Stantec

Memo

To:	Aaron Miklosko Town of Maynard, MA	From:	Victor A. Olson, P.E. Burlington, MA
File:	195110237	Date:	May 7, 2019

Reference: Maynard Point 42 Summer Street Proposed Buildings – Sewer System Evaluation

As requested, Stantec has completed sewer system evaluation with the review of the sewer connection of the proposed development at the Maynard Point building located at 42 Summer Street, in Maynard, Ma.

The proposed sewer service will connect to the existing 15 Inch vitrified clay sewer constructed in 1928. This sewer is in Main Street and runs from sewer manhole Q6 located at intersection of Main Street and Walnut Street towards sewer manhole Q5 located at intersection of Main Street and Nason Street. See attached sewer figure. This section of sewer is located immediately downstream of an inverted siphon under the Assabet River along Main Street. Upstream and downstream manholes of the siphon including sewer manhole Q6 has had frequent occurrences grease buildup requiring operations to clean out grease blockages.

The submitted plans include a new 8-inch PVC sewer connection and notes that a manhole is needed at the drop connection at street.

The purpose of this evaluation was to determine if the existing sewers have adequate capacity to accommodate the new flows and develop recommendations for provisions to protect the integrity of the existing sewer system to accept additional flows and to address and mitigate impacts of new construction.

Reference: **Maynard Point 42 Summer Street Proposed Buildings – Sewer System Evaluation**

SEWER CAPACITY

The sewage generated for the Maynard Point development were determined utilizing Title 5 wastewater design estimates of 110 gallons per day (gpd) per bedroom, of 110 gpd per bedroom, multiplied by 30 bedrooms (10 1-bedroom units and 10 2-bedroom units) amounts to 3,300 gpd. Title 5 flows are considered to be 200% of average day flows and a peaking factor of 3.2 times average flows for sizing civil sewer lines would be 5,280 gpd. The diameter of the proposed sewer service is not identified and should be called out on the site utility plan. The Town requires minimum of 6-inch diameter sewer service connection. Slope of pipe determines with pipe size diameter determines capacity of sewer. A plan and profile of the service connection from the building to the sewer in street needs to be provided to show slope of sewer and show proposed inverts at building and at connection to existing sewer is required.

Town of Maynard records attached were utilized to evaluate sewer capacity. The existing 8-inch vitrified clay pipe sewer segment the sewer service is proposed to connect between sanitary sewer manhole P6 and P5 has a slope of .03 feet per foot with a capacity of 1.35 million gallons per day. The existing 8-inch VC sewer has the capacity to receive the design flows provided no stormwater runoff or groundwater is allowed to enter the sewer.

COMMENTS AND RECOMMENDATIONS

1. Provide a plan and profile of sewer connection with invert information of proposed sewer service at building and at existing sewer. Provide additional detail on site plan showing full width of street, extent of intersection of Summer Street with Brooks Street and utilities to be crossed and connected to in the public way. The site drops off more than 8 feet from Summer Street to the rear of the property and applicant should consider the need for backflow prevention in the design of the sewer profile.

2. Provide details of proposed sewer connection to existing sewer. No tap connections to the 1929 vintage 8-inch vitrified clay sewer will be allowed. A new PVC wye is required to be installed to accept the new sewer service into the existing sewer located between manhole P6 to manhole P5. PVC C900 spool piece of pipe with mechanical watertight couplings at the joints connecting the new PVC to the existing VC pipe shall be utilized. No Fernco couplings allowed on existing 8” VC sewer main.

3. The existing 8-inch sewer conveys sewage flows that will need to be maintained and bypassed during construction to add a new sewer service wye connection. Provide details of sewer bypass of 8-inch sewer required to install new sewer manhole and renovate/replace section of sewer.

Reference: **Maynard Point 42 Summer Street Proposed Buildings – Sewer System Evaluation**

4. The proposed Drainage Plan shows and notes a PVC drain overflow from the drainage system to the sanitary sewer connection. A connection of stormwater to sanitary sewer is Not Allowed and plans should be revised for alternative means for drainage overflow to surface or to storm drainage system. The Town of Maynard has a program to remove existing sources of inflow and infiltration from its sanitary sewerage system and no new sources of inflow from drainage systems, sump pumps and foundation drains are permitted to be connected to the sanitary sewerage system. Provide new plan showing revisions.

5. Provide details of roadway and sidewalk restoration for roadway opening.

Please contact us if you have any questions regarding this memo.

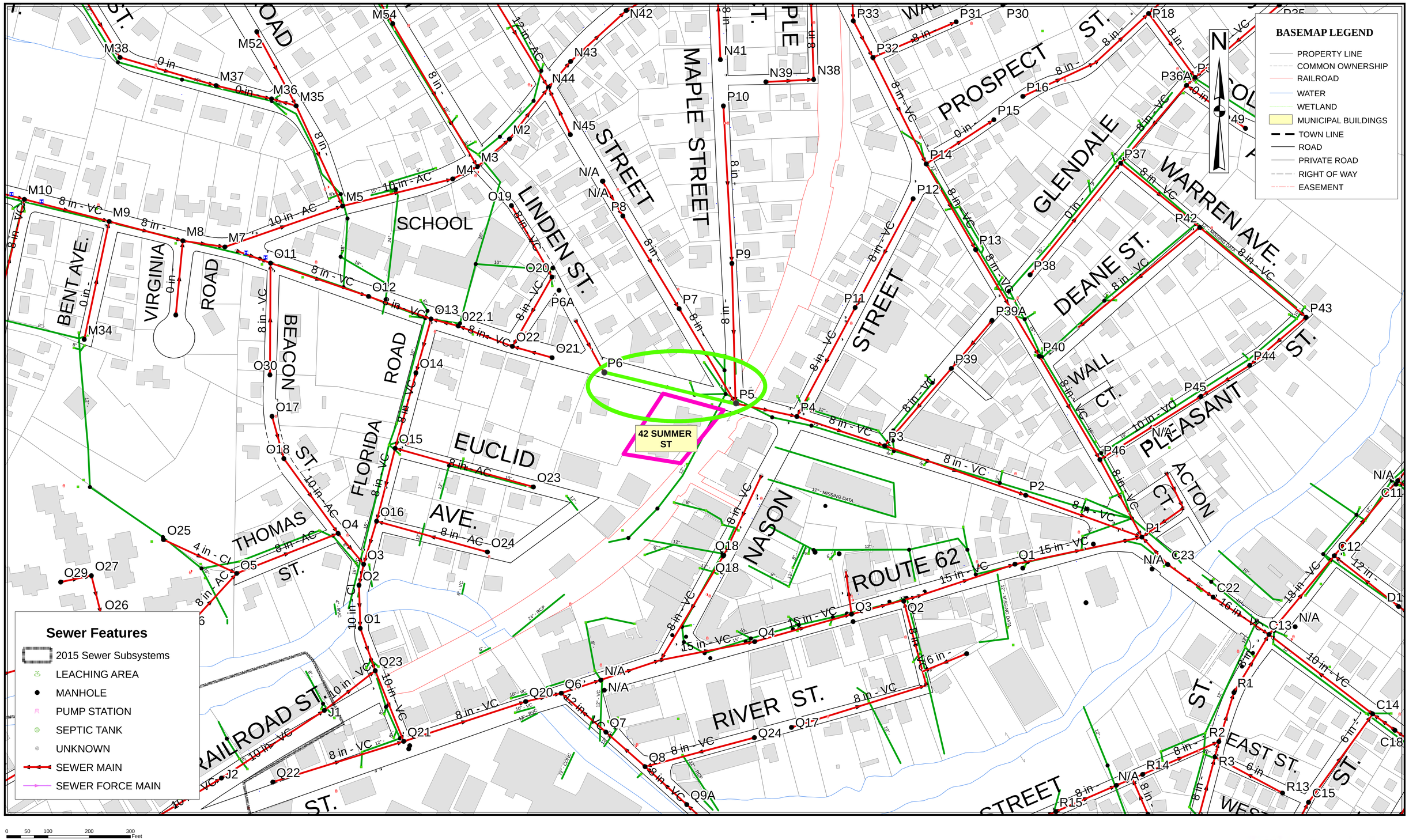
Respectfully Submitted,

Stantec Consulting Services

Victor A. Olson P.E.
Senior Project Manager

5 Burlington Woods Drive Suite 210
Burlington MA 01803-4542

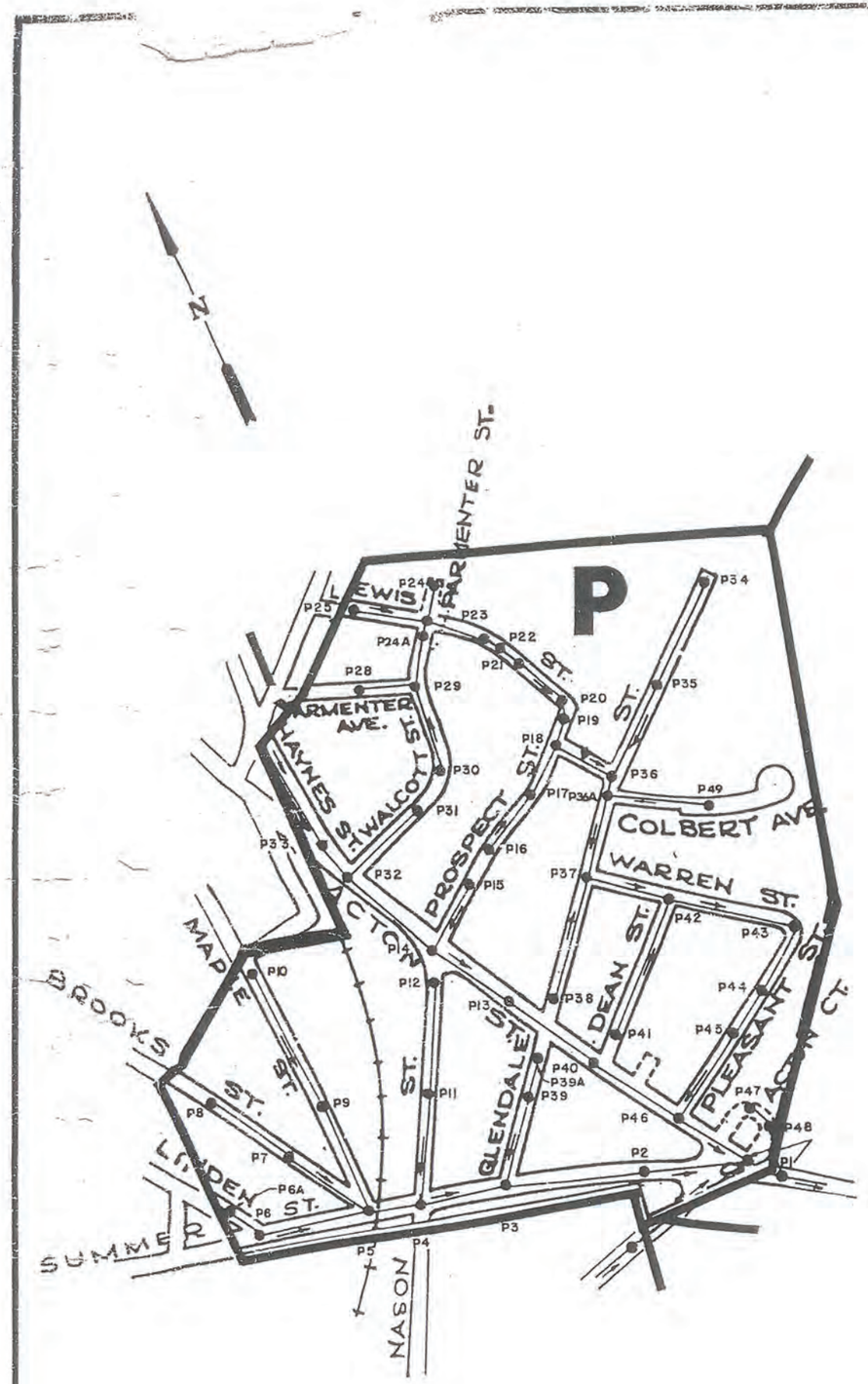
Phone: 978-577-1419
Victor.olson.@stantec.com



Stantec

Town of Maynard
Department of Public Works
42 Summer St - Sewer Repair

THIS MAP IS BASED ON THE TOWN OF MAYNARD PROPERTY MAPS
UPDATED IN 2001 BY CARTOGRAPHIC ASSOCIATES, INC.
IT IS INTENDED FOR REFERENCE AND PLANNING PURPOSES ONLY.
Document Path: M:\town_maps\Maynard\42 Summer St.mxd



M.H. NO.	RIM ELEV.	INVERT ELEV.	PIPE SIZE	SYSTEM AGE	REMARKS
P-1	157.60	150.00 (WEST)	8"V.C.	1928	S=0.0200 (IN)
		151.19 (NORTH)	10"V.C.	1928	S=0.0069 (IN)
		149.38 (OUT)	18"V.C.	1928	S=0.0008 (OUT)
P-2	163.30	156.00 (IN&OUT)	8"V.C.	1928	S=0.0150 (IN)
					S=0.0200 (OUT)
P3	169.70	161.59 (IN)	8"V.C.	1928	S=0.0285 (IN)
		161.50 (NORTH)	8"V.C.	1928	S=0.0050 (IN)
		161.43 (OUT)	8"V.C.	1928	S=0.0150 (OUT)
P-4	177.60	170.25 (IN)	8"	1929	S=0.0650 (IN)
		168.05 (NORTH)	8"V.C.	1928	S=0.0200 (IN)
		168.60 (OUT)	8"V.C.	1928	S=0.0280 (OUT)
P-5	187.90	180.19 (N.W.)	8"	1929	S=0.0650 (IN)
		180.35 (NORTH)	8"	1929	S=0.0530 (IN)
P-6	197.95	190.06 (IN&OUT)	8"	1929	S=0.0300 (OUT)
P-6A	197.19	191.25 (OUT)			
P-7	204.23	198.60 (IN)	8"	1929	S=0.0050 (IN)
P-8	209.33	202.58 (OUT)	8"	1929	S=0.0050 (OUT)
P-9	204.70	198.40 (IN&OUT)	8"	1929	S=0.0120 (IN)
					S=0.0530 (OUT)
P-10	209.32	202.99 (OUT)	8"	1929	S=0.0120 (OUT)
P-11	183.30	176.05 (IN)	8"V.C.	1928	S=0.0030 (IN)
		174.05 (OUT)			S=0.0020 (OUT)
P-12	192.60	185.50 (OUT)	8"V.C.	1928	S=0.0300 (OUT)
P-13	176.20	169.00 (IN&OUT)	8"V.C.	1928	S=0.0690 (IN)
					S=0.0267 (OUT)
P-14	192.80	186.46			
		185.89 (IN)	8"V.C.	1928	S=0.0208 (IN)
		185.46 (OUT)	8"V.C.	1928	S=0.0690 (OUT)
P-15	200.59	194.35 (OUT)			
P-16	196.70	190.38 (OUT)	8"	1950	S=0.0400 (OUT)
P-17	189.70	183.40 (IN&OUT)	8"	1950	S=0.0400 (IN)
					S=0.0720 (OUT)
P-18		169.00 (SOUTH)	8"	1950	S=0.0720 (IN)
		162.97			
		163.20 (NORTH)	8"		S=0.0060 (IN)
P-19	170.04	163.89 (IN&OUT)	8"		S=0.0091
P-20	168.85	164.18 (IN&OUT)	8"		S=0.0131 (IN)
					S=0.0091 (OUT)
P-21	171.66	166.29 (IN&OUT)	8"		S=0.1019 (IN)
					S=0.0131 (OUT)
P-22	182.95	177.80 (IN&OUT)	8"		S=0.0900 (IN)
					S=0.1019 (OUT)
P-23	198.70	193.20 (IN&OUT)	8"		S=0.0900 (OUT)
		190.42 (SOUTH)	8"A.C.	1961	S=0.0040 (IN)
					S=0.0446 (IN)
P-24	203.89	195.99 (OUT)			S=0.0279
P-25	207.22	201.55 (OUT)	8"		S=0.0446
P-27	202.61	196.71 (OUT)			
P-28		192.22 (OUT)	8"A.C.	1961	S=0.0600 (OUT)
P-29	193.10	184.12 (IN&OUT)	8"A.C.	1961	S=0.0070 (IN)
		181.12 (WEST)	8"A.C.	1961	S=0.0600 (IN)
					S=0.0040 (OUT)
P-30	194.70	183.19 (OUT)	8"A.C.	1961	S=0.0070 (OUT)

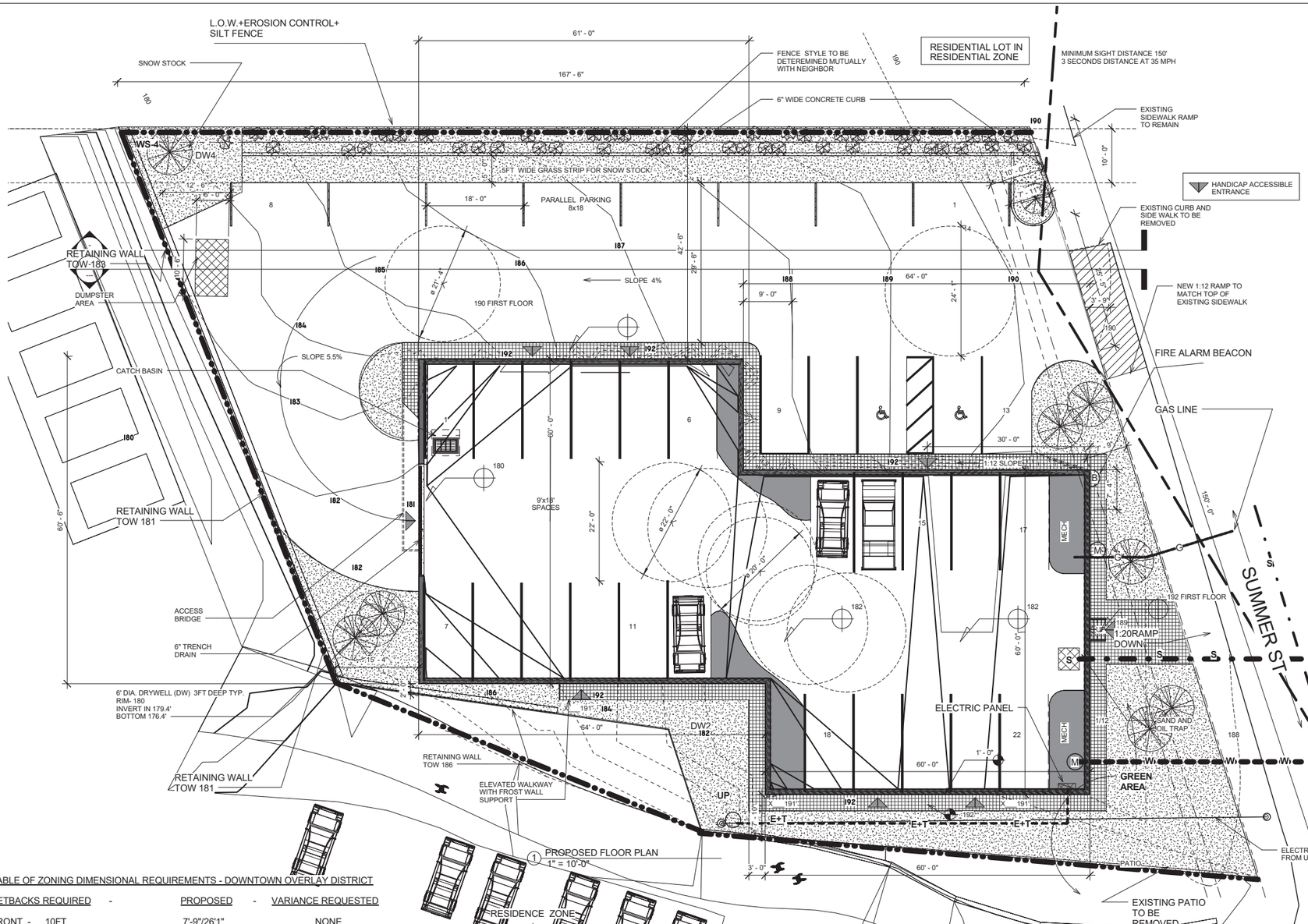
M.H. NO.	RIM ELEV.	INVERT ELEV.	PIPE SIZE	SYSTEM AGE	REI
P-31	201.87	195.88 (OUT)	8"	1929	S=0
P-32	200.08	192.48 (IN&OUT)	8"V.C.	1928	S=0.
					S=0.
		192.46 (EAST)	8"	1929	S=0.
P-33	200.60	193.40 (IN)	10"	1929	S=0.
		193.00 (OUT)	8"V.C.	1928	S=0
P-34	169.41	164.20 (OUT)	8"	1929	S=0.
P-35	170.23	163.10 (IN&OUT)	8"	1929	S=0
P-36	168.96	169.50			
		162.20			
		161.90 (IN&OUT)	8"	1929	S=0.
P-37	168.72	160.71 (OUT)	8"	1929	S=0.
		160.90 (IN)	8"	1929	S=0.
P-38	169.76	162.30 (OUT)	8"	1929	S=0
P-39	169.20	162.74 (IN&OUT)	8"V.C.	1928	S=0.
P-39A	169.90	163.50 (OUT)	8"V.C.	1928	S=0
P-40	167.40	160.95 (IN&OUT)	8"V.C.	1928	S=0
					S=0.
P-41	165.60	158.80 (OUT)	8"V.C.		S=0
P-42	164.45	156.48 (S.W.)	8"V.C.		S=0
		156.48 (IN&OUT)	8"	1929	S=0
					S=0
P-43	160.45	154.30 (IN)	8"	1929	S=0.
		154.18 (OUT)	10"V.C.	1928	S=0.
P-44	161.00	153.73 (IN&OUT)	10"V.C.	1928	S=0.
P-45	162.70	153.37 (IN&OUT)	10"V.C.	1928	S=0.
P-46	162.40	156.47 (NORTH)	8"V.C.	1928	S=0.
		152.65 (OUT)	10"V.C.	1928	S=0.
		152.65 (EAST)	10"V.C.	1928	S=0.
P-47	160.00	154.29 (OUT)	6"	1930	S=0.
P-48	155.60	152.50 (IN)	6"	1930	S=0
					S=0.
P-24A					
P-36A					
P-49					

Rev.	Description	By	Date

TOWN OF MAYNARD, MASSACHUS
SANITARY SEWER SYSTEM
DRAINAGE BASIN P

DuFresne-Henry Inc.

Client No.	92-0850
Proj. Manager	W.S.T.
Proj. Designer	R.K.A.
Drawn By	D.G.M.
Checked By	
Scale	1"=200'
Approved	
Date	June 1991
Sheet	D



PARKING 35 SPACES
13 OUTSIDE
22 INSIDE

20 UNITS
PARKING REQUIRED 30

LOT AREA	**20,952 SF**
ROOF AREA	**7,360 SF**
OUTSIDE PARKING	**6,602 SF**

GREEN AREA 5,070 SF [0.24]
SIDE WALK AREA 1,194 SF

BUILDING GROSS AREA (2 FLOORS)	14,720 SF
BUILDING HEIGHT - FRONT	32.5+/- FEET
# PARKING SPACES	35 SPACES
HANDICAP 1/25	2 SPACES
# OF UNITS @ 800/SF LOT AREA	29.04
# OF UNITS @ 1500/SF LOT AREA	14
PROPOSED UNITS	20
# OF PARKING SPACES @ 1 1/2 /UNIT	30 SPACES
FAR	0.70
SIDE WALK	1,194 SF

WS-1	146 SF / 1%
WS-2	4,750 SF / 2%
WS-3	3,625 SF / 4%
TOTAL WS	8,521 SF

GRAPHIC LEGEND

PROPOSED CONTOURS — — — 180 — — —
EXISTING CONTOURS ——— 174 ———
PROPERTY LINE ———
LIMIT OF WORK/EROSION CONTROL
SEWER LINE — S —
WATER LINE — W —
GAS LINE — G —
U/G ELECTRIC+TEL LINE — E+T —

NORTH

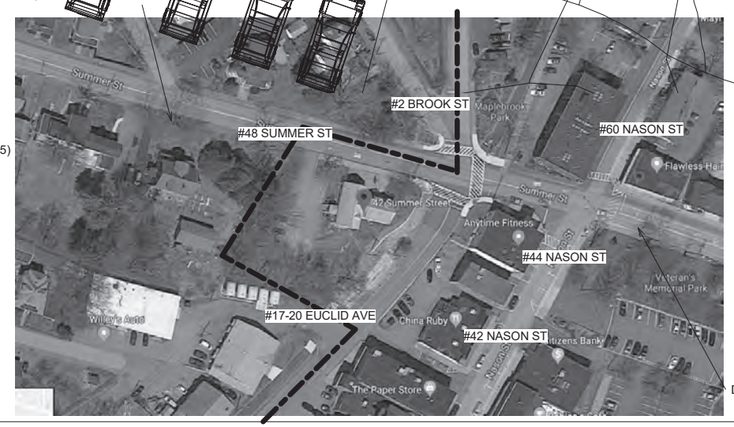
FOR MERGING INTO STREET TRAFFIC:
SIGHT DISTANCE - 150FT
(3 SECOND DISTANCE @ 35MPH)

OF TRIPS OUT 20 (7 AM TO 9AM)
#OF TRIPS IN 20 (5 PM TO 7PM)

TRAFFIC CAPACITY 1800 VEHICLES / HR AT THE STREET

TABLE OF ZONING DIMENSIONAL REQUIREMENTS - DOWNTOWN OVERLAY DISTRICT

SETBACKS REQUIRED -	PROPOSED -	VARIANCE REQUESTED
FRONT - 10FT	7'-9"/26'1"	NONE
SIDES - 0'/15FT(RESIDENCE)	2' / 42'-6"	NONE
REAR - 0FT	15'-4"	NONE
PARKING SETBACKS		
FRONT-20FT	7'-11"	YES
SIDE -10FT / 15FT	10' / 10'	YES
REAR -10FT	12'-6"	NONE
GRADIENT- .75% TO 5%	4%	NONE
SPACE 9'X18.5'	10 SPACES 8'X18'COMPACT	YES
ACCESS ISLE 24'	21'	YES
DENSITY - 800SF/UNIT	800 SF/UNIT	YES (BY SPECIAL PERMIT 9.4.5)
LANDSCAPE STRIP-5'WIDE	O FT AT SOUTH & WEST SIDE	YES
MIN 2 TREES/10 SPACES	13 TREES	NONE
ACCESSIBLE SPACES 4%	2 SPACES	NONE
NO OF SPACES 30	35 SPACES	YES
LOT COVERAGE (IMPERVIOUS AREAS)	90%/76%	NONE



"APPROVED BY THE PLANNING BOARD"

"PLAN COMPLIES WITH DESIGN STANDARDS AND LOCATION REQUIREMENTS OF PUBLIC WORKS" AND "BOARD OF HEALTH"

GRAPHIC SCALE
0 20 40 60 80

LALA ASSOCIATES ENGINEERS LLC

37 OLD VILLAGE ROAD
ACTON, MA 01720
(978)337-5252
lalaengineers@gmail.com

CIVIL, ELECTRICAL & STRUCTURAL
ENGINEERING SERVICES

LIC.#40460-C(MA), 9227(NH),
84611(NY), 32768(VA), 7736(VT)

No.	Description	Date

MAYNARD POINT:JAMES MacDONALD
42 SUMMER ST. MAYNARD MA
781-307-1684

PROPOSED PARKING PLAN & SITE UTILITY PLAN

Project number	18031
Date	11-5-2018
Drawn by	DRV
Checked by	KL
	C2
Scale	1" = 10'-0"

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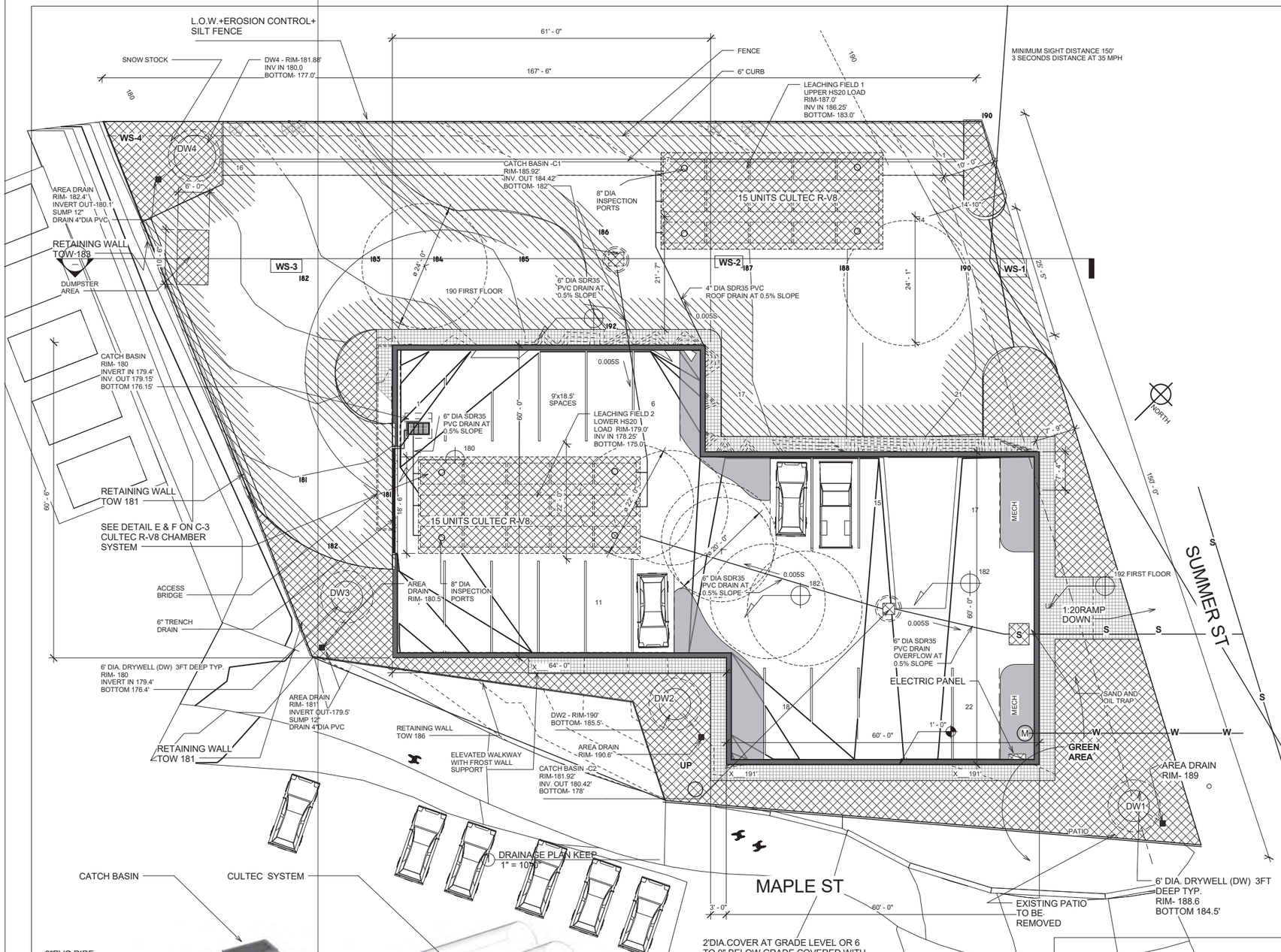
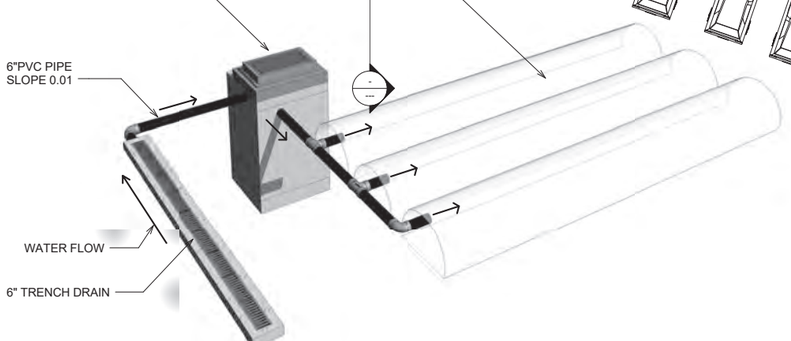
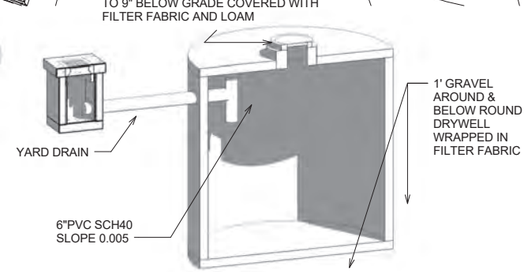




3 CULTEC 330XLHD CHANMBER SYSTEM



2 TYP DRYWELL 3D SECTION

PARKING 35 SPACES
13 OUTSIDE
22 INSIDE

20 UNITS
PARKING REQUIERED 30

LOT AREA	**20,952 SF**
ROOF AREA	**7,360 SF**
OUTSIDE PARKING	**8,521 SF**

GREEN AREA 5,070 SF [0.24]
SIDE WALK - 1194SF

BUILDING GROSS AREA (2 FLOORS)	14,720 SF
BUILDING HEIGHT - FRONT	32.5+/- FEET
# PARKING SPACES	35 SPACES
HANDICAP 1/25	2 SPACES
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SIDE WALK	1,194 SF

WS-1	146 SF / 1%
WS-2	4,750 SF / 2%
WS-3	3,625 SF / 4%
TOTAL WS	8,521 SF

RUNOFF NOTES:

STORM RUNOFF RATE IS NOT INCREASED DUE TO PROPOSED IMPROVEMENTS FOR 2, 10, 25 & 100 YEARS. ALL DRYWELLS ARE DESIGNED FOR THE TOTAL RUNOFF FOR 100YEAR STORMS.

PRE-DEVELOPEMENT PEAK RUNOFF RATES:
ALL RUNOFF SENT TO STREET AND NEIGHBORING PROPERTIES AS PER THE ORIGINAL TOPOGRAPHY.

PERIOD - DISCARDED OFF SITE
2YR - 0.68 CFS; 10YR -1.57 CFS;
25YR - 1.3 CFS; 100YR -1.7 CFS;

POST-DEVELOPEMENT ROOF RUNOFF RATES SENT TO LEACH FIELD#1:

2YR - 0.68 CFS; 10YR - 1.44 CFS
25YR - 1.30 CFS; 100YR - 1.67 CFS

POST-DEVELOPEMENT DRIVEWAY RUNOFF INCLUDING A GREEN AREA RATES SENT TO 4 DRYWELLS AND A LEACH FIELD#2:
RUNOFF SENT TO ON SITE DRYWELLS
2YR - 0.62 CFS; 10YR - 1.54 CFS ;
25YR -1.37 CFS; 100YR - 1.85 CFS

POST-DEVELOPEMENT TOTAL RUNOFF RATES
2YR - 0.68+0.62 =1.30 CFS;
10YR - 1.44 +1.54 =2.98 CFS;
25YR - 1.30+1.37 =2.67 CFS;
100YR- 1.67 +1.85=3.52 CFS

INSIGNIFICANT AMOUNT OF RUNOFF SENT TO STREET.
TOTAL REDUCTION IS 100% OF THE EXISTING PREDEVELOPMENT RUNOFFS

REQUIRED WATER QUALITY RECHARGE OF 2IN FOR PROPOSED ROOF AREA = 1,226CF
VOLUME SENT TO DRYWELLS @ 2YR - 4,403CF+/-

1" RECHARGE - ACTUAL VOLUME SENT TO DRYWELLS @ 2YR STORM 1,961CF FOR 8,521SF OF PAVEMENTS AT 2.76" AVG DEPTH
ALL ABOVE CALCS BASE ON LOAMY SAND SOILS
PERC RATE OF 10 MIN /INCH. 240% OF DESIGN RATE OF 24MIN/IN FOR CLASS I SOILS.

OPERATION AND MAINTENACE SHCHEDULE:
SEE THREE PAGES LETTER SIZE ATTACHED TO THE HYDROLOGY REPORT

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LIC.#40460-C(MA), 9227(NH),
84611(NY), 32768(VA), 7736(VT)

No.	Description	Date

MAYNARD POINT:JAMES MacDONALD
42 SUMMER ST. MAYNARD MA
781-307-1684

PROPOSED DRAINAGE

Project number	18031
Date	11-5-2018
Drawn by	DRV
Checked by	KL

C3.1

Scale 1" = 10'-0"

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