

TOWN OF MANCHESTER BY THE SEA PUBLIC WORKS

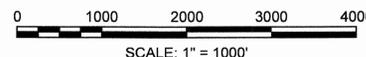
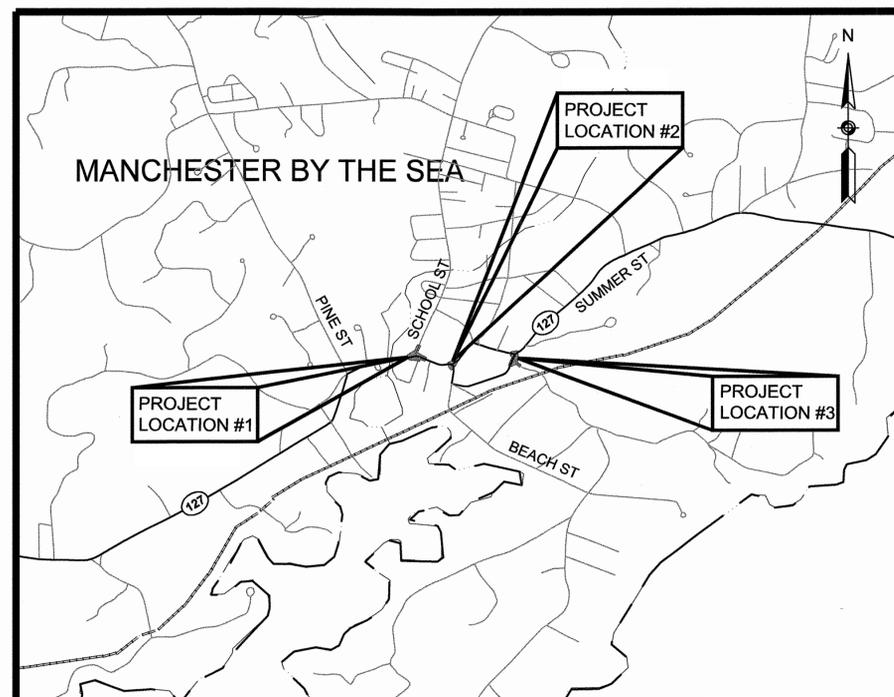
DOWNTOWN IMPROVEMENT PROJECT (DIP) PHASE II INTERSECTIONS

IN THE TOWN OF
 MANCHESTER BY THE SEA
 ESSEX COUNTY

THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED MARCH 1, 2019, THE OCTOBER 2017 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE LATEST MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1988 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING, AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

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DATE	DESCRIPTION	REV #



4/10/19
 ENGINEER DATE

vhb Vanasse Hangen Brustlin, Inc.
 101 Walnut St., PO Box 9151
 Watertown, MA 02472
 617.924.1770 FAX 617.924.2286

DESIGNED BY JDB	APPROVED BY PGD	SHEET OF 01 20
DRAWN BY JDB	DFTG CHECKED BY JL	VHB CAD FILE NAME 14300 - COV.DWG
CHECKED BY JL	DATE APRIL 18, 2019	JOB NO. 14300.00

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		JERSEY BARRIER
		CATCH BASIN
		CATCH BASIN CURB INLET
		FLAG POLE
		GAS PUMP
		MAIL BOX
		POST SQUARE
		POST CIRCULAR
		WELL
		ELECTRIC HANDHOLE
		FENCE GATE POST
		GAS GATE
		BORING HOLE
		MONITORING WELL
		TEST PIT
		HYDRANT
		LIGHT POLE
		COUNTY BOUND
		GPS POINT
		CABLE MANHOLE
		DRAINAGE MANHOLE
		ELECTRIC MANHOLE
		GAS MANHOLE
		MISC MANHOLE
		SEWER MANHOLE
		TELEPHONE MANHOLE
		WATER MANHOLE
		MASSACHUSETTS HIGHWAY BOUND
		MONUMENT
		STONE BOUND
		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
		TROLLEY POLE OR GUY POLE
		TRANSMISSION POLE
		UTILITY POLE W/ FIREBOX
		UTILITY POLE WITH DOUBLE LIGHT
		UTILITY POLE W / 1 LIGHT
		UTILITY POLE
		BUSH
		TREE
		STUMP
		SWAMP / MARSH
		WATER GATE
		PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
		CONTOURS (ON-THE-GROUND SURVEY DATA)
		CONTOURS (PHOTOGRAMMETRIC DATA)
		UNDERGROUND DRAIN PIPE (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND ELECTRIC DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND GAS MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND SEWER MAIN (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND TELEPHONE DUCT (DOUBLE LINE 24 INCH AND OVER)
		UNDERGROUND WATER MAIN (DOUBLE LINE 24 INCH AND OVER)
		BALANCED STONE WALL
		GUARD RAIL - STEEL POSTS
		GUARD RAIL - WOOD POSTS
		CHAIN LINK OR METAL FENCE
		WOOD FENCE
		HAY BALES/SILT FENCE
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		EDGE OF PAVEMENT
		LIMIT OF MICROMILLING AND OVERLAY
		BANK OF RIVER OR STREAM
		BORDER OF WETLAND
		100 FT WETLAND BUFFER
		200 FT RIVERFRONT BUFFER
		STATE HIGHWAY LAYOUT
		TOWN OR CITY LAYOUT
		COUNTY LAYOUT
		RAILROAD SIDELINE
		TOWN OR CITY BOUNDARY LINE
		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		CONTROLLER PHASE ACTUATED
		TRAFFIC SIGNAL HEAD (SIZE AS NOTED)
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		VIDEO DETECTION CAMERA
		MICROWAVE DETECTOR
		PEDESTRIAN PUSH BUTTON, SIGN (DIRECTIONAL ARROW AS SHOWN) AND SADDLE
		EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED
		FLASHING BEACON
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
		RAILROAD SIGNAL
		SIGNAL POST AND BASE (ALPHA-NUMERIC DESIGNATION NOTED)
		MAST ARM, SHAFT AND BASE (ARM LENGTH AS NOTED)
		HIGH MAST POLE OR TOWER
		SIGN AND POST
		SIGN AND POST (2 POSTS)
		MAST ARM WITH LUMINAIRE
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		CONTROL CABINET, POLE MOUNTED
		FLASHING BEACON CONTROL AND METER PEDESTAL
		LOAD CENTER ASSEMBLY
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE 12"x24" (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
		LEGEND "ONLY" - WHITE
		STOP LINE
		CROSSWALK
		SOLID WHITE LINE
		SOLID YELLOW LINE
		BROKEN WHITE LINE
		BROKEN YELLOW LINE
		DOTTED WHITE LINE
		DOTTED YELLOW LINE
		DOTTED WHITE LINE EXTENSION
		DOTTED YELLOW LINE EXTENSION
		DOUBLE WHITE LINE
		DOUBLE YELLOW LINE

GENERAL ABBREVIATIONS

ABAN	ABANDON
ADJ	ADJUST
APPROX	APPROXIMATE
A.C.	ASPHALT CONCRETE
ACCM PIPE	ASPHALT COATED CORRUGATED METAL PIPE
BIT.	BITUMINOUS
BC	BOTTOM OF CURB
BD.	BOUND
BL	BASELINE
BLDG	BUILDING
BM	BENCHMARK
BO	BY OTHERS
BOS	BOTTOM OF SLOPE
BR.	BRIDGE
CC	CEMENT CONCRETE
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS / CONTINUED
CONST	CONSTRUCTION
CR GR	CROWN GRADE
DIA	DIAMETER
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EQ	EQUAL
EXIST (or EX)	EXISTING
EXC	EXCAVATION
FDN.	FOUNDATION
FDP	FULL DEPTH PAVEMENT
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HWY	HIGHWAY
JCT	JUNCTION
LOAM	LOAM BORROW
LSA	LANDSCAPED AREA
LT	LEFT
MAHWL	MEAN AVERAGE HIGH WATER LINE
MAX	MAXIMUM
MB	MAILBOX
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
MOD	MODIFIED
MSE	MECHANICALLY STABILIZED EARTH
NERR	NEW ENGLAND RAILROAD
NIC	NOT IN CONTRACT
NO.	NUMBER
NTS	NOT TO SCALE
O.C.	ON CENTER
O.D.	OUTSIDE DIAMETER
P.G.L.	PROFILE GRADE LINE
PREV	PREVIOUS/PREVIOUSLY
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW
PVMT	PAVEMENT
R&D	REMOVE AND DISCARD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RD	ROAD
RDWY	ROADWAY
REB	REBUILD
REM	REMOVE
REMOD	REMODEL
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SHLO/S.H.L.O.	STATE HIGHWAY LAYOUT LINE

GENERAL ABBREVIATIONS (CONT)

ST	STREET
STA	STATION
STD	STANDARD
SW	SIDEWALK
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TRANS	TRANSITION
TRM	TURF REINFORCING MAT
TYP	TYPICAL
VAR	VARIES
VERT	VERTICAL
WCR	WHEEL CHAIR RAMP
WP	WORKING POINT
X-SECT	CROSS SECTION

UTILITY ABBREVIATIONS

CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CIP	CAST IRON PIPE
CIT	CHANGE IN TYPE
CMCT	COMCAST DUCTBANK
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
DI	DROP INLET
DIP	DUCTILE IRON PIPE
FES	FLARED END SECTION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HDW	HEADWALL
HYD	HYDRANT
INV	INVERT
LB	LEACH BASIN
LP	LIGHT POLE
MH	MANHOLE
MW	MONITORING WELL
OHW	OVERHEAD WIRE
PVC	POLYVINYLCHLORIDE PIPE
PWW	PAVED WATER WAY
RCP	REINFORCED CONCRETE PIPE
SMH	SEWER MANHOLE
TSV&B	TAPPING SLEEVE VALVE & BOX
UP	UTILITY POLE
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN

ALIGNMENT & GRADING ABBREVIATIONS

CC	CENTER OF CURVE
HP	HIGH POINT
I.T.	INTERSECTION OF TANGENT
LP	LOW POINT
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
PI	POINT OF INTERSECTION
PNT	POINT
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PT	POINT OF TANGENCY
LPT	ANGLE POINT
R	RADIUS OF CURVATURE
T	TANGENT DISTANCE OF CURVE
TAN	TANGENT
25.45	SPOT ELEVATION

PROFILE ABBREVIATIONS

AD	ALGEBRAIC DIFFERENCE IN RATES OF GRADE
HSD	HORIZONTAL SIGHT DISTANCE
K	RATE OF VERTICAL CURVATURE
L	LENGTH OF CURVE
PVC	POINT OF VERTICAL CURVATURE
PVCC	POINT OF VERTICAL COMPOUND CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVRC	POINT OF VERTICAL REVERSE CURVATURE
PVT	POINT OF VERTICAL TANGENCY
SSD	STOPPING SIGHT DISTANCE
VC	VERTICAL CURVE

TRAFFIC & SIGNAL ABBREVIATIONS

AADT	ANNUAL AVERAGE DAILY TRAFFIC
CAB.	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
COND	CONDUIT
CW	CROSS WALK
DW	STEADY DON'T WALK - PORTLAND ORANGE
DHV	DESIGN HOURLY VOLUME
FDW	FLASHING DON'T WALK
FR	FLASHING CIRCULAR RED
FRL	FLASHING RED LEFT ARROW
FRR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR AMBER
FYL	FLASHING AMBER LEFT ARROW
FYR	FLASHING AMBER RIGHT ARROW
G	STEADY CIRCULAR GREEN
GL	STEADY GREEN LEFT ARROW
GR	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
GV	STEADY GREEN VERTICAL ARROW
HH	HAND HOLE
OL	OVERLAP
PB	PULL BOX
PED	PEDESTRIAN
PTZ	PAN, TILE, ZOOM
R	STEADY CIRCULAR RED
RL	STEADY RED LEFT ARROW
RR	STEADY RED RIGHT ARROW
SL	STOP LINE
T	TRUCK %
TS OR TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALK
Y	STEADY CIRCULAR AMBER
YL	STEADY AMBER LEFT ARROW

GENERAL NOTES:

- EXISTING CONDITIONS AND TOPOGRAPHICAL INFORMATION FROM AN ACTUAL FIELD SURVEY CONDUCTED BY DOUCET SURVEY, INC. IN OCTOBER, 2018.
- THE HORIZONTAL CONTROL IS BASED ON THE MASSACHUSETTS MAINLAND STATE PLANE COORDINATE SYSTEM AND THE NATIONAL GEODETIC SURVEY (NAD83). ALL ELEVATION IS US FEET, REFERENCED TO THE NORTH AMERICA VERTICAL DATUM OF 1988 (NAVD88).
- THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND GRADES IN THE FIELD BEFORE COMMENCING WORK AND PROMPTLY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- 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.
- DRAINAGE ELEVATIONS ARE PROVIDED FOR DESIGN PURPOSES ONLY. THE CONTRACTOR SHALL VERIFY BY TEST PIT, THE LOCATIONS OF EXISTING UTILITIES WHICH MAY CONFLICT WITH THE PROPOSED DRAINAGE DESIGN. ANY FIELD ADJUSTMENTS REQUIRED WILL BE MADE AS APPROVED OR DIRECTED BY THE ENGINEER. ONLY AFTER THE CONTRACTOR VERIFIES ELEVATIONS FOR THE CONSTRUCTABILITY OF THE DRAINAGE SYSTEM SHALL ANY STRUCTURES BE ORDERED. ANY FIELD ADJUSTMENTS TO LINE & GRADE UP TO A DEPTH OF 5' SHALL BE INCLUDED IN THE COST OF THE PIPE. PIPE EXCAVATION GREATER THAN 5' WILL BE PAID UNDER CLASS B TRENCH EXCAVATION.
- 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 AND SEWER 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.
- THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.
- 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 ASPHALT CONCRETE ROADWAY PAVEMENT AND SAWCUT EXISTING PAVEMENT SHALL BE SEALED WITH HMA JOINT SEALER AND BACKSANDS.
- EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE RETAINED UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
- IF SUITABLE, EXISTING GRANITE CURB SHALL BE RE-USED IN THE PROPOSED WORK, EXCEPT CURVED STONES OF A DIFFERENT RADIUS THAN PROPOSED CURB.
- PROPOSED BOUNDS SHALL BE PLACED BY A LICENSED PROFESSIONAL SURVEYOR. THE CONTRACTOR SHALL EXERCISE DUE CARE WHEN WORKING AROUND ALL PROPERTY BOUNDS WHICH ARE TO REMAIN. SHOULD ANY DAMAGE TO A BOUND RESULT FROM THE ACTIONS OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE THE BOUND REPLACED AND/OR REALIGNED BY A LICENSED PROFESSIONAL SURVEYOR AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST.
- DISPOSAL OF ALL SURPLUS MATERIAL SHALL BE AS APPROVED BY THE ENGINEER AND OWNER.
- LATERAL DRAIN PIPES SHALL BE INSTALLED WITH A PITCH OF 0.01 FOOT PER FOOT (MINIMUM) UNLESS NOTED OTHERWISE ON THE PLANS.
- THE CONTRACTOR SHALL COORDINATE THE RELOCATION OF ALL ABUTTER-OWNED STREET FURNISHINGS WITHIN THE LIMITS OF WORK.

PAVEMENT NOTES

PROPOSED PAVEMENT MICROMILLING AND OVERLAY

SURFACE: 1 1/2" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5)

MILLING: 1 1/2" PAVEMENT MICROMILLING

PROPOSED HOT MIX ASPHALT WALK

SURFACE: 3" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5)
(2 EQUAL LIFTS OF 1 1/2" EACH)

SUBBASE: 8" GRAVEL BORROW, TYPE B

PROPOSED HOT MIX ASPHALT DRIVEWAY

SURFACE: 1 1/2" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5)

INTERMEDIATE: 2" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5)

SUBBASE: 8" GRAVEL BORROW, TYPE B

PROPOSED CEMENT CONCRETE WHEELCHAIR RAMP

SURFACE: 4" CEMENT CONCRETE
AIR ENTRAINED 4000 PSI, 3/4", 610

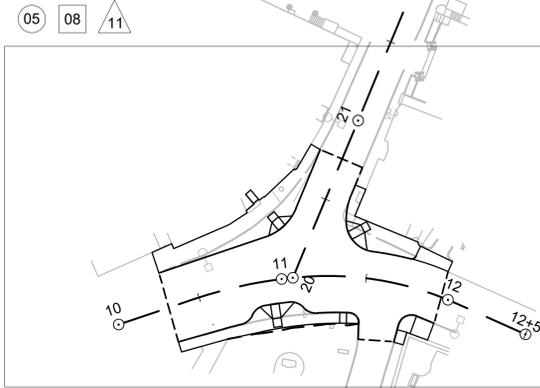
SUBBASE: 8" GRAVEL BORROW, TYPE b



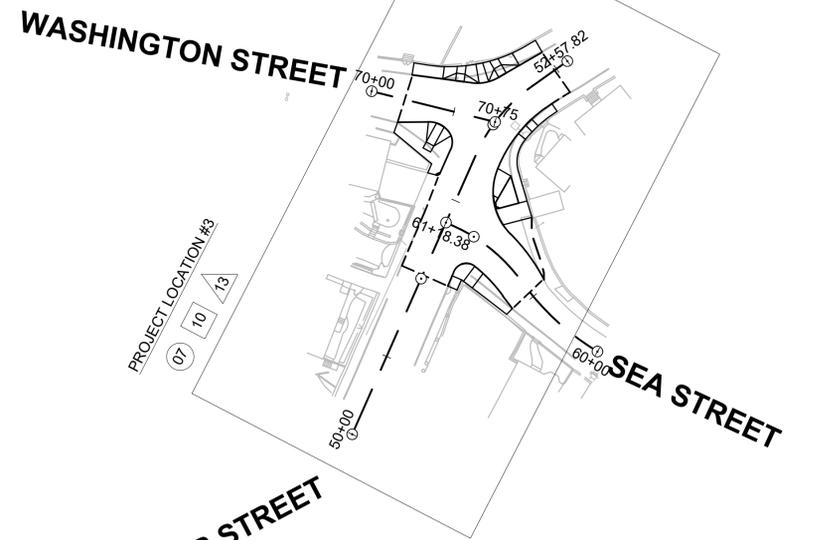
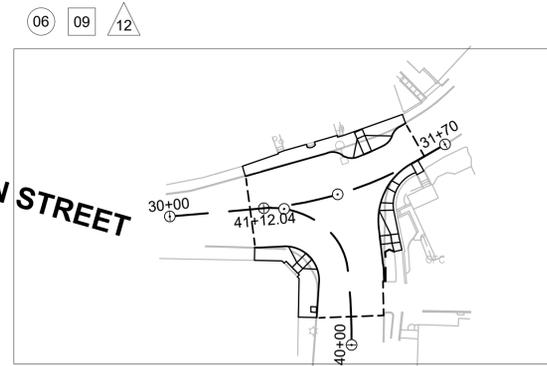
LEGEND

- ⊙## GENERAL PLANS
- ## ALIGNMENT & GRADING PLANS
- △## SIGN & PAVEMENT MARKING PLANS

PROJECT LOCATION #1



PROJECT LOCATION #2



CENTRAL STREET

CHURCH ST

SCHOOL STREET

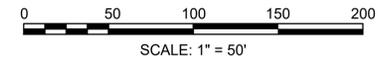
UNION STREET

BEACH STREET

WASHINGTON STREET

SUMMER STREET

SEA STREET





DRAINAGE STRUCTURE TABLE							
NAME	TYPE	STATION	OFFSET	RIM ELEV.	INV. ELEV. IN	INV. ELEV. OUT	REMARKS
17	GICI	20+42.11	13.0 L	13.44		I=11.08' (1929)	GUTTER INLET SPECIAL
1914	EX CB	20+44.24	15.6 R	13.69	I=11.20' (2072)	I=10.69' (1930)	STRUCTURE REPLACED BY OTHERS ADJ F&G
1929	EX CB	20+42.11	20.4 L	13.38	I=11.00' (17)	I=11.00' (1930)	ADJ, PROP F&C
1930	EX DMH	20+45.41	26.3 L	13.39	I=9.70' (1914) I=10.50' (1929)		ADJ

NOTES:

- SEE SHEET 11 FOR DISPOSITION OF ALL SIGNS AND PAVEMENT MARKINGS WITHIN THE LIMIT OF WORK.
- SEE PAVEMENT NOTES, SHEET 03

 CEMENT CONCRETE WHEELCHAIR RAMP

EXISTING DRAINAGE STRUCTURE DATA (DSI SURVEY, OCT 2018)

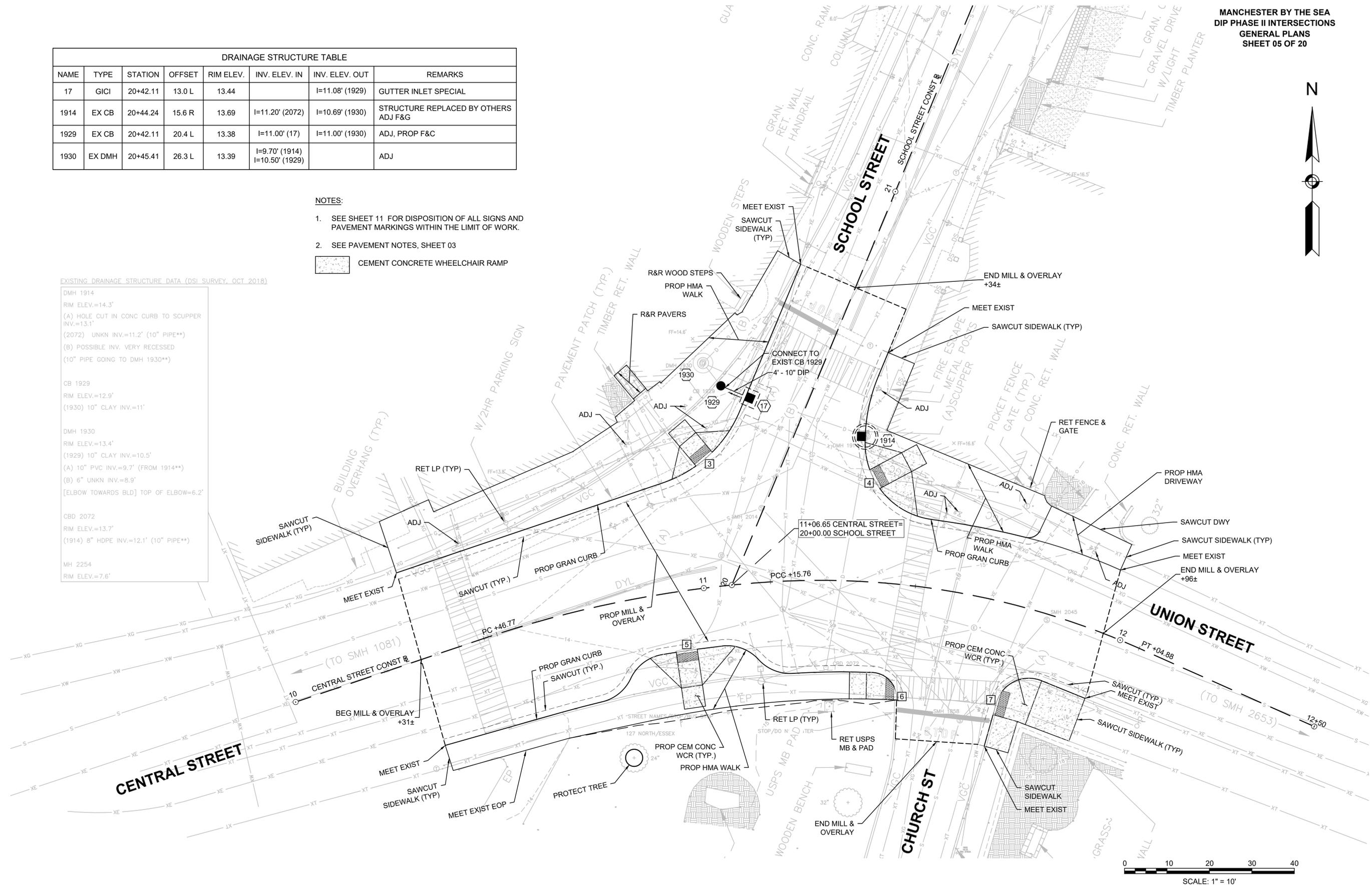
DMH 1914
RIM ELEV.=14.3'
(A) HOLE CUT IN CONC CURB TO SCUPPER
INV.=13.1'
(2072) UNKN INV.=11.2' (10" PIPE**)
(B) POSSIBLE INV. VERY RECESSED
(10" PIPE GOING TO DMH 1930**)

CB 1929
RIM ELEV.=12.9'
(1930) 10" CLAY INV.=11'

DMH 1930
RIM ELEV.=13.4'
(1929) 10" CLAY INV.=10.5'
(A) 10" PVC INV.=9.7' (FROM 1914**)
(B) 6" UNKN INV.=8.9'
[ELBOW TOWARDS BLD] TOP OF ELBOW=6.2'

CBD 2072
RIM ELEV.=13.7'
(1914) 8" HDPE INV.=12.1' (10" PIPE**)

MH 2254
RIM ELEV.=7.6'

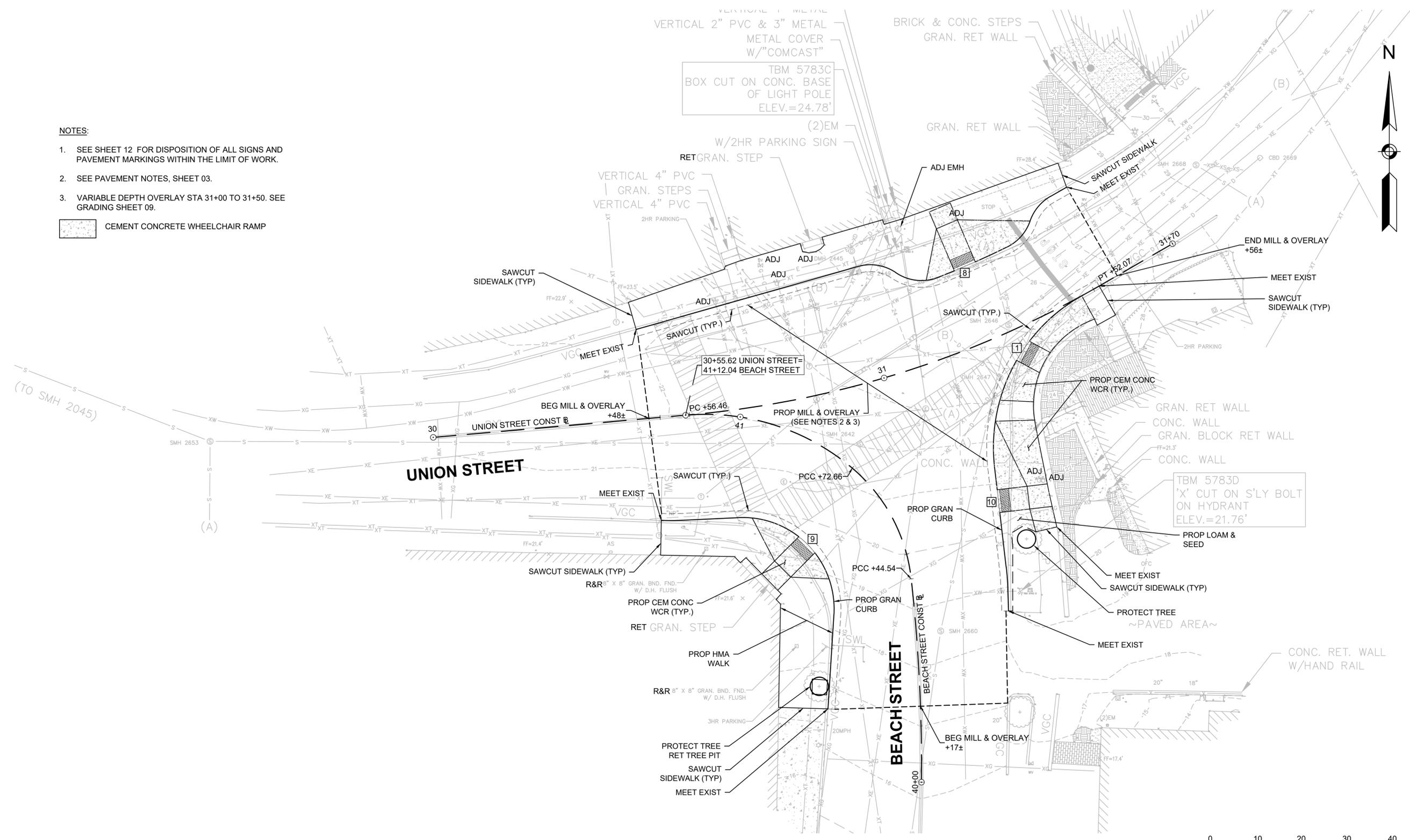


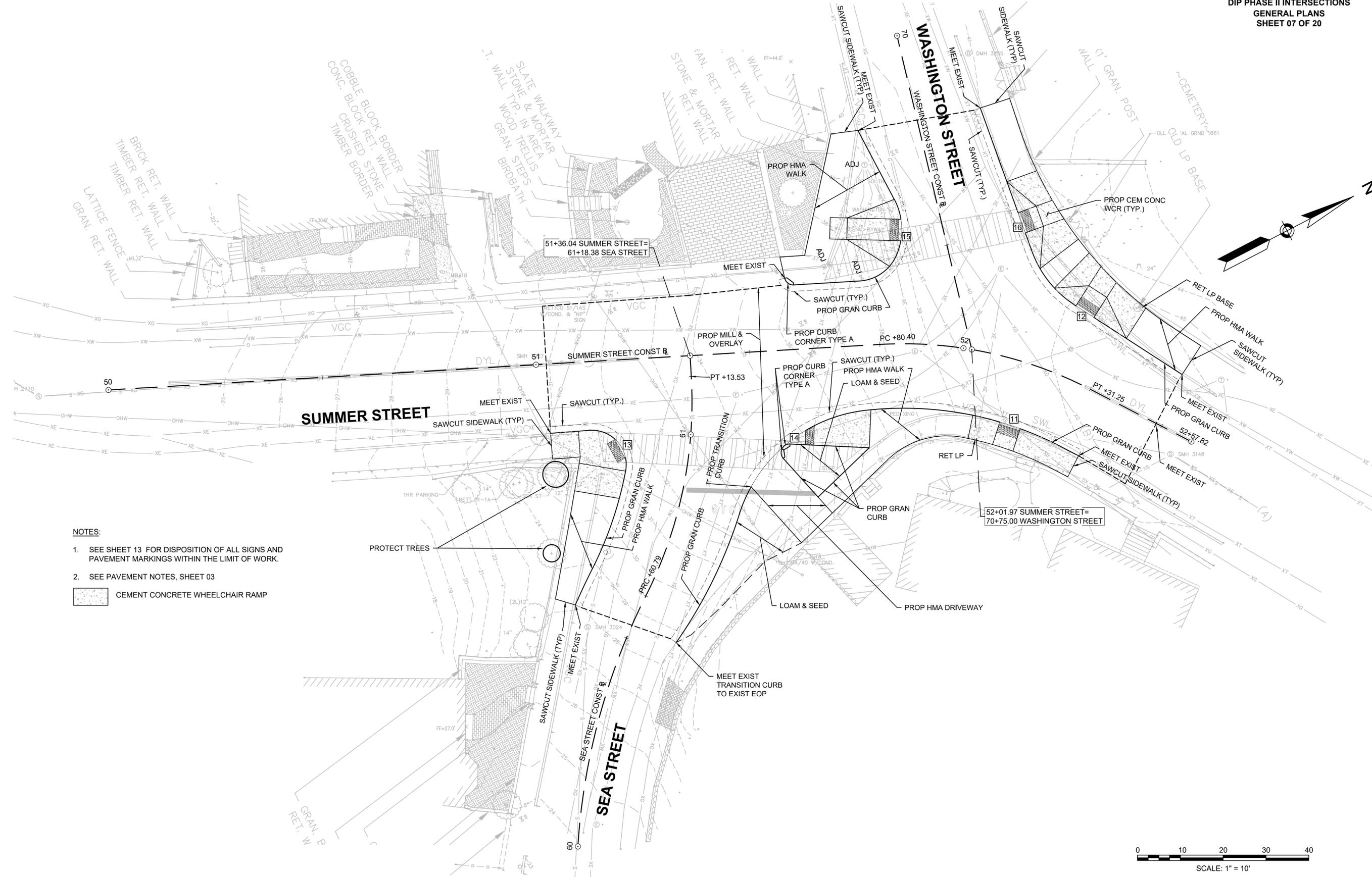


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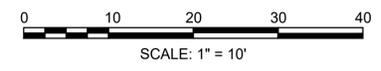
1. SEE SHEET 12 FOR DISPOSITION OF ALL SIGNS AND PAVEMENT MARKINGS WITHIN THE LIMIT OF WORK.
2. SEE PAVEMENT NOTES, SHEET 03.
3. VARIABLE DEPTH OVERLAY STA 31+00 TO 31+50. SEE GRADING SHEET 09.

 CEMENT CONCRETE WHEELCHAIR RAMP





- NOTES:**
- SEE SHEET 13 FOR DISPOSITION OF ALL SIGNS AND PAVEMENT MARKINGS WITHIN THE LIMIT OF WORK.
 - SEE PAVEMENT NOTES, SHEET 03
-  CEMENT CONCRETE WHEELCHAIR RAMP





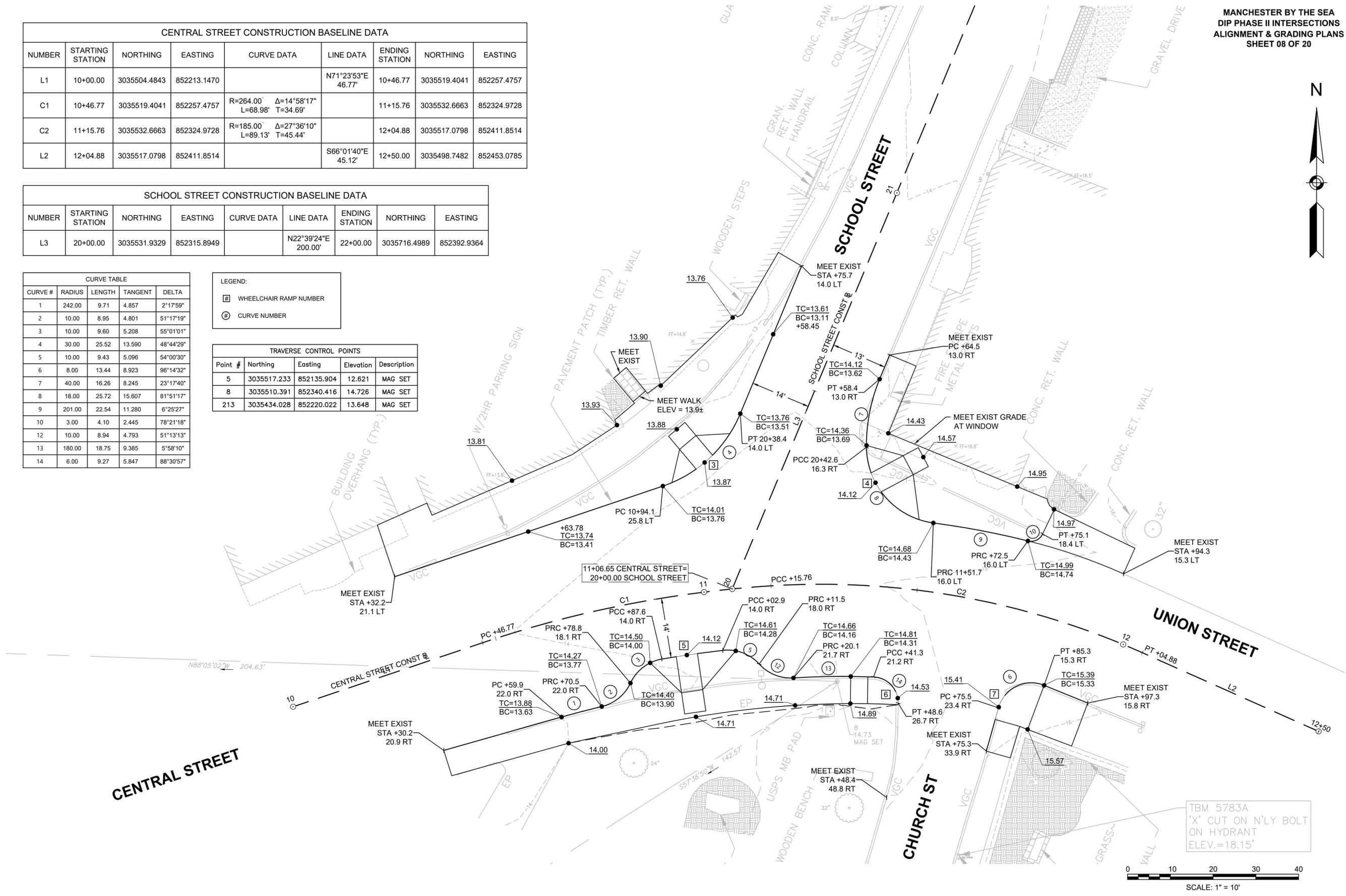
CENTRAL STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L1	10+00.00	3035504.4843	852213.1470		N71°23'53"E 46.77'	10+46.77	3035519.4041	852257.4757
C1	10+46.77	3035519.4041	852257.4757	R=264.00' Δ=14°58'17" L=68.98' T=34.69'		11+15.76	3035532.6663	852324.9728
C2	11+15.76	3035532.6663	852324.9728	R=185.00' Δ=27°36'10" L=89.13' T=45.44'		12+04.88	3035517.0798	852411.8514
L2	12+04.88	3035517.0798	852411.8514		S66°01'40"E 45.12'	12+50.00	3035498.7482	852453.0785

SCHOOL STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L3	20+00.00	3035531.9329	852315.8949		N22°39'24"E 200.00'	22+00.00	3035716.4989	852392.9364

CURVE TABLE				
CURVE #	RADIUS	LENGTH	TANGENT	DELTA
1	242.00	9.71	4.857	2°17'59"
2	10.00	8.95	4.801	51°17'19"
3	10.00	9.60	5.208	55°01'01"
4	30.00	25.52	13.590	48°44'29"
5	10.00	9.43	5.096	54°00'30"
6	8.00	13.44	8.923	96°14'32"
7	40.00	16.26	8.245	23°17'40"
8	18.00	25.72	15.607	81°51'17"
9	201.00	22.54	11.280	6°25'27"
10	3.00	4.10	2.445	78°21'18"
12	10.00	8.94	4.793	51°13'13"
13	180.00	18.75	9.385	5°58'10"
14	6.00	9.27	5.847	88°30'57"

LEGEND:
 WHEELCHAIR RAMP NUMBER
 CURVE NUMBER

TRAVERSE CONTROL POINTS				
Point #	Northing	Easting	Elevation	Description
5	3035517.233	852135.904	12.621	MAG SET
8	3035510.391	852340.416	14.726	MAG SET
213	3035434.028	852220.022	13.648	MAG SET



TBM 5783A
'X' CUT ON N'LY BOLT
ON HYDRANT
ELEV.=18.15'



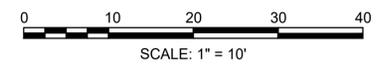
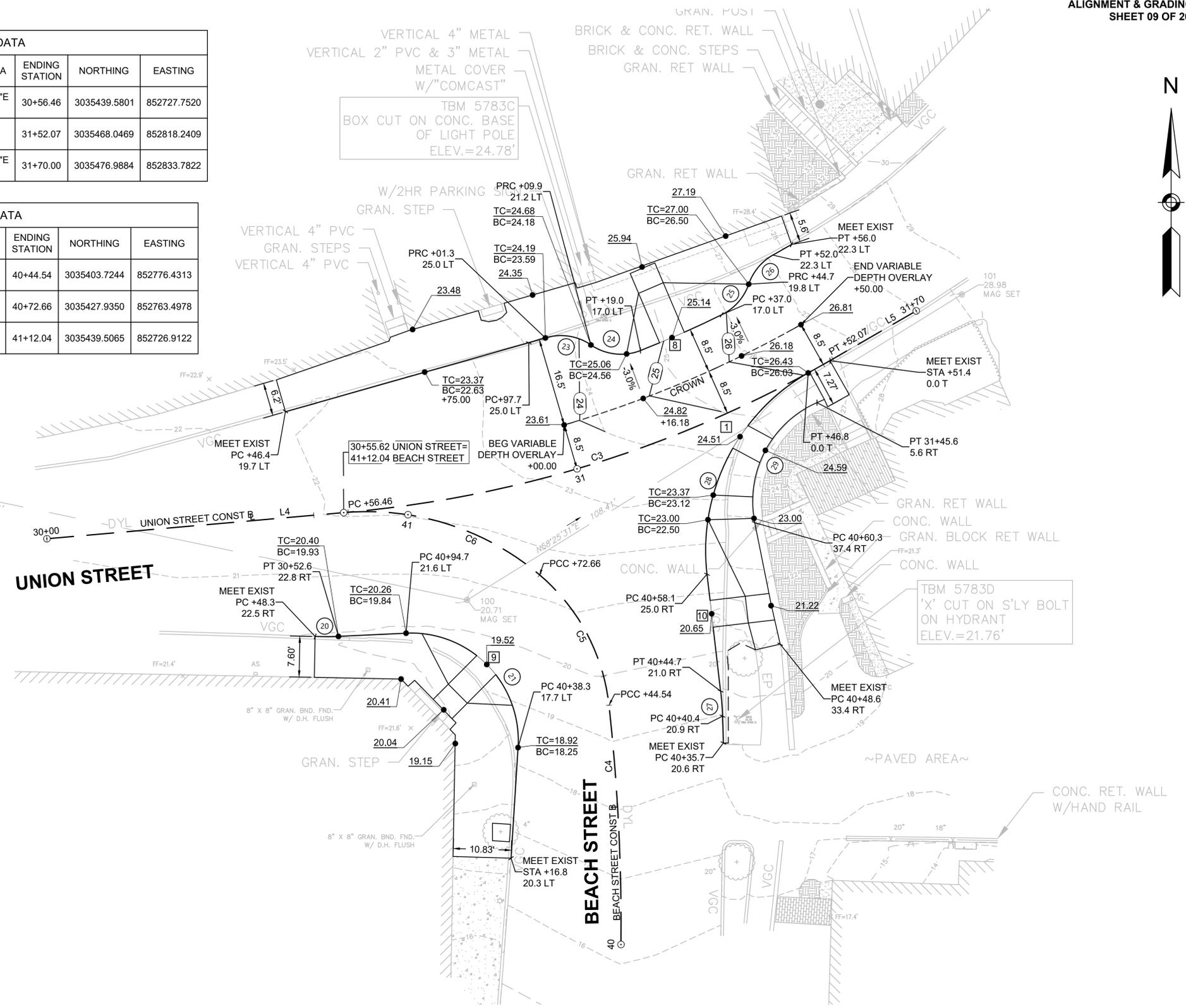
UNION STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L4	30+00.00	3035434.6470	852671.5095		N84°59'14"E 56.46'	30+56.46	3035439.5801	852727.7520
C3	30+56.46	3035439.5801	852727.7520	R=220.00' Δ=24°54'02" L=95.61' T=48.57'		31+52.07	3035468.0469	852818.2409
L5	31+52.07	3035468.0469	852818.2409		N60°05'12"E 17.93'	31+70.00	3035476.9884	852833.7822

BEACH STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C4	40+00.00	3035359.2718	852778.6757	R=370.00' Δ=6°53'48" L=44.54' T=22.29'		40+44.54	3035403.7244	852776.4313
C5	40+44.54	3035403.7244	852776.4313	R=37.00' Δ=43°32'45" L=28.12' T=14.78'		40+72.66	3035427.9350	852763.4978
C6	40+72.66	3035427.9350	852763.4978	R=50.00' Δ=45°07'43" L=39.38' T=20.78'		41+12.04	3035439.5065	852726.9122

TRAVERSE CONTROL POINTS				
Point #	Northing	Easting	Elevation	Description
9	3035454.771	852598.835	20.018	MAG SET
100	3035423.289	852749.941	20.711	MAG SET
101	3035480.040	852842.300	28.982	MAG SET

LEGEND:	
	WHEELCHAIR RAMP NUMBER
	CURVE NUMBER

CURVE TABLE				
CURVE #	RADIUS	LENGTH	TANGENT	DELTA
20	50.00	4.36	2.180	4°59'35"
21	20.00	33.62	22.330	96°18'05"
23	10.00	8.88	4.755	50°51'35"
24	10.00	9.68	5.258	55°28'12"
25	10.00	7.81	4.117	44°45'20"
26	10.00	7.20	3.762	41°14'14"
28	38.00	44.38	25.108	66°54'32"
29	19.88	27.21	16.221	78°25'50"

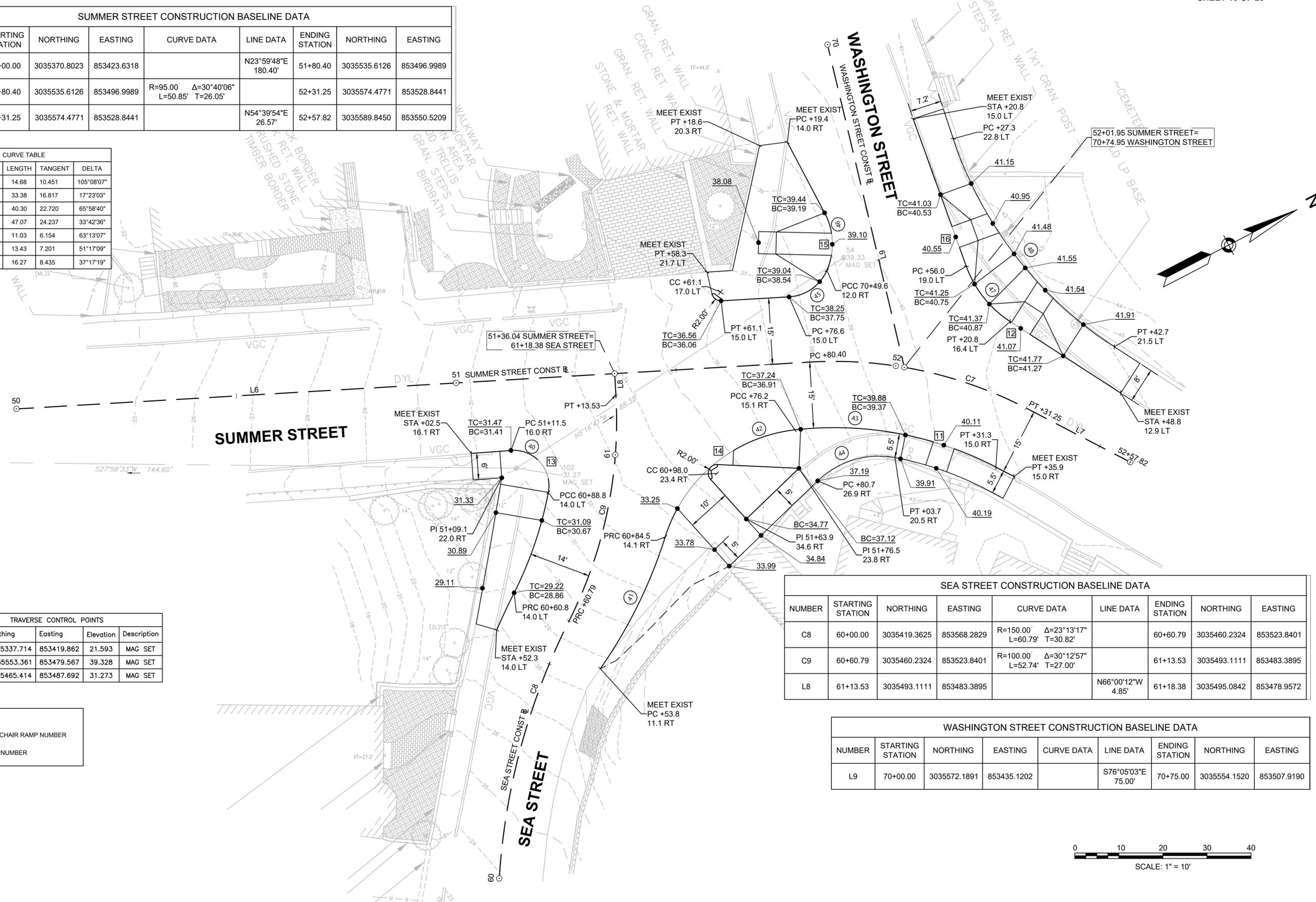


SUMMER STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L6	50+00.00	3035370.8023	853423.6318		N23°59'48"E 180.40'	51+80.40	3035535.6126	853496.9989
C7	51+80.40	3035535.6126	853496.9989	R=95.00' Δ=30°40'06" L=50.85' T=26.05'		52+31.25	3035574.4771	853528.8441
L7	52+31.25	3035574.4771	853528.8441		N54°39'54"E 26.57'	52+57.82	3035589.8450	853550.5209

CURVE TABLE				
CURVE #	RADIUS	LENGTH	TANGENT	DELTA
40	8.00	14.68	10.451	105°08'07"
41	110.00	33.38	16.817	17°23'03"
42	35.00	40.30	22.720	65°58'40"
43	80.00	47.07	24.237	33°42'36"
45	10.00	11.03	6.154	63°13'07"
46	15.00	13.43	7.201	51°17'09"
47	25.00	16.27	8.435	37°17'19"

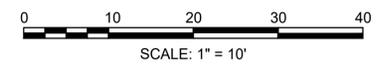
TRAVERSE CONTROL POINTS				
Point #	Northing	Easting	Elevation	Description
11	3035337.714	853419.862	21.593	MAG SET
54	3035553.361	853479.567	39.328	MAG SET
102	3035465.414	853487.692	31.273	MAG SET

LEGEND:
 WHEELCHAIR RAMP NUMBER
 CURVE NUMBER



SEA STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
C8	60+00.00	3035419.3625	853568.2829	R=150.00' Δ=23°13'17" L=60.79' T=30.82'		60+60.79	3035460.2324	853523.8401
C9	60+60.79	3035460.2324	853523.8401	R=100.00' Δ=30°12'57" L=52.74' T=27.00'		61+13.53	3035493.1111	853483.3895
L8	61+13.53	3035493.1111	853483.3895		N66°00'12"W 4.85'	61+18.38	3035495.0842	853478.9572

WASHINGTON STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L9	70+00.00	3035572.1891	853435.1202		S76°05'03"E 75.00'	70+75.00	3035554.1520	853507.9190



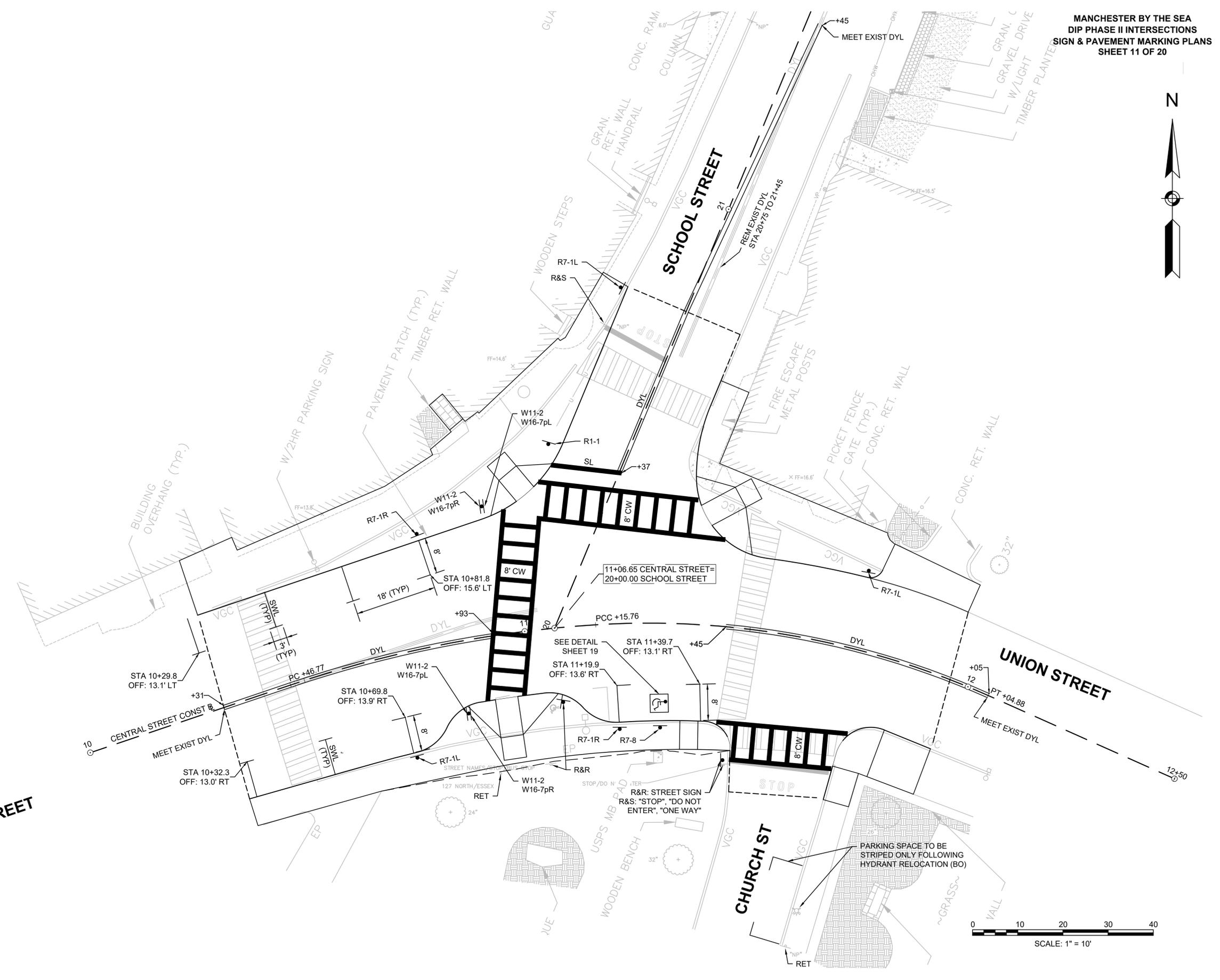


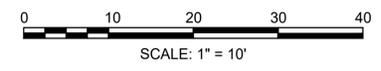
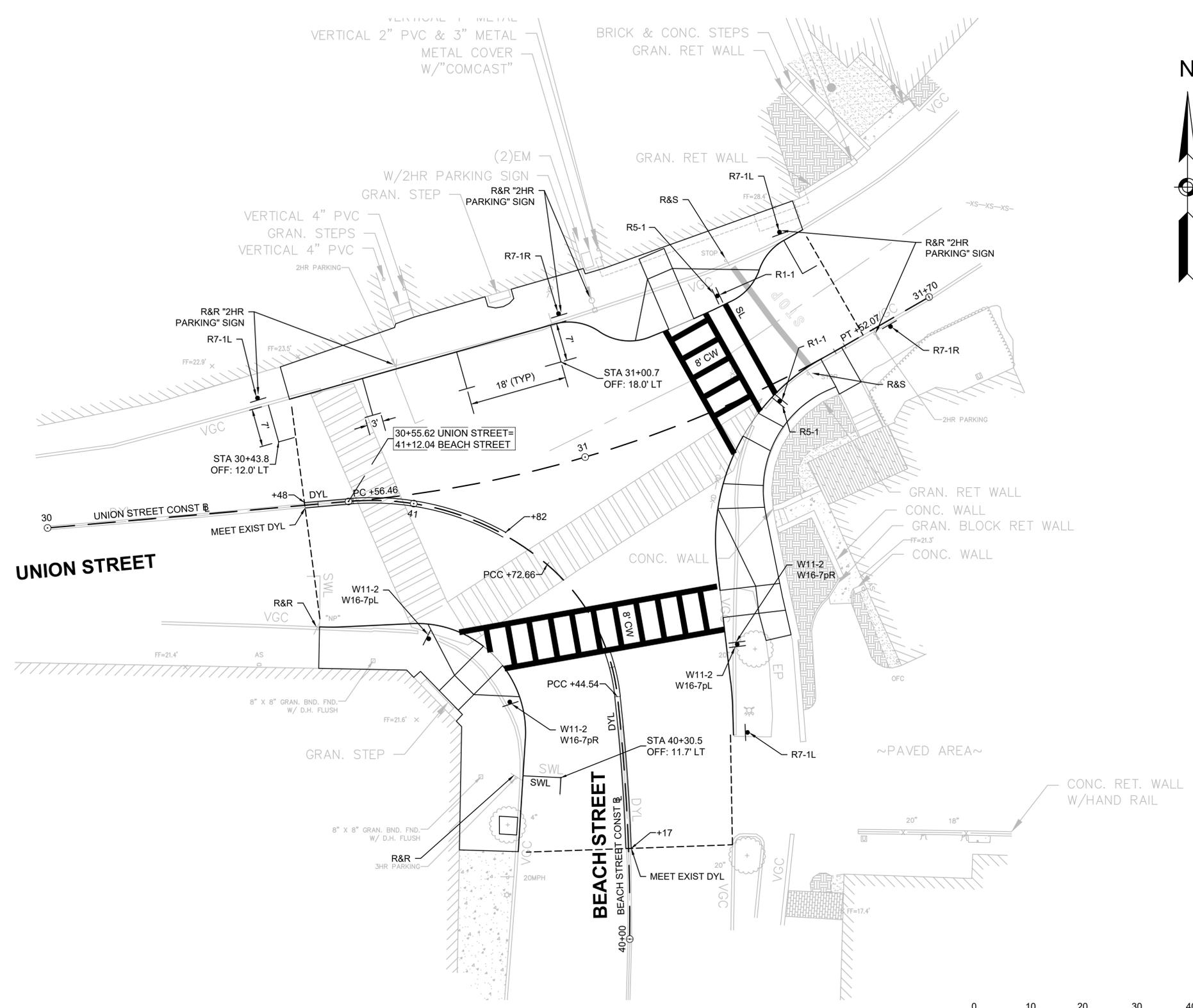
CENTRAL STREET

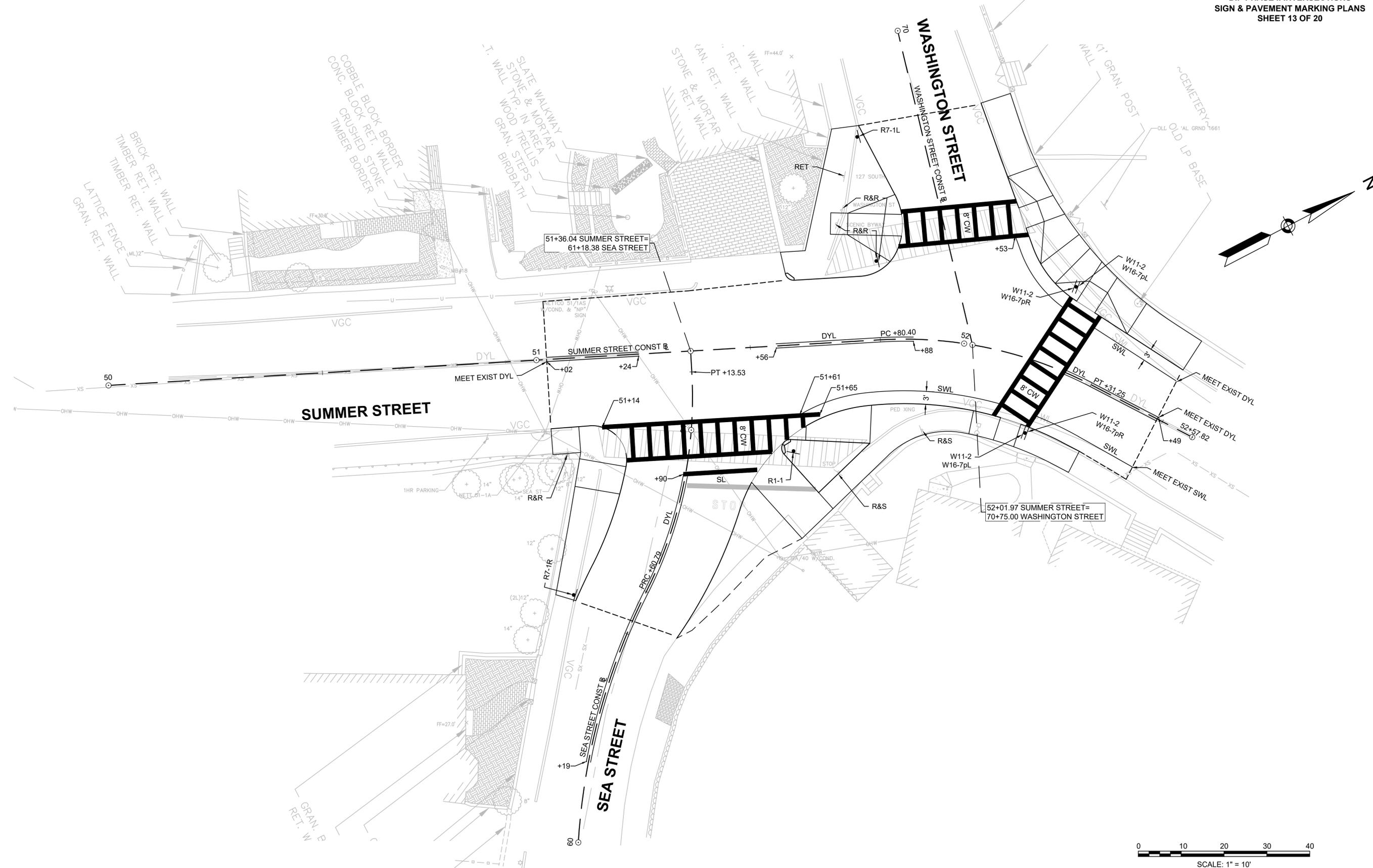
SCHOOL STREET

UNION STREET

CHURCH ST







TRAFFIC SIGN SUMMARY													
IDENTIFI- CATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS (INCHES)			NUMBER OF SIGNS REQUIRED	COLOR			POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW RTE. MKR.		BACK- GROUND	LEGEND	BORDER			
R1-1	30"	30"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION", AS AMENDED			1	RED	WHITE	WHITE		5.18	5.18
							2						10.36
							1						5.18
R5-1	30"	30"					0	RED	WHITE	WHITE		6.25	0.00
							2						12.50
							0						0.00
R7-1R	12"	18"					2	WHITE	RED	RED		1.50	3.00
							2						3.00
							1						1.50
R7-1L	12"	18"					3	WHITE	RED	RED		1.50	4.50
							3						4.50
							1						1.50
R7-8	12"	18"					1	WHITE	RED	RED		1.50	1.50
							0						0.00
							0						0.00
W11-2	30"	30"					4	YELLOW	BLACK	BLACK		6.25	25.00
							4						25.00
							4						25.00
W16-7pL	24"	12"					2	YELLOW	BLACK	BLACK		2.00	4.00
							2						4.00
							2						4.00
W16-7pR	24"	12"					2	YELLOW	BLACK	BLACK		2.00	4.00
							2						4.00
							2						4.00

← PROJECT SITE #1 (TYP)
← PROJECT SITE #2 (TYP)
← PROJECT SITE #3 (TYP)

NOTES:

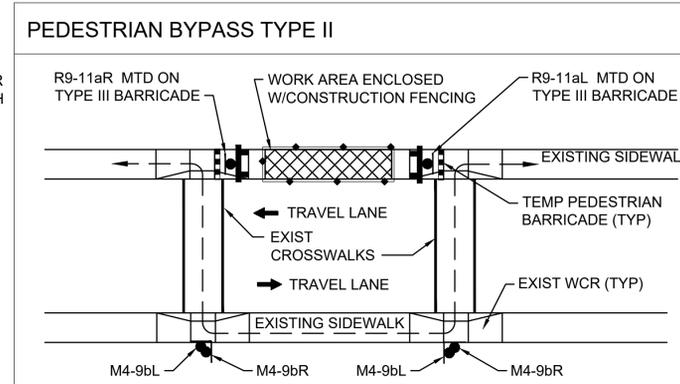
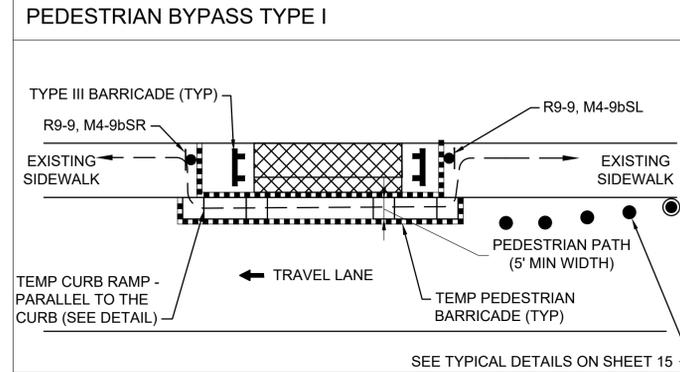
1. HIGH INTENSITY REFLECTIVE SHEETING SHALL BE USED FOR ALL SIGNS. SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION" FOR TEXT DIMENSIONS, AS AMENDED; THE 1977 MASSHIGHWAY DEPARTMENT CONSTRUCTION AND TRAFFIC STANDARD DETAILS, AS AMENDED, FOR SIGNS AND SUPPORTS; THE MASSHIGHWAY DEPARTMENT SIGN LISTINGS 1993 EDITION, AS AMENDED; AND THE 2017 MASSDOT STANDARD SIGNS BOOK, AS AMENDED.
2. ALL SIGNS SHOWN GRAPHICALLY FOR INFORMATION ONLY. SIGN VENDOR SHALL FABRICATE ALL SIGNS IN ACCORDANCE WITH THE APPLICABLE STANDARDS.

TEMPORARY TRAFFIC CONTROL GENERAL NOTES

- ALL CONSTRUCTION SIGNING, TEMPORARY TRAFFIC CONTROL DEVICES, AND ROADSIDE ELEMENTS SHALL CONFORM WITH THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AS AMENDED, THE MASSDOT STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TEMPORARY TRAFFIC CONTROL PLANS, THE LATEST REVISIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS, (AASHTO) ROADSIDE DESIGN GUIDE, AASHTO POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, AND NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 OR THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH).
- WORK HOURS SHALL BE 8:00AM TO 4:00PM MONDAY THRU FRIDAY UNLESS OTHERWISE APPROVED BY THE TOWN. WORK IMPACTING THE TRAVEL WAY WILL NOT BE ALLOWED DURING PEAK TRAFFIC PERIODS. PEAK PERIODS ARE DEFINED AS MONDAY THRU FRIDAY, 7:00AM TO 9:00AM AND 4:00PM TO 6:00PM. LANE CLOSURES WILL NOT BE PERMITTED FROM 5:30AM TO 9PM, MONDAY THRU FRIDAY.
- NO WORK SHALL OCCUR WITHIN THE PUBLIC WAY THE DAY BEFORE, AFTER OR ON A STATE RECOGNIZED HOLIDAY UNLESS OTHERWISE APPROVED BY THE TOWN.
- ALL TEMPORARY PEDESTRIAN PATHWAYS SHALL COMPLY FULLY WITH ALL REQUIREMENTS OF THE MUTCD AND ALL APPLICABLE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD (MAAB) AND AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG) REQUIREMENTS AND PUBLIC RIGHTS-OF-WAY ACCESSIBILITY GUIDELINES (PROWAG).
- ALL DRUMS OUTSIDE TAPERS SHALL BE SET AT 20' ON CENTER MAX. UNLESS OTHERWISE NOTED OR ADJUSTED BY THE ENGINEER.
- ALL DRUMS SHALL BE APPROXIMATELY PLACED AND MOVED AS NECESSARY TO MAINTAIN SAFE AND REASONABLE ABUTTER ACCESS. WORK MAY REQUIRE ADDITIONAL SIGNS, DRUMS AND OTHER TRAFFIC CONTROL DEVICES, GRADING AND TEMPORARY PAVEMENT FOR PASSAGE OF PEDESTRIAN, VEHICULAR AND EMERGENCY TRAFFIC THROUGH THE WORK AREAS, BOTH DURING AND AFTER WORKING HOURS, TO MAINTAIN SUCH ACCESS.
- THE FIRST 10 DRUMS ON TAPERS SHALL BE REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS AND SHALL BE OPERATING, AT A MINIMUM, BETWEEN DUSK AND DAWN, WHEN TAPER IS DEPLOYED.
- REFLECTORIZED CONES SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT.
- CONES MAY BE USED IN LIEU OF DRUMS OUTSIDE OF TAPER AREAS.
- THE CONTRACTOR SHALL NOTIFY EACH ABUTTER AT LEAST 24 HOURS IN ADVANCE OF THE START OF ANY WORK THAT WILL REQUIRE THE TEMPORARY CLOSURE OR RESTRICTION OF ACCESS.
- FOR DROP-OFFS 3" OR LESS WITHIN THE CLEAR ZONE, CONDITION MAY BE MITIGATED WITH W8-9 (LOW SHOULDER) SIGN OR TEMPORARY CHANNELIZATION DEVICES. FOR DROP-OFFS GREATER THAN 3" BUT NO MORE THAN 36", DETERMINE WHETHER IT IS MORE COST EFFECTIVE TO INSTALL BOTH W8-9 SIGN AND TEMPORARY CHANNELIZATION DEVICES IN ACCORDANCE WITH MASSDOT WORK ZONE SAFETY GUIDE OR W8-9 SIGN WITH A 2H:1V (MIN) WEDGE OR TO REMOVE THE HAZARD. FOR DROP-OFFS 36" OR GREATER USE TEMPORARY BARRIER IN ACCORDANCE WITH MASSDOT WORK ZONE POSITIVE PROTECTION GUIDELINES.
- CONTRACTOR SHALL STAGE WORK SUCH THAT A DROP-OFF OF NO MORE THAN 3" AT THE END OF EACH WORK DAY EXISTS WITHIN THE CLEAR ZONE AT ANY TIME AND ENSURE DROP-OFF IS MITIGATED WITHOUT BARRIER PER NOTE 11.
- CONSTRUCTION CLEAR ZONE SHALL BE IN ACCORDANCE WITH MASSDOT BOSTON TRAFFIC GUIDELINES AS FOLLOWS:
4' IF POSTED SPEED IS LESS THAN 35 MPH
8' IF POSTED SPEED IS 35 MPH
15' IF POSTED SPEED IS 40 MPH
20' IF POSTED SPEED IS 45 MPH
- 11' MINIMUM LANE WIDTHS SHALL BE MAINTAINED UNLESS OTHERWISE NOTED.
- NON-ESSENTIAL TRAFFIC CONTROL DEVICES AND SIGNS SHALL BE COVERED OR REMOVED DURING NON-WORKING HOURS WHEN NOT IN USE.
- SIGNS INSTALLED ON PORTABLE STANDS REQUIRE 12 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN.
- SIGNS INSTALLED ON PORTABLE STANDS PLACED AMONG CHANNELIZATION DEVICES REQUIRE A 36 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN.
- SIGNS MOUNTED ON POSTS REQUIRE A MINIMUM 84 INCH MOUNTING HEIGHT FROM THE ROADWAY OR SIDEWALK SURFACE TO THE BOTTOM OF THE SIGN. CONTRACTOR SHALL MAINTAIN A MINIMUM SIDEWALK HORIZONTAL CLEAR WIDTH OF 36" AT ALL TIMES.
- ALL SIGNS SHALL BE MOUNTED ON THEIR OWN NCHRP 350 AND/OR MASH CRASH TESTED SIGN SUPPORTS AND INSTALLED IN ACCORDANCE WITH THE MUTCD.
- MA-W20-7b SIGNS SHALL BE REPLACED BY W20-7 SIGNS WHEN FLAGGERS ARE USED IN LIEU OF POLICE OFFICER DETAILS.
- W21-7 SIGNS SHALL BE INSTALLED IN ADVANCE (100' MIN) OF AREAS WHERE UTILITY CASTINGS HAVE BEEN RAISED IN ADVANCE OF PAVING OPERATIONS OR AS REQUESTED BY THE ENGINEER.
- W8-15 SIGNS SHALL BE INSTALLED IN ADVANCE (100' MIN) OF PAVEMENT MILLING AREAS OR AS REQUESTED BY THE ENGINEER.
- W20-1c OR MA-R2-10a SIGNS SHOWN ON ADVANCE SIGN SCHEMATIC MAY BE USED IN LIEU OF THOSE SIGNS SHOWN ON TYPICAL DETAILS ON THE TEMPORARY TRAFFIC CONTROL PLANS IF MINIMUM SIGN SPACING IS MET.
- CONTRACTOR SHALL SECURE WORK AREAS BY APPROPRIATE MEANS, TO PREVENT UNAUTHORIZED ACCESS AT ALL TIMES.
- WHEN UTILIZING TYPICAL TRAFFIC CONTROL DETAILS OR STAGING SETUPS, COVER EXISTING CONFLICTING ADVANCE WARNING SIGNS AS REQUIRED TO COMPLETE THE WORK.
- ALL TRAFFIC CONTROL DEVICES INCLUDING TEMPORARY CONSTRUCTION SIGNS, TEMPORARY PAVEMENT MARKINGS, REFLECTORIZED DRUMS, CONES, PORTABLE PEDESTRIAN BARRICADES, ARROW BOARDS, CONSTRUCTION FENCE, TEMPORARY CURB RAMPS, ROADWAY FLAGGERS AND ANY OTHER ITEMS ASSOCIATED WITH TEMPORARY TRAFFIC CONTROL SHALL BE PAID FOR AT A LUMP SUM COST UNDER ITEM 850.

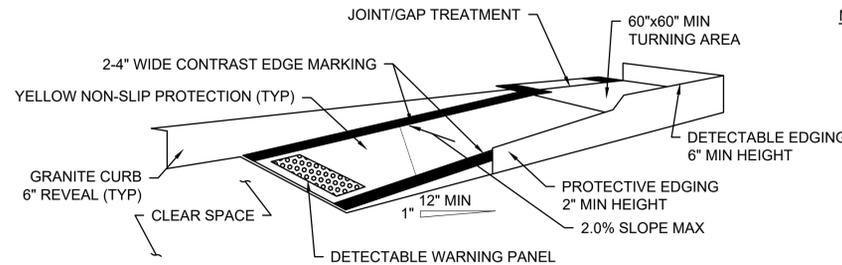
NOTES:

- ADDITIONAL ADVANCE WARNING SIGNS MAY BE NECESSARY AS DETERMINED BY THE ENGINEER.
- CONTROLS FOR PEDESTRIAN TRAFFIC ONLY, ARE SHOWN. VEHICULAR TRAFFIC SHALL BE MAINTAINED AS SHOWN ELSEWHERE.
- STREET LIGHTING SHOULD BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
- ← → INDICATES DIRECTION OF PEDESTRIAN TRAVEL.
- IF THE WORK ZONE DOES NOT PERMIT PEDESTRIANS TO TRAVEL ADJACENT TO IT AS SHOWN IN PEDESTRIAN BYPASS TYPE I, THE APPROPRIATE SIGNS SHALL BE INSTALLED TO CROSS PEDESTRIANS TO THE OPPOSITE SIDE OF THE STREET AT EXISTING OR TEMPORARY CROSSWALKS AS SHOWN IN PEDESTRIAN BYPASS TYPE II, AND AS DIRECTED BY THE ENGINEER.
- ALL TEMPORARY PEDESTRIAN PATHWAYS SHALL COMPLY FULLY WITH ALL REQUIREMENTS OF THE MUTCD AND ALL APPLICABLE MAAB AND ADAAG REQUIREMENTS AND INCLUDE THE USE OF A COMPLIANT TEMPORARY PEDESTRIAN MANAGEMENT GUIDANCE SYSTEM AT ALL TIMES.
- CONTRACTOR SHALL MAINTAIN AS WIDE OF A PEDESTRIAN ACCESS AS POSSIBLE AT ALL TIMES. EXCEPT WHERE NECESSARY, THE CONTRACTOR MAY TEMPORARILY REDUCE PEDESTRIAN PATHWAYS TO 4 FEET IN WIDTH (EXCLUDING CURB) FOR NO MORE THAN 200 LINEAR FEET AT A TIME IN ACCORDANCE WITH ALL STANDARDS. A 5' x 5' PASSING AREA SHALL BE PROVIDED IN INTERVALS NOT EXCEEDING 200 FEET.
- TEMPORARY WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MASSDOT, MAAB, AND ADAAG REQUIREMENTS.

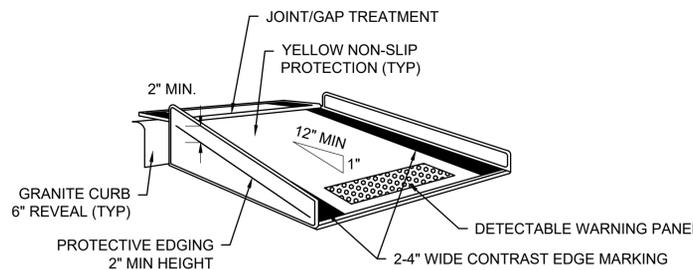


PEDESTRIAN BYPASS DETAIL

SCALE: NTS



TEMPORARY CURB RAMP-PARALLEL TO CURB



TEMPORARY CURB RAMP-PERPENDICULAR TO CURB

TEMPORARY CURB RAMPS

SCALE: NTS

NOTES:

- CURB RAMPS SHALL BE 60" MINIMUM WIDTH WITH A FIRM, STABLE AND NON-SLIP SURFACE. PROTECTIVE EDGING WITH A 2" MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6" OR GREATER OR HAS A SIDE APRON SLOPE STEEPER THAN 1:3 (33%). PROTECTIVE EDGING SHOULD BE CONSIDERED WHEN THE CURB RAMPS OR LANDING PLATFORMS HAVE A VERTICAL DROP OF 3" OR MORE.
- DETECTABLE EDGING WITH 6" MINIMUM HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
- THE CURB RAMP WALKWAY AND LANDING AREA SURFACE SHALL BE OF A SOLID CONTINUOUS CONTRASTING COLOR ABUTTING UP TO THE EXISTING SIDEWALK.
- CURB RAMPS AND LANDINGS SHOULD HAVE A 1:50 (2%) MAX CROSS-SLOPE.
- CLEAR SPACE OF 48"x48" MINIMUM SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
- WATER FLOW IN THE GUTTER SYSTEM SHALL HAVE MINIMAL RESTRICTION.
- LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 0.5" WIDTH.
- CHANGES BETWEEN SURFACE HEIGHTS SHOULD NOT EXCEED 0.5" LATERAL EDGES SHOULD BE VERTICAL UP TO 0.25" HIGH, AND BEVELED AT 1:2 BETWEEN 0.25" AND 0.5" HEIGHT.
- IF A TEMPORARY PEDESTRIAN RAMP LEADS TO A CROSSWALK, THEN A DETECTABLE WARNING PAD MUST BE ADHERED TO THE BASE OF THE RAMP. IF IT LEADS TO A PROTECTED PEDESTRIAN BYPASS THAT DOES NOT CONFLICT WITH VEHICULAR TRAFFIC, THEN A PAD SHALL NOT BE INSTALLED ON THE RAMP.

LEGEND

	POLICE OFFICER
	TRAFFIC SIGNAL
	REFLECTORIZED DRUM
	REFLECTORIZED DRUMS WITH SEQUENTIAL FLASHING WARNING LIGHTS (SEE NOTE 7)
	TEMPORARY CONSTRUCTION SIGN
	TRAFFIC CONE
	TYPE III BARRICADE
	ARROW BOARD (AB) (RIGHT OR LEFT)
	WORK AREA (PUBLIC ACCESS RESTRICTED)
	TRAFFIC FLOW
	PEDESTRIAN ROUTE
	CONSTRUCTION FENCE
	TEMPORARY PORTABLE PEDESTRIAN BARRICADE
NTS	NOT TO SCALE

ADVANCE SIGN SPACING

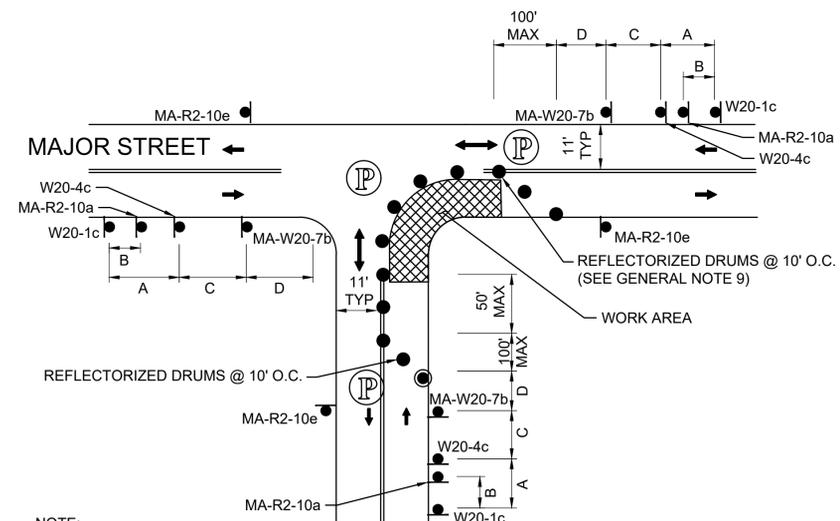
ROADWAY	DISTANCE BETWEEN SIGNS (FEET)			
	A	B	C	D
ALL ROADS	100	50	100	100

BUFFER SPACING

SPEED (MPH)	DISTANCE (FEET)
15	80
20	115
25	155
30	200

LANE TAPER LENGTH FORMULAS

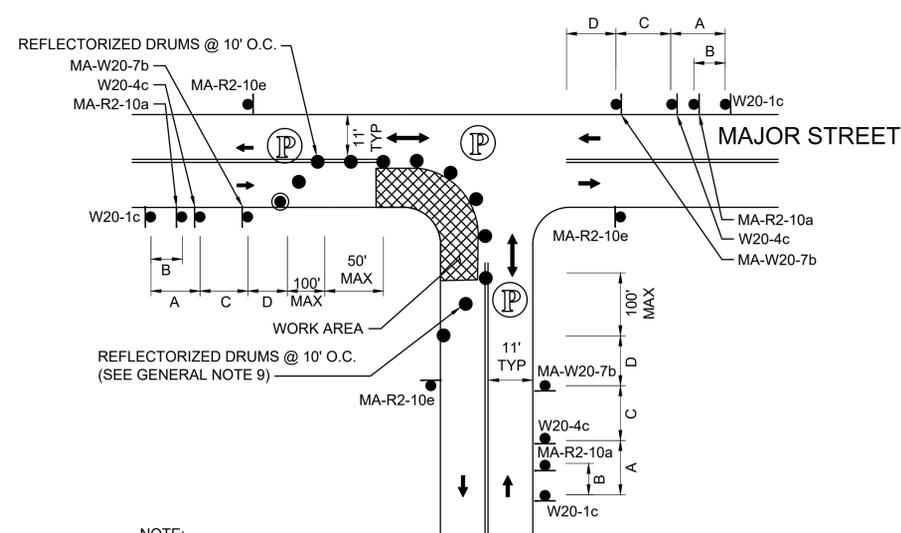
L= TAPER LENGTH IN FEET
W= WIDTH OF ROADWAY TO BE SHIFTED OR REDIRECTED IN FEET
S= POSTED SPEED LIMIT IN MPH
POSTED SPEED
40 MPH OR LESS
$L = \frac{WS^2}{60}$



- NOTE:
1. ADVANCE WARNING SIGN PLACEMENT TO BE ADJUSTED AS NECESSARY.
 2. REFER TO ADVANCE SIGN SPACING TABLE ON SHEET 15.

ONE LANE BI-DIRECTIONAL TRAFFIC AT INTERSECTIONS - FAR SIDE

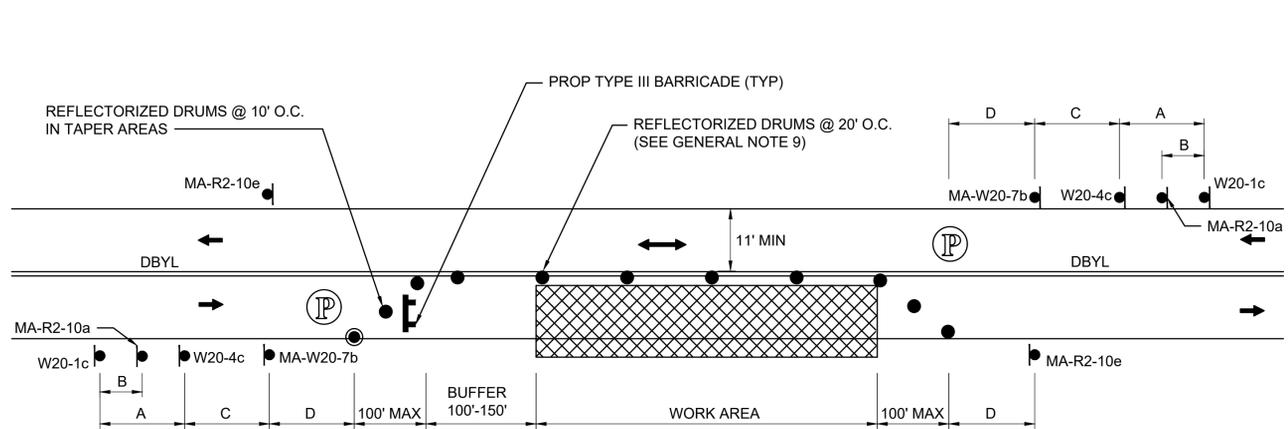
SCALE: NTS



- NOTE:
1. ADVANCE WARNING SIGN PLACEMENT TO BE ADJUSTED AS NECESSARY.
 2. REFER TO ADVANCE SIGN SPACING TABLE ON SHEET 15.

ONE LANE BI-DIRECTIONAL TRAFFIC AT INTERSECTIONS - NEAR SIDE

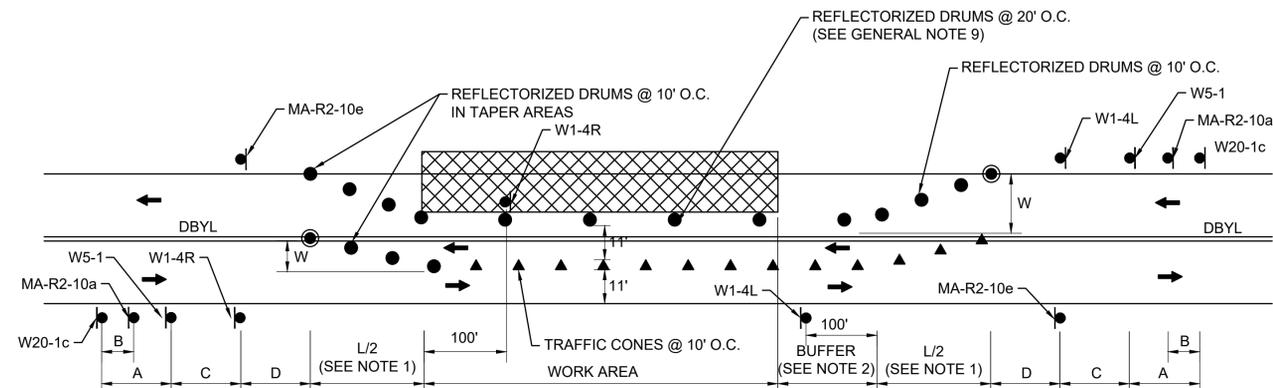
SCALE: NTS



- NOTES:
1. REFER TO ADVANCE SIGN SPACING TABLE ON SHEET 15.

TYPICAL TWO-WAY STREET LANE CLOSURE ALTERNATING TRAFFIC

SCALE: NTS



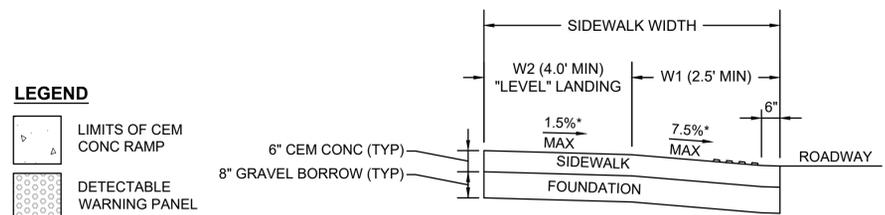
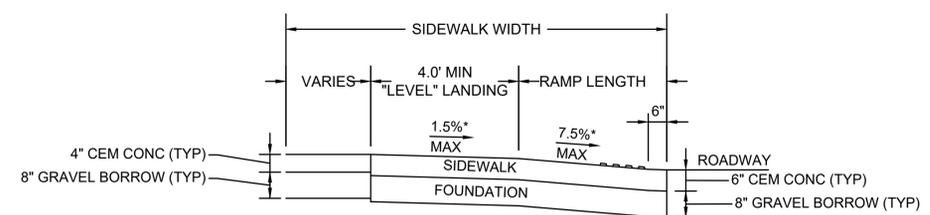
- NOTES:
1. SEE TAPER LENGTH FORMULA ON SHEET 15.
 2. SEE BUFFER SPACING CHART ON SHEET 15.
 3. REFER TO ADVANCE SIGN SPACING TABLE ON SHEET 15.

TYPICAL TWO-WAY STREET LANE SHIFT

SCALE: NTS

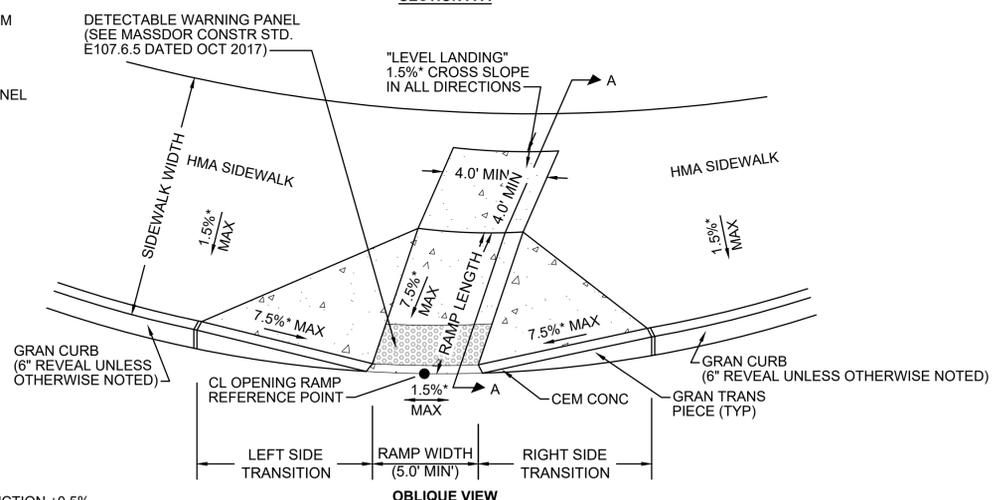
WHEELCHAIR RAMP DETAIL - 12.0' OR GREATER - CURVED											
NO.	LOCATION	SIDEWALK WIDTH	RAMP WIDTH	RAMP LENGTH	LEFT SIDE		RIGHT SIDE		ELEVATION		NOTES
					ROADWAY GUTTER	TRANS	ROADWAY GUTTER	TRANS	OPENING	BACK OF LEVEL LANDING	
3	STA 20+24.7, 17.3' LT ALGN - SCHOOL STREET	20'-0"	5'-0"	6'-0"	-0.7%	6'-6"	-2.2%	6'-6"	13.87	13.88	3" REVEAL LEFT/RIGHT SIDE
4	STA 11+38.8, 24.0' LT ALGN - CENTRAL STREET	13'-0"	5'-0"	8'-6"	-4.8%	6'-6"	2.3%	11'-0"	14.12	14.57	8" REVEAL LEFT SIDE 3" REVEAL RIGHT SIDE
5	STA 10+93.9, 14.0' RT ALGN - CENTRAL STREET	14'-7"	5'-0"	8'-6"	1.5%	9'-0"	-1.4%	6'-6"	14.12	14.70	4" REVEAL ON LEFT SIDE
8	STA 31+25.9, 17.0' LT ALGN - UNION STREET	14'-3"	5'-0"	10'-0"	-5.6%	6'-6"	7.8%	15'-0"	25.14	25.94	
9	STA 40+66.2, 18.8' LT ALGN - BEACH STREET	11'-6"	5'-0"	7'-6"	-6.1%	6'-6"	2.3%	11'-0"	19.52	20.04	8" REVEAL ON LEFT SIDE 5" REVEAL ON RIGHT SIDE

WHEELCHAIR RAMP DETAIL - GREATER THAN 6.5 FEET - CURVED												
NO.	LOCATION	SIDEWALK WIDTH	RAMP WIDTH	W1	W2	LEFT SIDE		RIGHT SIDE		ELEVATION		NOTES
						ROADWAY GUTTER	TRANS	ROADWAY GUTTER	TRANS	OPENING	BACK OF WALK	
10	STA 40+53.8, 22.8' RT ALGN - BEACH STREET	11'-0"	5'-0"	6'-6"	4'-6"	10.9%	15'-0"	-8.8%	6'-6"	20.65	21.22	SEE PLAN FOR LAYOUT OF RIGHT SIDE TRANSITION
12	STA 52+23.2, 15.9' LT ALGN - SUMMER STREET	9'-6"	5'-0"	5'-6"	4'-0"	-2.3%	6'-6"	1.7%	9'-0"	41.07	41.54	
16	STA 70+49.0, 18.2' LT ALGN - WASHINGTON ST	8'-6"	5'-0"	4'-6"	4'-0"	0.4%	7'-8"	1.8%	9'-0"	40.55	40.95	



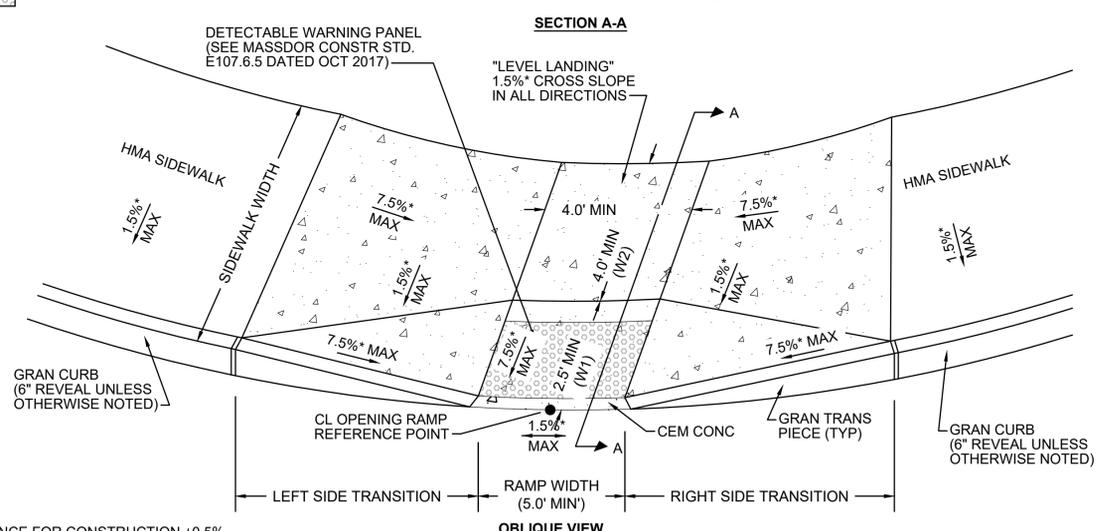
LEGEND

- LIMITS OF CEM CONC RAMP
- DETECTABLE WARNING PANEL



LEGEND

- LIMITS OF CEM CONC RAMP
- DETECTABLE WARNING PANEL



*TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP - 12.0' OR GREATER - CURVED

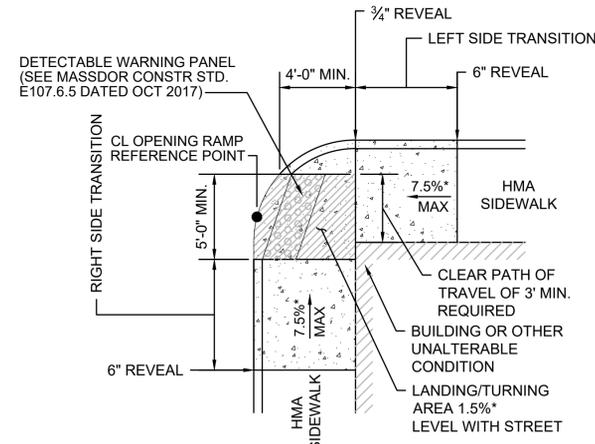
SCALE: N.T.S.

*TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP - GREATER THAN 6.5 FEET - CURVED

SCALE: N.T.S.

WHEELCHAIR RAMP DETAIL - "T" INTERSECTION							
NO.	LOCATION	LEFT SIDE		RIGHT SIDE		OPENING ELEVATION	NOTES
		ROADWAY GUTTER	TRANS	ROADWAY GUTTER	TRANS		
7	STA 11+75.5, 23.2' RT ALGN - CENTRAL ST	2.1%	11'-0"	0.6%	7'-8"	15.41	
13	STA 60+94.9, 15.7' LT ALGN - SEA ST	-9.7%	6'-6"	-6.2%	6'-6"	31.62	



*TOLERANCE FOR CONSTRUCTION ±0.5%

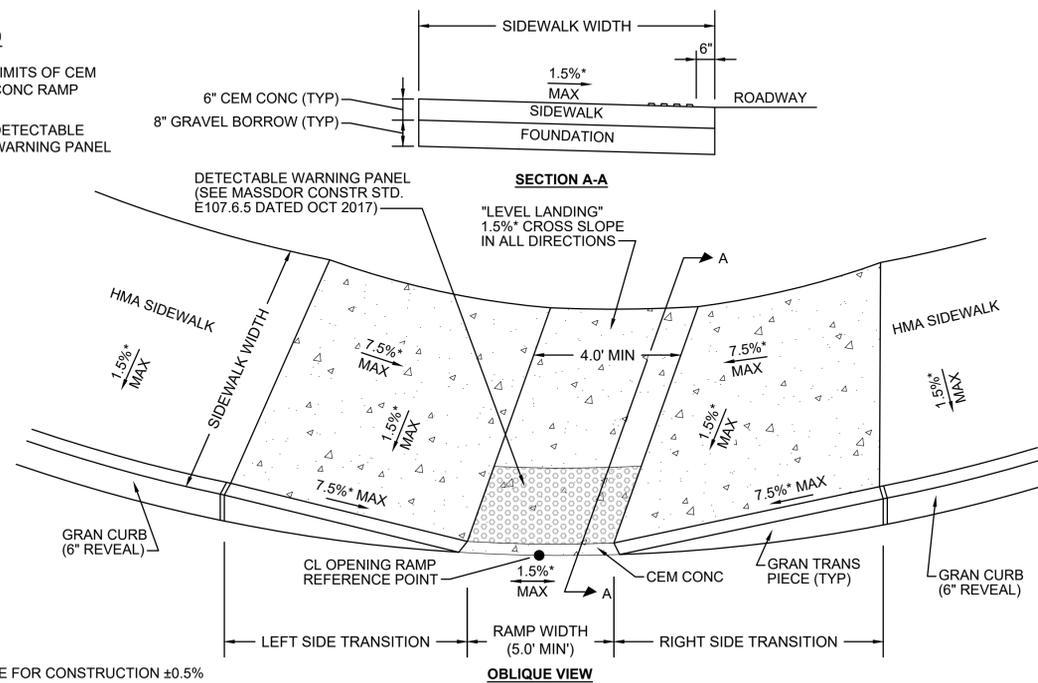
"T" INTERSECTION WHEELCHAIR RAMP

SCALE: N.T.S.

WHEELCHAIR RAMP DETAIL - LESS THAN 6.5 FEET - CURVED										
NO.	LOCATION	SIDEWALK WIDTH	RAMP WIDTH	LEFT SIDE		RIGHT SIDE		ELEVATION		NOTES
				ROADWAY GUTTER	TRANS	ROADWAY GUTTER	TRANS	OPENING	BACK OF WALK	
1	STA 31+30.3, 5.0' RT ALGN - UNION STREET	5'-2"	5'-0"	8.7%	15'-0"	-11.7%	6'-6"	24.51	24.59	3" REVEAL RIGHT SIDE 5" REVEAL LEFT SIDE
11	STA 52+16.0, 15.0' RT ALGN - SUMMER STREET	5'-6"	5'-0"	4.6%	15'-0"	-7.9%	6'-6"	40.11	40.19	

LEGEND

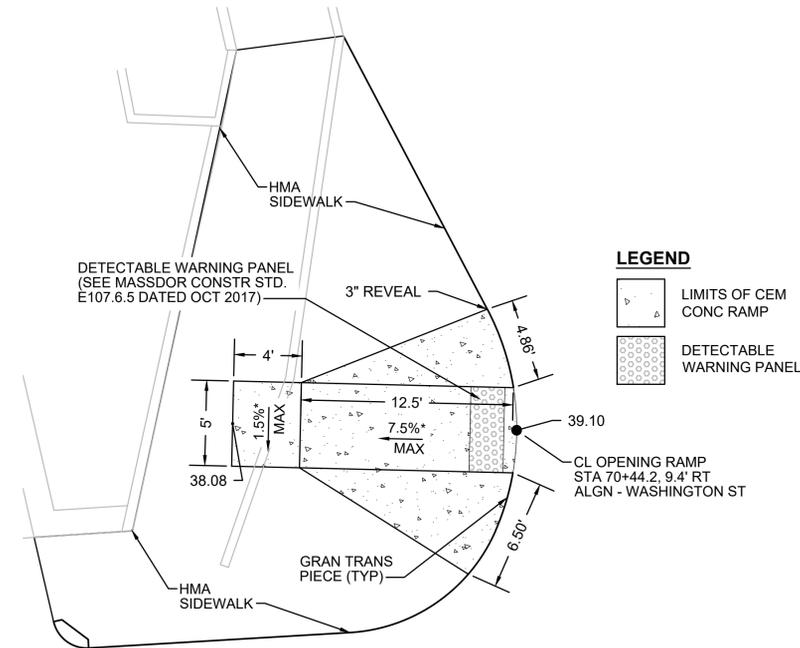
- LIMITS OF CEM CONC RAMP
- DETECTABLE WARNING PANEL



*TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP - LESS THAN 6.5 FEET - CURVED

SCALE: N.T.S.

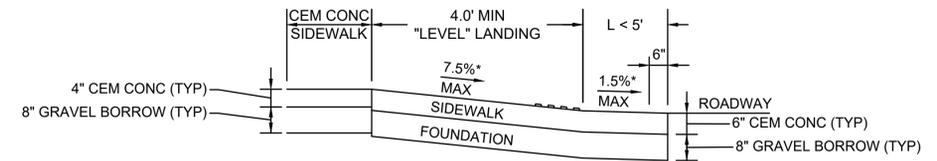


*TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP NO. 15 DETAIL

SCALE: N.T.S.

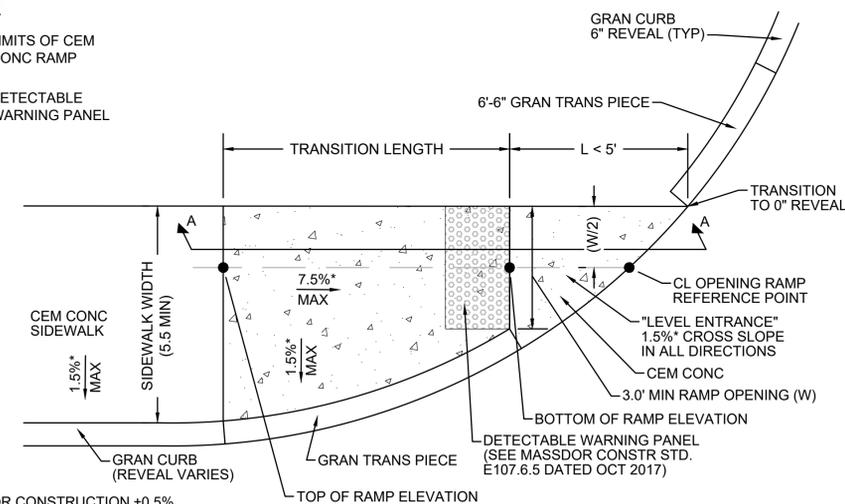
WHEELCHAIR RAMP DETAIL - LESS THAN 6.5 FEET - CURVED											
NO.	LOCATION	SIDEWALK WIDTH	RAMP WIDTH	LEFT SIDE		RIGHT SIDE		ELEVATION (ALONG CL OF RAMP)			NOTES
				ROADWAY GUTTER	TRANS	ROADWAY GUTTER	TRANS	OPENING	BOT OF RAMP	TOP OF RAMP	
6	STA 11+48.3, 25.5' RT ALGN - CENTRAL STREET	6'-3"	3'-0"	-	-	-1.5%	6'-6"	14.53	14.55	14.87	
14	STA 51+59.3, 20.5' RT ALGN - SUMMER STREET	8'-10"	3'-0"	11.3%	15'-0"	-	-	34.82	35.07	37.14	



SECTION A-A

LEGEND

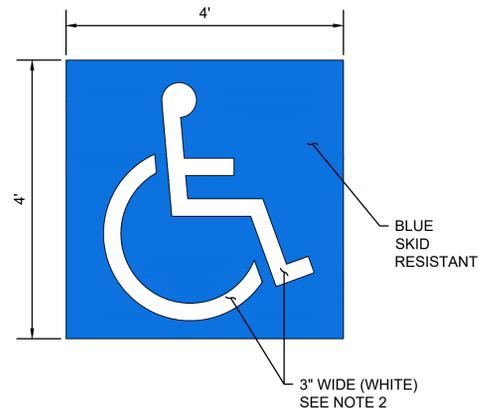
- LIMITS OF CEM CONC RAMP
- DETECTABLE WARNING PANEL



*TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP - 'L' IS LESS THAN 5'

SCALE: N.T.S.



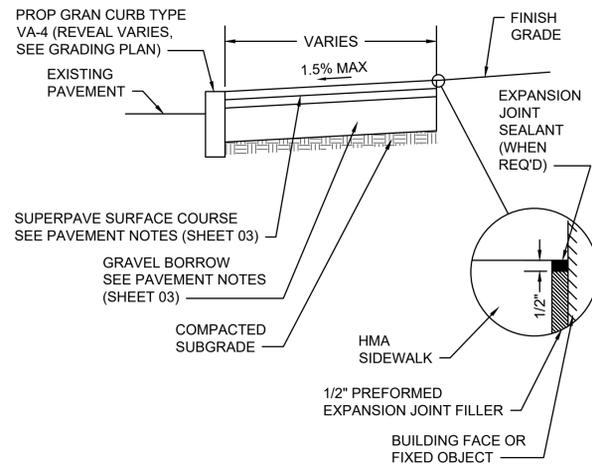
- NOTES:
1. ACCESSIBLE PARKING PAVEMENT MARKINGS SHALL CONFORM TO THE RELEVANT PROVISIONS OF THE MASSACHUSETTS HIGHWAY DEPARTMENT "STANDARD SPECIFICATION FOR HIGHWAY AND BRIDGES" DATED 1988, SECTION 860 FOR REFLECTORIZED LINE (THERMO-PLASTIC) & MATERIAL M7.01.20, LATEST REVISIONS.
 2. LAYOUT SHALL CONFORM TO THE INTERNATIONAL SYMBOL OF ACCESSIBILITY PARKING SPACE MARKING WITH BLUE BACKGROUND AND WHITE BORDER AS DEFINED IN THE LATEST STANDARD HIGHWAY SIGNS (FHWA).

ACCESSIBLE PARKING PAVEMENT MARKING

SCALE: N.T.S.

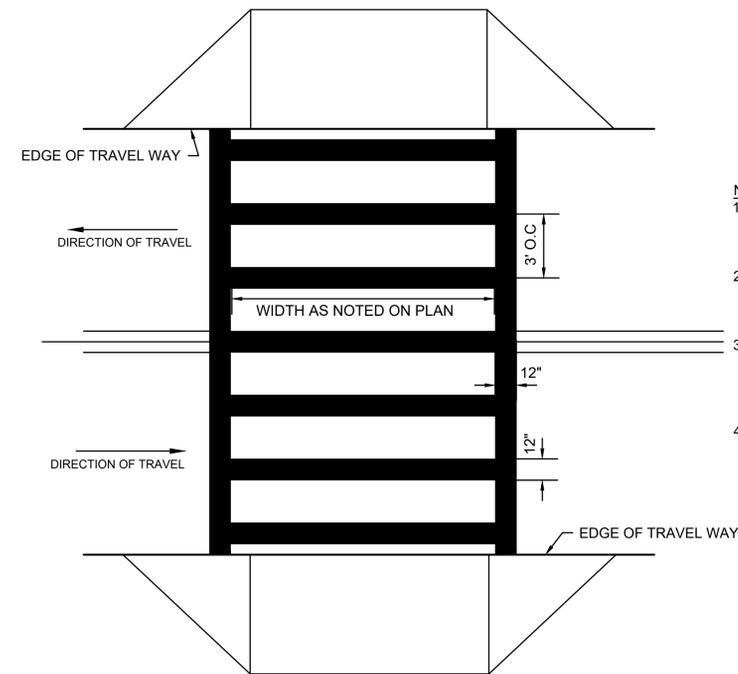
NOTES:

1. ALL HOT MIX ASPHALT WALKS SHALL BE ESTIMATED AND PAID FOR UNDER ITEM 702 OF STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
2. ASPHALT EMULSION FOR TACK COAT (ITEM 452.) SHALL BE SPRAY APPLIED FOR DOUBLE OVERLAP COVERAGE AT 0.07 GALLONS PER SQUARE YARD OVER MILLED SURFACES AND 0.05 GALLONS PER SQUARE YARD OVER SMOOTH SURFACES.
3. HMA JOINT SEALANT (ITEM 453.) SHALL BE APPLIED IN SURFACE COURSE AT ALL VERTICAL COLD JOINTS PRIOR TO HMA PAVING.



HOT MIX ASPHALT SIDEWALK

SCALE: N.T.S.

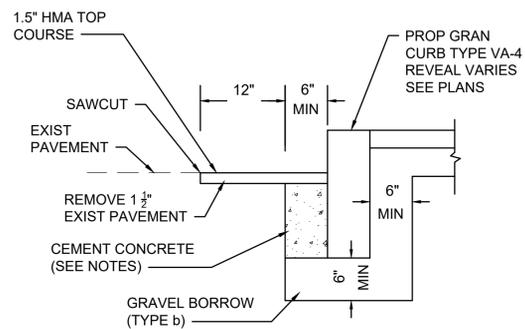


NOTES:

1. ALL EXISTING CROSSWALK MARKINGS SHALL BE FULLY ERADICATED BY APPROVED METHOD PRIOR TO THE APPLICATION OF PROPOSED MARKINGS.
2. ALL 12" THERMOPLASTIC LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO - 6" LINES) WILL BE ACCEPTED.
3. LAYOUT OF CROSSWALKS SHALL BE ORIENTATED IN THE DIRECTION OF TRAVEL AND LOCATED OUTSIDE OF THE WHEEL PATH OF VEHICLES. LAYOUT SHALL BE APPROVED BY THE ENGINEER PRIOR TO APPLICATION OF THERMOPLASTIC.
4. ALL CROSSWALKS INSTALLED SHALL CONFORM TO THE RELEVANT PROVISIONS OF THE MASSACHUSETTS HIGHWAY DEPARTMENT "STANDARD SPECIFICATION FOR HIGHWAY AND BRIDGES" DATED 1988, SECTION 860 FOR REFLECTORIZED LINE (THERMO-PLASTIC) & MATERIAL M7.01.20, LATEST REVISIONS.

CROSSWALK

SCALE: N.T.S.



NOTES:

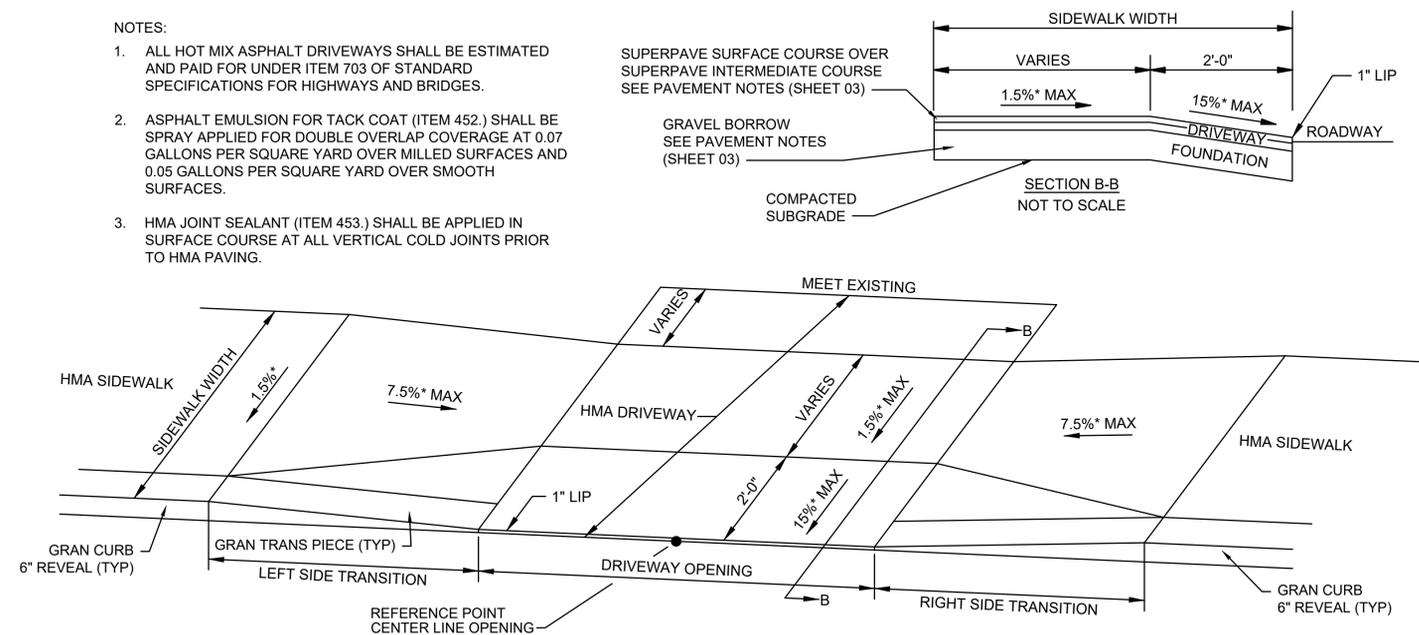
1. CONCRETE SHALL BE INCLUDED IN PRICE BID FOR GRANITE CURB.
2. ANY DESIGNATED CEMENT CONCRETE THAT IS ACCEPTABLE UNDER SECTION M4 OF THE STANDARD SPECIFICATIONS MAY BE USED. ALL TEST REQUIREMENTS ARE WAIVED. HOT MIX ASPHALT SHALL NOT BE USED AS A SUBSTITUTE.

GRANITE CURB IN EXISTING PAVEMENT

SCALE: N.T.S.

NOTES:

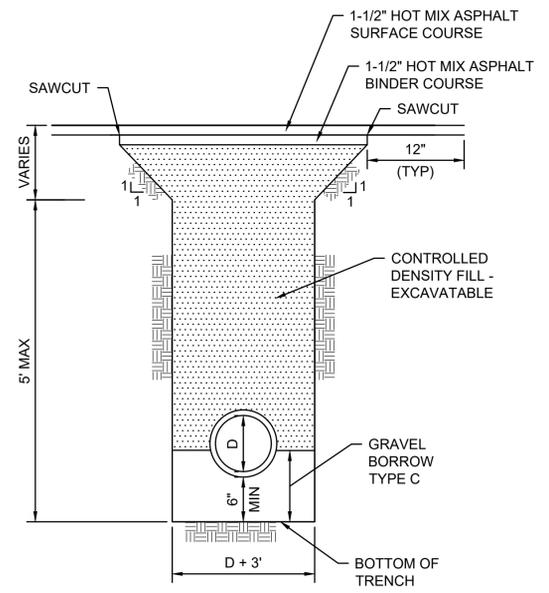
1. ALL HOT MIX ASPHALT DRIVEWAYS SHALL BE ESTIMATED AND PAID FOR UNDER ITEM 703 OF STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
2. ASPHALT EMULSION FOR TACK COAT (ITEM 452.) SHALL BE SPRAY APPLIED FOR DOUBLE OVERLAP COVERAGE AT 0.07 GALLONS PER SQUARE YARD OVER MILLED SURFACES AND 0.05 GALLONS PER SQUARE YARD OVER SMOOTH SURFACES.
3. HMA JOINT SEALANT (ITEM 453.) SHALL BE APPLIED IN SURFACE COURSE AT ALL VERTICAL COLD JOINTS PRIOR TO HMA PAVING.



* = TOLERANCE FOR CONSTRUCTION ±0.5%

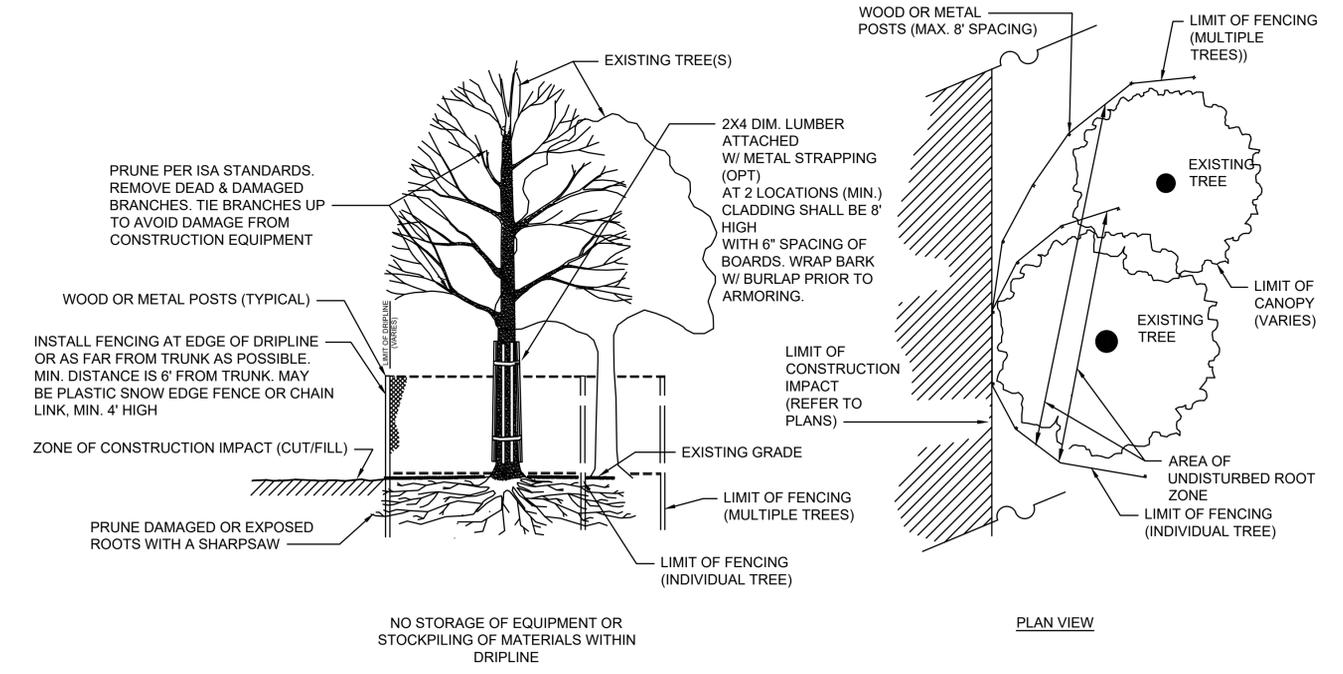
HOT MIX ASPHALT DRIVEWAY

SCALE: N.T.S.



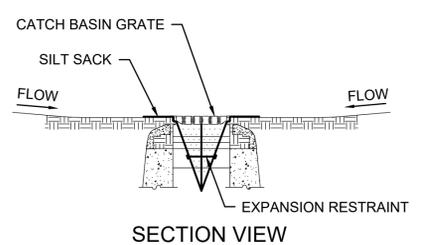
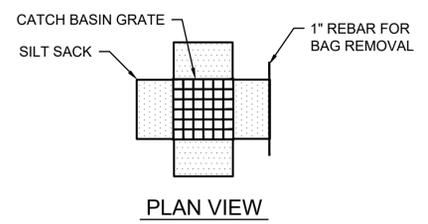
TRENCH DETAIL IN EXISTING HOT MIX ASPHALT

SCALE: N.T.S. DWG: TRENCH-04 DATE: MARCH 2013



TREE PROTECTION OF EXISTING TREE(S)

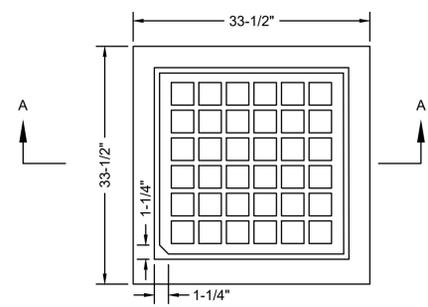
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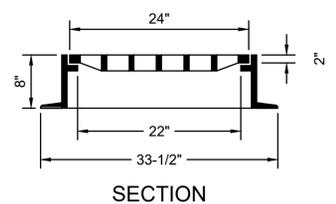
- NOTES:
1. INSTALL SILT SACK IN EXISTING CATCH BASINS, BEFORE COMMENCING WORK, AND IN NEW CATCH BASINS IMMEDIATELY AFTER INSTALLATION OF STRUCTURE. MAINTAIN UNTIL BINDER COURSE PAVING IS COMPLETE OR A PERMANENT STAND OF GRASS HAS BEEN ESTABLISHED.
 2. GRATE TO BE PLACED OVER SILT SACK.
 3. SILT SACK SHALL BE INSPECTED PERIODICALLY AND AFTER ALL STORM EVENTS AND CLEANING OR REPLACEMENT SHALL BE PERFORMED

INLET PROTECTION - SILT SACK IN CATCH BASIN

SCALE: N.T.S.

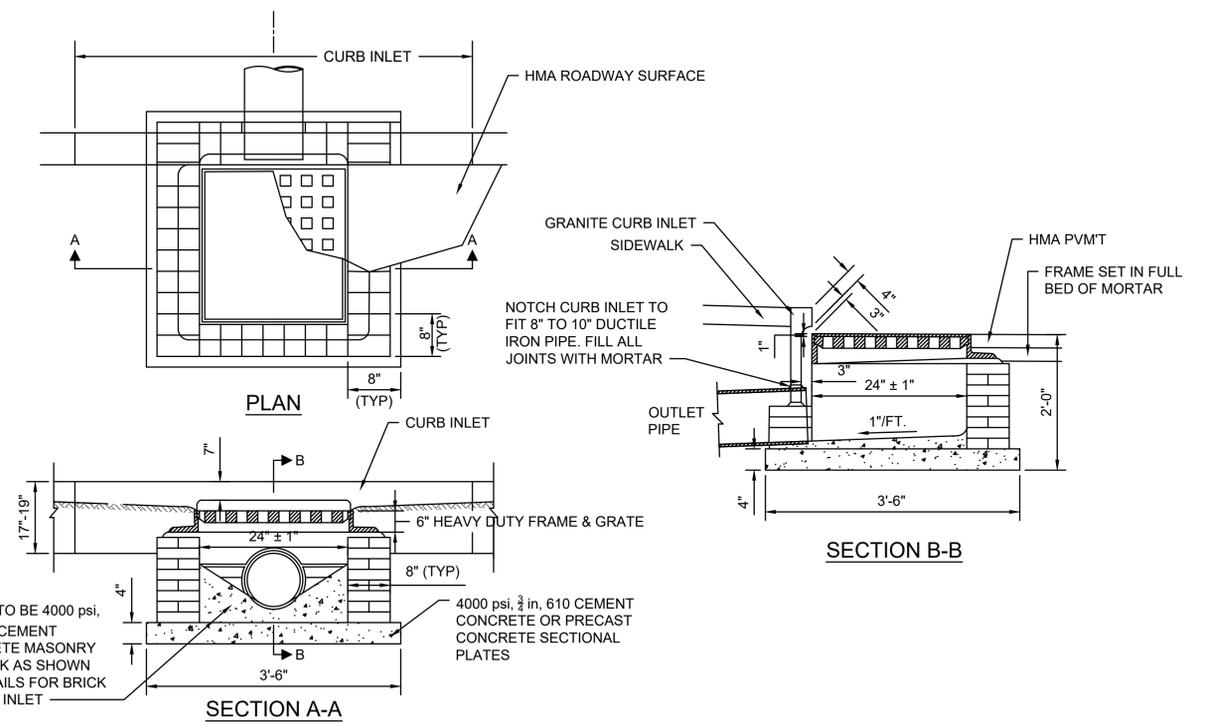


- NOTES:
1. FRAME AND GRATE SHALL BE RATED FOR HS-20 LOADING.
 2. MIN FRAME WEIGHT:
4 FLANGE 295 LBS.
3 FLANGE 265 LBS.
 3. USE 3 FLANGE FRAMES AT CURB INLETS.



MUNICIPAL STANDARD CATCH BASIN FRAME & GRATE

SCALE: N.T.S.



GUTTER INLET - SPECIAL

SCALE: N.T.S.