MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	1	84
PROJECT FILE NO.	606207		

TITLE SHEET & INDEX

606207_HD\COVI.DWG 10-Aug-2016

PLAN AND PROFILE OF

MAIN STREET (ROUTE 9) AND PLEASANT STREET (ROUTE 31)

IN THE TOWN OF

SPENCER

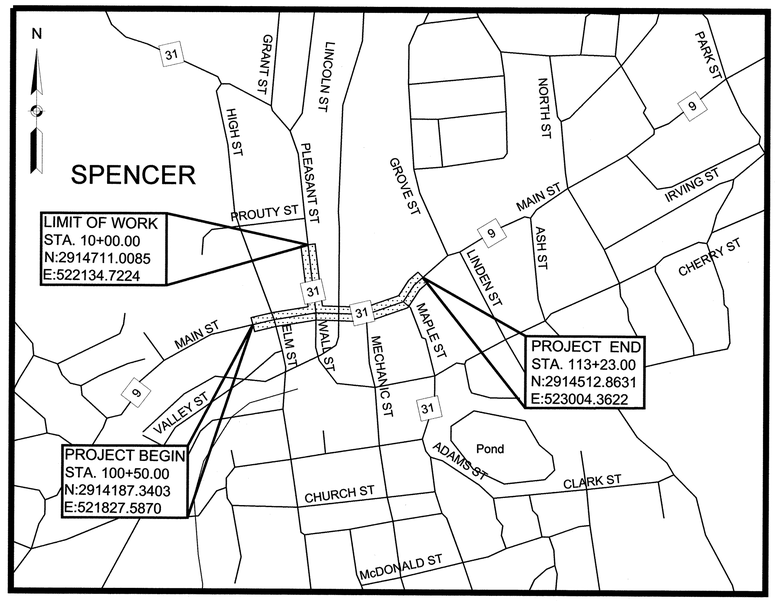
WORCESTER COUNTY

FEDERAL AID PROJECT NO. CM/HSI/TAP-002S(926)X

THE MASSACHUSETTS HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES DATED 1988, AS AMENDED, THE SUPPLEMENTAL SPECIFICATIONS DATED JULY 1, 2015, THE INTERIM SUPPLEMENTAL SPECIFICATIONS DATED MARCH 4, 2016, THE 2014 CONSTRUCTION STANDARD DETAILS, THE 2015 OVERHEAD SIGNAL STRUCTURE AND FOUNDATION STANDARD DRAWINGS, MASSDOT TRAFFIC MANAGEMENT PLANS AND DETAIL DRAWINGS, THE 2009 MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS WITH MASSACHUSETTS AMENDMENTS, THE 1990 STANDARD DRAWINGS FOR SIGNS AND SUPPORTS, THE 1968 STANDARD DRAWINGS FOR TRAFFIC SIGNALS AND HIGHWAY LIGHTING AND THE LATEST EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK, WILL GOVERN.

INDEX

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500 0 500 1000

SCALE 1" = 500'

LENGTH OF PROJECT = 1273.00 FEET = 0.241 MILES

DESIGN DESIGNATION (MAIN STREET/RTE 9)

DESIGN SPEED	30 MPH
ADT (2011)	14,764 VPD
ADT (2021)	15,909 VPD
K	6%
D	59.4%
T (PEAK HOUR)	1.7%
T (AVERAGE DAY)	1.5%
DHV	1,019 VPH
DDHV	606 VPH
FUNCTIONAL CLASSIFICATION	PRINCIPAL ARTERIAL

DESIGN DESIGNATION (PLEASANT STREET/RTE 31)

DESIGN SPEED	30 MPH
ADT (2011)	5,657 VPD
ADT (2021)	6,096 VPD
K	10%
D	55.6%
T (PEAK HOUR)	1.3%
T (AVERAGE DAY)	1.3%
DHV	595 VPH
DDHV	331 VPH
FUNCTIONAL CLASSIFICATION	URBAN MINOR ARTERIAL

DATE	DESCRIPTION	REV #
4/13/2017	REVISIONS AT BANK PROPERTY/ CONSTRUCTION CONFLICTS	2
4/11/2017	REVISIONS AT BANK PROPERTY	1

COMMONWEALTH OF MASSACHUSETTS BRIAN K. BROWN 49826 REGISTERED PROFESSIONAL ENGINEER

MassDOT Massachusetts Department of Transportation Highway Division

RECOMMENDED FOR APPROVAL

CHIEF ENGINEER ____ DATE ____

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED:

DIVISION ADMINISTRATOR ____ DATE ____

APPROVED

HIGHWAY ADMINISTRATOR ____ DATE ____

GENERAL SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
JB	JB	JERSEY BARRIER
CB	CB	CATCH BASIN
		CATCH BASIN CURB INLET
FP	FP	FLAG POLE
GP	GP	GAS PUMP
MB	MB	MAIL BOX
		POST SQUARE
		POST CIRCULAR
MW	MW	MONITORING WELL
EHH	EHH	ELECTRIC HANDHOLE
		FENCE GATE POST
GG	GG	GAS GATE
BHL #	BHL #	BORING HOLE
MW #	MW #	MONITORING WELL
TP #	TP #	TEST PIT
		HYDRANT
		LIGHT POLE
		LANDSCAPE LIGHTING
CO.BD.		COUNTY BOUND
		GPS POINT
	CIT	CHANGE IN TYPE
DMH		DRAINAGE MANHOLE
EMH		ELECTRIC MANHOLE
GMH		GAS MANHOLE
MH		MISC MANHOLE
SMH		SEWER MANHOLE
TMH		TELEPHONE MANHOLE
WMH		WATER MANHOLE
MHB	MHB	MASSACHUSETTS HIGHWAY BOUND
MON		MONUMENT
SB		STONE BOUND
TB		TOWN OR CITY BOUND
		TRAVERSE OR TRIANGULATION STATION
TPL or GUY	TPL or GUY	TROLLEY POLE OR GUY POLE
HTP		TRANSMISSION POLE
UFB	UFB	UTILITY POLE W/ FIREBOX
UPDL	UPDL	UTILITY POLE WITH DOUBLE LIGHT
ULT	ULT	UTILITY POLE W / 1 LIGHT
UPL	UPL	UTILITY POLE
		BUSH
SIZE & TYPE		TREE
		STUMP
		SWAMP / MARSH
CS	CS	CURB STOP
WG	WG	WATER GATE/SERVICE BOX
PM	PM	PARKING METER
		OVERHEAD CABLE/WIRE
		CURBING
100 99		CONTOURS (ON-THE-GROUND SURVEY DATA)
100 99		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
x	x	CHAIN LINK OR METAL FENCE
		WOOD FENCE
		HAY BALES/SILT FENCE
		TREE LINE
		SAWCUT LINE
		TOP OR BOTTOM OF SLOPE
		LIMIT OF EDGE OF PAVEMENT OR COLD PLANE 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
E		PROPERTY LINE OR APPROXIMATE PROPERTY LINE
		EASEMENT
		FULL DEPTH PAVEMENT
		EXISTING TEST PIT
		UNDERGROUND STORAGE AREA

TRAFFIC SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
Ø1	Ø1	CONTROLLER PHASE
		WIRE LOOP DETECTOR (6' x 6' TYP UNLESS OTHERWISE SPECIFIED)
		QUADRUPOLE WIRE LOOP DETECTOR
		BICYCLE WIRE LOOP DETECTOR, TYPE B-2
		VIDEO DETECTION CAMERA
		PEDESTRIAN PUSH BUTTON, SIGN AND SADDLE
		EMERGENCY PREEMPTION CONFIRMATION STROBE LIGHT
		VEHICULAR SIGNAL HEAD, WITH/WITHOUT BACKPLATE
		VEHICULAR SIGNAL HEAD, OPTICALLY PROGRAMMED, WITH/WITHOUT BACKPLATE
		FLASHING BEACON, WITH/WITHOUT BACKPLATE
		PEDESTRIAN SIGNAL HEAD, (TYPE AS NOTED OR AS SPECIFIED)
7S		SIGNAL POST AND BASE
		MAST ARM, SHAFT AND BASE
		SIGN AND POST
		SIGN AND POST (2 POSTS)
		OVERHEAD SIGN
		OPTICAL PRE-EMPTION DETECTOR
		CONTROL CABINET, GROUND MOUNTED
		PULL BOX 12"x12" (OR AS NOTED)
		ELECTRIC HANDHOLE - SD2.022 (OR AS NOTED)
		TRAFFIC SIGNAL CONDUIT

PAVEMENT MARKINGS SYMBOLS

EXISTING	PROPOSED	DESCRIPTION
		PAVEMENT ARROW - WHITE
ONLY	ONLY	LEGEND "ONLY" - WHITE
	SL	STOP LINE
	CW	CROSSWALK
	SWEL	SOLID WHITE EDGE LINE
	SWLL	SOLID WHITE LANE LINE
	SYEL	SOLID YELLOW EDGE LINE
	BWL	BROKEN WHITE LINE, 10' LINE W/30' SPACING
	BYL	BROKEN YELLOW LINE, 10' LINE W/30' SPACING
	DWL	DOTTED WHITE LINE, 2' LINE W/6' SPACING
	DYL	DOTTED YELLOW LINE, 2' LINE W/6' SPACING
	LDWLEx	LONG DASHED WHITE LINE EXTENSION, 3' LINE W/9' SPACING
	DBYL	DOUBLE YELLOW CENTER LINE
	SWCHL	SOLID WHITE CHANNELIZATION LINE
	SYCHL	SOLID YELLOW CHANNELIZATION LINE

ABBREVIATIONS

GENERAL

AADT	ANNUAL AVERAGE DAILY TRAFFIC
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
CB	CATCH BASIN
CBCI	CATCH BASIN WITH CURB INLET
CC	CURVE CENTER
CCM	CEMENT CONCRETE MASONRY
CEM	CEMENT
CI	CURB INLET
CIP	CAST IRON PIPE
CLF	CHAIN LINK FENCE
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CSP	CORRUGATED STEEL PIPE
CO.	COUNTY
CONC	CONCRETE
CONT	CONTINUOUS
CONST	CONSTRUCTION
CR GR	CROWN GRADE
CS	CURB STOP
DHV	DESIGN HOURLY VOLUME
DI	DROP INLET
DIA	DIAMETER
DIP	DUCTILE IRON PIPE
DW	STEADY DON'T WALK - PORTLAND ORANGE
DWY	DRIVEWAY
ELEV (or EL.)	ELEVATION
EMB	EMBANKMENT
EOP	EDGE OF PAVEMENT
EXIST (or EX)	EXISTING
EXC	EXCAVATION
F&C	FRAME AND COVER
F&G	FRAME AND GRATE
FDN.	FOUNDATION
FFE	FINISHED FLOOR ELEVATION
FLDSTN	FIELDSTONE
GAR	GARAGE
GD	GROUND
GG	GAS GATE
GI	GUTTER INLET
GIP	GALVANIZED IRON PIPE
GRAN	GRANITE
GRAV	GRAVEL
GRD	GUARD
GSO	GAS SHUT OFF
HDW	HEADWALL
HMA	HOT MIX ASPHALT
HOR	HORIZONTAL
HYD	HYDRANT
INV	INVERT
JCT	JUNCTION
L	LENGTH OF CURVE
LB	LEACH BASIN
LP	LIGHT POLE
LT	LEFT
MAX	MAXIMUM
MB	MAILBOX
MH	MANHOLE
MHB	MASSACHUSETTS HIGHWAY BOUND
MIN	MINIMUM
NIC	NOT IN CONTRACT
NO.	NUMBER
P&R	POST AND RAIL
PA	PLANTED AREA
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVATURE
P.G.L.	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PTH	PLANIMETER TO HERE
POC	POINT ON CURVE
POT	POINT ON TANGENT
PRC	POINT OF REVERSE CURVATURE
PROJ	PROJECT
PROP	PROPOSED
PSB	PLANTABLE SOIL BORROW

ABBREVIATIONS (cont.)

GENERAL

PT	POINT OF TANGENCY
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PVMT	PAVEMENT
PWW	PAVED WATERWAY
R	RADIUS OF CURVATURE
R&D	REMOVE AND DISPOSE
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
RDWY	ROADWAY
REM	REMOVE
RET	RETAIN
RET WALL	RETAINING WALL
ROW	RIGHT OF WAY
RR	RAILROAD
R&R	REMOVE AND RESET
R&S	REMOVE AND STACK
RT	RIGHT
SB	STONE BOUND
SHLD	SHOULDER
SLA	SITE LIGHT TYPE "A"
SLB	SITE LIGHT TYPE "B"
SMH	SEWER MANHOLE
ST	STREET
STA	STATION
SSD	STOPPING SIGHT DISTANCE
SHLO	STATE HIGHWAY LAYOUT LINE
SW	SIDEWALK
T	TANGENT DISTANCE OF CURVE/TRUCK %
TAN	TANGENT
TEMP	TEMPORARY
TC	TOP OF CURB
TOS	TOP OF SLOPE
TYP	TYPICAL
UP	UTILITY POLE
VAR	VARIES
VERT	VERTICAL
VC	VERTICAL CURVE
WCR	WHEEL CHAIR RAMP
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER/WATER MAIN
WSO	WATER SHUT OFF
X-SECT	CROSS SECTION

TRAFFIC SIGNAL

CAB.	CABINET
CCVE	CLOSED CIRCUIT VIDEO EQUIPMENT
DW	STEADY DON'T WALK
FDW	FLASHING DON'T WALK
FR	FLASHING CIRCULAR RED
FR	FLASHING RED LEFT ARROW
FR	FLASHING RED RIGHT ARROW
FY	FLASHING CIRCULAR YELLOW
FY	FLASHING YELLOW LEFT ARROW
FY	FLASHING YELLOW RIGHT ARROW
G	STEADY CIRCULAR GREEN
G	STEADY GREEN LEFT ARROW
G	STEADY GREEN RIGHT ARROW
GSL	STEADY GREEN SLASH LEFT ARROW
GSR	STEADY GREEN SLASH RIGHT ARROW
G	STEADY GREEN VERTICAL ARROW
OL	OVERLAP
PED	PEDESTRIAN
PTZ	PAN, TILT, ZOOM
R	STEADY CIRCULAR RED
R	STEADY RED LEFT ARROW
R	STEADY RED RIGHT ARROW
TR SIG	TRAFFIC SIGNAL
TSC	TRAFFIC SIGNAL CONDUIT
W	STEADY WALK
Y	STEADY CIRCULAR YELLOW
Y	STEADY YELLOW LEFT ARROW
Y	STEADY YELLOW RIGHT ARROW

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	2	84
	PROJECT FILE NO. 606207		

LEGEND & ABBREVIATIONS

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SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	3	84
PROJECT FILE NO.	606207		

GENERAL NOTES

1. TOPOGRAPHICAL INFORMATION FROM A SURVEY PROVIDED BY HANNIGAN ENGINEERING, INC., OF LEOMINSTER, MASSACHUSETTS PERFORMED IN 2005 AND SUPPLEMENTAL SURVEY PERFORMED IN JULY 2013 AND NOVEMBER 2015. THE HORIZONTAL COORDINATE SYSTEM IS ON THE MASS GRID SYSTEM NAD83 AND THE VERTICAL COORDINATE SYSTEM IS NAVD 1988.

2. 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.

3. 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.

4. 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.

5. THE CONTRACTOR SHALL MAKE ALL ARRANGEMENTS FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, CATV AND ANY OTHER PRIVATE UTILITIES BY THE UTILITY COMPANIES.

6. THE CONTRACTOR SHALL COORDINATE WITH THE TOWN OF SPENCER FORESTRY SUPERVISOR PRIOR TO REMOVAL OF ANY TREES AS SHOWN ON THE PLANS AND WITHIN THE LIMITS OF WORK.

7. 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.

8. 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).

9. SAWCUT SURFACES ABUTTING THE PAVEMENT TOP COURSE SHALL BE COATED WITH HOT-POURED RUBBERIZED ASPHALT SEALANT.

10. EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE REMOVED AND STACKED UNLESS INDICATED OTHERWISE ON THE PLANS.

11. LATERAL DRAIN PIPES SHALL BE INSTALLED WITH A PITCH OF 0.01 FOOT PER FOOT (MINIMUM) UNLESS NOTED OTHERWISE ON THE DRAWINGS.

12. ALL EXISTING GRANITE CURB & EDGING SHALL BE REMOVED AND STACKED AT THE TOWN HIGHWAY DEPARTMENT UNLESS NOTED OTHERWISE. ALL PROPOSED CURB SHALL BE GRANITE CURB TYPE VA4 UNLESS NOTED OTHERWISE.

13. EXISTING PAVEMENTS TO REMAIN SHALL BE SAWCUT AT ALL OPENINGS FOR UTILITY WORK, FOR NEW OR RESET CURB, AT LIMITS OF PAVEMENT MICRO-MILLING AND FULL DEPTH PAVEMENT, SIDEWALK AND DRIVEWAY CONSTRUCTION, AS SHOWN ON THE PLANS AND AS DIRECTED BY THE ENGINEER. PAYMENT FOR THIS WORK SHALL BE INCIDENTAL TO THE VARIOUS BID ITEMS, EXCEPT FOR SAWCUTS AT THE BOX WIDENING, WHICH WILL BE PAID FOR UNDER ITEM 482.5.

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SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	4	84
PROJECT FILE NO.	606207		

KEY PLAN & BORING LOCATIONS

606207_HDI(KEY).DWG Plotted on 25-Aug-2016 8:10 AM

LEGEND

- # — CONSTRUCTION PLANS
- # — TRAFFIC SIGN & PAVEMENT MARKINGS
- # — TRAFFIC SIGNAL PLANS
- # — ALIGNMENT & GRADING PLANS
- # — UTILITY PLANS

N

PLEASANT STREET

LIMIT OF WORK
STA 10+00.00
N:2914711.0085
E:522134.7224

HIGH STREET

MAIN STREET

ELM STREET

WALL STREET

MECHANIC STREET

MAPLE STREET

MUNICIPAL DRIVE

SUGDEN BLOCK

WHITCO

TOWN HALL

LIMIT OF WORK
STA 100+50.00
N:2914187.3403
E:521827.5870

LIMIT OF WORK
STA 113+23.00
N:2914512.8631
E:523004.3622

B1 B2 B3 B4 B5 B6

0 50 100 150 200
SCALE: 1" = 50'

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	5	84
PROJECT FILE NO.	606207		

BORING LOGS

606207_HDI(BOR).DWG Plotted on 25-Aug-2016 8:10 AM

LGCI Lahlaf Geotechnical Consulting, Inc.

BORING LOG — Boring B-1 Page 1 of 1

Project: **Proposed Mast Arms and Retaining Wall, Spencer, MA**
Client: **Vanasse Hangen Brustlin, Inc.** LGCI Project No.: 1617

Drilling Subcontractor:	Northern Drill Service, Inc.	Date Started:	5/25/2016
Drilling Foreman:	Carl Beirholm	Date Completed:	5/25/2016
LGCI Engineer:	Frank Romano	Location:	NW corner of Main/Pleasant
Ground Surface El:	N/A	Total Depth:	19 feet
Groundwater Depth:	~7' at end of drilling	Drill Rig Type:	Mobile Drill B-57 Truck
		Drilling Method:	4" casing to 14'
Hammer Weight:	140 lbs	Split Spoon Diameter:	ID - 1.375", OD - 2"
Hammer Type:	Automatic	Rock Core Barrel Size:	NX
Drop:	30 inches		

Depth	Sample	Sample	Blows per 6 inches				Pen	Rec	Remarks	Strata	Sample Description
Scale	Depth (ft)	No	0-6	6-12	12-18	18-24	(in)	(in)			
	0-2	S1	2	4	3	4	24	20		Topsoil	S1 - Top 7": Topsoil
										Fill	Bot. 13": Silty SAND with Gravel (SM), fine to medium, 15-20% fines, 15-20% subrounded gravel, rust spots, brown, moist
	2-4	S2	3	2	2	2	24	16		~4.5'	S2 - Top 8": Silty SAND (SM), fine to medium, 15-20% fines, rust spots and layers, brown, moist
5ft	4-6	S3	1	4	13	15	24	16			S3 - Top 3": Silty SAND (SM), fine to medium, 20-25% organic fines, <5% fine subrounded gravel, black to brown, moist
											Bot. 13": Silty SAND with Gravel (SM), fine to medium, trace coarse, 20-25% fines, ~15% fine subrounded to angular gravel, rust spots and layers, brown, moist
										SAND	
10ft	9-11	S4	7	14	9	12	21	12			S4 - Silty SAND with Gravel (SM), fine to medium, trace coarse, 20-25% fines, ~15% fine subrounded to angular gravel, rust spots and layers, brown, moist
									1	~12'	
	14-19	C1					60	58		Bedrock	C1 - 3, 2, 3, 2, 3 min./ft. Hard, slightly weathered, slightly to moderately fractured, fine grained, bluish gray GRANITE, REC. = 98%, RQD = 64%
15ft											
										~19'	
20ft									2		End of boring at 19 feet. Backfilled borehole with drill cuttings.

Remarks:
1. Encountered rock at 12', roller bit to 14' and set core.
2. 1 bag of sand was added to fill the borehole.

BORING LOG — Boring B-2 Page 1 of 1

Project: **Proposed Mast Arms and Retaining Wall, Spencer, MA**
Client: **Vanasse Hangen Brustlin, Inc.** LGCI Project No.: 1617

Drilling Subcontractor:	Northern Drill Service, Inc.	Date Started:	5/25/2016
Drilling Foreman:	Carl Beirholm	Date Completed:	5/25/2016
LGCI Engineer:	Frank Romano	Location:	NE corner of Main/Pleasant
Ground Surface El:	N/A	Total Depth:	19 feet
Groundwater Depth:	14.5' at end of drilling	Drill Rig Type:	Mobile Drill B-57 Truck
		Drilling Method:	4" casing to 12'
Hammer Weight:	140 lbs	Split Spoon Diameter:	ID - 1.375", OD - 2"
Hammer Type:	Automatic	Rock Core Barrel Size:	NX
Drop:	30 inches		

Depth	Sample	Sample	Blows per 6 inches				Pen	Rec	Remarks	Strata	Sample Description
Scale	Depth (ft)	No	0-6	6-12	12-18	18-24	(in)	(in)			
	0-2	S1	2	4	2	3	24	14		Topsoil/ Subsoil	S1 - Top 7": Topsoil
										~2'	Bot. 7": Silty SAND (SM), fine to medium, 15-20% fines, ~5% subrounded to angular gravel, trace roots, orange to brown, moist (subsoil)
	2-4	S2	5	7	8	8	24	6		Sand	S2 - Well Graded GRAVEL with Silt and Sand (GW-GM), fine to coarse, subrounded and angular, 15-20% fines, 25-30% fine to medium sand, brown, moist
5ft	4-6	S3	8	7	5	4	24	16			S3 - Silty SAND with Gravel (SM), fine to medium, trace coarse, 30-35% fines, 5-10% fine subrounded to angular gravel, brown, rusting spots, moist
10ft	9-11	S4	11	9	12	32	24	14		Weather-ed Rock	S4 - Silty SAND with Gravel (SM), fine to medium, trace coarse, 25-30% fines, ~15% fine to coarse subrounded to angular gravel, brown, rust spots, moist (weathered rock)
											Advanced roller bit to 16' then started coring.
15ft	14-19	C1					60	60		Bedrock	C1 - 5, 3, 3, 4, 6 min./ft. Hard, slightly weathered, moderately fractured, fine grained, grayish blue GRANITE, REC. = 100%, RQD = 54%
										~19'	
20ft											End of boring at 19 feet. Backfilled borehole with drill cuttings.

Remarks:

BORING LOG — Boring B-3 Page 1 of 1

Project: **Proposed Mast Arms and Retaining Wall, Spencer, MA**
Client: **Vanasse Hangen Brustlin, Inc.** LGCI Project No.: 1617

Drilling Subcontractor:	Northern Drill Service, Inc.	Date Started:	5/27/2016
Drilling Foreman:	Carl Beirholm	Date Completed:	5/27/2016
LGCI Engineer:	Andrew Jefferson	Location:	SE corner of Main/Pleasant
Ground Surface El:	N/A	Total Depth:	17 feet
Groundwater Depth:	~4' based on sample moisture ~5' at end of drilling	Drill Rig Type: Drilling Method:	Mobile Drill B-57 Truck 4" casing to 12'
Hammer Weight:	140 lbs	Split Spoon Diameter:	ID - 1.375", OD - 2"
Hammer Type:	Automatic	Rock Core Barrel Size:	NX
Drop:	30 inches		

Depth	Sample	Sample	Blows per 6 inches				Pen	Rec	Remarks	Strata	Sample Description
Scale	Depth (ft)	No	0-6	6-12	12-18	18-24	(in)	(in)			
	0.5-2	S1	17	6	7		18	7		Asphalt	Drilled through 4" of asphalt
										Fill	S1 - Top 4": Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 10-15% fines, 15-20% fine angular gravel, crushed asphalt, gray, wet (fill)
	2-4	S2	6	16	7	5	24	3		~9'	Bot. 3": Well Graded SAND with Silt and Gravel (SW-SM), fine to coarse, 5-10% fines, ~15% fine angular gravel, light brown, wet (fill)
5ft	4-6	S3	4	5	12	14	24	9			S2 - Poorly Graded GRAVEL with Silt (GP-GM), fine, angular, 5-10% fines, 10-15% fine to medium sand, light brown, wet (fill)
	6-8	S4	2	4	2	2	24	6		SAND	S3 - Silty SAND (SM), fine to medium, trace coarse, 40% fines, 10-15% fine angular gravel, moderately plastic, brown, wet (natural)
											S4 - Similar to S3 (natural)
10ft	9-9.75	S5	10	50/3			9	3		~9'	S5 - Silty SAND with Gravel (SM), fine to coarse, 20-25% fines, 25-30% fine angular gravel, brown, wet (weathered rock)
											Advanced roller bit to 12' then started coring.
	12-17	C1					60	60		Bedrock	C1 - 4, 3, 3, 3, 5 min./ft. Hard, slightly weathered, moderately to extremely fractured, fine grained, grayish blue GRANITE, REC. = 100%, RQG = 59%
15ft											
										~17.0'	
20ft											End of boring at 17 feet. Backfilled borehole with drill cuttings.

Remarks:

BORING LOG — Boring B-4 Page 1 of 1

Project: **Proposed Mast Arms and Retaining Wall, Spencer, MA**
Client: **Vanasse Hangen Brustlin, Inc.** LGCI Project No.: 1617

Drilling Subcontractor:	Northern Drill Service, Inc.	Date Started:	5/26/2016
Drilling Foreman:	Carl Beirholm	Date Completed:	5/26/2016
LGCI Engineer:	Frank Romano	Location:	NE corner of Main/Municipal
Ground Surface El:	N/A	Total Depth:	21.5 feet
Groundwater Depth:	~5.5' at end of drilling based on samples water N/E	Drill Rig Type: Drilling Method:	Mobile Drill B-57 Truck 4" casing to 8' then open hole
Hammer Weight:	140 lbs	Split Spoon Diameter:	ID - 1.375", OD - 2"
Hammer Type:	Automatic	Rock Core Barrel Size:	NX
Drop:	30 inches		

Depth	Sample	Sample	Blows per 6 inches				Pen	Rec	Remarks	Strata	Sample Description
Scale	Depth (ft)	No	0-6	6-12	12-18	18-24	(in)	(in)			
	0-2.5	S1	3	2	1	2	24	10	1	Sidewalk	Drilled through 4" of sidewalk
										Fill	S1 - Poorly Graded SAND (SP), fine to medium, trace coarse, <5% fines, <5% fine subrounded gravel, light brown, moist
	2.5-4.5	S2	1	1	2	12	24	11		~4.5'	S2 - Poorly Graded SAND (SP), fine to medium, trace coarse, <5% fines, <5% fine subrounded gravel, light brown, moist
5ft	4.5-6.5	S3	2	10	22	24	24	14			S3 - Top 3": Poorly Graded SAND with Gravel (SP), fine to medium, trace coarse, <5% fines, 20-25% fine subrounded gravel, light brown, moist (fill)
											Bot. 11": Silty SAND (SM), fine to medium, trace coarse, 15% fines, <5% fine angular gravel, stratified layers, brown, moist
										Sand	
10ft	9-11	S4	11	17	27	22	24	11			S4 - Silty SAND with Gravel (SM), fine to medium, trace coarse, 15-20% fines, 15-20% fine to coarse subrounded to angular gravel, rust spotting and layers, light brown, moist
	14-16	S5	23	24	26	31	24	16			S5 - Silty SAND (SM), fine to medium, trace coarse, 15-20% fines, <5% fine angular gravel, rust spots and layering, light brown, moist
15ft										~19'	
										Bedrock	Advanced roller bit to 21.5'.
20ft										~21.5'	
											End of boring at 21.5 feet. Backfilled borehole with drill cuttings.

Remarks:
1. Roller bit through sidewalk.

BORING LOG — Boring B-5 Page 1 of 1

Project: **Proposed Mast Arms and Retaining Wall, Spencer, MA**
Client: **Vanasse Hangen Brustlin, Inc.** LGCI Project No.: 1617

Drilling Subcontractor:	Northern Drill Service, Inc.	Date Started:	5/26/2016
Drilling Foreman:	Carl Beirholm	Date Completed:	5/26/2016
LGCI Engineer:	Frank Romano	Location:	NW corner of Main/Municipal
Ground Surface El:	N/A	Total Depth:	15.5 feet
Groundwater Depth:	13.5' at end of drilling	Drill Rig Type: Drilling Method:	Mobile Drill B-57 Truck 4" casing
Hammer Weight:	140 lbs	Split Spoon Diameter:	ID - 1.375", OD - 2"
Hammer Type:	Automatic	Rock Core Barrel Size:	NX
Drop:	30 inches		

Depth	Sample	Sample	Blows per 6 inches				Pen	Rec	Remarks	Strata	Sample Description
Scale	Depth (ft)	No	0-6	6-12	12-18	18-24	(in)	(in)			
	0.5-2.5	S1	6	9	7	17	24	12		Asphalt	Drilled through 4" of asphalt
										Fill	S1 - Top 8": Poorly Graded SAND with Silt (SP-SM), fine to medium, 5-10% fines, <5% fine gravel, light brown, moist
	2.5-4.5	S2	12	17	47	63	24	16		~2.5'	Bot. 4": Silty SAND with Gravel (SM), fine to medium, trace coarse, 15-20% fines, trace of asphalt, ~15% angular gravel, brown to black, moist
5ft	4.5-6.5	S3	3	5	16	58	24	5		SAND	S2 - Well Graded GRAVEL with Silt and Sand (GW-GM), fine to coarse, subrounded to angular, 15-20% fines, 30-35% fine to medium sand, brown to gray, moist
										~8'	S3 - Well Graded SAND with Gravel (SW), fine to coarse, ~5% fines, ~15% fine subrounded to angular gravel, brown, wet
10ft	10.5- 15.5	C1					60	60		Bedrock	C1 - 2, 2, 2, 3, 3 min./ft. Hard, slightly weathered, extremely fractured, fine grained, grayish blue GRANITE, REC. = 100%, RQD = 18%
										~15.5'	
15ft											End of boring at 15.5 feet. Backfilled borehole with drill cuttings.
20ft											

Remarks:

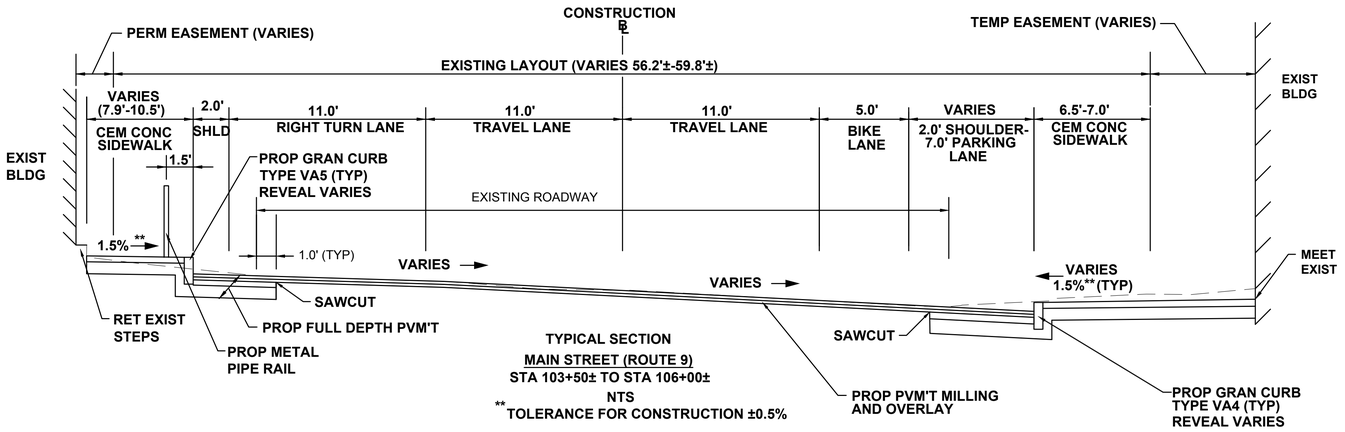
BORING LOG — Boring B-6 Page 1 of 1

Project: **Proposed Mast Arms and Retaining Wall, Spencer, MA**
Client: **Vanasse Hangen Brustlin, Inc.** LGCI Project No.: 1617

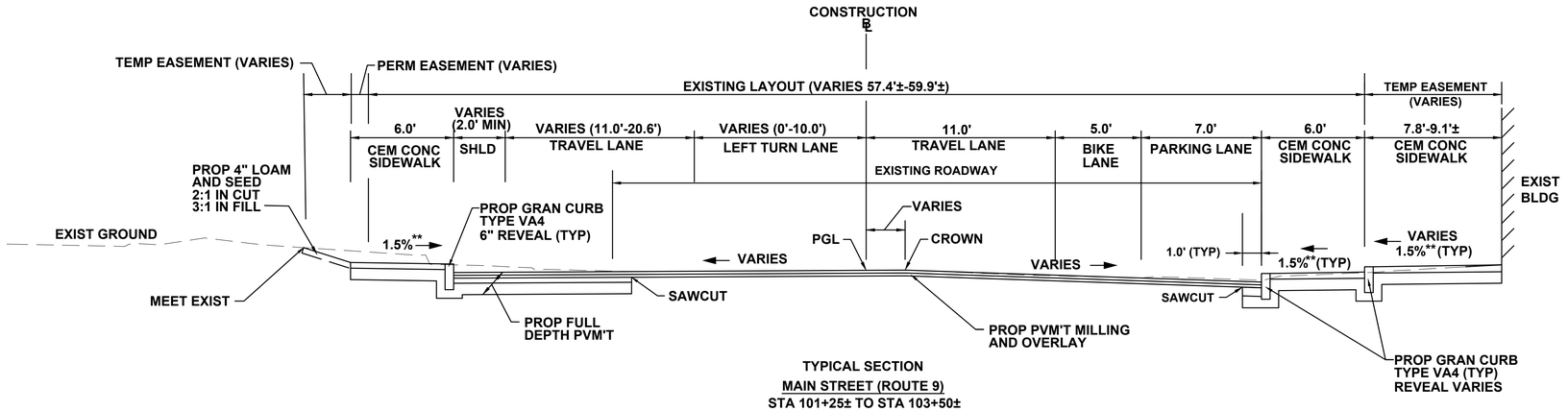
Drilling Subcontractor:	Northern Drill Service, Inc.	Date Started:	5/27/2016
Drilling Foreman:	Carl Beirholm	Date Completed:	5/27/2016
LGCI Engineer:	Andrew Jefferson	Location:	Northern side of proposed retaining wall
Ground Surface El:	N/A	Total Depth:	14 feet
Groundwater Depth:	3.5' at end of drilling	Drill Rig Type: Drilling Method:	Mobile Drill B-57 Truck 4" casing
Hammer Weight:	140 lbs	Split Spoon Diameter:	ID - 1.375", OD - 2"
Hammer Type:	Automatic	Rock Core Barrel Size:	NX
Drop:	30 inches		

Depth	Sample	Sample	Blows per 6 inches				Pen	Rec	Remarks	Strata	Sample Description
Scale	Depth (ft)	No	0-6	6-12	12-18	18-24	(in)	(in)			
	0.5-2	S1	8	6	5		18	11		Asphalt	Drilled through 3" of asphalt
										Fill	S1 - Well Graded SAND with Silt and Gravel (SW-SM), fine to medium, trace coarse, 5-10% fines, 15-20% fine subrounded gravel, light brown, moist (fill)
	2-4	S2	6	8	7	6	24	14		~4'	S2 - Top 4": Similar to S1, 5-10% fines
5ft	4-6	S3	47	15	16	18	24	8		Wthrd Rock	Bot. 10": Buried asphalt, Silty SAND with Gravel (SM), fine to coarse, 15-20% fines, 15-20% fine angular gravel, gray, brown, moist (fill)
										~6'	S3 - Silty SAND with Gravel (SM), fine to coarse, ~20% fines, 15-20% fine angular gravel, light brown, moist (weathered rock)
	6-8	S4	22	20	30	36	24	20			S4 - Similar to S3
10ft	9-14	C1					60	56			Advanced roller bit to 9' then started coring.
										Bedrock	C1 - 3, 2.5, 2, 2, 2 min./ft. Hard, slightly weathered, moderately to extremely fractured, fine grained, bluish gray GRANITE, REC. = 98%, RQD = 60%
										~14'	
15ft											End of boring at 14 feet. Backfilled borehole with drill cuttings.
20ft											

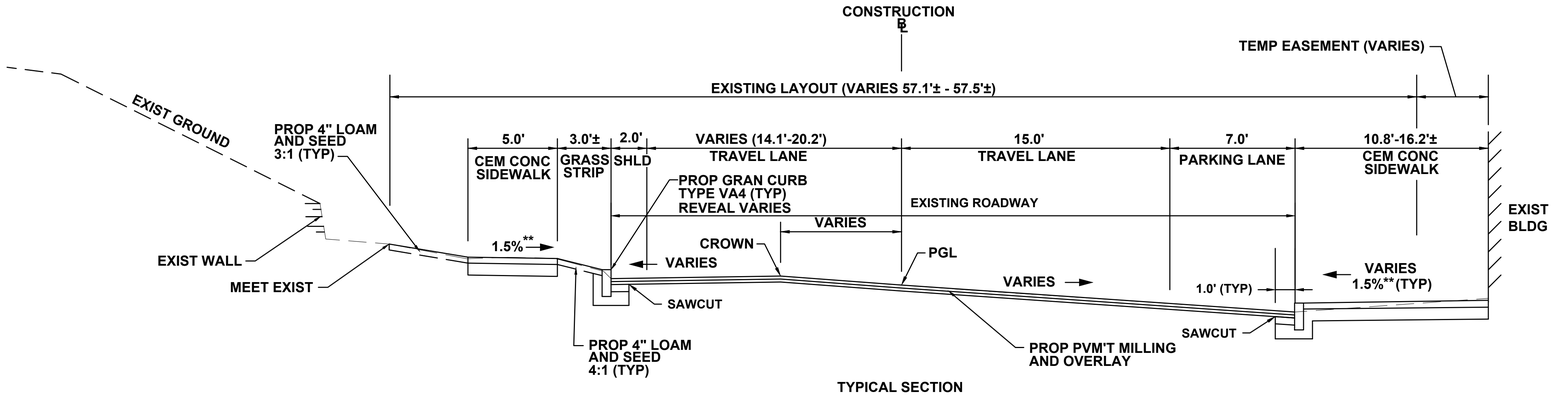
Remarks:



TYPICAL SECTION
MAIN STREET (ROUTE 9)
STA 103+50± TO STA 106+00±
NTS
** TOLERANCE FOR CONSTRUCTION ±0.5%



TYPICAL SECTION
MAIN STREET (ROUTE 9)
STA 101+25± TO STA 103+50±
NTS
** TOLERANCE FOR CONSTRUCTION ±0.5%



TYPICAL SECTION
MAIN STREET (ROUTE 9)
STA 100+50± TO STA 101+25±
NTS
** TOLERANCE FOR CONSTRUCTION ±0.5%

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	6	84
PROJECT FILE NO.	606207		

TYPICAL SECTIONS
& PAVEMENT NOTES

PAVEMENT NOTES

PROPOSED FULL DEPTH PAVEMENT

SURFACE: 1.75" SUPERPAVE SURFACE COURSE - 12.5 (SSC-12.5)
OVER 2.25" SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC 19.0)

BASE: 4" HOT MIX ASPHALT
SUPERPAVE BASE COURSE -37.5 (SBC-37.5)

SUBBASE: 4" DENSE GRADED CRUSHED STONE FOR SUB-BASE OVER
8" GRAVEL BORROW, TYPE b.

PROPOSED FULL DEPTH PAVEMENT - WIDENING (LESS THAN 4.00' WIDE)

SURFACE: 1.75" SUPERPAVE SURFACE COURSE - 12.5 (SSC-12.5)
OVER 2.25" SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC 19.0)

BASE: 6" HIGH EARLY STRENGTH CEMENT
CONCRETE BASE COURSE

SUBBASE: 8" GRAVEL BORROW, TYPE b.

PROPOSED PAVEMENT MILLING & OVERLAY (MAIN STREET/PLEASANT STREET)

SURFACE: 4" HOT MIX ASPHALT
(1.75" SUPERPAVE SURFACE COURSE - 12.5 (SSC-12.5)
OVER 2.25" SUPERPAVE INTERMEDIATE COURSE - 19.0 (SIC 19.0))

4" PAVEMENT MICROMILLING DEPTH

PROPOSED PAVEMENT MILLING & OVERLAY - SIDE STREETS

SURFACE: 1.75" HOT MIX ASPHALT
(1.75" SUPERPAVE SURFACE COURSE - 12.5 (SSC-12.5))

1.75" PAVEMENT MICROMILLING DEPTH

PROPOSED CEMENT CONCRETE WALK/ WHEELCHAIR RAMP

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

FOUNDATION: 8" GRAVEL BORROW, TYPE b

PROPOSED CEMENT CONCRETE DRIVEWAY

SURFACE: 6" CEMENT CONCRETE
AIR ENTRAINED 4000 PSI, 3/4", 610

FOUNDATION: 8" GRAVEL BORROW, TYPE b

PROPOSED HOT MIX ASPHALT DRIVEWAY

SURFACE: 1½" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5)
2" SUPERPAVE INTERMEDIATE COURSE - 12.5 (SIC-12.5)

FOUNDATION: 8" GRAVEL BORROW, TYPE b

PROPOSED HOT MIX ASPHALT SIDEWALK

SURFACE: 1" SUPERPAVE SURFACE COURSE - 9.5 (SSC-9.5) OVER
1½" SUPERPAVE INTERMEDIATE COURSE -12.5 (SIC-12.5)

FOUNDATION: 8" GRAVEL BORROW, TYPE b

BITUMEN FOR TACK COAT (RS-1) SHALL BE APPLIED AT 0.07 GAL/SY OVER MILLED SURFACES AND AT 0.05 GAL/SY OVER SMOOTH (UNMILLED) SURFACES

606207_HDI(TYP).DWG Plotted on 25-Aug-2016 8:10 AM

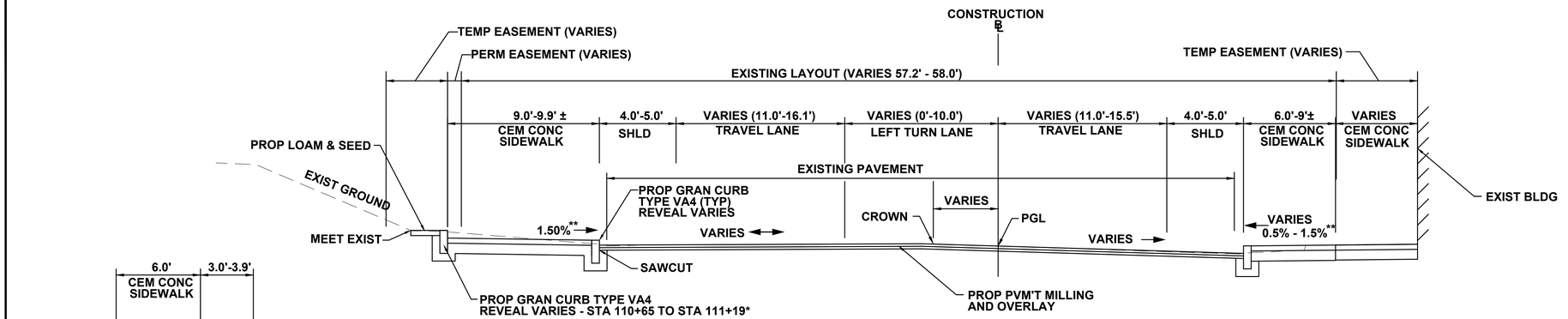
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	7	84
PROJECT FILE NO.	606207		

TYPICAL SECTIONS & PAVEMENT NOTES

FOR PAVEMENT NOTES SEE SHEET 6

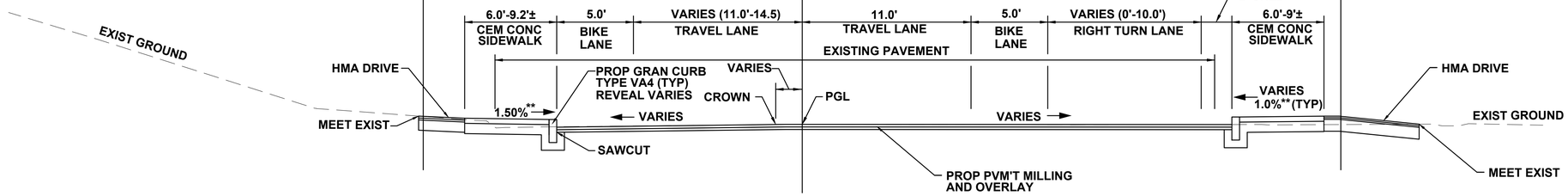
606207_HD(TYP).DWG Plotted on 25-Aug-2016 8:10 AM



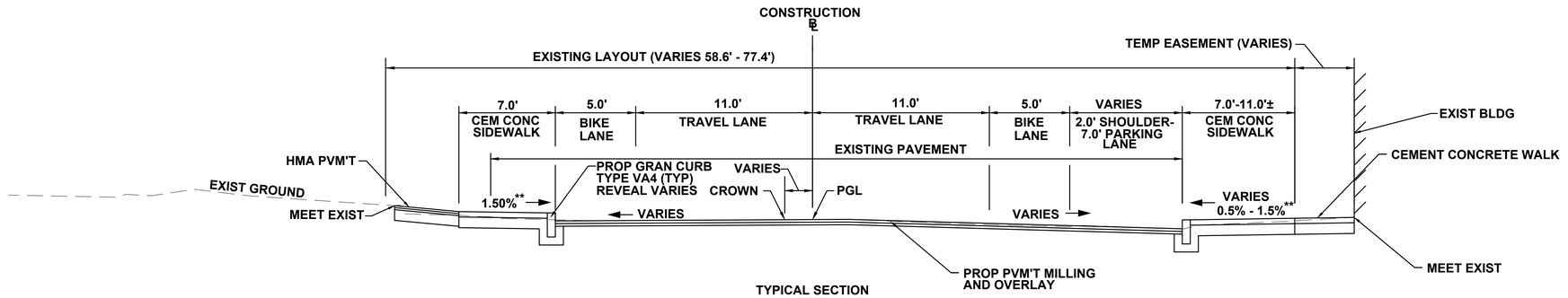
TYPICAL SECTION
MAIN STREET (ROUTE 9)
STA 110+50± TO STA 113+14±
NTS
****TOLERANCE FOR CONSTRUCTION ±0.5%**

TYPICAL SECTION
IN FRONT OF TOWN HALL
NTS

*** STA 111+19± TO STA 112+07± LT RETAIN EXISTING CURB AND STEPS AT BACK OF SIDEWALK**
****TOLERANCE FOR CONSTRUCTION ±0.5%**



TYPICAL SECTION
MAIN STREET (ROUTE 9)
STA 108+00± TO STA 110+50±
NTS
**** TOLERANCE FOR CONSTRUCTION ±0.5%**



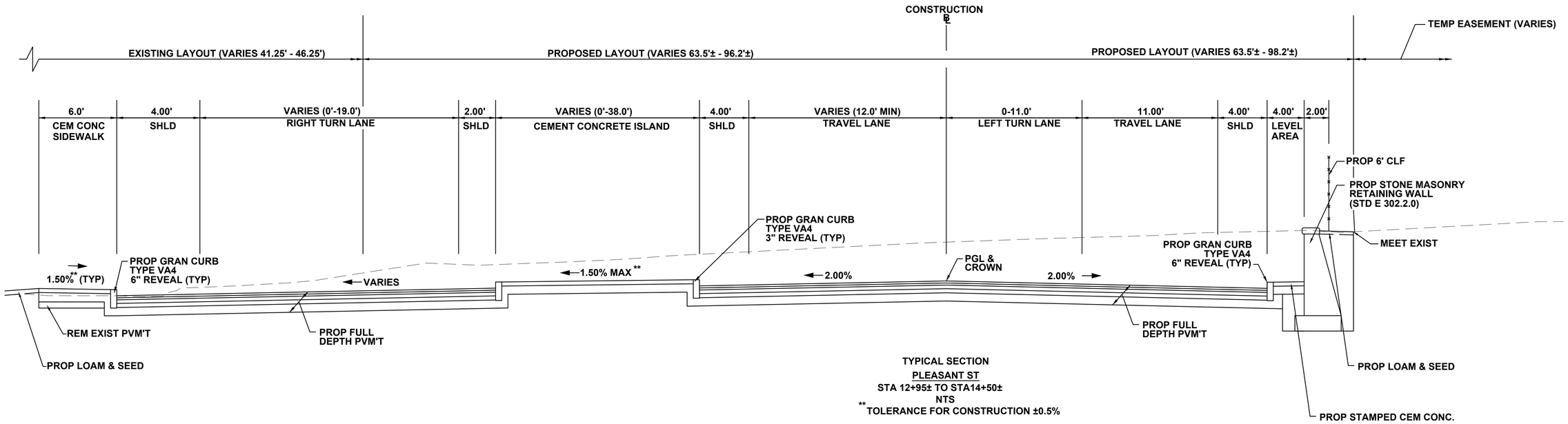
TYPICAL SECTION
MAIN STREET (ROUTE 9)
STA 106+00± TO STA 108+00±
NTS
**** TOLERANCE FOR CONSTRUCTION ±0.5%**

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	8	84
PROJECT FILE NO.	606207		

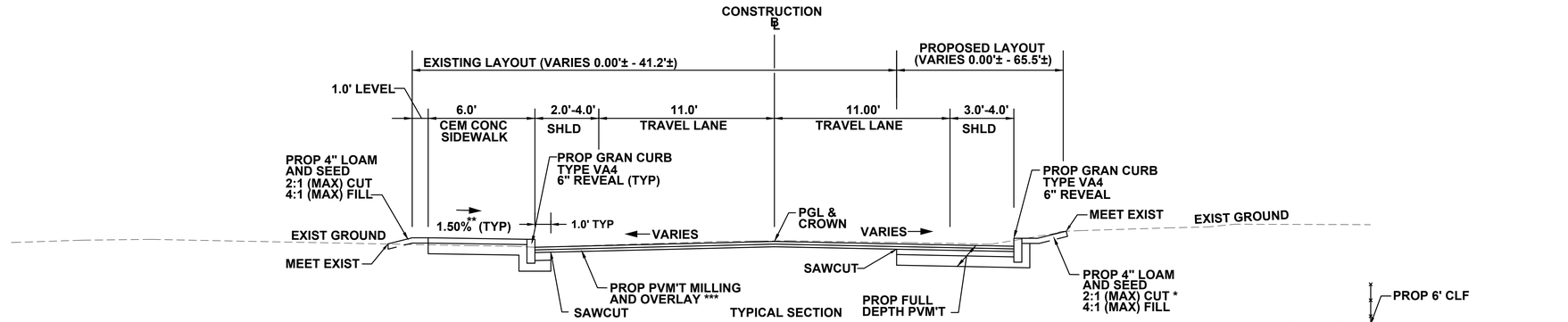
TYPICAL SECTIONS & PAVEMENT NOTES

FOR PAVEMENT NOTES SEE SHEET 6



TYPICAL SECTION
PLEASANT ST
STA 12+95± TO STA14+50±
NTS

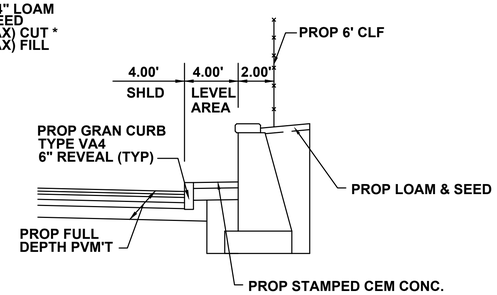
** TOLERANCE FOR CONSTRUCTION ±0.5%



TYPICAL SECTION
PLEASANT ST
STA 10+00± TO STA 12+95±
NTS

** TOLERANCE FOR CONSTRUCTION ±0.5%

*** STA 11+40 TO STA 12+95± PROP FULL DEPTH PVM'T



* STA 12+10 TO STA 12+95±
PROP STONE MASONRY RETAINING WALL
(STD E 302.2.0)

606207_HDI(TYP).DWG Plotted on 25-Aug-2016 8:10 AM

HIGHWAY GUARD DETAILS	TRAFFIC SIGNAL CONDUIT	WATER SUPPLY ALTERATIONS	DRAINAGE DETAILS	CROSS SECTIONS
NONE	SEE SHEET 25	SEE SHEET 39	SEE SHEET 39	SEE SHEET 58-66 SEE SHEET 79-84

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	9	84
	PROJECT FILE NO.	606207	

CONSTRUCTION PLANS

2 APRIL 13, 2017

MAIN STREET CONSTRUCTION BASELINE DATA


NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L6	100+00.00	2914174.477	521779.586		N74°47'44"E 359.16'	103+59.16	2914268.670	522126.171
C6	103+59.16	2914268.670	522126.171	R = 700.00' Δ= 8°28'01" L=103.44' T=51.82'		104+62.60	2914288.338	522227.630
C7	104+62.60	2914288.338	522227.630	R = 1000.00' Δ= 9°29'13" L=165.58' T=82.98'		106+28.18	2914294.093	522392.921

PLEASANT STREET CONSTRUCTION BASELINE DATA

NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L9	10+00.00	2914711.258	522134.972		S8°11'48"E 86.94'	10+86.94	2914625.208	522147.367
C9	10+86.94	2914625.208	522147.367	R = 410.00' Δ= 20°03'39" L=143.55' T=72.52'		12+30.49	2914482.460	522142.797
L10	12+30.49	2914482.460	522142.797		S11°51'51"W 106.51'	13+37.00	2914378.223	522120.899
C10	13+37.00	2914378.223	522120.899	R = 335.00' Δ= 19°17'23" L=112.78' T=56.93'		14+49.79	2914266.056	522116.552

CONSTRUCTION NOTES

1. PROPOSED GRANITE CURB SHALL BE TYPE VA4 UNLESS NOTED OTHERWISE.
2. UNDERGROUND STORAGE AREAS ARE LOCATED BETWEEN STATION 100+50± RT AND 101+11± RT AND BETWEEN STATION 102+13± RT AND 103+27± RT (SEE HATCHED AREA BELOW). CONTRACTOR TO EXERCISE CARE WORKING IN THESE AREAS AND COMPACTION SHALL BE OBTAINED BY MEANS OF HAND TAMPERS OR ROLLERS.



606207_HD(GEN).DWG Plotted on 13-Apr-2017 3:48 PM

HIGHWAY GUARD DETAILS

NONE

TRAFFIC SIGNAL CONDUIT

SEE SHEET 27

WATER SUPPLY ALTERATIONS

SEE SHEET 40

DRAINAGE DETAILS

SEE SHEET 40

CROSS SECTIONS

SEE SHEET 65-74

MAIN STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L6	100+00.00	2914174.477	521779.586		N74°47'44"E 359.16'	103+59.16	2914268.670	522126.171
C6	103+59.16	2914268.670	522126.171	R=700.00' Δ=8°28'01" L=103.44' T=51.82'		104+62.60	2914288.338	522227.630
C7	104+62.60	2914288.338	522227.630	R=1000.00' Δ=9°29'13" L=165.58' T=82.98'		106+28.18	2914294.093	522392.921
L7	106+28.18	2914294.093	522392.921		S87°15'02"E 238.26'	108+66.44	2914282.663	522630.906
C8	108+66.44	2914282.663	522630.906	R=315.00' Δ=48°19'00" L=265.64' T=141.29'		111+32.07	2914376.778	522870.950
L8	111+32.07	2914376.778	522870.950		N44°25'58"E 217.93'	113+50.00	2914532.393	523023.514

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	10	84
PROJECT FILE NO.	606207		

CONSTRUCTION PLANS

2 APRIL 13, 2017

CONSTRUCTION NOTES

1. PROPOSED GRANITE CURB SHALL BE TYPE VA4 UNLESS NOTED OTHERWISE.

N

0 20 50 100

SCALE: 1" = 20'

CONTINUED ON SHEET NO. 9

CONTINUED ON SHEET NO. 11

PROFILES SEE SHEETS 13, 14

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SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	11	84
PROJECT FILE NO.	606207		

CONSTRUCTION PLANS

2 APRIL 13, 2017

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HIGHWAY GUARD DETAILS
NONE

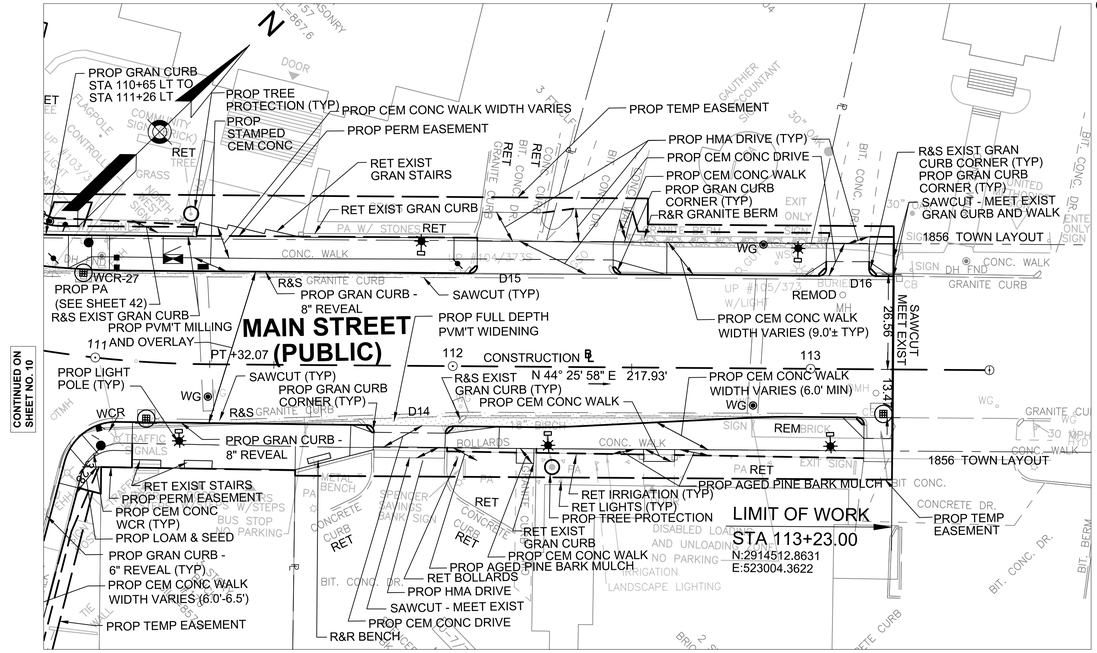
TRAFFIC SIGNAL CONDUIT
SEE SHEET 27

WATER SUPPLY ALTERATIONS
SEE SHEET 41

DRAINAGE DETAILS
SEE SHEET 41

CROSS SECTIONS
SEE SHEET 72-76

MAIN STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L6	100+00.00	2914174.477	521779.586		N74°47'44"E 359.16'	103+59.16	2914268.670	522126.171
C6	103+59.16	2914268.670	522126.171	R=700.00' Δ=8°28'01" L=103.44' T=51.82'		104+62.60	2914288.338	522227.630
C7	104+62.60	2914288.338	522227.630	R=1000.00' Δ=9°29'13" L=165.58' T=82.98'		106+28.18	2914294.093	522392.921
L7	106+28.18	2914294.093	522392.921		S87°15'02"E 238.26'	108+66.44	2914282.663	522630.906
C8	108+66.44	2914282.663	522630.906	R=315.00' Δ=48°19'00" L=265.64' T=141.29'		111+32.07	2914376.778	522870.950
L8	111+32.07	2914376.778	522870.950		N44°25'58"E 217.93'	113+50.00	2914532.393	523023.514



PROFILES SEE SHEETS 13, 14

HIGHWAY GUARD DETAILS
NONE

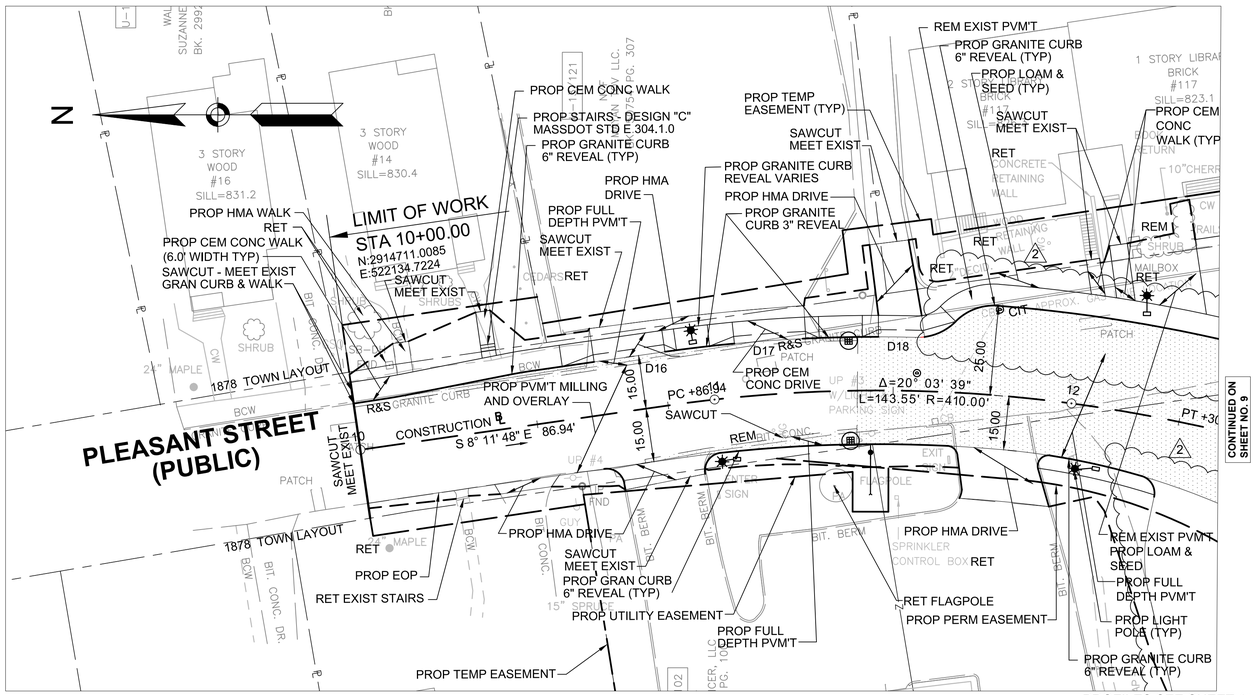
TRAFFIC SIGNAL CONDUIT
SEE SHEET 25

WATER SUPPLY ALTERATIONS
SEE SHEET 41

DRAINAGE DETAILS
SEE SHEET 41

CROSS SECTIONS
SEE SHEET 77-80

PLEASANT STREET CONSTRUCTION BASELINE DATA								
NUMBER	STARTING STATION	NORTHING	EASTING	CURVE DATA	LINE DATA	ENDING STATION	NORTHING	EASTING
L9	10+00.00	2914711.258	522134.972		S8°11'48"E 86.94'	10+86.94	2914625.208	522147.367
C9	10+86.94	2914625.208	522147.367	R=410.00' Δ=20°03'39" L=143.55' T=72.52'		12+30.49	2914482.460	522142.797
L10	12+30.49	2914482.460	522142.797		S11°51'51"W 106.51'	13+37.00	2914378.223	522120.899
C10	13+37.00	2914378.223	522120.899	R=335.00' Δ=19°17'23" L=112.78' T=56.93'		14+49.79	2914266.056	522116.552



0 20 50 100

SCALE: 1" = 20'

PROFILES SEE SHEET 15

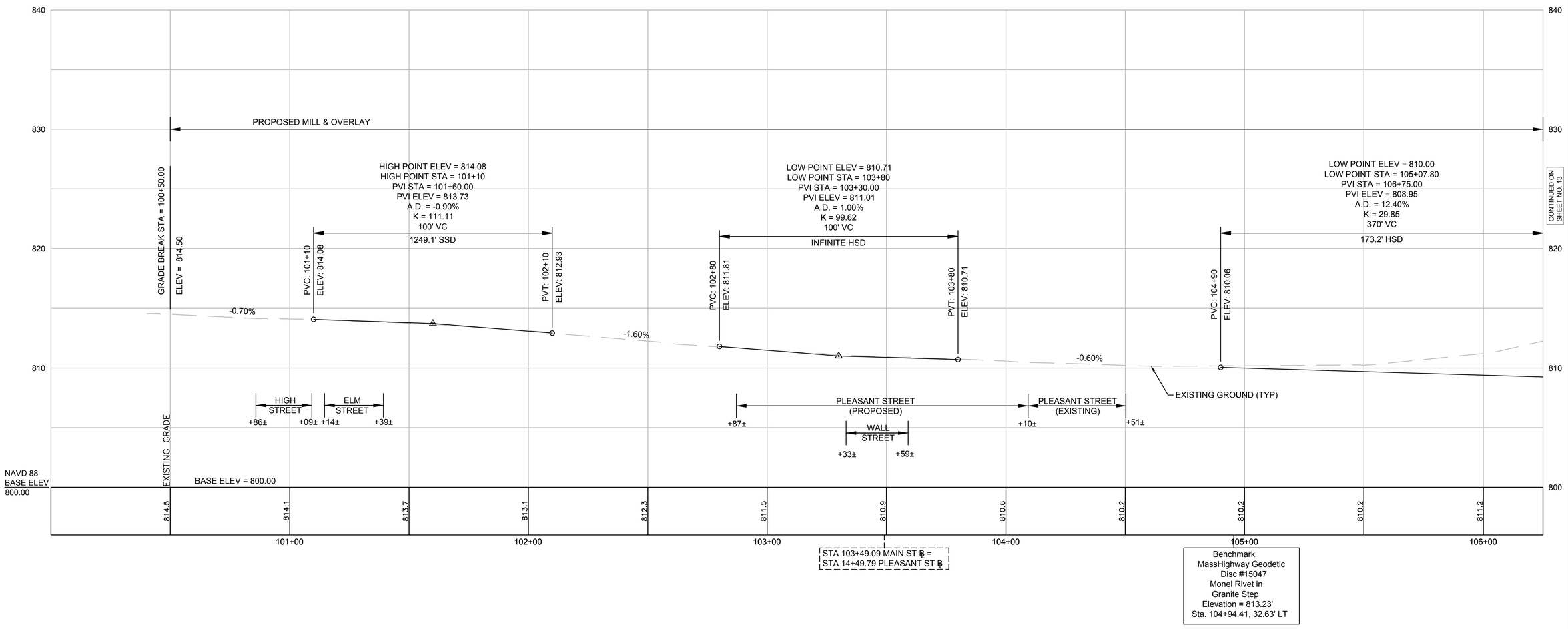
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	12	84
PROJECT FILE NO.	606207		

PROFILES
MAIN STREET

606207_HD\PROF-VIEW).DWG Plotted on 25-Aug-2016 8:11 AM

MAIN STREET



HOR. SCALE IN FEET
20 0 20 40
VER. SCALE IN FEET
4 0 4 8

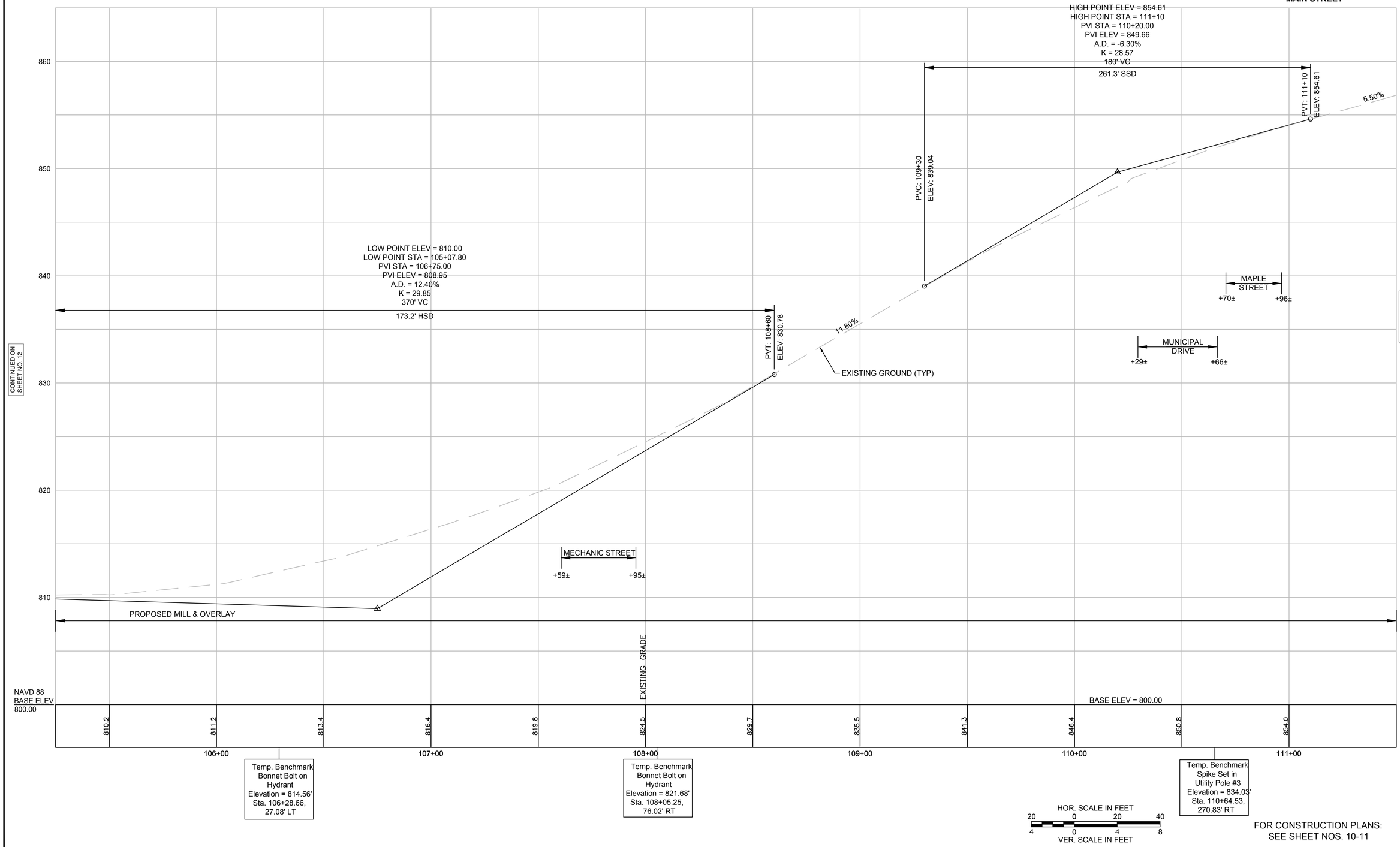
FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9-10

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	13	84
PROJECT FILE NO.	606207		

PROFILES
MAIN STREET

MAIN STREET



Temp. Benchmark
Bonnet Bolt on Hydrant
Elevation = 814.56'
Sta. 106+28.66,
27.08' LT

Temp. Benchmark
Bonnet Bolt on Hydrant
Elevation = 821.68'
Sta. 108+05.25,
76.02' RT

Temp. Benchmark
Spike Set in Utility Pole #3
Elevation = 834.03'
Sta. 110+64.53,
270.83' RT

HOR. SCALE IN FEET
20 0 20 40
VER. SCALE IN FEET
4 0 4 8

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 10-11

606207_HD(PROF-VIEW).DWG Plotted on 25-Aug-2016 8:12 AM

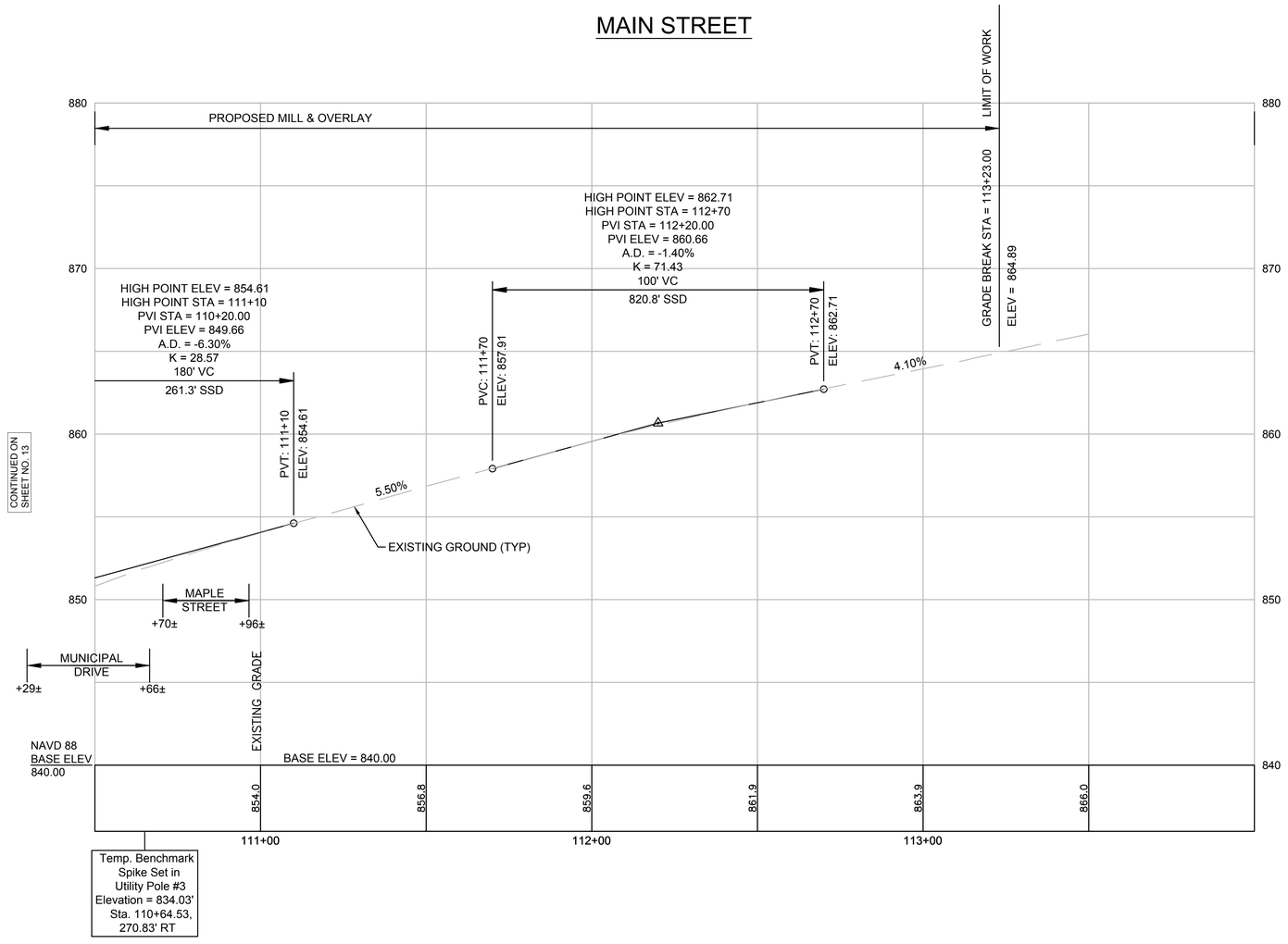
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	14	84
PROJECT FILE NO.	606207		

PROFILES
MAIN STREET

606207_HD(PROF-VIEW).DWG Plotted on 25-Aug-2016 8:12 AM

MAIN STREET



HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 10-11

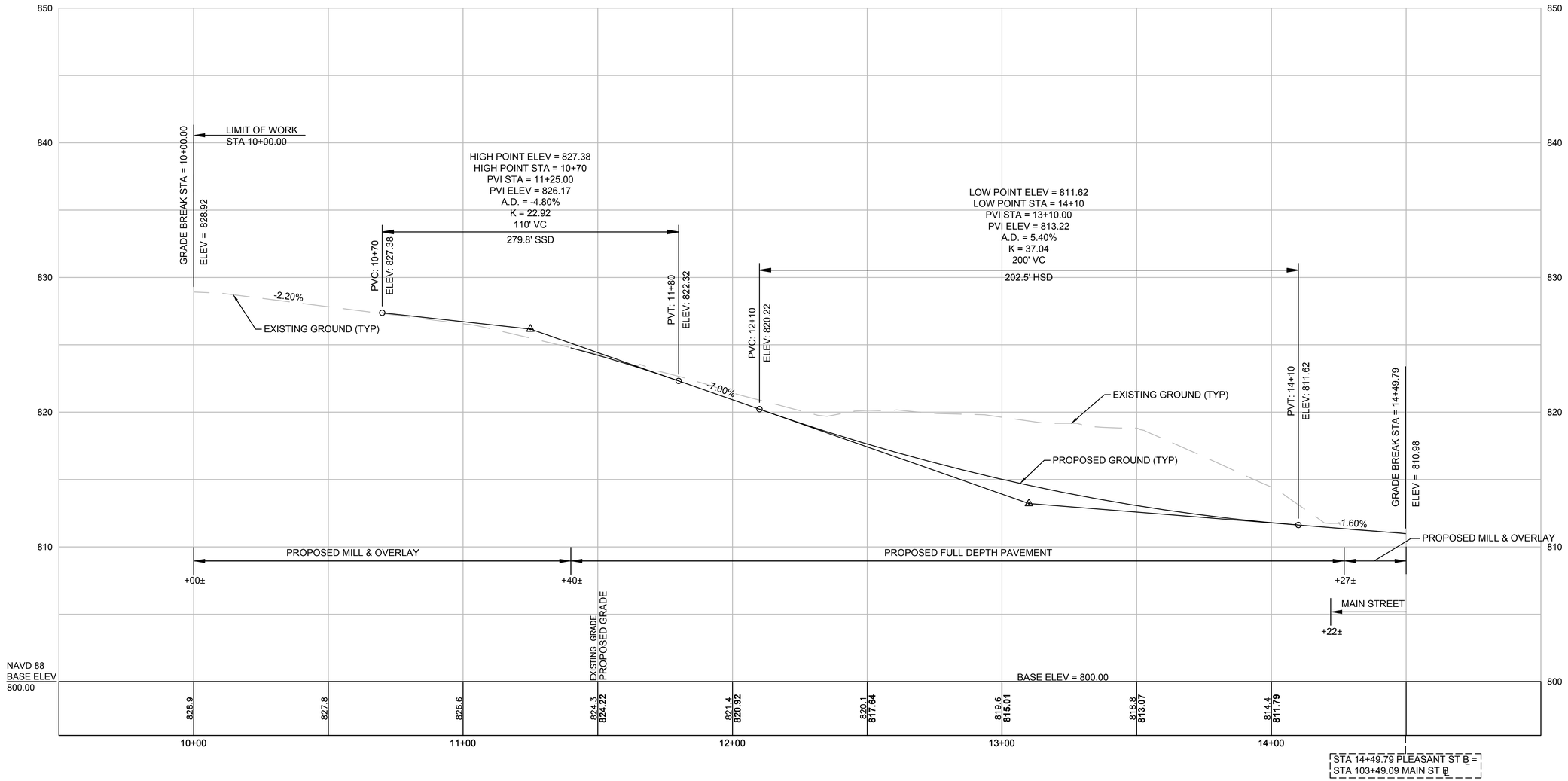
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	15	84
PROJECT FILE NO.	606207		

PROFILES
PLEASANT STREET

606207_HD(PROF-VIEW).DWG Plotted on 25-Aug-2016 8:12 AM

PLEASANT STREET



HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

FOR CONSTRUCTION PLANS:
SEE SHEET NOS. 9 & 11

Curve Table			
Curve #	Delta	Radius	Length
①	41°25'34"	10.00	7.23
②	41°23'35"	10.00	7.22
③	88°35'22"	10.00	15.46
④	92°33'16"	15.00	24.23
⑤	85°25'41"	20.00	29.82
⑥	93°00'38"	20.00	32.47
⑦	8°42'11"	500.00	75.95
⑧	90°19'40"	8.00	12.61
⑨	90°52'34"	15.00	23.79
⑩	63°21'44"	50.00	55.29
⑪	96°57'21"	4.00	6.77
⑫	3°19'35"	517.00	30.02
⑬	144°19'48"	4.00	10.08
⑭	25°54'23"	86.00	38.88
⑮	142°10'03"	4.00	9.93
⑯	5°46'45"	315.00	31.77
⑰	9°31'04"	361.00	59.97
⑱	12°36'45"	200.00	44.03
⑲	19°21'09"	200.00	67.55
⑳	114°57'47"	3.00	6.02

Curve Table			
Curve #	Delta	Radius	Length
㉑	79°50'55"	3.00	4.18
㉒	17°21'01"	250.00	75.71
㉓	91°28'20"	70.00	111.75
㉔	1°41'31"	1024.00	30.24
㉕	13°58'41"	200.00	48.79
㉖	9°25'14"	200.00	32.88
㊺	16°09'22"	100.00	28.20
㊼	13°05'33"	120.00	27.42
㊽	6°27'46"	977.00	110.20
㊾	1°54'13"	1016.00	33.75
㊶	75°52'57"	8.00	10.60
㊷	99°08'41"	10.00	17.30
㊸	57°38'34"	15.00	15.09
㊹	48°12'12"	15.00	12.62
㊺	50°30'43"	15.00	13.22
㊻	46°43'14"	15.00	12.23
㊼	98°29'43"	5.00	8.60
㊽	27°51'23"	30.00	14.59
㊾	85°28'19"	5.00	7.46

Survey Traverse Point Table				
Point #	Northing	Easting	Elevation	Raw Description
1	2914236.569	521882.282	816.440	–
2	2914318.482	522212.111	811.147	DH FND

NOTE: CURB REVEAL VARIES. REFER TO CROSS-SECTIONS FOR TOP OF CURB INFORMATION.

N

NAD 83

CONTINUED ON SHEET NO. 18

CONTINUED ON SHEET NO. 17

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	16	84
PROJECT FILE NO.	606207		

ALIGNMENT & GRADING PLANS

1 APRIL 11, 2017
2 APRIL 13, 2017

606207_HDI(ALN).DWG Plotted on 13-Apr-2017 3:49 PM

MAIN STREET (PUBLIC)

HIGH STREET (PUBLIC)

ELM STREET (PUBLIC)

WALL STREET (PUBLIC)

1856 TOWN LAYOUT

1857 TOWN LAYOUT

1870 TOWN LAYOUT

1872 TOWN LAYOUT

1878 TOWN LAYOUT

1984 TOWN LAYOUT ALTERATION

CONSTRUCTION ℄ N 74° 47' 44" E 359.16'

103+49.09 MAIN STREET= 14+49.79 PLEASANT STREET

LIMIT OF WORK

STA 100+50.00
N:2914187.3400
E:521827.5860

(#) CURVE NUMBER
[#] WHEELCHAIR RAMP NUMBER

SCALE: 1" = 20'

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	17	84
PROJECT FILE NO. 606207			

ALIGNMENT & GRADING PLANS

2 APRIL 13, 2017

Plotted on 13-Apr-2017 3:50 PM

606207_HD(ALN).DWG

NOTE: CURB REVEAL VARIES. REFER TO CROSS-SECTIONS FOR TOP OF CURB INFORMATION.

Curve Table


Curve #	Delta	Radius	Length
27	90°46'01"	12.00	19.01
28	89°15'25"	5.00	7.79
29	89°40'00"	5.00	7.82
30	90°00'00"	20.00	31.42
31	90°00'00"	8.00	12.57
32	90°20'00"	5.00	7.88
33	91°54'57"	8.00	12.83
34	92°25'05"	15.00	24.19
35	41°24'35"	10.00	7.23
36	41°24'35"	10.00	7.23
37	79°17'03"	10.00	13.84
38	95°16'53"	15.00	24.94

Curve Table

Curve #	Delta	Radius	Length
39	90°30'42"	5.00	7.90
40	29°27'31"	269.00	138.31
41	86°12'04"	5.00	7.52
42	87°18'18"	40.00	60.95
43	77°59'52"	18.00	24.50
44	96°33'41"	20.00	33.71
45	66°29'20"	13.50	15.67
46	98°37'11"	20.00	34.42
47	103°20'15"	12.00	21.64
48	75°54'23"	15.00	19.87
49	4°54'12"	269.00	23.02

Survey Traverse Point Table

Point #	Northing	Easting	Elevation	Raw Description
3	2914249.331	522675.924	837.018	DH FND
4	2914375.854	522827.921	854.532	DH FND



SPENCER
MAIN STREET

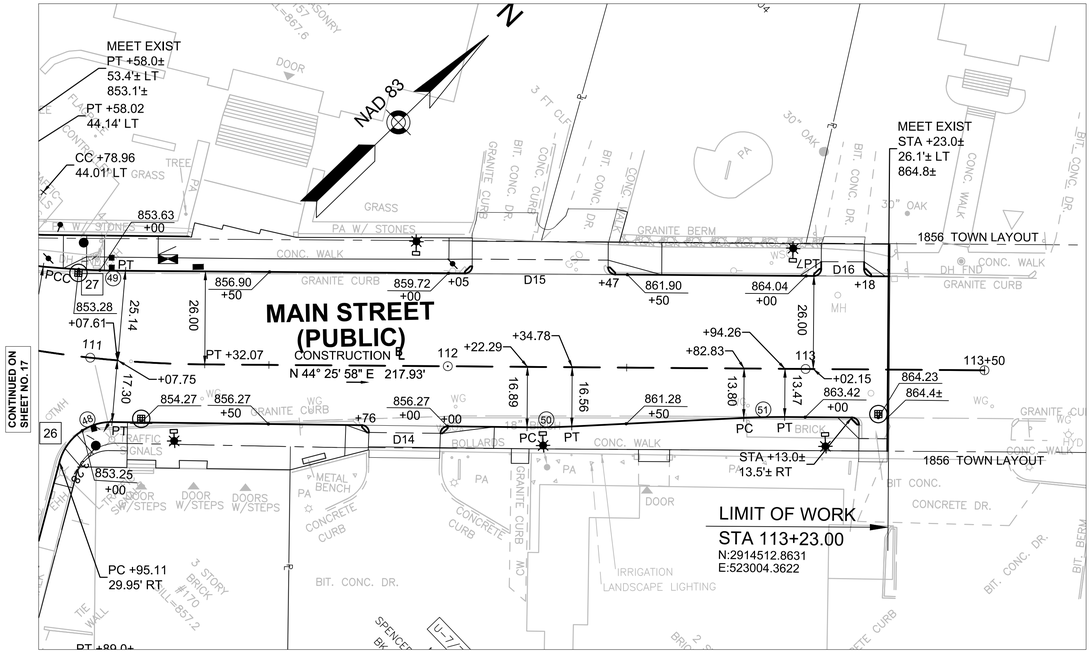
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	18	84
PROJECT FILE NO.	606207		

ALIGNMENT & GRADING PLANS

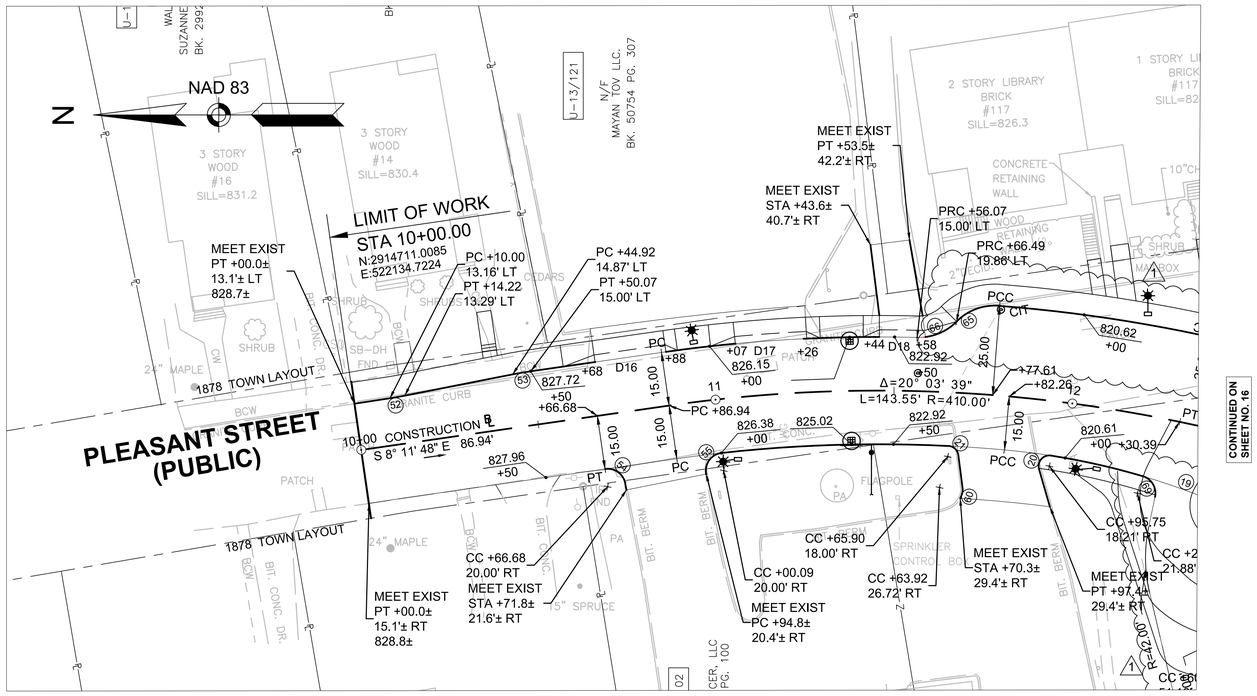
1 APRIL 11, 2017

606207_HD(ALN).DWG Plotted on 13-Apr-2017 3:50 PM

Curve Table			
Curve #	Delta	Radius	Length
(50)	3°34'50"	200.00	12.50
(51)	3°16'34"	200.00	11.44



Curve Table			
Curve #	Delta	Radius	Length
(52)	2°25'18"	100.00	4.23
(53)	2°57'01"	100.00	5.15
(54)	86°58'27"	5.00	7.59
(59)	94°26'27"	5.00	8.24
(60)	22°21'39"	6.51	2.54



0 20 50 100

SCALE: 1" = 20'

(#) CURVE NUMBER

[#] WHEELCHAIR RAMP NUMBER

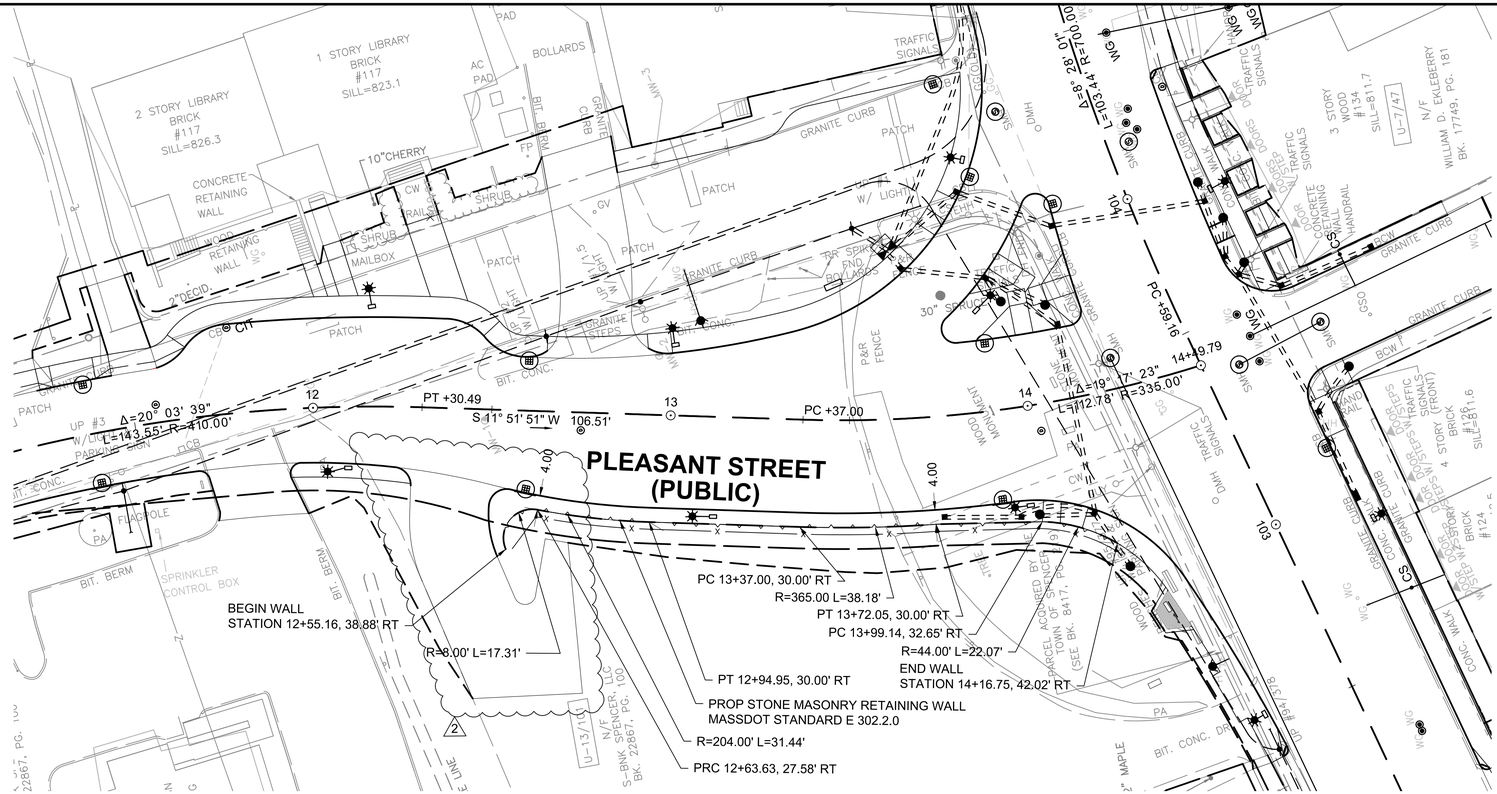
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	19	84
PROJECT FILE NO.	606207		

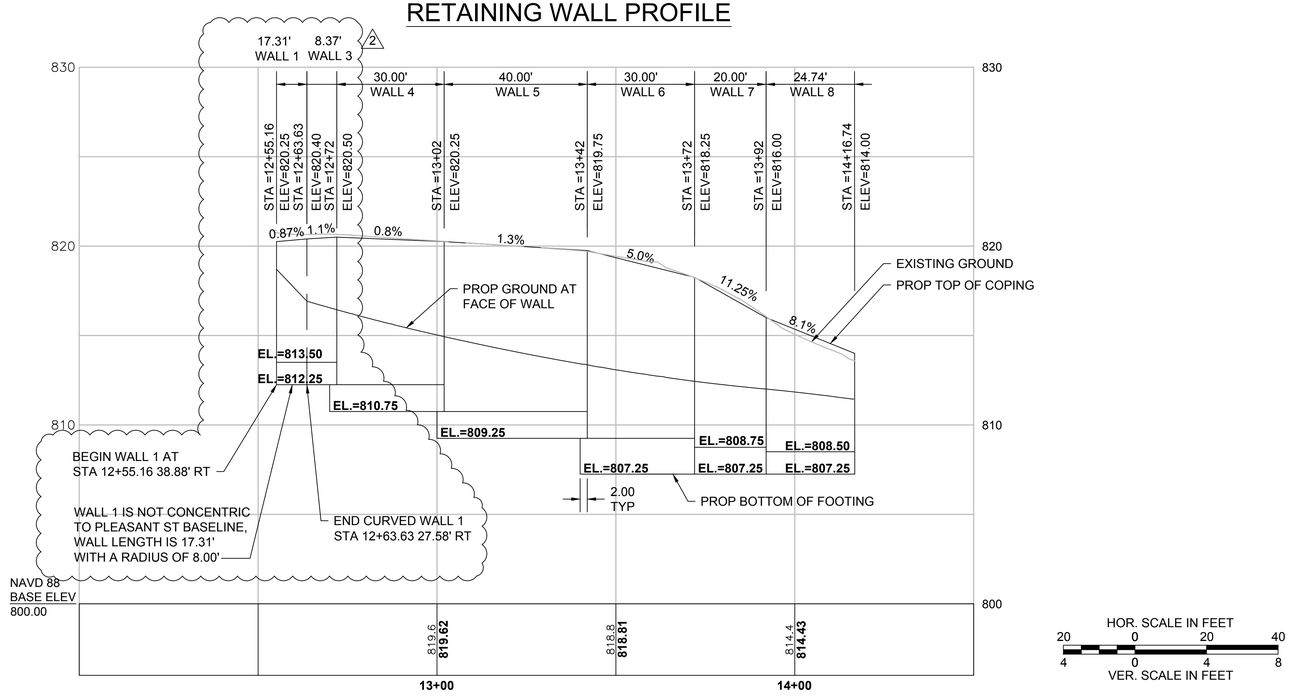
RETAINING WALL PROFILE

2 APRIL 13, 2017

606207_HD(PROF-WALL).DWG Plotted on 13-Apr-2017 3:50 PM



PLEASANT STREET
RETAINING WALL PROFILE



HOR. SCALE IN FEET
20 0 20 40
4 0 4 8
VER. SCALE IN FEET

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	20	84
PROJECT FILE NO.	606207		

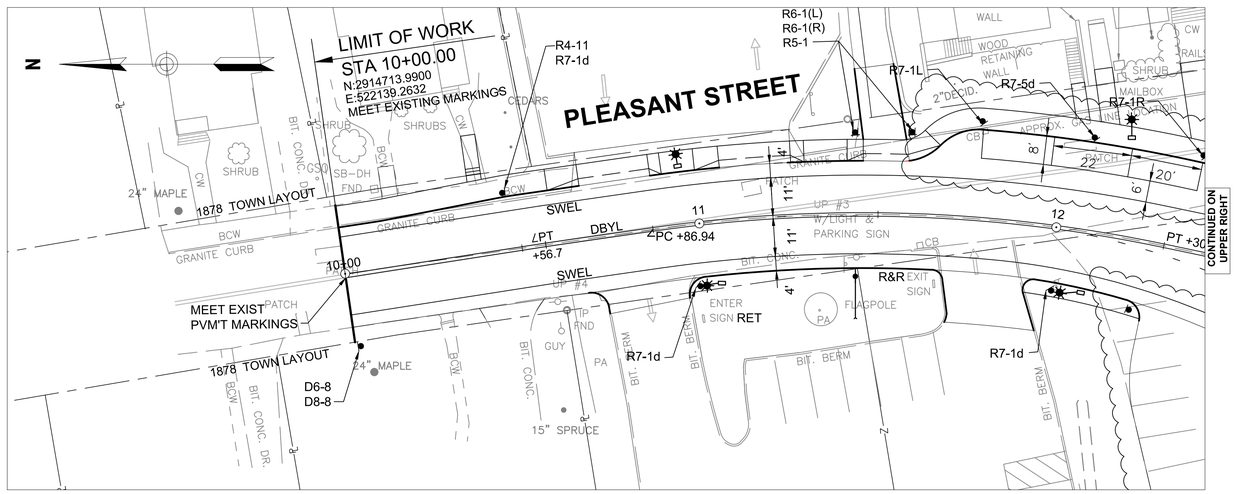
TRAFFIC SIGN & PAVEMENT MARKINGS

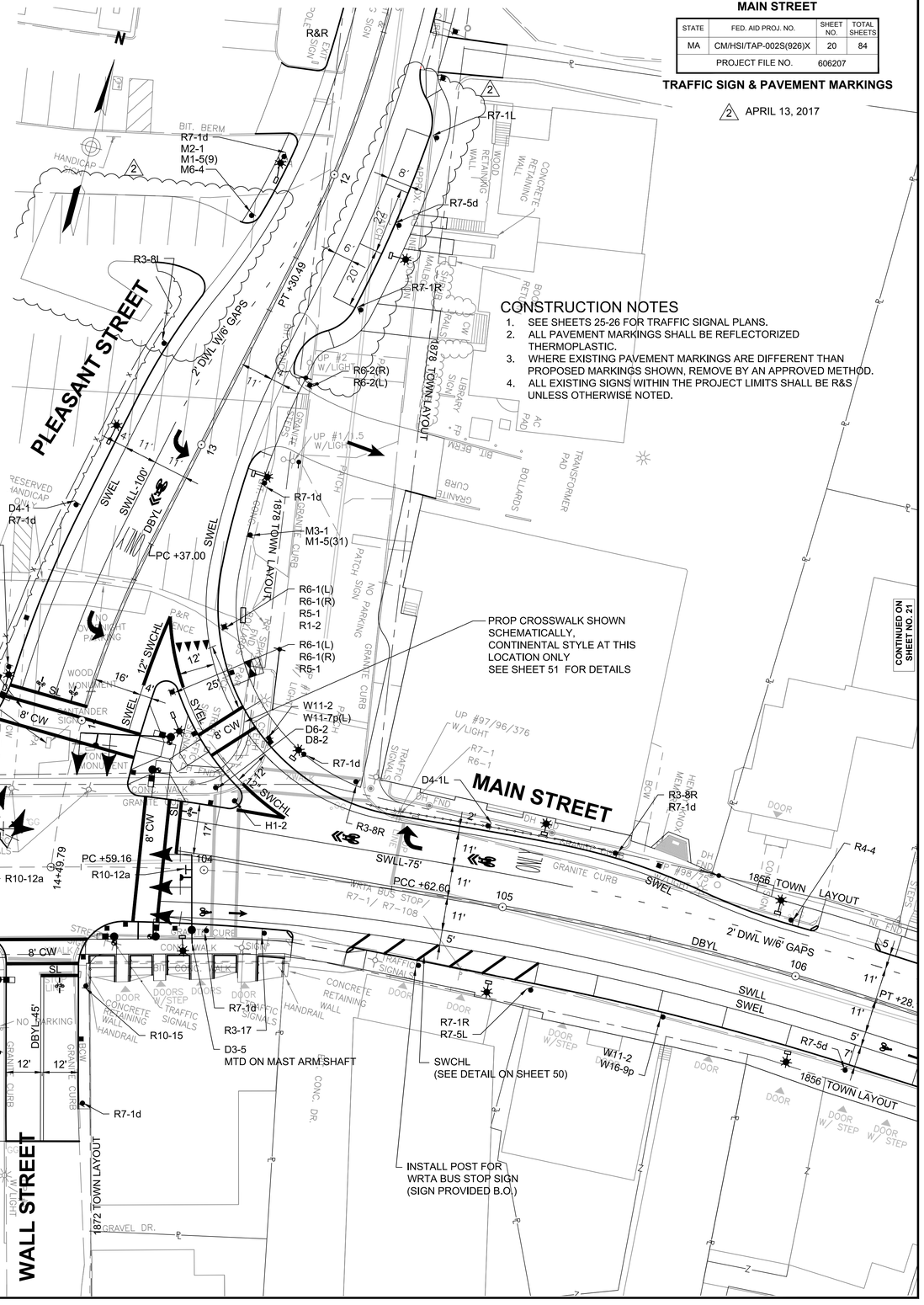
2 APRIL 13, 2017

606207_TRCTSIG(L).DWG Plotted on 13-Apr-2017 3:51 PM

CONSTRUCTION NOTES

1. SEE SHEETS 25-26 FOR TRAFFIC SIGNAL PLANS.
2. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC.
3. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
4. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE R&S UNLESS OTHERWISE NOTED.





CONSTRUCTION NOTES

1. SEE SHEETS 27-28 FOR TRAFFIC SIGNAL PLANS.
2. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC.
3. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
4. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE R&S UNLESS OTHERWISE NOTED.

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	21	84
PROJECT FILE NO.	606207		

TRAFFIC SIGN & PAVEMENT MARKINGS

606207_TRCTSIG1.DWG Plotted on 25-Aug-2016 8:14 AM

CONTINUED BELOW RIGHT

CONTINUED ABOVE LEFT

CONTINUED ON SHEET NO. 20

MAIN STREET

MUNICIPAL DRIVE

MECHANIC STREET

MAPLE STREET

D6-10
D8-10
LOCATED 410' FROM STOP LINE, AT END OF HEDGE, AT BACK OF SIDEWALK &AT LEAST 6' FROM UTILITY POLE

INSTALL POST FOR WRTA BUS STOP SIGN (SIGN PROVIDED B.O.)

LIMIT OF WORK
STA 113+23.00
N:2914515.3996
E:523008.8016
MEET EXISTING MARKINGS

MEET EXIST PVM'T MARKINGS

PROP RRFB ASSEMBLIES SEE SHEET 49

PROP TEXTURIZED SYNTHETIC PVM'T AT CROSSWALKS SEE SHEET 50 FOR DETAILS

PROP TEXTURIZED SYNTHETIC PVM'T AT CROSSWALKS (TYP) (SEE SHEET 50 FOR DETAILS)

D6-9
D8-9
TO BE FIELD LOCATED 400'± FROM STOP LINE, IN LINE WITH EXISTING RETAINING WALL, ADJACENT TO BACK OF SIDEWALK

SCALE: 1" = 20'

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	22	84
	PROJECT FILE NO. 606207		

SIGN SUMMARY

2 APRIL 13, 2017

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH	SIZE OF SIGN HEIGHT	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	TEXT DIMENSIONS (INCHES) VERTICAL SPACING	TEXT DIMENSIONS (INCHES) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACKGROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
R1-1	30"	30"	STOP	SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			2	RED	WHITE	WHITE	2-P5	5.18	10.36
R1-2	36"x36"x36"		YIELD				1	WHITE	RED	WHITE	1 MTD W/OTHERS	2.70	2.70
R3-2	24"	24"					1	WHITE	RED/ BLACK	BLACK	1 MTD W/OTHERS	4.00	4.00
R3-8L	36"	30"	ONLY				6	WHITE	BLACK	BLACK	6-P5	7.50	45.00
R3-8R	36"	30"	ONLY				4	WHITE	BLACK	BLACK	4-P5	7.50	30.00
R3-17	24"	18"	BIKE LANE				6	WHITE	BLACK	BLACK	5-P5 1 MTD ON TS POST	3.00	18.00
R3-17a	24"	8"	AHEAD				1	WHITE	BLACK	BLACK	1 MTD W/OTHERS	1.33	1.33
R3-17b	24"	8"	ENDS				2	WHITE	BLACK	BLACK	2 MTD W/OTHERS	1.33	2.67
R4-4	36"	30"	BEGIN RIGHT TURN LANE YIELD TO BIKES				2	WHITE	BLACK	BLACK	2-P5	7.50	15.00
R4-11	30"	30"	MAY USE FULL LANE				3	WHITE	BLACK	BLACK	3-P5	6.25	18.75
R5-1	30"	30"	DO NOT ENTER				6	WHITE	RED/ WHITE	-	6 MTD W/OTHERS	6.25	37.50
R6-1(L)	36"	12"	ONE WAY				6	BLACK	WHITE	WHITE	6-P5	3.00	18.00
R6-1(R)	36"	12"	ONE WAY				6	BLACK	WHITE	WHITE	6 MTD W/ OTHERS	3.00	18.00
R6-2(L)	24"	30"	ONE WAY				2	BLACK	WHITE	WHITE	1-P5 1 MTD W/OTHERS	5.00	10.00
R6-2(R)	24"	30"	ONE WAY				2	BLACK	WHITE	WHITE	1-P5 1 MTD W/OTHERS	5.00	10.00
R7-1d	12"	18"	NO PARKING ANY TIME				23 (2)	WHITE	RED	RED	20-P5 3 MTD W/OTHERS (2)	1.50	34.50 (2)
R7-1L	12"	18"	NO PARKING ANY TIME				3 (2)	WHITE	RED	RED	1-P5 2 MTD W/OTHERS (2)	1.50	4.50 (2)
R7-1R	12"	18"	NO PARKING ANY TIME				3 (2)	WHITE	RED	RED	1-P5 2 MTD W/OTHERS (2)	1.50	4.50 (2)
R7-5d	12"	18"	1 HOUR PARKING 6 AM TO 6 PM	SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			2 (2)	WHITE	GREEN	GREEN	2-P5 (2)	1.50	3.00 (2)
R7-5L	12"	18"	1 HOUR PARKING 6 AM TO 6 PM				2	WHITE	GREEN	GREEN	2-P5	1.50	3.00
R7-5R	12"	18"	1 HOUR PARKING 6 AM TO 6 PM				2	WHITE	GREEN	GREEN	2-P5	1.50	1.50
R10-3e(L)	9"	15"	START CROSSING Watch For Vehicles; DON'T START Finish Crossing If Started TIME REMAINING To Finish Crossing; DON'T CROSS; PUSH BUTTON TO CROSS				10	WHITE	WHITE/ BLACK/ ORANGE	BLACK	10 MTD ON TS POST/POLE	PAID UNDER ITEMS 816.01 & 816.02	
R10-3e(R)	9"	15"	START CROSSING Watch For Vehicles; DON'T START Finish Crossing If Started TIME REMAINING To Finish Crossing; DON'T CROSS; PUSH BUTTON TO CROSS				4	WHITE	WHITE/ BLACK/ ORANGE	BLACK	4 MTD ON TS POST/POLE	PAID UNDER ITEMS 816.01 & 816.02	
R10-11b	36"	36"	NO TURN ON RED				2	WHITE	BLACK	BLACK	2 MTD ON TS POST	9.00	18.00
R10-12a	30"	36"	LEFT TURN YIELD ON FLASHING	AS PER MASSDOT EXPERIMENTAL STANDARD			3	WHITE	BLACK/ YELLOW	BLACK	3 MTD ON MAST ARM	7.50	22.50
R10-15	30"	30"	TURNING VEHICLES YIELD TO	SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			2	YELLOW/ WHITE	BLACK/ RED	BLACK	2-P5	6.25	12.50
H1-2	24"	24"		AS PER MASSDOT STANDARD			1	YELLOW	YELLOW CLUSTER	- - -	1-P5	4.00	4.00
W11-2	30"	30"		SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			7	YELLOW	BLACK	BLACK	3-P5 4 MTD ON TS POST	6.25	43.25
W16-7p(L)	24"	12"					3	YELLOW	BLACK	BLACK	1 MTD W/ OTHERS 2 MTD ON TS POST	2.00	6.00
W16-7p(R)	24"	12"					2	YELLOW	BLACK	BLACK	2 MTD ON TS POST	2.00	4.00
W16-9p	24"	12"	AHEAD				2	YELLOW	BLACK	BLACK	2 MTD W/ OTHERS	2.00	4.00
SP-1	9"	12"	WAIT FOR VEHICLES TO STOP BEFORE CROSSING	1"C 1"C 1"C 1"C 1"C	1.5" 1" 1" 1" 1"	N/A	2	YELLOW	BLACK	BLACK	2 MTD ON TS POLE	PAID UNDER ITEM 824.401	

NOTES:
1. HIGH INTENSITY REFLECTION 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; AND THE MASSDOT SIGN LISTINGS 1993 EDITION, AS AMENDED.

606207_TR(SS).DWG Plotted on 13-Apr-2017 3:51 PM

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	23	84
PROJECT FILE NO.	606207		

SIGN SUMMARY

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH	SIZE OF SIGN HEIGHT	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	TEXT DIMENSIONS (INCHES) VERTICAL SPACING	TEXT DIMENSIONS (INCHES) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACKGROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
M1-5(9)	24"	24"	9	AS PER MASSDOT STANDARD			3	WHITE	BLACK	BLACK	3-P5	4.00	12.00
M1-5(31)	24"	24"	31	AS PER MASSDOT STANDARD			3	WHITE	BLACK	BLACK	3-P5	4.00	12.00
M2-1	21"	15"	JCT	SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			2	WHITE	BLACK	BLACK	2 MTD W/OTHERS	2.19	4.38
M3-1	24"	12"	NORTH				1	WHITE	BLACK	BLACK	1 MTD W/OTHERS	2.00	2.00
M3-2	24"	12"	EAST				1	WHITE	BLACK	BLACK	1 MTD W/OTHERS	2.00	2.00
M3-3	24"	12"	SOUTH				1	WHITE	BLACK	BLACK	1 MTD W/OTHERS	2.00	2.00
M3-4	24"	12"	WEST				1	WHITE	BLACK	BLACK	1 MTD W/OTHERS	2.00	2.00
M6-4	21"	15"	↔				1	WHITE	BLACK	BLACK	1 MTD W/OTHERS	2.19	2.19
M6-6L	21"	15"	↱				2	WHITE	BLACK	BLACK	2 MTD W/OTHERS	2.19	4.38
D3-1(POS)	36"	12"	Main St SEE NOTE 4	6"D/4"D	3" 3"	N/A	2	GREEN	WHITE	WHITE	1-P5 1 MTD W/OTHERS	PAID UNDER ITEM 874	
D3-1(PBS)	36"	12"	Main St SEE NOTE 3	6"D/4"D	3" 3"	N/A	2	GREEN	WHITE	WHITE	2 MTD ON TS POLE	PAID UNDER ITEM 874	
D3-2	36"	12"	High St SEE NOTE 4	6"D/4"D	3" 3"	N/A	2	GREEN	WHITE	WHITE	2 MTD W/OTHERS	PAID UNDER ITEM 874	
D3-3	30"	12"	Elm St SEE NOTE 4	6"D/4"D	3" 3"	N/A	2	GREEN	WHITE	WHITE	2 MTD W/OTHERS	PAID UNDER ITEM 874	
D3-4	48"	12"	Pleasant St SEE NOTE 3	6"D/4"D	3" 3"	N/A	1	GREEN	WHITE	WHITE	1 MTD ON TS POLE	PAID UNDER ITEM 874	
D3-5	36"	12"	Wall St SEE NOTE 3	6"D/4"D	3" 3"	N/A	1	GREEN	WHITE	WHITE	1 MTD ON TS POLE	PAID UNDER ITEM 874	
D3-6	48"	12"	Mechanic St SEE NOTE 4	6"C/4"C	3" 3"	N/A	2	GREEN	WHITE	WHITE	2 MTD W/OTHERS	PAID UNDER ITEM 874	
D3-7	42"	12"	Maple St SEE NOTE 3	6"D/4"D	3" 3"	N/A	1	GREEN	WHITE	WHITE	1 MTD ON TS POLE	PAID UNDER ITEM 874	

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH	SIZE OF SIGN HEIGHT	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	TEXT DIMENSIONS (INCHES) VERTICAL SPACING	TEXT DIMENSIONS (INCHES) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACKGROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
D4-1	30"	24"	P ↑ ARKING	15E/3E	4.5" 4.5"	12"x4"	1	WHITE	GREEN	GREEN	1 MTD W/ OTHERS	5.00	5.00
D4-1L	30"	24"	P ↖ ARKING	15E/3E	4.5" 4.5"	12"x4"	1	WHITE	GREEN	GREEN	1-P5	5.00	10.00
D4-1R	30"	24"	P ↗ ARKING	15E/3E	4.5" 4.5"	12"x4"	2	WHITE	GREEN	GREEN	2 MTD W/ OTHERS	5.00	10.00
D6-1	60"	66"	31 NORTH Paxton Fitchburg ←	18/9D/7C/6C 8D 8D	5 4 4.5 4 6.5	36"x8"	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1-5" O.D. STEEL PIPE POST	27.50	27.50
D6-2	60"	66"	31 NORTH Paxton Fitchburg →	18/9D/7C/6C 8D 8D	5 4 4.5 4 6.5	36"x8"	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1-5" O.D. STEEL PIPE POST	27.50	27.50
D6-3	60"	66"	EAST SOUTH 9 31 Charlton Worcester ←	7C/6C 18/9D 7D 7D	3 2 3 4.5 4 2.5	36"x8"	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1-5" O.D. STEEL PIPE POST	27.50	27.50

NOTES:
1. HIGH INTENSITY REFLECTION 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; AND THE MASSDOT SIGN LISTINGS 1993 EDITION, AS AMENDED.
2. ALL D6/D8 SIGNS SHALL HAVE A 0.8" BORDER WITH A 3" RADIUS.
3. SIGN SHALL BE PAINTED BOTH SIDES.
4. SIGN SHALL BE PAINTED ONE SIDE. SEE SPECIAL PROVISIONS FOR MOUNTING REQUIREMENTS.

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SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	24	84
PROJECT FILE NO.	606207		

SIGN SUMMARY

TRAFFIC SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH	SIZE OF SIGN HEIGHT	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	TEXT DIMENSIONS (INCHES) VERTICAL SPACING	TEXT DIMENSIONS (INCHES) ARROW RTE. MKR.	NUMBER OF SIGNS REQUIRED	COLOR BACK-GROUND	COLOR LEGEND	COLOR BORDER	POST SIZE AND NUMBER REQUIRED	UNIT AREA (S.F.)	AREA IN SQUARE FEET
D6-4	60"	66"	31 SOUTH Charlton Dudley	18/9D/7C/6C 8D 8D	5 4 4.5 4 6.5	36"x8"	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1-5" O.D. STEEL PIPE POST	27.50	27.50
D6-5	60"	66"	WEST NORTH 9 31 Brookfield Paxton	7C/6C 18/9D 7D 7D	3 2 3 4.5 4 2.5	36"x8"	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1-5" O.D. STEEL PIPE POST	27.50	27.50
D6-6	60"	66"	31 SOUTH Charlton Dudley	18/9D/7C/6C 8D 8D	5 4 4.5 4 6.5	36"x8"	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1-5" O.D. STEEL PIPE POST	27.50	27.50
D6-7	60"	66"	31 NORTH Paxton Fitchburg SECOND LEFT	18/9D/7C/6C 8D 8D 6C	5 4 5 6 6	NA	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1-5" O.D. STEEL PIPE POST	27.50	27.50
D6-8	60"	66"	EAST SOUTH 9 31 Charlton Worcester NEXT LEFT	7C/6C 18/9D 7D 7D 6C	3 2 3 5 4 4	NA	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1-5" O.D. STEEL PIPE POST	27.50	27.50
D6-9	60"	66"	WEST NORTH 9 31 Brookfield Paxton NEXT LEFT	7C/6C 18/9D 7D 7D 6C	3 2 3 5 4 4	NA	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1-5" O.D. STEEL PIPE POST	27.50	27.50
D6-10	60"	66"	31 SOUTH Charlton Dudley NEXT LEFT	18/9D/7C/6C 8D 8D 6C	5 4 5 6 6	NA	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1-5" O.D. STEEL PIPE POST	27.50	27.50
D8-1	48"	48"	SOUTH 31 Charlton	7C/6C 18/9D 8C	3 4 4 4	18"x8"	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1 MTD W/OTHERS	16.00	16.00
D8-2	48"	48"	WEST 9 Brookfield	7C/6C 18/9D 8C	3 4 4 4	18"x8"	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1 MTD W/OTHERS	16.00	16.00
D8-3	48"	48"	9 WEST Brookfield	18/9D/7C/6C 8C	3 4 4 3	18"x8"	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1 MTD W/OTHERS	16.00	16.00
D8-4	48"	48"	EAST 9 Worcester	7C/6C 18/9D 8C	3 4 4 4	18"x8"	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1 MTD W/OTHERS	16.00	16.00
D8-5	48"	48"	9 EAST Worcester	18/9D/7C/6C 8C	3 4 4 3	18"x8"	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1 MTD W/OTHERS	16.00	16.00
D8-6	48"	48"	NORTH 31 Paxton	7C/6C 18/9D 8C	3 4 4 4	18"x8"	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1 MTD W/OTHERS	16.00	16.00
D8-7	48"	48"	SOUTH 31 Charlton	7C/6C 18/9D 8C	3 4 4 4	18"x8"	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1 MTD W/OTHERS	16.00	16.00
D8-8	48"	48"	9 WEST Brookfield NEXT RIGHT	18/9D/7C/6C 8C 6C	4 4 4 4	NA	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1 MTD W/OTHERS	16.00	16.00
D8-9	48"	48"	9 EAST Worcester NEXT RIGHT	18/9D/7C/6C 8C 6C	4 4 4 4	NA	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1 MTD W/OTHERS	16.00	16.00
D8-10	48"	48"	NORTH 31 Paxton	7C/6C 18/9D 8C	4 4 4	18"x8"	1	REFL. GREEN H/I M9.30.0	REFL. WHITE H/I M9.30.0	REFL. WHITE SILVER H/I M9.30.0	1 MTD W/OTHERS	16.00	16.00

NOTES:
1. HIGH INTENSITY REFLECTION 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; AND THE MASSDOT SIGN LISTINGS 1993 EDITION, AS AMENDED.
2. ALL D6/D8 SIGNS SHALL HAVE A 0.8" BORDER WITH A 3" RADIUS.

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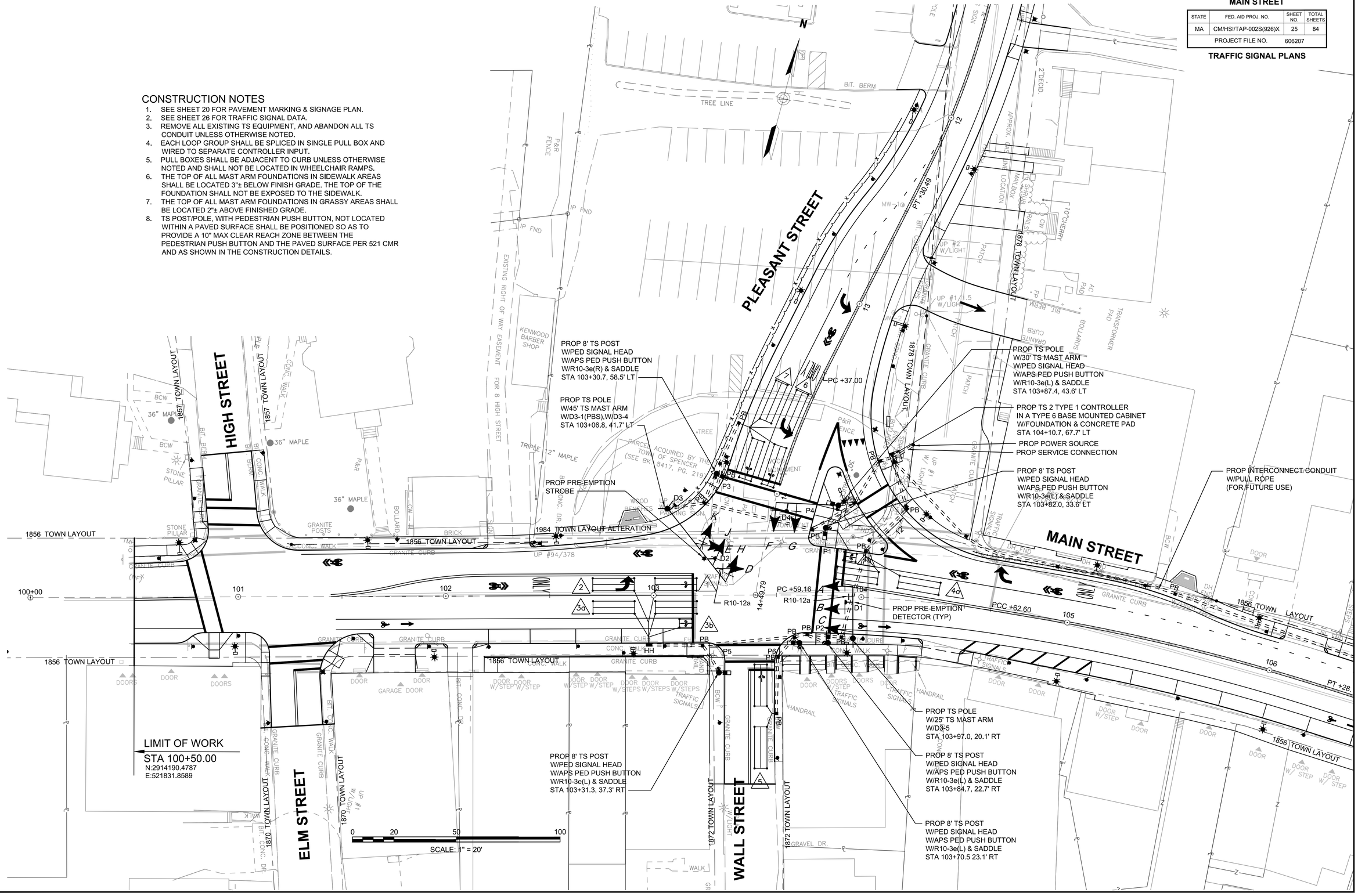
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	25	84
PROJECT FILE NO.	606207		

TRAFFIC SIGNAL PLANS

CONSTRUCTION NOTES

1. SEE SHEET 20 FOR PAVEMENT MARKING & SIGNAGE PLAN.
2. SEE SHEET 26 FOR TRAFFIC SIGNAL DATA.
3. REMOVE ALL EXISTING TS EQUIPMENT, AND ABANDON ALL TS CONDUIT UNLESS OTHERWISE NOTED.
4. EACH LOOP GROUP SHALL BE SPLICED IN SINGLE PULL BOX AND WIRED TO SEPARATE CONTROLLER INPUT.
5. PULL BOXES SHALL BE ADJACENT TO CURB UNLESS OTHERWISE NOTED AND SHALL NOT BE LOCATED IN WHEELCHAIR RAMPS.
6. THE TOP OF ALL MAST ARM FOUNDATIONS IN SIDEWALK AREAS SHALL BE LOCATED 3"± BELOW FINISH GRADE. THE TOP OF THE FOUNDATION SHALL NOT BE EXPOSED TO THE SIDEWALK.
7. THE TOP OF ALL MAST ARM FOUNDATIONS IN GRASSY AREAS SHALL BE LOCATED 2"± ABOVE FINISHED GRADE.
8. TS POST/POLE, WITH PEDESTRIAN PUSH BUTTON, NOT LOCATED WITHIN A PAVED SURFACE SHALL BE POSITIONED SO AS TO PROVIDE A 10" MAX CLEAR REACH ZONE BETWEEN THE PEDESTRIAN PUSH BUTTON AND THE PAVED SURFACE PER 521 CMR AND AS SHOWN IN THE CONSTRUCTION DETAILS.



CONTINUED ON SHEET NO. 27

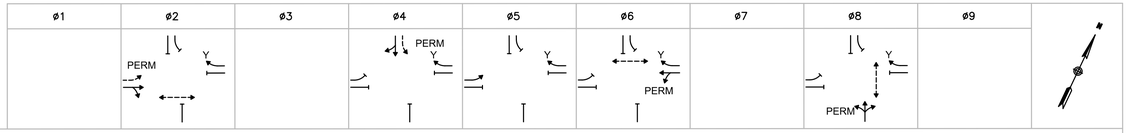
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SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	26	84
PROJECT FILE NO.	606207		

TRAFFIC SIGNAL PLANS

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SEQUENCE AND TIMING FOR FULLY ACTUATED CONTROL (TIME-BASE COORDINATED)

APPROACH	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	FLASH
MAIN STREET	EB	A				FY	Y	R				R	R	R	G	Y	R	R	R	R				R	R	R				FY
MAIN STREET	EB	B,C				G	Y	R				R	R	R	R	R	R	R	R	R				R	R	R				FY
MAIN STREET	WB	D,E				R	R	R				R	R	R	R	R	R	G	Y	R				R	R	R				FY
WALL STREET	NB	F,G				R	R	R				R	R	R	R	R	R	R	R	R				G	Y	R				FR
PLEASANT STREET	SB	H				FY	Y	R				FY	Y	R	R	R	R	R	R	R				R	R	R				FR
PLEASANT STREET	SB	J,K				R	R	R				G	Y	R	R	R	R	R	R	R				R	R	R				FR
PEDESTRIAN X-ING	NB-SB	P1-P2				DW	DW	DW				DW	DW	DW	DW	DW	DW	DW	DW	DW				**	DW	DW				OUT
PEDESTRIAN X-ING	EB-WB	P3-P4				DW	DW	DW				DW	DW	DW	DW	DW	DW	**	DW	DW				DW	DW	DW				OUT
PEDESTRIAN X-ING	EB-WB	P5-P6				**	DW	DW				DW	DW	DW	DW	DW	DW	DW	DW	DW				DW	DW	DW				OUT
TIMING IN SECONDS																														
MINIMUM GREEN (INITIAL)						10						6			6			10						6						CONFLICT FLASH OPERATION ONLY
PASSAGE TIME (VEHICLE)						3						3			3			3						3						
MAXIMUM 1						41						28			8			41						28						
MAXIMUM 2						45						24			8			45						24						
YELLOW CLEARANCE							3						4			3			3						4					
RED CLEARANCE								1.5						1.5			1.5			1.5						1.5				
PEDESTRIAN WALK						7												7						7						
PEDESTRIAN CLEARANCE						7												10						7						
DETECTOR MEMORY						NON-LOCK						NON-LOCK			NON-LOCK			NON-LOCK						NON-LOCK						
RECALL						SOFT						OFF			OFF			SOFT						OFF						

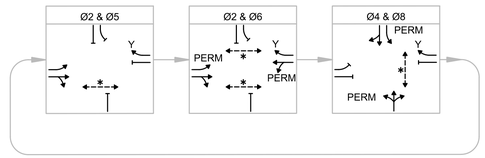
COORDINATION DATA			COORDINATION PHASE TIMING (IN SECONDS)					
TIMING PLAN	CYCLE LENGTH	OFFSET	ø2	ø4	ø5	ø6	ø8	
1/1/1 M-F, 6AM-9AM	90 SEC	0	57	33	12	45	33	
2/1/1 M-F, 3PM-7PM	90 SEC	0	61	29	12	49	29	
MODE			COORD ø					

NOTES:
1. AUTOMATIC FLASHING OPERATION PER 2009 M.U.T.C.D., AS AMENDED.
2. * NORMALLY DW, W/FDW UPON PEDESTRIAN PUSH BUTTON ACTUATION
3. PERM = PERMISSIVE
4. Y = YIELD CONTROL
5. ø4 & ø8 DUAL ENTRY
6. MAXIMUM 1 = NORMAL OPERATION
7. MAXIMUM 2 = NOT USED
8. STOP AND GO OPERATION FOR 24 HOURS PER DAY. FLASHING OPERATION FOR EMERGENCY ONLY.
9. DURING PEDESTRIAN INTERVAL, FDW THROUGH YELLOW OPERATION SHALL NOT BE IN EFFECT.
10. SEE SHEET 29 FOR ADDITIONAL COORDINATION DATA.

SEQUENCE & TIMING NOTES:

1. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
2. THE RIGHT OF WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON-CONFLICTING PHASES.
3. IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.
4. IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATION FOR THAT MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.

PREFERENTIAL PHASE SEQUENCE



* UPON PEDESTRIAN PUSH BUTTON ACTUATION
Y = YIELD CONTROL

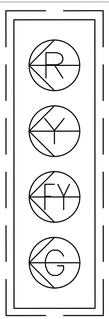
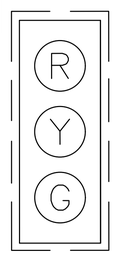
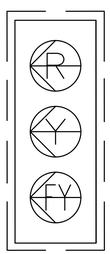
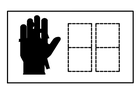
PRE-EMPTION PHASING & PRIORITY

DETECTOR & PRIORITY	PRE-EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø2&Ø5
D2	2		Ø6
D3	3		Ø4
D4	4		Ø8

EMERGENCY VEHICLE PRE-EMPTION OPERATION

1. EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
2. PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH DETECTORS D1, D2, D3 OR D4 ASSIGNED DESCENDING PRIORITIES AS FOLLOWS: (D1 HIGHEST AND D4 LOWEST)
3. IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3, D4) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE-EMPTION PHASE #1 (OR #2, #3, #4) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCES FOR THE ASSOCIATED PHASE(S) AS SHOWN IN THE SEQUENCE AND TIMING CHART AND SERVICE SUBSEQUENT EMERGENCY VEHICLE PRE-EMPTION PHASES AS NECESSARY.
4. MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
5. PRE-EMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE-EMPTION GREEN IS ON.
6. EMERGENCY VEHICLE PRE-EMPTION SHALL OVERRIDE COORDINATION.

SIGNAL HEAD DATA

A	B,C,D,E,F,G,J,K	H	P1-P6
			 W/COUNTDOWN TIMER
ALL 12" LENS			

NOTES:
1. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED.
2. ALL SIGNAL HEADS SHALL BE EQUIPPED WITH 5"± NON-LOUVERED BACKPLATES WITH 3" RETROREFLECTIVE BORDER AND TUNNEL VISORS.
3. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED WITH L.E.D. MODULES.

LOOP DETECTOR DATA

DETECTOR NO.	NO. SECTION/ SIZE	NO. OF TURNS	OPERATIONS	DELAY /EXT	CALL PHASE	LOOP CONNECTION
1	1-6'X20' QUADRUPOLE	2-4-2	PRESENCE	2 SEC DELAY	Ø5*	SINGLE
2	1-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø5*	SINGLE
3a	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø2	SERIES
3b	1-4'X6' QUADRUPOLE	2-4-2	PRESENCE	0	Ø2	SINGLE
4a	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø6	SERIES
4b	1-4'X6' QUADRUPOLE	2-4-2	PRESENCE	0	Ø6	SINGLE
5	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø8	SERIES
6	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø4	SERIES
7	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø4	SERIES

NOTES:
1. DELAY AND EXTENSION TIMINGS SHALL BE PROGRAMMED IN THE CONTROLLER ONLY.
2. * DETECTOR GROUP 1&2 SHALL CALL/EXTEND Ø5 THEN SWITCH TO EXTEND Ø2

LIST OF MAJOR ITEMS REQUIRED

MAIN STREET AT PLEASANT STREET/WALL STREET

PAY ITEM	QUANTITY	DESCRIPTION
816.01	1	8Ø TS 2 TYPE 1 CONTROLLER IN A TYPE 6 BASE MOUNTED CABINET INCLUDING FOUNDATION AND CONCRETE PAD
	1	GPS TIME-SYNCH DEVICE
	1	MALFUNCTION MANAGEMENT UNIT CAPABLE TO SUPPORTING FYA
	1	TS 25' MAST ARM TYPE 2, STEEL, INCL. FOUNDATION
	1	TS 30' MAST ARM TYPE 2, STEEL, INCL. FOUNDATION
	1	TS 45' MAST ARM TYPE 2, STEEL, INCL. FOUNDATION
	5	TS POST 8' STANDARD INCL. FOUNDATION
	8	SIGNAL HEAD, 3-SECTION, 12" LENSES
	1	SIGNAL HEAD, 3-SECTION, 12" LENSES, W/FLASHING YELLOW ARROW
	1	SIGNAL HEAD, 4-SECTION, 12" LENSES, W/FLASHING YELLOW ARROW
	6	PEDESTRIAN SIGNAL HEAD
	5	APS PEDESTRIAN PUSH BUTTON W/R10-3e(L) AND SIGN SADDLE
	1	APS PEDESTRIAN PUSH BUTTON W/R10-3e(R) AND SIGN SADDLE
	5	TYPE C, 2-CHANNEL CARD RACK LOOP DETECTOR AMPLIFIER
	14	WIRE LOOP DETECTOR
	4	EMERGENCY PRE-EMPTION OPTICAL DETECTORS & DETECTOR CABLE
	1	EMERGENCY PRE-EMPTION 4 CHANNEL PHASE SELECTOR
	1	EMERGENCY PRE-EMPTION SYSTEM CHASSIS
	1	EMERGENCY PRE-EMPTION STROBE (WHITE LENS)
	1	SERVICE CONNECTION (UNDERGROUND)
	16	PULL BOX-12"x12"-SD2.031
	1	ELECTRIC HANDHOLE - SD2.022

PLUS NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC CONTROL SIGNAL.

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	27	84
PROJECT FILE NO.	606207		

TRAFFIC SIGNAL PLANS

606207_TR(TSIG).DWG Plotted on 25-Aug-2016 8:15 AM

CONSTRUCTION NOTES

1. SEE SHEET 21 FOR PAVEMENT MARKING & SIGNAGE PLAN.
2. SEE SHEET 28 FOR TRAFFIC SIGNAL DATA.
3. REMOVE ALL EXISTING TS EQUIPMENT, AND ABANDON ALL TS CONDUIT UNLESS OTHERWISE NOTED.
4. EACH LOOP GROUP SHALL BE SPLICED IN SINGLE PULL BOX AND WIRED TO SEPARATE CONTROLLER INPUT.
5. PULL BOXES SHALL BE ADJACENT TO CURB UNLESS OTHERWISE NOTED AND SHALL NOT BE LOCATED IN WHEELCHAIR RAMPS.
6. THE TOP OF ALL MAST ARM FOUNDATIONS IN SIDEWALK AREAS SHALL BE LOCATED 3"± BELOW FINISH GRADE. THE TOP OF THE FOUNDATION SHALL NOT BE EXPOSED TO THE SIDEWALK.
7. THE TOP OF ALL MAST ARM FOUNDATIONS IN GRASSY AREAS SHALL BE LOCATED 2"± ABOVE FINISHED GRADE.
8. TS POST/POLE, WITH PEDESTRIAN PUSH BUTTON, NOT LOCATED WITHIN A PAVED SURFACE SHALL BE POSITIONED SO AS TO PROVIDE A 10" MAX CLEAR REACH ZONE BETWEEN THE PEDESTRIAN PUSH BUTTON AND THE PAVED SURFACE PER 521 CMR AND AS SHOWN IN THE CONSTRUCTION DETAILS
9. SIGNAL HEADS J AND K SHALL BE SIDE-OF-POLE MOUNTED FOR BETTER STABILITY OVER POST-TOP MOUNTED ASSEMBLIES.

N

CONTINUED ON SHEET NO. 25

PROP 14' TS POST
W/RRFB (3-SIDED)
W/INFRARED CAMERA DETECTION
W/TWO W11-2, ONE W16-7p(R), ONE W16-7p(L) & ONE SP-1
W/SIDE OF POST MOUNTED CABINET
STA 107+17.4, 23.8' LT
(SEE CONSTRUCTION DETAIL ON SHEET 49)

PROP 14' TS POST
W/RRFB (3-SIDED)
W/INFRARED CAMERA DETECTION
W/TWO W11-2, ONE W16-7p(R), ONE W16-7p(L) & ONE SP-1
STA 107+28.9, 21.0' RT
(SEE CONSTRUCTION DETAIL ON SHEET 49)

PROP INTERCONNECT CONDUIT
W/PULL ROPE
(FOR FUTURE USE)

PROP SERVICE CONNECTION

PROP POWER SOURCE

PROP 8' TS POST
W/PED SIGNAL HEAD
W/APS PED PUSH BUTTON
W/R10-3e(L) & SADDLE
STA 110+65.4, 36.6' LT

PROP 8' TS POST
W/PED SIGNAL HEADS
W/APS PED PUSH BUTTONS
W/R10-3e(R) & R10-3e(L) & SADDLES
STA 110+19.4, 26.0' LT

PROP TS POLE
W/30' TS MAST ARM
STA 110+06.8, 21.7' LT

PROP TS 2 TYPE 1 CONTROLLER
IN A TYPE 6 BASE MOUNTED CABINET
W/FOUNDATION
STA 111+20.5, 29.2' LT

PROP SERVICE CONNECTION

PROP 10' TS POST
W/PED SIGNAL HEAD
W/APS PED PUSH BUTTON
W/R10-3e(L) & SADDLE
STA 110+94.1, 31.7' LT

PROP POWER SOURCE

PROP 10' TS POST
STA 110+76.4, 30.6' LT

R3-17
MTD ON TS POLE

PROP PRE-EMPTION
DETECTOR (TYP)

R10-11b
MTD ON TS POLE

PROP
PRE-EMPTION
STROBE

R10-12a

R10-11b
MTD ON
TS POLE

PROP TS POLE
W/20' TS MAST ARM
W/ D3-1(PBS), D3-7
W/PED SIGNAL HEADS
W/APS PED PUSH BUTTONS
W/R10-3e(R) & R10-3e(L) & SADDLES
STA 111+03.9, 24.3' RT

PROP 14' TS POST
SEE NOTE 9
W/PED SIGNAL HEAD
W/APS PED PUSH BUTTON
W/R10-3e(L) & SADDLE
STA 110+37.7, 33.0' RT

PROP 10' TS POST
W/PED SIGNAL HEAD
W/APS PED PUSH BUTTON
W/R10-3e(R) & SADDLE
STA 110+57.5, 42.1' RT

AREA OF DETECTION (TYP)

MUNICIPAL DRIVE

MAIN STREET

MECHANIC STREET

MAPLE STREET

1856 TOWN LAYOUT

1863 TOWN LAYOUT

PT +28.18

PC +66.44

PT +32.97

106 107 108 109 110 112

30" OAK

18" MAPLE

UP #100 UP #101 UP #102 UP #103/374 UP #1

3 FT CLF

3 FT WOOD FENCE

BOLLARD

I-BEAM BOLLARD

BOLLARDS

METAL BENCH

CONCRETE CURB

GRANITE CURB

BIT. CONC. DR.

BIT. CONC. WALK

BIT. BERM

CONC. WALK

CONC. HDCP RAMP

CONC. CURB

DOOR

DOORS W/STEPS

DOOR W/ STEP

DOORS

TREE

W/LIGHT

DH FND

HH

WG

WGO

SIGN

EXISTING RIGHT OF WAY EASEMENT FOR HIGHWAY PURPOSES

15' WIDE RIGHT OF WAY EASEMENT

GAS LINE LOCATION

0 20 50 100

SCALE: 1" = 20'

ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8	ø9	
	PERM	OL			PERM				

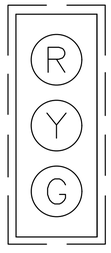
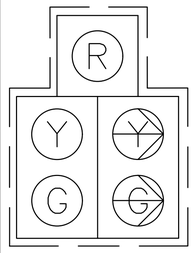
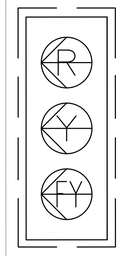
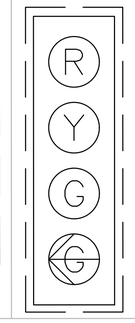
SEQUENCE AND TIMING FOR FULLY ACTUATED CONTROL (TIME–BASE COORDINATED)

APPROACH	DIRECTION	HOUSING	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	FLASH
MAIN STREET	EB	A				G	Y	R	R	R	R	R	R	R				R	R	R							R	R	R	FY
MAIN STREET	EB	B,K				G	Y	R	R–G	R	R–Y	R	R	R				R	R	R							R	R	R	FY
MAIN STREET	WB	C				←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–	←R–				←FY–	←Y–	←R–							←R–	←R–	←R–	←FY–
MAIN STREET	WB	D,E				R	R	R	R	R	R	R	R	R				G	Y	R							R	R	R	FY
MAPLE STREET	NB	F				R	R	R	←G– G	Y	R	R	R	R				R	R	R							R	R	R	FR
MAPLE STREET	NB	G				R	R	R	G	Y	R	R	R	R				R	R	R							R	R	R	FR
MUNICIPAL DRIVEWAY	SB	H				R	R	R	R	R	R	←G– G	Y	R				R	R	R							R	R	R	FR
MUNICIPAL DRIVEWAY	SB	J				R	R	R	R	R	R	G	Y	R				R	R	R							R	R	R	FR
PEDESTRIAN X–ING	NB–SB	P1–P2				DW	DW	DW	DW	DW	DW	DW	DW	DW				DW	DW	DW							W/FDW	DW	DW	OUT
PEDESTRIAN X–ING	NB–SB	P3–P4				DW	DW	DW	DW	DW	DW	DW	DW	DW				DW	DW	DW							W/FDW	DW	DW	OUT
PEDESTRIAN X–ING	EB–WB	P5–P6				DW	DW	DW	DW	DW	DW	DW	DW	DW				DW	DW	DW							W/FDW	DW	DW	OUT
PEDESTRIAN X–ING	EB–WB	P7–P8				DW	DW	DW	DW	DW	DW	DW	DW	DW				DW	DW	DW							W/FDW	DW	DW	OUT
TIMING IN SECONDS																														
MINIMUM GREEN (INITIAL)						10			6			6						10												CONFLICT FLASH OPERATION ONLY
PASSAGE TIME (VEHICLE)						3			3			3						3												
MAXIMUM 1						46			19			12						46												
MAXIMUM 2						28			14			12						28												
YELLOW CLEARANCE							3			3			3						3									3		
RED CLEARANCE								1.5			1.5			2.5						1.5									1	
PEDESTRIAN WALK																											7			
PEDESTRIAN CLEARANCE																											12			
DETECTOR MEMORY						NON–LOCK			NON–LOCK			NON–LOCK			NON–LOCK			NON–LOCK									LOCK		
RECALL						SOFT			OFF			OFF			OFF			SOFT									–		

COORDINATION DATA			COORDINATION PHASE TIMING (IN SECONDS)					
TIMING PLAN	CYCLE LENGTH	OFFSET	ø2	ø3	ø4		ø6	ø9
1/1/1 M–F, 6AM–9AM	90 SEC	10	50(32)	23(18)	17(17)		50(32)	0(23)
2/1/1 M–F, 3PM–7PM	90 SEC	5	50(32)	23(18)	17(17)		50(32)	0(23)
MODE			COORD ø					

NOTES:
1. AUTOMATIC FLASHING OPERATION PER M.U.T.C.D.
2. * NORMALLY DW, W/FDW UPON PEDESTRIAN PUSH BUTTON ACTUATION
3. OL = OVERLAP
4. PERM = PERMISSIVE
5. MAXIMUM 1 = NORMAL OPERATION
6. MAXIMUM 2 = DURING COORDINATION
7. STOP AND GO OPERATION FOR 24 HOURS PER DAY. FLASHING OPERATION FOR EMERGENCY ONLY.
8. DURING PEDESTRIAN INTERVAL, FDW THROUGH YELLOW OPERATION SHALL NOT BE IN EFFECT.
9. XX(XX) = WITH AND WITHOUT PEDESTRIAN ACTUATION
10. SEE SHEET 29 FOR ADDITIONAL COORDINATION DATA.

SIGNAL HEAD DATA

A,D,E,G,J	B,K	C	F,H	P1-P8
				 W/COUNTDOWN TIMER
ALL 12" LENS				

NOTES:
1. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED.
2. ALL SIGNAL HEADS SHALL BE EQUIPPED WITH 5"± NON-LOUVERED BACKPLATES WITH 3" RETROREFLECTIVE BORDER, AND TUNNEL VISORS.
3. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED WITH L.E.D. MODULES.

PRE-EMPTION PHASING & PRIORITY

DETECTOR & PRIORITY	PRE-EMPT PHASE ASSIGNMENT	MOVEMENT	VEHICLE PHASE ASSIGNMENT
D1	1		Ø2
D2	2		Ø6
D3	3		Ø3
D4	4		Ø4

EMERGENCY VEHICLE PRE-EMPTION OPERATION
1. EMERGENCY VEHICLE PRE-EMPTION SIGNALS SHALL BE OPTICALLY TRANSMITTED BY OPTICAL EMITTERS MOUNTED IN EMERGENCY VEHICLES AND RECEIVED BY OPTICAL DETECTORS LOCATED AT EACH INTERSECTION.
2. PRE-EMPTION SIGNALS SHALL BE SERVICED ON A PRIORITY BASIS WITH DETECTORS D1, D2, D3 OR D4 ASSIGNED DESCENDING PRIORITIES AS FOLLOWS: (D1 HIGHEST AND D4 LOWEST)
3. IN RESPONSE TO A PRE-EMPTION SIGNAL RECEIVED AT AN INTERSECTION BY OPTICAL DETECTOR D1 (OR D2, D3, D4) THE CONTROLLER SHALL HOLD OR ADVANCE TO AND HOLD IN EMERGENCY VEHICLE PRE-EMPTION PHASE #1 (OR #2, #3, #4) GREEN FOR A MINIMUM OF TEN (10) SECONDS OR UNTIL PRE-EMPTION SIGNAL CEASES. THE CONTROLLER SHALL THEN TIME PRE-EMPTION PHASE CLEARANCES FOR THE ASSOCIATED PHASE(S) AS SHOWN IN THE SEQUENCE AND TIMING CHART AND SERVICE SUBSEQUENT EMERGENCY VEHICLE PRE-EMPTION PHASES AS NECESSARY.
4. MINIMUM GREEN AND NORMAL VEHICLE CLEARANCE SHALL BE PROVIDED ON PHASES THAT ARE TO BE TERMINATED BY PRE-EMPTION DEMAND.
5. PRE-EMPTION STROBE SHALL BE ILLUMINATED WHENEVER ANY EMERGENCY VEHICLE PRE-EMPTION GREEN IS ON.
6. EMERGENCY VEHICLE PRE-EMPTION SHALL OVERRIDE COORDINATION.

LOOP DETECTOR DATA

DETECTOR NO.	NO. SECTION/ SIZE	NO. OF TURNS	OPERATIONS	DELAY /EXT	CALL PHASE	LOOP CONNECTION
1a	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø2	SERIES
1b	1-4'X6' QUADRUPOLE	2-4-2	PRESENCE	0	Ø2	SINGLE
2	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø2	SERIES
3	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø6	SERIES
4a	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø6	SERIES
4b	1-4'X6' QUADRUPOLE	2-4-2	PRESENCE	0	Ø6	SINGLE
5	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø3	SERIES
6	2-6'X20' QUADRUPOLE	2-4-2	PRESENCE	0	Ø4	SERIES

NOTE: DELAY AND EXTENSION TIMINGS SHALL BE PROGRAMMED IN THE CONTROLLER ONLY

SEQUENCE & TIMING NOTES:

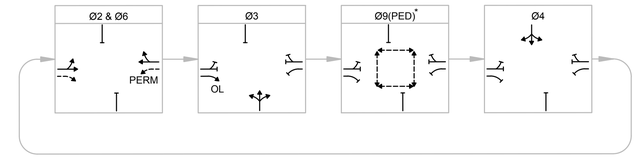
1. IF THE ASSIGNED RIGHT OF WAY FOR ANY TRAFFIC MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT TRAFFIC MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.
2. THE RIGHT OF WAY MAY BE ASSIGNED TO ANY PHASE OR ANY COMBINATION OF NON-CONFLICTING PHASES.
3. IF CALLS EXIST ON ALL PHASES, THE ASSIGNMENT OF RIGHT OF WAY SHALL BE IN ACCORDANCE WITH THE PREFERENTIAL PHASE SEQUENCE.
4. IF THE ASSIGNED RIGHT-OF-WAY FOR ANY TRAFFIC MOVEMENT IS TO CHANGE DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATION FOR THAT MOVEMENT WILL DISPLAY THE APPROPRIATE CLEARANCE INTERVALS.

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	28	84
PROJECT FILE NO.	606207		

TRAFFIC SIGNAL PLANS

PREFERENTIAL PHASE SEQUENCE



* UPON PEDESTRIAN PUSH BUTTON ACTUATION

LIST OF MAJOR ITEMS REQUIRED

MAIN STREET AT MAPLE STREET/MUNICIPAL DRIVEWAY

PAY ITEM	QUANTITY	DESCRIPTION
816.02	1	8Ø TS 2 TYPE 1 CONTROLLER IN A TYPE 6 BASE MOUNTED CABINET INCLUDING FOUNDATION AND CONCRETE PAD
	1	GPS TIME-SYNCH DEVICE
	1	MALFUNCTION MANAGEMENT UNIT CAPABLE OF SUPPORTING FYA
	1	TS 20' MAST ARM TYPE 2, STEEL, INCL. FOUNDATION
	1	TS 30' MAST ARM TYPE 2, STEEL, INCL. FOUNDATION
	2	TS POST 8' STANDARD INCL. FOUNDATION
	3	TS POST 10' STANDARD INCL. FOUNDATION
	1	TS POST 14' STANDARD INCL. FOUNDATION
	5	SIGNAL HEAD, 3-SECTION, 12" LENSES
	1	SIGNAL HEAD, 3-SECTION, 12" LENSES WITH FLASHING YELLOW ARROW
	2	SIGNAL HEAD, 4-SECTION, 12" LENSES
	2	SIGNAL HEAD, 5-SECTION, 12" LENSES
	8	PEDESTRIAN SIGNAL HEAD
	5	APS PEDESTRIAN PUSH BUTTON W/R10-3e(L) AND SIGN SADDLE
	3	APS PEDESTRIAN PUSH BUTTON W/R10-3e(R) AND SIGN SADDLE
	4	TYPE C, 2-CHANNEL CARD RACK LOOP DETECTOR AMPLIFIER
	14	WIRE LOOP DETECTOR
	4	EMERGENCY PRE-EMPTION OPTICAL DETECTORS & DETECTOR CABLE
	1	EMERGENCY PRE-EMPTION 4 CHANNEL PHASE SELECTOR
	1	EMERGENCY PRE-EMPTION SYSTEM CHASSIS
	1	EMERGENCY PRE-EMPTION STROBE (WHITE LENS)
	1	SERVICE CONNECTION (OVERHEAD)
	13	PULL BOX-12"x12"-SD2.031
	2	ELECTRIC HANDHOLE - SD2.022

PLUS NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING TRAFFIC CONTROL SIGNAL.

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SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	29	84
PROJECT FILE NO. 606207			

COORDINATION DATA

25-Aug-2016

606207_TRICOORD).DWG

COORDINATION DATA

LOCATION 1: MAIN STREET AT PLEASANT/WALL STREETS

	PLAN 1	PLAN 2
CYCLE LENGTH	90 SEC	90 SEC
OFFSET	0	0
SPLIT Ø2	57	61
SPLIT Ø4	33	29
SPLIT Ø5	12	12
SPLIT Ø6	45	49
SPLIT Ø8	33	29
COORDINATED PHASE	Ø2	Ø2

COORDINATION DATA

LOCATION 2: MAIN STREET AT MAPLE STREET/DRIVEWAY

	PLAN 1	PLAN 2
CYCLE LENGTH	90 SEC	90 SEC
OFFSET	10	5
SPLIT Ø2	50(32)	50(32)
SPLIT Ø3	23(18)	23(18)
SPLIT Ø4	17(17)	17(17)
SPLIT Ø6	50(32)	50(32)
SPLIT Ø9 (PED)	- (23)	- (23)
COORDINATED PHASE	Ø2	Ø2

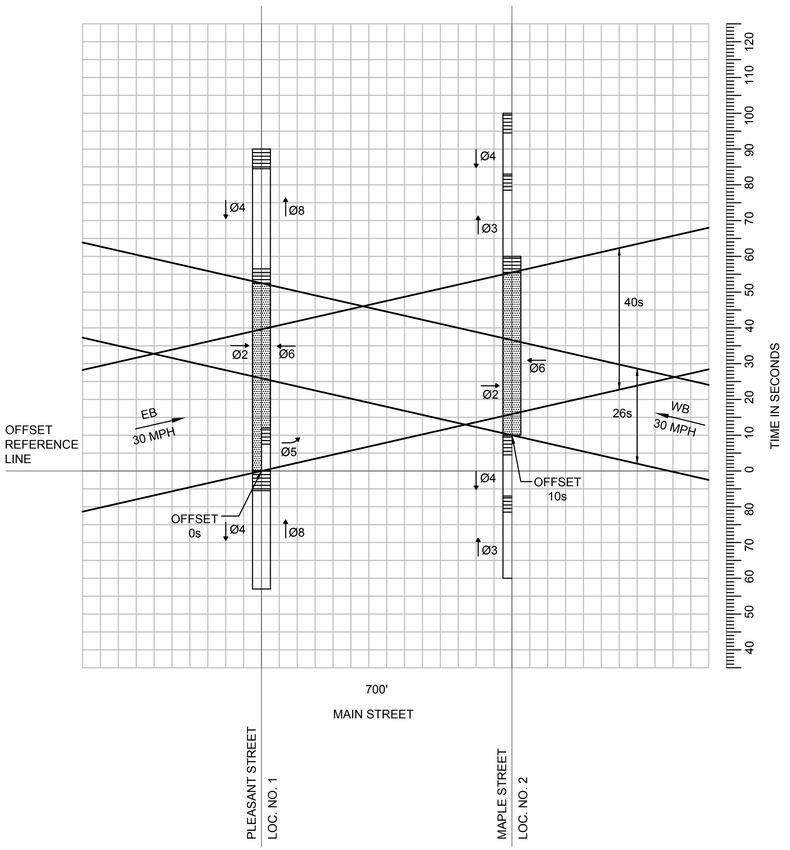
COORDINATION DATA GENERAL NOTES

1. ALL ENTRIES IN SECONDS.
2. SPLIT TIMES EQUAL GREEN PLUS CLEARANCES.
3. Ø2 "CALL NOT ACTUATED" DURING COORDINATION.

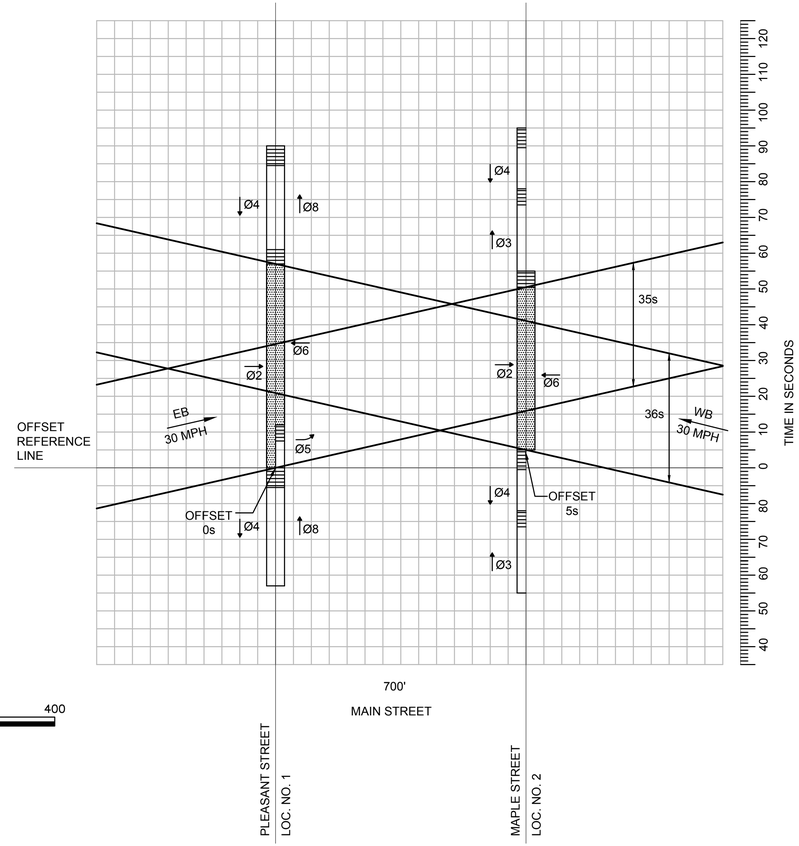
CONTROLLER COORDINATION SETUP

SET-UP	CODE		0	1	2	3
OPERATION	1	1	FREE	AUTO	MANUAL	---
MODE (NORMAL)	0	0	PERM	YIELD	PM YLD	PM OMT
MAXIMUM	0	2	M INH	MAX 1	MAX 2	---
CORRECTION	2	2	DWELL	MX DW	SH WAY	SW+
OFFSET	0	0	BEGIN	END	---	---
FORCE	0	0	PLAN	CYCLE	---	---
INTERSECTION	LOC. NO. 1	LOC. NO. 2				

PLAN 1 - WEEKDAY MORNING
90 SECOND CYCLE



PLAN 2 - WEEKDAY EVENING
90 SECOND CYCLE





DAILY & WEEKLY COORDINATION PROGRAM

	MONDAY THRU FRIDAY	SATURDAY	SUNDAY
PLAN 1 90" CYCLE	0600-0900	-	-
PLAN 2 90" CYCLE	1500-1900	-	-
FREE OPERATION	0000-0600 0900-1500 1900-2400	0000-2400	0000-2400
FLASH OPERATION	-	-	-

LEGEND

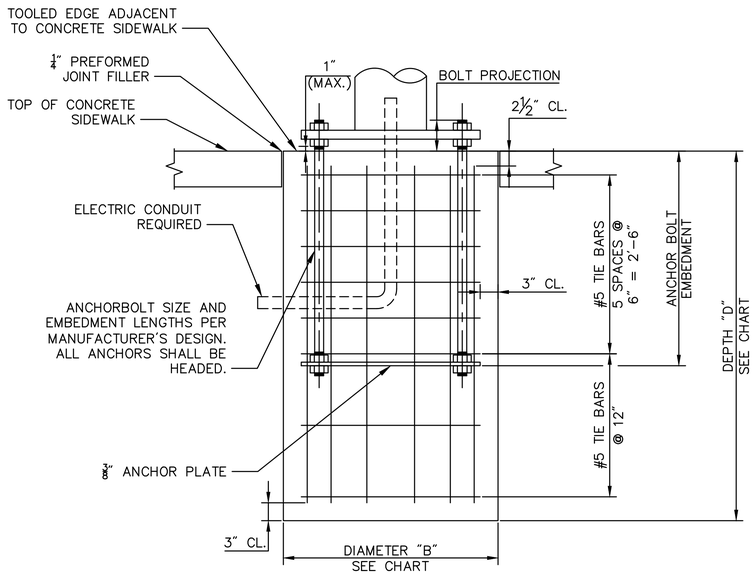
- COORDINATED PHASE GREEN TIME
- NON-COORDINATED VEHICLE PHASE GREEN TIME
- CLEARANCE TIME (YELLOW + RED)
- EXCLUSIVE PEDESTRIAN PHASE
- PHASE MOVEMENT
- INTERSECTION-INTERSECTION COORDINATION BAND

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	30	84
PROJECT FILE NO.	606207		

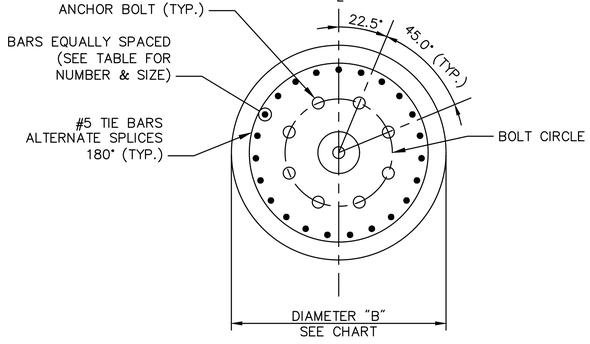
MAST ARM FOUNDATION DETAIL

606207_HD(MAFND).DWG 25-Aug-2016



ELEVATION

NOT TO SCALE



PLAN

NOT TO SCALE

MAST ARM LOCATION	DIAMETER (B)	DEPTH (D)	VERTICAL BARS
25' MAST ARM AT PLEASANT STREET, STA. 103+97.0, 20.1' RT	3'-6"	9'-0"	18-#8
30' MAST ARM AT PLEASANT STREET, STA. 103+87.4, 43.6' LT	3'-6"	8'-0"	18-#8
45' MAST ARM AT PLEASANT STREET, STA. 103+06.8, 41.7' LT	4'-6"	12'-0"	18-#8
30' MAST ARM AT MAPLE STREET, STA. 110+06.8, 21.7' LT	4'-6"	7'-6"	18-#8

FOUNDATION DESIGN CHART

NOT TO SCALE

NOTES:

1. POLE, BASE PLATE AND ANCHOR BOLTS SHALL BE IN ACCORDANCE WITH THE MASSDOT OVERHEAD SIGNAL STRUCTURE & FOUNDATION STANDARD DRAWINGS.
2. SEE MASSDOT STANDARD OVERHEAD SIGNAL STRUCTURE & FOUNDATION STANDARD DRAWINGS FOR ADDITIONAL INFORMATION.

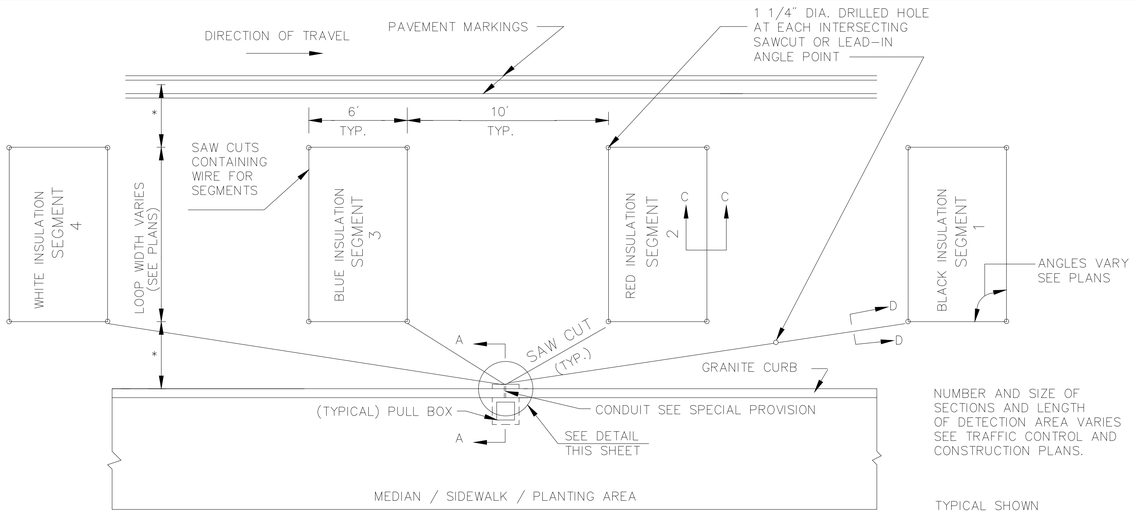
NOTES:

1. FOUNDATIONS SHALL BE CLASS 4000 PSI, 565 CEMENT CONCRETE.
2. REINFORCEMENT SHALL BE ASTM A615 GRADE 60.
3. THE ANCHOR BOLTS SHALL BE SUPPLIED WITH A TEMPLATE FOR SETTING THE BOLTS AND NECESSARY BOLT PROJECTIONS.
4. PROVIDE FOR ELECTRICAL CONDUIT AS REQUIRED.
5. EXCAVATION SHALL BE BY THE AUGER METHOD TO THE NEAT LINES OF THE OUTSIDE DIMENSION OF THE FOUNDATION WITHOUT DISTURBING THE SOIL AROUND AND BELOW THE PROPOSED FOUNDATION BOTTOM. ALTERNATE METHODS OF EXCAVATION MAY BE SUBMITTED TO THE ENGINEER FOR APPROVAL IF THEY MEET THE REQUIREMENTS LISTED IN NOTES 6, 7 AND 8.
6. THE EARTH WALLS OF THE FOUNDATION SHALL BE ADEQUATELY AND SECURELY PROTECTED AT ALL TIMES AGAINST CAVE-INS, DISPLACEMENT OF THE SURROUNDING EARTH AND FOR THE EXCLUSION OF GROUND WATER. THIS MAY BE DONE BY THE USE OF STEEL CYLINDER LINERS OR CASINGS THAT ARE APPROVED BY MASSDOT. IF LINERS ARE USED THEY MAY BE RECLAIMED PROVIDED THAT THEY ARE WITHDRAWN AS THE CONCRETE IS BEING PLACED, MAINTAINING A SUFFICIENT HEAD OF CONCRETE WITHIN THE LINER TO PREVENT REDUCTION IN THE FOUNDATION DIAMETER AND TO PREVENT EXTRANEOUS MATERIAL FROM FALLING IN FROM THE SIDES AND MIXING WITH THE CONCRETE.
7. IF THE SOIL IS DISTURBED OR REMOVED BEYOND THE NEAT LINES OF THE OUTSIDE DIMENSION OF THE FOUNDATION AS SPECIFIED, IT SHALL BE REPLACED WITH CONCRETE. ANY ADDITIONAL COST FOR THE CONCRETE SHALL BE PAID FOR BY THE CONTRACTOR.
8. SPECIAL CARE SHOULD BE GIVEN TO AREAS WHERE WET SOIL IS ENCOUNTERED, TO INSURE THAT THE PREAUGERED HOLE DOES NOT COLLAPSE, THIS MAY REQUIRE THE USE OF STEEL CYLINDER LINERS OR CASINGS TO HOLD THE SOIL IN PLACE UNTIL READY FOR CONCRETE PLACEMENT. THE STEEL CYLINDERS OR CASING SHALL BE WITHDRAWN AS THE FOUNDATION CONCRETE IS PLACED.
9. IF UTILITIES OR OTHER UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED, THE CONTRACTOR SHALL BACKFILL THE AREA TO ITS ORIGINAL CONDITION UNTIL AN ALTERNATE DESIGN HAS BEEN PROVIDED BY THE ENGINEER.

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	31	84
PROJECT FILE NO.	606207		

LOOP DETECTOR DETAILS

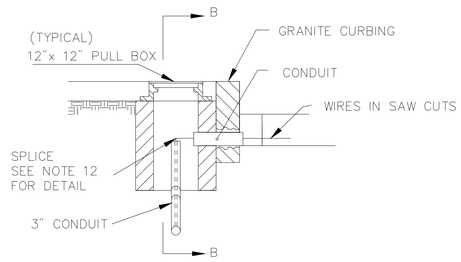


* OFFSETS FROM CURB TO LOOP AND EDGE OF LANE TO LOOP EQUAL IF NOT SHOWN.

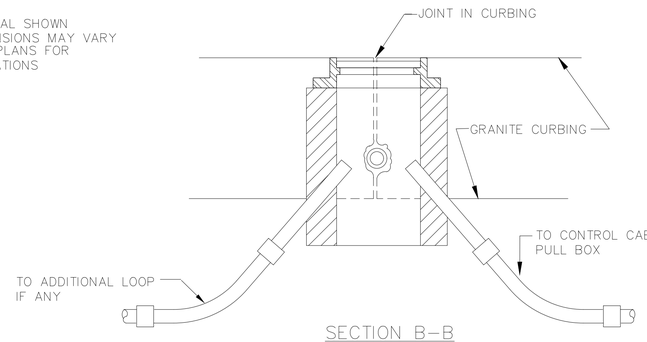
PLAN OF SEGMENTED DETECTOR DETAIL
NOT TO SCALE

NUMBER AND SIZE OF SECTIONS AND LENGTH OF DETECTION AREA VARIES SEE TRAFFIC CONTROL AND CONSTRUCTION PLANS.

TYPICAL SHOWN DIMENSIONS MAY VARY SEE PLANS FOR VARIATIONS



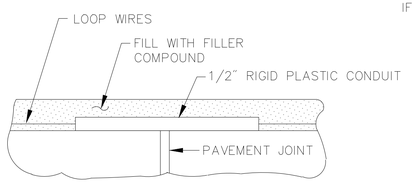
SECTION A–A
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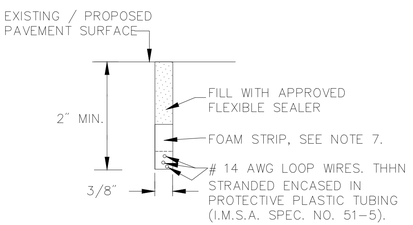
SECTION B–B
NOT TO SCALE

SECTION C–C & D–D

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

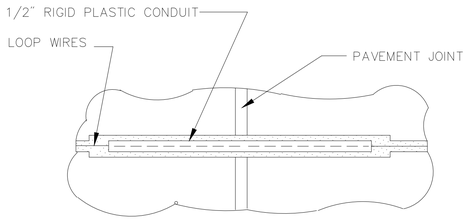


VERTICAL SECTION
TREATMENT AT PAVEMENT JOINTS
NOT TO SCALE

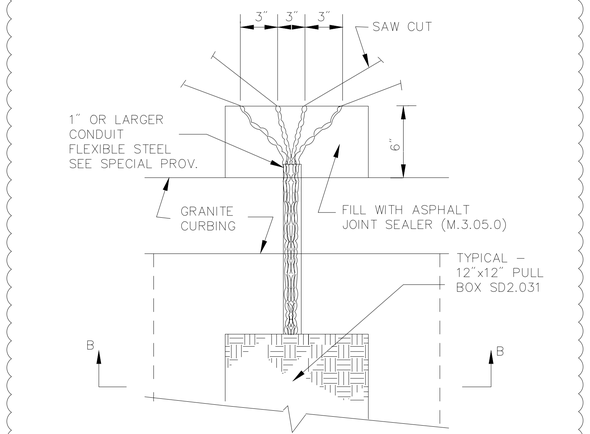


SECTION C–C & D–D

LOOPS IN SURFACE COURSE
NOT TO SCALE



PLAN
TREATMENT AT PAVEMENT JOINTS
NOT TO SCALE



DETAIL – PLAN VIEW
NOT TO SCALE

SEE DETAIL ON SHEET 48 FOR PULL BOXES WITH MORE THAN FOUR LOOP LEAD-INS.

DETECTOR NOTES

1. IN HANDHOLE, SPLICE ALL SEGMENTS TO TYPE II–SHIELDED LOOP DETECTOR DETECTOR LEAD–IN CABLE. SEGMENTS SHALL BE SPLICED IN PARALLEL, IN SERIES, OR IN A COMBINATION OF PARALLEL & SERIES AS SHOWN ON THE PLAN SHEET FOR EACH DETECTOR. NUMBER OF TURNS OF WIRE SHALL ALSO BE AS SHOWN ON THE PLAN SHEET FOR EACH DETECTOR. SEE NOTE 12.

2. SEE SPECIAL PROVISIONS FOR REQUIREMENTS OF DETECTOR AMPLIFIER

3. LEAD IN WIRES SHALL BE TWISTED FROM SEGMENT TO SPLICE WITH SHIELDED CABLE FIVE TURNS PER FOOT. LEAD–IN SHALL BE TYPE II (M8. 16. II).

4 BEFORE STARTING ANY SPLICING, THE ELECTRICAL CONTRACTOR SHALL FURNISH DATA SHEETS ON THE MATERIALS AND/OR METHODS TO BE USED IN ACCORDANCE WITH THE DEPARTMENTS STANDARD OPERATING PROCEDURES FOR APPROVAL OF SHOP DRAWINGS SEE SECTION 815.64, ESPECIALLY PARAGRAPH 1.

5 THE METALLIC SHIELD WHICH SHALL ENCASE THE DETECTOR LEADS FROM A SPLICE (TYPICALLY LOCATED IN A PULL BOX NEAR THE ROADWAY COMPONENT OF THE DETECTOR) TO THE CONTROLLER, AND THE DRAIN WIRE UNDER THE METALLIC SHIELD, SHALL NOT BE GROUNDED TO THE EARTH GROUNDING BUSS IN THE CONTROLLER, AND THE SHIELD AND DRAIN WIRE SHALL BE CAREFULLY INSULATED FROM THE TRANSFORMER NEUTRAL OR FROM EARTH GROUND AT ALL POINTS ALONG IT'S LENGTH. SPECIFICALLY, THIS INCLUDES CAREFUL INSULATION OF THE EXPOSED PORTION OF THE SHIELD AND THE AND THE DRAIN WIRE AT THE END AWAY FROM THE CONTROLLER WHERE IT IS SPLICED TO WIRES LEADING TO THE ROADWAY COMPONENT OF THE DETECTOR. THIS IS IMPORTANT TO AVOID A GROUND RETURN LOOP.

6. FILL ALL CONDUIT OPENINGS WITH DUCT SEAL.

7. AFTER SAW CUTS ARE COMPLETE, BLOW OUT WATER WITH OIL – FREE COMPRESSED AIR UNTIL CUTS ARE CLEAN AND DRY. INSERT WIRE INTO CLEAN SLOT WITH A BLUNT, SMOOTH, ROUND EDGED TOOL OF WOOD OR PLASTIC SUCH AS A PAINT STIRRER. DO NOT USE A SCREWDRIVER, THEN INSERT FOAM PLASTIC HOLD DOWN STRIPS, SIMILAR TO ETHA FOAM SB. STRIPS SHALL BE ABOUT 2" LONG, PLACED IN THE SLOT ABOUT EVERY 2 FEET THEN POUR SEALER, TAKING CARE TO ELIMINATE BUBBLES.

8. THE COMBINED ROADWAY LOOP, TWISTED LEAD–IN WIRES, SPLICE AND SHIELDED LEAD–IN CABLE SHALL HAVE A RESISTANCE TO GROUND OF AT LEAST 100 MEGOHMS. SEE SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.

9. FOR INSTALLATION OF SINGLE (ONE SEGMENT) SMALL WIRE LOOP DETECTOR. DETAIL IS THE SAME

10. CUT LOOPS IN BINDER AND FILL WITH APPROVED FLEXIBLE SEALER.

11. DETECTOR WIRE SHALL BE A DIFFERENT COLOR FOR EACH SEGMENT OF A DETECTOR GROUP. SEE DETAIL

12. SPLICING PATTERN P = SERIES/PARALLEL: SPLICE SEGMENTS 1 AND 3 OF AN INDIVIDUAL DETECTOR IN SERIES. SPLICE SEGMENTS 2 AND 4 IN SERIES. SPLICE THE RESULTANT TWO GROUPS IN PARALLEL. SPLICE THE RESULTANT COMBINATION TO ONE LEAD–IN CABLE. CONNECT THIS CABLE TO AN OTHERWISE UNUSED AMPLIFIER CHANNEL.

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

THIS PLAN NOT DESIGNED BY VANASSE HANGEN BRUSTLIN, INC. IT WAS PROVIDED BY THE MASSACHUSETTS DEPT. OF TRANSPORTATION AND ALL INFORMATION CONTAINED HEREIN IS ASSUMED TO BE CORRECT.

606207_TRIDET-LOOP).DWG Plotted on 25-Aug-2016 8:16 AM

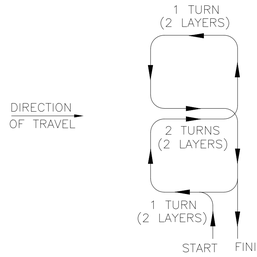
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	32	84
PROJECT FILE NO.	606207		

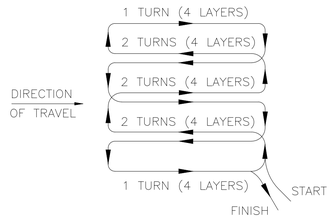
LOOP DETECTOR DETAILS
BICYCLE LOOP DETECTOR

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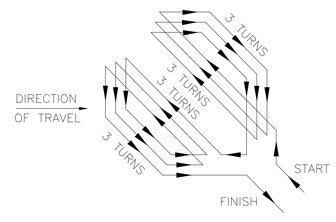
WINDING DETAILS



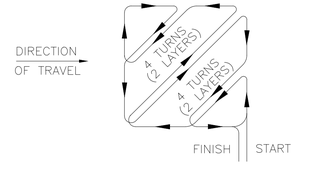
TYPE Q DETECTOR



TYPE D-Q DETECTOR

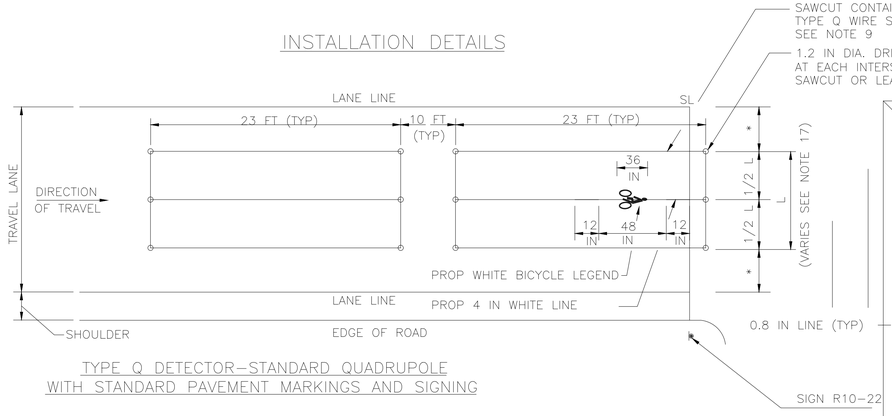


TYPE D-1 DETECTOR

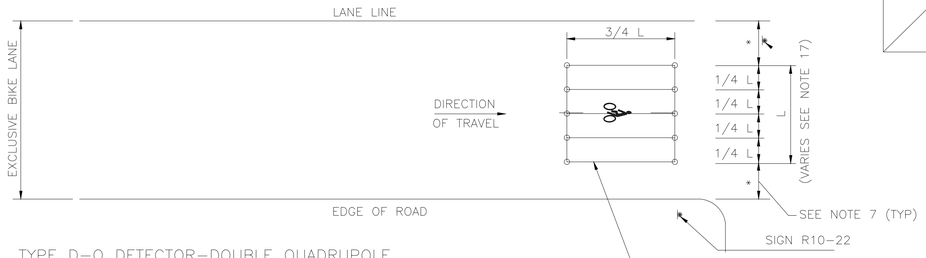


TYPE D-2 DETECTOR

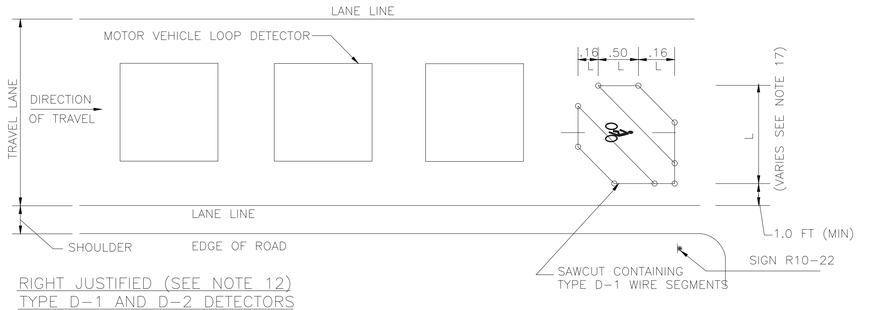
INSTALLATION DETAILS



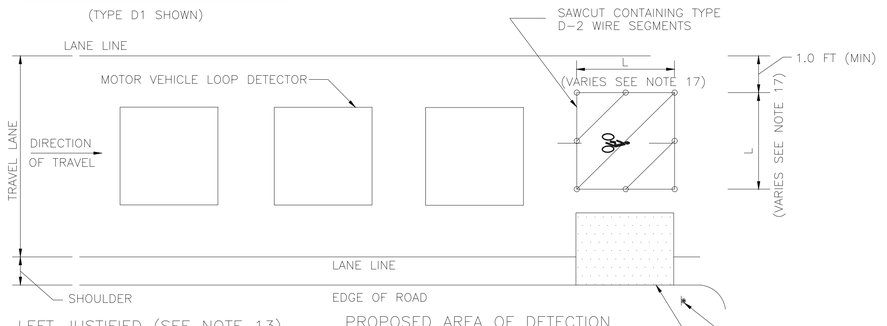
TYPE Q DETECTOR-STANDARD QUADRUPOLE
WITH STANDARD PAVEMENT MARKINGS AND SIGNING



TYPE D-Q DETECTOR-DOUBLE QUADRUPOLE



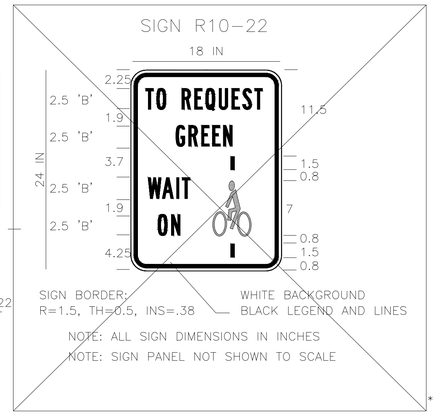
RIGHT JUSTIFIED (SEE NOTE 12)
TYPE D-1 AND D-2 DETECTORS
(TYPE D1 SHOWN)

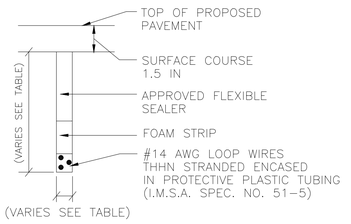


LEFT JUSTIFIED (SEE NOTE 13)
TYPE D-1 AND D-2 DETECTORS
(TYPE D2 SHOWN)

PROPOSED AREA OF DETECTION
A LARGER AREA OF DETECTION MAY BE REQUIRED BASED ON FIELD CONDITIONS AND SHALL BE DETERMINED BY THE DESIGNER.

SIGN NO LONGER REQUIRED BY MASSDOT





SECTION THRU LOOP DETECTOR

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

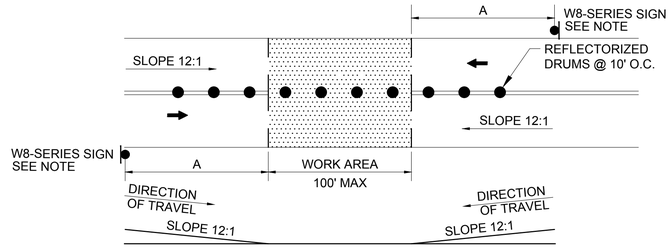
BICYCLE LOOP DETECTOR DETAILS

NOTES:

1. REFER TO VEHICLE LOOP DETECTOR DETAIL SHEET FOR ADDITIONAL NOTES AND CONSTRUCTION DETAILS.
2. ALL DETAILS ARE GRAPHICAL WITH NO SCALE.
3. THE NUMBER, SIZE, LOCATION AND LENGTH OF DETECTION AREA VARIES AND SHALL BE DETERMINED BY THE DESIGNER REFER TO TRAFFIC SIGNAL PLAN.
4. BICYCLE LOOPS SHALL BE CONNECTED TO SEPARATE LOOP DETECTOR AMPLIFIERS CAPABLE OF HIGHER LEVELS OF SENSITIVITY.
5. BICYCLE LOOPS SHALL BE INSTALLED IN THE BASE COURSE OF EXISTING PAVEMENT. THE EXISTING PAVEMENT SHALL BE COLD PLANED TO THE BASE COURSE AND SAWCUT FOR LOOP INSTALLATION.
6. SIGNS AND PAVEMENT MARKINGS SHALL BE INSTALLED FOR ALL BICYCLE DETECTORS TO INFORM CYCLISTS OF THE DETECTION AREA.
7. OFFSETS FROM LANE LINE EQUAL UNLESS OTHERWISE NOTED. SEE PLANS.
8. TYPE Q DETECTORS SHALL BE WIRED IN A FIGURE EIGHT PATTERN WITH A DOUBLE LAYER DESIGN ("2-4-2") WITH 2 TURNS IN THE PERIMETER SLOTS AND 4 TURNS IN THE CENTER SLOT AS SHOWN IN THE WINDING DETAIL.
9. BICYCLES WILL BE DETECTED WITHIN 4 IN. OF THE INTERIOR LONGITUDINAL LOOP WIRES FOR TYPE Q AND D-Q DETECTORS.
10. PROVIDE 3 TURNS FOR TYPE D-1 DETECTORS.
11. INSTALL 2 LAYERS OF WIRE WOUND IN THE SAME DIRECTION IN BOTH LAYERS FOR TYPE D-2 DETECTORS. THE RESULT IS 4 TURNS IN EACH DIAGONAL.
12. RIGHT JUSTIFIED LOOP DETECTORS SHALL BE CONSIDERED FOR THE FOLLOWING CONDITIONS:
    a) BICYCLE STOPPING ON THE RIGHT SIDE OF A THRU TRAVEL LANE.
    b) BICYCLE STOPPING ON THE RIGHT SIDE OF AN EXCLUSIVE LEFT TURN LANE.
13. LEFT JUSTIFIED LOOP DETECTORS SHALL BE CONSIDERED FOR THE FOLLOWING CONDITIONS:
    a) BICYCLE STOPPING ON THE LEFT SIDE OF A SHARED LEFT/THRU LANE.
    b) BICYCLE STOPPING JUST TO THE RIGHT OF THE CENTERLINE WHEN TURNING LEFT ON A TWO-LANE ROADWAY.
14. RECTANGULAR LOOP DETECTORS SHALL BE CONSIDERED FOR BICYCLES STOPPING ON EITHER THE LEFT OR RIGHT SIDE OF A TWO-LANE ROADWAY. THE MINIMUM OFFSET FROM LANE LINE OR CURB LINE SHALL BE 1.0 FT.
15. PAVEMENT CORES OR TEST PITS MAY BE REQUIRED TO DETERMINE THE DEPTH OF EXISTING PAVEMENT AND CONFIRM THAT THE DETECTION OPTION CHOSEN AND CORRESPONDING WINDING PATTERN CAN BE ACCOMMODATED.
16. THESE DETAILS APPLY TO BICYCLE LOOPS INSTALLED IN ROADWAYS. PUSH BUTTON ACTUATION SHALL BE CONSIDERED FOR RECREATIONAL BIKE PATHS.
17. THE MINIMUM DIMENSION FOR L SHALL BE 6 FT MIN. FOR DETECTORS TYPE D-Q, D-1 & D-2. FINAL DIMENSIONS SHALL BE DETERMINED BY THE DESIGN ENGINEER.

GENERAL NOTES

1. 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 HARDWIRE (MASH).
2. WORK HOURS SHALL BE 7:00 AM TO 3:00 PM MONDAY THRU FRIDAY UNLESS OTHERWISE APPROVED BY THE ENGINEER. WORK SHALL NOT AFFECT TRAFFIC PATTERNS DURING PEAK TRAFFIC PERIODS. PEAK PERIODS ARE DEFINED AS MONDAY THRU FRIDAY 6:00 AM TO 9:00 AM AND 3:00 PM TO 7:00 PM. NIGHT WORK MAY BE PERMITTED FOR CERTAIN ELEMENTS OF THE WORK (7:00 PM TO 6:00 AM) UPON WRITTEN APPROVAL OF THE ENGINEER AND THE TOWN OF SPENCER UTILITIES AND FACILITIES SUPERINTENDENT.
3. 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.
4. ALL DRUMS OUTSIDE TAPERS SHALL BE SET AT 20' ON CENTER MAX. UNLESS OTHERWISE NOTED OR ADJUSTED BY THE ENGINEER.
5. ALL DRUMS SHALL BE APPROXIMATELY PLACED AND MOVED AS NECESSARY TO MAINTAIN ADEQUATE ABUTTER ACCESS AT ALL TIMES. 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.
6. 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.
7. FOR RESTORATIVE WORK ON LOCAL ROADWAYS, A MINIMUM OF ONE LANE OF TRAFFIC IN EACH DIRECTION ON TWO WAY STREETS SHALL BE MAINTAINED AT ALL TIMES, EXCEPT THAT DURING WORKING HOURS, TRAFFIC MAY BE REDUCED TO ONE LANE UNDER POLICE CONTROL FOR SHORT TIME PERIODS WHEN REQUIRED FOR THE WORK, AS SHOWN UNLESS OTHERWISE APPROVED BY THE ENGINEER.
8. FOR DROP-OFF CONDITIONS WITHIN THE 4' CLEAR ZONE FROM EDGE OF TRAVELED WAY GREATER THAN 4" BUT LESS THAN 12" ADD A W8-9 SIGN (LOW SHOULDER). CONTRACTOR SHALL ADD THIS SIGN A MINIMUM OF 100' PRIOR TO THE START OF THE DROP-OFF CONDITION. DROP-OFF CONDITION SHALL BE DELINEATED BY REFLECTORIZED DRUMS. ALL DROP-OFF CONDITIONS GREATER THAN 4" BUT LESS THAN 12" SHALL BE PROTECTED BY INSTALLATION OF A 1V:4H COMPACTED GRAVEL WEDGE WITHIN THE CLEAR ZONE.
9. CONTRACTOR SHALL STAGE WORK SUCH THAT A DROP-OFF OF NOT MORE THAN 12" EXISTS WITHIN THE CLEAR ZONE AT ANY TIME.
10. 11' MINIMUM LANE WIDTHS SHALL BE MAINTAINED UNLESS OTHERWISE NOTED.
11. NON-ESSENTIAL TRAFFIC CONTROL DEVICES AND SIGNS SHALL BE COVERED OR REMOVED DURING NON-WORKING HOURS WHEN NOT IN USE.
12. SIGNS INSTALLED ON PORTABLE STANDS REQUIRE 12 INCH MINIMUM MOUNTING HEIGHT FROM THE ROADWAY SURFACE TO THE BOTTOM OF THE SIGN.
13. 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.
14. SIGNS MOUNTED ON P5 POSTS REQUIRE A MINIMUM 84 INCH MOUNTING HEIGHT FROM THE ROADWAY OR SIDEWALK SURFACE TO THE BOTTOM OF THE SIGN.
15. TEMPORARY MARKINGS SHALL BE WATER-BORNE PAINT OR SURFACE-APPLIED REMOVABLE TAPE, AS APPROVED BY THE ENGINEER.
16. ALL TEMPORARY CROSSWALKS AND STOP LINES SHALL BE 12 INCHES WIDE.
17. ALL TEMPORARY DOUBLE YELLOW CENTER LINES (DBYL) SHALL BE 6 INCHES WIDE.
18. THE FIRST 5 DRUMS ON TAPERS SHALL BE REFLECTORIZED DRUMS WITH TYPE A LIGHTS.
19. REFLECTORIZED CONES SHALL BE A MINIMUM OF 36 INCHES IN HEIGHT.
20. CONES MAY BE USED IN LIEU OF DRUMS OUTSIDE OF TAPER AREAS.
21. ADVISORY SPEED PLATES (W13-1P) SHALL BE USED AS SHOWN AND AS REQUESTED BY THE ENGINEER. POSTED ADVISORY SPEED SHALL BE AS APPROVED BY THE APPROPRIATE AGENCY WITH JURISDICTION OVER THE ROADWAY ON WHICH THE SIGN WILL BE MOUNTED.
22. W20-7b SIGNS SHALL BE REPLACED BY W20-7 SIGNS WHEN FLAGGERS ARE USED IN LIEU OF POLICE OFFICER DETAILS.
23. NO WORK SHALL OCCUR WITHIN THE PUBLIC WAY ON STATE RECOGNIZED HOLIDAYS UNLESS OTHERWISE APPROVED BY THE ENGINEER.
24. ARROW BOARD FLASHING CAUTION SHALL FLASH IN FOUR-POINT CAUTION MODE ONLY.
25. CONTRACTOR SHALL SECURE WORK AREAS TO PREVENT UNAUTHORIZED ACCESS AT ALL TIMES.
26. THERE IS NO DESIGNATED BICYCLE LANE ON THE ROADWAY WITHIN THE PROJECT LIMITS. BICYCLES ARE EXPECTED TO SHARE THE ROAD WITH GENERAL VEHICULAR TRAFFIC.
27. 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.
28. W8-15 SIGNS SHALL BE INSTALLED IN ADVANCE (100' MIN) OF PAVEMENT MILLING AREAS OR AS REQUESTED BY THE ENGINEER.
29. W20-1C OR 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.
30. ILLUMINATION REQUIRED FOR NIGHTTIME WORK APPROVED BY THE ENGINEER SHALL BE IN ACCORDANCE WITH MASSDOT STANDARDS.

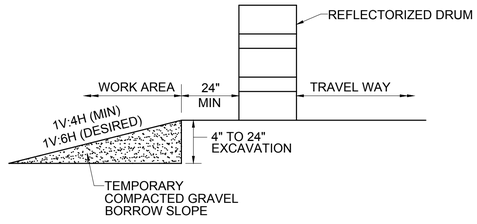


SQUARE OFF THE FULL WIDTH OF THE ROADWAY AT THE END OF WORK DAY

NOTE:
CONTRACTOR SHALL INSTALL W8-1, W8-3, OR W8-8 SIGN, AS APPROPRIATE, ON ALL ROADWAYS IN ADVANCE OF THE TRANSITION UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

TEMPORARY PAVEMENT TRANSITION DETAIL

SCALE: N.T.S.



NOTE:
CONTRACTOR SHALL INSTALL W8-9 SIGN ON ALL ROADWAYS 100 FT IN ADVANCE OF THE START OF DROP-OFF CONDITION.

TYPICAL ROADWAY DROP-OFF PROTECTION

SCALE: N.T.S.

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	33	84
	PROJECT FILE NO. 606207		

TEMPORARY TRAFFIC CONTROL PLANS

LEGEND	
Ⓕ	FLAGGER
Ⓟ	POLICE OFFICER
Ⓢ	TRAFFIC SIGNAL
●	REFLECTORIZED DRUM
◉	REFLECTORIZED DRUM WITH TYPE A FLASHER
	TEMPORARY CONSTRUCTION SIGN
▲	TRAFFIC CONE
	TYPE III BARRICADE
	ARROW BOARD (AB) (RIGHT OR LEFT)
	ARROW BOARD (AB) (CAUTION)
	PORTABLE CHANGEABLE MESSAGE SIGN (PCMS)
	TEMPORARY IMPACT ATTENUATOR (TYPE NOTED)
	WORK AREA (PUBLIC ACCESS RESTRICTED)
	TRAFFIC FLOW
	PEDESTRIAN ROUTE
	CONSTRUCTION FENCE
	PEDESTRIAN CHANNELIZATION DEVICE
NTS	NOT TO SCALE

BUFFER SPACING	
SPEED (MPH)	DISTANCE (FEET)
15	80
20	115
25	155
30	200
35	250
40	305

ADVANCE SIGN SPACING				
	DISTANCE BETWEEN SIGNS (FEET)			
ROAD	A	B	C	D
PLEASANT, MAIN & MAPLE ST	500	250	500	500
ALL OTHER ROADWAYS	350	200	350	350

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	GREATER THAN 40 MPH
$L=\frac{WS^2}{60}$	L= WS

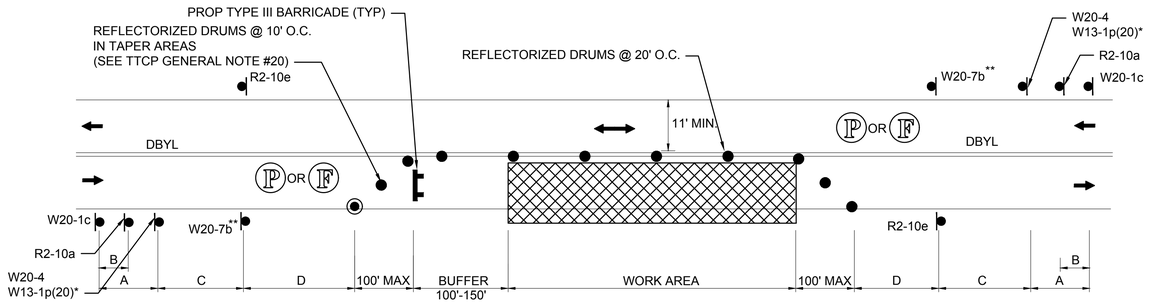
606207_TR(TTCP).DWG Plotted on 25-Aug-2016 8:16 AM

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	34	84
PROJECT FILE NO.	606207		

TEMPORARY TRAFFIC CONTROL PLANS

606207_TR(TTCP).DWG Plotted on 25-Aug-2016 8:16 AM

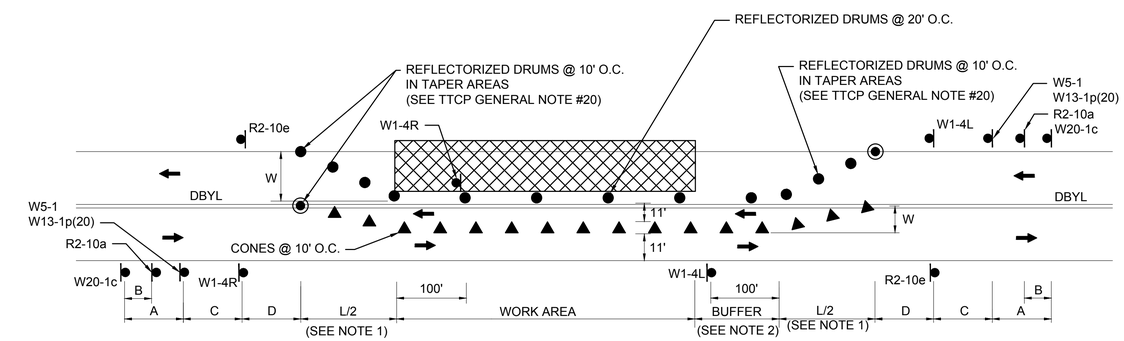


NOTES:

1. REFER TO ADVANCE SIGN SPACING TABLE ON TTCP GENERAL NOTES & LEGEND SHEET.
2. * SEE NOTE 21 ON TTCP GENERAL NOTES & LEGEND SHEET.
3. ** SEE NOTE 22 ON TTCP GENERAL NOTES & LEGEND SHEET.

TYPICAL TWO-WAY STREET LANE CLOSURE ALTERNATING TRAFFIC

SCALE: N.T.S.

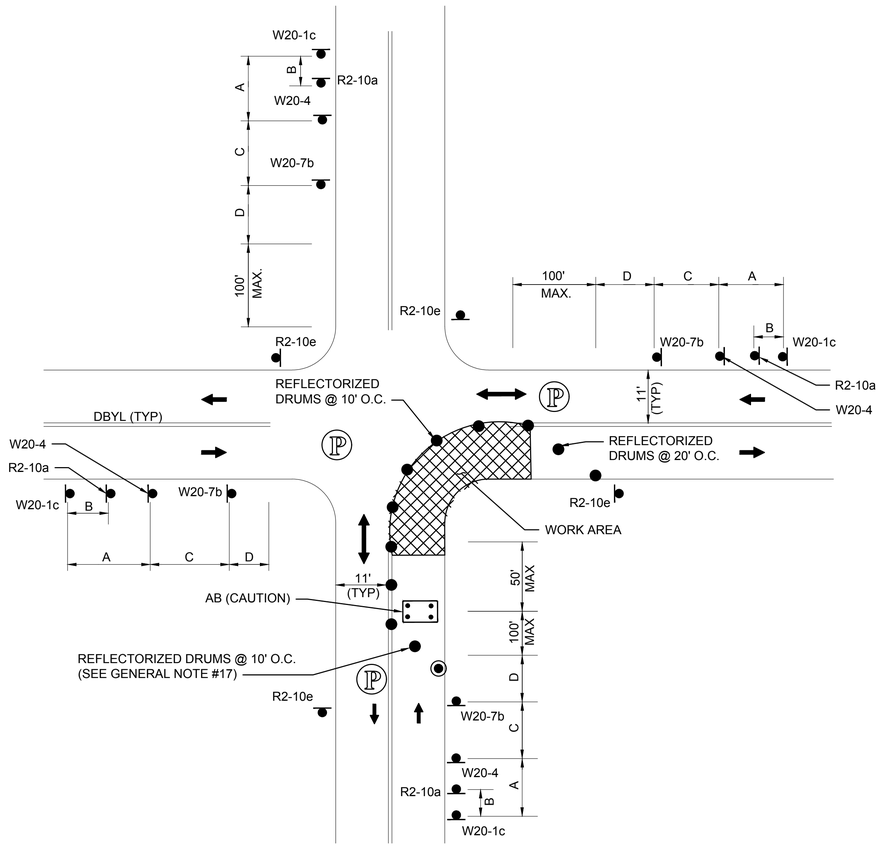


NOTES:

1. SEE TAPER LENGTH FORUMLA ON TTCP GENERAL NOTES & LEGEND SHEET.
2. SEE BUFFER SPACING CHART ON TTCP GENERAL NOTES & LEGEND SHEET.
3. REFER TO ADVANCE SIGN SPACING TABLE ON TTCP GENERAL NOTES & LEGEND SHEET.

TYPICAL TWO-WAY STREET LANE SHIFT

SCALE: N.T.S.



NOTE:
ADVANCE WARNING SIGN PLACEMENT TO BE ADJUSTED AS NECESSARY

ONE LANE BI-DIRECTIONAL TRAFFIC AT INTERSECTIONS

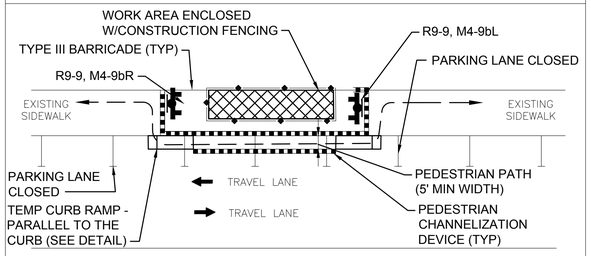
SCALE: N.T.S.

606207_TR(TTCP).DWG Plotted on 25-Aug-2016 8:16 AM

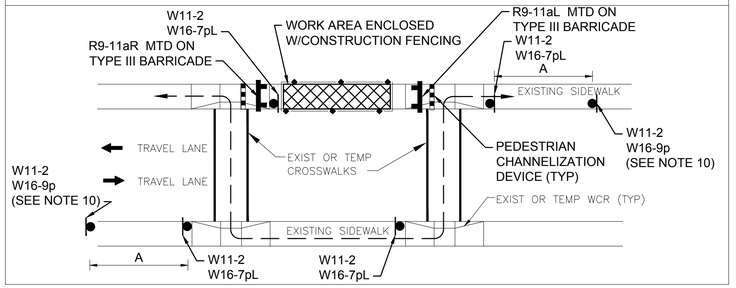
NOTES:

1. ADDITIONAL ADVANCE WARNING SIGNS MAY BE NECESSARY AS DETERMINED BY THE ENGINEER.
2. CONTROLS FOR PEDESTRIAN TRAFFIC ONLY, ARE SHOWN. VEHICULAR TRAFFIC SHALL BE MAINTAINED AS SHOWN ELSEWHERE.
3. STREET LIGHTING SHOULD BE CONSIDERED WHEN LOCATING CONTROL DEVICES.
4. → — → INDICATES DIRECTION OF PEDESTRIAN TRAVEL.
5. 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 CROSSWALKS AS SHOWN IN PEDESTRIAN BYPASS TYPE II, AND AS DIRECTED BY THE ENGINEER.
6. PROPOSED TEMPORARY CROSSWALKS SHALL BE 12" WIDE SURFACE APPLIED TAPE OR REFLECTORIZED PAINT AS DIRECTED BY THE ENGINEER.
7. ALL TEMPORARY PEDESTRIAN PATHWAYS SHALL COMPLY FULLY WITH ALL REQUIREMENTS OF THE MUTCD AND ALL APPLICABLE MAAB AND ADAAG REQUIREMENTS.
8. 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.
9. TEMPORARY WHEELCHAIR RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH MASSDOT, MAAB, AND ADAAG REQUIREMENTS.
10. IF TEMPORARY CROSSINGS ARE INSTALLED AT NON-INTERSECTION LOCATIONS, THESE SIGNS SHALL BE INSTALLED IN ADVANCE OF THE TEMPORARY CROSSING AS SHOWN.

PEDESTRIAN BYPASS TYPE I

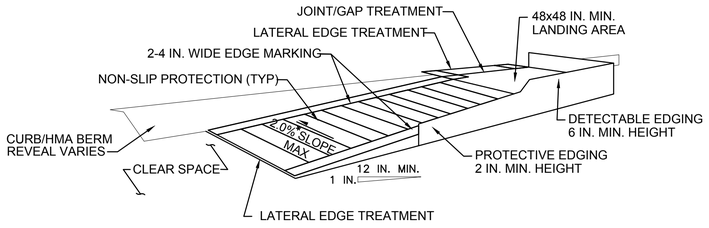


PEDESTRIAN BYPASS TYPE II



PEDESTRIAN BYPASS DETAIL

SCALE: N.T.S.



NOTES:

1. CURB RAMPS SHALL BE 60 IN. MINIMUM WIDTH WITH A FIRM, STABLE AND NON-SLIP SURFACE.
2. PROTECTIVE EDGING WITH A 2 IN. MINIMUM HEIGHT SHALL BE INSTALLED WHEN THE CURB RAMP OR LANDING PLATFORM HAS A VERTICAL DROP OF 6 IN. 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 IN. OR MORE.
3. DETECTABLE EDGING WITH 6 IN. MINIMUM HEIGHT AND CONTRASTING COLOR SHALL BE INSTALLED ON ALL CURB RAMP LANDINGS WHERE THE WALKWAY CHANGES DIRECTION (TURNS).
4. *CURB RAMPS AND LANDINGS SHOULD HAVE A 1:50 (2%) MAX CROSS-SLOPE.
5. CLEAR SPACE OF 48x48 IN. MINIMUM SHALL BE PROVIDED ABOVE AND BELOW THE CURB RAMP.
6. THE CURB RAMP WALKWAY EDGE SHALL BE MARKED WITH A CONTRASTING COLOR 2 TO 4 IN. WIDE. THE MARKING IS OPTIONAL WHERE COLOR CONTRASTING EDGING IS USED.
7. THE CURB RAMP SHOULD BE CONSTRUCTED SO AS NOT TO INTERRUPT THE FLOW OF WATER ALONG THE GUTTER.
8. LATERAL JOINTS OR GAPS BETWEEN SURFACES SHALL BE LESS THAN 0.5 IN. WIDTH.
9. CHANGES BETWEEN SURFACE HEIGHTS SHOULD NOT EXCEED 0.5 IN. LATERAL EDGES SHOULD BE VERTICAL UP TO 0.25 IN. HIGH, AND BEVELED AT 1:2 BETWEEN 0.25 IN. AND 0.5 IN. HEIGHT.

TEMPORARY CURB RAMP-PARALLEL TO CURB

SCALE: N.T.S.

SPENCER
MAIN STREET

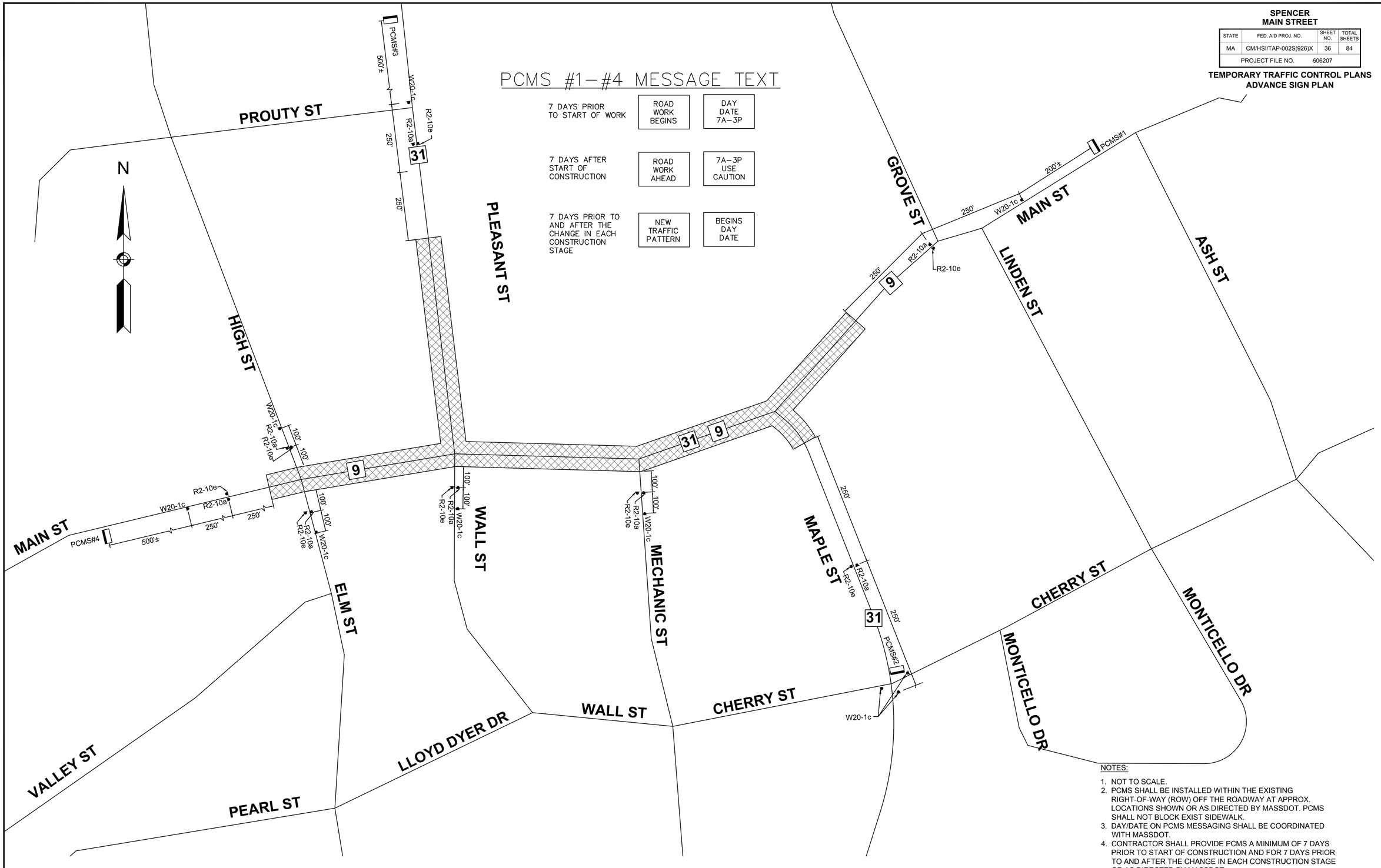
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	36	84
PROJECT FILE NO.	606207		

TEMPORARY TRAFFIC CONTROL PLANS
ADVANCE SIGN PLAN

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PCMS #1–#4 MESSAGE TEXT

7 DAYS PRIOR TO START OF WORK	ROAD WORK BEGINS	DAY DATE 7A–3P
7 DAYS AFTER START OF CONSTRUCTION	ROAD WORK AHEAD	7A–3P USE CAUTION
7 DAYS PRIOR TO AND AFTER THE CHANGE IN EACH CONSTRUCTION STAGE	NEW TRAFFIC PATTERN	BEGINS DAY DATE



NOTES:

1. NOT TO SCALE.
2. PCMS SHALL BE INSTALLED WITHIN THE EXISTING RIGHT-OF-WAY (ROW) OFF THE ROADWAY AT APPROX. LOCATIONS SHOWN OR AS DIRECTED BY MASSDOT. PCMS SHALL NOT BLOCK EXIST SIDEWALK.
3. DAY/DATE ON PCMS MESSAGING SHALL BE COORDINATED WITH MASSDOT.
4. CONTRACTOR SHALL PROVIDE PCMS A MINIMUM OF 7 DAYS PRIOR TO START OF CONSTRUCTION AND FOR 7 DAYS PRIOR TO AND AFTER THE CHANGE IN EACH CONSTRUCTION STAGE OR AS DIRECTED BY MASSDOT.
5. CONTRACTOR SHALL REMOVE ALL PCMS SHOWN 7 DAYS AFTER THE START OF CONSTRUCTION OR IMPLEMENTATION OF EACH CONSTRUCTION STAGE UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
6. SEE NOTE #29 ON SHEET 33.

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH	SIZE OF SIGN HEIGHT	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	TEXT DIMENSIONS (INCHES) VERTICAL SPACING	TEXT DIMENSIONS (INCHES) ARROW RTE. MKR.	COLOR BACKGROUND	COLOR LEGEND	COLOR BORDER
R2-10a	48"	36"	WORK ZONE / SPEEDING FINES DOUBLED	AS PER MASSDOT STANDARD			FLUORESCENT ORANGE / WHITE	BLACK	BLACK
R2-10e	36"	48"	END ROAD WORK / DOUBLE FINES END				FLUORESCENT ORANGE / WHITE	BLACK	BLACK
M4-9bL	30"	24"	DETOUR ←	SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			FLUORESCENT ORANGE	BLACK	BLACK
M4-9bR	30"	24"	DETOUR →				FLUORESCENT ORANGE	BLACK	BLACK
R1-2	36"X36"X36"		YIELD				RED	RED/ WHITE	WHITE
R3-1	24"	24"					WHITE	RED/ BLACK	BLACK
R3-2	24"	24"					WHITE	RED/ BLACK	BLACK
R3-8aL	30"	30"	ONLY ONLY				WHITE	BLACK	BLACK
R3-8aR	30"	30"	ONLY ONLY				WHITE	BLACK	BLACK
R5-1	30"	30"	DO NOT ENTER				WHITE	RED/ WHITE	-
R6-1	36"	12"	ONE WAY →				BLACK	WHITE	WHITE
R9-9	24"	12"	SIDEWALK CLOSED				WHITE	BLACK	BLACK
R9-11aL	24"	12"	SIDEWALK CLOSED ← CROSS HERE				WHITE	BLACK	BLACK
R9-11aR	24"	12"	SIDEWALK CLOSED → CROSS HERE				WHITE	BLACK	BLACK
W1-4L	36"	36"					FLUORESCENT ORANGE	BLACK	BLACK
W1-4R	36"	36"					FLUORESCENT ORANGE	BLACK	BLACK
W5-1	36"	36"	ROAD NARROWS				FLUORESCENT ORANGE	BLACK	BLACK
W8-1	36"	36"	BUMP				FLUORESCENT ORANGE	BLACK	BLACK

TEMPORARY TRAFFIC CONTROL SIGN SUMMARY (CONTINUED)

IDENTIFICATION NUMBER	SIZE OF SIGN WIDTH	SIZE OF SIGN HEIGHT	TEXT	TEXT DIMENSIONS (INCHES) LETTER HEIGHT	TEXT DIMENSIONS (INCHES) VERTICAL SPACING	TEXT DIMENSIONS (INCHES) ARROW RTE. MKR.	COLOR BACKGROUND	COLOR LEGEND	COLOR BORDER
W8-3	36"	36"	PAVEMENT ENDS	SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			FLUORESCENT ORANGE	BLACK	BLACK
W8-8	36"	36"	ROUGH ROAD				FLUORESCENT ORANGE	BLACK	BLACK
W8-9	36"	36"	LOW SHOULDER				FLUORESCENT ORANGE	BLACK	BLACK
W8-15	36"	36"	GROOVED PAVEMENT				FLUORESCENT ORANGE	BLACK	BLACK
W11-2	36"	36"					YELLOW	BLACK	BLACK
W13-1p(20)	24"	24"	20 M.P.H.				FLUORESCENT ORANGE	BLACK	BLACK
W16-7pL	24"	12"	←				YELLOW	BLACK	BLACK
W16-9p	24"	12"	AHEAD				YELLOW	BLACK	BLACK
W20-1c	36"	36"	ROAD WORK AHEAD				FLUORESCENT ORANGE	BLACK	BLACK
W20-4	36"	36"	ONE LANE ROAD AHEAD				FLUORESCENT ORANGE	BLACK	BLACK
W20-7	36"	36"					FLUORESCENT ORANGE	BLACK	BLACK
W20-7b	36"	36"	POLICE OFFICER AHEAD	AS PER MASSDOT STANDARD			FLUORESCENT ORANGE	BLACK	BLACK
W21-7	36"	36"	UTILITY WORK	SEE FHWA "STANDARD HIGHWAY SIGNS, 2004 EDITION"; AS AMENDED			FLUORESCENT ORANGE	BLACK	BLACK

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; AND THE MASSHIGHWAY DEPARTMENT SIGN LISTINGS 1993 EDITION, AS AMENDED.

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	37	84
PROJECT FILE NO.	606207		

TEMPORARY TRAFFIC CONTROL PLANS

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LEGEND

WORK AREA

TRAFFIC SIGNAL

GENERAL NOTES

1. DURING CONSTRUCTION CONTRACTOR SHALL PROVIDE TEMPORARY PEDESTRIAN ACCESSIBLE ROUTE (TPAR) IN ACCORDANCE WITH MASSDOT AND ADA STANDARDS. CONTRACTOR SHALL MAINTAIN PEDESTRIAN SIGNALS IN ACCORDANCE WITH ADAAG.
2. CONTRACTOR SHALL REFERENCE THE STANDARD DETAILS AND DRAWINGS FOR THE DEVELOPMENT OF TEMPORARY TRAFFIC CONTROL PLANS .
3. CONTRACTOR SHALL REFERENCE THE TEMPORARY TRAFFIC CONTROL PLANS SHEETS 33 TO 37 FOR ADDITIONAL DETAILS.
4. CONTRACTOR SHALL MAINTAIN ABUTTER ACCESS AT ALL TIMES.
5. ALL PROPOSED MARKINGS SHOWN SHALL BE TEMPORARY UNTIL THE END OF PHASE 3.

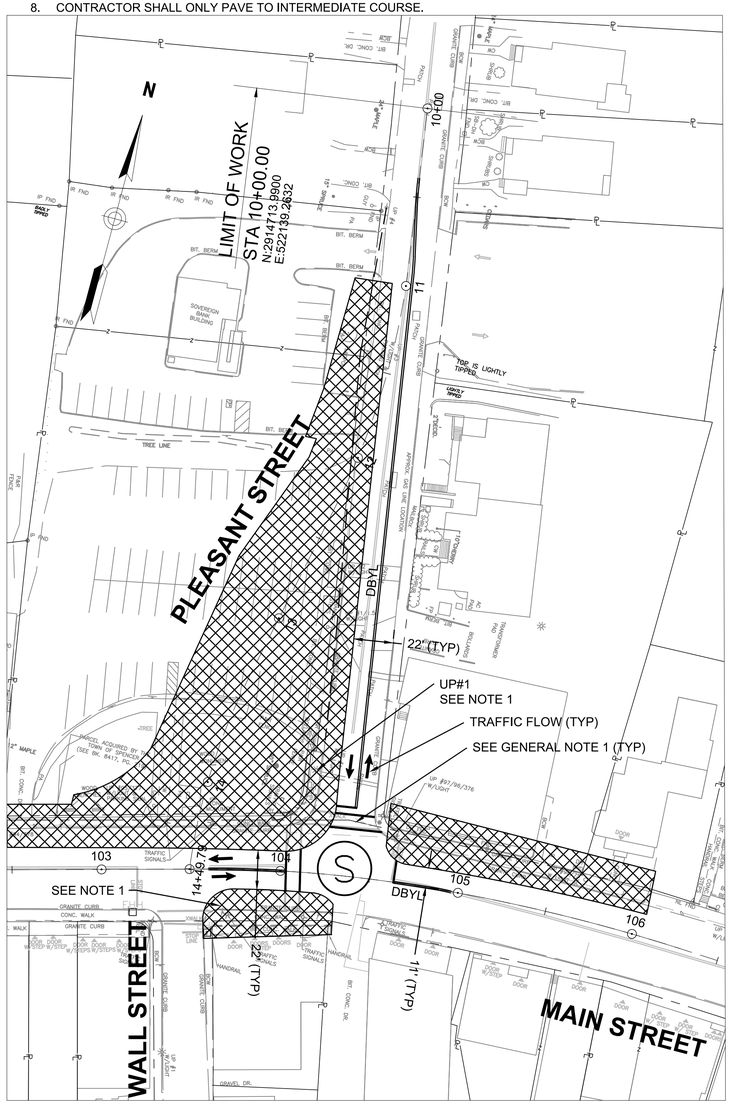
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	38	84
PROJECT FILE NO.	606207		

CONTRUCTION STAGING PLAN

CONSTRUCTION PHASE 1

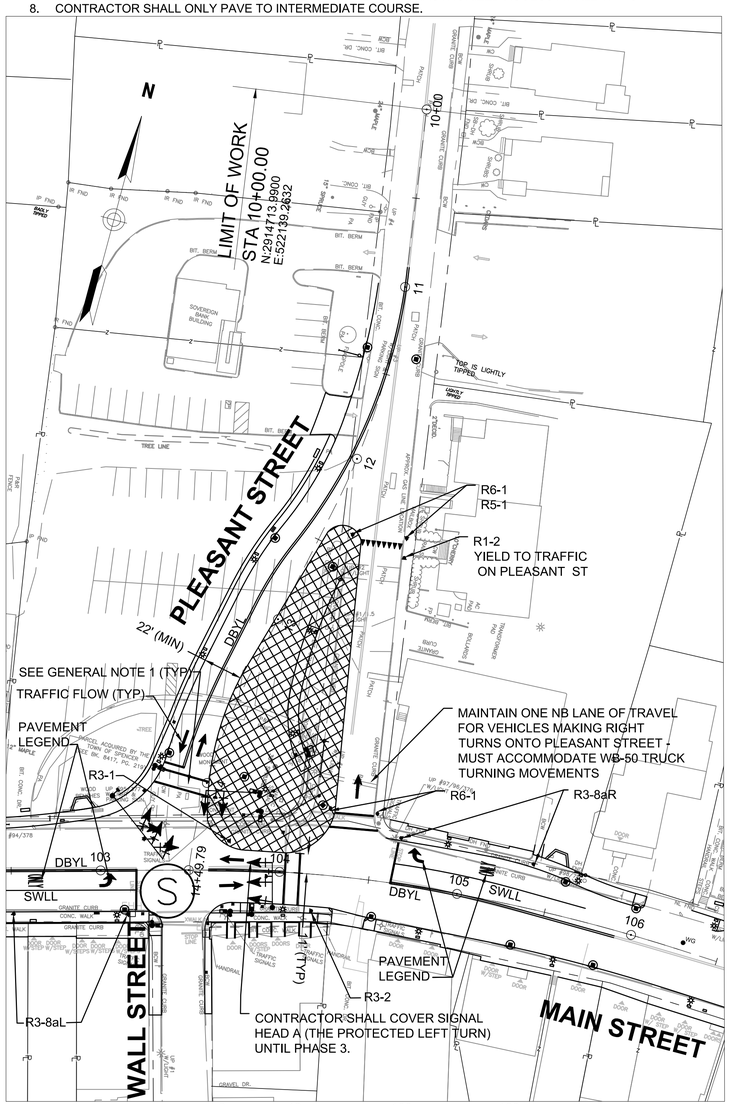
1. THE CONTRACTOR SHALL CONSTRUCT AS MUCH OF THE OFF-ROADWAY AREAS AND SUBSURFACE UTILITIES AS POSSIBLE OR AS APPROVED BY THE ENGINEER. CONTRACTOR SHALL INSTALL ALL PROPOSED SIGNAL EQUIPMENT, INCLUDING CONDUIT AND POWER SOURCE. UP#1 MUST BE RELOCATED AS PART OF THIS PHASE. CONTRACTOR SHALL PROPERLY COORDINATED ALL WORK WITH OTHER PRIVATE AND PUBLIC UTILITY RELOCATION WORK.
2. WORK WITHIN THE PUBLIC WAY IN THIS PHASE SHALL BE COMPLETED USING TEMPORARY TRAFFIC CONTROL AS NECESSARY AND APPROVED BY THE ENGINEER (SEE TEMPORARY TRAFFIC CONTROL PLAN - TYPICAL DETAILS). CONTRACTOR SHALL SUBMIT A TEMPORARY TRAFFIC CONTROL PLAN TO THE ENGINEER FOR APPROVAL LISTING WHAT TYPICAL DETAILS WILL BE USED FOR EACH PORTION OF THE WORK IN THIS PHASE.
3. CONTRACTOR SHALL MAINTAIN (2) - 11 FOOT LANES ON MAIN STREET (ROUTE 9 / 31) AND THE EXISTING PLEASANT STREET (ROUTE 31) (1 EACH DIRECTION) AT ALL TIMES, EXCEPT DURING OFF PEAK TRAFFIC PERIODS. SEE TEMPORARY TRAFFIC CONTROL PLAN GENERAL NOTES FOR ADDITIONAL INFORMATION.
4. CONTRACTOR SHALL UTILIZE AND MAINTAIN EXISTING TRAFFIC SIGNAL EQUIPMENT, TRAFFIC CABINET AND POWER SOURCE.
5. THE CONTRACTOR SHALL USE REFLECTORIZED DRUMS TO DELINEATE THE OUTER EDGE OF THE WORK AREA AT ALL TIMES.
6. CONTRACTOR IS RESPONSIBLE TO MAINTAIN ADEQUATE ROADWAY DRAINAGE AT ALL TIMES THROUGH CONSTRUCTION AND AS DIRECTED BY THE ENGINEER.
7. CONTRACTOR TO SECURE ALL WORK AREAS TO PREVENT UNAUTHORIZED ACCESS AT ALL TIMES.
8. CONTRACTOR SHALL ONLY PAVE TO INTERMEDIATE COURSE.



SCALE: 1" = 40'

CONSTRUCTION PHASE 2

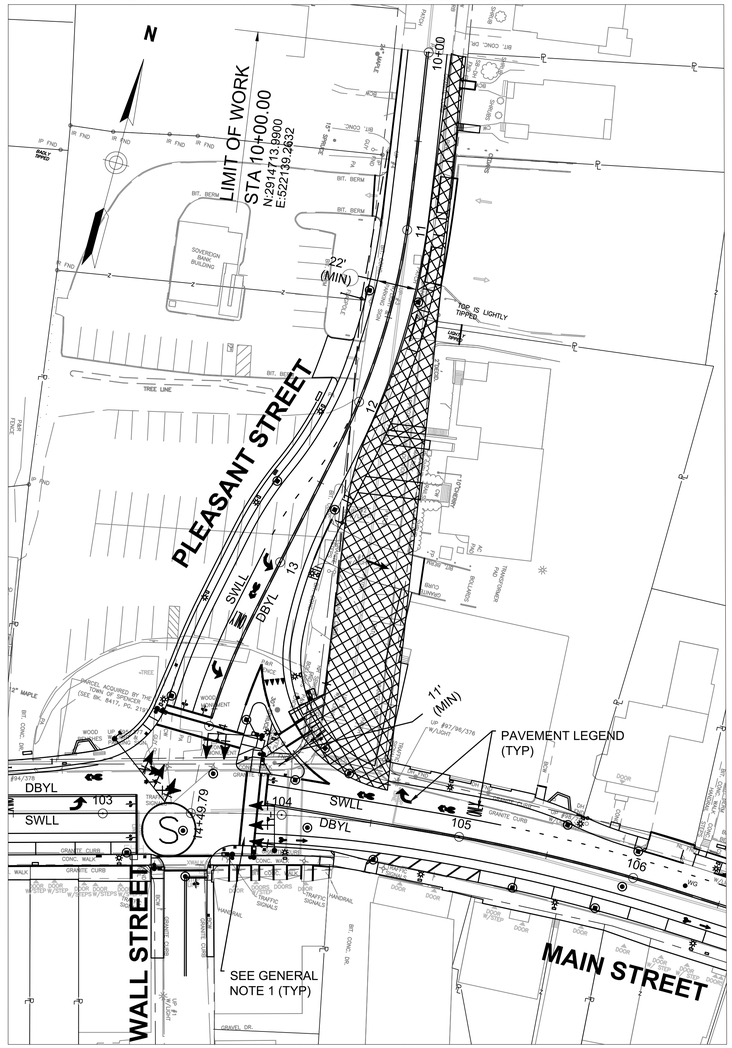
1. THE CONTRACTOR SHALL CONSTRUCT THE PROPOSED ISLAND AND PROPOSED RIGHT TURNING LANE AND SUBSURFACE UTILITIES WHERE POSSIBLE AS APPROVED BY THE ENGINEER. CONTRACTOR SHALL REMOVE EXISTING SIGNAL EQUIPMENT AND UTILIZE NEW SIGNAL EQUIPMENT. ALL WORK SHALL BE PROPERLY COORDINATED WITH OTHER PRIVATE AND PUBLIC UTILITY RELOCATION WORK. AS PART OF THIS PHASE PERMANENT POWER SOURCE FOR PROPOSED SIGNAL EQUIPMENT SHALL BE INSTALLED.
2. WORK WITHIN THE PUBLIC WAY IN THIS PHASE SHALL BE COMPLETED USING TEMPORARY TRAFFIC CONTROL AS NECESSARY AND APPROVED BY THE ENGINEER (SEE TEMPORARY TRAFFIC CONTROL PLAN - TYPICAL DETAILS). CONTRACTOR SHALL SUBMIT A TEMPORARY TRAFFIC CONTROL PLAN TO THE ENGINEER FOR APPROVAL LISTING WHAT TYPICAL DETAILS WILL BE USED FOR EACH PORTION OF THE WORK IN THIS PHASE.
3. CONTRACTOR SHALL MAINTAIN (2) - 11 FOOT LANES ON MAIN STREET (ROUTE 9 / 31) AND THE EXISTING PLEASANT STREET (ROUTE 31) (1 EACH DIRECTION) AT ALL TIMES, EXCEPT DURING OFF PEAK TRAFFIC PERIODS. SEE TEMPORARY TRAFFIC CONTROL PLAN GENERAL NOTES FOR ADDITIONAL INFORMATION.
4. CONTRACTOR SHALL UTILIZE THE EXISTING TRAFFIC SIGNALS AND PROVIDE A TEMPORARY POWER SOURCE UNTIL THE PROPOSED SIGNAL IS FULLY FUNCTIONAL.
5. THE CONTRACTOR SHALL USE REFLECTORIZED DRUMS TO DELINEATE THE OUTER EDGE OF THE WORK AREA AT ALL TIMES.
6. CONTRACTOR IS RESPONSIBLE TO MAINTAIN ADEQUATE ROADWAY DRAINAGE AT ALL TIMES THROUGH CONSTRUCTION AND AS DIRECTED BY THE ENGINEER.
7. CONTRACTOR TO SECURE ALL WORK AREAS TO PREVENT UNAUTHORIZED ACCESS AT ALL TIMES.
8. CONTRACTOR SHALL ONLY PAVE TO INTERMEDIATE COURSE.



SCALE: 1" = 40'

CONSTRUCTION PHASE 3

1. THE CONTRACTOR SHALL CONSTRUCT AS MUCH OF THE OFF-ROADWAY AREAS AND SUBSURFACE UTILITIES AS POSSIBLE OR AS APPROVED BY THE ENGINEER. ALL WORK SHALL BE PROPERLY COORDINATED WITH OTHER PRIVATE AND PUBLIC UTILITY RELOCATION WORK.
2. WORK WITHIN THE PUBLIC WAY IN THIS PHASE SHALL BE COMPLETED USING TEMPORARY TRAFFIC CONTROL AS NECESSARY AND APPROVED BY THE ENGINEER (SEE TEMPORARY TRAFFIC CONTROL PLAN - TYPICAL DETAILS). CONTRACTOR SHALL SUBMIT A TEMPORARY TRAFFIC CONTROL PLAN TO THE ENGINEER FOR APPROVAL LISTING WHAT TYPICAL DETAILS WILL BE USED FOR EACH PORTION OF THE WORK IN THIS PHASE.
3. CONTRACTOR SHALL MAINTAIN (2) - 11 FOOT LANES ON MAIN STREET (ROUTE 9 / 31) AND THE PROPOSED PLEASANT STREET (ROUTE 31) (1 EACH DIRECTION) AT ALL TIMES, EXCEPT DURING OFF PEAK TRAFFIC PERIODS. SEE TEMPORARY TRAFFIC CONTROL PLAN GENERAL NOTES FOR ADDITIONAL INFORMATION.
4. CONTRACTOR SHALL UTILIZE THE PROPOSED TRAFFIC SIGNALS.
5. THE CONTRACTOR SHALL USE REFLECTORIZED DRUMS TO DELINEATE THE OUTER EDGE OF THE WORK AREA AT ALL TIMES.
6. CONTRACTOR IS RESPONSIBLE TO MAINTAIN ADEQUATE ROADWAY DRAINAGE AT ALL TIMES THROUGH CONSTRUCTION AND AS DIRECTED BY THE ENGINEER.
7. CONTRACTOR TO SECURE ALL WORK AREAS TO PREVENT UNAUTHORIZED ACCESS AT ALL TIMES.
8. CONTRACTOR SHALL CONSTRUCT FINAL HMA SURFACE COURSE PAVEMENT INSTALLATION UPON COMPLETION OF ROADWAY WORK, UTILITY ADJUSTMENTS, TRAFFIC SIGNAL INSTALLATION AND VEHICLE DETECTION OR AS APPROVED BY THE ENGINEER.
9. CONTRACTOR SHALL INSTALL FINAL SIGNAGE AS NEEDED. CONTRACTOR SHALL INSTALL TEMPORARY PAVEMENT MARKINGS IN THE FINAL LOCATIONS TO THE EXTENT POSSIBLE. CONTRACTOR SHALL INSTALL FINAL PAVEMENT MARKINGS AFTER FINAL PAVING IS COMPLETE IN ACCORDANCE WITH MASSDOT STANDARDS. REFER TO TRAFFIC SIGN & PAVEMENT MARKING PLANS FOR ADDITIONAL INFORMATION.



SCALE: 1" = 40'

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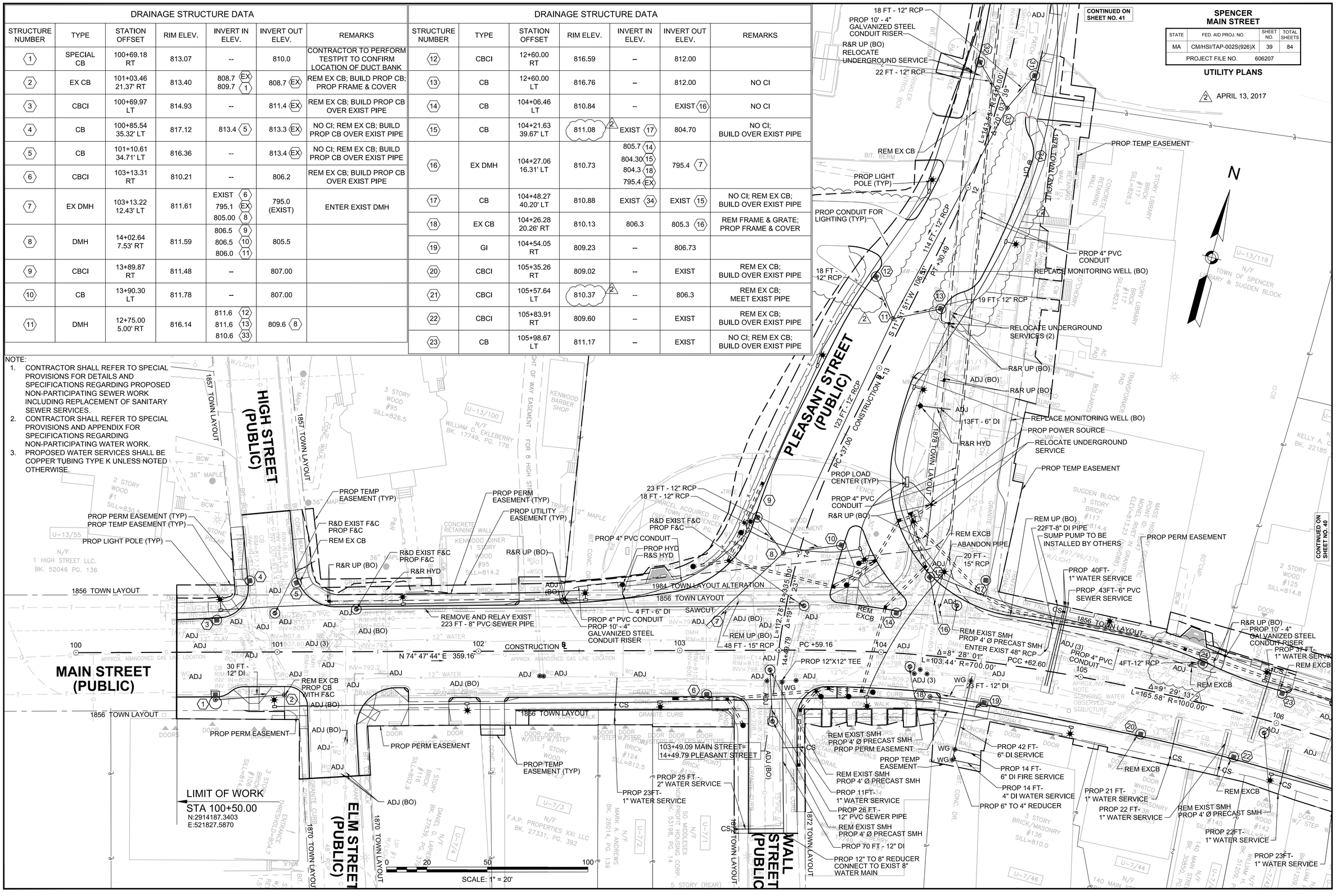
DRAINAGE STRUCTURE DATA

STRUCTURE NUMBER	TYPE	STATION OFFSET	RIM ELEV.	INVERT IN ELEV.	INVERT OUT ELEV.	REMARKS
1	SPECIAL CB	100+69.18 RT	813.07	--	810.0	CONTRACTOR TO PERFORM TESTPIT TO CONFIRM LOCATION OF DUCT BANK
2	EX CB	101+03.46 21.37' RT	813.40	808.7 EX 809.7 1	808.7 EX	REM EX CB; BUILD PROP CB; PROP FRAME & COVER
3	CBCI	100+69.97 LT	814.93	--	811.4 EX	REM EX CB; BUILD PROP CB OVER EXIST PIPE
4	CB	100+85.54 35.32' LT	817.12	813.4 5	813.3 EX	NO CI; REM EX CB; BUILD PROP CB OVER EXIST PIPE
5	CB	101+10.61 34.71' LT	816.36	--	813.4 EX	NO CI; REM EX CB; BUILD PROP CB OVER EXIST PIPE
6	CBCI	103+13.31 RT	810.21	--	806.2	REM EX CB; BUILD PROP CB OVER EXIST PIPE
7	EX DMH	103+13.22 12.43' LT	811.61	EXIST 6 795.1 EX 805.00 8	795.0 (EXIST)	ENTER EXIST DMH
8	DMH	14+02.64 7.53' RT	811.59	806.5 9 806.5 10 806.0 11	805.5	
9	CBCI	13+89.87 RT	811.48	--	807.00	
10	CB	13+90.30 LT	811.78	--	807.00	
11	DMH	12+75.00 5.00' RT	816.14	811.6 12 811.6 13 810.6 33	809.6 8	

DRAINAGE STRUCTURE DATA

STRUCTURE NUMBER	TYPE	STATION OFFSET	RIM ELEV.	INVERT IN ELEV.	INVERT OUT ELEV.	REMARKS
12	CBCI	12+60.00 RT	816.59	--	812.00	
13	CB	12+60.00 LT	816.76	--	812.00	NO CI
14	CB	104+06.46 LT	810.84	--	EXIST 16	NO CI
15	CB	104+21.63 39.67' LT	811.08 2	EXIST 17	804.70	NO CI; BUILD OVER EXIST PIPE
16	EX DMH	104+27.06 16.31' LT	810.73	805.7 14 804.30 15 804.3 18 795.4 EX	795.4 7	
17	CB	104+48.27 40.20' LT	810.88	EXIST 34	EXIST 15	NO CI; REM EX CB; BUILD OVER EXIST PIPE
18	EX CB	104+26.28 20.26' RT	810.13	806.3	805.3 16	REM FRAME & GRATE; PROP FRAME & COVER
19	GI	104+54.05 RT	809.23	--	806.73	
20	CBCI	105+35.26 RT	809.02	--	EXIST	REM EX CB; BUILD OVER EXIST PIPE
21	CBCI	105+57.64 LT	810.37 2	--	806.3	REM EX CB; MEET EXIST PIPE
22	CBCI	105+83.91 RT	809.60	--	EXIST	REM EX CB; BUILD OVER EXIST PIPE
23	CB	105+98.67 LT	811.17	--	EXIST	NO CI; REM EX CB; BUILD OVER EXIST PIPE

NOTE:
1. CONTRACTOR SHALL REFER TO SPECIAL PROVISIONS FOR DETAILS AND SPECIFICATIONS REGARDING PROPOSED NON-PARTICIPATING SEWER WORK INCLUDING REPLACEMENT OF SANITARY SEWER SERVICES.
2. CONTRACTOR SHALL REFER TO SPECIAL PROVISIONS AND APPENDIX FOR SPECIFICATIONS REGARDING NON-PARTICIPATING WATER WORK.
3. PROPOSED WATER SERVICES SHALL BE COPPER TUBING TYPE K UNLESS NOTED OTHERWISE.



DRAINAGE STRUCTURE DATA						
STRUCTURE NUMBER	TYPE	STATION OFFSET	RIM ELEV.	INVERT IN ELEV.	INVERT OUT ELEV.	REMARKS
24	CB	107+69.29 LT	821.05	--	EXIST	NO CI; REM EX CB; BUILD PROP CB OVER EXIST PIPE
25	CB	108+08.50 26.48' RT	824.21	820.60 26	820.1 EX	REM EX CB; PROP PEDESTRIAN SAFE FRAME & GRATE
~~26~~	~~CB~~	~~108+16.12 RT~~	~~825.38~~	--	~~820.90 25~~	~~NO CI~~ 2
27	CB	110+33.85 46.72' LT	851.75	--	849.0 EX	NO CI; REM EX CB; BUILD PROP CB OVER EXIST PIPE
28	CB	110+93.59 LT	853.28	--	849.1 EX	NO CI; REM EX CB; BUILD PROP CB OVER EXIST PIPE
29	CBCI	111+15.31 RT	854.27	--	851.2 EX	REM EX CB; BUILD PROP CB OVER EXIST PIPE

NOTES:
1. CONTRACTOR SHALL REFER TO SPECIAL PROVISIONS FOR DETAILS AND SPECIFICATIONS REGARDING PROPOSED NON-PARTICIPATING SEWER WORK INCLUDING REPLACEMENT OF SANITARY SEWER SERVICES.
2. CONTRACTOR SHALL REFER TO SPECIAL PROVISIONS FOR SPECIFICATIONS REGARDING NON-PARTICIPATING WATER WORK.
3. CONTRACTOR SHALL PERFORM TEST PITS PRIOR TO INSTALLATION OF PROPOSED SEWER MANHOLE SMH-E13A. THE LOCATION SHOWN ON THE PLANS FOR SMH-E13A IS APPROXIMATE ONLY AND THE FINAL LOCATION OF THE PROPOSED SEWER MANHOLE SHALL BE DETERMINED IN THE FIELD.
4. PROPOSED WATER SERVICES SHALL BE COPPER TUBING TYPE K UNLESS NOTED OTHERWISE.

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	40	84
PROJECT FILE NO.	606207		

UTILITY PLANS

2 APRIL 13, 2017

606207_HD(UTIL).DWG Plotted on 13-Apr-2017 3:54 PM

N

0 20 50 100
SCALE: 1" = 20'

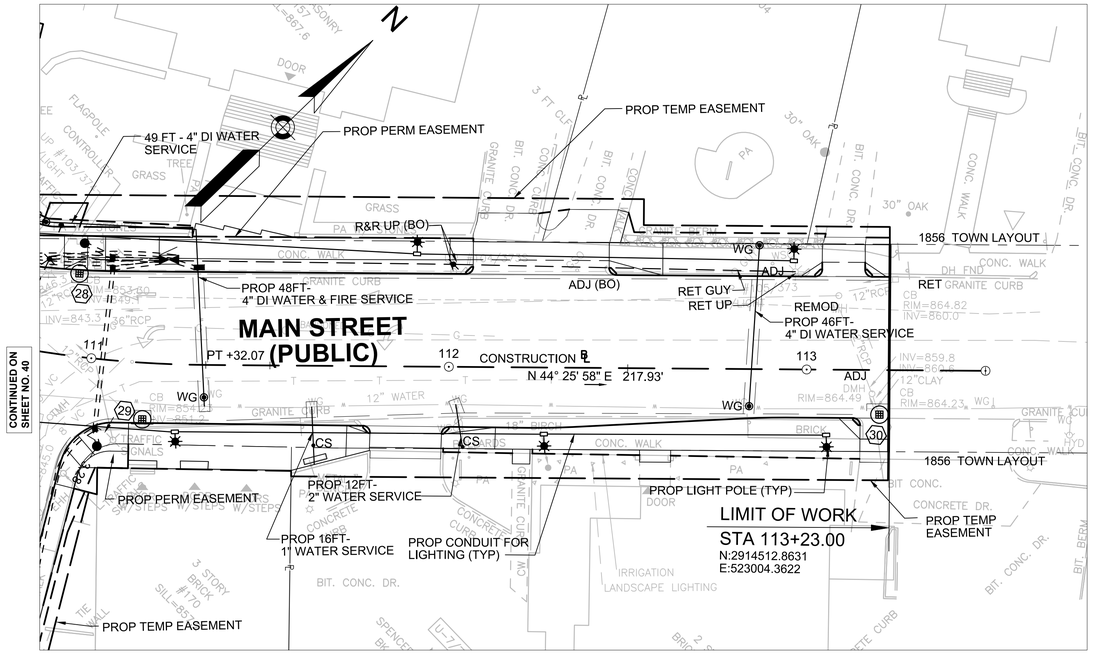
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	41	84
PROJECT FILE NO.	606207		

UTILITY PLANS

2 APRIL 13, 2017

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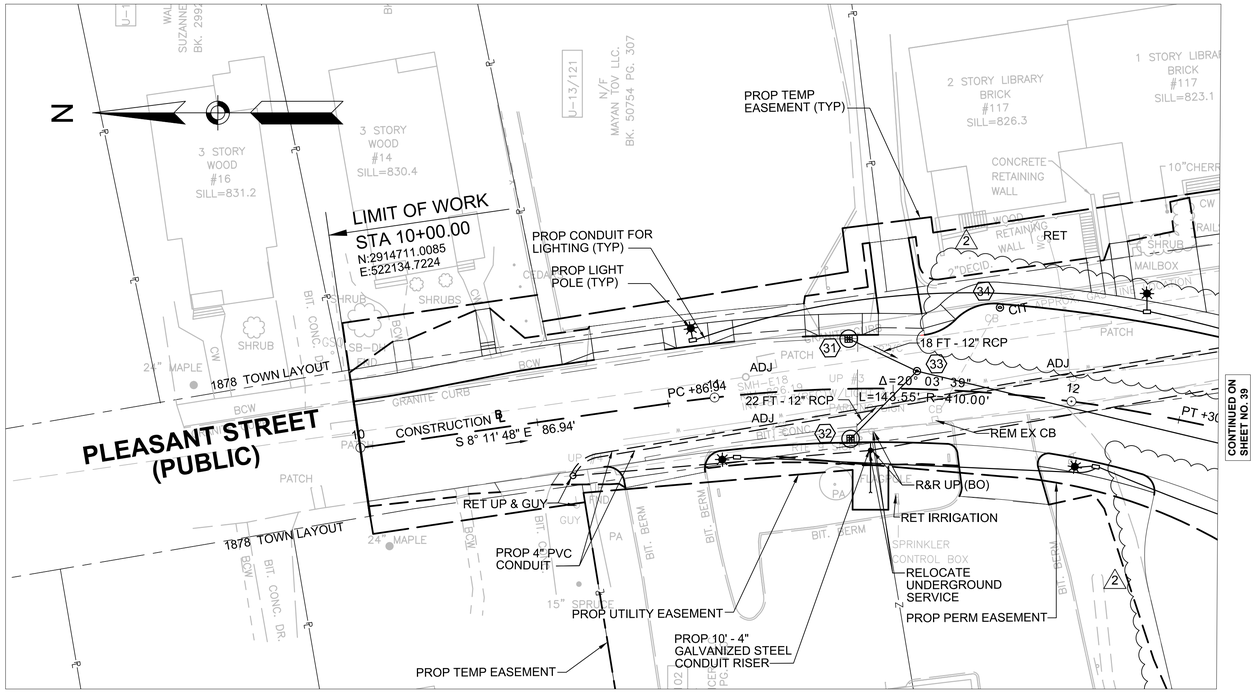


NOTE:
1. CONTRACTOR SHALL REFER TO SPECIAL PROVISIONS FOR DETAILS AND SPECIFICATIONS REGARDING PROPOSED NON-PARTICIPATING SEWER WORK INCLUDING REPLACEMENT OF SANITARY SEWER SERVICES.
2. CONTRACTOR SHALL REFER TO SPECIAL PROVISIONS FOR SPECIFICATIONS REGARDING NON-PARTICIPATING WATER WORK.
3. PROPOSED WATER SERVICES SHALL BE COPPER TUBING TYPE K UNLESS NOTED OTHERWISE.

DRAINAGE STRUCTURE DATA

STRUCTURE NUMBER	TYPE	STATION OFFSET	RIM ELEV.	INVERT IN ELEV.	INVERT OUT ELEV.	REMARKS
30	CB	113+20.44 RT	864.23	--	EXIST	NO CI; REM EX CB; BUILD PROP CB OVER EXIST PIPE
31	CB	11+37.82 LT	825.00	--	820.00 (33)	NO CI
32	CBCI	11+37.84 RT	825.02	--	820.00 (33)	
33	DMH	11+56.53 5.00' LT	823.77	819.40 (31) 819.40 (32)	816.40 (11)	
34	CIT	11+78.04 24.00' LT	821.97 (2)	--	EXIST (17)	REM FRAME & GRATE; PROP FRAME & COVER

0 20 50 100
SCALE: 1" = 20'

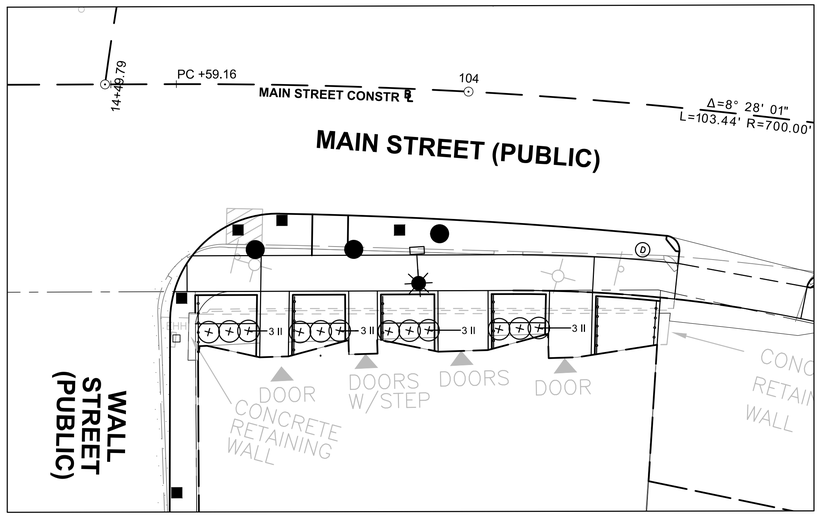


SPENCER
MAIN STREET

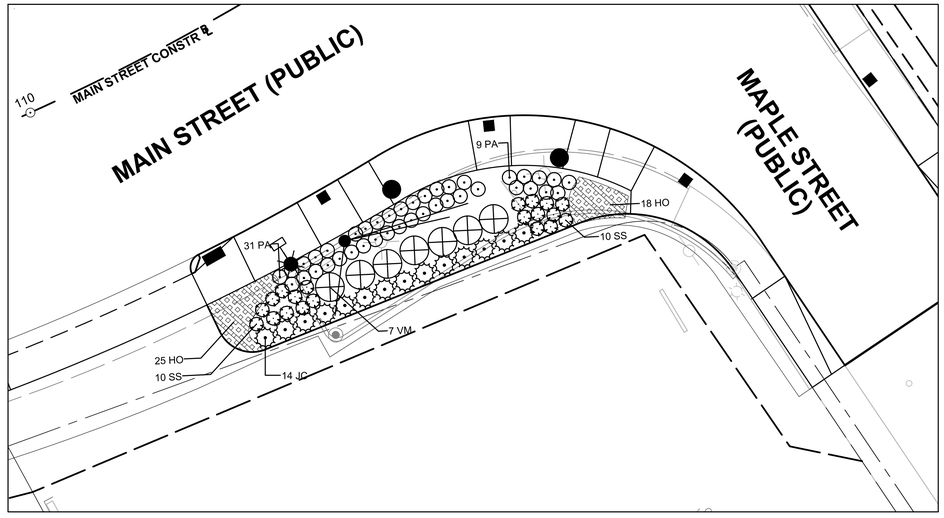
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	42	84
PROJECT FILE NO.	606207		

LANDSCAPING PLAN

606207_HD(LA).DWG Plotted on 25-Aug-2016 8:18 AM



PLANTING PLAN
STA. 104+00 RT



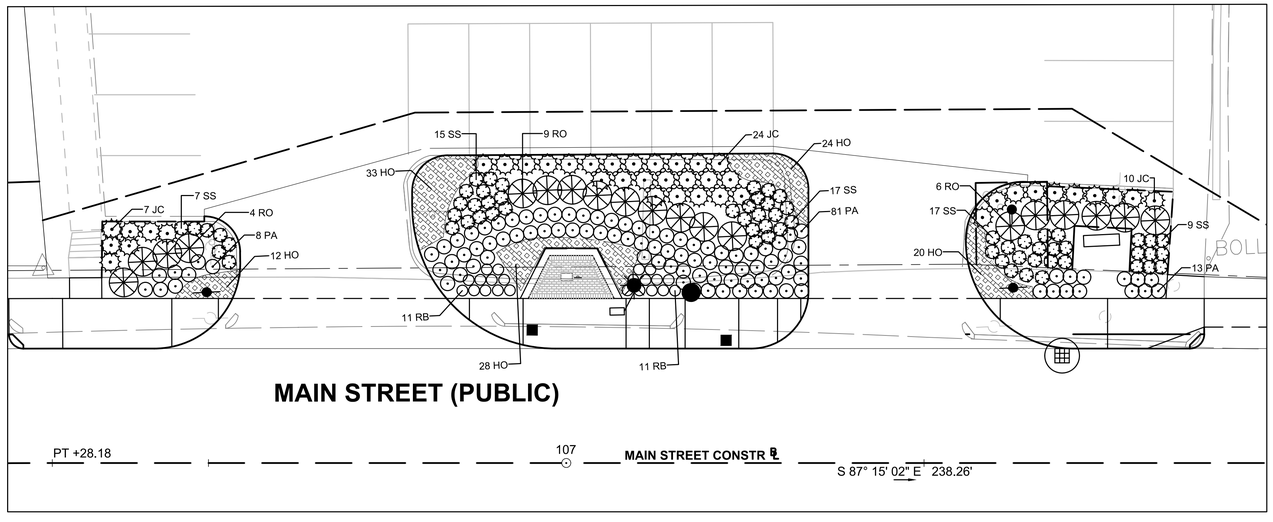
PLANTING PLAN
STA. 110+50 RT

PLANT SCHEDULE

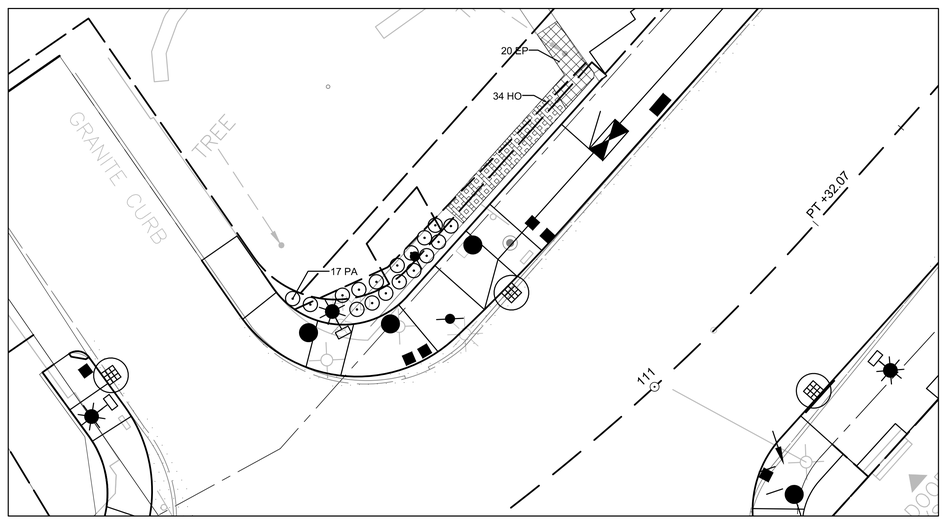
Key	Item Description	Botanical Name	Size	Spacing	Quantity
EP	Echinacea purpurea	Purple Coneflower	2 QUART	18" O.C.	20
II	Inkberry - Compact	Ilex glabra 'Compacta'	2 - 3'	36" O.C.	12
JC	Juniper - `Sea Green`	Juniperus chinensis `Sea Green`	2 GAL.	36" O.C.	55
PA	Dwarf Fountain Grass - `Hameln`	Pennisetum alopecuroides `Hameln`	1 GAL.	24" O.C.	159
RO	Rhododendron - 'PJM Olga'	Rhododendron x 'Olga Mezitt'	24 - 30"	48" O.C.	19
RB	Black Eyed Susan	Rudbeckia fulgida Black Eyed Susan	1 GAL.	18" O.C.	22
SS	Spirea - 'Little Princes'	Spiraea japonica 'Little Princess'	15 - 18"	30" O.C.	85
VM	Viburnum - Arrowwood - 'Blue Muffin'	Viburnum dentatum 'Blue Muffin'	2 GAL.	48" O.C.	7
HO	Daylily - 'Stella d'Oro'	Hemerocallis x 'Stella de Oro'	1 GAL.	18" O.C.	194

NOTES:

1. AGED PINE BARK MULCH SHALL BE SPREAD THROUGHOUT THE PLANTING BED TO A DEPTH OF 3 INCHES.
2. PLANT CARE SHALL BE FOR ONE YEAR (GROWING SEASON) ONLY PER THE CONTRACT PLAN WARRANTY.



PLANTING PLAN
STA. 107+00 LT



PLANTING PLAN
STA. 111+00 LT

0 10 25 50
SCALE: 1" = 10'

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	43	84
PROJECT FILE NO.	606207		

ELECTRICAL LIGHTING PLAN

25-Aug-2016

2380 E-1 SITE PLANPJD.DWG

POLE NUMBERS →	P–8	A–5,7/10	← CIRCUIT NUMBERS
NUMBER OF LUMINAIRES →	1	128	← WATTAGE OF LUMINAIRE
TYPE →	SLA	–	← STATION

LIGHTING INFORMATION

PROPOSED 10' - 4" GALVANIZED STEEL CONDUIT RISER

PROPOSED 4" PVC CONDUIT (TELEPHONE)

PROPOSED 3"C WITH 4#6, #6G.

CONTINUED ON UPPER RIGHT

CONTINUED ON LEFT

PROPOSED 3"C WITH 6#6, #6G.

PROPOSED 4" PVC CONDUIT (Charter)

PROPOSED 3" GALVANIZED STEEL CONDUIT

PROPOSED LOAD CENTER A

PROPOSED 3"C WITH 12#6, #6G.

PROPOSED 3"C WITH 8#6, #6G.

PROPOSED 3"C WITH 10#6, #6G.

PROPOSED 10' - 4" GALVANIZED STEEL CONDUIT RISER

PROPOSED 4" PVC CONDUIT (CHARTER)

PROPOSED 4" PVC CONDUIT (TELEPHONE)

PROPOSED 10' - 4" GALVANIZED STEEL CONDUIT RISER

PROPOSED 3"C WITH 6#6, #6G.

P–1	A–1,3/2
1	128
SLA	100+71.69 26.197L

P–2	A–1,3/2
1	128
SLA	101+62.39 27.102L

P–3	A–1,3/4
1	128
SLA	102+53.09 28.685L

P–4	A–1,3/4
1	128
SLA	13+92.72 27.602R

P–5	A–1,3/6
1	128
SLA	12+99.71 28.000R

P–6	A–1,3/6
1	128
SLA	12+03.49 17.973R

P–7	A–1,3/6
1	128
SLA	11+00.20 17.488R

P–8	A–5,7/10
1	128
SLA	10+95.76 19.976L

P–9	A–5,7/10
1	128
SLA	12+17.78 20.224OL

P–10	A–5,7/12
1	128
SLA	12+99.71 24.394L

–	13+45.55 37.111L

P–11	A–5,7/12
1	128
SLA	13+93.90 32.098L

P–12	A–5,7/14
1	128
SLA	104+27.57 42.094L

P–13	A–5,7/14
1	128
SLA	105+09.00 29.827L

P–14	A–9,11/16
1	128
SLA	100+98.39 23.866R

P–15	A–9,11/16
1	128
SLA	101+94.38 29.408R

P–16	A–9,11/18
1	128
SLA	102+90.21 27.957R

P–17	A–9,11/18
1	128
SLA	103+94.28 27.105R

P–18	A–9,11/18
1	128
SLA	104+99.95 28.745R

P–19	B–1,3/2
1	128
SLA	105+88.66 22.926L

P–34	B–13,15/16
1	128
SLA	106+05.05 28.209R

PLEASANT STREET

HIGH STREET

WALL STREET

ELM STREET

MAIN STREET

14+49.79

U–13/121
N/F
MAYAN TOV LLC.
BK. 50754 PG. 307

U–13/102
N/F
K SPENCER, LLC
22867, PG. 100

U–13/101
N/F
S–BNK SPENCER, LLC
BK. 22867, PG. 100

U–13/119
N/F
TOWN OF SPENCER
LIBRARY & SUGDEN BLOCK

U–13/120
N/F
KELLY A. CHISHOLM
BK. 22185 PG. 155

PRICE PARK

N/F
WILLIAM D. EKLEBERRY
BK. 17749, PG. 176

U–7/3
N/F
F.A.P. PROPERTIES XXI LLC
BK. 27331, PG. 392

U–7/2
N/F
MARK A. ANDREWS
BK. 26014, PG. 139

U–7/1
N/F
SO MIDDLESEX NON-PROFIT HOUSING CORP.
BK. 53198, PG. 14

U–7/47
N/F
WILLIAM D. EKLEBERRY
BK. 17749, PG. 181

U–7/46
N/F
WILLIAM D. EKLEBERRY
BK. 17749, PG. 183

U–7/44
N/F
140 MAIN STREET LLC
BK. 30850, PG. 075

U–7/43
N/F
140 MAIN STREET LLC
BK. 30850, PG. 075

U–7/42A
N/F
WILLIAM H. WHITE
BK. 51209, PG. 186

U–7/42
N/F
WILLIAM H. WHITE
BK. 51209, PG. 186

U–7/29
N/F
ROBERT P. WHITE
BK. 22349, PG. 247

0 20 50 100
SCALE: 1" = 20'

POLE NUMBERS →	P–8	A–5,7/10	← CIRCUIT NUMBERS
NUMBER OF LUMINAIRES →	1	128	← WATTAGE OF LUMINAIRE
TYPE →	SLA	–	← STATION

LIGHTING INFORMATION

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	44	84
PROJECT FILE NO.	606207		

ELECTRICAL LIGHTING PLAN

25-Aug-2016

2380 E-1 SITE PLANPJD.DWG

U-14/3
N/F
JASON G. GAUTHIER
BK. 51832 PG. 104

U-14/1
N/F
TOWN OF SPENCER
BK. 2411 PG. 251

U-13/125
N/F
ROSANNE G. INGALLS
BK. 21982 PG. 187

U-13/123
N/F
WAYNE STREET LLC.
BK. 50977 PG. 66

U-13/122
N/F
LE DAO THI
BK. 42018 PG. 199

U-13/124
N/F
WILLIAM D. EKLEBERRY
BK. 17749 PG. 204

U-13/121
N/F
MAYAN TOV LLC.
BK. 50754 PG. 307

PRICE CHOPPER
PARKING LOT

U-7/79
N/F
SPENCER SAVINGS BANK
BK. 10001 PG. 318

U-7/83
N/F
WILLIAM D. EKLEBERRY
BK. 17749 PG. 189

U-7/65
N/F
WILLIAM J. &
TARA M. FLANNERY
BK. 7963 PG. 082

U-7/62
N/F
V.S.H. REALTY, INC.
BK. 5253 PG. 118

U-7/63
N/F
SIMEON &
MARIA CHATZOPOULOS
BK. 32992 PG. 082

U-7/42
N/F
WILLIAM H. WHITE
BK. 51209, PG. 186

U-7/41
N/F
MICHAEL WONG
BK. 22857, PG. 160

U-7/40
N/F
DAVID P. & LINDA K.
BOUTILETTE
BK. 16814, PG. 033

U-7/6
N/F

MUNICIPAL DRIVEWAY

MAIN STREET

MECHANIC STREET

MAPLE STREET

P–20	B–1,3/2
1	128
SLA	107+09.47 24.832L

P–21	B–1,3/4
1	128
SLA	108+08.90 22.108L

P–22	B–1,3/4
1	128
SLA	109+09.01 22.422L

P–23	B–5,7/6
1	128
SLA	111+28.91 43.175L

P–24	B–5,7/6
1	128
SLA	110+70.38 36.952L

P–25	B–5,7/8
1	128
SLA	111+90.98 34.815L

P–26	B–5,7/8
1	128
SLA	112+96.29 33.670L

P–17	B–9,11/10
1	128
SLA	113+05.71 21.590R

P–28	B–9,11/10
1	128
SLA	112+26.80 21.941R

P–29	B–9,11/12
1	128
SLA	111+24.22 21.555R

P–30	B–9,11/12
1	128
SLA	110+22.03 35.125R

P–31	B–13,15/14
1	128
SLA	109+25.45 33.313R

P–32	B–13,15/14
1	128
SLA	108+12.64 22.428R

P–33	B–13,15/16
1	128
SLA	107+01.91 24.434R

PROPOSED LOAD CENTER B

PROPOSED 3" GALVANIZED STEEL CONDUIT

PROPOSED 3"C WITH 4#6, #6G.

PROPOSED 3"C WITH 14#6, #6G.

PROPOSED 3"C WITH 4#4, #6G.

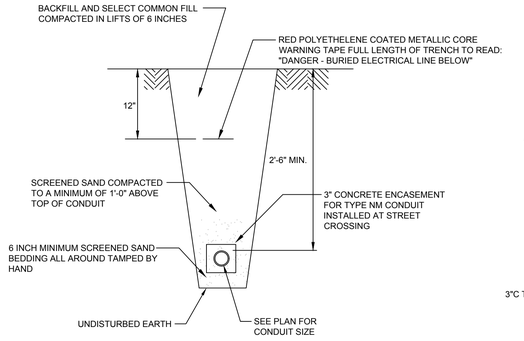
PROPOSED 3"C WITH 10#6, #6G.

PROPOSED 3"C WITH 6#6, #6G.

107 108 109 110 111 112 113

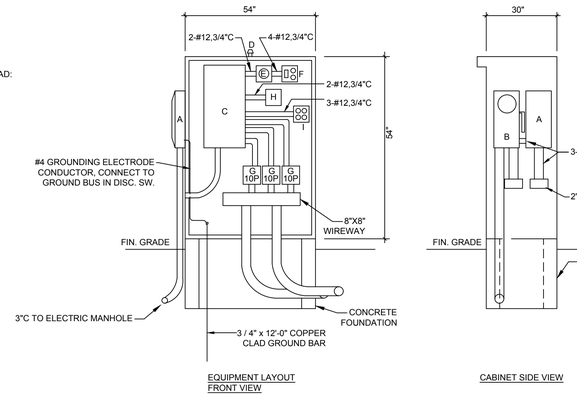
0 20 50 100

SCALE: 1" = 20'



CONDUIT TRENCH DETAIL

NO SCALE



EQUIPMENT LAYOUT FRONT VIEW

CABINET SIDE VIEW

ELECTRICAL LOAD CENTER "A" & "B"

NO SCALE

LOAD CENTER COMPONENT DESCRIPTION

A. NEMA 3R HEAVY DUTY FUSED DISCONNECT SWITCH, 200A, 2 POLE, S/N W/200A CL "J" FUSES.

B. METER SOCKET - PER NATIONAL GRID REQUIREMENTS.

C. PANELBOARD - NEMA 1, 200A, 120/208V, SINGLE PHASE, 3 WIRE. SEE SCHEDULE.

D. PHOTOCELL TWIST-LOCK TYPE WITH RECEPTACLE, MOUNTED ON LOAD CENTER.

E. DIE CAST LIGHT FIXTURE WITH 60 WATT INCANDESCENT LAMP WITH GUARD.

F. DUPLEX CONVENIENCE RECEPTACLE AND LIGHT SWITCH FOR "E". (CIRC. 38)

G. LIGHTING CONTACTOR - NEMA 1 ENCLOSURE, 30 AMP, 1-10 POLE (LIGHTS), 2-10 POLE (RECEPTACLES). 120 VOLT MAGNETIC COIL WITH HAND-OFF-AUTO SWITCH INTEGRAL TO ENCLOSURE, WIRED FOR PHOTOCELL CONTROL IN "AUTO" POSITION.

H. TWENTY FOUR HOUR TIME CLOCK WITH RESERVE POWER FEATURE. WIRE TO INTERRUPT RECEPTACLE CIRCUIT POWER AT PRE-SET TIME.

I. TWO CONVENIENCE RECEPTACLES (CIRC. 40).

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	45	84
	PROJECT FILE NO. 606207		

ELECTRICAL SCHEDULES & DETAILS

PANELBOARD "A" & "B" — 1 PHASE 3 WIRE 120 / 208 VOLTS 60 HZ

Pole No.	DESCRIPTION	BREAKER TRIP/POLE	BREAKER TRIP/POLE	DESCRIPTION	Pole No.
1	LIGHTING	20A/2P	20A/1P	RECEPTACLES	2
3	--	--	20A/1P	RECEPTACLES	4
5	LIGHTING	20A/2P	20A/1P	RECEPTACLES	6
7	--	--	20A/1P	RECEPTACLES	8
9	LIGHTING	20A/2P	20A/1P	RECEPTACLES	10
11	--	--	20A/1P	RECEPTACLES	12
13	LIGHTING	20A/2P	20A/1P	RECEPTACLES	14
15	--	--	20A/1P	RECEPTACLES	16
17	SPARE	20A/2P	20A/1P	RECEPTACLES	18
19	--	--	20A/1P	SPARE	20
21	SPARE	20A/1P	20A/1P	SPARE	22
23	SPARE	20A/1P	20A/1P	SPARE	24
25	SPARE	20A/1P	20A/1P	LIGHT & RECEPT. IN LOAD CENTER	26
27	SPARE	20A/1P	20A/1P	RECEPTACLES IN LOAD CENTER	28
29	SPARE	20A/1P	20A/1P	CONTROL CIRCUIT (CONTACTORS, ETC.)	30

SIZE	**225A**	**TYPE**	**NQOD**
MAIN BKR.	**MLO**	**FEEDERS**	**3-#3/0, 1#6G, 2"C**
LOCATION	**LOAD CENTER "A" & "B"**	**A.I.C.**	**22,000A**
FED FROM	**O.H. LINES**	**MOUNTED**	**SURFACE**

ALL SINGLE POLE CIRCUIT BREAKERS SHALL PROVIDE GFCI PROTECTION

DETAIL AT FIXTURE 'SLA

NO SCALE

DETAIL - HIGHWAY LIGHTING POLE AND FIXTURE

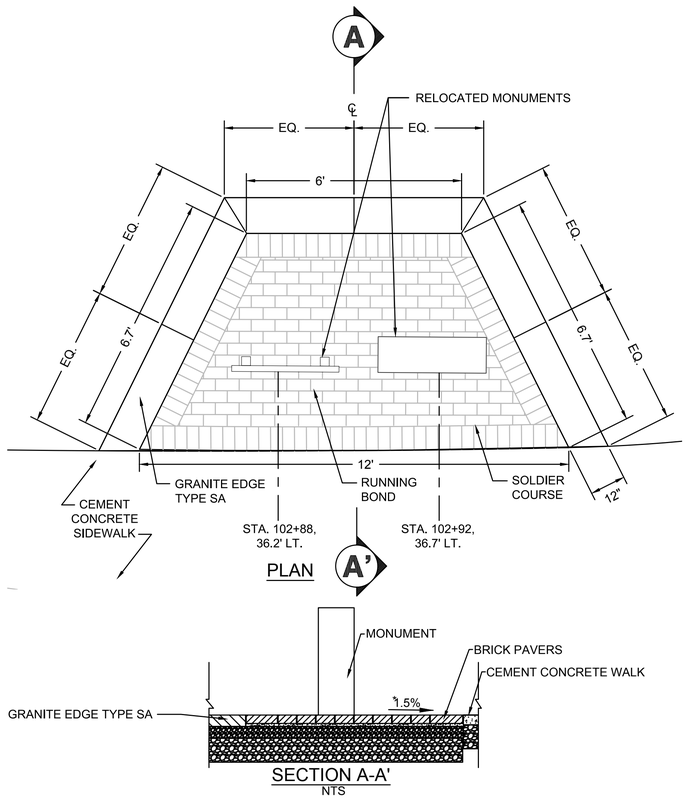
NO SCALE

2380 E.1.0 ELECTRICAL DETAILS.DWG 25-Aug-2016

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	46	84
PROJECT FILE NO.	606207		

CONSTRUCTION DETAILS

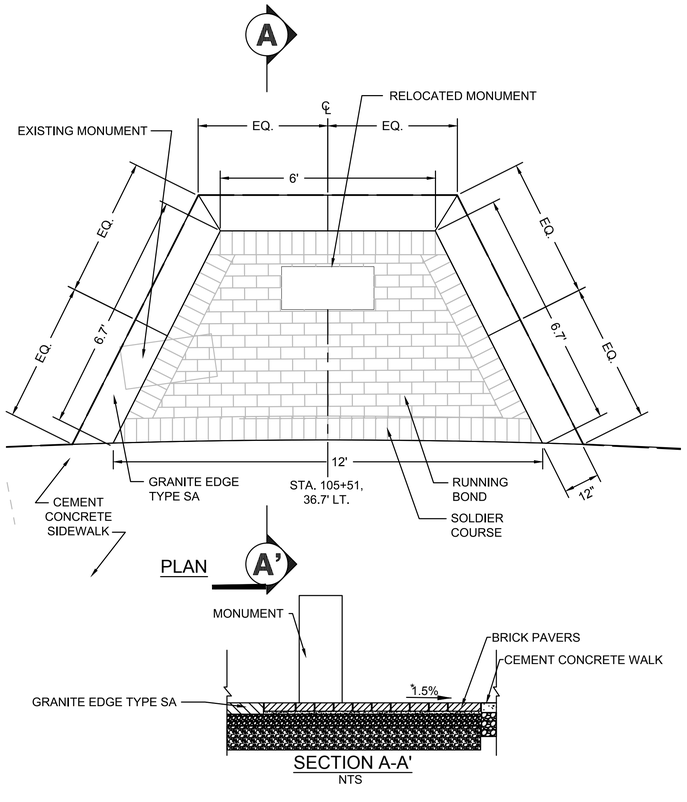
606207_HD(LA).DWG Plotted on 25-Aug-2016 8:19 AM



*TOLERANCE FOR CONSTRUCTION ±0.5%

MONUMENT PLAZA WITH GRANITE BANDING STA. 102+90 LT

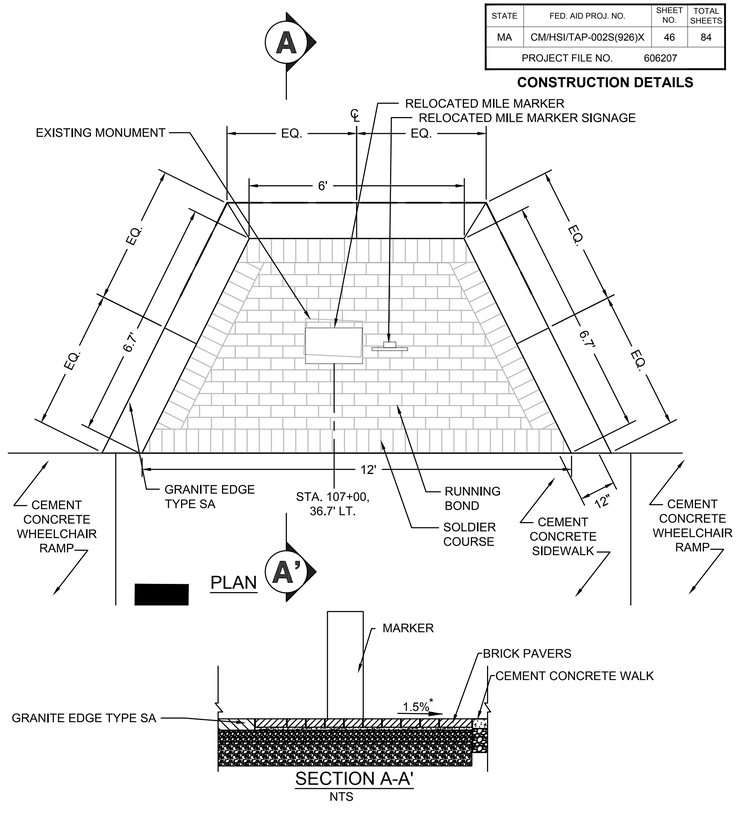
SCALE: $\frac{1}{2}$"=1'-0"



*TOLERANCE FOR CONSTRUCTION ±0.5%

MONUMENT PLAZA WITH GRANITE BANDING STA. 105+51 LT

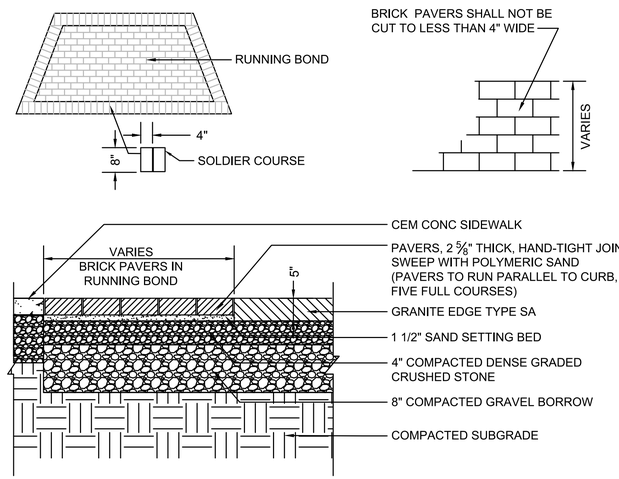
SCALE: $\frac{1}{2}$"=1'-0"



*TOLERANCE FOR CONSTRUCTION ±0.5%

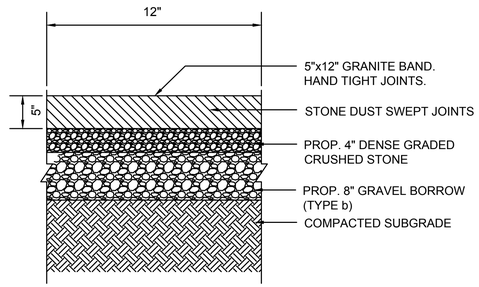
MILE MARKER PLAZA WITH GRANITE BANDING STA. 107+00 LT

SCALE: $\frac{1}{2}$"=1'-0"



BRICK PAVERS AT MONUMENT LOCATIONS

SCALE: N.T.S.

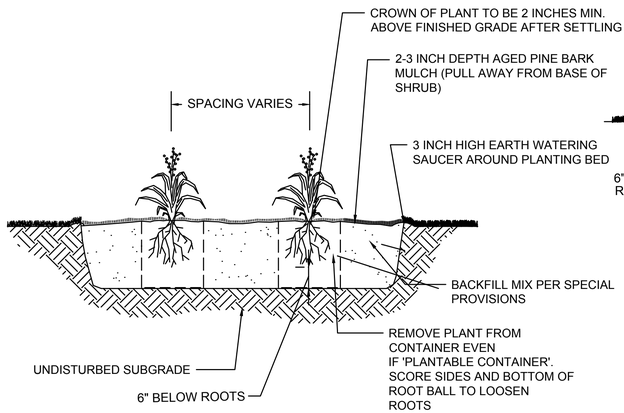


GRANITE EDGE TYPE SA AT MONUMENT LOCATIONS

SCALE: N.T.S.

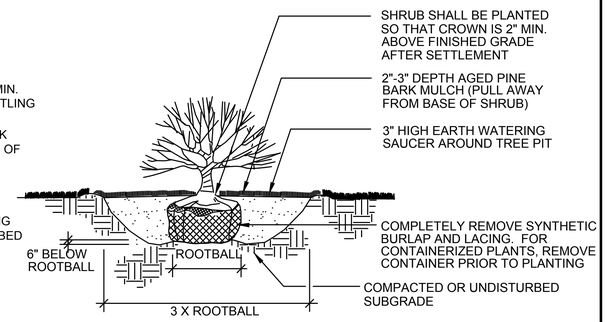
NOTES:

1. EXCAVATE TO REQUIRED DEPTH AND BACKFILL WITH PLANTING MIX.
2. RAISE AND REPLANT ANY PLANTS THAT SETTLE MORE THAN 3 INCHES AFTER PLANTING AND WATERING.
3. WATER BY FLOODING TWICE IN FIRST TWO HOURS AFTER PLANTING. WATER & MAINTAIN AS PER STANDARD SPECIFICATIONS.



PERENNIAL PLANTING

SCALE: N.T.S.



NOTES:

1. RAISE AND REPLANT ANY SHRUBS WHICH SETTLE MORE THAN 2" AFTER PLANTING & WATERING.
2. SHRUBS SHALL BE SET PLUMB
3. WATER BY FLOODING TWICE IN FIRST TWO HOURS AFTER PLANTING. WATER & MAINTAIN AS PER STANDARD SPECIFICATIONS.
4. EXCAVATE TO REQUIRED DEPTH AND BACKFILL WITH PLANTING MIX

SHRUB PLANTING

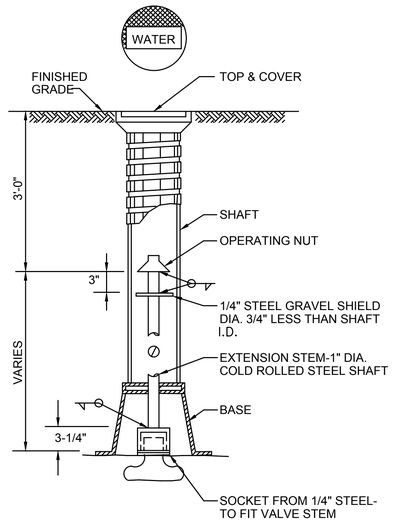
SCALE: N.T.S.

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	47	84
PROJECT FILE NO.	606207		

CONSTRUCTION DETAILS

606207_HDI(DET).DWG Plotted on 25-Aug-2016 8:20 AM

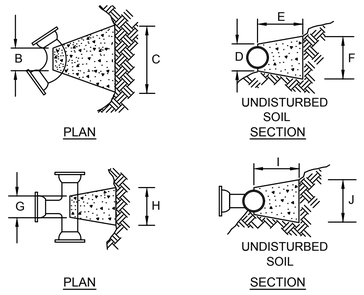


VALVE SHAFT EXTENSION

SCALE: N.T.S.

BENDS		B	C	D	E	F
6"	11-1/4°	8"	15"	12"	24"	12"
6"	22-1/2°	"	19"	"	"	13"
8"	11-1/4°	"	20"	"	"	12"
8"	22-1/2°	"	22"	"	"	17"
12"	11-1/4°	"	30"	"	"	15"
12"	22-1/2°	"	35"	"	"	25"
TEES		G	H	I	J	
6"x 6"x 6"		12"	24"	24"	18"	
8"x 8"x 6"		"	"	"	"	
8"x 8"x 8"		"	"	"	24"	

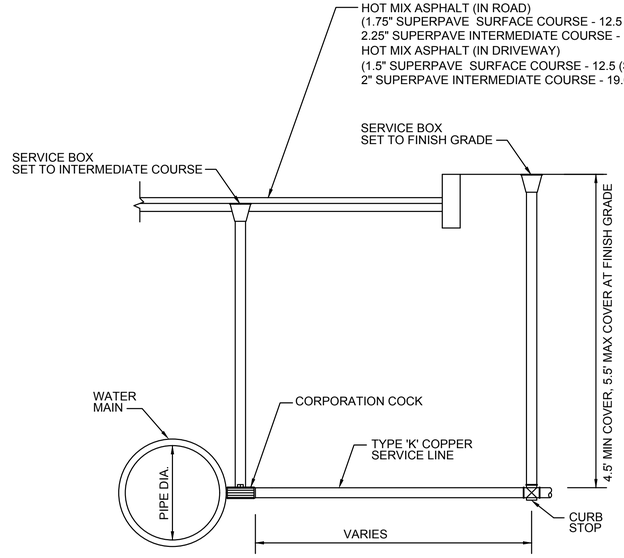
BENDS		B	C	D	E	F
6"	45°	8"	30"	12"	24"	14"
6"	90°	"	30"	"	"	27"
8"	45°	"	30"	"	"	24"
8"	90°	"	38"	"	"	36"
12"	45°	"	40"	"	"	40"
12"	90°	"	60"	"	"	52"
TEES		G	H	I	J	
12"x12"x6"		12"	24"	24"	12"	
12"x12"x8"		"	"	"	24"	
12"x12"x12"		"	36"	"	36"	



NOTES:
1. PROVIDE BLOCKS FOR TAPPING SLEEVES, DEAD ENDS, GATE VALVES AND VERTICAL BENDS, SAME SIZE AS REQUIRED FOR TEES.
2. PROVIDE ANCHOR RODS AT VERTICAL BENDS AND GATE VALVES
3. CONCRETE SHALL NOT BE PLACED AGAINST PIPE BEYOND FITTING.

CONCRETE THRUST BLOCK

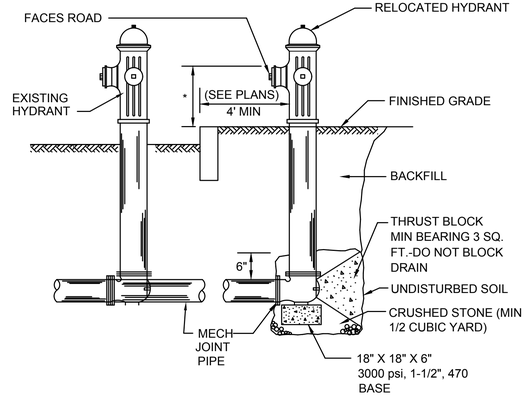
SCALE: N.T.S.



Notes:
1. INSTALLATIONS SHALL CONFORM WITH MUNICIPAL WATER WORKS SPECIFICATIONS AND STANDARDS.
2. EXISTING WATER SERVICE BOXES AND PIPES SHALL BE REMOVED AND DISPOSED AS PART OF NEW WATER SERVICE INSTALLATION.

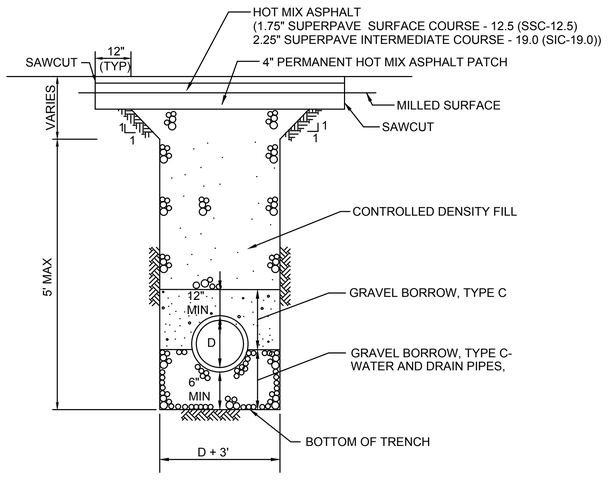
CORPORATION & CURB STOP WITH BOX

SCALE: N.T.S.



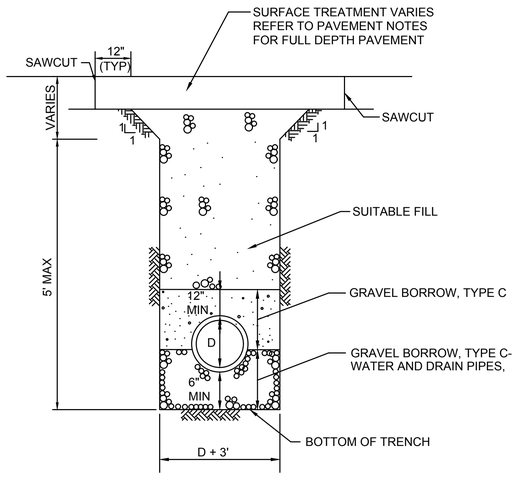
HYDRANT RELOCATION DETAIL

SCALE: N.T.S.



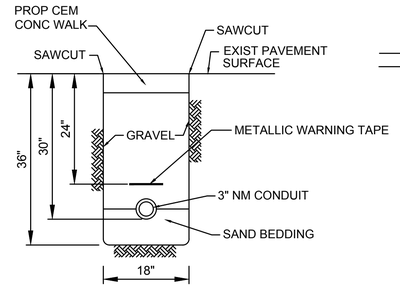
TRENCH DETAIL - MILL & OVERLAY

SCALE: N.T.S.



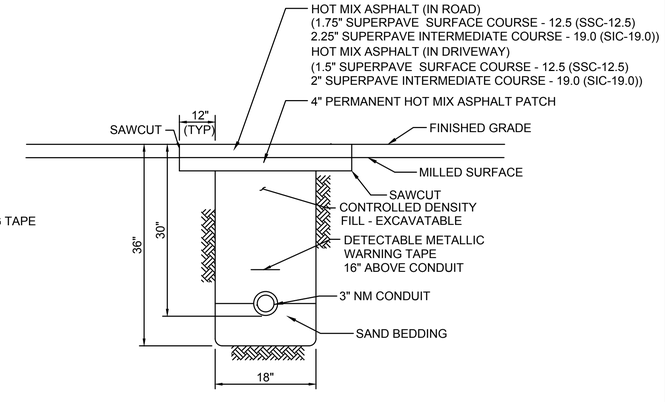
TRENCH DETAIL - FULL DEPTH PAVEMENT

SCALE: N.T.S.



CONDUIT IN SIDEWALK

SCALE: N.T.S.



CONDUIT CROSSING ROADWAY/DRIVEWAY

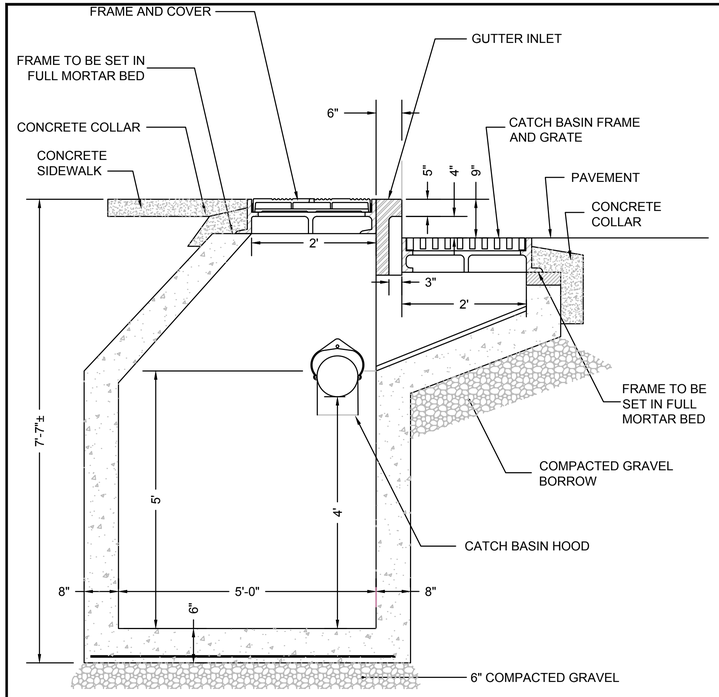
SCALE: N.T.S.

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	48	84
PROJECT FILE NO.	606207		

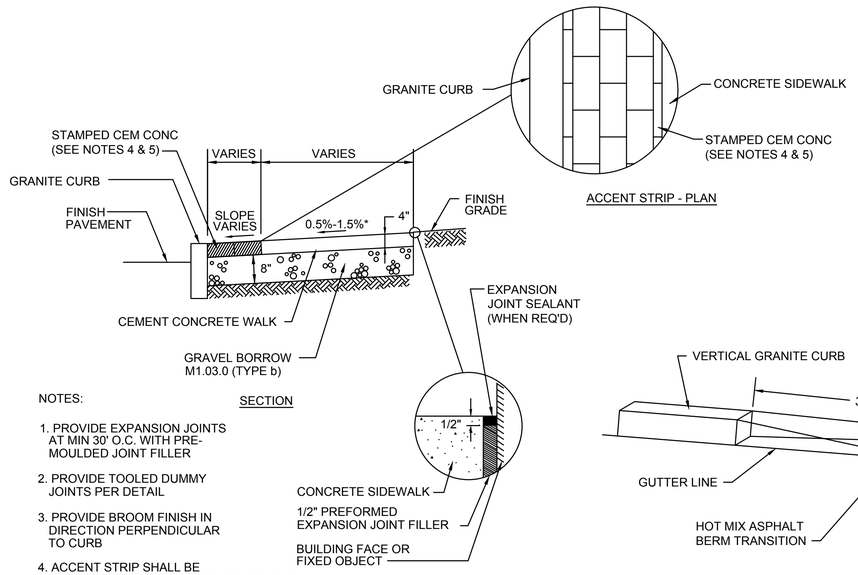
CONSTRUCTION DETAILS

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SPECIAL CATCH BASIN

SCALE: N.T.S.



NOTES:

1. PROVIDE EXPANSION JOINTS AT MIN 30' O.C. WITH PRE-MOULDED JOINT FILLER
2. PROVIDE TOOLED DUMMY JOINTS PER DETAIL
3. PROVIDE BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB
4. ACCENT STRIP SHALL BE CEM CONC COLORED RED THROUGHOUT STAMPED/IMPRINTED WITH A BRICK PATTERN.
5. ACCENT STRIP SHALL BE FORMED AGAINST GRANITE CURB/CURB INLET AND SHALL BE PLACED PRIOR TO CEM CONC WALK SURFACE OR SIDEWALK.

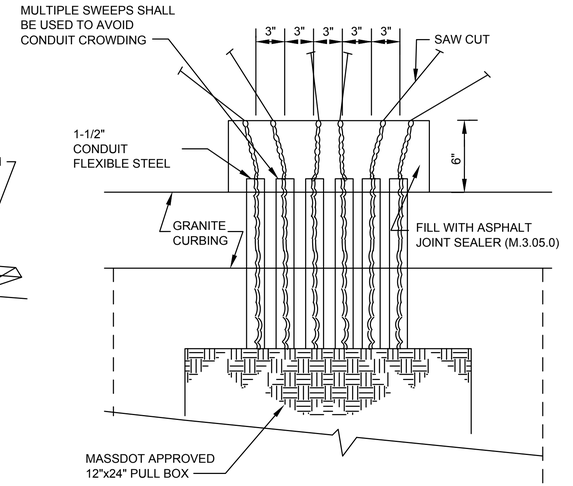
* 0.5% CONSTRUCTION TOLERANCE

CEMENT CONCRETE SIDEWALK ADJACENT TO STAMPED CEMENT CONCRETE

SCALE: N.T.S.

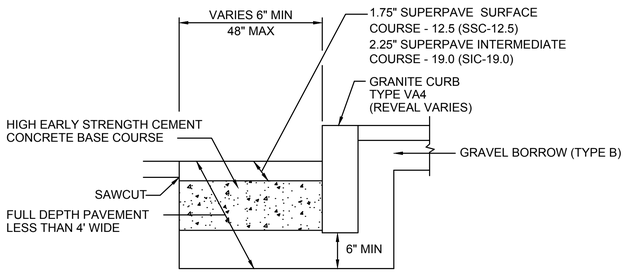
HOT MIX ASPHALT BERM TRANSITION TO GRANITE

SCALE: N.T.S.



MULTIPLE LOOP DETECTOR LEAD-IN

SCALE: N.T.S.

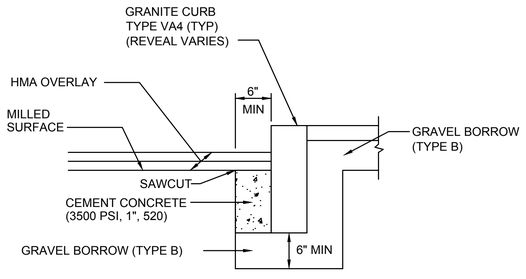


NOTES:

1. 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 FULL DEPTH PAVEMENT LESS THAN 4' WIDE

SCALE: N.T.S.

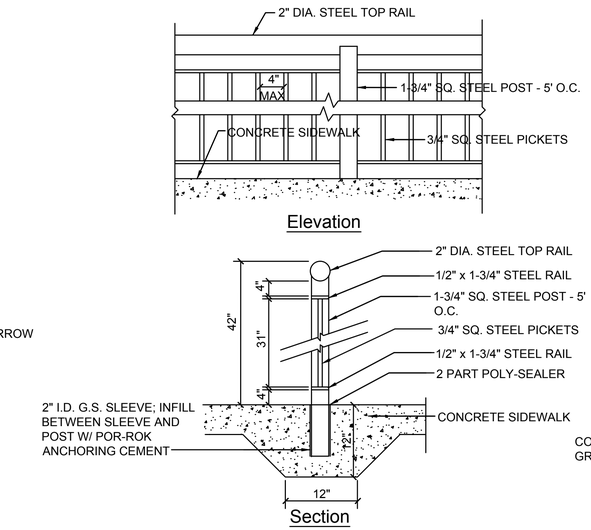


NOTES:

1. SAWCUT 6" FROM CURB LINE AND REMOVE EXISTING PAVEMENT AND GRAVEL. REPLACE WITH CEMENT CONCRETE.
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 PAVEMENT MILLING AND OVERLAY

SCALE: N.T.S.

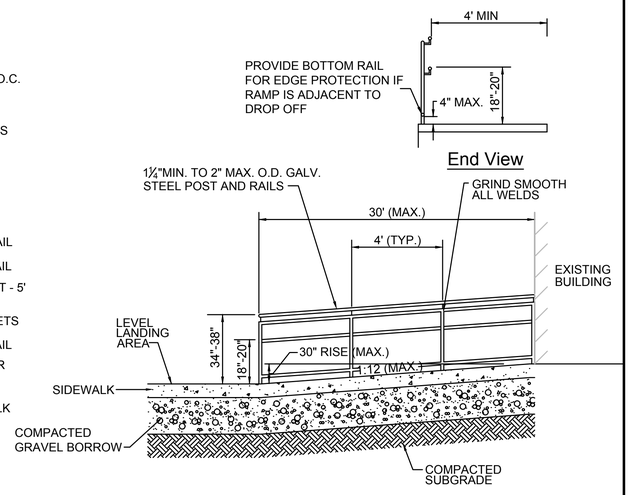


Notes:

1. ALL RAILS TO BE WELDED STEEL CONSTRUCTION.
2. ALL RAILS TO BE CLEANED, PRIMED AND RECEIVE 2 COATS BLACK POWDER COAT PAINT. PAINT AND COLOR TO BE APPROVED BY THE ENGINEER.
3. CONTRACTOR TO TOUCH UP ANY MINOR BLEMISHES UPON COMPLETION AND INSTALLATION.

ORNAMENTAL RAILING ON SIDEWALK

SCALE: N.T.S.



Notes:

1. FOR ADDITIONAL INFORMATION SEE 521 CMR 24.00 RAMPS.
2. ALL RAILS TO BE CLEANED, PRIMED AND RECEIVE 2 COATS BLACK POWDER COAT PAINT. PAINT AND COLOR TO BE APPROVED BY ENGINEER.
3. CONTRACTOR TO TOUCH UP ANY MINOR BLEMISHED UPON COMPLETION AND INSTALLATION.
4. REFER TO CEMENT CONCRETE SIDEWALK DETAIL FOR SIDEWALK CONSTRUCTION.

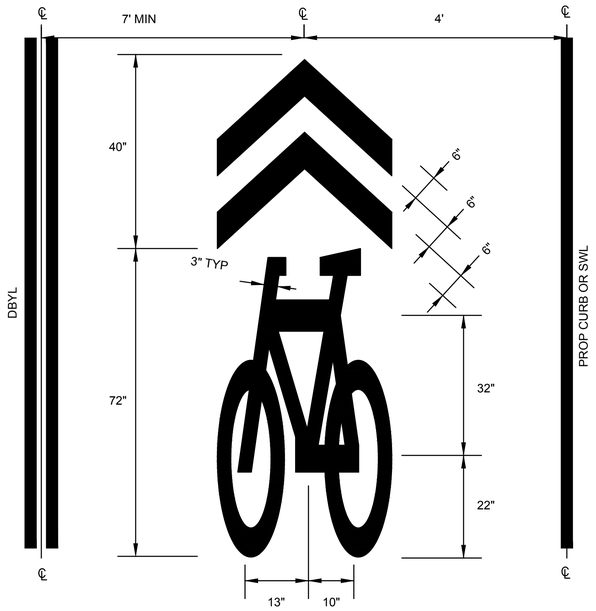
HANDRAIL AT WHEELCHAIR RAMP

SCALE: N.T.S.

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	49	84
PROJECT FILE NO.	606207		

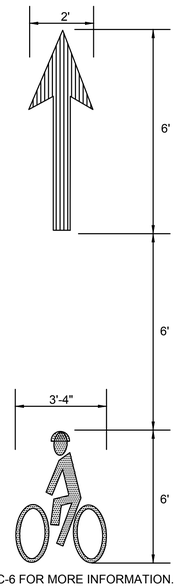
CONSTRUCTION DETAILS

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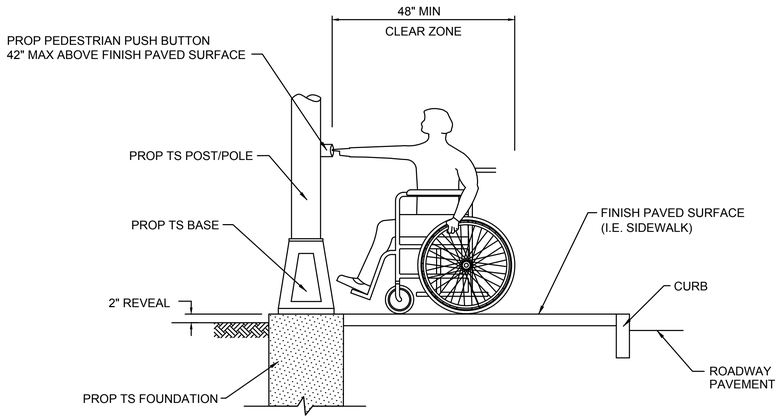
NOTES:
1. SEE MUTCD FIGURE 9C-9 FOR MORE INFORMATION.
2. SHARED LANE MARKINGS SHALL BE PREFORMED THERMOPLASTIC.

SHARROW PAVEMENT MARKING LAYOUT

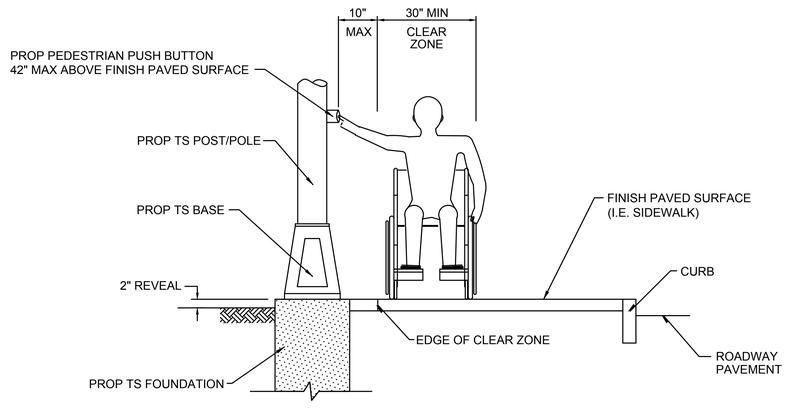


NOTES:
1. SEE MUTCD FIGURE 9C-6 FOR MORE INFORMATION.
2. BIKE LANE MARKINGS SHALL BE REFLECTORIZED PREFORMED THERMOPLASTIC.

BIKE LANE PAVEMENT MARKINGS



FORWARD APPROACH (FORWARD REACH)



PARALLEL APPROACH (SIDE REACH)

NOTES:
1. THIS DETAIL APPLIES TO ITEMS 816.01 AND 816.02 ONLY. RECTANGULAR RAPID FLASH BEACONS ARE ACTUATED BY PASSIVE DETECTION.
2. A CLEAR GROUND SPACE SHALL CONSIST OF A STABLE AND FIRM AREA, COMPLYING WITH 521 CMR 6.5 (FORWARD REACH) OR 521 CMR 6.6 (SIDE REACH) AND SHALL BE PROVIDED AT EACH OF THE PEDESTRIAN PUSH BUTTONS.
   2.1. WHERE A FORWARD APPROACH IS PROVIDED, PEDESTRIAN PUSH BUTTONS SHALL ABUT AND BE CENTERED ON THE CLEAR GROUND SPACE.
   2.2. WHERE A PARALLEL APPROACH IS PROVIDED, PEDESTRIAN PUSH BUTTONS SHALL BE WITHIN TEN INCHES (10") HORIZONTALLY OF AND CENTERED ON THE CLEAR GROUND SPACE.

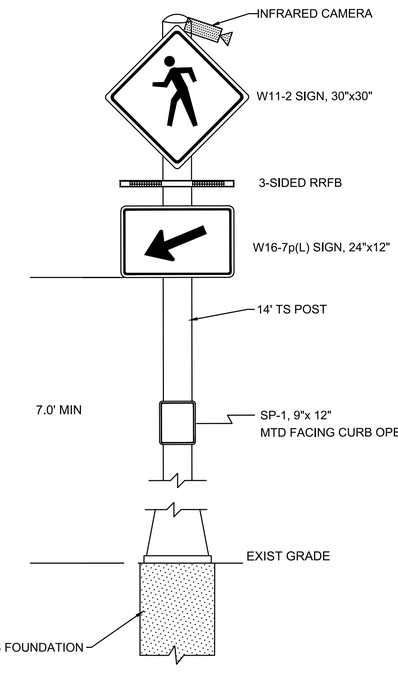
PEDESTRIAN PUSH BUTTON CLEAR ZONE

SCALE: N.T.S.

LIST OF MAJOR ITEMS REQUIRED

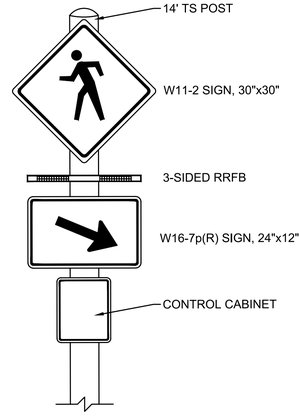
PAY ITEM	QUANTITY	DESCRIPTION
824.401	1	SIDE OF POST MOUNTED CONTROL CABINET
	2	TS POST 14' STANDARD INCL. FOUNDATION
	2	RECTANGULAR RAPID FLASHING BEACONS (RRFB), 3-SIDED, L.E.D.
	2	INFRARED CAMERA W/INTERFACE & CABLES
	1	SERVICE CONNECTION (OVERHEAD)
	1	PULL BOX-12"x12"

PLUS NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION AND PROVIDE AN OPERATING RRFB SYSTEM



FRONT VIEW (FACING ON-COMING TRAFFIC)

NOT TO SCALE



BACK VIEW

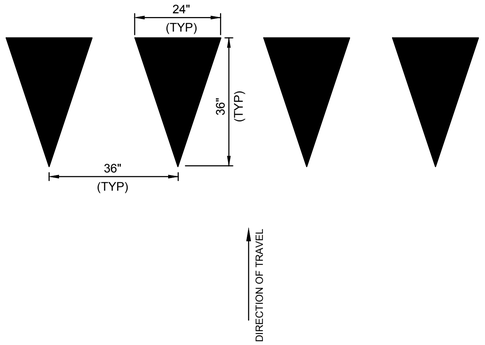
NOT TO SCALE

NOTES:
1. RECTANGULAR RAPID FLASHING BEACON (RRFB) SHALL WIG-WAG FLASH WHEN ACTIVATED BY PASSIVE PEDESTRIAN DETECTION.
2. DURATION OF RRFB UPON RECEIPT OF VALID PEDESTRIAN ACTUATION SHALL BE INITIALLY SET FOR 15 SECONDS.
3. THE SYSTEM SHALL BE CAPABLE OF PROVIDING A FLASHING RATE OF 70 TO 80 CYCLES PER MINUTE. SEE SPECIAL PROVISIONS FOR MORE DETAILS.

RECTANGULAR RAPID FLASHING BEACON POST DETAIL

SCALE: N.T.S.

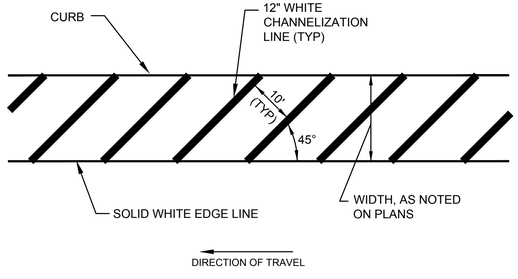
606207_HD(DET).DWG Plotted on 25-Aug-2016 8:20 AM



NOTES:
1. YIELD LINES SHALL CONSIST OF A ROW OF SOLID WHITE TRIANGLES.
2. IF APPLICABLE, YIELD LINES SHALL BE PLACED 4-FEET IN ADVANCE OF THE NEAREST CROSSWALK LINE.
3. IN THE ABSENCE OF A MARKED CROSSWALK, YIELD LINES SHALL BE PLACED AS SHOWN ON THE PLANS.

YIELD LINE TRIANGLES

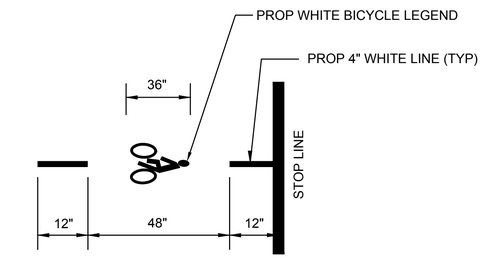
SCALE: 1"=1'



NOTES:
1. ALL 12" LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (e.g. TWO - 6" LINES) WILL BE ACCEPTED.

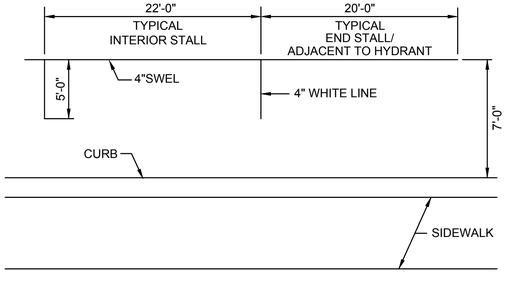
CHANNELIZED MARKINGS - EDGE OF ROADWAY FOR ROADWAYS 40MPH OR LESS

SCALE: NTS



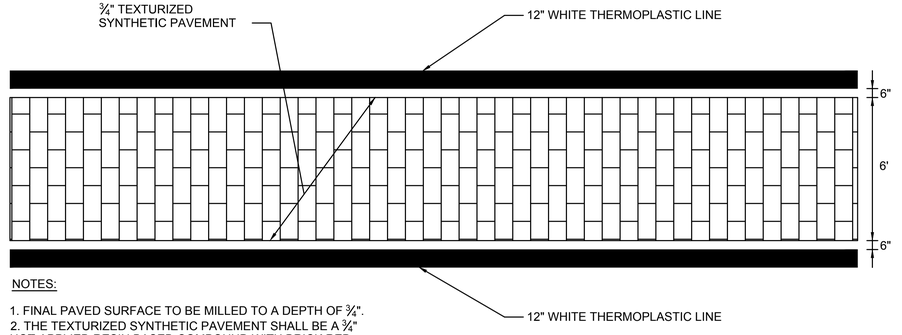
NOTES:
1. BICYCLE LEGEND SHALL CONFORM TO THE 2004 EDITION OF STANDARD HIGHWAY SIGNS AND SCALED APPROPRIATELY TO OBTAIN REQUIRED HEIGHT OF MARKINGS.
2. BICYCLE LEGEND SHALL BE PREFORMED THERMOPLASTIC.

STOP LINE BICYCLE LEGEND DETAIL



PARKING STALL MARKINGS

SCALE: N.T.S.

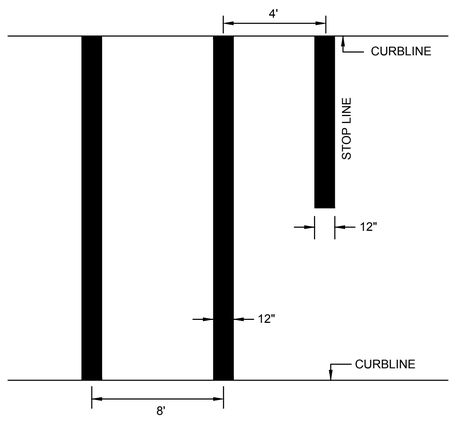


NOTES:

1. FINAL PAVED SURFACE TO BE MILLED TO A DEPTH OF ¾".
2. THE TEXTURIZED SYNTHETIC PAVEMENT SHALL BE A ¾" HOT-APPLIED RESIN BASED COMPOUND WITH BRICK RED COLOR THROUGHOUT.

TEXTURIZED SYNTHETIC PAVEMENT AT CROSSWALKS

SCALE: N.T.S.

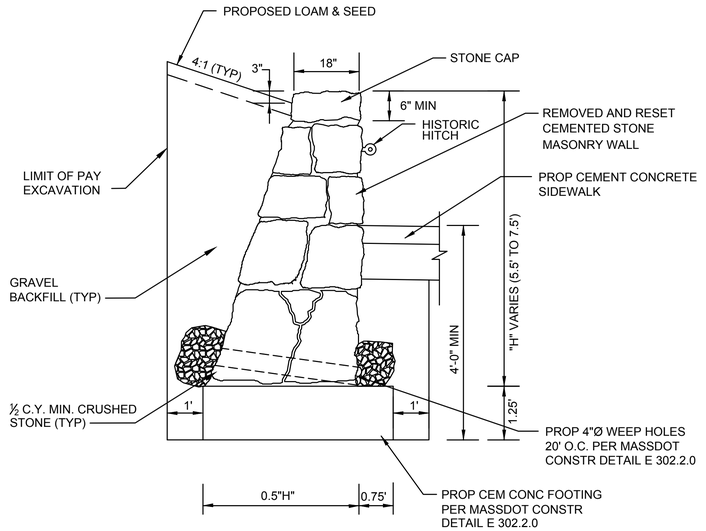


NOTES:

1. ALL 12" THERMOPLASTIC LINES SHALL BE APPLIED IN ONE APPLICATION, NO COMBINATION OF LINES (TWO - 6" LINES) WILL BE ACCEPTED.
2. LAYOUT OF CROSSWALKS SHALL BE APPROVED BY THE ENGINEER PRIOR TO APPLICATION OF THERMOPLASTIC.
3. 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.

STANDARD CROSSWALK

SCALE: N.T.S.



NOTES:

1. FOR DETAILS NOT SHOWN, SEE MASSDOT CONSTRUCTION STANDARDS E 302.2.0 "CEMENTED STONE MASONRY RETAINING WALL".
2. CONTRACTOR SHALL REUSE STONES FROM THE EXISTING WALL. ANY SUPPLEMENTAL STONES THAT ARE REQUIRED SHALL BE FIELD STONES THAT MATCH THE SIZE, COLOR, AND TEXTURE OF THE EXISTING STONES AS CLOSELY AS FEASIBLE. SUPPLEMENTAL STONES SHALL BE APPROVED BY THE ENGINEER.
3. HISTORIC STONES CONTAINING FORGED HITCHING RINGS SHALL BE PLACED IN AN ORIENTATION MATCHING ITS EXISTING PLACEMENT.

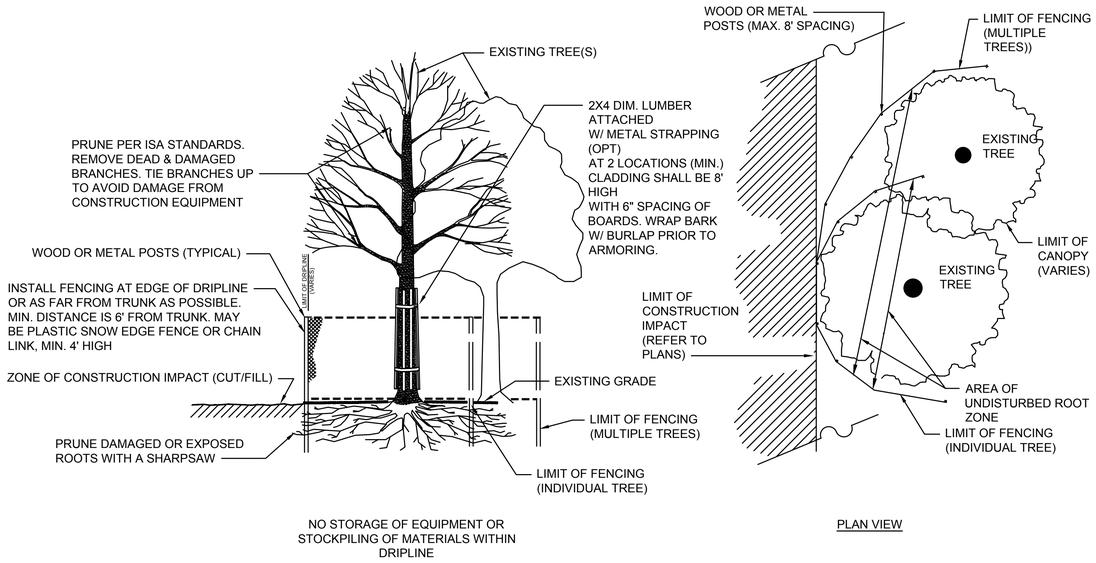
REMOVED AND RESET HISTORIC CEMENTED STONE MASONRY RETAINING WALL

SCALE: NTS

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	51	84
PROJECT FILE NO.	606207		

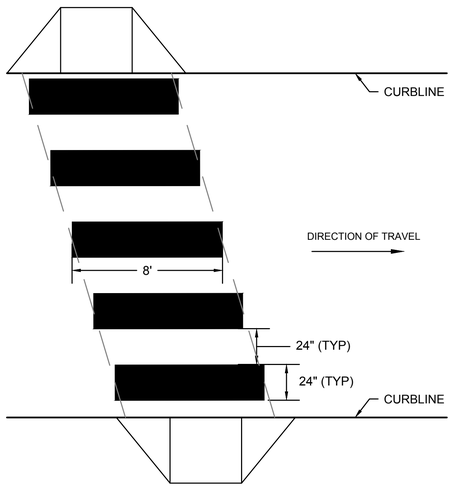
CONSTRUCTION DETAILS

606207_HDI(DET).DWG Plotted on 25-Aug-2016 8:20 AM



TREE PROTECTION OF EXISTING TREE(S)

SCALE: N.T.S.



NOTES:

1. ALL 24" LINES SHALL BE APPLIED IN TWO APPLICATIONS OF 12" LINES. NO OTHER COMBINATION OF LINES (e.g. FOUR - 6" LINES) WILL BE ACCEPTED.
2. CROSSWALK LINES SHALL BE IN THE DIRECTION OF TRAVEL AND LOCATED OUTSIDE OF TYPICAL VEHICLE WHEEL PATHS.
3. LAYOUT OF CROSSWALKS SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION 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 PAVEMENT MARKINGS & MATERIAL M7.01, LATEST REVISIONS.

CROSSWALK DETAIL - CONTINENTAL STYLE - PLEASANT STREET RIGHT TURN LANE

SCALE: N.T.S.

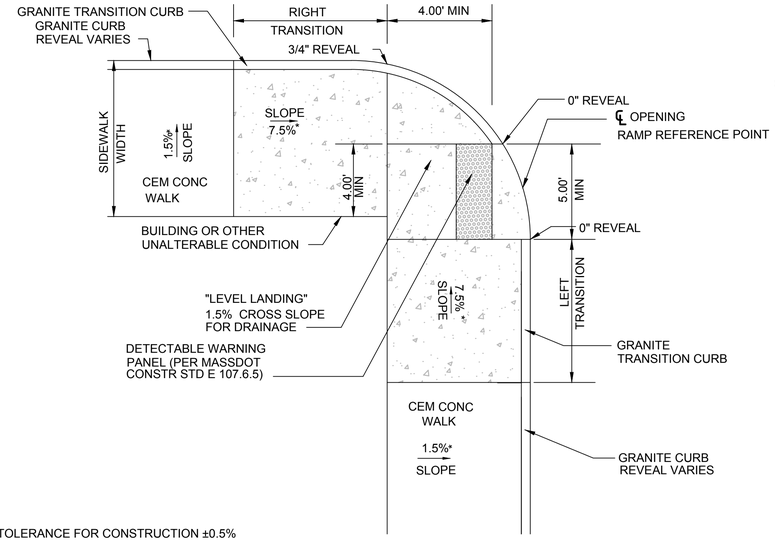
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	52	84
PROJECT FILE NO.	606207		

CONSTRUCTION DETAILS

2 APRIL 13, 2017

606207_HDI(DET).DWG Plotted on 13-Apr-2017 3:57 PM



* TOLERANCE FOR CONSTRUCTION ±0.5%

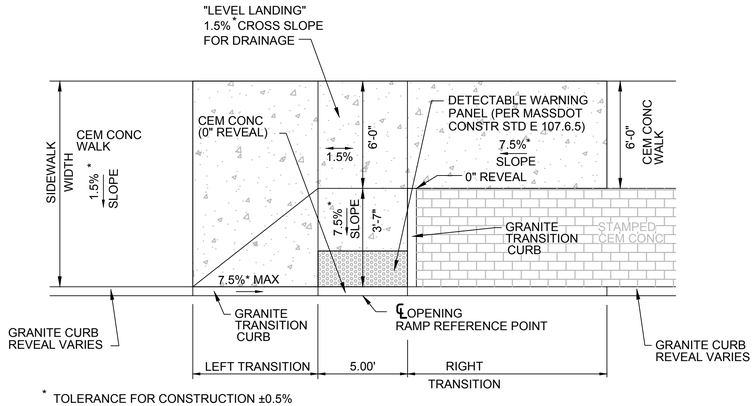
WHEELCHAIR RAMP DATA									
NO.	LOCATION	SIDEWALK WIDTH	LEFT SIDE			RIGHT SIDE			℄ OPENING ELEVATION
			ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS	
7	103+32.52 27.50' RT	6.0'	-12.5%	7"	6'-6"	1.4%	8"	11'-0"	809.63

NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

**A VARIANCE IS REQUESTED FOR THIS WCR FOR GUTTER SLOPE

WHEELCHAIR RAMP #7

SCALE: N.T.S.



* TOLERANCE FOR CONSTRUCTION ±0.5%

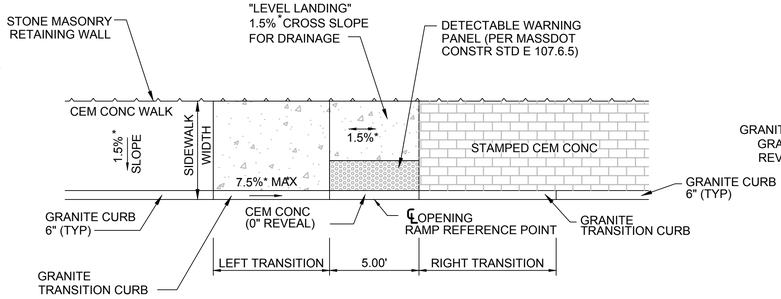
WHEELCHAIR RAMP DATA									
NO.	LOCATION	SIDEWALK WIDTH	LEFT SIDE			RIGHT SIDE			℄ OPENING ELEVATION
			ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS	
27	110+98.63 24.50' LT	9.3'	-5.7%	6"	6'-6"	6.8%	6"	15'-0"	853.56

NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

**A VARIANCE IS REQUESTED FOR THIS WCR FOR CROSS SLOPE IN FURNITURE ZONE

WHEELCHAIR RAMP #27

SCALE: N.T.S.



* TOLERANCE FOR CONSTRUCTION ±0.5%

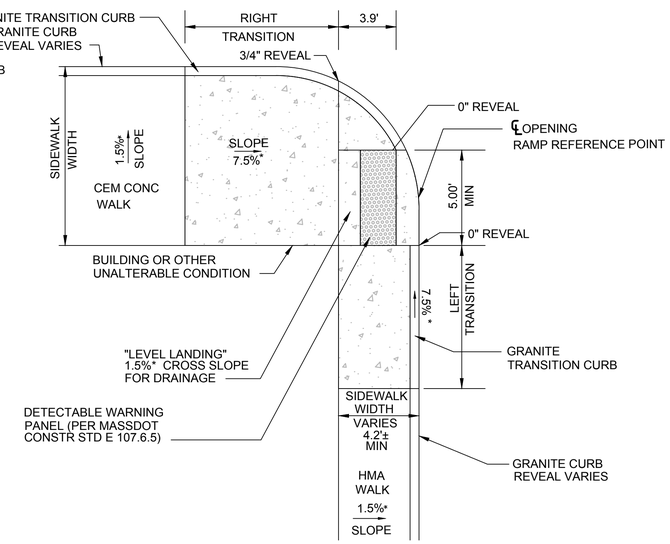
WHEELCHAIR RAMP DATA									
NO.	LOCATION	SIDEWALK WIDTH	LEFT SIDE			RIGHT SIDE			℄ OPENING ELEVATION
			ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS	
9	14+02.56 27.32' RT	6.0'	0.9%	6"	7'-8"	-0.9%	6"	6'-0"	811.60

NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

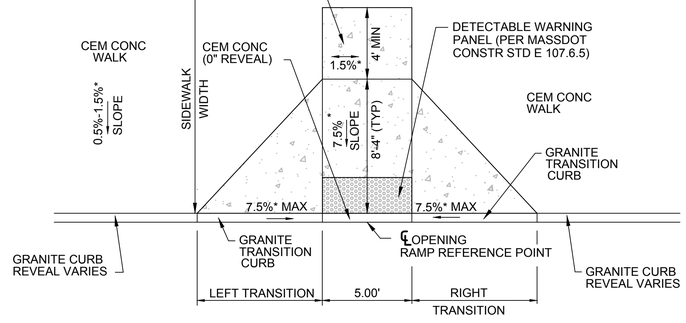
**A VARIANCE IS REQUESTED FOR THIS WCR FOR GUTTER SLOPE

WHEELCHAIR RAMP #9

SCALE: N.T.S.



"LEVEL LANDING"
1.5% * CROSS SLOPE
FOR DRAINAGE



* TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP DATA									
NO.	LOCATION	SIDEWALK WIDTH	LEFT SIDE			RIGHT SIDE			℄ OPENING ELEVATION
			ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS	
1	100+88.38 17.21' RT	16.2'	-0.67%	3.2"	6'-6"	0.5%	5.9"	7'-8"	813.20
10	14+02.31 20.00' LT	12.3'	2.3%	6"	11'-0"	-0.6%	3"	6'-6"	811.31
11	103+84.31 23.21' LT	12.3'	0.6%	6"	9'-0"	-0.8%	6"	6'-6"	811.03
13	103+96.25 41.51' LT	12.3'	-1.5%	6"	6'-6"	1.5%	6"	9'-0"	811.50 2
20	107+13.90** 18.00' RT	12.3'	7.0%	5.6"	15'-0"	-6.9%	6"	6'-6"	816.84

NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

**A VARIANCE IS REQUESTED FOR WCR'S WITH GUTTER SLOPE EXCEEDING 5%.

WHEELCHAIR RAMP - SIDEWALK GREATER THAN 7.0 FT WIDE

SCALE: N.T.S.

* TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP DATA									
NO.	LOCATION	SIDEWALK WIDTH	LEFT SIDE			RIGHT SIDE			℄ OPENING ELEVATION
			ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS	
5	101+14.51 29.19' RT	14.4' (MAIN ST)	-13.9%	8"	6'-6"	13.9%	3"	7'-6"	812.12

NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

**A VARIANCE IS REQUESTED FOR THIS WCR FOR SIDEWALK WIDTH AND FOR GUTTER SLOPE

WHEELCHAIR RAMP #5

SCALE: N.T.S.

DETECTABLE WARNING PANELS

NTS

NOTES:

1. DETECTABLE WARNING PANELS ARE REQUIRED TO BE CONSTRUCTED ON ALL PROPOSED WHEELCHAIR RAMPS AND ARE TO BE INSTALLED IN ACCORDANCE WITH MASSDOT CONSTRUCTION STANDARD E 107.6.5R.
2. PANELS MAY BE CONCRETE PRECAST OR CAST IN PLACE OR OTHER SUITABLE MATERIAL PERMANENTLY APPLIED TO THE RAMP. THERE MUST BE A MINIMUM 70% CONTRAST IN LIGHT REFLECTANCE BETWEEN THE DETECTABLE WARNING AND AN ADJOINING SURFACE.
3. NO SEPARATE PAYMENT SHALL BE MADE FOR DETECTABLE WARNING PANELS, BUT ALL COSTS IN CONNECTION THERE WITH SHALL BE INCLUDED IN THE VARIOUS ITEMS BID.

LEGEND

LIMITS OF CEMENT CONCRETE WHEELCHAIR RAMP

LIMITS OF DETECTABLE WARNING PANEL

SEE CONSTRUCTION PLANS & ALIGNMENT PLANS FOR RAMP LOCATIONS

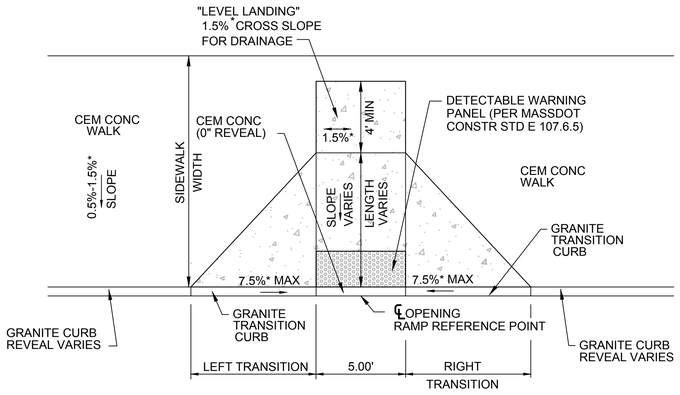
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	53	84
PROJECT FILE NO.	606207		

CONSTRUCTION DETAILS

2 APRIL 13, 2017

606207_HDI(DET).DWG Plotted on 13-Apr-2017 3:57 PM



* TOLERANCE FOR CONSTRUCTION ±0.5%

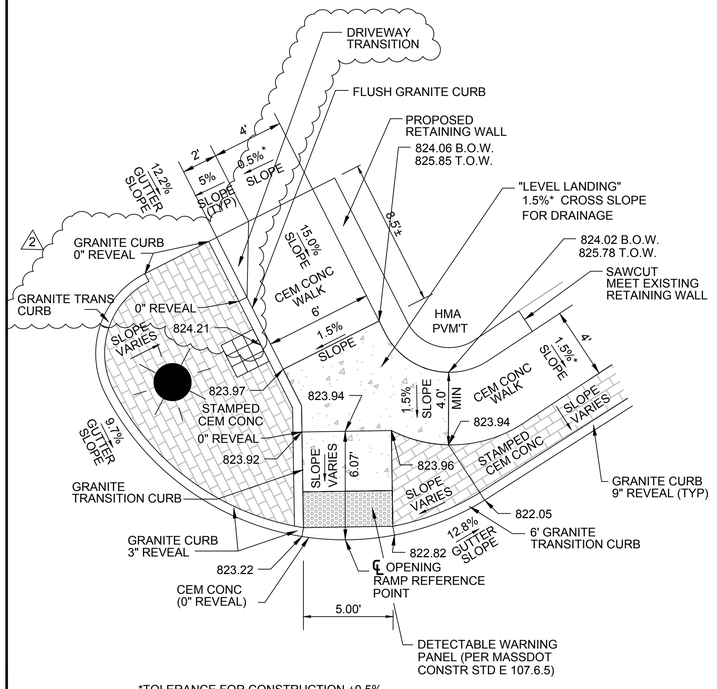
WHEELCHAIR RAMP DATA										
NO.	LOCATION	SIDEWALK WIDTH	LEFT SIDE			RIGHT SIDE			RAMP LENGTH	℄ OPENING ELEVATION
			ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS		
6	101+42.04 27.74' RT	16.2'	3.5%	3"	7'-6"	-9.1%	8"	6'-6"	5'	811.92
21	107+58.64 26.34' RT	9.1'	1.7%	3"	4'-6"	-1.7%	3"	3'-3"	3'-10"	819.55

NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

**A VARIANCE IS REQUESTED FOR GUTTER SLOPE EXCEEDING 5%
AND FOR WCR #6 FOR RAMP SLOPE EXCEEDING 8.3%.

WHEELCHAIR RAMPS - #6 & #21

SCALE: N.T.S.



*TOLERANCE FOR CONSTRUCTION ±0.5%

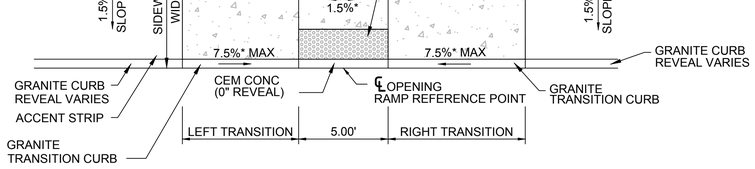
WHEELCHAIR RAMP DATA						
NO.	LOCATION	SIDEWALK WIDTH	ROADWAY GUTTER	REVEAL	TRANS	℄ OPENING ELEVATION
22	107+96.72 26.46' RT	6.0'	-12.8%	9"	6'-0"	823.00

NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

**A VARIANCE IS REQUESTED FOR THIS WCR FOR TRANSITION SLOPES EXCEEDING 8.3%*,
CROSS SLOPE IN FURNITURE ZONE, AND LEVEL LANDING AT ROADWAY GUTTER.

WHEELCHAIR RAMP #22

SCALE: N.T.S.



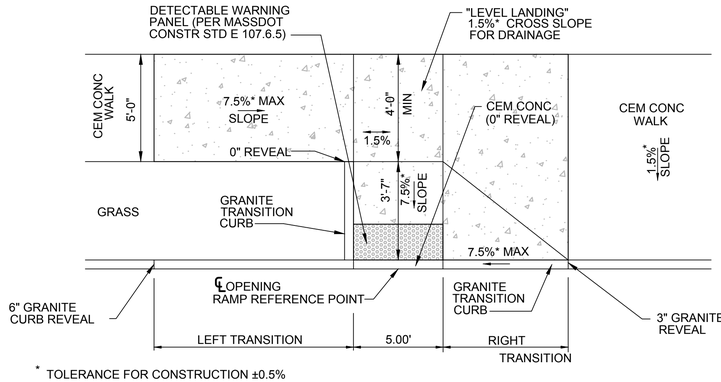
* TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP DATA									
NO.	LOCATION	SIDEWALK WIDTH	LEFT SIDE			RIGHT SIDE			℄ OPENING ELEVATION
			ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS	
3	100+85.44 36.44' LT	6.4'	-14.9%	3"	3'-3"	15.8%	8"	15'-0"	817.85
4	101+09.48 38.43' LT	6.0'	18.4%	6"	15'-0"	-13.5%	6"	6'-6"	817.04
14	104+80.41 52.52' LT	6.0'	2.0%	6"	9'-0"	-2.0%	6"	6'-6"	811.41 2
19	107+14.11 16.00' LT	7.0'	-8.0%	3"	3'-3"	6.6%	3"	7'-6"	817.43
23	110+26.72 24.78' LT	6.1'	-9.3%	8"	6'-6"	14.6%	6"	15'-0"	848.59
24	110+34.75 28.00' RT	7.0'	5.7%	6"	15'-0"	-8.4%	3"	6'-6"	849.63
25	110+62.83 41.35' RT	7.0'	-4.7%	6"	6'-6"	1.4%	6"	9'-0"	850.69
26	110+96.55 23.07' RT	6.5'	-6.8%	8.2"	15'-0"	-8.3%	6"	6'-6"	852.84
28	110+63.55 30.87' LT	6.0'	2.1%	6"	11'-0"	3.0%	6"	14'-0"	852.26

NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION
**A VARIANCE IS REQUESTED FOR WCR'S WITH GUTTER SLOPE EXCEEDING 5%.

WHEELCHAIR RAMP - SIDEWALK LESS THAN 7.0 FT WIDE

SCALE: N.T.S.



* TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP DATA									
NO.	LOCATION	SIDEWALK WIDTH	LEFT SIDE			RIGHT SIDE			℄ OPENING ELEVATION
			ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS	
2	100+78.98 19.45' LT	5.0'	-5.1%	6"	6'-6"	9.2%	3"	7'-6"	815.07

NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

**A VARIANCE IS REQUESTED FOR WCR'S WITH GUTTER SLOPE EXCEEDING 5%.

WHEELCHAIR RAMP #2

SCALE: N.T.S.

LEGEND

LIMITS OF CEMENT CONCRETE WHEELCHAIR RAMP

LIMITS OF DETECTABLE WARNING PANEL

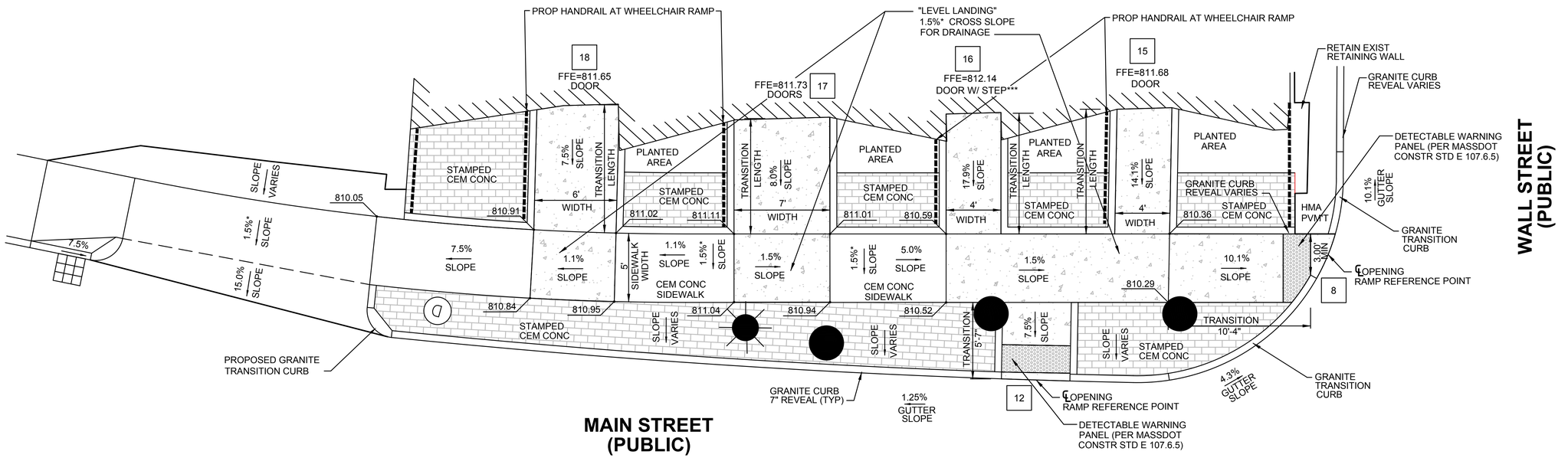
SEE CONSTRUCTION PLANS & ALIGNMENT PLANS FOR RAMP LOCATIONS

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	54	84
PROJECT FILE NO.	606207		

CONSTRUCTION DETAILS

606207_HDI(DET).DWG Plotted on 25-Aug-2016 8:20 AM



MAIN STREET (PUBLIC)

*TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP DATA					
NO.	LOCATION	RAMP WIDTH	RAMP SLOPE	TRANS LENGTH	℄ OPENING ELEVATION
8	103+59.28 27.49' RT	5.0'	10.1%	10'-4"	809.29
12	103+81.18 18.00' RT	5.0'	7.5%	5'-7"	810.00
15	103+73.43 28.86' RT	4.0'	14.1%	9'-2"	810.39
16	103+86.25 28.50' RT	4.0'	17.9%	8'-10"	810.56
17	104+00.79 27.81' RT	7.0'	8.0%	8'-5"	811.06
18	104+16.48 26.93' RT	6.0'	7.5%	9-3"	810.95

NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

**A VARIANCE IS REQUESTED FOR WCR'S WITH SLOPES EXCEEDING 8.3%, HANDRAILS, CROSS SLOPE IN FURNITURE ZONE, AND LEVEL LANDING AT DOORS AND GUTTER SLOPE EXCEEDING 5%.

*** EXISTING STEP AT THIS LOCATION IS BEING RETAINED.

WHEELCHAIR RAMPS #8, #12, #15, #16, #17, & #18

SCALE: N.T.S.

LEGEND

LIMITS OF CEMENT CONCRETE WHEELCHAIR RAMP

LIMITS OF DETECTABLE WARNING PANEL

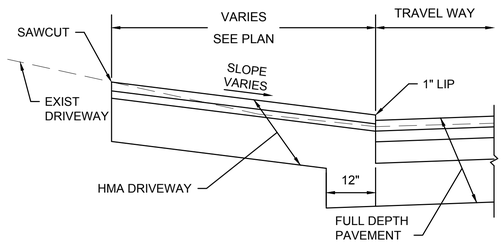
SEE CONSTRUCTION PLANS & ALIGNMENT PLANS FOR RAMP LOCATIONS

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	55	84
	PROJECT FILE NO. 606207		

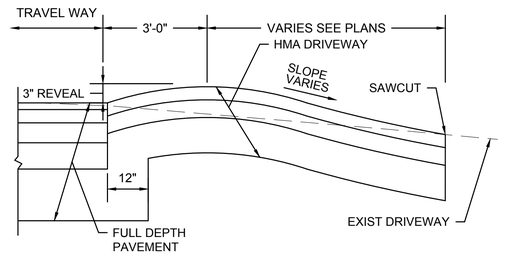
CONSTRUCTION DETAILS

606207_HD(DET).DWG Plotted on 25-Aug-2016 8:20 AM



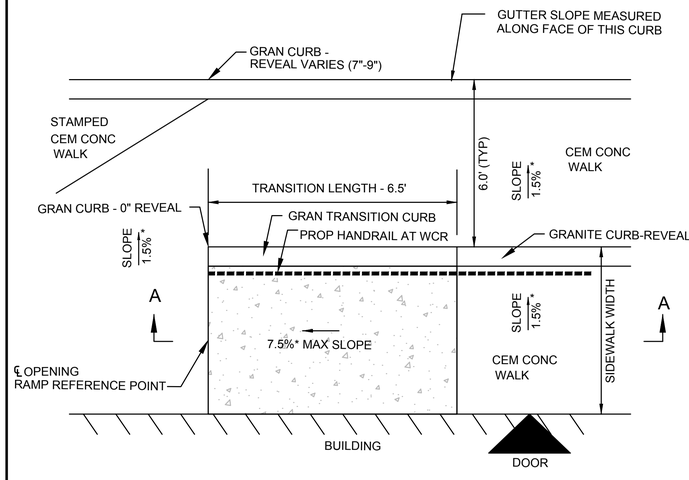
TYPICAL DRIVEWAY SECTION WITHOUT SIDEWALK TYPE II

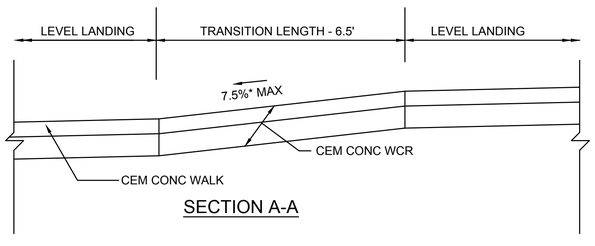
SCALE: N.T.S.



TYPICAL DRIVEWAY SECTION WITHOUT SIDEWALK TYPE I

SCALE: N.T.S.





SECTION A-A

TOLERANCE FOR CONSTRUCTION ±0.5%

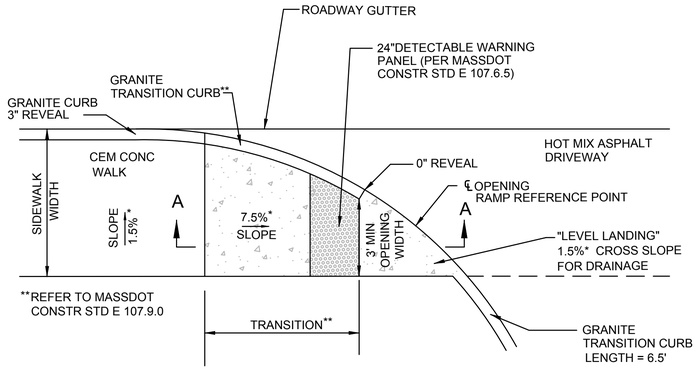
WHEELCHAIR RAMP DATA						
NO.	LOCATION	SIDEWALK WIDTH	ROADWAY GUTTER	REVEAL	TRANS	℄ OPENING ELEVATION
33	102+18..38 33.08' RT	7.8'±	-1.7%	7.4"	6'-6"	812.73

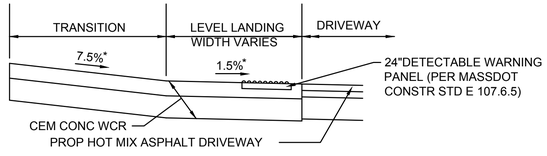
NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

**VARIANCE IS REQUESTED FOR THIS WCR FOR HANDRAIL

WHEELCHAIR RAMP #33

SCALE: N.T.S.





SECTION A-A

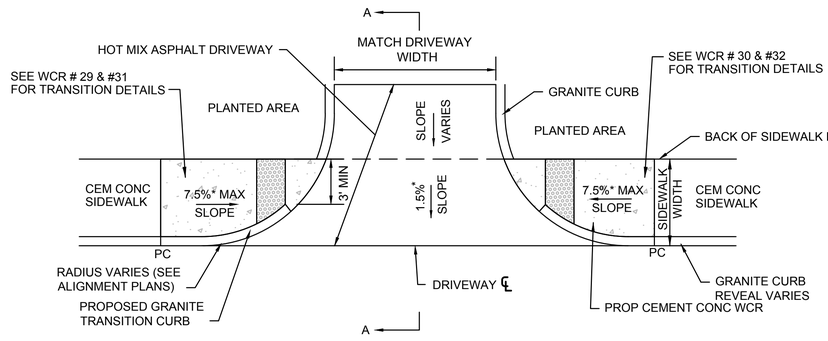
* TOLERANCE FOR CONSTRUCTION ±0.5%

WHEELCHAIR RAMP DATA							
NO.	LOCATION	SIDEWALK WIDTH	OPENING WIDTH	ROADWAY GUTTER	REVEAL	TRANS	℄ ELEV
29	106+52.53 21.50' LT	7.0'	3.0'	-4.22%	6"	6'-6"	813.58
30	106+84.69 21.50' LT	7.0'	3.0'	6.36%	3"	7'-6"	815.47
31	107+33.44 21.50' LT	7.0'	3.0'	-6.38%	3"	3'-3"	818.85
32	107+59.24 21.50' LT	7.0'	3.0'	8.17%	6"	15'-0"	820.51

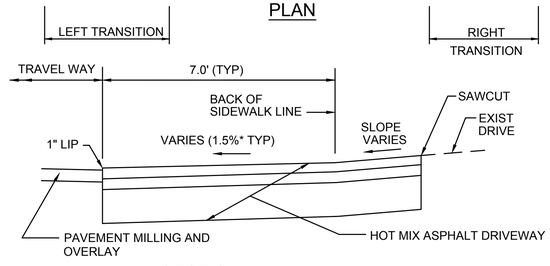
NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

WHEELCHAIR RAMP - ONE CONTINUOUS DIRECTION OF PEDESTRIAN TRAVEL

SCALE: N.T.S.



PLAN



SECTION A-A

* TOLERANCE FOR CONSTRUCTION ±0.5%

DRIVEWAY DATA							
NO.	LOCATION	SIDEWALK WIDTH	LEFT SIDE		RIGHT SIDE		℄ OPENING ELEVATION
			REVEAL	TRANS	REVEAL	TRANS	
D6	106+70.45 16.00' LT	7.0'	6"	6'-6"	3"	7'-6"	814.38
D7	107+48.34 16.00' LT	7.0'	3"	3'-3"	6"	15'-0"	819.61

NOTE:
FOR ADDITIONAL INFORMATION REFER TO CONSTRUCTION DETAIL FOR WHEELCHAIR RAMP - ONE CONTINUOUS DIRECTION OF PEDESTRIAN TRAVEL

TYPICAL HOT MIX ASPHALT DRIVEWAY WITH WHEELCHAIR RAMPS

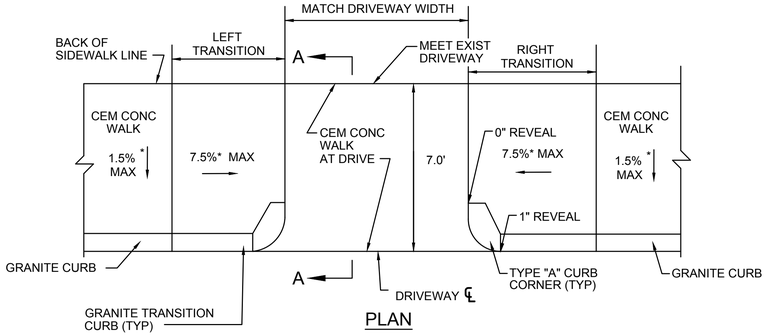
SCALE: N.T.S.

SPENCER
MAIN STREET

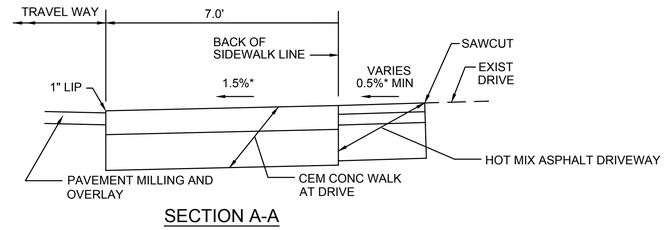
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	56	84
PROJECT FILE NO.	606207		

CONSTRUCTION DETAILS

606207_HD(DET).DWG Plotted on 25-Aug-2016 8:20 AM



PLAN



SECTION A-A

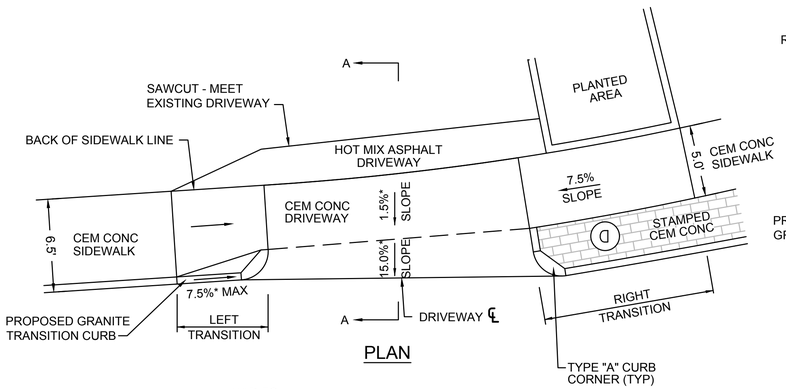
* TOLERANCE FOR CONSTRUCTION ±0.5%

DRIVEWAY DATA								
LOCATION	SIDEWALK WIDTH	LEFT SIDE			RIGHT SIDE			℄ OPENING ELEVATION
		ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS	
106+12.41 16.00' LT	7.0'	-4.0%	6"	6'-6"	4.0%	3"	7'-6"	811.70

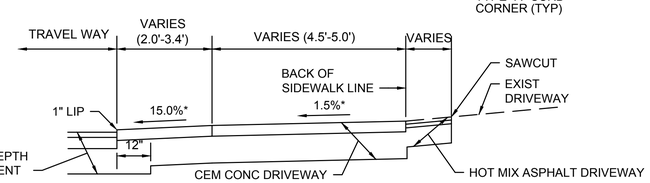
NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

CEMENT CONCRETE WALK AT DRIVEWAY AT STATION 106+12.41 LT

SCALE: N.T.S.



PLAN



SECTION A-A

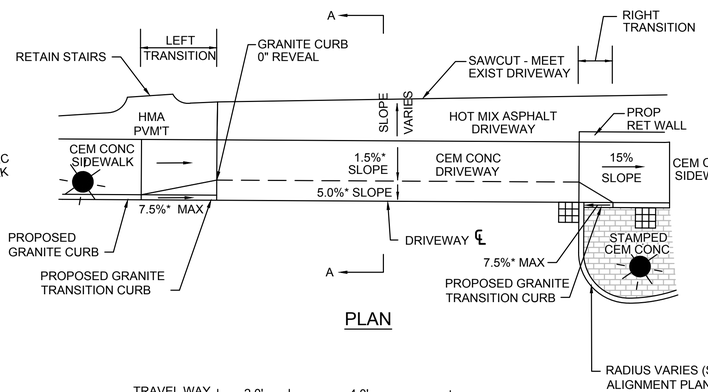
* TOLERANCE FOR CONSTRUCTION ±0.5%

DRIVEWAY DATA									
NO.	LOCATION	SIDEWALK WIDTH	LEFT SIDE			RIGHT SIDE			℄ OPENING ELEVATION
			ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS	
D4	104+41.20 19.63' RT	6.5'	-1.0%	8"	6'-6"	1.0%	7"	7'-8"	809.34

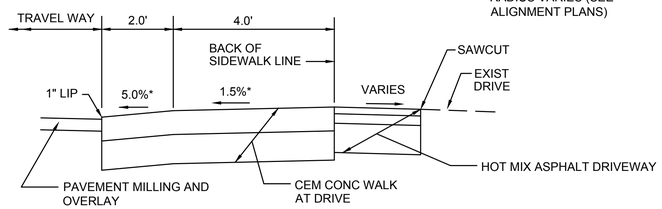
NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

CEMENT CONCRETE WALK AT DRIVEWAY AT STATION 104+41.20 RT

SCALE: N.T.S.



PLAN



SECTION A-A

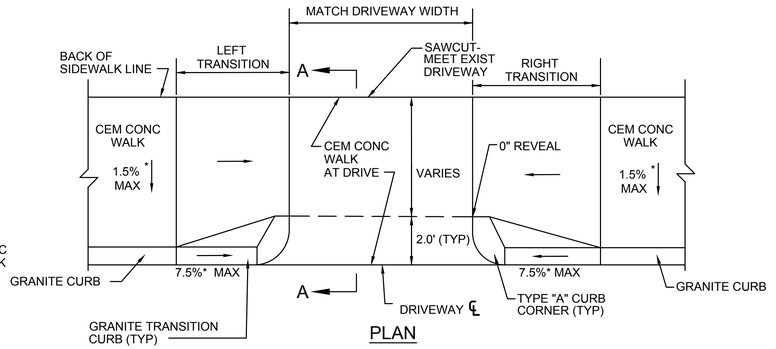
* TOLERANCE FOR CONSTRUCTION ±0.5%

DRIVEWAY DATA									
NO.	LOCATION	SIDEWALK WIDTH	LEFT SIDE			RIGHT SIDE			℄ OPENING ELEVATION
			ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS	
D10	108+34.12 28.00' RT	6.0'	12.2%	3"	7'-6"	-12.2%	3"	3'-3"	827.46

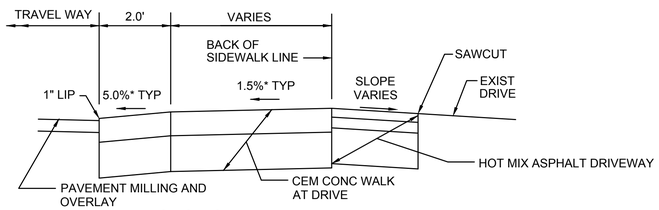
NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

CEMENT CONCRETE WALK AT DRIVEWAY AT STATION 108+34.12 RT

SCALE: N.T.S.



PLAN



SECTION A-A

* TOLERANCE FOR CONSTRUCTION ±0.5%

DRIVEWAY DATA									
NO.	LOCATION	SIDEWALK WIDTH	LEFT SIDE			RIGHT SIDE			℄ OPENING ELEVATION
			ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS	
D11	108+86.91 28.00' RT	6.1'	11.9%	3"	7'-6"	-11.9%	3"	6'-6"	834.35
D12	109+49.41 28.00' RT	6.5'	10.1%	3"	7'-6"	-10.1%	3"	6'-6"	841.08
D13	109+96.85 28.00' RT	6.8'	9.1%	3"	7'-6"	-9.1%	3"	3'-3"	846.06

NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

TYPICAL CEMENT CONCRETE WALK AT DRIVEWAY WITH RAMPS, FLARES & CURB CORNERS

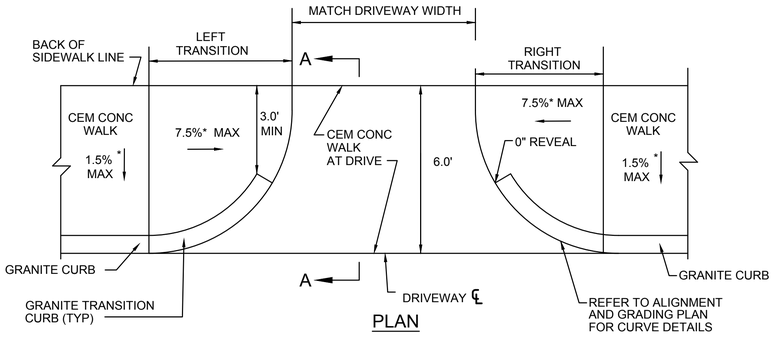
SCALE: N.T.S.

SPENCER
MAIN STREET

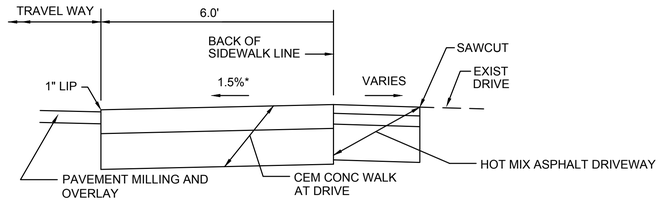
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	CM/HSI/TAP-002S(926)X	57	84
PROJECT FILE NO.	606207		

CONSTRUCTION DETAILS

606207_HDI(DET).DWG Plotted on 25-Aug-2016 8:20 AM



PLAN

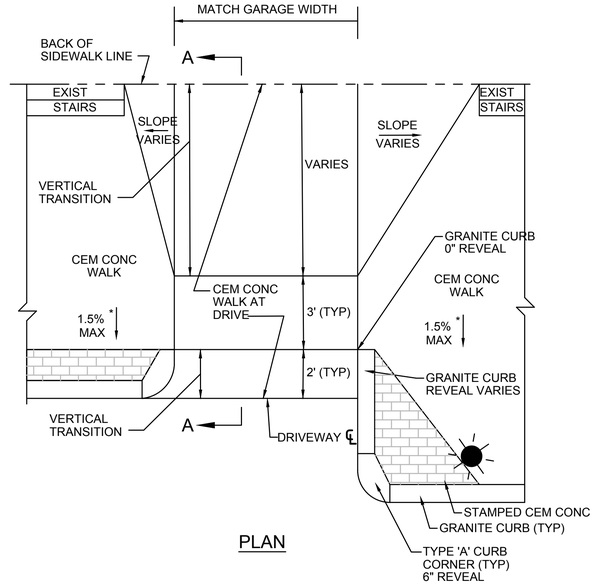


SECTION A-A

* TOLERANCE FOR CONSTRUCTION ±0.5%

DRIVEWAY DATA									
NO.	LOCATION	SIDEWALK WIDTH	LEFT SIDE			RIGHT SIDE			℄ OPENING ELEVATION
			ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS	
D19	12+77.75 15.28 LT	6.0'	5.4%	6"	15'-0"	-5.4%	6"	6'-6"	815.87

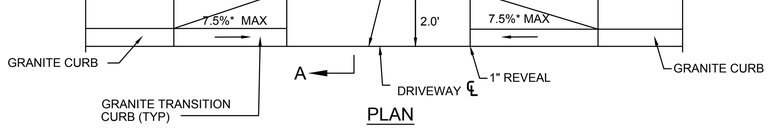
NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION



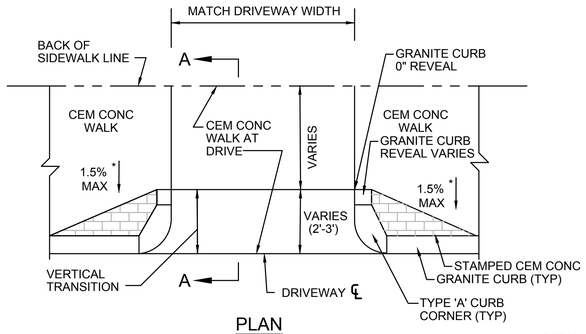
PLAN

CEMENT CONCRETE WALK AT DRIVEWAY AT STATION 106+12.41 LT

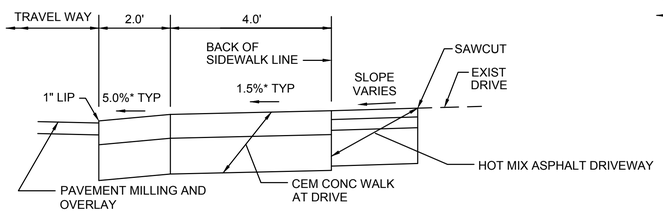
SCALE: N.T.S.



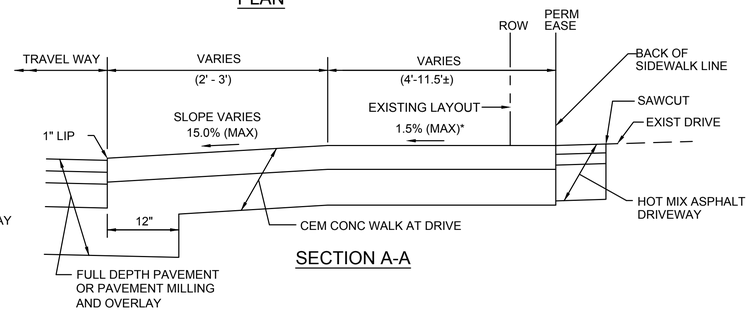
PLAN



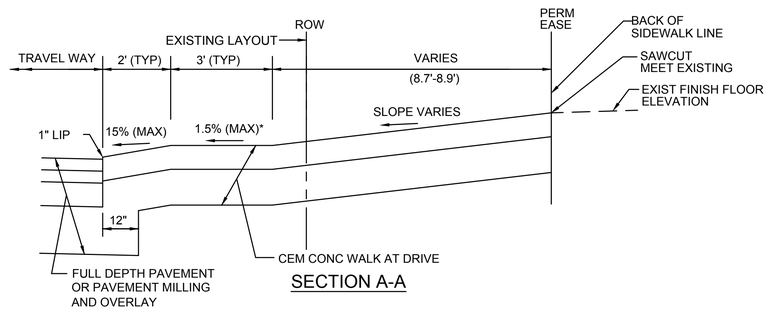
PLAN



SECTION A-A



SECTION A-A



SECTION A-A

* TOLERANCE FOR CONSTRUCTION ±0.5%

DRIVEWAY DATA									
NO.	LOCATION	SIDEWALK WIDTH	LEFT SIDE			RIGHT SIDE			℄ OPENING ELEVATION
			ROADWAY GUTTER	REVEAL	TRANS	ROADWAY GUTTER	REVEAL	TRANS	
D16	10+77.56 15.00' LT	6.0'	1.7%	6"	9'-0"	-1.7%	3"	3'-3"	826.94
D17	11+16.64 15.00' LT	6.0'	1.9%	3"	4'-6"	-1.9%	3"	3'-3"	825.62
D18	11+51.70 15.00' LT	6.0'	5.9%	3"	7'-6"	-5.9%	6"	6'-6"	823.91

NOTE: NEGATIVE (-) ROADWAY GUTTER DENOTES A LOW SIDE TRANSITION

TYPICAL CEMENT CONCRETE WALK AT DRIVEWAY WITH RAMPS, FLARES & TRANSITION CURB

SCALE: N.T.S.

*TOLERANCE FOR CONSTRUCTION ±0.5%

DRIVEWAY DATA				
NO.	LOCATION	SIDEWALK WIDTH	ROADWAY GUTTER	℄ OPENING ELEVATION
D2	102+06.81 23.00' RT	13.7'	0.8%	812.05
D3	102+30.45 23.12' LT	6.0'	2.0%	812.94
D8	107+96.15 16.00' LT	7.0'	10.0%	823.72
D9	108+68.84 16.00' LT	7.0'	11.8%	831.70

TYPICAL CEMENT CONCRETE WALK AT DRIVEWAY WITHOUT RAMPS

SCALE: N.T.S.

*TOLERANCE FOR CONSTRUCTION ±0.5%

DRIVEWAY DATA				
NO.	LOCATION	SIDEWALK WIDTH	ROADWAY GUTTER	℄ OPENING ELEVATION
D1	101+77.14 23.00' RT	13.8'	0.4%	812.27

TYPICAL CEMENT CONCRETE WALK AT DRIVEWAY WITHOUT RAMPS - COMMERCIAL

SCALE: N.T.S.

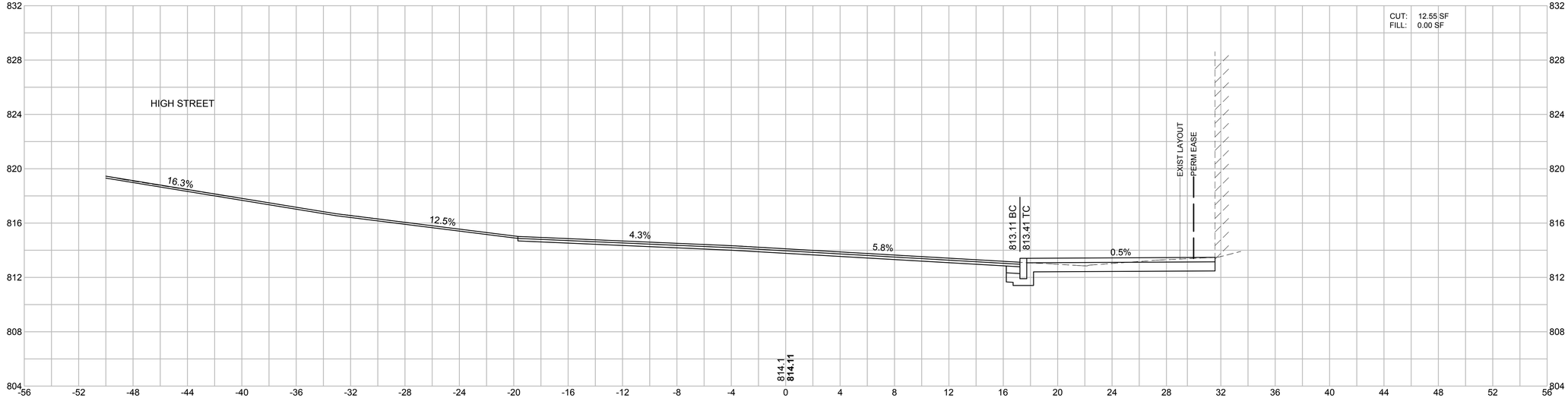
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	58	84
PROJECT FILE NO. 606207			

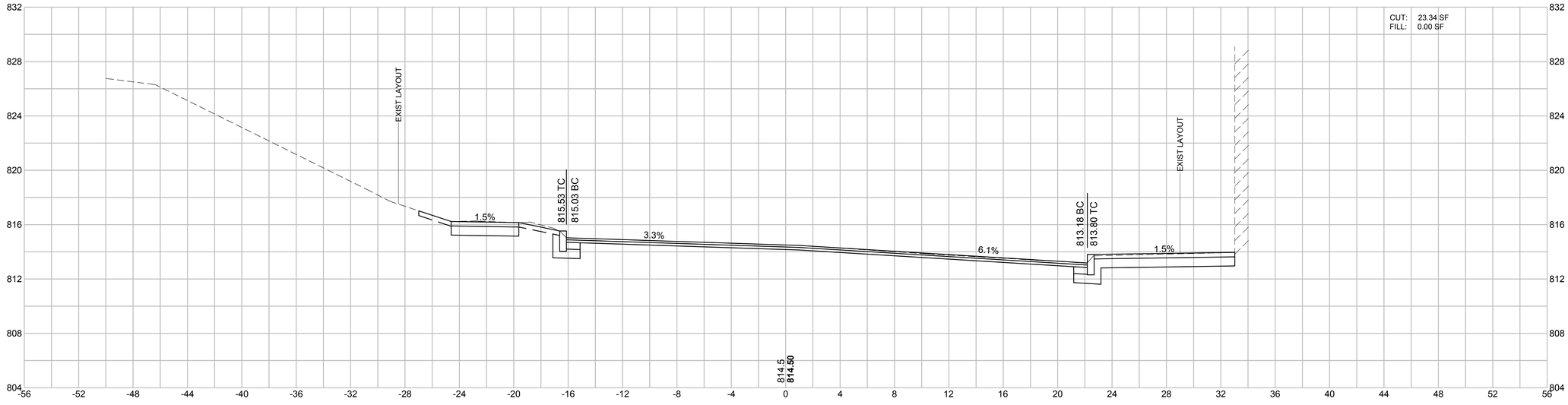
CROSS SECTIONS
MAIN STREET

606207_HD(XSEC)-MAIN.DWG 25-Aug-2016

101+00



100+50



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

SPENCER
MAIN STREET

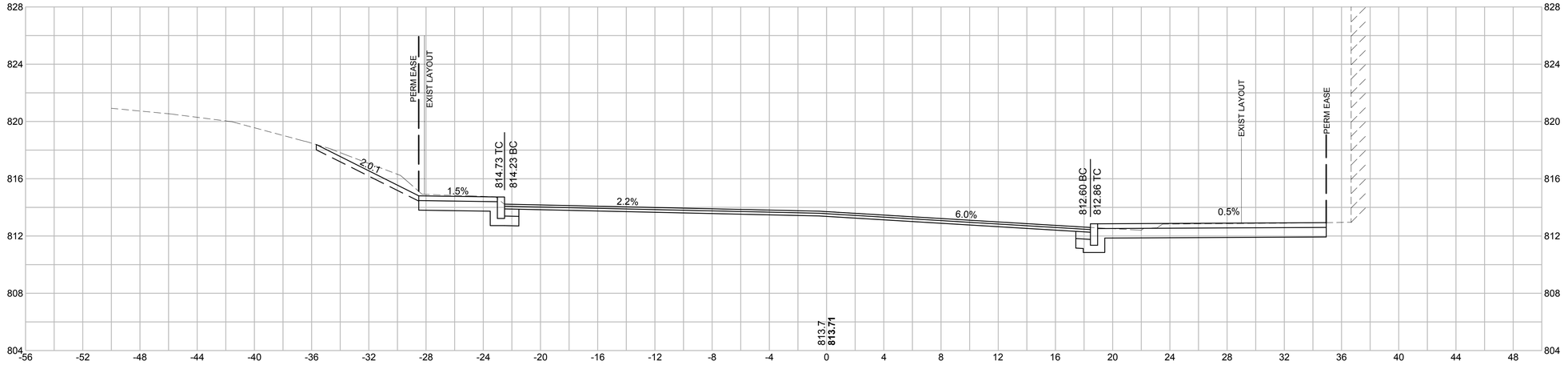
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	59	84
PROJECT FILE NO. 606207			

CROSS SECTIONS
MAIN STREET

25-Aug-2016

606207_HD(XSEC)-MAIN.DWG

101+55



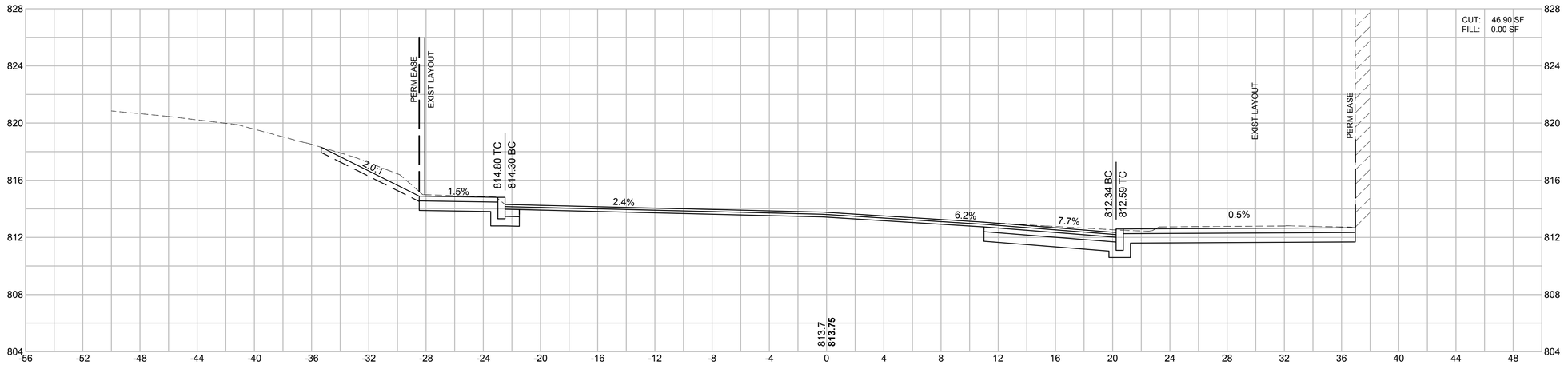


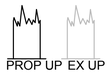
36" MAPLE
101+54
42.3' LT



EX HYD
101+55
29.4' LT

101+50

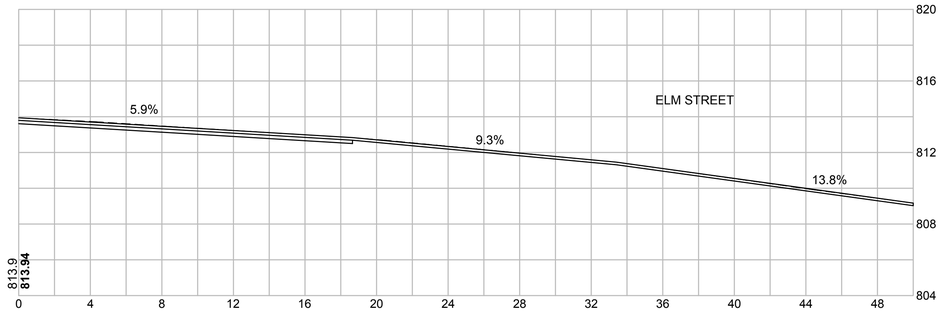


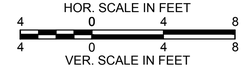


PROP UP
101+26
25.1' LT

EX UP
101+26
23.6' LT

101+25





SPENCER
MAIN STREET

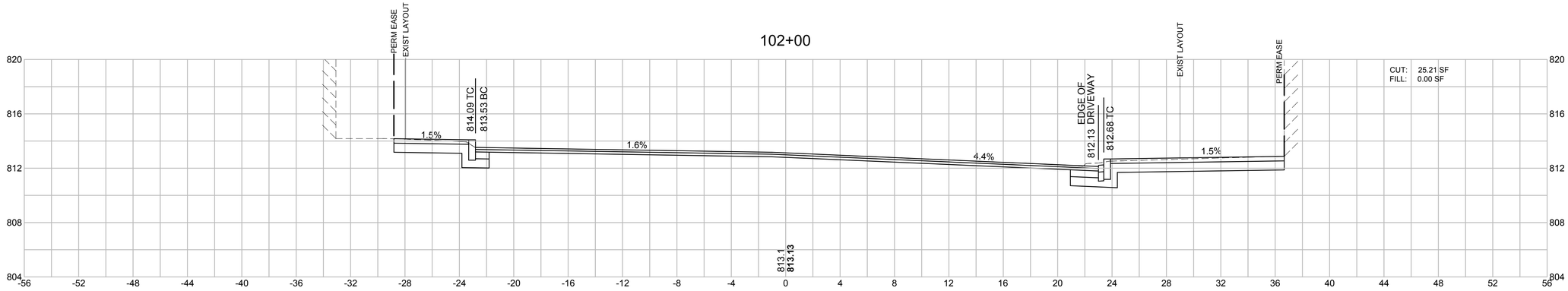
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	60	84
PROJECT FILE NO. 606207			

CROSS SECTIONS
MAIN STREET

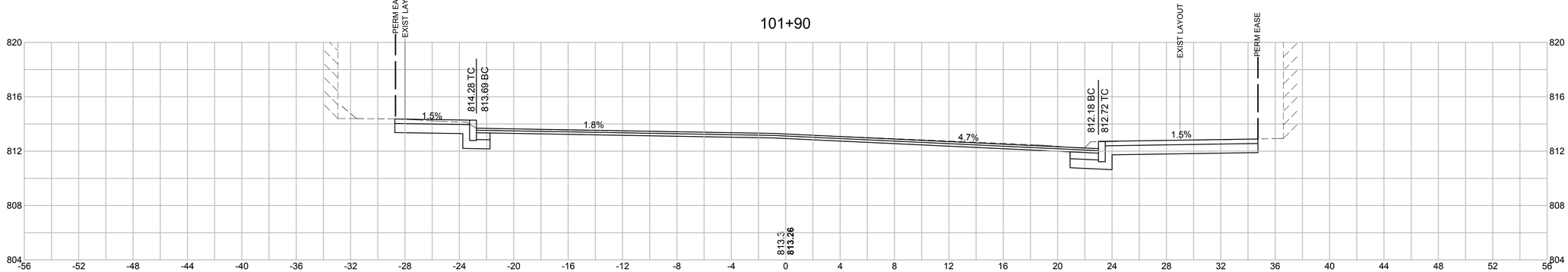
25-Aug-2016

606207_HD(XSEC)-MAIN.DWG

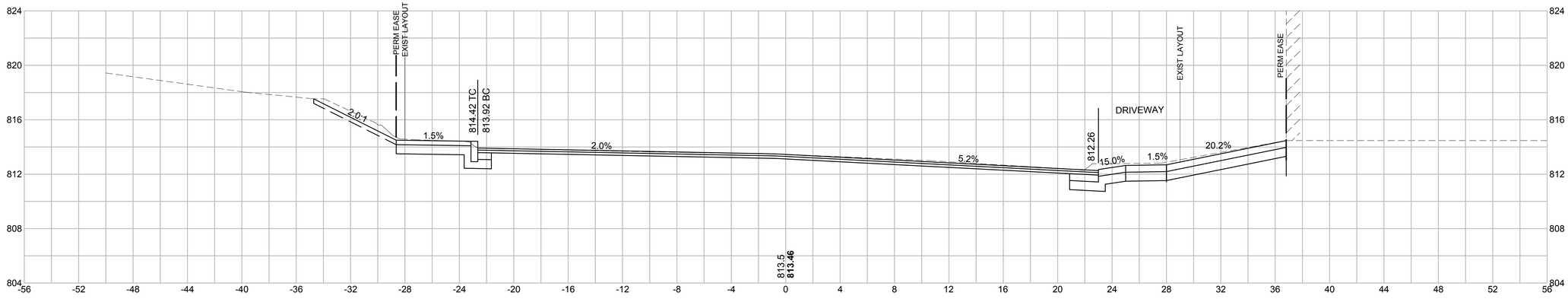
102+00



101+90



101+75



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

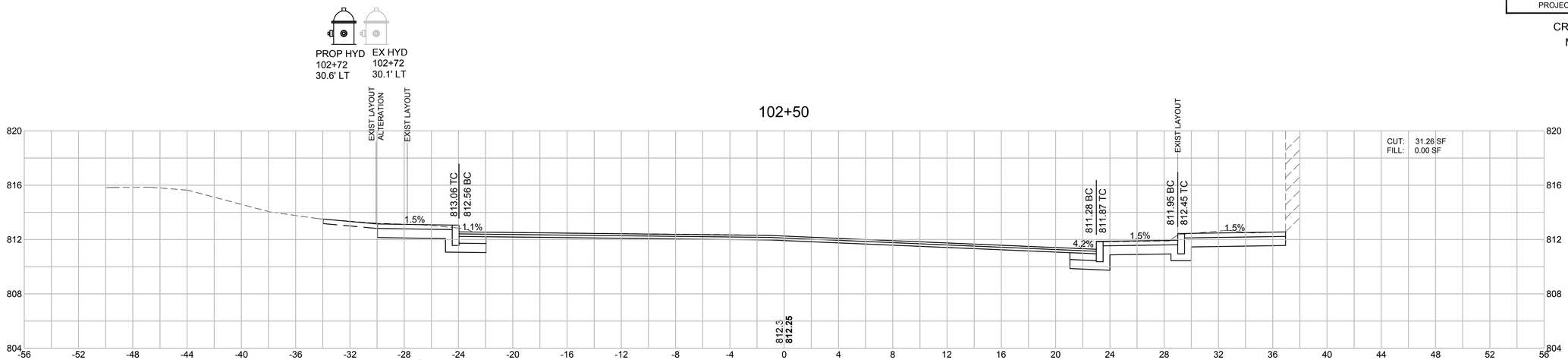
SPENCER
MAIN STREET

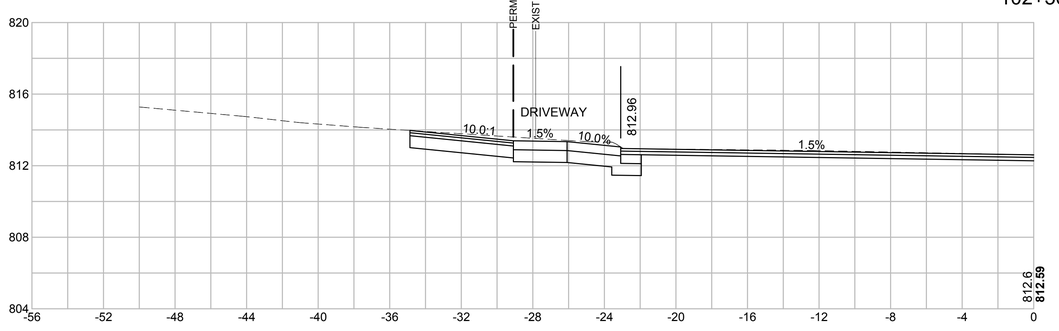
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	61	84
PROJECT FILE NO. 606207			

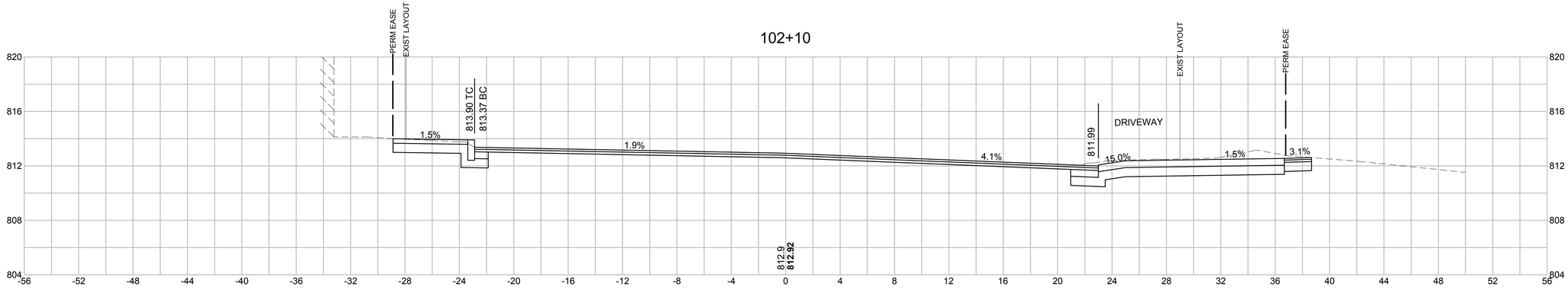
CROSS SECTIONS
MAIN STREET

25-Aug-2016

606207_HD(XSEC)-MAIN.DWG







HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

SPENCER
MAIN STREET

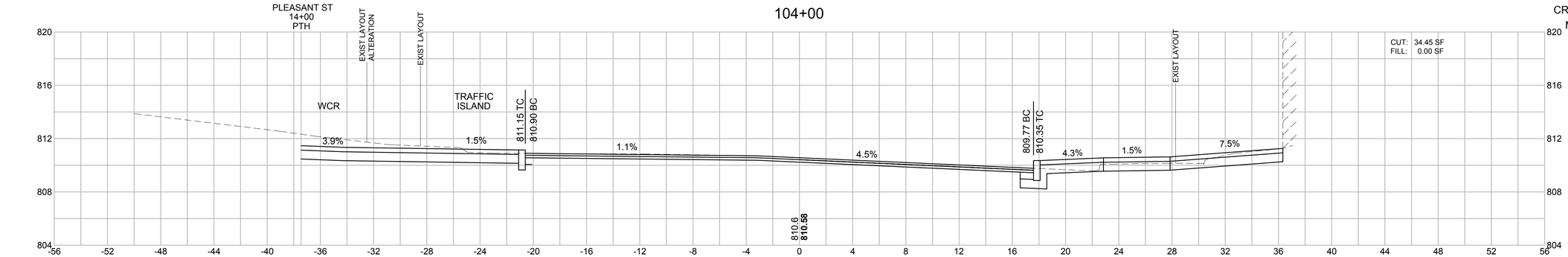
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	62	84
PROJECT FILE NO. 606207			

CROSS SECTIONS
MAIN STREET

25-Aug-2016

606207_HD(XSEC)-MAIN.DWG

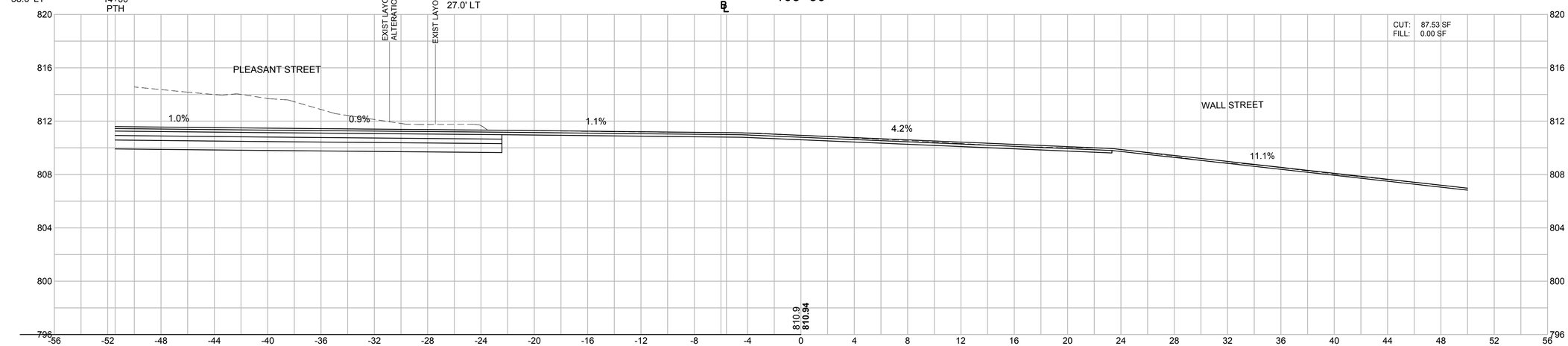
104+00



30" SPRUCE
103+95
58.6' LT

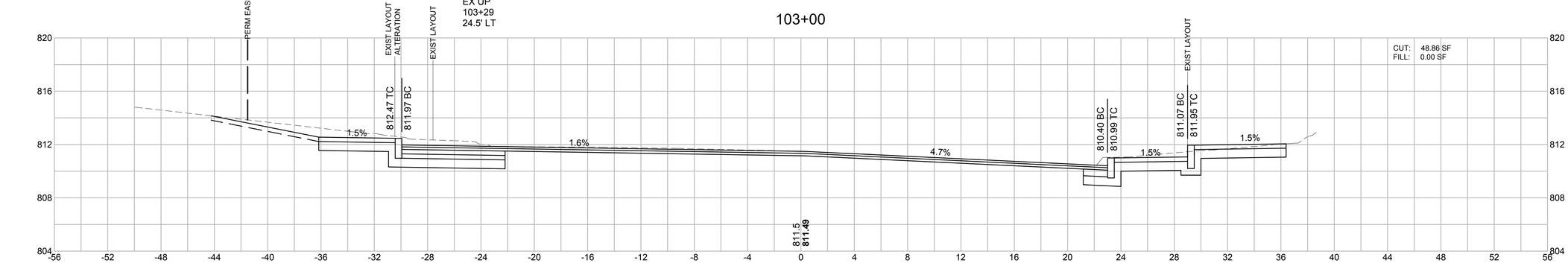
PROP UP
103+91
27.0' LT

103+50



EX UP
103+29
24.5' LT

103+00



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

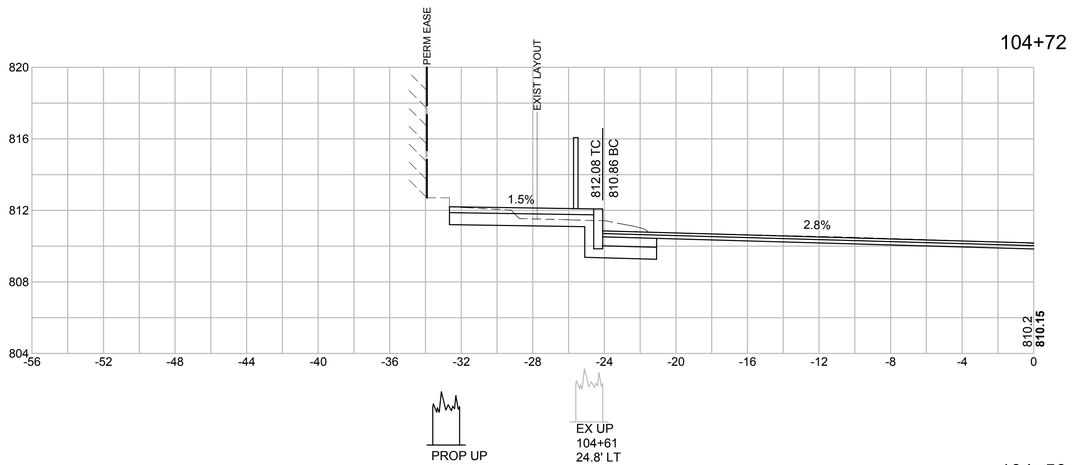
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	63	84
PROJECT FILE NO. 606207			

CROSS SECTIONS
MAIN STREET

606207_HD(XSEC)-MAIN.DWG 25-Aug-2016

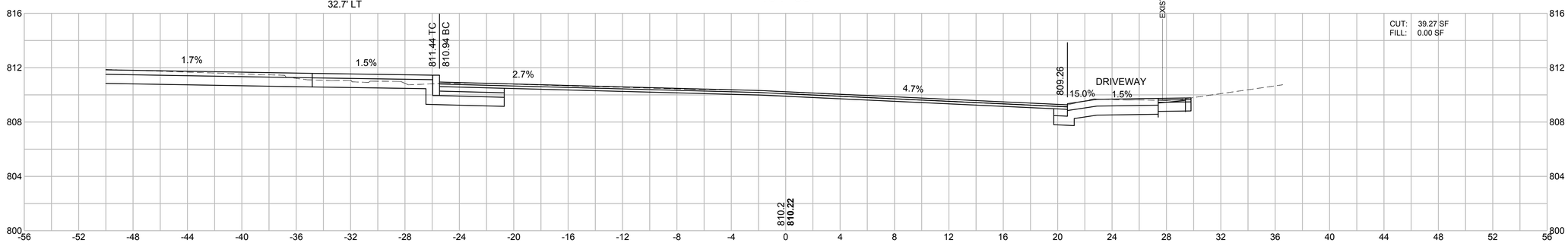
104+72



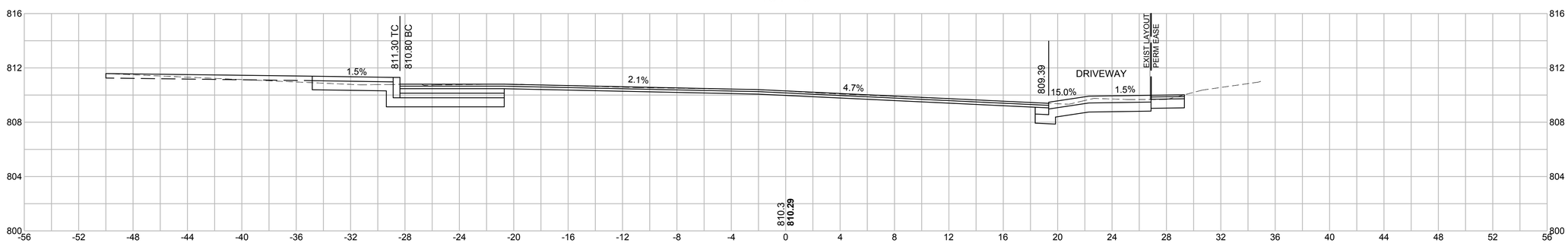
PROP UP
104+50
32.7' LT

EX UP
104+61
24.8' LT

104+50



104+40



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

SPENCER
MAIN STREET

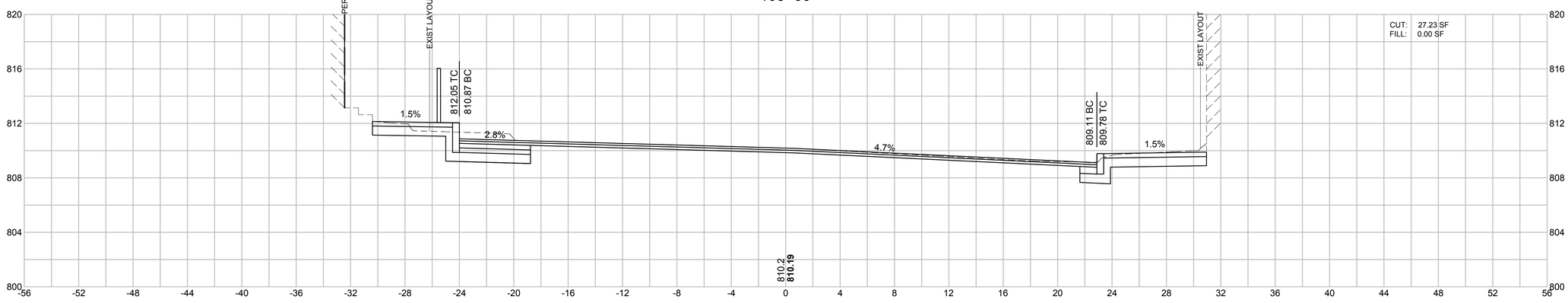
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	64	84
PROJECT FILE NO. 606207			

CROSS SECTIONS

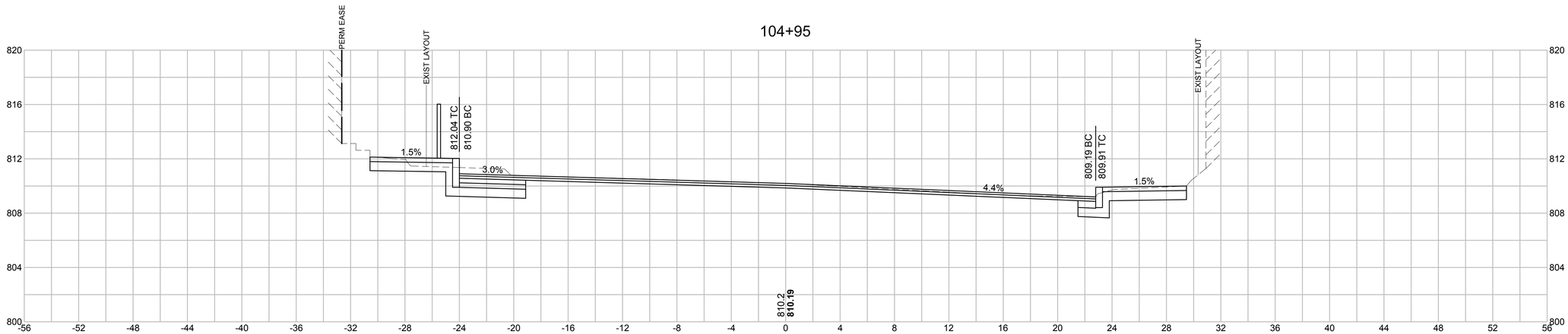
25-Aug-2016

606207_HD(XSEC)-MAIN.DWG

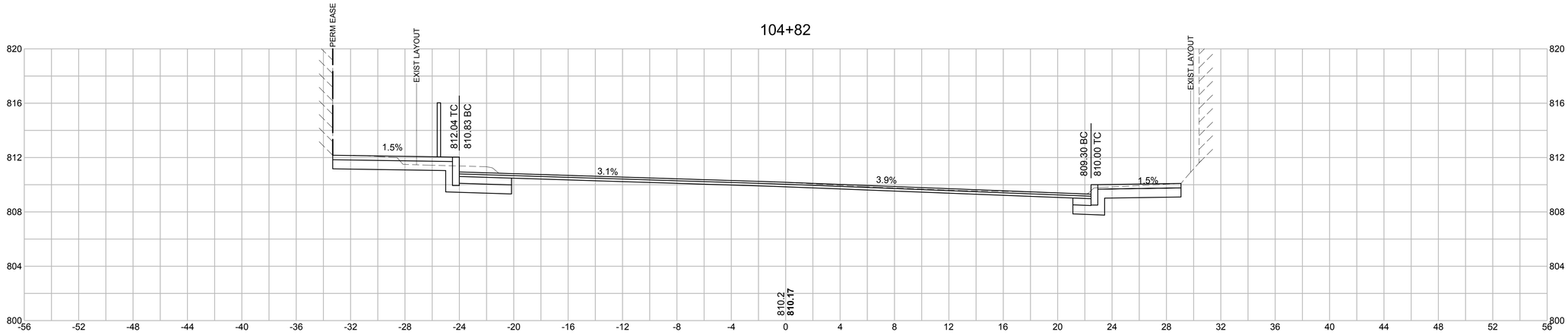
105+00



104+95



104+82



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

SPENCER
MAIN STREET

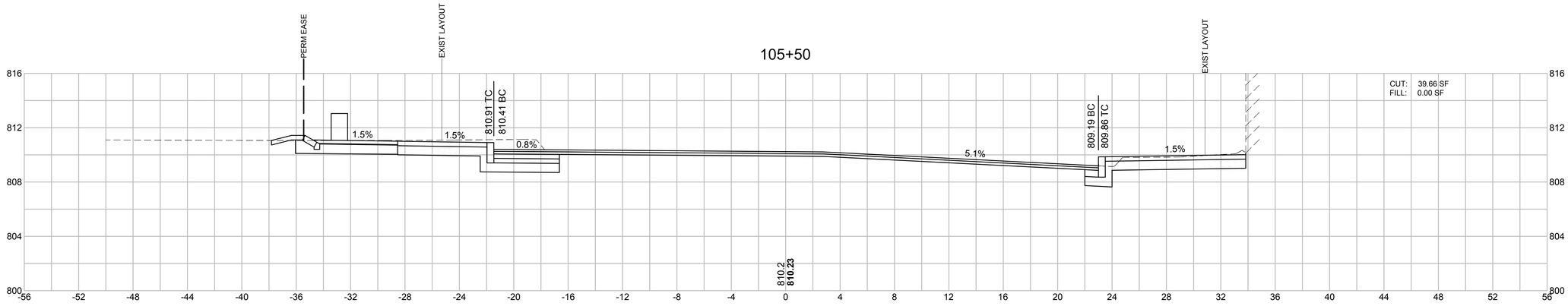
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	65	84
PROJECT FILE NO. 606207			

CROSS SECTIONS

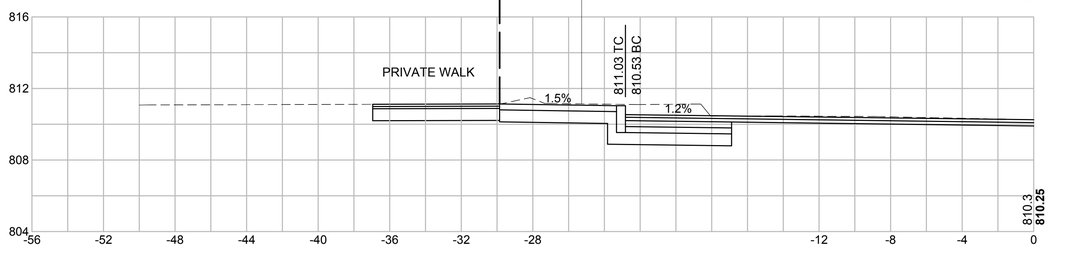
25-Aug-2016

606207_HD\XSEC\-MAIN.DWG

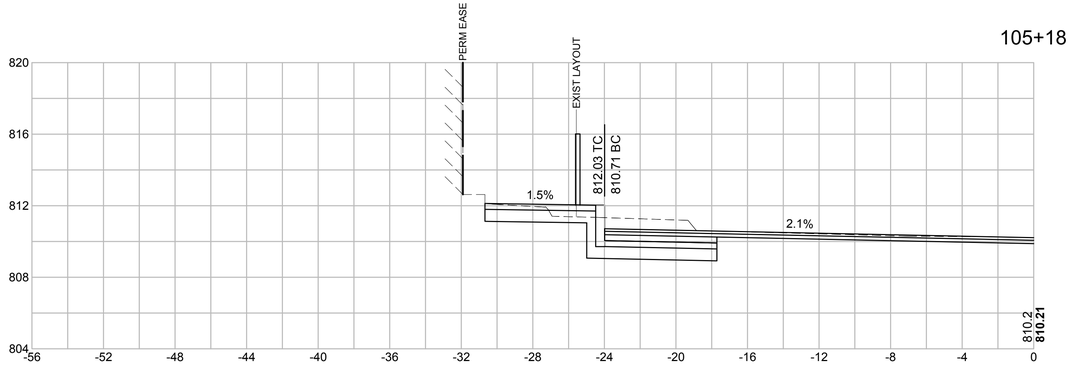
105+50



105+39



105+18



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

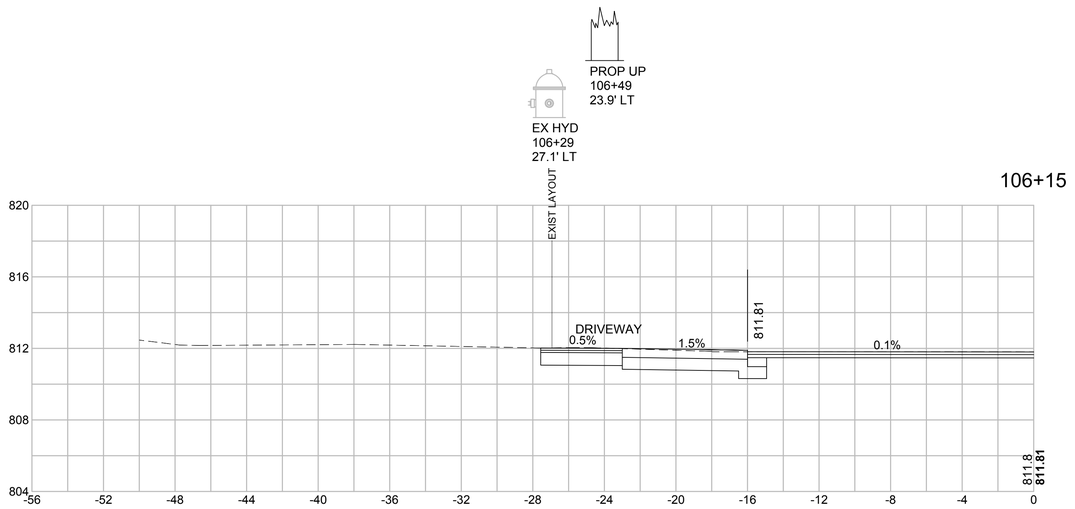
SPENCER
MAIN STREET

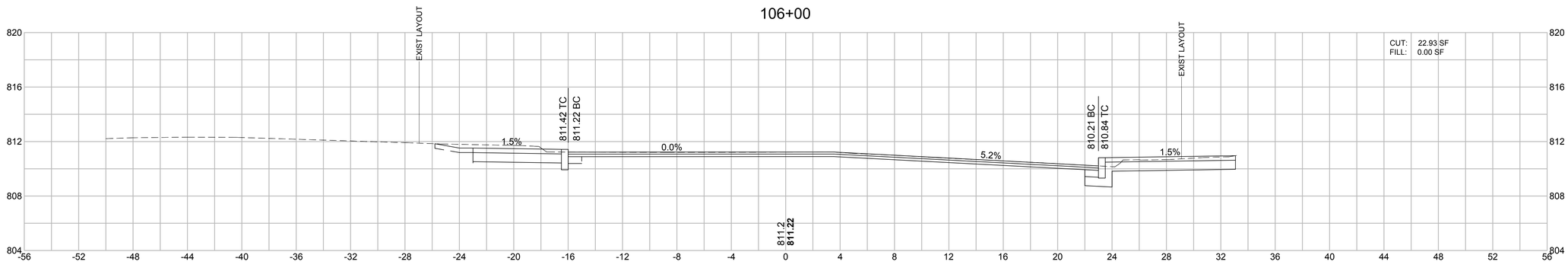
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	66	84
PROJECT FILE NO. 606207			

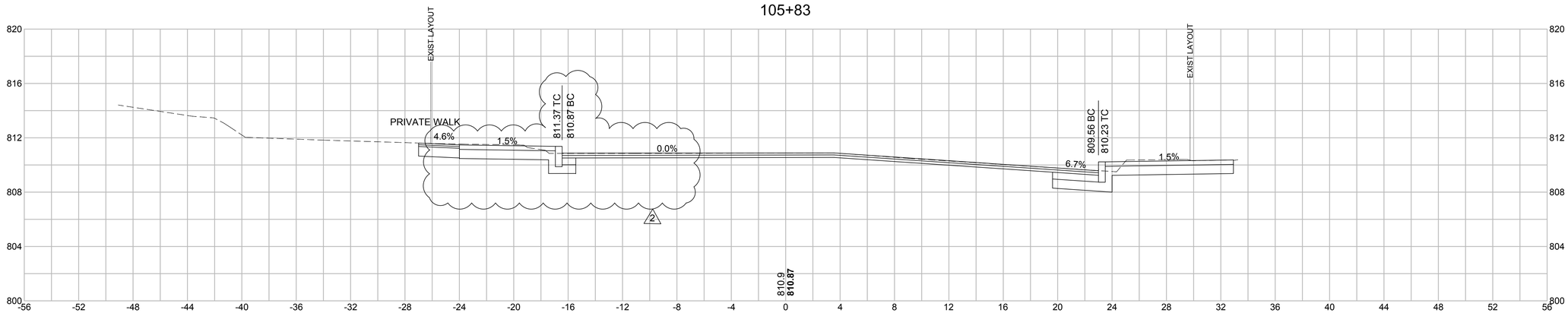
CROSS SECTIONS

2 APRIL 13, 2017

606207_HD(XSEC)-MAIN.DWG 13-Apr-2017







HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

SPENCER
MAIN STREET

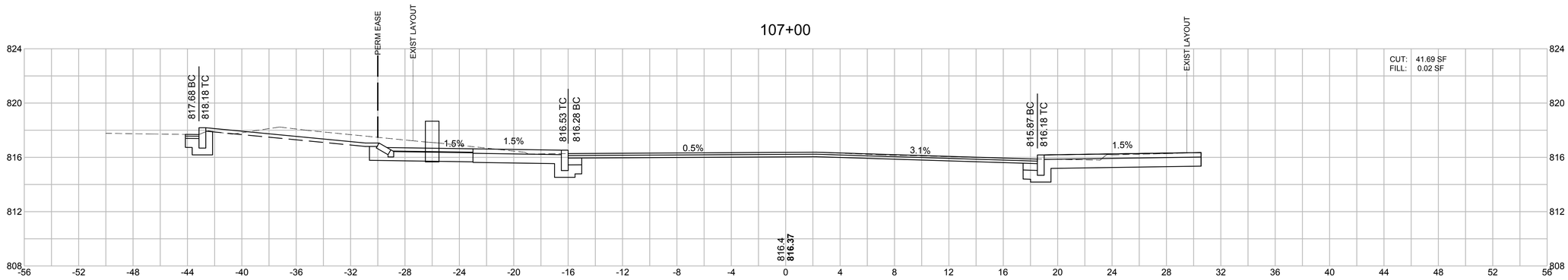
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	67	84
PROJECT FILE NO. 606207			

CROSS SECTIONS
MAIN STREET

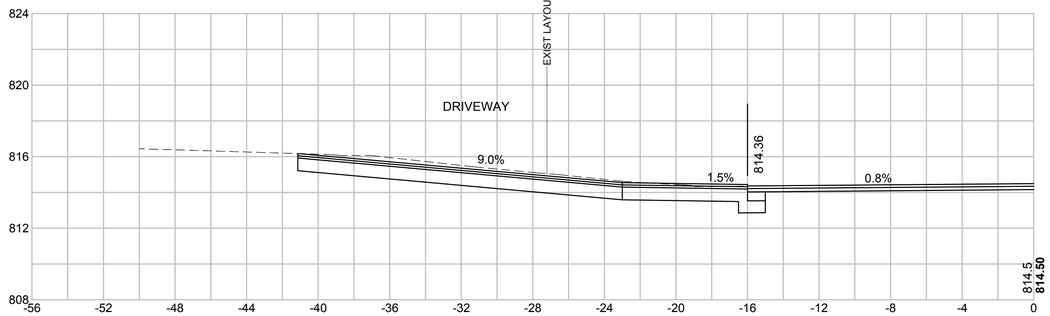
25-Aug-2016

606207_HD(XSEC)-MAIN.DWG

107+00



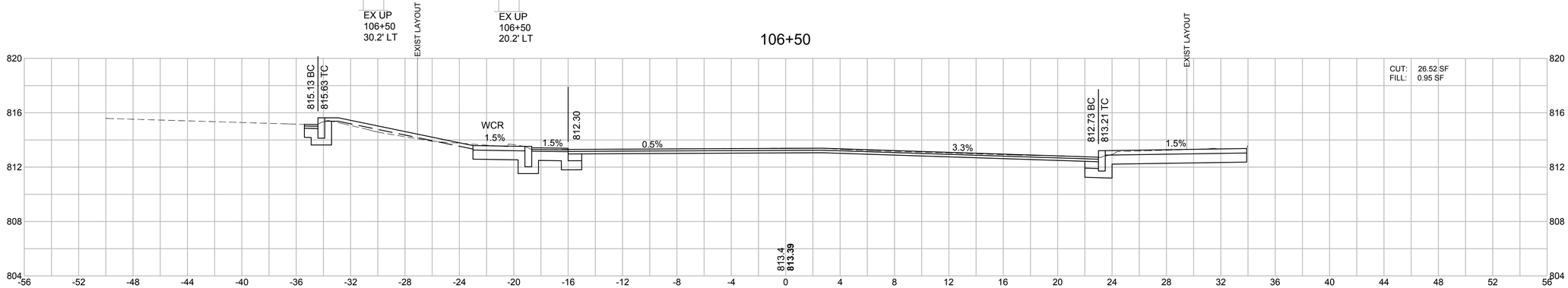
106+70



EX UP
106+50
30.2' LT

EX UP
106+50
20.2' LT

106+50



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

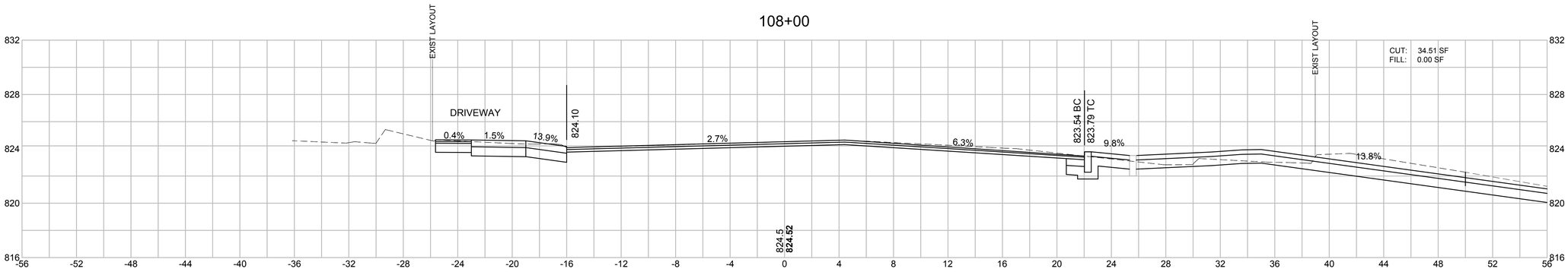
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	68	84
PROJECT FILE NO. 606207			

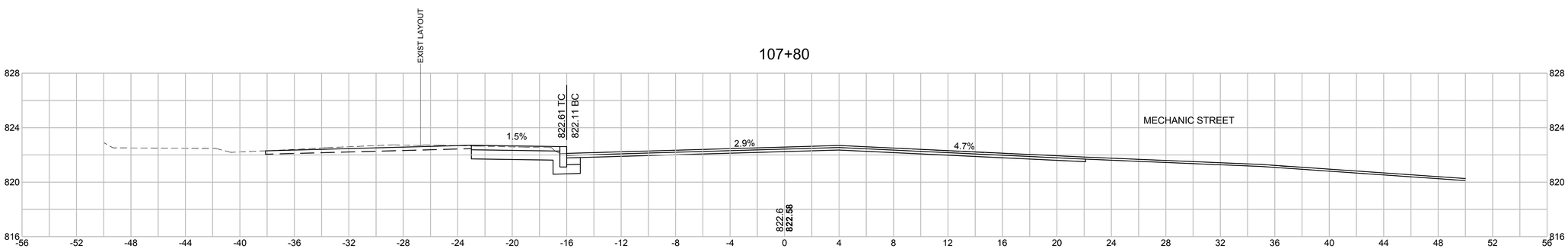
CROSS SECTIONS
MAIN STREET

606207_HD(XSEC)-MAIN.DWG 25-Aug-2016

108+00



107+80



PROP UP
107+62
35.4' LT

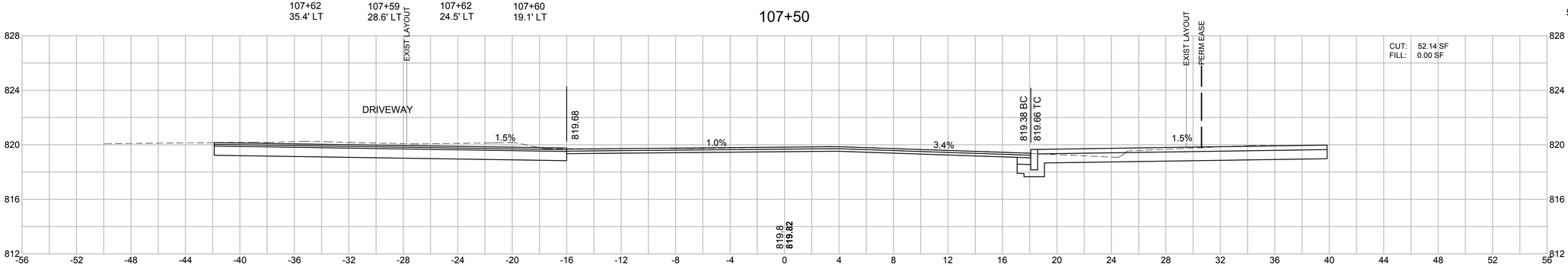
EX UP
107+59
28.6' LT

PROP UP
107+62
24.5' LT

EX UP
107+60
19.1' LT

EX UP
107+64
58.9' RT

107+50



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

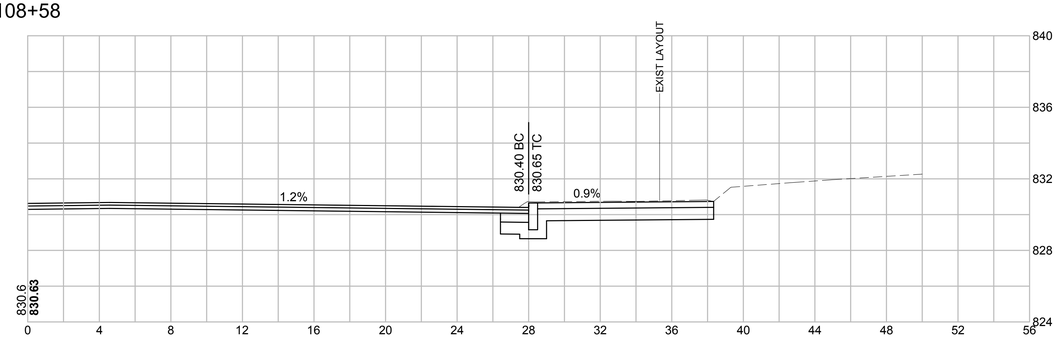
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	69	84
PROJECT FILE NO. 606207			

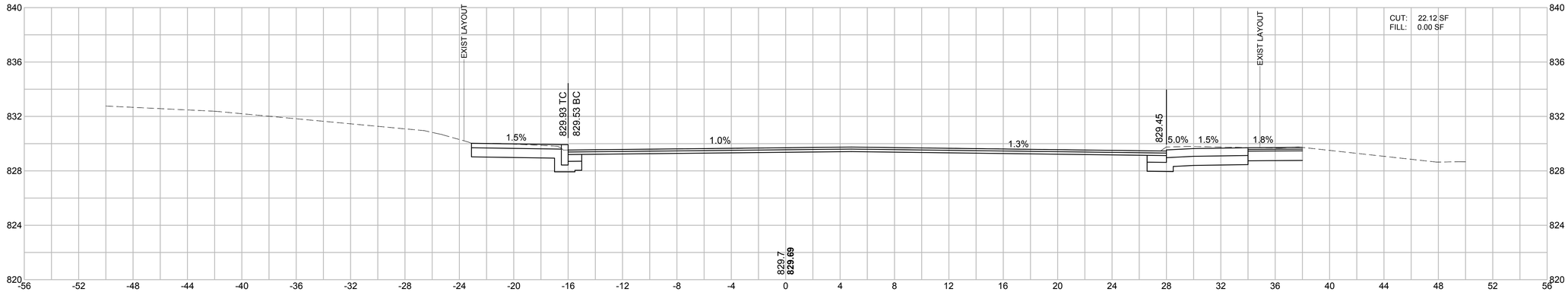
CROSS SECTIONS
MAIN STREET

606207_HD(XSEC)-MAIN.DWG 25-Aug-2016

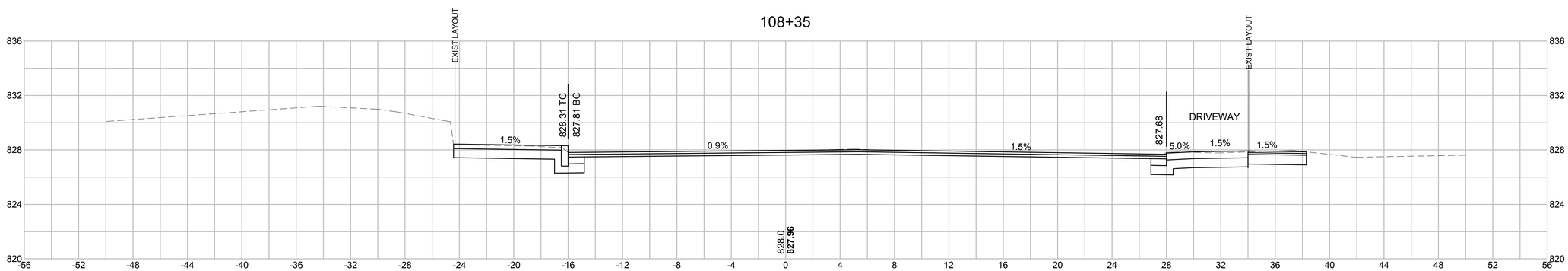
108+58



108+50



108+35



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

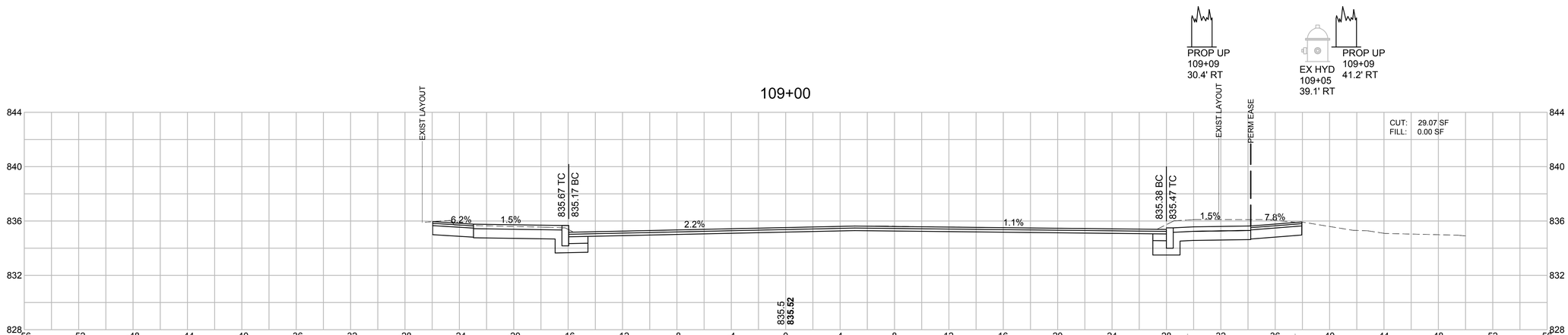
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	70	84
PROJECT FILE NO. 606207			

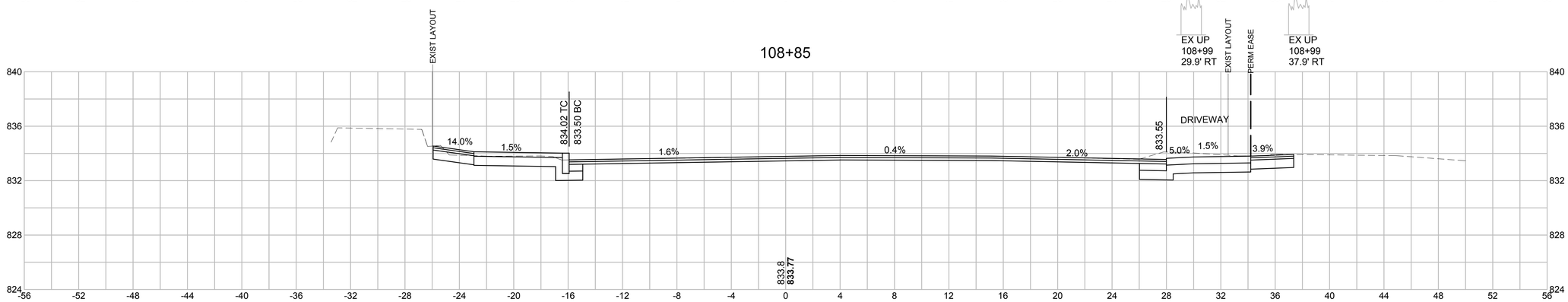
CROSS SECTIONS
MAIN STREET

606207_HD(XSEC)-MAIN.DWG 25-Aug-2016

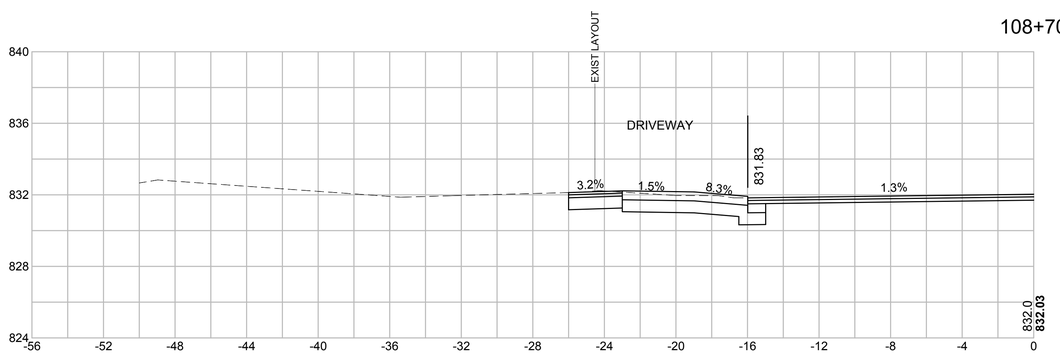
109+00



108+85



108+70



HOR. SCALE IN FEET
4 0 4 8
VER. SCALE IN FEET
4 0 4 8

SPENCER
MAIN STREET

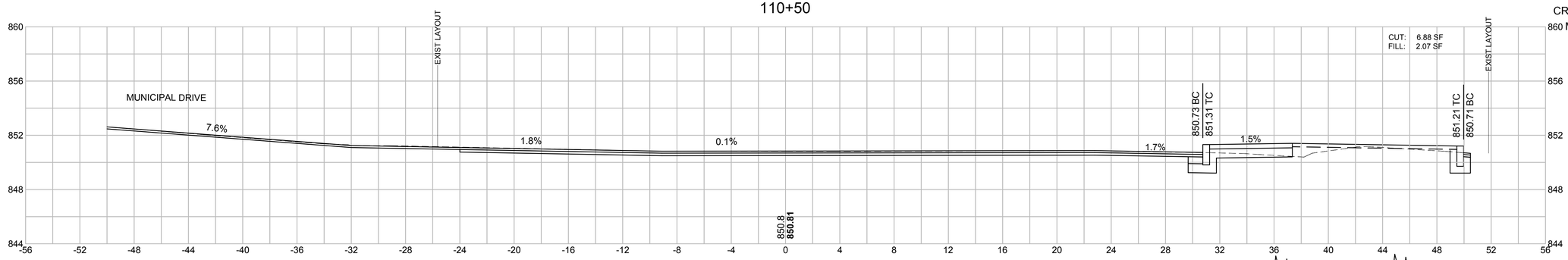
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	71	84
PROJECT FILE NO. 606207			

CROSS SECTIONS
MAIN STREET

25-Aug-2016

606207_HD(XSEC)-MAIN.DWG

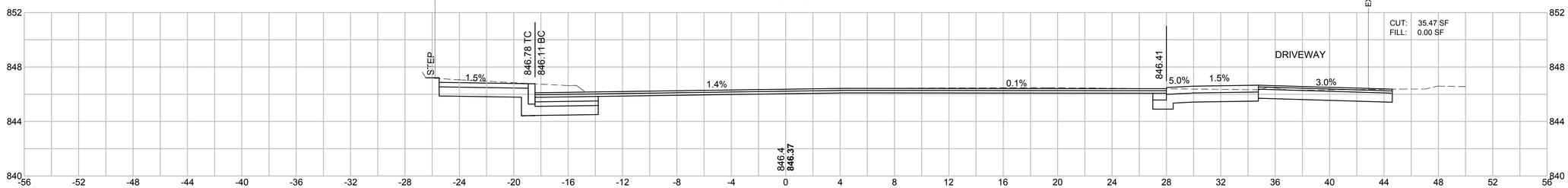
110+50



PROP UP
110+38
36.6' RT

PROP UP
110+42
45.2' RT

110+00

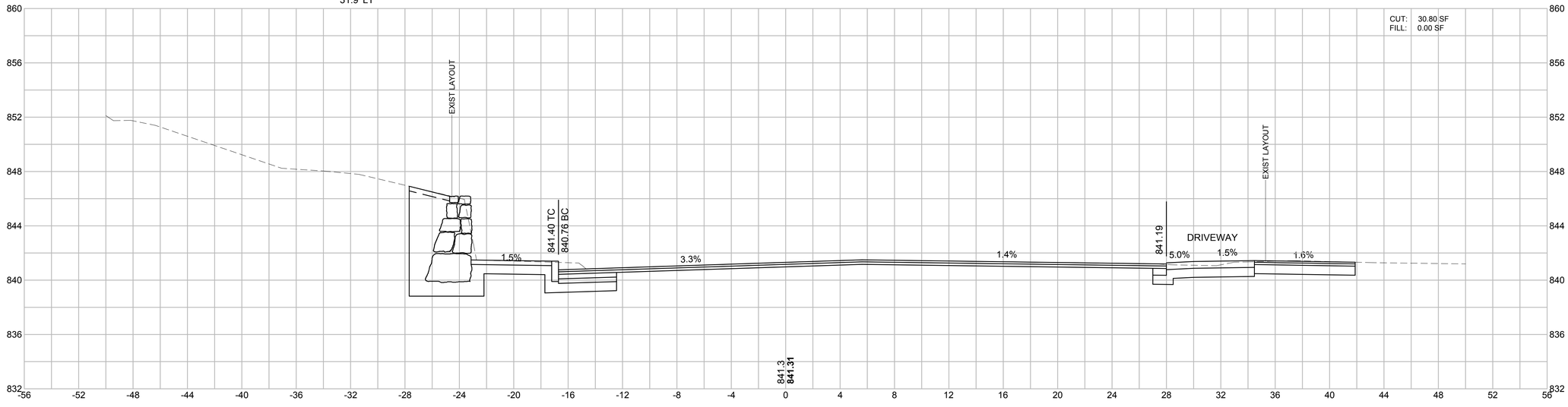


18" MAPLE
109+53
31.9' LT

EX UP
109+75
23.5' LT

EX UP
109+75
15.3' LT

109+50



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

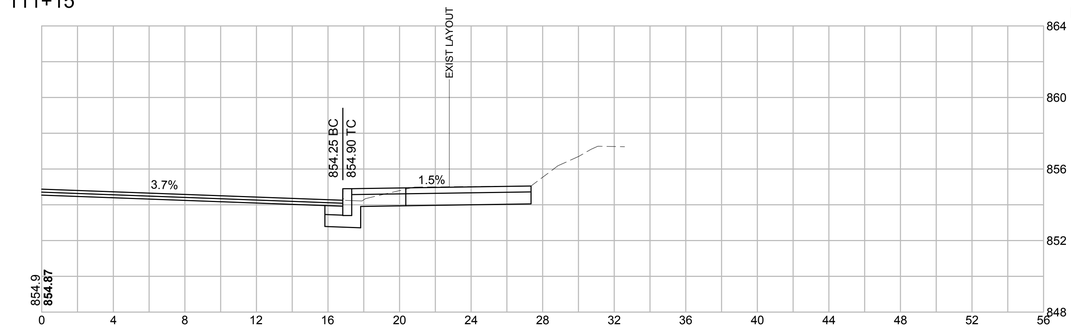
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	72	84
PROJECT FILE NO. 606207			

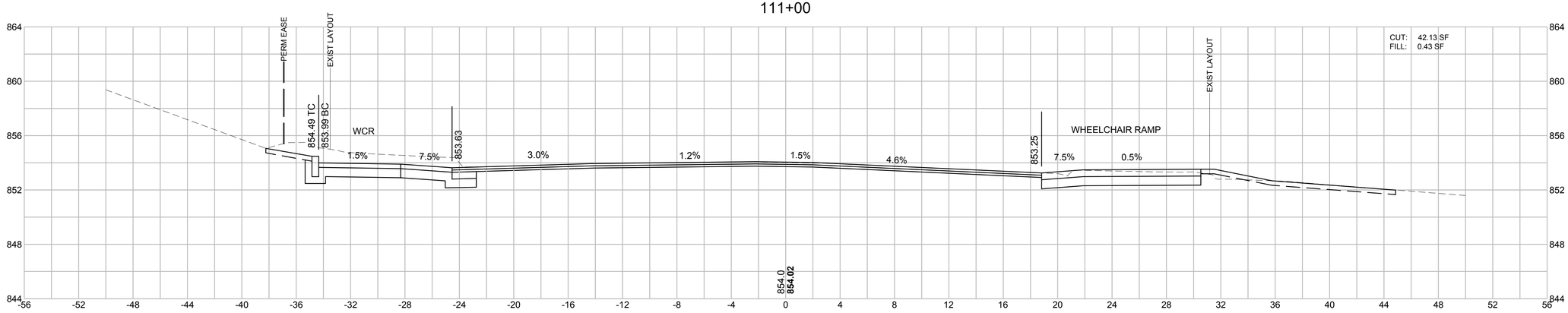
CROSS SECTIONS
MAIN STREET

606207_HD(XSEC)-MAIN.DWG 25-Aug-2016

111+15



111+00

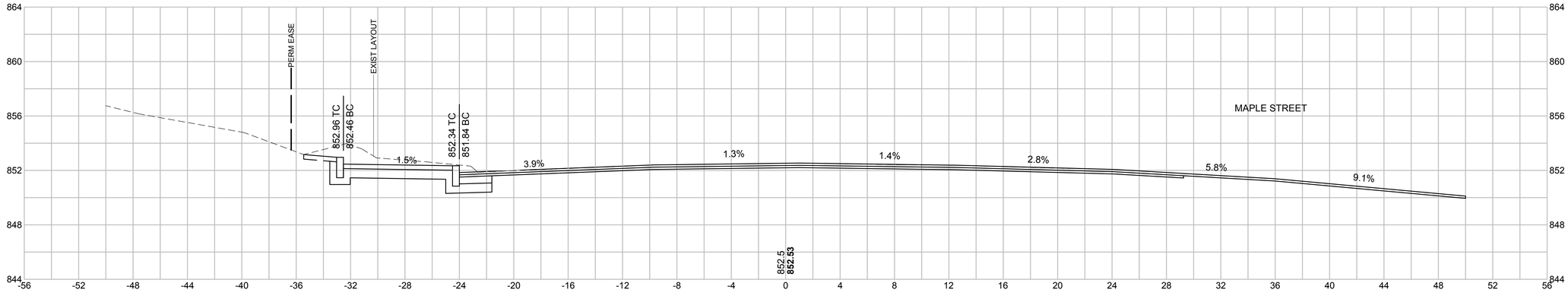


PROP UP
110+86
35.8' LT

PROP UP
110+84
26.0' LT

EX UP
110+84
23.0' LT

110+75



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

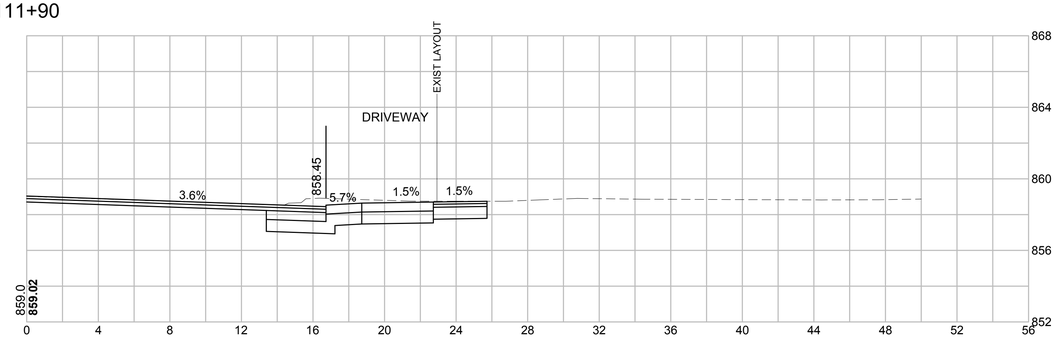
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	73	84
PROJECT FILE NO. 606207			

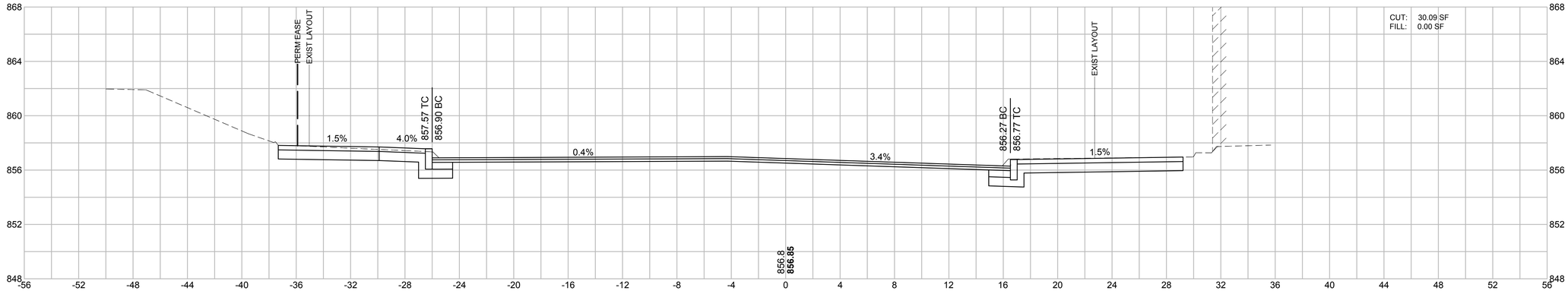
CROSS SECTIONS
MAIN STREET

606207_HD(XSEC)-MAIN.DWG 25-Aug-2016

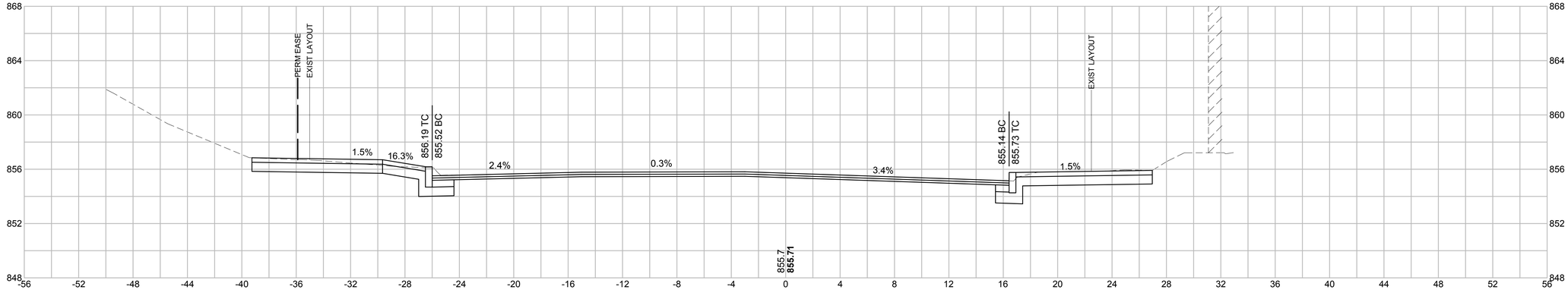
111+90



111+50



111+30



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

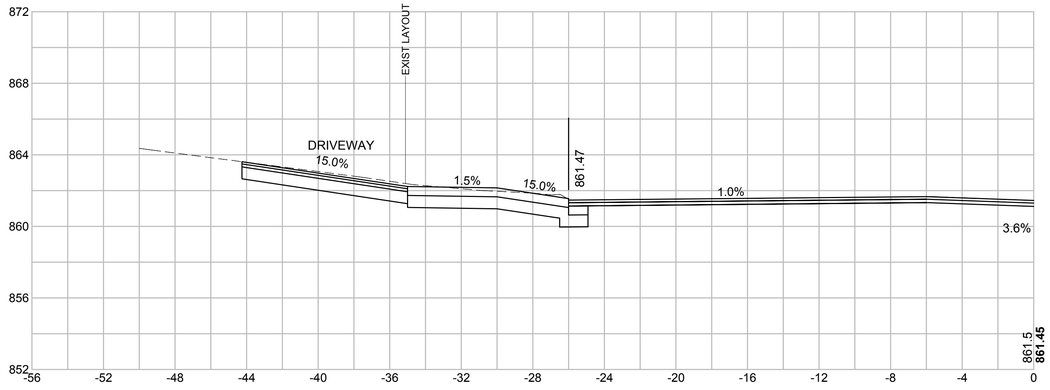
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	74	84
PROJECT FILE NO. 606207			

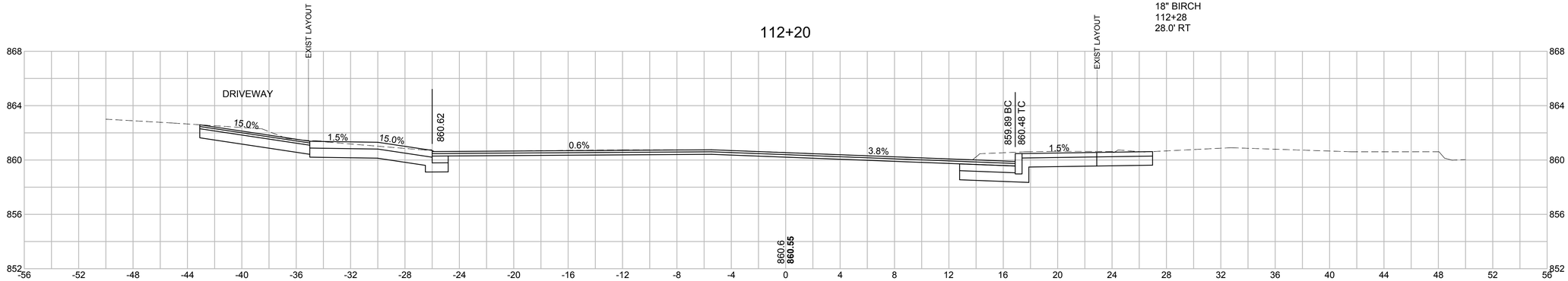
CROSS SECTIONS
MAIN STREET

606207_HD(XSEC)-MAIN.DWG 25-Aug-2016

112+40



112+20



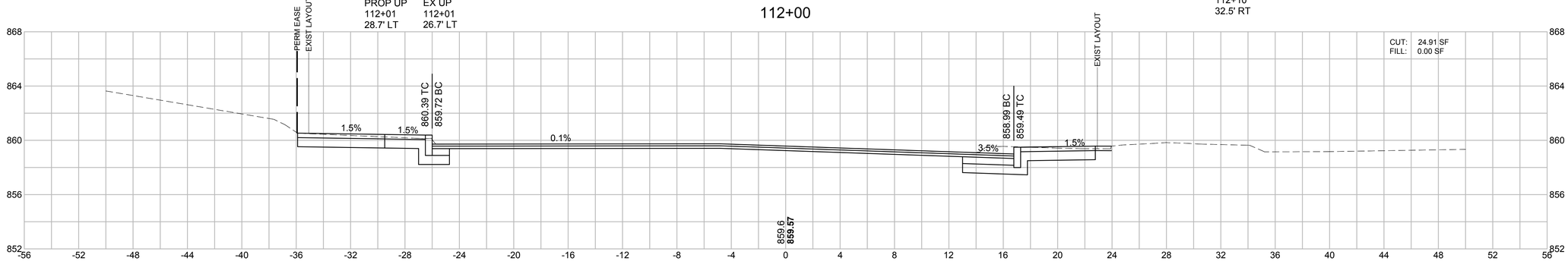
18" BIRCH
112+28
28.0' RT

PROP UP
112+01
28.7' LT

EX UP
112+01
26.7' LT

112+00

12" BIRCH
112+10
32.5' RT



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

SPENCER
MAIN STREET

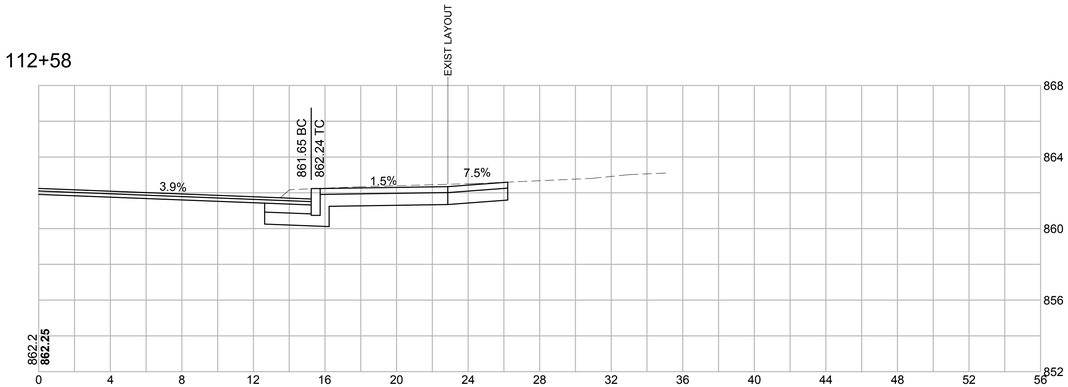
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	75	84
PROJECT FILE NO. 606207			

CROSS SECTIONS
MAIN STREET

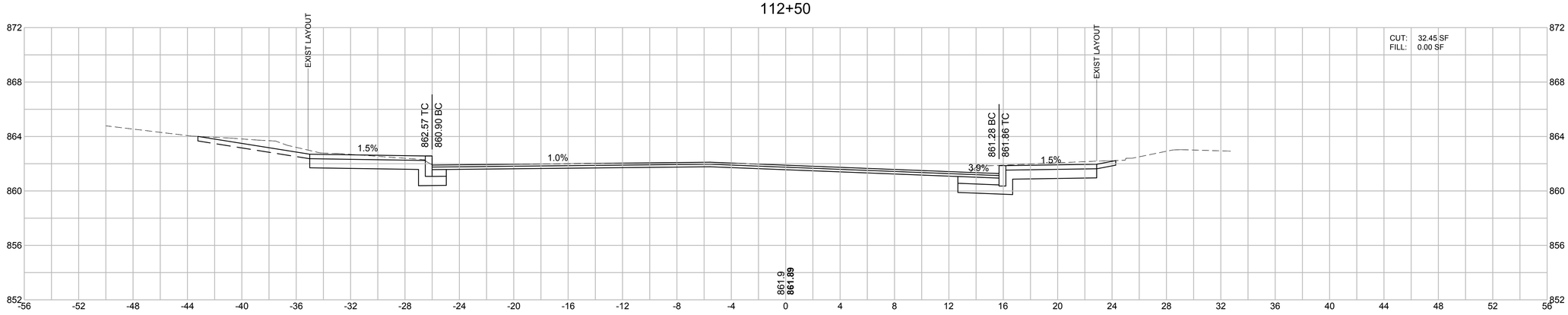
25-Aug-2016

606207_HD(XSEC)-MAIN.DWG

112+58



112+50



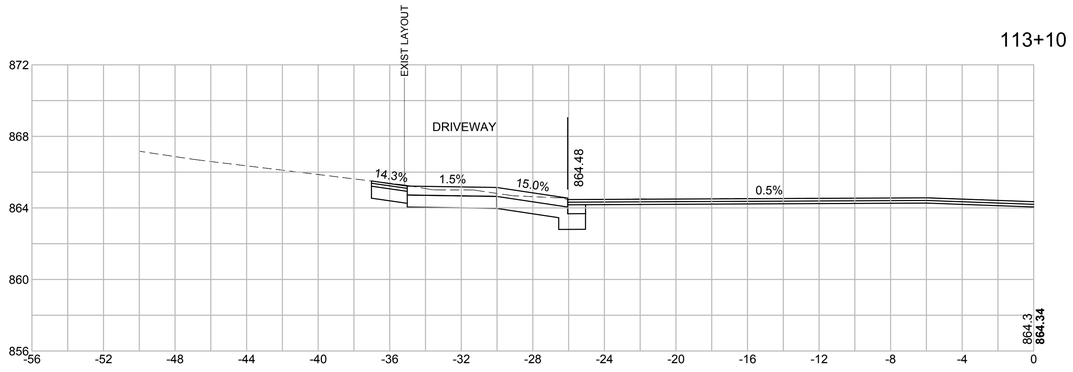
HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

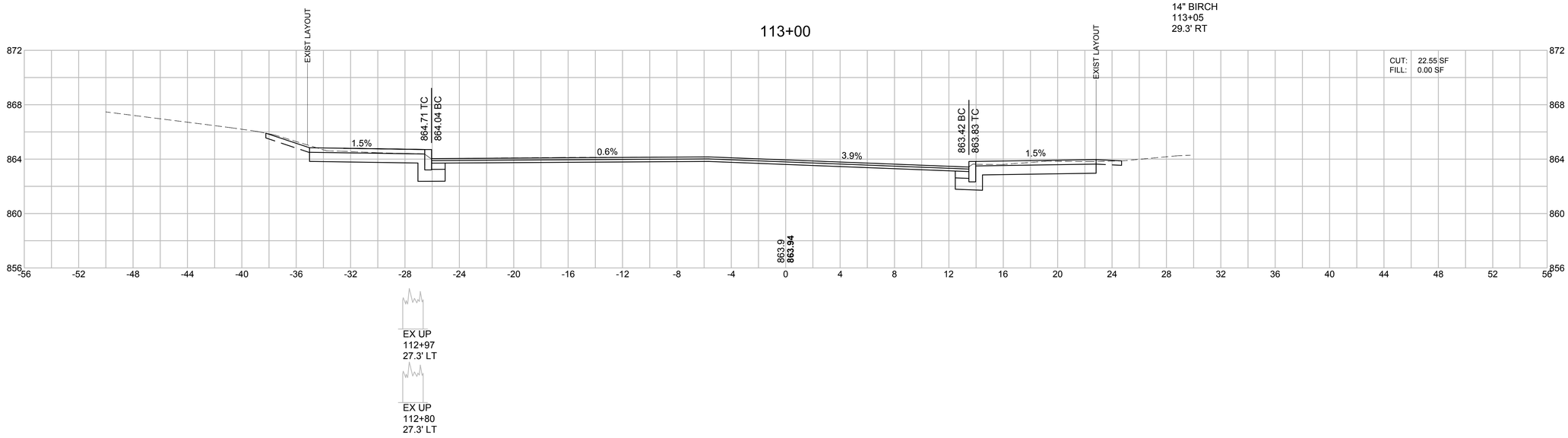
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	76	84
PROJECT FILE NO. 606207			

CROSS SECTIONS
MAIN STREET

606207_HD(XSEC)-MAIN.DWG 25-Aug-2016





HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

SPENCER
MAIN STREET

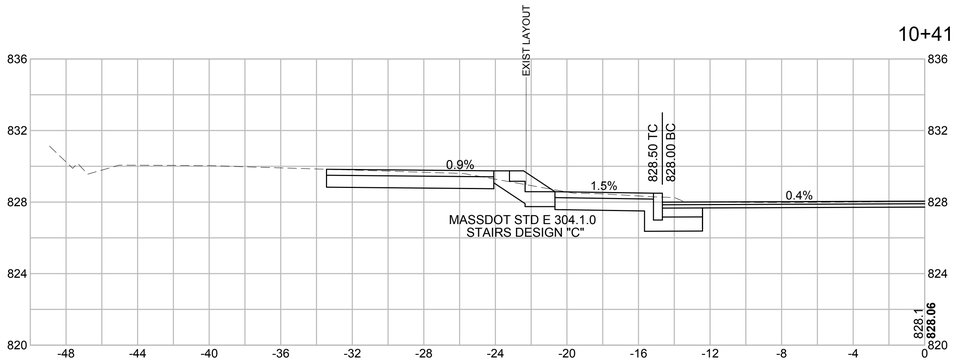
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	77	84
PROJECT FILE NO. 606207			

CROSS SECTIONS
PLEASANT STREET

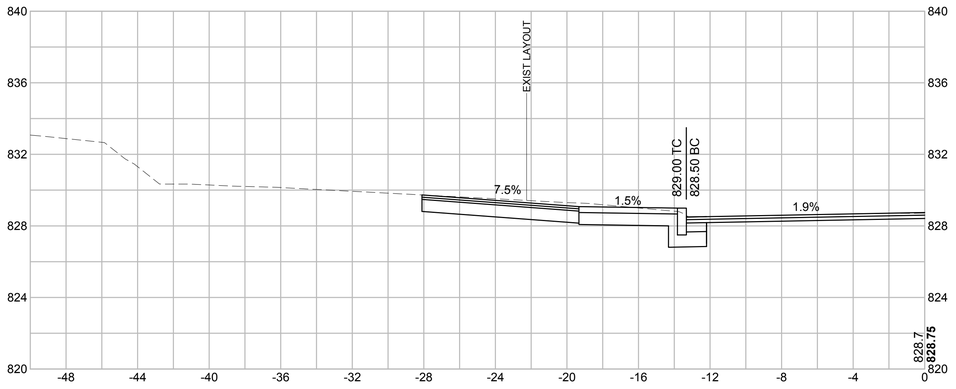
25-Aug-2016

606207_HD(XSEC)-PLEASANT.DWG

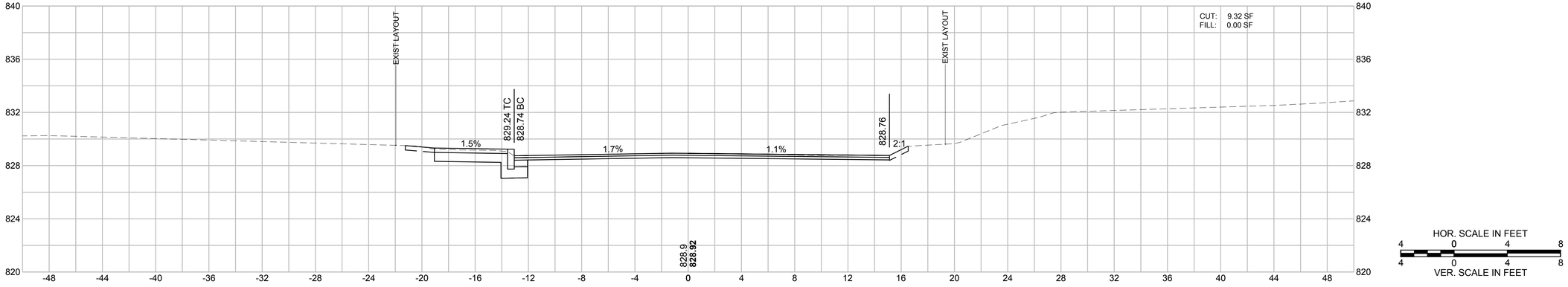
10+41



10+15



10+00



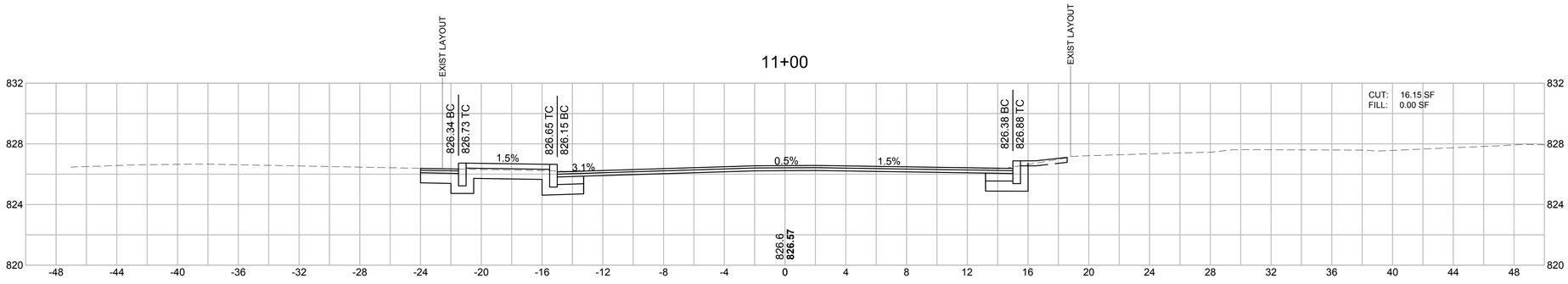
HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

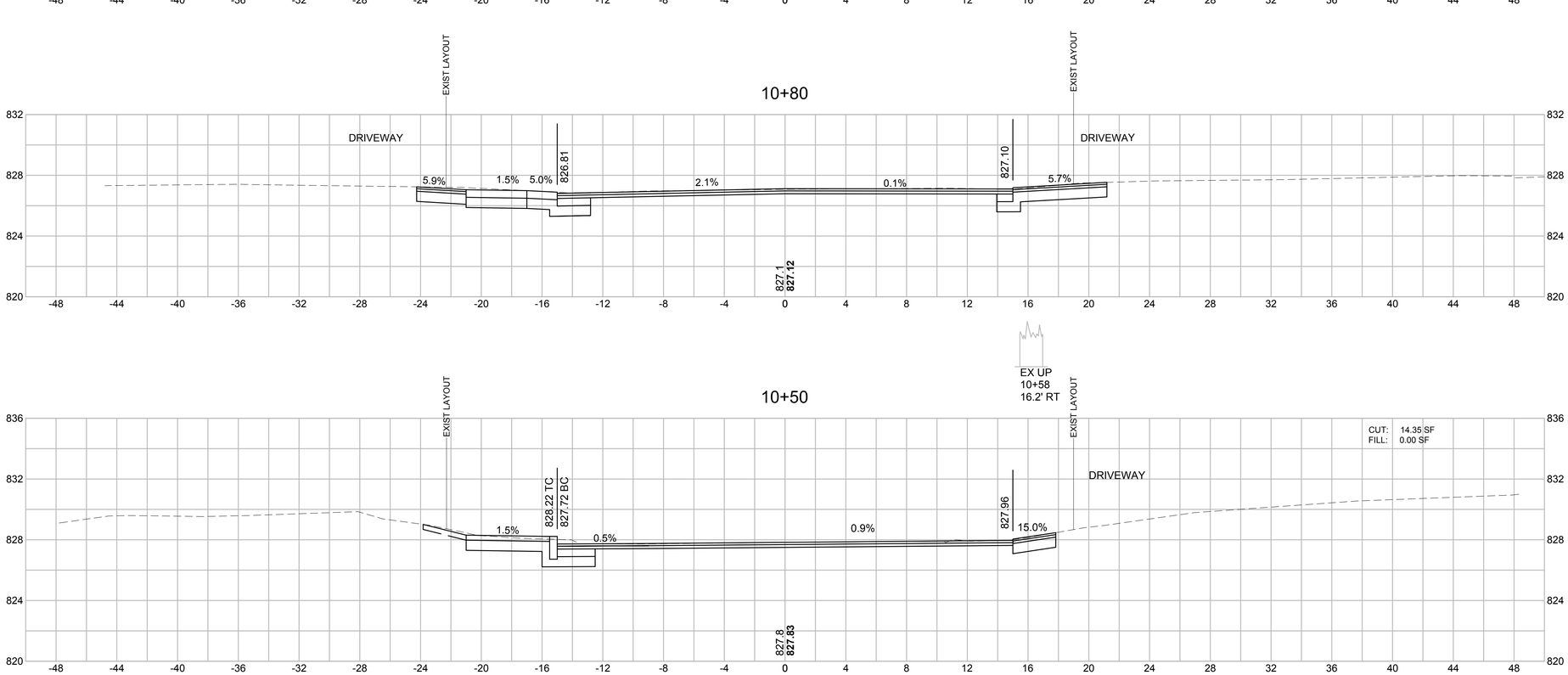
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	78	84
PROJECT FILE NO. 606207			

CROSS SECTIONS
PLEASANT STREET

606207_HD(XSEC)-PLEASANT.DWG 25-Aug-2016





EX UP
10+58
16.2' RT

HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

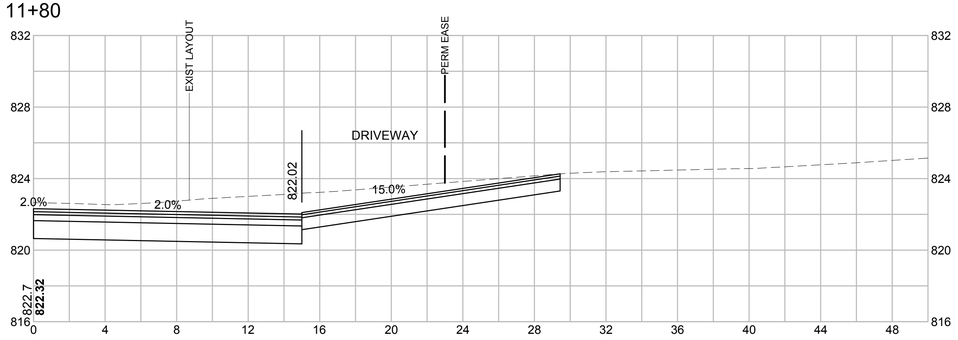
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	79	84
PROJECT FILE NO. 606207			

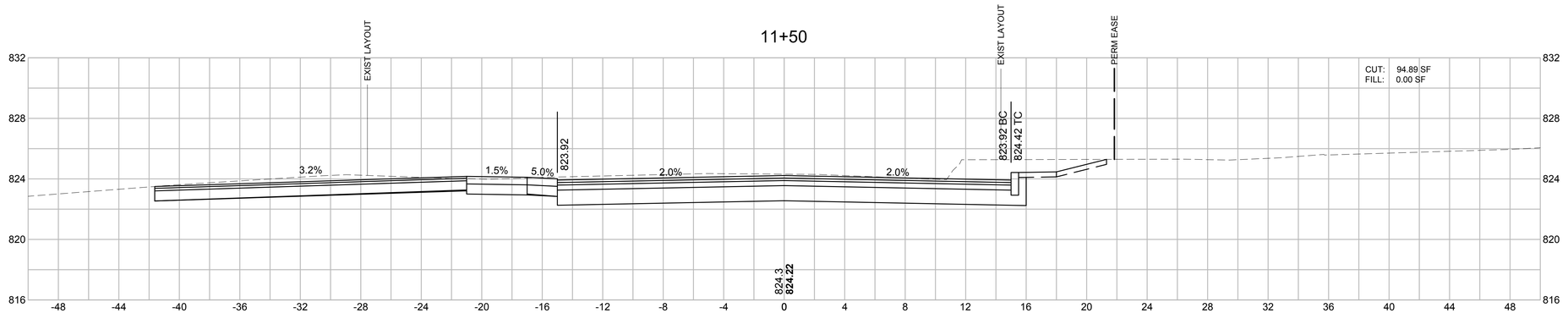
CROSS SECTIONS
PLEASANT STREET

606207_HD(XSEC)-PLEASANT.DWG 25-Aug-2016

11+80



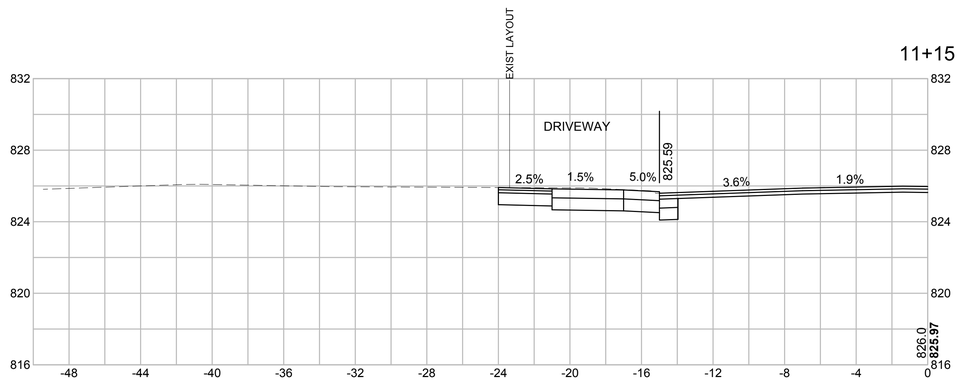
11+50



EX UP
11+44
12.0' RT

PROP UP
11+44
17.3' RT

11+15



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

SPENCER
MAIN STREET

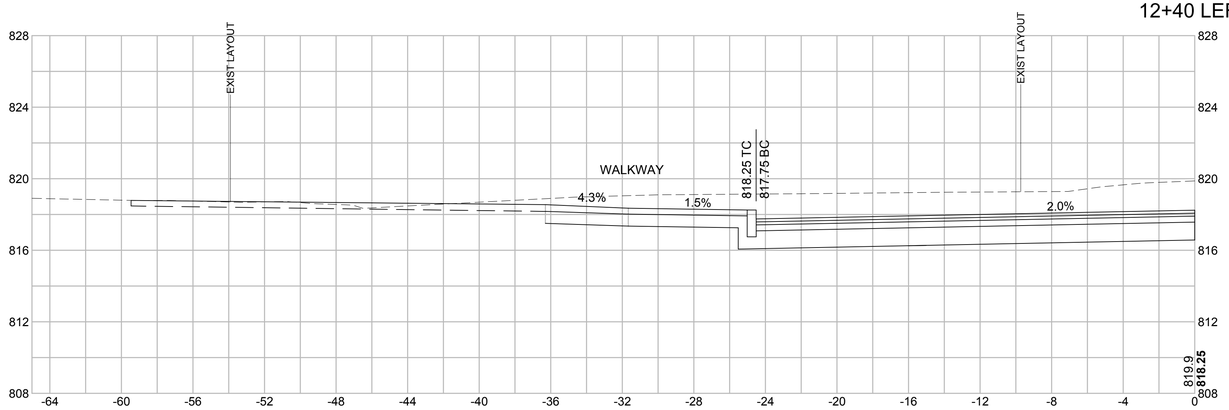
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	80	84
PROJECT FILE NO. 606207			

CROSS SECTIONS
PLEASANT STREET

2 APRIL 13, 2017

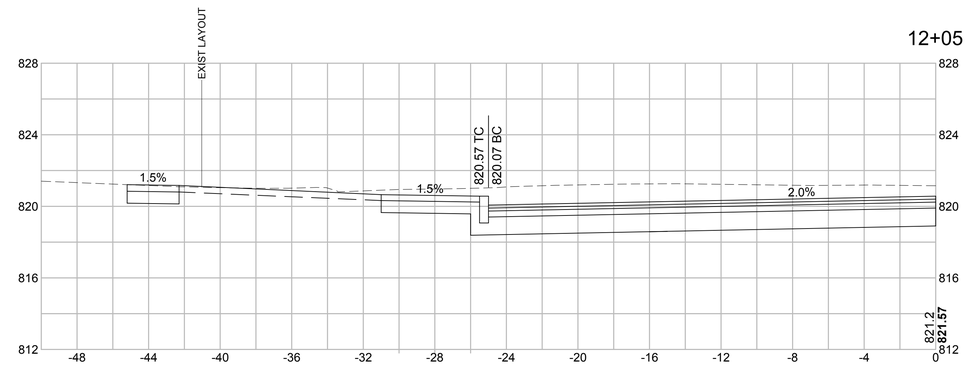
606207_HD(XSEC)-PLEASANT.DWG 13-Apr-2017

12+40 LEFT

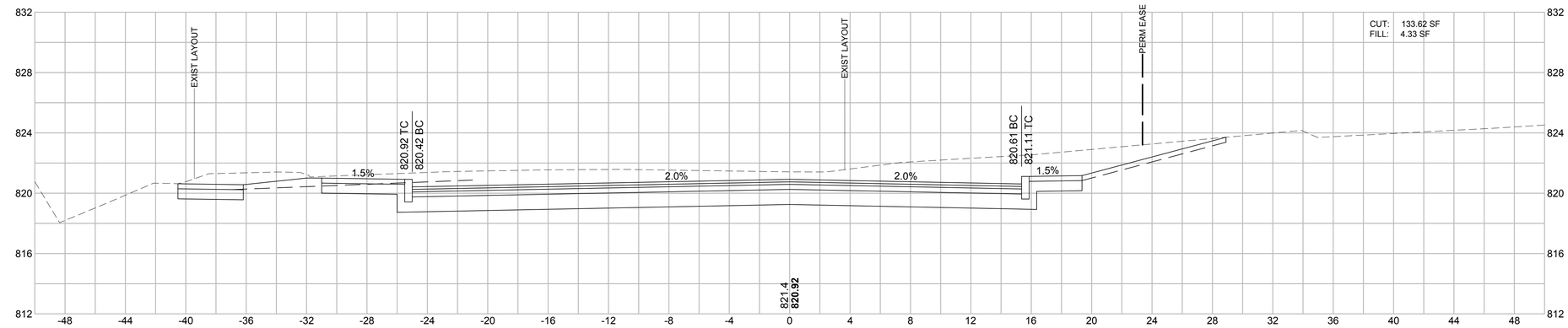


2

12+05



12+00



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	81	84
PROJECT FILE NO. 606207			

CROSS SECTIONS
PLEASANT STREET
2 APRIL 13, 2017

606207_HD(XSEC)-PLEASANT.DWG 13-Apr-2017

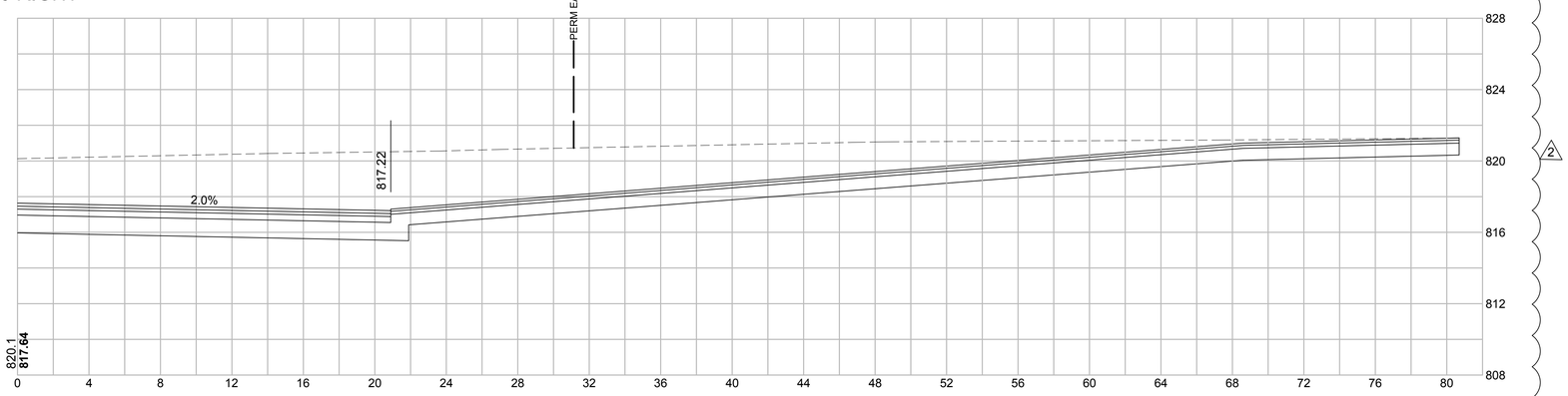
PROP HYD
12+51
22.7' LT

EX UP
12+59
20.0' LT

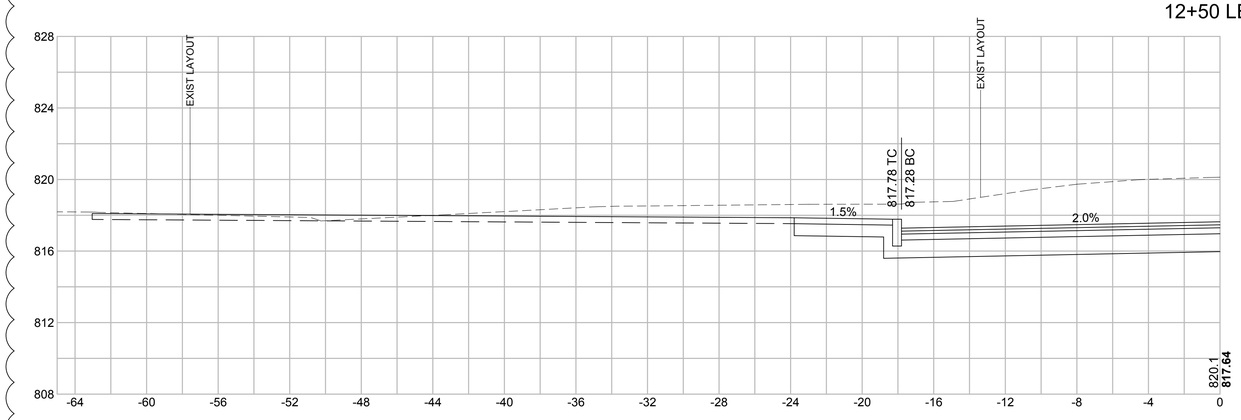
EX HYD
+12+54
17.6' LT

CUT: 218.72 SF
FILL: 19.41 SF

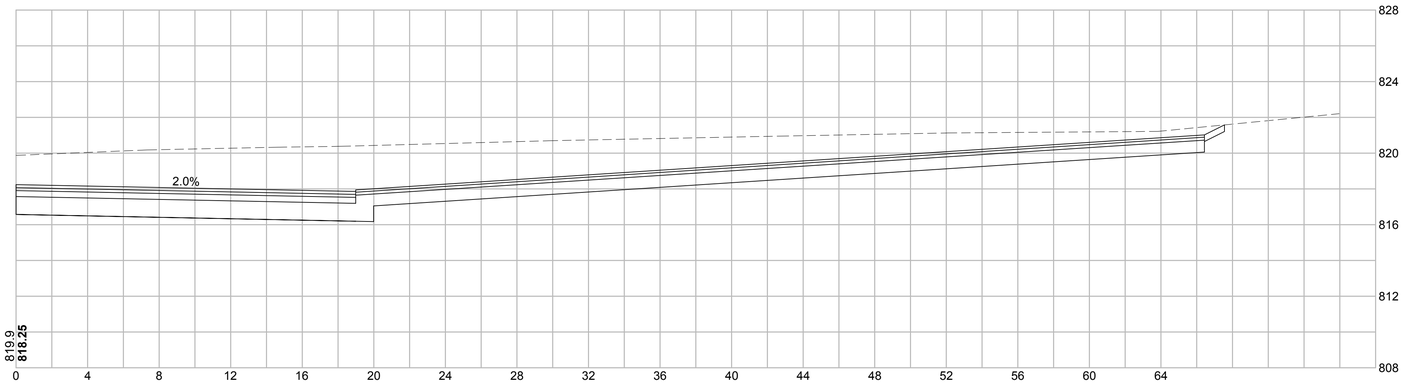
12+50 RIGHT



12+50 LEFT



12+40 RIGHT



HOR. SCALE IN FEET
4 0 4 8
VER. SCALE IN FEET
4 0 4 8

SPENCER
MAIN STREET

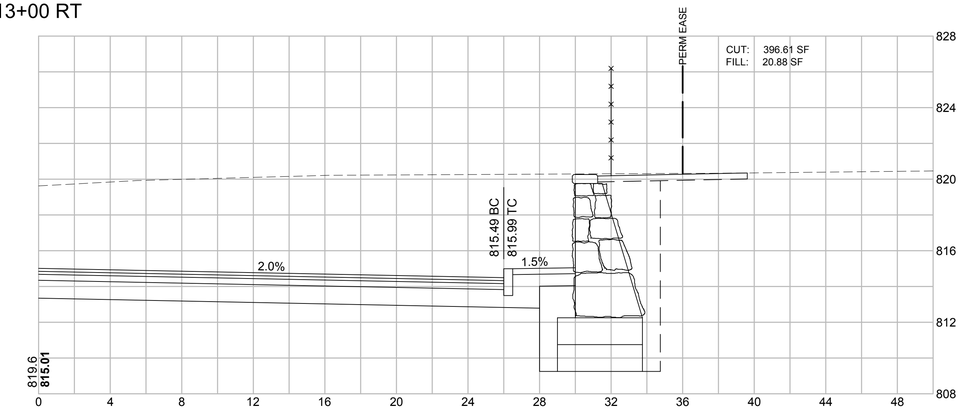
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	82	84
PROJECT FILE NO. 606207			

CROSS SECTIONS
PLEASANT STREET

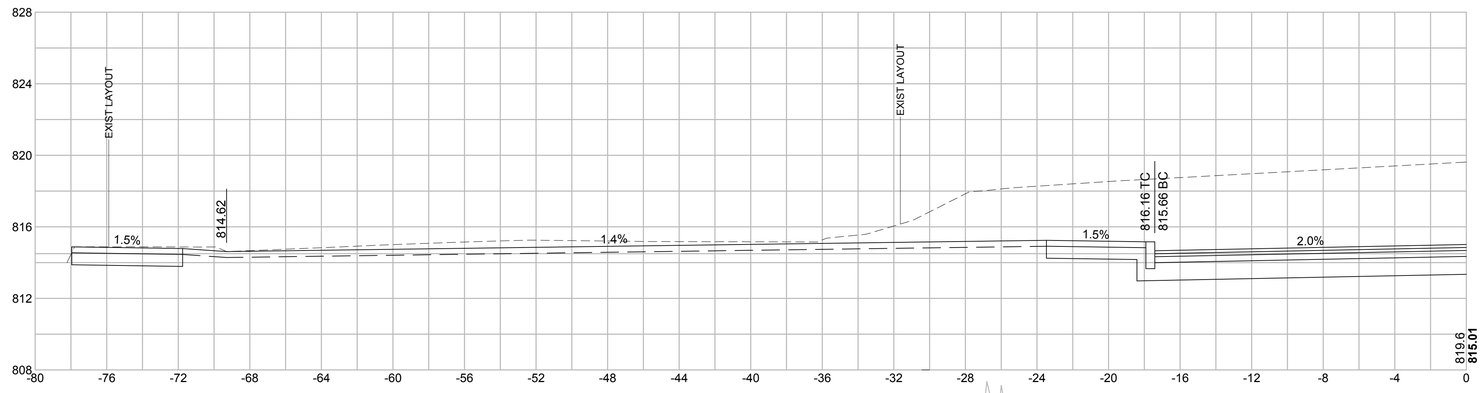
2 APRIL 13, 2017

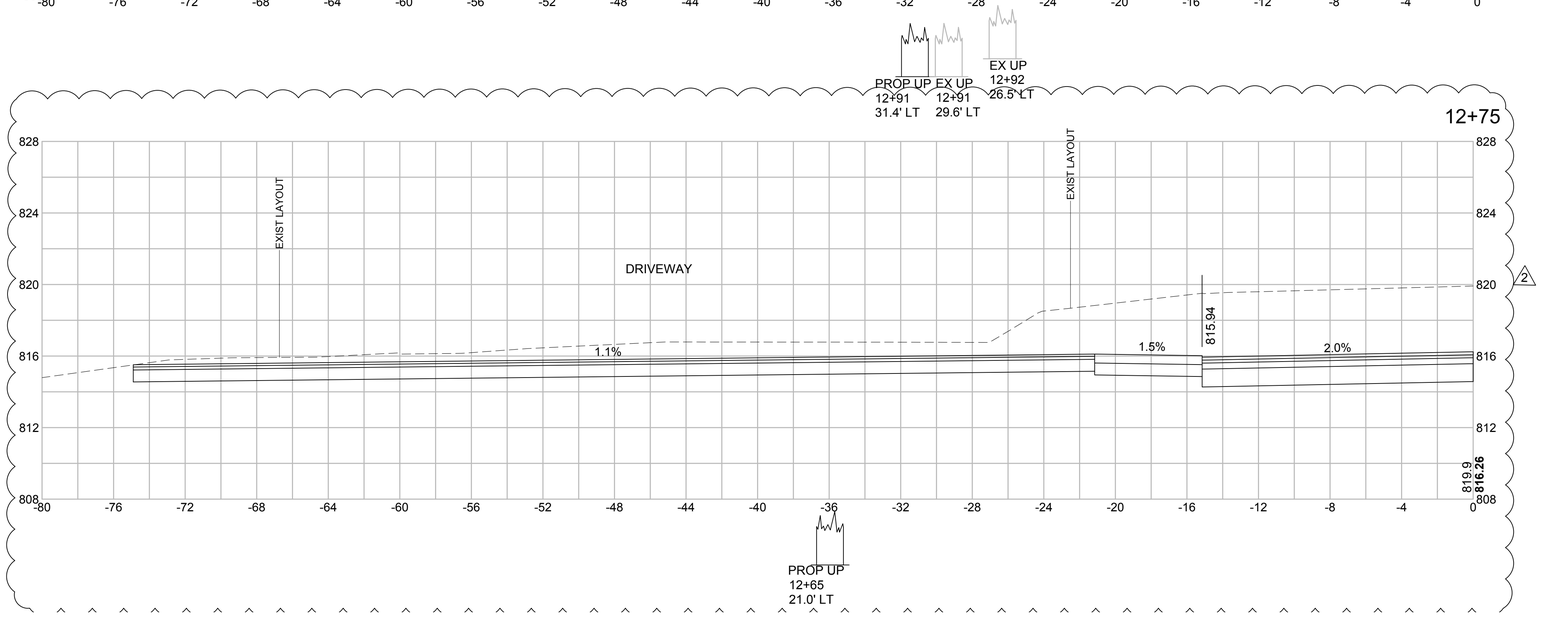
606207_HD(XSEC)-PLEASANT.DWG 13-Apr-2017

13+00 RT



13+00 LEFT





HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

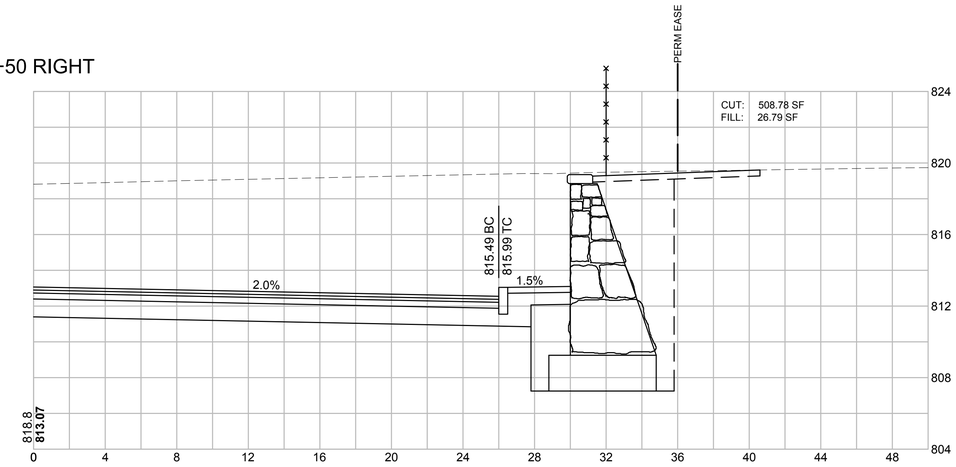
SPENCER
MAIN STREET

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	83	84
PROJECT FILE NO. 606207			

CROSS SECTIONS
PLEASANT STREET

606207_HD(XSEC)-PLEASANT.DWG 25-Aug-2016

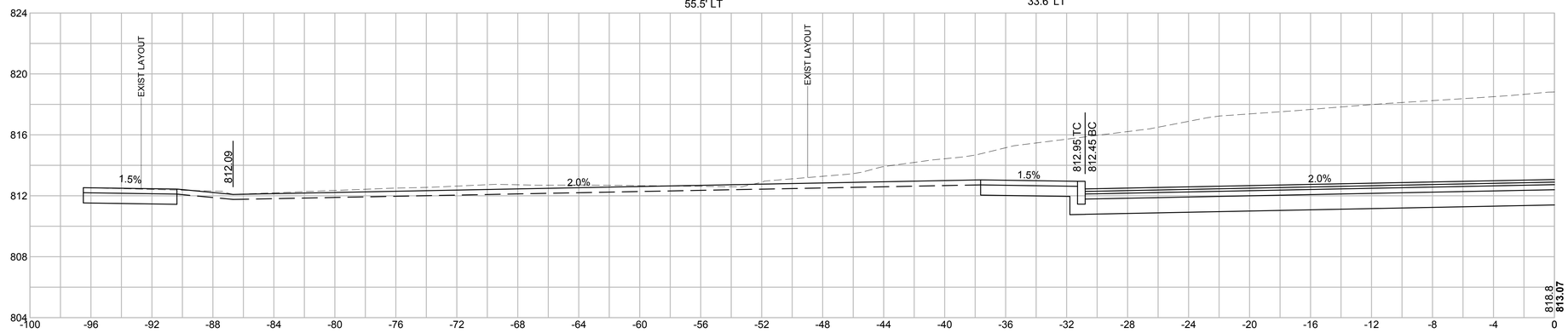
13+50 RIGHT



EX UP
13+72
55.5' LT

30" SPRUCE
13+79
33.6' LT

13+50 LEFT



HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET

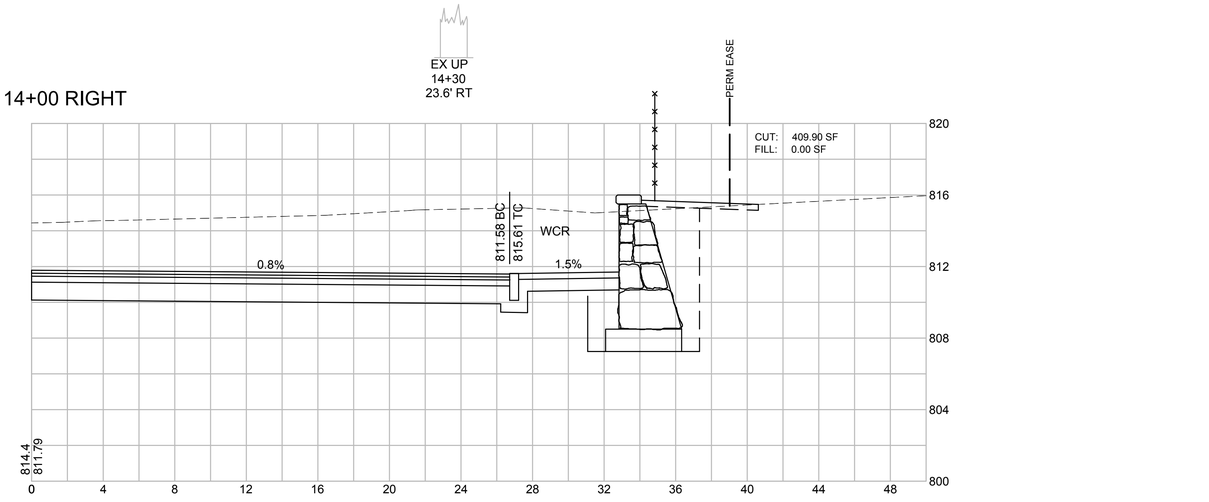
SPENCER
MAIN STREET

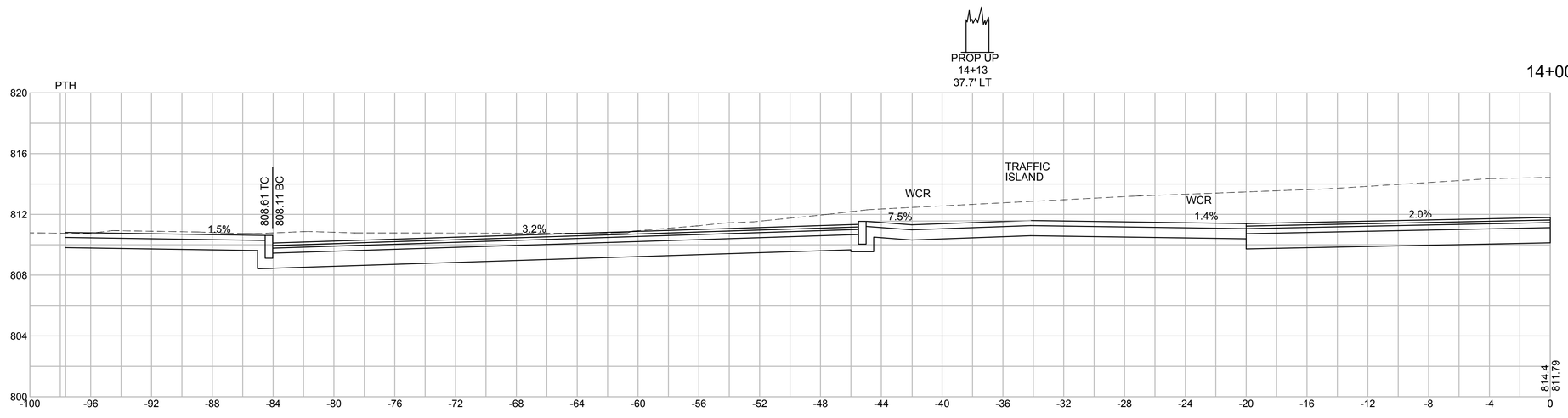
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MASS.	CM/HSI/TAP-002S(926)X	84	84
PROJECT FILE NO. 606207			

CROSS SECTIONS
PLEASANT STREET

606207_HD(XSEC)-PLEASANT.DWG 25-Aug-2016

14+00 RIGHT





14+00 LEFT

HOR. SCALE IN FEET
4 0 4 8
4 0 4 8
VER. SCALE IN FEET