SHEET SET INDEX

COMMONWEALTH OF MASSACHUSETTS
DANIEL C. MULLOY
CIVIL
No. 41757
REGISTERED PROFESSIONAL ENGINEER

C1.0

180 WELLS AVENUE
Newton, MA

SITE DESIGN ENGINEERING, LLC.

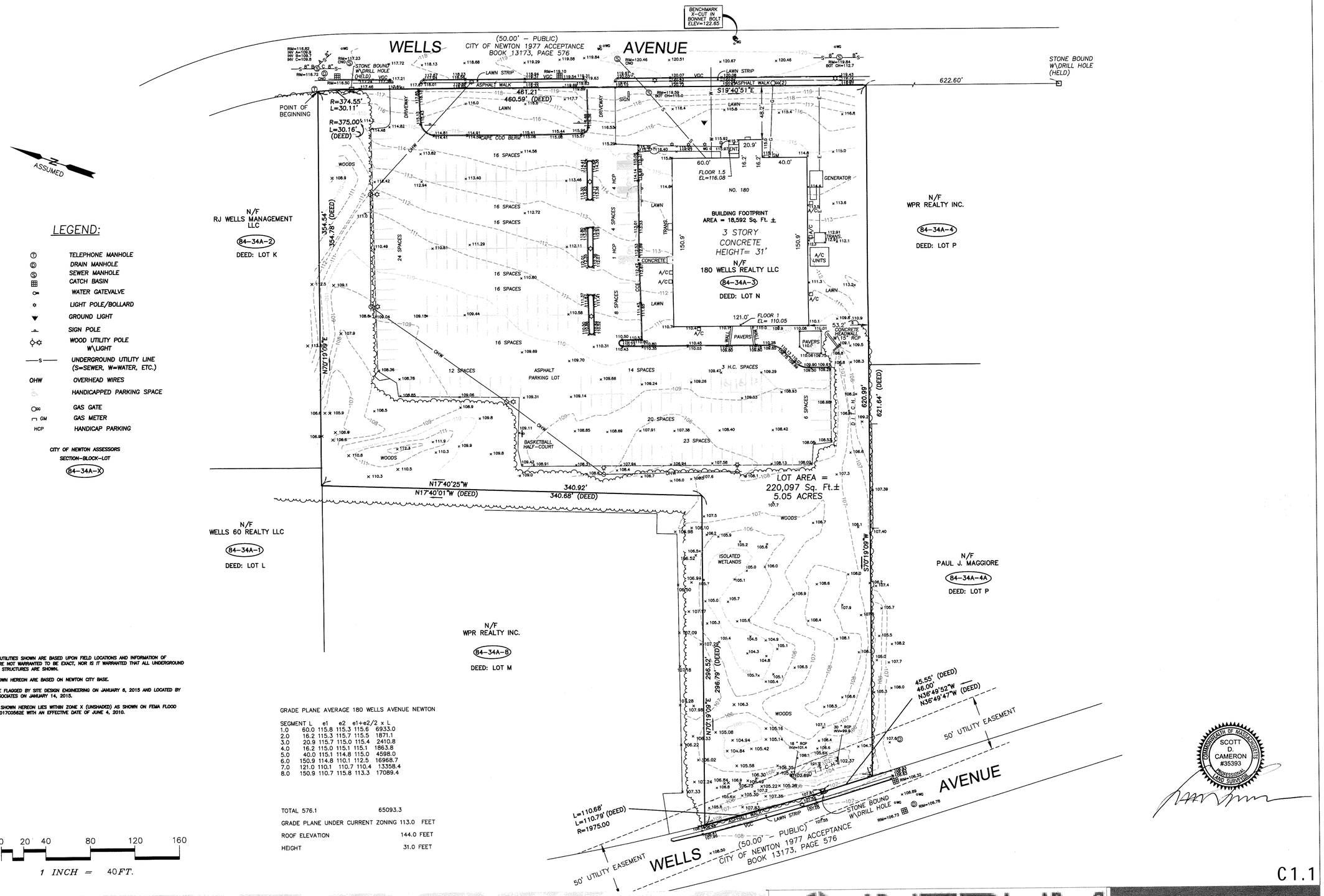
AREA PLAN

DECEMBER 9, 2019

20 0 10 20 40
SCALE: 1 INCH = 20 FEET

INTRUM
REAL ESTATE MANAGEMENT AND DEVELOPMENT

ELKUS | MANFREDI ARCHITECTS



LEGEND:

- TELEPHONE MANHOLE
- DRAIN MANHOLE
- SEWER MANHOLE
- CATCH BASIN
- WATER GATEVALVE
- LIGHT POLE/BOLLARD
- GROUND LIGHT
- SIGN POLE
- WOOD UTILITY POLE W\LIGHT
- —S— UNDERGROUND UTILITY LINE (S=SEWER, W=WATER, ETC.)
- OHW OVERHEAD WIRES
- HANDICAPPED PARKING SPACE
- GAS GATE
- GM GAS METER
- HCP HANDICAP PARKING

CITY OF NEWTON ASSESSORS
SECTION–BLOCK–LOT
84–34A–X

NOTES:
–UNDERGROUND UTILITIES SHOWN ARE BASED UPON FIELD LOCATIONS AND INFORMATION OF RECORD. THEY ARE NOT WARRANTED TO BE EXACT, NOR IS IT WARRANTED THAT ALL UNDERGROUND PIPES OR OTHER STRUCTURES ARE SHOWN.

–ELEVATIONS SHOWN HEREON ARE BASED ON NEWTON CITY BASE.

–WETLANDS WERE FLAGGED BY SITE DESIGN ENGINEERING ON JANUARY 6, 2015 AND LOCATED BY R.E.CAMERON ASSOCIATES ON JANUARY 14, 2015.

–THE PROPERTY SHOWN HEREON LIES WITHIN ZONE X (UNSHADED) AS SHOWN ON FEMA FLOOD MAP NUMBER 25017C0562E WITH AN EFFECTIVE DATE OF JUNE 4, 2010.

GRADE PLANE AVERAGE 180 WELLS AVENUE NEWTON

SEGMENT	L	e1	e2	e1+e2/2 x L	
1.0	60.0	115.8	115.3	115.6	6933.0
2.0	16.2	115.3	115.7	115.5	1871.1
3.0	20.9	115.7	115.0	115.4	2410.8
4.0	16.2	115.0	115.1	115.1	1863.8
5.0	40.0	115.1	114.8	115.0	4598.0
6.0	150.9	114.8	110.1	112.5	16968.7
7.0	121.0	110.1	110.7	110.4	13358.4
8.0	150.9	110.7	115.8	113.3	17089.4

TOTAL 576.1 65093.3

GRADE PLANE UNDER CURRENT ZONING 113.0 FEET

ROOF ELEVATION 144.0 FEET

HEIGHT 31.0 FEET

0 20 40 80 120 160

1 INCH = 40FT.

SCOTT D. CAMERON #35393 COMMONWEALTH OF MASSACHUSETTS PROFESSIONAL LAND SURVEYOR

C1.1

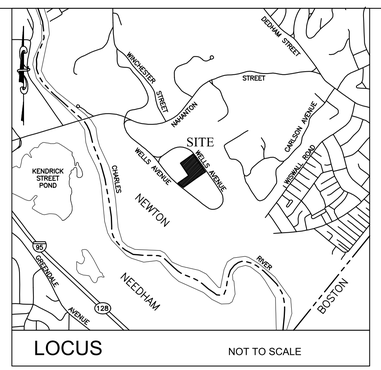
180 WELLS AVENUE
NEWTON, MA

R.E. CAMERON & ASSOCIATES

TOPOGRAPHIC SURVEY
6/3/2015

INTRUM
REAL ESTATE MANAGEMENT AND DEVELOPMENT

ELKUS | MANFREDI ARCHITECTS



LOCUS NOT TO SCALE

ZONED: LIMITED MANUFACTURING				
ITEM	REQUIRED	APPROVED 10/19/15	PROPOSED 1/16/19	PROPOSED 10/10/19
LOT AREA, SF	0	220,097	N/C	N/C
FRONTAGE, FT	0	490.70	N/C	N/C
FRONT SETBACK, FT	25	40.0	32.6	31.3
SIDE SETBACK, FT	20	20.0	N/C	N/C
REAR SETBACK, FT	20	136.1	135.9	139.5
MAX # STORIES*	3*	3	4	3
BLDG HEIGHT*, FT	36*	35.8	48.5	35.8
TOTAL FLOOR AREA RATIO	0	0.53	0.64	0.53
LOT COVERAGE	0.25	0.18	0.192	0.18

*AS TO BUILDING HEIGHT & STORIES REFER TO MAY 22, 1969 DEED RESTRICTION GOVERNING SAME.

GROSS FLOOR AREA	
EXISTING BUILDING FLOOR AREA	55,776 SF
PROPOSED ADDITION FLOOR AREA	60,601 SF
TOTAL FLOOR AREA	116,377 SF

PARKING REQUIREMENTS	
ITEM	REQUIRED
1 SPACE / 250 SF 1ST 20,000 SF FLOOR AREA	80
1 SPACE / 333 SF OVER 20,000 SF FLOOR AREA	290
TOTAL REQUIRED	370
SPACES PROVIDED – GRADE LEVEL	289
SPACES PROVIDED – DECK LEVEL	89
TOTAL SPACES PROVIDED	378
BICYCLES: 1 / 10 PARKING SPACES TO MAX OF 30	
30 BICYCLE RACK SPACES REQUIRED & PROVIDED	
LOADING BAYS, 1 REQUIRED	
PARKING AREA INTERIOR LANDSCAPE ISLANDS, 5% REQUIRED	
PARKING AREA INTERIOR LANDSCAPE ISLANDS, 2.0% PROVIDED	

DEED RESTRICTION				
ITEM	REQUIRED	APPROVED 10/19/15	PROPOSED 1/16/19	PROPOSED 10/10/19
OPEN SPACE, %	40	40.0	34.4	34.0
FLOOR AREA RATIO**	.25	0.53	0.64	0.53

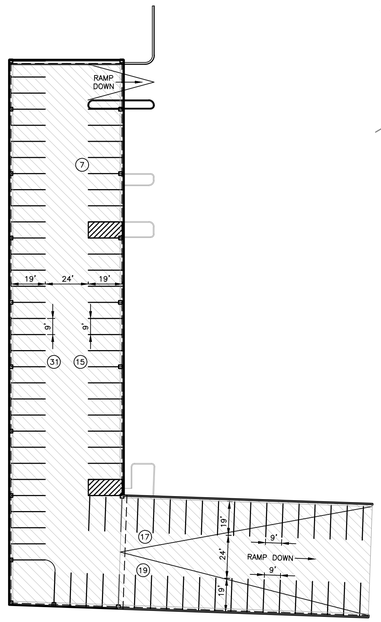
** FLOOR AREA RATIO DOES NOT INCLUDE PARKING GARAGE

N/C = NO CHANGE

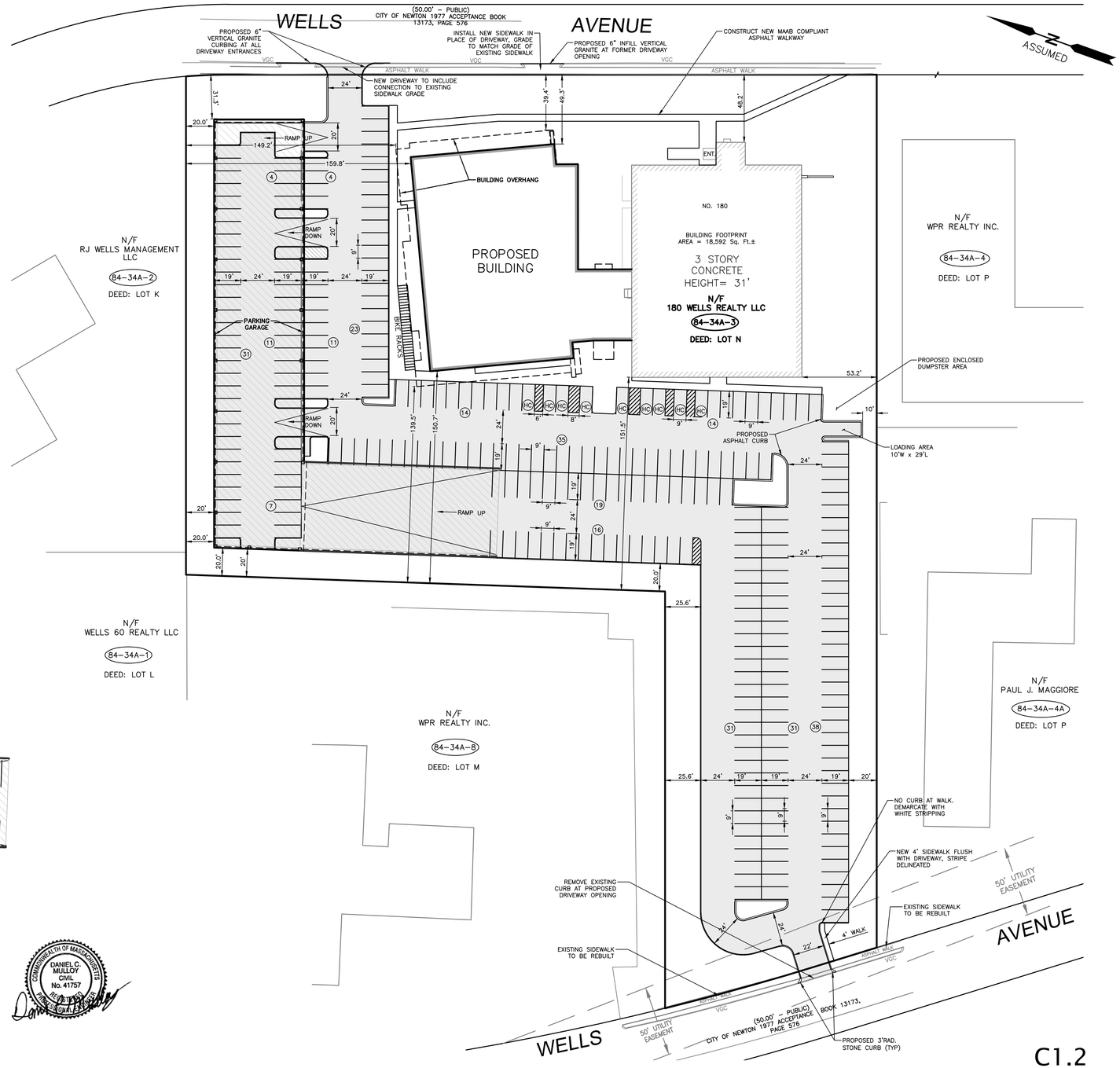
MAAB = MASSACHUSETTS ARCHITECTURAL ACCESS BOARD

GENERAL NOTES:

1. EXISTING CONDITIONS INFORMATION WAS COMPILED FROM AN ON THE GROUND SURVEY PERFORMED BY R. E. CAMERON AND ASSOCIATES, INC. AND SUPPLEMENTED WITH RECORD PLAN INFORMATION.
2. ELEVATIONS ARE REFERENCED TO AN ASSUMED DATUM.
3. THIS PLAN AND ANY ACCOMPANYING CERTIFICATIONS DO NOT CONSTITUTE A CERTIFICATION OF TITLE TO THE PROPERTY DISPLAYED HEREON. THE OWNER OF LOCUS AND ABUTTING PROPERTIES ARE SHOWN ACCORDING TO CURRENT TOWN ASSESSORS RECORDS.
4. EXISTING UTILITY LINES SHOWN ON THIS PLAN ARE FROM AVAILABLE INFORMATION AND ARE APPROXIMATE LOCATIONS. THERE MAY BE EXISTING LINES OTHER THAN THOSE INDICATED. SITE DESIGN ENGINEERING, LLC. ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER PUBLIC UTILITY ENGINEERING DEPARTMENT SHOULD BE CONSULTED.



PARKING DECK



DANIEL C. MULLOY CIVIL No. 41757 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

C1.2

SITE PLAN

180 WELLS AVENUE
Newton, MA

SITE DESIGN ENGINEERING, LLC.

DECEMBER 9, 2019

40 0 20 40 80
SCALE: 1 INCH = 40 FEET

INTRUM
REAL ESTATE MANAGEMENT AND DEVELOPMENT

ELKUS | MANFREDI ARCHITECTS

GENERAL NOTES:

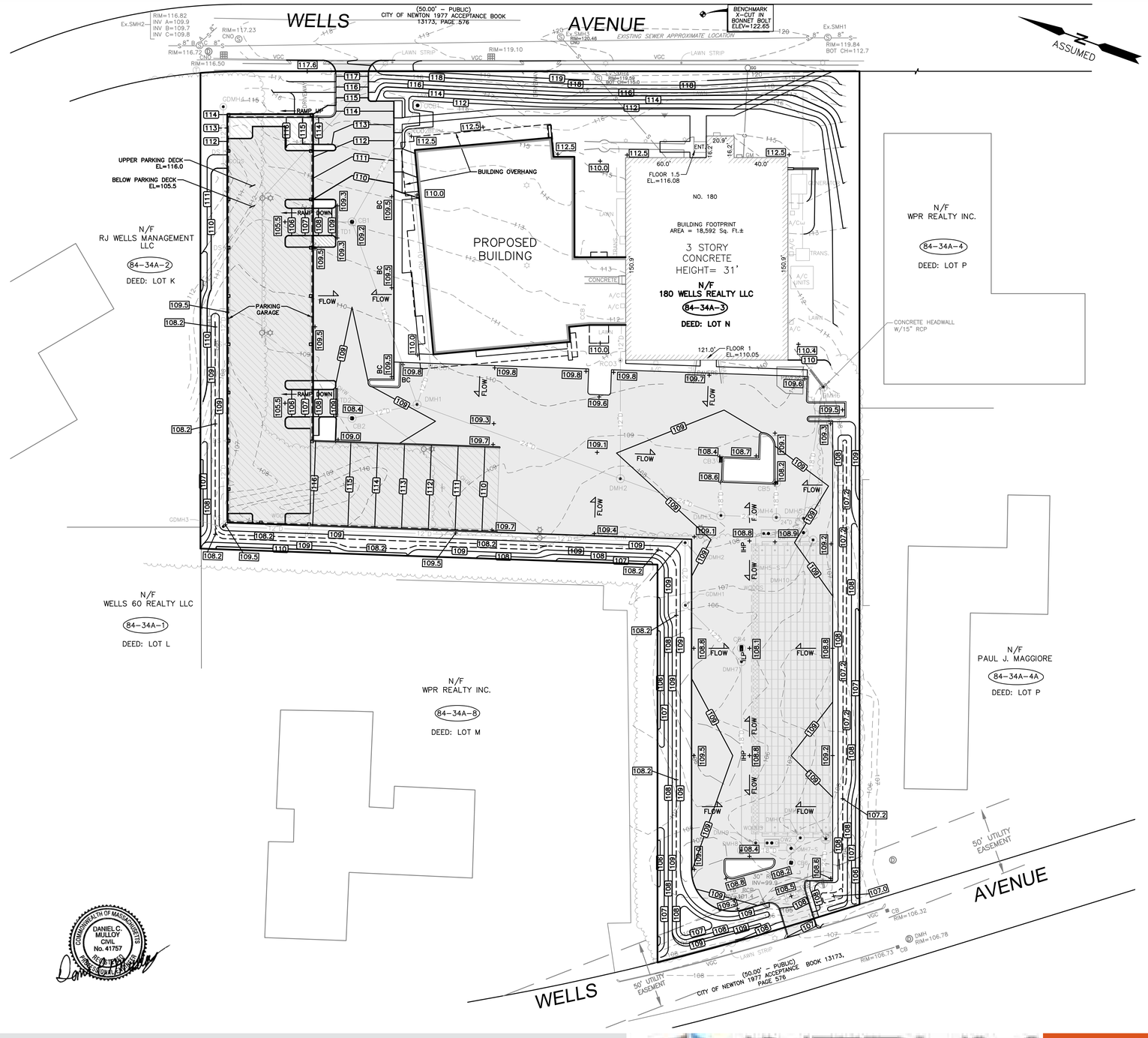
1. EXISTING CONDITIONS INFORMATION WAS COMPILED FROM AN ON THE GROUND SURVEY PERFORMED BY R. E. CAMERON AND ASSOCIATES, INC. AND SUPPLEMENTED WITH RECORD PLAN INFORMATION.
2. ELEVATIONS ARE REFERENCED TO AN ASSUMED DATUM.
3. THIS PLAN AND ANY ACCOMPANYING CERTIFICATIONS DO NOT CONSTITUTE A CERTIFICATION OF TITLE TO THE PROPERTY DISPLAYED HEREON. THE OWNER OF LOCUS AND ABUTTING PROPERTIES ARE SHOWN ACCORDING TO CURRENT TOWN ASSESSORS RECORDS.
4. EXISTING UTILITY LINES SHOWN ON THIS PLAN ARE FROM AVAILABLE INFORMATION AND ARE APPROXIMATE LOCATIONS. THERE MAY BE EXISTING LINES OTHER THAN THOSE INDICATED. SITE DESIGN ENGINEERING, LLC. ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER PUBLIC UTILITY ENGINEERING DEPARTMENT SHOULD BE CONSULTED.

CONSTRUCTION NOTES:

1. THE LOCATION OF UNDERGROUND UTILITIES AND STRUCTURES ARE APPROXIMATE ONLY. THE ENGINEER DOES NOT GUARANTEE THEIR ACCURACY OR THAT ALL UTILITIES AND SUBSURFACE STRUCTURES ARE SHOWN. THE CONTRACTOR SHALL VERIFY SIZE, LOCATION AND INVERT ELEVATIONS OF THE UTILITIES AND STRUCTURES, AS REQUIRED PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES WITH RECORD DATA SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY. THE CONTRACTOR IS CAUTIONED TO CONTACT DIG SAFE (1-888-344-7233) 72 HOURS BEFORE DIGGING.
2. ALL TRENCH EXCAVATION CONTRACTORS SHALL COMPLY WITH MASSACHUSETTS GENERAL LAWS CHAPTER 82A, TRENCH EXCAVATION SAFETY REQUIREMENTS, TO PROTECT THE GENERAL PUBLIC FROM UNAUTHORIZED ACCESS TO UNATTENDED TRENCHES. TRENCH EXCAVATION PERMIT REQUIRED. THIS APPLIES TO ALL TRENCHES ON PUBLIC AND PRIVATE PROPERTY.
3. ALL MATERIALS AND CONSTRUCTION PRACTICES SHALL BE IN CONFORMANCE WITH THE MOST CURRENT EDITIONS OF THE CITY OF NEWTON STANDARD SPECIFICATIONS, PLANNING BOARD RULES AND REGULATIONS, THE LATEST EDITION OF THE MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS (MDPW) CONSTRUCTION STANDARDS, AND THE MDPW STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, UNLESS OTHERWISE SPECIFIED BY LOCAL AUTHORITY OR THE ENGINEER. ALL MATERIALS AND WORK NOT MEETING THESE SPECIFICATIONS SHALL BE IMMEDIATELY REMOVED FROM THE SITE AT THE FULL EXPENSE OF THE CONTRACTOR.
4. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE HIS WORK WITH THE APPROPRIATE CITY OF NEWTON HIGHWAY & UTILITY DEPARTMENTS.
5. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE ENGINEERING DIVISION AND SCHEDULING AN APPOINTMENT 48 HOURS PRIOR TO THE DATE WHEN THE UTILITIES WILL BE MADE AVAILABLE FOR AN INSPECTION OF WATER SERVICES, SEWER SERVICE, AND DRAINAGE SYSTEM INSTALLATION. THE UTILITY IN QUESTION SHALL BE FULLY EXPOSED FOR THE INSPECTOR TO VIEW; BACKFILLING SHALL ONLY TAKE PLACE WHEN THE CITY'S INSPECTOR HAS GIVEN THEIR APPROVAL.
6. THE APPLICANT WILL HAVE TO APPLY FOR STREET OPENING, SIDEWALK CROSSING, AND UTILITIES CONNECTING PERMITS WITH THE DEPARTMENT OF PUBLIC WORKS PRIOR TO ANY CONSTRUCTION.
7. CONNECTION TO THE MUNICIPAL DRAINAGE SYSTEM REQUIRES A CLOSED CIRCUIT TELEVISION (CCTV) INSPECTION AND WITNESSED BY THE ENGINEERING DIVISION PRIOR TO APPROVAL OF THE BUILDING PERMIT. POST-CONSTRUCTION CCTV INPECTION SHALL ALSO BE PERFORMED AND WITNESSED.
8. CONTRACTOR SHALL MAINTAIN ALL EXISTING AND NEWLY INSTALLED UTILITIES IN GOOD WORKING ORDER AND SHALL PROTECT THEM FROM DAMAGE AT ALL TIMES UNTIL THE WORK IS COMPLETED AND ACCEPTED BY THE OWNER.
9. THE WATER SUPPLY SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE CITY OF NEWTON WATER DEPARTMENT. CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH APPLICABLE PERMITS (TO BE OBTAINED BY THE CONTRACTOR). UNLESS DIRECTED OTHERWISE, ALL WATER PIPES SHALL BE INSTALLED 5' – 0" BELOW GRADE. APPROPRIATE THRUST BLOCKING SHALL BE INSTALLED.
10. THE SANITARY SEWER SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE CITY OF NEWTON SEWER DEPARTMENT. CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH APPLICABLE PERMITS (TO BE OBTAINED BY THE CONTRACTOR).
11. ELECTRIC, GAS, TELEPHONE, AND CABLE TELEVISION UTILITY CONNECTIONS AND SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE RESPECTIVE UTILITY.
12. THE CONTRACTOR SHALL CONTACT THE LOCAL ELECTRIC COMPANY FOR CONSTRUCTION SPECIFICATIONS, STANDARDS AND RESPONSIBILITIES.
13. THE CONTRACTOR SHALL UTILIZE ALL MEASURES AND MATERIALS NECESSARY TO ENSURE THE SAFETY OF ALL PERSONS AND PROPERTIES AT THE SITE DURING CONSTRUCTION. ALL EXCAVATIONS SHALL CONFORM TO CURRENT OSHA STANDARDS.
14. DEWATERING OPERATIONS SHALL BE PROVIDED, IF REQUIRED; ALL DISCHARGE SHALL PASS THROUGH SEDIMENTATION CONTROL DEVICES TO PREVENT IMPACTS UPON WATER BODIES, BORDERING VEGETATED WETLANDS, DRAINAGE SYSTEMS AND ABUTTING PROPERTIES.
15. IT IS THE RESPONSIBILITY OF THE CONTRACTOR(S) TO RECORD IN NOTE FORM (PREFERABLY IN A SURVEY FIELD NOTEBOOK) THE LOCATION OF ALL UTILITIES INSTALLED WHEN SURVEYORS ARE NOT AT JOB SITE. THESE NOTES WILL BE UTILIZED FOR THE PREPARATION OF REQUIRED AS-BUILT PLANS.
16. THE CONTRACTOR(S) SHALL NOTIFY THE DESIGN ENGINEER AND OR SURVEYOR FOR PROPER LOCATION OF PROPOSED UTILITIES AND IMPROVEMENTS PRIOR TO CONSTRUCTION.
17. THE CONTRACTOR MUST PRESERVE ALL GRADE STAKES SET BY SURVEYORS. GRADE STAKES WILL BE USED BY SURVEYORS AND CITY OF NEWTON ROADWAY ENGINEERS FOR FINAL GRADE INSPECTIONS.
18. ALL TREE REMOVAL SHALL COMPLY WITH THE CITY OF NEWTON TREE ORDINANCE.
19. PRIOR TO OCCUPANCY PERMIT BEING ISSUED, AN AS-BUILT PLAN SHALL BE SUBMITTED TO THE ENGINEERING DIVISION IN BOTH DIGITAL FORMAT AND IN HARD COPY. THE PLAN SHOULD SHOW ALL UTILITIES AND FINAL GRADES, ANY EASEMENTS AND FINAL GRADING.
20. ALL SITE WORK MUST BE COMPLETED BEFORE A CERTIFICATE OF OCCUPANCY CAN BE ISSUED.

DRAINAGE NOTES:

1. ALL DRAIN PIPING 10" DIA. AND GREATER TO BE HDPE SMOOTH WALL INTERIOR. ALL DRAIN PIPING UNDER 10" DIA. TO BE SDR-35.



DANIEL C. MULLOY CIVIL No. 41757 REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

C1.3

180 WELLS AVENUE
Newton, MA

SITE DESIGN ENGINEERING, LLC.

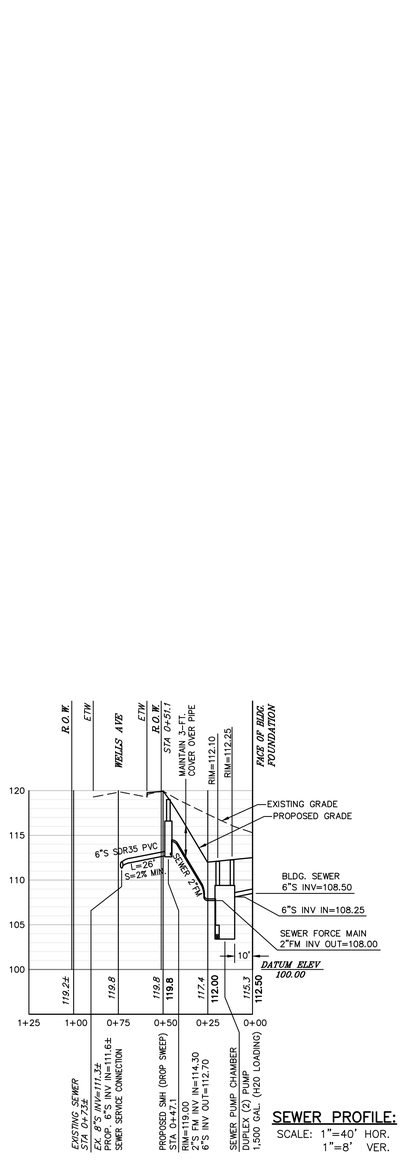
GRADING PLAN

DECEMBER 9, 2019

40 0 20 40 80
SCALE: 1 INCH = 40 FEET

INTRUM
REAL ESTATE MANAGEMENT AND DEVELOPMENT

ELKUS | MANFREDI ARCHITECTS



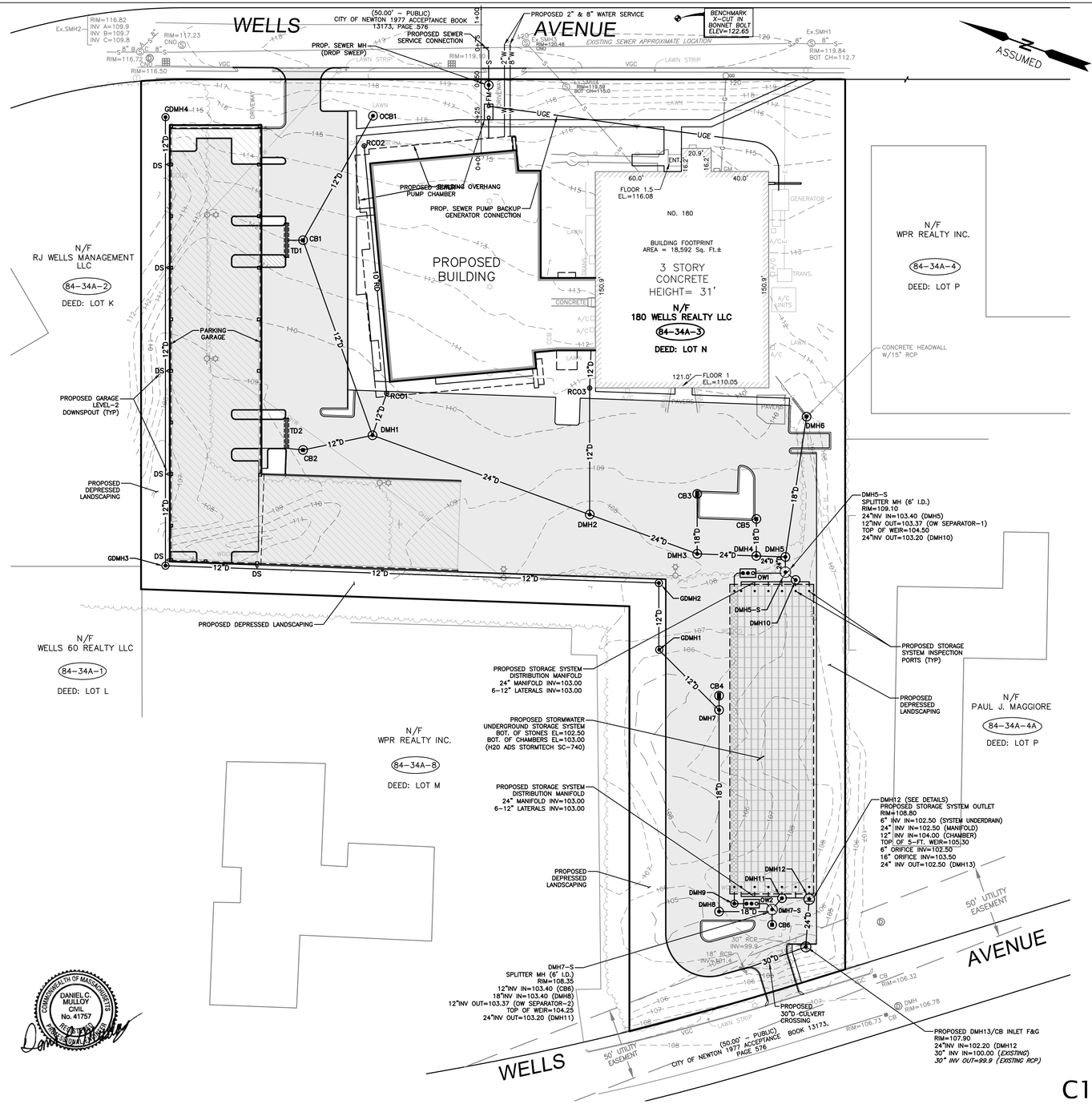
SEWER PROFILE:

SCALE: 1"=40' HOR.
1"=8' VER.

PROPOSED DRAINAGE STRUCTURES PIPE & ELEVATION SCHEDULE								
FROM STRUCTURE	RIM ELEV.	INVERT OUT	INVERT IN	TO STRUCTURE	PIPE SIZE IN & OUT (INCH.)	LENGTH (FT.)	SLOPE (FT./FT.)	CLASS
OCB1	111.50	107.50	106.45	CB1	12	95.6	0.0110	HDPE
TD1	109.30	106.65	106.55	CB1	8	9.0	0.0111	HDPE
CB1	109.20	106.20	105.25	DMH1	12	140.5	0.0068	HDPE
TD2	109.00	106.00	105.88	CB2	12	9.0	0.0133	HDPE
CB2	108.40	105.38	105.15	DMH1	18	45.5	0.0051	HDPE
CB3	108.40	104.55	104.36	DMH3	18	78.3	0.0050	HDPE
CB4	108.00	104.50	104.40	DMH7	18	6.0	0.0167	HDPE
CB5	108.20	104.39	104.17	DMH4	18	21.8	0.0101	HDPE
CB6	108.20	103.60	103.40	DMH7-S	12	4.0	0.0500	HDPE
RCO2	112.50	108.75	106.10	RCO1	10	172.0	0.0154	HDPE
RCO1	109.75	106.00	105.25	DMH1	12	28.8	0.0260	HDPE
DMH1	109.10	105.05	104.25	DMH2	24	157.3	0.0051	HDPE
BUILDING	–	106.00	105.60	RCO3	12	26.0	0.0154	HDPE
RCO3	109.75	105.60	104.50	DMH2	12	108.8	0.0100	HDPE
DMH2	109.00	104.25	103.86	DMH3	24	75.8	0.0051	HDPE
DMH3	108.80	103.86	103.67	DMH4	24	37.3	0.0051	HDPE
DMH4	108.55	103.67	103.50	DMH5	24	16.2	0.0105	HDPE
DMH5	108.90	103.50	103.40	DMH5-S	24	5.6	0.0179	HDPE
DMH6	110.00	105.00	104.00	DMH5	18	95.0	0.0105	HDPE
DMH8	108.50	103.71	103.40	DMH7-S	18	30.4	0.0102	HDPE
DMH9	108.10	104.40	103.71	DMH8	18	136.7	0.0050	HDPE
GDMH-4	115.00	108.60	107.00	GDMH-3	12	315.0	0.0051	HDPE
GDMH-3	109.50	106.95	105.00	GDMH-2	12	340.5	0.0057	HDPE
GDMH-2	109.00	105.00	104.78	GDMH-1	12	42.7	0.0052	HDPE
GDMH-1	109.00	104.78	104.50	DMH7	12	22.0	0.0051	HDPE
DMH5-S	109.10	103.37	103.27	OW1	12	18.2	0.0055	HDPE
		103.20	103.10	DMH10	24	4.0	0.0250	HDPE
OW1	108.85	103.10	103.00	CHAMBERS	12	13.0	0.0067	HDPE
DMH7-S	108.35	103.37	103.27	OW2	12	10.0	0.0050	HDPE
		103.20	103.10	DMH11	18	6.0	0.0167	HDPE
OW2	108.35	103.10	103.00	DMH9	12	5.0	0.0200	HDPE
DMH9	108.45	103.00	103.00	CHAMBERS	12	6.0	0.0000	HDPE
DMH10	109.10	103.00	103.00	MANIFOLD	(2)24	VAR	0.0000	HDPE
		103.00	103.00	CHAMBERS	12	3.0	0.0000	HDPE
DMH11	108.45	103.00	103.00	MANIFOLD	24	27.0	0.0000	HDPE
		103.00	103.00	CHAMBERS	12	3.0	0.0000	HDPE
		103.00	102.50	DMH12	24	14.0	0.0357	HDPE
DMH12	108.80	102.50	102.50	SYSTEM UNDERDRAIN	6	3.0	0.0000	HDPE
		102.50	102.20	DMH13	24	30.0	0.0100	HDPE
DMH13	107.90	*99.90*	–	*EXISTING*	*30*	–	–	*RCP*

DRAINAGE NOTES:

ALL DRAIN PIPING 10" DIA. AND GREATER TO BE HDPE SMOOTH WALL INTERIOR.
ALL DRAIN PIPING UNDER 10" DIA. TO BE SDR-35.



DANIEL C. MULLOY
CIVIL
No. 41757
REGISTERED PROFESSIONAL ENGINEER
COMMONWEALTH OF MASSACHUSETTS

C1.4

DRAINAGE & UTILITY PLAN

180 WELLS AVENUE
Newton, MA

SITE DESIGN ENGINEERING, LLC.

DECEMBER 9, 2019

40 0 20 40 80
SCALE: 1 INCH = 40 FEET

INTRUM
REAL ESTATE MANAGEMENT AND DEVELOPMENT

ELKUS | MANFREDI ARCHITECTS

SOIL EROSION AND SEDIMENTATION CONTROL NOTES

1. PRIOR TO INITIATING CONSTRUCTION, ALL SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE INSTALLED AS SHOWN ON THE PLANS, AS DIRECTED BY THE ENGINEER AND/OR AS NECESSITATED BY FIELD CONDITIONS. THE CONTRACTOR SHALL MAINTAIN THESE MEASURES UNTIL ALL WORK IS COMPLETED AND ALL AREAS HAVE BEEN STABILIZED.

   INSTALLATION SEQUENCE
   A. INSTALL SILT FENCE AND HAYBALES AS SHOWN ON PLAN.
   B. CLEAR AND GRUB SITE.
   C. CONSTRUCT SITE INFRASTRUCTURE AS SHOWN ON PLANS.
   D. THE FOLLOWING ACTIVITIES SHALL TAKE PLACE IMMEDIATELY FOLLOWING CONSTRUCTION OF EMBANKMENTS AND FILL SLOPES: PLACEMENT OF LOAM AND GRASS SEED, INSTALLATION OF GEOWEB SLOPE STABILIZATION.
   E. THE CONTRACTOR SHALL INSPECT ALL FILL SLOPES AND EMBANKMENTS ON A WEEKLY BASIS AND FOLLOWING ALL RAINFALL EVENTS UNTIL A MINIMUM 75% GRASS COVER IS ESTABLISHED SUFFICIENT TO PREVENT EROSION FROM OCCURRING.

2. ACCUMULATED SEDIMENT SHALL BE REMOVED AND DISPOSED OF BY THE CONTRACTOR OR AS DIRECTED BY THE ENGINEER.

3. AFTER THE INSTALLATION OF DRAINAGE STRUCTURES, HAYBALES OR OTHER APPROVED MATERIALS SHALL BE PLACED TO PROTECT THE INTEGRITY OF THE STRUCTURES.

4. DISTURBED AREAS SHALL BE STABILIZED WITH THE APPLICATION OF A MINIMUM OF FOUR INCHES (4) OF LOAM AND SHALL BE SEEDED WITH AN APPROVED GRASS MIX OR SHALL BE RIPRAPPED AS SOON AS POSSIBLE AFTER THE FINISHED GRADE HAS BEEN MET. IF FINAL GRADING DOES NOT OCCUR DURING THE GROWING SEASON, THESE AREAS SHALL BE MULCHED WITH HAY AND SECURED BY JUTE NETTING WITH STAPLES. SLOPES EXCEEDING 2:1 SHALL BE LOAMED AND STABILIZED WITH PEGGED SOD OR APPROVED EROSION CONTROL BLANKETS UNLESS OTHERWISE NOTED.

5. THE MOUTHS OF ALL CATCH BASINS SHALL BE FITTED WITH FILTER FABRIC DURING THE ENTIRE CONSTRUCTION PROCESS TO RETARD SILTATION.

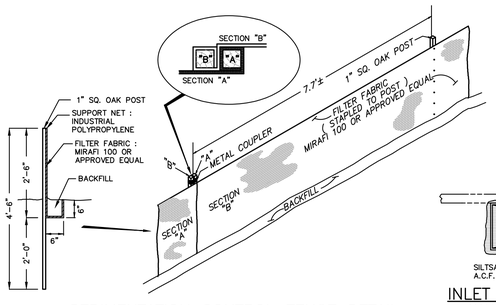
6. WHERE APPLICABLE, PROPER DUST CONTROL MEASURES SHALL APPLY TO REDUCE THE SURFACE AND AIR TRANSPORT OF DUST GENERATED DURING CONSTRUCTION. THE FOLLOWING METHODS SHALL BE USED:

   - WET SUPPRESSION WITHOUT WETTING AGENT SHALL BE APPLIED DURING LOAD IN / LOAD OUT AND EARTH MOVING CONSTRUCTION ACTIVITIES, SPECIALLY ON STOCKPILES.
   - INACTIVE STOCKPILES SHALL BE STABILIZED THROUGH APPLICATION OF SOIL STABILIZERS OR SEEDING.
   - WIND SCREENS OR BARRIERS AND PLASTIC TARP COVERS SHALL BE SECURED TO PREVENT WIND DISLODGE AND DAMAGE. ANY DAMAGES SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

7. TEMPORARY SWALES, STRUCTURES AND SEDIMENTATION BASINS CONSTRUCTED, AS NECESSITATED BY FIELD CONDITIONS, SHALL BE SIZED UTILIZING SOIL CONSERVATION SERVICE GUIDELINES TO ACCOMMODATE RUNOFF FROM DISTURBED AREAS. THESE FACILITIES SHALL BE LEFT IN PLACE UNTIL THE AREA HAS BEEN STABILIZED.

8. THE FUNCTIONING OF TEMPORARY CULVERTS, DITCHES, SWALES OR CONSTRUCTION OPERATIONS SHALL NOT CAUSE NOTICEABLE SEDIMENTATION PLUMES. IF PLUMES OCCUR, THE CONTRACTOR SHALL STOP WORK AND INSTALL ADDITIONAL SEDIMENTATION CONTROL DEVICES IMMEDIATELY TO PREVENT FURTHER SEDIMENTATION.

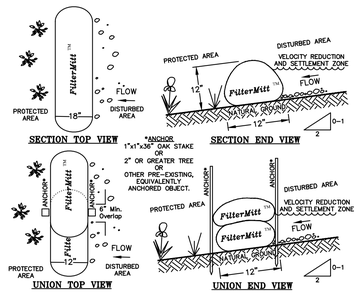
9. DEWATERING OPERATIONS SHALL BE PROVIDED, IF REQUIRED; ALL DISCHARGE SHALL PASS THROUGH SEDIMENTATION CONTROL DEVICES TO PREVENT IMPACTS UPON WATER BODIES, BORDERING VEGETATED WETLANDS, DRAINAGE SYSTEMS AND ABUTTING PROPERTIES.



SEDIMENTATION CONTROL FENCE DETAIL
NOT TO SCALE

SILTSACK® IS MANUFACTURED BY A.C.F. ENVIRONMENTAL INC.

INLET SEDIMENTATION CONTROL DETAIL
NOT TO SCALE



***FilterMitt*™ INSTALLATION:**

With the newest technology and equipment, sections can be constructed on site in lengths from 1' to 100'.

Sections can also be delivered to the site in lengths from 1' to 8'.

The flexibility of *FilterMitt*™ allows it to conform to any contour or terrain.

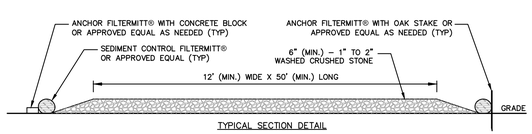
Where section ends meet, there shall be an overlap of 6" or greater. Both sides shall be anchored (oak stakes, trees, etc.) to stabilize the union.

***FilterMitt*™ COMPONENTS:**

OUTSIDE CASING: 100% organic hessian.
FILLER INGREDIENT: *FiberRoot Mulch*™
- A blend of coarse and fine compost and shredded wood.
- Particle sizes: 100% passing a 3" screen; 90–100% passing a 1" screen; 70–100% passing a 0.75" screen; 30–75% passing a 0.25" screen.
- Weight: Approx. 850 lbs./cu.yd. (Ave. 25 lbs./l.f.)

For more information visit:
www.groundscapesexpress.com
or contact us at:
Groundscapes Express, Inc.
P.O. Box 737
Wrentham, MA 02093
(508) 384-7140

***FilterMitt*™ by Groundscapes Express, Inc.**
2:1 SLOPES OR LESS
NOT TO SCALE



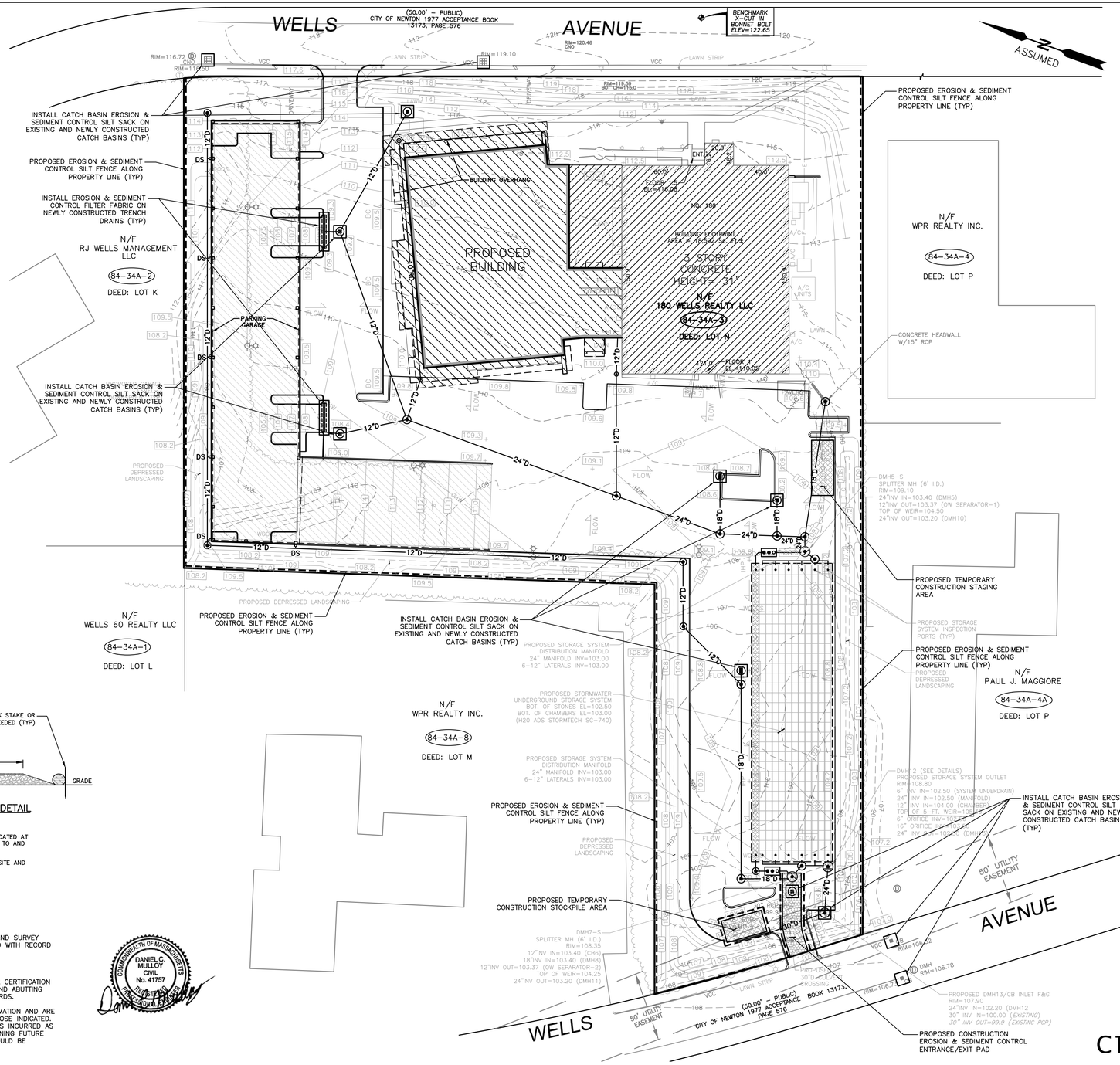
STABILIZED CONSTRUCTION ENTRANCE & EXIT DETAIL
NOT TO SCALE

NOTE:
1. CONSTRUCTION ENTRANCE IS A TEMPORARY STONE – STABILIZED PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON THE CONSTRUCTION SITE TO AND FROM A PAVED PUBLIC ROAD OR OTHER PAVED AREAS.
2. REMOVE MUD AND WASH TIRE OF CONSTRUCTION VEHICLES LEAVING THE SITE AND ENTERING SITY STREET.

GENERAL NOTES:

1. EXISTING CONDITIONS INFORMATION WAS COMPILED FROM AN ON THE GROUND SURVEY PERFORMED BY R. E. CAMERON AND ASSOCIATES, INC. AND SUPPLEMENTED WITH RECORD PLAN INFORMATION.
2. ELEVATIONS ARE REFERENCED TO AN ASSUMED DATUM.
3. THIS PLAN AND ANY ACCOMPANYING CERTIFICATIONS DO NOT CONSTITUTE A CERTIFICATION OF TITLE TO THE PROPERTY DISPLAYED HEREON. THE OWNER OF LOCUS AND ABUTTING PROPERTIES ARE SHOWN ACCORDING TO CURRENT TOWN ASSESSORS RECORDS.
4. EXISTING UTILITY LINES SHOWN ON THIS PLAN ARE FROM AVAILABLE INFORMATION AND ARE APPROXIMATE LOCATIONS. THERE MAY BE EXISTING LINES OTHER THAN THOSE INDICATED. SITE DESIGN ENGINEERING, LLC. ASSUMES NO RESPONSIBILITY FOR DAMAGES INCURRED AS A RESULT OF UTILITIES OMITTED OR INACCURATELY SHOWN. BEFORE PLANNING FUTURE CONNECTIONS, THE PROPER PUBLIC UTILITY ENGINEERING DEPARTMENT SHOULD BE CONSULTED.

COMMONWEALTH OF MASSACHUSETTS
DANIEL C. MULLOY
CIVIL
No. 41757
REGISTERED PROFESSIONAL ENGINEER



C1.5

EROSION CONTROL PLAN

180 WELLS AVENUE
Newton, MA

SITE DESIGN ENGINEERING, LLC.

DECEMBER 9, 2019

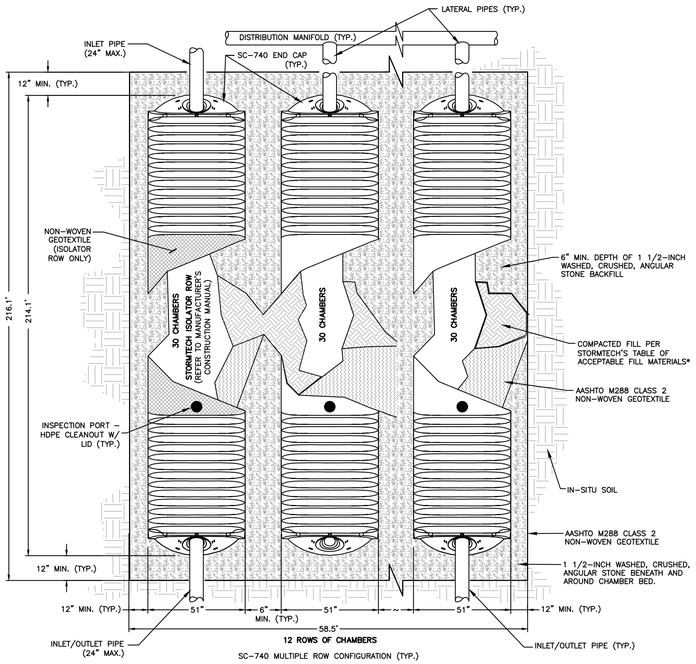
40 0 20 40 80
SCALE: 1 INCH = 40 FEET

INTRUM
REAL ESTATE MANAGEMENT AND DEVELOPMENT

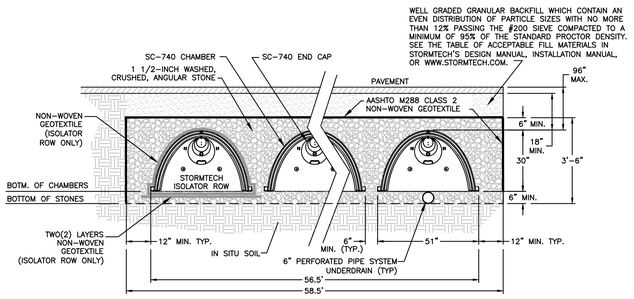
ELKUS | MANFREDI ARCHITECTS

STORMWATER FACILITY OPERATION AND MAINTENANCE

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER INSPECTION AND MAINTENANCE OF ALL STORMWATER FACILITIES UNTIL SUCH TIME AS THE ROADWAYS AND ASSOCIATED UTILITIES ARE ACCEPTED BY THE OWNER.
2. ALL STORMWATER FACILITIES SHOULD BE INSPECTED AFTER EVERY MAJOR RAINFALL EVENT FOR THE FIRST 3 MONTHS AFTER CONSTRUCTION TO ENSURE PROPER STABILIZATION AND CONSTRUCTION.
3. THE CONTRACTOR SHALL INSPECT AND CLEAN ALL FACILITIES OF SEDIMENT AND DEBRIS PRIOR TO THE OWNER'S ACCEPTANCE.
4. ACCUMULATED SILT AND SEDIMENT SHOULD BE REMOVED FROM ALL FACILITIES AT LEAST ONCE A YEAR OR MORE FREQUENTLY IF ACCUMULATED DEPTH OF SEDIMENT EXCEEDS THREE INCHES.
5. THE SIDE SLOPES AND BOTTOMS OF ALL DRAINAGE SWALES SHOULD BE MOWED TO A MINIMUM HEIGHT OF FOUR INCHES AT LEAST TWICE A YEAR. ALL GRASS CLIPPINGS AND ORGANIC MATTER SHOULD BE REMOVED FROM ALL DRAINAGE WAYS AND WETLAND BUFFER ZONES.
6. ALL REMOVED SEDIMENTS ARE TO BE PROPERLY DISPOSED AT A LOCATION TO BE APPROVED BY THE BOARD OF HEALTH. TRANSPORTATION AND DISPOSAL OF SEDIMENTS SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL REGULATIONS.
7. ANY DEFICIENCIES NOTED DURING MAINTENANCE SHALL BE REPORTED TO THE OWNER AND CORRECTED IMMEDIATELY.
8. CONNECTION TO THE MUNICIPAL DRAINAGE SYSTEM REQUIRES A CLOSED CIRCUIT TELEVISION (CCTV) INSPECTION AND WITNESSED BY THE ENGINEERING DIVISION PRIOR TO APPROVAL OF THE BUILDING PERMIT. POST-CONSTRUCTION CCTV INPECTION SHALL ALSO BE PERFORMED AND WITNESSED.
9. DEWATERING OPERATIONS SHALL BE PROVIDED, IF REQUIRED; ALL DISCHARGE SHALL PASS THROUGH SEDIMENTATION CONTROL DEVICES TO PREVENT IMPACTS UPON WATER BODIES, BORDERING VEGETATED WETLANDS, DRAINAGE SYSTEMS AND ABUTTING PROPERTIES.
10. THE STORMWATER MANAGEMENT SYSTEM OPERATIONS AND MAINTENANCE PLAN UPON ADOPTION BY THE APPLICANT AND OWNER MUST BE INCORPORATED IN THE DEEDS AND RECORDED AT THE MIDDLESEX REGISTRY OF DEEDS. A COPY OF THE RECORDING INSTRUMENT SHALL BE SUBMITTED TO THE ENGINEERING DIVISION.



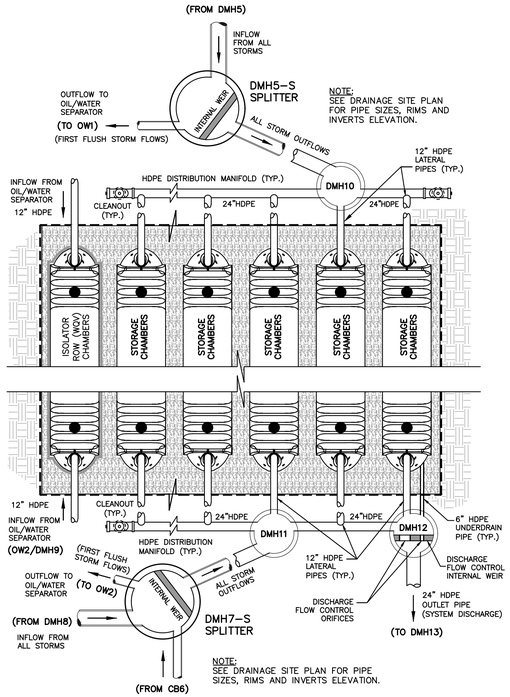
STORMTECH SC-740 CHAMBER SYSTEM - TYPICAL PLAN VIEW DETAIL



STORMTECH SC-740 CHAMBER SYSTEM
TYPICAL CROSS SECTION DETAIL

UNDERGROUND STORMWATER STORAGE SYSTEM DETAIL

NOT TO SCALE



UNDERGROUND STORMWATER STORAGE SYSTEM DETAILS
INFLOW & OUTFLOW STRUCTURES LAYOUT

NOT TO SCALE

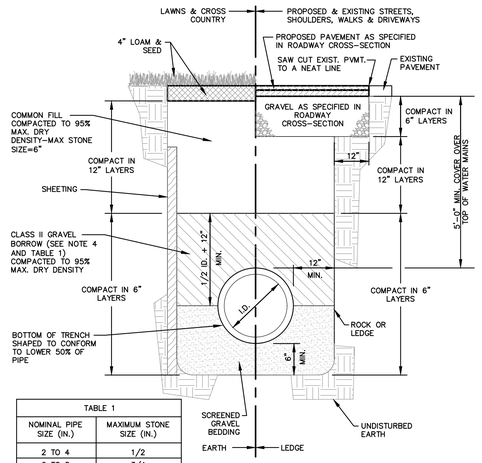


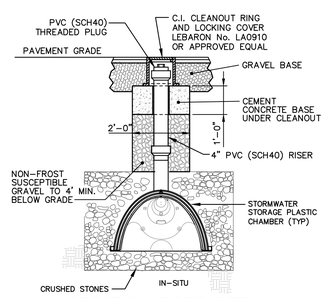
TABLE 1	
NOMINAL PIPE SIZE (IN.)	MAXIMUM STONE SIZE (IN.)
2 TO 4	1/2
6 TO 8	3/4
10 TO 16	1
18 AND LARGER	1-1/2

TYPICAL PLASTIC PIPE TRENCH DETAIL

NOT TO SCALE

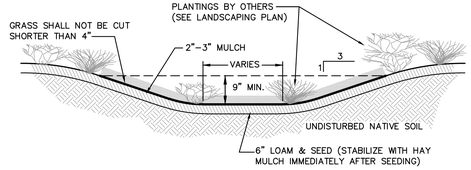
NOTES:

1. SHEETING IF USED, IN ALL CASES SHALL BE LEFT INPLACE BELOW A LINE 1'-0" ABOVE THE TOP OF THE PIPE. UNLESS OTHERWISE INDICATED OR DIRECTED.
2. "COVER" AT ANY POINT SHALL BE DEFINED AS THE VERTICAL DISTANCE FROM THE UNDERMOST POINT OF THE PIPE TO A LINE WHICH CONNECTS THE SURFACE OF UNDISTURBED GROUND AT EITHER SIDE OF THE TRENCH AND IS AT RIGHT ANGLES TO THE DIRECTION OF THE PIPE.
3. WITH THE EXCEPTION OF NATURAL GAS SERVICES, ALL UTILITY TRENCHES WITHIN THE RIGHT OF WAY SHALL BE BACKFILLED WITH CONTROL DENSITY FILL (CDF) EXCAVATABLE TYPE I-E, PER CITY OF NEWTON CONSTRUCTION STANDARDS.
4. SCREENED GRAVEL SHALL BE HARD, DURABLE, ROUNDED PARTICLES, FREE FROM SAND, LOAM, CLAY, EXCESS FINES AND DELETERIOUS MATERIAL, UNIFORMLY GRADED SUCH THAT NOT LESS THAN 95% WILL PASS A 1/2 INCH SIEVE AND NOT MORE THAN 5% PASS A NO. 4 SIEVE.
5. CLASS II GRAVEL BORROW SHALL BE A CLEAN, COARSE GRAINED GRAVEL-SAND MIXTURE. THE MIXTURE SHOULD CONTAIN LESS THEN 5% PASSING THE #200 SIEVE AS WELL AS COMPLYING TO THE REQUIREMENTS OF TABLE 1.
6. WHERE FUTURE EXTENSION OF A PLUGGED PIPE OR A PLUGGED BRANCH WILL ENTAIL ROCK EXCAVATION. TRENCH EXCAVATION IN ROCK SHALL BE EXTENDED FOR A DISTANCE OF 5'-0" BEYOND THE PLUG.



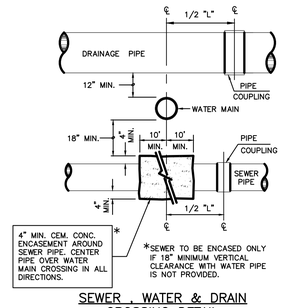
INSPECTION PORT DETAIL

NOT TO SCALE



TYPICAL DEPRESSED LANDSCAPING SECTION DETAIL

NOT TO SCALE



SEWER , WATER & DRAIN CROSSING DETAIL

NOT TO SCALE

COMMONWEALTH OF MASSACHUSETTS
DANIEL C. MULLOY
CIVIL
No. 41757
REGISTERED PROFESSIONAL ENGINEER

C1.6a

180 WELLS AVENUE
Newton, MA

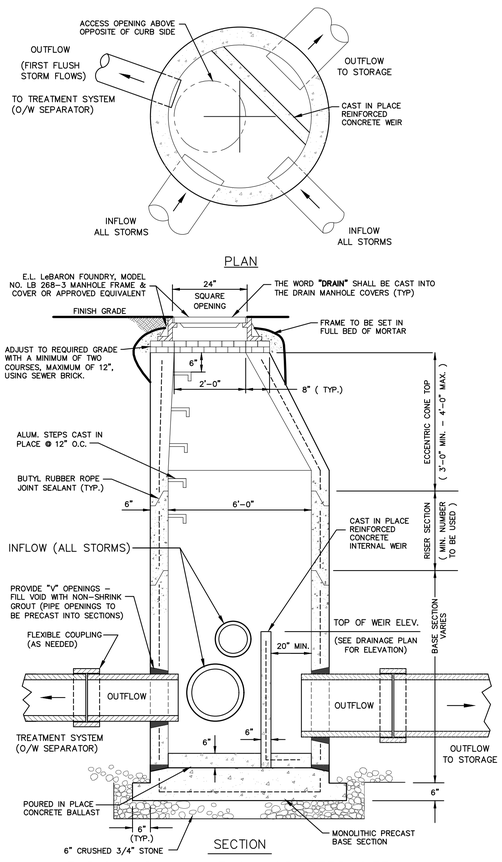
SITE DESIGN ENGINEERING, LLC.

SITE CONSTRUCTION DETAILS

DECEMBER 9, 2019

INTRUM
REAL ESTATE MANAGEMENT AND DEVELOPMENT

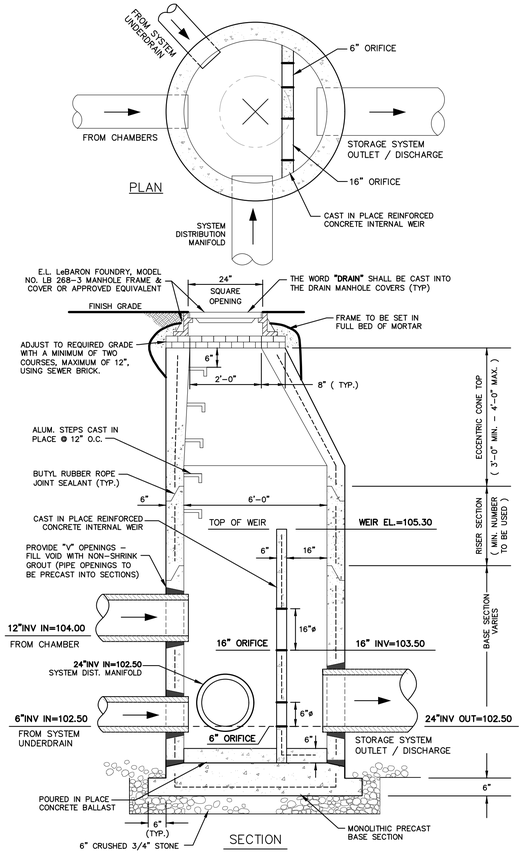
ELKUS | MANFREDI ARCHITECTS



TYPICAL DMH – FLOW SPLITTER DETAIL

NOT TO SCALE

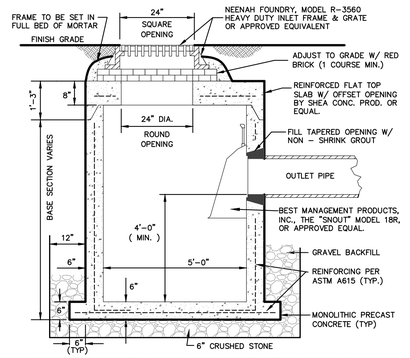
NOTES:
1. PRECAST REINFORCED CONCRETE DESIGN SHALL BE CERTIFIED FOR H-20 LOADING.
2. USE FLAT TOP H20 LOADING SLAB WHEN HEIGHT OF CONE SECTION IS LESS THAN 2'-0".
3. FILL OUTSIDE FACE OF ALL MANHOLE JOINTS WITH NON-SHRINK MORTAR.
4. ALL JOINTS TO HAVE "KENT SEAL" OR EQUAL.



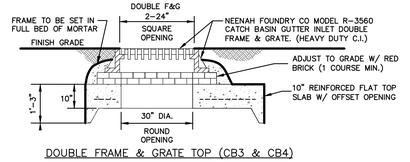
UNDERGROUND STORAGE SYSTEM OUTLET DETAIL

NOT TO SCALE

NOTES:
1. PRECAST REINFORCED CONCRETE DESIGN SHALL BE CERTIFIED FOR H-20 LOADING.
2. USE FLAT TOP H20 LOADING SLAB WHEN HEIGHT OF CONE SECTION IS LESS THAN 2'-0".
3. FILL OUTSIDE FACE OF ALL MANHOLE JOINTS WITH NON-SHRINK MORTAR.
4. ALL JOINTS TO HAVE "KENT SEAL" OR EQUAL.



PRECAST CONCRETE CATCH BASIN INLET DETAIL (TYPICAL)

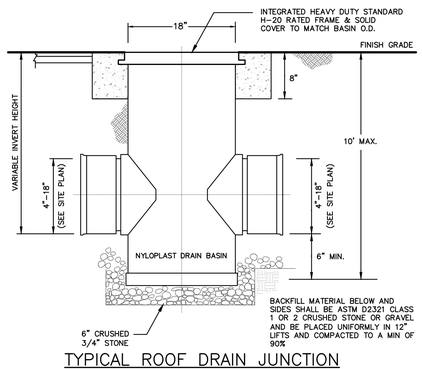


DOUBLE FRAME & GRATE TOP (CB3 & CB4)

PRECAST CONCRETE CATCH BASIN DETAIL

NOT TO SCALE

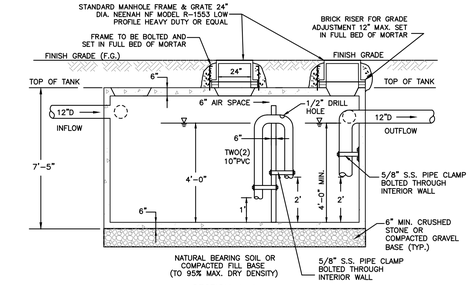
NOTES:
1. PRECAST REINFORCED CONCRETE DESIGN SHALL BE CERTIFIED FOR H-20 LOADING.
2. FILL OUTSIDE FACE OF ALL MANHOLE JOINTS WITH NON-SHRINK MORTAR.
3. ALL JOINTS TO HAVE "KENT SEAL" OR EQUAL.
4. MANHOLES SHALL BE AS MANUFACTURED BY SHEA CONCRETE PRODUCTS OR APPROVED EQUIVALENT.



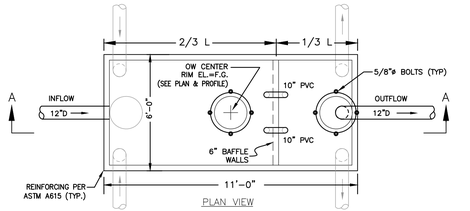
TYPICAL ROOF DRAIN JUNCTION CLEANOUT(CO) DETAIL

NOT TO SCALE

NOTES:
1. ALL MATERIALS AND CONSTRUCTION OF PLASTIC DRAIN MANHOLE SHALL CONFORM TO THE STANDARDS, REQUIREMENTS AND SPECIFICATIONS ESTABLISHED BY ADVANCED DRAINAGE SYSTEMS (ADS) INC.-NYLOPLAST, ASTM, AND AASHTO.
2. FINAL MATERIAL SELECTION SHALL BE REVIEWED BY THE DESIGN ENGINEER, TOWN REPRESENTATIVE, AND PROJECT OWNER.
3. CERTIFED MANUFACTURERS REFERENCE/CONTACT : WWW.ADS-PIPE.COM



SECTION A-A

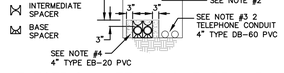


PLAN VIEW

TYPICAL OIL/WATER & SEDIMENT SEPARATOR DETAIL

NOT TO SCALE

NOTES:
1. USE 2,000 GAL. COMMERCIAL H-20 TWO COMPARTMENT TANK AS MANUFACTURED BY SHEA CONCRETE PRODUCTS OR APPROVED EQUAL.



ELECTRIC & TELEPHONE PRIMARY SERVICE DETAIL

NOT TO SCALE

NOTES:

(1) BACKFILL TO BE FREE OF STONES GREATER THAN ONE INCH AND SHALL NOT CONTAIN ASHES, CINDERS, SHELL, OR FROZEN MATERIAL.

(2) WITH THE EXCEPTION OF NATURAL GAS SERVICES, ALL UTILITY TRENCHES WITHIN THE RIGHT OF WAY SHALL BE BACKFILLED WITH CONTROL DENSITY FILL (CDF) EXCAVATABLE TYPE I-E, PER CITY OF NEWTON CONSTRUCTION STANDARDS.

(3) WARNING TAPE TO BE PLACED 12" BELOW FINISH GRADE AND DIRECTLY ABOVE POWER CONDUIT.

(4) MINIMUM SEPARATION BETWEEN ELECTRICAL CONDUIT AND FOREIGN CONDUIT OR PIPES IS AS FOLLOWS:

COMMUNICATION – 3" OF CONCRETE ENCASEMENT

WATER, GAS, SEWER – 12" WHERE THE PATH OF THESE UTILITIES INTERSECT AT APPROXIMATELY RIGHT ANGLES WITH ELECTRICAL CONDUIT.

24" SEPARATION SHALL BE MAINTAINED BETWEEN PARALLEL PLACEMENT OF THESE UTILITIES AND ELECTRICAL CONDUIT.

(5) CONCRETE THICKNESS AROUND THE OUTSIDE DUCTS SHALL BE 3 TO 6 INCHES. CONCRETE SHALL BE IN ACCORDANCE WITH STANDARD 0211.

C1.6b

180 WELLS AVENUE
Newton, MA

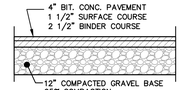
SITE DESIGN ENGINEERING, LLC.

SITE CONSTRUCTION DETAILS

DECEMBER 9, 2019

INTRUM
REAL ESTATE MANAGEMENT AND DEVELOPMENT

ELKUS | MANFREDI ARCHITECTS



TYPICAL BITUMINOUS CONCRETE PAVEMENT

NOT TO SCALE

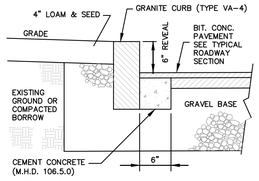
TYPICAL ROADWAY CONSTRUCTION MATERIAL NOTES

1. BITUMINOUS CONCRETE SHALL CONFORM TO MASSACHUSETTS HIGHWAY DEPARTMENT SPECIFICATION M3.11.00.
2. GRAVEL BORROW TYPE C SHALL CONFORM TO MASSACHUSETTS HIGHWAY DEPARTMENT SPECIFICATION M1.03.00 AS LISTED BELOW:

   GRAVEL BORROW SHALL CONSIST OF INERT MATERIAL THAT IS HARD, DURABLE STONE AND COARSE SAND, FREE FROM LOAM AND CLAY, SURFACE COATINGS AND DELETERIOUS MATERIALS. GRADATION REQUIREMENTS FOR GRAVEL SHALL BE DETERMINED BY AASHTO–T11 AND T27 AND SHALL CONFORM TO THE FOLLOWING:

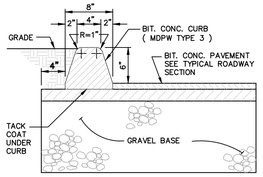
SIEVE DESIGNATION	PERCENT PASSING
1/2 IN	50–85
NO. 4	40–75
NO. 50	8–28
NO. 200	0–10

MAXIMUM SIZE OF STONE IN GRAVEL SHALL BE 2 INCHES LARGEST DIMENSION



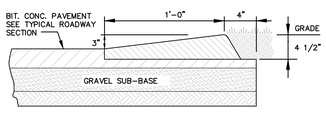
VERTICAL GRANITE CURB DETAIL

NOT TO SCALE



CURB DETAIL – MDPW TYPE 3

NOT TO SCALE



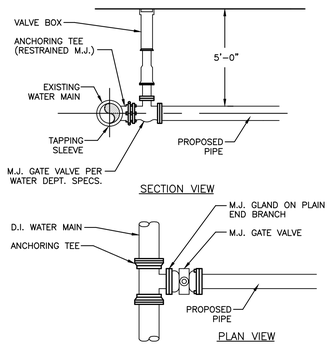
SEE TYP. CROSS SECTION NOTES FOR MATERIAL SPECIFICATION REFERENCES

BITUMINOUS CONCRETE BERM DETAIL

NOT TO SCALE

WATER CONNECTION CONSTRUCTION NOTES

1. THE WATER SUPPLY SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE CITY OF NEWTON WATER DEPARTMENT. CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH APPLICABLE PERMITS (TO BE OBTAINED BY THE CONTRACTOR). UNLESS OTHERWISE DIRECTED, ALL WATER PIPES SHALL BE INSTALLED 5'–0" BELOW GRADE. APPROPRIATE THRUST BLOCKING SHALL BE INSTALLED.
2. THE CONTRACTOR SHALL MAINTAIN CLEARANCE BETWEEN THE NEW WATER MAIN AND OTHER EXISTING UTILITIES OF AT LEAST (12) TWELVE INCHES OR AS DETERMINED BY THE CITY'S WATER DEPARTMENT IN THE FIELD.
3. ALL CONSTRUCTION METHODS AND MATERIALS, AS WELL AS ALL MATERIAL SHOP DRAWINGS AND MANUFACTURERS DATA SHALL RECEIVE THE WRITTEN APPROVAL OF THE CITY OF NEWTON WATER DEPARTMENT AND THE PROJECT ENGINEER PRIOR TO FABRICATION AND INSTALLATION.
4. ALL COMPLETED SECTIONS OF THE PROPOSED SYSTEM SHALL BE PRESSURE TESTED AND DISINFECTED IN ACCORDANCE WITH THE CITY OF NEWTON WATER DEPARTMENT SPECIFICATIONS. ANY PORTION OF THE WORK NOT MEETING THE REQUIRED TESTING STANDARDS SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE.
5. FIRE FLOW TESTING IS REQUIRED FOR THE PROPOSED FIRE SUPPRESSION SYSTEM. TEST MUST BE COORDINATED WITH THE CITY OF NEWTON FIRE DEPARTMENT AND UTILITIES DIVISION. REPRESENTATIVES OF EACH DEPARTMENT SHALL WITNESS AND TEST RESULTS AND A WRITTEN REPORT SHALL BE SUBMITTED. HYDRAULIC CALCULATION SHALL BE PROVIDED TO THE CITY'S FIRE DEPARTMENT FOR APPROVAL.
6. ALL WATER CONNECTIONS SHALL BE CHLORINATED AND PRESSURE TESTED IN ACCORDANCE TO AWWA AND THE CITY OF NEWTON CONSTRUCTION STANDARDS AND SPECIFICATIONS PRIOR TO OPENING THE CONNECTION TO EXISTING PIPES.
7. APPROVAL OF THE FINAL CONFIGURATION OF THE WATER SERVICES SHALL BE DETERMINED BY THE UTILITIES DIVISION AND AN ENGINEER PREPARED FINAL PLAN APPROVED BY THE DIRECTOR OF UTILITIES.
8. THE CITY'S WATER SUPERINTENDENT AND THE PROJECT ENGINEER SHALL APPROVE ALL FIELD CHANGES IN THE WORK PRIOR TO IMPLEMENTATION. NO FIELD CHANGES SHALL BE MADE IN ANY SPECIFIED SITE WORK OR ANY MATERIALS FOR WHICH SHOP DRAWINGS HAVE BEEN SUBMITTED AND APPROVED WITHOUT PRIOR CONSULTATION OF THE WATER SUPERINTENDENT AND THE PROJECT ENGINEER. ANY CHANGES SO MADE WITHOUT THE CONSENT OF THE WATER SUPERINTENDENT AND THE PROJECT ENGINEER SHALL, IF DEEMED UNACCEPTABLE BY EITHER PARTY, BE PROMPTLY REMOVED FROM THE WORK AT NO EXPENSE TO THE OWNER OF THE PROJECT.
9. THE CONTRACTOR SHALL INTERRUPT WATER SERVICE AND DISRUPT THE NORMAL FUNCTIONING OF THE DISTRIBUTION SYSTEM AS LITTLE AS POSSIBLE. THE CONTRACTOR SHALL NOTIFY THE CITY'S WATER DEPARTMENT 72 HOURS IN ADVANCE OF ANY REQUIREMENT FOR UNWATERING OF ISOLATING A SECTION OF THE MAIN.
10. IN THE EVENT THAT NORMAL WATER SERVICE WILL BE INTERRUPTED FOR AN EXTENDED PERIOD, THE CONTRACTOR SHALL PROVIDE TEMPORARY SERVICE LINES.
11. THE CONTRACTOR SHALL NOT OPERATE WATER DISTRIBUTION SYSTEM VALVES WITHOUT THE SUPERVISION OF THE WATER DEPARTMENT. IF SUCH SUPERVISION IS PROVIDED BY THE OWNER, AT TIMES OTHER THAN DURING REGULAR WORKING HOURS OF THE WATER DEPARTMENT, THE CONTRACTOR SHALL REIMBURSE THE WATER DEPARTMENT FOR ALL SALARY EXPENSES INCURRED BY THE WATER DEPARTMENT IN PROVIDING SUCH SUPERVISION.

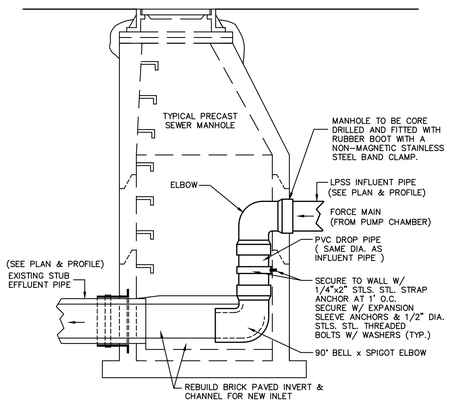


WATER SERVICE CONNECTION

NOT TO SCALE

SEWER CONNECTION CONSTRUCTION NOTES

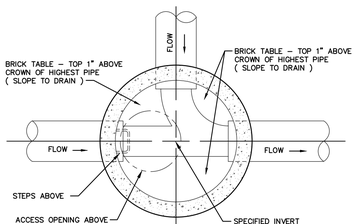
1. THE SEWER SERVICE SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE CITY OF NEWTON SEWER DEPARTMENT. CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH APPLICABLE PERMITS (TO BE OBTAINED BY THE CONTRACTOR). UNLESS OTHERWISE DIRECTED, ALL SEWER PIPES SHALL BE INSTALLED 3'–0" BELOW GRADE.
2. THE CONTRACTOR SHALL MAINTAIN CLEARANCE BETWEEN THE NEW SEWER LINE AND OTHER EXISTING UTILITIES OF AT LEAST (12) TWELVE INCHES OR AS DETERMINED BY THE CITY'S SEWER DEPARTMENT IN THE FIELD.
3. ALL CONSTRUCTION METHODS AND MATERIALS, AS WELL AS ALL MATERIAL SHOP DRAWINGS AND MANUFACTURERS DATA SHALL RECEIVE THE WRITTEN APPROVAL OF THE CITY OF NEWTON SEWER DEPARTMENT AND THE PROJECT ENGINEER PRIOR TO FABRICATION AND INSTALLATION.
4. ALL COMPLETED SECTIONS OF THE PROPOSED SYSTEM SHALL BE TESTED IN ACCORDANCE WITH THE CITY OF NEWTON SEWER DEPARTMENT SPECIFICATIONS. ANY PORTION OF THE WORK NOT MEETING THE REQUIRED TESTING STANDARDS SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE. TEST MUST BE COORDINATED WITH THE CITY OF NEWTON UTILITIES DIVISION.
5. APPROVAL OF THE FINAL CONFIGURATION OF THE SEWER SERVICES SHALL BE DETERMINED BY THE UTILITIES DIVISION AND AN ENGINEER PREPARED FINAL PLAN APPROVED BY THE DIRECTOR OF UTILITIES.
6. THE CITY'S SEWER SUPERINTENDENT AND THE PROJECT ENGINEER SHALL APPROVE ALL FIELD CHANGES IN THE WORK PRIOR TO IMPLEMENTATION. NO FIELD CHANGES SHALL BE MADE IN ANY SPECIFIED SITE WORK OR ANY MATERIALS FOR WHICH SHOP DRAWINGS HAVE BEEN SUBMITTED AND APPROVED WITHOUT PRIOR CONSULTATION OF THE WATER SUPERINTENDENT AND THE PROJECT ENGINEER. ANY CHANGES SO MADE WITHOUT THE CONSENT OF THE SEWER SUPERINTENDENT OF THE PROJECT ENGINEER SHALL, IF DEEMED UNACCEPTABLE BY EITHER PARTY, BE PROMPTLY REMOVED FROM THE WORK AT NO EXPENSE TO THE OWNER OF THE PROJECT.
7. THE CONTRACTOR SHALL INTERRUPT SEWER SERVICE AND DISRUPT THE NORMAL FUNCTIONING OF THE DISTRIBUTION SYSTEM AS LITTLE AS POSSIBLE. THE CONTRACTOR SHALL NOTIFY THE CITY'S SEWER DEPARTMENT 72 HOURS IN ADVANCE OF ANY REQUIREMENT FOR UNWATERING OF ISOLATING A SECTION OF THE MAIN.
8. IN THE EVENT THAT NORMAL SEWER SERVICE WILL BE INTERRUPTED FOR AN EXTENDED PERIOD, THE CONTRACTOR SHALL PROVIDE TEMPORARY SERVICE LINES.
9. ALL NEW SEWER SERVICE AND/OR STRUCTURES SHALL BE PRESSURE TESTED OR VIDEOTAPED AFTER FINAL INSTALLATION IS COMPLETE. METHOD OF FINAL INSPECTION SHALL BE DETERMINED SOLELY BY THE CONSTRUCTION INSPECTOR FROM THE CITY ENGINEERING DIVISION. ALL SEWER MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE TO THE CITY'S CONSTRUCTION STANDARDS & SPECIFICATIONS. THE SEWER SERVICE WILL NOT BE ACCEPTED UNTIL ONE OF THE TWO METHODS STATED ABOVE IS COMPLETED. ALL TESTING MUST BE WITNESSED BY A REPRESENTATIVE OF THE ENGINEERING DIVISION. A CERTIFICATE OF OCCUPANCY WILL NOT BE RECOMMENDED UNTIL THIS TEST IS COMPLETED AND A WRITTEN REPORT IS RECEIVED BY THE CITY ENGINEER.
10. ALL SEWER MANHOLES SHALL BE VACUUM TESTED IN ACCORDANCE TO THE CITY'S CONSTRUCTION STANDARDS & SPECIFICATIONS. THE SEWER SERVICE WILL NOT BE ACCEPTED UNTIL ONE OF THE TWO METHODS STATED ABOVE IS COMPLETED. ALL TESTING MUST BE WITNESSED BY A REPRESENTATIVE OF THE ENGINEERING DIVISION. A CERTIFICATE OF OCCUPANCY WILL NOT BE RECOMMENDED UNTIL THIS TEST IS COMPLETED AND A WRITTEN REPORT IS RECEIVED BY THE CITY ENGINEER.



SEWER MANHOLE – INSIDE DROP INLET DETAIL

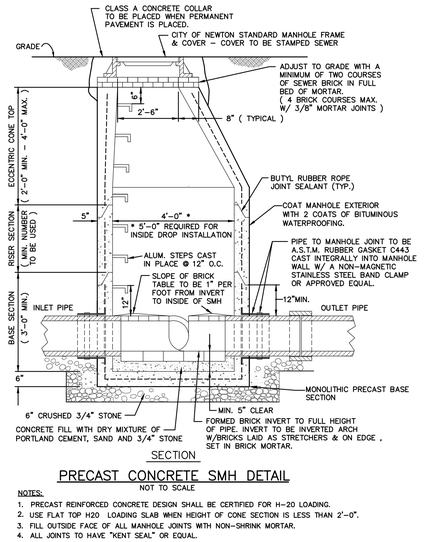
NOT TO SCALE

NOTE: PRECAST CONCRETE SEWER MH CONSTRUCTION IN ACCORDANCE TO CITY OF NEWTON CONSTRUCTION STANDARDS & SPECIFICATIONS.



PLAN

NOTE: 1. ALL JOINTS TO HAVE " KENT SEAL " OR EQUAL.
2. PRECAST REINFORCED CONCRETE MANHOLE BARRELS TO BE PER ASTM A185 W/ 4000 PSI TYPE II CEMENT. DESIGN LOADING PER AASHTO HS20–44.

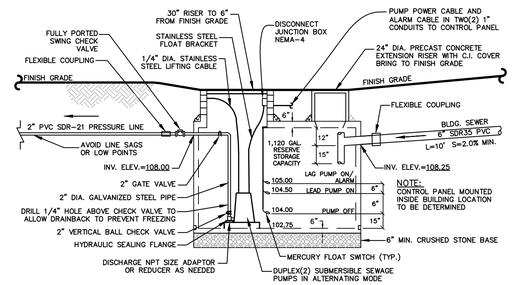


SECTION

PRECAST CONCRETE SMH DETAIL

NOT TO SCALE

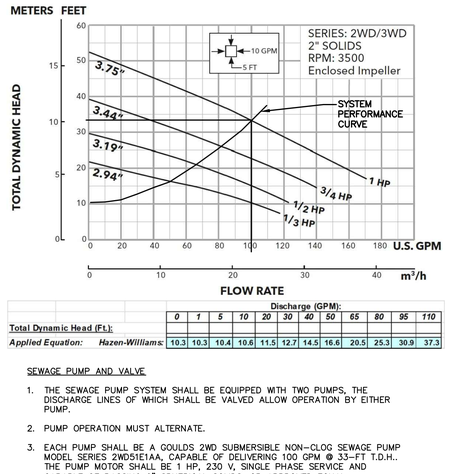
NOTES:
1. PRECAST REINFORCED CONCRETE DESIGN SHALL BE CERTIFIED FOR H–20 LOADING.
2. USE FLAT TOP H20 LOADING SLAB WHEN HEIGHT OF CONE SECTION IS LESS THAN 2'–0".
3. FILL OUTSIDE FACE OF ALL MANHOLE JOINTS WITH NON–SHRINK MORTAR.
4. ALL JOINTS TO HAVE "KENT SEAL" OR EQUAL.



1,500 GALLON PRECAST CONCRETE WATERTIGHT PUMP CHAMBER

NOT TO SCALE

NOTES:
1. CONCRETE IS 4,000 PSI MINIMUM AFTER 28 DAYS.
2. H20 LOADING REINFORCED PRECAST CONCRETE.
3. ALL CONSTRUCTION JOINTS SEALED WITH BUTYL RESIN OR NEOPRENE SEAL.
4. ALL COMPONENTS & INSTALLATION SUBJECT TO THE APPROVAL OF THE CITY OF NEWTON.



	Discharge (GPM):										
	0	1	5	10	20	30	40	50	65	80	95	110
Total Dynamic Head (Ft.):											
Applied Equation: Hazen–Williams:	10.3	10.3	10.4	10.6	11.5	12.7	14.5	16.6	20.5	25.3	30.9	37.3

SEWAGE PUMP AND VALVE

1. THE SEWAGE PUMP SYSTEM SHALL BE EQUIPPED WITH TWO PUMPS, THE DISCHARGE LINES OF WHICH SHALL BE VALVED ALLOW OPERATION BY EITHER PUMP.
2. PUMP OPERATION MUST ALTERNATE.
3. EACH PUMP SHALL BE A GOULDS 2WD SUBMERSIBLE NON–CLOG SEWAGE PUMP MODEL SERIES 2WD51E1AA, CAPABLE OF DELIVERING 100 GPM @ 33–FT T.D.H.. THE PUMP MOTOR SHALL BE 1 HP, 230 V, SINGLE PHASE SERVICE AND CAPABLE OF PASSING 2" SPHERICAL SOLIDS, OR APPROVED EQUAL.
4. THE PUMP MANUFACTURER SHALL SUPPLY EACH PUMP WITH GUIDE RAILS, BALL VALVES, FLOAT SWITCHES, LIFTING CHAINS, AND ALL NECESSARY MOUNTING HARDWARE FOR COMPLETE INSTALLATION INSIDE THE WET WELL. INSTALLATION OF THE PUMP AND CONTROL WIRING SHALL BE IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS AND RECOMMENDATIONS.

PUMP CONTROL PANEL

1. SIMPLEX CONTROL PANEL SHALL BE PANEL QC–II WITH STANDARD OPTIONS MOUNTED IN NEMA 1R ENCLOSURE WITH THE FOLLOWING OPTIONAL COMPONENTS:
   A.) PUMP RUN INDICATOR AND RUNNING TIME METER FOR THE PUMP.
   B.) PANEL MOUNTED ALARM LIGHT.
   C.) ALARM TEST SWITCH (TEST – OFF – AUTO).
2. ALL CONTROL PANEL EQUIPMENT AND OPTIONS SHALL BE APPROVED BY THE ENGINEER PRIOR TO FABRICATION AND SHIPMENT.
3. ALARM CIRCUIT SHALL BE INDEPENDENT OF THE PUMP POWER CIRCUIT AND SHALL BE ACTIVATED BY HIGH WATER LEVEL IN WET WELL

C1.6c

180 WELLS AVENUE
Newton, MA

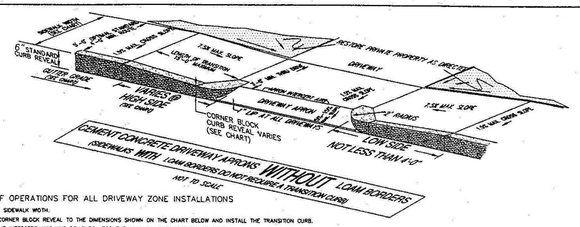
SITE DESIGN ENGINEERING, LLC.

SITE CONSTRUCTION DETAILS

DECEMBER 9, 2019

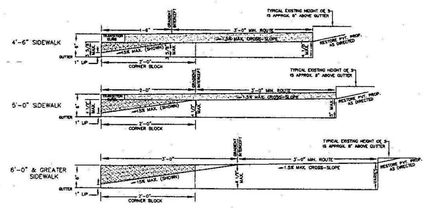
INTRUM
REAL ESTATE MANAGEMENT AND DEVELOPMENT

ELKUS | MANFREDI ARCHITECTS



ORDER OF OPERATIONS FOR ALL DRIVEWAY ZONE INSTALLATIONS

1. DETERMINE SIDEWALK WIDTH.
2. SET THE CORNER BLOCK REVEAL TO THE DIMENSIONS SHOWN ON THE CHART BELOW AND INSTALL THE TRANSITION CURB.
3. LOCATE THE INTERCEPT AXIS AND RE-CHECK FOR THE MINIMUM ACCESSIBLE ROUTE WIDTH.
4. SET THE 1.5% GRADIENT TO THE BACK OF THE WALK WITH A 2' SMART LEVEL® AND RIGID STRAIGHTEDGE.
5. FINE GRADE THE APRON AREA WHILE MAINTAINING THE INTERCEPT AXIS AND BACK OF SIDEWALK GRADE POINTS.
6. CHECK THE FORMS. HOWEVER, THE CONTRACTOR MUST USE A 2' SMART LEVEL® DURING OPERATIONS TO ENSURE THAT THE FINAL LINE AND GRADE COMPLIES WITH THE NOTED DIMENSIONS AND/OR GRADIENTS.
7. DURING THE FINISHING OPERATIONS OF THE CEMENT CONCRETE, THE CONTRACTOR IS TO CHECK THE FINAL PRODUCT(S) TO ENSURE CONTINUED COMPLIANCE WITH THE NOTED STANDARDS.



SECTION VIEW FOR THE VARIOUS WIDTHS OF DRIVEWAY
NOT TO SCALE

DRIVEWAY TRANSITIONS TO INTERCEPT 6" STD. CURB REVEAL (TARGET VALUES ONLY) ①

WALK WIDTH	CORNER BLOCK REVEAL	DISTANCE TO APRON INTERCEPT	RISE TO APRON INTERCEPT	GUTTER GRADE ②	HIGH SIDE LENGTH OF TRANSITION CURB INCLUDING THE 2' RADIUS CURB BLOCK ③④
4'-6"	3 5/8" MAX.	1'-6" FIXED	3 5/8" MAX.	UP TO 5	4'-0"
				6	4'-0"
				7	4'-0"
				8	6'-0"
				9	13'-6"
				7 & GREATER	15'-0" MAX.
5'-0"	4 1/2" MAX.	2'-0" FIXED	4 1/2" MAX.	0-5	4'-0"
				6	4'-0"
				7	4'-0"
				8	4'-0"
				9	5'-0"
				7 & GREATER	8'-5"
6'-0" & GREATER	6" STANDARD	3'-0" FIXED	6 1/2" MAX.	ALL GRADES	15'-0" MAX
					NO TRANSITIONS

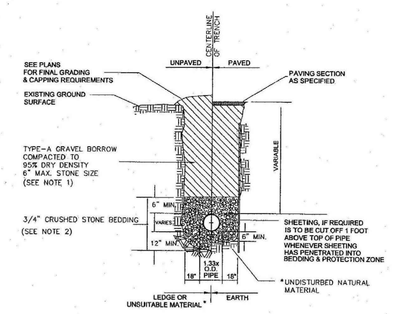
① FINAL PRODUCT(S) MUST NOT EXCEED THE 7.5% GRADIENT OR 1.5% CROSS SLOPE STANDARDS.
② WHEN THE FACTOR FALLS BETWEEN THE LISTED RANGE, USE THE LESSER GRADIENT FACTOR.
③ THE MAXIMUM REQUIRED TRANSITION LENGTH OF CURB IS 15'-0"
④ SIDEWALKS WITH LOAM BORDERS DO NOT REQUIRE TRANSITION CURBS.

DRIVEWAY APRONS

IMPORTANT NOTE (APPLICABLE TO ALL CURB & DRIVEWAYS)

ALL DIMENSIONAL INFORMATION IS FOR GUIDELINES PURPOSES ONLY. THE FINAL PRODUCTS ROUTE CRITERIA PER THE RULES & REGULATIONS OF THE MASSACHUSETTS ARCHITECTURAL ACCESS BOARD AND THE AMERICANS WITH DISABILITIES ACT.

5 HANDICAP ACCESS ROUTE DRIVEWAY APRON CRITERIA (3/3)

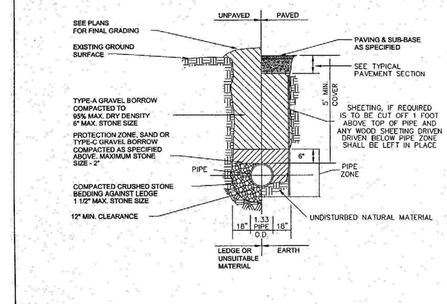


* SUITABILITY OF MATERIAL IS TO BE DETERMINED BY THE CITY OF NEWTON.

1. GRAVEL BORROW SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M1.03.0
2. CRUSHED STONE BEDDING SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M2.01.1

GRAVITY SEWER TRENCH DETAIL

17

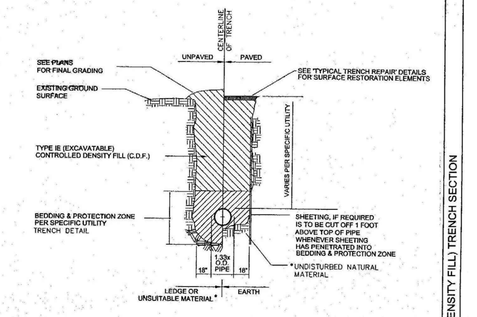


* SUITABILITY OF MATERIAL IS TO BE DETERMINED BY THE CITY OF NEWTON.

1. GRAVEL BORROW SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M1.03.0
2. CRUSHED STONE BEDDING SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M2.01.1

TYPICAL WATER TRENCH DETAIL

18



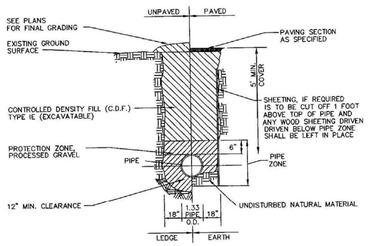
* SUITABILITY OF MATERIAL IS TO BE DETERMINED BY THE CITY OF NEWTON.

TYPICAL C.D.F. (CONTROLLED DENSITY FILL) TRENCH SECTION

19

CITY OF NEWTON

OCTOBER 20, 2000

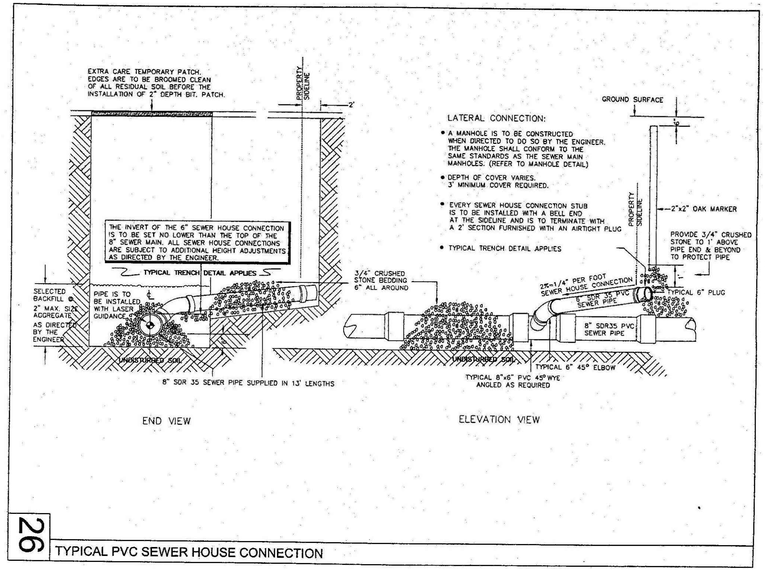


TYPICAL C.D.F. WATER TRENCH DETAIL

NOT TO SCALE

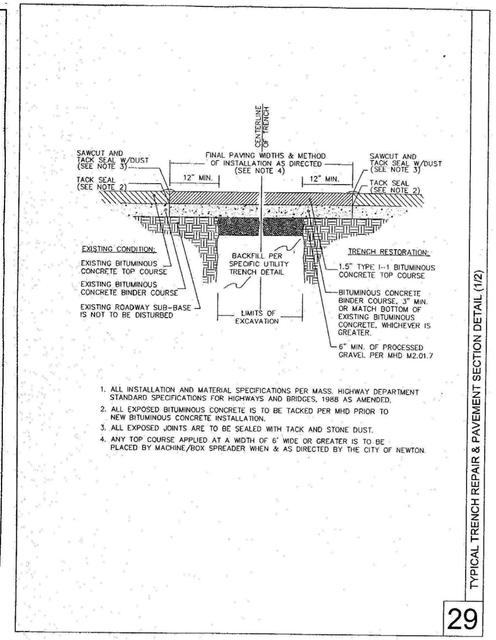
PROCESSED GRAVEL SHALL CONFORM TO MASS HIGHWAY SPECIFICATION M2.01.7

NWTRCDF



TYPICAL PVC SEWER HOUSE CONNECTION

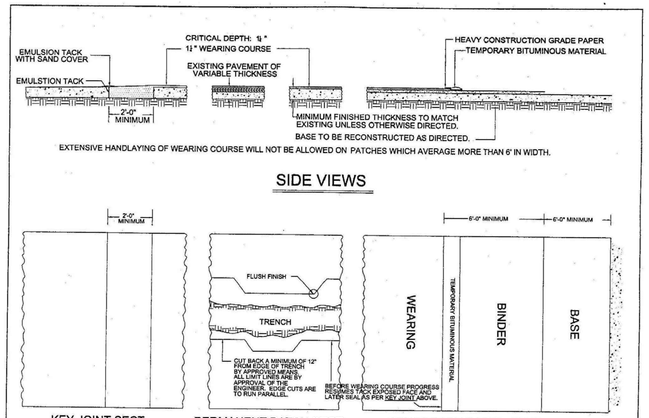
26



1. ALL INSTALLATION AND MATERIAL SPECIFICATIONS PER MASS. HIGHWAY DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, 1988 AS AMENDED.
2. ALL EXPOSED BITUMINOUS CONCRETE IS TO BE TACKED PER MHD PRIOR TO NEW BITUMINOUS CONCRETE INSTALLATION.
3. ALL EXPOSED JOINTS ARE TO BE SEALED WITH TACK AND STONE DUST.
4. ANY TOP COURSE APPLIED AT A WIDTH OF 6' WIDE OR GREATER IS TO BE PLACED BY MACHINE/BOX SPREADER WHEN & AS DIRECTED BY THE CITY OF NEWTON.

TYPICAL TRENCH REPAIR & PAVEMENT SECTION DETAIL (1/2)

29



TYPICAL TRENCH REPAIR & PAVEMENT SECTION DETAIL (2/2)

30

DANIEL C. MULLOY CIVIL No. 41757 REGISTERED PROFESSIONAL ENGINEER COMMONWEALTH OF MASSACHUSETTS

C1.6d

180 WELLS AVENUE
Newton, MA

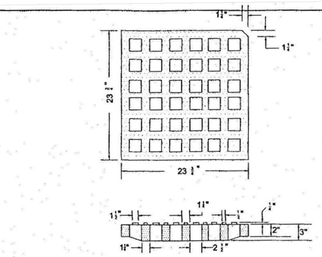
SITE DESIGN ENGINEERING, LLC.

SITE CONSTRUCTION DETAILS

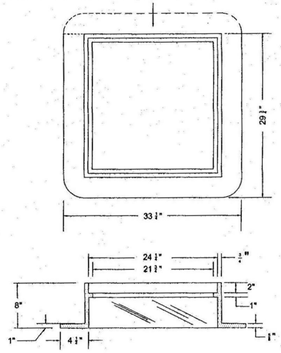
DECEMBER 9, 2019

INTRUM
REAL ESTATE MANAGEMENT AND DEVELOPMENT

ELKUS | MANFREDI ARCHITECTS



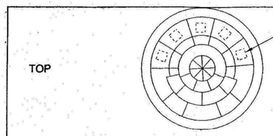
AUXILIARY FLANGE WHEN NO CURB IS PRESENT

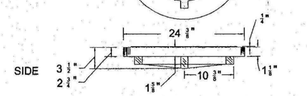


NOTE: MINIMUM WEIGHT OF GRATE AND FRAME - 480 lbs.

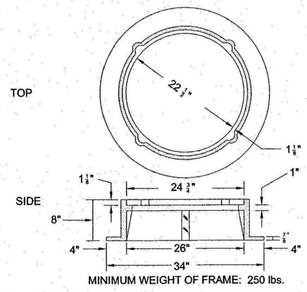
SINGLE CATCHBASIN GRATE AND FRAME

31





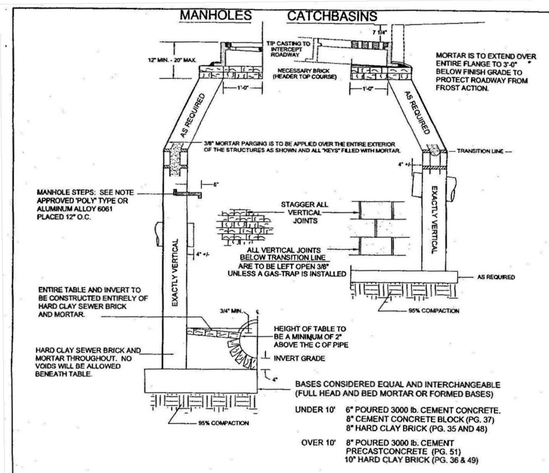
CASTINGS ARE TO BE BY LEBARON FOUNDRY MECHANICS FOUNDRY OR APPROVED EQUAL



MINIMUM WEIGHT OF FRAME: 250 lbs.

MANHOLE FRAMES AND COVERS

33



MORTAR: ALL MORTAR TO BE ONE PART CEMENT TO TWO PARTS CLEAN WASHED SAND BY VOLUME.

BLOCK: ALL BLOCK IS TO BE SOLID PRECAST CEMENT CONCRETE.

BRICK: ALL BRICK IS TO BE COILED HARD CLAY TYPE M SEWER BRICK.

MANHOLE STEPS:
ALL MANHOLE STEPS TO BE PLACED WITHIN THE STRUCTURE VERTICALLY ABOVE ONE ANOTHER AND PLACED SO AS NOT TO BE INTERFERED WITH BY MANHOLE STRUCTURAL COMPONENTS OR INFLUENTS. STEPS TO EXTEND INTO CONE SECTION.

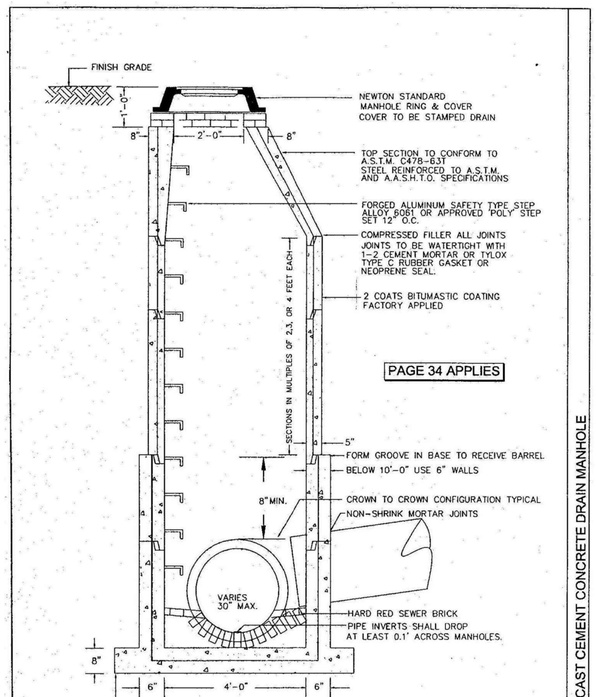
COMPACTION AROUND FRAMES:
AFTER THE FRAME HAS BEEN SET BOTH THE BACKFILL MATERIAL AND THE SUBSEQUENT BITUMINOUS BINDER ARE TO BE INDEPENDENTLY COMPACTED WITH AN APPROVED PNEUMATIC "HAMMER" AND TAMPING BIT.

ALL STRUCTURES ARE TO BE BUILT AS SHOWN UNLESS A MODIFICATION IS NECESSARY TO MEET EXISTING FIELD CONDITIONS. NO ADJUSTMENT IN THE BID PRICE WILL BE MADE.

FOR INFORMATION REGARDING SPECIFIC TYPES OF STRUCTURES, REFER TO DRAWING FOUND ELSEWHERE IN THESE DETAILS.

MANDATORY REQUIREMENTS MANHOLE AND CATCHBASIN

34



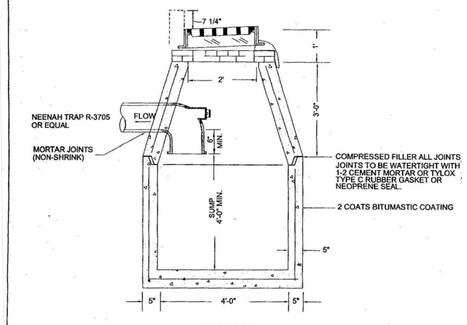
8" AUXILIARY FLANGE INTREGALLY CAST (IF DEPTH EXCEEDS 9')

OPENINGS ARE TO BE MANUFACTURED INTO THE STRUCTURE

H20 LOADING

PRECAST CEMENT CONCRETE DRAIN MANHOLE

38



H20 LOADING

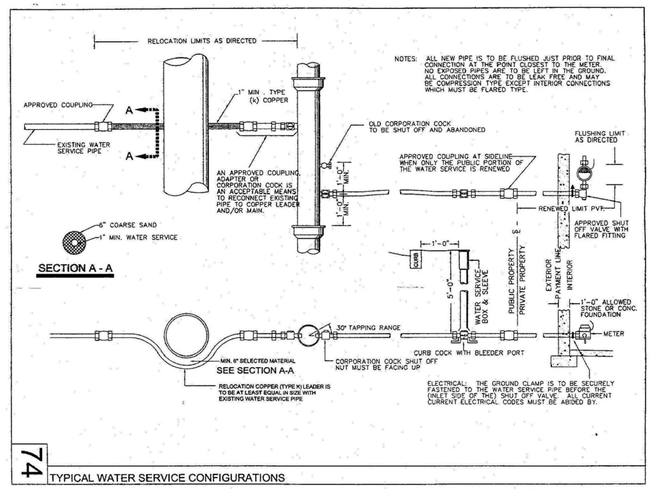
4000 PSI @ 28 DAY DENSITY 150 PCF
PORTLAND CEMENT TYPE I OR III PER ASTM C150-81
REINFORCING PER ASTM A615 FOR WIRE FABRIC

WHERE GAS-TRAP CATCHBASINS ARE SPECIFIED THE GAS TRAP IS TO BE INCLUDED IN THE BID PRICE OF THE STRUCTURE.

PAGE 34 APPLIES

TYPICAL PRECAST CONCRETE CATCH BASIN (GAS TRAP TYPE SHOWN)

41



TYPICAL WATER SERVICE CONFIGURATIONS

74

C1.6e

180 WELLS AVENUE
Newton, MA

SITE DESIGN ENGINEERING, LLC.

SITE CONSTRUCTION DETAILS

DECEMBER 9, 2019

INTRUM
REAL ESTATE MANAGEMENT AND DEVELOPMENT

ELKUS | MANFREDI ARCHITECTS