

TOWN OF STONEHAM, MASSACHUSETTS

DEPARTMENT OF PUBLIC WORKS

MACARTHUR ROAD DRAINAGE IMPROVEMENTS PROJECT

CONTRACT NO. D14-1

LEGEND (EXISTING)

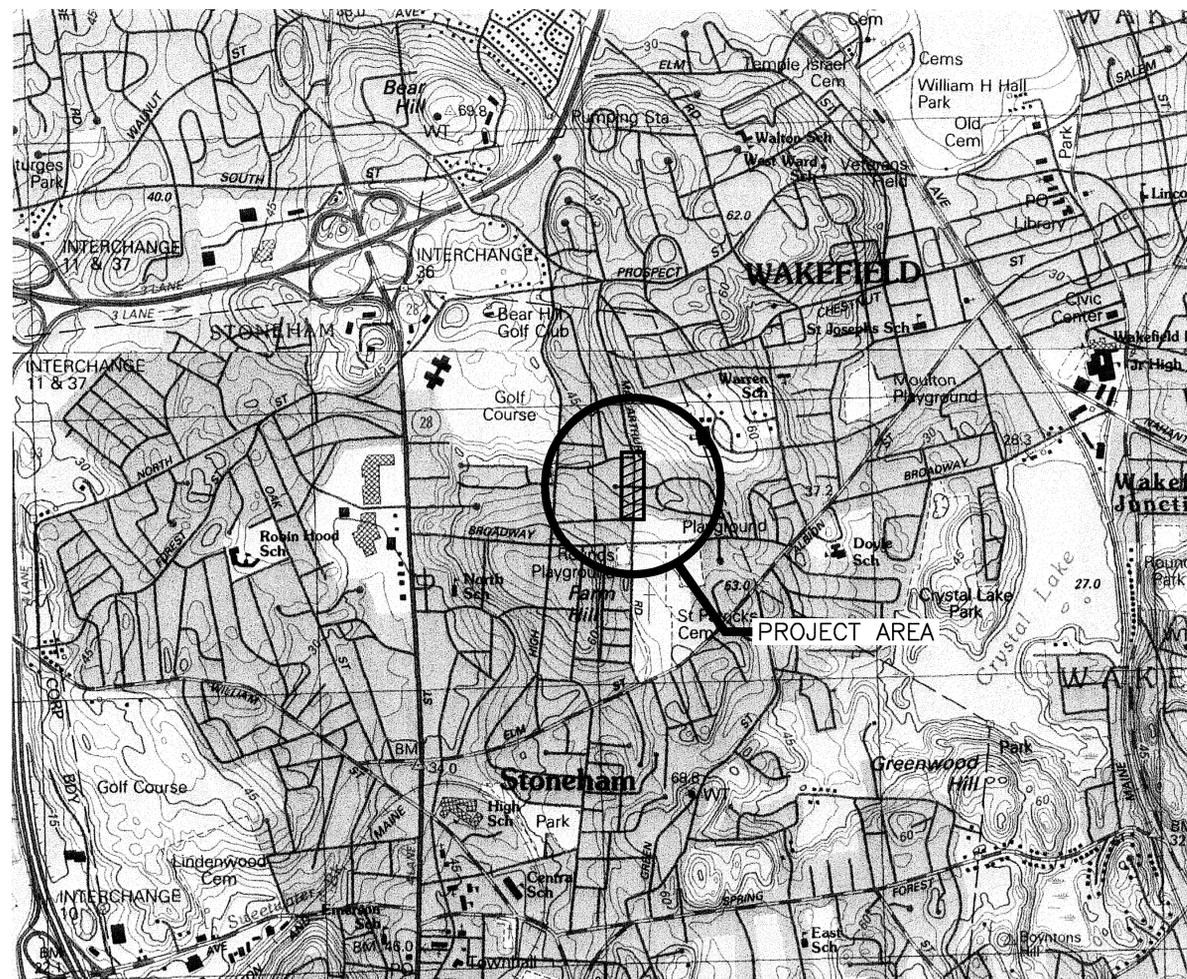
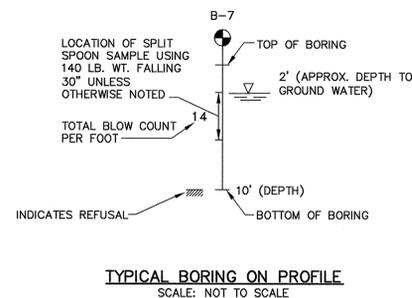
	CATCH BASIN
	DECIDUOUS TREE
	DRAIN MANHOLE
	GATE VALVE/CURB STOP
	HYDRANT
	LIGHT POLE
	BENCHMARK
	SEWER MANHOLE
	SOIL BORING
	SPOT GRADE
	TERMINATION OF UTILITY UNKNOWN
	TRAFFIC SIGNAL
	UTILITY POLE
	UTILITY POLE WITH LIGHT
	GAS LINE
	SANITARY SEWER
	STORM DRAIN
	TELEPHONE LINE
	OVERHEAD WIRE
	UNDETERMINED UTILITY LINE LOCATION/TERMINATION
	WATER LINE
	BUILDING
	CONTOUR (INDEX)
	FENCE LINE
	HEDGE
	EASEMENT LINE/RIGHT-OF-WAY
	PROPERTY BOUNDARY
	STONE WALL
	TREE LINE

LEGEND (PROPOSED)

	STORM DRAIN MANHOLE
	STORM DRAIN
	PIPE STUB W/PLUG

ABBREVIATIONS

B.L.D.C.	BUILDING
BIT	BITUMINOUS
C.L.F.	CHAIN LINK FENCE
CONC	CONCRETE
DMH	DRAIN MANHOLE
EOP	EDGE OF PAVEMENT
I.A.=30.00	INVERT ELEVATION (PIPE A)
R.=50.00	RIM ELEVATION
(REC)	RECORD LOCATION
S.=20.00	SUMP ELEVATION
SD	STORM DRAIN
STY	STORY
STA	STATION
T.O.W.=30.00	TOP OF WATER ELEVATION
VGC	VERTICAL GRANITE CURB



LOCATION PLAN

SCALE: 1"=1,000'
0 1000' 2000'

INDEX TO DRAWINGS

SHEET NUMBER	DESCRIPTION
1	COVER SHEET, LOCATION PLAN, LEGEND, AND INDEX TO DRAWINGS
2	MACARTHUR ROAD PLAN AND PROFILE – STA. 7+08 TO STA. 5+78
3	MACARTHUR ROAD PLAN AND PROFILE – STA. 5+78 TO STA. 0+00
4	DETAILS 1 OF 2
5	DETAILS 2 OF 2
6	TRAFFIC MANAGEMENT PLANS



PREPARED BY
FAY, SPOFFORD & THORNDIKE, LLC
ENGINEERS, BURLINGTON, MA
JUNE 16, 2014



REV.	DATE	DESCRIPTION	BY	CHK.	APP'D.

SURVEY NOTES

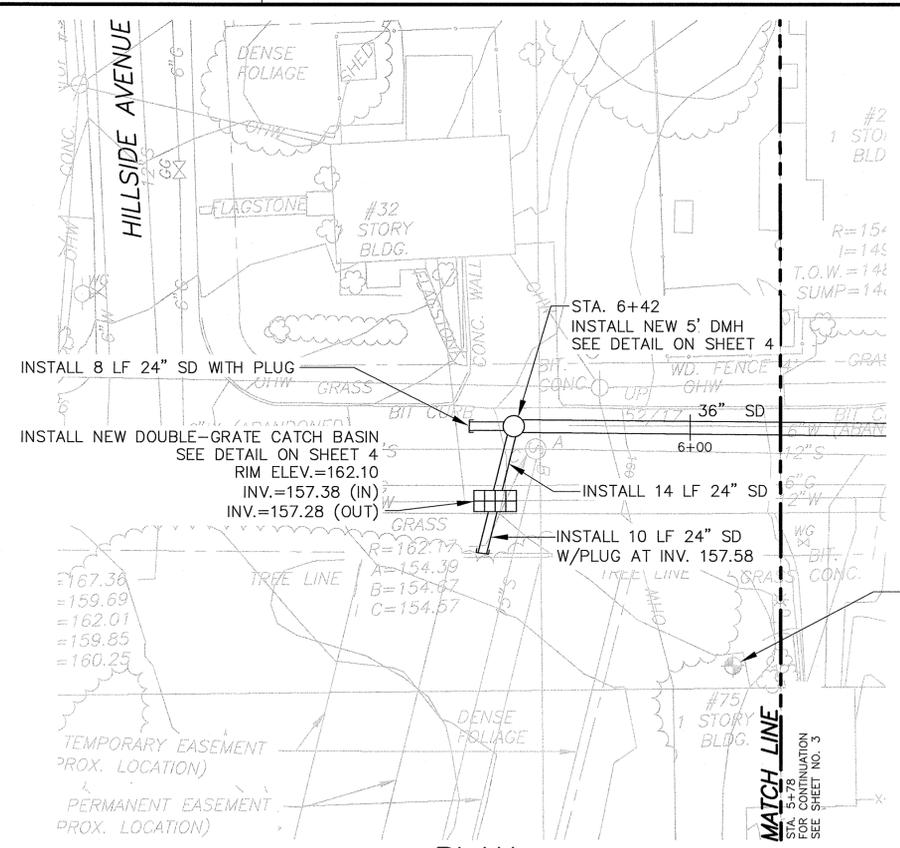
1. THE TOPOGRAPHY, SITE DETAIL & SURFACE IMPROVEMENTS DEPICTED HEREON WERE PREPARED BY PHOTOGRAMMETRIC METHODS USING AERIAL PHOTOGRAPHY DATED MAY 1, 2011.
2. GROUND CONTROL SURVEYS AND MAPPING PREPARED BY GREEN INTERNATIONAL AFFILIATES, INC. UNDER CONTRACT WITH THE MASSACHUSETTS WATER RESOURCE AUTHORITY (MWRA) AND PROVIDED TO THE TOWN OF STONEHAM BY THE MWRA.
3. HORIZONTAL CONTROL SURVEYS BASED ON MASSACHUSETTS MAINLAND STATE PLANE NAD83.
4. VERTICAL CONTROL SURVEYS BASED ON BOSTON CITY BASE.

UTILITY NOTES

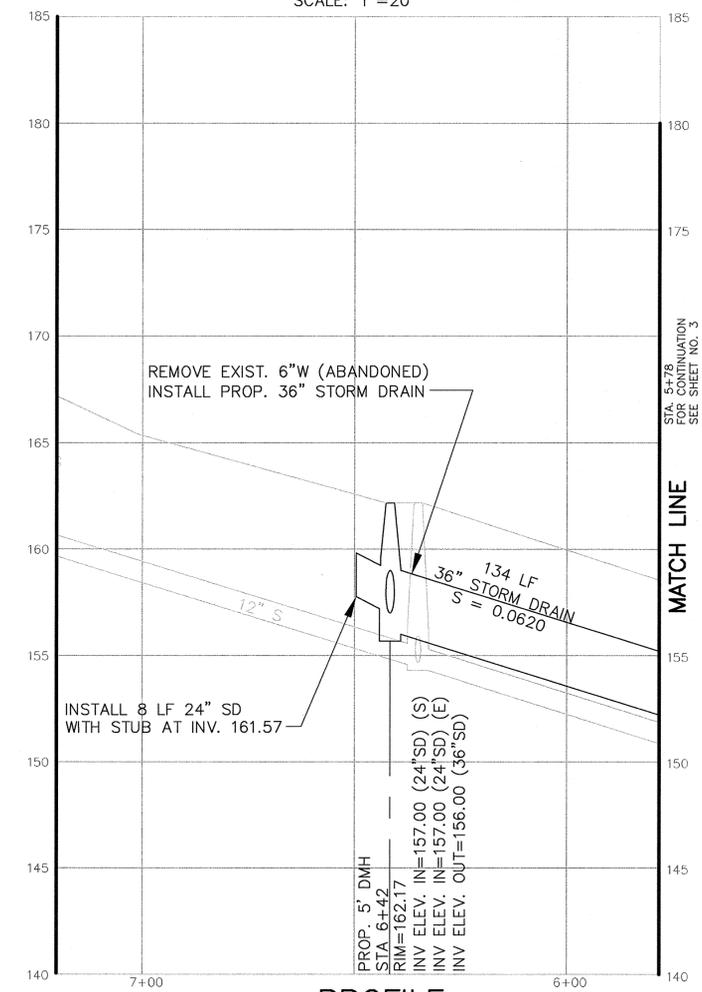
1. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN ARE APPROXIMATE AND ARE BASED UPON A PARTIAL FIELD SURVEY AND COMPILATION OF PLANS OF RECORD. FAY, SPOFFORD & THORNDIKE DOES NOT WARRANTY NOR GUARANTEE THE LOCATION OF ALL UTILITIES DEPICTED OR NOT DEPICTED. THE CONTRACTOR, PRIOR TO COMMENCEMENT OF CONSTRUCTION, SHALL VERIFY THE LOCATION OF ALL UTILITIES AND CONTACT DIG SAFE (DIAL 811).

CONSTRUCTION NOTES

1. ALL EXISTING UTILITY SERVICES SHALL BE MAINTAINED DURING CONSTRUCTION.
2. PROPOSED STORM DRAIN PIPE SHALL BE REINFORCED CONCRETE PIPE (RCP).
3. STATIONING MEASURED ALONG CENTERLINE OF PROPOSED DRAIN.



TBM:
RIGHT OUTSIDE CORNER
TOP FIRST BRICK
STEP AT HOUSE #75
MACARTHUR ROAD
ELEV.=163.29 (BCB)



TOWN OF STONEHAM, MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS
MACARTHUR ROAD
DRAINAGE IMPROVEMENTS PROJECT
DRAINAGE IMPROVEMENTS
STA. 7+08 TO STA. 5+78

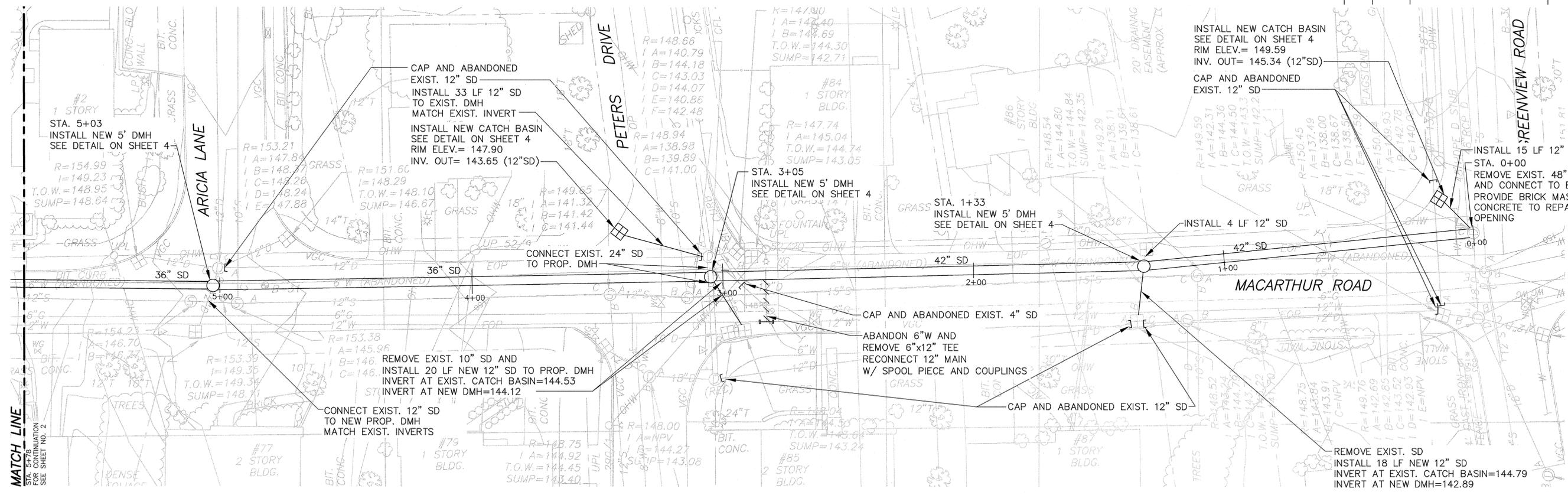
FST FAY, SPOFFORD & THORNDIKE
ENGINEERS · PLANNERS · SCIENTISTS
BURLINGTON, MA



FS&T PROJECT NUMBER JS-211	SCALE: AS NOTED DATE: JUNE 16, 2014	DES. SVK DR. JLD	CHK. SAC PROJ. ENGR. SVK	APPROVED <i>[Signature]</i>
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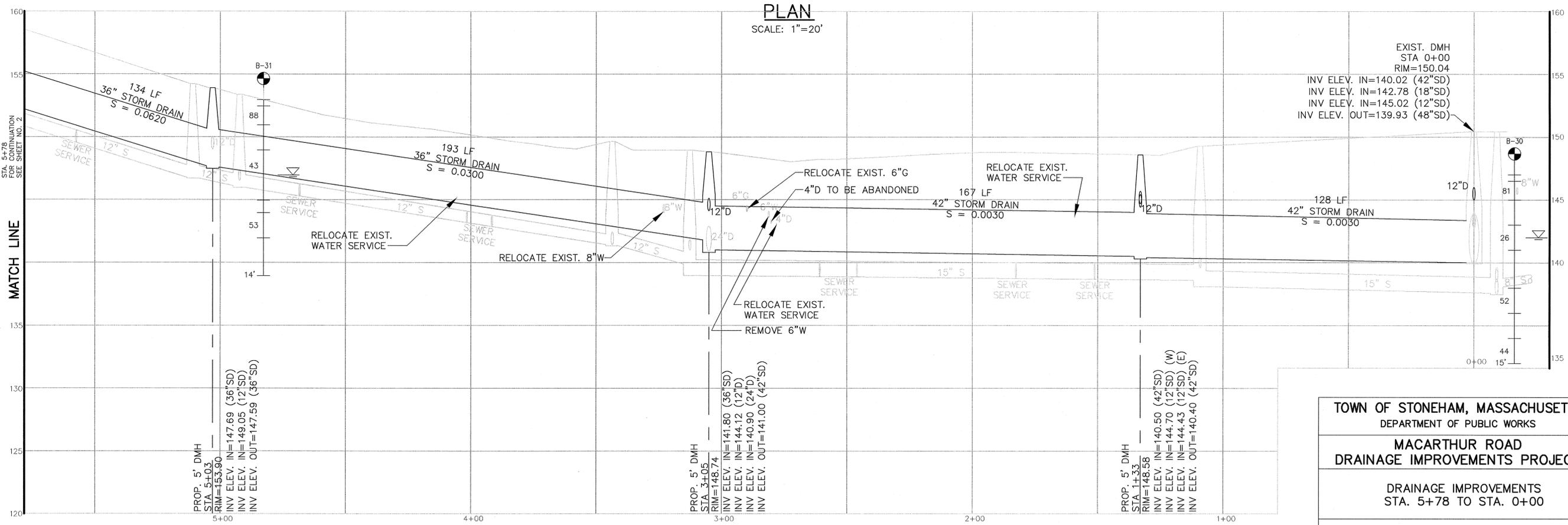
S:\JS-211 Stoneham MacArthur Road\CAD\Civil\Sheet 2-3 - Drainage Improvements.dwg 6/12/2014 2:04:51 PM

REV.	DATE	DESCRIPTION	BY	CHK.	APP'D.



PLAN

SCALE: 1"=20'



PROFILE

SCALE: HORIZONTAL: 1"=20'
VERTICAL: 1"=4'

TOWN OF STONEHAM, MASSACHUSETTS
DEPARTMENT OF PUBLIC WORKS
**MACARTHUR ROAD
DRAINAGE IMPROVEMENTS PROJECT**

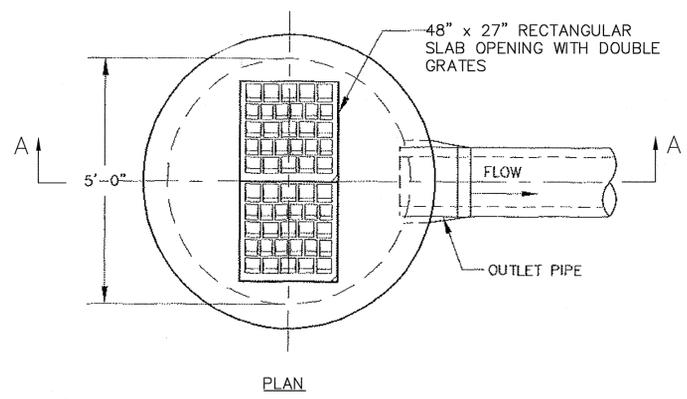
DRAINAGE IMPROVEMENTS
STA. 5+78 TO STA. 0+00

FST 100 YEARS
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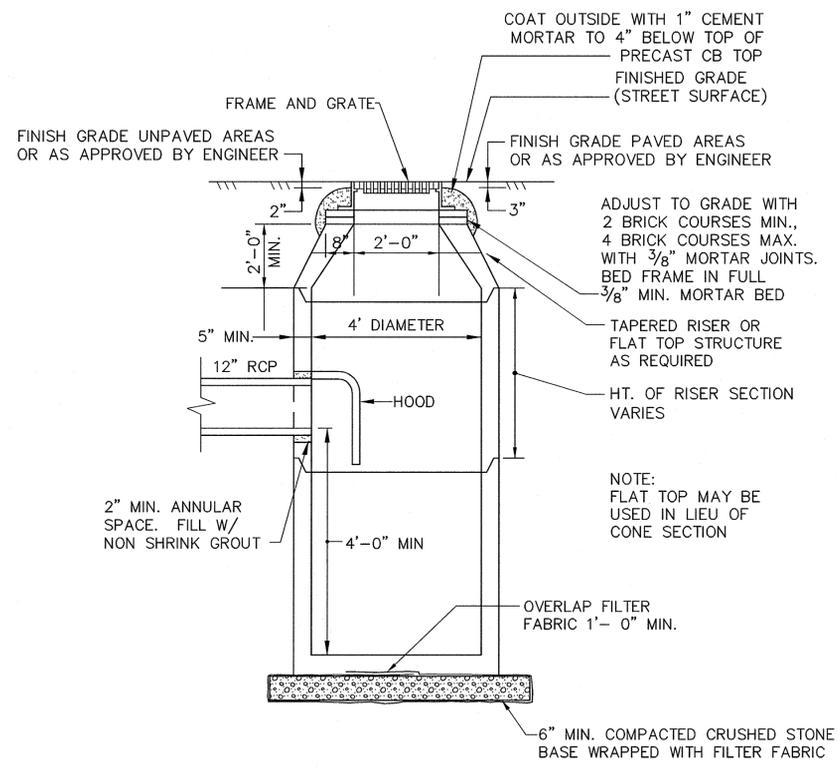


FS&T PROJECT NUMBER JS-211	SCALE: DATE: JUNE 16, 2014 AS NOTED	DES. SVK DR. JLD	CHK. SVK PROJ. ENGR. SVK	SAC APPROVED: <i>Stephen Chapman</i>
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REV.	DATE	DESCRIPTION	BY	CHK.	APP'D.

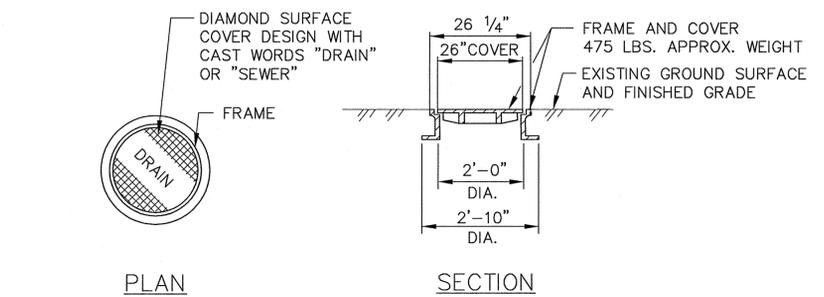


PLAN



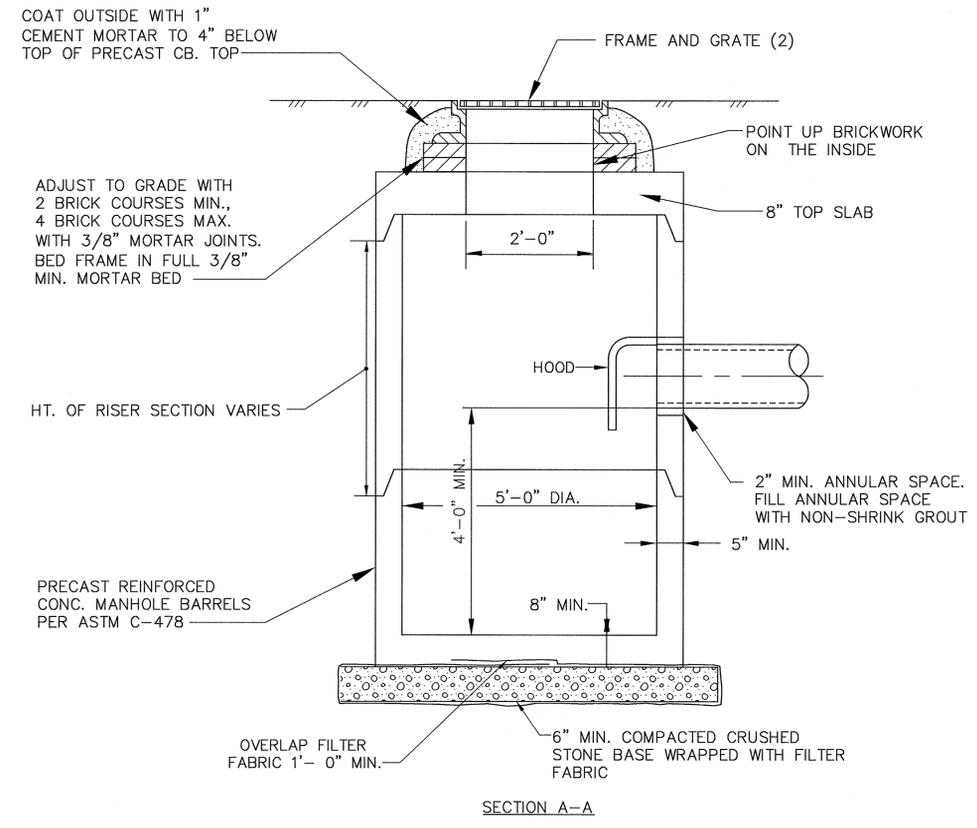
CATCH BASIN

NOT TO SCALE



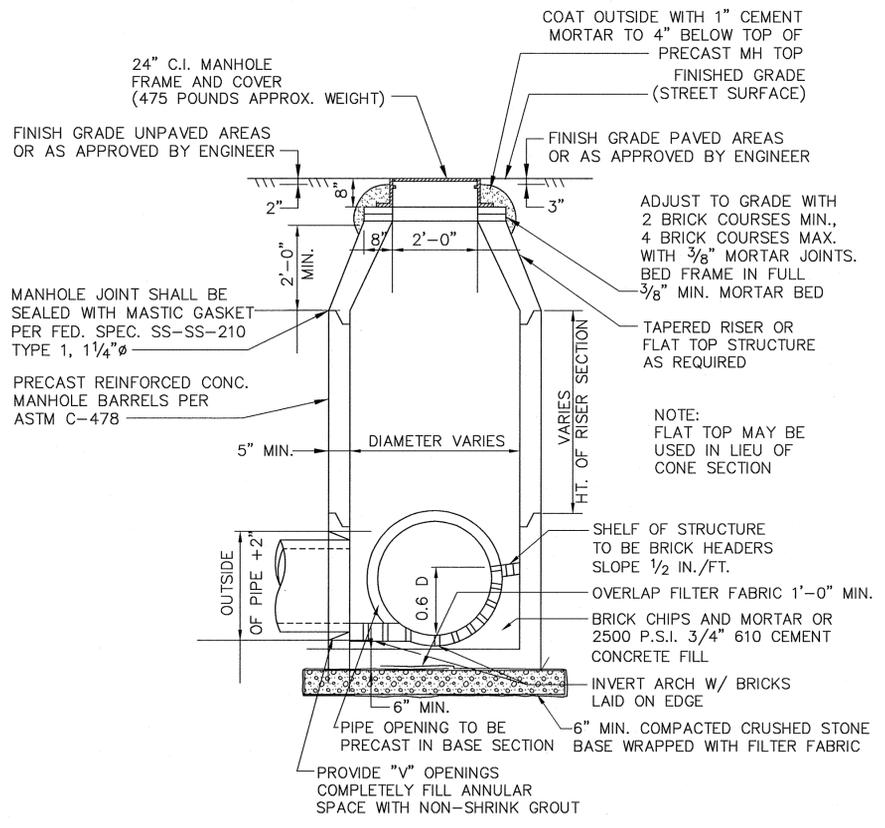
STANDARD MANHOLE FRAME AND COVER

NOT TO SCALE



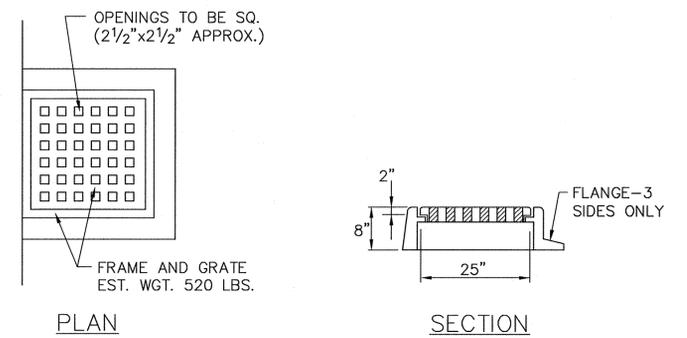
DOUBLE GRATE CATCH BASIN

NOT TO SCALE



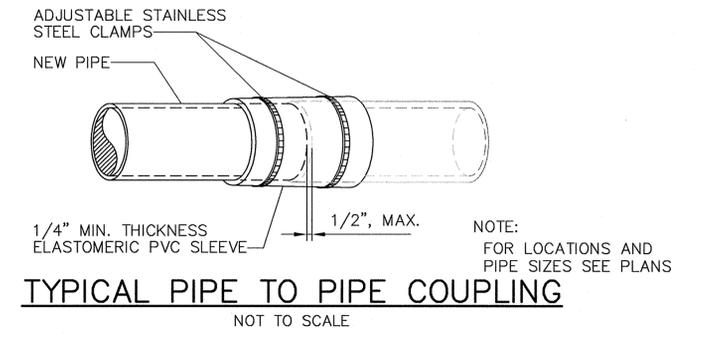
PRECAST CONCRETE DRAIN MANHOLE

NOT TO SCALE



CATCH BASIN FRAME AND GRATE

NOT TO SCALE



TYPICAL PIPE TO PIPE COUPLING

NOT TO SCALE



TOWN OF STONEHAM, MASSACHUSETTS
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MACARTHUR ROAD
DRAINAGE IMPROVEMENTS PROJECT

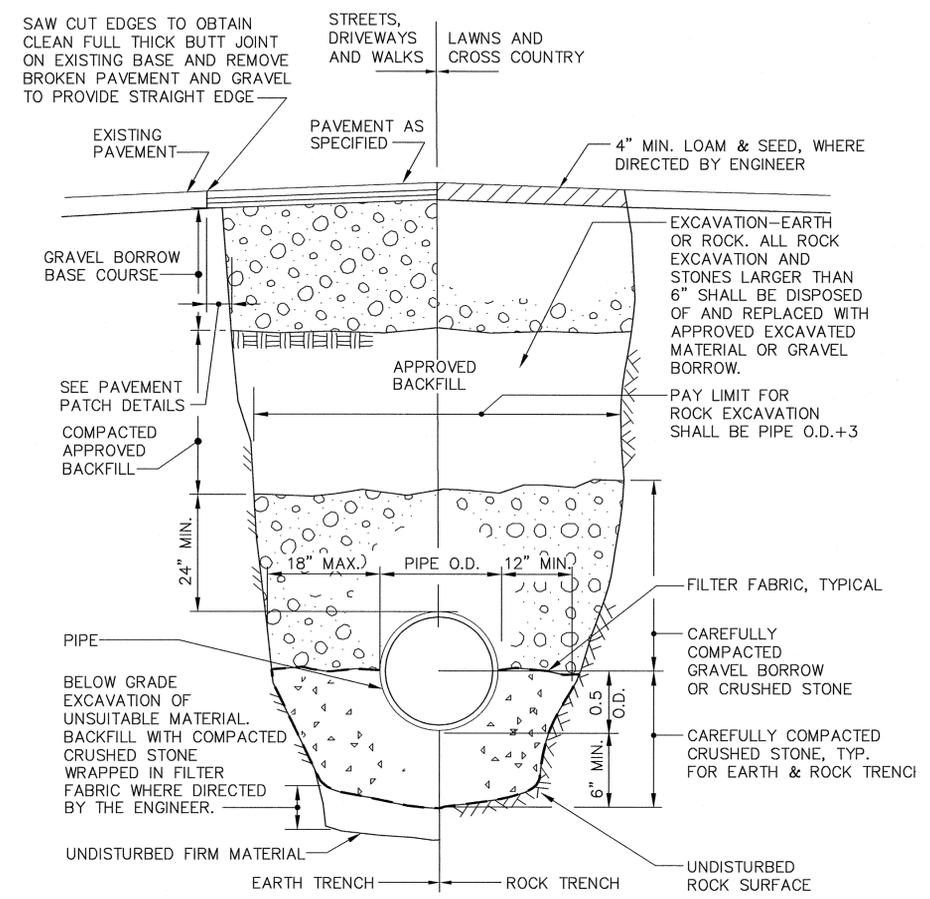
DETAILS 1 OF 2

FST 100 YEARS
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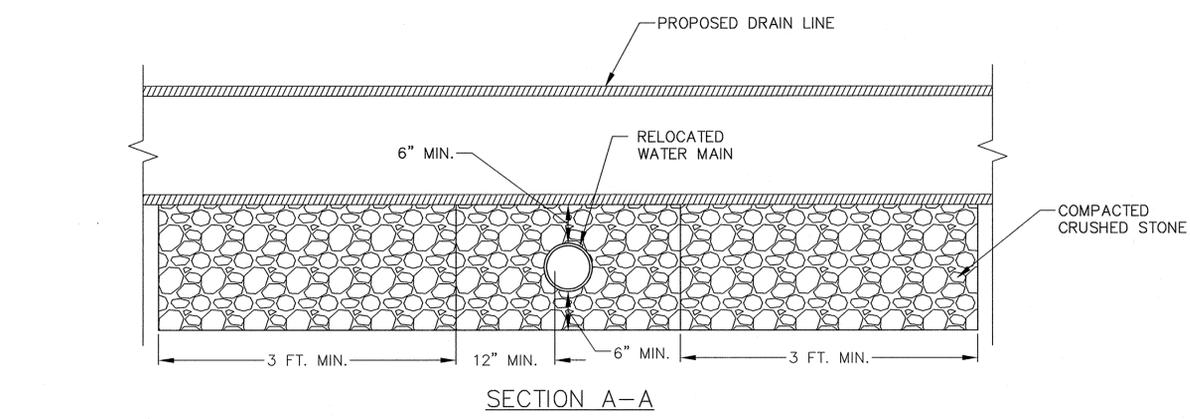
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S:\S-211 Stoneham MacArthur Road\CAD\Civil\Sheet 4--5 - Details.dwg 6/12/2014 2:05:01 PM

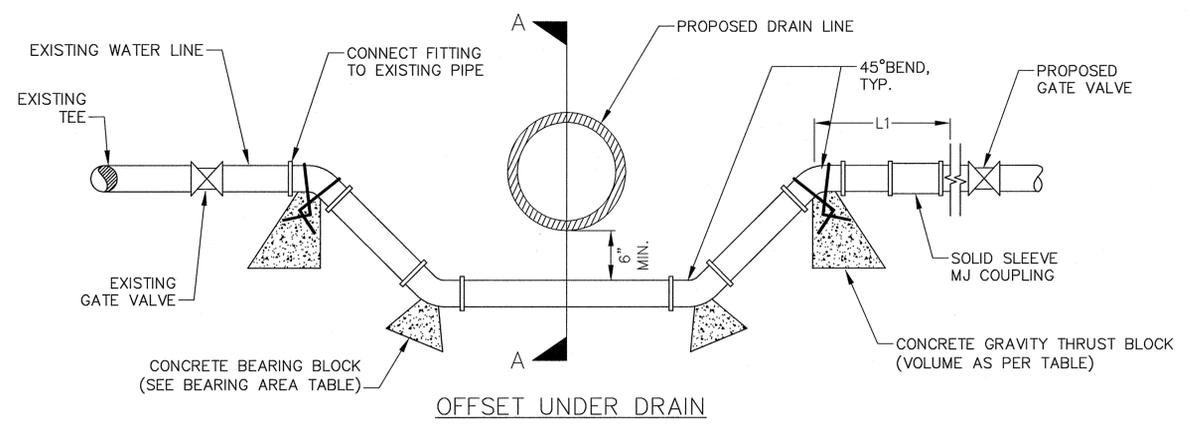
REV.	DATE	DESCRIPTION	BY	CHK.	APP'D.



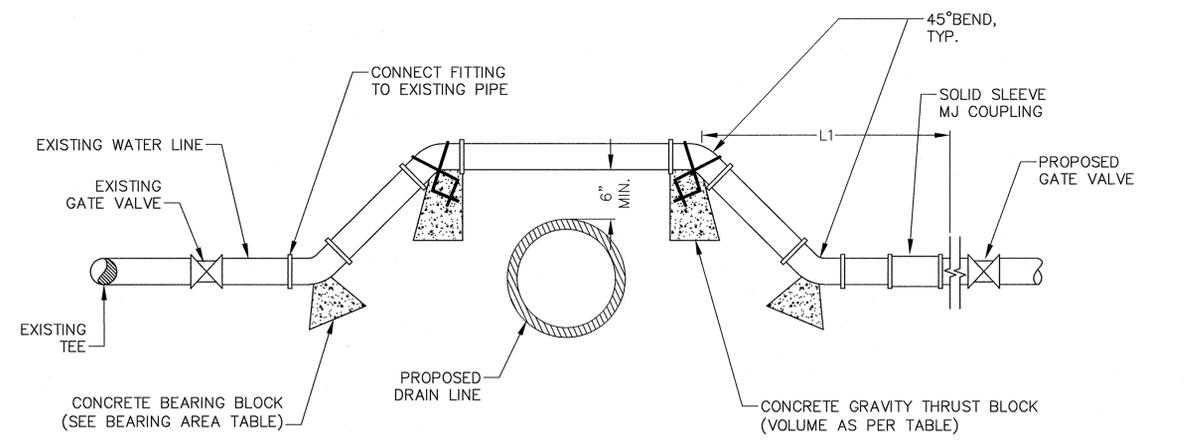
SECTION
UTILITY TRENCH-EARTH AND ROCK
NOT TO SCALE



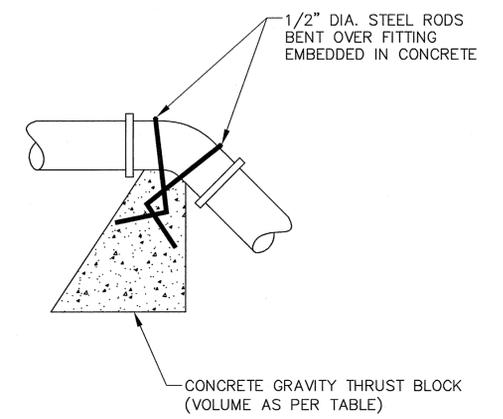
SECTION A-A



OFFSET UNDER DRAIN



OFFSET OVER DRAIN



GRAVITY BLOCK ATTACHMENT DETAIL
NOT TO SCALE

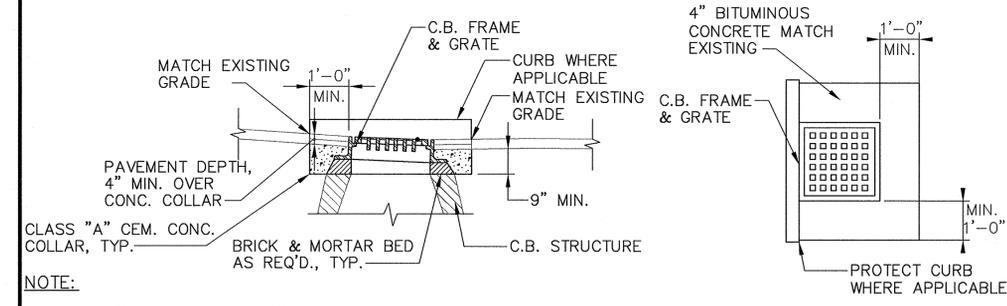
ANGLE OF FITTING	ESTIMATED THRUST FORCE	VOLUME OF CONCRETE REQUIRED
11 1/4 DEGREES	1.5 KIPS	0.75 CUBIC YARDS
22 1/2 DEGREES	2.9 KIPS	1.2 CUBIC YARDS
45 DEGREES	5.8 KIPS	2.0 CUBIC YARDS
90 DEGREES	10.7 KIPS	3.0 CUBIC YARDS

NOTE: IN LIEU OF GRAVITY THRUST BLOCKS, RESTRAINED PIPE LENGTHS MAY BE USED AS FOLLOWS:

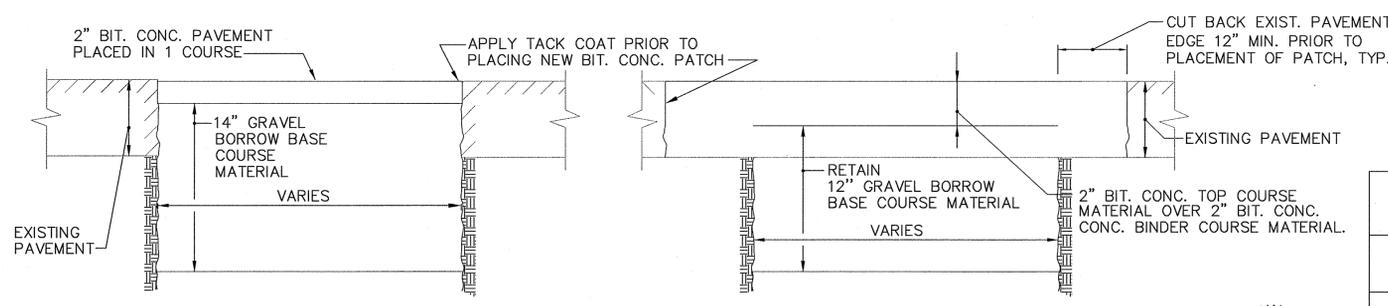
ANGLE OF FITTING	LENGTH, L1
11 1/4 DEGREES	5 FEET
22 1/2 DEGREES	16 FEET
45 DEGREES	39 FEET
90 DEGREES	53 FEET

ANGLE OF FITTING	THRUST BLOCK BEARING AREA REQUIRED
11 1/4 DEGREES	0.5 SQUARE FEET
22 1/2 DEGREES	1.0 SQUARE FEET
45 DEGREES	2.0 SQUARE FEET
90 DEGREES	4.0 SQUARE FEET

NOTE: REFER TO TECHNICAL SPECIFICATIONS FOR MATERIAL, DEWATERING BACKFILLING AND COMPACTION REQUIREMENTS.



PROFILE
PLAN
DETAILS FOR SETTING OR RESETTNG CATCH BASIN AND GUTTER INLET FRAMES
NOT TO SCALE



TEMPORARY PATCH TYPE I
PERMANENT PATCH TYPE II
BITUMINOUS CONCRETE PATCH DETAILS
NOT TO SCALE



TOWN OF STONEHAM, MASSACHUSETTS
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MACARTHUR ROAD DRAINAGE IMPROVEMENTS PROJECT

DETAILS 2 OF 2

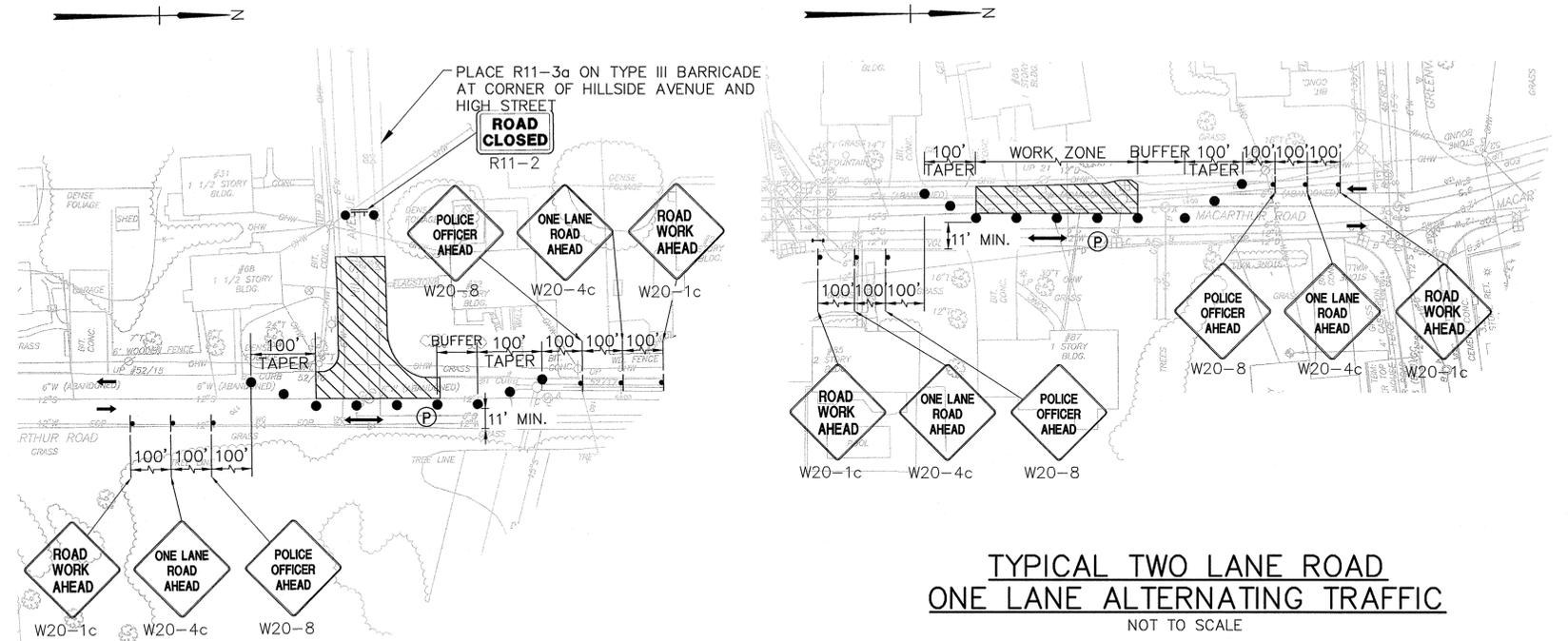
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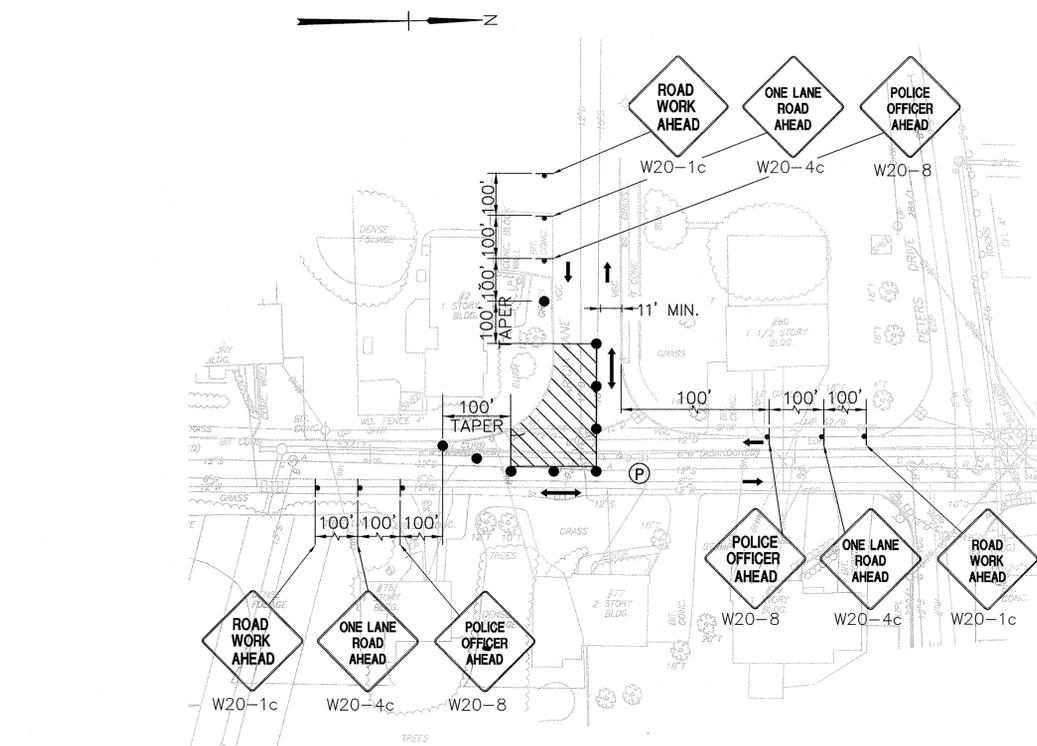
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CONSTRUCTION SIGN SUMMARY

IDENTIFICATION NUMBER	SIZE OF SIGN		TEXT	TEXT DIMENSIONS			NUMBER OF SIGNS REQUIRED	COLOR			AREA IN SQUARE FEET
	WIDTH	HEIGHT		LETTER HEIGHT	VERTICAL SPACING	ARROW		BACK-GROUND	LEGEND	BORDER	
W20-1c	36"	36"		SEE 2009 MUTCD			3	SEE 2009 MUTCD			27.00
W20-2c	36"	36"					2				18.00
W20-4c	36"	36"					3				27.00
W20-8	36"	36"		SEE MassDOT STANDARDS			3	SEE MassDOT STANDARDS			27.00
R11-2	48"	30"		SEE 2009 MUTCD			4	SEE 2009 MUTCD			40.00
R11-3a	60"	30"					4				50.00
M4-9L	30"	24"					4				20.00
M4-9R	30"	24"					3				15.00
M4-9V	30"	24"					3				15.00
M4-10L	48"	18"					2				12.00
M4-10R	48"	18"					2				12.00
M4-8a	24"	18"					3				9.00
G-1	32"	10"		6"B	2" 2"		1	ORANGE	BLACK	BLACK	2.22
G-2	48"	10"		6"B	2" 2"		1	ORANGE	BLACK	BLACK	3.33



TYPICAL ONE LANE ALTERNATING TRAFFIC AT INTERSECTION OF CLOSED ROADWAY
NOT TO SCALE



NOTES

1. THE CONTRACTOR SHALL EXCAVATE ONLY AS MUCH ROADWAY AS HE IS ABLE TO INSTALL PIPE AND STRUCTURES AND BACKFILL BY THE END OF THE SAME WORK DAY.
2. AT THE COMPLETION OF EACH DAYS CONSTRUCTION ACTIVITIES, THE ROADWAY SURFACE SHALL BE PATCHED AND RE-OPENED TO TRAFFIC.
3. THE CONTRACTOR WILL BE PERMITTED TO PERFORM WORK WITHIN THE ROADWAY MONDAY THROUGH FRIDAY FROM 7:00 AM TO 3:00 PM.

LEGEND

- CONSTRUCTION SIGN
- REFLECTORIZED DRUM
- DIRECTION OF TRAFFIC FLOW
- POLICE OFFICER
- PORTABLE TYPE III BARRICADE
- WORK ZONE

TOWN OF STONEHAM, MASSACHUSETTS
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MACARTHUR ROAD
DRAINAGE IMPROVEMENTS PROJECT

TRAFFIC MANAGEMENT PLANS

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