

**Town of Kittery
Planning Board Meeting
December 14 2023**

ITEM 6—9 & 11-13 Water Street—Shoreland Development and Major Site Plan — Preliminary Review

Action: accept site plan and shoreland development plan as complete or continue review. Schedule site walk/public hearing. John Chagnon, on behalf of owner/applicant WLH Management Corporation, is proposing to replace an existing restaurant, working waterfront use, and 2 residential dwellings with an 8-unit condo development and 1,200 square foot lobster pound utilizing an existing deck. The proposal is located on the properties of 9 & 11-13 Water Street, Map 1, Lots 45 and 46, in the Mixed-use Kittery Foreside, Shoreland Overlay, Resource Protection Overlay, and Commercial Fisheries Overlay Zones.

PROCESS SUMMARY

REQ'D	ACTION	COMMENTS	STATUS
NO	Sketch Plan Acceptance/Approval	8/10/23	Accepted
TBD	Kittery Port Authority Approval	Required if any development is proposed underneath the Highest Astronomical Tide (HAT) line	TBD
YES	Planning board determination of completeness	Scheduled for 12/24/23	Pending
NO	Site Visit		TBD
YES	Public Hearing	Required for Preliminary Site Plan or Subdivision Approval	TBD
YES	Preliminary Plan Approval		TBD
YES	Shoreland Development Plan	Required as part of final approval	
YES	Final Plan Review and Decision		TBD
<p style="text-align: center;">Applicant: Prior to the signing of the approved Plan any <u>Conditions of Approval related to the Findings of Fact along with waivers and variances (by the BOA) must be placed on the Final Plan and, when applicable, recorded at the York County Registry of Deeds. PLACE THE MAP AND LOT NUMBER IN 1/4" HIGH LETTERS AT LOWER RIGHT BORDER OF ALL PLAN SHEETS. As per Section 16.4.4.L - Grading/Construction Final Plan Required. - Grading or construction of roads, grading of land or lots, or construction of buildings is prohibited until the original copy of the approved final plan endorsed has been duly recorded in the York County registry of deeds when applicable.</u></p>			

OTHER PERMITS AND REQUIREMENTS

- State Fire Marshal NFPA #13 fire protection system approval.
- DEP construction permitting and site review.
- Demolition plan showing compliance with DEP standards

PROJECT INTRODUCTION

The subject property is comprised of two parcels totaling 1.1 acres in area, identified as Lots 45 and 46 of Map 1, and located at 9-13 Water Street, adjacent to the Piscataqua River and the Route 1 Memorial Bridge. The site is currently developed with a 13,267 square foot commercial building containing a restaurant and a commercial fishing/ retail business with appurtenant decks, docks, and floats, a 1,457 square foot duplex residence, a 1,249 square foot garage building, and associated paved driveway and parking areas. The site is currently accessed from Water Street via two separate driveways. The property is in the MU-KF, Mixed-Use Kittery Foreside zoning district and is also partly or entirely within the Shoreland, Resource Protection, and Commercial Fisheries/ Maritime Uses overlay districts.

The applicant proposes to demolish the existing structures except for the westernmost portion of the existing decks and construct a 1,200 square foot lobster pound in the westernmost portion of the site and 8- 1,400 square foot residential condominiums in 4 separate buildings on the remainder of the property. Driveway access would remain as currently configured, with the western driveway providing access to the lobster pound and dock and the eastern driveway providing access for the residences.

SUMMARY: KEY ISSUES

1. **Conforming Uses:** Only “functionally water-dependent commercial fisheries/ marine activities” are permitted in the Commercial Fisheries/ Maritime Activities Overlay Zone, which applies to the entire site. The existing building/ uses include a commercial seafood wholesale/ retail business that is deemed a permitted/ conforming commercial fishing business by Town staff and legal counsel. Retention of a conforming/ permitted use is therefore required for any re-development of the site. The applicant proposes to construct a new 1,200 square foot “lobster pound” (commercial fishing) building and retain a portion of existing docks to achieve this requirement. Staff have observed that approved “mixed use” projects sometimes result in permitted uses/ elements remaining unbuilt or unoccupied while special exception or non-conforming uses are completed and operational. Based on this experience, there is a perceived risk that the commercial fishing building could remain unbuilt or vacant while the residential uses are completed and sold/ inhabited in the future.

Questions: What conditions would assure that a conforming commercial fisheries/ maritime use will continuously operate on the site? What evidence or guarantees can the applicant provide which demonstrate that the proposed lobster pound will be constructed and operated as a permitted commercial fishing/ maritime use?

2. **Non-conforming uses:** The existing residential and restaurant uses on the site are not permitted uses in the Commercial Fisheries/ Maritime Activities Overlay Zone and are therefore legally non-conforming. Conversion of a residential duplex and a restaurant to 8 residential condominiums constitutes a change in the non-conforming use(s) on the property. §16.1.8-C.2(c) states that nonconforming uses “may be changed to an **equal or more appropriate** nonconforming use.” Also, §16.1.8-C.5(d)[3] states: “In determining that **no greater adverse impact will occur**, the applicant may be required to submit an evaluation in writing regarding the probable effects on public health and safety, erosion and sedimentation, water quality, fish and wildlife habitat, vegetative cover, visual and actual points of public access to waters, natural beauty, floodplain management, archaeological and historic resources, and commercial fishing and maritime activities, and other functionally water-dependent uses.”

The applicant submitted a narrative explaining their position on the relative appropriateness and comparative impacts of this proposal (see #5 and #6 on page 3 and 4 of the narrative submittal). Removal and relocation of structures as proposed is likely to reduce impacts on natural resources and reduce flood risks. Provision of a commercial fishing facility as part of the development would maintain the existing conforming use. However, it is unclear how an expansion of residential uses on the site would impact commercial fishing and maritime activities or other functionally water-dependent uses, or whether increasing residential uses on the site is equal or more appropriate compared to existing uses.

Question: How to measure the relative impacts this project will have on commercial fishing and maritime activities and other functionally water-dependent uses, versus existing uses? Will an increase in residential uses and a reduction in marine structures on the property be an “equal or more appropriate” use or result in a “greater adverse impact” on these uses or other resources?

Staff suggest looking to the Comprehensive Plan for guidance for evaluating **appropriateness**. Kittery’s working waterfront is central to the Town’s Vision and protecting and promoting working waterfront uses comprises several of the Goals and Objectives and Recommendations in the Comprehensive Plan. Plan goals related to housing emphasize attraction and retention of young and elderly residents and provision of a variety of housing types to support the regional workforce.

3. Nonconforming Buildings: The existing wharf, restaurant, and fishing business buildings are located waterward of the Highest Annual Tide line and below 100-year floodplain elevation and are therefore non-conforming structures. §16.1.8-C.4(a)[1] authorizes the Planning Board to approve nonconforming structure relocation where “the site of relocation conforms to all dimensional requirements, **to the greatest practical extent.**” The Board must consider the size and configuration of the lot, location of other structures, soils/ erosion, and vegetation removal when determining whether a structure relocation meets the setback to the greatest practical extent, per subsection (a)[2]. Clearly the proposed residences could be located farther from the shoreline and closer to, or even partly outside of, the 75-foot minimum setback line. The applicant states that the proposed locations of the residential buildings would have the least impact on the resource because it allows for driveway and parking areas to be located farther from the river and would facilitate provision of advanced water quality treatment (see #4 on page 3 of narrative submittal). *Question: is the applicant’s rationale compelling in light of the wording of this standard?*
4. Existing water-oriented structures: The applicant proposes to demolish most, but not all, of the existing wharves, docks, and floats as part of this proposal. Retention of an existing float, gangway, and deck in the western portion of the site is proposed to serve the proposed lobster pound use/ building. Staff are aware that some of these existing structures may be unsound, unsafe, or of a condition that may not support new uses or development. *Staff recommend verification of the relative safety and soundness of these structures via evaluation by a qualified professional prior to approval.*

The applicant and the board should also be aware that §16.9.1(C.1.c) states that the Port Authority “must review and approve any proposed pier, ramp and float system or principal marine structure application” prior to Planning Board review. If new pier, ramp, floatation system, or principal marine structure(s) are needed for this proposal then KPA review is needed before proceeding with the Planning Board review process.

STAFF COMMENTS & STANDARDS SUMMARY

Listed below are additional comments provided by Town staff and general review of standards:

1. The applicant will need to show a demolition plan to show they’re meeting DEP standards to minimize erosion control into the water. This is especially relevant to the portions of the structure that cross the HAT line.
2. The sewer line needs to be reconstructed as part of the utility plan.
3. The two lots will be merged to reduce property nonconformance.
4. Staff confirmed that demolition of structures located waterward of the highest annual tide does NOT require Kittery Port Authority (KPA) approval.
5. Flood of record/ flood elevation maps: currently adopted flood maps dictate the development regulations for this project. However, it should be noted that flood maps drafted for future adoption expand flood areas to encompass most, or all, of the subject property. The applicant chose to utilize the preliminary updated flood map to establish floor openings etc for this project. It should be noted that these draft flood maps set the future base flood elevation at a higher level than the recent flood of record by approximately 4 feet.

Applicable Standards:

5. Minimum land area per dwelling unit: 5,000 square feet
6. Minimum front, side, and rear yards (setbacks): 10 feet
7. Minimum separation between buildings: 10 feet
8. Maximum building height: 35 feet above “average grade between the highest and lowest elevations of the original ground level adjacent to the building”
9. Minimum setback from water body: 75 feet
10. Maximum building coverage (of site): 60%
11. Minimum open space: 40% of site

12. The Zoning Map indicates that the entire site is within the Resource Protection zone. However, §16.4.29 specifies that this overlay does not apply to “currently developed areas and areas that meet the criteria for commercial fisheries/ maritime uses.”
13. Any new building subject to shoreland overlay zoning must conform to all design standards for the MU-KF zone, including:
 - Buildings and front elevation must be oriented facing the street on which the building is located
 - Each building must have its own structure and elevation treatment different from its neighbor.
 - Building must include architectural details that reflect the historic style of the Foreside.
 - Flat or nearly flat roofs are not allowed.
 - Concrete walls and similar structures are prohibited. Any fencing used must harmonize with nearby structures.
 - Waste receptacles, service entrances, and other exterior systems must be screened.
 - All utilities on-site must be underground
14. Parking requirements:
 - 12 spaces for 8 residential dwelling units
 - 2 spaces for 1,200 sq ft lobster pound (warehousing and storage)
 - 14 spaces required in total
15. Affordable housing: For an 8-unit residential development, one of the following minimum requirements must be met: An in-lieu payment of \$80,000 (\$10,000 per unit) OR One unit designated as affordable following the provisions set in **§16.5.4**
16. Sewer impact fees, public safety impact fees, and provision of a performance guarantee are required for this project.
17. No **waivers** from development standards are requested at this time. Provisions for nonconforming uses and structures dictate board review of several aspects of this proposal.

SUBMISSION REQUIREMENTS:

Staff reviewed the application and provided materials and have provided their determination on the requirements and standards below. All requirements that have not been met or require further discussion are highlighted.

Code Ref.	§16.7.10 Preliminary Site Plan Requirements	
	Standard	Determination
§16.7.10.C.(4).(a-i).	<ul style="list-style-type: none"> • Paper plan sheets no smaller than 11” x 17” • Scale of drawing no greater than 1 inch = 30 feet • Code block in right-hand corner • Standard boundary survey of existing conditions • Compass with arrow pointing true north • Locus map of property • Vicinity map and aerial photograph • Surveyed acreage of parcel(s), rights-of-way, wetlands, and amount of street frontage • Names and addresses of owners of record abutting property 	Provided

§16.7.10.C.(4).(j).	Existing conditions survey including all identified structures, natural resources, rights-of-way, and utilities located on and within 100 feet of the property.	Provided
§16.7.10.C.(4).(k).	<ul style="list-style-type: none"> • Proposed development area including: • Location and detail of proposed structures and signs • Proposed utilities including power, water, and sewer. • Sewage facilities type and placement. • Domestic water source • Lot lines, rights-of-way, and street alignments • Road and other paved area plans • Existing and proposed setbacks • Storage areas for waste or hazardous materials • Topographic contours of existing contours and finished grade elevations • Locations and dimensions of artificial features such as pedestrian ways, sidewalks, curb cuts, driveways, fences, retaining walls, 	Provided
§16.7.10.C.(4).(l).	Natural features or site elements to be preserved.	Provided
§16.7.10.C.(4).(m).	Identified property encumbrances.	Provided
§16.7.10.C.(4).(n).	Kittery Water District approval letter.	Provided
§16.7.10.C.(4).(o).	Erosion and sedimentation control plan.	Provided
§16.7.10.C.(4).(p).	Stormwater management plan and drainage analysis.	Provided
§16.7.10.C.(4).(q).	Soil survey.	Provided
§16.7.10.C.(4).(r).	Vehicular traffic report.	Parking Demand Memo provided
§16.7.10.C.(4).(s).	Traffic impact analysis.	Not Required
§16.7.10.C.(4).(t).	Test pit analysis.	Not applicable, Town sewer is being proposed.
§16.7.10.C.(4).(u).	Approval letter from Town sewage.	Provided
§16.7.10.C.(4).(v).	Evaluation of development by Technical Review Committee department heads.	Provided
§16.7.10.C.(4).(w).	Additional submissions as required.	None identified at this time

DISCUSSION, NEXT STEPS, AND RECOMMENDATIONS

The purpose of the first meeting of a preliminary site plan is to determine the completeness of the application, provide specific feedback to the applicant, and determine whether the plan is ready to schedule a public hearing. The board may also wish to discuss any items highlighted above, request additional information, or continue review of the application to another meeting before proceeding.

RECOMMENDED MOTIONS

Staff find that the Preliminary Site Plan and Shoreland Development Plan applications are substantially complete. Below are recommended motions for the Board's use and consideration:

Motion to accept the application as complete

Move to accept the preliminary site plan by John Chagnon, on behalf of owner/applicant WLH Management Corporation

Motion to schedule a site walk

Move to visit the site of the preliminary site plan by John Chagnon, on behalf of owner/applicant WLH Management Corporation

Motion to schedule a public hearing

Move to schedule a public hearing for the preliminary site plan by John Chagnon, on behalf of owner/applicant WLH Management Corporation

MIXED USE DEVELOPMENT

9-13 WATER STREET KITTERY, MAINE PRELIMINARY PLAN APPLICATION

OWNER:
WLH MANAGEMENT CORPORATION
11 WATER STREET
KITTERY, ME 03904

APPLICANT:
GREEN & COMPANY REAL ESTATE
P.O. BOX 1297
NORTH HAMPTON, N.H. 03862
TEL: (603) 964-7572

CIVIL ENGINEER & LAND SURVEYOR:
AMBIT ENGINEERING,
A DIVISION OF HALEY WARD INC.
200 GRIFFIN ROAD, UNIT 3
PORTSMOUTH, N.H. 03801-7114
TEL: (603) 430-9282
FAX: (603) 436-2315

LAND USE ATTORNEY:
BOSEN & ASSOCIATES
266 MIDDLE STREET
PORTSMOUTH, N.H. 03801
TEL: (603) 427-5500

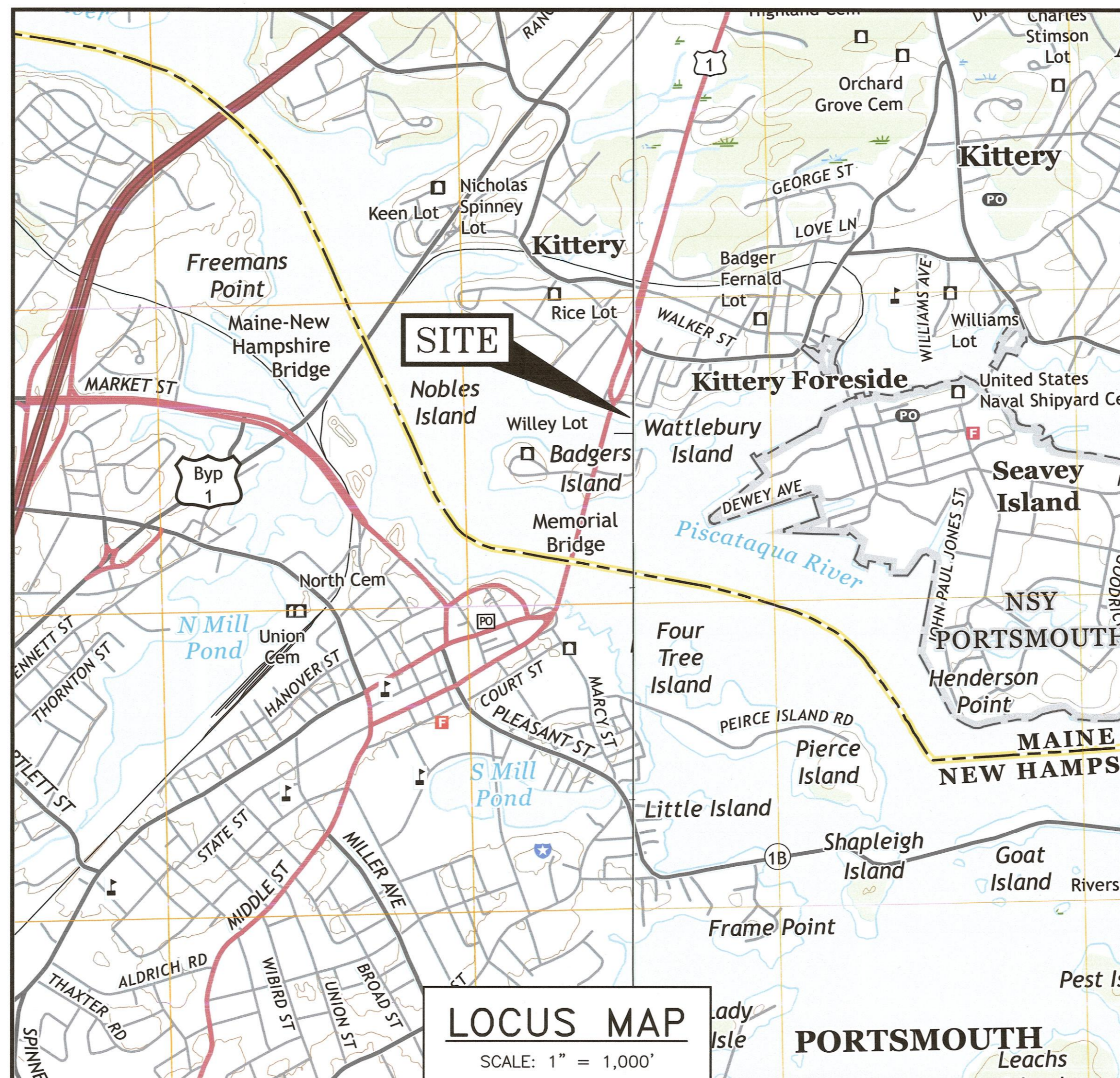
INDEX OF SHEETS

- BOUNDARY PLAN
- C1 - EXISTING CONDITIONS PLAN
- C2 - SHORELAND DEVELOPMENT PLAN
- C3 - DEMOTION PLAN
- C4 - GRADING & EROSION PLAN
- C5 - UTILITY PLAN
- D1 - EROSION CONTROL NOTES & DETAILS
- D2-D6 - DETAILS

OWNER: _____
SIGNATURE _____ DATE _____

APPROVED BY THE KITTERY PLANNING BOARD

CHAIRMAN _____ DATE _____



LEGEND:		
N/F	NOW OR FORMERLY	
RP	RECORD OF PROBATE	
YCRD	YORK COUNTY REGISTRY OF DEEDS	
(11/21)	MAP 11/LOT 21	
RR SPK FND	RAILROAD SPIKE FOUND / SET	
IR FND	IRON ROD FOUND / SET	
IP FND	IRON PIPE FOUND / SET	
DH FND	DRILL HOLE FOUND	
BND w/DH	BOUND WITH DRILL HOLE	
ST BND w/DH	STONE BOUND WITH DRILL HOLE	
RR SPK SET		
IR SET		
IP SET		
DH SET		
BND w/DH		
ST BND w/DH		
EXISTING	PROPOSED	
FM	FM	FORCE MAIN
S	S	SEWER LINE
G	G	GAS LINE
D	D	STORM DRAIN
W	W	WATER LINE
		UNDERGROUND ELECTRIC
		OVERHEAD ELECTRIC/WIRES
		EDGE/€ OF WATER BODY
		EDGE OF WETLAND
		EDGE OF RESOURCE PROTECTION AREA
		AREA OF WETLAND DISTURBANCE
		€ OF DITCH/SWALE
100	100	CONTOUR
97x3	98x0	SPOT ELEVATION
		EDGE OF PAVEMENT (EP)
		WOODS / TREE LINE
		SECURITY FENCE
		WETLANDS
BuB		SOIL SERIES
		UTILITY POLE
		WATER SHUT OFF/CURB STOP
		GAS SHUT OFF
		GATE VALVE
		HYDRANT
		CATCH BASIN
		TELEPHONE MANHOLE
		SEWER MANHOLE
		DRAIN MANHOLE
		WELL
AC	AC	ASBESTOS CEMENT PIPE
€	€	CENTERLINE
CI	CI	CAST IRON PIPE
CMP	CMP	CORRUGATED METAL PIPE
COP	COP	COPPER PIPE
CPP	CPP	CORRUGATED PLASTIC PIPE
DI	DI	DUCTILE IRON PIPE
EL	EL	ELEVATION
EP	EP	EDGE OF PAVEMENT
FF	FF	FINISHED FLOOR
INV	INV	INVERT
PVC	PVC	POLYVINYL CHLORIDE PIPE
RCP	RCP	REINFORCED CONCRETE PIPE
TBD	TBD	TO BE DETERMINED
TBM	TBM	TEMPORARY BENCH MARK
TYP	TYP	TYPICAL
VC	VC	VITRIFIED CLAY PIPE
		PARKING SPACE COUNT



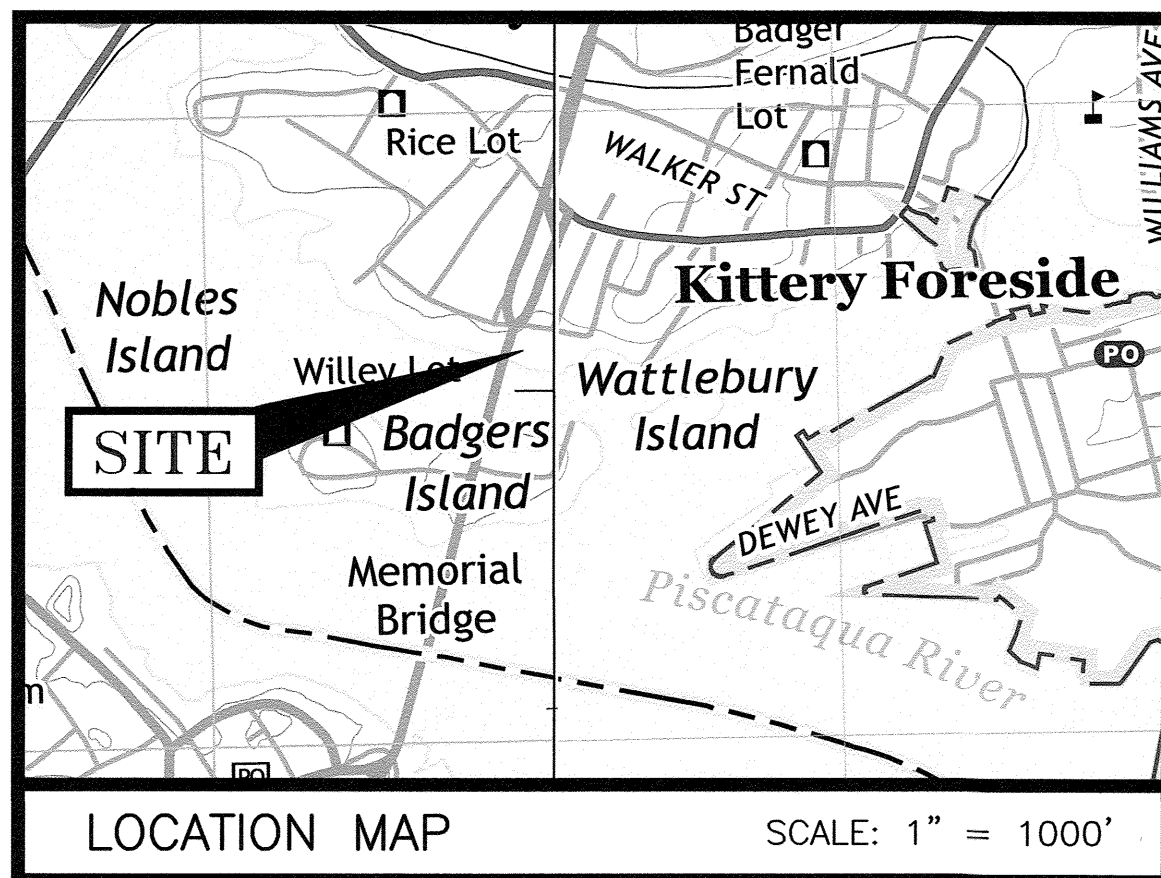
MIXED USE DEVELOPMENT
TAX MAP 1, LOTS 45 & 46
PRELIMINARY PLAN APPLICATION
9-13 WATER STREET
KITTERY, MAINE



WWW.HALEYWARD.COM

200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

PLAN SET SUBMITTAL DATE: 22 NOVEMBER 2023

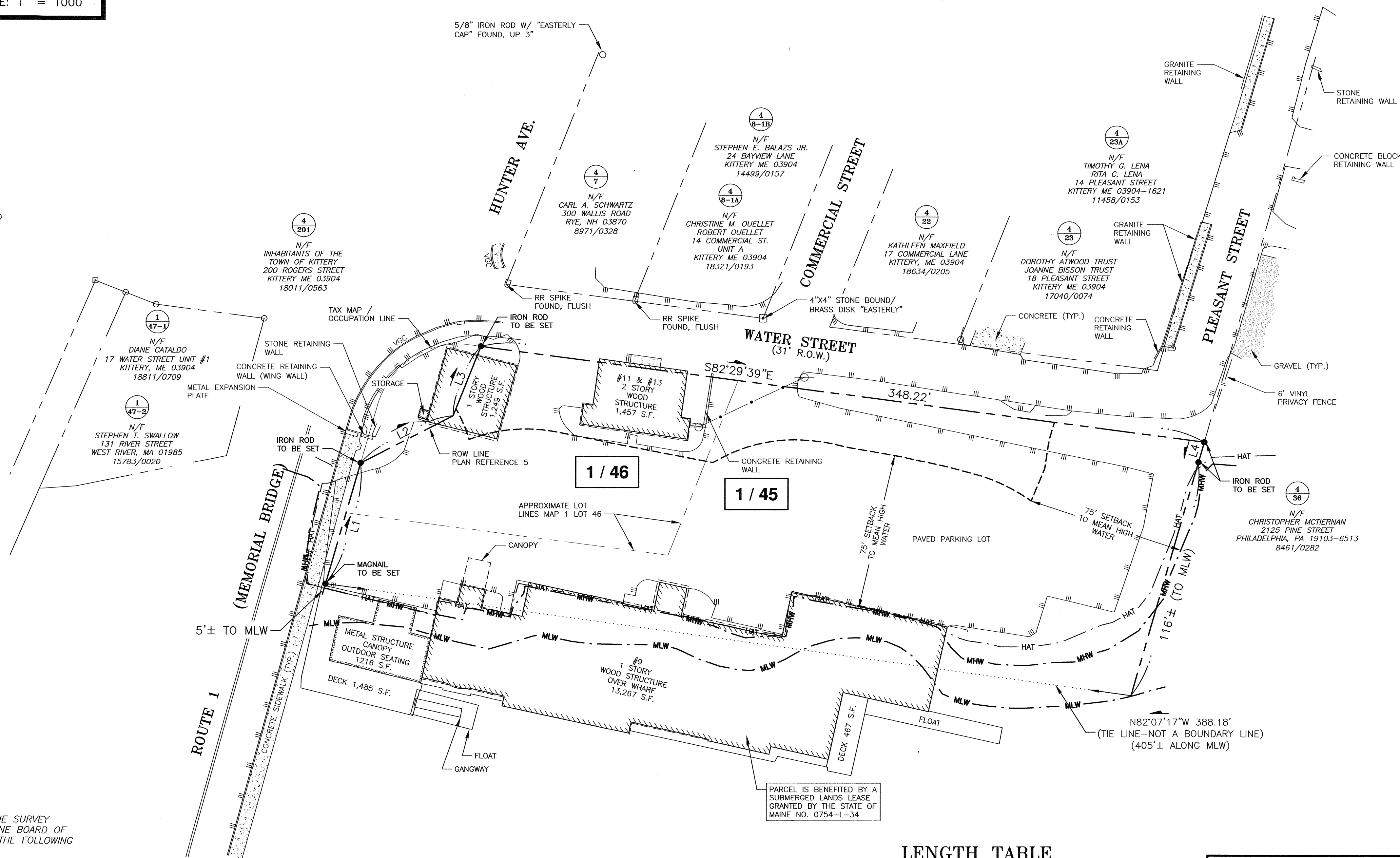


PLAN REFERENCES:

- 1) PLAN OF LAND KITTERY, MAINE FOR WARREN N.P. WURM PREPARED BY JOHN W. DURGIN DATED SEPTEMBER 1950. DURGIN FILE 2224, PLAN # 6337. NOT RECORDED.
- 2) RIGHT OF WAY SURVEY OF WATER STREET FOR THE TOWN OF KITTERY, KITTERY, MAINE 03904, SCALE: 1" = 40', DATED 1/23/96, PREPARED BY EASTERLY SURVEYING, NOT RECORDED.
- 3) STANDARD BOUNDARY SURVEY AND PROPOSED DIVISION OF LAND FOR PROPERTY AT 12 COMMERCIAL STREET KITTERY, YORK COUNTY, MAINE, OWNED BY JAMES B. & SHIRLEY M. CLEGG, SCALE: 1" = 20', DATED 8/26/02, PREPARED BY EASTERLY SURVEYING, YCRD PLAN BOOK 279 PAGE 12
- 4) PLAN OF HOUSE LOTS IN KITTERY OWNED BY M.V.B. STIMSON 1863, PREPARED BY T. DAME, YCRD PLAN BOOK 1 PAGE 57.
- 5) STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP, STATE HIGHWAY "1" KITTERY, YORK COUNTY, FEDERAL AID PROJECT NO. F-01-1(63) & BH-01-1(62), SCALE: 1 INCH = 25 FEET, DATED: FEBRUARY 1985, D.O.T. FILE NO. 16-291
- 6) STATE OF MAINE PLAN SHOWING LOCATION OF HIGHWAY FROM SOUTHERLY SHORE OF BADGERS ISLAND TO SOUTHERLY LINE OF WATER ST., TOWN OF KITTERY, YORK CO., MAINE, SCALE: 1" = 50', DATED: JULY 1922, YCRD PLAN BOOK 9 PAGE 4.

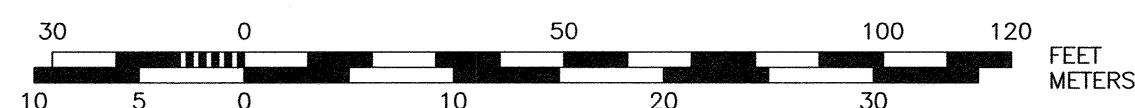
LEGEND:

- N/F NOW OR FORMERLY
- RP RECORD OF PROBATE
- YCRD YORK COUNTY REGISTRY OF DEEDS
- MAP 11 / LOT 21
- BOUNDARY
- SETBACK
- HAT HIGHEST ANNUAL TIDE LINE
- MLW MEAN LOW WATER
- MHW MEAN HIGH WATER
- RAILROAD SPIKE FOUND
- IRON ROD/PIPE FOUND
- STONE/CONCRETE BOUND FOUND
- CONTOUR
- SPOT ELEVATION
- EDGE OF PAVEMENT (EP)
- ELEVATION
- TYP. TYPICAL
- VGC VERTICAL GRANITE CURB



BACK CHANNEL (PISCATAQUA RIVER)

GRAPHIC SCALE



LENGTH TABLE

LINE	BEARING	DISTANCE
L1	N16°11'17"E	60.00'
L2	N62°53'58"E	49.54'
L3	N21°45'21"E	35.73'
L4	S16°02'03"W	10.00'

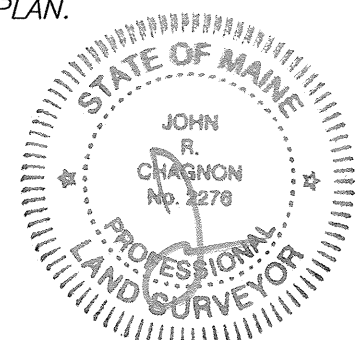
OWNER:
 WLH MANAGEMENT CORP.
 11 WATER STREET
 KITTERY, ME 03904

PREPARED BY:
 AMBIT ENGINEERING-HW
 200 GRIFFIN ROAD UNIT 3
 PORTSMOUTH, N.H. 03801

PURSUANT TO CHAPTER 90 PARTS 1 AND 2 OF THE SURVEY STANDARDS OF PRACTICE AS ADOPTED BY THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS, THE FOLLOWING EXCEPTIONS TO PART 2 ARE NOTED;

- NO SURVEY REPORT HAS BEEN PREPARED.
- MONUMENTS HAVE NOT BEEN SET AS OF THE DATE OF THIS PLAN.

THIS SURVEY CONFORMS TO THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CHAPTER 90 STANDARDS OF PRACTICE, EFFECTIVE DATE APRIL 1, 2001 EXCEPT AS NOTED ON THIS PLAN.



JOHN R. CHAGNON, PLS #2276

7-27-23
 DATE

AMBIT ENGINEERING, INC.
 A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3
 Portsmouth, NH 03801
 603.430.9262

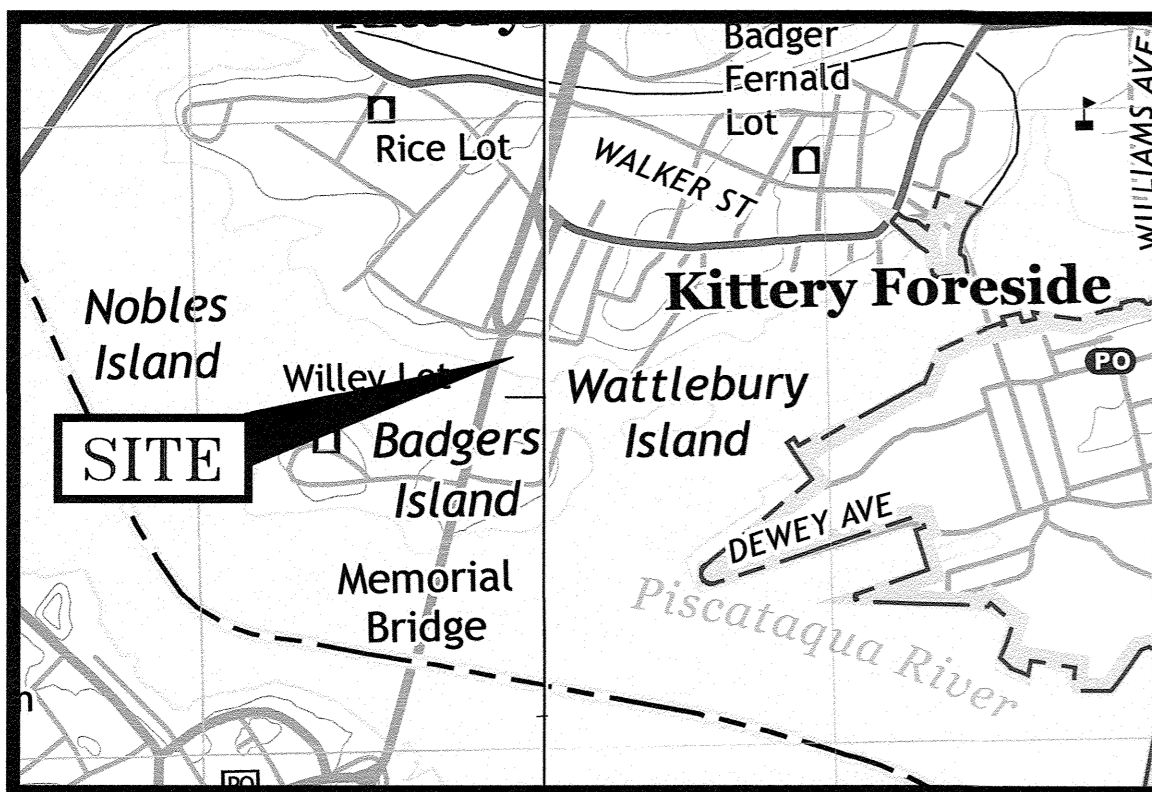
WWW.HALEYWARD.COM

- NOTES:**
- 1) PARCELS ARE SHOWN ON THE TOWN OF KITTERY ASSESSOR'S MAP 1 AS LOTS 45 & 46.
 - 2) OWNER OF RECORD:
 WLH MANAGEMENT CORPORATION
 C/O OWNER SCOTT D. CUNNINGHAM
 11 WATER STREET, ME 03904
 3325/0262
 - 3) PARCEL IS ALMOST COMPLETELY IN A SPECIAL FLOOD HAZARD ZONE (ZONE AE) AS SHOWN ON PRELIMINARY FIRM PANEL 23031C0709G. REVISION DATE 14 APRIL, 2017.
 - 4) EXISTING LOT AREA:
 48,757± S.F. (TO MLW)
 1.1193± ACRES (TO MLW)
 LOT AREA ABOVE HAT LINE: 41,029 S.F.
 - 5) PARCEL ZONING INFORMATION:
 BASE ZONE: MIXED USE - KITTERY FORESIDE (MU-KF)
 OVERLAY ZONES - COMMERCIAL FISHERIES/MARITIME USES (OZ-CFMU) & SHORELAND OVERLAY ZONE OZ-SL.
 - 6) DIMENSIONAL REQUIREMENTS:
 MU-KF BASE ZONE REQUIREMENTS:
 MINIMUM LAND AREA PER DWELLING UNIT: 5,000 SQ. FT.
 MINIMUM LOT SIZE: 5,000 SQ. FT.
 MINIMUM STREET FRONTAGE: 0 FT.
 MINIMUM FRONT YARD: 10 FT.
 MINIMUM REAR AND SIDE YARDS: 10 FT.
 MINIMUM SEPERATION DISTANCE BETWEEN PRINCIPAL BUILDINGS ON THE SAME LOT: 10 FEET
 MAXIMUM BUILDING HEIGHT: 40 FT.
 MAXIMUM BUILDING COVERAGE: 60%
 MINIMUM OPEN SPACE: 40%
 OZ-CFMU:
 -SHELTER FROM PREVAILING WINDS AND WAVES.
 -SLOPE OF LAND WITHIN 250 FEET, HORIZONTAL DISTANCE, OF THE SHORELINE.
 -DEPTH OF THE WATER WITHIN 150 FEET, HORIZONTAL DISTANCE, OF THE SHORELINE.
 -PERMITTED USES: FUNCTIONALLY WATER-DEPENDENT COMMERCIAL FISHERIES/MARINE ACTIVITIES.
 -STANDARDS: DIMENSIONAL STANDARDS OF THE UNDERLYING BASE AND OVERLAY ZONE(S).
 - 7) THE PURPOSE OF THIS PLAN IS TO SHOW THE RESULTS OF A STANDARD BOUNDARY SURVEY OF ASSESSOR'S MAP 1 LOTS 45 & 46 IN THE TOWN OF KITTERY.
 - 8) VERTICAL DATUM IS NAVD83. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.
 - 9) MEAN LOW WATER SHOWN HEREON IS AT ELEVATION -4.30 AND IS REFERENCED TO NOAA STATION 8419870 SEAVEY ISLAND, PORTSMOUTH HARBOR, ME.
 - 10) HIGHEST ANNUAL TIDE LINE SHOWN AT ELEVATION 5.8 PER LOCATION SEAVEY ISLAND IN MAINE DEP HIGHEST ANNUAL TIDE (HAT) LEVELS FOR YEAR 2018.

NO.	DESCRIPTION	DATE
1	SETBACK & S.F. AREAS	7/27/23
0	ISSUED FOR COMMENT	5/31/23

**STANDARD BOUNDARY SURVEY
 TAX MAP 1 - LOTS 45 & 46**

OWNER:
WLH MANAGEMENT CORPORATION
 9 & 11-13 WATER STREET
 TOWN OF KITTERY
 COUNTY OF YORK
 STATE OF MAINE



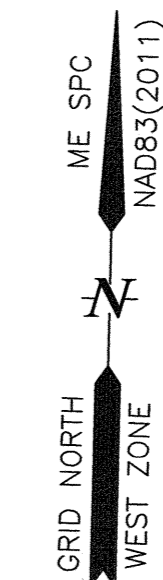
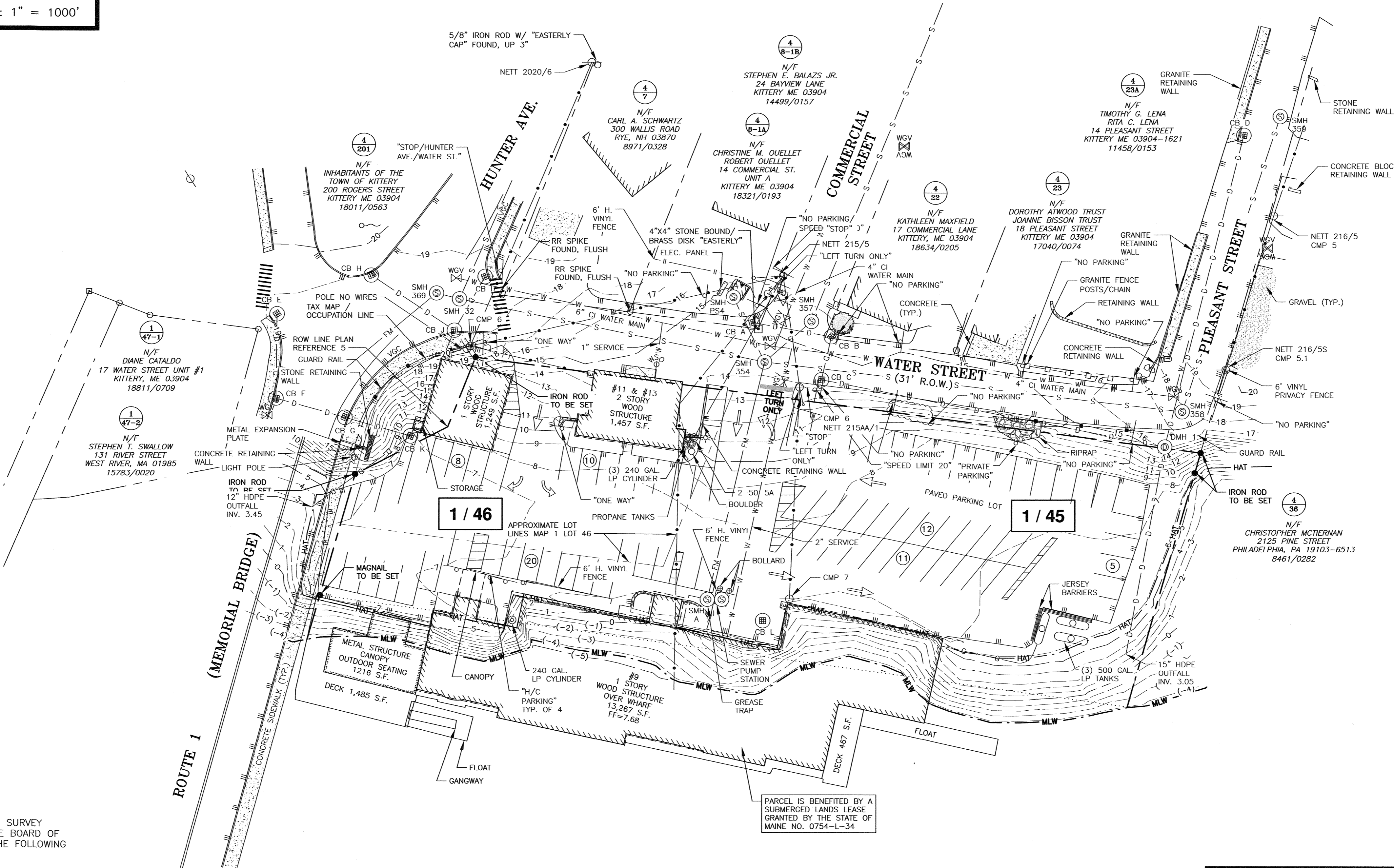
LOCATION MAP SCALE: 1" = 1000'

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- 3) STANDARD BOUNDARY SURVEY AND PROPOSED DIVISION OF LAND FOR PROPERTY AT 12 COMMERCIAL STREET KITTERY, YORK COUNTY, MAINE, OWNED BY JAMES B. & SHIRLEY M. CLEGG, SCALE: 1" = 20', DATED 8/26/02, PREPARED BY EASTERLY SURVEYING, YCRD PLAN BOOK 279 PAGE 12
- 4) PLAN OF HOUSE LOTS IN KITTERY OWNED BY M.V.B. STIMSON 1863, PREPARED BY T. DAME, YCRD PLAN BOOK 1 PAGE 57.
- 5) STATE OF MAINE DEPARTMENT OF TRANSPORTATION RIGHT OF WAY MAP, STATE HIGHWAY "1" KITTERY, YORK COUNTY, FEDERAL AID PROJECT NO. F-01-1(63) & BH-01-1(62), SCALE: 1 INCH = 25 FEET, DATED: FEBRUARY 1985, D.O.T. FILE NO. 16-291
- 6) STATE OF MAINE PLAN SHOWING LOCATION OF HIGHWAY FROM SOUTHERLY SHORE OF BADGERS ISLAND TO SOUTHERLY LINE OF WATER ST., TOWN OF KITTERY, YORK CO., MAINE, SCALE: 1" = 50', DATED: JULY 1922, YCRD PLAN BOOK 9 PAGE 4.

LEGEND:

- N/F NOW OR FORMERLY
- RP RECORD OF PROBATE
- YCRD YORK COUNTY REGISTRY OF DEEDS
- MAP 11 / LOT 21
- BOUNDARY
- SETBACK
- MLW HIGHEST ANNUAL TIDE LINE
- MEAN LOW WATER
- MEAN HIGH WATER
- RAILROAD SPIKE FOUND
- IRON ROD/PIPE FOUND
- 100
- 97x3
- STONE/CONCRETE BOUND FOUND
- CONTOUR
- SPOT ELEVATION
- TYP. EDGE OF PAVEMENT (EP)
- ELEVATION
- TYPICAL
- VERTICAL GRANITE CURB



AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

WWW.HALEYWARD.COM

- NOTES:**
- 1) PARCELS ARE SHOWN ON THE TOWN OF KITTERY ASSESSOR'S MAP 1 AS LOTS 45 & 46.
 - 2) OWNER OF RECORD:
WLH MANAGEMENT CORPORATION
C/O OWNER SCOTT D. CUNNINGHAM
11 WATER STREET, KITTERY, ME 03904
3325/0262
 - 3) PARCEL IS ALMOST COMPLETELY IN A SPECIAL FLOOD HAZARD AREA (ZONE AE EL. 10) AS SHOWN ON PRELIMINARY FIRM PANEL 23031C0709G. REVISION DATE 14 APRIL, 2017.
 - 4) EXISTING LOT AREA:
49,683 ± S.F. (TO MLW)
1.1406 ± ACRES (TO MLW)

LOT AREA ABOVE HAT LINE: 41,029 S.F.
 - 5) PARCEL ZONING INFORMATION:
BASE ZONE: MIXED USE - KITTERY FORESIDE (MU-KF)
OVERLAY ZONES - COMMERCIAL FISHERIES/MARITIME USES (OZ-CFMU), & SHORELAND OVERLAY ZONE OZ-SL 250'.
 - 6) DIMENSIONAL REQUIREMENTS:
MU-KF BASE ZONE REQUIREMENTS:
MINIMUM LAND AREA PER DWELLING UNIT: 5,000 SQ. FT.
MINIMUM LOT SIZE: 5,000 SQ. FT.
MINIMUM STREET FRONTAGE: 0 FT.
MINIMUM FRONT YARD: 10 FT.
MINIMUM REAR AND SIDE YARDS: 10 FT.
MINIMUM SEPERATION DISTANCE BETWEEN PRINCIPAL BUILDINGS ON THE SAME LOT: 10 FEET

MAXIMUM BUILDING HEIGHT: 40 FT.
MAXIMUM BUILDING COVERAGE: 60%
MINIMUM OPEN SPACE: 40%

OZ-CFMU:
-SHELTER FROM PREVAILING WINDS AND WAVES.
-SLOPE OF LAND WITHIN 250 FEET, HORIZONTAL DISTANCE, OF THE SHORELINE.
-DEPTH OF THE WATER WITHIN 150 FEET, HORIZONTAL DISTANCE, OF THE SHORELINE.
-PERMITTED USES, FUNCTIONALLY WATER-DEPENDENT COMMERCIAL FISHERIES/MARINE ACTIVITIES.
-STANDARDS, DIMENSIONAL STANDARDS OF THE UNDERLYING BASE AND OVERLAY ZONE(S).
 - 7) THE PURPOSE OF THIS PLAN IS TO SHOW THE EXISTING CONDITIONS ON ASSESSOR'S MAP 1 LOTS 45 & 46 IN THE TOWN OF KITTERY.
 - 8) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.
 - 9) MEAN LOW WATER SHOWN HEREON IS AT ELEVATION -4.30 AND IS REFERENCED TO NOAA STATION 8419870 SEAVEY ISLAND, PORTSMOUTH HARBOR, ME.
 - 10) HIGHEST ANNUAL TIDE SHOWN AT ELEVATION 5.8 PER LOCATION SEAVEY ISLAND IN MAINE DEP HIGHEST ANNUAL TIDE (HAT) LEVELS FOR YEAR 2018.

**SITE IMPROVEMENTS
9-13 WATER STREET
KITTERY, ME**

NO.	DESCRIPTION	DATE
1	SETBACK & S.F. AREAS	7/27/23
0	ISSUED FOR COMMENT	5/31/23

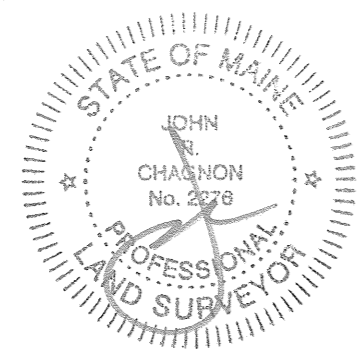
SCALE: 1" = 30' MAY 2023

EXISTING CONDITIONS PLAN **C1**

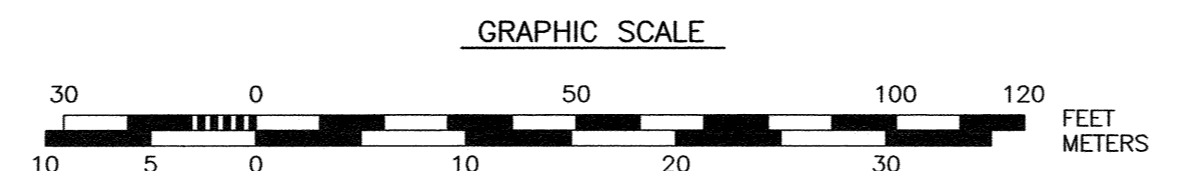
PURSUANT TO CHAPTER 90 PARTS 1 AND 2 OF THE SURVEY STANDARDS OF PRACTICE AS ADOPTED BY THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS, THE FOLLOWING EXCEPTIONS TO PART 2 ARE NOTED:
A) NO SURVEY REPORT HAS BEEN PREPARED.
B) MONUMENTS HAVE NOT BEEN SET AS OF THE DATE OF THIS PLAN.

THIS SURVEY CONFORMS TO THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS CHAPTER 90 STANDARDS OF PRACTICE, EFFECTIVE DATE APRIL 1, 2001 EXCEPT AS NOTED ON THIS PLAN.

JOHN R. CHAGNON, PLS #2276
DATE 7.27.23



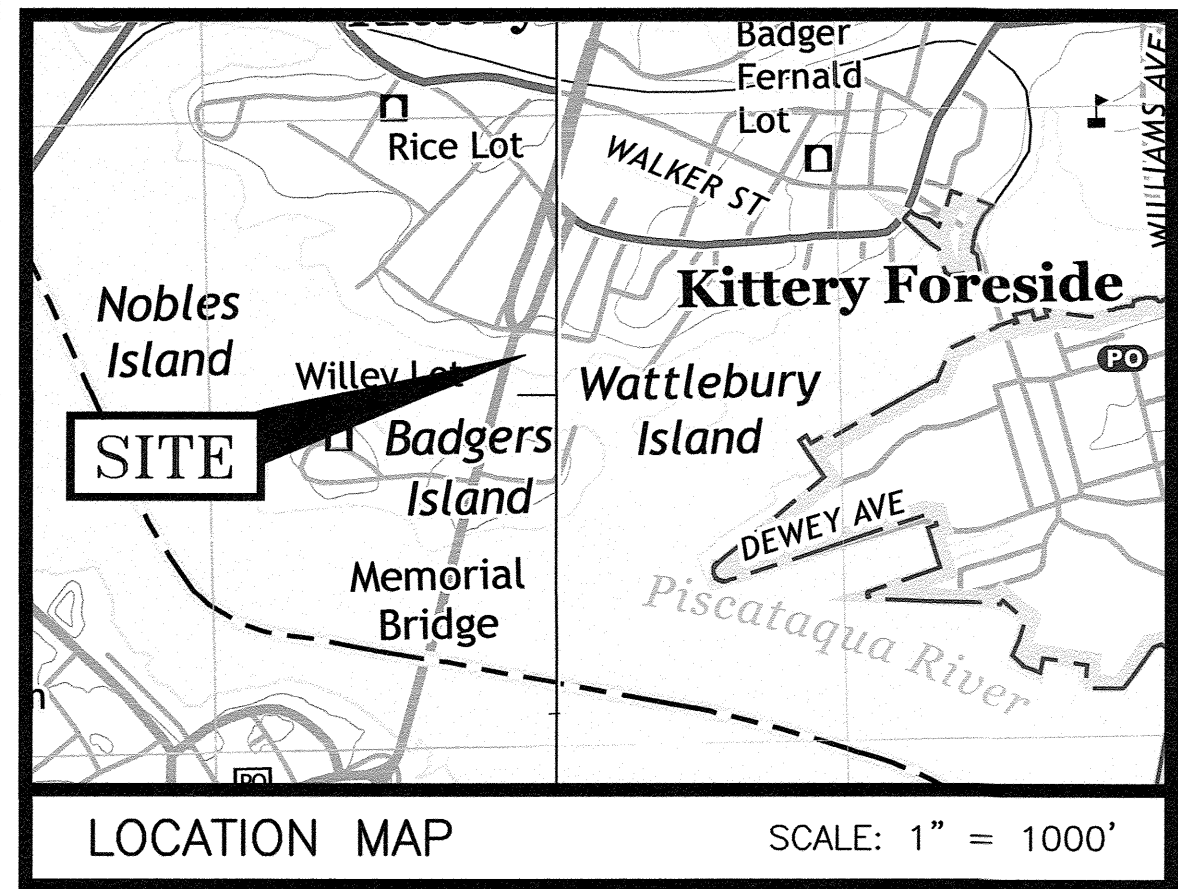
**BACK CHANNEL
(PISCATAQUA RIVER)**



OWNER:
WLH MANAGEMENT CORP.
11 WATER STREET
KITTERY, ME 03904

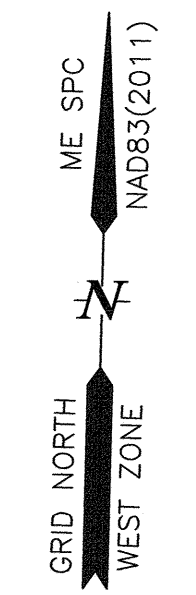
PREPARED BY:
AMBIT ENGINEERING-HW
200 GRIFFIN ROAD UNIT 3
PORTSMOUTH, N.H. 03801

P:\NH\0310312\Green & Company\3569.02-11 Water St., Kittery-JRC\2023 Site Plan\Plan & Specs\Site\3569 Existing Conditions NEW 2023.dwg, 11/22/2023 11:20:16 AM, Portsmouth, New Hampshire, TX3000pc



BUILDING SQUARE FOOT TABLE		
STRUCTURE	EXISTING	PROPOSED
GARAGE	1,249 S.F.	
2-UNIT	1,457 S.F.	
CANOPY	1,216 S.F.	
RESTAURANT & LOBSTER POUND	13,267 S.F.	
8 UNITS WITH DECKS		12,028 S.F.
LOBSTER POUND		1,200 S.F.
TOTAL	17,189 S.F.	13,228 S.F.

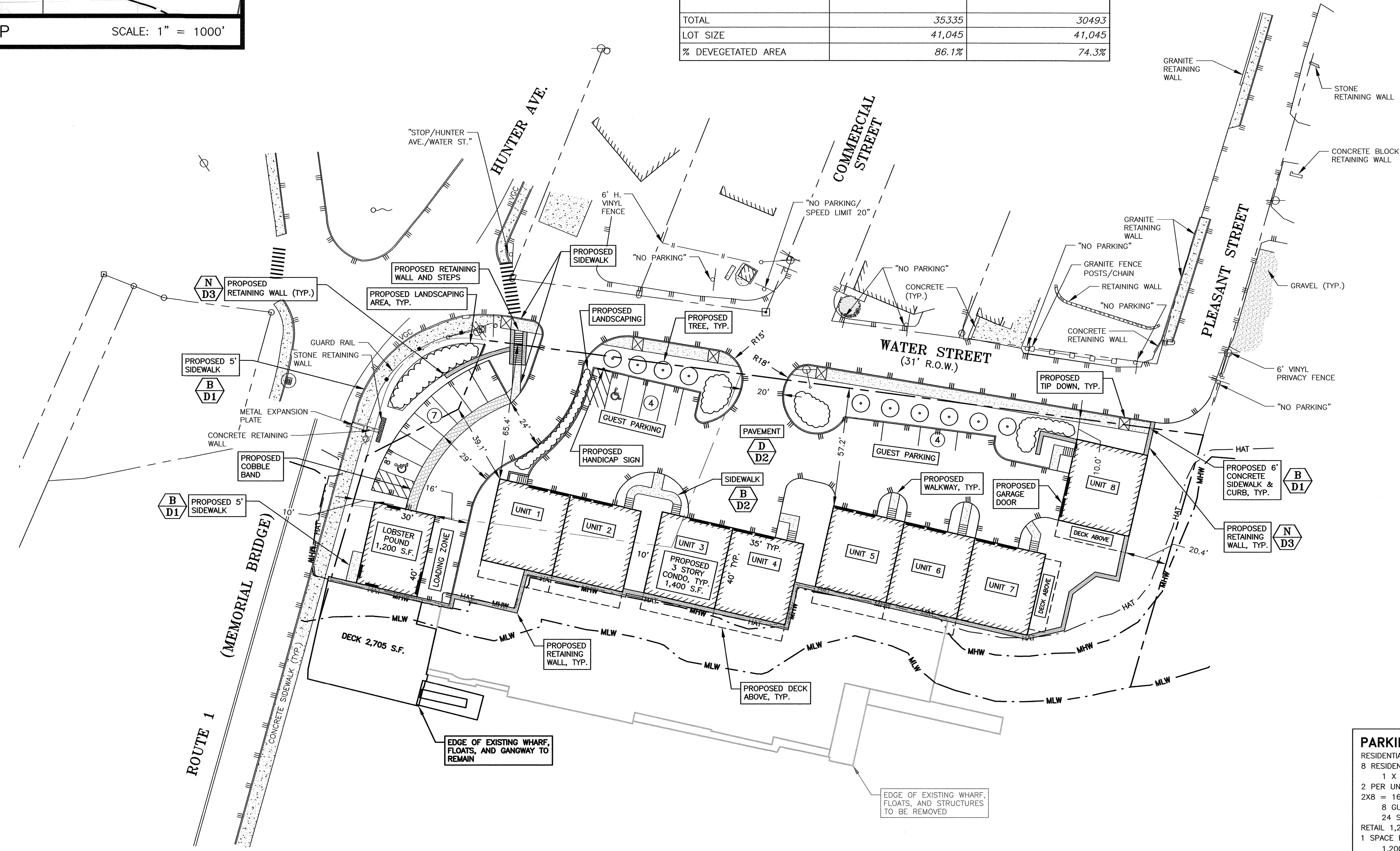
DEVEGETATED COVERAGE CALCULATION (TO HAT LINE)		
STRUCTURE	PRE-CONSTRUCTION IMPERVIOUS (S.F.)	POST-CONSTRUCTION IMPERVIOUS (S.F.)
MAIN STRUCTURES	2,590	12,357
DECKS	37	1,011
STAIRS	0	139
PAVEMENT	32,677	15,816
WHARF/FLOATS/GANGWAY	0	0
WALKWAYS/SIDEWALK	0	641
SIDEWALK STEPS	0	39
RETAINING WALL	31	490
TOTAL	35,335	30,493
LOT SIZE	41,045	41,045
% DEVEGETATED AREA	86.1%	74.3%



- NOTES:**
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 - OWNER OF RECORD:
WLH MANAGEMENT CORPORATION
C/O OWNER SCOTT D. CUNNINGHAM
11 WATER STREET, ME 03904
3325/0262
 - PARCEL IS ALMOST COMPLETELY IN A SPECIAL FLOOD HAZARD ZONE (ZONE AE) AS SHOWN ON PRELIMINARY FIRM PANEL 23031C07096. REVISION DATE 14 APRIL, 2017.
 - EXISTING LOT AREA:
49,863 ± S.F. (TO MLW)
1.1406 ± ACRES (TO MLW)
 - PARCEL ZONING INFORMATION:
BASE ZONE: MIXED USE - KITTERY FORESIDE (MU-KF)
OVERLAY ZONES - COMMERCIAL FISHERIES/MARITIME USES (OZ-CFMU), & SHORELAND OVERLAY ZONE OZ-SL.
 - DIMENSIONAL REQUIREMENTS:
MU-KF BASE ZONE REQUIREMENTS:
MINIMUM LAND AREA PER DWELLING UNIT: 5,000 SQ. FT.
MINIMUM LOT SIZE: 5,000 SQ. FT.
MINIMUM STREET FRONTAGE: 0 FT.
MINIMUM FRONT YARD: 10 FT.
MINIMUM REAR AND SIDE YARDS: 10 FT.
MINIMUM SEPERATION DISTANCE BETWEEN PRINCIPAL BUILDINGS ON THE SAME LOT: 10 FEET

MAXIMUM BUILDING HEIGHT: 40 FT.
MAXIMUM BUILDING COVERAGE: 60%
MINIMUM OPEN SPACE: 40%

OZ-CFMU:
-SHELTER FROM PREVAILING WINDS AND WAVES.
-SLOPE OF LAND WITHIN 250 FEET, HORIZONTAL DISTANCE, OF THE SHORELINE.
-DEPTH OF THE WATER WITHIN 150 FEET, HORIZONTAL DISTANCE, OF THE SHORELINE.
-PERMITTED USES, FUNCTIONALLY WATER-DEPENDENT COMMERCIAL FISHERIES/MARINE ACTIVITIES.
-STANDARDS, DIMENSIONAL STANDARDS OF THE UNDERLYING BASE AND OVERLAY ZONE(S).
 - THE PURPOSE OF THIS PLAN IS TO SHOW THE PROPOSED SITE IMPROVEMENTS ON ASSESSOR'S MAP 1 LOTS 45 & 46 IN THE TOWN OF KITTERY.
 - VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.
 - MEAN LOW WATER SHOWN HEREON IS AT ELEVATION -4.30 AND IS REFERENCED TO NOAA STATION 8419870 SEAVEY ISLAND, PORTSMOUTH HARBOR, ME.
 - HIGHEST ANNUAL TIDE LINE SHOWN AT ELEVATION 5.8 PER LOCATION SEAVEY ISLAND IN MAINE DEP HIGHEST ANNUAL TIDE (HAT) LEVELS FOR YEAR 2018.



PARKING CALCULATION:

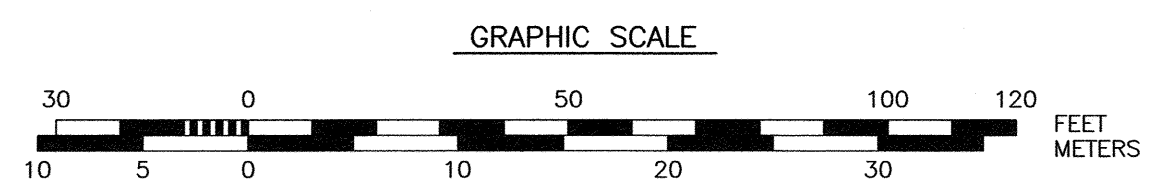
RESIDENTIAL:
8 RESIDENTIAL UNITS:
1 X 8 = 8 REQUIRED
2 PER UNIT IN GARAGE
2X8 = 16 PROVIDED
8 GUEST SPACES
24 SPACES PROVIDED TOTAL

RETAIL 1,200 SF:
1 SPACE PER 175 SF
1,200/175 = 7 SPACES REQUIRED
7 SPACES PROVIDED

OWNER:
WLH MANAGEMENT CORP.
11 WATER STREET
KITTERY, ME 03904

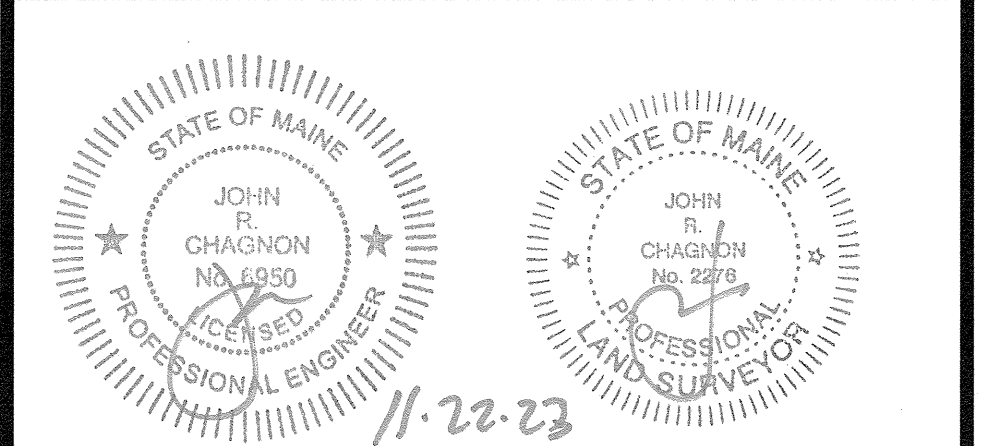
PREPARED BY:
AMBIT ENGINEERING-HW
200 GRIFFIN ROAD UNIT 3
PORTSMOUTH, N.H. 03801

BACK CHANNEL
(PISCATAQUA RIVER)



**SITE IMPROVEMENTS
9-13 WATER STREET
KITTERY, ME**

NO.	DESCRIPTION	DATE
2	PRELIMINARY SUBMISSION	11/22/23
1	ISSUED FOR APPROVAL	7/10/23
0	ISSUED FOR COMMENT	5/31/23



SCALE: 1" = 30' MAY 2023

SHORELAND DEVELOPMENT PLAN **C2**

P:\NH\01\12_Green_Comp\3569-00-11 Water St., Kittery-JRC\003 Site Plan\Plans & Specs\Site\0556 Existing Conditions NEW 2023.dwg, 11/22/2023 9:03:51 AM, Portsmouth Plotter Canon TX3000.pcl

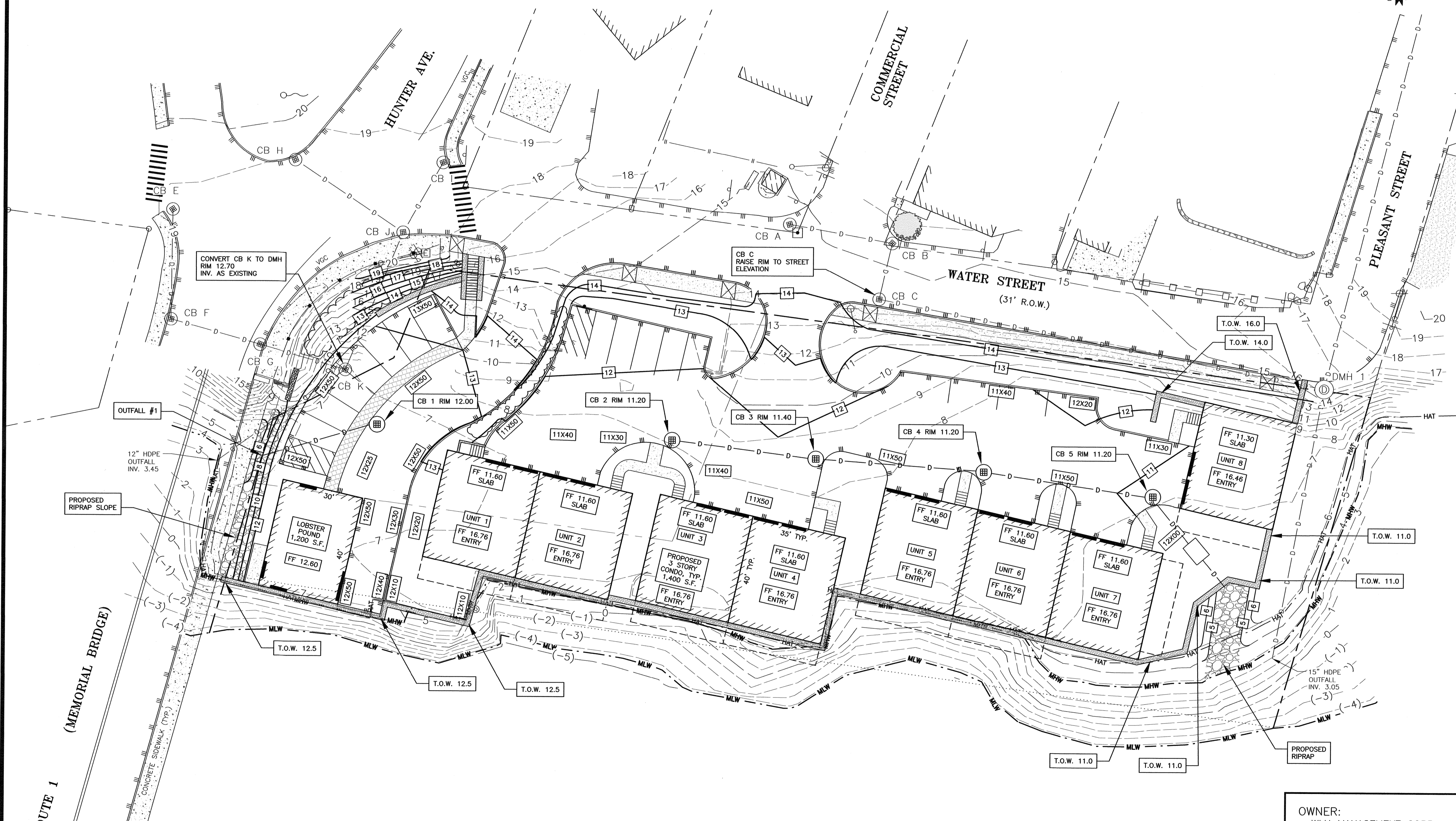
NOTES:

- 1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.
- 2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.
- 3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMP's" PUBLISHED BY THE MAINE D.E.P. IN 2014.
- 4) PROJECT DISTURBED AREA: 47,271 S.F.
- 5) VERTICAL DATUM IS NAVD88. BASIS OF VERTICAL DATUM IS REDUNDANT RTN GNSS OBSERVATIONS.

DRAINAGE STRUCTURE SCHEDULE						
STRUCTURE	PROP/EX	RIM	PIPE SIZE/TYPE	INVERT IN	INVERT OUT	DIRECTION
CB 1	PROP	12.0	12" HDPE		9.00	W
CB 2	PROP	11.2	12" HDPE		7.20	E
CB 3	PROP	11.4	12" HDPE	7.04	6.94	E
CB 4	PROP	11.2	15" HDPE	6.75	6.50	E
CB 5	PROP	11.20	15" HDPE	6.37	6.27	SE
Jellyfish	PROP		15" HDPE	5.88	4.88	SE
Outfall 1	PROP				8.83	
Outfall 2	PROP				4.84	

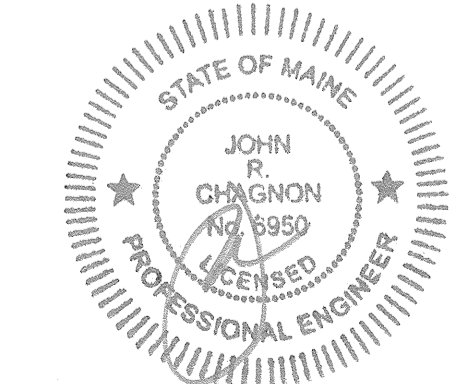
PIPE SCHEDULE			
PIPE #	PIPE SIZE	LENGTH	SLOPE
CB 1 to outfall 1	12" HDPE	40'	0.0042
CB 2 to CB 3	12" HDPE	47'	0.0034
CB 3 to CB 4	12" HDPE	56'	0.0034
CB 4 to CB 5	15" HDPE	56'	0.0024
CB 5 to Jellyfish	15" HDPE	16'	0.0244
Jellyfish to outfall 2	15" HDPE	14'	0.0024

*ALL PIPE TO BE HDPE/PVC



**SITE IMPROVEMENTS
9-13 WATER STREET
KITTERY, ME**

NO.	DESCRIPTION	DATE
0	PRELIMINARY SUBMISSION	11/22/23
REVISIONS		



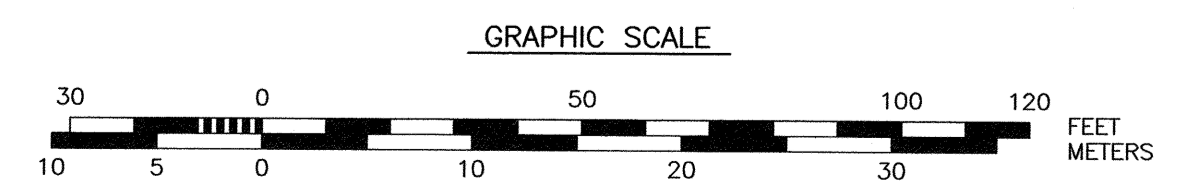
11-22-23

SCALE: 1" = 20' OCTOBER 2023

GRADING PLAN **C4**

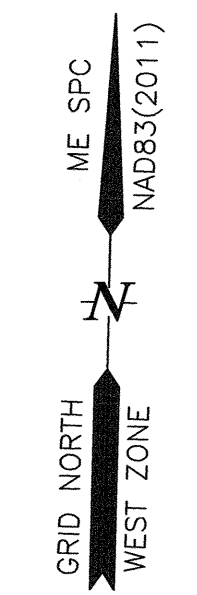
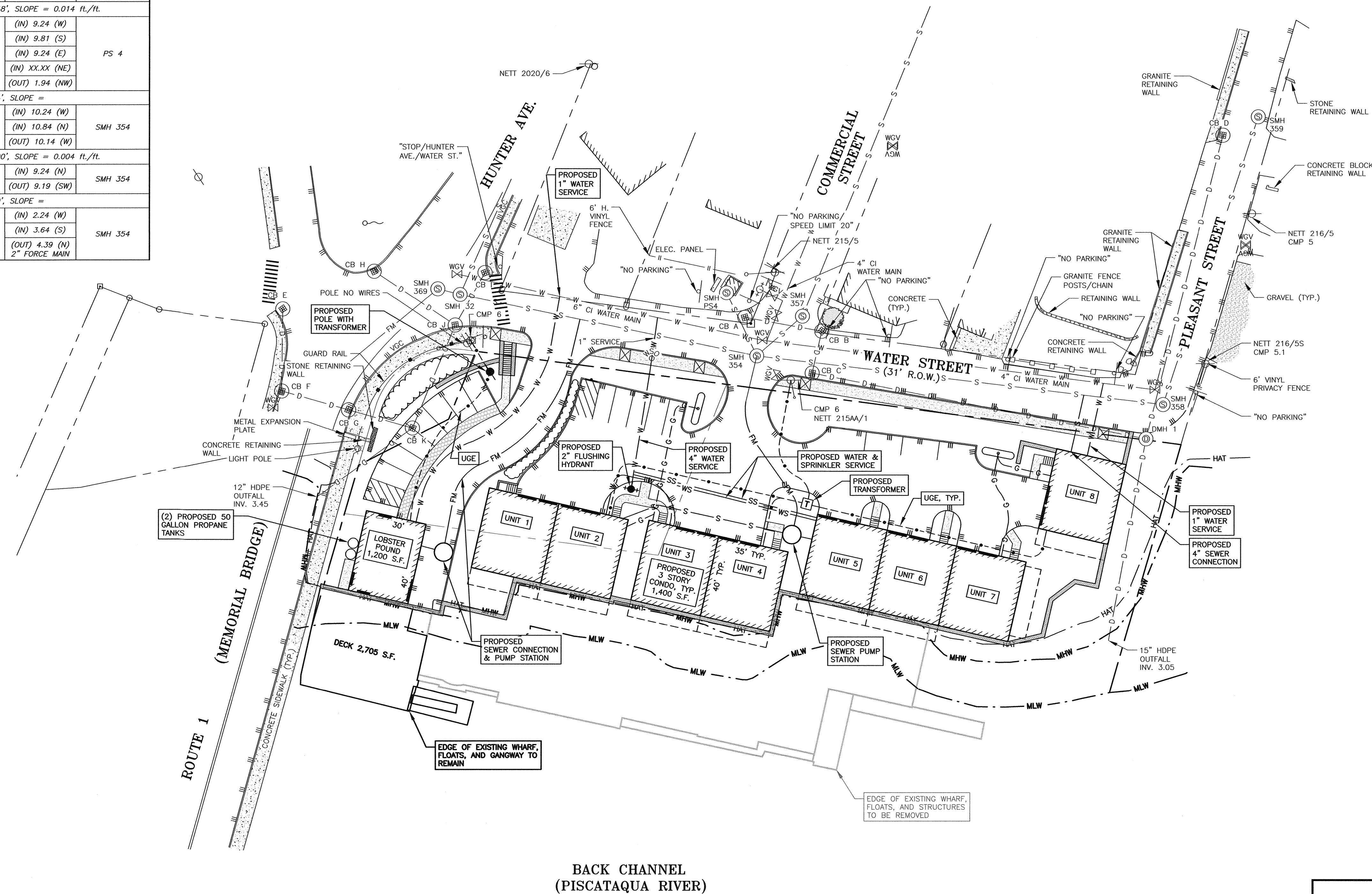
OWNER:
WLH MANAGEMENT CORP.
11 WATER STREET
KITTERY, ME 03904

PREPARED BY:
AMBIT ENGINEERING-HW
200 GRIFFIN ROAD UNIT 3
PORTSMOUTH, N.H. 03801



SEWER STRUCTURE TABLE

STRUCTURE	RIM ELEV.	INV. ELEV. IN INV. ELEV. OUT	DOWN STREAM STRUCTURE
PIPE	PIPE LENGTH, PIPE SLOPE		
SMH 369	18.86	(IN) 11.71 (W)	SMH 32
		(IN) 11.71 (S)	
		(OUT) 11.61 (E)	
8" PVC PIPE	L = 11', SLOPE = 0.017 ft./ft.		
SMH 32	18.52	(IN) 11.42 (W)	SMH 354
		(IN) 12.52 (N)	
		(OUT) 11.32 (E)	
8" PVC PIPE	L = 148', SLOPE = 0.014 ft./ft.		
SMH 354	14.49	(IN) 9.24 (W)	PS 4
		(IN) 9.81 (S)	
		(IN) 9.24 (E)	
		(IN) XX.XX (NE)	
		(OUT) 1.94 (NW)	
X" PIPE	L = 34', SLOPE =		
SMH 358	17.74	(IN) 10.24 (W)	SMH 354
		(IN) 10.84 (N)	
		(OUT) 10.14 (W)	
8" PVC PIPE	L = 200', SLOPE = 0.004 ft./ft.		
SMH 357	15.64	(IN) 9.24 (N)	SMH 354
		(OUT) 9.19 (SW)	
8" PVC PIPE	L = 30', SLOPE =		
SMH A	7.34	(IN) 2.24 (W)	SMH 354
		(IN) 3.64 (S)	
		(OUT) 4.39 (N)	
		2" FORCE MAIN	

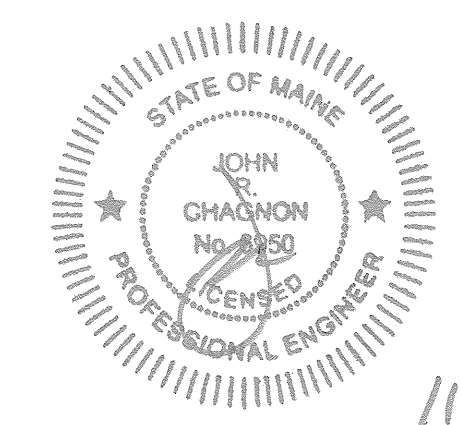


- NOTES:**
- 1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.
 - 2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.
 - 3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMP'S" PUBLISHED BY THE MAINE D.E.P. IN 2014.
 - 4) CONTRACTOR SHALL FIELD VERIFY THE DEPTH OF EXISTING UTILITIES AND COORDINATE WITH THE ENGINEER PRIOR TO CONSTRUCTION OF THE PROPOSED UTILITIES.
 - 5) ALL UTILITIES SHOWN ARE TO REMAIN UNLESS NOTED OTHERWISE.
 - 6) COORDINATE UTILITY CONNECTIONS AND INSTALLATIONS WITH RESPECTIVE UTILITY COMPANIES AND SERVICE PROVIDERS.
 - 7) CONTRACTOR SHALL MAINTAIN EXISTING UTILITY SERVICES TO ADJACENT PROPERTIES DURING CONSTRUCTION. PROVIDE PROPER NOTIFICATION OF ANY SERVICE INTERRUPTIONS.
 - 8) ALL WATER, SEWER, AND ROADWAY WORK TO BE COMPLETED TO KITTERY WATER DISTRICT AND TOWN OF KITTERY STANDARDS.

**SITE IMPROVEMENTS
9-13 WATER STREET
KITTERY, ME**

NO.	DESCRIPTION	DATE
1	ISSUED FOR APPROVAL	11/22/23
0	PRELIMINARY SUBMISSION	10/26/23

REVISIONS



OWNER:
WLH MANAGEMENT CORP.
11 WATER STREET
KITTERY, ME 03904

PREPARED BY:
AMBIT ENGINEERING-HW
200 GRIFFIN ROAD UNIT 3
PORTSMOUTH, N.H. 03801

SCALE: 1" = 30' MAY 2023

UTILITY PLAN **C5**

PLAN 051919, Cases & Comments 03/09/2023 11:11 AM, Kittery - JHC/2023 Site Plan/Plans & Specs/051919/051919.dwg, 11/22/2023 2:52:23 PM, Portsmouth Plotter Color: TX3000A4x3

EROSION CONTROL NOTES

CONSTRUCTION SEQUENCE

- DO NOT BEGIN CONSTRUCTION UNTIL ALL LOCAL, STATE, AND FEDERAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
- INSTALL PERIMETER CONTROLS, I.E., SILTSOXX AROUND THE LIMITS OF DISTURBANCE AND CATCH BASIN FILTER BASKETS BEFORE ANY EARTH MOVING OPERATIONS. THE USE OF HAY BALES IS NOT ALLOWED.
- CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE.
- PERFORM DEMOLITION.
- CUT AND GRUB ALL TREES, SHRUBS, SAPLINGS, BRUSH, VINES AND REMOVE OTHER DEBRIS AND RUBBISH AS REQUIRED.
- REMOVE PAVEMENT AS NEEDED.
- ROUGH GRADE SITE. INSTALL RETAINING WALLS. IN LANDSCAPED AREAS OUT OF THE WAY OF SUBSEQUENT CONSTRUCTION ACTIVITY, INSTALL TOPSOIL, MULCH, SEED AND FERTILIZE. STABILIZE PER DETAILS.
- CONSTRUCT FOUNDATIONS AND DRAINAGE.
- LAYOUT AND INSTALL ALL BURIED UTILITIES AND SERVICES TO THE PROPOSED BUILDING FOUNDATIONS. CAP AND MARK TERMINATIONS OR LOG SWING TIES.
- CONSTRUCT BUILDING FRAMES.
- FINISH GRADE SITE, DRIVEWAY & PARKING SUBBASE GRAVEL IN TWO, COMPACTED LIFTS. PROVIDE TEMPORARY EROSION PROTECTION TO DITCHES AND SWALES IN THE FORM OF MULCHING, JUTE MESH OR DITCH DAMS. CONSTRUCT BINDER COURSE.
- BUILDING EXTERIOR WORK.
- AFTER BUILDINGS ARE COMPLETED FINISH ALL REMAINING LANDSCAPED WORK.
- CONSTRUCT ASPHALT WEARING COURSE.
- REMOVE TRAPPED SEDIMENTS FROM COLLECTION DEVICES AS APPROPRIATE, AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES UPON COMPLETION OF FINAL STABILIZATION OF THE SITE.

GENERAL CONSTRUCTION NOTES

- THE EROSION CONTROL PROCEDURES SHALL CONFORM TO "MAINE EROSION AND SEDIMENT CONTROL BMP'S" PUBLISHED BY THE MAINE D.E.P. IN 2016.
- DURING CONSTRUCTION AND THEREAFTER, EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AS NOTED. THE SMALLEST PRACTICAL AREA OF LAND SHOULD BE EXPOSED AT ANY ONE TIME DURING CONSTRUCTION, BUT IN NO CASE SHALL EXCEED 5 ACRES AT ANY ONE TIME BEFORE DISTURBED AREAS ARE STABILIZED.
- AN AREA SHALL BE CONSIDERED STABLE IF ONE OF THE FOLLOWING HAS OCCURRED:
 - BASE COURSE GRAVELS HAVE BEEN INSTALLED IN AREAS TO BE PAVED;
 - A MINIMUM OF 85% VEGETATED GROWTH HAS BEEN ESTABLISHED;
 - A MINIMUM OF 3" OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED; OR,
 - EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
- ANY DISTURBED AREAS WHICH ARE TO BE LEFT TEMPORARILY, AND WHICH WILL BE REGRADED LATER DURING CONSTRUCTION SHALL BE MACHINE HAY MULCHED AND SEEDING WITH RYE GRASS TO PREVENT EROSION.
- DUST CONTROL: IF TEMPORARY STABILIZATION PRACTICES, SUCH AS TEMPORARY VEGETATION AND MULCHING, DO NOT ADEQUATELY REDUCE DUST GENERATION, APPLICATION OF WATER OR CALCIUM CHLORIDE SHALL BE APPLIED IN ACCORDANCE WITH BEST MANAGEMENT PRACTICES.
- ALL EROSION CONTROLS SHALL BE INSPECTED WEEKLY DURING THE LIFE OF THE PROJECT AND AFTER EACH STORM OF 0.5" OR GREATER. ALL DAMAGED SILT FENCES SHALL BE REPAIRED. SEDIMENT DEPOSITS SHALL PERIODICALLY BE REMOVED AND DISPOSED IN A SECURED LOCATION.
- AVOID THE USE OF FUTURE OPEN SPACES (LOAM AND SEED AREAS) WHEREVER POSSIBLE DURING CONSTRUCTION. CONSTRUCTION TRAFFIC SHALL USE THE ROADBEDS OF FUTURE ACCESS DRIVES AND PARKING AREAS.
- TOPSOIL REQUIRED FOR THE ESTABLISHMENT OF VEGETATION SHALL BE STOCKPILED IN AMOUNTS NECESSARY TO COMPLETE FINISHED GRADING OF ALL EXPOSED AREAS. CONSTRUCT SILT FENCE AROUND TOPSOIL STOCKPILE.
- AREAS TO BE FILLED SHALL BE CLEARED, GRUBBED AND STRIPPED OF TOPSOIL TO REMOVE TREES, VEGETATION, ROOTS OR OTHER OBJECTIONABLE MATERIAL. STUMPS SHALL BE DISPOSED BY GRINDING OR FILL IN AN APPROVED FACILITY.
- ALL FILLS SHALL BE PLACED AND COMPACTED TO REDUCE EROSION, SLIPPAGE, SETTLEMENT, SUBSIDENCE OR OTHER RELATED PROBLEMS.
- ALL FILL SHALL BE PLACED AND COMPACTED IN LAYERS NOT EXCEEDING 8 INCHES IN THICKNESS UNLESS OTHERWISE NOTED.
- FROZEN MATERIAL OR SOFT, MUCKY OR HIGHLY COMPRESSIBLE MATERIAL SHALL NOT BE INCORPORATED INTO FILLS.
- FILL MATERIAL SHALL NOT BE PLACED ON FROZEN FOUNDATION SUBGRADE.
- DISTURBED AREAS SHALL BE SEEDING WITHIN 72 HOURS FOLLOWING FINISHED GRADING.
- AT NO TIME SHALL ANY DISTURBED AREA REMAIN UNSTABILIZED FOR LONGER THAN 72 HOURS. ALL AREAS WHERE CONSTRUCTION IS NOT COMPLETE WITHIN THIRTY DAYS OF THE INITIAL DISTURBANCE SHALL BE MACHINE HAY MULCHED AND SEEDING WITH RYE GRASS TO PREVENT EROSION.

VEGETATIVE PRACTICE

- FOR PERMANENT MEASURES AND PLANTINGS:
 - LIMESTONE SHALL BE THOROUGHLY INCORPORATED INTO THE LOAM LAYER AT A RATE OF 2 TONS PER ACRE.
 - FERTILIZER SHALL BE SPREAD ON THE TOP LAYER OF LOAM AND WORKED INTO THE SURFACE. FERTILIZER APPLICATION RATE SHALL BE 500 POUNDS PER ACRE OF 10-20-20 FERTILIZER.
 - SEED SHALL BE SOWN AT THE RATES SHOWN IN THE TABLE BELOW. IMMEDIATELY BEFORE SEEDING, THE SOIL SHALL BE LIGHTLY RAKED, ONE HALF THE SEED SHALL BE SOWN IN ONE DIRECTION AND THE OTHER HALF AT RIGHT ANGLES TO THE ORIGINAL DIRECTION. IT SHALL BE LIGHTLY RAKED INTO THE SOIL TO A DEPTH NOT OVER 1/4 INCH AND ROLLED WITH A HAND ROLLER WEIGHING NOT OVER 100 POUNDS PER LINEAR FOOT OF WIDTH. HAY MULCH SHALL BE APPLIED IMMEDIATELY AFTER SEEDING AT A RATE OF 1.5 TO 2 TONS PER ACRE, AND SHALL BE HELD IN PLACE USING APPROPRIATE TECHNIQUES FROM THE EROSION AND SEDIMENT CONTROL HANDBOOK.
 - THE SURFACE SHALL BE WATERED AND KEPT MOIST WITH A FINE SPRAY AS REQUIRED, WITHOUT WASHING AWAY THE SOIL, UNTIL THE GRASS IS WELL ESTABLISHED. ANY AREAS WHICH ARE NOT SATISFACTORILY COVERED SHALL BE RESEEDING, AND ALL NOXIOUS WEEDS REMOVED.
 - A GRASS SEED MIXTURE CONTAINING THE FOLLOWING SEED REQUIREMENTS SHALL BE:

GENERAL COVER	PROPORTION	SEEDING RATE
CREEPING RED FESCUE	50%	100 LBS/ACRE
KENTUCKY BLUEGRASS	50%	
 - SLOPE SEED (USED ON ALL SLOPES GREATER THAN OR EQUAL TO 3:1)

CREEPING RED FESCUE	42%	48 LBS/ACRE
TALL FESCUE	42%	
BIRDSFOOT TREFLOIL	16%	
- IN NO CASE SHALL THE WEED CONTENT EXCEED ONE PERCENT BY WEIGHT. ALL SEED SHALL COMPLY WITH APPLICABLE STATE AND FEDERAL SEED LAWS.
- FOR TEMPORARY PROTECTION OF DISTURBED AREAS:
 - MULCHING AND SEEDING SHALL BE APPLIED AT THE FOLLOWING RATES:
 - PERENNIAL RYE: 0.7 LBS/1,000 S.F.
 - MULCH: 1.5 TONS/ACRE

MAINTENANCE AND PROTECTION

- THE CONTRACTOR SHALL MAINTAIN ALL LOAM & SEED AREAS UNTIL FINAL ACCEPTANCE AT THE COMPLETION OF THE CONTRACT. MAINTENANCE SHALL INCLUDE WATERING, WEEDING, REMOVAL OF STONES AND OTHER FOREIGN OBJECTS OVER 1/2 INCHES IN DIAMETER WHICH MAY APPEAR AND THE FIRST TWO (2) CUTTINGS OF GRASS NO CLOSER THEN TEN (10) DAYS APART. THE FIRST CUTTING SHALL BE ACCOMPLISHED WHEN THE GRASS IS FROM 2 1/2 TO 3 INCHES HIGH. ALL BARE AND DEAD SPOTS WHICH BECOME APPARENT SHALL BE PROPERLY PREPARED, LIMED AND FERTILIZED, AND RESEEDING BY THE CONTRACTOR AT HIS EXPENSE AS MANY TIMES AS NECESSARY TO SECURE GOOD GROWTH. THE ENTIRE AREA SHALL BE MAINTAINED, WATERED AND CUT UNTIL ACCEPTANCE OF THE LAWN BY THE OWNER'S REPRESENTATIVE.
- THE CONTRACTOR SHALL TAKE WHATEVER MEASURES ARE NECESSARY TO PROTECT THE GRASS WHILE IT IS DEVELOPING.
- TO BE ACCEPTABLE, SEEDING AREAS SHALL CONSIST OF A UNIFORM STAND OF AT LEAST 90 PERCENT ESTABLISHED PERMANENT GRASS SPECIES, WITH UNIFORM COUNT OF AT LEAST 100 PLANTS PER SQUARE FOOT.
- SEEDING AREAS WILL BE FERTILIZED AND RESEEDING AS NECESSARY TO INSURE VEGETATIVE ESTABLISHMENT.
- THE SWALES WILL BE CHECKED WEEKLY AND REPAIRED WHEN NECESSARY UNTIL ADEQUATE VEGETATION IS ESTABLISHED.
- THE SILT FENCE BARRIER SHALL BE CHECKED AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL.
- SILT FENCING SHALL BE REMOVED ONCE VEGETATION IS ESTABLISHED, AND DISTURBED AREAS RESULTING FROM SILT FENCE REMOVAL SHALL BE PERMANENTLY SEEDING.

WINTER NOTES

- ALL PROPOSED VEGETATED AREAS WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED BY SEEDING AND INSTALLING EROSION CONTROL BLANKETS ON SLOPES GREATER THAN 3:1, AND SEEDING AND PLACING 3 TO 4 TONS OF MULCH PER ACRE, SECURED WITH ANCHORED NETTING, ELSEWHERE. THE INSTALLATION OF EROSION CONTROL BLANKETS OR MULCH AND NETTING SHALL NOT OCCUR OVER ACCUMULATED SNOW OR ON FROZEN GROUND AND SHALL BE COMPLETED IN ADVANCE OF THAW OR SPRING MELT EVENTS.
- ALL DITCHES OR SWALES WHICH DO NOT EXHIBIT A MINIMUM OF 85% VEGETATIVE GROWTH BY OCTOBER 15TH, OR WHICH ARE DISTURBED AFTER OCTOBER 15TH, SHALL BE STABILIZED TEMPORARILY WITH STONE OR EROSION CONTROL BLANKETS APPROPRIATE FOR THE DESIGN FLOW CONDITIONS.
- AFTER NOVEMBER 15TH, INCOMPLETE ROAD OR PARKING SURFACES, WHERE WORK HAS STOPPED FOR THE WINTER SEASON, SHALL BE PROTECTED WITH A MINIMUM OF 3 INCHES OF CRUSHED GRAVEL.

INSPECTION AND MAINTENANCE PLAN

INTRODUCTION

THE INTENT OF THIS IS TO PROVIDE GREEN & COMPANY A LIST OF PROCEDURES THAT DOCUMENT THE INSPECTION AND MAINTENANCE REQUIREMENTS OF THE STORMWATER MANAGEMENT SYSTEM FOR THIS DEVELOPMENT. SPECIFICALLY, THE PROPOSED CONSTRUCTION DRAINAGE AND ASSOCIATED STRUCTURES ON THE PROJECT SITE (COLLECTIVELY REFERRED TO AS THE "STORMWATER MANAGEMENT SYSTEM")

THE FOLLOWING INSPECTION AND MAINTENANCE PROGRAM IS NECESSARY TO KEEP THE STORMWATER MANAGEMENT SYSTEM FUNCTIONING PROPERLY. THESE MEASURES WILL ALSO HELP MINIMIZE POTENTIAL ENVIRONMENTAL IMPACTS. BY FOLLOWING THE ENCLOSED PROCEDURES, THE OWNER WILL BE ABLE TO MAINTAIN THE FUNCTIONAL DESIGN OF THE STORMWATER MANAGEMENT SYSTEM AND MAXIMIZED ITS ABILITY TO REMOVE SEDIMENT AND OTHER CONTAMINANTS FROM THE SITE GENERATED STORMWATER RUNOFF.

STORMWATER MANAGEMENT SYSTEM COMPONENTS

THE STORMWATER MANAGEMENT SYSTEM IS DESIGNED TO MITIGATE BOTH THE QUANTITY AND QUALITY OF SITE-GENERATED RUNOFF. AS THE RESULT, THE DESIGN INCLUDES THE FOLLOWING ELEMENTS:

NON-STRUCTURAL BMP'S

NON-STRUCTURAL BEST MANAGEMENT PRACTICES (BMP'S) INCLUDE TEMPORARY AND PERMANENT MEASURES THAT TYPICALLY REQUIRE LESS LABOR AND CAPITAL INPUTS AND ARE INTENDED TO PROVIDE PROTECTION AGAINST EROSION OF SOILS. EXAMPLES OF NON-STRUCTURAL BMP'S ON THIS PROJECT INCLUDE BUT ARE NOT LIMITED TO: TEMPORARY AND PERMANENT MULCHING, TEMPORARY AND PERMANENT GRASS COVER, TREES, SHRUBS AND GROUND COVERS, MISCELLANEOUS LANDSCAPE PLANTINGS, DUST CONTROL, TREE PROTECTION, TOPSOILING, SEDIMENT BARRIERS, AND DURING CONSTRUCTION, STABILIZED CONSTRUCTION ENTRANCES AND CATCH BASIN BASKETS. IN THIS SITE TOTAL IMPERVIOUS AREA IS REDUCED.

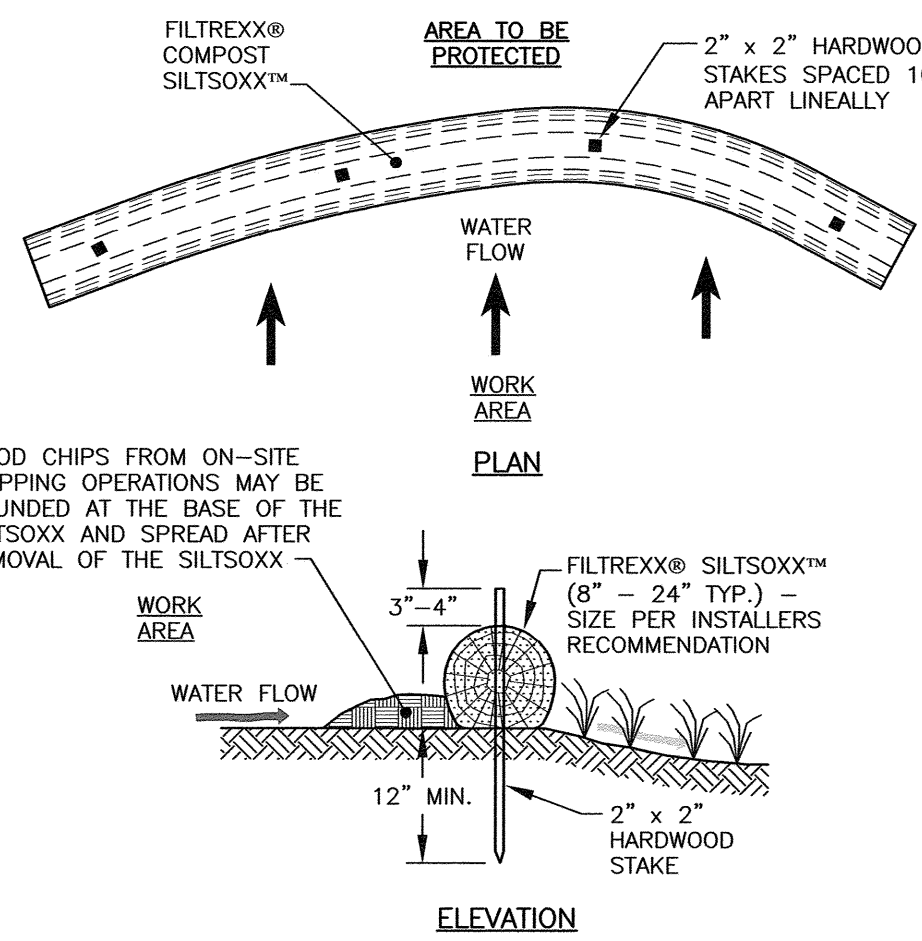
STRUCTURAL BMP'S

STRUCTURAL BMP'S REQUIRE MORE SPECIALIZED PERSONNEL TO INSTALL. EXAMPLES ON THE PROJECT INCLUDE BUT ARE NOT LIMITED TO: STORM DRAINS, THE FILTRATION BASIN, THE JELLYFISH FILTER, AND ASSOCIATED OUTLET CONTROL STRUCTURES.

INSPECTION AND MAINTENANCE REQUIREMENTS

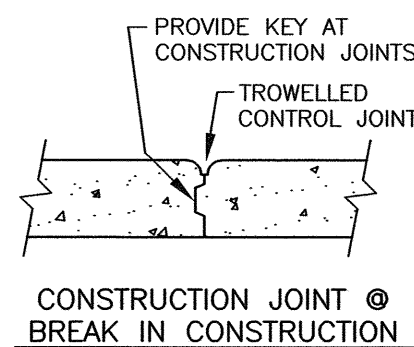
THE FOLLOWING SUMMARIZES THE INSPECTION AND MAINTENANCE REQUIREMENTS FOR THE VARIOUS BMP'S THAT MAY BE FOUND ON THIS PROJECT:

- GRASSED AREAS: AFTER EACH RAIN EVEN OF 0.5" OR MORE DURING A 24 HOUR PERIOD, INSPECT GRASSED AREAS FOR SIGNS OF DISTURBANCE, SUCH AS EROSION. IF DAMAGED AREAS ARE DISCOVERED, IMMEDIATELY REPAIR THE DAMAGE. REPAIRS MAY INCLUDE ADDING NEW TOPSOIL, LIME, SEED, FERTILIZER AND MULCH.
- PLANTINGS: PLANTING AND LANDSCAPING (TREES, SHRUBS) SHALL BE MONITORED BI-MONTHLY DURING THE FIRST YEAR TO INSURE VIABILITY AND VIGOROUS GROWTH. REPLACE DEAD OR DYING VEGETATION WITH NEW STOCK AND MAKE ADJUSTMENTS TO THE CONDITIONS THAT CAUSED THE DEAD OR DYING VEGETATION. DURING DRYER TIMES OF THE YEAR, PROVIDED WEEKLY WATERING OR IRRIGATION DURING THE ESTABLISHMENT PERIOD OF THE FIRST YEAR. MAKE NECESSARY ADJUSTMENTS TO ENSURE LONG-TERM HEALTH OF VEGETATED COVER, I.E. PROVIDE MORE PERMANENT MULCH OR COMPOST OR OTHER MEANS OF PROTECTION.
- INVASIVE SPECIES: MONITOR STORMWATER MANAGEMENT SYSTEM FOR SIGNS OF INVASIVE SPECIES GROWTH. IF CAUGHT EARLIER ENOUGH, THEIR ERADICATION IS MUCH EASIER. THE MOST LIKELY PLACES WHERE INVASIONS START ARE IN WETTER, DISTURBED SOILS OR DETENTION PONDS. SPECIES SUCH AS PHRAGMITES AND PURPLE LOOSE-STRIPE ARE COMMON INVADERS IN THESE WETTER AREAS. IF THEY ARE FOUND THEN THE OWNER SHALL CONTACT A WETLAND SCIENTIST WITH EXPERIENCE IN INVASIVE SPECIES CONTROL TO IMPLEMENT A PLAN OF ACTION TO ERADICATE THE INVADERS. MEASURES THAT DO NOT REQUIRE THE APPLICATION OF CHEMICAL HERBICIDES SHOULD BE THE FIRST LINE OF DEFENSE.
- JELLYFISH FILTER: REFERENCE SHEET D5 FOR COMPLETE MAINTENANCE DETAILS. FILTER SHOULD BE INSPECTED QUARTERLY FOR THE FIRST YEAR AND YEARLY THEREAFTER AS WELL AS AFTER MAJOR STORM EVENTS, AT MINIMUM. SEDIMENT DEPTHS GREATER THAN 12 INCHES SHOULD BE REMOVED, AS WELL AS FLOATABLES, TRASH AND DEBRIS, AND OIL. THE DECK MUST BE CLEANED AND FREE FROM SEDIMENT DURING INSPECTIONS. FILTER CARTRIDGES SHOULD BE RINSED EVERY 12 MONTHS. FILTER CARTRIDGES SHOULD BE REPLACED AT A MAXIMUM OF 5 YEARS, OR IF THEY FAIL TO RESTORE ADEQUATE HYDRAULIC CAPACITY.
- SUBMIT A YEARLY MAINTENANCE COMPLIANCE REPORT TO THE TOWN OF KITTERY EVERY YEAR PRIOR TO JULY 1ST.

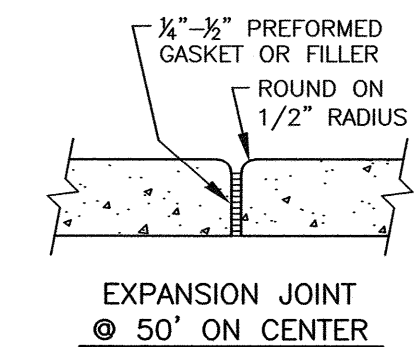


- NOTES:
- ALL MATERIAL TO MEET FILTRIXX SPECIFICATIONS.
 - FILTRIXX SYSTEM SHALL BE INSTALLED BY A CERTIFIED FILTRIXX INSTALLER.
 - THE CONTRACTOR SHALL MAINTAIN THE COMPOST FILTRATION SYSTEM IN A FUNCTIONAL CONDITION AT ALL TIMES. IT WILL BE ROUTINELY INSPECTED AND REPAIRED WHEN REQUIRED.
 - SILTSOXX DEPICTED IS FOR MINIMUM SLOPES, GREATER SLOPES MAY REQUIRE ADDITIONAL PLACEMENTS.
 - THE COMPOST FILTER MATERIAL WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED, AS DETERMINED BY THE ENGINEER.

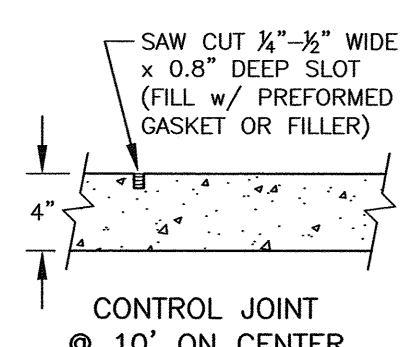
A **C4** **FILTRIXX® SILTSOXX™ FILTRATION SYSTEM** (AS NEEDED) NTS



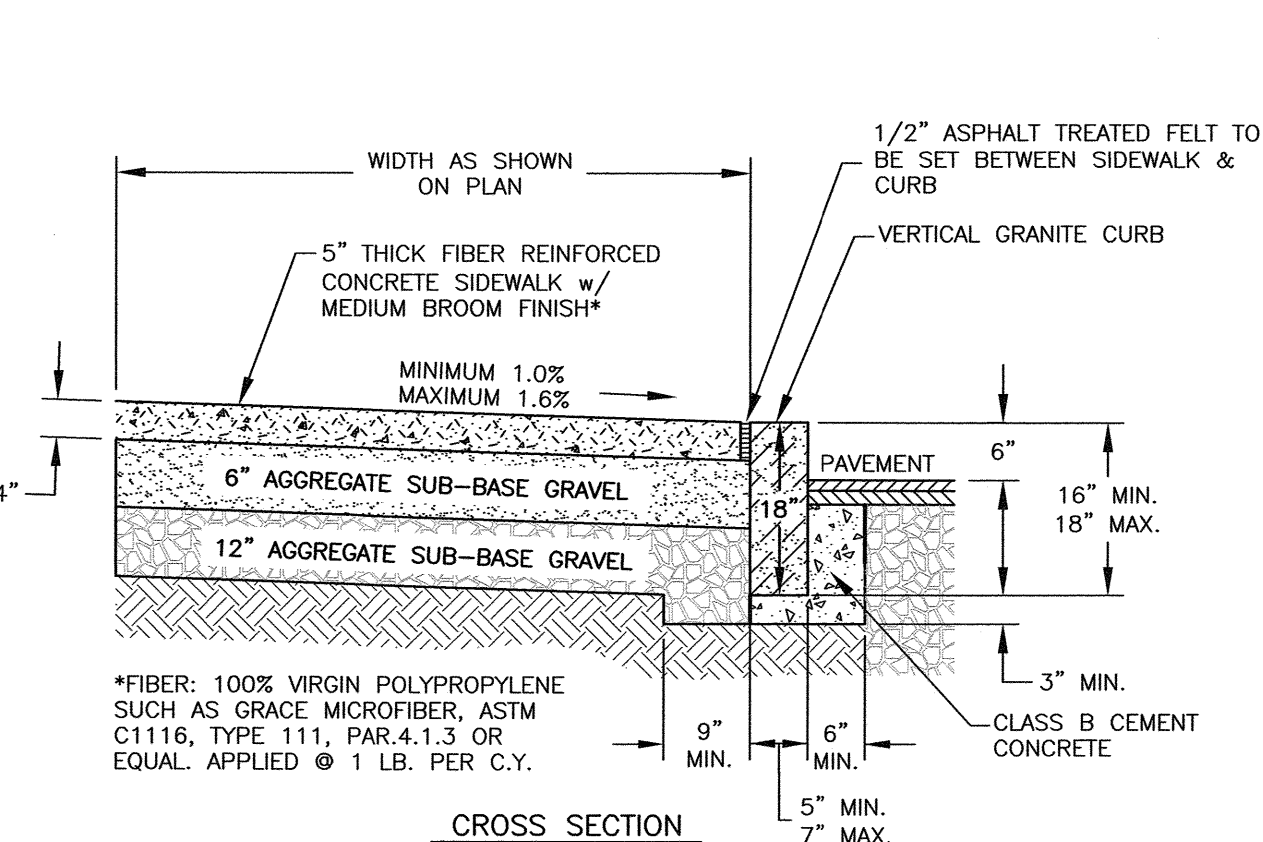
CONSTRUCTION JOINT @ BREAK IN CONSTRUCTION



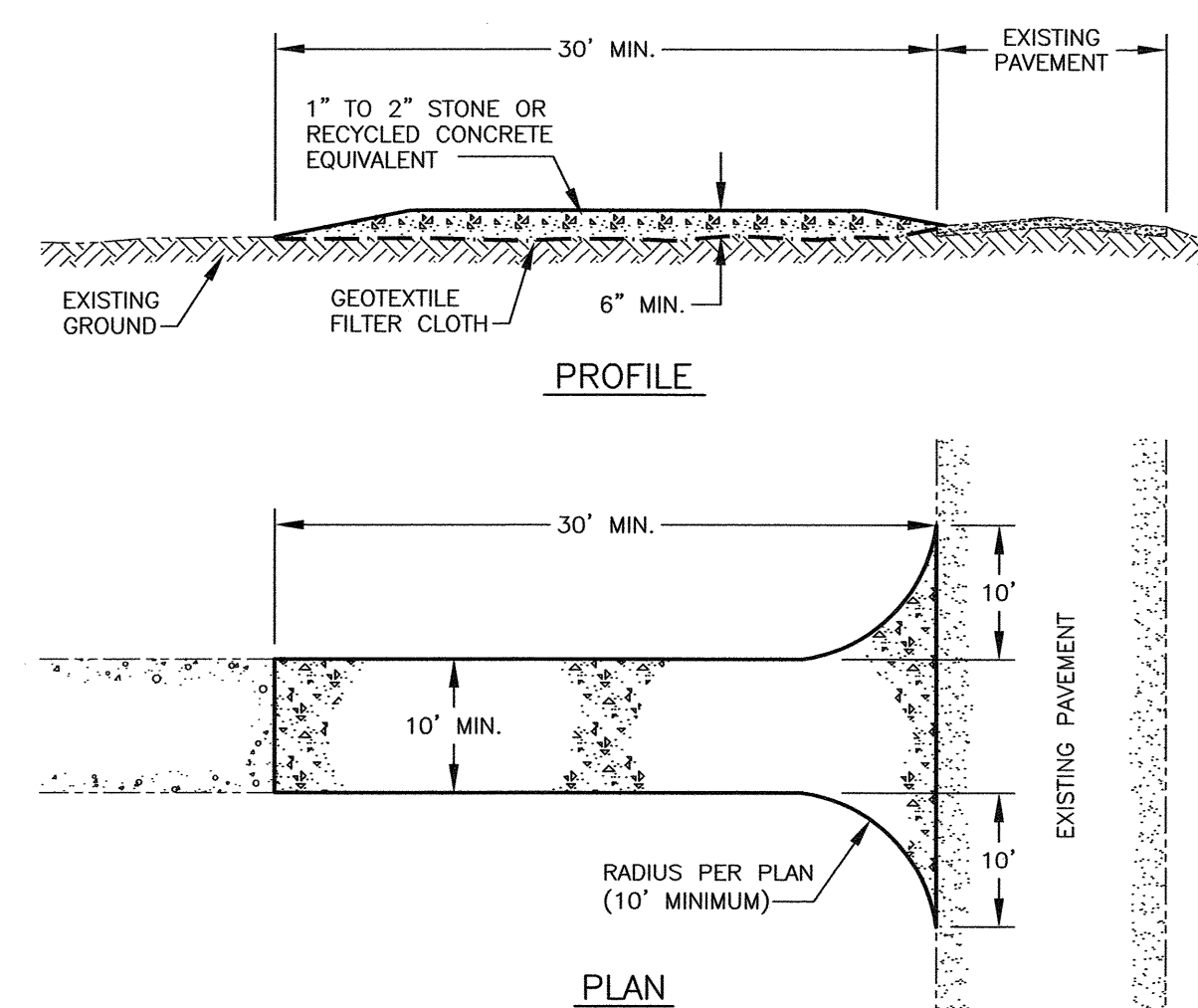
EXPANSION JOINT @ 50' ON CENTER



CONTROL JOINT @ 10' ON CENTER



B **C2** **PORTLAND CEMENT CONCRETE SIDEWALK** (WITH VERTICAL GRANITE CURB) NTS



MAINTENANCE

- MUD AND SOIL PARTICLES WILL EVENTUALLY CLOG THE VOIDS IN THE GRAVEL AND THE EFFECTIVENESS OF THE GRAVEL PAD WILL NOT BE SATISFACTORY. WHEN THIS OCCURS, THE PAD SHOULD BE TOP DRESSED WITH NEW STONE. COMPLETE REPLACEMENT OF THE PAD MAY BE NECESSARY WHEN THE PAD BECOMES COMPLETELY CLOGGED.
- IF WASHING FACILITIES ARE USED, THE SEDIMENT TRAPS SHOULD BE CLEANED OUT AS OFTEN AS NECESSARY TO ASSURE THAT ADEQUATE TRAPPING EFFICIENCY AND STORAGE VOLUME IS AVAILABLE. VEGETATIVE FILTER STRIPS SHOULD BE MAINTAINED TO INSURE A VIGOROUS STAND OF VEGETATION AT ALL TIMES.

CONSTRUCTION SPECIFICATIONS

- STONE FOR A STABILIZED CONSTRUCTION ENTRANCE SHALL BE 2 TO 4 INCH STONE, RECLAIMED STONE, OR RECYCLED CONCRETE EQUIVALENT.
- THE LENGTH OF THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 30 FEET FOR A SINGLE RESIDENTIAL LOT.
- THE THICKNESS OF THE STONE FOR THE STABILIZED ENTRANCE SHALL NOT BE LESS THAN 6 INCHES.
- THE WIDTH OF THE ENTRANCE SHALL NOT BE LESS THAN THE FULL WIDTH OF THE ENTRANCE WHERE INGRESS OR EGRESS OCCURS OR 10 FEET, WHICHEVER IS GREATER.
- GEOTEXTILE FILTER CLOTH SHALL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING THE STONE. FILTER CLOTH IS NOT REQUIRED FOR A SINGLE FAMILY RESIDENCE LOT.
- ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, WASHED, OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED PROMPTLY.
- WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY, WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.

C **C4** **STABILIZED CONSTRUCTION ENTRANCE** SUBSTITUTE FODS IF DESIRED NTS

AMBIT ENGINEERING, INC.
A DIVISION OF HALEY WARD, INC.

200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

WWW.HALEYWARD.COM

- NOTES:**
- THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.
 - UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.
 - CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMP'S" PUBLISHED BY THE MAINE D.E.P. IN 2016.

SITE IMPROVEMENTS

9-13 WATER STREET KITTERY, ME

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	11/22/23

REVISIONS

11-22-23

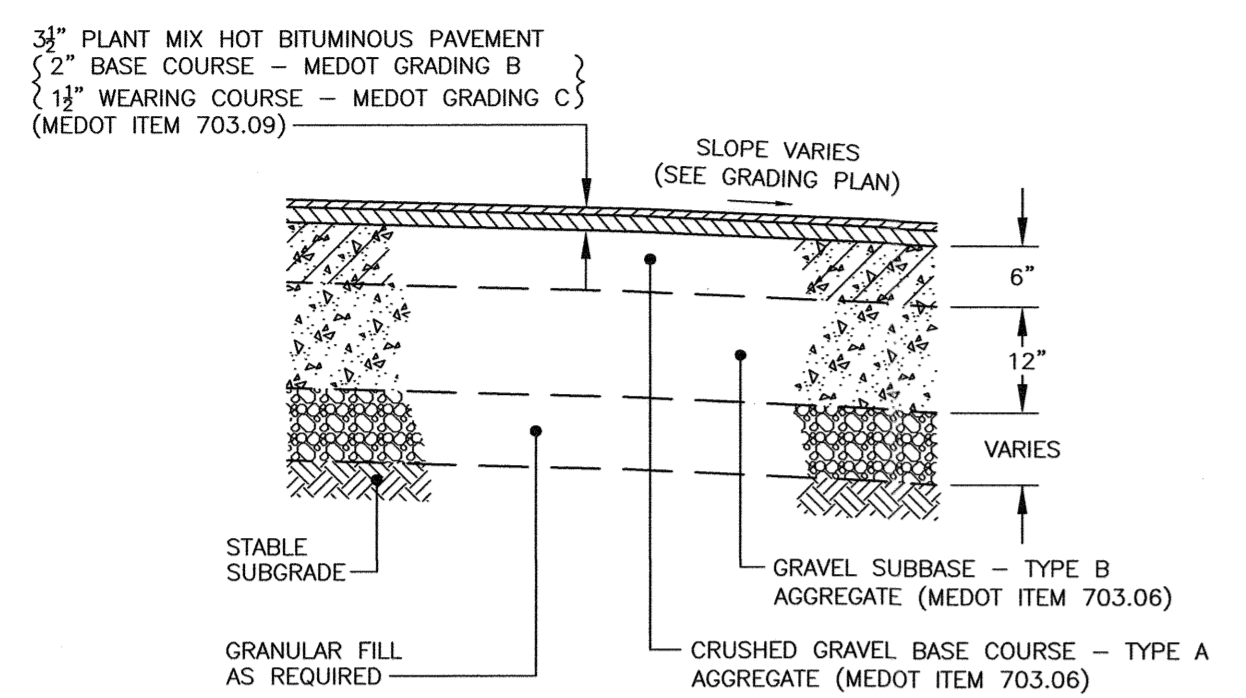
SCALE: AS SHOWN OCTOBER 2023

EROSION CONTROL NOTES AND DETAILS

D1

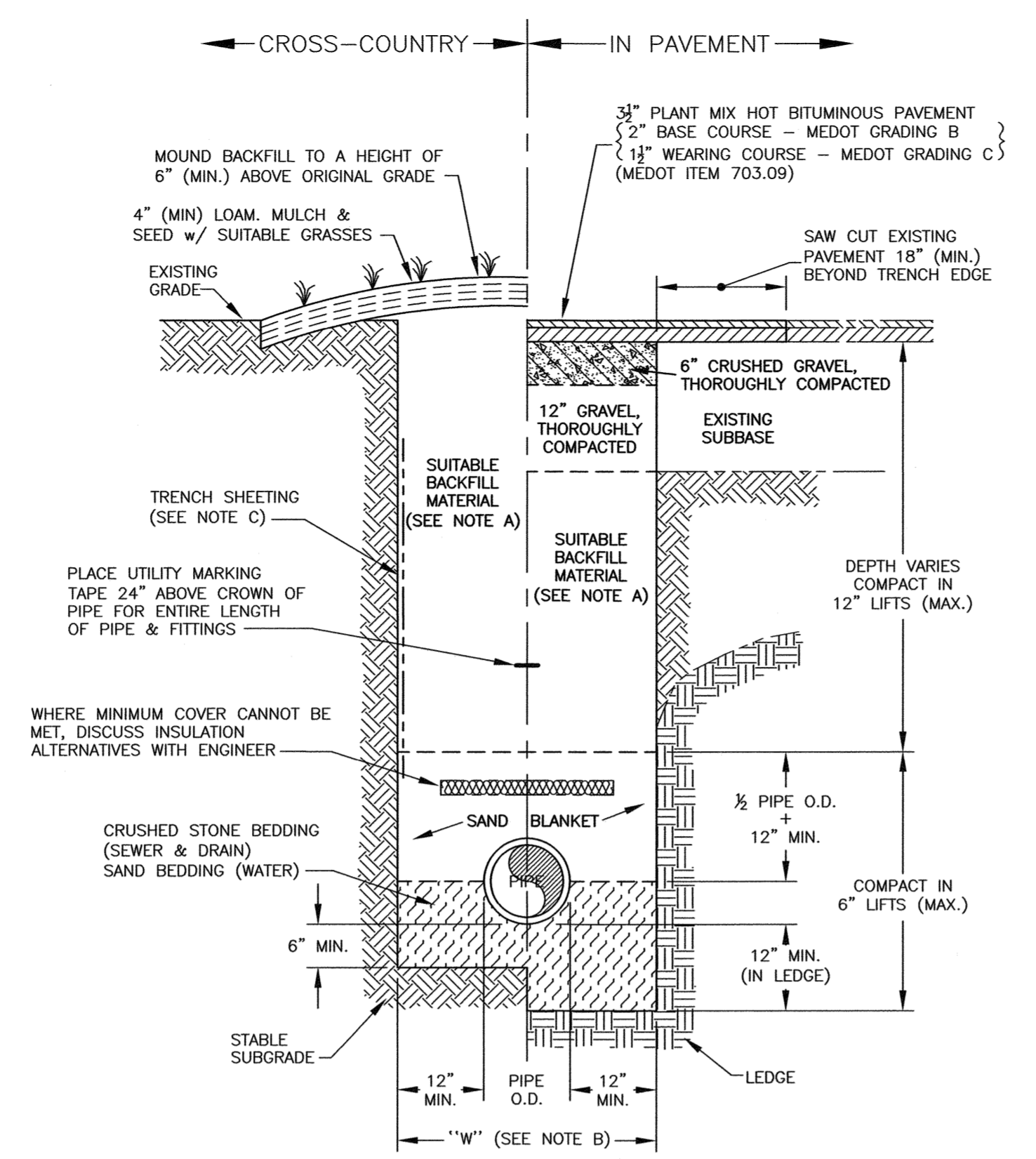
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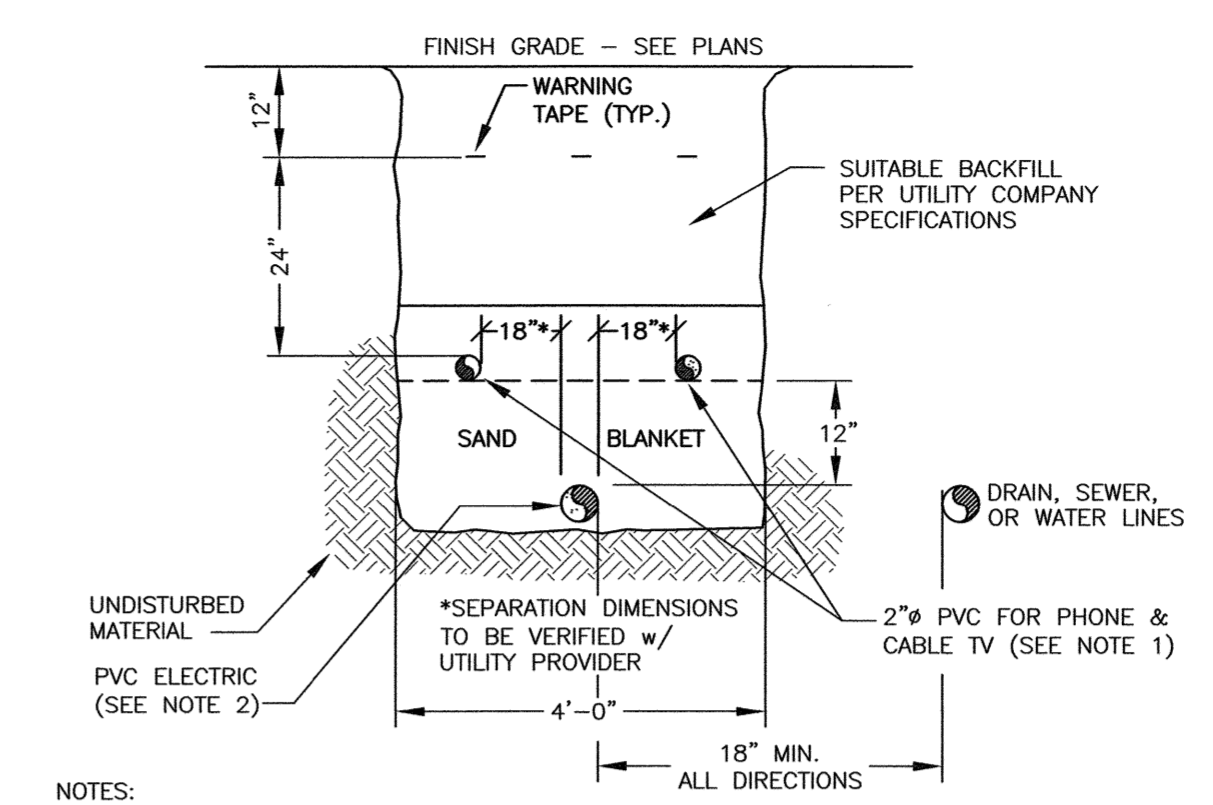
- NOTE:**
- 1) AGGREGATE BASE AND SUBBASE COURSES SHALL CONFORM TO SECTIONS 304 AND 703 OF MAINE DOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, APRIL 1995.
 - 2) PLANT MIX HOT BITUMINOUS PAVEMENT SHALL CONFORM TO SECTIONS 401, 403, 702 AND 703 OF MAINE DOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES, APRIL 1995.

D TYPICAL PAVEMENT CROSS-SECTION
C2 NTS



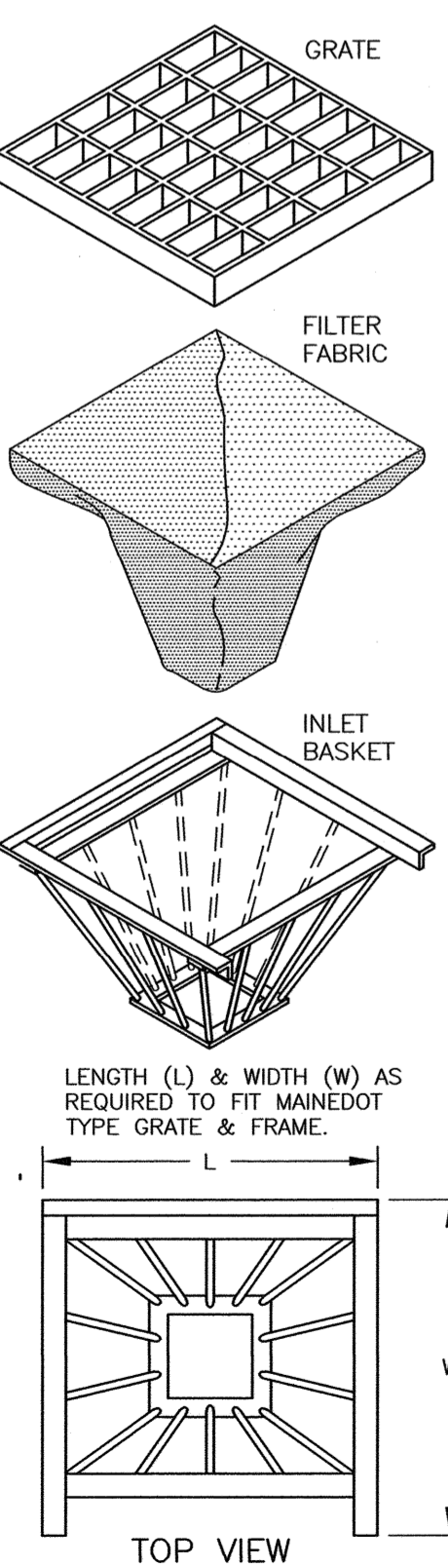
- TRENCH NOTES:**
- A) TRENCH BACKFILL:
- IN PAVED AREAS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT OR CLAY, ALL EXCAVATED LEDGE MATERIAL, AND ALL ROCKS OVER SIX INCHES IN LARGEST DIMENSION, OR ANY MATERIALS DEEMED TO BE UNACCEPTABLE BY THE ENGINEER.
- IN CROSS-COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK OR PEAT, IF HE IS SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE.
- B) "W" = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE O.D..
- C) TRENCH SHEETING:
IF REQUIRED, WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID-DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAN 1 FOOT ABOVE THE TOP OF THE PIPE.
- D) MINIMUM PIPE COVER FOR UTILITY MAINS (UNLESS GOVERNED BY OTHER CODES):
6" MINIMUM FOR SEWER
3" MINIMUM FOR STORMWATER DRAINS
5" MINIMUM FOR WATER MAINS
- E) ALL PAVEMENT CUTS SHALL BE REPAIRED BY THE INFRARED HEAT METHOD.

F TYPICAL PIPE TRENCH
C5 NTS



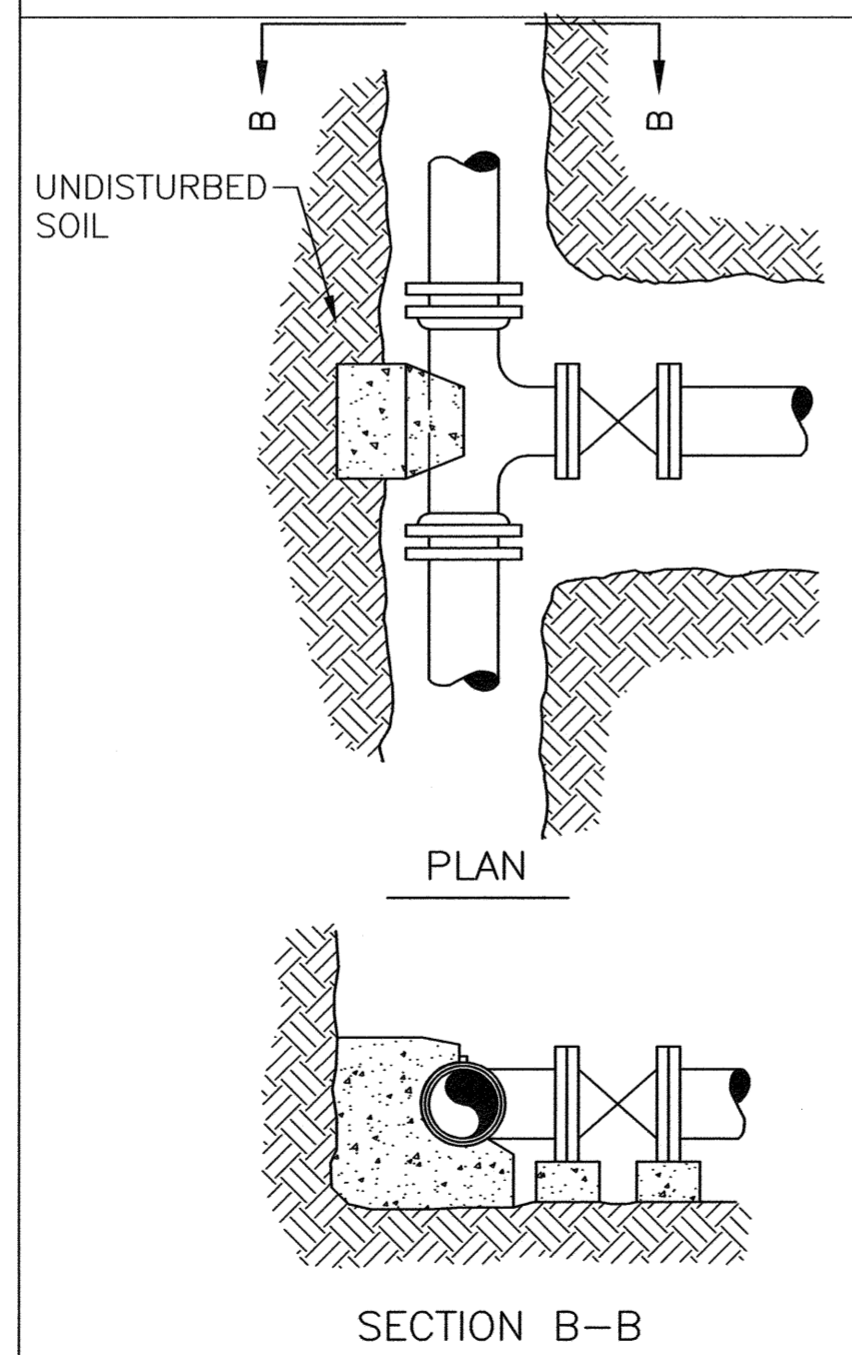
- NOTES:**
- 1) ALL CONDUIT TO BE U.L. LISTED, SCH. 80 UNDER ALL TRAVEL WAYS, & SCH. 40 FOR THE REMAINDER.
 - 2) NORMAL CONDUIT SIZES FOR CMP ARE 3 INCH FOR SINGLE PHASE PRIMARY AND SECONDARY VOLTAGE CABLES, 4 INCH FOR THREE PHASE SECONDARY, AND 5 INCH FOR THREE PHASE PRIMARY.
 - 3) ALL WORK TO CONFORM TO THE NATIONAL ELECTRICAL CODE (LATEST REVISION)
 - 4) INSTALL A 200# PULL ROPE FOR EACH CONDUIT
 - 5) VERIFY ALL CONDUIT SPECIFICATIONS WITH UTILITY COMPANIES PRIOR TO ANY CONSTRUCTION.

H UTILITY TRENCH
C5 ELECTRIC/PHONE/CABLE NTS



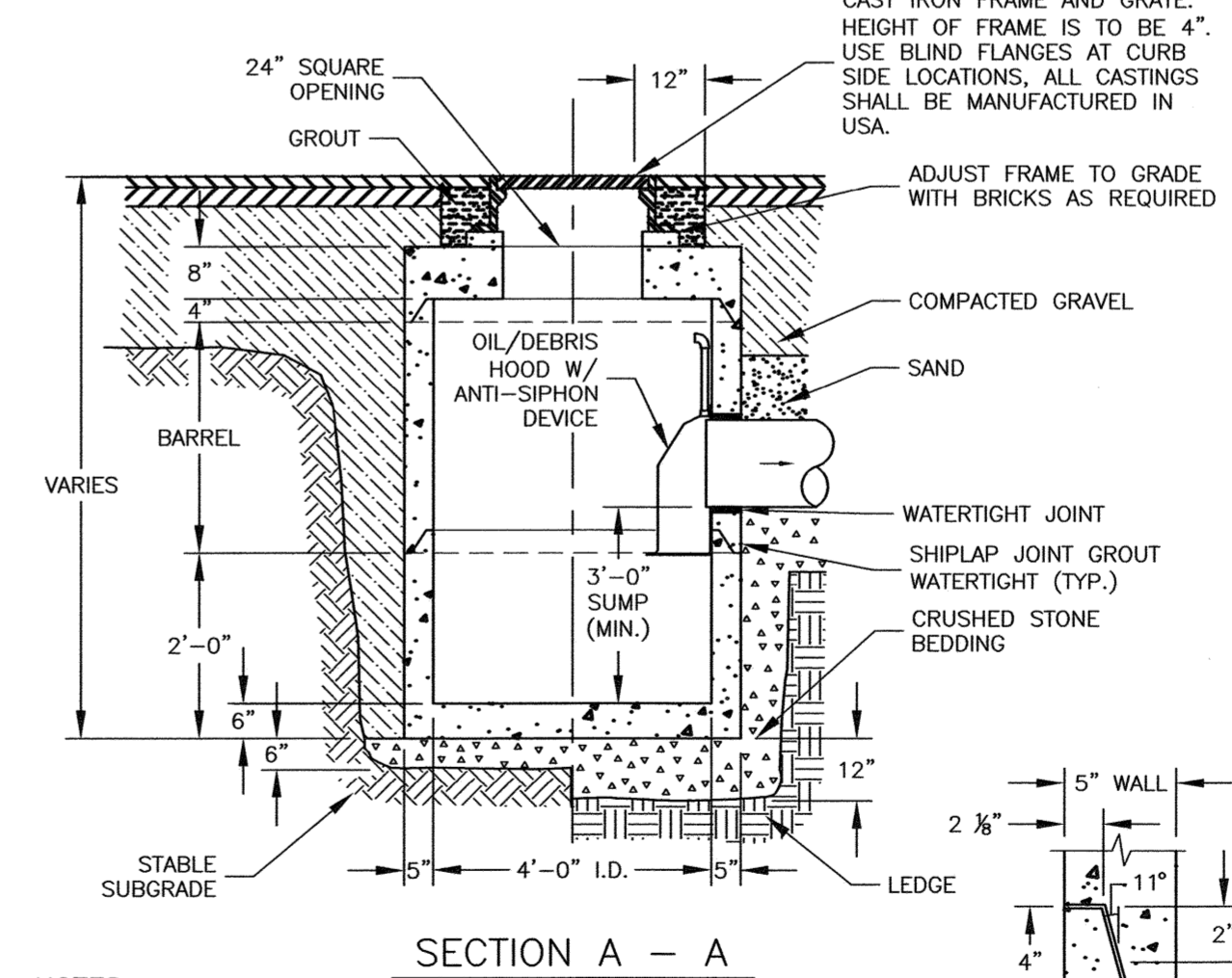
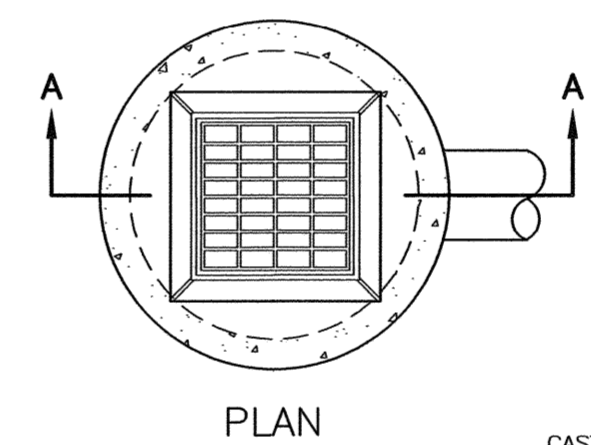
- 1) INLET BASKETS SHALL BE INSTALLED IMMEDIATELY AFTER CATCH BASIN CONSTRUCTION IS COMPLETE AND SHALL REMAIN IN PLACE AND BE MAINTAINED UNTIL PAVEMENT BINDER COURSE IS COMPLETE.
- 2) FILTER FABRIC SHALL BE PUSHED DOWN AND FORMED TO THE SHAPE OF THE BASKET. THE SHEET OF FABRIC SHALL BE LARGE ENOUGH TO BE SUPPORTED BY THE BASKET FRAME WHEN HOLDING SEDIMENT AND SHALL EXTEND AT LEAST 6" PAST THE FRAME. THE INLET GRATE SHALL BE PLACED OVER THE BASKET/FRAME AND WILL SERVE AS THE FABRIC ANCHOR.
- 3) THE FILTER FABRIC SHALL BE A GEOTEXTILE FABRIC; POLYESTER, POLYPROPYLENE, STABILIZED NYLON, POLYETHYLENE, OR POLYVINYLIDENE CHLORIDE MEETING THE FOLLOWING SPECIFICATIONS:
-RAB STRENGTH: 45 LB. MIN. IN ANY PRINCIPAL DIRECTION (ASTM D1682)
-MULLEN BURST STRENGTH: MIN. 60 psi (ASTM D774)
- 4) THE FABRIC SHALL HAVE AN OPENING NO GREATER THAN A NUMBER 20 U.S. STANDARD SIEVE AND A MINIMUM PERMEABILITY OF 120 gpm/s.f. (MULTIPLY THE PERMITTIVITY IN SEC.-1 FROM ASTM 54491-85 CONSTANT HEAD TEST USING THE CONVERSION FACTOR OF 74.)
- 5) THE INLET BASKET SHALL BE INSPECTED WITHIN 24 HOURS AFTER EACH RAINFALL OR DAILY DURING EXTENDED PERIODS OF PRECIPITATION. REPAIRS SHALL BE MADE IMMEDIATELY, AS NECESSARY, TO PREVENT PARTICLES FROM REACHING THE DRAINAGE SYSTEM AND/OR CAUSING SURFACE FLOODING.
- 6) SEDIMENT DEPOSITS SHALL BE REMOVED AFTER EACH STORM EVENT, OR MORE OFTEN IF THE FABRIC BECOMES CLOGGED.

E CATCH BASIN INLET BASKET
C4 NTS



- NOTES:**
- 1) ALL MATERIALS SHALL BE APPROVED BY THE KITTERY WATER DEPARTMENT PRIOR TO INSTALLATION AND USE.
 - 2) ALL JOINTS SHALL BE MECHANICAL.
 - 3) "CLEAR" DIMENSIONS SHOWN ARE REQUIRED FOR WORKSPACE. NO JOINTS ON PIPE BEING TAPPED WITHIN "CLEAR" AREA.
 - 4) FORD TYPE STAINLESS STEEL TAPPING SADDLES OR APPROVED EQUAL ARE ALSO ACCEPTABLE.

G TYPICAL WATER SERVICE CONNECTION
C5 NTS

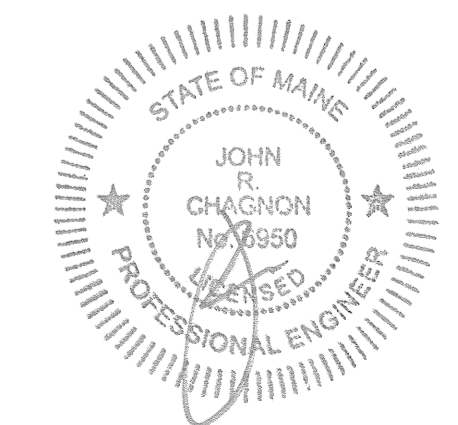


- NOTES:**
- 1) CONCRETE SHALL BE CLASS AA, 4,000 P.S.I. AFTER 28 DAYS.
 - 2) CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER LINEAR FT. IN ALL SECTIONS & SHALL BE PLACED IN THE CENTER THIRD OF WALL.
 - 3) THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
 - 4) EACH CASTING TO HAVE LIFTING HOLES CAST IN.
 - 5) OUTLET HOOD SHALL BE A "SNOUT" BY BEST MANAGEMENT PRODUCTS, INC. OR APPROVED EQUAL SIZING AND INSTALLATION PER MANUFACTURER'S RECOMMENDATIONS.

I CATCH BASIN w/ OIL-DEBRIS HOOD
C4 NTS

SITE IMPROVEMENTS
9-13 WATER STREET
KITTERY, ME

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	11/22/23
REVISIONS		



11-22-23

SCALE: AS SHOWN OCTOBER 2023

DETAILS **D2**

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SEWER NOTES

- 1) MINIMUM PIPE SIZE FOR HOUSE SERVICE SHALL BE FOUR INCHES.
- 2) PIPE AND JOINT MATERIALS:
A. PLASTIC SEWER PIPE

1. PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING ASTM STANDARDS:

ASTM STANDARDS	GENERIC PIPE MATERIAL	SIZES APPROVED
D3034	*PVC (SOLID WALL)	8" THROUGH 15" (SDR 35)
F679	PVC (SOLID WALL)	18" THROUGH 27" (T-1 & T-2)
F789	PVC (SOLID WALL)	4" THROUGH 18" (T-1 TO T-3)
F794	PVC (RIBBED WALL)	8" THROUGH 36"
D2680	*ABS (COMPOSITE WALL)	8" THROUGH 15"

*PVC: POLYVINYL CHLORIDE
*ABS: ACRYLONITRILE-BUTADIENE-STYRENE

2. JOINT SEALS FOR PVC PIPE SHALL BE OIL RESISTANT COMPRESSION RINGS OF ELASTOMERIC MATERIAL CONFORMING TO ASTM D-3212 AND SHALL BE PUSH-ON BELL AND SPIGOT TYPE.
ABS TRUSS PIPE AND FITTINGS SHALL CONFORM TO ASTM D-2680. POLYMER COMPOUNDING SHALL BE TO ASTM D-1788 (CLASS 322).

JOINTS FOR ABS TRUSS PIPE SHALL BE CHEMICAL WELDED COUPLINGS TYPE SC IN ACCORDANCE WITH ASTM D-2680, FORMING A CHEMICAL WELDED JOINT.

B. DUCTILE IRON PIPE, FITTINGS AND JOINTS.

1. DUCTILE IRON PIPE AND FITTINGS SHALL CONFORM TO THE FOLLOWING STANDARDS OF THE UNITED STATES OF AMERICA STANDARDS INSTITUTE:

A21.50 THICKNESS DESIGN OF DUCTILE IRON PIPE AND WITH ASTM A-536 DUCTILE IRON CASTINGS.

A21.51 DUCTILE IRON PIPE, CENTRIFUGALLY CAST IN METAL MOLDS OR SAND LINED MOLDS FOR WATER OR OTHER LIQUIDS.

2. JOINTS SHALL BE OF THE MECHANICAL OR PUSH ON TYPE. JOINTS AND GASKETS SHALL CONFORM TO:

A21.11 RUBBER GASKET JOINTS FOR CAST IRON PRESSURE PIPE & FITTINGS.

3) DAMAGED PIPE SHALL BE REJECTED AND REMOVED FROM THE JOB SITE.

4) JOINTS SHALL BE DEPENDENT UPON A NEOPRENE OR ELASTOMERIC GASKET FOR WATER TIGHTNESS. ALL JOINTS SHALL BE PROPERLY MATCHED WITH THE PIPE MATERIALS USED. WHERE DIFFERING MATERIALS ARE TO BE CONNECTED, AS AT THE STREET SEWER WYE OR AT THE FOUNDATION, APPROPRIATE MANUFACTURED ADAPTERS SHALL BE USED.

5) HOUSE SEWER INSTALLATION: THE PIPE SHALL BE HANDLED, PLACED AND JOINTED IN ACCORDANCE WITH INSTALLATION GUIDES OF THE APPROPRIATE MANUFACTURER. IT SHALL BE CAREFULLY BEDDED ON A 4 INCH LAYER OF CRUSHED STONE AND/OR GRAVEL AS SPECIFIED IN NOTE 10. BEDDING AND REFILL FOR DEPTH OF 12 INCHES ABOVE THE TOP OF THE PIPE SHALL BE CAREFULLY AND THOROUGHLY TAMPED BY HAND OR WITH APPROPRIATE MECHANICAL DEVICES. THE PIPE SHALL BE LAID AT A CONTINUOUS AND CONSTANT GRADE FROM THE STREET SEWER CONNECTION TO THE FOUNDATION AT A GRADE OF NOT LESS THAN 1/8th INCH PER FOOT. PIPE JOINTS MUST BE MADE UNDER DRY CONDITIONS. IF WATER IS PRESENT, ALL NECESSARY STEPS SHALL BE TAKEN TO DEWATER THE TRENCH.

6) TESTING: THE COMPLETED HOUSE SEWER SHALL BE SUBJECTED TO A LEAKAGE TEST IN ANY OF THE FOLLOWING MANNERS: (PRIOR TO BACKFILLING)

A. AN OBSERVATION TEE SHALL BE INSTALLED AS SHOWN AND WHEN READY FOR TESTING, AN INFLATABLE BLADDER OR PLUG SHALL BE INSERTED JUST UPSTREAM FROM THE OPENING IN THE TEE. AFTER INFLATION, WATER SHALL BE INTRODUCED INTO THE SYSTEM ABOVE THE PLUG TO A HEIGHT OF 5 FEET ABOVE THE LEVEL OF THE PLUG.

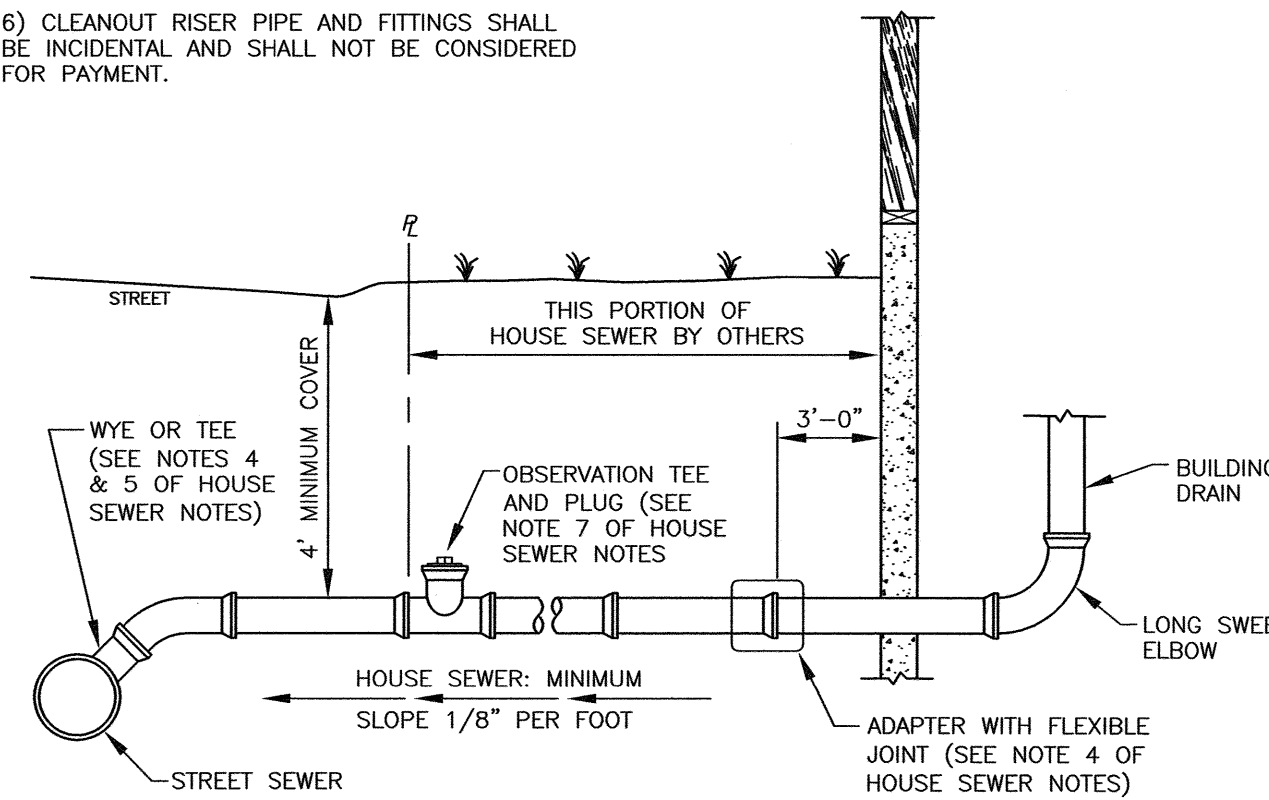
B. THE PIPE SHALL BE LEFT EXPOSED AND LIBERALLY HOSED WITH WATER, TO SIMULATE, AS NEARLY AS POSSIBLE, WET TRENCH CONDITIONS OR, IF TRENCH IS WET, THE GROUND WATER SHALL BE PERMITTED TO RISE IN THE TRENCH OVER THE PIPE. INSPECTIONS FOR LEAKS SHALL BE MADE THROUGH THE CLEANOUT WITH A FLASHLIGHT.

C. DRY FLUORESCENCE DYE SHALL BE SPRINKLED INTO THE TRENCH OVER THE PIPE. IF THE TRENCH IS DRY, THE PIPE SHALL BE LIBERALLY HOSED WITH WATER, OR IF THE TRENCH IS WET, GROUNDWATER SHALL BE PERMITTED TO RISE IN THE TRENCH OVER THE PIPE. OBSERVATION FOR LEAKS SHALL BE MADE IN THE FIRST DOWN STREAM MANHOLE.

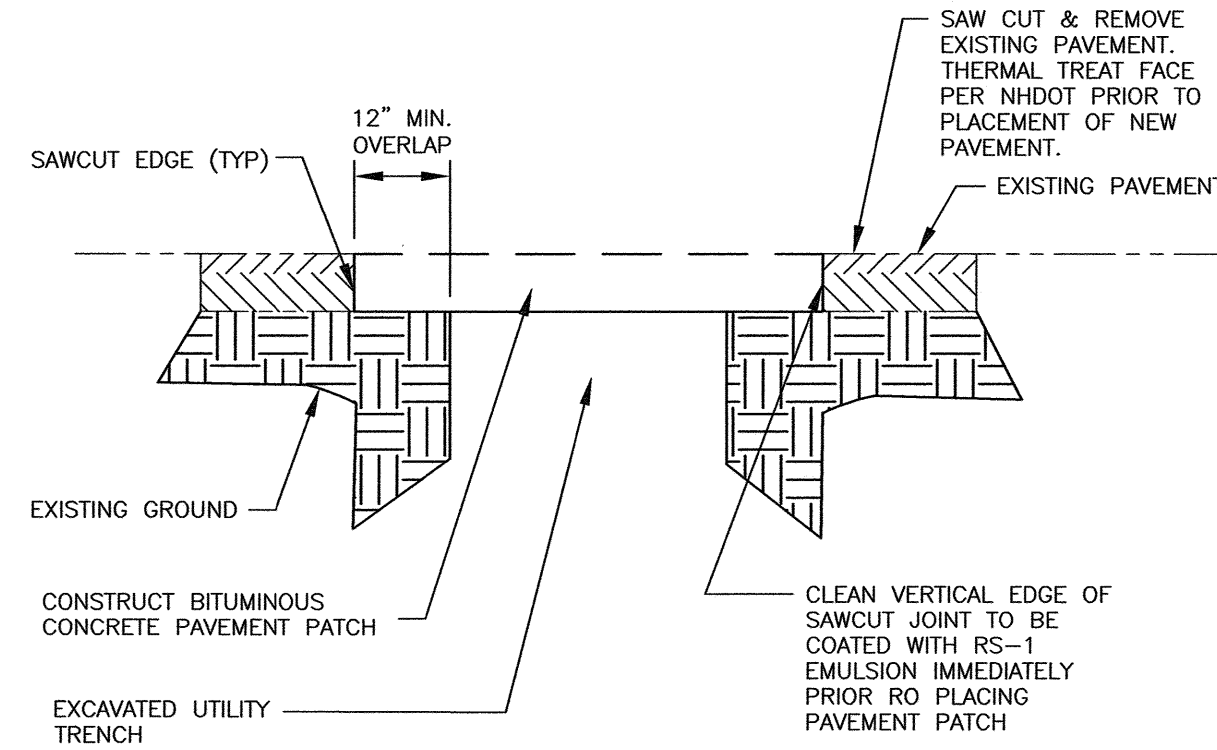
LEAKAGE OBSERVED IN ANY ONE OF THE ABOVE ALTERNATE TESTS SHALL BE CAUSE FOR NON-ACCEPTANCE AND THE PIPE SHALL BE DUG UP IF NECESSARY AND RE-LAID SO AS TO ASSURE WATER TIGHTNESS.

SERVICE CONNECTION NOTES:

- 1) SEE NOTES FOR SERVICE CONNECTION REQUIREMENTS.
- 2) SERVICE CONNECTION SHALL BE INSTALLED BELOW WATER MAIN WHERE POSSIBLE.
- 3) CLEANOUTS SHALL BE INSTALLED AT EACH SERVICE CONNECTION.
- 4) REBAR SHALL BE PLACED AT SIDE OF CLEANOUT.
- 5) CLEANOUT SHALL BE USED TO PLUG AND TEST ALL NEW LATERALS WITH MINIMAL INTERRUPTION TO OPERATION OF HOMEOWNER SANITARY SYSTEM.
- 6) CLEANOUT RISER PIPE AND FITTINGS SHALL BE INCIDENTAL AND SHALL NOT BE CONSIDERED FOR PAYMENT.

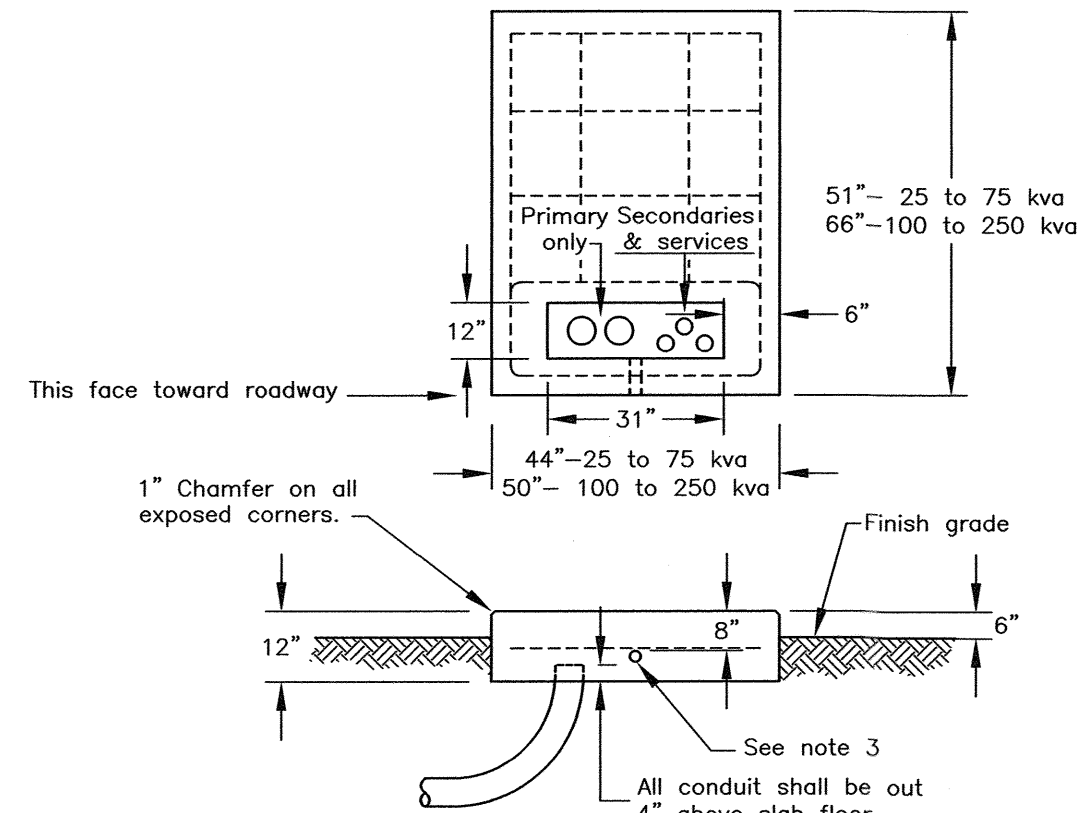
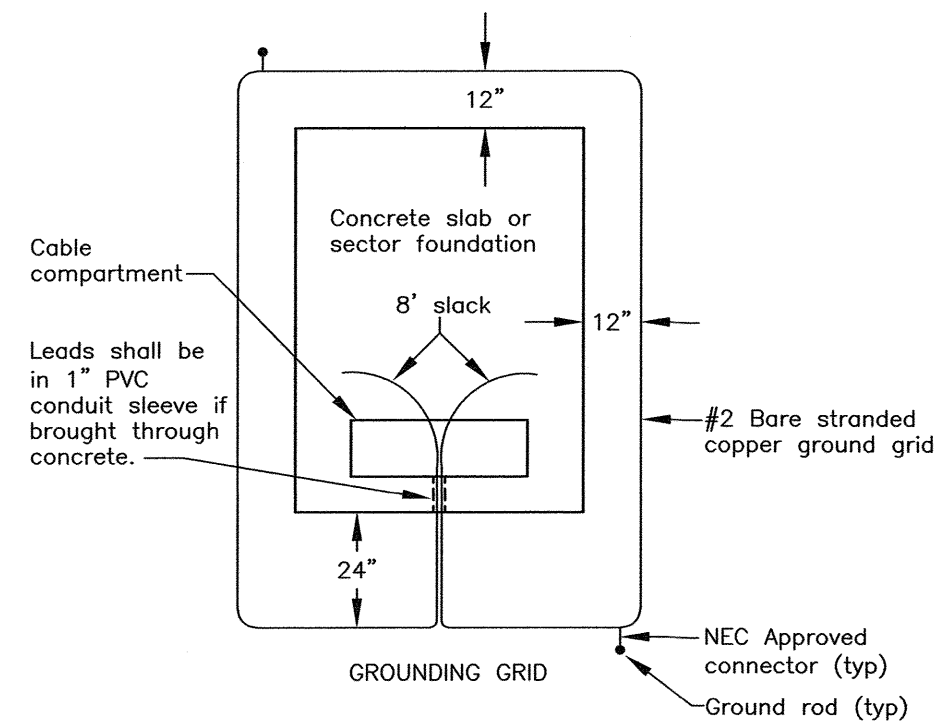
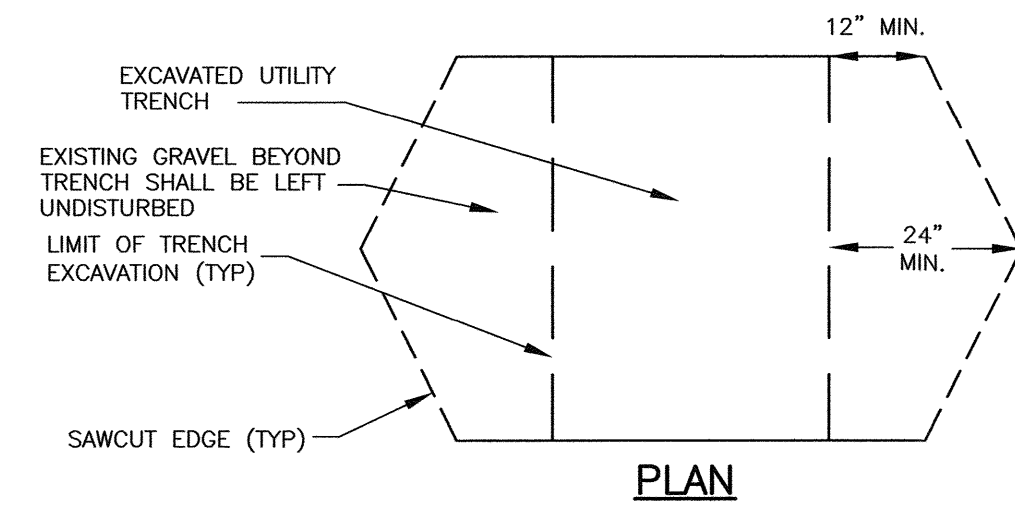


L TYPICAL SEWER SERVICE CONNECTION
C5 NTS



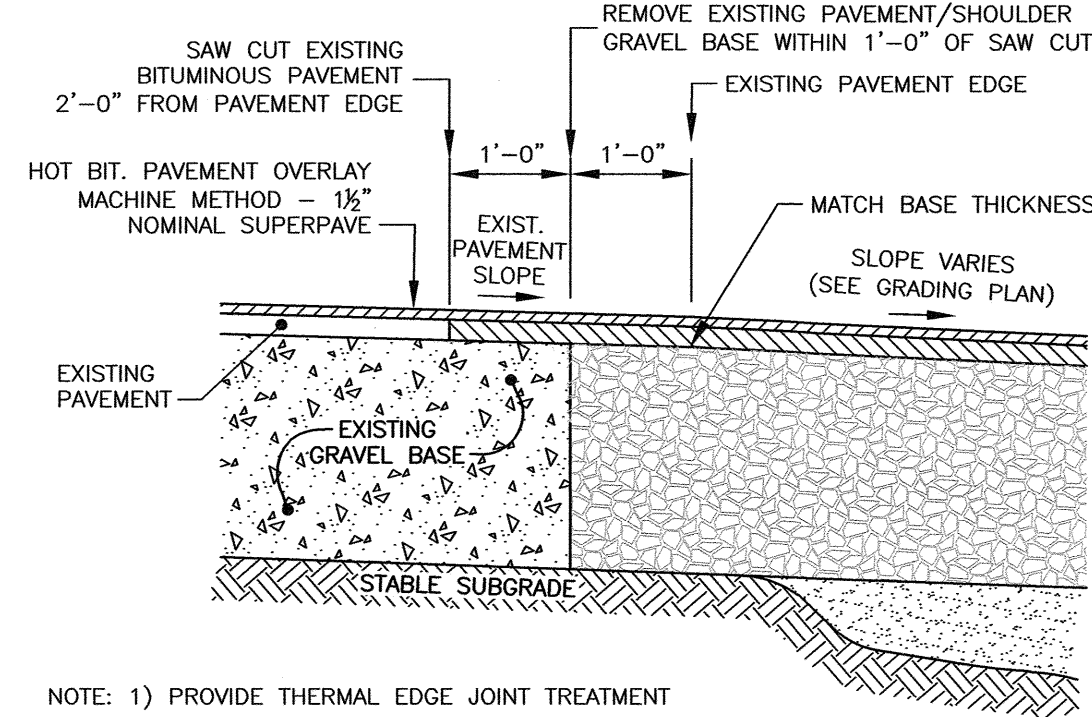
- NOTES**
1. MACHINE CUT EXISTING PAVEMENT.
 2. ALL TEMPORARY, DAMAGED OR DEFECTIVE PAVEMENT SHALL BE REMOVED PRIOR TO PLACEMENT OF PERMANENT TRENCH REPAIRS.
 3. DIAMOND PATCHES SHALL BE REQUIRED FOR ALL TRENCHES CROSSING ROADWAY. DIAMOND PATCHES SHALL MEET TOWN OF KITTERY REQUIREMENTS.

J TRENCH PATCH
C5 NTS



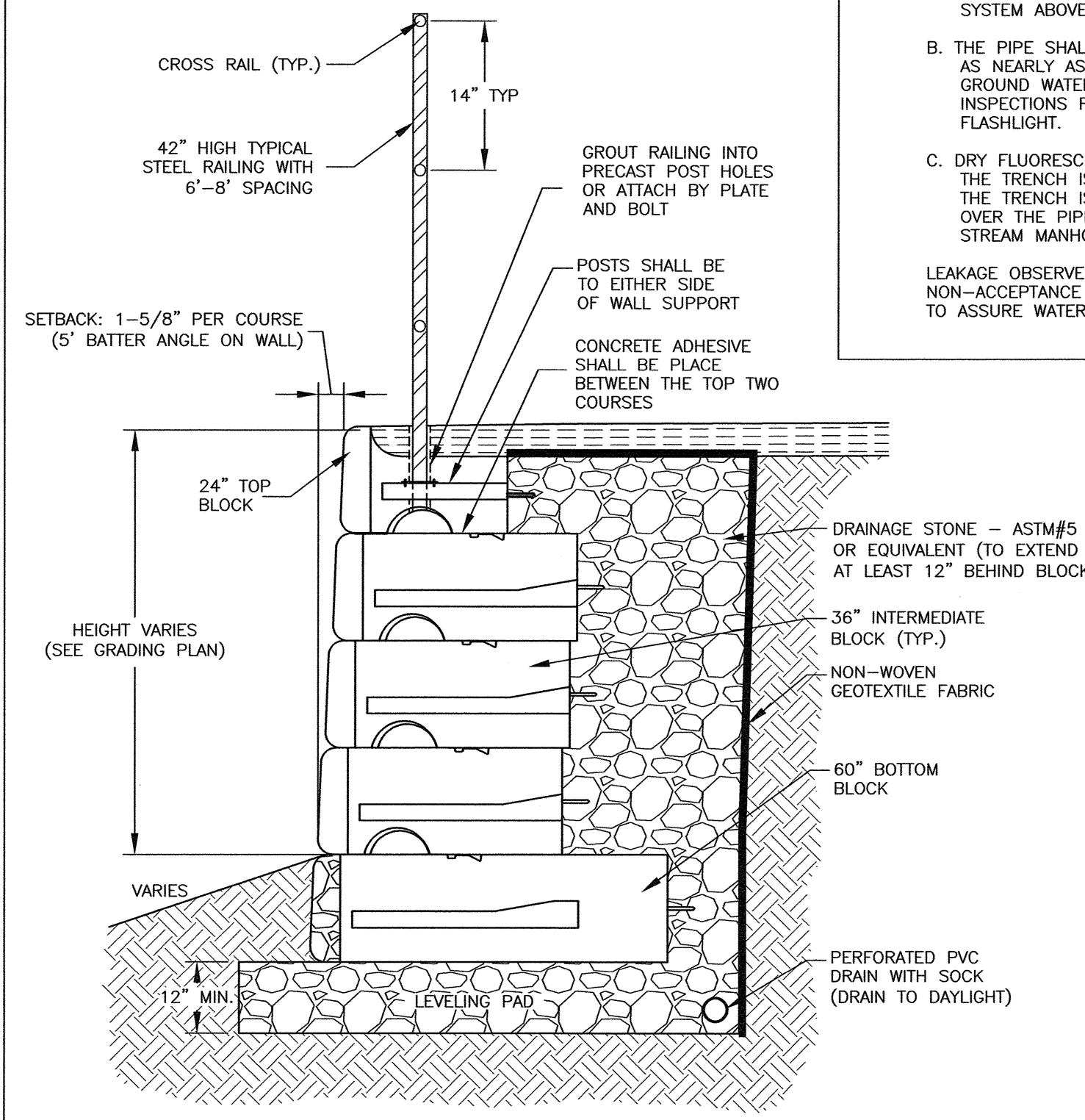
- NOTES**
1. See sheet "Requirements for Padmounted Transformer Slab Details".
 2. All reinforcing to be #6 bars.
 3. 1" PVC conduit sleeve for ground grid leads.
 4. The ground grid shall be supplied and installed by the customer and is to be buried at least 12" below grade. Eight feet of extra wire for each ground grid leg shall be left exposed in the cable compartment to allow for the connection to the transformer. The two 8' ground rods may be either galvanized steel or copperweld and they shall be connected to the grid with NEC approved connectors.

K TRANSFORMER PAD
C5 CMP NTS



NOTE: 1) PROVIDE THERMAL EDGE JOINT TREATMENT

M PAVEMENT JOINT DETAIL
C5 NTS

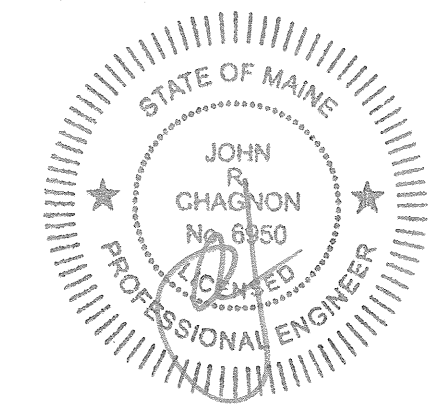


- NOTE:**
- 1) WHEN RAIL POST IS PLACED IN OR ON TOP OF THE TOP BLOCK, EACH TOP BLOCK SHOULD BE ADHERED TO THE BLOCK BENEATH IT. (PL PREMIUM IS THE RECOMMENDED CONCRETE ADHESIVE)
 - 2) PE STAMPED SHOP DRAWINGS TO BE PROVIDED PRIOR TO CONSTRUCTION.

N BLOCK GRAVITY WALL WITH STEEL RAILING
C2 NTS

SITE IMPROVEMENTS
9-13 WATER STREET
KITTERY, ME

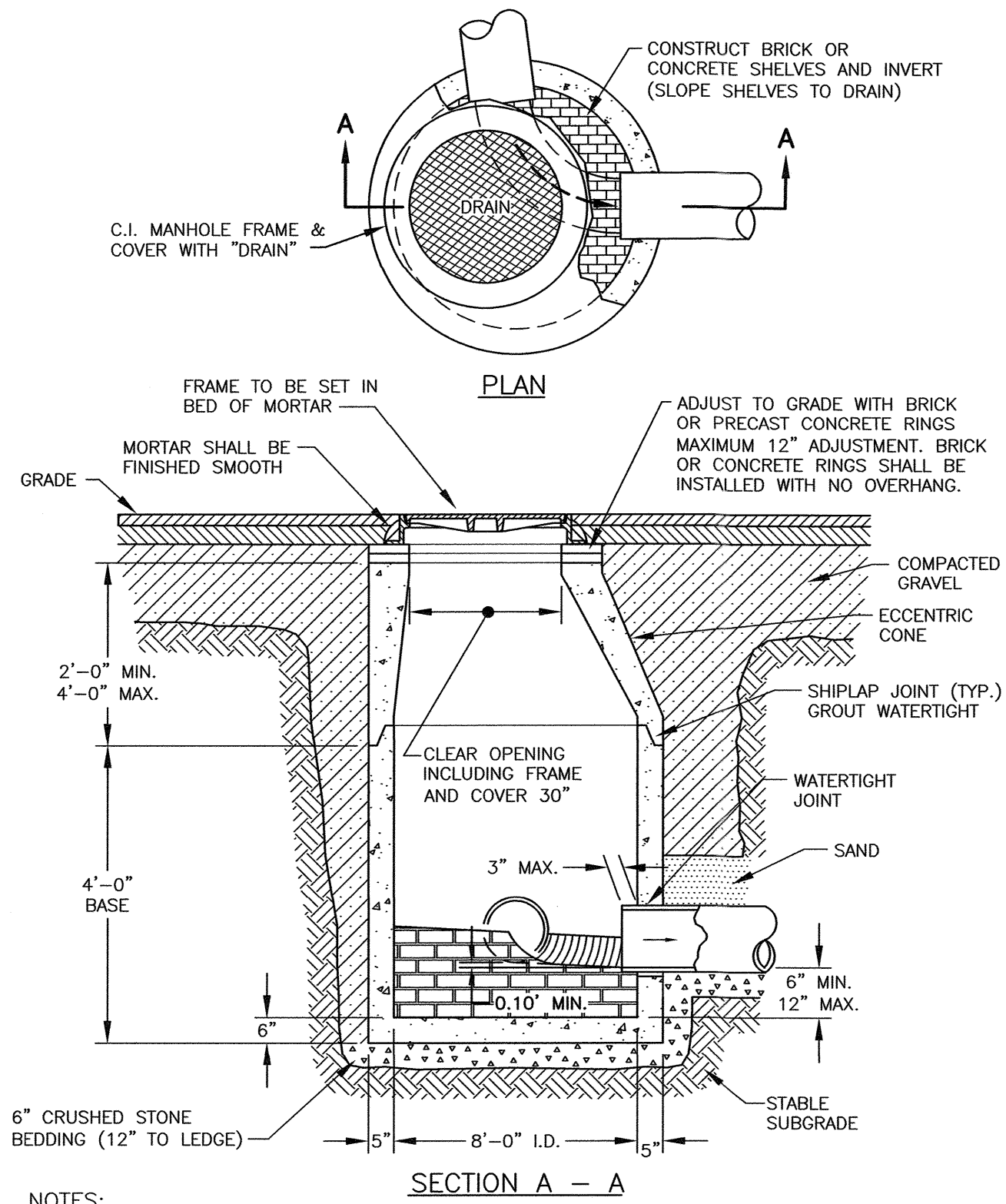
NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	11/22/23
REVISIONS		



11-22-23

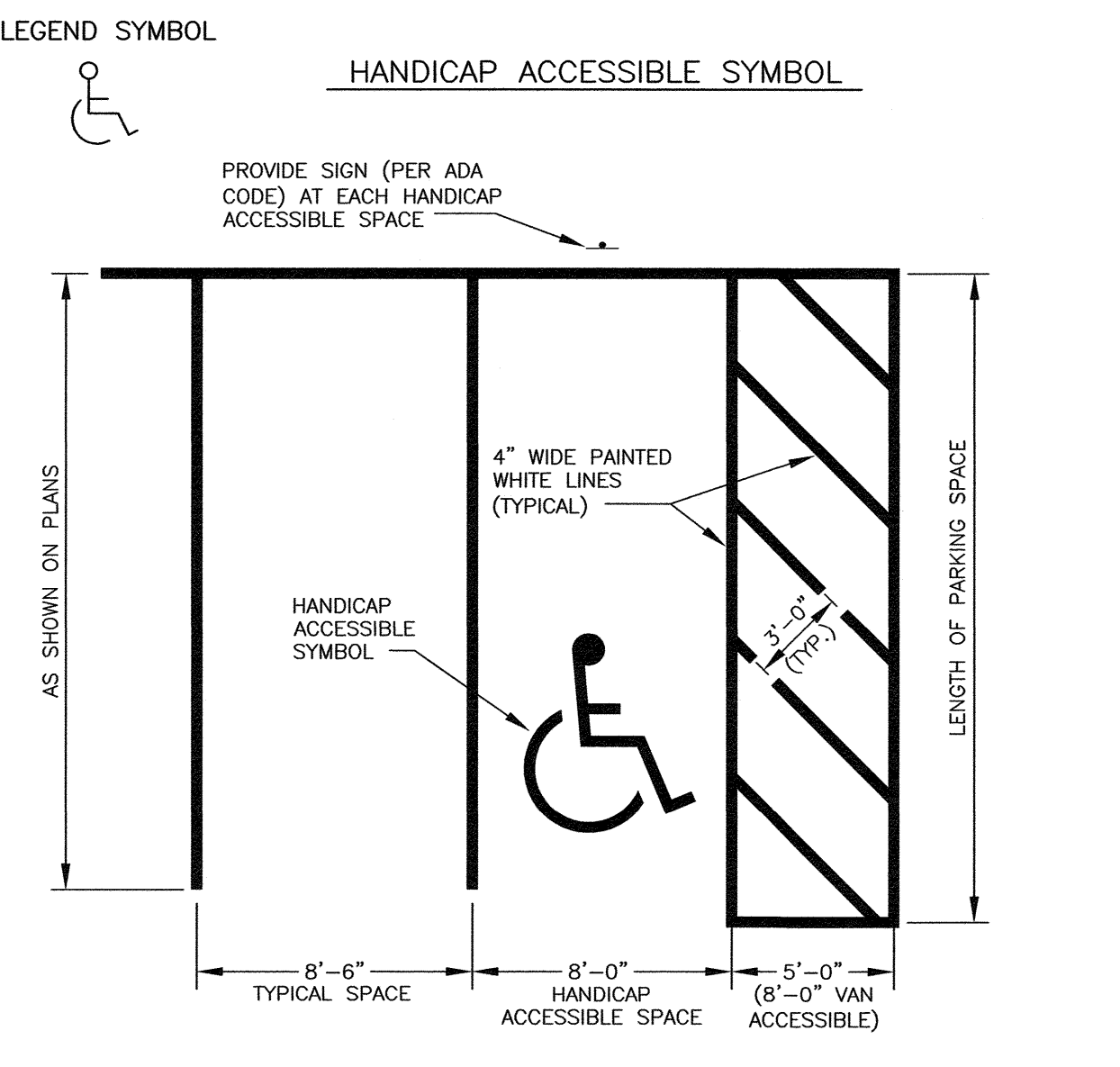
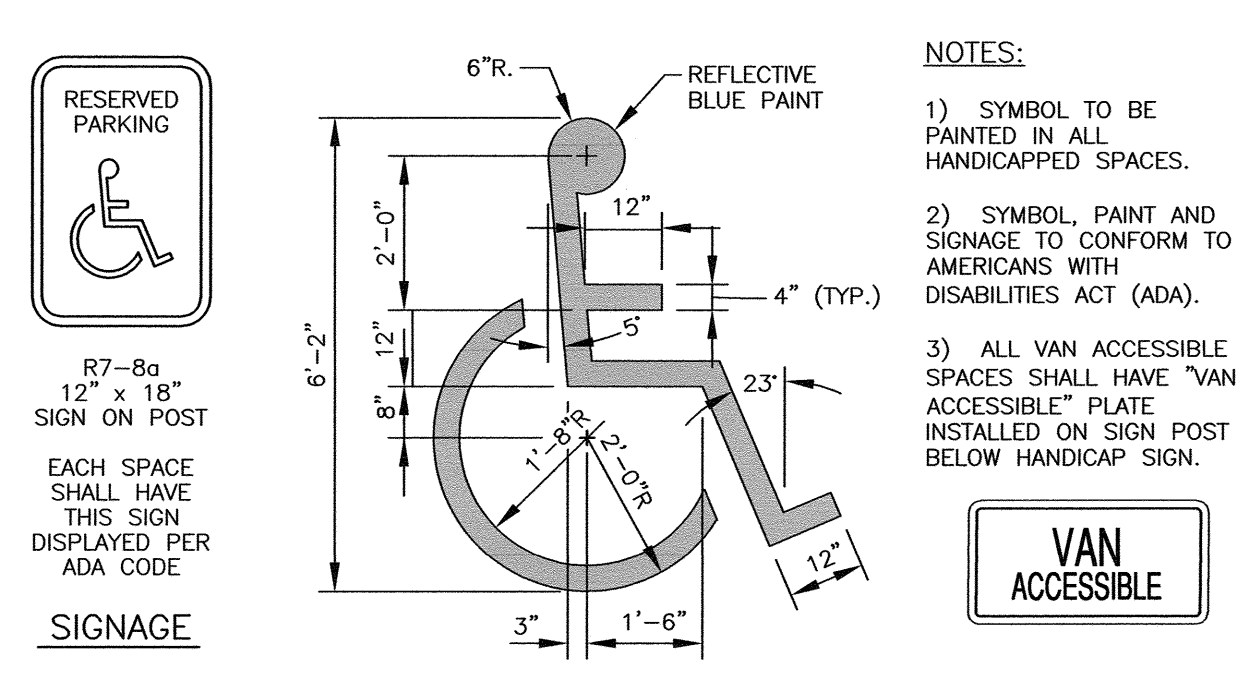
SCALE: AS SHOWN OCTOBER 2023

DETAILS **D3**

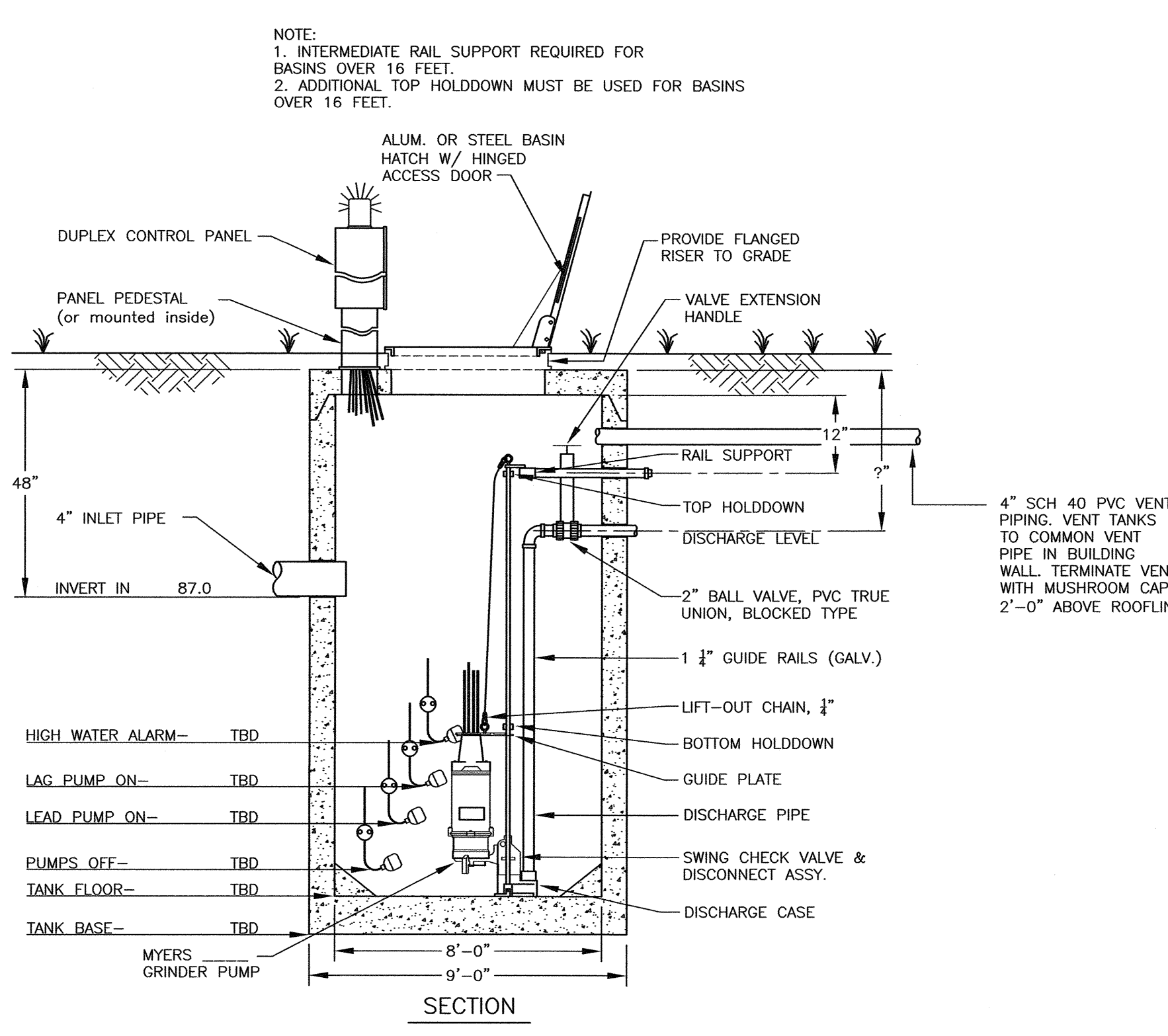
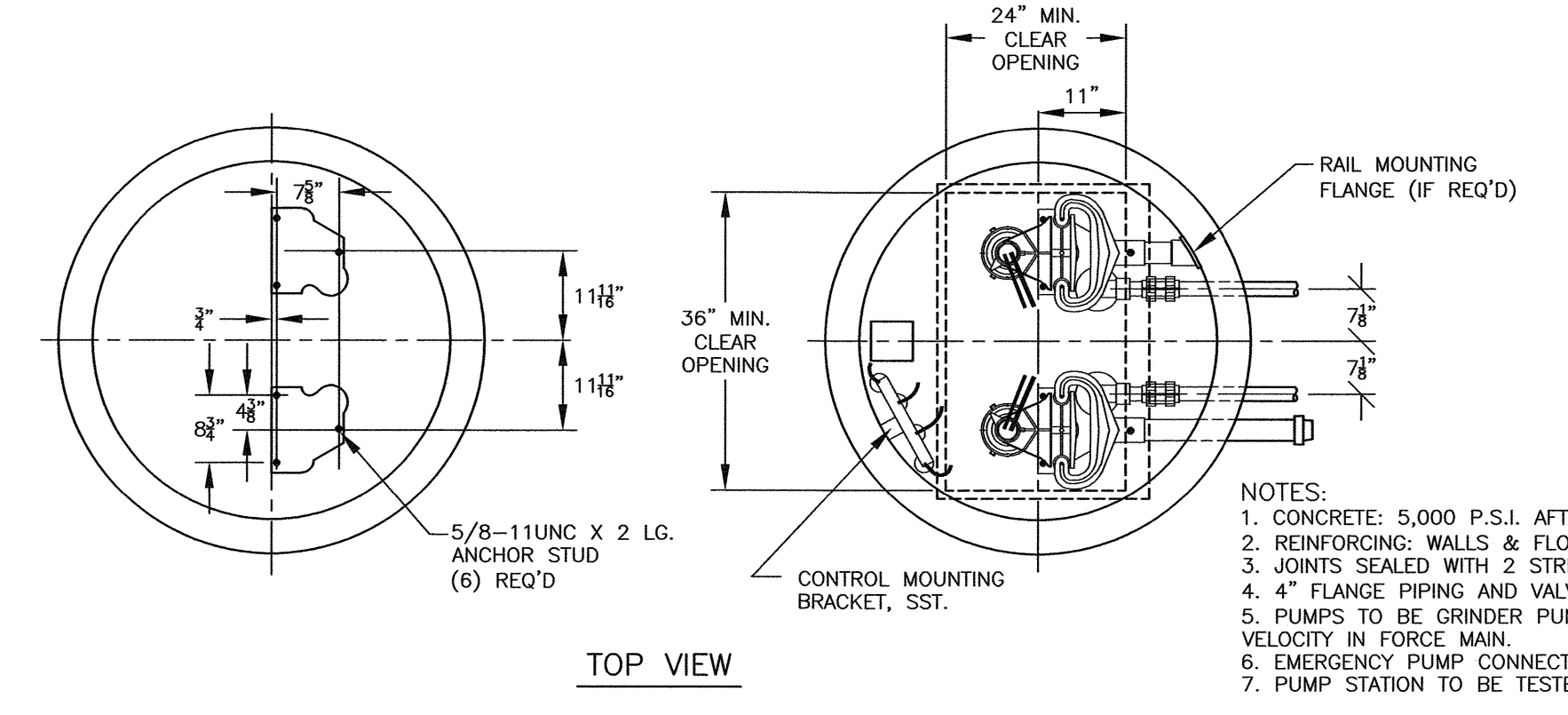


NOTES:
 1. CONCRETE SHALL BE 4,000 P.S.I. AFTER 28 DAYS.
 2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ. IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
 3. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT..
 4. EACH CASTING TO HAVE LIFTING HOLES CAST IN.
 5. STRUCTURE TO BE DESIGNED FOR H2O LOADING.

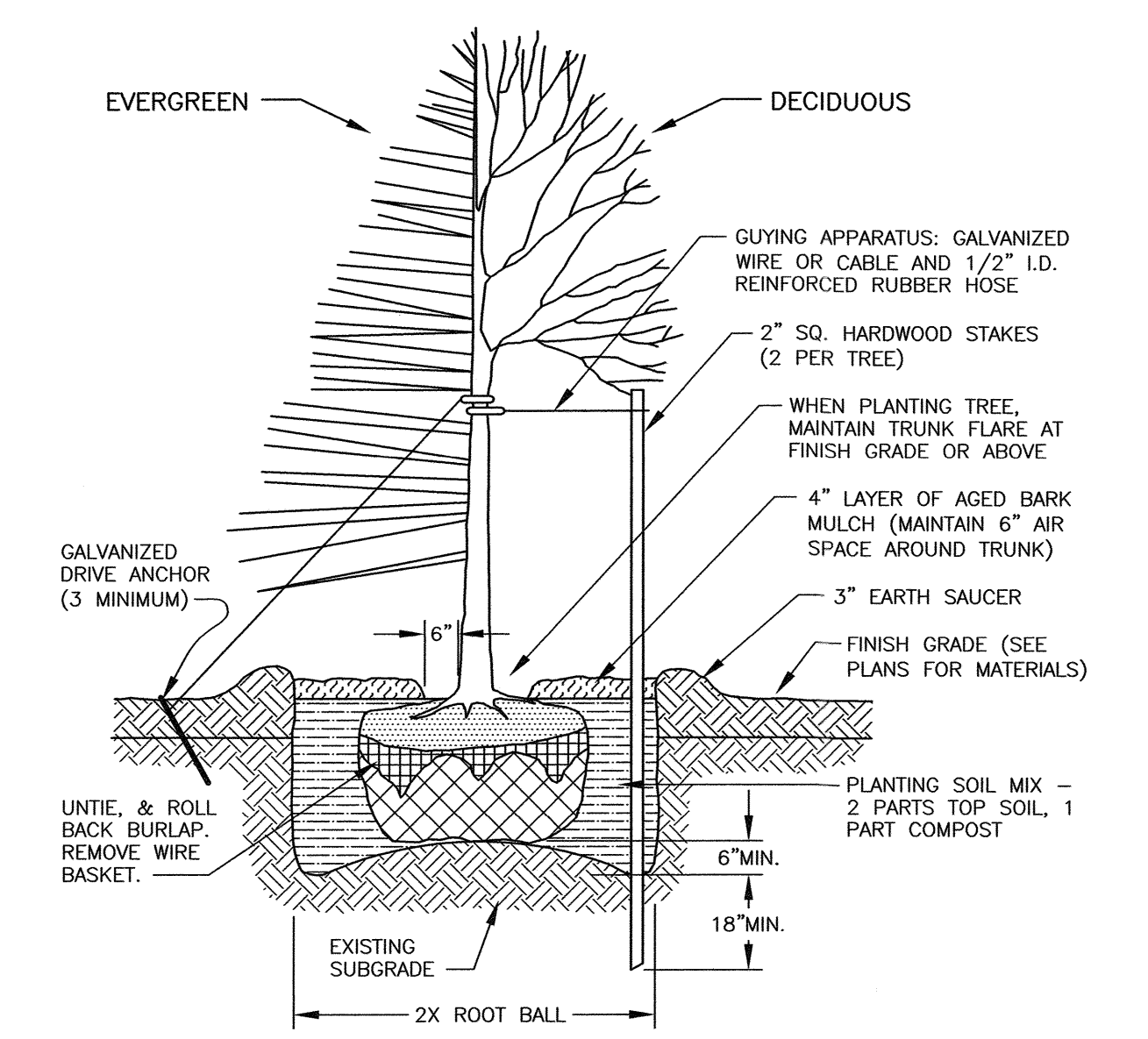
O DRAIN MANHOLE DETAIL
C4 NTS



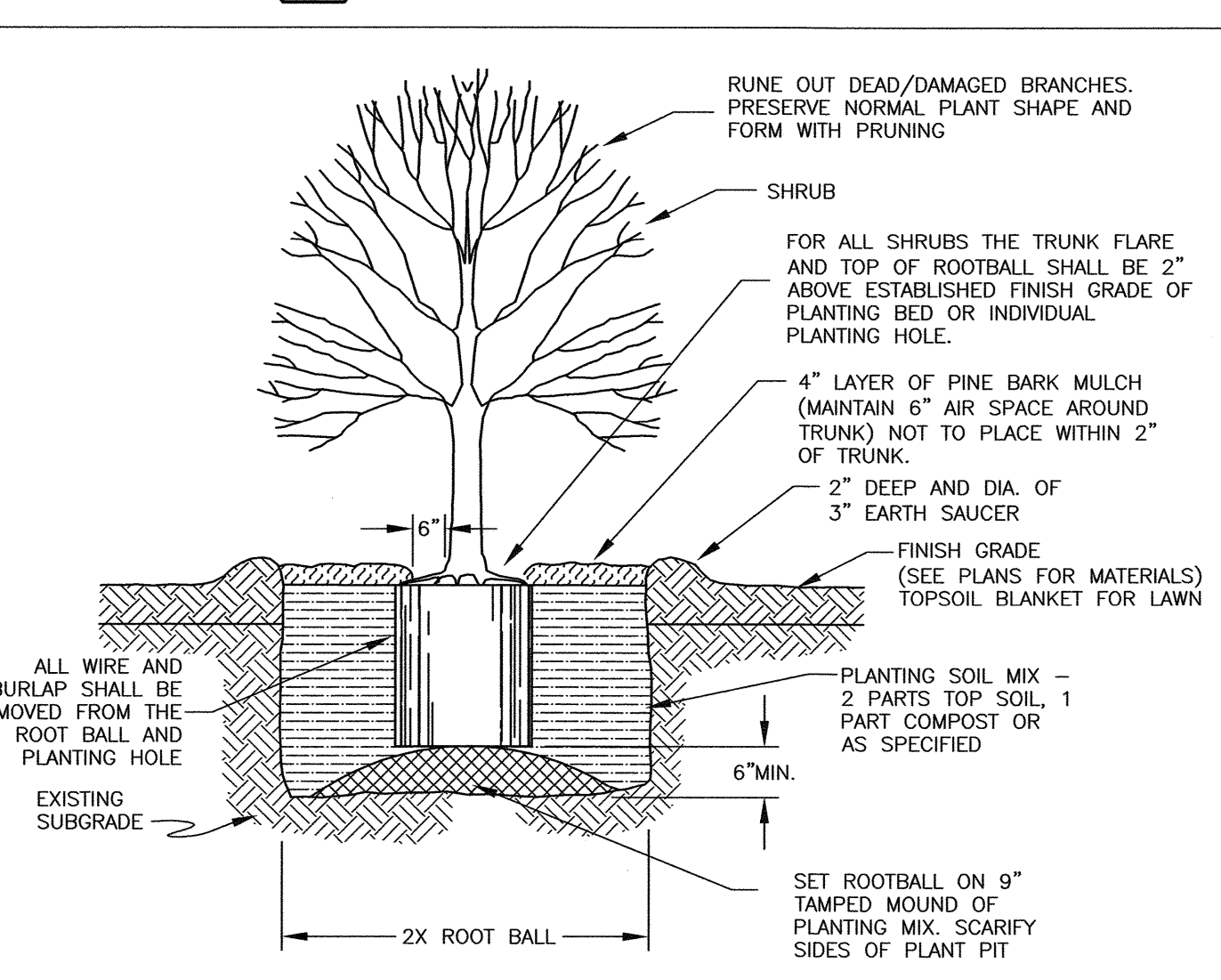
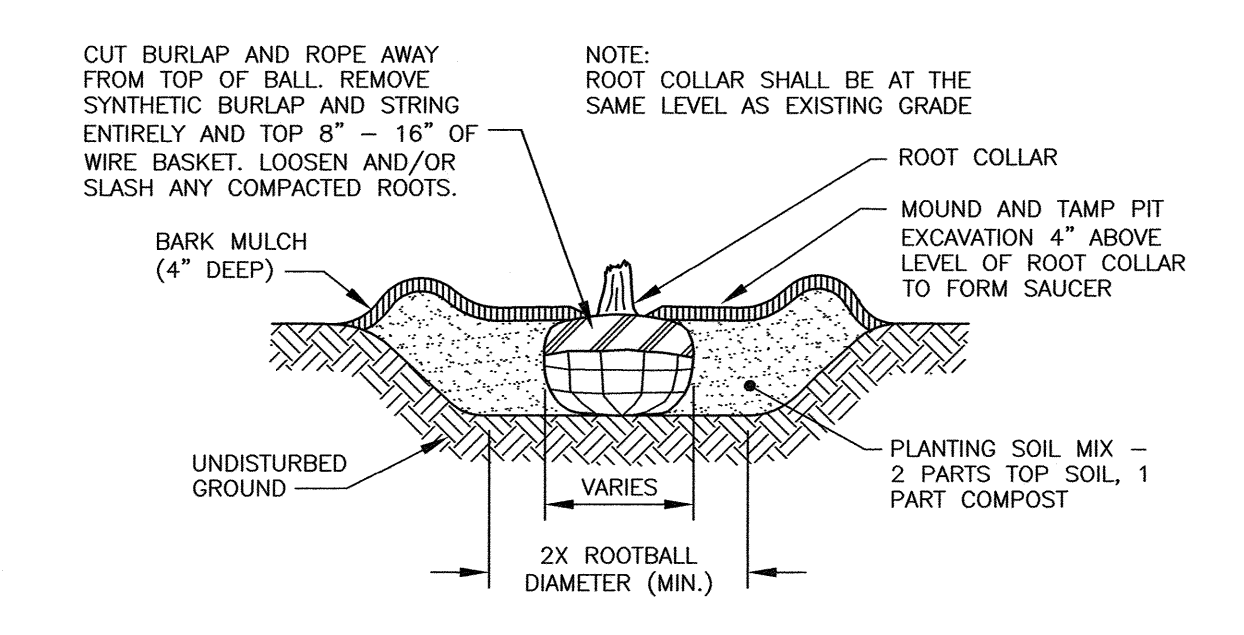
P HANDICAP PARKING
C2 NTS



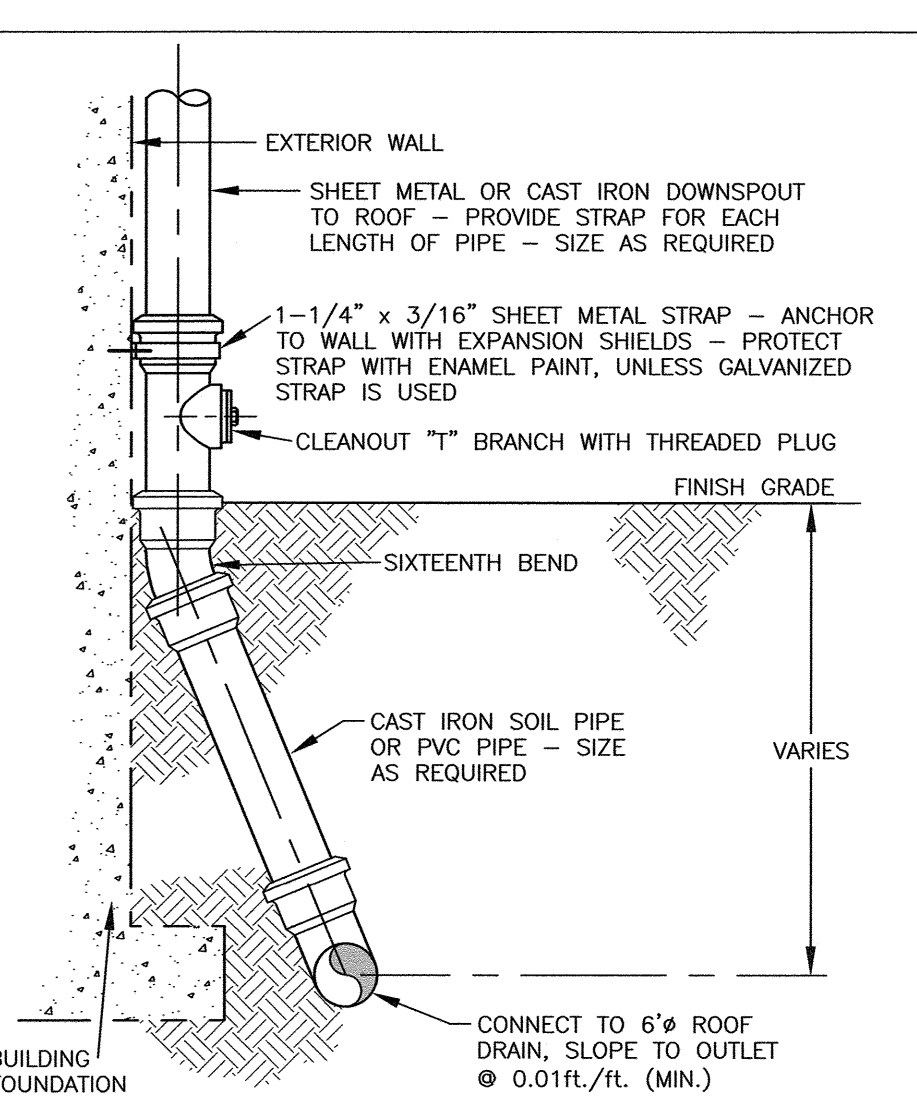
Q COMMERCIAL/GRINDER SEWAGE PUMP STATION
C4 NTS



R TREE PLANTING
C2 NTS



S SHRUB PLANTING
C2 NTS



T DOWNSPOUT SHOE
C4 (AT ALL ROOF GUTTERS IF CONNECTED TO DRAINS) NTS

NOTES:
 1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.
 2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.
 3) CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMP's" PUBLISHED BY THE MAINE D.E.P. IN 2016.

SITE IMPROVEMENTS
9-13 WATER STREET
KITTERY, ME

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	11/22/23
REVISIONS		

SCALE: AS SHOWN
 OCTOBER 2023

DETAILS **D4**

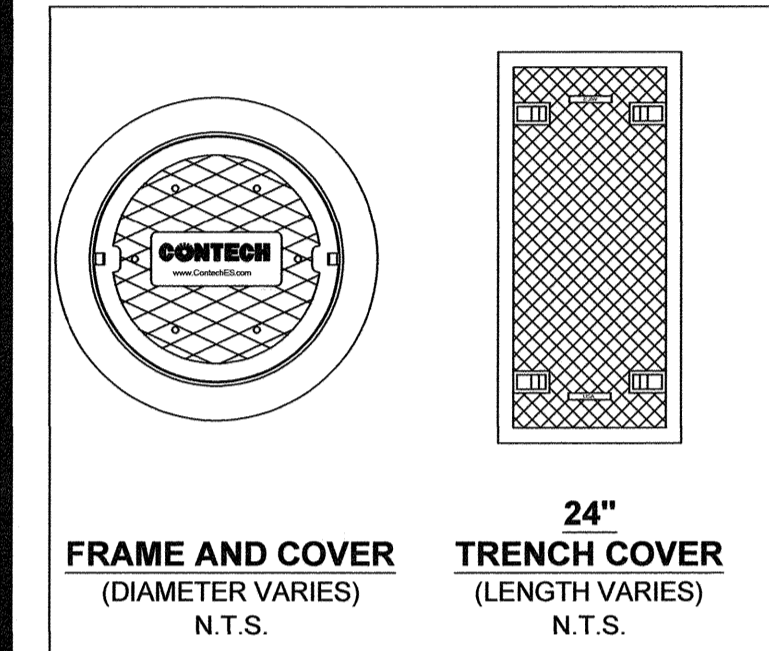
JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE LENGTH AND THE NUMBER OF CARTRIDGES. THE STANDARD PEAK DIVERSION STYLE WITH PRECAST TOP SLAB IS SHOWN. ALTERNATE OFFLINE VAULT AND/OR SHALLOW ORIENTATIONS ARE AVAILABLE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD

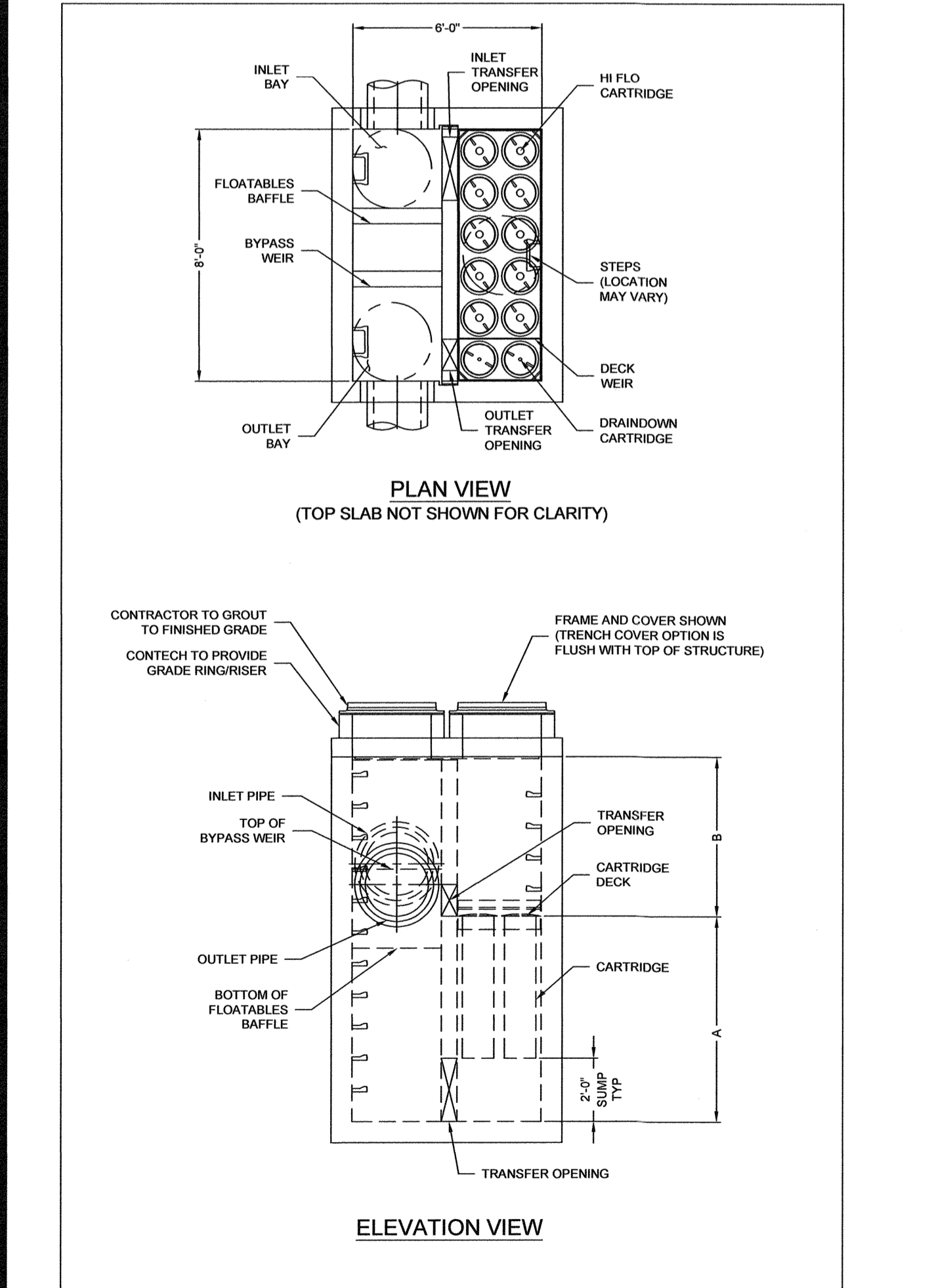
CARTRIDGE SELECTION	54"	40"	27"	15"
CARTRIDGE LENGTH	6'-6"	6'-4"	4'-3"	3'-3"
OUTLET INVERT TO STRUCTURE INVERT (A)	0.178 / 0.089	0.133 / 0.067	0.089 / 0.045	0.049 / 0.025
MAX. TREATMENT (CFS)	1.96	1.47	0.98	0.54
DECK TO INSIDE TOP (MIN) (B)	5.00	4.00	4.00	4.00

- GENERAL NOTES:**
- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
 - FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS REPRESENTATIVE. www.contech.com
 - JELLYFISH WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
 - STRUCTURE SHALL MEET AASHTO HS-20 OR PER APPROVING JURISDICTION REQUIREMENTS, WHICHEVER IS MORE STRINGENT, ASSUMING EARTH COVER OF 0' - 10' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M300 LOAD RATINGS AND BE CAST WITH THE CONTECH LOGO.
 - STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C-857, ASTM C-919, AND AASHTO LOAD FACTOR DESIGN METHOD.
 - OUTLET PIPE INVERT IS EQUAL TO THE CARTRIDGE DECK ELEVATION.
 - THE OUTLET PIPE DIAMETER FOR NEW INSTALLATIONS IS RECOMMENDED TO BE ONE PIPE SIZE LARGER THAN THE INLET PIPE AT EQUAL OR GREATER SLOPE.
 - NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

- INSTALLATION NOTES:**
- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
 - CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE.
 - CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT).
 - CARTRIDGE INSTALLATION, BY CONTECH, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE JELLYFISH UNIT IS CLEAN AND FREE OF DEBRIS. CONTACT CONTECH TO COORDINATE CARTRIDGE INSTALLATION WITH SITE STABILIZATION.



SITE SPECIFIC DATA REQUIREMENTS			
STRUCTURE ID		WQFLOW	ID
WATER QUALITY FLOW RATE (cfs)		PEAK	
PEAK FLOW RATE (cfs)		RETURN	
RETURN PERIOD OF PEAK FLOW (yrs)		CART	
# OF CARTRIDGES REQUIRED (HF / DD)		SIZE	
CARTRIDGE LENGTH			
PIPE DATA:			
INLET #1	I.E.	MAT'L	DIA. SLOPE % HGL
INLET #2	ELEV	MAT'L	DIA. SLOPE % HGL
OUTLET	ELEV	MAT'L	DIA. SLOPE % HGL
SEE GENERAL NOTES 6-7 FOR INLET AND OUTLET HYDRAULIC AND SIZING REQUIREMENTS.			
RIM ELEVATION		RIM ELEV	
ANTI-FLOTATION BALLAST	WIDTH	HEIGHT	
	WIDTH	HEIGHT	
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			



JELLYFISH FILTER DETAIL NTS

1.0 Inspection and Maintenance Overview

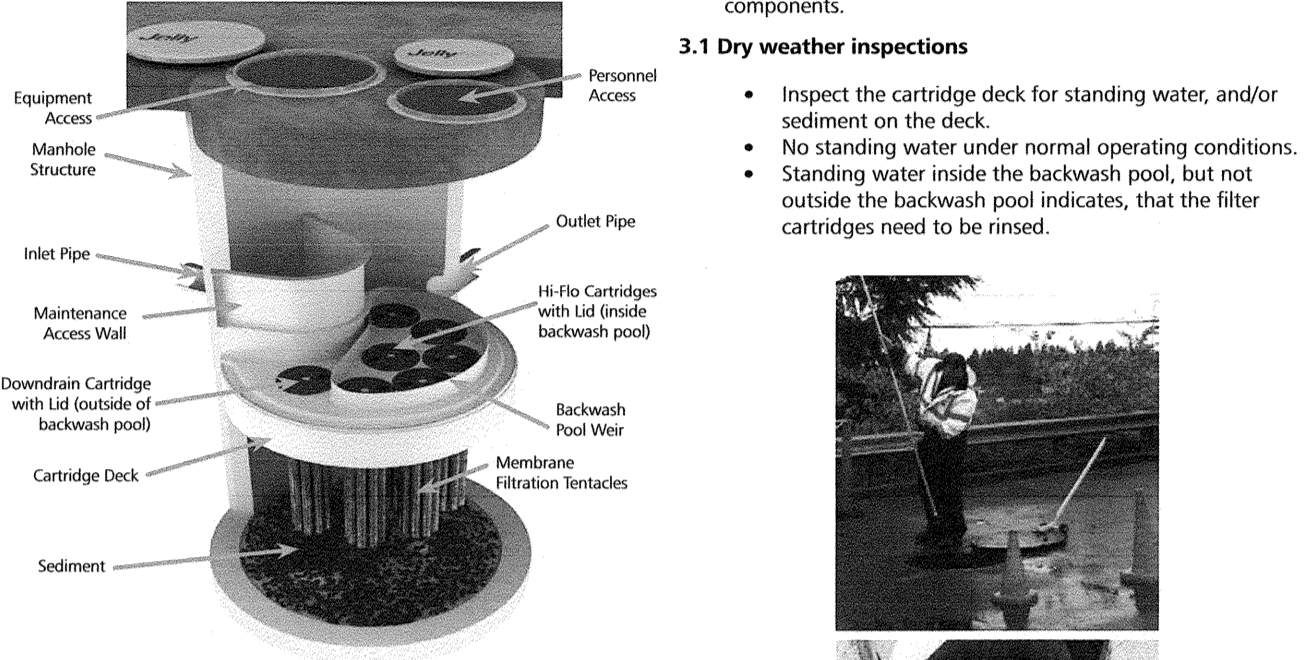
The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

- Maintenance activities include:
- Removal of oil, floatable trash and debris
 - Removal of collected sediments
 - Rinsing and re-installing the filter cartridges
 - Replace filter cartridge tentacles, as needed



2.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below, or per the approved project stormwater quality documents (if applicable), whichever is more frequent.

3

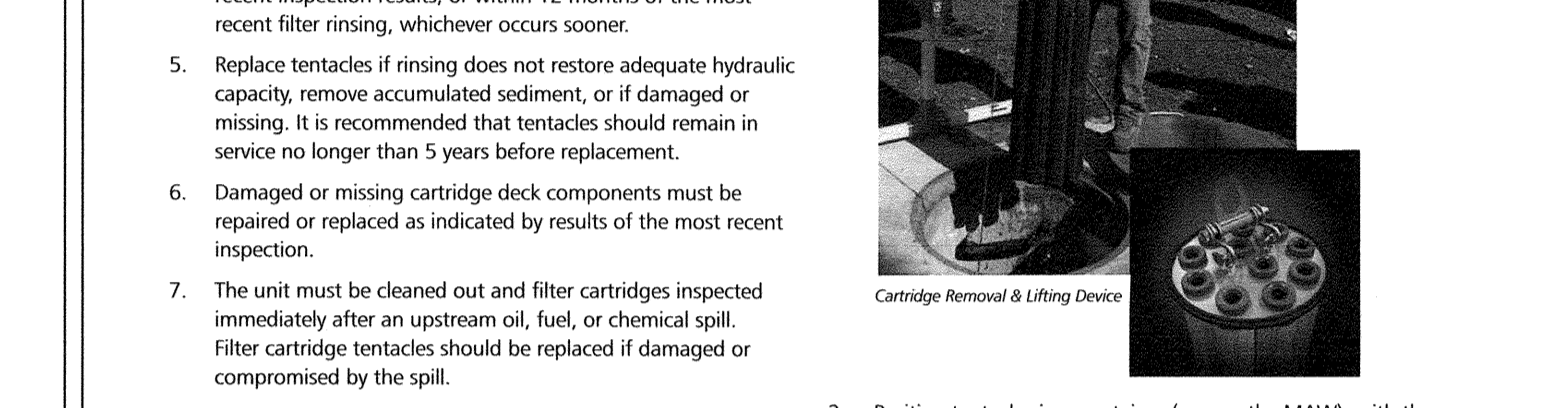
- A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
- Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
- Inspection is recommended after each major storm event.
- Inspection is required immediately after an upstream oil, fuel or other chemical spill.

3.0 Inspection Procedure

- The following procedure is recommended when performing inspections:
- Provide traffic control measures as necessary.
 - Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
 - Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
 - Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
 - Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

3.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.



4.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan, whichever is more frequent. In general, maintenance requires some combination of the following:

- Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
- Floatable trash, debris, and oil removal.
- Deck cleaned and free from sediment.
- Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
- Replace tentacles if rinsing does not restore adequate hydraulic capacity remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
- Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
- The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

5.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

- Provide traffic control measures as necessary.
- Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. **Caution: Dropping objects onto the cartridge deck may cause damage.**
- Perform Inspection Procedure prior to maintenance activity.
- To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. **Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.**
- Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

5.1 Filter Cartridge Removal

- Remove a cartridge lid.
- Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. **Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs.**
- Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

5.2 Filter Cartridge Rinsing

- Remove all 11 tentacles from the Cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.
- Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.
- Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. **Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane.**

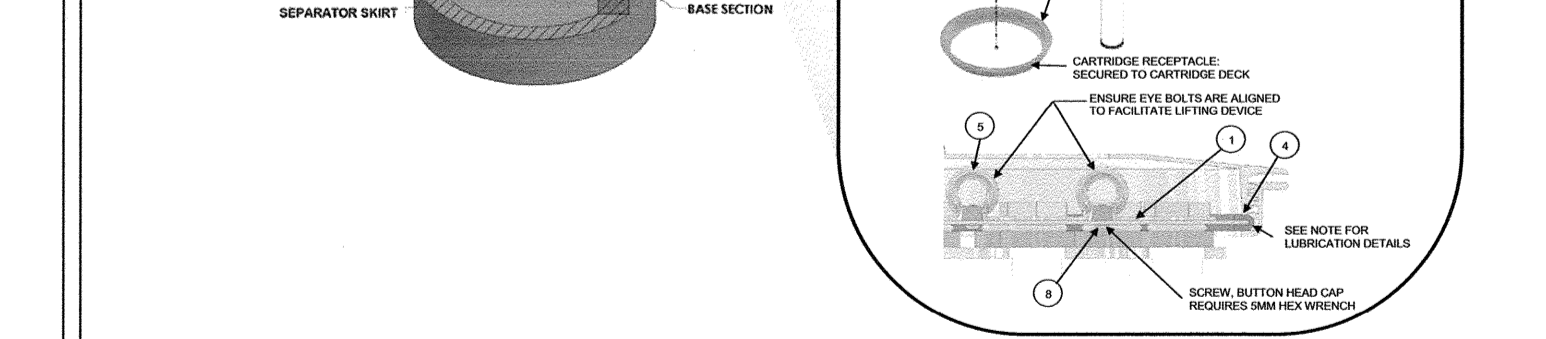


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 1MM COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	JACO	LUBR-JOINT
45001	HERCULES	DUCK BUTTER
30900	DATLEY	PIPE LUBRICANT
F041010	PROSETECT	PIPE JOINT LUBRICANT

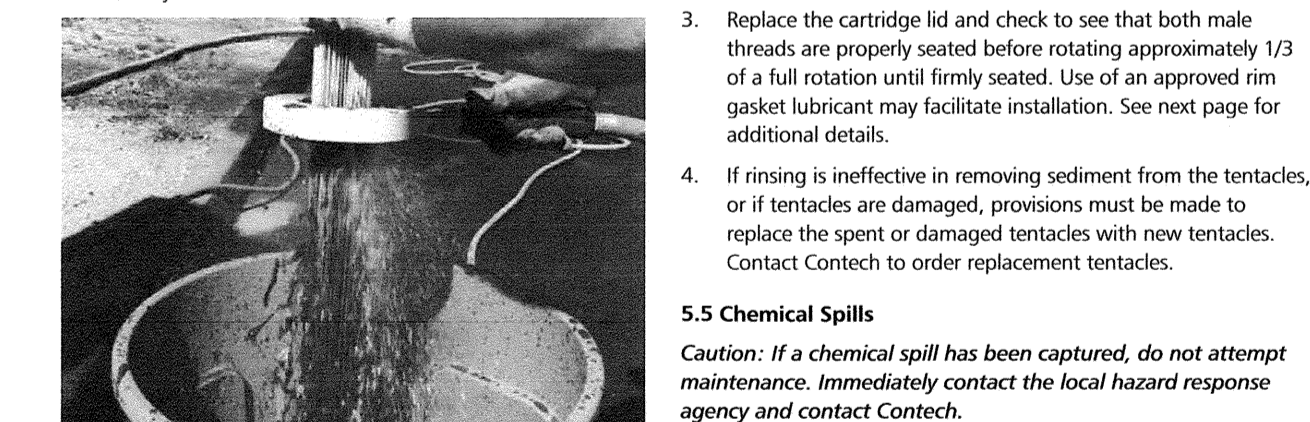
NOTES:
Head Plate Gasket Installation: Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lids (Item 5). Follow Lubricant manufacturer's instructions.
Lid Assembly: Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clockwise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

- Collected rinse water is typically removed by vacuum hose.
- Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

5.3 Sediment and Floatables Extraction

- Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
- Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.



5.4 Filter Cartridge Reinstallation and Replacement

- Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
- Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. **Caution: Do not force the cartridge downward; damage may occur.**
- Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
- If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

5.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

5.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

1.0 Inspection and Maintenance Overview

200 Griffin Road, Unit 3
Portsmouth, NH 03801
603.430.9282

NOTES:

- THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.
- UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.
- CONTRACTOR SHALL INSTALL AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "MAINE EROSION AND SEDIMENT CONTROL BMP'S" PUBLISHED BY THE MAINE D.E.P. IN 2016.



SITE IMPROVEMENTS

9-13 WATER STREET
KITTELY, ME

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	11/22/23

REVISIONS

NO.	DESCRIPTION	DATE

SCALE: AS SHOWN

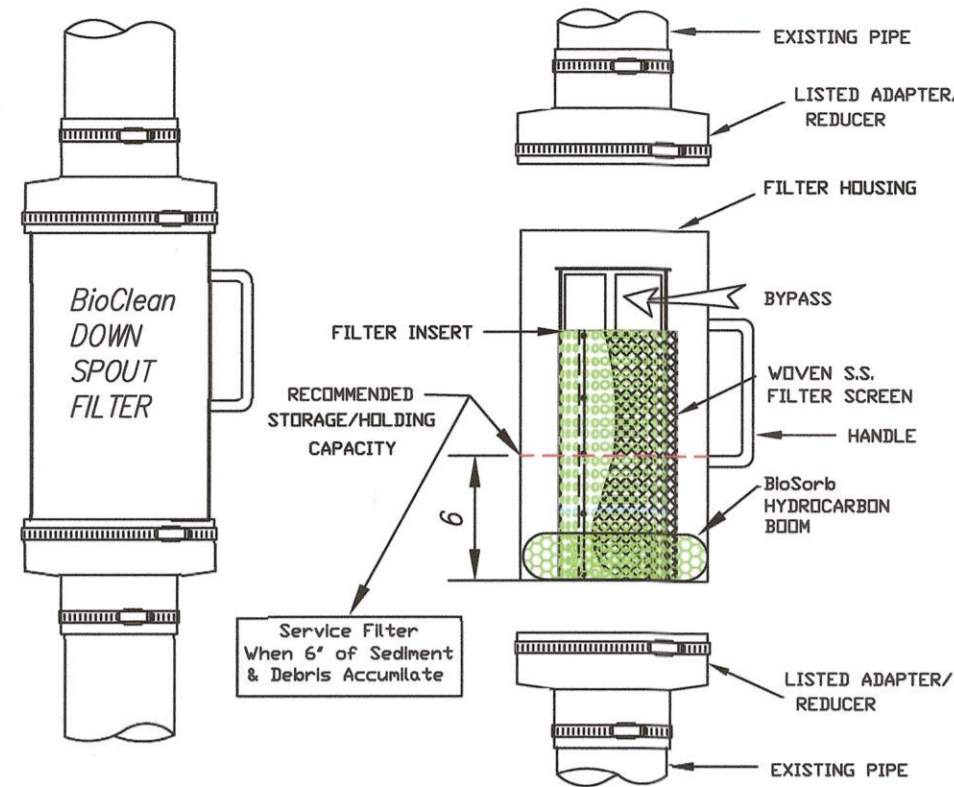
OCTOBER 2023

DETAILS

D5

SERVICE MANUAL
(Cleaning Procedures)

Bio Clean DOWNSPOUT FILTER
Screen Type With Hydrocarbon Boom



TOOLS AND EQUIPMENT NEEDED:

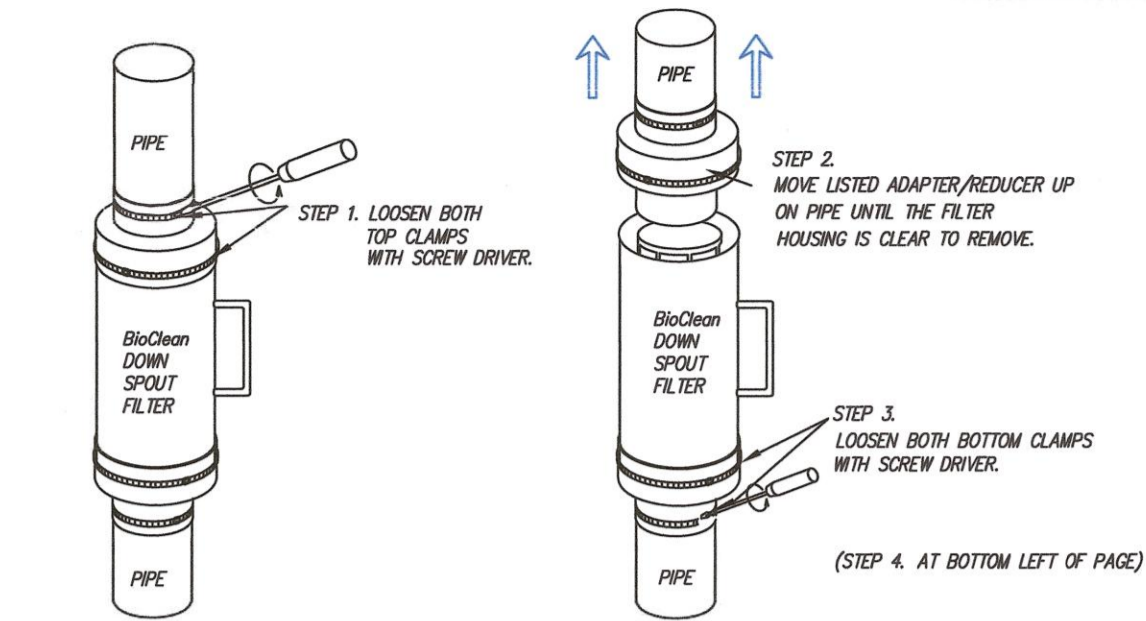
1. Medium size flat screw driver
2. BioSorb hydrocarbon boom. 25-1/2' X 2' dia. (Call Bio Clean to order)
3. Trash container or bag
4. Wooden dowel approx. 3' x 1/2' dia.

DETAIL OF PARTS

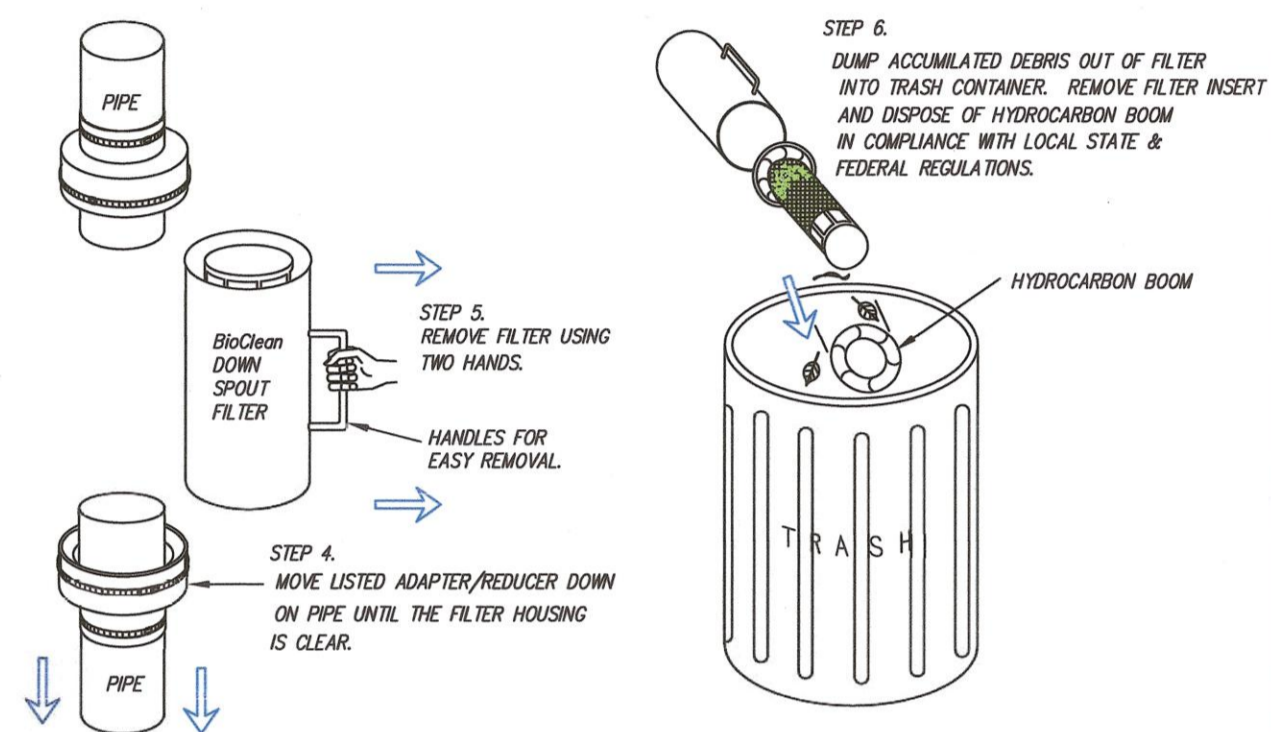


P.O. BOX 869, Oceanside, Ca. 92049
(760) 433-7640 Fax (760) 433-3176
www.biocleanenvironmental.net

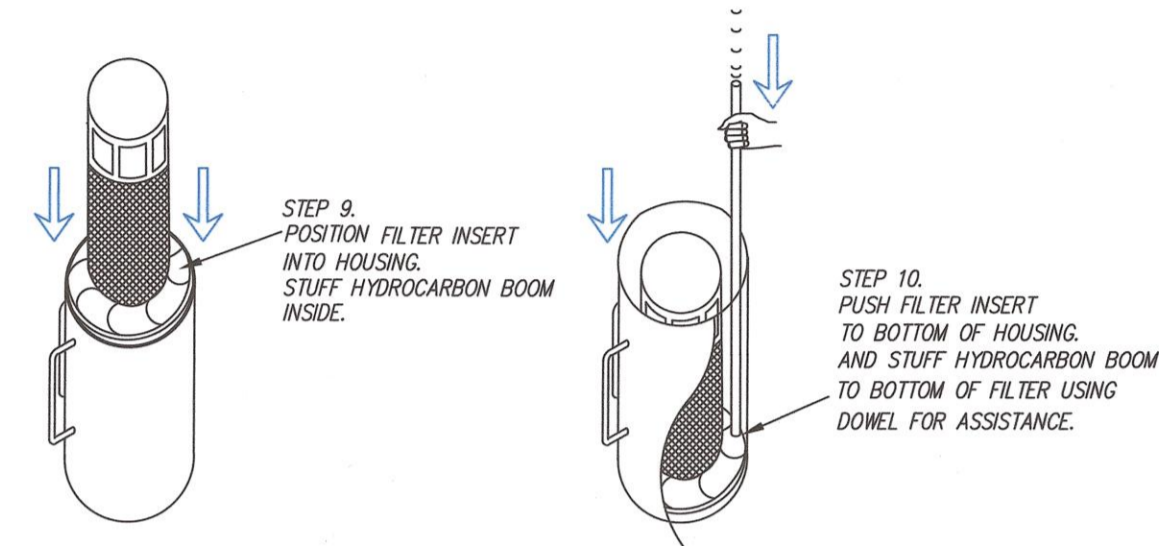
REMOVING FILTER



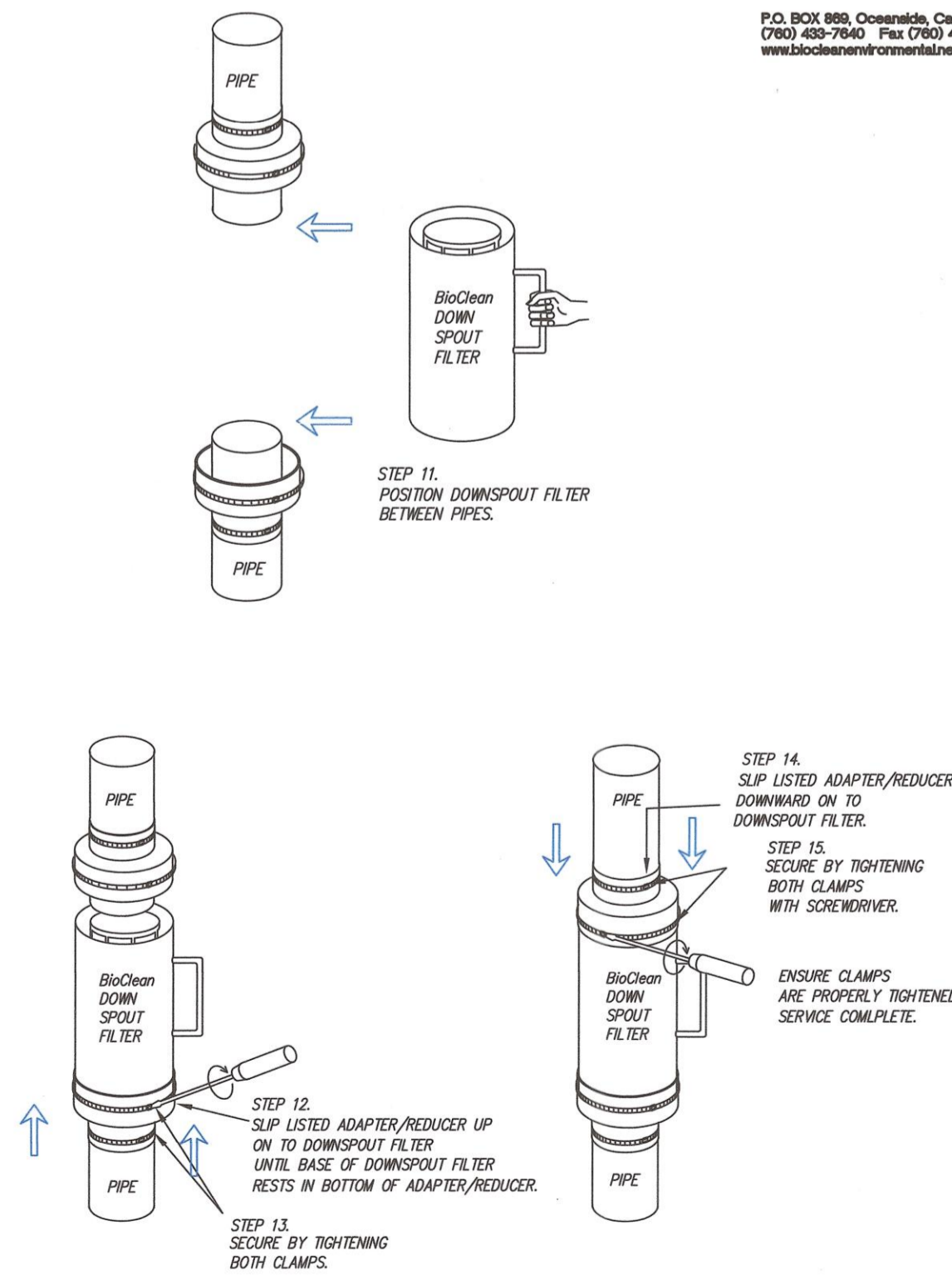
CLEANING FILTER



REPLACING FILTER INSERT

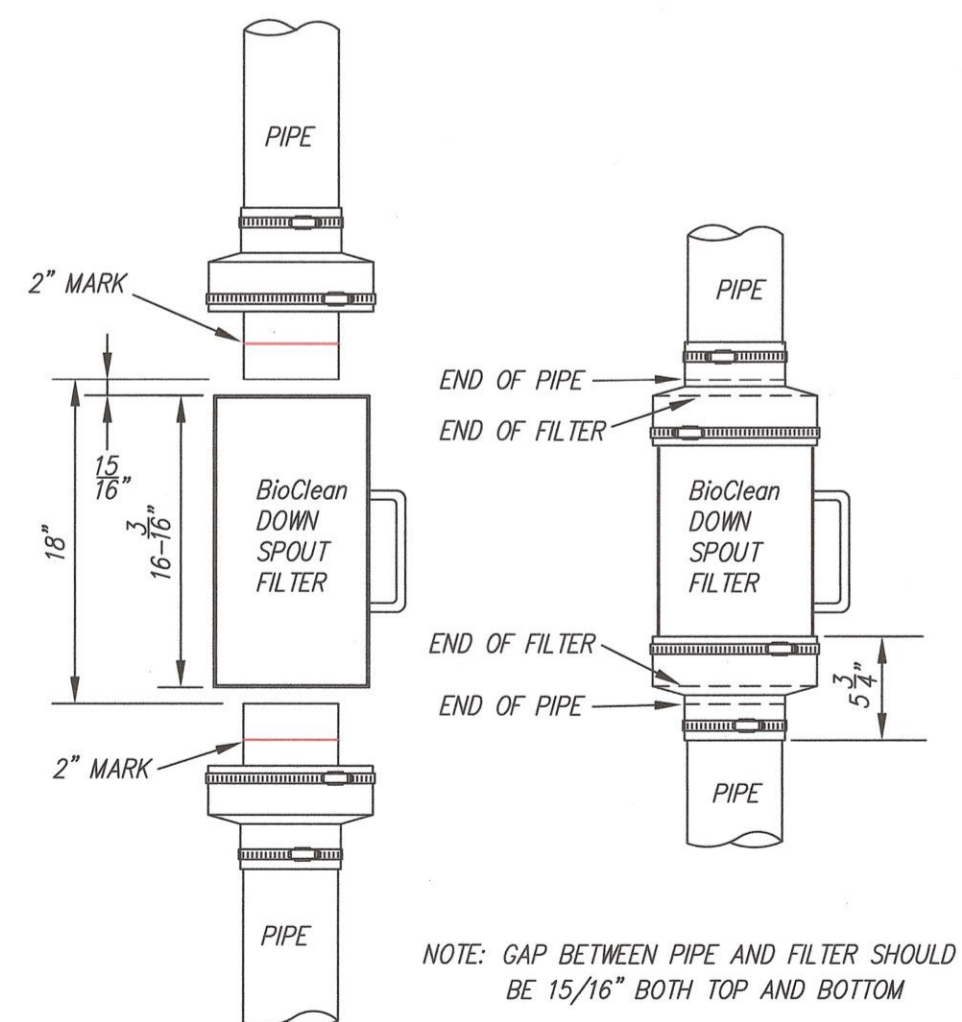


REPLACING FILTER



APPROPRIATE INSTALLATION

FILTER CENTERED BETWEEN PIPES WITH EVEN GAPS ON TOP AND BOTTOM



DOWNSPOUT FILTER:

DOWNSPOUT FILTER NOTES:

MAINTENANCE:

THE FILTER IS DESIGNED TO ALLOW FOR THE USE OF MANUAL OR VACUUM REMOVAL OF CAPTURED MATERIALS IN THE FILTER STRUCTURE. FILTERS CAN BE CLEANED EASILY BY SIMPLY LOOSENING THE METAL CLAMPS AND REMOVING THE FILTER. THE HYDROCARBON ADSORBENT MEDIA THEN IS REMOVED AND THE TRASH AND DEBRIS CAN BE REMOVED FROM THE STRUCTURE. AT EACH CLEANING, NEW HYDROCARBON ADSORBENT MEDIA SHOULD BE REINSTALLED.

MAINTENANCE NOTES:

1. BIO CLEAN ENVIRONMENTAL SERVICES, INC. RECOMMENDS CLEANING AND DEBRIS REMOVAL MAINTENANCE A MINIMUM OF TWO TO FOUR TIMES PER YEAR, AND REPLACEMENT OF MEDIA BOOMS A MINIMUM OF TWICE A YEAR.
2. THE DOWNSPOUT FILTER CAN BE CLEANED BY LOOSING THE METAL CLAMPS AT BOTTOM AND TOP OF RUBBER BOOTS. REMOVE THE FILTER BY GRASPING THE HANDLES, SLIDE DOWN THE BOTTOM BOOT OVER THE OUTFLOW PIPE AND SLIDE UP THE TOP BOOT OVER INFLOW PIPE. PLACE THE FILTER ON THE GROUND. DISPOSE OF ANY TRASH AND SEDIMENTS COLLECTED IN FILTER.
3. ONCE THE FILTER IS FREE, REMOVE THE INTERIOR INSERT. REMOVE THE HYDROCARBON ADSORBENT MEDIA BY UNWRAPPING IT FROM THE INTERIOR INSERT AND REPLACING WITH A NEW MEDIA, WRAPPING IT THE SAME WAY.
4. PLACE THE INTERIOR INSERT BACK INTO THE FILTER.
5. PLACE THE FILTER BACK IN LINE WITH THE PIPE AND SLIDE BACK THE TOP AND BOTTOM BOOTS IN PLACE AND TIGHTEN THE METAL CLAMPS SECURELY.
6. EVALUATION OF THE HYDROCARBON MEDIA SHALL BE PERFORMED AT EACH CLEANING. IF THE MEDIA IS FILLED WITH HYDROCARBONS AND OILS IT SHOULD BE REPLACED.
7. TRANSPORT ALL DEBRIS, TRASH, ORGANICS AND SEDIMENTS TO APPROVED FACILITY FOR DISPOSAL IN ACCORDANCE WITH LOCAL AND STATE REQUIREMENTS.
8. THE HYDROCARBON MEDIA WITH ABSORBED HYDROCARBONS IS CONSIDERED HAZARDOUS WASTE AND NEEDS TO BE HANDLED AND DISPOSED OF AS HAZARDOUS MATERIAL. PLEASE REFER TO STATE AND LOCAL REGULATIONS FOR THE PROPER DISPOSAL OF USED MOTOR OIL/FILTERS.
9. FOLLOWING MAINTENANCE AND/OR INSPECTION, THE MAINTENANCE OPERATOR SHALL PREPARE A MAINTENANCE/INSPECTION RECORD. THE RECORD SHALL INCLUDE ANY MAINTENANCE ACTIVITIES PERFORMED, AMOUNT AND DESCRIPTION OF DEBRIS COLLECTED, AND CONDITION OF FILTER.
10. THE OWNER SHALL RETAIN THE MAINTENANCE/INSPECTION RECORD FOR A MINIMUM OF FIVE YEARS FROM THE DATE OF MAINTENANCE. THESE RECORDS SHALL BE MADE AVAILABLE TO THE GOVERNING MUNICIPALITY FOR INSPECTION UPON REQUEST AT ANY TIME.
11. ANY TOXIC SUBSTANCE OR ITEM FOUND IN THE FILTER IS CONSIDERED AS HAZARDOUS MATERIAL AND CAN ONLY BE HANDLED BY A CERTIFIED HAZARDOUS WASTE TRAINED PERSON (MINIMUM 24-HOUR HAZWOPER).

NOTES:

- 1) THE CONTRACTOR SHALL NOTIFY DIG SAFE AT 1-888-DIG-SAFE (1-888-344-7233) AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION ON PUBLIC OR PRIVATE PROPERTY.
- 2) UNDERGROUND UTILITY LOCATIONS ARE BASED UPON BEST AVAILABLE EVIDENCE AND ARE NOT FIELD VERIFIED. LOCATING AND PROTECTING ANY ABOVEGROUND OR UNDERGROUND UTILITIES IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND/OR THE OWNER. UTILITY CONFLICTS SHOULD BE REPORTED AT ONCE TO THE DESIGN ENGINEER.
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SITE IMPROVEMENTS
9-13 WATER STREET
KITTERY, ME

NO.	DESCRIPTION	DATE
0	ISSUED FOR COMMENT	11/22/23
REVISIONS		

SCALE: AS SHOWN OCTOBER 2023

DETAILS

D6



200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

22 November 2023

Dutch Dunkelberger, Chair
Kittery Planning Board
Town of Kittery
200 Rogers Road
Kittery, ME 03904

**Re: Preliminary Site Plan Review and Shoreland Development Plan Applications
Tax Map 1, Lots 45 & 46
9-13 Water Street
Kittery, Maine**

Dear Dutch and Planning Board Members:

On behalf of Green & Company Real Estate, holders of a valid Purchase and Sales Agreement, we submit herewith the attached package for Preliminary Site Plan and Shoreland Development Plan applications at the site. In support thereof, we are submitting the Site Plan package with the associated exhibits and supplemental information. The proposal is to repurpose Tax Map 1 Lots 45 and 46, known as 9-13 Water Street, as shown on the plan. Currently Warren's Restaurant, Chrissy D's Lobster, and a two-unit residential building occupy the site. These are historic uses which has been going on for many years at the site, predating Shoreland Ordinances. The restaurant space and lobster pound are on a wharf over water utilizing a submerged land lease. The building is in the flood zone and has experienced flooding. The plan is to remove the existing structures and the wharf that the structures sit on and construct a 1,200 square foot commercial building (lobster pound) and 4 residential structures totaling 8 units. The site's existing structure massing on the wharf would be moved landward to a location above the HAT line and made smaller. The Mixed-Use Kittery Foreside (MU – KF) Zone allows multiple dwelling units based on the land area above the HAT line. At this site, the unit density allows the 8-units.

The proposal was submitted to the Planning Board under a Sketch Plan application and reviewed and approved by the board on August 10, 2023. The board did have, however, a number of questions regarding the site. Specifically:

- What is the nature and extent of the existing Chrissy D's Lobster Pound
- Is residential allowed by the Maine DEP
- Does the Kittery Code allow non-conforming uses to be converted to other non-conforming uses?

In order to answer those questions, the development team met with town staff. Staff reviewed the issues with legal counsel and responded via email with the following information as a result of the review for the town:

1. *They opine that Chrissy Ds is a conforming use. It remains the position of the town that redevelopment of the site must include a conforming use.*
2. *They also believe that a commercial marina is a conforming use. They highlighted an important point: the marina must operate as a for-profit, publicly available facility to be considered commercial. If the slips are tied to or owned by the condos, then it may not comprise a commercial facility and may NOT be considered a conforming use.*
3. *They explained that in their experience Maine DEP looks at conforming/ non-conforming uses in Shoreland zones in a simple one-for-one manner. The fact that two nonconforming users occupy the site today means that the board can allow two nonconforming uses on the site tomorrow (provided the relative impacts are approved per #5). The comparisons of building footprints that I presented to the board are largely irrelevant.*
4. *They also pointed out that the board's approval of relocated structures should be made upon finding that their location(s) conform with the standards to the greatest practical extent. I don't recall a lot of discussion about this point during the meeting but it's a safe bet to assume that the board will ultimately require the buildings to be located along the street setback line before they'll approve the project. Of course, this is just my hunch.*
5. *Counsel went on to explain that the board's main challenge is to determine whether the proposed use(s) will have more or less **impact** than the existing use(s), per the nonconforming uses provisions. It's fairly easy to measure and compare impacts from impervious surfaces, traffic generation, etc. On the other hand, counsel pointed out that the board is also compelled to evaluate the impacts of the proposal on "visual access to waters" and on "commercial fishing and maritime activities" per Sec. 16.1.8-C.5(d)(3). While I quoted this subsection in my notes for the board, their discussion did not focus on it and it's impossible for me to say what direction they'll go when asked to focus on this task. And we'll know fairly little about its anticipated impacts on commercial fishing uses until we hear from fishermen (or not) during a public hearing.*
6. *Along similar lines, 16.1.8-C(2)(c) states that nonconforming uses "may be changed to an **equal or more appropriate** nonconforming use." I did not pick up on the potential importance of this subsection during my review. This suggests that the board could also evaluate the relative "appropriateness" of the respective nonconforming uses. It stands to reason that we (staff) and the board should look to the **comprehensive plan** to support any attempt to measure the non-physical impacts or degrees of appropriateness of different uses. Protecting Kittery's working waterfront is clearly a priority in the comprehensive plan, as I noted for the board in my memo. But again, I cannot predict whether or how they would focus on this point.*

We hereby submit a revised plan set in response to the review conducted by and on behalf of the town with the following points, based on this Preliminary Plan submission, addressed:

1. Attached is a detailed description of the current use. The revised plan includes a proposed 1,200 square foot commercial space to replace and relocate, in an appropriate manner, the current lobster pound use.
2. The developer has decided to remove the Marina from the development at this time. Permitting of docks may be brought forward at a later date as allowed under regulations in place at the time of the request, understanding the issue highlighted in the review. The site parking has been revised to eliminate the marina parking to align with the Marina removal in the revised design.
3. This states that the DEP would allow the maintenance of the non-conforming uses during a redevelopment providing the impacts are approved. Maine DEP application and approval, as required, will be a part of the approval process.
4. The Board had discretion in the approval of the structure relocations. The standard to comply is to move away from the resource to the greatest practical extent. In this case the existing restaurant structure is entirely *over* the resource. Structures are being moved back from being over the resource on to land area above the HAT. The design is based upon placing the structures along the resource edge and the associated pavement areas as far from the resource as possible. We believe that the opposite layout, structures with paved access right next to the resource, is not as favorable environmentally as the submitted design. The opportunities for accidental pollution, such as trash and other debris that can be blown or that may flow over the pavement and in to the resource, which may cause environmental damage, are lessened with the proposed arrangement. The design includes providing significant stormwater treatment in the proposed design, where none exists today. The arrangement is also similar to the existing site layout, which provides for light and air along Water Street and provides a feeling of open space from the public street.
5. This proposal retains with the proposed lobster pound the existing commercial use, which is a fishing and maritime activity as represented by Chrissy D's business. The business will be located in a new more conforming and flood resistant structure with better pedestrian access connected to the improved sidewalk network. Commercial access to the water is maintained on the existing wharf, gangway, and float system on the west end of the existing development. The revised structure location will provide a wider view of the resource as the public travels over the adjacent bridge to the mainland from Badgers Island.
6. This proposal does not change the non-conforming uses at the site. The Comprehensive Plan speaks to the following:
 1. Preserving the working waterfront. This proposal maintains the working waterfront use on the site providing a commercial building that can be used as a lobster pound.

2. Providing direct access to the water with a dock and loading zone for commercial fisherman / lobsterman to drop their catch.
3. Expanding housing in areas with public infrastructure. This site is in the urban, developed portion of Kittery, with existing infrastructure.
4. Expanding the vegetated area in the shoreland zone and providing more open space.
5. Providing a sidewalk to the commercial building connecting safe pedestrian access to the retail business.
6. Protecting the adjacent resource by updating the site utilities and drainage, providing better environmental protection than what currently exists.
7. Providing flood resistant structures with the new construction.
8. Reducing the square foot building impact in the shoreland zone.

We believe that the proposal has met the criteria to allow the re-use and will lessen the following impacts to the site, the environment, and the surroundings:

- Traffic: Parking requirements for the proposed use are reduced significantly – see the attached Parking Demand Memo. This reduces the impact to the neighborhood and lessens congestion on the adjacent roadway network.
- Noise: the proposed use will be quieter than the existing restaurant with the large parking lot and evening noise impacts.
- Building footprint: the plan reduces the building footprint(s) by 3,961 square feet, a 23% reduction.
- Setback to resource: the plan pulls the building(s) 50 to 80 feet back from the current location, which is on a wharf below the HAT line, making the redeveloped location less non-conforming.
- Public Vista: the building pull back will increase the public view of the tidal area as seen from the Route 1 Bridge while maintaining the open space along Water Street.
- Site Coverage reduction: the project reduces the Devegetated Coverage above the HAT line by 11.8%. This includes a 52% reduction in paved surface.
- Neighborhood Impacts: The plan will move the commercial portion of the redeveloped site, the lobster pound, farther away from existing residential abutters.
- Coastal Resiliency: The plan constructs flood compliant buildings and elevates the site to avoid sea level rise impacts.

The ordinance in the resource protection overlay districts requires that development within the limit of the shoreland zones must meet current ordinance criteria, with an exception for *currently developed areas*. We believe that the long-time use of the property as it currently exists is exactly the type of site that meets the definition of a *currently developed area*, and the goal in site redevelopment is to create more conformance with the code, which we believe this application does.

The following plans are included in our submission:

- Cover Sheet – this plan shows the Design Team and Legend for the plan set.
- Standard Boundary Survey – this plan shows the property boundary.
- Existing Conditions Plan C1 – this plan shows the current improvements to the property and the site topography.
- Shoreland Development Plan C2 – this plan shows the location of the proposed structures, sidewalks (including a public sidewalk on Water Street), driveway, parking, landscaping, coverage and footprint calculations, and retaining walls.
- Demolition Plan C3 – this plan details the site demolition.
- Grading and Erosion Control Plan – this plan shows the proposed site grading and drainage design features.
- Utility Plan – this plan shows the proposed site utilities.
- D1 to D-6 – these plans show the site construction details.

Please also find the attached in support of this proposal:

Owner / Client Authorization
Property Deed
Submerged Land Lease
Water and Sewer Availability Letters
Vicinity (Photo) Map
Tax Map
FEMA Map
Site Photographs
Soil Report
Parking Demand Memo
Setback Exhibit
Comparison Exhibit (Color)
Architectural Plans
Building Height
Site Renderings

We look forward to the Planning Board's review of this submission and our in-person presentation at the December Planning Board meeting. Thank you for your time and attention to this proposal. Please contact me if you have any questions or concerns regarding this application.

Sincerely,



John R. Chagnon, PE
Ambit Engineering – Haley Ward

13:47

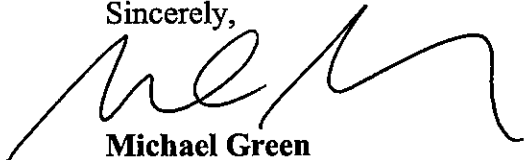
To Whom It May Concern

RE: Client Representation for a proposed Site Plan for Green & Company Real Estate at 9-13 Water Street, Kittery, Maine

This letter is to inform the Town of Kittery, State of Maine DEP, and other parties in accordance with approval procedures that Ambit Engineering – Haley Ward is authorized to represent the above-mentioned property as our agent in the approval process. This includes signatory powers on any and all applications and testimony at Public Hearings.

Please feel free to call me if there is any question regarding this authorization.

Sincerely,

A handwritten signature in black ink, appearing to read 'Michael Green', written over a white background.

**Michael Green
Green & Company Real Estate**

Authorized Representative
PO Box 1297
North Hampton, NH 03862
603-964-7572



Sign for the public-retail Customers. Many of the restaurant patrons buy from "Chrissy D's" when visiting Warren's.



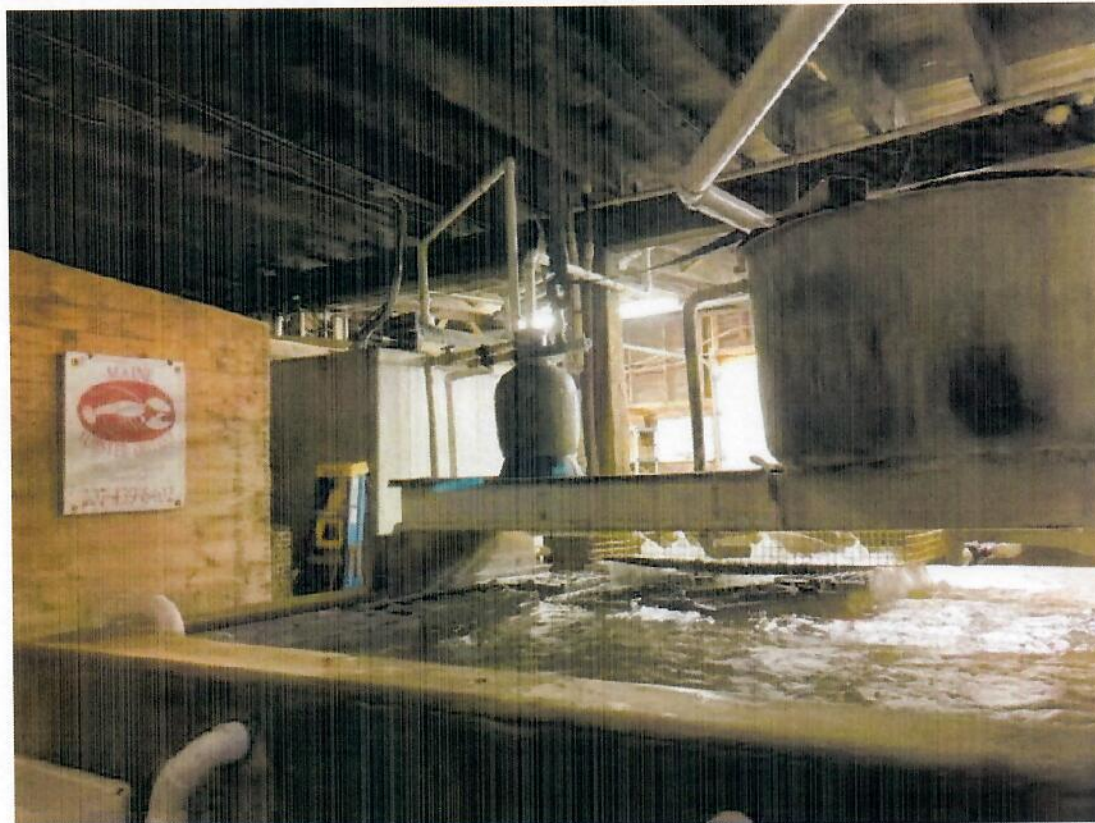
The warehouse has three overhead doors- the one all the way to the left is for retail customers. The remaining two doors are for receiving deliveries that arrive by truck over the road.



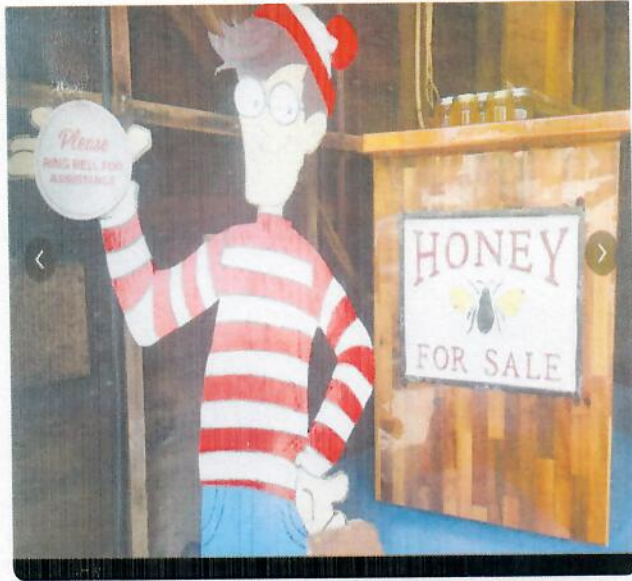
End of the warehouse building-shows small amount of dock space



Illustrates three overhead doors and a fourth on side of warehouse. The door next to fourth overhead is the entry door to the warehouse building.



This picture is looking towards the parking lot. Forward to the left there are two walk-in coolers/freezers that are used to store boxes and various things...they are not used for refrigerating or freezing. To the right in the picture is a holding tank that can be filled with water from the river or it can be operated as a "closed" system, meaning the water re-circulates and is not pumping from the river. The wood wall is where the warehouse joins the restaurant building.



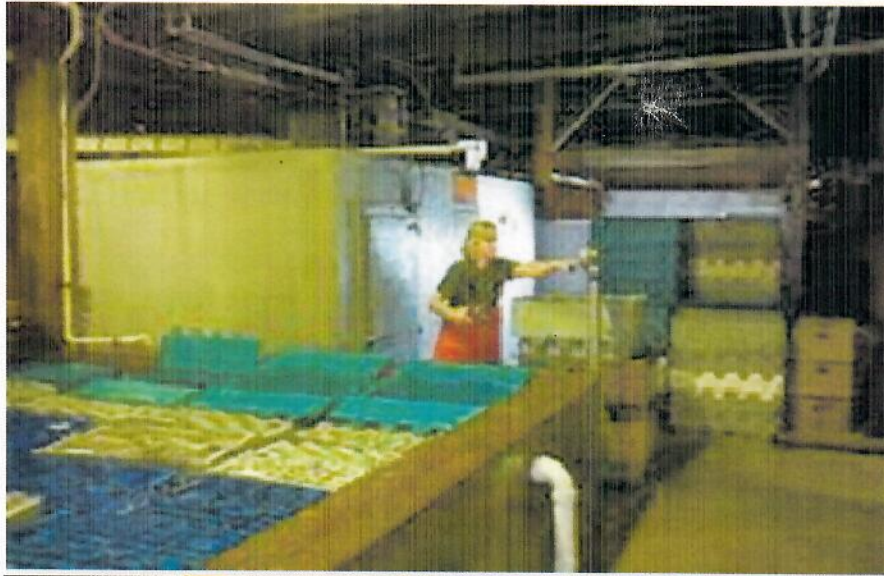
prices may be subject to copyright



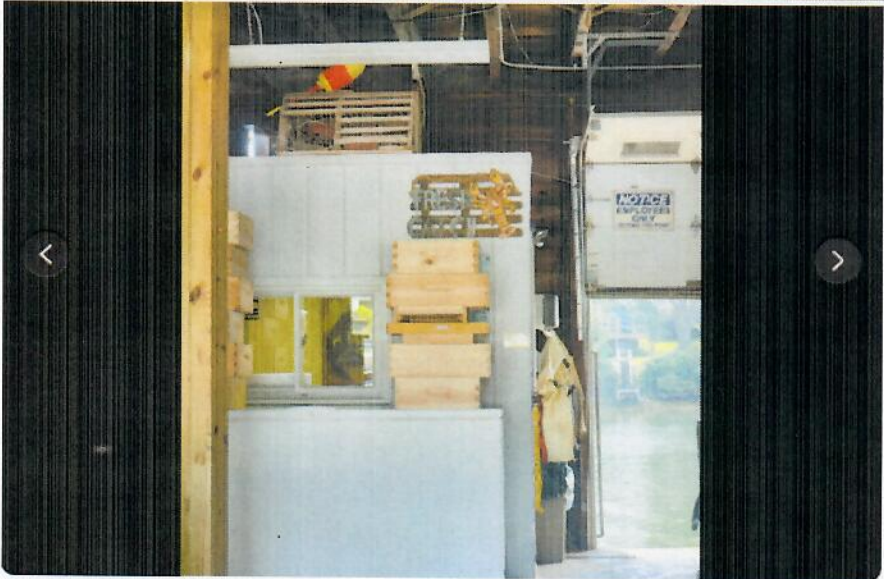
Various Retail Offerings

Retail Pricing

Open for Business



Lobster Tank-
Looking towards
entry door



Office Space (thru
small window)
Door to dock



Large Structure with
lobster flag is bait
cooler/holding space

Know all Men by these Presents,**That** Warren's Lobster House, Inc.

a Corporation organized and existing under the laws of the State of Maine

and having a place of business at Kittery

in the County of ~~Cumberland~~ YORK and State of Maine

in consideration of One Dollar (\$1.00) and other valuable considerations

paid by W. L. H. Management Corp., a New Hampshire corporation

whose mailing address is c/o Scott D. Cunningham, Old Manchester Road,
Amherst, New Hampshire 03031the receipt whereof it does hereby acknowledge, does hereby **remit, release, bargain, sell and convey,**and forever **quitclaim** unto the said W. L. H. Management Corp., its successors**and assigns forever,**

Three certain lots or parcels of land, with any buildings and improvements thereon, situated in Kittery, York County, State of Maine, being the same premises conveyed to Water Street Realty, Inc. by deed of Marjorie F. Wurm, dated August 8, 1972, recorded in York County Registry of Deeds in Book 1958, Page 804, and bounded and described in said deed as follows:

"1. Beginning on Water Street at land of Henry W. Donnell and thence running by said Donnell's land and the northwesterly side of an ancient wharf to low water mark of the Piscataqua River; thence southeasterly by said river to land of the heirs of Fred Shaw in the easterly line of Pleasant Street; thence by said Shaw land to Water Street; thence North 67° 45' West by said Water Street one hundred fifty-two and one half (152- $\frac{1}{2}$) feet, more or less, to a hub which is eighty-six and one half (86- $\frac{1}{2}$) feet southeasterly by Water Street from the point of beginning; thence turning and running southwesterly fifty (50) feet to a hub; thence turning and running northwesterly parallel with said Water Street fifty (50) feet to a hub; thence turning and running northeasterly, parallel with and three (3) feet from the side of the house on my lot of land not herein conveyed, to said Water Street; thence North 67° 41' West thirty-six and one half (36- $\frac{1}{2}$) feet by said Street to the place of beginning."

"2. Beginning on Commercial Street at land of said Warren N. P. Wurm and Marjorie F. Wurm and running southwesterly fifty (50) feet; thence northwesterly fifty (50) feet; thence northeasterly fifty (50) feet to said Commercial Street; thence southeasterly by said Street fifty (50) feet to the place of beginning."

"3. A certain lot or parcel of land with the buildings thereon situated in said Kittery and lying on the southerly side of Water Street, bounded and described as follows: Beginning on said Water Street at the line of the driveway leading to the grantee's wharf and thence running northwesterly by said Street to the line of the State Highway called Hunter Avenue, thence southwesterly by said Hunter Avenue to low water mark of the Piscataqua River, thence southeasterly by said river to land of the grantees; thence northeasterly by grantees' land and said driveway to Water Street and place of beginning."

NO. R.E. TRANSFER TAX PAID

"The above tracts are conveyed with any buildings on said premises as presently existing. Said tracts are also conveyed subject to any rights that the public may have to travel over the extension of Commercial and Pleasant Streets and Hunter Avenue to the Piscataqua River. Said tracts are also conveyed subject to any right of the Town of Kittery, Maine, the State of Maine, all public utilities, private sewers and any other easements or restrictions of record or by usage."

Including also all right, title and interest in and to any contiguous filled lands, with respect to which reference is hereby made to Title 12 M.R.S.A. §559.

Together with the benefit of a constructive easement, with respect to any existing structure upon or over State-owned submerged lands, to use said lands for 30 years pursuant to Title 12 M.R.S.A. §558.

Being the same premises conveyed to Warren's Lobster House, Inc. by Water Street Realty, Inc. by Quitclaim Deed of even date herewith to be recorded in the York County Registry of Deeds.

To have and to hold the same, together with all the privileges and appurtenances thereunto belonging, to the said W. L. H. Management Corp., its successors

~~AND~~ and assigns forever.

In Witness Whereof, the said Warren's Lobster House, Inc.

has caused this instrument to be sealed with its corporate seal and signed in its corporate name by

Scott D. Cunningham, its *President*
thereunto duly authorized, this *2nd* day of the month of *July*, A.D. 1984.

Signed, Sealed and Delivered
in presence of

WARREN'S LOBSTER HOUSE, INC.
(Corporate Name)

James C. Palmer

By *Scott D. G. L.*
Scott D. Cunningham
Its *President*

New Hampshire
State of *Maine*, County of *Rockingham*

ss. *July 2*, 1984.

Then personally appeared the above named *Scott D. Cunningham, President*
of said Grantor Corporation as aforesaid,
and acknowledged the foregoing instrument to be *his* free act and deed in *his* said
capacity, and the free act and deed of said Corporation.

Before me,

Karen A. O'Connor
Justice of the Peace
Notary Public
Attorney at Law
KAREN A. O'CONNOR, Notary Public
My Commission Expires December 18, 1987

RECEIVED YORK, SS.
1984 JUL -3 AM 10:34
RECORDED REGISTRY OF DEEDS

STATE OF MAINE
SUBMERGED LANDS LEASE

No. 0754-L-34

This SUBMERGED LANDS LEASE (hereinafter Lease) conveys certain limited rights in the submerged lands held by the State of Maine in trust for the public. It is not an environmental permit for the use of these lands.

This Lease is entered into by the Bureau of Parks and Lands (hereinafter Lessor), an agency of the State of Maine Department of Conservation, by its Director acting pursuant to the provisions of Title 12 M.R.S.A. Sections 1801 & 1862, and **WLH Management Corporation, dba Warren's Lobster House** (hereinafter Lessee), **attn: Scott D. Cunningham, 23 Mendums Landing, Barrington, NH 03825**. Lessor hereby leases to Lessee, on the terms and conditions hereinafter set forth, the following described submerged land (hereinafter leased premises) situated in York County, Maine, to wit:

A certain parcel of public submerged land located in the Piscataqua River, **Kittery, Maine**, totaling 13,311 +/- square feet, abutting adjacent upland now owned by WLH Management Corporation as further described in Attachments A, B and C which are hereby incorporated into this Lease.

1. **TERM.** This lease shall commence on October 1, 2005 and continue to December 31, 2034.
2. **USE.** Lessee is hereby authorized to use leased premises for the purposes of an existing restaurant, lobster pound, deck, pier, ramp and floats for commercial use as described in Bureau of Parks and Lands Submerged Lands Lease Application Number SL 919-CE and for no other purposes.
3. **OTHER USES.** Lessor reserves the rights of the general public to transitory fishing, fowling, recreation, navigation, and other traditional uses of leased premises, and the right of Lessor to make such other uses of leased premises, including by way of example and without limitation, the right to permit pipes to be laid thereunder or telephone wires to be maintained thereover, as shall not unreasonably interfere with Lessee's use and enjoyment of leased premises for the purposes stated in Paragraph 2 above.
4. **REGULATORY PERMITS.** Lessee shall be responsible for obtaining any and all permits required by any agency of the United States, the State of Maine, or any political subdivision thereof, having jurisdiction over the activities on the submerged lands contemplated by this Lease. Lessee's compliance with such permits and conditions thereof shall be a requirement of this Lease for all purposes including, without limitation, for purposes of defining the extent and purpose of any alteration or use of in, on, under, or over leased premises. Unless all required permits authorizing the uses contemplated hereby are issued prior to the expiration of the calendar year next following the creation of this leasehold, this Lease shall be void. In the event that any agency of the United States, the State of Maine, or any political subdivision thereof, denies or disapproves any portion of any application by Lessee for the use of leased premises or any portion thereof, this Lease shall be void as to the denied or disapproved use as of the date of such denial or disapproval. Rental payments made by Lessee for such denied or disapproved use may, upon proper request, be refunded or equitably adjusted, subject to a service charge. Failure by Lessee to abide by, or conform to, the terms and conditions of any such permit shall be an event of default hereunder.
5. **ASSIGNMENT OR SUBLEASING.** All rights leased herein by Lessor may be assigned or sublet by Lessee with the prior written consent of Lessor. Such assignment shall not be unreasonably withheld under then applicable laws, regulations, and public trust principles. Notwithstanding any such assignment or sublease,

Lessee shall be and remain liable for compliance with the terms and conditions of this lease unless released by Lessor in writing.

6. RENTAL. Annual rental shall be payable hereunder throughout the term hereof as follows, except that rental shall be no less than the minimum, or more than the maximum amount established by law:

\$4568.34 per year.

Rental is payable on or before the first day of February each year throughout the term hereof, except as may be adjusted from time to time in accordance with Paragraph 7 below. Payment is to be made to the Bureau of Parks and Lands, 22 State House Station, Augusta, Maine 04333. Checks are to be made payable to the Treasurer, State of Maine.

7. RENTAL ADJUSTMENT. Lessor may adjust the rental from time to time as necessary to conform with its regulations and laws as they may be amended, but Lessor may not adjust rental for five years from the commencement date of this Lease. Subsequent adjustments may not be made more frequently than once every five years. Lessor shall give Lessee at least 120 days notice of such adjustment. In the event Lessee is unwilling to accept such adjustment, Lessee may terminate the Lease and vacate the premises within 120 days of Lessor's notice of adjustment.

8. TAXES. Lessee shall pay when due all taxes, charges, assessments and other impositions levied by any governmental entity upon the structures and improvements on leased premises or any operations or activities thereon.

9. INDEMNITY. Lessee shall defend, or cause to be defended, and indemnify and hold Lessor, its employees and agents, harmless from and against any and all manner of claims, suits, expenses, damages or causes of action arising out of, in whole or in part, the use or occupancy of leased premises by Lessee, its agents, contractors, employees, guests, invitees, permittees and sublessees.

10. MAINTENANCE. Lessee, at Lessee's expense, shall keep leased premises free of garbage, refuse, and other discarded material and shall maintain all improvements upon leased premises in good condition and repair.

11. GENERAL RESTRICTIONS. No nuisance shall be permitted on leased premises. No minerals, including, without limitation, sand and gravel, shall be removed from leased premises, and no rock, earth, ballast or other material shall be deposited upon leased premises, without the prior written consent of Lessor.

12. CASUALTY REPLACEMENT. In the event that the improvements and structures placed on leased premises are substantially destroyed by fire or other casualty, and Lessee does not, within two years following such casualty, rebuild or replace the affected improvements and structures, Lessor may cancel this Lease upon thirty (30) days notice to Lessee. Such rebuilding or replacement shall not be undertaken by Lessee without the prior written approval of Lessor.

13. DEFAULT. The following shall be deemed to be events of default hereunder:

A. Failure of Lessee to pay when due any rent payable hereunder;

B. Failure of Lessee to comply with any other provision of this Lease. When Lessee's failure is caused by circumstances beyond Lessee's control, Lessee shall bring about compliance within thirty (30) days of written notice of such failure, or, if such failure of compliance beyond Lessee's control cannot be cured within thirty (30) days, Lessee shall promptly and diligently undertake to cure such failure of compliance and cause the same to be cured as soon as the nature of the failure of compliance permits;

- C. A transfer by Lessee in fraud of creditors, or petition initiated by Lessee or adjudgement of Lessee as bankrupt or insolvent in any proceedings;
- D. Appointment of a receiver or trustee for all, or substantially all, assets of Lessee; or
- E. Abandonment by Lessee of any portion of leased premises.

Upon becoming aware of the occurrence of any such event of default, Lessor shall notify Lessee in writing. Notwithstanding section 13. B. above, if the default event has not been cured within 30 days of such notice, Lessor may, in addition to, and not instead of, any other remedies available at law or in equity, terminate this Lease without additional notice or demand to Lessee and enter onto and take possession of the leased premises. Lessee shall be liable to Lessor for all rent due hereunder and any loss and expenses incurred by Lessor by reason of such default or termination.

14. ENTRY. Lessor, its agents and representatives shall have access to leased premises and all improvements and structures thereon at all times for the purpose of inspecting and securing compliance with the terms and conditions of this Lease, and for all other lawful purposes.

15. NOTICE. Any notice required or permitted under this Lease shall be deemed to have been given when actually delivered, or when deposited in the United States mail, first class postage prepaid, addressed as follows: *To Lessor:* Bureau of Parks and Lands, 22 State House Station, Augusta, Maine 04333, ATTN: Submerged Lands Program. *To Lessee:* at the address given below by Lessee, or at such other address as Lessee may have theretofore specified by written notice actually received and placed of record with Lessor.

16. ALTERATION. Lessee shall make no alteration to leased premises, and shall place no improvements or structures in, on, or over leased premises except as specifically described in Paragraph 2 of this Lease, without Lessor's prior written consent.

17. IMPROVEMENTS. Upon the expiration, cancellation, or termination of this Lease, regardless of the reason therefore, Lessee shall have ninety (90) days to remove his property. Lessor, at its discretion, shall become owner of all improvements and structures upon leased premises not so removed. Lessor may, at its option, require Lessee to remove all such improvements and structures at Lessee's expense, and to restore leased premises to the condition in which they existed prior to the placement of any improvements or structures thereon.

18. OTHER APPLICABLE LAWS AND RULES. This Lease is subject to cancellation by an Act of the Legislature. This lease is issued in accordance with the Rules of the Bureau of Parks and Lands in effect on the effective date of this lease.

19. ABANDONMENT. Structures as described under section 2 of this Lease shall be placed on the leased premises within two (2) years of the issuance of this Lease. Once installed, such structures shall be used and maintained for their intended purpose. Failure of the Lessee to install the structures within this time frame or to use and maintain the leased premises shall be deemed an abandonment. Upon determining that the leased premises or a portion thereof have been abandoned, the Lessor at its option may terminate this lease as to the entire leased premises, or as to such portion as has not been so used or maintained, in accordance with the default provisions of Section 13.

20. MISCELLANEOUS. This Lease shall be binding upon, and shall inure to the benefit of, Lessor and Lessee and their respective successors, assigns and legal representatives. Failure of either party to complain of any act or omission on the part of the other, no matter how long the same may continue, shall not be deemed to be a waiver by said party of any of its rights hereunder. A waiver by either party at any time, express or implied, of any breach of any provision of this Lease shall not be deemed a waiver of, or consent to, any subsequent breach of the same or any other provision. Lessee may not file this Lease of record, or cause or permit the same, without Lessor's prior written consent. Lessor makes no warranty of Lessee's leasehold estate, and in the event of any

lawful ejectment of Lessee, Lessor shall refund to Lessee any rentals paid to Lessor for any period of Lease term then remaining. Lessee shall comply with all applicable laws, regulations and ordinances of governmental entities having jurisdiction over leased premises. This Lease contains the entire agreement of the parties and may not be modified except by a writing subscribed by both parties.

21. **GENERAL RIGHT TO TERMINATE.** Lessee shall have the right to terminate this Lease by notifying Lessor at least thirty (30) days prior to termination date. In terminating, Lessee agrees to vacate leased premises and remove all structures and personal property of Lessee located thereon, unless other arrangements have been made, with prior approval of Lessor, to transfer ownership or otherwise dispose of same. Rental payments made by Lessee for such terminated use may, upon proper request, be equitably adjusted, subject to a service charge.

22. **EXTINGUISHMENT OF CONSTRUCTIVE EASEMENT.** Lessee hereby relinquishes any and all rights to leased premises, or any portion thereof that may have been formerly held by constructive easement under Title 12 M.R.S.A. Sections 1801 & 1862, or otherwise.

Accepted and agreed to on

Oct 23, 2006
[Signature]
(Lessee Signature)

Scott J. Wainman
(Print Name)
President
(Title)

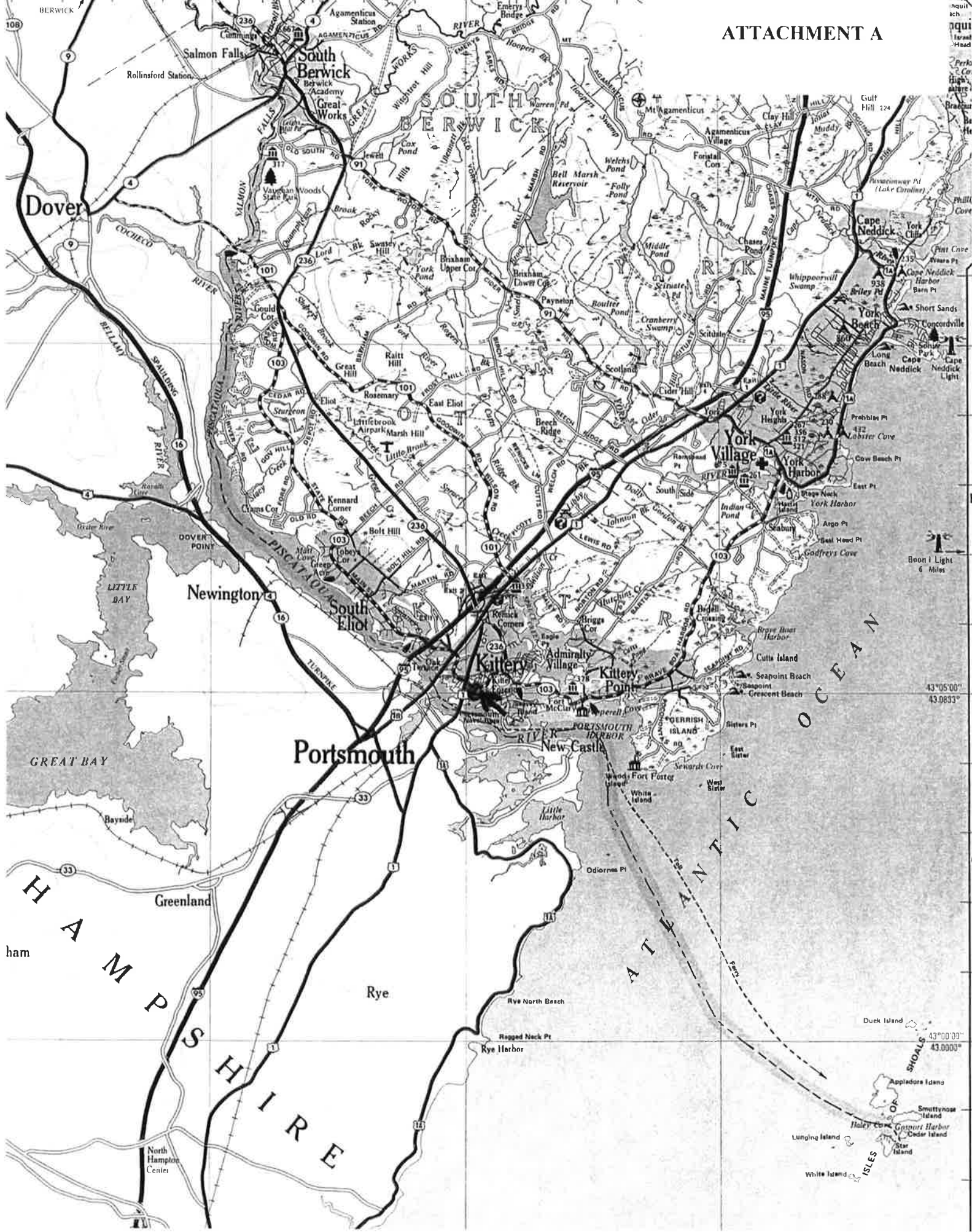
11 WATER ST.
(Address of Record)

KITTERY, ME 03904
MAILING ADDRESS:
23 MENDONS WADING
BARRINGTON, N. H 03821

October 23, 2006
[Signature]
(Lessor Signature)

David J. Soucy
Director, Bureau of Parks and Lands
Department of Conservation
State of Maine

ATTACHMENT A



43°05'00" 43.0833"

43°00'00" 43.0000"

ISLES SHOALS

PROPERTY MAP
KITTERY
 MAINE



LEGEND

▲	PLATTING MAP NO. R11	LOT DISTINCTION
■	PARTIAL NUMBER 74	PROPERTY NUMBER
□	SUBDIVISION LOT NO. 74	REAR OF N.Y.
□	STREET ADDRESS NO.	EASEMENT

REVISED TO APRIL 1, 2001
 FOR A REASSESSMENT NUMBER 001 V
 1077 FROM PREVIOUS CLIENTS' NAMES



John E. O'Donnell & Associates
 612 Bald Hill Road
 New Gloucester, Maine 04260
 (207) 926-4044
 jod@gwi.net
 www.jodonnell.com

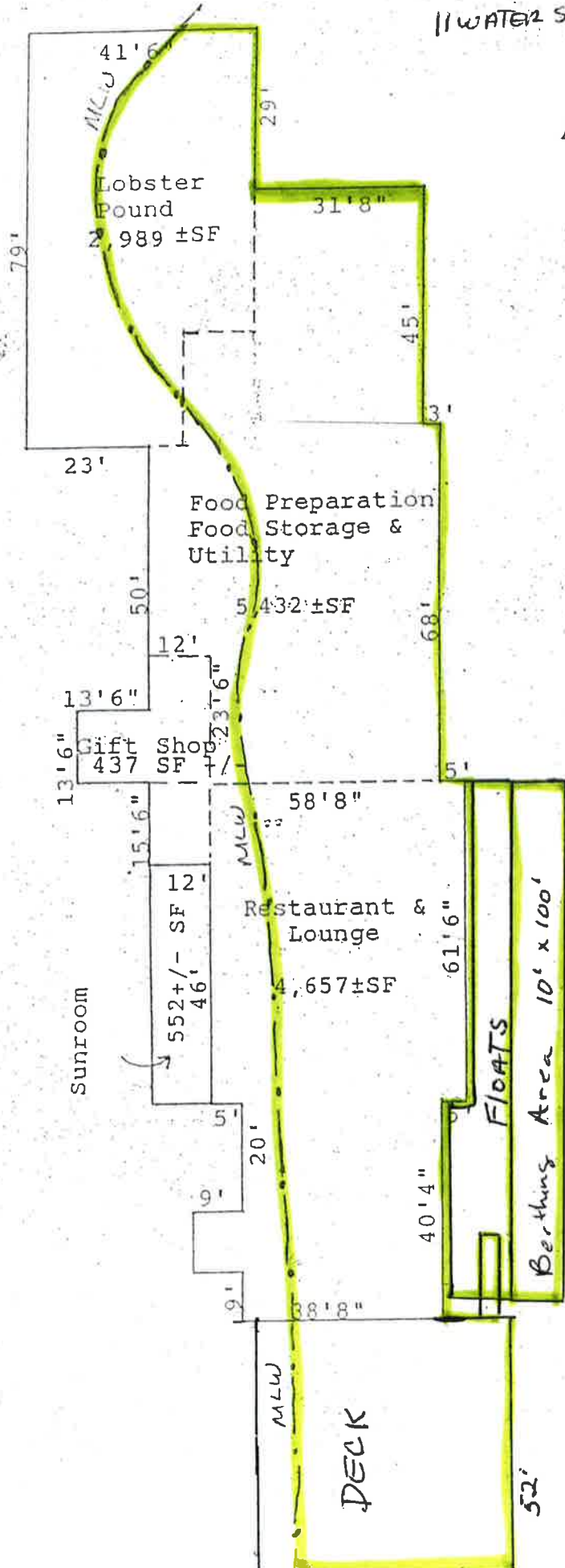
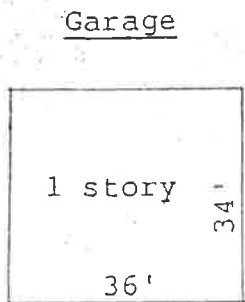
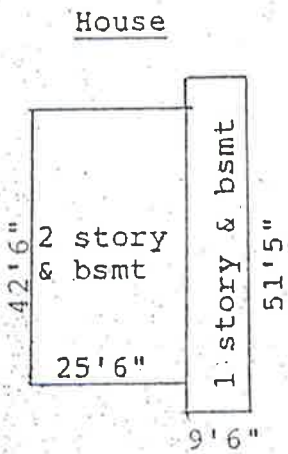


SUBJECT PROPERTY SKETCH OF BUILDINGS

WATER ST, KITTERY, ME.
with new lobster floor

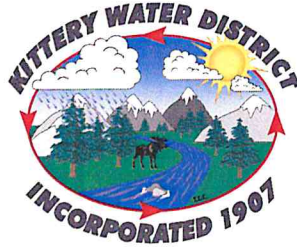
ATTACHMENT C

Scale: 1"=30'



Piscataqua River

John C. Perry, President
James E. Golter, Treasurer
Robert A. Gray, Clerk
Michael H. Melhorn, Trustee
Carla J. Robinson, Trustee



Michael S. Rogers, Superintendent
Carl B. Palm, Assistant Superintendent
Melissa J. Locke, Office Manager

OFFICE OF

KITTERY WATER DISTRICT

17 State Road
Kittery, ME 03904-1565
TEL: 207-439-1128
FAX: 207-439-8549
Email: info@kitterywater.org

Kittery Planning Board
200 Rogers Road
Kittery, ME 03904

November 13, 2023

Re: Proposed Warren's Lobster House, Re-Design

Dear Planning Board Members,

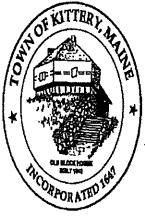
Please accept this letter as verification that the Kittery Water District does have the capacity to supply municipal water service to the proposed Warren's Lobster House Re-Design, 11 Water Street, Kittery.

Sincerely,

A handwritten signature in black ink that reads 'Michael S. Rogers'. The signature is written in a cursive, flowing style.

Michael S. Rogers
Superintendent

cc: John Chagnon, P.E. – Ambit Engineering



TOWN OF KITTERY, MAINE

SEWER DEPARTMENT

200 Rogers Road, Kittery, ME 03904

Telephone: (207) 439-4646 Fax: (207) 439-2799

November 17, 2023

Re: Treatment Plant Capacity letter
11 Water Street
Kittery, ME 03904

This letter is to confirm the capacity of sanitary sewer discharge for the proposed Project at 11 Water Street in the Town of Kittery Maine. The sewer system (piping and pumping stations) and the treatment plant will have the capacity and ability to handle the discharge flow requiring treatment and disposal if the project gets all necessary approvals from the town of Kittery and the Kittery sewer department.

This letter is only confirming the Sewer Departments capacity for increased flow not project approval.

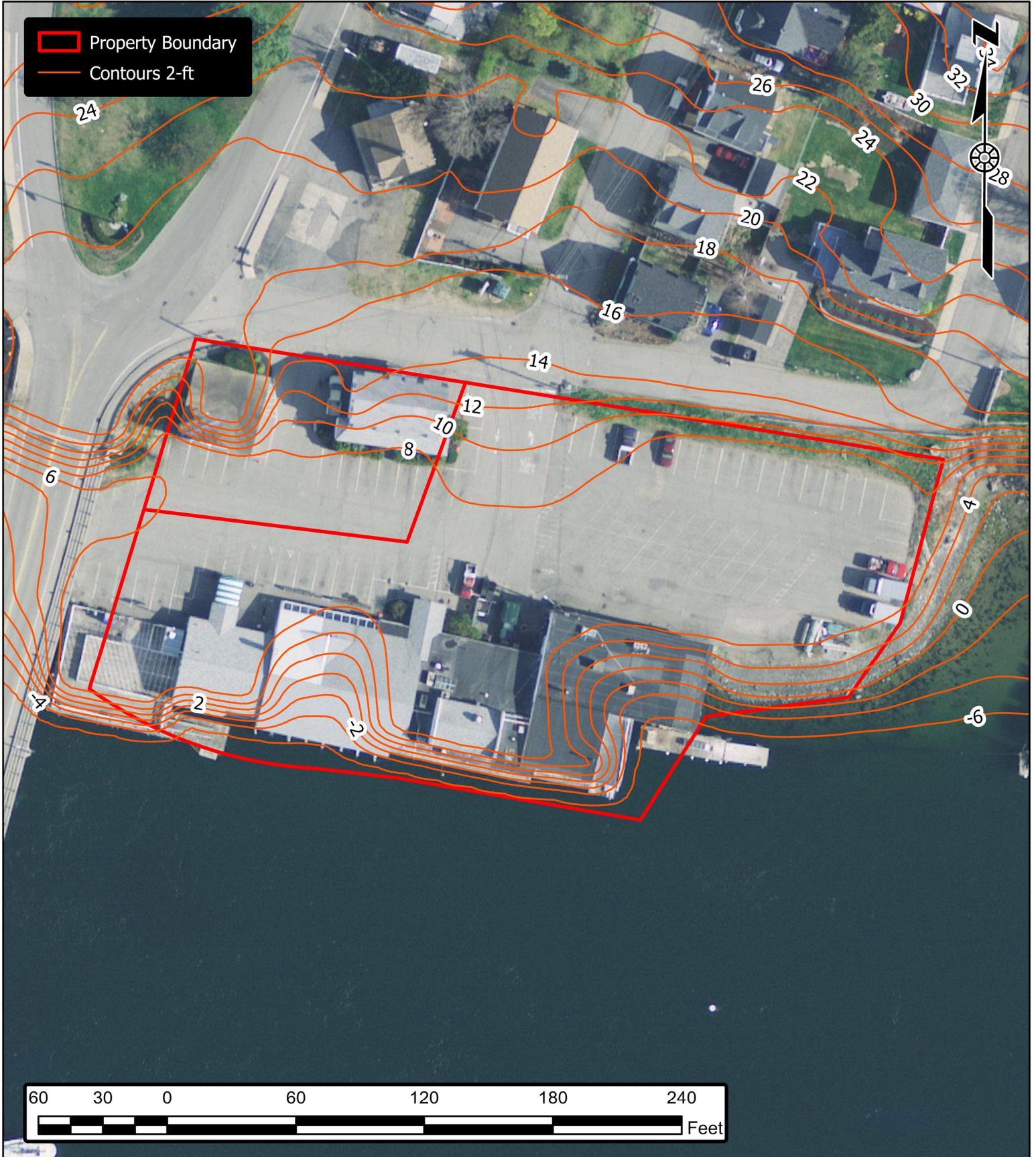
If you have further questions or concerns, please contact me.

Sincerely,

Timothy Babkirk
Town of Kittery
Superintendent of Sewer Services
1-207-439-4646
tbabkirk@kitteryme.org

WLH MANAGEMENT
11 WATER STREET
KITTERY, ME

JOB NUMBER: 3569
SCALE: 1" = 60'
SUBMITTED: 04-27-2023



WLH MANAGEMENT
11 WATER STREET
KITTERY, ME

JOB NUMBER: 3569
SCALE: 1" = 100'
SUBMITTED: 03-24-2023



WLH MANAGEMENT
11 WATER STREET
KITTERY, ME

JOB NUMBER: 3569
SCALE: 1" = 60'
SUBMITTED: 03-24-2023



Kittery, ME Site Plan Application

Tax Map 1, Lots 45-46, 9-13 Water Street Site Pictures
Site Photographs



Site Photograph #1

July 2023



Site Photo #2

July 2023



Site Photo #3

July 2023



Site Photo #4

July 2023



Site Photo #5

July 2023



Site Photo #6

July 2023



Site Photo #7

July 2023



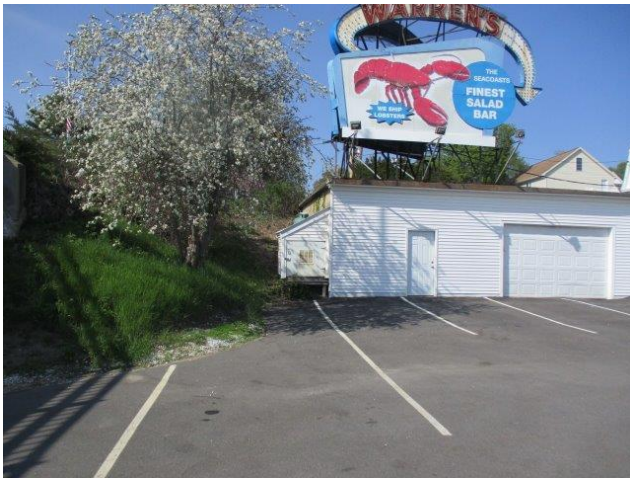
Site Photo #8

July 2023



Site Photo #9

July 2023



Site Photo #10

July 2023



Site Photo #11

July 2023



Site Photo #12

July 2023



Site Photo #13

July 2023



Site Photo #14

July 2023



Site Photo #15

July 2023



Site Photo #16

July 2023

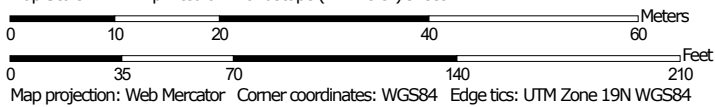
Custom Soil Resource Report for York County, Maine



Custom Soil Resource Report Soil Map (9-13 Water Street Kittery ME)




Map Scale: 1:722 if printed on A landscape (11" x 8.5") sheet.



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)




















Soils







 Soil Map Unit Polygons

 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features






-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features


Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: York County, Maine
 Survey Area Data: Version 21, Aug 30, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend (9-13 Water Street Kittery ME)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ur	Urban land	1.2	77.2%
W	Water bodies	0.3	22.8%
Totals for Area of Interest		1.5	100.0%

Map Unit Descriptions (9-13 Water Street Kittery ME)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

Custom Soil Resource Report

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

York County, Maine

Ur—Urban land

Map Unit Composition

Urban land: 90 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope, tread

Down-slope shape: Linear

Across-slope shape: Linear

Typical profile

H1 - 0 to 6 inches: variable

Properties and qualities

Slope: 0 to 8 percent

Drainage class: Moderately well drained

Depth to water table: About 24 to 72 inches

Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: No

W—Water bodies

Map Unit Composition

Water: 100 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

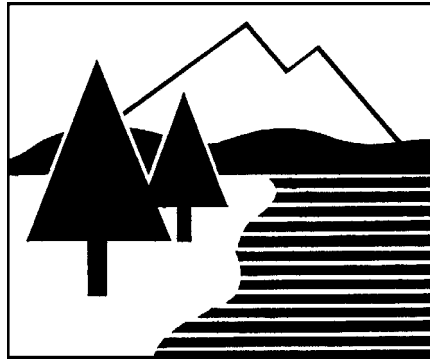
Setting

Landform: Hills

DRAINAGE ANALYSIS

**SITE IMPROVEMENTS
MIXED USE DEVELOPMENT**

**9-13 WATER STREET
KITTERY, ME**



**PREPARED FOR
GREEN & COMPANY REAL ESTATE**

22 NOVEMBER 2023



200 Griffin Road, Unit 3
Portsmouth, NH 03801
Phone: 603.430.9282; Fax: 603.436.2315
E-mail: jchagnon@haleyward.com
(Ambit Job Number 5010312.3569.02)

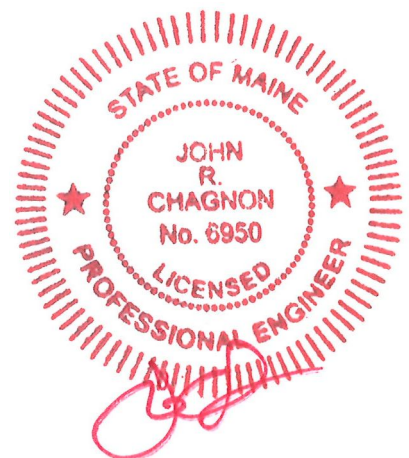


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Pre and Post-Development Drainage	3
Offsite Infrastructure Capacity	4
Erosion and Sediment Control Practices	4
Conclusion	5
References	5

Existing Subcatchments	
Proposed Subcatchments	

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Tables, Charts, Etc.	B
HydroCAD Drainage Analysis Calculations	C
Soil Survey Information	D
FEMA Firm Map	E
Operation and Maintenance Manual	F

EXECUTIVE SUMMARY

This drainage analysis examines the pre-development (existing) and post-development (proposed) stormwater drainage patterns for the Site Improvements at the property known as 9-13 Water Street in Kittery, ME. The site is shown on the Town of Kittery Assessor's Tax Map 1 as Lots 45 and 46. The total size of the study area of on-site and adjacent flows is 61,119± square-feet (1.403 acres).

For the modelling process, this report utilized extreme precipitation values from the Northeast Regional Climate Center of Cornell University for the 2, 10, and 25-Year storm events.

The development will provide for building improvements and associated utilities. The development has the potential to increase stormwater runoff to adjacent properties and should be designed in a manner to prevent that occurrence. The site contains existing buildings and a parking lot. The parking and buildings will be replaced, leading to a net decrease in contributing impervious area. The net decrease, as well as treatment with a Jellyfish stormwater filter, gutter drain treatment, and adhering to construction BMPs will offset the stormwater impact caused by the construction of the improvements.

INTRODUCTION / PROJECT DESCRIPTION

This drainage report is designed to assist the owner, contractor, regulatory reviewer, and others in understanding the impact of the proposed development project on local surface water runoff and quality. The project site is shown on the Town of Kittery, ME Assessor's Tax Map 1 as Lots 45 and 46. Bounding the site to the north Water Street followed by private residences and a small business. Bounding the site to the east is a small business. Bounding the site to the south is the Piscataqua River. Bounding the site to the west is Route 1 followed by private residences. A vicinity map is included in the Appendix to this report.

The proposed project includes eight residences, a lobster pound, associated parking and utilities. This report uses the design to calculate the future impervious coverage of the proposed lot, as required by the Town.

This report includes information about the existing site and the proposed site necessary to analyze stormwater runoff and to design any required treatment. The report includes impervious surface analyses and the associated operations and maintenance manual. The report will provide a narrative of the stormwater runoff. Proposed stormwater management and treatment structures and methods will also be described, as well as erosion and sediment control practices. To fully understand the proposed site development the reader should also review a complete site plan set in addition to this report.

SITE SPECIFIC INFORMATION

According to the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) number 2301710008D (effective date July 3, 1986), the proposed development is partially located in Zone A2 and is determined to be inside of the 0.2% annual chance floodplain. A copy of the FIRM map is included in the Appendix.

PRE AND POST-DEVELOPMENT DRAINAGE

In the pre-development condition, the site has been analyzed as one subcatchment basin (E1) based on localized topography and discharge location. Subcatchment E1 contains the entirety of the property and flows toward the Piscataqua River (Discharge Point 1 or DP1). While there is area upland of the existing site, this catchment area would be diverted by the existing town drainage network. Therefore, the site is treated as a single subcatchment to represent sheet flow into the river. Proposed subcatchments P1, P1a, P1b, P1c, P1d, and P1e occupy the same approximate space as subcatchment E1 and flow to the same discharge point. The subcatchment is divided to represent the subcatchments of proposed catch basins on the site. The subcatchments were analyzed for peak discharges using HydroCAD.

Table 1: Impervious Surfaces Analysis

Structure	Pre-Construction Impervious (S.F.)	Post-Construction Impervious (S.F.)
Main Structure	2,590	12,357
Decks	37	1,011
Stairs	0	139
Pavement	32,677	15,816
Wharf/Floats/Gangway	0	0
Walkways/Sidewalk	0	641
Sidewalk Steps	0	39
Retaining Wall	31	490
Total	35,335	30,493
Lot Size	41,045	41,045
% Devegetated Area	86.1%	74.3%

The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. The proposed drainage patterns are shown on the attached Subcatchment Plans.

In the developed condition, the site will see a net reduction in impervious surfaces. As a result, discharge point DP1 will experience a net decrease in peak discharge for all design storms in the proposed condition.

OFFSITE INFRASTRUCTURE CAPACITY

There is an overall reduction in off-site flow due to the reduction in impervious surfaces proposed by the project. No flows are diverted to any existing drainage networks. As a result, there is no anticipated negative impact to Town infrastructure.

EROSION AND SEDIMENT CONTROL PRACTICES

The erosion potential for this site as it exists is moderate due to the construction proposed in areas that are erodible when exposed. During construction, the major potential for erosion is wind and stormwater runoff. The contractor will be required to inspect and maintain all necessary erosion control measures, as well as installing any additional measures as required. All erosion control practices shall conform to “The Maine Stormwater Management Design Manual.” Some examples of erosion and sediment control measures to be utilized for this project during construction may include:

- Silt Soxx (or approved alternative) located at the toe of disturbed slopes
- Stabilized construction entrance at access point to the site
- Temporary mulching and seeding for disturbed areas
- Spraying water over disturbed areas to minimize wind erosion

After construction, permanent stabilization will be accomplished by permanent seeding, landscaping, and compacting/surfacing the access drives with pavement.

CONCLUSION

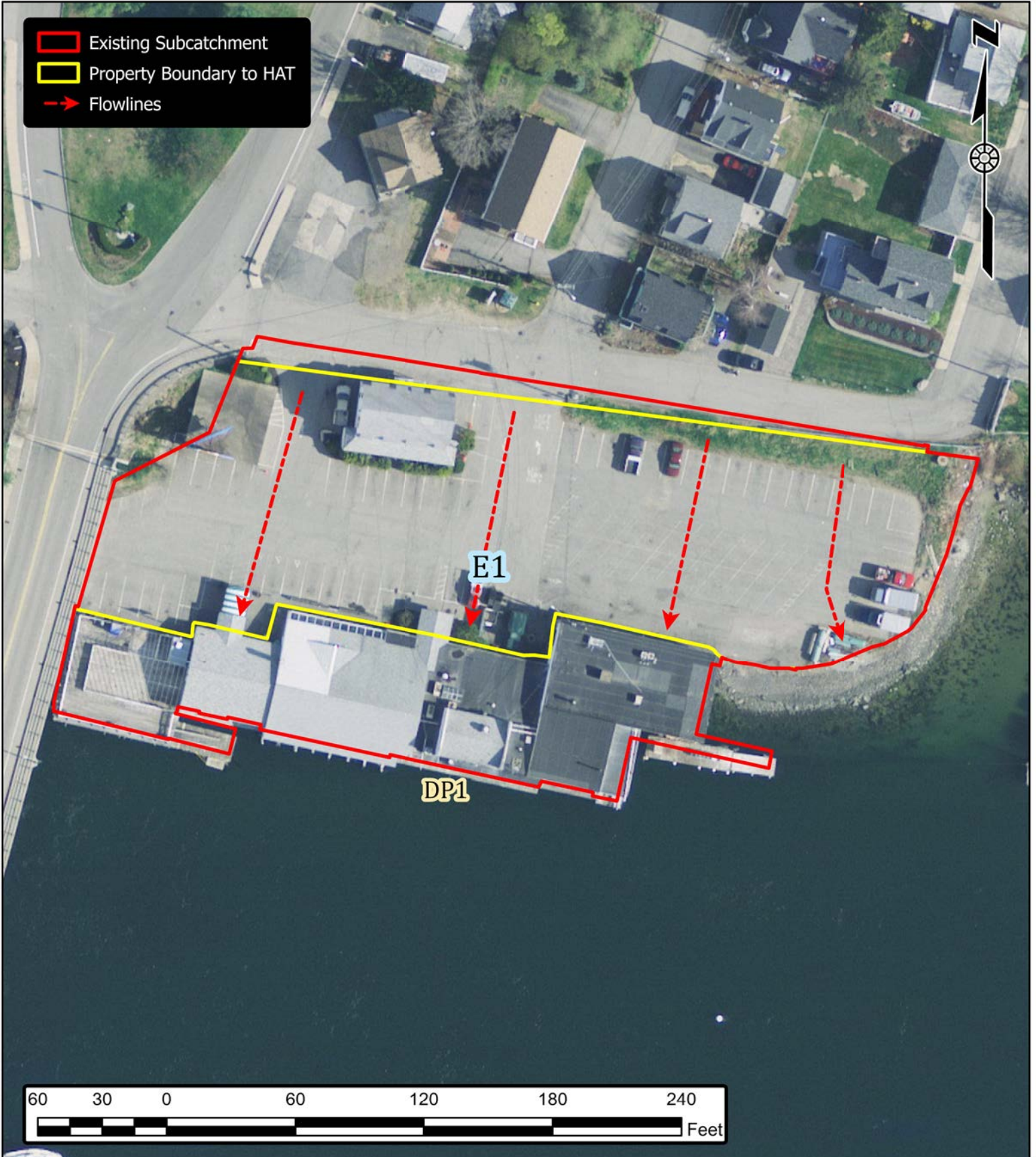
The proposed development has been designed to match the pre-development drainage patterns to the greatest extent feasible. With the reduction in impervious surfaces, use of the Jellyfish Filter, and gutter drain treatment, the post-development quality of the site runoff will be sufficiently treated to mitigate any issues caused by the proposed construction. Erosion and sediment control practices will be implemented for both the temporary condition during construction and for final stabilization after construction. Therefore, there are no negative impacts to downstream receptors or adjacent properties anticipated as a result of this project.

REFERENCES

1. Town of Kittery, ME. Land Use Development Code, Amended January 24, 2022.
2. Maine Department of Environmental Protection, *Maine Stormwater Management Design Manual (Volumes I-III)*, March 2016.
3. HydroCAD Software Solution, LLC. *HydroCAD Stormwater Modeling System Version 10.20* copyright 2023.

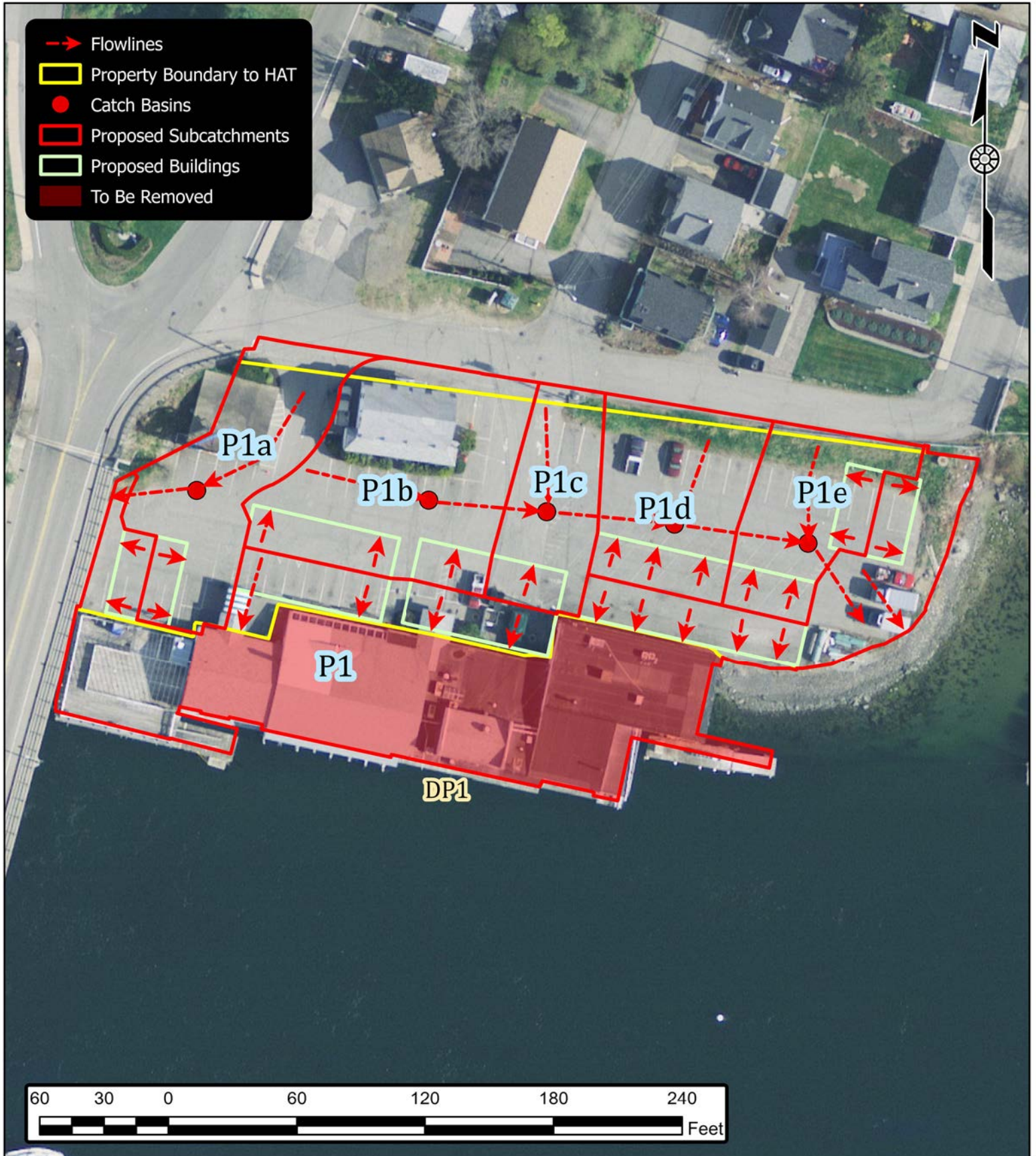
WLH MANAGEMENT
11 WATER STREET
KITTERY, ME

JOB NUMBER: 5010312.3569.02
SCALE: 1" = 60'
SUBMITTED: 11-22-2023



WLH MANAGEMENT
11 WATER STREET
KITTERY, ME

JOB NUMBER: 5010312.3569.02
SCALE: 1" = 60'
SUBMITTED: 11-22-2023



APPENDIX A
VICINITY (TAX) MAP

WLH MANAGEMENT
11 WATER STREET
KITTERY, ME

JOB NUMBER: 5010312.3569.02
SCALE: 1" = 100'
SUBMITTED: 11-22-2023



APPENDIX B
TABLES, CHARTS, ETC.

Extreme Precipitation Tables

Northeast Regional Climate Center

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point	
Smoothing	Yes
State	Maine
Location	Maine, United States
Latitude	43.084 degrees North
Longitude	70.75 degrees West
Elevation	0 feet
Date/Time	Fri Oct 06 2023 11:09:57 GMT-0400 (Eastern Daylight Time)

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.26	0.40	0.50	0.65	0.81	1.04	1yr	0.70	0.98	1.21	1.56	2.02	2.65	2.91	1yr	2.35	2.80	3.21	3.93	4.54	1yr
2yr	0.32	0.50	0.62	0.81	1.02	1.30	2yr	0.88	1.18	1.52	1.94	2.48	3.20	3.56	2yr	2.83	3.42	3.93	4.67	5.31	2yr
5yr	0.37	0.58	0.73	0.97	1.25	1.60	5yr	1.08	1.47	1.88	2.42	3.13	4.05	4.56	5yr	3.59	4.39	5.03	5.92	6.68	5yr
10yr	0.41	0.65	0.82	1.11	1.45	1.89	10yr	1.25	1.72	2.23	2.89	3.74	4.85	5.51	10yr	4.29	5.30	6.06	7.08	7.95	10yr
25yr	0.48	0.76	0.97	1.33	1.77	2.33	25yr	1.53	2.14	2.77	3.62	4.72	6.15	7.07	25yr	5.44	6.80	7.77	8.98	10.01	25yr
50yr	0.53	0.86	1.10	1.54	2.07	2.75	50yr	1.78	2.52	3.28	4.31	5.64	7.36	8.55	50yr	6.51	8.22	9.38	10.76	11.92	50yr
100yr	0.59	0.96	1.24	1.77	2.41	3.25	100yr	2.08	2.97	3.90	5.14	6.74	8.81	10.34	100yr	7.80	9.94	11.33	12.90	14.21	100yr
200yr	0.67	1.10	1.42	2.04	2.82	3.83	200yr	2.43	3.51	4.60	6.11	8.05	10.56	12.50	200yr	9.34	12.02	13.68	15.46	16.94	200yr
500yr	0.80	1.31	1.71	2.48	3.47	4.75	500yr	2.99	4.37	5.75	7.68	10.17	13.41	16.07	500yr	11.87	15.45	17.57	19.66	21.38	500yr

Lower Confidence Limits

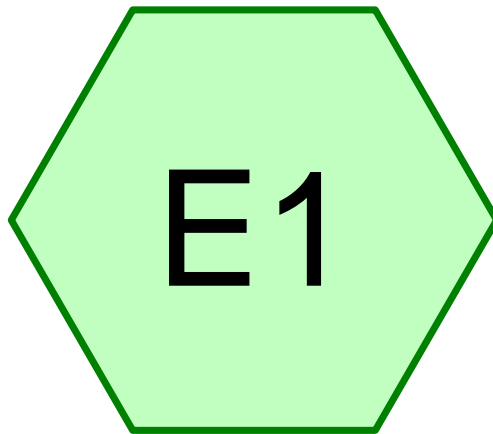
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.36	0.44	0.59	0.73	0.88	1yr	0.63	0.86	0.93	1.33	1.68	2.23	2.46	1yr	1.97	2.37	2.86	3.18	3.88	1yr
2yr	0.31	0.49	0.60	0.81	1.00	1.19	2yr	0.86	1.16	1.36	1.82	2.34	3.05	3.44	2yr	2.70	3.31	3.81	4.53	5.07	2yr
5yr	0.35	0.54	0.67	0.92	1.17	1.40	5yr	1.01	1.37	1.61	2.12	2.73	3.77	4.16	5yr	3.34	4.00	4.70	5.50	6.21	5yr
10yr	0.38	0.59	0.73	1.02	1.32	1.60	10yr	1.14	1.56	1.80	2.39	3.06	4.35	4.83	10yr	3.85	4.64	5.40	6.37	7.15	10yr
25yr	0.44	0.67	0.83	1.18	1.56	1.90	25yr	1.34	1.86	2.10	2.76	3.54	4.70	5.84	25yr	4.16	5.61	6.58	7.72	8.62	25yr
50yr	0.48	0.73	0.91	1.31	1.76	2.16	50yr	1.52	2.12	2.34	3.07	3.93	5.30	6.73	50yr	4.69	6.47	7.63	8.95	9.93	50yr
100yr	0.53	0.81	1.01	1.46	2.00	2.46	100yr	1.73	2.41	2.62	3.41	4.35	5.95	7.75	100yr	5.27	7.45	8.84	10.38	11.46	100yr
200yr	0.59	0.88	1.12	1.62	2.26	2.81	200yr	1.95	2.75	2.93	3.78	4.79	6.66	8.93	200yr	5.90	8.59	10.23	12.06	13.23	200yr
500yr	0.68	1.01	1.30	1.89	2.69	3.36	500yr	2.32	3.28	3.40	4.32	5.45	7.74	10.76	500yr	6.85	10.35	12.41	14.73	16.01	500yr

Upper Confidence Limits

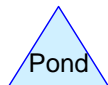
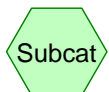
	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.28	0.44	0.54	0.72	0.89	1.08	1yr	0.77	1.06	1.26	1.74	2.21	2.97	3.16	1yr	2.63	3.04	3.57	4.37	5.03	1yr
2yr	0.34	0.52	0.64	0.86	1.07	1.27	2yr	0.92	1.24	1.48	1.96	2.52	3.41	3.70	2yr	3.02	3.56	4.08	4.83	5.61	2yr
5yr	0.40	0.62	0.76	1.05	1.33	1.62	5yr	1.15	1.58	1.88	2.54	3.25	4.33	4.96	5yr	3.83	4.77	5.37	6.37	7.15	5yr
10yr	0.47	0.72	0.89	1.24	1.61	1.97	10yr	1.39	1.93	2.28	3.11	3.96	5.32	6.20	10yr	4.71	5.97	6.83	7.83	8.75	10yr
25yr	0.57	0.87	1.09	1.55	2.04	2.57	25yr	1.76	2.51	2.95	4.07	5.16	7.76	8.35	25yr	6.86	8.03	9.18	10.33	11.40	25yr
50yr	0.67	1.02	1.27	1.83	2.46	3.12	50yr	2.12	3.05	3.60	5.00	6.33	9.71	10.48	50yr	8.60	10.08	11.49	12.72	13.96	50yr
100yr	0.79	1.19	1.49	2.16	2.96	3.80	100yr	2.55	3.72	4.38	6.16	7.77	12.15	13.15	100yr	10.76	12.64	14.39	15.70	17.09	100yr
200yr	0.92	1.39	1.76	2.55	3.55	4.64	200yr	3.06	4.54	5.34	7.58	9.55	15.25	16.51	200yr	13.50	15.88	18.05	19.36	20.93	200yr
500yr	1.14	1.70	2.19	3.18	4.53	6.03	500yr	3.91	5.89	6.93	10.02	12.58	20.61	22.32	500yr	18.24	21.47	24.37	25.54	27.36	500yr



APPENDIX C
HYDROCAD DRAINAGE
ANALYSIS CALCULATIONS



DP1



Project Notes

Defined 4 rainfall events from extreme_precip_tables_output IDF

Existing Conditions David T 2023-10-06

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type III 24-hr		Default	24.00	1	3.20	2
2	10-yr	Type III 24-hr		Default	24.00	1	4.85	2
3	25-yr	Type III 24-hr		Default	24.00	1	6.15	2

Existing Conditions David T 2023-10-06

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.160	80	>75% Grass cover, Good, HSG D (E1)
0.856	98	Paved parking, HSG D (E1)
0.387	98	Roofs, HSG D (E1)
1.403	96	TOTAL AREA

Existing Conditions David T 2023-10-06

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Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
1.403	HSG D	E1
0.000	Other	
1.403		TOTAL AREA

Existing Conditions David T 2023-10-06

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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.160	0.000	0.160	>75% Grass cover, Good	E1
0.000	0.000	0.000	0.856	0.000	0.856	Paved parking	E1
0.000	0.000	0.000	0.387	0.000	0.387	Roofs	E1
0.000	0.000	0.000	1.403	0.000	1.403	TOTAL AREA	

Existing Conditions David T 2023-10-06

Type III 24-hr 2-yr Rainfall=3.20"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: DP1

Runoff Area=61,098 sf 88.60% Impervious Runoff Depth>2.75"
Flow Length=118' Slope=0.1121 '/' Tc=5.0 min CN=96 Runoff=4.23 cfs 0.321 af

Total Runoff Area = 1.403 ac Runoff Volume = 0.321 af Average Runoff Depth = 2.75"
11.40% Pervious = 0.160 ac 88.60% Impervious = 1.243 ac

Summary for Subcatchment E1: DP1

[49] Hint: Tc<2dt may require smaller dt

Runoff = 4.23 cfs @ 12.07 hrs, Volume= 0.321 af, Depth> 2.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
6,965	80	>75% Grass cover, Good, HSG D
37,282	98	Paved parking, HSG D
16,851	98	Roofs, HSG D
61,098	96	Weighted Average
6,965		11.40% Pervious Area
54,133		88.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	118	0.1121	2.16		Lag/CN Method,
0.9	118	Total, Increased to minimum Tc = 5.0 min			

Existing Conditions David T 2023-10-06

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Type III 24-hr 10-yr Rainfall=4.85"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: DP1

Runoff Area=61,098 sf 88.60% Impervious Runoff Depth>4.38"
Flow Length=118' Slope=0.1121 '/' Tc=5.0 min CN=96 Runoff=6.58 cfs 0.512 af

Total Runoff Area = 1.403 ac Runoff Volume = 0.512 af Average Runoff Depth = 4.38"
11.40% Pervious = 0.160 ac 88.60% Impervious = 1.243 ac

Summary for Subcatchment E1: DP1

[49] Hint: Tc<2dt may require smaller dt

Runoff = 6.58 cfs @ 12.07 hrs, Volume= 0.512 af, Depth> 4.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-yr Rainfall=4.85"

Area (sf)	CN	Description
6,965	80	>75% Grass cover, Good, HSG D
37,282	98	Paved parking, HSG D
16,851	98	Roofs, HSG D
61,098	96	Weighted Average
6,965		11.40% Pervious Area
54,133		88.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	118	0.1121	2.16		Lag/CN Method,
0.9	118	Total, Increased to minimum Tc = 5.0 min			

Existing Conditions David T 2023-10-06

Type III 24-hr 25-yr Rainfall=6.15"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment E1: DP1

Runoff Area=61,098 sf 88.60% Impervious Runoff Depth>5.67"
Flow Length=118' Slope=0.1121 '/' Tc=5.0 min CN=96 Runoff=8.41 cfs 0.663 af

Total Runoff Area = 1.403 ac Runoff Volume = 0.663 af Average Runoff Depth = 5.67"
11.40% Pervious = 0.160 ac 88.60% Impervious = 1.243 ac

Summary for Subcatchment E1: DP1

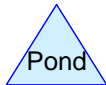
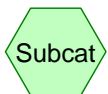
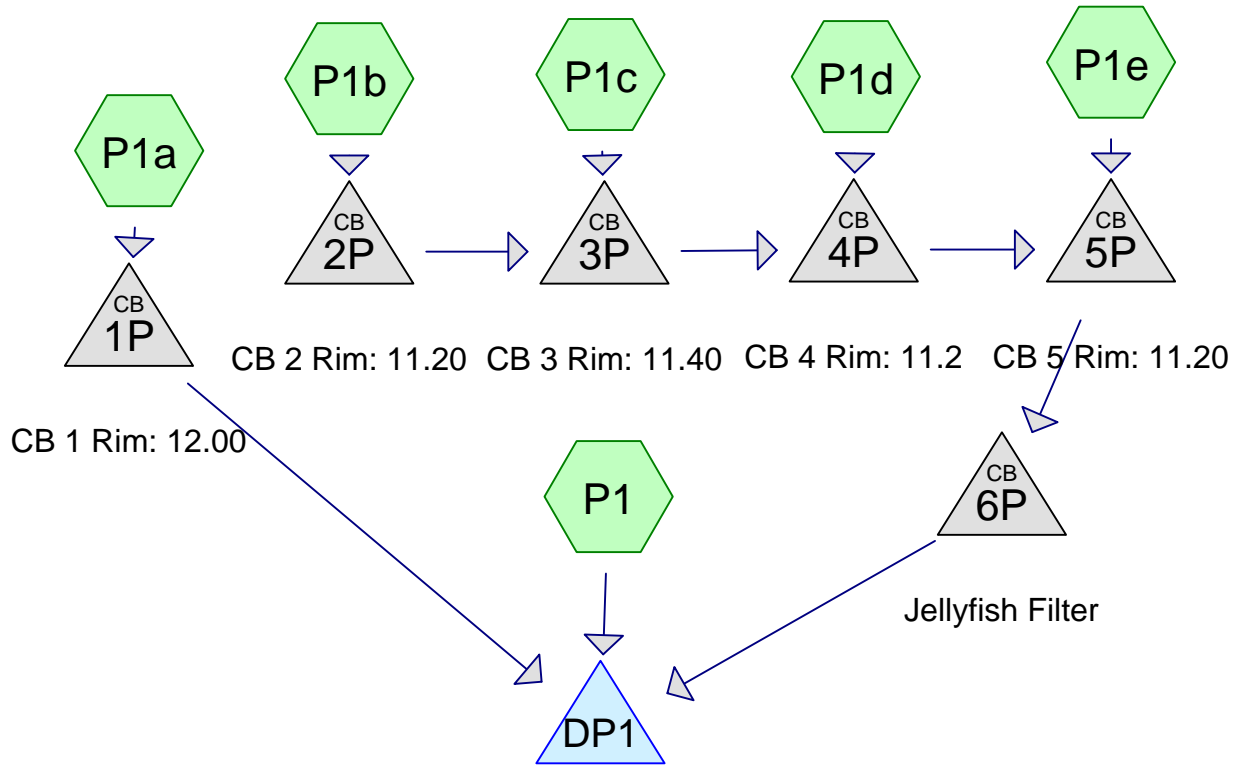
[49] Hint: Tc<2dt may require smaller dt

Runoff = 8.41 cfs @ 12.07 hrs, Volume= 0.663 af, Depth> 5.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-yr Rainfall=6.15"

Area (sf)	CN	Description
6,965	80	>75% Grass cover, Good, HSG D
37,282	98	Paved parking, HSG D
16,851	98	Roofs, HSG D
61,098	96	Weighted Average
6,965		11.40% Pervious Area
54,133		88.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	118	0.1121	2.16		Lag/CN Method,
0.9	118	Total, Increased to minimum Tc = 5.0 min			



Project Notes

Defined 4 rainfall events from extreme_precip_tables_output IDF

Proposed Conditions David T 2023-11-21

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-yr	Type III 24-hr		Default	24.00	1	3.20	2
2	10-yr	Type III 24-hr		Default	24.00	1	4.85	2
3	25-yr	Type III 24-hr		Default	24.00	1	6.15	2

Proposed Conditions David T 2023-11-21

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
11,096	80	>75% Grass cover, Good, HSG D (P1, P1a, P1b, P1c, P1d, P1e)
21,516	98	Paved parking, HSG D (P1, P1a, P1b, P1c, P1d, P1e)
12,358	98	Roofs, HSG D (P1, P1a, P1b, P1c, P1d, P1e)
16,149	98	Water Surface, HSG D (P1)
61,119	95	TOTAL AREA

Proposed Conditions David T 2023-11-21

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Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
61,119	HSG D	P1, P1a, P1b, P1c, P1d, P1e
0	Other	
61,119		TOTAL AREA

Proposed Conditions David T 2023-11-21

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Ground Covers (all nodes)

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
0	0	0	11,096	0	11,096	>75% Grass cover, Good	
0	0	0	21,516	0	21,516	Paved parking	
0	0	0	12,358	0	12,358	Roofs	
0	0	0	16,149	0	16,149	Water Surface	
0	0	0	61,119	0	61,119	TOTAL AREA	

Proposed Conditions David T 2023-11-21

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	1P	9.00	8.83	50.0	0.0034	0.013	0.0	12.0	0.0	
2	2P	6.20	6.04	47.0	0.0034	0.013	0.0	12.0	0.0	
3	3P	5.94	5.75	56.0	0.0034	0.013	0.0	12.0	0.0	
4	4P	5.50	5.37	56.0	0.0023	0.013	0.0	15.0	0.0	
5	5P	5.27	5.17	41.0	0.0024	0.013	0.0	15.0	0.0	
6	6P	4.17	3.00	21.0	0.0557	0.013	0.0	15.0	0.0	

Proposed Conditions David T 2023-11-21

Type III 24-hr 2-yr Rainfall=3.20"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P1: Runoff Area=29,018 sf 86.90% Impervious Runoff Depth>2.75"
Tc=5.0 min CN=96 Runoff=2.01 cfs 6,644 cf

Subcatchment P1a: Runoff Area=6,949 sf 85.45% Impervious Runoff Depth>2.64"
Tc=5.0 min CN=95 Runoff=0.47 cfs 1,531 cf

Subcatchment P1b: Runoff Area=9,965 sf 78.83% Impervious Runoff Depth>2.54"
Tc=5.0 min CN=94 Runoff=0.66 cfs 2,111 cf

Subcatchment P1c: Runoff Area=4,250 sf 65.06% Impervious Runoff Depth>2.35"
Tc=5.0 min CN=92 Runoff=0.26 cfs 832 cf

Subcatchment P1d: Runoff Area=5,989 sf 77.96% Impervious Runoff Depth>2.54"
Tc=5.0 min CN=94 Runoff=0.40 cfs 1,269 cf

Subcatchment P1e: Runoff Area=4,948 sf 72.33% Impervious Runoff Depth>2.44"
Tc=5.0 min CN=93 Runoff=0.32 cfs 1,008 cf

Pond 1P: CB 1 Rim: 12.00 Peak Elev=9.43' Inflow=0.47 cfs 1,531 cf
12.0" Round Culvert n=0.013 L=50.0' S=0.0034 '/' Outflow=0.47 cfs 1,531 cf

Pond 2P: CB 2 Rim: 11.20 Peak Elev=6.72' Inflow=0.66 cfs 2,111 cf
12.0" Round Culvert n=0.013 L=47.0' S=0.0034 '/' Outflow=0.66 cfs 2,111 cf

Pond 3P: CB 3 Rim: 11.40 Peak Elev=6.56' Inflow=0.92 cfs 2,943 cf
12.0" Round Culvert n=0.013 L=56.0' S=0.0034 '/' Outflow=0.92 cfs 2,943 cf

Pond 4P: CB 4 Rim: 11.2 Peak Elev=6.22' Inflow=1.32 cfs 4,212 cf
15.0" Round Culvert n=0.013 L=56.0' S=0.0023 '/' Outflow=1.32 cfs 4,212 cf

Pond 5P: CB 5 Rim: 11.20 Peak Elev=6.07' Inflow=1.63 cfs 5,220 cf
15.0" Round Culvert n=0.013 L=41.0' S=0.0024 '/' Outflow=1.63 cfs 5,220 cf

Pond 6P: Jellyfish Filter Peak Elev=4.79' Inflow=1.63 cfs 5,220 cf
15.0" Round Culvert n=0.013 L=21.0' S=0.0557 '/' Outflow=1.63 cfs 5,220 cf

Pond DP1: Inflow=4.12 cfs 13,395 cf
Primary=4.12 cfs 13,395 cf

Total Runoff Area = 61,119 sf Runoff Volume = 13,395 cf Average Runoff Depth = 2.63"
18.15% Pervious = 11,096 sf 81.85% Impervious = 50,023 sf

Summary for Subcatchment P1:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 2.01 cfs @ 12.07 hrs, Volume= 6,644 cf, Depth> 2.75"
 Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
6,226	98	Roofs, HSG D
16,149	98	Water Surface, HSG D
3,801	80	>75% Grass cover, Good, HSG D
2,842	98	Paved parking, HSG D
29,018	96	Weighted Average
3,801		13.10% Pervious Area
25,217		86.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1a:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.47 cfs @ 12.07 hrs, Volume= 1,531 cf, Depth> 2.64"
 Routed to Pond 1P : CB 1 Rim: 12.00

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
595	98	Roofs, HSG D
1,011	80	>75% Grass cover, Good, HSG D
5,343	98	Paved parking, HSG D
6,949	95	Weighted Average
1,011		14.55% Pervious Area
5,938		85.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1b:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.66 cfs @ 12.07 hrs, Volume= 2,111 cf, Depth> 2.54"
 Routed to Pond 2P : CB 2 Rim: 11.20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
2,040	98	Roofs, HSG D
2,110	80	>75% Grass cover, Good, HSG D
5,815	98	Paved parking, HSG D
9,965	94	Weighted Average
2,110		21.17% Pervious Area
7,855		78.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1c:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.26 cfs @ 12.07 hrs, Volume= 832 cf, Depth> 2.35"
 Routed to Pond 3P : CB 3 Rim: 11.40

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
700	98	Roofs, HSG D
1,485	80	>75% Grass cover, Good, HSG D
2,065	98	Paved parking, HSG D
4,250	92	Weighted Average
1,485		34.94% Pervious Area
2,765		65.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1d:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.40 cfs @ 12.07 hrs, Volume= 1,269 cf, Depth> 2.54"
 Routed to Pond 4P : CB 4 Rim: 11.2

Proposed Conditions David T 2023-11-21

Type III 24-hr 2-yr Rainfall=3.20"

Prepared by Haley Ward

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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
1,278	98	Roofs, HSG D
1,320	80	>75% Grass cover, Good, HSG D
3,391	98	Paved parking, HSG D
5,989	94	Weighted Average
1,320		22.04% Pervious Area
4,669		77.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1e:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.32 cfs @ 12.07 hrs, Volume= 1,008 cf, Depth> 2.44"
Routed to Pond 5P : CB 5 Rim: 11.20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-yr Rainfall=3.20"

Area (sf)	CN	Description
1,519	98	Roofs, HSG D
1,369	80	>75% Grass cover, Good, HSG D
2,060	98	Paved parking, HSG D
4,948	93	Weighted Average
1,369		27.67% Pervious Area
3,579		72.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Pond 1P: CB 1 Rim: 12.00

Inflow Area = 6,949 sf, 85.45% Impervious, Inflow Depth > 2.64" for 2-yr event
Inflow = 0.47 cfs @ 12.07 hrs, Volume= 1,531 cf
Outflow = 0.47 cfs @ 12.07 hrs, Volume= 1,531 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.47 cfs @ 12.07 hrs, Volume= 1,531 cf
Routed to Pond DP1 :

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.43' @ 12.07 hrs
Flood Elev= 12.00'

Device #	Routing	Invert	Outlet Devices
#1	Primary	9.00'	12.0" Round Culvert

L= 50.0' RCP, square edge headwall, Ke= 0.500
 Inlet / Outlet Invert= 9.00' / 8.83' S= 0.0034 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.45 cfs @ 12.07 hrs HW=9.42' (Free Discharge)

↑1=Culvert (Barrel Controls 0.45 cfs @ 2.12 fps)

Summary for Pond 2P: CB 2 Rim: 11.20

Inflow Area = 9,965 sf, 78.83% Impervious, Inflow Depth > 2.54" for 2-yr event
 Inflow = 0.66 cfs @ 12.07 hrs, Volume= 2,111 cf
 Outflow = 0.66 cfs @ 12.07 hrs, Volume= 2,111 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.66 cfs @ 12.07 hrs, Volume= 2,111 cf
 Routed to Pond 3P : CB 3 Rim: 11.40

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 6.72' @ 12.07 hrs
 Flood Elev= 11.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.20'	12.0" Round Culvert L= 47.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 6.20' / 6.04' S= 0.0034 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.63 cfs @ 12.07 hrs HW=6.70' (Free Discharge)

↑1=Culvert (Barrel Controls 0.63 cfs @ 2.32 fps)

Summary for Pond 3P: CB 3 Rim: 11.40

[79] Warning: Submerged Pond 2P Primary device # 1 INLET by 0.35'

Inflow Area = 14,215 sf, 74.71% Impervious, Inflow Depth > 2.48" for 2-yr event
 Inflow = 0.92 cfs @ 12.07 hrs, Volume= 2,943 cf
 Outflow = 0.92 cfs @ 12.07 hrs, Volume= 2,943 cf, Atten= 0%, Lag= 0.0 min
 Primary = 0.92 cfs @ 12.07 hrs, Volume= 2,943 cf
 Routed to Pond 4P : CB 4 Rim: 11.2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 6.56' @ 12.07 hrs
 Flood Elev= 11.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	5.94'	12.0" Round Culvert L= 56.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.94' / 5.75' S= 0.0034 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.89 cfs @ 12.07 hrs HW=6.55' (Free Discharge)

↑1=Culvert (Barrel Controls 0.89 cfs @ 2.54 fps)

Summary for Pond 4P: CB 4 Rim: 11.2

[57] Hint: Peaked at 6.22' (Flood elevation advised)

[79] Warning: Submerged Pond 3P Primary device # 1 INLET by 0.27'

Inflow Area = 20,204 sf, 75.67% Impervious, Inflow Depth > 2.50" for 2-yr event
 Inflow = 1.32 cfs @ 12.07 hrs, Volume= 4,212 cf
 Outflow = 1.32 cfs @ 12.07 hrs, Volume= 4,212 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.32 cfs @ 12.07 hrs, Volume= 4,212 cf
 Routed to Pond 5P : CB 5 Rim: 11.20

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 6.22' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	5.50'	15.0" Round Culvert L= 56.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.50' / 5.37' S= 0.0023 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.27 cfs @ 12.07 hrs HW=6.21' (Free Discharge)

↑**1=Culvert** (Barrel Controls 1.27 cfs @ 2.56 fps)

Summary for Pond 5P: CB 5 Rim: 11.20

[79] Warning: Submerged Pond 4P Primary device # 1 INLET by 0.56'

Inflow Area = 25,152 sf, 75.02% Impervious, Inflow Depth > 2.49" for 2-yr event
 Inflow = 1.63 cfs @ 12.07 hrs, Volume= 5,220 cf
 Outflow = 1.63 cfs @ 12.07 hrs, Volume= 5,220 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.63 cfs @ 12.07 hrs, Volume= 5,220 cf
 Routed to Pond 6P : Jellyfish Filter

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 6.07' @ 12.07 hrs
 Flood Elev= 11.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	5.27'	15.0" Round Culvert L= 41.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.27' / 5.17' S= 0.0024 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.57 cfs @ 12.07 hrs HW=6.06' (Free Discharge)

↑**1=Culvert** (Barrel Controls 1.57 cfs @ 2.76 fps)

Summary for Pond 6P: Jellyfish Filter

[57] Hint: Peaked at 4.79' (Flood elevation advised)

Inflow Area = 25,152 sf, 75.02% Impervious, Inflow Depth > 2.49" for 2-yr event
 Inflow = 1.63 cfs @ 12.07 hrs, Volume= 5,220 cf
 Outflow = 1.63 cfs @ 12.07 hrs, Volume= 5,220 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.63 cfs @ 12.07 hrs, Volume= 5,220 cf
 Routed to Pond DP1 :

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 4.79' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	4.17'	15.0" Round Culvert L= 21.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 4.17' / 3.00' S= 0.0557 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.57 cfs @ 12.07 hrs HW=4.78' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 1.57 cfs @ 2.66 fps)

Summary for Pond DP1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 61,119 sf, 81.85% Impervious, Inflow Depth > 2.63" for 2-yr event
 Inflow = 4.12 cfs @ 12.07 hrs, Volume= 13,395 cf
 Primary = 4.12 cfs @ 12.07 hrs, Volume= 13,395 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Proposed Conditions David T 2023-11-21

Type III 24-hr 10-yr Rainfall=4.85"

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P1: Runoff Area=29,018 sf 86.90% Impervious Runoff Depth>4.38"
Tc=5.0 min CN=96 Runoff=3.13 cfs 10,595 cf

Subcatchment P1a: Runoff Area=6,949 sf 85.45% Impervious Runoff Depth>4.27"
Tc=5.0 min CN=95 Runoff=0.74 cfs 2,472 cf

Subcatchment P1b: Runoff Area=9,965 sf 78.83% Impervious Runoff Depth>4.16"
Tc=5.0 min CN=94 Runoff=1.05 cfs 3,453 cf

Subcatchment P1c: Runoff Area=4,250 sf 65.06% Impervious Runoff Depth>3.94"
Tc=5.0 min CN=92 Runoff=0.43 cfs 1,396 cf

Subcatchment P1d: Runoff Area=5,989 sf 77.96% Impervious Runoff Depth>4.16"
Tc=5.0 min CN=94 Runoff=0.63 cfs 2,075 cf

Subcatchment P1e: Runoff Area=4,948 sf 72.33% Impervious Runoff Depth>4.05"
Tc=5.0 min CN=93 Runoff=0.51 cfs 1,669 cf

Pond 1P: CB 1 Rim: 12.00 Peak Elev=9.55' Inflow=0.74 cfs 2,472 cf
12.0" Round Culvert n=0.013 L=50.0' S=0.0034 '/' Outflow=0.74 cfs 2,472 cf

Pond 2P: CB 2 Rim: 11.20 Peak Elev=6.87' Inflow=1.05 cfs 3,453 cf
12.0" Round Culvert n=0.013 L=47.0' S=0.0034 '/' Outflow=1.05 cfs 3,453 cf

Pond 3P: CB 3 Rim: 11.40 Peak Elev=6.76' Inflow=1.48 cfs 4,848 cf
12.0" Round Culvert n=0.013 L=56.0' S=0.0034 '/' Outflow=1.48 cfs 4,848 cf

Pond 4P: CB 4 Rim: 11.2 Peak Elev=6.44' Inflow=2.11 cfs 6,924 cf
15.0" Round Culvert n=0.013 L=56.0' S=0.0023 '/' Outflow=2.11 cfs 6,924 cf

Pond 5P: CB 5 Rim: 11.20 Peak Elev=6.33' Inflow=2.62 cfs 8,593 cf
15.0" Round Culvert n=0.013 L=41.0' S=0.0024 '/' Outflow=2.62 cfs 8,593 cf

Pond 6P: Jellyfish Filter Peak Elev=4.99' Inflow=2.62 cfs 8,593 cf
15.0" Round Culvert n=0.013 L=21.0' S=0.0557 '/' Outflow=2.62 cfs 8,593 cf

Pond DP1: Inflow=6.48 cfs 21,660 cf
Primary=6.48 cfs 21,660 cf

Total Runoff Area = 61,119 sf Runoff Volume = 21,660 cf Average Runoff Depth = 4.25"
18.15% Pervious = 11,096 sf 81.85% Impervious = 50,023 sf

Summary for Subcatchment P1:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 3.13 cfs @ 12.07 hrs, Volume= 10,595 cf, Depth> 4.38"
 Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-yr Rainfall=4.85"

Area (sf)	CN	Description
6,226	98	Roofs, HSG D
16,149	98	Water Surface, HSG D
3,801	80	>75% Grass cover, Good, HSG D
2,842	98	Paved parking, HSG D
29,018	96	Weighted Average
3,801		13.10% Pervious Area
25,217		86.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1a:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.74 cfs @ 12.07 hrs, Volume= 2,472 cf, Depth> 4.27"
 Routed to Pond 1P : CB 1 Rim: 12.00

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-yr Rainfall=4.85"

Area (sf)	CN	Description
595	98	Roofs, HSG D
1,011	80	>75% Grass cover, Good, HSG D
5,343	98	Paved parking, HSG D
6,949	95	Weighted Average
1,011		14.55% Pervious Area
5,938		85.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1b:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.05 cfs @ 12.07 hrs, Volume= 3,453 cf, Depth> 4.16"
 Routed to Pond 2P : CB 2 Rim: 11.20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-yr Rainfall=4.85"

Area (sf)	CN	Description
2,040	98	Roofs, HSG D
2,110	80	>75% Grass cover, Good, HSG D
5,815	98	Paved parking, HSG D
9,965	94	Weighted Average
2,110		21.17% Pervious Area
7,855		78.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1c:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.43 cfs @ 12.07 hrs, Volume= 1,396 cf, Depth> 3.94"
 Routed to Pond 3P : CB 3 Rim: 11.40

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-yr Rainfall=4.85"

Area (sf)	CN	Description
700	98	Roofs, HSG D
1,485	80	>75% Grass cover, Good, HSG D
2,065	98	Paved parking, HSG D
4,250	92	Weighted Average
1,485		34.94% Pervious Area
2,765		65.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1d:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.63 cfs @ 12.07 hrs, Volume= 2,075 cf, Depth> 4.16"
 Routed to Pond 4P : CB 4 Rim: 11.2

Proposed Conditions David T 2023-11-21

Type III 24-hr 10-yr Rainfall=4.85"

Prepared by Haley Ward

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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.85"

Area (sf)	CN	Description
1,278	98	Roofs, HSG D
1,320	80	>75% Grass cover, Good, HSG D
3,391	98	Paved parking, HSG D
5,989	94	Weighted Average
1,320		22.04% Pervious Area
4,669		77.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1e:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.51 cfs @ 12.07 hrs, Volume= 1,669 cf, Depth> 4.05"
Routed to Pond 5P : CB 5 Rim: 11.20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-yr Rainfall=4.85"

Area (sf)	CN	Description
1,519	98	Roofs, HSG D
1,369	80	>75% Grass cover, Good, HSG D
2,060	98	Paved parking, HSG D
4,948	93	Weighted Average
1,369		27.67% Pervious Area
3,579		72.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Pond 1P: CB 1 Rim: 12.00

Inflow Area = 6,949 sf, 85.45% Impervious, Inflow Depth > 4.27" for 10-yr event
Inflow = 0.74 cfs @ 12.07 hrs, Volume= 2,472 cf
Outflow = 0.74 cfs @ 12.07 hrs, Volume= 2,472 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.74 cfs @ 12.07 hrs, Volume= 2,472 cf
Routed to Pond DP1 :

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.55' @ 12.07 hrs
Flood Elev= 12.00'

Device #	Routing	Invert	Outlet Devices
#1	Primary	9.00'	12.0" Round Culvert

L= 50.0' RCP, square edge headwall, Ke= 0.500
 Inlet / Outlet Invert= 9.00' / 8.83' S= 0.0034 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.71 cfs @ 12.07 hrs HW=9.54' (Free Discharge)

↑1=Culvert (Barrel Controls 0.71 cfs @ 2.40 fps)

Summary for Pond 2P: CB 2 Rim: 11.20

Inflow Area = 9,965 sf, 78.83% Impervious, Inflow Depth > 4.16" for 10-yr event
 Inflow = 1.05 cfs @ 12.07 hrs, Volume= 3,453 cf
 Outflow = 1.05 cfs @ 12.07 hrs, Volume= 3,453 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.05 cfs @ 12.07 hrs, Volume= 3,453 cf
 Routed to Pond 3P : CB 3 Rim: 11.40

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 6.87' @ 12.07 hrs
 Flood Elev= 11.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.20'	12.0" Round Culvert L= 47.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 6.20' / 6.04' S= 0.0034 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.01 cfs @ 12.07 hrs HW=6.85' (Free Discharge)

↑1=Culvert (Barrel Controls 1.01 cfs @ 2.63 fps)

Summary for Pond 3P: CB 3 Rim: 11.40

[79] Warning: Submerged Pond 2P Primary device # 1 INLET by 0.55'

Inflow Area = 14,215 sf, 74.71% Impervious, Inflow Depth > 4.09" for 10-yr event
 Inflow = 1.48 cfs @ 12.07 hrs, Volume= 4,848 cf
 Outflow = 1.48 cfs @ 12.07 hrs, Volume= 4,848 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.48 cfs @ 12.07 hrs, Volume= 4,848 cf
 Routed to Pond 4P : CB 4 Rim: 11.2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 6.76' @ 12.07 hrs
 Flood Elev= 11.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	5.94'	12.0" Round Culvert L= 56.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.94' / 5.75' S= 0.0034 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.42 cfs @ 12.07 hrs HW=6.74' (Free Discharge)

↑1=Culvert (Barrel Controls 1.42 cfs @ 2.88 fps)

Summary for Pond 4P: CB 4 Rim: 11.2

[57] Hint: Peaked at 6.44' (Flood elevation advised)

[79] Warning: Submerged Pond 3P Primary device # 1 INLET by 0.48'

Inflow Area = 20,204 sf, 75.67% Impervious, Inflow Depth > 4.11" for 10-yr event
 Inflow = 2.11 cfs @ 12.07 hrs, Volume= 6,924 cf
 Outflow = 2.11 cfs @ 12.07 hrs, Volume= 6,924 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.11 cfs @ 12.07 hrs, Volume= 6,924 cf
 Routed to Pond 5P : CB 5 Rim: 11.20

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 6.44' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	5.50'	15.0" Round Culvert L= 56.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.50' / 5.37' S= 0.0023 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.03 cfs @ 12.07 hrs HW=6.42' (Free Discharge)

←1=Culvert (Barrel Controls 2.03 cfs @ 2.93 fps)

Summary for Pond 5P: CB 5 Rim: 11.20

[79] Warning: Submerged Pond 4P Primary device # 1 INLET by 0.81'

Inflow Area = 25,152 sf, 75.02% Impervious, Inflow Depth > 4.10" for 10-yr event
 Inflow = 2.62 cfs @ 12.07 hrs, Volume= 8,593 cf
 Outflow = 2.62 cfs @ 12.07 hrs, Volume= 8,593 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.62 cfs @ 12.07 hrs, Volume= 8,593 cf
 Routed to Pond 6P : Jellyfish Filter

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 6.33' @ 12.07 hrs
 Flood Elev= 11.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	5.27'	15.0" Round Culvert L= 41.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.27' / 5.17' S= 0.0024 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.52 cfs @ 12.07 hrs HW=6.30' (Free Discharge)

←1=Culvert (Barrel Controls 2.52 cfs @ 3.16 fps)

Summary for Pond 6P: Jellyfish Filter

[57] Hint: Peaked at 4.99' (Flood elevation advised)

Inflow Area = 25,152 sf, 75.02% Impervious, Inflow Depth > 4.10" for 10-yr event
 Inflow = 2.62 cfs @ 12.07 hrs, Volume= 8,593 cf
 Outflow = 2.62 cfs @ 12.07 hrs, Volume= 8,593 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.62 cfs @ 12.07 hrs, Volume= 8,593 cf
 Routed to Pond DP1 :

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 4.99' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	4.17'	15.0" Round Culvert L= 21.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 4.17' / 3.00' S= 0.0557 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.52 cfs @ 12.07 hrs HW=4.97' (Free Discharge)
 ↑1=Culvert (Inlet Controls 2.52 cfs @ 3.04 fps)

Summary for Pond DP1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 61,119 sf, 81.85% Impervious, Inflow Depth > 4.25" for 10-yr event
 Inflow = 6.48 cfs @ 12.07 hrs, Volume= 21,660 cf
 Primary = 6.48 cfs @ 12.07 hrs, Volume= 21,660 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Proposed Conditions David T 2023-11-21

Type III 24-hr 25-yr Rainfall=6.15"

Prepared by Haley Ward

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment P1: Runoff Area=29,018 sf 86.90% Impervious Runoff Depth>5.67"
Tc=5.0 min CN=96 Runoff=4.00 cfs 13,721 cf

Subcatchment P1a: Runoff Area=6,949 sf 85.45% Impervious Runoff Depth>5.56"
Tc=5.0 min CN=95 Runoff=0.95 cfs 3,218 cf

Subcatchment P1b: Runoff Area=9,965 sf 78.83% Impervious Runoff Depth>5.44"
Tc=5.0 min CN=94 Runoff=1.35 cfs 4,520 cf

Subcatchment P1c: Runoff Area=4,250 sf 65.06% Impervious Runoff Depth>5.21"
Tc=5.0 min CN=92 Runoff=0.56 cfs 1,847 cf

Subcatchment P1d: Runoff Area=5,989 sf 77.96% Impervious Runoff Depth>5.44"
Tc=5.0 min CN=94 Runoff=0.81 cfs 2,716 cf

Subcatchment P1e: Runoff Area=4,948 sf 72.33% Impervious Runoff Depth>5.33"
Tc=5.0 min CN=93 Runoff=0.66 cfs 2,197 cf

Pond 1P: CB 1 Rim: 12.00 Peak Elev=9.63' Inflow=0.95 cfs 3,218 cf
12.0" Round Culvert n=0.013 L=50.0' S=0.0034 '/' Outflow=0.95 cfs 3,218 cf

Pond 2P: CB 2 Rim: 11.20 Peak Elev=6.98' Inflow=1.35 cfs 4,520 cf
12.0" Round Culvert n=0.013 L=47.0' S=0.0034 '/' Outflow=1.35 cfs 4,520 cf

Pond 3P: CB 3 Rim: 11.40 Peak Elev=6.91' Inflow=1.91 cfs 6,366 cf
12.0" Round Culvert n=0.013 L=56.0' S=0.0034 '/' Outflow=1.91 cfs 6,366 cf

Pond 4P: CB 4 Rim: 11.2 Peak Elev=6.60' Inflow=2.72 cfs 9,083 cf
15.0" Round Culvert n=0.013 L=56.0' S=0.0023 '/' Outflow=2.72 cfs 9,083 cf

Pond 5P: CB 5 Rim: 11.20 Peak Elev=6.52' Inflow=3.38 cfs 11,279 cf
15.0" Round Culvert n=0.013 L=41.0' S=0.0024 '/' Outflow=3.38 cfs 11,279 cf

Pond 6P: Jellyfish Filter Peak Elev=5.13' Inflow=3.38 cfs 11,279 cf
15.0" Round Culvert n=0.013 L=21.0' S=0.0557 '/' Outflow=3.38 cfs 11,279 cf

Pond DP1: Inflow=8.33 cfs 28,219 cf
Primary=8.33 cfs 28,219 cf

Total Runoff Area = 61,119 sf Runoff Volume = 28,219 cf Average Runoff Depth = 5.54"
18.15% Pervious = 11,096 sf 81.85% Impervious = 50,023 sf

Summary for Subcatchment P1:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 4.00 cfs @ 12.07 hrs, Volume= 13,721 cf, Depth> 5.67"
 Routed to Pond DP1 :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-yr Rainfall=6.15"

Area (sf)	CN	Description
6,226	98	Roofs, HSG D
16,149	98	Water Surface, HSG D
3,801	80	>75% Grass cover, Good, HSG D
2,842	98	Paved parking, HSG D
29,018	96	Weighted Average
3,801		13.10% Pervious Area
25,217		86.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1a:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.95 cfs @ 12.07 hrs, Volume= 3,218 cf, Depth> 5.56"
 Routed to Pond 1P : CB 1 Rim: 12.00

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-yr Rainfall=6.15"

Area (sf)	CN	Description
595	98	Roofs, HSG D
1,011	80	>75% Grass cover, Good, HSG D
5,343	98	Paved parking, HSG D
6,949	95	Weighted Average
1,011		14.55% Pervious Area
5,938		85.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1b:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.35 cfs @ 12.07 hrs, Volume= 4,520 cf, Depth> 5.44"
 Routed to Pond 2P : CB 2 Rim: 11.20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-yr Rainfall=6.15"

Area (sf)	CN	Description
2,040	98	Roofs, HSG D
2,110	80	>75% Grass cover, Good, HSG D
5,815	98	Paved parking, HSG D
9,965	94	Weighted Average
2,110		21.17% Pervious Area
7,855		78.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1c:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.56 cfs @ 12.07 hrs, Volume= 1,847 cf, Depth> 5.21"
 Routed to Pond 3P : CB 3 Rim: 11.40

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-yr Rainfall=6.15"

Area (sf)	CN	Description
700	98	Roofs, HSG D
1,485	80	>75% Grass cover, Good, HSG D
2,065	98	Paved parking, HSG D
4,250	92	Weighted Average
1,485		34.94% Pervious Area
2,765		65.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1d:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.81 cfs @ 12.07 hrs, Volume= 2,716 cf, Depth> 5.44"
 Routed to Pond 4P : CB 4 Rim: 11.2

Proposed Conditions David T 2023-11-21

Type III 24-hr 25-yr Rainfall=6.15"

Prepared by Haley Ward

Printed 11/22/2023

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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.15"

Area (sf)	CN	Description
1,278	98	Roofs, HSG D
1,320	80	>75% Grass cover, Good, HSG D
3,391	98	Paved parking, HSG D
5,989	94	Weighted Average
1,320		22.04% Pervious Area
4,669		77.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Subcatchment P1e:

[49] Hint: Tc<2dt may require smaller dt

Runoff = 0.66 cfs @ 12.07 hrs, Volume= 2,197 cf, Depth> 5.33"
Routed to Pond 5P : CB 5 Rim: 11.20

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-yr Rainfall=6.15"

Area (sf)	CN	Description
1,519	98	Roofs, HSG D
1,369	80	>75% Grass cover, Good, HSG D
2,060	98	Paved parking, HSG D
4,948	93	Weighted Average
1,369		27.67% Pervious Area
3,579		72.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					Direct Entry,

Summary for Pond 1P: CB 1 Rim: 12.00

Inflow Area = 6,949 sf, 85.45% Impervious, Inflow Depth > 5.56" for 25-yr event
Inflow = 0.95 cfs @ 12.07 hrs, Volume= 3,218 cf
Outflow = 0.95 cfs @ 12.07 hrs, Volume= 3,218 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.95 cfs @ 12.07 hrs, Volume= 3,218 cf
Routed to Pond DP1 :

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 9.63' @ 12.07 hrs
Flood Elev= 12.00'

Device #	Routing	Invert	Outlet Devices
#1	Primary	9.00'	12.0" Round Culvert

L= 50.0' RCP, square edge headwall, Ke= 0.500
 Inlet / Outlet Invert= 9.00' / 8.83' S= 0.0034 '/ Cc= 0.900
 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=0.91 cfs @ 12.07 hrs HW=9.62' (Free Discharge)

↑**1=Culvert** (Barrel Controls 0.91 cfs @ 2.56 fps)

Summary for Pond 2P: CB 2 Rim: 11.20

Inflow Area = 9,965 sf, 78.83% Impervious, Inflow Depth > 5.44" for 25-yr event
 Inflow = 1.35 cfs @ 12.07 hrs, Volume= 4,520 cf
 Outflow = 1.35 cfs @ 12.07 hrs, Volume= 4,520 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.35 cfs @ 12.07 hrs, Volume= 4,520 cf
 Routed to Pond 3P : CB 3 Rim: 11.40

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 6.98' @ 12.07 hrs
 Flood Elev= 11.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.20'	12.0" Round Culvert L= 47.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 6.20' / 6.04' S= 0.0034 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.30 cfs @ 12.07 hrs HW=6.96' (Free Discharge)

↑**1=Culvert** (Barrel Controls 1.30 cfs @ 2.82 fps)

Summary for Pond 3P: CB 3 Rim: 11.40

[79] Warning: Submerged Pond 2P Primary device # 1 INLET by 0.69'

Inflow Area = 14,215 sf, 74.71% Impervious, Inflow Depth > 5.37" for 25-yr event
 Inflow = 1.91 cfs @ 12.07 hrs, Volume= 6,366 cf
 Outflow = 1.91 cfs @ 12.07 hrs, Volume= 6,366 cf, Atten= 0%, Lag= 0.0 min
 Primary = 1.91 cfs @ 12.07 hrs, Volume= 6,366 cf
 Routed to Pond 4P : CB 4 Rim: 11.2

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 6.91' @ 12.07 hrs
 Flood Elev= 11.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	5.94'	12.0" Round Culvert L= 56.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.94' / 5.75' S= 0.0034 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=1.84 cfs @ 12.07 hrs HW=6.89' (Free Discharge)

↑**1=Culvert** (Barrel Controls 1.84 cfs @ 3.08 fps)

Summary for Pond 4P: CB 4 Rim: 11.2

[57] Hint: Peaked at 6.60' (Flood elevation advised)

[79] Warning: Submerged Pond 3P Primary device # 1 INLET by 0.64'

Inflow Area = 20,204 sf, 75.67% Impervious, Inflow Depth > 5.39" for 25-yr event
 Inflow = 2.72 cfs @ 12.07 hrs, Volume= 9,083 cf
 Outflow = 2.72 cfs @ 12.07 hrs, Volume= 9,083 cf, Atten= 0%, Lag= 0.0 min
 Primary = 2.72 cfs @ 12.07 hrs, Volume= 9,083 cf
 Routed to Pond 5P : CB 5 Rim: 11.20

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 6.60' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	5.50'	15.0" Round Culvert L= 56.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.50' / 5.37' S= 0.0023 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.62 cfs @ 12.07 hrs HW=6.57' (Free Discharge)

↑1=Culvert (Barrel Controls 2.62 cfs @ 3.15 fps)

Summary for Pond 5P: CB 5 Rim: 11.20

[79] Warning: Submerged Pond 4P Primary device # 1 INLET by 0.99'

Inflow Area = 25,152 sf, 75.02% Impervious, Inflow Depth > 5.38" for 25-yr event
 Inflow = 3.38 cfs @ 12.07 hrs, Volume= 11,279 cf
 Outflow = 3.38 cfs @ 12.07 hrs, Volume= 11,279 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.38 cfs @ 12.07 hrs, Volume= 11,279 cf
 Routed to Pond 6P : Jellyfish Filter

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 6.52' @ 12.07 hrs
 Flood Elev= 11.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	5.27'	15.0" Round Culvert L= 41.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.27' / 5.17' S= 0.0024 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.26 cfs @ 12.07 hrs HW=6.49' (Free Discharge)

↑1=Culvert (Barrel Controls 3.26 cfs @ 3.40 fps)

Summary for Pond 6P: Jellyfish Filter

[57] Hint: Peaked at 5.13' (Flood elevation advised)

Inflow Area = 25,152 sf, 75.02% Impervious, Inflow Depth > 5.38" for 25-yr event
 Inflow = 3.38 cfs @ 12.07 hrs, Volume= 11,279 cf
 Outflow = 3.38 cfs @ 12.07 hrs, Volume= 11,279 cf, Atten= 0%, Lag= 0.0 min
 Primary = 3.38 cfs @ 12.07 hrs, Volume= 11,279 cf
 Routed to Pond DP1 :

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
 Peak Elev= 5.13' @ 12.07 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	4.17'	15.0" Round Culvert L= 21.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 4.17' / 3.00' S= 0.0557 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.26 cfs @ 12.07 hrs HW=5.11' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 3.26 cfs @ 3.30 fps)

Summary for Pond DP1:

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 61,119 sf, 81.85% Impervious, Inflow Depth > 5.54" for 25-yr event
 Inflow = 8.33 cfs @ 12.07 hrs, Volume= 28,219 cf
 Primary = 8.33 cfs @ 12.07 hrs, Volume= 28,219 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

APPENDIX D
SOIL SURVEY INFORMATION

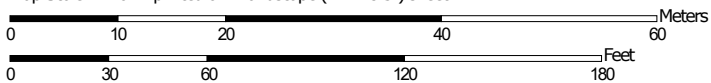
Custom Soil Resource Report for York County, Maine



Custom Soil Resource Report Soil Map




Map Scale: 1:701 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)


Soils


 Soil Map Unit Polygons


 Soil Map Unit Lines


 Soil Map Unit Points

Special Point Features

 Blowout

 Borrow Pit


 Clay Spot


 Closed Depression

 Gravel Pit

 Gravelly Spot


 Landfill

 Lava Flow

 Marsh or swamp

 Mine or Quarry

 Miscellaneous Water


 Perennial Water

 Rock Outcrop


 Saline Spot

 Sandy Spot

 Severely Eroded Spot


 Sinkhole


 Slide or Slip


 Sodic Spot


 Spoil Area

 Stony Spot


 Very Stony Spot

 Wet Spot

 Other

 Special Line Features

Water Features

 Streams and Canals


Transportation

 Rails


 Interstate Highways

 US Routes

 Major Roads

 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: York County, Maine
 Survey Area Data: Version 22, Sep 5, 2023

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jun 19, 2020—Sep 20, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Ur	Urban land	0.9	93.6%
W	Water bodies	0.1	6.4%
Totals for Area of Interest		0.9	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

Custom Soil Resource Report

onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

York County, Maine

Ur—Urban land

Map Unit Composition

Urban land: 90 percent

Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform position (two-dimensional): Footslope, toeslope

Landform position (three-dimensional): Base slope, tread

Down-slope shape: Linear

Across-slope shape: Linear

Typical profile

H1 - 0 to 6 inches: variable

Properties and qualities

Slope: 0 to 8 percent

Drainage class: Moderately well drained

Depth to water table: About 24 to 72 inches

Available water supply, 0 to 60 inches: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s

Hydric soil rating: No

W—Water bodies

Map Unit Composition

Water: 100 percent

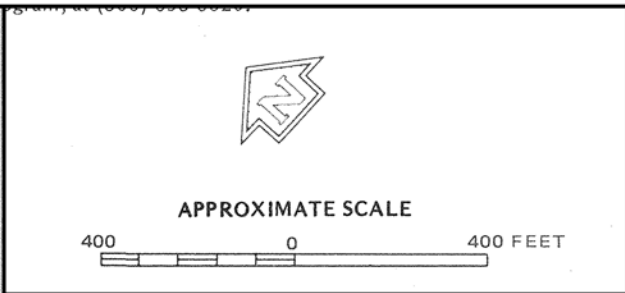
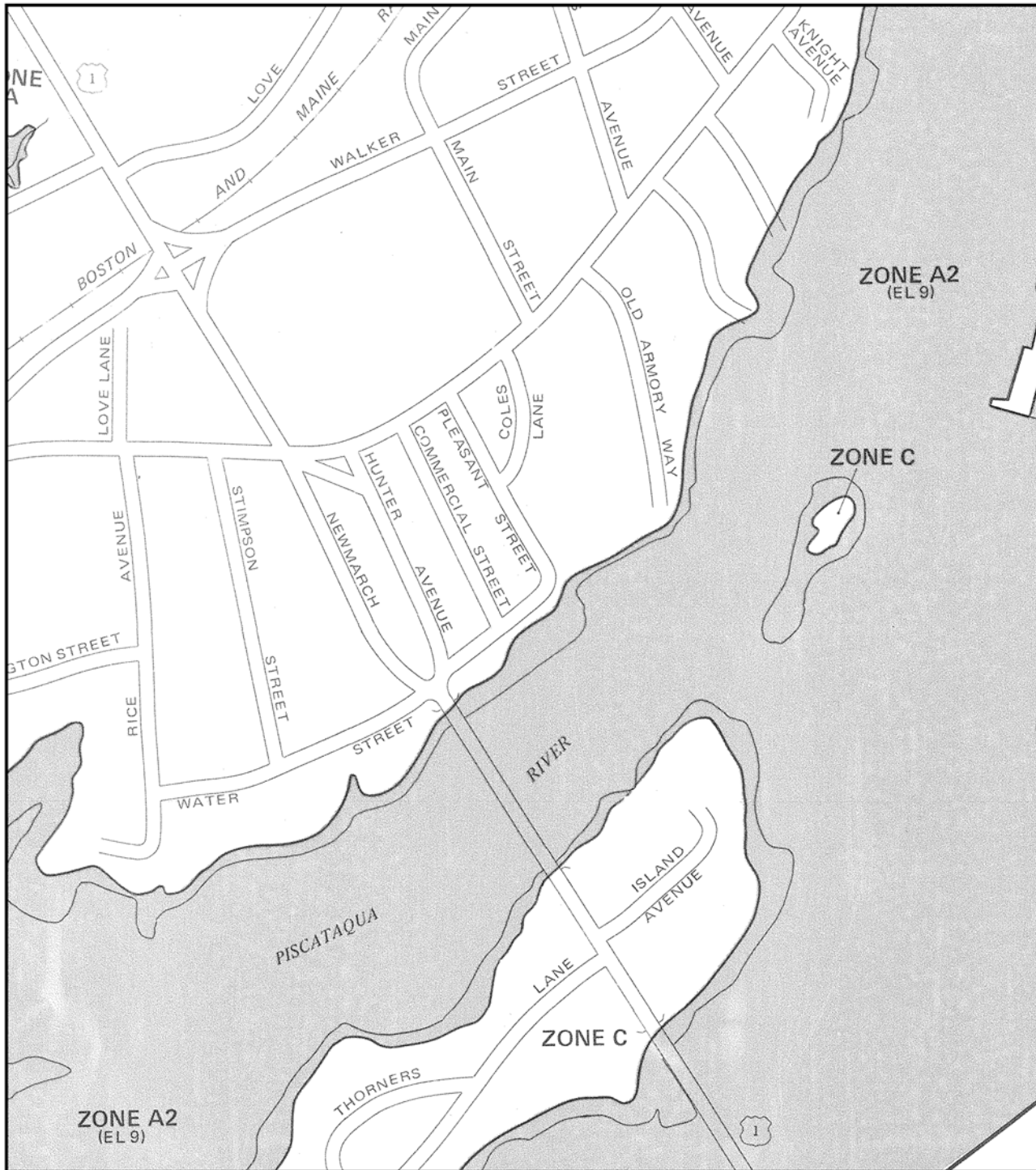
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Setting

Landform: Hills

APPENDIX E
FEMA FIRM MAP



NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWN OF
KITTERY, MAINE
YORK COUNTY

PANEL 8 OF 10
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230171 0008 D

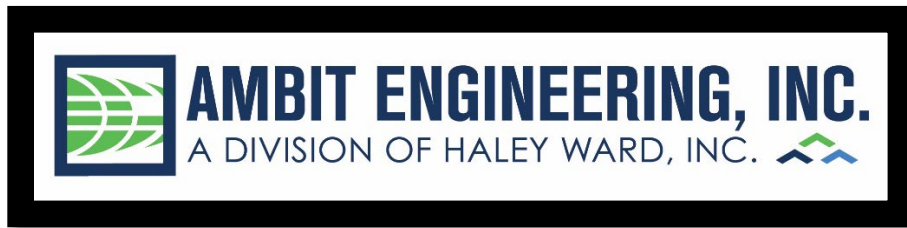
MAP REVISED:
JULY 3, 1986



Federal Emergency Management Agency

This is an official FIRMette showing a portion of the above-referenced flood map created from the MSC FIRMette Web tool. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For additional information about how to make sure the map is current, please see the Flood Hazard Mapping Updates Overview Fact Sheet available on the FEMA Flood Map Service Center home page at <https://msc.fema.gov>.

APPENDIX F
OPERATIONS AND MAINTENANCE
MANUAL



***INSPECTION & LONG-TERM MAINTENANCE PLAN
FOR
SITE IMPROVEMENTS
MIXED USE DEVELOPMENT***

**9-13 WATER STREET
KITTERY, ME**

Introduction

The intent of this plan is to provide Green & Company (herein referred to as “owner”) with a list of procedures that document the inspection and maintenance requirements of the stormwater management system for this development. Specifically, the proposed Jellyfish Filter and associated drainage structures (collectively referred to as the “Stormwater Management System”). The contact information for the owner shall be kept current, and if there is a change of ownership of the property this plan must be transferred to the new owner.

The following inspection and maintenance program is necessary to keep the stormwater management system functioning properly and will help in maintaining a high quality of stormwater runoff to minimize potential environmental impacts. By following the enclosed procedures, the owner will be able to maintain the functional design of the stormwater management system and maximize its ability to remove sediment and other contaminants from site generated stormwater runoff.

Annual Report

The owner shall prepare an annual Inspection & Maintenance Report. The report shall include a summary of the system’s maintenance and repair by transmission of the Inspection & Maintenance Log and other information as required. A copy of the report shall be delivered annually by July 1st to the Kittery Code Enforcement Officer.

Inspection & Maintenance Checklist/Log

The following pages contain the Stormwater Management System Inspection & Maintenance Requirements and a blank copy of the Stormwater Management System Inspection & Maintenance Log. These forms are provided to the owner as a guideline for performing the inspection and

maintenance of the Stormwater Management System. This is a guideline and should be periodically reviewed for conformance with current practice and standards.

Stormwater Management System Components

The Stormwater Management System is designed to mitigate the quality of site-generated stormwater runoff. As a result, the design includes the following elements:

Non-Structural BMPs

Non-Structural best management practices (BMP's) include temporary and permanent measures that typically require less labor and capital inputs and are intended to provide protection against erosion of soils. Examples of non-structural BMP's on this project include but are not limited to:

- Temporary and Permanent mulching
- Temporary and Permanent grass cover
- Trees
- Shrubs and ground covers
- Miscellaneous landscape plantings
- Dust control
- Tree protection
- Topsoiling
- Sediment barriers
- Stabilized construction entrance
- Catch basin basket

Structural BMPs

Structural BMPs are more labor and capital-intensive structures or installations that require more specialized personnel to install. Examples on this project include but are not limited to:

- Storm Drains with Deep Sumps
- Contech Jellyfish® Filter
- Bio Clean Downspout Filter

Inspection and Maintenance Requirements

The following summarizes the inspection and maintenance requirements for the various BMP's that may be found on this project.

1. **Grassed areas (until established):** After each rain event of 0.5" or more during a 24-hour period, inspect grassed areas for signs of disturbance, such as erosion. If damaged areas are discovered, immediately repair the damage. Repairs may include adding new topsoil, lime, seed, fertilizer and mulch.

2. **Plantings:** Planting and landscaping (trees, shrubs) shall be monitored bi-monthly during the first year to insure viability and vigorous growth. Replace dead or dying vegetation with new stock and make adjustments to the conditions that caused the dead or dying vegetation. During dryer times of the year, provide weekly watering or irrigation during the establishment period of the first year. Make the necessary adjustments to ensure long-term health of the vegetated covers, i.e. provide more permanent mulch or compost or other means of protection.
3. **Storm Drains:** Monitor accumulation of debris in catch basins and trench drains monthly or after significant rain events. Remove sediments when they accumulate within the outlet pipe. During construction, maintain inlet protection until all roadways and parking areas have been stabilized. Prior to the end of construction, inspect the drains and basins for accumulations and remove and clean by jet-vacuuming.
4. **Contech Jellyfish® Filter:** Reference the attached operations and maintenance manual for proper maintenance of the system.
5. **Bio Clean Downspout Filter:** Refer to the manufacturer's Operation and Maintenance manual for guidance, included herewith.

Pollution Prevention

The following pollution prevention activities shall be undertaken to minimize potential impacts on stormwater runoff quality. The Contractor is responsible for all activities during construction. The Owner is responsible thereafter.

Spill Procedures

Any discharge of waste oil or other pollutant shall be reported immediately to the Maine Department of Environmental Protection (Maine DEP). The Contractor/Owner will be responsible for any incident of groundwater contamination resulting from the improper discharge of pollutants to the stormwater system, and may be required by Maine DEP to remediate incidents that may impact groundwater quality. If the property ownership is transferred, the new owner will be informed of the legal responsibilities associated with operation of the stormwater system, as indicated above.

Sanitary Facilities

Sanitary facilities shall be provided during all phases of construction.

Material Storage

No on site trash facility is provided until homes are constructed. The contractors are required to remove trash from the site. Hazardous material storage is prohibited.

Material Disposal

All waste material, trash, sediment, and debris shall be removed from the site and disposed of in accordance with applicable local, state, and federal guidelines and regulations. Removed sediments shall be if necessary dewatered prior to disposal.

CATCH BASIN BASKET CONSTRUCTION MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	FREQUENCY	MAINTENANCE REQUIREMENTS
-Check for damage to basket -Remove sediment from basket	Within 24 hours of rainfall, Daily during extended rainfall	-Repair basket as necessary to prevent particles from reaching drainage system, or to prevent flooding. -Empty basket after every storm, or if clogged.

MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	INSPECTOR CONTACT INFO
DATE OF INSPECTION	REASON FOR INSPECTION <input type="checkbox"/> LARGE STORM EVENT <input type="checkbox"/> PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? <input type="checkbox"/> YES <input type="checkbox"/> NO	DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE
DATE OF MAINTENANCE	PERFORMED BY
NOTES	

CLOSED DRAINAGE STRUCTURE LONG-TERM MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	FREQUENCY	MAINTENANCE REQUIREMENTS
-Outlet Control Structures -Drain Manholes -Catch Basins and Trench Drains	Every other Month	<i>Check for erosion or short-circuiting Check for sediment accumulation Check for floatable contaminants</i>
-Drainage Pipes -Roof Drains	1 time per 2 years	<i>Check for sediment accumulation/clogging, or soiled runoff. Check for erosion at outlets.</i>

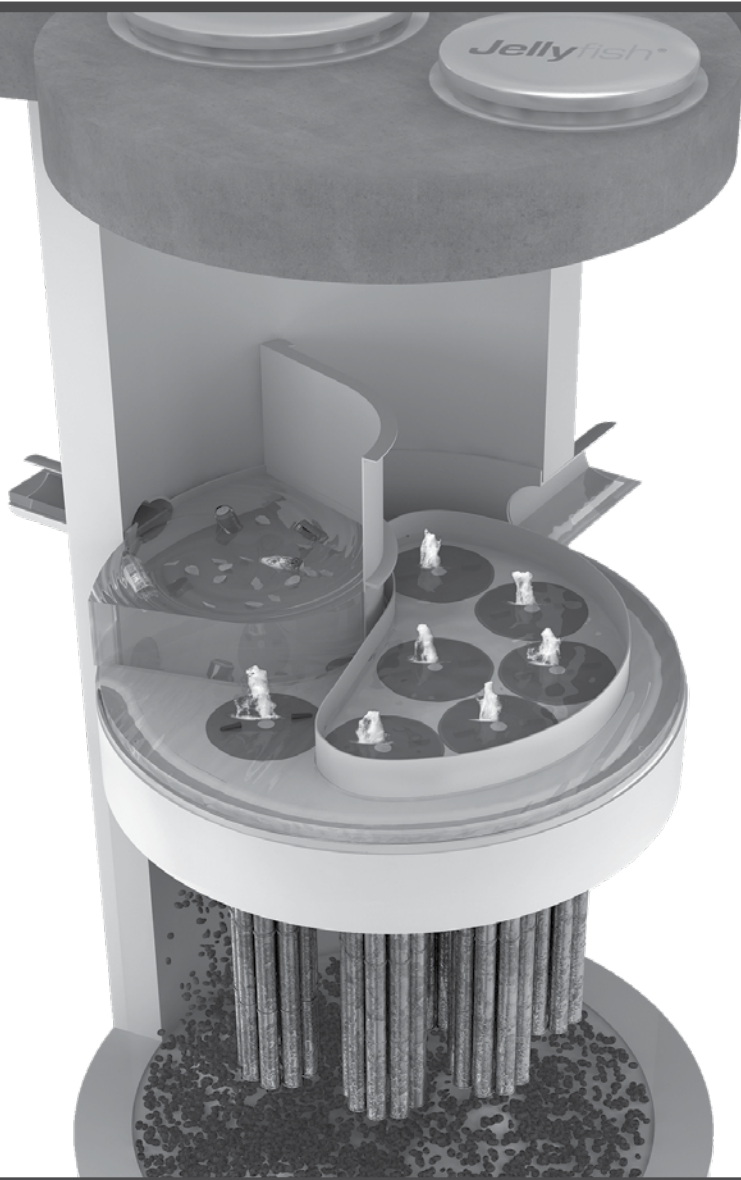
MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	INSPECTOR CONTACT INFO
DATE OF INSPECTION	REASON FOR INSPECTION <input type="checkbox"/> LARGE STORM EVENT <input type="checkbox"/> PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? <input type="checkbox"/> YES <input type="checkbox"/> NO	DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE
DATE OF MAINTENANCE	PERFORMED BY
NOTES	

STABILIZED CONSTRUCTION ENTRANCE CONSTRUCTION MAINTENANCE SHEET

INSPECTION REQUIREMENTS		
ACTION TAKEN	FREQUENCY	MAINTENANCE REQUIREMENTS
ENTRANCE SURFACE -Check for sediment accumulation/clogging of stone -Check Vegetative filter strips	After heavy rains, as necessary	-Top dress pad with new stone. -Replace stone completely if completely clogged. -Maintain vigorous stand of vegetation.
WASHING FACILITIES (if applicable) -Monitor Sediment Accumulation	As often as necessary	-Remove Sediments from traps.

MAINTENANCE LOG	
PROJECT NAME	
INSPECTOR NAME	INSPECTOR CONTACT INFO
DATE OF INSPECTION	REASON FOR INSPECTION <input type="checkbox"/> LARGE STORM EVENT <input type="checkbox"/> PERIODIC CHECK-IN
IS CORRECTIVE ACTION NEEDED? <input type="checkbox"/> YES <input type="checkbox"/> NO	DESCRIBE ANY PROBLEMS, NEEDED MAINTENANCE
DATE OF MAINTENANCE	PERFORMED BY
NOTES	

Jellyfish[®] Filter Maintenance Guide





JELLYFISH® FILTER INSPECTION & MAINTENANCE GUIDE

Jellyfish units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

In order for maintenance of the Jellyfish filter to be successful, it is imperative that all other components be properly maintained. The maintenance and repair of upstream facilities should be carried out prior to Jellyfish maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

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1.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

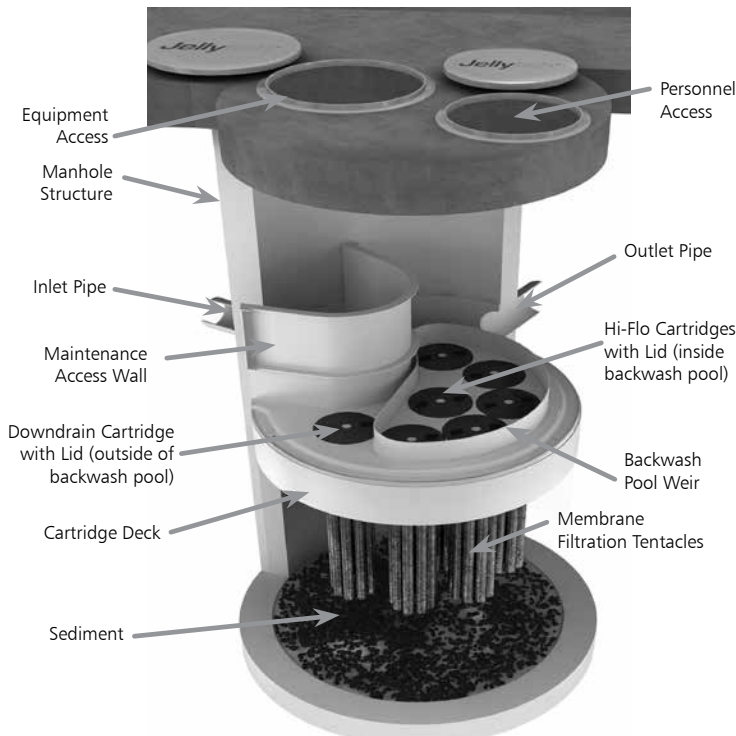
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed



Note: Separator Skirt not shown

2.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent.*

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

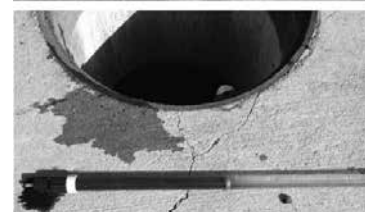
3.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

3.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.



Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment ($\geq 1/16''$) accumulated on the deck surface should be removed.

3.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

4.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

5.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures.
Caution: Dropping objects onto the cartridge deck may cause damage.

3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

5.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. **Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs.**
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

5.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.



Cartridge Removal & Lifting Device



2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.
3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. **Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane.**

4. Collected rinse water is typically removed by vacuum hose.
5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

5.3 Sediment and Floatables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.



Vacuuming Sump Through MAW

3. Pressure wash cartridge deck and receptacles to remove all sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.
4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.



Vacuuming Sump Through MAW

6. For larger diameter Jellyfish Filter manholes (≥ 8 -ft) and some vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

5.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. **Caution: Do not force the cartridge downward; damage may occur.**
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

5.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

5.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

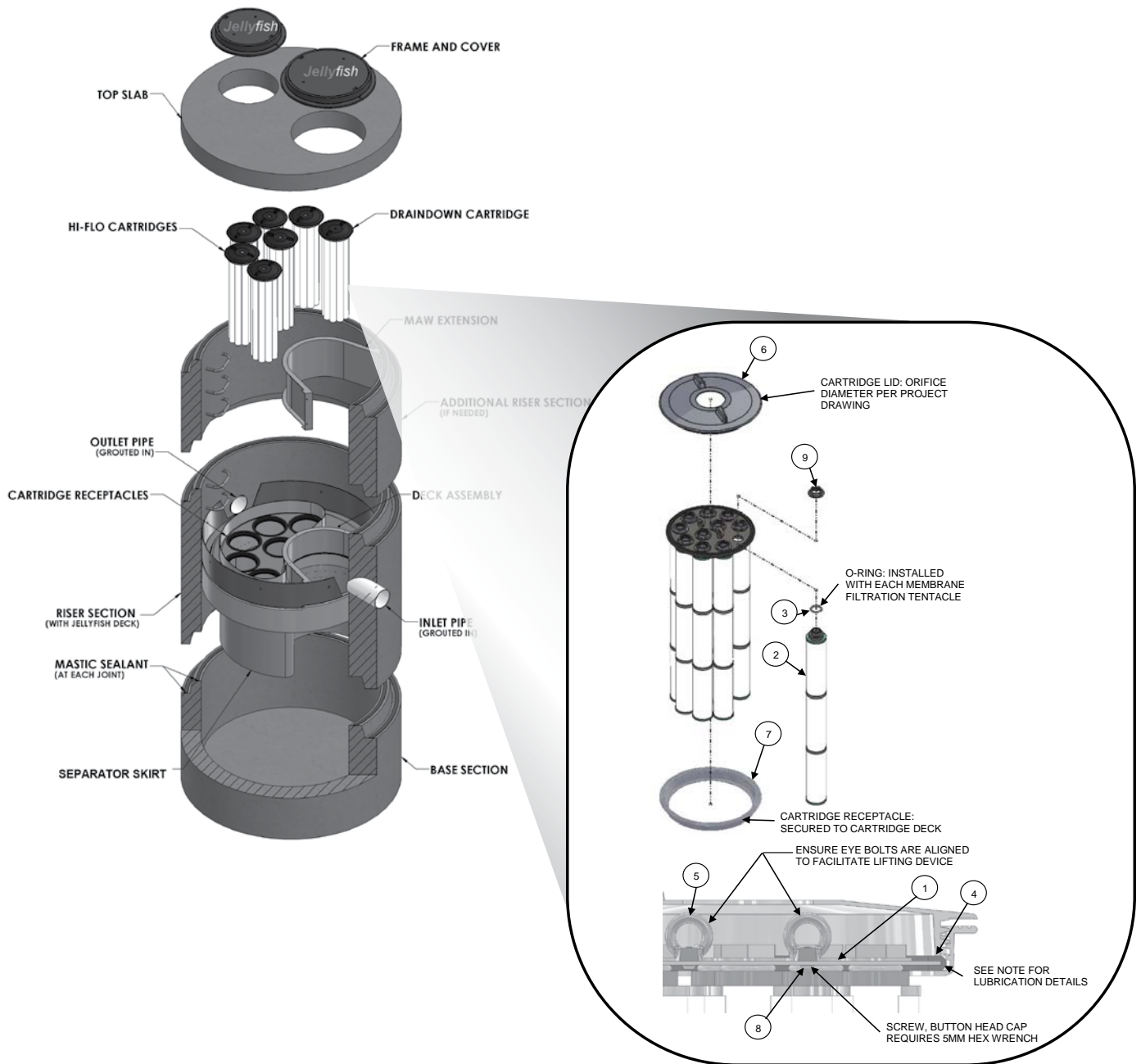


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:

Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lids (Item 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:

Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clockwise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Inspection and Maintenance Log

Owner:		Jellyfish Model No:	
Location:		GPS Coordinates:	
Land Use:	Commercial:	Industrial:	Service Station:
	Roadway/Highway:	Airport:	Residential:

Date/Time:						
Inspector:						
Maintenance Contractor:						
Visible Oil Present: (Y/N)						
Oil Quantity Removed:						
Floatable Debris Present: (Y/N)						
Floatable Debris Removed: (Y/N)						
Water Depth in Backwash Pool						
Draindown Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Draindown Cartridges: (Y/N)						
Hi-Flo Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Hi-Flo Cartridges: (Y/N)						
Sediment Depth Measured: (Y/N)						
Sediment Depth (inches or mm):						
Sediment Removed: (Y/N)						
Cartridge Lids intact: (Y/N)						
Observed Damage:						
Comments:						



Support

- Drawings and specifications are available at www.conteches.com/jellyfish.
- Site-specific design support is available from Contech Engineered Solutions.
- Find a Certified Maintenance Provider at www.conteches.com/ccmp

Jellyfish[®]

CONTECH[®]
ENGINEERED SOLUTIONS

800.338.1122

www.ContechES.com

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Maine Advisory List of Invasive Plants - 2019 revision

Common Name	Scientific Name	Ranking
American water lotus	<i>Nelumbo lutea</i>	Severely invasive
Amur honeysuckle*	<i>Lonicera maackii</i>	Severely invasive
Asiatic bittersweet*	<i>Celastrus orbiculatus</i>	Severely invasive
Bella honeysuckle*	<i>Lonicera x bella</i>	Severely invasive
Black locust*	<i>Robinia pseudoacacia</i>	Severely invasive
Black swallowwort	<i>Cynanchum louiseae</i>	Severely invasive
Bohemian knotweed	<i>Fallopia x bohemica</i>	Severely invasive
Brazilian waterweed**	<i>Egeria densa</i>	Severely invasive
Canada thistle	<i>Cirsium arvense</i>	Severely invasive
Chinese yam	<i>Dioscorea polystachya</i>	Severely invasive
Chocolate vine; five-leaf akebia	<i>Akebia quinata</i>	Severely invasive
Common buckthorn	<i>Rhamnus cathartica</i>	Severely invasive
Common reed	<i>Phragmites australis</i>	Severely invasive
Curly pondweed**	<i>Potamogeton crispus</i>	Severely invasive
Eurasian milfoil**	<i>Myriophyllum spicatum</i>	Severely invasive
European alder	<i>Alnus glutinosa</i>	Severely invasive
European frog's bit**	<i>Hydrocharis morsus-ranae</i>	Severely invasive
False indigo*	<i>Amorpha fruticosa</i>	Severely invasive
Fanwort**	<i>Cabomba caroliniana</i>	Severely invasive
Flowering rush	<i>Butomus umbellatus</i>	Severely invasive
Garlic mustard*	<i>Alliaria petiolata</i>	Severely invasive
Giant knotweed	<i>Fallopia sachalinensis</i>	Severely invasive
Glossy buckthorn*	<i>Frangula alnus</i>	Severely invasive
Goutweed*	<i>Aegopodium podagraria</i>	Severely invasive
Hydrilla**	<i>Hydrilla verticillata</i>	Severely invasive
Inflated bladderwort	<i>Utricularia inflata</i>	Severely invasive
Japanese barberry*	<i>Berberis thunbergii</i>	Severely invasive
Japanese honeysuckle*	<i>Lonicera japonica</i>	Severely invasive
Japanese knotweed*	<i>Fallopia japonica</i>	Severely invasive
Japanese stilt grass*	<i>Microstegium vimineum</i>	Severely invasive
Morrow's honeysuckle*	<i>Lonicera morrowii</i>	Severely invasive
Ornamental jewelweed*	<i>Impatiens glandulifera</i>	Severely invasive
Pale swallowwort	<i>Cynanchum rossicum</i>	Severely invasive
Parrot feather**	<i>Myriophyllum aquaticum</i>	Severely invasive
Porcelainberry*	<i>Ampelopsis glandulosa</i>	Severely invasive
Reed canary grass	<i>Phalaris arundinacea</i>	Severely invasive
Slender-leaved naiad**	<i>Najas minor</i>	Severely invasive
Starry stonewort	<i>Nitellopsis obtusa</i>	Severely invasive
Starwort	<i>Callitriche stagnalis</i>	Severely invasive
Tall pepperwort	<i>Lepidium latifolium</i>	Severely invasive
Tartarian honeysuckle*	<i>Lonicera tatarica</i>	Severely invasive
Tree of heaven*	<i>Ailanthus altissima</i>	Severely invasive
Variable milfoil**	<i>Myriophyllum heterophyllum</i>	Severely invasive
Water chestnut**	<i>Trapa natans</i>	Severely invasive
Water lettuce	<i>Pistia stratiotes</i>	Severely invasive

*Plant regulated by the Do Not Sell list, Horticulture Program, DACF

**Aquatic plant regulated by Maine DEP

Maine Advisory List of Invasive Plants - 2019 revision

Common Name	Scientific Name	Ranking
Water soldier	<i>Stratiotes aloides</i>	Severely invasive
Wavyleaf basketgrass	<i>Oplismenus hirtellus ssp. undulatifolius</i>	Severely invasive
White cottonwood*	<i>Populus alba</i>	Severely invasive
Wineberry	<i>Rubus phoenicolasias</i>	Severely invasive
Winged euonymous*	<i>Euonymus alatus</i>	Severely invasive
Yellow floating heart**	<i>Nymphoides peltata</i>	Severely invasive
Yellow iris*	<i>Iris pseudacorus</i>	Severely invasive
Amur cork tree*	<i>Phellodendron amurense</i>	Very invasive
Amur maple*	<i>Acer ginnala</i>	Very invasive
Autumn olive*	<i>Elaeagnus umbellata</i>	Very invasive
Black jetbead	<i>Rhodotypos scandens</i>	Very invasive
Border privet	<i>Ligustrum obtusifolium</i>	Very invasive
California privet	<i>Ligustrum ovalifolium</i>	Very invasive
Callery ("Bradford") pear	<i>Pyrus calleryana</i>	Very invasive
Common barberry*	<i>Berberis vulgaris</i>	Very invasive
Creeping buttercup	<i>Ranunculus repens</i>	Very invasive
Dame's rocket*	<i>Hesperis matronalis</i>	Very invasive
English water grass	<i>Glyceria maxima</i>	Very invasive
European blackberry	<i>Rubus fruticosus</i>	Very invasive
Giant hogweed	<i>Heracleum mantegazzianum</i>	Very invasive
Hairy willow-herb	<i>Epilobium hirsutum</i>	Very invasive
Hardy kiwi	<i>Actinidia arguta</i>	Very invasive
Japanese hops	<i>Humulus japonicus</i>	Very invasive
Kudzu	<i>Pueraria lobata</i>	Very invasive
Leafy spurge	<i>Euphorbia esula</i>	Very invasive
Lesser celandine	<i>Ficaria verna</i>	Very invasive
Linden arrowwood	<i>Viburnum dilatatum</i>	Very invasive
Mile-a-minute vine*	<i>Persicaria perfoliata</i>	Very invasive
Multiflora rose*	<i>Rosa multiflora</i>	Very invasive
Narrowleaf bittercress	<i>Cardamine impatiens</i>	Very invasive
Norway maple*	<i>Acer platanoides</i>	Very invasive
Oriental photinia	<i>Photinia villosa</i>	Very invasive
Privet*	<i>Ligustrum vulgare</i>	Very invasive
Purple loosestrife*	<i>Lythrum salicaria</i>	Very invasive
Rugosa rose	<i>Rosa rugosa</i>	Very invasive
Water forget-me-not	<i>Myosotis scorpioides</i>	Very invasive
Wintercreeper	<i>Euonymus fortunei</i>	Very invasive
Yam-leaved virgin's bower	<i>Clematis terniflora</i>	Very invasive
Bicolor lespedeza, two-colored bush-clover	<i>Lespedeza bicolor</i>	Invasive, habitat-specific threats
Brown knapweed	<i>Centaurea jacea</i>	Invasive, habitat-specific threats
Chinese bindweed*	<i>Fallopia baldschuanica</i>	Invasive, habitat-specific threats
Chinese bush-clover	<i>Lespedeza cuneata</i>	Invasive, habitat-specific threats
Coltsfoot	<i>Tussilago farfara</i>	Invasive, habitat-specific threats

*Plant regulated by the Do Not Sell list, Horticulture Program, DACF

**Aquatic plant regulated by Maine DEP

Maine Advisory List of Invasive Plants - 2019 revision

Common Name	Scientific Name	Ranking
Dalmation toadflax	<i>Linaria dalmatica</i>	Invasive, habitat-specific threats
February daphne; paradise plant	<i>Daphne mezereum</i>	Invasive, habitat-specific threats
Fine-leaved sheep fescue	<i>Festuca filiformis</i>	Invasive, habitat-specific threats
Gray willow	<i>Salix cinerea</i>	Invasive, habitat-specific threats
Japanese tree lilac	<i>Syringa reticulata</i>	Invasive, habitat-specific threats
Mudmat	<i>Glossostigma cleistanthum</i>	Invasive, habitat-specific threats
One-rowed watercress	<i>Nasturtium microphyllum</i>	Invasive, habitat-specific threats
Oriental lady's thumb smartweed	<i>Persicaria longiseta</i>	Invasive, habitat-specific threats
Russian olive	<i>Elaeagnus angustifolia</i>	Invasive, habitat-specific threats
Siberian elm	<i>Ulmus pumila</i>	Invasive, habitat-specific threats
Siebold viburnum	<i>Viburnum sieboldii</i>	Invasive, habitat-specific threats
Spotted knapweed	<i>Centaurea stoebe</i>	Invasive, habitat-specific threats
Watercress	<i>Nasturtium officinale</i>	Invasive, habitat-specific threats
Wood blue grass	<i>Poa nemoralis</i>	Invasive, habitat-specific threats
Woodland angelica	<i>Angelica sylvestris</i>	Invasive, habitat-specific threats
Bittersweet or climbing nightshade	<i>Solanum dulcamara</i>	Potential to be invasive, monitor
Bull thistle	<i>Cirsium vulgare</i>	Potential to be invasive, monitor
Common mugwort*	<i>Artemisia vulgaris</i>	Potential to be invasive, monitor
Common valerian	<i>Valeriana officinalis</i>	Potential to be invasive, monitor
Creeping jenny	<i>Lysimachia nummularia</i>	Potential to be invasive, monitor
Cypress spurge*	<i>Euphorbia cyparissias</i>	Potential to be invasive, monitor
Princess tree*	<i>Paulownia tomentosa</i>	Potential to be invasive, monitor
Small carpgrass	<i>Arthraxon hispidus</i>	Potential to be invasive, monitor
Sycamore maple	<i>Acer pseudoplatanus</i>	Potential to be invasive, monitor
Western lupine	<i>Lupinus polyphyllus</i>	Potential to be invasive, monitor
Wild parsnip	<i>Pastinaca sativa</i>	Potential to be invasive, monitor
Yellow hornpoppy	<i>Glaucium flavum</i>	Potential to be invasive, monitor

Also evaluated in 2018; not meeting criteria for inclusion as invasive:

Common Name	Scientific Name	Outcome
Canada bluegrass, flat-stemmed bluegrass	<i>Poa compressa</i>	Not invasive at this time
Wild thyme	<i>Thymus pulegioides</i>	Not invasive at this time
European spindle-tree	<i>Euonymus europaeus</i>	Insufficient data to evaluate
False spiraea	<i>Sorbaria sorbifolia</i>	Insufficient data to evaluate
Fly honeysuckle	<i>Lonicera xylosteum</i>	Insufficient data to evaluate
Great watercress, great yellow-cress	<i>Rorippa amphibia</i>	Insufficient data to evaluate
Japanese fuki	<i>Petasites japonicus</i>	Insufficient data to evaluate
Wall lettuce	<i>Mycelis muralis</i>	Insufficient data to evaluate

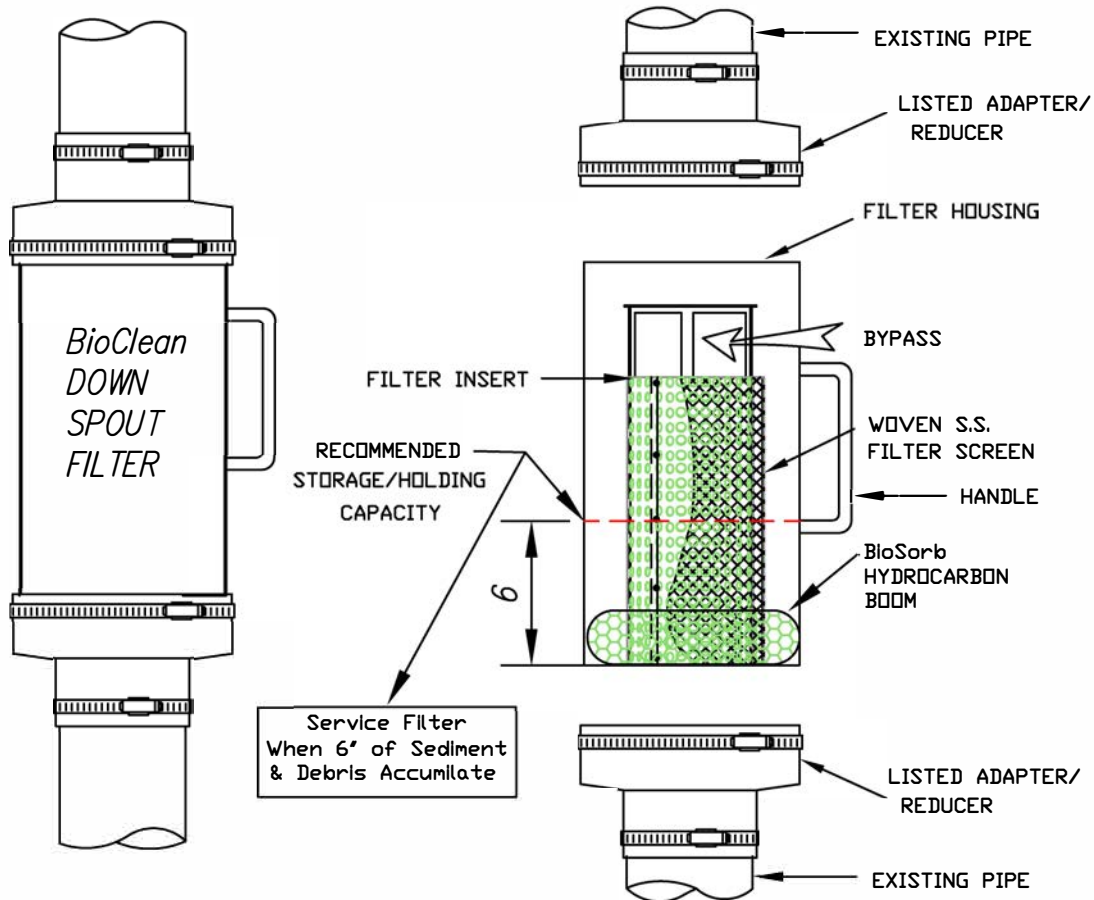
*Plant regulated by the Do Not Sell list, Horticulture Program, DACF

**Aquatic plant regulated by Maine DEP

SERVICE MANUAL

(Cleaning Procedures)

Bio Clean DOWNSPOUT FILTER Screen Type With Hydrocarbon Boom



TOOLS AND EQUIPMENT NEEDED:

1. Medium size flat scred driver
2. BioSorb hydrocarbon boom. 25-1/2" X 2" dia.
(Call Bio Clean to order)
3. Trash container or bag
4. Wooden dowel approx. 3' x 1/2' dia.

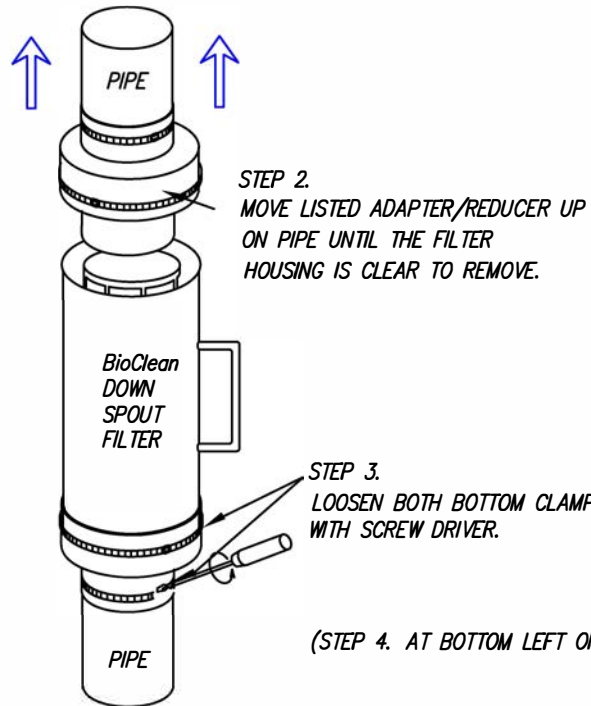
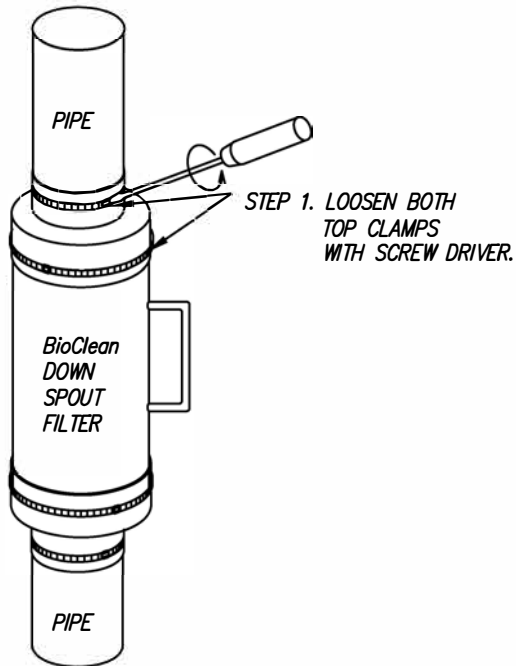
DETAIL OF PARTS



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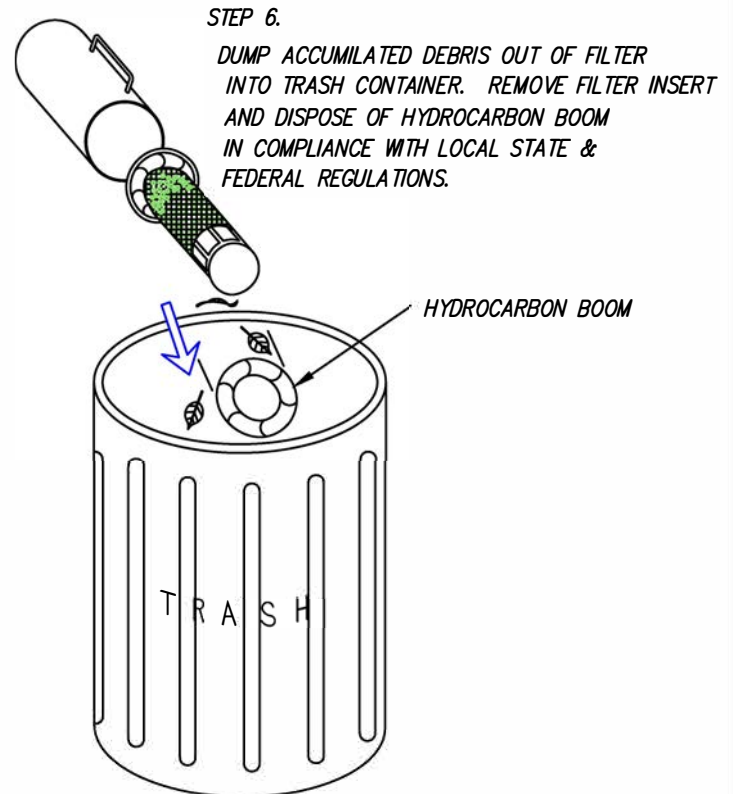
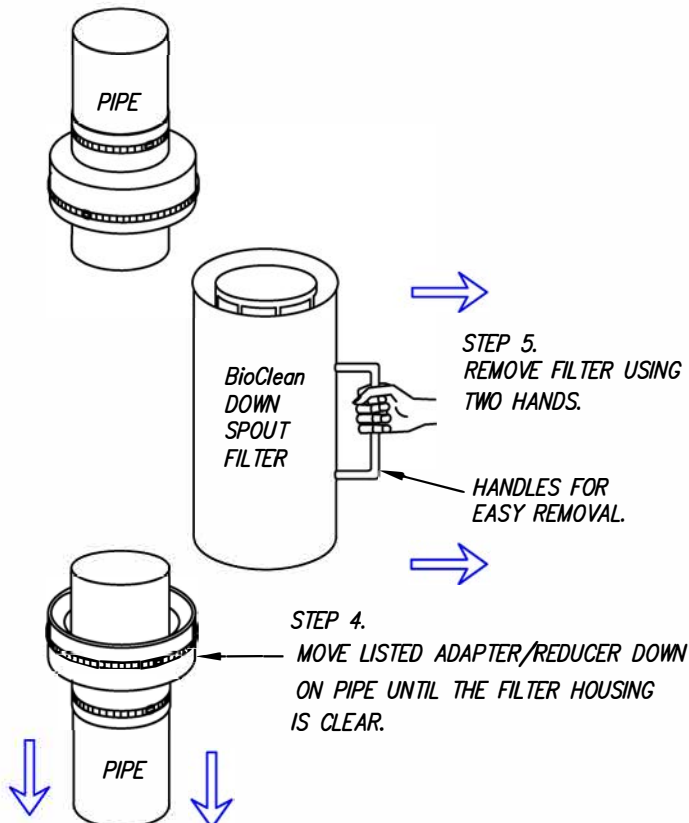
REMOVING FILTER

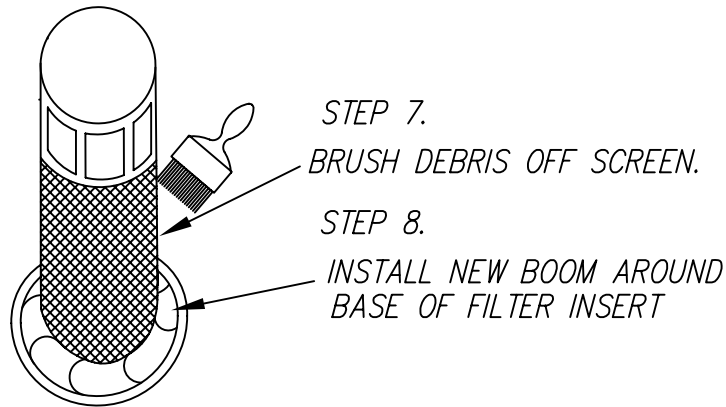


STEP 3. LOOSEN BOTH BOTTOM CLAMPS WITH SCREW DRIVER.

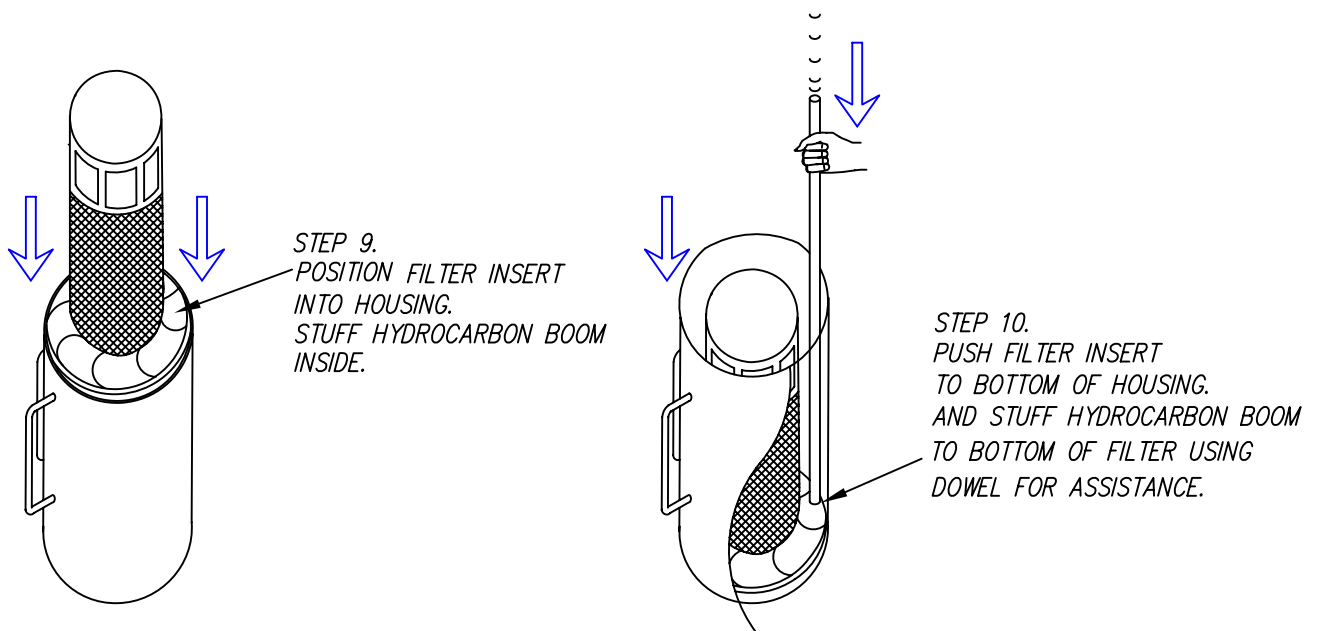
(STEP 4. AT BOTTOM LEFT OF PAGE)

CLEANING FILTER

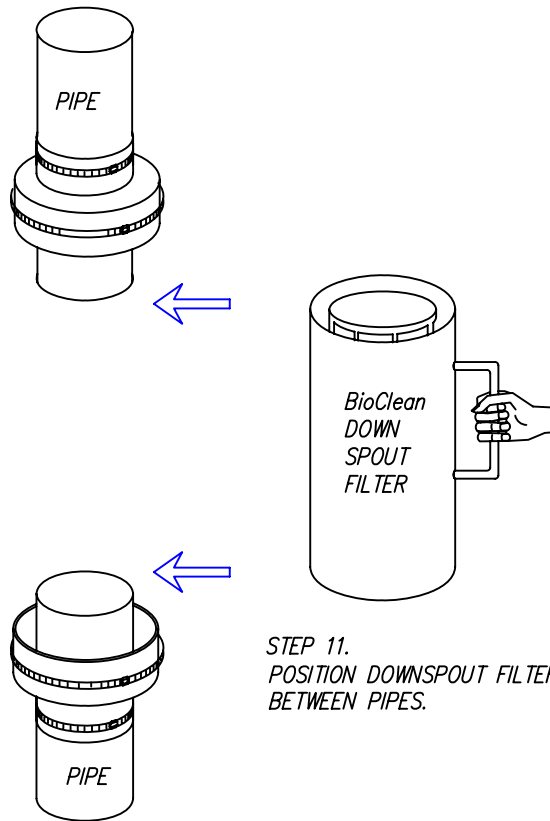




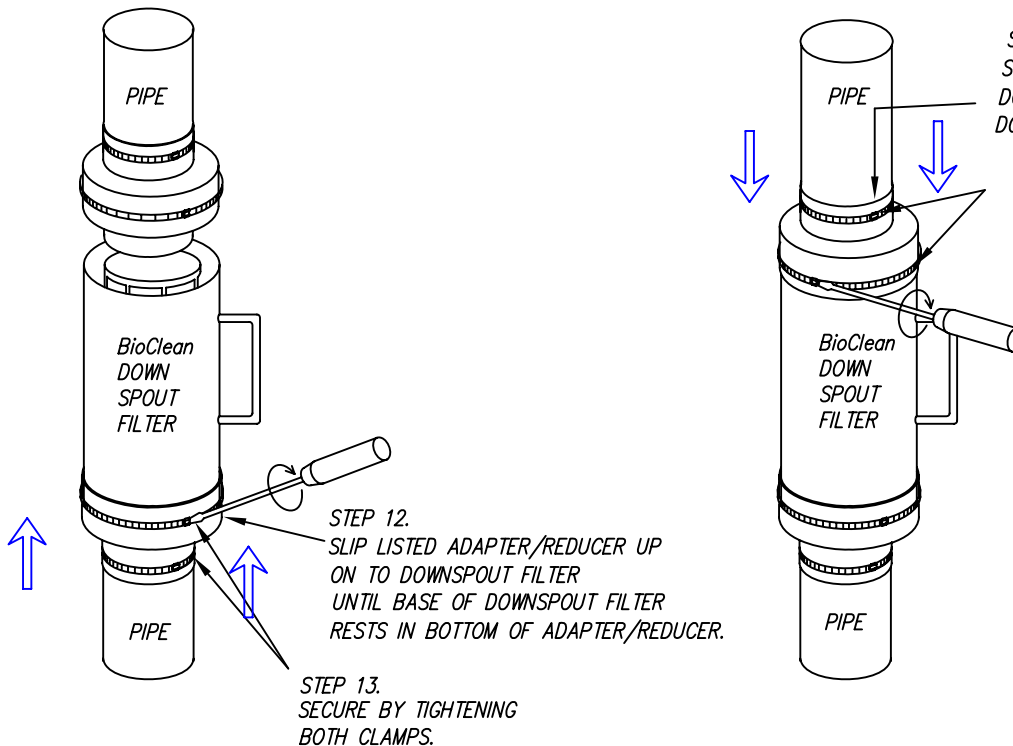
REPLACING FILTER INSERT



REPLACING FILTER



STEP 11.
POSITION DOWNSPOUT FILTER
BETWEEN PIPES.



STEP 14.
SLIP LISTED ADAPTER/REDUCER
DOWNWARD ON TO
DOWNSPOUT FILTER.

STEP 15.
SECURE BY TIGHTENING
BOTH CLAMPS
WITH SCREWDRIVER.

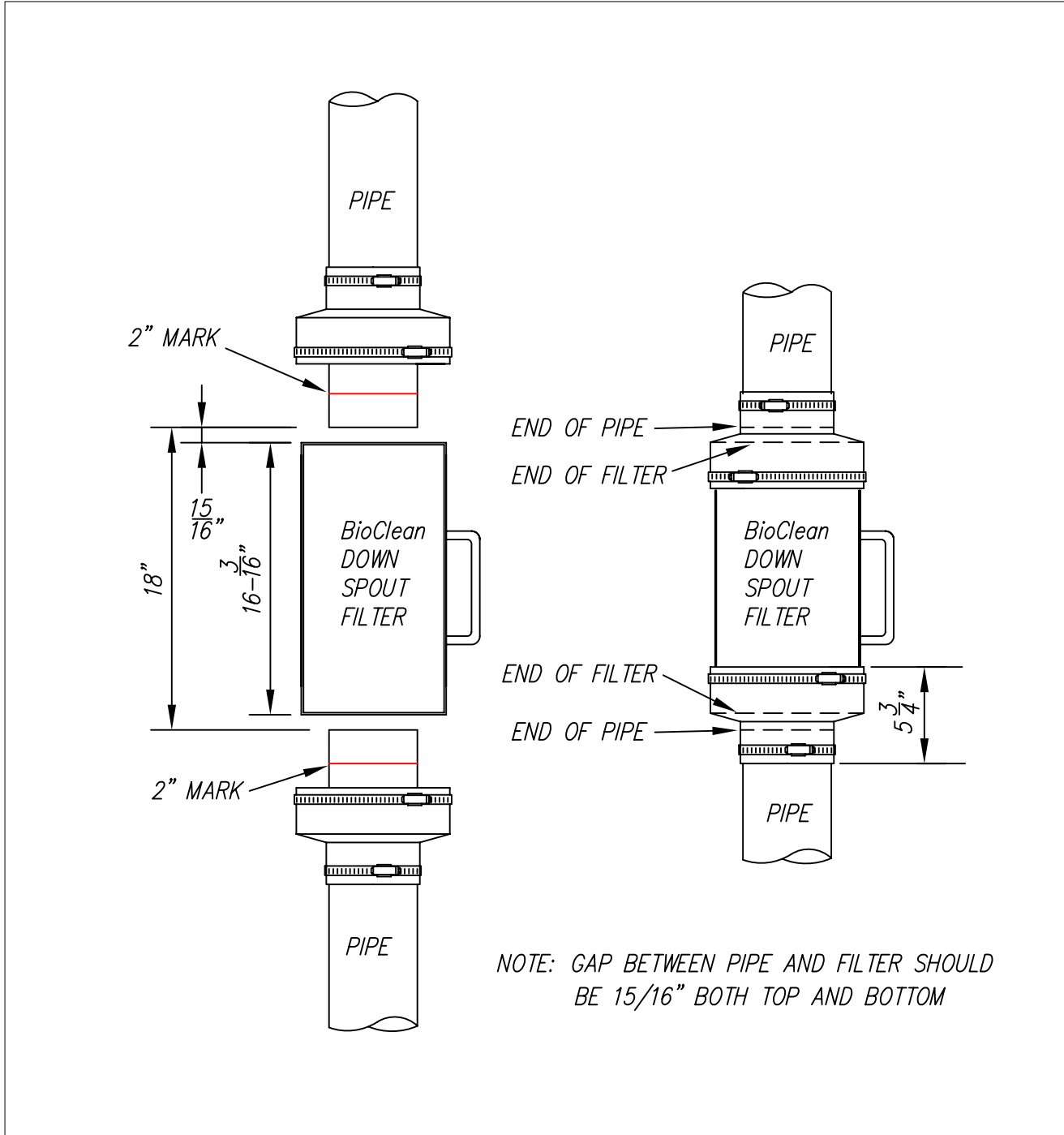
ENSURE CLAMPS
ARE PROPERLY TIGHTENED.
SERVICE COMPLETE.

STEP 12.
SLIP LISTED ADAPTER/REDUCER
UP ON TO DOWNSPOUT FILTER
UNTIL BASE OF DOWNSPOUT FILTER
RESTS IN BOTTOM OF ADAPTER/REDUCER.

STEP 13.
SECURE BY TIGHTENING
BOTH CLAMPS.

APPROPRIATE INSTALLATION

FILTER CENTERED BETWEEN PIPES WITH EVEN GAPS ON TOP AND BOTTOM



A Forterra Company

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Phone (603) 430-9282 Fax 436-2315

26 October, 2023

**Proposed Parking Demand
Site Redevelopment
9-13 Water Street
Kittery, ME**

The purpose of this calculation is to identify the existing and proposed parking demand expected to be generated by the proposed site redevelopment at 9-13 Water Street in Kittery Maine. Currently the lot has three buildings containing restaurant use, lobster pound, and residential units. The proposed site redevelopment will reduce the restaurant space and add six more dwelling units. The lobster pound remains unchanged and is not included in the calculations. The net result of the changes is a decreased parking demand.

In developing the expected Parking Demand Ambit Engineering – Haley Ward considered the standard Parking Demand rates and equations published in the Institute of Transportation Engineers (ITE) Parking Generation Manual, 5th Edition. The land use category that best correlates with the proposed uses are Multifamily Housing (Low Rise) (ITE Land Use Code 220) and Quality Restaurant (ITE Land Use Code 931). The parking demand, based upon the number of dwelling units in the building and GFA of the restaurant is summarized below for the **Average Peak Period of Parking Demand:**

Parking Demand Summary - EXISTING

Peak Period of Demand

Multifamily Housing (Low Rise) (1.21 vehicles per unit)	<u>1.21 x 2 units = 3 vehicles</u>
Quality Restaurant (16.41 vehicles per 1,000 SF GFA)	<u>16.41 x 9.3 KSF = 153 vehicles</u>

Total Parking Spaces required 156 vehicles

Parking Demand Summary - PROPOSED

Peak Period of Demand

Multifamily Housing (Low Rise) (1.21 vehicles per unit)	<u>1.21 x 8 units = 10 vehicles</u>
---	-------------------------------------

Total Parking Spaces required 10 vehicles

Based on the calculation there is a significant decrease in parking demand with the redevelopment project.

Please feel free to call if you have any questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read 'JRC', with a long horizontal flourish extending to the right.

John R. Chagnon, PE - Project Manager
Ambit Engineering – Haley Ward

Land Use: 220 Multifamily Housing (Low-Rise)

Description

Low-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and with one or two levels (floors) of residence. Multifamily housing (mid-rise) (Land Use 221), multifamily housing (high-rise) (Land Use 222), and affordable housing (Land Use 223) are related land uses.

Time of Day Distribution for Parking Demand

The following table presents a time-of-day distribution of parking demand (1) on a weekday (10 study sites) and a Saturday (11 study sites) in a general urban/suburban setting and (2) on a weekday (three study sites) and a Saturday (three study sites) in a dense multi-use urban setting.

Hour Beginning	Percent of Peak Parking Demand			
	General Urban/Suburban		Dense Multi-Use Urban	
	Weekday	Saturday	Weekday	Saturday
12:00–4:00 a.m.	100	93	86	100
5:00 a.m.	97	100	100	94
6:00 a.m.	90	98	94	91
7:00 a.m.	77	96	81	85
8:00 a.m.	56	92	58	79
9:00 a.m.	45	80	56	76
10:00 a.m.	40	78	53	71
11:00 a.m.	37	71	58	74
12:00 p.m.	36	68	56	68
1:00 p.m.	36	66	53	68
2:00 p.m.	37	65	47	68
3:00 p.m.	43	68	56	56
4:00 p.m.	45	70	53	59
5:00 p.m.	55	73	61	53
6:00 p.m.	66	77	81	50
7:00 p.m.	73	81	67	56
8:00 p.m.	77	82	61	65
9:00 p.m.	86	86	64	74
10:00 p.m.	92	87	75	85
11:00 p.m.	97	92	86	91

Multifamily Housing (Low-Rise) (220)

Peak Period Parking Demand vs: Dwelling Units

On a: Weekday (Monday - Friday)

Setting/Location: General Urban/Suburban (no nearby rail transit)

Peak Period of Parking Demand: 11:00 p.m. - 6:00 a.m.

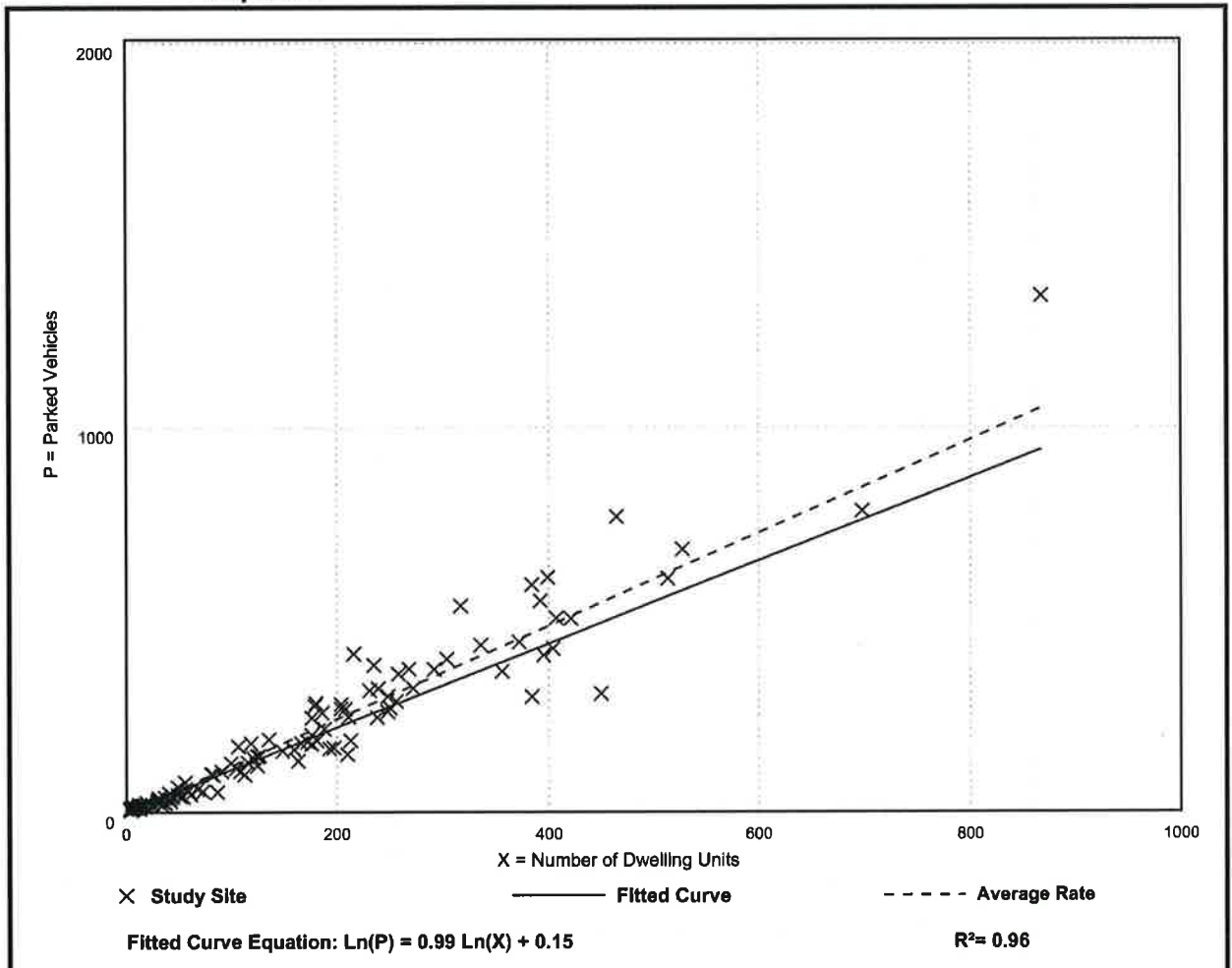
Number of Studies: 119

Avg. Num. of Dwelling Units: 156

Peak Period Parking Demand per Dwelling Unit

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
1.21	0.58 - 2.50	1.03 / 1.52	1.16 - 1.26	0.27 (22%)

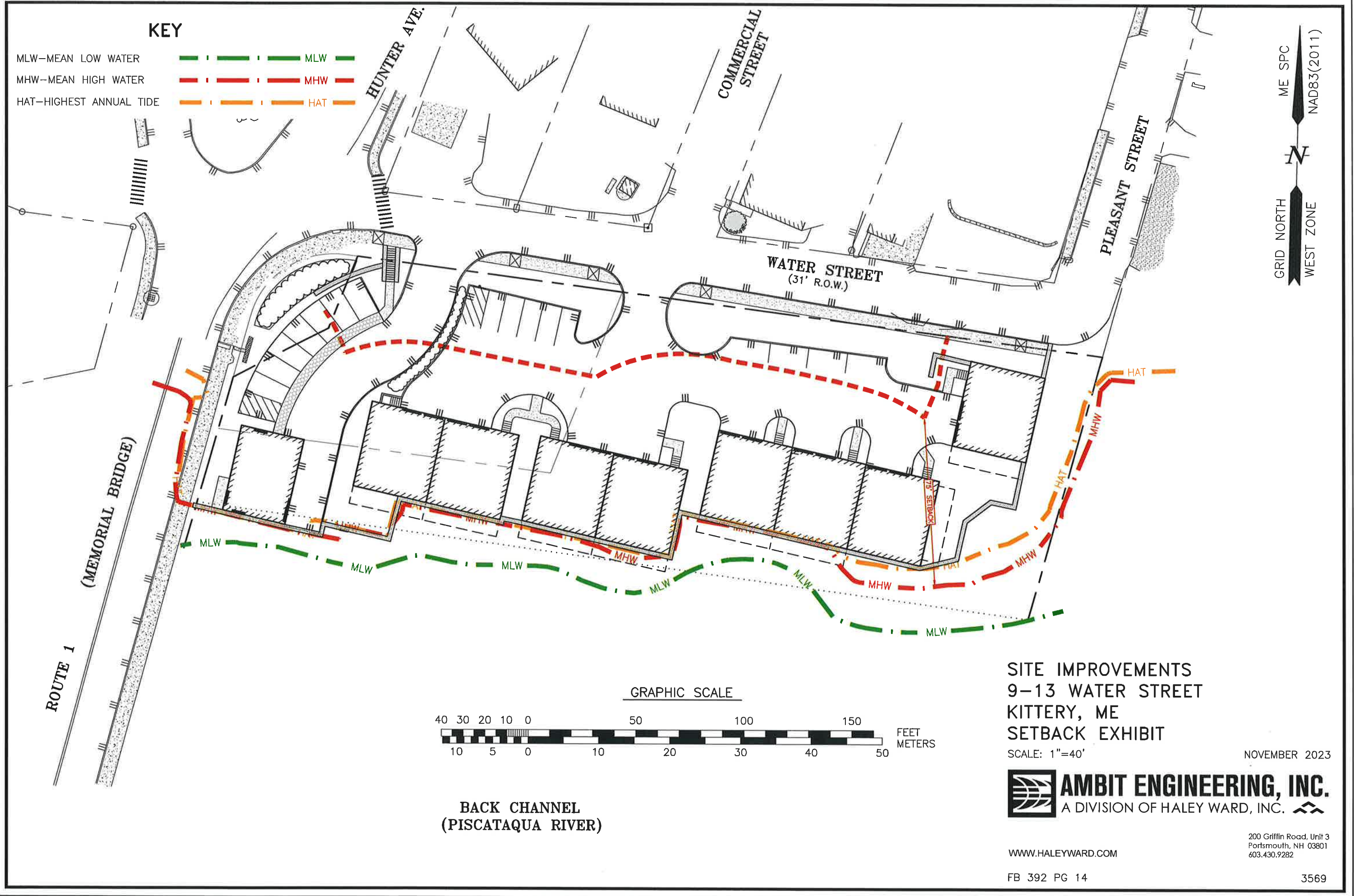
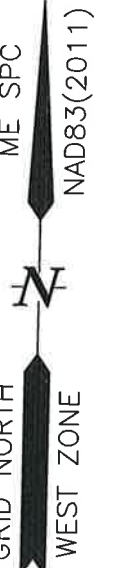
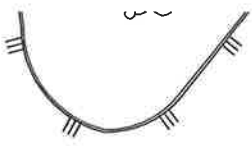
Data Plot and Equation



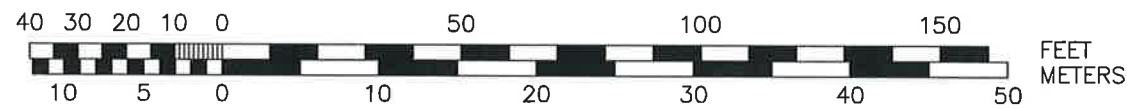
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KEY

- MLW—MEAN LOW WATER - - - - - MLW
- MHW—MEAN HIGH WATER - - - - - MHW
- HAT—HIGHEST ANNUAL TIDE - - - - - HAT



GRAPHIC SCALE



**BACK CHANNEL
(PISCATAQUA RIVER)**

**SITE IMPROVEMENTS
9-13 WATER STREET
KITTERY, ME
SETBACK EXHIBIT**

SCALE: 1"=40'




NOVEMBER 2023



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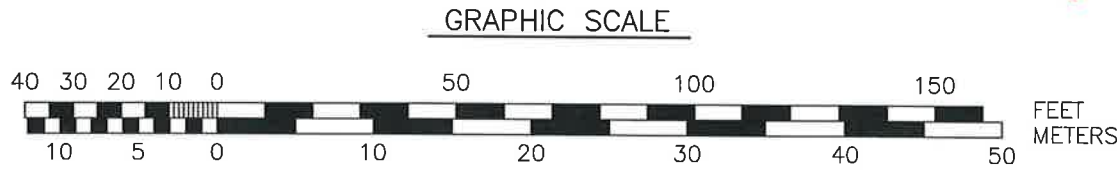
P:\NH\5010312-Green_&_Company\3569.02-11 Water St., Kittery-JRC\2023 Site Plan\Plans & Specs\Site\3569 Existing Conditions NEW 2023.dwg, 11/22/2023 3:29:48 PM, SHARP MX-3071 (0300380X00)

COLOR KEY	
EXISTING STRUCTURES	
EXISTING DECKS, FLOATS, & GANGWAYS	
EXISTING PAVEMENT	



GRID NORTH
WEST ZONE

ME SPC
NAD83(2011)



BACK CHANNEL
(PISCATAQUA RIVER)

SITE IMPROVEMENTS
9-13 WATER STREET
KITTERY, ME
COMPARISON EXHIBIT

SCALE: 1"=40'

NOVEMBER 2023

 **AMBIT ENGINEERING, INC.**
A DIVISION OF HALEY WARD, INC.

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200 Griffin Road, Unit 3
Portsmouth, NH 03801
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FB 392 PG 14

3569

11/17/2023

Lobster Pound

1154.500 (11/17/2023)

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11/17/2023

Lobster Pound

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11/17/2023

Lobster Pound

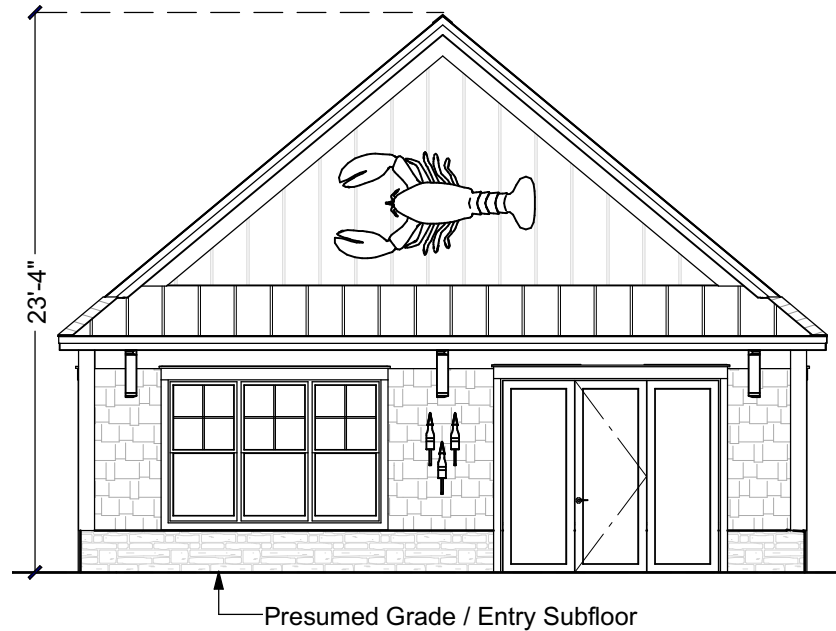
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Front Elevation
Scale: 1/8" = 1'-0"

11/17/2023

Lobster Pound

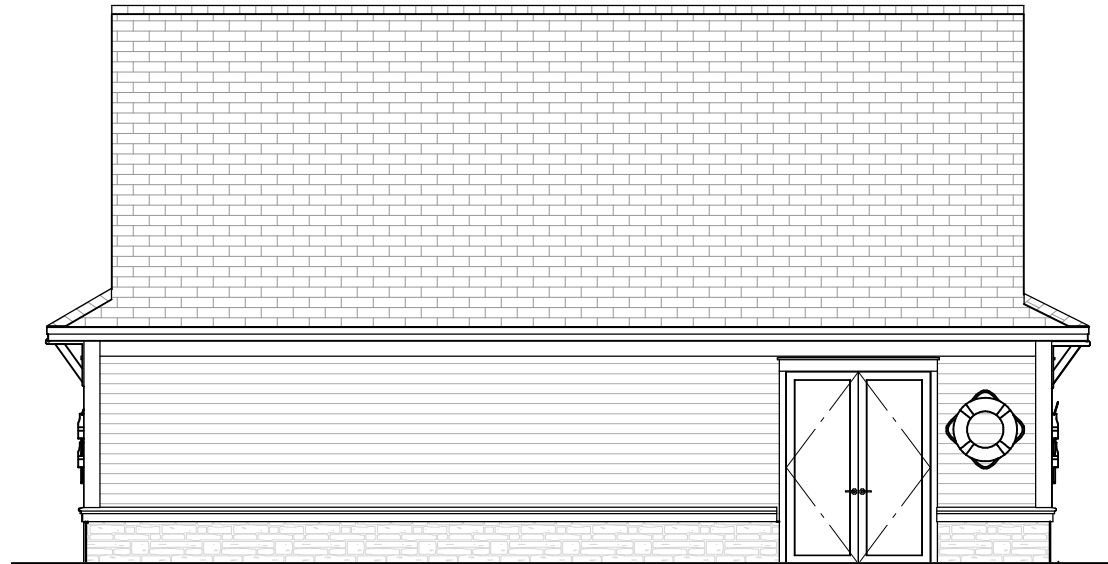
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Right Elevation

Scale: 1/8" = 1'-0"

11/17/2023

Lobster Pound

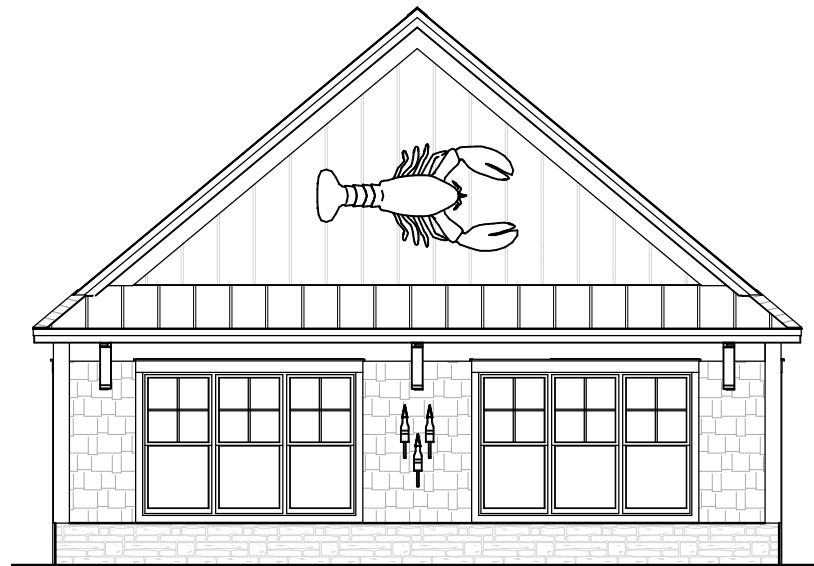
1154.500 (11/17/2023)

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Rear Elevation
Scale: 1/8" = 1'-0"

11/17/2023

Lobster Pound

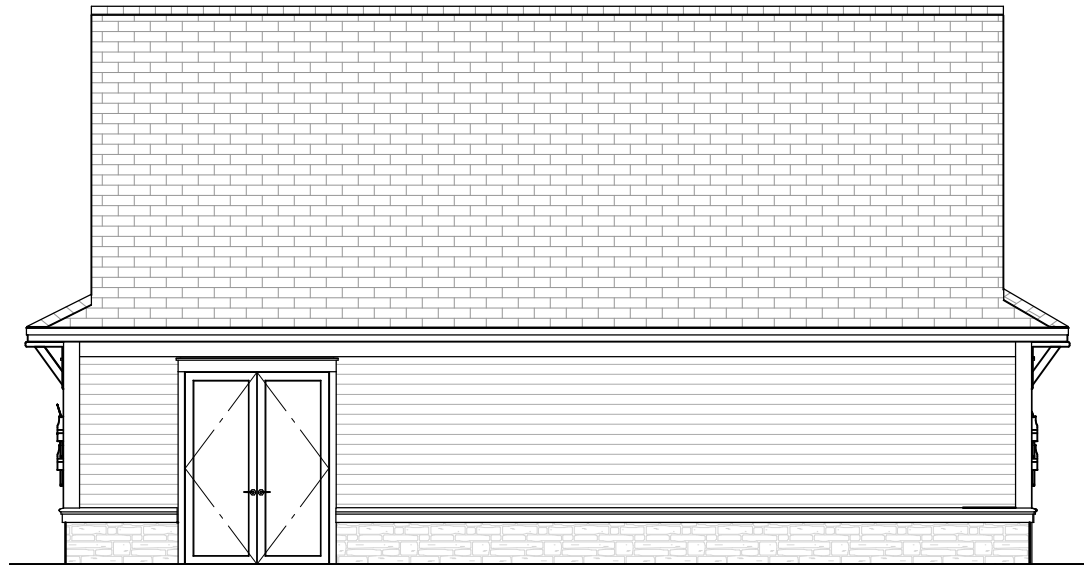
1154.500 (11/17/2023)

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Left Elevation
Scale: 1/8" = 1'-0"

10/26/2023

Plan Name TBD - Single Family - 9-13 Water St.

1150.120 - Side Balcony Alternate
(10/26/2023)

NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").

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10/26/2023

Plan Name TBD - Single Family - 9-13 Water St.

1150.120 - Side Balcony Alternate
(10/26/2023)

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Plan Name TBD 1150.120

10/26/2023

Plan Name TBD - Single Family - 9-13 Water St.

1150.120 - Side Balcony Alternate
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Front Elevation
Scale: 3/16" = 1'-0"

10/26/2023

Plan Name TBD - Single Family - 9-13 Water St.

1150.120 - Side Balcony Alternate
(10/26/2023)

NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").

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Right Elevation
Scale: 3/16" = 1'-0"

10/26/2023

Plan Name TBD - Single Family - 9-13 Water St.

1150.120 - Side Balcony Alternate
(10/26/2023)

NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").

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Rear Elevation
Scale: 3/16" = 1'-0"

10/26/2023

Plan Name TBD - Single Family - 9-13 Water St.

1150.120 - Side Balcony Alternate
(10/26/2023)

NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").

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Left Elevation
Scale: 3/16" = 1'-0"

10/26/2023
Plan Name TBD - Duplex - 9-13 Water St.
1150.220 (10/26/2023)

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Plan Name TBD 1150.220

10/26/2023
Plan Name TBD - Duplex - 9-13 Water St.
1150.220 (10/26/2023)

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Front Elevation
Scale: 3/16" = 1'-0"



Right Elevation
Scale: 3/16" = 1'-0"



Rear Elevation
Scale: 3/16" = 1'-0"



Left Elevation
Scale: 3/16" = 1'-0"

10/26/2023
Plan Name TBD - Triplex - 9-13 Water St.
1150.320 (10/26/2023)

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10/26/2023
Plan Name TBD - Triplex - 9-13 Water St.
1150.320 (10/26/2023)

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603-431-9559





Front Elevation
Scale: 1/8" = 1'-0"



Right



Left

Right & Left Elevations
Scale: 1/8" = 1'-0"



Rear Elevation
Scale: 1/8" = 1'-0"

11/20/2023

Plan Name TBD - 9-13 Water St.

Single Unit shown, height also applies to Duplex & Triplex units
(11/20/2023)

NOTE: To scale as noted only if printed on 11x17 paper with "no scaling" (do not "Fit").

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Front & Left Elevations

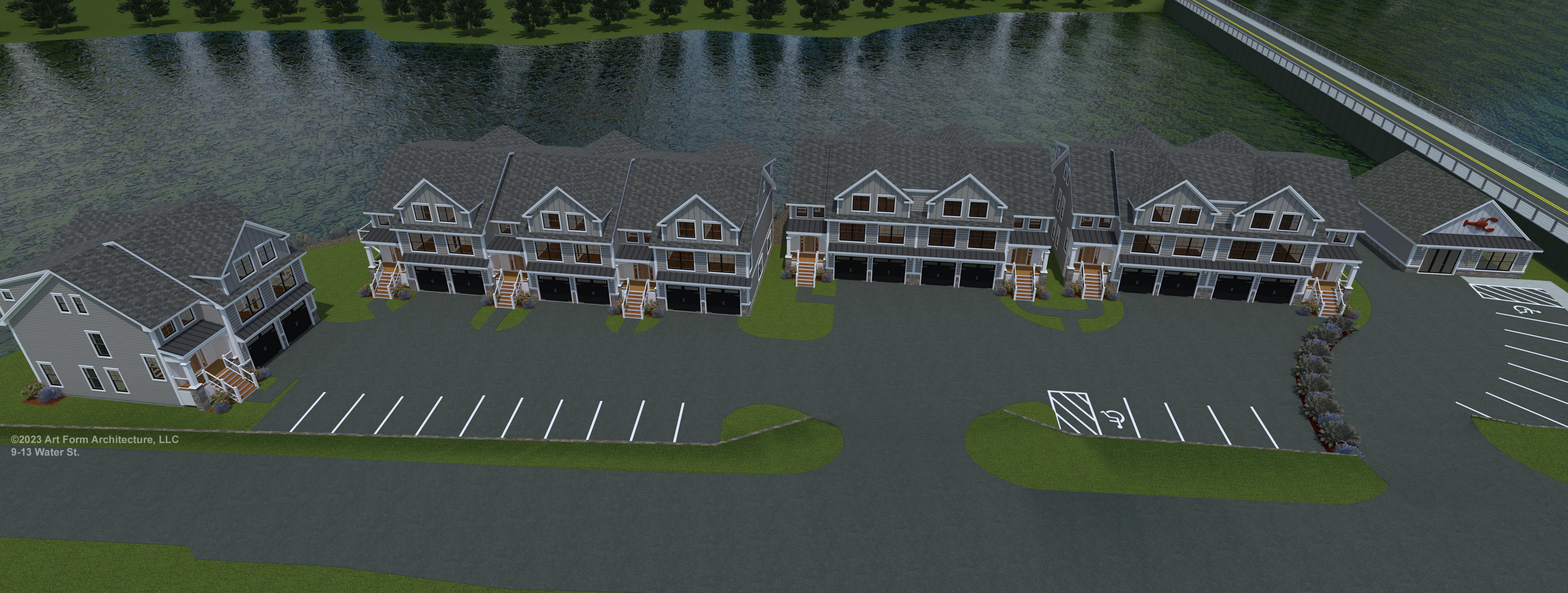
Scale: 1/8" = 1'-0"



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9-13 Water St.



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9-13 Water St.



200 Griffin Road, Unit 3, Portsmouth, NH 03801
Phone (603) 430-9282 Fax 436-2315

22 November 2023

Property Owner
Abutter to 9-13 Water Street Re-Development, Kittery Maine

**Re: Preliminary Site Plan Review and Shoreland Development Plan Applications
Tax Map 1, Lots 45 & 46, 9-13 Water Street, Kittery**

Dear Adjacent Property owner:

In accordance with town requirements, we hereby notify you that Green and Company Real Estate, by Agent Ambit Engineering – Haley Ward, has filed with the town for **Preliminary Site Plan Review and Shoreland Development** for the 9-13 Water Street project. The site is commonly referred to as Warren’s Lobster House. We asked the Planning Board that we be placed on the Agenda for the **Planning Board meeting on December 14, 2023**.

The applicant proposes to remove the existing structures and the wharf that the structures sit on and construct a 1,200 square foot commercial building (Lobster Pound) and 4 residential structures totaling 8 units. The site’s existing structure massing on the wharf would be moved landward and made smaller.

The application material is on file at the town. If you have any questions, comments, or concerns regarding this application please direct them to the Town of Kittery Planning Department office located at 200 Rogers Road, Kittery, Maine, 03904.

Sincerely,

John R. Chagnon, PE
Project Engineer
Ambit Engineering – Haley Ward

Ambit Engineering Abutter List

Green & Company
11 Water Street
Kittery, ME 03904

Job # 010312.3569.02

Applicant/Owner(s)

Map	Lot	Deed	Owner (s) First/Trust	Owner(s) Last, Trustee	Mailing Address	City	State	Zip
1	46	3325/0262	WLH Management Corporation	C/O Scott D. Cunningham	11 Water Street	Kittery	ME	03904
1	45	3325/0262	WLH Management Corporation	C/O Scott D. Cunningham	11 Water Street	Kittery	ME	03904
			Green & Company		PO Box 1297	North Hampton	NH	03862
Engineer			Ambit Engineering, A Division of Haley Ward		200 Griffin Road, Unit #3	Portsmouth	NH	03801

Job #	0312.3569.02		Abutters					
Map	Lot	Deed	Owner(s) First/Trust	Owner(s) Last /Trustee	Mailing Address	City	State	Zip
1	47-1	18811/0709	Diane	Cataldo	17 Water Street Unit 1	Kittery	ME	03904
1	47-2	15783/0020	Stephen T.	Swallow	131 River Street	West River	MA	01985
4	7	8971/0328	Carl A.	Schwartz	300 Wallis Road	Rye	NH	03870
4	8-1A	18321/0193	Christine M. Ouellet	Robert Ouellet	14 Commercial St. Unit A	Kittery	ME	03904
4	8-1B	14499/0157	Stephen E. Balazs JR.		24 Bayview Lane	Kittery	ME	03904
4	22	18634/0205	Kathleen	Maxfield	17 Commercial Lane	#REF!	ME	03904
4	23	17040/0074	Dorothy Atwood Trust	Joanne Bisson Trust	18 Pleasant Street	Kittery	ME	03904
4	23A	11458/0153	Timothy G. Lena	Rita C. Lena	14 Pleasant Street	Kittery	ME	03904-1621
4	36	8461/0282	Christopher	McTiernan	2125 Pine Street	Philadelphia	PA	19103-6513
4	201	18011/0563	Inhabitants of the Town of Kittery		200 Rogers Street	Kittery	ME	03904
1	1		Islander Condo Association					
1	2	19183/0281	Bradley J. & Sarah Burke	Honeyman	5 Island Avenue	Kittery	ME	03904
1	3	17711/0344	Barry J. Bush Trust	Flora M. Bush Trust	PO Box 595	Ogunquit	ME	03907
1	4	5911/0154	Jacquelyn Nooney Rev. Trust	Jacquelyn Nooney Trustee	9 Island Avenue	Kittery	ME	03904
1	8	18594/0754	Badgers Properties, LLC		30 Island Avenue	Kittery	ME	03904
1	9	16725/0834	Diane M. Knight Rev. Trust		28 Island Avenue	Kittery	ME	03904
1	10	15205/0575	Charles T. & Donna	Mitchell	PO Box 8600	Portsmouth	NH	03802
1	12	17849/0915	Sarah	Dennett	100 Dennett Road	Kittery	ME	03904
			Additional Abutters 150ft--v					
4	21	17655/0710	David F.	Pratt	15 Commercial Street	Kittery	ME	03804

Diane Cataldo
17 Water Street Unit 1
Kittery, ME 03904

Stephen T. Swallow
131 River Street
West River, MA 01985

Carl A. Schwartz
300 Wallis Road
Rye, NH 03870

Christine M. Ouellet & Robert Ouellet
14 Commercial St. Unit A
Kittery, ME 03904

Stephen E. Balazs JR.
24 Bayview Lane
Kittery, ME 03904

Kathleen Maxfield
17 Commercial Lane
Kittery, ME 03904

Dorothy Atwood Trust
Joanne Bisson Trust
18 Pleasant Street
Kittery, ME 03904

Timothy G. & Rita C. Lena
14 Pleasant Street
Kittery, ME 03904

Christopher McTiernan
2125 Pine Street
Philadelphia, PA 19103

Inhabitants of the Town of Kittery
200 Rogers Street
Kittery, ME 03904

Islander Condo Association
3 Island Avenue
Kittery, ME 03904

Bradley J. & Sarah Burke Honeyman
5 Island Avenue
Kittery, ME 03904

Barry J. Bush Trust
Flora M. Bush Trust
PO Box 595
Ogunquit, ME 03907

Jacquelyn Nooney Rev. Trust
Jacquelyn Nooney Trustee
9 Island Avenue
Kittery, ME 03904

Badgers Properties, LLC
30 Island Avenue
Kittery, ME 03904

Diane M. Knight Rev. Trust
28 Island Avenue
Kittery, ME 03904

Charles T. & Donna Mitchell
PO Box 8600
Portsmouth, NH 03802

Sarah Dennett
100 Dennett Road
Kittery, ME 03904

David F. Pratt
15 Commercial Street
Kittery, ME 03904

Michael J. Stutzman
13 Commercial Street
Kittery, ME 03904

Steven A. Smestad
PO Box 4333
Portsmouth, NH 03802

Ruth I. Lawrence Rev. Trust
Ruth I. Lawrence Tr.
21 Lynch Lane
Kittery Point, ME 03905

Robbin M. Ray
14 Paulette Drive
Danvers, MA 01923

Finnian & Co, LLC
One Middle Street Suite #1
Portsmouth, NH 03801

Holly Landgarten
20 Newmarch Street
Kittery, ME 03904