

**TOWN OF FAIRHAVEN
WETLANDS PROTECTION BYLAW FEES
JANUARY 2020**

*Fees for filings received after a project has commenced are double the fee listed

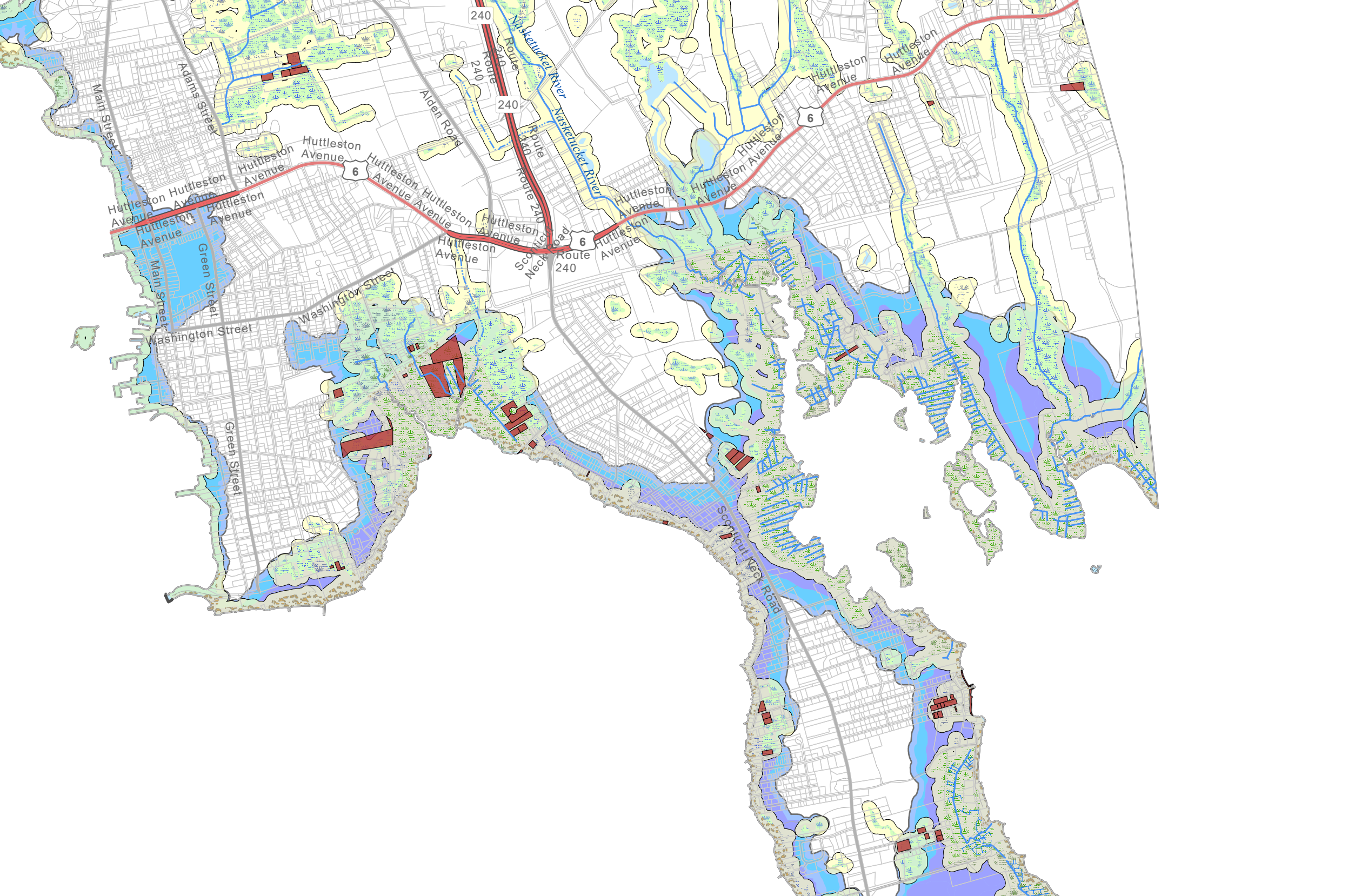
ADVERTISING FEE	\$75.00	
PEER REVIEW DEPOSIT	\$2500.00	For Notices of Intent only; the deposit will be returned if not used
REQUESTS FOR DETERMINATION OF APPLICABILITY*	\$100.00	For ancillary work on an existing single-family house
	\$150.00	For all other requests
NOTICES OF INTENT*		Flat fee per category
Category 1	\$100.00	
Category 2	\$100.00	
Category 3	\$200.00	
Category 4	\$300.00	
Category 5	\$100.00	
REQUESTS FOR AMENDMENTS TO ORDERS OF CONDITIONS	\$75.00	Residential
	\$200.00	Commercial/Subdivision
REQUESTS FOR EXTENTIONS TO ORDERS OF CONDITIONS	\$75.00	Residential
	\$200.00	Commercial/Subdivision
CERTIFICATES OF COMPLIANCE	\$75.00	Residential
	\$200.00	Commercial/Subdivision
BOUNDARY DELINEATIONS	\$75.00	Residential
	\$200.00	Commercial/Subdivision
SHELLFISH MITIGATION FEE	\$100.00	For impact 12 sq. ft. or less
	\$8/sq. ft.	For impact greater than 12 sq. ft.

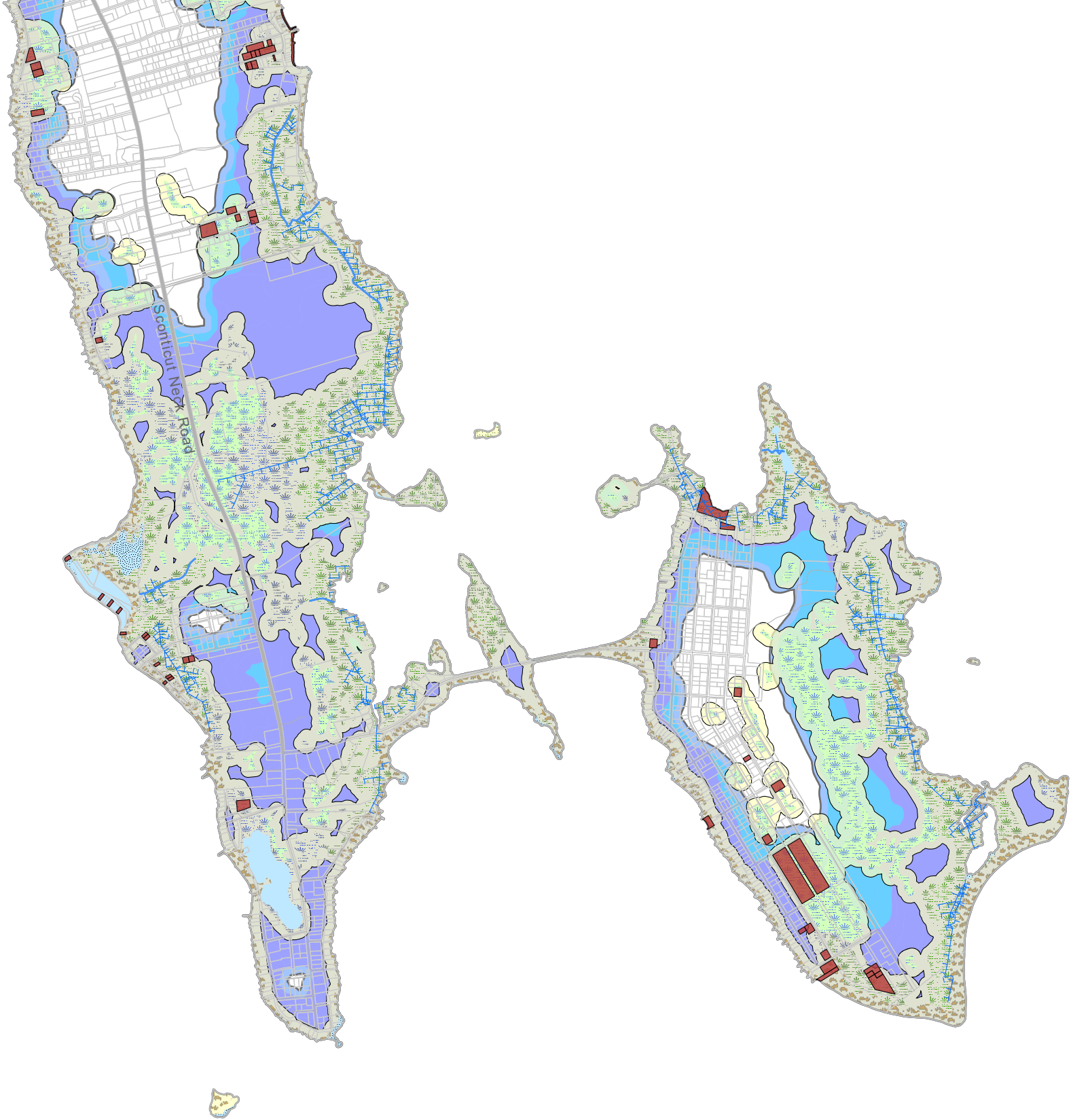
NOTE: These Bylaw fees are in addition to the fees pursuant to the Massachusetts Wetlands Protection Act (WPA; M.G.L. c. 131, § 40). The Bylaw fees and the Town's share of the WPA fee should be submitted on separate checks, payable to the **Town of Fairhaven**.

Article XX. To authorize the Board of Selectmen, pursuant to the authority granted by Massachusetts General Laws, Chapter 40, Section 15A, to transfer from the Fairhaven Board of Selectmen to the Fairhaven Conservation Commission, to be held and managed as conservation lands pursuant to Massachusetts General Laws, Chapter 40, Section 8C, the following parcels of land, more fully described as follows:

1. Worth Street, as described in Map 2, Lot 53, and recorded in Bristol County Registry of Deeds, Book 1242, Page 51.
2. Worth Street, as described in Map 2, Lots 72, 73, 74, and 75, and recorded in Bristol Country Registry of Deeds, Book 11514, Page 13.
- 3.







Map	Lot	Location	ConCom	Book	Page	Certificate
2	53	Worth Street	Yes	1242	51	
2	72-75	Worth Street	Yes	11514	13	
2	95	Thompson Street	Yes	6649	178	
6	144	Gifford/Farmfield Streets	Yes	1777	887	
6	155-158	Church Street	Yes	6649	178	
23	162	Wilding Street	Yes	8660	308	
23	163	Rear Wilding Street	Yes	1353	230	
23A	346A	Wilding Street	Yes	1777	879	
24	86-89	Hemlock Street	Yes	9011	88	
24	93-95	Hemlock Street	Yes	10334	133	
24	96-101	Hicks Street	Yes	857	503	
24	292	Birchfield Street	Yes	8660	309	
27	19	Abbey Street	Yes	1632	261	
27	21	COVE PROMENADE	Yes	6649	178	
27	25	WASHINGTON STREET	Yes	11565	147	
27	26	SANDRINGHAM AVENUE	Yes	6649	178	
27	28	Girls Creek	Yes	1777	893	
27	156-158	PRESTON STREET	Yes	1582	190	
27	160	PRESTON STREET	Yes			
27	180	SCOTT STREET	Yes	1777	885	
28A	1-10	BRAE ROAD	Yes	857	503	
28A	40-42	BRAE ROAD	Yes	1027	491	
28A	43-45	BRAE ROAD	Yes	857	503	
28A	124	Hacker Street	Yes	902	261	
28A	128-129	9 Hacker Street	Yes	9814	203	
28A	478	Bayview Avenue	Yes	788	118	
28B	41D	Beach Cove Street	Yes	1676	1134	
28B	324	GOLF STREET	Yes	6649	178	
28B	341-342	GOLF STREET	Yes	6649	178	
28B	420-426	ORCHARD STREET	Yes	825	289	
28B	443-450	GRAPE STREET	Yes	825	289	
28B	467-476	GRAPE STREET	Yes	825	289	
28B	566-567	EDGEWATER STREET	Yes	5457	231	

28D	14-16	Jameson Street	Yes	9103	319	
28D	17-18	Jameson Street	Yes	9103	319	
29	47	CAMEL STREET	Yes			14654
29	51	34 Camel Street	Yes			88006
29	52	CAMEL STREET	Yes			88007
29	54 & 71	CAMEL STREET	Yes			14654
29	60	46 Camel Street	Yes			14654
29	75-76	CAMEL STREET	Yes			14654
29A	387-391	NO NAME	Yes	1556	172	
29B	11-12, 23-25	RESERVATION ROAD	Yes	11612	295	
29B	63-65	Smith Street	Yes			
29B	70-72	Franklin Street	Yes			
29B	237-245	WAYBRIDGE ROAD	Yes	8760	127	
29C	381-392	OCEAN AVENUE	Yes			11676
29C	396-398	OCEAN AVENUE	Yes	7358	7	
29C	481-486	GRANDVIEW AVENUE	Yes	5774	105	
29C	487-489	GRANDVIEW AVENUE	Yes	855	411	
29C	490-492	GRANDVIEW AVENUE	Yes	1242	51	
29C	493-503	GRANDVIEW AVENUE	Yes	1242	51	
29C	585	GRANDVIEW AVENUE	Yes			10775
29C	586-588	GRANDVIEW AVENUE	Yes	841	275	
29C	589-592	GRANDVIEW AVENUE	Yes	1169	163	
29C	605	GRANDVIEW AVENUE	Yes	1925	469	
29C	627	SHORE DRIVE	Yes	538	539	
29C	628	SHORE DRIVE	Yes	938	539	
30B	29	AKIN STREET	Yes	6649	178	
31A	213	LOFTUS STREET	Yes			
31A	465	JENNEY STREET	Yes			
31A	695-710	HAMMOND STREET	Yes			
32A	37	COPICUT PATH	Yes			
34	38B	NEW BOSTON ROAD	Yes			
34A	325-327	PINE GROVE STREET	Yes			

34A	369-371	PINE GROVE STREET	Yes			
34A	381	REAR PINE GROVE STREET	Yes			
35	6	NEW BOSTON ROAD	Yes			
35	7, 9, 11, 13	NEW BOSTON ROAD	Yes			
35	10	REAR NEW BOSTON	Yes			
36	2B	ALDEN ROAD	Yes			
37	29	RIVARD STREET	Yes			
37	30	RIVARD STREET	Yes			
37A	47-56	QUINCY STREET	Yes			
37A	191-194	CHARLES STREET	Yes			
37A	195-198	CHARLES STREET	Yes			
37A	199-206	CHARLES STREET	Yes			
39	3	FAIRHAVEN LINE	Yes			
39	9	OLD RD TO ACUSHNET	Yes			
40	4	TURKEY GROVE	Yes			
40	20	NEW BOSTON ROAD	Yes			
40	27A	NEW BOSTON ROAD	Yes			
41	43	SILVER SHELL BEACH DRIVE	Yes			
42	54-57	SHORT BEACH ROAD	Yes			
42A	207-208	WHISPER LANE	Yes			
42A	209-210	WHISPER LANE	Yes			
42A	224	MONONDACH AVENUE	Yes			
42A	240	WAMSUTTA STREET	Yes			
42A	241	WAMSUTTA STREET	Yes			
42A	263	MONONDACH AVENUE	Yes			
42A	270	SHORE DRIVE	Yes			
42A	278	SHORE DRIVE	Yes			
42A	282	SHORE DRIVE	Yes			
42A	286	SHORE DRIVE	Yes			
42A	305	SHORE DRIVE	Yes			
42A	327	MONONDACH AVENUE	Yes			
42A	328	MONONDACH AVENUE	Yes			
43A	1 & 1A	CAUSEWAY ROAD	Yes			
43A	44	GULL ISLAND ROAD	Yes			

43A	261	EBONY STREET	Yes			
43A	290-291	LITTLENECK ROAD	Yes			
43B	1	2 Causeway Road	Yes			
43B	90-106	SCALLOP ROAD	Yes			
43B	270-271	SCALLOP ROAD	Yes			
43C	43-46	BASS CREEK ROAD	Yes			22317
43C	47	COTTONWOOD STREET	Yes			
43C	123	BALSAM STREET	Yes			5458
43C	124 & 126	COTTONWOOD STREET	Yes			22516
43C	139-140	COTTONWOOD STREET	Yes			22516
43C	159 & 161	COTTONWOOD STREET	Yes			22516
43C	167-191	COTTONWOOD STREET	Yes			12020
43C	260-284	DOGWOOD STREET	Yes			12020
43C	324-326	EBONY STREET	Yes			17141
43C	327-28	DOGWOOD & EBONY ST	Yes			22516
43C	329-336	Cottonwood/Dogwood/Ebony/Gull Island	Yes			22516
43C	337-339	GULL ISLAND ROAD	Yes			22516



December 17, 2019

Fairhaven Conservation Commission
40 Center Street
Fairhaven, MA 02719

**RE: FILE # SE 23-1127
SECOND ORDER OF CONDITIONS FOR BELLA VISTA ISLAND**

Dear Commission Members,

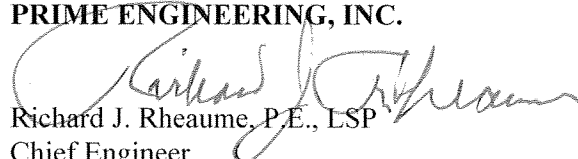
The following presents the status of the above referenced file. In October 2011, a Notice of Intent was submitted which proposed an access drive to the beach, beach nourishment, elimination of the need for resource restoration required by the original Order of Conditions, eradication of Phragmites in non-jurisdictional depressions and the installation of a floating pier. Subsequent to site walks and numerous public hearings, the proposed work was modified. The request for access to the beach and for beach nourishment was eliminated. On April 20, 2012, revised Notice of Intent forms, reports, photographs and plans were submitted to the Conservation Commission and on June 18, 2012, the Commission issued an Order of Conditions that approved the proposed work with sixteen special conditions. The approved plans were "Proposed Site Improvements" by Prime Engineering, last revised June 12, 2012 and "Restoration Planting Plan" by Bourne Knowles dated December 27, 2011. The approved work included general invasive vegetation control on much of the island, dune restoration and elimination of Phragmites in the non-jurisdictional depressions. The proponent volunteered to complete a restoration project at the DPW yard, which was the Town's responsibility, in exchange for being allowed to place fill in the non-jurisdictional depressions.

The invasive vegetation has been controlled as allowed by the Order. The Phragmites rhizomes were excavated down to a six foot depth and the depressions were backfilled with imported soil. The depressions were loamed and seeded.

The DPW yard restoration and the dune restoration were completed. On a site walk, the Commission and its Agent noted that the dune had been planted with a grass that was not American dune grass. It was decided to monitor the condition of the grass and, if it did not thrive, the Commission would require that the dune be replanted with American dune grass. If the grass cover is acceptable, we request a Certificate of Compliance.

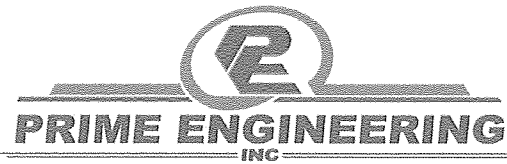
Sincerely,

PRIME ENGINEERING, INC.


Richard J. Rheume, P.E., LSP
Chief Engineer

CIVIL ENGINEERING ENVIRONMENTAL ASSESSMENT LAND SURVEYING

P.O. Box 1088, 350 Bedford Street, Lakeville, MA 02347



December 11, 2019

Fairhaven Conservation Commission
40 Center Street
Fairhaven, MA 02719

**RE: BELLA VISTA ISLAND
DEP FILE #23-1127**

Dear Commission Members,

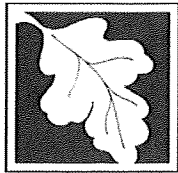
I hereby certify that all work approved by the above referenced Order of Conditions was constructed in essential compliance with that Order and the approved plans.

Please issue a Certificate of Compliance.

Sincerely,
PRIME ENGINEERING, INC.

A handwritten signature in cursive script that reads 'Richard J. Rheume'.

Richard J. Rheume, P.E., LSP
Chief Engineer



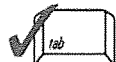
Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Form 8A – Request for Certificate of Compliance
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:

Provided by DEP

A. Project Information

Important:
 When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Upon completion of the work authorized in an Order of Conditions, the property owner must request a Certificate of Compliance from the issuing authority stating that the work or portion of the work has been satisfactorily completed.

- This request is being made by:
 Richard J. Rheaume, P.E. - Prime Engineering, Inc.
 Name
 350 Bedford Street
 Mailing Address
 Lakeville MA 02347
 City/Town State Zip Code
 508-947-0050
 Phone Number
- This request is in reference to work regulated by a final Order of Conditions issued to:
 Heiam Alswalhi
 Applicant
 June 12, 2012 23-1127
 Dated DEP File Number
- The project site is located at:
 Bella Vista Island Fairhaven
 Street Address City/Town
 43B 326, 359, 360
 Assessors Map/Plat Number Parcel/Lot Number
- The final Order of Conditions was recorded at the Registry of Deeds for:
 Same
 Property Owner (if different)
 Bristol 126 138
 County Book Page
 22217
 Certificate (if registered land)
- This request is for certification that (check one):
 the work regulated by the above-referenced Order of Conditions has been satisfactorily completed.
 the following portions of the work regulated by the above-referenced Order of Conditions have been satisfactorily completed (use additional paper if necessary).

 the above-referenced Order of Conditions has lapsed and is therefore no longer valid, and the work regulated by it was never started.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 8A – Request for Certificate of Compliance
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:

Provided by DEP

A. Project Information (cont.)

6. Did the Order of Conditions for this project, or the portion of the project subject to this request, contain an approval of any plans stamped by a registered professional engineer, architect, landscape architect, or land surveyor?

Yes If yes, attach a written statement by such a professional certifying substantial compliance with the plans and describing what deviation, if any, exists from the plans approved in the Order.

No

B. Submittal Requirements

Requests for Certificates of Compliance should be directed to the issuing authority that issued the final Order of Conditions (OOC). If the project received an OOC from the Conservation Commission, submit this request to that Commission. If the project was issued a Superseding Order of Conditions or was the subject of an Adjudicatory Hearing Final Decision, submit this request to the appropriate DEP Regional Office (see <http://www.mass.gov/eea/agencies/massdep/about/contacts/find-the-massdep-regional-office-for-your-city-or-town.html>).

NASKETUCKET BAY

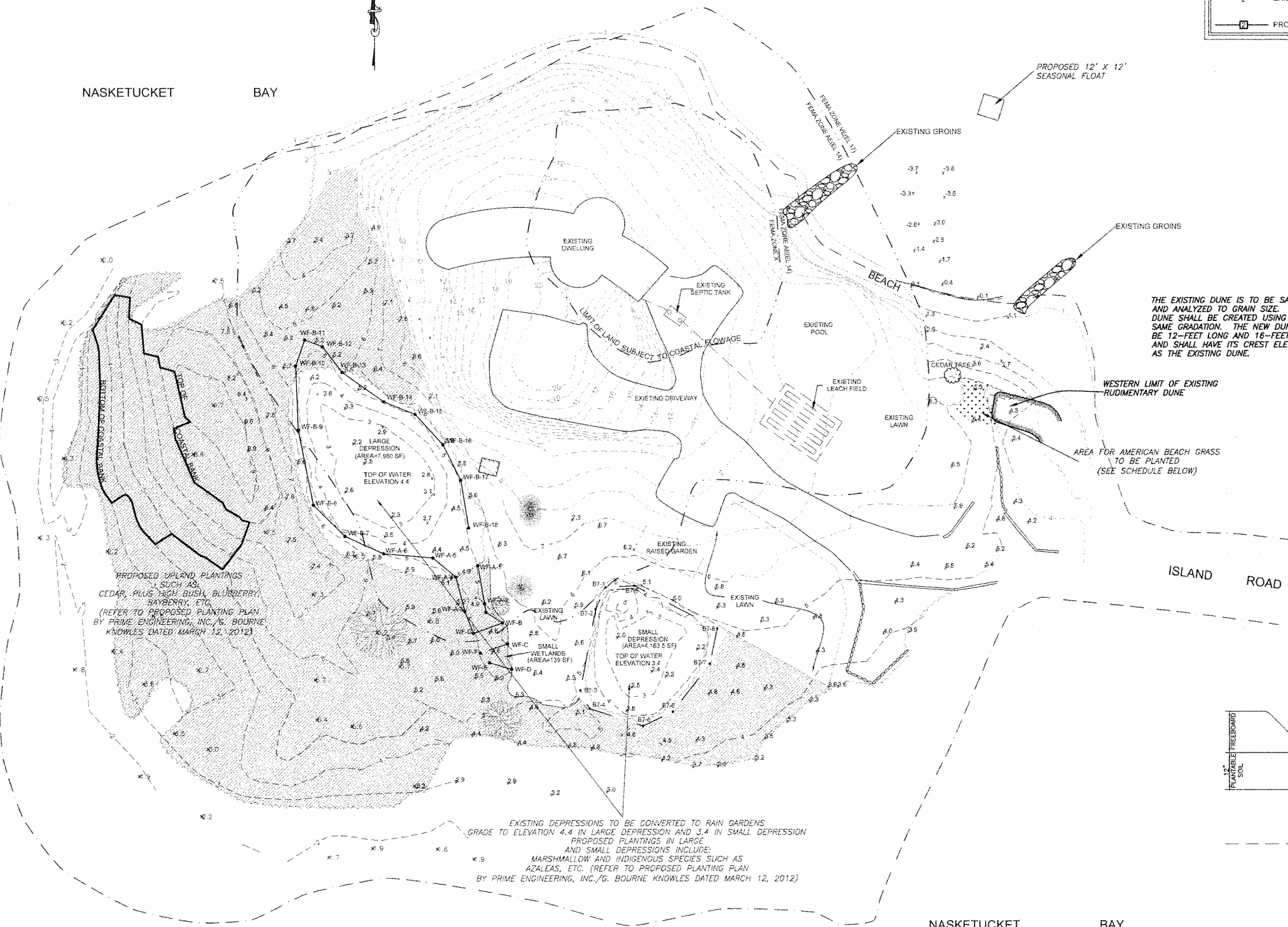
LEGEND

--- EXISTING CONTOUR

— PROPOSED CONTOUR

LOCUS
SCALE: 1" = 2500'

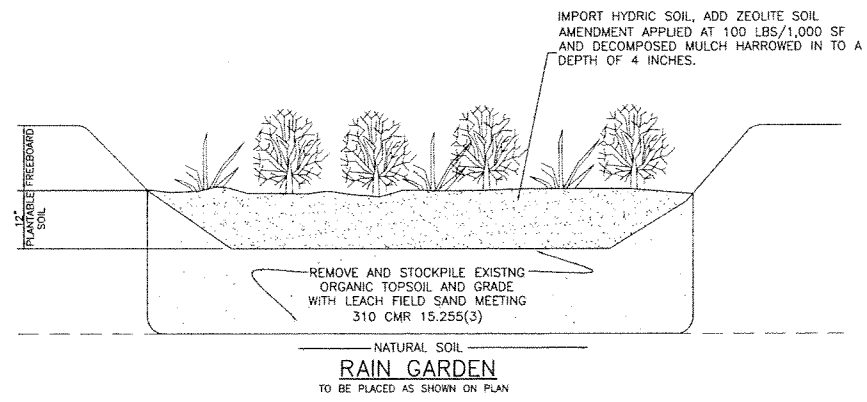
- NOTES**
1. THE SUBJECT PROPERTY IS SHOWN AS MAP 43B, LOTS 326, 359, & 360 IN THE TOWN OF FAIRHAVEN ASSESSORS' RECORDS.
 2. REFER TO CERTIFICATE OF TITLE #21042, ON RECORD AT THE BRISTOL COUNTY REGISTRY OF DEEDS (S.D.) OFFICE OF THE MASSACHUSETTS LAND COURT FOR TITLE REFERENCE TO THE SUBJECT PROPERTY.
 3. REFER TO L.C. PLAN 7342D1 FOR FURTHER REFERENCE TO THE SUBJECT PROPERTY.
 4. THE SUBJECT PROPERTY IS LOCATED IN ZONES X, AE(EL 14), & VE(EL 17) AS SHOWN ON THE FLOOD INSURANCE RATE MAP (F.I.R.M.) OF BRISTOL COUNTY, MASSACHUSETTS, COMMUNITY-PANEL NUMBERS 2505C0502F, EFFECTIVE DATE OF JULY 7, 2009.
 5. THE TOPOGRAPHY IN THE AREAS PROPOSED TO BE MODIFIED SHOWN HEREON IS BASED ON A FIELD SURVEY BY PRIME ENGINEERING, INC. IN SEPTEMBER, 2011.
 6. THE LOCATIONS OF THE SHORELINE, DWELLING, AND DRIVEWAYS SHOWN HEREON ARE NOT THE RESULT OF FIELD SURVEY BY PRIME ENGINEERING AND HAVE BEEN SCALED FROM PLANS AND AERIAL PHOTOGRAPHY AND ARE TO BE CONSIDERED APPROXIMATE.
 7. VERTICAL DATUM SHOWN IS NAVD'88 BASED ON NGS PUBLISHED DATA OF NGVD'29 BENCHMARKS CONVERTED TO NAVD'88 VIA VERTCON.



THE EXISTING DUNE IS TO BE SAMPLED AND ANALYZED TO GRAIN SIZE. A NEW DUNE SHALL BE CREATED USING THIS SAME GRADATION. THE NEW DUNE SHALL BE 12- FEET LONG AND 16- FEET WIDE AND SHALL HAVE ITS CREST ELEVATION AS THE EXISTING DUNE.

WESTERN LIMIT OF EXISTING RUDDIMENTARY DUNE

AREA FOR AMERICAN BEACH GRASS TO BE PLANTED (SEE SCHEDULE BELOW)



SHADED AREA IS THE AREA WHERE INVASIVE SPECIES HAVE BEEN REMOVED. IT IS TO BE MOWED A MAXIMUM OF TWICE A YEAR TO A HEIGHT NO LESS THAN 4 INCHES, EXCEPT FOR 3 FOOT WIDE FOOT PATHS WHICH CAN BE MOWED SHORTER AND MORE OFTEN.

EXISTING DEPRESSIONS TO BE CONVERTED TO RAIN GARDENS. GRADE TO ELEVATION 4.4 IN LARGE DEPRESSION AND 3.4 IN SMALL DEPRESSION. PROPOSED PLANTINGS IN LARGE AND SMALL DEPRESSIONS INCLUDE: MARSHMALLOW AND INDIGENOUS SPECIES SUCH AS AZALEAS, ETC. (REFER TO PROPOSED PLANTING PLAN BY PRIME ENGINEERING, INC./G. BOURNE KNOWLES DATED MARCH 12, 2012)

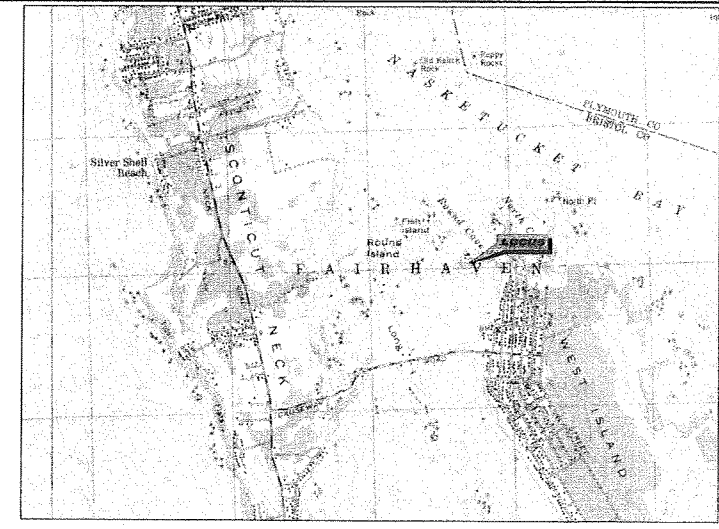
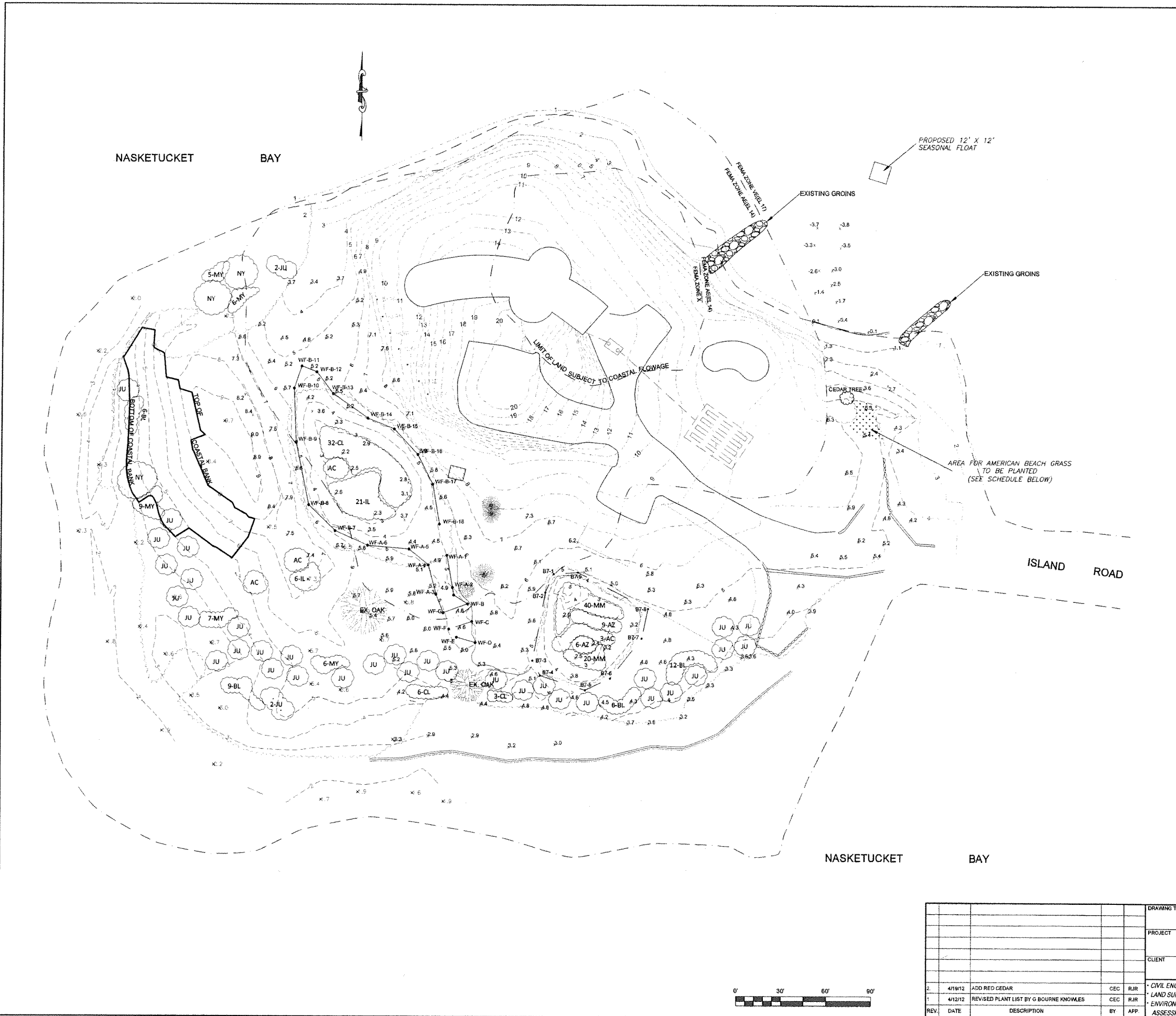
AMERICAN BEACH GRASS (*AMMOPHILA BREVIUGULATA* [CAPE CULTIVAR]) TO BE PLANTED 18-INCHES ON CENTER 8-10 INCHES DEEP IN MID MARCH 2012 AND FERTILIZED AS FOLLOWS:

DATE	FIRST YEAR	SECOND YEAR
MARCH 15	----	10-10-10
APRIL 15	10-10-10	----
JUNE 15	AMMONIUM NITRATE	----
SEPTEMBER 15	AMMONIUM NITRATE	AMMONIUM NITRATE



PLAN TO ACCOMPANY NOI

DRAWING TITLE PROPOSED SITE IMPROVEMENTS		SCALE 1" = 30'
PROJECT BELLA VISTA ISLAND FAIRHAVEN MASSACHUSETTS		DATE OCT 26, 2011
CLIENT HEIAM ALSWALHI FAIRHAVEN MASSACHUSETTS		DRAWN BY CSD/JRL
DESIGNED BY <i>[Signature]</i>		CHECKED BY RJR
CIVIL ENGINEERING LAND SURVEYING ENVIRONMENTAL ASSESSMENT PRIME ENGINEERING		APPROVED BY RJR
P.O. BOX 1088 380 BEDFORD ST. LAKEVILLE, MA 02447 TEL: 508.947.0050 FAX: 508.947.2004		SHEET NO. SHEET 1
REV: DATE DESCRIPTION BY APP		PROJECT NO. 1779-01-01



LOCUS
SCALE: 1" = 2000'

PLANT LIST

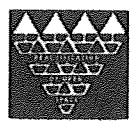
G. BOURNE KNOWLES & COMPANY, INC.
P.O. BOX 311, 267 HUTTLESTON AVE., FAIRHAVEN, MA 02719
TELEPHONE: 508 997-8148 FAX: 508 999-0140

PROJECT ALSAWALHI

KEY	QTY	PLANT	SIZE
MM	60	**HIBISCUS MOSCHEUTOS MARSH MALLOW	2 GAL
AZ	15	**AZALEA VISCOSUM PINK MIST DECIDUOUS	2 GAL
BL	33	**VACCINIUM CORYMBOSUM HIGH BUSH BLUEBERRY MIX VARIETIES FOR FRUITING	2 GAL
IL	25	**ILEX VERTICILLATA WINTERBERRY FEMALE	3 GAL
IL	2	**ILEX VERTICILLATA WINTERBERRY MALE	3 GAL
MY	33	**MYRICA PENNSYLVANICA BAYBERRY	2 GAL
AC	6	**AMELANCHIER CANADENSIS CLUMP SERVICEBERRY	3-4
CL	41	**CLETHRA ALNIFOLIA SUMMERSWEET	1 GAL
NY	3	**NYSSA SYLVATICA TUPELO	10 GAL
JU	60±	**JUNIPERUS VIRGINIANA RED CEDAR	3-4
EX		APPROXIMATE LOCATIONS, TO BE SITED IN FIELD EXISTING PLANT MATERIAL TO REMAIN	
		** INDICATES NATIVE COASTAL PLANT	

ARBORVITAE CAN BE SUBSTITUTED FOR SOME RED CEDAR (JU) SHOWN

NOTES:
PLANTING PLAN ORIGINALLY SKETCHED BY G. BOURNE KNOWLES & COMPANY, INC. DATED DEC. 27, 2011.
PRIME ENGINEERING HAS SUPERIMPOSED THEIR PLAN AS SHOWN.



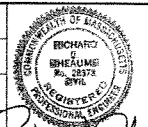
G. BOURNE KNOWLES & COMPANY, INC.
P.O. BOX 311, 267 HUTTLESTON AVENUE
FAIRHAVEN, MASSACHUSETTS 02719
TELEPHONE: (508) 997-8148 TELEFAX: (508) 999-0140
1-800-564-8146



DRAWING TITLE		PROPOSED PLANTING PLAN		SCALE	1" = 30'
PROJECT		BELLA VISTA ISLAND FAIRHAVEN MASSACHUSETTS		DATE	MARCH 12, 2012
CLIENT		HEIAM ALSAWALHI FAIRHAVEN MASSACHUSETTS		DRAWN BY:	JRL
REV. DATE		DESCRIPTION		DESIGNED BY:	<i>Richard J. Platan</i>
2	4/11/12	ADD RED CEDAR	CEC RJR	CHECKED BY:	RJR
1	4/12/12	REVISED PLANT LIST BY G BOURNE KNOWLES	CEC RJR	APPROVED BY:	RJR
REV.	DATE	DESCRIPTION	BY	APP.	PROJECT NO.
					1779-01-01



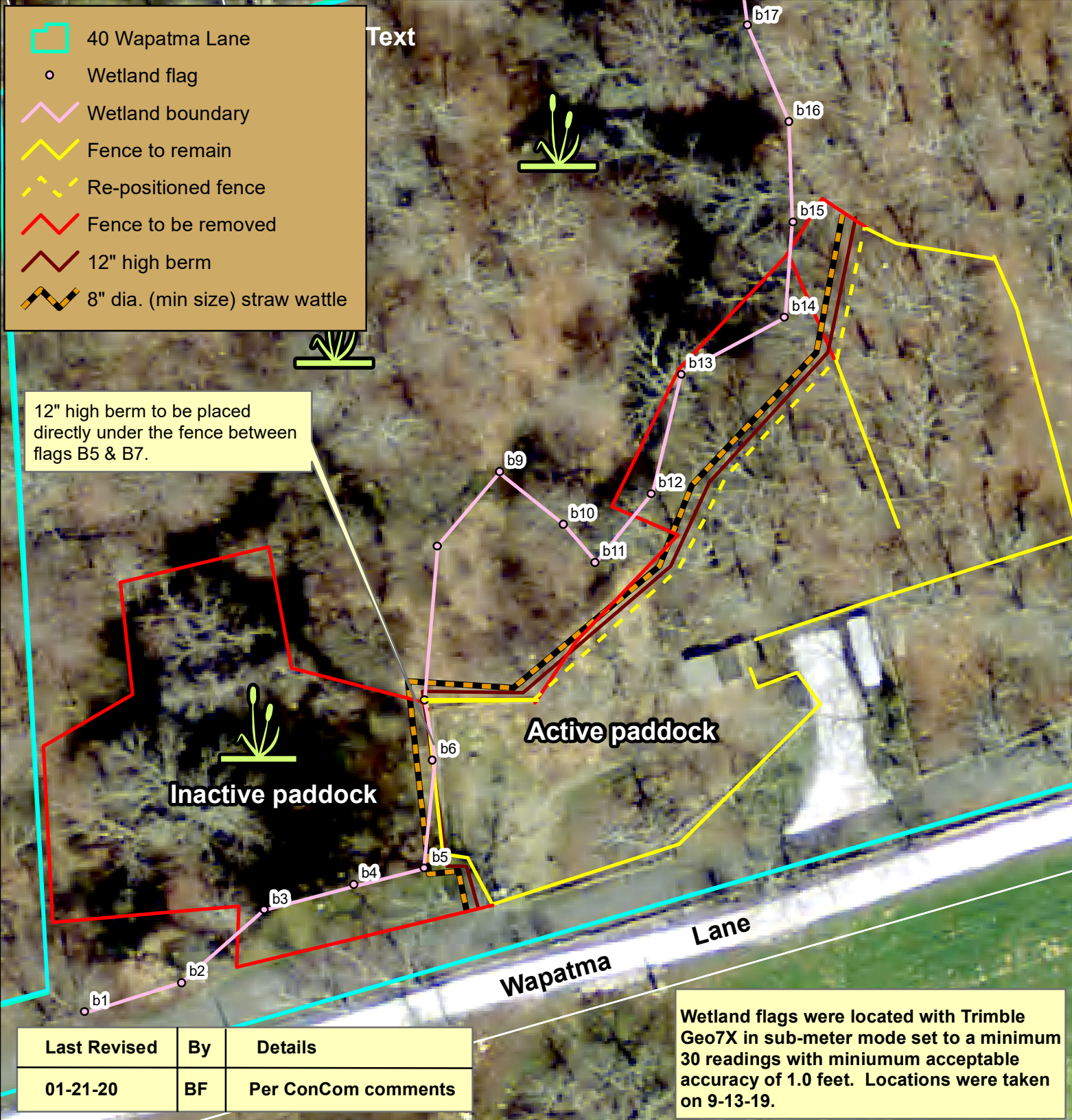
P.O. BOX 1068
330 BEDFORD ST.
LAKEVILLE, MA 02347
TEL: 508.947.0050
FAX: 508.947.2004



Text

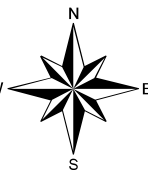
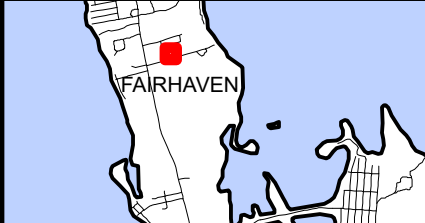


-  40 Wapatma Lane
-  Wetland flag
-  Wetland boundary
-  Fence to remain
-  Re-positioned fence
-  Fence to be removed
-  12" high berm
-  8" dia. (min size) straw wattle

12" high berm to be placed directly under the fence between flags B5 & B7.



Wetland flags were located with Trimble Geo7X in sub-meter mode set to a minimum 30 readings with minimum acceptable accuracy of 1.0 feet. Locations were taken on 9-13-19.

Last Revised	By	Details
01-21-20	BF	Per ConCom comments

		Wetland Boundary & Fencing Map 40 Wapatma Lane / Map 29, Lot 29 Fairhaven, Massachusetts		FIGURE 1
		DATE: 11-4-19	PROJECT #: W19-1241	
CREATED BY: BF		SCALE: 1 inch = 50 feet		
2014 Orthophoto				

MAP 29A
LOT 181

MAP 29A
LOT 180

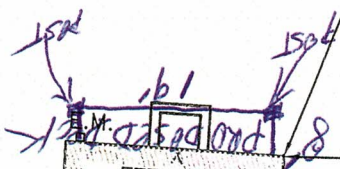
TREASURE BAY 15' WIDE PRIVATE WAY

N 05°50'06" W 107.42'

MAP 29A
LOT 187

S 62°45'44" W
110.00'

MAP 29A
LOT 185
10,001 S.F.



FFE=8.57'

61.5'

N 62°45'41" E 90.00'

EXISTING DWELLING #5

10.2' G.M.

14.5'

19.5'



101.84'
S 16°22'09" E

TORRINGTON (PRIVATE - 40' WIDE) ROAD

IP/FND

MAP 29A
LOT 196

MAP 29A
LOT 190

12.26.19

Revised.

CERTIFIED PLOT PLAN

5 BILLY'S WAY

IN

BILLY'S (PRIVATE - 40' WIDE) WAY

Sum Area By Label :

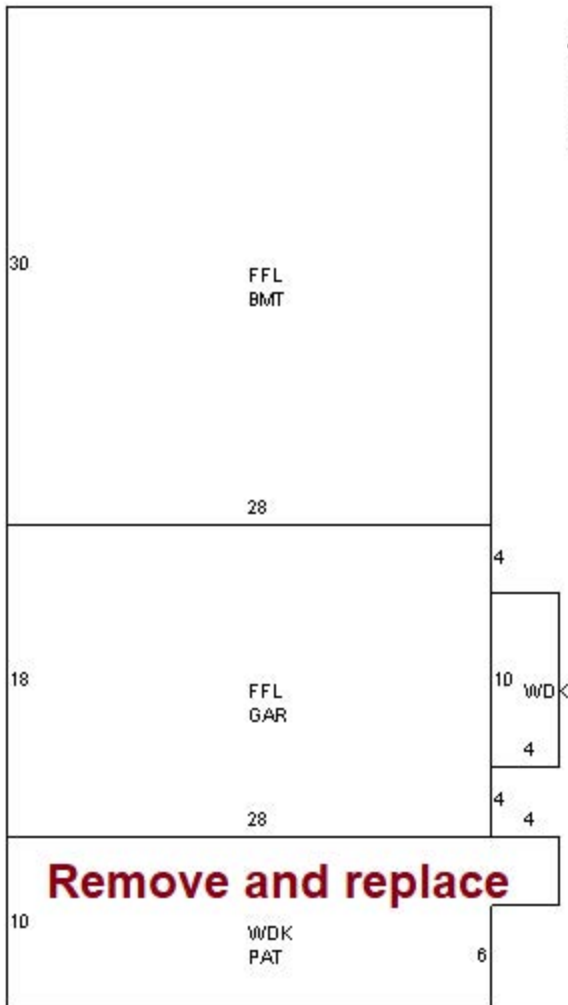
WDK = 336

FFL = 1344

BMT = 840

GAR = 504

PAT = 296



42 Bayview Ave

MEMORANDUM

DATE: January 16, 2020

PREPARED FOR: Whitney McClees, Conservation Agent
Town of Fairhaven Conservation Commission

PREPARED BY: Kevin M. Nagle, GRA
Todd Ravenelle, GRA

SUBJECT: **Notice of Intent (SE 023-1311 / CON 023-108)**
Proposed Pavement Resurfacing
USPS Carrier Annex, 4 Pequod Road, Fairhaven, MA 02719
Supplemental Information for Public Hearing

On behalf of the Applicant (U.S. Postal Service) and in accordance with the Massachusetts Wetlands Protection Act and the Town of Fairhaven Wetlands Bylaw, Gordon R. Archibald, Inc. (GRA) has submitted a Notice of Intent (NOI) for proposed pavement resurfacing and related exterior improvements at the above-referenced facility. A Public Hearing on this NOI was opened at the Conservation Commission's January 13, 2020 meeting, at which GRA provided an overview of the project, resource areas, and proposed measures to protect resources from impacts, and answered questions posed by the Conservation Agent (Staff Report dated January 8, 2020) and Commission Members. As MassDEP did not issue a file number at the time of this hearing, the NOI could not be put to vote and was continued to the next meeting date (January 27, 2020).

The following information is provided to address the questions and concerns raised in the Staff Report of January 8, 2020. A revised set of Site Plans (1/16/20 Revision Date) and an Addendum Sheet to the Stormwater Report document are also provided with this memorandum.

- *Question for Applicant:* Are their site constraints that prevent the use of both silt fence and compost filter sock?

Silt fence is not practicable along the portion of the site perimeter that abuts the adjacent developed property (i.e., cannot be properly installed along stone riprap slope). Silt fence has been added along the top of the wall separating the developed portion of the site from the resource area and wooded buffer below (see revised Grading & Drainage Plan, Details sheets).

- *Question for Applicant:* Do you have a location onsite for concrete truck washout?

The principal element of the project (pavement resurfacing) will be achieved through the placement of bituminous hot-mix asphalt base and surface courses over a recycled subbase, work that does not involve the use of cementitious materials that would require washout. Portland cement concrete will however be used in the replacement of sidewalks

along the southerly and westerly sides of the building. Details and notes have been added to the plans should the contractor elect to conduct concrete truck washout on-site.

- *Question for Applicant:* Do you anticipate needing to do any dewatering?

As the depths of excavation required to resurface pavements over a recycled-in-place subbase are shallow (less than 18 inches) and over fills used for initial development of the site, the need for dewatering is not anticipated.

- *Question for Applicant:* Is your assertion that since the stormwater facilities that were originally installed are functioning, the calculations from 2001 are still valid?

GRA asserted at the Public Hearing that the facilities installed are functioning, though acknowledged the Commission's comments that treatment units (StormTreat modular treatment system units) require corrective maintenance (including removal of overgrowth, debris and sediments). GRA explained the original design of the systems on-site and how the design computations remain valid; i.e., that the systems were designed and adequately sized to manage stormwater quality and quantity from the developed site.

- The Long-Term Operation and Maintenance Plan should provide a signature block for responsible party/operator signature.

A signature block has been added to the section of the Stormwater Report addressing Long-Term Operation and Maintenance Plan requirements (see attached Stormwater Report Addendum Sheet).

- The Commission should consider whether stormwater peer review is necessary.

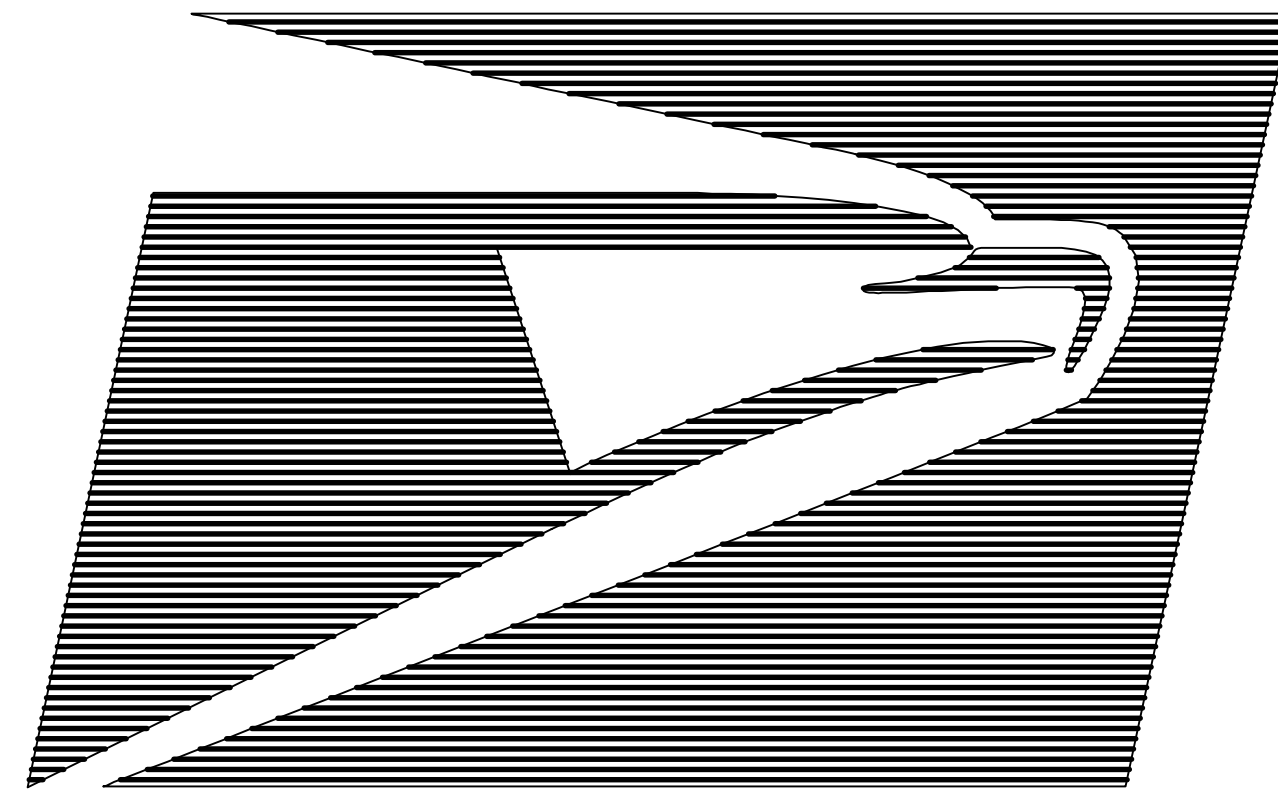
Based on GRA's summary and subsequent discussion regarding the existing stormwater facilities, it is understood that the Commission will not require a peer review.

Attachments:

- Revised Site Plans: *Paving, Carrier Annex, 4 Pequod Road, Fairhaven, MA 02719*, prepared by McKinnell, McKinnell, & Taylor, Inc. and Gordon R. Archibald, Inc., 12/17/2019, Revised 1/16/2020 (8 sheets)
- Stormwater Report Addendum Sheet (p. 11-A)

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CARRIER ANNEX
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A/E FIRM

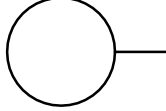
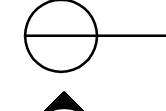
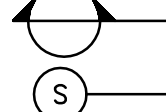
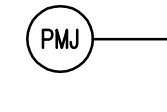

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& McKINNELL
& TAYLOR Inc.**

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SUITE 201
164 WASHINGTON STREET
NORWELL, MA 02061
PHONE: (781) 878-6223
FAX: (781) 878-8920

GENERAL NOTES

1. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE U.S.P.S TO MAINTAIN CUSTOMER ACCESS AT ALL TIMES.
2. ALL WORK BEING PERFORMED SHALL NOT IN ANY WAY INTERFERE WITH THE REGULAR OPERATION OF THE U.S.P.S. FACILITY. SECURITY SHALL BE MAINTAINED AT ALL TIMES.
3. THE CONTRACTOR SHALL COORDINATE ALL WORK WITH THE FACILITY FOR ACCESS TO AND FROM THE FACILITY.
4. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD BEFORE BEGINNING ANY WORK OR PURCHASING ANY MATERIAL OR EQUIPMENT.
5. THE CONTRACTOR SHALL VISIT THE SITE TO VERIFY EXISTING CONDITIONS BEFORE SUBMITTING THEIR OFFER. NO EXTRA WILL BE ALLOWED FOR FAILURE TO COMPLY WITH THE ABOVE.
6. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT / ENGINEER OF ANY EXISTING CONDITION DISCOVERED DURING DEMOLITION THAT WILL INTERFERE WITH THE NEW WORK.

LEGEND

-  SHEET LOCATION MARK
-  DETAIL MARK
-  SECTION MARK
-  SEALANT
-  PREMOLDED JOINT FILLER

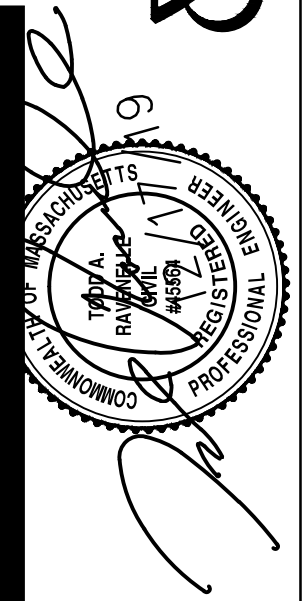
ABBREVIATIONS

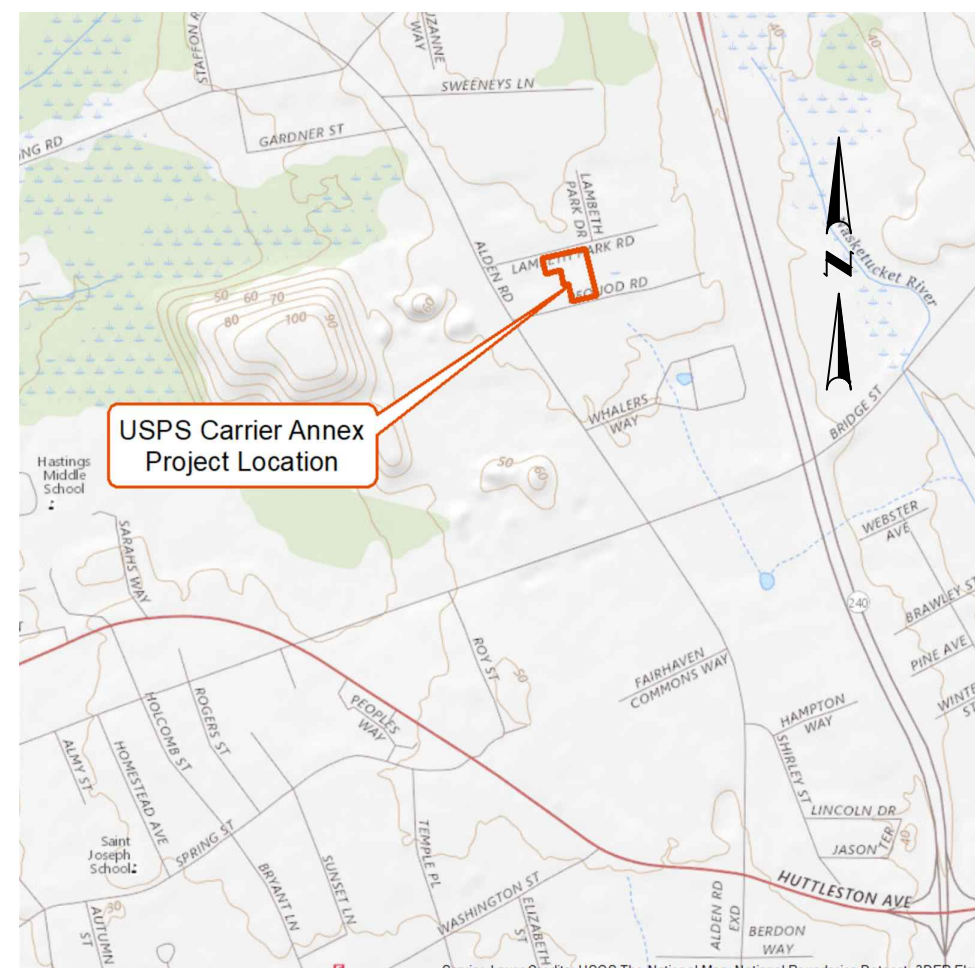
&	AND	MATL.	MATERIAL
⊙	AT	MAX.	MAXIMUM
DIA	DIAMETER	MFGR.	MANUFACTURER
AFF	ABOVE FINISHED FLOOR	MIN.	MINIMUM
ALUM	ALUMINUM	M.O.	MASONRY OPENING
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MOD	MODIFIED
APPROX.	APPROXIMATE, APPROXIMATELY	MTD	MOUNTED
B.O.	BOTTOM OF	MTL.	METAL
BD.	BOARD	NO.	NUMBER
BRG.	BEARING	N/A	NOT APPLICABLE
CCTV	CLOSED-CIRCUIT TELEVISION	O.C.	ON CENTER
⊕	CENTERLINE	O.D.	OUTSIDE DIAMETER
CLG.	CEILING	OPP.	OPPOSITE
CLR.	CLEAR	P. LAM.	PLASTIC LAMINATE
CMU	CONCRETE MASONRY UNIT	PART.	PARTITION, PARTIAL
COL.	COLUMN	PBSM	POSTAGE BOOKLET STAMP MACHINE
COLS.	COLUMNS	PLYWD.	PLYWOOD
CONC.	CONCRETE	P.O.	POST OFFICE
CONT.	CONTINUOUS	P.O.S.	POINT OF SALE
C.O.	CONTRACTING OFFICER	PTD	PAINTED
D.S.	DOWNSPOUT	PL	PLATE
DIA.	DIAMETER	RECEP.	RECEPTACLE
DISP.	DISPLAY OR DISPENSER	REF.	REFER, REFERENCE
DTL.	DETAIL	REQ'D	REQUIRED
E.W.C.	ELECTRICAL WATER COOLER	R.O.	ROUGH OPENING
ELEC.	ELECTRIC, ELECTRICAL	SQ. FT.	SQUARE FEET
EQ.	EQUAL	SQ. IN.	SQUARE INCHES
EXP	EXPANSION	SCW	SOLID CORE WOOD
EXT.	EXTERIOR	S.S.	STAINLESS STEEL
F.E.	FIRE EXTINGUISHER	SHT.	SHEET
FF	FACTORY FINISH	SHTS.	SHEETS
FIN.	FINISH(ED)	SIM.	SIMILAR
F.O.	FACE OF	SPECS	SPECIFICATIONS
GA.	GAUGE	STL.	STEEL
G.C.	GENERAL CONTRACTOR	T & G	TONGUE AND GROOVE
GYP.	GYPSUM	TELE.	TELEPHONE
H	HIGH	THICK	THICKNESS
HB.	HOSE BIBB	THRESH	THRESHOLD
HDW	HARDWARE	T.O.	TOP OF
HGT.	HEIGHT	TYP	TYPICAL
HM	HOLLOW METAL	U.O.N.	UNLESS OTHERWISE NOTED
HT.	HEIGHT	USPS	UNITED STATES POSTAL SERVICE
I.D.	INSIDE DIAMETER	VCT	VINYL COMPOSITION TILE
i.e.	THAT IS	VIF	VERIFY IN FIELD
INSUL.	INSULATION	W	WIDE
INT	INTERIOR	W/	WITH
IRT	INTEGRATED RETAIL TERMINAL	WD	WOOD
JAN.	JANITOR	WWF	WELDED WIRE FABRIC
JT.	JOINT		
LB	POUND		

INDEX OF DRAWINGS

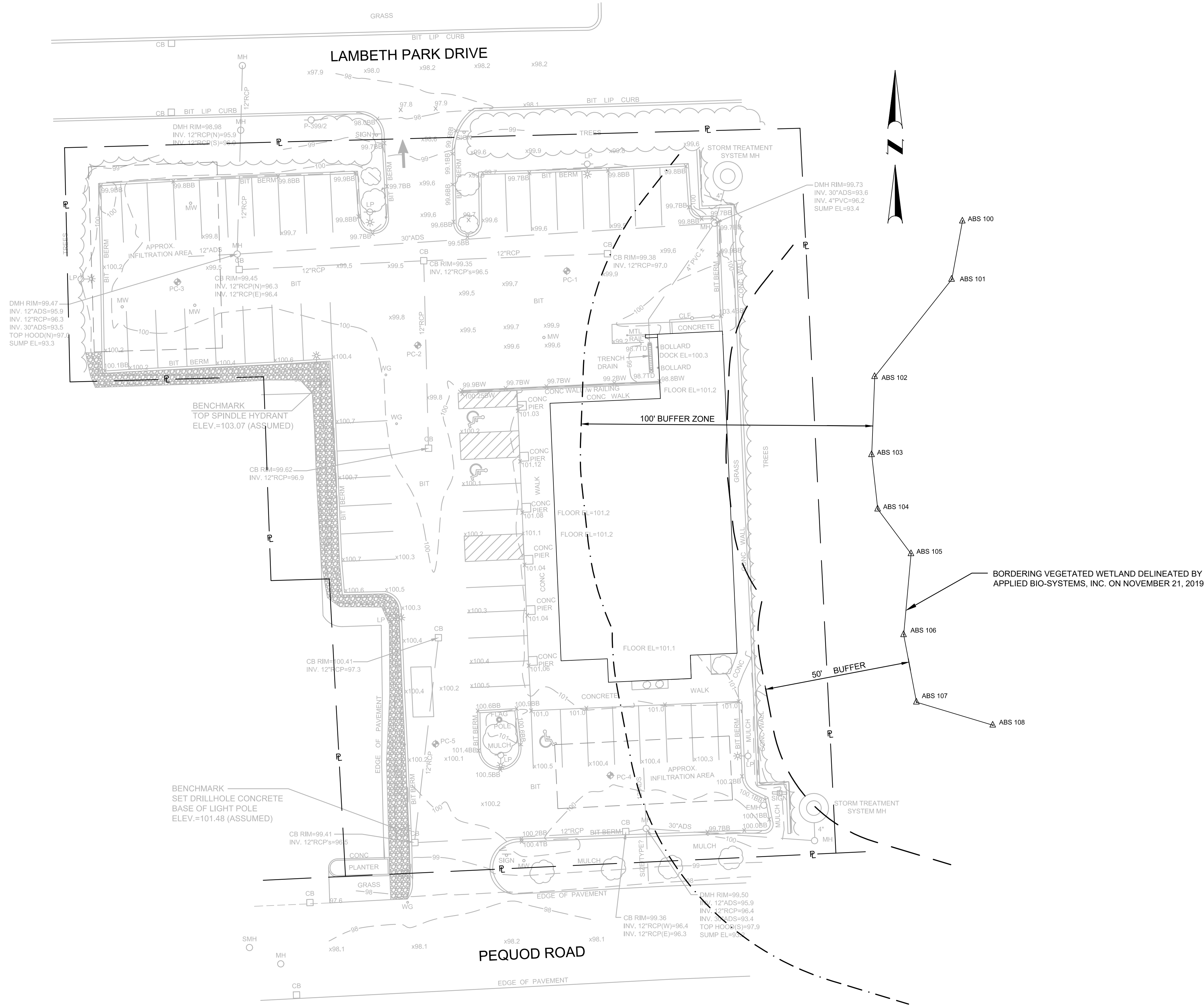
T1.01	TITLE SHEET
C1.01	EXISTING CONDITIONS PLAN
C1.02	GENERAL PLAN
C1.03	GRADING & DRAINAGE PLAN
C1.04	SIGNING AND STRIPING PLAN
C1.05	NOTES AND LEGEND
C1.06	DETAILS - 1
C1.07	DETAILS - 2

NOTICE OF INTENT
NOT FOR CONSTRUCTION

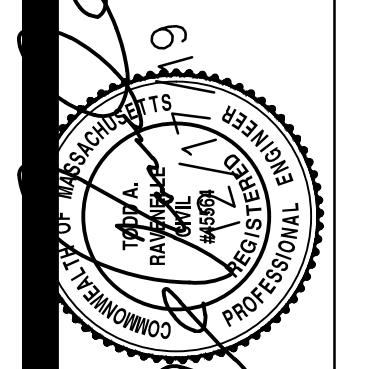




LOCUS MAP
NOT TO SCALE



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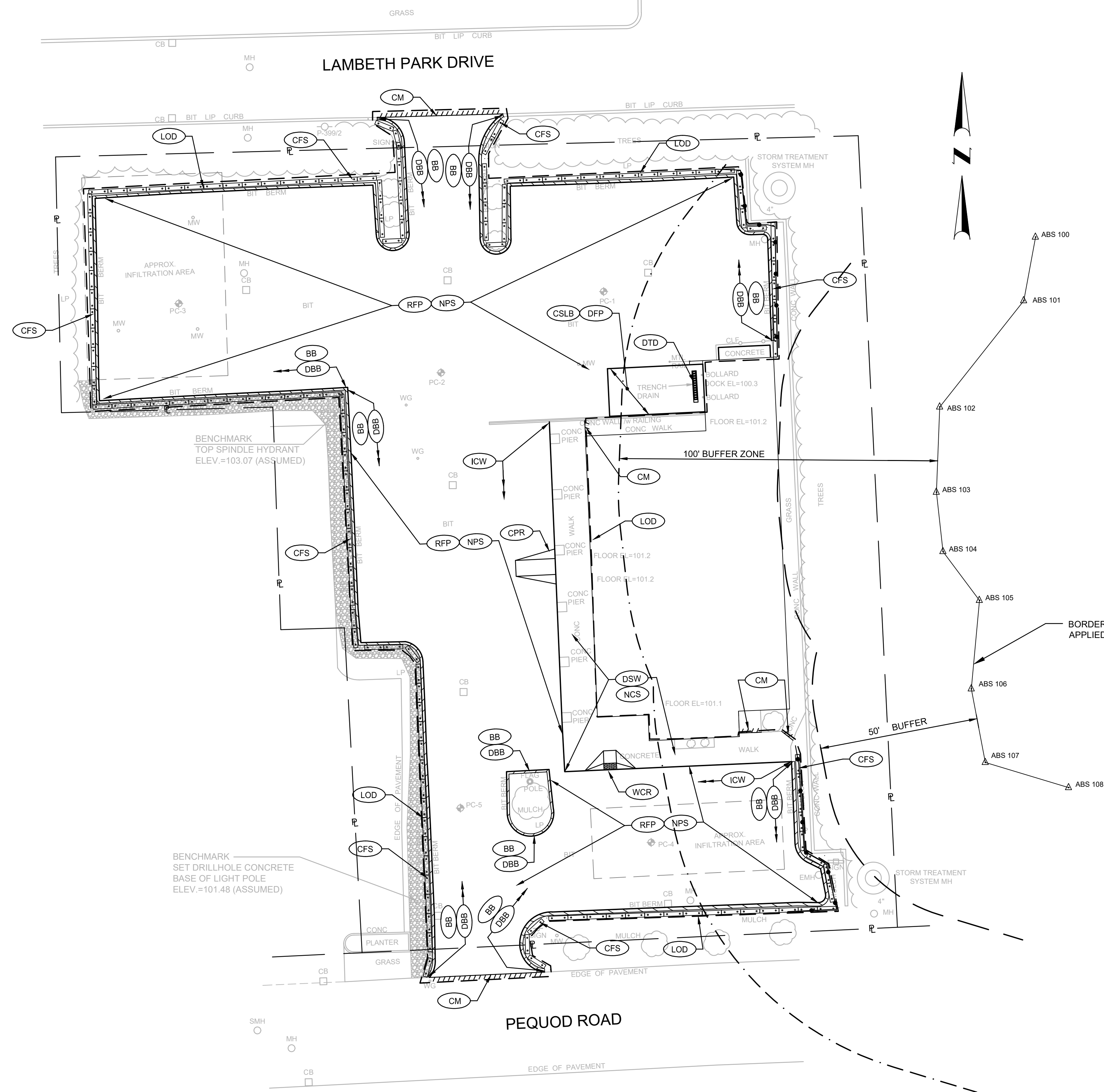


C1.01 EXISTING CONDITIONS PLAN
 SCALE: 1" = 20'
 DATE: 12/17/19
 A/E PROJECT NO.: 19033.00
 USPS PROJECT NO.: E35638

GRIFFIN Gordon R. Archibald, Inc.
 Civil and Environmental Engineers
 Pawtucket, Rhode Island

Windsor Facilities Service Office, 6 Griffin Road North, Windsor, CT 06096-0300

BORDERING VEGETATED WETLAND DELINEATED BY APPLIED BIO-SYSTEMS, INC. ON NOVEMBER 21, 2019

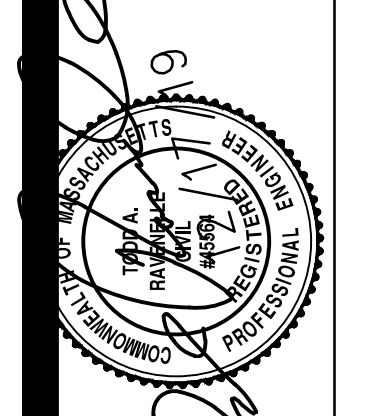


LEGEND

////	CUT AND MATCH
BB	NEW BITUMINOUS BERM
CFS	COMPOST FILTER SOCK
CM	SAWCUT & MATCH PAVEMENT
CPR	CARRIER PLATFORM RAMP
CPLB	NEW CONCRETE SLAB
DBB	REMOVE & DISPOSE BITUMINOUS BERM
DFP	REMOVE & DISPOSE FLEXIBLE PAVEMENT
DSW	REMOVE & DISPOSE SIDEWALK
DTD	REMOVE & DISPOSE TRENCH DRAIN
ICW	INTEGRATED CONCRETE CURB / WALK
NCS	NEW CONCRETE SIDEWALK
NPS	NEW PAVEMENT STRUCTURE
RFP	RECYCLE FLEXIBLE PAVEMENT FOR SUBBASE
LOD	LIMIT OF DISTURBANCE
WCR	WHEEL CHAIR RAMP

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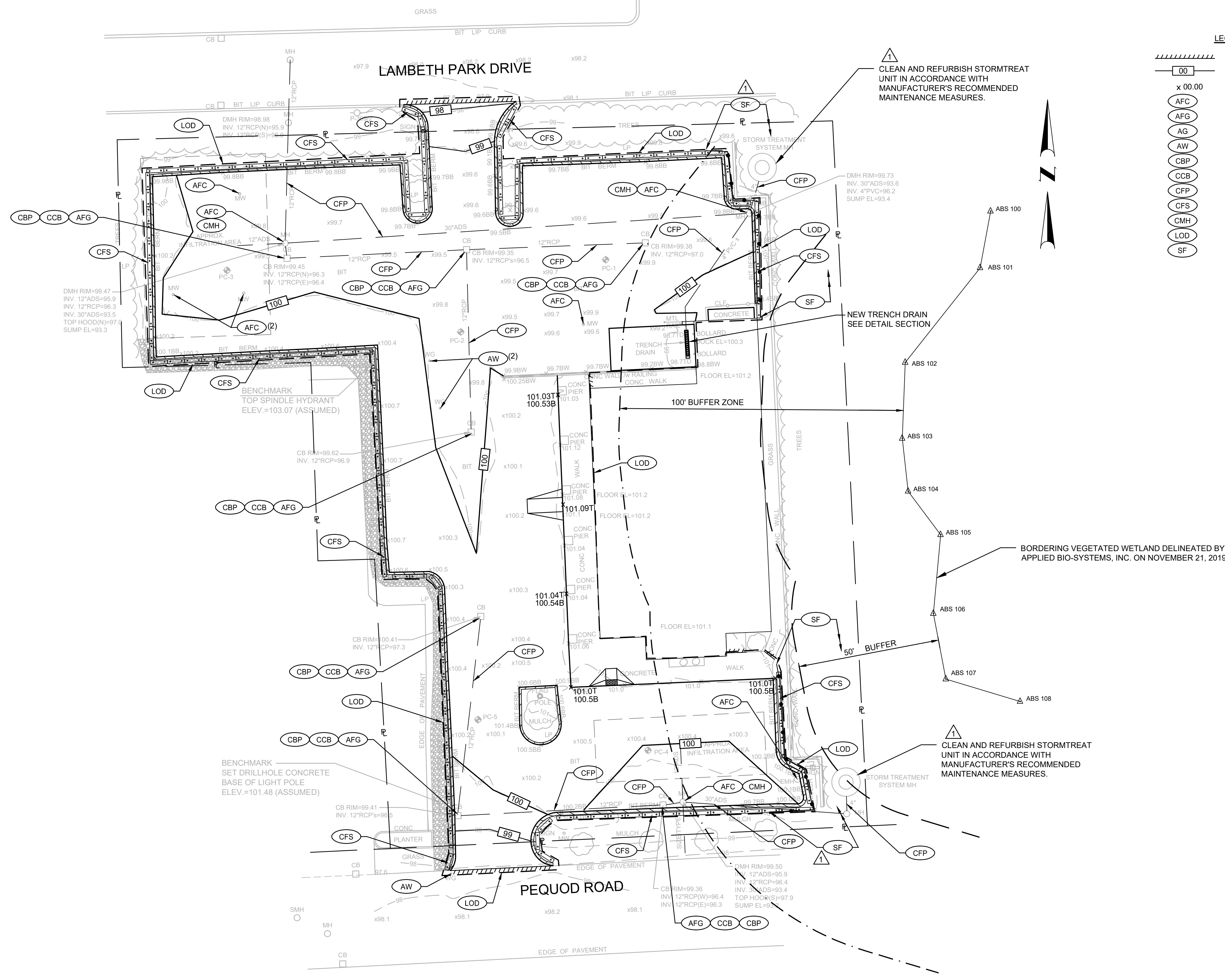
C1.02 GENERAL PLAN

SCALE: 1" = 20'
 DATE: 12/17/19
 REVISIONS:
 A/E PROJECT NO.: 19033.00
 USPS PROJECT NO.: E35638

DATE: _____
 REVISIONS: _____
 A/E PROJECT NO.: _____
 USPS PROJECT NO.: _____

GRIFFIN Gordon R. Archibald, Inc.
 Civil and Environmental Engineers
 Pawtucket, Rhode Island

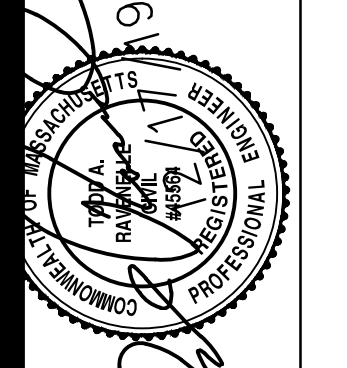
Windsor Facilities Service Office, 6 Griffin Road North, Windsor, CT 06096-0300



- LEGEND**
- CUT AND MATCH
 - PROPOSED GRADE
 - PROPOSED SPOT GRADE
 - ADJUST FRAME AND COVER
 - ADJUST FRAME AND GRATE
 - ADJUST GAS GATE
 - ADJUST WATER GATE
 - CATCH BASIN INLET PROTECTION
 - CLEAN CATCH BASIN
 - CLEAN & FLUSH PIPE
 - COMPOST FILTER SOCK
 - CLEAN MANHOLE
 - LIMIT OF DISTURBANCE
 - SILT FENCE (SEE DETAIL)

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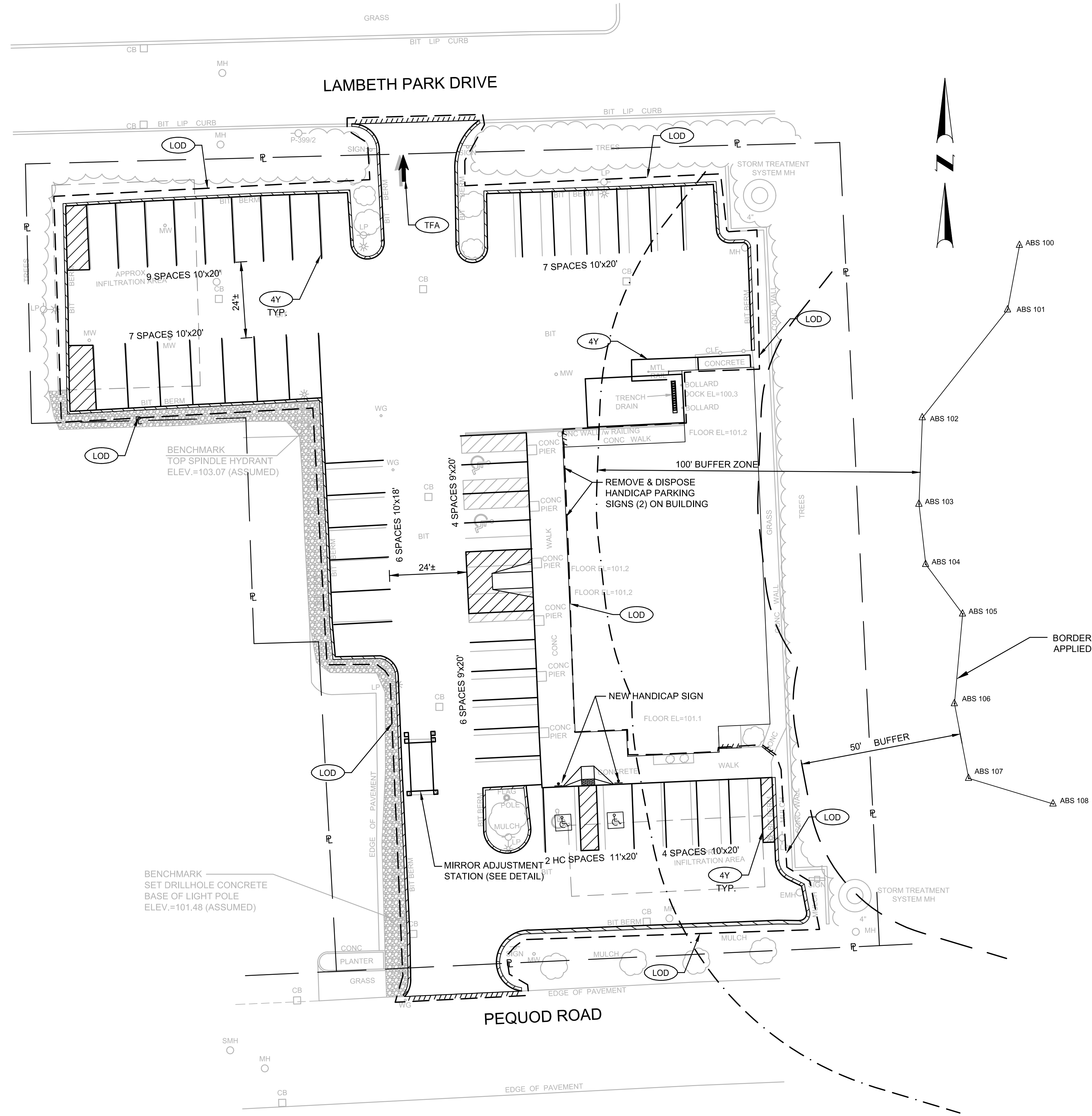


C1.03 GRADING & DRAINAGE PLAN

DATE: 12/17/19
 REVISIONS: 1
 PROJECT NO.: 19033.00
 NOT COMMENTS
 USPS PROJECT NO.: E35638

GRI Gordon R. Archibald, Inc.
 Civil and Environmental Engineers
 Pawtucket, Rhode Island

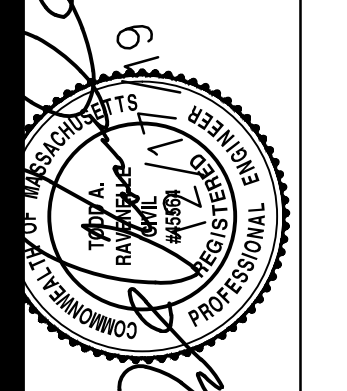
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LEGEND
 LOD LIMIT OF DISTURBANCE
 TFA TRAFFIC FLOW ARROW (SEE DETAIL)
 4Y 4" YELLOW STRIPE

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C1.04 SIGNING AND STRIPING PLAN
 SCALE: 1" = 20'
 DATE: 12/17/19
 REVISIONS:
 DATE: 19033.00
 PROJECT NO.: E35638
 DATE: 19033.00
 PROJECT NO.: E35638

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 Civil and Environmental Engineers
 Pawtucket, Rhode Island

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potential to receive construction runoff, and will be maintained for the duration of the project. Stormwater system elements will be cleaned and flushed as part of final site restoration.

2.9 Standard 9: Operation and Maintenance Plan

In the time since taking occupancy of the Carrier Annex, the USPS has maintained all exterior elements (including stormwater management systems) in a state of good repair through periodic maintenance and corrective measures. The owner of the stormwater management systems is the owner of the property (Fairhaven Annex LLC) and the party responsible for operation and maintenance of these facilities is the USPS.

A Maintenance Plan for the StormTreat System units was included as an exhibit of the Drainage Analysis report including with the NOI filing for initial development of the property (see Appendix C). In addition to the maintenance of these units, the USPS will continue to conduct twice-annual inspections and cleanout of all other accessible stormwater system elements on the property, including all deep-sump catch basins, manholes and piping. This maintenance will be performed in conjunction with the twice-annual cleaning and sweeping of lot surfaces for long-term pollution prevention.

The locations of all stormwater facilities to be maintained are shown on the site plans (Grading and Drainage Plan) submitted with this NOI for pavement resurfacing. While access to and use of the Carrier Annex is limited to USPS personnel only, both the site and stormwater management facilities are devoid of elements that could constitute a risk to public safety.

The routine maintenance activities described herein are anticipated to require annual expenditures on the order of \$500 - \$2000 depending on whether additional repairs or non-routine measures are required. Should routine inspections reveal structural or operational deficiencies with any elements of the system, the USPS will undertake appropriate corrective action, including the repair and/or replacement of compromised elements.

An Operation and Maintenance Log Form for the stormwater facilities at the Carrier Annex has been prepared and is included as Appendix F of this report.

As an authorized representative of the USPS, I hereby attest that the USPS will be the responsible party for operating and maintaining facilities as described in this Stormwater Report.

RESPONSIBLE PARTY/OPERATOR SIGNATURE

DATE

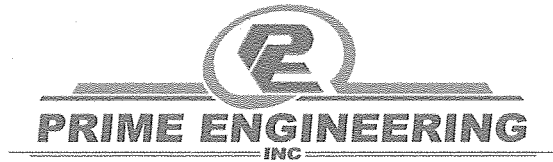
PRINTED NAME

TITLE

2.10 Standard 10: Illicit Discharges

As the Operator of the Carrier Annex facility, the USPS affirms that there are no illicit discharge connections closed storm sewer system serving the property. By its nature and purpose, the proposed project will not increase the potential for illicit discharges to resources protected under the WPA.

+ + +



January 23, 2020

Fairhaven Conservation Commission
40 Center Street
Fairhaven, MA 02719
Attn: Whitney McClees

RE: Proposed Mazda Dealership - Bridge Street

Dear Ms. McClees:

Attached are the following:

- Response to GCG Associates, Inc. letter dated January 10, 2020. Please note our responses to this iteration are in yellow.
- Revised set of plans dated January 22, 2020.
- Revised Operation and Maintenance Program dated January 22, 2020.
- Revised Stormwater Report Appendix A - Site Construction Controls.

I look forward discussing these changes with you at your January 27 meeting.

Sincerely,

PRIME ENGINEERING, INC.

A handwritten signature in black ink, appearing to read 'Richard J. Rheame', is written over the printed name and title.

Richard J. Rheame, P.E., LSP
Chief Engineer

**PERMANENT OPERATION AND MAINTENANCE PROGRAM
FOR THE PROPOSED AUTO DEALERSHIP
FAIRHAVEN, MA
ASSESSOR'S MAP 36 LOT 15**

PREPARED FOR:

**CARAPACE, LLC
2 STAR OF THE SEA DRIVE
DARTMOUTH, MA 02748**

PREPARED BY:

**PRIME ENGINEERING, INC.
P.O. BOX 1088
LAKEVILLE, MA 02347**

JANUARY 22, 2020

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APPENDICES

Appendix A - BMP Inspection Report Form

1.0 INTRODUCTION

The development of the Bridge Street site has been designed to provide improved stormwater quality compared to existing conditions. In order for this to continue in the long term, it is necessary to implement the following Long Term Operation and Maintenance Program.

2.0 RESPONSIBLE PARTY

Carapace, LLC
121 Alden Road
Fairhaven, MA 02719
Telephone: (508) 999-0100
Email: craiglutz@aldenauto.com

Craig Lutz, Responsible Member

3.0 SOURCE CONTROL MEASURES

The most effective means of providing clean runoff is to prevent pollutants from coming into contact with the stormwater in the first place. This involves the following:

- Keeping de-icing agents, fertilizers, stockpiles, etc. covered at all times. All such products shall be stored indoors or off-site.
- All landscaping, fertilization, and other grounds maintenance shall be done by professional ground keepers who are trained at how to maintain the grounds.
- A weekly street sweeping program shall be implemented. This program shall include removal of windblown debris and litter from landscaped areas.
- A supply of speedy dry type oil absorbent material shall be kept on site to allow for the quick cleanup of minor spills.

4.0 MAINTENANCE OF STORM SYSTEM

This section presents the periodic maintenance that must be completed:

4.1 CATCH BASIN MAINTENANCE

The deep sump catch basins shall be cleaned a minimum of four times per year. Whenever the sediment has built to a depth of 18 inches, the sediment shall be removed.

4.2 FOREBAY MAINTENANCE

Inspect sediment forebays bi-monthly and clean them out at least once per year. Stabilize the floor and sidewalls of the sediment forebay before making it operational. When mowing grasses, keep the grass height no greater than 6 inches. Set mower blades no lower than 3 to 4 inches. Check for

signs of rilling and gulying and repair as needed. After removing the sediment, replace any vegetation damaged during the clean-out by either reseeding or re-sodding. When reseeding, incorporate practices such as hydroseeding with a tackifier, blanket or similar practice to ensure that no scour occurs in the forebay, while the seeds germinate and develop roots.

4.3 FILTER STRIP MAINTENANCE

Conduct semi-annual inspections during the first year (and annually thereafter). Inspect the level spreader for sediment buildup and the vegetation for signs of erosion, bare spots, and overall health. Regular, frequent mowing of the grass is required. Remove sediment from the toe of slope or level spreader, and reseed bare spots as necessary. Periodically, remove sediment that accumulates near the top of the strip to maintain the appropriate slope and prevent formation of a "berm" that could impede the distribution of runoff as sheet flow. Inspect and remove trash monthly.

4.4 RAINGARDEN MAINTENANCE

Remove invasive species as needed to prevent these species from spreading into the bioretention area. Replace mulch every two years, in the early spring. Upon failure, excavate bioretention area, scarify bottom and sides, replace filter fabric and soil, replant and mulch. Replace dead plants. Raingardens require inspection and removal of trash monthly, mowing 2 to 12 times per year, and mulching, fertilizing, removing dead vegetation and pruning annually.

4.5 POCKET WETLAND MAINTENANCE

In the first three years after construction, inspect the constructed stormwater wetlands twice a year during both the growing and non-growing seasons. During these inspections, record and map the following information:

- The types and distribution of the dominant wetland plants in the marsh;
- The presence and distribution of planted wetland species;
- The presence and distribution of invasive wetland species (invasives must be removed);
- Indications that other species are replacing the planted wetland species;
- Percentage of standing water that is unvegetated (excluding the deep water cells which are not suitable for emergent plant growth);
- The maximum elevation and the vegetative condition in this zone, if the design elevation of the normal pool is being maintained for wetlands with extended zones;
- Stability of the original depth zones and the micro-topographic features; and
- Accumulation of sediment in the forebay and micropool; and survival rate of plants (cells with dead plants must be replanted).

Pocket wetlands require a clean out of sediment in basins/wetlands once every 10 years and disposal of removed sediment and debris off-site shall be completed according to the federal, state and local

regulations.

5.0 INVASIVE VEGETATION CONTROL

There are invasive species on the site that must be controlled. These include purple loosestrife, bull briar and phragmites. These are to be controlled on an annual basis (every summer) by hand pruning at the ground level, bagging all vegetation removed and hauling off-site to a licenced disposal area.

6.0 SPILL PREVENTION AND RESPONSE PLAN

The Property Manager shall train personnel in the proper handling and cleanup of spilled hazardous substances or oil. No spilled hazardous substances or oil shall be allowed to come in contact with stormwater discharges. If such contact occurs, the stormwater discharge shall be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose such contaminated stormwater. The Property Manager shall train personnel in spill prevention and cleanup procedures.

In order to prevent or minimize the potential for a spill of hazardous substances or oil to come into contact with stormwater, the following steps shall be implemented:

- All hazardous substances or oil (such as pesticides, petroleum products, fertilizers, detergents, chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) shall be stored in a secure location, with their lids on, preferably under cover, when not in use.
- The minimum practical quantity of all such materials shall be kept at the facility.
- A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, plastic and metal trash containers, etc.) shall be provided at the site.
- Manufacturer's recommended methods for spill cleanup shall be clearly posted and site maintenance personnel shall be trained regarding these procedures and the location of the information and cleanup supplies.
- The Property Manager shall ensure that hazardous waste discovered or generated at the site is disposed properly by a licensed hazardous material disposal company. The Property Manager is responsible for not exceeding hazardous waste storage requirements mandated by the EPA or state and local authority.

A spill contingency plan shall be implemented including the following provisions:

- Equipment necessary to quickly attend to inadvertent spills shall be stored on-site in a secure but accessible location. Such equipment shall include:
 1. Safety goggles.
 2. Chemically resistant gloves and overshoe boots.
 3. Water and chemical fire extinguishers.

4. Sand and shovels.
5. Suitable absorbent materials.
6. Storage containers.
7. First aid equipment.

In the event of a spill of hazardous substances or oil, the following procedures must be followed:

- All measures must be taken to contain and abate the spill and to prevent the discharge of the hazardous substance or oil to stormwater or off-site. (The spill area must be kept well ventilated and personnel must wear appropriate protective clothing to prevent injury from contact with the hazardous substances.)
- For spills of less than five (5) gallons of material, proceed with source control and containment, clean-up with absorbent materials or other applicable means unless an imminent hazard or other circumstances dictate that the spill should be treated by a professional emergency response contractor.
- For spills greater than five (5) gallons of material, immediately contact Richard J. Rheume, LSP, Prime Engineering, Inc., P.O. Box 1088, Lakeville, MA 02347 at (508) 947-0050 to provide information on the type of material spilled, the location of the spill, the quantity spilled, and the time of the spill and proceed with prevention, containment and/or clean-up if so desired.
- Spills of amounts that exceed reportable quantities of certain substances specifically mentioned in federal regulations 40 CFR 110, 40 CFR 117, and 40 CFR 302 must be immediately reported to the EPA National Response Center (Telephone (800) 242-8802). The Property Manager shall be the spill prevention and response coordinator and shall designate the individuals who shall receive spill prevention and response training. These individuals shall each become responsible for a particular phase of prevention and response. The names of these personnel should be posted in the material storage area and in the property office.

7.0 SNOW AND ICE REMOVAL

Snow removal shall be primarily done by mechanical removal rather than chemical application. The judicious use of sand and salt without chemical additives is allowed in order to protect the safety of the public. No snow shall be placed in the BMPs. Excess snow shall be hauled off-site.

8.0 ANNUAL MAINTENANCE BUDGET

Inspection of BMPs	\$ 1,000
Forebay Cleaning and Disposal	\$ 1,200
Raingarden Maintenance	\$ 800
Filter Strip Maintenance	\$ 600

Pocket Wetland Maintenance	\$ 1,400
Catch Basin Cleaning	\$ 1,200
Grass Mowing	\$ 4,000

APPENDIX A

BMP INSPECTION REPORT FORM

BMP INSPECTION REPORT

- TO BE KEPT ON SITE IN BMP LOG BINDER -

Inspection Performed By:

Date:

		Record Info Below
FOREBAY:	Depth of Sediment	_____ inches
	Was Sediment removed?	_____
FILTER STRIP:	Depth of Sediment	_____ inches
	Was Sediment removed?	_____
	Erosion? _____	Erosion Repaired? _____
	Bare Spots? _____	Repaired? _____
RAINGARDEN:	Invasive Species? _____	Removed? _____
	Condition of Mulch? _____	Replaced? _____
	Dead Plants? _____	Replaced? _____
POCKET WETLANDS:	Condition of Plants? _____	
	Invasive Species? _____	Removed? _____
	Percent Plant Cover:	Deep Marsh? _____
		Shallow Marsh? _____
	Average Depth:	Deep Marsh? _____ inches
		Shallow Marsh? _____ inches
	Sediment Depth: _____	Removed? _____

Additional Comments:

Phone: (978) 657-9714
Fax: (978) 657-7915

January 10, 2020

Ms. Whitney McClees,
Conservation Agent and Sustainability Coordinator
Conservation Commission
Town Hall
40 Center Street
Fairhaven, MA 02719

RE: Proposed Auto Dealership, Fairhaven, MA.
Notice of Intent / Site Plan
250 Bridge Street.

Dear Ms. McClees:

GCG Associates, Inc. has reviewed the following information for the 250 Bridge Street, proposed auto dealership site plan in Fairhaven, MA with respect to stormwater and Stormwater related requirements under 310 CMR 10.00 Wetlands Protection Act Regulations.

Plan References: Proposed Auto Dealership, 250 Bridge Street, Fairhaven, MA prepared by Prime Engineering, Inc. dated April 27, 2015, last revised December 03, 2019 consists of:

- 1 – Title Sheet
- 2 – Existing Conditions Plan
- 3 – Erosion Control Plan
- 4 – Site Layout Plan
- 5 – Grading and Drainage Plan
- 6 – Utilities Plan
- 7 – Lighting Plan
- 8 – Landscaping Plan
- 9 – Constructed Wetland Plan
- 10 – Site Details.
- 11 – Vehicle Movement Plan.

Documents: Supplemental Drainage Calculations prepared by Prime Engineering, Inc. dated October 31, 2019

Permanent Operation and maintenance Program for the Proposed Auto Dealership, Fairhaven, MA, Assessor's map 36 Lot 15 prepared by Prime Engineering, Inc. dated December 09, 2019

Cover/Response letter prepared by Prime Engineering, Inc. dated December 11, 2019,

Based upon our review of the above information, we offer the following general comments and comments with respect to compliance with Town Bylaws: Chapters 192 – Wetlands; 194 - Stormwater Management, Illicit Discharge, Soil Erosion, Sediment Control By-Law; 198-31.1 – Zoning - Stormwater Management and 310 CMR 10.00 Wetlands Protection. The numerical section of the regulations is referenced at the beginning of each comment unless it is a general comment. Prime Engineering, Inc. response shown in *Italic Arial*, GCG latest comments shown in **Bold Arial**.

GENERAL PLAN AND DEVELOPMENT COMMENTS

The following are general comments with respect to the plans and development of the project.

1. This is a partially developed lot located at the northwest side of Bridge Street and Route 240 intersection, as identified as Assessor's Map 36 Lot 15. The parcel consists of 5.35+/- acres. The site was improved with an existing pavement driveway approximately 23'+/- wide by 350'+/- length connecting Bridge Street to Lot 15C, where an existing auto dealership uses.
2. The applicant has filed a Notice of Intent for a commercial site plan development for auto dealership uses, the project calls for a single storage building for automobile show room, office, vehicles maintenance uses, and associated pavement parking lot and utilities. The proposed work area is over 1 acre and requires filing an US EPA - NPDES permit and associated SWPPP. (NPDES NOI shall be filed 14 days prior to construction start.)
3. The proposed work limit also exceeds the Land Disturbance Permit (Chapter 194) threshold and requires filing a permit with the Fairhaven Board of Public Works.
4. The proposed Auto Sale and Services (Auto Dealership) is permitted by right in the Industrial Zone. This site development requires a Planning Board Special Permit approval per Chapter 198-29. Which requires site design in compliance with Chapter 198-31.1 Stormwater management standards. Hence, stormwater management design is being reviewed to meet 198-31.1 requirements.
5. The project is located within Zone X, Area of Minimal Flood Hazard, (FIRM 25005C0394G, effective 7/16/2014), four series (A, Y, Z, and HS) of wetland resource area were identified on the property and requires to file a Notice of Intent with the Fairhaven Conservation Commission and MassDEP.
6. There is no NHESP estimated habitats of rare wildlife or rare species identified in the site vicinity per MassGIS.

PLAN SET

Drawing Sheet 1 - Title Sheet.

**Auto Dealership Site Plan
250 Bridge Street
GCG Job#1988**

1. *Plan note #2. A variation is requested to Stormwater Management – Section 198-31.1. A(1)(a)[2], to allow the increase in volume of runoff due to the D soil and near surface ground water. This is a local regulation requirement only and is not regulated by MassDEP. 198-31.1.C(2)(k)[1], requires the volume control shall be by infiltration; [2] requires infiltration areas shall be located in areas with a Hydrologic Soil Group (HSG) of A, B, or C. The subject site is entirely located within HSG ‘D’ soil per NRCS soil survey. Therefore, infiltration is impractical and without the waiver, the site would be un-developable. No response necessary. **The latest calculations shown post-development runoff volume net increases of 0.874 AF (193%) and 0.329 AF (162%) for 2-year and 10-year storm events, respectively. A waiver has been requested due to the physical soil limitation on the site.***
2. *Plan note #3. A variation is requested to Stormwater Management – Section 198-31.1. B(2)(a)[h]&[i], to not provide soil logs since the infiltration is not proposed due to the D soil and near surface ground water. GCG recommends deep hole tests be performed at the proposed pocket wetland location to determine the seasonal high ground water (ESHGW) elevation and verify the available storage volume (above the ESHGW) and available water table to support the wetland vegetation. Soil deep hole test should also be performed at the rain garden #1 culvert outlet location to assure the pipe invert are not submerged below ESHGW. A hand dug test pit was dug on December 1, prior to any precipitation. There had been no significant antecedent precipitation for 5 days. The location of the test pit is shown on Sheet 4-Grading and Drainage Plan. The fine sandy silt at an 8-inch depth (elevation 43.0) was wet and indicative of the water table. The log is enclosed in Attachment A. We have determined that the constructed pocket wetland will be notched into the seasonally high-water table. There will be adequate storage above the seasonally high-water table because the elevation of the detention basin outlet culvert will assure that the water in the basin is always at the outlet invert elevation 43 .0 except during significant surficial rainfall runoff events. The existing pipe invert elevation downgradient of the raingarden will assure that the pipe will not be submerged by the groundwater. **Resolved. This item is also for supporting waiver request item 1 above.***
3. *Plan note #4. A variation is requested to Stormwater Management – Section 198-31.1. C(2)(g)[6], to allow the side slopes to be 2:1 to minimize impacts to wetland. This requirement is regulated by the local regulation as well as the State regulations. The local regulation requires a 4:1 grade or approved by the Conservation Commission. The regulation also requires a 10’ wide bench at 0% slope surround any permanent pool. The Massachusetts Stormwater Handbook (MSH) requires the sediment forebay side slope not steeper than 3:1. And requires a 15’ wide maintenance path surrounding the constructed wetland. The proposed plan shown a 1:1 slope along the west side of sediment forebays and pocket wetland. GCG recommends providing a 3:1 minimum slope along the sediment forebays to meet MDEP requirements. Constructed wetland should maintain a minimum of 2:1 side slope with a 10’ wide top bench for maintenance access. The proposed rain gardens could utilize the paved drive aisle for maintenance access. Granting a waiver for the State required access path width does not relief the developer to future actions imposed by MDEP. Alternative would be reducing the proposed pavement area to meet the local and MDEP requirements. *Over the past 50 years of designing detention basins and fore bays, we have determined that the fore bays require regular cleaning prior to the ground being fully stabilized. Once the ground is stable, the main source of sediment is the occasional sand that is spread on the parking lot during winter icing events. That sand is swept on a regular basis. The small amount of sand that is not swept is captured in the deep sump catch basins. The volume**

of sediment that reaches the forebay from a .41-acre parking lot can be removed by a hand shovel into a 5-gallon bucket and carried out by foot. There is no need for other equipment access, nevertheless, a 4:1 slope has been provided to access both forebays. **Both State and Town regulations are for equipment and vehicle access. MSH also requires clean out sediment in basin/wetland system once every 10-year, which would be difficult without equipment. The two proposed forebays have 4:1 side slope on 1 side. GCG recommends widening the northern forebay 4:1 area to 10 feet wide and provide a 10' wide access, (6' width proposed).**

The access to the forebays has been widened to be 10 feet wide.

4. Plan note #5. A variation is requested to Stormwater Management – Section 198-31.1.C(3), to allow the low impact development (LID) design meet the bmp requirements, as requested by the conservation commission. This requirement is regulated by the local regulation. The proposed pocket wetland basin and rain gardens BMPs could meet the MSH stormwater management standards. See additional comments regarding the BMPs below. No response necessary. **See BMPs comment below.**

Drawing Sheet -2 – Existing Conditions Plan.

1. Wetland delineation line as shown requires Conservation Commission approval. *The Conservation Commission has approved the wetland delineation.* **Resolved.**
2. Plan shown depression contours (47) along four rip-rap patches on the west side of existing paved driveway, and a rip-rap weir east of wet flag A32. It appears existing driveway runoff was designed to drain into the depressions through rip-rap patches for retention and overflow through the westerly rip-rap weir onto the west wetland. The pre-development drainage calculations should include this ponding element or based on the previous calculations. *Attachment A presents the soil log.* **Resolved.**
3. There is an existing catch basin located at the south side of wet flag A30. The two connected catch basin rim, inverts and outlet should be identified on the plan. The proposed rain garden #1 outlet pipes are located within 10' of the catch basin and may cause interference with the catch basin's function. *The drainage structure information has been added to Sheets 2 and 4.* **The project engineer clarified that the site drains southward to the Bridge Street catch basin. The pair of 12" RCP connected to the Bridge Street catch basin inverts (North side) are lower than the two outlet inverts (South side), which would cause sediment built up inside these two catch basins. GCG recommends to add the on-site catch basin to the Operation and Maintenance plan.**

The catch basin maintenance has been added to the Operation and Maintenance Plan.

Drawing Sheet 3 – Erosion Control Plan.

1. **Catch basin silt sack should be installed at the two-catch basin located west of the site driveway and catch basin at the intersection of Route 240 and Bridge Street.**

Catch basin sacks have been added to the Bridge Street catch basins on sheet 3.

Drawing Sheet 3 (New Sheet 4) – Site Layout Plan.

2. The easterly parking lot edge of pavement should have a curb/berm to direct surface runoff to the two catch basins and forebays for treatments. *The curbing is shown on Sheet 3.* **Cape cod berm needs an opening in front of Rain Garden 2 to collect runoff.**

**Auto Dealership Site Plan
250 Bridge Street
GCG Job#1988**

A 6-foot break in the Cape Cod berm has been added to the site layout and drainage plans.

3. Access path openings should be provided for the constructed wetland and forebays maintenance. *The curbing is shown on Sheet 3.* **There are parking spaces assigned in front of the maintenance path accesses. Since this is an automobile dealership use, the owner should have full control of the parking arrangement. The operator should be responsible to clear the parking spaces during system maintenance.**
4. Snow storage areas should be called out on the plan, snow should be stored outside the stormwater BMPs. *A snow storage has been added.* **The proposed snow storage area is located at the entrance of a one-way parking area, which will block the section of parking spaces. GCG does not see any suitable location for snow storage. We recommend the applicant to call out “Snow shall not be disposed within the Stormwater BMPs and excess snow to be removed off site by the owner with no costs to the Town.” And specify on the Stormwater Operation and Maintenance (O&M) plan that snow shall not be stored within the stormwater BMPs. O&M plan shall be signed by the operator.**

A note has been added to the Operation and Maintenance Plan.

Drawing Sheet 4 (New Sheet 5) – Grading and Drainage Plan

1. Plan should identify the portion of roof area drains to rain garden. Calculations shown only drop off vehicle roof area drains to rain garden. Roof drain pipe sizing calculations should be provided. *The entire building's roof slopes down from the front (south) end to the rear (north) end. For the 100-year storm $Q = ciA = (.95) (8.4) (.29) = 2.32$ CFS. The proposed 12-inch HDPE roof drain can pass 5.0 CFS at a velocity of 6 FPS.* **Plan should identify the section of roof drains to rain garden through the eight-inch diameter ductile iron pipe, which does not have the capacity to handle the entire roof runoff. The divide is shown in the HydroCAD report and should also be identified on the plan for the contractor.**
All of the roof runoff is directed to detention basin #1. The pipe has the capacity to convey the 100-year storm from the entire roof.
2. Curb or berm should be installed along the easterly edge of pavement to assure surface runoff be treated by the deep sump hooded catch basin and sediment forebay. *There is a cape cod berm. The curbing is shown on the Site Layout Plan.* **Resolved.**
3. Curb or berm should be installed along the Bridge Street access between the high point 47.20 to rain garden #1 crushed stone berm. *There is slope granite curb as shown on the Site Layout Plan.* **Resolved.**
4. Provide rip-rap protection at the rain garden #1 spillway and pipe outfalls. *A stone apron has been added.* **Resolved.**
5. The proposed three feet wide grass strip does not meet grass filter strip pretreatment requirements, filter strip length should be sizing per MSH Vol.2, Ch.2, Pg. 26. *The Stormwater Manual allows an 18-inch width of gravel followed by 3 feet of sod as shown on the detail on Sheet 4.* **The proposed 8 inches of gravel followed by 3 to 5 feet sod pre-treatment is based on the North Carolina Stormwater Manual (NCSM) as referenced by MSH. NCSM requires the bottom of the bioretention system to have two feet separation to seasonal high groundwater table and minimum media soil depth of 3 feet thickness and side slope not to excess 3h:1v. Therefore, the proposed pre-treatment filter strip does not meet the application. Another suitable pre-treatment should be provided.**

The raingarden has been lined with an under drain under the liner. A medium depth of 30 inches has been provided as required by the MassDEP Stormwater Manual. The 1-foot wide by 1-foot deep stone followed by a 3-foot width of grass satisfies the required pre-treatment.

6. Please identify the circular object next to the southeast forebay. *The former silo has been deleted from the plan.* **Resolved.**

7. MSH requires side slopes of sediment forebay no steeper than 3:1 (MSH Vol.2, Ch.2, Pg. 15), and requires a minimum width of 15 feet access for maintenance. (MSH Vol.2, Ch.2 , Pg.45). *A waiver is being requested.* **The applicant has provided a 4:1 slope on one side and 1:1 and 2:1 on the remaining sides of both forebays. GCG recommends widening the 4:1 side slope on the north forebay to 10 feet width and provide a 10 feet wide access path on top of the earth berm (6' width proposed). GCG recommends the waiver be considered with these modifications. However, the recommended modified system still not meeting the MSH (MDEP) requirements. But it will provide a reasonable access for maintenance and repair if necessary. Granting this waiver should not relief the applicant for any further actions imposed by MDEP.**

The access to the forebays and the width of the dike have been widened to 10 feet.

8. 198-31.1(C)(2)(g)[6] – requires basins/ponds designed for stormwater runoff control shall have side slopes at a no steeper than a 4H to 1V grade. And a ten-foot wide bench surround any permanent pool. 1:1 and 2:1 side slopes proposed, Applicant is seeking a various, see Cover sheet comment #3. *A waiver is being requested.* **MSH does not specify a minimum side slope for constructed wetland. Since MSH only requires clean out sediment in basin/wetland systems once every ten years, steep side slopes could be ramped during the infrequency maintenance. GCG does not see any adverse impacts for granting this waiver. However, a minimum 10 feet wide access path should be provided, (MSH requires a minimum of 15' wide access). Nevertheless, the same waiver could not be apply to the rain garden/ bioretention area, MSH requires pre-treatment for rain garden BMP, a minimum vegetated filter strip length of 15' to 25' is required depends on using the Georgia Stormwater Manual or MSN chapter 2 - Vegetated Filter Strips calculations. MSN also requires bioretention area must not located on slopes greater than 20%. The intention of the mild slope is to slow the sheet flow velocity to allow vegetation pre-treatment.**

9. 198-31.1(C)(2)(k) - Forebays [1][b] requires forebays to be sized to contain 0.25 inches per impervious acre of contributing drainage and [d] requires forebay be four feet deep. Volume calculations per each forebay should be included in the report. *Attached are computations for forebay sizing (Attachment 8). A 2-foot deep forebay will be provided. A waiver is requested.* **The calculations were based on 0.1 inch of impervious surface area as required by MSH sediment forebay design. However, the proposed forebays are part of the constructed wetland and should be sized as such per MSH Table CSW.1, Vol.2, Ch.2,Pg.43. According to the MSH constructed wetland pollutant removal efficiencies rating, a constructed wetland would meet the Fairhaven's TSS, total Nitrogen and total Phosphorus removal standards. Therefore, granting a waiver for 198-31.1(C)(2)(k) should not have any adverse impacts if the constructed wetland meets all MSH requirements.**

The constructed pocket wetland component sizing is shown on sheet 9.

10. 198-31.1(C)(4)(a)[2] – requires 48-hour detention time for the water quality (198-31.1(A)(1)(b) - First Flush = (1.25"), see 198-33 Definitions) storm. This regulation should be included in the variance seeking Section 198-31.1.C(3), see Cover Sheet comments #4. The regulation would require the pocket wetland to provide the 1.25"

storage volume for treatments. A constructed pocket wetland has been selected due to its better performance compared to extended detention basins (infiltration units were rejected due to the poor soils, high water table and their inherent propensity for failure). In accordance with the MassDEP Stormwater Manual, the following are projected removal rates:

Removal Efficiency	Nitrogen	Phosphorus	Total Suspended Solids
Constructed Wetlands	20-55%	40-60%	80%
Extended Detention Basins	10-30%	15-50%	50%

It is clear the proposed treatment system meets the performance standards of Fairhaven's Stormwater Management Regulations and the MassDEP Stormwater Standards.

GCG concurs that a proper constructed wetland and raingarden/bioretention systems designed would meet the performance standards of Fairhaven's Stormwater Management Regulations and the MassDEP Stormwater Standards. However, both systems need to meet all standards required by MSH. GCG recommends granting the waiver be considered subject to all other requirements meeting MSH standards.

11. 198-31.1(C)(4)(a)[1 & 6] – requires establishment of, and the methodology with which to maintain, wetland vegetation on the bottom of the basin. GCG recommends soil testing to determine the ESHGW, see Cover Sheet comment #2. *The regulations focus on the establishment of a methodology with which to maintain wetland vegetation on the bottom of the basin because extended detention basins are almost always inundated and, therefore, establishing vegetation in an extended detention basin is difficult, if not impossible. This results from the fact that on average it rains every three days (approximately 120 times per year) and the local soils are slow to infiltrate and tend to clog by the fine particles that settle in extended detention basins. The proposed constructed wetlands, on the other hand, will typically empty within hours of the end of the runoff events. The plants for each level of the marsh (high marsh, low marsh and semi-wet marsh) have been selected for those specific water depths. The Constructed Pocket Wetland Plan (Sheet 9) presents the planting schedule and Section 4 of the submitted Stormwater Report presents maintenance procedures. There was no soil testing on the proposed rain garden area, based on the same 10” below surface ESHGW assumption as indicated in TP-1, the rain garden would be in the ESHGW. Therefore, the two rain gardens would not meet the 2’ to 4’ depth soil media for pollutant removal requirements. MSH requires 30” minimum media depth for total nitrogen removal. GCG recommends considering constructed wetland BMP design or lining the rain garden to provide the required media soil depth treatment.*

The northeast raingarden has been converted to a constructed pocket wetland. The western raingarden has been revised to meet MassDEP raingarden criteria.

12. MSH Vol.2, Ch.2, Pg. 45 - requires constructed stormwater wetland to have an emergency spillway capable of bypassing runoff from large storms without damage to the impounding structure. Emergency spillway sizing calculations should be provided based on the brimful conditions. *The constructed wetland has been designed to contain the entire 100-year storm. The emergency spillway can pass 26 CFS. This can readily accommodate the 8.03 CFS 100-year peak flow into the basin (Refer to Attachment E). Resolved.*
13. MSH Vol.2, Ch.2, Pg. 45 – requires an access for maintenance. *A 4: 1 slope to the basin has been provided. MSH requires an access for maintenance, with a minimum width of 15’ and maximum slope of 15%. A 6 feet wide top of berm width was proposed. GCG recommends a minimum of 10 feet wide access be provided.*

The berm has been widened to 10 feet.

14. Pipe(s) length and slope should be labeled. *The pipe lengths have been labeled. Please verify the Rain Garden #1, 4” HDPE outfall pipe invert on sheet 5 plan view. Rain Garden #1 10” HDPE pipe should length and slope should be labeled. The calculations used a 26’ pipe with slope at 0.0385 ft/ft. The plan scaled pipe length*

20'+/-. The earth berm elevation on top of the 10" HDPE should be labeled. The calculations shown a peak ponding elevation at 46.48 during the 100-year storm event rip-rap berm protection should be provided. GCG recommends to re-direct the two outlet pipes toward to the open field.

The pipes have been revised and labeled.

15. Provide pre-treatment in front of rain gardens per SMH Vol. 2, Ch.2, Pg. 25. A one-foot width of stone, followed by a three-foot width of grass is shown in the cross section on Sheet 5. The pre-treatment strip was based on North Carolina Stormwater Manual (NCSM) design, which requires 3' minimum soil media with 2' separation to the ESHGW. MSH referenced two other pre-treatment vegetated grass strip designs based on MSH Chapter 2 and Georgia Stormwater Manual. Both manuals have similar requirement of 15' to 25' minimum grass strip length. In addition, the ESHGW (based on the assumption of similar depth shown on TP-1), the bottom of the two rain gardens are at or below seasonal high ground water. See additional soil media comments below. Please note, filter strips are restricted to the outer 50 feet of the buffer zone. (MSH Vol. 2, Ch.2, Pg.20.)

The raingarden has been lined and the liner has an under drain. A gravel strip, followed by a 3-foot wide grass strip, meets MassDEP Stormwater Manual (MSM) criteria.

16. Rain garden soil layer should be Engineered Soil Mix for Bioretention Systems Designed to Exfiltrate, MSH Vol.2, Ch.2, Pg.26. The engineered soil has been revised. MSH stated that most of the pollutant removal occurs within the first 2 feet of soil, and where nitrogen removal is required should have a soil media with a depth of at least 30 inches. The proposed soil media depth of 1.5' and 1.2' for rain gardens #1 and #2, respectively, are within the ESHGW and not suitable for pollutant removal. GCG recommends lining the bottom of the soil media to allow a minimum of 30" depth soil media for treatment.

The soil mixture and the raingarden have been revised.

17. Pocket wetland area component (percentage calculations based on MSH Vol. 2., Ch.2, Pg.43) should be provided and shown on the plan. The pocket wetland components have been presented on Sheet 9. See comment Sheet 9 below.
18. Site erosion control plan should be included, at a minimum, silt sack and silt fence/wattle/haybale should be installed during construction, existing pavement could be utilized for construction exit with inspection and sweeping operation. An erosion control plan has been added. Catch basin silt sack should be installed at the two catch basin located west of the site driveway and catch basin at the intersection of Route 240 and Bridge Street.

Silt sacks have been added.

Drawing Sheet 5 (New Sheet 6) –Utilities Plan

1. Subject to Planning Board review and approval.

Drawing Sheet 6 (New Sheet 7) – Lighting Plan

1. Subject to Planning Board review and approval.

Drawing Sheet 7 (New Sheet 8) – Landscape Plan

Auto Dealership Site Plan
250 Bridge Street
GCG Job#1988

1. Constructed Pocket Wetland planting should be specified on this plan. *A blow up of the pocket wetlands with plantings has been added to sheet 9. See comment for Sheet 9 below.*

Drawing Sheet 9 – Construction Wetland Plan

1. Please clarify the 38,147SF impervious area used to calculate the WQV. The Water Quality Volumes shown in the report called out 33,000 SF (non-roof) impervious area and the proposed building roof is scaled approximately 13,500+/- SF. (GCG was unable to verify the impervious area on the HydroCAD sub-catchment 1A, which included the forebays and constructed wetland surface areas.) MSH-Vol. 1, Ch.1, Pg.9 specified WQV should be based on the total impervious area, which should be based on approximately 46,500+/- SF. The % volume design criteria should match with the MSH Table CSW.1 Pocket Wetland requirements. The proposed wetland volume should meet SCW.1 requirement.
Sheet 9 presents how the constructed pocket wetlands meet the area and volume requirements. The constructed pocket wetlands will treat the entire runoff not just the WQV.

Drawing Sheet 8 (New Sheet 10) – Site Details

1. Please verify the 18" HDPE outlet pipe shown on the Headwall with orifice plate detail. *The 18-inch HOPE has been changed to 12-inch RCP. Resolved.*
2. Erosion control device, silt sack, wattle etc. should be included in the details sheet. *A separate Erosion Control Plan has been added with details. See comment for new Sheet 3 above.*

Drawing Sheet 9 (New Sheet 11) – Vehicle Movement Plan

1. Is there a function of the two-way driveway located north of the dumpster? The Vehicle movement plan shown no use of this driveway. Can it be eliminated for lawn area or snow storage? *The drive north of the building is to allow vehicle circulation around the building in the event that the property to the north is in separate ownership. In the event of separating ownership, access and utilities cross easements would be generated for emergency vehicles access, dumpster pickup access, and sewer service. Reducing impervious area would improve the post-development runoff volume.*

STORMWATER REPORT COMMENTS

1. MSH Vol.2, Ch.3, Pg. 1 Checklist for Redevelopment projects – Only the existing paved driveway is considered re-development, and all other new impervious area needs to meet all MSH standards. *Previously developed is not limited to impervious areas. The area east of the existing drive has been maintained as lawn for many years. All new impervious area would consider new development and required to meet MSH standards to the full extent.*
Agreed.
2. The existing paved driveway appears to be treated with rip-rap swales/pads and retention (depression at contours 47) BMPs along the west side of the pavement. Previous calculations or existing retention/ponding conditions should be included in the

Auto Dealership Site Plan
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pre-development flow calculations. *The shallow swales west of the existing drive only have the capacity to hold the initial 1,800 cubic feet of runoff. Hydrocad software does not allow the addition of this initial abstraction to the computations. On Attachment C, we have shown the initial abstraction on the hydrograph in red. This initial abstraction does not impact the peak rate of runoff. In order to be conservative, we did not model these 1,800 square feet of standing water as impervious with a runoff curve of 98 since this would lead to a higher rate of runoff and a higher peak runoff under existing conditions.* **The 1,800 cubic feet volume appears to fit mitigation volume for the existing 7,900 s.f. paved driveway. GCG recommends modelling the pre-development conditions with the existing 7,900 SF paved driveway as Meadow, non-grazed, HSG D (CN=78) to represent the original pre-development flow (prior to the existing driveway installation). And control the post-development flow to equal or below the original pre-development conditions. The surrounding abutters are fully developed, any increased in post-development runoff would affect the downstream properties.**

The accepted engineering standard is to compare proposed runoff to existing conditions runoff, not to historic conditions runoff.

3. The proposed layout/use appears to equip with vehicle maintenance and repair bays, and possible storage of petroleum product and may considered as fleet storage area. (applicant should verify our assumptions). Therefore, it is considered Land Uses with Higher Potential Pollutant Loads (LUHPPL). MSH Vol.1, Ch.1, Pg.14. Therefore, the vegetated filter strip, MSH Vol.1, Ch.1, Pg.14. and constructed wetland, Vol.2, Ch.2, Pg.36 and rain gardens, V Vol.2, Ch.2, Pg.23 should be lined and sealed for LUHPPL uses. *All vehicle maintenance will be indoors with mass standard oil and water separator discharging to the municipal sewer. The small volume of fuel and oil storage will be indoors and properly labelled. There is extremely little jeopardy for the proposed BMPs. There is no intention to line or seal the BMPs. A waiver is being requested.* **“Land Uses with Higher Potential Pollutant Loads (LUHPPL)” is based on uses classified by the EPA. Automobile repair services would involve impaired vehicles parked outdoor queuing for service/repair, which could cause higher potential for pollutant. GCG recommends BMPs to comply with MSH’s LUHPPL standards. In addition, the proposed rain gardens are in the ESHGW and would require lining to allow soil media treatment prior to contact with ground water.**

No impaired or leaking vehicles are stored outside. Vehicle servicing is by appointment only. When the vehicles arrive, the customer drives the vehicle into the building in the customer receiving area. From there, the vehicles are driven by the service technician into the repair room where they are serviced.

4. Forebays [1][b] requires forebays be sized to contain 0.25 inches per impervious acre of contributing drainage, please provide calculations. There were some calculations included in the page after the Drainage Summary table. However, the copy was very light and not readable. Please provide a clean copy. *The forebay computations are enclosed as Attachment B.* **The computations were based on (0.1” times impervious area) dry forebay sizing per MSH standard and does not meet the 0.25 inches required by this local regulation. However, these two forebays are part of the constructed wetland component and the required surface area and volume shown are specified in MSH Table CSW.1. A constructed wetland meeting all MSH requirements is rated with the pollutant removal rate meets or exceeds the Fairhaven’s performance standards and design specifications. Therefore, it should be considered as other water quality BMPs under 198-31.1(C)(3)(d). GCG recommends the applicant to request a waiver for the forebay sizing requirements.**

A waiver from the forebays based on .25 inches of runoff has been requested.

Auto Dealership Site Plan
250 Bridge Street
GCG Job#1988

5. 198-31.1(A)(1)(b) - requires treatment of the Water quality (First Flush = (1.25" of entire impervious area on site), see First Flush definition for calculation formula (198-33). This regulation could be complied with the 1.25" volume storage within the wetland basin. *The first flush runoff will pass through the constructed pocket wetlands which has been verified as removing 80% of the suspended solids. A waiver is being requested to allow a .5-inch depth be the water quality volume. A review of many years of local rainfall reveals that 77% of all storms are less than .5 inches of total rainfall. The goal of treating the water quality volume is to treat the runoff from the day to day storms and worry less about the 23% of storms that have over ½ inch of rainfall. Although the first flush of those larger storms will also have their first flush treated.* **MSH rated constructed wetland and rain garden BMPs are suitable for LUHPPL uses and appears to meet Fairhaven's performance standards and design specifications and should qualify as other water quality BMPs under 198-31.1(C)(3)(d). However, the BMPs design should be in full compliance with the MSH standards.**
The raingarden and constructed pocket wetlands have been revised to meet the MSM standards.
6. 198-31.1(A)(1)(a)[2] - No increase will be allowed in the volume of runoff off of the site up to the ten-year, twenty-four-hour design storm. The proposed drainage calculations shown increase of runoff volume during 2-year and 10-year storm events. The pre-development and post-development 10-year storm runoff volumes (combined DP-1 and DP-2) were 0.525 a.f. and 0.854 a.f., respectively. The applicant has requested a waiver, see Cover Sheet comment #1. *A waiver has been requested.* **The latest calculations shown post-development runoff volume net increases of 0.874 AF (193%) and 0.329 AF (162%) for 2-year and 10-year storm events, respectively. GCG recommends modifying the pre-development HydroCAD model to reflect the original pre-development conditions (prior to existing paved driveway development). The runoff volume could be controlled by reducing proposed new impervious area.**
The engineering standard is to compare existing conditions to proposed conditions not to compare historic conditions to proposed conditions. The impervious surface proposed is the minimum practical amount needed for the proposed dealership.
7. 198-31.1(C)(2)(n)[1-7] – storm drainage system capacity should be calculated based on 25-year storm event. Catch basin inlet and drain pipe capacity calculations should be provided. *Inlet and drain pipe computations are presented in Attachment D.* **Resolved.**
8. Both proposed Rain Gardens requires pre-treatment to qualify for 90% TSS removal. *The vegetated filter strips will provide pre-treatment.* **The proposed vegetated filter strip is not compatible with this design, the design as presented require 3' depth soil media and additional 2 feet separation to ESHGW.**
The raingarden has been lined and provided with a subdrain below the liner.
9. 198-31.1(C)(4)(a)[2] - provide water quality volume (First Flush) 24-hour detention volume. *There is no requirement to detain the first flush for 24 hours. The constructed pocket wetlands have been confirmed to effectively treat the first flush.* **The applicant needs to request a waiver by proposed other water quality BMPs under 198-31.1(C)(3)(d).**
10. The post-development HydroCAD report did not include the 25-year and 100-year events and GCG was unable to verify the capacity of the drainage design. Freeboard and emergency spillway sizing calculations should also be provided. *The 25- and 100-year drain computations are enclosed. They were inadvertently omitted.* **Resolved.**
11. MSH standard 3 requires 0.1" groundwater recharge volume over proposed HSG 'D' impervious area. The site is entirely in HGS 'D' soil and recharge is impossible and non-suitable in HSG 'D' soil. MSH calls for "maximum extent practicable" for ground water

recharge in this situation. Therefore, the proposed without recharge volume is acceptable for this site. *No response is necessary.*

OPERATIONAL AND MAINTENANCE (O&M) PROGRAM COMMENTS

1. Temporary Erosion Control should include catch basin silt sack erosion silt fence/wattle type of control. **Silt sacks should be added.**
2. Snow storage area should be identified on the plan, since both sides of the development are bounded by BMPs. Snow storage areas should not be in the BMPs. **GCG recommends specifying no snow storage within the stormwater BMPs area. Excess snow should be removed off-site by the property owner.**
The note on snow storage has been added.
3. Long term O&M plan catch basin should be inspected and cleaned 4 times per year. Stormceptor is not part of the BMPs proposed. Grass/vegetated filter strip, rain garden, sediment forebays and constructed (pocket) wetland should be included in the O&M plan. **GCG recommends adding clean catch basin including existing on-site catch basin four times per year as required by MSH. Forebay clean out could be reduced to once a year, these forebays are part of the pocket wetland system with ponding water and require less maintenance; Rain gardens requires inspect and remove trash monthly, mow 2 to 12 times per year, mulch, fertilize, remove dead vegetation and prune annually; Pocket wetland requires clean out sediment in basin/wetland once every 10 years; Specify disposal of removed sediment and debris off site according to the Federal, State, and local regulations.**
Those notes have been added.
4. O&M plan should provide a signature block for responsible party/operator signature. **Resolved.**
5. O&M plan should include estimated annual operation budget and long-term O&M (sample) log. **Resolved.**

Summary:

1. The proposed layout has maximized the site and unable to provide the required drainage mitigation with the required side slopes and maintenance access. **GCG believes the site has been maximized to the limit that suitable location for snow storage was unavailable and requires excess snow to be removed offsite. Furthermore, the recommended stormwater maintenance access and pre-treatment for rain garden system would require additional lot area and may affect the development layout.**
The excess snow will be removed off-site.

If you have any questions regarding this matter, please contact our office.

Respectfully Submitted,
GCG Associates

Anthony C. Ma, P.E.
Senior Project Engineer

Auto Dealership Site Plan
250 Bridge Street
GCG Job#1988

PROPOSED AUTO DEALERSHIP

250 BRIDGE STREET

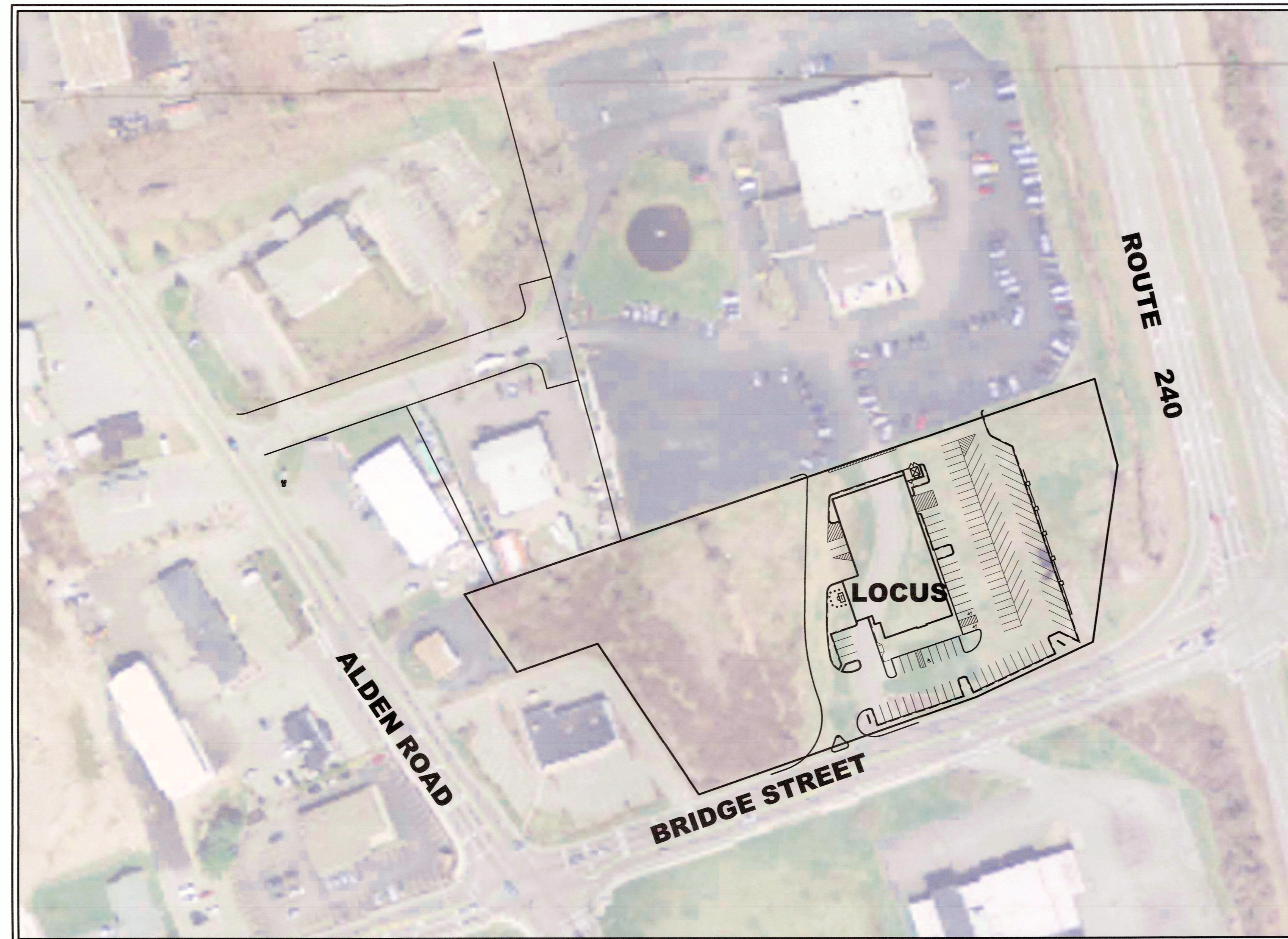
FAIRHAVEN, MASSACHUSETTS

SCHEDULE OF DRAWINGS

SHEET NUMBER	PLAN TITLE
--------------	------------

- | | |
|-----|---------------------------|
| 1. | TITLE SHEET |
| 2. | EXISTING CONDITIONS |
| 3. | EROSION CONTROL PLAN |
| 4. | SITE LAYOUT PLAN |
| 5. | GRADING AND DRAINAGE PLAN |
| 6. | UTILITIES PLAN |
| 7. | LIGHTING PLAN |
| 8. | LANDSCAPING PLAN |
| 9. | CONSTRUCTED WETLAND PLAN |
| 10. | SITE DETAILS |
| 11. | VEHICLE MOVEMENT PLAN |

- ALL SITE DEVELOPMENTS, INCLUDING GRADING, DRAINAGE AND LANDSCAPING, SHALL BE CARRIED OUT IN ACCORDANCE WITH THIS PLAN SET MARKED "EXHIBIT A".
- A VARIATION IS REQUESTED TO STORMWATER MANAGEMENT - SECTION 198-31.1.A(1)(a)(2), TO ALLOW THE INCREASE IN VOLUME OF RUNOFF DUE TO THE D SOIL AND NEAR SURFACE GROUND WATER.
- A VARIATION IS REQUESTED TO STORMWATER MANAGEMENT - SECTION 198-31.1.B(2)(a)(h) & (i), TO NOT PROVIDE SOIL LOGS SINCE THE INFILTRATION IS NOT PROPOSED DUE TO D SOILS AND NEAR SURFACE GROUND WATER.
- A VARIATION IS REQUESTED TO STORMWATER MANAGEMENT - SECTION 198-31.1.C(2)(g)(6), TO ALLOW THE SIDE SLOPES TO BE 2:1 TO MINIMIZE IMPACTS TO WETLANDS.
- A VARIATION IS REQUESTED TO STORMWATER MANAGEMENT - SECTION 198-31.1.C(2)(k), TO ALLOW VARIATION TO VOLUME CONTROL.
- A VARIATION IS REQUESTED TO STORMWATER MANAGEMENT - SECTION 198-31.1.C(3), TO ALLOW THE LOW IMPACT DEVELOPMENT (LID) DESIGN MEET THE BMP REQUIREMENTS.
- A VARIATION IS REQUESTED TO STORMWATER FIRST FLUSH VOLUME SECTION 198-33 TO BE .5 INCHES RATHER THAN 1.25 INCHES.

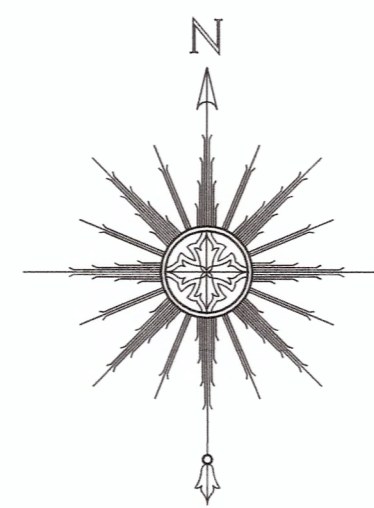


OWNER, DEVELOPER, & APPLICANT:

CARAPACE, LLC
2 STAR OF THE SEA DRIVE
DARTMOUTH, MA 02748

DEVELOPMENT TEAM

FUNCTION	TEAM MEMBER
DEVELOPER	CARAPACE, LLC
ENGINEER / AGENT	PRIME ENGINEERING, INC.



SITE LOCUS IS REFERENCED AS FAIRHAVEN ASSESSOR'S
MAP 36 LOT 15

THE DEED IS RECORDED IN THE BRISTOL COUNTY REGISTRY
OF DEED BOOK 6358 PAGE 325

NEIGHBORHOOD LOCUS PLAN
SCALE: 1"=80'

APRIL 27, 2015
REVISED JANUARY 22, 2020

Richard J. Orleans
PREPARED BY:

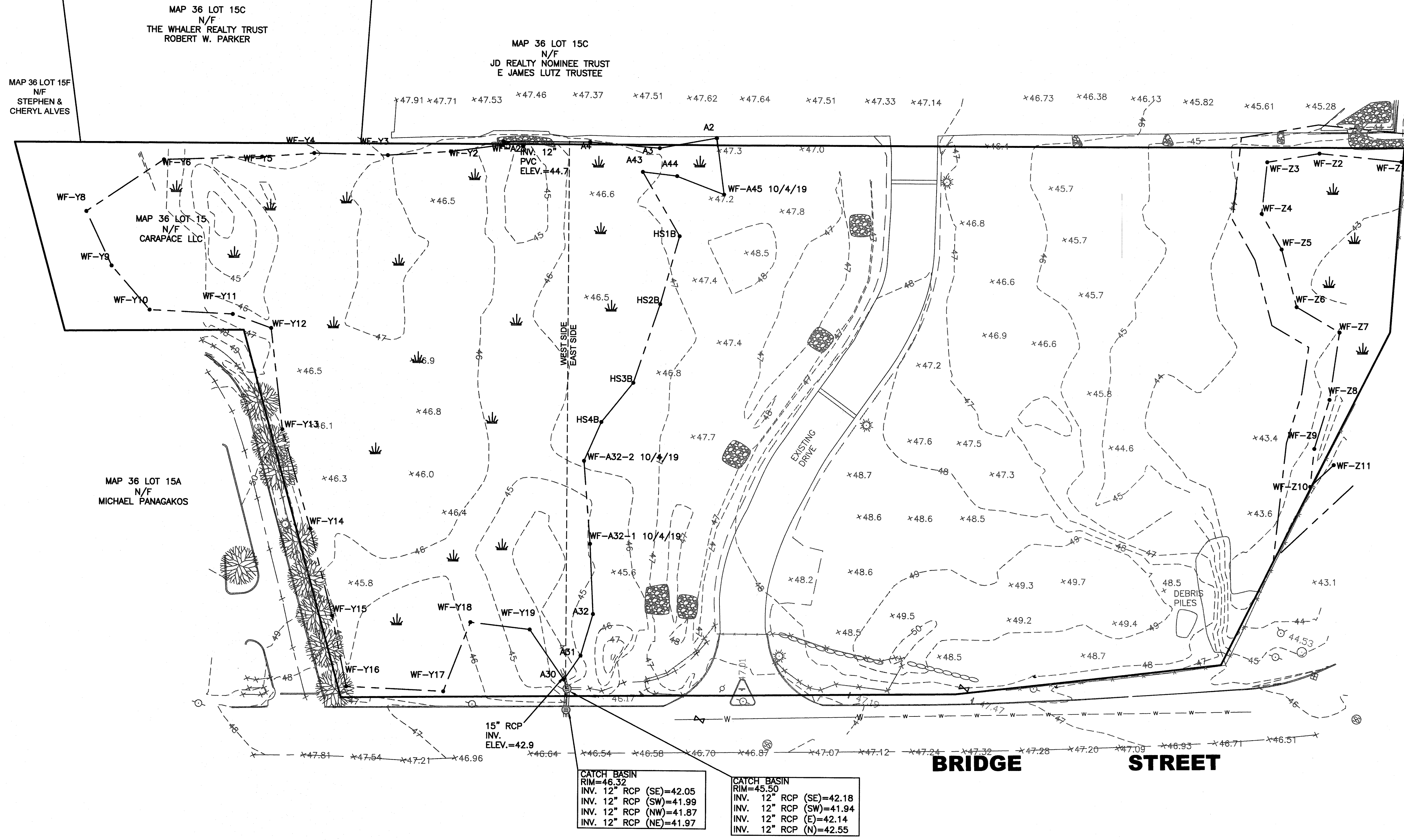
PRIME ENGINEERING
INC.

CIVIL ENGINEERING—LAND SURVEYING—ENVIRONMENTAL ASSESSMENT
P.O. BOX 1088, 350 BEDFORD STREET, LAKEVILLE, MA 02347
TEL: 508.947.0050 FAX: 508.947.2004

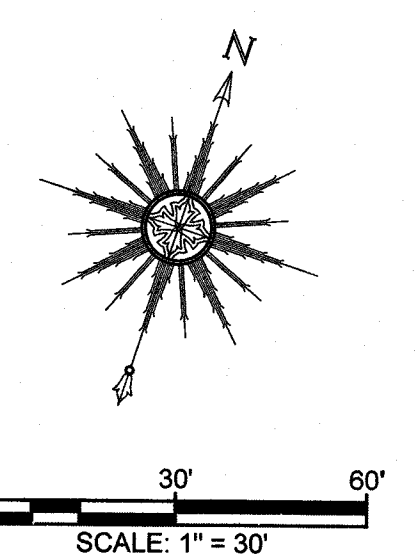
SHEET 1

NOTES:

THE WESTERN WETLAND LINE (FLAGS WF-A1 TO WF A26) WERE FLAGGED IN JULY 2014 BY BRANDON FANEUF OF ECOSYSTEMS SOLUTIONS. THE EASTERN WETLAND LINE (HS1B YO HSSB) WAS DELINEATED SEVERAL YEARS AGO BY PETER FLETCHER AND JOHN ROCKWELL. BOTH LINES WERE CONFIRMED BY THE FAIRHAVEN CONSERVATION COMMISSION IN 2015 BUT THIS APPROVAL HAS LAPSED. THE LINES HAVE BE RESTAKED IN APRIL 2019.

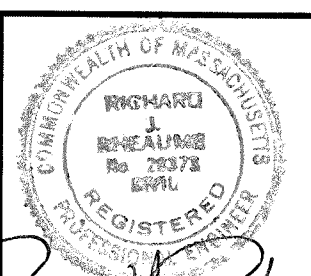


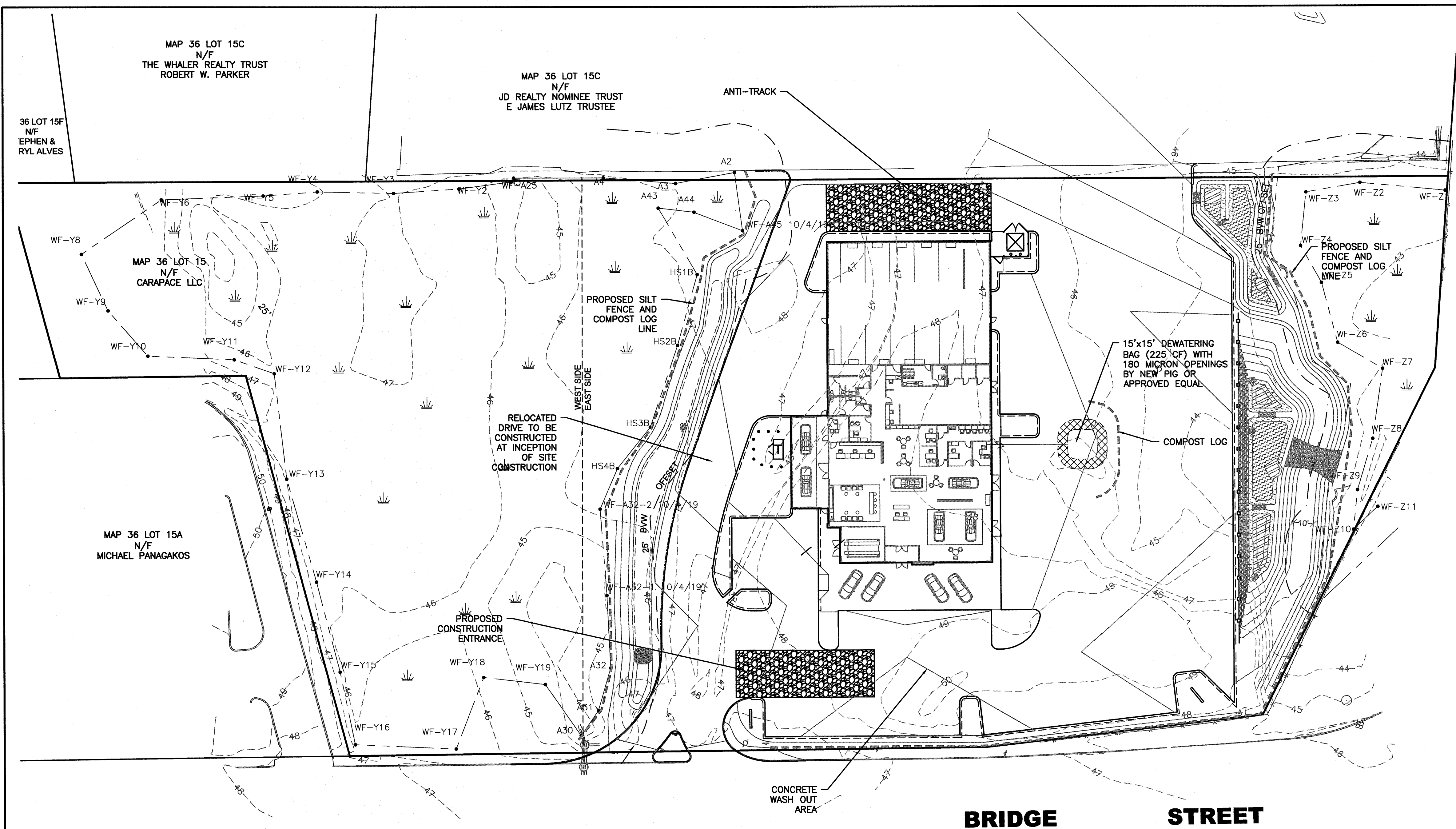
CATCH BASIN RIM=46.32 INV. 12" RCP (SE)=42.05 INV. 12" RCP (SW)=41.99 INV. 12" RCP (NW)=41.87 INV. 12" RCP (NE)=41.97	CATCH BASIN RIM=45.50 INV. 12" RCP (SE)=42.18 INV. 12" RCP (SW)=41.94 INV. 12" RCP (E)=42.14 INV. 12" RCP (N)=42.55
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REV	DATE	DESCRIPTION	BY	APP.	DRAWING TITLE	SCALE:	DATE:	PROJECT	CLIENT	CHECKED BY:	SHEET NO.
12	01-22-20	GENERAL REVISIONS	JAG	RJR	EXISTING CONDITIONS 250 BRIDGE STREET FAIRHAVEN, MASSACHUSETTS CARAPACE, LLC FAIRHAVEN, MASSACHUSETTS	1" = 30'	APRIL 27, 2015	FAIRHAVEN, MASSACHUSETTS CARAPACE, LLC FAIRHAVEN, MASSACHUSETTS	EKW/TRW	RJR	2
11	01-10-20	ADDED EXISTING CATCH BASIN DETAIL	SWL	RJR							
10	01-01-20	GENERAL REVISIONS	JAG	RJR							
9	12-3-19	GENERAL REVISIONS	JAG	RJR							
8	10-31-19	GENERAL REVISIONS	JAG	RJR							
7	10-8-19	NEW WETLAND LINE/ GENERAL REVISIONS	JAG	RJR							
6	7-16-19	NEW BUILDING FOOTPRINT/SITE LAYOUT	JAG	RJR							
5	6-24-19	NEW BUILDING FOOTPRINT/SITE LAYOUT	JAG	RJR							
4	4-26-19	NEW BUILDING FOOTPRINT/SITE LAYOUT	JAG	RJR							
3	9-4-16	GENERAL REVISIONS	TRW	RJR							
2	8-25-15	REVISIONS PER PLANNING BOARD	EKW	RJR							
1	7-10-15	GENERAL REVISIONS	EKW	RJR							

PRIME ENGINEERING
300 BEDFORD ST.
LAKEVILLE, MA 02347
TEL: 508.947.0050
FAX: 508.947.2004

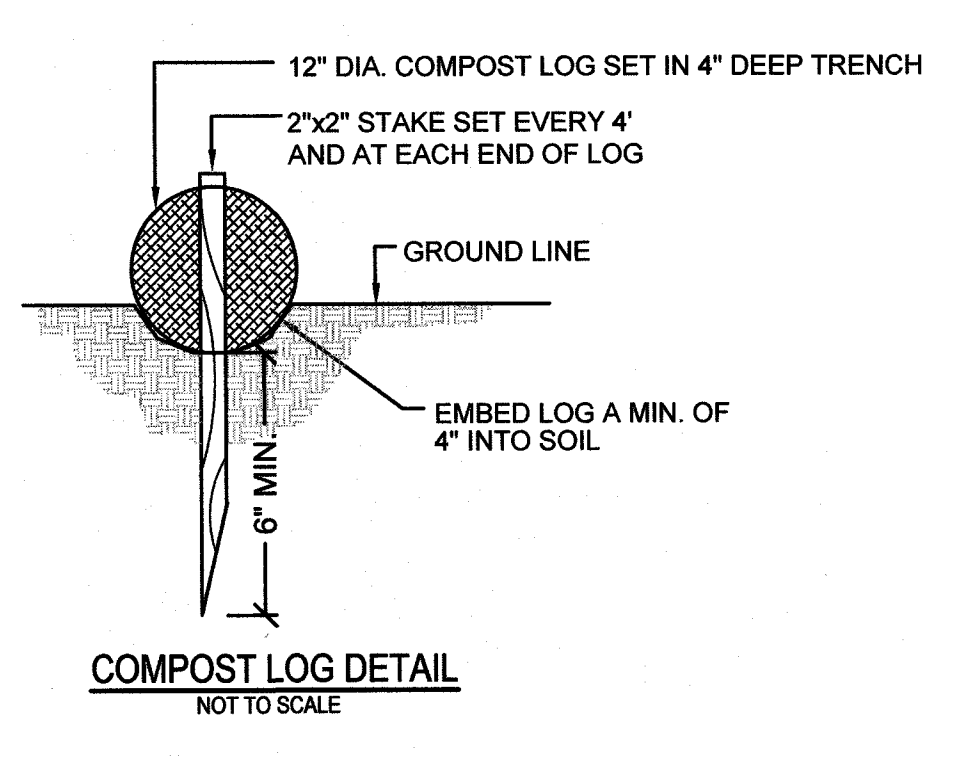
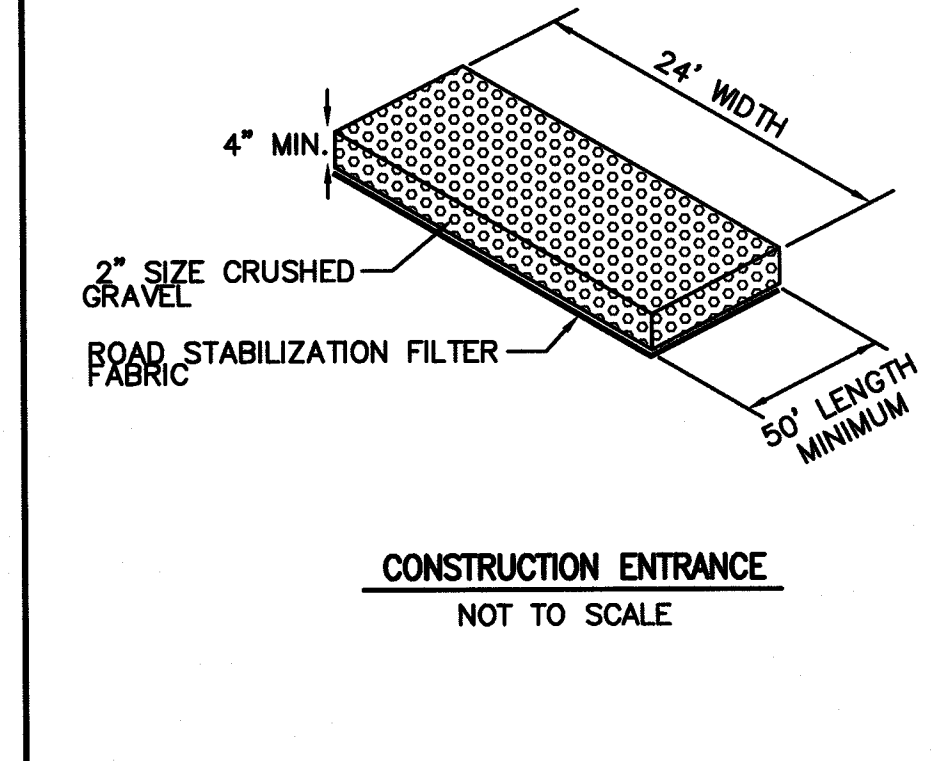
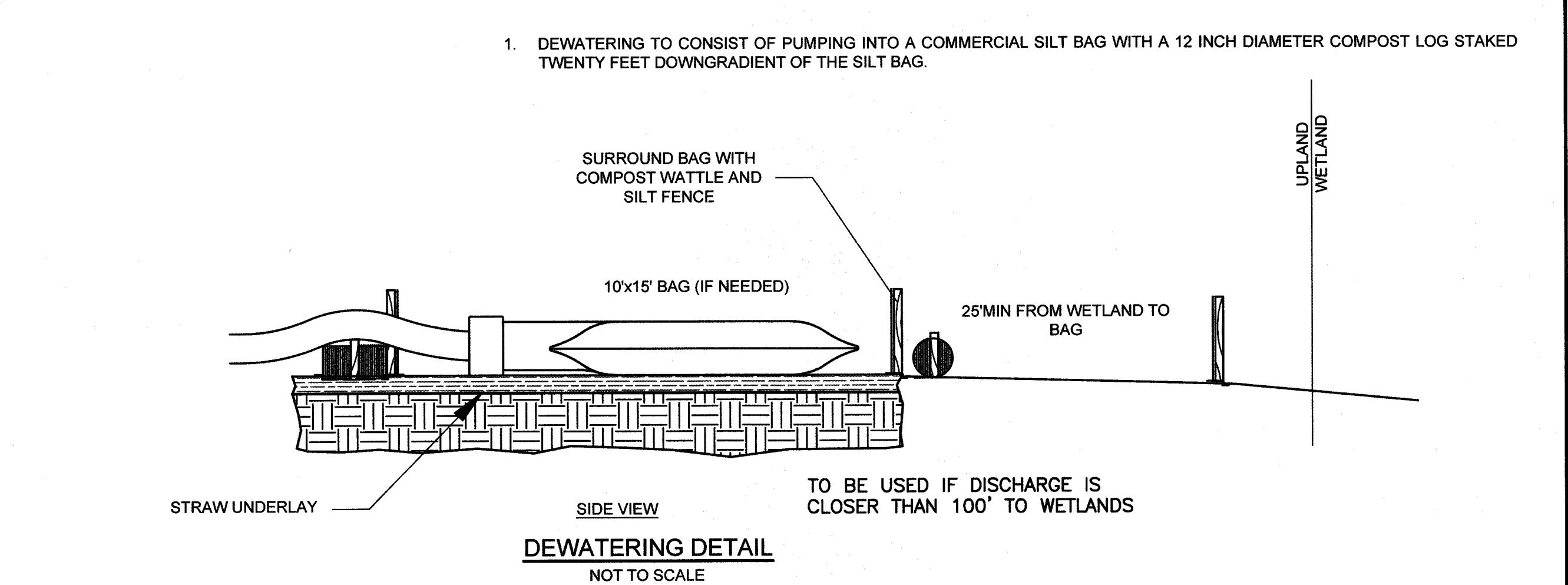
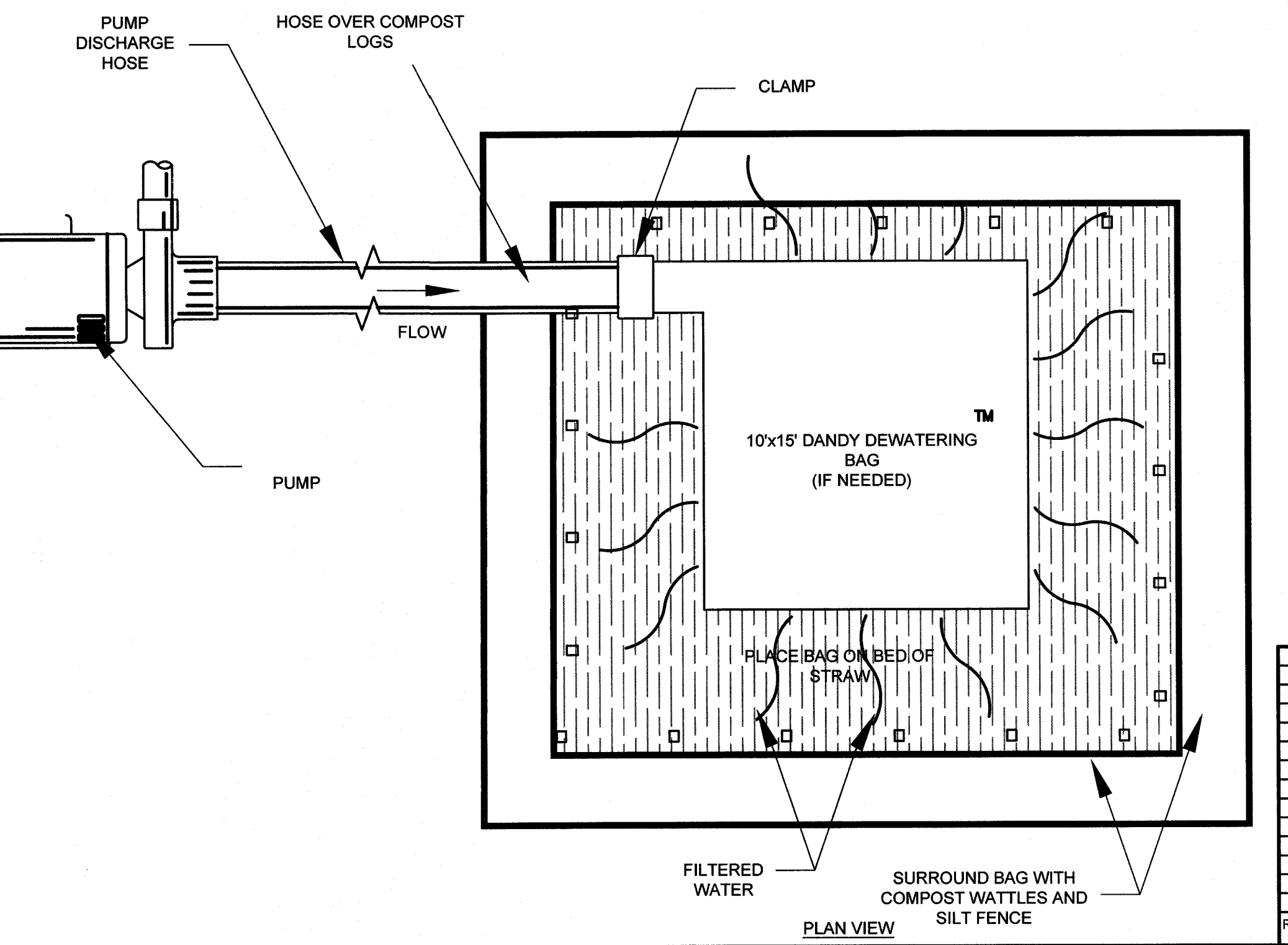
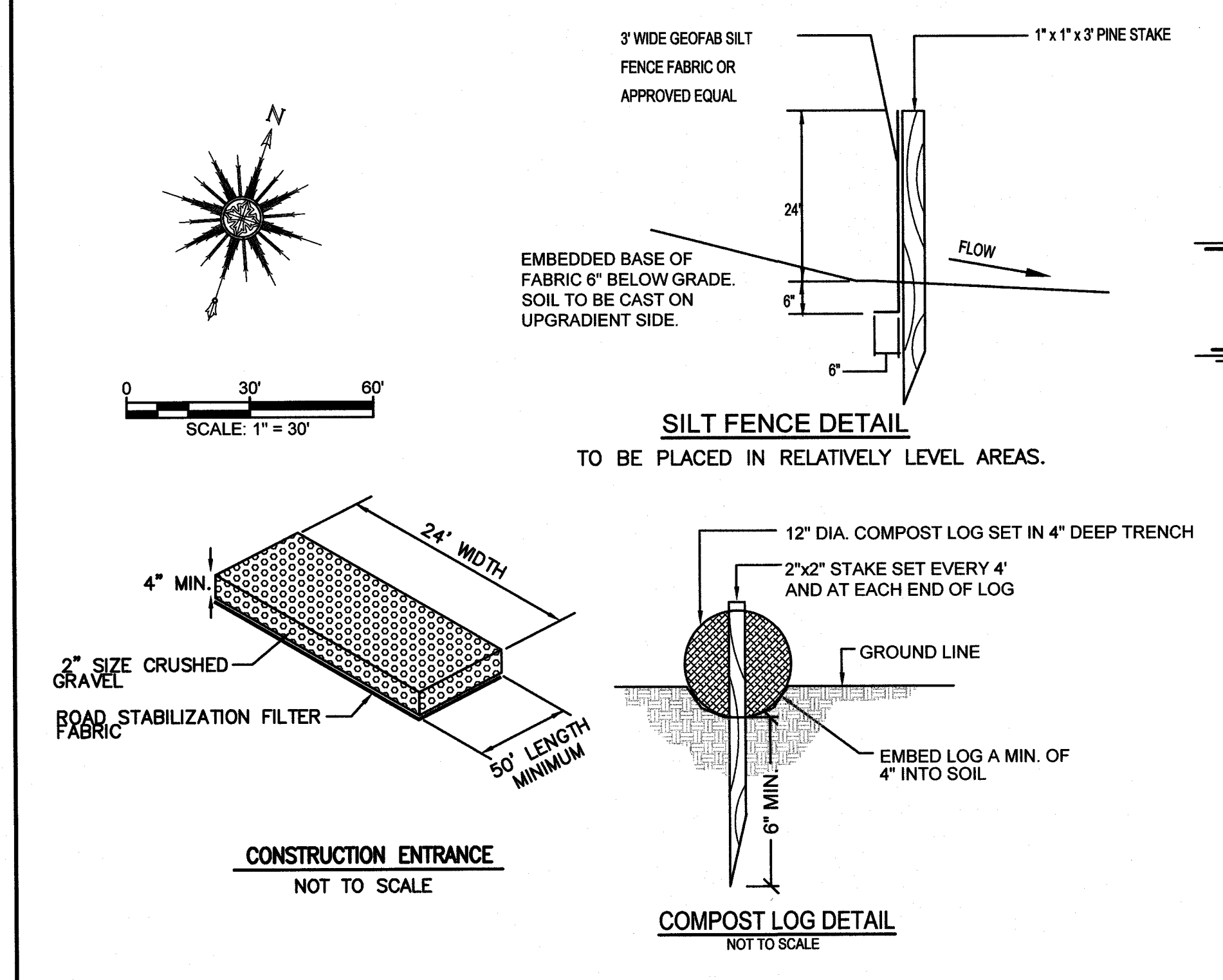




- EROSION & SEDIMENT CONTROL NOTES:**
- THE FOLLOWING IS THE MINIMUM REQUIREMENTS THE CONTRACTOR SHALL FOLLOW TO PREVENT IMPACTS CAUSED BY EROSION AND SEDIMENTATION DURING CONSTRUCTION. THE CONTRACTOR MAY, AT HIS DISCRETION, IMPLEMENT ADDITIONAL MEASURES IF NECESSARY.
- EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED PRIOR TO STUMP REMOVAL AND CONSTRUCTION. STABILIZATION OF ALL REGRADED AND SOIL STOCKPILE AREAS WILL BE INITIATED AND MAINTAINED DURING ALL PHASES OF CONSTRUCTION.
 - ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CONSTRUCTED IN ACCORDANCE WITH LOCAL MUNICIPAL REGULATIONS. ALL EROSION CONTROL MEASURES ARE TO BE MAINTAINED AND UPGRADED AS REQUIRED TO ACHIEVE PROPER SEDIMENT CONTROL DURING CONSTRUCTION. A STAKED COMPOST LOG DAM SHALL BE INSTALLED DOWN GRADIENT OF ALL DRAINAGE OUTFALLS.
 - ADDITIONAL CONTROL MEASURES WILL BE INSTALLED DURING THE CONSTRUCTION PERIOD, IF DEEMED NECESSARY BY THE OWNER OR AGENTS OF THE OWNER.
 - CATCH BASINS WILL BE PROTECTED WITH COMPOST LOG FILTERS THROUGHOUT THE CONSTRUCTION PERIOD UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED. FILTER FABRIC SHOULD BE INSTALLED UNDER GRATE OPENING UNTIL PAVEMENT IS IN PLACE AND GROUND SURFACE IS STABILIZED.
 - SEEDING MIXTURE FOR FINISHED GRASSED AREAS WILL BE AS FOLLOWS:
 KENTUCKY BLUE GRASS 45%
 CREEPING RED FESCUE 45%
 PERENNIAL RYEGRASS 10%
 SEED TO BE APPLIED AT A RATE OF 4 LBS./1000 SQ. FT.
 FERTILIZER SHALL BE APPLIED AT A RATE OF 2 LBS./1000 SQ. FT.
 PLANTING SEASONS SHALL BE APRIL 1 TO JUNE 1 AND AUGUST 1 TO OCTOBER 1. AFTER OCTOBER 1, AREAS WILL BE STABILIZED WITH COMPOST LOG CHECK, FILTER FABRIC, OR WOODCHIP MULCH, AS REQUIRED, TO CONTROL EROSION.
 - AREAS TO BE LEFT BARE BEFORE FINISHED GRADING AND SEEDING IS ACHIEVED, SHALL RECEIVE A TEMPORARY SEEDING OF PERENNIAL RYEGRASS APPLIED TO A RATE OF 2 LBS./1,000 SQ. FT. AT A DEPTH OF 1/2 INCH. LESTONE (EQUIVALENT TO BE 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) SHALL BE APPLIED AS SEEDBED PREPARATION AT A RATE OF 90 LBS./1,000 SQ. FT. PLANTING SEASONS SHALL BE APRIL 1 TO JUNE 1 AND AUGUST 1 TO OCTOBER 1. WHERE GRASS PREDOMINATES, FERTILIZE ACCORDING TO A SOIL TEST AT A MINIMUM APPLICATION RATE OF 1 LB. OF NITROGEN PER 1,000 SQ. FT. AREAS TO BE LEFT BARE BEFORE FINISH GRADING AND SEEDING OUTSIDE OF PLANTING SEASONS SHALL RECEIVE AN AIR-DRIED WOOD CHIP MULCH, FREE OF COARSE MATTER, TREATED WITH 1-2 LBS. NITROGEN PER TON, APPLIED AT A RATE OF 185-275 LBS./1,000 SQ. FT.
 - AT ALL PROPOSED FILL AREAS WHICH ARE NOT CURRENTLY SHOWN ON THESE PLANS, THE CONTRACTOR SHALL ESTABLISH AN EROSION CONTROL LINE (COMPOST LOG CHECK OR FILTER FABRIC) ABOUT TEN (10) FEET FROM TOE TO SLOPE OF PROPOSED FILL AREAS PRIOR TO BEGINNING FILL INSTALLATION. STABILIZATION OF SLOPES IN FILL AREAS (USING MULCH OR GRASS) SHALL BE INITIATED WITHIN THIRTY (30) DAYS OF COMMENCEMENT OF FILL INSTALLATION.
 - STABILIZATION OF SLOPES IN CUT AREAS (USING MULCH OR GRASS) AND THE INSTALLATION OF CONTROL LINE (COMPOST LOG CHECK OR FILTER FABRIC) AT THE TOE OF SLOPE SHALL BE INITIATED WITHIN THIRTY (30) FEET.
 - SEDIMENT REMOVED FROM CONTROL STRUCTURES WILL BE DISPOSED IN A MANNER WHICH IS CONSISTENT WITH THE INTENT OF THE PLAN. ALL COMPOST LOGS OR SILT FENCE RETAINING SEDIMENT OVER 1/2 THEIR HEIGHT SHALL HAVE THE SEDIMENT REMOVED AND ALL DAMAGED EROSION CONTROLS SHALL BE REPAIRED OR REPLACED.
 - CONTRACTOR WILL BE ASSIGNED THE RESPONSIBILITY FOR IMPLEMENTING THIS EROSION AND SEDIMENT CONTROL PLAN. THIS RESPONSIBILITY INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN, AND NOTIFYING THE PROPER TOWN AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY. THE OWNER SHALL BE RESPONSIBLE FOR CONVEYING A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN IF THE TITLE TO THE LAND IS TRANSFERRED.
 - THE CONTRACTOR SHALL SECURE THE SERVICES OF A PROFESSIONAL ENGINEER, WHO SHALL VERIFY IN THE FIELD THAT THE CONTROLS REQUIRED BY THIS PLAN ARE PROPERLY INSTALLED, SHALL MAKE INSPECTION OF SUCH FACILITIES NOT LESS FREQUENTLY THAN EVERY 14 DAYS OR AFTER A RAINFALL IN EXCESS OF 1/4 INCH, WHICHEVER OCCURS FIRST.
 - STOCKPILES OF SOIL SHALL BE SURROUNDED BY A SEDIMENT BARRIER. SOIL STOCKPILES TO BE LEFT BARE FOR MORE THAN THIRTY (30) DAYS SHALL BE STABILIZED WITH TEMPORARY VEGETATION OR MULCH. IF SOIL STOCKPILES ARE TO REMAIN FOR MORE THAN SIXTY (60) DAYS, FILTER FABRIC SHALL BE USED IN PLACE OF COMPOST LOGS. SIDE SLOPES SHALL NOT EXCEED 2:1.
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST AND WIND EROSION THROUGHOUT THE LIFE OF HIS CONTRACT. DUST CONTROL SHALL INCLUDE, BUT IS NOT LIMITED TO SPRINKLING OF WATER ON EXPOSED SOILS AND HAUL ROADS AS NEEDED. CONTRACTOR SHALL CONTROL DUST TO PREVENT A HAZARD TO TRAFFIC.
 - IF FINAL GRADING IS TO BE DELAYED FOR MORE THAN THIRTY (30) DAYS AFTER LAND DISTURBANCES CEASE, TEMPORARY VEGETATION OR MULCH SHALL BE USED TO STABILIZE SOILS.
 - COMPOST LOGS SHALL BE USED ONLY AS A TEMPORARY MEASURE. WHERE CONTROL MEASURES WILL BE REQUIRED FOR LONGER THAN SIXTY (60) DAYS, FILTER FABRIC SHALL BE USED.
 - WHERE DEWATERING IS NECESSARY, THERE SHALL NOT BE A DISCHARGE DIRECTLY INTO WETLANDS OR WATERCOURSES. PROPER METHODS AND DEVICES SHALL BE UTILIZED TO THE EXTENT PERMITTED BY LAW, SUCH AS PUMPING WATER INTO A TEMPORARY SEDIMENTATION BOWL, PROVIDING SURGE PROTECTION AT THE INLET AND THE OUTLET OF PUMPS, OR FLOATING THE INTAKE OF THE PUMP, OR OTHER METHODS TO MINIMIZE AND RETAIN THE SUSPENDED SOLIDS. IF A PUMPING OPERATION IS CAUSING TURBIDITY PROBLEMS, SAID OPERATION SHALL CEASE UNTIL SUCH TIME AS FEASIBLE MEANS OF CONTROLLING TURBIDITY ARE DETERMINED AND IMPLEMENTED. SAID DISCHARGE POINTS SHALL BE LOCATED OVER 100 FEET FROM THE DELINEATED WETLANDS AS INDICATED ON THIS PLAN.
 - THE CONTRACTOR SHALL OBTAIN AN NPDES PERMIT PRIOR TO THE START OF CONSTRUCTION.

DEWATERING NOTES:

- DEWATERING TO CONSIST OF PUMPING INTO A COMMERCIAL SILT BAG WITH A 12 INCH DIAMETER COMPOST LOG STAKED TWENTY FEET DOWNGRADIENT OF THE SILT BAG.

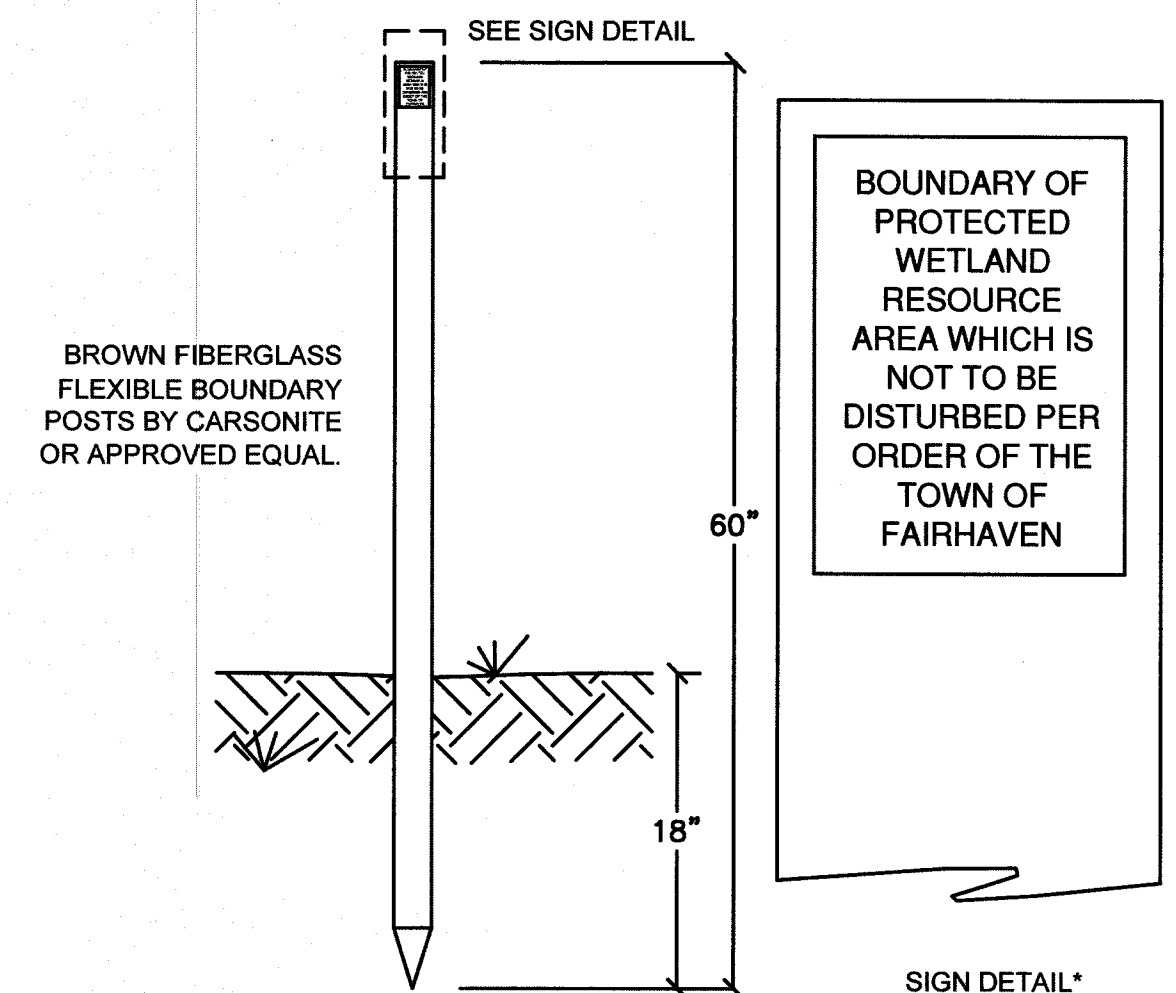


REV	DATE	DESCRIPTION	BY	APP.	DRAWING TITLE	SCALE:
12	01-22-20	GENERAL REVISIONS	JAG	RJR	EROSION CONTROL 250 BRIDGE STREET FAIRHAVEN, MASSACHUSETTS CARAPACE, LLC FAIRHAVEN, MASSACHUSETTS	1" = 30'
11	01-10-20	ADDED EXISTING CATCH BASIN DETAIL	SWL	RJR		
10	01-01-20	GENERAL REVISIONS	JAG	RJR		
9	12-3-19	GENERAL REVISIONS	JAG	RJR		
8	10-31-19	GENERAL REVISIONS	JAG	RJR		
7	10-8-19	NEW WETLAND LINE/GENERAL REVISIONS	JAG	RJR		
6	7-16-19	NEW BUILDING FOOTPRINT/SITE LAYOUT	JAG	RJR		
5	6-24-19	NEW BUILDING FOOTPRINT/SITE LAYOUT	JAG	RJR		
4	4-26-19	NEW BUILDING FOOTPRINT/SITE LAYOUT	JAG	RJR		
3	9-4-15	GENERAL REVISIONS	TRW	RJR		
2	8-25-15	REVISIONS PER PLANNING BOARD	EKW	RJR		
1	7-10-15	GENERAL REVISIONS	EKW	RJR		
						PROJECT NO. 19830101

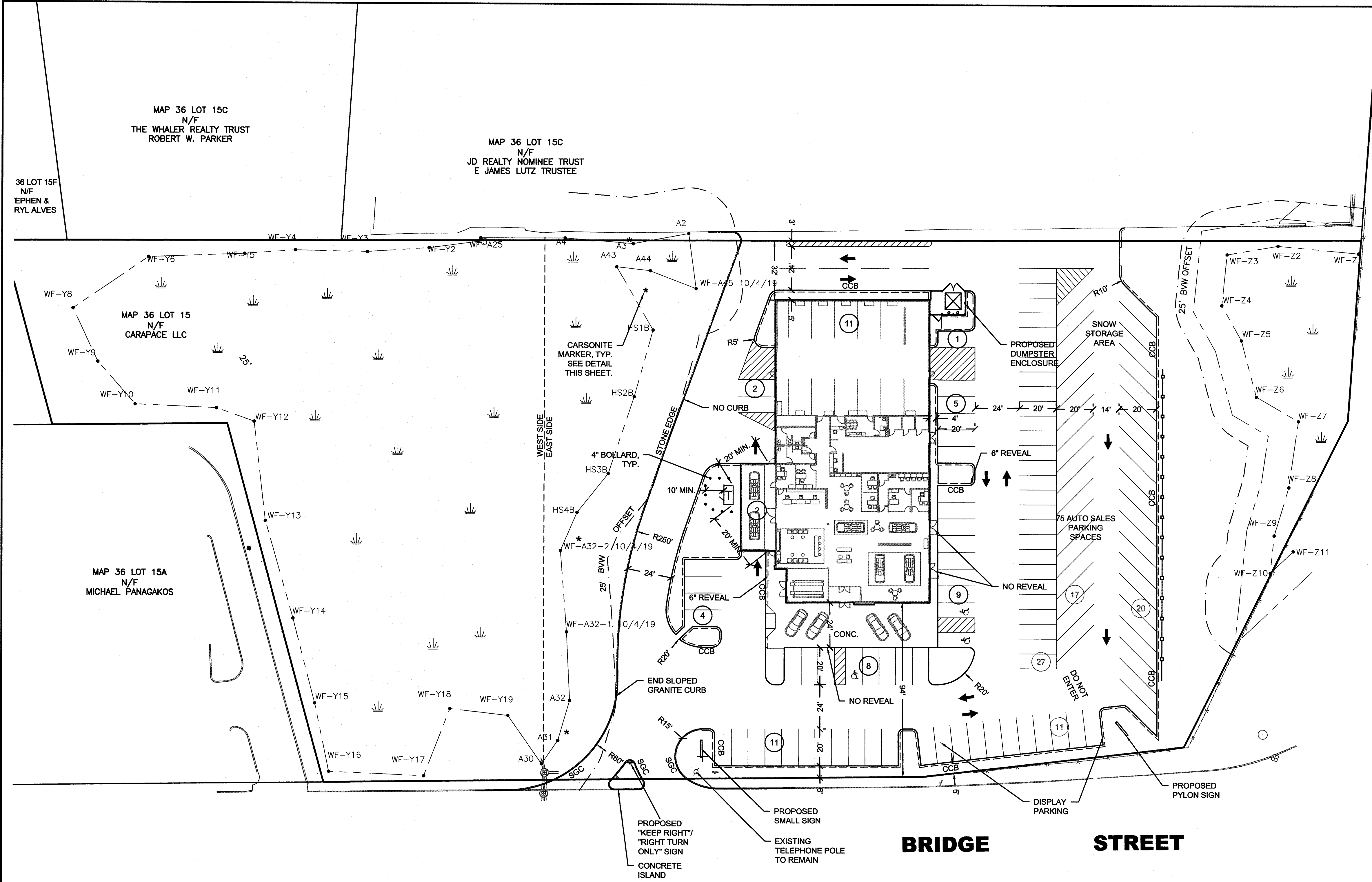
ZONING SUMMARY TABLE
INDUSTRIAL ZONE

CRITERIA	REQUIRED	PROVIDED
MIN. TOTAL AREA (SF)	50,000 SF	173,804 SF
MIN. UPLAND AREA (SF)	35,000 SF	100,300 SF
MIN. FRONTAGE (LF)	140 LF	487.28 LF
BLDG FRONT SETBACK (LF)	50'	94'
BLDG SIDE SET BACK (LF)	25'	32'
BLDG REAR SETBACK (LF)	50'	32'
BLDG HEIGHT (LF)	40'	35'
PARKING SETBACK (LF)	50'	5'
MAX. IMPERVIOUS COVERAGE	65%	43%
MAX. BLDG COVERAGE	25%	8.3%
REQUIRED PARKING 1 SPACE PER 250 S.F. GLFA (13,500 / 250 =55)	54	54

* REQUIRES A VARIANCE



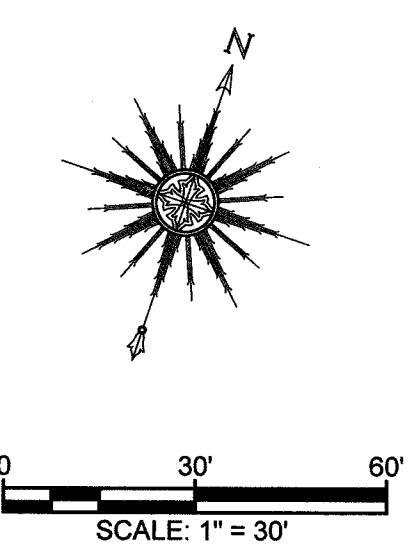
WETLAND BOUNDARY PERMANENT MARKER
NOT TO SCALE



BRIDGE STREET

ROUTE 240

NOTE: SNOW SHALL NOT BE DISPOSED WITHIN BMPS. EXCESS SNOW SHALL BE REMOVED OFF SITE AT NO COST TO THE TOWN.



REV	DATE	DESCRIPTION	BY	APP	DRAWING TITLE	SCALE:	DATE:	PROJECT:	CLIENT:	CHECKED BY:	DESIGNED BY:	PROJECT NO.
12	01-22-20	GENERAL REVISIONS	JAG	RJR	SITE LAYOUT 250 BRIDGE STREET FAIRHAVEN, MASSACHUSETTS CARAPACE, LLC FAIRHAVEN, MASSACHUSETTS	1" = 30'	APRIL 12, 2019	250 BRIDGE STREET FAIRHAVEN, MASSACHUSETTS	CARAPACE, LLC FAIRHAVEN, MASSACHUSETTS	RJR	JAG	19830101
11	01-10-20	ADDED EXISTING CATCH BASIN DETAIL	SWL	RJR								
10	01-01-20	GENERAL REVISIONS	JAG	RJR								
9	12-3-19	GENERAL REVISIONS	JAG	RJR								
8	10-31-19	GENERAL REVISIONS	JAG	RJR								
7	10-8-19	NEW WETLAND LINE/ GENERAL REVISIONS	JAG	RJR								
6	7-16-19	NEW BUILDING FOOTPRINT/SITE LAYOUT	JAG	RJR								
5	6-24-19	NEW BUILDING FOOTPRINT/SITE LAYOUT	JAG	RJR								
4	4-26-19	NEW BUILDING FOOTPRINT/SITE LAYOUT	JAG	RJR								
3	9-4-15	GENERAL REVISIONS	TRW	RJR								
2	8-25-15	REVISIONS PER PLANNING BOARD	EKW	RJR								
1	7-10-15	GENERAL REVISIONS	EKW	RJR								

PRIME ENGINEERING
CIVIL ENGINEERING
LAND SURVEYING
ENVIRONMENTAL ASSESSMENT

P.O. BOX 1088
350 BEDFORD ST.
LAKEVILLE, MA 02347
TEL: 508.947.0050
FAX: 508.947.2004

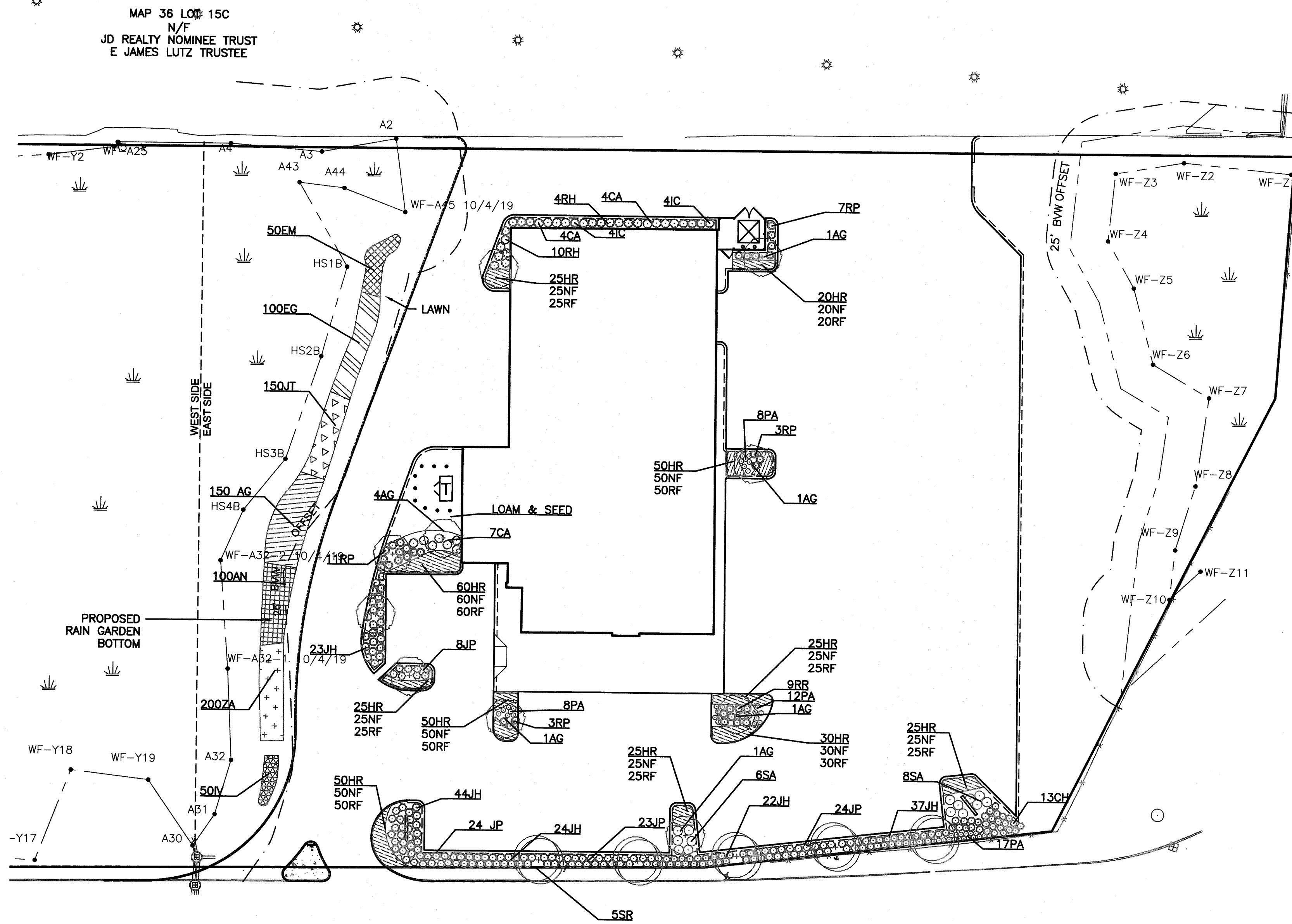


PLANTING SCHEDULE

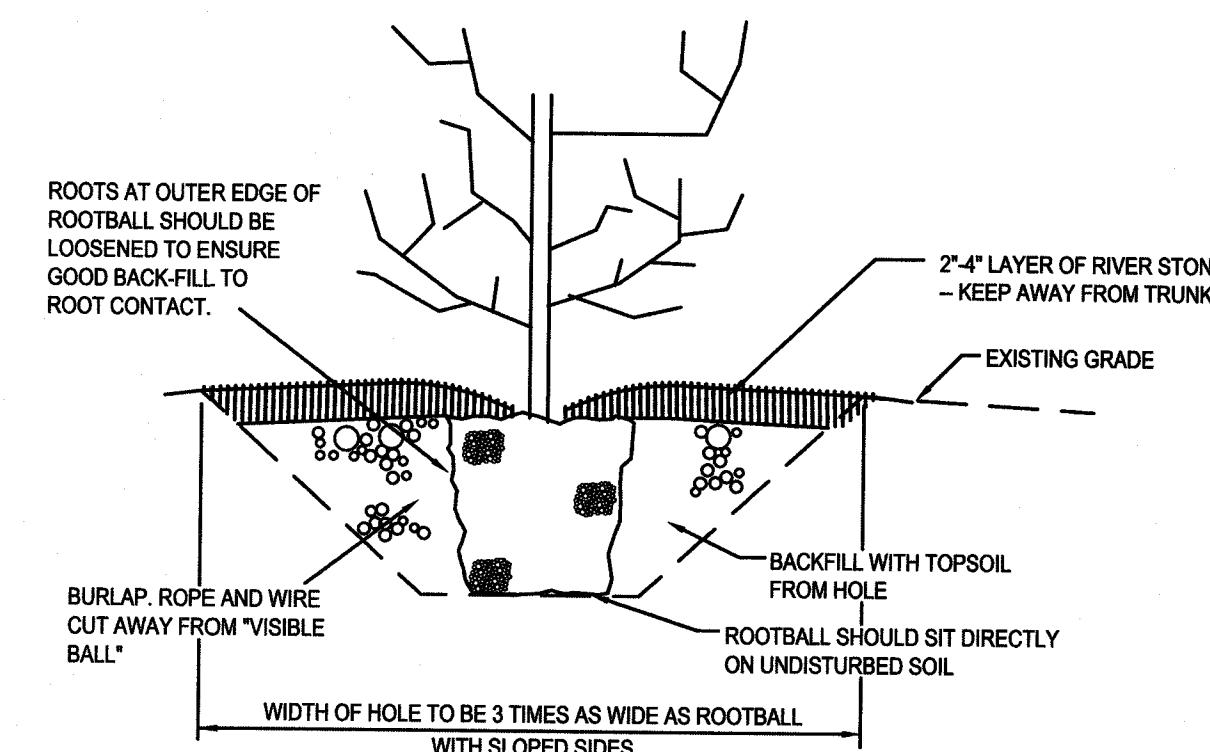
TREES					
SYMBOL	QTY.	BOTANICAL NAME	COMMON NAME	MIN. SIZE.	SPACING
SR	5	SYRINGA RETICULATA 'IVORY SILK'	IVORY SILK JAPANESE TREE LILAC	2"-2.5" CAL.	B&B
AG	10	AMELANCHIER X GRANDIFLORA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SERVICEBERRY	7'-8' HT.	B&B
SHRUBS					
CH	13	CEPHALOTAXUS HARRINGTONIA 'PROSTRATA'	PROSTRATE JAPANESE PLUM YEW	#3 POT PLANT	AS SHOWN
CA	15	CLETHRA ALNIFOLIA 'RUBY SPICE'	RUBY SPICE SUMMERSWEET	18"-24" HEIGHT PLANT	AS SHOWN
IC	6	ILEX CRENATA 'HELLER'	HELLER HOLLY	18"-24" HEIGHT	AS SHOWN
JH	120	JUNIPERUS HORIZONTALIS 'BAR HARBOR'	BAR HARBOR JUNIPER	#3 POT PLANT	AS SHOWN
JP	78	JUNIPERUS PROCUMBENS 'NANA'	DWARF JAPANESE GARDEN JUNIPER	#3 POT PLANT	AS SHOWN
RH	14	RHODOENDRON 'HENRY'S RED'	HENRY'S RED RHODOENDRON	18"-24" HEIGHT	AS SHOWN
RP	21	RHODOENDRON 'PURPLE GEM'	PURPLE GEM RHODOENDRON	#3 POT PLANT	AS SHOWN
RR	9	ROSA RUGOSA 'FRAU DAGMAR HASTROPP'	FRAU DAGMAR HASTROPP ROSE	24"-36"	AS SHOWN
SA	14	SPIRAEA JAPONICA 'ALPINA'	ALPINA SPIREA	#3 POT PLANT	AS SHOWN
PERENNIALS					
HR	415	HEMEROCALLIS X 'HAPPY RETURNS' 'HAPPY RETURNS' DAYLILY	HAPPY RETURNS DAYLILY	#1 POT PLANT	18" ON CENTER
NF	365	NEPETA X FAASSENII 'BLUE WONDER'	BLUE WONDER CATMINT	#1 POT PLANT	18" ON CENTER
PA	46	PENNISETUM ALOPECUROIDES	HAMELN DWARF FOUNTAIN GRASS	#3 POT	PLANT 2' ON CENTER
RF	435	RUDBECKIA FULGIDA "GOLDSTURM"	GOLDSTURM BLACK-EYED SUSAN	#1 POT PLANT	18" ON CENTER
RAIN GARDEN PLANTS					
AG	150	ANDROPOGON GERARDII	BIG BLUESTEM	2" PLUG PLANT	2' ON CENTER
AN	100	ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	2" PLUG PLANT	2' ON CENTER
EM	50	EUPATORIUM MACULATUM	JOE-PYE WEED	2" PLUG PLANT	3' ON CENTER
EG	100	EUTHAMIA GRAMINIFOLIA	GRASS-LEAVED GOLDENROD	2" PLUG PLANT	2' ON CENTER
IV	50	IRIS VERSICOLOR	BLUE FLAG IRIS	2" PLUG PLANT	18" ON CENTER
JT	150	JUNCUS TENUIUS	PATH RUSH	2" PLUG PLANT	18" ON CENTER
ZA	200	ZIZIA AUREA GOLDEN	GOLDEN ALEXANDERS	2" PLUG PLANT	15" ON CENTER

NOTES:

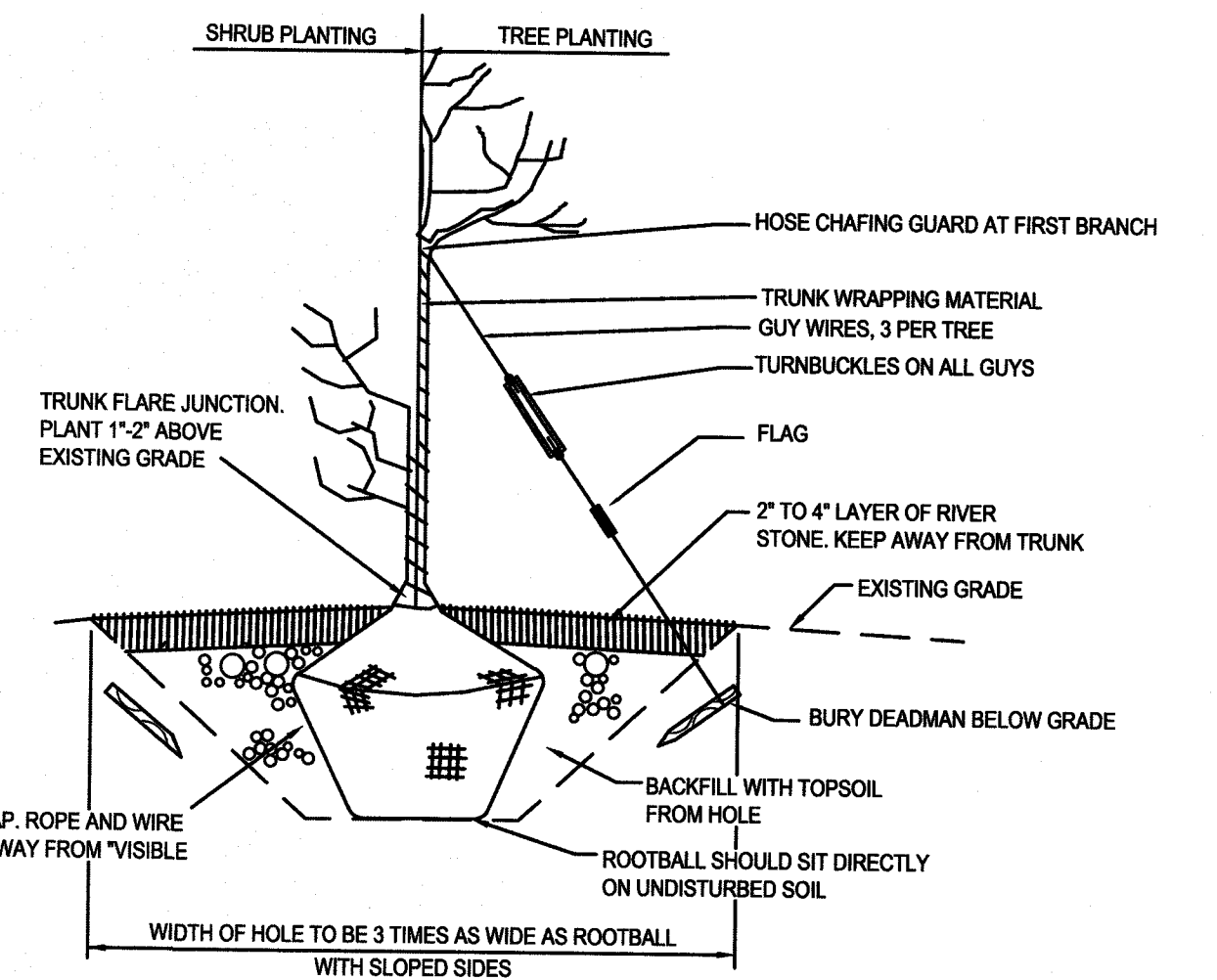
- PLANT SPECIES, CULTIVARS, SIZES, AND LOCATIONS SHALL NOT BE CHANGED EXCEPT BY PERMISSION OF THE LANDSCAPE DESIGNER.
- ALL BARE SOIL AREAS THAT ARE NOT DESIGNATED AS PLANT BEDS SHALL BE SEEDED WITH COMMERCIAL GRADE LAWN MIX.



BRIDGE STREET



CONTAINER GROWN SHRUB AND TREE PLANTING DETAIL
NOT TO SCALE



B&B TREE AND SHRUB PLANTING DETAIL
NOT TO SCALE

12 01-22-20 GENERAL REVISIONS JAG RJR 11 01-10-20 ADDED EXISTING CATCH BASIN DETAIL SWL RJR 10 01-01-20 GENERAL REVISIONS JAG RJR 9 12-3-19 GENERAL REVISIONS JAG RJR 8 10-31-19 GENERAL REVISIONS JAG RJR 7 10-8-19 NEW WETLAND LINE/GENERAL REVISIONS JAG RJR 6 7-16-19 NEW BUILDING FOOTPRINT/SITE LAYOUT JAG RJR 5 6-24-19 NEW BUILDING FOOTPRINT/SITE LAYOUT JAG RJR 4 4-26-19 NEW BUILDING FOOTPRINT/SITE LAYOUT JAG RJR 3 9-4-15 GENERAL REVISIONS TRW RJR 2 8-25-15 REVISIONS PER PLANNING BOARD EKW RJR 1 7-10-15 GENERAL REVISIONS EKW RJR		DRAWING TITLE LANDSCAPE PLAN PROJECT 250 BRIDGE STREET FAIRHAVEN, MASSACHUSETTS CLIENT CARAPACE, LLC FAIRHAVEN, MASSACHUSETTS SCALE: 1" = 30' DATE: APRIL 27, 2015 DRAWN BY: EKW/TRW DESIGNED BY: RJR CHECKED BY: RJR APPROVED BY: RJR	SHEET NO. 8 PROJECT NO. 19830101
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APPENDIX A
SITE CONSTRUCTION CONTROLS

SITE CONSTRUCTION CONTROLS FOR THE DEVELOPMENT OF AN AUTO DEALERSHIP ON ASSESSORS MAP 36 LOT 15

1.0 INTRODUCTION

It is proposed to construct an auto dealership adjacent to Bordering Vegetated Wetlands (BVWs). The BVW are a wetland resource that must be protected from impacts from the proposed construction activities. The following erosion and sediment control program, material management practices and spill control program have been developed to that end.

2.0 PRECONSTRUCTION MEASURES

Prior to the initiation of any construction, silt fencing shall be installed as shown on the plans. In addition, silt fencing and haybales shall be placed around all existing catch basin inlets. A preconstruction conference shall then be held with the Fairhaven Conservation Agent in order to confirm that sediment control conditions are adequate for construction to start.

3.0 CONSTRUCTION PERIOD MEASURES

The following are the minimal measures required for erosion and sediment control, material handling and for spill control.

3.1 EROSION AND SEDIMENTATION CONTROL

The following measures shall be maintained throughout the site construction phase of the project.

Catch Basin Protection

Proposed catch basins shall be protected with haybale barriers or filters prior to the completion of paving. Bales shall also be placed around grates and catch basins within the construction areas to ensure that runoff entering the catch basin has been filtered through the bales prior to discharge. The catch basins in Bridge Street shall be filled with silt sacks.

Drainage Swale Haybale Check Dams

Haybales shall also be placed across construction ditches during construction to limit the transport of sediment into drainage systems and waterways.

Stabilized Construction Entrance

A temporary stabilized construction entrance shall be installed at various locations on the project. The purpose of the construction entrance is to remove sediment attached to vehicle tires and minimize its transport and deposition onto public road surfaces. The construction entrance shall be composed of a 6-inch thick (minimum) bed of 2-inch diameter crushed stone that extends a minimum of 50 feet. The construction entrance shall be a minimum of 25 feet wide, and shall flare

to a minimum width of 45 feet wide at the junction with the roadway. The crushed stone bed shall be replenished as necessary to maintain the proper function.

Silt Fences

Silt fences shall be placed at the limits of work where the slope is less than 4:1. Typically, they shall be installed adjacent to resource areas, where soil shall be exposed due to construction related activities, as depicted on the plans. They shall be placed in a sturdy, upright position and supported/anchored to withstand the forces of the elements and the circumstances of construction activities. The fences shall be installed in a manner that shall prevent runoff from passing over, under, or around the fence (i.e. all of the runoff shall pass through the fence). They shall be attached to posts (either steel or wood) in sufficient number to support the fence. The posts shall typically be placed 4 to 8 feet apart. It shall be the construction contractor's responsibility to maintain the fence in a functional condition throughout the duration of construction activities. The contractor shall also remove any large accumulations of sediment in a timely manner and dispose the material appropriately.

Haybales

Haybales shall be placed in conjunction with silt fences, at the limit of work on steep slopes only. Steep slopes for this project are those which are 4:1 or steeper. They shall be staked with metal or wood stakes to anchor them to the ground. The contractor is responsible for maintaining the haybales in good condition and replacing them as necessary. Bales that deteriorate and are no longer intact or that become plugged with sediment shall be removed and disposed. They shall be replaced with new haybales installed as described above.

Permanent Erosion Control Measures

Distinguished from temporary erosion control measures, the following permanent erosion control measures shall remain in place after the completion of the project.

Erosion Control Matting

Control matting shall be used on slopes 4:1 or steeper and in sloped planted areas subject to high wind exposure. This matting shall serve to stabilize these steeper slopes and prevent erosion prior to the slope stabilization. The matting shall also assist in maintaining the soil moisture necessary to support dense vegetative plantings proposed for some of the steeper slopes.

Erosion and Sediment Control - Maintenance

The contractor shall have primary responsibility for implementing temporary and permanent controls described in the plan and shall be responsible for assuring compliance with contract documents including erosion and sediment control measures.

- Damaged or deteriorated items shall be repaired or replaced immediately after identification.

- The underside of haybales should be kept in close contact with the earth and reset as necessary.
- Silt fence and haybales shall be inspected after every major rainfall runoff event (over ½" depth of precipitation) or every 14 days, whichever occurs first. All damaged or misaligned fences shall be immediately repaired. Silt shall be immediately removed from all areas of the silt fence when depth of accumulation exceeds 9 inches. Each report shall be documented on the form enclosed in Appendix E.
- Sumps shall be inspected after every major rainfall runoff event (over ½" depth of precipitation) or every 14 days, whichever occurs first. Silt shall be immediately removed from all sumps where the depth of accumulation exceeds 9 inches.
- All exposed construction areas shall be stabilized upon completion in order to minimize the time that these areas are unstabilized.

3.2 MATERIALS MANAGEMENT PRACTICES

The following are the material management practices that shall be used to reduce the risk of spills or other accidental exposure of materials and substances to stormwater runoff. The contractor shall be responsible for ensuring that these procedures are followed:

1. Good Housekeeping

The following good housekeeping practices shall be followed on-site during construction:

- An effort shall be made to store only enough products required to do the job.
- All materials stored on-site shall be stored in a neat, orderly manner and, if possible, under a roof or in a containment area. At a minimum, containers shall be stored with their lids on when not in use. Drip pans shall be provided under dispensers.
- Products shall be kept in their original containers with the original manufacturer's label in legible condition.
- Substances shall not be mixed with one another unless recommended by the manufacturer.
- Whenever possible, product shall be used before disposing the container.
- Manufacturer's recommendations for proper use and disposal shall be followed.
- The contractor shall be responsible for daily inspections to ensure proper use and disposal of materials.

2. Hazardous Substances

These practices shall be used to reduce the risks associated with hazardous substances. Material Safety Data Sheets (MSDSs) for each product with hazardous properties shall be obtained and used for the proper management of potential waste that may result from these products. A MSDS shall be posted in the immediate area where such product is stored and/or used and another copy of each MSDS shall be maintained in the job trailer. Each employee who must handle a hazardous substance shall be instructed on the use of MSDS sheets and the specific information in the applicable MSDS for the product he/she is using, particularly regarding spill control techniques.

- Products shall be kept in original containers with the original labels in legible condition.
- Original labels and MSDSs shall be procured and used for each product.

- If surplus product must be disposed, manufacturer's and local/state/federal required methods for proper disposal must be followed.

3. *Hazardous Waste*

It is imperative that hazardous waste be properly identified and handled in accordance with all applicable hazardous waste standards, including the storage, transport and disposal of the hazardous wastes. There are significant penalties for the improper handling of hazardous wastes. It is important that the contractor seeks appropriate assistance in making the determination of whether a substance or material is a hazardous waste. For example, hazardous waste may include certain hazardous substances, as well as pesticides, paints, paint solvents, cleaning solvents, pesticides, contaminated soils, and other materials, substances or chemicals that have been discarded (or are to be discarded) as being out-of-date, contaminated, or otherwise unusable. The contractor is responsible for ensuring that site personnel are instructed as to these hazardous waste requirements and that the requirements are being followed.

4. *Product Specific Practices*

The following product specific practices shall be followed on the job site:

Petroleum Products

All on-site vehicles shall be monitored for leaks and receive regular preventative maintenance to reduce the chance of leakage. Petroleum products shall be stored in tightly sealed containers which are clearly labeled. Petroleum storage tanks shall be located at a minimum of 100 linear feet from drainage ways, inlets and surface waters. Any petroleum storage tanks stored on-site shall be located within a containment area that is designed with an impervious surface between the tank and the ground. The secondary containment must be designed to provide a containment volume that is equal to 110% of the volume of the largest tank. Any mobile petroleum tank shall be parked in a vehicular service area surrounded by a berm that provides a containment volume that is equal to 110% of the volume of the largest tank. Containment must provide sufficient volume to contain expected precipitation and 110% volume of the largest tank. Accumulated rainwater or spills from containment areas are to be promptly pumped into a containment device and disposed properly by a licensed hazardous waste transporter. Drip pans shall be provided for dispensers. Any asphalt substances used on-site shall be applied according to the manufacturer's recommendations. The location of any fuel tanks and/or equipment storage areas must be identified on the Erosion Control Plan by the contractor once the locations have been determined.

Fertilizers

Fertilizers shall be applied only in the minimum amounts recommended by the manufacturer. Once applied, fertilizer shall be worked in the soil to limit exposure to stormwater. The contents of partially used bags of fertilizer shall be transferred to a sealable plastic bin to avoid spills.

Cleaning Solvents

All containers shall be tightly sealed and stored when not in use. Excess solvents shall not be discharged to the storm sewer system, but shall be properly disposed according to manufacturer's instructions and state and federal regulations.

Concrete Wastes

Concrete trucks shall be allowed to wash out or discharge surplus concrete or drum wash water on the project site, but only in specifically designated diked and impervious washouts which have been prepared to prevent contact between the concrete wash and stormwater. Waste generated from concrete wash water shall not be allowed to flow into drainage ways, inlets, receiving waters or any location other than the designated concrete washout. Waste concrete may be poured into forms to make rip-rap or other useful concrete products. Concrete washouts shall be located at a minimum of 100 linear feet from drainage ways, inlets, surface waters and wetland resource areas.

The hardened residue from the concrete washout diked areas shall be disposed in the same manner as other non-hazardous construction waste materials or may be broken up and used on site as deemed appropriate by the contractor. Maintenance of the washout is to include removal of hardened concrete. The facility shall not be filled beyond 95% capacity and shall be cleaned out once 75% full unless a new facility is constructed. The contractor's shall be responsible for seeing that these procedures are followed.

Saw-cut Portland Cement Concrete (PCC) slurry shall not be allowed to enter storm drains or watercourses. Saw-cut residue should not be left on the surface of pavement or be allowed to flow over and off pavement. Residue from saw-cutting and grinding shall be collected by vacuum and disposed of in the concrete washout facility.

5. Solid and Construction Wastes

All waste materials shall be collected and disposed at an appropriate solid waste disposal area.

6. Sanitary Wastes

A minimum of one portable sanitary unit shall be provided for every ten (10) workers on the site. All sanitary waste shall be collected from the portable units a minimum of one time per week by a licensed portable facility provider in complete compliance with local and state regulations.

All sanitary waste units shall be located in an area where the likelihood of the unit contributing to stormwater discharges is negligible. Additional containment BMPs must be implemented, such as gravel bags or specially designed plastic skid containers around the base, to prevent wastes from contributing to stormwater discharges.

7. Contaminated Soils

Any contaminated soils (resulting from spills of hazardous substances or oil or discovered during the course of construction) which may result from construction activities shall be contained and cleaned up immediately in accordance with the procedures given in the Material Management Plan and in accordance with applicable state and federal regulations. Contaminated soils not resulting from construction activities, from pre-existing construction activities, but which are discovered by virtue of construction activities, should be reported in the same manner as spills, but with sufficient information to indicate that the discovery of an existing condition is being reported. If there is a release that occurs by virtue of the discovery of existing contamination, this should be reported as a spill, if it otherwise meets the requirements for a reportable spill.

3.3 SPILL PREVENTION AND RESPONSE PROCEDURES

The contractor shall train personnel in the proper handling and cleanup of spilled hazardous substances or oil. No spilled hazardous substances or oil shall be allowed to come in contact with stormwater discharges. If such contact occurs, the stormwater discharge shall be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose such contaminated stormwater. It shall be the responsibility of the contractor to be properly trained, and to train personnel in spill prevention and cleanup procedures.

3.3.1 In order to prevent or minimize the potential for a spill of hazardous substances or oil to come into contact with stormwater, the following steps shall be implemented:

- All hazardous substances or oil (such as pesticides, petroleum products, fertilizers, detergents, construction chemicals, acids, paints, paint solvents, cleaning solvents, additives for soil stabilization, concrete curing compounds and additives, etc.) shall be stored in a secure location, with their lids on, preferably under cover, when not in use.
- The minimum practical quantity of all such materials shall be kept at the project site.
- A spill control and containment kit (containing, for example, absorbent materials, acid neutralizing powder, brooms, dust pans, mops, rags, gloves, plastic and metal trash containers, etc.) shall be provided at the storage site.
- Manufacturer's recommended methods for spill cleanup shall be clearly posted and site personnel shall be trained regarding these procedures and the location of the information and cleanup supplies.
- It is the contractor's responsibility to ensure that hazardous waste discovered or generated is disposed properly by a licensed hazardous material disposal company. The contractor is responsible for not exceeding hazardous waste storage requirements mandated by the EPA and state and local authorities.

3.3.2 A spill contingency plan shall be implemented during construction, including the following provisions:

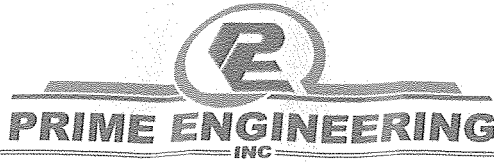
- Equipment necessary to quickly attend to inadvertent spills shall be stored on-site in a secure but accessible location. Such equipment shall include:
 1. Safety goggles.

2. Chemically resistant gloves and overshoe boots.
3. Water and chemical fire extinguishers.
4. Sand and shovels.
5. Suitable absorbent materials.
6. Storage containers.
7. First aid equipment.

3.3.3 In the event of a spill of hazardous substances or oil, the following procedures must be followed:

- All measures must be taken to contain and abate the spill and to prevent the discharge of the hazardous substance or oil to stormwater or off-site. (The spill area must be kept well ventilated and personnel must wear appropriate protective clothing to prevent injury from contact with the hazardous substances.)
- For spills of less than five (5) gallons of material, proceed with source control and containment, clean-up with absorbent materials or other applicable means unless an imminent hazard or other circumstances dictate that the spill should be treated by a professional emergency response contractor.
- For spills greater than five (5) gallons of material, immediately contact Richard J. Rheume, LSP, Prime Engineering, Inc., P.O. Box 1088, Lakeville, MA 02347 at (508) 947-0050. Provide information on the type of material spilled, the location of the spill, the quantity spilled, and the time of the spill and proceed with prevention, containment and/or clean-up if so desired.
- Spills of amounts that exceed reportable quantities of certain substances specifically mentioned in federal regulations 40 CFR 110, 40 CFR 117, and 40 CFR 302 must be immediately reported to the EPA National Response Center at (800) 242-8802.

The contractor shall be the spill prevention and response coordinator and shall designate the individuals who shall receive spill prevention and response training. These individuals shall each become responsible for a particular phase of prevention and response. The names of these personnel shall be posted in the material storage area and in the office trailer on-site. Any spill that occurs shall be documented on a spill report form that is enclosed as Appendix F.



January 23, 2020

Fairhaven Conservation Commission
40 Center Street
Fairhaven, MA 02719
Attn: Whitney McClees

RE: LEWIS LANDING - HUTTLESTON AVENUE

Dear Ms. McClees:

Attached are the following:

- Response to GCG Associates, Inc. letter dated January 10, 2020. Please note our responses to this iteration are in yellow.
- Revised set of plans dated January 22, 2020.
- Revised Stormwater System Operation and Maintenance Program dated January 23, 2020.

I look forward discussing these changes with you at your January 27 meeting.

Sincerely,

PRIME ENGINEERING, INC.

Richard J. Rheume, P.E., LSP
Chief Engineer

LEWIS LANDING

PROPOSED MULTI-UNIT RESIDENTIAL DEVELOPMENT

HUTTLESTON AVE.

FAIRHAVEN, MASSACHUSETTS

APPLICANT/OWNER:

DANA LEWIS
18 TANNER LANE
FAIRHAVEN, MA 02719

LOCUS:

MAP 31 - LOT 117C AND LOT 115A
HUTTLESTON AVENUE
FAIRHAVEN, MA



SCHEDULE OF DRAWINGS

SHEET NUMBER	PLAN TITLE
-	COVER SHEET
1	EXISTING CONDITIONS PLAN
2	SITE LAYOUT AND LANDSCAPING PLAN
3	GRADING & UTILITIES PLAN
4	EROSION CONTROL PLAN
5	DETAIL SHEET-1
6	DETAIL SHEET-2
7	ARCHITECTURALS

WAIVERS REQUESTED

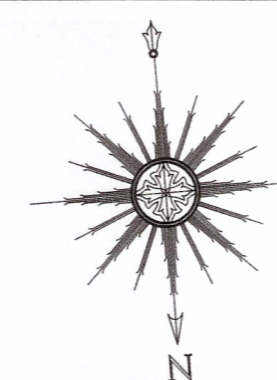
1. FAIRHAVEN ZONING BYLAW 198-31.1 (C) (2) (g) [6] REQUIRING BASINS AND PONDS TO HAVE 4:1 SIDE SLOPES AND SEDIMENT FOREBAYS TO HAVE 3:1 SIDE SLOPES.
2. FAIRHAVEN ZONING BYLAW 198-31.1 (C) (2) (n) [6] REQUIRING 2 FEET OF COVER FOR HDPE PIPES NOT SUBJECTED TO MAINTENANCE EQUIPMENT OR VEHICLE LOADS.
3. FAIRHAVEN ZONING BYLAW 198-31.1 (A) (1) (a) [2] ALLOWING NO INCREASE IN THE 10-YEAR STORM RUNOFF VOLUME DUE TO SOILS UNSUITABLE FOR INFILTRATION.



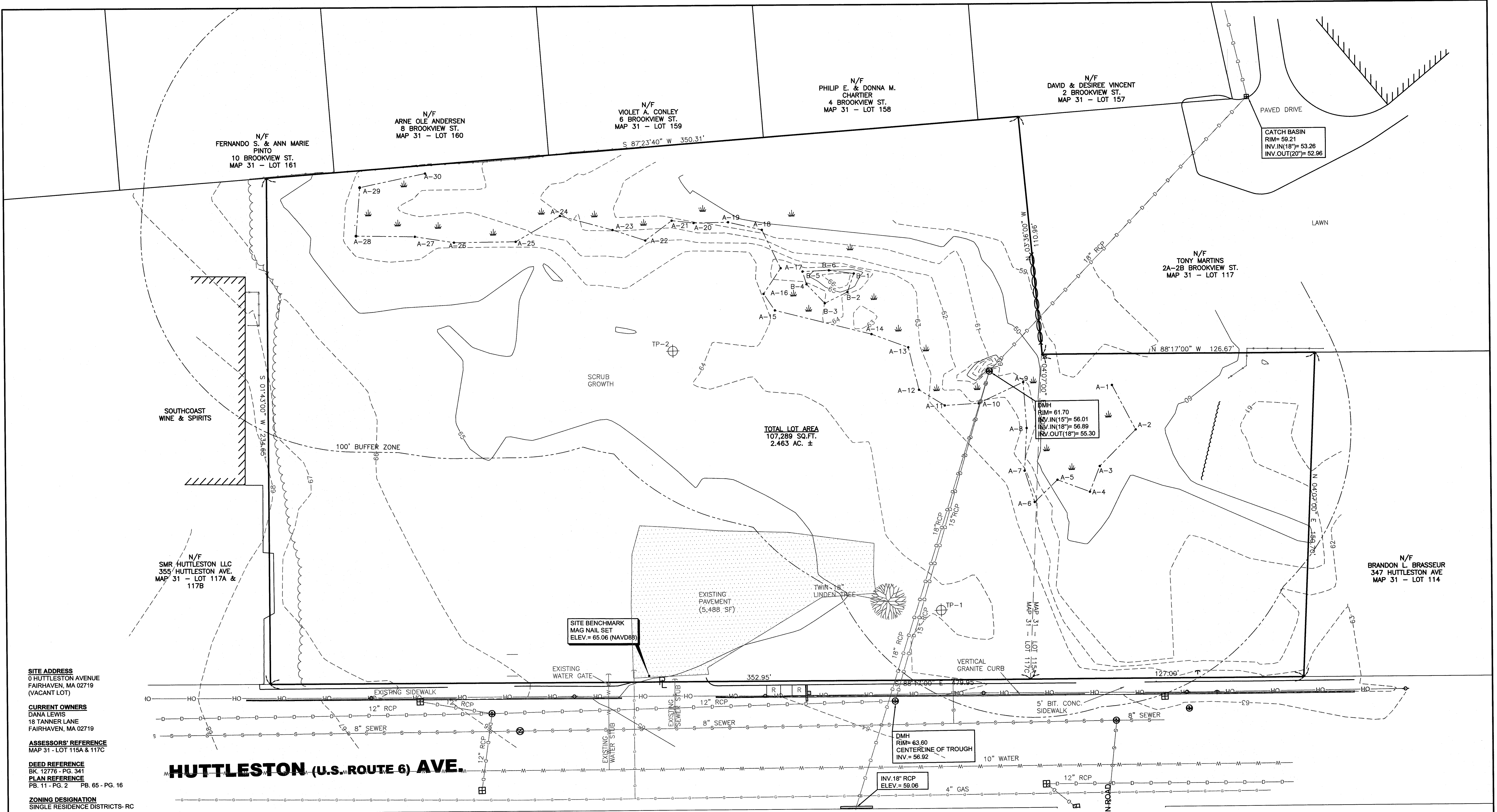
Richard J. Thorne
PREPARED BY:



CIVIL ENGINEERING—LAND SURVEYING—ENVIRONMENTAL ASSESSMENT
P.O. BOX 1088, 350 BEDFORD STREET, LAKEVILLE, MA 02347
TEL: 508.947.0050 FAX: 508.947.2004



SCALE: 1"=100'
SEPTEMBER 9, 2019
REVISED JANUARY 22, 2020



SITE ADDRESS
 0 HUTTLESTON AVENUE
 FAIRHAVEN, MA 02719
 (VACANT LOT)

CURRENT OWNERS
 DANA LEWIS
 18 TANNER LANE
 FAIRHAVEN, MA 02719

ASSESSORS' REFERENCE
 MAP 31 - LOT 115A & 117C

DEED REFERENCE
 BK. 12776 - PG. 341

PLAN REFERENCE
 PB. 11 - PG. 2 PB. 65 - PG. 16

ZONING DESIGNATION
 SINGLE RESIDENCE DISTRICTS- RC

VERTICAL DATUM SHOWN
 NAVD83

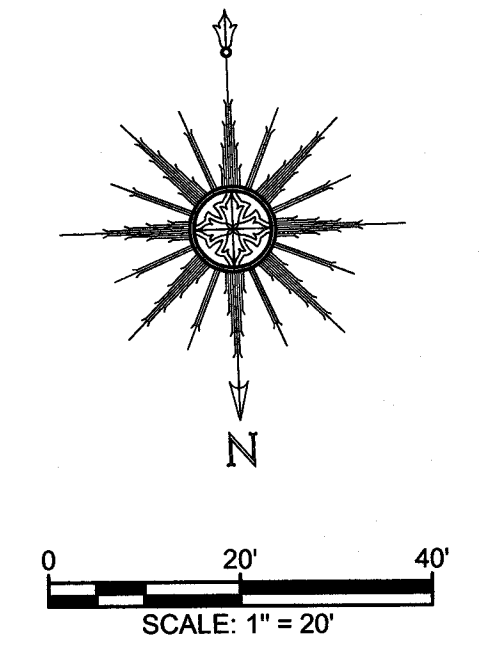
FEMA FLOODZONE DESIGNATION
 ZONE X- AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. AS SCALED FROM FLOOD INSURANCE RATE MAP NUMBER: 25005-C-0413P, EFFECTIVE DATE: 7/7/2009

NOTE:
 THE WETLAND DELINEATION LINE SHOWN HEREON WAS BASED ON A PLAN BY ALLEN D. QUINTIN, DATED JANUARY 11, 2017 AND WAS NOT FIELD LOCATED BY PRIME ENGINEERING INC. DELINEATION APPROVED BY FAIRHAVEN CONSERVATION COMMISSION.

HUTTLESTON (U.S. ROUTE 6) AVE.

ELEV. (FEET)	TP-1	DEPTH (INCHES)	ELEV. (FEET)	TP-2	DEPTH (INCHES)
64.3		0	64.2		0
	SL FILL			SL FILL	
59.30		60	59.20	MUCK	60
	MUCK		58.20	FS	72
58.30		72	56.20	DENSE TILL	96
	DENSE TILL		55.20		108
58.30		96			

SEEPAGE ENCOUNTERED @ 60"

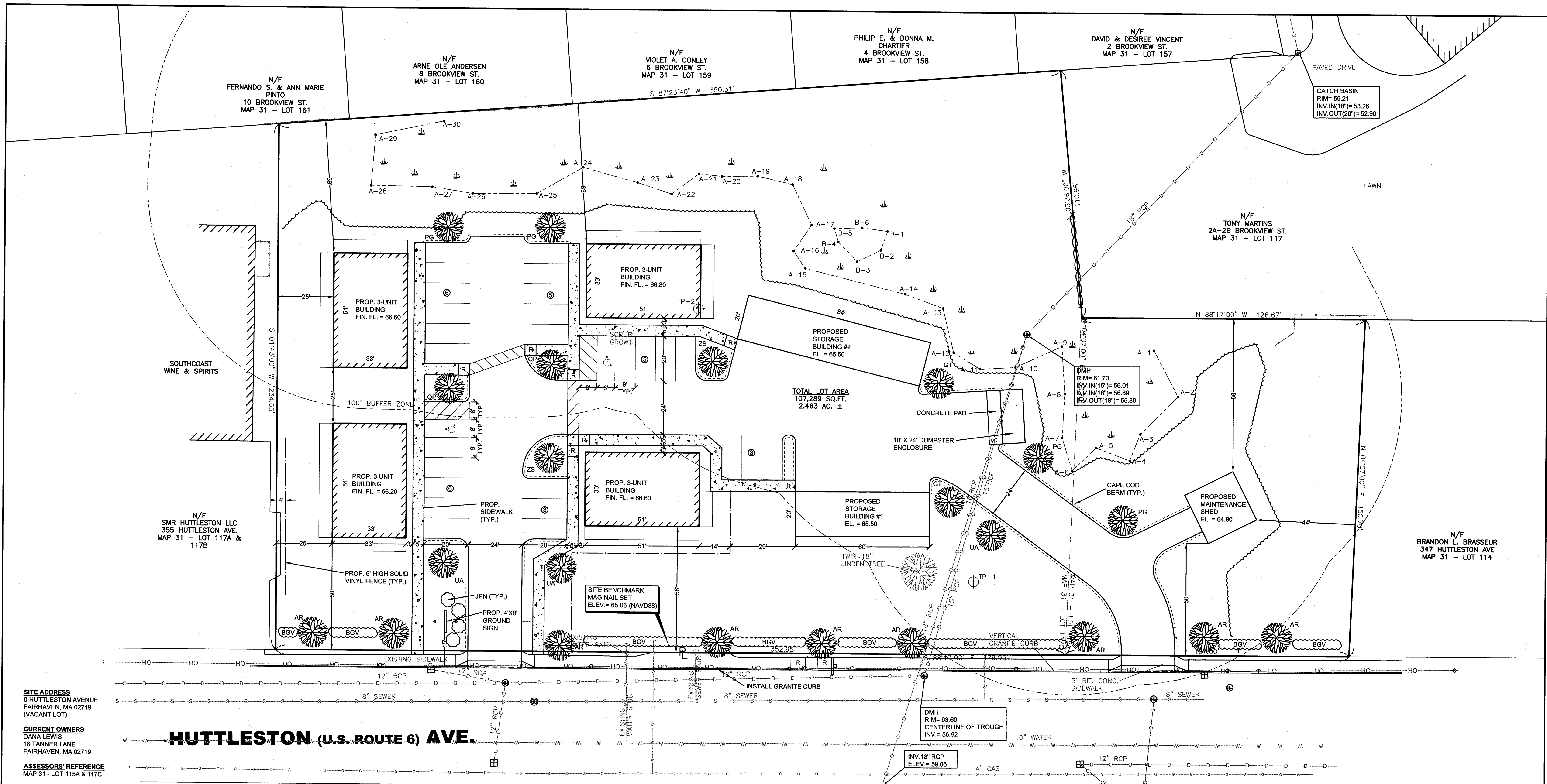


REV.	DATE	DESCRIPTION	BY	APP.
3	1/22/2020	RESPONSE TO COMMENTS	SWL	RJR
2	12/4/2019	RESPONSE TO COMMENTS	SWL	RJR
1	11/8/2019	RESPONSE TO COMMENTS	SWL	RJR

DRAWING TITLE		EXISTING CONDITIONS PLAN		SCALE:	1" = 20'
PROJECT		MAP 31- LOT 117C FAIRHAVEN, MASSACHUSETTS		DATE:	SEPT. 9, 2019
CLIENT		DANA LEWIS FAIRHAVEN, MASSACHUSETTS		DRAWN BY:	SWL
DESIGNED BY:		RJR		CHECKED BY:	RJR
DESIGNED BY:		RJR		APPROVED BY:	RJR
DESIGNED BY:		RJR		PROJECT NO.:	2729-01-01

PRIME ENGINEERING
 P.O. BOX 1088
 390 BEDFORD ST.
 LAKEVILLE, MA 02347
 TEL: 508.947.0050
 FAX: 508.947.2004

1 OF 7



SITE ADDRESS
 0 HUTTLESTON AVENUE
 FAIRHAVEN, MA 02719
 (VACANT LOT)

CURRENT OWNERS
 DANA LEWIS
 18 TANNER LANE
 FAIRHAVEN, MA 02719

ASSESSORS' REFERENCE
 MAP 31 - LOT 115A & 117C

DEED REFERENCE
 BK 12776 - PG. 341

PLAN REFERENCE
 PB. 11 - PG. 2 PB. 65 - PG. 16

ZONING DESIGNATION
 SINGLE RESIDENCE DISTRICTS- RC

VERTICAL DATUM SHOWN
 NAVD88

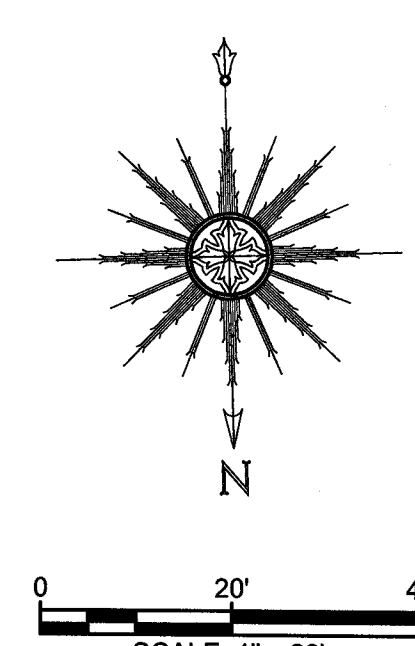
FEMA FLOODZONE DESIGNATION
 ZONE X- AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN. AS SCALED FROM FLOOD INSURANCE RATE MAP NUMBER: 25005-C-0413P. EFFECTIVE DATE: 7/7/2009

NOTE:
 THE WETLAND DELINEATION LINE SHOWN HEREON WAS BASED ON A PLAN BY ALLEN D. QUINTIN, DATED JANUARY 11, 2017 AND WAS NOT FIELD LOCATED BY PRIME ENGINEERING INC. DELINEATION APPROVED BY FAIRHAVEN CONSERVATION COMMISSION.

HUTTLESTON (U.S. ROUTE 6) AVE.

LOT 2 PLANTING SCHEDULE (REQUIRED TREES ONLY)						
DECIDUOUS TREES						
SYMBOL	QUANTITY	% OF TOTAL	BOTANICAL NAME	COMMON NAME	SIZE	MATURE HEIGHT / MATURE WIDTH
AR	9	41%	ACER RUBRUM 'RED SUNSET'	RED MAPLE	2.5"-3 CAL.	60' / 40'
GT	2	9%	GLEDITSIA TRIACANTHOS 'SHADEMASTER'	HONEYLOCUST	2.5"-3 CAL.	50' / 30'
QP	2	9%	QUERCUS PALUSTRIS	PIN OAK	2.5"-3 CAL.	65' / 50'
UA	3	14%	ULMUS AMERICANA 'VALLEY FORGE'	VALLEY FORGE ELM	2.5"-3 CAL.	70' / 60'
ZS	2	9%	ZELKOVA SERRATA 'VILLAGE GREEN'	JAPANESE ZELKOVA	2.5"-3 CAL.	60' / 60'
% DECIDUOUS TREES: 82%						
EVERGREEN TREES						
PG	4	18%	PICEA GLAUCA	BLUE SPRUCE	4'-6' HT.	75' / N/A
DECIDUOUS SHRUBS						
BGV	75	-	BUXUS SEMPERVIRENS	GREEN VELVET BOXWOOD	GAL	4' / 4'
JPN	4	-	JUNIPER PROCUMBENS NANA	DWARF JAPANESE JUIPER	GAL	1' / 3'

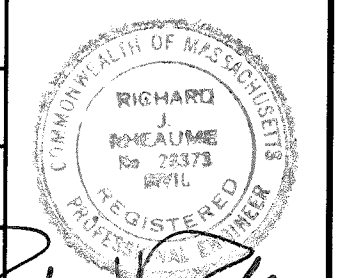
RC ZONING TABLE		
REQUIREMENT	REQUIRED	PROVIDED
MINIMUM FRONTAGE	100 L.F.	479.95 L.F.
MINIMUM LOT AREA	15,000 S.F.	107,289 S.F.
MINIMUM SETBACKS:		
FRONT	50 FT	50.0 FT
SIDES	25 FT	25.0 FT
REAR	50 FT	59.4 FT
MINIMUM CONTIGUOUS UPLAND	70,000 S.F.	85,151 S.F.
MAXIMUM LOT COVERAGE	50%	38.6%
MAXIMUM BUILDING COVERAGE	25%	11.7%

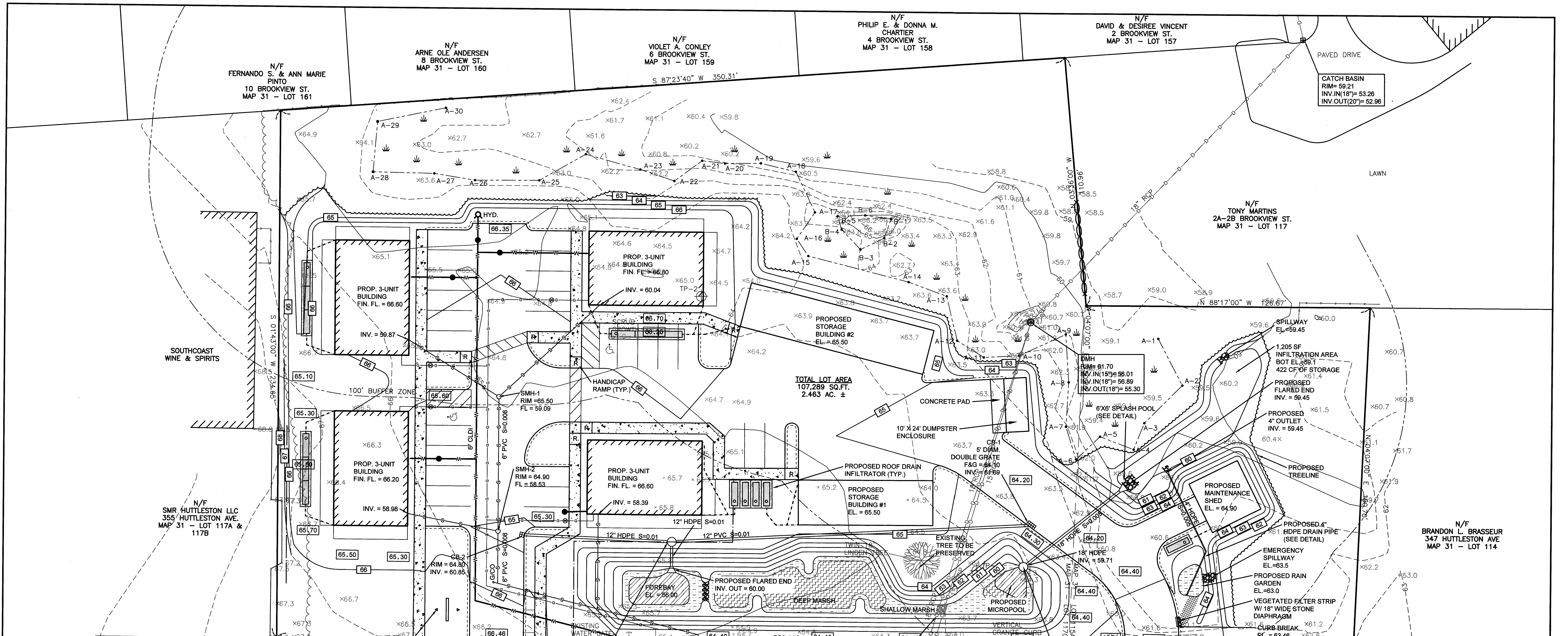


DRAWING TITLE				SCALE:	
SITE LAYOUT AND LANDSCAPING PLAN				1" = 20'	
PROJECT				DATE:	
MAP 31 - LOT 117C FAIRHAVEN, MASSACHUSETTS				SEPT. 9, 2019	
CLIENT				DRAWN BY:	
DANA LEWIS FAIRHAVEN, MASSACHUSETTS				SWL	
DESIGNED BY:				CHECKED BY:	
RJR				RJR	
APPROVED BY:				PROJECT NO.	
RJR				2729-01-01	
REV.		DATE		DESCRIPTION	
3	1/22/2020	RESPONSE TO COMMENTS	SWL	RJR	
2	12/4/2019	RESPONSE TO COMMENTS	SWL	RJR	
1	11/8/2019	RESPONSE TO COMMENTS	SWL	RJR	



P.O. BOX 1088
 300 BEDFORD ST.
 LAKEVILLE, MA 02347
 TEL: 908.947.0050
 FAX: 908.947.2004





NOTES
 LIGHTING WILL BE LED WALLPACKS MOUNTED ON THE CORNERS OF EACH BUILDING.
SITE ADDRESS
 0 HUTTLESTON AVENUE
 FAIRHAVEN, MA 02719
 (VACANT LOT)
CURRENT OWNERS
 DANA LEWIS
 18 TANNER LANE
 FAIRHAVEN, MA 02719
ASSESSORS' REFERENCE
 MAP 31 - LOT 115A & 117C
DEED REFERENCE
 BK. 12776 - PG. 341
PLAN REFERENCE
 PB. 11 - PG. 2 PB. 65 - PG. 16
ZONING DESIGNATION
 SINGLE RESIDENCE DISTRICTS- RC
VERTICAL DATUM SHOWN
 NAVD88
FEMA FLOODZONE DESIGNATION
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HUTTLESTON (U.S. ROUTE 6) AVE.

DEEP MARSH PLANTINGS

BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
NUPHAR LUTEUM	YELLOW WATER LILY	TUBERS	10
NYMPHAEA ODRATA	WHITE WATER LILY	TUBERS	10
PONTERGIA CORDATA	PICKEREL WEED	2" PLUG	10
POTAMOGETON NODOSUS	LONG LEAF PONDWEED	RHIZOMES	10
POTAMOGETON	SAGO PONDWEED	TUBERS	10
PECTINATUS	SAGO PONDWEED	TUBERS	10
VALLISNERIA AMERICANA	WILD CELERY	TUBERS	10

SHALLOW MARSH PLANTINGS

BOTANICAL NAME	COMMON NAME	SIZE	QUANTITY
ACORUS AMERICANA	SWEET FLAG	2" PLUG	10
ALISMA	SWEET FLAG	2" PLUG	10
PLANTAGO-AQUATICA	WATER PLANTAIN	2" PLUG	10
ASTER PUNICEUS	SWAMP ASTER	2" PLUG	20
CALAMAGROSTIS	BLUE JOINT GRASS	2" PLUG	20
CAHADENSIS	BEARDED SEDGE	2" PLUG	20
CAREX COMOSA	TUSsock SEDGE	2" PLUG	20
CAREX STRICTA	TUSsock SEDGE	2" PLUG	20

DETENTION BASIN PLANTING SCHEDULE

ROOF DRAIN CALCULATIONS
 REQUIRED STORM CATCHMENT = 0.25/SF OF IMP. AREA
 INFILTRATION REQUIREMENT = 37,427 SF IMP. X 0.25/SF = 780 CF
 CULTEC 150XLHD INFILTRATOR W/ 12" CRUSHED STONE BOTTOM = 58.8 CF STORAGE
 780 CF / 58.8 CF/CHAMBER = 14 CHAMBERS REQUIRED (MIN.)
 CHAMBERS PROVIDED = 14, TOTAL STORM CATCHMENT PROVIDED = 795 CF
TOP OF PIPE CALCULATIONS
 EXISTING 15" RCP
 SLOPE = (56.92 - 56.01) / 159 FT = .0057 SLOPE
 INV. AT BASIN = 56.92 - (26 FT TO BASIN X .0057) = 56.77
 TOP EL. OF PIPE IN BASIN = 56.77 + 1.25 FT DIAM. + .21 PIPE THICKNESS = 58.23
 EXISTING 18" RCP
 SLOPE = (59.06 - 56.89) / 209 FT = .0103 SLOPE
 INV. AT BASIN = 59.06 - (80 FT TO BASIN X .0103) = 58.24
 TOP EL. OF PIPE IN BASIN = 58.24 + 1.5 FT DIAM. + .21 PIPE THICKNESS = 59.95

LEGEND

100	EXISTING CONTOURS
x98.5	EXISTING SPOT ELEVATION
TP-101	OBSERVATION HOLE LOCATION
100.0	PROPOSED CONTOURS
100.0	PROPOSED SPOT ELEVATION
---	PROPOSED WATER
---	EXISTING TREELINE
---	PROPOSED TREELINE
R	HANDICAP RAMP
---	PROPOSED GAS
---	PROPOSED SEWER

REVISIONS

REV	DATE	DESCRIPTION	BY	APP.
3	1/22/2020	RESPONSE TO COMMENTS	SWL	RJR
2	12/4/2019	RESPONSE TO COMMENTS	SWL	RJR
1	11/8/2019	RESPONSE TO COMMENTS	SWL	RJR

GRADING AND UTILITIES PLAN

MAP 31- LOT 117C
 FAIRHAVEN, MASSACHUSETTS
 DANA LEWIS
 FAIRHAVEN, MASSACHUSETTS

PRIME ENGINEERING
 P.O. BOX 1088
 350 BEDFORD ST.
 LAKEVILLE, MA 02347
 TEL: 908.947.0050
 FAX: 908.947.2004

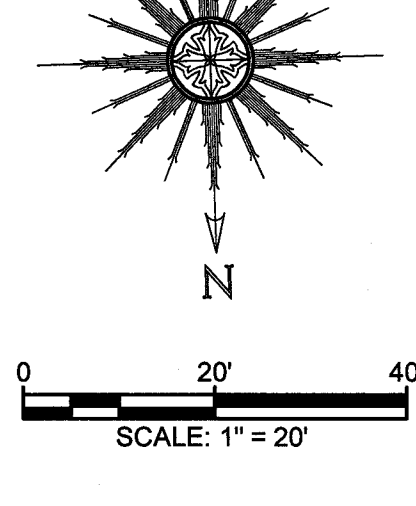
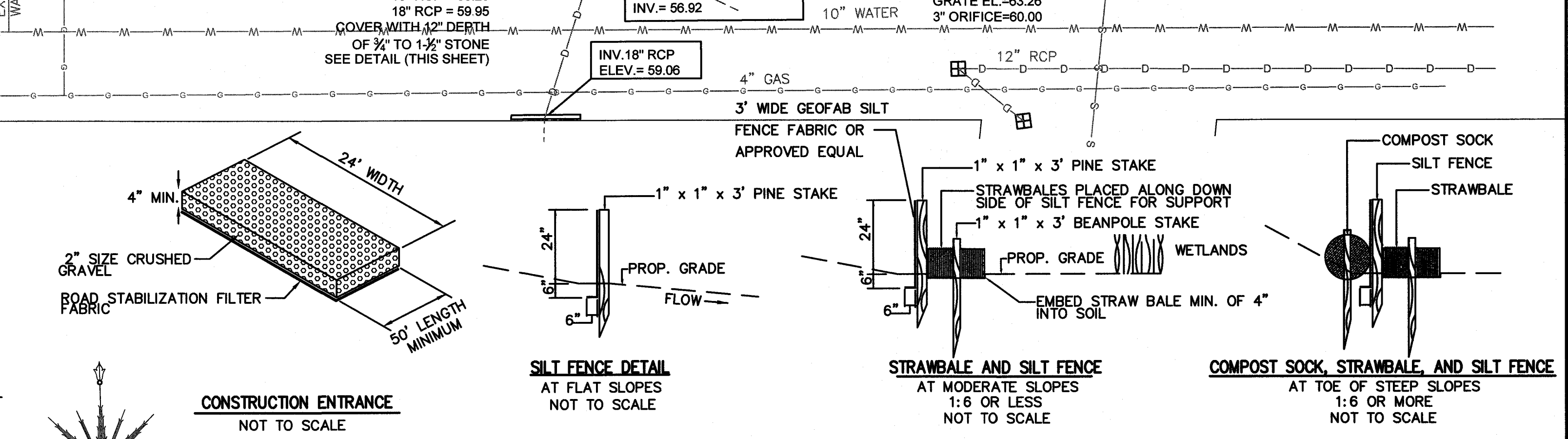
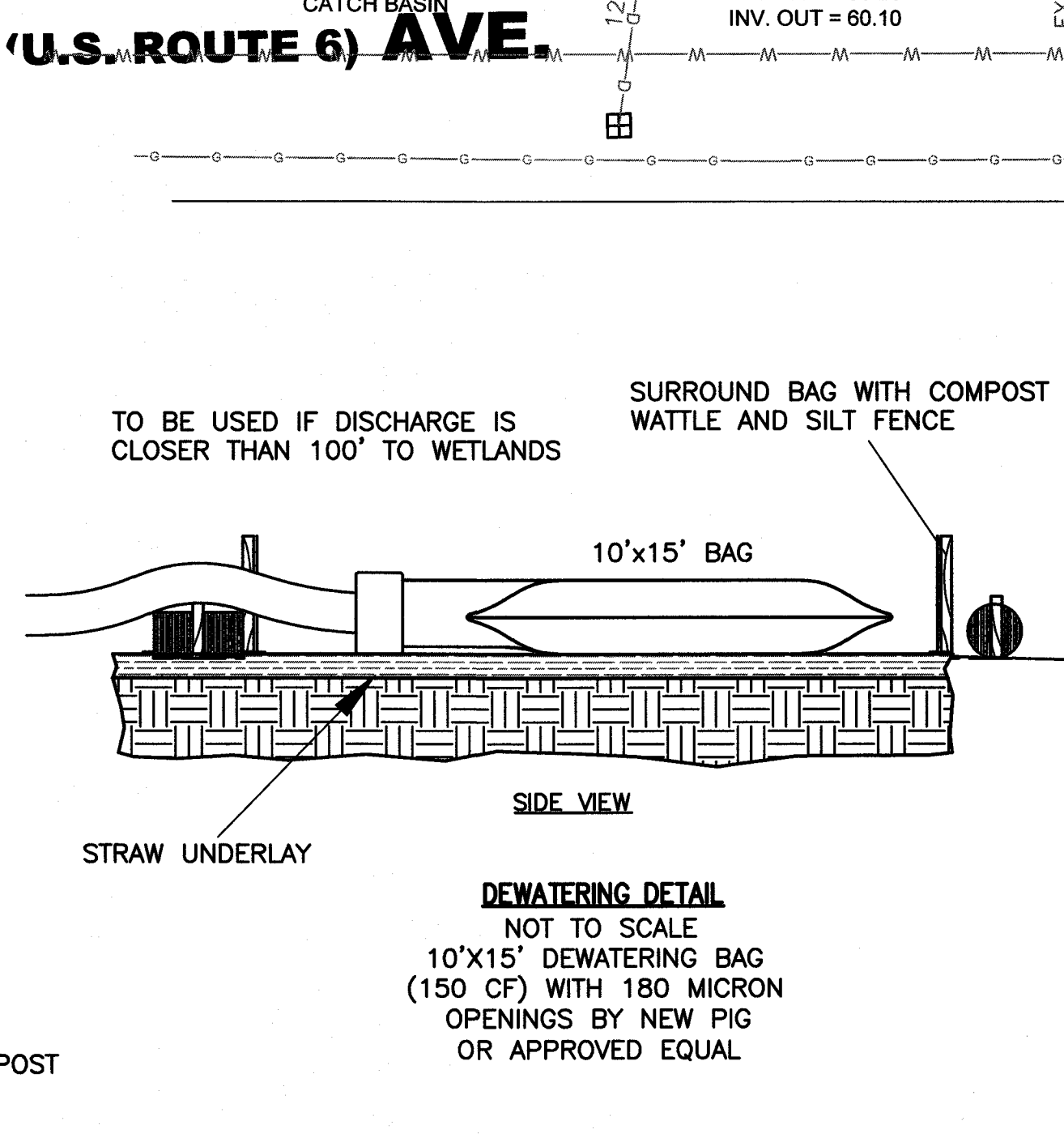
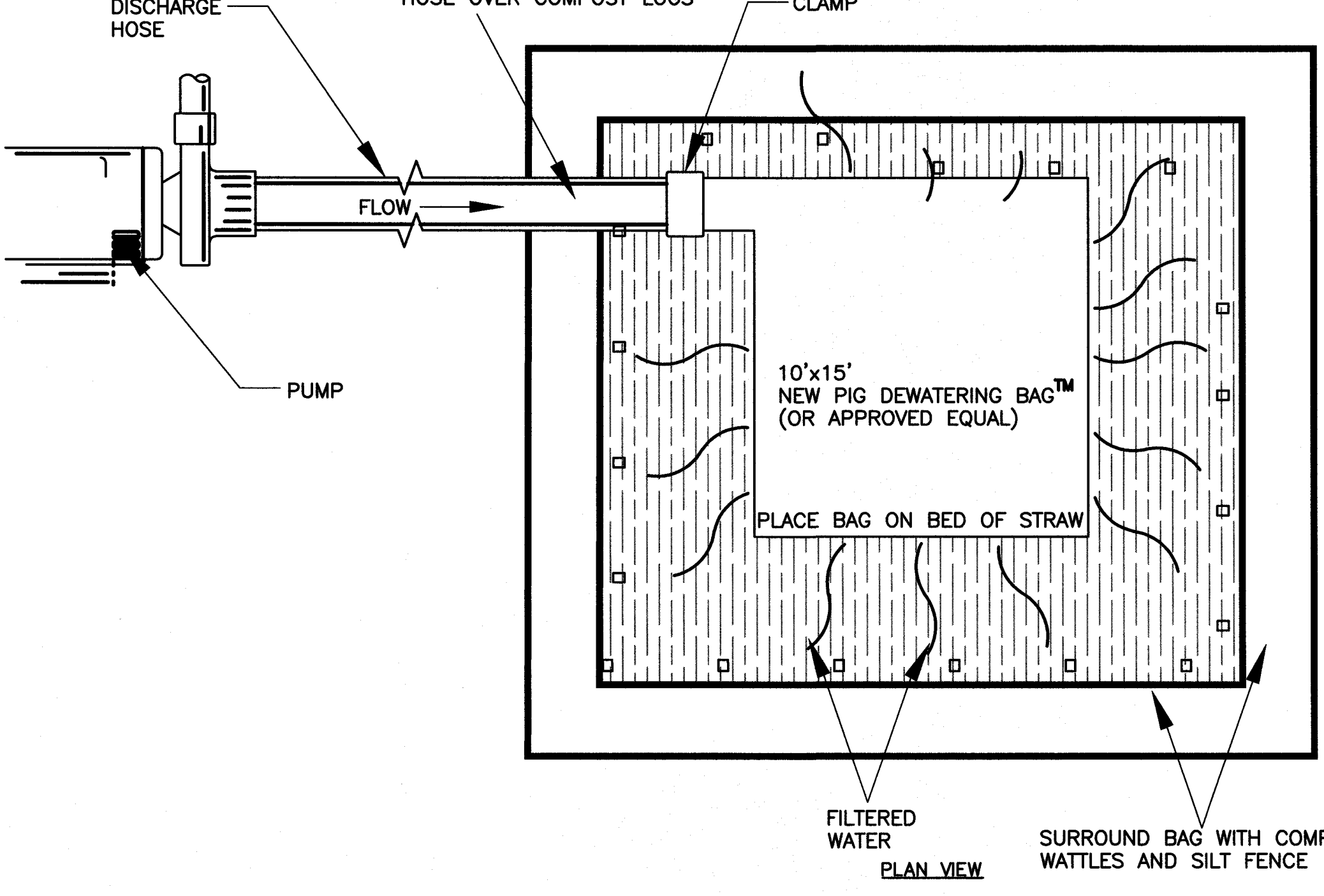
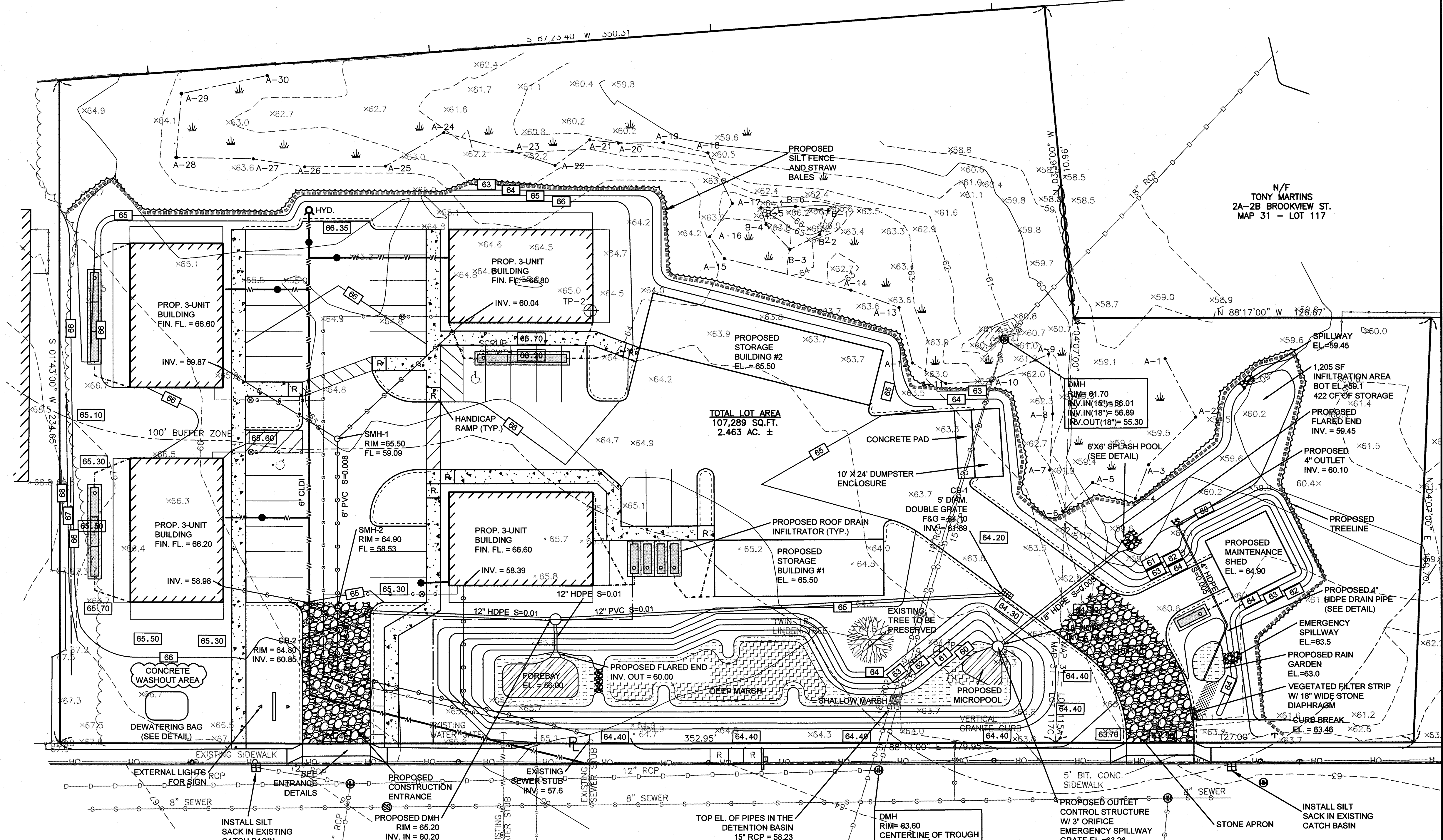
SCALE: 1" = 20'
 DATE: SEPT. 9, 2019
 DRAWN BY: SWL
 DESIGNED BY: RJR
 CHECKED BY: RJR
 APPROVED BY: RJR

PROJECT NO.: 2729-01-01

3 OF 7

EROSION & SEDIMENT CONTROL NOTES:

- THE FOLLOWING IS THE MINIMUM REQUIREMENTS THE CONTRACTOR SHALL FOLLOW TO PREVENT IMPACTS CAUSED BY EROSION AND SEDIMENTATION DURING CONSTRUCTION. THE CONTRACTOR MAY, AT HIS DISCRETION, IMPLEMENT ADDITIONAL MEASURES IF NECESSARY.
- EROSION AND SEDIMENT CONTROL MEASURES WILL BE INSTALLED PRIOR TO STUMP REMOVAL AND CONSTRUCTION STABILIZATION OF ALL REGRADED AND SOIL STOCKPILE AREAS WILL BE INITIATED AND MAINTAINED DURING ALL PHASES OF CONSTRUCTION.
 - ALL EROSION AND SEDIMENT CONTROL MEASURES WILL BE CONSTRUCTED IN ACCORDANCE WITH LOCAL MUNICIPAL REGULATIONS. ALL EROSION CONTROL MEASURES ARE TO BE MAINTAINED AND UPGRADED AS REQUIRED TO ACHIEVE PROPER SEDIMENT CONTROL DURING CONSTRUCTION. A STAKED STRAW BALE DAM SHALL BE INSTALLED DOWN GRADIENT OF ALL DRAINAGE OUTFALLS.
 - ADDITIONAL CONTROL MEASURES WILL BE INSTALLED DURING THE CONSTRUCTION PERIOD, IF DEEMED NECESSARY BY THE OWNER OR AGENTS OF THE OWNER.
 - CATCH BASINS WILL BE PROTECTED WITH STRAW BALE FILTERS THROUGHOUT THE CONSTRUCTION PERIOD UNTIL ALL DISTURBED AREAS ARE THOROUGHLY STABILIZED. FILTER FABRIC SHOULD BE INSTALLED UNDER GRATE OPENING UNTIL PAVEMENT IS IN PLACE AND GROUND SURFACE IS STABILIZED.
 - SEEDING MIXTURE FOR FINISHED GRASSED AREAS WILL BE AS FOLLOWS:
 KENTUCKY BLUE GRASS 45%
 CREEPING RED FESCUE 45%
 PERENNIAL RYEGRASS 10%
 SEED TO BE APPLIED AT A RATE OF 4 LBS/1000 SQ. FT.
 FERTILIZER SHALL BE APPLIED AT A RATE OF 2 LBS/1000 SQ. FT.
 PLANTING SEASONS SHALL BE APRIL 1 TO JUNE 1 AND AUGUST 1 TO OCTOBER 1. AFTER OCTOBER 1, AREAS WILL BE STABILIZED WITH STRAWBALE CHECK, FILTER FABRIC, OR WOODCHIP MULCH, AS REQUIRED, TO CONTROL EROSION.
 - AREAS TO BE LEFT BARE BEFORE FINISHED GRADING AND SEEDING IS ACHIEVED, SHALL RECEIVE A TEMPORARY SEEDING OF PERENNIAL RYEGRASS APPLIED TO A RATE OF 2 LBS/1,000 SQ. FT. AT A DEPTH OF 1/2 INCH LIMESTONE (EQUIVALENT TO BE 50 PERCENT CALCIUM PLUS MAGNESIUM OXIDE) SHALL BE APPLIED AS SEEDBED PREPARATION AT A RATE OF 90 LBS/1,000 SQ. FT. PLANTING SEASONS SHALL BE APRIL 1 TO JUNE 1 AND AUGUST 1 TO OCTOBER 1. WHERE GRASS PREDOMINATES, FERTILIZE ACCORDING TO A SOIL TEST AT A MINIMUM APPLICATION RATE OF 1 LB. OF NITROGEN PER 1,000 SQ. FT. AREAS TO BE LEFT BARE BEFORE FINISH GRADING AND SEEDING OUTSIDE OF PLANTING SEASONS SHALL RECEIVE AN AIR-DRIED WOOD CHIP MULCH, FREE OF COARSE MATTER, TREATED WITH 1-2 LBS. NITROGEN PER TON, APPLIED AT A RATE OF 185-275 LBS/1,000 SQ. FT.
 - AT ALL PROPOSED FILL AREAS WHICH ARE NOT CURRENTLY SHOWN ON THESE PLANS, THE CONTRACTOR SHALL ESTABLISH AN EROSION CONTROL LINE (STRAW BALE CHECK OR FILTER FABRIC) ABOUT TEN (10) FEET FROM TOE TO SLOPE OF PROPOSED FILL AREAS PRIOR TO BEGINNING FILL INSTALLATION. STABILIZATION OF SLOPES (USING MULCH OR GRASS) SHALL BE INITIATED WITHIN THIRTY (30) DAYS OF COMMENCEMENT OF FILL INSTALLATION.
 - STABILIZATION OF SLOPES IN CUT AREAS (USING MULCH OR GRASS) AND THE INSTALLATION OF CONTROL LINE (STRAW BALE CHECK OR FILTER FABRIC) AT THE TOE OF SLOPE SHALL BE INITIATED WITHIN THIRTY (30) FEET.
 - SEDIMENT REMOVED FROM CONTROL STRUCTURES WILL BE DISPOSED IN A MANNER WHICH IS CONSISTENT WITH THE INTENT OF THE PLAN. ALL STRAW BALES OR SILT FENCE RETAINING SEDIMENT OVER 1/2 THEIR HEIGHT SHALL HAVE THE SEDIMENT REMOVED AND ALL DAMAGED EROSION CONTROLS SHALL BE REPAIRED OR REPLACED.
 - CONTRACTOR WILL BE ASSIGNED THE RESPONSIBILITY FOR IMPLEMENTING THIS EROSION AND SEDIMENT CONTROL PLAN. THIS RESPONSIBILITY INCLUDES THE INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE CONSTRUCTION SITE OF THE REQUIREMENTS AND OBJECTIVES OF THE PLAN, AND NOTIFYING THE PROPER TOWN AGENCY OF ANY TRANSFER OF THIS RESPONSIBILITY. THE OWNER SHALL BE RESPONSIBLE FOR CONVEYING A COPY OF THE EROSION AND SEDIMENT CONTROL PLAN IF THE TITLE TO THE LAND IS TRANSFERRED.
 - THE CONTRACTOR SHALL SECURE THE SERVICES OF A PROFESSIONAL ENGINEER, WHO SHALL VERIFY IN THE FIELD THAT THE CONTROLS REQUIRED BY THIS PLAN ARE PROPERLY INSTALLED, SHALL MAKE INSPECTION OF SUCH FACILITIES NOT LESS FREQUENTLY THAN EVERY 14 DAYS OR AFTER A RAINFALL IN EXCESS OF 1/4 INCH, WHICHEVER OCCURS FIRST.
 - STOCKPILES OF SOIL SHALL BE SURROUNDED BY A SEDIMENT BARRIER. SOIL STOCKPILES TO BE LEFT BARE FOR MORE THAN THIRTY (30) DAYS SHALL BE STABILIZED WITH TEMPORARY VEGETATION OR MULCH. IF SOIL STOCKPILES ARE TO REMAIN FOR MORE THAN SIXTY (60) DAYS, FILTER FABRIC SHALL BE USED IN PLACE OF STRAW BALES. SIDE SLOPES SHALL NOT EXCEED 2:1.
 - THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTROL DUST AND WIND EROSION THROUGHOUT THE LIFE OF HIS CONTRACT. DUST CONTROL SHALL INCLUDE, BUT IS NOT LIMITED TO SPRINKLING OF WATER ON EXPOSED SOILS AND HAUL ROADS AS NEEDED. CONTRACTOR SHALL CONTROL DUST TO PREVENT A HAZARD TO TRAFFIC.
 - IF FINAL GRADING IS TO BE DELAYED FOR MORE THAN THIRTY (30) DAYS AFTER LAND DISTURBANCES CEASE, TEMPORARY VEGETATION OR MULCH SHALL BE USED TO STABILIZE SOILS.
 - STRAW BALES SHALL BE USED ONLY AS A TEMPORARY MEASURE. WHERE CONTROL MEASURES WILL BE REQUIRED FOR LONGER THAN SIXTY (60) DAYS, FILTER FABRIC SHALL BE USED.
 - WHERE DEWATERING IS NECESSARY, THERE SHALL NOT BE A DISCHARGE DIRECTLY INTO WETLANDS OR WATERCOURSES. PROPER METHODS AND DEVICES SHALL BE UTILIZED TO THE EXTENT PERMITTED BY LAW, SUCH AS PUMPING WATER INTO A TEMPORARY SEDIMENTATION BOWL PROVIDING SURGE PROTECTION AT THE INLET AND THE OUTLET OF PUMPS, OR FLOATING THE INTAKE OF THE PUMP OR OTHER METHODS TO MINIMIZE AND RETAIN THE SUSPENDED SOLIDS. IF A PUMPING OPERATION IS CAUSING TURBIDITY PROBLEMS, SAID OPERATION SHALL CEASE UNTIL SUCH TIME AS FEASIBLE MEANS OF CONTROLLING TURBIDITY ARE DETERMINED AND IMPLEMENTED. SAID DISCHARGE POINTS SHALL BE LOCATED OVER 100 FEET FROM THE DELINEATED WETLANDS AS INDICATED ON THIS PLAN.
 - THE CONTRACTOR SHALL OBTAIN AN NPDES PERMIT PRIOR TO THE START OF CONSTRUCTION.



DRAWING TITLE		EROSION CONTROL PLAN		SCALE:	1" = 20'
PROJECT		MAP 31-LOT 117C FAIRHAVEN, MASSACHUSETTS		DATE:	SEPT. 9, 2019
CLIENT		DANA LEWIS FAIRHAVEN, MASSACHUSETTS		DRAWN BY:	SWL
REV		DATE	DESCRIPTION	BY	APP.
3	1/22/2020		RESPONSE TO COMMENTS	SWL	RJR
2	12/4/2019		RESPONSE TO COMMENTS	SWL	RJR
1	11/8/2019		RESPONSE TO COMMENTS	SWL	RJR
DESIGNED BY:		RJR		CHECKED BY:	RJR
APPROVED BY:		RJR		PROJECT NO.:	2729-01-01
CIVIL ENGINEERING		LAND SURVEYING		ENVIRONMENTAL ASSESSMENT	
PRIME ENGINEERING		P.O. BOX 1088 390 BEDFORD ST. LAKEVILLE, MA 02347 TEL: 508.947.0050 FAX: 508.947.2004		SHEET NO. 4 OF 7	

Phone: (978) 657-9714
Fax: (978) 657-7915

January 10, 2020

Ms. Whitney McClees,
Conservation Agent and Sustainability Coordinator
Conservation Commission
Town Hall
40 Center Street
Fairhaven, MA 02719

RE: Lewis Landing, Fairhaven, MA.
Proposed Multi-Unit Residential Development
Huttleston Ave.

Dear Ms. McClees:

GCG Associates, Inc. has reviewed the following information for the Lewis Landing Multi-Unit Residential Development off Huttleston Avenue in Fairhaven, MA with respect to stormwater and Stormwater related requirements under 310 CMR 10.00 Wetlands Protection Act Regulations.

Plan References: "Lewis Landing, Fairhaven, MA. Proposed Multi-Unit Residential Development, Huttleston Ave., Fairhaven, MA prepared by Prime Engineering, Inc. dated September 9, 2019, last revised December 04, 2019 consists of:

- Cover Sheet
- 1 – Existing Conditions Plan
- 2 – Site Layout and Landscaping Plan
- 3 – Grading and Utilities Plan
- 4 – Erosion Control Plan
- 5 – Detail Sheet - 1
- 6 – Detail Sheet - 2
- 7 – Architecturals

Documents: Response letter to Fairhaven Conservation Commission, prepared by Prime Engineering Inc. dated December 11, 2019

Drainage Report prepared by Prime Engineering, Inc. dated December 10, 2019.

Signed Operation and Maintenance Plan, prepared by Prime Engineering Inc. dated September 26, 2019, last revised October 17, 2019.

Based upon our review of the above information, we offer the following general comments and comments with respect to compliance with Town Bylaws: Chapters 192 – Wetlands; 194 - Stormwater Management, Illicit Discharge, Soil Erosion, Sediment Control By-Law; 198-31.1 – Zoning - Stormwater Management and 310 CMR 10.00 Wetlands Protection. The numerical section of the regulations is referenced at the beginning of each comment unless it is a general comment. Prime Engineering responses shown in *Italic* and GCG latest comments in **Blue Bold**.

GENERAL PLAN AND DEVELOPMENT COMMENTS

The following are general comments with respect to the plans and development of the project.

1. This is a vacant parcel located at the south side of Huttleston Avenue (U.S. Route 6) across street from New Boston Road as identified as Assessor's Map 31 Lots 115A & 117C. The parcel consists of 2.463+/- acres.
2. The applicant has filed a Notice of Intent for a Multi-Unit Residential Development consists of four 3-unit buildings, two storage buildings, one maintenance shed and associated pavement parking lot and utilities. The proposed work area is over 1 acre and requires filing an US EPA - NPDES permit and associated SWPPP. (NPDES NOI shall be filed 14 days prior to construction start.)
3. The proposed work limit also exceeds the Land Disturbance Permit (Chapter 194) threshold and requires filing a permit with the Fairhaven Board of Public Works.
4. The proposed multi-family site development in RC Zoning District requires a Planning Board Special Permit approval per Chapter 198-29. Which requires site design in compliance with Chapter 198-31.1 Stormwater management standards. Hence, stormwater management design is being reviewed to meet 198-31.1 requirements.
5. The project is located within Zone X, Area of Minimal Flood Hazard, (FIRM 25005C0413F, effective 7/7/2009), two series (A1- A-30 and B-1 to B-6) of wetland resource area were identified on the property and requires to file a Notice of Intent with the Fairhaven Conservation Commission and MassDEP.
6. There is no NHESP estimated habitats of rare wildlife or rare species identified in the site vicinity per MassGIS.

PLAN SET

Cover – No comment.

Drawing Sheet -1 – Existing Conditions Plan.

1. Wetland delineation line shown was based on a plan by Allen D. Quintin, dated January 11, 2017 and was not field located by Prime Engineering, Inc. Wetland delineation shown on the plan and Non-Jurisdictional Isolated Land Subject to Flooding status

**Lewis Landing
Multi-Unit Residential Development
Huttleston Ave.
GCG Job#1974**

require Conservation Commission review and approval. *The Conservation Commission has approved the wetland line. Resolved.*

2. Plan shown three drain pipes (10"?, 15" and 18") connect to the on-site wetland south of wet flag #A-10, and a dilapidated drainage manhole. The 15" drainpipe appears to collect Huttleston Avenue surface runoff through a pair of catch basins located in front of development site and discharges to the wetland without a benefit of an easement. GCG recommends obtaining an easement to preserve the right of the existing drainpipes. *A drainage easement will be granted to MassDOT and the Town. Applicant to prepare easement. Once the project is approved, an easement will be granted. Applicant to prepare easement after approval.*
3. Existing drainage inverts along Huttleston Avenue should be identified on the plan. Assuming the existing 15" and 18" drainpipes have three feet of cover over pipe and they will be exposed at the bottom of proposed constructed wetland basin. *The inverts have been surveyed and elevations have been added to the plans. The plan shown 12" RCP inlet at the Huttleston Ave. culvert and 18" RCP underneath Route 6 and at the downstream DMH. Assuming the pipe size at the bottom of proposed wetland basin is 18", the top of the concrete pipe (with 2.5" pipe thickness) is at elevation 59.9. and pipe bell will be exposed above the basin bottom at 60.0+/-.* The side slopes at this location is 2H:1V. **without an access drive. Pipe cover should be provided.** *There will be no vehicle traffic in the constructed wetland, so a localized protuberance of a pipe bell will be of no consequence. Pipe cover will not be provided. MSH requires cleanout sediment in basin/wetland system once every 10 years. GCG recommends mounting a foot of rip-rap stone cover over the two existing RCPs. The rip-rap stones allow water to flow through and protecting the pipes during sediment removal.*

Mounded stone has been added.

4. Additional soil testing should be performed at the proposed wetland basin area to identify ESHGW by mottling. Applicant needs to proof sufficient water table to support the constructed wetland vegetation. 198-31.1(B)(2)(A)(1)[h] requires soil logs signed by a DEP Certified Soil Elevator. *The test pits were recorded by an approved Soil Evaluator who has signed the existing conditions plan on which the logs are presented. There was no mottling in the 5 feet of fill. The presence of muck at 5 feet is indicative of the water table. Submit Soil Evaluator signed copy to Conservation Commission. The test pit logs are presented on Sheet 1, Existing Conditions, and the signator of that sheet is an approved Soil Evaluator, therefore, the requested signed soil log has been provided. Resolved.*

Drawing Sheet 2 – Site Layout and Landscaping Plan.

1. No comment.

Drawing Sheet 3 – Grading and Utilities Plan

1. The proposed roof drain chamber infiltration practices are considered UIC Class V Well by US EPA and required to comply with the MassDEP setback requirements. The proposed 4-unit chamber between storage building #2 and south 3-unit building does not meet the 50' wetland setback and 10' building foundation setback; the 2-unit chamber west of storage building #1 does not meet the 10' foundation setback requirement; the single unit chamber northeast of maintenance shed does not meet the 10' foundation setback and 10' open, surface drain (rain garden) setback requirements. *The infiltration southeast of Storage Building 2 has been deleted. Since this is a re-development project consisting of Type C and D soils, the infiltration only needs to be to the extent practicable. The*

**Lewis Landing
Multi-Unit Residential Development
Huttleston Ave.
GCG Job#1974**

infiltrators west of Storage Building I have been shifted to be east of Building I. Only the existing pavement area qualified for re-development project and requires maximum extent practicable treatments. (See MSH Vol. 2 Ch. 3 Checklist for Redevelopment Projects.) Project components within undeveloped areas must meet all the standards.

The expanded chamber units east of storage building #1 does not meet the 15 feet setback to Downhill slope (3:1) setback. (Applicant should consider rotate the chambers 90 degree and move it southward and provide 3:1 basin side slope at the chambers location.) The proposed system calculations should show compliance with the MSH 65% rule (Vol.3, Ch. 1, Pg. 27). Additional infiltration BMP may be required to meet the 65% rule and Fairhaven Zoning Bylaw 198-31.1-4 (C)(a)[2] - Water Quality Storm treatment requirements. The infiltration units east of storage building # 1 has been relocated to achieve the 15-foot separation from a 3:1 slope. The increase in impervious area on the site is 32,883 SF proposed impervious, minus 5,475 SF existing impervious= 27,408 SF. 65% of 27,408 SF is 17,815 SF that must be infiltrated. The roof areas being infiltrated is 12,102 SF. A waiver is being requested. Based on the latest HydroCAD report, the proposed impervious area is 37,427 SF (including 5,475 SF pre-development pavement), the required recharge volume for 'C' soil is 779.7 CF. The current plan has provided 795 CF of recharge volume through roof drain chambers infiltration system. The proposed recharge volume meets the MSH requirements and roof drains are considered clean water per MDEP and does not require treatments. Nonetheless, MSH stated that "When less than 65% of impervious surface on a site are directed to infiltration BMPs, the system cannot capture sufficient runoff to infiltrate the Required Recharge Volume" (Vol.3, Ch.1, Pg.27). The proposed design does not meet the 65% rule and the applicant is requesting a waiver. This is MSH requirement and part of the Wetland Protection Act (MGL Ch.131 Sect. 40), the Commission could grant a waiver for the requirements. However, MDEP could supersede the decision. GCG recommends the applicant to provide an adjusted recharge volume based on MSH Vol.3, Ch.1, Pg.28. to justify the waiver request. Alternately, the applicant may consider berm up down stream of the splash pool outlet and create an infiltration basin at the south side of proposed maintenance shed. Since the runoff has already treated through the constructed wetland. Zoning-Chapter 198-31.1 C.2(j) allows the basin to act as stormwater systems for both water quality and volume control. Furthermore, 198-31.1 C.2k[3] & [4] allow the bottom of the infiltration area at or above the maximum high ground water elevation, with calculations assumed the surface of the volume control structure to be impervious.

An infiltration basin has been added.

Total impervious = 37,427 SF
(37,427 SF) (.65) = 24,327 SF (65% of impervious)
-12,102 SF roof to infiltrators
12,225 SF additional area to be infiltrated
(12,225 SF) (.25 inches) (1 LF / 12 inches) = 255 CF additional to be infiltrated
Infiltration basin has 422 CF of storage
422 CF > 255 CF

- 198-31.1(C)(2)(g)[6] – requires basins/ponds designed for stormwater runoff control shall have side slopes at a no steeper than a 4H to 1V grade. And a ten-foot wide bench surround any permanent pool. 2:1 and 3:1 side slopes proposed. *The eastern slope of the basin has been flattened to a 4: 1 slope to provide access by foot.* **Applicant has requested a waiver, see comments below.** *A waiver is being requested.* **The applicant has provided an accessible 4H to 1V side slope on one side of the sediment forebay and the micropool, where sediment forebay requires annual maintenance/clean-out. The constructed pocket wetland requires clean out sediment at least once every ten year and MSH does not specify the minimum side slope of constructed wetland. Granting a waiver for the local requirement of 4H to 1V side slope should not have any impact to the function of the drainage system. This basin will be maintained by the private owner association. GCG**

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does not see any adverse impact for granting the waiver. However, MDEP has the jurisdiction over the required 15 feet wide access path around the construction wetland.

3. 198-31.1(C)(2)(k) - Forebays [1][b] requires forebays to be sized to contain 0.25 inches per impervious acre of contributing drainage and [d] requires forebay be four feet deep. *The forebay has been deepened to be 4 feet and contain .25 inches of runoff over the impervious area. Applicant has requested a waiver for the 4:1 side slope, see comments below. No response necessary. A waiver is being requested. See Comment #2 above.*
4. 198-31.1(C)(2)(l) - Fence enclosure for the stormwater basin may be required, depends on permanent pool depth. *The Planning Board will decide whether a fence will be required. Planning Board approval is required. Fence and planting location should be incorporated with the basin maintenance access. A waiver is being requested. Planting has been proposed on the north side of the constructed pocket wetland. The applicant should be responsible for replacing any damaged planting and vegetation during the once every ten years pocket wetland maintenance. GCG does not see any adverse impact for granting this waiver.*
5. 198-31.1(C)(2)(n)[6] – CB-1 pipe (all pipes) should have a minimum 24” cover, proposed HDPE pipe requires a waiver. *Pipes are required to have 2 feet of cover where they are subjected to vehicle loads. A waiver is being requested since no pipe with less than 2 feet of cover will be subjected to vehicle loads. A request to allow HDPE pipe is being made. The proposed CB-1 frame and grate to 12 pipe invert has 2.18 feet separation. The pipe wall is approximately 2” thick, that left 12” between the top of the pipe to rim grade. The proposed CB frame has a thickness of 3.5” and the concrete structure top slab thickness is 8”. There is no room to physically fit a CB hood. GCG recommends raising the driveway grade to provide additional pipe cover at CB-1. Trees has been proposed at the west side of the micropool and the only access to the wetland basin is over the CB-1 outlet pipe. GCG recommends applicant to provide sufficient pipe cover to support maintenance equipment/vehicle loads. The elevations have been adjusted so the hood can fit. Resolved. The hood was not required and has been removed.*
6. 198-31.1(C)(4)(a)[2] – requires 48-hour detention time for the water quality (198-31.1(A)(1)(b) - First Flush = (1.25”), see 198-33 Definitions) storm. *The 48-hour detention time requirement only applies to extended detention basins (that are in the Nasketucket Basin zone). The subject site is not in the Nasketucket Basin zone and the proposed basin is not an. This section is required for 80% total suspended solids, 30% total phosphorus, and 15% total nitrogen removal only. (For development within the Nasketucket Basin would require additional treatment to removal 30% nitrogen and 50% phosphorus per 198-31.1 (A)(b)[2], which would require a wet extended detention pond/basin (WP).) Please provide the 1.25” storage volume below the outlet orifice or request a local regulation waiver. A constructed pocket wetland has been selected due to its superior performance compared to extended detention basins. Infiltration units were rejected due to the poor soils, high water table and their inherent propensity to failure. In accordance with the MassDEP Stormwater Manual, the following are projected removal rates:*

Removal Efficiency	Nitrogen	Phosphorous	Total Suspended Solids
Constructed Wetlands	20-55%	40-60%	80%
Extended Detention	10-30%	15-50%	50% Basins

It is clear the proposed treatment system meets the performance standards of Fairhaven Stormwater Management regulations. GCG concurs with the % removal efficiency listed above per MSH. The applicant should request a waiver for 198-31.1(C)(4)(a)[2]. A waiver will be requested.

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7. 198-31.1(C)(4)(a)[1 & 6] – requires establishment of, and the methodology with which to maintain, wetland vegetation on the bottom of the basin. *This also only applies to extended detention basins. Extended detention basins contain water most of the time since on average it rains every three days. The proposed pocket wetland basin will not have that problem. As stated in comment #6 above, these two requirements apply to this development. However, item (4)(a)[1] requires a minimum contributing watershed area of 10 acres is not feasible to enforce, since the development site is only 2.463 acres. GCG recommends applicant to request a waiver. Item (4)(a)(6) has been proven that the proposed basin bottom at 59.00 is below the estimate seasonal high ground water at 59.3. In addition, the basin may require modification to provide the 1.25” storage volume. The Fairhaven regulations require that, if an extended basin is being designed, it needs a 10-acre plus contributing drainage area. The proposed constructed pocket wetlands are suitable for drainage areas of 1 to 10 acres. (The Site is an area of 2.46 acres). No below the outlet storage volume is required in a constructed pocket wetland. The applicant should request a waiver for 198-31.1(C)(4)(a)[1]. The subject site is less than 10 acres, and the applicant has limited control of the offsite drainage. The proposed pocket wetland bottom is below seasonal high ground water and suitable for wetland vegetation growth.*
8. MSH Vol.2, Ch.2, Pg. 45 - requires constructed stormwater wetland to have an emergency spillway capable of bypassing runoff from large storms without damage to the impounding structure. *The proposed basin has an emergency spillway at the top of the basin control structure. The spillway can handle the 100-year storm without damage to the impounding structure. The 23” diameter inlet grate and 15” HDPE at 0.5% slope, both do not have the capacity to handle the 7.83 cfs inflow during the 100-year storm event. The emergency spillway should be sized with brimful conditions, without any outlets. (Considering the orifice and open grate are both clog during the extreme storm.) The armored spillway should be located near the outlet structure southwestward and allow overtop the private driveway and flows to the onsite wetland. Spillway should be sized to eliminate overflow onto Huttleston Ave. Attachment B demonstrates that the emergency spill water (inlet grate) has the capacity to pass the 100-year storm. If that failed, the excess flow would go over the drive to the wetlands. Resolved.*
9. MSH Vol.2, Ch.2, Pg. 45 – requires an access for maintenance. *A waiver of the 15% slope access drive is being requested. This is MSH requirement and under MassDEP’s jurisdiction and subject to potential Superseded Order of Conditions. The Conservation Commission approval should not be responsible for future MassDEP actions. The applicant is also requested waiver for the 4:1 side slope requirement under 198-31.1 (c)(2)(g)[6]. GCG recommends a minimum of 3H:1V side slopes along the sediment forebay area, (as also required by MSH), and provide a minimum of 10’ wide access path along the basin area with steeper than 3H:1V side slope. The proposed sewer line at the northeasterly corner of sediment forebay should be relocated, the sewer pipe as shown is above the forebay finish grade. The applicant should show a reasonable maintenance access to support the waiver request. A 4: 1 slope has been provided on the east and west ends. The sewer line has been shifted in order to provide more cover. The sediment forebay and pocket wetland layout provided a reasonable maintenance. Granting a waiver should not have any adverse impact to the system. In addition, the system will be maintenance by private contractor with appropriate equipment.*
10. Forebay inlet pipe slope should be labeled. *The slope of the pipe has been labeled. Resolved.*
11. DMH to Forebay rim should be specified. *The rim of the manhole has been added. Resolved.*
12. Verify there will be enough cover on top of the two existing 15” and 18” drainpipes. *There is adequate cover over the 15” and 18” diameter pipes since they will not be subjected to vehicle loads. The top of existing 18” RCP is at the wetland basin surface. The construction wetland requires clean out sediment in basin/wetland system once very 10-year per MSH. Pipe cover or similar protection should be provided. We certify that the basin as designed*

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will be easily maintained. **GCG recommends mounting a foot of rip-rap stone cover over the two existing RCPs.**

That revision has been made.

13. Provide pre-treatment in front of rain garden per SMH Vol. 2, Ch.2, Pg. 25. *A grass filler strip has been added in front of the rain garden. Please clarify the proposed curb location, there is no curb or cape cod berm specified on the plan, a cape cod berm detail was included in the plan sheet 5 of 7, but not called out on the plan. (GCG recommends cape cod berm be installed in the binder course surface instead of top course) and the contour at this location did not indicate any grade changes along the pavement. MSH requires a vegetated filter strip with a stone diaphragm, to promote sheet flow, for rain garden pre-treatment (See MSH Vol.2, Ch.2, Pg.26 for design requirements.) As in standard protocol the curbing is called out on the Site Layout Plan (showing curbing on the Grading and Utilities Plan would make that plan cluttered and difficult to read). The Cape Cod berm detail has been revised. The grass strip filter has been modified. Resolved.*

Drawing Sheet 4 – Erosion Control Plan

1. The Construction entrance (exit) should have a minimum length of 50 feet. *The construction entrance has been lengthened to be 50 feet. Resolved.*
2. Silt sack should be installed at the east entrance catch basin on Huttleston Avenue. *Silt sacks have been added to the Huttleston Avenue catch basins. Resolved.*

Drawing Sheet 5 – Detail Sheet

1. No comment

Drawing Sheet 6 – Detail Sheet

1. Splash pool surface dimension should be called out (or show on the utilities plan). *The splash pool has been dimensioned. Resolved.*
2. Rain Garden should consist of 2” – 3” mulch on top of 2.5’ to 4’ thick Planting Soil (Engineered soil mix for bioretention systems designed to exfiltrate, MSH Vol.2. Ch.2 Pg. 26). *The mulch and underlying soil has been dimensioned and detailed. The soil layer depth dimension should match with the label. The soil as specified is suitable for MassDOT planting soil, but not for exfiltration. Please refers to 30” minimum depth of Engineered Soil Mix with 40% sand, 20-30% topsoil, and 30-40% compost as specified on MSH Vol.2. Ch.2 Pg. 26. The detail has been revised as requested. Resolved.*
3. Show constructed wetland detail to indicate required volume for deep marsh and shallow marsh. *The percentages of the deep and shallow marsh areas has been specified. Please include the detention basin calculations % area table in the plan set. The pocket wetland ratios are presented on Detail Sheet 2 and Attachment A. Resolved.*

Drawing Sheet 7 – Architectural

1. No comment

STORMWATER REPORT COMMENTS

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1. 198-31.1(C)(2)(k) - Forebays [1][b] requires forebays be sized to contain 0.25 inches per impervious acre of contributing drainage. *The forebay has been sized for .25 inches per impervious contributing area. The 0.25 inches volume has been provided. However, the proposed 2:1 side slope does not meet MSH requirements and the sewer pipe is above the forebay surface. The sewer pipe has been relocated. Resolved.*
2. 198-31.1(A)(1)(b) - requires treatment of the Water quality (First Flush = (1.25" of entire impervious area on site), see First Flush definition for calculation formula (198-33). *1.25 inch of runoff from the site will be routed through the storm treatment system. The 1.25" water quality storm should be provided within the wetland basin with 48 hours detention time. 198-31.1(C)(4)(a)[2]. The water quality volume will pass through the constructed pocket wetland and receive the required treatment. This is not an extended detention basin, so there is no need for 24-hour detention. Attachment A demonstrates that the constructed pocket wetland meets the design criteria. GCG concurs that the proposed pocket wetland meets the % removal efficiency requirements. Applicant should request a waiver for 198-31.1(A)(1)(b). A waiver will be requested.*
3. 198-31.1(A)(1)(a)[2] - No increase will be allowed in the volume of runoff off of the site up to the ten-year, twenty-four-hour design storm. The proposed drainage calculations shown increase of runoff volume during 2-year and 10-year storm events. *A waiver on not increasing the volume of runoff is being requested. The poor onsite soils are not suitable for infiltration. The applicant has requested a waiver for the runoff volume increase during the 2-year and 10-year storm events. Based on the HydroCAD report the pre-development and post-development runoff volume during 10-year storm event were 0.269 and 0.411 acre feet, respectively. This requirement is under local regulation and is not required by the MSH. This regulation would require approximately additional 6,000 square feet of infiltration area to contain the post-development runoff volume increase, based on the HSG 'C' site soil with 72 hours draw down time. A waiver is being requested. The latest HydroCAD calculations shown a net increase of post-development runoff volume of 0.149 AF and 0.148 AF during the 2-year and 10-year storm events, respectively. MSH has no requirement for post-development runoff volume control. The Applicant has requested a waiver for the runoff volume increases. In order to meet the volume control requirements, the applicant would have to create as additional infiltration basin at the south and southeast sides of the proposed maintenance shed. The basin has been added.*
4. 198-31.1(C)(2)(n)[1-7] – storm drainage system capacity should be calculated based on 25-year storm event. *The pipes have been sized to carry the 25-year design storm. CB-1 grate capacity was calculated based on 0.25' head over the grate, the surface water will excess beyond the 3' gutter width. (C)(2)(n)[3]. GCG recommends to replace CB-1 with 5' diameter double grates catch basin. Double grates have been added as requested. Resolved.*
5. Please provide roof drain infiltration unit storage volume calculations to meet Groundwater Recharge volume. *The roof infiltration computations were presented on the bottom of sheet 3. There appears to be less than 65% of the site impervious area drains into the infiltration BMPs. Storage volume calculations should be increased per MSH Vol.3, Ch.1, Pg.27 with sample calculations shown on pg. 28. The calculations as presented was based on the MSH requirements and does not meet the Fairhaven Water Quality Storm requirements, a waiver was requested for increase of runoff volume above. A waiver has been requested. See Drawing Sheet 3, item 1 comment.*
6. The proposed Rain Garden requires pre-treatment to qualify for 90% TSS removal. *A grass filler strip was added upgradient of the rain garden. A grass swale was proposed, a vegetated filter strip with stone diaphragm should be used. The 10-foot filter strip has been added. Resolved.*

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7. Please verify pre-development paved parking area. The two sub-catchments combined 7,889 s.f. of pavement area. GCG scaled approximately 5,550+/- s.f. *The pre-development paved area has adjusted to 5,488 square feet. Resolved.*
8. 198-31.1(C)(4)(a)[2] - provide water quality volume (First Flush) 24 hour detention volume. *The 24-hour first flush detention time applies only to extended detention basins which are required in the Nasketucket Basin. The subject site is not in the Nasketucket Basin. The 24 hour detention is required for 80% total suspended solids, 30% total phosphorus, and 15% total nitrogen removal only. (For development within the Nasketucket Basin would require additional treatment to removal 30% nitrogen and 50% phosphorous per 198-31.1 (A)(b)[2], which would require a wet extended detention pond/basin (WP).) Refer to response to Grading and Utilities Item 6. Based on MSH's Constructed Stormwater Wetlands listed Pollutant Removal Efficiencies, the proposed pocket wetland meets the % removal efficiency requirements of 198-31.1(C)(4)(a)[2]. GCG recommends the applicant request a waiver for the 24 hour detention of First Flush volume.*
A waiver will be requested.

OPERATIONAL AND MAINTENANCE (O&M) PLAN COMMENTS

1. Temporary Erosion Control should include catch basin silt sack. *Silt sacks have been added. Resolved.*
2. Long term O&M plan 4.0 should include catch basin, street sweeping, constructed wetland, splash pool and rain garden operation and maintenance schedule. *The maintenance of catch basins, street sweepers, constructed wetlands, etc. have been added. Catch basin should be inspected and cleaned 4 times per year. Constructed pocket wetland shall be inspected twice a year for the first 3 years and clean out forebay once a year. Clean out sediment in basin/wetland once every ten years. Rain garden should be inspected monthly & remove trash. Vegetated filter strip mow 2-12 times per year. Mulch, fertilize, remove dead vegetation and prune annually. The Operation and Maintenance Plan has been modified. GCG recommends to remove the detention basin item from the O&M plan; The infiltration units and inlet shall be inspected twice a year; Catch basin should be inspected and cleaned 4 times per year; Pocket wetland forebay should be clean out once a year, pocket wetland should be inspected twice a year for the first three years, clean out sediment in basin/wetland system once every 10 years; Rain garden should be inspected & trash removed monthly, mow 2 to 12 times per year, mulch, fertilize, remove dead vegetation and prune annually; Disposal of removed sediment and debris according to federal, State and Local Regulations.*
The Operation and Maintenance Manual has been revised.
3. O&M plan should provide a signature block for responsible party/operator signature. *A signature block has been added. Resolved.*
4. O&M plan should include estimated annual operation budget and long-term O&M (sample) log. *The annual budget and log have been added. Update per comment #2. The Operation and Maintenance Plan has been revised. See Comment #2 above.*

Summary:

The proposed drainage system layout and design were based on Massachusetts Stormwater Handbook and did not meet the Fairhaven Chapter 198-31.1 Stormwater management standards.

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Waivers requested:

1. *A 4: 1 side slope to the forebay is being provided. It is requested to allow all other slopes to be 3:1 and 2: 1 in order to save the large linden tree and to provide more separation from the wetlands (Section 198-31.1 (c)(2)(g)[6]. A 4:1 slope has been provided at the micropool area but not in the sediment forebay. GCG recommends providing at a minimum of 3:1 side slope (as required by MSH) along the sediment forebay, which requires annual cleaning and provide access path where side slope steeper than 3:1. The applicant has proposed a reasonable maintenance access with a 4:1 slope on one side of the sediment forebay, where annual maintenance is required. Although, the design does not meet the 15 feet width access path as required by MSH, which is under MDEP jurisdiction. Since the pocket wetland requires sediment clean once every ten years and will be maintained by a private contractor. GCG recommends the waiver be considered. A waiver has been requested.*
2. *To allow the existing pipes in the detention basin and the proposed pipes that are not under paved areas to have less than 2 feet of cover since they will not be subjected to vehicle loads. Also, to allow HDPE pipe (c)(2)(n)[6]. Cover over the existing 18” RCP should be provided for maintenance equipment loads. Using HDPE pipe with appropriate cover (depth as recommended by pipe manufacturer) in a private development site should have no adverse impacts to the drainage system. The existing RCPs are located at the bottom of constructed pocket wetland, which requires sediment clean out once every 10 years. GCG recommends the 2 feet minimum pipe cover waiver be considered. However, GCG recommends the applicant to install a foot of rip-rap stone over the two pipes for protections during sediment clean out. The revision has been made.*
3. *The onsite soil is not suitable for infiltration. We request a waiver from not increasing the volume of runoff from the 10 year design storm Section (A)(1)(a)[2]. This is a Town of Fairhaven requirement and as proposed the post-development 10-year storm event would increase the runoff volume from pre-development condition’s 0.269 a.f. to 0.411 a.f. It would require approximately additional 6,000 square feet of infiltration area to control the runoff volume. The latest calculations shown an increase of runoff volume of 0.148-acre feet (6,447 cubic feet) during the 10-year storm event. This is a local requirement, MSH does not control the post-development runoff volume. If a wavier is not considered, this would require an addition infiltration basin be designed at the down stream of pocket wetland outfall.*
4. *To allow an increase in the volume of runoff since the soils are not suitable for infiltration Section (A) (1) (a) [2]. See comment #3 above. See comment #3 above.*

If you have any questions regarding this matter, please contact our office.

Respectfully Submitted,
GCG Associates

Anthony C. Ma, P.E.
Senior Project Engineer

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**PERMANENT STORMWATER SYSTEM
OPERATION AND MAINTENANCE PROGRAM
FOR HUTTLESTON AVENUE APARTMENTS
HUTTLESTON AVENUE, FAIRHAVEN, MA**

PREPARED FOR:

**DANA LEWIS
18 TANNER LANE
FAIRHAVEN, MA**

PREPARED BY:

**PRIME ENGINEERING, INC.
P.O. BOX 1088
LAKEVILLE, MA**

**SEPTEMBER 26, 2019
REVISED JANUARY 23, 2020**

**LONG TERM POLLUTION PREVENTION PLAN
(PERMANENT STORMWATER SYSTEM
OPERATION AND MAINTENANCE PROGRAM)**

1.0 INTRODUCTION

The plans for the installation of a twelve unit residential facility on Huttleston Avenue in Fairhaven have been designed to protect stormwater quality. In order for this to continue in the long term, it is necessary to implement the following long term Operation and Maintenance Program.

2.0 RESPONSIBLE PARTY

Responsible Party: Dana Lewis
18 Tanner Lane
Fairhaven, MA 02719

Attention: Dana Lewis - (508) 326-5783



Dana Lewis

I agree to implement the provisions of this plan

3.0 SOURCE CONTROL MEASURES

The most effective means of providing clean runoff is to prevent pollutants from coming into contact with the stormwater in the first place. This involves the following:

- Keeping fertilizers, stockpiles, etc. covered at all times. All such products shall be stored off-site.
- All landscaping, fertilization, and other grounds maintenance, if necessary, shall be performed by personnel who are trained at how to maintain the grounds.
- Periodic removal of windblown debris and litter from the site.

4.0 MAINTENANCE OF STORM SYSTEM

This section presents the periodic maintenance that must be completed:

- The lawn shall be mowed as needed.
- The infiltration units shall be inspected twice a year. The inspections shall be performed during or immediately following a measured rainfall event of ½ inch depth or greater so that the depth of water in the infiltrator can be compared with the depth of rainfall.
- The catch basins shall be cleaned four times a year.
- The parking areas and drives shall be swept twice a year.
- The constructed pocket wetlands shall be inspected twice a year for the first three

years. Sediment shall be removed from the basin/wetland system every ten years. If vegetation is stressed or missing, it shall be re-planted.

- The splash pool shall be inspected annually for its general integrity and for sediment. It shall be repaired and cleaned as necessary.
- The rain garden shall be inspected, cleaned (trash removal monthly) and repaired as necessary. It shall be mowed two to twelve times per year. Mulching, fertilizing, removing dead vegetation, pruning annually, and disposing and removing sediment and debris shall be completed according to federal, state and local regulations.
- An annual report, signed by a MA licensed professional engineer, shall be provided to the Fairhaven Conservation Commission (refer to attached Inspection Log).

5.0 SPILL PREVENTION AND RESPONSE PLAN

The project consists of apartments with ancillary parking and landscaping that will not emit any significant pollutants. The only potential source of pollution is the grass cutting equipment and automobiles.

The responsible parties shall train maintenance personnel in the proper handling and cleanup of spilled hazardous substances or oil. No spilled hazardous substances or oil shall be allowed to come in contact with stormwater discharges. If such contact occurs, the stormwater discharge shall be contained on site until appropriate measures, in compliance with state and federal regulations, are taken to dispose such contaminated stormwater. The responsible party shall train all personnel in spill prevention and cleanup procedures.

In order to prevent or minimize the potential for a spill of hazardous substances or oil to come into contact with stormwater, the following steps shall be implemented:

- A spill control and containment kit (containing, for example, absorbent materials, rags, gloves, plastic and metal trash containers, etc.) shall be readily available.
- Manufacturer's recommended methods for spill cleanup shall be known and maintenance personnel shall be trained regarding these procedures and the location of the information and cleanup supplies.
- The responsible party shall ensure that all hazardous waste discovered or generated at the site is disposed properly by a licensed hazardous material disposal company. The responsible party shall not exceed hazardous waste storage requirements mandated by the EPA or state and local authority.

In the event of a spill of hazardous substances or oil, the following procedures must be followed:

- All measures must be taken to contain and abate the spill and to prevent the discharge of the hazardous substance or oil to stormwater or off-site.
- For spills of less than a quarter gallon of material, proceed with source control and containment, clean-up with absorbent materials or other applicable means unless an imminent hazard or other circumstances dictate that the spill should be treated by a professional emergency response contractor.

- For spills greater than a quarter gallon of material, immediately contact Richard J. Rheaume, LSP, Prime Engineering, Inc., P.O. Box 1088, Lakeville, MA 02347 at (508) 947-0050. Provide information on the type of material spilled, the location of the spill, the quantity spilled, and the time of the spill and proceed with prevention, containment and/or clean-up.
- Spills of amounts that exceed reportable quantities of certain substances specifically mentioned in federal regulations 40 CFR 110, 40 CFR 117, and 40 CFR 302 must be immediately reported to the EPA National Response Center at (800) 242-8802.
- The department head shall be the spill prevention and response coordinator. He/she shall designate the individuals who shall receive spill prevention and response training. These individuals shall each become responsible for a particular phase of prevention and response. The names of these personnel should be posted in the material storage area and in the property office.

Any spill that occurs shall be documented on a Blank Spill Report that is enclosed as Attachment C-1.

6.0 SNOW AND ICE REMOVAL

Snow and ice shall be removed by mechanical equipment. Sand and salt shall only be applied when the safety of the public is at stake.

MAINTENANCE BUDGET

Street Sweeping	\$1,000
Catch Basin Cleaning	\$ 800
Forebay Cleaning	\$ 800
Inspections and Reports	<u>\$1,200</u>
Total	\$3,800

**LEWIS LANDING STORMWATER SYSTEM
INSPECTION LOG**

Inspector: _____
Date of Inspection: _____

General condition of overall site:

Condition of paved surfaces:

Condition of catch basins:

Condition of forebay:

Condition of detention basin side slopes:

Condition of wetland vegetation:

Condition of micro pool:

Condition of splash pool:

Condition of rain garden and grass filler strip:

Additional comments:

ATTACHMENT C-1

BLANK SPILL REPORT

SPILL REPORT

SITE ADDRESS: _____

NAME OF PERSON COMPLETING THIS FORM: _____

DATE: _____

TYPE OF MATERIAL: _____ QUANTITY: _____

DESCRIPTION OF RELEASE: _____

CIRCUMSTANCES LEADING TO RELEASE: _____

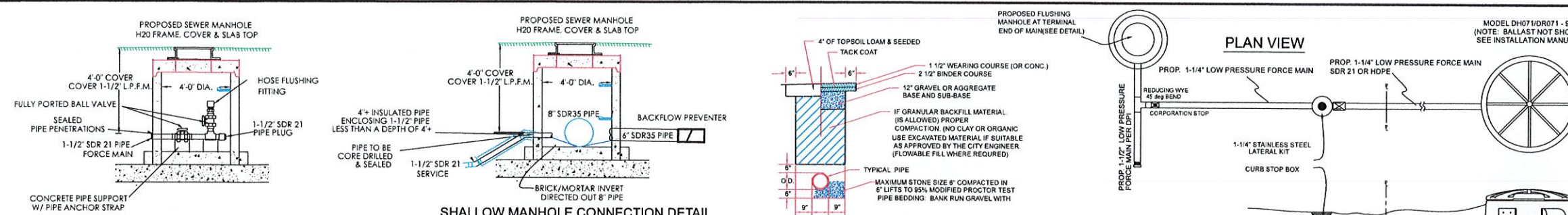
LOCATION OF SPILL: _____

RESPONSE ACTIONS: _____

PERSONNEL: _____

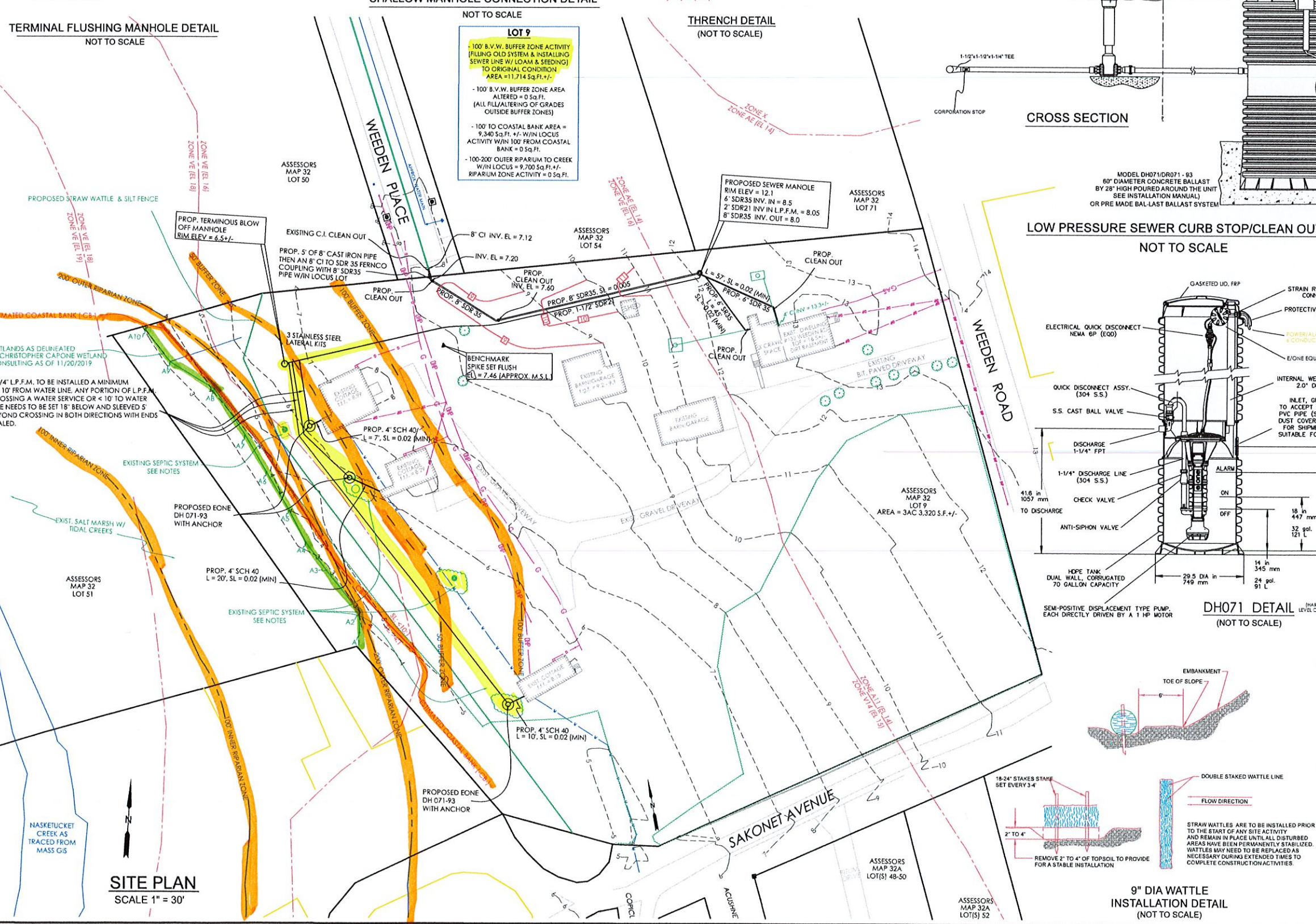
**ATTACH DOCUMENTATION OF NOTIFICATIONS AND CORRECTIVE MEASURES IMPLEMENTED
TO PREVENT REOCCURRENCE**

(COPY AS NEEDED)



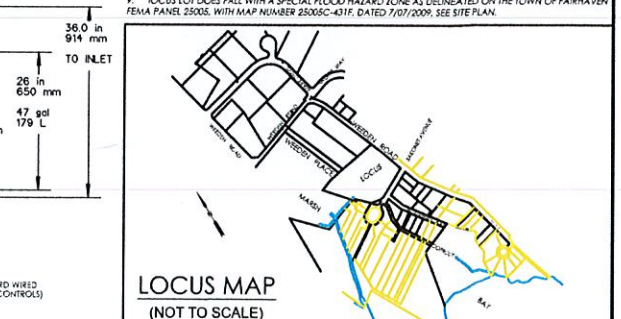
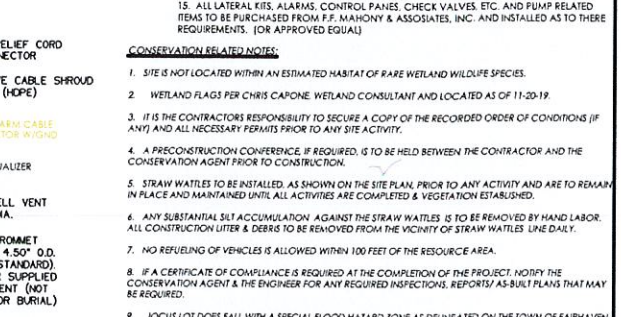
GENERAL NOTES

- EXISTING UTILITIES SHOWN HAVE BEEN TAKEN FROM RECORD DRAWINGS AND FROM SURFACE EVIDENCE OBTAINED BY ON-THE-GROUND SURVEY. NO REPRESENTATION AS TO THE ACCURACY OR COMPLETENESS OF THE UTILITIES SHOWN IS MADE BY THE SURVEYOR/ENGINEER. VERIFICATION OF UTILITIES AND LOCATIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR WITH THE AID OF DIG SAFE AND OTHER RESPECTIVE UTILITY COMPANIES.
- ALL CONSTRUCTION MATERIALS AND INSTALLATION METHODS TO CONFORM TO BOTH THE TOWN OF FAIRHAVEN BOARD OF PUBLIC WORKS SPECIFICATIONS AND THE COMMONWEALTH OF MASSACHUSETTS DEPARTMENT OF PUBLIC WORKS CONSTRUCTION STANDARDS, AS MOST RECENTLY AMENDED AS WELL AS FRMA'S INSTALLATION STANDARDS.
- CONTRACTOR SHALL KEEP RECORDS OF LOCATIONS FOR ALL UNDERGROUND UTILITIES INSTALLED FOR USE IN COMPLETING AN AS-BUILT SITE PLAN.
- CONTRACTOR TO VERIFY ELEVATIONS AND CHECK BENCHMARK AS SHOWN ON THIS PLAN PRIOR TO CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY AND ALL PERMITS AS MAY BE REQUIRED. CONTRACTOR ALSO REQUIRED TO PAY ALL PERMITS AND FEES ASSOCIATED WITH COMPLETION OF THE WORK.
- ANY LAWN AREA DISTURBED DURING CONSTRUCTION TO BE LOAM AND SEEDED AFTER PROPER BACKFILLING. SEE DETAIL. ANY TRENCHES WITHIN THE EXISTING DRIVEWAY OR ROAD PAVEMENT IS TO BE SAW CUT, WITH DEBRIS TO BE REMOVED AND DISPOSED OF PROPERLY, AND THEN TO BE REPAIRED AS PER DETAIL AND/OR TO ORIGINAL CONDITION OR BETTER.
- THE LOCUS IS TO BE CONNECTED TO THE MUNICIPAL SEWER SYSTEM AS SHOWN ON THE PLAN. A GRAVITY TYPE CONNECTION WAS FOUND NOT TO BE FEASIBLE DUE TO THE CONFLICTING SLOPES FOR THE EXISTING COTTAGES.
- THE ENVIRONMENTAL | ONE DH071/DR071-93 (2010-93 DETAIL) PUMP TO BE DIRECT WIRED IN THE BUILDING'S MAIN ELECTRICAL PANEL THROUGH APPROPRIATE CONDUIT. THE ENVIRONMENTAL ONE ALARM WITH VISUAL AND AUDIBLE ALARM, MANUAL SILENCE, AND MANUAL RST. MUST BE INSTALLED IN A NORMALLY OCCUPIED PORTION OF THE BUILDING. IF INSTALLED OUTDOORS CONTRACTOR TO ENSURE THE PROPER EXTERIOR MOUNTED MODEL IS USED. ALL ELECTRICAL CONNECTIONS SHALL CONFORM TO THE N.E.C. CODES BASED ON VOLTAGE SOURCE (240V OR 120V) AVAILABLE TO THE BUILDING. CONTRACTOR TO VERIFY WITH OWNER AS TO CHOICE OF WIRELESS OR HARDWIRED UNITS PRIOR TO ORDERING. ALL COMPONENTS TO BE PURCHASED FROM FRMA & ASSOCIATES, INC. OR AN APPROVED EQUAL.
- ANCHOR TO BE INSTALLED TO PREVENT FLOATATION. MINIMUM RING OR CONCRETE TO BE SIZED IN ACCORDANCE WITH EONES STANDARDS, ASSUMING A HIGH WATER TABLE.
- THE PUMP SYSTEM SPECIFIED IS TO BE USED. NO ALTERNATE PUMPS ARE TO BE INSTALLED WITHOUT THE DPE & DESIGN ENGINEERS APPROVAL AS TO THE PUMP CHARACTERISTICS AND SUITABILITY. PUMPS ARE SIZED FOR NORMAL HOUSEHOLD TYPE SEWAGE ONLY.
- A BACKUP GENERATOR (ADEQUATE FOR SUPPLYING THE SEWAGE PUMP IN CASE OF ELECTRICAL FAILURE) IS STRONGLY RECOMMENDED IN WHICH A TRANSFER SWITCH MAY BE WARRANTED.
- ALL SDR 21 PIPING IS TO BE INSTALLED 48 INCHES BELOW GRADE (BELOW THE FROST LINE) AND INSTALLED A MINIMUM OF 18 INCHES BELOW ANY WATER MAIN OR WATER SERVICE CROSSING. 4" SCH 40 PVC PIPE FROM THE DWELLING TO BE SET WITH A SLOPE OF 0.02 (MIN).
- CONTRACTOR TO COORDINATE WITH THE HOME OWNERS AND THE TOWN'S B.P.W. OFFICE AS TO CONSTRUCTION DATES AND TIME FRAMES PRIOR TO CONSTRUCTION.
- CONTRACTOR TO PHYSICALLY PUMP THE SEPTIC SYSTEMS EMPTY AND REMOVE AND DISPOSE OF ANY HAZARDOUS MATERIALS, SUCH AS CESSPOOLS, ETC. IN A MANNER OF HEALTH APPROVED MANNER. ANY LEACHING FIELD STONE AND/OR PIPING CAN BE ABANDONED IN PLACE.
- PROPERTY LINES SHOWN ARE APPROXIMATE. NOT THE RESULT OF A PERIMETER TYPE SURVEY. AREAS CALCULATED BASED ON LOT LINES SHOWN AND IT IS RECOMMENDED A SURVEYOR STAKE THE EDGE OF THE RIGHT OF WAY, PRIOR TO CONSTRUCTION.
- ALL LATERAL KITS, ALARMS, CONTROL PANELS, CHECK VALVES, ETC. AND PUMP RELATED ITEMS TO BE PURCHASED FROM F.F. MAHONEY & ASSOCIATES, INC. AND INSTALLED AS TO THESE REQUIREMENTS. (OR APPROVED EQUAL)



LOT 9

- 100' B.V.W. BUFFER ZONE ACTIVITY (FILLING OLD SYSTEM & INSTALLING SEWER LINE W/ LOAM & SEEDING) TO ORIGINAL CONDITION AREA = 11,714 Sq.Ft. +/-
- 100' B.V.W. BUFFER ZONE AREA ALTERED = 0 Sq.Ft. (ALL FILL/ALTERING OF GRADES OUTSIDE BUFFER ZONES)
- 100' TO COASTAL BANK AREA = 9,340 Sq.Ft. +/- W/IN LOCUS ACTIVITY W/IN 100' FROM COASTAL BANK = 0 Sq.Ft.
- 100'-200' OUTER RIPARIAN TO CREEK W/IN LOCUS = 9,700 Sq.Ft. +/- RIPARIAN ZONE ACTIVITY = 0 Sq.Ft.



SEWER CONNECTION DESIGN PLAN

ESTATE OF JOSEPH U. CARDOZA
132 WEEDEN ROAD TO WEEDEN PLACE
ASSESSORS MAP 32, LOT 9
FAIRHAVEN, MA

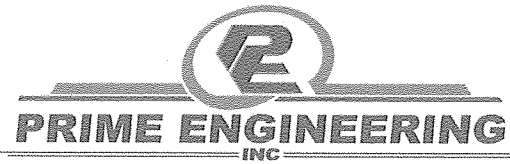
S&K ENGINEERING, LLC
P.O. BOX 1338
WESTPORT, MASSACHUSETTS 02790
(774) 319 - 5305

KEVIN J. SILVA
CIVIL
NO. 49678
PROF. REG. STATE OF MASSACHUSETTS

DATE	REVISION	BY
12/19/2019	DESIGNED BY: KJS	
	CHECKED BY:	
	DRAWN BY: KJS	
	JOB No: 19-036	

SITE PLAN
SCALE 1" = 30'

9" DIA WATTLE INSTALLATION DETAIL
(NOT TO SCALE)



December 17, 2019

Fairhaven Conservation Commission
40 Center Street
Fairhaven, MA 02719

RE: BELLA VISTA ISLAND

Dear Commission Members,

Since 2007, there have been four separate Notices of Intent submitted for Bella Vista Island resulting in two original Orders of Conditions. One of these Orders of Conditions was amended. There were two outstanding Notice of Intents submitted in April 2013 and November 2013 that have not yet been acted on.

In the past few years, numerous meetings and extensive negotiations have taken place with MassDEP personnel. The outcome is a Consent Order which prescribes that the enclosed plans be first submitted to the Fairhaven Conservation Commission for approval. Once the Orders of Conditions have been issued, the Department will issue Waterways Licenses and the remedial work will take place.

Since several of the Commission members who took the lead in the review and administration of these Orders are no longer on the Commission, we decided it was appropriate for us to issue the attached four separate letters that document the subject of each filing, the status, the revision date of the latest approved plans and which work has been completed.

We are herewith submitting a fourth Notice of Intent. The abutters have been notified and we understand that you will place the appropriate legal ads.

Sincerely,

PRIME ENGINEERING, INC.

A handwritten signature in cursive script, appearing to read 'Richard J. Rheault', is written over the printed name.

Richard J. Rheault, P.E., LSP
Chief Engineer

RJR/mc



December 17, 2019

Fairhaven Conservation Commission
40 Center Street
Fairhaven, MA 02719

**RE: FILE # SE 23-1101
FIRST NOTICE OF INTENT FOR BELLA VISTA ISLAND**

Dear Commission Members,

The following presents the status of the above referenced file. In October 2010, a Notice of Intent was filed by Charon Associates, Inc. Engineers. On February 7, 2011, the Commission issued an Order of Conditions and approved a plan entitled "Plan of Site and Proposed Improvements, Prepared for Heiam J. Alswahli, 1 Bella Vista Island, Lots 64A, 326-356 and 352, Fairhaven, MA" by Charron Associates, Inc., last revised January 21, 2011. In addition to the approved plan, a document entitled "Addendum to Notice of Intent for Mass DEP File #23-1101" was approved. It provided details of how the northern seawall work was to be implemented. The Order allowed the following:

1. The placement of granite posts along the causeway;
2. Repair of the causeway surface;
3. Repair of the causeway side slopes;
4. Construction of masonry walls at the west end of the causeway;
5. Construction of wood retaining walls at the north end of the island;
6. The placement of approximately 500 square feet of coastal seawall at the north end of the island;
7. The placement of fill behind the timber retaining walls;
8. The construction of a garden and timber edging along lawn areas at the southern end of the island;
9. 1,200 square feet of wetland restoration in a depression that had been filled at the south end of the island;
10. The installation of a lawn at the southern end of the island;
11. The removal of stone and loam and the planting of bayberry and grasses at the east end of the island;
12. The installation of fencing and steps near the pool area;
13. Planting blueberry shrubs, cedar and arborvitae along the southern end of the island, and
14. Allowed the area west of the dwelling to be used to stockpile large boulders intended for the seawall (item 6 above).

Most of the above items were completed as proposed. However, it was later determined that the restoration described in item 9 above was being proposed in a non-jurisdictional depression. In October 2011, a separate

CIVIL ENGINEERING ENVIRONMENTAL ASSESSMENT LAND SURVEYING

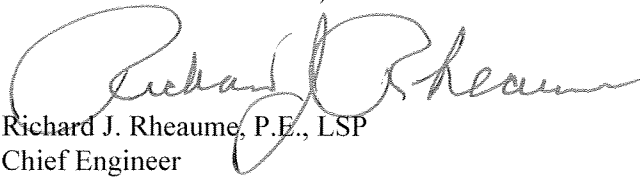
P.O. Box 1088, 350 Bedford Street, Lakeville, MA 02347

Notice of Intent was filed in order to preclude the need for this restoration. The Order of Conditions Mass DEP File #SE 23-1127 did eliminate the need for this restoration.

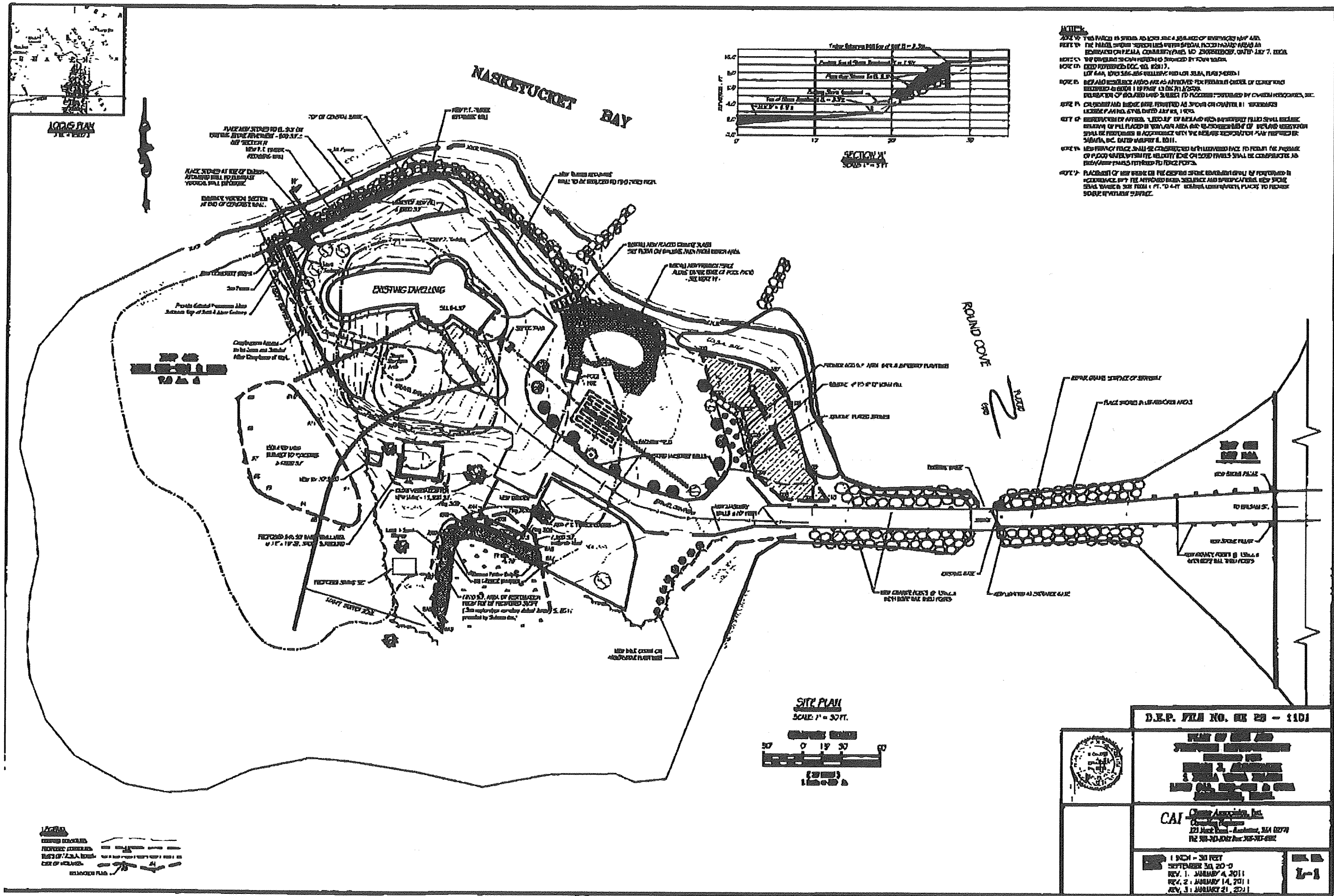
The approval for the proposed seawall reconstruction detailed in item 6 above was misconstrued by the proponent as his having permission to repair and improve the entire length of the existing seawall. He retained a contractor to rebuild the existing seawall which was completed in early 2013. The seawall was constructed with a toe plate (also known as a "stone apron"), which are large stones that are placed in front of the bottom stones of the seawall. The toe plate prevents the soil beneath the bottom stones from being eroded during severe coastal storms. The toe plate was not shown on the details of the approved plans. One of the Commission members requested that Mass DEP inspect the site. On October 9, 2012, and on September 5, 2013, Mass DEP personnel inspected the site. They noted several items including the following:

1. Even though the granite pillars that run along the causeway were approved by the original Order of Conditions Mass DEP File #SE 23-1101, they are on a licensed coastal structure and as such, must be approved by the MA Division of Waterways.
2. The base of the retaining wall for the swimming pool which was constructed decades ago above the highwater mark is now below mean high water due to extreme beach erosion. The beach either needs to be restored through beach nourishment or the retaining wall must be approved by the MA Division of Waterways.
3. Any dredging beneath the causeway bridge will require an Order of Conditions from the Fairhaven Conservation Commission and a dredge permit from the MA Division of Waterways.
4. Mass DEP noted that the seawall face was steeper than what they typically allow under an unwritten policy.

Sincerely,
PRIME ENGINEERING, INC.


Richard J. Rheume, P.E., LSP
Chief Engineer

RJR/mc



NOTES:

NOTE 1: THIS PLAN IS SHOWN AND LIES AS A RESULT OF RESEARCH AND SURVEY BY THE ENGINEER. THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT. THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT. THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT.

NOTE 2: THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT. THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT.


NOTE 3: THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT. THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT.

NOTE 4: THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT. THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT.

NOTE 5: THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT. THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT.

NOTE 6: THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT. THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT.

NOTE 7: THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT. THE ENGINEER HAS CONDUCTED VISUAL INSPECTIONS AND HAS REVIEWED THE RECORD DRAWINGS AND RECORDS OF THE PROJECT.

D.E.P. FILE NO. BR 25 - 1101	
 <p>PLAN OF THE STRUCTURE AND LANDSCAPING FOR THE PROPERTY AT NASKETUCKET BAY TOWN OF NASKETUCKET, MASSACHUSETTS</p>	
<p>CAI <i>Construction Associates, Inc.</i> 121 West Street - Andover, MA 01810 TEL: 978-875-2222 FAX: 978-875-2222</p>	
<p>1 INCH = 30 FEET SEPTEMBER 30, 2010 REV. 1: JANUARY 4, 2011 REV. 2: JANUARY 14, 2011 REV. 3: JANUARY 21, 2011</p>	<p>51</p>



December 17, 2019

Fairhaven Conservation Commission
40 Center Street
Fairhaven, MA 02719

**RE: FILE # SE 23-1127
SECOND ORDER OF CONDITIONS FOR BELLA VISTA ISLAND**

Dear Commission Members,

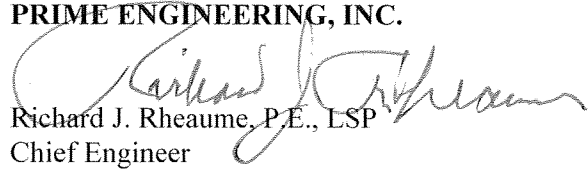
The following presents the status of the above referenced file. In October 2011, a Notice of Intent was submitted which proposed an access drive to the beach, beach nourishment, elimination of the need for resource restoration required by the original Order of Conditions, eradication of Phragmites in non-jurisdictional depressions and the installation of a floating pier. Subsequent to site walks and numerous public hearings, the proposed work was modified. The request for access to the beach and for beach nourishment was eliminated. On April 20, 2012, revised Notice of Intent forms, reports, photographs and plans were submitted to the Conservation Commission and on June 18, 2012, the Commission issued an Order of Conditions that approved the proposed work with sixteen special conditions. The approved plans were "Proposed Site Improvements" by Prime Engineering, last revised June 12, 2012 and "Restoration Planting Plan" by Bourne Knowles dated December 27, 2011. The approved work included general invasive vegetation control on much of the island, dune restoration and elimination of Phragmites in the non-jurisdictional depressions. The proponent volunteered to complete a restoration project at the DPW yard, which was the Town's responsibility, in exchange for being allowed to place fill in the non-jurisdictional depressions.

The invasive vegetation has been controlled as allowed by the Order. The Phragmites rhizomes were excavated down to a six foot depth and the depressions were backfilled with imported soil. The depressions were loamed and seeded.

The DPW yard restoration and the dune restoration were completed. On a site walk, the Commission and its Agent noted that the dune had been planted with a grass that was not American dune grass. It was decided to monitor the condition of the grass and, if it did not thrive, the Commission would require that the dune be replanted with American dune grass. If the grass cover is acceptable, we request a Certificate of Compliance.

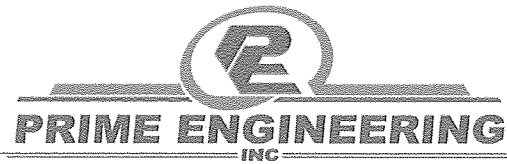
Sincerely,

PRIME ENGINEERING, INC.


Richard J. Rheume, P.E., LSP
Chief Engineer

CIVIL ENGINEERING ENVIRONMENTAL ASSESSMENT LAND SURVEYING

P.O. Box 1088, 350 Bedford Street, Lakeville, MA 02347



December 11, 2019

Fairhaven Conservation Commission
40 Center Street
Fairhaven, MA 02719

**RE: BELLA VISTA ISLAND
DEP FILE #23-1127**

Dear Commission Members,

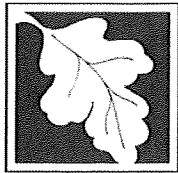
I hereby certify that all work approved by the above referenced Order of Conditions was constructed in essential compliance with that Order and the approved plans.

Please issue a Certificate of Compliance.

Sincerely,
PRIME ENGINEERING, INC.

A handwritten signature in cursive script that reads 'Richard J. Rheame'.

Richard J. Rheame, P.E., LSP
Chief Engineer



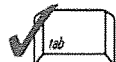
Massachusetts Department of Environmental Protection
 Bureau of Resource Protection - Wetlands
WPA Form 8A – Request for Certificate of Compliance
 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:

Provided by DEP

A. Project Information

Important:
 When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Upon completion of the work authorized in an Order of Conditions, the property owner must request a Certificate of Compliance from the issuing authority stating that the work or portion of the work has been satisfactorily completed.

1. This request is being made by:

Richard J. Rheume, P.E. - Prime Engineering, Inc.
Name

350 Bedford Street
Mailing Address

Lakeville MA 02347
City/Town State Zip Code

508-947-0050
Phone Number
2. This request is in reference to work regulated by a final Order of Conditions issued to:

Heiam Alswalhi
Applicant

June 12, 2012 23-1127
Dated DEP File Number
3. The project site is located at:

Bella Vista Island Fairhaven
Street Address City/Town

43B 326, 359, 360
Assessors Map/Plat Number Parcel/Lot Number
4. The final Order of Conditions was recorded at the Registry of Deeds for:

Same
Property Owner (if different)

Bristol 126 138
County Book Page

22217
Certificate (if registered land)
5. This request is for certification that (check one):

the work regulated by the above-referenced Order of Conditions has been satisfactorily completed.

the following portions of the work regulated by the above-referenced Order of Conditions have been satisfactorily completed (use additional paper if necessary).

the above-referenced Order of Conditions has lapsed and is therefore no longer valid, and the work regulated by it was never started.



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands
WPA Form 8A – Request for Certificate of Compliance
Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

DEP File Number:

Provided by DEP

A. Project Information (cont.)

6. Did the Order of Conditions for this project, or the portion of the project subject to this request, contain an approval of any plans stamped by a registered professional engineer, architect, landscape architect, or land surveyor?

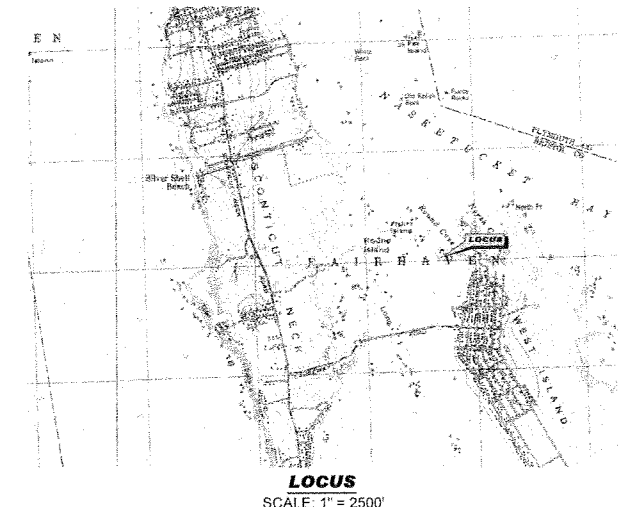
Yes If yes, attach a written statement by such a professional certifying substantial compliance with the plans and describing what deviation, if any, exists from the plans approved in the Order.

No

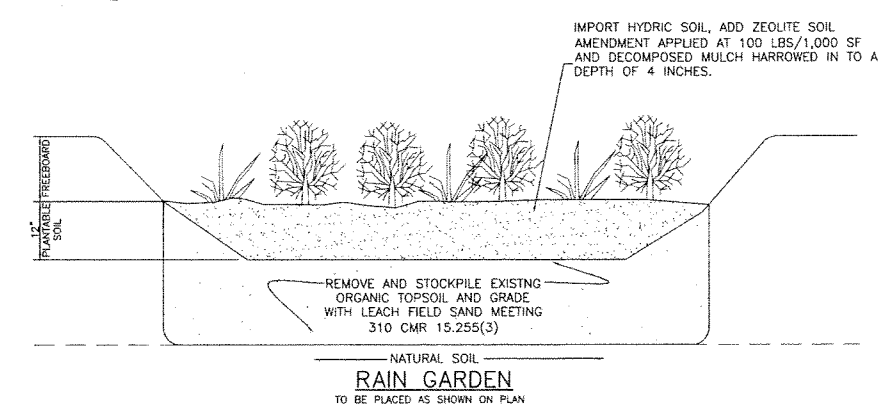
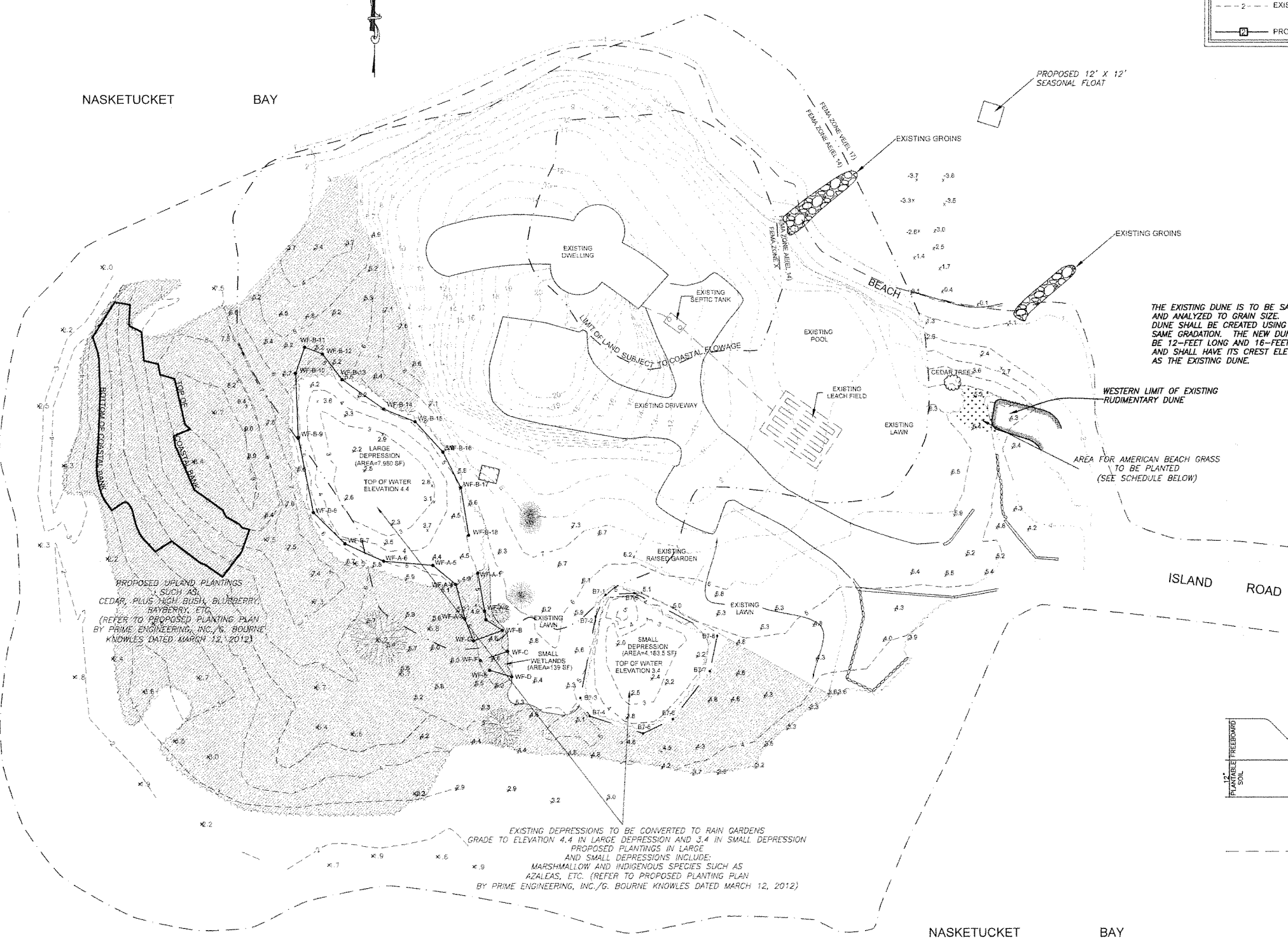
B. Submittal Requirements

Requests for Certificates of Compliance should be directed to the issuing authority that issued the final Order of Conditions (OOC). If the project received an OOC from the Conservation Commission, submit this request to that Commission. If the project was issued a Superseding Order of Conditions or was the subject of an Adjudicatory Hearing Final Decision, submit this request to the appropriate DEP Regional Office (see <http://www.mass.gov/eea/agencies/massdep/about/contacts/find-the-massdep-regional-office-for-your-city-or-town.html>).

LEGEND	
---	EXISTING CONTOUR
- - -	PROPOSED CONTOUR



- NOTES
1. THE SUBJECT PROPERTY IS SHOWN AS MAP 43B, LOTS 326, 359, & 360 IN THE TOWN OF FAIRHAVEN ASSESSORS' RECORDS.
 2. REFER TO CERTIFICATE OF TITLE #21042, ON RECORD AT THE BRISTOL COUNTY REGISTRY OF DEEDS (S.D.) OFFICE OF THE MASSACHUSETTS LAND COURT FOR TITLE REFERENCE TO THE SUBJECT PROPERTY.
 3. REFER TO L.C. PLAN 7342D1 FOR FURTHER REFERENCE TO THE SUBJECT PROPERTY.
 4. THE SUBJECT PROPERTY IS LOCATED IN ZONES X, AE(EL 14), & VE(EL 17) AS SHOWN ON THE FLOOD INSURANCE RATE MAP (F.I.R.M.) OF BRISTOL COUNTY, MASSACHUSETTS, COMMUNITY-PANEL NUMBERS 2500SC0502F, EFFECTIVE DATE OF JULY 7, 2009.
 5. THE TOPOGRAPHY IN THE AREAS PROPOSED TO BE MODIFIED SHOWN HEREON IS BASED ON A FIELD SURVEY BY PRIME ENGINEERING, INC. IN SEPTEMBER, 2011.
 6. THE LOCATIONS OF THE SHORELINE, DWELLING, AND DRIVEWAYS SHOWN HEREON ARE NOT THE RESULT OF FIELD SURVEY BY PRIME ENGINEERING AND HAVE BEEN SCALED FROM PLANS AND AERIAL PHOTOGRAPHY AND ARE TO BE CONSIDERED APPROXIMATE.
 7. VERTICAL DATUM SHOWN IS NAVD'88 BASED ON NGS PUBLISHED DATA OF NGVD'29 BENCHMARKS CONVERTED TO NAVD'88 VIA VERTCON.



SHADED AREA IS THE AREA WHERE INVASIVE SPECIES HAVE BEEN REMOVED. IT IS TO BE MOWED A MAXIMUM OF TWICE A YEAR TO A HEIGHT NO LESS THAN 4 INCHES, EXCEPT FOR 3 FOOT WIDE FOOT PATHS WHICH CAN BE MOWED SHORTER AND MORE OFTEN.

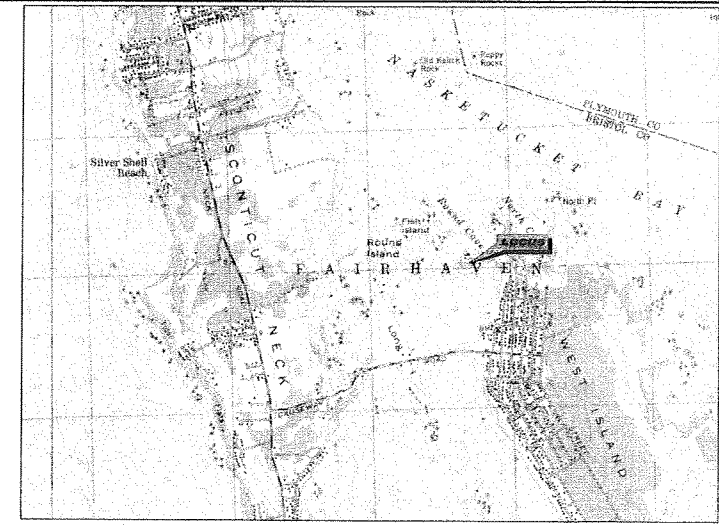
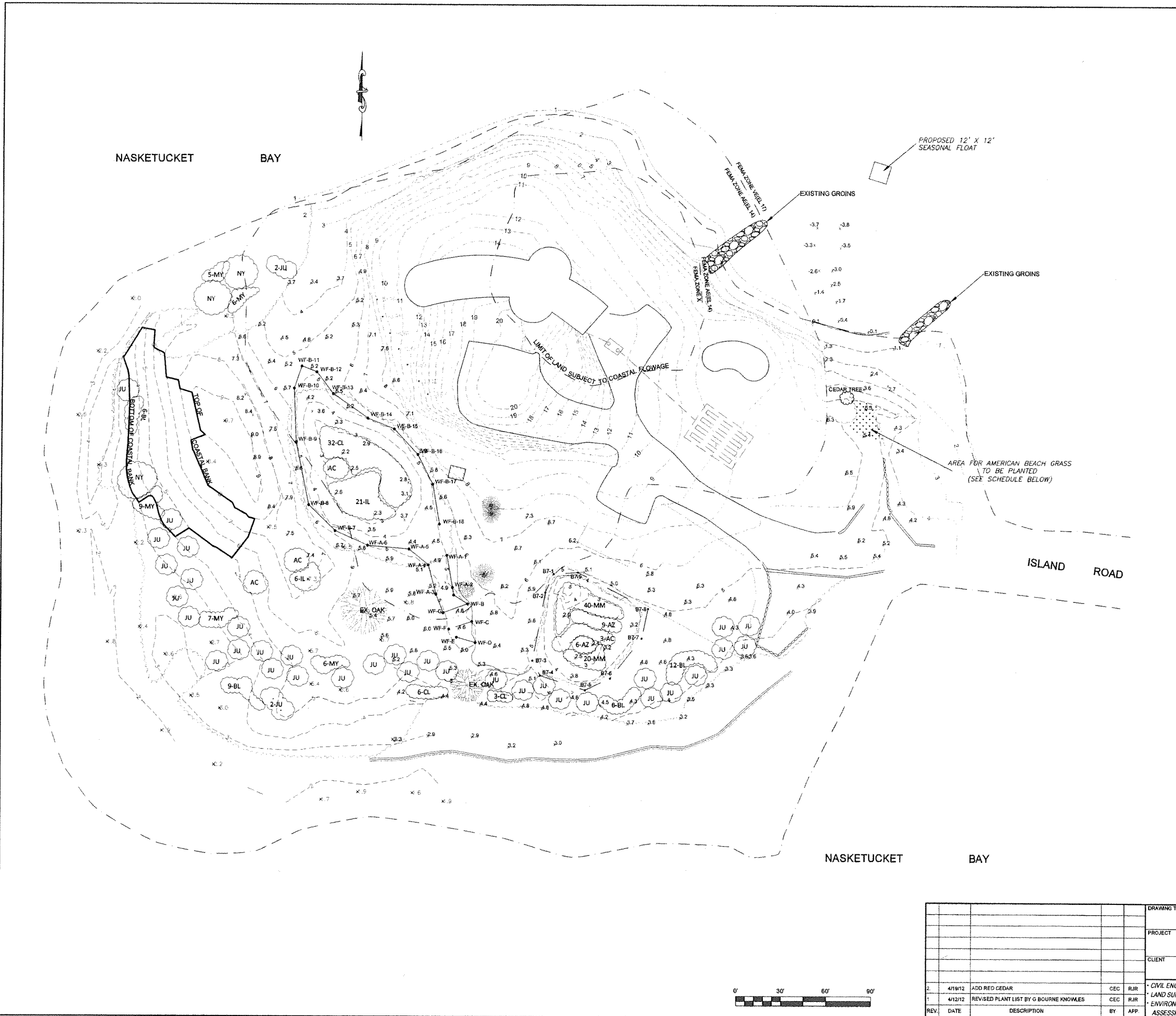
AMERICAN BEACH GRASS (*AMPHIPHILA BREVILIGULATA* [CAPE CULTIVAR]) TO BE PLANTED 18-INCHES ON CENTER 8-10 INCHES DEEP IN MID MARCH 2012 AND FERTILIZED AS FOLLOWS:

DATE	FIRST YEAR	SECOND YEAR
MARCH 15	----	10-10-10
APRIL 15	10-10-10	----
JUNE 15	AMMONIUM NITRATE	----
SEPTEMBER 15	AMMONIUM NITRATE	AMMONIUM NITRATE



PLAN TO ACCOMPANY NOI

DRAWING TITLE				SCALE
PROPOSED SITE IMPROVEMENTS				1" = 30'
PROJECT				DATE
BELLA VISTA ISLAND FAIRHAVEN MASSACHUSETTS				OCT 26, 2011
CLIENT				DRAWN BY:
HEIAM ALSWALHI FAIRHAVEN MASSACHUSETTS				CSD/JRL
DESIGNED BY:				DESIGNED BY:
[Signature]				[Signature]
CHECKED BY:				SHEET NO.
CSD/RJR				SHEET 1
APPROVED BY:				PROJECT NO.
RJR				1779-01-01
CIVIL ENGINEERING LAND SURVEYING ENVIRONMENTAL ASSESSMENT PRIME ENGINEERING		P.O. BOX 1068 380 BEDFORD ST. LAKEVILLE, MA 02447 TEL: 508.947.0050 FAX: 508.947.2004		



LOCUS
SCALE: 1" = 2000'

PLANT LIST

G. BOURNE KNOWLES & COMPANY, INC.
P.O. BOX 311, 267 HITTLESTON AVE., FAIRHAVEN, MA 02719
TELEPHONE: 508 997-8148 FAX: 508 999-0140

PROJECT ALSAWALHI

KEY	QTY	PLANT	SIZE
MM	60	**HIBISCUS MOSCHEUTOS MARSH MALLOW	2 GAL
AZ	15	**AZALEA VISCOSUM PINK MIST DECIDUOUS	2 GAL
BL	33	**VACCINIUM CORYMBOSUM HIGH BUSH BLUEBERRY MIX VARIETIES FOR FRUITING	2 GAL
IL	25	**ILEX VERTICILLATA WINTERBERRY FEMALE	3 GAL
IL	2	**ILEX VERTICILLATA WINTERBERRY MALE	3 GAL
MY	33	**MYRICA PENNSYLVANICA BAYBERRY	2 GAL
AC	6	**AMELANCHIER CANADENSIS CLUMP SERVICEBERRY	3-4
CL	41	**CLETHRA ALNIFOLIA SUMMERSWEET	1 GAL
NY	3	**NYSSA SYLVATICA TUPELO	10 GAL
JU	60±	**JUNIPERUS VIRGINIANA RED CEDAR	3-4
EX		APPROXIMATE LOCATIONS, TO BE SITED IN FIELD EXISTING PLANT MATERIAL TO REMAIN	
		** INDICATES NATIVE COASTAL PLANT	

ARBORVITAE CAN BE SUBSTITUTED FOR SOME RED CEDAR (JU) SHOWN

NOTES:
PLANTING PLAN ORIGINALLY SKETCHED BY G. BOURNE KNOWLES & COMPANY, INC. DATED DEC. 27, 2011.
PRIME ENGINEERING HAS SUPERIMPOSED THEIR PLAN AS SHOWN.



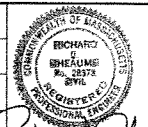
G. BOURNE KNOWLES & COMPANY, INC.
P.O. BOX 311, 267 HITTLESTON AVENUE
FAIRHAVEN, MASSACHUSETTS 02719
TELEPHONE: (508) 997-8148 TELEFAX: (508) 999-0140
1-800-564-8146



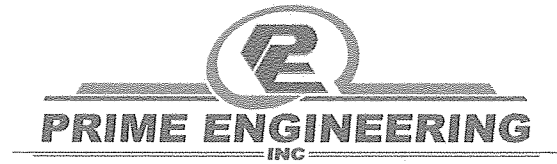
DRAWING TITLE		PROPOSED PLANTING PLAN		SCALE	1" = 30'
PROJECT		BELLA VISTA ISLAND FAIRHAVEN MASSACHUSETTS		DATE	MARCH 12, 2012
CLIENT		HEIAM ALSAWALHI FAIRHAVEN MASSACHUSETTS		DRAWN BY:	JRL
REV. DATE		DESCRIPTION		DESIGNED BY:	JRL
2	4/11/12	ADD RED CEDAR	CEC RJR	CHECKED BY:	RJR
1	4/12/12	REVISED PLANT LIST BY G BOURNE KNOWLES	CEC RJR	APPROVED BY:	RJR
REV.	DATE	DESCRIPTION	BY	APP.	



P.O. BOX 1068
330 BEDFORD ST.
LAKEVILLE, MA 02347
TEL: 508.947.0050
FAX: 508.947.2004



SHEET NO. **1 OF 1**
PROJECT NO. 1779-01-01



December 17, 2019

Fairhaven Conservation Commission
40 Center Street
Fairhaven, MA 02719

**RE: FILE # SE 23-1161
THIRD NOTICE OF INTENT FOR BELLA VISTA ISLAND**

Dear Commission Members,

The following is a status of the above referenced filing. In April 2013, a Notice of Intent was submitted for the construction of an access drive to the beach, the repair of one of the groins and the construction of a fixed wooden pier, ramp and float. A site inspection was conducted by the Commission and the public hearing process was initiated. MA Division of Fisheries took the position that the footprint of the groin should not be expanded due the presence of shellfish. While reconstructing the existing adjacent seawall to the groin, the contractor placed several large stones on the existing groin, in several instances temporarily expanding the footprint of the groin. This was ascertained by the presence of barnacles above the high water mark. During a site inspection, the Commission members and their Agent noted that expanding the groin's footprint within the Land Under the Ocean Resource Area was most likely not going to be approved. A Prime Engineering Survey Crew subsequently surveyed the footprint of the groin using only stones that had no barnacles (see enclosed revised plans).

We hereby request that the Commission resume the public hearing process and approve the proposed pier with the enclosed revised plans (three sheets marked Exhibit C) which eliminates the seaward expansion of the groin and expands the landward extension of the groin which is outside the Land Under the Ocean Resource Area.

A separate Notice Intent was filed in order to dredge the bridge channel, to provide beach nourishment and to rebuild the other groin without expanding its footprint within the Land Under the Ocean Resource Area.

We look forward to presenting these revised plans to you at the next hearing.

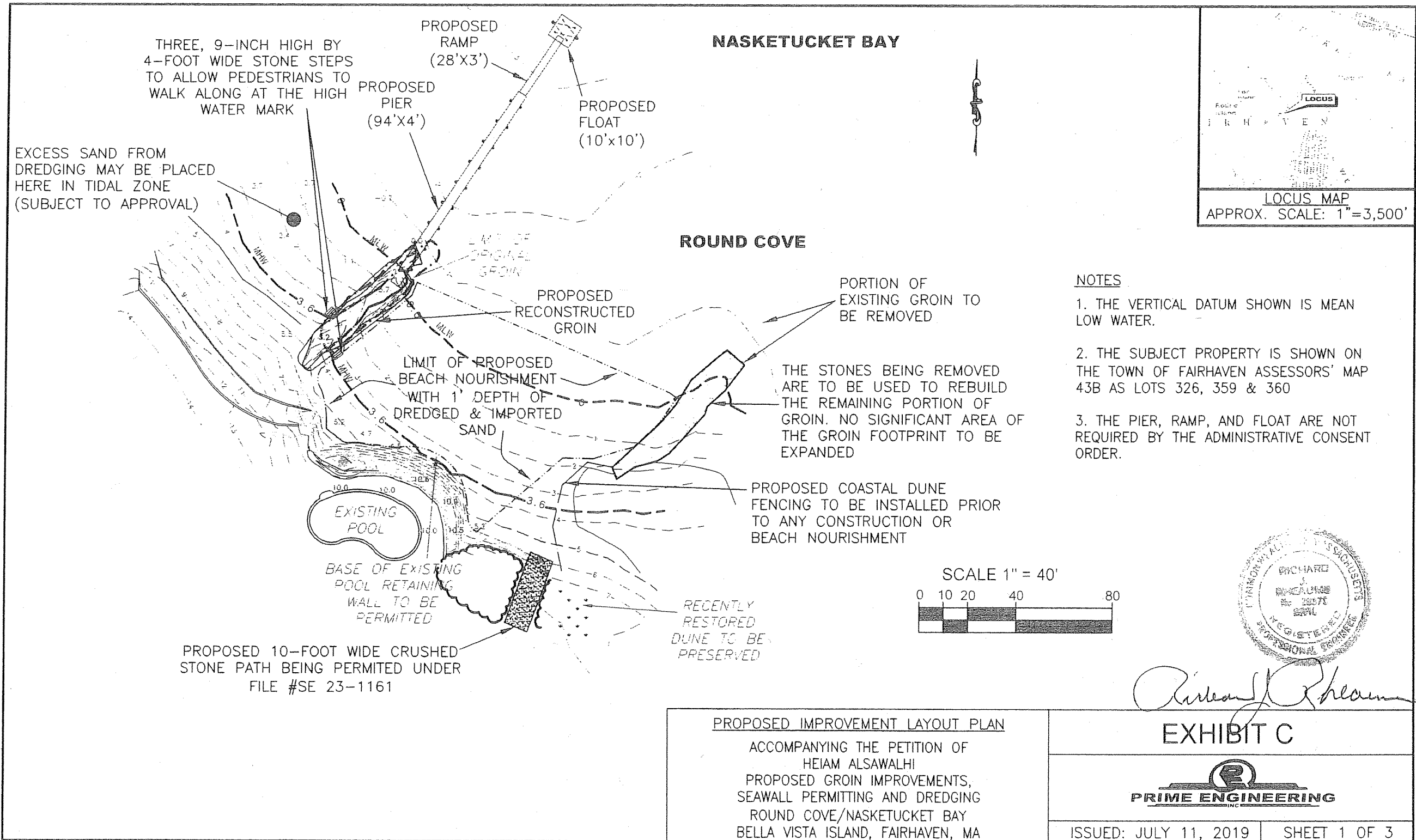
Sincerely,
PRIME ENGINEERING, INC.

A handwritten signature in cursive script, appearing to read 'Richard J. Rheume', is written over the typed name and title.

Richard J. Rheume, P.E., LSP
Chief Engineer

RJR/mc

CIVIL ENGINEERING ENVIRONMENTAL ASSESSMENT LAND SURVEYING
P.O. Box 1088, 350 Bedford Street, Lakeville, MA 02347



THREE, 9-INCH HIGH BY 4-FOOT WIDE STONE STEPS TO ALLOW PEDESTRIANS TO WALK ALONG AT THE HIGH WATER MARK

EXCESS SAND FROM DREDGING MAY BE PLACED HERE IN TIDAL ZONE (SUBJECT TO APPROVAL)

PROPOSED RAMP (28'X3')

PROPOSED PIER (94'X4')

PROPOSED FLOAT (10'X10')

NASKETUCKET BAY

ROUND COVE

LIMIT OF ORIGINAL GROIN

PROPOSED RECONSTRUCTED GROIN

PORTION OF EXISTING GROIN TO BE REMOVED

LIMIT OF PROPOSED BEACH NOURISHMENT WITH 1' DEPTH OF DREDGED & IMPORTED SAND

THE STONES BEING REMOVED ARE TO BE USED TO REBUILD THE REMAINING PORTION OF GROIN. NO SIGNIFICANT AREA OF THE GROIN FOOTPRINT TO BE EXPANDED

PROPOSED COASTAL DUNE FENCING TO BE INSTALLED PRIOR TO ANY CONSTRUCTION OR BEACH NOURISHMENT

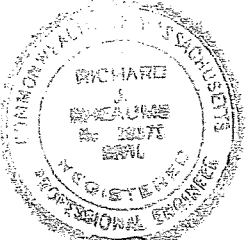
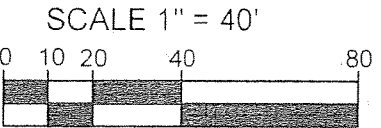
EXISTING POOL
BASE OF EXISTING POOL RETAINING WALL TO BE PERMITTED

RECENTLY RESTORED DUNE TO BE PRESERVED

PROPOSED 10-FOOT WIDE CRUSHED STONE PATH BEING PERMITTED UNDER FILE #SE 23-1161

NOTES

1. THE VERTICAL DATUM SHOWN IS MEAN LOW WATER.
2. THE SUBJECT PROPERTY IS SHOWN ON THE TOWN OF FAIRHAVEN ASSESSORS' MAP 43B AS LOTS 326, 359 & 360
3. THE PIER, RAMP, AND FLOAT ARE NOT REQUIRED BY THE ADMINISTRATIVE CONSENT ORDER.



Richard J. McCaune

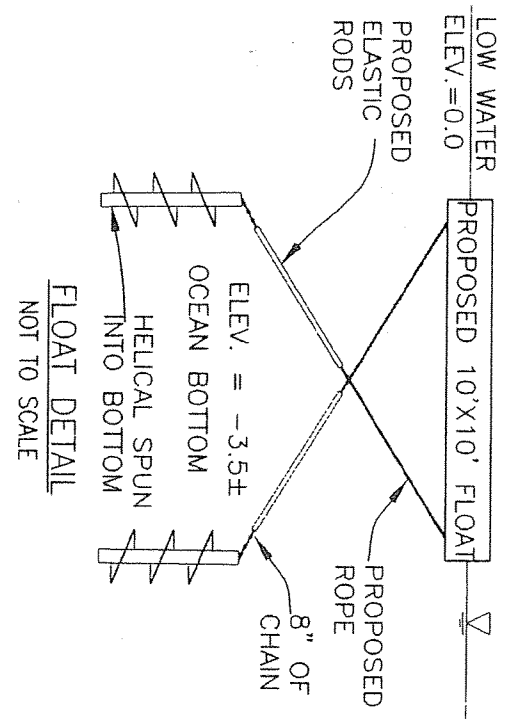
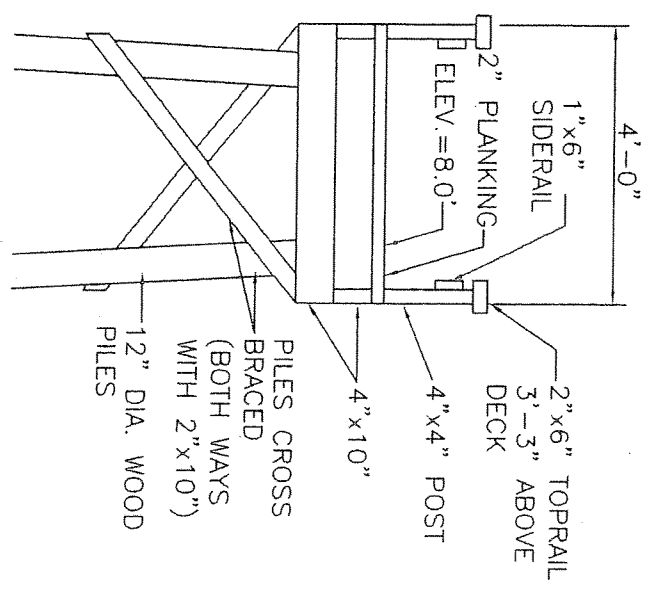
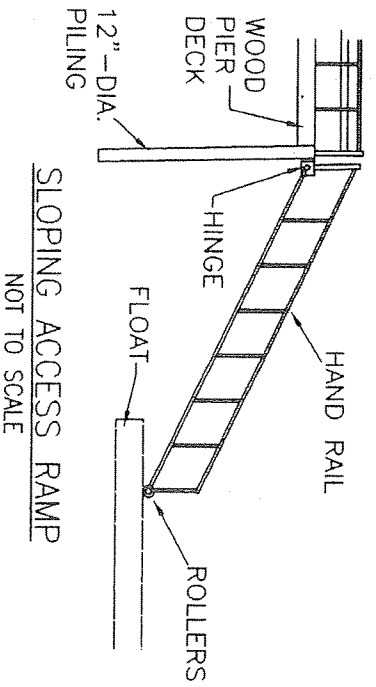
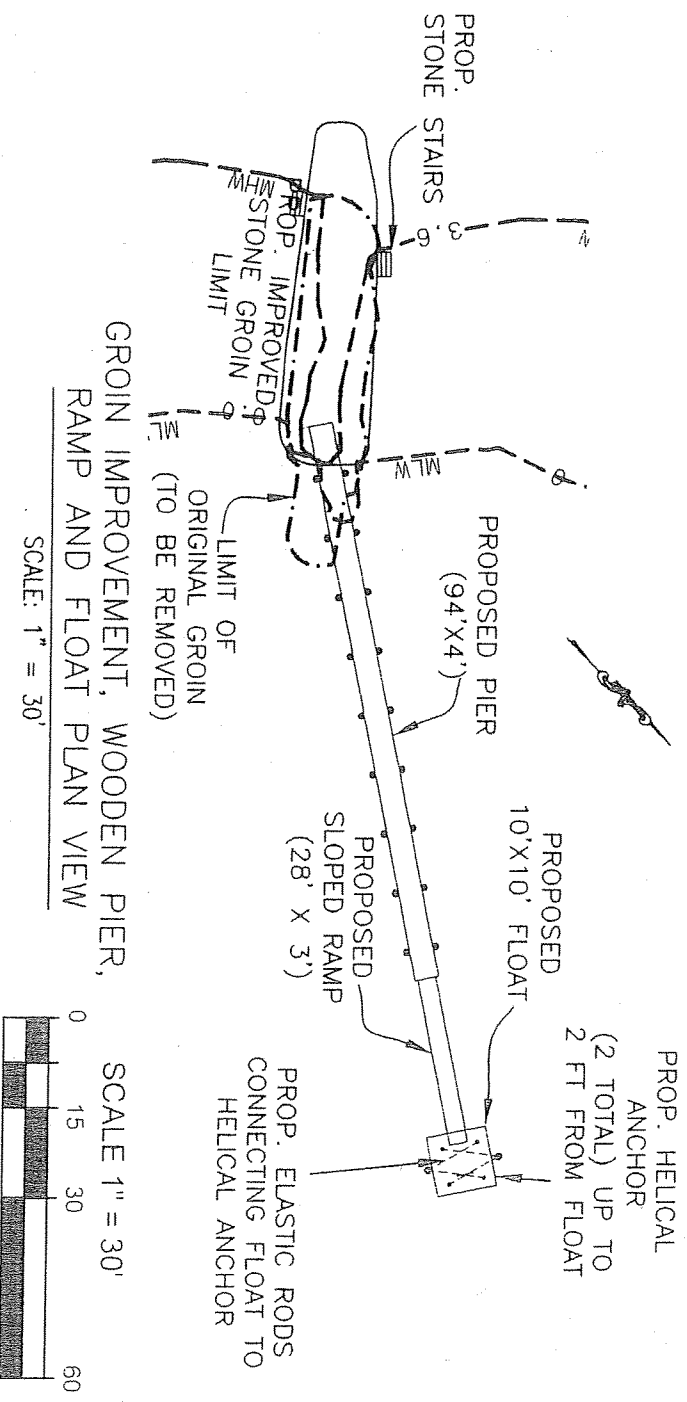
PROPOSED IMPROVEMENT LAYOUT PLAN

ACCOMPANYING THE PETITION OF HEIAM ALSAWALHI
PROPOSED GROIN IMPROVEMENTS,
SEAWALL PERMITTING AND DREDGING
ROUND COVE/NASKETUCKET BAY
BELLA VISTA ISLAND, FAIRHAVEN, MA

EXHIBIT C



ISSUED: JULY 11, 2019 | SHEET 1 OF 3



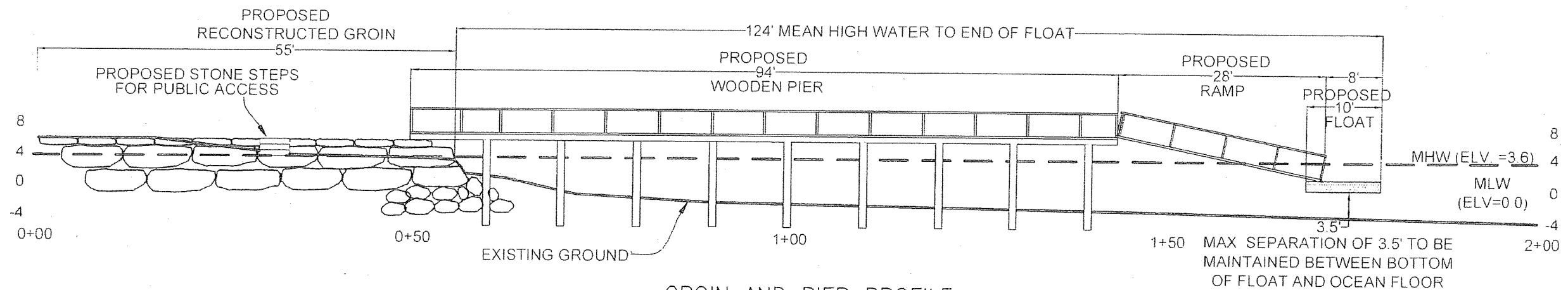
(NOTE: STRUCTURAL ENGINEER TO VERIFY STRUCTURAL COMPONENTS PRIOR TO CONSTRUCTION)

Richard J. Allen
 REGISTERED PROFESSIONAL ENGINEER
 STATE OF MASSACHUSETTS
 SPECIALISTS
 No. 12579
 CIVIL

EXHIBIT C

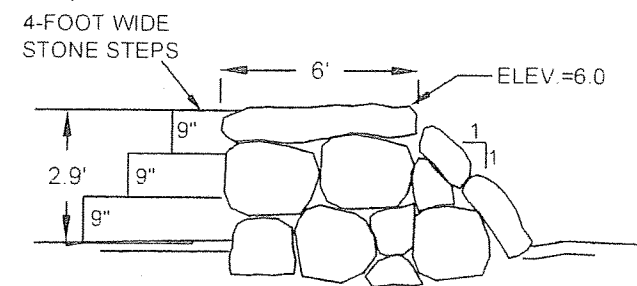
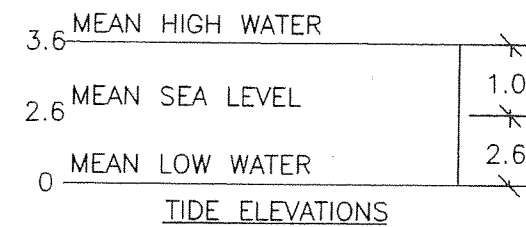


PIER AND FLOAT DETAIL PLAN
 ACCOMPANYING THE PETITION OF
 HEAM ALSAWALI
 PROPOSED GROIN IMPROVEMENTS,
 SEAWALL PERMITTING AND DREDGING
 ROUND COVE/MASKETUCKET BAY
 BELLA VISTA ISLAND, FAIRHAVEN, MA

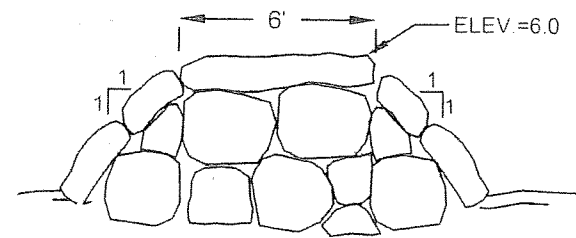


GROIN AND PIER PROFILE

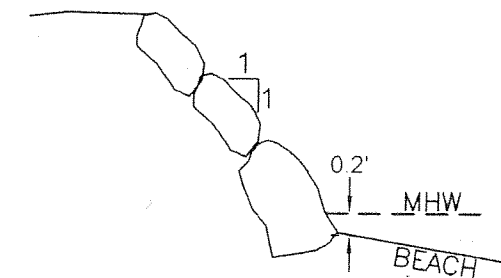
HORIZONTAL AND VERTICAL SCALES: 1"=15'



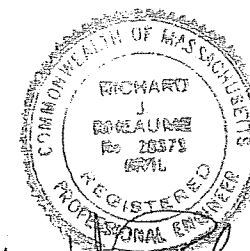
CROSS SECTION OF PROPOSED RECONSTRUCTED GROIN AT STONE STAIRS (TYP.)
NOT TO SCALE



CROSS SECTION OF PROPOSED RECONSTRUCTED GROIN (TYP.)
NOT TO SCALE

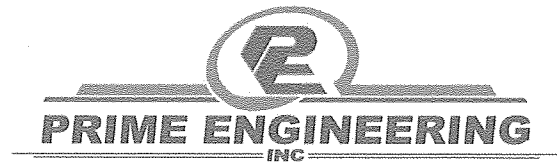


SECTION A-A EXISTING POOL SEAWALL
NOT TO SCALE



Richard J. Bourne

PROFILE PLAN OF GROIN IMPROVEMENT & PROPOSED PIER, RAMP & FLOAT ACCOMPANYING THE PETITION OF HEIAM ALSAWALHI PROPOSED GROIN IMPROVEMENTS, SEAWALL PERMITTING AND DREDGING ROUND COVE/NASKETUCKET BAY BELLA VISTA ISLAND, FAIRHAVEN, MA	EXHIBIT C	
	ISSUED: JULY 11, 2019	SHEET 3 OF 3



December 17, 2019

Fairhaven Conservation Commission
40 Center Street
Fairhaven, MA 02719

RE: FOURTH NOTICE OF INTENT FOR BELLA ISLAND

Dear Commission Members,

Enclosed is a Notice of Intent to repair the existing eastern groin and to provide beach nourishment. The repair of the western groin is covered under MassDEP File # SE 23-1161. Both groins were apparently constructed in the 1970s without the benefit of a Division of Waterways permit. Once an Order of Conditions is issued, we will submit the plans to the Division of Waterways. The proposal is to maintain the square footage of the original footprint of each groin where they are located in the Land Under Ocean Resource Area but to expand them landward outside of that resource area. The reason to extend the groins landward is to minimize sand migration by wind and severe coastal storms.

Since the groins are being permitted as coastal structures, MA Division of Waterways requires that the elevation be shown based on mean low water being elevation zero. Note that previous plans at Bella Vista Island not related to coastal structures have been based on NAVD 88 with mean sea level being elevation zero.

This Notice of Intent also seeks "after the fact" approval for the wooden posts and rope line that extend north and south perpendicular to the causeway along the property's eastern property line. The posts and line do not extend to the mean high water mark, so they do not require a Waterways permit. Their function is to alert pedestrians to the limit of the private property and to prevent the marsh from being trampled. In an emergency, a pedestrian can easily step over the lines.

This Notice also seeks permission to dredge under the bridge to allow the bridge channel to be deep enough for small crafts such as kayaks to navigate. The dredged sand is proposed to be placed on the beach near the existing swimming pool for nourishment. This excavation will require a dredging permit from the MA Division of Waterways. The dredge area is approximately 3,000 square feet and the proposed dredge volume is approximately 280 cubic yards.

The Notice of Intent also seeks the "after the fact" approval to reconstruct the existing stone seawall as shown on the enclosed plan, including removing the southern end of the seawall. The face of the seawall is steeper than 1:1 and there is a stone toe plate in front of the seawall flush with the ground that keeps the soil from eroding beneath the bottom of the seawall. Some additional stone is proposed to be placed along the toe of the seawall.

Finally, the Notice seeks approval to repair the southeast end of the causeway side slope by placing large stones as shown on the original waterway plan and the "Causeway Detail and Dredging Plan" issued July 11, 2019.

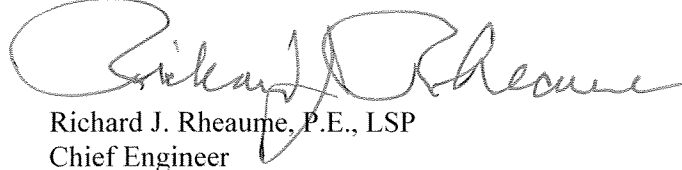
The submitted package consists of the following:

- Eight (8) copies of the letters,
- Eight (8) sets of full-size plans,
- A check for \$300 which is the Fairhaven Bylaw Fee,
- A check for \$1,620.50 which is the Massachusetts Regulatory Fee,
- A check for \$75 made out to the Town of Fairhaven, which is the legal ad fee,
- Eight (8) collated packets which include the WPA Form 3, a Narrative, plans (including one 11" x 17" size), and,
- An abutters list and abutters notification form

We look forward to presenting these plans to you at your next hearing. In the interim, if you have any questions or comments, please do not hesitate to contact us.

Sincerely,

PRIME ENGINEERING, INC.



Richard J. Rheume, P.E., LSP
Chief Engineer

RJR/mc

**NARRATIVE IN SUPPORT OF
PROPOSED SEAWALL PLANS AT
BELLA VISTA ISLAND
FAIRHAVEN, MA**

**PREPARED BY:
PRIME ENGINEERING, INC.
P.O. BOX 1088
LAKEVILLE, MA 02347**

**JULY 12, 2019
REVISED DECEMBER 17, 2019**

1.0 INTRODUCTION

The owner of Bella Vista Island has entered into an Administrative Consent Order with the Department of Environmental Protection that establishes corrective actions which must be undertaken to bring an existing seawall into compliance with Department standards. This document has been prepared to describe the design and present required construction methodologies.

2.0 EXISTING CONDITIONS

A seawall was constructed with a seawall face that is steeper than the 3:1 slope that the Division of Waterways maintains as an unwritten policy.

3.0 PROPOSED SEAWALL REMOVAL

Seventy feet of the western end of the seawall, along with the ancillary toe stones, are to be removed as shown on the Relocated Seawall Plan (sheet 2 of 4). The coastal bank is to be reconstructed by the placement of ordinary earth at a slope comparable to the existing coastal bank to the immediate south. The surface shall be seeded with grass seed and covered with jute netting or a comparable temporary erosion control matting. The rocky beach in front of the coastal bank is to be filled with sand and cobbles to a grade comparable to the adjoining beach. The stones recovered from the seawall removal shall be used to turn the then remaining western end of the seawall southerly into the island where both sides of the seawall will be buried, as shown on the plan. The work will be performed with an excavator on tracks with the majority of the work being performed with the excavator positioned landward of the existing seawall. A boom and silt curtain shall be employed throughout construction.

4.0 PROPOSED SEAWALL RECONSTRUCTION

The seaward face of the remaining seawall is to be reconstructed as shown on the plans entitled "Proposed Seawall Improvement Showing Examples of Dumped Armor Stone" (sheets 3 and 4 of 4). The purpose of the work is to reduce the steepness of the seawall face by the placement of dumped armor stone. Dependent on the size and shape of the specific imported rocks, the work may, in some cases, require the removal of some of the existing toe stones. In other cases, the imported rocks will be of adequate size and shape that they can be placed on top of the existing toe stones. The intent of the work is to establish an average slope of 2:1 with no significant portion of the slope steeper than 1:1 and no significant portion of the wall at a slope flatter than 3:1. In no case is the dumped armor stone to extend beyond the seaward extent of the current toe stones.

The work is to be done by an excavator on tracks operating primarily from mid to low tides. The excavator will be staged partially on the existing toe stones and partially on the rocky beach. Floating booms with silt curtains will be employed throughout the construction.

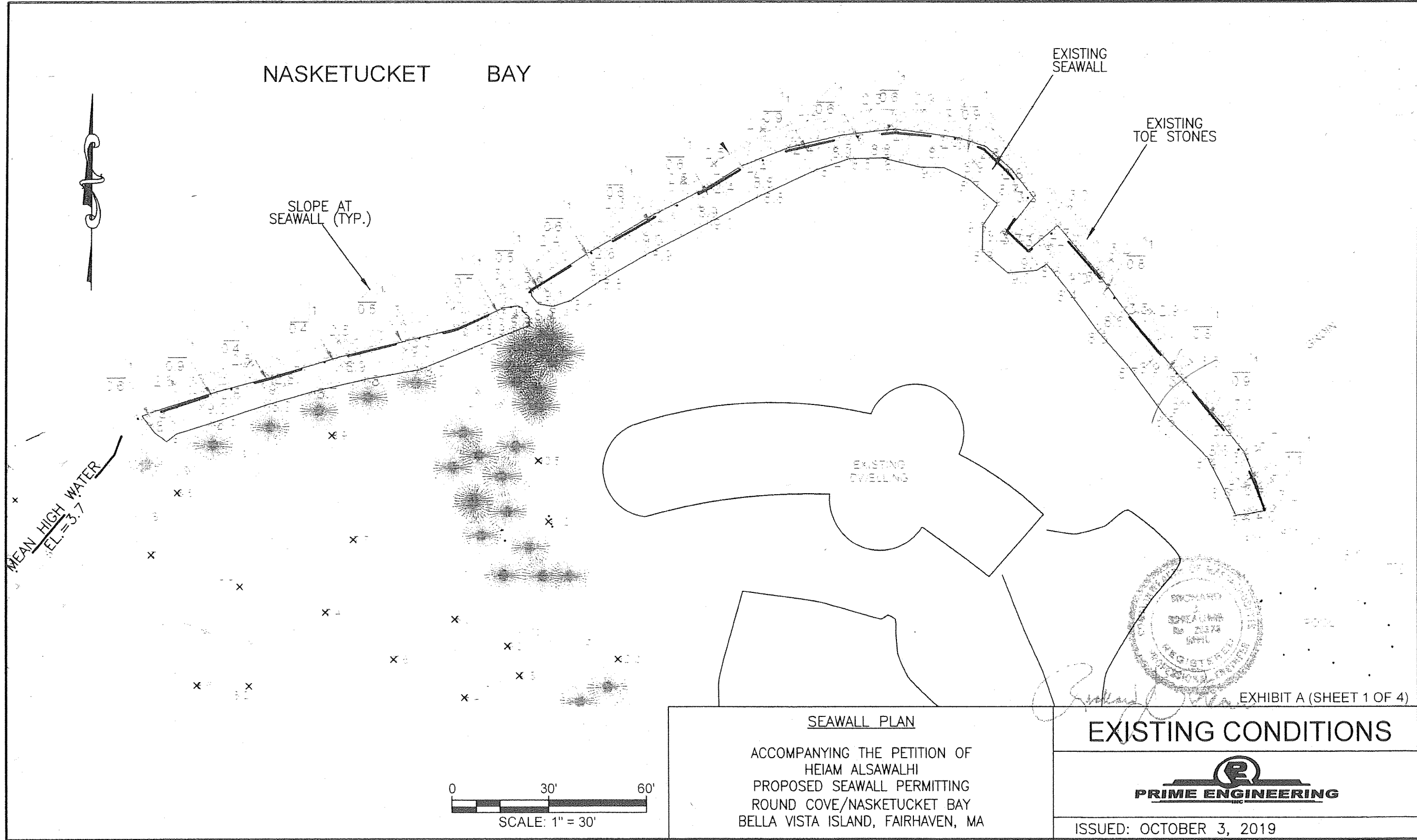
5.0 CONSTRUCTION SCHEDULE

The Department approved the initial plan submission on December 6, 2019. The Notice of Intent was required to be submitted within 21 days of the Department plan approval with the initial public hearing projected to occur sometime in December 2019. The appeal period is projected to end in January 2020. The application for a Waterways License will be submitted in early February 2020. It is projected that the Department will issue the Licence by late spring. It is anticipated that the seawall improvements will be initiated in the summer of 2020 with the removal of the western end of the seawall occurring first, followed immediately with the reconstruction of the remaining seawall. The projection is that the work will be completed by the fall of 2020. However, due to the uncertainty of the availability of the proper contractor and the ability to amass the number of properly sized and shaped stones, there is a possibility that the work will extend in the year 2021.

LIST OF PLANS

<i>SHEET NUMBER</i>	<i>TITLE</i>	<i>DATE</i>
Exhibit A Sheet 1	Existing Conditions	October 3, 2019
Exhibit A Sheet 2	Proposed Plan	October 3, 2019
Exhibit A Sheet 3	Proposed Seawall Improvement Showing Examples of Dumped Armor Stone	October 3, 2019
Exhibit A Sheet 4	Proposed Seawall Improvement Showing Examples of Dumped Armor Stone	October 3, 2019
Exhibit B	Causeway Detail and Dredging Plan	July 11, 2019

NASKETUCKET BAY



MEAN HIGH WATER
EL. = 3.7

SLOPE AT
SEAWALL (TYP.)

EXISTING
SEAWALL

EXISTING
TOE STONES

EXISTING
DWELLING

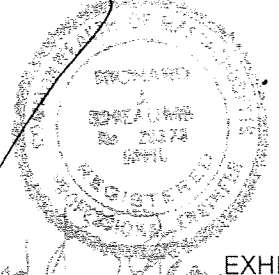


EXHIBIT A (SHEET 1 OF 4)

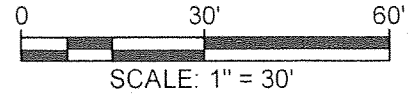
SEAWALL PLAN

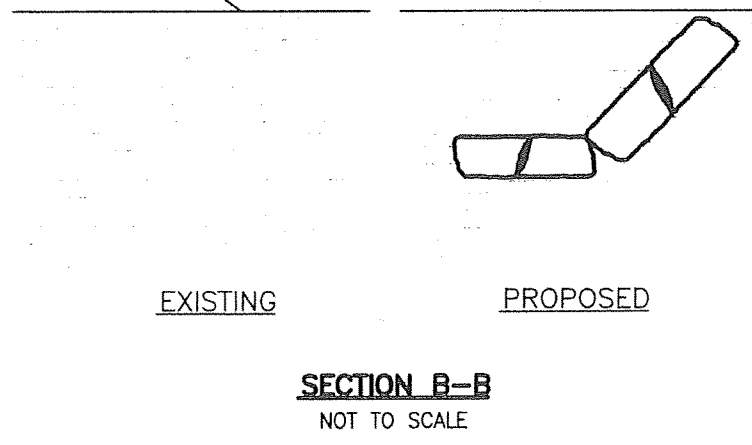
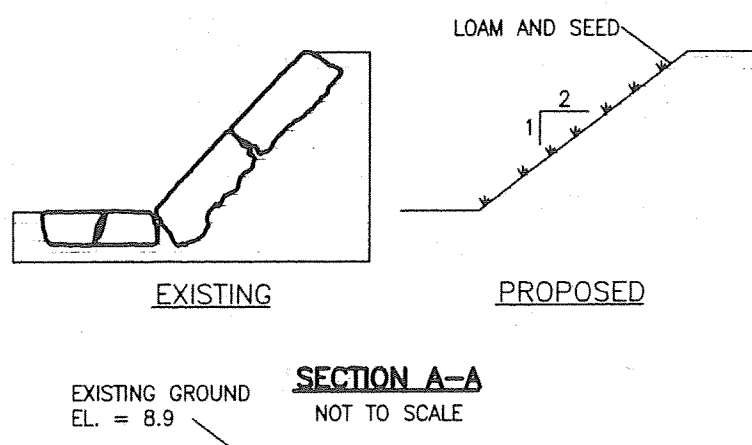
ACCOMPANYING THE PETITION OF
HEIAM ALSAWALHI
PROPOSED SEAWALL PERMITTING
ROUND COVE/NASKETUCKET BAY
BELLA VISTA ISLAND, FAIRHAVEN, MA

EXISTING CONDITIONS



ISSUED: OCTOBER 3, 2019





NOTES

1. THE VERTICAL DATUM SHOWN NAVD'88, BASED ON NGS PUBLISHED DATA OF NGVD'29 BENCHMARKS CONVERTED TO NAVD'88 VERTCON.
2. THE SUBJECT PROPERTY IS SHOWN ON THE TOWN OF FAIRHAVEN ASSESSORS' MAP 43B AS LOTS 326, 359 & 360

70' OF THE WESTERN END OF THE SEAWALL, ALONG WITH THE ANCILLARY TOE STONES, ARE TO BE REMOVED AS SHOWN ON THESE PLANS. THE COASTAL BANK IS TO BE RECONSTRUCTED BY THE PLACEMENT OF ORDINARY EARTH AT A SLOPE COMPARABLE TO THE EXISTING COASTAL BANK TO THE IMMEDIATE SOUTH. THE SURFACE SHALL BE SEEDED WITH GRASS SEED AND COVERED WITH JUTE NETTING OR A COMPARABLE TEMPORARY EROSION MATTING. THE ROCKY BEACH IN FRONT OF THE COASTAL BANK IS TO BE FILLED WITH SAND AND COBBLES TO A GRADE COMPARABLE TO THE ADJOINING BEACH. THE STONES RECOVERED FROM THE SEAWALL REMOVAL SHALL BE USED TO TURN THE THEN REMAINING WESTERN END OF THE SEAWALL SOUTHERLY INTO THE ISLAND WHERE BOTH SIDES OF THE SEAWALL WILL BE BURIED, AS SHOWN ON THE PLAN. THE WORK WILL BE PERFORMED WITH AN EXCAVATOR ON TRACKS WITH THE MAJORITY OF THE WORK BEING PERFORMED WITH THE EXCAVATOR POSITIONED LANDWARD OF THE EXISTING SEAWALL. A BOOM AND SILT CURTAIN SHALL BE EMPLOYED THROUGHOUT CONSTRUCTION.

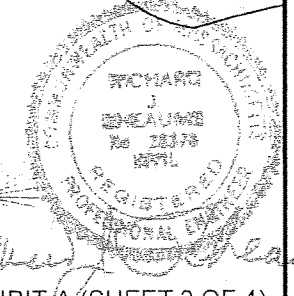
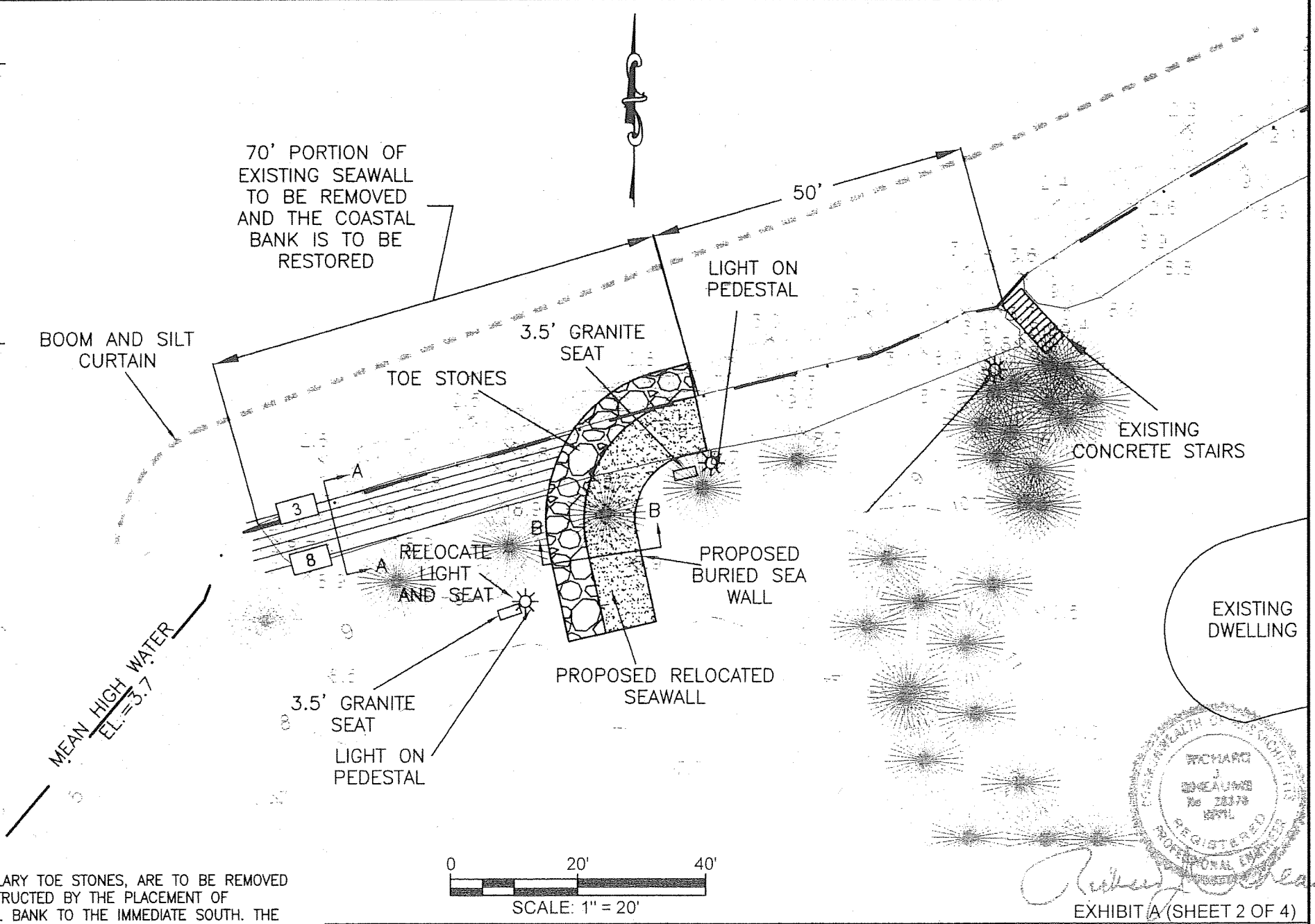


EXHIBIT A (SHEET 2 OF 4)

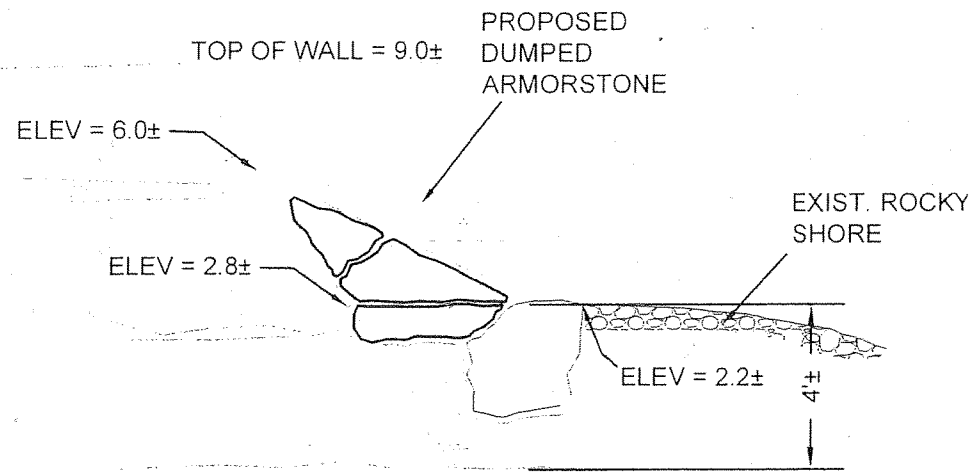
SEAWALL PLAN

ACCOMPANYING THE PETITION OF
HEIAM ALSAWALHI
PROPOSED SEAWALL PERMITTING
ROUND COVE/NASKETUCKET BAY
BELLA VISTA ISLAND, FAIRHAVEN, MA

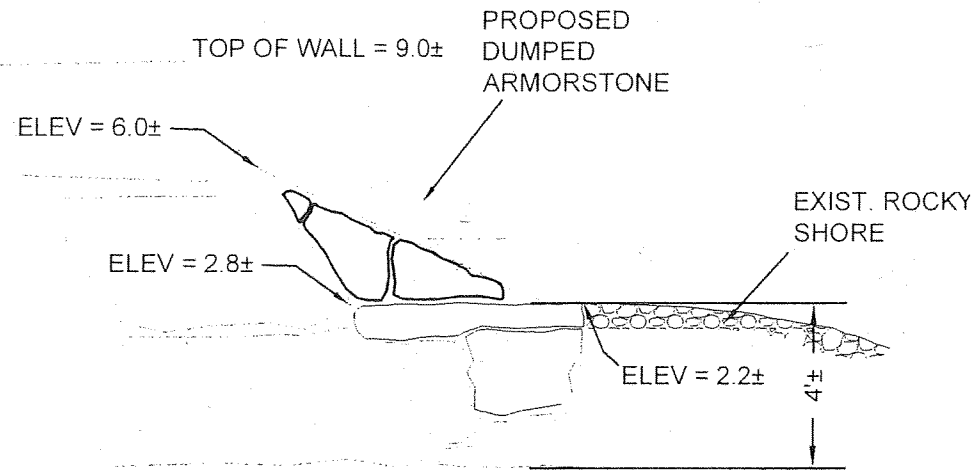
PROPOSED PLAN

PRIME ENGINEERING

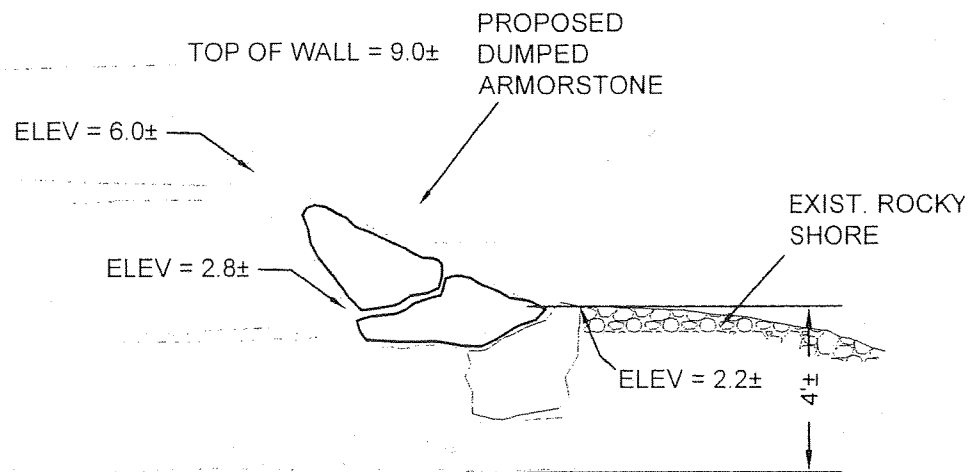
ISSUED: OCTOBER 3, 2019



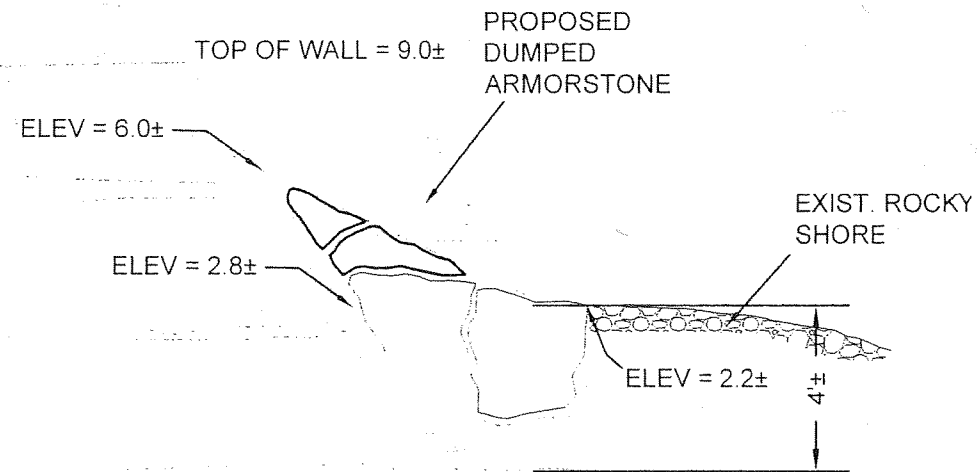
PROPOSED SEAWALL CROSS SECTION
N.T.S.



PROPOSED SEAWALL CROSS SECTION
N.T.S.



PROPOSED SEAWALL CROSS SECTION
N.T.S.



PROPOSED SEAWALL CROSS SECTION
N.T.S.

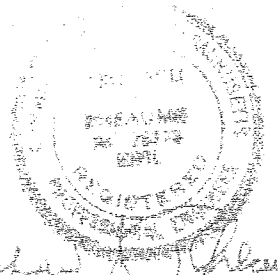

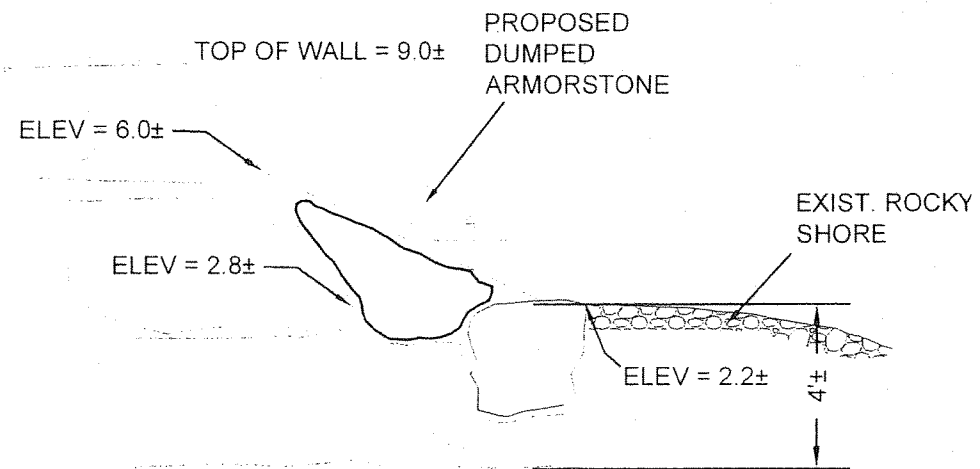
Robert J. Whelan


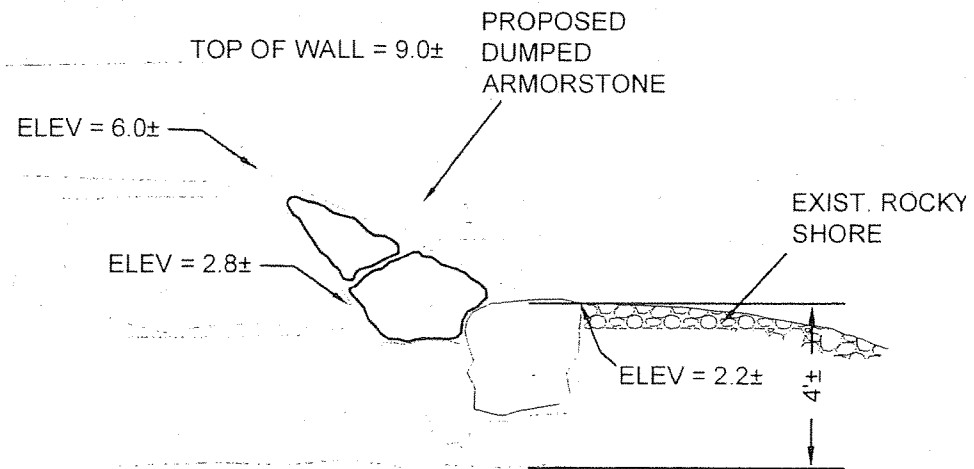
EXHIBIT A (SHEET 3 OF 4)

THE SEAWARD FACE OF THE REMAINING WALL IS TO BE RECONSTRUCTED AS SHOWN ON THESE PLANS. THE PURPOSE OF THE WORK IS TO REDUCE THE STEEPNESS OF THE SEAWALL FACE BY THE PLACEMENT OF DUMPED ARMOR STONE. DEPENDENT ON THE SIZE AND SHAPE OF THE SPECIFIC IMPORTED ROCKS, THE WORK MAY, IN SOME CASES, REQUIRE THE REMOVAL OF SOME OF THE EXISTING TOE STONES. IN OTHER CASES, THE IMPORTED ROCKS WILL BE OF ADEQUATE SIZE AND SHAPE THAT THEY CAN BE PLACED ON TOP OF THE EXISTING TOE STONES. THE INTENT OF THE WORK IS TO ESTABLISH AN AVERAGE SLOPE OF 2:1 WITH NO SIGNIFICANT PORTION OF THE SLOPE STEEPER THAN 1:1 AND NO SIGNIFICANT PORTION OF THE WALL AT A SLOPE FLATTER THAN 3:1. IN NO CASE IS THE DUMPED ARMOR STONE TO EXTEND BEYOND THE SEAWARD EXTENT OF THE CURRENT TOE STONES. THE WORK IS TO BE DONE BY AN EXCAVATOR ON TRACKS OPERATING PRIMARILY FROM MID TO LOW TIDES. THE EXCAVATOR WILL BE STAGED PARTIALLY ON EXISTING TOE STONES AND PARTIALLY ON THE ROCKY BEACH. FLOATING BOOMS WITH SILT CURTAINS WILL BE EMPLOYED THROUGHOUT THE CONSTRUCTION.

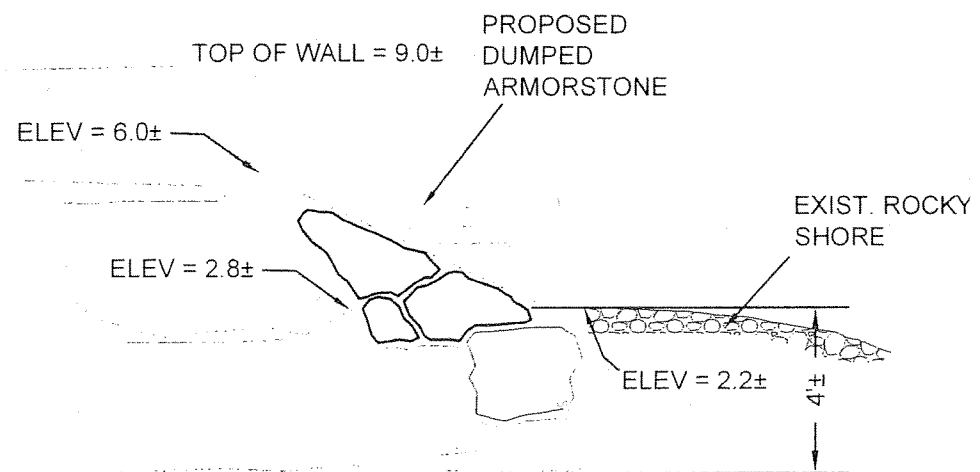
DRAWING TITLE	PROPOSED SEAWALL IMPROVEMENT SHOWING EXAMPLES OF DUMPED ARMOR STONE	
PROJECT	BELLA VISTA ISLAND, FAIRHAVEN, MA	
SCALE: N.T.S.	ISSUED: OCTOBER 3, 2019	
<ul style="list-style-type: none"> • CIVIL ENGINEERING • LAND SURVEYING • ENVIRONMENTAL ASSESSMENT 	 PRIME ENGINEERING <small>INC.</small>	P.O. BOX 1088 LAKEVILLE, MA 02347 TEL: 508.947.0050 FAX: 508.947.2004



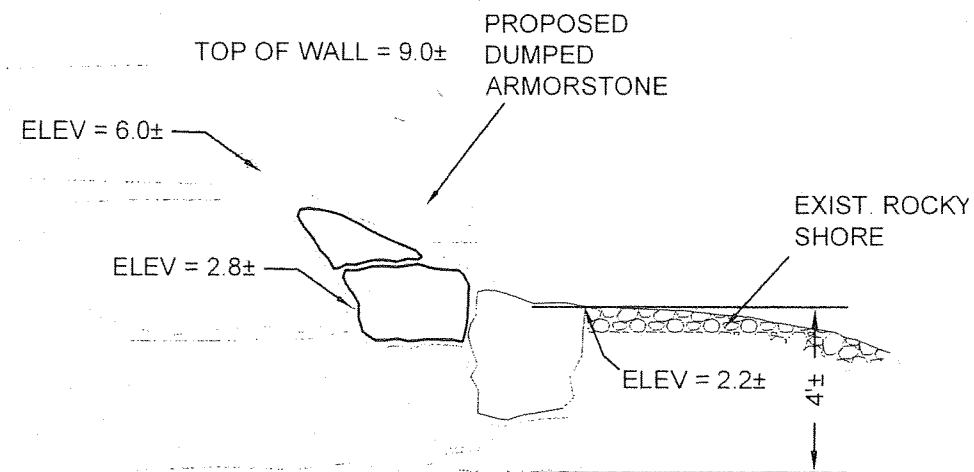
PROPOSED SEAWALL CROSS SECTION
N.T.S.



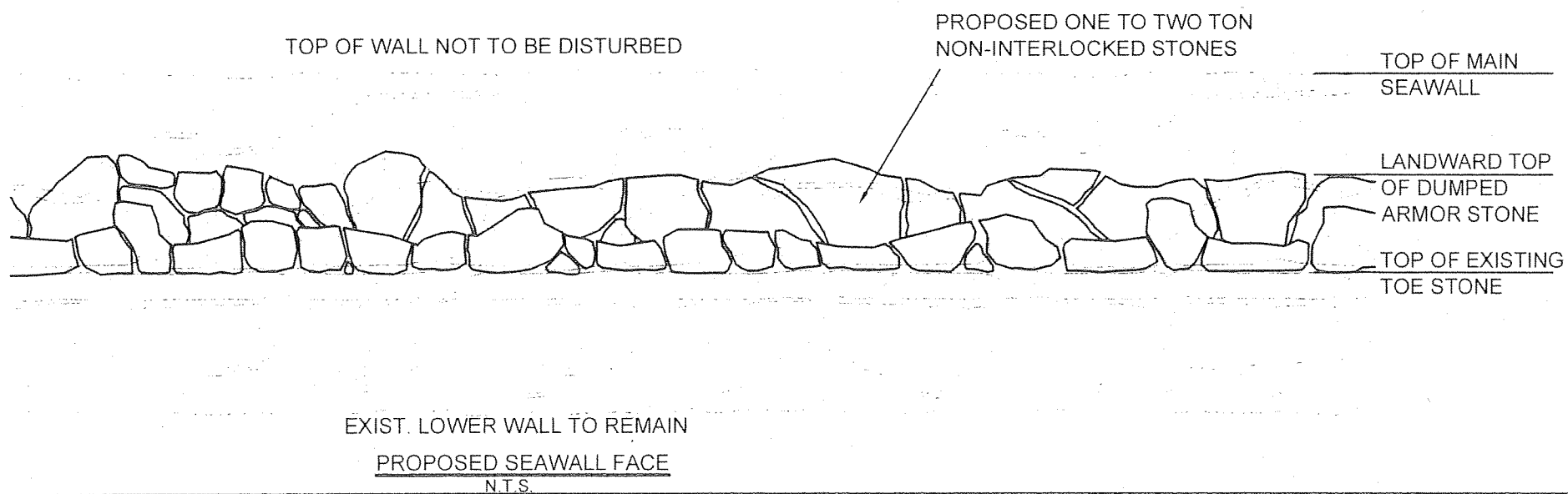
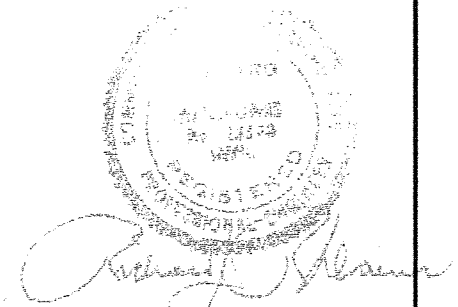
PROPOSED SEAWALL CROSS SECTION
N.T.S.



PROPOSED SEAWALL CROSS SECTION
N.T.S.




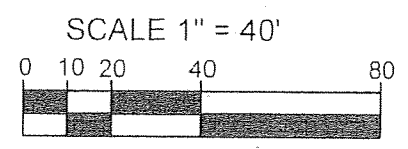
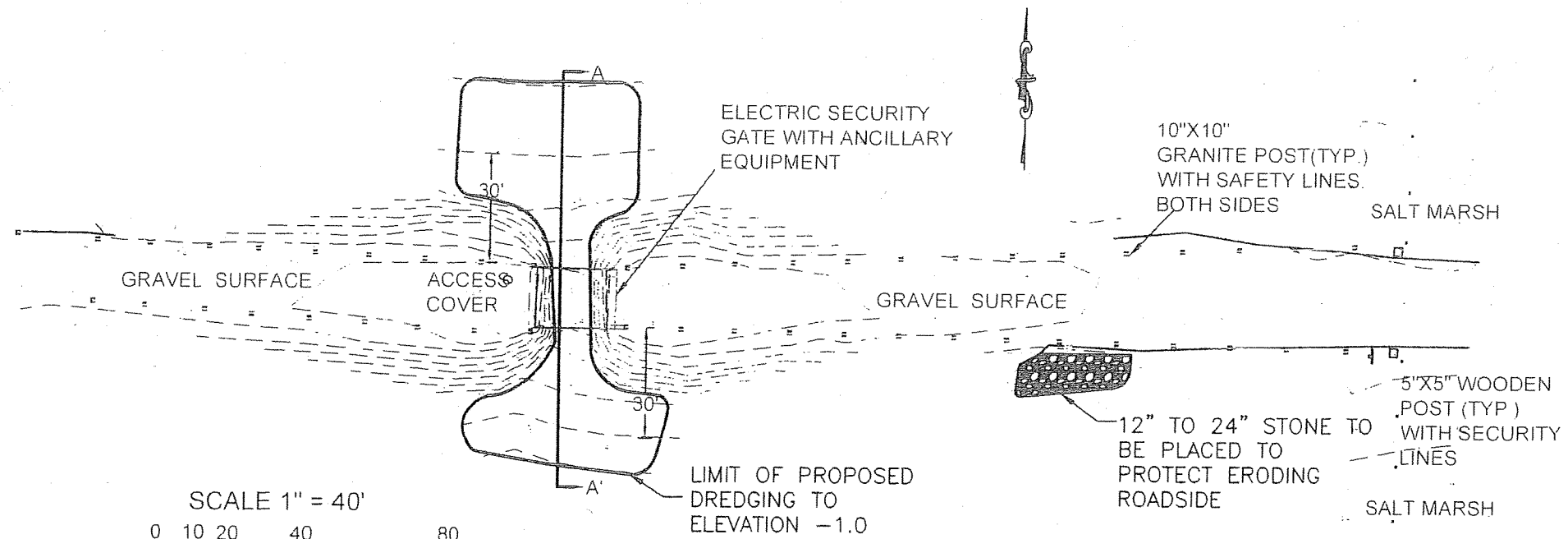
PROPOSED SEAWALL CROSS SECTION
N.T.S.



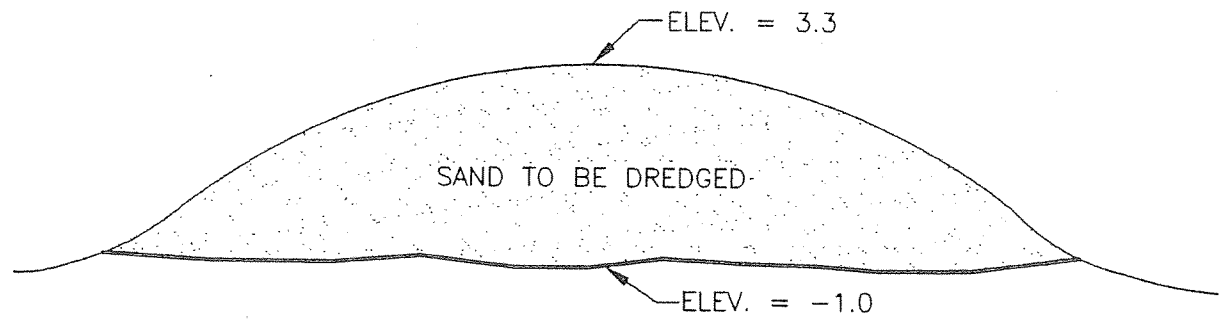
THE GOAL IS TO HAVE THE LOWER WALL AT AN AVERAGE SLOPE OF 2.0 TO 1.0 WITH NO SIGNIFICANT PORTION BEING STEEPER THAN 1.0 TO 1.0 AND NO SIGNIFICANT PORTION BEING FLATTER THAN 3.0 TO 1.0.

EXHIBIT A (SHEET 4 OF 4)

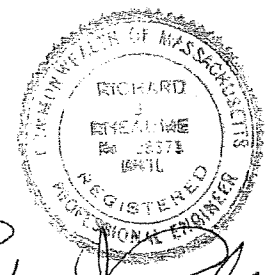
DRAWING TITLE	PROPOSED SEAWALL IMPROVEMENT SHOWING EXAMPLES OF DUMPED ARMOR STONE
PROJECT	BELLA VISTA ISLAND, FAIRHAVEN, MA
SCALE: N.T.S.	ISSUED: OCTOBER 3, 2019
<ul style="list-style-type: none"> CIVIL ENGINEERING LAND SURVEYING ENVIRONMENTAL ASSESSMENT 	 <p>P.O. BOX 1088 LAKEVILLE, MA 02347 TEL: 508.947.0050 FAX: 508.947.2004</p>



CAUSEWAY PROFILE



CROSS SECTION A-A'
NOT TO SCALE



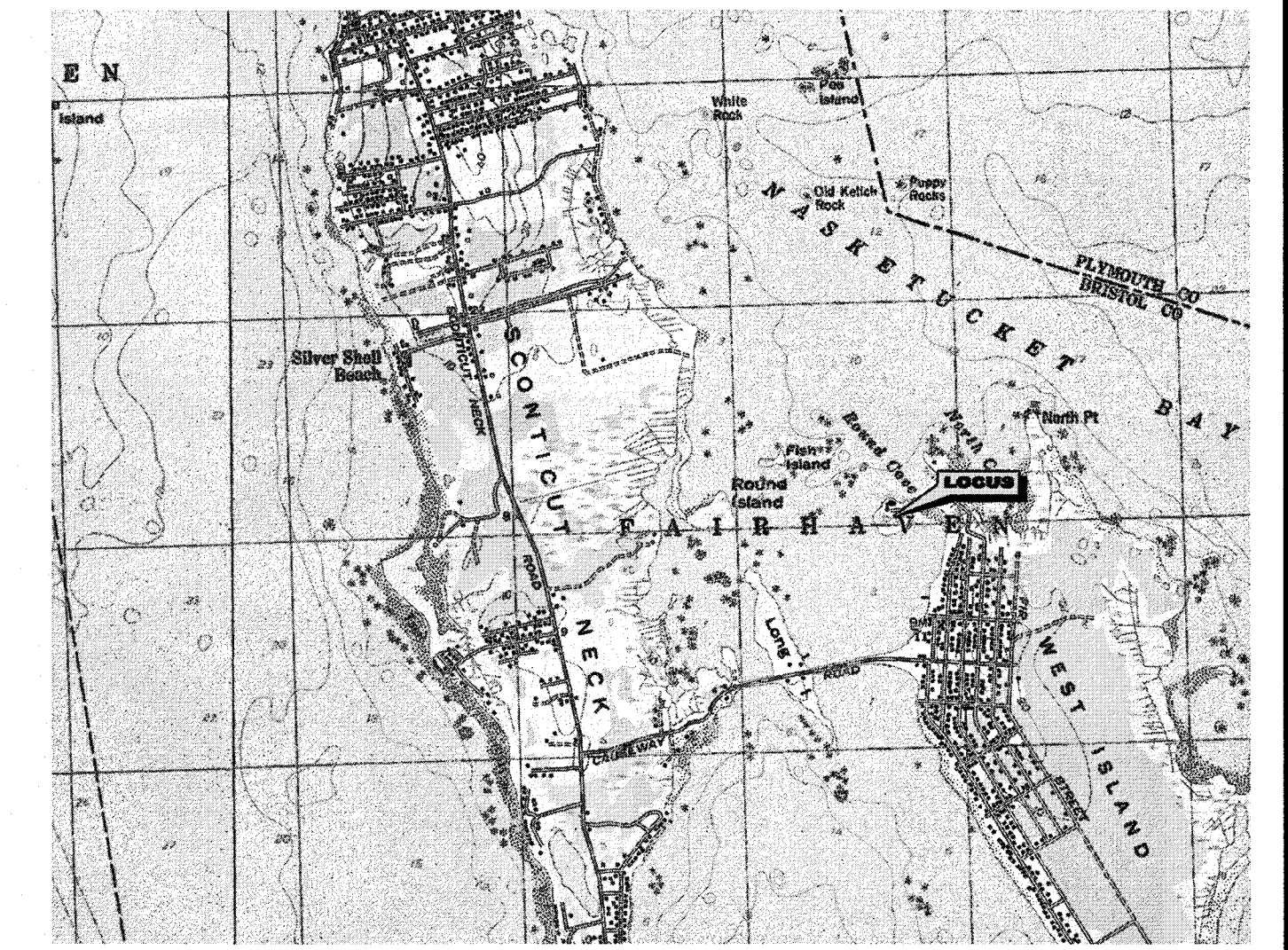
Richard J. Alaimo

CAUSEWAY DETAIL AND DREDGING PLAN ACCOMPANYING THE PETITION OF HEIAM ALSAWALHI PROPOSED GROIN IMPROVEMENTS, SEAWALL PERMITTING AND DREDGING ROUND COVE/NASKETUCKET BAY BELLA VISTA ISLAND, FAIRHAVEN, MA	EXHIBIT B	
	ISSUED: JULY 11, 2019	SHEET 1 OF 1

AMERICAN BEACH GRASS (*AMMOPHILA BREVILIGULATA* [CAPE CULTIVAR]) TO BE PLANTED 18-INCHES ON CENTER 8-10 INCHES DEEP SEPTEMBER-OCTOBER, 2020 AND FERTILIZED AS FOLLOWS:

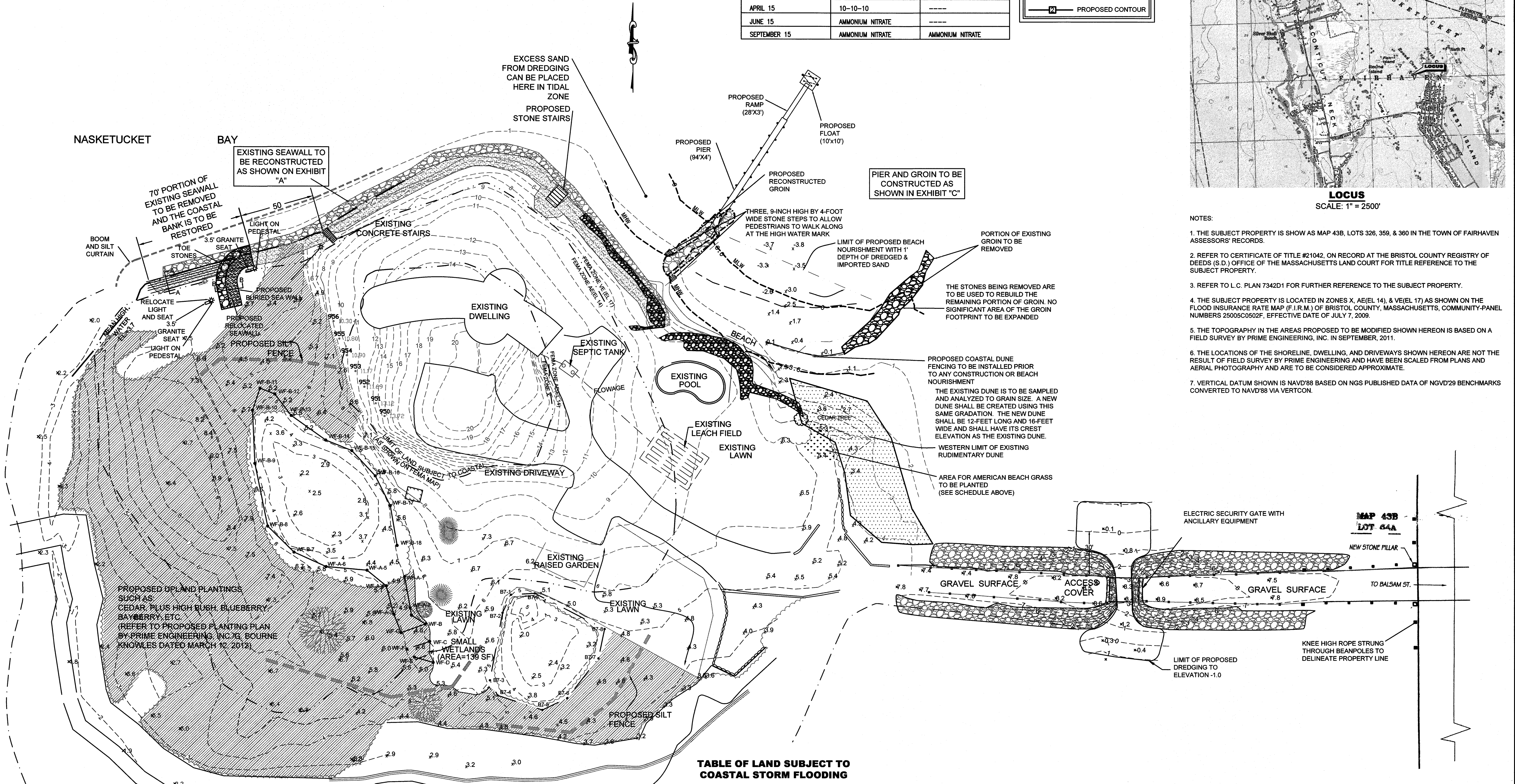
DATE	FIRST YEAR 2021	SECOND YEAR 2022
MARCH 15	----	10-10-10
APRIL 15	10-10-10	----
JUNE 15	AMMONIUM NITRATE	----
SEPTEMBER 15	AMMONIUM NITRATE	AMMONIUM NITRATE

LEGEND	
---	EXISTING CONTOUR
- - -	PROPOSED CONTOUR



LOCUS
SCALE: 1" = 2500'

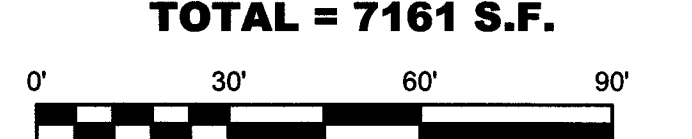
- NOTES:
1. THE SUBJECT PROPERTY IS SHOWN AS MAP 43B, LOTS 326, 359, & 360 IN THE TOWN OF FAIRHAVEN ASSESSORS' RECORDS.
 2. REFER TO CERTIFICATE OF TITLE #21042, ON RECORD AT THE BRISTOL COUNTY REGISTRY OF DEEDS (S.D.) OFFICE OF THE MASSACHUSETTS LAND COURT FOR TITLE REFERENCE TO THE SUBJECT PROPERTY.
 3. REFER TO L.C. PLAN 7342D1 FOR FURTHER REFERENCE TO THE SUBJECT PROPERTY.
 4. THE SUBJECT PROPERTY IS LOCATED IN ZONES X, AE(EL 14), & VE(EL 17) AS SHOWN ON THE FLOOD INSURANCE RATE MAP (F.I.R.M.) OF BRISTOL COUNTY, MASSACHUSETTS, COMMUNITY-PANEL NUMBERS 25005C0502F, EFFECTIVE DATE OF JULY 7, 2009.
 5. THE TOPOGRAPHY IN THE AREAS PROPOSED TO BE MODIFIED SHOWN HEREON IS BASED ON A FIELD SURVEY BY PRIME ENGINEERING, INC. IN SEPTEMBER, 2011.
 6. THE LOCATIONS OF THE SHORELINE, DWELLING, AND DRIVEWAYS SHOWN HEREON ARE NOT THE RESULT OF FIELD SURVEY BY PRIME ENGINEERING AND HAVE BEEN SCALED FROM PLANS AND AERIAL PHOTOGRAPHY AND ARE TO BE CONSIDERED APPROXIMATE.
 7. VERTICAL DATUM SHOWN IS NAVD'88 BASED ON NGS PUBLISHED DATA OF NGVD'29 BENCHMARKS CONVERTED TO NAVD'88 VIA VERTCON.



SHADED AREA IS THE AREA WHERE INVASIVE SPECIES HAVE BEEN REMOVED. IT IS TO BE MOWED A MAXIMUM OF TWICE A YEAR TO A HEIGHT NO LESS THAN 4 INCHES, EXCEPT FOR 3 FOOT WIDE FOOT PATHS WHICH CAN BE MOWED SHORTER AND MORE OFTEN.

TABLE OF LAND SUBJECT TO COASTAL STORM FLOODING

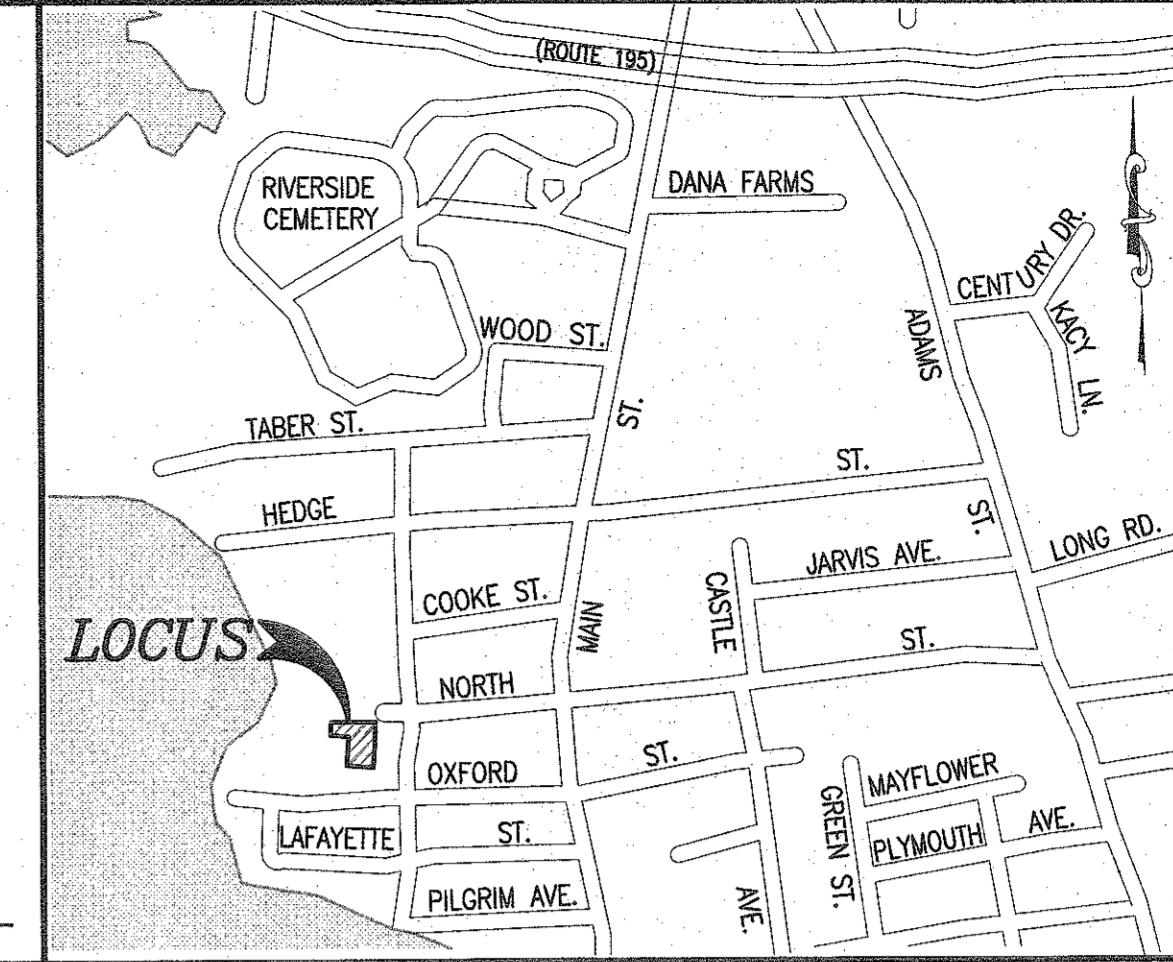
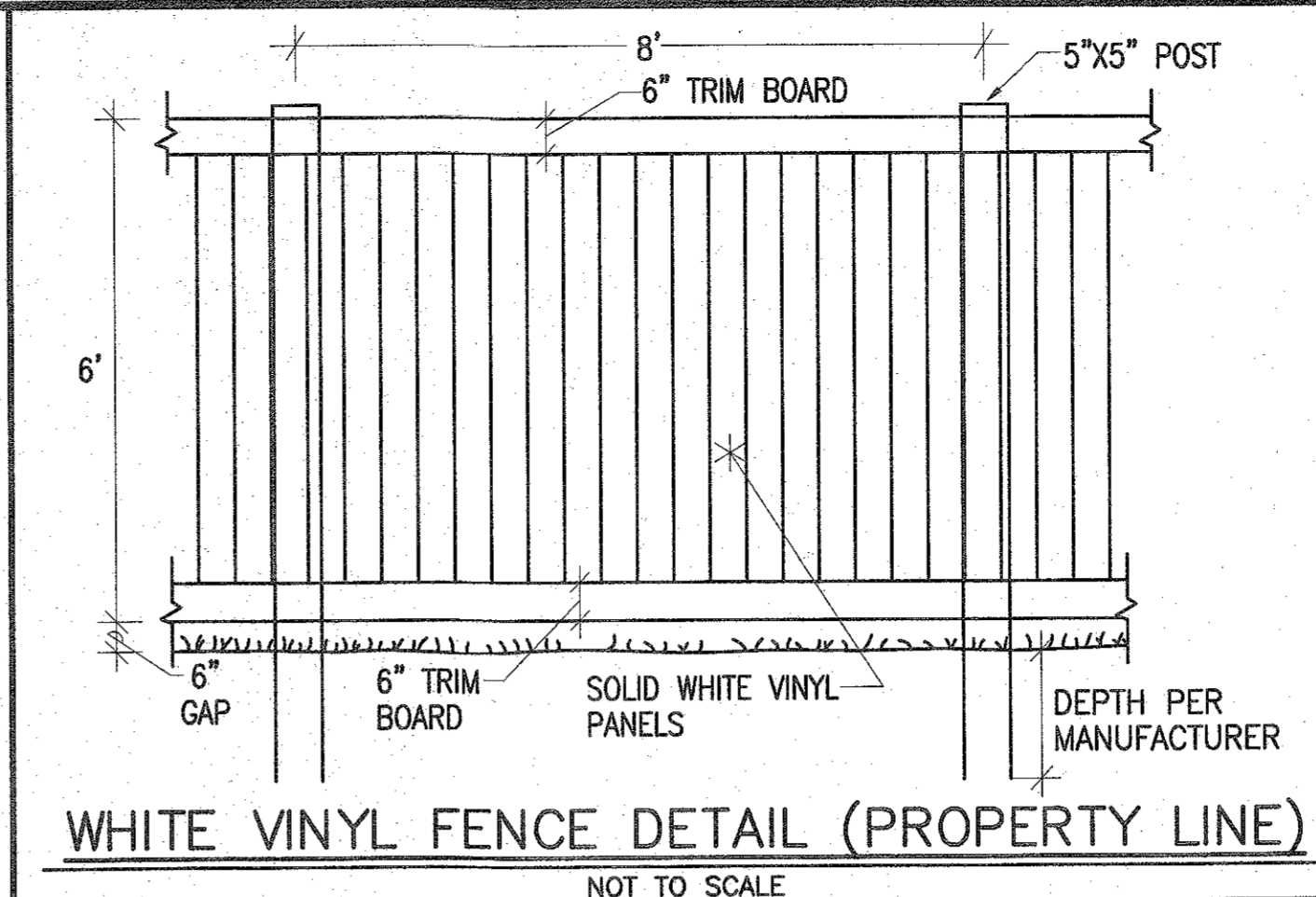
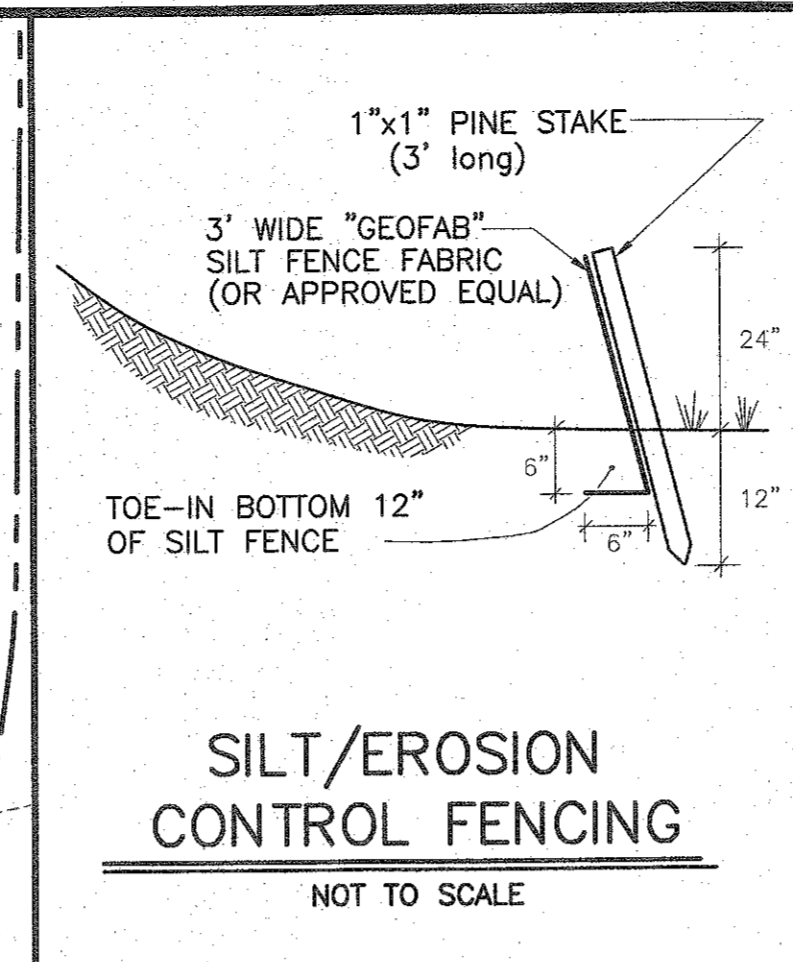
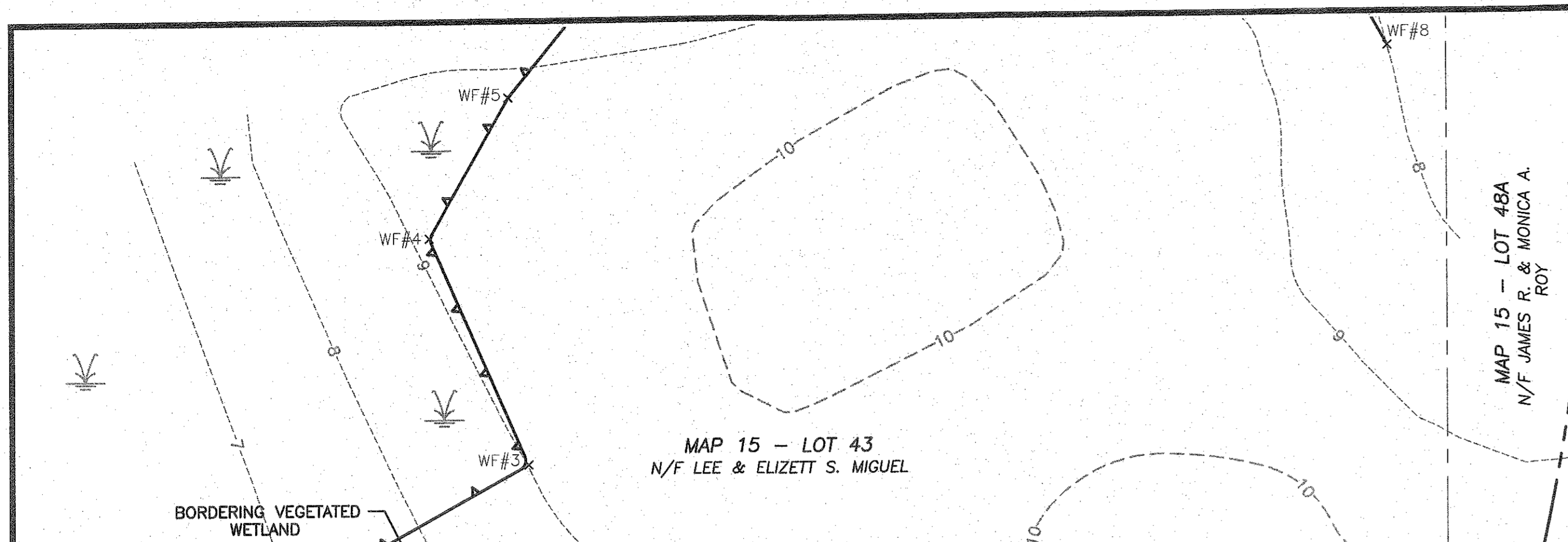
ITEM	AREA
PIER PILE	11
RESTORED COASTAL BANK	700
SEAWALL STONES	1800
GROINS	1050
BEACH	3600
TOTAL	= 7161 S.F.



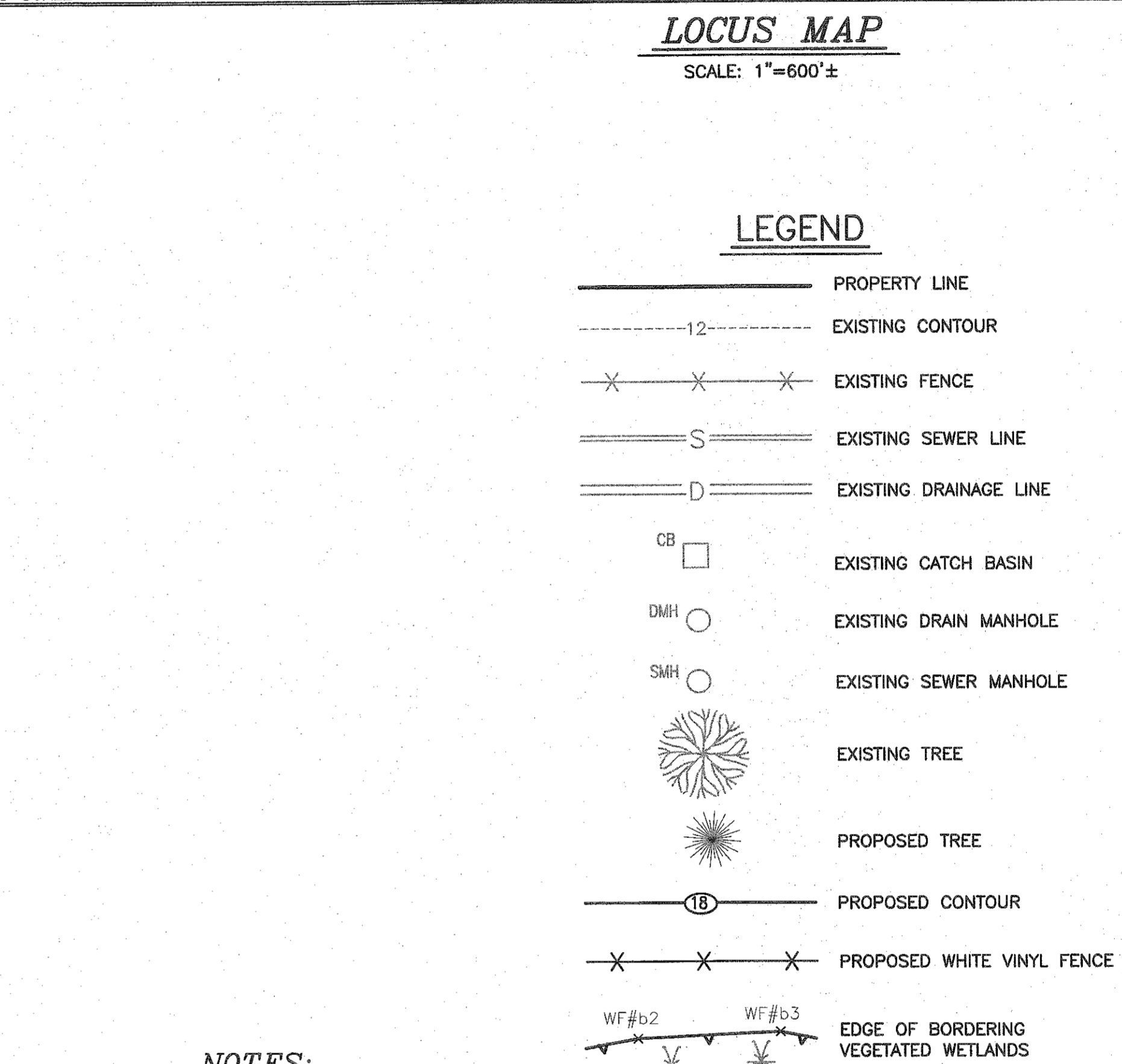
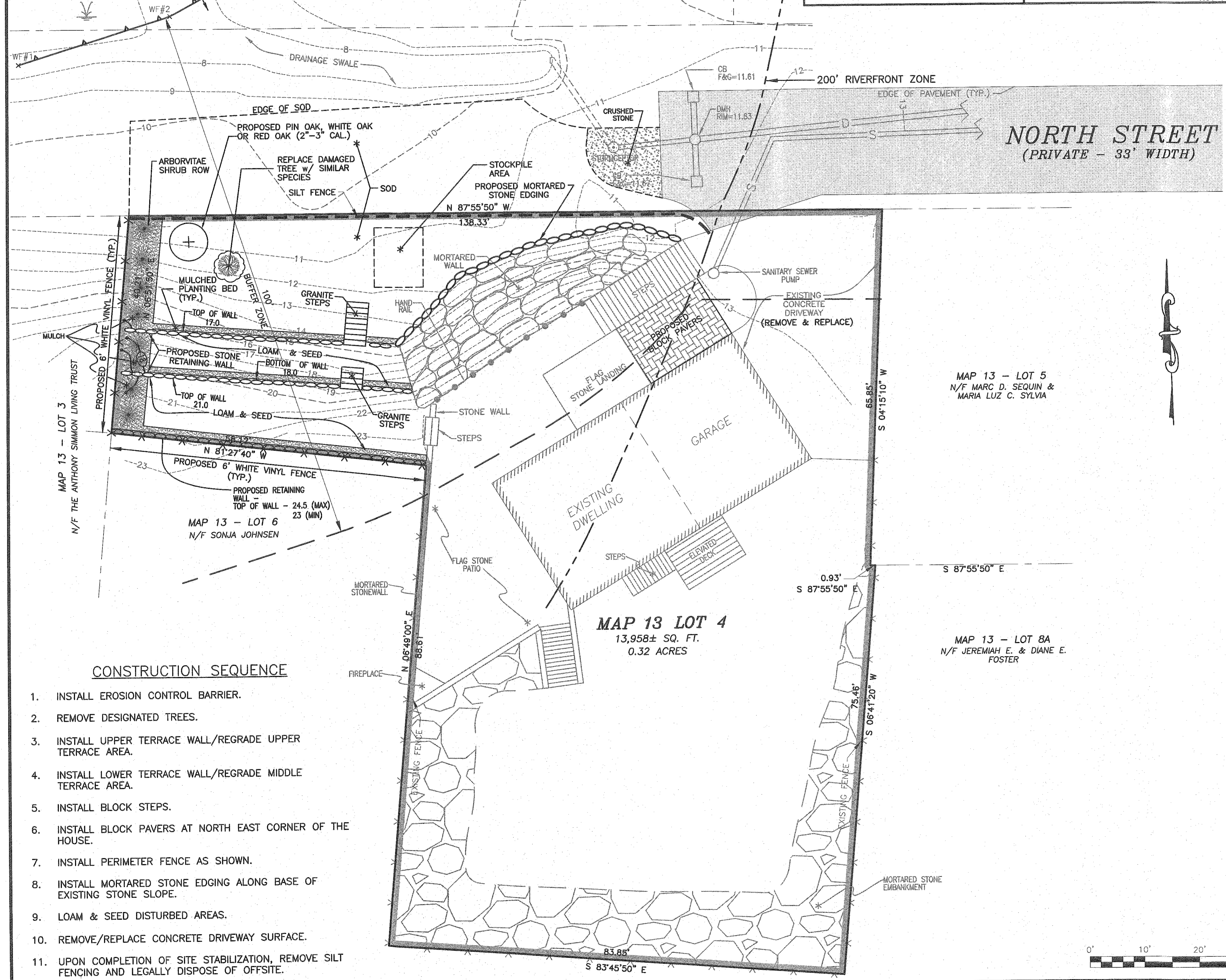
PLAN TO ACCOMPANY NOI

DRAWING TITLE PROPOSED SITE IMPROVEMENTS		SCALE 1" = 30'
PROJECT BELLA VISTA ISLAND FAIRHAVEN MASSACHUSETTS		DATE OCT 20, 2011
CLIENT HEIAM ALSWALHI FAIRHAVEN MASSACHUSETTS		DRAWN BY CSD/JRL
DRAWING NO. 1779-01-01		DESIGNED BY <i>[Signature]</i>
CHECKED BY RJR		SHEET NO. SHEET 1
APPROVED BY RJR		PROJECT NO. 1779-01-01

PRIME ENGINEERING
P.O. BOX 1088
330 BEDFORD ST.
LAKEVILLE, MA 02347
TEL: 508.947.0050
FAX: 508.947.2004



Approved by:	
Checked by:	
Scale:	1" = 600'±
Project:	MAP 13 - LOT 4
Client:	LEE & ELIZETT S. MIGUEL
Project:	3 NORTH STREET
Client:	FAIRHAVEN, MASSACHUSETTS
Project:	LEE & ELIZETT S. MIGUEL
Client:	SITE PLAN



- NOTES:**
- PROJECT IS SUBJECT TO AND ORDER OF CONDITIONS ISSUED BY THE FAIRHAVEN CONSERVATION COMMISSION. CONTRACTOR SHALL ADHERE TO ALL PROVISIONS OF THE ORDER.
 - SILT FENCE EROSION CONTROL SHALL BE INSTALLED PRIOR TO THE START OF CONSTRUCTION.
 - CONCRETE WASH OUT AREA SHALL BE LOCATED OUTSIDE OF THE 100 FOOT WETLAND BUFFER ZONE.
 - SITE SHALL BE MAINTENANCE CLEAN AND ALL DEBRIS SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF OFFSITE.
 - ALL DISTURBED AREAS SHALL BE STABILIZED UPON COMPLETION OF CONSTRUCTION.
 - PROPOSED LOT COVERAGE - 50%
 - ESTIMATED FILL QUANTITY, INCLUDING LOAM - 18CY
 - CONCRETE FOR THE STONE EDGING AND STOPS SHALL BE SMALL QUANTITIES MIXED ONSITE AND CONVEYED VIA WHEEL BARREL TO THE CONSTRUCTION AREA.
 - CONSTRUCTION EQUIPMENT SHALL BE LIMITED TO A SMALL BACKHOE AND/OR BOBCAT STYLE MACHINE.

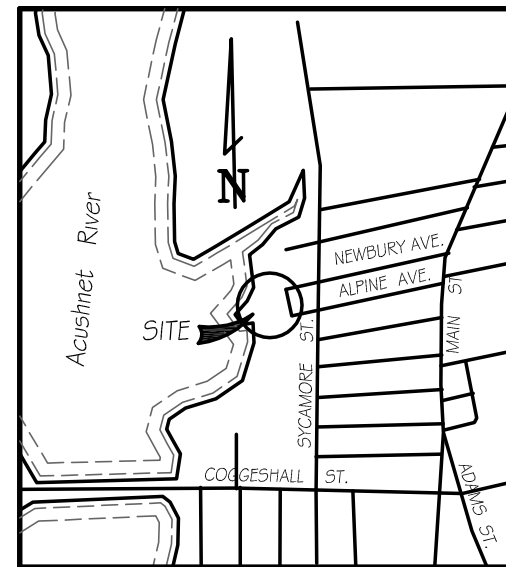
- CONSTRUCTION SEQUENCE**
- INSTALL EROSION CONTROL BARRIER.
 - REMOVE DESIGNATED TREES.
 - INSTALL UPPER TERRACE WALL/REGRADE UPPER TERRACE AREA.
 - INSTALL LOWER TERRACE WALL/REGRADE MIDDLE TERRACE AREA.
 - INSTALL BLOCK STEPS.
 - INSTALL BLOCK PAVERS AT NORTH EAST CORNER OF THE HOUSE.
 - INSTALL PERIMETER FENCE AS SHOWN.
 - INSTALL MORTARED STONE EDGING ALONG BASE OF EXISTING STONE SLOPE.
 - LOAM & SEED DISTURBED AREAS.
 - REMOVE/REPLACE CONCRETE DRIVEWAY SURFACE.
 - UPON COMPLETION OF SITE STABILIZATION, REMOVE SILT FENCING AND LEGALLY DISPOSE OF OFFSITE.

No.	Date	Revision Description
5	DEC 13, 2019	ADD ADDITIONAL ARBORVITAE PLANTING
4	NOV 20, 2019	ADD SOD/CRUSHED STONE AS SHOWN
3	JUNE 3, 2019	ADD RETAINING WALL/SUPPLEMENTAL PLANTINGS
2	AUG 29, 2018	REVISE PER CONSERVATION COMMENTS
1	AUG 8, 2018	REVISE BASE DATA/ELIMINATE POOL

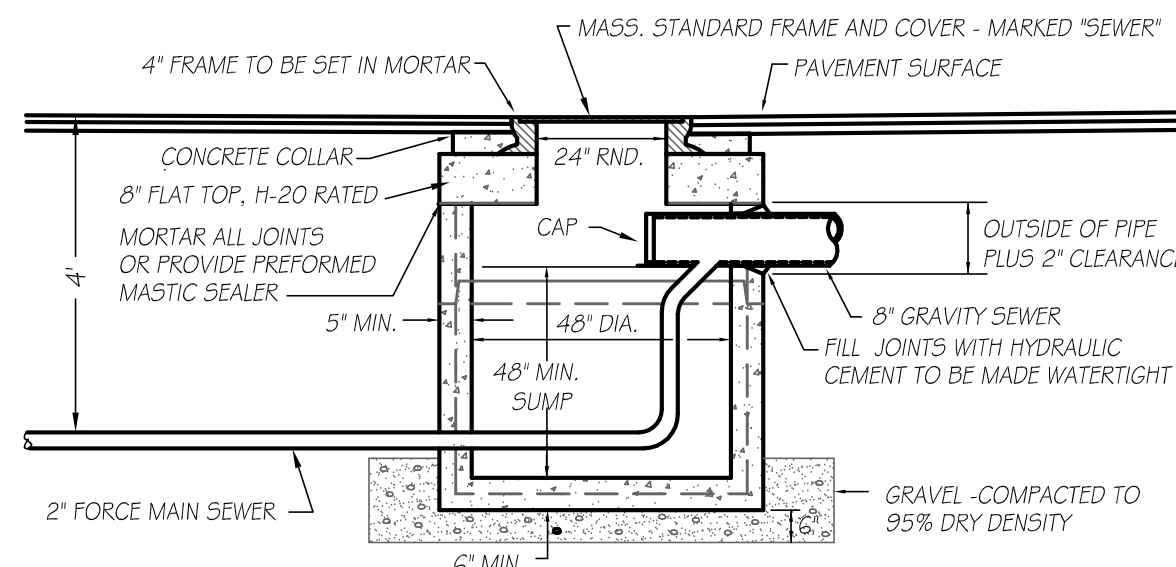
SITEC, Inc.
 449 Falmouth Corner Road
 Fairhaven, MA 02719
 (508) 998-2125
 FAX (508) 998-7554
 WWW.SITEC-ENGINEERING.COM

SITEC
 Civil and Environmental Engineering
 Land Use Planning

Acad No. FVN 15-5954 SP.DWG
 File No. 15-5954

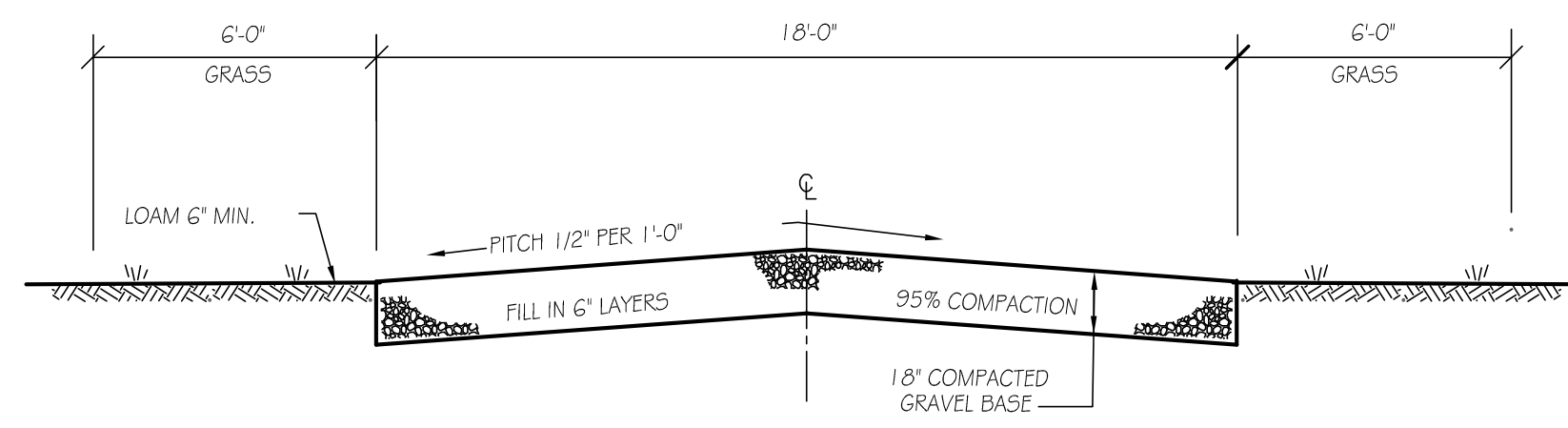


LOCUS PLAN
1" = 2000' ±



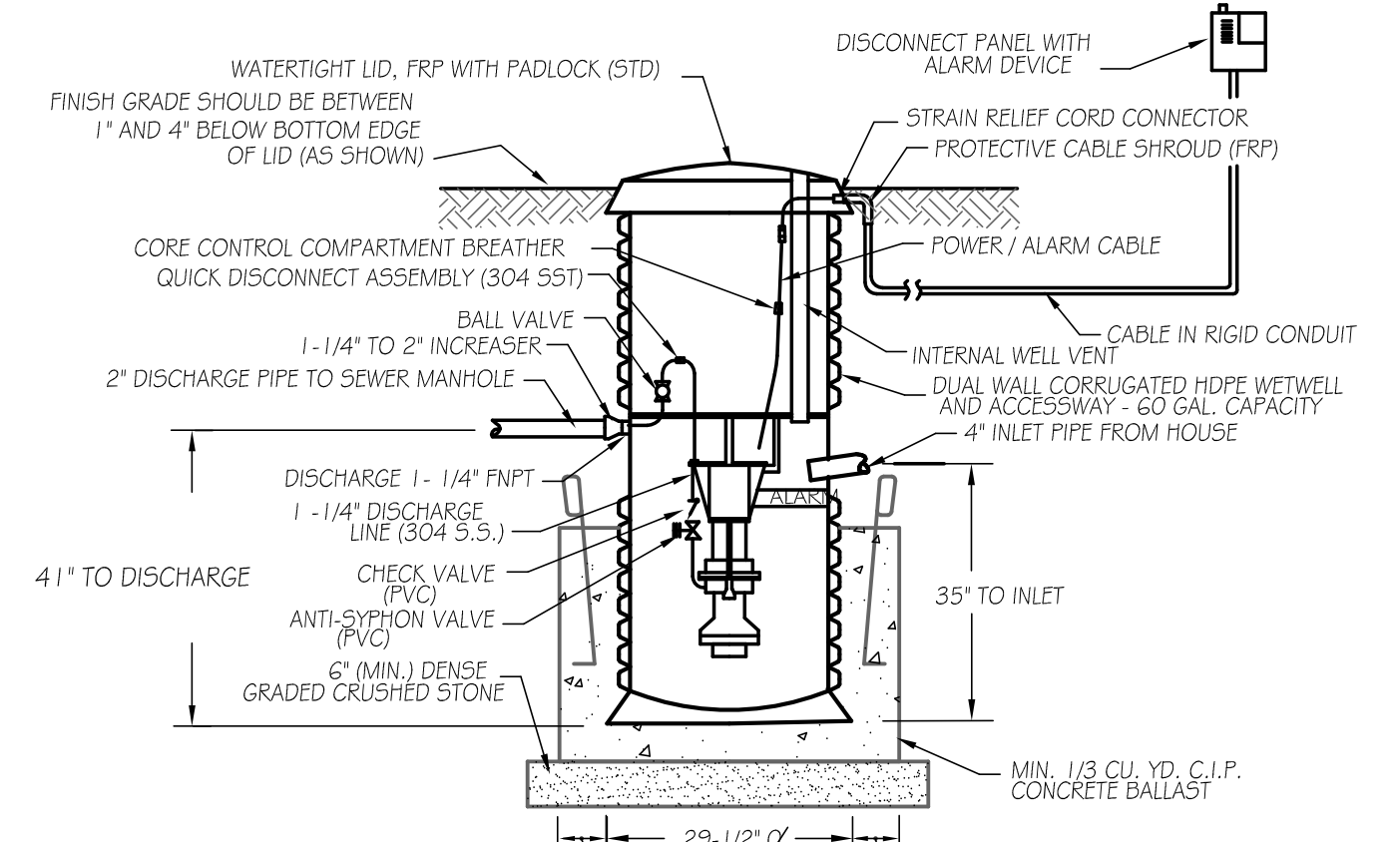
SEWER MANHOLE DETAIL
NOT TO SCALE

NOTE: BARRELS & CONES SHALL BE MANUFACTURED IN ACCORDANCE WITH A.S.T.M. STANDARD SPECIFICATIONS FOR REINFORCED CONCRETE MANHOLE RISERS & TOPS DESIGNATION C478-63T.

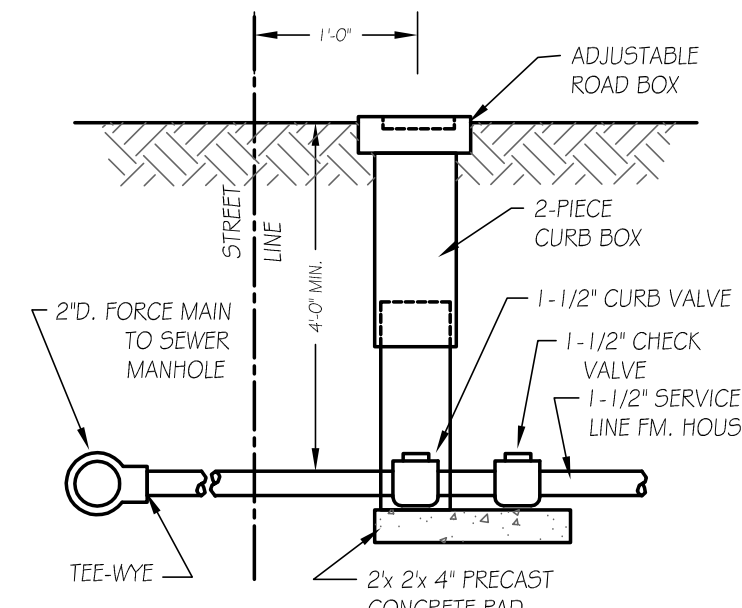


GRAVEL ROADWAY SECTION
NOT TO SCALE

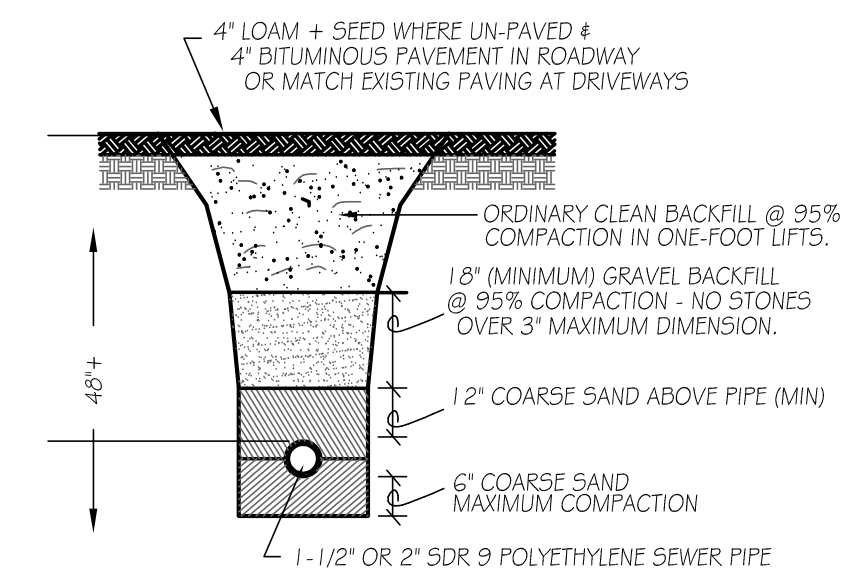
NOTES:
1. REMOVE EXISTING TOPSOIL AND SUBSOIL UNDER PROPOSED ROADWAY AND FILL TO SUBGRADE WITH GRAVEL BORROW AND COMPACT TO 95% DENSITY.
2. COMPACTED GRAVEL BASE SHALL CONFORM TO MASS. DFW SPEC. M-1.03.0 FOR GRAVEL BORROW. COMPACT GRAVEL BASE TO 95% DENSITY.



TYPICAL GRINDER PUMP DETAIL
(NOT TO SCALE) USE ENVIRONMENT ONE MODEL No. GP 2010



CURB VALVE & RISER
NOT TO SCALE



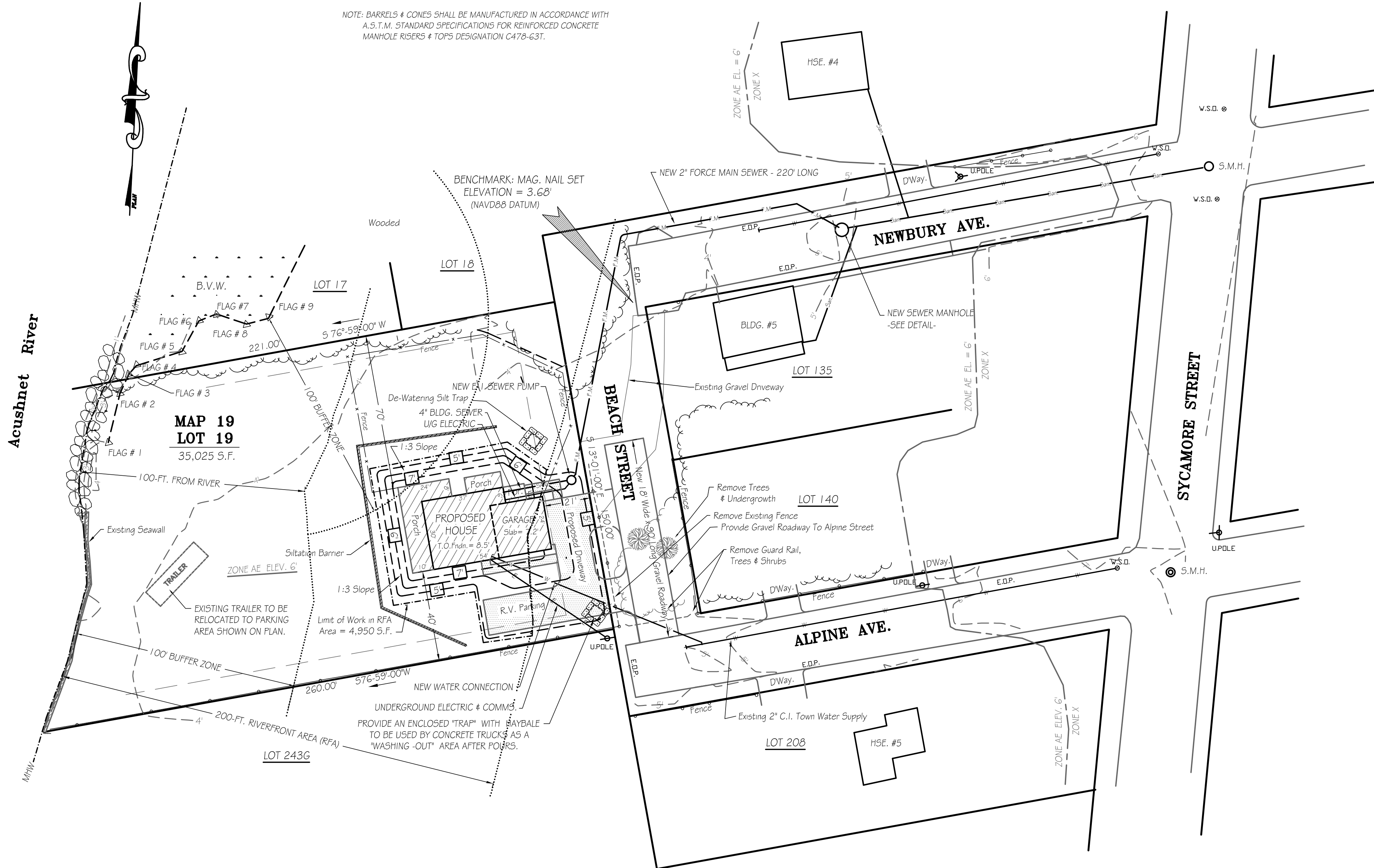
TRENCH PIPE BEDDING DETAIL
NOT TO SCALE

SPECIFICATIONS:

- SEWER PIPE SHALL BE ENDOPURE® S.D.R. 9 POLYETHYLENE PIPE RATED FOR 200 PSI, LAID TRUE TO GRADE. PIPE SHALL BE BEDDED IN COMPACTED SAND AS SHOWN ON BEDDING DETAIL. PIPE SHALL BE INSPECTED IN PLACE BY THE ENGINEER AND THE FAIRHAVEN B.P.W. REPRESENTATIVE PRIOR TO FINAL COVER.
- NEW GRINDER PUMP PACKAGE SHALL BE "E-ONE" PUMP BY ENVIRONMENT ONE CORPORATION WITH PROGRESSIVE CAVITY PUMP WITH STAINLESS STEEL ROTOR AND 1-HP 1725 RPM MOTOR, SELF-CLEANING STATIC LEVEL SENSORS.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS IN THE FIELD AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- THE CONTRACTOR SHALL MAINTAIN A MINIMUM CLEARANCE BETWEEN NEW SEWER SERVICE AND EXISTING UNDERGROUND UTILITIES OF AT LEAST 2 FEET. WHERE NEW SEWER CROSSES OTHER UTILITIES WITHIN 2 FEET, BACKFILL WITH CRUSHED STONE BETWEEN THE PIPES.

GENERAL NOTES:

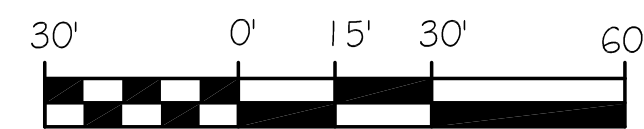
- NOTE A: SUBJECT LOCATION IS SHOWN AS LOT 19 OF ASSESSOR'S MAP 19. ZONING IS GENERAL RESIDENCE - RB; MIN. LOT AREA = 15,000 S.F.; MIN. FRONTAGE = 100 FT. SETBACKS: 20-FT. FRONT, 10-FT. SIDE & 30-FT. REAR. MAX. BLDG. COVERAGE = 30%; MAX. LOT COVERAGE = 50%. PROPOSED LOT COVERAGE = (HOUSE @ 2,200 SF) / 35,025 SF = 6.5%. PROPOSED BUILDING COVERAGE = (HOUSE + DRIVEWAY + WALKS @ 4,180 SF) / 35,025 SF = 11.9%.
- NOTE B: THE DWELLING SHOWN HEREON LIES WITHIN A SPECIAL FLOOD HAZARD AREA (ZONE AE, EL. 6) AS DELINEATED ON F.E.M.A. COMMUNITY PANEL NO. 2500500391G DATED JULY 16, 2014.
- NOTE C: THE OWNERS PROPOSE TO PLACE FILL WITHIN THE FLOOD ZONE SUBJECT TO APPROVAL OF A CONDITIONAL LETTER OF MAP REVISION BASED ON FILL (CLOMR-F) TO BE REQUESTED FROM F.E.M.A. UPON THE ISSUANCE OF AN ORDER OF CONDITIONS FROM THE FAIRHAVEN CONSERVATION COMMISSION. ESTIMATED FILL QUANTITY = 300 CU.YDS.
- NOTE D: THE SUBJECT PARCEL LIES WITHIN THE RIVER FRONT AREA (RFA) OF THE ACUSHNET RIVER. RFA = 32,110 S.F. FOR LOT RECORDED PRIOR TO 10/6/1997. MAX. ALTERATION WITHIN RFA = 5,000 S.F. DEED REFERENCE FOR SUBJECT PARCEL: BOOK 10950 PAGE 167 (11/08/2015) FOR LOT NOS. 318, 319, 320, 321, 322, 334, 335, 336, 337 & 338 AS SHOWN ON "PLAN OF OXFORD TERRACE" DATED MAY 20, 1904, AND RECORDED IN PLAN BOOK 4 PAGE 61.
- NOTE E: NOTIFY DIG-SAFE CENTER, LOCAL UTILITIES AND FAIRHAVEN B.P.W. 72 HOURS PRIOR TO START OF WORK.



SITE PLAN

SCALE: 1" = 30 FT.

GRAPHIC SCALE

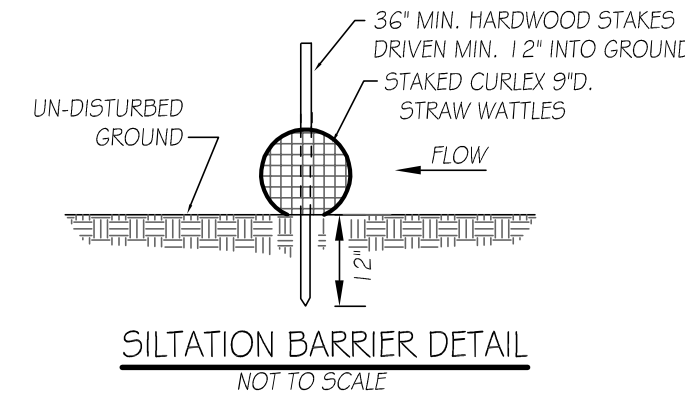


(IN FEET)
1 inch = 30 ft.

LEGEND:

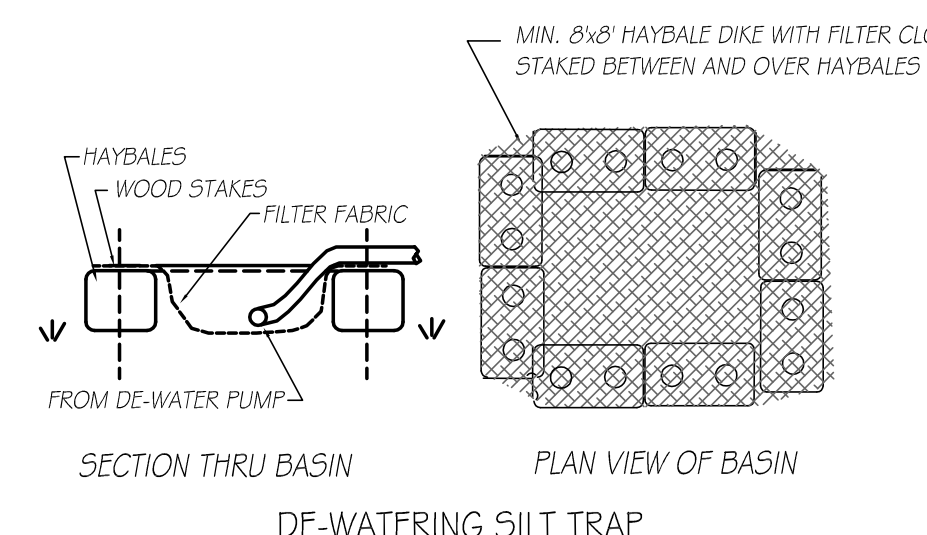
- EXISTING CONTOURS: [Symbol]
- PROPOSED CONTOURS: [Symbol]
- EDGE OF WETLANDS: [Symbol]
- LIMIT OF BUFFER ZONE: [Symbol]
- LIMITS OF F.E.M.A. ZONES: [Symbol]

- SPOT ELEVATIONS: [Symbol]
- TEST PIT LOCATION: [Symbol]
- SEPTIC TANK: [Symbol]
- DELINEATION FLAG: [Symbol]



SILTATION BARRIER DETAIL
NOT TO SCALE

NOTE: STRAW WATTLES SHALL BE COMPOSED OF STRAW FIBERS ENCASED IN DURABLE BIODEGRADABLE NETTING.



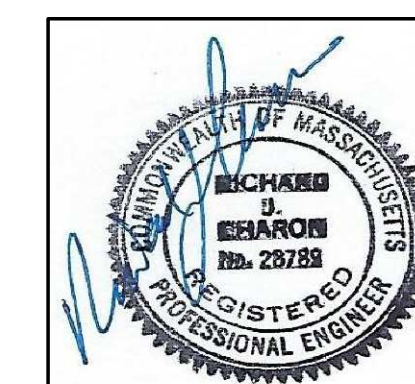
SECTION THRU BASIN
PLAN VIEW OF BASIN
DE-WATERING SILT TRAP
NOT TO SCALE

NOTE:
1. ALL EXCAVATION BELOW THE GROUND WATER TABLE SHALL BE DE-WATERED WITH PUMP DISCHARGE TO DE-WATERING SILT TRAP.

D.E.P. FILE NO.:

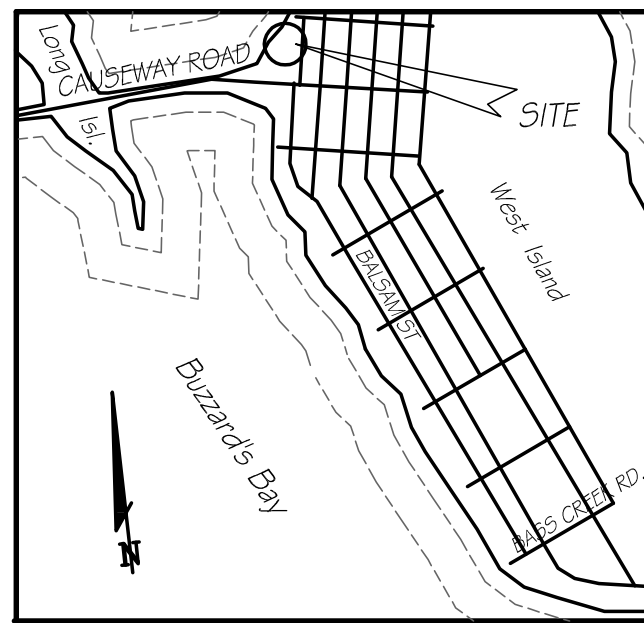
PLAN OF SITE, PROPOSED HOUSE & UTILITY CONNECTIONS
PREPARED FOR
DANIEL E. & PAMELA J. CORCORAN
MAP 19 LOT 19 - BEACH STREET
FAIRHAVEN, MASS.

CAI Charon Associates, Inc.
Consulting Engineers
323 Neck Road - Rochester, MA 02770
Tel: 508-763-8362 Fax: 508-763-9582



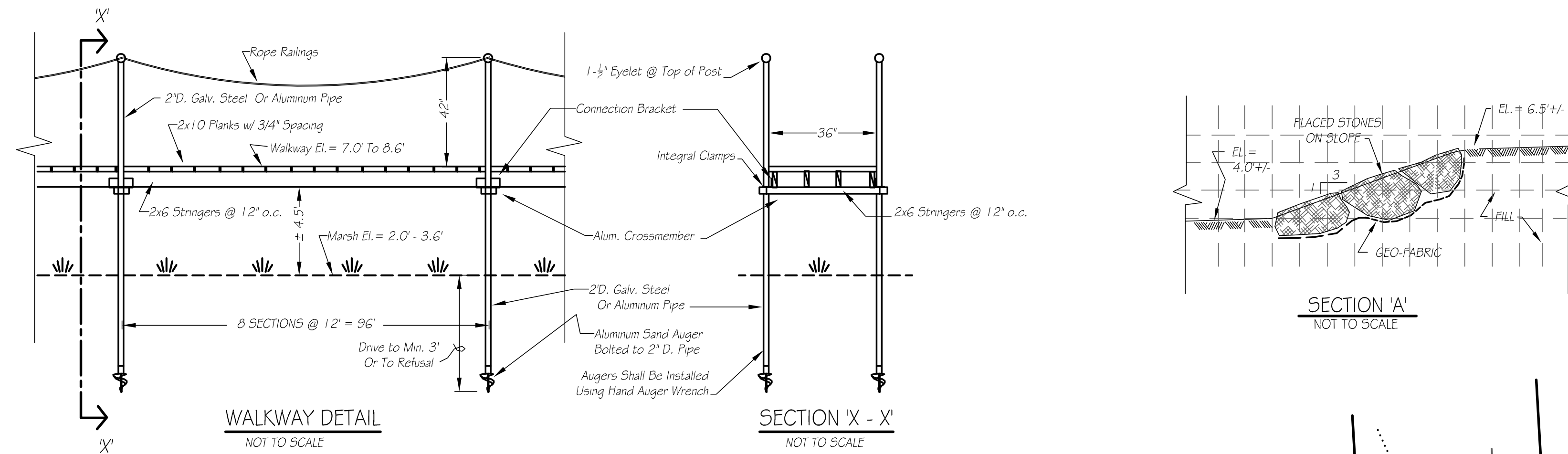
SCALE: AS NOTED
DATE: DECEMBER 30, 2019
REV. 1: JANUARY 21, 2020 LIMIT OF SILTATION BARRIER AND CONCRETE WASH-OUT

DWG. NO.
L-1



LOCUS PLAN
SCALE: 1" = 2000±

BUZZARDS BAY DATA FOR:
 LONGITUDE -70.837644
 LATITUDE 41.538249
 MEAN HIGH WATER 1.801 FT.
 MEAN LOW WATER -1.961 FT.

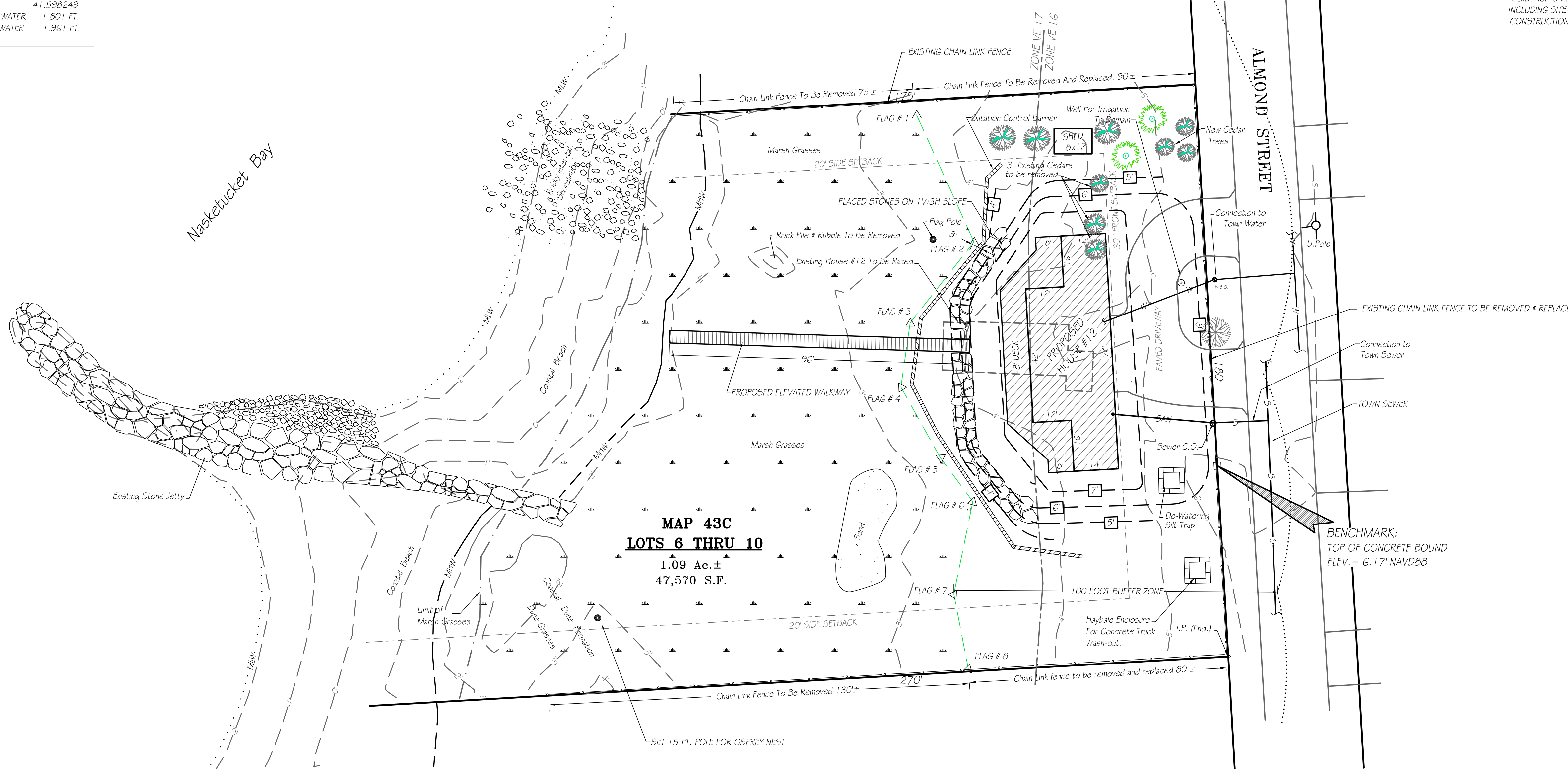


GENERAL NOTES:

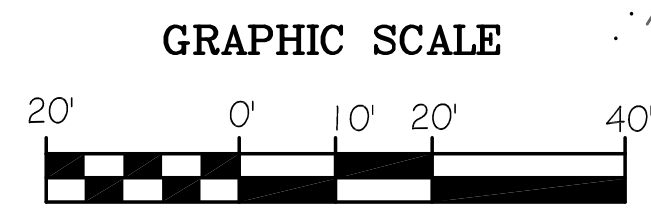
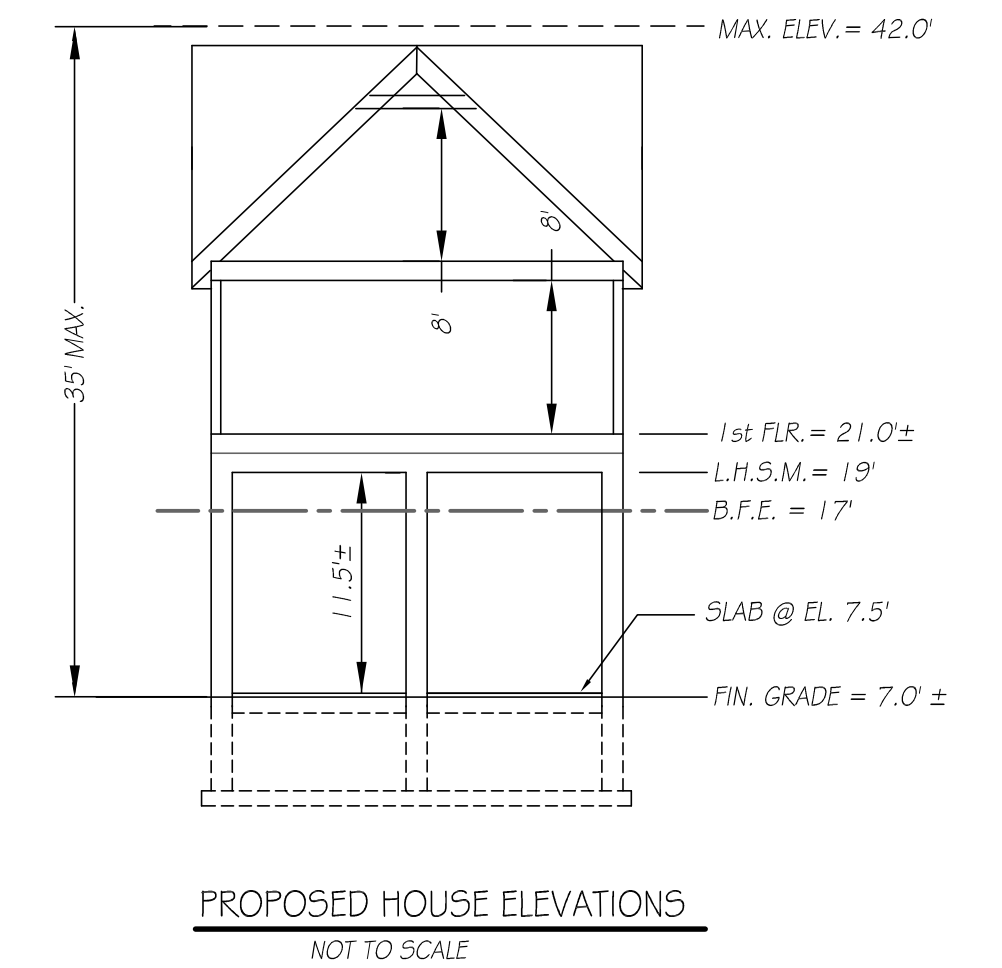
- THIS PARCEL IS SHOWN AS LOT 8 OF ASSESSORS MAP 43B.
- THE DWELLING SHOWN HEREON LIES WITHIN A SPECIAL FLOOD ZONE AREA, F.E.M.A. ZONE VE, EL. 17' AS DELINEATED ON F.E.M.A. COMMUNITY PANEL 25005G0502F DATED JULY 7, 2009.
- DEED REFERENCE: L.C. CERT. 12109.
- ZONING DISTRICT: RURAL RESIDENCE WITH MIN. 30,000 S.F. AREA, 140' FRONTAGE
 CURRENT BUILDING SETBACKS: FRONT = 30', SIDE = 20', REAR = 30'; MAX. BLDG. COVERAGE = 15%; MAX. LOT COVERAGE = 25%
 EXISTING BLDG. COVERAGE = (HOUSE @ 722 S.F.) = 722 S.F. / 47,570 S.F. = 1.5% ±
 EXISTING LOT COVERAGE = (BLDG'S. @ 722 S.F.) = 722 S.F. / 47,570 S.F. = 1.5% ±
 PROPOSED HOUSE COVERAGE = 2,270 S.F. / 47,570 S.F. = 4.8%
 PROPOSED DRIVEWAY COVERAGE = 1,550 S.F. / 47,570 S.F. = 3.3%
 PROPOSED BLDG. COVERAGE = (NEW HOUSE @ 2,270 S.F.) + (SHED @ 80 S.F.) = 2,350 S.F. / 47,570 S.F. = 4.9%
 PROPOSED LOT COVERAGE = (BLDG'S. @ 2,350 S.F.) + (DRIVEWAY @ 1,550 S.F.) = 3,900 S.F. / 47,570 S.F. = 8.2%
 WETLANDS DELINEATION PERFORMED BY THE GARRETT GROUP 280 BLACK CAT ROAD, PLYMOUTH, MA, 02360

SCOPE OF WORK:

THE SCOPE OF WORK INCLUDES REMOVAL OF EXISTING HOUSE & FOUNDATION, CONSTRUCTION OF NEW RESIDENCE ON FLOOD ZONE-COMPLIANT FOUNDATION PER MASS. STATE BUILDING CODE 9TH EDITION, INCLUDING SITE WORK AND CONNECTIONS TO TOWN SEWER AND WATER & OTHER UTILITIES; AND CONSTRUCTION OF NEW ELEVATED WALKWAY OVER MARSH.

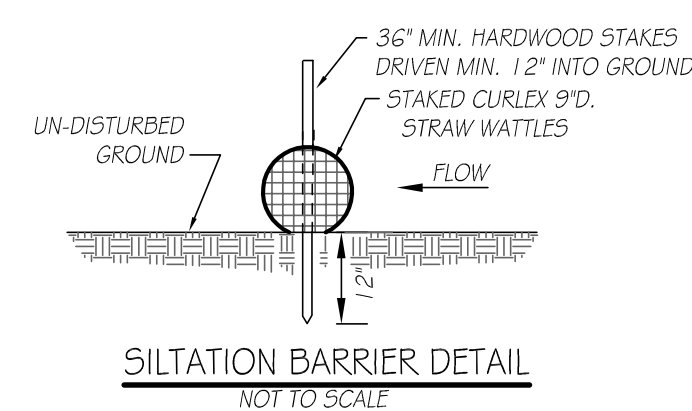


SITE PLAN
SCALE: 1" = 20 FEET

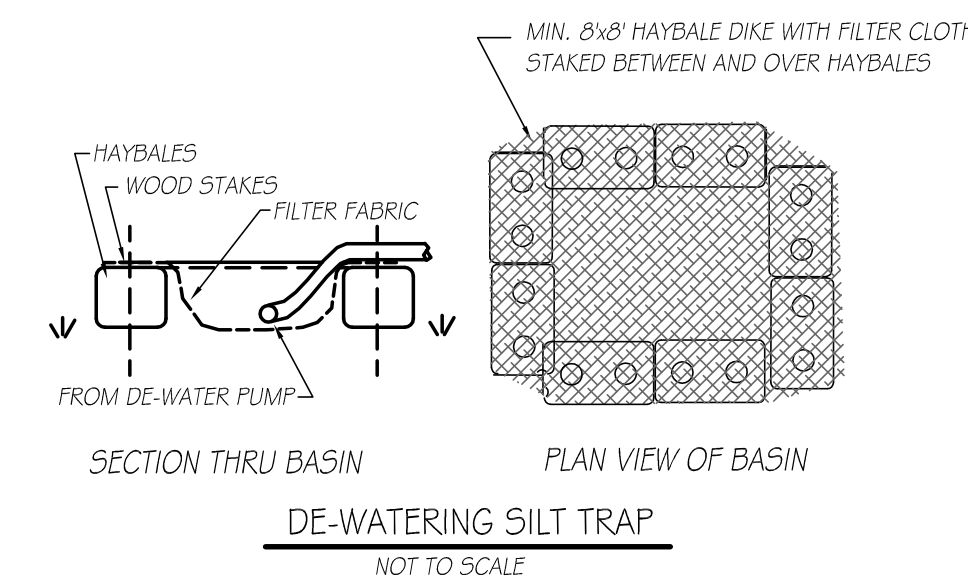


LEGEND:

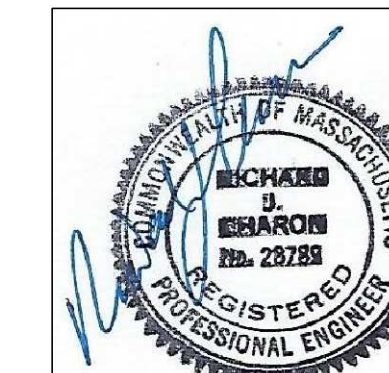
- EXISTING CONTOURS: 10'
- PROPOSED CONTOURS:
- EDGE OF WETLANDS:
- LIMIT OF BUFFER ZONE:
- LIMITS OF F.E.M.A. ZONES:
- SPOT ELEVATIONS: 53.9
- TEST PIT LOCATION:
- SEPTIC TANK:
- DELINEATION FLAG:



NOTE: STRAW WATTLES SHALL BE COMPOSED OF STRAW FIBERS ENCASED IN DURABLE BIODEGRADABLE NETTING.



NOTE: 1. ALL EXCAVATION BELOW THE GROUND WATER TABLE SHALL BE DE-WATERED WITH PUMP DISCHARGE TO DE-WATERING SILT TRAP.



D.E.P. FILE NO.:

PLAN OF SITE, ELEVATED WALKWAY & PROPOSED RESIDENCE PREPARED FOR
PAUL R. & DEBORAH A. CASEY
 12 ALMOND STREET
 FAIRHAVEN, MASS.

CAI Charon Associates, Inc.
 Consulting Engineers
 323 Neck Road - Rochester, MA 02770
 Tel: 508-763-8362 Fax: 508-763-9582

SCALE: AS NOTED
 DATE: DECEMBER 24, 2019
 REV. 1: JAN. 21, 2020

DWG. NO.
L-1