Nutter

RECEIVED
APR 24 2015
CAPE COD COMMISSION

Eliza Cox
Direct Line: (508) 790-5431
Fax: (508) 771-8079
E-mail: ecox@nutter.com

April 24, 2015
0106967-00002

Jonathan Idman, Esq.
Chief Regulatory Officer
Cape Cod Commission
3225 Main Street
PO Box 226
Barnstable, MA 02630

Re: Paesano Realty Trust – 123 Waterhouse Road, Bourne
Response to Water Resources Discussions

Dear Jon:

Following our discussions regarding the above matter, it is the purpose of this correspondence to submit additional information in response to Commission staff's preliminary comments in the area of Water Resources. The comments from Commission staff are focused in terms of two areas: Nitrogen Loading and Storm-water. Each topic is addressed separately below.

With reference to Nitrogen Loading, I enclose updated Nitrogen Loading Calculations confirming that with installation of the I/A system, together with the proposed additional flows (for a total flow of 1,862 gpd), the total site nitrogen is 4.98 parts per million ("ppm"), in compliance with the 2002 RPP's 5ppm standard. This proposed condition represents a significant reduction in total nitrogen as compared to current conditions. Under existing conditions, with a total flow of 1,332 gallons per day and a standard Title 5 septic system, the nitrogen load is somewhere in the range of 6.99pmm to 12.37ppm.[1] To achieve this reduction, the proposed wastewater concentration is calculated at 19 mg/L, a factor that the I/A system manufacturer is comfortable that the system can achieve. We understand that using this concentration will require entering into an Operations, Maintenance and Compliance Agreement

[1] I have enclosed 2 calculations for the existing conditions with different nitrogen concentrations. We understand that the CCC's default concentration is 35 mg/L which would result in a concentration of 6.99 ppm. The engineer for this project feels that 35 mg/L is unlikely for a standard Title 5 system without de-nitrification and that the concentration is more likely in the 65 mg/L range, resulting in a site-wide nitrogen load of 12.37 ppm. Regardless of which concentration is applied, the proposed conditions represent a significant reduction as compared to existing conditions.

with the Bourne Board of Health and would accept the requirement to do so as a condition of the modification decision.

We continue to request financial hardship relief from the payment of mitigation to achieve the no-net standard. As noted above, under proposed conditions, the development will be more protective of the resource than existing conditions. As such, the redevelopment with the installation of the I/A system is a benefit to the environment and should, therefore, be encouraged from an environmental perspective. The requirement of cash mitigation jeopardizes the owner's (who is a local Cape Cod businessman) ability to move forward with the proposed expansion. As a potential alternative to a total waiver of the no-net payment, we had discussed flexibility in terms of phasing mitigation payments. Please let me know if you have had any further internal discussions on a payment plan that Commission staff could support so that I can review the same with my client as this might affect the nature of the request.

With reference to storm-water, I enclose revised drainage plans for the proposed work area. Based on our meeting with Scott Michaud, the plans have been developed to incorporate low impact design storm-water features, including grass swales to accommodate all the storm-water for the proposed new parking/building area. We also enclose updated landscape plans showing the proposed plantings in and around the proposed swales.

As the plans depict, the proposed development work will comply with the storm-water requirements of the 2002 RPP by incorporating low impact design measures. The civil engineer looked closely at various options to try to convert the existing structured storm-water system for the existing development to a low impact design. As you will recall, the current storm-water system was fully designed and permitted and the building constructed prior to the CCC review of the existing development. Because of the existing grades, elevations and connections with the street, the engineer has concluded that the existing storm-water system cannot be converted to a low impact design. It is not a matter of cost, but rather, is a result of the property conditions. In that the storm-water generated by the proposed construction areas will be managed with grass swales, we believe that this design meets the intent of the prior decision and, to the extent necessary, request a modification of the decision to approve the proposed storm-water design plans.

We will provide additional information relative to other resource areas under separate cover. Please review the enclosed and let me know if you have any questions or comments. In addition, Scott Michaud should feel free to contact our engineer, Jack Cauley-Landers, directly at 508-540-7733 with any questions regarding the plans.

Thank you very much.

Very truly yours,

Eliza Cox

Enclosures
Cc: Paesano Realty Trust (w/ encls.)
Jack Landers-Cauley, P.E. (w/ encls.)
2782243.1

(*) Proposed Conditions

NON-RESIDENTIAL NO3-N LOADING

1/4/2009

PROJECT: 123 WATERHOUSE ROAD- PAESANO
TOWN: BOURNE

Title V Wastewater Flow =	1862	gpd
OFFICE USE- SF	18508	ft2
Total Land Area =	120742	ft2
Paved Area =	59000	ft2
Roof Area =	9730	ft2
Lawn Area = (est.)	0	ft2
Natural Area =	52012	ft2

ASSUMED VALUES

Impervious Recharge Rate =	40	in/yr
Roof Runoff Concentration	0.75	mg/L
Road Runoff Concentration	1.50	mg/L
Lawn Nitrogen Leaching =	25	%
Wastewater Concentration =	19	mg/L*
Average Lawn Size =	5000	ft2
Recharge Rate =	21	in/yr
Nitrogen Application Rate	3	lbs/1000ft2

*-35 Without I/A system, 25 or less with

CALCULATIONS

Title V Wastewater Loading	133905.73	mg	Title V Wastewater Recharge	7047.67	liters
Total Impervious Loading	24776.12	mg			
Roof Loading	1887.35	mg	Roof Recharge	2516.47	liters
Paved Loading	22888.77	mg	Paved Recharge	15259.18	liters
Lawn Loading	0.00	mg	Natural Area Recharge	7062.23	liters
Title V Total Loading	158681.85	mg	Title V Total Recharge	31885.55	liters

TITLE V NITROGEN LOADING CONCENTRATION = **4.98 ppm**

57.92 kg/yr
20.90 kg/acre/yr

⊛ Existing Conditions with 65mg/L concentration

NON-RESIDENTIAL NO3-N LOADING

1/4/2009

PROJECT: 123 WATERHOUSE ROAD- PAESANO
TOWN: BOURNE

Title V Wastewater Flow =	1332	gpd
OFFICE USE- SF	9400	ft2
mixed use		
Total Land Area =	120742	ft2
Paved Area =	44650	ft2
Roof Area =	9730	ft2
Lawn Area = (est.)	900	ft2
Natural Area =	65462	ft2

ASSUMED VALUES

Impervious Recharge Rate =	40	in/yr
Roof Runoff Concentration	0.75	mg/L
Road Runoff Concentration	1.50	mg/L
Lawn Nitrogen Leaching =	25	%
Wastewater Concentration =	65	mg/L*
Average Lawn Size =	5000	ft2
Recharge Rate =	21	in/yr
Nitrogen Application Rate	3	lbs/1000ft2

*-35 Without I/A system, 25 or less with

CALCULATIONS

Title V Wastewater Loading	327705.30	mg	Title V Wastewater Recharge	5041.62	liters
Total Impervious Loading	19209.11	mg			
Roof Loading	1887.35	mg	Roof Recharge	2516.47	liters
Paved Loading	17321.75	mg	Paved Recharge	11547.84	liters
Lawn Loading	839.59	mg	Natural Area Recharge	9010.69	liters
Title V Total Loading	347754.00	mg	Title V Total Recharge	28116.61	liters

TITLE V NITROGEN LOADING CONCENTRATION = **12.37 ppm**

126.93 kg/yr
45.79 kg/acre/yr

(*) Existing conditions with 35 mg/L concentration

NON-RESIDENTIAL NO3-N LOADING

1/4/2009

PROJECT: 123 WATERHOUSE ROAD- PAESANO
TOWN: BOURNE

Title V Wastewater Flow =	1332	gpd
OFFICE USE- SF	9400	ft2
mixed use		
Total Land Area =	120742	ft2
Paved Area =	44650	ft2
Roof Area =	9730	ft2
Lawn Area = (est.)	900	ft2
Natural Area =	65462	ft2

ASSUMED VALUES

Impervious Recharge Rate =	40	in/yr
Roof Runoff Concentration	0.75	mg/L
Road Runoff Concentration	1.50	mg/L
Lawn Nitrogen Leaching =	25	%
Wastewater Concentration =	35	mg/L*
Average Lawn Size =	5000	ft2
Recharge Rate =	21	in/yr
Nitrogen Application Rate	3	lbs/1000ft2

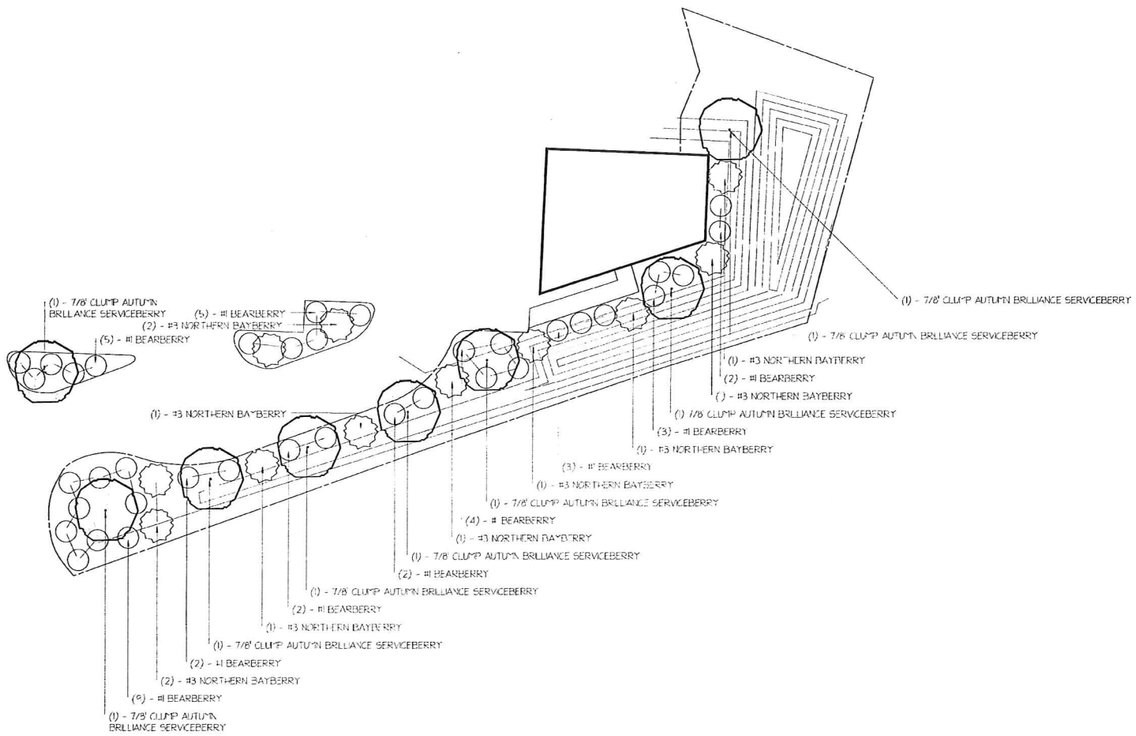
*-35 Without I/A system, 25 or less with

CALCULATIONS

Title V Wastewater Loading	176456.70	mg	Title V Wastewater Recharge	5041.62	liters
Total Impervious Loading	19209.11	mg			
Roof Loading	1887.35	mg	Roof Recharge	2516.47	liters
Paved Loading	17321.75	mg	Paved Recharge	11547.84	liters
Lawn Loading	839.59	mg	Natural Area Recharge	9010.69	liters
Title V Total Loading	196505.40	mg	Title V Total Recharge	28116.61	liters

TITLE V NITROGEN LOADING CONCENTRATION = **6.99 ppm**

71.72 kg/yr
25.88 kg/acre/yr



NOTES

Greener Image

LANDSCAPING, INC.
RESIDENTIAL & COMMERCIAL
Design / Build / Maintenance
981 Sandwich Road
East Falmouth, MA. 02536
www.greenerimagelandscaping.net
(508) 495 - 1181

N

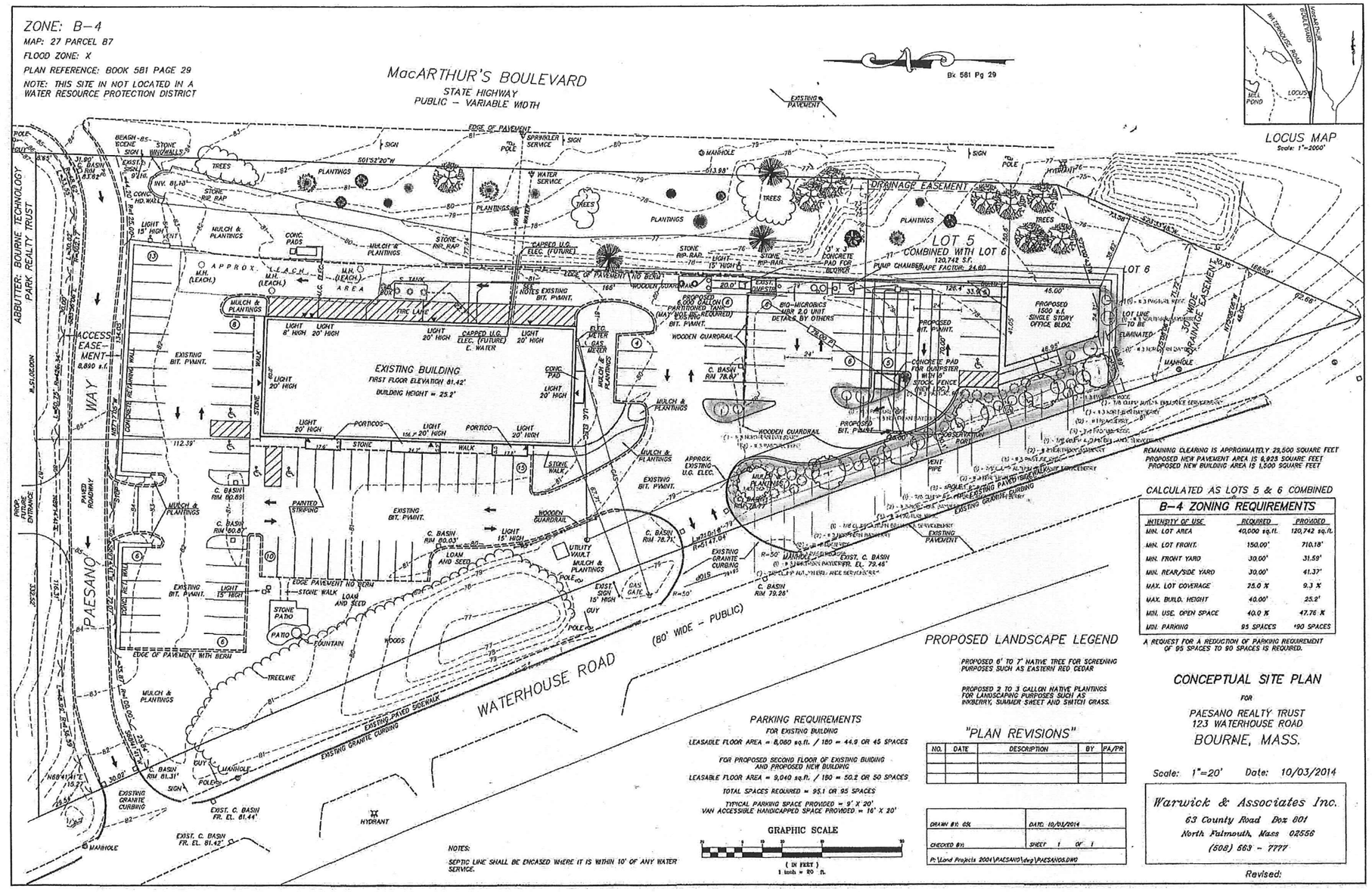
SCALE: 1" = 20'

Paesano Realty Trust
Planting Plan

123 Waterhouse Road.
Bourne,
Massachusetts

SCALE	1" = 20'
DRAWN BY	Kelder, Joshua G
CHECKED BY	
DATE	March 31, 2015
DATE OF PRINT	March 31, 2015
PROJECT NO	1
SHEET NO	1

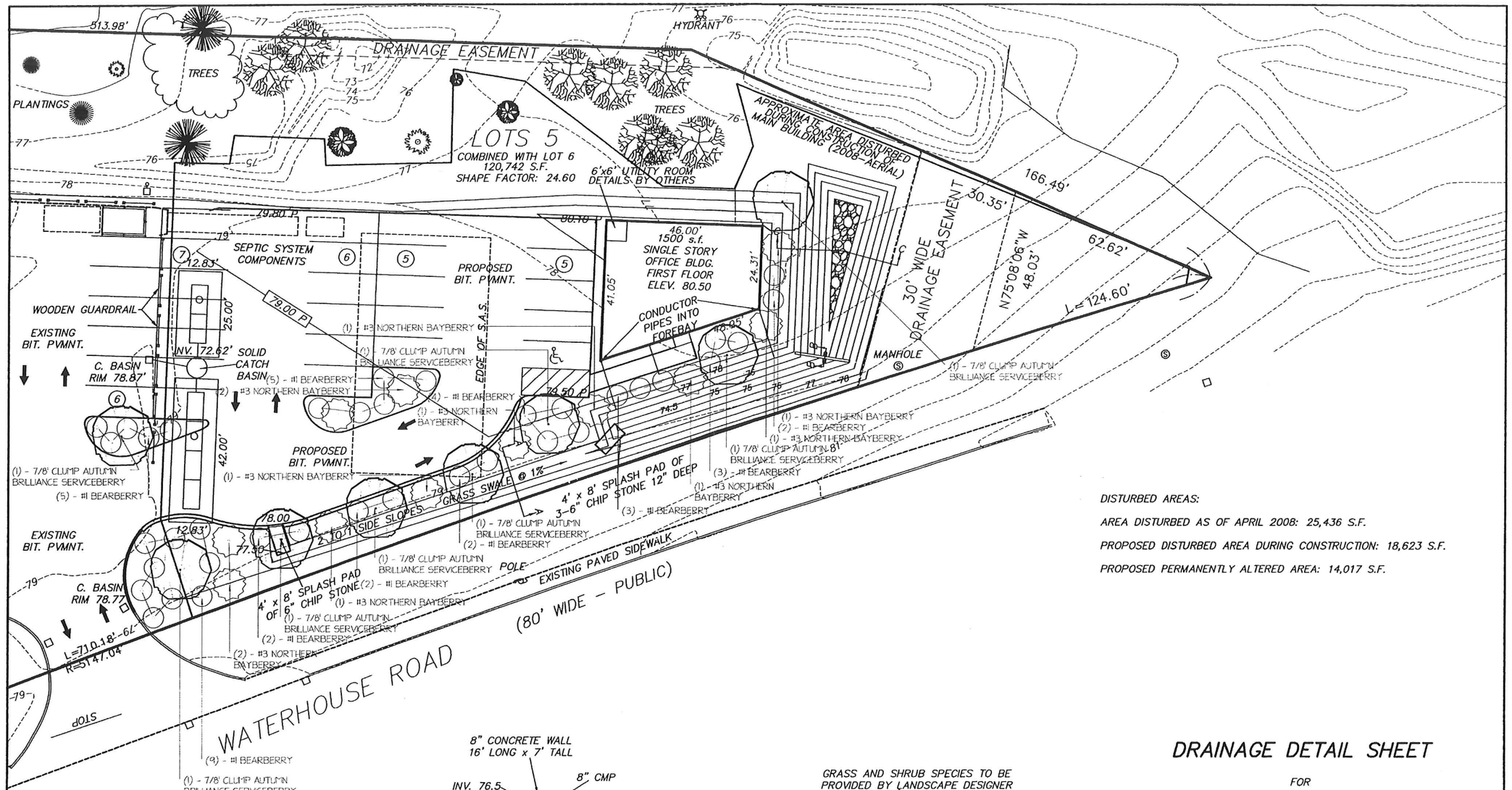
ZONE: B-4
MAP: 27 PARCEL 87
FLOOD ZONE: X
PLAN REFERENCE: BOOK 581 PAGE 29
NOTE: THIS SITE IN NOT LOCATED IN A WATER RESOURCE PROTECTION DISTRICT



INTENSITY OF USE	REQUIRED	PROVIDED
MIN. LOT AREA	40,000 sq.ft.	120,742 sq.ft.
MIN. LOT FRONT.	150.00'	710.18'
MIN. FRONT YARD	30.00'	31.59'
MIN. REAR/SIDE YARD	30.00'	41.37'
MAX. LOT COVERAGE	25.0 %	9.3 %
MAX. BUILD. HEIGHT	40.00'	25.2'
MIN. USE. OPEN SPACE	40.0 %	47.76 %
MIN. PARKING	95 SPACES	*90 SPACES

NO.	DATE	DESCRIPTION	BY	PA/PR

DRAWN BY: GSL	DATE: 10/03/2014
CHECKED BY:	SHEET 1 OF 1
P:\Land Projects 2001\PAESANO\dwg\PAESANO5.DWG	

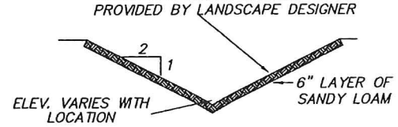


DISTURBED AREAS:

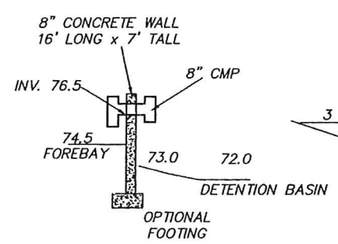
AREA DISTURBED AS OF APRIL 2008: 25,436 S.F.

PROPOSED DISTURBED AREA DURING CONSTRUCTION: 18,623 S.F.

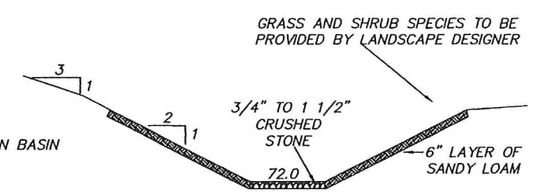
PROPOSED PERMANENTLY ALTERED AREA: 14,017 S.F.



CROSS SECTION A-A
N.T.S.



CROSS SECTION B-B
N.T.S.



CROSS SECTION C-C
N.T.S.

DRAINAGE DETAIL SHEET

FOR

PAESANO REALTY TRUST
123 WATERHOUSE ROAD
BOURNE, MASS.

Scale: 1"=20' Date: 02/25/15

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

"PLAN REVISIONS"

NO.	DATE	DESCRIPTION	BY	PA/PR

DRAWN BY: JDR	DATE: 02/25/15
CHECKED BY:	SHEET 2 OF 3
P:\Land Projects 2004\PAESANO\dwg\PAESANASBUILT.DWG	

Warwick & Associates Inc.
63 County Road Box 801
North Falmouth, Mass 02556
(508) 563 - 7777

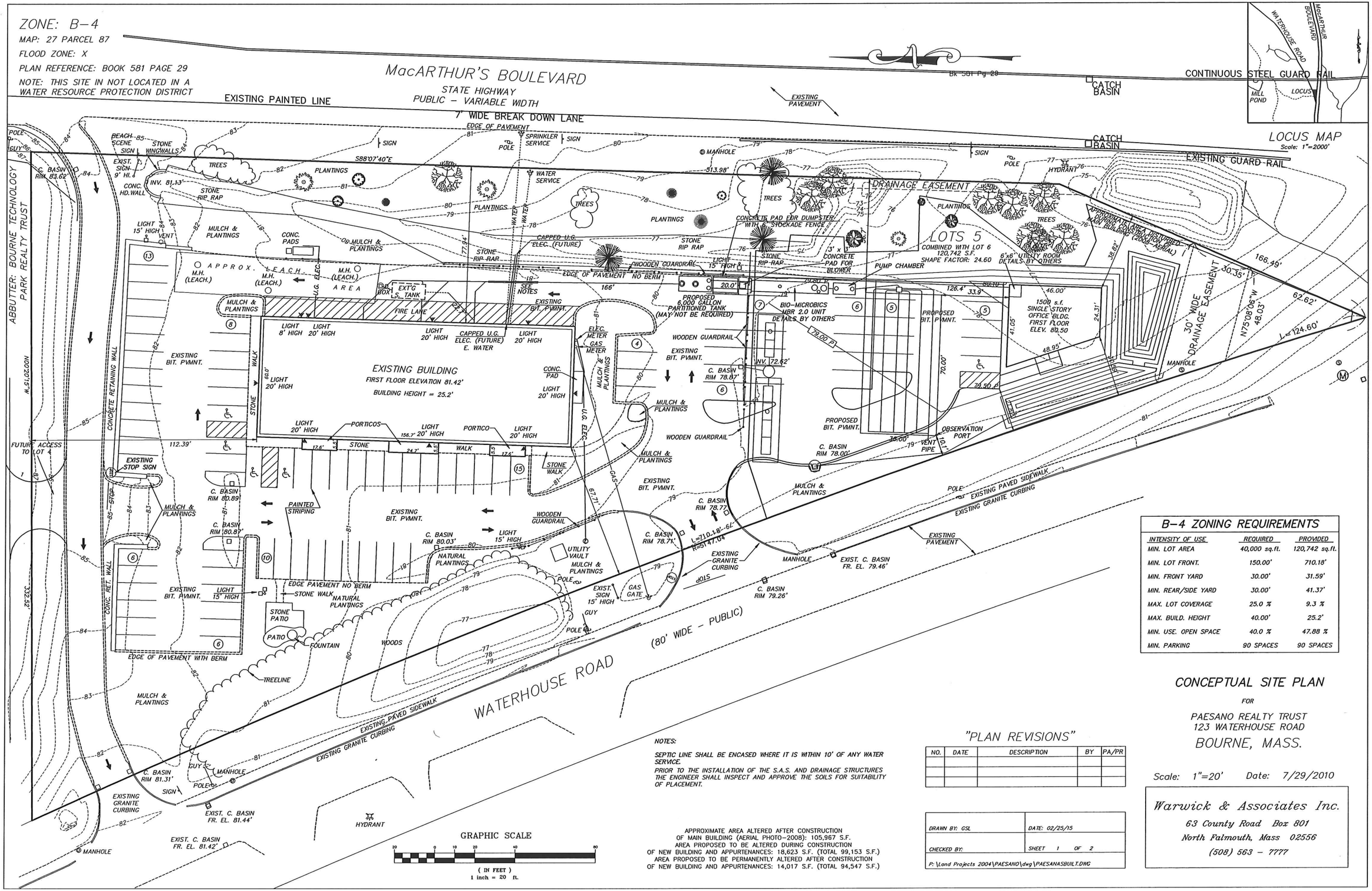
ZONE: B-4

MAP: 27 PARCEL 87

FLOOD ZONE: X

PLAN REFERENCE: BOOK 581 PAGE 29

NOTE: THIS SITE IN NOT LOCATED IN A WATER RESOURCE PROTECTION DISTRICT



B-4 ZONING REQUIREMENTS

INTENSITY OF USE	REQUIRED	PROVIDED
MIN. LOT AREA	40,000 sq.ft.	120,742 sq.ft.
MIN. LOT FRONT.	150.00'	710.18'
MIN. FRONT YARD	30.00'	31.59'
MIN. REAR/SIDE YARD	30.00'	41.37'
MAX. LOT COVERAGE	25.0 %	9.3 %
MAX. BUILD. HEIGHT	40.00'	25.2'
MIN. USE. OPEN SPACE	40.0 %	47.88 %
MIN. PARKING	90 SPACES	90 SPACES

NOTES:

SEPTIC LINE SHALL BE ENCASED WHERE IT IS WITHIN 10' OF ANY WATER SERVICE.

PRIOR TO THE INSTALLATION OF THE S.A.S. AND DRAINAGE STRUCTURES THE ENGINEER SHALL INSPECT AND APPROVE THE SOILS FOR SUITABILITY OF PLACEMENT.

APPROXIMATE AREA ALTERED AFTER CONSTRUCTION OF MAIN BUILDING (AERIAL PHOTO-2008): 105,967 S.F.
AREA PROPOSED TO BE ALTERED DURING CONSTRUCTION OF NEW BUILDING AND APPURTENANCES: 18,623 S.F. (TOTAL 99,153 S.F.)
AREA PROPOSED TO BE PERMANENTLY ALTERED AFTER CONSTRUCTION OF NEW BUILDING AND APPURTENANCES: 14,017 S.F. (TOTAL 94,547 S.F.)

"PLAN REVISIONS"

NO.	DATE	DESCRIPTION	BY	PA/PR

DRAWN BY: GSL	DATE: 02/25/15
CHECKED BY:	SHEET 1 OF 2
P:\Land Projects 2004\PAESANO\dwg\PAESANASBUILT.DWG	

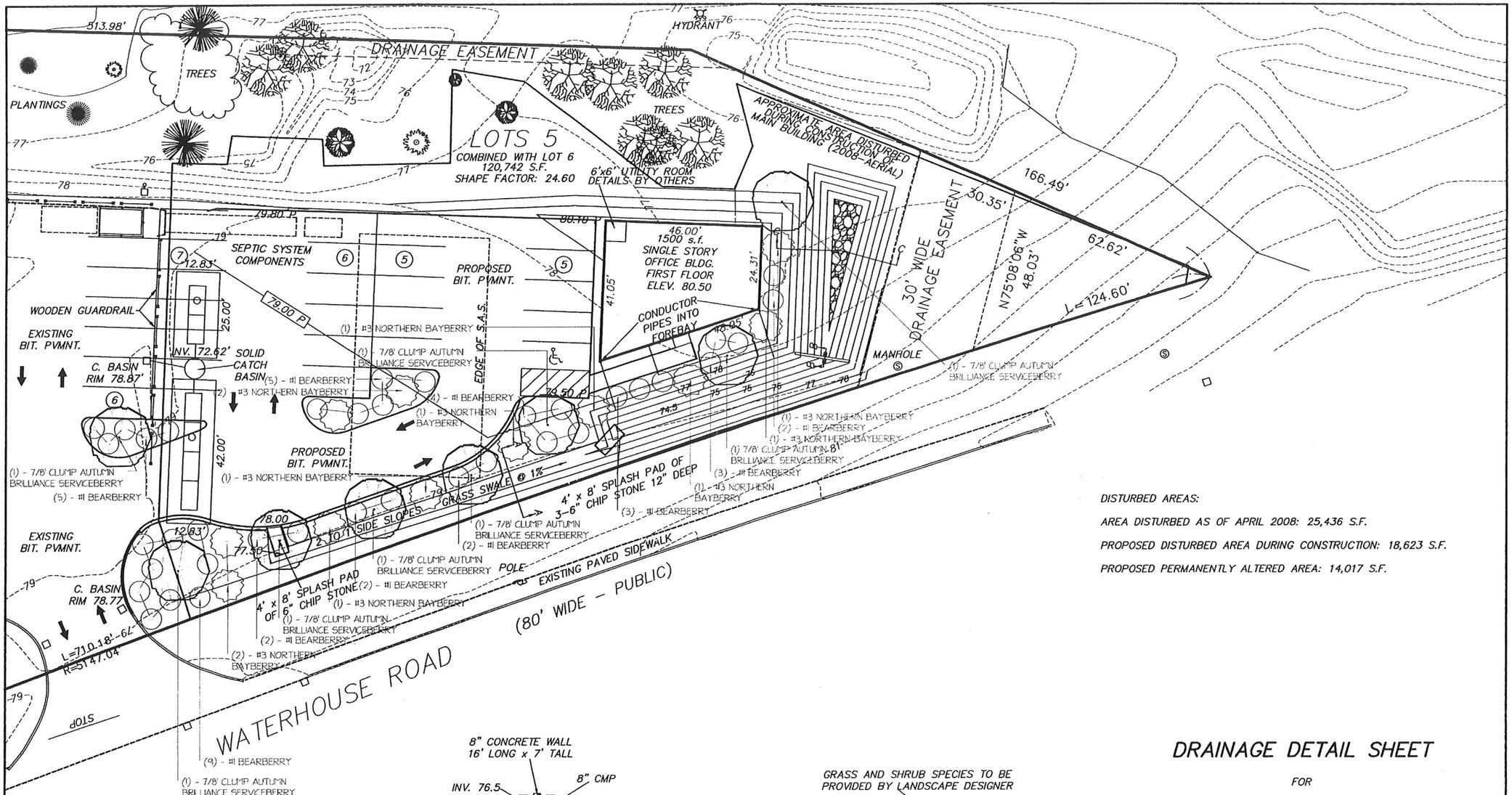
CONCEPTUAL SITE PLAN

FOR

PAESANO REALTY TRUST
123 WATERHOUSE ROAD
BOURNE, MASS.

Scale: 1"=20' Date: 7/29/2010

Warwick & Associates Inc.
63 County Road Box 801
North Falmouth, Mass 02556
(508) 563 - 7777



DISTURBED AREAS:

AREA DISTURBED AS OF APRIL 2008: 25,436 S.F.

PROPOSED DISTURBED AREA DURING CONSTRUCTION: 18,623 S.F.

PROPOSED PERMANENTLY ALTERED AREA: 14,017 S.F.

DRAINAGE DETAIL SHEET

FOR

PAESANO REALTY TRUST
123 WATERHOUSE ROAD
BOURNE, MASS.

Scale: 1"=20' Date: 02/25/15

GRAPHIC SCALE

20 0 10 20 40 80

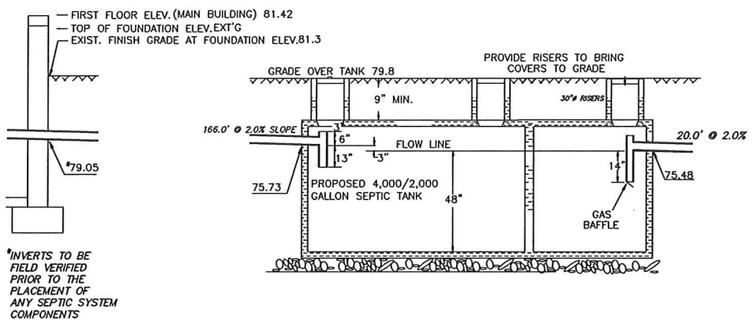
(IN FEET)
1 inch = 20 ft.

"PLAN REVISIONS"

NO.	DATE	DESCRIPTION	BY	PA/PR

DRAWN BY: JDR	DATE: 02/25/15
CHECKED BY:	SHEET 2 OF 3
P:\Land Projects 2004\PAESANO\dwg\PAESANASBUILT.DWG	

Warwick & Associates Inc.
63 County Road Box 801
North Falmouth, Mass 02556
(508) 563 - 7777

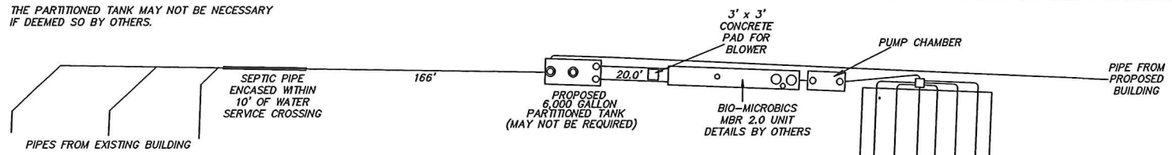


6,000 GALLON PARTITIONED SEPTIC TANK

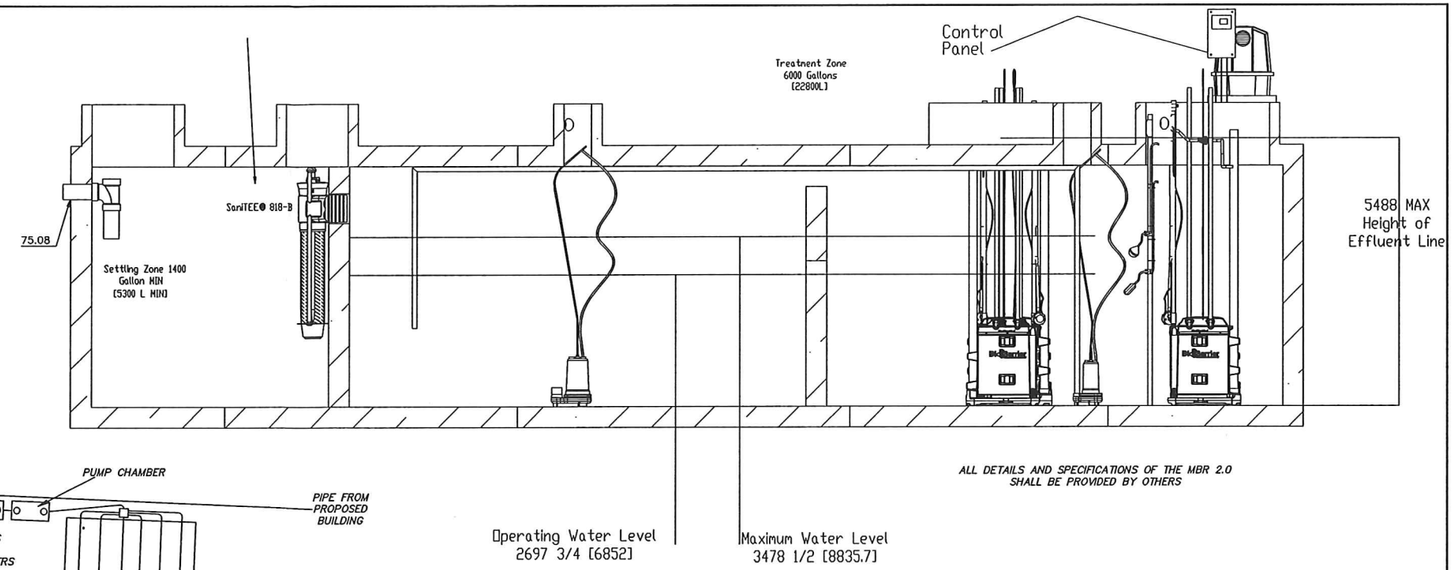
N.T.S.

NOTES:
- ALL COVERS SHALL BE MARKED WITH A MAGNETIC MARKING TAPE.

THE PARTITIONED TANK MAY NOT BE NECESSARY IF DEEMED SO BY OTHERS.

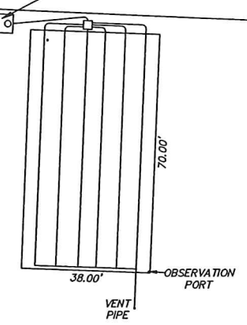


DETAIL OF SYSTEM WITH OTHER LAYERS REMOVED N.T.S.

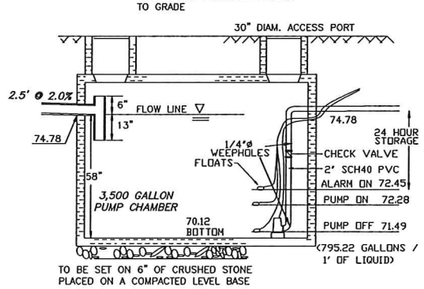


ALL DETAILS AND SPECIFICATIONS OF THE MBR 2.0 SHALL BE PROVIDED BY OTHERS

BIO-MICROBICS MBR 2.0



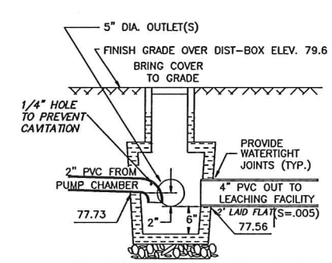
INSTALL OBSERVATION PORTS ACCORDING TO TOWN OF BOURNE STANDARDS.



PUMP CHAMBER DETAILS

N.T.S.

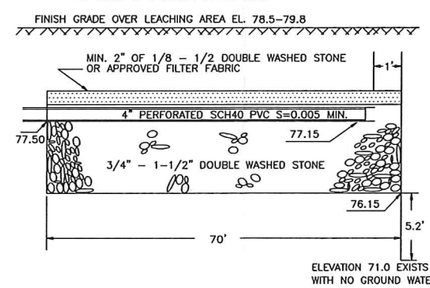
USE A .5 HP PUMP



"WIGGIN" (DB-6) 6 OUTLET DISTRIBUTION BOX OR APPROVED EQUAL.
TO BE SET ON 6" OF CRUSHED STONE PLACED ON A COMPACTED LEVEL BASE
FIRST 2' OF OUTLET PIPES TO BE LAID LEVEL AS PER TITLE V.

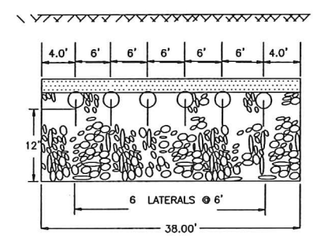
D-BOX DETAIL

N.T.S.



LEACH FIELD PROFILE

N.T.S.



END VIEW

N.T.S.

TEST PIT DATA

INSPECTOR: C.COFFIN
DATE: JULY 3, 2014
PERFORMED BY: J.E. CAULEY P.E.

TEST PIT # : 1	TEST PIT # : 2	TEST PIT # : 3	TEST PIT # : 4
EL. TOP = 103.4	EL. TOP = 102.5	EL. TOP = 101.2	EL. TOP = 101.9
OBS. WATER EL. = NONE	OBS. WATER EL. = NONE	OBS. WATER EL. = NONE	OBS. WATER EL. = NONE
PERC RATE = < 2 MPI	PERC RATE = < 2 MPI	PERC RATE = < 2 MPI	PERC RATE = < 2 MPI
0" O/A STRIPPED	0"	0" FILL	0"
6" B LOAMY SAND 10YR 5/6	42" B LOAMY SAND 10YR 5/6	30" B LOAMY SAND 10YR 5/6	52" B LOAMY SAND 10YR 5/6
42" C MEDIUM SAND 10YR 6/4	90" C MEDIUM SAND 10YR 6/4	46" C MEDIUM SAND 10YR 6/4	120" C MEDIUM SAND 10YR 6/4
120"		116"	

GENERAL NOTES:

1. NO HEAVY EQUIPMENT OVER SYSTEM.
2. DISTRIBUTION BOX TO BE PRECAST REINFORCED CONCRETE UNITS, WITH AN H-20 CAPACITY.
3. ALL SYSTEM COMPONENTS SHALL BE INSTALLED IN ACCORDANCE TO REVISED TITLE V OF THE STATE ENVIRONMENTAL CODE, MINIMUM REQUIREMENTS FOR THE SUBSURFACE DISPOSAL OF SANITARY SEWAGE.
4. ANY CHANGES TO THIS PLAN MUST BE APPROVED BY THE BOARD OF HEALTH AND THE ENGINEER.
5. AT THE COMPLETION OF CONSTRUCTION, PRIOR TO BACKFILLING, THE BOARD OF HEALTH AND ENGINEER SHALL BE NOTIFIED FOR INSPECTION AND LOCATION FOR AS BUILT PLAN PREPARATION.
6. PITCH ALL SEWER LINES 1/4" PER FOOT UNLESS INDICATED OTHERWISE.
7. INSTALLER TO LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
8. INSTALLER TO PROVIDE AT LEAST ONE OBSERVATION PORT.
9. INSTALLER TO CONTACT THIS FIRM TO CONFIRM SOIL CONDITIONS DURING SYSTEM INSTALLATION.
10. ALL SEPTIC SYSTEM COMPONENTS TO BE CONFIRMED BY SURVEY. INCLUDING BUT NOT LIMITED TO, THE BOTTOM OF LEACHING AREA, SYSTEM COMPONENT LOCATIONS AND PIPE INVERTS.

SEPTIC SYSTEM NOTES

1. The contractor shall verify all existing inverts pror to the placement of any septic system components.
2. Where required the contractor will remove all loam, subsoil and other unsuitable material in the area beneath and for 2 feet on all sides of the leaching facility. The contractor shall replace all unsuitable material with clean coarse sand free from clay, fines or other unsuitable material. Replacement material to have an inplace perc rate of two minutes or less.
3. Subsurface septic system components shall not be back filled or otherwise concealed from view until a final inspection has been conducted by the approving authority and the ENGINEER.
4. All covers shall be marked with magnetic marking tape.

CAPACITY REQUIRED

BUILDING #1
1st FLOOR:
EXSTING USE: (TO REMAIN THE SAME)
3 DOCTORS @ 250 GALS = 750 GPD
3,500 S.F. PROFESSIONAL OFFICE:
3,500 + 1,000 x 75 = 262.5 GPD
2nd FLOOR:
9,100 S.F. – 455 S.F.(HALLWAYS)
8,645 S.F. PROFESSIONAL OFFICE:
8,654 + 1,000 x 75 = 648.38 GPD

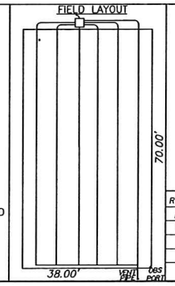
BUILDING #2
1,500 S.F. PROFESSIONAL OFFICE:
1,500 + 1,000 x 75 = 112.5 GPD
(200 GAL MIN.)

TOTAL:1,012.5 + 650 + 200=1,862.5 GPD

CAPACITY PROVIDED

SYSTEM SIZE: 38x70 = 2,660 S.F.
2,660 x .74 = 1,968.4 GPD

FIELD LAYOUT



REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	10/30/14	REVISE CALCS./DETAIL OF SYS	JDR

SITE & SEPTIC DESIGN PLAN

PREPARED FOR: *PAESANO REALTY TRUST*
123 WATERHOUSE ROAD
BOURNE, MASS.

LOCATED AT: 123 WATERHOUSE ROAD
BOURNE, MASSACHUSETTS

DATE	SCALE	DRAWN	CHECKED	JOB NO.	DWG. NO.
02/25/15	N.T.S.	JDR		PAESANO-2014	3 OF 3

Warwick & Associates Inc.
63 County Road Box 801
North Falmouth, Mass 02556
(508) 563 – 7777