Town of Kittery
Planning Board Meeting
July 11, 2019

ITEM 3 – 76 Dennett Road – Mixed-Use Residential Development – Site Preliminary Plan Review
Action: Accept or deny application. Schedule public hearing. Owners William J. Cullen and Sail Away, LLC and applicant William Wharff request consideration of a mixed-use residential development on 23.3+- acres of land at 76 Dennett Road (Tax Map 6 Lots 15B & 16A and Tax Map 13, Lot 4) in the Mixed Use - Neighborhood (MU-N) Zone. Agent is Shawn Tobey, P.E. Hoyle, Tanner Associates, Inc.

PROJECT TRACKING

REQ'D	ACTION	COMMENTS	STATUS
YES	Sketch Plan Acceptance/Approval	5/9/20-19 Meeting	APPROVED
NO	Site Visit		
YES	Preliminary Plan Review Completeness/Acceptance	Scheduled for 7/11/2019 Meeting	PENDING
YES	Public Hearing		
YES	Preliminary Plan Approval		
YES	Final Plan Review and Decision		
Applicant: Prior to the signing of the approved Plan any **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.			

Background

This is now a preliminary plan review for completeness and acceptance. The site consists of three (3) parcels totaling 23.3 +- acres which will be merged for the proposed development. The development proposes one four-story mixed-use residential building with 3,000 sf of mercantile space along Dennett Road, two four-story residential buildings at the rear of the site, a 5,250 sf amenity building, and five covered parking structures in various locations in the parking lot.

The residential buildings will have a mix of studio, one-bedroom and two-bedroom units totaling 303 dwelling units. The design includes the construction of a private roadway, parking lots totaling 401 spaces, landscaping, sidewalks, a pool and outdoor amenity space, a nature trail, supporting utilities and drainage infrastructure.

At the May 9 meeting, the Board accepted and approved the sketch plan for the proposed development.

Staff Review

Mixed-Use Requirements

1. All of the proposed uses are permitted in the newly created MU-N Zone. The residential units comply with the minimum land area per dwelling unit – mixed-use building and multiunit residential requirements.

Net Residential Acreage / Density

The MU-N Zone is exempt from Title 16.7.8.2 Net Residential Acreage Calculation but is subject to the minimum land area per dwelling unit as defined in Chapter 2 Definitions except that 50% of all wetlands may be subtracted, rather than 100%. As shown on sheet C5 Overall Site Plan, the proposed development meets the land area per dwelling unit calculations of the MU-N Zone.

Parking Requirements

2. Per Section 16.3.2.10.F. (4) (d) [1] and [2], *Parking for development that includes trails and low intensity recreation: Development that includes the creation of public trails and low intensity recreational opportunities such as wildlife observation stations or boardwalks may apply the pertinent off-street parking standards below. All other off-street parking standards as found in § 16.8.9.4 shall apply.*

   Multiunit residential buildings and mixed-use buildings that include residential.
   - *One parking space for studio and one-bedroom dwelling units.*
   - *One and one-half parking spaces for two-bedroom dwelling units plus one guest parking space per every four dwelling units.*
   - *Parking spaces for more-than-two-bedroom dwelling units.*

3. Parking calculations are listed on sheet C5 of the preliminary plans. The development will provide a total of 401 spaces:
   a. Front Building = 114 spaces
   b. Rear Buildings = 287 spaces

The provided parking meets and exceeds the Ordinance requirements.

Landscaping, Screening and Buffers

4. The landscaping, screening and buffering details are provided on sheets C17 and C18. The proposed development will be generously landscaped and appears to meet the requirements of the MU-N zone.

Wetlands / Open Space

5. The existing property contains wetlands and a vernal pool. Per the regulations for the MU-N zone, the wetlands and vernal pool were reviewed by Longview Partners, LLC as a third-party reviewer in April 2019. The review found the wetlands delineation to be accurate and within the normal range of best professional judgement and consistent with wetlands delineation standards.

   Staff researched the question regarding previously approved wetlands impacts. On February 14, 2002, the Planning Board approved the site plan for a Professional and Business Park proposed by William Cullen which permitted approximately 1600 sf of total wetlands fill, primarily for a road crossing of wetlands. A permit will be required for a modification to the previously approved wetlands crossing and for disturbance to the vernal pool buffer (250’). There will be no disturbance within the vernal pool buffer (100’) or the wetlands. The wetlands, vernal pool and property lines shown on the preliminary plan are based on actual survey data. Sheet C5 Overall Site Plan contains Vernal Pool Buffer Calculations, which includes 24,535 sf of buffer restoration.

6. Open space meeting the requirements of the zone will be provided (73.5% of the parcel) which will include a nature loop trail with wildlife viewing stations for passive recreation for the development. An Amenities building (Building 4) and an outdoor pool are also proposed to provide recreational use for the residents of the property.

Utilities / Site Improvements

7. The plans show detailed information regarding utilities that will service the site development. Water, gas, electrical and telecommunication lines will be extended from Ranger Drive along Dennett Road to serve the site. They will be constructed underground underneath the proposed private roadway. Existing sewer is located at the rear of the property and will be extended onto and throughout the site underneath the roadway.

   The applicant's engineer has met with the Kittery Water District and the Kittery Sewer Department and letters are provided to confirm they both have adequate capacity for the proposed development.

   Proposed Fire Department connections are shown and noted on the plans. The Fire Chief has reviewed the plans for fire service during staff technical review and will be providing comment as the project moves through Preliminary Plan review.

Stormwater Management

8. Under Section 16.10.5.2.C supporting documentation must include a stormwater management plan. The applicant has submitted a Drainage Narrative to comply with Maine Department of Environmental Protection (MEDEP) Stormwater Site Location of Development Law.

   According to the narrative, "The drainage design utilizes the existing hydrologic and hydraulic patterns, minimizes impacts to surrounding areas, and uses Maine's Best Management Practices (BMPs) to provide effective pollutant removal, stormwater cooling, channel protection, and flood control for pre-development and post-development peak runoff rates for the proposed site development."

   A copy of the narrative has been forwarded to CMA Engineers for their review and comment. The narrative and grading and drainage plans are also being reviewed by the Town's Stormwater Coordinator in coordination with DPW.

   Jessa Kellogg, Shoreland Resource Officer/Stormwater Coordinator has provided a memorandum (attached) with hers and Public Works Commissioner David Rich's initial comments regarding the stormwater management plans. In the memo, they have also provided comments relative to proposed sidewalk along Dennett Road.

Other Reviews

9. The Board will find included in the packets for this item a letter from CMA Engineers with their initial review comments on the preliminary plans for conformance with Title 16 and general engineering practices.

10. Jessa Kellogg, Interim Code Enforcement Officer, has also provided a memorandum regarding her initial building code review conceptual floor plans that have been submitted.

Recommendation / Action

Preliminary Plan review begins the formal permitting process for a site plan / subdivision. The application and plans are complete for acceptance purposes and sufficient to schedule a public hearing.

Move to accept and approve the site preliminary plan, dated June 20, 2019 as prepared by Hoyle, Tanner & Associates, Inc., for owners William J. Cullen and Sail Away, LLC and applicant William Wharff for a mixed-use residential development on 23.3+- acres of land at 76 Dennett Road (Tax Map 6 Lots 15B & 16A and Tax Map 13, Lot 4) in the Mixed Use - Neighborhood (MU-N) Zone.

Move to schedule a public hearing on {date} on the site preliminary plan, dated June 20, 2019 as prepared by Hoyle, Tanner & Associates, Inc., for owners William J. Cullen and Sail Away, LLC and applicant William Wharff for a mixed-use residential development on 23.3+- acres of land at 76 Dennett Road (Tax Map 6 Lots 15B & 16A and Tax Map 13, Lot 4) in the Mixed Use - Neighborhood (MU-N) Zone.

TOWN OF KITTERY

Department of Public Works
200 Rogers Road, Kittery, ME 03904
Telephone: 207-439-0333 Fax: 207-439-6816

MEMORANDUM

Meeting Date: July 2, 2019

From: David Rich, Public Works Commissioner
Jessa Kellogg, Shoreland Resource Officer/Stormwater Coordinator

Subject: Review of Preliminary Plan for 76 Dennett Road

PUBLIC WORKS COMMENTS

The proposed mixed-use development project is within the Town's urbanized area and is subject to MS4 review and oversight at the town level in addition to any required DEP permitting. The plans appear to show sufficient stormwater management for the site, including adequate erosion and sedimentation control measures and three wet ponds with two ponds discharging stormwater to the rear of the property. The first wet pond and existing wetland pocket at the front of the property discharge to two culverts under Dennett Road which triggers Title 16.8.8.2 Post-construction stormwater management criteria. Appendix G Inspection and Maintenance Manual in the Drainage Narrative dated June 20, 2019 does not meet these criteria for annual reporting to the Town. It is recommended that the applicant work with staff to ensure the annual inspection and reporting requirements are fully incorporated into Association documents.

Sidewalks are required per Table 1 of Title 16.8. The preliminary plans show a sidewalk running the length of the property from the entrance northwest along Dennett Road, however no sidewalk is shown on the southeast side of Dennett Road. At a pre-application meeting the applicant had considered installing a crosswalk at the entrance to connect to a sidewalk on the opposite side of the road running the length of the property. There is a sidewalk further down on the west side of Dennett Road that the Town could connect to in the future so would like to see the applicant install this crosswalk and portion of sidewalk. The applicant had also considered contacting Coast bus services about adding a bus stop at the entrance of the development, has this happened? Though not required, if a stop is added this will impact how the sidewalk is configured.

TOWN OF KITTERY
Code Enforcement Office
200 Rogers Road, Kittery, ME 03904
Telephone: 207-475-1308 Fax: 207-439-6806

MEMORANDUM

Meeting Date: July 2, 2019

From: Jessa Kellogg, Interim Code Enforcement Officer

Subject: Review of Preliminary Plan for 76 Dennett Road

The conceptual floor plans submitted show three sizes of units, including studios averaging 650SF, 1-bed averaging 710SF and 2-bed averaging 900SF. It is not clear if these sizes meet the dwelling unit minimum requirements and what is meant by averaging. Are all of the unit types not the same square footage? Per the definition of a dwelling unit in Title 16.2.2, each unit must comprise at least 650 square feet of habitable floor space. While "habitable floor space" is not specifically defined in Town Code, Title 16.2.1 states that except where specifically defined in this chapter, all words in this title carry their customary dictionary meanings. Code Enforcement staff consistently defers to State-level definitions for building code related definitions. The State of Maine has adopted the 2015 International Building Code (IBC) as part of the Maine Uniform Building and Energy Codes (MUBEC), therefore Code staff would look to the definition of habitable space and habitable room area (i.e. bedroom) as defined in the IBC for the customary definition used State-wide (see below for excerpted definitions). The plans list "MEP, T/D, and CTL" without a key to understand what those spaces in the building are for.

2015 INTERNATIONAL BUILDING CODE, CHAPTER 2 DEFINITIONS

HABITABLE SPACE – A space in a building for living, sleeping, eating or cooking. Bathrooms, toilet rooms, closets, halls, storage or utility spaces and similar areas are not considered habitable spaces.

FLOOR AREA, NET – The actual occupied area not including unoccupied accessory areas such as *corridors, stairways, ramps*, toilet rooms, mechanical rooms and closets. (Italicized print further defined in IBC Definitions chapter)

2015 INTERNATIONAL BUILDING CODE, CHAPTER 12 INTERIOR ENVIRONMENT

Section 1208.3 Room area.
Every *dwelling unit* shall have no fewer than one room that shall have not less than 120 square feet (11.2m squared) of *net floor area*. Other habitable rooms shall have a *net floor area* of not less than 70 square feet (6.5m squared).

Exceptions: Kitchens are not required to be of a minimum floor area.

CMA ENGINEERS, INC.
CIVIL | ENVIRONMENTAL | STRUCTURAL

35 Bow Street
Portsmouth, New Hampshire
03801-3819

P: 603|431|6196
www.cmaengineers.com

July 2, 2019

Jamie Steffen, Town Planner
Town of Kittery
200 Rogers Road
Kittery, Maine 03904

RE: Town of Kittery, Planning Board Services
Mixed-Use Development Proposal – 76 Dennett Road
Lots 6-15B, 6-16A, 13-4
Preliminary Plan Approval Application
CMA #591.125

Dear Jamie:

CMA Engineers has received the following information for Assignment #125, review of the Mixed-Use Development at 76 Dennett Road (Tax map Lots 6-15B, 6-16A, and 13-4):

1) Proposed Mixed-Use Residential Development Project plans prepared by Hoyle Tanner and Associates of Portsmouth, NH dated June 20, 2019.
2) Architectural elevations and sketches of proposed buildings, prepared by CUBE3 of Lawrence MA, dated June 11 and 17, 2019.
3) Drainage Narrative for Proposed Mixed-Use Residential Development Project plans prepared, by Hoyle Tanner and Associates Dated June 20, 2019.
4) Transmittal letter signed by Shawn Tobey, P.E.; letter from Kittery Water District dated May 30, 2019; letter from Kittery Sewer Department dated May 23, 3019.

We have reviewed the information submitted for conformance with the Kittery Land Use and Development Code (LUDC) and general engineering practices and offer the comments below that correspond directly to the Town's Ordinances.

<u>Background</u>

The proposed project includes is in the recently established Mixed-Use-Neighborhood District. It is located on over 23 acres north of 76 Dennett Road between Dennett Road, I-95, and a utility easement. There are three existing lots that are proposed to be combined into a single lot. This significant project includes three major buildings as follows:

Building 1: A 4-story mixed-use building near Dennett Road with 64 residential units and 3,000 sf of commercial space on the first floor,

Building 2: A two-part 4-story residential building with 150 residential units,

Building 3: A 4-story residential building with 89 residential units.

There are several other garages and associated structures, a pool, and other amenities.

A total of 303 residential units are proposed; primarily studio apartments, and 1- and 2-bedroom apartments.

The development is proposed in two general sections: an area near Dennett Road, and an area approximately 600 feet east of Dennett Road. An on-site roadway is proposed to connect these areas. In addition to internal sidewalks, sidewalks are also proposed to connect to Dennett Road.

The project includes service by full utilities, including public water and sewer, power, gas, and communications.

Stormwater management is proposed using three major stormwater treatment units, connected to site features by drainage pipes.

There are wetlands on the site, including a vernal pool. No direct impacts to or filling of wetlands are included.

16.3 Zoning Regulations

16.3.2.10 Mixed-Use Neighborhood (MU-N)
B. The proposed uses, business and professional offices and Multiunit dwellings are permitted uses

F. (1), (2), (3) Standards including land area, Dimensional standards and setbacks, Impervious Cover, Dimensional Standards.
The provisions of these requirements are met with the proposed development

F. (4) Parking

- Part of the parking for Building 1. Is in the front of the building, which requires review and confirmation and approval of the Planning Board.
- There are 401 proposed parking spaces (114 for Building 1. and 287 for Buildings 2. and 3.) This number exceeds the calculated requirements for parking by the various residential and commercial uses.

F. (8) Building design standards

- This section references the Kittery Design Handbook. We have not evaluated the design with respect to the Handbook.
- We note that the buildings are large in area and height and would be the largest multi-unit residential structures in Kittery.
- It is described, but not graphically shown that the building height meets the 50’ standard.
- Flat roofs are proposed.

F. (9) Landscaping, Screening and buffers

(a) The landscaping plan appears not to have been prepared by a registered landscape architect. It is detailed, with extensive plantings with multiple species. The applicant should describe how the plan was developed, and the qualifications of the designer. The Planning Board may desire a landscape architects design input, as provided in this provision of the ordinance.

(b) *(3)* This standard requires that a minimum of 10% pf surface parking areas be landscaped with trees and vegetated islands. No such vegetated features are not included in the design. There are light poles extending into the parking area. Perhaps these could be expanded to include vegetation. There may be other ways to comply with the requirement.

F. 10 Open Space

- The site plan includes significant areas of open space. Much of it is wetlands, including the vernal pool. However, it is not designated with notes dedicating it as open space.

- The plan does include a limited network of walking trails.

16.8 Design and Performance Standards-Built Environment

Article IV. Streets and Pedestrian Ways

While average daily trip counts are not given, this is proposed as an on-site roadway, so no Street standard technically applies. However, it would have a traffic count of over 1,000 vpd, so a "primary collector" street standard would apply.

The on-site roadway is proposed with 12' lanes, vertical granite curbing, and a separated 5' sidewalk. This section appears satisfactory for the intended purposes.

The sight distance at Dennett Road is probably satisfactory due to grade and street alignment, but it should be reported.

The applicant acknowledges that a Maine DOT Traffic Movement Permit (TMP) is required and is being applied for. Documentation of this should be submitted to Kittery.

The applicant states that a full traffic study will be submitted to Kittery as the TMP process is more developed and scoped.

Article VI Water Supply

- The project is to be served by an extension of the Kittery Water District's system. The KWD has indicated its ability to supply the quantity of water required.

- The KWD suggests that booster pumping may be required to serve all the locations and elevations. How is that final decision going to be made? No provisions are currently made on the site plan for such facilities if needed.

- Has the separate fire supply line sizing been conformed? Has the KWD reviewed the details?

Article VII Sewage Disposal

- Conventional sewer services and sewerage layouts have been incorporated. The system ties into a sewer manhole on what appears to be a KWD interceptor. For clarity, the applicant should provide additional schematic details indicating how piping goes from that connection to the WWTP.

- Has the Kittery Sewer Department reviewed the design?

Article VIII. Surface Drainage

The stormwater management plan includes three major stormwater BMPs. So called "Wet ponds" are proposed to hydraulically control flows, and to treat stormwater. The layout is logical and fits into the existing topography and flow patterns well.

We have completed a brief review of the drainage narrative but have not evaluated it in detail. A more complete evaluation will be completed as part of the final design submittal.

We note that the applicant is commencing a Maine DEP Site Location of Development (SLOD) review. This is a comprehensive review of drainage and stormwater, wetlands, and other factors.

16.9 Design and Performance Standards-Natural Environment

Article II. Retention of Open Spaces and Natural or Historic Features

- Has there been any evaluation of the presence of historically significant sites or resources; or archaeological sources on the property?

Should you have any questions, please do not hesitate to call.

Very truly yours,

CMA ENGINEERS, INC.

William A. Straub, P.E.
Project Manager

cc: Shawn Tobey, P.E., HTA

TOWN OF KITTERY

Sewer Department
200 Rogers Road
Kittery, ME 03904
Telephone: (207) 439-4646 Fax: (207) 439-2799
E-mail: tbabkirk@kitteryme.org

May 23, 2019

Shawn M. Tobey
Hoyle, Tanner & Associates
100 International Drive, Suite 360
Portsmouth, NH 03801

Dear Mr. Tobey:
Per your request the Town of Kittery Maine Sewer Department has reviewed your plans for the project at 76 Dennett Road in Kittery.

The Kittery wastewater Treatment Plant has a monthly average flow limitation of 2.5 MGD. The Treatment Plant continues to operate with a monthly average flow around 1.0 MGD.

My calculations for the Dennett Road Project have come out to an estimated 37,800 GPD which keeps the Treatment plant well within our Permit limit.

As the Superintendent of Sewer Services for the Town of Kittery we welcome the additional flow and wish you luck on your project.

Timothy Babkirk
Superintendent of Sewer Services
Town of Kittery, Maine

OFFICE OF

KITTERY WATER DISTRICT

17 State Road
Kittery, Maine 03904-1565
TEL: 207-439-1128
FAX: 207-439-8549
Email: kitterywater@comcast.net

Kittery Planning Board
200 Rogers Road
Kittery, ME 03904

May 30, 2019

Re: Sail Away, LLC – 76 Dennett Road, Kittery Proposed Development

Dear Planning Board Members,

Please accept this letter as verification that the Kittery Water District does have the capacity to supply municipal water service for both domestic and fire protection to 76 Dennett Road, Kittery where three 4 story apartment buildings are proposed. Due to the elevation of the property and the elevation of the top floor of the buildings, pressure pumps on both the domestic and fire service may be required to provide adequate water pressure.

Sincerely,

Michael S. Rogers

Michael S. Rogers
Superintendent

cc: Shawn M. Tobey, P.E. Project Manager, Hoyle, Tanner & Associates, Inc.

June 20, 2019

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Drive, Suite 360
Portsmouth, New Hampshire 03801
603-431-2520
603-431-8067 fax
www.hoyletanner.com

Adam Causey, AICP
Town of Kittery
200 Rogers Road
Kittery, ME 03904

Re: Application for Site Review
Proposed Mixed-Use Residential
Development Project
76 Dennett Road, Kittery, ME 03904

Dear Mr. Causey,

On behalf of Aztec LLC, Hoyle, Tanner and Associates (Hoyle, Tanner) is pleased to submit this application for site review of the proposed development at 76 Dennett Road. The development includes the construction of a four (4) story mixed-use residential building with 3,000 S.F. of mercantile space along Dennett Road, two (2) residential buildings each four (4) stories at the rear of the site, an amenity building, and five (5) covered parking structures. The residential buildings will have a mix of studio, one bedroom and two bedroom units totaling 303 dwelling units. The design also includes the construction of a new private roadway, parking lots totaling 401 spaces, landscaping, sidewalks, pool, outdoor amenity space, nature trail, supporting utilities, and drainage infrastructure to support the development.

The drainage systems for the new development have been designed to meet all current Maine Department of Environmental Protection (Maine DEP) Chapter 500 regulations and feature deep sump catch basins, sediment forebays and wet ponds. Included in this submittal is a Drainage Narrative for the project.

A Maine DEP Site Location of Development Permit Application (SLODA) and a Maine DOT Traffic Movement Permit (TMP) will be submitted concurrently with the Town of Kittery Site Review process. The SLODA will include all stormwater and wetland permitting. Wetland permitting is required for the vernal pool and stream buffer impacts as well as the wetland crossing for the road. Traffic information is not included in this submission and will be sent once Hoyle, Tanner has met with DOT for a scoping meeting. The Town will be copied on all correspondence with Maine DEP and DOT.

Offsite utility infrastructure will be constructed to support the proposed development. Water, gas, electrical and telecommunication lines will be extended from Ranger Drive to the north along Dennett Road to serve the site. Existing sewer is located at the rear of the property. Hoyle, Tanner has met with the Kittery Water District and Kittery Sewer Department to confirm they both have adequate capacity for a project of this size.

Sincerely,

HOYLE, TANNER & ASSOCIATES, INC.

Shawn Tobey

Shawn M. Tobey, P.E.
Project Manager

TOWN OF KITTERY, MAINE
TOWN PLANNING AND DEVELOPMENT DEPARTMENT

200 Rogers Road, Kittery, Maine 03904
PHONE: (207) 475-1323 - FAX: (207) 439-6806
www.kittery.org

APPLICATION: SITE PLAN REVIEW

FEE FOR SITE PLAN REVIEW:	☒ $300. 00 PLUS THE GREATER OF:	☐ $50/USE OF UNIT; OR	☐ $5.00/100 SQ FT OF GROSS FLOOR AREA	Application Fee Paid: $______ Date: 6/20/2019
		☐ $0.50/LINEAR FOOT OF DOCK, SLIP & FLOAT; OR	☐ $20.00/ UNIT INTENDED TO PROVIDE OVERNIGHT SLEEPING ACCOMODATIONS	ASA Fee Paid: (TITLE 3.3 TOWN CODE) $______ Date:______

PROPERTY DESCRIPTION							
Parcel ID	Map	6 6 13	Lot	15B 16A 4	Zone: Base: Overlay: MS4:	(MU-N) Mixed Use-Neighborhood N/A ___ YES _X_ NO	Total Land Area (Square Feet): 1,016,467
Physical Address	76 Dennett Road, Kittery, ME 03904						

PROPERTY OWNER'S INFORMATION			
Name	William J Cullen	Mailing Address	12 Roseberry Lane Kittery, ME 03904
Phone	(207) 252-1437		
Fax	N/A		
Email	wmjcullen@gmail.com		

APPLICANT INFORMATION
Aztec LLC
C/O: William Wharff
wjwharff@gmail.com
(617) 767-1897
62 Portland Road, Suite 25
Kennebunk, ME 04043

APPLICANT'S AGENT INFORMATION			
Name	Shawn Tobey, P.E.	Name of Business	Hoyle, Tanner & Associates, Inc.
Phone	(603) 431-2520, ext 29	Mailing Address	Pease International Tradeport 100 International Drive, Suite 360 Portsmouth, NH 03801
Fax	(603) 431-8067		
Email	stobey@hoyletanner.com		

PROJECT DESCRIPTION

Existing Use: The site is mostly wooded with a gravel access road. There is a small gravel lot that is used as a lay down area for large materials.

Project Name: Proposed Mixed-Use Residential Development Project

Proposed Use: The applicant, Aztec, LLC, is proposing to construct a four (4) story mixed-use residential building with 3,000 S.F. of mercantile space along Dennett Road, two (2) residential buildings each four (4) stories at the rear of the site, an amenity building, and five (5) covered parking structures. The residential buildings will have a mix of studio, one bedroom and two bedroom units total of 303 dwelling units. The design also includes the construction of a new private roadway, parking lots totaling 401 spaces, landscaping, sidewalks, pool, outdoor amenity space, nature trail, supporting utilities, and drainage infrastructure to support the development.

WAIVER REQUEST

DESCRIPTION	Ordinance Section	Describe why this request is being made.
	****EXAMPLE**** 16.32.560 (B)- OFFSTREET PARKING.	****EXAMPLE**** Requesting a waiver of this ordinance since the proposed professional offices have a written agreement with the abutting Church owned property to share parking.
	None Proposed	

Related Kittery Land Use Code concerning waivers and modifications:

16.10.8.2.5 Conditions or Waivers.
Conditions required by the Planning Board at the final plan review phase must have been met before the final plan may be given final approval unless so specified in the condition or specifically waived, upon written request by the applicant, by formal Planning Board action wherein the character and extent of such waivers which may have been requested are such that they may be waived without jeopardy to the public health, safety and general welfare.

16.7.4.1 Objectives Met. In granting modifications or waivers, the Planning Board must require such conditions as will, in its judgment, substantially meet the objectives of the requirements so waived or modified.

I certify that, to the best of my knowledge, the information provided in this application is true and correct and will not deviate from the plans submitted without notifying the Kittery Planning Department of any changes.			
Applicant's Signature: Date:	[signature] 12 JUNE 2019	Owner's Signature: Date:	[signature] 10/12/2019

COMPLETED BY OFFICE STAFF

ASA CHARGE	AMOUNT	ASA CHARGE	AMOUNT
REVIEW		**SERVICES**	
LEGAL FEES (TBD)		RECORDER	$35
ENGINEERS REVIEW (TBD)		FACT FINDING (TBD)	
ABUTTER NOTICES		3RD PARTY INSPECTIONS (TBD)	
POSTAGE	$20	OTHER PROFESSIONAL SERVICES	$50
LEGAL NOTICES		**PERSONNEL**	
ADVERTISING	$300	SALARY CHARGES IN EXCESS OF 20 HOURS	
SUPPLIES			
OFFICE	$5		
SUB TOTAL		SUB TOTAL	
		TOTAL ASA REVIEW FEES	

SITE DEVELOPMENT PLANS

FOR A

PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT

76 DENNETT ROAD
KITTERY, ME 03904

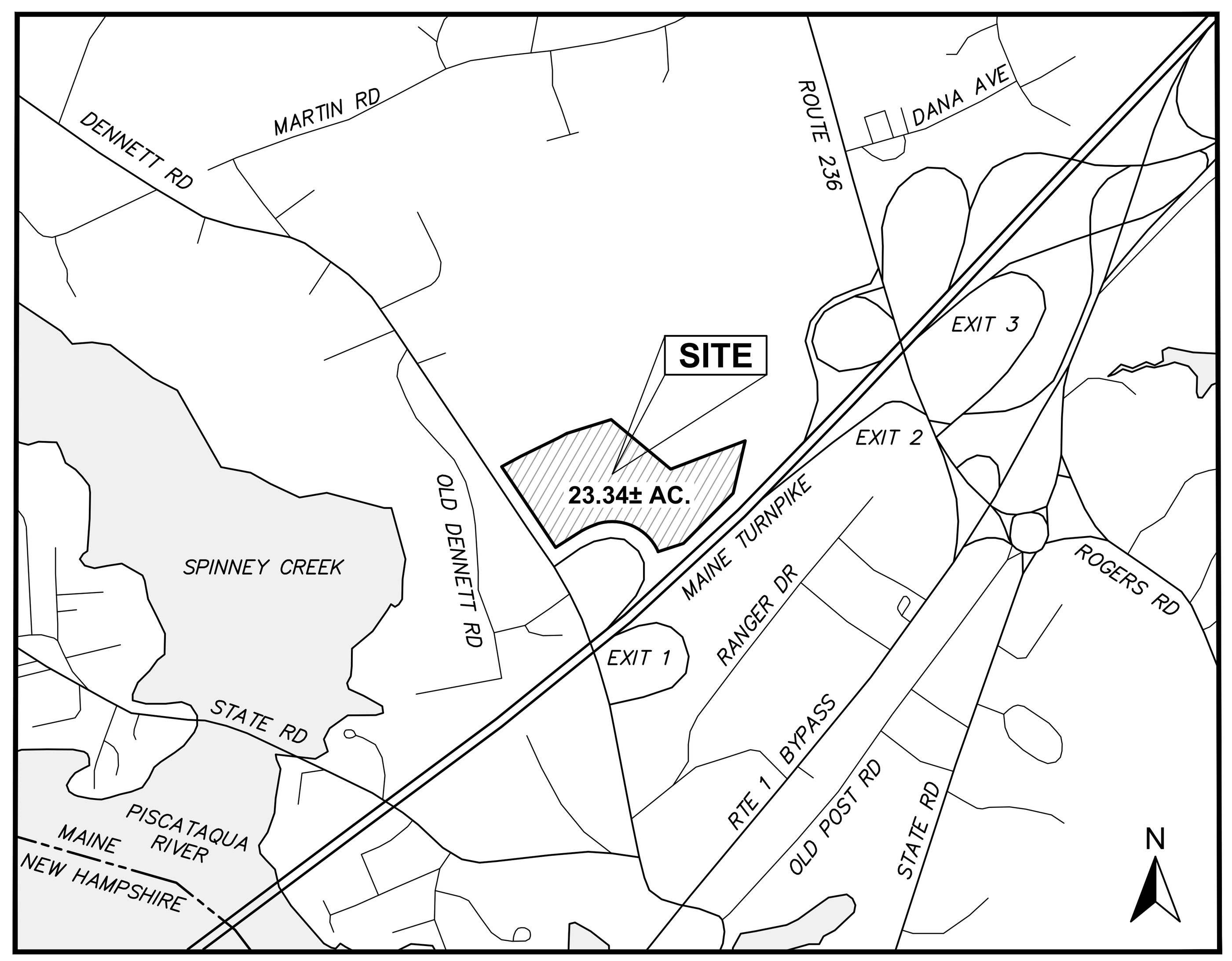
APPLICANT

AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

DATE: JUNE 20, 2019

TOWN OF KITTERY, PLANNING BOARD

CHAIR	DATE
OWNER	DATE
APPLICANT	DATE



LOCUS MAP
1" = 1000'

LIST OF DRAWINGS

DWG #	SHEET#	DWG NAME
C1	1	TITLE SHEET
C2	2	NOTES, ABBREVIATIONS & LEGEND
C3	3	OVERALL EXISTING CONDITIONS PLAN
C4	4	HIGH INTENSITY SOIL MAP
C5	5	OVERALL SITE PLAN
C6	6	E. C. & HOUSEKEEPING PLAN - FRONT
C7	7	E. C. & HOUSEKEEPING PLAN - REAR
C8	8	SITE PLAN - FRONT
C9	9	SITE PLAN - REAR
C10	10	GRADING & DRAINAGE PLAN - FRONT
C11	11	GRADING & DRAINAGE PLAN - REAR
C12	12	ROADWAY PLAN & PROFILE
C13	13	UTILITY PLAN - FRONT
C14	14	UTILITY PLAN - REAR
C15	15	LIGHTING PLAN - FRONT
C16	16	LIGHTING PLAN - REAR
C17	17	LANDSCAPING PLAN - FRONT
C18	18	LANDSCAPING PLAN - REAR
C19	19	CONSTRUCTION DETAILS 1
C20	20	CONSTRUCTION DETAILS 2
C21	21	CONSTRUCTION DETAILS 3
C22	22	CONSTRUCTION DETAILS 4
C23	23	CONSTRUCTION DETAILS 5
C24	24	CONSTRUCTION DETAILS 6
C25	25	CONSTRUCTION DETAILS 7

ISSUED FOR PLANNING BOARD REVIEW
NOT FOR CONSTRUCTION

OWNER:
SAIL AWAY, LLC
PISCATAQUA REALTY, LLC
WILLIAM J. CULLEN
12 ROSEBERRY LANE
KITTERY, ME 03904

APPLICANT:
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PARCEL INFORMATION:

TAX MAP LOT 6-15B	TAX MAP LOT 6-16A	TAX MAP LOT 13-4
13.29± ACRES	4.99± ACRES	5.06± ACRES
76 DENNETT ROAD	70 DENNETT ROAD	DENNETT ROAD
SAIL AWAY, LLC	PISCATAQUA REALTY, LLC	WILLIAM J CULLEN
12 ROSEBERRY LANE	WILLIAM J CULLEN	12 ROSEBERRY LANE
KITTERY, ME 03904	12 ROSEBERRY LANE	KITTERY, ME 03904
	KITTERY, ME 03904	

PROJECT TEAM:

CIVIL ENGINEER
HOYLE, TANNER & ASSOCIATES
100 INTERNATIONAL DRIVE, SUITE 360
PORTSMOUTH, NH 03801
ATTN: SHAWN TOBEY
(603) 431-2520

TRAFFIC
HOYLE, TANNER & ASSOCIATES
100 INTERNATIONAL DRIVE, SUITE 360
PORTSMOUTH, NH 03801
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ARCHITECT
CUBE3
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LAWRENCE, MA 01843
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46 MORTON STREET
FRAMINGHAM, MA 01702
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SURVEYOR
FIELDSTONE LAND CONSULTANTS, PLLC
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WETLAND PERMITTING
ATLANTIC ENVIRONMENTAL, LLC
135 RIVER ROAD
WOOLWICH, ME 04579
CONTACT: LISA VICKERS
(207) 837-2199

LIGHTING DESIGN
VISUAL LIGHT, INC.
24 STICKNEY TERRACE, SUITE 6
HAMPTON, NH 03842
ATTN: SCOTT DROUIN
(603) 926-6049

WETLANDS/SOIL MAPPING
JOSEPH NOEL
P.O. BOX 174
SOUTH BERWICK, ME 03908
CONTACT: JOSEPH NOEL
(207) 384-5587

UTILITY CONTACTS:

WATER SERVICE:
KITTERY WATER DISTRICT
17 STATE ROAD
KITTERY, ME 03904
CONTACT: MICHAEL ROGERS
(207) 439-1128

FIRE DEPARTMENT:
KITTERY FIRE DEPARTMENT
3 GORGES ROAD
KITTERY, ME 03904
CONTACT: DAVID O'BRIEN
(207) 439-2262

SEWER SERVICE:
KITTERY SEWER DEPTARTMENT
18 DENNET ROAD ROAD
KITTERY, ME 03904
CONTACT: TIM BABKIRK
(207) 439-4646

STORMWATER (DRAINAGE):
KITTERY PUBLIC WORKS
20 ROGERS ROAD
KITTERY, ME 03904
CONTACT: JESSA KELLOGG
(207) 475-1321

ELECTRIC SERVICE:
CENTRAL MAINE POWER COMPANY
83 EDISON DRIVE
AUGUSTA, ME 04330
CONTACT: VAN HOBGOOD
(800) 750-4000

TELECOMMUNICATIONS:
FAIRPOINT COMMUNICATIONS
1575 GREENLAND ROAD
GREENLAND, NH 03840
CONTACT: JOE CONSIDINE
(603) 427-5525

GAS SERVICE:
UNITIL ME GAS OPERATIONS
376 RIVERSIDE INDUSTRIAL PARKWAY
PORTLAND, ME 04103
CONTACT: SCOTT CARPENTER
(207) 541-2543

CONTACT DIG SAFE
72 HOURS PRIOR
TO CONSTRUCTION
DIGSAFE.COM
DIAL 811

STATE OF MAINE
SHAWN M. TOBEY
13377
LICENSED PROFESSIONAL ENGINEER
6/20/19

REV.	REVISION DESCRIPTION	DATE
1	ISSUED FOR KITTERY PLANNING BOARD - PRELIMINARY PLAN	06/20/19

CHECKED BY: WRD
DRAWN BY: SMT
DESIGNED BY: SMT

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

DATE: JUNE 20, 2019
SCALE: AS SHOWN

APPLICANT: AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT: PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

TITLE SHEET

C1

PROJECT NO. 569200
SHEET 1 OF 25

GENERAL NOTES:

1. THE BOUNDARY, SURFACE FEATURES AND TOPOGRAPHY ARE THE RESULT OF AN ON THE GROUND SURVEY CONDUCTED DURING THE MONTH OF APRIL 2019 BY FIELDSTONE LAND CONSULTANTS, PLLC. SEE DWG C3 FOR ADDITIONAL EXISTING CONDITIONS INFORMATION REGARDING THE WETLANDS, VERNAL POOL AND STREAM.
2. THIS PROJECT IS TO BE CONSTRUCTED TO THE TYPICAL SECTIONS AND DETAILS SHOWN ON THE PLANS, AND SHALL MEET THE STANDARDS OF THE TOWN OF KITTERY, MAINE DEP AND MAINE DOT.
3. THIS PROJECT SHALL CONFORM TO ALL REQUIREMENTS SET FORTH IN THE MAINE DEP SITE LOCATION OF DEVELOPMENT LAW PERMIT.
4. ALL WORK WITHIN THE STATE RIGHT-OF-WAY SHALL CONFORM TO ALL REQUIREMENTS SET FORTH IN THE MAINE DOT TRAFFIC MOVEMENT PERMIT FOR THE PROJECT.
5. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN COMPILED IN PART FROM PLANS OF RECORD AND FIELD LOCATION. THE LOCATION OF UNDERGROUND UTILITIES SHOULD BE CONSIDERED APPROXIMATE.
6. THE CONTRACTOR SHALL VERIFY AND DETERMINE THE LOCATION, SIZE, AND ELEVATION OF ALL EXISTING UTILITIES, SHOWN OR NOT SHOWN ON THESE PLANS PRIOR TO THE START OF ANY CONSTRUCTION. THE CONTRACTOR SHALL LOCATE THE UTILITIES SHOWN AND THE POSSIBLE EXISTENCE OF OTHER UNDERGROUND UTILITIES BY PROVIDING OBSERVATION TEST PITS. THE ENGINEER SHALL BE NOTIFIED IN WRITING OF ANY UTILITIES FOUND INTERFERING WITH THE PROPOSED CONSTRUCTION AND APPROPRIATE REMEDIAL ACTION SHALL BE AGREED TO BY THE ENGINEER BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONTACT "DIGSAFE" (DIAL 811) AND THE TOWN OF KITTERY AT LEAST 72 HOURS BEFORE DIGGING.
7. WRITTEN DIMENSIONS HAVE PRECEDENCE OVER SCALED DIMENSIONS. THE CONTRACTOR SHALL USE CAUTION WHEN SCALING REPRODUCED PLANS. IN CASE OF CONFLICT BETWEEN THIS PLAN SET AND ANY OTHER DRAWING AND/OR SPECIFICATION, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR CLARIFICATIONS.
8. WHEN PREPARING THE EXISTING SITE FOR THE PROPOSED DEVELOPMENT, ALL MATERIALS REMOVED SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL GOVERNING AGENCIES.
9. THE CONTRACTOR SHALL PERFORM ALL THE CLEARING AND GRUBBING NECESSARY WITHIN THE CONSTRUCTION AREA, LIMITING THE AMOUNT OF CLEARING AND GRUBBING TO THE GREATEST EXTENT POSSIBLE.
10. CONTRACTOR SHALL MAKE EVERY ATTEMPT POSSIBLE TO SAVE EXISTING TREES AND MINIMIZE DAMAGE TO TREES ADJACENT TO CONSTRUCTION LIMITS DURING CONSTRUCTION.
11. DURING CONSTRUCTION THERE SHALL BE NO DISTURBANCES TO THE EXISTING WETLANDS, VERNAL POOL, CRITICAL TERRESTRIAL HABITAT OR THE 25' STREAM BUFFER EXCEPT FOR APPROVED PERMITTING DISTURBANCES OR AREAS OF HABITAT RESTORATION.
12. THE CONTRACTOR SHALL PROTECT AND MAINTAIN EXISTING BENCHMARKS AND BOUNDS. ALL BENCHMARKS AND BOUNDS DISTURBED BY THE CONTRACTOR SHALL BE RE-ESTABLISHED BY A MAINE REGISTERED LAND SURVEYOR AT NO EXPENSE TO THE OWNER.
13. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ANY EXCAVATION SAFEGUARDS, NECESSARY BARRICADES, POLICE DETAILS, ETC., FOR TRAFFIC CONTROL AND SITE SAFETY. ALL EXCAVATIONS SHALL BE THOROUGHLY SECURED ON A DAILY BASIS BY THE CONTRACTOR AT THE COMPLETION OF CONSTRUCTION OPERATIONS.
14. THE CONTRACTOR IS RESPONSIBLE FOR THE MEANS AND METHODS OF CONSTRUCTION AND FOR THE CONDITIONS OF THE SITE.
15. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE ALL WORK IS DONE IN ACCORDANCE WITH OSHA REQUIREMENTS.
16. ALL DEWATERING MUST BE EXECUTED IN ACCORDANCE WITH MAINE DOT STANDARD SPECIFICATIONS. REGULATIONS PROHIBIT DISCHARGING GROUNDWATER TO A SANITARY OR COMBINED SEWER WITHOUT PERMISSION.
17. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS (PIPE, CASTINGS, STRUCTURES, ETC.) TO THE INSPECTING ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION AND INSTALLATION.
18. THE CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS, FEES, TEMPORARY UTILITIES AND COORDINATION WITH ALL AGENCIES IN OBTAINING ACCESS TO THE SITE AND PERFORMING ALL WORK REQUIRED FOR THIS PROJECT.
19. THE CONTRACTOR SHALL FILE AND OBTAIN A NPDES CONSTRUCTION GENERAL PERMIT PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR THE PREPARATION OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) PRIOR TO CONSTRUCTION.
20. COORDINATE ALL WORK ADJACENT TO THE PROPOSED BUILDINGS WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
21. ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE LATEST EDITIONS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), AMERICANS WITH DISABILITIES (ADA) ACT, AND STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS.
22. ALL CURB SHALL BE VERTICAL GRANITE UNLESS OTHERWISE NOTED.
23. THE PROPOSED DRIVEWAY AND ACCESS ROAD TO THE REAR OF THE SITE WILL BE A PRIVATE ROAD AND SHALL BE MAINTAINED BY THE PROPERTY OWNER.
24. THERE SHALL BE NO ONSITE SALT STORAGE.
25. THE PROPOSED NATURE TRAIL SHALL BE FOR ONSITE RESIDENTS ONLY.
26. ALL PROPOSED SITE FEATURES SHALL BE LAID OUT IN THE FIELD USING SURVEY EQUIPMENT. AN AUTOCAD FILE OF THE EXISTING AND PROPOSED FEATURES WITH CONTROL POINTS WILL BE PROVIDED TO THE CONTRACTOR FOR CONSTRUCTION LAYOUT. THE LIMIT OF WORK SHALL BE CLEARLY MARKED IN THE FIELD BEFORE ANY WORK IS TO BEGIN ONSITE.
27. SYMBOLS AND LINETYPES MAY BE EXAGGERATED FOR CLARITY ON THESE DRAWINGS DUE TO THE SCALE. THE CONTRACTOR SHALL ADJUST ACCORDINGLY DURING CONSTRUCTION LAYOUT.

DRAINAGE NOTES:

1. THE STORM DRAINAGE SYSTEM SHALL BE CONSTRUCTED TO LINE AND GRADE AS SHOWN ON THE PLANS. ALL PIPE MATERIALS SHALL BE AS SPECIFIED ON THE PLANS. CONSTRUCTION METHODS SHALL CONFORM TO MAINE DOT STANDARD SPECIFICATIONS. CATCH BASINS AND DRAIN MANHOLES SHALL CONFORM TO SECTION 604.
2. ALL CATCH BASIN FRAMES AND GRATES SHALL NEENAH R-3472 OR APPROVED EQUAL.
3. PROPOSED RIM ELEVATIONS OF DRAINAGE MANHOLES AND CATCH BASINS ARE APPROXIMATE. FINAL ELEVATIONS ARE TO BE SET FLUSH WITH FINISH GRADES.
4. THE CONTRACTOR SHALL CONFIRM THE EXISTING GRADES AT THE OUTLET ELEVATIONS FOR ALL THREE WET PONDS PRIOR TO ANY POND CONSTRUCTION.
5. THE CONTRACTOR SHALL CONFIRM THE ELEVATIONS FOR ALL DRAIN PIPE RUNS PRIOR TO ANY INSTALLATION.
6. THE CONTRACTOR SHALL PROVIDE FOR THE HANDLING OF EXISTING FLOWS FROM SERVICE CONNECTIONS AND MAINLINE PIPES. THE EXISTING DRAINS MAY HAVE ACTIVE FLOW AND THE CONTRACTOR SHALL MAINTAIN CONTINUOUS FLOW WITHOUT RESTRICTIONS.
7. THE CONTRACTOR SHALL STABILIZE ANY AND ALL DITCHES, SWALES AND PONDS PRIOR TO DIRECTING STORMWATER RUN-OFF TO THEM.
8. WHEN CONNECTING NEW PIPES TO EXISTING STRUCTURES SUCH AS MANHOLES AND CATCH BASINS, THE STRUCTURE SHALL BE COMPLETELY CLEANED OUT. THE HOLE MADE IN THE STRUCTURE SHALL BE AS SMALL AS NECESSARY. THE STRUCTURE SHALL BE REPAIRED TO MATCH ITS ORIGINAL TYPE OF CONSTRUCTION. THE JOINT BETWEEN THE STRUCTURE AND THE PIPE SHALL BE MADE WATERTIGHT BY FILLING THE JOINT WITH MORTAR.
9. THE CONTRACTOR SHALL CLEAN THE ENTIRE STORMWATER SYSTEM OF ALL SEDIMENT AND DEBRIS, WITHIN THE LIMIT OF WORK UPON COMPLETION OF CONSTRUCTION.
10. ALL DRAIN PIPES SHALL HAVE A MINIMUM GROUND COVER OF 3'. IF THE REQUIRED COVER CANNOT BE OBTAINED, THE PROPOSED PIPE SHALL BE ADS N-12 DOUBLE WALLED HDPE OR APPROVED EQUAL. INSTALL 4" OF RIGID INSULATION ABOVE THE DRAIN LINE IF 3' COVER CANNOT BE OBTAINED.
11. ALL PROPOSED CATCH BASINS SHALL BE DEEP SUMP CATCH BASINS WITH 4' SUMPS.
12. THE PROPOSED STORMWATER SYSTEM AND WET PONDS SHALL BE MAINTAINED ACCORDING TO THE STORMWATER INSPECTION AND MAINTENANCE MANUAL PREPARED UNDER THE MAINE DEP SITE LOCATION OF DEVELOPMENT PERMIT. THE SYSTEM SHALL BE INSPECTED AT A MINIMUM IN THE SPRING AND FALL.
13. THE CONTRACTOR SHALL INSTALL PERIMETER FOOTING DRAINS AROUND ALL PROPOSED BUILDINGS. THE FOOTING DRAINS SHALL DRAIN TO DAYLIGHT OUTSIDE THE LIMITS OF PAVEMENT. SEE STRUCTURAL PLANS AND GEOTECHNICAL REPORT FOR PIPE SIZE AND INSTALLATION LOCATIONS.

EARTHWORK & GRADING NOTES:

1. GRADE AWAY FROM BUILDING WALLS AT 2% MINIMUM (TYPICAL).
2. PROVIDE UNIFORM SLOPE BETWEEN CONTOURS AND/OR SPOT ELEVATIONS.
3. SPOT GRADES SHOWN ARE PAVEMENT ELEVATIONS AT THE CURBLINE UNLESS OTHERWISE NOTED.
4. ALL GRASSED AND LANDSCAPED AREAS INSIDE THE SIDEWALKS SHALL BE GRADED TO DRAIN TO THE PROPOSED CATCH BASINS.
5. EARTH SLOPES SHALL BE NO STEEPER THAN 2:1 (HORIZONTAL:VERTICAL) AND SHALL BE FLATTER WHERE SHOWN.
6. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL ROOTS AND STUMPS FOR TREES THAT ARE REMOVED.
7. GENERAL FILL BEYOND PAVED AREAS SHALL BE FREE OF BRUSH RUBBISH, STUMPS, AND STONES LARGER THAN 8". FILL SHALL BE PLACED IN COMPACTED LAYERS NOT TO EXCEED 8" IN THICKNESS. THE DRY DENSITY AFTER COMPACTION SHALL NOT BE LESS THAN 95% OF THE STANDARD PROCTOR TEST AND DONE IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM D698.
8. AFTER THE AREAS TO BE TOPSOILED HAVE BEEN BROUGHT TO GRADE, THE SUBGRADE SHALL BE LOOSENED BY SCARIFYING TO A DEPTH OF AT LEAST 2" TO ENSURE BONDING OF THE TOPSOIL AND SUBSOIL.
9. FILL OR TOPSOIL SHALL NEITHER BE PLACED NOR COMPACTED WHILE IN A FROZEN OR MUDDY CONDITION OR WHILE SUBGRADE IS FROZEN.
10. FINISH PAVEMENT SURFACES AND LAWN AREAS SHALL BE FREE OF LOW SPOTS AND PONDING AREAS.
11. ALL AREAS DISTURBED BY THE CONTRACTOR'S OPERATIONS THAT DO NOT HAVE A SURFACE TREATMENT SPECIFICALLY SPECIFIED SHALL BE RESTORED TO A MINIMUM OF 4" OF SEEDED TOPSOIL, FERTILIZER, AND MULCH.
12. THE CONTRACTOR SHALL COORDINATE ALL LEDGE REMOVAL WITH THE REQUIREMENTS SET FORTH IN THE MAINE DEP SITE LOCATION OF DEVELOPMENT PERMIT FOR THIS PROJECT.
13. THE CONTRACTOR SHALL SUBMIT STAMPED RETAINING WALL DESIGN PLANS FROM THE WALL MANUFACTURER TO THE INSPECTING ENGINEER FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.

EXTERIOR LIGHTS:

1. THE UNDERGROUND CONDUIT RUNS FOR THE PROPOSED LIGHT POLES IS NOT SHOWN ON THESE PLANS. THE CONTRACTOR SHALL COORDINATE WITH THE ELECTRICAL DESIGNER FOR THE INSTALLATION LOCATIONS OF THE CONDUIT RUNS AND PULLBOXES.
2. OUTSIDE LIGHTS MUST BE MADE UP OF A LIGHT SOURCE AND REFLECTOR SO THAT, ACTING TOGETHER, THE LIGHT BEAM IS CONTROLLED AND NOT DIRECTED ACROSS A PROPERTY LINE SO AS TO CONSTITUTE A NUISANCE.
3. ALL PROPOSED LIGHTING SHALL BE DARK SKY FRIENDLY.
4. COORDINATE LIGHT POLE BASE LOCATIONS WITH, CONDUIT ROUTING, CONDUIT SIZE AND POWER SUPPLY FOR SITE LIGHTING WITH ARCHITECTURAL AND ELECTRICAL DRAWINGS.

UTILITY NOTES:

1. THE CONTRACTOR SHALL CONTACT ALL UTILITY COMPANIES OWNING UTILITIES, EITHER OVERHEAD OR UNDERGROUND, WITHIN THE CONSTRUCTION AREA AND SHALL COORDINATE WITH THE UTILITY COMPANIES FOR RELOCATING AND/OR SUPPORTING THEIR UTILITIES IN ACCORDANCE WITH THE SPECIFICATIONS.
2. THE CONTRACTOR SHALL MAINTAIN UTILITY SERVICES TO EXISTING FACILITIES AT ALL TIMES. IF ANY DISRUPTION MUST OCCUR, CONTRACTOR SHALL NOTIFY AND COORDINATE WITH FACILITY AT LEAST 72 HOURS IN ADVANCE.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORATION OF EXISTING UTILITIES AND STRUCTURES DAMAGED OR REMOVED BY THE CONTRACTOR DURING THEIR OPERATIONS.
4. THE CONTRACTOR SHALL COORDINATE MATERIALS AND INSTALLATION SPECIFICATIONS WITH THE INDIVIDUAL UTILITY AGENCIES/COMPANIES, AND ARRANGE FOR ALL INSPECTIONS.
5. FINAL ELEVATIONS OF UTILITY STRUCTURES ARE TO BE SET FLUSH WITH FINISH GRADES. ADJUST ALL OTHER RIM ELEVATIONS OF MANHOLES, WATER GATES, GAS GATES, AND OTHER UTILITIES TO FINISHED GRADE WITHIN LIMITS OF WORK.
6. DURING EXCAVATION, IT IS ANTICIPATED THAT EXISTING UTILITIES AND SEWERS WILL BE EXPOSED. THE CONTRACTOR SHALL PROVIDE PROTECTION AND SUPPORT OF THESE FACILITIES AND REPAIR ANY DAMAGE CAUSED BY THE WORK IN A MANNER SATISFACTORY TO THE OWNER.
7. THE SEWER SYSTEM SHALL HAVE A MINIMUM GROUND COVER OF 4' WHEN CROSS COUNTRY AND A MINIMUM GROUND COVER OF 6' WHEN BENEATH PAVEMENT. IF THE REQUIRED MINIMUM AMOUNT OF COVER CANNOT BE OBTAINED, INSTALL 4" OF RIGID INSULATION ABOVE THE SEWER LINE.
8. THE PROPOSED SEWER LINE FROM THE EXISTING SMH TO BUILDING 1 WAS SIZED AND DESIGNED FOR A POSSIBLE FUTURE CONNECTION WITH MAP LOT 12-03-1. IF A FUTURE CONNECTION IS NOT ANTICIPATED, THE OWNER MAY REDUCE THE SIZE OF THE PIPE AND RAISE THE PROPOSED SEWER RUN WITH APPROVAL OF THE DESIGN ENGINEER.
9. THE CONTRACTOR SHALL CONFIRM THE EXISTING SEWER MANHOLE TIE-IN INVERT AND THE ELEVATIONS FOR ALL SEWER PIPE RUNS PRIOR TO ANY INSTALLATION.
10. REFER TO PLANS TITLED "WATER MAIN DESIGN" BY KLEINFELDER DATED APRIL 2016, FOR WATER LINE INSTALLATION FROM RANGER DRIVE UP DENNETT ROAD TO THE ENTRANCE OF THE PROJECT SITE.
11. THE PROPOSED WATER LINE CONFIGURATION SHOWN ON THESE PLANS IS BASED ON DUCTILE IRON PIPE WITH 22.5° AND 45° BENDS. THE CONTRACTOR MAY SUBSTITUTE DUCTILE IRON PIPE FOR HDPE.
12. ALL ELECTRIC MATERIAL WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRIC CODE AS WELL AS STATE AND LOCAL CODES.
13. INSTALL NYLON PULL ROPES IN UNDERGROUND CONDUITS TO FACILITATE PULLING CABLES.
14. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL HANDHOLES, FITTINGS, CONNECTORS, COVER PLATES, AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THESE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL.
15. THE EXACT LOCATION, NUMBER, TYPE, AND SIZE OF NEW UTILITY SERVICES AND CONDUITS SHALL BE DETERMINED BY THE UTILITY COMPANY.
16. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH ALL STATE AND LOCAL CODES.
17. THE PROPOSED BUILDINGS WILL BE SERVED BY SPRINKLER SYSTEMS. SPRINKLER SYSTEM SHALL BE MONITORED OFF-SITE THROUGH A DIALER. CONTRACTOR TO COORDINATE WITH A THIRD PARTY.
18. ALL ON-SITE UTILITIES SHALL BE UNDERGROUND.
19. BACKFLOW PREVENTORS SHALL BE PROVIDED FOR BOTH FIRE AND DOMESTIC WATER LINES.
20. CONTRACTOR TO COORDINATE UNDERGROUND ELECTRIC, INCLUDING BUT NOT LIMITED TO SIZE, LOCATION, MATERIAL, CONDUIT, AND HAND HOLES.

CONSTRUCTION SEQUENCE:

1. INSTALL SILT FENCE, MULCH BERMS AND CONSTRUCTION ENTRANCE AS SHOWN, PRIOR TO THE START OF ANY CONSTRUCTION.
2. REMOVE AND DISPOSE OF EXISTING VEGETATION AS SHOWN.
3. STRIP THE TOPSOIL AND STOCKPILE ONSITE. CONSTRUCT A SILT FENCE PERIMETER AROUND ALL STOCKPILES.
4. BLAST AND REMOVE LEDGE AS REQUIRED FOR BUILDING AND UTILITIES.
5. CONSTRUCT THE BUILDING FOOTINGS, FOUNDATION WALLS AND PLACE BACKFILL.
6. CONSTRUCT AND STABILIZE CUT AND FILL SLOPES. APPLY TEMPORARY (OR PERMANENT) SEED AND MULCH WITHIN 72 HOURS OF THEIR CONSTRUCTION.
7. INSTALL ALL DRAINAGE, WATER, SEWER, ELECTRIC, TELECOM AND GAS UTILITIES.
8. INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES. MINIMIZE EXTENT AND DURATION OF EXPOSURE OF DISTURBED AREAS.
9. CONSTRUCT THE BUILDINGS.
10. PLACE ROADWAY SELECTS AND INSTALL BINDER PAVING COURSE.
11. INSTALL VERTICAL GRANITE CURBING AND POUR CONCRETE SIDEWALKS.
12. INSTALL LANDSCAPE PLANTINGS.
13. INSTALL SCREENED LOAM (4" MIN.) ON ALL DISTURBED SURFACES AND APPLY PERMANENT SEEDING.
14. INSTALL FINISH PAVEMENT, PAVEMENT MARKINGS AND SIGNAGE.
15. REMOVE TRAPPED SEDIMENTS FROM COLLECTOR DEVICES AS APPROPRIATE AND THEN REMOVE TEMPORARY EROSION CONTROL MEASURES. CLEAN THE ENTIRE STORMWATER SYSTEM OF ALL SEDIMENT AND DEBRIS, WITHIN THE LIMIT OF WORK.

ABBREVIATIONS:

ABAN	ABANDONED
AC	ASBESTOS CONCRETE
ADJ	ADJUST
APPROX	APPROXIMATE
B=	BOTTOM=
BC	BOTTOM OF CURB
BERM	BITUMINOUS CONCRETE BERM
BIT CONC	BITUMINOUS CONCRETE
BLDG	BUILDING
BS	BOTTOM OF SLOPE
BWLL	BROKEN WHITE LANE LINE
BW	BOTTOM OF WALL
CB	CATCH BASIN
CBRND	CATCH BASIN ROUND
CBSQ	CATCH BASIN SQAURE
CI	CAST IRON
CICL	CAST IRON CEMENT LINED
CIP	CAST IN PLACE
℄	CENTER LINE
CLF	CHAIN LINK FENCE
CMP	CORRUGATED METAL PIPE
CO	CLEAN OUT
COL	COLUMN
CONC	CONCRETE
CP	CONCRETE PIPE
CR	CONDENSATE RETURN
DHW	DESIGN HIGH WATER
DI	DUCTILE IRON
DICL	DUCTILE IRON CEMENT LINED
DIA	DIAMETER
DMH	DRAIN MANHOLE
DWG	DRAWING
DYCL	DOUBLE YELLOW CENTER LINE
EL, ELEV	ELEVATION
ELEC	ELECTRIC
EMH	ELECTRIC MANHOLE
EXIST	EXISTING
FES	FLARED END SECTION
FFE	FINISH FLOOR ELEVATION
FM	FORCE MAIN
GC	GRANITE CURB
GG	GAS GATE
GM	GAS METER
GR	GUARDRAIL
GW	GUY WIRE
HDPE	HIGH DENSITY POLYETHYLENE
HH	HAND HOLE
HORIZ	HORIZONTAL
HR	HANDRAIL
HVAC	HEAT VENT AIR CONDITIONING
HYD	HYDRANT
INV	INVERT
I=	INVERT=
IP	IRON PIPE
LP	LIGHT POLE
LS	LANDSCAPED
LT	LEFT
MC	METAL COVER
MAX	MAXIMUM
MHW	MEAN HIGH WATER
MIN	MINIMUM
NO, #	NUMBER
NTS	NOT TO SCALE
OCS	OUTLET CONTROL STRUCTURE
OH	OVERHANG
PB	PULL BOX
PERF	PERFORATED
PL	PLASTIC
PROP	PROPOSED
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PVI	POST VALVE INDICATOR
R=	RIM=
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
(rec)	RECORD
RET	RETAINING
RT	RIGHT
SGC	SLOPED GRANITE CURB
SMH	SEWER MANHOLE
SHWT	SEASONAL HIGH WATER TABLE
SS	SANITARY SEWER
ST	STEAM
STA	STATION
STMH	STEAM MANHOLE
SW	SIDEWALK
SWEL	SOLID WHITE EDGE LINE
SWLL	SOLID WHITE LANE LINE
TC	TOP OF CURB
TCB	TRAFFIC CONTROL BOX
TEL	TELEPHONE
TL	TRAFFIC LIGHT
TMH	TELEPHONE MANHOLE
TRANS	TRANSFORMER
TS	TOP OF SLOPE
TW	TOP OF WALL
TYP	TYPICAL
UP	UTILITY POLE
VC	VITRIFIED CLAY
VERT	VERTICAL
VGC	VERTICAL GRANITE CURB
W	WATER
WC	WYE CONNECTION
WF	WETLAND FLAG
WG	WATER GATE
WIP	WROUGHT IRON PIPE
WM	WATER METER

LEGEND

EXISTING	PROPOSED	DESCRIPTION
		PROPERTY LINE
		RIGHT OF WAY
		BUILDING SETBACK
		PARKING SETBACK
		SURVEY MONUMENT
		EDGE OF PAVEMENT
		EDGE OF CONCRETE
		CONCRETE CURB
		SLOPED GRANITE CURB
		VERTICAL GRANITE CURB
		VERNAL POOL/STREAM
		WETLANDS
		VERNAL POOL/STREAM BUFFER
		SAWCUT
		BUILDING
		BUILDING ENTRANCE
		BOLLARD
		SIGN
		TREE
		FENCE
		SILT FENCE
		DRAINAGE FLOW
		SWALE
		MINOR CONTOUR
		MAJOR CONTOUR
		PARKING COUNT
		SINGLE WHITE LINE
		DOUBLE YELLOW LINE
		STOP LINE
		CROSSWALK
		ACCESSIBLE CURB RAMP
		DETECTABLE WARNING PANEL
		ACCESSIBLE PARKING
		VAN-ACCESSIBLE PARKING
		SPOT ELEVATION
		KSAT TEST LOCATION
		TEST PIT LOCATION
		MONITORING WELL
		DRAIN
		SEWER
		OVERHEAD WIRE
		WATER
		FIRE PROTECTION
		GAS
		UNDERGROUND ELECTRIC
		STEAM
		TELEPHONE
		CATCH BASIN
		DOUBLE CATCH BASIN
		DRAIN MANHOLE
		PLUG OR CAP
		CLEANOUT
		HEADWALL
		SEWER MANHOLE
		WATER SHUT-OFF
		WATER VALVE & BOX
		TAPPING SLEEVE,VALVE&BOX
		FIRE HYDRANT
		THRUST BLOCK
		POST INDICATOR VALVE
		GAS GATE
		ELECTRIC MANHOLE
		LIGHT POLE
		TRANSFORMER PAD
		UTILITY POLE
		GUY POLE
		GUY WIRE & ANCHOR
		TELEPHONE MANHOLE
		INLET PROTECTION
		STONE CHECK DAM
		TREE TO BE REMOVED
		STABILIZED CONSTRUCTION ENTRANCE
		STRUCTURE TO BE REMOVED
		PAVEMENT TO BE REMOVED
		BITUMINOUS CONCRETE PAVING
		CONCRETE
		PAVERS

STATE OF MAINE
SHAWN M. TOBEY 13377
PROFESSIONAL ENGINEER
6/20/19

REV.	REVISION DESCRIPTION	DATE
1	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN	06/20/19

DESIGNED BY	DRAWN BY	CHECKED BY
SMT	SMT	WRD

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

SCALE: AS SHOWN
DATE: JUNE 20, 2019

APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

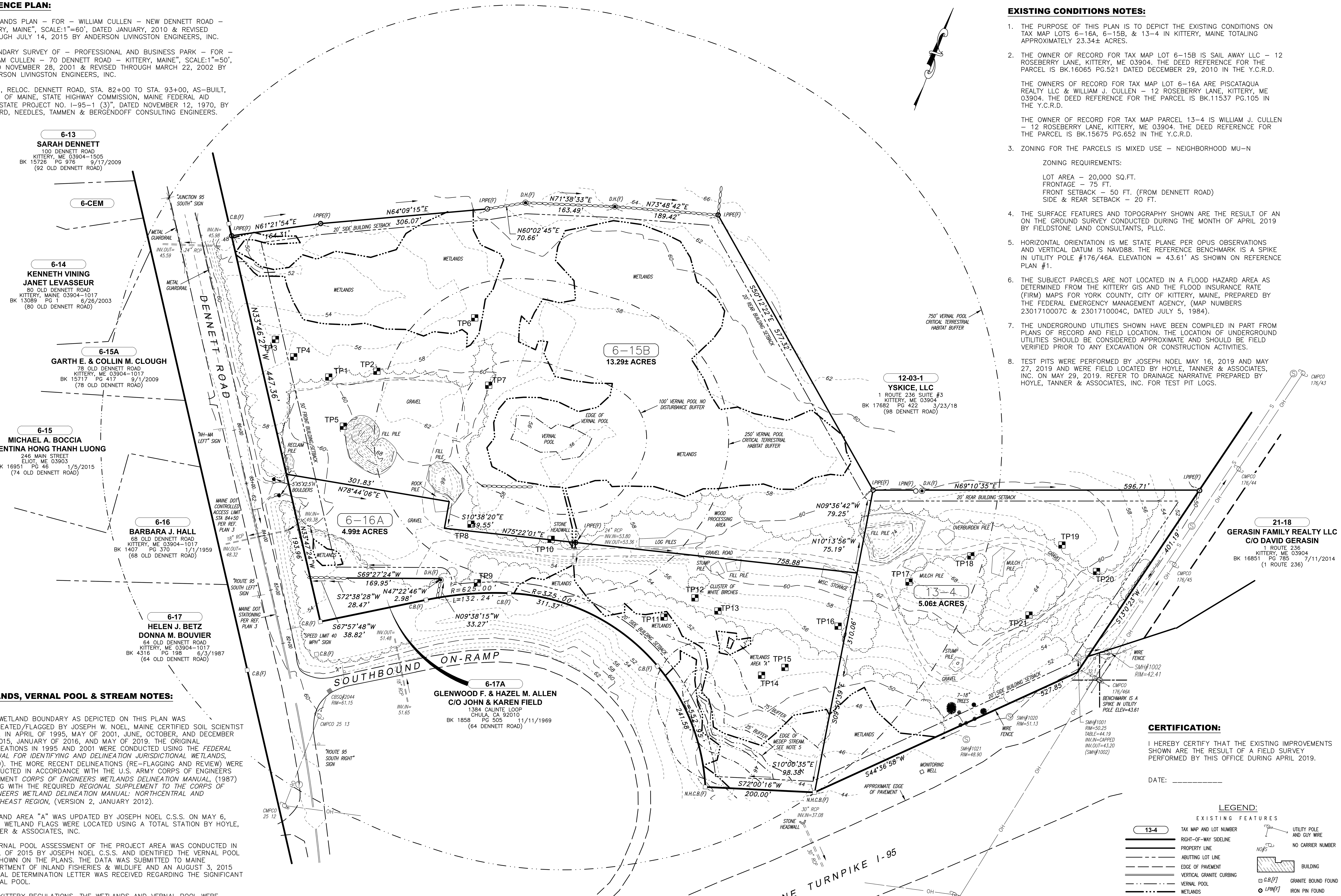
PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

NOTES, ABBREVIATIONS & LEGEND
C2

PROJECT NO. 569200

REFERENCE PLAN:

1. "WETLANDS PLAN – FOR – WILLIAM CULLEN – NEW DENNETT ROAD – KITTERY, MAINE", SCALE:1"=60', DATED JANUARY, 2010 & REVISED THROUGH JULY 14, 2015 BY ANDERSON LIVINGSTON ENGINEERS, INC.
2. "BOUNDARY SURVEY OF – PROFESSIONAL AND BUSINESS PARK – FOR – WILLIAM CULLEN – 70 DENNETT ROAD – KITTERY, MAINE", SCALE:1"=50', DATED NOVEMBER 28, 2001 & REVISED THROUGH MARCH 22, 2002 BY ANDERSON LIVINGSTON ENGINEERS, INC.
3. "PLAN, RELOC. DENNETT ROAD, STA. 82+00 TO STA. 93+00, AS-BUILT, STATE OF MAINE, STATE HIGHWAY COMMISSION, MAINE FEDERAL AID INTERSTATE PROJECT NO. I-95-1 (3)", DATED NOVEMBER 12, 1970, BY HOWARD, NEEDLES, TAMMEN & BERGENDOFF CONSULTING ENGINEERS.



EXISTING CONDITIONS NOTES:

1. THE PURPOSE OF THIS PLAN IS TO DEPICT THE EXISTING CONDITIONS ON TAX MAP LOTS 6-16A, 6-15B, & 13-4 IN KITTERY, MAINE TOTALING APPROXIMATELY 23.34± ACRES.
2. THE OWNER OF RECORD FOR TAX MAP LOT 6-15B IS SAIL AWAY LLC – 12 ROSEBERRY LANE, KITTERY, ME 03904. THE DEED REFERENCE FOR THE PARCEL IS BK.16065 PG.521 DATED DECEMBER 29, 2010 IN THE Y.C.R.D.

   THE OWNERS OF RECORD FOR TAX MAP LOT 6-16A ARE PISCATAQUA REALTY LLC & WILLIAM J. CULLEN – 12 ROSEBERRY LANE, KITTERY, ME 03904. THE DEED REFERENCE FOR THE PARCEL IS BK.11537 PG.105 IN THE Y.C.R.D.

   THE OWNER OF RECORD FOR TAX MAP PARCEL 13-4 IS WILLIAM J. CULLEN – 12 ROSEBERRY LANE, KITTERY, ME 03904. THE DEED REFERENCE FOR THE PARCEL IS BK.15675 PG.652 IN THE Y.C.R.D.
3. ZONING FOR THE PARCELS IS MIXED USE – NEIGHBORHOOD MU-N

   ZONING REQUIREMENTS:

   LOT AREA – 20,000 SQ.FT.
   FRONTAGE – 75 FT.
   FRONT SETBACK – 50 FT. (FROM DENNETT ROAD)
   SIDE & REAR SETBACK – 20 FT.
4. THE SURFACE FEATURES AND TOPOGRAPHY SHOWN ARE THE RESULT OF AN ON THE GROUND SURVEY CONDUCTED DURING THE MONTH OF APRIL 2019 BY FIELDSTONE LAND CONSULTANTS, PLLC.
5. HORIZONTAL ORIENTATION IS ME STATE PLANE PER OPUS OBSERVATIONS AND VERTICAL DATUM IS NAVD88. THE REFERENCE BENCHMARK IS A SPIKE IN UTILITY POLE #176/46A. ELEVATION = 43.61' AS SHOWN ON REFERENCE PLAN #1.
6. THE SUBJECT PARCELS ARE NOT LOCATED IN A FLOOD HAZARD AREA AS DETERMINED FROM THE KITTERY GIS AND THE FLOOD INSURANCE RATE (FIRM) MAPS FOR YORK COUNTY, CITY OF KITTERY, MAINE, PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY, (MAP NUMBERS 2301710007C & 2301710004C, DATED JULY 5, 1984).
7. THE UNDERGROUND UTILITIES SHOWN HAVE BEEN COMPILED IN PART FROM PLANS OF RECORD AND FIELD LOCATION. THE LOCATION OF UNDERGROUND UTILITIES SHOULD BE CONSIDERED APPROXIMATE AND SHOULD BE FIELD VERIFIED PRIOR TO ANY EXCAVATION OR CONSTRUCTION ACTIVITIES.
8. TEST PITS WERE PERFORMED BY JOSEPH NOEL MAY 16, 2019 AND MAY 27, 2019 AND WERE FIELD LOCATED BY HOYLE, TANNER & ASSOCIATES, INC. ON MAY 29, 2019. REFER TO DRAINAGE NARRATIVE PREPARED BY HOYLE, TANNER & ASSOCIATES, INC. FOR TEST PIT LOGS.

WETLANDS, VERNAL POOL & STREAM NOTES:

1. THE WETLAND BOUNDARY AS DEPICTED ON THIS PLAN WAS DELINEATED/FLAGGED BY JOSEPH W. NOEL, MAINE CERTIFIED SOIL SCIENTIST #209, IN APRIL OF 1995, MAY OF 2001, JUNE, OCTOBER, AND DECEMBER OF 2015, JANUARY OF 2016, AND MAY OF 2019. THE ORIGINAL DELINEATIONS IN 1995 AND 2001 WERE CONDUCTED USING THE *FEDERAL MANUAL FOR IDENTIFYING AND DELINEATION JURISDICTIONAL WETLANDS*, (1989). THE MORE RECENT DELINEATIONS (RE-FLAGGING AND REVIEW) WERE CONDUCTED IN ACCORDANCE WITH THE U.S. ARMY CORPS OF ENGINEERS DOCUMENT *CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL*, (1987) ALONG WITH THE REQUIRED *REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION*, (VERSION 2, JANUARY 2012).
2. WETLAND AREA "A" WAS UPDATED BY JOSEPH NOEL C.S.S. ON MAY 6, 2019. WETLAND FLAGS WERE LOCATED USING A TOTAL STATION BY HOYLE, TANNER & ASSOCIATES, INC.
3. A VERNAL POOL ASSESSMENT OF THE PROJECT AREA WAS CONDUCTED IN APRIL OF 2015 BY JOSEPH NOEL C.S.S. AND IDENTIFIED THE VERNAL POOL AS SHOWN ON THE PLANS. THE DATA WAS SUBMITTED TO MAINE DEPARTMENT OF INLAND FISHERIES & WILDLIFE AND AN AUGUST 3, 2015 FORMAL DETERMINATION LETTER WAS RECEIVED REGARDING THE SIGNIFICANT VERNAL POOL.
4. PER KITTERY REGULATIONS, THE WETLANDS AND VERNAL POOL WERE REVIEWED BY LONGVIEW PARTNERS, LLC AS A THIRD PARTY REVIEWER IN APRIL 2019. THE REVIEW FOUND THE WETLAND DELINEATION TO BE ACCURATE AND WITHIN THE NORMAL RANGE OF BEST PROFESSIONAL JUDGMENT AND CONSISTENT WITH WETLAND DELINEATION STANDARDS.
5. DELINEATION OF THE MEDEP STREAM WAS BASED ON A FIELD OBSERVATION WITH LUCIEN LANGLOIS, ENVIRONMENTAL SPECIALIST II OF THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION OF MAY 10, 2019. THE EDGE OF THE JURISDICTIONAL STREAM WAS LOCATED USING A TOTAL STATION BY HOYLE, TANNER & ASSOCIATES, INC. ON MAY 10, 2019.

CERTIFICATION:

I HEREBY CERTIFY THAT THE EXISTING IMPROVEMENTS SHOWN ARE THE RESULT OF A FIELD SURVEY PERFORMED BY THIS OFFICE DURING APRIL 2019.

DATE: __________

LEGEND:

EXISTING FEATURES

13-4	TAX MAP AND LOT NUMBER
	RIGHT-OF-WAY SIDELINE
	PROPERTY LINE
	ABUTTING LOT LINE
	EDGE OF PAVEMENT
	VERTICAL GRANITE CURBING
	VERNAL POOL
	WETLANDS
	VERNAL POOL/STREAM BUFFER
UG	UNDERGROUND ELECTRIC
OH	OVERHEAD UTILITIES
S	SEWER LINE
	DRAIN LINE
50	10' CONTOUR INTERVAL
46	2' CONTOUR INTERVAL
	TREE LINE
	TREES
	UTILITY POLE AND GUY WIRE
NO#S	NO CARRIER NUMBER
	BUILDING
G.B.(F)	GRANITE BOUND FOUND
I.PIN(F)	IRON PIN FOUND
I.PIPE(F)	IRON PIPE FOUND
S	SEWER MANHOLE
D	DRAIN MANHOLE
T	TELEPHONE MANHOLE
	MANHOLE
	CABLE PEDESTAL
	CATCH BASIN
	LIGHT
	WATER HYDRANT
	WATER VALVE

TO BE STAMPED AT NEXT SUBMISSION

REV.	REVISION DESCRIPTION	DATE
1	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN	06/20/19

DESIGNED BY	DRAWN BY	CHECKED BY
SMT	SMT	WRD

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Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

DATE: JUNE 20, 2019
SCALE: AS SHOWN

APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

OVERALL EXISTING CONDITIONS PLAN

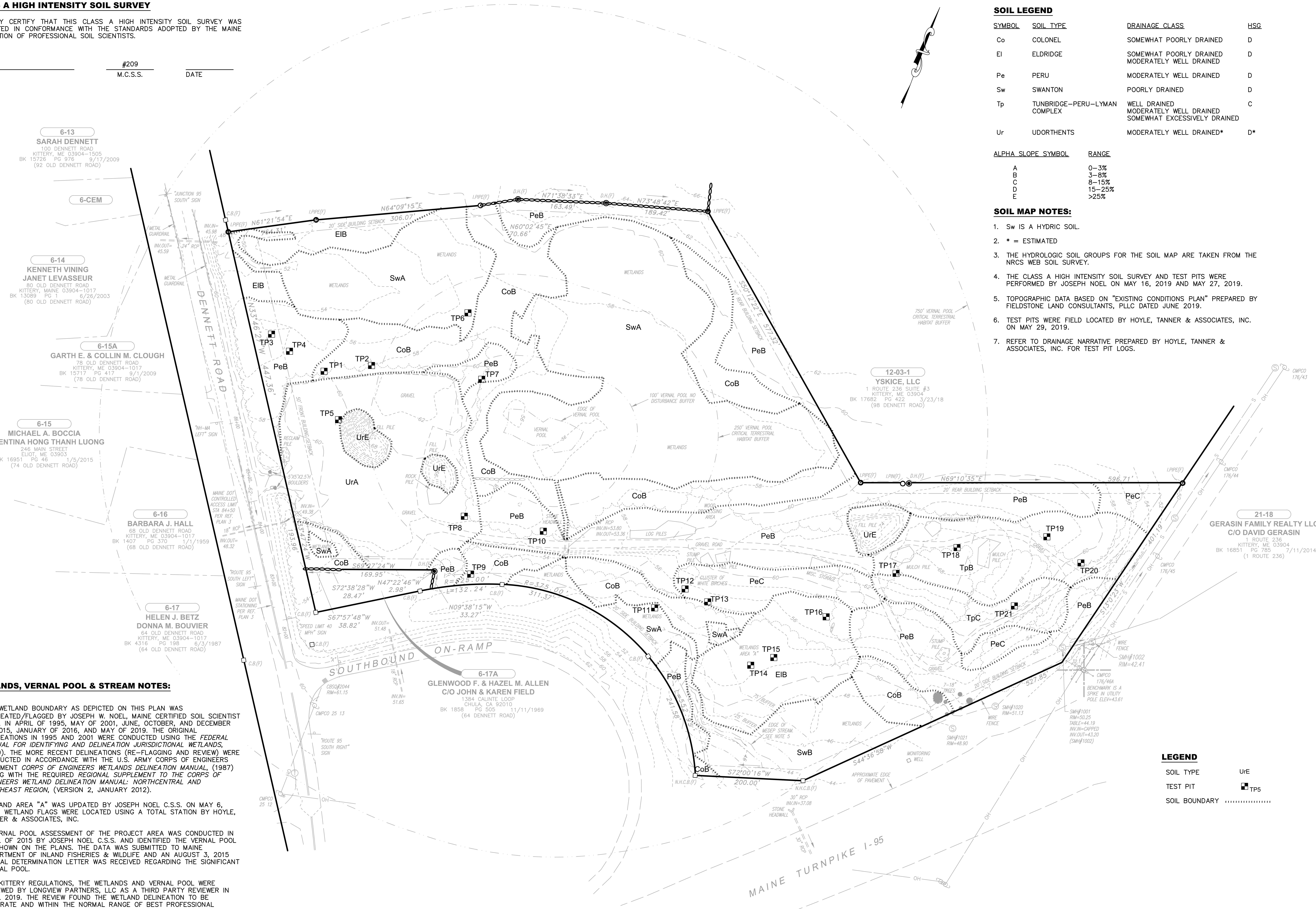
C3

PROJECT NO. 569200

CLASS A HIGH INTENSITY SOIL SURVEY

I HEREBY CERTIFY THAT THIS CLASS A HIGH INTENSITY SOIL SURVEY WAS CONDUCTED IN CONFORMANCE WITH THE STANDARDS ADOPTED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS.

NAME	#209 M.C.S.S.	DATE



SOIL LEGEND

SYMBOL	SOIL TYPE	DRAINAGE CLASS	HSG
Co	COLONEL	SOMEWHAT POORLY DRAINED	D
El	ELDRIDGE	SOMEWHAT POORLY DRAINED MODERATELY WELL DRAINED	D
Pe	PERU	MODERATELY WELL DRAINED	D
Sw	SWANTON	POORLY DRAINED	D
Tp	TUNBRIDGE-PERU-LYMAN COMPLEX	WELL DRAINED MODERATELY WELL DRAINED SOMEWHAT EXCESSIVELY DRAINED	C
Ur	UDORTHENTS	MODERATELY WELL DRAINED*	D*

ALPHA SLOPE SYMBOL	RANGE
A	0–3%
B	3–8%
C	8–15%
D	15–25%
E	>25%

SOIL MAP NOTES:

1. Sw IS A HYDRIC SOIL.
2. * = ESTIMATED
3. THE HYDROLOGIC SOIL GROUPS FOR THE SOIL MAP ARE TAKEN FROM THE NRCS WEB SOIL SURVEY.
4. THE CLASS A HIGH INTENSITY SOIL SURVEY AND TEST PITS WERE PERFORMED BY JOSEPH NOEL ON MAY 16, 2019 AND MAY 27, 2019.
5. TOPOGRAPHIC DATA BASED ON "EXISTING CONDITIONS PLAN" PREPARED BY FIELDSTONE LAND CONSULTANTS, PLLC DATED JUNE 2019.
6. TEST PITS WERE FIELD LOCATED BY HOYLE, TANNER & ASSOCIATES, INC. ON MAY 29, 2019.
7. REFER TO DRAINAGE NARRATIVE PREPARED BY HOYLE, TANNER & ASSOCIATES, INC. FOR TEST PIT LOGS.

WETLANDS, VERNAL POOL & STREAM NOTES:

1. THE WETLAND BOUNDARY AS DEPICTED ON THIS PLAN WAS DELINEATED/FLAGGED BY JOSEPH W. NOEL, MAINE CERTIFIED SOIL SCIENTIST #209, IN APRIL OF 1995, MAY OF 2001, JUNE, OCTOBER, AND DECEMBER OF 2015, JANUARY OF 2016, AND MAY OF 2019. THE ORIGINAL DELINEATIONS IN 1995 AND 2001 WERE CONDUCTED USING THE *FEDERAL MANUAL FOR IDENTIFYING AND DELINEATION JURISDICTIONAL WETLANDS*, (1989). THE MORE RECENT DELINEATIONS (RE-FLAGGING AND REVIEW) WERE CONDUCTED IN ACCORDANCE WITH THE U.S. ARMY CORPS OF ENGINEERS DOCUMENT *CORPS OF ENGINEERS WETLANDS DELINEATION MANUAL*, (1987) ALONG WITH THE REQUIRED *REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION*, (VERSION 2, JANUARY 2012).
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LEGEND

SOIL TYPE UrE

TEST PIT TP5

SOIL BOUNDARY

GRAPHIC SCALE

(IN FEET)
1 inch = 80 ft.

TO BE STAMPED AT NEXT SUBMISSION

REV.	REVISION DESCRIPTION	DATE
1	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN	06/20/19

CHECKED BY	DRAWN BY	DESIGNED BY	DATE:	SCALE:
WRD	SMT	SMT	JUNE 20, 2019	AS SHOWN

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
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Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

HIGH INTENSITY SOIL MAP

C4

PROJECT NO. 569200

SITE NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWGS C8–C9 FOR DETAILED SITE PLANS.
3. REFER TO DWGS C19–C25 FOR CONSTRUCTION DETAILS.
4. TAX MAP LOTS 6-15B, 6-16A & 13-4 ARE TO BE MERGED INTO 1 PARCEL.
5. THE LOCATION OF PROPOSED BUILDING ENTRANCES ARE APPROXIMATE AND SHALL BE COORDINATED WITH THE ARCHITECTURAL PLANS.

VERNAL POOL BUFFER CALCULATIONS

REGULATION	TOTAL AREA	EXISTING DEVELOPED	PROPOSED DEVELOPED
MEDEP 0'–100'	68,410 S.F.	7,550 S.F. (11.0%)	0* S.F. (0%)
MEDEP 0'–250'	288,195 S.F.	96,552 S.F. (33.5%)	72,017* S.F. (25.0%)
ACOE 0'–750'	2,041,606	1,016,368 S.F. (49.8%)	1,033,210* (50.6%)

*INCLUDES 24,535 S.F. OF BUFFER RESTORATION

DIMENSIONAL REQUIREMENTS (MU-N)

REGULATION	REQUIREMENT	PROVIDED
MIN. LOT AREA:	20,000 S.F.	23.34± AC.
MIN. LOT AREA FOR 303 UNITS:	797,500 S.F.	866,732 S.F.
MIN. STREET FRONTAGE:	75 FT	641.6 FT
MIN. FRONT SETBACK:	50 FT	148.5 FT
MIN. SIDE SETBACK:	20 FT	81.5 FT
MIN. REAR SETBACK:	20 FT	85.5 FT
MIN. SPACE BETWEEN BUILDINGS	15 FT	37.5 FT
MAX. BUILDING HEIGHT:	50 FT	50 FT
MAX. IMPERVIOUS COVER:	70% (711,491 S.F.)	26.5% (269,590 S.F.)
MIN. OPEN SPACE	25% (254,104 S.F.)	73.5% (746,877 S.F.)
PARKING:	356 SPACES	401 SPACES
ACCESSIBLE PARKING:	12 SPACES	14 SPACES
VAN ACCESSIBLE PARKING:	2 SPACES	6 SPACES
STALL DIMENSIONS:	9X19 FT	9X19 FT
AISLE WIDTH (90° PARKING):	24 FT	24 FT

SITE DATA

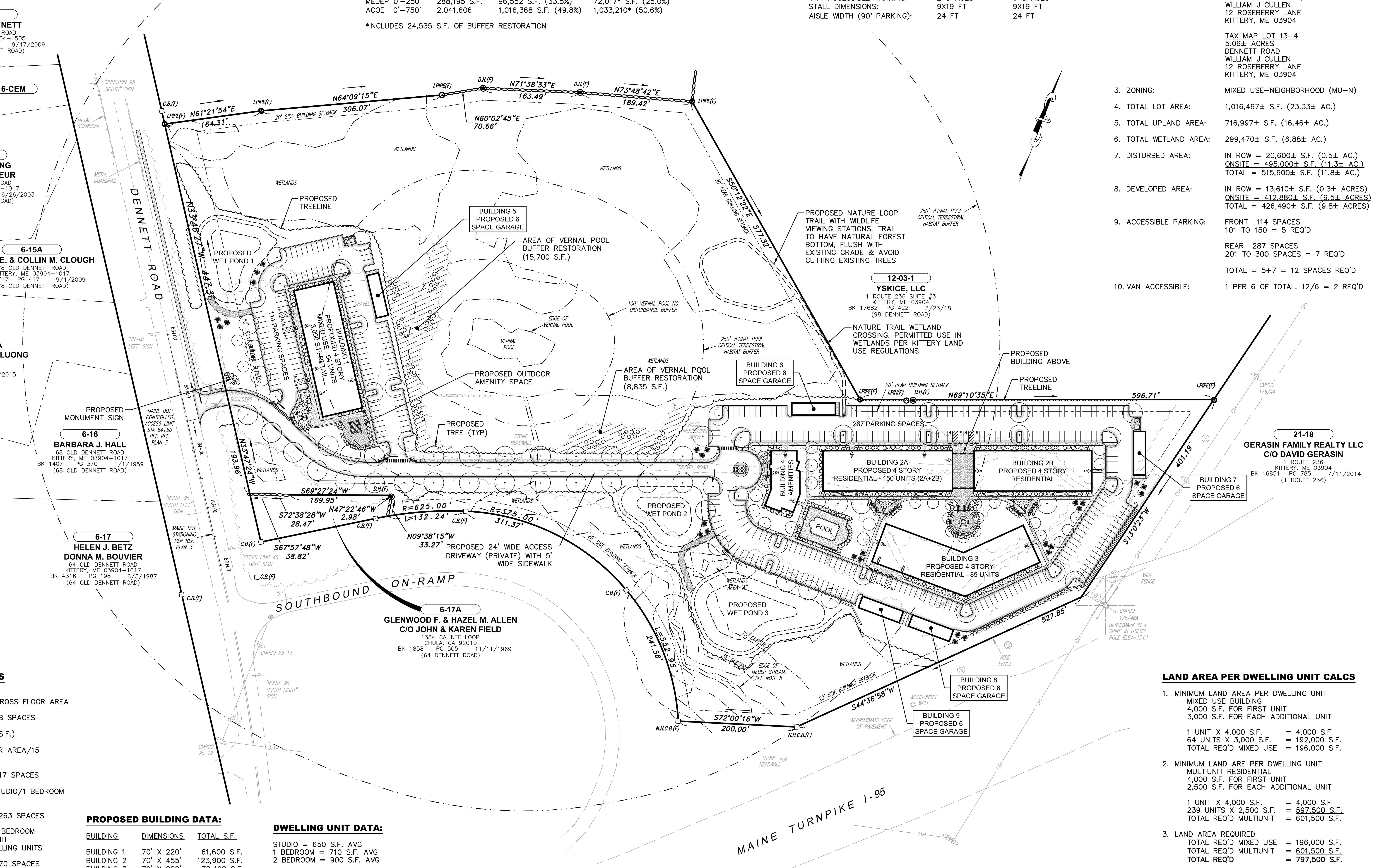
1. APPLICANT: AZTEC, LLC
   62 PORTLAND ROAD, SUITE 25
   KENNEBUNK, ME 04043
2. LOT/OWNER INFORMATION:
   TAX MAP LOT 6-15B
   13.29± ACRES
   76 DENNETT ROAD
   SAIL AWAY, LLC
   12 ROSEBERRY LANE
   KITTERY, ME 03904

   TAX MAP LOT 6-16A
   4.99± ACRES
   70 DENNETT ROAD
   PISCATAQUA REALTY, LLC
   WILLIAM J CULLEN
   12 ROSEBERRY LANE
   KITTERY, ME 03904

   TAX MAP LOT 13-4
   5.06± ACRES
   DENNETT ROAD
   WILLIAM J CULLEN
   12 ROSEBERRY LANE
   KITTERY, ME 03904
3. ZONING: MIXED USE–NEIGHBORHOOD (MU–N)
4. TOTAL LOT AREA: 1,016,467± S.F. (23.33± AC.)
5. TOTAL UPLAND AREA: 716,997± S.F. (16.46± AC.)
6. TOTAL WETLAND AREA: 299,470± S.F. (6.88± AC.)
7. DISTURBED AREA: IN ROW = 20,600± S.F. (0.5± AC.)
   ONSITE = 495,000± S.F. (11.3± AC.)
   TOTAL = 515,600± S.F. (11.8± AC.)
8. DEVELOPED AREA: IN ROW = 13,610± S.F. (0.3± ACRES)
   ONSITE = 412,880± S.F. (9.5± ACRES)
   TOTAL = 426,490± S.F. (9.8± ACRES)
9. ACCESSIBLE PARKING: FRONT 114 SPACES
   101 TO 150 = 5 REQ'D

   REAR 287 SPACES
   201 TO 300 SPACES = 7 REQ'D

   TOTAL = 5+7 = 12 SPACES REQ'D
10. VAN ACCESSIBLE: 1 PER 6 OF TOTAL. 12/6 = 2 REQ'D



PARKING CALCULATIONS

1. RETAIL (1,500 S.F.)
   1 SPACE PER 200 S.F. GROSS FLOOR AREA

   1,500 S.F./200 S.F. = 8 SPACES
2. FOOD/COFFEE SHOP (1,500 S.F.)
   1 SPACE PER 3 SEATS
   SEAT = CUSTOMER FLOOR AREA/15
   750 S.F./15 = 50 SEATS

   50 SEATS/3 = 17 SPACES
3. MULTIUNIT RESIDENTIAL – STUDIO/1 BEDROOM
   1 SPACE/DWELLING UNIT

   263 UNITS X 1 = 263 SPACES
4. MULTIUNIT RESIDENTIAL – 2 BEDROOM
   1.5 SPACES/DWELLING UNIT
   +1 GUEST SPACE/4 DWELLING UNITS

   40 UNITS X 1.75 = 70 SPACES
5. PROJECT TOTAL

   HEALTH/FITNESS = 8 SPACES
   FOOD/COFFEE = 17 SPACES
   STUDIO/1 BR UNITS = 263 SPACES
   2 BEDROOM UNITS = 70 SPACES
   TOTAL REQ'D = 358 SPACES

PROPOSED BUILDING DATA:

BUILDING	DIMENSIONS	TOTAL S.F.
BUILDING 1	70' X 220'	61,600 S.F.
BUILDING 2	70' X 455'	123,900 S.F.
BUILDING 3	70' X 280'	78,400 S.F.
BUILDING 4	50' X 105'	5,015 S.F.
BUILDING 5	22' X 75'	1,650 S.F.
BUILDING 6	22' X 75'	1,650 S.F.
BUILDING 7	22' X 75'	1,650 S.F.
BUILDING 8	22' X 75'	1,650 S.F.
BUILDING 9	22' X 75'	1,650 S.F.
TOTAL		**277,165 S.F.**

DWELLING UNIT DATA:

STUDIO = 650 S.F. AVG
1 BEDROOM = 710 S.F. AVG
2 BEDROOM = 900 S.F. AVG

BUILDING	STUDIO	1 BEDROOM	2 BEDROOM
BUILDING 1	25 UNITS	28 UNITS	11 UNITS
BUILDING 2	60 UNITS	72 UNITS	18 UNITS
BUILDING 3	45 UNITS	33 UNITS	11 UNITS
TOTALS	130 UNITS	133 UNITS	40 UNITS

TOTAL = 303 DWELLING UNITS

GRAPHIC SCALE

0 40 80 160

(IN FEET)
1 inch = 80 ft.

LAND AREA PER DWELLING UNIT CALCS

1. MINIMUM LAND AREA PER DWELLING UNIT
   MIXED USE BUILDING
   4,000 S.F. FOR FIRST UNIT
   3,000 S.F. FOR EACH ADDITIONAL UNIT

   1 UNIT X 4,000 S.F. = 4,000 S.F.
   64 UNITS X 3,000 S.F. = 192,000 S.F.
   TOTAL REQ'D MIXED USE = 196,000 S.F.
2. MINIMUM LAND ARE PER DWELLING UNIT
   MULTIUNIT RESIDENTIAL
   4,000 S.F. FOR FIRST UNIT
   2,500 S.F. FOR EACH ADDITIONAL UNIT

   1 UNIT X 4,000 S.F. = 4,000 S.F.
   239 UNITS X 2,500 S.F. = 597,500 S.F.
   TOTAL REQ'D MULTIUNIT = 601,500 S.F.
3. LAND AREA REQUIRED
   TOTAL REQ'D MIXED USE = 196,000 S.F.
   TOTAL REQ'D MULTIUNIT = 601,500 S.F.
   TOTAL REQ'D = 797,500 S.F.
4. LAND AREA PROVIDED
   UPLAND AREA = 716,997 S.F.
   50% OF WETLANDS* = 149,735 S.F.
   TOTAL PROVIDED = 866,732 S.F.

* MIXED USE – NEIGHBORHOOD ALLOWS 50% OF THE WETLANDS TO COUNT TOWARDS MINIMUM LAND AREA PER DWELLING UNIT.

STATE OF MAINE
SHAWN M. TOBEY
13377
PROFESSIONAL ENGINEER
6/20/19

REV.	DESCRIPTION	DATE
1	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN	06/20/19

THIS DOCUMENT IS PREPARED AS AN INSTRUMENT OF SERVICE AND SHALL REMAIN THE PROPERTY OF HOYLE, TANNER & ASSOCIATES, INC. IT MAY NOT BE USED, REPRODUCED, DISSEMINATED OR TRANSFERRED IN ANY MANNER, INCLUDING ELECTRONICALLY, FOR ANY OTHER PURPOSE THAN THIS PROJECT, WITHOUT THE WRITTEN PERMISSION OF HOYLE, TANNER.

DESIGNED BY SMT | DRAWN BY SMT | CHECKED BY WRD

Hoyle, Tanner & Associates, Inc.
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SCALE: AS SHOWN
DATE: JUNE 20, 2019

APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

OVERALL SITE PLAN
C5

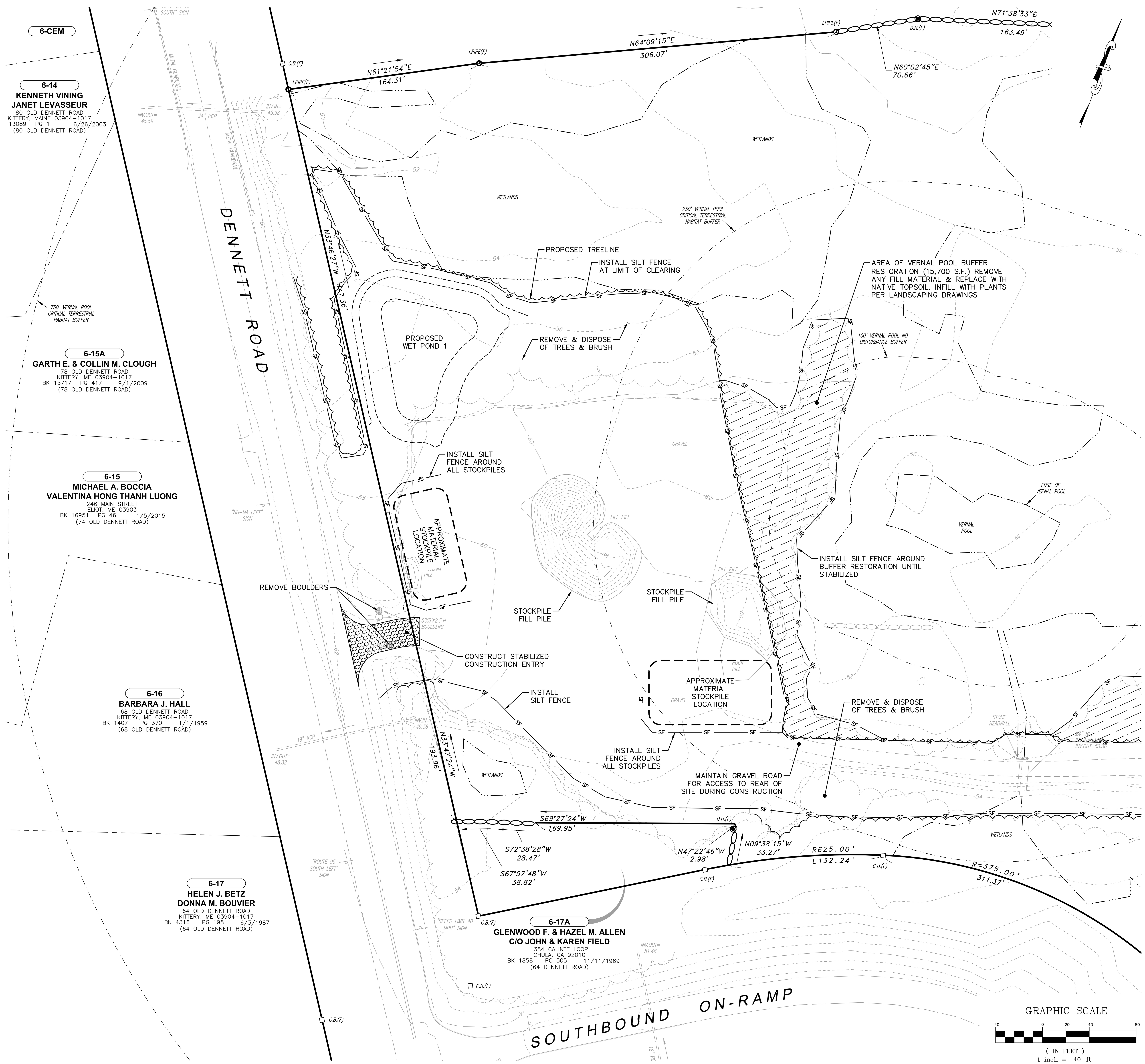
PROJECT NO. 569200

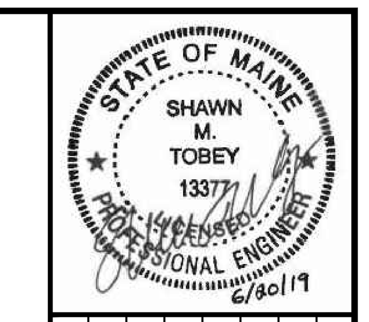
EROSION CONTROL NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWGS C19–C25 FOR CONSTRUCTION DETAILS.
3. INSTALL ALL EROSION CONTROL MEASURES ON THIS SHEET PRIOR TO STARTING CONSTRUCTION.
4. CONSTRUCTION SHALL MEET ALL CONDITIONS OF THE MAINE DEP SITE LOCATION OF DEVELOPMENT PERMIT.

HOUSEKEEPING NOTES:

1. SPILL PREVENTION. CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM CONSTRUCTION AND WASTE MATERIALS STORED ON SITE TO ENTER STORMWATER, WHICH INCLUDES STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER. THE SITE CONTRACTOR OR OPERATOR MUST DEVELOP, AND IMPLEMENT AS NECESSARY, APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING MEASURES. ANY SPILL OR RELEASE OF TOXIC OR HAZARDOUS SUBSTANCES MUST BE REPORTED TO THE DEPARTMENT. FOR OIL SPILLS, CALL 1–800–482–0777 WHICH IS AVAILABLE 24 HOURS A DAY. FOR SPILLS OF TOXIC OR HAZARDOUS MATERIAL, CALL 1–800–452–4664 WHICH IS AVAILABLE 24 HOURS A DAY. FOR MORE INFORMATION, VISIT THE DEPARTMENT'S WEBSITE AT : HTTP://WWW.MAINE.GOV/DEP/SPILLS/EMERGSPILLRESP/
2. GROUNDWATER PROTECTION. DURING CONSTRUCTION, LIQUID PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUNDWATER MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO AN INFILTRATION AREA. AN "INFILTRATION AREA" IS ANY AREA OF THE SITE THAT BY DESIGN OR AS A RESULT OF SOILS, TOPOGRAPHY AND OTHER RELEVANT FACTORS ACCUMULATES RUNOFF THAT INFILTRATES INTO THE SOIL. DIKES, BERMS, SUMPS, AND OTHER FORMS OF SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS. ANY PROJECT PROPOSING INFILTRATION OF STORMWATER MUST PROVIDE ADEQUATE PRE–TREATMENT OF STORMWATER PRIOR TO DISCHARGE OF STORMWATER TO THE INFILTRATION AREA, OR PROVIDE FOR TREATMENT WITHIN THE INFILTRATION AREA, IN ORDER TO PREVENT THE ACCUMULATION OF FINES, REDUCTION IN INFILTRATION RATE, AND CONSEQUENT FLOODING AND DESTABILIZATION.
3. FUGITIVE SEDIMENT AND DUST. ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL, BUT OTHER WATER ADDITIVES MAY BE CONSIDERED AS NEEDED. A STABILIZED CONSTRUCTION ENTRANCE (SCE) SHOULD BE INCLUDED TO MINIMIZE TRACKING OF MUD AND SEDIMENT. IF OFF–SITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEPT IMMEDIATELY, NO LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS. OPERATIONS DURING DRY MONTHS THAT EXPERIENCE FUGITIVE DUST PROBLEMS SHOULD WET DOWN UNPAVED ACCESS ROADS ONCE A WEEK OR MORE FREQUENTLY AS NEEDED WITH A WATER ADDITIVE TO SUPPRESS FUGITIVE SEDIMENT AND DUST.
4. DEBRIS AND OTHER MATERIALS. MINIMIZE THE EXPOSURE OF CONSTRUCTION DEBRIS, BUILDING AND LANDSCAPING MATERIALS, TRASH, FERTILIZERS, PESTICIDES, HERBICIDES, DETERGENTS, SANITARY WASTE AND OTHER MATERIALS TO PRECIPITATION AND STORMWATER RUNOFF. THESE MATERIALS MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.
5. EXCAVATION DE–WATERING. EXCAVATION DE–WATERING IS THE REMOVAL OF WATER FROM TRENCHES, FOUNDATIONS, COFFER DAMS, PONDS, AND OTHER AREAS WITHIN THE CONSTRUCTION AREA THAT RETAIN WATER AFTER EXCAVATION. IN MOST CASES THE COLLECTED WATER IS HEAVILY SILTED AND HINDERS CORRECT AND SAFE CONSTRUCTION PRACTICES. THE COLLECTED WATER REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, MUST BE SPREAD THROUGH NATURAL WOODED BUFFERS OR REMOVED TO AREAS THAT ARE SPECIFICALLY DESIGNED TO COLLECT THE MAXIMUM AMOUNT OF SEDIMENT POSSIBLE, LIKE A COFFERDAM SEDIMENTATION BASIN. AVOID ALLOWING THE WATER TO FLOW OVER DISTURBED AREAS OF THE SITE. EQUIVALENT MEASURES MAY BE TAKEN IF APPROVED BY THE DEPARTMENT.
6. AUTHORIZED NON–STORMWATER DISCHARGES. IDENTIFY AND PREVENT CONTAMINATION BY NON–STORMWATER DISCHARGES. WHERE ALLOWED NON–STORMWATER DISCHARGES EXIST, THEY MUST BE IDENTIFIED AND STEPS SHOULD BE TAKEN TO ENSURE THE IMPLEMENTATION OF APPROPRIATE POLLUTION PREVENTION MEASURES FOR THE NON–STORMWATER COMPONENT(S) OF THE DISCHARGE. AUTHORIZED NON–STORMWATER DISCHARGES ARE:
   - A. DISCHARGES FROM FIREFIGHTING ACTIVITY;
   - B. FIRE HYDRANT FLUSHINGS;
   - C. VEHICLE WASHWATER IF DETERGENTS ARE NOT USED AND WASHING IS LIMITED TO THE EXTERIOR OF VEHICLES (ENGINE, UNDERCARRIAGE AND TRANSMISSION WASHING IS PROHIBITED);
   - D. DUST CONTROL RUNOFF IN ACCORDANCE WITH PERMIT CONDITIONS AND APPENDIX (C)(3);
   - E. ROUTINE EXTERNAL BUILDING WASHDOWN, NOT INCLUDING SURFACE PAINT REMOVAL, THAT DOES NOT INVOLVE DETERGENTS;
   - F. PAVEMENT WASHWATER (WHERE SPILLS/LEAKS OF TOXIC OR HAZARDOUS MATERIALS HAVE NOT OCCURRED, UNLESS ALL SPILLED MATERIAL HAD BEEN REMOVED) IF DETERGENTS ARE NOT USED;
   - G. UNCONTAMINATED AIR CONDITIONING OR COMPRESSOR CONDENSATE;
   - H. UNCONTAMINATED GROUNDWATER OR SPRING WATER;
   - I. FOUNDATION OR FOOTER DRAIN–WATER WHERE FLOWS ARE NOT CONTAMINATED;
   - J. UNCONTAMINATED EXCAVATION DEWATERING (SEE REQUIREMENTS IN APPENDIX C(5));
   - K. POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS; AND
   - L. LANDSCAPE IRRIGATION.
7. UNAUTHORIZED NON–STORMWATER DISCHARGES. THE DEPARTMENT'S APPROVAL UNDER THIS CHAPTER DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON–STORMWATER, OTHER THAN THOSE DISCHARGES IN COMPLIANCE WITH APPENDIX C (6). SPECIFICALLY, THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF THE FOLLOWING:
   - A. WASTEWATER FROM THE WASHOUT OR CLEANOUT OF CONCRETE, STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS OR OTHER CONSTRUCTION MATERIALS;
   - B. FUELS, OILS OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE;
   - C. SOAPS, SOLVENTS, OR DETERGENTS USED IN VEHICLE AND EQUIPMENT WASHING; AND
   - D. TOXIC OR HAZARDOUS SUBSTANCES FROM A SPILL OR OTHER RELEASE.
8. ADDITIONAL REQUIREMENTS. ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE–SPECIFIC BASIS.





REV.	DATE	REVISION DESCRIPTION
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DESIGNED BY	DRAWN BY	CHECKED BY
SMT	SMT	WRD

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

SCALE: AS SHOWN
DATE: JUNE 20, 2019

APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

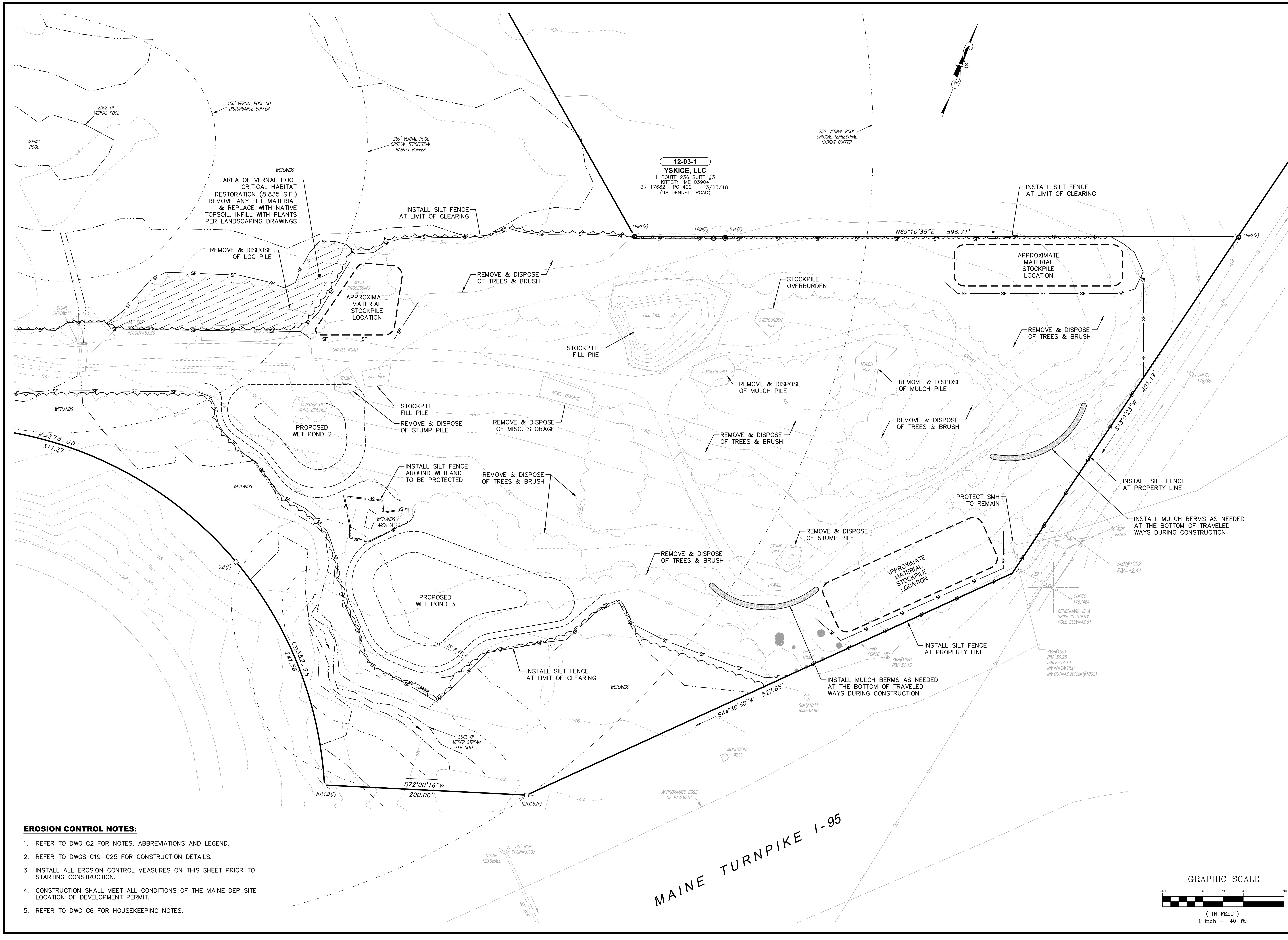
PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

EROSION CONTROL & HOUSEKEEPING PLAN - FRONT

C6

PROJECT NO. 569200

SHEET 6 OF 25



EROSION CONTROL NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWGS C19–C25 FOR CONSTRUCTION DETAILS.
3. INSTALL ALL EROSION CONTROL MEASURES ON THIS SHEET PRIOR TO STARTING CONSTRUCTION.
4. CONSTRUCTION SHALL MEET ALL CONDITIONS OF THE MAINE DEP SITE LOCATION OF DEVELOPMENT PERMIT.
5. REFER TO DWG C6 FOR HOUSEKEEPING NOTES.

STATE OF MAINE — SHAWN M. TOBEY 13377 — LICENSED PROFESSIONAL ENGINEER — 6/20/19

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SCALE: AS SHOWN
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KENNEBUNK, ME 04043

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PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
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76 DENNETT ROAD, KITTERY, ME 03904

EROSION CONTROL & HOUSEKEEPING PLAN - REAR

C7

PROJECT NO. 569200

SHEET 7 OF 25

SITE NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWG C4 FOR OVERALL SITE PLAN, SITE CALCULATIONS AND DIMENSIONAL REQUIREMENTS.
3. REFER TO DWGS C19–C25 FOR CONSTRUCTION DETAILS.
4. THERE ARE NO SETBACKS FOR THE NON–SIGNIFICANT FORESTED WETLANDS.
5. THE LOCATION OF PROPOSED BUILDING ENTRANCES ARE APPROXIMATE AND SHALL BE COORDINATED WITH THE ARCHITECTURAL PLANS.
6. COORDINATE ALL WORK ADJACENT TO THE PROPOSED BUILDING WITH THE ARCHITECTURAL DRAWINGS.
7. ALL CURBING ONSITE SHALL BE VERTICAL GRANITE.
8. THE CONTRACTOR SHALL INSTALL DETECTABLE WARNING PANELS ON ALL TIP–DOWN RAMPS LOCATED WITHIN THE SUBJECT PARCEL.

DIMENSIONAL REQUIREMENTS (MU-N)

REGULATION	REQUIREMENT	PROVIDED
MIN. LOT AREA:	20,000 S.F.	23.34± AC.
MIN. LOT AREA FOR 303 UNITS:	797,500 S.F.	866,732 S.F.
MIN. STREET FRONTAGE:	75 FT	641.6 FT
MIN. FRONT SETBACK:	50 FT	148.5 FT
MIN. SIDE SETBACK:	20 FT	81.5 FT
MIN. REAR SETBACK:	20 FT	85.5 FT
MIN. SPACE BETWEEN BUILDINGS	15 FT	37.5 FT
MAX. BUILDING HEIGHT:	50 FT	50 FT
MAX. IMPERVIOUS COVER:	70% (711,491 S.F.)	26.5% (269,590 S.F.)
MIN. OPEN SPACE	25% (254,104 S.F.)	73.5% (746,877 S.F.)
PARKING:	356 SPACES	401 SPACES
ACCESSIBLE PARKING:	12 SPACES	14 SPACES
VAN ACCESSIBLE PARKING:	2 SPACES	6 SPACES
STALL DIMENSIONS:	9X19 FT	9X19 FT
AISLE WIDTH (90° PARKING):	24 FT	24 FT

SITE DATA

1. APPLICANT: AZTEC, LLC
   62 PORTLAND ROAD, SUITE 25
   KENNEBUNK, ME 04043

2. LOT/OWNER INFORMATION:
   TAX MAP LOT 6–15B
   13.29± ACRES
   76 DENNETT ROAD
   SAIL AWAY, LLC
   12 ROSEBERRY LANE
   KITTERY, ME 03904

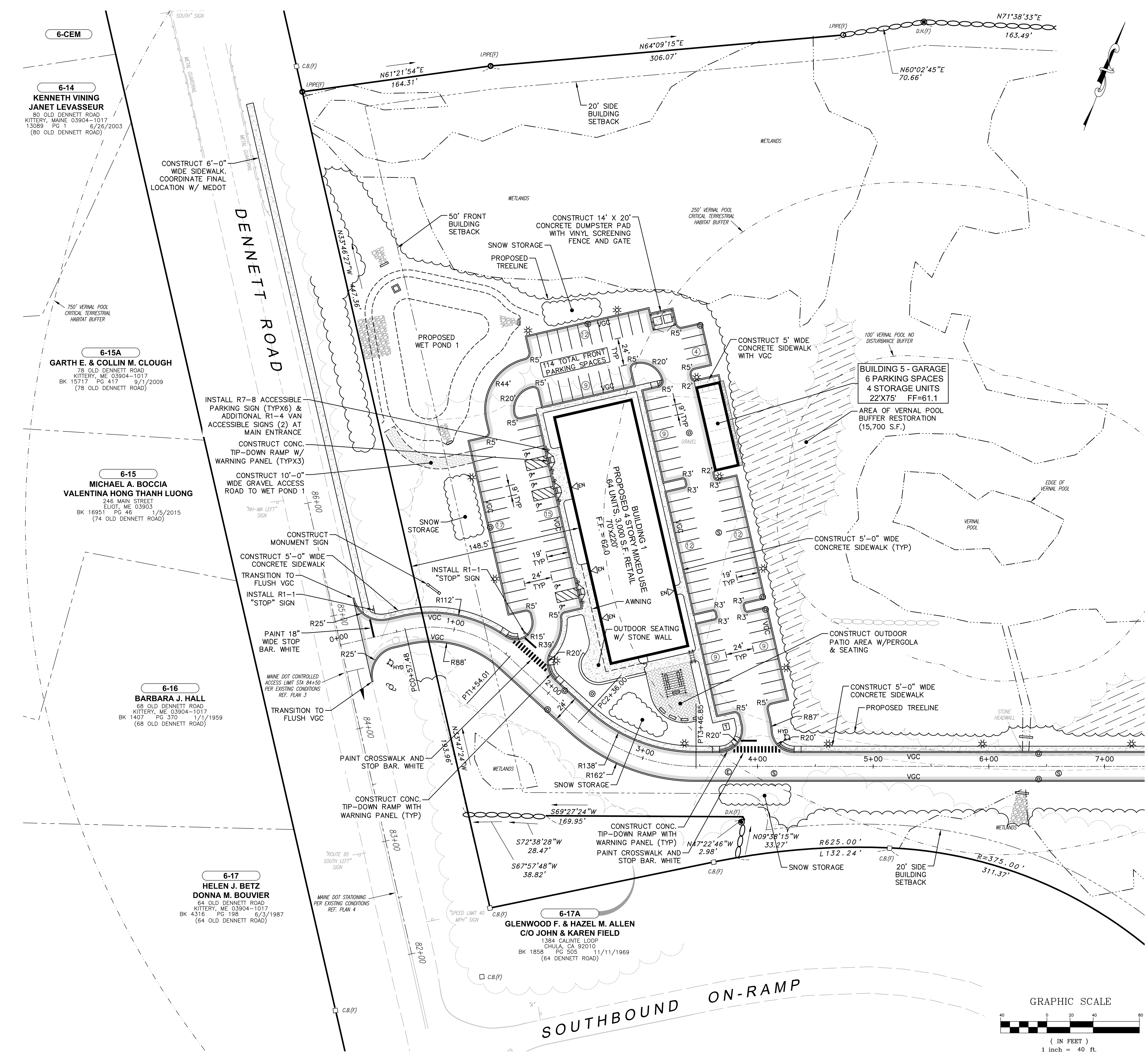
   TAX MAP LOT 6–16A
   4.99± ACRES
   70 DENNETT ROAD
   PISCATAQUA REALTY, LLC
   WILLIAM J CULLEN
   12 ROSEBERRY LANE
   KITTERY, ME 03904

   TAX MAP LOT 13–4
   5.06± ACRES
   DENNETT ROAD
   WILLIAM J CULLEN
   12 ROSEBERRY LANE
   KITTERY, ME 03904

3. ZONING: MIXED USE–NEIGHBORHOOD (MU–N)
4. TOTAL LOT AREA: 1,016,467± S.F. (23.33± AC.)
5. TOTAL UPLAND AREA: 716,997± S.F. (16.46± AC.)
6. TOTAL WETLAND AREA: 299,470± S.F. (6.88± AC.)
7. DISTURBED AREA: IN ROW = 20,600± S.F. (0.5± AC.)
   ONSITE = 495,000± S.F. (11.3± AC.)
   TOTAL = 515,600± S.F. (11.8± AC.)
8. DEVELOPED AREA: IN ROW = 13,610± S.F. (0.3± ACRES)
   ONSITE = 412,880± S.F. (9.5± ACRES)
   TOTAL = 426,490± S.F. (9.8± ACRES)
9. ACCESSIBLE PARKING: FRONT 114 SPACES
   101 TO 150 = 5 REQ'D

   REAR 287 SPACES
   201 TO 300 SPACES = 7 REQ'D

   TOTAL = 5+7 = 12 SPACES REQ'D
10. VAN ACCESSIBLE: 1 PER 6 OF TOTAL. 12/6 = 2 REQ'D



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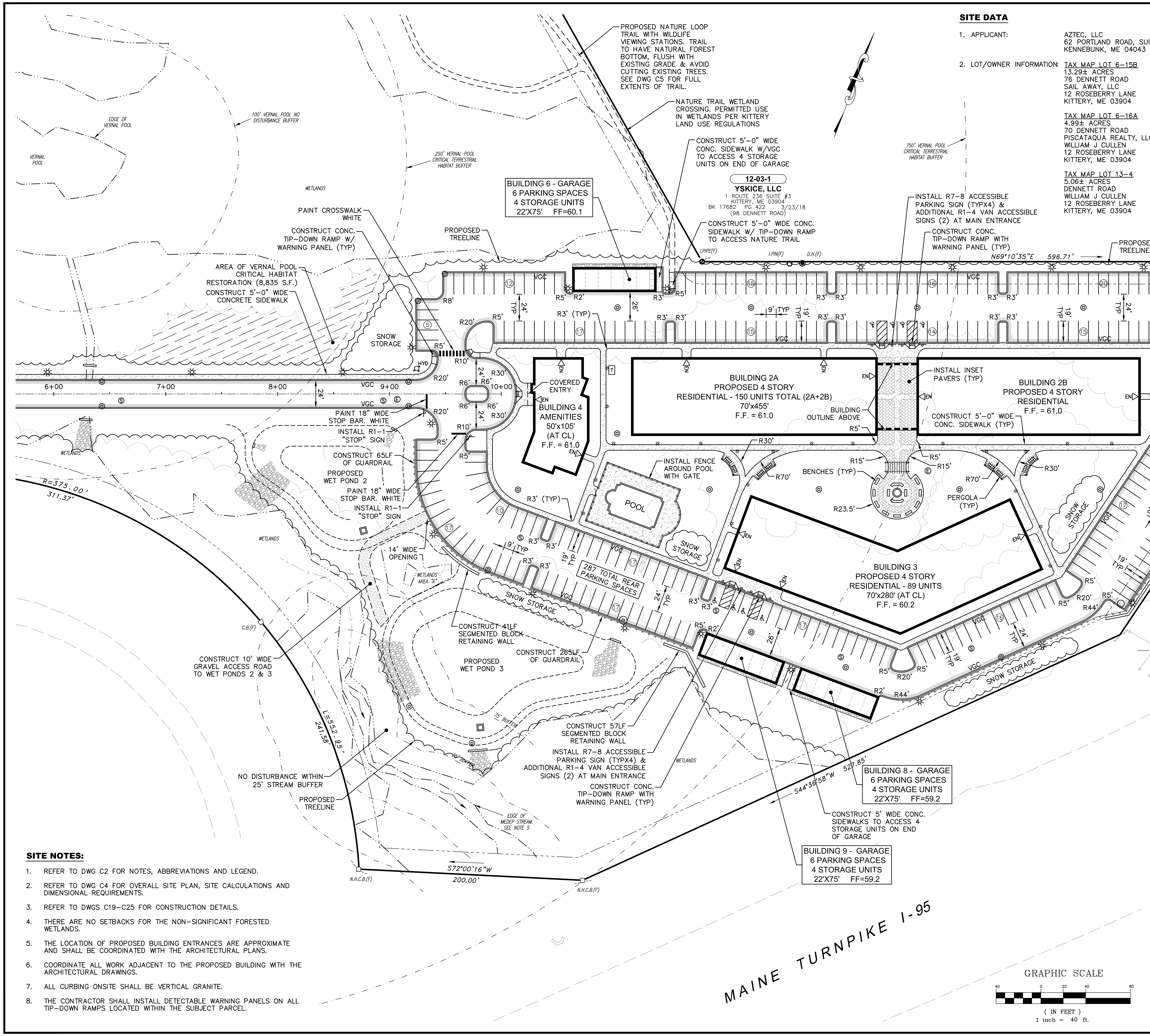
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

FRONT SITE PLAN
C8

PROJECT NO. 569200

SHEET 8 OF 25



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   70 DENNETT ROAD
   PISCATAQUA REALTY, LLC
   WILLIAM J CULLEN
   12 ROSEBERRY LANE
   KITTERY, ME 03904

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SITE NOTES:

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3. REFER TO DWGS C19-C25 FOR CONSTRUCTION DETAILS.
4. THERE ARE NO SETBACKS FOR THE NON-SIGNIFICANT FORESTED WETLANDS.
5. THE LOCATION OF PROPOSED BUILDING ENTRANCES ARE APPROXIMATE AND SHALL BE COORDINATED WITH THE ARCHITECTURAL PLANS.
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7. ALL CURBING ONSITE SHALL BE VERTICAL GRANITE.
8. THE CONTRACTOR SHALL INSTALL DETECTABLE WARNING PANELS ON ALL TIP-DOWN RAMPS LOCATED WITHIN THE SUBJECT PARCEL.

DIMENSIONAL REQUIREMENTS (MU-N)

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VAN ACCESSIBLE PARKING:	2 SPACES	6 SPACES
STALL DIMENSIONS:	9X19 FT	9X19 FT
AISLE WIDTH (90° PARKING):	24 FT	24 FT

STATE OF MAINE
SHAWN M. TOBEY
13377
LICENSED PROFESSIONAL ENGINEER
6/20/19

REV.	DATE	REVISION DESCRIPTION
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CHECKED BY	DRAWN BY	DESIGNED BY	DATE:	SCALE:
WRD	SMT	SMT	JUNE 20, 2019	AS SHOWN

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APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

REAR SITE PLAN

C9

PROJECT NO. 569200

GRADING & DRAINAGE NOTES:

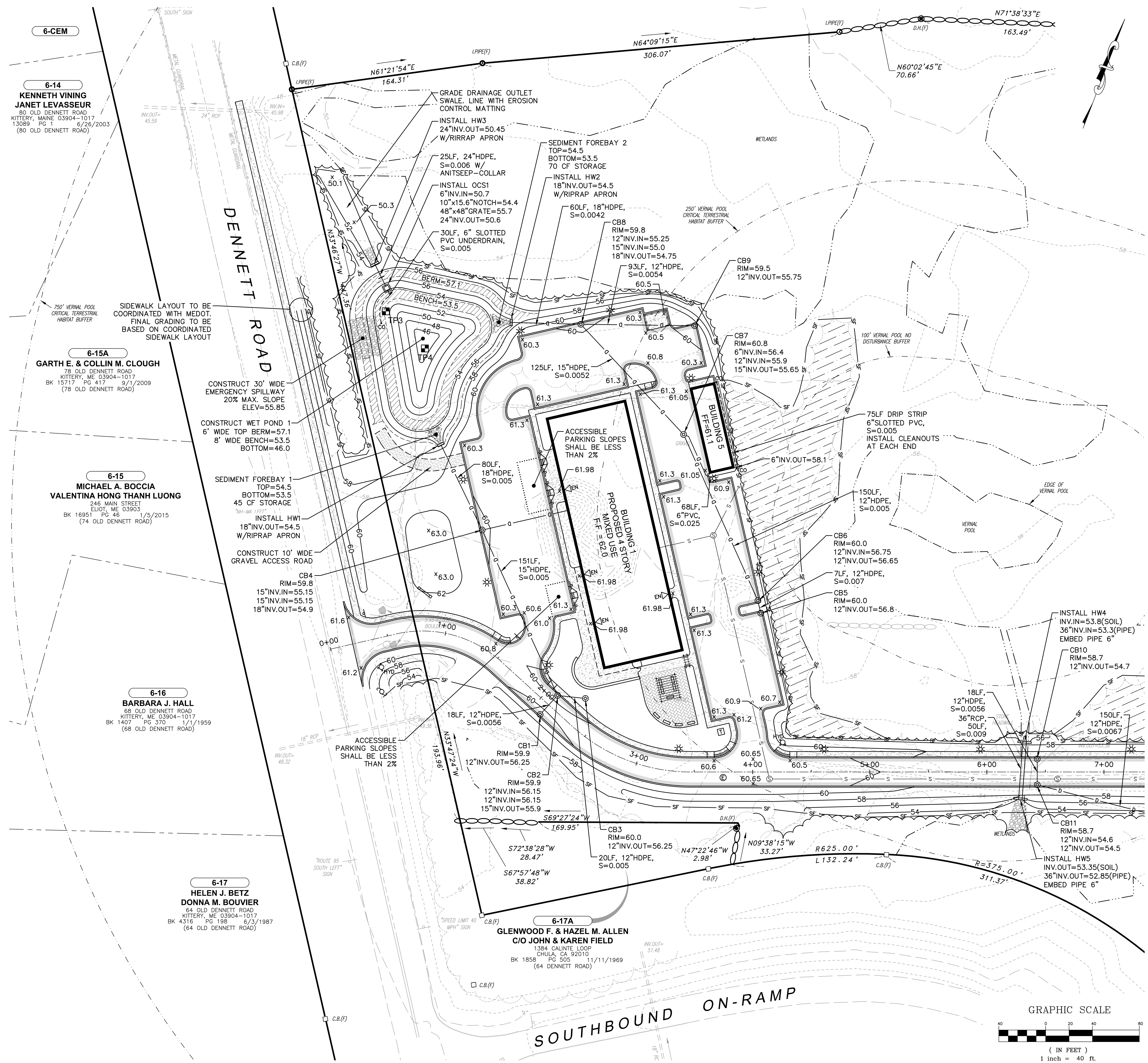
1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWG C6–C7 FOR ADDITIONAL EROSION CONTROL MEASURES.
3. REFER TO DWGS C19–C25 FOR CONSTRUCTION DETAILS.
4. CONSTRUCTION SHALL MEET ALL CONDITIONS OF THE MAINE DEP SITE LOCATION OF DEVELOPMENT PERMIT.
5. ALL DRAINAGE STRUCTURES HAVE AN INTERNAL DIAMETER OF 4'–0" UNLESS OTHERWISE SPECIFIED ON THE PLANS.
6. INSTALL INLET PROTECTION ON ALL PROPOSED CATCH BASINS AFTER INSTALLATION. REMOVE WHEN CONSTRUCTION IS COMPLETED.
7. THE LOCATION OF PROPOSED BUILDING ENTRANCES ARE APPROXIMATE AND SHALL BE COORDINATED WITH THE ARCHITECTURAL PLANS.
8. ACCESSIBLE PARKING STALLS HAVE SLOPES LESS THAN 2% IN ALL DIRECTIONS.
9. TEST PIT DATA IS BASED ON FIELD OBSERVATIONS FOR LEDGE AND APPROXIMATE SEASONAL HIGH WATER FROM PITS DUG ON MAY 16, 2019 AND MAY 27, 2019.
10. REFER TO DRAINAGE NARRATIVE FOR TEST PIT LOGS AND DETAILED WET POND CALCULATIONS.

WETPOND NOTE:

1. THE APPLICANT SHALL RETAIN A PROFESSIONAL ENGINEER TO PROVIDE THE ENGINEERING OVERSIGHT SERVICES FOR THE WETPOND CONSTRUCTION. THE ENGINEER SHALL INSPECT THE EMBANKMENT FOUNDATION PREPARATION, THE PLACEMENT OF THE EMBANKMENT FILL, THE CONSTRUCTION OF THE UNDERDRAINED GRAVEL TRENCH OUTLET, THE INSTALLATION OF THE OUTLET CONTROL STRUCTURE, AND THE CONSTRUCTION OF THE EMERGENCY SPILLWAY. ALL SOIL AND AGGREGATE USED FOR THE CONSTRUCTION OF THE WETPOND'S IMPOUNDMENT EMBANKMENT AND THE UNDERDRAINED GRAVEL TRENCH OUTLET MUST BE CONFIRMED BY TESTING. THE CONTRACTOR SHALL ENSURE THAT THE SAMPLING AND TESTING OF THESE MATERIALS ARE COMPLETE AND APPROVED BY THE ENGINEER BEFORE THE FILL OR AGGREGATE IS PLACED. ONCE THE WETPOND IS CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER WILL NOTIFY THE DEPARTMENT IN WRITING WITHIN 30 DAYS. ACCOMPANYING THE ENGINEER'S NOTIFICATION MUST BE A COPY OF THE TEST RESULTS FOR ANY SOIL FILL OR AGGREGATE MATERIALS USED IN THE CONSTRUCTION OF THE WETPOND AND A LOG OF THE ENGINEER'S INSPECTIONS GIVING THE DATE OF EACH INSPECTION, THE TIME OF EACH INSPECTION, AND THE ITEMS INSPECTED ON EACH VISIT.

WET POND 1 DATA:

REGULATION	REQUIREMENT	PROVIDED
PERMANENT POOL VOLUME:	13,379 CF	18,313 CF
PERM. POOL AVERAGE DEPTH:	3.0 FT	3.09 FT
CHANNEL PROTECTION VOLUME:	6,689 CF	7,507 CF
LENGTH TO WIDTH RATIO	2:1	2:1
SEDIMENT FOREBAY 1 CAPACITY:	16 CF	45 CF
SEDIMENT FOREBAY 2 CAPACITY:	38 CF	70 CF
UNDERDRAIN LENGTH:	23 FT	30 FT



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SHAWN M. TOBEY
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LICENSED PROFESSIONAL ENGINEER
6/20/19

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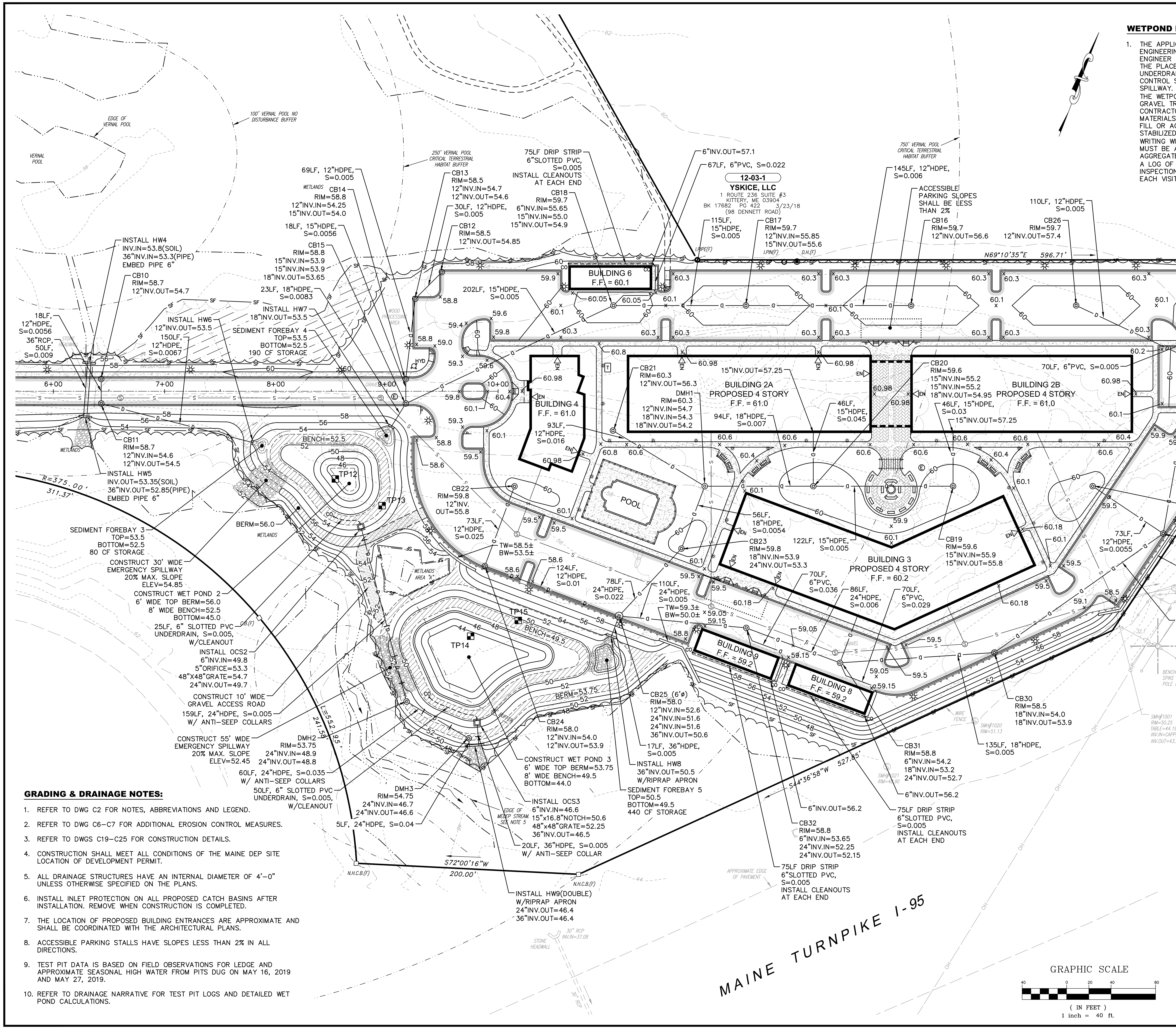
FRONT GRADING & DRAINAGE PLAN

C10

PROJECT NO. 569200



WETPOND NOTE:

1. THE APPLICANT SHALL RETAIN A PROFESSIONAL ENGINEER TO PROVIDE THE ENGINEERING OVERSIGHT SERVICES FOR THE WETPOND CONSTRUCTION. THE ENGINEER SHALL INSPECT THE EMBANKMENT FOUNDATION PREPARATION, THE PLACEMENT OF THE EMBANKMENT FILL, THE CONSTRUCTION OF THE UNDERDRAINED GRAVEL TRENCH OUTLET, THE INSTALLATION OF THE OUTLET CONTROL STRUCTURE, AND THE CONSTRUCTION OF THE EMERGENCY SPILLWAY. ALL SOIL AND AGGREGATE USED FOR THE CONSTRUCTION OF THE WETPOND'S IMPOUNDMENT EMBANKMENT AND THE UNDERDRAINED GRAVEL TRENCH OUTLET MUST BE CONFIRMED BY TESTING. THE CONTRACTOR SHALL ENSURE THAT THE SAMPLING AND TESTING OF THESE MATERIALS ARE COMPLETE AND APPROVED BY THE ENGINEER BEFORE THE FILL OR AGGREGATE IS PLACED. ONCE THE WETPOND IS CONSTRUCTED AND STABILIZED, THE ENGINEER WILL NOTIFY THE DEPARTMENT IN WRITING WITHIN 30 DAYS. ACCOMPANYING THE ENGINEER'S NOTIFICATION MUST BE A COPY OF THE TEST RESULTS FOR ANY SOIL FILL OR AGGREGATE MATERIALS USED IN THE CONSTRUCTION OF THE WETPOND AND A LOG OF THE ENGINEER'S INSPECTIONS GIVING THE DATE OF EACH INSPECTION, THE TIME OF EACH INSPECTION, AND THE ITEMS INSPECTED ON EACH VISIT.

GRADING & DRAINAGE NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWG C6-C7 FOR ADDITIONAL EROSION CONTROL MEASURES.
3. REFER TO DWGS C19-C25 FOR CONSTRUCTION DETAILS.
4. CONSTRUCTION SHALL MEET ALL CONDITIONS OF THE MAINE DEP SITE LOCATION OF DEVELOPMENT PERMIT.
5. ALL DRAINAGE STRUCTURES HAVE AN INTERNAL DIAMETER OF 4'-0" UNLESS OTHERWISE SPECIFIED ON THE PLANS.
6. INSTALL INLET PROTECTION ON ALL PROPOSED CATCH BASINS AFTER INSTALLATION. REMOVE WHEN CONSTRUCTION IS COMPLETED.
7. THE LOCATION OF PROPOSED BUILDING ENTRANCES ARE APPROXIMATE AND SHALL BE COORDINATED WITH THE ARCHITECTURAL PLANS.
8. ACCESSIBLE PARKING STALLS HAVE SLOPES LESS THAN 2% IN ALL DIRECTIONS.
9. TEST PIT DATA IS BASED ON FIELD OBSERVATIONS FOR LEDGE AND APPROXIMATE SEASONAL HIGH WATER FROM PITS DUG ON MAY 16, 2019 AND MAY 27, 2019.
10. REFER TO DRAINAGE NARRATIVE FOR TEST PIT LOGS AND DETAILED WET POND CALCULATIONS.

WET POND 2 DATA:

REGULATION	REQUIREMENT	PROVIDED
PERMANENT POOL VOLUME:	9,418 CF	12,916 CF
PERM. POOL AVERAGE DEPTH:	3.0 FT	3.19FT
CHANNEL PROTECTION VOLUME:	4,709 CF	5,590 CF
LENGTH TO WIDTH RATIO	2:1	2:1
SEDIMENT FOREBAY 3 CAPACITY:	16 CF	80 CF
SEDIMENT FOREBAY 4 CAPACITY:	50 CF	190 CF
UNDERDRAIN LENGTH:	17 FT	25 FT

WET POND 3 DATA:

REGULATION	REQUIREMENT	PROVIDED
PERMANENT POOL VOLUME:	26,451 CF	29,209 CF
PERM. POOL AVERAGE DEPTH:	3.0 FT	3.17 FT
CHANNEL PROTECTION VOLUME:	13,225 CF	13,516 CF
LENGTH TO WIDTH RATIO	2:1	2:1
SEDIMENT FOREBAY 5 CAPACITY:	101 CF	445 CF
UNDERDRAIN LENGTH:	40 FT	50 FT

STATE OF MAINE
SHAWN M. TOBEY
13377
PROFESSIONAL ENGINEER
6/20/19

REV.	DATE	REVISION DESCRIPTION
1	06/20/19	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN

DRAWN BY	CHECKED BY
SMT	WRD

DESIGNED BY	SCALE:	DATE:
SMT	AS SHOWN	JUNE 20, 2019

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

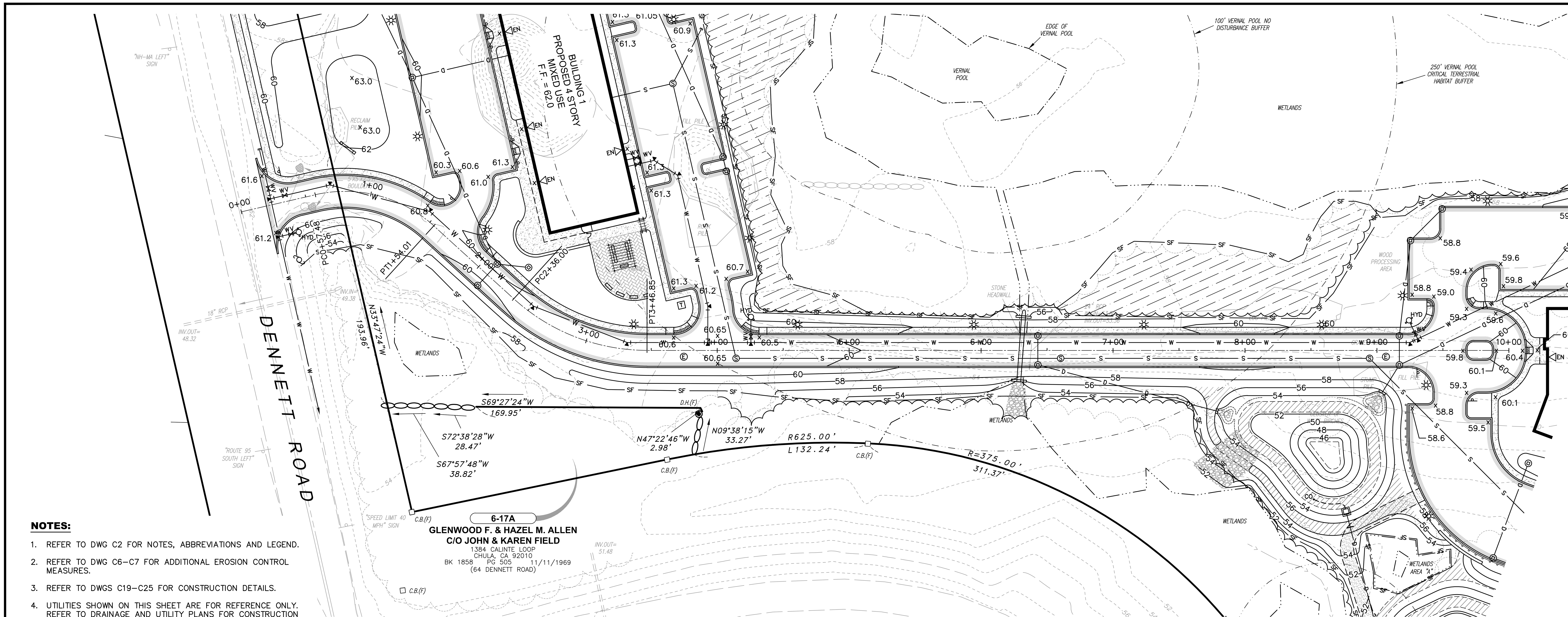
APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

REAR GRADING & DRAINAGE PLAN

C11

PROJECT NO. 569200

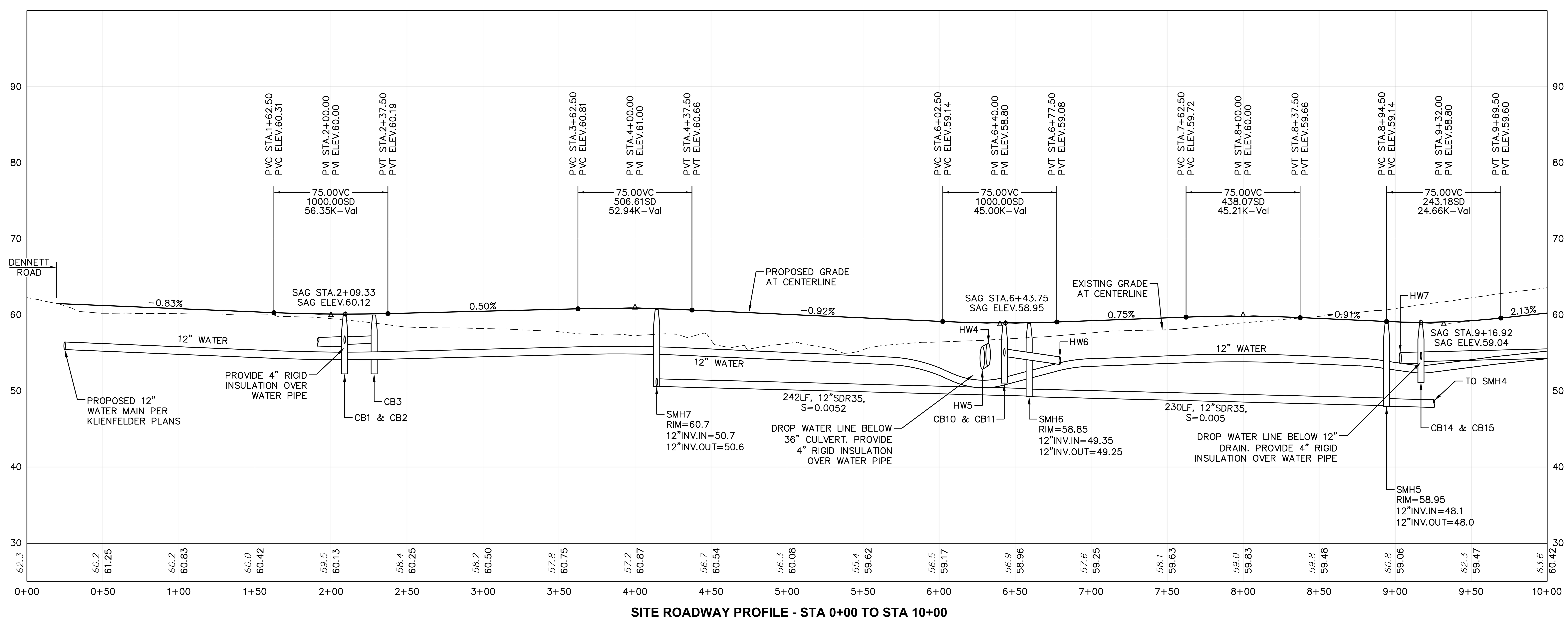


NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWG C6–C7 FOR ADDITIONAL EROSION CONTROL MEASURES.
3. REFER TO DWGS C19–C25 FOR CONSTRUCTION DETAILS.
4. UTILITIES SHOWN ON THIS SHEET ARE FOR REFERENCE ONLY. REFER TO DRAINAGE AND UTILITY PLANS FOR CONSTRUCTION INFORMATION.

SITE ROADWAY PLAN - STA 0+00 TO STA 10+00

SCALE: 1" = 40'



SITE ROADWAY PROFILE - STA 0+00 TO STA 10+00

SCALE: HORIZONTAL 1" = 40' VERTICAL 1" = 8'

GRAPHIC SCALE

HORIZONTAL

VERTICAL

STATE OF MAINE
SHAWN M. TOBEY
13377
LICENSED PROFESSIONAL ENGINEER
6/20/19

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SCALE: AS SHOWN
DATE: JUNE 20, 2019

APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

ROADWAY PLAN & PROFILE

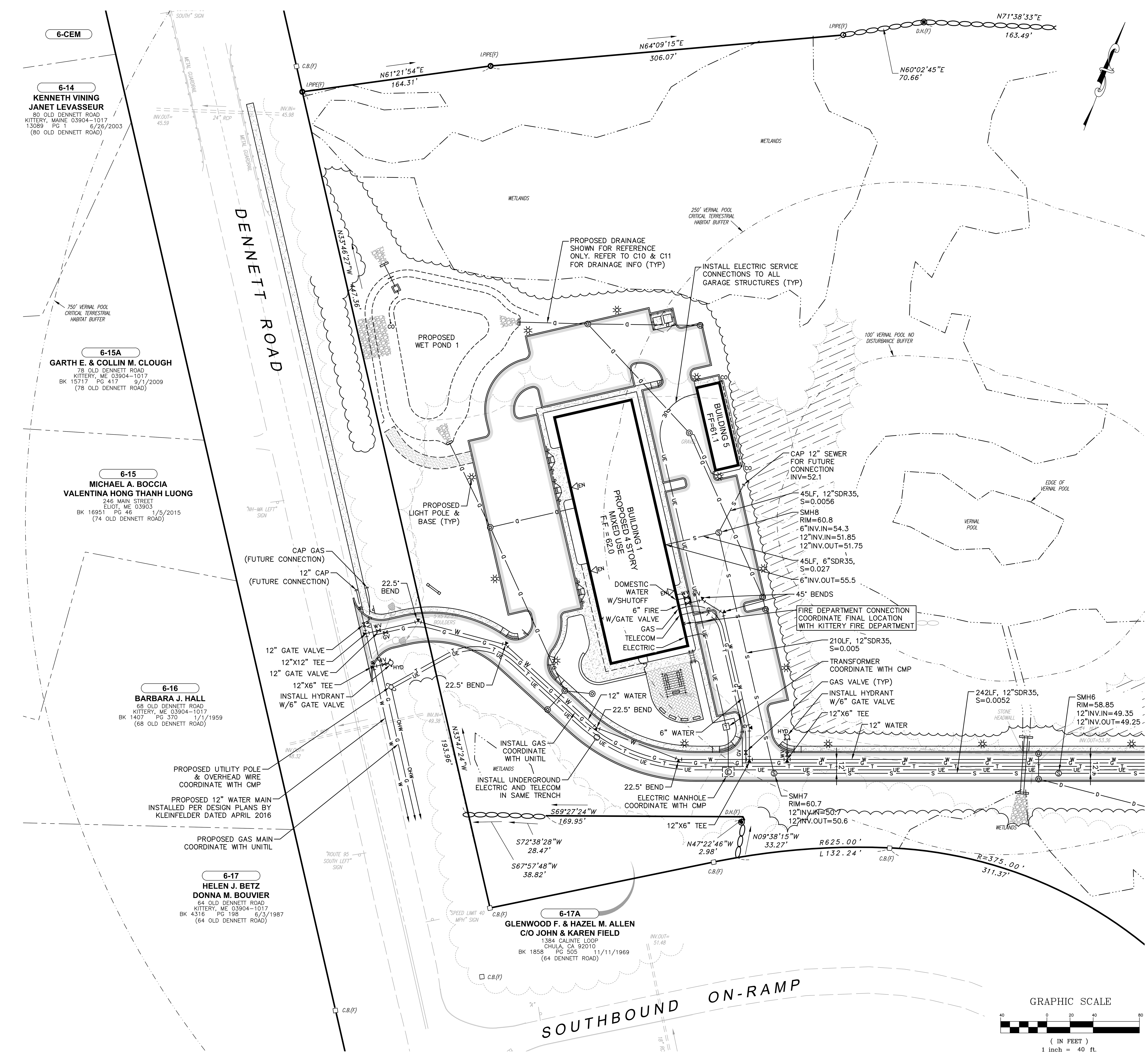
C12

PROJECT NO. 569200

SHEET 12 OF 25

UTILITY NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWGS C19–C25 FOR CONSTRUCTION DETAILS.
3. THE INTENT OF THIS PLAN IS TO SHOW THE GENERAL LOCATION OF PROPOSED SITE UTILITIES. THE CONTRACTOR SHALL COORDINATE WITH ALL PROPOSED UTILITY OWNERS ON INSTALLATION LOCATIONS AND UTILITY SIZES PRIOR TO THE START OF ANY CONSTRUCTION.
4. THE DOMESTIC WATER AND FIRE PROTECTION WATER LINE SIZES SHOWN ON THESE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL REFER TO THE MEP PLANS FOR ALL WATER CONNECTIONS PIPE SIZES.
5. THE BUILDING SEWER SERVICE PIPE SIZES SHOWN ON THESE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL REFER TO THE MEP PLANS FOR ALL BUILDING SEWER SERVICE PIPE SIZES.
6. THE UNDERGROUND ELECTRICAL LINES, MANHOLES AND TRANSFORMERS SHOWN ON THIS PLAN ARE APPROXIMATE LOCATIONS. THE CONTRACTOR SHALL COORDINATE THE ELECTRIC LAYOUT WITH CENTRAL MAINE POWER (CMP) PRIOR TO ANY INSTALLATION.
7. THE CONTRACTOR SHALL COORDINATE THE SIZE AND NUMBER OF PIPES FOR ALL ELECTRIC AND TELECOM DUCT BANKS WITH THE UTILITY OWNERS. THE DUCTBANKS SHALL BE ENCASED IN CONCRETE IF REQUIRED BY THE UTILITY OWNERS.
8. THE CONTRACTOR SHALL COORDINATE ALL GAS INSTALLATION WORK WITH UNITIL.
9. COORDINATE LIGHT POLE BASE LOCATIONS, CONDUIT ROUTING, CONDUIT SIZE AND POWER SUPPLY WITH ELECTRICAL ENGINEER.



STATE OF MAINE
SHAWN M. TOBEY 13377 LICENSED PROFESSIONAL ENGINEER
6/20/19

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SMT	SMT	WRD

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SCALE: AS SHOWN
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APPLICANT
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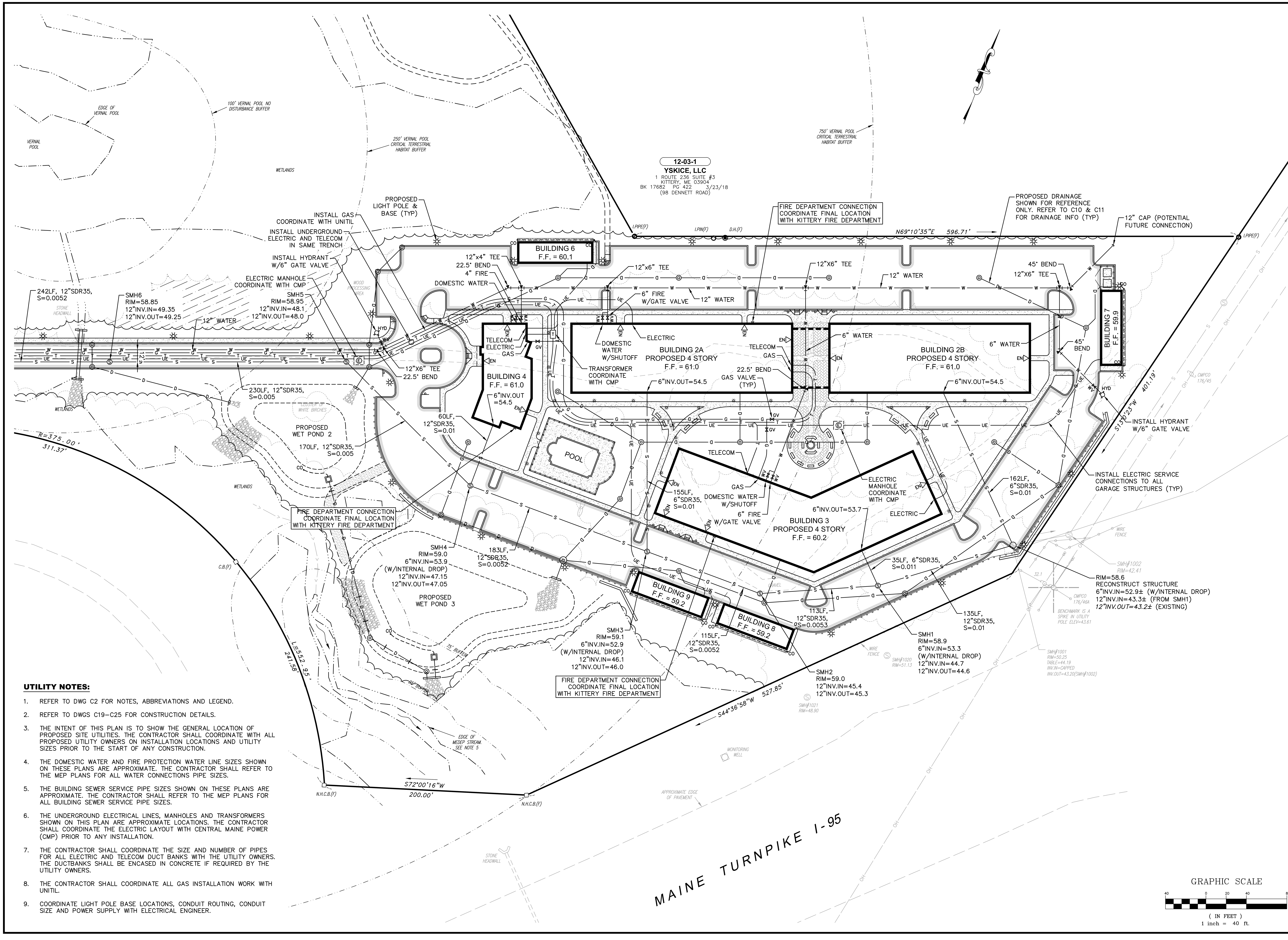
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

FRONT UTILITY PLAN

C13

PROJECT NO. 569200



UTILITY NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWGS C19–C25 FOR CONSTRUCTION DETAILS.
3. THE INTENT OF THIS PLAN IS TO SHOW THE GENERAL LOCATION OF PROPOSED SITE UTILITIES. THE CONTRACTOR SHALL COORDINATE WITH ALL PROPOSED UTILITY OWNERS ON INSTALLATION LOCATIONS AND UTILITY SIZES PRIOR TO THE START OF ANY CONSTRUCTION.
4. THE DOMESTIC WATER AND FIRE PROTECTION WATER LINE SIZES SHOWN ON THESE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL REFER TO THE MEP PLANS FOR ALL WATER CONNECTIONS PIPE SIZES.
5. THE BUILDING SEWER SERVICE PIPE SIZES SHOWN ON THESE PLANS ARE APPROXIMATE. THE CONTRACTOR SHALL REFER TO THE MEP PLANS FOR ALL BUILDING SEWER SERVICE PIPE SIZES.
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7. THE CONTRACTOR SHALL COORDINATE THE SIZE AND NUMBER OF PIPES FOR ALL ELECTRIC AND TELECOM DUCT BANKS WITH THE UTILITY OWNERS. THE DUCTBANKS SHALL BE ENCASED IN CONCRETE IF REQUIRED BY THE UTILITY OWNERS.
8. THE CONTRACTOR SHALL COORDINATE ALL GAS INSTALLATION WORK WITH UNITIL.
9. COORDINATE LIGHT POLE BASE LOCATIONS, CONDUIT ROUTING, CONDUIT SIZE AND POWER SUPPLY WITH ELECTRICAL ENGINEER.

STATE OF MAINE
SHAWN M. TOBEY
13377
LICENSED PROFESSIONAL ENGINEER
6/20/19

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APPLICANT
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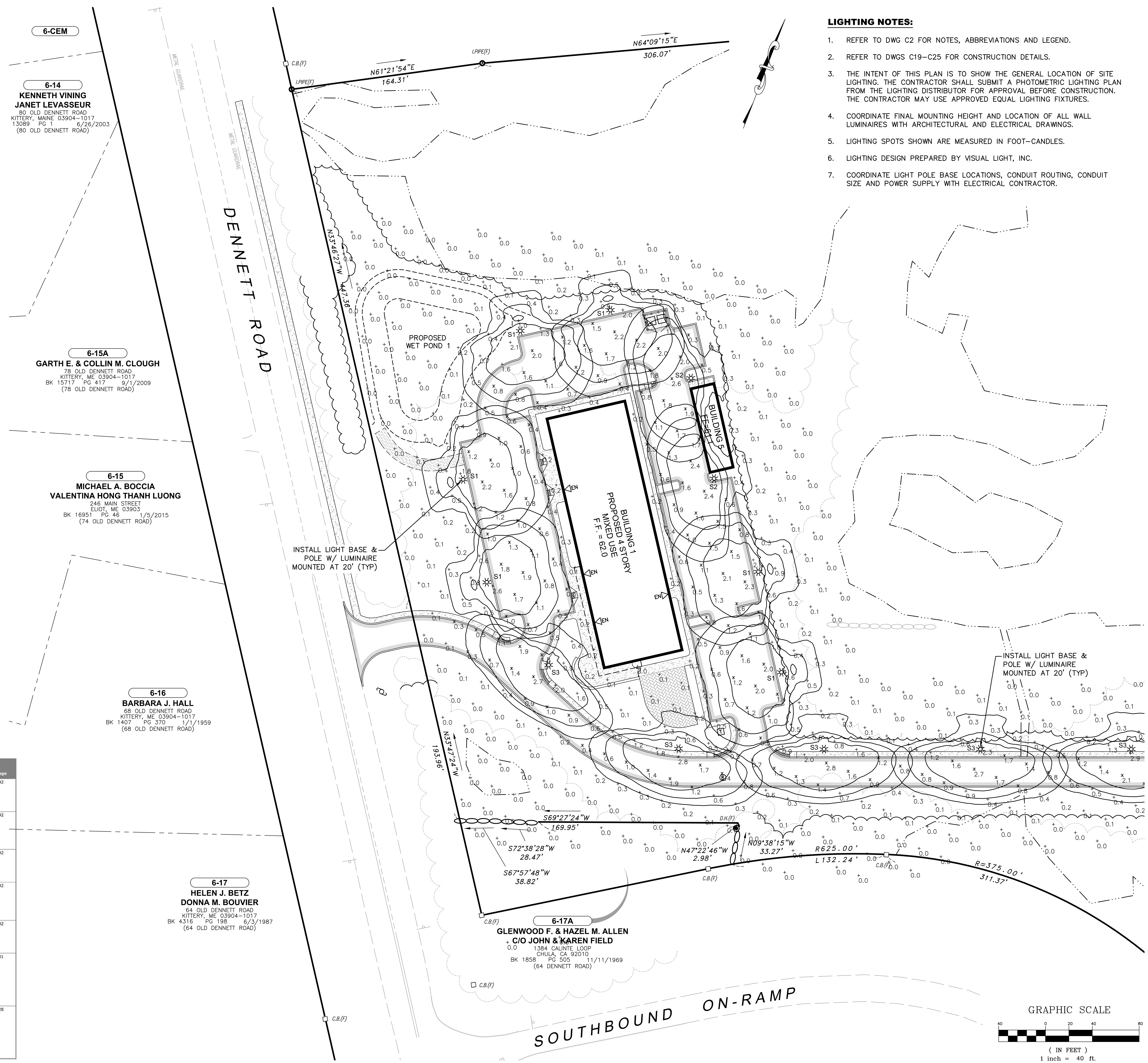
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

REAR UTILITY PLAN

C14

PROJECT NO. 569200



LIGHTING NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWGS C19–C25 FOR CONSTRUCTION DETAILS.
3. THE INTENT OF THIS PLAN IS TO SHOW THE GENERAL LOCATION OF SITE LIGHTING. THE CONTRACTOR SHALL SUBMIT A PHOTOMETRIC LIGHTING PLAN FROM THE LIGHTING DISTRIBUTOR FOR APPROVAL BEFORE CONSTRUCTION. THE CONTRACTOR MAY USE APPROVED EQUAL LIGHTING FIXTURES.
4. COORDINATE FINAL MOUNTING HEIGHT AND LOCATION OF ALL WALL LUMINAIRES WITH ARCHITECTURAL AND ELECTRICAL DRAWINGS.
5. LIGHTING SPOTS SHOWN ARE MEASURED IN FOOT-CANDLES.
6. LIGHTING DESIGN PREPARED BY VISUAL LIGHT, INC.
7. COORDINATE LIGHT POLE BASE LOCATIONS, CONDUIT ROUTING, CONDUIT SIZE AND POWER SUPPLY WITH ELECTRICAL CONTRACTOR.

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Access Drive	✳	1.2 fc	2.8 fc	0.3 fc	9.3:1	4.0:1
Overall Site Calcs	+	0.2 fc	16.8 fc	0.0 fc	N/A	N/A
Parking Areas	✳	1.2 fc	3.0 fc	0.1 fc	30.0:1	12.0:1
Walkways	✳	3.6 fc	16.8 fc	0.1 fc	168.0:1	36.0:1

Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
	S1	11	Lithonia Lighting	DSX0 LED P4 30K TFTM MVOLT pole mounted at 20' above grade	DSX0 LED P4 30K TFTM MVOLT	LED	1	DSX0_LED_P4_30K_TFTM_MVOLT.ies	9800	0.9	92
	S1-HS	12	Lithonia Lighting	DSX0 LED P4 30K TFTM MVOLT HS pole mounted at 20' above grade	DSX0 LED P4 30K TFTM MVOLT with houseside shield	LED	1	DSX0_LED_P4_30K_TFTM_MVOLT_HS.ies	7652	0.9	92
	S2	4	Lithonia Lighting	DSX0 LED P4 30K T3M MVOLT pole mounted at 20' above grade	DSX0 LED P4 30K T3M MVOLT	LED	1	DSX0_LED_P4_30K_T3M_MVOLT.ies	9520	0.9	92
	S2-HS	2	Lithonia Lighting	DSX0 LED P4 30K T3M MVOLT HS pole mounted at 20' aboce grade	DSX0 LED P4 30K T3M MVOLT with houseside shield	LED	1	DSX0_LED_P4_30K_T3M_MVOLT_HS.ies	7714	0.9	92
	S3	6	Lithonia Lighting	DSX0 LED P4 30K T2M MVOLT pole mounted at 20' above grade	DSX0 LED P4 30K T2M MVOLT	LED	1	DSX0_LED_P4_30K_T2M_MVOLT.ies	9780	0.9	92
	B1	17	Lithonia Lighting	DSXB LED 12C 700 30K ASY	D-SERIES BOLLARD WITH 12 3000K LEDS OPERATED AT 700mA AND ASYMMETRIC DISTRIBUTION	LED	1	DSXB_LED_12C_700_30K_ASY.ies	2173	0.9	31
	B2	5	Lithonia Lighting	DSXB LED 16C 530 30K SYM	D-SERIES BOLLARD WITH 16 3000K LEDS OPERATED AT 530mA AND SYMMETRIC DISTRIBUTION	LED	1	DSXB_LED_16C_530_30K_SYM.ies	2232	0.9	28

STATE OF MAINE
SHAWN M. TOBEY
13377
PROFESSIONAL ENGINEER
6/20/19

REV.	REVISION DESCRIPTION	DATE
1	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN	06/20/19

CHECKED BY	WRD
DRAWN BY	SMT
DESIGNED BY	SMT
DATE:	JUNE 20, 2019
SCALE:	AS SHOWN

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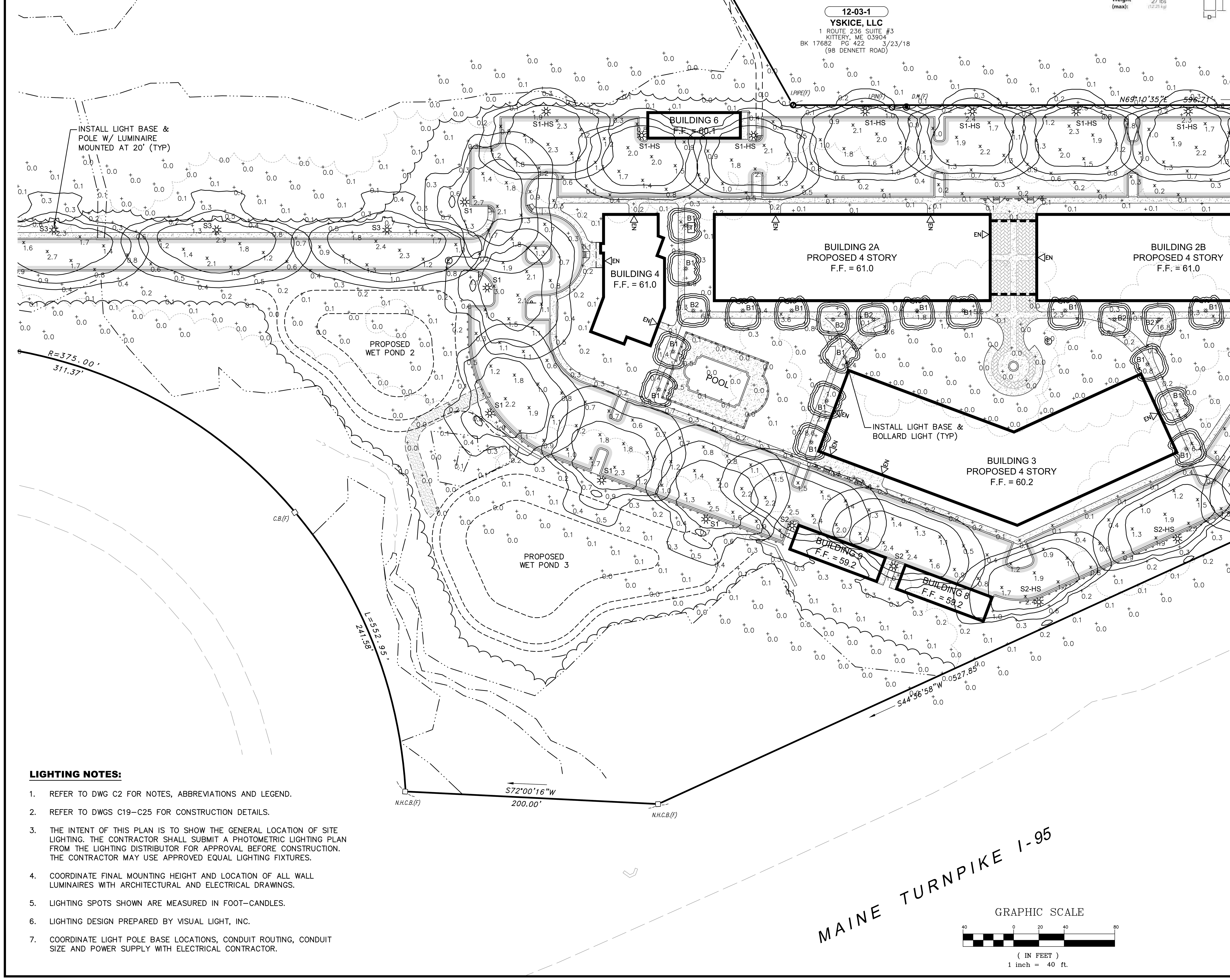
APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

FRONT LIGHTING PLAN
C15

PROJECT NO. 569200



LIGHTING NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWGS C19–C25 FOR CONSTRUCTION DETAILS.
3. THE INTENT OF THIS PLAN IS TO SHOW THE GENERAL LOCATION OF SITE LIGHTING. THE CONTRACTOR SHALL SUBMIT A PHOTOMETRIC LIGHTING PLAN FROM THE LIGHTING DISTRIBUTOR FOR APPROVAL BEFORE CONSTRUCTION. THE CONTRACTOR MAY USE APPROVED EQUAL LIGHTING FIXTURES.
4. COORDINATE FINAL MOUNTING HEIGHT AND LOCATION OF ALL WALL LUMINAIRES WITH ARCHITECTURAL AND ELECTRICAL DRAWINGS.
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6. LIGHTING DESIGN PREPARED BY VISUAL LIGHT, INC.
7. COORDINATE LIGHT POLE BASE LOCATIONS, CONDUIT ROUTING, CONDUIT SIZE AND POWER SUPPLY WITH ELECTRICAL CONTRACTOR.

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
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Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
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	S3	6	Lithonia Lighting	DSX0 LED P4 30K T2M MVOLT pole mounted at 20' above grade	DSX0 LED P4 30K T2M MVOLT	LED	1	DSX0_LED_P4_30K_T2M_MVOLT.ies	9780	0.9	92
○	B1	17	Lithonia Lighting	DSXB LED 12C 700 30K ASY	D-SERIES BOLLARD WITH 12 3000K LEDS OPERATED AT 700mA AND ASYMMETRIC DISTRIBUTION	LED	1	DSXB_LED_12C_700_30K_ASY.ies	2173	0.9	31
○	B2	5	Lithonia Lighting	DSXB LED 16C 530 30K SYM	D-SERIES BOLLARD WITH 16 3000K LEDS OPERATED AT 530mA AND SYMMETRIC DISTRIBUTION	LED	1	DSXB_LED_16C_530_30K_SYM.ies	2232	0.9	28

STATE OF MAINE
SHAWN M. TOBEY
13377
PROFESSIONAL ENGINEER
6/20/19

REV.	REVISION DESCRIPTION	DATE
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Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
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DESIGNED BY: SMT
DRAWN BY: SMT
CHECKED BY: WRD
DATE: JUNE 20, 2019
SCALE: AS SHOWN

APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

REAR LIGHTING PLAN

C16

PROJECT NO. 569200

SHEET 16 OF 25

LANDSCAPE NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWGS C19–C25 FOR CONSTRUCTION DETAILS.
3. ALL MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
4. ALL AREAS THAT DO NOT HAVE A SPECIFIED SURFACE TREATMENT SHALL BE GRASS.
5. ALL TREES TO BE BALLED & BURLAPED.
6. MULCH FOR PLANTED AREAS TO BE AGED PINE BARK: PARTIALLY DECOMPOSED, DARK BROWN IN COLOR AND FREE OF WOOD CHIPS THICKER THAN 1/4 INCH. THE MULCH SHALL BE APPLIED TO A DEPTH OF 4".
7. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF ACCEPTANCE.
8. THE CONTRACTOR SHALL LOCATE, VERIFY, AND MARK ALL EXISTING AND NEWLY INSTALLED UNDERGROUND UTILITIES PRIOR TO ANY LAWN WORK OR PLANTING. ANY CONFLICTS WHICH MIGHT OCCUR BETWEEN PLANTING AND UTILITIES SHALL BE IMMEDIATELY REPORTED TO THE OWNER SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
9. NO SUBSTITUTION OF PLANT MATERIALS WILL BE ALLOWED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTING AND LAWNS AGAINST DAMAGE FROM ONGOING CONSTRUCTION. THIS PROTECTION SHALL BEGIN AT THE TIME THE PLANT IS INSTALLED UNTIL FORMAL ACCEPTANCE OF ALL THE PLANTING.
11. PRE-PURCHASE PLANT MATERIAL AND ARRANGE FOR DELIVERY TO MEET PROJECT SCHEDULE AS REQUIRED. IT MAY BE NECESSARY TO PRE DIG CERTAIN SPECIES WELL IN ADVANCE OF ACTUAL PLANTING DATES.

LANDSCAPE REQUIREMENTS (MU-N)

REGULATION	REQUIREMENT	PROVIDED
STREETSIDE TREES	8 TREES	11 TREES
PLANTER STRIP DEPTH	40 FT	70 FT
PLANTER STRIP PLANTINGS	50 PLANTS/SHRUBS	94 PLANTS/SHRUBS
TREES PER PARKING SPACE	51 TREES	172 TREES

LANDSCAPE CALCULATIONS

1. STREETSIDE TREES
   1 TREE PER 25 FT OF STREET FRONTAGE

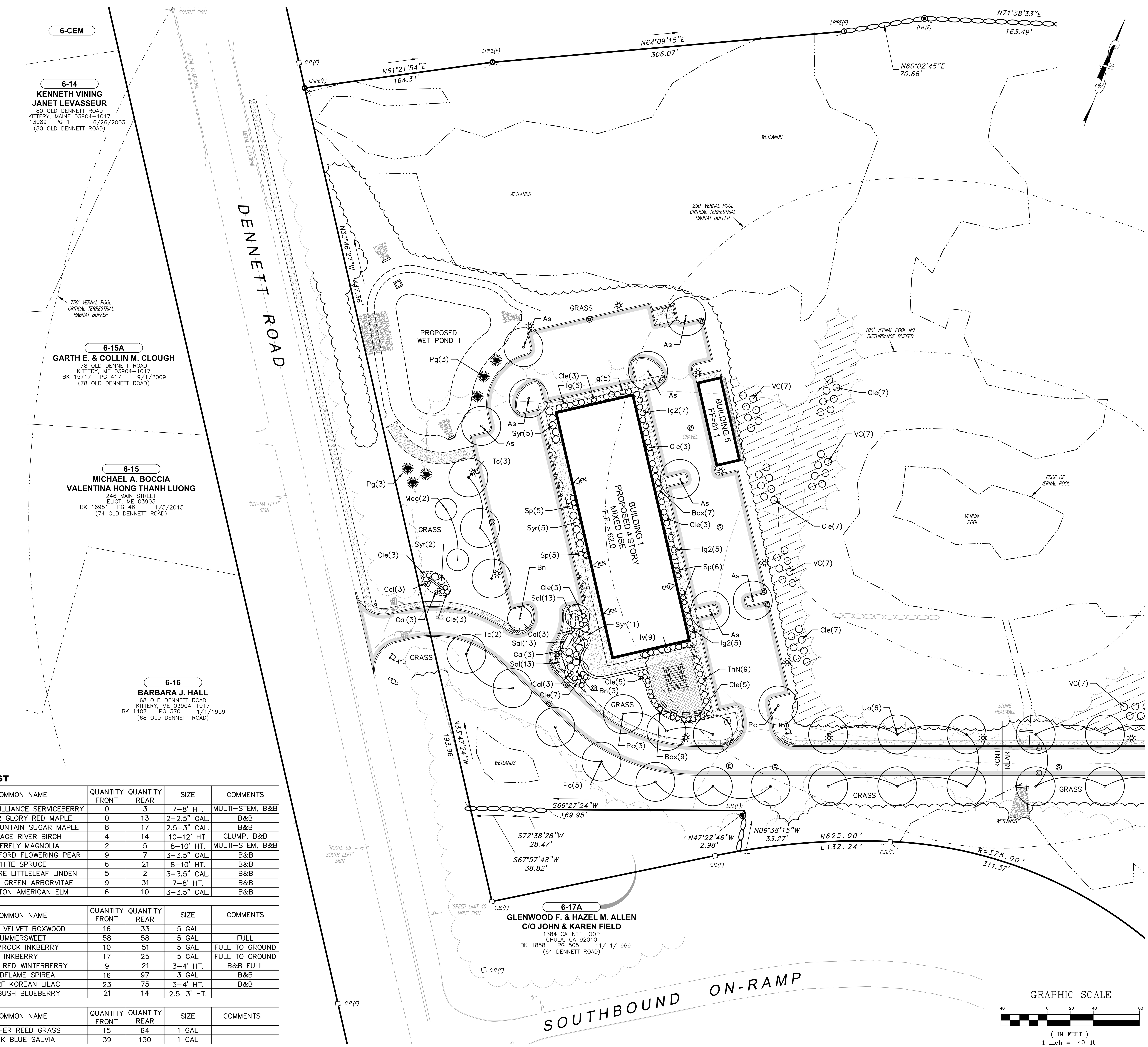
   200 FT DISTURBANCE/25 FT = 8 TREES
2. PLANTER STRIP PLANTINGS
   10 PLANTS/SHRUBS PER 40 FT OF STREET FRONTAGE

   200 FT DISTURBANCE/40 FTx10 PLANTS
   = 50 PLANTS/SHRUBS
3. TREES PER PARKING SPACE
   1 TREE PER 8 SPACES

   401 SPACES/8 SPACES = 51 TREES

TOTAL TREES & PLANTS

	FRONT	REAR	TOTAL
TREES	49	123	172
SHRUBS	170	374	544
PLANTS	54	194	248



PLANT LIST

	SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY FRONT	QUANTITY REAR	SIZE	COMMENTS
TREES	Am	AMELANCHIER X GRANDIFLORA "AUTUMN BRILLIANCE"	AUTUMN BRILLIANCE SERVICEBERRY	0	3	7–8' HT.	MULTI-STEM, B&B
	Ar	ACER RUBRUM "OCTOBER GLORY"	OCTOBER GLORY RED MAPLE	0	13	2–2.5" CAL.	B&B
	As	ACER SACCHARUM "GREEN MOUNTAIN"	GREEN MOUNTAIN SUGAR MAPLE	8	17	2.5–3" CAL.	B&B
	Bn	BETULA NIGRA "HERITAGE"	HERITAGE RIVER BIRCH	4	14	10–12' HT.	CLUMP, B&B
	Mag	MAGNOLIA "BUTTERFLY"	BUTTERFLY MAGNOLIA	2	5	8–10' HT.	MULTI-STEM, B&B
	Pc	PYRUS CALLERYANA "NEW BRADFORD"	NEW BRADFORD FLOWERING PEAR	9	7	3–3.5" CAL.	B&B
	Pg	PICEA GLAUCA	WHITE SPRUCE	6	21	8–10' HT.	B&B
	Tc	TILIA CORDATE "GREENSPIRE"	GREENSPIRE LITTLELEAF LINDEN	5	2	3–3.5" CAL.	B&B
	ThN	THUJA OCCIDENTALIS "SMARAGD"	EMERALD GREEN ARBORVITAE	9	31	7–8' HT.	B&B
	Ua	ULMUS AMERICANA "PRINCETON"	PRINCETON AMERICAN ELM	6	10	3–3.5" CAL.	B&B

	SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY FRONT	QUANTITY REAR	SIZE	COMMENTS
SHRUBS	Box	BUXUS "GREEN VELVET"	GREEN VELVET BOXWOOD	16	33	5 GAL	
	Cle	CLETHRA AINFOLIA	SUMMERSWEET	58	58	5 GAL	FULL
	Ig	ILEX GLABRA "SHAMROCK"	SHAMROCK INKBERRY	10	51	5 GAL	FULL TO GROUND
	Ig2	ILEX GLABRA	INKBERRY	17	25	5 GAL	FULL TO GROUND
	Iv	ILEX VERTICILLATA "WINTER RED"	WINTER RED WINTERBERRY	9	21	3–4' HT.	B&B FULL
	Sp	SPIRAEA X BUMALDA "GOLDFLAME"	GOLDFLAME SPIREA	16	97	3 GAL	B&B
	Syr	SYRINGA MEYERI "PALIBIN"	DWARF KOREAN LILAC	23	75	3–4' HT.	B&B
	VC	VACCINIUM CORYMBOSUM	HIGHBUSH BLUEBERRY	21	14	2.5–3' HT.	

	SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY FRONT	QUANTITY REAR	SIZE	COMMENTS
PLANTS	Cal	CALAMAGROSTIS ACUTIFOLIA "KARL FOERSTER"	FEATHER REED GRASS	15	64	1 GAL	
	Sal	SALVIA NEMOROSA "BLUE HILL"	DARK BLUE SALVIA	39	130	1 GAL	

STATE OF MAINE
SHAWN M. TOBEY
13377
LICENSED
PROFESSIONAL ENGINEER
6/20/19

REV.	REVISION DESCRIPTION	DATE
1	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN	06/20/19

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

SCALE:	DATE:	DESIGNED BY	DRAWN BY	CHECKED BY
AS SHOWN	JUNE 20, 2019	SMT	SMT	WRD

APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

FRONT LANDSCAPING PLAN
C17

PROJECT NO. 569200

LANDSCAPE REQUIREMENTS (MU-N)

REGULATION	REQUIREMENT	PROVIDED
STREETSIDE TREES	8 TREES	11 TREES
PLANTER STRIP DEPTH	40 FT	70 FT
PLANTER STRIP PLANTINGS	50 PLANTS/SHRUBS	94 PLANTS/SHRUBS
TREES PER PARKING SPACE	51 TREES	172 TREES

LANDSCAPE CALCULATIONS

1. STREETSIDE TREES
   1 TREE PER 25 FT OF STREET FRONTAGE

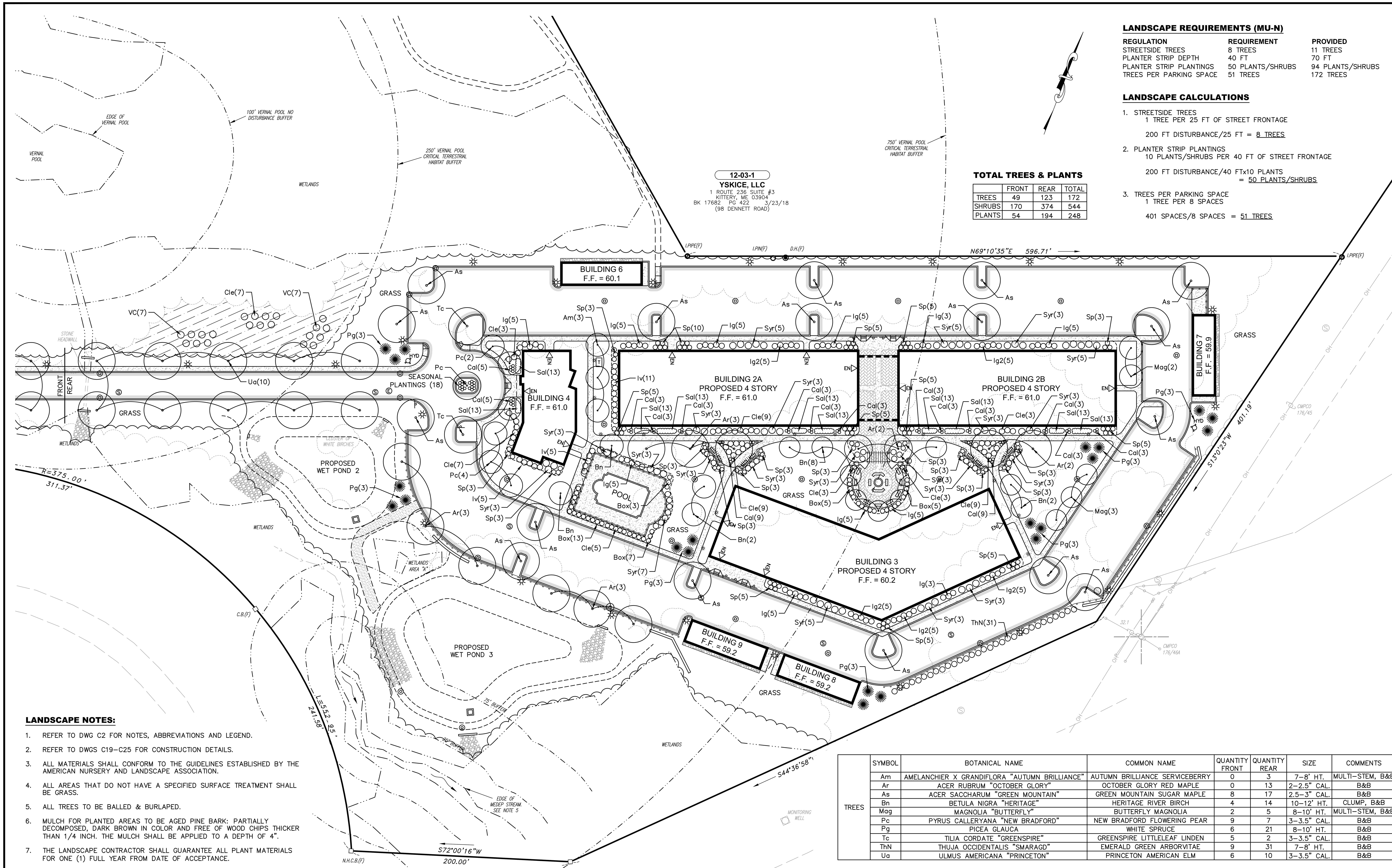
   200 FT DISTURBANCE/25 FT = 8 TREES
2. PLANTER STRIP PLANTINGS
   10 PLANTS/SHRUBS PER 40 FT OF STREET FRONTAGE

   200 FT DISTURBANCE/40 FTx10 PLANTS
   = 50 PLANTS/SHRUBS
3. TREES PER PARKING SPACE
   1 TREE PER 8 SPACES

   401 SPACES/8 SPACES = 51 TREES

TOTAL TREES & PLANTS

	FRONT	REAR	TOTAL
TREES	49	123	172
SHRUBS	170	374	544
PLANTS	54	194	248



LANDSCAPE NOTES:

1. REFER TO DWG C2 FOR NOTES, ABBREVIATIONS AND LEGEND.
2. REFER TO DWGS C19–C25 FOR CONSTRUCTION DETAILS.
3. ALL MATERIALS SHALL CONFORM TO THE GUIDELINES ESTABLISHED BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
4. ALL AREAS THAT DO NOT HAVE A SPECIFIED SURFACE TREATMENT SHALL BE GRASS.
5. ALL TREES TO BE BALLED & BURLAPED.
6. MULCH FOR PLANTED AREAS TO BE AGED PINE BARK: PARTIALLY DECOMPOSED, DARK BROWN IN COLOR AND FREE OF WOOD CHIPS THICKER THAN 1/4 INCH. THE MULCH SHALL BE APPLIED TO A DEPTH OF 4".
7. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF ACCEPTANCE.
8. THE CONTRACTOR SHALL LOCATE, VERIFY, AND MARK ALL EXISTING AND NEWLY INSTALLED UNDERGROUND UTILITIES PRIOR TO ANY LAWN WORK OR PLANTING. ANY CONFLICTS WHICH MIGHT OCCUR BETWEEN PLANTING AND UTILITIES SHALL BE IMMEDIATELY REPORTED TO THE OWNER SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
9. NO SUBSTITUTION OF PLANT MATERIALS WILL BE ALLOWED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTING AND LAWNS AGAINST DAMAGE FROM ONGOING CONSTRUCTION. THIS PROTECTION SHALL BEGIN AT THE TIME THE PLANT IS INSTALLED UNTIL FORMAL ACCEPTANCE OF ALL THE PLANTING.
11. PRE-PURCHASE PLANT MATERIAL AND ARRANGE FOR DELIVERY TO MEET PROJECT SCHEDULE AS REQUIRED. IT MAY BE NECESSARY TO PRE DIG CERTAIN SPECIES WELL IN ADVANCE OF ACTUAL PLANTING DATES.

GRAPHIC SCALE
0 20 40 80
(IN FEET)
1 inch = 40 ft.

	SYMBOL	BOTANICAL NAME	COMMON NAME	QUANTITY FRONT	QUANTITY REAR	SIZE	COMMENTS
TREES	Am	AMELANCHIER X GRANDIFLORA "AUTUMN BRILLIANCE"	AUTUMN BRILLIANCE SERVICEBERRY	0	3	7–8' HT.	MULTI–STEM, B&B
	Ar	ACER RUBRUM "OCTOBER GLORY"	OCTOBER GLORY RED MAPLE	0	13	2–2.5" CAL.	B&B
	As	ACER SACCHARUM "GREEN MOUNTAIN"	GREEN MOUNTAIN SUGAR MAPLE	8	17	2.5–3" CAL.	B&B
	Bn	BETULA NIGRA "HERITAGE"	HERITAGE RIVER BIRCH	4	14	10–12' HT.	CLUMP, B&B
	Mag	MAGNOLIA "BUTTERFLY"	BUTTERFLY MAGNOLIA	2	5	8–10' HT.	MULTI–STEM, B&B
	Pc	PYRUS CALLERYANA "NEW BRADFORD"	NEW BRADFORD FLOWERING PEAR	9	7	3–3.5" CAL.	B&B
	Pg	PICEA GLAUCA	WHITE SPRUCE	6	21	8–10' HT.	B&B
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	Iv	ILEX VERTICILLATA "WINTER RED"	WINTER RED WINTERBERRY	9	21	3–4' HT.	B&B FULL
	Sp	SPIRAEA X BUMALDA "GOLDFLAME"	GOLDFLAME SPIREA	16	97	3 GAL	B&B
	Syr	SYRINGA MEYERI "PALIBIN"	DWARF KOREAN LILAC	23	75	3–4' HT.	B&B
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STATE OF MAINE
SHAWN M. TOBEY
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DESIGNED BY	DRAWN BY	CHECKED BY
SMT	SMT	WRD

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SCALE: AS SHOWN
DATE: JUNE 20, 2019

APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

REAR LANDSCAPING PLAN

C18

PROJECT NO. 569200

EROSION CONTROL NOTES:

1. POLLUTION PREVENTION. MINIMIZE DISTURBED AREAS AND PROTECT NATURAL DOWNGRADIENT BUFFER AREAS TO THE EXTENT PRACTICABLE. CONTROL STORMWATER VOLUME AND VELOCITY WITHIN THE SITE TO MINIMIZE SOIL EROSION. MINIMIZE THE DISTURBANCE OF STEEP SLOPES. CONTROL STORMWATER DISCHARGES, INCLUDING BOTH PEAK FLOW RATES AND VOLUME, TO MINIMIZE EROSION AT OUTLETS. THE DISCHARGE MAY NOT RESULT IN EROSION OF ANY OPEN DRAINAGE CHANNELS, SWALES, STREAM CHANNELS OR STREAM BANKS, UPLAND, OR COASTAL OR FRESHWATER WETLANDS OFF THE PROJECT SITE. WHENEVER PRACTICABLE, NO DISTURBANCE ACTIVITIES SHOULD TAKE PLACE WITHIN 50 FEET OF ANY PROTECTED NATURAL RESOURCE. IF DISTURBANCE ACTIVITIES TAKE PLACE BETWEEN 30 FEET AND 50 FEET OF ANY PROTECTED NATURAL RESOURCE, AND STORMWATER DISCHARGES THROUGH THE DISTURBED AREAS TOWARD THE PROTECTED NATURAL RESOURCE, PERIMETER EROSION CONTROLS MUST BE DOUBLED. IF DISTURBANCE ACTIVITIES TAKE PLACE LESS THAN 30 FEET FROM ANY PROTECTED NATURAL RESOURCE, AND STORMWATER DISCHARGES THROUGH THE DISTURBED AREAS TOWARD THE PROTECTED NATURAL RESOURCE, PERIMETER EROSION CONTROLS MUST BE DOUBLED AND DISTURBED AREAS MUST BE TEMPORARILY OR PERMANENTLY STABILIZED WITHIN 7 DAYS.

2. SEDIMENT BARRIERS. PRIOR TO CONSTRUCTION, PROPERLY INSTALL SEDIMENT BARRIERS AT THE DOWNGRADIENT EDGE OF ANY AREA TO BE DISTURBED AND ADJACENT TO ANY DRAINAGE CHANNELS WITHIN THE DISTURBED AREA. SEDIMENT BARRIERS SHOULD BE INSTALLED DOWNGRADIENT OF SOIL OR SEDIMENT STOCKPILES AND STORMWATER PREVENTED FROM RUNNING ONTO THE STOCKPILE. MAINTAIN THE SEDIMENT BARRIERS BY REMOVING ACCUMULATED SEDIMENT, OR REMOVING AND REPLACING THE BARRIER, UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. WHERE A DISCHARGE TO A STORM DRAIN INLET OCCURS, IF THE STORM DRAIN CARRIES WATER DIRECTLY TO A SURFACE WATER AND YOU HAVE AUTHORITY TO ACCESS THE STORM DRAIN INLET, YOU MUST INSTALL AND MAINTAIN PROTECTION MEASURES THAT REMOVE SEDIMENT FROM THE DISCHARGE.

3. STABILIZED CONSTRUCTION ENTRANCE. PRIOR TO CONSTRUCTION, PROPERLY INSTALL A STABILIZED CONSTRUCTION ENTRANCE (SCE) AT ALL POINTS OF EGRESS FROM THE SITE. THE SCE IS A STABILIZED PAD OF AGGREGATE, UNDERLAIN BY A GEOTEXTILE FILTER FABRIC, USED TO PREVENT TRAFFIC FROM TRACKING MATERIAL AWAY FROM THE SITE ONTO PUBLIC ROWS. MAINTAIN THE SCE UNTIL ALL DISTURBED AREAS ARE STABILIZED.

4. TEMPORARY STABILIZATION. WITHIN 7 DAYS OF THE CESSATION OF CONSTRUCTION ACTIVITIES IN AN AREA THAT WILL NOT BE WORKED FOR MORE THAN 7 DAYS, STABILIZE ANY EXPOSED SOIL WITH MULCH, OR OTHER NON-ERODIBLE COVER. STABILIZE AREAS WITHIN 75 FEET OF A WETLAND OR WATERBODY WITHIN 48 HOURS OF THE INITIAL DISTURBANCE OF THE SOIL OR PRIOR TO ANY STORM EVENT, WHICHEVER COMES FIRST.

5. REMOVAL OF TEMPORARY MEASURES. REMOVE ANY TEMPORARY CONTROL MEASURES, SUCH AS SILT FENCE, WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED. REMOVE ANY ACCUMULATED SEDIMENTS AND STABILIZE.

6. PERMANENT STABILIZATION. IF THE AREA WILL NOT BE WORKED FOR MORE THAN ONE YEAR OR HAS BEEN BROUGHT TO FINAL GRADE, THEN PERMANENTLY STABILIZE THE AREA WITHIN 7 DAYS BY PLANTING VEGETATION, SEEDING, SOD, OR THROUGH THE USE OF PERMANENT MULCH, OR RIP-RAP, OR ROAD SUB-BASE. IF USING VEGETATION FOR STABILIZATION, SELECT THE PROPER VEGETATION FOR THE LIGHT, MOISTURE, AND SOIL CONDITIONS; AMEND AREAS OF DISTURBED SUBSOILS WITH TOPSOIL, COMPOST, OR FERTILIZERS; PROTECT SEEDED AREAS WITH MULCH OR, IF NECESSARY, EROSION CONTROL BLANKETS; AND SCHEDULE SODDING, PLANTING, AND SEEDING SO TO AVOID DIE-OFF FROM SUMMER DROUGHT AND FALL FROSTS. NEWLY SEEDED OR SODDED AREAS MUST BE PROTECTED FROM VEHICLE TRAFFIC, EXCESSIVE PEDESTRIAN TRAFFIC, AND CONCENTRATED RUNOFF UNTIL THE VEGETATION IS WELL-ESTABLISHED WITH 90% COVER BY HEALTHY VEGETATION. AREAS MUST BE REWORKED AND RESTABILIZED IF GERMINATION IS SPARSE, PLANT COVERAGE IS SPOTTY, OR TOPSOIL EROSION IS EVIDENT. ONE OR MORE OF THE FOLLOWING MAY APPLY TO A PARTICULAR SITE.

7. SEEDED AREAS. FOR SEEDED AREAS, PERMANENT STABILIZATION MEANS A 90% COVER OF THE DISTURBED AREA WITH MATURE, HEALTHY PLANTS WITH NO EVIDENCE OF WASHING OR RILLING OF THE TOPSOIL.

   A. SODDED AREAS. FOR SODDED AREAS, PERMANENT STABILIZATION MEANS THE COMPLETE BINDING OF THE SOD ROOTS INTO THE UNDERLYING SOIL WITH NO SLUMPING OF THE SOD OR DIE-OFF.

   B. PERMANENT MULCH. FOR MULCHED AREAS, PERMANENT MULCHING MEANS TOTAL COVERAGE OF THE EXPOSED AREA WITH AN APPROVED MULCH MATERIAL. EROSION CONTROL MIX MAY BE USED AS MULCH FOR PERMANENT STABILIZATION ACCORDING TO THE APPROVED APPLICATION RATES AND LIMITATIONS.

   C. RIP-RAP. FOR AREAS STABILIZED WITH RIP-RAP, PERMANENT STABILIZATION MEANS THAT SLOPES STABILIZED WITH RIP-RAP HAVE AN APPROPRIATE BACKING OF A WELL-GRADED GRAVEL OR APPROVED GEOTEXTILE TO PREVENT SOIL MOVEMENT FROM BEHIND THE RIP-RAP. STONE MUST BE SIZED APPROPRIATELY. IT IS RECOMMENDED THAT ANGULAR STONE BE USED.

   D. AGRICULTURAL USE. FOR CONSTRUCTION PROJECTS ON LAND USED FOR AGRICULTURAL PURPOSES (E.G., PIPELINES ACROSS CROP LAND), PERMANENT STABILIZATION MAY BE ACCOMPLISHED BY RETURNING THE DISTURBED LAND TO AGRICULTURAL USE.

   E. PAVED AREAS. FOR PAVED AREAS, PERMANENT STABILIZATION MEANS THE PLACEMENT OF THE COMPACTED GRAVEL SUB-BASE IS COMPLETED, PROVIDED IT IS FREE OF FINE MATERIALS THAT MAY RUNOFF WITH A RAIN EVENT

   F. DITCHES, CHANNELS, AND SWALES. FOR OPEN CHANNELS, PERMANENT STABILIZATION MEANS THE CHANNEL IS STABILIZED WITH A 90% COVER OF HEALTHY VEGETATION, WITH A WELL-GRADED RIP-RAP LINING, TURF REINFORCEMENT MAT, OR WITH ANOTHER NON-EROSIVE LINING SUCH AS CONCRETE OR ASPHALT PAVEMENT. THERE MUST BE NO EVIDENCE OF SLUMPING OF THE CHANNEL LINING, UNDERCUTTING OF THE CHANNEL BANKS, OR DOWN-CUTTING OF THE CHANNEL.

8. WINTER CONSTRUCTION. "WINTER CONSTRUCTION" IS CONSTRUCTION ACTIVITY PERFORMED DURING THE PERIOD FROM NOVEMBER 1 THROUGH APRIL 15. IF DISTURBED AREAS ARE NOT STABILIZED WITH PERMANENT MEASURES BY NOVEMBER 1 OR NEW SOIL DISTURBANCE OCCURS AFTER NOVEMBER 1, BUT BEFORE APRIL 15, THEN THESE AREAS MUST BE PROTECTED AND RUNOFF FROM THEM MUST BE CONTROLLED BY ADDITIONAL MEASURES AND RESTRICTIONS.

   A. SITE STABILIZATION. FOR WINTER STABILIZATION, HAY MULCH IS APPLIED AT TWICE THE STANDARD TEMPORARY STABILIZATION RATE. AT THE END OF EACH CONSTRUCTION DAY, AREAS THAT HAVE BEEN BROUGHT TO FINAL GRADE MUST BE STABILIZED. MULCH MAY NOT BE SPREAD ON TOP OF SNOW.

   B. SEDIMENT BARRIERS. ALL AREAS WITHIN 75 FEET OF A PROTECTED NATURAL RESOURCE MUST BE PROTECTED WITH A DOUBLE ROW OF SEDIMENT BARRIERS.

   C. DITCH. ALL VEGETATED DITCH LINES THAT HAVE NOT BEEN STABILIZED BY NOVEMBER 1, OR WILL BE WORKED DURING THE WINTER CONSTRUCTION PERIOD, MUST BE STABILIZED WITH AN APPROPRIATE STONE LINING BACKED BY AN APPROPRIATE GRAVEL BED OR GEOTEXTILE UNLESS SPECIFICALLY RELEASED FROM THIS STANDARD BY THE DEPARTMENT.

   D. SLOPES. MULCH NETTING MUST BE USED TO ANCHOR MULCH ON ALL SLOPES GREATER THAN 8% UNLESS EROSION CONTROL BLANKETS OR EROSION CONTROL MIX IS BEING USED ON THESE SLOPES.

9. STORMWATER CHANNELS. DITCHES, SWALES, AND OTHER OPEN STORMWATER CHANNELS MUST BE DESIGNED, CONSTRUCTED, AND STABILIZED USING MEASURES THAT ACHIEVE LONG-TERM EROSION CONTROL. DITCHES, SWALES AND OTHER OPEN STORMWATER CHANNELS MUST BE SIZED TO HANDLE, AT A MINIMUM, THE EXPECTED VOLUME RUN-OFF. EACH CHANNEL SHOULD BE CONSTRUCTED IN SECTIONS SO THAT THE SECTION'S GRADING, SHAPING, AND INSTALLATION OF THE PERMANENT LINING CAN BE COMPLETED THE SAME DAY. IF A CHANNEL'S FINAL GRADING OR LINING INSTALLATION MUST BE DELAYED, THEN DIVERSION BERMS MUST BE USED TO DIVERT STORMWATER AWAY FROM THE CHANNEL, PROPERLY-SPACED CHECK DAMS MUST BE INSTALLED IN THE CHANNEL TO SLOW THE WATER VELOCITY, AND A TEMPORARY LINING INSTALLED ALONG THE CHANNEL TO PREVENT SCOURING. PERMANENT STABILIZATION FOR CHANNELS IS ADDRESSED UNDER APPENDIX A(5)(G) ABOVE.

   A. THE CHANNEL SHOULD RECEIVE ADEQUATE ROUTINE MAINTENANCE TO MAINTAIN CAPACITY AND PREVENT OR CORRECT ANY EROSION OF THE CHANNEL'S BOTTOM OR SIDE SLOPES.

   B. WHEN THE WATERSHED DRAINING TO A DITCH OR SWALE IS LESS THAN 1 ACRE OF TOTAL DRAINAGE AND LESS THAN ¼ ACRE OF IMPERVIOUS AREA, DIVERSION OF RUNOFF TO ADJACENT WOODED OR OTHERWISE VEGETATED BUFFER AREAS IS ENCOURAGED WHERE THE OPPORTUNITY EXISTS.

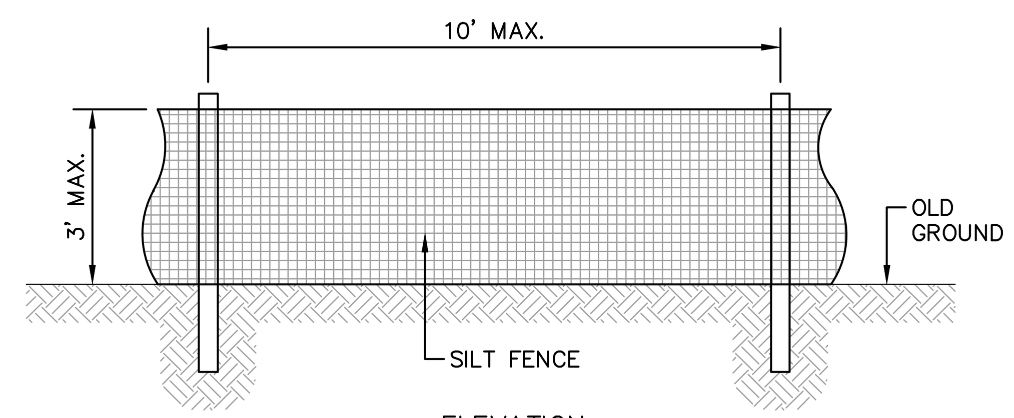
10. SEDIMENT BASINS. SEDIMENT BASINS MUST BE DESIGNED TO PROVIDE STORAGE FOR EITHER THE CALCULATED RUNOFF FROM A 2-YEAR, 24-HOUR STORM OR PROVIDE FOR 3,600 CUBIC FEET OF CAPACITY PER ACRE DRAINING TO THE BASIN. OUTLET STRUCTURES MUST DISCHARGE WATER FROM THE SURFACE OF THE BASIN WHENEVER POSSIBLE. EROSION CONTROLS AND VELOCITY DISSIPATION DEVICES MUST BE USED IF THE DISCHARGING WATERS ARE LIKELY TO CREATE EROSION. ACCUMULATED SEDIMENT MUST BE REMOVED AS NEEDED FROM THE BASIN TO MAINTAIN AT LEAST ½ OF THE DESIGN CAPACITY OF THE BASIN. THE USE OF CATIONIC TREATMENT CHEMICALS, SUCH AS POLYMERS, FLOCCULANTS, OR OTHER CHEMICALS THAT CONTAIN AN OVERALL POSITIVE CHARGE DESIGNED TO REDUCE TURBIDITY IN STORMWATER MUST RECEIVE PRIOR APPROVAL FROM THE DEPARTMENT. WHEN REQUESTING APPROVAL TO USE CATIONIC TREATMENT CHEMICALS, YOU MUST DESCRIBE APPROPRIATE CONTROLS AND IMPLEMENTATION PROCEDURES TO ENSURE THE USE WILL NOT LEAD TO A VIOLATION OF WATER QUALITY STANDARDS. IN ADDITION, YOU MUST SPECIFY THE TYPE(S) OF SOIL LIKELY TO BE TREATED ON THE SITE, CHEMICALS TO BE USED AND HOW THEY ARE TO BE APPLIED AND IN WHAT QUANTITY, ANY MANUFACTURER'S RECOMMENDATIONS, AND ANY TRAINING HAD BY PERSONNEL WHO WILL HANDLE AND APPLY THE CHEMICALS.

11. ROADS. GRAVEL AND PAVED ROADS MUST BE DESIGNED AND CONSTRUCTED WITH CROWNS OR OTHER MEASURES, SUCH AS WATER BARS, TO ENSURE THAT STORMWATER IS DELIVERED IMMEDIATELY TO ADJACENT STABLE DITCHES, VEGETATED BUFFER AREAS, CATCH BASIN INLETS, OR STREET GUTTERS.

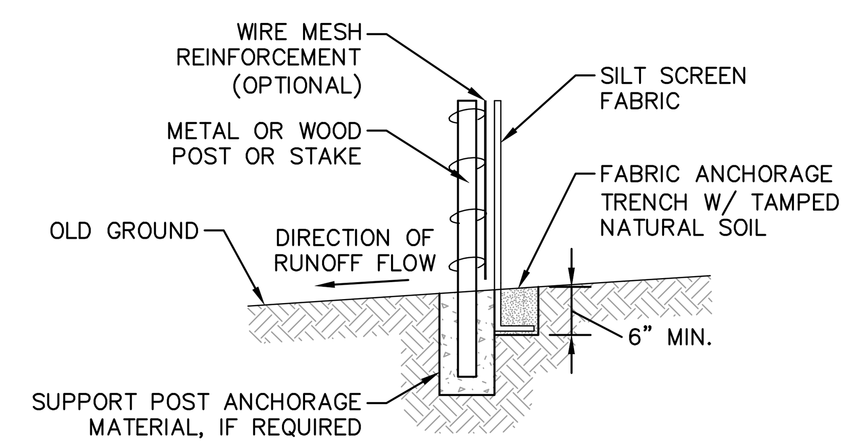
12. CULVERTS. CULVERTS MUST BE SIZED TO AVOID UNINTENDED FLOODING OF UPSTREAM AREAS OR FREQUENT OVERTOPPING OF ROADWAYS. CULVERT INLETS MUST BE PROTECTED WITH APPROPRIATE MATERIALS FOR THE EXPECTED ENTRANCE VELOCITY, AND PROTECTION MUST EXTEND AT LEAST AS HIGH AS THE EXPECTED MAXIMUM ELEVATION OF STORAGE BEHIND THE CULVERT. CULVERT OUTLET DESIGN MUST INCORPORATE MEASURES, SUCH AS APRONS, TO PREVENT SCOUR OF THE STREAM CHANNEL. OUTLET PROTECTION MEASURES MUST BE DESIGNED TO STAY WITHIN THE CHANNEL LIMITS. THE DESIGN MUST TAKE ACCOUNT OF TAILWATER DEPTH.

13. PARKING AREAS. PARKING AREAS MUST BE CONSTRUCTED TO ENSURE RUNOFF IS DELIVERED TO ADJACENT SWALES, CATCH BASINS, CURB GUTTERS, OR BUFFER AREAS WITHOUT ERODING AREAS DOWNSLOPE. THE PARKING AREA'S SUB-BASE COMPACTION AND GRADING MUST BE DONE TO ENSURE RUNOFF IS EVENLY DISTRIBUTED TO ADJACENT BUFFERS OR SIDE SLOPES. CATCH BASINS MUST BE LOCATED AND SET TO PROVIDE ENOUGH STORAGE DEPTH AT THE INLET TO ALLOW INFLOW OF PEAK RUNOFF RATES WITHOUT BY-PASS OF RUNOFF TO OTHER AREAS.

14. ADDITIONAL REQUIREMENTS. ADDITIONAL REQUIREMENTS MAY BE APPLIED ON A SITE-SPECIFIC BASIS.



ELEVATION



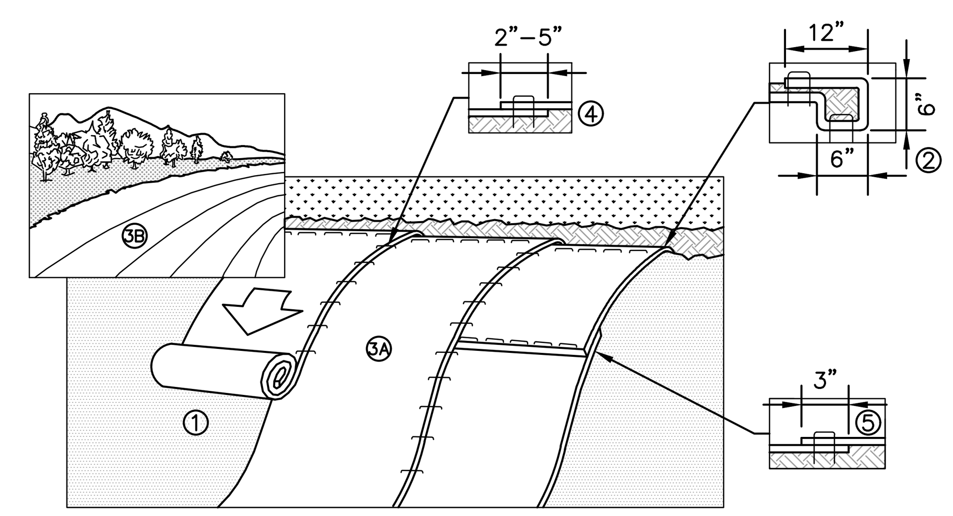
END VIEW

SILT FENCE NOTES:

1. SPACING OF FENCE POSTS NOT TO EXCEED 10-0".
2. SILT FENCE SHALL BE INSTALLED BEFORE ANY EARTH REMOVAL OR EXCAVATION TAKES PLACE.
3. FILTER FABRIC TO BE FASTENED SECURELY TO POSTS WITH WIRE TIES OR STAPLES AT TOP, MIDPOINT AND BOTTOM.
4. OVERLAP BY 6". FOLD AND STAPLE ADJOINING SECTIONS OF FILTER FABRIC.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED, AND THE MATERIAL REMOVED WHEN "BULGES" DEVELOP. DO NOT DEPOSIT THE MATERIAL NEAR WETLANDS OR WATERCOURSES.
6. FILTER FABRIC SHALL BE ENTRENCHED 6" MINIMUM BELOW EXISTING OR FINISHED GRADE.

1/C19 **SILT FENCE EROSION CONTROL DETAIL**

SCALE: NONE

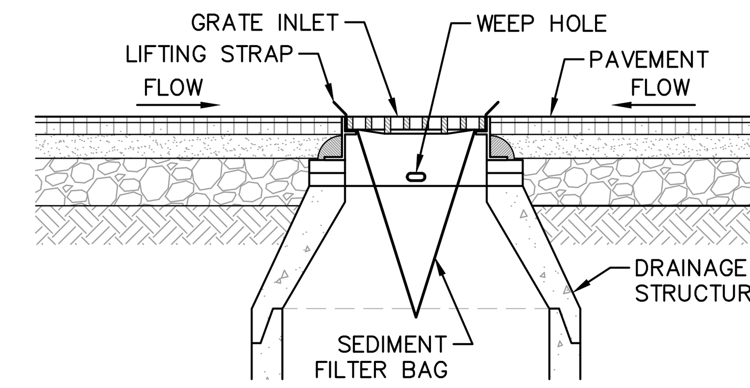


SLOPE PROTECTION INSTALLATION NOTES:

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12"APART ACROSS ENTIRE BLANKET WIDTH.
6. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.
7. INSTALL PRODUCT IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

2/C19 **SLOPE PROTECTION EROSION CONTROL MATTING DETAIL**

SCALE: NONE

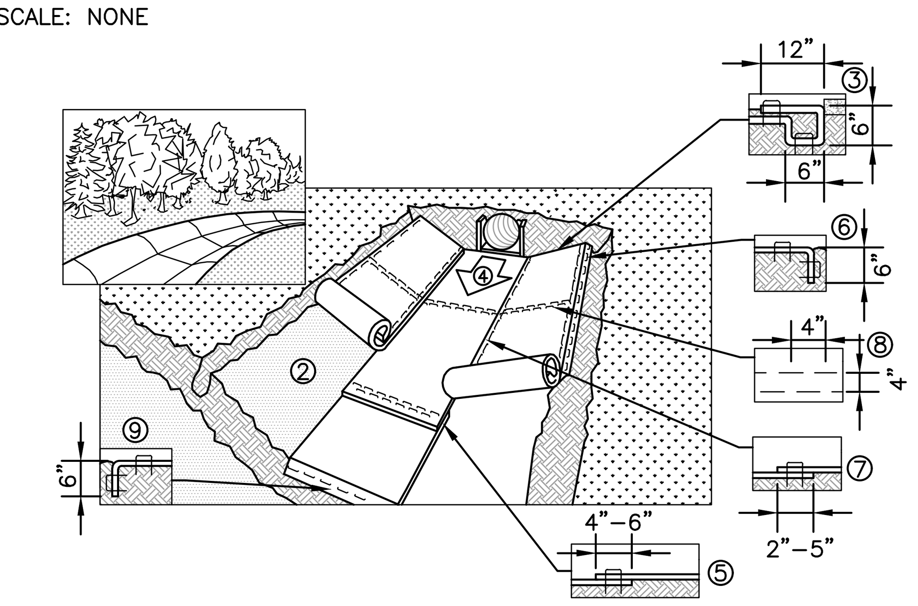


INLET PROTECTION NOTES:

1. THE SEDIMENT FILTER BAG SHALL BE DESIGNED FOR CATCH BASIN INLET PROTECTION. FILTER FABRIC IS NOT AN ACCEPTABLE SEDIMENT FILTER BAG.
2. REMOVE DRAINAGE INLET GRATE AND PLACE SEDIMENT FILTER BAG AROUND THE FRAME, REPLACE GRATE AND SEDIMENT FILTER BAG IN POSITION OR FOLLOW MANUFACTURER'S RECOMMENDATIONS. LIFTING STRAPS SHALL BE EXPOSED AND READY FOR MAINTENANCE PROCEDURES.
3. INSPECT SEDIMENT FILTER BAG WEEKLY AND AFTER EVERY RAINFALL EVENT.
4. REPLACE, CLEAN OR REMOVE SEDIMENT FILTER BAG AS DIRECTED.

3/C19 **INLET PROTECTION DETAIL**

SCALE: NONE



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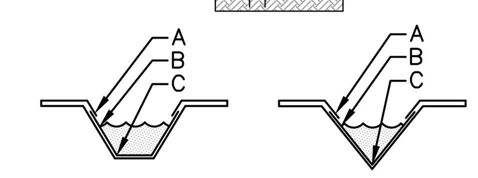


CRITICAL POINTS
A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

** HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

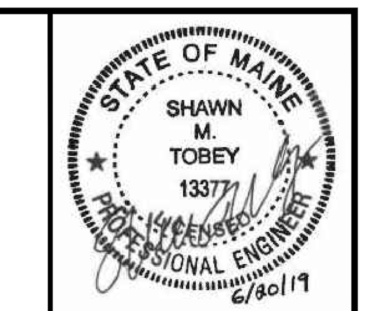
** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS

CHANNEL INSTALLATION NOTES:

1. INSTALL PRODUCT IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS
2. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED, DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH THE PAPER SIDE DOWN.
3. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
4. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
5. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4"(10") ON CENTER TO SECURE BLANKETS.
6. FULL-LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6"DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
7. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (DEPENDING ON BLANKET TYPE) AND STAPLED TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED.
8. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30' TO 40' INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENTIRE WIDTH OF CHANNEL.
9. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP X 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

4/C19 **CHANNEL EROSION CONTROL MATTING DETAIL**

SCALE: NONE



REV.	DATE	REVISION DESCRIPTION
1	06/20/19	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN

DESIGNED BY	DRAWN BY	CHECKED BY
SMT	SMT	WRD

SCALE:	DATE:
AS SHOWN	JUNE 20, 2019

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

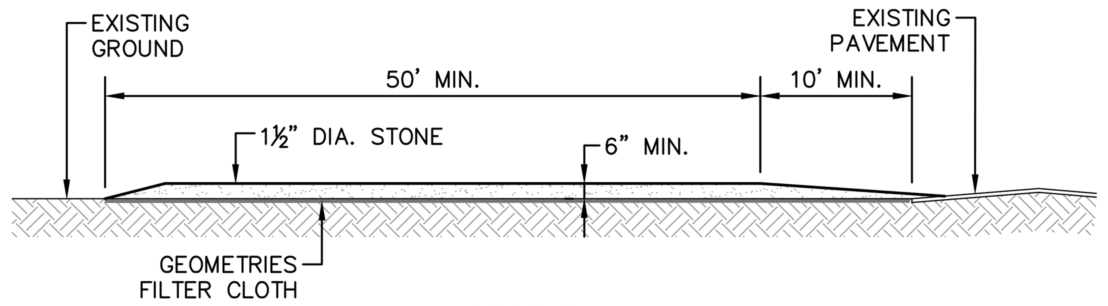
APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

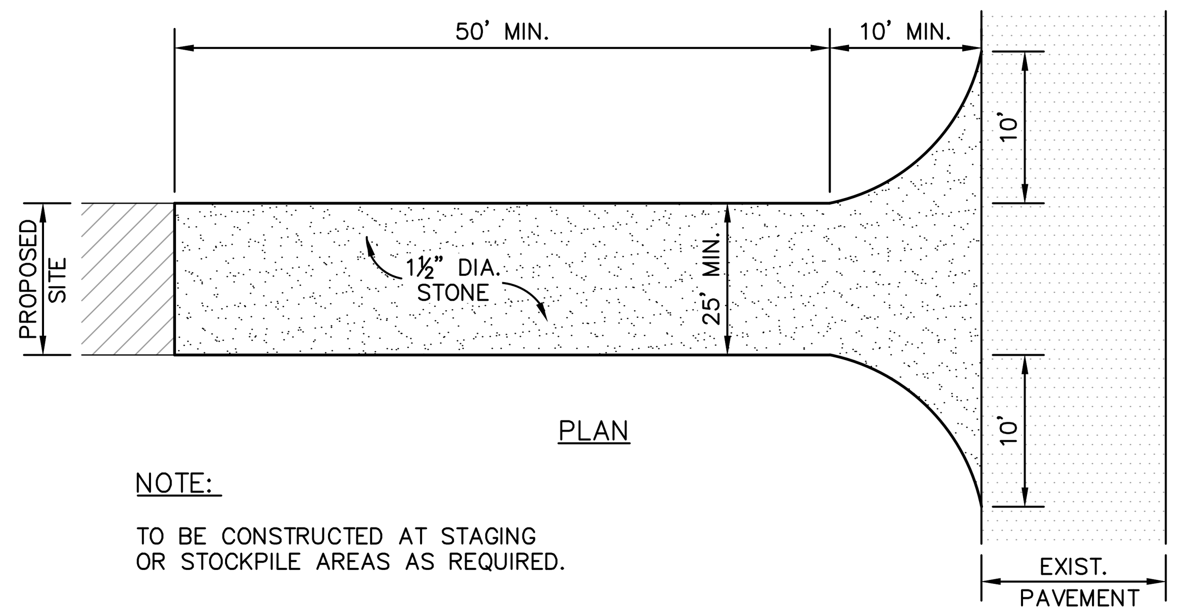
CONSTRUCTION DETAILS 1

C19

PROJECT NO. 569200



PROFILE

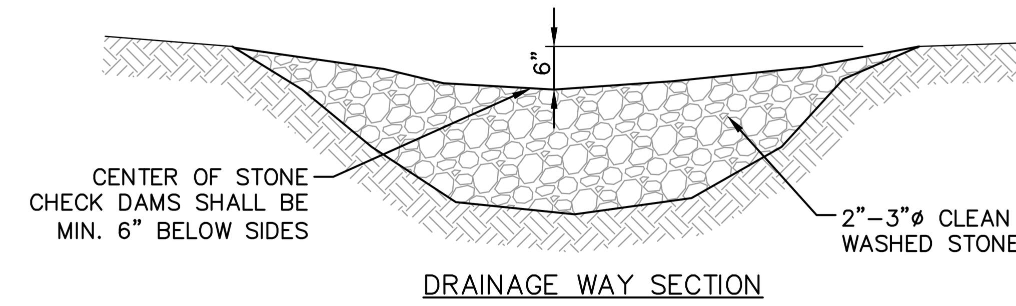


PLAN

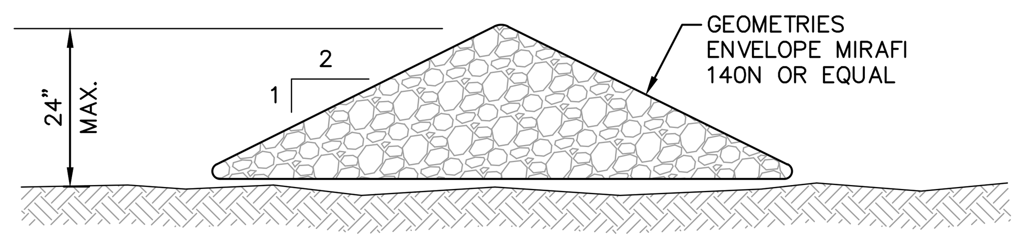
NOTE:

TO BE CONSTRUCTED AT STAGING OR STOCKPILE AREAS AS REQUIRED.

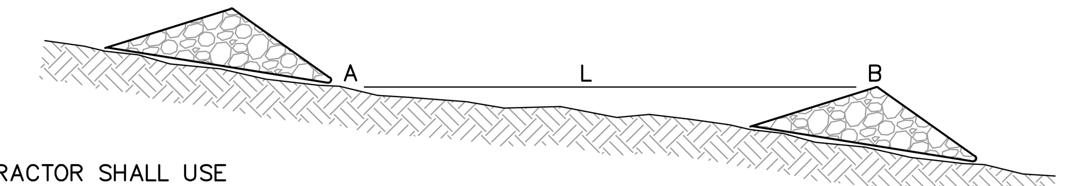
1 STABILIZED CONSTRUCTION ENTRY DETAIL (C20)
SCALE: NONE



DRAINAGE WAY SECTION



DRAINAGE WAY PROFILE



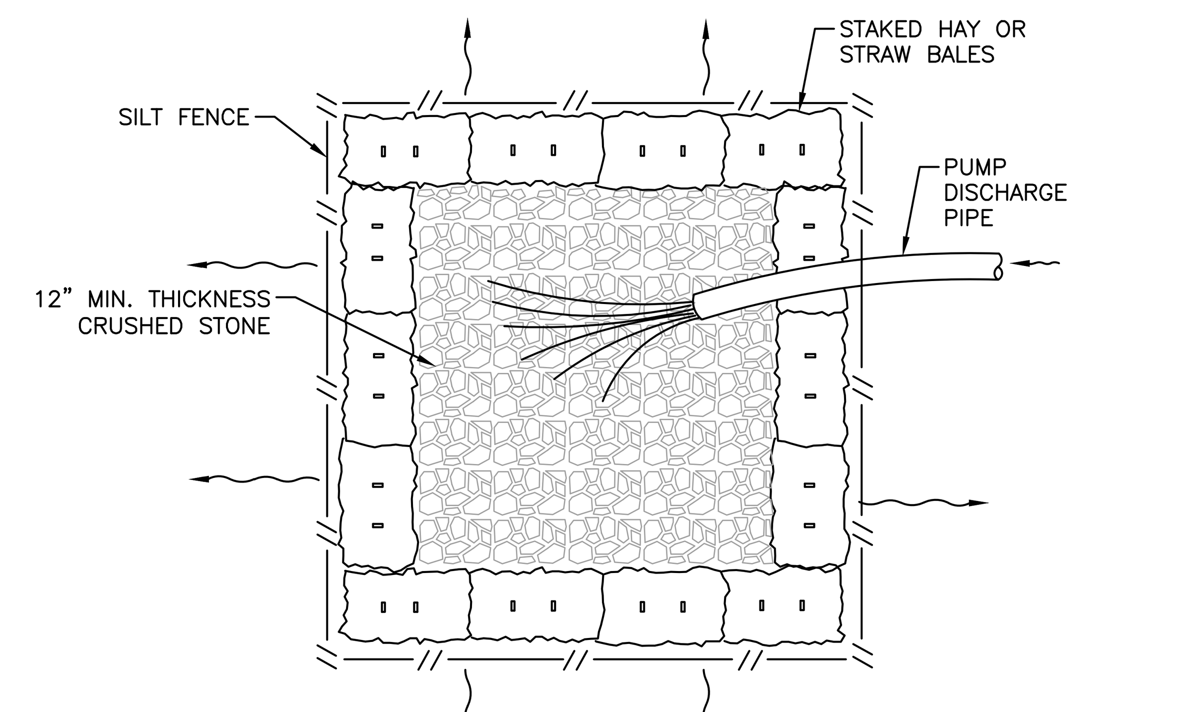
NOTES:

1. THE CONTRACTOR SHALL USE STONE CHECK DAMS AS NEEDED FOR TEMPORARY EROSION CONTROL DURING CONSTRUCTION.
2. REMOVE CHECK DAMS AFTER SITE IS STABILIZED.

L = THE DISTANCE SUCH THAT THE ELEV. A = ELEV. B.

CHECK DAM SPACING

2 STONE CHECK DAM DETAIL (AS NEEDED) (C20)
SCALE: NONE

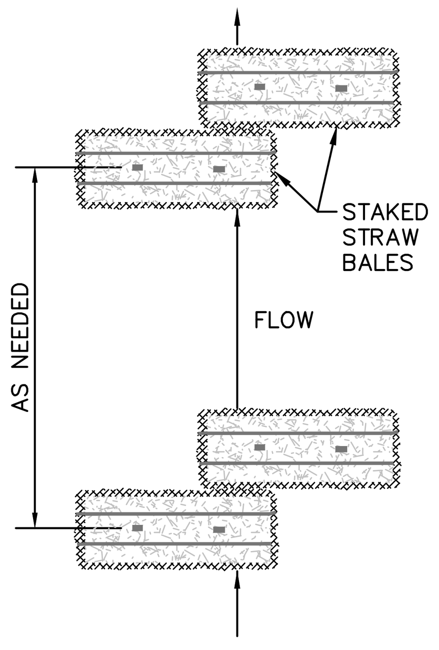


PLAN

DEWATERING PIT NOTES:

1. ADJUST SIZE OF PIT TO MAINTAIN CLEAN NON-EROSIVE WATER DISCHARGE FROM PIT.
2. TO BE CONSTRUCTED AT APPROVED UPLAND LOCATIONS.
3. TO BE USED FOR PUMPING OPERATIONS DURING DEWATERING,

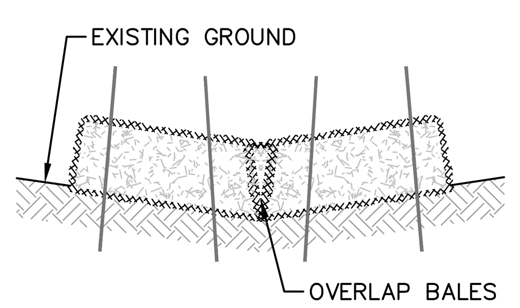
3 DEWATERING PIT DETAIL (C20)
SCALE: NONE



PLAN

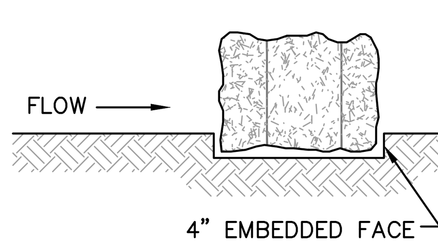
STRAW BALE CHECK DAM NOTES:

1. EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4".
2. BALES SHALL BE SECURELY ANCHORED IN PLACE BY STAKES OR REBARS DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARDS A PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
3. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
4. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL-NESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

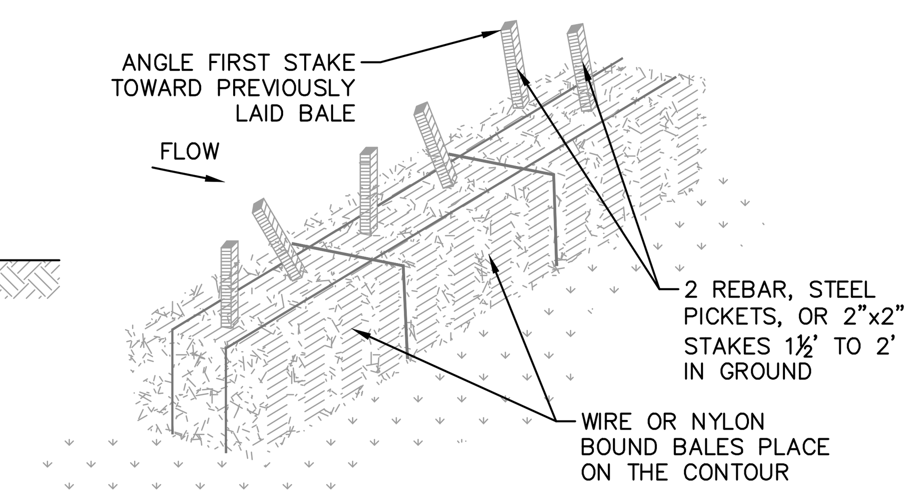


ELEVATION

4 STRAW BALE CHECK DAM DETAIL (AS NEEDED) (C20)
SCALE: NONE



EMBEDDING DETAIL

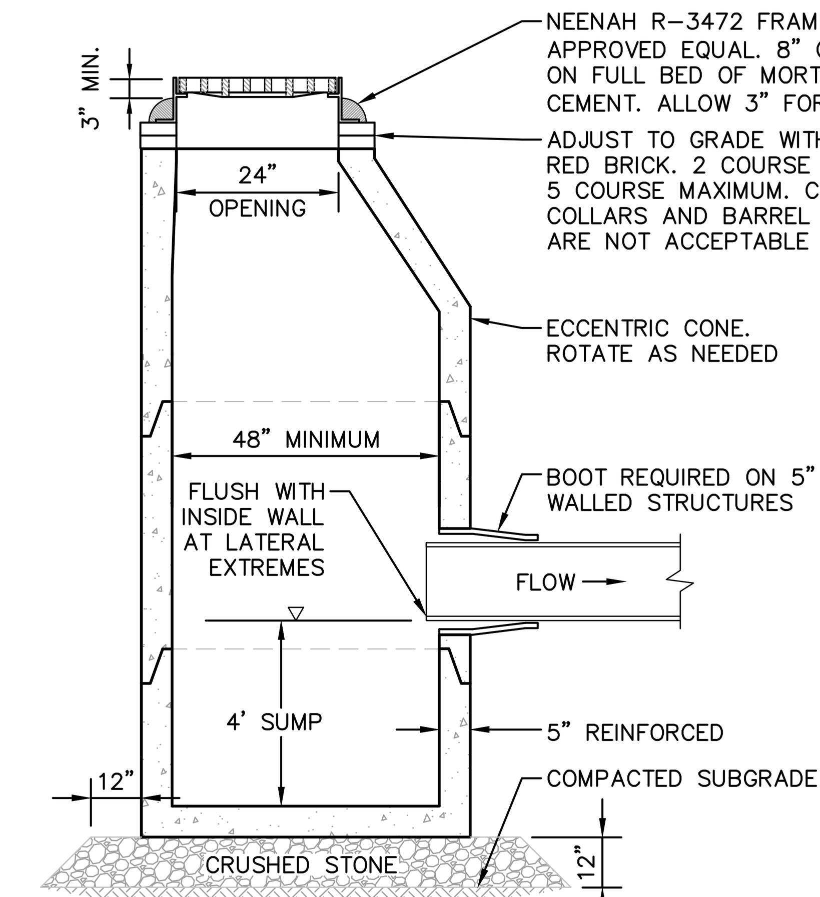


ANCHORING DETAIL

STRAW BALE NOTES:

1. BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES.
2. BALES SHALL BE SECURELY ANCHORED IN PLACE BY STAKES OR REBARS DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARDS A PREVIOUSLY LAID BALE TO FORCE BALES TOGETHER.
3. INSPECTION SHALL BE FREQUENT AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
4. BALES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL-NESS SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

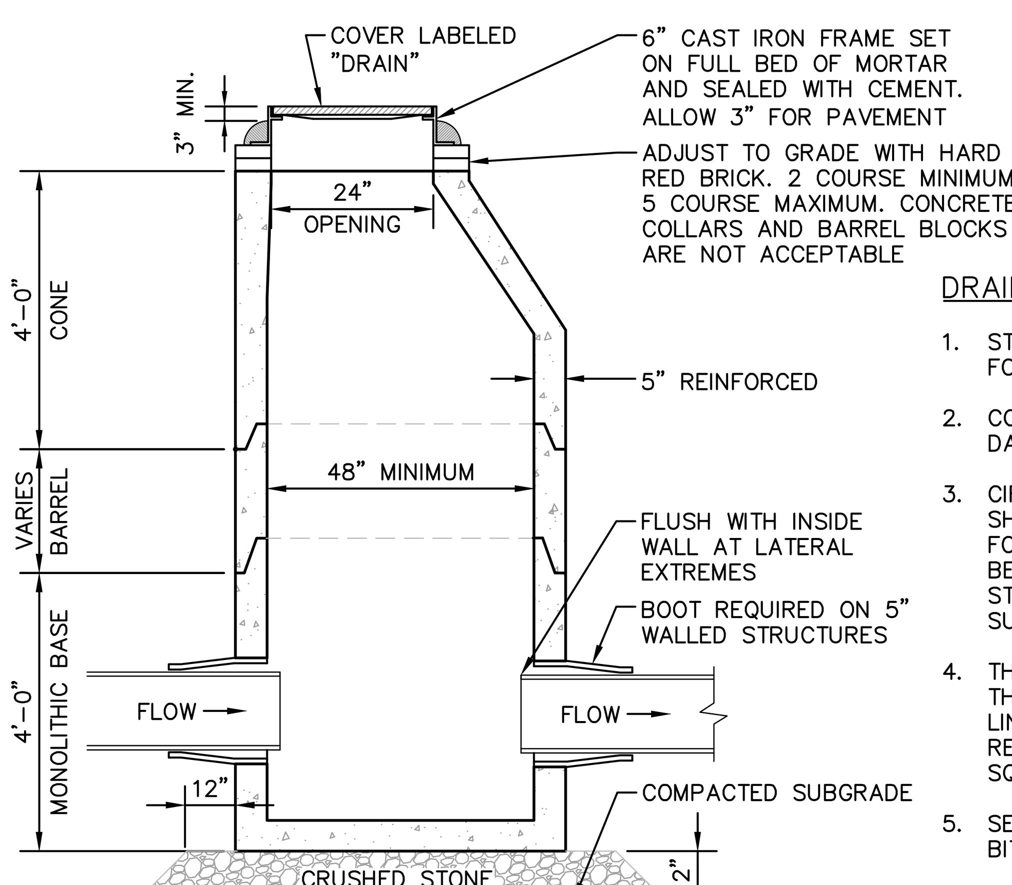
5 STRAW BALE DETAIL (AS NEEDED) (C20)
SCALE: NONE



CATCH BASIN NOTES:

1. STRUCTURE SHALL BE DESIGNED FOR H-20 LOADING.
2. CONCRETE: 4,000 PSI AFTER 28 DAYS.
3. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE IN THE CENTER OF THE WALL. STRUCTURE SHALL BE DESIGNED TO SUPPORT H-20 LOADINGS.
4. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ.IN. PER LINEAR FOOT.
5. SEAL ALL PRECAST JOINTS WITH BITUMASTIC SEAL.
6. RISERS OF 2", 3" AND 4" CAN BE USED TO REACH DESIRED DEPTH. 12" MAXIMUM RISER HEIGHT.

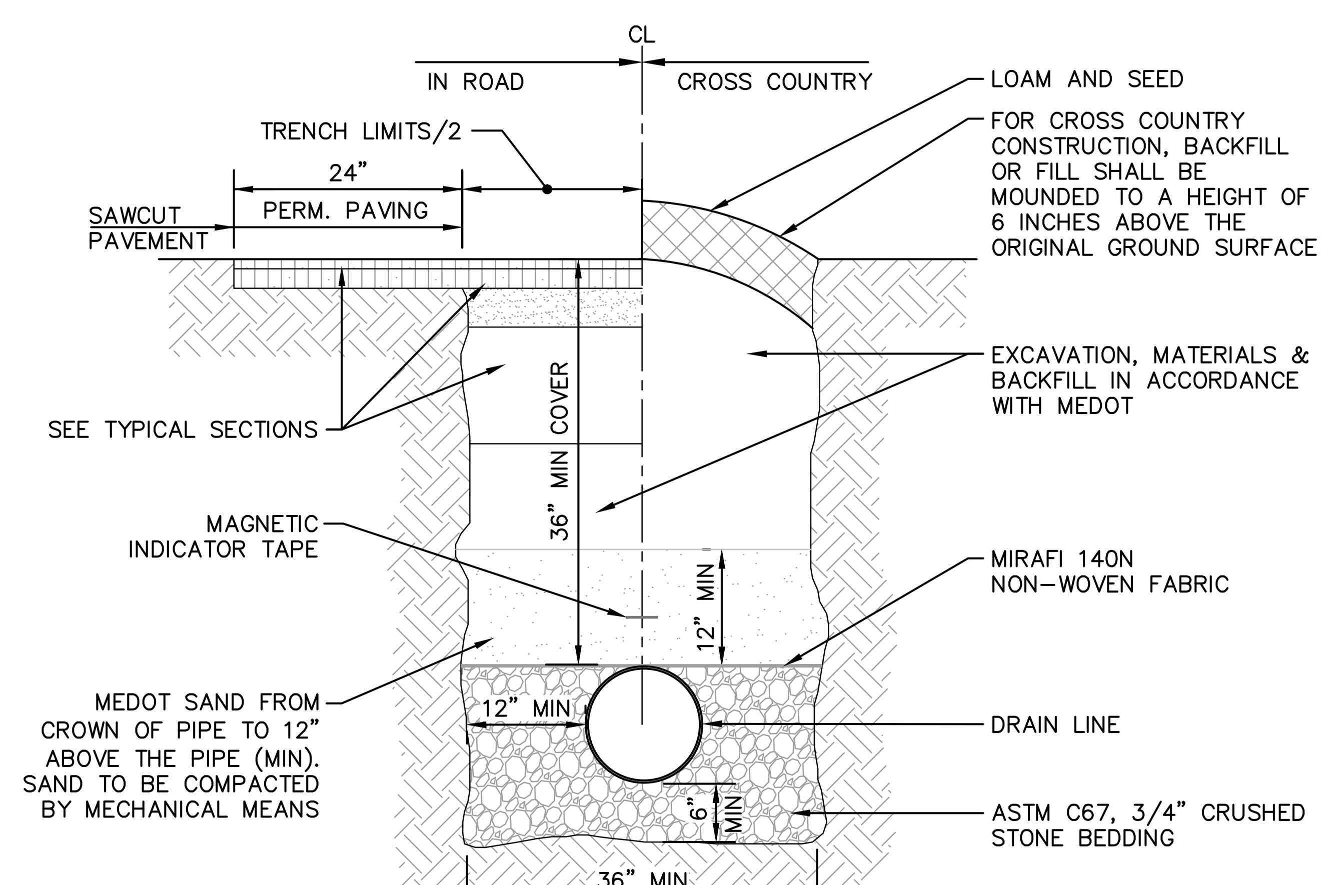
6 TYPICAL CATCH BASIN DETAIL (C20)
SCALE: NONE



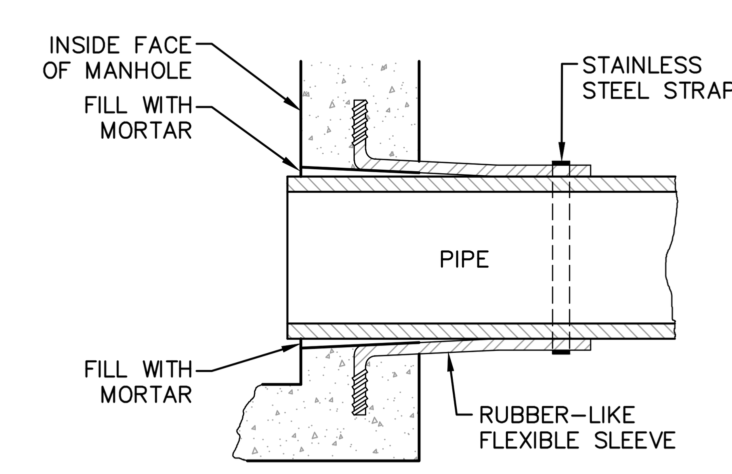
DRAIN MANHOLE NOTES:

1. STRUCTURE SHALL BE DESIGNED FOR H-20 LOADING.
2. CONCRETE: 4,000 PSI AFTER 28 DAYS.
3. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FOOT IN ALL SECTIONS AND SHALL BE IN THE CENTER OF THE WALL. STRUCTURE SHALL BE DESIGNED TO SUPPORT H-20 LOADINGS.
4. THE TONGUE OR THE GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ.IN. PER LINEAR FOOT.
5. SEAL ALL PRECAST JOINTS WITH BITUMASTIC SEAL.
6. RISERS OF 2", 3" AND 4" CAN BE USED TO REACH DESIRED DEPTH. 12" MAXIMUM RISER HEIGHT.

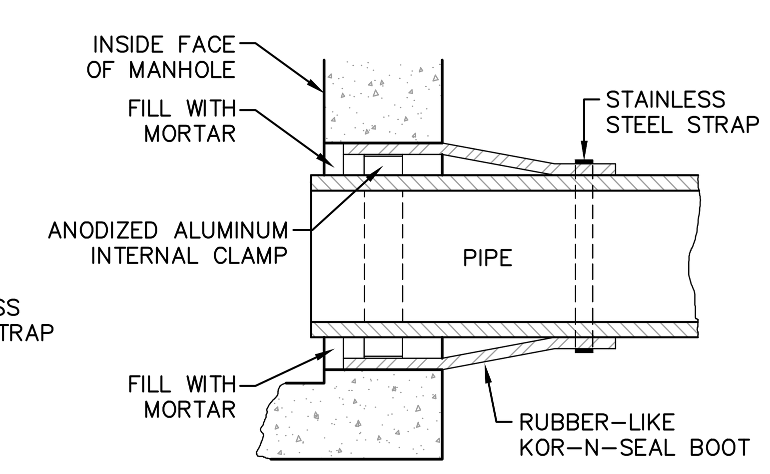
7 DRAIN MANHOLE DETAIL (C20)
SCALE: NONE



8 DRAIN TRENCH DETAIL (C20)
SCALE: NONE

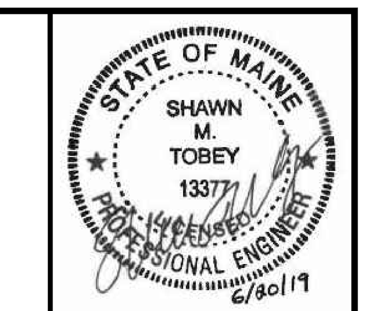


LOCK-JOINT FLEXIBLE MANHOLE SLEEVE
OR EQUAL



KOR-N-SEAL JOINT SLEEVE
OR EQUAL

9 TYPICAL PIPE TO MANHOLE DETAILS (C20)
SCALE: NONE



REV.	DATE	REVISION DESCRIPTION
1	06/20/19	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

SCALE:	DATE:	DESIGNED BY	DRAWN BY	CHECKED BY
AS SHOWN	JUNE 20, 2019	SMT	SMT	WRD

APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

CONSTRUCTION DETAILS 2

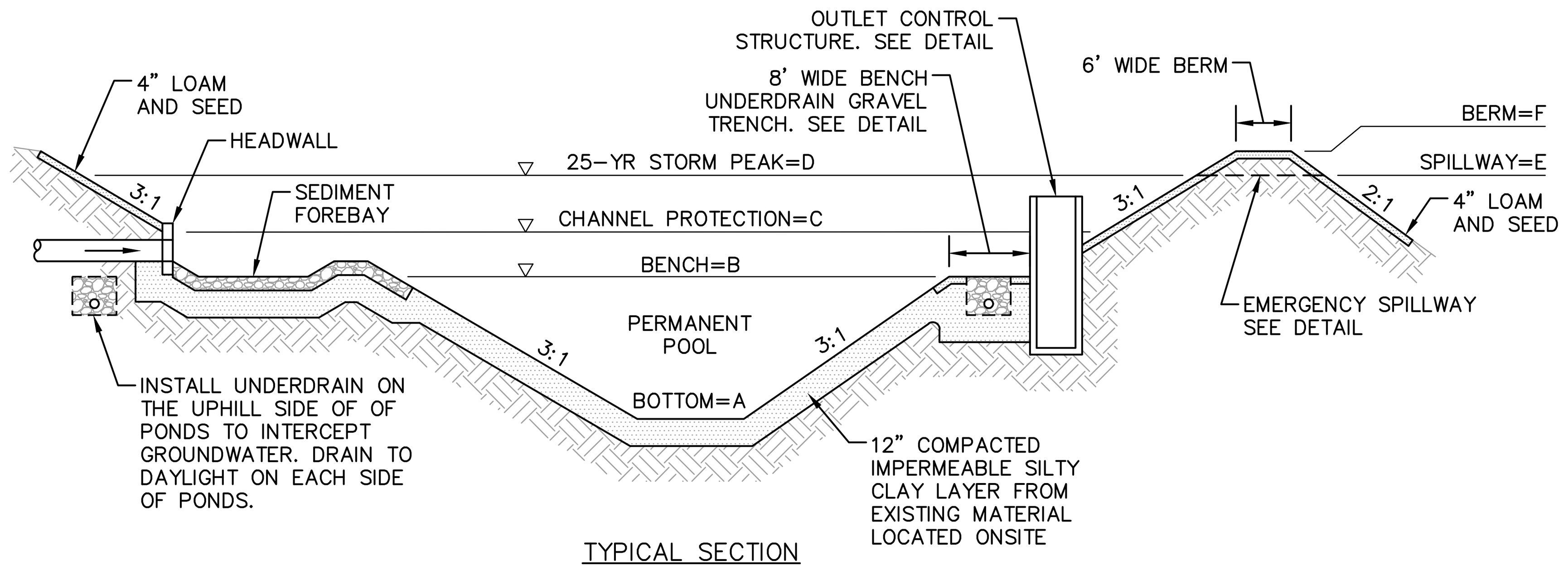
C20

PROJECT NO. 569200

SHEET 20 OF 25

WET POND MAINTENANCE NOTES:

1. EMBANKMENTS SHOULD BE INSPECTED AT LEAST ANNUALLY BY A QUALIFIED PROFESSIONAL FOR SETTLEMENT, EROSION, SEEPAGE, ANIMAL BURROWS, WOODY VEGETATION, AND OTHER CONDITIONS THAT COULD DEGRADE THE EMBANKMENT AND REDUCE ITS STABILITY FOR IMPOUNDING WATER. IMMEDIATE CORRECTIVE ACTION SHOULD BE IMPLEMENTED IF ANY SUCH CONDITIONS ARE FOUND.
2. INLET AND OUTLET PIPES, INLET AND OUTLET STRUCTURES, ENERGY DISSIPATION STRUCTURES OR PRACTICES, AND OTHER STRUCTURAL APPURTENANCES SHOULD BE INSPECTED AT LEAST ANNUALLY BY A QUALIFIED PROFESSIONAL, AND CORRECTIVE ACTION IMPLEMENTED AS INDICATED BY SUCH INSPECTION.
3. TRASH AND DEBRIS SHOULD BE REMOVED FROM THE BASIN AND ANY INLET OR OUTLET STRUCTURE WHENEVER OBSERVED BY INSPECTION.
4. ACCUMULATED SEDIMENT SHOULD BE REMOVED WHEN IT SIGNIFICANTLY AFFECTS BASIN CAPACITY.
5. A MINIMUM SEPARATION OF ONE (1) FOOT IS RECOMMENDED FROM THE BOTTOM OF THE BASIN TO THE TOP OF BEDROCK, OR AN IMPERMEABLE BARRIER (CLAY LAYER OR SYNTHETIC LINER) SHOULD BE PROVIDED.

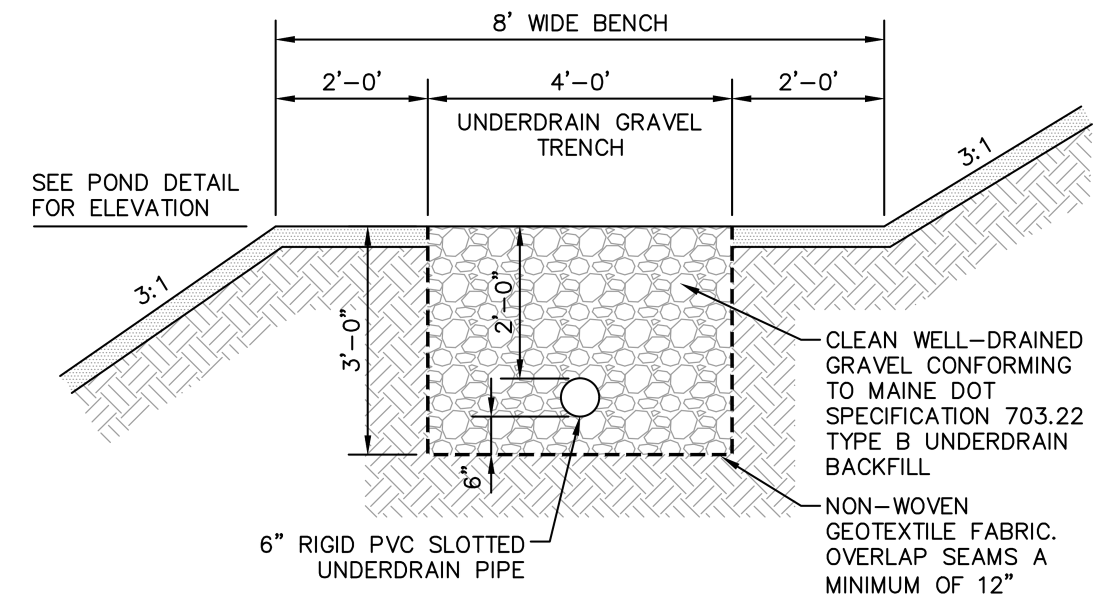


TYPICAL SECTION

WET POND	BOTTOM ELEV. A	BENCH ELEV. B	PERMANENT POOL VOLUME	CHANNEL PROTECTION ELEV. C	CHANNEL PROTECTION VOLUME	25-YR STORM PEAK ELEV. D	SPILLWAY ELEV. E	BERM ELEV. F
1	46.0	53.3	18,313 C.F.	54.4	7,507 C.F.	55.82	55.85	57.1
2	45.0	52.5	12,916 C.F.	53.3	5,590 C.F.	54.84	54.85	56.0
3	44.0	49.5	29,209 C.F.	50.6	13,516 C.F.	52.43	52.43	53.75

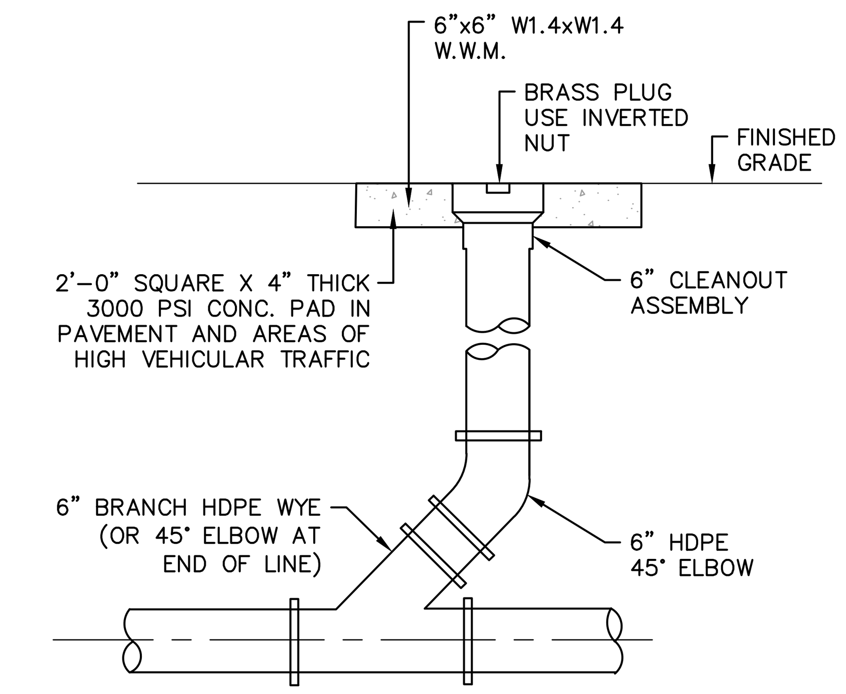
1/C21 **WET POND CROSS SECTION**

SCALE: NONE



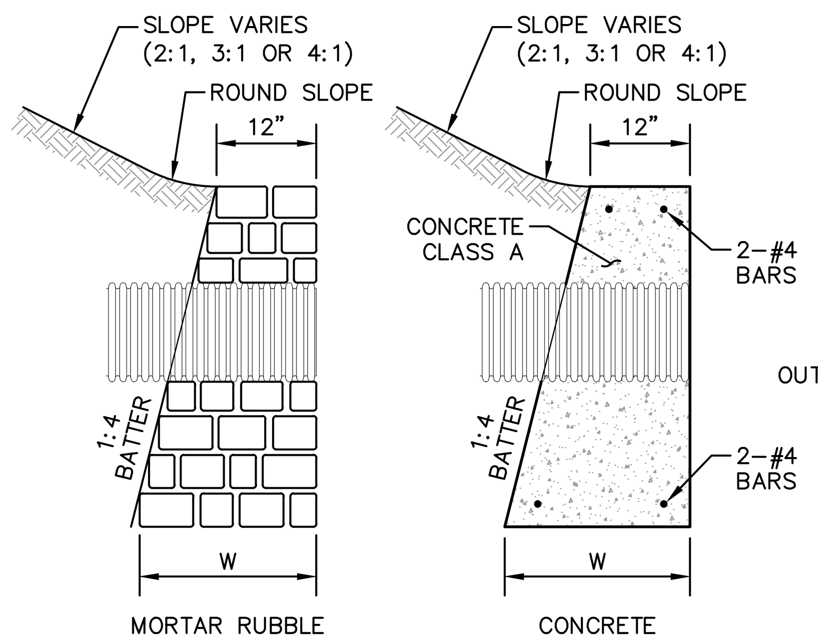
2/C21 **UNDERDRAIN GRAVEL TRENCH DETAIL**

SCALE: NONE

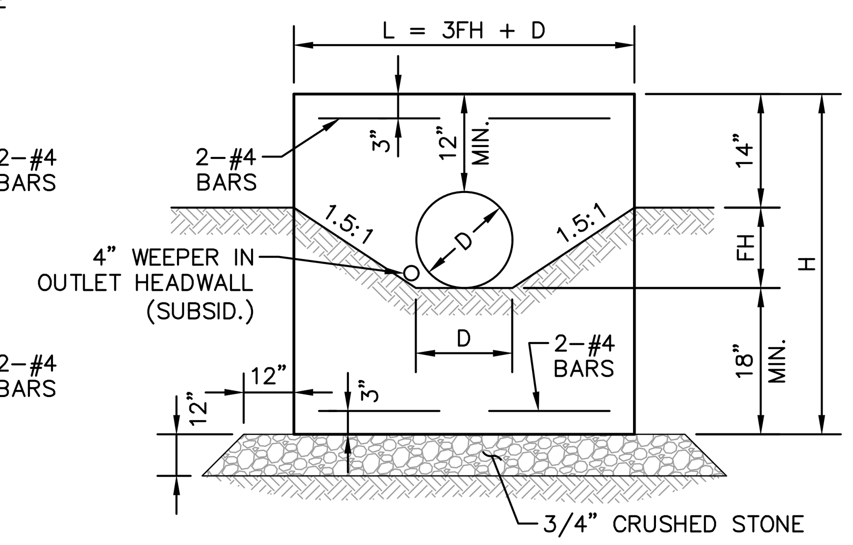


3/C21 **DRAIN CLEANOUT DETAIL**

SCALE: NONE



SECTION ON CENTERLINE

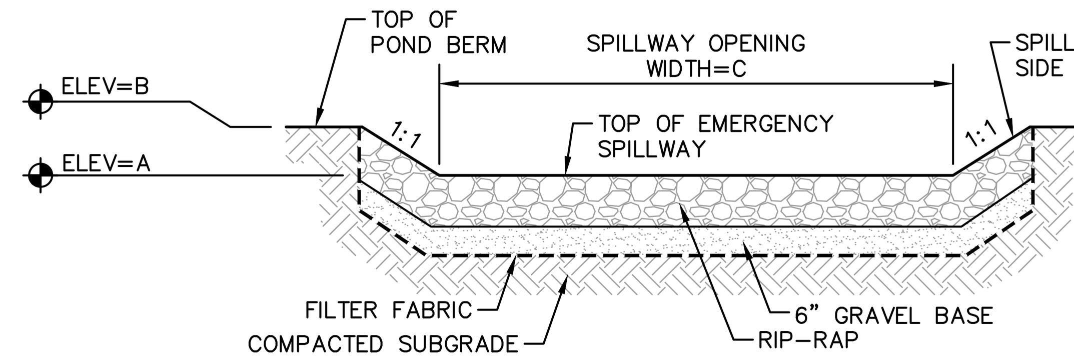


ELEVATION VIEW

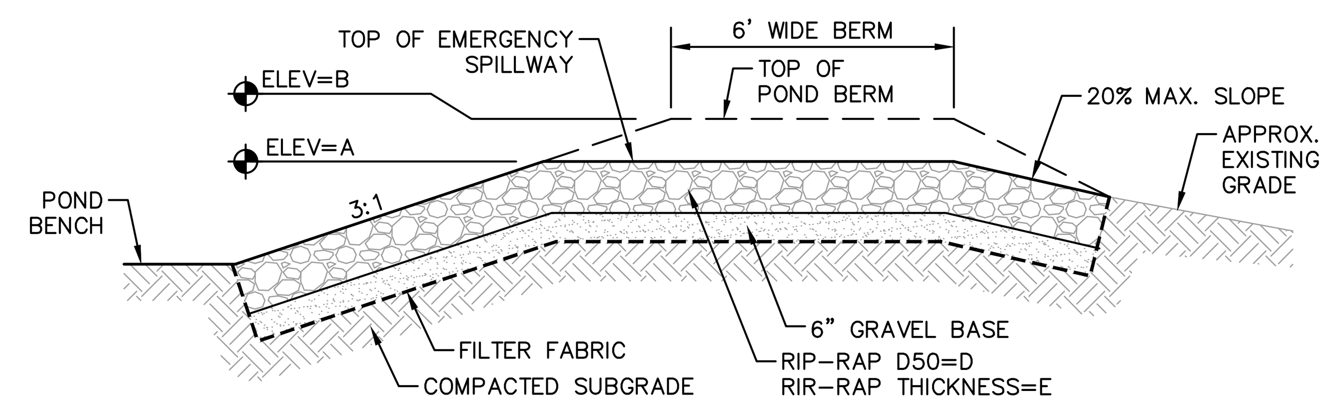
DIAMETER D INCHES	MASONRY PER FOOT OF WALL CU. YD	MASONRY PER STANDARD HEADER CU. YD	STEEL PER STANDARD HEADER LB.	LENGTH OF BARS	EXC. FOR 1' DEPTH CU. YD.	HEADER LENGTH L	HEADER HEIGHT H	FILL HEGHT FH	WIDTH AT BOTTOM OF HEADER W
12	0.186	0.61	9	3'-2"	0.789	3'-6"	3'-6"	0'-10"	0'-10½"
15	0.202	0.85	11	3-10	0.947	4-6	3-9	1-1	1-11¼
18	0.222	1.13	14	5-2	1.111	5-6	4-0	1-4	2-0
24	0.260	1.78	20	7-2	1.451	7-6	4-6	1-10	2-1½
30	0.301	2.58	25	9-2	1.810	9-6	5-0	2-4	2-3
36	0.344	3.53	31	11-2	2.187	11-6	5-6	2-10	2-4½

4/C21 **CONCRETE OR MORTAR RUBBLE HEADWALL DETAILS**

SCALE: NONE



SECTION VIEW

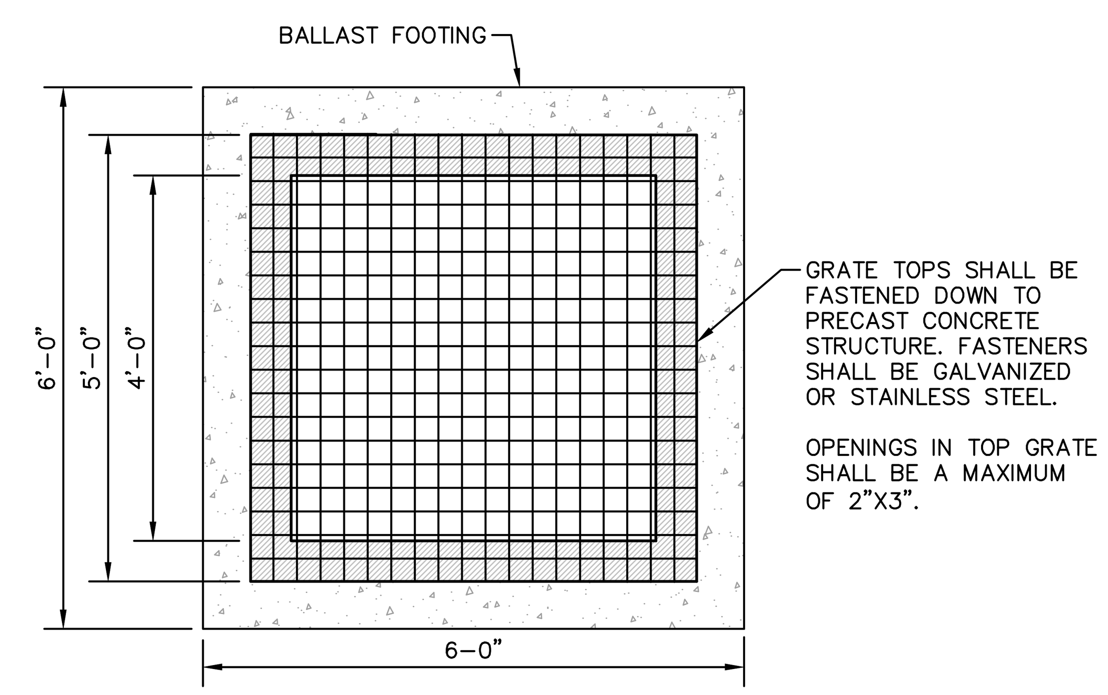


PROFILE VIEW

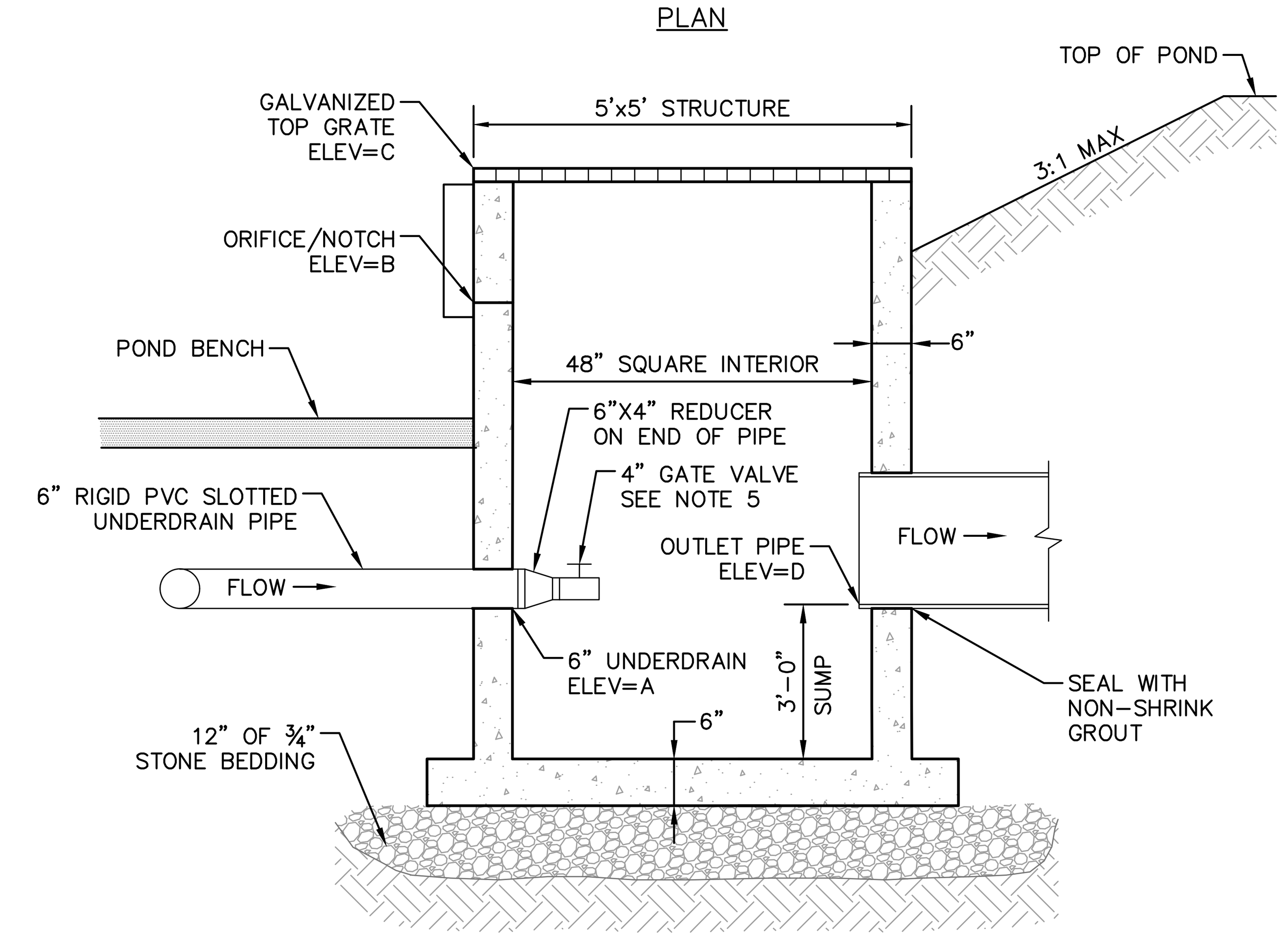
WET POND	SPILLWAY ELEV. A	BERM ELEV. B	SPILLWAY WIDTH FT C	RIP-RAP D50 D	RIP-RAP THICKNESS E
1	55.85	57.1	30	6"	12"
2	54.85	56.0	30	6"	12"
3	52.45	53.75	55	8"	16"

5/C21 **EMERGENCY SPILLWAY DETAIL**

SCALE: NONE



PLAN



SECTION

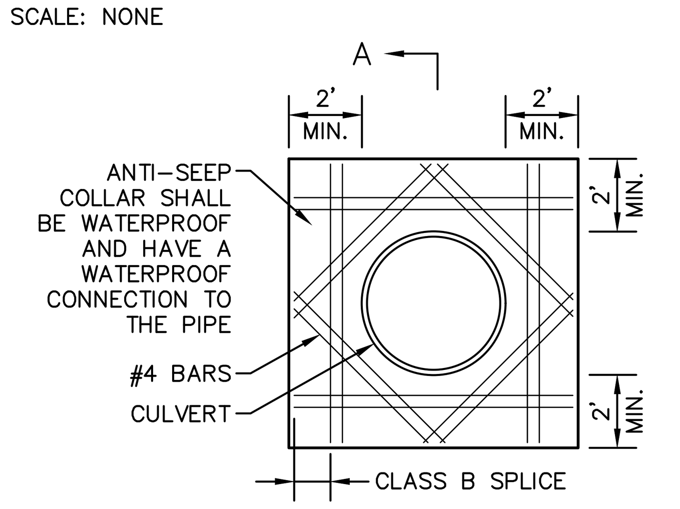
OUTLET STRUCTURE NOTES:

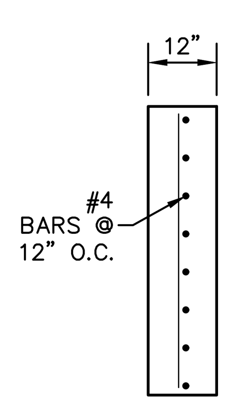
1. ALL CEMENT CONCRETE TO BE 4,000 PSI (MIN.).
2. GALVANIZED STEEL GRATE SHALL BE BOLTED TO TOP OF STRUCTURE.
3. ALL OPENINGS SHALL BE CAST IN AS REQUIRED.
4. PRECAST REINFORCED CONCRETE STRUCTURE TO MEET ASTM C-478 DESIGNATION AND H-20 LOADING.
5. THE 4" GATE VALVE CONNECTED TO THE UNDERDRAIN SHALL BE ADJUSTED TO THE PROVIDE THE SQ. IN. OPENING SHOWN IN THE TABLE BELOW TO PROVIDE A CHANNEL PROTECTION VOLUME DRAIN DOWN TIME OF GREATER THAN 24 HOURS.

WET POND	UNDERDRAIN INV.IN A	GATE VALVE OPENING	ORIFICE/ NOTCH INV.IN B	ORIFICE/ NOTCH SIZE	TOP GRATE C	OUTLET PIPE INV.OUT D	OUTLET PIPE SIZE
1	50.7	1.11 SQ. IN.	54.4	10"X15.6"	55.7	50.6	24"
2	49.8	0.76 SQ. IN.	53.3	5"	54.7	49.7	24"
3	46.6	1.9 SQ. IN.	50.6	15"X16.8"	52.25	46.5	36"

9/C21 **OUTLET STRUCTURE AT DETENTION POND**

SCALE: NONE





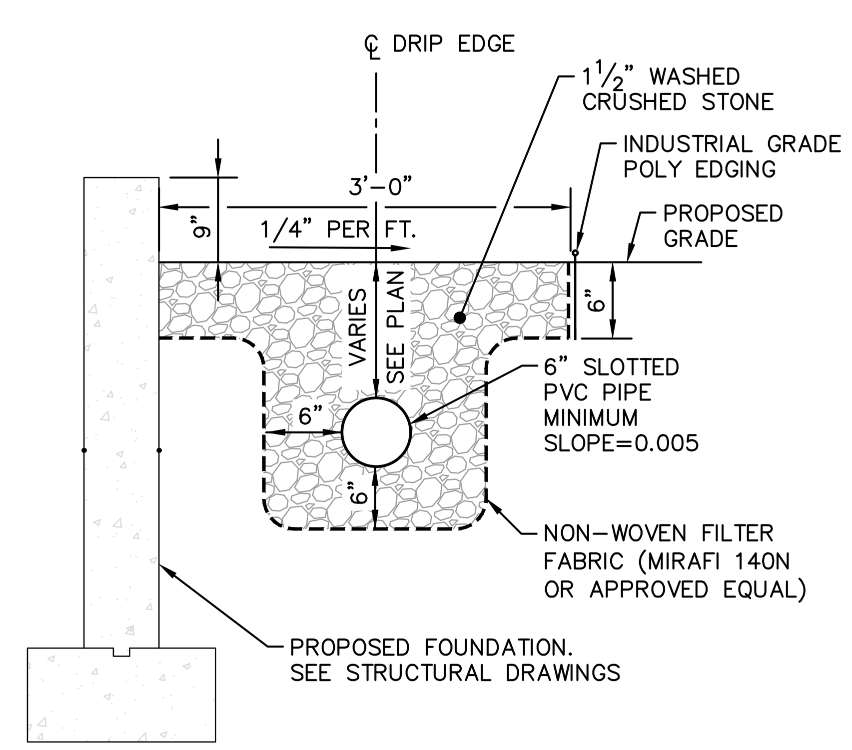
A-A

ANTI-SEEP COLLAR NOTES:

1. SPACING BETWEEN ADJACENT COLLARS SHALL BE A MINIMUM OF 5 FEET, AND A MAXIMUM OF 28 FEET WITH THE FIRST COLLAR BEING A MINIMUM OF 5 FEET FROM THE INLET.
2. FURNISH A MINIMUM OF 2 COLLARS PER CONDUIT.
3. PROVIDE A 4,000 PSI (MIN.) CONCRETE MIX.

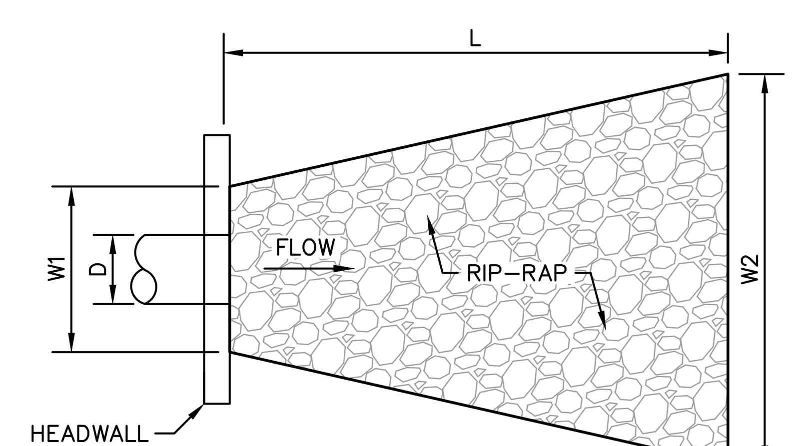
6/C21 **ANTI-SEEP DRAIN COLLAR DETAIL**

SCALE: NONE



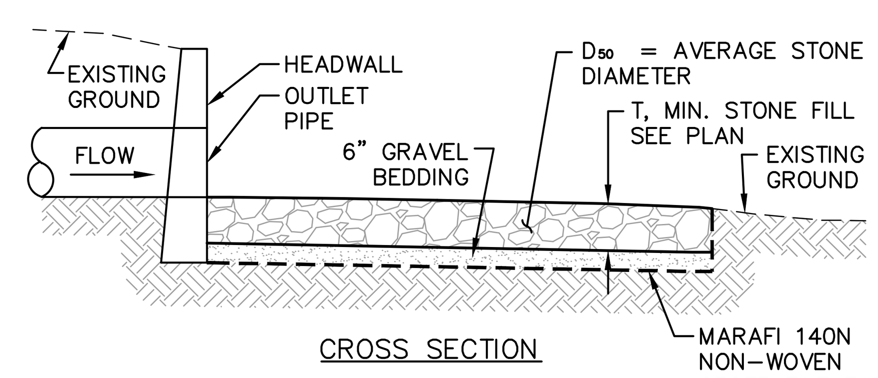
7/C21 **TYPICAL DRIP EDGE INFILTRATION DETAIL**

SCALE: NONE



PLAN VIEW

TABLE OF DIMENSIONS							
	D (IN)	W1 (FT)	L (FT)	W2 (FT)	T (IN)	D_{50} (IN)	RIP-RAP VOLUME (C.Y.)
HW1	18	4.5	17	11	12	6	4.8
HW2	18	4.5	14	10	12	6	3.8
HW3	24	6	16	12	12	6	5.6
HW5	36	9	27	20	12	6	14.7
HW6	12	3	10	7	12	6	1.7
HW7	18	4.5	16	11	12	6	4.5
HW8	36	9	28	20	12	6	15.2
HW9	24/36	15	22	24	12	6	16.2



CROSS SECTION

RIP-RAP NOTE

1. ALL RIP-RAP SHALL BE PROTECTED FROM RECEIVING SEDIMENT RUNOFF DURING THE CONSTRUCTION PROCESS. THE CONTRACTOR SHALL ENSURE THAT ALL RIP-RAP IS CLEAN AND FREE OF SEDIMENT AT THE COMPLETION OF THE PROJECT.

8/C21 **STONE LINED OUTLET PROTECTION DETAIL**

SCALE: NONE

STATE OF MAINE — SHAWN M. TOBEY 13377 — PROFESSIONAL ENGINEER — 6/20/19

REV.	DATE	REVISION DESCRIPTION
1	06/20/19	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN

CHECKED BY: WRD | DRAWN BY: SMT | DESIGNED BY: SMT

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

DATE: JUNE 20, 2019

SCALE: AS SHOWN

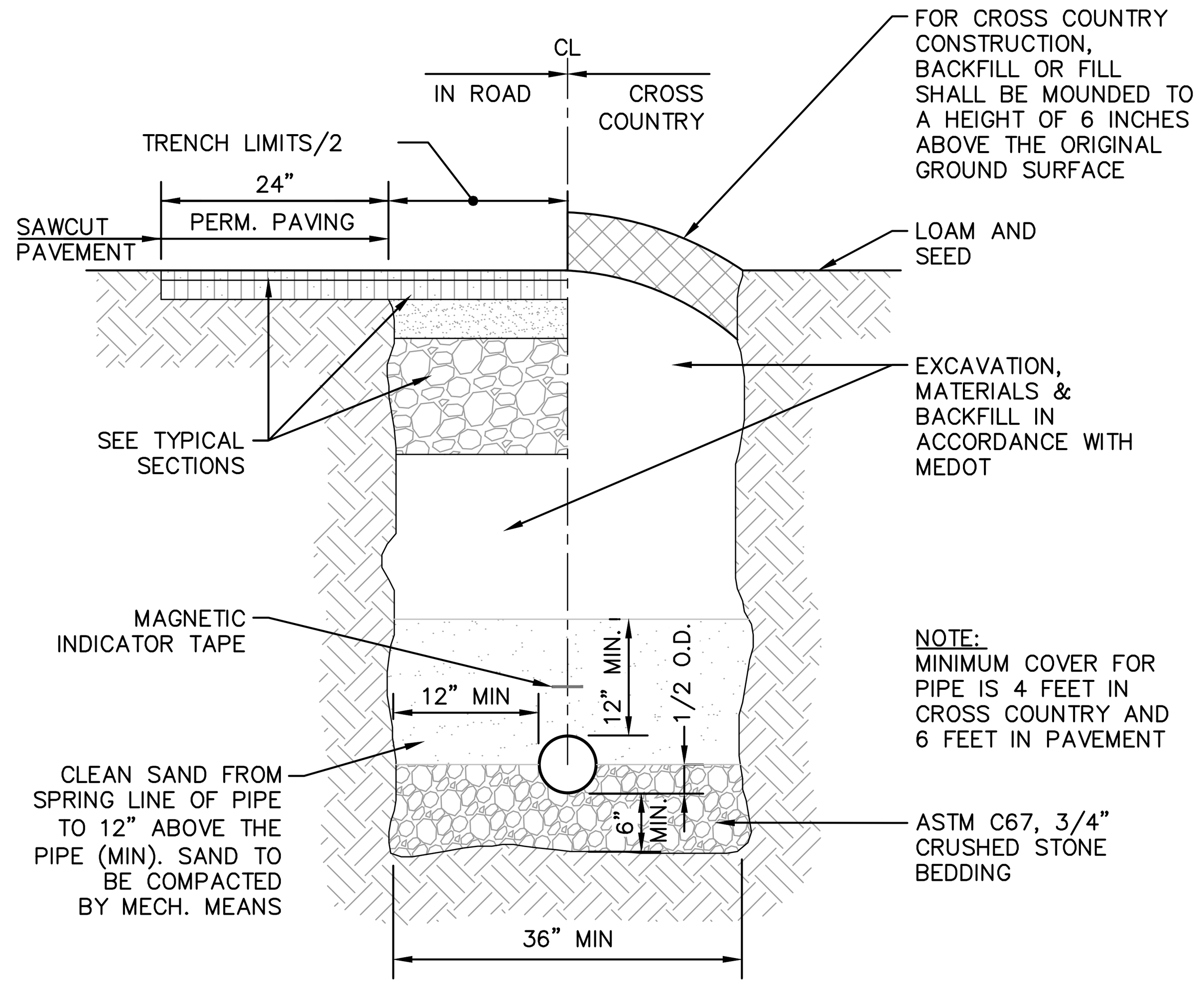
APPLICANT: AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT: PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

CONSTRUCTION DETAILS 3

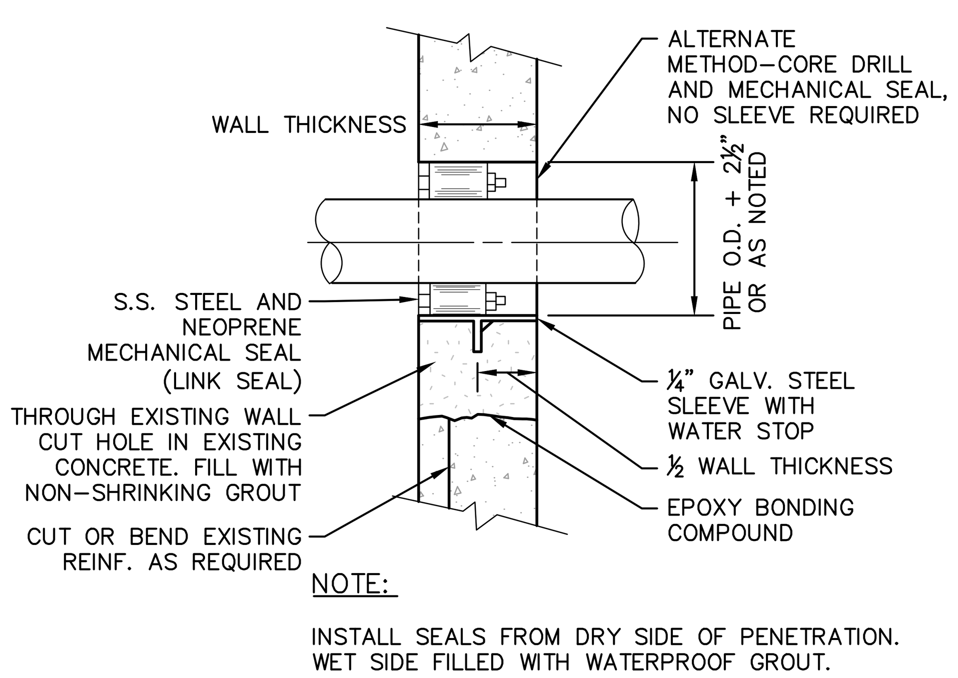
C21

PROJECT NO. 569200

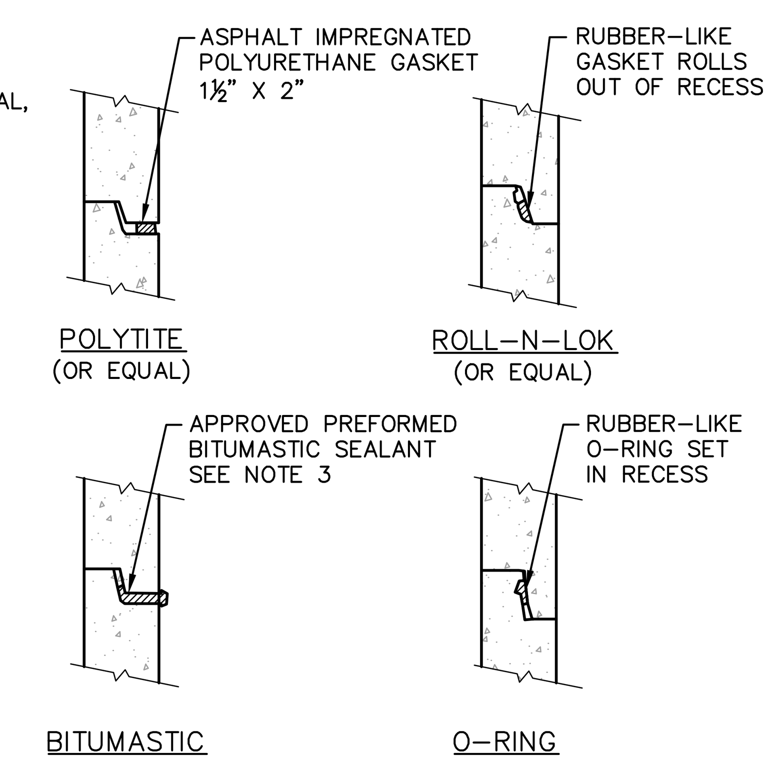


1 C22 **SEWER TRENCH DETAIL**

SCALE: NONE

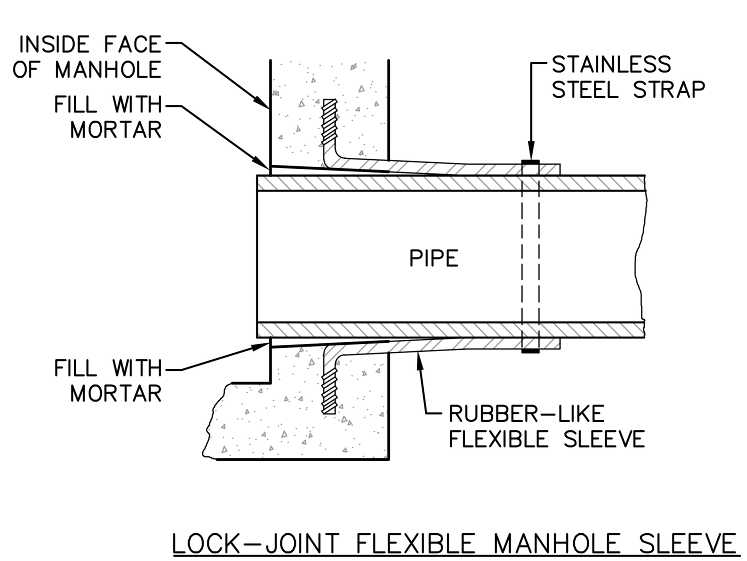


WALL SLEEVE DETAIL



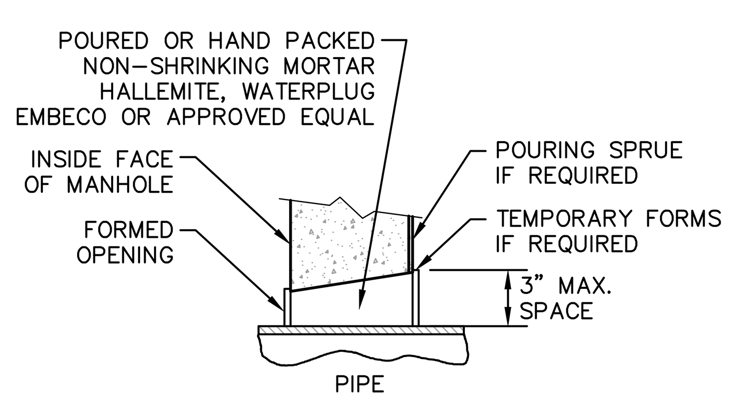
NOTE:

ALL GASKETS AND SEALANTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

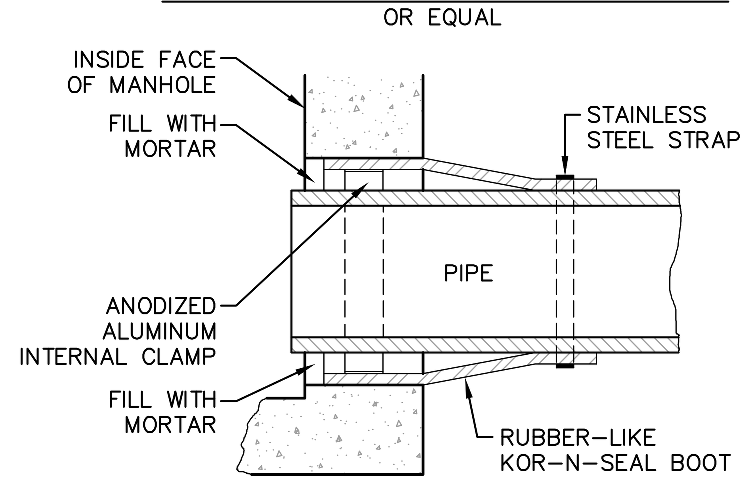


LOCK–JOINT FLEXIBLE MANHOLE SLEEVE
OR EQUAL

DETAIL A



NON–SHRINKING MORTAR
(SEE NOTE 4)



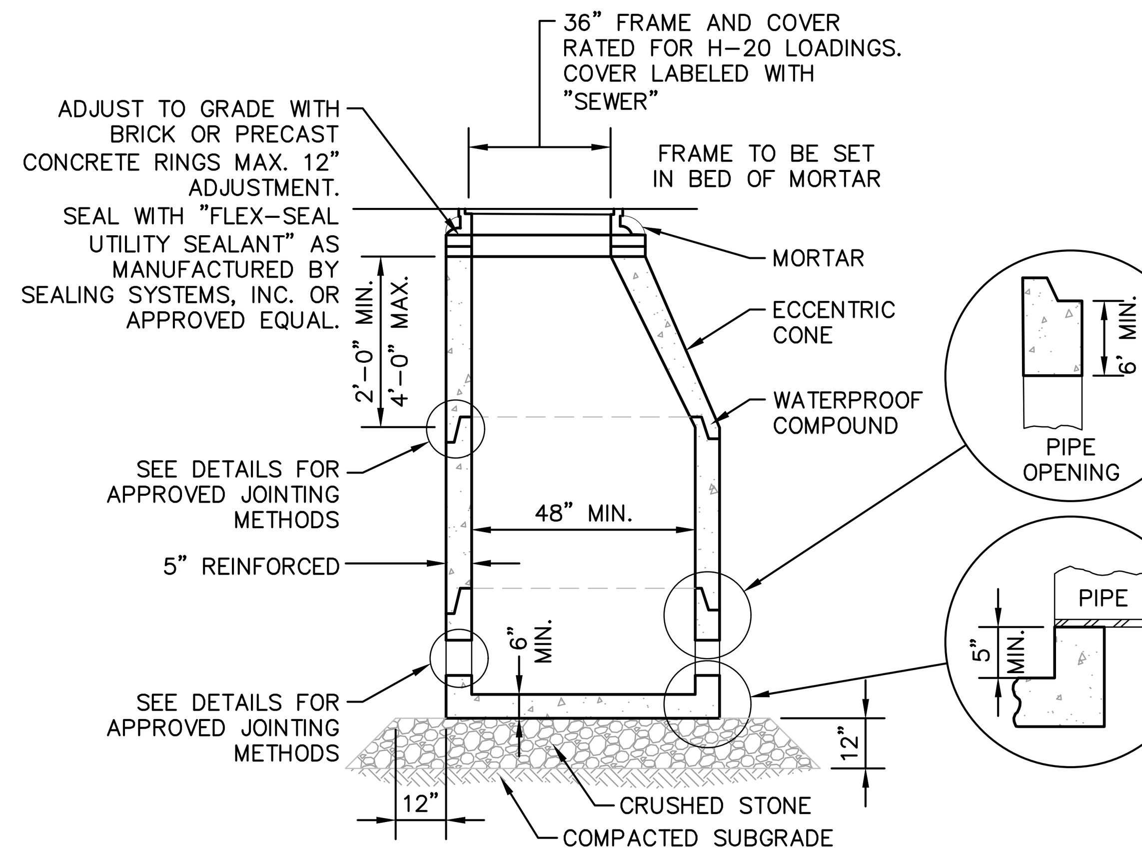
KOR–N–SEAL JOINT SLEEVE
OR EQUAL

SLEEVE AND GASKET NOTES:

1. HORIZONTAL JOINTS BETWEEN SECTIONS OF PRECAST CONCRETE BARRELS SHALL BE OF A TYPE APPROVED BY THE ENGINEER, WHICH TYPE SHALL, IN GENERAL, DEPEND FOR WATERTIGHTNESS UPON AN ELASTOMERIC OR MASTIC–LIKE GASKET.
2. PIPE TO MANHOLE JOINTS SHALL BE ONLY AS APPROVED BY THE ENGINEER AND IN GENERAL, WILL DEPEND FOR WATERTIGHTNESS UPON ELASTOMERIC SEALANT.
3. FOR BITUMASTIC TYPE JOINTS THE AMOUNT OF SEALANT SHALL BE SUFFICIENT TO FILL AT LEAST 75% OF THE JOINT CAVITY.
4. NON–SHRINKING MORTAR SHALL ONLY BE USED WHERE SPECIFICALLY APPROVED BY THE ENGINEER.

2 C22 **SEWER MANHOLE JOINT AND PIPE CONNECTION DETAILS**

SCALE: NONE



TYPICAL SECTION

SEWER NOTES:

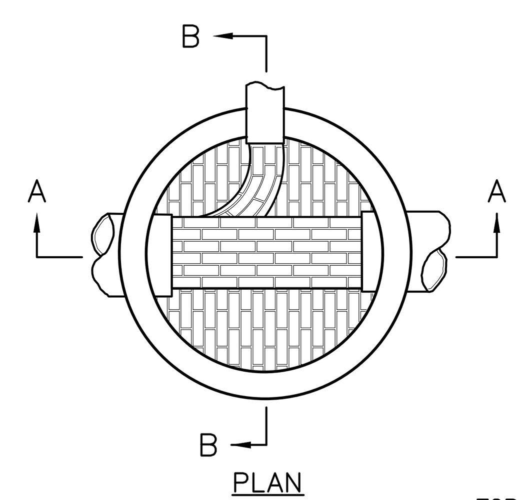
1. MANHOLES: THE MANHOLE, INCLUDING ALL COMPONENT PARTS, SHALL HAVE ADEQUATE SPACE, STRENGTH AND LEAKPROOF QUALITIES CONSIDERED NECESSARY FOR THE INTENDED SERVICE SPACE REQUIREMENTS AND CONFIGURATIONS, SHALL BE SHOWN ON THE DRAWING. MANHOLES MAY BE AN ASSEMBLY OF PRECAST SECTIONS, WITH STEEL REINFORCEMENT, WITH ADEQUATE JOINTING. IN ANY APPROVED MANHOLE, THE COMPLETE STRUCTURE SHALL BE OF SUCH MATERIAL AND QUALITY AS TO WITHSTAND LOADS OF 8 TONS (H–20 LOADING) WITHOUT FAILURE AND PREVENT LEAKAGE IN EXCESS OF ONE GALLON PER DAY PER VERTICAL FOOT OF MANHOLE, CONTINUOUSLY FOR THE LIFE OF THE STRUCTURE. A PERIOD GENERALLY IN EXCESS OF 25 YEARS IS TO BE UNDERSTOOD IN BOTH CASES.
2. INVERTS AND SHELVES: MANHOLES SHALL HAVE A BRICK PAVED SHELF AND INVERT, CONSTRUCTED TO CONFORM TO THE SIZE OF PIPE AND FLOW. AT CHANGES IN DIRECTION, THE INVERTS SHALL BE LAID OUT IN CURVES OF THE LONGEST RADIUS POSSIBLE TANGENT TO THE CENTER LINE OF THE SEWER PIPES. SHELVES SHALL BE CONSTRUCTED TO THE ELEVATION OF THE HIGHEST PIPE CROWN AND SLOPE TO DRAIN TOWARD THE FLOWING THROUGH CHANNEL. UNDERLAYMENT OF INVERT AND SHELF SHALL CONSIST OF BRICK MASONRY.
3. SHALLOW MANHOLE: IN LIEU OF A CONE SECTION, WHEN MANHOLE DEPTH IS LESS THAN 6 FEET, A REINFORCED CONCRETE SLAB COVER SHALL BE USED, WHERE INDICATED, HAVING AN ECCENTRIC ENTRANCE OPENING AND CAPABLE OF SUPPORTING H–20 LOADS. SEE DETAILS.
4. RISER SECTION: THE RISER SECTION SHALL HAVE THE EXTERIOR WRAPPED WITH WRAPIDSEAL MANHOLE ENCAPSULATION SYSTEM AS MANUFACTURED BY CCI PIPE PROTECTION PRODUCTS OR APPROVED EQUAL.

MANHOLE NOTES:

1. BASE SECTION TO BE FULL WALL THICKNESS AND MONOLITHIC TO A POINT 6" ABOVE THE PIPE CROWN.
2. THERE SHALL BE NO STEPS IN ANY OF THE SEWER MANHOLES

3 C22 **STANDARD SANITARY SEWER MANHOLE DETAIL**

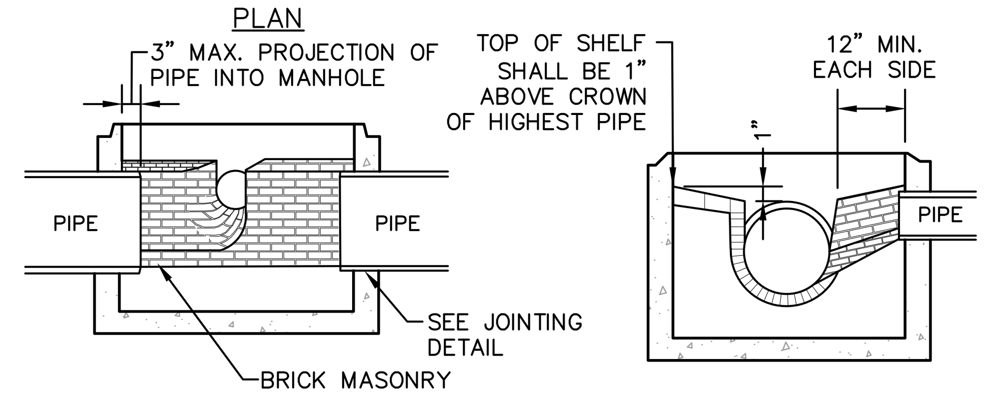
SCALE: NONE



PLAN

SHELF NOTES:

1. INVERT AND SHELF TO BE PLACED AFTER LEAKAGE TEST
2. CARE SHALL BE TAKEN TO INSURE THAT THE BRICK INVERT IS A SMOOTH CONTINUATION OF THE SEWER INVERT. INVERT BRICKS SHALL BE LAID ON EDGE.

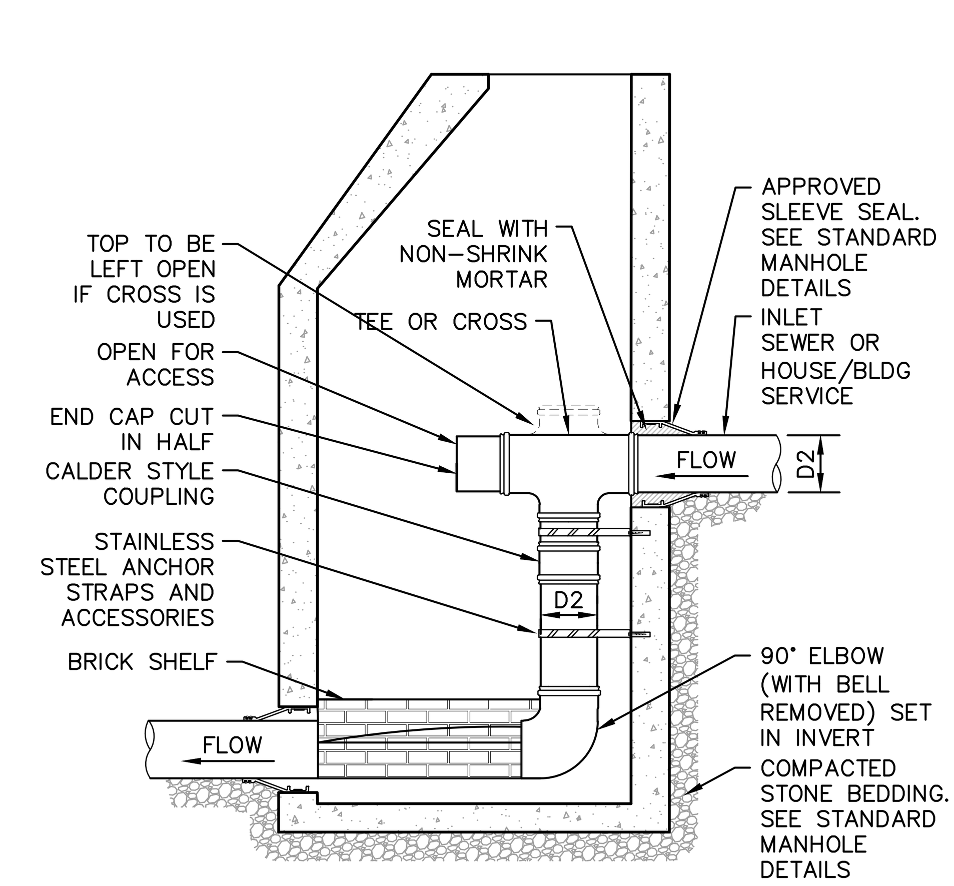


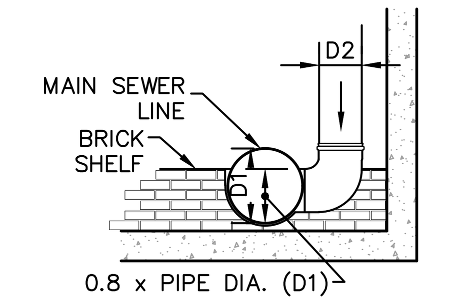
SECTION A–A

SECTION B–B

4 C22 **STANDARD SANITARY SEWER BRICK INVERT DETAILS**

SCALE: NONE





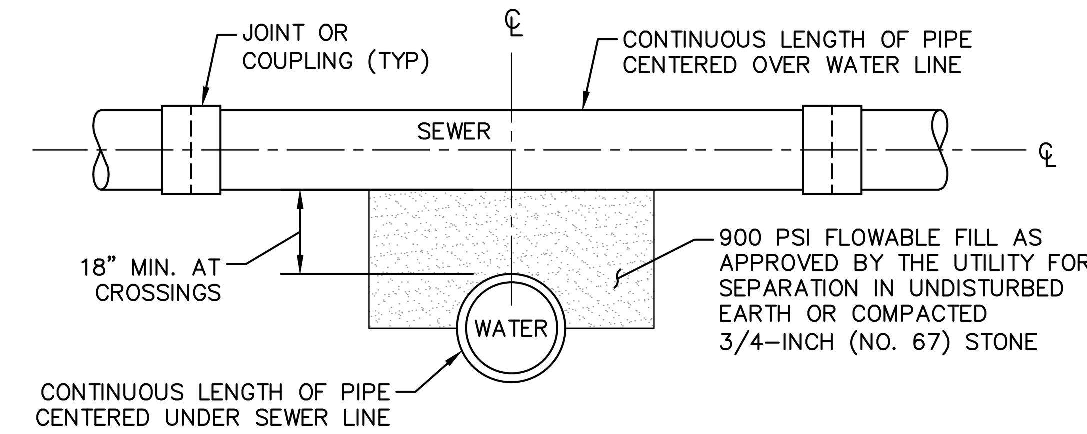
INVERT DETAIL AT SIDE DROPS

INLET DROP MANHOLE NOTES:

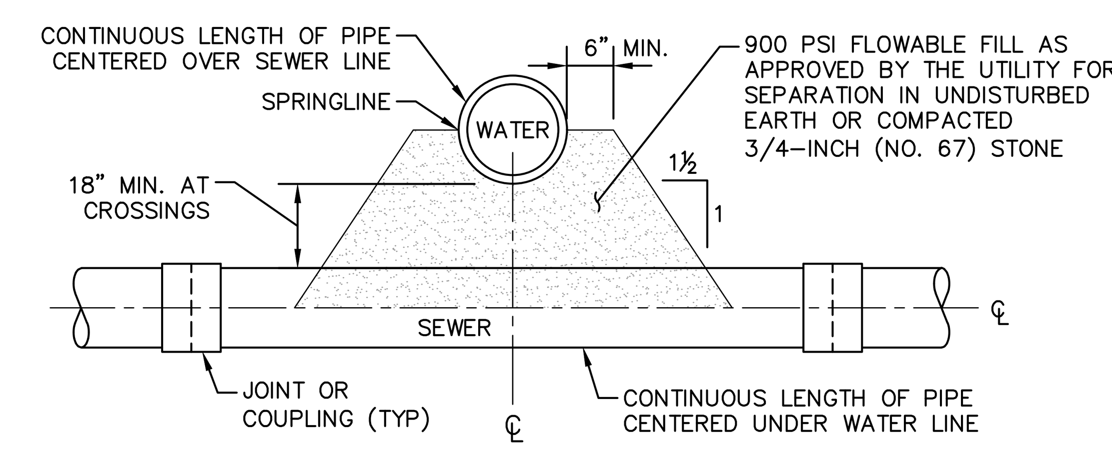
1. DROP DIAMETER (D2) TO MATCH INLET DIAMETER (D2)
2. MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH MEDOT STANDARDS FOR SANITARY MANHOLE CONSTRUCTION.
3. INSIDE DROP MANHOLES SHALL HAVE A MINIMUM 5'–0" INSIDE DIAMETER.
4. DROP REQUIRED WHEN INVERT DIFFERENTIAL EXCEEDS 2 VERTICAL FEET.
5. ANCHOR STRAPS AND BOLTS TO BE STAINLESS STEEL AND NOT MORE THAN 2 FEET ON CENTER.
STRAPS – 2 IN. WIDE
BOLTS – ½ IN. x 2½ IN. LONG

5 C22 **INLET DROP SEWER MANHOLE DETAIL**

SCALE: NONE



WATER CROSSING UNDER SEWER



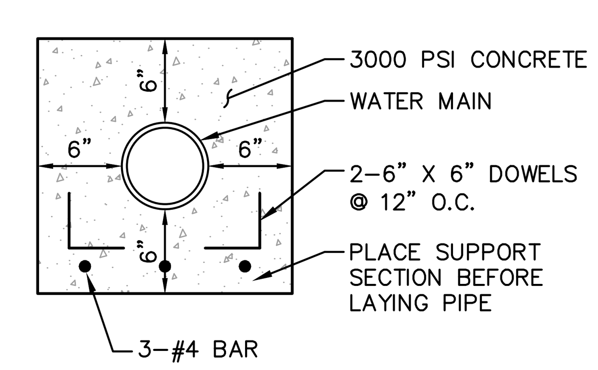
WATER CROSSING OVER SEWER

CROSSING NOTES:

1. SEE PLAN AND PROFILE FOR CROSSING LOCATIONS,
2. IF A CONTINUOUS LENGTH OF PIPE CANNOT BE CENTERED AT THE CROSSING OR IF 18" VERTICAL SEPARATION CANNOT BE ACHIEVED, THE LOWER PIPE SHALL BE INCASED IN CONCRETE 10'–0" IN EACH DIRECTION (SEE DETAIL). THE CONCRETE IS SUBSIDIARY TO THE PIPE INSTALLATION. CONTACT ENGINEER FOR DIRECTION BEFORE PROCEEDING IF THIS SITUATION IS ENCOUNTERED.

6 C22 **WATER/SEWER PIPE CROSSING DETAIL**

SCALE: NONE



ENCASEMENT NOTES:

1. CONCRETE ENCASEMENT OF UTILITY PIPE WILL BE REQUIRED AS SHOWN ON THE PLANS OR WHEN UTILITY CROSSING REQUIREMENTS CANNOT BE MET.
2. CONCRETE ENCASEMENT SHALL EXTEND 10'–0" MIN. ON EACH SIDE OF UTILITY CROSSING

7 C22 **CONCRETE ENCASEMENT DETAIL**

SCALE: NONE

STATE OF MAINE
SHAWN M. TOBEY
13377
PROFESSIONAL ENGINEER
6/20/19

REV.	REVISION DESCRIPTION	DATE
1	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN	06/20/19

DRAWN BY	CHECKED BY	DESIGNED BY
SMT	WRD	SMT

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431–2520 Fax (603) 431–8067 Web: www.hoyletanner.com

SCALE: AS SHOWN
DATE: JUNE 20, 2019

APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

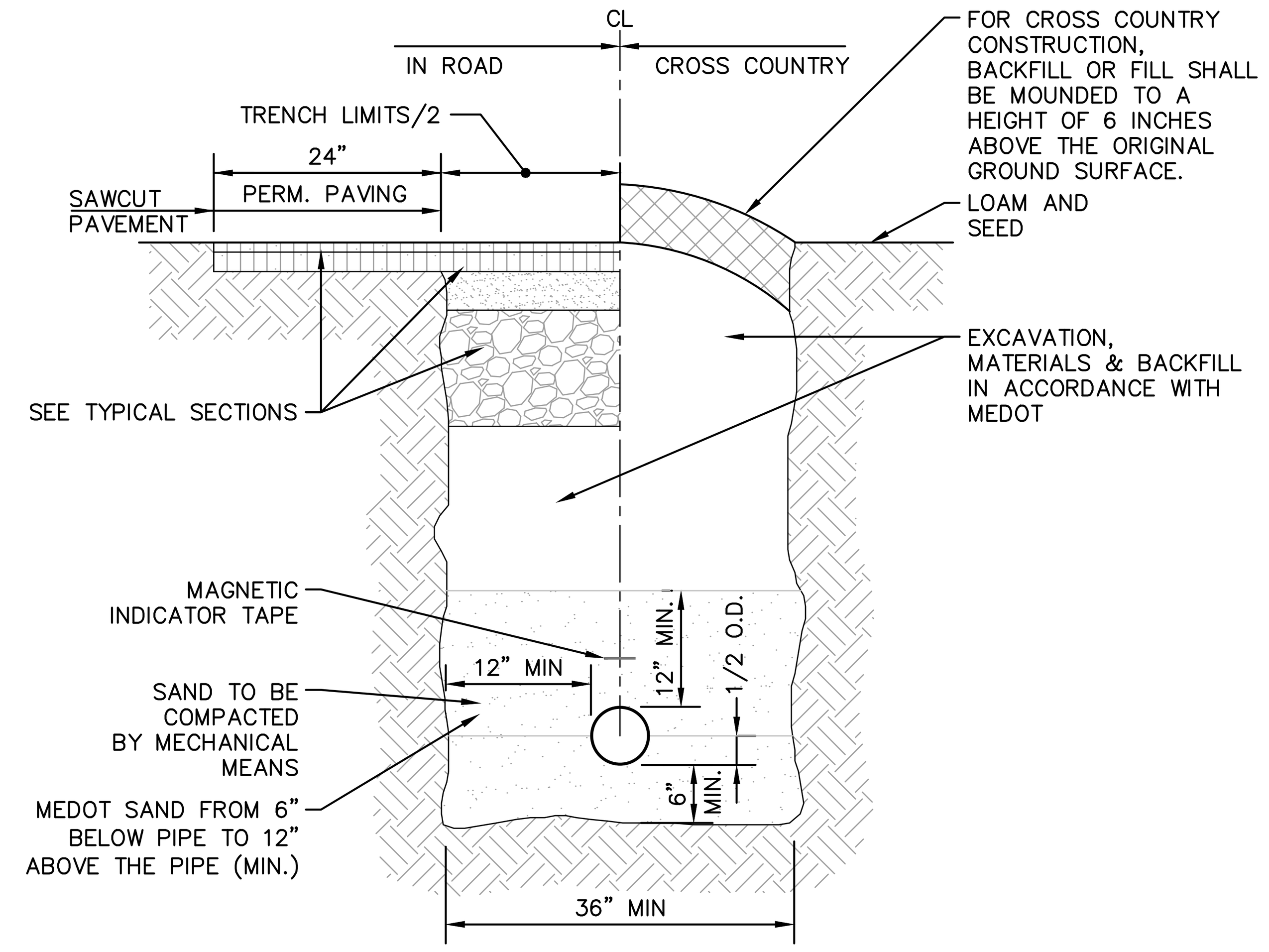
PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

CONSTRUCTION DETAILS 4

C22

PROJECT NO. 569200

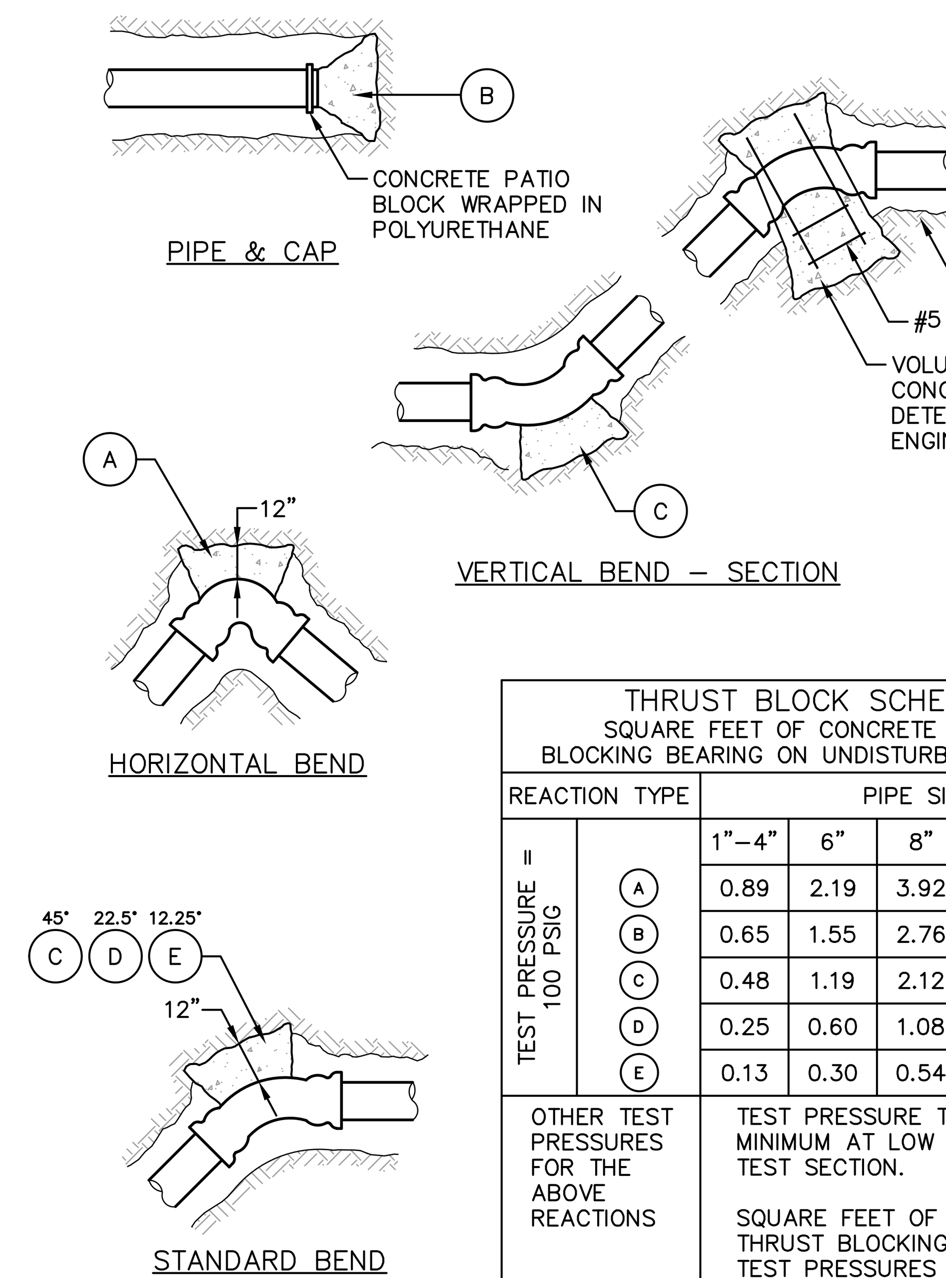
SHEET 22 OF 25



WATERLINE TRENCH NOTES:

1. APPROVED MATERIAL: SHALL BE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOPSOIL, CLUMPS MORE THAN 3" DIA., ALL EXCAVATED LEDGE ROCK, STUMPS OR ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION.
2. SEWER AND WATER PIPING RUNNING APPROXIMATELY PARALLEL MUST BE SEPARATED BY A HORIZONTAL DISTANCE OF TEN FEET MINIMUM.
3. WATER MAINS ARE TO HAVE A MINIMUM COVER OF 5'-0" FT.

1/C23 **WATER LINE TRENCH DETAIL**
SCALE: NONE



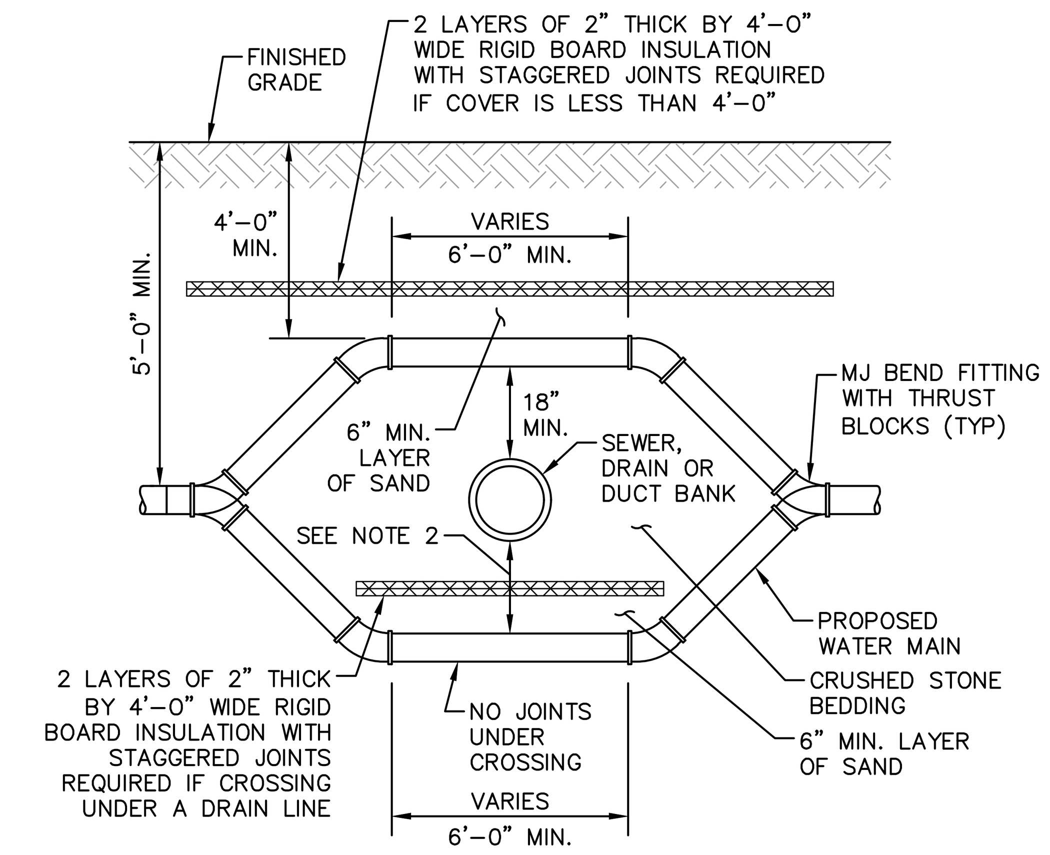
THRUST BLOCK SCHEDULE
SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL

REACTION TYPE		PIPE SIZE				
		1"–4"	6"	8"	10"	12"
TEST PRESSURE = 100 PSIG	A	0.89	2.19	3.92	5.57	8.62
	B	0.65	1.55	2.76	4.19	6.09
	C	0.48	1.19	2.12	3.01	4.66
	D	0.25	0.60	1.08	1.54	2.37
	E	0.13	0.30	0.54	0.77	1.19
OTHER TEST PRESSURES FOR THE ABOVE REACTIONS		TEST PRESSURE TO BE 200 PSI MINIMUM AT LOW END OF THE TEST SECTION. SQUARE FEET OF CONCRETE THRUST BLOCKING FOR OTHER TEST PRESSURES IS DIRECTLY PROPORTIONAL TO THE ABOVE TABLE.				

THRUST BOCK NOTES:

1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL. WHERE TRENCH HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL. NO JOINTS SHALL BE COVERED WITH CONCRETE.
2. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
3. PLACE CONCRETE PATIO BLOCKS IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCK.
4. REQUIREMENTS OF THE ABOVE TABLE PRESUME MINIMUM SOIL BEARING OF 1 TON PER SQUARE FOOT AND MAY BE VARIED BY THE ENGINEER TO MEET OTHER CONDITIONS ENCOUNTERED.
5. RETAINER GLANDS ARE REQUIRED FOR ALL MECHANICAL JOINTS. THESE GLANDS DO NOT REDUCE THE REQUIREMENTS FOR THRUST RESTRAINT.
6. ALL FITTINGS SHALL BE WRAPPED IN POLYETHYLENE OR BUILDING PAPER PRIOR TO INSTALLATION OF CONCRETE RESTRAINT.
7. THREADED RODS SHALL BE ANSI A242 FY50 PIPE RESTRAINT NUTS TO MATCH AIWA C111. THREADED RODS AND NUTS TO BE FIELD COATED WITH BITUMINOUS PAINT.
8. THRUST RESTRAINT IS REQUIRED FOR ALL TEES, BENDS, REDUCERS, CAPS PLUGS, OR CROSSES.
9. INSTALL LIFT HOOKS INTO THRUST BLOCKS AT END CAPS AND PLUGS.
10. ALL WATERLINE CONSTRUCTION SHALL BE INSTALLED IN ACCORDANCE WITH THE KITTERY WATER DISTRICT SPECIFICATIONS

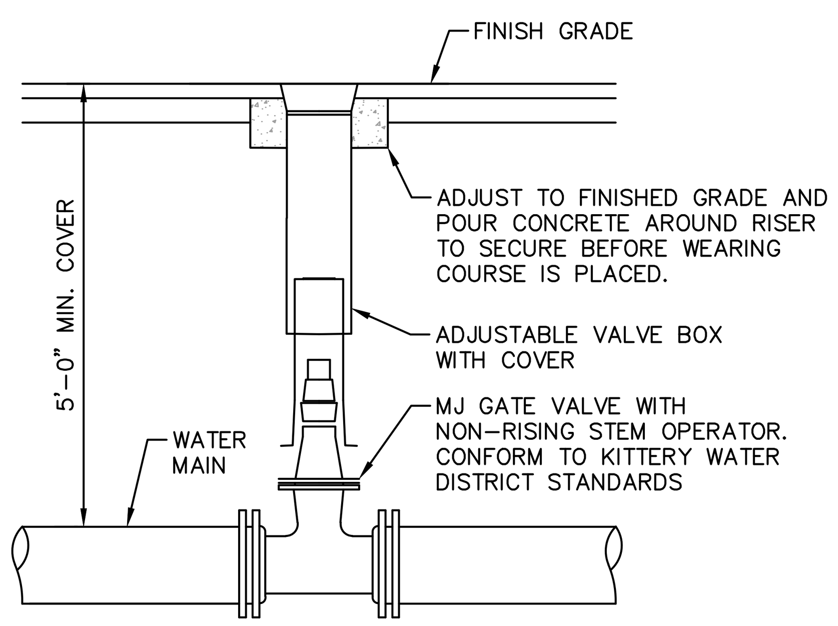
2/C23 **WATER LINE THRUST BLOCK DETAILS**
SCALE: NONE



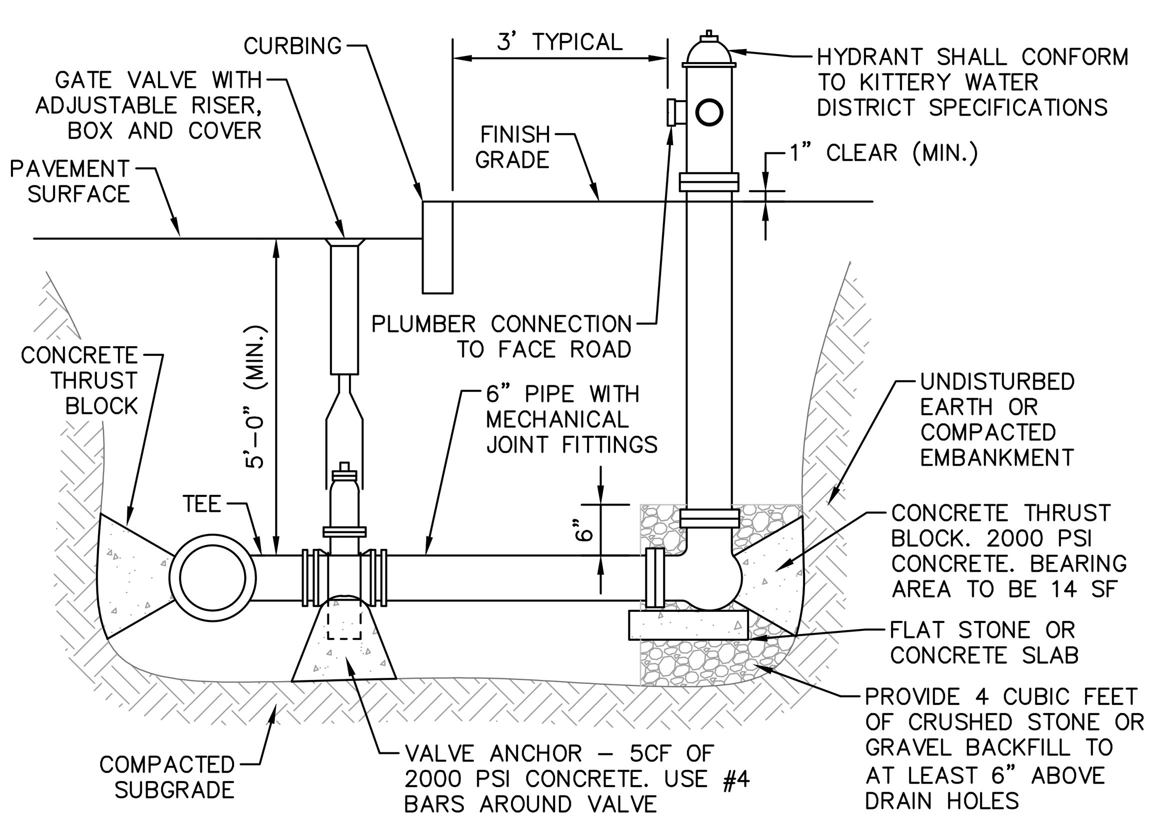
CROSSING NOTES:

1. SEE PLAN AND PROFILE FOR CROSSING LOCATIONS.
2. DROP WATER LINE BELOW UTILITY CONFLICT WITH 4 MJ BEND FITTINGS.
3. VERTICAL SEPARATION BETWEEN WATER LINES, SEWER LINES AND ALL OTHER UTILITIES SHALL BE A MINIMUM OF 18".

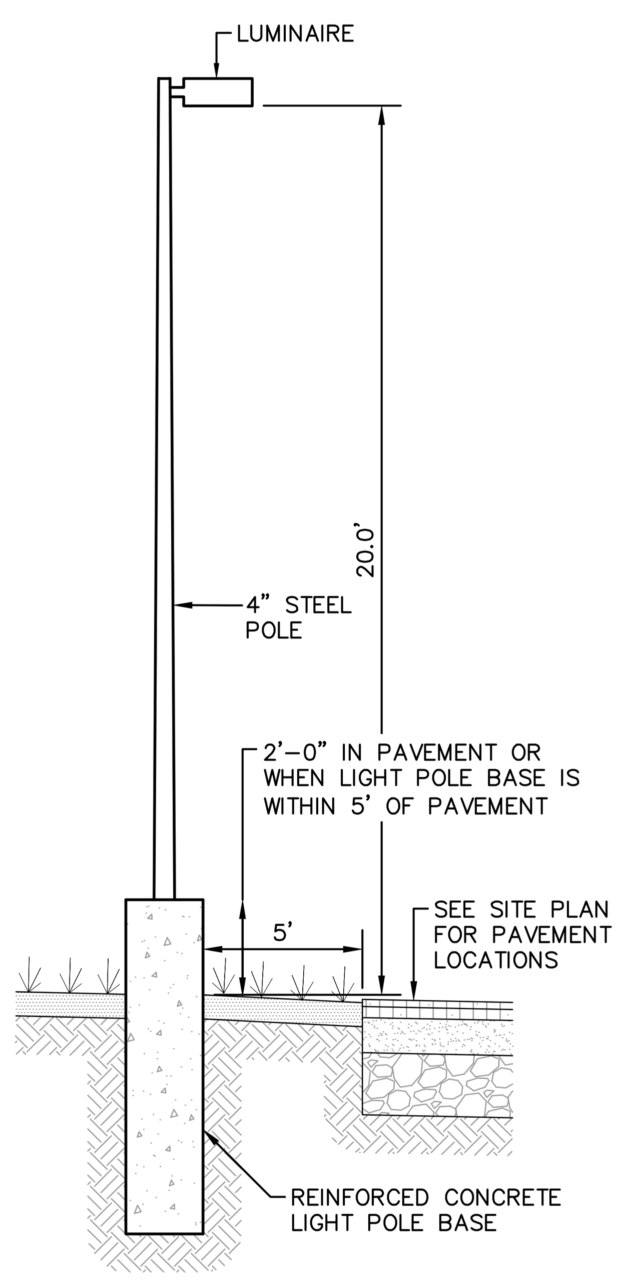
3/C23 **WATER UTILITY CONFLICT CROSSING DETAIL**
SCALE: NONE



4/C23 **GATE VALVE DETAIL**
SCALE: NONE

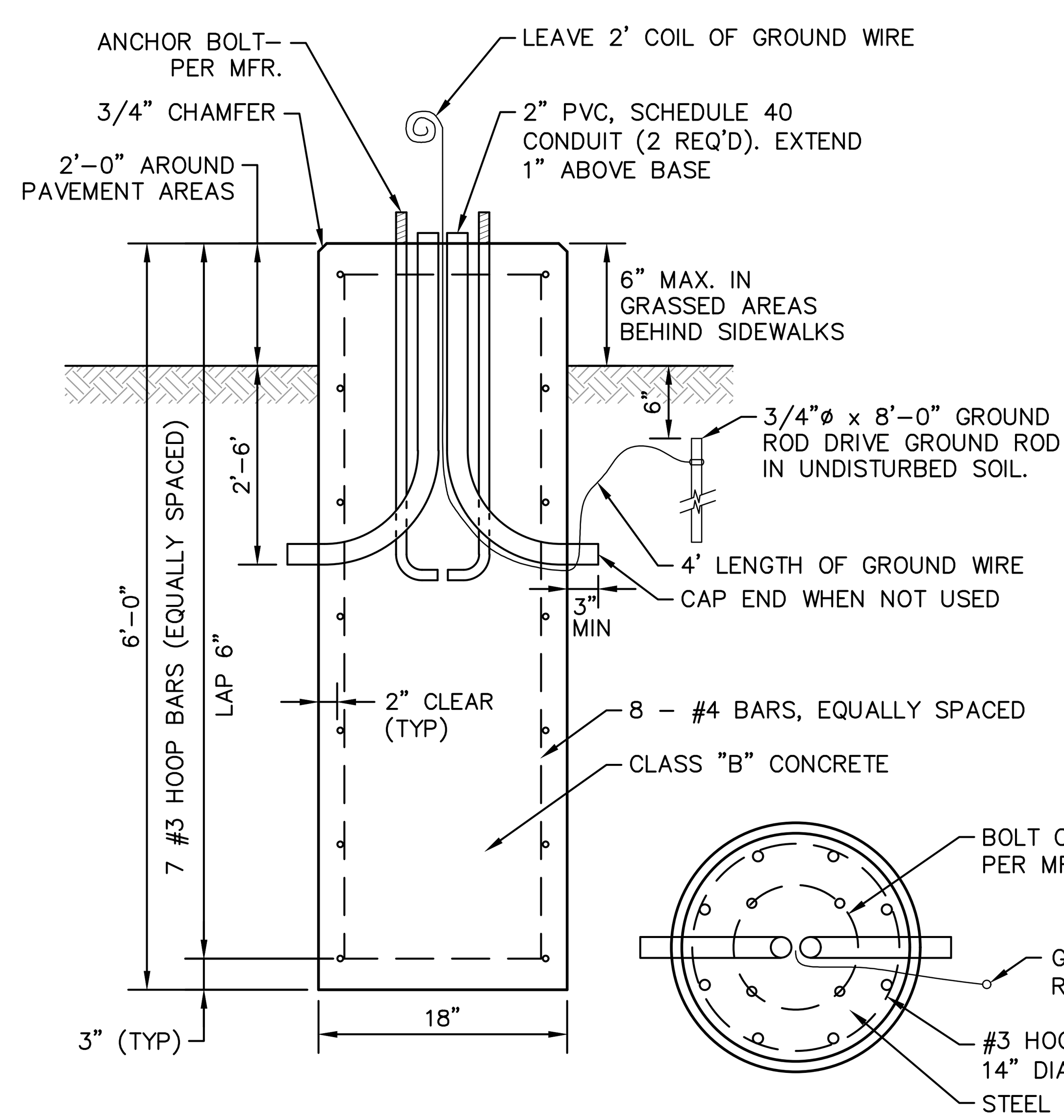


5/C23 **FIRE HYDRANT ASSEMBLY DETAIL**
SCALE: NONE



SECTION VIEW

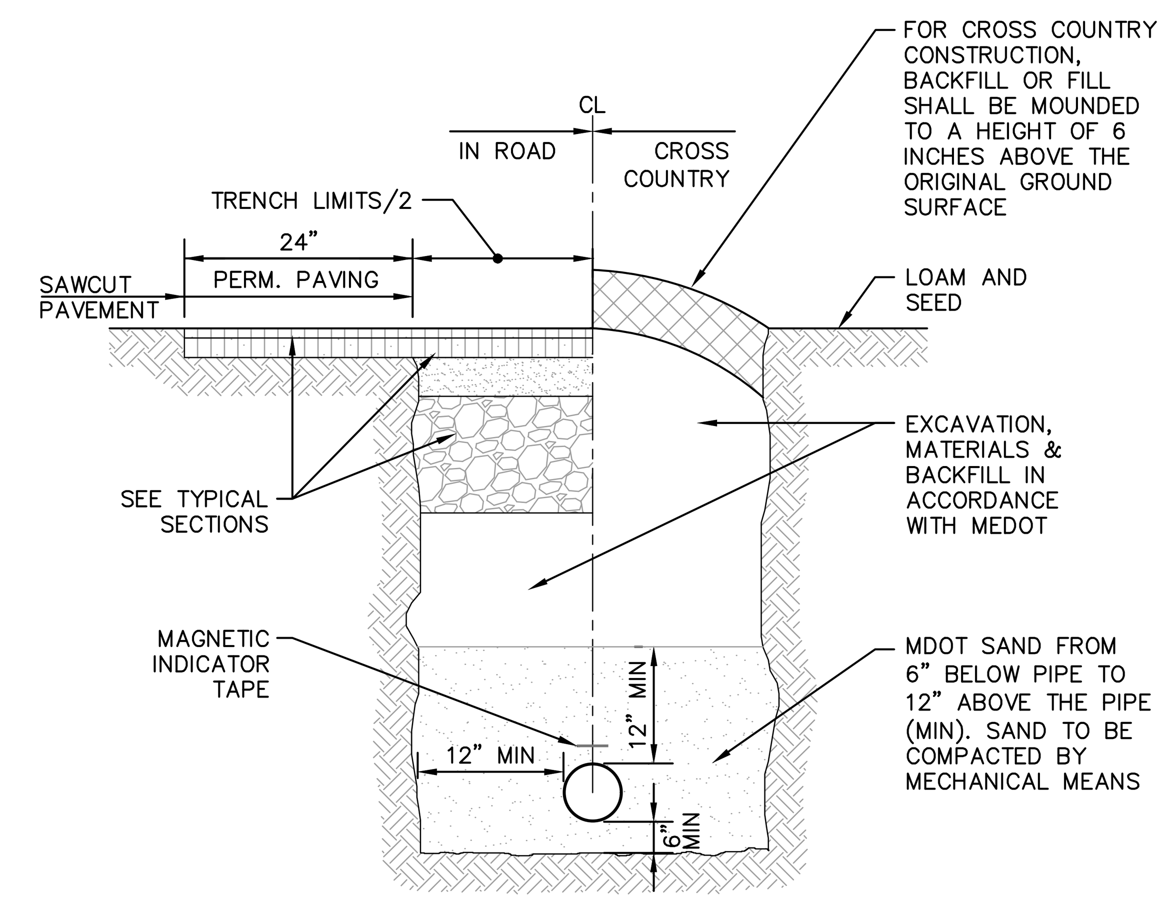
6/C23 **TYPICAL LIGHT POLE DETAILS**
SCALE: NONE



BASE SECTION VIEW

BASE PLAN VIEW

7/C23 **TYPICAL LIGHT BASE POLE DETAILS**
SCALE: NONE



TRENCH NOTES:

1. ELECTRICAL CONDUIT SHALL BE SCHEDULE 40 PVC AND SHALL CONFORM TO THE APPLICABLE SECTIONS OF NEMA TC-2-1990 AND BE UL LISTED.
2. ALL PVC CONDUIT JOINTS SHALL BE CEMENTED.
3. A SUITABLE PULL CABLE, CAPABLE OF 200 POUNDS OF PULL, MUST BE INSTALLED IN THE ELECTRICAL CONDUIT.
4. COORDINATE SIZE OF CONDUIT WITH OWNER.
5. DEPTH OF CONDUIT SHALL BE 36" TO INVERT.

8/C23 **ELECTRICAL/GAS TRENCH DETAIL**
SCALE: NONE

STATE OF MAINE SHAWN M. TOBEY 13377 LICENSED PROFESSIONAL ENGINEER 6/20/19

REV.	REVISION DESCRIPTION	DATE
1	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN	06/20/19

DRAWN BY	CHECKED BY
SMT	WRD

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

DESIGNED BY	DATE:	SCALE:
SMT	JUNE 20, 2019	AS SHOWN

APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

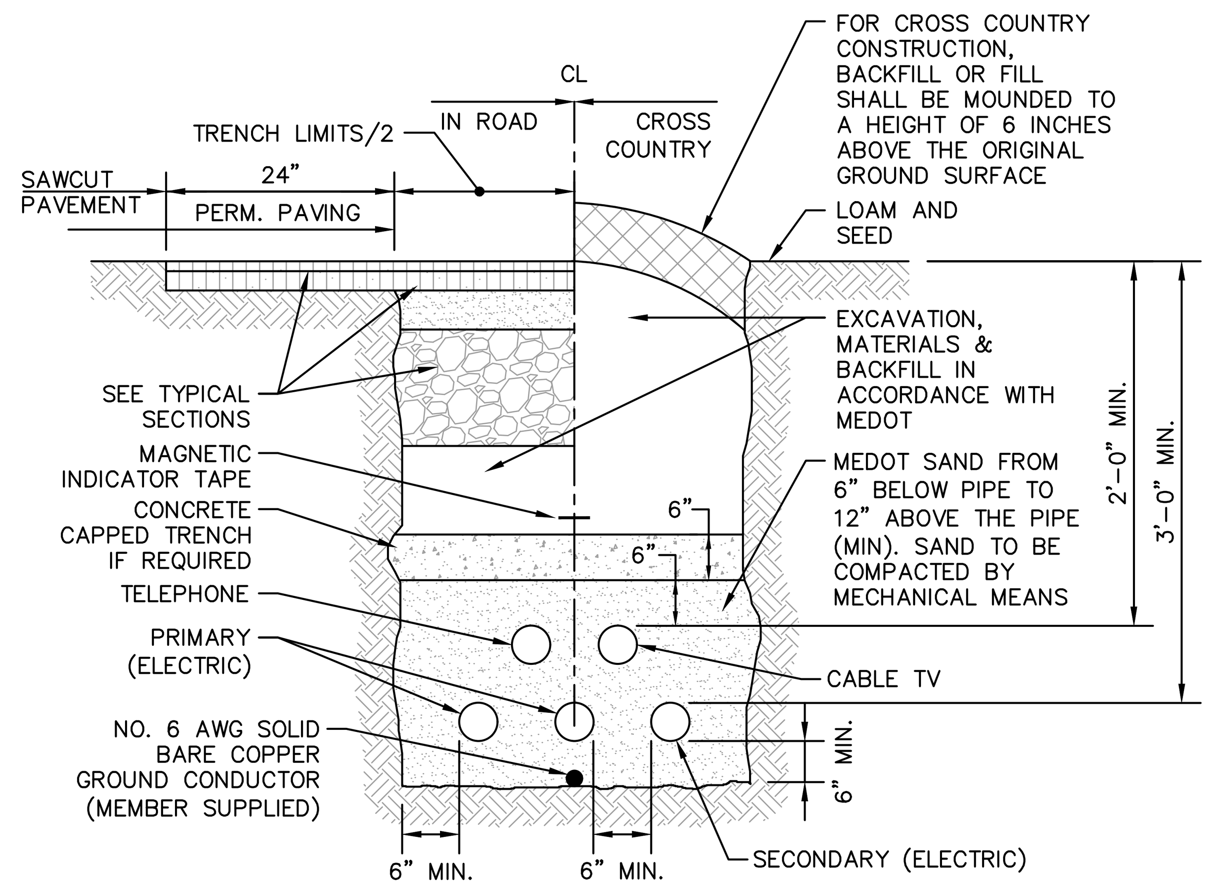
PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

CONSTRUCTION DETAILS 5

C23

PROJECT NO. 569200

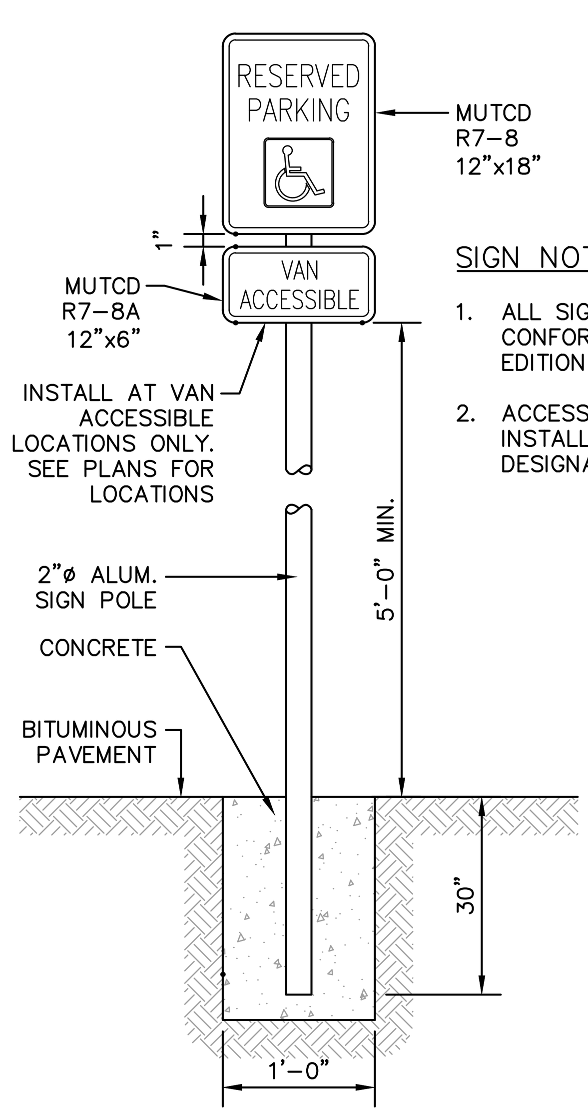
SHEET 23 OF 25



TRENCH NOTES:

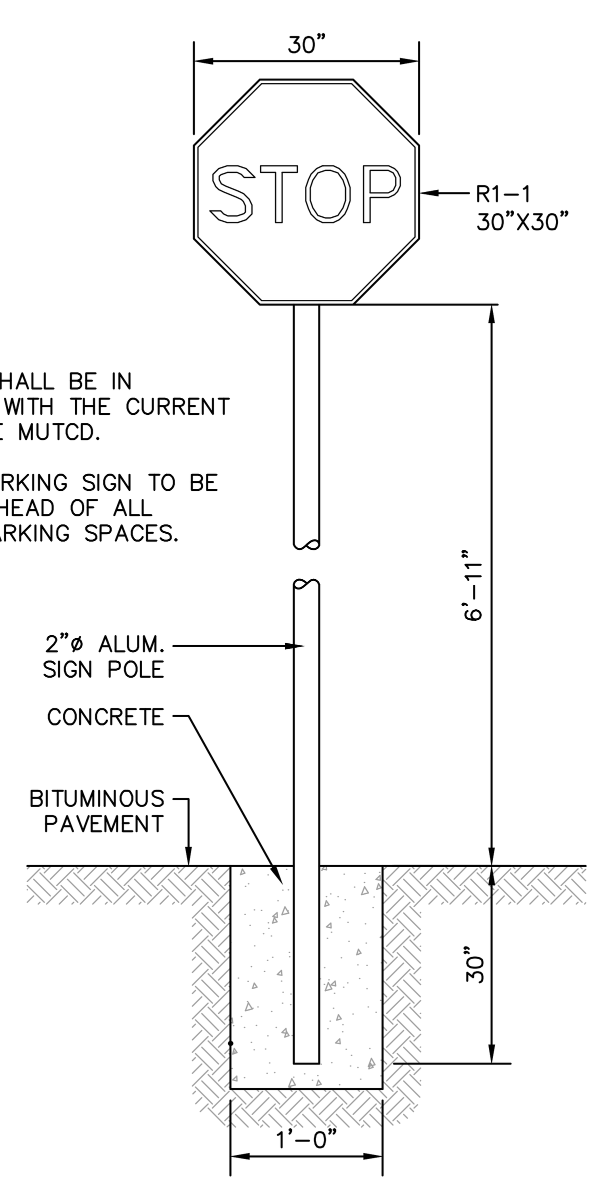
1. COORDINATE TRENCH DETAIL WITH ALL UTILITY OWNERS.
2. ELECTRICAL CONDUIT SHALL BE SCHEDULE 40 PVC
3. ALL PVC CONDUIT JOINTS SHALL BE CEMENTED.
4. A SUITABLE PULL CABLE, CAPABLE OF 200 POUNDS OF PULL, MUST BE INSTALLED IN THE ELECTRICAL CONDUIT.
5. COORDINATE SIZE AND NUMBER OF CONDUIT WITH UTILITY OWNER.
6. DEPTH OF CONDUIT SHALL BE 36" TO INVERT.
7. TRENCH WIDTH AS REQUIRED TO MAINTAIN 6" MINIMUM SPACING BETWEEN ALL CONDUITS AND TRENCH SIDEWALLS.

1 / C24 **PRIMARY CIRCUIT W/ TELEPHONE AND/OR CABLE TV ELEC. TRENCH**
SCALE: NONE

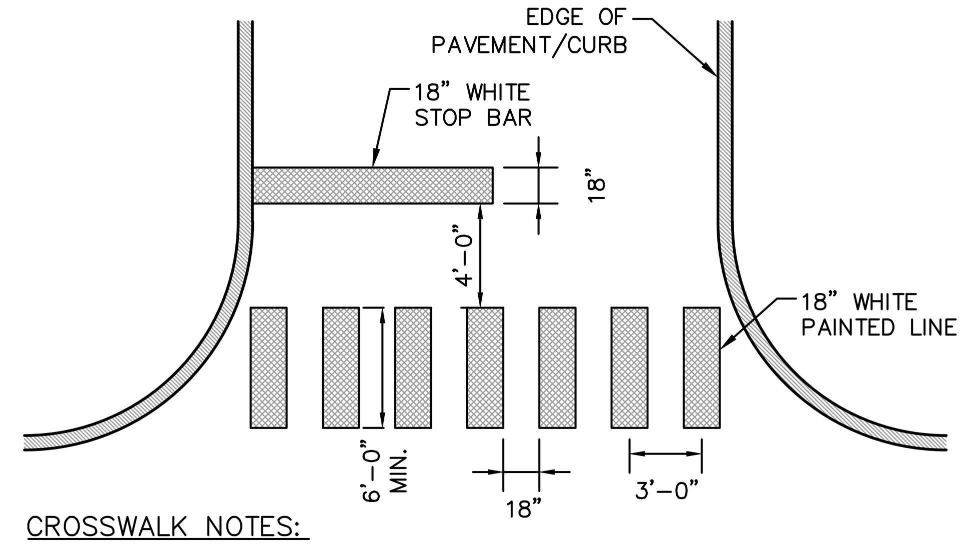


SIGN NOTES:

1. ALL SIGNAGE SHALL BE IN CONFORMANCE WITH THE CURRENT EDITION OF THE MUTCD.
2. ACCESSIBLE PARKING SIGN TO BE INSTALLED AT HEAD OF ALL DESIGNATED PARKING SPACES.



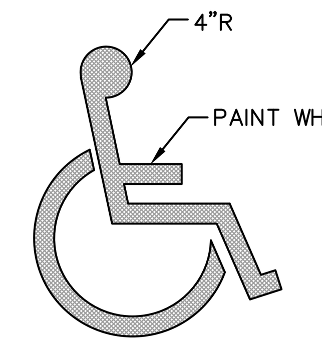
2 / C24 **TYPICAL SIGN MOUNTING DETAILS**
SCALE: NONE



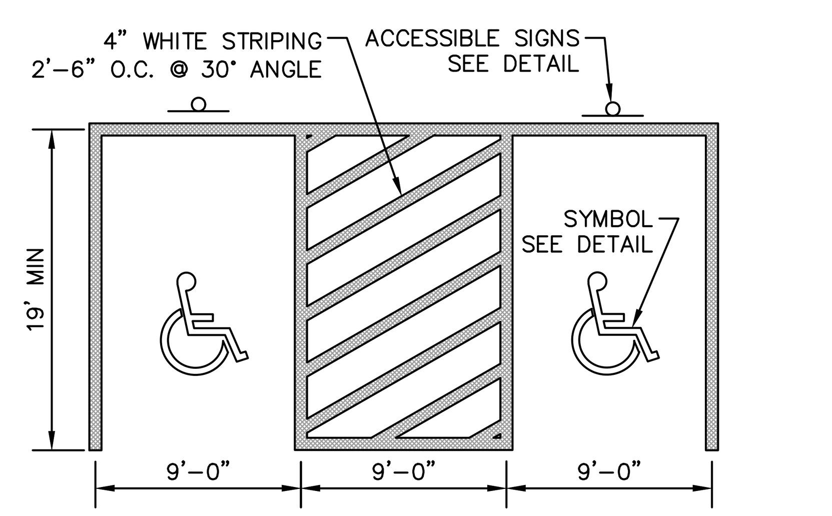
CROSSWALK NOTES:

1. CROSSWALK LINES SHALL BE CENTERED TO AVOID WHEEL MARKS.
2. ALL CROSSWALK LINES TO BE SAME LENGTH AND PROPERLY ALIGNED.
3. SEE PLANS FOR THE CROSSWALK LOCATIONS.

3 / C24 **PAINTED CROSSWALK DETAIL**
SCALE: NONE



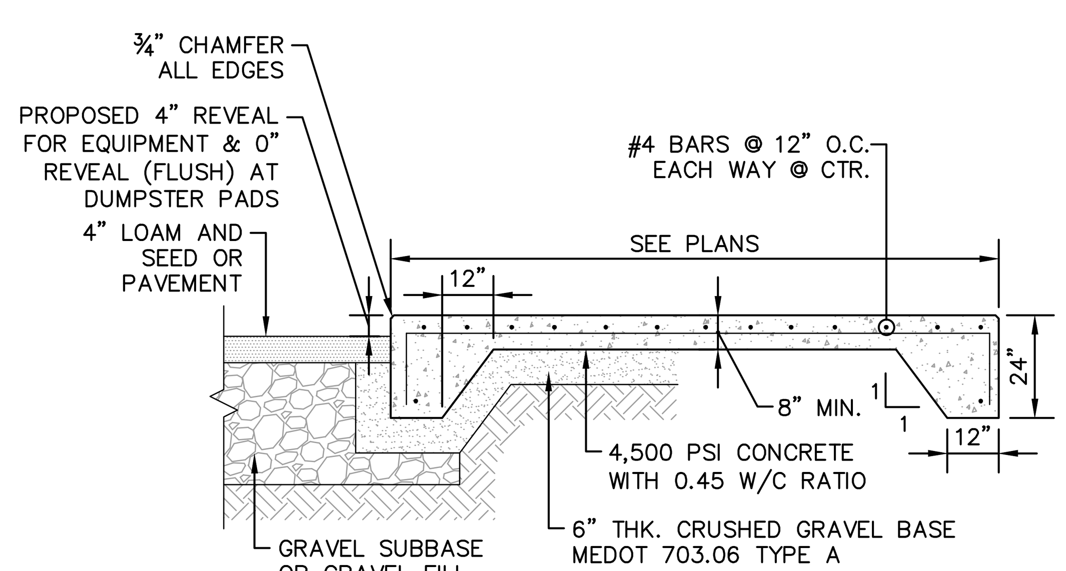
SYMBOL DETAIL



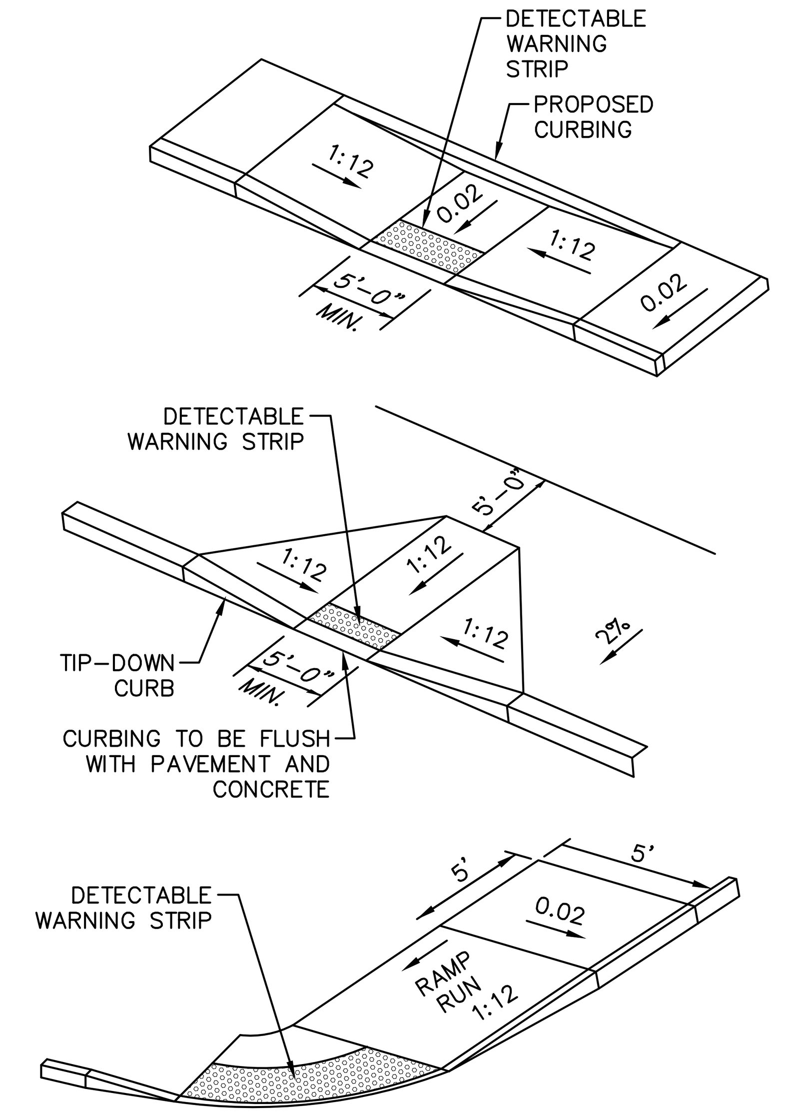
STALL LAYOUT NOTES:

1. ALL PAVEMENT MARKINGS SHALL BE IN CONFORMANCE WITH THESE STANDARDS AND THE CURRENT EDITION OF MUTCD.
2. WIDTH OF LINES SHALL VARY NO MORE THAN ± 1/4 INCH FROM THAT SPECIFIED.
3. THE WET FILM THICKNESS OF A PAINTED LINE SHALL BE A MINIMUM OF 20 MILS THROUGHOUT THE ENTIRE WIDTH AND LENGTH OF LINE SPECIFIED. OVERSPRAY SHALL BE KEPT TO AN ABSOLUTE MINIMUM.
4. BROKEN LINES SHALL BEGIN AND END WITH THE NEAREST FULL CYCLE OF BROKEN LINE.
5. SOLID LONGITUDINAL LINES SHALL BEGIN AND END WITHIN ± 2 INCHES OFF A LAYOUT SYMBOL INDICATING THE END OF THE LINE, OR WITH A FULL CYCLE OF BROKEN LINE (IF APPROPRIATE).

4 / C24 **ACCESSIBLE PARKING STALL LAYOUT**
SCALE: NONE



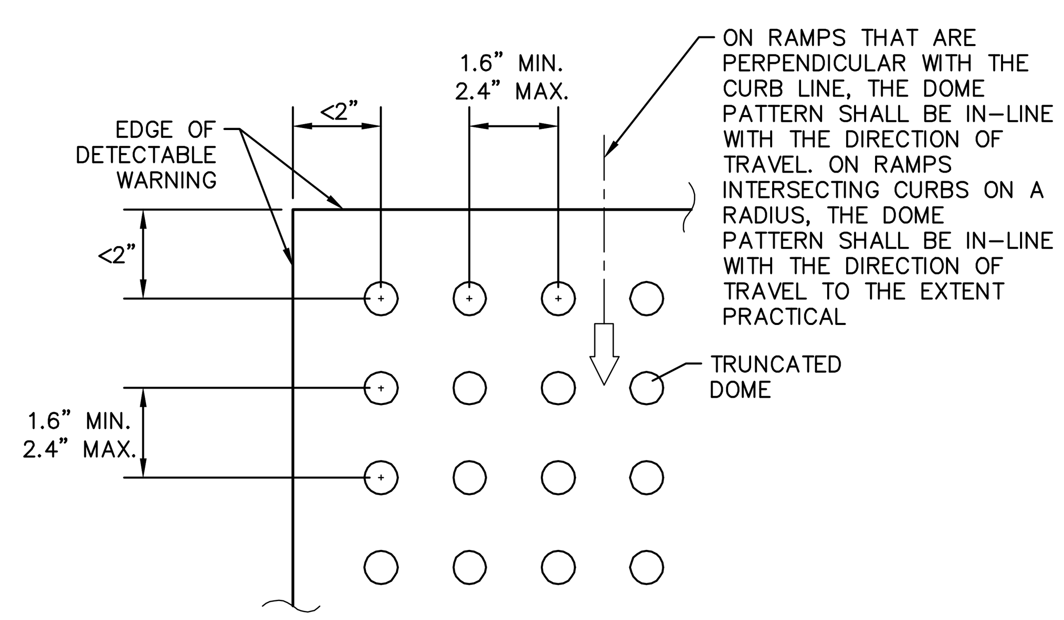
5 / C24 **TYPICAL EQUIPMENT PAD & DUMPSTER PAD DETAIL**
SCALE: NONE



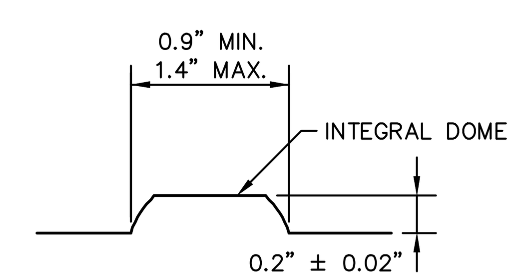
SIDEWALK RAMP NOTES:

1. SLOPE OF RAMP VARIES WITH SIDEWALK WIDTH AND HEIGHT, WITH A MAXIMUM SLOPE OF 1:12.
2. AN ADA DETECTABLE WARNING TRUNCATED DOME FINISH TO TRANSVERSE TO THE SLOPE OF THE RAMP AND WARPED SIDEWALK SHALL BE USED ON ALL RAMPS.
3. MAINTAIN THE NORMAL GUTTER PROFILE THROUGHOUT THE RAMP AREA. INTERCEPT DRAINAGE ALONG THE CURB IN ADVANCE OF THE RAMP.
4. FORM 1" (±1/8" TOLERANCE) CURB LIP IN SIDEWALK PAVING MATERIAL.

6 / C24 **ACCESSIBLE TIP-DOWN RAMPS**
SCALE: NONE



PLAN VIEW



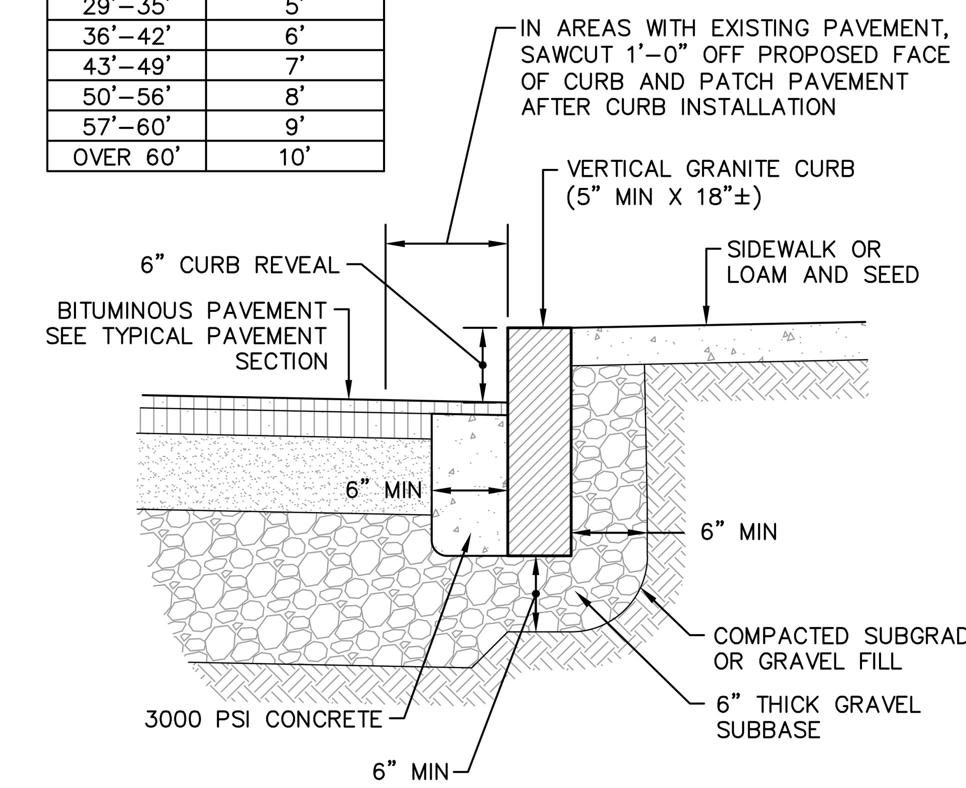
TRUNCATED DOME

DETECTABLE WARNING NOTES:

1. BASE-TO-BASE SPACING SHALL BE 0.65" MINIMUM BETWEEN DOMES.
2. ALL SIDEWALK CURB RAMPS SHALL HAVE DETECTABLE WARNING SURFACES THAT EXTEND THE FULL WIDTH OF THE RAMP AND IN THE DIRECTION OF TRAVEL 24 INCHES FROM THE BACK OF CURB.
3. THE TOP WIDTH OF THE DOME SHALL BE A MINIMUM OF 50% AND A MAXIMUM OF 65% OF THE BASE DIAMETER.
4. WARNING PANELS TO BE CAST IRON AND PAINTED YELLOW.

7 / C24 **TYPICAL DETECTABLE WARNING DETAILS**
SCALE: NONE

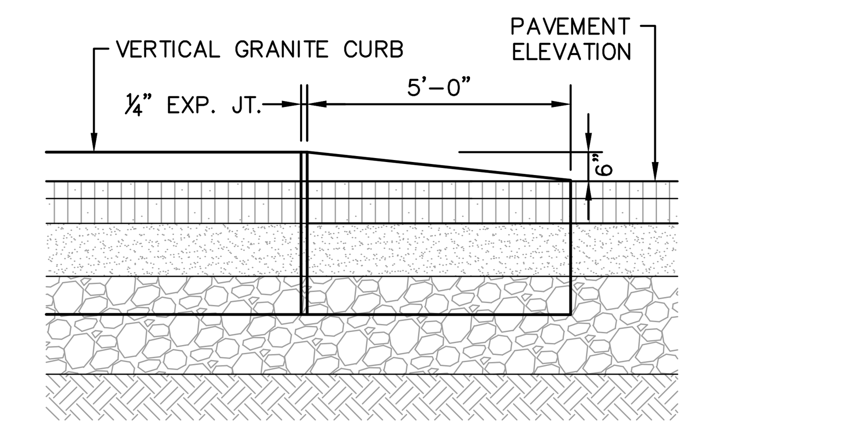
RADIUS	MAX LENGTH
21'	3'
22'-28'	4'
29'-35'	5'
36'-42'	6'
43'-49'	7'
50'-56'	8'
57'-60'	9'
OVER 60'	10'



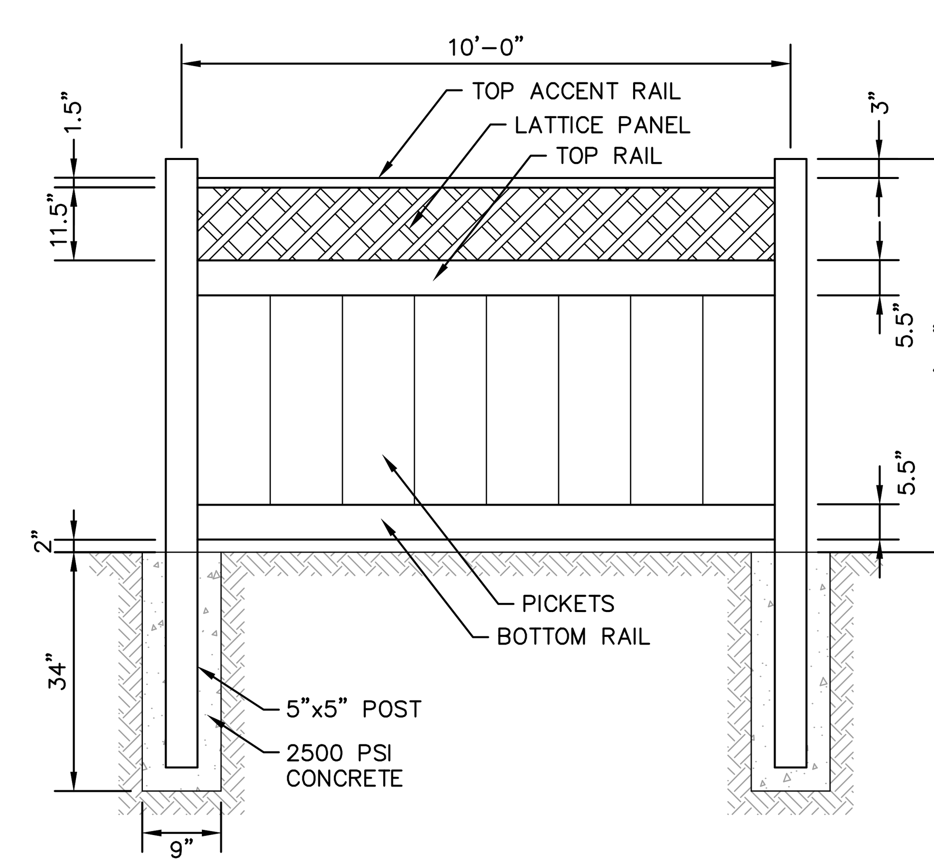
VERTICAL GRANITE CURB NOTES:

1. MINIMUM LENGTH OF CURB STONES – 3'
2. MAXIMUM LENGTH OF CURB STONES – 10'
3. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES – SEE CHART.
4. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
5. CURB ENDS TO BE TIPPED DOWN.

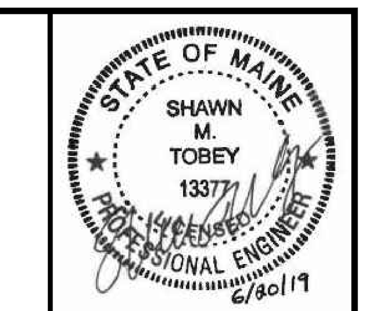
8 / C24 **VERTICAL GRANITE CURB DETAIL**
SCALE: NONE



9 / C24 **VERTICAL GRANITE TIP-DOWN DETAIL**
SCALE: NONE



10 / C24 **DUMPSTER VINYL FENCE DETAIL**
SCALE: NONE



REV.	REVISION DESCRIPTION	DATE
1	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN	06/20/19

DESIGNED BY	DRAWN BY	CHECKED BY
SMT	SMT	WRD

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

SCALE: AS SHOWN
DATE: JUNE 20, 2019

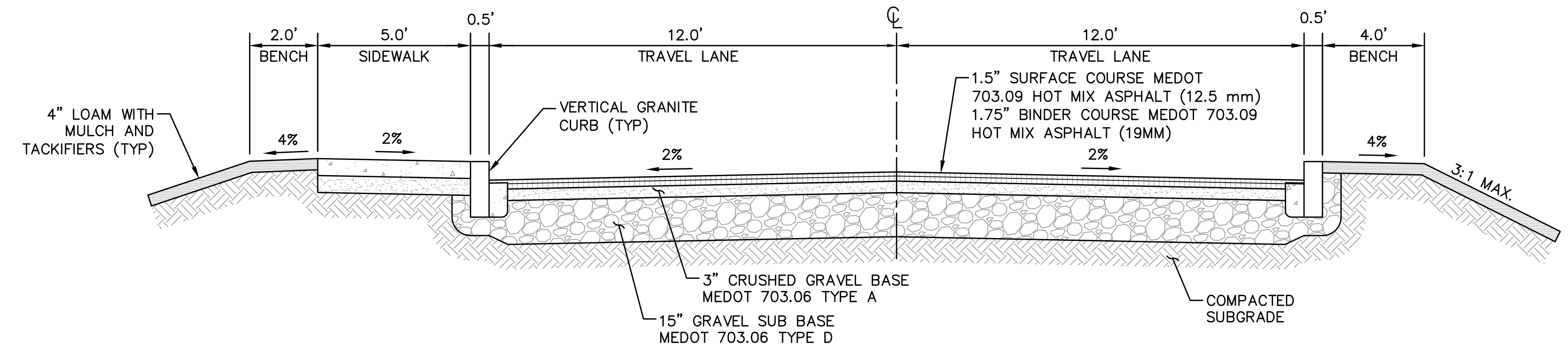
APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

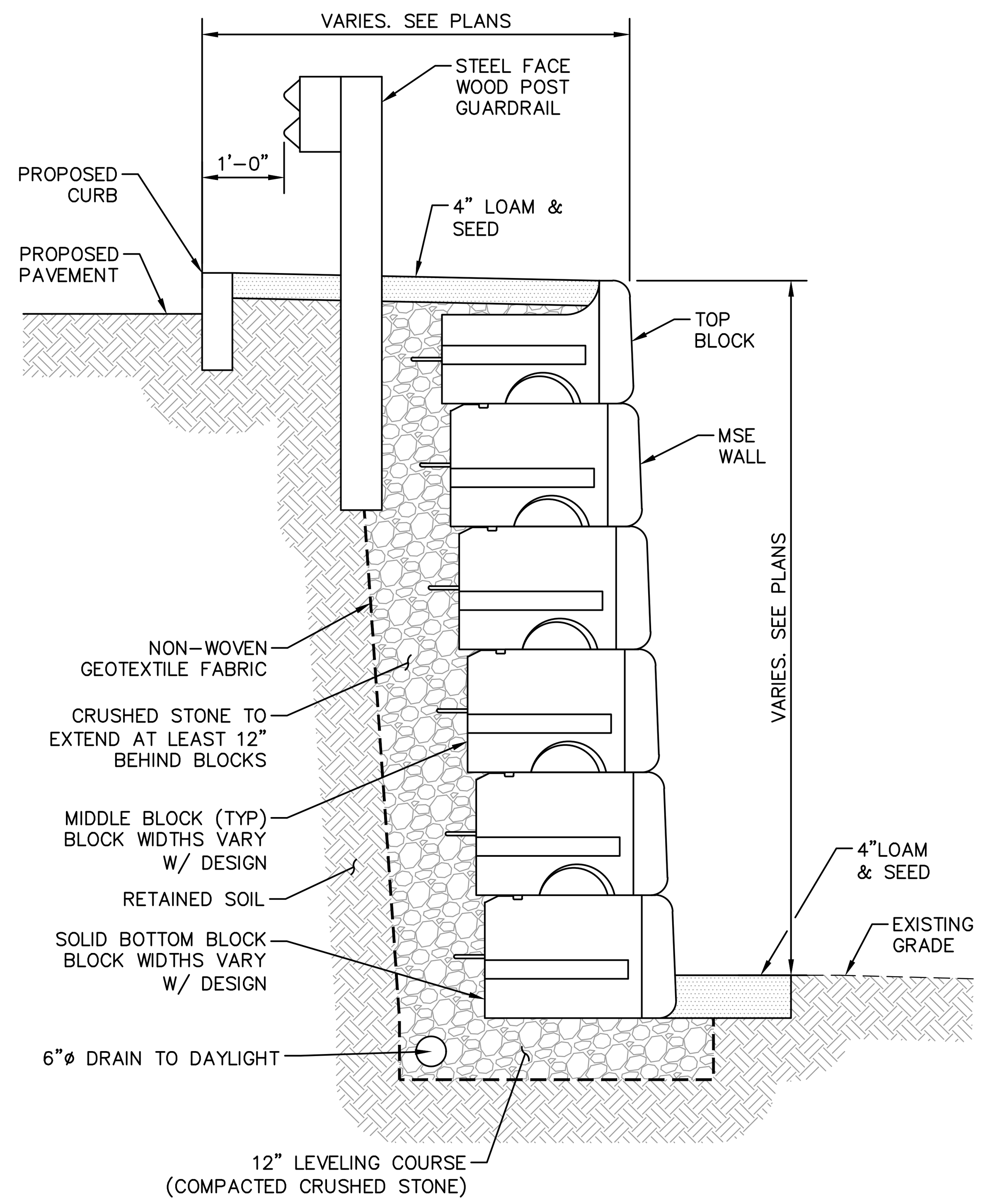
CONSTRUCTION DETAILS 6

C24

PROJECT NO. 569200



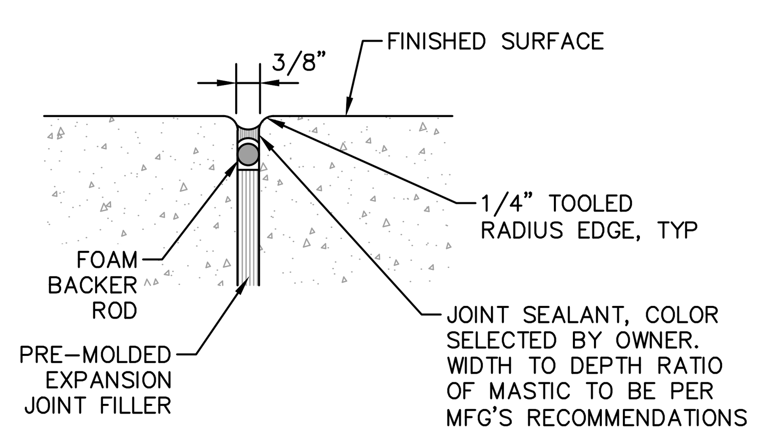
1 C25 **TYPICAL ACCESS DRIVE SECTION**
SCALE: NONE



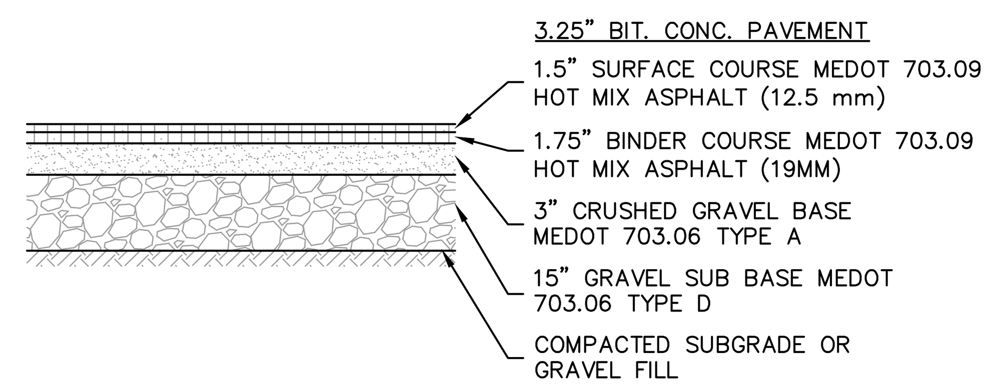
WALL NOTES:

1. THIS DETAIL IS FOR REFERENCE ONLY. DETERMINATION OF THE SUITABILITY AND/OR MANNER OF USE OF ANY DETAILS CONTAINED IN THIS DOCUMENT IS THE SOLE RESPONSIBILITY OF THE DESIGN ENGINEER OF RECORD. FINAL WALL DESIGNS, INCLUDING ALL CONSTRUCTION DETAILS, SHALL BE PREPARED BY A LICENSED PROFESSIONAL ENGINEER USING THE ACTUAL CONDITIONS OF THE PROPOSED SITE.
2. SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL COORDINATE WITH GUARDRAIL MANUFACTURER FOR MINIMUM DISTANCE BETWEEN GUARDRAIL AND RETAINING WALL.

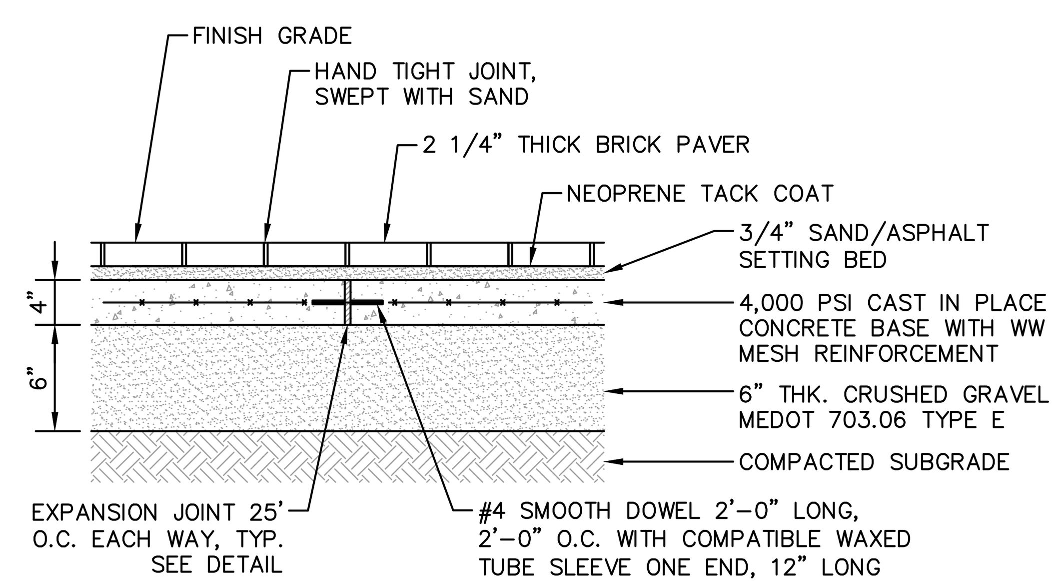
2 C25 **TYPICAL MSE GRAVITY BLOCK RETAINING WALL SECTION**
SCALE: NONE



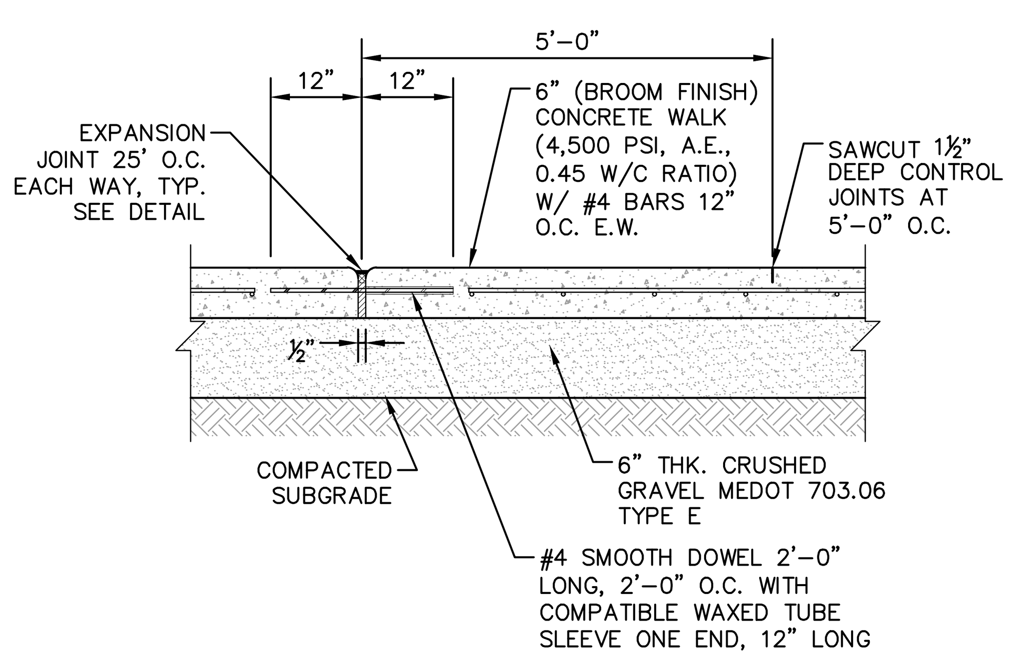
3 C25 **EXPANSION JOINT DETAIL**
SCALE: NONE



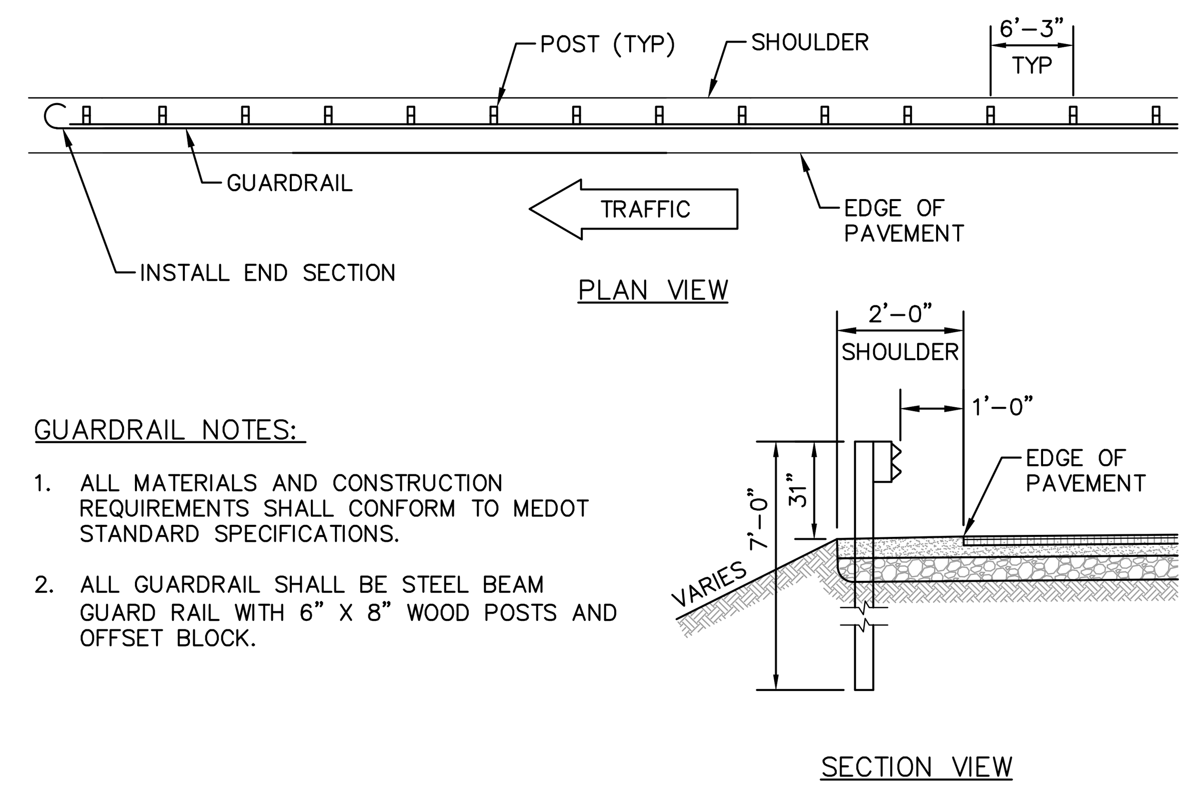
4 C25 **TYPICAL PAVEMENT SECTION**
SCALE: NONE



5 C25 **PEDESTRIAN BRICK PAVEMENT DETAIL**
SCALE: NONE



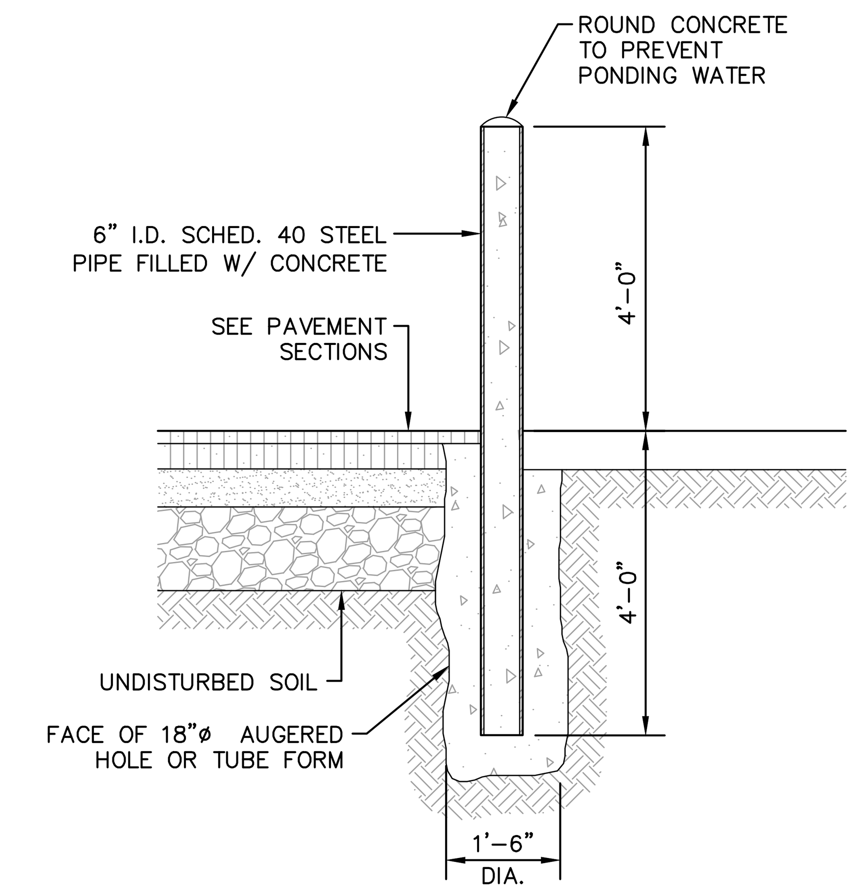
6 C25 **TYPICAL JOINTS FOR CONCRETE WALKWAY DETAIL**
SCALE: NONE



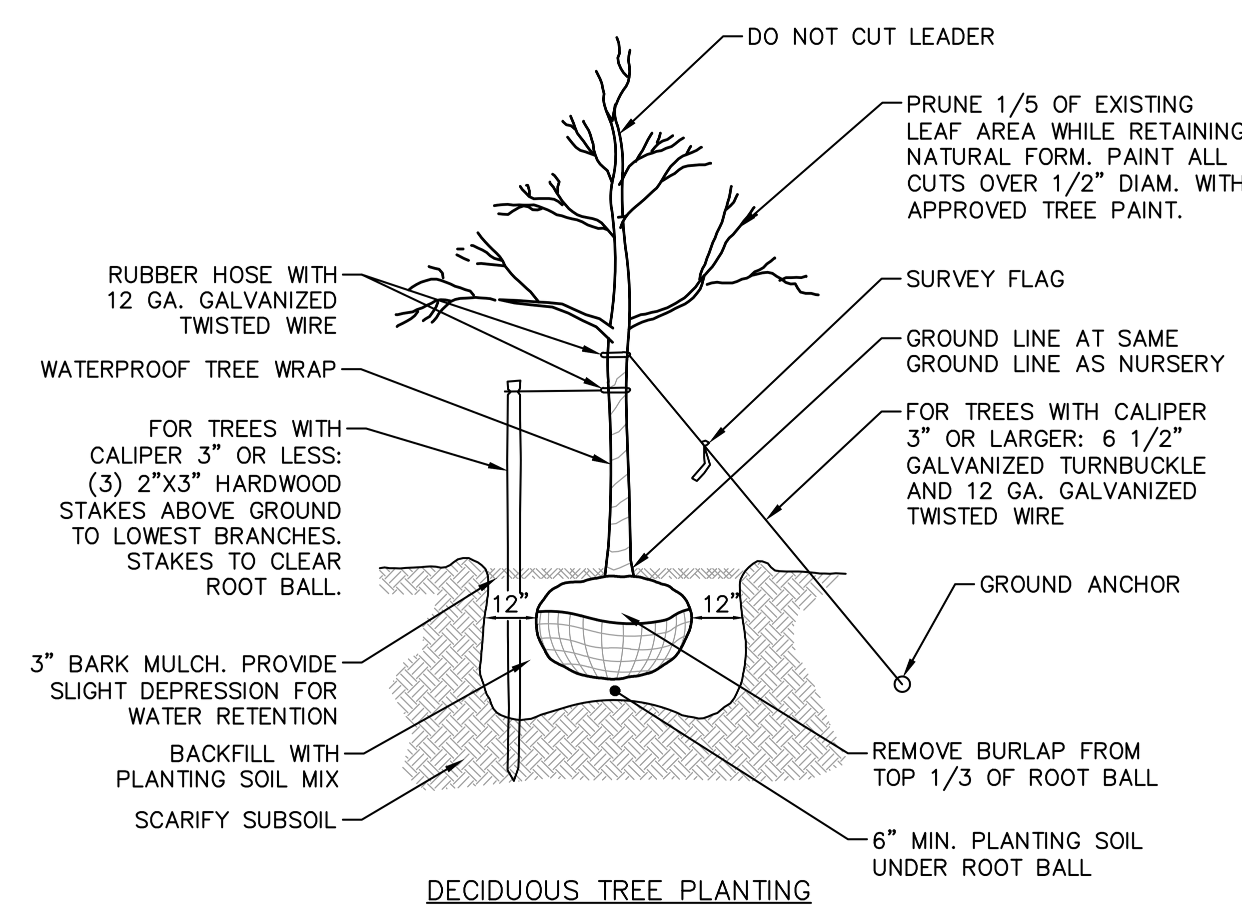
GUARDRAIL NOTES:

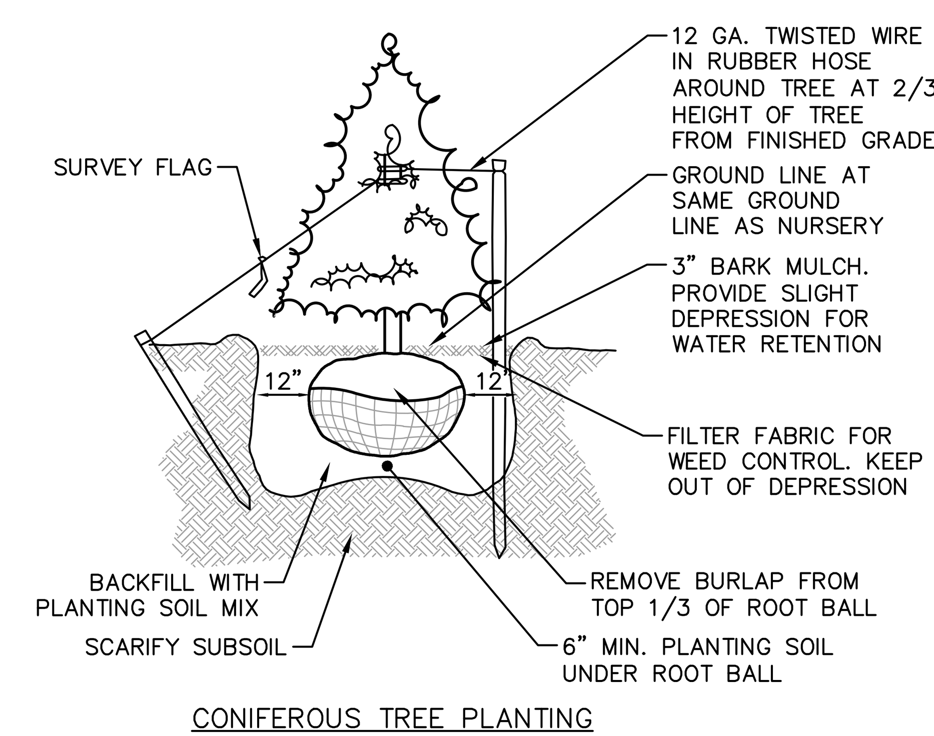
1. ALL MATERIALS AND CONSTRUCTION REQUIREMENTS SHALL CONFORM TO MEDOT STANDARD SPECIFICATIONS.
2. ALL GUARDRAIL SHALL BE STEEL BEAM GUARD RAIL WITH 6" X 8" WOOD POSTS AND OFFSET BLOCK.

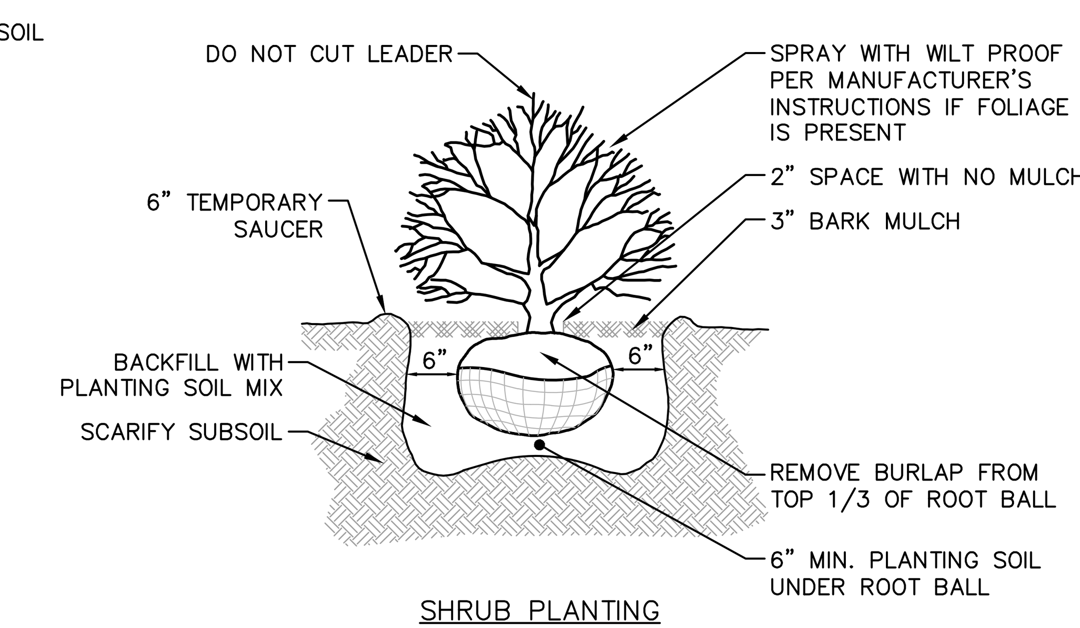
7 C25 **STEEL FACE WOOD POST GUARDRAIL**
SCALE: NONE



8 C25 **STEEL PIPE BOLLARD DETAIL**
SCALE: NONE







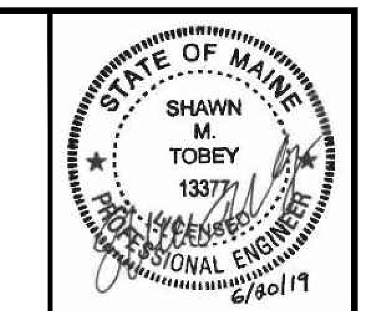
FOR TREES 5' IN HEIGHT OR GREATER:

1. PROVIDE (3) 12 GA. GALVANIZED GUY WIRES @ 120 DEGREE SPACING WITH (6) 1/2" GALVANIZED TURNBUCKLE WIRE IN RUBBER HOSE AROUND TREE.
2. ATTACH TO TREE @ 1/2-2/3 HEIGHT OF TREE ABOVE GRADE.
3. ANCHOR WITH 2"X3' HARDWOOD STAKE BURIED BELOW GRADE AND CLEAR OF ROOT BALL.

FOR TREES LESS THAN 5' IN HEIGHT:

1. PROVIDE (3) 2"X3' HARDWOOD STAKES @ 120 DEGREE SPACING, MIN. 36" IN GROUND AND CLEAR OF ROOT BALL.

9 C25 **TYPICAL TREE PLANTING DETAILS**
SCALE: NONE



REV.	DATE	REVISION DESCRIPTION
1	06/20/19	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN

CHECKED BY	DRAWN BY	DESIGNED BY	DATE:	SCALE:
WRD	SMT	SMT	JUNE 20, 2019	AS SHOWN

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100 International Dr, #360, Portsmouth, NH 03801
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TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

CONSTRUCTION DETAILS 6

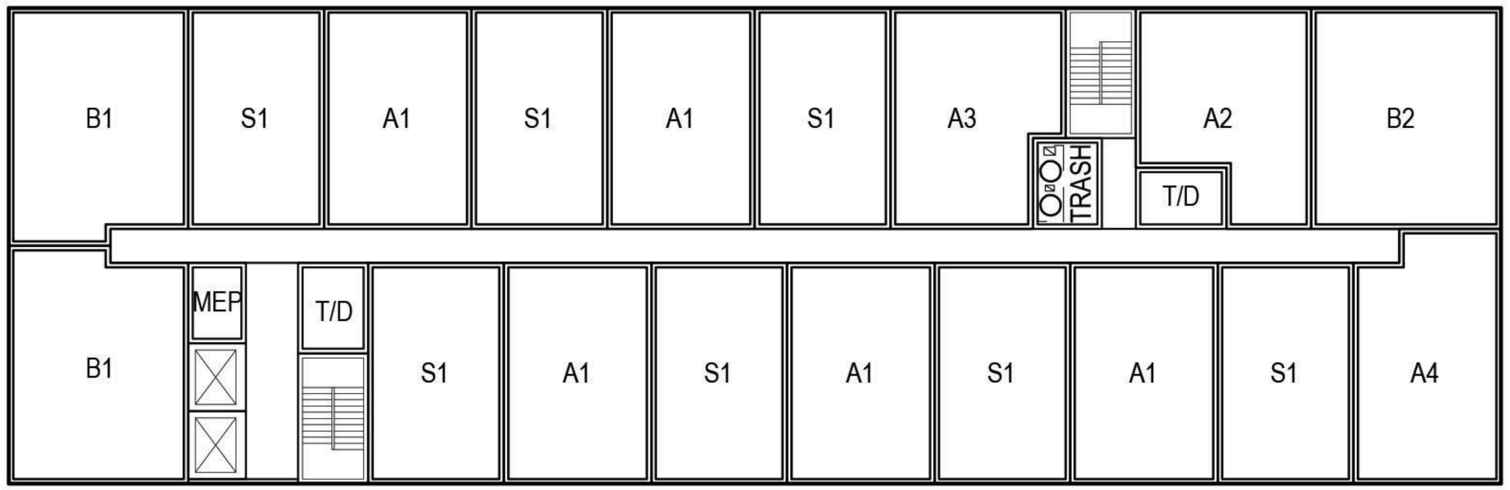
C25

PROJECT NO. 569200

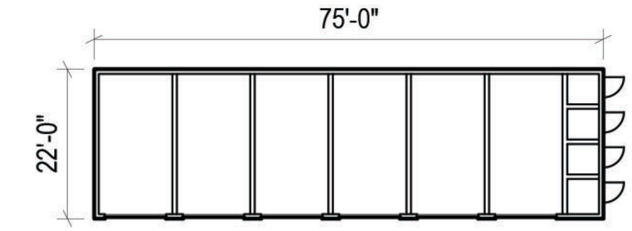
BUILDING 1

25 STUDIO	(S) 650 SF AVG
28 1-BED	(A) 710 SF AVG
11 2-BED	(B) 900 SF AVG

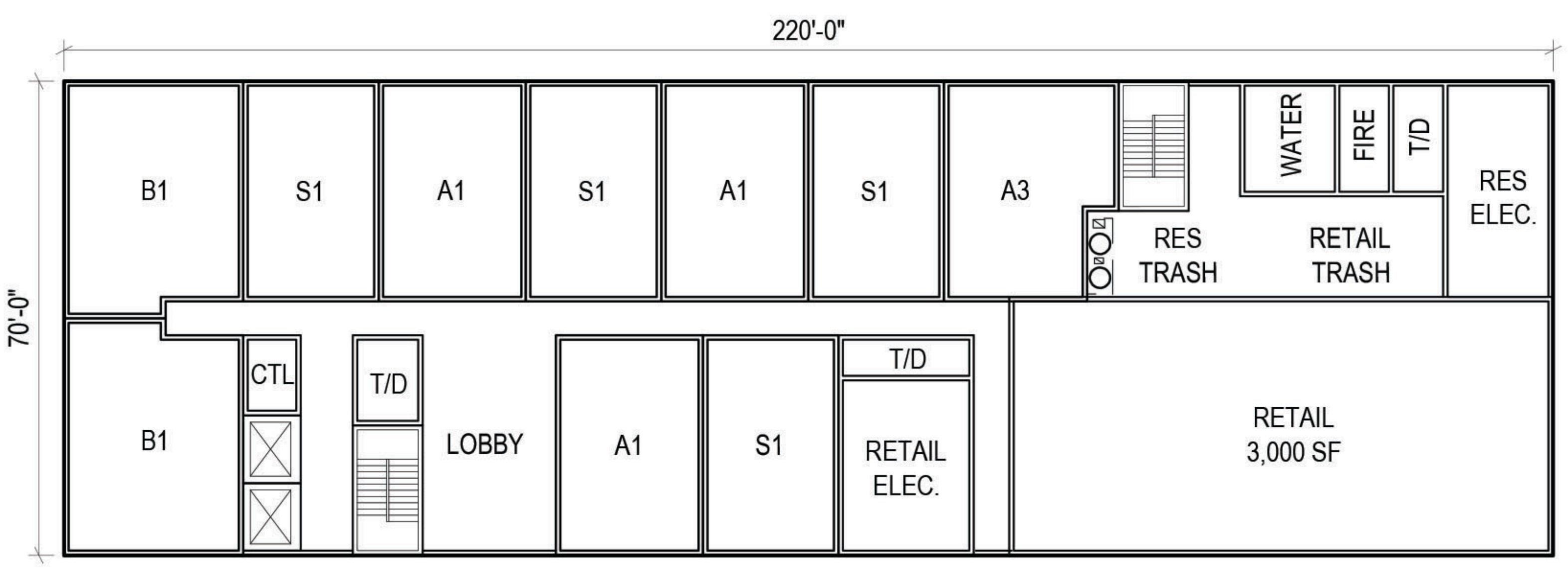
64 UNITS TOTAL



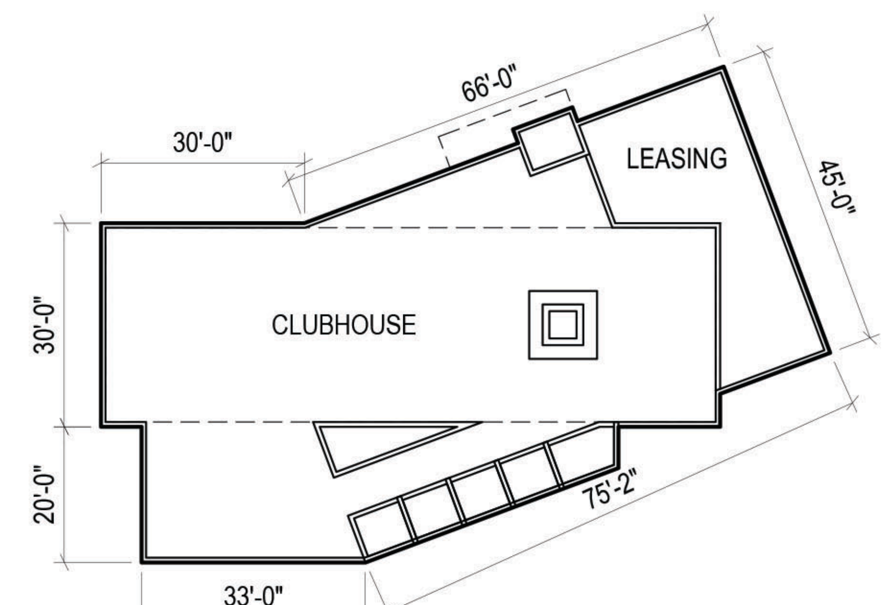
BUILDING 1 TYPICAL UPPER FLOORS 2-4



TYPICAL GARAGE PLAN



BUILDING 1 GROUND FLOOR



LEASING/CLUBHOUSE FLOOR PLAN

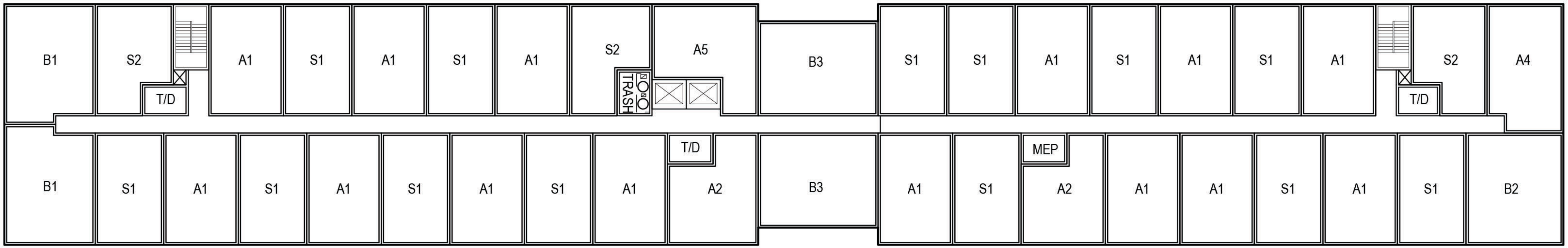
76 Dennett Road
Kittery, ME
06.17.19

Conceptual Floor Plans

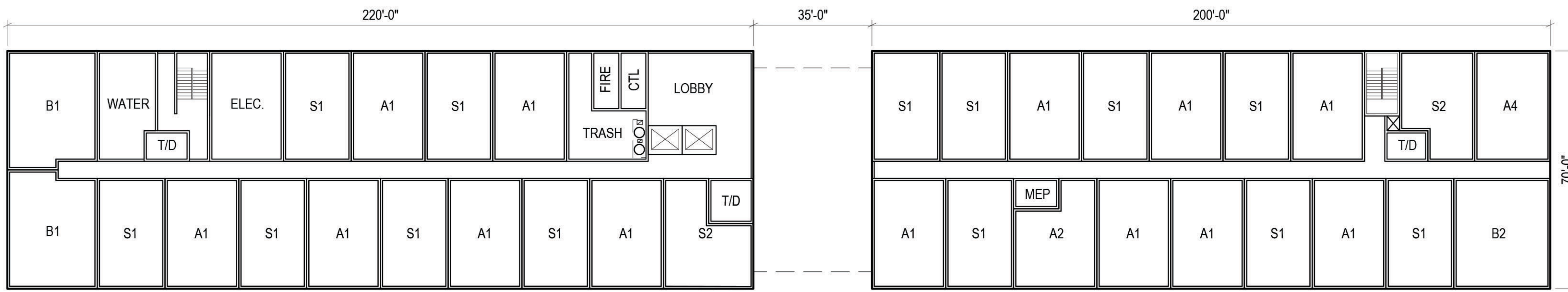
BUILDING 2

60 STUDIO (S) 650 SF AVG
72 1-BED (A) 710 SF AVG
18 2-BED (B) 900 SF AVG

150 UNITS TOTAL



BUILDING 2 TYPICAL UPPER FLOORS 2-4



BUILDING 2 GROUND FLOOR

76 Dennett Road
Kittery, ME
06.17.19

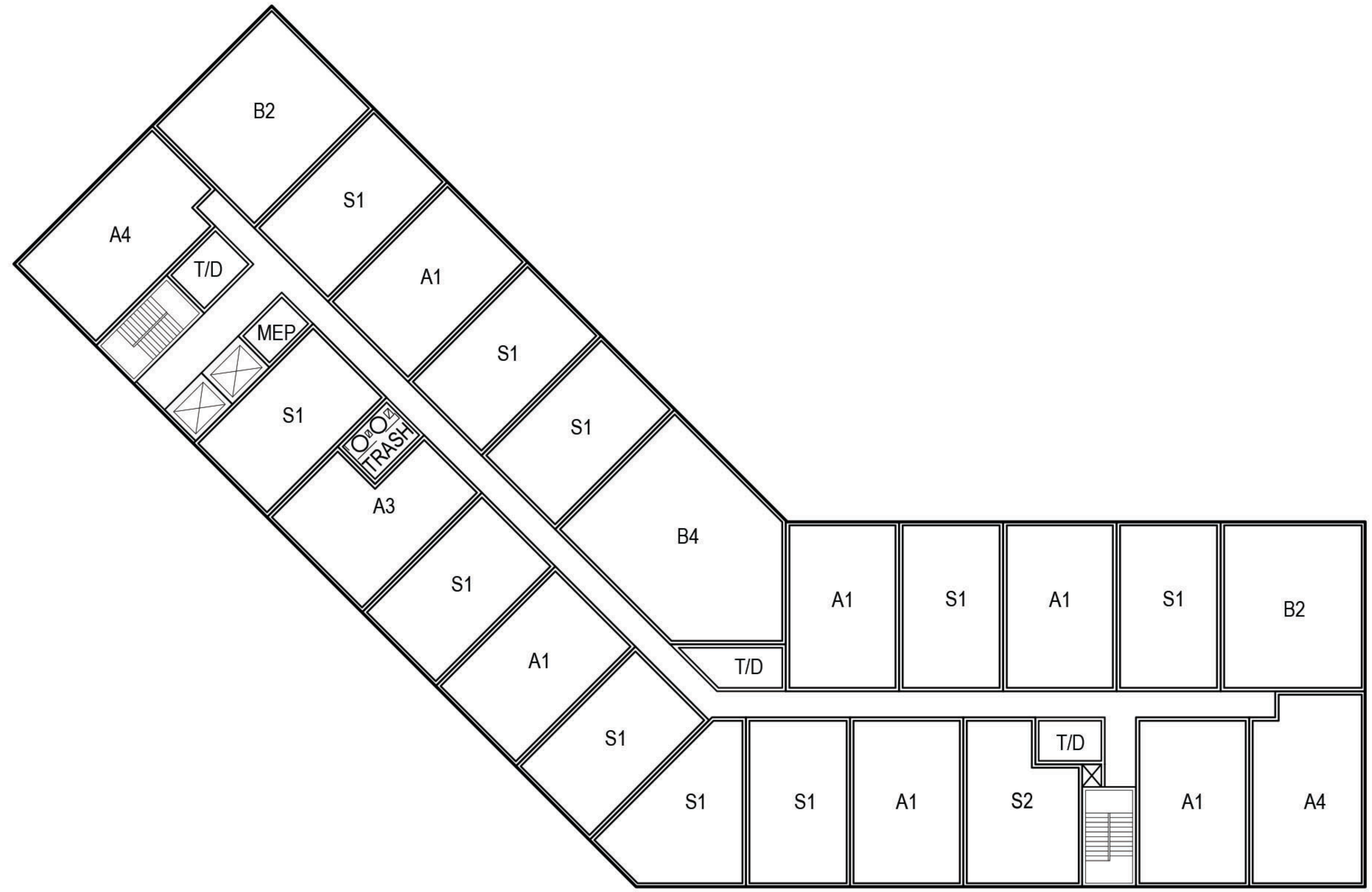
Conceptual Floor Plans

CUBE3

BUILDING 3

45 STUDIO	(S) 650 SF AVG
33 1-BED	(A) 710 SF AVG
11 2-BED	(B) 900 SF AVG

89 UNITS TOTAL



BUILDING 3 TYPICAL UPPER FLOORS 2-4

BUILDING 3 GROUND FLOOR

76 Dennett Road
Kittery, ME
06.17.19

Conceptual Floor Plans

76 Dennett Road
Kittery, ME
06.11.19

Building 1 West Elevation

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Building 1 South Elevation

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Building 1 East Elevation

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Building 1 North Elevation

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Building 2 North Elevation

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Building 2 East Elevation

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Building 2 South Elevation

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Building 2 West Elevation

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Building 3 North-A Elevation

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06.11.19

Building 3 North-B Elevation

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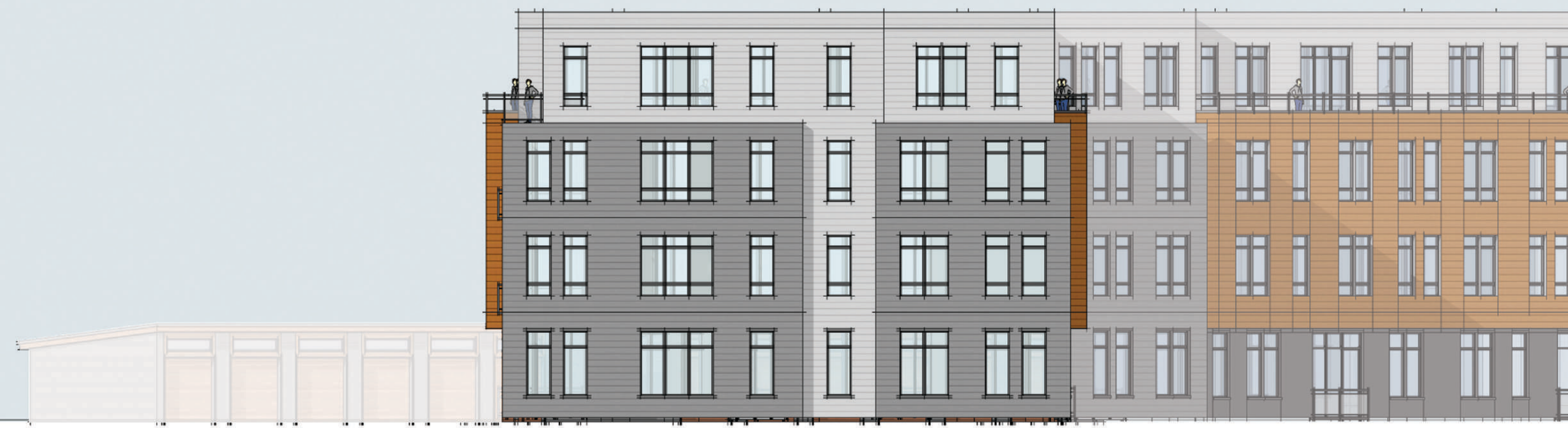

76 Dennett Road
Kittery, ME
06.11.19

Building 3 East Elevation

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76 Dennett Road
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Building 3 South-A Elevation

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Building 3 South-B Elevation

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76 Dennett Road
Kittery, ME
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Building 3 West Elevation

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76 Dennett Road
Kittery, ME
06.11.19

Building 4 West Elevation

CUBE 3

76 Dennett Road
Kittery, ME
06.11.19

Building 4 North Elevation

76 Dennett Road
Kittery, ME
06.11.19

Building 4 East Elevation

CUBE3

76 Dennett Road
Kittery, ME
06.11.19

Building 4 South Elevation

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76 Dennett Road
Kittery, ME
06.11.19

Garage Front Elevation

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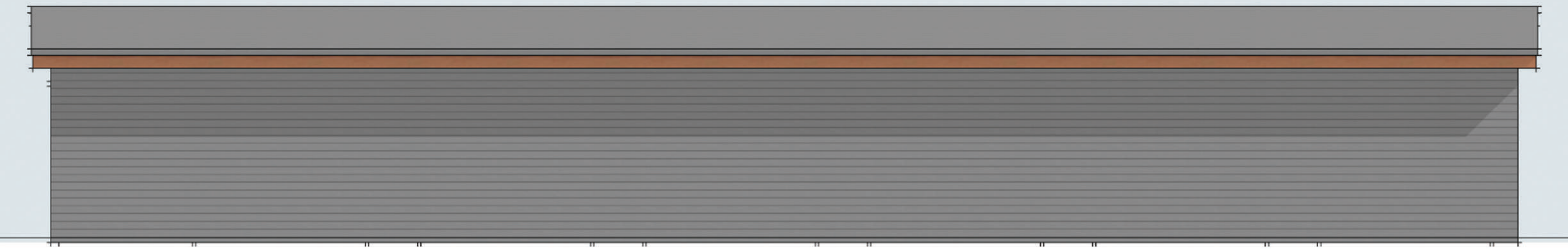
76 Dennett Road
Kittery, ME
06.11.19

Garage Side Elevations

CUBE3



76 Dennett Road
Kittery, ME
06.11.19

Garage Rear Elevation

CUBE3

DRAINAGE NARRATIVE

FOR A

PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
76 Dennett Road
Kittery, ME

Revised: June 20, 2019

Prepared for:

Aztec, LLC
62 Portland Road, Suite 25
Kennebunk, ME 04043

Prepared by:

Hoyle, Tanner & Associates, Inc.

Pease International Tradeport
100 International Drive, Suite 360
Portsmouth, NH 03801

TABLE OF CONTENTS

DESCRIPTION **PAGE**

APPENDICES

This Drainage Narrative has been prepared to demonstrate compliance with the Maine Department of Environmental Protection (MEDEP) Stormwater Site Location of Developmental Law.

PROJECT DESCRIPTION

The Applicant, Aztec, LLC, is proposing to develop a parcel of land located at 76 Dennett Road in Kittery, Maine (the "Site"). The Site currently consists of a mostly wooded lot with a gravel access road, scattered wetlands, a vernal pool and a small stream. The Applicant proposes to develop the Site in order to construct four (4) residential buildings, five (5) covered parking buildings and one (1) amenity building for the residents. As proposed, the project includes the construction of nine (9) new buildings, a new roadway, parking lots, landscaping, sidewalks, supporting utilities, and drainage infrastructure to support the development.

SITE DESCRIPTION

The Site is a 23.3±-acre parcel of land located at 76 Dennett Road in Kittery, Maine. The Site itself is comprised of three different lots, Lot 15B and 16A from Tax Map 6 and Lot 4 from Tax Map 13. The parcel is also located in the Mixed Use-Neighborhood (MU-N) zone of Kittery, Maine. The Site is bounded to the west by Dennett Road, the Maine Turnpike (Interstate Route 95) to the south, and private property to the north and east. See attached Vicinity Map.

The drainage design utilizes the existing hydrologic and hydraulic patterns, minimizes impacts to surrounding areas, and uses Maine's Best Management Practices (BMP's) to provide effective pollutant removal, stormwater cooling, channel protection and flood control.
This drainage study includes summaries and calculations for the effective pollutant removal, stormwater cooling, channel protection, and flood control for pre-development and post-development peak runoff rates for the proposed site development.

The Site is not located within a flood hazard area as determined from the Kittery GIS and the Flood Insurance Rate Maps (FIRM) for York County, City of Kittery, Maine. The maps are prepared by the Federal Emergency Management Agency (FEMA), (Map numbers 2301710007C & 2301710004C, dated July 5,1984) See Appendix B for FEMA FIRM Maps.

Existing topography ranges from an elevation of 66 feet in the northern part of the Site and an elevation of 68 feet in the eastern part of the Site to an elevation of 50 feet to the south and west of the site. The slopes to the south and east are sloped away from the interior of the Site and down towards the Maine Turnpike; the southern and eastern boundary. The interior portion of the site is mostly flat with the slopes being graded to the south. Along the perimeter of the western portion of the Site, the slopes are graded slightly upward to meet Dennett Road.

Based on the available information of the Site and field observations, there are three main areas where wetlands exist. The main portion of wetlands is located in the northern part of the Site, while minor portions of wetlands lay to the southeast and northwest portions of the Site. A vernal pool is located close to the center of the Site, which is within the main portion of wetlands. There is also a stream that lies along the southeastern border of the Site. The proposed development does not interfere with the boundaries of the wetlands and does not reduce the size of the wetlands in any way.

Joseph Noel prepared a Class A, High Intensity Soil Survey (HISS) of the Site. The report includes logs of 21 test pits that were dug to verify the subsurface conditions of the site, the test pits were dug on May 19, 2019 and May 27, 2019 and the locations were located by Hoyle, Tanner & Associates, Inc. on May 29, 2019. See Appendix D for the HISS report and the Test Pit logs.

Based on the HISS survey, a Hydrologic Soil Grouping of D was used for the majority of the Site and a small pocket of C soil was used in the eastern portion of the Site.

HYDROLOGIC ANALYSIS

The runoff analysis is based on Maine DEP regulations and analyzes the 2, 10, and 25-year design storms using the SCS TR-55 method with Type-III, 24-hour storms. The rainfall data that was used to model the storm events was obtained from the National Oceanic and Atmospheric Administration's (NOAA) website. A summary of the rainfall events is shown in the table below. The full table of results is located in Appendix A. A link to NOAA's website is provided below: http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html?bkmrk=me

STORM EVENT	24-HOUR RAINFALL (Inches)
1-Year Storm	2.64
2-Year Storm	3.31
10-Year Storm	5.32
25-Year Storm	6.58
100-Year Storm	8.52

The hydrologic analysis was performed using the HydroCAD computer program. The HydroCAD model is based on the National Resources Conservation Service (NRCS) Technical Release 20 (TR-20) Model for Project Formulation Hydrology. The model begins with a rainfall depth uniformly imposed on the watershed over a specified time distribution, 24 hours in this analysis. The rainfall depth is then converted to a volume of runoff by using a Runoff Curve Number (CN). The determination of the CN is based on assessments of soil characteristics, vegetation type and condition, amount of impervious areas, interception and surface storage. The calculated runoff is then transformed into a hydrograph by using unit hydrograph theory and routing procedures that depend on runoff travel time through each sub-watershed.

The overall site pre-development and post-development hydrographs were calculated utilizing the method detailed in Technical Release 55 (TR-55) "*Urban Hydrology for Small Watersheds*" as published by the United States Department of Agriculture Soil Conservation Service, "SCS", and revised in June of 1986.

PRE-DEVELOPMENT CONDITIONS

To effectively analyze the pre-development and post-development conditions for the project, a series of five design points were established at critical stormwater runoff locations on the site. The areas draining to each design point were broken down into single or multiple subcatchments, depending on size and drainage patterns. See Appendix I: Pre-Development

Watershed Area Plans for the location of each design point and watershed. A summary for each design point and associated watershed are described below.

Design Point 1 (DP1) is located along the northwestern corner of the property. The proposed area draining to this design point is 5.7 acres. Most of this area is comprised of woods, wooded wetlands, and a gravel access road. The watershed is mostly flat with slopes between 1% and 4%. Stormwater sheet flows through the existing woods into the wetlands and ultimately reaches an existing 24-inch reinforced concrete pipe in the western corner of the site.

Design Point 2 (DP2) is located at the southwestern corner of the property which drains into an 18-inch reinforced concrete pipe that then leaves the site and goes under Dennett Road. The watershed extends north until it reaches the existing gravel road. The watershed is relatively flat with some steep roadside ditches near Dennett Road. Slopes are between 1% to 9%, with the steeper slopes representing the slopes closest to the ditches. Stormwater sheet flows from the southeast corner of the area to the west of the subcatchment and enters the 18-inch reinforced concrete pipe.

Design Point 3 (DP3) is located on the southern side of the property abutting Interstate Route 95. The watershed is the area that occupies a large portion of the site and is the largest at approximately 17.9 Acres. The watershed is split into two areas, 3A and 3B, along the northern side of the gravel road. The northern half, watershed 3A, of the watershed has slopes between 1% to 8%. This area sheet flows through forest and forested wetlands from the north to the south until reaching a stone headwall with a 24-inch culvert, which leads to the other half of the watershed. The southern half of the watershed, watershed 3B, has slopes ranging from 1% to 4%. Stormwater sheet flows from the west over the gravel access road, through forested wetlands until reaching a small stream in the southeastern corner of the property where the stormwater leaves the property.

Design Point 4 (DP4) is located in part of the northeast corner of the property. The watershed is mostly comprised of forested land but has a small portion of the gravel access road running through the southern border of the watershed. Stormwater sheet flows down the slope, to the north off of the site.

Design Point 5 (DP5) is located on the eastern border of the property. The watershed is mostly comprised of forest with the gravel access road entering from the western end of the watershed and leaving in the southern part of the watershed. The watershed is sloped from west to east with slopes between 1% to nearly 9%. Stormwater sheet flows down the slope to the northeast where it exits the property.

The analysis criteria used for the SCS TR-20 hydraulic analysis of the pre-development conditions are as follows:

- Storm Event Frequency: 2, 10, and 25-year, 24-Hour Storms
- Runoff Coefficients (CN)

Gravel Road, HSG D	= 91
Gravel Road, HSG C	= 89
Woods, Good, HSG D	= 77
Brush, Good HSG D	= 73
Woods, Good, HSG C	= 70
Brush, Good HSG C	= 65

The complete HydroCAD analysis for the pre-development conditions can be seen in Appendix H of the study. The table below provides a summary of the peak runoff rates for each design point in the pre-development conditions.

PRE-DEVELOPMENT CONDITIONS					
	Design Point 1	Design Point 2	Design Point 3	Design Point 4	Design Point 5
Inflow Area	5.70 Acres	0.66 Acres	17.96 Acres	0.31 Acres	2.10 Acres
2-Year Peak Flow	7.61 cfs	1.23 cfs	13.69 cfs	0.40 cfs	2.11 cfs
10-Year Peak Flow	16.10 cfs	2.53 cfs	30.41 cfs	0.95 cfs	5.37 cfs
25-Year Peak Flow	21.62 cfs	3.36 cfs	43.93 cfs	1.33 cfs	7.61 cfs

POST-DEVELOPMENT CONDITIONS NARRATIVE

The proposed development was designed to discharge at the same five design points as in the pre-development conditions. The Post-Development Drainage Area Plan can be seen in Appendix I. A summary for each design point and associated watershed are described below.

Design Point 1 (DP1) receives stormwater runoff from proposed parking, grass, existing wooded areas, driveways, grassed islands, sidewalks, proposed buildings, and wet pond 1; all within the different subcatchments preceded with the number one (1). This includes subcatchments 1A through 1M. Runoff from impervious surfaces is directed to deep sump catch basins for pre-treatment before being discharged through two sediment forebays into the proposed wet pond. The pond’s outlet control structure is a square 4-foot x 4-foot inside diameter concrete structure with a slotted 6-inch PVC gravel trench underdrain as the primary channel protection volume outlet. The outlet structure conveys stormwater through a 24-inch HDPE pipe onto to a riprap level spreader causing the stormwater to sheet flow to DP1, an existing 24-inch reinforced concrete pipe, and meet the redistribution of stormwater discharges standard.

Design Point 2 (DP2) contains proposed grass and an existing wooded patch on the southern side of the lot. Stormwater sheet flows off-site through grass and woods before entering an existing 18-inch reinforced concrete pipe that leaves the site and travels under Dennett Road. This watershed was slightly reduced in size and contains no impervious surfaces; therefore, peak runoff control is not necessary to meet existing flow rates.

Design Point 3 (DP3) receives stormwater runoff from proposed parking, grass, existing wooded areas, driveways, grassed islands, sidewalks, proposed buildings, and wet ponds 2 and 3; all within the different subcatchments preceded with the number three (3). This includes subcatchments 3A through 3II. This is the largest watershed in the post-development conditions and accounts for a majority of the stormwater runoff from the proposed development. Runoff from impervious surfaces is directed to deep sump catch basins for pre-treatment before being discharged through sediment forebays into the proposed wet ponds. Both ponds’ outlet control structures are a square 4-foot x 4-foot inside diameter concrete structure with a slotted 6-inch PVC gravel trench underdrain as the primary channel protection volume outlet. The outlet structure for wet pond 2 conveys stormwater through a 24-inch HDPE pipe that conveys the flow through two manholes and then is redistributed onto a riprap level spreader causing the stormwater to sheet flow to the existing stream to DP3 and meet the redistribution of stormwater discharges standard. The outlet structure for wet pond 3 conveys stormwater through a 36-inch HDPE pipe onto to a riprap level spreader causing the stormwater to sheet flow to the existing stream to DP3 and meet the redistribution of stormwater discharges standard.

Design Point 4 (DP4) contains proposed grass and a reduced existing wooded patch on the northern corner of the lot. Stormwater sheet flows off-site through grass and woods. This watershed contains no impervious surfaces and was reduced in size, therefore peak runoff control is not necessary to meet existing flow rates.

Design Point 5 (DP5) contains proposed grass and a reduced existing wooded patch on the northern corner of the lot. Stormwater sheet flows off-site through grass and woods. This watershed contains no impervious surfaces and was reduced in size, therefore peak runoff control is not necessary to meet existing flow rates.

The analysis criteria used for the SCS TR-20 hydraulic analysis of the post-development conditions are as follows:

- Storm Event Frequency: 2, 10, and 25-year, 24-Hour Storms
- Runoff Coefficients (CN)

Paved Parking, HSG C	= 98
Paved Parking, HSG D	= 98
Water Surface, HSG C	= 98
Water Surface, HSG D	= 98
Roofs, HSG C	= 98
Roofs, HSG D	= 98
Gravel roads, HSG D	= 91
50-75% Grass Cover, Fair, HSG D	= 84
50-75% Grass Cover, Fair, HSG C	= 79
Meadow, non-grazed, HSG D	= 77
Woods, Good, HSG C	= 70

The complete HydroCAD analysis for the post-development conditions can be seen in Appendix H of the study. The table below provides a summary of the peak runoff rates for each design point in the post-development conditions.

POST-DEVELOPMENT CONDITIONS					
	Design Point 1	Design Point 2	Design Point 3	Design Point 4	Design Point 5
Inflow Area	6.31 Acres	0.63 Acres	19.3 Acres	0.04 Acres	0.43 Acres
2-Year Peak Flow	5.77 cfs	0.96 cfs	12.39 cfs	0.05 cfs	0.52 cfs
10-Year Peak Flow	14.04 cfs	2.05 cfs	29.86 cfs	0.12 cfs	1.22 cfs
25-Year Peak Flow	21.23 cfs	2.77 cfs	43.56 cfs	0.17 cfs	1.69 cfs

The proposed development has been designed to provide effective pollutant removal, stormwater cooling, channel protection and flood control. During construction, it is essential to provide Temporary Erosion Control as needed throughout the site. Temporary erosion control measures and their locations are shown on the enclosed Grading, Drainage and Erosion Control Plan and Detail Drawings, and will be included in the construction plans for implementation.

EFFECTIVE POLLUTANT TREATMENT

To provide effective pollutant removal, the proposed development will use the Maine Department of Environmental Protection (MEDEP) approved Best Management Practices (BMPs) to provide stormwater treatment from impervious surfaces. The BMP chosen to provide treatment from stormwater runoff is a wet pond. The stormwater runoff from the proposed buildings, sidewalks, roadways, parking areas, and all other developed portions of land will be collected and conveyed in a series of deep sump catch basins to one of the three proposed wet ponds on the Site. Wet ponds have a permanent pool of water and have a capacity to temporarily store runoff until it can be released at a rate that is not harmful to the receiving water. Wet ponds can achieve high rates of removal or urban pollutants, such as sediments, trace metals, hydrocarbons, and other nutrients. Per Maine's Stormwater Management Law, the management system has to provide treatment of no less than 95% of the impervious area and no less than 80% of the developed area. Below is a table that outlines what is the expected treatment rates of the wet ponds designed.

Treatment Summary	
Total Impervious Area Treated (Sq.Ft.)	290,870
Total Impervious Area (Sq.Ft.)	293,315
Impervious Treatment % = Total Imp. Area Treated / Total Imp. Area	**99%**
Total Developed Treated Area (Sq.Ft.)	384,605
Total Developed Area (Sq.Ft.)	426,490
Developed Treatment % = Total Dev. Area Treated / Total Dev. Area	**90%**

From the table it can be observed that the wet ponds will have the required treatment level; 99% of the impervious area will be treated and 90% of the developed area will be treated. Full calculations of treated and existing areas can be found in Appendix J.

PERMANENT POOL ANALYSIS

The wet pond's permanent pool volume was calculated using Chapter 4 of the Maine Stormwater Best Management Practices Manual. The wet pond has a permanent pool of water so that when stormwater runoff enters the pool, the pollutants do not immediately leave the system. The permanent pool also helps to cool stormwater runoff before it is discharged out into a stream or other body of water. Adding pollutants or warmer water to a receiving body of water is strictly against the Maine Department of Environmental Protection's Stormwater Management Law. The table below summarizes the calculations performed to appropriately size the permanent pool by the Maine Stormwater BMP Manual.

Wet Pond Permanent Pool Volumes		
	Volume Required	Volume Provided
Pond 1	13,379 $Ft.^3$	18,313 $Ft.^3$
Pond 2	9,418 $Ft.^3$	12,916 $Ft.^3$
Pond 3	26,451 $Ft.^3$	29,209 $Ft.^3$

Full calculations are shown in Appendix E.

CHANNEL PROTECTION ANALYSIS

The MEDEP requires channel protection before discharging within the watershed of a river, stream, or brook to avoid destabilization and sedimentation of stream channels, downstream receiving waters and wetlands. The channel protection volume is the volume that is designed to temporarily store stormwater runoff from the 2, 10, and 25-year, 24-hour post-development storm peak flow rates. The excess storage volume allows for the new stormwater runoff to be released at a controlled rate that does not destabilize the sediment of the stream channel, or the receiving water or wetland. The channel protection volume was calculated using Chapter 4 in the Maine Stormwater BMP Manual.

Wet Pond Channel Protection Volumes		
	Volume Required	Volume Provided
Pond 1	6,689 $Ft.^3$	7,507 $Ft.^3$
Pond 2	4,709 $Ft.^3$	5,590 $Ft.^3$
Pond 3	13,225 $Ft.^3$	13,516 $Ft.^3$

Full calculations are shown in Appendix E.

STORMWATER COOLING ANALYSIS

The MEDEP requires the effective cooling of stormwater to 60° Farenheit, before being discharged within the watershed of a river, stream, or brook to protect aquatic life. The stormwater would flow into one of the wet ponds where it would remain in the permanent pool or in the channel protection volume until it is drained within 48 hours. An underdrained gravel trench is provided in the bench area around the permanent pool. The underdrain ensures that water is drained at a controlled rate and is sized so that effective cooling can be reached before the water is discharged. The rate at which water is to be discharged from the pond is a period of 24-48 hours. According to the BMP Manual, to have the desired effect the underdrain pipe should be 6-inches in diameter. A 6-inch pipe was used with a gate valve to restrict the flow of water at the desired rate of discharge. The required underdrain length, the provided length, and the drainage time is summarized in the table below. Each value was calculated using Chapter 4 in the Maine Stormwater BMP Manual.

Stormwater Cooling Summary				
	Underdrain Required Length	Underdrain Provided Length	Required Drain Time	Provided Drain Time
Pond 1	23 Ft.	30 Ft.	24-48 Hrs.	29.8 Hrs.
Pond 2	17 Ft.	30 Ft.	24-48 Hrs.	31.1 Hrs.
Pond 3	41 Ft.	50 Ft.	24-48 Hrs.	31.3 Hrs.

Full calculations are shown in the Appendix E.

EMERGENCY SPILLWAY ANALYSIS

The emergency spillway of the wet pond was designed to convey the 25-year, 24-hour storm while maintaining at least one foot of freeboard between the top of the embankment crest, assuming that the outlet control structures (OCS) was not functioning. It will also safely convey the 100-year storm without overtopping the embankment. The design flow depth of the spillway was designed not to exceed one-half of the D_{50} stone size. The location for each of the spillways are shown in the Drainage Plans.

	Emergency Spillway Design								
	Peak Elevation 25-Yr storm	Elevation of Spillway	Spillway Width	Peak Spillway Elevation 25-Yr storm without OCS	Peak Spillway Elevation 100-Yr storm without OCS	Top of Berm	Freeboard 25-Yr Storm	Flow Depth 25-Yr Strom	Riprap Size
Pond 1	55.82 Ft.	55.85 Ft.	30 Ft.	56.1 Ft.	56.2 Ft.	57.1 Ft.	1.0 Ft.	3.0 In.	6 In.
Pond 2	54.84 Ft.	54.85 Ft.	30 Ft.	55.0 Ft.	55.1 Ft.	56.0 Ft.	1.0 Ft.	3.0 In.	6 In.
Pond 3	52.43 Ft.	52.45 Ft.	55 Ft.	52.73 Ft.	52.85 Ft.	53.75 Ft.	1.0 Ft.	3.6 In.	8 In.

FLOOD CONTROL ANALYSIS

The proposed site design reduces peak flow rates leaving the site for the 2, 10, and 25-year storm events. The proposed site design reduces the discharge of runoff to a wetland in the 2-year storm. This is accomplished by having a channel protection volume that can retain the runoff while the outlet control structures release the stored runoff at a controlled rate. Having a controlled rate of outflow will reduce the amount of runoff discharge into the wetlands which will reduce the mean storage depth in the wetlands. The tables below outline the reductions for each storm event at each of the five design points.

Design Point 1			
24-Hour Storm	Pre-Development Peak Flow Rate	Post-Development Peak Flow Rate	Reduction
2-Year	7.61 cfs	5.77 cfs	-1.84 cfs
10-Year	16.10 cfs	14.04 cfs	-2.06 cfs
25-Year	21.62 cfs	21.23 cfs	-0.39 cfs

Design Point 2			
24-Hour Storm	Pre-Development Peak Flow Rate	Post-Development Peak Flow Rate	Reduction
2-Year	1.23 cfs	0.96 cfs	-0.27 cfs
10-Year	2.53 cfs	2.05 cfs	-0.48 cfs
25-Year	3.36 cfs	2.77 cfs	-0.59 cfs

Design Point 3			
24-Hour Storm	Pre-Development Peak Flow Rate	Post-Development Peak Flow Rate	Reduction
2-Year	13.69 cfs	12.39 cfs	-1.3 cfs
10-Year	30.41 cfs	29.86 cfs	-0.55 cfs
25-Year	43.93 cfs	43.56 cfs	-0.37 cfs

Design Point 4			
24-Hour Storm	Pre-Development Peak Flow Rate	Post-Development Peak Flow Rate	Reduction
2-Year	0.40 cfs	0.05 cfs	-0.35 cfs
10-Year	0.95 cfs	0.12 cfs	-0.83 cfs
25-Year	1.33 cfs	0.17 cfs	-1.16 cfs

Design Point 5			
24-Hour Storm	Pre-Development Peak Flow Rate	Post-Development Peak Flow Rate	Reduction
2-Year	2.11 cfs	0.52 cfs	-1.59 cfs
10-Year	5.37 cfs	1.22 cfs	-4.15 cfs
25-Year	7.61 cfs	1.69 cfs	-5.92 cfs

CONCLUSION

As demonstrated in this report effective pollutant removal is achieved through deep sump catch basins and a wet pond with an adequately sized permanent pool. Cooling is achieved by discharging excess stormwater from the pond through an underdrain gravel trench. The wet ponds were designed to exceed the required channel protection, therefore providing a large reduction in flow rates leaving the site. All five design points are either reduced in size or drain to a wet pond and provide the required flood control for all storm events.

APPENDIX A
NOAA RAINFALL DATA

NOAA Atlas 14, Volume 10, Version 3
Location name: Kittery, Maine, USA*
Latitude: 43.1012°, Longitude: -70.7553°
Elevation: 50.28 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.307 (0.233-0.406)	0.370 (0.280-0.489)	0.473 (0.357-0.627)	0.558 (0.419-0.745)	0.676 (0.494-0.939)	0.764 (0.550-1.08)	0.857 (0.601-1.26)	0.961 (0.642-1.44)	1.11 (0.718-1.72)	1.24 (0.781-1.95)
10-min	0.436 (0.330-0.575)	0.525 (0.397-0.693)	0.670 (0.506-0.888)	0.791 (0.594-1.05)	0.957 (0.700-1.33)	1.08 (0.778-1.53)	1.21 (0.851-1.78)	1.36 (0.910-2.04)	1.58 (1.02-2.44)	1.75 (1.11-2.76)
15-min	0.512 (0.388-0.676)	0.617 (0.467-0.815)	0.788 (0.595-1.04)	0.930 (0.699-1.24)	1.13 (0.824-1.56)	1.27 (0.915-1.81)	1.43 (1.00-2.10)	1.60 (1.07-2.40)	1.85 (1.20-2.87)	2.06 (1.30-3.25)
30-min	0.690 (0.523-0.910)	0.832 (0.630-1.10)	1.06 (0.804-1.41)	1.26 (0.943-1.67)	1.52 (1.11-2.11)	1.72 (1.24-2.44)	1.93 (1.36-2.84)	2.17 (1.45-3.25)	2.52 (1.63-3.89)	2.81 (1.78-4.43)
60-min	0.867 (0.657-1.15)	1.05 (0.792-1.38)	1.34 (1.01-1.77)	1.58 (1.19-2.11)	1.91 (1.40-2.66)	2.16 (1.56-3.07)	2.43 (1.71-3.58)	2.73 (1.83-4.10)	3.18 (2.06-4.92)	3.56 (2.25-5.61)
2-hr	1.16 (0.881-1.52)	1.40 (1.07-1.84)	1.81 (1.37-2.38)	2.14 (1.62-2.84)	2.60 (1.92-3.61)	2.94 (2.13-4.18)	3.31 (2.35-4.89)	3.76 (2.52-5.61)	4.43 (2.87-6.83)	5.00 (3.17-7.86)
3-hr	1.36 (1.04-1.78)	1.66 (1.26-2.17)	2.14 (1.63-2.81)	2.55 (1.93-3.36)	3.10 (2.29-4.29)	3.51 (2.55-4.97)	3.95 (2.82-5.83)	4.49 (3.02-6.69)	5.32 (3.45-8.19)	6.03 (3.83-9.45)
6-hr	1.77 (1.36-2.30)	2.17 (1.66-2.82)	2.82 (2.16-3.68)	3.36 (2.56-4.40)	4.10 (3.05-5.65)	4.65 (3.40-6.56)	5.25 (3.76-7.71)	5.97 (4.02-8.86)	7.09 (4.62-10.9)	8.05 (5.14-12.6)
12-hr	2.23 (1.73-2.88)	2.75 (2.13-3.56)	3.61 (2.77-4.68)	4.31 (3.30-5.63)	5.29 (3.95-7.25)	6.01 (4.41-8.43)	6.79 (4.89-9.94)	7.74 (5.23-11.4)	9.20 (6.01-14.1)	10.5 (6.69-16.3)
24-hr	2.64 (2.05-3.38)	3.31 (2.57-4.25)	4.41 (3.41-5.68)	5.32 (4.10-6.90)	6.58 (4.95-9.00)	7.50 (5.56-10.5)	8.52 (6.20-12.5)	9.81 (6.65-14.4)	11.8 (7.76-18.1)	13.6 (8.75-21.2)
2-day	2.94 (2.29-3.75)	3.78 (2.95-4.82)	5.15 (4.00-6.60)	6.29 (4.86-8.10)	7.86 (5.96-10.8)	8.99 (6.73-12.7)	10.3 (7.59-15.2)	12.0 (8.16-17.6)	14.9 (9.77-22.6)	17.5 (11.3-27.1)
3-day	3.19 (2.50-4.06)	4.10 (3.21-5.22)	5.59 (4.36-7.13)	6.82 (5.29-8.75)	8.51 (6.48-11.6)	9.73 (7.32-13.7)	11.1 (8.27-16.5)	13.0 (8.88-19.1)	16.3 (10.7-24.7)	19.2 (12.4-29.7)
4-day	3.44 (2.70-4.37)	4.39 (3.44-5.57)	5.93 (4.63-7.55)	7.21 (5.60-9.23)	8.97 (6.84-12.2)	10.2 (7.71-14.4)	11.7 (8.70-17.3)	13.7 (9.33-20.0)	17.1 (11.2-25.9)	20.2 (13.0-31.1)
7-day	4.17 (3.29-5.26)	5.16 (4.07-6.52)	6.79 (5.33-8.60)	8.13 (6.35-10.4)	9.98 (7.64-13.5)	11.3 (8.55-15.8)	12.8 (9.57-18.9)	14.9 (10.2-21.8)	18.4 (12.2-27.9)	21.6 (14.0-33.3)
10-day	4.86 (3.84-6.11)	5.89 (4.65-7.41)	7.56 (5.96-9.55)	8.96 (7.01-11.4)	10.9 (8.33-14.6)	12.3 (9.26-17.0)	13.8 (10.3-20.1)	15.9 (10.9-23.1)	19.4 (12.8-29.2)	22.5 (14.6-34.5)
20-day	6.89 (5.48-8.60)	8.02 (6.37-10.0)	9.86 (7.81-12.4)	11.4 (8.97-14.4)	13.5 (10.3-17.9)	15.1 (11.3-20.5)	16.7 (12.3-23.7)	18.8 (13.0-27.1)	21.8 (14.5-32.7)	24.4 (15.9-37.3)
30-day	8.56 (6.83-10.7)	9.77 (7.78-12.2)	11.7 (9.32-14.7)	13.4 (10.6-16.8)	15.6 (12.0-20.5)	17.3 (13.0-23.3)	19.1 (13.9-26.7)	21.1 (14.6-30.3)	23.8 (15.9-35.5)	26.0 (16.9-39.7)
45-day	10.6 (8.51-13.2)	11.9 (9.54-14.8)	14.1 (11.2-17.5)	15.8 (12.5-19.8)	18.2 (14.0-23.8)	20.1 (15.1-26.8)	22.0 (15.9-30.3)	23.9 (16.6-34.2)	26.4 (17.7-39.2)	28.2 (18.4-43.1)
60-day	12.4 (9.93-15.3)	13.7 (11.0-17.0)	16.0 (12.8-19.9)	17.9 (14.2-22.3)	20.4 (15.7-26.5)	22.4 (16.8-29.7)	24.4 (17.6-33.4)	26.2 (18.3-37.5)	28.6 (19.2-42.5)	30.3 (19.8-46.2)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

APPENDIX B
FEMA FIRM MAPS


Site
ZONE A
ZONE A9
ZONE A1
ZONE A5
ZONE A6
ZONE A1
ZONE B
ZONE B
ZONE C
ZONE A2
ZONE A2
ZONE C
ZONE A2
ZONE A
ZONE A
ZONE C
ZONE A2
ZONE A2
ZONE C
ZONE C
ZONE A2
ZONE A2
ZONE A2
STATE BOUNDARY
STATE BOUNDARY
KEY TO MAP
*EXPLANATION OF ZONE DESIGNATIONS
NOTES TO USER
ELEVATION REFERENCE MARKS
APPROXIMATE SCALE
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
TOWN OF
KITTERY, MAINE
YORK COUNTY
PANEL 7 OF 10
COMMUNITY-PANEL NUMBER
230171 0007 C
EFFECTIVE DATE:
JULY 5, 1984
Federal Emergency Management Agency

KEY TO MAP
*EXPLANATION OF ZONE DESIGNATIONS
NOTES TO USER
APPROXIMATE SCALE
ELEVATION REFERENCE MARKS
ZONE A
ZONE A2
ZONE A6
ZONE B
ZONE C
ZONE D
LIMIT OF DETAILED STUDY
Spruce Creek
Site
NATIONAL FLOOD INSURANCE PROGRAM
FIRM
FLOOD INSURANCE RATE MAP
TOWN OF
KITTERY, MAINE
YORK COUNTY
PANEL 4 OF 10
COMMUNITY-PANEL NUMBER
230171 0004 C
EFFECTIVE DATE:
JULY 5, 1984
Federal Emergency Management Agency

APPENDIX C
NRCS SOIL REPORT AND MAP

Map Scale: 1:3,220 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0, 45, 90, 180, 270

Feet: 0, 150, 300, 600, 900

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 Rating Polygons

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

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 17, Sep 11, 2018

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

Date(s) aerial images were photographed: Dec 31, 2009—Sep 9, 2017

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.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
CrB	Croghan loamy sand, 0 to 8 percent slopes	A	0.2	0.6%
LnB	Lyman loam, 3 to 8 percent slopes, rocky	D	7.8	25.9%
LnC	Lyman loam, 8 to 15 percent slopes, rocky	D	0.0	0.0%
Na	Naumburg sand	A/D	19.3	64.3%
Pg	Pits, gravel		2.7	9.2%
Totals for Area of Interest			**30.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

APPENDIX D
HIGH INTENSITY
SOIL SURVEY AND MAP

WETLAND DELINEATION

VERNAL POOL SURVEY

&

CLASS A HIGH INTENSITY SOIL SURVEY REPORT

FOR

TAX MAP 6, LOTS 15B & 16A
TAX MAP 13, LOT 4
76 DENNETT ROAD
KITTERY, MAINE

PREPARED FOR:

HOYLE, TANNER & ASSOCIATES, INC.
100 INTERNATIONAL DRIVE, SUITE #360
PORTSMOUTH, NEW HAMPSHIRE 03801

PREPARED BY:

JOSEPH W. NOEL
P.O. BOX 174
SOUTH BERWICK, MAINE

JUNE 17, 2019
JWN #98-1243

JOSEPH W. NOEL
P.O. BOX 174
SOUTH BERWICK, MAINE 03908
(207) 384-5587

CERTIFIED SOIL SCIENTIST * ***WETLAND SCIENTIST*** * ***LICENSED SITE EVALUATOR***

INTRODUCTION

This report and the attached high intensity soil survey were prepared to aid in planning for the proposed mixed-use residential development. The property is 23+/- acres and located off of Dennett Road just north of the southbound on-ramp to Route 95 in Kittery, Maine. Four large buildings for approximately 315 units with one smaller building for amenities are planned within uplands. An access road with approximately 405 parking spaces along with three stormwater ponds surrounds the buildings. The access road will cross one narrow ditch where an existing woods road crossing is located.

WETLAND DELINEATION

The wetland boundary has been delineated and/or re-flagged with surveyors tape in April of 1995, May of 2001, June, October and December of 2015, January of 2016, and May of 2019. A peer review of the wetlands and vernal pool were also conducted by Longview Partners, LLC in April of 2019. A review of the wetland boundary was also conducted by the undersigned during the fieldwork for the soil survey and one area that was flagged in 2001 was not shown on the project plans and was mapped on May 27, 2019. The wetland is located in the southern corner of the property and away from the proposed development.

The original delineations in 1995 and 2001 used the *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (1989). The most recent re-flaggings and review used the methodologies in the U.S. Army Corps of Engineers document *Corps of Engineers Wetlands Delineation Manual* (1987) along with the required *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region*, (Version 2.0) were used. Wetlands were identified based on soils, vegetation, and wetland hydrology. Except in special cases, all three factors (hydric soils, hydrophytic vegetation, and wetland hydrology) must be present for an area to classify as wetland. A predominance of wetland and upland vegetation was determined from visual estimates in the vegetative layers (herbaceous, shrub, sapling, and tree layers). Shallow soil observations were made using a shovel and hand auger to assess the soil morphological features and to examine for wetland hydrology.

The majority of the wetlands are gently sloping to nearly level and forested with small scrub-shrub pockets. On May 10, 2019, an on-site with Lucien Langlois of the Maine Department of Environmental Protection (MDEP) was conducted with the undersigned to determine the upper limits of the MDEP stream. The stream limits were flagged and are designated on the project plans.

VERNAL POOL SURVEY

A vernal pool survey was conducted in April of 2015. One vernal pool was observed on the property. The vernal pool met the criteria to be documented as a MDEP Significant Vernal Pool. The vernal pool data was reviewed by the Maine Department of Inland Fisheries and Wildlife and the MDEP and the vernal pool was officially designated as a MDEP Significant Vernal Pool. The limits of the vernal pool were flagged and placed on the project plans.

SOIL SURVEY

Fieldwork was conducted in May of 2019. Soil mapping procedures followed Maine Association of Professional Soil Scientists (MAPSS) guidelines (revised, March 2009). Twenty-one backhoe excavated test pits were conducted on May 16, 2019 (refer to attached test pit logs and soil conditions summary table for details). The test pit information was used to generate the high intensity soil survey and for stormwater planning. The test pits were located by Hoyle, Tanner & Associates, Inc. and placed on the project plans. Additional soil observations were conducted on May 27, 2019 to verify the soil map units (test pit information was not completed). If additional test pits are conducted, the soil survey may be fine-tuned/updated, if necessary. The hydrologic soil groups for the soil map were taken from the NRCS Web Soil Survey.

SOIL SURVEY CLASS

Soil surveys are divided into four levels or classes. For this project, a Class A (high intensity) level map was created. Characteristics of Class A maps include the following:

1. Map units will not contain dissimilar limiting individual inclusions larger than one-eighth acre. Dissimilar limiting inclusions may total more than one-eighth acre per map unit delineation, in the aggregate, if not continuous.
2. Scale of 1 inch equals 100 feet or larger (e.g., 1" = 50').
3. Ground control – base line and test pits for which detailed data is recorded are accurately located under the direction of a registered land surveyor or qualified professional engineer.
4. Base map with 2-foot contour lines with ground survey, or aerial survey with ground control.

SOIL MAP UNIT DESCRIPTIONS

Below are descriptions for each of the soil map units found on the site. Each of the soil map units includes: physical characteristics of the soil, hydrologic soil group, slopes, soil inclusions, soil limitations, etc.

1) Map Symbol: Co
   Soil Series: Colonel

   The somewhat poorly drained Colonel soils are formed in dense glacial till. These soils are on an intermediate position on the landscape and are scattered throughout the property. The surface horizon varies from 7 to 10 inches thick and consists of a light olive brown fine sandy loam with faint redox features. The subsoil is an olive brown fine sandy loam with redox features. The substratum is a dense lodgement till. The seasonal high watertable is between 0 to 10 inches. These soils are deep to bedrock, the hydrologic soil group is D, the slopes range from 3-8%, and the flood hazard is none. Inclusions in this map unit are the Peru, Peru Variant and Eldridge soil series comprising up to 10%.

Soil Limitations

Colonel soils have limitations for road and building construction due to seasonal wetness and moderate frost action. These limitations can be overcome by intercepting and diverting water upslope of the project area, using coarse fill to raise foundation floors and driveways and footing drains around the buildings. Frost heaves can be prevented by proper design and construction of the road/parking subgrade.

2) Map Symbol: El
Soil Series: Eldridge

The Eldridge series consists of very deep moderately well drained and somewhat poorly drained (variant) soils formed in glacial outwash deposits that are generally underlain by loamy glaciolacustrine deposits. The only map unit that has a drainage class of somewhat poorly drained is located in the western most side of the parcel away from the development area. The Eldridge soils are intermediate on the landscape and are limited to three map units on the property. Typically, the surface horizon is a strong brown to dark yellowish brown loamy sand about 16 to 20 inches thick. The subsoil is a mottled olive sand. The substratum is olive gray silt loam with prominent redox features. These soils are deep to bedrock, the hydrologic soil group is D, the slopes range from 3-8%, and the flood hazard is none. Inclusions are the Colonel, Croghan and Peru soils series comprising up to 15%.

Soil Limitations

Eldridge soils have limitations for road and building construction due to seasonal wetness and moderate frost action. These limitations can be overcome by intercepting and diverting water upslope of the project area, using coarse fill to raise foundation floors and driveways and footing drains around the buildings.

3) Map Symbol: Pe
Soil Series: Peru

The Peru soils are moderately well drained and formed in loamy lodgement till. It occurs on the subtle till knolls in the mapping area and has a high to intermediate position on the landscape. Typically bedrock is greater than 40 inches, however, on this parcel there are soils with bedrock between 20 and 40 inches deep. The surface horizon is dark brown to dark yellowish brown fine sandy loam (about 10 inches thick). The subsoil is dark yellowish brown to yellowish brown fine sandy loam (about 18 inches thick). The substratum is a dense light olive brown very fine sandy loam to sandy loam with redoximorphic features (i.e., evidence of wetness). The hydrologic soil group is D, the slopes range from 3-15%, and the flood hazard is none. Inclusions in this map unit are the Eldridge, Tunbridge, and Colonel soil series comprising 15% of this map unit.

Soil Limitations

Limitations to development are moderate frost action and wetness due to perched water on the restrictive subsoil/substratum. These limitations can be overcome by intercepting and diverting water upslope of the construction area, by using coarse fill to raise foundation floors and roads and by using footing drains around buildings. Frost heaves can be prevented by proper design and construction of the road/parking subgrade.

4) Map Symbol: Sw
   Soil Series: Swanton

The Swanton soils consist of poorly drained soils that formed in a thin mantle of loamy to sandy outwash/lacustrine materials underlain by fine textured marine and lacustrine deposits. It is found in low-lying wetland areas. A MDEP stream is located in the Swanton map unit in the southeast corner of the site. Typically, the surface horizon is very dark grayish brown to olive gray sandy loam. The subsoil is a strong brown to olive sandy loam to loamy sand. The substratum is an olive sandy loam to silt loam. The seasonal high watertable is at or very near the soil surface. These soils are deep to bedrock, the hydrologic soil group is D, the slopes range from 0-8%, and the flood hazard is none. Inclusions are the poorly drained Roundabout, and Naumburg soil series soils comprising 10% of this map unit.

Soil Limitations

These poorly drained soils have severe limitations to site development and are being avoided. These soils are contained within wetlands and their use/development would be governed by local, state and federal regulations.

5) Map Symbol: Tp
   Soil Series: Tunbridge-Peru-Lyman Complex

This mapping unit represents a complex of three soil series that could not be mapped separately (i.e., Tunbridge, Peru and Lyman).

The well drained Tunbridge soils formed in moderately deep sandy loam till. Typically on this site, the surface horizon varies from 8 to 10 inches thick and consists of dark brown fine sandy loam. The subsoil is a dark yellowish brown fine sandy loam. The subsoil is underlain by bedrock at depths typically ranging from 20 to 40 inches.

The second component is the Peru soil series. Refer to Peru Map unit section for generalized soil information on the Peru soils.

The third component is the Lyman soil series. The Lyman soil is somewhat excessively drained and formed in a thin mantle of glacial till overlying bedrock. Typically, the surface horizon is a dark brown fine sandy loam about 8 inches thick. The subsoil, ranging from 8 to 14 inches is a strong brown to dark yellowish brown fine sandy loam. Bedrock is encountered less than 20 inches below the surface.

This soil complex is located high on the landscape and occurs in two map units on the property. These soils are shallow to deep to bedrock (i.e., 8" to >40"), the hydrologic soil group is C due to the Tunbridge being the higher component percentage of the complex, the slopes range from 3-15%, and the flood hazard is none. Inclusions are the Abram soil series (bedrock less than 10 inches) comprising 5% of this map unit. There are also disturbed (Udorthents) related to the woods roads that run through the map unit.

Soil Limitations

The depth to bedrock feature of the soils represent a limitation to site development. Where a certain depth of soil is required over bedrock for an activity such has pouring a foundation, a shallow excavation, or siting a road, bedrock may be ripped or blasted out as necessary and replaced with fill. Fill may also be placed over the bedrock to attain the desired depth without blasting or ripping. A second limitation is wetness due to perched water on the bedrock or perched on the restrictive feature of the Peru soils. This limitation can be overcome by using fill to raise foundations and roads, and by using footing drains around foundations.

6) Map Symbol: Ur
Soil Series: Udorthents

The Udorthents map unit is used for identifying areas of altered/disturbed soils. These moderately well drained (estimated) soils have been excavated, regraded and filled. It is of moderate extent and found in the front portion of the property near Dennett Road except one small map unit located in the center of the property. These soils are deep to bedrock, the hydrologic soil group is estimated to be D, the slopes range from 0->25%, and the flood hazard is none. Inclusions along the edges of this map unit are the Eldridge, Peru, and Colonel soil series comprising 5% of this map unit.

Soil Limitations

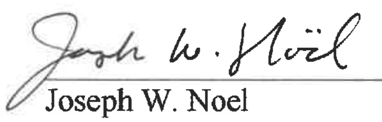
A limitation to development is wetness due to perched water on the restrictive subsoil/substratum. These limitations can be overcome by intercepting and diverting water upslope of the construction area, by using coarse fill to raise foundation floors and roads and by using footing drains around buildings. Frost heaves can be prevented by proper design and construction of the road/parking subgrade. These soils were most likely in areas that would have been classified as the Colonel and Peru soils and would have similar limitations to site development.

SOIL MAP LIMITATIONS

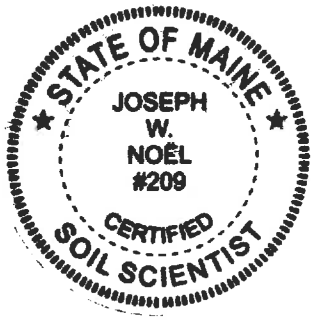
The quality of the soil map produced is affected by the accuracy of the topographic information and location of the wetland flagging by the surveyors along with the quality of the ground control provided. Inaccuracies or deficiencies in the base map may be unknowingly reflected in the soil survey, particularly in the boundary line placement between soil map units.

Each map unit contains inclusions. Inclusions are soil series within a map unit that are different from the named soil series. In general, the total amount of dissimilar soils is less than twenty-five percent of the named map unit.

It is important to realize that this map was designed for the use in planning for a mixed-use residential development and that it may not be adequate for other uses.



Joseph W. Noel
Maine Certified Soil Scientist #209
Wetland Scientist



 FORM E Rev. 07/11

SOIL CONDITIONS SUMMARY TABLE

SUMMARY LOG OF SUBSURFACE EXPLORATIONS AT PROJECT SITES

Project Name:	Applicant Name: WILLIAM WHARIFF	Project Location (municipality): 76 DENNETT ROAD - KITTERY, ME

Lot No.	Exploration Symbol (TP 1, B 2, etc.)	✗ if at SSWD Field	Description of subsurface materials by: • Soil profile/condition (if by S.E.), • Soil series name (if by C.S.S.), or by • Geologic unit (if by C.G.)	Depths to (inches): Redoximorphic Features	Bedrock	Hydraulically Restrictive Layer	Limit of Exploration	Ground Surface Slope (%)	Ground Surface Elevation
	1	☐	COLONEL, 3 E	0	NONE	18	40		
	2	☐	PERU VARIANT, 3 C/AIII	16	31 - 55	22	31 - 55		
	3	☐	PERU, 3 C	22	NONE	22	108		
	4	☐	PERU, 3 C	16	NONE	16	108		
	5	☐	UDORTHENTS, 12 C	34	"	46	50		
	6	☐	SWANTON, 7 E	0	"	NONE	30		
	7	☐	PERU, 3 C	21	"	21	50		
	8	☐	UDORTHENTS, 12 C	26	"	26	50		
	9	☐	PERU, 3 C	21	"	21	50		
	10	☐	PERU, 3 C	22	"	22	50		
	11	☐	SWANTON, 7 E	0	"	NONE	22		
	12	☐	PERU, 3 C	21	51	21	51		
	13	☐	PERU, 3 C	22	66	22	66		
	14	☐	ELDRIDGE, 7 C	17	NONE	39	108		
	15	☐	ELDRIDGE, 7 C	16	"	30	108		
	16	☐	CROGHAN, 5 C	32	"	NONE	50		
	17	☐	ABRAM, LYMAN,TUN., 2 AI	NONE	6 - 30	"	6 - 30		
	18	☐	PERU, 3 C	24	NONE	24	50		
	19	☐	TUNBRIDGE, 2 AIII	NONE	30	NONE	30		
	20	☐	PERU, 3 C	24	NONE	24	50		
	21	☐	LYMAN, 2 AII	NONE	12	NONE	12		
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INVESTIGATOR INFORMATION AND SIGNATURE

Signature: Joseph W. Noël	Date: 5/28/19
Name Printed: JOSEPH W. NOËL	Cert/Lic/Reg. #: SS #209, SE # 221
Qualification: ☒ Licensed Site Evaluator ☐ Certified Geologist	☒ Certified Soil Scientist ☐ Other:

STATE OF MAINE ★ JOSEPH W. NOËL #209 CERTIFIED SOIL SCIENTIST ★

affix professional seal

SOIL PROFILE/CLASSIFICATION INFORMATION

Project Name:

Applicant Name: *WILLIAM WHARFF*

Project Location (municipality): 76 DENNETT ROAD (TAX MAP 6, LOTS 15B & 16A - TAX MAP 13, LOT 4), KITTERY, ME

Observation Hole 1 — ■ Test Pit ☐ Boring

2" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0–7	FINE SANDY LOAM	FRIABLE	LIGHT OLIVE BROWN	COMMON FAINT
7–18			OLIVE BROWN	MANY DISTINCT
18–40		FIRM	OLIVE	COMMON PROMINENT
40		L.O.E. @ 40"		
				OBWT @ 24"

Soil Classification	Slope	Limiting Factor	
3 Profile, E Condition	%	0 "	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

COLONEL SERIES - HYD GRP D - NON-HYDRIC

Observation Hole 2 — ■ Test Pit ☐ Boring

2" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0–16	FINE SANDY LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE
16–22			LIGHT OLIVE BROWN	COMMON DISTINCT
22–		FIRM		

BEDROCK FROM 31" TO 55"

Soil Classification	Slope	Limiting Factor	
3 Profile, C/AIII Condition	%	16 "	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

PERU SERIES VARIANT - HYD GRP D - NON-HYDRIC

BACKHOE EXCAVATED TEST PITS WERE CONDUCTED ON MAY 16, 2019. THE TEST PITS WERE CONDUCTED FOR SOIL MAPPING PURPOSES. TEST PITS 2, 4, 12, 13, 14, & 15 WERE ALSO USED FOR STORMWATER PLANNING. SLOPES CAN BE DETERMINED FROM THE PROJECT PLANS.

Observation Hole 3 — ■ Test Pit ☐ Boring

1" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0–22	FINE SANDY LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE
22–50		FIRM	LIGHT OLIVE BROWN	COMMON DISTINCT
				EXCAVATION TO 9 FEET - NO BEDROCK

Soil Classification	Slope	Limiting Factor	
3 Profile, C Condition	%	22 "	■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

PERU SERIES - HYD GRP D - NON-HYDRIC

Observation Hole 4 — ■ Test Pit ☐ Boring

2" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0–5	FINE SANDY LOAM	FRIABLE	DARK BROWN	NONE
5–16			DARK YELLOWISH BROWN	
16–50	FINE SANDY LOAM WITH SOME VERY FINE SANDY LOAM	FIRM	OLIVE	COMMON PROMINENT
				EXCAVATION TO 9 FEET - NO BEDROCK

Soil Classification	Slope	Limiting Factor	
3 Profile, C Condition	%	16 "	■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

PERU SERIES - HYD GRP D - NON-HYDRIC

Signature: [signature]

SE # 221 SS# 209

Date: 5/22/19

SOIL PROFILE/CLASSIFICATION INFORMATION

Project Name:

Applicant Name: *WILLIAM WHARIFF*

Project Location (municipality): 76 DENNETT ROAD (TAX MAP 6, LOTS 15B & 16A - TAX MAP 13, LOT 4), KITTERY, ME

Observation Hole 5 — ■ Test Pit ☐ Boring

0" Depth of Organic Horizon Above Mineral Soil

Depth (in.)	Texture	Consistency	Color	Mottling
0–10	GRAVELLY LOAMY SAND TO SANDY LOAM FILL MATERIAL	FRIABLE COMPACTED IN PLACE	DARK GRAYISH BROWN	NONE
10–34			DARK BROWN	
34	NATURAL SOIL SURFACE			
34–43	FINE SANDY LOAM TO VERY FINE SANDY LOAM	FRIABLE	BLACK	COMMON DISTINCT
43–50		FIRM (below ~47)	LIGHT OLIVE BROWN	

Soil Classification	Slope	Limiting Factor	
12 Profile, C Condition	%	34"	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

UDORTHENTS (FILLED & SMOOTHED) - HYD GRP D - NON-HYDRIC

Observation Hole 6 — ■ Test Pit ☐ Boring

3" Depth of Organic Horizon Above Mineral Soil

Depth (in.)	Texture	Consistency	Color	Mottling
0–6	SANDY LOAM TO LOAMY SAND	FRIABLE	OLIVE GRAY	COMMON DISTINCT
6–10			STRONG BROWN	
10–30			OLIVE	
30	L.O.E. @ 30"			
30–50	ASSUMED PROFILE 7			

Soil Classification	Slope	Limiting Factor	
7 Profile, E Condition	%	0"	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

SWANTON SERIES - HYD GRP D - HYDRIC

BACKHOE EXCAVATED TEST PITS WERE CONDUCTED ON MAY 16, 2019. THE TEST PITS WERE CONDUCTED FOR SOIL MAPPING PURPOSES. TEST PITS 2, 4, 12, 13, 14, & 15 WERE ALSO USED FOR STORMWATER PLANNING. SLOPES CAN BE DETERMINED FROM THE PROJECT PLANS.

Observation Hole 7 — ■ Test Pit ☐ Boring

0" Depth of Organic Horizon Above Mineral Soil

Depth (in.)	Texture	Consistency	Color	Mottling
0–21	FINE SANDY LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE
21–50	SANDY LOAM	FIRM	LIGHT OLIVE BROWN	COMMON DISTINCT

Soil Classification	Slope	Limiting Factor	
3 Profile, C Condition	%	21"	■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

PERU SERIES - HYD GRP D - NON-HYDRIC

Observation Hole 8 — ■ Test Pit ☐ Boring

0" Depth of Organic Horizon Above Mineral Soil

Depth (in.)	Texture	Consistency	Color	Mottling
0–20	STONY SANDY LOAM FILL MATERIAL	FRIABLE COMPACTED IN PLACE	MIXED VERY DARK GRAYISH BROWN & OLIVE BROWN	NONE
20	NATURAL SOIL SURFACE			
20–26	SANDY LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE
26–50		FIRM		COMMON DISTINCT

Soil Classification	Slope	Limiting Factor	
12 Profile, C Condition	%	26"	■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

UDORTHENTS (FILLED & SMOOTHED) - HYD GRP D - NON-HYDRIC

Signature: [signature] | SE # 221 SS# 209 | Date: 5/22/19

SOIL PROFILE/CLASSIFICATION INFORMATION

Project Name:

Applicant Name: *WILLIAM WHARIFF*

Project Location (municipality) 76 DENNETT ROAD (TAX MAP 6, LOTS 15B & 16A - TAX MAP 13, LOT 4), KITTERY, ME

Observation Hole 9 — ■ Test Pit ☐ Boring

2" Depth of Organic Horizon Above Mineral Soil

Depth (in)	Texture	Consistency	Color	Mottling
0–6	FINE SANDY LOAM FILL MATERIAL	FRIABLE	BROWN	NONE
6–8		*NATURAL SOIL SURFACE*	BLACK	
8–21	FINE SANDY LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE
21–50	SANDY LOAM	FIRM	LIGHT OLIVE BROWN	COMMON DISTINCT

Soil Classification	Slope	Limiting Factor	
3 Profile, C Condition	%	21"	■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

PERU SERIES - HYD GRP D - NON-HYDRIC

Observation Hole 10 — ■ Test Pit ☐ Boring

2" Depth of Organic Horizon Above Mineral Soil

Depth (in)	Texture	Consistency	Color	Mottling
0–22	FINE SANDY LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE
22–50		FIRM	LIGHT OLIVE BROWN	COMMON DISTINCT

Soil Classification	Slope	Limiting Factor	
3 Profile, C Condition	%	22"	■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

PERU SERIES - HYD GRP D - NON-HYDRIC

BACKHOE EXCAVATED TEST PITS WERE CONDUCTED ON MAY 16, 2019. THE TEST PITS WERE CONDUCTED FOR SOIL MAPPING PURPOSES. TEST PITS 2, 4, 12, 13, 14, & 15 WERE ALSO USED FOR STORMWATER PLANNING. SLOPES CAN BE DETERMINED FROM THE PROJECT PLANS.

Observation Hole 11 — ■ Test Pit ☐ Boring

3" Depth of Organic Horizon Above Mineral Soil

Depth (in)	Texture	Consistency	Color	Mottling
0–7	SANDY LOAM	FRIABLE	VERY DARK GRAYISH BROWN	COMMON DISTINCT
7–22	LOAMY SAND TO VERY FINE SANDY LOAM		OLIVE	
22–50		L.O.E. @ 22"		

Soil Classification	Slope	Limiting Factor	
7 Profile, E Condition	%	0"	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

SWANTON SERIES - HYD GRP D - HYDRIC

Observation Hole 12 — ■ Test Pit ☐ Boring

2" Depth of Organic Horizon Above Mineral Soil

Depth (in)	Texture	Consistency	Color	Mottling
0–4	FINE SANDY LOAM	FRIABLE	VERY DARK BROWN	NONE
4–21			DARK YELLOWISH BROWN	
21–51	SANDY LOAM	FIRM	LIGHT OLIVE BROWN	COMMON DISTINCT
51				BEDROCK @ 51"

Soil Classification	Slope	Limiting Factor	
3 Profile, C Condition	%	21"	■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

PERU SERIES - HYD GRP D - NON-HYDRIC

(signature) Signature — SE # 221 SS# 209 — Date 5/22/19

SOIL PROFILE/CLASSIFICATION INFORMATION

Project Name:

Applicant Name: *WILLIAM WHARIFF*

Project Location (municipality): 76 DENNETT ROAD (TAX MAP 6, LOTS 15B & 16A - TAX MAP 13, LOT 4), KITTERY, ME

Observation Hole 13 — ■ Test Pit ☐ Boring

1" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0–22	FINE SANDY LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE
22–50	SANDY LOAM	FIRM	LIGHT OLIVE BROWN	COMMON DISTINCT

OBWT @ 39"
BEDROCK @ 66"

Soil Classification		Slope	Limiting Factor	
3 (Profile)	C (Condition)	%	22"	■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

PERU SERIES - HYD GRP D - NON-HYDRIC

Observation Hole 14 — ■ Test Pit ☐ Boring

2" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0–17	LOAMY SAND	VERY FRIABLE	STRONG BROWN	NONE
17–39	SAND	VERY FRIABLE	OLIVE	COMMON DISTINCT
39–50	SILT LOAM	FIRM	OLIVE GRAY	MANY PROMINENT

EXCAVATION TO 9 FEET - NO BEDROCK

Soil Classification		Slope	Limiting Factor	
7 (Profile)	C (Condition)	%	17"	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

ELDRIDGE SERIES - HYD GRP D - NON-HYDRIC

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Observation Hole 15 — ■ Test Pit ☐ Boring

2" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0–16	LOAMY SAND	VERY FRIABLE	DARK YELLOWISH BROWN	NONE
16–30	SAND	VERY FRIABLE	OLIVE	COMMON DISTINCT
30–50	SILT LOAM	FIRM	OLIVE GRAY	MANY DISTINCT

EXCAVATION TO 9 FEET - NO BEDROCK

Soil Classification		Slope	Limiting Factor	
7 (Profile)	C (Condition)	%	16"	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

ELDRIDGE SERIES - HYD GRP D - NON-HYDRIC

Observation Hole 16 — ■ Test Pit ☐ Boring

2" Depth of Organic Horizon Above Mineral Soil

Depth (inches)	Texture	Consistency	Color	Mottling
0–32	LOAMY SAND	FRIABLE	DARK YELLOWISH BROWN	NONE
32–50	SAND	VERY FRIABLE	LIGHT OLIVE BROWN	COMMON DISTINCT

Soil Classification		Slope	Limiting Factor	
5 (Profile)	C (Condition)	%	32"	■ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

CROGHAN SERIES - HYD GRP A - NON-HYDRIC

Signature: [signature]

SE # 221 SS# 209

Date: 5/22/19

SOIL PROFILE/CLASSIFICATION INFORMATION

Project Name:

Applicant Name: *WILLIAM WHARIFF*

Project Location (municipality): 76 DENNETT ROAD (TAX MAP 6, LOTS 15B & 16A - TAX MAP 13, LOT 4), KITTERY, ME

Observation Hole *17* ■ Test Pit ☐ Boring

1 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–6	FINE SANDY LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE
6–30	BEDROCK FROM 6" TO 30"			

Soil Classification	Slope	Limiting Factor	
2 Profile, AI Condition	%	6 "	☐ Ground Water ☐ Restrictive Layer ■ Bedrock ☐ Pit Depth

ABRAM, LYMAN, & TUNBRIDGE SERIES - HYD GRP D - NON-HYDRIC

Observation Hole *18* ■ Test Pit ☐ Boring

1 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–24	SANDY LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE
24–50	FINE SANDY LOAM	FIRM	LIGHT OLIVE BROWN	COMMON DISTINCT

Soil Classification	Slope	Limiting Factor	
3 Profile, C Condition	%	24 "	■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

PERU SERIES - HYD GRP D - NON-HYDRIC

BACKHOE EXCAVATED TEST PITS WERE CONDUCTED ON MAY 16, 2019. THE TEST PITS WERE CONDUCTED FOR SOIL MAPPING PURPOSES. TEST PITS 2, 4, 12, 13, 14, & 15 WERE ALSO USED FOR STORMWATER PLANNING. SLOPES CAN BE DETERMINED FROM THE PROJECT PLANS.

Observation Hole *19* ■ Test Pit ☐ Boring

1 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–30	FINE SANDY LOAM	FRIABLE	DARK YELLOWISH BROWN	NONE
30	BEDROCK @ 30"			

Soil Classification	Slope	Limiting Factor	
2 Profile, AIII Condition	%	30 "	☐ Ground Water ☐ Restrictive Layer ■ Bedrock ☐ Pit Depth

TUNBRIDGE SERIES - HYD GRP C - NON-HYDRIC

Observation Hole *20* ■ Test Pit ☐ Boring

1 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–24	FINE SANDY LOAM	FRIABLE	STRONG BROWN	NONE
24–50		FIRM	LIGHT OLIVE BROWN	COMMON FAINT

Soil Classification	Slope	Limiting Factor	
3 Profile, C Condition	%	24 "	■ Ground Water ■ Restrictive Layer ☐ Bedrock ☐ Pit Depth

PERU SERIES - HYD GRP D - NON-HYDRIC

Signature: [signature]

SE # *221* SS# *209*

Date: *5/22/19*

SOIL PROFILE/CLASSIFICATION INFORMATION

Project Name:	Applicant Name:	Project Location (municipality)
	WILLIAM WHARIFF	76 DENNETT ROAD (TAX MAP 6, LOTS 15B & 16A - TAX MAP 13, LOT 4), KITTERY, ME

Observation Hole *21* ■ Test Pit ☐ Boring

1 " Depth of Organic Horizon Above Mineral Soil

DEPTH BELOW MINERAL SOIL SURFACE (inches)

Depth	Texture	Consistency	Color	Mottling
0–12	STONY FINE SANDY LOAM	FRIABLE	DARK BROWN / STRONG BROWN	NONE
12	BEDROCK @ 12"			

Soil Classification	Slope	Limiting Factor	
2 Profile, AII Condition	___ %	12 "	☐ Ground Water ☐ Restrictive Layer ■ Bedrock ☐ Pit Depth

LYMAN SERIES - HYD GRP D - NON-HYDRIC

Observation Hole ______ ☐ Test Pit ☐ Boring

______" Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling

Soil Classification: ____ Profile ____ Condition; Slope ____ %; Limiting Factor ____ "; ☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

BACKHOE EXCAVATED TEST PITS WERE CONDUCTED ON MAY 16, 2019. THE TEST PITS WERE CONDUCTED FOR SOIL MAPPING PURPOSES. TEST PITS 2, 4, 12, 13, 14, & 15 WERE ALSO USED FOR STORMWATER PLANNING. SLOPES CAN BE DETERMINED FROM THE PROJECT PLANS.

Observation Hole ______ ☐ Test Pit ☐ Boring

______" Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling

Soil Classification: ____ Profile ____ Condition; Slope ____ %; Limiting Factor ____ "; ☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

Observation Hole ______ ☐ Test Pit ☐ Boring

______" Depth of Organic Horizon Above Mineral Soil

Texture	Consistency	Color	Mottling

Soil Classification: ____ Profile ____ Condition; Slope ____ %; Limiting Factor ____ "; ☐ Ground Water ☐ Restrictive Layer ☐ Bedrock ☐ Pit Depth

John W. Neil (signature)

Signature	SE # SS#	Date
	221 *209*	*5/22/19*

APPENDIX E

WET POND DESIGN CALCULATIONS

WET POND 1 CALCULATIONS		SHEET 1 OF 6
PROJECT 76 DENNETT ROAD	DATE PREPARED June 2019	
LOCATION KITTERY,ME	BASIS FOR ESTIMATE	
ENGINEER Hoyle, Tanner & Associates, Inc. 100 INTERNATIONAL DRIVE, SUITE 360 PORTSMOUTH, NH 03801	☐ NO DESIGN COMPLETED ☐ PRELIMINARY DESIGN	☑ FINAL DESIGN ☐ SPECIFY
SUBJECT	COMPUTED MJG	CHECKED SMT

WET POND 1

Total Area Draining to Wet Pond 1: 85450 Sq. Ft.

Total Impervious Area Draining to Wet Pond 1: 76820 Sq. Ft.

Total Non-Impervious Area Draining to Wet Pond 1: 8630 Sq. Ft.

Impervious Area Draining to Sediment Forebay 1: 31625 Sq. Ft.

Impervious Area Draining to Sediment Forebay 2: 28145 Sq. Ft.

Non-Impervious Area Draining to Sediment Forebay 1: 6465 Sq. Ft.

Non-Impervious Area Draining to Sediment Forebay 2: 2165 Sq. Ft.

Building Roof Area Draining to Sediment Forebay 1: 15400 Sq. Ft.

Building Roof Area Draining to Sediment Forebay 2: 1650 Sq. Ft.

Summary of Design		
Total Area Draining to Wet Pond	85450	Sq. Ft.
Total Impervious Area	76820	Sq. Ft.
Total Non-Impervious Area	8630	Sq. Ft.
Permanent Pool Volume	18313	Ft.3
Channel Protection Volume	7507	Ft.3
Sediment Forebay 1 Capacity	45	Ft.3
Sediment Forebay 2 Capacity	70	Ft.3
Underdrain Length	30	Ft.
Release Time	29.8	Hours

A. WET POND CALCULATIONS

1. Required Permanent Pool Volume shall be the following formula:

$V_{req.}$ = (2.0 inches x Impervious Area(Sq.Ft)) + (0.8 inches x Non-Impervious Area(Sq.Ft.))

$V_{req.}$ = 2 x 76820 + 0.8 x 8630 = 13379 $Ft.^3$

$V_{prov.}$ = 18313 $Ft.^3$

2. Permanent Pool Average Depth shall be the following formula:

$D_{ave.}$ = Storage Volume @ 52.5 ft / Surface Area @ 52.5 ft

$D_{ave.}$ = 13503 $Ft.^3$ / 4370 $Ft.^2$

$D_{ave.}$ = 3.09 Ft.

3. The Required Channel Protection Volume shall be the following formula:

$V_{req.}$ = (1.0 inches x Impervious Area(Sq.Ft)) + (0.4 inches x Non-Impervious Area(Sq.Ft.))

$V_{req.}$ = 1 x 76820 + 0.4 x 8630 = 6689 $Ft.^3$

$V_{prov.}$ = 7507 $Ft.^3$

WET POND 1 CALCULATIONS		SHEET 2 OF 6	
PROJECT	76 DENNETT ROAD	DATE PREPARED	June 2019
LOCATION	KITTERY,ME	BASIS FOR ESTIMATE	
ENGINEER	Hoyle, Tanner & Associates, Inc. 100 INTERNATIONAL DRIVE, SUITE 360 PORTSMOUTH, NH 03801	☐ NO DESIGN COMPLETED ☐ PRELIMINARY DESIGN	☑ FINAL DESIGN ☐ SPECIFY
SUBJECT		COMPUTED MJG	CHECKED SMT

WET POND 1 Continued

B. SEDIMENT FOREBAY CAPACITY

Sediment Forebay 1

Sanded Area = (Impervious Area (Sq.Ft.) - Building Roof Area (Sq.Ft.)) / 43560 Acre/ft^2

Sanded Area = 28145 Sq. Ft. - 15400 Sq. Ft. = 0.29 Acre

1. Required Capacity shall be the following formula:

$V_{req.}$ = 10 Storms/Year x Sanded Area (Ac.) x 500 lbs./Acre-Storm x 90 lbs./ft^3

$V_{req.}$ = 10 Storms/Year x 0.29 Acre x 500 lbs./Acre-Storm / 90 lbs./ft3

$V_{req.}$ = 16 $Ft.^3$

$V_{prov.}$ = 45 $Ft.^3$

Sediment Forebay 2

Sanded Area = (Impervious Area (Sq.Ft.) - Building Roof Area (Sq.Ft.)) / 43560 Acre/ft^2

Sanded Area = 31625 Sq. Ft. - 1650 Sq. Ft. = 0.69 Acre

1. Required Capacity shall be the following formula:

$V_{req.}$ = 10 Storms/Year x Sanded Area (Ac.) x 500 lbs./Acre-Storm x 90 lbs./ft^3

$V_{req.}$ = 10 Storms/Year x 0.69 Acre x 500 lbs./Acre-Storm / 90 lbs./ft3

$V_{req.}$ = 38 $Ft.^3$

$V_{prov.}$ = 70 $Ft.^3$

C. UNDERDRAIN LENGTH

1. Required Length shall be the following formula:

$L_{req.}$ = 3 Ft. x Channel Protection Volume $Ft.^3$ / 1000 $Ft.^3$

$L_{req.}$ = 3 Ft. x 7507 $Ft.^3$ / 1000 $Ft.^3$

$L_{req.}$ = 23 Ft.

$L_{prov.}$ = 30 Ft.

D. ORIFICE CALCULATIONS

Required Channel Protection Release Time = 24-48 Hours

1. Provided Channel Protection Release Time shall be the following formula:

$T_{prov.}$ = Channel Protection Volume $Ft.^3$ / Discharge Rate $Ft.^3$/Sec.

$T_{prov.}$ = 7507 $Ft.^3$ / (0.07 $Ft.^3$/Sec. / 3600 Sec./Hr.)

$T_{prov.}$ = 29.8 Hours

Summary for Pond P1: Perm Pool 1

[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	46.00'	18,313 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
46.00	340	0	0
48.00	1,145	1,485	1,485
50.00	2,415	3,560	5,045
52.00	3,960	6,375	11,420
52.50	4,370	2,083	13,503
53.50	5,250	4,810	18,313

Stage-Area-Storage for Pond P1: Wet Pond 1

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
53.50	7,855	0	56.10	10,996	24,359
53.55	7,907	394	56.15	11,056	24,910
53.60	7,960	791	56.20	11,117	25,465
53.65	8,012	1,190	56.25	11,178	26,022
53.70	8,065	1,592	56.30	11,239	26,582
53.75	8,118	1,997	56.35	11,301	27,146
53.80	8,171	2,404	56.40	11,362	27,712
53.85	8,224	2,814	56.45	11,424	28,282
53.90	8,278	3,226	56.50	11,485	28,855
53.95	8,331	3,641	56.55	11,547	29,431
54.00	8,385	4,059	56.60	11,610	30,010
54.05	8,443	4,480	56.65	11,672	30,592
54.10	8,502	4,904	56.70	11,734	31,177
54.15	8,561	5,330	56.75	11,797	31,765
54.20	8,619	5,760	56.80	11,860	32,356
54.25	8,679	6,192	56.85	11,923	32,951
54.30	8,738	6,628	56.90	11,986	33,549
54.35	8,797	7,066	56.95	12,049	34,150
54.40	8,857	7,507	57.00	12,113	34,754
54.45	8,917	7,952	57.05	12,176	35,361
54.50	8,977	8,399	57.10	**12,240**	**35,971**
54.55	9,038	8,849			
54.60	9,098	9,303			
54.65	9,159	9,759			
54.70	9,220	10,219			
54.75	9,281	10,681			
54.80	9,342	11,147			
54.85	9,404	11,615			
54.90	9,465	12,087			
54.95	9,527	12,562			
55.00	9,590	13,040			
55.05	9,652	13,521			
55.10	9,714	14,005			
55.15	9,777	14,492			
55.20	9,840	14,983			
55.25	9,903	15,476			
55.30	9,967	15,973			
55.35	10,030	16,473			
55.40	10,094	16,976			
55.45	10,158	17,482			
55.50	10,222	17,992			
55.55	10,287	18,505			
55.60	10,351	19,021			
55.65	10,416	19,540			
55.70	10,481	20,062			
55.75	10,546	20,588			
55.80	10,611	21,117			
55.85	10,677	21,649			
55.90	10,743	22,185			
55.95	10,809	22,723			
56.00	10,875	23,265			
56.05	10,935	23,811			

Summary for Pond P1: Wet Pond 1

Inflow Area = 101,950 sf, 80.50% Impervious, Inflow Depth > 5.62" for 25-Yr event
Inflow = 14.44 cfs @ 12.09 hrs, Volume= 47,788 cf
Outflow = 9.18 cfs @ 12.20 hrs, Volume= 25,945 cf, Atten= 36%, Lag= 6.8 min
Primary = 9.18 cfs @ 12.20 hrs, Volume= 25,945 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.10' @ 12.20 hrs Surf.Area= 10,999 sf Storage= 24,386 cf
Flood Elev= 39.00' Surf.Area= 0 sf Storage= 0 cf

Plug-Flow detention time= 179.0 min calculated for 25,932 cf (54% of inflow)
Center-of-Mass det. time= 91.3 min (830.8 - 739.6)

Volume	Invert	Avail.Storage	Storage Description
#1	53.50'	35,971 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
53.50	7,855	0	0	7,855
54.00	8,385	4,059	4,059	8,409
56.00	10,875	19,206	23,265	10,994
57.10	12,240	12,706	35,971	12,421

Device	Routing	Invert	Outlet Devices
#1	Primary	55.85'	**30.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=9.16 cfs @ 12.20 hrs HW=56.10' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 9.16 cfs @ 1.21 fps)

WET POND 2 CALCULATIONS		SHEET 3 OF 6	
PROJECT 76 DENNETT ROAD		DATE PREPARED June 2019	
LOCATION KITTERY,ME		BASIS FOR ESTIMATE	
ENGINEER Hoyle, Tanner & Associates, Inc.	100 INTERNATIONAL DRIVE, SUITE 360 PORTSMOUTH, NH 03801	☐ NO DESIGN COMPLETED ☐ PRELIMINARY DESIGN	☑ FINAL DESIGN ☐ SPECIFY
SUBJECT		COMPUTED MJG	CHECKED SMT

WET POND 2

Total Area Draining to Wet Pond 2: 59355 Sq. Ft.

Total Impervious Area Draining to Wet Pond 2: 54610 Sq. Ft.

Total Non-Impervious Area Draining to Wet Pond 2: 4745 Sq. Ft.

Impervious Area Draining to Sediment Forebay 3: 12270 Sq. Ft.

Impervious Area Draining to Sediment Forebay 4: 40690 Sq. Ft.

Non-Impervious Area Draining to Sediment Forebay 3: 0 Sq. Ft.

Non-Impervious Area Draining to Sediment Forebay 4: 4745 Sq. Ft.

Building Roof Area Draining to Sediment Forebay 3: 0 Sq. Ft.

Building Roof Area Draining to Sediment Forebay 4: 1650 Sq. Ft.

Summary of Design		
Total Area Draining to Wet Pond	59355	Sq. Ft.
Total Impervious Area	54610	Sq. Ft.
Total Non-Impervious Area	4745	Sq. Ft.
Permanent Pool Volume	12916	Ft.3
Channel Protection Volume	5590	Ft.3
Sediment Forebay 1 Capacity	45	Ft.3
Sediment Forebay 2 Capacity	70	Ft.3
Underdrain Length	30	Ft.
Release Time	31.1	Hours

A. WET POND CALCULATIONS

1. Required Permanent Pool Volume shall be the following formula:

$V_{req.}$ = (2.0 inches x Impervious Area(Sq.Ft)) + (0.8 inches x Non-Impervious Area(Sq.Ft.))

$V_{req.}$ = 2 x 54610 + 0.8 x 4745 = 9418 $Ft.^3$

$V_{prov.}$ = 12916 $Ft.^3$

2. Permanent Pool Average Depth shall be the following formula:

$D_{ave.}$ = Storage Volume @ 51.5 ft / Surface Area @ 51.5 ft

$D_{ave.}$ = 9346 $Ft.^3$ / 2930 $Ft.^2$

$D_{ave.}$ = 3.19 Ft.

3. The Required Channel Protection Volume shall be the following formula:

$V_{req.}$ = (1.0 inches x Impervious Area(Sq.Ft)) + (0.4 inches x Non-Impervious Area(Sq.Ft.))

$V_{req.}$ = 1 x 54610 + 0.4 x 4745 = 4709 $Ft.^3$

$V_{prov.}$ = 5590 $Ft.^3$

WET POND 2 CALCULATIONS				SHEET 4 OF 6
PROJECT	76 DENNETT ROAD	DATE PREPARED June 2019		
LOCATION	KITTERY,ME	BASIS FOR ESTIMATE		
ENGINEER	Hoyle, Tanner & Associates, Inc. 100 INTERNATIONAL DRIVE, SUITE 360 PORTSMOUTH, NH 03801	☐ NO DESIGN COMPLETED ☐ PRELIMINARY DESIGN	☑ FINAL DESIGN ☐ SPECIFY	
SUBJECT		COMPUTED MJG	CHECKED SMT	

WET POND 2 Continued

B. SEDIMENT FOREBAY CAPACITY

Sediment Forebay 1

Sanded Area = (Impervious Area (Sq.Ft.) - Building Roof Area (Sq.Ft.)) / 43560 Acre/ft^2

Sanded Area = 40690 Sq. Ft. - 0 Sq. Ft. = 0.93 Acre

1. Required Capacity shall be the following formula:

$V_{req.}$ = 10 Storms/Year x Sanded Area (Ac.) x 500 lbs./Acre-Storm x 90 lbs./ft^3

$V_{req.}$ = 10 Storms/Year x 0.93 Acre x 500 lbs./Acre-Storm / 90 lbs./ft3

$V_{req.}$ = 52 Ft.^{3}

$V_{prov.}$ = 45 Ft.^{3}

Sediment Forebay 2

Sanded Area = (Impervious Area (Sq.Ft.) - Building Roof Area (Sq.Ft.)) / 43560 Acre/ft^2

Sanded Area = 12270 Sq. Ft. - 1650 Sq. Ft. = 0.24 Acre

1. Required Capacity shall be the following formula:

$V_{req.}$ = 10 Storms/Year x Sanded Area (Ac.) x 500 lbs./Acre-Storm x 90 lbs./ft^3

$V_{req.}$ = 10 Storms/Year x 0.24 Acre x 500 lbs./Acre-Storm / 90 lbs./ft3

$V_{req.}$ = 14 Ft.^{3}

$V_{prov.}$ = 70 Ft.^{3}

C. UNDERDRAIN LENGTH

1. Required Length shall be the following formula:

$L_{req.}$ = 3 Ft. x Channel Protection Volume Ft.^{3} / 1000 Ft.^{3}

$L_{req.}$ = 3 Ft. x 5590 Ft.^{3} / 1000 Ft.^{3}

$L_{req.}$ = 17 Ft.

$L_{prov.}$ = 30 Ft.

D. ORIFICE CALCULATIONS

Required Channel Protection Release Time = 24-48 Hours

1. Provided Channel Protection Release Time shall be the following formula:

$T_{prov.}$ = Channel Protection Volume Ft.^{3} / Discharge Rate Ft.^{3}/Sec.

$T_{prov.}$ = 5590 Ft.^{3} / (0.05 Ft.^{3}/Sec. / 3600 Sec./Hr.)

$T_{prov.}$ = 31.1 Hours

Summary for Pond 6P: Perm Pool 2

[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	45.00'	12,916 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
45.00	315	0	0
46.00	560	438	438
48.00	1,225	1,785	2,223
50.00	2,115	3,340	5,563
51.50	2,930	3,784	9,346
52.50	4,210	3,570	12,916

Stage-Area-Storage for Pond P2: Wet Pond 2

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
52.50	6,460	0	55.10	9,693	21,222
52.55	6,524	325	55.15	9,748	21,709
52.60	6,589	652	55.20	9,803	22,197
52.65	6,654	984	55.25	9,857	22,689
52.70	6,719	1,318	55.30	9,913	23,183
52.75	6,785	1,655	55.35	9,968	23,680
52.80	6,851	1,996	55.40	10,023	24,180
52.85	6,917	2,341	55.45	10,079	24,682
52.90	6,984	2,688	55.50	10,134	25,188
52.95	7,051	3,039	55.55	10,190	25,696
53.00	7,118	3,393	55.60	10,246	26,207
53.05	7,186	3,751	55.65	10,303	26,720
53.10	7,254	4,112	55.70	10,359	27,237
53.15	7,322	4,476	55.75	10,415	27,756
53.20	7,390	4,844	55.80	10,472	28,279
53.25	7,459	5,215	55.85	10,529	28,804
53.30	7,528	5,590	55.90	10,586	29,331
53.35	7,598	5,968	55.95	10,643	29,862
53.40	7,668	6,350	56.00	**10,700**	**30,396**
53.45	7,738	6,735			
53.50	7,808	7,123			
53.55	7,879	7,516			
53.60	7,950	7,911			
53.65	8,021	8,311			
53.70	8,093	8,713			
53.75	8,165	9,120			
53.80	8,237	9,530			
53.85	8,310	9,944			
53.90	8,383	10,361			
53.95	8,456	10,782			
54.00	8,530	11,207			
54.05	8,581	11,634			
54.10	8,633	12,065			
54.15	8,684	12,498			
54.20	8,736	12,933			
54.25	8,788	13,371			
54.30	8,840	13,812			
54.35	8,892	14,255			
54.40	8,944	14,701			
54.45	8,997	15,150			
54.50	9,049	15,601			
54.55	9,102	16,055			
54.60	9,155	16,511			
54.65	9,208	16,970			
54.70	9,262	17,432			
54.75	9,315	17,896			
54.80	9,369	18,363			
54.85	9,422	18,833			
54.90	9,476	19,306			
54.95	9,530	19,781			
55.00	9,584	20,259			
55.05	9,639	20,739			

Summary for Pond P2: Wet Pond 2

Inflow Area = 75,305 sf, 78.11% Impervious, Inflow Depth > 5.58" for 25-Yr event
Inflow = 10.62 cfs @ 12.09 hrs, Volume= 35,024 cf
Outflow = 4.27 cfs @ 12.32 hrs, Volume= 16,074 cf, Atten= 60%, Lag= 13.8 min
Primary = 4.27 cfs @ 12.32 hrs, Volume= 16,074 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.00' @ 12.32 hrs Surf.Area= 9,587 sf Storage= 20,286 cf
Flood Elev= 56.00' Surf.Area= 10,700 sf Storage= 30,396 cf

Plug-Flow detention time= 210.0 min calculated for 16,065 cf (46% of inflow)
Center-of-Mass det. time= 109.1 min (849.9 - 740.8)

Volume	Invert	Avail.Storage	Storage Description
#1	52.50'	30,396 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
52.50	6,460	0	0	6,460
54.00	8,530	11,207	11,207	8,580
56.00	10,700	19,189	30,396	10,859

Device	Routing	Invert	Outlet Devices
#1	Primary	54.85'	**30.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=4.18 cfs @ 12.32 hrs HW=55.00' (Free Discharge)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 4.18 cfs @ 0.92 fps)

WET POND 3

Total Area Draining to Wet Pond 3: 184690 Sq. Ft.

Total Impervious Area Draining to Wet Pond 3: 141380 Sq. Ft.

Total Non-Impervious Area Draining to Wet Pond 3: 43310 Sq. Ft.

Impervious Area Draining to Sediment Forebay 5: 99230 Sq. Ft.

Non-Impervious Area Draining to Sediment Forebay 5: 43310 Sq. Ft.

Building Roof Area Draining to Sediment Forebay 5: 42150 Sq. Ft.

Summary of Design		
Total Area Draining to Wet Pond	184690	Sq. Ft.
Total Impervious Area	141380	Sq. Ft.
Total Non-Impervious Area	43310	Sq. Ft.
Permanent Pool Volume	29209	Ft.3
Channel Protection Volume	13516	Ft.3
Sediment Forebay 1 Capacity	445	Ft.3
Underdrain Length	50	Ft.
Release Time	31.3	Hours

A. WET POND CALCULATIONS

1. Required Permanent Pool Volume shall be the following formula:

$V_{req.}$ = (2.0 inches x Impervious Area(Sq.Ft)) + (0.8 inches x Non-Impervious Area(Sq.Ft.))

$V_{req.}$ = 2 x 141380 + 0.8 x 43310 = 26451 $Ft.^3$

$V_{prov.}$ = 29209 $Ft.^3$

2. Permanent Pool Average Depth shall be the following formula:

$D_{ave.}$ = Storage Volume @ 48.5 ft / Surface Area @ 48.5 ft

$D_{ave.}$ = 21679 $Ft.^3$ / 6830 $Ft.^2$

$D_{ave.}$ = 3.17 Ft.

3. The Required Channel Protection Volume shall be the following formula:

$V_{req.}$ = (1.0 inches x Impervious Area(Sq.Ft)) + (0.4 inches x Non-Impervious Area(Sq.Ft.))

$V_{req.}$ = 1 x 141380 + 0.4 x 43310 = 13225 $Ft.^3$

$V_{prov.}$ = 13516 $Ft.^3$

WET POND 3 CALCULATIONS		SHEET 6 OF 6
PROJECT 76 DENNETT ROAD	DATE PREPARED June 2019	
LOCATION KITTERY,ME	BASIS FOR ESTIMATE	
ENGINEER Hoyle, Tanner & Associates, Inc. 100 INTERNATIONAL DRIVE, SUITE 360 PORTSMOUTH, NH 03801	☐ NO DESIGN COMPLETED ☐ PRELIMINARY DESIGN	☑ FINAL DESIGN ☐ SPECIFY
SUBJECT	COMPUTED MJG	CHECKED SMT

WET POND 3 Continued

B. SEDIMENT FOREBAY CAPACITY

Sediment Forebay 1

Sanded Area = (Impervious Area (Sq.Ft.) - Building Roof Area (Sq.Ft.)) / 43560 Acre/ft^2

Sanded Area = 99230 Sq. Ft. - 42150 Sq. Ft. = 1.31 Acre

1. Required Capacity shall be the following formula:

$V_{req.}$ = 10 Storms/Year x Sanded Area (Ac.) x 500 lbs./Acre-Storm x 90 lbs./ft^3

$V_{req.}$ = 10 Storms/Year x 1.31 Acre x 500 lbs./Acre-Storm / 90 lbs./ft3

$V_{req.}$ = 73 Ft.^{3}

$V_{prov.}$ = 445 Ft.^{3}

C. UNDERDRAIN LENGTH

1. Required Length shall be the following formula:

$L_{req.}$ = 3 Ft. x Channel Protection Volume Ft.^{3} / 1000 Ft.^{3}

$L_{req.}$ = 3 Ft. x 13516 Ft.^{3} / 1000 Ft.^{3}

$L_{req.}$ = 41 Ft.

$L_{prov.}$ = 50 Ft.

D. ORIFICE CALCULATIONS

Required Channel Protection Release Time = 24-48 Hours

1. Provided Channel Protection Release Time shall be the following formula:

$T_{prov.}$ = Channel Protection Volume Ft.^{3} / Discharge Rate Ft.^{3}/Sec.

$T_{prov.}$ = 13516 Ft.^{3} / (0.12 Ft.^{3}/Sec. / 3600 Sec./Hr.)

$T_{prov.}$ = 31.3 Hours

Summary for Pond 1P: Perm Pool 3

[43] Hint: Has no inflow (Outflow=Zero)

Volume	Invert	Avail.Storage	Storage Description
#1	44.00'	29,209 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
44.00	2,960	0	0
46.00	4,540	7,500	7,500
48.00	6,345	10,885	18,385
48.50	6,830	3,294	21,679
49.50	8,230	7,530	29,209

Stage-Area-Storage for Pond P3: Wet Pond 3

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)	Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
49.50	11,485	0	52.10	16,123	35,543
49.55	11,550	576	52.15	16,195	36,351
49.60	11,615	1,155	52.20	16,267	37,162
49.65	11,680	1,737	52.25	16,339	37,978
49.70	11,745	2,323	52.30	16,412	38,796
49.75	11,810	2,912	52.35	16,484	39,619
49.80	11,876	3,504	52.40	16,557	40,445
49.85	11,942	4,099	52.45	16,630	41,274
49.90	12,008	4,698	52.50	16,703	42,108
49.95	12,074	5,300	52.55	16,776	42,945
50.00	12,140	5,905	52.60	16,849	43,785
50.05	12,230	6,515	52.65	16,923	44,630
50.10	12,319	7,128	52.70	16,996	45,478
50.15	12,410	7,747	52.75	17,070	46,329
50.20	12,500	8,369	52.80	17,144	47,185
50.25	12,591	8,997	52.85	17,218	48,044
50.30	12,682	9,629	52.90	17,293	48,907
50.35	12,774	10,265	52.95	17,367	49,773
50.40	12,866	10,906	53.00	17,442	50,643
50.45	12,958	11,552	53.05	17,516	51,517
50.50	13,051	12,202	53.10	17,591	52,395
50.55	13,143	12,857	53.15	17,667	53,276
50.60	13,237	13,516	53.20	17,742	54,162
50.65	13,330	14,180	53.25	17,817	55,050
50.70	13,424	14,849	53.30	17,893	55,943
50.75	13,518	15,523	53.35	17,968	56,840
50.80	13,613	16,201	53.40	18,044	57,740
50.85	13,708	16,884	53.45	18,120	58,644
50.90	13,803	17,572	53.50	18,197	59,552
50.95	13,898	18,264	53.55	18,273	60,464
51.00	13,994	18,962	53.60	18,349	61,379
51.05	14,090	19,664	53.65	18,426	62,299
51.10	14,187	20,371	53.70	18,503	63,222
51.15	14,284	21,082	53.75	**18,580**	**64,149**
51.20	14,381	21,799			
51.25	14,478	22,520			
51.30	14,576	23,247			
51.35	14,674	23,978			
51.40	14,773	24,714			
51.45	14,871	25,455			
51.50	14,971	26,201			
51.55	15,070	26,952			
51.60	15,170	27,708			
51.65	15,270	28,469			
51.70	15,370	29,235			
51.75	15,471	30,006			
51.80	15,572	30,783			
51.85	15,674	31,564			
51.90	15,775	32,350			
51.95	15,878	33,141			
52.00	15,980	33,938			
52.05	16,052	34,738			

Summary for Pond P3: Wet Pond 3

Inflow Area = 207,350 sf, 72.13% Impervious, Inflow Depth > 5.44" for 25-Yr event
Inflow = 28.73 cfs @ 12.09 hrs, Volume= 93,982 cf
Outflow = 19.87 cfs @ 12.18 hrs, Volume= 52,370 cf, Atten= 31%, Lag= 5.3 min
Primary = 19.87 cfs @ 12.18 hrs, Volume= 52,370 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 52.73' @ 12.18 hrs Surf.Area= 17,042 sf Storage= 46,005 cf
Flood Elev= 53.00' Surf.Area= 17,442 sf Storage= 50,643 cf

Plug-Flow detention time= 169.8 min calculated for 52,175 cf (56% of inflow)
Center-of-Mass det. time= 85.9 min (829.4 - 743.5)

Volume	Invert	Avail.Storage	Storage Description
#1	49.50'	64,149 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
49.50	11,485	0	0	11,485
50.00	12,140	5,905	5,905	12,168
52.00	15,980	28,032	33,938	16,098
53.75	18,580	30,211	64,149	18,823

Device	Routing	Invert	Outlet Devices
#1	Primary	52.45'	**55.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=19.45 cfs @ 12.18 hrs HW=52.73' (Free Discharge)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 19.45 cfs @ 1.28 fps)

APPENDIX F
RIP-RAP DESIGN CALCULATIONS

CALCULATION OF RIP-RAP SIZING		SHEET 1 OF 8	
PROJECT DENNETT ROAD		**DATE PREPARED** June 2019	
LOCATION KITTERY,ME		**BASIS FOR ESTIMATE**	
ENGINEER Hoyle, Tanner & Associates, Inc.	100 INTERNATIONAL DRIVE, SUITE 360 PORTSMOUTH, NH 03801	☐ *NO DESIGN COMPLETED* ☐ *PRELIMINARY DESIGN*	☑ *FINAL DESIGN* ☐ *SPECIFY*
SUBJECT 10 YEAR DESIGN		**COMPUTED** MJG	**CHECKED** SMT

HEADWALL 1

POST DEVELOPMENT FLOW = 6.13 cfs

DISCHARGE PIPE SIZE = 18 inches

A. OUTLET PROTECTION APRON SIZING

1. Width of the apron at the outlet of the pipe shall be 3 times the diameter of the pipe

3 x (18 / 12) = 4.5 ft

2. The length of the apron shall be the following formula:

$$L_a = \frac{1.8\,Q}{D_o^{3/2}} + 7\,D_o$$

L_a = length of apron
D_o = diameter of pipe
Q = discharge from pipe

$$L_a = \frac{2 \times 6.13}{1.5^{3/2}} + 7 \times 1.5 = 17 \text{ ft}$$

3. The minimum width of the channel downstream of the outlet for maximum tailwater conditions shall be determined by the following formula

$$W = 3D_o + 0.4{*}L_a$$
$$= 4.5 + 6.6$$
$$= 11 \text{ ft}$$

B. Determine rock rip-rap sizing for given channel

$$d_{50} = \frac{0.02Q^{1.33}}{Tw \times Do}$$

d_{50} = median stone diameter
D_o = diameter of pipe
Q = discharge from pipe
Tw = tailwater depth = 2 (Maximum tailwater @ HW#G during 25 year storm)

d_{50} = 0.86 "

$$d_{50} = \frac{(0.02) \times 6.13^{1.33}}{2.08 \times 1.5000} = 0.1 \text{ ft}$$

Use d_{50} = 3 " Therefore d = 6 "

Summary of Design		
Post-Development Flow	6.13	cfs
Discharge Pipe Size	18	inches
Width of Apron at Pipe	4.5	feet
Length of Apron	17	feet
Width of Apron Downstream of pipe	11	feet
Rip-Rap Size	6	inches
Volume of Rip-Rap Needed	4.77	C.Y.

CALCULATION OF RIP-RAP SIZING		SHEET 2 OF 8	
PROJECT DENNETT ROAD		DATE PREPARED June 2019	
LOCATION KITTERY, ME		BASIS FOR ESTIMATE	
ENGINEER Hoyle, Tanner & Associates, Inc.	100 INTERNATIONAL DRIVE, SUITE 360 PORTSMOUTH, NH 03801	☐ NO DESIGN COMPLETED ☐ PRELIMINARY DESIGN	☑ FINAL DESIGN ☐ SPECIFY
SUBJECT 10 YEAR DESIGN		COMPUTED MJG	CHECKED SMT

HEADWALL 2

POST DEVELOPMENT FLOW = 3.71 cfs

DISCHARGE PIPE SIZE = 18 inches

A. OUTLET PROTECTION APRON SIZING

1. Width of the apron at the outlet of the pipe shall be 3 times the diameter of the pipe

3 x (18 / 12) = 4.5 ft

2. The length of the apron shall be the following formula:

$$L_a = \frac{1.8\ Q}{D_o^{3/2}} + 7\ D_o$$

L_a = length of apron
D_o = diameter of pipe
Q = discharge from pipe

$$L_a = \frac{2 \times 3.71}{1.5^{3/2}} + 7 \times 1.5 = 14 \text{ ft}$$

3. The minimum width of the channel downstream of the outlet for maximum tailwater conditions shall be determined by the following formula

$W = 3D_o + 0.4{*}L_a$

= 4.5 + 5.7

= 10 ft

B. Determine rock rip-rap sizing for given channel

$$d_{50} = \frac{0.02Q^{1.33}}{Tw \times Do}$$

d_{50} = median stone diameter
D_o = diameter of pipe
Q = discharge from pipe
Tw = tailwater depth = 2 (Maximum tailwater @ HW#G during 25 year storm)

d_{50} = 0.44 "

$$d_{50} = \frac{(0.02) \times 3.71^{1.33}}{2.08 \times 1.5000} = 0 \text{ ft}$$

Use d_{50} = 3 " Therefore d = 6 "

Summary of Design		
Post-Development Flow	3.71	cfs
Discharge Pipe Size	18	inches
Width of Apron at Pipe	4.5	feet
Length of Apron	14	feet
Width of Apron Downstream of pipe	10	feet
Rip-Rap Size	6	inches
Volume of Rip-Rap Needed	3.84	C.Y.

CALCULATION OF RIP-RAP SIZING		SHEET 3 OF 8	
PROJECT DENNETT ROAD		DATE PREPARED June 2019	
LOCATION KITTERY, ME		BASIS FOR ESTIMATE	
ENGINEER Hoyle, Tanner & Associates, Inc.	100 INTERNATIONAL DRIVE, SUITE 360 PORTSMOUTH, NH 03801	☐ NO DESIGN COMPLETED ☐ PRELIMINARY DESIGN	☑ FINAL DESIGN ☐ SPECIFY
SUBJECT 10 YEAR DESIGN		COMPUTED MJG	CHECKED SMT

HEADWALL 3

POST DEVELOPMENT FLOW = 3.53 cfs

DISCHARGE PIPE SIZE = 24 inches

A. OUTLET PROTECTION APRON SIZING

1. Width of the apron at the outlet of the pipe shall be 3 times the diameter of the pipe

3 x (24 / 12) = 6 ft

2. The length of the apron shall be the following formula:

$$L_a = \frac{1.8\ Q}{D_o^{3/2}} + 7\ D_o$$

L_a = length of apron
D_o = diameter of pipe
Q = discharge from pipe

$$L_a = \frac{2 \times 3.53}{2^{3/2}} + 7 \times 2 = 16 \text{ ft}$$

3. The minimum width of the channel downstream of the outlet for maximum tailwater conditions shall be determined by the following formula

$W = 3D_o + 0.4{*}L_a$

= 6 + 6.5

= 12 ft

B. Determine rock rip-rap sizing for given channel

$$d_{50} = \frac{0.02Q^{1.33}}{Tw \times Do}$$

d_{50} = median stone diameter
D_o = diameter of pipe
Q = discharge from pipe
Tw = tailwater depth = 2 (Maximum tailwater @ HW#G during 25 year storm)

d_{50} = 0.31 "

$$d_{50} = \frac{(0.02) \times 3.53^{1.33}}{2.08 \times 2.0000} = 0 \text{ ft}$$

Use d_{50} = 3 " Therefore d = 6 "

Summary of Design		
Post-Development Flow	3.53	cfs
Discharge Pipe Size	24	inches
Width of Apron at Pipe	6	feet
Length of Apron	16	feet
Width of Apron Downstream of pipe	12	feet
Rip-Rap Size	6	inches
Volume of Rip-Rap Needed	5.57	C.Y.

CALCULATION OF RIP-RAP SIZING			SHEET 4 OF 8
PROJECT DENNETT ROAD		DATE PREPARED June 2019	
LOCATION KITTERY, ME		BASIS FOR ESTIMATE	
ENGINEER Hoyle, Tanner & Associates, Inc.	100 INTERNATIONAL DRIVE, SUITE 360 PORTSMOUTH, NH 03801	☐ NO DESIGN COMPLETED ☐ PRELIMINARY DESIGN	☑ FINAL DESIGN ☐ SPECIFY
SUBJECT 10 YEAR DESIGN		COMPUTED MJG	CHECKED SMT

HEADWALL 5

POST DEVELOPMENT FLOW = 18.41 cfs

DISCHARGE PIPE SIZE = 36 inches

A. OUTLET PROTECTION APRON SIZING

1. Width of the apron at the outlet of the pipe shall be 3 times the diameter of the pipe

3 x (36 / 12) = 9 ft

2. The length of the apron shall be the following formula:

$$L_a = \frac{1.8\ Q}{D_o^{3/2}} + 7\ D_o$$

L_a = length of apron
D_o = diameter of pipe
Q = discharge from pipe

$$L_a = \frac{2\ \times\ 18.41}{3^{\ 3/2}} + 7 \times 3 = 27 \text{ ft}$$

3. The minimum width of the channel downstream of the outlet for maximum tailwater conditions shall be determined by the following formula

$$W = 3D_o + 0.4{*}L_a$$

$$= 9 + 11.0$$

$$= 20 \text{ ft}$$

B. Determine rock rip-rap sizing for given channel

$$d_{50} = \frac{0.02Q^{1.33}}{Tw \times Do}$$

d_{50} = median stone diameter
D_o = diameter of pipe
Q = discharge from pipe
Tw = tailwater depth = 2 (Maximum tailwater @ HW#G during 25 year storm)

d_{50} = 1.85 "

$$d_{50} = \frac{(\ 0.02\ ) \times 18.41^{\ 1.33}}{2.08 \times 3.0000} = 0.2 \text{ ft}$$

Use d_{50} = 3 " Therefore d = 6 "

Summary of Design		
Post-Development Flow	18.41	cfs
Discharge Pipe Size	36	inches
Width of Apron at Pipe	9	feet
Length of Apron	27	feet
Width of Apron Downstream of pipe	20	feet
Rip-Rap Size	6	inches
Volume of Rip-Rap Needed	14.68	C.Y.

CALCULATION OF RIP-RAP SIZING		SHEET 5 OF 8	
PROJECT	DENNETT ROAD	DATE PREPARED June 2019	
LOCATION	KITTERY, ME	BASIS FOR ESTIMATE	
ENGINEER	Hoyle, Tanner & Associates, Inc. 100 INTERNATIONAL DRIVE, SUITE 360 PORTSMOUTH, NH 03801	☐ NO DESIGN COMPLETED ☐ PRELIMINARY DESIGN	☑ FINAL DESIGN ☐ SPECIFY
SUBJECT	10 YEAR DESIGN	COMPUTED MJG	CHECKED SMT

HEADWALL 6

POST DEVELOPMENT FLOW = 1.43 cfs

DISCHARGE PIPE SIZE = 12 inches

A. OUTLET PROTECTION APRON SIZING

1. Width of the apron at the outlet of the pipe shall be 3 times the diameter of the pipe

3 x (12 / 12) = 3 ft

2. The length of the apron shall be the following formula:

$$L_a = \frac{1.8\ Q}{D_o^{3/2}} + 7\ D_o$$

L_a = length of apron
D_o = diameter of pipe
Q = discharge from pipe

$$L_a = \frac{2 \times 1.43}{1^{3/2}} + 7 \times 1 = 10 \text{ ft}$$

3. The minimum width of the channel downstream of the outlet for maximum tailwater conditions shall be determined by the following formula

$W = 3D_o + 0.4{*}L_a$

= 3 + 3.8

= 7 ft

B. Determine rock rip-rap sizing for given channel

$$d_{50} = \frac{0.02Q^{1.33}}{Tw \times Do}$$

d_{50} = median stone diameter
D_o = diameter of pipe
Q = discharge from pipe
Tw = tailwater depth = 2 (Maximum tailwater @ HW#G during 25 year storm)

d_{50} = 0.19 "

$$d_{50} = \frac{(0.02) \times 1.43^{1.33}}{2.08 \times 1.0000} = 0 \text{ ft}$$

Use d_{50} = 3 " Therefore d = 6 "

Summary of Design		
Post-Development Flow	1.43	cfs
Discharge Pipe Size	12	inches
Width of Apron at Pipe	3	feet
Length of Apron	10	feet
Width of Apron Downstream of pipe	7	feet
Rip-Rap Size	6	inches
Volume of Rip-Rap Needed	1.74	C.Y.

CALCULATION OF RIP-RAP SIZING		SHEET 6 OF 8	
PROJECT DENNETT ROAD		DATE PREPARED June 2019	
LOCATION KITTERY, ME		BASIS FOR ESTIMATE	
ENGINEER Hoyle, Tanner & Associates, Inc.	100 INTERNATIONAL DRIVE, SUITE 360 PORTSMOUTH, NH 03801	☐ NO DESIGN COMPLETED ☐ PRELIMINARY DESIGN	☑ FINAL DESIGN ☐ SPECIFY
SUBJECT 10 YEAR DESIGN		COMPUTED MJG	CHECKED SMT

HEADWALL 7

POST DEVELOPMENT FLOW = 5.44 cfs

DISCHARGE PIPE SIZE = 18 inches

A. OUTLET PROTECTION APRON SIZING

1. Width of the apron at the outlet of the pipe shall be 3 times the diameter of the pipe

3 x (18 / 12) = 4.5 ft

2. The length of the apron shall be the following formula:

$$L_a = \frac{1.8\ Q}{D_o^{3/2}} + 7\ D_o$$

L_a = length of apron
D_o = diameter of pipe
Q = discharge from pipe

$$L_a = \frac{2 \times 5.44}{1.5^{3/2}} + 7 \times 1.5 = 16 \text{ ft}$$

3. The minimum width of the channel downstream of the outlet for maximum tailwater conditions shall be determined by the following formula

$$W = 3D_o + 0.4{*}L_a$$

= 4.5 + 6.3

= 11 ft

B. Determine rock rip-rap sizing for given channel

$$d_{50} = \frac{0.02Q^{1.33}}{Tw \times Do}$$

d_{50} = median stone diameter
D_o = diameter of pipe
Q = discharge from pipe
Tw = tailwater depth = 2 (Maximum tailwater @ HW#G during 25 year storm)

$$d_{50} = \frac{(0.02) \times 5.44^{1.33}}{2.08 \times 1.5000} = 0.1 \text{ ft}$$

d_{50} = 0.73 "

Use d_{50} = 3 " Therefore d = 6 "

Summary of Design		
Post-Development Flow	5.44	cfs
Discharge Pipe Size	18	inches
Width of Apron at Pipe	4.5	feet
Length of Apron	16	feet
Width of Apron Downstream of pipe	11	feet
Rip-Rap Size	6	inches
Volume of Rip-Rap Needed	4.49	C.Y.

CALCULATION OF RIP-RAP SIZING			SHEET 7 OF 8
PROJECT DENNETT ROAD		DATE PREPARED June 2019	
LOCATION KITTERY, ME		BASIS FOR ESTIMATE	
ENGINEER Hoyle, Tanner & Associates, Inc.	100 INTERNATIONAL DRIVE, SUITE 360 PORTSMOUTH, NH 03801	☐ NO DESIGN COMPLETED ☐ PRELIMINARY DESIGN	☑ FINAL DESIGN ☐ SPECIFY
SUBJECT 10 YEAR DESIGN		COMPUTED MJG	CHECKED SMT

HEADWALL 8

POST DEVELOPMENT FLOW = 20.48 cfs

DISCHARGE PIPE SIZE = 36 inches

A. OUTLET PROTECTION APRON SIZING

1. Width of the apron at the outlet of the pipe shall be 3 times the diameter of the pipe

3 x (36 / 12) = 9 ft

2. The length of the apron shall be the following formula:

$$L_a = \frac{1.8\ Q}{D_o^{3/2}} + 7\ D_o$$

L_a = length of apron
D_o = diameter of pipe
Q = discharge from pipe

$$L_a = \frac{2 \times 20.48}{3^{3/2}} + 7 \times 3 = 28 \text{ ft}$$

3. The minimum width of the channel downstream of the outlet for maximum tailwater conditions shall be determined by the following formula

$W = 3D_o + 0.4{*}L_a$

= 9 + 11.2

= 20 ft

B. Determine rock rip-rap sizing for given channel

$$d_{50} = \frac{0.02Q^{1.33}}{Tw \times Do}$$

d_{50} = median stone diameter
D_o = diameter of pipe
Q = discharge from pipe
Tw = tailwater depth = 2 (Maximum tailwater @ HW#G during 25 year storm)

d_{50} = 2.13 "

$$d_{50} = \frac{(0.02) \times 20.48^{1.33}}{2.08 \times 3.0000} = 0.2 \text{ ft}$$

Use d_{50} = 3 " Therefore d = 6 "

Summary of Design		
Post-Development Flow	20.48	cfs
Discharge Pipe Size	36	inches
Width of Apron at Pipe	9	feet
Length of Apron	28	feet
Width of Apron Downstream of pipe	20	feet
Rip-Rap Size	6	inches
Volume of Rip-Rap Needed	15.21	C.Y.

CALCULATION OF RIP-RAP SIZING		SHEET 8 OF 8	
PROJECT	DENNETT ROAD	DATE PREPARED June 2019	
LOCATION	KITTERY, ME	BASIS FOR ESTIMATE	
ENGINEER Hoyle, Tanner & Associates, Inc.	100 INTERNATIONAL DRIVE, SUITE 360 PORTSMOUTH, NH 03801	☐ NO DESIGN COMPLETED ☐ PRELIMINARY DESIGN	☑ FINAL DESIGN ☐ SPECIFY
SUBJECT 10 YEAR DESIGN		COMPUTED MJG	CHECKED SMT

HEADWALL 9

POST DEVELOPMENT FLOW = 9.04 cfs

DISCHARGE PIPE SIZE (Wet Pond 3) = 36 inches

DISCHARGE PIPE SIZE (DMH3) = 24 inches

A. OUTLET PROTECTION APRON SIZING

1. Width of the apron at the outlet of the pipe shall be 3 times the diameter of the pipe

3 x (60 / 12) = 15 ft

2. The length of the apron shall be the following formula:

$$L_a = \frac{1.8\ Q}{D_o^{3/2}} + 7\ D_o$$

L_a = length of apron
D_o = diameter of pipe
Q = discharge from pipe

$$L_a = \frac{2 \times 9.04}{5^{3/2}} + 7 \times 3 = 22 \text{ ft}$$

3. The minimum width of the channel downstream of the outlet for maximum tailwater conditions shall be determined by the following formula

$$W = 3D_o + 0.4{*}L_a$$
$$= 15 + 9.0$$
$$= 24 \text{ ft}$$

B. Determine rock rip-rap sizing for given channel

$$d_{50} = \frac{0.02Q^{1.33}}{Tw \times Do}$$

d_{50} = median stone diameter
D_o = diameter of pipe
Q = discharge from pipe
Tw = tailwater depth = 2 (Maximum tailwater @ HW#G during 25 year storm)

$$d_{50} = \frac{(0.02) \times 9.04^{1.33}}{2.08 \times 5.00} = 0.1 \text{ ft}$$

d_{50} = 0.72 "

Use d_{50} = 3 " Therefore d = 6 "

Summary of Design		
Post-Development Flow	9.04	cfs
Discharge Pipe Size	36	inches
Width of Apron at Pipe	15	feet
Length of Apron	22	feet
Width of Apron Downstream of pipe	24	feet
Rip-Rap Size	6	inches
Volume of Rip-Rap Needed	16.21	C.Y.

<u>APPENDIX G</u>
INSPECTION AND MAINTENANCE MANUAL

Inspection and Maintenance Plan

Aztec, LLC will be responsible for the maintenance of the stormwater infrastructure as well as the establishment of maintenance contracts. At a minimum, the appropriate and relevant activities for each of the stormwater management facilities will be performed on the prescribed schedule. Maintenance is performed by the qualified employees, who provide full-time support to the development. Funding for maintenance is generated from the development through revenue generated by the business.

A sample maintenance log is included in this plan. Records of all inspections and maintenance work accomplished must be kept on file and retained for a minimum 5-year time span. The maintenance logbook shall be made available to the DEP upon request.

Aztec, LLC
C/O William Wharff
62 Portland Road, Suite 25
Kennebunk, ME 04043
(617) 767-1897

<u>During Construction</u>
The following standards must be met during construction.

Inspection and corrective action. Inspect disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and within 24 hours after a storm event (rainfall), and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.

Maintenance. If best management practices (BMPs) need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If additional BMPs or significant repair of BMPs are necessary, implementation must be completed within 7 calendar days and prior to any storm event (rainfall). All measures must be maintained in effective operating condition until areas are permanently stabilized.

Documentation. Keep a log (report) summarizing the inspections and any corrective action taken. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicles access points to the parcel. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and location(s) where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken.

The log must be made accessible to Maine Department of Environmental Protection (the Department) staff and a copy must be provided upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

Post Construction

The following standards must be met after construction.

Plan. Carry out an approved inspection and maintenance plan that is consistent with the minimum requirements of this section. The plan must address inspection and maintenance of the project's permanent erosion control measures and stormwater management system.

Inspection and maintenance. All measures must be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections. The following areas, facilities, and measures must be inspected and identified deficiencies must be corrected. Areas, facilities, and measures other than those listed below may also require inspection. Inspection or maintenance tasks other than those discussed below must be included in the maintenance plan developed.

a) Inspect vegetated areas, particularly slopes and embankments, early in the growing season or after heavy rains to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows.

b) Inspect ditches, swales and other open stormwater channels in the spring, in late fall, and after heavy rains to remove any obstructions to flow, remove accumulated sediments and debris, to control vegetated growth that could obstruct flow, and to repair any erosion of the ditch lining. Vegetated ditches must be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. The channel must receive adequate routine maintenance to maintain capacity and prevent or correct any erosion of the channel's bottom or side slopes.

c) Inspect culverts in the spring, in late fall, and after heavy rains to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the culvert's inlet and outlet. If sediment in culverts or closed drainage systems exceeds 20% of the diameter of the pipe, the sediment should be removed. This may be accomplished by hydraulic flushing or any mechanical means; however, care should be taken as to not flush the sediment downstream. All pipes should be inspected on an annual basis.

d) Inspect and clean out catch basins. Clean-out must include the removal and legal disposal of any accumulated sediments and debris at the bottom of the basin, at any inlet grates, at any inflow channels to the basin, and at any pipes between basins. Remove any floating debris and any floating oils (using oil-absorptive pads) present in the catch basin.

e) Inspect resource and treatment buffers once a year for evidence of erosion, concentrating flow, and encroachment by development. If flows are concentrating within a buffer, site grading, level spreaders, or ditch turn-outs must be used to ensure a more even distribution of flow into a buffer. Check down slope of all spreaders for erosion. If erosion is present, adjust or modify the spreader's lip to ensure a better distribution of flow into a buffer. Clean-out any accumulation of sediment within the spreader bays. At least once a year and following major storms, the level spreader should be inspected for sand accumulation and debris that may reduce its capacity. Sediment build-up within the swale should be removed when it has accumulated to approximately 25% of design volume or channel capacity. Dispose of the sediments appropriately. Remove debris such as leaf litter, branches and tree growth from the spreader. Vegetated spreaders may require mowing. Do not store snow within the area of the level spreader. The reconstruction of the level spreader may be necessary when sheet flow from the spreader channelize into the buffer.

f) Inspect at least once per year, each stormwater management pond, including the pond's embankments, outlet structure, and emergency spillway. Remove and dispose of accumulated sediments in the pond. Control woody vegetation on the pond's embankments.

g) Inspect at least once per year, each gravel trench underdrain. The gravel trench underdrain will be inspected semi-annually and following major storm events to ensure that it is draining within 24 to 48 hours following a one-inch storm or greater. Following a storm that fills the system to overflow, it should drain in no less than 36 to 72 hours. If the system drains too fast, an orifice may need to be added on the underdrain outlet or, if already present, may need to be modified.

h) If mowing is desired, handheld string trimmers or push-mowers are allowed and the grass should be mowed no more than 2 times per growing season to maintain grass heights of no less than 6 inches. Any bare area or erosion rills shall be repaired with new media or sandy loam then seeded and mulched. Harvesting and pruning of excessive growth will need to be done occasionally. Weeding to control unwanted or invasive plants may also be necessary. Maintaining good grass cover will minimize clogging with fine sediments.

i) Paved surfaces shall be swept or vacuumed periodically on an as-needed basis to minimize transportation of sediment during rainfall events.

j) Areas where stone is displaced should be repaired to assure stability. With time, riprap may need to be added. Vegetation growing through riprap should be removed on a yearly schedule.

Regular Maintenance

a) Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader. Grading of gravel roads, or grading of the gravel shoulders of gravel or paved roads, must be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent buffer areas or stable ditches, and is not impeded by accumulations of graded material on the road shoulder or by excavation of false ditches in the shoulder. If water bars or open-top culverts are used to divert runoff from road surfaces, clean-out any sediments within or at the outlet of these structures to restore their function.

b) Manage each buffer's vegetation consistently with the requirements in any deed restrictions for the buffer. Wooded buffers must remain fully wooded and have no disturbance to the duff layer. Vegetation in non-wooded buffers may not be cut more than three times per year, and may not be cut shorter than six inches.

Documentation

a) Keep a log (report) summarizing inspections, maintenance, and any corrective actions taken. The log must include the date on which each inspection or maintenance task was performed, a description of the inspection findings or maintenance completed, and the name of the inspector or maintenance personnel performing the task. If a maintenance task requires the clean-out of any sediments or debris, indicate where the sediment and debris was disposed after removal. The log must be made accessible to Department staff and a copy provided to the Department upon request. The permittee shall retain a copy of the log for a period of at least five years from the completion of permanent stabilization.

Recertification Requirement
Within three months of the expiration of each five-year interval from the date of issuance of the permit, the permittee shall certify the following to the department.

(a) All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.
(b) All aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the facilities.
(c) The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the department, and the maintenance log is being maintained.

Municipalities with separate storm sewer systems regulated under the Maine Pollutant Discharge Elimination System (MPDES) Program may report on all regulated systems under their control as part of their required annual reporting in lieu of separate certification of each system. Municipalities not regulated by the MPDES Program, but that are responsible for maintenance of permitted stormwater systems, may report on multiple stormwater systems in one report.

Duration of Maintenance

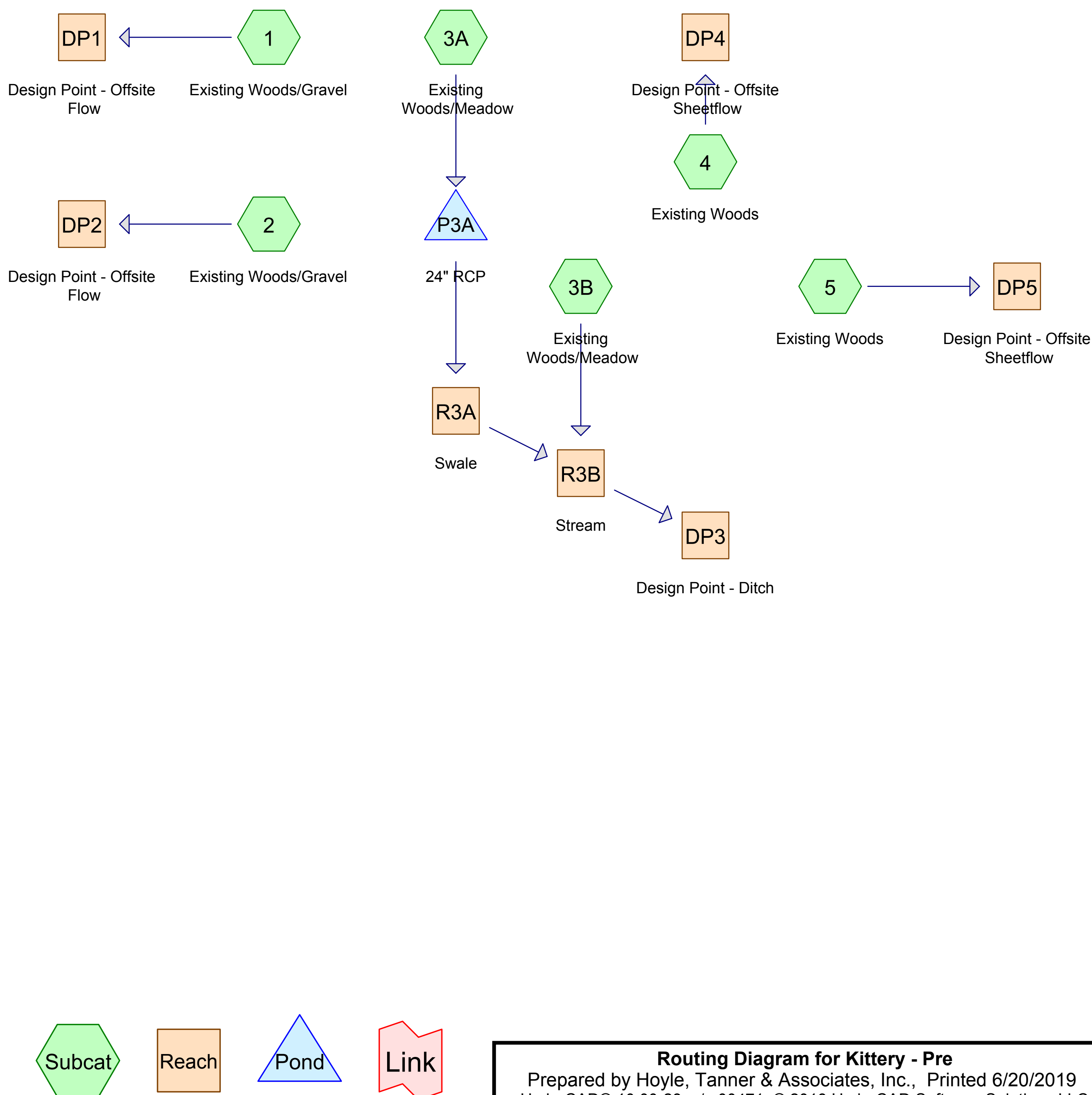
Perform maintenance as described and required in the permit unless and until the system is formally accepted by the municipality or quasi-municipal district, or is placed under the jurisdiction of a legally created association that will be responsible for the maintenance of the system. If a municipality or quasi-municipal district chooses to accept a stormwater management system, or a component of a stormwater system, it must provide a letter to the Department stating that it assumes responsibility for the system. The letter must specify the components of the system for which the municipality or district will assume responsibility, and that the municipality or district agrees to maintain those components of the system in compliance with Department standards. Upon such assumption of responsibility, and approval by the Department, the municipality, quasi-municipal district, or association becomes a co-permittee for this purpose only and must comply with all terms and conditions of the permit.

MIXED-USE RESIDENTIAL DEVELOPMENT, 76 DENNETT ROAD, KITTERY, MAINE
BMP INSPECTION & MAINTENANCE LOG

BMP STRUCTURE		INSPECTION				MAINTENANCE		
	LOCATION	DATE DUE	DATE INSPECTION	CONDITION	BY	DATE DUE	DATE CLEANED	BY
Pavement Sweeping								
Vegetated Areas								
Catch Basins								
Swales and Channels								
Culvert								
Wet Pond 1								
Wet Pond 2								
Wet Pond 3								
Sediment Forebays								
Underdrained Gravel Trenches								
Rip-Rap Level Spreaders								

APPENDIX H

PRE- AND POST-DEVELOPMENT WATERSHED ANALYSIS



Routing Diagram for Kittery - Pre
Prepared by Hoyle, Tanner & Associates, Inc., Printed 6/20/2019
HydroCAD® 10.00-23 s/n 00471 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
31,480	65	Brush, Good, HSG C (3A, 3B, 4, 5)
186,630	73	Brush, Good, HSG D (1, 2, 3A, 3B, 4, 5)
9,870	89	Gravel roads, HSG C (3A, 3B, 4, 5)
100,970	91	Gravel roads, HSG D (1, 2, 3A, 3B)
12,270	98	Paved parking, HSG D (1, 2)
41,385	70	Woods, Good, HSG C (3B, 4, 5)
781,475	77	Woods, Good, HSG D (1, 2, 3A, 3B, 4, 5)
1,164,080	**77**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
82,735	HSG C	3A, 3B, 4, 5
1,081,345	HSG D	1, 2, 3A, 3B, 4, 5
0	Other	
1,164,080		**TOTAL AREA**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Existing Woods/Gravel Runoff Area=248,415 sf 3.66% Impervious Runoff Depth>1.44"
Flow Length=675' Slope=0.0200 '/' Tc=15.9 min CN=81 Runoff=7.61 cfs 29,729 cf

Subcatchment2: Existing Woods/Gravel Runoff Area=28,605 sf 11.12% Impervious Runoff Depth>1.51"
Tc=6.0 min CN=82 Runoff=1.23 cfs 3,599 cf

Subcatchment3A: Existing Runoff Area=501,280 sf 0.00% Impervious Runoff Depth>1.17"
Flow Length=1,048' Slope=0.0120 '/' Tc=33.0 min CN=77 Runoff=9.16 cfs 49,018 cf

Subcatchment3B: Existing Runoff Area=280,890 sf 0.00% Impervious Runoff Depth>1.12"
Flow Length=760' Slope=0.0100 '/' Tc=28.8 min CN=76 Runoff=5.17 cfs 26,139 cf

Subcatchment4: Existing Woods Runoff Area=13,320 sf 0.00% Impervious Runoff Depth>1.07"
Tc=6.0 min CN=75 Runoff=0.40 cfs 1,188 cf

Subcatchment5: Existing Woods Runoff Area=91,570 sf 0.00% Impervious Runoff Depth>0.96"
Flow Length=435' Slope=0.0400 '/' Tc=10.0 min CN=73 Runoff=2.11 cfs 7,315 cf

Reach DP1: Design Point - Offsite Flow Inflow=7.61 cfs 29,729 cf
Outflow=7.61 cfs 29,729 cf

Reach DP2: Design Point - Offsite Flow Inflow=1.23 cfs 3,599 cf
Outflow=1.23 cfs 3,599 cf

Reach DP3: Design Point - Ditch Inflow=13.69 cfs 74,654 cf
Outflow=13.69 cfs 74,654 cf

Reach DP4: Design Point - Offsite Sheetflow Inflow=0.40 cfs 1,188 cf
Outflow=0.40 cfs 1,188 cf

Reach DP5: Design Point - Offsite Sheetflow Inflow=2.11 cfs 7,315 cf
Outflow=2.11 cfs 7,315 cf

Reach R3A: Swale Avg. Flow Depth=0.61' Max Vel=2.27 fps Inflow=9.14 cfs 48,953 cf
n=0.040 L=375.0' S=0.0090 '/' Capacity=21.09 cfs Outflow=9.08 cfs 48,686 cf

Reach R3B: Stream Avg. Flow Depth=0.74' Max Vel=3.92 fps Inflow=13.74 cfs 74,825 cf
n=0.040 L=280.0' S=0.0232 '/' Capacity=46.72 cfs Outflow=13.69 cfs 74,654 cf

Pond P3A: 24" RCP Peak Elev=55.23' Storage=783 cf Inflow=9.16 cfs 49,018 cf
Outflow=9.14 cfs 48,953 cf

Total Runoff Area = 1,164,080 sf Runoff Volume = 116,988 cf Average Runoff Depth = 1.21"
98.95% Pervious = 1,151,810 sf 1.05% Impervious = 12,270 sf

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Existing Woods/Gravel Runoff Area=248,415 sf 3.66% Impervious Runoff Depth>3.05"
Flow Length=675' Slope=0.0200 '/' Tc=15.9 min CN=81 Runoff=16.10 cfs 63,187 cf

Subcatchment2: Existing Woods/Gravel Runoff Area=28,605 sf 11.12% Impervious Runoff Depth>3.16"
Tc=6.0 min CN=82 Runoff=2.53 cfs 7,524 cf

Subcatchment3A: Existing Runoff Area=501,280 sf 0.00% Impervious Runoff Depth>2.67"
Flow Length=1,048' Slope=0.0120 '/' Tc=33.0 min CN=77 Runoff=21.08 cfs 111,549 cf

Subcatchment3B: Existing Runoff Area=280,890 sf 0.00% Impervious Runoff Depth>2.59"
Flow Length=760' Slope=0.0100 '/' Tc=28.8 min CN=76 Runoff=12.17 cfs 60,535 cf

Subcatchment4: Existing Woods Runoff Area=13,320 sf 0.00% Impervious Runoff Depth>2.52"
Tc=6.0 min CN=75 Runoff=0.95 cfs 2,797 cf

Subcatchment5: Existing Woods Runoff Area=91,570 sf 0.00% Impervious Runoff Depth>2.35"
Flow Length=435' Slope=0.0400 '/' Tc=10.0 min CN=73 Runoff=5.37 cfs 17,895 cf

Reach DP1: Design Point - Offsite Flow Inflow=16.10 cfs 63,187 cf
Outflow=16.10 cfs 63,187 cf

Reach DP2: Design Point - Offsite Flow Inflow=2.53 cfs 7,524 cf
Outflow=2.53 cfs 7,524 cf

Reach DP3: Design Point - Ditch Inflow=30.41 cfs 171,330 cf
Outflow=30.41 cfs 171,330 cf

Reach DP4: Design Point - Offsite Sheetflow Inflow=0.95 cfs 2,797 cf
Outflow=0.95 cfs 2,797 cf

Reach DP5: Design Point - Offsite Sheetflow Inflow=5.37 cfs 17,895 cf
Outflow=5.37 cfs 17,895 cf

Reach R3A: Swale Avg. Flow Depth=0.96' Max Vel=2.95 fps Inflow=19.82 cfs 111,445 cf
n=0.040 L=375.0' S=0.0090 '/' Capacity=21.09 cfs Outflow=19.76 cfs 111,051 cf

Reach R3B: Stream Avg. Flow Depth=1.18' Max Vel=5.00 fps Inflow=30.46 cfs 171,585 cf
n=0.040 L=280.0' S=0.0232 '/' Capacity=46.72 cfs Outflow=30.41 cfs 171,330 cf

Pond P3A: 24" RCP Peak Elev=56.52' Storage=2,925 cf Inflow=21.08 cfs 111,549 cf
Outflow=19.82 cfs 111,445 cf

Total Runoff Area = 1,164,080 sf Runoff Volume = 263,487 cf Average Runoff Depth = 2.72"
98.95% Pervious = 1,151,810 sf 1.05% Impervious = 12,270 sf

Summary for Subcatchment 1: Existing Woods/Gravel

Runoff = 16.10 cfs @ 12.22 hrs, Volume= 63,187 cf, Depth> 3.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
9,090	98	Paved parking, HSG D
56,450	91	Gravel roads, HSG D
165,185	77	Woods, Good, HSG D
17,690	73	Brush, Good, HSG D
248,415	81	Weighted Average
239,325		96.34% Pervious Area
9,090		3.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.9	675	0.0200	0.71		**Lag/CN Method,**

Summary for Subcatchment 2: Existing Woods/Gravel

Runoff = 2.53 cfs @ 12.09 hrs, Volume= 7,524 cf, Depth> 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
3,180	98	Paved parking, HSG D
7,650	91	Gravel roads, HSG D
12,175	77	Woods, Good, HSG D
5,600	73	Brush, Good, HSG D
28,605	82	Weighted Average
25,425		88.88% Pervious Area
3,180		11.12% Impervious Area

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

Summary for Subcatchment 3A: Existing Woods/Meadow

Runoff = 21.08 cfs @ 12.46 hrs, Volume= 111,549 cf, Depth> 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
11,730	91	Gravel roads, HSG D
1,655	89	Gravel roads, HSG C
421,340	77	Woods, Good, HSG D
60,765	73	Brush, Good, HSG D
5,790	65	Brush, Good, HSG C
501,280	77	Weighted Average
501,280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.0	1,048	0.0120	0.53		**Lag/CN Method,**

Summary for Subcatchment 3B: Existing Woods/Meadow

Runoff = 12.17 cfs @ 12.41 hrs, Volume= 60,535 cf, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
25,140	91	Gravel roads, HSG D
1,260	89	Gravel roads, HSG C
143,580	77	Woods, Good, HSG D
93,220	73	Brush, Good, HSG D
14,410	70	Woods, Good, HSG C
3,280	65	Brush, Good, HSG C
280,890	76	Weighted Average
280,890		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
28.8	760	0.0100	0.44		**Lag/CN Method,**

Summary for Subcatchment 4: Existing Woods

Runoff = 0.95 cfs @ 12.09 hrs, Volume= 2,797 cf, Depth> 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
840	89	Gravel roads, HSG C
8,785	77	Woods, Good, HSG D
410	73	Brush, Good, HSG D
135	70	Woods, Good, HSG C
3,150	65	Brush, Good, HSG C
13,320	75	Weighted Average
13,320		100.00% Pervious Area

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

Summary for Subcatchment 5: Existing Woods

Runoff = 5.37 cfs @ 12.15 hrs, Volume= 17,895 cf, Depth> 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
6,115	89	Gravel roads, HSG C
30,410	77	Woods, Good, HSG D
8,945	73	Brush, Good, HSG D
26,840	70	Woods, Good, HSG C
19,260	65	Brush, Good, HSG C
91,570	73	Weighted Average
91,570		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	435	0.0400	0.72		**Lag/CN Method,**

Summary for Reach DP1: Design Point - Offsite Flow

Inflow Area = 248,415 sf, 3.66% Impervious, Inflow Depth > 3.05" for 10-Yr event
Inflow = 16.10 cfs @ 12.22 hrs, Volume= 63,187 cf
Outflow = 16.10 cfs @ 12.22 hrs, Volume= 63,187 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach DP2: Design Point - Offsite Flow

Inflow Area = 28,605 sf, 11.12% Impervious, Inflow Depth > 3.16" for 10-Yr event
Inflow = 2.53 cfs @ 12.09 hrs, Volume= 7,524 cf
Outflow = 2.53 cfs @ 12.09 hrs, Volume= 7,524 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach DP3: Design Point - Ditch

Inflow Area = 782,170 sf, 0.00% Impervious, Inflow Depth > 2.63" for 10-Yr event
Inflow = 30.41 cfs @ 12.52 hrs, Volume= 171,330 cf
Outflow = 30.41 cfs @ 12.52 hrs, Volume= 171,330 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach DP4: Design Point - Offsite Sheetflow

Inflow Area = 13,320 sf, 0.00% Impervious, Inflow Depth > 2.52" for 10-Yr event
Inflow = 0.95 cfs @ 12.09 hrs, Volume= 2,797 cf
Outflow = 0.95 cfs @ 12.09 hrs, Volume= 2,797 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach DP5: Design Point - Offsite Sheetflow

Inflow Area = 91,570 sf, 0.00% Impervious, Inflow Depth > 2.35" for 10-Yr event
Inflow = 5.37 cfs @ 12.15 hrs, Volume= 17,895 cf
Outflow = 5.37 cfs @ 12.15 hrs, Volume= 17,895 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach R3A: Swale

Inflow Area = 501,280 sf, 0.00% Impervious, Inflow Depth > 2.67" for 10-Yr event
Inflow = 19.82 cfs @ 12.57 hrs, Volume= 111,445 cf
Outflow = 19.76 cfs @ 12.63 hrs, Volume= 111,051 cf, Atten= 0%, Lag= 3.5 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.95 fps, Min. Travel Time= 2.1 min
Avg. Velocity = 1.19 fps, Avg. Travel Time= 5.3 min

Peak Storage= 2,515 cf @ 12.59 hrs
Average Depth at Peak Storage= 0.96'
Bank-Full Depth= 1.00' Flow Area= 7.0 sf, Capacity= 21.09 cfs

6.00' x 1.00' deep channel, n= 0.040 Winding stream, pools & shoals
Side Slope Z-value= 1.0 '/' Top Width= 8.00'
Length= 375.0' Slope= 0.0090 '/'
Inlet Invert= 53.36', Outlet Invert= 50.00'

Summary for Reach R3B: Stream

Inflow Area = 782,170 sf, 0.00% Impervious, Inflow Depth > 2.63" for 10-Yr event
Inflow = 30.46 cfs @ 12.50 hrs, Volume= 171,585 cf
Outflow = 30.41 cfs @ 12.52 hrs, Volume= 171,330 cf, Atten= 0%, Lag= 1.6 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.00 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 2.14 fps, Avg. Travel Time= 2.2 min

Peak Storage= 1,705 cf @ 12.51 hrs
Average Depth at Peak Storage= 1.18'
Bank-Full Depth= 1.50' Flow Area= 8.3 sf, Capacity= 46.72 cfs

4.00' x 1.50' deep channel, n= 0.040 Winding stream, pools & shoals
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 280.0' Slope= 0.0232 '/'
Inlet Invert= 50.00', Outlet Invert= 43.50'

Summary for Pond P3A: 24" RCP

Inflow Area = 501,280 sf, 0.00% Impervious, Inflow Depth > 2.67" for 10-Yr event
Inflow = 21.08 cfs @ 12.46 hrs, Volume= 111,549 cf
Outflow = 19.82 cfs @ 12.57 hrs, Volume= 111,445 cf, Atten= 6%, Lag= 6.3 min
Primary = 19.82 cfs @ 12.57 hrs, Volume= 111,445 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.52' @ 12.57 hrs Surf.Area= 4,363 sf Storage= 2,925 cf
Flood Elev= 58.00' Surf.Area= 8,060 sf Storage= 6,552 cf

Plug-Flow detention time= 1.8 min calculated for 111,445 cf (100% of inflow)
Center-of-Mass det. time= 1.5 min (813.9 - 812.4)

Volume	Invert	Avail.Storage	Storage Description
#1	53.80'	6,552 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
53.80	95	0	0
54.00	375	47	47
56.00	1,095	1,470	1,517
57.10	8,060	5,035	6,552

Device	Routing	Invert	Outlet Devices
#1	Primary	53.80'	**24.0" Round Culvert** L= 32.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.80' / 53.36' S= 0.0137 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf
#2	Primary	56.60'	**30.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.5' Crest Height

Primary OutFlow Max=19.79 cfs @ 12.57 hrs HW=56.51' (Free Discharge)
├─**1=Culvert** (Inlet Controls 19.79 cfs @ 6.30 fps)
└─**2=Sharp-Crested Rectangular Weir**(Controls 0.00 cfs)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1: Existing Woods/Gravel Runoff Area=248,415 sf 3.66% Impervious Runoff Depth>4.14"
Flow Length=675' Slope=0.0200 '/' Tc=15.9 min CN=81 Runoff=21.62 cfs 85,658 cf

Subcatchment2: Existing Woods/Gravel Runoff Area=28,605 sf 11.12% Impervious Runoff Depth>4.26"
Tc=6.0 min CN=82 Runoff=3.36 cfs 10,145 cf

Subcatchment3A: Existing Runoff Area=501,280 sf 0.00% Impervious Runoff Depth>3.70"
Flow Length=1,048' Slope=0.0120 '/' Tc=33.0 min CN=77 Runoff=29.07 cfs 154,642 cf

Subcatchment3B: Existing Runoff Area=280,890 sf 0.00% Impervious Runoff Depth>3.61"
Flow Length=760' Slope=0.0100 '/' Tc=28.8 min CN=76 Runoff=16.90 cfs 84,397 cf

Subcatchment4: Existing Woods Runoff Area=13,320 sf 0.00% Impervious Runoff Depth>3.53"
Tc=6.0 min CN=75 Runoff=1.33 cfs 3,920 cf

Subcatchment5: Existing Woods Runoff Area=91,570 sf 0.00% Impervious Runoff Depth>3.33"
Flow Length=435' Slope=0.0400 '/' Tc=10.0 min CN=73 Runoff=7.61 cfs 25,390 cf

Reach DP1: Design Point - Offsite Flow Inflow=21.62 cfs 85,658 cf
Outflow=21.62 cfs 85,658 cf

Reach DP2: Design Point - Offsite Flow Inflow=3.36 cfs 10,145 cf
Outflow=3.36 cfs 10,145 cf

Reach DP3: Design Point - Ditch Inflow=43.93 cfs 238,152 cf
Outflow=43.93 cfs 238,152 cf

Reach DP4: Design Point - Offsite Sheetflow Inflow=1.33 cfs 3,920 cf
Outflow=1.33 cfs 3,920 cf

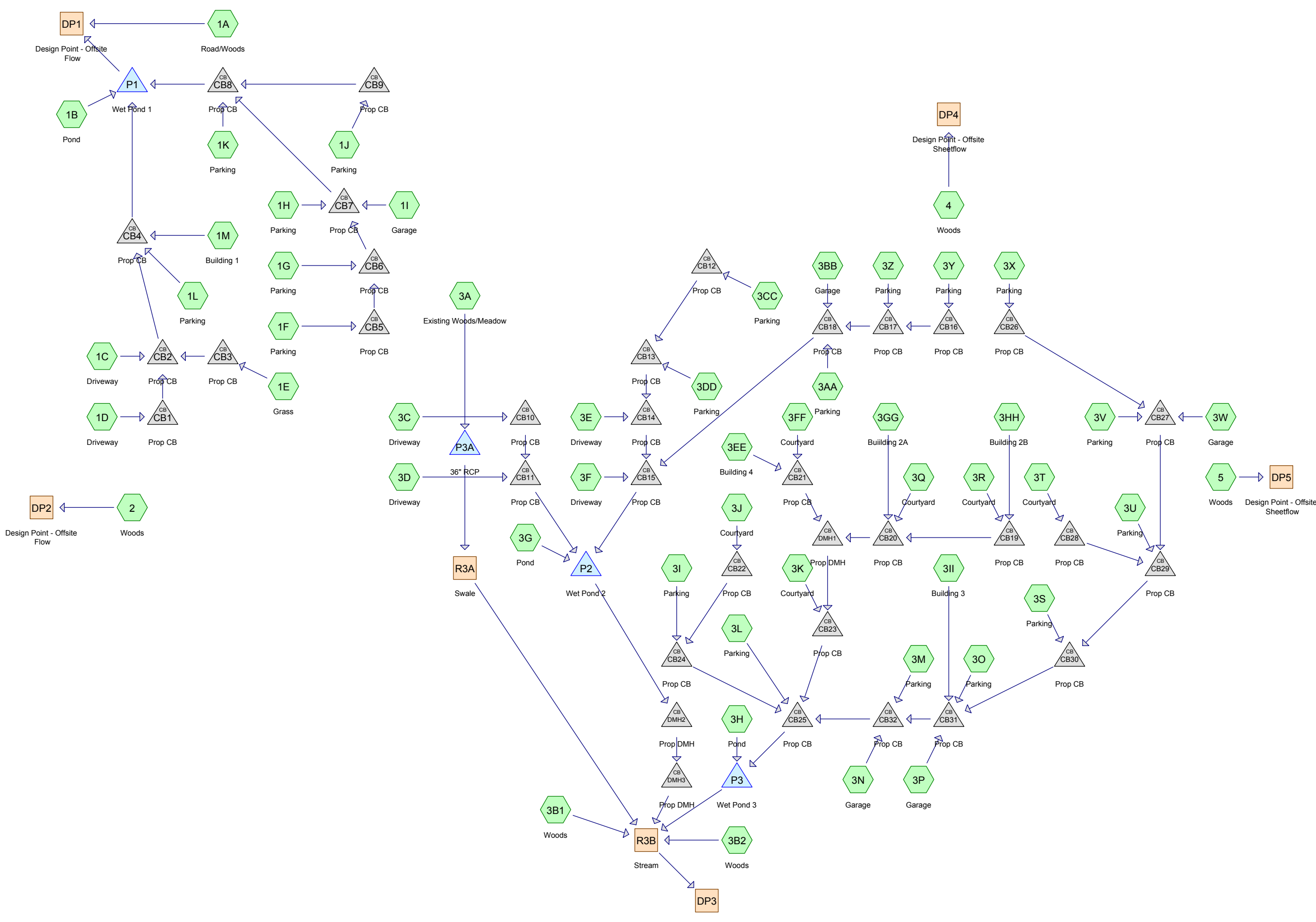
Reach DP5: Design Point - Offsite Sheetflow Inflow=7.61 cfs 25,390 cf
Outflow=7.61 cfs 25,390 cf

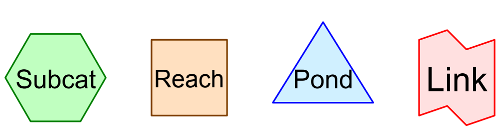
Reach R3A: Swale Avg. Flow Depth=1.22' Max Vel=3.30 fps Inflow=28.96 cfs 154,516 cf
n=0.040 L=375.0' S=0.0090 '/' Capacity=21.09 cfs Outflow=28.77 cfs 154,054 cf

Reach R3B: Stream Avg. Flow Depth=1.46' Max Vel=5.57 fps Inflow=44.31 cfs 238,451 cf
n=0.040 L=280.0' S=0.0232 '/' Capacity=46.72 cfs Outflow=43.93 cfs 238,152 cf

Pond P3A: 24" RCP Peak Elev=56.78' Storage=4,285 cf Inflow=29.07 cfs 154,642 cf
Outflow=28.96 cfs 154,516 cf

Total Runoff Area = 1,164,080 sf Runoff Volume = 364,151 cf Average Runoff Depth = 3.75"
98.95% Pervious = 1,151,810 sf 1.05% Impervious = 12,270 sf





Routing Diagram for Kittery - Post
Prepared by Hoyle, Tanner & Associates, Inc., Printed 6/20/2019
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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
25,900	79	50-75% Grass cover, Fair, HSG C (3K, 3Q, 3R, 3T, 3U, 3V, 3X, 3Y, 3Z)
124,815	84	50-75% Grass cover, Fair, HSG D (1A, 1B, 1E, 1F, 1G, 1H, 1J, 1K, 1L, 2, 3AA, 3B1, 3B2, 3CC, 3DD, 3E, 3F, 3FF, 3G, 3H, 3I, 3J, 3K, 3L, 3M, 3O, 3Q, 3S, 3T, 3U, 3X, 3Y, 3Z)
3,740	73	Brush, Good, HSG D (2)
2,150	91	Gravel roads, HSG D (1A, 1B, 3B1, 3G)
4,070	71	Meadow, non-grazed, HSG C (5)
79,680	78	Meadow, non-grazed, HSG D (1A, 3A, 3B1, 3B2, 4, 5)
20,085	98	Paved parking, HSG C (3K, 3Q, 3R, 3T, 3U, 3V, 3X, 3Y, 3Z)
185,610	98	Paved parking, HSG D (1A, 1C, 1D, 1E, 1F, 1G, 1H, 1J, 1K, 1L, 2, 3AA, 3C, 3CC, 3D, 3DD, 3E, 3F, 3FF, 3I, 3K, 3L, 3M, 3O, 3S, 3U, 3V, 3X, 3Y, 3Z)
32,680	98	Roofs, HSG C (3GG, 3HH, 3II, 3W)
47,770	98	Roofs, HSG D (1I, 1M, 3BB, 3EE, 3GG, 3II, 3N, 3P, 3W)
17,645	98	Water Surface, HSG D (1B, 3G, 3H)
619,935	77	Woods, Good, HSG D (1A, 2, 3A, 3B1, 3B2)
1,164,080	**83**	**TOTAL AREA**

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
82,735	HSG C	3GG, 3HH, 3II, 3K, 3Q, 3R, 3T, 3U, 3V, 3W, 3X, 3Y, 3Z, 5
1,081,345	HSG D	1A, 1B, 1C, 1D, 1E, 1F, 1G, 1H, 1I, 1J, 1K, 1L, 1M, 2, 3A, 3AA, 3B1, 3B2, 3BB, 3C, 3CC, 3D, 3DD, 3E, 3EE, 3F, 3FF, 3G, 3GG, 3H, 3I, 3II, 3J, 3K, 3L, 3M, 3N, 3O, 3P, 3Q, 3S, 3T, 3U, 3V, 3W, 3X, 3Y, 3Z, 4, 5
0	Other	
1,164,080		**TOTAL AREA**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Road/Woods Runoff Area=173,000 sf 6.36% Impervious Runoff Depth>1.37"
Flow Length=650' Slope=0.0200 '/' Tc=15.9 min CN=80 Runoff=5.02 cfs 19,747 cf

Subcatchment1B: Pond Runoff Area=16,500 sf 31.82% Impervious Runoff Depth>2.05"
Tc=6.0 min CN=89 Runoff=0.94 cfs 2,818 cf

Subcatchment1C: Driveway Runoff Area=7,830 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.56 cfs 1,876 cf

Subcatchment1D: Driveway Runoff Area=7,000 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.50 cfs 1,677 cf

Subcatchment1E: Grass Runoff Area=9,355 sf 40.51% Impervious Runoff Depth>2.14"
Tc=6.0 min CN=90 Runoff=0.55 cfs 1,665 cf

Subcatchment1F: Parking Runoff Area=6,145 sf 96.99% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.44 cfs 1,472 cf

Subcatchment1G: Parking Runoff Area=8,390 sf 93.56% Impervious Runoff Depth>2.79"
Tc=6.0 min CN=97 Runoff=0.60 cfs 1,949 cf

Subcatchment1H: Parking Runoff Area=4,965 sf 90.33% Impervious Runoff Depth>2.79"
Tc=6.0 min CN=97 Runoff=0.35 cfs 1,153 cf

Subcatchment1I: Garage Runoff Area=1,650 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.12 cfs 395 cf

Subcatchment1J: Parking Runoff Area=2,655 sf 91.71% Impervious Runoff Depth>2.79"
Tc=6.0 min CN=97 Runoff=0.19 cfs 617 cf

Subcatchment1K: Parking Runoff Area=8,155 sf 90.93% Impervious Runoff Depth>2.79"
Tc=6.0 min CN=97 Runoff=0.58 cfs 1,895 cf

Subcatchment1L: Parking Runoff Area=13,905 sf 93.53% Impervious Runoff Depth>2.79"
Tc=6.0 min CN=97 Runoff=0.99 cfs 3,230 cf

Subcatchment1M: Building 1 Runoff Area=15,400 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.11 cfs 3,689 cf

Subcatchment2: Woods Runoff Area=24,540 sf 9.56% Impervious Runoff Depth>1.37"
Tc=6.0 min CN=80 Runoff=0.96 cfs 2,812 cf

Subcatchment3A: Existing Runoff Area=437,860 sf 0.00% Impervious Runoff Depth>1.17"
Flow Length=1,048' Slope=0.0120 '/' Tc=33.0 min CN=77 Runoff=8.00 cfs 42,816 cf

Subcatchment3AA: Parking Runoff Area=5,550 sf 86.67% Impervious Runoff Depth>2.70"
Tc=6.0 min CN=96 Runoff=0.39 cfs 1,247 cf

Subcatchment3B1: Woods Runoff Area=55,645 sf 0.00% Impervious Runoff Depth>1.30"
Flow Length=698' Slope=0.0100 '/' Tc=24.6 min CN=79 Runoff=1.29 cfs 6,032 cf

Subcatchment3B2: Woods Runoff Area=68,025 sf 0.00% Impervious Runoff Depth>1.25"
Flow Length=326' Slope=0.0350 '/' Tc=7.4 min CN=78 Runoff=2.29 cfs 7,068 cf

Subcatchment3BB: Garage Runoff Area=1,650 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.12 cfs 395 cf

Subcatchment3C: Driveway Runoff Area=7,340 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.53 cfs 1,758 cf

Subcatchment3CC: Parking Runoff Area=6,850 sf 91.61% Impervious Runoff Depth>2.79"
Tc=6.0 min CN=97 Runoff=0.49 cfs 1,591 cf

Subcatchment3D: Driveway Runoff Area=4,930 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.36 cfs 1,181 cf

Subcatchment3DD: Parking Runoff Area=5,040 sf 82.54% Impervious Runoff Depth>2.70"
Tc=6.0 min CN=96 Runoff=0.35 cfs 1,132 cf

Subcatchment3E: Driveway Runoff Area=3,040 sf 99.01% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.22 cfs 728 cf

Subcatchment3EE: Building 4 Runoff Area=5,350 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.39 cfs 1,282 cf

Subcatchment3F: Driveway Runoff Area=2,305 sf 98.70% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.17 cfs 552 cf

Subcatchment3FF: Courtyard Runoff Area=2,915 sf 13.55% Impervious Runoff Depth>1.80"
Tc=6.0 min CN=86 Runoff=0.15 cfs 438 cf

Subcatchment3G: Pond Runoff Area=15,950 sf 26.39% Impervious Runoff Depth>1.97"
Tc=6.0 min CN=88 Runoff=0.88 cfs 2,612 cf

Subcatchment3GG: Buiilding 2A Runoff Area=16,625 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.20 cfs 3,982 cf

Subcatchment3H: Pond Runoff Area=22,660 sf 36.12% Impervious Runoff Depth>2.05"
Tc=6.0 min CN=89 Runoff=1.29 cfs 3,870 cf

Subcatchment3HH: Building 2B Runoff Area=15,225 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.10 cfs 3,647 cf

Subcatchment3I: Parking Runoff Area=13,150 sf 86.69% Impervious Runoff Depth>2.70"
Tc=6.0 min CN=96 Runoff=0.92 cfs 2,954 cf

Subcatchment3II: Building 3 Runoff Area=19,600 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=1.41 cfs 4,695 cf

Subcatchment3J: Courtyard Runoff Area=2,815 sf 0.00% Impervious Runoff Depth>1.65"
Tc=6.0 min CN=84 Runoff=0.13 cfs 388 cf

Subcatchment3K: Courtyard Runoff Area=14,820 sf 41.33% Impervious Runoff Depth>2.14"
Tc=6.0 min CN=90 Runoff=0.88 cfs 2,638 cf

Subcatchment3L: Parking Runoff Area=10,540 sf 98.77% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.76 cfs 2,525 cf

Subcatchment3M: Parking Runoff Area=5,530 sf 92.95% Impervious Runoff Depth>2.79"
Tc=6.0 min CN=97 Runoff=0.39 cfs 1,285 cf

Subcatchment3N: Garage Runoff Area=1,650 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.12 cfs 395 cf

Subcatchment3O: Parking Runoff Area=5,540 sf 84.84% Impervious Runoff Depth>2.70"
Tc=6.0 min CN=96 Runoff=0.39 cfs 1,244 cf

Subcatchment3P: Garage Runoff Area=1,650 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.12 cfs 395 cf

Subcatchment3Q: Courtyard Runoff Area=10,030 sf 25.02% Impervious Runoff Depth>1.65"
Tc=6.0 min CN=84 Runoff=0.47 cfs 1,382 cf

Subcatchment3R: Courtyard Runoff Area=7,980 sf 24.56% Impervious Runoff Depth>1.65"
Tc=6.0 min CN=84 Runoff=0.37 cfs 1,099 cf

Subcatchment3S: Parking Runoff Area=9,495 sf 84.41% Impervious Runoff Depth>2.70"
Tc=6.0 min CN=96 Runoff=0.66 cfs 2,133 cf

Subcatchment3T: Courtyard Runoff Area=9,055 sf 14.96% Impervious Runoff Depth>1.51"
Tc=6.0 min CN=82 Runoff=0.39 cfs 1,139 cf

Subcatchment3U: Parking Runoff Area=12,055 sf 94.90% Impervious Runoff Depth>2.79"
Tc=6.0 min CN=97 Runoff=0.86 cfs 2,801 cf

Subcatchment3V: Parking Runoff Area=6,415 sf 78.02% Impervious Runoff Depth>2.51"
Tc=6.0 min CN=94 Runoff=0.43 cfs 1,339 cf

Subcatchment3W: Garage Runoff Area=1,650 sf 100.00% Impervious Runoff Depth>2.87"
Tc=6.0 min CN=98 Runoff=0.12 cfs 395 cf

Subcatchment3X: Parking Runoff Area=12,600 sf 88.65% Impervious Runoff Depth>2.70"
Tc=6.0 min CN=96 Runoff=0.88 cfs 2,830 cf

Subcatchment3Y: Parking Runoff Area=11,630 sf 90.07% Impervious Runoff Depth>2.70"
Tc=6.0 min CN=96 Runoff=0.81 cfs 2,612 cf

Subcatchment3Z: Parking Runoff Area=11,020 sf 87.89% Impervious Runoff Depth>2.70"
Tc=6.0 min CN=96 Runoff=0.77 cfs 2,475 cf

Subcatchment4: Woods
Runoff Area=1,535 sf 0.00% Impervious Runoff Depth>1.25"
Tc=6.0 min CN=78 Runoff=0.05 cfs 160 cf

Subcatchment5: Woods
Runoff Area=18,870 sf 0.00% Impervious Runoff Depth>1.13"
Flow Length=295' Tc=10.3 min CN=76 Runoff=0.52 cfs 1,770 cf

Reach DP1: Design Point - Offsite Flow
Inflow=5.77 cfs 33,892 cf
Outflow=5.77 cfs 33,892 cf

Reach DP2: Design Point - Offsite Flow
Inflow=0.96 cfs 2,812 cf
Outflow=0.96 cfs 2,812 cf

Reach DP3: Design Point - Stream
Inflow=12.39 cfs 92,576 cf
Outflow=12.39 cfs 92,576 cf

Reach DP4: Design Point - Offsite Sheetflow
Inflow=0.05 cfs 160 cf
Outflow=0.05 cfs 160 cf

Reach DP5: Design Point - Offsite Sheetflow
Inflow=0.52 cfs 1,770 cf
Outflow=0.52 cfs 1,770 cf

Reach R3A: Swale
Avg. Flow Depth=0.56' Max Vel=2.16 fps Inflow=8.00 cfs 42,721 cf
n=0.040 L=375.0' S=0.0089 '/' Capacity=21.06 cfs Outflow=7.95 cfs 42,475 cf

Reach R3B: Stream
Avg. Flow Depth=0.70' Max Vel=3.79 fps Inflow=12.43 cfs 92,798 cf
n=0.040 L=280.0' S=0.0232 '/' Capacity=46.72 cfs Outflow=12.39 cfs 92,576 cf

Pond CB1: Prop CB
Peak Elev=56.67' Inflow=0.50 cfs 1,677 cf
12.0" Round Culvert n=0.012 L=18.0' S=0.0056 '/' Outflow=0.50 cfs 1,677 cf

Pond CB10: Prop CB
Peak Elev=55.13' Inflow=0.53 cfs 1,758 cf
12.0" Round Culvert n=0.012 L=18.0' S=0.0056 '/' Outflow=0.53 cfs 1,758 cf

Pond CB11: Prop CB
Peak Elev=55.00' Inflow=0.88 cfs 2,939 cf
12.0" Round Culvert n=0.012 L=150.0' S=0.0067 '/' Outflow=0.88 cfs 2,939 cf

Pond CB12: Prop CB
Peak Elev=55.26' Inflow=0.49 cfs 1,591 cf
12.0" Round Culvert n=0.012 L=30.0' S=0.0050 '/' Outflow=0.49 cfs 1,591 cf

Pond CB13: Prop CB
Peak Elev=55.13' Inflow=0.84 cfs 2,723 cf
12.0" Round Culvert n=0.012 L=69.0' S=0.0051 '/' Outflow=0.84 cfs 2,723 cf

Pond CB14: Prop CB
Peak Elev=54.58' Inflow=1.06 cfs 3,452 cf
15.0" Round Culvert n=0.012 L=18.0' S=0.0056 '/' Outflow=1.06 cfs 3,452 cf

Pond CB15: Prop CB
Peak Elev=54.66' Inflow=3.31 cfs 10,733 cf
18.0" Round Culvert n=0.012 L=24.0' S=0.0062 '/' Outflow=3.31 cfs 10,733 cf

Pond CB16: Prop CB
Peak Elev=57.11' Inflow=0.81 cfs 2,612 cf
12.0" Round Culvert n=0.012 L=145.0' S=0.0052 '/' Outflow=0.81 cfs 2,612 cf

Pond CB17: Prop CB Peak Elev=56.27' Inflow=1.58 cfs 5,088 cf
15.0" Round Culvert n=0.012 L=115.0' S=0.0052 '/' Outflow=1.58 cfs 5,088 cf

Pond CB18: Prop CB Peak Elev=55.69' Inflow=2.09 cfs 6,729 cf
15.0" Round Culvert n=0.012 L=202.0' S=0.0050 '/' Outflow=2.09 cfs 6,729 cf

Pond CB19: Prop CB Peak Elev=56.45' Inflow=1.47 cfs 4,746 cf
15.0" Round Culvert n=0.012 L=122.0' S=0.0049 '/' Outflow=1.47 cfs 4,746 cf

Pond CB2: Prop CB Peak Elev=56.58' Inflow=1.62 cfs 5,218 cf
15.0" Round Culvert n=0.012 L=151.0' S=0.0050 '/' Outflow=1.62 cfs 5,218 cf

Pond CB20: Prop CB Peak Elev=55.83' Inflow=3.14 cfs 10,110 cf
18.0" Round Culvert n=0.012 L=94.0' S=0.0069 '/' Outflow=3.14 cfs 10,110 cf

Pond CB21: Prop CB Peak Elev=56.67' Inflow=0.53 cfs 1,720 cf
12.0" Round Culvert n=0.012 L=93.0' S=0.0172 '/' Outflow=0.53 cfs 1,720 cf

Pond CB22: Prop CB Peak Elev=55.97' Inflow=0.13 cfs 388 cf
12.0" Round Culvert n=0.012 L=73.0' S=0.0247 '/' Outflow=0.13 cfs 388 cf

Pond CB23: Prop CB Peak Elev=54.21' Inflow=4.55 cfs 14,468 cf
24.0" Round Culvert n=0.012 L=79.0' S=0.0215 '/' Outflow=4.55 cfs 14,468 cf

Pond CB24: Prop CB Peak Elev=54.43' Inflow=1.05 cfs 3,341 cf
12.0" Round Culvert n=0.012 L=124.0' S=0.0105 '/' Outflow=1.05 cfs 3,341 cf

Pond CB25: Prop CB Peak Elev=52.24' Inflow=12.12 cfs 38,986 cf
36.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=12.12 cfs 38,986 cf

Pond CB26: Prop CB Peak Elev=57.24' Inflow=0.88 cfs 2,830 cf
12.0" Round Culvert n=0.012 L=110.0' S=0.0050 '/' Outflow=0.88 cfs 2,830 cf

Pond CB27: Prop CB Peak Elev=56.54' Inflow=1.43 cfs 4,565 cf
15.0" Round Culvert n=0.012 L=154.0' S=0.0049 '/' Outflow=1.43 cfs 4,565 cf

Pond CB28: Prop CB Peak Elev=56.14' Inflow=0.39 cfs 1,139 cf
12.0" Round Culvert n=0.012 L=73.0' S=0.0055 '/' Outflow=0.39 cfs 1,139 cf

Pond CB29: Prop CB Peak Elev=55.73' Inflow=2.67 cfs 8,505 cf
18.0" Round Culvert n=0.012 L=182.0' S=0.0049 '/' Outflow=2.67 cfs 8,505 cf

Pond CB3: Prop CB Peak Elev=56.69' Inflow=0.55 cfs 1,665 cf
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=0.55 cfs 1,665 cf

Pond CB30: Prop CB Peak Elev=54.85' Inflow=3.33 cfs 10,637 cf
18.0" Round Culvert n=0.012 L=135.0' S=0.0052 '/' Outflow=3.33 cfs 10,637 cf

Pond CB31: Prop CB Peak Elev=53.81' Inflow=5.25 cfs 16,972 cf
24.0" Round Culvert n=0.012 L=86.0' S=0.0052 '/' Outflow=5.25 cfs 16,972 cf

Pond CB32: Prop CB Peak Elev=53.31' Inflow=5.76 cfs 18,652 cf
24.0" Round Culvert n=0.012 L=110.0' S=0.0050 '/' Outflow=5.76 cfs 18,652 cf

Pond CB4: Prop CB Peak Elev=55.95' Inflow=3.72 cfs 12,137 cf
18.0" Round Culvert n=0.012 L=80.0' S=0.0050 '/' Outflow=3.72 cfs 12,137 cf

Pond CB5: Prop CB Peak Elev=57.19' Inflow=0.44 cfs 1,472 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0071 '/' Outflow=0.44 cfs 1,472 cf

Pond CB6: Prop CB Peak Elev=57.24' Inflow=1.04 cfs 3,421 cf
12.0" Round Culvert n=0.012 L=152.0' S=0.0049 '/' Outflow=1.04 cfs 3,421 cf

Pond CB7: Prop CB Peak Elev=56.31' Inflow=1.51 cfs 4,970 cf
15.0" Round Culvert n=0.012 L=125.0' S=0.0052 '/' Outflow=1.51 cfs 4,970 cf

Pond CB8: Prop CB Peak Elev=55.57' Inflow=2.28 cfs 7,481 cf
18.0" Round Culvert n=0.012 L=60.0' S=0.0042 '/' Outflow=2.28 cfs 7,481 cf

Pond CB9: Prop CB Peak Elev=55.99' Inflow=0.19 cfs 617 cf
12.0" Round Culvert n=0.012 L=94.0' S=0.0053 '/' Outflow=0.19 cfs 617 cf

Pond DMH1: Prop DMH Peak Elev=55.25' Inflow=3.67 cfs 11,830 cf
18.0" Round Culvert n=0.012 L=56.0' S=0.0054 '/' Outflow=3.67 cfs 11,830 cf

Pond DMH2: Prop DMH Peak Elev=49.06' Inflow=0.43 cfs 9,313 cf
24.0" Round Culvert n=0.012 L=55.0' S=0.0382 '/' Outflow=0.43 cfs 9,313 cf

Pond DMH3: Prop DMH Peak Elev=46.86' Inflow=0.43 cfs 9,313 cf
24.0" Round Culvert n=0.012 L=13.0' S=0.0154 '/' Outflow=0.43 cfs 9,313 cf

Pond P1: Wet Pond 1 Peak Elev=54.95' Storage=12,518 cf Inflow=6.94 cfs 22,436 cf
Outflow=1.15 cfs 14,146 cf

Pond P2: Wet Pond 2 Peak Elev=53.84' Storage=9,898 cf Inflow=5.07 cfs 16,285 cf
Outflow=0.43 cfs 9,313 cf

Pond P3: Wet Pond 3 Peak Elev=51.30' Storage=23,239 cf Inflow=13.41 cfs 42,856 cf
Outflow=2.49 cfs 27,910 cf

Pond P3A: 36" RCP Peak Elev=55.25' Storage=325 cf Inflow=8.00 cfs 42,816 cf
36.0" Round Culvert w/ 6.0" inside fill n=0.012 L=50.0' S=0.0090 '/' Outflow=8.00 cfs 42,721 cf

Total Runoff Area = 1,164,080 sf Runoff Volume = 161,981 cf Average Runoff Depth = 1.67"
73.90% Pervious = 860,290 sf 26.10% Impervious = 303,790 sf

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Road/Woods Runoff Area=173,000 sf 6.36% Impervious Runoff Depth>2.96"
Flow Length=650' Slope=0.0200 '/' Tc=15.9 min CN=80 Runoff=10.89 cfs 42,659 cf

Subcatchment1B: Pond Runoff Area=16,500 sf 31.82% Impervious Runoff Depth>3.85"
Tc=6.0 min CN=89 Runoff=1.71 cfs 5,298 cf

Subcatchment1C: Driveway Runoff Area=7,830 sf 100.00% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=0.91 cfs 3,073 cf

Subcatchment1D: Driveway Runoff Area=7,000 sf 100.00% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=0.82 cfs 2,748 cf

Subcatchment1E: Grass Runoff Area=9,355 sf 40.51% Impervious Runoff Depth>3.96"
Tc=6.0 min CN=90 Runoff=0.99 cfs 3,084 cf

Subcatchment1F: Parking Runoff Area=6,145 sf 96.99% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=0.72 cfs 2,412 cf

Subcatchment1G: Parking Runoff Area=8,390 sf 93.56% Impervious Runoff Depth>4.63"
Tc=6.0 min CN=97 Runoff=0.97 cfs 3,240 cf

Subcatchment1H: Parking Runoff Area=4,965 sf 90.33% Impervious Runoff Depth>4.63"
Tc=6.0 min CN=97 Runoff=0.58 cfs 1,918 cf

Subcatchment1I: Garage Runoff Area=1,650 sf 100.00% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=0.19 cfs 648 cf

Subcatchment1J: Parking Runoff Area=2,655 sf 91.71% Impervious Runoff Depth>4.63"
Tc=6.0 min CN=97 Runoff=0.31 cfs 1,025 cf

Subcatchment1K: Parking Runoff Area=8,155 sf 90.93% Impervious Runoff Depth>4.63"
Tc=6.0 min CN=97 Runoff=0.95 cfs 3,150 cf

Subcatchment1L: Parking Runoff Area=13,905 sf 93.53% Impervious Runoff Depth>4.63"
Tc=6.0 min CN=97 Runoff=1.61 cfs 5,370 cf

Subcatchment1M: Building 1 Runoff Area=15,400 sf 100.00% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=1.80 cfs 6,045 cf

Subcatchment2: Woods Runoff Area=24,540 sf 9.56% Impervious Runoff Depth>2.97"
Tc=6.0 min CN=80 Runoff=2.05 cfs 6,071 cf

Subcatchment3A: Existing Runoff Area=437,860 sf 0.00% Impervious Runoff Depth>2.67"
Flow Length=1,048' Slope=0.0120 '/' Tc=33.0 min CN=77 Runoff=18.42 cfs 97,437 cf

Subcatchment3AA: Parking Runoff Area=5,550 sf 86.67% Impervious Runoff Depth>4.55"
Tc=6.0 min CN=96 Runoff=0.64 cfs 2,104 cf

Subcatchment3B1: Woods Runoff Area=55,645 sf 0.00% Impervious Runoff Depth>2.86"
Flow Length=698' Slope=0.0100 '/' Tc=24.6 min CN=79 Runoff=2.84 cfs 13,256 cf

Subcatchment3B2: Woods Runoff Area=68,025 sf 0.00% Impervious Runoff Depth>2.78"
Flow Length=326' Slope=0.0350 '/' Tc=7.4 min CN=78 Runoff=5.14 cfs 15,782 cf

Subcatchment3BB: Garage Runoff Area=1,650 sf 100.00% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=0.19 cfs 648 cf

Subcatchment3C: Driveway Runoff Area=7,340 sf 100.00% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=0.86 cfs 2,881 cf

Subcatchment3CC: Parking Runoff Area=6,850 sf 91.61% Impervious Runoff Depth>4.63"
Tc=6.0 min CN=97 Runoff=0.79 cfs 2,646 cf

Subcatchment3D: Driveway Runoff Area=4,930 sf 100.00% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=0.58 cfs 1,935 cf

Subcatchment3DD: Parking Runoff Area=5,040 sf 82.54% Impervious Runoff Depth>4.55"
Tc=6.0 min CN=96 Runoff=0.58 cfs 1,910 cf

Subcatchment3E: Driveway Runoff Area=3,040 sf 99.01% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=0.35 cfs 1,193 cf

Subcatchment3EE: Building 4 Runoff Area=5,350 sf 100.00% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=0.62 cfs 2,100 cf

Subcatchment3F: Driveway Runoff Area=2,305 sf 98.70% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=0.27 cfs 905 cf

Subcatchment3FF: Courtyard Runoff Area=2,915 sf 13.55% Impervious Runoff Depth>3.55"
Tc=6.0 min CN=86 Runoff=0.28 cfs 862 cf

Subcatchment3G: Pond Runoff Area=15,950 sf 26.39% Impervious Runoff Depth>3.75"
Tc=6.0 min CN=88 Runoff=1.62 cfs 4,986 cf

Subcatchment3GG: Buiilding 2A Runoff Area=16,625 sf 100.00% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=1.94 cfs 6,526 cf

Subcatchment3H: Pond Runoff Area=22,660 sf 36.12% Impervious Runoff Depth>3.85"
Tc=6.0 min CN=89 Runoff=2.35 cfs 7,276 cf

Subcatchment3HH: Building 2B Runoff Area=15,225 sf 100.00% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=1.78 cfs 5,976 cf

Subcatchment3I: Parking Runoff Area=13,150 sf 86.69% Impervious Runoff Depth>4.55"
Tc=6.0 min CN=96 Runoff=1.51 cfs 4,984 cf

Subcatchment3II: Building 3 Runoff Area=19,600 sf 100.00% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=2.29 cfs 7,693 cf

Subcatchment3J: Courtyard Runoff Area=2,815 sf 0.00% Impervious Runoff Depth>3.35"
Tc=6.0 min CN=84 Runoff=0.26 cfs 786 cf

Subcatchment3K: Courtyard Runoff Area=14,820 sf 41.33% Impervious Runoff Depth>3.96"
Tc=6.0 min CN=90 Runoff=1.57 cfs 4,885 cf

Subcatchment3L: Parking Runoff Area=10,540 sf 98.77% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=1.23 cfs 4,137 cf

Subcatchment3M: Parking Runoff Area=5,530 sf 92.95% Impervious Runoff Depth>4.63"
Tc=6.0 min CN=97 Runoff=0.64 cfs 2,136 cf

Subcatchment3N: Garage Runoff Area=1,650 sf 100.00% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=0.19 cfs 648 cf

Subcatchment3O: Parking Runoff Area=5,540 sf 84.84% Impervious Runoff Depth>4.55"
Tc=6.0 min CN=96 Runoff=0.64 cfs 2,100 cf

Subcatchment3P: Garage Runoff Area=1,650 sf 100.00% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=0.19 cfs 648 cf

Subcatchment3Q: Courtyard Runoff Area=10,030 sf 25.02% Impervious Runoff Depth>3.35"
Tc=6.0 min CN=84 Runoff=0.93 cfs 2,800 cf

Subcatchment3R: Courtyard Runoff Area=7,980 sf 24.56% Impervious Runoff Depth>3.35"
Tc=6.0 min CN=84 Runoff=0.74 cfs 2,228 cf

Subcatchment3S: Parking Runoff Area=9,495 sf 84.41% Impervious Runoff Depth>4.55"
Tc=6.0 min CN=96 Runoff=1.09 cfs 3,599 cf

Subcatchment3T: Courtyard Runoff Area=9,055 sf 14.96% Impervious Runoff Depth>3.16"
Tc=6.0 min CN=82 Runoff=0.80 cfs 2,382 cf

Subcatchment3U: Parking Runoff Area=12,055 sf 94.90% Impervious Runoff Depth>4.63"
Tc=6.0 min CN=97 Runoff=1.40 cfs 4,656 cf

Subcatchment3V: Parking Runoff Area=6,415 sf 78.02% Impervious Runoff Depth>4.36"
Tc=6.0 min CN=94 Runoff=0.72 cfs 2,330 cf

Subcatchment3W: Garage Runoff Area=1,650 sf 100.00% Impervious Runoff Depth>4.71"
Tc=6.0 min CN=98 Runoff=0.19 cfs 648 cf

Subcatchment3X: Parking Runoff Area=12,600 sf 88.65% Impervious Runoff Depth>4.55"
Tc=6.0 min CN=96 Runoff=1.45 cfs 4,776 cf

Subcatchment3Y: Parking Runoff Area=11,630 sf 90.07% Impervious Runoff Depth>4.55"
Tc=6.0 min CN=96 Runoff=1.34 cfs 4,408 cf

Subcatchment3Z: Parking Runoff Area=11,020 sf 87.89% Impervious Runoff Depth>4.55"
Tc=6.0 min CN=96 Runoff=1.27 cfs 4,177 cf

Subcatchment4: Woods Runoff Area=1,535 sf 0.00% Impervious Runoff Depth>2.79"
Tc=6.0 min CN=78 Runoff=0.12 cfs 356 cf

Subcatchment5: Woods Runoff Area=18,870 sf 0.00% Impervious Runoff Depth>2.60"
Flow Length=295' Tc=10.3 min CN=76 Runoff=1.22 cfs 4,093 cf

Reach DP1: Design Point - Offsite Flow Inflow=14.04 cfs 71,907 cf
Outflow=14.04 cfs 71,907 cf

Reach DP2: Design Point - Offsite Flow Inflow=2.05 cfs 6,071 cf
Outflow=2.05 cfs 6,071 cf

Reach DP3: Design Point - Stream Inflow=29.86 cfs 202,839 cf
Outflow=29.86 cfs 202,839 cf

Reach DP4: Design Point - Offsite Sheetflow Inflow=0.12 cfs 356 cf
Outflow=0.12 cfs 356 cf

Reach DP5: Design Point - Offsite Sheetflow Inflow=1.22 cfs 4,093 cf
Outflow=1.22 cfs 4,093 cf

Reach R3A: Swale Avg. Flow Depth=0.92' Max Vel=2.88 fps Inflow=18.41 cfs 97,328 cf
n=0.040 L=375.0' S=0.0089 '/' Capacity=21.06 cfs Outflow=18.29 cfs 96,966 cf

Reach R3B: Stream Avg. Flow Depth=1.16' Max Vel=4.98 fps Inflow=29.94 cfs 203,169 cf
n=0.040 L=280.0' S=0.0232 '/' Capacity=46.72 cfs Outflow=29.86 cfs 202,839 cf

Pond CB1: Prop CB Peak Elev=56.80' Inflow=0.82 cfs 2,748 cf
12.0" Round Culvert n=0.012 L=18.0' S=0.0056 '/' Outflow=0.82 cfs 2,748 cf

Pond CB10: Prop CB Peak Elev=55.26' Inflow=0.86 cfs 2,881 cf
12.0" Round Culvert n=0.012 L=18.0' S=0.0056 '/' Outflow=0.86 cfs 2,881 cf

Pond CB11: Prop CB Peak Elev=55.16' Inflow=1.43 cfs 4,816 cf
12.0" Round Culvert n=0.012 L=150.0' S=0.0067 '/' Outflow=1.43 cfs 4,816 cf

Pond CB12: Prop CB Peak Elev=55.38' Inflow=0.79 cfs 2,646 cf
12.0" Round Culvert n=0.012 L=30.0' S=0.0050 '/' Outflow=0.79 cfs 2,646 cf

Pond CB13: Prop CB Peak Elev=55.31' Inflow=1.37 cfs 4,556 cf
12.0" Round Culvert n=0.012 L=69.0' S=0.0051 '/' Outflow=1.37 cfs 4,556 cf

Pond CB14: Prop CB Peak Elev=54.76' Inflow=1.73 cfs 5,749 cf
15.0" Round Culvert n=0.012 L=18.0' S=0.0056 '/' Outflow=1.73 cfs 5,749 cf

Pond CB15: Prop CB Peak Elev=55.02' Inflow=5.44 cfs 17,990 cf
18.0" Round Culvert n=0.012 L=24.0' S=0.0062 '/' Outflow=5.44 cfs 17,990 cf

Pond CB16: Prop CB Peak Elev=57.28' Inflow=1.34 cfs 4,408 cf
12.0" Round Culvert n=0.012 L=145.0' S=0.0052 '/' Outflow=1.34 cfs 4,408 cf

Pond CB17: Prop CB Peak Elev=56.51' Inflow=2.61 cfs 8,585 cf
15.0" Round Culvert n=0.012 L=115.0' S=0.0052 '/' Outflow=2.61 cfs 8,585 cf

Pond CB18: Prop CB Peak Elev=55.97' Inflow=3.44 cfs 11,336 cf
15.0" Round Culvert n=0.012 L=202.0' S=0.0050 '/' Outflow=3.44 cfs 11,336 cf

Pond CB19: Prop CB Peak Elev=56.70' Inflow=2.52 cfs 8,204 cf
15.0" Round Culvert n=0.012 L=122.0' S=0.0049 '/' Outflow=2.52 cfs 8,204 cf

Pond CB2: Prop CB Peak Elev=56.83' Inflow=2.72 cfs 8,905 cf
15.0" Round Culvert n=0.012 L=151.0' S=0.0050 '/' Outflow=2.72 cfs 8,905 cf

Pond CB20: Prop CB Peak Elev=56.18' Inflow=5.39 cfs 17,529 cf
18.0" Round Culvert n=0.012 L=94.0' S=0.0069 '/' Outflow=5.39 cfs 17,529 cf

Pond CB21: Prop CB Peak Elev=56.79' Inflow=0.91 cfs 2,962 cf
12.0" Round Culvert n=0.012 L=93.0' S=0.0172 '/' Outflow=0.91 cfs 2,962 cf

Pond CB22: Prop CB Peak Elev=56.05' Inflow=0.26 cfs 786 cf
12.0" Round Culvert n=0.012 L=73.0' S=0.0247 '/' Outflow=0.26 cfs 786 cf

Pond CB23: Prop CB Peak Elev=54.55' Inflow=7.87 cfs 25,376 cf
24.0" Round Culvert n=0.012 L=79.0' S=0.0215 '/' Outflow=7.87 cfs 25,376 cf

Pond CB24: Prop CB Peak Elev=54.63' Inflow=1.77 cfs 5,770 cf
12.0" Round Culvert n=0.012 L=124.0' S=0.0105 '/' Outflow=1.77 cfs 5,770 cf

Pond CB25: Prop CB Peak Elev=52.81' Inflow=20.48 cfs 66,898 cf
36.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=20.48 cfs 66,898 cf

Pond CB26: Prop CB Peak Elev=57.42' Inflow=1.45 cfs 4,776 cf
12.0" Round Culvert n=0.012 L=110.0' S=0.0050 '/' Outflow=1.45 cfs 4,776 cf

Pond CB27: Prop CB Peak Elev=56.76' Inflow=2.36 cfs 7,754 cf
15.0" Round Culvert n=0.012 L=154.0' S=0.0049 '/' Outflow=2.36 cfs 7,754 cf

Pond CB28: Prop CB Peak Elev=56.31' Inflow=0.80 cfs 2,382 cf
12.0" Round Culvert n=0.012 L=73.0' S=0.0055 '/' Outflow=0.80 cfs 2,382 cf

Pond CB29: Prop CB Peak Elev=56.05' Inflow=4.56 cfs 14,792 cf
18.0" Round Culvert n=0.012 L=182.0' S=0.0049 '/' Outflow=4.56 cfs 14,792 cf

Pond CB3: Prop CB Peak Elev=56.86' Inflow=0.99 cfs 3,084 cf
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=0.99 cfs 3,084 cf

Pond CB30: Prop CB Peak Elev=55.23' Inflow=5.65 cfs 18,391 cf
18.0" Round Culvert n=0.012 L=135.0' S=0.0052 '/' Outflow=5.65 cfs 18,391 cf

Pond CB31: Prop CB Peak Elev=54.21' Inflow=8.77 cfs 28,832 cf
24.0" Round Culvert n=0.012 L=86.0' S=0.0052 '/' Outflow=8.77 cfs 28,832 cf

Pond CB32: Prop CB Peak Elev=53.74' Inflow=9.61 cfs 31,615 cf
24.0" Round Culvert n=0.012 L=110.0' S=0.0050 '/' Outflow=9.61 cfs 31,615 cf

Pond CB4: Prop CB Peak Elev=56.35' Inflow=6.13 cfs 20,320 cf
18.0" Round Culvert n=0.012 L=80.0' S=0.0050 '/' Outflow=6.13 cfs 20,320 cf

Pond CB5: Prop CB Peak Elev=57.31' Inflow=0.72 cfs 2,412 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0071 '/' Outflow=0.72 cfs 2,412 cf

Pond CB6: Prop CB Peak Elev=57.44' Inflow=1.69 cfs 5,652 cf
12.0" Round Culvert n=0.012 L=152.0' S=0.0049 '/' Outflow=1.69 cfs 5,652 cf

Pond CB7: Prop CB Peak Elev=56.52' Inflow=2.46 cfs 8,218 cf
15.0" Round Culvert n=0.012 L=125.0' S=0.0052 '/' Outflow=2.46 cfs 8,218 cf

Pond CB8: Prop CB Peak Elev=55.84' Inflow=3.71 cfs 12,392 cf
18.0" Round Culvert n=0.012 L=60.0' S=0.0042 '/' Outflow=3.71 cfs 12,392 cf

Pond CB9: Prop CB Peak Elev=56.06' Inflow=0.31 cfs 1,025 cf
12.0" Round Culvert n=0.012 L=94.0' S=0.0053 '/' Outflow=0.31 cfs 1,025 cf

Pond DMH1: Prop DMH Peak Elev=55.69' Inflow=6.30 cfs 20,491 cf
18.0" Round Culvert n=0.012 L=56.0' S=0.0054 '/' Outflow=6.30 cfs 20,491 cf

Pond DMH2: Prop DMH Peak Elev=49.15' Inflow=0.76 cfs 18,799 cf
24.0" Round Culvert n=0.012 L=55.0' S=0.0382 '/' Outflow=0.76 cfs 18,799 cf

Pond DMH3: Prop DMH Peak Elev=46.96' Inflow=0.76 cfs 18,799 cf
24.0" Round Culvert n=0.012 L=13.0' S=0.0154 '/' Outflow=0.76 cfs 18,799 cf

Pond P1: Wet Pond 1 Peak Elev=55.58' Storage=18,851 cf Inflow=11.56 cfs 38,011 cf
Outflow=3.53 cfs 29,248 cf

Pond P2: Wet Pond 2 Peak Elev=54.66' Storage=17,086 cf Inflow=8.49 cfs 27,792 cf
Outflow=0.76 cfs 18,799 cf

Pond P3: Wet Pond 3 Peak Elev=52.09' Storage=35,418 cf Inflow=22.83 cfs 74,174 cf
Outflow=7.35 cfs 58,366 cf

Pond P3A: 36" RCP Peak Elev=55.92' Storage=595 cf Inflow=18.42 cfs 97,437 cf
36.0" Round Culvert w/ 6.0" inside fill n=0.012 L=50.0' S=0.0090 '/' Outflow=18.41 cfs 97,328 cf

Total Runoff Area = 1,164,080 sf Runoff Volume = 319,631 cf Average Runoff Depth = 3.29"
73.90% Pervious = 860,290 sf 26.10% Impervious = 303,790 sf

Summary for Subcatchment 1A: Road/Woods

Runoff = 10.89 cfs @ 12.22 hrs, Volume= 42,659 cf, Depth> 2.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
250	91	Gravel roads, HSG D
33,945	84	50-75% Grass cover, Fair, HSG D
2,445	78	Meadow, non-grazed, HSG D
125,365	77	Woods, Good, HSG D
10,995	98	Paved parking, HSG D
173,000	80	Weighted Average
162,005		93.64% Pervious Area
10,995		6.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.9	650	0.0200	0.68		**Lag/CN Method,**

Summary for Subcatchment 1B: Pond

Runoff = 1.71 cfs @ 12.09 hrs, Volume= 5,298 cf, Depth> 3.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
5,250	98	Water Surface, HSG D
10,665	84	50-75% Grass cover, Fair, HSG D
585	91	Gravel roads, HSG D
16,500	89	Weighted Average
11,250		68.18% Pervious Area
5,250		31.82% Impervious Area

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

Summary for Subcatchment 1C: Driveway

Runoff = 0.91 cfs @ 12.09 hrs, Volume= 3,073 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
7,830	98	Paved parking, HSG D
7,830		100.00% Impervious Area

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

Summary for Subcatchment 1D: Driveway

Runoff = 0.82 cfs @ 12.09 hrs, Volume= 2,748 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
7,000	98	Paved parking, HSG D
7,000		100.00% Impervious Area

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

Summary for Subcatchment 1E: Grass

Runoff = 0.99 cfs @ 12.09 hrs, Volume= 3,084 cf, Depth> 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
3,790	98	Paved parking, HSG D
5,565	84	50-75% Grass cover, Fair, HSG D
9,355	90	Weighted Average
5,565		59.49% Pervious Area
3,790		40.51% Impervious Area

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

Summary for Subcatchment 1F: Parking

Runoff = 0.72 cfs @ 12.09 hrs, Volume= 2,412 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
5,960	98	Paved parking, HSG D
185	84	50-75% Grass cover, Fair, HSG D
6,145	98	Weighted Average
185		3.01% Pervious Area
5,960		96.99% Impervious Area

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

Summary for Subcatchment 1G: Parking

Runoff = 0.97 cfs @ 12.09 hrs, Volume= 3,240 cf, Depth> 4.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
7,850	98	Paved parking, HSG D
540	84	50-75% Grass cover, Fair, HSG D
8,390	97	Weighted Average
540		6.44% Pervious Area
7,850		93.56% Impervious Area

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

Summary for Subcatchment 1H: Parking

Runoff = 0.58 cfs @ 12.09 hrs, Volume= 1,918 cf, Depth> 4.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
4,485	98	Paved parking, HSG D
480	84	50-75% Grass cover, Fair, HSG D
4,965	97	Weighted Average
480		9.67% Pervious Area
4,485		90.33% Impervious Area

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

Summary for Subcatchment 1I: Garage

Runoff = 0.19 cfs @ 12.09 hrs, Volume= 648 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
1,650	98	Roofs, HSG D
1,650		100.00% Impervious Area

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

Summary for Subcatchment 1J: Parking

Runoff = 0.31 cfs @ 12.09 hrs, Volume= 1,025 cf, Depth> 4.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
2,435	98	Paved parking, HSG D
220	84	50-75% Grass cover, Fair, HSG D
2,655	97	Weighted Average
220		8.29% Pervious Area
2,435		91.71% Impervious Area

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

Summary for Subcatchment 1K: Parking

Runoff = 0.95 cfs @ 12.09 hrs, Volume= 3,150 cf, Depth> 4.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
7,415	98	Paved parking, HSG D
740	84	50-75% Grass cover, Fair, HSG D
8,155	97	Weighted Average
740		9.07% Pervious Area
7,415		90.93% Impervious Area

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

Summary for Subcatchment 1L: Parking

Runoff = 1.61 cfs @ 12.09 hrs, Volume= 5,370 cf, Depth> 4.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
13,005	98	Paved parking, HSG D
900	84	50-75% Grass cover, Fair, HSG D
13,905	97	Weighted Average
900		6.47% Pervious Area
13,005		93.53% Impervious Area

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

Summary for Subcatchment 1M: Building 1

Runoff = 1.80 cfs @ 12.09 hrs, Volume= 6,045 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
15,400	98	Roofs, HSG D
15,400		100.00% Impervious Area

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

Summary for Subcatchment 2: Woods

Runoff = 2.05 cfs @ 12.09 hrs, Volume= 6,071 cf, Depth> 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
2,345	98	Paved parking, HSG D
7,125	84	50-75% Grass cover, Fair, HSG D
11,330	77	Woods, Good, HSG D
3,740	73	Brush, Good, HSG D
24,540	80	Weighted Average
22,195		90.44% Pervious Area
2,345		9.56% Impervious Area

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

Summary for Subcatchment 3A: Existing Woods/Meadow

Runoff = 18.42 cfs @ 12.46 hrs, Volume= 97,437 cf, Depth> 2.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
41,550	78	Meadow, non-grazed, HSG D
396,310	77	Woods, Good, HSG D
437,860	77	Weighted Average
437,860		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
33.0	1,048	0.0120	0.53		**Lag/CN Method,**

Summary for Subcatchment 3AA: Parking

Runoff = 0.64 cfs @ 12.09 hrs, Volume= 2,104 cf, Depth> 4.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
4,810	98	Paved parking, HSG D
740	84	50-75% Grass cover, Fair, HSG D
5,550	96	Weighted Average
740		13.33% Pervious Area
4,810		86.67% Impervious Area

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

Summary for Subcatchment 3B1: Woods

Runoff = 2.84 cfs @ 12.34 hrs, Volume= 13,256 cf, Depth> 2.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
895	91	Gravel roads, HSG D
9,780	84	50-75% Grass cover, Fair, HSG D
10,430	78	Meadow, non-grazed, HSG D
34,540	77	Woods, Good, HSG D
55,645	79	Weighted Average
55,645		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
24.6	698	0.0100	0.47		**Lag/CN Method,**

Summary for Subcatchment 3B2: Woods

Runoff = 5.14 cfs @ 12.11 hrs, Volume= 15,782 cf, Depth> 2.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
6,715	84	50-75% Grass cover, Fair, HSG D
8,920	78	Meadow, non-grazed, HSG D
52,390	77	Woods, Good, HSG D
68,025	78	Weighted Average
68,025		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	326	0.0350	0.74		**Lag/CN Method,**

Summary for Subcatchment 3BB: Garage

Runoff = 0.19 cfs @ 12.09 hrs, Volume= 648 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
1,650	98	Roofs, HSG D
1,650		100.00% Impervious Area

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

Summary for Subcatchment 3C: Driveway

Runoff = 0.86 cfs @ 12.09 hrs, Volume= 2,881 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
7,340	98	Paved parking, HSG D
7,340		100.00% Impervious Area

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

Summary for Subcatchment 3CC: Parking

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 2,646 cf, Depth> 4.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
6,275	98	Paved parking, HSG D
575	84	50-75% Grass cover, Fair, HSG D
6,850	97	Weighted Average
575		8.39% Pervious Area
6,275		91.61% Impervious Area

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

Summary for Subcatchment 3D: Driveway

Runoff = 0.58 cfs @ 12.09 hrs, Volume= 1,935 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
4,930	98	Paved parking, HSG D
4,930		100.00% Impervious Area

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

Summary for Subcatchment 3DD: Parking

Runoff = 0.58 cfs @ 12.09 hrs, Volume= 1,910 cf, Depth> 4.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
4,160	98	Paved parking, HSG D
880	84	50-75% Grass cover, Fair, HSG D
5,040	96	Weighted Average
880		17.46% Pervious Area
4,160		82.54% Impervious Area

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

Summary for Subcatchment 3E: Driveway

Runoff = 0.35 cfs @ 12.09 hrs, Volume= 1,193 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
3,010	98	Paved parking, HSG D
30	84	50-75% Grass cover, Fair, HSG D
3,040	98	Weighted Average
30		0.99% Pervious Area
3,010		99.01% Impervious Area

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

Summary for Subcatchment 3EE: Building 4

Runoff = 0.62 cfs @ 12.09 hrs, Volume= 2,100 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
5,350	98	Roofs, HSG D
5,350		100.00% Impervious Area

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

Summary for Subcatchment 3F: Driveway

Runoff = 0.27 cfs @ 12.09 hrs, Volume= 905 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
2,275	98	Paved parking, HSG D
30	84	50-75% Grass cover, Fair, HSG D
2,305	98	Weighted Average
30		1.30% Pervious Area
2,275		98.70% Impervious Area

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

Summary for Subcatchment 3FF: Courtyard

Runoff = 0.28 cfs @ 12.09 hrs, Volume= 862 cf, Depth> 3.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
395	98	Paved parking, HSG D
2,520	84	50-75% Grass cover, Fair, HSG D
2,915	86	Weighted Average
2,520		86.45% Pervious Area
395		13.55% Impervious Area

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

Summary for Subcatchment 3G: Pond

Runoff = 1.62 cfs @ 12.09 hrs, Volume= 4,986 cf, Depth> 3.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
4,210	98	Water Surface, HSG D
420	91	Gravel roads, HSG D
11,320	84	50-75% Grass cover, Fair, HSG D
15,950	88	Weighted Average
11,740		73.61% Pervious Area
4,210		26.39% Impervious Area

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

Summary for Subcatchment 3GG: Buiilding 2A

Runoff = 1.94 cfs @ 12.09 hrs, Volume= 6,526 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
7,675	98	Roofs, HSG D
8,950	98	Roofs, HSG C
16,625	98	Weighted Average
16,625		100.00% Impervious Area

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

Summary for Subcatchment 3H: Pond

Runoff = 2.35 cfs @ 12.09 hrs, Volume= 7,276 cf, Depth> 3.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
8,185	98	Water Surface, HSG D
14,475	84	50-75% Grass cover, Fair, HSG D
22,660	89	Weighted Average
14,475		63.88% Pervious Area
8,185		36.12% Impervious Area

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

Summary for Subcatchment 3HH: Building 2B

Runoff = 1.78 cfs @ 12.09 hrs, Volume= 5,976 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
15,225	98	Roofs, HSG C
15,225		100.00% Impervious Area

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

Summary for Subcatchment 3I: Parking

Runoff = 1.51 cfs @ 12.09 hrs, Volume= 4,984 cf, Depth> 4.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
11,400	98	Paved parking, HSG D
1,750	84	50-75% Grass cover, Fair, HSG D
13,150	96	Weighted Average
1,750		13.31% Pervious Area
11,400		86.69% Impervious Area

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

Summary for Subcatchment 3II: Building 3

Runoff = 2.29 cfs @ 12.09 hrs, Volume= 7,693 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
12,640	98	Roofs, HSG D
6,960	98	Roofs, HSG C
19,600	98	Weighted Average
19,600		100.00% Impervious Area

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

Summary for Subcatchment 3J: Courtyard

Runoff = 0.26 cfs @ 12.09 hrs, Volume= 786 cf, Depth> 3.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
2,815	84	50-75% Grass cover, Fair, HSG D
2,815		100.00% Pervious Area

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

Summary for Subcatchment 3K: Courtyard

Runoff = 1.57 cfs @ 12.09 hrs, Volume= 4,885 cf, Depth> 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
5,615	98	Paved parking, HSG D
510	98	Paved parking, HSG C
8,020	84	50-75% Grass cover, Fair, HSG D
675	79	50-75% Grass cover, Fair, HSG C
14,820	90	Weighted Average
8,695		58.67% Pervious Area
6,125		41.33% Impervious Area

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

Summary for Subcatchment 3L: Parking

Runoff = 1.23 cfs @ 12.09 hrs, Volume= 4,137 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
10,410	98	Paved parking, HSG D
130	84	50-75% Grass cover, Fair, HSG D
10,540	98	Weighted Average
130		1.23% Pervious Area
10,410		98.77% Impervious Area

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

Summary for Subcatchment 3M: Parking

Runoff = 0.64 cfs @ 12.09 hrs, Volume= 2,136 cf, Depth> 4.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
5,140	98	Paved parking, HSG D
390	84	50-75% Grass cover, Fair, HSG D
5,530	97	Weighted Average
390		7.05% Pervious Area
5,140		92.95% Impervious Area

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

Summary for Subcatchment 3N: Garage

Runoff = 0.19 cfs @ 12.09 hrs, Volume= 648 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
1,650	98	Roofs, HSG D
1,650		100.00% Impervious Area

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

Summary for Subcatchment 3O: Parking

Runoff = 0.64 cfs @ 12.09 hrs, Volume= 2,100 cf, Depth> 4.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
4,700	98	Paved parking, HSG D
840	84	50-75% Grass cover, Fair, HSG D
5,540	96	Weighted Average
840		15.16% Pervious Area
4,700		84.84% Impervious Area

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

Summary for Subcatchment 3P: Garage

Runoff = 0.19 cfs @ 12.09 hrs, Volume= 648 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
1,650	98	Roofs, HSG D
1,650		100.00% Impervious Area

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

Summary for Subcatchment 3Q: Courtyard

Runoff = 0.93 cfs @ 12.09 hrs, Volume= 2,800 cf, Depth> 3.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
2,510	98	Paved parking, HSG C
185	84	50-75% Grass cover, Fair, HSG D
7,335	79	50-75% Grass cover, Fair, HSG C
10,030	84	Weighted Average
7,520		74.98% Pervious Area
2,510		25.02% Impervious Area

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

Summary for Subcatchment 3R: Courtyard

Runoff = 0.74 cfs @ 12.09 hrs, Volume= 2,228 cf, Depth> 3.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
1,960	98	Paved parking, HSG C
6,020	79	50-75% Grass cover, Fair, HSG C
7,980	84	Weighted Average
6,020		75.44% Pervious Area
1,960		24.56% Impervious Area

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

Summary for Subcatchment 3S: Parking

Runoff = 1.09 cfs @ 12.09 hrs, Volume= 3,599 cf, Depth> 4.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
8,015	98	Paved parking, HSG D
1,480	84	50-75% Grass cover, Fair, HSG D
9,495	96	Weighted Average
1,480		15.59% Pervious Area
8,015		84.41% Impervious Area

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

Summary for Subcatchment 3T: Courtyard

Runoff = 0.80 cfs @ 12.09 hrs, Volume= 2,382 cf, Depth> 3.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
1,355	98	Paved parking, HSG C
7,675	79	50-75% Grass cover, Fair, HSG C
25	84	50-75% Grass cover, Fair, HSG D
9,055	82	Weighted Average
7,700		85.04% Pervious Area
1,355		14.96% Impervious Area

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

Summary for Subcatchment 3U: Parking

Runoff = 1.40 cfs @ 12.09 hrs, Volume= 4,656 cf, Depth> 4.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
6,620	98	Paved parking, HSG D
4,820	98	Paved parking, HSG C
200	84	50-75% Grass cover, Fair, HSG D
415	79	50-75% Grass cover, Fair, HSG C
12,055	97	Weighted Average
615		5.10% Pervious Area
11,440		94.90% Impervious Area

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

Summary for Subcatchment 3V: Parking

Runoff = 0.72 cfs @ 12.09 hrs, Volume= 2,330 cf, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
870	98	Paved parking, HSG D
4,135	98	Paved parking, HSG C
1,410	79	50-75% Grass cover, Fair, HSG C
6,415	94	Weighted Average
1,410		21.98% Pervious Area
5,005		78.02% Impervious Area

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

Summary for Subcatchment 3W: Garage

Runoff = 0.19 cfs @ 12.09 hrs, Volume= 648 cf, Depth> 4.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
1,545	98	Roofs, HSG C
105	98	Roofs, HSG D
1,650	98	Weighted Average
1,650		100.00% Impervious Area

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

Summary for Subcatchment 3X: Parking

Runoff = 1.45 cfs @ 12.09 hrs, Volume= 4,776 cf, Depth> 4.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
2,345	98	Paved parking, HSG C
8,825	98	Paved parking, HSG D
255	84	50-75% Grass cover, Fair, HSG D
1,175	79	50-75% Grass cover, Fair, HSG C
12,600	96	Weighted Average
1,430		11.35% Pervious Area
11,170		88.65% Impervious Area

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

Summary for Subcatchment 3Y: Parking

Runoff = 1.34 cfs @ 12.09 hrs, Volume= 4,408 cf, Depth> 4.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
1,985	98	Paved parking, HSG C
8,490	98	Paved parking, HSG D
210	84	50-75% Grass cover, Fair, HSG D
945	79	50-75% Grass cover, Fair, HSG C
11,630	96	Weighted Average
1,155		9.93% Pervious Area
10,475		90.07% Impervious Area

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

Summary for Subcatchment 3Z: Parking

Runoff = 1.27 cfs @ 12.09 hrs, Volume= 4,177 cf, Depth> 4.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
9,220	98	Paved parking, HSG D
465	98	Paved parking, HSG C
1,085	84	50-75% Grass cover, Fair, HSG D
250	79	50-75% Grass cover, Fair, HSG C
11,020	96	Weighted Average
1,335		12.11% Pervious Area
9,685		87.89% Impervious Area

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

Summary for Subcatchment 4: Woods

Runoff = 0.12 cfs @ 12.09 hrs, Volume= 356 cf, Depth> 2.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
1,535	78	Meadow, non-grazed, HSG D
1,535		100.00% Pervious Area

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

Summary for Subcatchment 5: Woods

Runoff = 1.22 cfs @ 12.15 hrs, Volume= 4,093 cf, Depth> 2.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Yr Rainfall=5.32"

Area (sf)	CN	Description
14,800	78	Meadow, non-grazed, HSG D
4,070	71	Meadow, non-grazed, HSG C
18,870	76	Weighted Average
18,870		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.4	165	0.0133	0.37		**Lag/CN Method,**
2.9	130	0.0567	0.74		**Lag/CN Method,**
10.3	295	Total			

Summary for Reach DP1: Design Point - Offsite Flow

Inflow Area = 274,950 sf, 33.85% Impervious, Inflow Depth > 3.14" for 10-Yr event
Inflow = 14.04 cfs @ 12.23 hrs, Volume= 71,907 cf
Outflow = 14.04 cfs @ 12.23 hrs, Volume= 71,907 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach DP2: Design Point - Offsite Flow

Inflow Area = 24,540 sf, 9.56% Impervious, Inflow Depth > 2.97" for 10-Yr event
Inflow = 2.05 cfs @ 12.09 hrs, Volume= 6,071 cf
Outflow = 2.05 cfs @ 12.09 hrs, Volume= 6,071 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach DP3: Design Point - Stream

Inflow Area = 844,185 sf, 24.68% Impervious, Inflow Depth > 2.88" for 10-Yr event
Inflow = 29.86 cfs @ 12.51 hrs, Volume= 202,839 cf
Outflow = 29.86 cfs @ 12.51 hrs, Volume= 202,839 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach DP4: Design Point - Offsite Sheetflow

Inflow Area = 1,535 sf, 0.00% Impervious, Inflow Depth > 2.79" for 10-Yr event
Inflow = 0.12 cfs @ 12.09 hrs, Volume= 356 cf
Outflow = 0.12 cfs @ 12.09 hrs, Volume= 356 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach DP5: Design Point - Offsite Sheetflow

Inflow Area = 18,870 sf, 0.00% Impervious, Inflow Depth > 2.60" for 10-Yr event
Inflow = 1.22 cfs @ 12.15 hrs, Volume= 4,093 cf
Outflow = 1.22 cfs @ 12.15 hrs, Volume= 4,093 cf, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach R3A: Swale

Inflow Area = 437,860 sf, 0.00% Impervious, Inflow Depth > 2.67" for 10-Yr event
Inflow = 18.41 cfs @ 12.47 hrs, Volume= 97,328 cf
Outflow = 18.29 cfs @ 12.53 hrs, Volume= 96,966 cf, Atten= 1%, Lag= 3.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.88 fps, Min. Travel Time= 2.2 min
Avg. Velocity = 1.18 fps, Avg. Travel Time= 5.3 min

Peak Storage= 2,392 cf @ 12.50 hrs
Average Depth at Peak Storage= 0.92'
Bank-Full Depth= 1.00' Flow Area= 7.0 sf, Capacity= 21.06 cfs

6.00' x 1.00' deep channel, n= 0.040 Winding stream, pools & shoals
Side Slope Z-value= 1.0 '/' Top Width= 8.00'
Length= 375.0' Slope= 0.0089 '/'
Inlet Invert= 53.35', Outlet Invert= 50.00'

Summary for Reach R3B: Stream

Inflow Area = 844,185 sf, 24.68% Impervious, Inflow Depth > 2.89" for 10-Yr event
Inflow = 29.94 cfs @ 12.48 hrs, Volume= 203,169 cf
Outflow = 29.86 cfs @ 12.51 hrs, Volume= 202,839 cf, Atten= 0%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.98 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.98 fps, Avg. Travel Time= 2.4 min

Peak Storage= 1,684 cf @ 12.49 hrs
Average Depth at Peak Storage= 1.16'
Bank-Full Depth= 1.50' Flow Area= 8.3 sf, Capacity= 46.72 cfs

4.00' x 1.50' deep channel, n= 0.040 Winding stream, pools & shoals
Side Slope Z-value= 1.0 '/' Top Width= 7.00'
Length= 280.0' Slope= 0.0232 '/'
Inlet Invert= 50.00', Outlet Invert= 43.50'

Summary for Pond CB1: Prop CB

Inflow Area = 7,000 sf,100.00% Impervious, Inflow Depth > 4.71" for 10-Yr event
Inflow = 0.82 cfs @ 12.09 hrs, Volume= 2,748 cf
Outflow = 0.82 cfs @ 12.09 hrs, Volume= 2,748 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.82 cfs @ 12.09 hrs, Volume= 2,748 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.80' @ 12.09 hrs
Flood Elev= 59.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	56.25'	**12.0" Round Culvert** L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.25' / 56.15' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.79 cfs @ 12.09 hrs HW=56.79' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.79 cfs @ 2.69 fps)

Summary for Pond CB10: Prop CB

Inflow Area = 7,340 sf,100.00% Impervious, Inflow Depth > 4.71" for 10-Yr event
Inflow = 0.86 cfs @ 12.09 hrs, Volume= 2,881 cf
Outflow = 0.86 cfs @ 12.09 hrs, Volume= 2,881 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.86 cfs @ 12.09 hrs, Volume= 2,881 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.26' @ 12.09 hrs
Flood Elev= 58.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.70'	**12.0" Round Culvert** L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.70' / 54.60' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.83 cfs @ 12.09 hrs HW=55.25' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.83 cfs @ 2.72 fps)

Summary for Pond CB11: Prop CB

Inflow Area = 12,270 sf,100.00% Impervious, Inflow Depth > 4.71" for 10-Yr event
Inflow = 1.43 cfs @ 12.09 hrs, Volume= 4,816 cf
Outflow = 1.43 cfs @ 12.09 hrs, Volume= 4,816 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.43 cfs @ 12.09 hrs, Volume= 4,816 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.16' @ 12.09 hrs
Flood Elev= 58.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.50'	**12.0" Round Culvert** L= 150.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.50' / 53.50' S= 0.0067 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.39 cfs @ 12.09 hrs HW=55.15' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.39 cfs @ 3.66 fps)

Summary for Pond CB12: Prop CB

Inflow Area = 6,850 sf, 91.61% Impervious, Inflow Depth > 4.63" for 10-Yr event
Inflow = 0.79 cfs @ 12.09 hrs, Volume= 2,646 cf
Outflow = 0.79 cfs @ 12.09 hrs, Volume= 2,646 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.79 cfs @ 12.09 hrs, Volume= 2,646 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.38' @ 12.09 hrs
Flood Elev= 58.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.85'	**12.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.85' / 54.70' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.77 cfs @ 12.09 hrs HW=55.37' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.77 cfs @ 2.69 fps)

Summary for Pond CB13: Prop CB

Inflow Area = 11,890 sf, 87.76% Impervious, Inflow Depth > 4.60" for 10-Yr event
Inflow = 1.37 cfs @ 12.09 hrs, Volume= 4,556 cf
Outflow = 1.37 cfs @ 12.09 hrs, Volume= 4,556 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.37 cfs @ 12.09 hrs, Volume= 4,556 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.31' @ 12.09 hrs
Flood Elev= 58.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.60'	**12.0" Round Culvert** L= 69.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.60' / 54.25' S= 0.0051 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.34 cfs @ 12.09 hrs HW=55.30' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.34 cfs @ 3.21 fps)

Summary for Pond CB14: Prop CB

Inflow Area = 14,930 sf, 90.05% Impervious, Inflow Depth > 4.62" for 10-Yr event
Inflow = 1.73 cfs @ 12.09 hrs, Volume= 5,749 cf
Outflow = 1.73 cfs @ 12.09 hrs, Volume= 5,749 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.73 cfs @ 12.09 hrs, Volume= 5,749 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 54.76' @ 12.09 hrs
Flood Elev= 58.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.00'	**15.0" Round Culvert** L= 18.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.00' / 53.90' S= 0.0056 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.68 cfs @ 12.09 hrs HW=54.75' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.68 cfs @ 3.13 fps)

Summary for Pond CB15: Prop CB

Inflow Area = 47,085 sf, 89.92% Impervious, Inflow Depth > 4.58" for 10-Yr event
Inflow = 5.44 cfs @ 12.09 hrs, Volume= 17,990 cf
Outflow = 5.44 cfs @ 12.09 hrs, Volume= 17,990 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.44 cfs @ 12.09 hrs, Volume= 17,990 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.02' @ 12.09 hrs
Flood Elev= 58.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	53.65'	**18.0" Round Culvert** L= 24.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.65' / 53.50' S= 0.0062 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.29 cfs @ 12.09 hrs HW=55.00' (Free Discharge)
└─**1=Culvert** (Barrel Controls 5.29 cfs @ 4.17 fps)

Summary for Pond CB16: Prop CB

Inflow Area = 11,630 sf, 90.07% Impervious, Inflow Depth > 4.55" for 10-Yr event
Inflow = 1.34 cfs @ 12.09 hrs, Volume= 4,408 cf
Outflow = 1.34 cfs @ 12.09 hrs, Volume= 4,408 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.34 cfs @ 12.09 hrs, Volume= 4,408 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 57.28' @ 12.09 hrs
Flood Elev= 59.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	56.60'	**12.0" Round Culvert** L= 145.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.60' / 55.85' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.30 cfs @ 12.09 hrs HW=57.27' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 1.30 cfs @ 3.31 fps)

Summary for Pond CB17: Prop CB

Inflow Area = 22,650 sf, 89.01% Impervious, Inflow Depth > 4.55" for 10-Yr event
Inflow = 2.61 cfs @ 12.09 hrs, Volume= 8,585 cf
Outflow = 2.61 cfs @ 12.09 hrs, Volume= 8,585 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.61 cfs @ 12.09 hrs, Volume= 8,585 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.51' @ 12.09 hrs
Flood Elev= 59.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.60'	**15.0" Round Culvert** L= 115.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 55.60' / 55.00' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.54 cfs @ 12.09 hrs HW=56.49' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 2.54 cfs @ 3.80 fps)

Summary for Pond CB18: Prop CB

Inflow Area = 29,850 sf, 89.18% Impervious, Inflow Depth > 4.56" for 10-Yr event
Inflow = 3.44 cfs @ 12.09 hrs, Volume= 11,336 cf
Outflow = 3.44 cfs @ 12.09 hrs, Volume= 11,336 cf, Atten= 0%, Lag= 0.0 min
Primary = 3.44 cfs @ 12.09 hrs, Volume= 11,336 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.97' @ 12.09 hrs
Flood Elev= 59.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.90'	**15.0" Round Culvert** L= 202.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.90' / 53.90' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=3.35 cfs @ 12.09 hrs HW=55.95' (Free Discharge)
└─**1=Culvert** (Barrel Controls 3.35 cfs @ 4.09 fps)

Summary for Pond CB19: Prop CB

Inflow Area = 23,205 sf, 74.06% Impervious, Inflow Depth > 4.24" for 10-Yr event
Inflow = 2.52 cfs @ 12.09 hrs, Volume= 8,204 cf
Outflow = 2.52 cfs @ 12.09 hrs, Volume= 8,204 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.52 cfs @ 12.09 hrs, Volume= 8,204 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.70' @ 12.09 hrs
Flood Elev= 59.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.80'	**15.0" Round Culvert** L= 122.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 55.80' / 55.20' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.45 cfs @ 12.09 hrs HW=56.68' (Free Discharge)
└─**1=Culvert** (Barrel Controls 2.45 cfs @ 3.72 fps)

Summary for Pond CB2: Prop CB

Inflow Area = 24,185 sf, 76.99% Impervious, Inflow Depth > 4.42" for 10-Yr event
Inflow = 2.72 cfs @ 12.09 hrs, Volume= 8,905 cf
Outflow = 2.72 cfs @ 12.09 hrs, Volume= 8,905 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.72 cfs @ 12.09 hrs, Volume= 8,905 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.83' @ 12.09 hrs
Flood Elev= 59.90'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.90'	**15.0" Round Culvert** L= 151.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 55.90' / 55.15' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.65 cfs @ 12.09 hrs HW=56.82' (Free Discharge)
└─**1=Culvert** (Barrel Controls 2.65 cfs @ 3.84 fps)

Summary for Pond CB20: Prop CB

Inflow Area = 49,860 sf, 72.84% Impervious, Inflow Depth > 4.22" for 10-Yr event
Inflow = 5.39 cfs @ 12.09 hrs, Volume= 17,529 cf
Outflow = 5.39 cfs @ 12.09 hrs, Volume= 17,529 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.39 cfs @ 12.09 hrs, Volume= 17,529 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.18' @ 12.09 hrs
Flood Elev= 59.60'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.95'	**18.0" Round Culvert** L= 94.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.95' / 54.30' S= 0.0069 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.25 cfs @ 12.09 hrs HW=56.16' (Free Discharge)
└─**1=Culvert** (Barrel Controls 5.25 cfs @ 4.71 fps)

Summary for Pond CB21: Prop CB

Inflow Area = 8,265 sf, 69.51% Impervious, Inflow Depth > 4.30" for 10-Yr event
Inflow = 0.91 cfs @ 12.09 hrs, Volume= 2,962 cf
Outflow = 0.91 cfs @ 12.09 hrs, Volume= 2,962 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.91 cfs @ 12.09 hrs, Volume= 2,962 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.79' @ 12.09 hrs
Flood Elev= 60.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	56.30'	**12.0" Round Culvert** L= 93.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.30' / 54.70' S= 0.0172 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.88 cfs @ 12.09 hrs HW=56.78' (Free Discharge)
└─**1=Culvert** (Inlet Controls 0.88 cfs @ 2.36 fps)

Summary for Pond CB22: Prop CB

Inflow Area = 2,815 sf, 0.00% Impervious, Inflow Depth > 3.35" for 10-Yr event
Inflow = 0.26 cfs @ 12.09 hrs, Volume= 786 cf
Outflow = 0.26 cfs @ 12.09 hrs, Volume= 786 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.26 cfs @ 12.09 hrs, Volume= 786 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.05' @ 12.09 hrs
Flood Elev= 59.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.80'	**12.0" Round Culvert** L= 73.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 55.80' / 54.00' S= 0.0247 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.26 cfs @ 12.09 hrs HW=56.05' (Free Discharge)
└**1=Culvert** (Inlet Controls 0.26 cfs @ 1.69 fps)

Summary for Pond CB23: Prop CB

Inflow Area = 72,945 sf, 66.06% Impervious, Inflow Depth > 4.17" for 10-Yr event
Inflow = 7.87 cfs @ 12.09 hrs, Volume= 25,376 cf
Outflow = 7.87 cfs @ 12.09 hrs, Volume= 25,376 cf, Atten= 0%, Lag= 0.0 min
Primary = 7.87 cfs @ 12.09 hrs, Volume= 25,376 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 54.55' @ 12.09 hrs
Flood Elev= 59.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	53.30'	**24.0" Round Culvert** L= 79.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.30' / 51.60' S= 0.0215 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=7.67 cfs @ 12.09 hrs HW=54.53' (Free Discharge)
└**1=Culvert** (Inlet Controls 7.67 cfs @ 3.78 fps)

Summary for Pond CB24: Prop CB

Inflow Area = 15,965 sf, 71.41% Impervious, Inflow Depth > 4.34" for 10-Yr event
Inflow = 1.77 cfs @ 12.09 hrs, Volume= 5,770 cf
Outflow = 1.77 cfs @ 12.09 hrs, Volume= 5,770 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.77 cfs @ 12.09 hrs, Volume= 5,770 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 54.63' @ 12.09 hrs
Flood Elev= 58.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	53.90'	**12.0" Round Culvert** L= 124.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.90' / 52.60' S= 0.0105 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.73 cfs @ 12.09 hrs HW=54.61' (Free Discharge)
└**1=Culvert** (Inlet Controls 1.73 cfs @ 2.88 fps)

Summary for Pond CB25: Prop CB

Inflow Area = 184,690 sf, 76.55% Impervious, Inflow Depth > 4.35" for 10-Yr event
Inflow = 20.48 cfs @ 12.09 hrs, Volume= 66,898 cf
Outflow = 20.48 cfs @ 12.09 hrs, Volume= 66,898 cf, Atten= 0%, Lag= 0.0 min
Primary = 20.48 cfs @ 12.09 hrs, Volume= 66,898 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 52.81' @ 12.09 hrs
Flood Elev= 58.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	50.60'	**36.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.60' / 50.50' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf

Primary OutFlow Max=19.94 cfs @ 12.09 hrs HW=52.78' (Free Discharge)
└─**1=Culvert** (Barrel Controls 19.94 cfs @ 5.07 fps)

Summary for Pond CB26: Prop CB

Inflow Area = 12,600 sf, 88.65% Impervious, Inflow Depth > 4.55" for 10-Yr event
Inflow = 1.45 cfs @ 12.09 hrs, Volume= 4,776 cf
Outflow = 1.45 cfs @ 12.09 hrs, Volume= 4,776 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.45 cfs @ 12.09 hrs, Volume= 4,776 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 57.42' @ 12.09 hrs
Flood Elev= 59.70'

Device	Routing	Invert	Outlet Devices
#1	Primary	56.70'	**12.0" Round Culvert** L= 110.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.70' / 56.15' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.41 cfs @ 12.09 hrs HW=57.41' (Free Discharge)
└─**1=Culvert** (Barrel Controls 1.41 cfs @ 3.31 fps)

Summary for Pond CB27: Prop CB

Inflow Area = 20,665 sf, 86.26% Impervious, Inflow Depth > 4.50" for 10-Yr event
Inflow = 2.36 cfs @ 12.09 hrs, Volume= 7,754 cf
Outflow = 2.36 cfs @ 12.09 hrs, Volume= 7,754 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.36 cfs @ 12.09 hrs, Volume= 7,754 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.76' @ 12.09 hrs
Flood Elev= 59.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.90'	**15.0" Round Culvert** L= 154.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 55.90' / 55.15' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.30 cfs @ 12.09 hrs HW=56.74' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 2.30 cfs @ 3.70 fps)

Summary for Pond CB28: Prop CB

Inflow Area = 9,055 sf, 14.96% Impervious, Inflow Depth > 3.16" for 10-Yr event
Inflow = 0.80 cfs @ 12.09 hrs, Volume= 2,382 cf
Outflow = 0.80 cfs @ 12.09 hrs, Volume= 2,382 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.80 cfs @ 12.09 hrs, Volume= 2,382 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.31' @ 12.09 hrs
Flood Elev= 59.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.80'	**12.0" Round Culvert** L= 73.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 55.80' / 55.40' S= 0.0055 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.78 cfs @ 12.09 hrs HW=56.30' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.78 cfs @ 2.89 fps)

Summary for Pond CB29: Prop CB

Inflow Area = 41,775 sf, 73.30% Impervious, Inflow Depth > 4.25" for 10-Yr event
Inflow = 4.56 cfs @ 12.09 hrs, Volume= 14,792 cf
Outflow = 4.56 cfs @ 12.09 hrs, Volume= 14,792 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.56 cfs @ 12.09 hrs, Volume= 14,792 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.05' @ 12.09 hrs
Flood Elev= 58.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.90'	**18.0" Round Culvert** L= 182.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.90' / 54.00' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=4.44 cfs @ 12.09 hrs HW=56.03' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 4.44 cfs @ 4.32 fps)

Summary for Pond CB3: Prop CB

Inflow Area = 9,355 sf, 40.51% Impervious, Inflow Depth > 3.96" for 10-Yr event
Inflow = 0.99 cfs @ 12.09 hrs, Volume= 3,084 cf
Outflow = 0.99 cfs @ 12.09 hrs, Volume= 3,084 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.99 cfs @ 12.09 hrs, Volume= 3,084 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.86' @ 12.09 hrs
Flood Elev= 60.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	56.25'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.25' / 56.15' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.96 cfs @ 12.09 hrs HW=56.85' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.96 cfs @ 2.79 fps)

Summary for Pond CB30: Prop CB

Inflow Area = 51,270 sf, 75.36% Impervious, Inflow Depth > 4.30" for 10-Yr event
Inflow = 5.65 cfs @ 12.09 hrs, Volume= 18,391 cf
Outflow = 5.65 cfs @ 12.09 hrs, Volume= 18,391 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.65 cfs @ 12.09 hrs, Volume= 18,391 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.23' @ 12.09 hrs
Flood Elev= 57.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	53.90'	**18.0" Round Culvert** L= 135.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.90' / 53.20' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.51 cfs @ 12.09 hrs HW=55.20' (Free Discharge)
└─**1=Culvert** (Barrel Controls 5.51 cfs @ 4.52 fps)

Summary for Pond CB31: Prop CB

Inflow Area = 78,060 sf, 82.74% Impervious, Inflow Depth > 4.43" for 10-Yr event
Inflow = 8.77 cfs @ 12.09 hrs, Volume= 28,832 cf
Outflow = 8.77 cfs @ 12.09 hrs, Volume= 28,832 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.77 cfs @ 12.09 hrs, Volume= 28,832 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 54.21' @ 12.09 hrs
Flood Elev= 58.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.70'	**24.0" Round Culvert** L= 86.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.70' / 52.25' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=8.54 cfs @ 12.09 hrs HW=54.18' (Free Discharge)
└─**1=Culvert** (Barrel Controls 8.54 cfs @ 4.76 fps)

Summary for Pond CB32: Prop CB

Inflow Area = 85,240 sf, 83.73% Impervious, Inflow Depth > 4.45" for 10-Yr event
Inflow = 9.61 cfs @ 12.09 hrs, Volume= 31,615 cf
Outflow = 9.61 cfs @ 12.09 hrs, Volume= 31,615 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.61 cfs @ 12.09 hrs, Volume= 31,615 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 53.74' @ 12.09 hrs
Flood Elev= 58.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	52.15'	**24.0" Round Culvert** L= 110.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 52.15' / 51.60' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=9.35 cfs @ 12.09 hrs HW=53.71' (Free Discharge)
└─**1=Culvert** (Barrel Controls 9.35 cfs @ 4.89 fps)

Summary for Pond CB4: Prop CB

Inflow Area = 53,490 sf, 87.91% Impervious, Inflow Depth > 4.56" for 10-Yr event
Inflow = 6.13 cfs @ 12.09 hrs, Volume= 20,320 cf
Outflow = 6.13 cfs @ 12.09 hrs, Volume= 20,320 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.13 cfs @ 12.09 hrs, Volume= 20,320 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.35' @ 12.09 hrs
Flood Elev= 59.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.90'	**18.0" Round Culvert** L= 80.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.90' / 54.50' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.97 cfs @ 12.09 hrs HW=56.33' (Free Discharge)
└─**1=Culvert** (Barrel Controls 5.97 cfs @ 4.43 fps)

Summary for Pond CB5: Prop CB

Inflow Area = 6,145 sf, 96.99% Impervious, Inflow Depth > 4.71" for 10-Yr event
Inflow = 0.72 cfs @ 12.09 hrs, Volume= 2,412 cf
Outflow = 0.72 cfs @ 12.09 hrs, Volume= 2,412 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.72 cfs @ 12.09 hrs, Volume= 2,412 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 57.31' @ 12.09 hrs
Flood Elev= 60.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	56.80'	**12.0" Round Culvert** L= 7.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.80' / 56.75' S= 0.0071 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.70 cfs @ 12.09 hrs HW=57.31' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 0.70 cfs @ 2.55 fps)

Summary for Pond CB6: Prop CB

Inflow Area = 14,535 sf, 95.01% Impervious, Inflow Depth > 4.67" for 10-Yr event
Inflow = 1.69 cfs @ 12.09 hrs, Volume= 5,652 cf
Outflow = 1.69 cfs @ 12.09 hrs, Volume= 5,652 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.69 cfs @ 12.09 hrs, Volume= 5,652 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 57.44' @ 12.09 hrs
Flood Elev= 60.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	56.65'	**12.0" Round Culvert** L= 152.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 56.65' / 55.90' S= 0.0049 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.65 cfs @ 12.09 hrs HW=57.43' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 1.65 cfs @ 3.45 fps)

Summary for Pond CB7: Prop CB

Inflow Area = 21,150 sf, 94.30% Impervious, Inflow Depth > 4.66" for 10-Yr event
Inflow = 2.46 cfs @ 12.09 hrs, Volume= 8,218 cf
Outflow = 2.46 cfs @ 12.09 hrs, Volume= 8,218 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.46 cfs @ 12.09 hrs, Volume= 8,218 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.52' @ 12.09 hrs
Flood Elev= 60.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.65'	**15.0" Round Culvert** L= 125.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 55.65' / 55.00' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.39 cfs @ 12.09 hrs HW=56.51' (Free Discharge)
└─**1=Culvert** (Barrel Controls 2.39 cfs @ 3.76 fps)

Summary for Pond CB8: Prop CB

Inflow Area =	31,960 sf,	93.23% Impervious,	Inflow Depth > 4.65"	for 10-Yr event
Inflow =	3.71 cfs @	12.09 hrs, Volume=	12,392 cf	
Outflow =	3.71 cfs @	12.09 hrs, Volume=	12,392 cf,	Atten= 0%, Lag= 0.0 min
Primary =	3.71 cfs @	12.09 hrs, Volume=	12,392 cf	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.84' @ 12.09 hrs
Flood Elev= 59.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.75'	**18.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.75' / 54.50' S= 0.0042 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=3.61 cfs @ 12.09 hrs HW=55.82' (Free Discharge)
└─**1=Culvert** (Barrel Controls 3.61 cfs @ 3.74 fps)

Summary for Pond CB9: Prop CB

Inflow Area =	2,655 sf,	91.71% Impervious,	Inflow Depth > 4.63"	for 10-Yr event
Inflow =	0.31 cfs @	12.09 hrs, Volume=	1,025 cf	
Outflow =	0.31 cfs @	12.09 hrs, Volume=	1,025 cf,	Atten= 0%, Lag= 0.0 min
Primary =	0.31 cfs @	12.09 hrs, Volume=	1,025 cf	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 56.06' @ 12.09 hrs
Flood Elev= 59.50'

Device	Routing	Invert	Outlet Devices
#1	Primary	55.75'	**12.0" Round Culvert** L= 94.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 55.75' / 55.25' S= 0.0053 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.30 cfs @ 12.09 hrs HW=56.05' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.30 cfs @ 2.26 fps)

Summary for Pond DMH1: Prop DMH

Inflow Area = 58,125 sf, 72.37% Impervious, Inflow Depth > 4.23" for 10-Yr event
Inflow = 6.30 cfs @ 12.09 hrs, Volume= 20,491 cf
Outflow = 6.30 cfs @ 12.09 hrs, Volume= 20,491 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.30 cfs @ 12.09 hrs, Volume= 20,491 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.69' @ 12.09 hrs
Flood Elev= 60.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	54.20'	**18.0" Round Culvert** L= 56.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 54.20' / 53.90' S= 0.0054 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=6.14 cfs @ 12.09 hrs HW=55.66' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 6.14 cfs @ 4.43 fps)

Summary for Pond DMH2: Prop DMH

Inflow Area = 75,305 sf, 78.11% Impervious, Inflow Depth > 3.00" for 10-Yr event
Inflow = 0.76 cfs @ 12.97 hrs, Volume= 18,799 cf
Outflow = 0.76 cfs @ 12.97 hrs, Volume= 18,799 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.76 cfs @ 12.97 hrs, Volume= 18,799 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 49.15' @ 12.97 hrs
Flood Elev= 53.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	48.80'	**24.0" Round Culvert** L= 55.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 48.80' / 46.70' S= 0.0382 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=0.76 cfs @ 12.97 hrs HW=49.15' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.76 cfs @ 2.02 fps)

Summary for Pond DMH3: Prop DMH

Inflow Area = 75,305 sf, 78.11% Impervious, Inflow Depth > 3.00" for 10-Yr event
Inflow = 0.76 cfs @ 12.97 hrs, Volume= 18,799 cf
Outflow = 0.76 cfs @ 12.97 hrs, Volume= 18,799 cf, Atten= 0%, Lag= 0.0 min
Primary = 0.76 cfs @ 12.97 hrs, Volume= 18,799 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 46.96' @ 12.97 hrs
Flood Elev= 53.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	46.60'	**24.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.60' / 46.40' S= 0.0154 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf

Primary OutFlow Max=0.76 cfs @ 12.97 hrs HW=46.96' (Free Discharge)
└─**1=Culvert** (Barrel Controls 0.76 cfs @ 2.99 fps)

Summary for Pond P1: Wet Pond 1

Inflow Area = 101,950 sf, 80.50% Impervious, Inflow Depth > 4.47" for 10-Yr event
Inflow = 11.56 cfs @ 12.09 hrs, Volume= 38,011 cf
Outflow = 3.53 cfs @ 12.40 hrs, Volume= 29,248 cf, Atten= 69%, Lag= 19.0 min
Primary = 3.53 cfs @ 12.40 hrs, Volume= 29,248 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.58' @ 12.40 hrs Surf.Area= 10,330 sf Storage= 18,851 cf
Flood Elev= 39.00' Surf.Area= 0 sf Storage= 0 cf

Plug-Flow detention time= 146.7 min calculated for 29,239 cf (77% of inflow)
Center-of-Mass det. time= 87.5 min (829.1 - 741.7)

Volume	Invert	Avail.Storage	Storage Description
#1	53.50'	35,971 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
53.50	7,855	0	0	7,855
54.00	8,385	4,059	4,059	8,409
56.00	10,875	19,206	23,265	10,994
57.10	12,240	12,706	35,971	12,421

Device	Routing	Invert	Outlet Devices
#1	Primary	50.60'	**24.0" Round Culvert** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 50.60' / 50.45' S= 0.0060 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	50.70'	**3.7" W x 0.3" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	54.40'	**10.0" W x 15.6" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	55.70'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.53 cfs @ 12.40 hrs HW=55.58' (Free Discharge)
└─**1=Culvert** (Passes 3.53 cfs of 30.19 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.08 cfs @ 10.63 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 3.44 cfs @ 3.49 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond P2: Wet Pond 2

Inflow Area = 75,305 sf, 78.11% Impervious, Inflow Depth > 4.43" for 10-Yr event
Inflow = 8.49 cfs @ 12.09 hrs, Volume= 27,792 cf
Outflow = 0.76 cfs @ 12.97 hrs, Volume= 18,799 cf, Atten= 91%, Lag= 53.3 min
Primary = 0.76 cfs @ 12.97 hrs, Volume= 18,799 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 54.66' @ 12.97 hrs Surf.Area= 9,222 sf Storage= 17,086 cf
Flood Elev= 56.00' Surf.Area= 10,700 sf Storage= 30,396 cf

Plug-Flow detention time= 238.2 min calculated for 18,730 cf (67% of inflow)
Center-of-Mass det. time= 168.2 min (911.4 - 743.2)

Volume	Invert	Avail.Storage	Storage Description
#1	52.50'	30,396 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
52.50	6,460	0	0	6,460
54.00	8,530	11,207	11,207	8,580
56.00	10,700	19,189	30,396	10,859

Device	Routing	Invert	Outlet Devices
#1	Primary	49.70'	**24.0" Round Culvert** L= 159.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 49.70' / 48.90' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 3.14 sf
#2	Device 1	49.80'	**3.8" W x 0.2" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	53.30'	**5.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	54.70'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.76 cfs @ 12.97 hrs HW=54.66' (Free Discharge)
└─**1=Culvert** (Passes 0.76 cfs of 27.39 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 10.61 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.71 cfs @ 5.17 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond P3: Wet Pond 3

Inflow Area = 207,350 sf, 72.13% Impervious, Inflow Depth > 4.29" for 10-Yr event
Inflow = 22.83 cfs @ 12.09 hrs, Volume= 74,174 cf
Outflow = 7.35 cfs @ 12.39 hrs, Volume= 58,366 cf, Atten= 68%, Lag= 18.0 min
Primary = 7.35 cfs @ 12.39 hrs, Volume= 58,366 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 52.09' @ 12.39 hrs Surf.Area= 16,112 sf Storage= 35,418 cf
Flood Elev= 53.00' Surf.Area= 17,442 sf Storage= 50,643 cf

Plug-Flow detention time= 137.9 min calculated for 58,351 cf (79% of inflow)

Center-of-Mass det. time= 81.4 min (827.4 - 746.0)

Volume	Invert	Avail.Storage	Storage Description
#1	49.50'	64,149 cf	**Custom Stage Data (Conic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
49.50	11,485	0	0	11,485
50.00	12,140	5,905	5,905	12,168
52.00	15,980	28,032	33,938	16,098
53.75	18,580	30,211	64,149	18,823

Device	Routing	Invert	Outlet Devices
#1	Primary	46.50'	**36.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 46.50' / 46.40' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 7.07 sf
#2	Device 1	46.60'	**3.8" W x 0.5" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	50.60'	**15.0" W x 16.8" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	52.25'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.34 cfs @ 12.39 hrs HW=52.09' (Free Discharge)
└─**1=Culvert** (Passes 7.34 cfs of 68.84 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.15 cfs @ 11.26 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 7.20 cfs @ 4.11 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond P3A: 36" RCP

Inflow Area = 437,860 sf, 0.00% Impervious, Inflow Depth > 2.67" for 10-Yr event
Inflow = 18.42 cfs @ 12.46 hrs, Volume= 97,437 cf
Outflow = 18.41 cfs @ 12.47 hrs, Volume= 97,328 cf, Atten= 0%, Lag= 0.4 min
Primary = 18.41 cfs @ 12.47 hrs, Volume= 97,328 cf

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 55.92' @ 12.47 hrs Surf.Area= 461 sf Storage= 595 cf
Flood Elev= 58.50' Surf.Area= 15,750 sf Storage= 20,108 cf

Plug-Flow detention time= 1.1 min calculated for 97,328 cf (100% of inflow)
Center-of-Mass det. time= 0.7 min (813.1 - 812.4)

Volume	Invert	Avail.Storage	Storage Description
#1	53.80'	20,108 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
53.80	100	0	0
56.00	475	633	633
58.00	12,050	12,525	13,158
58.50	15,750	6,950	20,108

Device	Routing	Invert	Outlet Devices
#1	Primary	54.30'	**36.0" Round Culvert w/ 6.0" inside fill** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.80' / 53.35' S= 0.0090 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 6.29 sf

Primary OutFlow Max=18.34 cfs @ 12.47 hrs HW=55.92' (Free Discharge)
└—**1=Culvert** (Inlet Controls 18.34 cfs @ 4.03 fps)

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1A: Road/Woods Runoff Area=173,000 sf 6.36% Impervious Runoff Depth>4.03"
Flow Length=650' Slope=0.0200 '/' Tc=15.9 min CN=80 Runoff=14.72 cfs 58,141 cf

Subcatchment1B: Pond Runoff Area=16,500 sf 31.82% Impervious Runoff Depth>5.01"
Tc=6.0 min CN=89 Runoff=2.19 cfs 6,886 cf

Subcatchment1C: Driveway Runoff Area=7,830 sf 100.00% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=1.13 cfs 3,821 cf

Subcatchment1D: Driveway Runoff Area=7,000 sf 100.00% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=1.01 cfs 3,416 cf

Subcatchment1E: Grass Runoff Area=9,355 sf 40.51% Impervious Runoff Depth>5.11"
Tc=6.0 min CN=90 Runoff=1.26 cfs 3,987 cf

Subcatchment1F: Parking Runoff Area=6,145 sf 96.99% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=0.89 cfs 2,999 cf

Subcatchment1G: Parking Runoff Area=8,390 sf 93.56% Impervious Runoff Depth>5.79"
Tc=6.0 min CN=97 Runoff=1.21 cfs 4,046 cf

Subcatchment1H: Parking Runoff Area=4,965 sf 90.33% Impervious Runoff Depth>5.79"
Tc=6.0 min CN=97 Runoff=0.72 cfs 2,394 cf

Subcatchment1I: Garage Runoff Area=1,650 sf 100.00% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=0.24 cfs 805 cf

Subcatchment1J: Parking Runoff Area=2,655 sf 91.71% Impervious Runoff Depth>5.79"
Tc=6.0 min CN=97 Runoff=0.38 cfs 1,280 cf

Subcatchment1K: Parking Runoff Area=8,155 sf 90.93% Impervious Runoff Depth>5.79"
Tc=6.0 min CN=97 Runoff=1.17 cfs 3,933 cf

Subcatchment1L: Parking Runoff Area=13,905 sf 93.53% Impervious Runoff Depth>5.79"
Tc=6.0 min CN=97 Runoff=2.00 cfs 6,705 cf

Subcatchment1M: Building 1 Runoff Area=15,400 sf 100.00% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=2.23 cfs 7,515 cf

Subcatchment2: Woods Runoff Area=24,540 sf 9.56% Impervious Runoff Depth>4.05"
Tc=6.0 min CN=80 Runoff=2.77 cfs 8,272 cf

Subcatchment3A: Existing Runoff Area=437,860 sf 0.00% Impervious Runoff Depth>3.70"
Flow Length=1,048' Slope=0.0120 '/' Tc=33.0 min CN=77 Runoff=25.39 cfs 135,077 cf

Subcatchment3AA: Parking Runoff Area=5,550 sf 86.67% Impervious Runoff Depth>5.71"
Tc=6.0 min CN=96 Runoff=0.79 cfs 2,639 cf

Subcatchment3B1: Woods Runoff Area=55,645 sf 0.00% Impervious Runoff Depth>3.92"
Flow Length=698' Slope=0.0100 '/' Tc=24.6 min CN=79 Runoff=3.87 cfs 18,168 cf

Subcatchment3B2: Woods Runoff Area=68,025 sf 0.00% Impervious Runoff Depth>3.84"
Flow Length=326' Slope=0.0350 '/' Tc=7.4 min CN=78 Runoff=7.04 cfs 21,743 cf

Subcatchment3BB: Garage Runoff Area=1,650 sf 100.00% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=0.24 cfs 805 cf

Subcatchment3C: Driveway Runoff Area=7,340 sf 100.00% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=1.06 cfs 3,582 cf

Subcatchment3CC: Parking Runoff Area=6,850 sf 91.61% Impervious Runoff Depth>5.79"
Tc=6.0 min CN=97 Runoff=0.99 cfs 3,303 cf

Subcatchment3D: Driveway Runoff Area=4,930 sf 100.00% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=0.71 cfs 2,406 cf

Subcatchment3DD: Parking Runoff Area=5,040 sf 82.54% Impervious Runoff Depth>5.71"
Tc=6.0 min CN=96 Runoff=0.72 cfs 2,396 cf

Subcatchment3E: Driveway Runoff Area=3,040 sf 99.01% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=0.44 cfs 1,484 cf

Subcatchment3EE: Building 4 Runoff Area=5,350 sf 100.00% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=0.77 cfs 2,611 cf

Subcatchment3F: Driveway Runoff Area=2,305 sf 98.70% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=0.33 cfs 1,125 cf

Subcatchment3FF: Courtyard Runoff Area=2,915 sf 13.55% Impervious Runoff Depth>4.69"
Tc=6.0 min CN=86 Runoff=0.37 cfs 1,138 cf

Subcatchment3G: Pond Runoff Area=15,950 sf 26.39% Impervious Runoff Depth>4.90"
Tc=6.0 min CN=88 Runoff=2.09 cfs 6,515 cf

Subcatchment3GG: Buiilding 2A Runoff Area=16,625 sf 100.00% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=2.40 cfs 8,113 cf

Subcatchment3H: Pond Runoff Area=22,660 sf 36.12% Impervious Runoff Depth>5.01"
Tc=6.0 min CN=89 Runoff=3.01 cfs 9,457 cf

Subcatchment3HH: Building 2B Runoff Area=15,225 sf 100.00% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=2.20 cfs 7,430 cf

Subcatchment3I: Parking Runoff Area=13,150 sf 86.69% Impervious Runoff Depth>5.71"
Tc=6.0 min CN=96 Runoff=1.88 cfs 6,252 cf

Subcatchment3II: Building 3 Runoff Area=19,600 sf 100.00% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=2.84 cfs 9,565 cf

Subcatchment3J: Courtyard Runoff Area=2,815 sf 0.00% Impervious Runoff Depth>4.47"
Tc=6.0 min CN=84 Runoff=0.34 cfs 1,049 cf

Subcatchment3K: Courtyard Runoff Area=14,820 sf 41.33% Impervious Runoff Depth>5.11"
Tc=6.0 min CN=90 Runoff=2.00 cfs 6,316 cf

Subcatchment3L: Parking Runoff Area=10,540 sf 98.77% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=1.52 cfs 5,144 cf

Subcatchment3M: Parking Runoff Area=5,530 sf 92.95% Impervious Runoff Depth>5.79"
Tc=6.0 min CN=97 Runoff=0.80 cfs 2,667 cf

Subcatchment3N: Garage Runoff Area=1,650 sf 100.00% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=0.24 cfs 805 cf

Subcatchment3O: Parking Runoff Area=5,540 sf 84.84% Impervious Runoff Depth>5.71"
Tc=6.0 min CN=96 Runoff=0.79 cfs 2,634 cf

Subcatchment3P: Garage Runoff Area=1,650 sf 100.00% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=0.24 cfs 805 cf

Subcatchment3Q: Courtyard Runoff Area=10,030 sf 25.02% Impervious Runoff Depth>4.47"
Tc=6.0 min CN=84 Runoff=1.23 cfs 3,736 cf

Subcatchment3R: Courtyard Runoff Area=7,980 sf 24.56% Impervious Runoff Depth>4.47"
Tc=6.0 min CN=84 Runoff=0.98 cfs 2,972 cf

Subcatchment3S: Parking Runoff Area=9,495 sf 84.41% Impervious Runoff Depth>5.71"
Tc=6.0 min CN=96 Runoff=1.36 cfs 4,515 cf

Subcatchment3T: Courtyard Runoff Area=9,055 sf 14.96% Impervious Runoff Depth>4.26"
Tc=6.0 min CN=82 Runoff=1.07 cfs 3,211 cf

Subcatchment3U: Parking Runoff Area=12,055 sf 94.90% Impervious Runoff Depth>5.79"
Tc=6.0 min CN=97 Runoff=1.74 cfs 5,813 cf

Subcatchment3V: Parking Runoff Area=6,415 sf 78.02% Impervious Runoff Depth>5.52"
Tc=6.0 min CN=94 Runoff=0.90 cfs 2,952 cf

Subcatchment3W: Garage Runoff Area=1,650 sf 100.00% Impervious Runoff Depth>5.86"
Tc=6.0 min CN=98 Runoff=0.24 cfs 805 cf

Subcatchment3X: Parking Runoff Area=12,600 sf 88.65% Impervious Runoff Depth>5.71"
Tc=6.0 min CN=96 Runoff=1.80 cfs 5,991 cf

Subcatchment3Y: Parking Runoff Area=11,630 sf 90.07% Impervious Runoff Depth>5.71"
Tc=6.0 min CN=96 Runoff=1.67 cfs 5,530 cf

Subcatchment3Z: Parking Runoff Area=11,020 sf 87.89% Impervious Runoff Depth>5.71"
Tc=6.0 min CN=96 Runoff=1.58 cfs 5,240 cf

Subcatchment4: Woods Runoff Area=1,535 sf 0.00% Impervious Runoff Depth>3.84"
Tc=6.0 min CN=78 Runoff=0.17 cfs 491 cf

Subcatchment5: Woods Runoff Area=18,870 sf 0.00% Impervious Runoff Depth>3.63"
Flow Length=295' Tc=10.3 min CN=76 Runoff=1.69 cfs 5,705 cf

Reach DP1: Design Point - Offsite Flow Inflow=21.23 cfs 96,918 cf
Outflow=21.23 cfs 96,918 cf

Reach DP2: Design Point - Offsite Flow Inflow=2.77 cfs 8,272 cf
Outflow=2.77 cfs 8,272 cf

Reach DP3: Design Point - Stream Inflow=43.56 cfs 276,929 cf
Outflow=43.56 cfs 276,929 cf

Reach DP4: Design Point - Offsite Sheetflow Inflow=0.17 cfs 491 cf
Outflow=0.17 cfs 491 cf

Reach DP5: Design Point - Offsite Sheetflow Inflow=1.69 cfs 5,705 cf
Outflow=1.69 cfs 5,705 cf

Reach R3A: Swale Avg. Flow Depth=1.11' Max Vel=3.17 fps Inflow=25.19 cfs 134,960 cf
n=0.040 L=375.0' S=0.0089 '/' Capacity=21.06 cfs Outflow=25.04 cfs 134,537 cf

Reach R3B: Stream Avg. Flow Depth=1.44' Max Vel=5.55 fps Inflow=43.70 cfs 277,305 cf
n=0.040 L=280.0' S=0.0232 '/' Capacity=46.72 cfs Outflow=43.56 cfs 276,929 cf

Pond CB1: Prop CB Peak Elev=56.87' Inflow=1.01 cfs 3,416 cf
12.0" Round Culvert n=0.012 L=18.0' S=0.0056 '/' Outflow=1.01 cfs 3,416 cf

Pond CB10: Prop CB Peak Elev=55.33' Inflow=1.06 cfs 3,582 cf
12.0" Round Culvert n=0.012 L=18.0' S=0.0056 '/' Outflow=1.06 cfs 3,582 cf

Pond CB11: Prop CB Peak Elev=55.26' Inflow=1.77 cfs 5,988 cf
12.0" Round Culvert n=0.012 L=150.0' S=0.0067 '/' Outflow=1.77 cfs 5,988 cf

Pond CB12: Prop CB Peak Elev=55.45' Inflow=0.99 cfs 3,303 cf
12.0" Round Culvert n=0.012 L=30.0' S=0.0050 '/' Outflow=0.99 cfs 3,303 cf

Pond CB13: Prop CB Peak Elev=55.41' Inflow=1.71 cfs 5,700 cf
12.0" Round Culvert n=0.012 L=69.0' S=0.0051 '/' Outflow=1.71 cfs 5,700 cf

Pond CB14: Prop CB Peak Elev=54.87' Inflow=2.15 cfs 7,183 cf
15.0" Round Culvert n=0.012 L=18.0' S=0.0056 '/' Outflow=2.15 cfs 7,183 cf

Pond CB15: Prop CB Peak Elev=55.25' Inflow=6.76 cfs 22,521 cf
18.0" Round Culvert n=0.012 L=24.0' S=0.0062 '/' Outflow=6.76 cfs 22,521 cf

Pond CB16: Prop CB Peak Elev=57.38' Inflow=1.67 cfs 5,530 cf
12.0" Round Culvert n=0.012 L=145.0' S=0.0052 '/' Outflow=1.67 cfs 5,530 cf

Pond CB17: Prop CB Peak Elev=56.64' Inflow=3.24 cfs 10,769 cf
15.0" Round Culvert n=0.012 L=115.0' S=0.0052 '/' Outflow=3.24 cfs 10,769 cf

Pond CB18: Prop CB Peak Elev=56.16' Inflow=4.28 cfs 14,213 cf
15.0" Round Culvert n=0.012 L=202.0' S=0.0050 '/' Outflow=4.28 cfs 14,213 cf

Pond CB19: Prop CB Peak Elev=56.84' Inflow=3.18 cfs 10,402 cf
15.0" Round Culvert n=0.012 L=122.0' S=0.0049 '/' Outflow=3.18 cfs 10,402 cf

Pond CB2: Prop CB Peak Elev=56.98' Inflow=3.41 cfs 11,224 cf
15.0" Round Culvert n=0.012 L=151.0' S=0.0050 '/' Outflow=3.41 cfs 11,224 cf

Pond CB20: Prop CB Peak Elev=56.40' Inflow=6.81 cfs 22,252 cf
18.0" Round Culvert n=0.012 L=94.0' S=0.0069 '/' Outflow=6.81 cfs 22,252 cf

Pond CB21: Prop CB Peak Elev=56.86' Inflow=1.14 cfs 3,749 cf
12.0" Round Culvert n=0.012 L=93.0' S=0.0172 '/' Outflow=1.14 cfs 3,749 cf

Pond CB22: Prop CB Peak Elev=56.09' Inflow=0.34 cfs 1,049 cf
12.0" Round Culvert n=0.012 L=73.0' S=0.0247 '/' Outflow=0.34 cfs 1,049 cf

Pond CB23: Prop CB Peak Elev=54.75' Inflow=9.95 cfs 32,317 cf
24.0" Round Culvert n=0.012 L=79.0' S=0.0215 '/' Outflow=9.95 cfs 32,317 cf

Pond CB24: Prop CB Peak Elev=54.75' Inflow=2.23 cfs 7,301 cf
12.0" Round Culvert n=0.012 L=124.0' S=0.0105 '/' Outflow=2.23 cfs 7,301 cf

Pond CB25: Prop CB Peak Elev=53.14' Inflow=25.71 cfs 84,525 cf
36.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=25.71 cfs 84,525 cf

Pond CB26: Prop CB Peak Elev=57.53' Inflow=1.80 cfs 5,991 cf
12.0" Round Culvert n=0.012 L=110.0' S=0.0050 '/' Outflow=1.80 cfs 5,991 cf

Pond CB27: Prop CB Peak Elev=56.88' Inflow=2.95 cfs 9,748 cf
15.0" Round Culvert n=0.012 L=154.0' S=0.0049 '/' Outflow=2.95 cfs 9,748 cf

Pond CB28: Prop CB Peak Elev=56.40' Inflow=1.07 cfs 3,211 cf
12.0" Round Culvert n=0.012 L=73.0' S=0.0055 '/' Outflow=1.07 cfs 3,211 cf

Pond CB29: Prop CB Peak Elev=56.24' Inflow=5.75 cfs 18,773 cf
18.0" Round Culvert n=0.012 L=182.0' S=0.0049 '/' Outflow=5.75 cfs 18,773 cf

Pond CB3: Prop CB Peak Elev=56.96' Inflow=1.26 cfs 3,987 cf
12.0" Round Culvert n=0.012 L=20.0' S=0.0050 '/' Outflow=1.26 cfs 3,987 cf

Pond CB30: Prop CB Peak Elev=55.48' Inflow=7.11 cfs 23,287 cf
18.0" Round Culvert n=0.012 L=135.0' S=0.0052 '/' Outflow=7.11 cfs 23,287 cf

Pond CB31: Prop CB Peak Elev=54.45' Inflow=10.98 cfs 36,292 cf
24.0" Round Culvert n=0.012 L=86.0' S=0.0052 '/' Outflow=10.98 cfs 36,292 cf

Pond CB32: Prop CB Peak Elev=54.00' Inflow=12.01 cfs 39,764 cf
24.0" Round Culvert n=0.012 L=110.0' S=0.0050 '/' Outflow=12.01 cfs 39,764 cf

Pond CB4: Prop CB Peak Elev=56.64' Inflow=7.64 cfs 25,445 cf
18.0" Round Culvert n=0.012 L=80.0' S=0.0050 '/' Outflow=7.64 cfs 25,445 cf

Pond CB5: Prop CB Peak Elev=57.38' Inflow=0.89 cfs 2,999 cf
12.0" Round Culvert n=0.012 L=7.0' S=0.0071 '/' Outflow=0.89 cfs 2,999 cf

Pond CB6: Prop CB Peak Elev=57.57' Inflow=2.10 cfs 7,045 cf
12.0" Round Culvert n=0.012 L=152.0' S=0.0049 '/' Outflow=2.10 cfs 7,045 cf

Pond CB7: Prop CB Peak Elev=56.65' Inflow=3.05 cfs 10,244 cf
15.0" Round Culvert n=0.012 L=125.0' S=0.0052 '/' Outflow=3.05 cfs 10,244 cf

Pond CB8: Prop CB Peak Elev=56.00' Inflow=4.61 cfs 15,457 cf
18.0" Round Culvert n=0.012 L=60.0' S=0.0042 '/' Outflow=4.61 cfs 15,457 cf

Pond CB9: Prop CB Peak Elev=56.09' Inflow=0.38 cfs 1,280 cf
12.0" Round Culvert n=0.012 L=94.0' S=0.0053 '/' Outflow=0.38 cfs 1,280 cf

Pond DMH1: Prop DMH Peak Elev=56.02' Inflow=7.95 cfs 26,001 cf
18.0" Round Culvert n=0.012 L=56.0' S=0.0054 '/' Outflow=7.95 cfs 26,001 cf

Pond DMH2: Prop DMH Peak Elev=49.61' Inflow=3.69 cfs 25,142 cf
24.0" Round Culvert n=0.012 L=55.0' S=0.0382 '/' Outflow=3.69 cfs 25,142 cf

Pond DMH3: Prop DMH Peak Elev=47.49' Inflow=3.69 cfs 25,142 cf
24.0" Round Culvert n=0.012 L=13.0' S=0.0154 '/' Outflow=3.69 cfs 25,142 cf

Pond P1: Wet Pond 1 Peak Elev=55.82' Storage=21,363 cf Inflow=14.44 cfs 47,788 cf
Outflow=6.79 cfs 38,777 cf

Pond P2: Wet Pond 2 Peak Elev=54.84' Storage=18,780 cf Inflow=10.62 cfs 35,024 cf
Outflow=3.69 cfs 25,142 cf

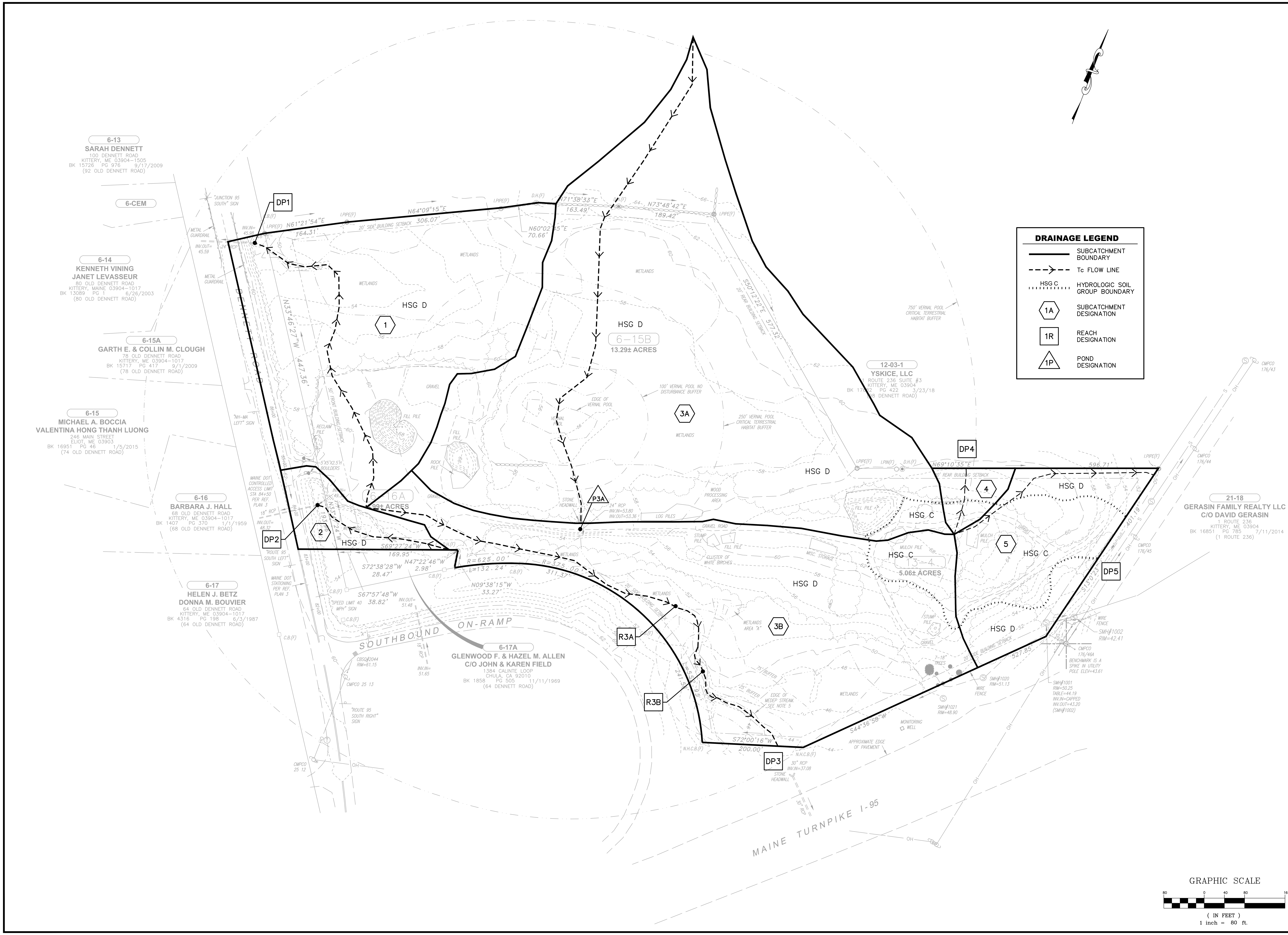
Pond P3: Wet Pond 3 Peak Elev=52.43' Storage=40,885 cf Inflow=28.73 cfs 93,982 cf
Outflow=12.83 cfs 77,716 cf

Pond P3A: 36" RCP Peak Elev=56.33' Storage=1,104 cf Inflow=25.39 cfs 135,077 cf
36.0" Round Culvert w/ 6.0" inside fill n=0.012 L=50.0' S=0.0090 '/' Outflow=25.19 cfs 134,960 cf

Total Runoff Area = 1,164,080 sf Runoff Volume = 424,391 cf Average Runoff Depth = 4.37"
73.90% Pervious = 860,290 sf 26.10% Impervious = 303,790 sf

APPENDIX I

PRE- AND POST-DEVELOPMENT WATERSHED PLANS



REV.	REVISION DESCRIPTION	DATE
1	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN	06/20/19

CHECKED BY	DRAWN BY	DESIGNED BY
WRD	SMT	SMT

THIS DOCUMENT IS PREPARED AS AN INSTRUMENT OF SERVICE AND SHALL REMAIN THE PROPERTY OF HOYLE, TANNER, IT MAY NOT BE USED, REPRODUCED, DISSEMINATED OR TRANSFERRED IN ANY MANNER, INCLUDING ELECTRONICALLY, FOR ANY OTHER PURPOSE THAN THIS PROJECT, WITHOUT THE WRITTEN PERMISSION OF HOYLE, TANNER.

Hoyle, Tanner & Associates, Inc.
Pease International Tradeport
100 International Dr, #360, Portsmouth, NH 03801
Tel (603) 431-2520 Fax (603) 431-8067 Web: www.hoyletanner.com

SCALE: AS SHOWN
DATE: JUNE 20, 2019

APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

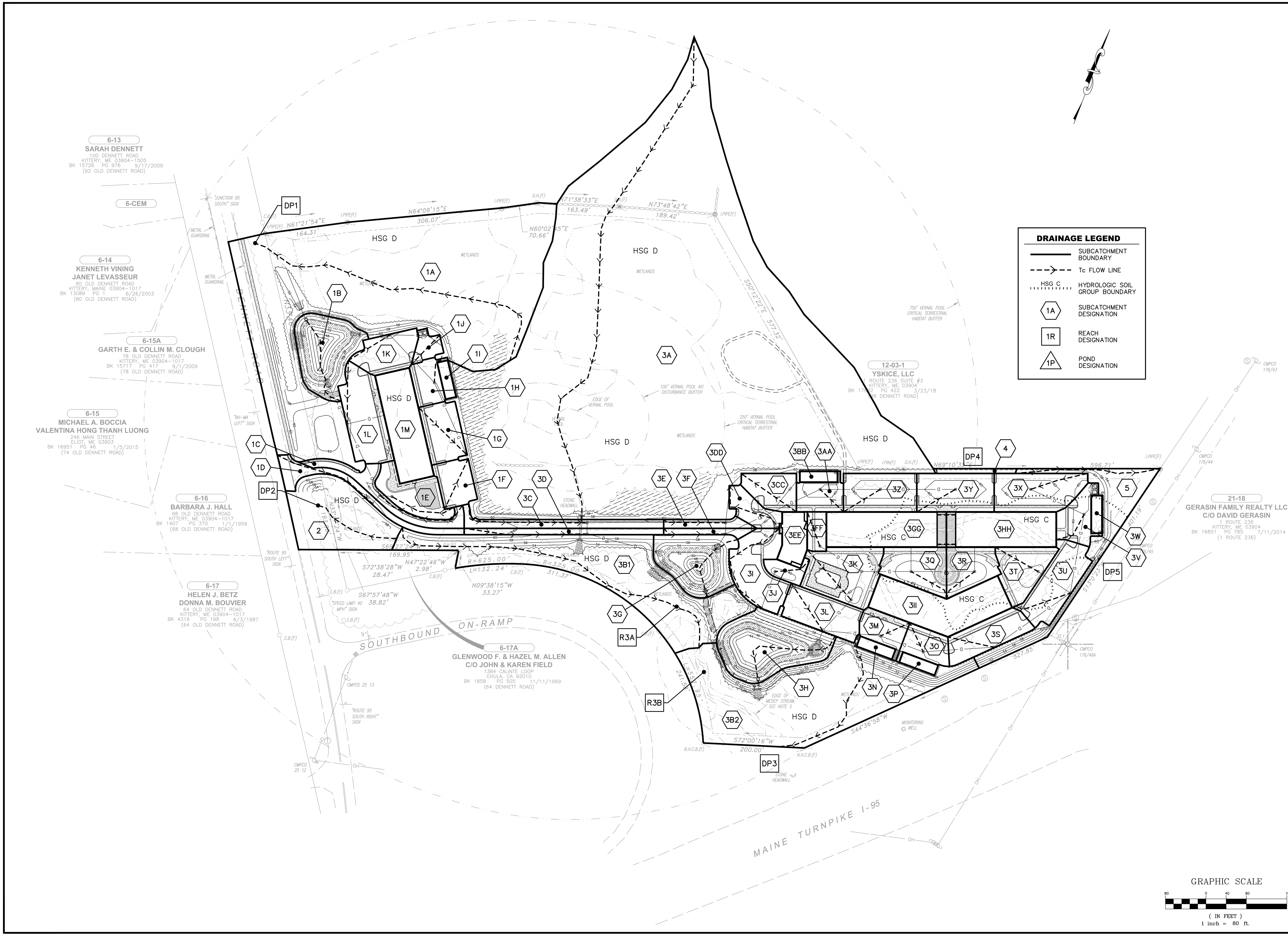
PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

PRE-DEVELOPMENT DRAINAGE PLAN

DR1

PROJECT NO. 569200

SHEET 1 OF 25



REV.	REVISION DESCRIPTION	DATE
1	ISSUED FOR KITTERY PLANNING BOARD – PRELIMINARY PLAN	06/20/19

DESIGNED BY	DRAWN BY	CHECKED BY
SMT	SMT	WRD

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SCALE: AS SHOWN
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APPLICANT
AZTEC, LLC
62 PORTLAND ROAD, SUITE 25
KENNEBUNK, ME 04043

PROJECT
PROPOSED MIXED-USE RESIDENTIAL DEVELOPMENT PROJECT
TAX MAP LOTS 6-15B, 6-16A & 13-4
76 DENNETT ROAD, KITTERY, ME 03904

POST-DEVELOPMENT DRAINAGE PLAN

DR2

PROJECT NO. 569200

SHEET 2 OF 2

APPENDIX J
EFFECTIVE TREATMENT CALCULATIONS

EFFECTIVE POLLUTANT TREATMENT		**SHEET** 1 **OF** 1
PROJECT 76 DENNETT ROAD	**DATE PREPARED** June 2019	
LOCATION KITTERY,ME	**BASIS FOR ESTIMATE**	
ENGINEER Hoyle, Tanner & Associates, Inc. 100 INTERNATIONAL DRIVE, SUITE 360 PORTSMOUTH, NH 03801	☐ *NO DESIGN COMPLETED* ☐ *PRELIMINARY DESIGN*	☑ *FINAL DESIGN* ☐ *SPECIFY*
SUBJECT Percent of Treatment	**COMPUTED** MJG	**CHECKED** SMT

AREA ID	WATERSHED SIZE (Sq.Ft.)	TOTAL DEVELOPED AREA (Sq.Ft.)	UNDEVELOPED / EXISTING AREAS (Sq.Ft.)	EXISTING IMPERVIOUS AREA (Sq.Ft.)	IMPERVIOUS AREA (Sq.Ft.)	TOTAL IMPERVIOUS AREA (Sq.Ft.)	LANDSCAPED AREA (Sq.Ft.)	IMPERVIOUS AREA TREATED (Sq.Ft.)	LANDSCPED AREA TREATED (Sq.Ft.)	DEVELOPED AREA TREATED (Sq.Ft.)	TREATMENT BMP
1-A	173000	22780	150220	8410	2935	11345	19860	0	0	0	NONE
1-B	16500	16500	0	0	5250	5250	11250	5250	11250	16500	WET POND 1
1-C	7830	7830	0	0	7830	7830	0	7830	0	7830	WET POND 1
1-D	7000	5615	1385	1385	5615	7000	0	7000	0	7000	WET POND 1
1-E	9355	9355	0	0	3790	3790	5565	3790	5565	9355	WET POND 1
1-F	6145	6145	0	0	5960	5960	185	5960	185	6145	WET POND 1
1-G	8390	8390	0	0	7850	7850	540	7850	540	8390	WET POND 1
1-H	4965	4965	0	0	4485	4485	480	4485	480	4965	WET POND 1
1-I	1650	1650	0	0	1650	1650	0	1650	0	1650	WET POND 1
1-J	2655	2655	0	0	2435	2435	220	2435	220	2655	WET POND 1
1-K	8155	8155	0	0	7415	7415	740	7415	740	8155	WET POND 1
1-L	13905	13905	0	0	13005	13005	900	13005	900	13905	WET POND 1
1-M	15400	15400	0	0	15400	15400	0	15400	0	15400	WET POND 1
2	24540	1180	23360	2345	0	2345	1180	0	0	0	NONE
3-A	437860	8610	429250	0	0	0	8610	0	0	0	NONE
3-B1	55645	3830	51815	0	895	895	2935	0	0	0	NONE
3-B2	68025	1575	66450	0	0	0	1575	0	0	0	NONE
3-C	7340	7340	0	0	7340	7340	0	7340	0	7340	WET POND 2
3-D	4930	4930	0	0	4930	4930	0	4930	0	4930	WET POND 2
3-E	3040	3040	0	0	3010	3010	30	3010	30	3040	WET POND 2
3-F	2305	2305	0	0	2275	2275	30	2275	30	2305	WET POND 2
3-G	15950	15950	0	0	4630	4630	11320	4630	11320	15950	WET POND 2
3-H	22660	22660	0	0	8185	8185	14475	8185	14475	22660	WET POND 3
3-I	13150	13150	0	0	11400	11400	1750	11400	1750	13150	WET POND 3
3-J	2815	2815	0	0	0	0	2815	0	2815	2815	WET POND 3
3-K	14820	14820	0	0	6125	6125	8695	6125	8695	14820	WET POND 3
3-L	10540	10540	0	0	10410	10410	130	10410	130	10540	WET POND 3
3-M	5530	5530	0	0	5140	5140	390	5140	390	5530	WET POND 3
3-N	1650	1650	0	0	1650	1650	0	1650	0	1650	WET POND 3
3-O	5540	5540	0	0	4700	4700	840	4700	840	5540	WET POND 3
3-P	1650	1650	0	0	1650	1650	0	1650	0	1650	WET POND 3
3-Q	10030	10030	0	0	2510	2510	7520	2510	7520	10030	WET POND 3
3-R	7980	7980	0	0	1960	1960	6020	1960	6020	7980	WET POND 3
3-S	9495	9495	0	0	8015	8015	1480	8015	1480	9495	WET POND 3
3-T	9055	9055	0	0	1355	1355	7700	1355	7700	9055	WET POND 3
3-U	12055	12055	0	0	11440	11440	615	11440	615	12055	WET POND 3
3-V	6415	6415	0	0	5005	5005	1410	5005	1410	6415	WET POND 3
3-W	1650	1650	0	0	1650	1650	0	1650	0	1650	WET POND 3
3-X	12600	12600	0	0	11170	11170	1430	11170	1430	12600	WET POND 3
3-Y	11630	11630	0	0	10475	10475	1155	10475	1155	11630	WET POND 2
3-Z	11020	11020	0	0	9685	9685	1335	9685	1335	11020	WET POND 2
3-AA	5550	5550	0	0	4810	4810	740	4810	740	5550	WET POND 2
3-BB	1650	1650	0	0	1650	1650	0	1650	0	1650	WET POND 2
3-CC	6850	6850	0	0	6275	6275	575	6275	575	6850	WET POND 2
3-DD	5040	5040	0	0	4160	4160	880	4160	880	5040	WET POND 2
3-EE	5350	5350	0	0	5350	5350	0	5350	0	5350	WET POND 3
3-FF	2915	2915	0	0	395	395	2520	395	2520	2915	WET POND 3
3-GG	16625	16625	0	0	16625	16625	0	16625	0	16625	WET POND 3
3-HH	15225	15225	0	0	15225	15225	0	15225	0	15225	WET POND 3
3-II	19600	19600	0	0	19600	19600	0	19600	0	19600	WET POND 3
4	1535	715	820	0	0	0	715	0	0	0	NONE
5	18870	4580	14290	0	0	0	4580	0	0	0	NONE
TOTAL	1164080	426490	737590	12140	293315	305455	133190	290870	93735	384605	-

Treatment Summary	
Total Impervious Area Treated (Ft^2)	290870
Impervious Area (Ft^2)	293315
Developed Treated Land (Ft^2) = Imp. Area Treated (Ft^2) + Land. Area Treated (Ft^2)	384605
Total Developed Area (Ft^2)	426490
Impervious Treatment % = Impervious Area Treated / Impervious Area*	**99%**
Developed Treatment % = Developed Area Treated / Total Developed Area	**90%**

* Impervious area excludes the existing imperivious area that is not treated