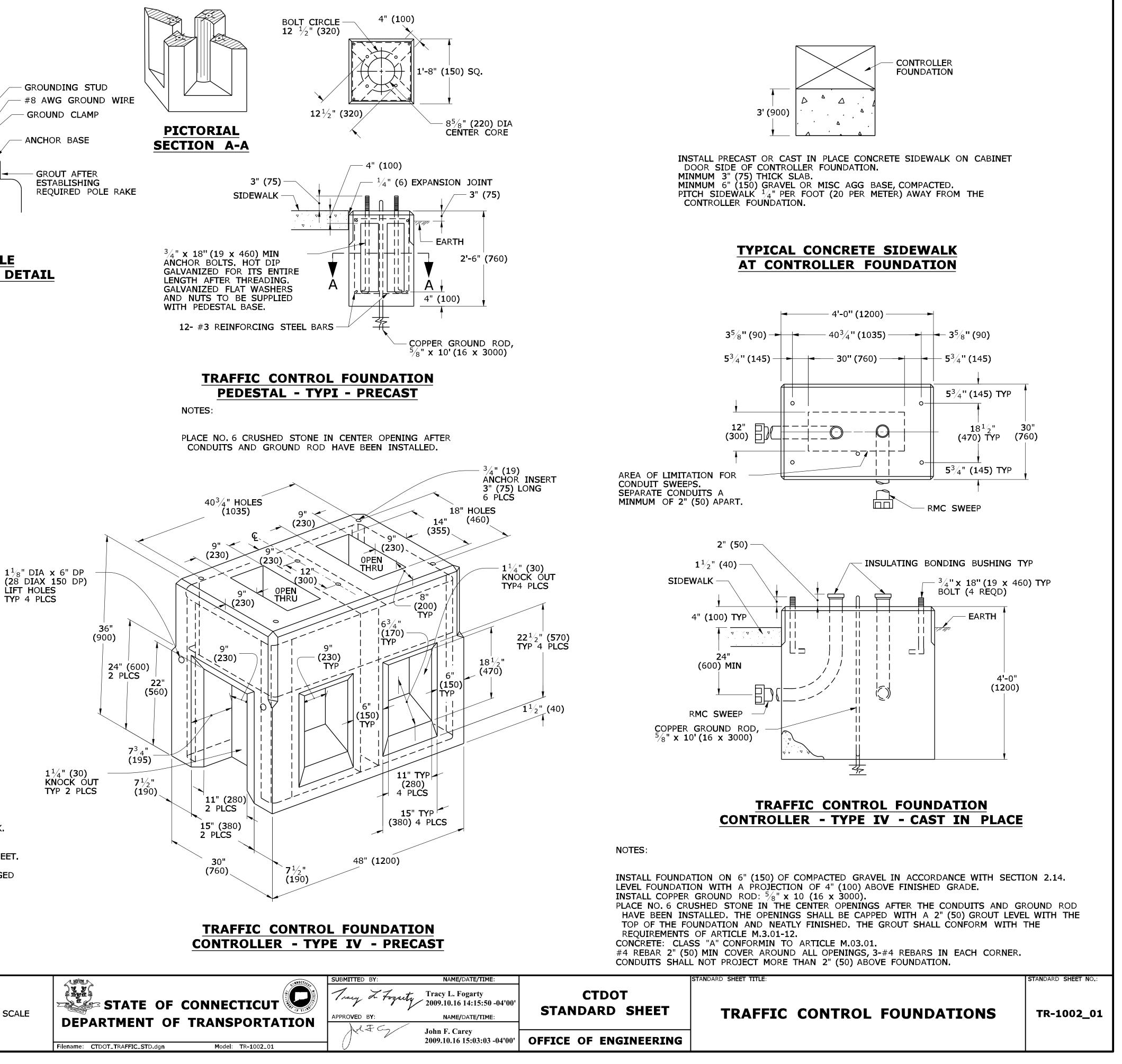
B. IN AREAS OF SHALLOW BEDROCK, INSTALL A GROUND GRID OR ARRAY CONSISTING OF BURIED WIRE, RODS, STRIPS

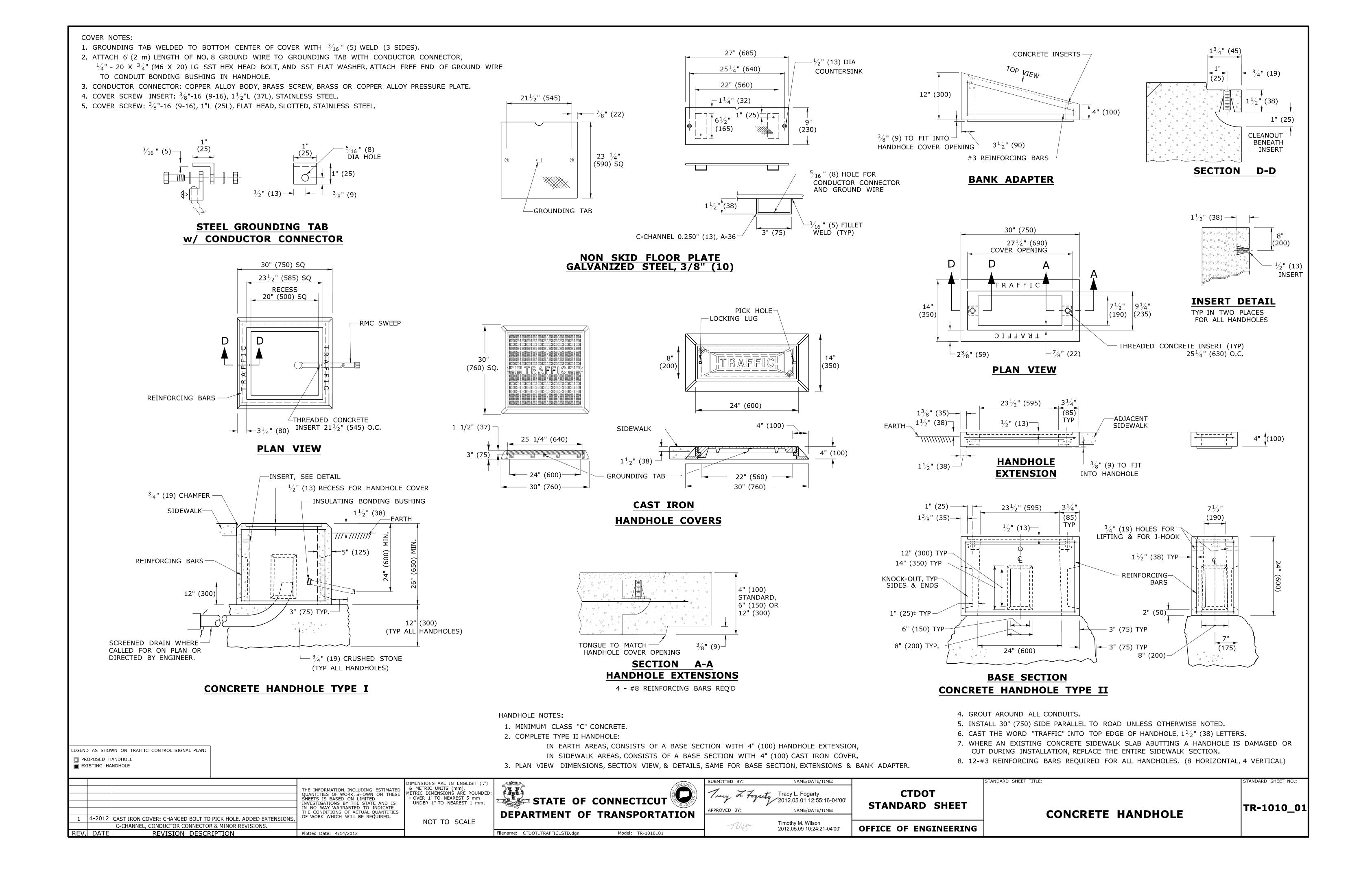
1. DURING THE TEST, THE GROUND ROD SHOULD NOT BE BONDED TO ANY RMC IN THE FOUNDATION. 2. THE VOLTAGE SOURCE, VOLTMETER, AMMETER, ELECTRODES P AND C, AND CONNECTING CABLES ARE AVAILABLE 3. REFER TO NATIONAL ELECTRICAL SAFETY CODE (NESC) SECTION 09, GROUNDING METHODS FOR ELECTRIC SUPPLY

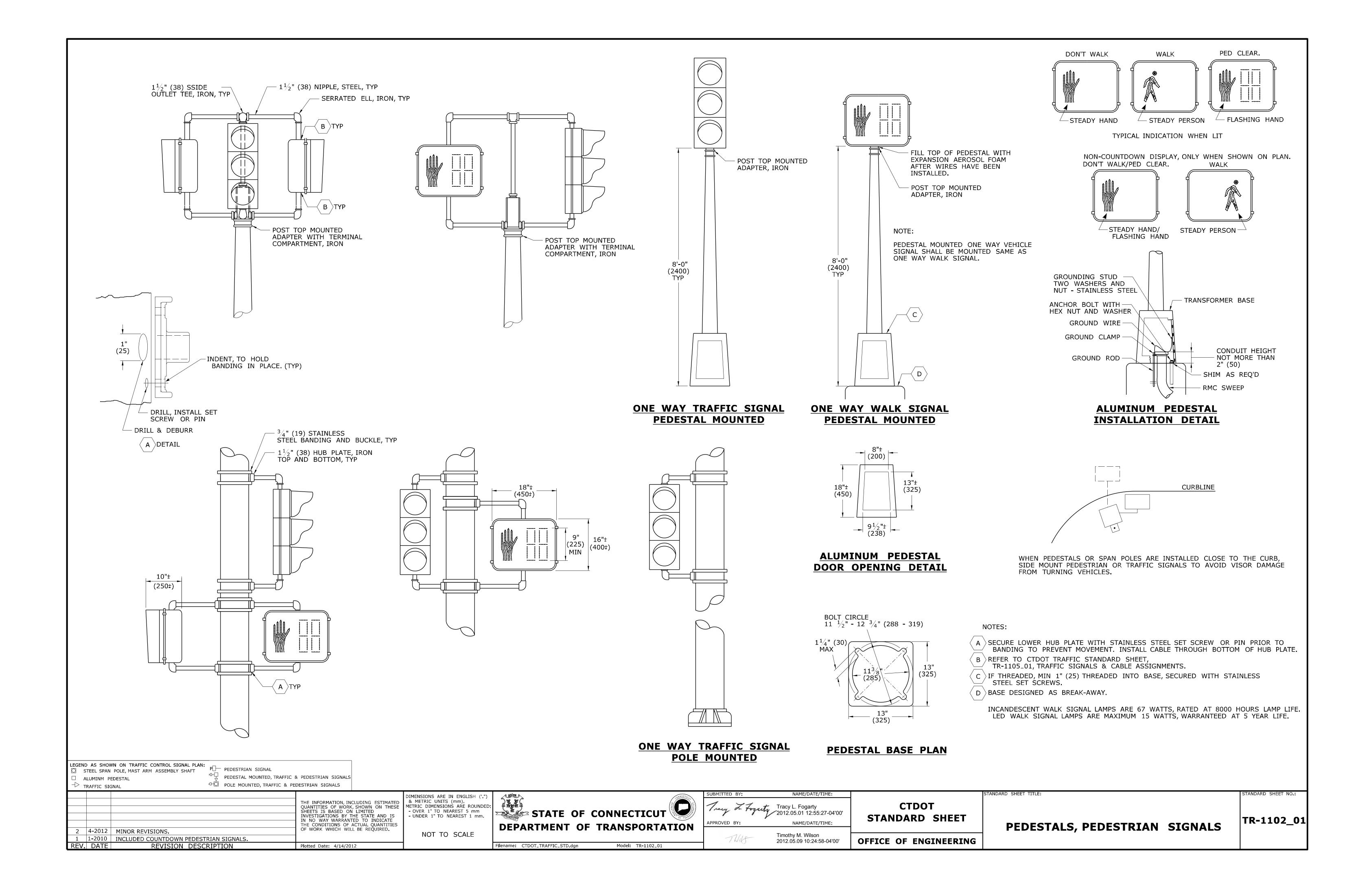
> TANDARD SHEET NO.: TANDARD SHEET TITLE: **GENERAL CLAUSES** SHEET TR-1000\_01 (TEST PROCEDURES) INEERING

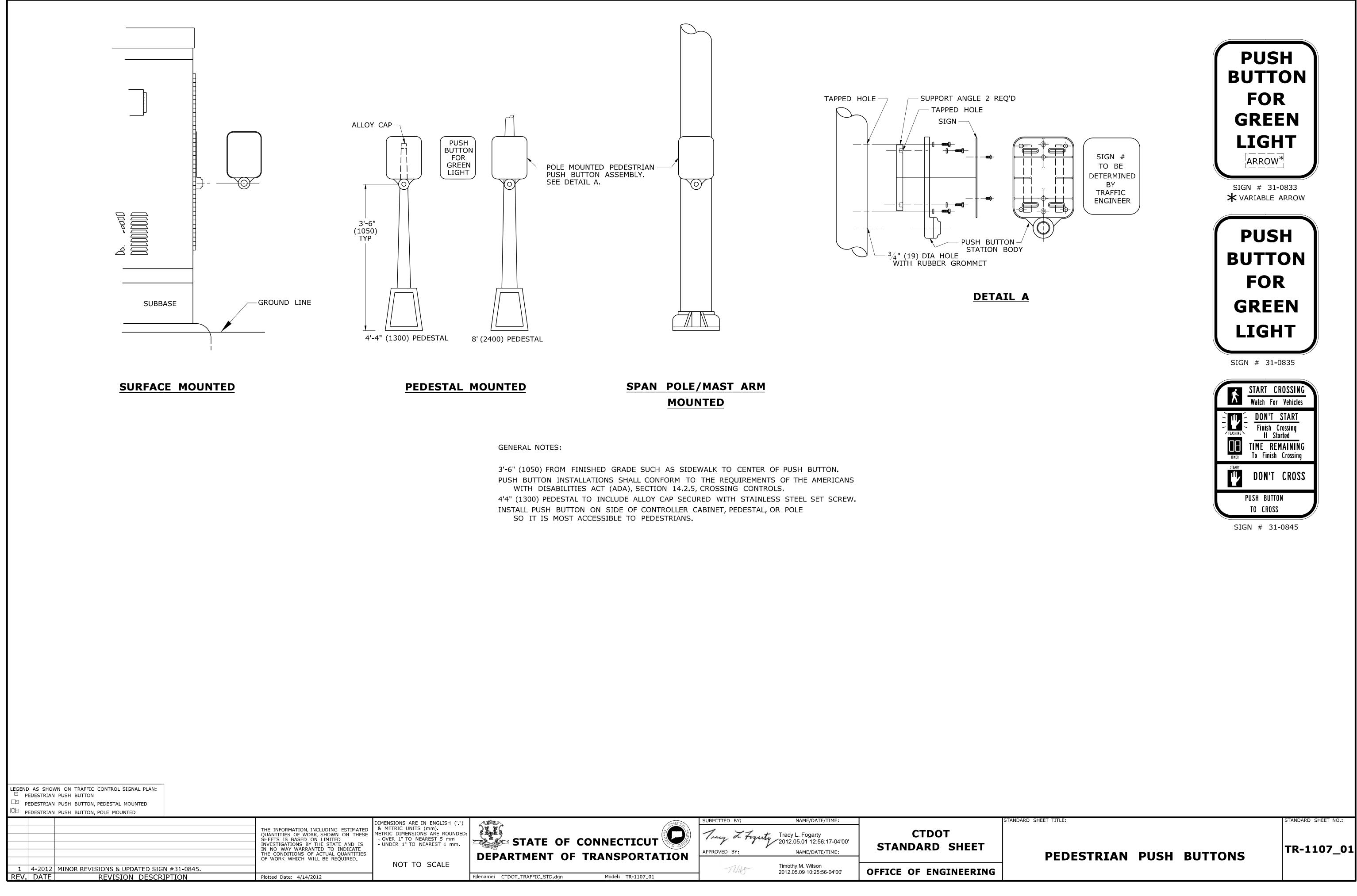


	REINFOR (900) SQ SQ SQ SQ SQ SQ SQ SQ SQ SQ SQ SQ SQ	REINFORCED HANDHOLE LEVELING NUT LOCK WASHER, FLAT WASHER FLAT WASHER LEVELING NUT ANCHOR BOLT COPPER GROUND ROD, 5/8" x 10' (16 x 3000)
	PLAN VIEW	<u>STEEL POL</u> INSTALLATION
12" (300) FORMED SQUARE RMC SW 3- #3 RI HOOPS	VALK     1" x       VALK     11 / 1       VALK     11 / 1       VALK     11 / 1       VALK     11 / 1       VEEP     11 / 1       INFORCING     11 / 1       INFORCING     11 / 1       INFORCING     11 / 1       INFORCING     11 / 1	2) (1" (25 x 25) CHAMFER (
	TRAFFIC CONTROL FOUNDATIO	N
INSTA EXTEN FOR WHEN FOR MATO FINIS BOND ORIEN ANCH WHEN OR PROV WHEN TRA INST	ALL A MINIMUM OF TWO RMC SWEEPS IN ALL FOUN ALL A MINIMUM OF ONE SPARE 2" (50) RMC SWEEP ND SPARE SWEEP MINMUM 24" (600) FROM SIDE. I EXPOSED EDGES WITH 1" x 1" (25 x 25) CHAMFEF N AUGERED, AND POURED IN PLACE, OR CYLINDRICA M ONLY THE TOP OF FOUNDATION TO SQUARE. CH TOP OF SPAN POLE AND PEDESTAL FOUNDATION CH EXPOSED AREAS WITH WOOD FLOAT AND BRUSH O ALL POLES, PEDESTALS AND CONDUITS TO GROUN NT SPAN POLE ANCHOR BOLTS WITH RESPECT TO L IOR BOLT LENGTH INCLUDES BEND. RE AN EXISTING CONCRETE SIDEWALK SLAB ABUTTI CUT DURING INSTALLATION, REPLACE THE ENTIRE S IDE A CLEAR PATH NOT LESS THAN 3' (0.9 m) IN S N REQUESTED BY THE ENGINEER, MEASURE RESISTAN FFIC CONTROL FOUNDATIONS. SEE FALL-OF-POTENTI/ TALL SUPPLEMENTAL ELECTRODES AS REQUIRED. NEC	IN ALL FOUNDATIONS. R. L FORM IS USED, WITH CROSS SLOPE OF ADJACENT SIDEWALK. I. D ROD. OAD AS SHOWN ON TYPICAL SPAN POLE SHE NG A FOUNDATION OR HANDHOLE IS DAMAGE ECTION. SIDEWALK AREAS FOR HANDICAP ACCESS. NCE-TO-GROUND OF GROUND ROD AT AL METHOD. IF LESS THAN 10 ohms,
		THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.
REV. DATE	REVISION DESCRIPTION	Plotted Date: 10/16/2009

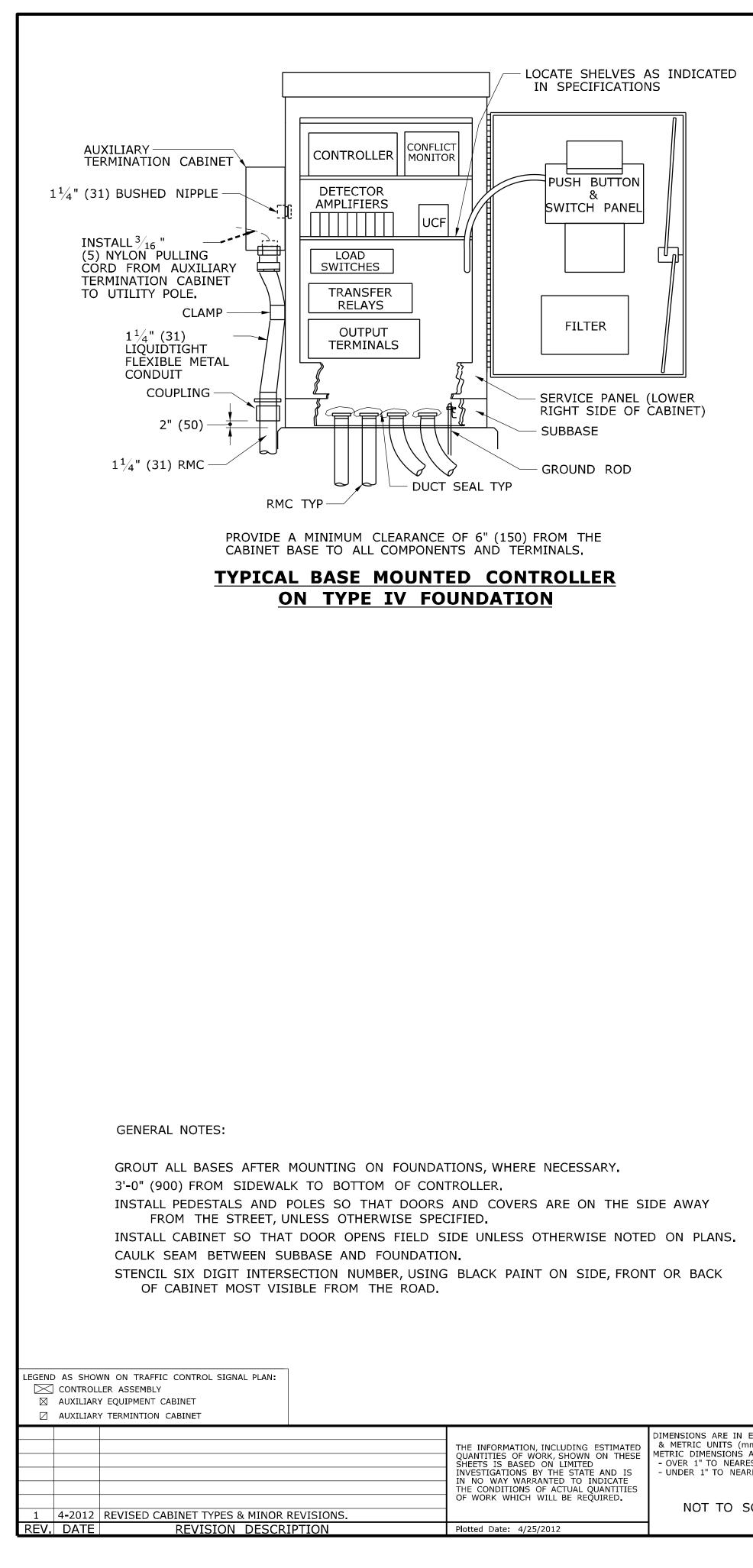


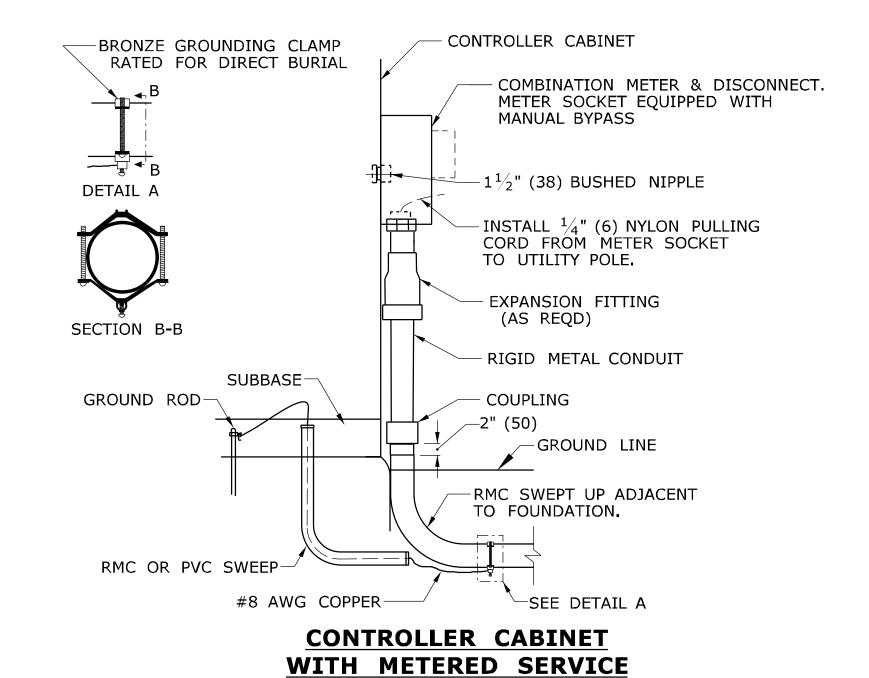


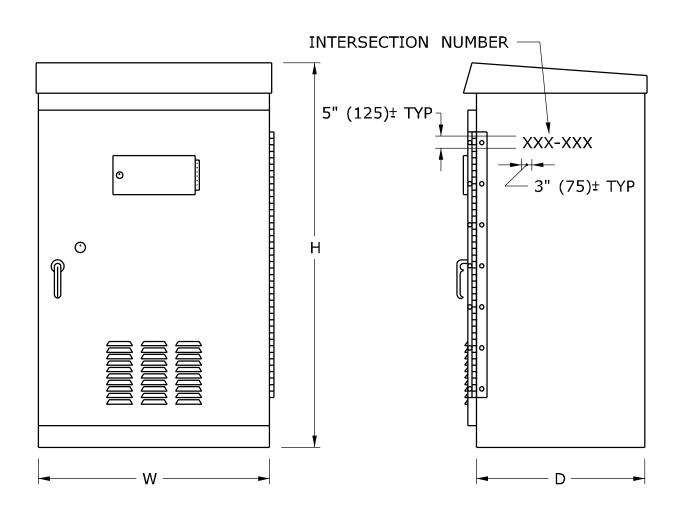




N ENGLISH ('.") (mm). IS ARE ROUNDED: AREST 5 mm EAREST 1 mm.	STATE OF CONNECTICUT	SUBMITTED BY: Tracy & Fogart APPROVED BY:	NAME/DATE/TIME: Tracy L. Fogarty 2012.05.01 12:56:17-04'00' NAME/DATE/TIME:	CTDOT STANDARD SH
SCALE	Filename: CTDOT_TRAFFIC_STD.dgn Model: TR-1107_01	TWIG	Timothy M. Wilson 2012.05.09 10:25:56-04'00'	OFFICE OF ENGINE



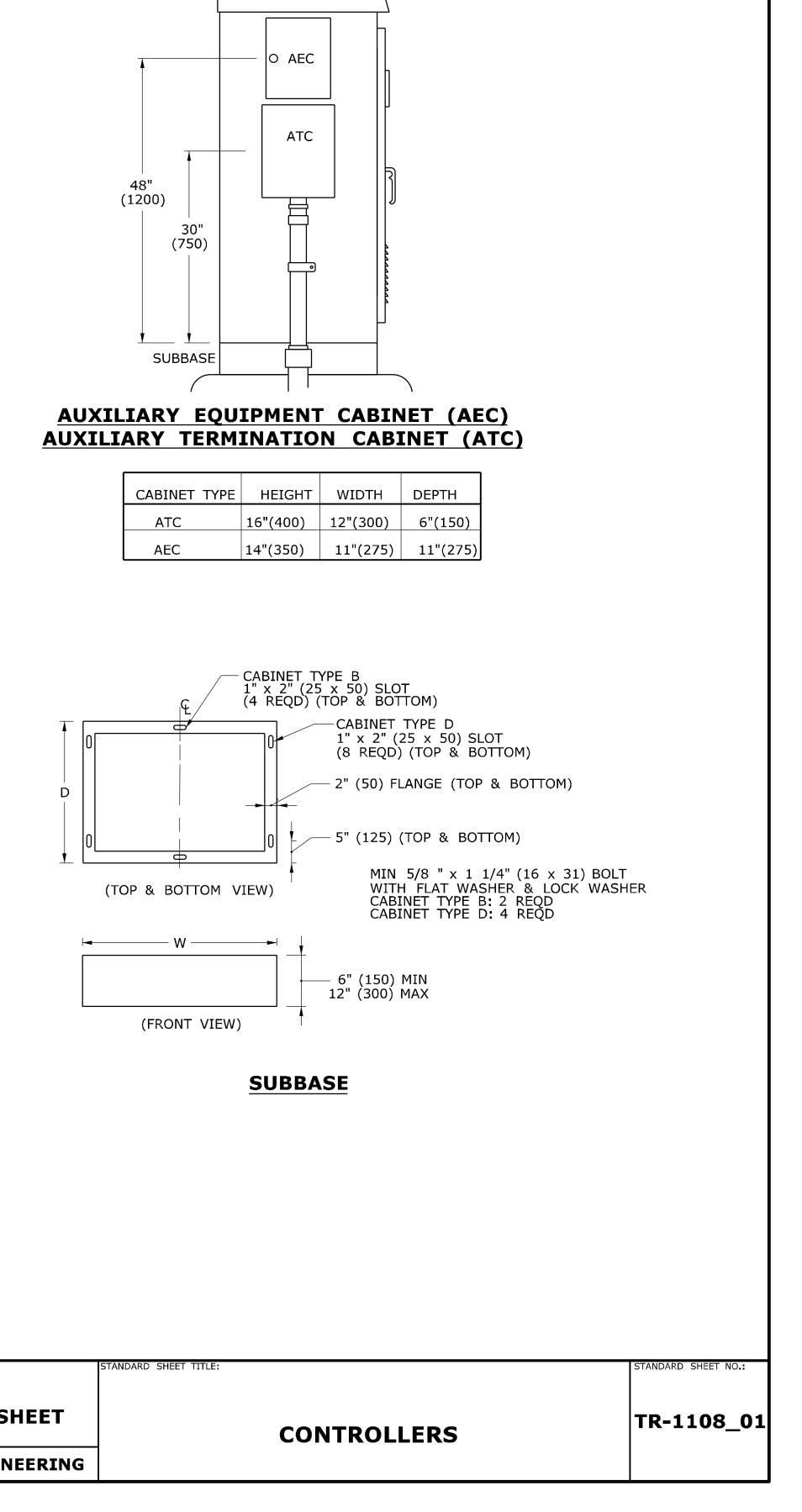


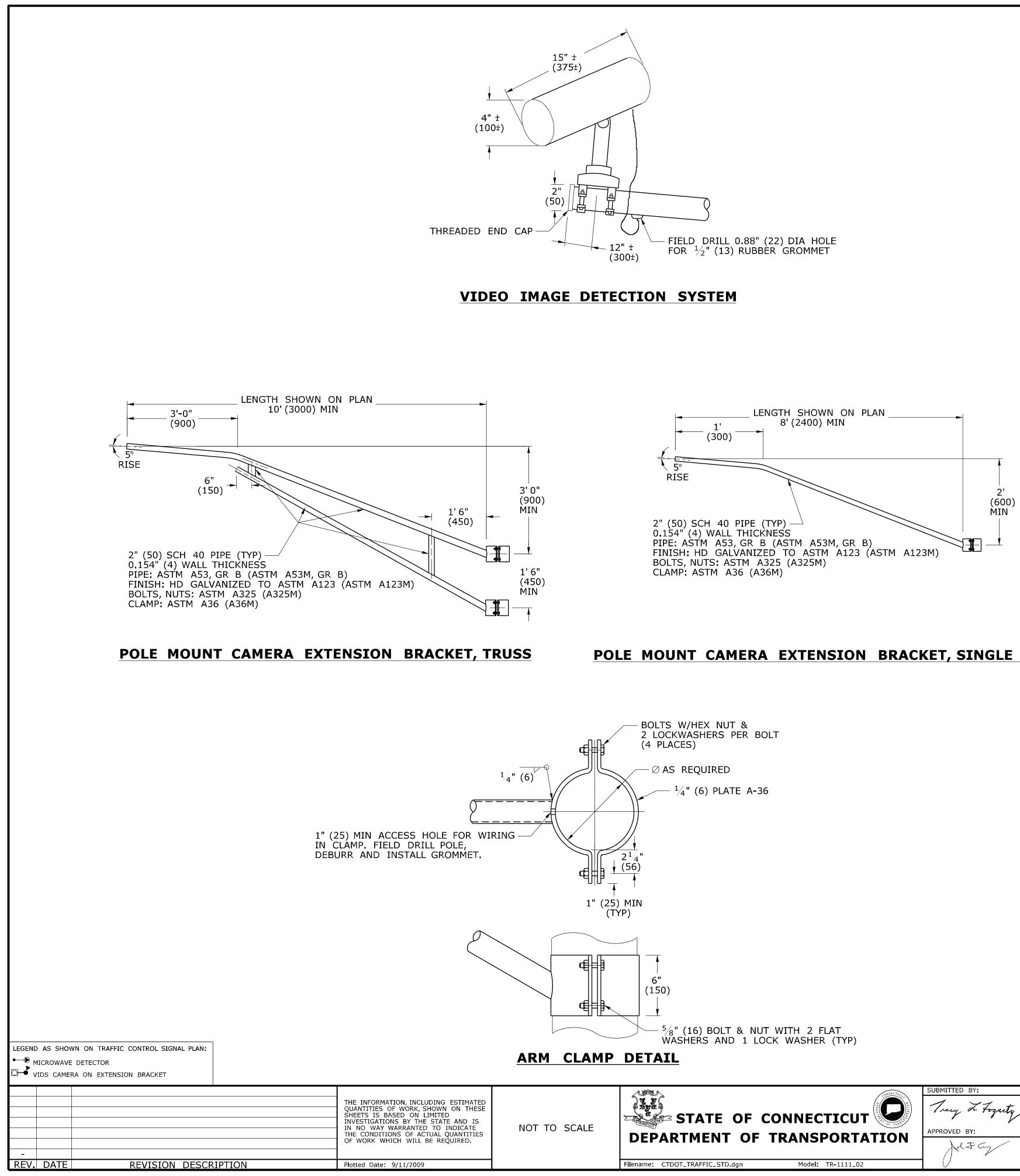


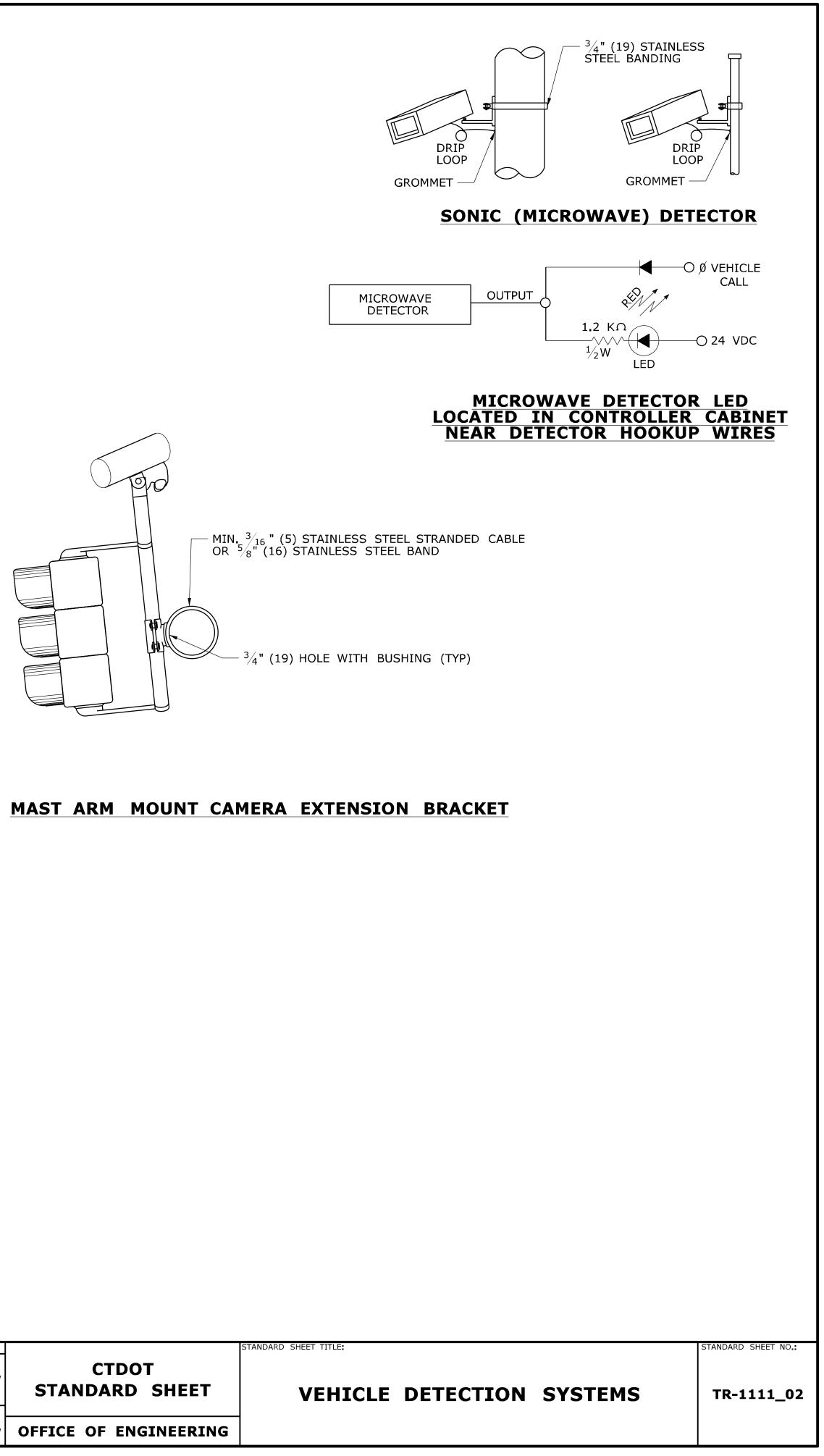
# BASE MOUNTED TRAFFIC CONTROLLER (TYPE B, D & E)

CABINET	DEPTH		WID	ΟTH	HEIGHT	
TYPE	MIN	MAX	MIN	MAX	MIN	MAX
В	17"	19"	30"	34"	52"	56"
	(425)	(475)	(750)	(850)	(1300)	(1400)
D	25"	27"	42"	45"	54"	59"
	(625)	(675)	(1050)	(1125)	(1350)	(1475)
Е	17"	19"	30"	32"	49"	52"
	(425)	(475)	(750)	(800)	(1225)	(1300)

N ENGLISH ('.") (mm). S ARE ROUNDED: AREST 5 mm EAREST 1 mm.	STATE OF CONNECTICUT	SUBMITTED BY: Tracy & Fogarty APPROVED BY:	NAME/DATE/TIME: Tracy L. Fogarty 2012.05.01 12:56:32-04'00'	CTDOT STANDARD SH
SCALE	DEPARTMENT OF TRANSPORTATION		NAME/DATE/TIME:	
SCAL	Filename: CTDOT_TRAFFIC_STD.dgn Model: TR-1108_01	TWILS	2012.05.09 10:26:13-04'00'	OFFICE OF ENGINE

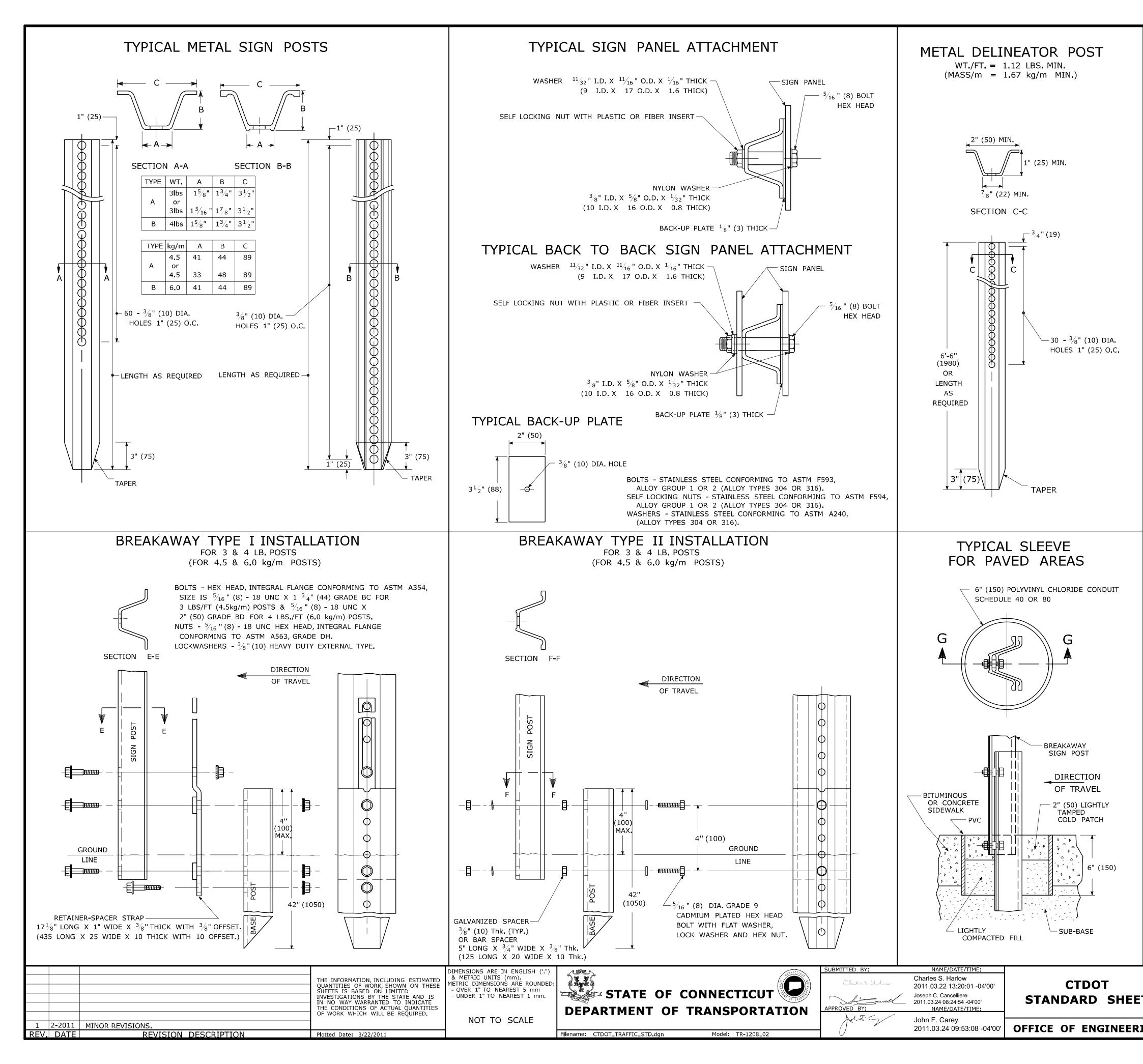






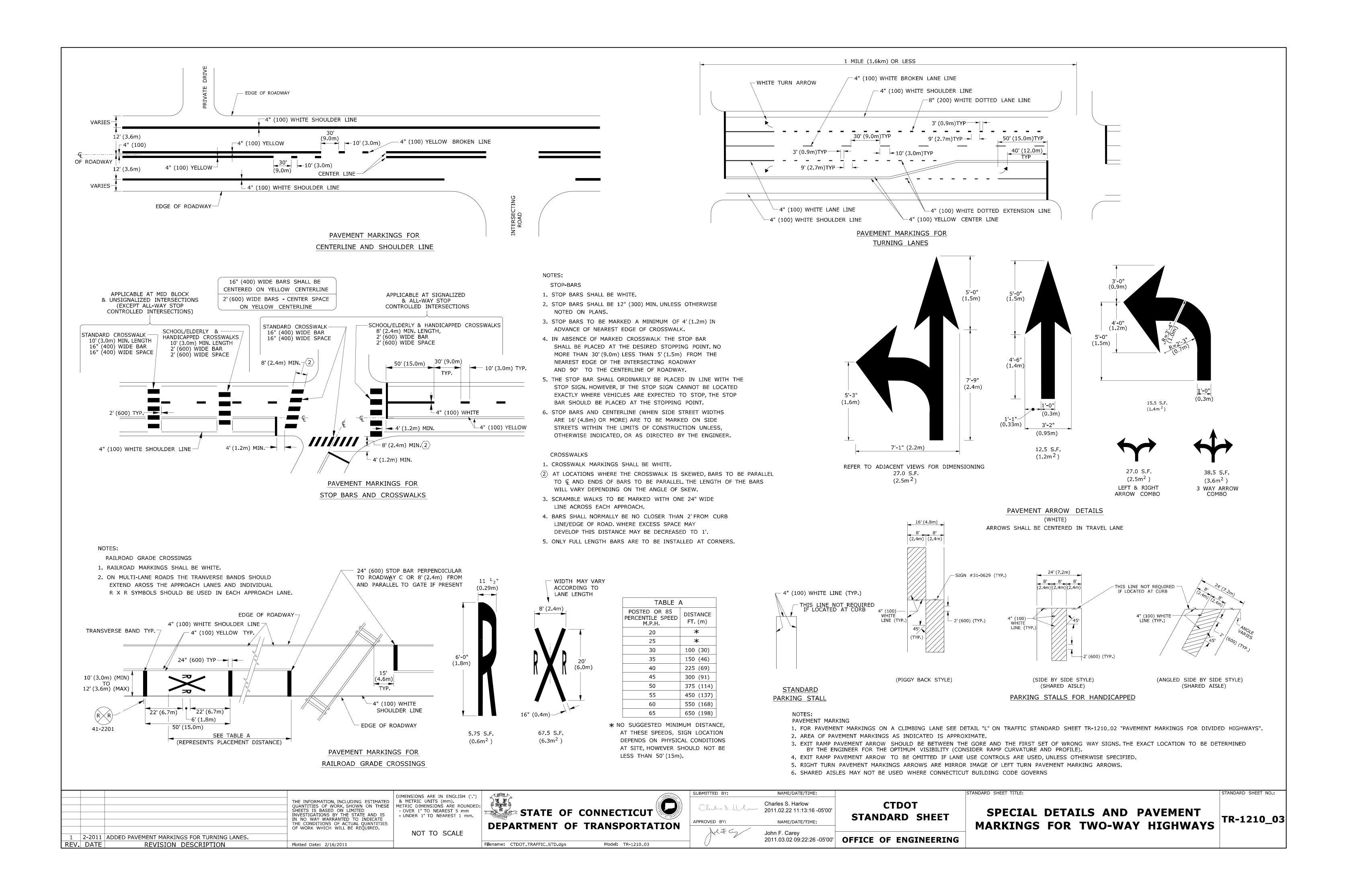
### POLE MOUNT CAMERA EXTENSION BRACKET, SINGLE ARM

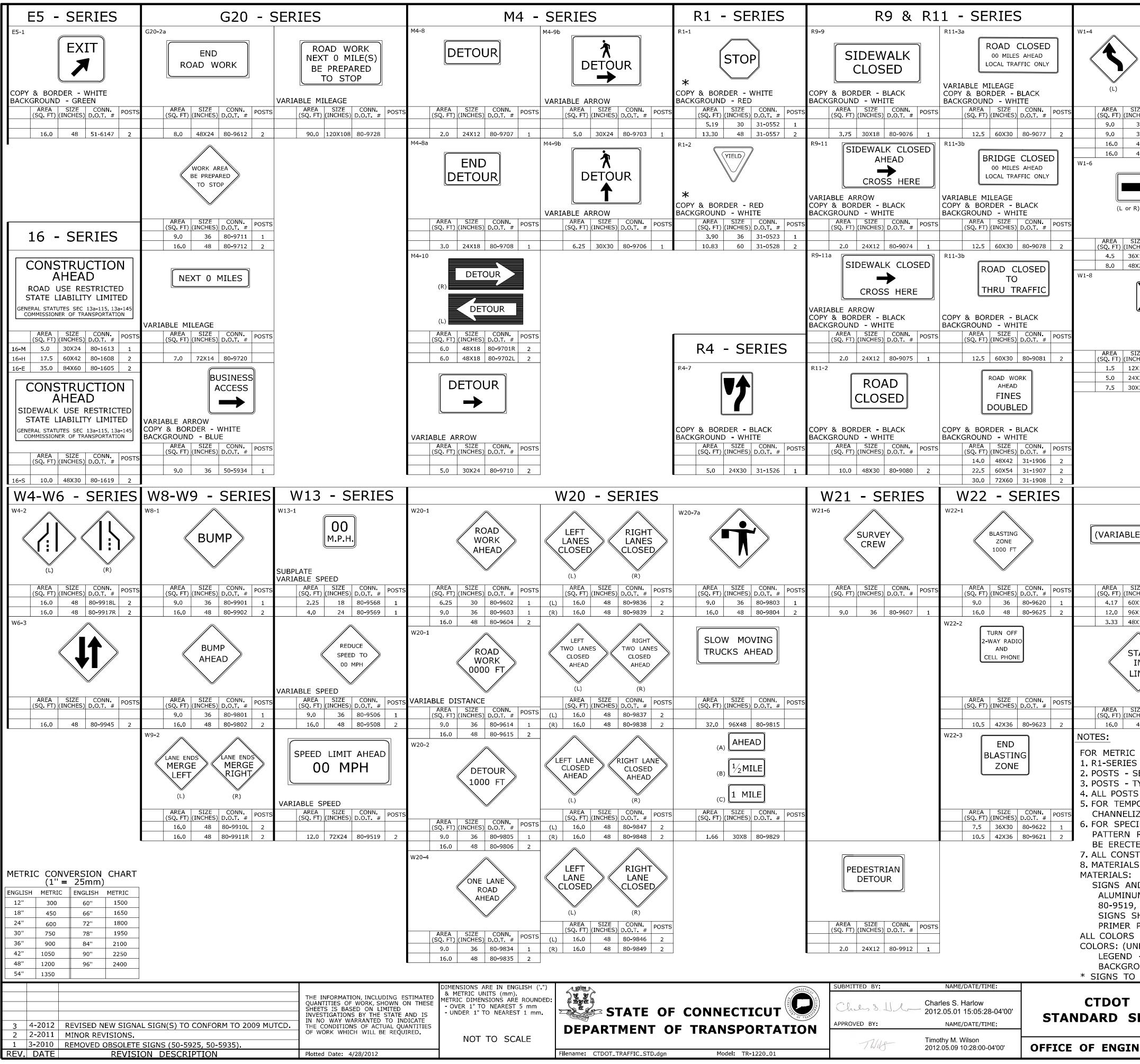
SCALE	STATE OF CONNECTICUT	SUBMITTED BY:       NAME/DATE/TIME:         Image: Tracy L. Fogarty       2009.09.15 08:12:11 -04'00'         APPROVED BY:       NAME/DATE/TIME:		CTDOT STANDARD SH	
	DEPARTMENT OF TRANSPORTATION           Filename:         CTDOT_TRAFFIC_STD.dgn   Model: TR-1111_02	ALTES	John F. Carey 2009.09.16 08:25:37 -04'00'	OFFICE OF ENGINE	



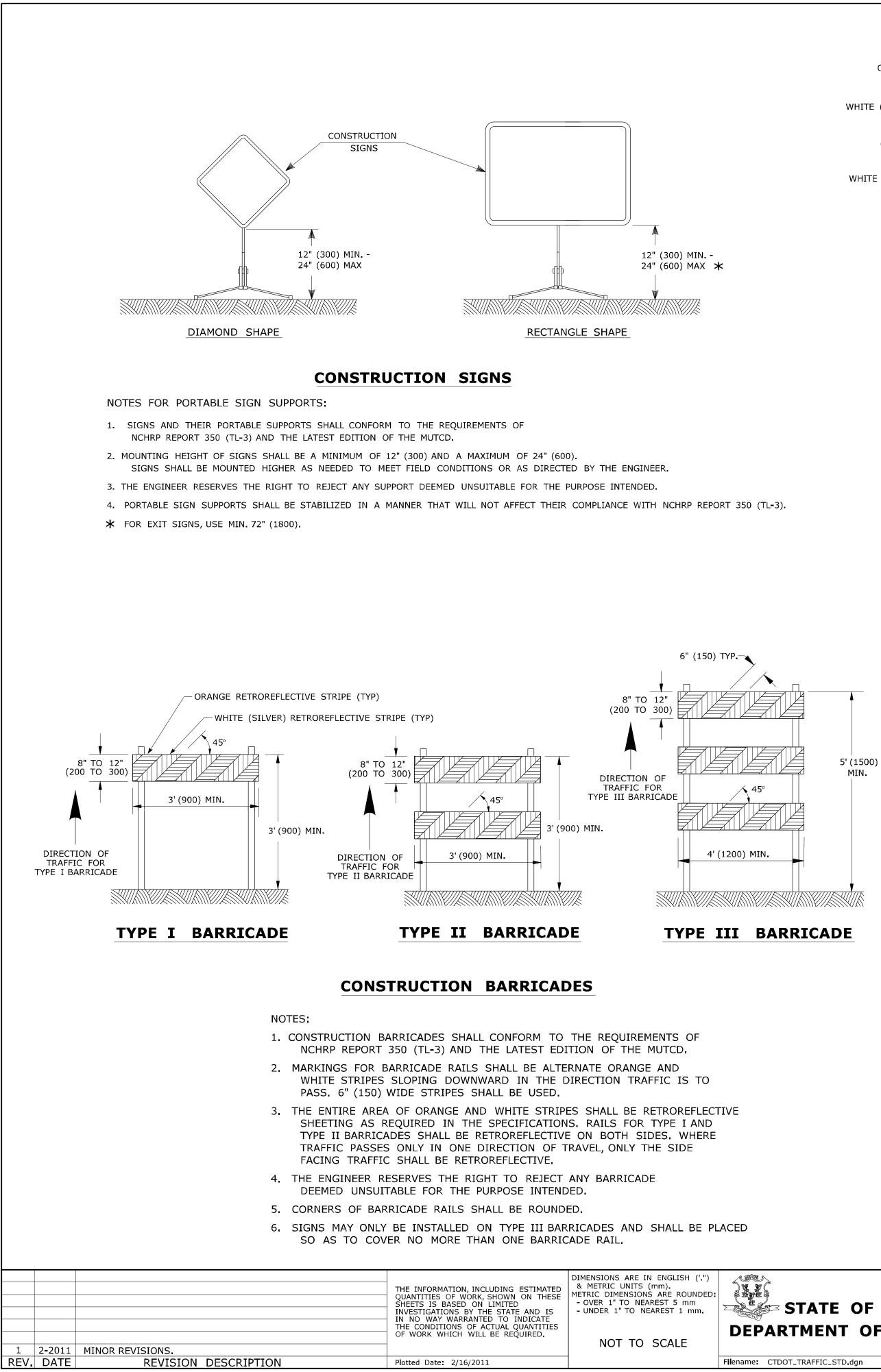
GENERAL NO	IES:
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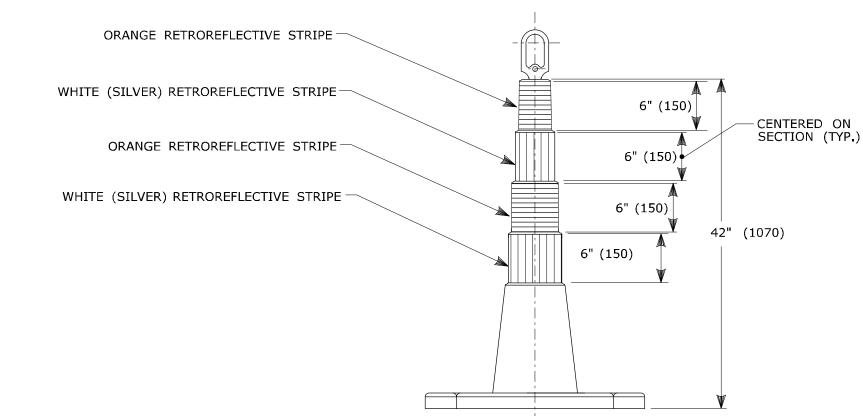
(9 I.D. X 16 O.D. X 0.8 THICK	· /
HEX HEAD BOLT <sup>3</sup> / <sub>8</sub> " (10) DIA. HOLE <sup>3</sup> / <sub>8</sub> " (10) DIA. HOLE <sup>3</sup> / <sub>8</sub> " (10) DIA. HOLE <sup>5</sup> (125) 080 (2.0) THICK ALUM SELF LOCKING NUT WI	IINUM ITH NSERT. $1/_{16}$ " THICK 6 THICK) CK
<ul> <li>WEIGHT (MASS) OF 91lbs. (45 kg.) OR GREATER PER LINEAR YARD (MET</li> <li>2. AFTER FABRICATION, ALL STEEL POSTS, STRAPS AND PLATES SHALL BE GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A123/A123(m).</li> <li>3. WASHERS FOR BREAKAWAY INSTALLATIONS SHALL MEET ASTM F436, TYP</li> <li>4. ALL BOLTS, NUTS, AND WASHERS FOR BREAKAWAY INSTALLATIONS SHALL GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A153/A153(m).</li> <li>5. ALL SIGN POSTS SHALL HAVE BREAKAWAY FEATURES THAT MEET AASHTC REQUIREMENTS CONTAINED IN THE CURRENT "STANDARD SPECIFICATIONS STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC THE BREAKAWAY FEATURES SHALL BE STRUCTURALLY ADEQUATE TO CA SIGNS SHOWN IN THE PLANS AT 60 mph (97 km/h) WIND LOADINGS.</li> </ul>	TER). E 1. _ BE DNS FOR C SIGNALS." .RRY THE INSTALLATIONS
	SIGN PART OF THE POSTS SHALL CONFORM TO THE MECHANICAL REQUIREMENTS OF ASTM A 1 CARBON STEEL TEE RAIL HAVING NOMINA WEIGHT (MASS) OF 91bs, (45 kg.) OR GREATER PER LINEAR YARD (ME GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A123/A123(m). 3. WASHERS FOR BREAKAWAY INSTALLATIONS SHALL MEET ASTM F436, TYP 4. ALL BOLTS, NUTS, AND WASHERS FOR BREAKAWAY INSTALLATIONS SHALL GALVANIZED TO MEET THE REQUIREMENTS OF ASTM A123/A123(m). 5. ALL SIGN POSTS SHALL HAVE BREAKAWAY FEATURES THAT MEET ASHTC REQUIREMENTS CONTAINED IN THE CURRENT "STANDARD SPECIFICATIC STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINARES AND TRAFT THE BREAKAWAY FEATURES SHALL BE ASTRUCTURALLY ADEQUATE TO CA SIGNS SHOWN IN THE PLANS AT 60 mph (97 km/h) WIND LOADINGS, SHALL BE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS. 6. TYPE A POSTS - 3 lbs/ft (4.5 kg/m) TYPE B POSTS - 4 lbs/ft (6 kg/m). <b>45° SUBMOUNTING BRACKET</b> $t^*(25)$ $t^*(10)$ DIA. HOLE $t^*(25)$





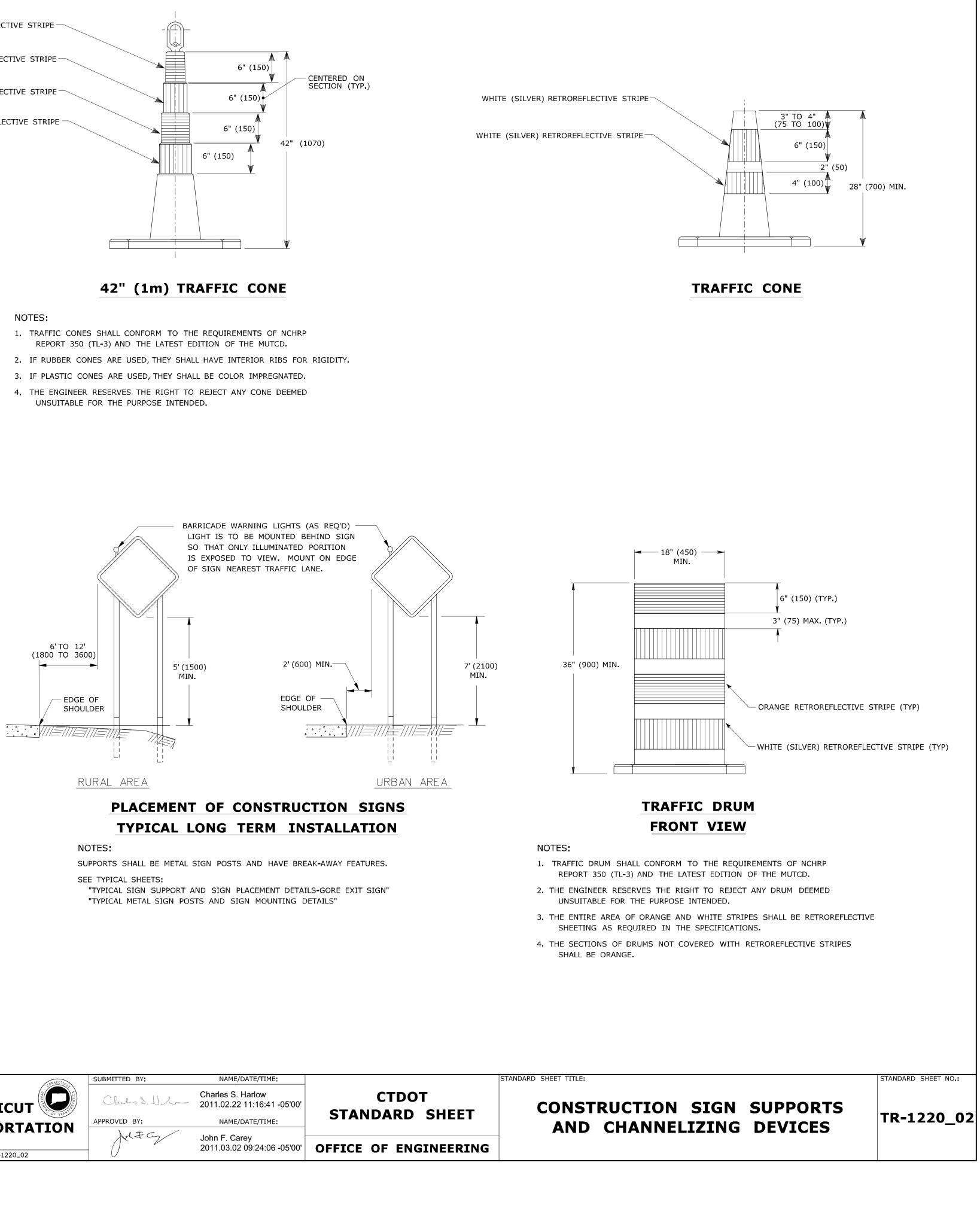
	W1 - SERIES		W3 - SERIES
(R)	BOTH LANES SHIFT LEFT AHEAD (L) BOTH LANES SHIFT RIGHT AHEAD (L) (R)	AHEAD (L) (R)	W3-1 STOP AHEAD
ZE HES         CONN. D.O.T. #         POSTS           36         80-9432L         1           36         80-9431R         1           48         80-9452L         2           48         80-9451R         2	AREA (SQ. FT)         SIZE (INCHES)         CONN. D.O.T. #         POSTS           16.0         48         80-9433L         2           16.0         48         80-9435R         2	AREA (SQ. FT)         SIZE (INCHES)         CONN. D.O.T. #         POSTS           25.0         60         80-9483L         2           25.0         60         80-9485R         2	AREA (SU, FT) (INCHES) CONN. D.O.T. # POSTS 9.0 36 80-9808 1 W3-1a
	BOTH LANES SHIFT LEFT (L) (L) (R)		OCTAGON - RED W/ WHITE BORDER ARROW & BORDER - BLACK
, ZE CONN. POSTS HES) D.O.T. # (18 80-9422 1	AREA (SQ. FT)         SIZE (INCHES)         CONN. D.O.T. #         POSTS           16.0         48         80-9434L         2           16.0         48         80-9436R         2	AREA (SQ. FT)         SIZE (INCHES)         CONN. D.O.T. #         POSTS           25.0         60         80-9484L         2           25.0         60         80-9486R         2	AREA         SIZE         CONN.           9.0         36         80-9050         1           16.0         48         80-9051         2
324     80-9424     2	AHEAD AHEAD		
ZE CONN. HES) D.O.T. # POSTS	AREA (SQ. FT)         SIZE (INCHES)         CONN. D.O.T. #         POSTS           25.0         60         80-9443L         2           25.0         60         80-9445R         2		TRIANGLE - RED W/ WHITE BORDER         ARROW & BORDER - BLACK         BACKGROUND - ORANGE         AREA (SQ. FT) (INCHES)       D.O.T. #         9.0       36       80-9054       1         16.0       48       80-9055       2
(18         80-9402         1           (30         80-9403         1           (36         80-9404         1			W3-3 TOP CIRCLE - RED MIDDLE CIRCLE - YELLOW
	AREA (SQ. FT)         SIZE (INCHES)         CONN. D.O.T. #         POSTS           25.0         60         80-9444L         2           25.0         60         80-9446R         2		BOTTOM CIRCLE - GREEN           COPY & BORDER - BLACK           BACKGROUND - ORANGE           AREA (SQ. FT)         SIZE (INCHES)         CONN. D.O.T. #         POSTS           9.0         36         80-9052         1           16.0         48         80-9053         2
			STOP-SLOW PADDLE
E LEGEND)	BLANK OR VARIABLE LEGEND	(VARIABLE) LEGEND	SIDE A BACKGROUND - RED COPY & BORDER - WHITE SIDE B BACKGROUND - ORANGE COPY & BORDER - BLACK PLAIN
ZE CONN. HES) D.O.T. # POSTS (10 80-9913 2	AREA SIZE CONN. (SQ. FT) (INCHES) D.O.T. # POSTS	AREA SIZE CONN. (SQ. FT) (INCHES) D.O.T. # POSTS	AREA SIZE CONN. (SQ. FT) (INCHES) D.O.T. # POSTS
x13         80-9914         2           x118         80-9914         2           x10         80-9916         2	9.0         36         80-9933         1           16.0         48         80-9934         2	12.5         60X30         80-9928         2           24.0         72X48         80-9929         2	2.51 19 80-9950 PADDLE
AY N NE	USE SHOULDER	SHOULDER CLOSED AHEAD SHOULDER CLOSED	NEW
ZE CONN. POSTS HES) D.O.T. #	AREA SIZE CONN. (SQ. FT) (INCHES) D.O.T. # POSTS	(1) (2) AREA SIZE CONN. (SQ. FT) (INCHES) D.O.T. # POSTS	COPY & BORDER - BLACK BACKGROUND - YELLOW
48 80 <b>-</b> 9951 2	16.0 48 80-9956 2	(1)         16.0         48         80-9957         2           (2)         9.0         36         80-9958         1	AREA (SQ. FT)SIZE (INCHES)CONN. D.O.T. #POSTS2.012X2441-0815
EE STANDARD YPE A (EXCEPT NOTED ARE F ORARY SUPPOR ZING DEVICES" FIC SIGN DES REFER TO FHW ED ON THE SA RUCTION SIGN	SEND "S.T.C." SHALL APPEAR SHEET TR-1208_02 - "METAL WHERE NOTED WITH A "B" OR LONG TERM INSTALLATIO TS SEE STANDARD SHEET TR IGN, CONTACT CONN. D.O.T., A PUBLICATION "STANDARD ME POSTS, OR SPAN/MAST AF	SIGN POSTS AND SIGN MOU FOR TYPE B) DN. SEE STANDARD SHEET TR- -1220_02 - "CONSTRUCTION S DIVISION OF TRAFFIC ENGINE HIGHWAY SIGNS". SIGNS OF RM MOUNTED, MAY REQUIRE S THE CONSTRUCTION SIGNS IT	-1208_02. SIGN SUPPORTS AND EERING. FOR BOLT HOLE DIFFERENT DIMENSIONS TO SPECIAL BOLT HOLE PATTERNS.
D THEIR PORTA M THICKNESS & 51-6147 (L HALL BE 1/2 ' PAINT PRIOR TO	ABLE SUPPORTS SHALL CONFO FOR POST MOUNTED SIGNS OR R) WHICH SHALL BE .125 ' EXTERIOR GRADE A-C OR B O APPLICATION OF RETROREF ROREFLECTIVE WITH THE EXC	ORM TO THE REQUIREMENTS SHALL BE .100 EXCEPT SIGN 5, PLYWOOD THICKNESS FOR I SETTER. SIGN BLANKS SHALL	POST MOUNTED HAVE ONE COAT OF
UND - ORANGE	E RETROREFLECTIVE VIDE ANGLE RETROREFLECTIVE	E SHEETING.	
HEET		CONSTRUCTION	TR-1220 01
IEERING			
I			

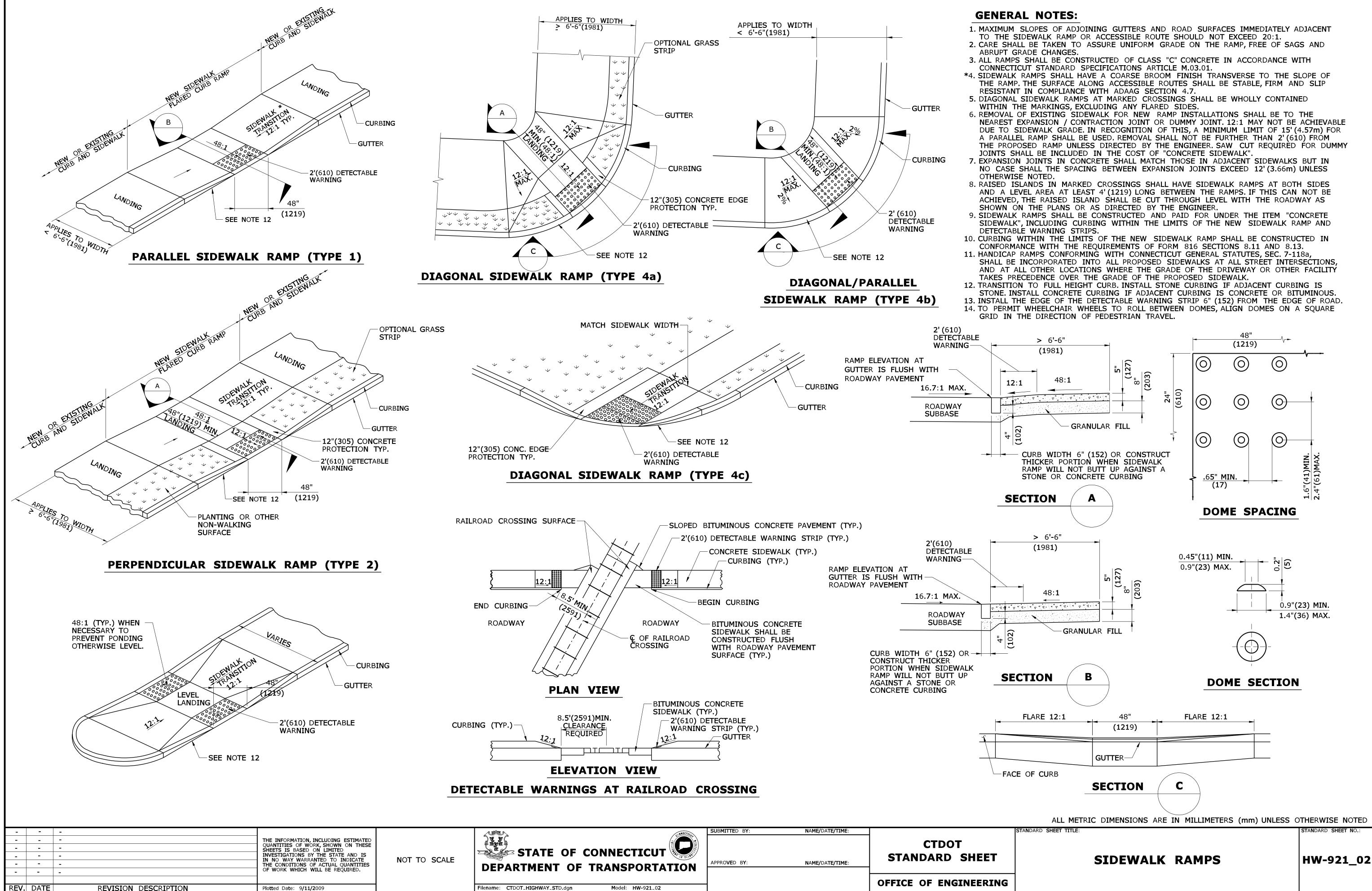




### NOTES:

IN ENGLISH ('.")	CONNECTICAL	SUBMITTED BY:	NAME/DATE/TIME:		
(mm). NS ARE ROUNDED: AREST 5 mm IEAREST 1 mm.	STATE OF CONNECTICUT	Chils S. J. I-	Charles S. Harlow 2011.02.22 11:16:41 -05'00'	CTDOT STANDARD SH	
SCALE	DEPARTMENT OF TRANSPORTATION	APPROVED BY:	NAME/DATE/TIME:	STANDARD S	
		AREG	John F. Carey 2011.03.02 09:24:06 -05'00'		
				OFFICE OF ENGINE	
	Filename:         CTDOT_TRAFFIC_STD.dgn         Model:         TR-1220_02			STREE OF ENGINE	





STATE OF CONNECTICUT	SUBMITTED BY:	NAME/DATE/TIME:	CTDOT STANDARD SHEET	
			OFFICE OF ENGINEERING	
CTDOT_HIGHWAY_STD.dgn Model: HW-921_02			Office of Engineering	