CITY OF LEWISTON
PLANNING BOARD MEETING
Monday, July 8, 2019 – 5:30 P.M.
City Council Chambers – First Floor
Lewiston City Building
27 Pine Street, Lewiston, ME

AGENDA

1. **ROLL CALL**

2. **ADJUSTMENTS TO THE AGENDA**

3. **CORRESPONDENCE**

4. **PUBLIC HEARINGS:**

   a. A Development Review and Conditional Use Application to construct a new 9,192 s.f. fire station located at 55 North Temple Street.

   b. A Development Review Application for Phase 2 of Sanctuary Estates, a 14 lot single family cluster subdivision on 24.9 acres located at 161 Hogan Road (rear), lot 3 map 116.

5. **OTHER BUSINESS:**

   a. Request for a recommendation regarding the acquisition of 57 Knox Street and 31 Goodale Street.

6. **READING OF THE MINUTES**: Motion to adopt the June 10, 2019 draft minutes

7. **ADJOURNMENT**

The next scheduled Planning Board meeting is July 22, 2019

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CITY OF LEWISTON

Department of Planning & Code Enforcement

TO: Lewiston Planning Board

FROM: Douglas Greene, AICP, RLA, City Planner

DATE: July 8, 2019

RE: Development Review and Conditional Use Application for a New Fire Station located at 55 North Temple Street

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A request by Sebago Technics, LLC, an agent for the City of Lewiston for a development review and conditional use application to construct a new 9,192 s.f. fire station located at 55 North Temple Street.

PROJECT DESCRIPTION

The City of Lewiston is seeking to construct a new fire station at 55 North Temple Street to replace the Sabattus Street Engine 4 Fire Station located at 976 Sabattus Street, which is approximately a quarter mile away. The City Council has appropriated the necessary funding and is ready to move forward with the project. The property at 55 North Temple Road is zoned Neighborhood Conservation "A" (NCA) and is 9.23 acre in size. The site is vacant with a mixture of trees, scrub growth and open fields. Approximately 1.16 acres will be developed for the fire station. The new fire station consists of a 9,192 sf. building with 3 bays for fire equipment that is accessible from both sides of the building, 13 total parking spaces (1 handicapped space) and 3 driveways entrances on North Temple Street. The project is located at the crest of a hill on North Temple Street.

Stormwater will be directed into 7 catch basins, which empty into a detention pond. The storm water from the detention pond will flow into a level spreader that empties into a wooded buffer area.

LIST TYPES OF APPROVALS

The proposed fire station is considered a "*municipal building and facility"* in Article XI, District Regulations (land use chart), which is a conditional use in every Lewiston zoning district. In addition, the proposed fire station is 9,129 sf. and new structures over 5,000 sf. are considered major projects and requires a development review application. Therefore, the new fire station at 55 North Temple Street requires Planning Board approval of a conditional use permit and a development review application pursuant to Article X, Conditional Uses, Section 3 Standards for Conditional Use Permits and Article XIII, Development Review and Standards, Section 4, Approval Criteria.

STAFF REVIEW and COMMENTS

A. **Conditional Use Approval**- the Zoning Ordinance defines Conditional Use as *"a use which would not be appropriate without restriction but is acceptable if controlled as to number, area, location, relation to the neighborhood and similar criteria."* There are 5 criteria/standards listed in Article X that must be met. In general, a conditional use should:
   - Not be detrimental to the surrounding property or area with regards to scale of development, traffic, noise and impacts on natural resources or surroundings
   - Provide safe vehicular and pedestrian traffic in and out of the site
   - Have adequate capacity to provide necessary municipal services
   - Have soils that can adequately support the proposed development
   - Propose development with scale and design that is compatible to the surrounding area

The applicant has submitted a conditional use application that addresses each of the conditional use standards. Noise and traffic are the major issues that needs to be addressed to ensure that a new fire station will not be detrimental to the surrounding area. Lewiston Fire Chief Brian Stockdale addressed these concerns in a memo dated July 2nd . Regarding noise, Chief Stockdale commits "to develop operational procedures that take into account the time of day and type of response needed. Also, operational guidelines will be developed that address the testing and maintenance of equipment and apparatus to limit other potential noise issues." Traffic safety concerns will be addressed by having "a type of warning signal/sign installed at the street, which can be activated when an apparatus is leaving the station for a response."

Providing fire protection is a fundamental responsibility of local government. The Staff is confident that the Fire Department will come up with a plan that will minimize noise and traffic concerns, especially based on the time when emergency responses occur.

B. **Development Review Approval-** The new fire station proposal was reviewed by the City's Staff Review Team (Planning, Fire, Police and Public Works) on June 12th and discussed the project with Sebago Technic staff.

   Staff notes the following with respect to the application:
   - Public works requested that the forested buffer area should have permanent markings to delineate the protected area. (pins were placed at the four corners of the buffer area and a note was added to the plan clarifying the intent of the pins)
   - Parking was discussed and a revised plan submitted that added additional spaces for staff
   - Additional information was requested documenting the city's financial capacity for the project (financial documents have been provided by the City Administrator)
   - Additional information was requested documenting city water and sewer capacity for the project (confirmation has been received from the Deputy Director of Public Works on water and sewer capacity)
   - Additional information was requested that addresses noise and traffic impacts to the surrounding neighborhood (a memo has been received from Fire Chief Brian Stockdale)

- The project site is located at the crest of a hill on North Temple Street. The application addresses sight distance in the Development Review application in tab 8. Based on the posted speed limit of 25 mph on North Temple Street the required sight distance is 200 feet. The measured sight distances from the 3 entrances are between 275 and 300 feet, which is acceptable. It was recommended that vegetation along the street edge be trimmed to a height of 6 feet to provide unobstructed sight lines.

STAFF RECOMMENDATION
City staff has no additional comments at this time. Staff recommends APPROVAL of the proposed project, with the following conditions:

1. Prior to the issuance of a certificate of occupancy, a policy are adopted by the Lewiston Fire Department that address noise.
2. Prior to the issuance of a certificate of occupancy, a warning/signal sign shall be installed and operational on North Temple Street.
3. Vegetation along the right of way of 55 North Temple Street shall be cleared to a height of six feet to allow unobstructed sight lines.

ACTION NECESSARY
Make a motion that the application submitted by Sebago Technics, LLC on behalf of the City of Lewiston to construct a 9,192 sf. sf fire station located at 55 North Temple Street meets all of the necessary criteria contained in the Zoning and Land Use Code, including, but not limited to Article X, Conditional Uses, Section 3 Standards for Conditional Use Permits and Article XIII Development Review and Standards, Section 4, Approval Criteria of the Zoning and Land Use Code, and that approval be granted (including, if any, specific conditions raised by the Planning Board or staff).

SEBAGO TECHNICS

CIVIL ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE

Conditional Use Review

To:

City of Lewiston

Lewiston Fire Station

55 North Temple Street, Lewiston Maine

Prepared for:
City of Lewiston
27 Pine Street
Lewiston, ME 04240

Prepared by:
Sebago Technics, Inc.
75 John Roberts Road, Suite 4A
South Portland, Maine 04106

July 2019

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July 3, 2019
16304

David Hediger, City Planner
City of Lewiston
27 Pine Street
Lewiston, ME 04240

Conditional Use Application
Lewiston Fire Station, 55 North Temple Street – Lewiston, ME

Dear Mr. Hediger:

On behalf of the City of Lewiston Fire Department, Sebago Technics, Inc. is pleased to submit the attached Conditional Us application for the proposed fire station at 55 North Temple Street. The project site is shown as Parcel RE00004448 in the City of Lewiston records, is approximately 9.85 acres in size, and is located in the Neighborhood Conservation "A" Zoning District (NCA). The proposed project involves a new 9,192 s.f. fire station and associated parking and drive. The proposed station will replace an existing fire station location less than 0.2 miles from the project site on Sabattus Street. The existing fire station can not be expanded given the existing site constraints of the parcel.

The proposed project meets the standards outlined in Article X. Section 3 of the Zoning and Land Use Code. *Section 3 Standards for Conditional Use Permits* and how the project design meets the standards is outlined as follows:

(1) *Neither the proposed use nor the proposed site upon which the use will be located is of such a character that the use will have significant adverse impact upon the value or quiet possession of surrounding properties greater than would normally occur from such a use in the zoning district. The board may not find that this standard is satisfied unless it finds that:*

a. *The size of the proposed use is comparable to surrounding uses; and*

The proposed fire station will replace an existing undersized fire station less than 0.2 miles from the subject site.

b. *The amount and type of traffic to be generated, hours of operation, expanse of pavement, and the number of parking spaces are comparable to surrounding uses; and*

The amount and type of traffic that will be generated by the proposed fire station will be consistent with the existing fire station and the surrounding area. The amount of proposed pavement is consistent with what is required for the safe movement of emergency vehicles to and from the site. The proposed parking is sufficient to provide parking for emergency personnel and visitors to the station. Both the parking and access drive have been designed according to industry standards for fire stations. The surrounding area is mixed use with private driveway and commercial parking lots. The proposed facility will replace an existing facility in kind and the proposed project design

is consistent with the surrounding area in as much as a public safety facility can be given the unique nature of its service.

c. *The generation of noise, dust, odor, vibration, glare, smoke, litter and other nuisances is comparable to surrounding uses; and*

The generation of noise, dust, odor, vibration, glare, smoke, litter, and other nuisances by the proposed fire station will be comparable to the surrounding uses. The proposed fire station will replace an existing fire station less than 0.2 miles from the proposed project site. Please see Section 7 for a letter from the Fire Department regarding mitigation of noise.

d. *The impact of the use on the quality and quantity of groundwater available to abutting properties is comparable to surrounding uses; and*

The proposed project will not result in an adverse impact to the quality or quantity of ground water available to the abutting properties. The proposed fire station will be serviced by pubic water and will replace an existing fire station in the area that is serviced by public water. Please see Section 2 for confirmation on the ability to serve from the Public Works Department.

e. *Unusual physical characteristics of the site, including size of the lot, shape of the lot, topography, and soils, do not aggravate adverse impacts upon surrounding properties.*

The proposed site layout has been designed to best utilize the project site and will not aggravate adverse impacts upon the surrounding properties. Please see the plan set included with this submittal for additional information.

(2) *Vehicular and pedestrian access to, into and within the site will be safe and will not be overburdened or create hazards because they are inadequate. The board may not find that this standard is satisfied unless it finds that:*

a. Vehicular access to the site will be on roads which have adequate capacity to accommodate the additional traffic generated by the development.

1. Adequate capacity means that:

(i) Intersections on major access routes to the site within one-half mile of any entrance road will function after development at a minimum at Level of Service C; or

(ii) If they are functioning at a Level of Service D or lower prior to the development, the project will not reduce the current level of service.

2. The board of appeals or planning board may approve a conditional use permit for an application not meeting this requirement if the applicant demonstrates that:

(i) A public agency has committed funds to construct the improvements necessary to bring the level of access to said standard, or

(ii) The applicant will assume financial responsibility for the improvements necessary to bring the level of service to said

standard and will guarantee the completion of the improvements within one year of approval of the permit.

The proposed facility is not expected to generate a significant number of vehicular trips. The roads surrounding the project site have adequate capacity for any traffic generated by the proposed project. Please see the traffic memo included as an attachment.

b. *The topography of the site shall permit the construction of all driveways, entrances or proposed streets to meet the standards of the City of Lewiston's Policy for the Design and Construction of Streets and Sidewalks.*

The access drives for the proposed project are designed to meet the standards of the City of Lewiston's Policy for the Design and Construction of Streets and Sidewalks. Please see the attached plans set.

c. *Facilities are present to assure the safety of pedestrians passing by or through the site.*

The proposed project has the facilities present to assure the safety of pedestrians passing by or through the site. The proposed project includes sidewalks from parking areas to building access points and will connect to existing sidewalks along North Temple Road. Please see the site plan.

(3) *Municipal or other facilities serving the proposed use will not be overburdened or create hazards because they are inadequate. The board may not find that this standard is satisfied unless it finds that:*

a. The capacity of sewerage and water supply systems is adequate to accommodate the proposed use;

The proposed fire station will replace an existing fire station that is serviced by public water and sewer. Please see Section 2 for an ability to serve confirmation letter from the Public Works Department.

b. *The capacity of the storm drainage system is adequate to accommodate the proposed use; and*

The proposed site has been designed to adequately accommodate stormwater and will not adversely impact the storm drain system. Please see the stormwater management plan.

c. *The ability of the fire department to provide necessary protection services to the site and development is adequate.*

The proposed project involves the construction of a fire station in order to help provide the necessary protection services to the surrounding area.

(4) *The soils on the proposed site shall have adequate capacity and stability to support all loadings, including fill, developed by the proposed use and the use will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water to the extent that a dangerous or unhealthy condition may result on the site or upon the land of abutters or the environment. In considering whether this standard is satisfied, the board shall take into account the elevation above sea level of the site and surrounding properties, its relation to flood plains, the slope and vegetation of the land and their*

effects on drainage.

The proposed project site soils have adequate capacity and stability to support the proposed development. Please see the geotechnical report included as part of this submittal.

(5) The scale and design of the proposed structures with respect to materials, scale and massing shall be compatible with existing structures within 500 feet of the site in areas where the existing structures are of a similar scale and architectural treatment.

The proposed project involves the construction of a fire station to replace and existing fire station in a mixed-use area. The station has been designed to complement the surrounding area and meet the requirements of the public safety needs of the City of Lewiston.

As part of this Conditional Use review, we have included the following information in our submittal:

- 5 copies of the Conditional Use submittal materials;
- 5 11" x 17" sized plan sets;
- CD containing a PDF of all submittal materials;
- $250 check for the submittal fee (submitted separately 06-18-2019).

We look forward to working with your office on this project. Should you require any additional information or have any questions I can be reach by phone at 207-200-2071 or e-mail kmason@sebagotechnics.com

Sincerely,

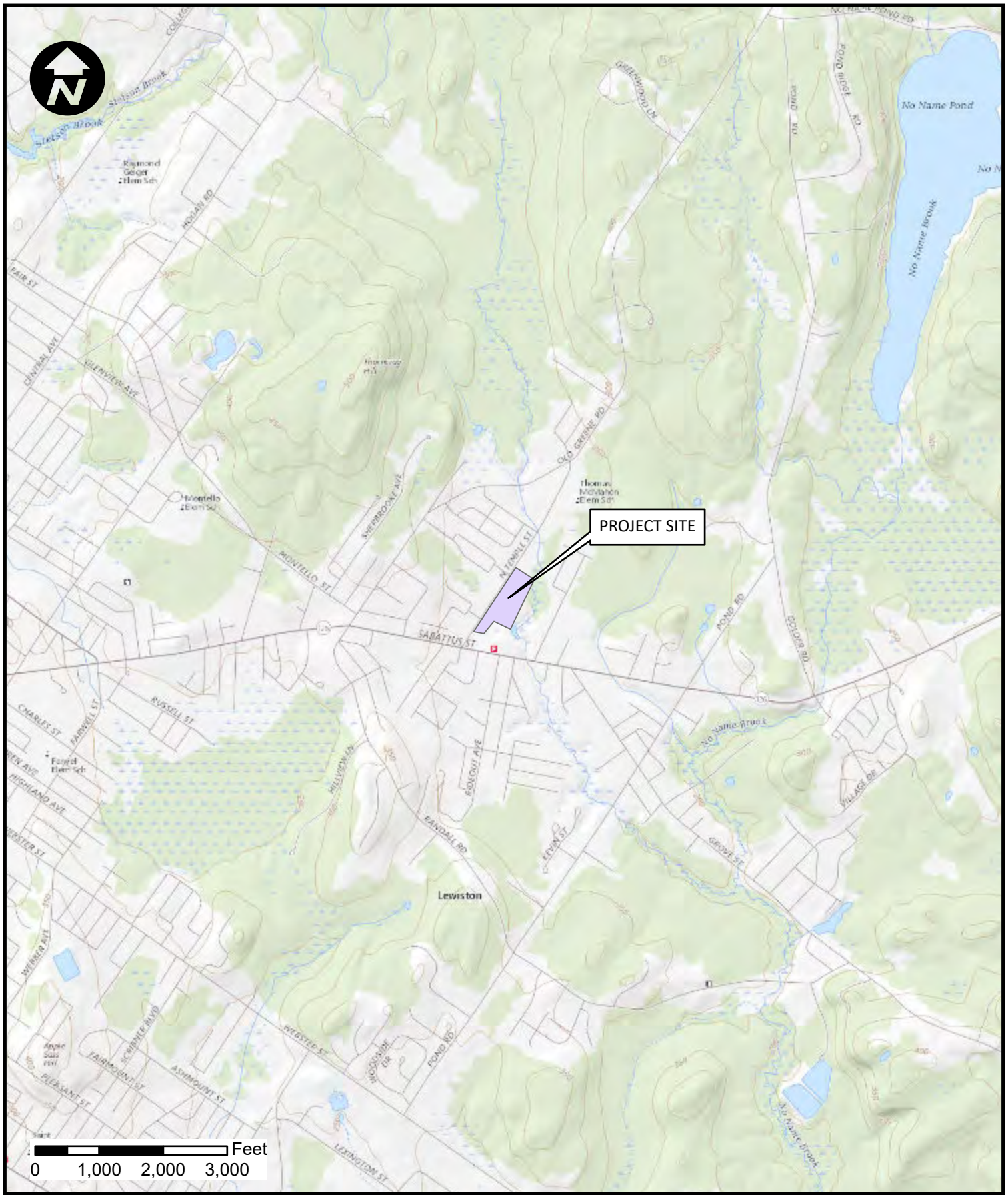
SEBAGO TECHNICS, INC.

Kylie S. Mason

Kylie S. Mason, R.L.A., LEED –AP
Vice President, Project Delivery

Section 1

Parcel Information



SEBAGO TECHNICS

WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. - Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

TITLE FOR:	SITE LOCATION MAP Lewiston Fire Sub-StaÃon	SCALE: 1:24,000 DATE: 06/07/2019
LOCATION: 55 North Temple Street Lewiston, ME 04240	INFORMATION: USGS Quadrangle: Lewiston	

16304_LocaÃonMap.mxd

PROJECT NUMBER: 16304

Parcel

Parcel ID	RE00004448
Map/Lot	090/000/084
Property Location	55 NORTH TEMPLE ST
Property Class	Vacant Land - Residential
Land Area (acreage)	10.87

Owners

Owner	GRENIER RITA S P/R
	GRENIER BERNAND/PIERRE
Address	80 NORTH TEMPLE ST
City	LEWISTON
State	ME
Zip	04240
Book	4546
Page	277

Section 2

Utility Letters

PUBLIC WORKS DEPARTMENT

Dale F. Doughty, Director

June 27, 2019

Ms. Kendra Ramsell, EI
Sebago Technics
75 John Roberts Road, Suite 4A
South Portland, Me 04106

RE: Ability to serve
Proposed City of Lewiston Fire Substation Building
55 North Temple Street, Lewiston

Dear Ms. Ramsell:

You indicated in your letter dated June 6, 2019, that design a new City of Lewiston Fire Substation building with a total of 9,130 square feet of floor area will be going for review by the Lewiston Development Review Committee and this project is located at 55 North Temple Street and requires evidence that water and sewer utility service is available and the utility has the ability to serve this use.

Based on the engineering design standards you used, as stated in your letter, to develop an average water demand for the project of 580 gallons per day, and with the water service lines connected to the water mains on North Temple Street, the City of Lewiston Water Division can meet or exceed the minimum volume and pressure required by the Maine Public Utilities Commission (PUC) to the proposed development.

Based on the same estimates of usage and discharge for the proposed development, the City of Lewiston Sewer Division can handle the expected sewer discharge and can serve this proposed development.

If you have any questions, please feel free to call me at 513-3003, Ext. 3430.

Sincerely,

Kevin A. Gagne

Kevin A. Gagne, P.E.
Deputy Director of Public Works
Superintendent of Water & Sewer Operations

103 Adams Ave, Lewiston, ME 04240 • Tel. (207) 513-3003 • Fax (207) 784-5647
Email: ddoughty@lewistonmaine.gov **Page:** www.lewistonmaine.gov

Section 3

Stormwater Narrative

Section 3 Stormwater Narrative

Please see the Stormwater Management Plan which has been submitted under separate cover.

Section 4

Traffic

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Memorandum

STATE OF MAINE
DEREK H. CALDWELL
14400
LICENSED
PROFESSIONAL ENGINEER

06/17/2019

16304

To: **Kendra Ramsell, EI, Sebago Technics**

From: **Derek Caldwell, P.E., PTOE, Sebago Technics**

Date: **June 17, 2019**

Subject: **Traffic Impact Statement**
North Temple Street Fire Sub-Station
Lewiston, Maine

Per your request, we have prepared a traffic impact statement for the subject project. It is our understanding that the City of Lewiston proposes to construct a new fire sub-station at 55 North Temple Street. The development is to consist of an approximately 9,100 square new station building. This station is to replace the existing Sabattus Street Substation.

Based upon the operational nature of a fire sub-station, the facility is not expected to generate a significant number of vehicular trips. Traffic generated by the site will would either be staff arriving and departing the site during shift changes or emergency vehicles responding to and returning from calls. The relatively small amount of traffic generated by this use is not expected to have an adverse impact on the surrounding area roadway network.

Sight Distance Analysis

The site is proposed to have access by way of three new driveways on the western side of North Temple Street. The northernmost driveway is proposed to be 20 feet wide and provide access to the rear of the site for access to the proposed parking area and the rear entry to the station garage bays. The center driveway is proposed to be 51 feet wide and is to provide direct access from the roadway to the garage bays. The southern most driveway is proposed to be 24 feet wide. This driveway would provide access to a small parking area adjacent to the station including an ADA accessible space.

North Temple Street is functionally classified as an urban local roadway under City jurisdiction. The roadway has a posted speed limit of 25 miles per hour. At this posted speed limit, the required sight distance is 200 feet per the *MaineDOT Highway Driveway and Entrance Rules*. Sight distance was measured at the proposed sight driveways on June 17, 2019. At the northern site driveway sight distance was measured to be over 300 feet looking to the right and 275 feet looking to the left. The sight distance looking left was ultimately limited by the crest vertical curve in the area of the site. At the center and southern driveway locations, sight distance was found to be over 300 feet both looking left and right. It would also be recommended to trim all vegetation which currently encroaches on or over the existing sidewalk to a height of at least six feet in order to ensure unobstructed sight lines.

Looking Right from Northern Drive

Looking Left from Northern Drive

75 John Roberts Road – Suite 4A, South Portland, ME 04106-6963 • 207.200.2100 • Fax: 207.856.2206

Looking Right from Southern Drive

Looking Left from Southern Drive

75 John Roberts Road – Suite 4A, South Portland, ME 04106-6963 • 207.200.2100 • Fax: 207.856.2206

Section 5

Geotechnical

REPORT

18-1701.1 S

June 17, 2019

Explorations and Geotechnical Engineering Services

Proposed Fire Sub-Station
55 North Temple Street
Lewiston, Maine

Prepared For:
City of Lewiston
c/o Context Architecture
Attention: Jeff Shaw
68 Harrison Avenue
Boston, MA 02111

Prepared By:
S. W. Cole Engineering, Inc.
286 Portland Road
Gray, Maine 04039
T: 207-657-2866

S.W.COLE
ENGINEERING, INC.

- *Geotechnical Engineering*
- *Construction Materials Testing and Special Inspections*
- *GeoEnvironmental Services*
- *Test Boring Explorations*

www.swcole.com

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18-1701.1 S

June 17, 2019

City of Lewiston
c/o Context Architecture
Attention: Jeff Shaw
68 Harrison Avenue
Boston, MA 02111

Subject: Explorations and Geotechnical Engineering Services
Proposed Fire Sub-Station
55 North Temple Street
Lewiston, Maine

Dear Jeff:

In accordance with our Agreement, dated April 3, 2019, we have performed subsurface explorations and made a geotechnical for the subject project. This report summarizes our findings and geotechnical recommendations and its contents are subject to the limitations set forth in Appendix A.

1.0 INTRODUCTION

1.1 Scope and Purpose

The purpose of our services was to obtain subsurface information at the site in order to develop geotechnical recommendations relative to foundations, earthwork and pavement associated with the proposed construction. Our scope of services included test boring explorations, soils laboratory testing, a geotechnical analysis of the subsurface findings and preparation of this report.

1.2 Site and Proposed Construction

The site is vacant parcel of land located at 55 North Temple Street in Lewiston, Maine. Existing grades generally slope down from a central ridge to the north and south, from approximately elevation 229 to 224 feet (project datum) within the area of proposed construction. We understand the site is generally bound by stormwater and sewer

easements to the north, south, and east. A relic municipal septic system is reported to exist under the eastern portion of the site.

We understand development plans call for construction of a new fire sub-station with associated paved and landscape areas. We understand the sub-station will be T-shaped and single-story, with a partial mezzanine level. Finish floor elevation (FFE) is proposed to be 228.1 feet (project datum) requiring tapered cuts and fills approaching 1-foot and 3-foot, respectively within the proposed building footprint. Anticipated structural loads are not available at this time. In proposed paved areas, we understand cuts may approach 1-foot and fills may approach 4 feet. A site retaining wall, approaching 6 feet high, is proposed in the northeast corner of the site.

Proposed and existing site features are shown on the "Exploration Location Plan" attached in Appendix B.

2.0 EXPLORATION AND TESTING

2.1 Explorations

Eight test borings (B-1 through B-8) were made at the site on May 2 and 3, 2019 by S. W. Cole Explorations, LLC. The exploration locations were selected and established in the field by S. W. Cole Engineering, Inc. (S.W.COLE) using measurements from existing site features and based on a prior site layout. The approximate exploration locations are shown on the "Exploration Location Plan" attached in Appendix B. Logs of the explorations and a key to the notes and symbols used on the logs are attached in Appendix C. The elevations shown on the logs were estimated based on topographic information shown on the "Exploration Location Plan".

2.2 Field Testing

The test borings were drilled using a combination of hollow stem auger and cased wash-boring techniques. The soils were sampled at 2 to 5 foot intervals using a split spoon sampler and Standard Penetration Testing (SPT) methods. Pocket Penetrometer Tests (PPT) were performed where stiffer cohesive soils were encountered. Shelby tube sampling and Vane Shear Testing (VST) was performed where softer cohesive soils were encountered. SPT blow counts, PPT and VST results are shown on the logs.

DRAFT

2.3 Laboratory Testing

Soil samples obtained from the explorations were returned to our laboratory for further classification and testing. Atterberg Limits and moisture content test results are noted on the logs. The results of a one-dimensional laboratory consolidation test are attached in Appendix D.

3.0 SUBSURFACE CONDITIONS

3.1 Soil and Bedrock

Below a surficial layer of topsoil, the test borings encountered a soil profile generally consisting of medium dense to very loose sands and silts, overlying a deep deposit of medium to soft glaciomarine clay overlying granular soils. Refusal (bedrock) was not encountered within the depths explored.

The softer glaciomarine clay was encountered at depths varying from about 11 to 14 feet below the ground surface and continued to depths of about 52 to 61 feet where penetrated by rod probes or roller-cone. Based on VSTs, the glaciomarine clay strengths ranged from 870 to 310 psf decreasing with depth and are highly sensitive to strength loss when disturbed. Based on laboratory testing, the glaciomarine clays have moisture contents above the liquid limit and have about 2.0 ksf of overconsolidation, but become normally consolidated with depth.

Not all the strata were encountered at each exploration; refer to the attached logs for more detailed subsurface information.

3.2 Groundwater

The test borings encountered shallow groundwater at depths ranging from 1 to 6 feet below the ground. Groundwater likely becomes perched on the relatively impervious silts and clays encountered in the test borings. Long term groundwater information is not available. It should be anticipated that groundwater levels will fluctuate, particularly in response to periods of snowmelt and precipitation, as well as changes in site use.

DRAFT

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on the subsurface findings, the proposed construction appears feasible from a geotechnical standpoint. The principle geotechnical considerations include:

- Spread footing foundations and a slab-on-grade floors bearing on properly prepared subgrades appear suitable for the proposed building. Footings should bear on at least 12-inches of compacted Crushed Stone wrapped in geotextile fabric overlying undisturbed native non-organic soils. Floor slabs should bear on at least 12-inches of properly compacted Structural Fill overlying properly prepared subgrades.

- All topsoil, remnant structures, foundations and debris must be completely removed from beneath the proposed building and backfilled with properly compacted Structural Fill. The relic municipal septic disposal system on at the site should be removed from beneath areas of construction.

- Subgrades across the site will consist of saturated sands and sensitive silts and clays. Earthwork and grading activities should occur during drier, non-freezing weather of Spring, Summer and Fall. Rubber tired construction equipment should not operate directly on the native silt and clays, particularly when wet. Excavation of bearing surfaces should be completed with a smooth-edged bucket to lessen subgrade disturbance.

4.2 Settlement Evaluation

The softer glaciomarine clay underlying the site is compressible under new loading from the proposed site fills and building loads. We have estimated post-construction settlement due to consolidation of the silty clay considering the following:

- The subsurface findings at the test borings;
- The results of the one-dimensional consolidation testing performed on samples of the gray silty clay obtained from boring B-2;
- The proposed and existing grading shown on the “Exploration Location Plan”; and
- An allowable soil bearing pressure of 1.5 ksf

DRAFT

We estimate that post-construction settlement may approach 1 ½-inches total and 1-inch differential across the building pad. To help reduce post-construction settlement, we recommend fill needed to achieve subgrade elevation be placed prior to excavating for foundations.

4.3 Site and Subgrade Preparation

We recommend that site preparation begin with the construction of an erosion control system to protect adjacent drainage ways and areas outside the construction limits. Surficial organics, roots and topsoil and the reported relic septic system should be completely removed from areas of proposed fill and construction. As much vegetation as possible should remain outside the construction areas to lessen the potential for erosion and site disturbance.

Building Pad and Footings: As discussed, we recommend site fill be completed prior to excavating for footings. We recommend that footings be excavated using a smooth-edged bucket and that footings be underlain by at least 12 inches of compacted Crushed Stone wrapped in non-woven geotextile filter fabric, such as Mirafi 180N. An underdrain pipe should installed within fabric wrapped Crushed Stone layer around perimeter footings and outlet to a gravity drainage to help dewater the site for construction as well as permanent groundwater control.

Paved and Utilities: We recommend paved areas be proof-rolled and densified with at least 2 passes of vibratory drum roller weighing at least 10 tons. Areas that become soft or continue to yield after densification should be removed and replaced with compacted Granular Borrow.

Beneath pipes and utility structures with soft trench bottoms, we recommend overexcavating with a smooth edged bucket and installing at least 1 foot of Underdrain Sand below customary bedding materials wrapped in geotextile fabric. The depth of customary bedding materials for soft trench bottoms should be at least 12 inches of pipes and 24 inches of structures.

DRAFT

4.4 Excavation and Dewatering

Excavation work will generally encounter saturated sands, and sensitive silts and clays. Care must be exercised during construction to limit disturbance of the bearing soils. Earthwork and grading activities should occur during drier, non-freezing weather of Spring, Summer and Fall. Rubber tired construction equipment should not operate directly on the native silt and clays, particularly when wet. Low ground pressure tracked equipment may be needed and temporary haul roads overlying geotextile fabric may be necessary. Final cuts to subgrade should be performed with a smooth-edged bucket to help reduce strength loss from soil disturbance.

Sumping and pumping dewatering techniques should be adequate to control groundwater in excavations to foundation depth. Sheetpiling should be anticipated for groundwater cutoff in deeper excavations, such as utilities. Controlling the water levels to at least one foot below planned excavation depths will help stabilize subgrades during construction. Excavations must be properly shored or sloped in accordance with OSHA Regulations to prevent sloughing and caving of the sidewalls during construction. Care must be taken to preclude undermining adjacent structures, utilities and roadways. The design and planning of excavations, excavation support systems, and dewatering is the responsibility of the contractor.

4.5 Foundations

We recommend the proposed buildings be supported on spread footings founded on at least 12-inches of compacted Crushed Stone fully wrapped in non-woven geotextile fabric, such as Mirafi 180N, bearing on undisturbed, native, non-organic soils. For foundations bearing on properly prepared subgrades, we recommend the following geotechnical parameters for design consideration:

Geotechnical Parameters for Spread Footings and Foundation Walls	
Design Frost Depth (100 year AFI)	4.5 feet
Net Allowable Soil Bearing Pressure	1.5 ksf
Base Friction Factor	0.35
Total Unit Weight of Backfill	125 pcf
At-Rest Lateral Earth Pressure Coefficient	0.5
Internal Friction Angle of Backfill	30°
Seismic Soil Site Class	E (IBC 2015)
Estimated Total Settlement	1 ½-inches
Differential Settlement	1-inch

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4.6 Foundation Drainage

We recommend an underdrain system be installed within the geotextile fabric wrapped Crushed Stone layer recommended below perimeter footings. The underdrain pipe should consist of 4-inch diameter, perforated SDR-35 foundation drain pipe bedded in Crushed Stone and wrapped in non-woven geotextile fabric. The underdrain pipe must have a positive gravity outlet protected from freezing, clogging and backflow. Surface grades should be sloped away from the building for positive surface water drainage. General underdrain details are illustrated on the "Foundation Detail Sketch" in Appendix B.

4.7 Slab-On-Grade

On-grade floor slabs in heated areas may be designed using a subgrade reaction modulus of 100 pci (pounds per cubic inch) provided the slab is underlain by at least 12-inches of compacted Structural Fill placed over properly prepared subgrades. The structural engineer or concrete consultant must design steel reinforcing and joint spacing appropriate to slab thickness and function.

We recommend a sub-slab vapor retarder particularly in areas of the building where the concrete slab will be covered with an impermeable surface treatment or floor covering that may be sensitive to moisture vapors. The vapor retarder must have a permeance that is less than the floor cover or surface treatment that is applied to the slab. The vapor retarder must have sufficient durability to withstand direct contact with the sub-slab base material and construction activity. The vapor retarder material should be placed according to the manufacturer's recommended method, including the taping and lapping of all joints and wall connections. The architect and/or flooring consultant should select the vapor retarder products compatible with flooring and adhesive materials.

The floor slab should be appropriately cured using moisture retention methods after casting. Typical floor slab curing methods should be used for at least 7 days. The architect or flooring consultant should assign curing methods consistent with current applicable American Concrete Institute (ACI) procedures with consideration of curing method compatibility to proposed surface treatments, flooring and adhesive materials.

4.8 Entrance Slabs and Sidewalks

Entrance slabs and sidewalks adjacent to the building must be designed to reduce the effects of differential frost action between adjacent pavement, doorways, and entrances.

DRAFT

We recommend that non-frost susceptible Structural Fill be provided to a depth of at least 4.5 feet below the top of entrance slabs. This thickness of Structural Fill should extend the full width of the entrance slab and outward at least 4.5 feet, thereafter transitioning up to the bottom of the adjacent sidewalk or pavement gravels at a 3H:1V or flatter slope. General details of this frost transition zone are shown on the "Foundation Detail Sketch" in Appendix B.

For plaza slabs extending beyond immediate building entrances, we recommend extending the thickness of Structural Fill beneath the entire plaza slab thereafter transitioning up to the bottom of the adjacent sidewalk or pavement gravels at a 3H:1V or flatter slope. Alternatively, the entrance slab and plaza slab may be insulated for frost protection. General details of this frost transition zone are shown on the "Foundation Detail Sketch" in Appendix B.

4.9 Segmental Retaining Wall

For the proposed site retaining walls, we recommend wet-cast segmental retaining walls. We recommend the facing blocks be founded on a minimum 6-inch thick leveling course of compacted Crushed Stone overlying properly prepared subgrades. For design of Segmental Retaining Walls (SRW), such as Redi-Rock, we recommend the following geotechnical parameters for design:

Geotechnical Parameters for Segmental Retaining Wall		
Wall Zone	**Unit Weight (pcf)**	**Friction Angle**
Reinforced Soil	130	34
Retained Soil	125	30
Foundation Soil	125	30

Design of the retaining wall and evaluation of base sliding, overturning and internal stability of the wall are the responsibility of the wall design engineer. The wall designer must account for construction surcharge loads and future live load conditions. S.W.COLE should be retained to perform a global stability analysis of the SRW and to review the SRW submittal if designed by others. We recommend SRW walls meet the requirements of current AASHTO LRFD design methodologies and material requirements.

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4.10 Fill, Backfill and Compaction

We recommend the following fill and backfill materials: recycled products must also be tested in accordance with applicable environmental regulations and approved by a qualified environmental consultant.

Common Borrow: Fill to raise grades in landscape areas should be non-organic compactable earth meeting the requirements of 2014 MaineDOT Standard Specification 703.18 Common Borrow.

Granular Borrow: Fill to raise grades in building and paved areas, as well as to repair soft areas, should be sand or silty sand meeting the requirements of 2014 MaineDOT Standard Specification 703.19 Granular Borrow.

Structural Fill: Backfill for foundations, slab base material and material below exterior entrances slabs should be clean, non-frost susceptible sand and gravel meeting the gradation requirements for Structural Fill as given below:

Structural Fill	
Sieve Size	**Percent Finer by Weight**
4 inch	100
3 inch	90 to 100
¼ inch	25 to 90
No. 40	0 to 30
No. 200	0 to 6

Underdrain Sand: Sand used beneath bedding materials in soft trench bottoms should be clean, free-draining sand meeting the requirements of 2014 MaineDOT Standard Specification 703.22 Underdrain Backfill Material Type B.

Crushed Stone: Crushed Stone, used beneath foundations and for underdrain aggregate should be washed ¾-inch crushed stone meeting the requirements of 2014 MaineDOT Standard Specification 703.22 Underdrain Backfill Material Type C.

Reuse of Site Soils: The non-organic on-site soils are unsuitable for reuse in building areas, but may be suitable for reuse as Granular Borrow in paved and landscape areas, provided they are at a compactable moisture content at the time of reuse.

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Placement and Compaction: Fill should be placed in horizontal lifts and compacted such that the desired density is achieved throughout the lift thickness with 3 to 5 passes of the compaction equipment. Loose lift thicknesses for grading, fill and backfill activities should not exceed 12 inches. We recommend that fill and backfill in building and paved areas be compacted to at least 95 percent of its maximum dry density as determined by ASTM D-1557. Crushed Stone should be compacted with 3 to 5 passes of a vibratory plate compactor having a static weight of at least 500 pounds.

4.11 Weather Considerations

Construction activity should be limited during wet and freezing weather and the site soils may require drying or thawing before construction activities may continue. The contractor should anticipate the need for water to temper fills in order to facilitate compaction during dry weather. If construction takes place during cold weather, subgrades, foundations and floor slabs must be protected during freezing conditions. Concrete and fill must not be placed on frozen soil; and once placed, the concrete and soil beneath the structure must be protected from freezing.

4.12 Paved Areas

We anticipate paved areas will be subjected primarily to passenger vehicles in the employee parking area and emergency vehicles in drive and maneuvering areas. Considering the site soils, and proposed usage, we offer the following pavement sections for consideration.

FLEXIBLE (HMA) PAVEMENT SECTION – 2014 MaineDOT Standard Specs		
Pavement Layer	**Material Thickness**	
MaineDOT 9.5 mm Hot Mix Asphalt	1 ¼ inches	1 ½ inches
MaineDOT 19.0 mm Hot Mix Asphalt	2 ¼ inches	3 ½ inches
MaineDOT 703.06 Aggregate Base Type A	3 inches	6
MaineDOT 703.06 Aggregate Subbase Type D	15 inches	18

The subgrade, base and subbase materials should be compacted to at least 95 percent of their maximum dry density as determined by ASTM D-1557. Hot mix asphalt pavement should be compacted to 92 to 97 percent of its theoretical maximum density as determined by ASTM D-2041. A tack coat should be used between successive lifts of bituminous pavement.

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4.13 Design Review and Construction Testing

S.W.COLE should be retained to review the construction documents prior to bidding to determine that our earthwork, foundation and pavement recommendations have been properly interpreted and implemented.

A soils and concrete testing program should be implemented during construction to observe compliance with the design concepts, plans, and specifications. S.W.COLE is available to observe earthwork activities, the preparation of foundation bearing surfaces and pavement subgrades, as well as to provide testing and IBC Special Inspection services for soils, concrete, steel, spray-applied fireproofing, structural masonry and asphalt construction materials.

5.0 CLOSURE

It has been a pleasure to be of assistance to you with this phase of your project. We look forward to working with you during the construction phase of the project.

Sincerely,

S. W. Cole Engineering, Inc.

Timothy J. Boyce, P.E.
Senior Geotechnical Engineer

TJB:pfk

DRAFT

APPENDIX A

Limitations

This report has been prepared for the exclusive use of Context Architecture for specific application to the proposed Fire Sub-Station at 55 North Temple Street in Lewiston, Maine. S. W. Cole Engineering, Inc. (S.W.COLE) has endeavored to conduct our services in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made.

The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

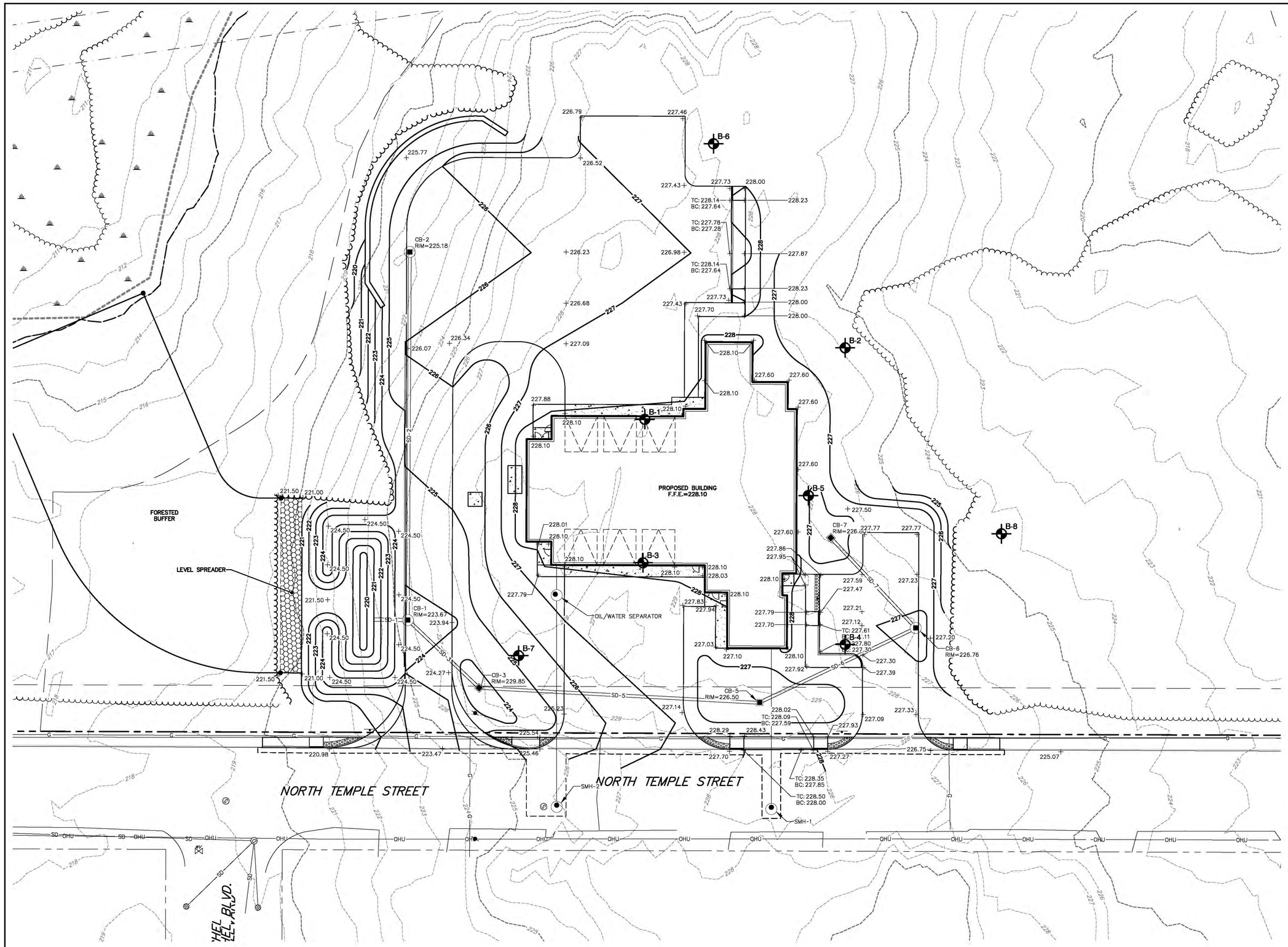
Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

S.W.COLE's scope of services has not included the investigation, detection, or prevention of any Biological Pollutants at the project site or in any existing or proposed structure at the site. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms.

Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S.W.COLE should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless the changes are reviewed by S.W.COLE.

APPENDIX B

Figures



LEGEND:

APPROXIMATE BORING LOCATION

NOTES:

1. EXPLORATION LOCATION PLAN WAS PREPARED FROM A 1"=20' SCALE PLAN OF THE SITE ENTITLED "GRADING PLAN," PREPARED BY SEBAGO TECHNICS, DATED 6/17/2019.
2. THE BORINGS WERE LOCATED IN THE FIELD BY BY GPS SURVEY BE S. W. COLE ENGINEERING, INC. USING A MAPPING GRADE TRIMBLE GPS RECEIVER.
3. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE ASSOCIATED S. W. COLE ENGINEERING, INC. GEOTECHNICAL REPORT.
4. THE PURPOSE OF THIS PLAN IS ONLY TO DEPICT THE LOCATION OF THE EXPLORATIONS IN RELATION TO THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION.

0 20 40 Feet

NO.	DATE	DESCRIPTION	BY
1	06/17/2019	DRAFT SUBMITTAL	CEM
0	05/31/2019	DRAFT SUBMITTAL	CEM

S.W.COLE ENGINEERING, INC.

CONTEXT ARCHITECTURE

EXPLORATION LOCATION PLAN

PROPOSED FIRE SUB-STATION
55 NORTH TEMPLE STREET
LEWISTON, MAINE

Job No.: 18-1701.1 Scale: 1" = 20'
Date : 05/31/2019 Sheet: 1

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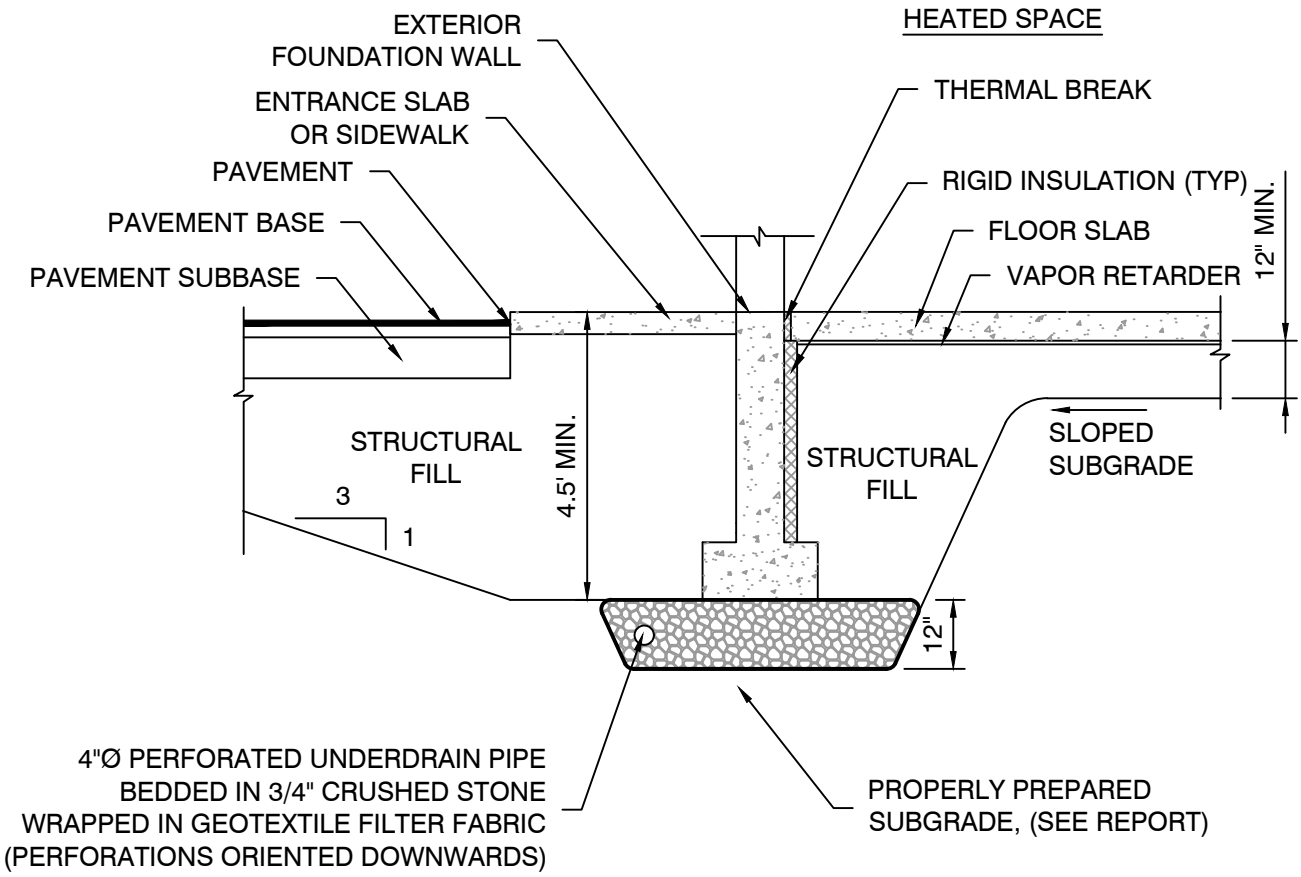

NOTE:

1. UNDERDRAIN INSTALLATION AND MATERIAL GRADATION RECOMMENDATIONS ARE CONTAINED WITHIN THIS REPORT.

2. DETAIL IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY, NOT FOR CONSTRUCTION.

S.W.COLE
ENGINEERING, INC.

CONTEXT ARCHITECTURE

FOUNDATION DETAIL SKETCH

PROPOSED FIRE SUB-STATION
55 NORTH TEMPLE STREET
LEWISTON, MAINE

Job No.:	18-1701.1	Scale:	Not to Scale
Date :	06/17/2019	Sheet:	2

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APPENDIX C

Exploration Logs and Key

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Context Architecture
PROJECT: Proposed Fire Station
LOCATION: 55 North Temple Street, Lewiston, Maine

BORING NO.: B-1
SHEET: 1 of 2
PROJECT NO. 18-1701.1
DATE START: 5/2/2019
DATE FINISH: 5/2/2019

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 229' +/- **TOTAL DEPTH (FT):** 54.1 **LOGGED BY:** Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Matt Leonard **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** N/A /N/A **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 3 ft 5/3/2019 Free water at 3' after drilling
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/20	1 FOR 12"-1 FOR 12"			Very loose, dark brown sandy SILT (Topsoil)		
										1.0 Very loose, brown SAND and SILT with rootlets		
			2D		2-4	24/18	2-7-9-11			2.5 Medium dense, brown silty SAND trace rootlets to 3'	▽	
225												
	5		3D		5-7	24/15	5-6-8-10			5.5 Medium dense, brown SAND and SILT		
			4D		7-9	24/14	3-10-11-11					
220												
	10		5D		10-12	24/18	WOH-2-2-1			9.5 Very loose, layered brown SAND and SILT with frequent brown clay layers		
215												
	15		6D		15-17	24/16	1-2-1 FOR 12"			14.0 Medium, gray silty CLAY with frequent sand layers Hydraulic push rod probe 17-54.1'		
210												
	20											
205												
	25											
200												
	30											
195												
	35											
190												

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING / WELL 18-1701.1.GPJ SWCE TEMPLATE.GDT 5/30/19

BORING LOG

CLIENT: Context Architecture
PROJECT: Proposed Fire Station
LOCATION: 55 North Temple Street, Lewiston, Maine

BORING NO.: B-1
SHEET: 2 of 2
PROJECT NO. 18-1701.1
DATE START: 5/2/2019
DATE FINISH: 5/2/2019

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
185												
	45									Medium, gray silty CLAY with frequent sand layers Hydraulic push rod probe		
180												
	50									Hydraulic push refusal at 54.1' - Probable granular soil		
175												

Bottom of Exploration at 54.1 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-1

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Context Architecture
PROJECT: Proposed Fire Station
LOCATION: 55 North Temple Street, Lewiston, Maine

BORING NO.: B-2
SHEET: 1 of 2
PROJECT NO. 18-1701.1
DATE START: 5/3/2019
DATE FINISH: 5/3/2019

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 226' +/- **TOTAL DEPTH (FT):** 61.8 **LOGGED BY:** Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Matt Leonard **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted Mobile Drill B-53 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 2 ft 5/3/2019 Soils saturated between 2-4'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_U = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
225			1D		0-2	24/8	1 FOR 12"-1-2			Very loose, dark brown sandy SILT (Topsoil)		
										1.5 Medium dense to very loose, brown SAND and SILT	▽	
			2D		2-4	24/20	5-5-8-13					
	5											
220			3D		5-7	24/15	3-4-3-4					
			4D		7-9	24/18	2-2-4-4					
	10											
215			5D		10-12	24/22	2-2-1-3	q_P=1 ksf				
										11.0 Very loose to medium, layered brown silty SAND and olive silty CLAY		
										13.0 Medium, gray silty CLAY with frequent sand layers/seams		
	15											
210			6D		15-17	24/24	WOH FOR 24"			Advance by roller cone from 38.5-61.8'		
	20											
205			1U		20-22	24/24		w =45.2 % W_L=41 W_P=21				
			1V		22-22.5	6		S_V=0.87ksf				
	25											
200												
	30											
195												
	35											
190			2U		35-37	24/24						
			2V		37-37.8	9		w =43.4 % W_L=34 W_P=21 S_V=0.31/0.0ksf				
			2V'		37.7-38.5	9		S_V=0.41/0.01ksf				

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING / WELL 18-1701.1.GPJ SWCE TEMPLATE.GDT 5/30/19

BORING LOG

CLIENT: Context Architecture
PROJECT: Proposed Fire Station
LOCATION: 55 North Temple Street, Lewiston, Maine

BORING NO.: B-2
SHEET: 2 of 2
PROJECT NO. 18-1701.1
DATE START: 5/3/2019
DATE FINISH: 5/3/2019

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
185												
	45											
180										Medium, gray silty CLAY with frequent sand layers/seams Advance by roller cone from 38.5-61.8'		
	50											
175												
	55											
170												
	60											
165										61.0 Probable granular soil Advance by roller cone		

Bottom of Exploration at 61.8 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-2

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Context Architecture
PROJECT: Proposed Fire Station
LOCATION: 55 North Temple Street, Lewiston, Maine

BORING NO.: B-3
SHEET: 1 of 2
PROJECT NO. 18-1701.1
DATE START: 5/2/2019
DATE FINISH: 5/2/2019

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 229' +/- **TOTAL DEPTH (FT):** 59.0 **LOGGED BY:** Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Matt Leonard **DRILLING METHOD:** Cased Boring
RIG TYPE: Track Mounted Mobile Drill B-53 **AUGER ID/OD:** N/A / N/A **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** 4 in / 4 1/2 in **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): 5/3/2019 Soils wet at 2'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: At time of Drilling; At Completion of Drilling; After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/18	1 FOR 12"-1-4			Very loose, dark brown sandy SILT (Topsoil) Loose, brown SILT and SAND with organics		
			2D		2-4	24/24	4-8-10-10			1.8 Medium dense, brown silty SAND		
225	5		3D		5-7	24/14	5-8-11-13			5.0 Medium dense, brown SAND and SILT with occasional silt seams/layers		
			4D		7-9	24/15	8-7-4-5					
220	10		5D		10-12	24/20	2-3-1-2			8.5 Loose, layered brown silty SAND and silty CLAY		
215	15		6D		15-17	24/20	3-1-2-1			14.0 Medium, gray silty CLAY with frequent sand layers/seams Advance by roller cone below 20.8'		
210	20		1V		20-20.8	9		S_v=0.67/0.05ksf				
205	25											
200	30											
195	35											
190												

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING / WELL 18-1701.1.GPJ SWCE TEMPLATE.GDT 5/30/19

BORING LOG

CLIENT: Context Architecture
PROJECT: Proposed Fire Station
LOCATION: 55 North Temple Street, Lewiston, Maine

BORING NO.: B-3
SHEET: 2 of 2
PROJECT NO. 18-1701.1
DATE START: 5/2/2019
DATE FINISH: 5/2/2019

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
185	45									Medium, gray silty CLAY with frequent sand layers/seams Advance by roller cone		
180	50											
175	55											
170										57.6 Probable granular soil Advance by roller cone		

Bottom of Exploration at 59.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-3

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Context Architecture
PROJECT: Proposed Fire Station
LOCATION: 55 North Temple Street, Lewiston, Maine

BORING NO.: B-4
SHEET: 1 of 2
PROJECT NO. 18-1701.1
DATE START: 5/3/2019
DATE FINISH: 5/3/2019

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 228' +/- **TOTAL DEPTH (FT):** 51.8 **LOGGED BY:** Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Matt Leonard **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** N/A /N/A **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 4 ft 5/3/2019 Soils saturated below 4'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/18	1-1-2-5			0.8 Very loose, dark brown sandy SILT (Topsoil)		
										Loose, brown SAND and SILT with rootlets to 2.5'		
225			2D		2-4	24/18	5-6-8-11			2.5 Loose, brown silty SAND with occasional silt layers	▽	
	5		3D		5-7	24/18	4-4-3-4					
220			4D		7-9	24/15	2-3-3-2					
	10		5D		10-12	24/20	1 FOR 12"-1-3			9.5 Very loose, layered brown silty SAND and clayey SILT		
215										11.5 Medium, gray silty CLAY with frequent sand seams		
	15									Advance by rod probe from 12-51.8'		
210												
	20											
205												
	25											
200												
	30											
195												
	35											
190												

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

(Continued Next Page)

BORING / WELL 18-1701.1.GPJ SWCE TEMPLATE.GDT 5/30/19

BORING LOG

CLIENT: Context Architecture
PROJECT: Proposed Fire Station
LOCATION: 55 North Temple Street, Lewiston, Maine

BORING NO.: B-4
SHEET: 2 of 2
PROJECT NO. 18-1701.1
DATE START: 5/3/2019
DATE FINISH: 5/3/2019

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
185												
	45									Medium, gray silty CLAY with frequent sand seams		
180										Advance by rod probe from 12-51.8'		
	50									Probable granular soil at 51.8'		
										Bottom of Exploration at 51.8 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 18-1701.1.GPJ SWCE TEMPLATE.GDT 5/30/19

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Context Architecture
PROJECT: Proposed Fire Station
LOCATION: 55 North Temple Street, Lewiston, Maine

BORING NO.: B-5
SHEET: 1 of 1
PROJECT NO. 18-1701.1
DATE START: 5/2/2019
DATE FINISH: 5/2/2019

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 227' +/- **TOTAL DEPTH (FT):** 12.0 **LOGGED BY:** Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Matt Leonard **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** N/A /N/A **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 1.1 ft 5/2/2019 Free water at 1.1' after drilling
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level
▽ At time of Drilling
▼ At Completion of Drilling
▼ After Drilling

D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear

Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot

WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector

S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
Ø = Friction Angle (Estimated)
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/18	WOH FOR 18"-2			Very loose, dark brown sandy SILT (Topsoil)	▽	
225			2D		2-4	24/18	3-5-7-8			1.5 Loose, brown silty SAND with rootlets 2.5 Medium to very loose, brown SAND and SILT		
	5		3D		5-7	24/14	2-3-3-3					
220			4D		7-9	24/15	3-2-1-2					
	10		5D		10-12	24/16	1 FOR 12"-3-1			8.9 Very loose, layered silty SAND and olive silty CLAY		
215										11.7 Medium, gray silty CLAY		

Bottom of Exploration at 12.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 18-1701.1.GPJ SWCE TEMPLATE.GDT 5/30/19

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Context Architecture
PROJECT: Proposed Fire Station
LOCATION: 55 North Temple Street, Lewiston, Maine

BORING NO.: B-6
SHEET: 1 of 1
PROJECT NO. 18-1701.1
DATE START: 5/3/2019
DATE FINISH: 5/3/2019

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 228' +/-
TOTAL DEPTH (FT): 12.0
LOGGED BY: Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Matt Leonard
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic
HAMMER WEIGHT (lbs): 140 / 140
CASING ID/OD: N/A /N/A
CORE BARREL:
HAMMER EFFICIENCY FACTOR:
HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 6 ft 5/3/2019 Free water at 6' after drilling
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:

Water Level
▽ At time of Drilling
▼ At Completion of Drilling
▼ After Drilling

D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear

Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot

WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector

S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
Ø = Friction Angle (Estimated)
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
			1D		0-2	24/18	WOH-1 FOR 12"-4 4-6-8-11			Very loose, dark brown sandy SILT (Topsoil)		
										1.0 Loose, light brown SAND and SILT		
225			2D		2-4	24/20				1.9 Medium dense, brown silty SAND with frequent silt layers/seams		
	5		3D		5-7	24/15	7-6-6-6				▽	
220										8.0 Very loose, brown SAND and SILT with frequent clay layers		
	10		4D		10-12	24/15	1-1-3-5					

Bottom of Exploration at 12.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 18-1701.1.GPJ SWCE TEMPLATE.GDT 5/30/19

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Context Architecture
PROJECT: Proposed Fire Station
LOCATION: 55 North Temple Street, Lewiston, Maine

BORING NO.: B-7
SHEET: 1 of 1
PROJECT NO. 18-1701.1
DATE START: 5/3/2019
DATE FINISH: 5/3/2019

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 229' +/- **TOTAL DEPTH (FT):** 12.0 **LOGGED BY:** Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Matt Leonard **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** N/A /N/A **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 5 ft 5/3/2019 Soils saturated below 5'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level
▽ At time of Drilling
▼ At Completion of Drilling
▼ After Drilling

D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear

Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot

WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector

S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
Ø = Friction Angle (Estimated)
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/18	WOH-1-1-2			Very loose, dark brown sandy SILT (Topsoil)		
										1.0 Very loose, brown silty SAND with rootlets		
			2D		2-4	24/18	2-4-5-6			2.0 Loose, light brown silty SAND		
225												
	5		3D		5-7	24/18	4-5-5-6			4.5 Medium dense to loose, brown SAND and SILT	▽	
220										8.0 Very loose to medium, layered brown silty SAND and silty CLAY		
	10		4D		10-12	24/18	1-1-3-2	q_P=1 to 1.5 ksf				
										11.5 Very loose, layered gray silty SAND and silty CLAY		

Bottom of Exploration at 12.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 18-1701.1.GPJ SWCE TEMPLATE.GDT 5/30/19

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: Context Architecture
PROJECT: Proposed Fire Station
LOCATION: 55 North Temple Street, Lewiston, Maine

BORING NO.: B-8
SHEET: 1 of 1
PROJECT NO. 18-1701.1
DATE START: 5/3/2019
DATE FINISH: 5/3/2019

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 224' +/- **TOTAL DEPTH (FT):** 12.0 **LOGGED BY:** Patrick Otto
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Matt Leonard **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Track Mounted Mobile Drill B-53 **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 140 **CASING ID/OD:** N/A /N/A **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 4 ft 5/3/2019 Soils saturated below 4'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level
▽ At time of Drilling
▼ At Completion of Drilling
▼ After Drilling

D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear

Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot

WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector

S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
Ø = Friction Angle (Estimated)
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
			1D		0-2	24/22	WOH FOR 12"-1-4			0.8 Very loose, dark brown sandy SILT (Topsoil)		
			2D		2-4	24/18	3-4-5-6			2.5 Very loose, brown SAND and SILT with rootlets		
220	5		3D		5-7	24/16	2-2-3-3			Loose, brown silty SAND with occasional silt seams	▽	
215	10		4D		10-12	24/18	2-2-3-1			6.8 Loose, brown silty SAND with frequent clayey silt layers/seams		
										11.0 Loose, layered gray silty SAND and gray silty CLAY		

Bottom of Exploration at 12.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 18-1701.1.GPJ SWCE TEMPLATE.GDT 5/30/19

KEY TO NOTES & SYMBOLS
Test Boring and Test Pit Explorations

Stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q_u	-	unconfined compressive strength, kips/sq. ft. - laboratory test
S_v	-	field vane shear strength, kips/sq. ft.
L_v	-	lab vane shear strength, kips/sq. ft.
q_p	-	unconfined compressive strength, kips/sq. ft. – pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W_L	-	liquid limit - Atterberg test
W_P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass.
γ_T	-	total soil weight
γ_B	-	buoyant soil weight

Description of Proportions:

Trace:	0 to 5%
Some:	5 to 12%
"Y"	12 to 35%
And	35+%
With	Undifferentiated

Description of Stratified Soils

Parting:	0 to 1/16" thickness
Seam:	1/16" to 1/2" thickness
Layer:	½" to 12" thickness
Varved:	Alternating seams or layers
Occasional:	one or less per foot of thickness
Frequent:	more than one per foot of thickness

REFUSAL: **Test Boring Explorations** - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: **Test Pit Explorations** - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.

APPENDIX D

Laboratory Test Results

S.W.COLE ENGINEERING, INC.

Consolidation Test

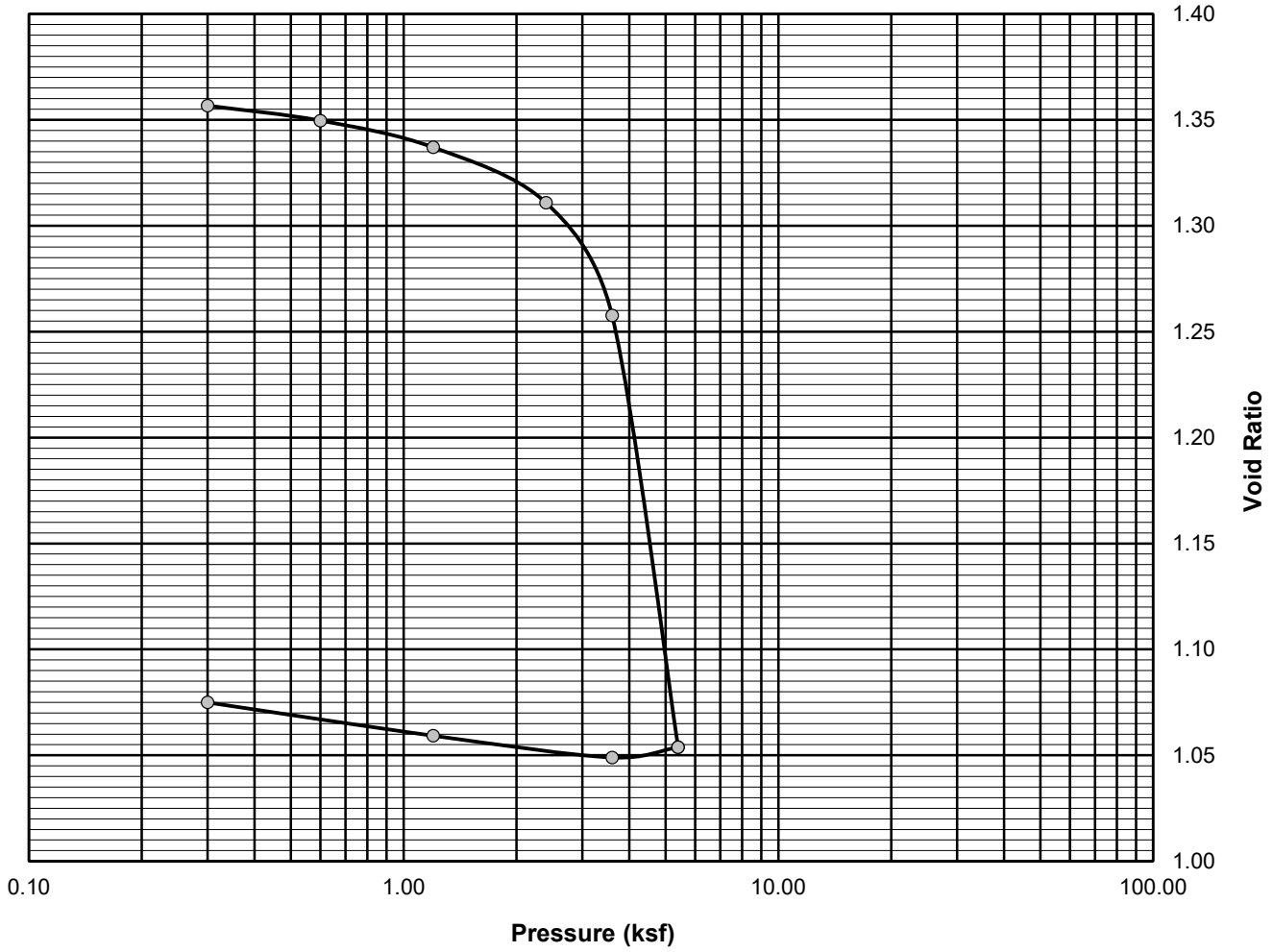
ASTM D-4767

Project Name: Proposed Fire Sub-Station
Client: Context Architecture

Project Number: 18-1701.1
Lab ID: 22587B
Date: 5/6/2019

Boring: B-2
Sample: 1U
Depth: 20-22'

P_C =	3.3	ksf
C_C =	1.16	
C_R =	0.04	
w =	45.2%	
W_L =	41	
W_P =	21	



Comments:

E. Walker
Reviewed By

S.W.COLE ENGINEERING, INC.

Consolidation Test

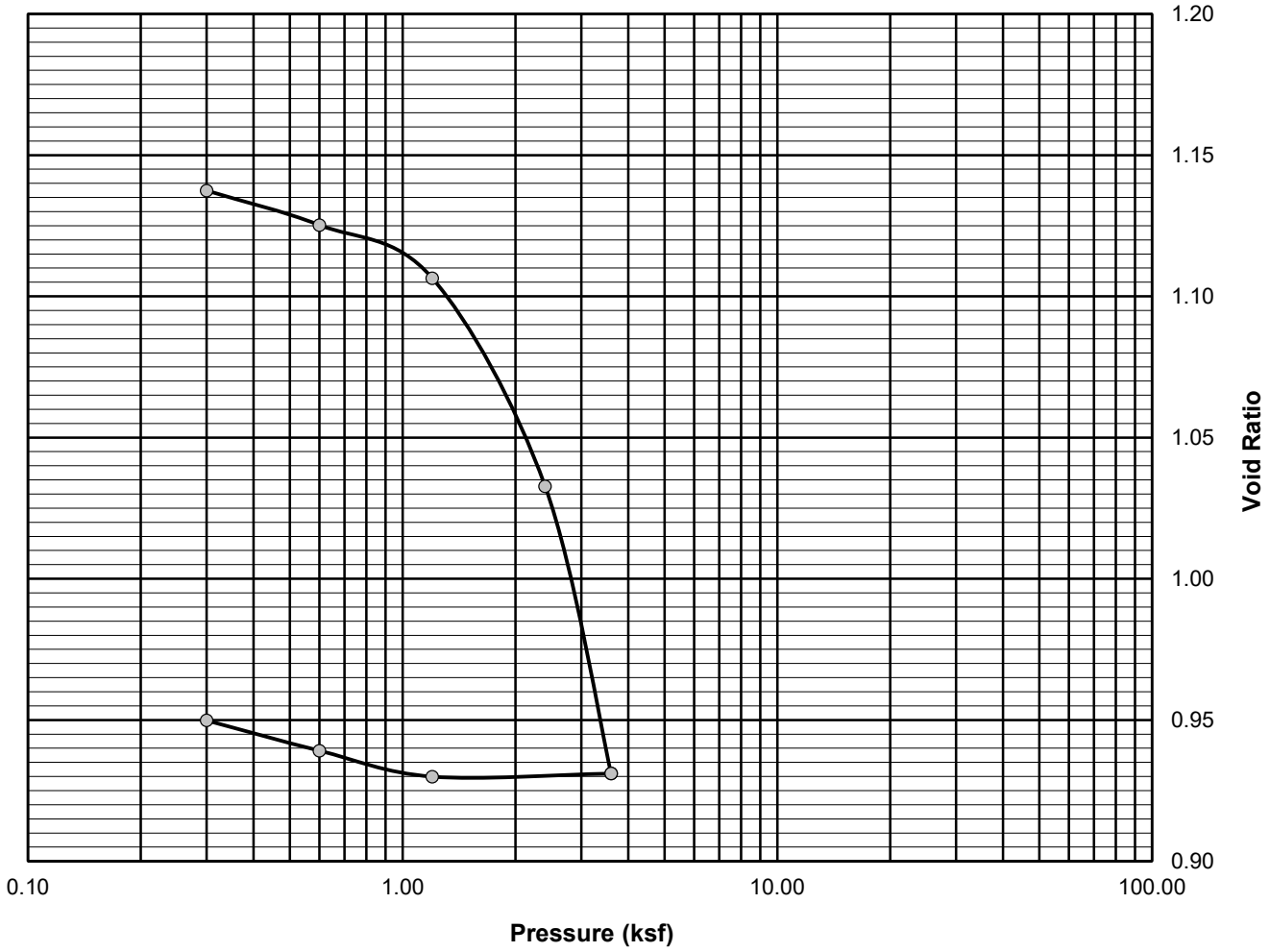
ASTM D-4767

Project Name: Proposed Fire Sub-Station
Client: Context Architecture

Project Number: 18-1701.1
Lab ID: 22588B
Date: 5/6/2019

Boring: B-2
Sample: 2U
Depth: 35-37'

P_C =	2.0	ksf
C_C =	0.58	
C_R =	0.04	
w =	43.4%	
W_L =	34	
W_P =	21	



Comments:

E. Walker
Reviewed By

Section 6

Wetlands Memo

MEMO

To: Justin Early, P.E., Project Engineer
City of Lewiston

From: Johanna Szillery, Senior Project Scientist
CES, Inc.

RE: Natural Resource Survey and Desktop Review
55 North Temple Street Site | Lewiston, Maine

Date: December 21, 2018

CES, Inc. (CES) completed the following scope of work for the Site, located at 55 North Temple Street in Lewiston, Maine:

- Reviewed publicly available data on known fish and wildlife habitats from the Maine Department of Inland Fisheries and Wildlife (MDIFW) and US Fish and Wildlife Service (USFWS);
- Completed natural resource surveys on November 12 and December 18, 2018, on the approximately 9-acre Site; and
- Completed a plan and memo of our findings.

SITE DESCRIPTION

The Site is located in a mixed residential/commercial area in the eastern part of Lewiston, Maine and consists of a mosaic of open grassy and shrubby fields, with some stands of trees.

CES scientists identified three wetlands on the Site. Wetland 1 is a scrub-shrub/emergent wetland located along the southern boundary of the Site, and is dominated by speckled alder, cattail, and wild raisin. Wetland 2 is an emergent wetland dominated by wool grass, purple loosestrife, and tussock sedge. Wetland 2 is located in the southern portion of the Site.
Wetland 3 is a scrub-scrub emergent wetland located along the northern property boundary, and dominated by speckled alder, cattail, and meadowsweet.

CES identified one stream in the northern portion of the Site. This unnamed perennial stream flows south along the property boundary and joins No Name Brook approximately 1.5 miles southeast of the Site. Additional natural resources, such as potential vernal pools, were not identified on the Site.

Sensible Solutions | www.cesincusa.com
465 South Main Street
PO Box 639
Brewer, Maine 04412
T 207.989.4824
F 207.989.4881

DATABASE REVIEW

State-regulated Significant Wildlife Habitats are not mapped on the Site based on our database review. The nearest Significant Wildlife Habitat is an Inland Wadingbird and Waterfowl Habitat associated with a wetland complex approximately 3,000 feet to the southeast of the Site.

The Site is within range of three federally protected species: Northern long-eared bat, Atlantic salmon and small-whorled Pogonia (a flowering plant). The Site is also within the critical habitat for Atlantic salmon. If federal permits or federal funding of any kind are required for the project, compliance with endangered species regulations may be necessary. For bats, this can include time-of-year restrictions on tree clearing. For Atlantic salmon, if in or near stream work, can trigger project review. In this case, endangered species guidelines include design considerations related to stream passage, if appropriate, as well as construction sequencing to reduce erosion and sedimentation. For small-whorled pogonia, Site and habitat characterization during the growing season (early summer) may be requested to determine the presence or absence of this plant. The Maine Natural Areas Program (MNAP) is the agency that provides guidelines on these surveys.

Our findings are based on a review of available databases, and we recommend formal agency consultation with MDIFW, USFWS and the MNAP to ensure that all potentially regulated resources are identified. Potential vernal pools were not identified on the property.

CONSIDERATIONS AND RECOMMENDATIONS

Resource Regulations:

Wetlands are regulated by the State of Maine under the Natural Resources Protection Act (NRPA) and enforced by Maine Department of Environmental Protection (DEP) according to the Department Rule *Chapter 310, Wetland and Water Bodies Protection Rules*. Wetlands are also regulated by the U.S. Army Corps of Engineers (Army Corps) under *Section 404 of the Clean Water Act*.

Under NRPA, activities in, on, or over any protected natural resource are regulated and may require a permit from DEP. Activities adjacent to certain protected resources are also regulated. State regulations stipulate that alterations must avoid and minimize impacts to natural resources to the greatest extent. The Army Corps regulates fill and dredging in waters of the United States, which include wetlands. Certain wetlands, vernal pools, federally protected species and other significant resources may require additional review under the Army Corps permit process.

If development is proposed for the Site, we recommend consultation with CES to review the potential impacts to protected resources on the Site. Please do not hesitate to contact me at 207-989-4824 for additional information.

City of Lewiston - Natural Resource Map

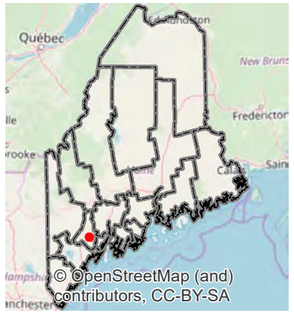
N
W E
S

150 75 0 150
Feet

Legend

- Site Boundary
- Control Points
- Wetland Boundary CES
- Wetland Area CES
- Stream

MAINE



Project Title: City of Lewiston
Project Description:
Natural Resource Map
Address: North Temple Street

Project No.: 10336.057
By: NAI
Date: 12/06/18
Updated: 12/21/2018
By: [jszillery]

MAP NOTES:

1. AERIAL PHOTO BASE MAP FROM IMAGERY IS 1-M 2013 NAIP IMAGERY BY USDA, FSA, TOPOGRAPHIC QUAD FROM ESRI, 2015.

2. WETLANDS SHOWN HEREON WERE DELINEATED IN NOVEMBER 2018. WETLANDS WERE FIELD DELINEATED IN ACCORDANCE WITH U.S. ARMY CORPS OF ENGINEERS STANDARDS BY CES, INC.

3. FEATURES DEPICTED ON THIS PLAN WERE LOCATED USING A MAPPING GRADE SUB-METER CAPABLE GPS/GNSS RECIEVER.

4. MAP IS PROJECTED USING UTM ZONE19 COORDINATES, AND REFERENCES THE NORTH AMERICAN DATUM OF 1983 (NAD83).

5. NORTH ARROW IS ORIENTED TO GRID NORTH IN ALL MAP EXTENTS DEPICTED HEREIN.

CES INC
Engineers • Environmental Scientists • Surveyors

MXD: P:\10336-Lewiston_City_of\057-55 North Temple St-JES\07-GIS_Data\MXD\All Maps\Lewiston.mxd

Section 7

Fire Department Letter

FIRE DEPARTMENT

Brian D. Stockdale, Fire Chief
Vacant, Assistant Chief

2 July 2019

To: Douglas Greene, Deputy Director
Planning & Codes Enforcement
City of Lewiston

From: Brian D. Stockdale, Fire Chief
City of Lewiston

Re: LFD Fire Sub Station (Conditional Use Application) Request for Information

Mr. Greene,
Your email to Ms. Ramsell (SebagoTechnics) identified two (2) areas where you requested a Fire Department response in regards to how the department plans on mitigating any potential negative impacts the new station may have on the surrounding community. The identified areas in your email noted siren and/or noise, as well as notification when apparatus are leaving the station.

Our plan is to address these issues in a number of ways.

1. Siren and/or Noise:
    a. We look to address this primarily by:
        i. Station and grounds design. The design of the building and grounds will take into account potential noise impacts, such as apparatus maintenance & training. These areas will be located at the rear of the building.
        ii. We will develop and implement policies and practices that aim to lessen any potential negative noise impacts, such as, when and how lights and sirens will be used when responding. Keep in mind this policy will be in accordance with Maine Statute 2054: Emergency and Auxiliary Lights; Sirens; Privileges. This statute gives us some flexibility on how we develop our operational guidelines. The goal is to develop operational procedures that take into account time of day, response need etc… Also, operational guidelines will be developed that address the testing and maintenance of equipment and apparatus to limit other potential noise issues.

Lewiston Fire Department, 2 College Street, Lewiston, ME 04240 • Tel. (207) 513-3002 • TTY/TDD (207) 513-3121 • Fax (207)783-6138
Email: bstockdale@lewistonmaine.gov • Bmckay@lewistonmaine.gov
Web Page: www.lewistonmaine.gov

2. Notification of When Apparatus are Entering the Roadway:
    a. The primary way we would like to address this is to have a type of warning signal/sign installed at the street, which can be activated when an apparatus is leaving the station for a response. There are a number of options for this. We will work with Lewiston Public Works and the Architect to identify which type would be a best fit. Examples of this type of warning, although older and antiquated would be the signal at the end of the driveway on Russell St. that United Ambulance utilizes, as well as the signaling systems located at the Lisbon & Sabattus St. fire stations. The warning signal is triggered when a response is initiated. The signals intent is to notify vehicles and pedestrians on Russell St. We may not utilize the same system, but the intent is to have a system in place that accomplishes the same goal.

Please let me know if you need any additional information.

Sincerely,

Brian D. Stockdale
Fire Chief

Section 8

Architectural Elevations

1 EXTERIOR ELEVATION - SOUTH
1/8" = 1'-0"

2 EXTERIOR ELEVATION - WEST
1/8" = 1'-0"

3 EXTERIOR ELEVATION - NORTH
1/8" = 1'-0"

4 EXTERIOR ELEVATION - EAST
1/8" = 1'-0"

context
ARCHITECTURE
68 HARRISON AVENUE BOSTON, MA 02111 TEL 617.423.1400 WEB CONTEXTARC.COM

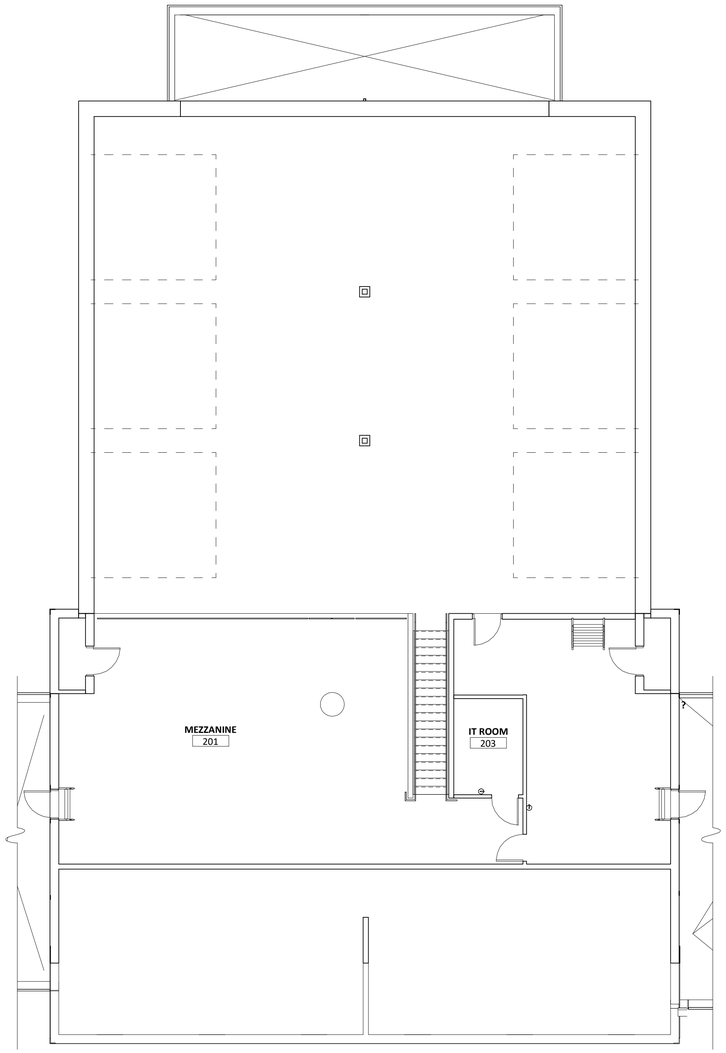
FIRE SUBSTATION
55 NORTH TEMPLE STREET, LEWISTON, ME 04240
project number: 1805

SUBMISSION TO PLANNING BOARD

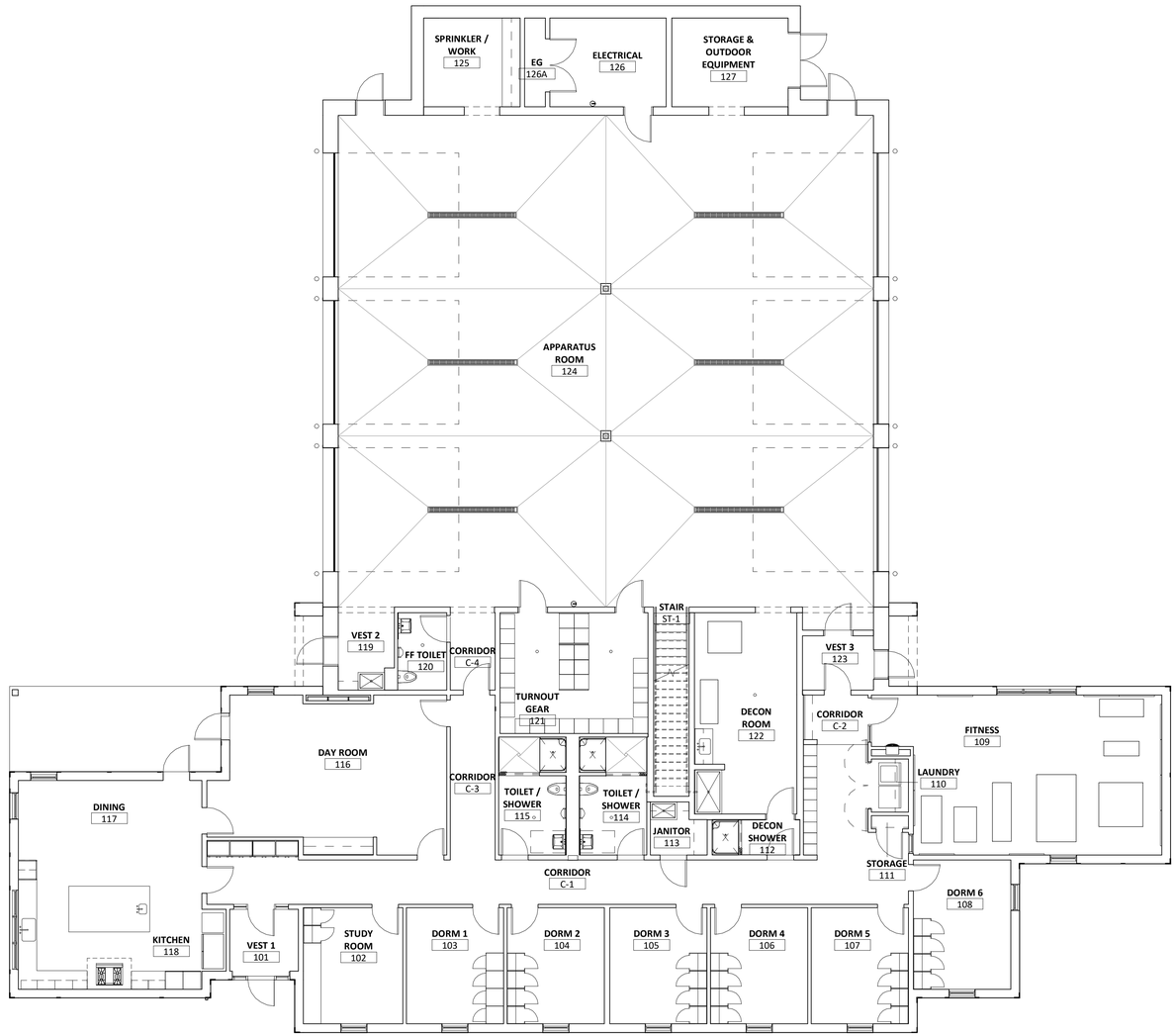
Scale: 1/8" = 1'-0"
Drawn by: Author

No.	Issue	Date
	PLANNING BOARD	07.03.19

ELEVS



2 FLOOR PLAN - MEZZANINE
1/8" = 1'-0"



1 FLOOR PLAN - GROUND FLOOR
1/8" = 1'-0"

context
ARCHITECTURE
68 HARRISON AVENUE BOSTON, MA 02111 TEL 617.423.1400 WEB CONTEXTARC.COM

FIRE SUBSTATION
55 NORTH TEMPLE STREET, LEWISTON, ME 04240
project number: 1805
SUBMISSION TO PLANNING BOARD

Scale: 1/8" = 1'-0"
Drawn by: NG

No.	Issue	Date
	PLANNING BOARD	07.03.19

PLANS

SEBAGO TECHNICS

CIVIL ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE

Development Review Application

To:

City of Lewiston

Lewiston Fire Station

55 North Temple Street, Lewiston Maine

Prepared for:
City of Lewiston
27 Pine Street
Lewiston, ME 04240

Prepared by:
Sebago Technics, Inc.
75 John Roberts Road, Suite 4A
South Portland, Maine 04106

July 2019

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July 3, 2019
16304

Douglas Greene, City Planner
City of Lewiston
27 Pine Street
Lewiston, ME 04240

Development Review Application
Lewiston Fire Station, 55 North Temple Street – Lewiston, ME

Dear Mr. Greene:

On behalf of the City of Lewiston Fire Department, Sebago Technics, Inc. is pleased to submit the attached Development Review application for the proposed fire station at 55 North Temple Street. The project site is shown as Parcel RE00004448 in the City of Lewiston records, is approximately 9.85 acres in size, and is located in the Neighborhood Conservation "A" Zoning District (NCA). The proposed project involves a new 9,192 s.f. fire station and associated parking and drive. The proposed station will replace an existing fire station location less than 0.2 miles from the project site on Sabattus Street. The existing fire station can not be expanded given the existing site constraints.

As part of this review we have included the following information in our submittal:

- 10 copies of the Development Review submittal materials;
- 2 full sized plan sets;
- 10 11" x 17" sized plan sets;
- 2 full Stormwater Reports;
- CD containing a PDF of all submittal materials;
- $700 check for the submittal fee (submitted separately 06-18-2019).

We look forward to working with your office on this project. Should you require any additional information or have any questions I can be reach by phone at 207-200-2071 or e-mail kmason@sebagotechnics.com

Sincerely,

SEBAGO TECHNICS, INC.

Kylie S. Mason

Kylie S. Mason, R.L.A., LEED –AP
Vice President, Project Delivery

Development Review Application

City of Auburn Planning and Permitting Department
City of Lewiston Department of Planning and Code Enforcement

PROJECT NAME: Lewiston Fire Station

PROPOSED DEVELOPMENT ADDRESS: 55 N. Temple Street

PARCEL ID#: RE00004448

REVIEW TYPE: **Site Plan/Special Exception** ☒ **Site Plan Amendment** ☐
Subdivision ☐ **Subdivision Amendment** ☐

PROJECT DESCRIPTION: The proposed project involves the construction of a new 9,132 s.f. fire station and associated drive and parking.

CONTACT INFORMATION:

Applicant

Name: City of Lewiston
Address: 27 Pine Street, Lewiston, ME
Zip Code 04240
Work #:
Cell #:
Fax #:
Home #:
Email: ebarrett@lewistonmaine.gov

Property Owner

Name: Rita Grenier et al
Address: 80 North Temple Street, Lewiston
Zip Code 04240
Work #:
Cell #:
Fax #:
Home #:
Email:

Project Representative

Name: Sebago Technics Inc./Kylie Mason
Address: 75 John Roberts Road, Suite 4A South Portland
Zip Code 04106
Work #: 207-200-2071
Cell #:
Fax #:
Home #:
Email: kmason@sebagotechnics.com

Other professional representatives for the project (surveyors, engineers, etc.),

Name:
Address:
Zip Code
Work #:
Cell #:
Fax #:
Home #:
Email:

PROJECT DATA

The following information is required where applicable, in order to complete the application

IMPERVIOUS SURFACE AREA/RATIO

Existing Total Impervious Area	0	sq. ft.
Proposed Total Paved Area	23,563	sq. ft.
Proposed Total Impervious Area	33,846	sq. ft.
Proposed Impervious Net Change	33,846	sq. ft.
Impervious surface ratio existing	No existing impervious	% of lot area
Impervious surface ratio proposed	0.0788	% of lot area

BUILDING AREA/LOT COVERAGE

Existing Building Footprint	0	sq. ft.
Proposed Building Footprint	9,132	sq. ft.
Proposed Building Footprint Net change	9,132	sq. ft.
Existing Total Building Floor Area	0	sq. ft.
Proposed Total Building Floor Area	9,132	sq. ft.
Proposed Building Floor Area Net Change	9,132	sq. ft
New Building	yes	(yes or no)
Building Area/Lot coverage existing	0	% of lot area
Building Area/Lot coverage proposed	0.0213	% of lot area

ZONING

Existing	Neighborhood Conservation "A"
Proposed, if applicable	no change

LAND USE

Existing	vacant
Proposed	municipal

RESIDENTIAL, IF APPLICABLE

Existing Number of Residential Units	N/A
Proposed Number of Residential Units	N/A
Subdivision, Proposed Number of Lots	N/A

PARKING SPACES

Existing Number of Parking Spaces	0
Proposed Number of Parking Spaces	13
Required Number of Parking Spaces	none specific to use - used industry standard
Number of Handicapped Parking Spaces	1

ESTIMATED COST OF PROJECT

$4.2 Million

DELEGATED REVIEW AUTHORITY CHECKLIST

* No SLODA Submittal

SITE LOCATION OF DEVELOPMENT AND STORMWATER MANAGEMENT

Existing Impervious Area		sq. ft.
Proposed Disturbed Area		sq. ft.
Proposed Impervious Area		sq. ft.

1. ***If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with MDEP.***
2. ***If the proposed impervious area is greater than one acre including any impervious area crated since 11/16/05, then the applicant shall apply for a MDEP Stormwater Management Permit, Chapter 500, with the City.***
3. ***If total impervious area (including structures, pavement, etc) is greater than 3 acres since 1971 but less than 7 acres, then the applicant shall apply for a Site Location of Development Permit with the City. If more than 7 acres then the application shall be made to MDEP unless determined otherwise.***
4. ***If the development is a subdivision of more than 20 acres but less than 100 acres then the applicant shall apply for a Site Location of Development Permit with the City. If more than 100 acres then the application shall be made to MDEP unless determined otherwise.***

TRAFFIC ESTIMATE

* See Traffic Memo

Total traffic estimated in the peak hour-existing (Since July 1, 1997) _____ passenger car equivalents (PCE)

Total traffic estimated in the peak hour-proposed (Since July 1, 1997) _____ passenger car equivalents (PCE)

If the proposed increase in traffic exceeds 100 one-way trips in the peak hour then a traffic movement permit will be required.

Zoning Summary

1. Property is located in the Neighborhood Conservation "A" zoning district.
2. Parcel Area: 9.85 acres / 429,066 square feet(sf).

Regulations	Required / Allowed	Provided
Min Lot Area	20,000	429,066
Street Frontage	125	1206.77
Min Front Yard	20	20
Min Rear Yard	30	30
Min Side Yard	30	30
Max. Building Height	35	32
Use Designation	Conditional Use	Fire Station
Parking Requirement	1 space/ per ____ square feet of floor area	
Total Parking:	*	13
Overlay zoning districts (if any):		
Urban impaired stream watershed?	YES/NO If yes, watershed name	

*none for use - used industry standard to calculate

DEVELOPMENT REVIEW APPLICATION SUBMISSION

Submission shall include payment of fee and fifteen (15) complete packets containing the following materials:

1. Full size plans containing the information found in the attached sample plan checklist.
2. Application form that is completed and signed.
3. Cover letter stating the nature of the project.
4. All written submittals including evidence of right, title and interest.
5. Copy of the checklist completed for the proposal listing the material contained in the submitted application.

Refer to the application checklist for a detailed list of submittal requirements.

L/A's development review process and requirements have been made similar for convenience and to encourage development. Each Citys ordinances are available online at their prospective websites:
Auburn: www.auburnmaine.org. under City Departments/ Planning and Permitting/Land Use Division/Zoning Ordinance
Lewiston: http://www.ci.lewiston.me.us/clerk/ordinances.htm. Refer to Appendix A of the Code of Ordinances

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, I certify that the City's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for development review only; a Performance Guarantee, Inspection Fee, Building Permit Application and other associated fees and permits will be required prior to construction.

Signature of Applicant:	Date:
Kyle S. Nash	6/18/2019

Development Review Checklist

City of Auburn Planning and Permitting Department
City of Lewiston Department of Planning and Code Enforcement

THE FOLLOWING INFORMATION IS REQUIRED WHERE APPLICABLE TO BE SUBMITTED FOR AN APPLICATION TO BE COMPLETE

PROJECT NAME: Lewiston Fire Stration

PROPOSED DEVELOPMENT ADDRESS and PARCEL #: 55 North Temple Street/RE00004448

Required Information		Check Submitted		Applicable Ordinance	
Site Plan		**Applicant**	**Staff**	**Lewiston**	**Auburn**
	Owner's Names/Address	X		X	
	Names of Development	X		X	
	Professionally Prepared Plan	X		X	
	Tax Map or Street/Parcel Number	X		X	
	Zoning of Property	X		X	
	Distance to Property Lines	X		X	
	Boundaries of Abutting land	X		X	
	Show Setbacks, Yards and Buffers	X		X	
	Airport Area of Influence (Auburn only)	N/A		X	
	Parking Space Calcs	X		X	
	Drive Openings/Locations	X		X	
	Subdivision Restrictions	N/A		X	
	Proposed Use	X		X	
	PB/BOA/Other Restrictions	N/A		X	
	Fire Department Review	X		X	
	Open Space/Lot Coverage	X		X	
	Lot Layout (Lewiston only)	X		X	
	Existing Building (s)	X		X	
	Existing Streets, etc.	X		X	
	Existing Driveways, etc.	X		X	
	Proposed Building(s)	X		X	
	Proposed Driveways	X		X	
Landscape Plan					
	Greenspace Requirements	X		X	
	Setbacks to Parking	X		X	
	Buffer Requirements	X		X	
	Street Tree Requirements	X		X	
	Screened Dumpsters	N/A		X	
	Additional Design Guidelines	X		X	

	Planting Schedule	X		X	
Stormwater & Erosion Control Plan					
	Compliance w/ chapter 500	X		X	
	Show Existing Surface Drainage	X		X	
	Direction of Flow	X		X	
	Location of Catch Basins, etc.	X		X	
	Drainage Calculations	X		X	
	Erosion Control Measures	X		X	
	Maine Construction General Permit	X		X	
	Bonding and Inspection Fees	X		X	
	Post-Construction Stormwater Plan	X		X	
	Inspection/monitoring requirements	X		X	
	Third Party Inspections (Lewiston only)	X		X	
Lighting Plan					
	Full cut-off fixtures	X		X	
	Meets Parking Lot Requirements	X		X	
Traffic Information					
	Access Management	X		X	
	Signage	X		X	
	PCE - Trips in Peak Hour	X		X	
	Vehicular Movements	X		X	
	Safety Concerns	X		X	
	Pedestrian Circulation	X		X	
	Police Traffic	X		X	
	Engineering Traffic	X		X	
Utility Plan					
	Water	X		X	
	Adequacy of Water Supply	X		X	
	Water main extension agreement	X		X	
	Sewer	X		X	
	Available city capacity	X		X	
	Electric	X		X	
	Natural Gas	N/A		X	
	Cable/Phone	X		X	
Natural Resources					
	Shoreland Zone	N/A		X	
	Flood Plain	N/A		X	
	Wetlands or Streams	X		X	
	Urban Impaired Stream	N/A		X	
	Phosphorus Check	N/A		X	
	Aquifer/Groundwater Protection	N/A		X	
	Applicable State Permits	N/A		X	
	No Name Pond Watershed (Lewiston only)	N/A		X	

	Lake Auburn Watershed (Auburn only)	N/A		X	
	Taylor Pond Watershed (Auburn only)	N/A		X	
Right Title or Interest					
	Verify	X		X	
	Document Existing Easements, Covenants, etc.	X		X	
Technical & Financial Capacity					
	Cost Est./Financial Capacity	X		X	
	Performance Guarantee	N/A		X	
State Subdivision Law					
	Verify/Check	N/A		X	
	Covenants/Deed Restrictions	N/A		X	
	Offers of Conveyance to City	N/A		X	
	Association Documents	N/A		X	
	Location of Proposed Streets & Sidewalks	N/A		X	
	Proposed Lot Lines, etc.	N/A		X	
	Data to Determine Lots, etc.	N/A		X	
	Subdivision Lots/Blocks	N/A		X	
	Specified Dedication of Land	N/A		X	
Additional Subdivision Standards					
	Single-Family Cluster (Lewiston only)	N/A		X	
	Multi-Unit Residential Development (Lewiston only)	N/A		X	
	Mobile Home Parks	N/A		X	
	Private Commercial or Industrial Subdivisions (Lewiston only)	N/A		X	
	PUD (Auburn only)	N/A		X	
A jpeg or pdf of the proposed site plan		X		X	
Final sets of the approved plans shall be submitted digitally to the City, on a CD or DVD, in AutoCAD format R 14 or greater, along with PDF images of the plans for archiving		X		X	

Section 1

Project Narrative/ Performance Standard Review

Section 1 Project Narrative/Performance Standard Review

Project Narrative

The proposed project involves the construction of a new 9,132 square foot Fire Station and the associated access and parking. The proposed fire station will replace an existing station located approximately 0.2 miles away on Sabattus Street. The existing station is over 50 years old and is not sufficient for the area needs. The Sabattus Street parcel is small and will not accommodate adequate expansion/modernization of the station.

The proposed facility is equipped with six (6) dorm rooms, as well as a kitchen, dining area, study, fitness room, showers, laundry area, and common day room. There is also a gear turnout room, decontamination room and shower. The proposed fire station has been designed to have three-bay garage capacity. There are three drives proposed: an access drive to the three truck bays and back parking for staff; a separate egress drive for trucks being sent out on calls; and a separate drive to the public/visitor parking area near the main entrance of the building. The two drives associated with the garage bays are to be constructed of a heavy-duty bituminous pavement. There will be an oil water separator in the three-bay egress drive. The visitor parking area will be comprised of three (3) parking spaces, one of which will be ADA compliant. There will be ten (10) parking spaces provided in the staff parking lot behind the facility.

All site work will be conducted outside any existing wetland setbacks. There are no proposed wetland impacts.

Article XII Performance Standards

Section 1. Applicability

The proposed project is in conformance with the applicable performance standards as outline in this Article.

Section 2. Shoreland area standards

Not applicable. The project area is not located in a shoreland area.

Section 3. Timber harvesting standards.

Not applicable. The proposed project does not involve timber harvesting.

Section 4. Community garden standards.

Not applicable. No community gardens are proposed with this project.

Section 5. Earth material removal standards.

Not applicable, as outlined in the standard. All earth work performed on site will be consistent with what is required for the construction of the proposed Fire Station.

Section 6. Swimming pool standards.

Not applicable. No swimming pools are proposed as part of this project.

Section 7. Walls and fences.

Not applicable. No walls or fences are proposed as part of this project.

Section 8. Wind energy conversion systems.

Not applicable. The proposed project does not involve any wind energy conversion systems.

Section 9. Adult business establishment, tattoo establishment, and drinking place standard.

Not applicable. The proposed project involves the construction of a fire station.

Section 10. Frontage right-o-way provisions.

Not applicable. The proposed project involves the construction of a fire station.

Section 11. In-law apartment standards.

Not applicable. The proposed project involves the construction of a fire station.

Section 12. Campground standards.

Not applicable. The proposed project involves the construction of a fire station.

Section 13. Standards for the installation of mobile homes on individual lots.

Not applicable. The proposed project involves the construction of a fire station.

Section 14. Standards for the installation of mobile homes in mobile home parks.

Not applicable. The proposed project involves the construction of a fire station.

Section 15. Erosion and Sedimentation Control

The proposed project has been designed taking into consideration measures to prevent unreasonable erosion of sediment or soil beyond the project site and to be in compliance with M.R.S.A Title 38 480-B. Please see the site plans for more detailed information regarding erosion and sedimentation control.

Section 16. Signs.

The proposed project will involve the placement of a facility identifying sign as well as signage for site circulation. All proposed signage will be similar to that of the existing facility and has been designed to be in compliance with the City standard. Please see the plan set for additional information.

Section 17. Off-Street Parking and Loading

The proposed project involves the construction of a new fire station. There is a total of thirteen (13) parking spaces provided on the proposed site plan. There are three (3) visitor parking spaces, one of which is ADA compliant, located at the front entrance. There are ten (10) employee parking space located at the back of the building. As the ordinance does not outline a specific space requirement associated with fire stations, the number of proposed parking spaces was determined using industry standards for fire station design. All parking spaces will be designed and used in accordance with the City standard. The fire station has been designed to accommodate three (3) drive through bays. Please see the plan set for

the site plan layout as well as the detail sheets for additional information on the parking space layout and design.

Section 18. Improvement Standards

The proposed project involves the construction of a fire station for the City of Lewiston. No public or private roads are proposed as part of this project. The project has been designed to access public water and sewer. All connections have been designed to be in conformance with the City of Lewiston's Department of Public Services Policy for the Design and Construction of Streets and Sidewalks. Please see the utility plans for additional information. The site has been designed for the proper management of stormwater runoff. Please see the plan set and Section 5 for the Stormwater Management Plan.

Section 19. Environmental Performance Standards.

Smoke. The proposed fire station construction will not result in the generation of smoke at the site.

Noise. The proposed project involves the construction of a fire station. Given the nature of the facility there will be some noise generated by the fire trucks during fire emergencies. The proposed station will replace an existing station approximately 0.2 miles from the subject site. The noise generated by the new facility will be similar to that already experienced by the surrounding area and is in the interest of public safety. Any noise generated will be short in duration and will not result in the presence of a constant noise impact to the area. Please see this Section for a letter from Fire Chief Brian Stockdale discussing noise mitigation measures to be utilized by the Fire Department.

Vibration. The proposed construction will not result in any vibrations being generated at the site.

Odors. The proposed construction will not result in the generation of any odors at the site.

Air Pollution. The proposed construction will not result in an increase in air pollution at the site.

Electrical Disturbance or Interference. The proposed construction will not result in any electrical disturbances or interference at the project site.

Section 20. Child care facility standards.

Not applicable. The proposed project involves the construction of a new fire station.

Section 22. Residential design standards for the downtown residential and riverfront district.

Not applicable. The proposed project is not located in either the downtown residential or riverfront districts.

Article XIII Development Review and Standards

Section 4. Approval Criteria.

a. **Utilization of the site.** The proposed site plan has been developed to reflect the natural capabilities of the site. No environmentally sensitive areas will be impacted by the proposed development. There are no proposed impacts to any natural drainage areas.
b. **Traffic movement into and out of the development area.** The proposed development will not result in a significant increase in traffic to North Temple Street. Please see the Traffic Memo in Section 8.
c. **Access into the site.** The propose development provides for safe and convenient access to the site. Please see the plan set for additional information.
d. **Internal vehicular circulation.** The proposed development has been designed to allow for the appropriate circulation of passenger and emergency vehicles on the site. The appropriate signage will be used to assist proper vehicular movement throughout the site. No portion of the parking area allows for vehicles to back out onto a street. Please see the plan set for more detailed information on the proposed site layout.
e. **Pedestrian circulation.** The proposed development provides for a safe system of pedestrian circulation within the site. Please see the plan set for more detailed information of pedestrian circulation.
f. **Stormwater Management.** Adequate provisions have been made for stormwater management at the site. Please see Section 5 and the plan set for the Stormwater Management Plan.
g. **Erosion Control.** Adequate provisions have been made for erosion control at the site. Erosion control has been designed according to Maine BMPs. Please see the site plans for the proposed erosion control plan.
h. **Water supply.** The Lewiston Water department has adequate capacity to service the proposed project. Please see Section 6 for the water capacity letter.
i. **Sewage disposal.** The Lewiston Sewer department has adequate capacity to service the proposed project. Please see Section 6 for the sewer capacity letter.
j. **Utilities.** The proposed development has adequate provisions made for electrical and telephone service. Please see the utility plans.
k. **Natural features.** The proposed project preserves the natural landscape insofar as is practical. Please see the landscape plan for more detailed information.
l. **Groundwater protection.** The proposed project will not result in an adverse impact to the quality or quantity of groundwater. Please see Section 5 for the Stormwater Management Plan.
m. **Water and air pollution.** The proposed parking lot improvements will not result in undue water or air pollution.
n. **Exterior lighting.** The lighting for the proposed project has been designed to be in conformance with the city's requirements. Please see Section 6 of the submittal for more detailed lighting information.
o. **Waste disposal.** The proposed facility will replace an existing fire station less than 0.2 miles from the subject site. It is not anticipated that the new facility will result in a significant increase in waste generation. The majority of waste generated will be similar to that of average house hold waste and will be picked up weekly by Lewiston Public Works.

p. **Lot layout.** The layout of the proposed project is in conformance with the lot requirements of the City code.
q. **Landscaping.** The landscaping associated with the proposed project is in compliance with the City guidelines. Please see the landscape plan included in the plan set.
r. **Shoreland relationship.** The proposed project will not result in an impact to the water quality or shoreline of any water body.
s. **Open space.** Not applicable. The proposed project involves the construction of a Fire Station, therefore public accessible open space has not been provided in order to ensure public safety.
t. **Technical and financial capacity.** The City of Lewiston has sufficient technical and financial capacity to complete the proposed project. Please see Section 4 for a additional information on the design firm retained by the City and information on the funding for this project.
u. **Buffering.** The proposed project design is in conformance with the City's guidelines. Please see the plan set for more detailed information on the proposed site layout and landscaping.
v. **Compliance with district regulations.** The proposed improvements have been designed to be in compliance with the district regulations as outline in Article XI
w. **Design consistent with performance standards.** The proposed improvements have been designed to be in accordance with the City's applicable performance standards as outlined in Article XII.

FIRE DEPARTMENT

Brian D. Stockdale, Fire Chief
Vacant, Assistant Chief

2 July 2019

To: Douglas Greene, Deputy Director
Planning & Codes Enforcement
City of Lewiston

From: Brian D. Stockdale, Fire Chief
City of Lewiston

Re: LFD Fire Sub Station (Conditional Use Application) Request for Information

Mr. Greene,
Your email to Ms. Ramsell (SebagoTechnics) identified two (2) areas where you requested a Fire Department response in regards to how the department plans on mitigating any potential negative impacts the new station may have on the surrounding community. The identified areas in your email noted siren and/or noise, as well as notification when apparatus are leaving the station.

Our plan is to address these issues in a number of ways.

1. Siren and/or Noise:
    a. We look to address this primarily by:
        i. Station and grounds design. The design of the building and grounds will take into account potential noise impacts, such as apparatus maintenance & training. These areas will be located at the rear of the building.
        ii. We will develop and implement policies and practices that aim to lessen any potential negative noise impacts, such as, when and how lights and sirens will be used when responding. Keep in mind this policy will be in accordance with Maine Statute 2054: Emergency and Auxiliary Lights; Sirens; Privileges. This statute gives us some flexibility on how we develop our operational guidelines. The goal is to develop operational procedures that take into account time of day, response need etc… Also, operational guidelines will be developed that address the testing and maintenance of equipment and apparatus to limit other potential noise issues.

Lewiston Fire Department, 2 College Street, Lewiston, ME 04240 • Tel. (207) 513-3002 • TTY/TDD (207) 513-3121 • Fax (207)783-6138
Email: bstockdale@lewistonmaine.gov • Bmckay@lewistonmaine.gov
Web Page: www.lewistonmaine.gov

2. Notification of When Apparatus are Entering the Roadway:
    a. The primary way we would like to address this is to have a type of warning signal/sign installed at the street, which can be activated when an apparatus is leaving the station for a response. There are a number of options for this. We will work with Lewiston Public Works and the Architect to identify which type would be a best fit. Examples of this type of warning, although older and antiquated would be the signal at the end of the driveway on Russell St. that United Ambulance utilizes, as well as the signaling systems located at the Lisbon & Sabattus St. fire stations. The warning signal is triggered when a response is initiated. The signals intent is to notify vehicles and pedestrians on Russell St. We may not utilize the same system, but the intent is to have a system in place that accomplishes the same goal.

Please let me know if you need any additional information.

Sincerely,

Brian D. Stockdale
Fire Chief

Section 2

Title, Right or Interest

Section 2 Title, Right, or Interest

The subject site is parcel RE00004448 and is located at 55 North Temple Street. The parcel is known as Lot 084, City Tax Map number 90 and as described in Deed Book 4546, Page277. The City has a purchase and sales agreement for the parcel. Please see this Section for a copy of the deed and the purchase and sales agreement.

OPTION AGREEMENT

THIS AGREEMENT ("Agreement") is made as of August 15, 2018 ("Effective Date") BETWEEN **Bernard J. Grenier, Rita S. Grenier**, and **Pierre Grenier**, (collectively referred to as "Seller"), and the City of Lewiston ("Buyer").

BACKGROUND

Seller is the owner of the land and buildings situated at **55 North Temple, Lewiston Maine**, shown on Lewiston Tax Map 90, Lot 84, and which is more particularly described in 1) deed from Hazel A. Bansmer to Thomas C. Grenier, Bernard J. Grenier, and Rudolph Grenier dated November 24, 1972 and recorded in the Androscoggin County Registry of Deeds in Book 1065, Page 169; 2) Certificate and Abstract for the Estate of Thomas C. Grenier, Sr. dated November 20, 2000 and recorded in said Registry in Book 4546, Page 277; and 3) deed from Pierre Grenier, Personal Representative of the Estate of Rodolphe A. Grenier to Pierre Grenier dated January 28, 2014 and recorded in said registry in Book 8859, Page 115 (the "Real Estate"). Seller desires to grant Buyer an option to purchase the Real Estate.

AGREEMENT

The parties agree as follows:

1. Option. Seller grants to Buyer an exclusive option to purchase the Real Estate as provided in this Agreement during the Option Term.

2. Option Price and Renewal Option Price. The option price is $3,000 ("Option Price"), receipt of which is hereby acknowledged. The Buyer, at its election, may extend the Option Term by an additional payment of $3,000 (the "Renewal Option Price"). Neither the Option Price nor the Renewal Option Price is refundable except as stated in this Agreement. The Option Price, and Renewal Option Price, if any, shall be applied towards the purchase price if the Buyer exercises this option

3. Option Term. The Option Term shall commence on the Effective Date and continue until the earlier to occur of (i) thirty days after the final decision of all government agencies providing Government Approvals, as hereinafter defined, of the construction by the City of a Fire Station on the Real Estate; and (ii) 365 days after the Effective Date, or 545 days after the Effective Date if the Buyer has paid the Renewal Option Price.

4. Seller Cooperation. Seller shall cooperate with (i) the performance of tests by Buyer, and (ii) the obtaining by Buyer, at Buyer's expense, of all licenses and permits or authorizations required for Buyer's construction of a fire station on the Real Estate from all applicable government and/or regulatory entities (collectively, "Governmental Approvals").

5. Grant of Access License and Permission to Seek Government Approvals. Commencing on the Effective Date and throughout the Option Term, Seller grants to Buyer, an

irrevocable, exclusive license ("License") to (i) enter upon the Real Estate at any time and from time to time to conduct, at Buyer's expense, such tests, inspections, surveys and investigations as Buyer deems necessary or appropriate to evaluate the suitability of the Real Estate as a fire station and (ii) seek Government Approvals during the Option Term for the construction of a fire station on the Real Estate. During the Option Term, the Buyer shall not place, or permit to be placed, or use, or permit to be used, any permanent improvements or structures on the Real Estate. If Buyer does not exercise the Option within the Option Term, Buyer shall, at Buyer's sole cost and expense, promptly remove any and all liens, improvements, personal property, equipment, goods, and other property, and all trash, debris, and other refuse from the Real Estate that is the result of such tests, and shall have no other rights in and to the Real Estate.

6. Exercise. Buyer shall exercise its option by notice to Seller given during the option term.

7. Purchase Price. The purchase price for the acquisition of the Real Estate shall be $290,000. The purchase price shall be paid in full (less the Option Price and Renewal Option Price, if any, pursuant to Section 2) at the closing.

8. Representations and Warranties. Seller represents and warrants to Buyer that, as of the date of this Agreement and as of the date of the closing:

   8.1. No Pending Litigation Affecting Real Estate. There is no legal proceeding pending or threatened (or, to the best knowledge of Seller, any basis for such a proceeding) against Seller affecting any portion of the Real Estate in any court or before any arbitrator of any kind or before or by any governmental body.

   8.2. No Leases or Contracts. There are no leases, subleases or agreements concerning the ownership, leasing, subleasing or occupancy of the Real Estate. There are no service contracts, maintenance agreements or other agreements with respect to the Real Estate.

   8.3. Compliance with Laws. All applicable laws, statutes, ordinances and regulations have been complied with in regard to the Real Estate.

   8.4. Unencumbered Title. Seller is the owner of the Real Estate free and clear of all liens, rights to liens, claims, encumbrances, and other matters affecting title, subject only to conventional utility easements and such restrictions as would not make the title unmarketable and to any lien or encumbrance securing an indebtedness of a definitely ascertainable amount, which lien or encumbrance shall be released at or prior to the closing.

9. Termination. If Buyer objects to any exceptions to the title of the Real Estate or to the environmental conditions regarding the real estate during the Option Term, Seller shall have the option, at Seller's sole discretion, to use reasonable efforts to cure such defects at Seller's own expense during the next 30 days. If Seller cannot cure the defects within the 30 day time period, or such additional period as Buyer, in Buyer's sole discretion, may

allow, Buyer may elect to terminate the option on the Real Estate. Buyer shall notify Seller of such election, in which case the Option Price shall be refunded to Buyer and the obligations of all parties under this Agreement shall terminate. Alternatively, Buyer may elect to purchase the Real Estate as provided under the provisions of this Agreement subject to any defects which cannot be removed.

10. Closing. The closing shall take place at Buyer's election but not later than 60 days after the exercise of the option, at the offices of Brann & Isaacson, 184 Main Street, Lewiston, Maine, or such other place within the State of Maine as the Buyer may select.

11. Conveyance and Payment.

    11.1. Title. Seller shall convey the Real Estate by warranty deed and otherwise as provided in Section 8.4. The title shall also be insurable by any reputable title insurance company licensed to do business in the State of Maine. Seller will execute such typical Seller affidavits, certification of trustee authority and closing documents as may appropriately be required by Buyer's counsel.

    11.2. Possession. At the time of the closing, Seller will deliver exclusive possession of the Real Estate to Buyer.

    11.3. Payment. Buyer will make all closing payments by wire or by certified, cashier's or attorney trust account check.

12. Miscellaneous.

    12.1. Brokers. Neither Seller nor Buyer has retained a real estate broker in this transaction. Each agrees to hold harmless and indemnify the other from and against any losses, damages, costs or expenses that either party may suffer as a result of claims made or suits brought by any broker in connection with this transaction, the indemnifying party to be the party whose conduct gives rise to such claim.

    12.2. Time. Time is of the essence in all matters relating to this Agreement.

    12.3. Headings. Section headings are for convenience only. They are not intended to expand or restrict the scope or the substance of the provisions of this Agreement.

    12.4. Binding Effect. This Agreement shall be binding on the successors and assigns of Seller and Buyer.

    12.5. Assignment. This Agreement may not be assigned or delegated by either party without the prior written consent of the other party.

    12.6. Amendment. This Agreement may not be amended, modified or revoked except by a writing signed by both parties.

12.7. Counterparts. This Agreement may be signed on any number of counterparts with the same effect as if the signatures were on the same instrument. The parties intend to conduct business by electronic means.

12.8. Governing Law. This Agreement shall be governed by Maine law.

12.9. Notices. Any notices required by this Agreement shall be given, in the case of Seller, to:

Bernard Grenier (on behalf of Bernard, Rita and Pierre)
80 North Temple Street
Lewiston, Maine 04240

and, in the case of Buyer, to:

Edward Barrett
City Administrator
City of Lewiston
27 Pine Street
Lewiston, ME 04240

or such other persons and addresses as a party may designate by notice to the other party. All such notices shall be effective upon receipt or refusal when delivered in person, by certified mail, return receipt requested or by delivery service providing proof of receipt.

12.10. Entire Agreement. This Agreement contains the entire and only agreement between the parties and no oral statements or representations or prior written matter not contained in this Agreement shall have any force and effect.

13. Short Form for Recording. Simultaneously with the execution of this Agreement, Seller shall execute a memorandum of option in the form attached as Exhibit A, which Seller may record in the Androscoggin County Registry of Deeds.

IN WITNESS WHEREOF, the parties have set their hands and seals on the day and year first above written.

Bernard J. Grenier
Dated: 7-11-, 2018

Rita S. Grenier
Dated: 7-11-18, 2018

Pierre Grenier
Dated: 7/11, 2018

City of Lewiston

By: Edward Barrett
Its: Administrator
Dated: 8-15, 2018

Bk 8859 Pg115 #1573
01-31-2014 @ 10:46a

DEED OF DISTRIBUTION BY
PERSONAL REPRESENTATIVE
(Testate)

PIERRE GRENIER, of Lewiston, Androscoggin County, State of Maine, duly appointed and acting Personal Representative of the Estate of Rodolphe A. Grenier, deceased, whose will was duly admitted to probate in the Probate Court for Androscoggin County, Maine, Docket No. 2013-178, by the power conferred by law, and every other power in distribution of the estate, grants to **PIERRE GRENIER,** of Lewiston, Androscoggin County, State of Maine, whose mailing address is 11 Martin Drive, Lewiston, Maine, being the person entitled to distribution, the decedent's interest in the real property in Lewiston, Androscoggin County, Maine, described as follows:

A certain lot of parcel of land with any buildings thereon, situated in Lewiston, County of Androscoggin, State of Maine, bounded and described as follows:

COMMENCING on the northerly line of the Sabattus Road South, sixty-three and one-half degrees (63 1/2°) East ten (10) rods from the southeasterly corner of land formerly owned by Marilla M. Thorne; thence North forty-eight and one-half degrees (48 1/2°) East about ninety-one rods (91) to land formerly owned by Robert Field; thence southeasterly by said Field land about twenty-five (25) rods to land formerly owned by Josiah Stewart; thence in a southwesterly direction by land formerly owned by said Stewart to a point four hundred and four and fifty-nine hundredths feet (404.59') northeasterly from the said northerly line of Sabattus Street; thence in a westerly direction parallel with the said northerly line of Sabattus Street, one hundred and thirty and seventy-four hundredths feet (130.74') ; thence in a southwesterly direction to the northerly line of land conveyed by George W. Eadon to the City of Lewiston, said point being fifty and seven hundredths feet (50.07') westerly from the northeasterly corner of said City of Lewiston land; thence in a westerly direction by said City of Lewiston land, forty-nine and ninety-three hundredths feet (49.93'); thence in a southerly direction by said City of Lewiston land one hundred feet (100') to the said northerly line of Sabattus Street; thence in a westerly direction by the said northerly line of Sabattus Street, four hundred and fifteen and seventy-two hundredths feet (415.72') to the point of the beginning.

BEING the same premises conveyed to the above named grantor and Reinhold F. Bansmer by warranty deed of George W. Eadon, dated March 27, 1943 and recorded in the Androscoggin County Registry of Deeds, at Book 535, Page 346.

EXCEPTING AND RESERVING therefrom a strip of land ten feet (10') wide and one thousand five hundred feet (1,500') more or less long running along the northerly line of this property next to North Temple Street as described in an easement from Hazel A. Bansmer to the City of Lewiston, dated August 27, 1971 and recorded in said Registry of Deeds, Book 1039, Page 221.

EXCEPTING AND RESERVING from the above described property an easement from the said Hazel A. Bansmer to the City of Lewiston to operate, repair, maintain and replace a fire hydrant and water main located on the above property on the southeasterly side of North Temple Street as described in a quit-claim deed dated October 21, 1971 and recorded in said Registry of Deeds, at Book 1044, Page 607.

ALSO EXCEPTING AND RESERVING from the above described property two twenty foot (20') easements granted by the said Hazel A. Bansmer to the City of Lewiston, dated August 27, 1971 and recorded in B. 1039, P. 220. (Hazel A. Bansmer, widow)

Being the same premises described in a deed from Hazel A. Bansmer to the decedent, Thomas C. Grenier and Bernard J. Grenier dated November 24, 1972 and recorded in the Androscoggin County Registry of Deeds at Book 1065, Page 169.

Title not searched; description not verified.

Witness my hand and seal this 28th day of January, 2014.

ESTATE OF RODOLPHE A. GRENIER

Witness

Pierre Grenier, Personal Representative

STATE OF MAINE
ANDROSCOGGIN, ss.

Personally appeared before me this 28th day of January, 2014, the above named Pierre Grenier, in his capacity as personal representative of the estate of Rodolphe A. Grenier, and acknowledged the foregoing instrument to be his free act and deed in said capacity.

Notary Public

SEAL

Jill A. Checkoway
Type of Print Name
My Commission Expires: 3/5/2016

ANDROSCOGGIN COUNTY
TINA M CHOUINARD
REGISTER OF DEEDS

Bk4546 Pg277 #22585
11-21-2000 @ 11:13a

N-121
(Rev. 9-16-81)

SEAL

STATE OF MAINE

(SEAL OF COURT)
PROBATE COURT

South Paris
Location of Court

Oxford, SS.

DOCKET 2000-377

Estate of Thomas C. Grenier, Sr.
Deceased

CERTIFICATE AND ABSTRACT

To the Register of Deeds of Androscoggin County.

An estate has been opened in this court for the above named decedent. The following facts apply to this estate according to the probated will or the petition or application upon which an appointment was made or both.

Date of decedent's death October 11, 2000.

1. Did decedent leave a will? X YES ___ NO
2. If item one is YES, will was probated ___ FORMALLY X INFORMALLY
3. If item one is YES, date of most recent probate of the will was November 20, 2000
4. If item 2 is answered FORMALLY, was there a previous informal probate of the same will? ___ YES ___ NO
5. If the will was previously probated informally, was that informal probate certified to the Register of Deeds of the county to which this certificate is directed? ___ YES ___ NO
6. Has a petition for elective share been filed? (If YES, attach copy.) ___ YES X NO
7. Has a personal representative been appointed? X YES ___ NO
8. If item 7 is YES, date of appointment was November 20, 2000.
9. If item 7 is YES, appointment was ___ FORMAL X INFORMAL
10. If item 7 is YES, give name and address of personal representative.

Rita S. Grenier, 21 Rachel Boulevard, Lewiston, Maine 04240

11. Insert here a true copy of so much of decedent's will as devises real estate, if any. In addition, if a more complete description of the real estate involved appears on the petition or application upon which the appointment was made, add that description below the provisions of the will. Label any such description: "DESCRIPTION OF REAL ESTATE FROM APPLICATION OR PETITION". Also, in every case where information is available, list each municipality and county in which decedent owned real estate.

ITEM I

I give, devise and bequeath all of my property of every kind, nature and description, both real and personal, wherever and however situated, and including that which may come to me or to my estate by operation of law, to my beloved wife, RITA S. GRENIER...

DESCRIPTION OF REAL ESTATE FROM APPLICATION

Androscoggin County: City of Lewiston, Town of Sabattus, Town of Wales

12. Following is a list of Heirs or of all persons who are or may be Devisees of real estate. (List heirs only when there is no probated will. If there is a probated will, list devisees of real estate.)

Rita S. Grenier, 21 Rachel Boulevard, Lewiston, Maine 04240 Spouse

13. I certify that the foregoing statements are accurate so far as they may be determined from the will or the petition or application upon which the appointment was made.

Date November 20, 2000

Theodore R. Tracy
Register of Probate Theodore R. Tracy

See 18-A MRSA § 1-504.

ANDROSCOGGIN COUNTY
Jeannine R. Bergeron
REGISTER OF DEEDS

I, HAZEL A. BANSMER,
of Lewiston, Androscoggin County,
(being unmarried), for consideration paid,
grant to THOMAS C. GRENIER, BERNARD J. GRENIER, both of Lewiston, County of Androscoggin, State of Maine, and RUDOLPH GRENIER, of Long Island, Queens County, State of New York,
with Warranty Covenants
the land in Lewiston, Androscoggin County, State of Maine.

A certain lot or parcel of land with any buildings thereon, situated in Lewiston, County of Androscoggin, State of Maine, bounded and described as follows:

COMMENCING on the northerly line of the Sabattus Road South, sixty-three and one-half degrees (63 1/2°) East ten (10) rods from the southeasterly corner of land formerly owned by Marilla M. Thorne; thence North forty-eight and one-half degrees (48 1/2°) East about ninety-one rods (91) to land formerly owned by Robert Field; thence southeasterly by said Field land about twenty-five (25) rods to land formerly owned by Josiah Stewart; thence in a southwesterly direction by land formerly owned by said Stewart to a point four hundred and four and fifty-nine hundredths feet (404.59') northeasterly from the said northerly line of Sabattus Street; thence in a westerly direction parallel with the said northerly line of Sabattus Street, one hundred and thirty and seventy-four hundredths feet (130.74'); thence in a southwesterly direction to the northerly line of land conveyed by George W. Eadon to the City of Lewiston, said point being fifty and seven hundredths feet (50.07') westerly from the northeasterly corner of said City of Lewiston land; thence in a westerly direction by said City of Lewiston land, forty-nine and ninety-three hundredths feet (49.93'); thence in a southerly direction by said City of Lewiston land one hundred feet (100') to the said northerly line of Sabattus Street; thence in a westerly direction by the said northerly line of Sabattus Street, four hundred and fifteen and seventy-two hundredths feet (415.72') to the point of beginning.

BEING the same premises conveyed to the above named grantor and Reinhold F. Bansmer by warranty deed of George W. Eadon, dated March 27, 1943 and recorded in the Androscoggin County Registry of Deeds, at Book 535, Page 346.

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ALSO EXCEPTING AND RESERVING from the above described property two twenty foot (20') easements granted by the said Hazel A. Bansmer to the City of Lewiston, dated August 27, 1971 and recorded in B. 1039, P. 220.

(HAZEL A. BANSMER, widow, ~~xxxxxxxxxxxxxxxx~~
joins as grantor and releases all rights by descent and all other rights.

Witness my hand and seal this twenty-fourth day of November 19 72

Witness: [illegible] Hazel A. Bansmer

The State of Maine Androscoggin ss. November 24, 19 72

Then personally appeared the above named HAZEL A. BANSMER

and acknowledged the foregoing instrument to be her free act and deed,

Before me, [illegible]
Justice of the Peace - Attorney at Law - Notary Public
My Commission Expires Feb. 22, 1974

ANDROSCOGGIN, SS.
RECEIVED NOV 27 1972 8 H. 20 M. A.M. P.M.
and recorded from the original
WARRANTY DEED

Section 3

Parcel Information

Locus Map

FIRM Map

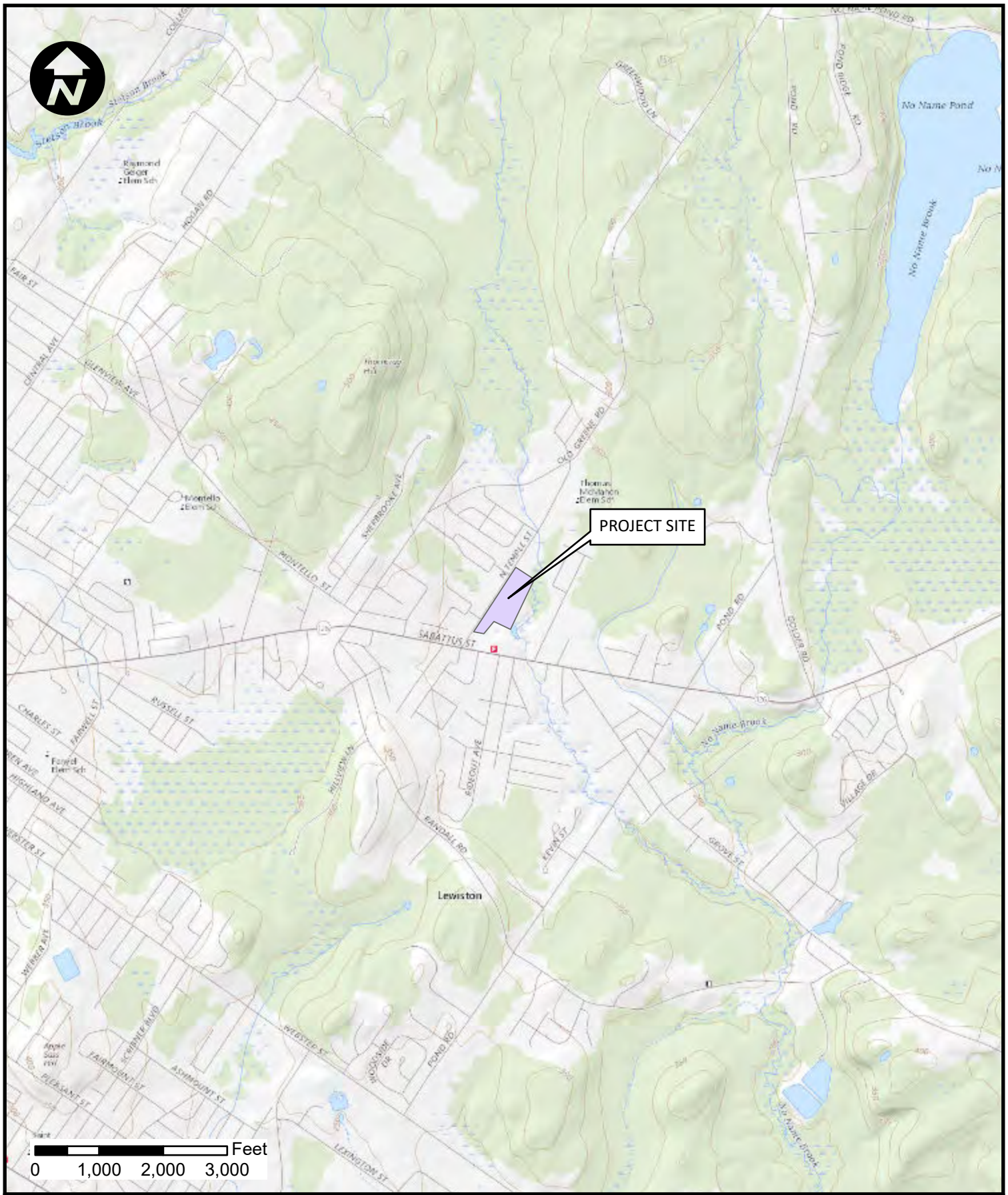
Tax Map

Property Card

Aquifer Map

Section 3 Parcel Information

The proposed project site is comprised of a 9.85-acre undeveloped parcel located at 55 North Temple Street. Please see this Section for a locus map, FEMA map, parcel map, tax map, and City property card.



SEBAGO TECHNICS

WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. - Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

TITLE FOR:	SITE LOCATION MAP Lewiston Fire Sub-StaÃon	SCALE: 1:24,000 DATE: 06/07/2019
LOCATION: 55 North Temple Street Lewiston, ME 04240	INFORMATION: USGS Quadrangle: Lewiston	

16304_LocaÃonMap.mxd

PROJECT NUMBER: 16304

CITY OF LEWISTON
Legend
Tax Map
90

Parcel

Parcel ID	RE00004448
Map/Lot	090/000/084
Property Location	55 NORTH TEMPLE ST
Property Class	Vacant Land - Residential
Land Area (acreage)	10.87

Owners

Owner	GRENIER RITA S P/R
	GRENIER BERNAND/PIERRE
Address	80 NORTH TEMPLE ST
City	LEWISTON
State	ME
Zip	04240
Book	4546
Page	277

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) zone 19. The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713- 3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from the Maine Office of Geographic Information Systems (MEGIS) at a scale of 1:4,800 or better from photography dated 2001 or later.

The **profile baselines** depicted on this map represent the hydraulic modeling baselines that match the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Based on updated topographic information, this map reflects more detailed and up-to-date **stream channel configurations and floodplain delineations** than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on the map. Also, the road to floodplain relationships for unrevised streams may differ from what is shown on previous maps.

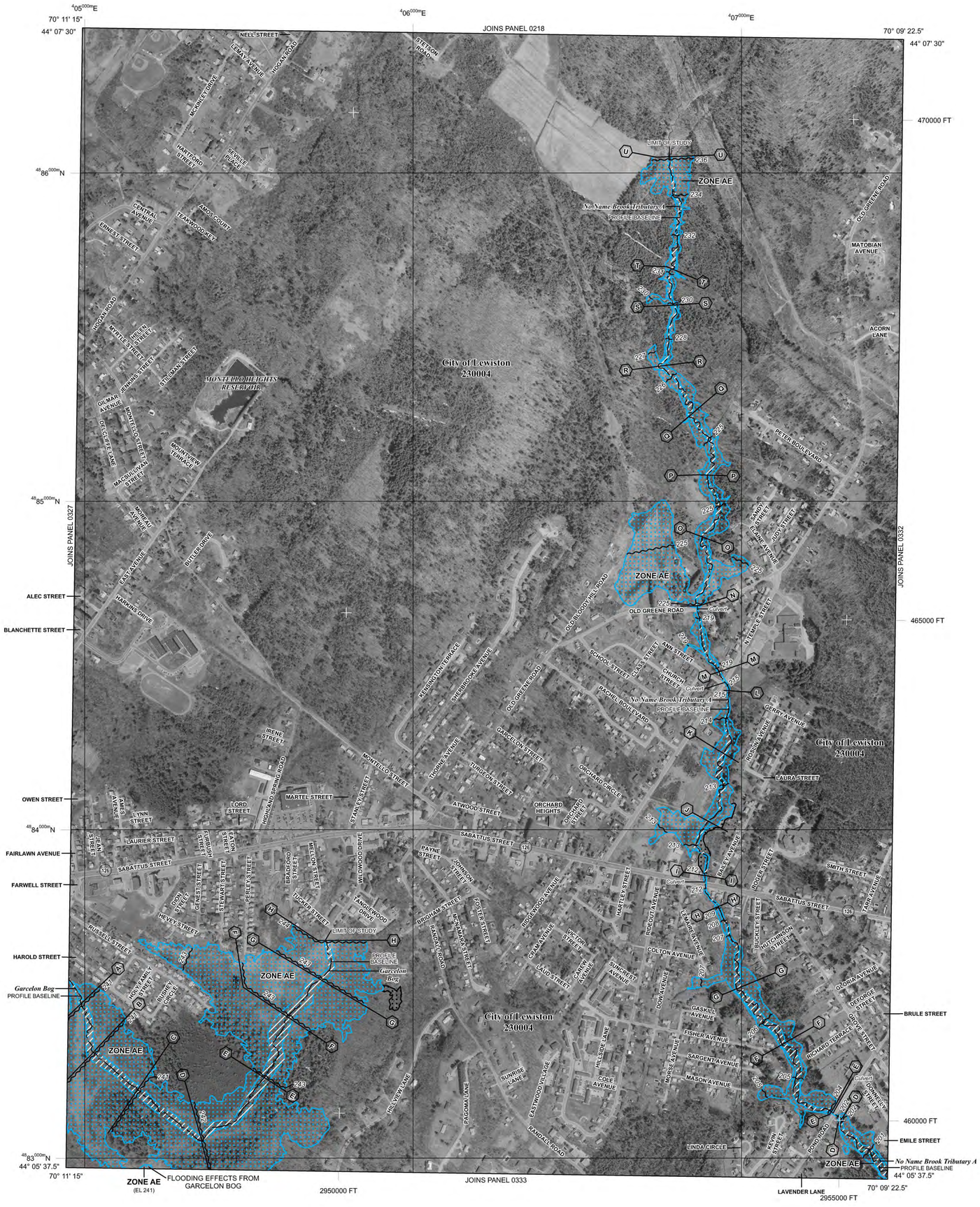
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map,** how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information eXchange (FMIX)** at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

State of Maine Floodway Note: Under the Maine Revised Statutes Annotated (M.R.S.A.) Title 38 § 439-A, 7C where the floodway is not designated on the Flood Insurance Rate Map, the floodway is considered to be the channel of a river or other water course and the adjacent land areas to a distance of one-half the width of the floodplain, as measured from the normal high water mark to the upland limit of the floodplain, unless a technical evaluation certified by a registered professional engineer is provided demonstrating the actual floodway based upon approved FEMA modeling methods.



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% Annual Chance Floodplain Boundary
	0.2% Annual Chance Floodplain Boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

*Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 - - - - - 23	Transect line
45° 02' 08", 93° 02' 12"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
3100000 FT	5000-foot ticks: Maine State Plane West Zone (FIPS Zone 1802), Transverse Mercator projection
$^{49}88^{000m}$ N	1000-meter Universal Transverse Mercator grid values, zone 19
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
• FT1,000	River Station

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
July 8, 2013

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 500'

250 0 500 1000 FEET

150 0 150 300 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0331E

FIRM

FLOOD INSURANCE RATE MAP

ANDROSCOGGIN COUNTY, MAINE (ALL JURISDICTIONS)

PANEL 331 OF 470

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

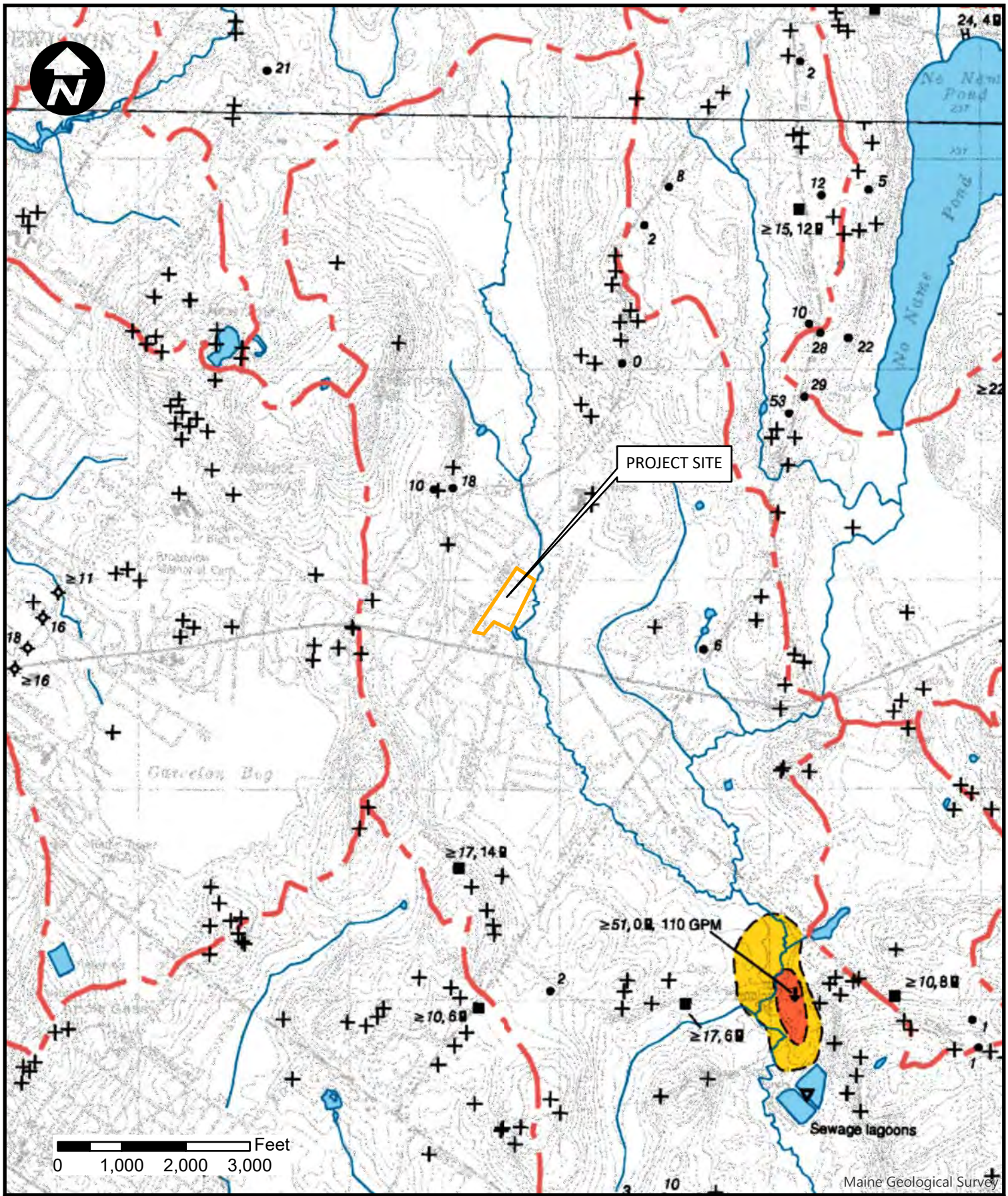
COMMUNITY	NUMBER	PANEL	SUFFIX
LEWISTON, CITY OF	230004	0331	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
23001C0331E

EFFECTIVE DATE
JULY 8, 2013

Federal Emergency Management Agency



SEBAGO TECHNICS

WWW.SEBAGOTECHNICS.COM

75 John Roberts Rd. - Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

SIGNIFICANT SAND AND GRAVEL AQUIFERS MAP FOR: LEWISTON FIRE SUB-STATION

SCALE: 1:24,000

DATE: 06/14/2019

LOCATION:
55 North Temple Street
Lewiston, ME

INFORMATION:
Maine Geological Survey_
SigniĀcant Sand and Gravel Aquifer Maps: Lewiston

16304_Bedrock Geology Map.mxd

PROJECT NUMBER: 16304

Section 4

Financial & Technical Capacity

Section 4 Financial & Technical Capacity

Financial Capacity

The required funds for replacing the existing Sabattus fire station with a new station on North Temple Street was included as part of the City's approved Capital Improvement Plan for 2018. Please see this Section for a letter from Edward Barrett the City Administrator.

Technical Capacity

Please see this Section (listed below) for the technical capacity information for the project team:

Sebago Technics, Inc. (STI) is a multi-disciplinary engineering firm with over 35 years of experience that offers a wide range of services specializing in land development, planning, permitting, and engineering design services. We maintain a staff of multi-disciplinary professionals to provide services in the areas of general civil engineering, road and utility infrastructure design, construction management, permitting, landscape architecture, soil science, wetlands science, geotechnical services, land surveying, and environmental engineering. Resumes of key personnel will be provided upon request.

Context Architecture is an architectural firm with over 50 years of experience. They have a diverse project base working in the public, private, and corporate sectors. Their design focus is rooted in complimenting and cultivating the distinctive architecture of the region they are designing in. Resumes of key personnel will be provided upon request.

EXECUTIVE

Edward A. Barrett, City Administrator
Denis D'Auteuil, Deputy City Administrator

6-27-2019

Planning Board
City of Lewiston
27 Pine Street
Lewiston, Me 04240

Dear Members of the Planning Board:

This letter and the attached certified bond orders approved by the City Council of the City of Lewiston document the financial capability of the City to undertake construction of the replacement for the Sabattus Street fire substation by a new substation proposed for the property at 55 North Temple.

Specifically, the City Council has approved issuing the following bonds for this project:

Date	
5-16-2017	$320,000
5-15-2018	$3,300,000
5-15-2019	$2,000,000
TOTAL	$5,620,000

Taking into account expenses to date, the remaining purchase price of the property, and contractual commitments for architectural services, a balance of $4,760,000 is available to move this project forward.

Should you have any questions or need any further information, please let me know.

Sincerely yours,

Edward A. Barrett
City Administrator

{W6790167.1}

City Hall, 27 Pine Street, Lewiston, ME 04240 • Tel. (207) 513-3121 • TTY/TDD (207) 513-3007 • Fax (207) 795-5069
Email: ebarrett@lewistonmaine.gov • ddauteuil@lewistonmaine.gov
Web Page: www.lewistonmaine.gov

Lewiston
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2007

City of Lewiston, Maine
Department of City Clerk

Kathleen M. Montejo, MMC
City Clerk & Registrar of Voters

Kelly J. Brooks, CMC
Deputy City Clerk

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LEWISTON · AUBURN

CERTIFICATION OF CITY COUNCIL ACTION

I, Kathleen M. Montejo, City Clerk of Lewiston, Maine, do hereby certify that the following action was taken by the Lewiston City Council at a public meeting of the City Council, held on Tuesday, May 16, 2017:

PUBLIC HEARING AND ADOPTION OF THE FY2018 LEWISTON CAPITAL IMPROVEMENT PROGRAM BOND ISSUE ORDER

Mayor Macdonald opened the public hearing to receive citizen input and comment. No members of the public spoke for or against this issue. The Mayor then closed the hearing.

VOTE (131-2017)

Motion by Councilor Lysen, seconded by Councilor Bouchard:

To adopt the FY2018 Lewiston Capital Improvement Program Bond Issue Order authorizing the issuance of $13,458,500 in FY2018 Public Improvement Bonds and making an appropriation for certain capital projects:

Ordered, That $13,458,500 be appropriated for financing the following FY2018 projects in the Lewiston Capital Improvement Program:

PROJECT	AMOUNT
CITY	
Riverfront Island Implementation	320,000
Camera System Upgrade	150,000
Central Fire Station Generator	58,000
Central Fire Station Roof Replacement Project	165,000
Sabattus Street Fire Station Replacement Project	315,000
City Hall Building Second Floor Interior Restoration Project	104,000
Sidewalk Maintenance & Rehabilitation	301,000
Street Crosswalk Evaluation & Implementation Plan	175,000
Street Maintenance Program	2,732,000
Kennedy Park Master Plan	339,000
Marcotte Park Playground	75,000
Hudson Bus Property Soccer Field	300,000
Municipal Garage Vehicle & Equipment Replacement	1,232,500
	6,266,500
SCHOOL	
LHS Parking Lot Expansion	240,000

Montello Electrical Upgrade & Library Air Conditioning	462,000
	702,000
WATER	
Distribution Water Main Replacement/Rehabilitation	1,995,000
	1,995,000
SEWER	
Rehabilitation of Old Sanitary Sewer Mains	1,000,000
Collection System Inspection & Rehabilitation	600,000
Pump Station Replacement	205,000
CSO Separation - Various Areas	500,000
EPA Order Implementation Software	450,000
	2,755,000
STORMWATER	
Culvert Replacement Program	210,000
Jepson Brook Channel Upgrades	1,030,000
CSO Separation - Various Areas	500,000
	1,740,000
Total Bond Order	**13,458,500**

Further Ordered, That to meet this appropriation, $13,458,500 shall be raised by Public Improvement Bond Issue(s);

Further Ordered, That the City Council instruct the Finance Director to advertise for bids for $13,458,500 or increments thereof, Public Improvement Bonds; to award the loan; and to employ Edwards Wildman Palmer LLP to furnish the legal opinion for the same; provided that in the alternative, the Finance Director is authorized to award the loan to the Maine Municipal Bond Bank;

Further Ordered, That the bonds shall be signed by the City Treasurer and Mayor;

Further Ordered, That the date, maturities, denominations, interest rate or rates, place or places of payment, form or other details of the bonds and of the provisions for the sale thereof shall be determined by the Finance Director under the advice of UniBank Fiscal Advisory Services Inc.;

Further Ordered, That bonds issued hereunder may be subject to call for redemption on such terms as may be determined by the Finance Director; and

Further Ordered, On or before the call date, the Finance Director is authorized to refund/advance refund this bond series if a net present value benefit is derived.

Passed - Vote 7-0

ATTEST:

Kathleen M. Montejo, MMC
City Clerk

June 27, 2019
Date

Lewiston
All-America City
2007

City of Lewiston, Maine
Department of City Clerk

Kathleen M. Montejo, MMC
City Clerk & Registrar of Voters

Kelly J. Brooks, CMC
Deputy City Clerk

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LEWISTON • AUBURN

CERTIFICATION OF CITY COUNCIL ACTION

I, Kathleen M. Montejo, City Clerk of Lewiston, Maine, do hereby certify that the following action was taken by the Lewiston City Council at a public meeting of the City Council, held on Tuesday, May 15, 2018:

PUBLIC HEARING AND ADOPTION OF THE FY2019 LEWISTON CAPITAL IMPROVEMENT PROGRAM BOND ISSUE ORDER

VOTE (149-2018)

Motion by Councilor Lysen, seconded by Councilor Cloutier:

ORDERED, That $16,772,000 be appropriated for financing the following FY2019 projects in the Lewiston Capital Improvement Program:

PROJECT	AMOUNT
CITY:	
Airport Wildlife Control Equipment - Tractor	200,000
Radio Replacement Project	511,000
Riverfront Island Implementation	320,000
Fire Pumper/Aerial Replacement - Engine #3	975,000
BLDG 3 - Sabattus Street Fire Station Replacement Project	3,300,000
Street Maintenance Program	2,718,000
Landfill Intermediate Cover	280,000
	8,304,000
SCHOOL DEPARTMENT:	
Lewiston Middle School Auditorium Workshop Addition	50,000
Lewiston Middle School Electrical Upgrade	50,000
Lewiston High School Parking Lot Expansion	220,000
Dingley Building Roof Replacement	300,000
School District-wide Roof Access	96,000
Longley School Renovations	450,000
Lewiston High School Mechanical Systems Upgrades	47,000
	1,213,000
WATER DIVISION:	
Distribution Water Main Replacement/Rehabilitation	2,000,000
	2,000,000
SEWER DIVISION:	
Rehabilitation of Old Sanitary Sewer Mains	1,000,000
Pump Station Replacement	135,000

Collection System Inspection & Rehabilitation	480,000
CSO Master Plan Update	100,000
CSO Storage in Franklin Pasture for Gully Brook CSO Area	1,000,000
	2,715,000
STORM WATER DIVISION	
Lisbon Street Storm Drain Rehabilitation	140,000
Culvert Replacement Program	350,000
Storm Drain Inspection	350,000
CSO Storage in Franklin Pasture for Gully Brook CSO Area	1,000,000
CSO Master Plan Update	100,000
Jepson Brook Channel Upgrades	600,000
	2,540,000
TOTAL	**16,772,000**

FURTHER ORDERED, That to meet this appropriation, $16,772,000 shall be raised by Public Improvement Bond Issue(s);

FURTHER ORDERED, That the City Council instruct the Finance Director to advertise for bids for $16,772,000 or increments thereof, Public Improvement Bonds; to award the loan; and to employ Locke Lord LLP to furnish the legal opinion for the same; provided that in the alternative, the Finance Director is authorized to award the loan to the Maine Municipal Bond Bank;

FURTHER ORDERED, That the bonds shall be signed by the City Treasurer and Mayor;

FURTHER ORDERED, That the date, maturities, denominations, interest rate or rates, place or places of payment, form or other details of the bonds and of the provisions for the sale thereof shall be determined by the Finance Director under the advice of UniBank Fiscal Advisory Services Inc.;

FURTHER ORDERED, That bonds issued hereunder may be subject to call for redemption on such terms as may be determined by the Finance Director; and

FURTHER ORDERED, On or before the call date, the Finance Director is authorized to refund/advance refund this bond series if a net present value benefit is derived.

Mayor Bouchard opened the public hearing to receive citizen input and comment. No members of the public spoke for or against this issue. The Mayor then closed the hearing. Superintendent Webster requested two changes to the LCIP – 1) lowering the amount for renovations at Longley School from $450,000 to $175,000 and 2) removing the School Roof Access project in the amount of $96,000, to allow time for additional research regarding the OSHA requirements. The City Administrator also recommended removing the $200,000 from the Airport project from the LCIP bond and having that project addressed via fund balance. Councilor Marcotte stated he would like to cut an additional $162,000 from the LCIP bond to bring it down to 100% of the bonded debt limit. Councilor Marcotte suggested authorizing funding for some of the Fire Station replacement project in the following fiscal year. He strongly supported moving the project forward and not delaying the station replacement but wondering if $162,000 could be delayed from the project costs until next year. The City Administrator felt this was possible giving the timing of architectural drawings, land acquisitions and so forth. The Fire Chief stated he was fine with adjusting the funding as long as the project keeps moving forward and remains on track.

The Council agreed to support these proposed cuts to the LCIP bond:

1) Remove $275,000 – Longley School project

2) Remove $96,000 – School Roof Access project
3) Remove $200,000 – Airport project
4) Remove $162,000 – Fire Station Replacement
   Grand Total – Reduction of $733,000 from proposed LCIP bond item

Motion as amended:

ORDERED, That $16,039,000 be appropriated for financing the following FY2019 projects in the Lewiston Capital Improvement Program:

PROJECT	AMOUNT
CITY:	
Radio Replacement Project	511,000
Riverfront Island Implementation	320,000
Fire Pumper/Aerial Replacement - Engine #3	975,000
BLDG 3 - Sabattus Street Fire Station Replacement Project	3,138,000
Street Maintenance Program	2,718,000
Landfill Intermediate Cover	280,000
	7,942,000
SCHOOL DEPARTMENT:	
Lewiston Middle School Auditorium Workshop Addition	50,000
Lewiston Middle School Electrical Upgrade	50,000
Lewiston High School Parking Lot Expansion	220,000
Dingley Building Roof Replacement	300,000
Longley School Renovations	175,000
Lewiston High School Mechanical Systems Upgrades	47,000
	842,000
WATER DIVISION:	
Distribution Water Main Replacement/Rehabilitation	2,000,000
	2,000,000
SEWER DIVISION:	
Rehabilitation of Old Sanitary Sewer Mains	1,000,000
Pump Station Replacement	135,000
Collection System Inspection & Rehabilitation	480,000
CSO Master Plan Update	100,000
CSO Storage in Franklin Pasture for Gully Brook CSO Area	1,000,000
	2,715,000
STORM WATER DIVISION	
Lisbon Street Storm Drain Rehabilitation	140,000
Culvert Replacement Program	350,000
Storm Drain Inspection	350,000
CSO Storage in Franklin Pasture for Gully Brook CSO Area	1,000,000
CSO Master Plan Update	100,000
Jepson Brook Channel Upgrades	600,000
	2,540,000
TOTAL	**16,039,000**

FURTHER ORDERED, That to meet this appropriation, $16,039,000 shall be raised by Public Improvement Bond Issue(s);

FURTHER ORDERED, That the City Council instruct the Finance Director to advertise for bids for $16,039,000 or increments thereof, Public Improvement Bonds; to award the loan; and to employ Locke Lord LLP to furnish the legal opinion for the same; provided that in the alternative, the Finance Director is authorized to award the loan to the Maine Municipal Bond Bank;

FURTHER ORDERED, That the bonds shall be signed by the City Treasurer and Mayor;

FURTHER ORDERED, That the date, maturities, denominations, interest rate or rates, place or places of payment, form or other details of the bonds and of the provisions for the sale thereof shall be determined by the Finance Director under the advice of UniBank Fiscal Advisory Services Inc.;

FURTHER ORDERED, That bonds issued hereunder may be subject to call for redemption on such terms as may be determined by the Finance Director; and

FURTHER ORDERED, On or before the call date, the Finance Director is authorized to refund/advance refund this bond series if a net present value benefit is derived.

Passed - Vote 7-0

ATTEST:

Kathleen M. Montejo, MMC
City Clerk

June 27, 2019
Date

Lewiston
All-America City
2007

City of Lewiston, Maine
Department of City Clerk

Kathleen M. Montejo, MMC
City Clerk & Registrar of Voters

Kelly J. Brooks, CMC
Deputy City Clerk

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CERTIFICATION OF CITY COUNCIL ACTION

I, Kathleen M. Montejo, City Clerk of Lewiston, Maine, do hereby certify that the following action was taken by the Lewiston City Council at a public meeting of the City Council, held on Tuesday, May 21, 2019:

PUBLIC HEARING AND ADOPTION OF THE FY2020 LEWISTON CAPITAL IMPROVEMENT PROGRAM BOND ISSUE ORDER

Mayor Cloutier opened the public hearing to receive citizen input and comment on this issue. No members of the public spoke for or against this issue. The Mayor then closed the hearing.

VOTE (105-2019)

Motion by Councilor Lysen, seconded by Councilor Lajoie:

To adopt the FY2020 Lewiston Capital Improvement Program Bond Issue Order authorizing the issuance of $16,703,000 in FY2020 Public Improvement Bonds and making an appropriation for certain capital projects:

ORDERED, That $16,703,000 be appropriated for financing the following FY2020 projects in the Lewiston Capital Improvement Program:

Project	Amount
CITY:	
Construction of New Fuel Farm	400,000
Radio Replacement Project	1,598,000
Radio Project - Lewiston's Mobile & Portable Radios	439,000
Radio System Site Connectivity	22,500
Fire Alarm Box & Station Alerting	37,500
Riverfront Island Implementation	350,000
Sabattus St. Fire Substation	2,000,000
Birch, Caron, & Jefferson Streets Sidewalk Rehabilitation	350,000
Street Crosswalk Evaluation & Implementation Plan	200,000
Sidewalk Maintenance & Rehabilitation	361,000
Street Maintenance Program	2,879,000
MDOT 1 - Main Street - Longley Bridge to Pettingill Street	242,000
	8,879,000
SCHOOL DEPARTMENT:	
Lewiston Middle School Electrical Upgrade	456,000
Montello School Electrical Upgrade	330,000
System Wide Camera System Upgrade	238,000

Building Access Controls System Upgrade	100,000
	1,124,000
WATER FUND:	
Water Software Model & Master Plan Update	200,000
L.A. Water Treatment Program - Contingency Need	1,200,000
Distribution Main Replacement	2,000,000
	3,400,000
SEWER FUND:	
Sanitary Sewer Mains Rehabilitation	1,100,000
Collection System Inspection & Rehabilitation	480,000
Chadbourne Road Sewer Pump Station Replacement	200,000
	1,780,000
STORM WATER FUND:	
Hart Brook Water Quality Restoration	350,000
Storm Drain Inspection	370,000
Jepson Brook Channel Upgrades	800,000
	1,520,000
TOTAL	**16,703,000**

FURTHER ORDERED, That to meet this appropriation, $16,703,000 shall be raised by Public Improvement Bond Issue(s);

FURTHER ORDERED, That the City Council instruct the Finance Director to advertise for bids for $16,703,000 or increments thereof, Public Improvement Bonds; to award the loan; and to employ Locke Lord LLP to furnish the legal opinion for the same; provided that in the alternative, the Finance Director is authorized to award the loan to the Maine Municipal Bond Bank;

FURTHER ORDERED, That the bonds shall be signed by the City Treasurer and Mayor;

FURTHER ORDERED, That the date, maturities, denominations, interest rate or rates, place or places of payment, form or other details of the bonds and of the provisions for the sale thereof shall be determined by the Finance Director under the advice of UniBank Fiscal Advisory Services Inc.;

FURTHER ORDERED, That bonds issued hereunder may be subject to call for redemption on such terms as may be determined by the Finance Director; and

FURTHER ORDERED, On or before the call date, the Finance Director is authorized to refund/advance refund this bond series if a net present value benefit is derived.

Passed - Vote 7-0

ATTEST:

Kathleen M. Montejo

Kathleen M. Montejo, MMC
City Clerk

June 27, 2019
Date

Section 5

Stormwater Narrative

Section 5 Stormwater Narrative

Please see the Stormwater Management Plan which has been submitted under separate cover.

Section 6

Water/Sewer

PUBLIC WORKS DEPARTMENT

Dale F. Doughty, Director

June 27, 2019

Ms. Kendra Ramsell, EI
Sebago Technics
75 John Roberts Road, Suite 4A
South Portland, Me 04106

RE: Ability to serve
Proposed City of Lewiston Fire Substation Building
55 North Temple Street, Lewiston

Dear Ms. Ramsell:

You indicated in your letter dated June 6, 2019, that design a new City of Lewiston Fire Substation building with a total of 9,130 square feet of floor area will be going for review by the Lewiston Development Review Committee and this project is located at 55 North Temple Street and requires evidence that water and sewer utility service is available and the utility has the ability to serve this use.

Based on the engineering design standards you used, as stated in your letter, to develop an average water demand for the project of 580 gallons per day, and with the water service lines connected to the water mains on North Temple Street, the City of Lewiston Water Division can meet or exceed the minimum volume and pressure required by the Maine Public Utilities Commission (PUC) to the proposed development.

Based on the same estimates of usage and discharge for the proposed development, the City of Lewiston Sewer Division can handle the expected sewer discharge and can serve this proposed development.

If you have any questions, please feel free to call me at 513-3003, Ext. 3430.

Sincerely,

Kevin A. Gagne

Kevin A. Gagne, P.E.
Deputy Director of Public Works
Superintendent of Water & Sewer Operations

103 Adams Ave, Lewiston, ME 04240 • Tel. (207) 513-3003 • Fax (207) 784-5647
Email: ddoughty@lewistonmaine.gov **Page:** www.lewistonmaine.gov

Section 7

Lighting

Date: Jul 2, 2019

Swaney Lighting
PO Box 1597
Scarborough ME 04070
Phone: (207) 883-7100
Fax: (207) 885-9606

Job Name
LEWISTON FIRE SUBSTATION
SLA19-42480
LEWISTON ME

Bid Date
Jul 2, 2019

Submittal Date
Jul 2, 2019

Transmittal

Swaney Lighting
PO Box 1597
Scarborough ME 04070
Phone: (207) 883-7100
From: Therese "TC" Freeman X-103

Project **LEWISTON FIRE SUBSTATION**
Quote# SLA19-42480
Location LEWISTON ME
To SWANEY LIGHTING
15 PLEASANT HILL ROAD
SCARBOROUGH ME 04074
Contact: WANDA RICHARD

ATTACHED WE ARE SENDING YOU 1 COPY OF THE FOLLOWING ITEM:

- ☐ Drawings
- ☐ Prints
- ☐ Plans
- ☐ Specifications
- ☐ Information
- ☒ Submittals

Other:

THESE ARE TRANSMITTED FOR:

- ☒ Prior Approval
- ☐ Approval
- ☐ Approval as Submitted
- ☐ Approval as Noted
- ☐ Resubmittal for Approval
- ☐ Corrections
- ☐ Your Use
- ☐ Review and Comment
- ☐ Record

Bids due on:
Other:

Type	MFG	Part
A3	BEACON PRODUCTS	VP-S/48L-110/4K7/3/UNV/A/**
A3P	BEACON PRODUCTS	SSSB20-40A-1-B3-**
A4	BEACON PRODUCTS	VP-S/48L-110/4K7/4W/UNV/A/**
A4P	BEACON PRODUCTS	SSSB20-40A-1-B3-**
I	HUBBELL LIGHTING INC	LNC-9LU-4K-4-*

Submitted by Swaney Lighting

Job Name:
LEWISTON FIRE SUBSTATION

Catalog Number:
VP-S/48L-110/4K7/3/UNV/A/**

Notes:

Type:
A3

SLA19-42480

VIPER S OPTICS STRIKE

SMALL VIPER LUMINAIRE

Cat.#

Job

Type

BEACON design . performance . technology

Approvals

SPECIFICATIONS

Intended Use:

The Beacon Viper luminaire is available with a wide choice of different LED Wattage configurations and optical distributions designed to replace HID lighting up to 400W MH or HPS.

Construction:

- Manufactured with die cast aluminum.
- Coated with a polyester finish that meets ASTM B117 corrosion test requirements and ASTM D522 cracking and loss of adhesion test requirements.
- External hardware is corrosion resistant.
- One piece optical cartridge system consisting of an LED engine, LED lamps, optics, gasket and stainless steel bezel.
- Cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one piece optical system.
- Two-piece silicone and micro-cellular polyurethane foam gasket ensures a weather-proof seal around each individual LED.

Electrical:

- 100V through 277V, 50 Hz to 60 Hz (UNV), or 347V or 480V input.
- Power factor is ≥.90 at full load.
- Dimming drivers are standard, but must contact factory to request wiring leads for purpose of external dimming controls.
- Component-to-component wiring within the luminaire may carry no more than 80% of rated load and is certified by UL for use at 600VAC at 90°C or higher.
- Plug disconnects are certified by UL for use at 600 VAC, 13A or higher. 13A rating applies to primary (AC) side only.
- Fixture electrical compartment shall contain all LED driver components and shall be provided with a push-button terminal block for AC power connections.
- Surge protection - 20kA.
- Optional 7-pin ANSI C136.41-2013 twist-lock photo control receptacle available. Compatible with ANSI C136.41 external wireless control devices.
- Lifeshield™ Circuit - protects luminaire from excessive temperature. The device shall activate at a specific, factory-preset temperature, and progressively reduce power over a finite temperature range. Operation shall be smooth and undetectable to the eye. Thermal circuit is designed to "fail on", allowing the luminaire to revert to full power in the event of an interruption of its power supply, or faulty wiring connection to the drivers. The device shall be able to co-exist with other 0-10V control devices (occupancy sensors, external dimmers, etc.).

Controls/Options:

- Available with an optional passive infrared (PIR) motion sensor capable of detecting motion 360° around the luminaire. When no motion is detected for the specified time, the Motion Response system reduces the wattage to factory preset level, reducing the light level accordingly. When motion is detected by the PIR sensor, the luminaire returns to full wattage and full light output. Please contact Beacon Products if project requirements vary from standard configuration.
- Available with Energeni for optional set dimming, timed dimming with simple delay, or timed dimming based on time of night (see www.beaconproducts.com/products/energeni).
- In addition, Viper can be specified with **SiteSync™** wireless control system for reduction in energy and maintenance costs while optimizing light quality 24/7. For more details, see ordering information or visit: www.hubbelllighting.com/sitesync

Installation:

- Mounting options for horizontal arm, vertical tenon or traditional arm mounting available. Mounting hardware included.

Finish:

- IFS polyester powder-coat electrostatically applied and thermocured. IFS finish consists of a five stage pretreatment regimen with a polymer primer sealer and top coated with a thermoset super TGIC polyester powder coat finish.
- The finish meets the AAMA 2604 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds.

Certifications/Ratings:

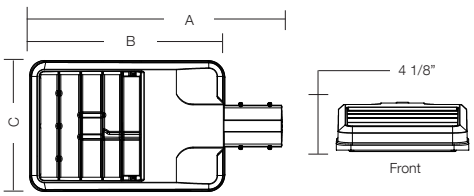
- DesignLights Consortium (DLC) qualified, consult DLC website for more details: http://www.designlights.org/QPL
- Certified to UL 1598, UL 8750 and CSA C22.2 No.250.0
- IDA approved
- This product is approved by the Florida Fish and Wildlife Conservation Commission. Separate spec available at: http://www.beaconproducts.com/products/vipersmall

Warranty:

Five year limited warranty for more information visit: www.hubbelllighting.com/resources/warranty

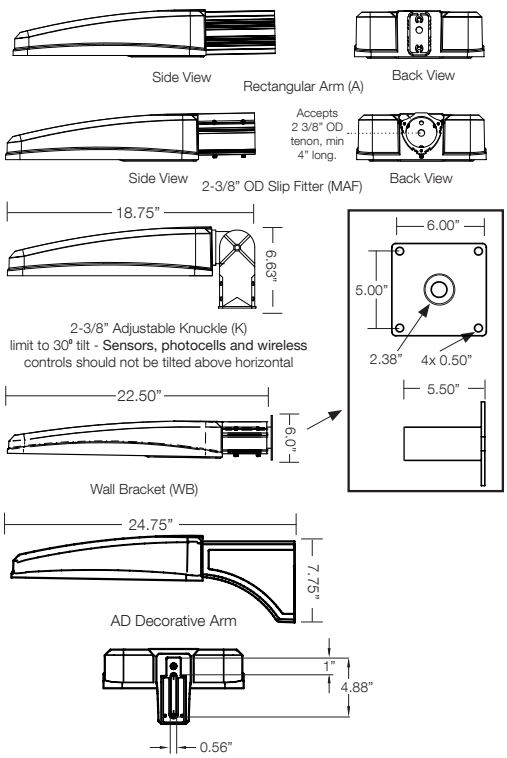
PRODUCT IMAGE(S)

DIMENSIONS



A	B	C	Weight:	EPA
21.75" (552 mm)	16.75" (425 mm)	11.25" (286 mm)	15.0 lbs (6.8 kg)	.67 ft²

MOUNTING OPTIONS



CERTIFICATIONS/LISTINGS

C US

*3000K and warmer CCTs only

BEACON design . performance . technology

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Due to our continued efforts to improve our products, product specifications are subject to change without notice.

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HUBBELL Lighting

ORDERING INFORMATION

ORDERING EXAMPLE: VPS/24L-55/4K7/4W/UNV/A/DBT/7PR-TL/GENI-04/BC

VPS

SERIES

- **VPS** Viper

LED ENGINE

- **24L-55** 55W, LED array
- **36L-65** 65W, LED array
- **36L-80** 80W, LED array
- **48L-110** 110W, LED array
- **60L-136** 136W, LED array

CCT/CRI[7]

- **3K7** 3000K, 70 CRI
- **4K7** 4000K, 70 CRI
- **5K7** 5000K, 70 CRI

ROTATION

- Leave blank for no rotation
- **L[5]** Optic rotation left
- **R[5]** Optic rotation right

VOLTAGE

- **UNV** 120-277V
- **120** 120V
- **208** 208V
- **240** 240V
- **277** 277V
- **347** 347V
- **480** 480V

COLOR

- **BL** Black Textured
- **DB** Dark Bronze Textured
- **GYS** Light Gray Smooth
- **PS** Platinum Silver Smooth
- **WH** White Textured
- **CC** Custom Color
- ** Specify standard finish

OPTIONS

- **F** Fusing
- **BSP** Bird Spikes
- **BC** Backsheidld (available for FR, 2, 3, 4, 4W Optics)

DISTRIBUTION

- **FR** Type 1/Front Row
- **2** Type 2
- **3** Type 3
- **4** Type 4
- **4W** Type 4 Wide
- **5QM** Type 5QM
- **5R** Type 5R (rectangular)
- **5W** Type 5W (round wide)
- **TC** Tennis Court

MOUNTING

- **A** Rectangular Arm (formerly RA) for square or round pole
- **MAF** Mast Arm Fitter (formerly SF2) for 2-3/8" OD horizontal arm
- **K** Knuckle (formerly PK2) limit to 45° tilt or 2-3/8" OD horizontal arm or vertical tenon
- **WB** Wall Bracket
- **AD** Universal Arm for square pole
- **AD3** Universal Arm for 2.4"-4.1" round pole
- **AD4** Universal Arm for 4.2" -5.3" round pole
- **AD5** Universal Arm for 5.5" -5.9" round pole
- **AD6** Universal Arm for 6.0"-6.5" round pole

CONTROL OPTIONS

- **7PR** 7-Pin Receptacle only (shorting cap, photo control, or wireless control provided by others)
- **7PR-SC** 7-Pin Receptacle w/Shorting Cap
- **7PR-TL** 7-Pin Receptacle w/Twist Lock photo control
- **SCP/_F[1,2,6]** Programmable Occupancy Sensor w/ daylight control
- **GENI-XX[3]** ENERGENI
- **SWP[1,4]** SiteSync Pre-Commission
- **SWPM[1,2,4]** SiteSync Pre-Comm w/ Sensor

HOUSE SIDE SHIELD ACCESSORIES

- **HSS/VP-S/90-FB/XXX** 90° shield front or back
- **HSS/VP-S/90-LR/XXX** 90° shield left or right
- **HSS/VP-S/270-FB/XXX** 270° shield front or back
- **HSS/VP-S/270-LR/XXX** 270° shield left or right
- **HSS/VP-S/360/XXX** Full shield

(Replace XXX with notation for desired finish color)
(Refer to page 5 for shield images)

MOUNTING ACCESSORIES

- **VPL-AD-RPA3** 2.4"-4.1" Round Pole Adapter for AD arm
- **VPL-AD-RPA4** 4.2"-5.3" Round Pole Adapter for AD arm
- **VPL-AD-RPA5** 5.5"-5.9" Round Pole Adapter for AD arm
- **VPL-AD-RPA6** 6.0"-6.5" Round Pole Adapter for AD arm

[1] Not available with other wireless control or sensor options
[2] Specify mounting height; 8=8' or less, 40=9' to 40'
[3] Specify routine setting code (example GENI-04). See ENERGENI brochure and instructions for setting table and options. Not available with sensor or SiteSync options.
[4] Specify group and zone at time of order. See www.hubbelllighting.com/sitesync for further details. Order at least one SiteSync interface Accessory SWUSB or SWTAB. Each option contains SiteSync License, GUI, and Bridge Node
[5] Only available with 1A, 2, 3, 4, 4W and 5R distributions
[6] Order at least one SCP-REMOTE per project location to program and control the occupancy sensor
[7] This product is approved by the Florida Fish and Wildlife Conservation Commission. Separate spec available at: http://cdn.beaconproducts.com/content/products/specs/specs_files/Viper_Small_LED_turtle_spec_sheet.pdf

PRECOMMISSIONED SITESYNC ORDERING INFORMATION: When ordering a fixture with the SiteSync lighting control option, additional information will be required to complete the order. The SiteSync Commissioning Form or alternate schedule information must be completed. This form includes Project location, Group information, and Operating schedules. For more detailed information please visit www.hubbell-automation.com/products/sitesync/ or contact Hubbell Lighting tech support at (800) 345-4928.

SiteSync fixtures with Motion control (SWPM) require the mounting height of the fixture for selection of the lens.

Examples: VPS/24L-55/4K7/3/UNV/A/DBT/SWP/ — SiteSync only
VPS/24L-55/4K7/3/UNV/A/DBT/SWPM-40F/ — SiteSync with Motion Control

Accessories and Services (Ordered Separately)

Catalog Number	Description
SWUSB*	SiteSync interface software loaded on USB flash drive for use with owner supplied PC (Windows based only). Includes SiteSync license, software and USB radio bridge node
SWTAB*	Windows tablet and SiteSync interface software. Includes tablet with preloaded software, SiteSync license and USB radio bridge node.
SWBRG	SiteSync USB radio bridge node only. Order if a replacement is required or if an extra bridge node is requested.
SCP-REMOTE	Remote Control for SCP/_F option. Order at least one per project to program and control
SW7PR+	SiteSync 7 Pin on fixture module On/Off/Dim, Daylight Sensor 120-480VAC

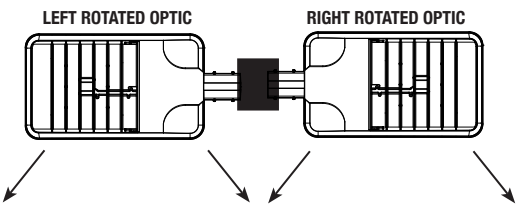
* When ordering SiteSync at least one of these two interface options must be ordered per project.
\+ Available as a SiteSync retrofit solution for fixtures with an existing 7pin receptacle.

Hubbell Control Solutions - Accessories (sold separately)

Catalog Number	Description	HCS System
NXOFM-1R1D-UNV	On-fixture Module (7-pin), On / Off / Dim, Daylight Sensor with HubbNET Radio and Bluetooth® Radio, 120-480VAC	NX Distributed Intelligence™
WIR-RME-L	On-fixture Module (7-pin or 5-pin), On / Off / Dim, Daylight Sensor with wiSCAPE Radio, 110-480VAC	wiSCAPE® Lighting Control

For additional information related to these accessories please visit www.hubbellcontrolsolutions.com. Options provided for use with integrated sensor, please view specification sheet ordering information table for details.

LEFT ROTATED OPTIC — RIGHT ROTATED OPTIC



SiteSync 7-Pin Module

SW7PR

- SiteSync features in a new form
- Available as an accessory for new construction or retrofit applications (with existing 7-Pin receptacle)
- Does no interface with occupancy sensors

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PERFORMANCE DATA

				5K (5000K nominal, 70 CRI)					4K (4000K nominal, 70 CRI)					3K (3000K nominal, 70 CRI)				
# LED'S	DRIVE CURRENT (MILLIAMPS)	SYSTEM WATTS	DISTRIBUTION TYPE	LUMENS	LPW[1]	B	U	G	LUMENS	LPW[1]	B	U	G	LUMENS	LPW[1]	B	U	G
24	700 mA	55W	FR	6357	118	1	0	1	6486	120	1	0	1	5804	107	1	0	1
			2	6132	114	1	0	1	6257	116	1	0	2	5599	104	1	0	1
			3	6015	111	1	0	2	6137	114	1	0	2	5492	102	1	0	2
			4	5921	110	1	0	2	6034	112	1	0	2	5400	100	1	0	2
			4W	5793	108	1	0	2	5909	110	1	0	2	5272	98	1	0	2
			5QM	6022	112	2	0	1	6145	114	2	0	1	5499	102	2	0	1
			5R	6063	112	3	0	3	6187	115	3	0	3	5536	103	3	0	3
			5W	5908	109	3	0	1	6028	112	3	0	1	5908	102	3	0	1
			TC	6183	113	1	0	1	6309	118	1	0	1	5645	105	1	0	1
36	560 mA	65W	FR	7864	121	1	0	1	8041	124	1	0	1	7189	111	1	0	1
			2	7586	117	1	0	2	7757	119	1	0	2	6934	107	1	0	2
			3	7441	114	1	0	2	7609	117	1	0	2	6802	105	1	0	2
			4	7317	110	1	0	2	7482	112	1	0	2	6688	100	1	0	2
			4W	8690	108	1	0	2	8864	110	1	0	2	7908	98	1	0	2
			5QM	7450	115	3	0	1	7618	117	3	0	1	6810	105	3	0	1
			5R	7501	115	3	0	3	7670	118	3	0	3	6857	105	3	0	3
			5W	7309	112	3	0	2	7473	115	3	0	2	6681	103	3	0	1
36	700 mA	80W	FR	9535	118	1	0	1	9730	120	1	0	1	8706	107	1	0	1
			2	9197	114	1	0	2	9385	116	1	0	2	8398	104	1	0	2
			3	9022	111	1	0	2	9206	114	1	0	2	8238	102	1	0	2
			4	8871	110	1	0	2	9052	112	1	0	2	8100	100	1	0	2
			4W	11587	108	1	0	3	11819	110	1	0	3	10544	98	1	0	3
			5QM	9033	112	3	0	1	9217	114	3	0	1	8248	102	3	0	1
			5R	9095	112	3	0	3	9280	115	3	0	3	8304	103	3	0	3
			5W	8861	109	3	0	2	9043	112	3	0	2	8092	100	3	0	2
			TC	9275	115	1	0	1	9464	118	1	0	1	8468	105	1	0	1
48	700 mA	110W	FR	12713	118	1	0	1	12973	120	2	0	1	11608	107	1	0	1
			2	12263	114	2	0	2	12513	116	2	0	2	11197	104	2	0	2
			3	12029	111	2	0	2	11275	114	2	0	2	10984	102	1	0	2
			4	11828	110	1	0	3	12069	112	1	0	3	10800	100	1	0	2
			4W	14484	108	2	0	4	14774	111	2	0	4	13180	98	2	0	3
			5QM	12044	112	3	0	2	12290	114	3	0	2	10997	102	3	0	1
			5R	12126	112	3	0	3	12374	115	3	0	3	11072	103	3	0	3
			5W	12126	109	4	0	2	12057	112	4	0	2	10789	100	4	0	2
			TC	12366	115	1	0	2	12619	118	1	0	2	11290	105	1	0	2
60	700 mA	136W	FR	15891	117	2	0	2	16216	120	2	0	2	14511	107	2	0	1
			2	15329	113	2	0	2	15642	116	2	0	2	13997	103	2	0	2
			3	15037	111	2	0	3	15344	113	2	0	3	13730	101	2	0	3
			4	14784	109	1	0	3	15086	111	1	0	3	13500	100	1	0	3
			4W	14802	109	2	0	3	15104	112	2	0	3	13515	100	2	0	3
			5QM	15055	111	3	0	2	15362	114	3	0	2	13747	102	3	0	2
			5R	15158	112	4	0	4	15469	114	4	0	4	13841	102	4	0	4
			5W	14781	109	4	0	2	15083	111	4	0	2	13495	100	4	0	2
			TC	15458	115	1	0	2	15834	118	1	0	2	14113	105	1	0	2

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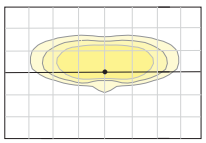
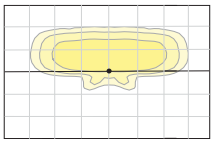
PHOTOMETRICS

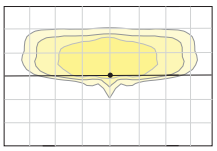
Type FR - Front Row/Auto Optic



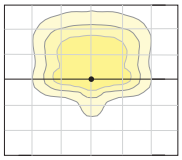
Type 2



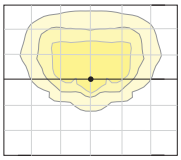
Type 3



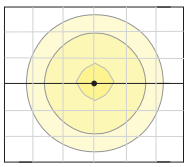
Type 4



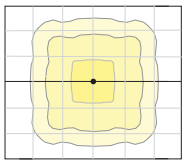
Type 4W



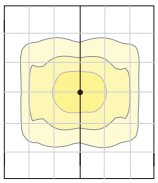
Type 5W



Type 5QM



Type 5R



[1]Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-use environment and application.

ELECTRICAL DATA

# OF LEDS	NUMBER OF DRIVERS	DRIVE CURRENT (mA)	INPUT VOLTAGE (V)	SYSTEM POWER (w)	CURRENT (Amps)
24	2	700 mA	120	55	0.5
			277		0.2
			347		0.2
			480		0.1
36	1	560 mA	120	65	0.65
			277		0.28
			347		0.22
			480		0.16
		700 mA	120	80	0.7
			277		0.3
			347		0.2
			480		0.2
48	1	700 mA	120	110	0.9
			277		0.4
			347		0.3
			480		0.2
60	1	700 mA	120	136	1.1
			277		0.5
			347		0.4
			480		0.3

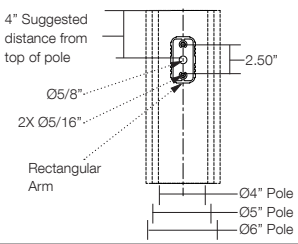
PROJECTED LUMEN MAINTENANCE

AMBIENT TEMP.	0	25,000	50,000	[1]TM-21-11 60,000	100,000	Calculated L70 (HOURS)
25°C / 77°C	1.00	0.97	0.95	0.95	0.92	>377,000

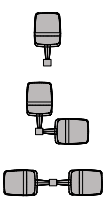
[1] Projected per IESNA TM-21-11
Data references the extrapolated performance projections for the base model in a 25°C ambient, based on 10,000 hours of LED testing per IESNA LM-80-08.

DRILL PATTERN

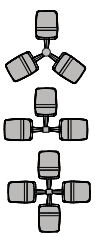
RECTANGULAR ARM (A)
Compatible with Pole drill pattern B3



EPA



Config.	EPA
1	.67
2 @ 90°	1.06
2 @ 180°	1.34



Config.	EPA
3 @ 120°	1.68
3 @ 90°	1.73
4 @ 90°	2.12

TENON TOP POLE BRACKET ACCESSORIES (Order Separately)

(2 3/8" OD tenon)

Catalog Number	Description
SETAVP-XX	Square tenon adapter (4 at 90º) for A - Rectangular Arm mounting option only
RETAVP-XX	Round tenon adapter (4 at 90º) for A - Rectangular Arm mounting option only
TETAVP-XX	Hexagonal tenon adapter (4 at 90º) for A - Rectangular Arm mounting option only
SETA2XX	Square tenon adapter (4 at 90º) for AD - Universal Arm mounting option only
RETA2XX	Round tenon adapter (4 at 90º) for AD3 - Universal Arm mounting option only
TETA2XX	Hexagonal tenon adapter (3 at 120º) for AD - Universal Arm mounting option only

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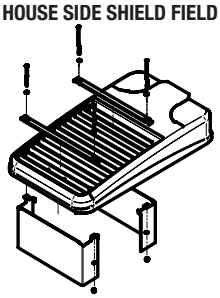
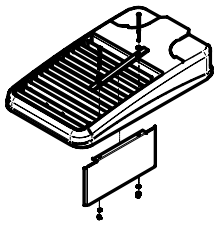
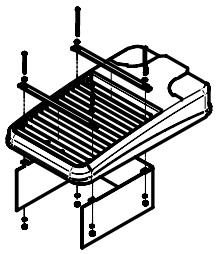
HOUSE SIDE SHIELD FIELD INSTALL ACCESSORIES



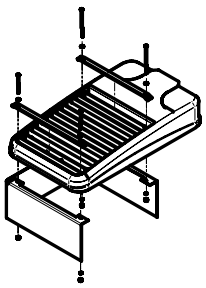
HSS/VP-S/90-FB/XXX
90° shield front or back
(2 shields shown)



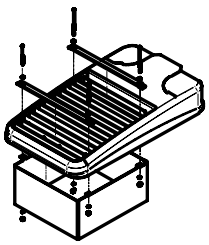
HSS/VP-S/90-LR/XXX
90° shield left or right
(1 shield shown in left orientation)



HSS/VP-S/270-FB/XXX
270° shield front or back
(1 shield shown in back orientation)

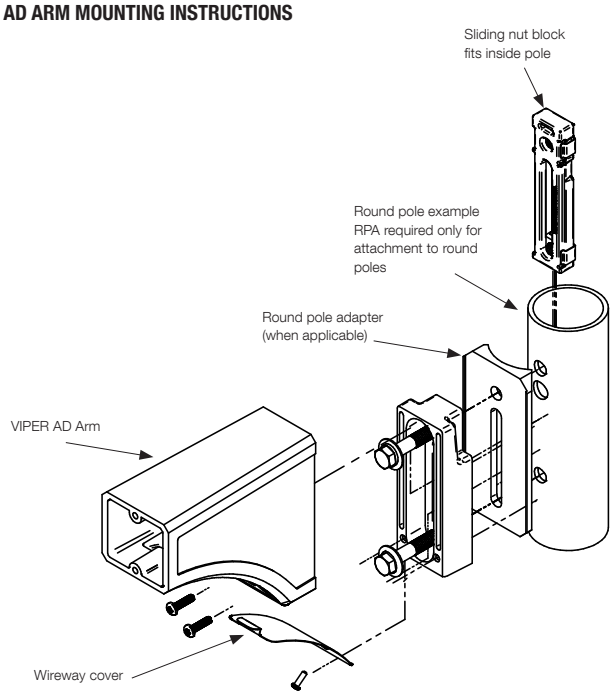


HSS/VP-S/270-LR/XXX
270° shield left or right
(1 shield shown in right orientation)

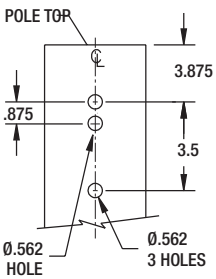


HSS/VP-S/360/XXX
Full shield (1 shield shown)

AD ARM MOUNTING INSTRUCTIONS



DECORATIVE ARM (AD)
Compatible with pole drill pattern S2



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Submitted by Swaney Lighting			
	Job Name: LEWISTON FIRE SUBSTATION	**Catalog Number:** VP-S/48L-110/4K7/3/UNV/A/** Notes:	**Type:** **A3** SLA19-42480

Submitted by Swaney Lighting

Job Name:
LEWISTON FIRE SUBSTATION

Catalog Number:
SSSB20-40A-1-B3-**

Notes:

Type:
A3P

SLA19-42480

SSS-B SERIES POLES

SQUARE STRAIGHT STEEL

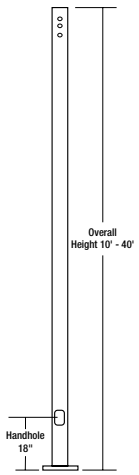
Cat.#

Job

Type

BEACON design . performance . technology

Approvals



APPLICATIONS

- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

CONSTRUCTION

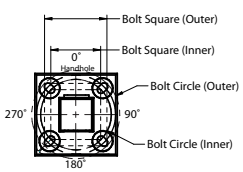
- SHAFT: One-piece straight steel with square cross section, flat sides and minimum 0.238" radius on all corners; Minimum yield of 46,000 psi (ASTM-A500, Grade B); Longitudinal weld seam to appear flush with shaft side wall; Steel base plate with axial bolt circle slots welded flush to pole shaft having minimum yield of 36,000 psi (ASTM A36)
- BASE COVER: Two-piece square aluminum base cover included standard
- POLE CAP: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- HAND HOLE: Rectangular 3x5 steel hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover
- ANCHOR BOLTS: Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling

FINISH

- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint prime applied over "white metal" steel substrate cleaned via mechanical shot blast method
- Decorative finish coat available in seven standard colors; Custom colors available; RAL number preferable; Internal protective coating available

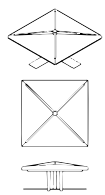
WAREHOUSE 'STOCKED' POLES:

- SSSH20-40A-4-HV-DB-RDC, SSSH25-40A-4-HV-DB-RDC and SSSH30-50B-4-HV-DB-RDC
- The HV designation in the above catalog numbers is a combination drill pattern of the Hubbell Outdoor S2 pattern and the Beacon B3/B4 Viper pattern (rectangular arm mounting)

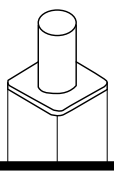


TOP VIEW

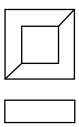
POLE CAP



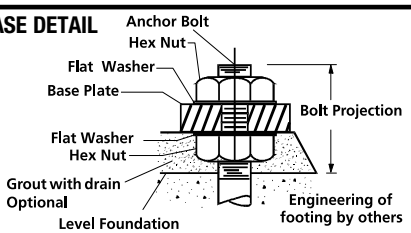
TENON



BASE COVER



BASE DETAIL



ORDERING INFORMATION

ORDERING EXAMPLE:

Reference page 2 for available configurations

SSS - B - 25 - 40 - A/B/C - 2L - B3 - BBT - UL

SERIES	HEIGHT	SHAFT	THICKNESS
SSS-B Square Straight Steel Pole Beacon	Reference page 2 Ordering matrix	Reference page 2 Ordering matrix	Reference page 2 Ordering matrix
	20'	40	A

MOUNTING

- **1** Single arm mount
- **2** Two fixtures at 180°
- **2L** Two fixtures at 90°
- **3T** Three fixtures at 90°
- **4** Four fixtures at 90°
- **TA** Tenon (2.38" OD x 4" Tall)
- **TB** Tenon (2.88" OD x 4" Tall)
- **TC** Tenon (3.5" OD x 6" Tall)
- **TR**[1] Removable Tenon (2.375 x 4.25)
- **OT** Open Top (includes pole cap)

FINISH

- **BL** Black textured
- **DB** Dark bronze textured
- **GT** Graphite textured
- **GYS** Lt. gray smooth
- **PS** Platinum silver smooth
- **WH** White textured
- **BBT** Basic black textured
- **BZT** Bronze textured
- ** Specify standard finish

DRILL PATTERN

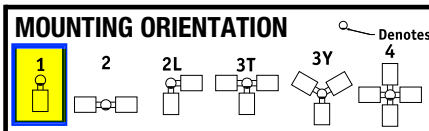
- **B1** Cruzer, "AM" arm
- **B3** 2 bolt (2-1/2" spacing) Viper 'A' arm
- **S2** 2 bolt (3-1/2" spacing) Viper 'AD' arm

OPTIONS

- **HSC** Internal Coating (Hubbell Seal)
- **GFI**[2] 20 Amp GFCI Receptacle and Cover
- **EHH**[2] Extra Handhole
- **C05**[2] .5" Coupling
- **C07**[2] .75" Coupling
- **C20**[2] 2" Coupling
- **MPB**[2] Mid-pole Luminaire Bracket
- **VM2** 2nd mode vibration damper
- **LAB** Less Anchor Bolts
- **UL** UL Certified

MOUNTING ORIENTATION

Denotes handhole location



ACCESSORIES - Order Separately

Catalog Number	Description
VM1[3]	1st mode vibration damper
VM2SXX	2nd mode vibration damper

1 Removable tenon used in conjunction with side arm mounting. First specify desired arm configuration followed by the **"TR"** notation. Example: **SSS-B-25-40-A-1-B1-TR-BBT**
2 Specify option location using logic found on page 2 **(Option Orientation)**
3 VM1 recommended on poles 20' and taller with EPA of less than 1.

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Due to our continued efforts to improve our products, product specifications are subject to change without notice.

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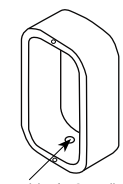
HUBBELL Lighting

ORDERING INFORMATION Cont.

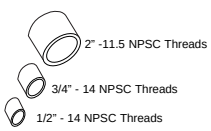
Catalog Number	Height		Nominal Shaft Dimensions	Wall Thickness	Bolt Circle (suggested)	Bolt Circle (range)	Bolt Square (range)	Base Plate Square	Anchor bolt size	Bolt Projection	Pole weight
	Feet	Meters									
SSS-B-10-40-A-XX-XX	10	3.0	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	77
SSS-B-12-40-A-XX-XX	12	3.7	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	90
SSS-B-14-40-A-XX-XX	14	4.3	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	103
SSS-B-16-40-A-XX-XX	16	4.9	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	116
SSS-B-18-40-A-XX-XX	18	5.5	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	129
SSS-B-20-40-A-XX-XX	20	6.1	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	142
SSS-B-25-40-A-XX-XX	25	7.6	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	175
SSS-B-14-40-B-XX-XX	14	4.3	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	152
SSS-B-16-40-B-XX-XX	16	4.9	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	171
SSS-B-18-40-B-XX-XX	18	5.5	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	190
SSS-B-20-40-B-XX-XX	20	6.1	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	209
SSS-B-25-40-B-XX-XX	25	7.6	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	257
SSS-B-30-40-B-XX-XX	30	9.1	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	304
SSS-B-16-50-B-XX-XX	16	4.9	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	219
SSS-B-18-50-B-XX-XX	18	5.5	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	243
SSS-B-20-50-B-XX-XX	20	6.1	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	267
SSS-B-25-50-B-XX-XX	25	7.6	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	327
SSS-B-30-50-B-XX-XX	30	9.1	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	387
SSS-B-25-50-C-XX-XX	25	7.6	5" square	.25"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	427
SSS-B-30-50-C-XX-XX	30	9.1	5" square	.25"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	507
SSS-B-20-60-B-XX-XX	20	6.1	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	329
SSS-B-25-60-B-XX-XX	25	7.6	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	404
SSS-B-30-60-B-XX-XX	30	9.1	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	479
SSS-B-35-60-B-XX-XX	35	10.7	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	554
SSS-B-40-60-B-XX-XX	40	12.2	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	629
SSS-B-30-60-C-XX-XX	30	9.1	6" square	.25"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	614
SSS-B-35-60-C-XX-XX	35	10.7	6" square	.25"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	712
SSS-B-40-60-C-XX-XX	40	12.2	6" square	.25"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	809

NOTE Factory supplied template must be used when setting anchor bolts. Beacon Products will deny any claim for incorrect anchorage placement resulting from failure to use factory supplied template and anchor bolts.

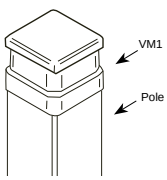
EHH - EXTRA HANDHOLE



C05 - C07 - C20 - COUPLING

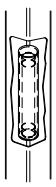


VM1 - VIBRATION DAMPER 1ST MODE



Field Installed Pole Top damper designed to reduce pole top deflection or sway. VM1 is recommended for pole systems 25' and taller with a total EPA of 1.0 or less.

VM2 - VIBRATION DAMPER 2ND MODE



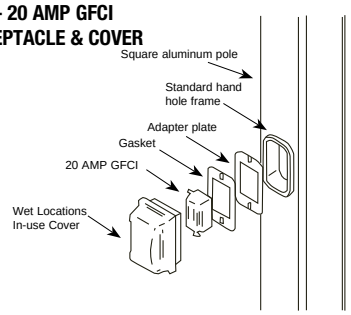
Factory installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

VM2SXX - VIBRATION DAMPER 2ND MODE

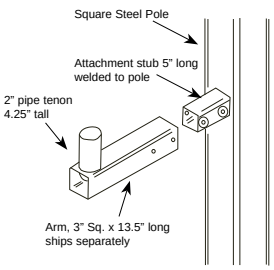
VM2S08 – 8'
VM2S12 – 12'
VM2S16 – 16'
VM2S20 – 20'
VM2S24 – 24'

Field installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

GFI – 20 AMP GFCI RECEPTACLE & COVER

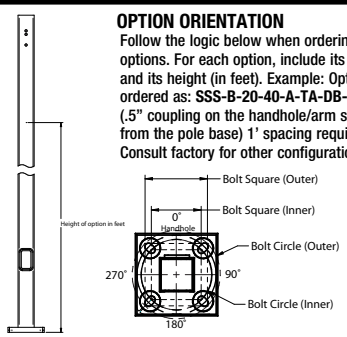


MPB - MID POLE BRACKET



OPTION ORIENTATION

Follow the logic below when ordering location specific options. For each option, include its orientation (in degrees) and its height (in feet). Example: Option C07 should be ordered as: **SSS-B-20-40-A-TA-DB-C05-0-15**
(.5" coupling on the handhole/arm side of pole, 15 feet up from the pole base) 1' spacing required between option.
Consult factory for other configurations.



For more information about pole vibration and vibration dampers, please consult http://www.beaconproducts.com/content/products/literature/literature_files/Pole_Wind_Induced_Flyer_HL0I0022.pdf
Due to our continued efforts to improve our products, product specifications are subject to change without notice.

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Submitted by Swaney Lighting

Job Name:
LEWISTON FIRE SUBSTATION

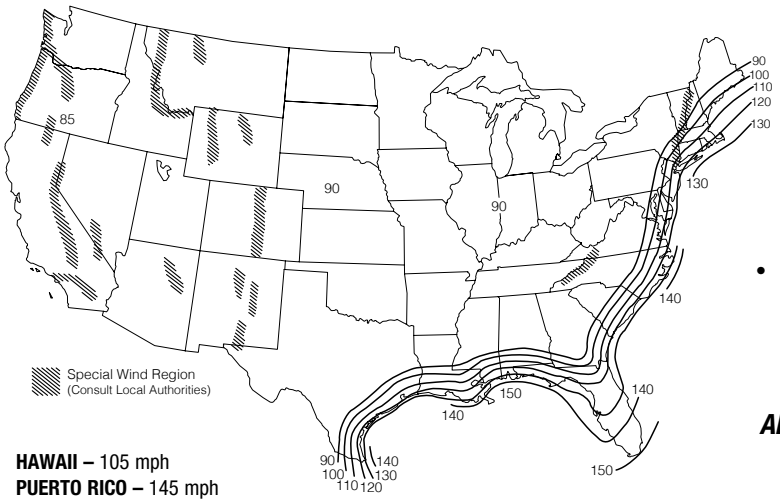
Catalog Number:
SSSB20-40A-1-B3-**

Notes:

Type:
A3P

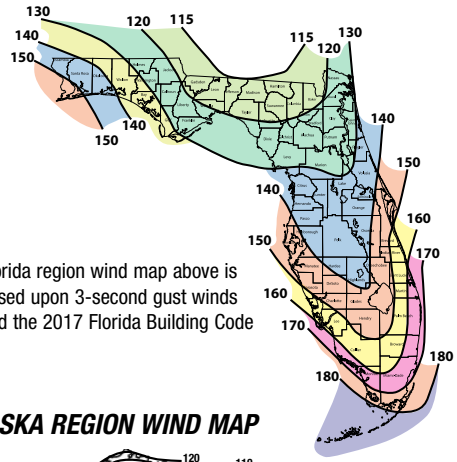
SLA19-42480

ASCE7-05 WIND MAP



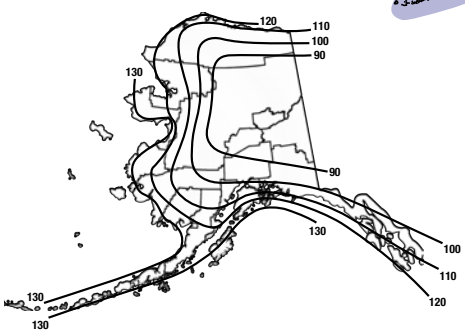
HAWAII – 105 mph
PUERTO RICO – 145 mph

FLORIDA REGION WIND *MAP*



- Florida region wind map above is based upon 3-second gust winds and the 2017 Florida Building Code

ALASKA REGION WIND MAP



ASCE 7-05 wind map EPA Load Rating - 3 second gust wind speeds (Use for all locations except Florida)										
Catalog Number	**85**	**90**	**100**	**105**	**110**	**120**	**130**	**140**	**145**	**150**
SSS-B-10-40-A	25.0	25.0	25.0	22.8	20.6	17.0	14.2	11.9	11.0	10.1
SSS-B-12-40-A	25.0	25.0	20.0	18.0	16.1	13.2	10.8	8.9	8.1	7.4
SSS-B-14-40-A	23.1	20.4	16.1	14.3	12.8	10.2	8.2	6.6	5.9	5.3
SSS-B-16-40-A	19.0	16.7	13.0	11.5	10.1	7.9	6.2	4.7	4.1	3.6
SSS-B-18-40-A	15.6	13.6	10.0	9.0	7.8	5.9	4.4	3.1	2.6	2.1
SSS-B-20-40-A	12.7	10.9	7.9	6.9	5.9	4.2	2.8	1.7	1.3	0.9
SSS-B-25-40-A	7.3	5.9	3.8	2.9	2.1	0.8	NR	NR	NR	NR
SSS-B-14-40-B	25.0	25.0	23.3	20.8	18.6	15.1	12.3	10.2	9.2	8.4
SSS-B-16-40-B	25.0	24.9	19.4	17.3	15.4	12.3	9.9	8.0	7.2	6.4
SSS-B-18-40-B	24.0	20.8	16.1	14.2	12.5	9.8	7.7	6.1	5.3	4.7
SSS-B-20-40-B	20.2	17.5	13.2	11.6	10.1	7.7	5.9	4.4	3.8	3.2
SSS-B-25-40-B	12.8	11.0	7.9	6.7	5.5	3.7	2.3	1.2	0.7	NR
SSS-B-30-40-B	8.0	6.6	4.1	3.1	2.2	0.8	NR	NR	NR	NR
SSS-B-16-50-B	25.0	25.0	25.0	25.0	24.8	20.1	16.5	13.6	12.3	11.2
SSS-B-18-50-B	25.0	25.0	25.0	22.9	20.4	16.4	13.2	10.7	9.6	8.6
SSS-B-20-50-B	25.0	25.0	21.3	18.9	16.7	13.2	10.4	8.1	7.2	6.3
SSS-B-25-50-B	20.7	17.8	13.3	11.5	9.8	7.2	5.0	3.3	2.6	1.9
SSS-B-30-50-B	13.5	11.3	7.7	6.2	4.9	2.8	1.1	NR	NR	NR
SSS-B-25-50-C	25.0	25.0	19.4	17.1	15.1	11.7	9.0	6.9	6.0	5.1
SSS-B-30-50-C	20.1	17.3	12.7	10.9	9.3	6.6	4.5	2.8	2.1	1.4
SSS-B-20-60-B	25.0	25.0	25.0	25.0	25.0	20.2	16.1	12.9	11.5	10.3
SSS-B-25-60-B	25.0	25.0	20.6	18.0	15.6	11.8	8.7	6.2	5.2	4.2
SSS-B-30-60-B	21.4	18.1	12.9	10.7	8.8	5.7	3.3	1.3	NR	NR
SSS-B-35-60-B	14.0	11.3	6.9	5.2	3.6	1.0	NR	NR	NR	NR
SSS-B-40-60-B	8.1	5.8	2.2	nr	NR	NR	NR	NR	NR	NR
SSS-B-30-60-C	24.3	20.5	14.6	12.2	10.2	6.8	4.2	2.2	1.3	0.5
SSS-B-35-60-C	16.6	13.5	8.6	6.6	4.9	2.1	NR	NR	NR	NR
SSS-B-40-60-C	10.6	7.9	3.7	2.1	0.6	NR	NR	NR	NR	NR

Florida Building Code 2017 EPA Load Rating - 3 second gust wind speeds (Use for Florida only)								
Catalog Number	**115**	**120**	**130**	**140**	**150**	**160**	**170**	**180**
SSS-B-10-40-A	25.0	25.0	25.0	25.0	21.4	18.4	15.9	13.9
SSS-B-12-40-A	25.0	25.0	23.6	19.8	16.7	14.2	12.1	10.4
SSS-B-14-40-A	25.0	23.1	19.0	15.7	13.1	10.9	9.1	7.6
SSS-B-16-40-A	20.8	18.7	15.2	12.3	10.1	8.2	6.7	5.4
SSS-B-18-40-A	16.8	15.0	11.9	9.4	7.5	5.9	4.5	3.4
SSS-B-20-40-A	13.6	11.9	9.2	7.1	5.3	3.9	2.7	1.7
SSS-B-25-40-A	7.4	6.2	4.1	2.5	1.1	NR	NR	NR
SSS-B-14-40-B	25.0	23.6	19.4	16.1	13.4	11.2	9.4	7.8
SSS-B-16-40-B	21.4	19.2	15.6	12.7	10.4	8.5	6.9	5.6
SSS-B-18-40-B	17.2	15.4	12.2	9.7	7.7	6.1	4.7	3.6
SSS-B-20-40-B	13.9	12.3	9.5	7.3	5.5	4.1	2.9	1.9
SSS-B-25-40-B	7.7	6.4	4.3	2.6	1.3	NR	NR	NR
SSS-B-30-40-B	3.2	2.1	NR	NR	NR	NR	NR	NR
SSS-B-16-50-B	25.0	25.0	25.0	25.0	25.0	21.4	18.2	15.5
SSS-B-18-50-B	25.0	25.0	25.0	24.4	20.4	17.0	14.2	11.9
SSS-B-20-50-B	25.0	25.0	24.4	19.9	1 6.3	13.4	11.0	8.9
SSS-B-25-50-B	21.8	19.3	15.0	11.5	8.8	6.5	4.7	3.1
SSS-B-30-50-B	13.7	11.7	8.2	5.5	3.3	1.5	NR	NR
SSS-B-25-50-C	21.8	19.3	15.0	11.5	8.8	6.5	4.7	3.1
SSS-B-30-50-C	13.7	11.7	8.2	5.5	3.3	1.5	NR	NR
SSS-B-20-60-B	25.0	25.0	25.0	21.9	17.8	14.5	11.7	9.4
SSS-B-25-60-B	23.8	20.9	16.1	12.3	9.2	6.6	4.5	2.8
SSS-B-30-60-B	14.6	12.3	8.4	5.3	2.8	0.8	NR	NR
SSS-B-35-60-B	7.5	5.6	2.4	NR	NR	NR	NR	NR
SSS-B-40-60-B	1.8	NR	NR	NR	NR	NR	NR	NR
SSS-B-30-60-C	14.6	12.3	8.4	5.3	2.8	0.8	NR	NR
SSS-B-35-60-C	7.5	5.6	2.4	NR	NR	NR	NR	NR
SSS-B-40-60-C	1.8	NR	NR	NR	NR	NR	NR	NR

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NOTES

Wind-speed Website disclaimer:
Hubbell Lighting has no connection to the linked website and makes no representations as to its accuracy. While the information presented on this third-party website provides a useful starting point for analyzing wind conditions, Hubbell Lighting has not verified any of the information on this third party website and assumes no responsibility or liability for its accuracy. The material presented in the windspeed website should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. Hubbell Lighting Inc. does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the windspeed report provided by this website. Users of the information from this third party website assume all liability arising from such use. Use of the output of these referenced websites do not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the windspeed report. http://windspeed.atcouncil.org

NOTES

- Allowable EPA, to determine max pole loading weight, multiply allowable EPA by 30 lbs.
- The tables for allowable pole EPA are based on the ASCE 7-05 Wind Map or the Florida Region Wind Map for the 2010 Florida Building Code. The Wind Maps are intended only as a general guide and cannot be used in conjunction with other maps. Always consult local authorities to determine maximum wind velocities, gusting and unique wind conditions for each specific application
- Allowable pole EPA for jobsite wind conditions must be equal to or greater than the total EPA for fixtures, arms, and accessories to be assembled to the pole. Responsibility lies with the specifier for correct pole selection. Installation of poles without luminaires or attachment of any unauthorized accessories to poles is discouraged and shall void the manufacturer's warranty
- Wind speeds and listed EPAs are for ground mounted installations. Poles mounted on structures (such as bridges and buildings) must consider vibration and coefficient of height factors beyond this general guide; Consult local and federal standards
- Wind Induced Vibration brought on by steady, unidirectional winds and other unpredictable aerodynamic forces are not included in wind velocity ratings. Consult Hubbell Lighting's Pole Vibration Application Guide for environmental risk factors and design considerations. http://www.beaconproducts.com/content/products/literature/literature_files/Pole_Wind_Induced_Flyer_HLOI0022.pdf
- Extreme Wind Events like, Hurricanes, Typhoons, Cyclones, or Tornadoes may expose poles to flying debris, wind shear or other detrimental effects not included in wind velocity ratings

Due to our continued efforts to improve our products, product specifications are subject to change without notice.

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Submitted by Swaney Lighting

Job Name:
LEWISTON FIRE SUBSTATION

Catalog Number:
VP-S/48L-110/4K7/4W/UNV/A/**

Notes:

Type:
A4

SLA19-42480

VIPER S OPTICS STRIKE

SMALL VIPER LUMINAIRE

Cat.#

Job

Type

BEACON design . performance . technology

Approvals

SPECIFICATIONS

Intended Use:

The Beacon Viper luminaire is available with a wide choice of different LED Wattage configurations and optical distributions designed to replace HID lighting up to 400W MH or HPS.

Construction:

- Manufactured with die cast aluminum.
- Coated with a polyester finish that meets ASTM B117 corrosion test requirements and ASTM D522 cracking and loss of adhesion test requirements.
- External hardware is corrosion resistant.
- One piece optical cartridge system consisting of an LED engine, LED lamps, optics, gasket and stainless steel bezel.
- Cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one piece optical system.
- Two-piece silicone and micro-cellular polyurethane foam gasket ensures a weather-proof seal around each individual LED.

Electrical:

- 100V through 277V, 50 Hz to 60 Hz (UNV), or 347V or 480V input.
- Power factor is ≥.90 at full load.
- Dimming drivers are standard, but must contact factory to request wiring leads for purpose of external dimming controls.
- Component-to-component wiring within the luminaire may carry no more than 80% of rated load and is certified by UL for use at 600VAC at 90°C or higher.
- Plug disconnects are certified by UL for use at 600 VAC, 13A or higher. 13A rating applies to primary (AC) side only.
- Fixture electrical compartment shall contain all LED driver components and shall be provided with a push-button terminal block for AC power connections.
- Surge protection - 20kA.
- Optional 7-pin ANSI C136.41-2013 twist-lock photo control receptacle available. Compatible with ANSI C136.41 external wireless control devices.
- Lifeshield™ Circuit - protects luminaire from excessive temperature. The device shall activate at a specific, factory-preset temperature, and progressively reduce power over a finite temperature range. Operation shall be smooth and undetectable to the eye. Thermal circuit is designed to "fail on", allowing the luminaire to revert to full power in the event of an interruption of its power supply, or faulty wiring connection to the drivers. The device shall be able to co-exist with other 0-10V control devices (occupancy sensors, external dimmers, etc.).

Controls/Options:

- Available with an optional passive infrared (PIR) motion sensor capable of detecting motion 360° around the luminaire. When no motion is detected for the specified time, the Motion Response system reduces the wattage to factory preset level, reducing the light level accordingly. When motion is detected by the PIR sensor, the luminaire returns to full wattage and full light output. Please contact Beacon Products if project requirements vary from standard configuration.
- Available with Energeni for optional set dimming, timed dimming with simple delay, or timed dimming based on time of night (see www.beaconproducts.com/products/energeni).
- In addition, Viper can be specified with **SiteSync™** wireless control system for reduction in energy and maintenance costs while optimizing light quality 24/7. For more details, see ordering information or visit: www.hubbelllighting.com/sitesync

Installation:

- Mounting options for horizontal arm, vertical tenon or traditional arm mounting available. Mounting hardware included.

Finish:

- IFS polyester powder-coat electrostatically applied and thermocured. IFS finish consists of a five stage pretreatment regimen with a polymer primer sealer and top coated with a thermoset super TGIC polyester powder coat finish.
- The finish meets the AAMA 2604 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds.

Certifications/Ratings:

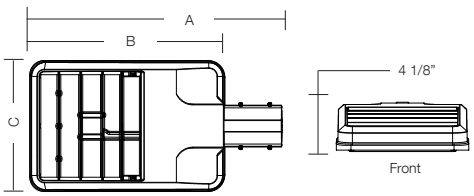
- DesignLights Consortium (DLC) qualified, consult DLC website for more details: http://www.designlights.org/QPL
- Certified to UL 1598, UL 8750 and CSA C22.2 No.250.0
- IDA approved
- This product is approved by the Florida Fish and Wildlife Conservation Commission. Separate spec available at: http://www.beaconproducts.com/products/vipersmall

Warranty:

Five year limited warranty for more information visit: www.hubbelllighting.com/resources/warranty

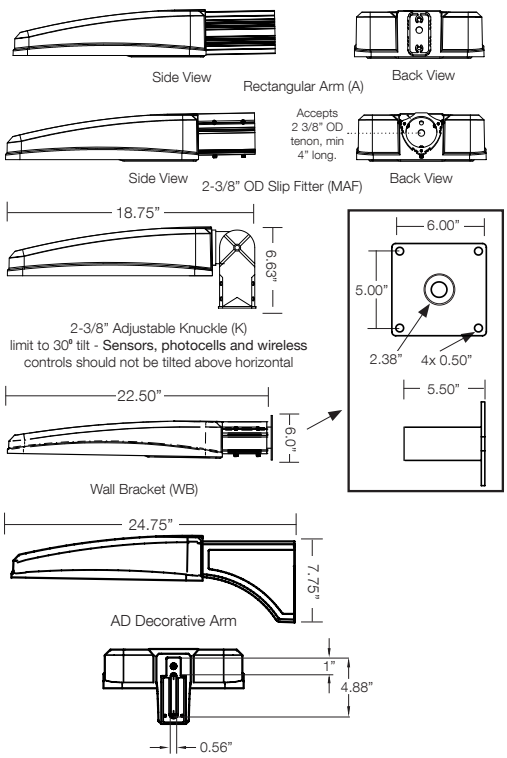
PRODUCT IMAGE(S)

DIMENSIONS



A	B	C	Weight:	EPA
21.75" (552 mm)	16.75" (425 mm)	11.25" (286 mm)	15.0 lbs (6.8 kg)	.67 ft²

MOUNTING OPTIONS



CERTIFICATIONS/LISTINGS

C US

*3000K and warmer CCTs only

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HUBBELL Lighting

ORDERING INFORMATION

ORDERING EXAMPLE: VPS/24L-55/4K7/4W/UNV/A/DBT/7PR-TL/GENI-04/BC

VPS

SERIES

- **VPS** Viper

LED ENGINE

- **24L-55** 55W, LED array
- **36L-65** 65W, LED array
- **36L-80** 80W, LED array
- **48L-110** 110W, LED array
- **60L-136** 136W, LED array

CCT/CRI[7]

- **3K7** 3000K, 70 CRI
- **4K7** 4000K, 70 CRI
- **5K7** 5000K, 70 CRI

DISTRIBUTION

- **FR** Type 1/Front Row
- **2** Type 2
- **3** Type 3
- **4** Type 4
- **4W** Type 4 Wide
- **5QM** Type 5QM
- **5R** Type 5R (rectangular)
- **5W** Type 5W (round wide)
- **TC** Tennis Court

ROTATION

- Leave blank for no rotation
- **L[5]** Optic rotation left
- **R[5]** Optic rotation right

VOLTAGE

- **UNV** 120-277V
- **120** 120V
- **208** 208V
- **240** 240V
- **277** 277V
- **347** 347V
- **480** 480V

COLOR

- **BL** Black Textured
- **DB** Dark Bronze Textured
- **GYS** Light Gray Smooth
- **PS** Platinum Silver Smooth
- **WH** White Textured
- **CC** Custom Color
- ** Specify standard finish

OPTIONS

- **F** Fusing
- **BSP** Bird Spikes
- **BC** Backsheidld (available for FR, 2, 3, 4, 4W Optics)

MOUNTING

- **A** Rectangular Arm (formerly RA) for square or round pole
- **MAF** Mast Arm Fitter (formerly SF2) for 2-3/8" OD horizontal arm
- **K** Knuckle (formerly PK2) limit to 45° tilt or 2-3/8" OD horizontal arm or vertical tenon
- **WB** Wall Bracket
- **AD** Universal Arm for square pole
- **AD3** Universal Arm for 2.4"-4.1" round pole
- **AD4** Universal Arm for 4.2" -5.3" round pole
- **AD5** Universal Arm for 5.5" -5.9" round pole
- **AD6** Universal Arm for 6.0"-6.5" round pole

CONTROL OPTIONS

- **7PR** 7-Pin Receptacle only (shorting cap, photo control, or wireless control provided by others)
- **7PR-SC** 7-Pin Receptacle w/Shorting Cap
- **7PR-TL** 7-Pin Receptacle w/Twist Lock photo control
- **SCP/_F[1,2,6]** Programmable Occupancy Sensor w/ daylight control
- **GENI-XX[3]** ENERGENI
- **SWP[1,4]** SiteSync Pre-Commission
- **SWPM[1,2,4]** SiteSync Pre-Comm w/ Sensor

HOUSE SIDE SHIELD ACCESSORIES

- **HSS/VP-S/90-FB/XXX** 90° shield front or back
- **HSS/VP-S/90-LR/XXX** 90° shield left or right
- **HSS/VP-S/270-FB/XXX** 270° shield front or back
- **HSS/VP-S/270-LR/XXX** 270° shield left or right
- **HSS/VP-S/360/XXX** Full shield

(Replace XXX with notation for desired finish color)
(Refer to page 5 for shield images)

MOUNTING ACCESSORIES

- **VPL-AD-RPA3** 2.4"-4.1" Round Pole Adapter for AD arm
- **VPL-AD-RPA4** 4.2"-5.3" Round Pole Adapter for AD arm
- **VPL-AD-RPA5** 5.5"-5.9" Round Pole Adapter for AD arm
- **VPL-AD-RPA6** 6.0"-6.5" Round Pole Adapter for AD arm

[1] Not available with other wireless control or sensor options
[2] Specify mounting height; 8=8' or less, 40=9' to 40'
[3] Specify routine setting code (example GENI-04). See ENERGENI brochure and instructions for setting table and options. Not available with sensor or SiteSync options.
[4] Specify group and zone at time of order. See www.hubbelllighting.com/sitesync for further details. Order at least one SiteSync interface Accessory SWUSB or SWTAB. Each option contains SiteSync License, GUI, and Bridge Node
[5] Only available with 1A, 2, 3, 4, 4W and 5R distributions
[6] Order at least one SCP-REMOTE per project location to program and control the occupancy sensor
[7] This product is approved by the Florida Fish and Wildlife Conservation Commission. Separate spec available at: http://cdn.beaconproducts.com/content/products/specs/specs_files/Viper_Small_LED_turtle_spec_sheet.pdf

PRECOMMISSIONED SITESYNC ORDERING INFORMATION: When ordering a fixture with the SiteSync lighting control option, additional information will be required to complete the order. The SiteSync Commissioning Form or alternate schedule information must be completed. This form includes Project location, Group information, and Operating schedules. For more detailed information please visit www.hubbell-automation.com/products/sitesync/ or contact Hubbell Lighting tech support at (800) 345-4928.

SiteSync fixtures with Motion control (SWPM) require the mounting height of the fixture for selection of the lens.

Examples: VPS/24L-55/4K7/3/UNV/A/DBT/SWP/ — SiteSync only
VPS/24L-55/4K7/3/UNV/A/DBT/SWPM-40F/ — SiteSync with Motion Control

Accessories and Services (Ordered Separately)

Catalog Number	Description
SWUSB*	SiteSync interface software loaded on USB flash drive for use with owner supplied PC (Windows based only). Includes SiteSync license, software and USB radio bridge node
SWTAB*	Windows tablet and SiteSync interface software. Includes tablet with preloaded software, SiteSync license and USB radio bridge node.
SWBRG	SiteSync USB radio bridge node only. Order if a replacement is required or if an extra bridge node is requested.
SCP-REMOTE	Remote Control for SCP/_F option. Order at least one per project to program and control
SW7PR+	SiteSync 7 Pin on fixture module On/Off/Dim, Daylight Sensor 120-480VAC

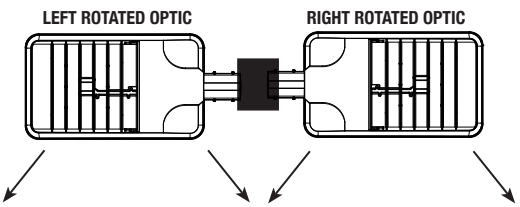
* When ordering SiteSync at least one of these two interface options must be ordered per project.
+ Available as a SiteSync retrofit solution for fixtures with an existing 7pin receptacle.

Hubbell Control Solutions - Accessories (sold separately)

Catalog Number	Description	HCS System
NXOFM-1R1D-UNV	On-fixture Module (7-pin), On / Off / Dim, Daylight Sensor with HubbNET Radio and Bluetooth® Radio, 120-480VAC	NX Distributed Intelligence™
WIR-RME-L	On-fixture Module (7-pin or 5-pin), On / Off / Dim, Daylight Sensor with wiSCAPE Radio, 110-480VAC	wiSCAPE® Lighting Control

For additional information related to these accessories please visit www.hubbellcontrolsolutions.com. Options provided for use with integrated sensor, please view specification sheet ordering information table for details.

LEFT ROTATED OPTIC



RIGHT ROTATED OPTIC

SiteSync 7-Pin Module

SW7PR

- SiteSync features in a new form
- Available as an accessory for new construction or retrofit applications (with existing 7-Pin receptacle)
- Does no interface with occupancy sensors

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PERFORMANCE DATA

				5K (5000K nominal, 70 CRI)					4K (4000K nominal, 70 CRI)					3K (3000K nominal, 70 CRI)				
# LED'S	DRIVE CURRENT (MILLIAMPS)	SYSTEM WATTS	DISTRIBUTION TYPE	LUMENS	LPW[1]	B	U	G	LUMENS	LPW[1]	B	U	G	LUMENS	LPW[1]	B	U	G
24	700 mA	55W	FR	6357	118	1	0	1	6486	120	1	0	1	5804	107	1	0	1
			2	6132	114	1	0	1	6257	116	1	0	2	5599	104	1	0	1
			3	6015	111	1	0	2	6137	114	1	0	2	5492	102	1	0	2
			4	5921	110	1	0	2	6034	112	1	0	2	5400	100	1	0	2
			4W	5793	108	1	0	2	5909	110	1	0	2	5272	98	1	0	2
			5QM	6022	112	2	0	1	6145	114	2	0	1	5499	102	2	0	1
			5R	6063	112	3	0	3	6187	115	3	0	3	5536	103	3	0	3
			5W	5908	109	3	0	1	6028	112	3	0	1	5908	102	3	0	1
			TC	6183	113	1	0	1	6309	118	1	0	1	5645	105	1	0	1
36	560 mA	65W	FR	7864	121	1	0	1	8041	124	1	0	1	7189	111	1	0	1
			2	7586	117	1	0	2	7757	119	1	0	2	6934	107	1	0	2
			3	7441	114	1	0	2	7609	117	1	0	2	6802	105	1	0	2
			4	7317	110	1	0	2	7482	112	1	0	2	6688	100	1	0	2
			4W	8690	108	1	0	2	8864	110	1	0	2	7908	98	1	0	2
			5QM	7450	115	3	0	1	7618	117	3	0	1	6810	105	3	0	1
			5R	7501	115	3	0	3	7670	118	3	0	3	6857	105	3	0	3
			5W	7309	112	3	0	2	7473	115	3	0	2	6681	103	3	0	1
36	700 mA	80W	FR	9535	118	1	0	1	9730	120	1	0	1	8706	107	1	0	1
			2	9197	114	1	0	2	9385	116	1	0	2	8398	104	1	0	2
			3	9022	111	1	0	2	9206	114	1	0	2	8238	102	1	0	2
			4	8871	110	1	0	2	9052	112	1	0	2	8100	100	1	0	2
			4W	11587	108	1	0	3	11819	110	1	0	3	10544	98	1	0	3
			5QM	9033	112	3	0	1	9217	114	3	0	1	8248	102	3	0	1
			5R	9095	112	3	0	3	9280	115	3	0	3	8304	103	3	0	3
			5W	8861	109	3	0	2	9043	112	3	0	2	8092	100	3	0	2
			TC	9275	115	1	0	1	9464	118	1	0	1	8468	105	1	0	1
48	700 mA	110W	FR	12713	118	1	0	1	12973	120	2	0	1	11608	107	1	0	1
			2	12263	114	2	0	2	12513	116	2	0	2	11197	104	2	0	2
			3	12029	111	2	0	2	11275	114	2	0	2	10984	102	1	0	2
			4	11828	110	1	0	3	12069	112	1	0	3	10800	100	1	0	2
			4W	14484	108	2	0	4	14774	111	2	0	4	13180	98	2	0	3
			5QM	12044	112	3	0	2	12290	114	3	0	2	10997	102	3	0	1
			5R	12126	112	3	0	3	12374	115	3	0	3	11072	103	3	0	3
			5W	12126	109	4	0	2	12057	112	4	0	2	10789	100	4	0	2
			TC	12366	115	1	0	2	12619	118	1	0	2	11290	105	1	0	2
60	700 mA	136W	FR	15891	117	2	0	2	16216	120	2	0	2	14511	107	2	0	1
			2	15329	113	2	0	2	15642	116	2	0	2	13997	103	2	0	2
			3	15037	111	2	0	3	15344	113	2	0	3	13730	101	2	0	3
			4	14784	109	1	0	3	15086	111	1	0	3	13500	100	1	0	3
			4W	14802	109	2	0	3	15104	112	2	0	3	13515	100	2	0	3
			5QM	15055	111	3	0	2	15362	114	3	0	2	13747	102	3	0	2
			5R	15158	112	4	0	4	15469	114	4	0	4	13841	102	4	0	4
			5W	14781	109	4	0	2	15083	111	4	0	2	13495	100	4	0	2
			TC	15458	115	1	0	2	15834	118	1	0	2	14113	105	1	0	2

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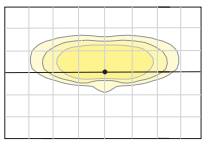
PHOTOMETRICS

Type FR - Front Row/Auto Optic



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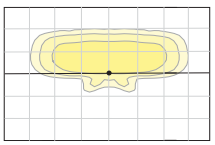

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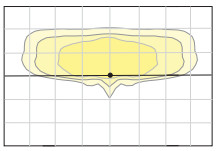

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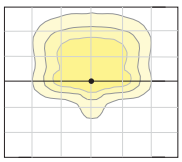
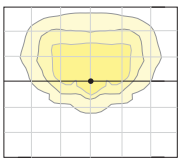


Type 4W



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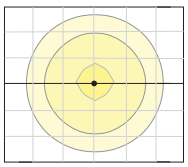
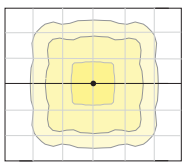
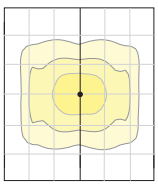


Type 5QM



Type 5R



[1]Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-use environment and application.

ELECTRICAL DATA

# OF LEDS	NUMBER OF DRIVERS	DRIVE CURRENT (mA)	INPUT VOLTAGE (V)	SYSTEM POWER (w)	CURRENT (Amps)
24	2	700 mA	120	55	0.5
			277		0.2
			347		0.2
			480		0.1
36	1	560 mA	120	65	0.65
			277		0.28
			347		0.22
			480		0.16
		700 mA	120	80	0.7
			277		0.3
			347		0.2
			480		0.2
48	1	700 mA	120	110	0.9
			277		0.4
			347		0.3
			480		0.2
60	1	700 mA	120	136	1.1
			277		0.5
			347		0.4
			480		0.3

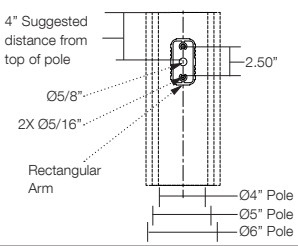
PROJECTED LUMEN MAINTENANCE

AMBIENT TEMP.	0	25,000	50,000	[1]TM-21-11 60,000	100,000	Calculated L70 (HOURS)
25°C / 77°C	1.00	0.97	0.95	0.95	0.92	>377,000

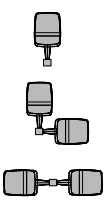
[1] Projected per IESNA TM-21-11
Data references the extrapolated performance projections for the base model in a 25°C ambient, based on 10,000 hours of LED testing per IESNA LM-80-08.

DRILL PATTERN

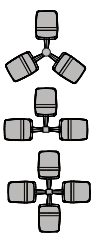
RECTANGULAR ARM (A)
Compatible with Pole drill pattern B3



EPA



Config.	EPA
1	.67
2 @ 90°	1.06
2 @ 180°	1.34



Config.	EPA
3 @ 120°	1.68
3 @ 90°	1.73
4 @ 90°	2.12

TENON TOP POLE BRACKET ACCESSORIES (Order Separately)

(2 3/8" OD tenon)

Catalog Number	Description
SETAVP-XX	Square tenon adapter (4 at 90º) for A - Rectangular Arm mounting option only
RETAVP-XX	Round tenon adapter (4 at 90º) for A - Rectangular Arm mounting option only
TETAVP-XX	Hexagonal tenon adapter (4 at 90º) for A - Rectangular Arm mounting option only
SETA2XX	Square tenon adapter (4 at 90º) for AD - Universal Arm mounting option only
RETA2XX	Round tenon adapter (4 at 90º) for AD3 - Universal Arm mounting option only
TETA2XX	Hexagonal tenon adapter (3 at 120º) for AD - Universal Arm mounting option only

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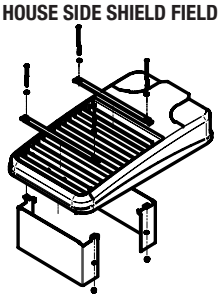
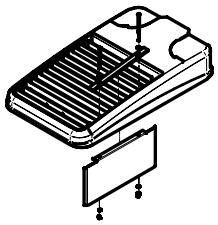
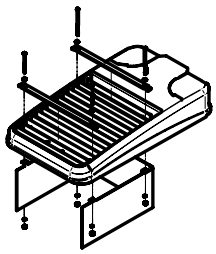
HOUSE SIDE SHIELD FIELD INSTALL ACCESSORIES



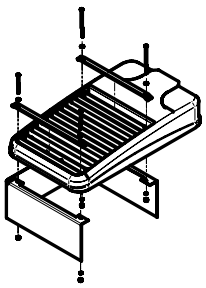
HSS/VP-S/90-FB/XXX
90° shield front or back
(2 shields shown)



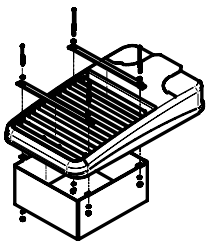
HSS/VP-S/90-LR/XXX
90° shield left or right
(1 shield shown in left orientation)



HSS/VP-S/270-FB/XXX
270° shield front or back
(1 shield shown in back orientation)

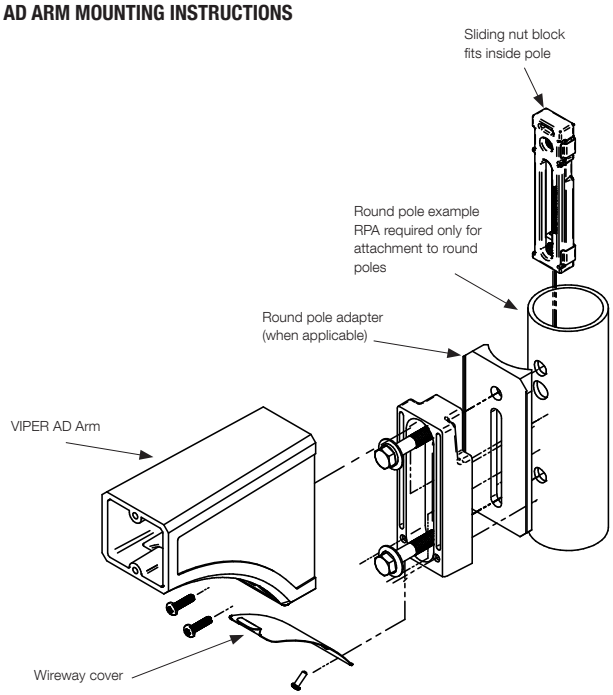


HSS/VP-S/270-LR/XXX
270° shield left or right
(1 shield shown in right orientation)

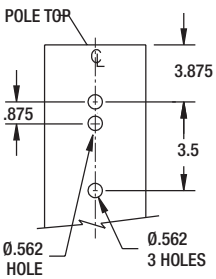


HSS/VP-S/360/XXX
Full shield (1 shield shown)

AD ARM MOUNTING INSTRUCTIONS



DECORATIVE ARM (AD)
Compatible with pole drill pattern S2



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Submitted by Swaney Lighting			
	Job Name: LEWISTON FIRE SUBSTATION	**Catalog Number:** VP-S/48L-110/4K7/4W/UNV/A/** Notes:	**Type:** **A4** SLA19-42480

Submitted by Swaney Lighting

Job Name:
LEWISTON FIRE SUBSTATION

Catalog Number:
SSSB20-40A-1-B3-**

Notes:

Type:
A4P

SLA19-42480

SSS-B SERIES POLES

SQUARE STRAIGHT STEEL

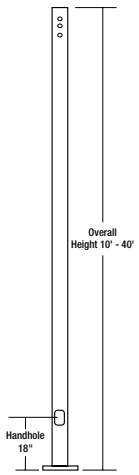
Cat.#

Job

Type

BEACON design . performance . technology

Approvals



APPLICATIONS

- Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location

CONSTRUCTION

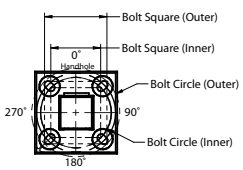
- SHAFT: One-piece straight steel with square cross section, flat sides and minimum 0.238" radius on all corners; Minimum yield of 46,000 psi (ASTM-A500, Grade B); Longitudinal weld seam to appear flush with shaft side wall; Steel base plate with axial bolt circle slots welded flush to pole shaft having minimum yield of 36,000 psi (ASTM A36)
- BASE COVER: Two-piece square aluminum base cover included standard
- POLE CAP: Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
- HAND HOLE: Rectangular 3x5 steel hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover
- ANCHOR BOLTS: Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling

FINISH

- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint prime applied over "white metal" steel substrate cleaned via mechanical shot blast method
- Decorative finish coat available in seven standard colors; Custom colors available; RAL number preferable; Internal protective coating available

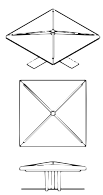
WAREHOUSE 'STOCKED' POLES:

- SSSH20-40A-4-HV-DB-RDC, SSSH25-40A-4-HV-DB-RDC and SSSH30-50B-4-HV-DB-RDC
- The HV designation in the above catalog numbers is a combination drill pattern of the Hubbell Outdoor S2 pattern and the Beacon B3/B4 Viper pattern (rectangular arm mounting)

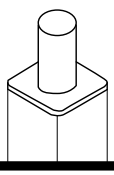


TOP VIEW

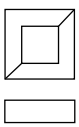
POLE CAP



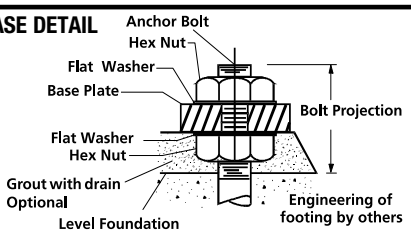
TENON



BASE COVER



BASE DETAIL



ORDERING INFORMATION

ORDERING EXAMPLE:

Reference page 2 for available configurations

SSS - B - 25 - 40 - A/B/C - 2L - B3 - BBT - UL

SERIES	HEIGHT	SHAFT	THICKNESS
SSS-B Square Straight Steel Pole Beacon	Reference page 2 Ordering matrix	Reference page 2 Ordering matrix	Reference page 2 Ordering matrix
	20'	40	A

MOUNTING

- **1** Single arm mount
- **2** Two fixtures at 180°
- **2L** Two fixtures at 90°
- **3T** Three fixtures at 90°
- **4** Four fixtures at 90°
- **TA** Tenon (2.38" OD x 4" Tall)
- **TB** Tenon (2.88" OD x 4" Tall)
- **TC** Tenon (3.5" OD x 6" Tall)
- **TR**[1] Removable Tenon (2.375 x 4.25)
- **OT** Open Top (includes pole cap)

FINISH

- **BL** Black textured
- **DB** Dark bronze textured
- **GT** Graphite textured
- **GYS** Lt. gray smooth
- **PS** Platinum silver smooth
- **WH** White textured
- **BBT** Basic black textured
- **BZT** Bronze textured
- ** Specify standard finish

DRILL PATTERN

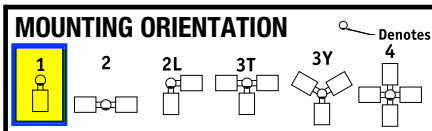
- **B1** Cruzer, "AM" arm
- **B3** 2 bolt (2-1/2" spacing) Viper 'A' arm
- **S2** 2 bolt (3-1/2" spacing) Viper 'AD' arm

OPTIONS

- **HSC** Internal Coating (Hubbell Seal)
- **GFI**[2] 20 Amp GFCI Receptacle and Cover
- **EHH**[2] Extra Handhole
- **C05**[2] .5" Coupling
- **C07**[2] .75" Coupling
- **C20**[2] 2" Coupling
- **MPB**[2] Mid-pole Luminaire Bracket
- **VM2** 2nd mode vibration damper
- **LAB** Less Anchor Bolts
- **UL** UL Certified

MOUNTING ORIENTATION

Denotes handhole location



ACCESSORIES - Order Separately

Catalog Number	Description
VM1[3]	1st mode vibration damper
VM2SXX	2nd mode vibration damper

1 Removable tenon used in conjunction with side arm mounting. First specify desired arm configuration followed by the **"TR"** notation. Example: **SSS-B-25-40-A-1-B1-TR-BBT**
2 Specify option location using logic found on page 2 **(Option Orientation)**
3 VM1 recommended on poles 20' and taller with EPA of less than 1.

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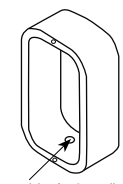
HUBBELL Lighting

ORDERING INFORMATION Cont.

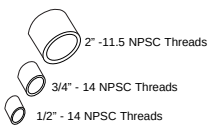
Catalog Number	Height		Nominal Shaft Dimensions	Wall Thickness	Bolt Circle (suggested)	Bolt Circle (range)	Bolt Square (range)	Base Plate Square	Anchor bolt size	Bolt Projection	Pole weight
	Feet	Meters									
SSS-B-10-40-A-XX-XX	10	3.0	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	77
SSS-B-12-40-A-XX-XX	12	3.7	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	90
SSS-B-14-40-A-XX-XX	14	4.3	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	103
SSS-B-16-40-A-XX-XX	16	4.9	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	116
SSS-B-18-40-A-XX-XX	18	5.5	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	129
SSS-B-20-40-A-XX-XX	20	6.1	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	142
SSS-B-25-40-A-XX-XX	25	7.6	4" square	0.125"	9"	8" - 10"	5.66" - 7.07"	9"	3/4" x 30" x 3"	3.5	175
SSS-B-14-40-B-XX-XX	14	4.3	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	152
SSS-B-16-40-B-XX-XX	16	4.9	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	171
SSS-B-18-40-B-XX-XX	18	5.5	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	190
SSS-B-20-40-B-XX-XX	20	6.1	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	209
SSS-B-25-40-B-XX-XX	25	7.6	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	257
SSS-B-30-40-B-XX-XX	30	9.1	4" square	.188"	11"	10" - 12"	7.07" - 8.48"	10.50"	3/4" x 30" x 3"	3.5	304
SSS-B-16-50-B-XX-XX	16	4.9	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	219
SSS-B-18-50-B-XX-XX	18	5.5	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	243
SSS-B-20-50-B-XX-XX	20	6.1	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	267
SSS-B-25-50-B-XX-XX	25	7.6	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	327
SSS-B-30-50-B-XX-XX	30	9.1	5" square	.188"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	387
SSS-B-25-50-C-XX-XX	25	7.6	5" square	.25"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	427
SSS-B-30-50-C-XX-XX	30	9.1	5" square	.25"	11"	10.25" - 13.25"	7.25" - 9.37"	11.50"	1" x 36" x 4"	4.5	507
SSS-B-20-60-B-XX-XX	20	6.1	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	329
SSS-B-25-60-B-XX-XX	25	7.6	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	404
SSS-B-30-60-B-XX-XX	30	9.1	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	479
SSS-B-35-60-B-XX-XX	35	10.7	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	554
SSS-B-40-60-B-XX-XX	40	12.2	6" square	.188"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	629
SSS-B-30-60-C-XX-XX	30	9.1	6" square	.25"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	614
SSS-B-35-60-C-XX-XX	35	10.7	6" square	.25"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	712
SSS-B-40-60-C-XX-XX	40	12.2	6" square	.25"	12"	11.00" - 13.25"	7.81" - 9.37"	12.25"	1-1/4" x 42" x 6"	5.0	809

NOTE Factory supplied template must be used when setting anchor bolts. Beacon Products will deny any claim for incorrect anchorage placement resulting from failure to use factory supplied template and anchor bolts.

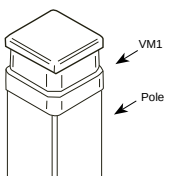
EHH - EXTRA HANDHOLE



C05 - C07 - C20 - COUPLING

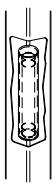


VM1 - VIBRATION DAMPER 1ST MODE



Field Installed Pole Top damper designed to reduce pole top deflection or sway. VM1 is recommended for pole systems 25' and taller with a total EPA of 1.0 or less.

VM2 - VIBRATION DAMPER 2ND MODE



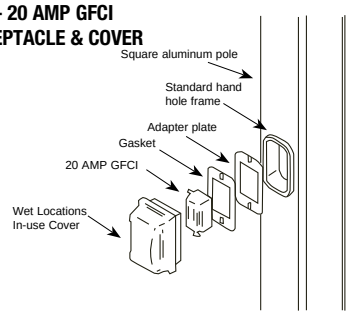
Factory installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

VM2SXX - VIBRATION DAMPER 2ND MODE

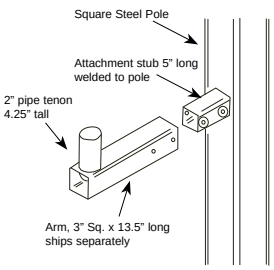
VM2S08 – 8'
VM2S12 – 12'
VM2S16 – 16'
VM2S20 – 20'
VM2S24 – 24'

Field installed, internal damper designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

GFI – 20 AMP GFCI RECEPTACLE & COVER

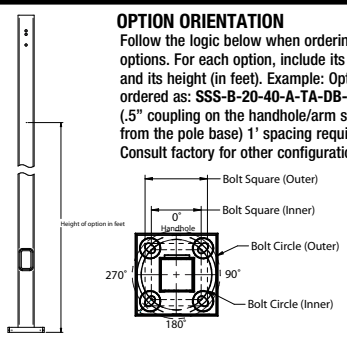


MPB - MID POLE BRACKET



OPTION ORIENTATION

Follow the logic below when ordering location specific options. For each option, include its orientation (in degrees) and its height (in feet). Example: Option C07 should be ordered as: **SSS-B-20-40-A-TA-DB-C05-0-15**
(.5" coupling on the handhole/arm side of pole, 15 feet up from the pole base) 1' spacing required between option.
Consult factory for other configurations.



For more information about pole vibration and vibration dampers, please consult http://www.beaconproducts.com/content/products/literature/literature_files/Pole_Wind_Induced_Flyer_HL0I0022.pdf
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Submitted by Swaney Lighting

Job Name:
LEWISTON FIRE SUBSTATION

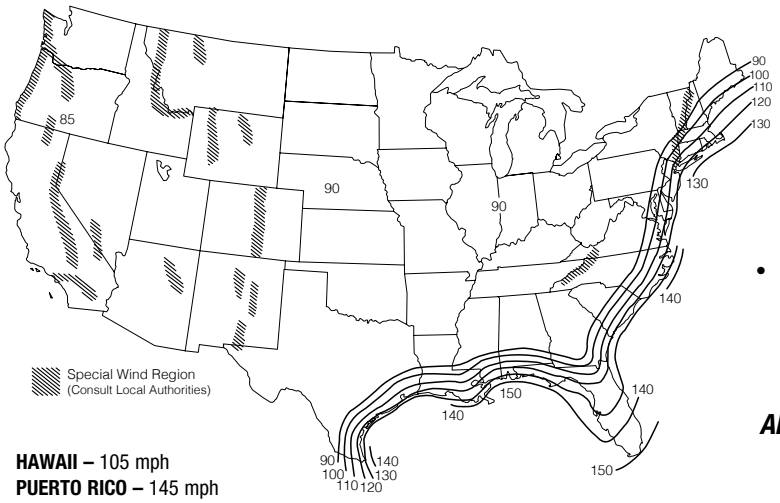
Catalog Number:
SSSB20-40A-1-B3-**

Notes:

Type:
A4P

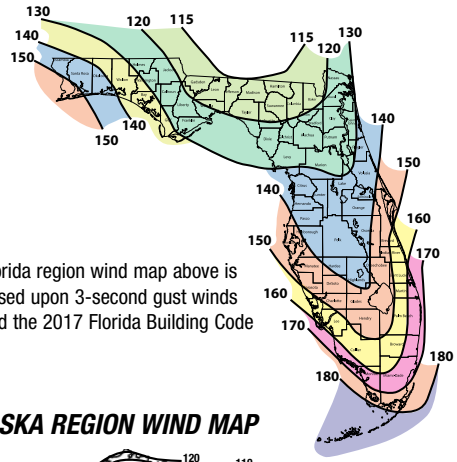
SLA19-42480

ASCE7-05 WIND MAP



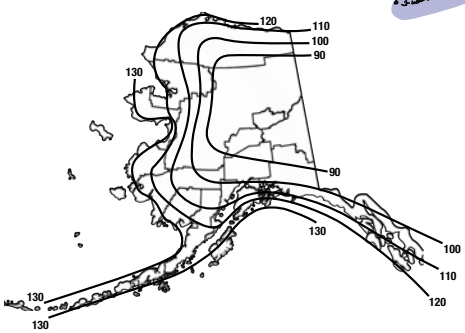
HAWAII – 105 mph
PUERTO RICO – 145 mph

FLORIDA REGION WIND *MAP*



- Florida region wind map above is based upon 3-second gust winds and the 2017 Florida Building Code

ALASKA REGION WIND MAP



ASCE 7-05 wind map EPA Load Rating - 3 second gust wind speeds (Use for all locations except Florida)										
Catalog Number	**85**	**90**	**100**	**105**	**110**	**120**	**130**	**140**	**145**	**150**
SSS-B-10-40-A	25.0	25.0	25.0	22.8	20.6	17.0	14.2	11.9	11.0	10.1
SSS-B-12-40-A	25.0	25.0	20.0	18.0	16.1	13.2	10.8	8.9	8.1	7.4
SSS-B-14-40-A	23.1	20.4	16.1	14.3	12.8	10.2	8.2	6.6	5.9	5.3
SSS-B-16-40-A	19.0	16.7	13.0	11.5	10.1	7.9	6.2	4.7	4.1	3.6
SSS-B-18-40-A	15.6	13.6	10.0	9.0	7.8	5.9	4.4	3.1	2.6	2.1
SSS-B-20-40-A	12.7	10.9	7.9	6.9	5.9	4.2	2.8	1.7	1.3	0.9
SSS-B-25-40-A	7.3	5.9	3.8	2.9	2.1	0.8	NR	NR	NR	NR
SSS-B-14-40-B	25.0	25.0	23.3	20.8	18.6	15.1	12.3	10.2	9.2	8.4
SSS-B-16-40-B	25.0	24.9	19.4	17.3	15.4	12.3	9.9	8.0	7.2	6.4
SSS-B-18-40-B	24.0	20.8	16.1	14.2	12.5	9.8	7.7	6.1	5.3	4.7
SSS-B-20-40-B	20.2	17.5	13.2	11.6	10.1	7.7	5.9	4.4	3.8	3.2
SSS-B-25-40-B	12.8	11.0	7.9	6.7	5.5	3.7	2.3	1.2	0.7	NR
SSS-B-30-40-B	8.0	6.6	4.1	3.1	2.2	0.8	NR	NR	NR	NR
SSS-B-16-50-B	25.0	25.0	25.0	25.0	24.8	20.1	16.5	13.6	12.3	11.2
SSS-B-18-50-B	25.0	25.0	25.0	22.9	20.4	16.4	13.2	10.7	9.6	8.6
SSS-B-20-50-B	25.0	25.0	21.3	18.9	16.7	13.2	10.4	8.1	7.2	6.3
SSS-B-25-50-B	20.7	17.8	13.3	11.5	9.8	7.2	5.0	3.3	2.6	1.9
SSS-B-30-50-B	13.5	11.3	7.7	6.2	4.9	2.8	1.1	NR	NR	NR
SSS-B-25-50-C	25.0	25.0	19.4	17.1	15.1	11.7	9.0	6.9	6.0	5.1
SSS-B-30-50-C	20.1	17.3	12.7	10.9	9.3	6.6	4.5	2.8	2.1	1.4
SSS-B-20-60-B	25.0	25.0	25.0	25.0	25.0	20.2	16.1	12.9	11.5	10.3
SSS-B-25-60-B	25.0	25.0	20.6	18.0	15.6	11.8	8.7	6.2	5.2	4.2
SSS-B-30-60-B	21.4	18.1	12.9	10.7	8.8	5.7	3.3	1.3	NR	NR
SSS-B-35-60-B	14.0	11.3	6.9	5.2	3.6	1.0	NR	NR	NR	NR
SSS-B-40-60-B	8.1	5.8	2.2	nr	NR	NR	NR	NR	NR	NR
SSS-B-30-60-C	24.3	20.5	14.6	12.2	10.2	6.8	4.2	2.2	1.3	0.5
SSS-B-35-60-C	16.6	13.5	8.6	6.6	4.9	2.1	NR	NR	NR	NR
SSS-B-40-60-C	10.6	7.9	3.7	2.1	0.6	NR	NR	NR	NR	NR

Florida Building Code 2017 EPA Load Rating - 3 second gust wind speeds (Use for Florida only)								
Catalog Number	**115**	**120**	**130**	**140**	**150**	**160**	**170**	**180**
SSS-B-10-40-A	25.0	25.0	25.0	25.0	21.4	18.4	15.9	13.9
SSS-B-12-40-A	25.0	25.0	23.6	19.8	16.7	14.2	12.1	10.4
SSS-B-14-40-A	25.0	23.1	19.0	15.7	13.1	10.9	9.1	7.6
SSS-B-16-40-A	20.8	18.7	15.2	12.3	10.1	8.2	6.7	5.4
SSS-B-18-40-A	16.8	15.0	11.9	9.4	7.5	5.9	4.5	3.4
SSS-B-20-40-A	13.6	11.9	9.2	7.1	5.3	3.9	2.7	1.7
SSS-B-25-40-A	7.4	6.2	4.1	2.5	1.1	NR	NR	NR
SSS-B-14-40-B	25.0	23.6	19.4	16.1	13.4	11.2	9.4	7.8
SSS-B-16-40-B	21.4	19.2	15.6	12.7	10.4	8.5	6.9	5.6
SSS-B-18-40-B	17.2	15.4	12.2	9.7	7.7	6.1	4.7	3.6
SSS-B-20-40-B	13.9	12.3	9.5	7.3	5.5	4.1	2.9	1.9
SSS-B-25-40-B	7.7	6.4	4.3	2.6	1.3	NR	NR	NR
SSS-B-30-40-B	3.2	2.1	NR	NR	NR	NR	NR	NR
SSS-B-16-50-B	25.0	25.0	25.0	25.0	25.0	21.4	18.2	15.5
SSS-B-18-50-B	25.0	25.0	25.0	24.4	20.4	17.0	14.2	11.9
SSS-B-20-50-B	25.0	25.0	24.4	19.9	1 6.3	13.4	11.0	8.9
SSS-B-25-50-B	21.8	19.3	15.0	11.5	8.8	6.5	4.7	3.1
SSS-B-30-50-B	13.7	11.7	8.2	5.5	3.3	1.5	NR	NR
SSS-B-25-50-C	21.8	19.3	15.0	11.5	8.8	6.5	4.7	3.1
SSS-B-30-50-C	13.7	11.7	8.2	5.5	3.3	1.5	NR	NR
SSS-B-20-60-B	25.0	25.0	25.0	21.9	17.8	14.5	11.7	9.4
SSS-B-25-60-B	23.8	20.9	16.1	12.3	9.2	6.6	4.5	2.8
SSS-B-30-60-B	14.6	12.3	8.4	5.3	2.8	0.8	NR	NR
SSS-B-35-60-B	7.5	5.6	2.4	NR	NR	NR	NR	NR
SSS-B-40-60-B	1.8	NR	NR	NR	NR	NR	NR	NR
SSS-B-30-60-C	14.6	12.3	8.4	5.3	2.8	0.8	NR	NR
SSS-B-35-60-C	7.5	5.6	2.4	NR	NR	NR	NR	NR
SSS-B-40-60-C	1.8	NR	NR	NR	NR	NR	NR	NR

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NOTES

Wind-speed Website disclaimer:
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NOTES

- Allowable EPA, to determine max pole loading weight, multiply allowable EPA by 30 lbs.
- The tables for allowable pole EPA are based on the ASCE 7-05 Wind Map or the Florida Region Wind Map for the 2010 Florida Building Code. The Wind Maps are intended only as a general guide and cannot be used in conjunction with other maps. Always consult local authorities to determine maximum wind velocities, gusting and unique wind conditions for each specific application
- Allowable pole EPA for jobsite wind conditions must be equal to or greater than the total EPA for fixtures, arms, and accessories to be assembled to the pole. Responsibility lies with the specifier for correct pole selection. Installation of poles without luminaires or attachment of any unauthorized accessories to poles is discouraged and shall void the manufacturer's warranty
- Wind speeds and listed EPAs are for ground mounted installations. Poles mounted on structures (such as bridges and buildings) must consider vibration and coefficient of height factors beyond this general guide; Consult local and federal standards
- Wind Induced Vibration brought on by steady, unidirectional winds and other unpredictable aerodynamic forces are not included in wind velocity ratings. Consult Hubbell Lighting's Pole Vibration Application Guide for environmental risk factors and design considerations. http://www.beaconproducts.com/content/products/literature/literature_files/Pole_Wind_Induced_Flyer_HLOI0022.pdf
- Extreme Wind Events like, Hurricanes, Typhoons, Cyclones, or Tornadoes may expose poles to flying debris, wind shear or other detrimental effects not included in wind velocity ratings

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HUBBELL Lighting

Submitted by Swaney Lighting

Job Name:
LEWISTON FIRE SUBSTATION

Catalog Number:
LNC-9LU-4K-4-*

Notes:

Type:
I

SLA19-42480

LNC SERIES

Cat.#

Job

Type

HUBBELL Outdoor Lighting

Approvals

SPECIFICATIONS

Intended Use:
The compact LED LNC is designed for entry/perimeter illumination for safety, security and identity. Typical mounting height is up to 12 feet with 40ft fixture spacing (without acrylic diffuser) and 30ft spacing with acrylic diffuser installed. Photocontrol option is available to provide dusk-to-dawn control for additional energy savings.

Construction:
Decorative die-cast aluminum housing and door. Rugged design protects internal components and provides excellent thermal management for long life – 60,000 hours minimum LED life at L96 rating per IESNA TM-21-11. Powder paint finishes provide lasting appearance in outdoor environments.

Optics/Electrical
LED:
Drivers are 120-277V, 50/60Hz Type II, III and Type IV lenses provide wide lateral spread.
0-10V dimming 120-277V only.

- LNC5L – 5 LEDs, Types II, III or IV available, see page 2 for electrical details
- LNC7L – 7 LEDs, Type II, III or IV available, see page 2 for electrical details
- LNC9L – 9 LEDs, Types II, III or IV available, see page 2 for electrical details
- 3000K - 80 CRI, 4000K - 70 CRI, and 5000K - 70 CRI, CCT nominal
- Minimum operating temperature is -40˚C/-40˚F
- Drivers have greater than .90 power factor and less than 20% Total Harmonic Distortion

Lenses:
Full cut-off distribution; Ambient diffuser included, use for applications near enterances or locations where reduced brightness is desired.

Installation:
Quick mount adapter provides quick installation, designed for recessed box 4" square junction box.

Listings:
Listed and labeled to UL 1598 for wet locations, 25˚ C ambient environments. DesignLights Consortium® (DLC) qualified. Please refer to the DLC website for specific product qualifications at: http://www.designlights.org/

- IES Progress Award Winner - 2012

Warranty:
Five year limited warranty. For more information visit: http://www.hubbelloutdoor.com/resources/warranty/

CERTIFICATIONS/LISTINGS

C US

*3000K and warmer CCTs only

PRODUCT IMAGE(S)

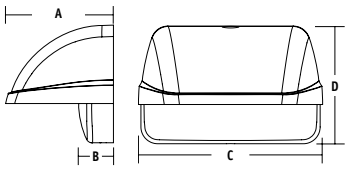
LNC-5L

LNC-7L

LNC-9L

With diffuser

DIMENSIONS



A	B	C	D
4.81"	1.55"	8.22"	5.25"
(122 mm)	(39 mm)	(209 mm)	(133 mm)

SHIPPING INFORMATION

Catalog Number	G.W(kg)/ CTN	Carton Dimensions			Carton Qty. per Master Pack
		Length Inch (cm)	Width Inch (cm)	Height Inch (cm)	
LNC-5LU	9.6 (4.36)	14.5 (37)	9.6 (24.5)	6.8 (17.5)	2
LNC-7LU	9.6 (4.36)	14.5 (37)	9.6 (24.5)	6.8 (17.5)	2
LNC-9LU	9.6 (4.36)	14.5 (37)	9.6 (24.5)	6.8 (17.5)	2

ORDERING INFORMATION

ORDERING EXAMPLE: LNC-9LU-5K-3-1-PCU

LNC - [ ] [ ] - [ ] - [ ] - [ ] - [ ]

SERIES
- **LNC** LNC zero uplight

NUMBER OF LEDS
- **5L** 5 LEDs
- **7L** 7 LEDs
- **9L** 9 LEDs

VOLTAGE
- **U** 120V-277V
- **1** 120V
- **2** 208V
- **3** 240V
- **4** 277V

CCT
- **3K** 3000K nominal, 70 CRI
- **4K** 4000K nominal, 70 CRI
- **5K** 5000K nominal
- **AM**[1] Amber (590 µm available for "Turtle Friendly"/ observatory applications, 350 mA (consult factory)

IES DISTRIBUTION
- **2** Type II
- **3** Type III
- **4** Type IV

FINISH
- **1** Bronze
- **2** Black
- **3** Gray
- **4** White
- **5** Platinum
- ** Specify standard finish

OPTIONS
- **PCU** Universal Button Photocell

1 Amber LEDs only available on 7LU and 9LU configurations, 350 mA only

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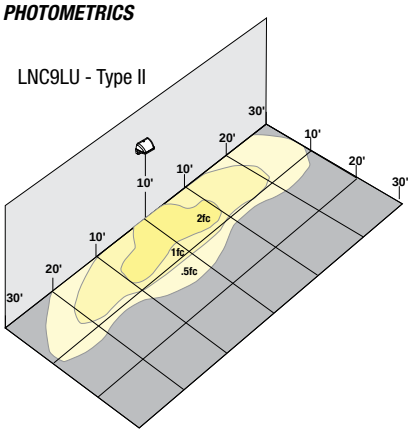
LAREDOLNC-SPEC
AUGUST 30, 2017 4:47 PM

REPLACEMENT PART

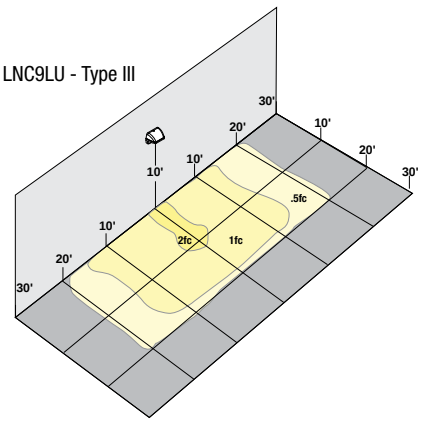
CATALOG NUMBER	DESCRIPTION
93039574	Frosted comfort shield, improved uniformity with only 5% reduction

PHOTOMETRICS

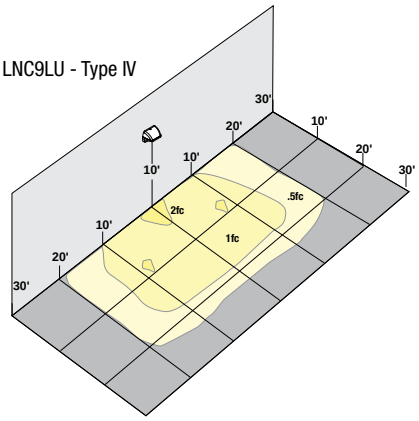
LNC9LU - Type II



LNC9LU - Type III



LNC9LU - Type IV



PERFORMANCE DATA

				5K (5000K nominal, 70 CRI)		4K (4000K nominal, 70 CRI)		3K (3000K nominal, 80 CRI)		AM (<580 nm wave-length)		
# OF LEDS	DRIVE CURRENT	SYSTEM WATTS	DIST. TYPE	LUMENS	LPW[1]	LUMENS	LPW[1]	LUMENS	LPW[1]	LUMENS	SYSTEM WATTS	LPW[1]
5	STD. (700mA) AM (350mA)	13W	2	1,150	88.5	1,052	81	883	68			
			3	1,132	87	1,077	83	833	64			
			4	1,146	88	1,053	81	849	65			
7		17W	2	1,515	89	1,369	80.5	1,272	75			
			3	1,500	88	1,539	90.5	1,392	82	268	6.6	59
			4	1,557	91.5	1,535	90	1,425	84			
9		22W	2	2,069	94	2,033	92	1,588	72			
			3	2,024	92	1,989	90	1,623	74			
			4	2,095	95	2,059	93.5	1,680	76	382	8.3	46

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown. Actual performance may differ as a result of end-user environment and application. Please consult IES files for BUG ratings.

PROJECTED LUMEN MAINTENANCE

	OPERATING HOURS					
Ambient Temp.	0	25,000	50,000	TM-21-11[1] L96 60,000	100,000	L70 (hours)
25°C / 77°F	1.00	0.98	0.97	0.96	0.95	>791,000
40°C / 104°F	0.99	0.98	0.96	0.96	0.94	>635,000

1. Projected per IESNA TM-21-11 * (Nichia 219B, 700mA, 85°C Ts, 10,000hrs)
Data references the extrapolated performance projections for the LNC-12LU-5K base model in a 40°C ambient, based on 10,000 hours of LED testing per IESNA LM-80-08.

LUMINAIRE AMBIENT TEMPERATURE FACTOR (LATF)

AMBIENT TEMPERATURE		LUMEN MULTIPLIER
0° C	32° F	1.02
10° C	50° F	1.01
20° C	68° F	1.00
25° C	77° F	1.00
30° C	86° F	1.00
40° C	104° F	0.99
50° C	122° F	0.98

Use these factors to determine relative lumen output for average ambient temperatures from 0-50°C (32-122°F).

ELECTRICAL DATA

# OF LEDS	DRIVE CURRENT (mA)	DRIVE CURRENT (mA)	INPUT VOLTAGE (V)	CURRENT (Amps)	SYSTEM POWER (w)
5	1	STD. (700mA)	120	0.11	13
			277	0.05	13
7	1	STD. (700mA)	120	0.14	17
			277	0.07	17
9	1	STD. (700mA)	120	0.17	22
			277	0.09	22

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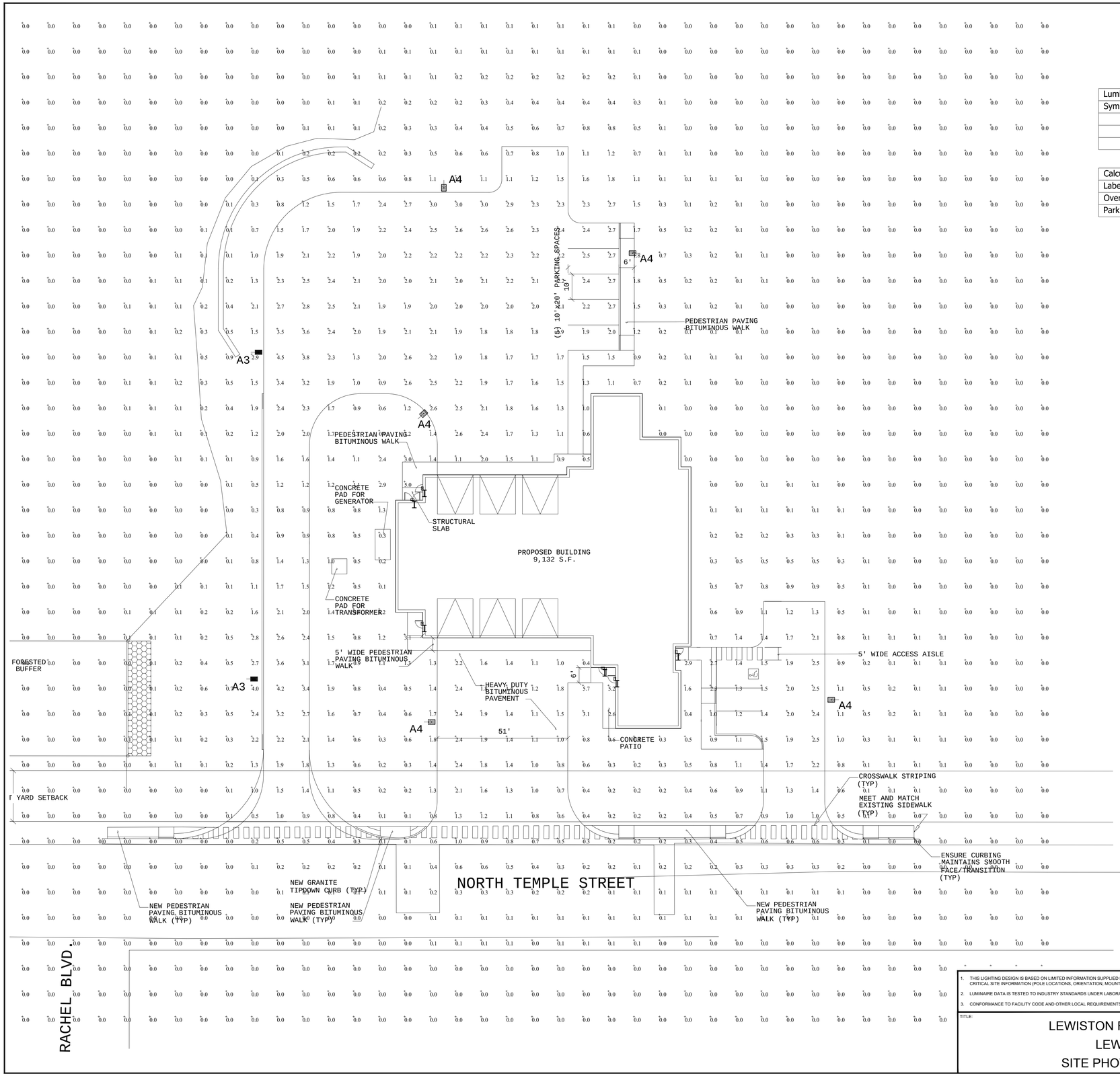


Luminaire Schedule							
Symbol	Qty	Label	Mounting Height	LLF	Lum. Lumens	Lum. Watts	Description
	2	A3	20' - 0" AFG	0.850	12275	108	VP-S-48L-110-4K7-3
	5	A4	20' - 0" AFG	0.850	11841	110	VP-S-48L-110-4K7-4W
	6	I	20' - 0" AFG	0.850	2059	22.2	LNC-9LU-4K-4

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Overall Area	Illuminance	Fc	0.41	5.7	0.0	N.A.	N.A.
Parking Area	Illuminance	Fc	1.89	4.5	0.5	3.78	9.00

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 - FT.

1. THIS LIGHTING DESIGN IS BASED ON LIMITED INFORMATION SUPPLIED BY OTHERS TO HUBBELL LIGHTING. SITE DETAILS PROVIDED HEREON ARE REPRODUCED ONLY AS A VISUALIZATION AID. FIELD DEVIATIONS MAY SIGNIFICANTLY AFFECT PREDICTED PERFORMANCE. PRIOR TO INSTALLATION, CRITICAL SITE INFORMATION (POLE LOCATIONS, ORIENTATION, MOUNTING HEIGHT, ETC.) SHOULD BE COORDINATED WITH THE CONTRACTOR AND/OR SPECIFIER RESPONSIBLE FOR THE PROJECT.
2. LUMINAIRE DATA IS TESTED TO INDUSTRY STANDARDS UNDER LABORATORY CONDITIONS. OPERATING VOLTAGE AND NORMAL MANUFACTURING TOLERANCES OF LAMP, BALLAST, AND LUMINAIRE MAY AFFECT FIELD RESULTS.
3. CONFORMANCE TO FACILITY CODE AND OTHER LOCAL REQUIREMENTS IS THE RESPONSIBILITY OF THE OWNER AND/OR THE OWNER'S REPRESENTATIVE.

TITLE:

LEWISTON FIRE SUB-STATION
LEWISTON, ME
SITE PHOTOMETRIC PLAN

REVISED FROM DRAWING NUMBER(S):

HUBBELL®
Hubbell Lighting, Inc.
701 MILLENNIUM BLVD.
GREENVILLE, SC 29607

DN BY:	DATE:	CHK BY:
DHK	06/18/19	N/A
REV. BY:	DATE:	SCALE: AS NOTED
QUOTE: N/A		DRAWING / DESIGN NO.: 1924419

Section 8

Traffic

SEBAGO TECHNICS

CIVIL ENGINEERING • SURVEYING • LANDSCAPE ARCHITECTURE

Memorandum

STATE OF MAINE
DEREK H. CALDWELL
14400
LICENSED
PROFESSIONAL ENGINEER

06/17/2019

16304

To: **Kendra Ramsell, EI, Sebago Technics**

From: **Derek Caldwell, P.E., PTOE, Sebago Technics**

Date: **June 17, 2019**

Subject: **Traffic Impact Statement**
North Temple Street Fire Sub-Station
Lewiston, Maine

Per your request, we have prepared a traffic impact statement for the subject project. It is our understanding that the City of Lewiston proposes to construct a new fire sub-station at 55 North Temple Street. The development is to consist of an approximately 9,100 square new station building. This station is to replace the existing Sabattus Street Substation.

Based upon the operational nature of a fire sub-station, the facility is not expected to generate a significant number of vehicular trips. Traffic generated by the site will would either be staff arriving and departing the site during shift changes or emergency vehicles responding to and returning from calls. The relatively small amount of traffic generated by this use is not expected to have an adverse impact on the surrounding area roadway network.

Sight Distance Analysis

The site is proposed to have access by way of three new driveways on the western side of North Temple Street. The northernmost driveway is proposed to be 20 feet wide and provide access to the rear of the site for access to the proposed parking area and the rear entry to the station garage bays. The center driveway is proposed to be 51 feet wide and is to provide direct access from the roadway to the garage bays. The southern most driveway is proposed to be 24 feet wide. This driveway would provide access to a small parking area adjacent to the station including an ADA accessible space.

North Temple Street is functionally classified as an urban local roadway under City jurisdiction. The roadway has a posted speed limit of 25 miles per hour. At this posted speed limit, the required sight distance is 200 feet per the *MaineDOT Highway Driveway and Entrance Rules*. Sight distance was measured at the proposed sight driveways on June 17, 2019. At the northern site driveway sight distance was measured to be over 300 feet looking to the right and 275 feet looking to the left. The sight distance looking left was ultimately limited by the crest vertical curve in the area of the site. At the center and southern driveway locations, sight distance was found to be over 300 feet both looking left and right. It would also be recommended to trim all vegetation which currently encroaches on or over the existing sidewalk to a height of at least six feet in order to ensure unobstructed sight lines.

Looking Right from Northern Drive

Looking Left from Northern Drive

75 John Roberts Road – Suite 4A, South Portland, ME 04106-6963 • 207.200.2100 • Fax: 207.856.2206

Looking Right from Southern Drive

Looking Left from Southern Drive

75 John Roberts Road – Suite 4A, South Portland, ME 04106-6963 • 207.200.2100 • Fax: 207.856.2206

Section 9

Wetlands Memo

MEMO

To: Justin Early, P.E., Project Engineer
City of Lewiston

From: Johanna Szillery, Senior Project Scientist
CES, Inc.

RE: Natural Resource Survey and Desktop Review
55 North Temple Street Site | Lewiston, Maine

Date: December 21, 2018

CES, Inc. (CES) completed the following scope of work for the Site, located at 55 North Temple Street in Lewiston, Maine:

- Reviewed publicly available data on known fish and wildlife habitats from the Maine Department of Inland Fisheries and Wildlife (MDIFW) and US Fish and Wildlife Service (USFWS);
- Completed natural resource surveys on November 12 and December 18, 2018, on the approximately 9-acre Site; and
- Completed a plan and memo of our findings.

SITE DESCRIPTION

The Site is located in a mixed residential/commercial area in the eastern part of Lewiston, Maine and consists of a mosaic of open grassy and shrubby fields, with some stands of trees.

CES scientists identified three wetlands on the Site. Wetland 1 is a scrub-shrub/emergent wetland located along the southern boundary of the Site, and is dominated by speckled alder, cattail, and wild raisin. Wetland 2 is an emergent wetland dominated by wool grass, purple loosestrife, and tussock sedge. Wetland 2 is located in the southern portion of the Site.
Wetland 3 is a scrub-scrub emergent wetland located along the northern property boundary, and dominated by speckled alder, cattail, and meadowsweet.

CES identified one stream in the northern portion of the Site. This unnamed perennial stream flows south along the property boundary and joins No Name Brook approximately 1.5 miles southeast of the Site. Additional natural resources, such as potential vernal pools, were not identified on the Site.

Sensible Solutions | www.cesincusa.com
465 South Main Street
PO Box 639
Brewer, Maine 04412
T 207.989.4824
F 207.989.4881

DATABASE REVIEW

State-regulated Significant Wildlife Habitats are not mapped on the Site based on our database review. The nearest Significant Wildlife Habitat is an Inland Wadingbird and Waterfowl Habitat associated with a wetland complex approximately 3,000 feet to the southeast of the Site.

The Site is within range of three federally protected species: Northern long-eared bat, Atlantic salmon and small-whorled Pogonia (a flowering plant). The Site is also within the critical habitat for Atlantic salmon. If federal permits or federal funding of any kind are required for the project, compliance with endangered species regulations may be necessary. For bats, this can include time-of-year restrictions on tree clearing. For Atlantic salmon, if in or near stream work, can trigger project review. In this case, endangered species guidelines include design considerations related to stream passage, if appropriate, as well as construction sequencing to reduce erosion and sedimentation. For small-whorled pogonia, Site and habitat characterization during the growing season (early summer) may be requested to determine the presence or absence of this plant. The Maine Natural Areas Program (MNAP) is the agency that provides guidelines on these surveys.

Our findings are based on a review of available databases, and we recommend formal agency consultation with MDIFW, USFWS and the MNAP to ensure that all potentially regulated resources are identified. Potential vernal pools were not identified on the property.

CONSIDERATIONS AND RECOMMENDATIONS

Resource Regulations:

Wetlands are regulated by the State of Maine under the Natural Resources Protection Act (NRPA) and enforced by Maine Department of Environmental Protection (DEP) according to the Department Rule *Chapter 310, Wetland and Water Bodies Protection Rules*. Wetlands are also regulated by the U.S. Army Corps of Engineers (Army Corps) under *Section 404 of the Clean Water Act*.

Under NRPA, activities in, on, or over any protected natural resource are regulated and may require a permit from DEP. Activities adjacent to certain protected resources are also regulated. State regulations stipulate that alterations must avoid and minimize impacts to natural resources to the greatest extent. The Army Corps regulates fill and dredging in waters of the United States, which include wetlands. Certain wetlands, vernal pools, federally protected species and other significant resources may require additional review under the Army Corps permit process.

If development is proposed for the Site, we recommend consultation with CES to review the potential impacts to protected resources on the Site. Please do not hesitate to contact me at 207-989-4824 for additional information.

City of Lewiston - Natural Resource Map

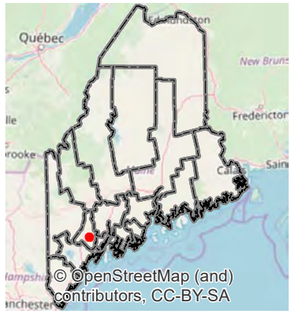
N
W E
S

150 75 0 150
Feet

Legend

- Site Boundary
- Control Points
- Wetland Boundary CES
- Wetland Area CES
- Stream

MAINE



Project Title: City of Lewiston
Project Description:
Natural Resource Map
Address: North Temple Street

Project No.: 10336.057
By: NAI
Date: 12/06/18
Updated: 12/21/2018
By: [jszillery]

MAP NOTES:

1. AERIAL PHOTO BASE MAP FROM IMAGERY IS 1-M 2013 NAIP IMAGERY BY USDA, FSA, TOPOGRAPHIC QUAD FROM ESRI, 2015.

2. WETLANDS SHOWN HEREON WERE DELINEATED IN NOVEMBER 2018. WETLANDS WERE FIELD DELINEATED IN ACCORDANCE WITH U.S. ARMY CORPS OF ENGINEERS STANDARDS BY CES, INC.

3. FEATURES DEPICTED ON THIS PLAN WERE LOCATED USING A MAPPING GRADE SUB-METER CAPABLE GPS/GNSS RECIEVER.

4. MAP IS PROJECTED USING UTM ZONE19 COORDINATES, AND REFERENCES THE NORTH AMERICAN DATUM OF 1983 (NAD83).

5. NORTH ARROW IS ORIENTED TO GRID NORTH IN ALL MAP EXTENTS DEPICTED HEREIN.

CES INC
Engineers • Environmental Scientists • Surveyors

MXD: P:\10336-Lewiston_City_of\057-55 North Temple St-JES\07-GIS_Data\MXD\All Maps\Lewiston.mxd

Section 10

Architectural Elevations

Section 10 Architectural Elevations

Please see this Section and the plan set for the architectural elevation information.

1 EXTERIOR ELEVATION - SOUTH
1/8" = 1'-0"

2 EXTERIOR ELEVATION - WEST
1/8" = 1'-0"

3 EXTERIOR ELEVATION - NORTH
1/8" = 1'-0"

4 EXTERIOR ELEVATION - EAST
1/8" = 1'-0"

context
ARCHITECTURE
68 HARRISON AVENUE BOSTON, MA 02111 TEL 617.423.1400 WEB CONTEXTARC.COM

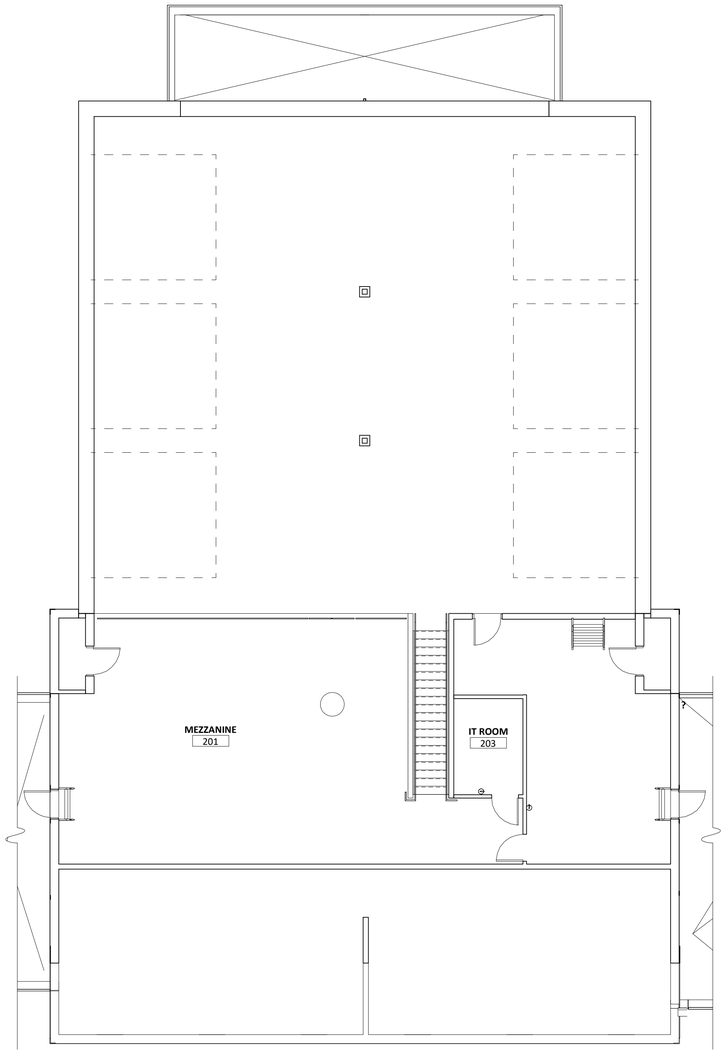
FIRE SUBSTATION
55 NORTH TEMPLE STREET, LEWISTON, ME 04240
project number: 1805

SUBMISSION TO PLANNING BOARD

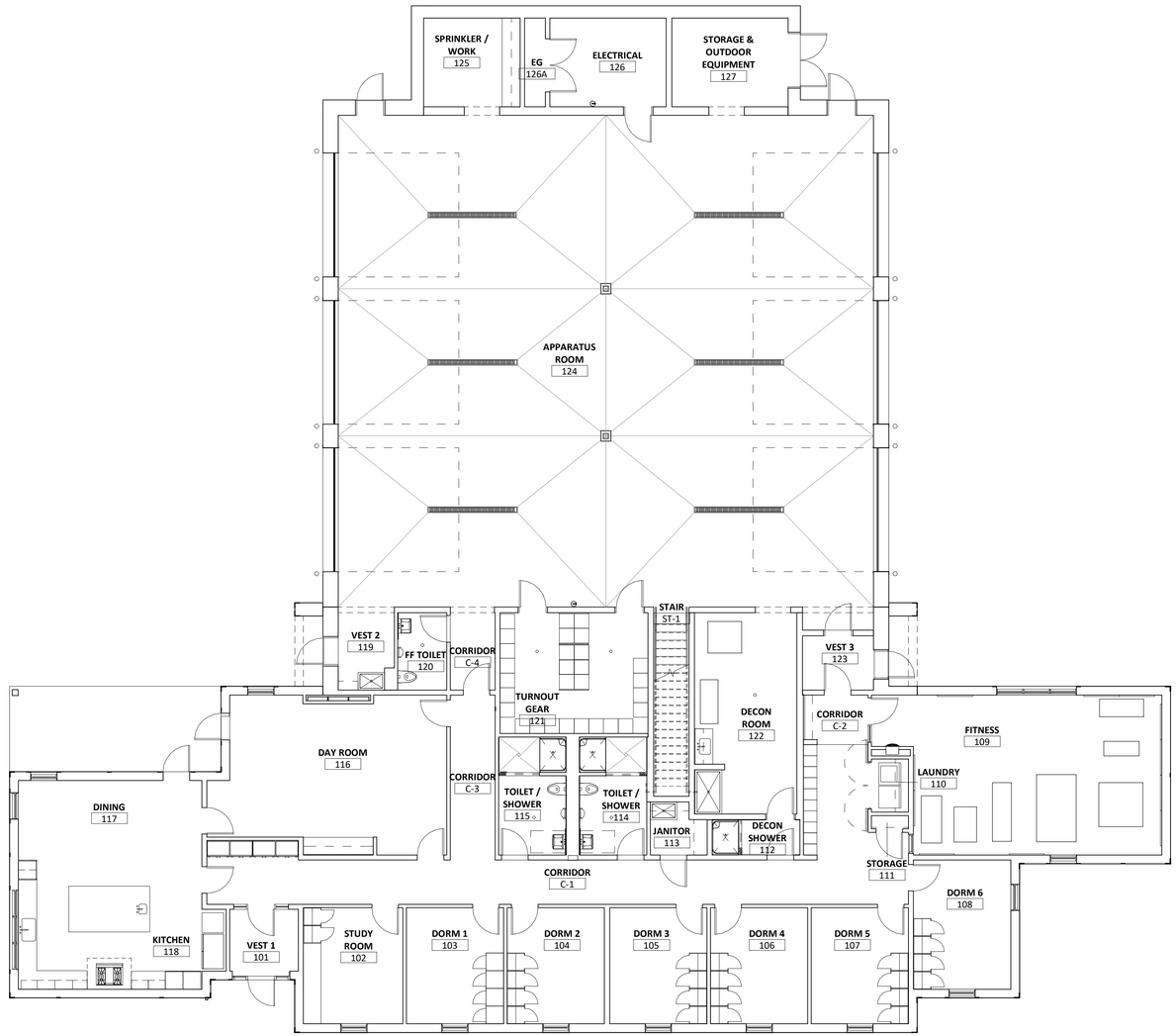
Scale: 1/8" = 1'-0"
Drawn by: Author

No.	Issue	Date
	PLANNING BOARD	07.03.19

ELEVS



2 FLOOR PLAN - MEZZANINE
1/8" = 1'-0"



1 FLOOR PLAN - GROUND FLOOR
1/8" = 1'-0"

context
ARCHITECTURE
68 HARRISON AVENUE BOSTON, MA 02111 TEL 617.423.1400 WEB CONTEXTARC.COM

FIRE SUBSTATION
55 NORTH TEMPLE STREET, LEWISTON, ME 04240
project number: 1805
SUBMISSION TO PLANNING BOARD

Scale: 1/8" = 1'-0"
Drawn by: NG

No.	Issue	Date
	PLANNING BOARD	07.03.19

PLANS

Stormwater Management Report
Lewiston Fire Sub-Station
Lewiston, Maine

A. General

This Stormwater Management Plan has been prepared to address the potential impacts associated with the proposed modification in stormwater runoff characteristics for a new fire sub-station and associated site improvements in Lewiston, Maine. Stormwater management controls that are outlined in this plan have been designed to best suit the proposed project and to comply with applicable state and local regulatory requirements for evaluation of pre- and post-development conditions.

The proposed fire sub-station will be located at 55 North Temple Street in a currently undeveloped area that has been previously disturbed. Site improvements will include an approximate 9,130 square foot building, three paved driveways and parking to serve the proposed facility, bituminous pedestrian walkways, associated utilities, and stormwater best management practices (BMPs) for stormwater detention and treatment. Overall, proposed development will result in 1.16 acres of newly developed area, including 0.78 acres of impervious surface and 0.39 acres of landscaped surface. Landscaped areas consist of vegetated side slopes, shallow swales for stormwater conveyance, lawns, and stormwater BMPs.

A Maine DEP Stormwater Application is not required to be submitted, as the proposed improvements will create fewer than 1 acre of new impervious surface. The project does, however, comply with Maine DEP Chapter 500 General and Basic Standards, per the City of Lewiston Stormwater Standards for Development Review applications. A stormwater detention basin has been designed to attenuate peak rates of runoff to generally satisfy the Maine DEP Flooding Standard, however, peak rates for each storm event slightly exceed pre-development rates. The site is located within the lower half of an approximately 1,000-acre watershed draining to No-Name Brook, and therefore, providing additional detention on site creates an adverse effect upon the overall tributary, as the site's peak runoff rate will closely match the peak runoff rate of the overall watershed. Best Management Practices (BMPs) and piped/open channel systems are designed with the capacity to handle runoff from a 25-year rainfall event. Maine DEP Basic Standards will be satisfied with the implementation of erosion control measures. An Inspection, Maintenance, and Housekeeping Plan has also been provided for use by the contractor/owner during and after construction. Proposed surfaces will be graded to direct stormwater to a detention pond and then one (1) Wooded Buffer down gradient of a Stone-Berm Level Spreader for stormwater treatment.

A Development Review Application will be filed for review and approval by the City of Lewiston's Planning Board.

B. Existing Conditions

The existing site is completely undeveloped and is made up of one lot owned by the City of Lewiston. The lot is located along North Temple Street, which provides connection between Sabattus Street and Old Greene Road. Surrounding lots in this area consist of mostly single-family residences.

The majority of runoff from the site drains to a wetland in the northeast, east, and south borders of the property and enters No-Name Brook. This tributary flows into No-Name Pond, which is where runoff from the subject site ultimately drains to. There is currently no existing development on the site, however there are areas of disturbance consisting of grassy meadows and woodlands.

Topography greatly varies throughout the site with slopes ranging between 1% and 10%. The entire site drains to the wetland area surrounding No-Name Brook in the Rear of the site.

C. Proposed Site Improvements

Proposed site improvements include the construction of the new fire sub-station, associated paved driveways, paved parking, bituminous pedestrian walkways, landscaping features around the site, stormwater BMPs for stormwater treatment, and utility work. The proposed one and a half-story fire sub-station is approximately 9,130 square feet.

Two stormwater BMPs will be constructed for stormwater quality and quantity control. The existing closed drainage system that currently conveys stormwater runoff from North Temple Street and other off-site areas will remain and accommodate other proposed utilities and site features, while maintaining the same outlet points.

One (1) detention basin has been designed to reduce peak rates of runoff from the majority of project improvement areas. The outflow for the detention basin is directed toward one (1) Wooded Buffer, which is down gradient of a Stone-Berm Level Spreader. The detained water will receive treatment from the proposed buffer and this includes treatment of the proposed building roof, all proposed paved areas, bituminous pedestrian walkways, and surrounding landscaped areas consisting of vegetated side slopes, lawn areas, and shallow swales.

Overall, proposed development will result in 1.16 acres of newly developed area, including 0.78 acres of impervious surface and 0.39 acres of landscaped surface.

D. Soils

A Class 'D' Medium Intensity Soil Survey for the site was obtained from the Soil Survey of Androscoggin County Maine, published by the United States Department of Agriculture (USDA) and Natural Resources Conservation Service, latest revision. Soil data was obtained via the Web Soil Survey. The Hydrologic Soil Group (HSG) of the site soils are classified by Technical Release TR-55 of the Soil Conservation Service as follows:

Soil Type	Symbol	Phase	HSG	Drainage Class

Lamoine-Buxton complex	BuB2		D	Moderately Well Drained/Somewhat Poorly Drained
Hartland	HfB	Very Fine Sandy Loam	B	Well Drained
Scantic	ScA	Silt loam	D	Poorly Drained
Walpole	Wa	Fine Sandy Loam	D	Poorly Drained

E. Methodology

In order to evaluate drainage characteristics in the pre- and post-development conditions, a quantitative analysis was performed to determine peak rates of runoff for the 2-, 10-, and 25-year storm events. Runoff calculations were performed following the methodology outlined in the USDA Soil Conservation Service's "Urban Hydrology for Small Watersheds, Technical Release #55" and HydroCAD Stormwater Modeling System Software.

The 24-hour rainfall values in the hydrologic model for Androscoggin County are as follows:

Storm Frequency	24-hr Duration Rainfall (in)
2-yr	3.0
10-yr	4.3
25-yr	5.4

Stormwater infrastructure is sized to adequately handle runoff and minimize onsite flooding during the 25-year storm event.

F. Pre-Development Watershed Model

Drainage models were created using topography and other site features from the existing conditions survey. The pre-development drainage model consists of fifteen (15) subcatchments with stormwater discharge to one (1) study point.

Study Point 1 (SP-1) is located in the southernmost corner of the site and represents the existing wetland surrounding No-Name Brook, which drains to No-Name Pond. Land areas draining to SP-1 consist of woodlands, landscaped area, and impervious surfaces, including a portion of North Temple Street, and a number of single-family residential homes along the northwest section of the street adjacent to the site. All subcatchments modeled drain to SP-1 through various different reaches, as shown on the Pre-Development Watershed Plan.

G. Post-Development Watershed Model

The post-development watershed model consists of thirty-one (31) subcatchments with stormwater discharging to the same study point that was modeled in the pre-development condition. Modeling reflects on-site ground cover changes to include the new fire sub-station, pedestrian sidewalks, the paved driveways and parking lot, and stormwater BMPs for stormwater detention and treatment. Please see Post-Development Watershed Plans and Post-Development HydroCAD model for specific routing of watersheds to SP-1.

H. Stormwater Quality Management (General Standard)

Development of this project generally complies with local and state regulatory stormwater quality management standards for treatment of runoff from developed surfaces. The stormwater management plan evaluates water quality standards for the entire developed footprint.

Water quality treatment will be provided through the use of two BMPs, including one (1) Detention Pond and one (1) Wooded Buffer, which is down gradient of a Stone-Berm Level Spreader. BMPs are designed in conformance with Maine DEP's Technical Design Manual, latest revision.

Wooded buffer areas down gradient of stone-berm level spreaders are designed in general compliance with Section 5.1 and 5.2 of the Maine DEP BMP Volume III. Technical Design Manual. The Wooded Buffer will treat the runoff from all proposed paved areas, bituminous pedestrian paths, a majority of the roof, and surrounding landscaped area. This wooded area will provide means for capturing contaminants from stormwater discharged from the project, therefore further enhancing water quality of runoff before ultimately discharging to No-Name Pond. Deed restrictions for the Wooded Buffer are included in this section of the report as **Attachment C**.

The Maine DEP Chapter 500 General Standard has been satisfied for this project, as greater than 95% of impervious areas and 80% of developed areas are receiving treatment via the wooded buffer. Stormwater management design calculations for stormwater BMP sizing and for General Standard compliance are enclosed as part of **Attachment A**.

I. Stormwater Quantity Management (Flooding Standard)

Existing drainage patterns are not anticipated to be significantly altered with the proposed stormwater management plan. Proposed impervious and landscaped surfaces will be graded to direct runoff toward a closed storm drainage system for conveyance to stormwater BMPs for flooding and quality control before ultimate discharge to the identified study point. The following table summarizes the results of stormwater calculations for the design storm events for the project area.

The HydroCAD model predicts slight increases in peak flow rates during the 2-, 10- and 25-year storm events at the study point, however, The site is located within the lower half of an approximately 1,000-acre watershed draining to No-Name Brook, and therefore, providing additional detention on site creates an adverse effect upon the overall tributary, as the site's peak runoff rate will closely match the peak runoff rate of the overall watershed.

Stormwater Peak Discharge Summary Table						
Study Point	2-Year Storm		10-Year Storm		25-Year Storm	
	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)	Pre (cfs)	Post (cfs)
SP-1	3.08	3.80	7.25	8.24	11.34	12.43

J. Inspection & Maintenance

Provisions for periodic inspection and maintenance of the stormwater BMPs are included in the Inspection, Maintenance, and Housekeeping Plan, which is included in this section of the application as **Attachment B**.

K. Summary

An Erosion and Sedimentation Control Plan has been developed for the project site placing emphasis on the installation of sedimentation barriers and revegetation to minimize erosion potential from development activities during and after construction. The Erosion Control Plan is incorporated into the design plans and includes the locations of the erosion control provisions (i.e., silt fence, construction entrance) along with a narrative and construction details for reference by the contractor during construction. The Erosion Control and Sedimentation Plan calls for permanent or temporary measures to be in place on any disturbed ground resulting from construction by use of riprap, seed, mulch, or other ground cover within one week from the time it was actively worked.

The proposed development will include the construction of stormwater BMPs which will provide treatment and detention of runoff from the majority of new impervious and developed surfaces. The level of water quality treatment provided satisfies the Maine DEP General Standard and therefore, the City of Lewiston's Stormwater Standards. Runoff from the project site will continue to discharge to the same identified study point. Post-development peak flow rates during the 2-, 10-, and 25-year storm events are anticipated to have negligible impact on flow characteristics of drainage ways immediately downstream of the site and further downstream to No-Name Pond.

With incorporation of these measures, no significant impacts to off-site drainage ways are anticipated due to the development of the new fire sub-station and associated improvements.

Prepared by:

SEBAGO TECHNICS, INC.

Kendra Ramsell, E.I.
Civil Engineer

Attachment A

Water Quality Calculations

Table 1: GENERAL STANDARD CALCULATIONS
Lewiston Fire Sub-Station, 55 North Temple Street, Lewiston, Maine
Job # 16304

AREA ID	WATERSHED SIZE (S.F.)	EXISTING ONSITE IMPERVIOUS AREA TO REMAIN (S.F.)	NEW ONSITE IMPERVIOUS AREA (S.F.)	EXISTING ONSITE LANDSCAPED AREA TO REMAIN (S.F.)	NEW ONSITE LANDSCAPED AREA (S.F.)	NET NEW DEVELOPED AREA (S.F.)	NET EXISTING DEVELOPED AREAS (S.F.)	TREATMENT PROVIDED?	NEW IMPERVIOUS AREA TREATED (S.F.)	NEW LANDSCAPED AREA TREATED* (S.F.)	NEW DEVELOPED AREA TREATED (S.F.)	TREATMENT BMP
1.0S	41,276	1,249	0	20,474	351	351	21,723	NO	0	0	0	NONE
1.1S	15,978	0	13,934	0	2,044	15,978	0	YES	13,934	2,044	15,978	WB-1
1.2S	6,819	0	2,798	207	3,812	6,610	207	YES	2,798	3,812	6,610	WB-1
1.3S	4,287	154	2,648	355	1,130	3,778	509	YES	2,648	1,130	3,778	WB-1
1.4S	2,295	0	0	0	2,295	2,295	0	YES	0	2,295	2,295	WB-1
1.5S	8,168	6,266	544	910	448	992	7,176	NO	0	0	0	NONE
1.6S	25,457	0	0	3,996	3,385	3,385	3,996	NO	0	0	0	NONE
1.7S	13,319	0	0	0	1,457	1,457	0	NO	0	0	0	NONE
2.0S	54,753	266	0	15,435	1,031	1,031	15,701	NO	0	0	0	NONE
2.1S	879	0	879	0	0	879	0	YES	879	0	879	WB-1
2.2S	3,921	573	461	2,887	171	632	3,460	YES	461	171	632	WB-1
2.3S	3,199	0	2,679	416	104	2,783	416	YES	2,679	104	2,783	WB-1
2.4S	3,042	1,740	1,302	0	0	1,302	1,740	YES	1,302	0	1,302	WB-1
3.0S	81,679	0	0	65,112	593	593	65,112	NO	0	0	0	NONE
3.1S	2,039	0	2,039	0	0	2,039	0	YES	2,039	0	2,039	WB-1
3.2S	2,045	0	2,045	0	0	2,045	0	YES	2,045	0	2,045	WB-1
3.3S	1,222	0	1,222	0	0	1,222	0	YES	1,222	0	1,222	WB-1
3.4S	756	0	756	0	0	756	0	YES	756	0	756	WB-1
3.5S	3,200	0	2,189	949	62	2,251	949	YES	2,189	62	2,251	WB-1
4.0S	45,065	0	0	44,361	0	0	44,361	NO	0	0	0	NONE
5.0S	9,458	8,376	0	914	0	0	9,290	NO	0	0	0	NONE
6.0S	14,486	7,725	0	6,761	0	0	14,486	NO	0	0	0	NONE
7.0S	27,679	0	0	13,894	0	0	13,894	NO	0	0	0	NONE
8.0S	12,769	7,719	0	5,050	0	0	12,769	NO	0	0	0	NONE
9.0S	19,868	11,513	0	8,355	0	0	19,868	NO	0	0	0	NONE
10.0S	5,508	3,095	0	2,413	0	0	5,508	NO	0	0	0	NONE
11.0S	18,532	6,579	0	3,349	0	0	9,928	NO	0	0	0	NONE
12.0S	5,514	3,931	0	1,583	0	0	5,514	NO	0	0	0	NONE
13.0S	2,129	1,796	0	333	0	0	2,129	NO	0	0	0	NONE
14.0S	6,553	2,623	0	3,137	0	0	5,760	NO	0	0	0	NONE
15.0S	26,950	0	0	16,229	0	0	16,229	NO	0	0	0	NONE
TOTAL (S.F.)	**468,845**	**63,605**	**33,496**	**217,120**	**16,883**	**50,379**	**280,725**	-	**32,952**	**9,618**	**42,570**	-

TOTAL NEW IMPERVIOUS AREA (S.F.)	**33,496**	**TOTAL NEW DEVELOPED AREA (S.F.)**	**50,379**
TOTAL NEW IMPERVIOUS AREA RECEIVING TREATMENT (S.F.)	**32,952**	**TOTAL NEW DEV. AREA RECEIVING TREATMENT (S.F.)**	**42,570**
% OF IMPERVIOUS AREA RECEIVING TREATMENT	**98.38%**	**% OF DEV. AREA RECEIVING TREATMENT**	**84.50%**

SEBAGO TECHNICS, INC.
75 John Roberts Road, Suite 1A
South Portland, ME 04106
(207) 856-0277 FAX (207) 856-2206

JOB	16304		
SHEET NO.	1	OF	2
CALCULATED BY	KJR	DATE	6/13/2018
CHECKED BY	PDO		
FILE NAME	16304 WQC	PRINT DATE	6/18/2019

MDEP Site Location of Development Submission

Note: Buffers are sized in accordance with Chapter 5 of the Maine Department of Environmental Protection BMPs Technical Design Manual, latest revision.

Wooded Buffer 1 (WB-1)				
Type of Buffer :	Buffer with Stone Bermed Level Spreader			
Existing Cover :	Forested			
Soils :	Lamoine-Buxton Complex, Scantic Silt Loam			
Buffer Slope :	3.0%			
Buffer Length :	150	FT		
Tributary Area				
Impervious :	32,952	SF	0.7564738	AC
Landscaped :	42,570	SF	0.9772727	AC
Per Table 5-5 of Manual for Soil Group D:				
Berm Length per acre of impervious :			150	FT
Berm Length per acre of landscaped :			45	FT
Required Level Spreader Berm Length :			157.4	FT
Provided Level Spreader Berm Length :			75.0	FT

Attachment B

Inspection, Maintenance, and Housekeeping Plan

INSPECTION, MAINTENANCE, AND HOUSEKEEPING PLAN

Lewiston Fire Sub-Station
55 North Temple Street
Lewiston, Maine

Introduction

The following plan outlines the anticipated inspection and maintenance procedures for the erosion and sedimentation control measures as well as stormwater management facilities for the project. This plan also outlines several housekeeping requirements that shall be followed during and after construction. These procedures shall be followed in order to ensure the intended function of the designed measures and to prevent unreasonably adverse impacts to the surrounding environment.

The procedures outlined in this Inspection, Maintenance, and Housekeeping Plan are provided as an overview of the anticipated practices to be used on this site by the contractor during construction and by the City of Lewiston after construction. In some instances, additional measures may be required due to unexpected conditions. For additional detail on any of the erosion and sedimentation control measures or stormwater management devices to be utilized on this project, refer to the most recently revised edition of the "Maine Erosion and Sedimentation Control BMP" manual and/or the "Stormwater Management for Maine: Best Management Practices" manual as published by the Maine Department of Environmental Protection (MDEP).

During Construction

1. **Inspection:** During the construction process, it is the Contractor's responsibility to comply with the inspection and maintenance procedures outlined in this section and the erosion and sedimentation control plan for the project. These responsibilities include inspecting disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. These areas shall be inspected at least once per week as well as before and after a storm event, and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in any applicable permits, shall conduct the inspections.

2. **Maintenance:** All measures shall be maintained in an effective operating condition until areas are permanently stabilized. If Best Management Practices (BMPs) need to be maintained or modified, additional BMPs are necessary, or other corrective action is needed, implementation must be completed within 7 calendar days and prior to any storm event (rainfall).

3. **Documentation:** A log summarizing the inspections and any corrective action taken must be maintained on-site. Correction action shall be performed in general conformance with the Maine Construction General Permit and Maine DEP Chapter 500 Stormwater standards. 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, material storage areas, and vehicle access points to the site. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations 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 the appropriate regulatory agency 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.

4. **Specific Inspection and Maintenance Tasks:** The following is a list of erosion control and stormwater management measures and the specific inspection and maintenance tasks to be performed during construction.

A. Filter Berms:

- Hay bale barriers, silt fences, and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall.
- If the fabric on a silt fence or filter barrier should decompose or become ineffective prior to the end of the expected usable life and the barrier is still necessary, it shall be replaced.
- Sediment deposits should be removed after each storm event. They must be removed before deposits reach approximately one-half the height of the barrier.
- Filter berms shall be reshaped as needed.
- Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required should be dressed to conform to the existing grade, prepared, and seeded.

B. Stone Check Dams:

- Inspect the center of the dam to make sure it is lower than the edges. Erosion caused by high flows around the edges of the dam must be corrected.
- Sediment accumulation shall be removed prior to reaching half of the original design height.
- Areas beneath stone check dams must be seeded and mulched upon removal.

C. Riprap Materials:

- Once a riprap installation has been completed, it should require very little maintenance. It shall, however, be inspected periodically to determine if high flows have caused scour beneath the riprap or dislodged any of the stone.

D. Erosion Control Blankets:

- Inspect these reinforced areas semi-annually and after significant rainfall events for slumping, sliding, seepage, and scour. Pay close attention to unreinforced areas adjacent to the erosion control blankets, which may experience accelerated erosion.
- Review all applicable inspection and maintenance procedures recommended by the specific blanket manufacturer. These tasks shall be included in addition to the requirements of this plan.

E. Stabilized Construction Entrances/Exits:

- The exit shall be maintained in a condition that will prevent tracking of sediment

onto public rights-of-way.

- When the control pad becomes ineffective, the stone shall be removed along with the collected soil material. The entrance should then be reconstructed.
- Areas that have received mud-tracking or sediment deposits shall be swept or washed. Washing shall be done on an area stabilized with aggregate, which drains into an approved sediment-trapping device (not into storm drains, ditches, or waterways).

F. Temporary Seed and Mulch:

- Mulched areas should be inspected after rain events to check for rill erosion.
- If less than 90% of the soil surface is covered by mulch, additional mulch shall be applied in bare areas.
- In applications where seeding and mulch have been applied in conjunction with erosion control blankets, the blankets must be inspected after rain events for dislocation or undercutting.
- Mulch shall continue to be reapplied until 95% of the soil surface has established temporary vegetative cover.

G. Stabilized Temporary Drainage Swales:

- Sediment accumulation in the swale shall be removed once the cross section of the swale is reduced by 25%.
- The swales shall be inspected after rainfall events. Any evidence of sloughing of the side slopes or channel erosion shall be repaired and corrective action should be taken to prevent reoccurrence of the problem.
- In addition to the stabilized lining of the channel (i.e. erosion control blankets), stone check dams may be needed to further reduce channel velocity.

5. **Housekeeping:** The following general performance standards apply to the proposed project.

A. Spill prevention: Controls must be used to prevent pollutants from being discharged from materials on-site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation. A Spill, Prevention, Control and Countermeasures Plan is created for the project and is to be kept onsite at all times.

B. 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.

C. Fugitive sediment and dust: Actions must be taken to insure 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.

D. Debris and other materials: Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

E. Trench or foundation dewatering: Trench dewatering is the removal of water from trenches, foundations, cofferdams, 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 must be removed from the ponded area, either through gravity or pumping, and 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.

Post-Construction

1. **Inspection:** After construction, it is the responsibility of the City of Sanford School Department or assigned heirs to comply with the inspection and maintenance procedures outlined in this section. All measures must be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions in all applicable permits, shall conduct the inspections.

2. **Specific Inspection and Maintenance Tasks:** The following is a list of permanent erosion control and stormwater management measures and the inspection and maintenance tasks to be performed after construction.

A. Vegetated Areas:

- 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. Ditches, Swales and Other Open Channels:

- Inspect ditches, swales, level spreaders and other open stormwater channels in the spring, in the late fall, and after heavy rains to remove any obstructions to flow. Remove accumulated sediments and debris, remove woody vegetative growth that could obstruct flow, and 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 in areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged.

C. Winter Sanding:

- Clear accumulations of winter sand along access road at least once a year, preferably in the spring.
- 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

or other acceptable method.

D. Culverts:

- Inspect culverts in the spring, in the 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.
- Inspect and repair any erosion damage at the culvert's inlet and outlet.

E. Level Spreader:

- The level spreader pool should be inspected after rainfall events for sediment accumulation and debris that may reduce its capacity. Sediment and debris buildup should be removed once the volume of the pool has been reduced by 25%. The level berm must be constructed so that flows slowly seep across the berm as sheet flow to the receiving downstream drainage way. Repair or reconstruction of the berm is required when flow from the spreader becomes channelized.

F. Wooded Buffer Areas:

- Remove dead wood and debris with minimal disturbance. Monitor for bypass and channelization; repair as it is occurring and remove sediment build-up to assure sheet flow conditions. Replant trees and bushes if needed. Perform monitoring on a semi-annual basis.

G. Detention Basin

- During the first year, the basin shall be inspected semi-annually and following major storm events.
- Debris and sediment buildup shall be removed from the forebay and basin as needed. Mowing of a grassed basin can occur semiannually to a height no less than 6 inches. Any bare area or erosion rills shall be repaired with new filter media or sandy loam then seeded and mulched. Maintaining good grass cover will minimize clogging with fine sediments and if ponding exceeds 48 hours, the top of the filter bed must be rototilled to reestablish the soil's filtration capacity.
- The detention basin should be inspected after every major storm in the first year to be sure it is functioning properly.
- Sediment Removal: Sediment and plant debris should be removed from the pretreatment structure at least annually.
- Mowing: If mowing is desired, only handheld string trimmers or push-mowers are allowed on the filter (no tractor) and the grass bed should be mowed no more than 2 times per growing season to maintain grass heights of no less than 6 inches.
- Fertilization: Fertilization of the detention basin area should be avoided unless absolutely necessary to establish vegetation.
- Harvesting and Weeding: Harvesting and pruning of excessive growth will need to be done occasionally. Weeding to control unwanted or invasive plants may also be necessary.

3. Documentation:

A. A log summarizing the inspections and any corrective action taken must be maintained. 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 controls. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations 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 the appropriate regulatory agency upon request. A sample "Stormwater Inspection and Maintenance Form" has been included as Attachment 2 of this Inspection, Maintenance, and Housekeeping Plan.

4. Municipal Certification: Stormwater infrastructure shall be inspected, maintained and results of the Inspection, Maintenance, and Housekeeping provided to the City as part of the Municipal Stormwater Certification Program

A. Identification and repair of erosion problems. 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. Inspection and repair of stormwater control system. 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 system, or portions of the system.

C. The Inspection, Maintenance, and Housekeeping Plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the Municipality, and the maintenance log is being maintained.

5. Duration of Maintenance: Perform maintenance as described and required for any associated permits unless and until the system is formally accepted by a 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 MDEP 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 MDEP/Municipal standards. Upon such assumption of responsibility, and approval by the MDEP, 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.

Attachments

Attachment 1 – Stormwater Inspection and Maintenance Log Form

ATTACHMENT 1 – STORMWATER INSPECTION AND MAINTENANCE LOG

Lewiston Fire Sub-Station
55 North Temple Street
Lewiston, Maine

This log is intended to accompany the Inspection, Maintenance, and Housekeeping Plan for the proposed Institute for Local Food Systems Innovation. The following items shall be checked, cleaned and maintained on a regular basis as specified in the Maintenance Plan and as described in the table below. This log shall be kept on file for a minimum of five (5) years and shall be available for review by the municipality. Qualified personnel familiar with drainage systems and soils shall perform all inspections. Attached is a copy of the construction and post-construction maintenance logs.

`	INSPECTOR NAME	DATE PERFORMED	SUGGESTED INTERVAL
Vegetated Areas			
Inspect all slopes and embankments			Annually
Replant bare areas or areas with sparse growth			Annually
Paved Surfaces			
Clear accumulated winter sand			Annually
Remove sediment along edges and in pockets			Annually
Ditches & Swales			
Remove any obstructions and accumulated sediments and debris			Monthly
Repair any erosion of ditch lining			Annually
Mow vegetated ditches			Annually
Remove woody vegetation growing through riprap			Annually
Repair any slumping side slopes			Annually
Replace riprap where stones have dislodged			Annually
Level Spreader			
Remove sediment			Monthly
Check for evidence of channelized flow over berm			Monthly
Erosion (side slopes, embankment)			Monthly
Mowed			Semi-Annually
Wooded Buffer			
Remove dead tree limbs			Annually
Check for evidence of channelized flow through wooded buffer area			Annually
*See Deed Restrictions on Forested Buffers & Meadow Buffers in Attachments E & F of Stormwater Management Report			

Attachment C

Forested Buffer Deed Restriction

1. Forested buffer, limited disturbance

DECLARATION OF RESTRICTIONS (Forested Buffer, Limited Disturbance)

THIS DECLARATION OF RESTRICTIONS is made this _____day of _____, 20___,
by _____ , _____,
(name) (street address)
_____, _____County, Maine, _____, (herein referred to as the
(city or town) (county) (zip code)
"Declarant"), pursuant to a permit received from the Maine Department of Environmental Protection under the Stormwater Management Law, to preserve a buffer area on a parcel of land near
_____,_____ .
(road name) (known feature and/or town)

WHEREAS, the Declarant holds title to certain real property situated in _____, Maine
(town)
described in a deed from_____ to _____dated
(name) (name of Declarant)
_____, 20____, and recorded in Book ____ Page ____ at the _____County Registry of Deeds, herein referred to as the "property"; and

WHEREAS, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows: (Note: Insert description of restricted buffer area location here)

WHEREAS, pursuant to the Stormwater Management Law, 38 M.R.S. Section 420-D and Chapter 500 of rules promulgated by the Maine Board of Environmental Protection ("Stormwater Management Rules"), Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Maine Department of Environmental Protection or any successor (hereinafter the "MDEP"),

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall forever be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. **Restrictions on Restricted Buffer Area**. Unless the owner of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the MDEP, the Restricted Buffer Area must remain undeveloped in perpetuity. To maintain the ability of the Restricted Buffer Area to filter and

absorb stormwater, and to maintain compliance with the Stormwater Management Law and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows.

a. No soil, loam, peat, sand, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants or other fill material may be placed, stored or dumped on the Restricted Buffer Area, nor may the topography of the area be altered or manipulated in any way;

b. Any removal of trees or other vegetation within the Restricted Buffer Area must be limited to the following:

   (i) No purposefully cleared openings may be created and an evenly distributed stand of trees and other vegetation must be maintained. An "evenly distributed stand of trees" is defined as maintaining a minimum rating score of 24 points in any 25 foot by 50 foot rectangle (1,250 square feet) area, as determined by the rating scheme in Table 11:

Table 11.
Point System for Determining an Evenly Distributed Stand of Trees

Diameter of tree at 4½ feet above ground level	Points
2 - 4 inches	1
4 - 8 inches	2
8 - 12 inches	4
>12 inches	8

   Where existing trees and other vegetation result in a rating score less than 24 points, no trees may be cut or sprayed with biocides except for the normal maintenance of dead, windblown or damaged trees and for pruning of tree branches below a height of 12 feet provided two thirds of the tree's canopy is maintained;

   (ii) No undergrowth, ground cover vegetation, leaf litter, organic duff layer or mineral soil may be disturbed except that one winding path, that is no wider than six feet and that does not provide a downhill channel for runoff, is allowed through the area;

c. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole (whether constructed of wood, steel or other materials) and appurtenant equipment such as guys and guy anchors, or fence;

d. No trucks, cars, dirt bikes, ATVs, bulldozers, backhoes, or other motorized vehicles or mechanical equipment may be permitted on the Restricted Buffer Area;

e. Any level lip spreader directing flow to the Restricted Buffer Area must be regularly inspected and adequately maintained to preserve the function of the level spreader.

Any activity on or use of the Restricted Buffer Area inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area must receive prior

approval in writing from the MDEP. The MDEP may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

2. **Enforcement**. The MDEP may enforce any of the Restrictions set forth in Section 1 above.

3. **Binding Effect**. The restrictions set forth herein shall be binding on any present or future owner of the Restricted Buffer Area. If the Restricted Buffer Area is at any time owned by more than one owner, each owner shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner's property.

4. **Amendment**. Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owners of the Restricted Buffer Area and by the MDEP.

5. **Effective Provisions of Declaration**. Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area.

6. **Severability**. Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.

7. **Governing Law**. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

_____
(NAME)

STATE OF MAINE_____ County, _____, 20__.
(County) (date)

Personally appeared before me the above named _____, who swore to the truth of the foregoing to the best of (his/her) knowledge, information and belief and acknowledged the foregoing instrument to be (his/her) free act and deed.

_____
Notary Public

_____

LEWISTON FIRE SUB-STATION

55 NORTH TEMPLE STREET
LEWISTON, MAINE

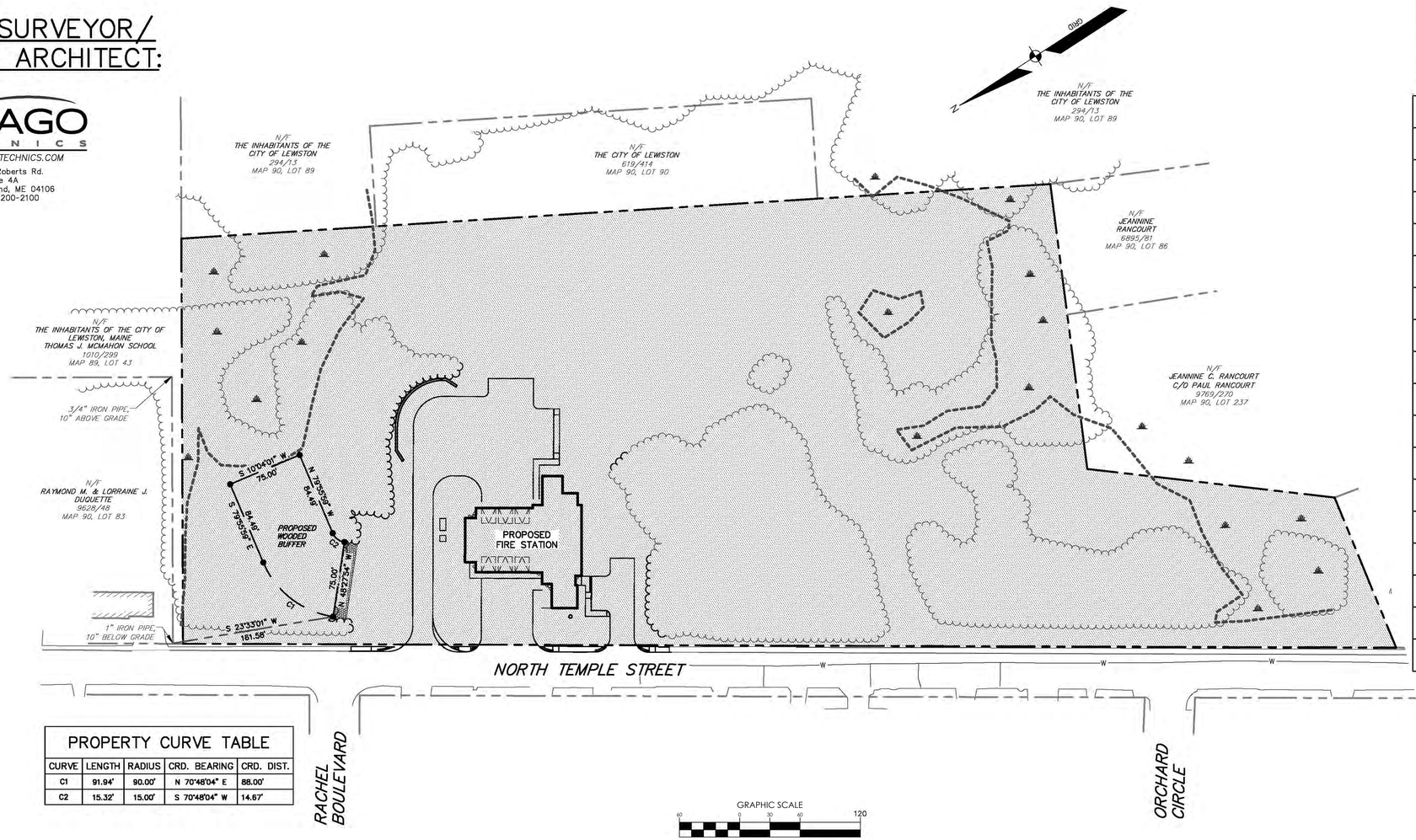
APPLICANT:

CITY OF LEWISTON

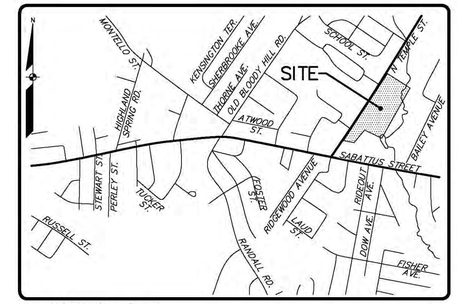
27 PINE STREET
LEWISTON, MAINE

ENGINEER/SURVEYOR/ LANDSCAPE ARCHITECT:

SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd.
Suite 4A
South Portland, ME 04106
Tel. 207-200-2100



PROPERTY CURVE TABLE				
CURVE	LENGTH	RADIUS	CRD. BEARING	CRD. DIST.
C1	91.94'	90.00'	N 70°48'04" E	88.00'
C2	15.32'	15.00'	S 70°48'04" W	14.67'



LOCATION MAP NTS

SHEET LIST	
SHEET NO.	SHEET TITLE
1	COVER
2	NOTES, LEGEND AND ABBREVIATIONS
3	EXISTING CONDITIONS
4	SITE PLAN
5	GRADING PLAN
6	UTILITY PLAN
7	LANDSCAPE PLAN
8	EROSION CONTROL NOTES
9	EROSION CONTROL DETAILS
10	DETAILS
11	DETAILS
1 OF 2	PRE-DEVELOPMENT WATERSHED PLAN
2 OF 2	POST-DEVELOPMENT WATERSHED PLAN
1 OF 3	PHOTOMETRICS
2 OF 3	BUILDING ELEVATIONS
3 OF 3	FLOOR PLANS

REVISED THROUGH 07-03-19

16304C.dwg, TAB: COVER

GENERAL NOTES:

1. OWNERS OF RECORD ARE RITA S. GRENIER, BERNARD GRENIER AND PIERRE GRENIER WITH REFERENCE MADE TO THE FOLLOWING DEEDS RECORDED AT THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS (ACRD):
   A. HAZEL A. BANSMER TO THOMAS C. GRENIER, BERNARD J. GRENIER AND RUDOLPH GRENIER DATED NOVEMBER 24, 1972 AND RECORDED AT ACRD IN BOOK 1065, PAGE 169.
   B. DEED OF DISTRIBUTION BY PERSONAL REPRESENTATIVE PIERRE GRENIER TO PIERRE GRENIER DATED JANUARY 28, 2014 AND RECORDED AT ACRD IN BOOK 8859, PAGE 115.
   C. CERTIFICATE OF ABSTRACT FOR THE ESTATE OF THOMAS C. GRENIER, SR. TO RITA S. GRENIER (WIFE OF THOMAS) DATED NOVEMBER 20, 2000 AND RECORDED AT ACRD IN BOOK 4546, PAGE 277.
2. THE PROPERTY IS SHOWN AS LOT 84 ON THE CITY OF LEWISTON TAX MAP 90 AND IS LOCATED IN THE NEIGHBORHOOD CONSERVATION "A" DISTRICT.
3. SPACE AND BULK CRITERIA FOR THE NEIGHBORHOOD CONSERVATION "A" DISTRICT ARE AS FOLLOWS:

MINIMUM LOT SIZE:	20,000 SQUARE FEET
MINIMUM STREET FRONTAGE:	125 FEET
MINIMUM FRONT YARD:	20 FEET
MINIMUM SIDE YARD:	30 FEET
MINIMUM REAR YARD:	30 FEET
MAXIMUM BUILDING HEIGHT:	35 FEET
MAXIMUM BUILDING COVERAGE:	40 PERCENT

   * SEE ORDINANCE FOR MORE PARTICULAR INFORMATION.
4. TOTAL AREA OF PARCEL IS APPROXIMATELY 9.85 ACRES.
5. SEBAGO TECHNICS, INC. HAS NOT PERFORMED AN INDEPENDENT BOUNDARY RETRACEMENT SURVEY OF THIS PROPERTY. RECORDS RESEARCH HAS BEEN UPDATED FROM SEPTEMBER OF 2015 TO DATE RELATIVE TO THE LOCUS PARCEL AND ABUTTERS. THE BOUNDARY AS DEPICTED HEREON IS BASED SOLELY ON PLAN REFERENCE 6A. TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED UPON LIDAR DATA AND A PARTIAL TOPOGRAPHIC SURVEY PERFORMED BY SEBAGO TECHNICS, INC. IN NOVEMBER OF 2018 WHICH PROVIDED GROUND PROOFING OF THE LIDAR DATA.
6. PLAN REFERENCES:
   A. "BOUNDARY SURVEY GRENIER PROPERTY, NORTH TEMPLE STREET, LEWISTON, MAINE ANDROSCOGGIN COUNTY OWNER OF RECORD AND PREPARED FOR BERNARD J. GRENIER, 80 NORTH TEMPLE STREET, LEWISTON, ME 04240" DATED SEPTEMBER 05, 2015. BY CADMASTER DRAFTING, LAND SURVEYING & SEPTIC DESIGNS, JOB NUMBER: 14-019, CADD: 14-019.DWG.

GENERAL NOTES CONTINUED:

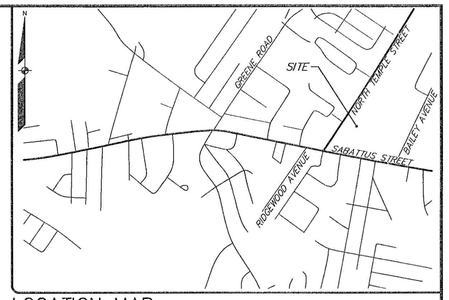
6. PLAN REFERENCES CONTINUED:
   B. "PLAN OF ALTA/ACSM LAND TITLE SURVEY SABATTUS STREET & NORTH TEMPLE STREET LEWISTON, MAINE MADE FOR CORRILL-PALMER CONSULTING ENGINEERS, INC., 15 SHAKER ROAD, GRAY, MAINE" DATED APRIL 25, 2013 BY TITCOMB ASSOCIATES. THIS PLAN IS RECORDED AT THE ACRD IN PLAN BOOK 50, PAGE 142.
   C. "BOUNDARY SURVEY PORTION OF GRENIER PROPERTY 974 SABATTUS STREET LEWISTON, MAINE ANDROSCOGGIN COUNTY PREPARED FOR BERNARD & JEANNINE RANCOURT, P.O. BOX 8207, LEWISTON, MAINE 04240" DATED JANUARY 14, 2014 BY CADMASTER DRAFTING, LAND SURVEYING & SEPTIC DESIGNS. THIS PLAN IS RECORDED AT THE ACRD IN PLAN BOOK 50, PAGE 185.
7. PLAN ORIENTATION IS GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE 1802-NAD83, ELEVATIONS DEPICTED HEREON ARE NAVD88, BASED ON DUAL FREQUENCY GPS OBSERVATIONS.
8. UTILITY INFORMATION DEPICTED HEREON IS COMPILED USING PHYSICAL EVIDENCE LOCATED IN THE FIELD. UTILITIES DEPICTED HEREON MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTRACTORS AND/OR DESIGNERS NEED TO CONTACT DIG-SAFE SYSTEMS, INC. (1-888-DIG-SAFE) AND FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION AND/OR EXCAVATION. THE UTILITY INFORMATION DEPICTED HEREON IS INCOMPLETE AND WILL BE SUPPLEMENTED WITH ADDITIONAL DATA UPON COMPLETION OF THE SURVEY.
9. PORTIONS OF THE LOCUS PROPERTY AS DEPICTED HEREON DOES FALL WITHIN A SPECIAL FLOOD HAZARD AREA AS DELINEATED ON THE FLOOD INSURANCE RATE MAP FOR ANDROSCOGGIN COUNTY, PANEL 331 OF 470, COMMUNITY THE CITY OF LEWISTON, MAINE NUMBER 230004 PANEL 0331 SUFFIX E, HAVING AN EFFECTIVE DATE OF JULY 08, 2013. THE LOCUS FALLS WITHIN AN AREA IDENTIFIED AS ZONE AE, WITH BASE FLOOD ELEVATIONS DETERMINED AS 213-214 FEET NAVD88.
10. A WETLAND DELINEATION WAS PERFORMED ON THIS PROJECT SITE ON NOVEMBER 12, 2018 BY CES, INC. THIS DELINEATION CONFORMS TO THE STANDARDS AND METHODS OUTLINED IN THE 1987 WETLANDS DELINEATION MANUAL AND NORTHEAST REGIONAL SUPPLEMENT AUTHORED AND PUBLISHED BY THE U.S. ARMY CORPS OF ENGINEERS. ALL WETLAND FLAGS WERE LOCATED USING GLOBAL POSITIONING SYSTEMS (GPS) TECHNOLOGY CAPABLE OF DECIMETER ACCURACY.
11. THE HATCHED AREA REPRESENTS A PARCEL OF LAND QUIT-CLAIMED TO HAZEL A. BANSMER FROM THE INHABITANTS OF THE MUNICIPALITY OF LEWISTON AS RECORDED IN THE ACRD IN BOOK 1065, PAGE 165 DATED AUGUST 20, 1971. BEING THE SAME PREMISES SUBJECT TO AN APPEAL FROM THE CITY OF LEWISTON'S EMINENT DOMAIN PROCEEDINGS OF 1949, REFERENCE IS MADE TO BANSMER V CITY OF LEWISTON ANDROSCOGGIN COUNTY CLERK OF COURTS OFFICE MARCH TERM 1949 DOCKET #8438.

STRUCTURE TABLE:

POINT #	TYPE	RIM EL.	INV.	ELEV.	SIZE	TYPE	(N=12)	COMMENTS
2002	SMH	225.86	IN	220.74	4	VCP	11	HOUSE 82
			OUT	220.18	8	PVC	6	
			SHELF	220.88				
2062	CB	218.3	IN	213.96	18	VCP	9	
			OUT	213.72	24	SANITTE	5	
			SUMP	212.76				
2066	SMH	218.23	IN	210.18	12	VCP	6	
			IN	210.3	10	VCP	12	
			OUT	210.12	12	VIT CLAY	2	
			SUMP	210.08				POSSIBLE DWH NO TROTH OR SELF
2085	CB	216.5	OUT	213.14	8	HDPE	3	CASCO TRAP
			SUMP	211.14				
2118	SMH	217.74	IN	211.51	12	VCP	6	
			IN	213.25	10	VCP	9	
			OUT	211.39	12	VIT CLAY	12	
			SHELF	212.29				
2124	SMH	217.55	IN	211.74	12	VCP	6	
			IN	213.81	4	PVC	10	
			OUT	211.66	12	VIT CLAY	12	
			SHELF	212.26				
2129	CB	216.91	IN	213.42	12	SANITTE	9	
			OUT	213.32	12	SANITTE	3	
			SUMP	210.32				
2150	CB	219.44	OUT	216.07	8	HDPE	4	
			SUMP	211.15				
2154	SMH	219.69	IN	214.34	12	ASBESTOS	6	
			IN	216.54	0	PVC	3	
			OUT	214.3	12	ASBESTOS	12	
			SHELF	214.98				
2190	CB	216.64	IN	211.43	36	SANITTE	6	
			IN	213.17	12	SANITTE	9	
			OUT	211.49	36	SANITTE	12	
			SUMP	209.75				
2198	CB	217.12	IN	211.2	36	SANITTE	6	
			IN	210.82	18	SANITTE	9	
			OUT	211.19	36	SANITTE	12	
			SUMP	208.66				
2209	CB	216.59	IN	210.75	36	SANITTE	6	
			IN	213.29	8	HDPE	9	
			OUT	210.55	36	SANITTE	12	
			SUMP	209.61				
2218	CB	217.89	IN	210.04	36	SANITTE	6	
			IN	212.3	24	SANITTE	10	
			OUT	210.33	48	SANITTE	3	
			SUMP	209.9				
2244	CB	217.04	OUT	214.45	UNK	UNK	6	W/ CASCO TRAP
			SUMP	211.45				
2246	DMH	217.5	IN	211.52	24	VCP	9	
			IN	214.06	10	HDPE	12	
			OUT	211.42	24	VIT CLAY	3	
			SHELF	212.92				
2248	CB	216.86	OUT	214.11	8	PVC	12	
			SHELF	211.11				
2371	MH	219.26	IN	212.87	24	RCP	9	
			OUT	212.77	18	RCP	12	CONFIRMED PIPE SIZE
			SUMP	212.67				
2374	SMH	219.22	IN	211.39	8	VCP	9	
			OUT	211.29	8	VCP	12	
			SHELF	212.29				
2399	SMH	217.43	IN	210.53	8	VCP	6	
			IN	210.83	8	VCP	12	
			OUT	210.53	8	VIT CLAY	3	
			SHELF	211.37				
2406	CBR	216.51	IN	212.92	8	VCP	12	
			SUMP	209.92				
2413	SMH	221.27	IN	212.69	8	VCP	12	
			IN	214.89	4	ASBESTOS	8	
			OUT	212.59	8	VIT CLAY	6	
			SHELF	213.23				

STRUCTURE TABLE CONTINUED:

2448	CBR	217.86	OUT	213.96	8	OTHER/COMMENTS		9ASBESTOS
			SUMP	210.96				
2451	CBR	217.95	IN	215.55	10	OMP	7	
			OUT	214.45	8	OTHER/COMMENTS		2ASBESTOS
			SUMP	211.25				
8100	DMH	218.55	SUMP	214.27				
8102	SMH	219.05	IN	207.91	15	VCP	12	
			OUT	207.81	15	VCP	6	UNKNOWN FLOW
8106	DMH	212.43	IN	206.01	18	RCP	2	
			OUT	205.91	18	RCP	5	
			SHELF	207.71				
8121	DMH	222.89	WATER	220.21	0	NONE	NONE	WATER NO FLOW LOTS SILT
			SUMP	215.61				
8123	DMH	218.72	IN	208.32	18	UNK-MAT	9	
			IN	207.34	18	UNK-MAT	12	
			IN	208.38	10	VIT CLAY	3	
			OUT	207.2	24	RCP	6	
			SHELF	209.42				
8125	DMH	217.82	IN	207.92	48	SANITTE	9	
			OUT	206.99	48	SANITTE	3	
			SHELF	210.44				
8127	CB	223.94	IN	213.11	36	RCP	7	
			OUT	213.02	36	SANITTE	12	
			SUMP	212.02				
8129	CB	219.86	IN	212.42	36	SANITTE	1	
			IN	215.71	8	HDPE	10	
			OUT	212.71	36	SANITTE	7	
			SUMP	211.02				
8133	CBR	216.66	IN	212.63	18	RCP	6	
			IN	213.93	15	PVC	10	
			OUT	212.45	18	RCP	4	TO BROOK
			SUMP	210.99				
8141	SMH	213.76	IN	208.38	8	VCP	9	
			IN	208.54	12	RCP	12	
			OUT	208.38	15	VIT CLAY	6	
			SHELF	209.06				
8144	SMH	215.48	IN	209.75	8	VCP	9	
			OUT	206.69	8	VCP	3	
			SHELF	210.26				
8147	SMH	218.47	IN	207.48	12	RCP	12	
			OUT	207.5	12	RCP	5	
			SHELF	208.63				



LOCATION MAP

N.T.S.

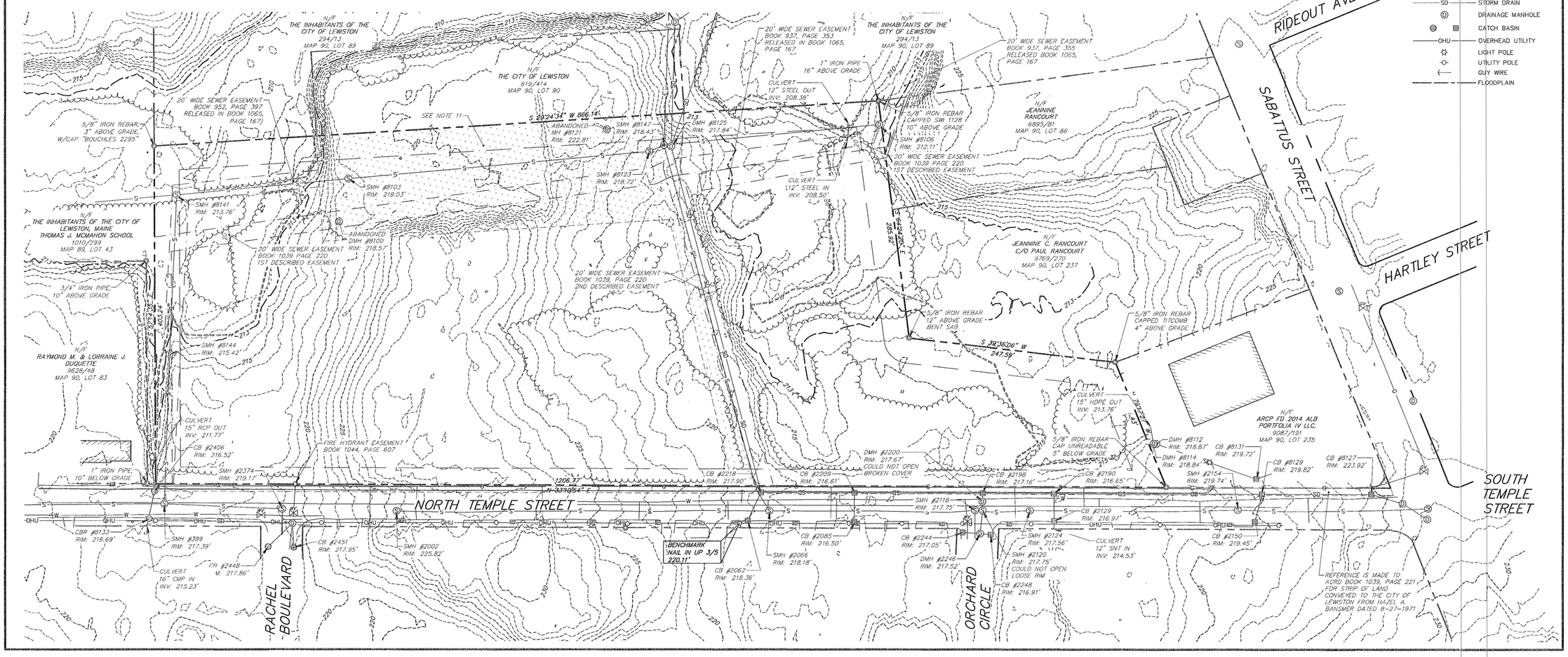
LEGEND

EXISTING

- PROPERTY LINE/R.O.W.
- ABUTTER LINE/R.O.W.
- SETBACK
- EASEMENT
- IRON PIPE/ROD
- BENCHMARK DESCRIPTION WITH ELEVATION — BENCHMARK
- BUILDING
- EDGE WETLAND
- WETLANDS
- EDGE PAVEMENT
- EDGE GRAVEL
- CURB LINE
- 120 — 118 — CONTOURS
- SIGN
- G — GAS
- GAS GATE VALVE
- W — WATER
- WATER GATE VALVE
- WATER SHUT OFF
- S — SANITARY SEWER
- SANITARY MANHOLE
- SD — STORM DRAIN
- DRAINAGE MANHOLE
- CATCH BASIN
- OHU — OVERHEAD UTILITY
- LIGHT POLE
- UTILITY POLE
- GUY WIRE
- FLOODPLAIN

GRAPHIC SCALE

(IN FEET)
1 INCH = 60 FT.



16304EC.dwg, TAB: EC

CHARLES D. MARCHESE, PLS 2009

context ARCHITECTURE
68 HARRISON AVENUE BOSTON, MA 02111 TEL 617.423.1400 WEB CONTEXTARC.COM

STATE OF MAINE CHARLES D. MARCHESE No. 2009 PROFESSIONAL LAND SURVEYOR
JUNE 14, 2019

SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd. Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

LEWISTON FIRE SUB-STATION
55 NORTH TEMPLE STREET
project number: 16304

EXISTING CONDITIONS PLAN

Scale: N.T.S.
Drawn by: CAD

No.	Issue	Date
1		06-18-19

C0.0

LEGEND

EXISTING		PROPOSED
	PROPERTY LINE/R.O.W.	
	ABUTTER LINE/R.O.W.	
	DEED LINE/R.O.W.	
	TIE LINE	
	SETBACK	
	EASEMENT	
	BUFFER	
	FLOODPLAIN	
	FLOODWAY	
	CENTERLINE	
	MONUMENT	
	IRON PIPE/ROD	
	DRILL HOLE	
C1/L1	DEED CALL	
C1/L1	CURVE/LINE NO.	C1/L1
	SOILS	
	ZONE LINE	
	ZONE LINE ON PL	
BENCHMARK DESCRIPTION WITH ELEVATION	BENCHMARK	
	SURVEY CONTROL	
TP-1	TEST PIT	
MW-1	MONITORING WELL	
B-1	BORING	
	BUILDING	
	DECK/STEPS/ OVERHANG	
	EDGE WETLAND	
	WETLANDS	
	UPLANDS	
	STREAM	
	LEDGE	
	EDGE PAVEMENT	
	PAVEMENT SAWCUT	
	EDGE CONCRETE	
	PAVEMENT PAINT	
	EDGE GRAVEL	
	CURB LINE	
	EDGE OF WATER	
	TREELINE	
120 118	CONTOURS	120
×120.00	SPOT GRADE	+120.00
	CHAIN LINK FENCE	
	BARB WIRE FENCE	
	STOCKADE FENCE	
	GUARD RAIL	
	STONE WALL	
	RETAINING WALL	
	DECIDUOUS TREE	
	CONIFEROUS TREE	
	MULCH LINE	
	BOLLARD	
	SIGN	
	RAILROAD	
G	GAS	G
	GAS GATE VALVE	
	GAS METER	
	GAS MANHOLE	
W	WATER	W
	WATER GATE VALVE	
	WATER SHUT OFF	
	HYDRANT	
	WATER MANHOLE	
	WELL	
S	SANITARY SEWER	S
FM	FORCE MAIN	FM
	SANITARY MANHOLE	
SD	STORM DRAIN	SD
UD	UNDER DRAIN	UD
	DRAINAGE MANHOLE	
	CATCH BASIN	
OHU	OVERHEAD UTILITY	OHU
UGU	UNDERGROUND UTILITY	UGU
	TRANSFORMER PAD	
	ELECTRICAL MANHOLE	
	ELECTRIC METER	
	HVAC UNIT	
	TELEPHONE MANHOLE	
	LIGHT POLE	
	UTILITY POLE	
	GUY WIRE	
	DRAINAGE DITCH	
	EROSION CONTROL BLANKET	
	FILTER BARRIER	FB
	RIPRAP	
	CHECK DAM	
	INLET PROTECTION	
	BOULDER	

GENERAL NOTES:

1. OWNERS OF RECORD ARE RITA S. GRENIER, BERNARD GRENIER AND PIERRE GRENIER WITH REFERENCE MADE TO THE FOLLOWING DEEDS RECORDED AT THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS (ACRD):
   A. HAZEL A. BANSMER TO THOMAS C. GRENIER, BERNARD J. GRENIER AND RUDOLPH GRENIER DATED NOVEMBER 24, 1972 AND RECORDED AT ACRD IN BOOK 1065, PAGE 169.
   B. DEED OF DISTRIBUTION BY PERSONAL REPRESENTATIVE PIERRE GRENIER TO PIERRE GRENIER DATED JANUARY 28, 2014 AND RECORDED AT ACRD IN BOOK 8859, PAGE 115.
   C. CERTIFICATE OF ABSTRACT FOR THE ESTATE OF THOMAS C. GRENIER, SR. TO RITA S. GRENIER (WIFE OF THOMAS) DATED NOVEMBER 20, 2000 AND RECORDED AT ACRD IN BOOK 4546, PAGE 277.
2. THE PROPERTY IS SHOWN AS LOT 84 ON THE CITY OF LEWISTON TAX MAP 90 AND IS LOCATED IN THE NEIGHBORHOOD CONSERVATION "A" DISTRICT.
3. SPACE AND BULK CRITERIA FOR THE NEIGHBORHOOD CONSERVATION "A" DISTRICT ARE AS FOLLOWS:

MINIMUM LOT SIZE:	20,000 SQUARE FEET
MINIMUM STREET FRONTAGE:	125 FEET
MINIMUM FRONT YARD:	20 FEET
MINIMUM SIDE YARD:	30 FEET
MINIMUM REAR YARD:	30 FEET
MAXIMUM BUILDING HEIGHT:	35 FEET
MAXIMUM BUILDING COVERAGE:	40 PERCENT

   * SEE ORDINANCE FOR MORE PARTICULAR INFORMATION.
4. TOTAL AREA OF PARCEL IS APPROXIMATELY 9.85 ACRES.
5. SEBAGO TECHNICS, INC. HAS NOT PERFORMED AN INDEPENDENT BOUNDARY RETRACEMENT SURVEY OF THIS PROPERTY. RECORDS RESEARCH HAS BEEN UPDATED FROM SEPTEMBER OF 2015 TO DATE RELATIVE TO THE LOCUS PARCEL AND ABUTTERS. THE BOUNDARY AS DEPICTED HEREON IS BASED SOLELY ON PLAN REFERENCE 6A. TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED UPON LIDAR DATA AND A PARTIAL TOPOGRAPHIC SURVEY PERFORMED BY SEBAGO TECHNICS, INC. IN NOVEMBER OF 2018 WHICH PROVIDED GROUND PROOFING OF THE LIDAR DATA.
6. PLAN REFERENCES:
   A. "BOUNDARY SURVEY GRENIER PROPERTY, NORTH TEMPLE STREET, LEWISTON, MAINE ANDROSCOGGIN COUNTY OWNER OF RECORD AND PREPARED FOR BERNARD J. GRENIER, 80 NORTH TEMPLE STREET, LEWISTON, ME 04240" DATED SEPTEMBER 05, 2015. BY CADMASTER DRAFTING, LAND SURVEYING & SEPTIC DESIGNS, JOB NUMBER: 14-019, CADD: 14-019.DWG.
   B. "PLAN OF ALTA/ACSM LAND TITLE SURVEY SABATTUS STREET & NORTH TEMPLE STREET LEWISTON, MAINE MADE FOR GORRILL-PALMER CONSULTING ENGINEERS, INC., 15 SHAKER ROAD, GRAY, MAINE" DATED APRIL 25, 2013 BY TITCOMB ASSOCIATES. THIS PLAN IS RECORDED AT THE ACRD IN PLAN BOOK 50, PAGE 142.
   C. "BOUNDARY SURVEY PORTION OF GRENIER PROPERTY 974 SABATTUS STREET LEWISTON, MAINE ANDROSCOGGIN COUNTY PREPARED FOR BERNARD & JEANNINE RANCOURT, P.O. BOX 8207, LEWISTON, MAINE 04240" DATED JANUARY 14, 2014 BY CADMASTER DRAFTING, LAND SURVEYING & SEPTIC DESIGNS. THIS PLAN IS RECORDED AT THE ACRD IN PLAN BOOK 50, PAGE 185.
7. PLAN ORIENTATION IS GRID NORTH, MAINE STATE PLANE COORDINATE SYSTEM, WEST ZONE 1802-NAD83, ELEVATIONS DEPICTED HEREON ARE NAVD88, BASED ON DUAL FREQUENCY GPS OBSERVATIONS.
8. UTILITY INFORMATION DEPICTED HEREON IS COMPILED USING PHYSICAL EVIDENCE LOCATED IN THE FIELD. UTILITIES DEPICTED HEREON MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTRACTORS AND/OR DESIGNERS NEED TO CONTACT DIG-SAFE SYSTEMS, INC. (1-888-DIG-SAFE) AND FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION AND/OR EXCAVATION. THE UTILITY INFORMATION DEPICTED HEREON IS INCOMPLETE AND WILL BE SUPPLEMENTED WITH ADDITIONAL DATA UPON COMPLETION OF THE SURVEY.
9. PORTIONS OF THE LOCUS PROPERTY AS DEPICTED HEREON DOES FALL WITHIN A SPECIAL FLOOD HAZARD AREA AS DELINEATED ON THE FLOOD INSURANCE RATE MAP FOR ANDROSCOGGIN COUNTY, PANEL 331 OF 470, COMMUNITY THE CITY OF LEWISTON, MAINE NUMBER 230004 PANEL 0331 SUFFIX E, HAVING AN EFFECTIVE DATE OF JULY 08, 2013. THE LOCUS FALLS WITHIN AN AREA IDENTIFIED AS ZONE AE, WITH BASE FLOOD ELEVATIONS DETERMINED AS 213-214 FEET NAVD88.
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11. ALL WORK SHALL CONFORM TO THE APPLICABLE CODES AND ORDINANCES.
12. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIM OR HERSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIM OR HERSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.
13. CONTRACTOR SHALL NOTIFY ENGINEER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND IN THE FIELD.
14. PROVIDE ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND OWNER'S REQUIREMENTS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.
15. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.
16. CONTRACTOR SHALL CLEAN AND REMOVE DEBRIS AND SEDIMENT DEPOSITED ON PUBLIC STREETS, SIDEWALKS, ADJACENT AREAS, OR OTHER PUBLIC WAYS DUE TO CONSTRUCTION.
17. CONTRACTOR SHALL INCORPORATE PROVISIONS AS NECESSARY IN CONSTRUCTION TO PROTECT EXISTING STRUCTURES, PHYSICAL FEATURES, AND MAINTAIN SITE STABILITY DURING CONSTRUCTION. CONTRACTOR SHALL RESTORE ALL AREAS TO ORIGINAL CONDITION AND AS DIRECTED BY DESIGN DRAWINGS.
18. SITE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO CONSTRUCTION.
19. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH "MAINE EROSION AND SEDIMENT CONTROL BMPS" PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY OF THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, OCTOBER 2016 OR LATEST EDITION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO POSSESS A COPY OF THE EROSION CONTROL PLAN AT ALL TIMES.
20. THE CONTRACTOR IS HEREBY CAUTIONED THAT ALL SITE FEATURES SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS BY THE SURVEYOR AND BY INFORMATION PROVIDED BY UTILITY COMPANIES. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT DIG SAFE (811) AT LEAST THREE (3) BUT NOT MORE THAN THIRTY (30) DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION TO VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES.
21. CONTRACTOR SHALL BE AWARE THAT DIG SAFE ONLY NOTIFIES ITS "MEMBER" UTILITIES ABOUT THE DIG. WHEN NOTIFIED, DIG SAFE WILL ADVISE CONTRACTOR OF MEMBER UTILITIES IN THE AREA. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND CONTACTING NON-MEMBER UTILITIES DIRECTLY. NON-MEMBER UTILITIES MAY INCLUDE TOWN OR CITY WATER AND SEWER DISTRICTS AND SMALL LOCAL UTILITIES, AS WELL AS USG PUBLIC WORKS SYSTEMS.
22. CONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE REQUIREMENTS OF 23 MRSA 3360-A. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE APPROPRIATE UTILITIES TO OBTAIN AUTHORIZATION PRIOR TO RELOCATION OF ANY EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS. IF A UTILITY CONFLICT ARISES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER, THE MUNICIPALITY AND APPROPRIATE UTILITY COMPANY PRIOR TO PROCEEDING WITH ANY RELOCATION.
23. ALL PAVEMENT MARKINGS AND DIRECTIONAL SIGNAGE SHOWN ON THE PLAN SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS.
24. ALL PAVEMENT JOINTS SHALL BE SAWCUT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.
25. NO HOLES, TRENCHES OR STRUCTURES SHALL BE LEFT OPEN OVERNIGHT IN ANY EXCAVATION ACCESSIBLE TO THE PUBLIC OR IN PUBLIC RIGHTS-OF-WAY.
26. IMMEDIATELY UPON COMPLETION OF CUTS/FILLS, THE CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH EROSION CONTROL NOTES AND AS SPECIFIED ON PLANS.
27. THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR THE REMOVAL, REPLACEMENT AND RECTIFICATION OF ALL DAMAGED AND DEFECTIVE MATERIAL AND WORKMANSHIP IN CONNECTION WITH THE CONTRACT WORK. THE CONTRACTOR SHALL REPLACE OR REPAIR AS DIRECTED BY THE OWNER ALL SUCH DAMAGED OR DEFECTIVE MATERIALS WHICH APPEAR WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION.
28. ALL WORK PERFORMED BY THE GENERAL CONTRACTOR AND/OR TRADE SUBCONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF LOCAL, STATE OR FEDERAL LAWS, AS WELL AS ANY OTHER GOVERNING REQUIREMENTS, WHETHER OR NOT SPECIFIED ON THE DRAWINGS.
29. WHERE THE TERMS "APPROVED EQUAL", "OTHER APPROVED", "EQUAL TO", "ACCEPTABLE" OR OTHER GENERAL QUALIFYING TERMS ARE USED IN THESE NOTES, IT SHALL BE UNDERSTOOD THAT REFERENCE IS MADE TO THE RULING AND JUDGEMENT OF SEBAGO TECHNICS, INC.
30. THE GENERAL CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTION FOR THE WORK UNTIL TURNED OVER TO THE OWNER.
31. THE GENERAL CONTRACTOR SHALL MAINTAIN A CURRENT AND COMPLETE SET OF CONSTRUCTION DRAWINGS ON SITE DURING ALL PHASES OF CONSTRUCTION FOR USE OF ALL TRADES.
32. THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ANY CHANGES AND DEVIATION OF APPROVED PLANS NOT AUTHORIZED BY THE ARCHITECT/ENGINEER AND/OR CLIENT/OWNER.
33. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. ANY MODIFICATION TO SUIT FIELD DIMENSION AND CONDITION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ANY WORK.
34. BEFORE THE FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT AND MATERIALS, REPAIR OR REPLACE PRIVATE OR PUBLIC PROPERTY WHICH MAY HAVE BEEN DAMAGED OR DESTROYED DURING CONSTRUCTION, CLEAN THE AREAS WITHIN AND ADJACENT TO THE PROJECT WHICH HAVE BEEN OBSTRUCTED BY HIS/HER OPERATIONS, AND LEAVE THE PROJECT AREA NEAT AND PRESENTABLE.
35. ALL GRAVITY CONDUIT PIPES SHALL BE INSTALLED USING A PIPE LASER AND TARGET SYSTEM THROUGH THE PIPE. ON PIPE RUNS 50 FEET OR LESS, THE CONTRACTOR SHALL REQUEST ENGINEER'S APPROVAL TO USE A GROUND LASER.
36. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING FLOW THROUGH THE EXISTING CLOSED STORM DRAINAGE SYSTEM DURING CONSTRUCTION AND SHALL SUBMIT A WORK PLAN FOR APPROVAL BY THE DESIGN ENGINEER.

CONSTRUCTION PLAN

1. PROVIDE EROSION CONTROL MEASURES PRIOR TO SITE DISTURBANCE.
2. WETLANDS, ASSOCIATED SETBACKS AND STREAM SETBACKS TO BE STAKED BY OWNER PRIOR TO SITE DISTURBANCE.
3. BEFORE TREE CLEARING, REFER TO PLANS FOR WOODED BUFFER LOCATIONS. TREES SHALL NOT BE CLEARED WITHIN DESIGNATED WOODED BUFFER AREAS.
4. GRADING AND CLEARING LIMITS SHALL NOT ENCROACH ON ADJACENT PROPERTIES UNLESS NOTED OTHERWISE ON THE PLANS.
5. OPEN AREAS SHALL BE LIMITED TO AREAS BEING WORKED IN. THE AREA STRIPPED OF EXISTING VEGETATION AT ANY GIVEN TIME SHALL BE MINIMIZED AND BE PHASED WHERE PRACTICAL SO THAT AREAS ARE REVEGETATED AND PERMANENTLY STABILIZED BEFORE ADDITIONAL AREAS ARE STRIPPED OF EXISTING VEGETATION. CONSTRUCTION BY USE OF RIPRAP, SEED, MULCH, OR OTHER GROUND COVER WITHIN ONE WEEK FROM THE TIME IT WAS ACTIVELY WORKED. SURFACES SHALL BE STABILIZED PRIOR TO DIRECTING STORMWATER RUNOFF TOWARD STORMWATER BMPS. PLEASE REFER TO DRAINAGE PLANS FOR WATERSHED AREAS.

GRADING & EROSION NOTES

1. SIDESLOPES SHALL NOT BE STEEPER THAN 3:1 (H:V) EXCEPT AS OTHERWISE IDENTIFIED ON THIS PLAN. ALL SIDESLOPES STEEPER THAN 3:1 (H:V) SHALL BE LINED WITH EROSION CONTROL BLANKET, OR ADDITIONAL MEASURES AS INDICATED.
2. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH "MAINE EROSION AND SEDIMENT CONTROL BMPS" MANUAL PUBLISHED BY BUREAU OF LAND AND WATER QUALITY MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, LATEST EDITION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO POSSESS A COPY OF THE EROSION CONTROL PLAN AT ALL TIMES.
3. ALL AREAS DISTURBED DURING CONSTRUCTION AND NOT RESTORED WITH IMPERVIOUS SURFACES (BUILDINGS, PAVEMENTS, WALKS, ETC.) SHALL RECEIVE LOAM AND SEED PER DETAIL.
4. SEE UTILITY DRAWINGS FOR PIPE AND STRUCTURE DATA TABLES.

UTILITY DEMOLITION NOTES

1. PROTECT EXISTING BOUNDARY LINE MONUMENTATION. IF DISTURBED, EXISTING MONUMENTATION TO BE RESET BY A PROFESSIONAL LAND SURVEYOR.
2. DEMOLITION OF UTILITIES REQUIRING TREE REMOVAL SHALL BE COORDINATED WITH THE OWNER AND IN ACCORDANCE WITH PROJECT PLANS.
3. UTILITY DEMOLITION SHALL BE COMPLETED IN COORDINATION WITH NEW INFRASTRUCTURE. CONTRACTOR SHALL ENSURE EXISTING SURFACE DRAINAGE IS MAINTAINED DURING CONSTRUCTION.
4. EXISTING SEWER AND STORM DRAINAGE INFRASTRUCTURE TO REMAIN ACTIVE DURING CONSTRUCTION AND UPON COMPLETION OF PROJECT. DEMOLITION/CONSTRUCTION ACTIVITIES SHALL NOT INTERFERE OR IMPEDE EXISTING FLOWS. CONTRACTOR SHALL PROVIDE BYPASS PUMPING AS REQUIRED DURING SEWER AND STORM DEMOLITION AND NEW CONSTRUCTION. DAMAGE TO EXISTING SEWER INFRASTRUCTURE SHALL BE REPAIRED BY CONTRACTOR AT THEIR EXPENSE.
5. DEMOLITION SHOWN IS FOR MAJOR SITE ELEMENTS TO BE DEMOLISHED. OTHER MINOR DEMOLITION MAY BE REQUIRED AS PART OF CONSTRUCTION AND SHALL BE CONSIDERED INCIDENTAL TO THE COST OF CONSTRUCTION. COORDINATE ALL DEMOLITION WORK WITH SITE AND BUILDING DRAWINGS.
6. PRIOR TO ANY DEMOLITION, THE CONTRACTOR SHALL SUBMIT A SEQUENCE OF DEMOLITION PLANS TO THE OWNER. THIS PLAN SHALL DEPICT LOCATIONS OF PROPOSED TERMINATIONS AND ANY TEMPORARY SERVICES THAT WILL BE NEEDED.
7. CONTRACTOR REQUIRED TO CONFIRM/MAINTAIN BENCHMARKS. IF IMPACTED CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION/RELOCATION AND COORDINATION WITH PROJECT TEAM.

UTILITY NOTES

1. UTILITY INFORMATION DEPICTED HEREON IS COMPILED USING PHYSICAL EVIDENCE LOCATED IN THE FIELD. UTILITIES DEPICTED HEREON MAY NOT NECESSARILY REPRESENT ALL EXISTING UTILITIES. CONTRACTORS AND/OR DESIGNERS NEED TO CONTACT DIG-SAFE SYSTEMS, INC. (1-888-DIG-SAFE) AND FIELD VERIFY EXISTING UTILITIES PRIOR TO CONSTRUCTION AND/OR EXCAVATION. PROTECT EXISTING ONSITE SEWER PIPE AND ADJUST MANHOLE RIMS TO GRADE WHERE APPLICABLE.
2. ALL GRAVITY CONDUIT PIPES SHALL BE INSTALLED USING A PIPE LASER AND TARGET SYSTEM THROUGH THE PIPE. ON PIPE RUNS 50 FEET OR LESS, THE CONTRACTOR SHALL REQUEST ENGINEER'S APPROVAL TO USE OR NOT USE A GROUND LASER.
3. MAINTAIN MINIMUM 5'-6" OF COVER ABOVE TOP OF WATER SERVICE PIPE.
4. MAINTAIN MINIMUM 10 FEET HORIZONTAL SEPARATION BETWEEN WATER SERVICES AND OTHER UTILITIES. MAINTAIN MINIMUM 18 INCHES VERTICAL SEPARATION BETWEEN WATER SERVICES AND OTHER UTILITIES.
5. LOWER OR RAISE WATER SERVICES AS REQUIRED TO MAINTAIN MINIMUM 12 INCH VERTICAL SEPARATION FROM OTHER UTILITIES. WATER SERVICES CROSSING SEWERS SHALL PROVIDE 12 INCH MINIMUM SEPARATION BETWEEN THE BOTTOM OF WATER LINE AND TOP OF SEWER UNLESS NOTED OTHERWISE ON THE PLANS.
6. PIPE:
   - SEWER PIPE SHALL BE SDR 35 PVC OR APPROVED EQUAL.
   - STORMDRAIN SHALL BE ADS N-12 DUAL WALL HDPE PIPE WITH SMOOTH-WALLED INTERIOR OR APPROVED EQUAL UNLESS NOTED OTHERWISE ON THE UTILITY PLANS.
   - WATER PIPE AND FITTINGS SHALL CONFORM TO LEWISTON WATER DISTRICT WATER PIPING SPECIFICATIONS. MAIN WATER SERVICE PIPE SHALL BE DUCTILE IRON, CLASS 52 PUSH-ON PIPE MEETING THE REQUIREMENTS OF AWWA/ANSI C-111/A21.11 (LATEST REVISION). PIPE SHALL BE CEMENT-LINED AWWA/ANSI C104/A21.4 WITH LINING TWICE THE THICKNESS SPECIFIED, AND COATED TWICE WITH A BITUMINOUS SEAL COATING. PROVIDE THRUST BLOCKS AT ALL WATER SERVICE BENDS.
7. COORDINATE FOUNDATION UNDERDRAIN LOCATIONS WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.
8. COORDINATE GREASE INTERCEPTOR LOCATIONS WITH ARCHITECTURAL & PLUMBING DRAWINGS.
9. COORDINATE UTILITY INVERTS AT BUILDING WITH ARCHITECTURAL, STRUCTURAL AND PLUMBING DRAWINGS.
10. COORDINATE LOCATION OF SEWER, WATER, GAS, FOUNDATION DRAINS AND ROOF DRAIN INVERTS AT THE BUILDING WITH ARCHITECTURAL DRAWINGS.
11. WATER SERVICE ENTRANCE DESIGNS TO INCLUDE METERS AND BACKFLOW PREVENTERS TO MEET ALL STANDARDS AND REQUIREMENTS OF THE LEWISTON WATER DISTRICT.
12. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY GRADE CHANGES THAT WILL IMPACT STORM DRAINAGE INFRASTRUCTURE OR OTHER UTILITIES.
13. UTILITIES WITHIN 5 FEET FROM FACE OF BUILDING ARE COORDINATED ON RELEVANT M.E.P. DRAWINGS. CONTRACTOR SHALL COORDINATE INVERTS, CONNECTIONS AND MATERIALS WITH ALL DRAWINGS.
14. CONTRACTOR SHALL FURNISH AND INSTALL TRENCHING, MATERIALS AND BACKFILL FOR ALL UTILITIES. ELECTRICAL AND TELECOM/DATA PROVIDERS WILL PULL PRIMARY SERVICE TO TRANSFORMER AND PANEL. CONTRACTOR RESPONSIBLE FOR TIMING AND COORDINATION WITH UTILITIES AND DRAWINGS. COORDINATE WITH ELECTRICAL DRAWINGS FOR CONDUIT SCHEDULE, TYPE AND SIZES.
15. COORDINATE ALL WATER RELATED WORK WITH LEWISTON WATER DISTRICT.
16. PUMP STATION:
17. UTILITY CONTACTS:
    ELECTRIC:
    CENTRAL MAINE POWER (CMP)
    VAN A. HOBGOOD, DISTRIBUTION ENGINEERING
    207-490-3075
    JOB # T.B.D.
    ACCOUNT # T.B.D.
    WATER/SEWER:
    LEWISTON WATER AND SEWER DIVISION
    KEVIN GAGNE, DEPUTY DIRECTOR
    207-513-3003
    FAIRPOINT:
    RICHARD JENSEN
    (207)797-1015

LANDSCAPE NOTES:

1. PLANT QUANTITIES SHOWN ON PLANT LISTS ARE FOR CONVENIENCE TO THE CONTRACTOR ONLY. THE CONTRACTOR IS RESPONSIBLE FOR ALL PLANT MATERIAL INSTALLATION AS SHOWN ON PLANS.
2. SIZE AND GRADING STANDARDS OF PLANT MATERIALS SHALL CONFORM TO THE LATEST EDITION OF "U.S.A. STANDARD FOR NURSERY STOCK," BY THE AMERICAN ASSOCIATION OF NURSERYMEN, INC.
3. ALL PLANT MATERIAL SHALL BE FREE FROM INSECTS AND DISEASE.
4. ALL PLANTING SHALL BE DONE IN ACCORDANCE WITH ACCEPTABLE HORTICULTURAL PRACTICES. THIS IS TO INCLUDE PROPER PLANTING MIX, PLANT BED AND TREE PIT PREPARATION, PRUNING, STAKING OR GUYING, WRAPPING, SPRAYING, FERTILIZATION, PLANTING AND ADEQUATE MAINTENANCE UNTIL ACCEPTANCE BY THE OWNER.
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6. ALL GRASS, OTHER VEGETATION AND DEBRIS SHALL BE REMOVED FROM ALL PLANTING AREAS PRIOR TO PLANTING.
7. EXISTING TREES TO BE PRESERVED WILL BE PROTECTED DURING CONSTRUCTION AND SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.
8. THE LANDSCAPE CONTRACTOR IS ADVISED OF THE PRESENCE OF THE UNDERGROUND UTILITIES AND SHALL VERIFY THE EXISTENCE AND LOCATION OF SAME BEFORE COMMENCING AND DIGGING OPERATIONS. THE LANDSCAPE CONTRACTOR SHALL REPLACE OR REPAIR UTILITIES, PAVING, WALKS, CURBING, ETC. DAMAGED IN PERFORMANCE OF THIS JOB AT NO ADDITIONAL COST TO THE OWNER.
9. ALL SHRUB BEDS SHALL BE MULCHED WITH 3" CLEAN SHREDDED DARK BROWN BARK MULCH.
10. THE CONTRACTOR SHALL PROVIDE 4" LOAM FOR ALL AREAS TO BE SODDED OR SEEDED. PLANTING AREAS SHALL RECEIVE 12" ROLLED THICKNESS OF LOAM. THE LANDSCAPE CONTRACTOR SHALL COORDINATE SUBGRADE PREPARATION WITH THE GENERAL CONTRACTOR PRIOR TO PLACING LOAM.
11. ANY DEVIATION FROM THE LANDSCAPE PLAN, INCLUDING PLANT LOCATION, SELECTION, SIZE, QUANTITY OR CONDITION SHALL BE REVIEWED AND APPROVED BY THE OWNER AND LANDSCAPE ARCHITECT (AND MUNICIPAL AUTHORITY, IF APPLICABLE) PRIOR TO INSTALLATION ON SITE.
12. WHERE INDICATED ON PLAN, PLANTING SOIL MIXTURE FOR PERENNIAL AND ANNUAL FLOWER BED AREAS SHALL CONSIST OF FOUR PARTS TOPSOIL, TWO PARTS SPHAGNUM PEAT MOSS, AND ONE PART HORTICULTURAL PERLITE BY VOLUME. PEAT MOSS MAY BE SUBSTITUTED WITH WELL-ROTTED OR DEHYDRATED MANURE OR COMPOST. ROTOTILL BEDS TO A DEPTH OF 8 INCHES.

ABBREVIATIONS:

KYLIE S. MASON, RLA 3335

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South Portland, ME 04106
Tel. 207-200-2100

REGISTERED LANDSCAPE ARCHITECT KYLIE S. MASON No. 3335 STATE OF MAINE 07/03/19

FIRE SUB STATION
55 NORTH TEMPLE STREET
project number: 16304

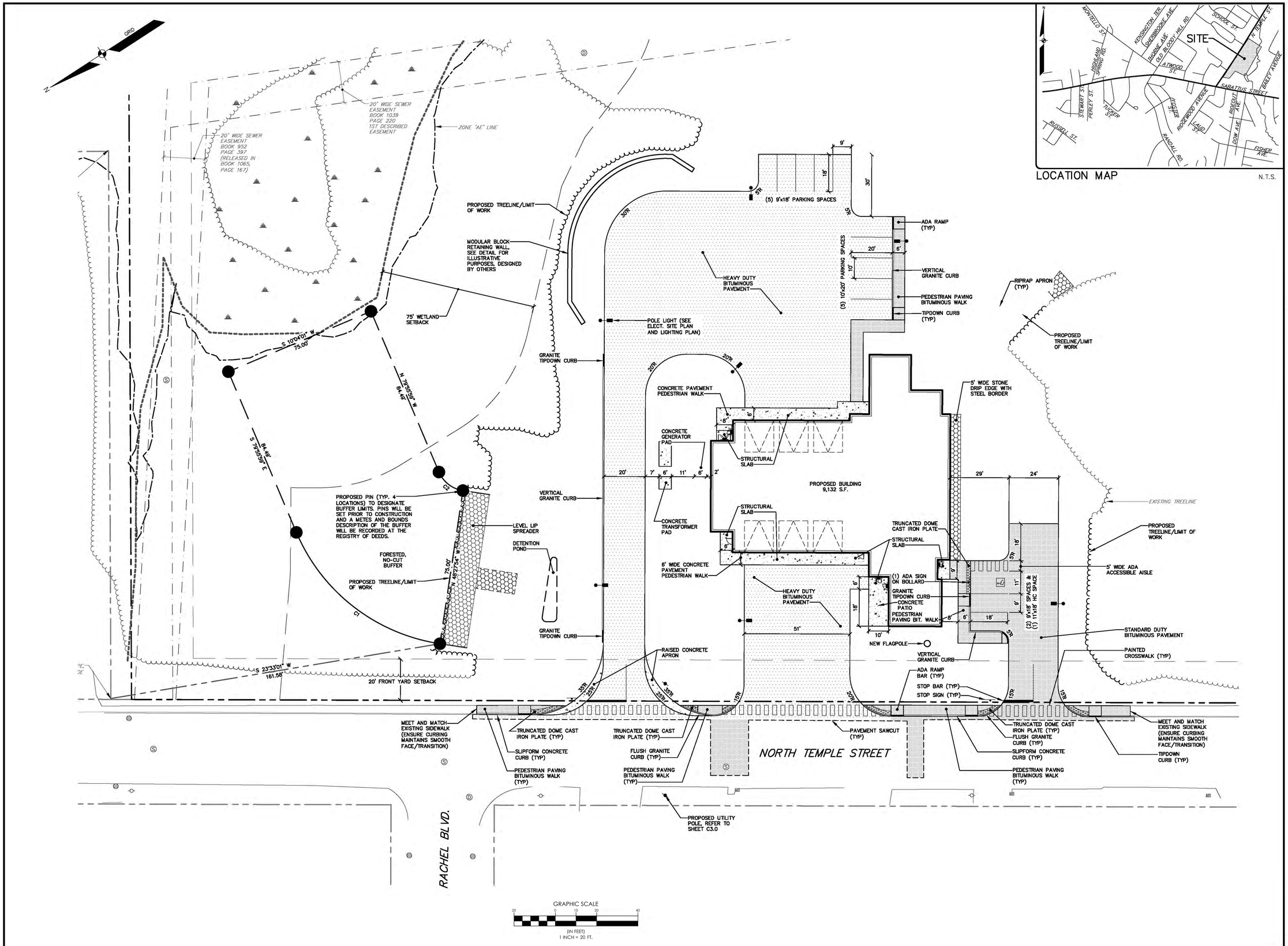
NOTES, LEGEND AND ABBREVIATIONS

Scale: AS NOTED
Drawn by: CAD

No.	Issue	Date
1	TOWN SUBMISSION	06-18-19
2	TOWN RESUBMISSION	06-28-19
3	SUBMISSION TO PLANNING BOARD	07-03-19

C0.1

16304C.dwg, TAB:2 NOTES LEGEND AND ABBREVIATIONS



LOCATION MAP

N.T.S.

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55 NORTH TEMPLE STREET
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SITE PLAN

Scale: AS NOTED
Drawn by: CAD

No.	Issue	Date
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2	TOWN RESUBMISSION	06-28-19
3	SUBMISSION TO PLANNING BOARD	07-03-19

16304S.dwg, TAB: 4 SITE PLAN

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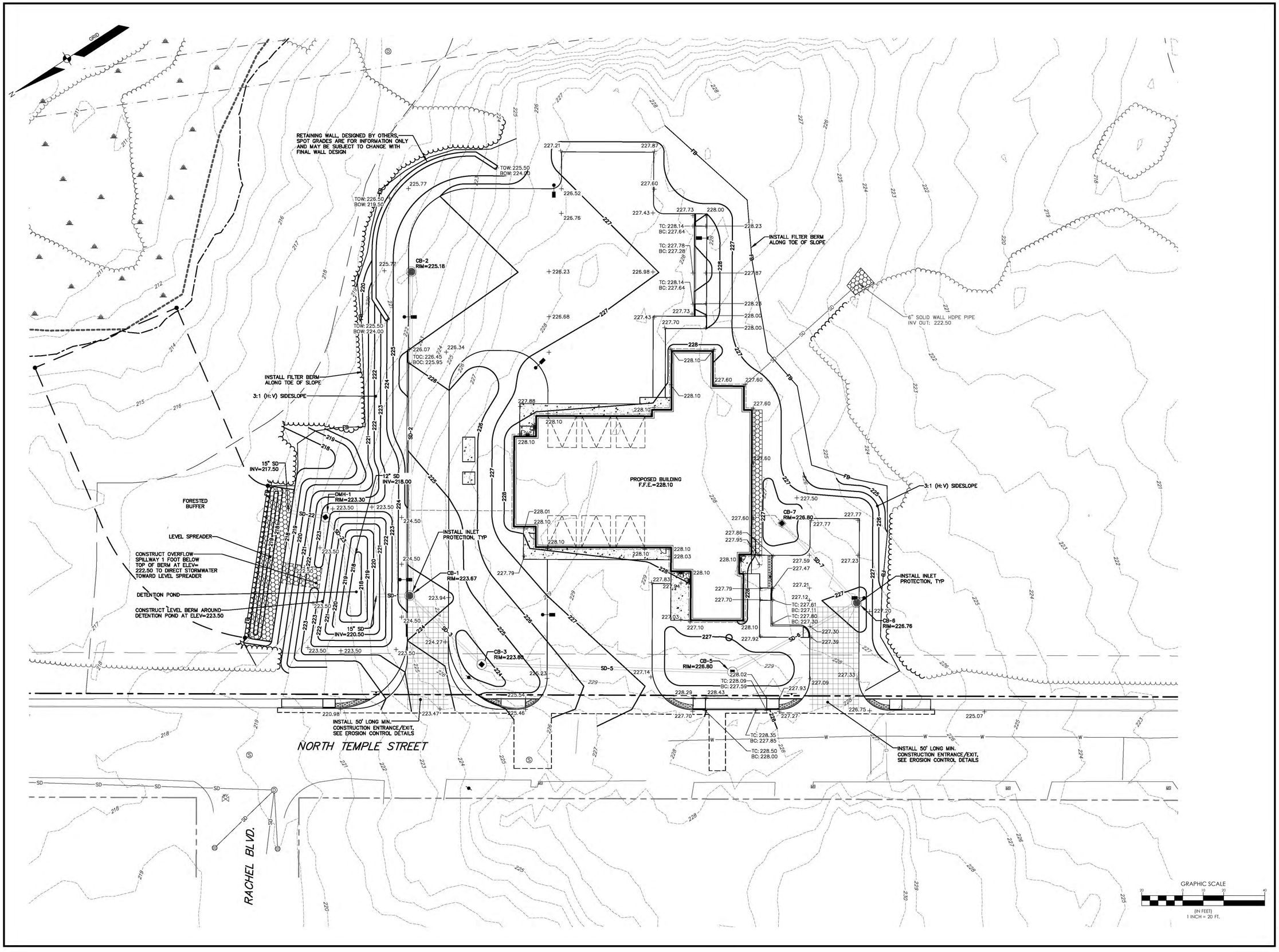

KYLIE S. MASON, RLA 3335

16304G.dwg, TAB:5 GRADING PLAN

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project number: 16304

GRADING PLAN

Scale: AS NOTED
Drawn by: CAD

No.	Issue	Date
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3	SUBMISSION TO PLANNING BOARD	07-03-19

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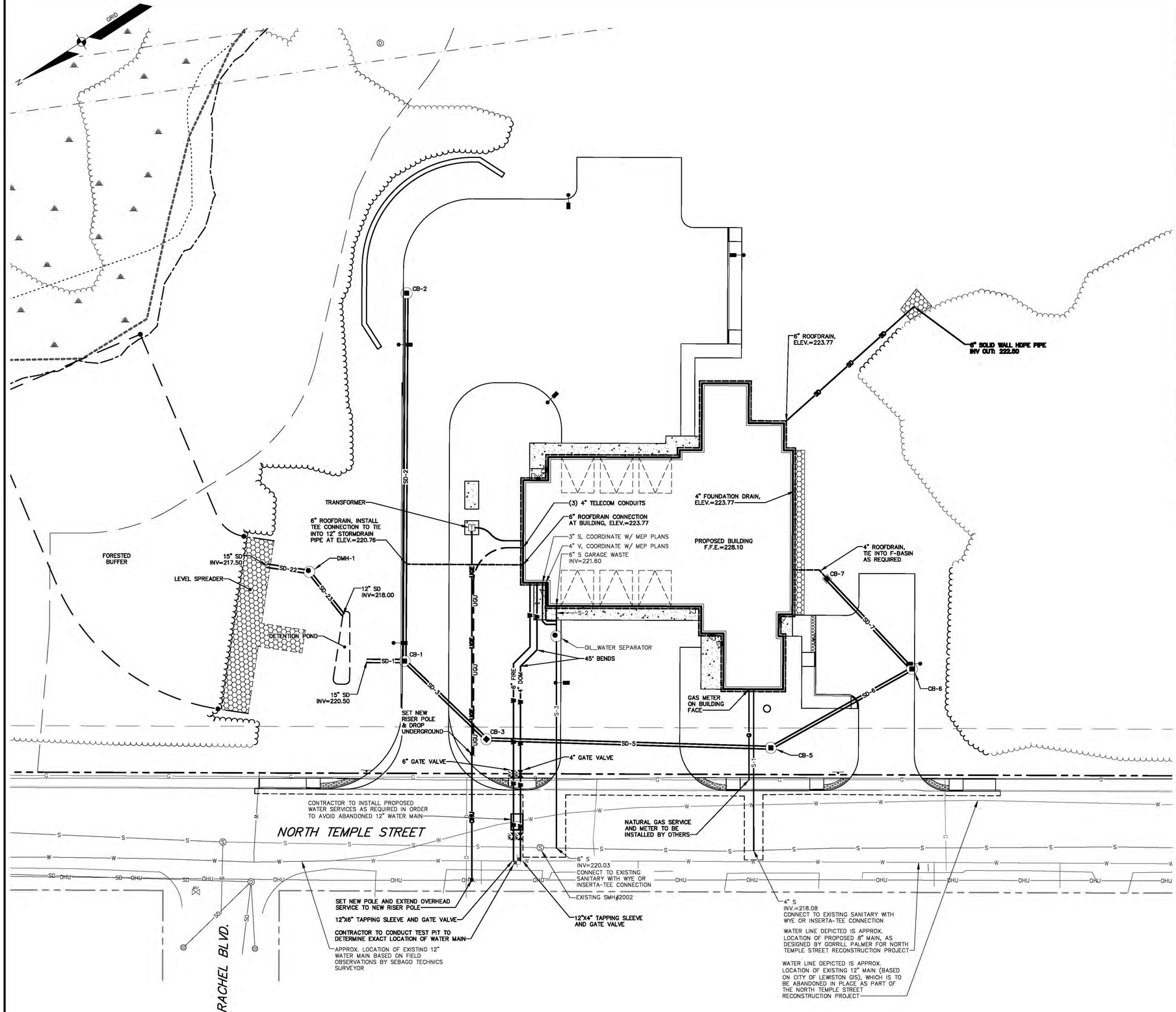

STORM DRAIN STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
CB-1	223.67	220.56 (SD-3) 220.56 (SD-2)	220.56 (SD-1)	48"
CB-2	225.18		221.35 (SD-2)	48"
CB-3	223.80	221.39 (SD-5)	221.29 (SD-3)	48"
CB-5	226.80	222.10 (SD-6)	222.00 (SD-5)	48"
CB-6	226.76	222.54 (SD-7)	222.44 (SD-6)	48"
CB-7	226.80		222.80 (SD-7)	24"X24"
DMH-1	223.30	217.88 (SD-23)	217.78 (SD-22)	48"

STORM DRAIN PIPE DATA

NAME	SIZE	LENGTH	SLOPE
SD-1	15"	14'	0.40%
SD-2	12"	154'	0.50%
SD-3	12"	45'	1.56%
SD-5	12"	118'	0.50%
SD-6	12"	65'	0.49%
SD-7	12"	50'	0.50%
SD-22	15"	16'	1.53%

SANITARY SEWER STRUCTURE DATA

STRUCTURE	RIM	INV. IN	INV. OUT:	DIAM.
OIL_WATER SEPARATOR	227.40	221.43 (S-2)	221.18 (S-3)	48"

SANITARY SEWER PIPE DATA

NAME	SIZE	LENGTH	SLOPE
S-1	6"	69'	4.36%
S-2	6"	11'	1.28%
S-3	6"	89'	1.27%

NOTE

CONTRACTOR TO CONDUCT A TEST PIT ON EXISTING SANITARY PIPE WITHIN NORTH TEMPLE STREET AT PROPOSED SEWER MANHOLE LOCATIONS TO DETERMINE EXACT PIPE DIAMETER AND MATERIAL PRIOR TO ORDERING SANITARY STRUCTURES.

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FIRE SUB STATION
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project number: 16304

UTILITY PLAN

Scale: AS NOTED
Drawn by: CAD

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16304U.dwg, TAB:6 UTILITY PLAN

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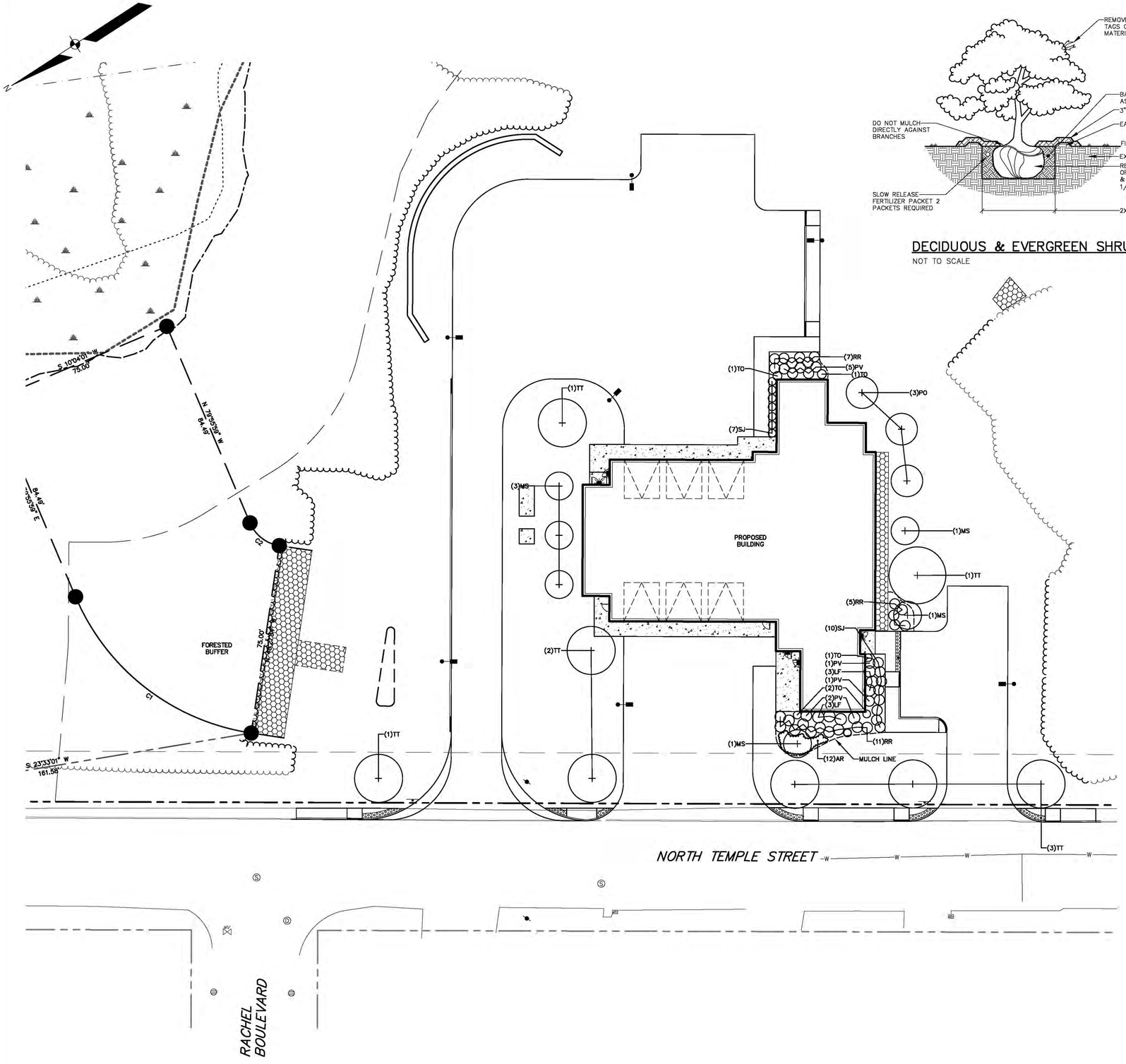

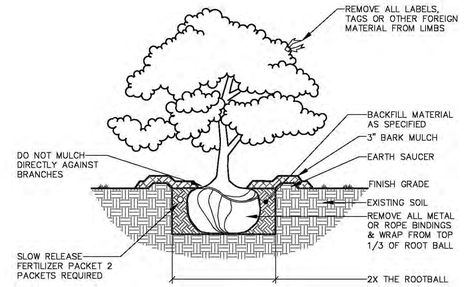

DECIDUOUS & EVERGREEN SHRUB

NOT TO SCALE

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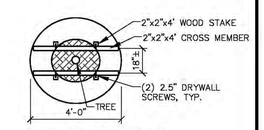
PLANT SCHEDULE

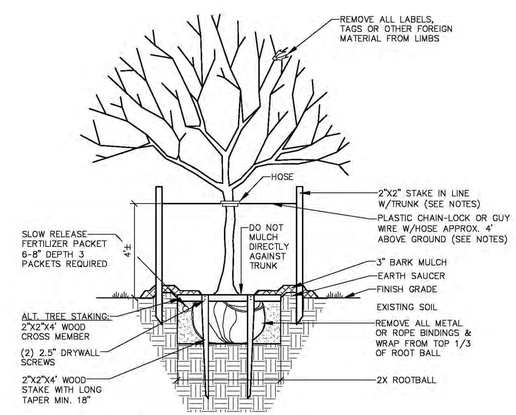
KEY	BOTANIC NAME	COMMON NAME	SIZE/NOTES
TT	TILIA TOMENTOSA 'STERLING'	STERLING LINDEN	2" CALIPER
MS	MAGNOLIA STELLATA 'CENTENNIAL'	CENTENNIAL MAGNOLIA	2" CALIPER
PO	PICEA OMORIKA	SERBIAN SPRUCE	6'-8' HGT
TO	THUJA OCCIDENTALIS 'SMARGD'	SMARGD ABORVITAE	6'-8' HGT
LF	LEUCOTHOE FONTANESIANA	DROOPING LEUCOTHOE	#5 CONTAINER
RR	ROSA RUGOSA 'MIXED COLORS'	MIXED COLOR SHRUB ROSE	#3 CONTAINER
PV	PANICUM VIRGATUM 'SHENANDOAH'	SHENANDOAH SWITCH GRASS	#2 CONTAINER
SJ	SPIREA JAPONICA 'LITTLE PRINCESS'	LITTLE PRINCESS SPIREA	#2 CONTAINER
AR	AJUGA REPTANS 'BRONZE BEAUTY'	BRONZE BEAUTY BUGLE WEED	#2 CONTAINER

LOAM & SEED ALL DISTURBED AREAS WITH MDOT PARK MIX



ALT. TREE STAKING PLAN

NOT TO SCALE



NOTES:
INSTALL STAKES AND GUYS TO TREES IF THE FOLLOWING APPLY:
1. THE TREE IS OF SUBSTANTIAL SIZE.
2. THE PLANTING LOCATION IS EXTREMELY WINDY, AS ON OPEN UNDEVELOPED SITES.
3. THE PLANTING LOCATION IS COMPRISED OF SAND OR OTHER LOOSE TEXTURED SOILS.
4. IF STAKES AND GUYS ARE REQUIRED, REMOVE AFTER ONE YEAR TIME.

DECIDUOUS TREES

NOT TO SCALE

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 INCH = 20 FT.

KYLIE S. MASON, RLA 3335

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FIRE SUB STATION
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LANDSCAPE PLAN

Scale: AS NOTED
Drawn by: CAD

No.	Issue	Date
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3	SUBMISSION TO PLANNING BOARD	07-03-19

16304L.dwg, TAB:7 LANDSCAPE PLAN

C4.0

EROSION CONTROL MEASURES

PRE-CONSTRUCTION PHASE

PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, SEDIMENT BARRIERS (SILT FENCE) WILL BE STAKED/INSTALLED ACROSS THE SLOPE(S), ON THE CONTOUR AT OR JUST BELOW THE LIMITS OF CLEARING OR GRUBBING, AND/OR JUST ABOVE ANY ADJACENT PROPERTY LINE OR WATERCOURSE TO PROTECT AGAINST CONSTRUCTION RELATED EROSION. THE PLACEMENT OF SEDIMENT BARRIERS SHALL BE COMPLETED IN ACCORDANCE WITH GUIDELINES ESTABLISHED IN BEST MANAGEMENT PRACTICES AND IN ACCORDANCE WITH THIS EROSION CONTROL PLAN AND DETAILS IN THIS PLAN SET. THIS NETWORK IS TO BE MAINTAINED BY THE CONTRACTOR UNTIL ALL EXPOSED SLOPES HAVE AT LEAST 90% VIGOROUS PERENNIAL VEGETATIVE COVER TO PREVENT EROSION. TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER PERMANENT STABILIZATION IS ATTAINED.

PRIOR TO ANY CLEARING OR GRUBBING, A CONSTRUCTION ENTRANCE/EXIT SHALL BE CONSTRUCTED AT THE INTERSECTION OF THE PROPOSED ENTRANCES AND EXISTING ROADWAY TO AVOID TRACKING OF MUD, DUST AND DEBRIS FROM THE SITE.

PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PREPARE A DETAILED SCHEDULE AND MARKED UP PLAN INDICATING AREAS AND COMPONENTS OF THE WORK AND KEY DATES SHOWING DATE OF DISTURBANCE AND COMPLETION OF THE WORK. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE MUNICIPAL STAFF. THREE COPIES OF THE SCHEDULE AND MARKED UP PLAN SHALL BE PROVIDED TO THE MUNICIPALITY THREE DAYS PRIOR TO THE SCHEDULED PRE-CONSTRUCTION MEETING. SPECIAL ATTENTION SHALL BE GIVEN TO THE 14 DAY LIMIT OF DISTURBANCE IN THE SCHEDULE ADDRESSING TEMPORARY AND PERMANENT VEGETATION MEASURES.

CONSTRUCTION AND POST-CONSTRUCTION PHASE

AREAS UNDERGOING ACTUAL CONSTRUCTION SHALL ONLY EXPOSE THAT AMOUNT OF MINERAL SOIL NECESSARY FOR PROGRESSIVE AND EFFICIENT CONSTRUCTION. AN AREA CONSIDERED OPEN IS ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MATS, RIPRAP OR GRAVEL BASE ON A ROAD, SUCH AS ACTIVE EXCAVATION AND ACTIVE GRADING. LIMIT THE EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS ACTIVELY OCCURRING OR CAN BE MULCHED IN THE SAME DAY. OPEN AREAS SHALL BE ANCHORED WITH TEMPORARY EROSION CONTROL AS SHOWN ON THE DESIGN PLANS AND AS DESCRIBED WITHIN THIS EROSION CONTROL PLAN WITHIN SEVEN (7) DAYS OF DISTURBANCE. AREAS LOCATED WITHIN 100 FEET OF STREAMS SHALL BE ANCHORED WITH TEMPORARY EROSION CONTROL WITHIN SEVEN (7) DAYS. REFER TO WINTER EROSION CONTROL NOTES FOR THE TREATMENT OF OPEN AREAS AFTER OCTOBER 1ST OF THE CONSTRUCTION YEAR.

THE CONTRACTOR MUST INSTALL ANY ADDED MEASURES WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDENT UPON THE ACTUAL SITE AND WEATHER CONDITIONS. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.

EROSION CONTROL APPLICATIONS & MEASURES
THE PLACEMENT OF EROSION CONTROL MEASURES SHALL BE COMPLETED IN ACCORDANCE WITH GUIDELINES ESTABLISHED IN BEST MANAGEMENT PRACTICES AND IN ACCORDANCE WITH THE EROSION CONTROL PLAN AND DETAILS IN THE PLAN SET.

1. TEMPORARY MULCHING:

ALL DISTURBED AREAS SHALL BE MULCHED WITH MATERIALS SPECIFIED BELOW PRIOR TO ANY STORM EVENT. ALL DISTURBED AREAS NOT FINAL GRADED WITHIN 14 DAYS SHALL BE MULCHED. DISTURBED AREAS ADJACENT TO NATURAL RESOURCES THAT ARE NOT GRADED WITHIN SEVEN (7) DAYS SHALL BE MULCHED. ALSO, AREAS, WHICH HAVE BEEN TEMPORARILY OR PERMANENTLY SEEDED, SHALL BE MULCHED IMMEDIATELY FOLLOWING SEEDING. EROSION CONTROL BLANKETS ARE RECOMMENDED TO BE USED AT THE BASE OF GRASSED WATERWAYS AND ON SLOPES GREATER THAN 33%. MULCH ANCHORING SHOULD BE USED ON SLOPES GREATER THAN 5% AFTER SEPTEMBER 15TH OF THE CONSTRUCTION YEAR (SEE WINTER EROSION CONTROL NOTES).
TYPES OF MULCH:

HAY OR STRAW: SHALL BE APPLIED AT A RATE OF 75 LBS/1,000 S.F. (1.5 TONS PER ACRE).

EROSION CONTROL MIX: SHALL BE PLACED EVENLY AND MUST PROVIDE 100% SOIL COVERAGE. EROSION CONTROL MIX SHALL BE APPLIED SUCH THAT THE THICKNESS ON SLOPES 3:1 OR LESS IS 2 INCHES PLUS 1/2 INCH PER 20 FEET OF SLOPE UP TO 100 FEET. THE THICKNESS ON SLOPES BETWEEN 3:1 AND 2:1 SHALL BE 4 INCHES PLUS 1/2 INCH PER 20 FEET OF SLOPE UP TO 100 FEET. THIS SHALL NOT BE USED ON SLOPES GREATER THAN 2:1.

EROSION CONTROL BLANKET: SHALL BE INSTALLED SUCH THAT CONTINUOUS CONTACT BETWEEN THE MAT AND THE SOIL IS OBTAINED. INSTALL BLANKETS AND STAPLE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

2. SOIL STOCKPILES:

STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED WITH HAY OR STRAW AT A RATE OF 75 LBS/1,000 S.F. (1.5 TONS PER ACRE) OR WITH A FOUR-INCH LAYER OF WOOD WASTE EROSION CONTROL MIX. THIS WILL BE DONE WITHIN 24 HOURS OF STOCKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL. ANY SOIL STOCKPILE WILL NOT BE PLACED (EVEN COVERED WITH HAY OR STRAW) WITHIN 100 FEET FROM ANY NATURAL RESOURCES. SEDIMENT BARRIERS SHALL BE INSTALLED DOWNGRADIENT OF STOCKPILES, AND STORMWATER SHALL BE PREVENTED FROM RUNNING ONTO THE STOCKPILE.

3. NATURAL RESOURCES PROTECTION:

ANY AREAS WITHIN 100 FEET FROM ANY NATURAL RESOURCES SHALL BE MULCHED USING TEMPORARY MULCHING (AS DESCRIBED IN PART 1 OF THIS SECTION) WITHIN 7 DAYS OF EXPOSURE OR PRIOR TO ANY STORM EVENT. SEDIMENT BARRIERS (AS DESCRIBED IN PART 4 OF THIS SECTION) SHALL BE PLACED BETWEEN ANY NATURAL RESOURCE AND THE DISTURBED AREA. PROJECTS CROSSING THE NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 100 FEET ON EITHER SIDE FROM THE RESOURCE.

4. SEDIMENT BARRIERS:

PRIOR TO THE BEGINNING OF ANY CONSTRUCTION, SEDIMENT BARRIERS SHALL BE STAKED ACROSS THE SLOPE(S), ON THE CONTOUR AT OR JUST BELOW THE LIMITS OF CLEARING OR GRUBBING, AND/OR JUST ABOVE ANY ADJACENT PROPERTY LINE OR WATERCOURSE TO PROTECT AGAINST CONSTRUCTION RELATED EROSION. SEDIMENT BARRIERS SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL ALL EXPOSED SLOPES HAVE AT LEAST 90% VIGOROUS PERENNIAL VEGETATIVE COVER TO PREVENT EROSION.

SILT FENCE: SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. THE EFFECTIVE HEIGHT OF THE FENCE SHALL NOT EXCEED 36 INCHES. IT IS RECOMMENDED THAT SILT FENCE BE REMOVED BY CUTTING THE FENCE MATERIALS AT GROUND LEVEL SO AS TO AVOID ADDITIONAL SOIL DISTURBANCE.

HAY BALES: SHALL NOT BE INSTALLED ADJACENT TO WETLAND. INSTALL PER THE DETAIL ON THE PLANS. BALES SHALL BE WIRE-BOUND OR STRING-TIED AND THESE BINDINGS MUST REMAIN PARALLEL WITH THE GROUND SURFACE DURING INSTALLATION TO PREVENT DETERIORATION OF THE BINDINGS. BALES SHALL BE INSTALLED WITHIN A MINIMUM 4 INCH DEEP TRENCH LINE WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.

EROSION CONTROL MIX: SHALL NOT BE USED ADJACENT TO WETLANDS. INSTALL PER THE DETAIL ON THE PLANS. THE MIX SHALL CONSIST PRIMARILY OF ORGANIC MATERIAL AND CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES AND MAY CONTAIN ROCKS LESS THAN 4 INCHES IN DIAMETER. THE MIX COMPOSITION SHALL MEET THE STANDARDS DESCRIBED WITHIN THE MDEP BEST MANAGEMENT PRACTICES. NO TRENCHING IS REQUIRED FOR INSTALLATION OF THIS BARRIER. EROSION CONTROL MIX BERMS SHALL NOT BE USED AT THE BOTTOM OF STEEP SLOPES (>8%) OR SLOPES WITH FLOWING WATER.

CONTINUOUS CONTAINED BERM: SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. THIS SEDIMENT BARRIER IS EROSION CONTROL MIX PLACED WITHIN A SYNTHETIC TUBULAR NETTING AND PERFORMS AS A STURDY SEDIMENT BARRIER THAT WORKS WELL ON HARD GROUND SUCH AS FROZEN CONDITIONS, TRAVELED AREAS OR PAVEMENT. NO TRENCHING IS REQUIRED FOR INSTALLATION OF THIS BARRIER.

5. TEMPORARY CHECK DAMS:

SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. CHECK DAMS ARE TO BE PLACED WITHIN DITCHES/ SWALES AS SPECIFIED ON THE DESIGN PLANS IMMEDIATELY AFTER FINAL GRADING. CHECK DAMS SHALL BE 2 FEET HIGH. TEMPORARY CHECK DAMS MAY BE REMOVED ONLY AFTER THE ROADWAYS ARE PAVED AND THE VEGETATED SWALE ARE ESTABLISHED WITH AT LEAST 90% OF VIGOROUS PERENNIAL GROWTH. THE AREA BENEATH THE CHECK DAM MUST BE SEEDED AND MULCHED IMMEDIATELY AFTER REMOVAL OF THE CHECK DAM.

STONE CHECK DAMS: STONE DAMS SHOULD BE CONSTRUCTED OF 2 TO 3 INCH STONE AND PLACED SUCH THAT COMPLETE COVERAGE OF THE SWALE IS OBTAINED AND THAT THE CENTER OF THE DAM IS 6 INCHES LOWER THAT THE OUTER EDGES.

HAY BALE CHECK DAMS: BALES SHALL BE WIRE-BOUND OR STRING-TIED. BALES SHALL BE INSTALLED WITHIN A MINIMUM 4 INCH DEEP TRENCH LINE WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER. HAY BALES SHALL BE PLACED SUCH THAT COMPLETE COVERAGE OF THE SWALE IS OBTAINED AND THAT THE CENTER OF THE DAM IS 6 INCHES LOWER THAT THE OUTER EDGES.

MANUFACTURED CHECK DAMS: MANUFACTURED CHECK DAMS, AS SPECIFIED IN THE DETAIL ON THE PLANS, MAY BE USED IF AUTHORIZED BY THE PROPER LOCAL, STATE OR FEDERAL REGULATING AGENCIES. THESE UNITS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURE'S RECOMMENDATIONS.

6. STORMDRAIN INLET PROTECTION:

INLET PROTECTION SHALL BE PLACED AROUND A STORMDRAIN DROP INLET OR CURB INLET PRIOR TO PERMANENT STABILIZATION OF THE IMMEDIATE AND UPSTREAM DISTURBED AREAS. THEY SHALL BE CONSTRUCTED IN A MANNER THAT WILL FACILITATE CLEAN-OUT AND DISPOSAL OF TRAPPED SEDIMENTS AND MINIMIZE INTERFERENCE WITH CONSTRUCTION ACTIVITIES. ANY RESULTANT PONDING OF WATER FROM THE PROTECTION METHOD MUST NOT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT AREAS OR STRUCTURES.

HAY BALE DROP INLET PROTECTION: WE DO NOT RECOMMEND THE USE OF HAY BALES AS INLET PROTECTION.

CONCRETE BLOCK AND STONE INLET SEDIMENT FILTER (DROP OR CURB INLET): SHALL BE INSTALLED PER THE DETAIL ON THE PLANS. THE HEIGHT OF THE CONCRETE BLOCK BARRIER CAN VARY BUT MUST BE BETWEEN 12 AND 24 INCHES TALL. A MINIMUM OF 1 INCH CRUSHED STONE SHALL BE USED.

MANUFACTURED SEDIMENT BARRIERS AND FILTER (DROP OR CURB INLET): MANUFACTURED FILTERS, AS SPECIFIED IN THE DETAIL ON THE PLANS, MAY BE USED IF INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

7. STABILIZED CONSTRUCTION ENTRANCE/EXIT:

PRIOR TO CLEARING AND/OR GRUBBING THE SITE A STABILIZED CONSTRUCTION ENTRANCE/EXIT SHALL BE CONSTRUCTED WHEREVER TRAFFIC WILL EXIT THE CONSTRUCTION SITE ONTO A PAVED ROADWAY IN ORDER TO MINIMIZE THE TRACKING OF SEDIMENT AND DEBRIS FROM THE CONSTRUCTION SITE ONTO PUBLIC ROADWAYS. THE ENTRANCES AND ADJACENT ROADWAY AREAS SHALL BE PERIODICALLY SWEPT TO FURTHER MINIMIZE THE TRACKING OF MUD, DUST OR DEBRIS FROM THE CONSTRUCTION AREA. THE TERM "SWEEP" IS UNDERSTOOD TO MEAN REMOVAL AND RECOVERY OF TRACKED SEDIMENT WITH A STREET SWEEPER, NOT BRUSHING THE MATERIAL INTO SWALES OR STRUCTURES WITH A MECHANICAL BROOM. STABILIZED CONSTRUCTION EXITS SHALL BE CONSTRUCTED IN AREAS SPECIFIED ON THE PLANS AND AS DETAILED ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN THE STABILIZED CONSTRUCTION ENTRANCE UNTIL ALL DISTURBED AREAS ARE STABILIZED.

8. DUST CONTROL:

DUST CONTROL DURING CONSTRUCTION SHALL BE ACHIEVED BY THE USE OF A WATERING TRUCK TO PERIODICALLY SPRINKLE THE EXPOSED ROADWAY AREAS AS NECESSARY TO REDUCE DUST DURING THE DRY MONTHS. APPLYING OTHER DUST CONTROL PRODUCTS SUCH AS CALCIUM CHLORIDE OR OTHER MANUFACTURED PRODUCTS ARE ALLOWED IF AUTHORIZED BY THE PROPER LOCAL, STATE AND/OR FEDERAL REGULATING AGENCIES. HOWEVER, IT IS THE CONTRACTOR'S ULTIMATE RESPONSIBILITY TO MITIGATE DUST AND SOIL LOSS FROM THE SITE. IF OFFSITE TRACKING OCCURS, PUBLIC ROADS SHOULD BE SWEPT IMMEDIATELY AND NOT LESS THAN ONCE A WEEK AND PRIOR TO SIGNIFICANT STORM EVENTS.

9. TEMPORARY VEGETATION:

TEMPORARY VEGETATION SHALL BE APPLIED TO DISTURBED AREAS THAT WILL NOT RECEIVE FINAL GRADING FOR PERIODS UP TO 12 MONTHS. THIS PROCEDURE SHOULD BE USED EXTENSIVELY IN AREAS ADJACENT TO NATURAL RESOURCES. SEEDBED PREPARATION AND APPLICATION OF SEED SHALL BE CONDUCTED AS INDICATED IN THE PERMANENT VEGETATION SECTION OF THIS NARRATIVE. SPECIFIC SEEDS (FAST GROWING AND SHORT LIVING) SHALL BE SELECTED FROM THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUALS FOR CONTRACTORS AND ENGINEERS, 2016 OR LATEST REVISION. ALTERNATIVE EROSION CONTROL MEASURES SHOULD BE USED IF SEEDING CAN NOT BE DONE BEFORE SEPTEMBER 15TH OF THE CONSTRUCTION YEAR.

10. PERMANENT VEGETATION:

REVEGETATION MEASURES SHALL COMMENCE IMMEDIATELY UPON COMPLETION OF FINAL GRADING OF AREAS TO BE LOAMED AND SEEDED. THE APPLICATION OF SEED SHALL BE CONDUCTED BETWEEN APRIL 1ST AND OCTOBER 1ST OF THE CONSTRUCTION YEAR, PLEASE REFER TO THE WINTER EROSION CONTROL NOTES FOR MORE DETAIL. REVEGETATION MEASURES SHALL CONSIST OF THE FOLLOWING:

SEEDBED PREPARATION:

A. FOUR (4) INCHES OF LOAM SHALL BE SPREAD OVER DISTURBED AREAS AND SMOOTHED TO A UNIFORM SURFACE. LOAM SHALL BE FREE OF SUBSOIL, CLAY LUMPS, STONES AND OTHER OBJECTS OVER 2 INCHES OR LARGER IN ANY DIMENSION, AND WITHOUT WEEDS, ROOTS OR OTHER OBJECTIONABLE MATERIAL.

B. SOILS TESTS SHALL BE TAKEN AT THE TIME OF SOIL STRIPPING TO DETERMINE FERTILIZATION REQUIREMENTS. SOILS TESTS SHALL BE TAKEN PROMPTLY AS TO NOT INTERFERE WITH THE 14-DAY LIMIT ON SOIL EXPOSURE. BASED UPON TEST RESULTS, SOIL AMENDMENTS SHALL BE INCORPORATED INTO THE SOIL PRIOR TO FINAL SEEDING. IN LIEU OF SOIL TESTS, SOIL AMENDMENTS MAY BE APPLIED AS FOLLOWS:

ITEM	APPLICATION RATE
10-20-20 FERTILIZER (N-P205-K20 OR EQUAL)	18.4 LBS./1,000 S.F.
GROUND LIMESTONE (50% CALCIUM & MAGNESIUM OXIDE)	138 LBS./1,000 S.F.

C. WORK LIME AND FERTILIZER INTO THE SOIL AS NEARLY AS PRACTICAL TO A DEPTH OF 4 INCHES WITH PROPER EQUIPMENT. ROLL THE AREA TO FIRM THE SEEDBED EXCEPT ON CLAY OR SILTY SOILS OR COARSE SAND.

APPLICATION OF SEED:

A. SEEDING: SHALL BE CONDUCTED BETWEEN APRIL 1ST AND OCTOBER 1ST OF THE CONSTRUCTION YEAR. GENERALLY A SEED MIXTURE MAY BE APPLIED AS FOLLOWS: (MDEP SEED MIX 2 IS DISPLAYED)

SEED TYPE	APPLICATION RATE
CREEPING RED FESCUE	0.46 LBS/1,000 S.F. (20 LBS/ACRE)
REDTOP	0.05 LBS/1,000 S.F. (2 LBS/ACRE)
TALL FESCUE	0.46 LBS/1,000 S.F. (20 LBS/ACRE)
TOTAL:	0.97 LBS/1,000 S.F. (42 LBS/ACRE)

NOTE: A SPECIFIC SEED MIXTURE SHOULD BE CHOSEN TO MATCH THE SOILS CONDITION OF THE SITE. VARIOUS AGENCIES CAN RECOMMEND SEED MIXTURES. MDEP RECOMMENDED SEED MIXTURES ARE IN THE EROSION AND SEDIMENT CONTROL BMP MANUAL DATED 2016 OR LATEST REVISION.

B. HYDROSEEDING: SHALL BE CONDUCTED ON PREPARED AREAS WITH SLOPES LESS THAN 2:1. LIME AND FERTILIZER MAY BE APPLIED SIMULTANEOUSLY WITH THE SEED. RECOMMENDED SEEDING RATES MUST BE INCREASED BY 10% WHEN HYDROSEEDING.

C. MULCHING: SHALL COMMENCE IMMEDIATELY AFTER SEED IS APPLIED. REFER TO THE TEMPORARY MULCHING SECTION OF THIS NARRATIVE FOR DETAILS.

SODDING:
FOLLOWING SEEDBED PREPARATION, SOD CAN BE APPLIED IN LIEU OF SEEDING IN AREAS WHERE IMMEDIATE VEGETATION IS MOST BENEFICIAL SUCH AS DITCHES, AROUND STORMWATER DROP INLETS AND AREAS OF AESTHETIC VALUE. SOD SHOULD BE LAID AT RIGHT ANGLES TO THE DIRECTION OF FLOW, STARTING AT THE LOWEST ELEVATION. SOD SHOULD BE ROLLED OR TAMPED DOWN TO EVEN OUT THE JOINTS ONCE LAID DOWN. WHERE FLOW IS PREVALENT THE SOD MUST BE PROPERLY ANCHORED DOWN. IRRIGATE THE SOD IMMEDIATELY AFTER INSTALLATION. IN MOST CASES, SOD CAN BE ESTABLISHED BETWEEN APRIL 1ST AND NOVEMBER 15TH OF THE CONSTRUCTION YEAR, HOWEVER, REFER TO THE WINTER EROSION CONTROL NOTES FOR ANY ACTIVITIES AFTER OCTOBER 1ST.

STANDARDS FOR TIMELY STABILIZATION:

STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SLOPES -- THE CONTRACTOR WILL CONSTRUCT AND STABILIZE STONE-COVERED SLOPES BY NOVEMBER 15. THE CONTRACTOR WILL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 15. THE MDEP WILL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 15% (10H:1V) TO BE A SLOPE. IF THE CONTRACTOR FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 15, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.
A. STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS -- BY OCTOBER 1 THE CONTRACTOR WILL SEED THE DISTURBED SLOPE WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1,000 SQUARE FEET AND APPLY EROSION CONTROL MATS OVER THE MULCHED SLOPE. THE CONTRACTOR WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SLOPE BY NOVEMBER 1, THEN THE CONTRACTOR WILL COVER THE SLOPE WITH A LAYER OF WOOD WASTE COMPOST AS DESCRIBED IN ITEM 2(C.) OF THIS STANDARD OR WITH STONE RIPRAP AS DESCRIBED IN ITEM 2(D.) OF THIS STANDARD.
B. STABILIZE THE SLOPE WITH SOD -- THE CONTRACTOR WILL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE APPLICANT WILL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33% (3H:1V).
C. STABILIZE THE SLOPE WITH WOOD WASTE COMPOST -- THE CONTRACTOR WILL PLACE A SIX-INCH LAYER OF WOOD WASTE COMPOST ON THE SLOPE BY NOVEMBER 15. PRIOR TO PLACING THE WOOD WASTE COMPOST, THE APPLICANT WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE. THE APPLICANT WILL NOT USE WOOD WASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.
D. STABILIZE THE SLOPE WITH STONE RIPRAP -- THE CONTRACTOR WILL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15. THE APPLICANT WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SOILS -- BY SEPTEMBER 15 THE CONTRACTOR WILL SEED AND MULCH ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15%. IF THE CONTRACTOR FAILS TO STABILIZE THESE SOILS BY THIS DATE, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.
A. STABILIZE THE SOIL WITH TEMPORARY VEGETATION -- BY OCTOBER 1 THE CONTRACTOR WILL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET, LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 POUNDS PER 1000 SQUARE FEET, AND ANCHOR THE MULCH WITH PLASTIC NETTING. THE APPLICANT WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 15, THEN THE APPLICANT WILL MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED IN ITEM 3(C.) OF THIS STANDARD.
B. STABILIZE THE SOIL WITH SOD -- THE APPLICANT WILL STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
C. STABILIZE THE SOIL WITH MULCH -- BY NOVEMBER 15 THE APPLICANT WILL MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 POUNDS PER 1000 SQUARE FEET ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. PRIOR TO APPLYING THE MULCH, THE APPLICANT WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED AREA. IMMEDIATELY AFTER APPLYING THE MULCH, THE APPLICANT WILL ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.

1. MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION CYCLE. AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, AND AT LEAST EVERY SEVEN (7) DAYS, THE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES. THE CONTRACTOR SHALL PERFORM REPAIRS NO LATER THAN THE END OF THE NEXT WORKDAY, TO ALLOW CONTINUED PROPER FUNCTIONING OF THE EROSION CONTROL MEASURE. THE CONTRACTOR SHALL PROVIDE THE NECESSARY REGULATING AGENCIES WITH WRITTEN DOCUMENTATION DESCRIBING DATES OF INSPECTIONS AND NECESSARY FOLLOW-UP WORK TO MAINTAIN EROSION CONTROL MEASURES MEETING THE REQUIREMENTS OF THIS PLAN WITHIN SEVEN (7) DAYS.

2. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDINGS, THE CONTRACTOR SHALL INSPECT THE WORK AREA SEMIMONTHLY UNTIL THE SEEDINGS HAVE BEEN ESTABLISHED. ESTABLISHED MEANS A MINIMUM OF 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH. RESEEDING SHALL BE CARRIED OUT BY THE CONTRACTOR WITH FOLLOW-UP INSPECTIONS IN THE EVENT OF ANY FAILURES UNTIL VEGETATION IS ADEQUATELY ESTABLISHED.

HOUSEKEEPING:

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.

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 AND 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;
   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;
   K. POTABLE WATER SOURCES INCLUDING WATERLINE FLUSHINGS; AND
   L. LANDSCAPE IRRIGATION.

7. UNAUTHORIZED NON-STORMWATER DISCHARGES. THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE A DISCHARGE THAT IS MIXED WITH A SOURCE OF NON-STORMWATER, OTHER THAN THOSE DISCHARGES. SPECIFICALLY, THE DEPARTMENT'S APPROVAL DOES NOT AUTHORIZE DISCHARGES OF THE FOLLOWING:
   A. WASTEWATER FROM THE WASHOUT OR CLEAN OUT 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.

WINTER EROSION CONTROL MEASURES

THE WINTER CONSTRUCTION PERIOD IS FROM OCTOBER 1 THROUGH APRIL 15. IF THE CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 15 THEN THE SITE NEEDS TO BE PROTECTED WITH OVER-WINTER STABILIZATION. AN AREA CONSIDERED OPEN IS ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MATS, RIPRAP OR GRAVEL BASE ON A ROAD. LIMIT THE EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDER TAKEN DURING THE PROCEEDING 15 DAYS AND THAT CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT. ALL AREAS SHALL BE CONSIDERED TO BE DENUDED UNTIL THE SUBBASE GRAVEL IS INSTALLED IN ROADWAY AREAS OR THE AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH RATE SHALL BE A MINIMUM OF 150 LBS./1,000 S.F. (3 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. THE CONTRACTOR MUST INSTALL ANY ADDED MEASURES WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDENT UPON THE ACTUAL SITE AND WEATHER CONDITIONS. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.

1. SOIL STOCKPILES

STOCKPILES OF SOIL OR SUBSOIL WILL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR AT 150 LBS/1,000 S.F. (3 TONS PER ACRE) OR WITH A FOUR-INCH LAYER OF WOOD WASTE EROSION CONTROL MIX. THIS WILL BE DONE WITHIN 24 HOURS OF STOCKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL. ANY SOIL STOCKPILE WILL NOT BE PLACED (EVEN COVERED WITH HAY OR STRAW) WITHIN 100 FEET FROM ANY NATURAL RESOURCES.

2. NATURAL RESOURCES PROTECTION

ANY AREAS WITHIN 100 FEET FROM ANY NATURAL RESOURCES, IF NOT STABILIZED WITH A MINIMUM OF 75% MATURE VEGETATION CATCH, SHALL BE MULCHED BY DECEMBER 1 AND ANCHORED WITH PLASTIC NETTING OR PROTECTED WITH EROSION CONTROL MATS. DURING WINTER CONSTRUCTION, A DOUBLE LINE OF SEDIMENT BARRIERS (I.E. SILT FENCE BACKED WITH HAY BALES OR EROSION CONTROL MIX) WILL BE PLACED BETWEEN ANY NATURAL RESOURCE AND THE DISTURBED AREA.

PROJECTS CROSSING THE NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 100 FEET ON EITHER SIDE FROM THE RESOURCE. EXISTING PROJECTS NOT STABILIZED BY DECEMBER 1 SHALL BE PROTECTED WITH THE SECOND LINE OF SEDIMENT BARRIER TO ENSURE FUNCTIONALITY DURING THE SPRING THAW AND RAINS.

3. SEDIMENT BARRIERS

DURING FROZEN CONDITIONS, SEDIMENT BARRIERS SHALL CONSIST OF WOOD WASTE FILTER BERMS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES AND SEDIMENT SILT FENCES.

4. MULCHING

ALL AREA SHALL BE CONSIDERED TO BE DENUDED UNTIL AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 150 LB. PER 1.000 SQUARE FEET OR 3 TONS/ACRE (TWICE THE NORMAL ACCEPTED RATE OF 75-LBS./1,000 S.F. OR 1.5 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW WILL BE REMOVED DOWN TO A ONE-INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA WILL BE PROPERLY STABILIZED WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 150 LB. PER 1.000 SQUARE FEET (3TONS/ACRE) AND ADEQUATELY ANCHORED THAT GROUND SURFACE IS NOT VISIBLE THOUGH THE MULCH.

BETWEEN THE DATES OF SEPTEMBER 1 AND APRIL 15, ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING, ASPHALT EMULSION CHEMICAL, TRACK OR WOOD CELLULOSE FIBER. WHEN GROUND SURFACE IS NOT VISIBLE THOUGH THE MULCH THEN COVER IS SUFFICIENT.
AFTER NOVEMBER 1ST, MULCH AND ANCHORING OF ALL BARE SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORK DAY.

5. MULCHING ON SLOPES AND DITCHES

SLOPES SHALL NOT BE LEFT EXPOSED FOR ANY EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY MULCHED AND ANCHORED WITH PEG AND NETTING OR WITH EROSION CONTROL BLANKETS. MULCHING SHALL BE APPLIED AT A RATE OF 230 LBS/1,000 S.F. ON ALL SLOPES GREATER THAN 8%. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 5%. EROSION CONTROL BLANKETS SHALL BE USED IN LIEU OF MULCH IN ALL DRAINAGE WAYS WITH SLOPES 8%. EROSION CONTROL MIX CAN BE USED TO SUBSTITUTE EROSION CONTROL BLANKETS ON ALL SLOPES EXCEPT DITCHES.

6. SEEDING

BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1ST, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES FINISHED AREAS SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOOMED, FINAL GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. DORMANT SEEDING MAY BE SELECTED TO BE PLACED PRIOR TO THE PLACEMENT OF MULCH AND FABRIC NETTING ANCHORED WITH STAPLES. IF DORMANT SEEDING IS USED FOR THE SITE, ALL DISTURBED AREAS SHALL RECEIVE 4' OF LOAM AND SEED AT AN APPLICATION RATE OF 5LBS/1000 S.F. ALL AREAS SEEDED DURING THE WINTER WILL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS SUFFICIENTLY VEGETATED (LESS THAN 75% CATCH) SHALL BE REVEGETATED BY REPLACING LOAM, SEED AND MULCH. IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL DISTURBED AREAS SHALL BE REVEGETATED IN THE SPRING. SEED TYPE SHALL BE WINTER RYE.

7. INSPECTION AND MONITORING

MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. AT A MINIMUM, AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUOUS FUNCTION.
FOLLOWING THE TEMPORARY AND OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL IN THE SPRING INSPECT AND REPAIR ANY DAMAGES AND/ OR UNESTABLISHED SPOTS. ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.

STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

1. STANDARD FOR THE TIMELY STABILIZATION OF DITCHES AND CHANNELS -- THE APPLICANT WILL CONSTRUCT AND STABILIZE ALL STONE-LINED DITCHES AND CHANNELS ON THE SITE BY NOVEMBER 15. THE APPLICANT WILL CONSTRUCT AND STABILIZE ALL GRASS-LINED DITCHES AND CHANNELS ON THE SITE BY SEPTEMBER 15. IF THE APPLICANT FAILS TO STABILIZE A DITCH OR CHANNEL TO BE GRASS-LINED BY SEPTEMBER 15, THEN THE APPLICANT WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE DITCH FOR LATE FALL AND WINTER.

INSTALL A SOD LINING IN THE DITCH -- THE APPLICANT WILL LINE THE DITCH WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL, AND ANCHORING THE SOD WITH JUTE OR PLASTIC MESH TO PREVENT THE SOD STRIPS FROM SLOUGHING DURING FLOW CONDITIONS.
INSTALL A STONE LINING IN THE DITCH --THE APPLICANT WILL LINE THE DITCH WITH STONE RIPRAP BY NOVEMBER 15. THE APPLICANT WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE AND LINING THICKNESS NEEDED TO WITHSTAND THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHIN THE DITCH. IF NECESSARY, THE APPLICANT WILL REGRADE THE DITCH PRIOR TO PLACING THE STONE LINING SO TO PREVENT THE STONE LINING FROM REDUCING THE DITCH'S CROSS-SECTIONAL AREA.

2. STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SLOPES -- THE APPLICANT WILL CONSTRUCT AND STABILIZE STONE-COVERED SLOPES BY NOVEMBER 15. THE APPLICANT WILL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 15. THE DEPARTMENT WILL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 15% (10H:1V) TO BE A SLOPE. IF THE APPLICANT FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 15, THEN THE APPLICANT WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.

STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS -- BY OCTOBER 1 THE APPLICANT WILL SEED THE DISTURBED SLOPE WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET AND APPLY EROSION CONTROL MATS OVER THE MULCHED SLOPE. THE APPLICANT WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SLOPE BY NOVEMBER 1, THEN THE APPLICANT WILL COVER THE SLOPE WITH A LAYER OF WOOD WASTE COMPOST AS DESCRIBED IN ITEM III OF THIS CONDITION OR WITH STONE RIPRAP AS DESCRIBED IN ITEM IV OF THIS CONDITION.

STABILIZE THE SLOPE WITH SOD -- THE APPLICANT WILL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE APPLICANT WILL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33% (3H:1V).

STABILIZE THE SLOPE WITH WOOD WASTE COMPOST -- THE APPLICANT WILL PLACE A SIX-INCH LAYER OF WOOD WASTE COMPOST ON THE SLOPE BY NOVEMBER 15. PRIOR TO PLACING THE WOOD WASTE COMPOST, THE APPLICANT WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE. THE APPLICANT WILL NOT USE WOOD WASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.

STABILIZE THE SLOPE WITH STONE RIPRAP -- THE APPLICANT WILL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 15. THE APPLICANT WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

3. STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SOILS -- BY SEPTEMBER 15 THE APPLICANT WILL SEED AND MULCH ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15%. IF THE APPLICANT FAILS TO STABILIZE THESE SOILS BY THIS DATE, THEN THE APPLICANT WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.
STABILIZE THE SOIL WITH TEMPORARY VEGETATION -- BY OCTOBER 1 THE APPLICANT WILL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET, LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 POUNDS PER 1000 SQUARE FEET, AND ANCHOR THE MULCH WITH PLASTIC NETTING. THE APPLICANT WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 15, THEN THE APPLICANT WILL MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED IN ITEM III OF THIS STANDARD.
STABILIZE THE SOIL WITH SOD -- THE APPLICANT WILL STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.
STABILIZE THE SOIL WITH MULCH -- BY NOVEMBER 15 THE APPLICANT WILL MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 POUNDS PER 1000 SQUARE FEET ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. PRIOR TO APPLYING THE MULCH, THE APPLICANT WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED AREA. IMMEDIATELY AFTER APPLYING THE MULCH, THE APPLICANT WILL ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.

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KYLIE S. MASON, RLA 3335
REGISTERED LANDSCAPE ARCHITECT KYLIE S. MASON No. 3335 STATE OF MAINE
07/03/19

SEBAGO TECHNICS
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75 John Roberts Rd. Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

FIRE SUB STATION
55 NORTH TEMPLE STREET
project number: 16304

EROSION CONTROL NOTES

Scale: N.T.S.
Drawn by: CAD

No.	Issue	Date
1	TOWN SUBMISSION	06-18-19
2	TOWN RESUBMISSION	06-28-19
3	SUBMISSION TO PLANNING BOARD	07-03-19

16304D.dwg, TAB: 8 EROSION CONTROL NOTES

C5.0

CONSTRUCTION NOTES

1. ALL WORK SHALL CONFORM TO THE APPLICABLE CODES AND ORDINANCES.

2. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIM OR HERSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIM OR HERSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.

3. CONTRACTOR SHALL NOTIFY ENGINEER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND IN THE FIELD.

4. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND OWNER'S REQUIREMENTS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.

6. CONTRACTOR SHALL CLEAN AND REMOVE DEBRIS AND SEDIMENT DEPOSITED ON PUBLIC STREETS, SIDEWALKS, ADJACENT AREAS, OR OTHER PUBLIC WAYS DUE TO CONSTRUCTION.

7. CONTRACTOR SHALL INCORPORATE PROVISIONS AS NECESSARY IN CONSTRUCTION TO PROTECT EXISTING STRUCTURES, PHYSICAL FEATURES, AND MAINTAIN SITE STABILITY DURING CONSTRUCTION. CONTRACTOR SHALL RESTORE ALL AREAS TO ORIGINAL CONDITION AND AS DIRECTED BY DESIGN DRAWINGS.

8. SITE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO CONSTRUCTION.

9. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH "MAINE EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS" PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY OF THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, 2014 OR LATEST EDITION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO POSSESS A COPY OF THE EROSION CONTROL PLAN AT ALL TIMES.

10. THE CONTRACTOR IS HEREBY CAUTIONED THAT ALL SITE FEATURES SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS BY THE SURVEYOR AND BY INFORMATION PROVIDED BY UTILITY COMPANIES. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT DIG SAFE (811) AT LEAST THREE (3) BUT NOT MORE THAN THIRTY (30) DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION TO VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES.

11. CONTRACTOR SHALL BE AWARE THAT DIG SAFE ONLY NOTIFIES ITS "MEMBER" UTILITIES ABOUT THE DIG. WHEN NOTIFIED, DIG SAFE WILL ADVISE CONTRACTOR OF MEMBER UTILITIES IN THE AREA. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND CONTACTING NON-MEMBER UTILITIES DIRECTLY. NON-MEMBER UTILITIES MAY INCLUDE TOWN OR CITY WATER AND SEWER DISTRICTS AND SMALL LOCAL UTILITIES, AS WELL AS USG PUBLIC WORKS SYSTEMS.

12. CONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE REQUIREMENTS OF 23 MRSA 3360-A. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE APPROPRIATE UTILITIES TO OBTAIN AUTHORIZATION PRIOR TO RELOCATION OF ANY EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS. IF A UTILITY CONFLICT ARISES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER, THE MUNICIPALITY AND APPROPRIATE UTILITY COMPANY PRIOR TO PROCEEDING WITH ANY RELOCATION.

13. ALL PAVEMENT MARKINGS AND DIRECTIONAL SIGNAGE SHOWN ON THE PLAN SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS.

14. ALL PAVEMENT JOINTS SHALL BE SAWCUT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.

15. NO HOLES, TRENCHES OR STRUCTURES SHALL BE LEFT OPEN OVERNIGHT IN ANY EXCAVATION ACCESSIBLE TO THE PUBLIC OR IN PUBLIC RIGHTS-OF-WAY.

16. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY SHALL REQUIRE A M.D.O.T. PERMIT AS WELL AS PERMITS FROM THE TOWN AS APPLICABLE.

17. THE PROPOSED LIMITS OF CLEARING SHOWN HEREON ARE APPROXIMATE BASED UPON THE PROPOSED LIMITS OF SITE GRADING. THE APPLICANT RESERVES THE RIGHT TO PERFORM NORMAL FOREST MANAGEMENT ACTIVITIES OUTSIDE OF THE CLEARING LIMIT AS SHOWN. TREE REMOVAL OUTSIDE OF THE LIMITS OF CLEARING MAY BE NECESSARY TO REMOVE DEAD OR DYING TREES OR TREE LIMBS. THIS REMOVAL IS DUE TO POTENTIAL SAFETY HAZARDS AND TO PROMOTE PROPER FOREST GROWTH.

18. IMMEDIATELY UPON COMPLETION OF CUTS/FILLS, THE CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH EROSION CONTROL NOTES AND AS SPECIFIED ON PLANS.

19. THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR THE REMOVAL, REPLACEMENT AND RECTIFICATION OF ALL DAMAGED AND DEFECTIVE MATERIAL AND WORKMANSHIP IN CONNECTION WITH THE CONTRACT WORK. THE CONTRACTOR SHALL REPLACE OR REPAIR AS DIRECTED BY THE OWNER ALL SUCH DAMAGED OR DEFECTIVE MATERIALS WHICH APPEAR WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION.

20. ALL WORK PERFORMED BY THE GENERAL CONTRACTOR AND/OR TRADE SUBCONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF LOCAL, STATE OR FEDERAL LAWS, AS WELL AS ANY OTHER GOVERNING REQUIREMENTS, WHETHER OR NOT SPECIFIED ON THE DRAWINGS.

21. WHERE THE TERMS "APPROVED EQUAL", "OTHER APPROVED", "EQUAL TO", "ACCEPTABLE" OR OTHER GENERAL QUALIFYING TERMS ARE USED IN THESE NOTES, IT SHALL BE UNDERSTOOD THAT REFERENCE IS MADE TO THE RULING AND JUDGMENT OF SEBAGO TECHNICS, INC.

22. THE GENERAL CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTION FOR THE WORK UNTIL TURNED OVER TO THE OWNER.

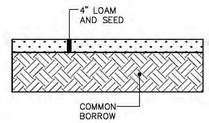
23. THE GENERAL CONTRACTOR SHALL MAINTAIN A CURRENT AND COMPLETE SET OF CONSTRUCTION DRAWINGS ON SITE DURING ALL PHASES OF CONSTRUCTION FOR USE OF ALL TRADES.

24. THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ANY CHANGES AND DEVIATION OF APPROVED PLANS NOT AUTHORIZED BY THE ARCHITECT/ENGINEER AND/OR CLIENT/OWNER.

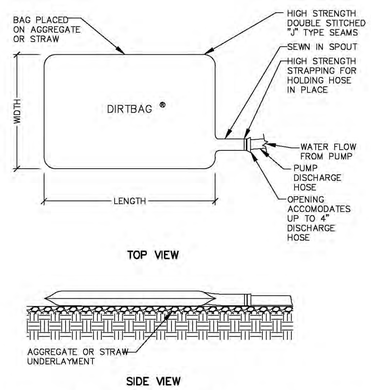
25. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. ANY MODIFICATION TO SUIT FIELD DIMENSION AND CONDITION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ANY WORK.

26. BEFORE THE FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT AND MATERIALS, REPAIR OR REPLACE PRIVATE OR PUBLIC PROPERTY WHICH MAY HAVE BEEN DAMAGED OR DESTROYED DURING CONSTRUCTION, CLEAN THE AREAS WITHIN AND ADJACENT TO THE PROJECT WHICH HAVE BEEN OBSTRUCTED BY HIS/HER OPERATIONS, AND LEAVE THE PROJECT AREA NEAT AND PRESENTABLE.

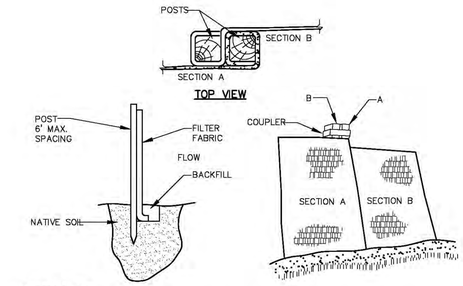
27. ALL SUBSURFACE UTILITY LINES SHOWN HEREON ARE BASED SOLELY ON THE FIELD LOCATION OF VISIBLE STRUCTURES, SMH'S, CB'S, HYDRANTS, ETC.. IN CONJUNCTION WITH DESIGN AND OR AS-BUILT PLANS SUPPLIED TO SEBAGO TECHNICS INC. BY OTHERS. PRIOR TO ANY CONSTRUCTION, EXCAVATION, TEST BORINGS, DRILLING, ETC.. DIG SAFE MUST BE NOTIFIED AND A SITE IDENTIFICATION NUMBER ALONG WITH A SAFE TO DIG DATE OBTAINED. THE SITE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING THE LOCATION, DEPTH AND MATERIAL OF ALL SUBSURFACE UTILITY LINES SHOWN HEREON AND ANY AND ALL OTHERS LOCATED ON SITE WITHIN THE CONSTRUCTION AREA.



LOAM AND SEED SECTION
NOT TO SCALE



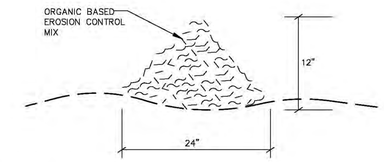
DIRTBAG PUMPED SILT CONTROL SYSTEM
NOT TO SCALE



INSTALLATION:

1. EXCAVATE A 6"x 6" TRENCH ALONG THE LINE OF PLACEMENT FOR THE FILTER BARRIER.
2. UNROLL A SECTION AT A TIME AND POSITION THE POSTS AGAINST THE BACK (DOWNSTREAM) WALL OF THE TRENCH.
3. DRIVE POSTS INTO THE GROUND UNTIL APPROXIMATELY 2" OF FABRIC IS LYING ON THE TRENCH BOTTOM.
4. LAY THE TOE-IN FLAP OF FABRIC ONTO THE UNDISTURBED BOTTOM OF THE TRENCH, BACKFILL THE TRENCH AND TAMP THE SOIL. TOE-IN CAN ALSO BE ACCOMPLISHED BY LAYING THE FABRIC FLAP ON UNDISTURBED GROUND AND PILING AND TAMPING FILL AT THE BASE, BUT MUST BE ACCOMPANIED BY AN INTERCEPTION DITCH.
5. JOIN SECTION AS SHOWN ABOVE.
6. BARRIER SHALL BE MIRAFI SILT FENCE OR EQUAL.

FILTER BARRIER
NOT TO SCALE



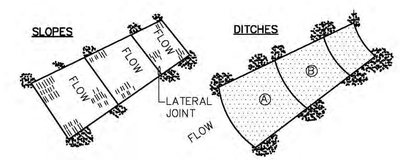
COMPOSITION

EROSION CONTROL MIX SHALL BE MANUFACTURED ON OR OFF THE PROJECT SITE SUCH THAT ITS COMPOSITION IS IN ACCORDANCE WITH THE MDEP MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL, LAST REVISED 3/2003 OR LATER. IT MUST CONSIST PRIMARILY OF ORGANIC MATERIAL, SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, STUMP GRINDINGS, COMPOSTED BARK, OR ACCEPTABLE MANUFACTURED PRODUCTS. WOOD AND BARK CHIPS, GROUND CONSTRUCTION DEBRIS OR REPROCESSED WOOD PRODUCTS WILL NOT BE ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX.

INSTALLATION:

1. THE BARRIER MUST BE PLACED ACROSS THE SLOPE, ALONG THE CONTOUR.
2. EXISTING GROUND SHALL BE PREPARED SUCH THAT THE BARRIER MAY LIE NEARLY FLAT ALONG THE GROUND TO AVOID THE CREATION OF VOIDS AND BRIDGES IN ORDER TO MINIMIZE THE POTENTIAL OF WASH OUTS UNDER THE BARRIER.
3. THE BARRIER SHALL BE A MINIMUM OF 1 FOOT HIGH (AS MEASURED ON THE UPHILL SIDE) AND 2 FEET WIDE FOR SLOPES LESS THAN 5% IN GRADE AND SHALL BE WIDER TO ACCOMMODATE THE ADDITIONAL RUNOFF.
4. EROSION CONTROL MIX CAN BE INSTALLED WHERE SILT FENCE IS ILLUSTRATED ON THE DESIGN PLANS IN AREAS EXCEPT IN, BUT NOT LIMITED TO, THE FOLLOWING AREAS: WETLAND AREAS, AT POINTS OF CONCENTRATED FLOW, BELOW CULVERT OUTLET APRONS, AROUND CATCH BASINS AND CLOSED STORM SYSTEMS AND AT THE BOTTOM OF STEEP SLOPES THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM.

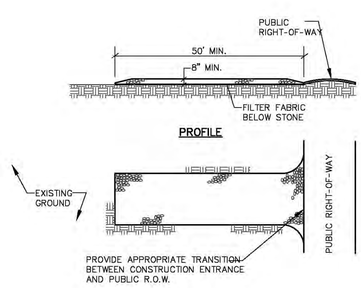
EROSION CONTROL MIX BERM
NOT TO SCALE



NOTES:

1. BURY THE TOP END OF THE MESH MATERIAL IN A 6" TRENCH AND BACKFILL AND TAMP TRENCHING SECURE END WITH STAPLES AT 6" SPACING, 4" DOWN FROM EXPOSED END.
2. FLOW DIRECTION JOINTS TO HAVE UPPER END OF LOWER STRIP BURIED WITH UPPER LAYERS OVERLAPPED 4" AND STAPLED. OVERLAP B OVER A.
3. LATERAL JOINTS TO HAVE 4" OVERLAP OF STRIPS. STAPLE 18" ON CENTER.
4. STAPLE OUTSIDE LATERAL EDGE 2" ON CENTER.
5. WIRE STAPLES TO BE MIN OF #11 WIRE 6" LONG AND 1-1/2" WIDE.
6. USE NORTH AMERICAN GREEN DS 150 OR APPROVED EQUAL.

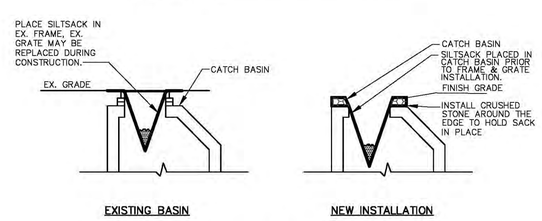
EROSION CONTROL BLANKET
NOT TO SCALE

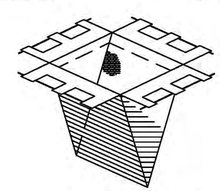


NOTES:

1. STONE SIZE- AASHTO DESIGNATION M43, SIZE NO. 2 (2 1/2" TO 1 1/2"). USE CRUSHED STONE.
2. LENGTH- AS SHOWN ON PLANS, MIN. 50 FEET.
3. THICKNESS- NOT LESS THAN EIGHT (8) INCHES.
4. WIDTH- NOT LESS THAN FULL WIDTH OF ALL POINT OF INGRESS OR EGRESS.
5. MAINTENANCE- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE



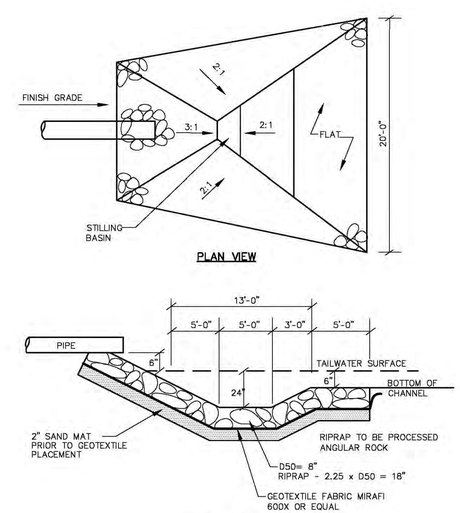


SILT SACK PROTECTION

NOTES:

PRIOR TO FINAL GRADING AND PAVING OPERATIONS BEGIN A CATCH BASIN INSERT (SUCH AS A SILT SACK OR A DANDY BAG II) MUST BE INSTALLED IN EACH BASIN PER MANUFACTURES INSTRUCTIONS. HAY BALES SHOULD BE REMOVED ONCE INSERTS ARE INSTALLED.

CATCH BASIN PROTECTION DETAIL (FOR PAVED AREAS)
NOT TO SCALE



STILLING BASIN
NOT TO SCALE

context ARCHITECTURE
68 HARRISON AVENUE BOSTON, MA 02111 TEL 617.423.3400 WEB CONTEXTARC.COM

KYLE S. MASON, RLA 3335
REGISTERED LANDSCAPE ARCHITECT
KYLE S. MASON
No. 3335
STATE OF MAINE
07/03/19

SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd.
South Portland, ME 04106
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FIRE SUB STATION
55 NORTH TEMPLE STREET
project number: 16304

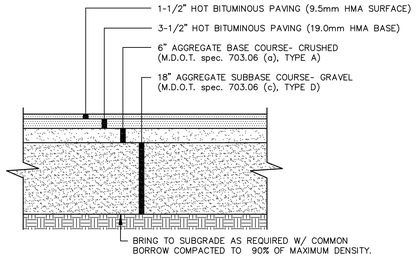
EROSION CONTROL DETAILS

Scale: N.T.S.
Drawn by: CAD

No.	Issue	Date
1	TOWN SUBMISSION	06-18-19
2	TOWN RESUBMISSION	06-28-19
3	SUBMISSION TO PLANNING BOARD	07-03-19

C5.1

16304D.dwg, TAB: 9 EROSION CONTROL DETAILS

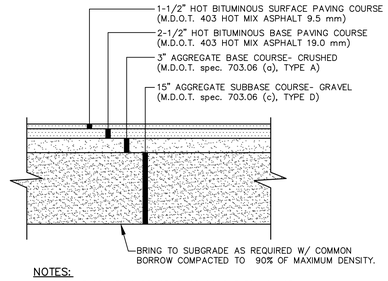


NOTES:

1. COMPACT GRAVEL SUBBASE, BASE COURSE TO 92% OF MAXIMUM DENSITY USING HEAVY ROLLER COMPACTION.
2. CONTRACTOR SHALL SET GRADE STAKES MARKING SUBBASE AND FINISH GRADE ELEVATIONS FOR CONSTRUCTION REFERENCE.

HEAVY DUTY BITUMINOUS PAVEMENT

NOT TO SCALE

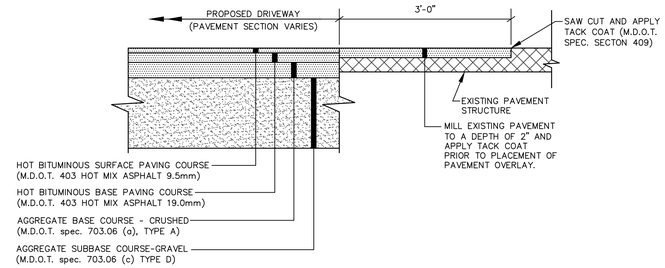


NOTES:

1. COMPACT GRAVEL SUBBASE, BASE COURSE TO 92% OF MAXIMUM DENSITY USING HEAVY ROLLER COMPACTION.
2. CONTRACTOR SHALL SET GRADE STAKES MARKING SUBBASE AND FINISH GRADE ELEVATIONS FOR CONSTRUCTION REFERENCE.

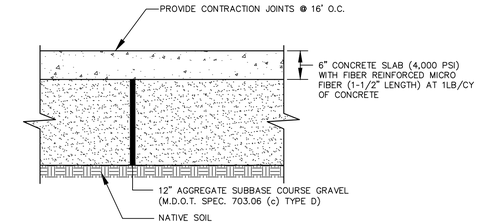
STANDARD DUTY BITUMINOUS PAVEMENT

NOT TO SCALE



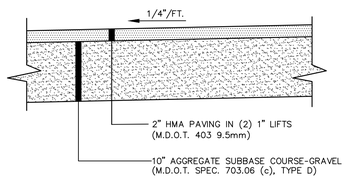
TYPICAL PAVEMENT JOINT

NOT TO SCALE



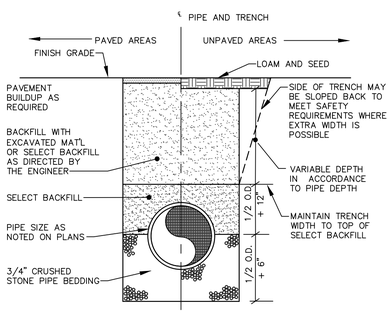
CONCRETE UTILITY PAD SECTION

NOT TO SCALE



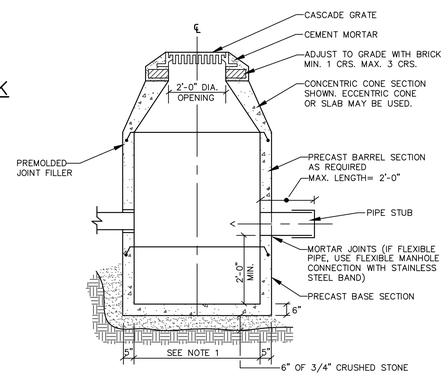
PEDESTRIAN PAVING BITUMINOUS WALK

NOT TO SCALE



TYPICAL TRENCH SECTION

NOT TO SCALE

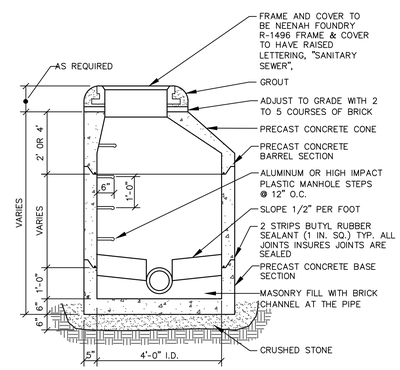


NOTES:

1. 4'-0" I.D. TYPICAL. SOME STRUCTURES MAY REQUIRE LARGER I.D. PROVIDE SHOP DRAWINGS.
2. DRAINAGE STRUCTURES TO BE DESIGNED FOR H-20 LOADING.
3. PIPE SIZES AND INVERTS AS NOTED ON PLANS.
4. CATCH BASIN FRAME AND GRATE TO BE EAST JORDAN OME552000003 FRAME WITH OME552000016 GRATE.

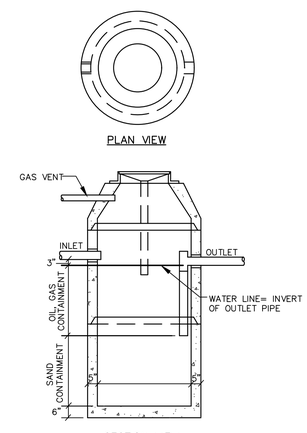
TYPICAL CATCH BASIN

NOT TO SCALE



NOTE: PIPE CONNECTIONS SHALL BE WATERTIGHT FLEXIBLE BOOT CONNECTORS PROVIDES LEAKPROOF CONNECTION

PRECAST MANHOLE

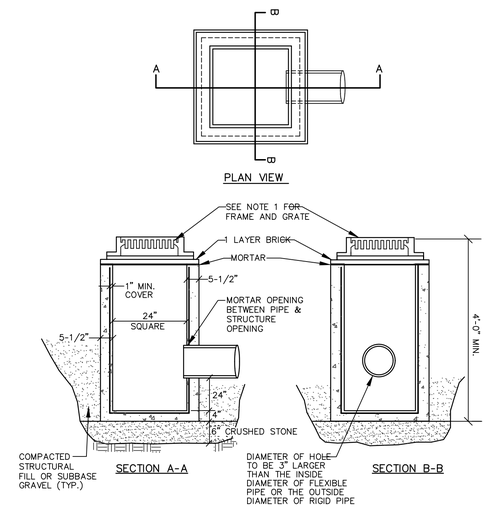


NOTES:

1. CONCRETE: 4,000 PSI AFTER 28 DAYS.
2. REINFORCING: H-20 LOADING, 4x4/4x4 W.W.M.
3. SHIPLAP JOINTS SEALED WITH 1 STRIP OF BUTYL RUBBER SEALANT.
4. EACH CASTING TO HAVE LIFTING PINS CAST IN.
5. 24" DIA. HEAVY DUTY FRAME & GRATE OR SOLID COVER (M248S).
6. PIPE OPENINGS CAST IN AS REQUIRED PIPING TO BE PROVIDED BY OTHERS.
7. LARGER DIAMETER STRUCTURES MAY ALSO BE UTILIZED.

SAND, OIL, WATER SEPARATOR

NOT TO SCALE

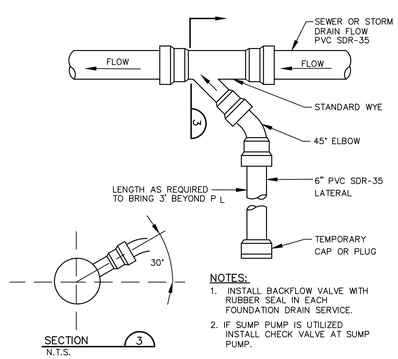


NOTES:

1. FRAME SHALL BE FOR 24" SQUARE GRATE- LEBARON TYPE "F" SQUARE FRAME (LF 245) 4 FLANGE OR ETHERIDGE SQUARE FRAME S24G. GRATE SHALL BE 24"x24" CAST IRON.
2. ENTIRE CATCH BASIN WITH EXCEPTION OF LEVELING BRICK FRAME AND GRATE TO BE PRECAST AS SINGLE PORTLAND CEMENT CONCRETE UNIT.

TYP. TYPE "F" CATCH BASIN

NOT TO SCALE

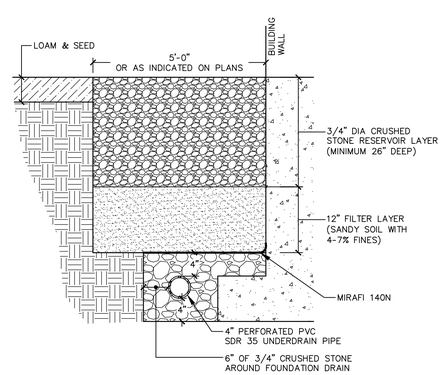


NOTES:

1. INSTALL BACKFLOW VALVE WITH RUBBER SEAL IN EACH FOUNDATION DRAIN SERVICE.
2. IF SUMP PUMP IS UTILIZED INSTALL CHECK VALVE AT SUMP PUMP.

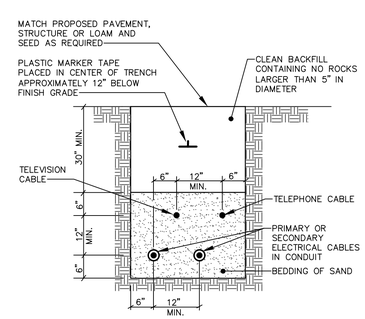
SEWER / FOUNDATION DRAIN SERVICE CONNECTION

NOT TO SCALE



STONE DRIP EDGE/FOUNDATION DRAIN

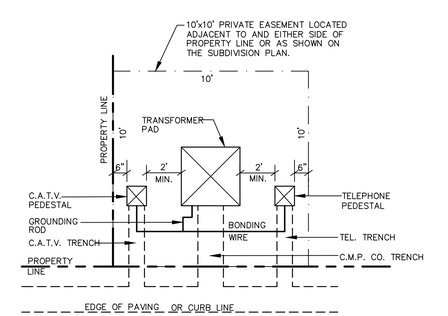
NOT TO SCALE



CABLES TO BE ENCASED IN SCHEDULE 40 PVC CONDUIT WHEN RUN BENEATH PAVED AREAS.

TYPICAL UNDERGROUND CABLE INSTALLATION

NOT TO SCALE



NOTE:
TRANSFORMER PAD AND COVER TO BE FIBERGLASS MEETING CENTRAL MAINE POWER SPECIFICATIONS.

TRANSFORMER DETAIL

NOT TO SCALE

KYLIE S. MASON, RLA 3335

context ARCHITECTURE
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REGISTERED LANDSCAPE ARCHITECT KYLIE S. MASON No. 3335 STATE OF MAINE 07/03/19

FIRE SUB STATION
55 NORTH TEMPLE STREET
project number: 16304

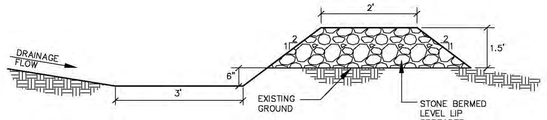
DETAILS

Scale: N.T.S.
Drawn by: CAD

No.	Issue	Date
1	TOWN SUBMISSION	06-18-19
2	TOWN RESUBMISSION	06-28-19
3	SUBMISSION TO PLANNING BOARD	07-03-19

16304D.dwg, TAB:10 DETAILS - 3

C5.2



STONE SIZE

SIEVE	% PASSING
12"	100
6"	84-100
3"	68-83
1"	42-55
NO. 4	8-12

NOTES:
1. CONSTRUCT AN EARTHEN BERM A MINIMUM 6" ABOVE LEVEL LIP THAT EXTENDS AROUND BACK AND SIDES SO THAT STORMWATER RUNOFF IS DIRECTED OVER THE LEVEL LIP.
2. SEE GRADING PLANS FOR LEVEL SPREADER LENGTH.

LEVEL SPREADER CONSTRUCTION OVERSIGHT NOTES:

THE APPLICANT WILL RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER TO INSPECT THE CONSTRUCTION AND STABILIZATION OF ALL STORMWATER MANAGEMENT STRUCTURES. IF NECESSARY, THE INSPECTING ENGINEER WILL INTERPRET THE CONSTRUCTION PLAN FOR THE CONTRACTOR. ONCE ALL STORMWATER MANAGEMENT STRUCTURES ARE CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER WILL NOTIFY THE DEPARTMENT IN WRITING WITHIN 30 DAYS TO STATE THAT THE LEVEL SPREADER HAS BEEN COMPLETED. ACCOMPANYING THE ENGINEER'S NOTIFICATION MUST BE A LOG OF THE ENGINEERS'S INSPECTIONS GIVING THE DATE OF EACH INSPECTION, THE TIME OF EACH INSPECTION, AND THE ITEMS INSPECTED ON EACH VISIT.

BUFFERS - GENERAL

GENERAL FOREST USE MEANS THAT THE LAND MUST BE MAINTAINED WITH A FOREST COVER AND UNDISTURBED SOIL DUFF LAYER, GROUND COVER VEGETATION, AND UNDERSTORY VEGETATION. TIMBER MAY BE HARVESTED ON A SELECTIVE BASIS PROVIDED THAT NO MORE THAN 40% OF THE VOLUME IS HARVESTED WITHIN ANY 10 YEAR PERIOD.

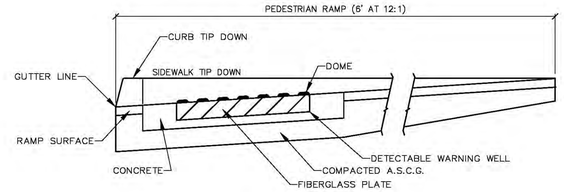
STONE BERMED LEVEL LIP SPREADER
INSPECTIONS BY A PROFESSIONAL ENGINEER SHALL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT EACH LEVEL SPREADERS CONSTRUCTION, STONE BERM MATERIAL AND PLACEMENT, SETTLING BASIN FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE LEVEL SPREADER.

BASIC STANDARDS - EROSION CONTROL MEASURES

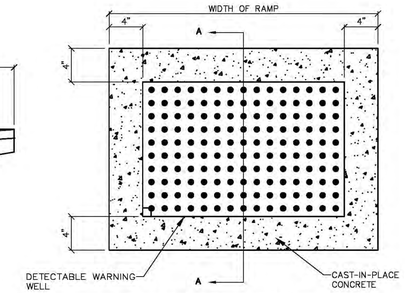
MINIMUM EROSION CONTROL MEASURES WILL NEED TO BE IMPLEMENTED AND THE APPLICANT WILL BE RESPONSIBLE TO MAINTAIN ALL COMPONENTS OF THE EROSION CONTROL PLAN UNTIL THE SITE IS FULLY STABILIZED. HOWEVER, BASED ON SITE AND WEATHER CONDITIONS DURING CONSTRUCTION, ADDITIONAL EROSION CONTROL MEASURES MAY NEED TO BE IMPLEMENTED. ALL AREAS OF INSTABILITY AND EROSION MUST BE REPAIRED IMMEDIATELY DURING CONSTRUCTION AND NEED TO BE MAINTAINED UNTIL THE SITE IS FULLY STABILIZED OR VEGETATION IS ESTABLISHED. A CONSTRUCTION LOG MUST BE MAINTAINED FOR THE EROSION AND SEDIMENTATION CONTROL INSPECTIONS AND MAINTENANCE.

STONE BERMED LEVEL LIP SPREADER
NOT TO SCALE

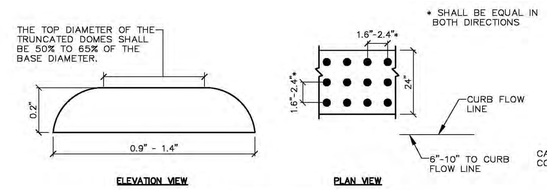
DETECTABLE WARNING AREA NOTES:
1. ALL DETECTABLE WARNING AREAS SHALL START 9" - 10" FROM THE FLOW LINE OF THE CURB, BE 24" IN DEPTH, AND COVER THE COMPLETE WIDTH OF THE RAMP AREA ONLY.
2. DETECTABLE WARNING PLATES SHALL BE:
   A. DURALAST DETECTABLE WARNING PLATES (NATURAL FINISH) BY EAST JORDAN IRON WORKS
   B. R-4984 DETECTABLE WARNING PLATES (NATURAL FINISH) BY NEENAH FOUNDARY COMPANY, OR EQUAL.
   C. DETECTABLE WARNING PLATES (NATURAL FINISH) BY PIONEER DETECTABLE, LLC



SIDE SECTION VIEW OF DETECTABLE WARNING, WELL, CURB AND GUTTER



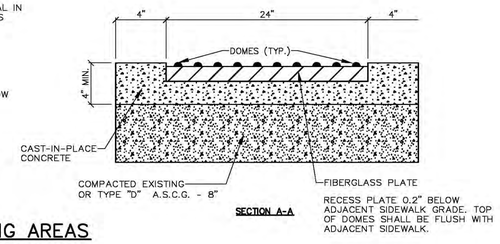
PLAN VIEW OF DETECTABLE WARNING AND WELL



ELEVATION VIEW

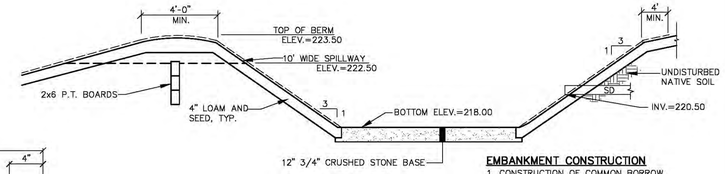
PLAN VIEW

DOME AND DETECTABLE WARNING DETAILS



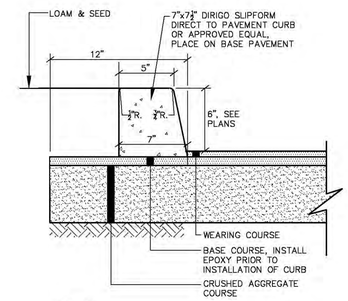
SECTION A-A

DETECTABLE WARNING AREAS
NOT TO SCALE



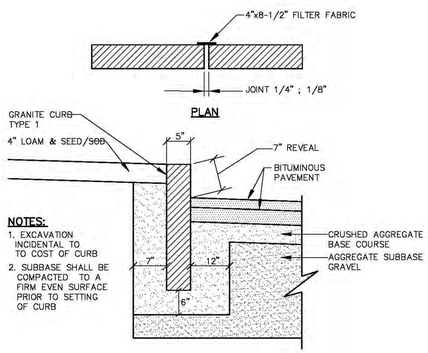
EMBANKMENT CONSTRUCTION
1. CONSTRUCTION OF COMMON BORROW MATERIAL MEETING M.D.O.T. SPECIFICATION
2. PLACE BORROW MATERIAL IN 12" LIFTS COMPACTED TO 95% OF MAXIMUM
3. INSTALL RIPRAP AND EROSION CONTROL MESH WHERE SPECIFIED ON PLANS
4. LOAM, SEED, AND STABILIZE IN ACCORDANCE WITH SEDIMENTATION AND EROSION CONTROL PLAN.

DETENTION POND SECTION
NOT TO SCALE



NOTES:
1. SEE TYPICAL ACCESS DRIVE SECTION FOR ROADWAY MATERIAL SPECIFICATIONS AND DEPTHS.
2. 6" TIPDOWNS SHALL BE PROVIDED AS SHOWN ON PLANS.

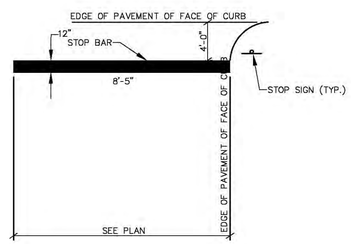
SLIPFORM CURB SECTION
NOT TO SCALE



NOTES:
1. EXCAVATION INCIDENTAL TO TO COST OF CURB
2. SUBBASE SHALL BE COMPACTED TO A FIRM EVEN SURFACE PRIOR TO SETTING OF CURB

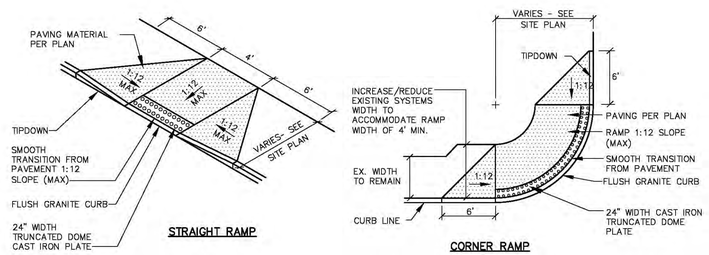
SECTION

VERTICAL GRANITE CURB
NOT TO SCALE

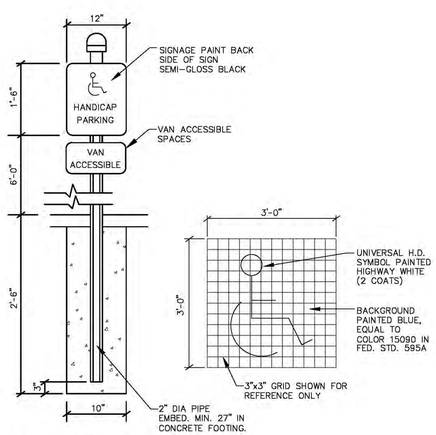


NOTE:
1. WORDS AND ARROWS FOR DRIVEWAYS SHALL BE APPLIED ACCORDING TO REQUIREMENTS AS OUTLINED IN SECTION 3B OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
2. THESE WORDS AND BAR ARE TO BE PAINTED REFLECTIVE WHITE.

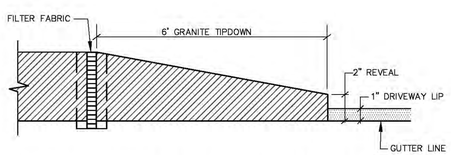
STOP BAR
NOT TO SCALE



HANDICAP RAMP WITH TRUNCATED DOME BAND
NOT TO SCALE



TYPICAL SIGN DETAIL
NOT TO SCALE



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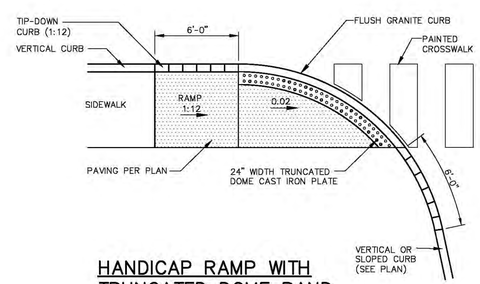
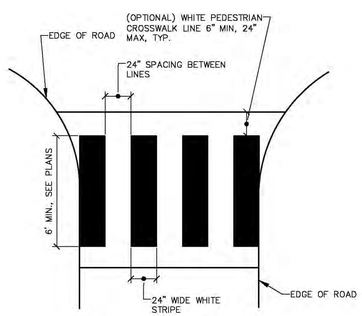


HANDICAP RAMP WITH TRUNCATED DOME BAND
NOT TO SCALE



CROSSWALK MARKINGS
NOT TO SCALE

context ARCHITECTURE
68 HARRISON AVENUE BOSTON, MA 02111 TEL 617.423.3400 WEB CONTEXTARC.COM
KYLIE S. MASON, RLA 3335
REGISTERED LANDSCAPE ARCHITECT KYLIE S. MASON No. 3335 STATE OF MAINE 07/03/19
SEBAGO TECHNICS
WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd.
South Portland, ME 04106
Tel. 207-200-2100

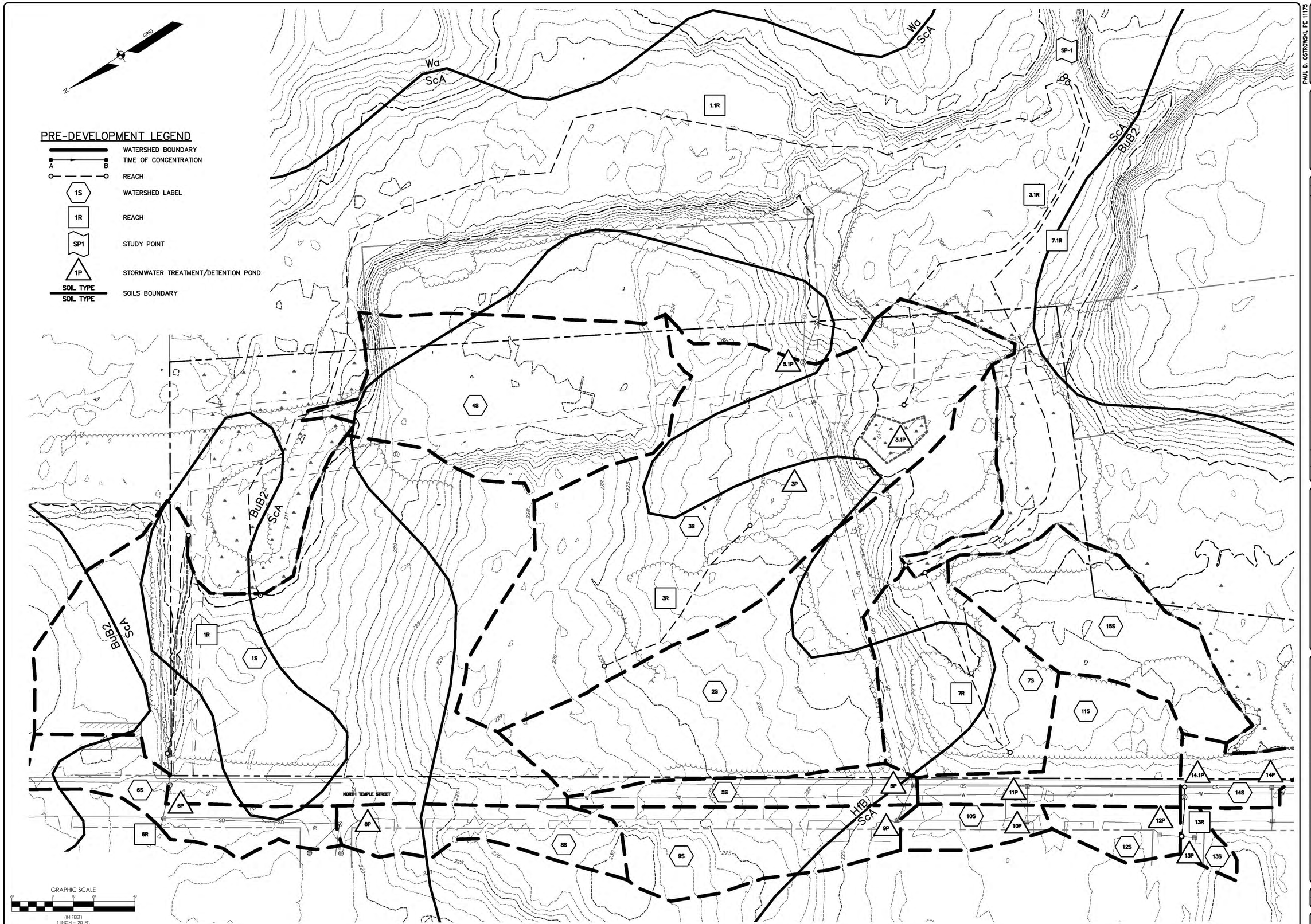
FIRE SUB STATION
55 NORTH TEMPLE STREET
project number: 16304
DETAILS

Scale: N.T.S.
Drawn by: CAD

No.	Issue	Date
1	TOWN SUBMISSION	06-18-19
2	TOWN RESUBMISSION	06-28-19
3	SUBMISSION TO PLANNING BOARD	07-03-19

C5.3

16304D.dwg, TAB:11 DETAILS - 4



PAUL D. OSTROWSKI, PE 11175

STATE OF MAINE
PAUL D. OSTROWSKI
No. 11175
PROFESSIONAL ENGINEER
07-03-19

DESIGNED	CHECKED
KJR	PDO

REV.	BY:	DATE:	STATUS
C	PDO	07-03-19	PLANNING BOARD SUBMISSION
B	PDO	06-28-19	CITY STAFF RESUBMISSION
A	PDO	06-18-19	CITY STAFF SUBMISSION

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WWW.SEBAGOTECHNICS.COM
75 John Roberts Rd.
Suite 4A
South Portland, ME 04106
Tel. 207-200-2100

PRE-DEVELOPMENT WATERSHED PLAN

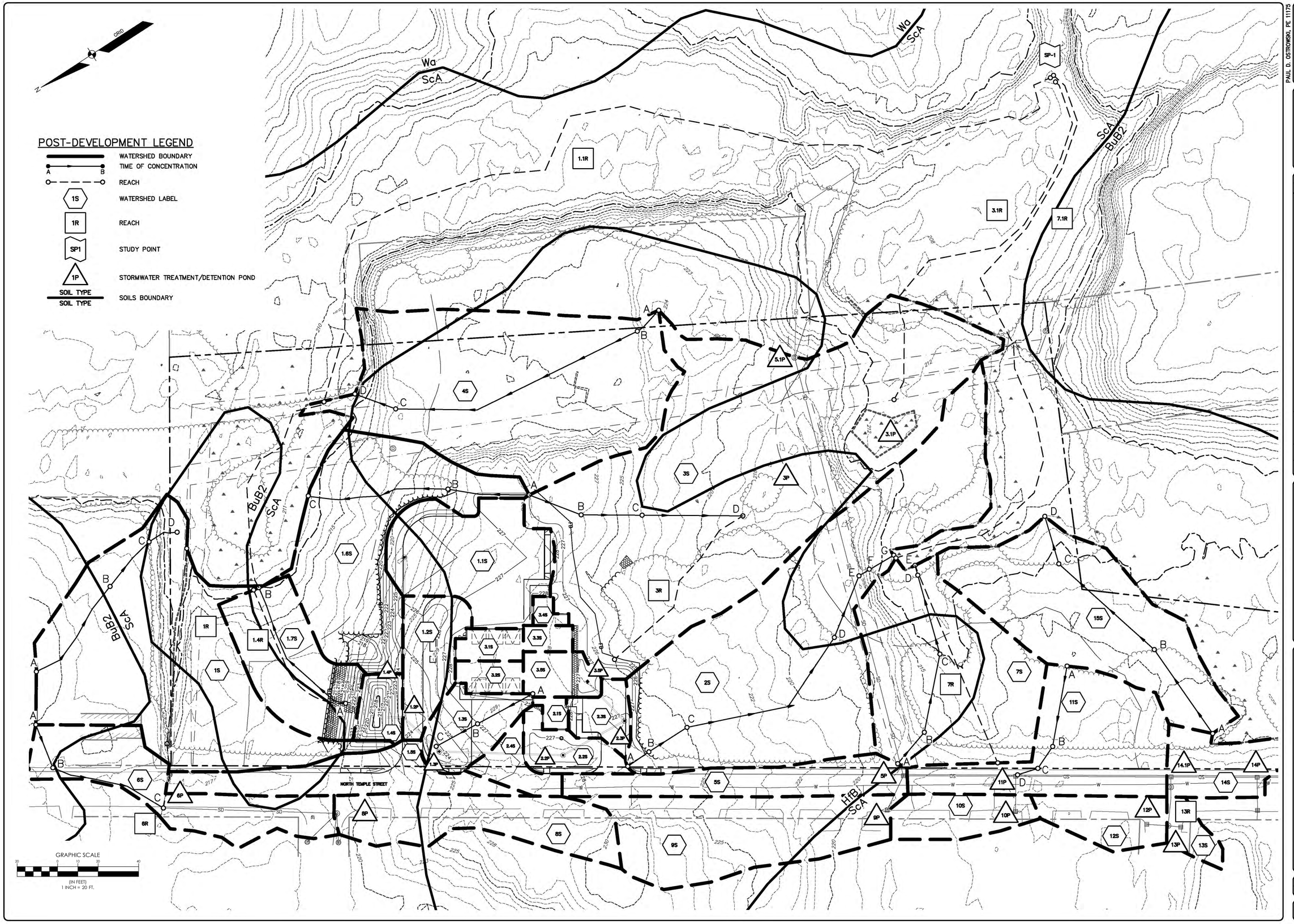
OF:
LEWISTON FIRE SUB-STATION
55 NORTH TEMPLE STREET
LEWISTON, MAINE

FOR:
CITY OF LEWISTON
27 PINE STREET
LEWISTON, MAINE

PROJECT NO.	SCALE
16304	1"=40'

SHEET 1 OF 2

16304SWP.dwg, TAB:PRE



PAUL D. OSTROWSKI, PE 11175

STATE OF MAINE
PAUL D. OSTROWSKI
No. 11175
LICENSED
PROFESSIONAL ENGINEER
07-03-19

DESIGNED	CHECKED
KJR	PDO

REV.	BY:	DATE:	STATUS
C	PDO	07-03-19	PLANNING BOARD SUBMISSION
B	PDO	06-28-19	CITY STAFF RESUBMISSION
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Tel: 207-200-2100

POST-DEVELOPMENT WATERSHED PLAN

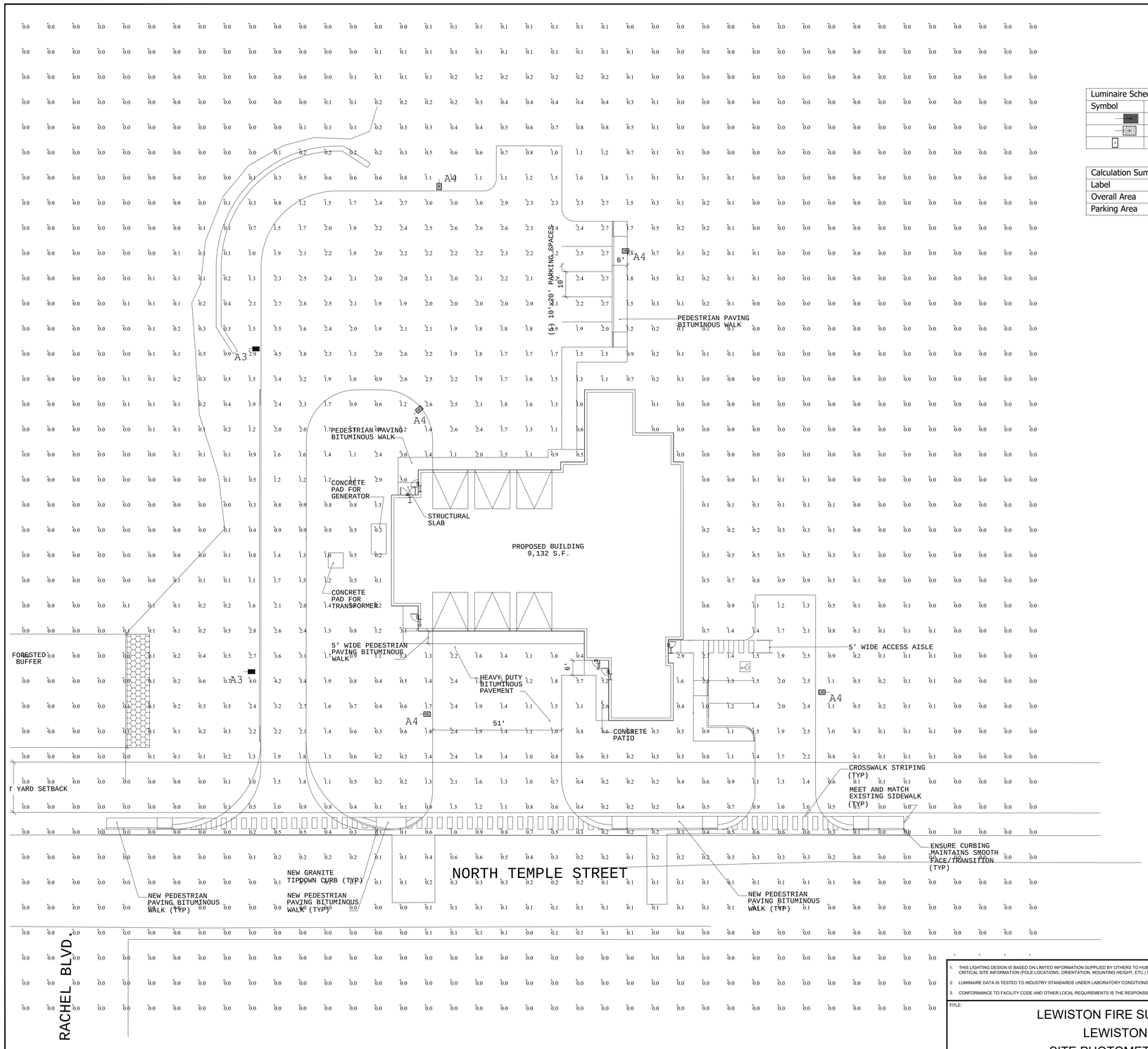
OF:
LEWISTON FIRE SUB-STATION
55 NORTH TEMPLE STREET
LEWISTON, MAINE

FOR:
CITY OF LEWISTON
27 PINE STREET
LEWISTON, MAINE

PROJECT NO.	SCALE
16304	1"=40'

SHEET 2 OF 2

16304SWP.dwg, TAB:POST



Luminaire Schedule							
Symbol	Qty	Label	Mounting Height	LLF	Lum. Lumens	Lum. Watts	Description
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	5	A4	20' - 0" AFG	0.850	11841	110	VP-S-48L-110-4K7-4W
	6	I	20' - 0" AFG	0.850	2059	22.2	LNC-9LU-4K-4

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Overall Area	Illuminance	Fc	0.41	5.7	0.0	N.A.	N.A.
Parking Area	Illuminance	Fc	1.89	4.5	0.5	3.78	9.00

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 - FT.

1. THIS LIGHTING DESIGN IS BASED ON LIMITED INFORMATION SUPPLIED BY OTHERS TO HUBBELL LIGHTING. SITE DETAILS PROVIDED HEREON ARE REPRODUCED ONLY AS A VISUALIZATION AID. FIELD DEVIATIONS MAY SIGNIFICANTLY AFFECT PREDICTED PERFORMANCE. PRIOR TO INSTALLATION, CRITICAL SITE INFORMATION (POLE LOCATIONS, ORIENTATION, MOUNTING HEIGHT, ETC.) SHOULD BE COORDINATED WITH THE CONTRACTOR AND/OR SPECIFIER RESPONSIBLE FOR THE PROJECT.
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TITLE:

LEWISTON FIRE SUB-STATION
LEWISTON, ME
SITE PHOTOMETRIC PLAN

REVISED FROM DRAWING NUMBER(S):

HUBBELL®
Hubbell Lighting, Inc.
701 MILLENNIUM BLVD.
GREENVILLE, SC 29607

DN BY:	DATE:	CHK BY:
DHK	06/18/19	N/A
REV. BY:	DATE:	SCALE: AS NOTED
QUOTE: N/A	DRAWING / DESIGN NO.: 1924419	

1 EXTERIOR ELEVATION - SOUTH
1/8" = 1'-0"

2 EXTERIOR ELEVATION - WEST
1/8" = 1'-0"

3 EXTERIOR ELEVATION - NORTH
1/8" = 1'-0"

4 EXTERIOR ELEVATION - EAST
1/8" = 1'-0"

context
ARCHITECTURE
68 HARRISON AVENUE BOSTON, MA 02111 TEL 617.423.1400 WEB CONTEXTARC.COM

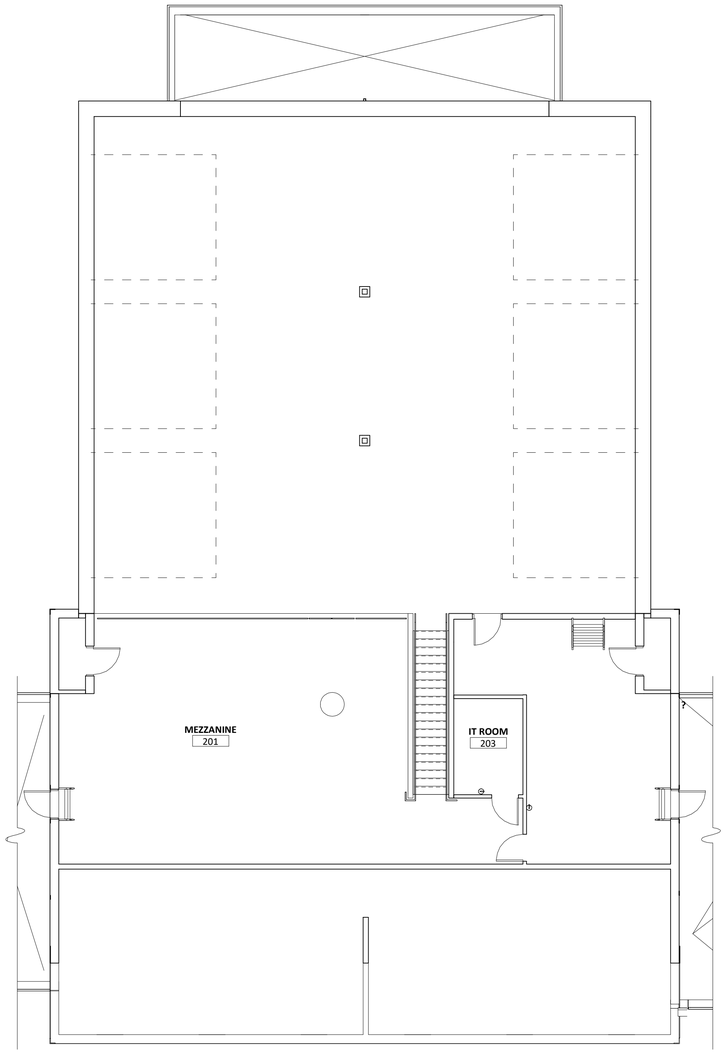
FIRE SUBSTATION
55 NORTH TEMPLE STREET, LEWISTON, ME 04240
project number: 1805

SUBMISSION TO PLANNING BOARD

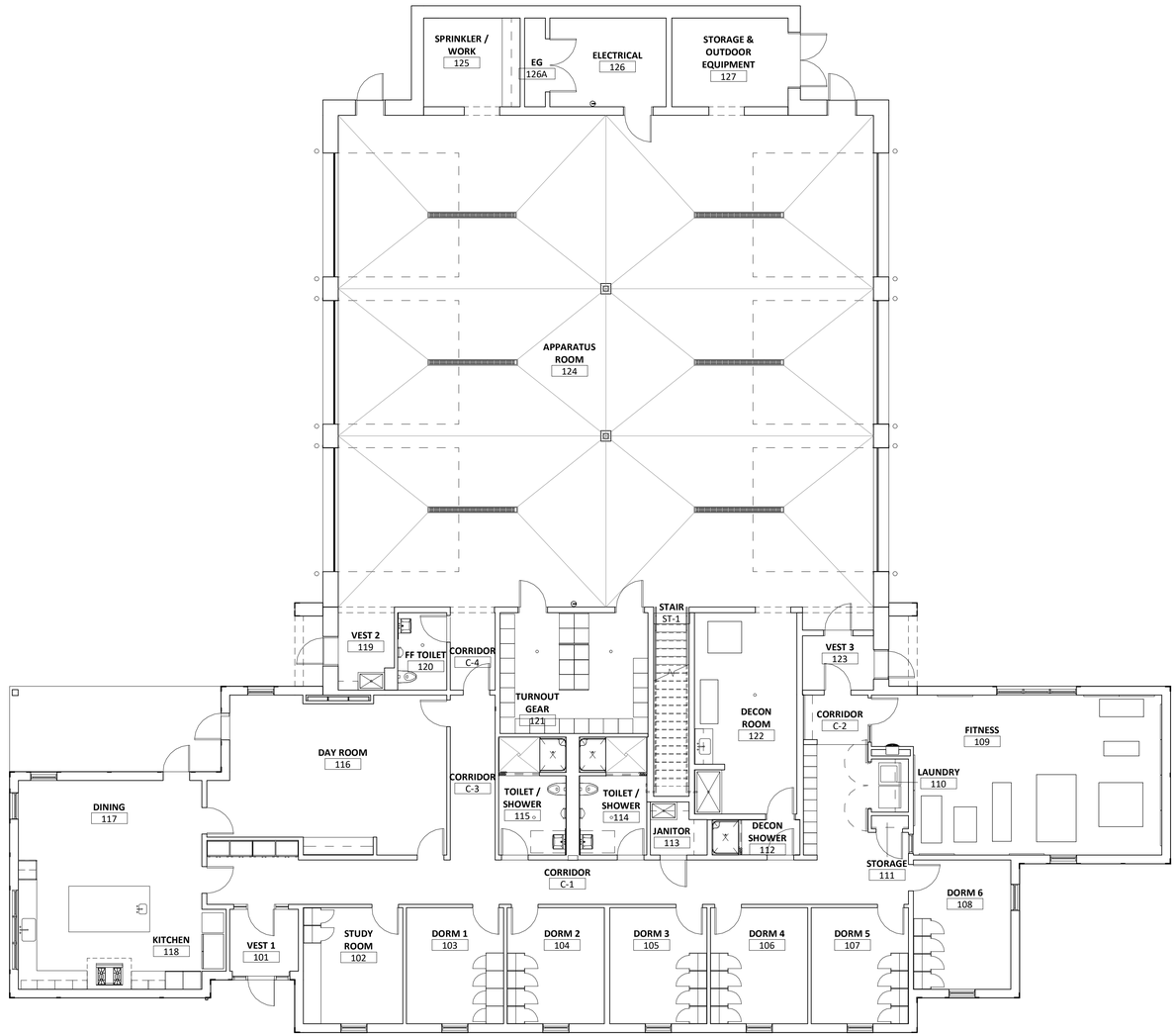
Scale: 1/8" = 1'-0"
Drawn by: Author

No.	Issue	Date
	PLANNING BOARD	07.03.19

ELEVS



2 FLOOR PLAN - MEZZANINE
1/8" = 1'-0"



1 FLOOR PLAN - GROUND FLOOR
1/8" = 1'-0"

context
ARCHITECTURE
68 HARRISON AVENUE BOSTON, MA 02111 TEL 617.423.1400 WEB CONTEXTARC.COM

FIRE SUBSTATION
55 NORTH TEMPLE STREET, LEWISTON, ME 04240
project number: 1805
SUBMISSION TO PLANNING BOARD

Scale: 1/8" = 1'-0"
Drawn by: NG

No.	Issue	Date
	PLANNING BOARD	07.03.19

PLANS

1 EXTERIOR ELEVATION - SOUTH
1/8" = 1'-0"

2 EXTERIOR ELEVATION - WEST
1/8" = 1'-0"

3 EXTERIOR ELEVATION - NORTH
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4 EXTERIOR ELEVATION - EAST
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context
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FIRE SUBSTATION
55 NORTH TEMPLE STREET, LEWISTON, ME 04240
project number: 1805

SUBMISSION TO PLANNING BOARD

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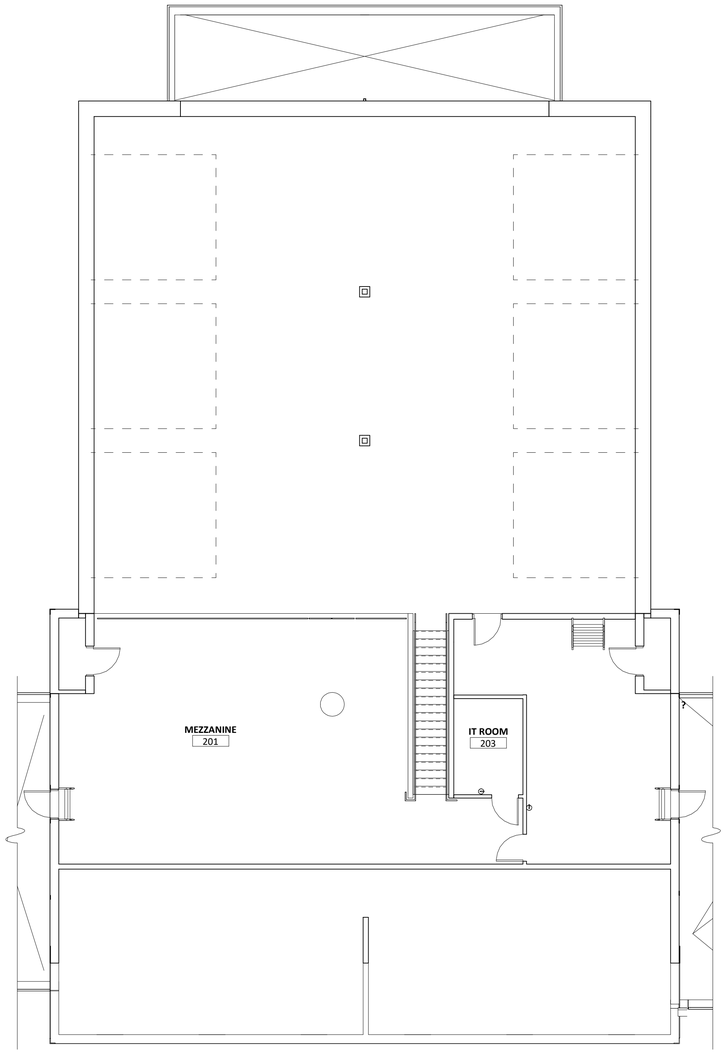
No.	Issue	Date
	PLANNING BOARD	07.03.19

ELEVS



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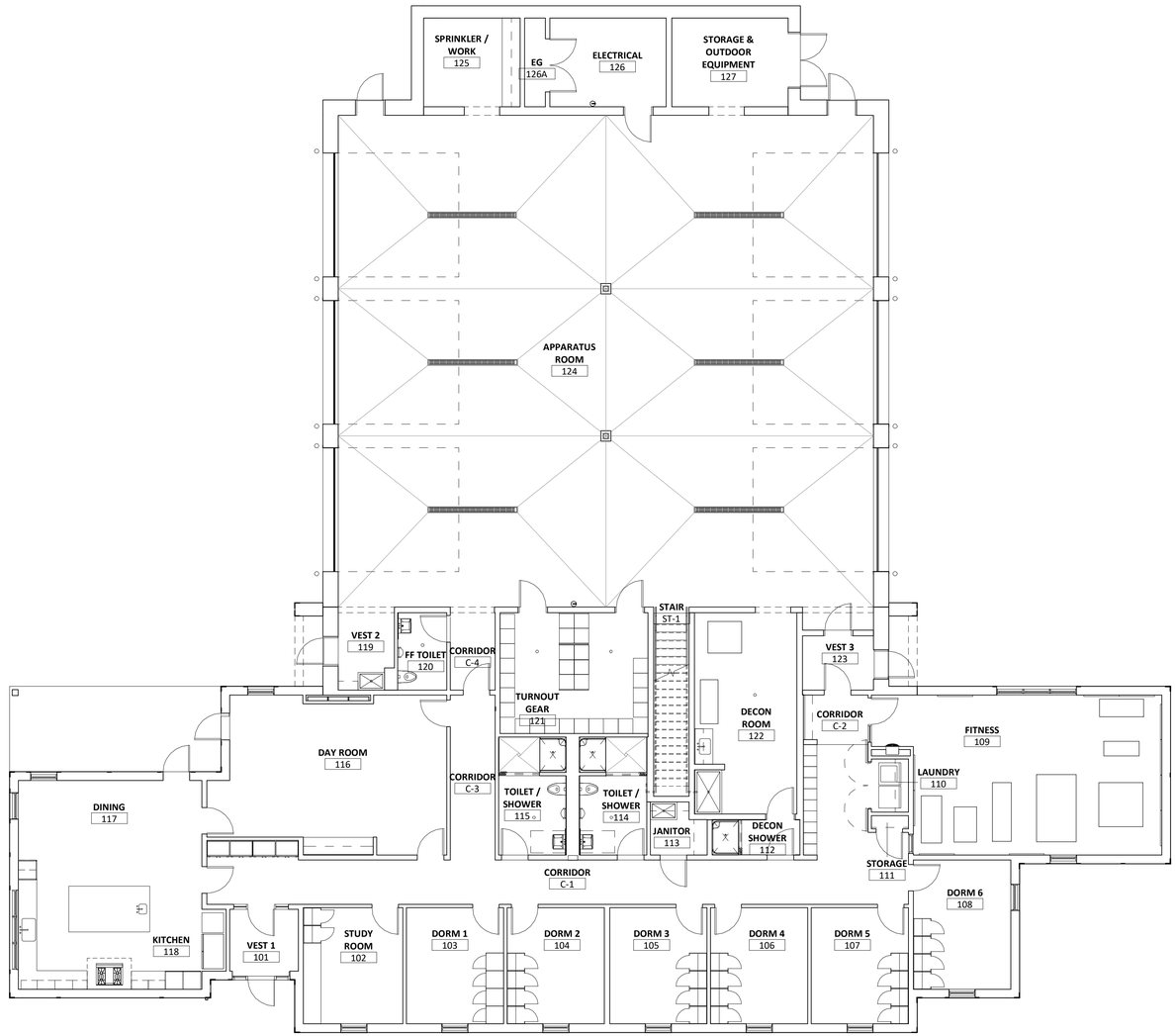

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FIRE SUBSTATION
55 NORTH TEMPLE STREET, LEWISTON, ME 04240
project number: 1805
SUBMISSION TO PLANNING BOARD

Scale: 1/8" = 1'-0"
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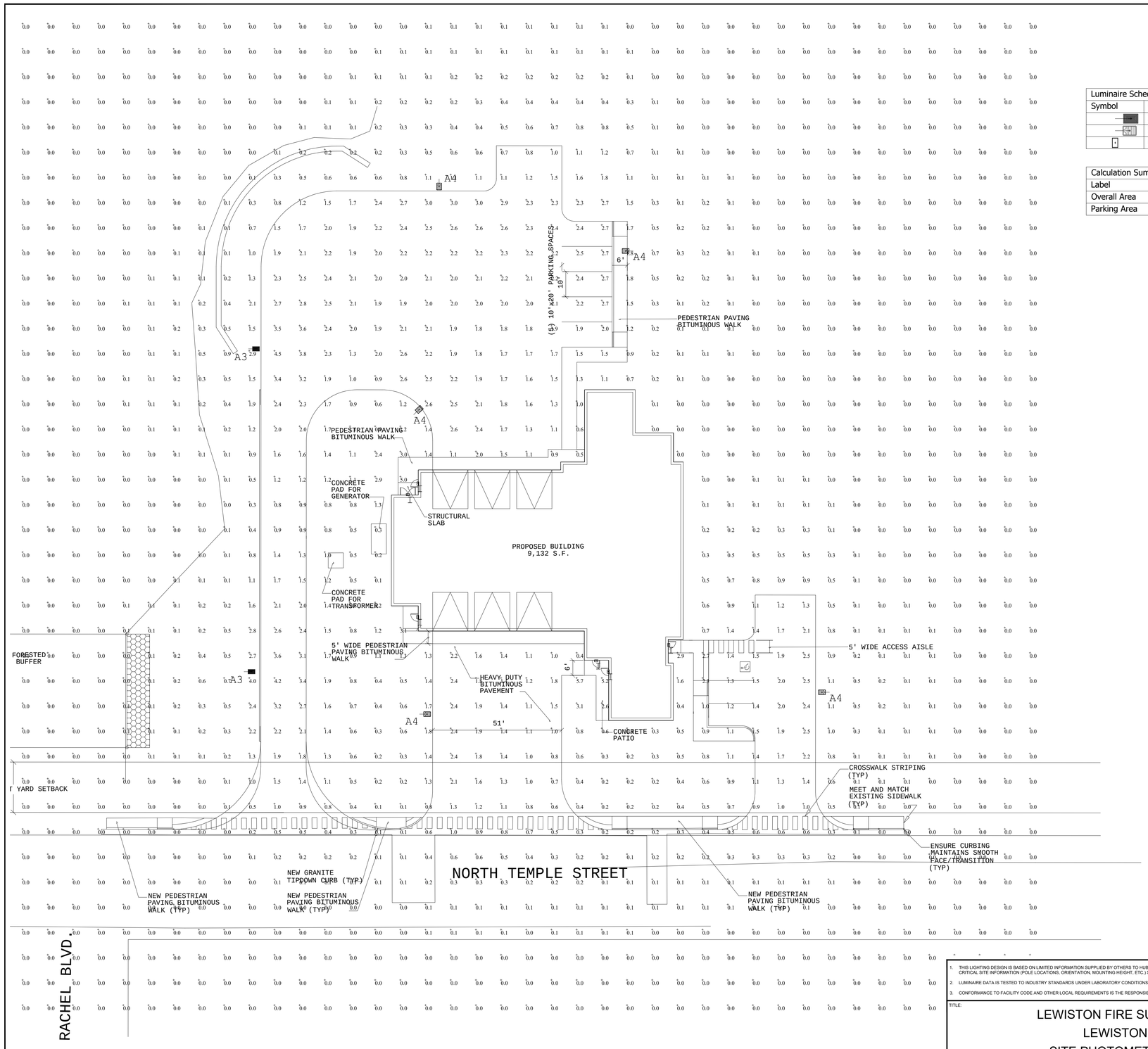
No.	Issue	Date
	PLANNING BOARD	07.03.19

PLANS



Luminaire Schedule							
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Calculation Summary							
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(IN FEET)
1 inch = 20 - FT.

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TITLE:

LEWISTON FIRE SUB-STATION
LEWISTON, ME
SITE PHOTOMETRIC PLAN

REVISED FROM DRAWING NUMBER(S):

HUBBELL®
Hubbell Lighting, Inc.
701 MILLENNIUM BLVD.
GREENVILLE, SC 29607

DN BY:	DATE:	CHK BY:
DHK	06/18/19	N/A
REV. BY:	DATE:	SCALE: AS NOTED
QUOTE: N/A	DRAWING / DESIGN NO.: 1924419	

CITY OF LEWISTON

Department of Planning & Code Enforcement

TO: Lewiston Planning Board

FROM: Douglas Greene, AICP, RLA, City Planner

DATE: July 8, 2019

RE: Development Review Application, Sanctuary Estates, Phase 2, 161 Hogan Road

---

A request by Terradyn Consultants, LLC, an agent for Chase Custom Homes and Finance for a development review application of Phase 2 of Sanctuary Estates, a 14 lot single family cluster subdivision on 24.9 acres located at 161 Hogan Road (rear), lot 3 map 116.

PROJECT DESCRIPTION

Sanctuary Estates Phase 2 is an addition to and continuation of Sanctuary Estates Phase 1, which was approved by the Planning Board back in April of 2018. Phase 1 is located at 131 Hogan Road and is a 31 lot cluster single family subdivision on 35.3 acres. Construction of Phase 1 has not started yet. Chase Lane, the main road in Sanctuary Estates Phase 1, will be extended into Phase 2, an adjacent 24.9 acre property. Phase 2 proposes 14 additional lots that range in size from between 20,400 sf. to 60,498 sf. Of the 24.9 acres in Phase 2, 14.7 acres will become common open space and the remaining acreage will be single family lots and future street right of way. The development will be served by public water, electric, phone and cable and sewerage disposal will be through a subsurface septic system on each lot. The underlying zoning is Suburban Residential (SR), which normally requires lots to be a minimum of 40,000 sf. in size and with a minimum lot frontage of 125 feet. The cluster subdivision provisions found in Article XIII, Section 7 allows for the lot size to be reduced by 50% and street frontage for lots can be reduced to 50 feet.

LIST TYPES OF APPROVALS

Pursuant to Lewiston Zoning Ordinance, Sanctuary Estates Phase 2 is subject to Planning Board review under Article XIII, Development Review and Standards, Section 4, Approval Criteria; Section 5, Coordination with State Subdivision Law and Section 7, Single Family Cluster Developments.

Phase 2, like Phase 1 of Sanctuary Estates, is being reviewed by the City of Lewiston under its delegated review authority granted by the Maine Department of Environmental Protection (MDEP) for Site Location of Development (Site Law) for subdivisions of more than 20 acres but less than 100 acres.

STAFF REVIEW and COMMENTS

During the development review process the following issues were discussed:

- The stormwater system associated with the road construction has been reviewed to the satisfaction of Public Works. The system consists of level spreaders and forest buffers
- Stormwater improvements within the street right of way will be the responsibility of the city once the street has been accepted
- Stormwater generated outside the street right of way will be inspected and maintained by the Sanctuary Estates Home Owner Association. Maintenance and access easements are being provided to the Home Owners Association (HOA) and the City for access to all structural stormwater facilities
- Curbing has been added at specific locations on the street system to control water run-off
- Impacts on wetland are minimal, an intermittent stream will be crossed and a MDEP permit by rule has been filed
- Fire hydrant locations were reviewed and approved by the Fire Department
- Relevant notes and conditions from Phase 1 of Sanctuary Estates that address stormwater, public improvements and the HOA are being carried over for Phase 2
- Assurance that a Home Owners Association for Phase 2 will be formed and incorporated by the developer (HOA document is included in the full application)
- The HOA will be responsible for maintaining the common open space and storm water facilities outside of street right of way
- A note is added to the plan that no lot or parcel of land may be conveyed, and that no permit may be issued by the city for any building or other permanent structure within the development until the completion of the street grading, paving, storm drainage, utilities and other similar improvements as specified in the plan; and the acceptance of any public improvements by the city unless a performance guarantee has been provide to the city's satisfaction in accordance with Article XIII, Section 12 of the Zoning and Land Use Code. (Done. See note 13 on Preliminary Subdivision Plan, Sanctuary Estates Phase 2, sheet 1, dated June 21, 2019)
- A note needs to be added to the Preliminary Subdivision Plan, Sanctuary Estates Phase 2, stating that "prior to any certificate of occupancy being issued, evidence shall be provided of a final inspection of the stormwater system by the designing engineer along with a written statement indicating the stormwater system and all site improvements have been completed according to the approved plans.
- Other minor corrections were made as requested.

The complete response to review comments is found on page 9-11 of the development review application.

STAFF RECOMMENDATION
All other review comments from city staff have been addressed to staff's satisfaction with revisions provided by the applicant.

City staff has no additional comments at this time. Staff recommends APPROVAL of the proposed project, with the following conditions:

1. A note is added to the Preliminary Subdivision Plan, Sanctuary Estates Phase 2 stating that "prior to any certificate of occupancy being issued, evidence shall be provided of a

final inspection of the stormwater system by the designing engineer along with a written statement indicating the stormwater system and all site improvements have been completed according to the approved plans."

ACTION NECESSARY

Make a motion that the application submitted by Terradyn Consultants, LLC, on behalf of Chase Custom Family Homes and Finance to construct a 14 lot cluster, single family subdivision located at 161 Hogan Road (rear), meets all of the necessary criteria contained in the Zoning and Land Use Code, including, but not limited to Article XIII, Section 4, 5 and 7 of the Zoning and Land Use Code, and that approval be granted (including, if any, specific conditions raised by the Planning Board or staff).

TERRADYN
CONSULTANTS, LLC
Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting

1840

June 26, 2019

City of Lewiston, Maine Planning Department
c/o Mr. Douglas M. Greene, City Planner
27 Pine Street
3rd Floor
Lewiston, ME 04240

Development Review Application – Sanctuary Estates Phase 2, Lewiston, Maine

On behalf of Chase Custom Homes & Finance, we are pleased to submit the Development Review Application and Site Location of Development (SLODA) Amendment Applications for the proposed second phase of the Sanctuary Estates subdivision. The amendment will add 14 additional single-family house lots to the previously approved 31-lot cluster subdivision. Phase 2 will add approximately 14.7 acres of common open space bringing the total to 25.7 for the entire subdivision. The subdivision will be served by an extension of the previously approved Chase Lane and will feature underground utilities & low impact stormwater management features.

The development parcel containing the first phase is located on the southeast side of Hogan Road. The property is approximately 35.3 acres and is shown as Lot 54 on the City of Lewiston Tax Map #115. The proposed second phase is located on the southeast side of the phase 1 parcel and is approximately 24.9 acres. It is shown as Lot 3 on Tax Map 116. The combined property area of both phases is approximately 60.2 acres. The development parcels are located within the Suburban Residential (SR) District.

The phase 2 project area features topography that slopes more gently than the existing subdivision. The site drains to the north at a relatively steady slope that is typically between 6%-10%. The property drains to a large wetland that is located along & extends beyond the northern property line

Sanctuary Estates Phase 2 is proposed to be a single-family cluster development which allows individual lot sizes to be reduced to 50 percent of that required by the district requirements and reduces the minimum street frontage to 50 ft. All proposed lots are at least 20,000 sf and have at least 50 feet of street frontage. Each lot will be served by public water, underground electric & private subsurface septic systems.

The second phase will be accessed by an extension of the proposed Chase Lane. The road is designed to meet the design standards of a public road and will have a 24' wide driving surface and 2' wide paved shoulders. The extension will be approximately 1,350'.

Stormwater runoff for the second phase will be conveyed to a series of forested buffers that will provide the necessary water quantity control & water quality treatment.

The attached plan set is based upon a boundary survey that was prepared by George Bouchles, PLS, SE of CADmaster Land Surveying & Septic Design, Inc. The site topography was obtained from the State of Maine Office of GIS. George also evaluated test pits on each lot for septic suitability. The site natural resources mapping for this phase was performed by Steve Marcotte of Summit Geoengineering Services. They provided the wetland delineation with vernal pool assessment. Mark Hampton of Mark Hampton Associates prepared a Class B High Intensity Soil Survey of the property. That report can be seen in the attached SLODA Section 11.

The following information addresses the Development Review Standards of Section 4 of Article XIII of the Zoning & Land Use Code:

Utilization of the Site

The proposed development concept was heavily influenced by the natural features of the site. The extension of Chase Lane was oriented to avoid additional wetland alterations. Other than an area of bedrock near the beginning of the road, the phase 2 development area is generally free of bedrock outcrops. Widespread blasting is not anticipated for Phase 2.

Traffic Movement Into and Out of the Development Area

The project will not result in an unreasonable congestions or unsafe conditions in the surrounding neighborhood due to the location of the intersection with Hogan Road, limited number of expected trips & capacity of the proposed road network.

Once constructed, the permitted portion of Chase Lane will intersect with Hogan Road at a 90 degree angle directly across from Lemay Avenue. This configuration will be far safer than offsetting Chase Lane from Lemay Avenue by a small distance. The second phase of the development will be accessed by an extension of Chase Lane through a right of way that was included within the first phase of development.

The estimated vehicular traffic for the 14 additional lots can be obtained from the Trip Generation Manual, published by the Institute of Transportation Engineers. Section 210 – Single-Family Detached Housing was used as a basis for the calculation and is summarized as follows:

- Average Daily Trip Generation = 9.57 Trips /Dwelling Unit = **134 Trips/Day**
- Average Weekday AM Peak Hour = 0.77 Trips/Dwelling Unit =**11 Trips/Hour**
- Average Weekday PM Peak Hour = 1.02 Trips/Dwelling Unit = **14 Trips/Hour**

A total of 45 lots will be created between the approved first phase and the proposed second phase. The total development traffic generation is summarized as follows:

- Average Daily Trip Generation = 9.57 Trips /Dwelling Unit = **431 Trips/Day**

- Average Weekday AM Peak Hour = 0.77 Trips/Dwelling Unit = **35 Trips/Hour**
- Average Weekday PM Peak Hour = 1.02 Trips/Dwelling Unit = **46 Trips/Hour**

Since the anticipated peak hour trip generation is less than 100, a more in-depth traffic analysis is not required.

Chase Lane extension was designed to the Public Road standard and is capable of supporting up to 1,000 vehicle trips per day according to the City of Lewiston Policy for Design of Streets & Sidewalks.

Access into the Site

Access to this phase of development will be provided by an extension of Chase Lane through a right of way that was left as part of phase 1. At this intersection, a maximum grade of 3% will be maintained for the first 100'. The road design will be in full compliance with City design standards.

Internal Vehicular Circulation

Approximately 1,350' of new roadway will be created in this phase of the subdivision. The road was designed to generally conform to the natural terrain and will provide safe & easy passage for both residents and emergency vehicles to each of the 14 new residential lots.

The internal roads feature gentle curves that will provide visual interest and avoid visual conformity. There are no proposed through streets.

Pedestrian Circulation

Pedestrians will have direct access to several area of common open space. There are no sidewalks proposed in the Sanctuary Estates Subdivision. There are no sidewalks on Hogan Road or in any of the surrounding neighborhoods.

Stormwater Management

A stormwater management evaluation has been prepared to consider both pre and post-development peak rates of runoff for the 2, 10 & 25 year/24-hour storm events, as well as proposed water quality treatment (See Section 12 of SLODA). The stormwater management system of the first phase included two gravel wetlands, an under-drained soil filter, level spreader/forested buffer combinations, perimeter buffers and roof-drain filter strips on some of the single family houses. The second phase features a series of level spreader/forested buffer combinations and some perimeter lot buffers. A combination of drainage swales and catch basins with interconnected culverts will be used to collect stormwater and transport it to localized stormwater treatment areas. The evaluation shows that all post development peak rates of runoff are below pre development levels for all study points and that the design meets the MDEP general water quality standards.

The stormwater facilities will be maintained by the homeowners' association that was established during the first phase of development. Guidance for the inspection & maintenance of all stormwater facilities is included in Section 12.

Mark Hampton of Mark Hampton Associates prepared a Class B High Intensity Soil Survey (See Section 11 of SLODA) on the property. Steve Marcotte of Summit Geoengineering Services explored the phase 2 site for wetland areas in September of 2018 and May of 2019. His delineation is shown on the attached plans. No additional wetland fills are proposed. An intermittent stream will be crossed to access the property. A permit by rule has been filed with MDEP.

Erosion Control

An erosion control plan has been provided per MDEP guidelines (See the attached plans and Section 14 of SLODA). All roadways were designed to utilize the existing topography which will minimize disturbance. Details for typical erosion control measures for the single family homes have also been included within the project details.

Water Supply

The new subdivision will connect to the public water system. According to plans provided by the City, there is a 12" ductile iron water main located within the Hogan Road right of way. An 8" water main will be extended through the development to provide both drinking water and fire protection.

Each of the proposed 14 homes is proposed to be a 3-bedroom residence with an assumed daily water demand of 270 gallons per day. We believe that the City Engineering/Public Works departments will find that they have ample capacity to service the development.

Sewage Disposal

Sewage disposal for each of the 14 new lots will be provided by private individual subsurface septic systems. George Bouchles, S.E., P.L.S. of CADmaster Land Surveying & Septic Designs evaluated test pits for each lot. His report and test pit logs can be found in Section 17 of the SLODA.

Utilities

Underground electric, telephone & cable will be extended into the development from the first phase. The number of transformers have been minimized. They've been placed behind the roadway ditches to minimize their visual impact.

Natural Features

Significant efforts were made to preserve the site's natural features. Approximately 14.7 acres of naturally wooded Open Space area will be maintained as part of the second phase. In total, approximately 25.7 acres of wooded open space will be preserved across the entirety

of the development. The existing forested wetlands will not be disturbed. The site contains mature tree growth in all areas.

Groundwater Protection

The project will not have any expected impact to the groundwater. A and gravel aquifer map was provided during the original permitting effort. The project will be serviced by public water and a stormwater collection and treatment system, which reduces the development's potential to negatively impact groundwater in the area.

Water and Air Pollution

The proposed development will not result in undue water or air pollution. All septic systems will be designed to meet State standards. The stormwater runoff will be treated & filtered per MDEP regulations.

Exterior Lighting

Lights will be provided at the intersection of Chase Lane & Hogan Road as well as at all interior intersections per City of Lewiston ordinance requirements. An additional street light is proposed at the midpoint of the road extension per City request. The City specification is shown on sheet C-1.1 of the attached plan set.

Waste Disposal

The majority of the waste will be generated by the harvesting of the trees and the removal of the stumps. Marketable timber will be removed from the project site and sold. Smaller woody debris will be mulched and used as a soil amendment or as an erosion control measure. Stump grindings will be used to make erosion control mix berms, which will be used to augment or substitute for silt fence. Excess stumps and other organic debris may need to be disposed of at a licensed facility.

Any general construction debris associated with the Project, including packing or transportation materials, will be disposed of at appropriately licensed disposal facilities. We anticipate that construction and demolition debris will be transported to ReEnergy of Lewiston, ME., where it will be transported to the Juniper Ridge Landfill in West Old Town, ME.

Residential waste will be collected by the City of Lewiston once occupancy permits are granted.

Lot Layout

The lots within the parcel were laid out to fit in with the natural topography of the site and to allow for sufficient buildable areas.

Landscaping

Significant efforts were made to preserve the site's natural features. Approximately 25.7 acres of naturally wooded Open Space area will be maintained throughout the development site. No additional disturbance of the forested wetlands will be necessary for this phase of development.

Shoreland Relationship

The property is not located along the shoreland of any water body. There are several small intermittent streams that will be protected by forested buffers.

Open Space

The subdivision will now have 25.7 acres of common open space to provide for recreation areas to meet the needs of the residents. This is an increase of approximately 14.7 acres from the first phase. The open space will be owned by the Sanctuary Estates Homeowners Association and will remain forested. See Standards for Single Family Cluster Developments (below) for further details about the open space.

Technical and Financial Capacity

The applicant is an experienced developer and has hired Terradyn Consultants, LLC to assist with the permitting. Terradyn Consultants, LLC has designed many similar projects since being established in 2005. Terradyn was assisted by CADmaster Drafting, Land Surveying & Septic Designs (boundary survey & septic test pit evaluation), Summit Geoengineering Services (wetland delineation) and Mark Hampton Associates, Inc. (high intensity soil survey).

Buffering

A minimum 30-foot wide vegetated yard area will be maintained along the perimeter of the development parcel where lot are proposed. Additionally, much of the common open space is located along the perimeter of the project.

Compliance with District Regulations

This subdivision is located within the Suburban Residential (SR) district. All standards in the space and bulk table were met with the exception of lot size and setbacks which were reduced for single family cluster developments.

Design Consistent with Performance Standards

The design is consistent with the applicable standards set forth in Article XII which include:

Earth material removal standards
Erosion and sedimentation control
Environmental Performance Standards

Standards for Single-Family Cluster Developments

Sanctuary Estates meets all of the standards required for single-family cluster developments. Individual lot sizes and front setbacks were reduced to 50 percent of that required by the district requirements. Lot frontages were reduced to a minimum width of 50'.

The open space is required to be at least as big as the combination of the following:

- (From Article XIII – Section 7) Difference of the aggregate lot area (1,188,481 SF) and the aggregate required lot area outside of cluster subdivision regulations (40,000 SF x 45 Lots = 1,800,000 SF) = 611,519 SF
- (From Article XIII – Section 4.s.d) 1,000 SF for dwelling units with three or more rooms designed or used for sleeping: 45 lots x 1,000 SF = 45,000 SF
- The sum of the required area is 656,519 SF.
- The proposed open space is approximately 1,120,490 SF, almost double the required amount.
- 50% of the required open space must be usable. The total area of non-wetlands in the open space is approximately 546,311 SF which represents 83.2% of the required open space.

The following information addresses the Development Review Standards of Section 5 of Article XIII of the Zoning & Land Use Code:

1. The project will not result in undue water or air pollution. Stormwater runoff will be directed to a variety of BMPs that will property filter the water. The stormwater design was developed to meet the City of Lewiston & Maine Department of Environmental Protection regulations (See SLODA Section 12). All lots will contain an individual private subsurface septic system. Test pit were evaluated for each lot that prove that septic systems can be properly designed & installed for each lot (See SLODA Section 17). The project is not located within any flood plain.
2. The project will connect to the public water supply system. The system has adequate capacity and pressure to serve the proposed development.
3. The project will not over burden the public water supply system. The system has adequate capacity and pressure to serve the proposed development.
4. The project will not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result. A detailed erosion control plan has been developed for the project (See SLODA Section 14 & construction plans). A Class B High Intensity Soil Survey was completed for the project (See SLODA Section 11) to verify soil types. Stormwater velocities were then calculated to ensure that proper stabilization measures were used (See SLODA Section 12).
5. The project will not cause unreasonable highway or public road congestion or unsafe conditions with respect to use of the highways or public roads, existing or proposed. All new roads were designed to meet the City of Lewiston standards. The main entrance is located directly across from Lemay Avenue and contains sufficient sight

distance. The number of projected trips will not impact the level of service of the surrounding road network.

6. The project will provide for adequate sewage waste disposal. Each lot contains at least one passing soil test pit that shows that a private subsurface septic system can be constructed that would meet State requirements (See SLODA Section 17).
7. The project will not cause an unreasonable burden on the ability of the municipality to dispose of solid waste and sewage. The development will not connect to the City sewer system. Construction debris will be brought to a licensed facility. The creation of 14 additional residential lots does not represent a significant increase to the City of Lewiston's solid waste collection program.
8. The project will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic or rare and irreplaceable natural areas or any public rights for physical or visual access to the shoreline. The site is not located near any historic property (See SLODA Section 8), does not contain any unusual natural area (See SLODA Section 9) and is not located along any shoreline. The project features approximately 25.7 acres of common open space. Perimeter buffers will are located around the outer edges of the project and will help maintain the scenic and natural beauty of the site.
9. The project is in conformance with the City code and comprehensive plan. The project meets all codes and is located within a designated residential growth area.
10. The subdivider has adequate technical and financial capacity. The subdivider is an experienced developer (See SLODA Section 3) and has previously provided proof of financial capacity.
11. The project is not located within 250' of any pond, lake, river or tidal water so this section is not applicable.
12. The project will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of groundwater. The project's stormwater design makes use of several infiltration measures that are meant to keep stormwater spread out in an effort to recharge groundwater (See SLODA Section 12). The project will be using the municipal water system, so localized groundwater quantity will not be impacted. Each lot will have a private subsurface septic system that will be able to meet State standards (See SLODA Section 17).
13. The project is not located within any flood plain so this section is not applicable.
14. The project will not interfere unreasonably with the solar access of existing buildings or adjacent parcels. The project is a residential subdivision so it will have no impact to solar access of abutting parcels or existing buildings.

Response to City of Lewiston Review Comments

We received comments from City Departments as noted below. The comments are listed below as well as our responses *(shown in italics).*

- Comment from Public Works - We received comments from Richard Burnham, P.E., City Engineer:

  Comment 1: Is there a SOP for the stormwater volume & quality management system on private property?

  Response: The stormwater system will be inspected by the Sanctuary Estates Homeowners Association that was set up as part of the first phase. The stormwater maintenance and inspection schedule –as found in Section 12 of the SLODA- outlines the required maintenance & inspection responsibilities of the association in relation to the stormwater system. Additionally, maintenance & access easements have been provided to the Association & the City of Lewiston over all structural stormwater measures.

  Comment 2: I couldn't differentiate curb and non-curb street sections. Where there is curb provision, it needs to be made to collect stormwater and route it off the street.

  Response: The beginning and end of curb are labeled on the Site Plans (C-1.0 & C-1.1). The curb section terminates at a catch basin, as required.

  Comment 3: Hydrant locations need to be reviewed with the Fire Department and Water Division.

  Response: Comment acknowledged. We placed the hydrant in the location that was requested by the Fire Department during our pre-application meeting.

  Comment 4: Check with Water Division regarding service installation.

  Response: Comment acknowledged. We have not received comments from the Water Division, but we did the same thing that was done last year during the design & permitting of Phase 1.

- Comments from Fire Department: No comments

- Comments from Police Department: No comments

- Comments from Planning Department - We received comments from Richard Greene, City Planner:

Comment 1: Please update Construction Plan schedule. Note finish dates for items 1 and 2 are 2018.

Response: We revised the construction schedule in Tab 1 to reflect summer/fall construction and complete vegetation stabilization by next spring.

Comment 2: Tab 8 Historic Sites. You state, "No change from the previous application. The MHPC concluded there was no historic properties affected by the proposed undertaking." Was Phase 2 evaluated by MHPC for this application?

Response: We revised Tab 8 to include the MHPC findings for Phase 1 and included a letter to MHPC requesting review of Phase 2.

Comment 3: Tab 10 Buffers- Will the 30-foot buffer along the rear of lots 32 through 39 remain undisturbed?

Response: Each of these lots has a 30-foot wide rear yard as required by the Ordinance.

Comment 4: I will be adding in general, the previous conditions from the Phase 1 plan

- Stormwater improvements located outside the right-of-way shall be the responsibility of lot owners of the subdivision, as note in the declaration of protective covenants. Staff recommends as a condition of approval that evidence of a final inspection of the storm water system shall be provided to the city by the designing engineer along with a written statement indicating that the storm water system has been completed in accordance with the approved plans.
  Response: Comment acknowledged

- A note is added to the plan that no lot or parcel of land may be conveyed, and that no permit may be issued by the city for any building or other permanent structure within the development until the completion of the street grading, paving, storm drainage, utilities and other similar improvements as specified in the plan; and the acceptance of any public improvements by the city unless a performance guarantee has been provide to the city's satisfaction in accordance with Article XIII, Section 12 of the Zoning and Land Use Code.
  Response: This is Note 13 on Preliminary Subdivision Plan – Phase 2, Sheet 1 of 1.

- No building permits be issued or construction activity occurs until evidence of MDEP approval for wetland alterations has been provided to the city.
  Response: Comment acknowledged. Wetland impacts are permitted in the Natural Resources Protection Act Tier 1 Permit for Phase 1. Phase 2 is configured to avoid additional impacts.

- A note that references, Article XIII, Section 7 (8),(c) "The formation and incorporation by the developer of a homeowner's association will be a condition of the approval, with evidence of its accomplishment submitted to the planning board prior to final plan approval. Covenants for mandatory membership in the association will be included in the deed for each lot or unit. The association will have the responsibility of maintaining private roads and utilities, the common open space and other private facilities dedicated to the use in common by the development's residents. Cluster developments utilizing side and front setback reduction provisions must incorporate into their covenants the areas where reductions may take place." This includes storm water facility maintenance.
  Response: Comment acknowledged. The Sanctuary Estates Homeowners' Association shall include Phase 2 and all required documentation will be provided to the City. Stormwater facility maintenance outside of street rights-of-way will be the responsibility of the homeowner's association – see Note 11 on the Preliminary Subdivision Plan – Phase 2.

Comment 5: We wanted to ask if you were interested in having phase 1 reapproved in conjunction with the development review of Phase 2. The approval letter is dated 4/25/18. Let us know if you're interested.

Response: Yes. The request for re-approval of Phase 1 is provided in a separate letter.

Comment 6: Are there snowmobile trails anywhere within restricted buffer areas?

Response: We are not aware of active snowmobile trails within the proposed forested buffer areas. Any existing snowmobile trails on the subdivision parcel will be closed.

Comment 7: The (aerial) soils map does not appear to include phase 2.

Response: The soil map in Attachment 12 has been revised to include Phase 2.

Comment 8: The light pole on sheet C-1.0 looks very close to the pavement edge. It might be in conflict with snow plows.

Response: The plan is revised to show the light pole 5 ft. off the edge of pavement.

Comment 9: Please label fire hydrants on the utility plan.

Response: The two fire hydrants are labeled on the plan – one at the northern corner of the intersection of Chase Lane and Chase Lane Extension, and one at station 9+80+/- right.

An amendment to the approved Maine DEP Site Location of Development Act (SLODA) Permit is required for this project. That permit application contains 25 Sections and can be found in the attached Sanctuary Estates SLODA Application. The sections are as follows:

1. Development Description
2. Right, Title & Interest (including property deeds)
3. Financial Capacity (including construction cost estimate & proof of financial capacity)
4. Technical Ability
5. Noise
6. Visual Quality
7. Wildlife & Fisheries
8. Historic Sites
9. Unusual Natural Areas
10. Buffers
11. Soils
12. Stormwater Management
13. Urban Impaired Streams (n/a)
14. Basic Standards (Erosion Control)
15. Groundwater
16. Water Supply
17. Wastewater Disposal
18. Solid Waste
19. Flooding
20. Blasting
21. Air Emissions
22. Odors
23. Water Vapor (n/a)
24. Sunlight (n/a)
25. Notices (including abutter list)

The following items are attached to this submittal:

- Fees: Development Review ($1,850, includes advertising fee) and Delegated Review of SLODA Application ($1,000) = $2,850 total
- Development Review Application
- MDEP Site Location of Development Application & required attachments
- Preliminary Construction Plan Set
- Final Subdivision Plan – Revision 1 Sanctuary Estates
- Preliminary Subdivision Plan – Phase 2

We are hopeful that you will review the enclosed plans & materials and provide comments so that we may proceed to the planning board at the July 8, 2019 meeting. Thank you for your consideration, and please call our office if you have any questions as you review the enclosed plans and information.

Sincerely,

Terradyn Consultants, LLC

Jeffrey D. Amos, P.E.

Development Review Application

City of Auburn Planning and Permitting Department
City of Lewiston Department of Planning and Code Enforcement

PROJECT NAME: Sanctuary Estates - Phase 2

PROPOSED DEVELOPMENT ADDRESS: Hogan Road, Lewiston, Maine

PARCEL ID#:

REVIEW TYPE: Site Plan/Special Exception ☐ Site Plan Amendment ☐
Subdivision ☒ Subdivision Amendment ☐

PROJECT DESCRIPTION: 14-Lot expansion to an approved 31 lot subdivision. The total subdivision area is now approximately 60.2 acres. Expansion includes 1,350' of new public road.

CONTACT INFORMATION:

Applicant	Property Owner
Name: Chase Custom Homes & Finance	Name: same
Address: 290 Bridgton Rd, Westbrook, ME	Address:
Zip Code 04092	Zip Code
Work #: (207) 892-2700	Work #:
Cell #:	Cell #:
Fax #:	Fax #:
Home #:	Home #:
Email: jchase@cchfi.com	Email:

Project Representative	Other professional representatives for the project (surveyors, engineers, etc.),
Name:	Name: Jeff Amos, P.E. - Terradyn Consultants
Address:	Address: 41 Campus Dr. Suite 101, New Gloucester, ME
Zip Code	Zip Code 04260
Work #:	Work #: 207-926-5111
Cell #:	Cell #: 207-272-7571
Fax #:	Fax #:
Home #:	Home #:
Email:	Email: jeff@terradynconsultants.com

PROJECT DATA

The following information is required where applicable, in order to complete the application

IMPERVIOUS SURFACE AREA/RATIO

Existing Total Impervious Area	0	sq. ft.
Proposed Total Paved Area (both phases combined)	128,382	sq. ft.
Proposed Total Impervious Area		sq. ft.
Proposed Impervious Net Change		sq. ft.
Impervious surface ratio existing		% of lot area
Impervious surface ratio proposed		% of lot area

BUILDING AREA/LOT COVERAGE

Existing Building Footprint	0	sq. ft.
Proposed Building Footprint		sq. ft.
Proposed Building Footprint Net change		sq. ft.
Existing Total Building Floor Area	0	sq. ft.
Proposed Total Building Floor Area		sq. ft.
Proposed Building Floor Area Net Change		sq. ft
New Building		(yes or no)
Building Area/Lot coverage existing		% of lot area
Building Area/Lot coverage proposed		% of lot area

ZONING

Existing	Suburban Residential
Proposed, if applicable	

LAND USE

Existing	
Proposed	Cluster Subdivision

RESIDENTIAL, IF APPLICABLE

Existing Number of Residential Units	0
Proposed Number of Residential Units	14 new (45 total)
Subdivision, Proposed Number of Lots	14 new (45 total)

PARKING SPACES

Existing Number of Parking Spaces	
Proposed Number of Parking Spaces	
Required Number of Parking Spaces	
Number of Handicapped Parking Spaces	

ESTIMATED COST OF PROJECT

DELEGATED REVIEW AUTHORITY CHECKLIST

SITE LOCATION OF DEVELOPMENT AND STORMWATER MANAGEMENT

Existing Impervious Area		sq. ft.
Proposed Disturbed Area		sq. ft.
Proposed Impervious Area		sq. ft.

1. ***If the proposed disturbance is greater than one acre, then the applicant shall apply for a Maine Construction General Permit (MCGP) with MDEP.***
2. ***If the proposed impervious area is greater than one acre including any impervious area crated since 11/16/05, then the applicant shall apply for a MDEP Stormwater Management Permit, Chapter 500, with the City.***
3. ***If total impervious area (including structures, pavement, etc) is greater than 3 acres since 1971 but less than 7 acres, then the applicant shall apply for a Site Location of Development Permit with the City. If more than 7 acres then the application shall be made to MDEP unless determined otherwise.***
4. ***If the development is a subdivision of more than 20 acres but less than 100 acres then the applicant shall apply for a Site Location of Development Permit with the City. If more than 100 acres then the application shall be made to MDEP unless determined otherwise.***

TRAFFIC ESTIMATE

Total traffic estimated in the peak hour-existing (Since July 1, 1997) 0 passenger car equivalents (PCE)

Total traffic estimated in the peak hour-proposed (Since July 1, 1997) 46 (both phases) passenger car equivalents (PCE)

If the proposed increase in traffic exceeds 100 one-way trips in the peak hour then a traffic movement permit will be required.

Zoning Summary

1. Property is located in the Suburban Residential zoning district.
2. Parcel Area: 60.2 acres / _____ square feet(sf).

Regulations	Required/Allowed	Provided
Min Lot Area	20,000 sf	20,000 sf
Street Frontage	50 ft	50 ft
Min Front Yard	12.5 ft	12.5 ft
Min Rear Yard	5 ft	5 ft
Min Side Yard	5 ft	5 ft
Max. Building Height	35 ft	35 ft
Use Designation		
Parking Requirement	1 space/ per_____ square feet of floor area	
Total Parking:		
Overlay zoning districts (if any):		
Urban impaired stream watershed?	YES/NO If yes, watershed name NO	

DEVELOPMENT REVIEW APPLICATION SUBMISSION

Submission shall include payment of fee and fifteen (15) complete packets containing the following materials:

1. Full size plans containing the information found in the attached sample plan checklist.
2. Application form that is completed and signed.
3. Cover letter stating the nature of the project.
4. All written submittals including evidence of right, title and interest.
5. Copy of the checklist completed for the proposal listing the material contained in the submitted application.

Refer to the application checklist for a detailed list of submittal requirements.

L/A's development review process and requirements have been made similar for convenience and to encourage development. Each Citys ordinances are available online at their prospective websites:
Auburn: www.auburnmaine.org under City Departments/ Planning and Permitting/Land Use Division/Zoning Ordinance
Lewiston: http://www.ci.lewiston.me.us/clerk/ordinances.htm Refer to Appendix A of the Code of Ordinances

I hereby certify that I am the Owner of record of the named property, or that the owner of record authorizes the proposed work and that I have been authorized by the owner to make this application as his/her authorized agent. I agree to conform to all applicable laws of this jurisdiction. In addition, I certify that the City's authorized representative shall have the authority to enter all areas covered by this permit at any reasonable hour to enforce the provisions of the codes applicable to this permit.

This application is for development review <u>only</u>; a Performance Guarantee, Inspection Fee, Building Permit Application and other associated fees and permits will be required prior to construction.

Signature of Applicant:	Date: 6/24/2019

Development Review Checklist

City of Auburn Planning and Permitting Department
City of Lewiston Department of Planning and Code Enforcement

THE FOLLOWING INFORMATION IS REQUIRED WHERE APPLICABLE TO BE SUBMITTED FOR AN APPLICATION TO BE COMPLETE

PROJECT NAME: Sanctuary Estates - Phase 2

PROPOSED DEVELOPMENT ADDRESS and PARCEL #: Hogan Road

Required Information		Check Submitted		Applicable Ordinance	
Site Plan		**Applicant**	**Staff**	**Lewiston**	**Auburn**
	Owner's Names/Address	X			
	Names of Development	X			
	Professionally Prepared Plan	X			
	Tax Map or Street/Parcel Number	X			
	Zoning of Property	X			
	Distance to Property Lines	X			
	Boundaries of Abutting land	X			
	Show Setbacks, Yards and Buffers	X			
	Airport Area of Influence (Auburn only)				
	Parking Space Calcs	n/a			
	Drive Openings/Locations	X			
	Subdivision Restrictions	X			
	Proposed Use	X			
	PB/BOA/Other Restrictions	X			
	Fire Department Review	X			
	Open Space/Lot Coverage	X			
	Lot Layout (Lewiston only)	X			
	Existing Building (s)	X			
	Existing Streets, etc.	X			
	Existing Driveways, etc.	X			
	Proposed Building(s)	n/a			
	Proposed Driveways	n/a			
Landscape Plan					
	Greenspace Requirements	n/a			
	Setbacks to Parking	n/a			
	Buffer Requirements	X			
	Street Tree Requirements	X			
	Screened Dumpsters	n/a			
	Additional Design Guidelines	n/a			

	Planting Schedule	n/a			
Stormwater & Erosion Control Plan					
	Compliance w/ chapter 500	X			
	Show Existing Surface Drainage	X			
	Direction of Flow	X			
	Location of Catch Basins, etc.	X			
	Drainage Calculations	X			
	Erosion Control Measures	X			
	Maine Construction General Permit	X			
	Bonding and Inspection Fees	--			
	Post-Construction Stormwater Plan	X			
	Inspection/monitoring requirements	X			
	Third Party Inspections (Lewiston only)	X			
Lighting Plan					
	Full cut-off fixtures	n/a			
	Meets Parking Lot Requirements	n/a			
Traffic Information					
	Access Management	X			
	Signage	X			
	PCE - Trips in Peak Hour	X			
	Vehicular Movements	X			
	Safety Concerns	X			
	Pedestrian Circulation	X			
	Police Traffic	X			
	Engineering Traffic	X			
Utility Plan					
	Water	X			
	Adequacy of Water Supply	--			
	Water main extension agreement	--			
	Sewer	n/a			
	Available city capacity	n/a			
	Electric	X			
	Natural Gas	--			
	Cable/Phone	X			
Natural Resources					
	Shoreland Zone	n/a			
	Flood Plain	n/a			
	Wetlands or Streams	X			
	Urban Impaired Stream	n/a			
	Phosphorus Check	n/a			
	Aquifer/Groundwater Protection	n/a			
	Applicable State Permits	X			
	No Name Pond Watershed (Lewiston only)	n/a			

	Lake Auburn Watershed (Auburn only)	n/a			
	Taylor Pond Watershed (Auburn only)	n/a			
Right Title or Interest					
	Verify	X			
	Document Existing Easements, Covenants, etc.	X			
Technical & Financial Capacity					
	Cost Est./Financial Capacity	--			
	Performance Guarantee	--			
State Subdivision Law		--			
	Verify/Check	X			
	Covenants/Deed Restrictions	--			
	Offers of Conveyance to City	n/a			
	Association Documents	--			
	Location of Proposed Streets & Sidewalks	X			
	Proposed Lot Lines, etc.	X			
	Data to Determine Lots, etc.	X			
	Subdivision Lots/Blocks	X			
	Specified Dedication of Land	X			
Additional Subdivision Standards					
	Single-Family Cluster (Lewiston only)	X			
	Multi-Unit Residential Development (Lewiston only)	n/a			
	Mobile Home Parks	n/a			
	Private Commercial or Industrial Subdivisions (Lewiston only)	n/a			
	PUD (Auburn only)	n/a			
A jpeg or pdf of the proposed site plan		X			
Final sets of the approved plans shall be submitted digitally to the City, on a CD or DVD, in AutoCAD format R 14 or greater, along with PDF images of the plans for archiving		--			

Section 1 – Development Description

Narrative

On behalf of Chase Custom Homes & Finance, we are pleased to submit this Amendment to the existing Subdivision/Site Location of Development Act Permit for the proposed second phase of the Sanctuary Estates Subdivision off Hogan Road in Lewiston, Maine. The development is proposed to be a clustered subdivision with 14 additional lots for a total of 45 single family house lots between both phases with related public roadways, underground utilities, stormwater management features, landscaping and open space.

Existing Conditions

The development parcel containing the first phase is located on the southeast side of Hogan Road in Lewiston, Maine. The property is approximately 35.3 acres. The property containing the second phase is located on the southeast side of the phase 1 parcel and is approximately 24.9 acres. In total the combined property of both phases is approximately 60.2 acres. The site is bounded to the south by Seville Place and Amos Court, to the east by the Thorncrag Bird Sanctuary, to the north by Stetson Road and to the west by Hogan Road. The site is currently an undisturbed forest. The phase 2 property is shown as lot 3 on the City of Lewiston Tax Map 116. The parcel is located in the Suburban Residential (SR) zoning district with a minimum lot size requirement of 40,000 square feet and 125 feet of street frontage without service from public sewer.

Proposed Development

Sanctuary Estates Phase 2 is a proposed 14 lot expansion to the existing 31 lot residential subdivision. The combined subdivision will feature 45 lots with approximately 25.7 acres of common open space. The applicant is proposing a single-family cluster development which allows individual lot sizes to be reduced to 50 percent of that required by the district requirements and reduces the minimum street frontage to 50 ft. The applicant is therefore proposing a single-family clustered subdivision with a minimum lot size of 20,000 sf and 50 feet of street frontage. Each lot will be served by public water, underground electric & private subsurface septic systems.

The second phase will be accessed by an extension of the proposed Chase Lane. The road is designed to meet the design standards of a public road and will have a 24’ wide driving surface and 2’ wide paved shoulders. The extension will be approximately 1,350’.

Stormwater runoff for the second phase will be conveyed to a series of forested buffers that will provide the necessary water quantity control & water quality treatment.

Wetlands

Steve Marcotte of Summit Geoengineering, Inc. performed the wetland delineation for the phase 2 property. Approximately 14,289 SF of wetlands were proposed to be permanently altered as part of the previous approval. No additional wetlands will be altered for this phase. An intermittent stream will need to be crossed to construct the road. An open bottomed culvert with a 6' bottom width & a 2'4" height will be installed at the crossing to meet Army Corp of Engineers design standards. We have submitted a permit by rule application for a stream crossing to the MDEP. There are no significant vernal pools located on the property.

High Intensity Soil Survey

Mark Hampton, CSS of Mark Hampton Associates, Inc. completed a Class B High Intensity Soil Survey for the phase 2 project area. The report can be seen in Section 11 - Soils.

Topographic Map

Aerial survey data obtained from the State of Maine GIS system. The topographic information can be seen on the attached construction plans. A copy of the U.S.G.S. Quadrangle Map is attached to this submittal.

The phase 2 project area features topography that much gentler than the existing subdivision. The site slopes to the north at a relatively steady slope that is typically between 6%-10%. The property drains to a large wetland that is located along & extends beyond the northern property line

Construction Plan

The site work is estimated to take 6 to 8 months to complete (final stabilization in spring 2020 as necessary) and would generally correspond to the following table:

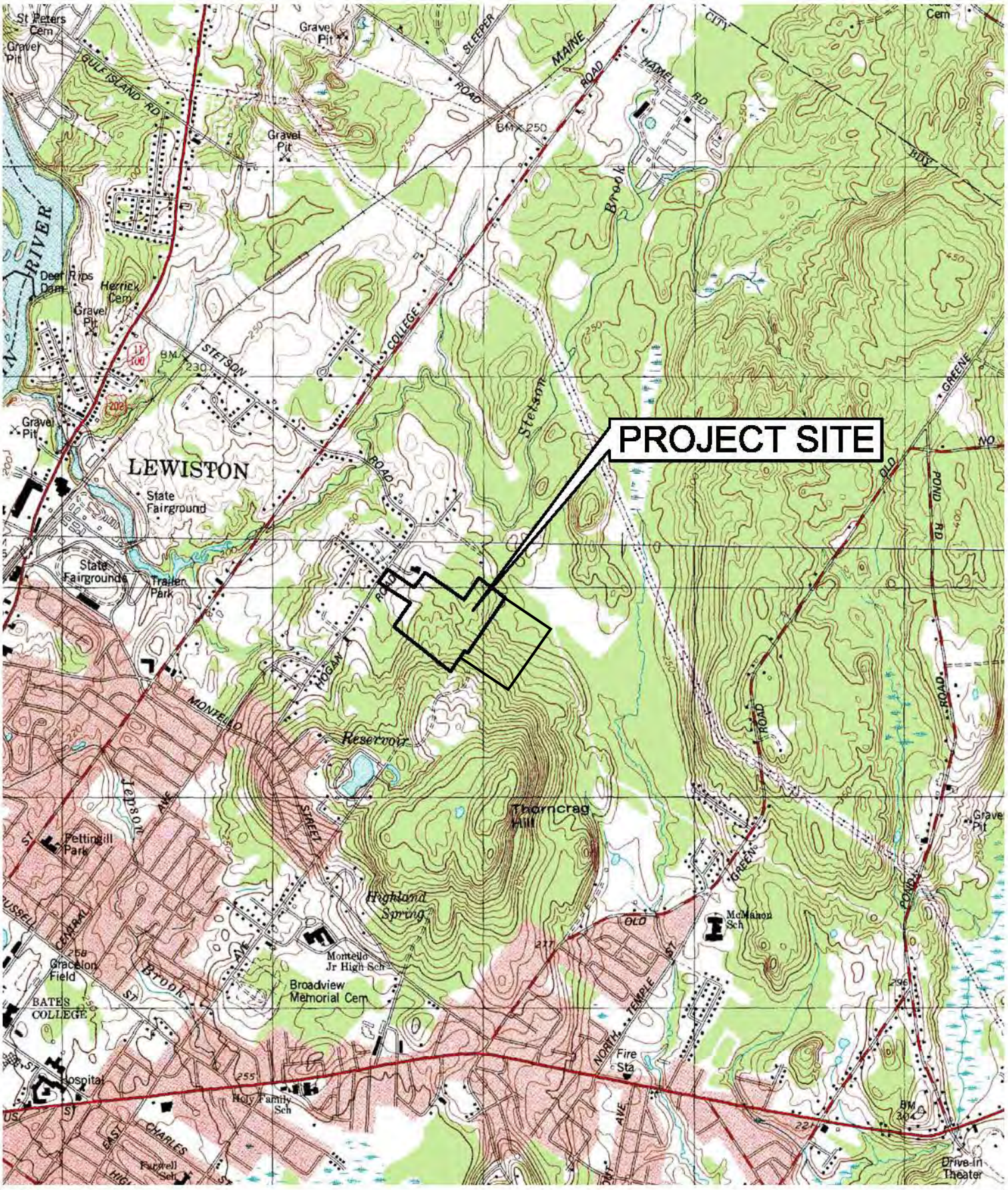
	Start	Finish
1. Estimated construction time: 6 months	August 1, 2019	June 1, 2020
2 Erosion control measures placed	August 1, 2019	August 15, 2019
3. Site clearing, grubbing, excavation, filling and constructing stormwater facilities	August 1, 2019	October 1, 2019
4. Excavation & construction of roads and underground utilities.	August 1, 2019	November 1, 2019
5. Mulch spread for winter erosion control. (if necessary)	November 15, of construction year	May 1 the next year
6. Start progressive final seeding on prepared areas.	Within 24 hours of loam placement	September 15 of construction year
7. Bi-weekly monitoring of vegetative growth.	September 1, 2019	November 1, 2019
8. Re-seed, if necessary, and continue monitoring of growth until established.	May 1, 2020	June 1, 2020
9. Progressive removal of erosion control devices, based on field inspection.	May 1, 2020	June 1, 2020

Dates are subject to change at the discretion of the engineer depending on construction progress.

Drawings

A full set of construction plans have been attached with this submittal, including:

- Existing Condition Plans
- Subdivision Plans
- Site Plans
- Grading & Erosion Control Plans
- Utility Plans
- Profile Sheets
- Detail Sheets



SHEET DESCRIPTION		JOB NO.	FIGURE
U.S.G.S. QUADRANGLE MAP SANCTUARY ESTATES, LEWISTON	TERRADYN CONSULTANTS, LLC P.O. Box 339 111 Elderberry Lane New Gloucester, ME 04260 Office: (207) 926-5111 Fax: (207) 221-1317 www.terradynconsultants.com	1660	1
PREPARED FOR		DATE	OF
CHASE CUSTOM HOMES & FINANCE 290 BRIDGTON ROAD WESTBROOK, ME 04092	Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting	10/4/2017	1
		SCALE	
		1"=2000'	

Section 2 – Title, Right or Interest

A copy of the property deed is attached.

DEED OF SALE BY PERSONAL REPRESENTATIVE
(Testate)

1001940050607

Alvin G. Mack, with a mailing address of 101 Vannah Avenue, Portland, Maine, duly appointed and acting **Personal Representative of the Estate of Samuel Richard Mack** deceased (testate), as shown by the probate records of Androscoggin County, Maine, and having given notice to each person succeeding to an interest in the real property described below at least ten (10) days prior to the sale, by the power conferred by the Probate Code, and every other power, for consideration paid, grants to **Chase Custom Homes & Finance, Inc**, with a mailing address of 290 Brighton Avenue, Westbrook, Maine 04092, the following described real property situated in the City of Lewiston. County of Androscoggin and State of Maine, and described in the attached **Exhibit A.**

Witness my hand this 15 day of February, 2019.

Estate of Samuel Richard Mack

Witness

By: Alvin G. Mack
Its: Personal Representative

STATE OF MAINE
Cumberland, ss

February 15, 2019

Personally appeared the above named Alvin G. Mack, Personal Representatives of the Estate of Samuel Richard Mack, and acknowledged the foregoing instrument to be his/her/their free act and deed in said capacity, and the free act and deed of said estate.

Before me,

Attorney at Law/Notary Public

STEVEN W. ROSS
NOTARY PUBLIC - MAINE
My Commission Expires November 2, 2025

Printed Name

Exhibit A

Certain lots or parcels of land in Lewiston, County of Androscoggin and State of Maine, bounded and described as follows:

1. PARCELS

Parcel One: A certain piece or parcel of land situated in said Lewiston, it being the northerly part of lot numbered 13 and bounded and described as follows, to wit: On the North by land formerly owned by Samuel Given; on the northeast by land owned by the late James Lowell in his life time; on the southeast by land owned by the late James Carville in his life time; on the southwest by land now or formerly owned by the heirs of the late Phineas Wright, containing twenty (20) acres, more or less, and being the same premises conveyed to William Kilbome by Owen Hinkley by his deed of warranty, dated May 19, 1865.

Parcel Two: A certain other lot of land situated in said Lewiston, commencing at the northeast corner of land now or formerly owned by the Windsor Mineral Spring Company; thence running in a northerly direction on the line of land now or formerly owned by Henry Wood and the line of land first described, four hundred (400) feet; thence westerly at right angles fifty (50) feet; thence at right angles to said last named line southerly four hundred (400) feet to the land now or formerly of Windsor Mineral Spring Company; thence in a southerly direction on said Company's land fifty (50) feet to the point of commencement.

2. EASEMENT FOR RIGHT OF WAY

There is also included herewith an easement fifty feet in width extending southeasterly from Hogan Road to the above described Parcel One and Parcel Two over the land in Lewiston, County of Androscoggin, and State of Maine, bounded and described as follows:

Northwesterly by the Hogan Road, so-called; northeasterly by land now owned or formerly owned by Jerry Clifford; southeasterly by land now or formerly owned by William B. Kilbourne; and southwesterly by land now or formerly owned by the Windsor Mineral Spring Company, and known as the Samuel Given Farm, being fifty-seven (57) acres, more or less.

Being the third parcel described in the deed from David H. Bourget to John G. Mendros and Florence J. Mendros, as joint tenants, dated July 8, 1963 and recorded in Book 896, Page 181, and being hereinafter referred to as the "Servient Parcel".

This easement purposes of a right Parcel One and Parcel Two described above and shall include, without limitation, the following:

(1) the right of ingress and egress by foot and by vehicle of any sort whatever;

(2) the right to construct, maintain, repair, grade, excavate fill, pave and improve the full width of the right of way;

(3) the right to install, construct, maintain, repair and replace within the right of way, both above and below ground, utility services to include, without limitation, facilities necessary or

convenient for the transmission of electricity, gas, telephone communications, cable television, computer communications, sewerage, water and such similar services which are currently available or in the future may become available.

The easement is not limited to any current use of the property served by the easement but shall serve any lawful purpose to which said property may be put in the future.

RESERVING, HOWEVER, to the Servient Parcel the right to locate and relocate the right of way from time to time on the Servient Parcel at the expense of the Servient Parcel.

3. ADDITIONAL RIGHTS

Included herewith are all rights, easements, privileges and appurtenances belonging to the above granted estate including especially, but without limiting the generality of the foregoing, the rights reserved by John G. Mendros and Florence J. Mendros in three deeds to the Holy Trinity Greek Orthodox Church, one recorded in Book 1383, Page 326, a second recorded in Book 1444, Page 38, and the third recorded in Book 2034, Page 314, to the extent the same benefit the above described real estate.

4. EXCEPTIONS

EXCEPTED herefrom are the following:
1. In Book 1046, Page 190, an easement dated September 30, 1971 from John G. Mendros and Florence J. Mendros to Central Maine Power Company and New England Telephone and Telegraph Company.
2. In Book 1046, Page 191, an easement dated September 13, 1971 from John G. Mendros and Florence J. Mendros to Central Maine Power Company.
3. A right of way reserved to Harry Stetson as set forth in the deed from Charles Dube to David Bourget dated April 30, 1928 and recorded May 8, 1928 in Book 381, Page 406 which provides as follows: "subject to a certain right of way reserved to Harry Statson to get to the wood lot in the rear of the above described premises during the winter season only and not during the planting seasons. The said privilege and right of way to Harry Stetson to reach his wood lot in the rear of the above described premises to be for the winter months of each year while the snow is on the ground and not otherwise."
4. In Book 3440, Page 56, an easement dated June 21, 1995 and recorded June 29, 1995 from Florentia J. Mendros and John G. Mendros to New England Telephone and Telegraph Company and Central Maine Power Company

Maine Real Estate Transfer Tax Paid
TINA M. CHOUINARD, REGISTER
ANDROSCOGGIN COUNTY MAINE E-RECORDED

Section 3 – Financial Capacity

Chase Custom Homes & Finance is proposing to develop a new 14-lot expansion to the previously approved 31 lot clustered subdivision that was named Sanctuary Estates. The site will contain new public roadways open space, underground utilities, and a series of low impact stormwater measures. The site will be served by public water and underground power, cable and telephone lines.

The project infrastructure is estimated to cost well below the limit of the revolving line of credit that was submitted with the previous application.

Section 4 - Technical Ability

No change from previous application

Section 5 - Noise

No change from the previous application. The anticipated noise generated by the project will be minor in nature since the project is completely residential. Short-term noise effects may occur during construction because of the use of normal construction equipment on the site. This noise is limited and would be expected to reduce to the minor residential levels once the construction phase is complete.

Section 6 - Visual Quality and Scenic Character

The visual quality and scenic character will be maintained to the extent practicable for the development. Approximately 15.7 additional acres will be preserved as open space as part of phase 2. This brings the total open space for the development to 25.7 acres. These areas will be maintained as natural wooded areas and will maintain a natural scenic and visual buffer.

Section 7 - Wildlife and Fisheries

No change from previous application. The Maine Department of Inland Fisheries and Wildlife reviewed the project area and concluded that there were no known fisheries resources on site and that there are no known essential or significant wildlife habitats, nor any documented occurrences of rare, threatened or endangered species at or adjacent to this property.

Section 8 - Historic Sites

MHPC reviewed information submitted for Sanctuary Estates Phase 1 and concluded that there will be no historic properties (archaeological or architectural) affected by the proposed undertaking - see attached letter from MHPC dated October 11, 2017. We anticipate no change in their conclusion for Phase 2 since the additional area is located adjacent to Phase 1 and away from Hogan Road. We have requested MHPC to review Phase 2 for any historical significance (see attached letter dated 6/26/2019).

Pineland
Cumberland Hall
41 Campus Drive, Suite 101
New Gloucester, ME 04260

Portland
565 Congress Street, Suite 201
Portland, ME 04101

June 26, 2019

Mr. Kirk F. Mohney
Maine Historic Preservation Commission
55 Capitol Street
65 State House Station
Augusta, ME 04333

Historic Preservation Commission Review
Sanctuary Estates Phase 2 - Lewiston, Maine

Mr. Mohney:

Terradyn Consultants, LLC is preparing an amendment to a DEP Site Location Permit for Chase Custom Homes & Finance. They are proposing to build a 14-lot subdivision on 24.93 acres east of Hogan Road. This project is adjacent to a 32-lot single-family housing development on Hogan Road in Lewiston, Maine that your office reviewed in October, 2017. That 32-lot project is now called Sanctuary Estates Phase 1. A copy of your review letter for the Hogan Road subdivision (Phase 1) dated October 11, 2017 is attached.

We wish to request your review of the Historic Preservation Commission database for any historic significance of this 24.93-acre property adjacent to the previously reviewed development, as shown on the attached U.S.G.S. Quadrangle Map.

If you have any comments or questions relating to this project, please do not hesitate to contact me. Thank you for your time.

Prepared by:

Terradyn Consultants, LLC

STATE OF MAINE
LAWRENCE R. BASTIAN
No. 4321
LICENSED
PROFESSIONAL ENGINEER

Larry Bastian, P.E.

MAINE HISTORIC PRESERVATION COMMISSION
55 CAPITOL STREET
65 STATE HOUSE STATION
AUGUSTA, MAINE
04333

PAUL R. LEPAGE
GOVERNOR

KIRK F. MOHNEY
DIRECTOR

October 11, 2017

Ms. Katy J. Bouchard
Terradyn Consultants, Inc
PO Box 339
New Gloucester, ME 04260

Project: MHPC #1396-17 Chase Custom Homes & Finance; Sanctuary Estates; Hogan Rd Residential Development

Town: Lewiston, ME

Dear Ms. Bouchard:

In response to your recent request, I have reviewed the information received October 10, 2017 to intiate consultation on the above referenced project in accordance with the requirements of the Maine Department of Environmental Protection.

Based on the information submitted, I have concluded that there will be no historic properties (archaeological or architectural) affected by the proposed undertaking, as defined by Section 106 of the National Historic Preservation Act.

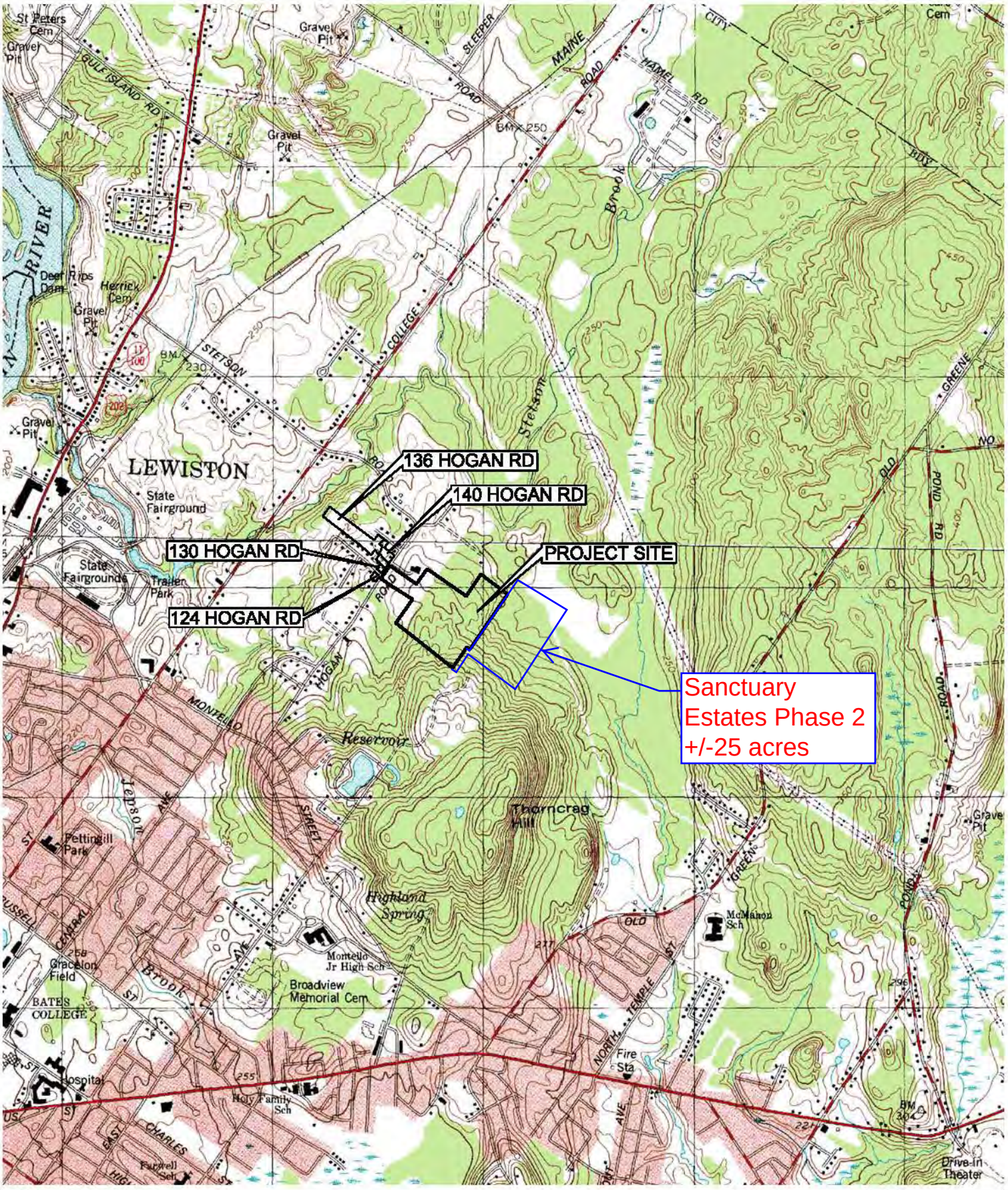
Please contact Megan Hopkin at (207) 287-2992 or megan.m.hopkin@maine.gov if we can be of further assistance in this matter.

Sincerely,

Kirk F. Mohney

Kirk F. Mohney
State Historic Preservation Officer

PHONE: (207) 287-2132 FAX: (207) 287-2335



SHEET DESCRIPTION		JOB NO.	FIGURE
U.S.G.S. QUADRANGLE MAP SANCTUARY ESTATES, LEWISTON	TERRADYN CONSULTANTS, LLC P.O. Box 339 111 Elderberry Lane New Gloucester, ME 04260 Office: (207) 926-5111 Fax: (207) 221-1317 www.terradynconsultants.com	1660	1
PREPARED FOR		DATE	OF
CHASE CUSTOM HOMES & FINANCE 290 BRIDGTON ROAD WESTBROOK, ME 04092	Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting	10/4/2017	1
		SCALE	
		1"=2000'	

Section 9 - Unusual Natural Areas

No change from previous application. The Maine Natural Areas Program previously determined that there are no known rare botanical features documented specifically within the project area.

Section 10 - Buffers

Approximately 15.7 acres of additional naturally wooded Open Space area will be maintained as part of this phase. This will bring the total open space area to 25.7 acres for the entire subdivision. Additionally, a minimum 30' yard area will be maintained where the proposed development directly abuts existing residential use lots. The open space will largely be undeveloped.

See the attached subdivision plan for location of exterior yards and open space areas.

Section 11 - Soils

Mark Hampton, CSS of Mark Hampton Associates, Inc completed a Class "B" High Intensity Soils Survey for the project area in September of 2018. A copy of the report has been included with this submission. The related soil map can be seen on the Pre & Post Development Watershed Maps in Section 12. A wetland delineation of the project area was performed by Steve Marcotte of Summit Geoengineering, Inc.. Approximately 14,289 SF of wetlands were proposed to be permanently altered as part of the previous approval. No additional wetlands will be altered for this phase. An intermittent stream will need to be crossed to construct the road. An open bottomed culvert with a 6' bottom width & a 2'4" height will be installed at the crossing to meet Army Corp of Engineers design standards. We have submitted a permit by rule application for a stream crossing to the MDEP. There are no significant vernal pools located on the property.

Wetlands are shown on the construction plans.

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

5500

Sanctuary Estates
Hogan Road
Lewiston, ME
Chase Custom Homes and Finance

Soil Narrative Report

DATE:	Soil Profiles observed on September 5, 2018
BASE MAP:	Base plan provided by Terradyn Consultants LLC scale 1 inch equals 100 feet and two foot contours.
GROUND CONTROL:	Soil survey boundaries located by Mark Hampton Associates, Inc. for Class B Soil Survey

Class B-High Intensity Soil Survey (Minimum Standards)

Mapping units of 1 acre or larger.
Scale of 1"= 200 feet or larger.
Up to 25% inclusions in mapping units of which no more than 15% may be dissimilar soils.
Ground Control – test pits located accurately from known control points
Base Map –5 foot contour intervals

Provided:

Mapping units of 1/2 acre or larger
Base map scale of 1"= 100 feet.
Up to 25 percent inclusions in mapping units of which no more than 15 percent is dissimilar soils.
Baseline information and test pits located by Mark Hampton Associates, Inc.
Ground topographic survey with two foot contours and ground control provided.

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The accompanying soil profile descriptions, soil map, and this soil narrative report were done in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.

Mark J. Hampton C.S.S. #216, L.S.E. #263 September 9, 2018

Mark J. Hampton Date

STATE OF MAINE
MARK J.
HAMPTON
#216
CERTIFIED
SOIL SCIENTIST

MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

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Sanctuary Estates
Hogan Road
Lewiston, ME
Chase Custom Homes & Finance

Dixfield
(Aquic Haplorthods)

SETTING

PARENT MATERIAL:	Derived from compact loamy glacial till.
LANDFORM:	Till plains, hills and ridges.
POSITION IN LANDSCAPE:	Plains and middle levels.
SLOPE GRADIENT RANGES:	(C) 8-15%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Moderately well drained with a perched watertable from 1.0 to 2.0 feet below the surface at some time from October to May or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dark brown, stony sandy loam, 0-7"
Subsurface Layer:	Brown, sandy loam, 7-20"
Subsoil Layer:	Olive brown, stony sandy loam 16-31"
Substratum:	Olive gray, stony sandy loam, 25-65"

HYDROLOGIC GROUP:	Group C
SURFACE RUNOFF:	Moderately Rapid
PERMEABILITY:	Moderate in solum, slow in substratum
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	None

INCLUSIONS

(Within Mapping Unit)

CONTRASTING: Colonel, Brayton, Lyman-Tunbridge

STATE OF MAINE
MARK J. HAMPTON
#216
CERTIFIED SOIL SCIENTIST

USE AND MANAGEMENT

Development: There are few limiting factors for building site development

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Quality services that meet your deadline

MARK HAMPTON ASSOCIATES, INC.

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5500
Sanctuary Estates
Hogan Road
Lewiston, ME
Chase Custom Homes & Finance

Colonel
(Aquic Haplorthods)

SETTING

PARENT MATERIAL:	Derived from dense, loamy glacial till
LANDFORM:	Drumlins and Sideslopes of glaciated uplands
POSITION IN LANDSCAPE:	Mid-positions on landform
SLOPE GRADIENT RANGES:	(B) 3-8%, (C) 8-15%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Somewhat poorly drained with a perched watertable from 1.0 to 2.0 feet below the surface at some time from October to May or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dk gray brown, stony sandy loam 0-3"
Subsurface Layer:	Dark Brown, stony sandy loam, 3-12"
Subsoil Layer:	Olive Brown, stony sandy loam, 12-18"
Substratum:	Olive, stony, sandy loam, 18-65"

HYDROLOGIC GROUP:	Group C
SURFACE RUNOFF:	Moderate to moderately slow
PERMEABILITY:	Moderate and moderately slow
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	None

STATE OF MAINE
MARK J. HAMPTON
#216
CERTIFIED SOIL SCIENTIST

INCLUSIONS

(Within Mapping Unit)

CONTRASTING: Brayton, Dixfield

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

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Sanctuary Estates
Hogan Road
Lewiston, ME
Chase Custom Homes & Finance

Biddeford
(Histic Humaquepts)

SETTING

PARENT MATERIAL:	Formed in Glaciolacustrine and glaciomarine deposits
LANDFORM:	Coastal lowlands and river valleys
POSITION IN LANDSCAPE:	Lower positions on landform
SLOPE GRADIENT RANGES:	(A) 0-3%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Very poorly drained with an apparent watertable from 0.0 to 1.0 feet below the surface at some time from October to May or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Black muck, 0-16"
Subsurface Layer:	Olive gray, silt loam, 16-22"
Subsoil Layer:	Olive Gray, silty clay loam, 22-46"

HYDROLOGIC GROUP:	Group D
SURFACE RUNOFF:	Intermittently ponded and very slow runoff
PERMEABILITY:	Very slow
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	Possible

STATE OF MAINE
MARK J. HAMPTON
#216
CERTIFIED SOIL SCIENTIST

INCLUSIONS

(Within Mapping Unit)

CONTRASTING: Brayton, Colonel

USE AND MANAGEMENT

Development: The limiting factor for building site development is severe water due to the presence of a high watertable for a portion of the year. This soil is hydric and would be considered wetland.

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MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

5500

Sanctuary Estates
Hogan Road
Lewiston, ME
Chase Custom Homes & Finance

Brayton
(Aeric Epiaquepts)

SETTING

PARENT MATERIAL:	Derived from dense glacial till
LANDFORM:	Toeslopes and depressions in glaciated uplands
POSITION IN LANDSCAPE:	Lower positions on landform
SLOPE GRADIENT RANGES:	(A) 0-3%, (B) 3-8%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Poorly drained with a perched watertable from 0.0 to 1.0 feet below the surface at some time from October to May or during periods of heavy precipitation.

TYPICAL PROFILE:

Surface Layer:	Dk gray brown, stony fine sandy loam 0-5"
Subsurface Layer:	Gray Brown, stony fine sandy loam, 5-15"
Subsoil Layer:	Olive gray, stony fine sandy loam, 15-24"
Substratum:	Olive fine sandy loam, 24-65"

HYDROLOGIC GROUP:	Group C
SURFACE RUNOFF:	Moderate to moderately slow
PERMEABILITY:	Moderate and moderately slow
DEPTH TO BEDROCK:	Greater than 65 inches
HAZARD TO FLOODING:	None

STATE OF MAINE
MARK J. HAMPTON
#216
CERTIFIED SOIL SCIENTIST

INCLUSIONS
(Within Mapping Unit)

CONTRASTING: Dixfield, Colonel

USE AND MANAGEMENT

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

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FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name:	Applicant Name:	Project Location (municipality):
Sanctuary Estates	Chase Custom Homes & Finance	Lewiston

Exploration Symbol # SS 5

☒ Test Pit ☐ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Sandy loam	Friable	Black	
Sandy loam	Firm	Gray	Common Distinct

Soil Details by S.E. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
3	E	4	6 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Details by S.S. ▸▸

Soil Series/Phase Name:		Hydrologic Soil Group
Brayton PD	☒ Hydric ☐ Non-hydric	

Exploration Symbol # SS 6

☒ Test Pit ☐ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Sandy loam	Friable	Dark Brown	
Sandy loam	Friable	Brown	
Sandy loam	Firm	Olive	Common Distinct

Soil Details by S.E. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
3	C	10	16 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Details by S.S. ▸▸

Soil Series/Phase Name:		Hydrologic Soil Group
Dutchess MWD	☐ Hydric ☒ Non-hydric	

Exploration Symbol # SS-7

☒ Test Pit ☐ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Sandy loam	Friable	Dark Brown	
Sandy loam	Friable	Brown	
Sandy loam	Firm	Olive	Common Distinct

Soil Details by S.E. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
3	D	10	12 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Details by S.S. ▸▸

Soil Series/Phase Name:		Hydrologic Soil Group
Colonel SPD	☐ Hydric ☒ Non-hydric	

Exploration Symbol # SS-8

☒ Test Pit ☐ Boring ☐ Probe

____ " Organic horizon thickness Ground surface elev. ____

____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Texture	Consistency	Color	Redox Features
Sandy loam	Friable	Dark Brown	
Sandy loam	Friable	Brown	
Sandy loam	Firm	gray	Common Distinct

Soil Details by S.E. ▸▸

Soil Classification: Profile	Condition	Slope: Percent	Limiting Factor: Depth	
3	D	6	12 "	☒ Groundwater ☒ Restrictive Layer ☐ Bedrock

Soil Details by S.S. ▸▸

Soil Series/Phase Name:		Hydrologic Soil Group
Colonel SPD	☐ Hydric ☒ Non-hydric	

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: Mark J. Hampton	Date: 9/9/18
Name Printed: Mark J. Hampton	Cert/Lic/Reg. #: 263/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE
MARK J. HAMPTON
#216
CERTIFIED SOIL SCIENTIST
Maine Professional Seal

5500

PAGE ___ OF ___

FORM F Rev. 07/11

SOIL PROFILE / CLASSIFICATION INFORMATION

DETAILED DESCRIPTION OF SUBSURFACE CONDITIONS AT PROJECT SITES

Project Name: Sanctuary Estates

Applicant Name: Chase Custom Homes & Finance

Project Location (municipality): Lewiston

Exploration Symbol # 559

☒ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0	Organic	Decomposed	Black	
10	Muck			
20	Sandy loam	Firm	Gray	
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
Profile: 12	Condition: E	Percent: 0	Depth: 0 "	☒ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name: Richwood VPD

☒ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # _____

☐ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0				
10				
20				
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
Profile:	Condition:	Percent:	Depth: "	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name:

☐ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # _____

☐ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0				
10				
20				
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
Profile:	Condition:	Percent:	Depth: "	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name:

☐ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

Exploration Symbol # _____

☐ Test Pit ☐ Boring ☐ Probe

_____ " Organic horizon thickness Ground surface elev. _____

_____ " Depth of exploration or to refusal

Depth below mineral soil surface (inches)

Depth	Texture	Consistency	Color	Redox Features
0				
10				
20				
30				
40				
50				
60				

Soil Details by S.E. ▸▸ / S.S. ▸▸

Soil Classification		Slope	Limiting Factor	
Profile:	Condition:	Percent:	Depth: "	☐ Groundwater ☐ Restrictive Layer ☐ Bedrock

Soil Series/Phase Name:

☐ Hydric ☐ Non-hydric

Hydrologic Soil Group: _____

INVESTIGATOR INFORMATION AND SIGNATURE

Signature: Mark J. Hampton

Date: 9/9/18

Name Printed: MARK J. Hampton

Cert/Lic/Reg. #: 2603/216

Title: ☒ Licensed Site Evaluator ☒ Certified Soil Scientist ☐ Certified Geologist ☐ Professional Engineer

STATE OF MAINE
MARK J. HAMPTON
#216
CERTIFIED SOIL SCIENTIST

STORMWATER MANAGEMENT PLAN

Sanctuary Estates – Phase 2
Lewiston, Maine

The following Stormwater Management Plan has been prepared for the Hogan Road Subdivision Project to evaluate stormwater runoff and erosion control for the proposed 14 lot expansion to the existing Sanctuary Estates Subdivision located on Hogan Road, in Lewiston, Maine. To simplify the review, this report will focus on the changes from the original permit.

Site Calculations (Phases 1 & 2)

Total Property Area	60.23 Ac (+/-)
Total Project Impervious Area	7.40 Ac
Total New Impervious Area	7.40Ac
Total Developed Area	22.34 Ac

Existing Conditions

The development parcel is located on the southeast side of Hogan Road, in the City of Lewiston. This phase of development is situated to the southeast of the first phase of development on a 22.93 acre parcel. In total, both phases include a total property area of 60.23 acres. The property is undeveloped. The majority of the site is forested. The new property area drains to the east to No Name Brook which eventually leads to the Androscoggin River. A copy of the U.S.G.S. Quadrangle Map (Lewiston) is attached to this submittal.

The new property drains to a large wetland system that is located on the northern edge of the property. The phase 2 wetands were delineated by Steve Marcotte of Summit Geoengineering, Inc. Steve delineated the wetland areas last fall and then verified them in the spring of 2019.

Proposed Development

The applicant proposes to expand the existing 31 lot subdivision with a 14 lot expansion. The new phase will be accessed from an extension to Chase Lane. No additional wetlands will be filled, however a minor stream channel will need to be crossed to access the property. Stormwater treatment will be provided by a series of level spreader/forested buffer combinations as well as some buffers adjacent to residential lots.

Flooding

The development area is not located within an area of flood hazard according to the Federal Insurance Rate Map 230048 0015 B. See attached map.

Modeling Assumptions

The onsite stormwater facilities were sized utilizing the USDA Soil Conservation Service (SCS) TR-20 Runoff Simulation Model, as contained in the HydroCAD computer software program (Version 9.0). Runoff curve numbers were determined for each direct watershed by measuring the area of each hydrologic soil group within each type of land cover. Weighted curve numbers were then calculated using curve numbers for various cover types and hydrologic soil groups, assuming "good" conditions as defined in U.S Soil Conservation Service (SCS) publications. Times of concentration and travel times were determined from site topographic maps in accordance with SCS procedures. A maximum length of 150 feet was used for sheet flow.

All of the watersheds' peak runoff rates were analyzed for the 2, 10, and 25-year frequency, 24-hour duration storm events. A Type III rainfall distribution was applied to these storms. The rainfall amounts for Androscoggin County are as follows:

Storm Frequency Precipitation (in./24 hr)	
2-year	3.0
10-year	4.3
25-year	5.4

Soil delineation

The onsite soils were delineated from a Class A High Intensity Soil Survey that was conducted by Mark Hampton Associates, Inc. See Section 11 – Soils for the HISS. The offsite soils were found from the Androscoggin County Medium Intensity Soil Survey as shown on the Soil Data Viewer on the NRCS website (See attached map). The soil survey reports the watershed soils are generally hydrologic group C soils with relatively small inclusions of group B soils. We've taken the conservative approach of modeling all non-wetland soils as HSG C soils and all wetlands as HSG D. See attached map.

Water Quantity (Flooding Standard)

The following table summarizes the results of stormwater calculations for the design storm events for the project areas. Calculations and computer modeling sheets are provided with this report. The original study points 1, 2 & 5 remain unchanged. Study Points 3 & 4 were located along the shared property line of the first phase & the phase 2 property. The flow combines at the northern edge of the new property at the large wetland area. The study point represents the point where the runoff enters the large wetland.

Table 1 - Stormwater Runoff Summary Table Pre-Development vs. Post-Development						
Study Point #	2Yr/24Hr (cfs)		10Yr/24Hr (cfs)		25Yr/24Hr (cfs)	
	Pre	Post	Pre	Post	Pre	Post
1	Unchanged					
2	Unchanged					
3-4	28.7	28.4	62.2	58.5	94.1	86.2
5	Unchanged					

As the above result table shows, the post-development flow rates for the 2, 10, and 25-year/24 hour design storm events do not exceed the pre-development conditions.

Water Quality (BMP Standard)

The water quality calculations are based on the total development (phases 1 & 2). The water quality requirements will be met by a series of forested buffers & the construction of two gravel wetlands & and underdrained filter basin. Additionally, roof drain filter strips will be used on lots 3-14, 19, 20, 22 & 23.

The impervious and developed treatment percentages are detailed below:

New Impervious Area: The project will result in the creation of approximately 322,342 SF of impervious area in the form of roadway, walkways, driveways & roof. A combination different BMPs will result in the treatment of approximately 311,242 SF of impervious area resulting in a treatment percentage of (311,242/322,342) x 100%= 96.56%.

Percentage of Treatment of the Impervious Area =96.56% (95% req'd)

Project Developed Area: The project will result in the creation of approximately 973,015 SF of developed area. The combination of BMPs will result in the treatment of approximately 849,362 SF of the developed area resulting in a treatment percentage of (849,362/973,015) x 100%= 87.65%

Percentage of Treatment of the Developed Area = 87.65% (80% required)

Housekeeping and Maintenance & Inspection guidelines are attached to this report.

BMP Sizing

Forested Buffer with Level Lip Spreader

Level Spreader #5:
The buffer contains soils that are consistent with Soil Group C sandy loam or loamy sand. *Table 5.5– Berm and Flow Path Length per Acre of Impervious Area* of the BMP manual shows that standard sizing for a 75' flow path with slope >8% requires that the berm length for a forested buffer must be 150' per acre of impervious area and 42' per acre of lawn. Evaluation of the watershed shows that it contains the following:

Impervious area = 0.29 Ac
Lawn area = 0.59 Ac

Standard sizing: 150(0.29) + 42(0.59)=43.5' + 24.8'=68.3'. Proposed Length=70'.

Level Spreader #6:
The buffer contains soils that are consistent with Soil Group C sandy loam or loamy sand. *Table 5.5– Berm and Flow Path Length per Acre of Impervious Area* of the BMP manual shows that standard sizing for a 75' flow path with slope <8% requires that the berm length for a forested buffer must be 125' per acre of impervious area and 35' per acre of lawn. Evaluation of the watershed shows that it contains the following:

Impervious area = 0.63 Ac
Lawn area = 0.94 Ac

Standard sizing: 125(0.63) + 35(0.94)=78.1' + 33.0'=111.1'. Proposed Length=115'.

Level Spreader #7:
The buffer contains soils that are consistent with Soil Group C sandy loam or loamy sand. *Table 5.5– Berm and Flow Path Length per Acre of Impervious Area* of the BMP manual shows that standard sizing for a 150' flow path with slope <8% requires that the berm length for a forested buffer must be 90' per acre of impervious area and 30' per acre of lawn. Evaluation of the watershed shows that it contains the following:

Impervious area = 0.59 Ac
Lawn area =0.86 Ac

Standard sizing: 90(0.59) + 30(0.86)=53.1'+25.8'= 78.9'. Proposed Length=90'.

Level Spreader #8:
The buffer contains soils that are consistent with Soil Group C sandy loam or loamy sand. *Table 5.5– Berm and Flow Path Length per Acre of Impervious Area* of the BMP manual shows that standard sizing for a 150' flow path with slope <8% requires that the berm length for a forested buffer must be 90' per acre of impervious area and 30' per acre of lawn. Evaluation of the watershed shows that it contains the following:

Impervious area = 0.65 Ac
Lawn area = 1.42 Ac

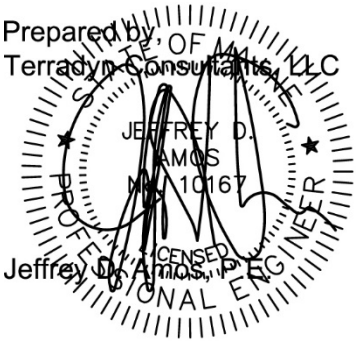
Standard sizing: 90(0.65) + 30(1.42)=58.5'+42.6'= 101.0'. Proposed Length=120'.

Forested Buffer Adjacent to Residential Lot

Adjacent to Lots 42, 43 & 45
The buffer contains soils that are consistent with Soil Group C sandy loam or loamy sand. *Table 5.3 – Buffer Flow Path Length Downgradient of a Single Family Residential Lot of the BMP manual* shows that standard sizing requires that the standard length of flow path for a forested buffer to be 50'. The buffers adjacent to Lots #*42, 43 & 45* all meet or exceed this minimum standard.

Summary
Based on the results of this evaluation, the proposed stormwater design is not expected to cause flooding, erosion or other significant adverse effects downstream of the site.

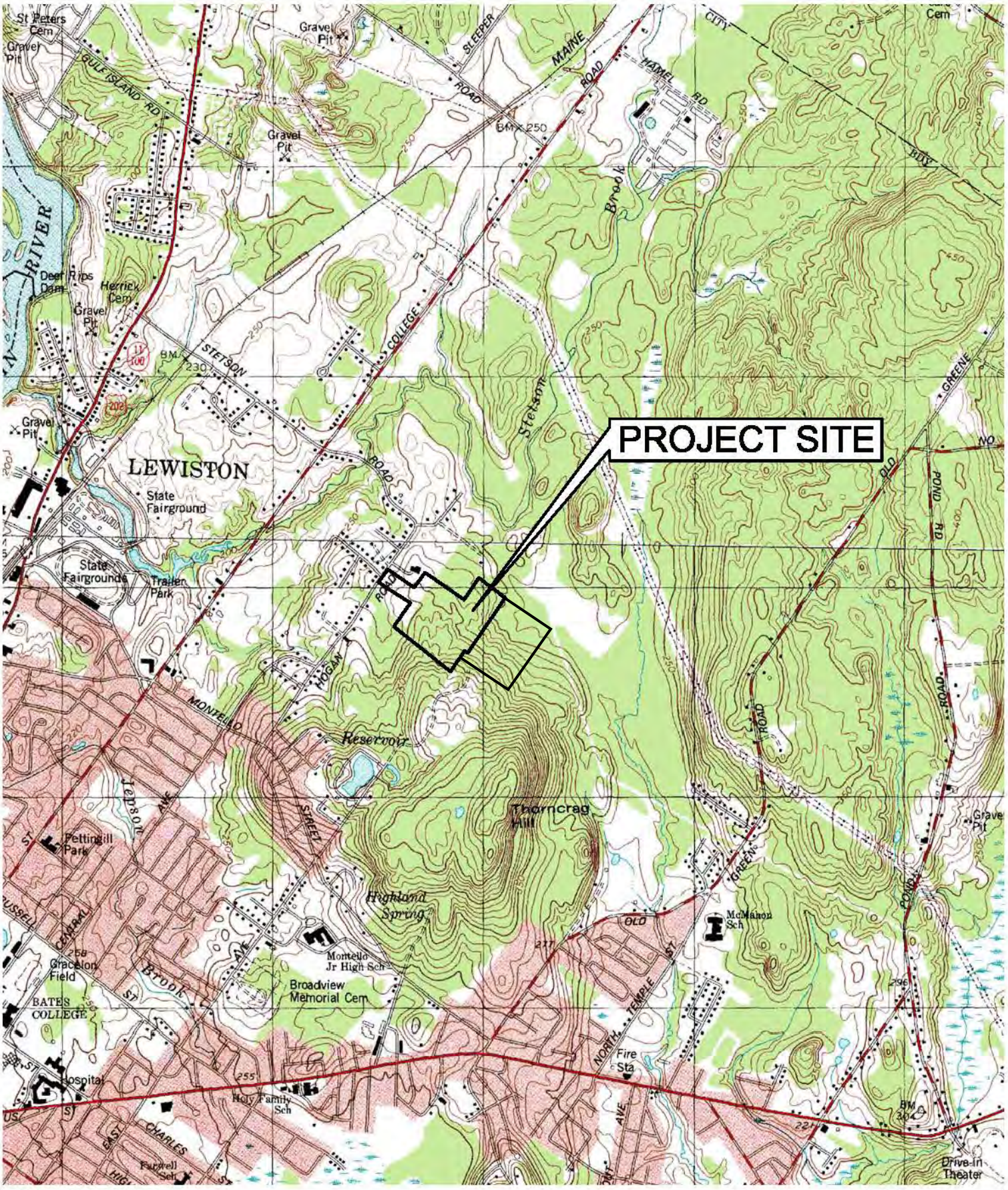
Prepared by:
Terradyn Consultants, LLC



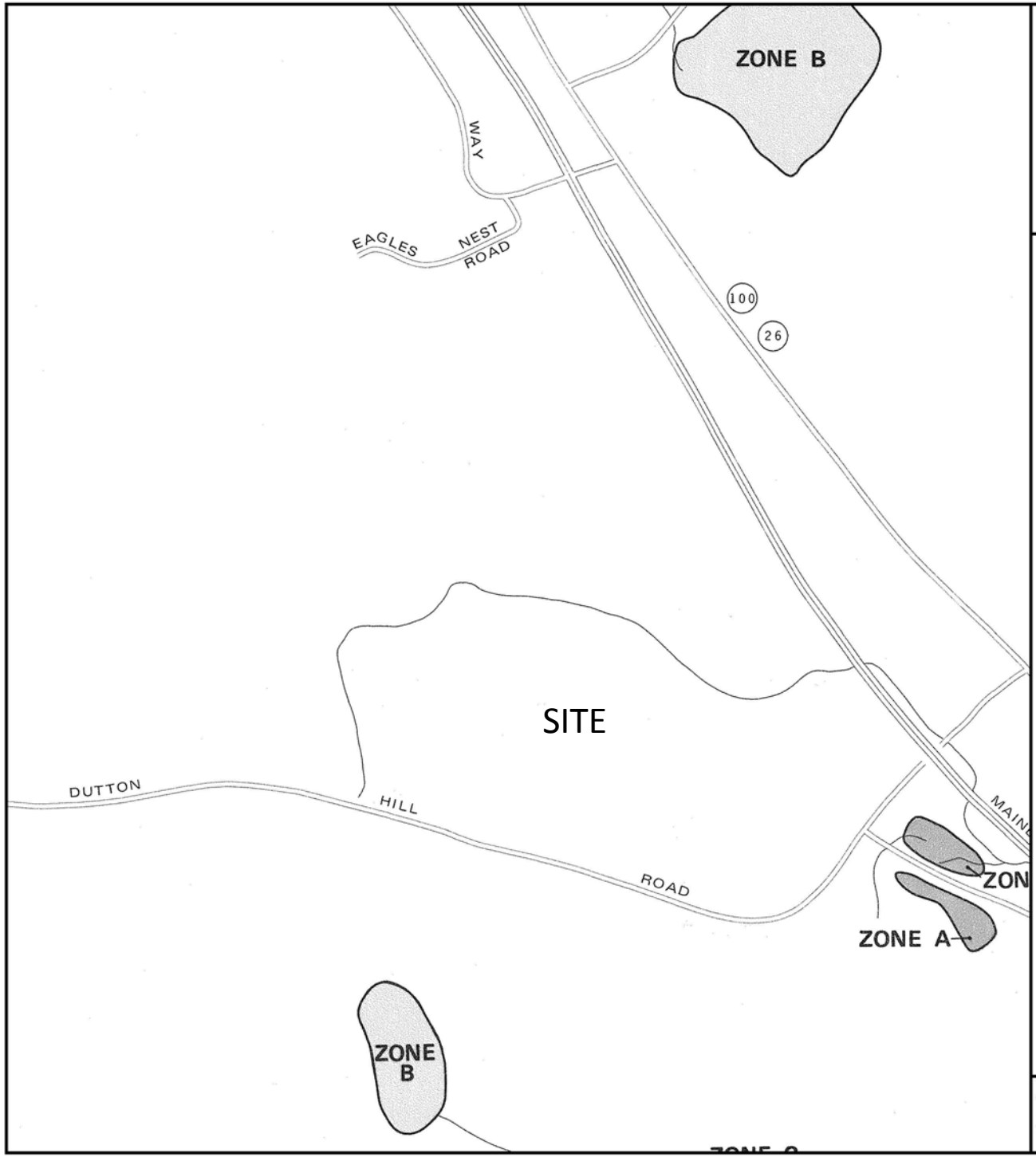
Jeffrey D. Amos, P.E.

Attached:

U.S.G.S. Quadrangle Map
FEMA Floodmap
NRCS Medium Intensity Soil Map
Water Quality Worksheet
Maintenance & Inspection of Stormwater Facilities
General Housekeeping Plan
Suggested Deed Restriction for Forested Buffer Language
Pre-Development HydroCAD Calculations
Post Development Hydrocad Calculations
Pre Development Watershed Map
Post Development Watershed Map



SHEET DESCRIPTION		JOB NO.	FIGURE
U.S.G.S. QUADRANGLE MAP SANCTUARY ESTATES, LEWISTON	TERRADYN CONSULTANTS, LLC P.O. Box 339 111 Elderberry Lane New Gloucester, ME 04260 Office: (207) 926-5111 Fax: (207) 221-1317 www.terradynconsultants.com	1660	1
PREPARED FOR		DATE	OF
CHASE CUSTOM HOMES & FINANCE 290 BRIDGTON ROAD WESTBROOK, ME 04092	Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting	10/4/2017	1
		SCALE	
		1"=2000'	



APPROXIMATE SCALE

1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

TOWN OF
GRAY, MAINE
CUMBERLAND COUNTY

PANEL 15 OF 15
(SEE MAP INDEX FOR PANELS NOT PRINTED)

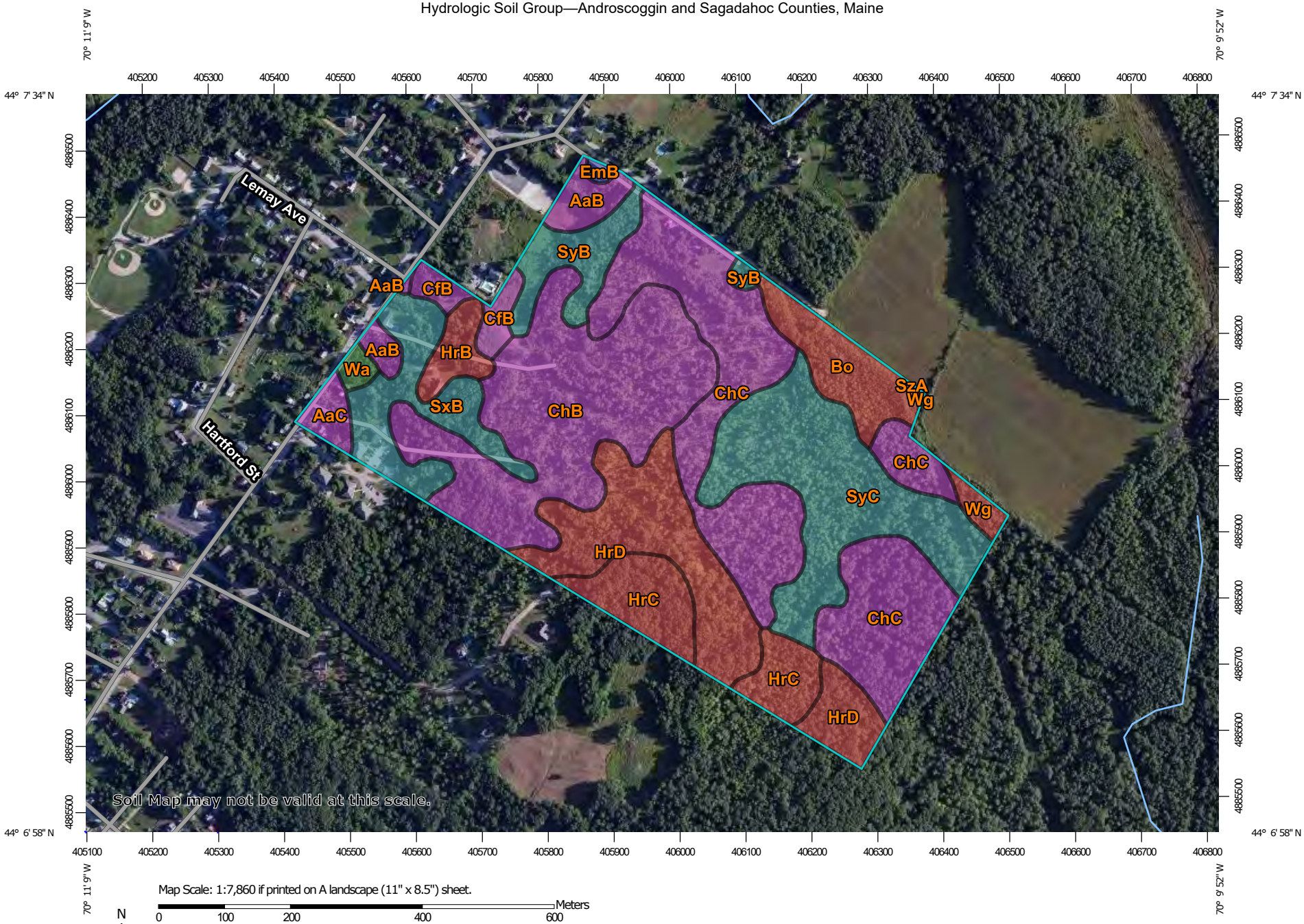
COMMUNITY-PANEL NUMBER
230048 0015 A

EFFECTIVE DATE:
JANUARY 6,1982

federal emergency management agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

Hydrologic Soil Group—Androscoggin and Sagadahoc Counties, Maine



Map Scale: 1:7,860 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 350 700 1400 2100

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 1:15,800.

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: Androscoggin and Sagadahoc Counties, Maine
Survey Area Data: Version 19, 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: Jun 20, 2010—Aug 29, 2010

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
AaB	Adams loamy sand, 0 to 8 percent slopes	A	2.9	2.4%
AaC	Adams loamy sand, 8 to 15 percent slopes	A	1.5	1.2%
Bo	Biddeford mucky peat, 0 to 3 percent slopes	D	5.4	4.4%
CfB	Charlton fine sandy loam, 0 to 8 percent slopes	A	2.2	1.8%
ChB	Charlton very stony fine sandy loam, 0 to 8 percent slopes	A	24.5	20.1%
ChC	Charlton very stony fine sandy loam, 8 to 15 percent slopes	A	28.6	23.4%
EmB	Elmwood fine sandy loam, 2 to 8 percent slopes	B	0.3	0.2%
HrB	Lyman-Tunbridge complex, 0 to 8 percent slopes, rocky	D	2.3	1.9%
HrC	Lyman-Tunbridge complex, 8 to 15 percent slopes, rocky	D	7.5	6.2%
HrD	Lyman-Tunbridge complex, 15 to 35 percent slopes, rocky	D	15.1	12.3%
SxB	Sutton loam, 0 to 8 percent slopes	C	7.9	6.5%
SyB	Sutton very stony loam, 0 to 8 percent slopes	C	4.8	3.9%
SyC	Sutton very stony loam, 8 to 15 percent slopes	C	17.6	14.4%
SzA	Swanton fine sandy loam, 0 to 3 percent slopes	D	0.0	0.0%
Wa	Walpole fine sandy loam	A/D	0.7	0.6%
Wg	Whately fine sandy loam	D	1.0	0.8%
Totals for Area of Interest			**122.3**	**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

New Impervious Area (SF) =	322342
Total New Landscaped Area (SF)=	646673
Total Developed Area (SF) =	969015

Sanctuary Estates PH2 Water Quality Calculations

Watershed	Lot #	New Impervious Area (SF)	Total Impervious Area Treated (SF)	New Landscaped Area	Total Landscaped Area Treated (SF)	Developed Area (SF)	Total Developed Area Treated (SF)	Incremental Treatment % (Impervious)	Incremental Treatment % (Developed)	BMP
S1-1	Roadway & Pond	0	0	20000	20000	20000	20000	0.00%	2.06%	Gravel Wetland #1
S1-2	Roadway	17500	17500	18484	18484	35984	35984	5.43%	3.71%	Gravel Wetland #1
S1-3	Roadway	10059	10059	12023	12023	22082	22082	3.12%	2.28%	Gravel Wetland #1
S1-4	Roadway	2433	2433	0	0	2433	2433	0.75%	0.25%	Gravel Wetland #1
S1-5	Roadway	3100	0	3000	0	6100	0	0.00%	0.00%	None
S2-1	Roadway & Pond	17200	17200	25927	25927	43127	43127	5.34%	4.45%	Gravel Wetland #2
S2-2	Roadway	10260	10260	10792	10792	21052	21052	3.18%	2.17%	Perimeter Buffer
S2-3	Roadway	2690	2690	2728	2728	5418	5418	0.83%	0.56%	Level Spreader #2
S3-1	Roadway	0	0	0	0	0	0	0.00%	0.00%	n/a
S3-2	Roadway	0	0	0	0	0	0	0.00%	0.00%	n/a
S4-1	Roadway	7609	7609	8119	8119	15728	15728	2.36%	1.62%	Level Spreader #1
S4-2	Roadway	4520	4520	3040	3040	7560	7560	1.40%	0.78%	Level Spreader #1
S4-3	Roadway	0	0	3053	0	3053	0	0.00%	0.00%	None
S4-4	Roadway	3561	3561	4000	4000	7561	7561	1.10%	0.78%	Level Spreader #1
S4-5	Roadway	3485	3485	0	0	3485	3485	1.08%	0.36%	Level Spreader #1
S4-6	Roadway	1952	1952	0	0	1952	1952	0.61%	0.20%	Level Spreader #1
S4-7	Roadway	5157	5157	9455	9455	14612	14612	1.60%	1.51%	Level Spreader #1
S5-1	Roadway	5246	5246	3815	3815	9061	9061	1.63%	0.94%	Filter Basin
S5-2	Roadway	3643	3643	0	0	3643	3643	1.13%	0.38%	Filter Basin
S5-3	Roadway & Pond	3150	3150	7322	7322	10472	10472	0.98%	1.08%	Filter Basin
S5-4	Roadway	0	0	0	0	0	0	0.00%	0.00%	n/a
	Lot 1	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Gravel Wetland #1
	Lot 2	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Gravel Wetland #1
	Lot 3	4000	4000	11000	5000	15000	9000	1.24%	0.93%	GW #1 & RDFS
	Lot 4	4000	4000	11000	5000	15000	9000	1.24%	0.93%	GW #1 & RDFS
	Lot 5	4000	3000	11000	5000	15000	8000	0.93%	0.83%	GW #1 & RDFS
	Lot 6	4000	1500	11000	0	15000	1500	0.47%	0.15%	Roof Drain Filter
	Lot 7	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Filter Basin
	Lot 8	4000	4000	11000	7500	15000	11500	1.24%	1.19%	Filter Basin & RDFS
	Lot 9	4000	4000	11000	7500	15000	11500	1.24%	1.19%	Filter Basin & RDFS
	Lot 10	4000	4000	11000	7500	15000	11500	1.24%	1.19%	Filter Basin & RDFS
	Lot 11	4000	2500	11000	2500	15000	5000	0.78%	0.52%	Filter Basin & RDFS
	Lot 12	4000	1500	11000	0	15000	1500	0.47%	0.15%	Roof Drain Filter
	Lot 13	4000	4000	11000	5000	15000	9000	1.24%	0.93%	LS #1 RDFS
	Lot 14	4000	4000	11000	5000	15000	9000	1.24%	0.93%	LS #1 RDFS
	Lot 15	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Perimeter Buffer
	Lot 16	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Perimeter Buffer
	Lot 17	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Perimeter Buffer
	Lot 18	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Perimeter Buffer
	Lot 19	4000	1500	11000	0	15000	1500	0.47%	0.15%	Roof Drain Filter
	Lot 20	4000	2000	11000	2500	15000	4500	0.62%	0.46%	Roof Drain Filter
	Lot 21	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Level Spreader #5
	Lot 22	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Level Spreaders #2 & #5
	Lot 23	4000	4000	11000	5000	15000	9000	1.24%	0.93%	LS#2 & #5 & RDFS
	Lot 24	4000	4000	11000	5000	15000	9000	1.24%	0.93%	LS#2 & RDFS
	Lot 25	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Gravel Wetland #2
	Lot 26	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Gravel Wetland #2
	Lot 27	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Gravel Wetland #2

	Lot 28	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Gravel Wetland #2
	Lot 29	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Gravel Wetland #2
	Lot 30	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Gravel Wetland #2
	Lot 31	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Perimeter Buffer
S6-1	Roadway	3691	3691	3660	3660	7351	7351	1.15%	0.76%	Level Spreader #5
S6-3	Roadway	7642	7642	1460	1460	9102	9102	2.37%	0.94%	Level Spreader #6
S6-4	Roadway	2981	2981	2339	2339	5320	5320	0.92%	0.55%	Level Spreader #7
S6-5	Roadway	3814	3814	2654	2654	6468	6468	1.18%	0.67%	Level Spreader #8
S6-6	Roadway	4635	4635	4294	4294	8929	8929	1.44%	0.92%	Level Spreader #8
S6-7	Roadway	2769	2769	2174	2174	4943	4943	0.86%	0.51%	Level Spreader #7
S6-8	Roadway	7586	7586	3334	3334	10920	10920	2.35%	1.13%	Level Spreader #6
S6-9	Roadway	3659	3659	0	0	3659	3659	1.14%	0.38%	Level Spreader #5
	Lot 32	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Level Spreader #6
	Lot 33	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Level Spreader #6
	Lot 34	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Level Spreader #6
	Lot 35	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Level Spreader #7
	Lot 36	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Level Spreader #7
	Lot 37	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Level Spreader #8
	Lot 38	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Level Spreader #8
	Lot 39	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Level Spreader #8
	Lot 40	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Level Spreader #8
	Lot 41	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Level Spreader #8
	Lot 42	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Lot Buffer
	Lot 43	8000	8000	11000	11000	19000	19000	2.48%	1.96%	LS#7 + Buffer
	Lot 44	4000	4000	11000	11000	15000	15000	1.24%	1.55%	Level Spreader #7
	Lot 45	8000	8000	11000	11000	19000	19000	2.48%	1.96%	LS#7 + Buffer
	Subtotal	322342	311242	646673	538120	973015	849362	96.56%	87.65%	

HOUSEKEEPING PERFORMANCE STANDARDS
FOR:
SANCTUARY ESTATES
LEWISTON, MAINE

Project Developer: Chase Custom Homes & Finance
290 Bridgton Road
Westbrook, ME 04092

Responsible Party: Sanctuary Estates Homeowners Association
290 Bridgton Road
Westbrook, ME 04092

Introduction:
The contractor shall be responsible for maintaining proper housekeeping standards throughout the construction phase of the project. After the construction phase has been completed, the owner or operator of the project will be responsible.

Standards:
In accordance with the housekeeping performance standards required by MDEP chapter 500 stormwater regulations, the following standards shall be met:

1. **Spill prevention.** Controls must be used to prevent pollutants from being discharged from materials on site, including storage practices to minimize exposure of the materials to stormwater, and appropriate spill prevention, containment, and response planning and implementation.
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.

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.

   Operations during wet months that experience tracking of mud off the site onto public roads should provide for sweeping of road areas at least once a week and prior to significant storm events. Where chronic mud tracking occurs, a stabilized construction entrance should be provided. Operations during dry months, that experience fugitive dust problems, should wet down the access roads once a week or more frequently as needed.

4. **Debris and other materials.** Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

   To prevent these materials from becoming a source of pollutants, construction and post-construction activities related to a project may be required to comply with applicable

provision of rules related to solid, universal, and hazardous waste, including, but not limited to, the Maine solid waste and hazardous waste management rules; Maine hazardous waste management rules; Maine oil conveyance and storage rules; and Maine pesticide requirements.

5. **Trench or foundation de-watering.** Trench 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 must be removed from the ponded area, either through gravity or pumping, and 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. **Non-stormwater discharges.** Identify and prevent contamination by non-stormwater discharges.

MAINTENANCE PLAN OF STORMWATER MANAGEMENT FACILITIES
FOR:
SANCTUARY ESTATES
LEWISTON, MAINE

Project Developer: Chase Custom Homes & Finance
290 Bridgton Road
Westbrook, ME 04092

Responsible Party: Sanctuary Estates Homeowners Association
290 Bridgton Road
Westbrook, ME 04092

Prepared By: Terradyn Consultants, LLC
PO Box 339
New Gloucester, ME 04260

LIST OF STORMWATER MEASURES:

Conveyance & Distribution System (Stormwater Channels & Culverts)
Roadways & Parking Surfaces
Catch Basin Systems
Gravel Wetland
Underdrained Filter Basin
Buffers

INTRODUCTION:

The owner or operator of the proposed project will be responsible for the maintenance of all stormwater management structures except the rain gardens located on individual lots, the establishment of any contract services required to implement the program, and the keeping of records and maintenance log book. Records of all inspections and maintenance work accomplished must be kept on file and retained for a minimum 5 year time span. The maintenance log book will be made available to the DEP upon request. At a minimum, the appropriate and relevant activities for each of the stormwater management systems will be performed on the prescribed schedule.

INSPECTION & MAINTENANCE TASKS:

Inspections should be performed by qualified erosion control professional. NOTE: The following instruction are excerpts from the Maine Department of Environmental Protection's *Stormwater Management for Maine, Volume III BMPs Technical Design Manual*, dated January 2006.

CONVEYANCE & DISTRIBUTION SYSTEMS: (STORMWATER CHANNELS & CULVERTS, ETC.)

1. **Inspection schedule:**
   - **1.1.** 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.

1.2. 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.

1.3. 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.

2. **Mowing:** Grass should not be trimmed extremely short, as this will reduce the filtering effect of the swale (MPCA, 1989). The cut vegetation should be removed to prevent the decaying organic litter from adding pollutants to the discharge from the swale. The mowed height of the grass should be 2-4 inches taller than the maximum flow depth of the design water quality storm. A minimum mow height of 6 inches is generally recommended (Galli, 1993).

3. **Erosion:** It is important to install erosion and sediment control measures to stabilize this area as soon as possible and to retain any organic matter in the bottom of the trench.

4. **Fertilization:** Routine fertilization and/or use of pesticides is strongly discouraged. If complete re-seeding is necessary, half the original recommended rate of fertilizer should be applied with a full rate of seed.

5. **Sediment Removal:** The level of sediment deposition in the channel should be monitored regularly, and removed from grassed channels before permanent damage is done to the grassed vegetation, or if infiltration times are longer than 12 hours. Sediment should be removed from riprap channels when it reduces the capacity of the channel.

ROADWAYS & PARKING SURFACES:

1. Paved surfaces shall be swept or vacuumed at least twice annually in the Spring to remove all Winter sand, and periodically during the year on an as-needed basis to minimize transportation of sediment during rainfall events.

CATCH BASIN SYSTEMS:

1. Catch basins are designed with a deep sump to trap larger sediment. Catch basins shall be inspected for sediment depth in the spring and fall, and accumulated sediment shall be removed and disposed of lawfully when it reaches 50% of the design capacity of the sump.

GRAVEL WETLANDS (FROM UNH SUBSURFACE GRAVEL WETLAND DESIGN SPECIFICATIONS MANUAL):

1ST YEAR POST-CONSTRUCTION: Inspection frequency should be after every major storm in the first year following construction.

1. Inspect to be certain system drains within 24-48 hours.
2. Watering plants as necessary during the first growing season
3. Re-vegetating poorly established areas as necessary
4. Quarterly inspection of soil and repairing eroded areas, especially on slopes & make timely repairs.
5. Checking inlets, outlets, and overflow spillway for blockage, structural integrity, and evidence of erosion. Risers may need to be cleaned.

POST-CONSTRUCTION: Inspection frequency should be at least every 6 months and after every major storm. Activities are expected to include:

1. Check the basin for a dense root mat establishment of wetland vegetation.
2. Check and clean the risers if there is evidence of standing water, discolored water or accumulated sediments in the cells.
3. Check and clean the forebay for sediments, trash and debris. When sediments have accumulated to a depth of 12 inches, standing water is persistent or wetland vegetation become established, the forebay will need to be excavated and reformed.
4. Verify that the cells drain within 24-48 hours. Sediment will need to be removed when an accumulation of 4 inches is evident over the wetland surface.
5. Check and clean all outlets and overflow spillway if blocked or there is evidence of structural damage or erosion.
6. Remove decaying vegetation, litter and debris.
7. Check for foreign species. Particular care must be used to avoid the unintended introduction of invasive species such as purple loosestrife (Lythrum salicaria) and common reed (Phragmites australis). It is recommended that a qualified wetland biologist be consulted when these are found in the area of the gravel wetland.

CLEANING CRITERIA FOR SEDIMENTATION FOREBAY: Sediment should be removed from the sedimentation chamber (forebay) when it accumulates to a depth of more than 12 inches (30 cm) or 10 percent of the pretreatment volume. The sedimentation forebay should be cleaned of vegetation if persistent standing water and wetland vegetation becomes dominant. The cleaning interval is approximately every 4 years. A dry sedimentation forebay is the optimal condition while in practice this condition is rarely achieved. The sedimentation chamber, forebay, and treatment cell outlet devices should be cleaned when drawdown times exceed 60 to 72 hours. Materials can be removed with heavy construction equipment; however, this equipment should not track on the wetland surface. Revegetation of disturbed areas as necessary. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.

CLEANING CRITERIA FOR GRAVEL WETLAND TREATMENT CELLS: Sediment should be removed from the gravel wetland surface when it accumulates to a depth of several inches (>10 cm) across the wetland surface. Materials should be removed with rakes rather than heavy construction equipment to avoid compaction of the gravel wetland surface. Heavy equipment could be used if the system is designed with dimensions that allow equipment to be located outside the gravel wetland, while a backhoe shovel reaches inside the gravel wetland to remove sediment. Removed sediments should be dewatered (if necessary) and disposed of in an acceptable manner.

Grassed Underdrained Soil Filter

During the first year, the basin will be inspected semi-annually and following major storm events. Debris and sediment buildup shall be removed from the forebay and basin as needed. Mowing of a grassed basin can occur semiannually to a height no less than 6 inches. Any bare area or erosion rills shall be repaired with new filter media or sandy loam then seeded and mulched. Maintaining good grass cover will minimize clogging with fine sediments and if ponding exceeds 48 hours, the top of the filter bed must be rototilled to reestablish the soil's filtration capacity.

Maintenance Agreement: A legal entity should be established with responsibility for inspecting and maintaining any underdrained filter. The legal agreement establishing the entity should list specific maintenance responsibilities (including timetables) and provide for the funding to cover long-term inspection and maintenance.

Soil Filter Inspection: The soil filter should be inspected after every major storm in the first year to be sure it is functioning properly. Thereafter, the filter should be inspected at least once every six months to ensure that it is draining within 48 hours following a one inch storm or greater. And that following a storms that fill the system to overflow, it drains in no less than 36 to 6o 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. Soil

Filter Replacement: The top several inches of the filter shall be replaced with fresh material when water ponds on the surface of the bed for more than 72 hours. The removed sediments should be disposed of in an acceptable manner.

Sediment Removal: Sediment and plant debris should be removed from the pretreatment structure at least annually.

Mowing: If mowing is desired, only hand held string trimmers or push-mowers are allowed on the filter (no tractor) and the grass bed should be mowed no more than 2 times per growing season to maintain grass heights of no less than 6 inches.

Fertilization: Fertilization of the underdrained filter area should be avoided unless absolutely necessary to establish vegetation.

Harvesting and Weeding: Harvesting and pruning of excessive growth will need to be done occasionally. Weeding to control unwanted or invasive plants may also be necessary. Add new mulch only as necessary for bioretention cell.

VEGETATED STORMWATER BUFFERS

Buffers should be inspected annually for evidence of erosion or concentrated flows through or around the buffer. All eroded areas should be repaired, seeded and mulched.

1. Mowing: Meadow buffers may be mown no more than twice per year. They may not be maintained as a lawn.

2. Access and Use: Buffers should not be traversed by all-terrain vehicles or other vehicles. Activities within buffers should be conducted so as not to damage vegetation, disturb any organic duff layer, or expose soil.

3. Inspections: Conduct periodic "buffer walks" to inspect the condition of the buffer network.

SAMPLE MAINTENANCE LOG SHEET:

Maintenance Log Sheet			
BMP's	**Date Inspected**	**Repairs Needed?**	**Date Repaired**
Example	8/17/2017	Y	8/27/2017
1. Conveyance & Distribution System			
2. Roadways & Parking			
3. Catch Basin Systems			
4. Gravel Wetland			
5. Underdrained Filter Basin			
6. Vegetated Stormwater Buffer			

Detailed Repair Notes:		
BMP Type	**Date**	**Description of Repair Made**
3	8/27/2017	Removed sediment from sump

APPENDIX G. Suggested templates for deed restrictions and conservation easements for use under the Stormwater Management Law

1. Forested buffer, limited disturbance

DECLARATION OF RESTRICTIONS (Forested Buffer, Limited Disturbance)

THIS DECLARATION OF RESTRICTIONS is made this _____day of _____, 20___, by _____ , _____,
(name) (street address)
_____, _____County, Maine, _____, (herein referred to as the
(city or town) (county) (zip code)
"Declarant"), pursuant to a permit received from the Maine Department of Environmental Protection under the Stormwater Management Law, to preserve a buffer area on a parcel of land near _____,_____ .
(road name) (known feature and/or town)

WHEREAS, the Declarant holds title to certain real property situated in _____, Maine
(town)
described in a deed from_____ to _____dated
(name) (name of Declarant)
_____, 20____, and recorded in Book ____ Page ____ at the _____County Registry of Deeds, herein referred to as the "property"; and

WHEREAS, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows: (Note: Insert description of restricted buffer area location here)

WHEREAS, pursuant to the Stormwater Management Law, 38 M.R.S. Section 420-D and Chapter 500 of rules promulgated by the Maine Board of Environmental Protection ("Stormwater Management Rules"), Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Maine Department of Environmental Protection or any successor (hereinafter the "MDEP"),

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall forever be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. **Restrictions on Restricted Buffer Area**. Unless the owner of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the MDEP, the Restricted Buffer Area must remain undeveloped in perpetuity. To maintain the ability of the Restricted Buffer Area to filter and absorb stormwater, and to maintain compliance with the Stormwater Management Law and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows.

   a. No soil, loam, peat, sand, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants or other fill material may be placed, stored or dumped on the Restricted Buffer Area, nor may the topography of the area be altered or manipulated in any way;

   b. Any removal of trees or other vegetation within the Restricted Buffer Area must be limited to the following:

      (i) No purposefully cleared openings may be created and an evenly distributed stand of trees and other vegetation must be maintained. An "evenly distributed stand of trees" is defined as maintaining a minimum rating score of 24 points in any 25 foot by 50 foot rectangle (1,250 square feet) area, as determined by the rating scheme in Table 11:

Table 11.
Point System for Determining an Evenly Distributed Stand of Trees

Diameter of tree at 4½ feet above ground level	Points
2 - 4 inches	1
4 - 8 inches	2
8 - 12 inches	4
>12 inches	8

      Where existing trees and other vegetation result in a rating score less than 24 points, no trees may be cut or sprayed with biocides except for the normal maintenance of dead, windblown or damaged trees and for pruning of tree branches below a height of 12 feet provided two thirds of the tree's canopy is maintained;

      (ii) No undergrowth, ground cover vegetation, leaf litter, organic duff layer or mineral soil may be disturbed except that one winding path, that is no wider than six feet and that does not provide a downhill channel for runoff, is allowed through the area;

   c. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole (whether constructed of wood, steel or other materials) and appurtenant equipment such as guys and guy anchors, or fence;

   d. No trucks, cars, dirt bikes, ATVs, bulldozers, backhoes, or other motorized vehicles or mechanical equipment may be permitted on the Restricted Buffer Area;

   e. Any level lip spreader directing flow to the Restricted Buffer Area must be regularly inspected and adequately maintained to preserve the function of the level spreader.

Any activity on or use of the Restricted Buffer Area inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area must receive prior approval in writing from the MDEP. The MDEP may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

2. **Enforcement**. The MDEP may enforce any of the Restrictions set forth in Section 1 above.

3. **Binding Effect**. The restrictions set forth herein shall be binding on any present or future owner of the Restricted Buffer Area. If the Restricted Buffer Area is at any time owned by more than one owner, each owner shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner's property.

4. **Amendment**. Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owners of the Restricted Buffer Area and by the MDEP.

5. **Effective Provisions of Declaration**. Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area.

6. **Severability**. Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.

7. **Governing Law**. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

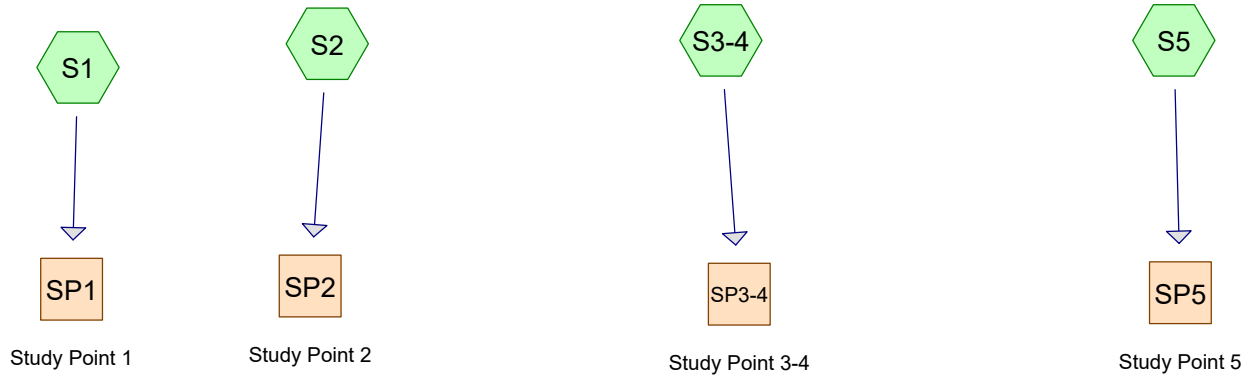
_____
(NAME)

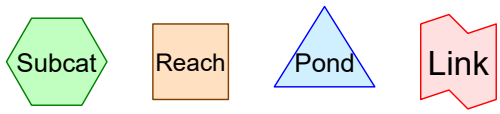
STATE OF MAINE_____ County, _____, 20__.
(County) (date)

Personally appeared before me the above named _____, who swore to the truth of the foregoing to the best of (his/her) knowledge, information and belief and acknowledged the foregoing instrument to be (his/her) free act and deed.

_____
Notary Public

_____





Routing Diagram for 1840 Pre
Prepared by {enter your company name here}, Printed 5/15/2019
HydroCAD® 10.00-22 s/n 10466 © 2018 HydroCAD Software Solutions LLC

Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment S1: Runoff Area=175,926 sf 7.92% Impervious Runoff Depth>0.85"
Flow Length=603' Tc=39.8 min CN=73 Runoff=1.84 cfs 0.285 af

Subcatchment S2: Runoff Area=346,810 sf 5.67% Impervious Runoff Depth>0.84"
Flow Length=1,230' Tc=57.0 min CN=73 Runoff=2.96 cfs 0.559 af

Subcatchment S3-4: Runoff Area=3,015,836 sf 1.09% Impervious Runoff Depth>0.85"
Flow Length=2,400' Tc=47.5 min CN=73 Runoff=28.65 cfs 4.879 af

Subcatchment S5: Runoff Area=360,584 sf 0.40% Impervious Runoff Depth>0.79"
Flow Length=1,034' Tc=55.7 min CN=72 Runoff=2.89 cfs 0.548 af

Reach SP1: Study Point 1 Inflow=1.84 cfs 0.285 af
Outflow=1.84 cfs 0.285 af

Reach SP2: Study Point 2 Inflow=2.96 cfs 0.559 af
Outflow=2.96 cfs 0.559 af

Reach SP3-4: Study Point 3-4 Inflow=28.65 cfs 4.874 af
Outflow=28.65 cfs 4.874 af

Reach SP5: Study Point 5 Inflow=2.89 cfs 0.548 af
Outflow=2.89 cfs 0.548 af

Total Runoff Area = 89.512 ac Runoff Volume = 6.271 af Average Runoff Depth = 0.84"
98.26% Pervious = 87.952 ac 1.74% Impervious = 1.561 ac

Summary for Subcatchment S1:

Runoff = 1.84 cfs @ 12.61 hrs, Volume= 0.285 af, Depth> 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.00"

	Area (sf)	CN	Description
	123,980	70	Woods, Good, HSG C
*	8,742	98	Bedrock Surface
	43,204	77	2 acre lots, 12% imp, HSG C
	175,926	73	Weighted Average
	162,000		92.08% Pervious Area
	13,926		7.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.4	150	0.0670	0.08		**Sheet Flow, A - B** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.6	178	0.0510	1.13		**Shallow Concentrated Flow, B - C** Woodland Kv= 5.0 fps
4.8	275	0.0360	0.95		**Shallow Concentrated Flow, C - D** Woodland Kv= 5.0 fps
39.8	603	Total			

Summary for Subcatchment S2:

Runoff = 2.96 cfs @ 12.85 hrs, Volume= 0.559 af, Depth> 0.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.00"

	Area (sf)	CN	Description
*	62,276	77	Woods, Good, HSG D, Wetland
*	19,217	98	Bedrock
	3,824	82	2 acre lots, 12% imp, HSG D
	4,533	77	Woods, Good, HSG D
	8,252	71	Meadow, non-grazed, HSG C
	248,708	70	Woods, Good, HSG C
	346,810	73	Weighted Average
	327,134		94.33% Pervious Area
	19,676		5.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.6	150	0.0530	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.7	60	0.0800	1.41		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
20.7	1,020	0.0270	0.82		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
57.0	1,230	Total			

Summary for Subcatchment S3-4:

Runoff = 28.65 cfs @ 12.72 hrs, Volume= 4.879 af, Depth> 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.00"

	Area (sf)	CN	Description
*	11,885	98	Bedrock
*	939,334	77	Woods, Good, HSG D/Wetlands
	175,471	82	2 acre lots, 12% imp, HSG D
	169,559	78	Meadow, non-grazed, HSG D
	7,837	91	Gravel roads, HSG D
	1,711,750	70	Woods, Good, HSG C
	3,015,836	73	Weighted Average
	2,982,894		98.91% Pervious Area
	32,942		1.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	150	0.0467	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
26.0	2,250	0.0830	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
47.5	2,400	Total			

Summary for Subcatchment S5:

Runoff = 2.89 cfs @ 12.83 hrs, Volume= 0.548 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 year Rainfall=3.00"

	Area (sf)	CN	Description
*	83,225	77	Woods, Good, HSG D, Wetland
*	1,442	98	Bedrock
	25,143	71	Meadow, non-grazed, HSG C
	250,774	70	Woods, Good, HSG C
	360,584	72	Weighted Average
	359,142		99.60% Pervious Area
	1,442		0.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.6	150	0.0570	0.07		**Sheet Flow, A - B** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.5	142	0.0970	1.56		**Shallow Concentrated Flow, B - C** Woodland Kv= 5.0 fps
19.6	742	0.0160	0.63		**Shallow Concentrated Flow, C - D** Woodland Kv= 5.0 fps
55.7	1,034	Total			

Summary for Reach SP1: Study Point 1

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

Inflow Area = 4.039 ac, 7.92% Impervious, Inflow Depth > 0.85" for 2 year event
Inflow = 1.84 cfs @ 12.61 hrs, Volume= 0.285 af
Outflow = 1.84 cfs @ 12.66 hrs, Volume= 0.285 af, Atten= 0%, Lag= 3.0 min

Routing by Sim-Route method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach SP2: Study Point 2

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

Inflow Area = 7.962 ac, 5.67% Impervious, Inflow Depth > 0.84" for 2 year event
Inflow = 2.96 cfs @ 12.85 hrs, Volume= 0.559 af
Outflow = 2.96 cfs @ 12.90 hrs, Volume= 0.559 af, Atten= 0%, Lag= 3.0 min

Routing by Sim-Route method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach SP3-4: Study Point 3-4

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

Inflow Area = 69.234 ac, 1.09% Impervious, Inflow Depth > 0.84" for 2 year event
Inflow = 28.65 cfs @ 12.72 hrs, Volume= 4.874 af
Outflow = 28.65 cfs @ 12.77 hrs, Volume= 4.874 af, Atten= 0%, Lag= 3.0 min

Routing by Sim-Route method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach SP5: Study Point 5

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

Inflow Area =	8.278 ac,	0.40% Impervious,	Inflow Depth >	0.79"	for 2 year event
Inflow =	2.89 cfs @	12.83 hrs, Volume=	0.548 af		
Outflow =	2.89 cfs @	12.88 hrs, Volume=	0.548 af, Atten= 0%, Lag= 3.0 min		

Routing by Sim-Route method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment S1: Runoff Area=175,926 sf 7.92% Impervious Runoff Depth>1.73"
Flow Length=603' Tc=39.8 min CN=73 Runoff=3.99 cfs 0.582 af

Subcatchment S2: Runoff Area=346,810 sf 5.67% Impervious Runoff Depth>1.72"
Flow Length=1,230' Tc=57.0 min CN=73 Runoff=6.43 cfs 1.142 af

Subcatchment S3-4: Runoff Area=3,015,836 sf 1.09% Impervious Runoff Depth>1.73"
Flow Length=2,400' Tc=47.5 min CN=73 Runoff=62.22 cfs 9.958 af

Subcatchment S5: Runoff Area=360,584 sf 0.40% Impervious Runoff Depth>1.65"
Flow Length=1,034' Tc=55.7 min CN=72 Runoff=6.47 cfs 1.138 af

Reach SP1: Study Point 1 Inflow=3.99 cfs 0.582 af
Outflow=3.99 cfs 0.582 af

Reach SP2: Study Point 2 Inflow=6.43 cfs 1.141 af
Outflow=6.43 cfs 1.141 af

Reach SP3-4: Study Point 3-4 Inflow=62.22 cfs 9.949 af
Outflow=62.22 cfs 9.949 af

Reach SP5: Study Point 5 Inflow=6.47 cfs 1.137 af
Outflow=6.47 cfs 1.137 af

Total Runoff Area = 89.512 ac Runoff Volume = 12.820 af Average Runoff Depth = 1.72"
98.26% Pervious = 87.952 ac 1.74% Impervious = 1.561 ac

Summary for Subcatchment S1:

Runoff = 3.99 cfs @ 12.58 hrs, Volume= 0.582 af, Depth> 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.30"

	Area (sf)	CN	Description
	123,980	70	Woods, Good, HSG C
*	8,742	98	Bedrock Surface
	43,204	77	2 acre lots, 12% imp, HSG C
	175,926	73	Weighted Average
	162,000		92.08% Pervious Area
	13,926		7.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.4	150	0.0670	0.08		**Sheet Flow, A - B** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.6	178	0.0510	1.13		**Shallow Concentrated Flow, B - C** Woodland Kv= 5.0 fps
4.8	275	0.0360	0.95		**Shallow Concentrated Flow, C - D** Woodland Kv= 5.0 fps
39.8	603	Total			

Summary for Subcatchment S2:

Runoff = 6.43 cfs @ 12.81 hrs, Volume= 1.142 af, Depth> 1.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.30"

	Area (sf)	CN	Description
*	62,276	77	Woods, Good, HSG D, Wetland
*	19,217	98	Bedrock
	3,824	82	2 acre lots, 12% imp, HSG D
	4,533	77	Woods, Good, HSG D
	8,252	71	Meadow, non-grazed, HSG C
	248,708	70	Woods, Good, HSG C
	346,810	73	Weighted Average
	327,134		94.33% Pervious Area
	19,676		5.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.6	150	0.0530	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.7	60	0.0800	1.41		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
20.7	1,020	0.0270	0.82		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
57.0	1,230	Total			

Summary for Subcatchment S3-4:

Runoff = 62.22 cfs @ 12.68 hrs, Volume= 9.958 af, Depth> 1.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.30"

	Area (sf)	CN	Description
*	11,885	98	Bedrock
*	939,334	77	Woods, Good, HSG D/Wetlands
	175,471	82	2 acre lots, 12% imp, HSG D
	169,559	78	Meadow, non-grazed, HSG D
	7,837	91	Gravel roads, HSG D
	1,711,750	70	Woods, Good, HSG C
	3,015,836	73	Weighted Average
	2,982,894		98.91% Pervious Area
	32,942		1.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	150	0.0467	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
26.0	2,250	0.0830	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
47.5	2,400	Total			

Summary for Subcatchment S5:

Runoff = 6.47 cfs @ 12.80 hrs, Volume= 1.138 af, Depth> 1.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-year Rainfall=4.30"

	Area (sf)	CN	Description
*	83,225	77	Woods, Good, HSG D, Wetland
*	1,442	98	Bedrock
	25,143	71	Meadow, non-grazed, HSG C
	250,774	70	Woods, Good, HSG C
	360,584	72	Weighted Average
	359,142		99.60% Pervious Area
	1,442		0.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.6	150	0.0570	0.07		**Sheet Flow, A - B** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.5	142	0.0970	1.56		**Shallow Concentrated Flow, B - C** Woodland Kv= 5.0 fps
19.6	742	0.0160	0.63		**Shallow Concentrated Flow, C - D** Woodland Kv= 5.0 fps
55.7	1,034	Total			

Summary for Reach SP1: Study Point 1

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

Inflow Area = 4.039 ac, 7.92% Impervious, Inflow Depth > 1.73" for 10-year event
Inflow = 3.99 cfs @ 12.58 hrs, Volume= 0.582 af
Outflow = 3.99 cfs @ 12.63 hrs, Volume= 0.582 af, Atten= 0%, Lag= 3.0 min

Routing by Sim-Route method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach SP2: Study Point 2

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

Inflow Area = 7.962 ac, 5.67% Impervious, Inflow Depth > 1.72" for 10-year event
Inflow = 6.43 cfs @ 12.81 hrs, Volume= 1.141 af
Outflow = 6.43 cfs @ 12.86 hrs, Volume= 1.141 af, Atten= 0%, Lag= 3.0 min

Routing by Sim-Route method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach SP3-4: Study Point 3-4

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

Inflow Area = 69.234 ac, 1.09% Impervious, Inflow Depth > 1.72" for 10-year event
Inflow = 62.22 cfs @ 12.68 hrs, Volume= 9.949 af
Outflow = 62.22 cfs @ 12.73 hrs, Volume= 9.949 af, Atten= 0%, Lag= 3.0 min

Routing by Sim-Route method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach SP5: Study Point 5

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

Inflow Area =	8.278 ac,	0.40% Impervious,	Inflow Depth >	1.65"	for 10-year event
Inflow =	6.47 cfs @	12.80 hrs, Volume=	1.137 af		
Outflow =	6.47 cfs @	12.85 hrs, Volume=	1.137 af, Atten= 0%, Lag= 3.0 min		

Routing by Sim-Route method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Time span=5.00-24.00 hrs, dt=0.05 hrs, 381 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Sim-Route method - Pond routing by Sim-Route method

Subcatchment S1: Runoff Area=175,926 sf 7.92% Impervious Runoff Depth>2.58"
Flow Length=603' Tc=39.8 min CN=73 Runoff=6.03 cfs 0.867 af

Subcatchment S2: Runoff Area=346,810 sf 5.67% Impervious Runoff Depth>2.56"
Flow Length=1,230' Tc=57.0 min CN=73 Runoff=9.74 cfs 1.701 af

Subcatchment S3-4: Runoff Area=3,015,836 sf 1.09% Impervious Runoff Depth>2.57"
Flow Length=2,400' Tc=47.5 min CN=73 Runoff=94.10 cfs 14.831 af

Subcatchment S5: Runoff Area=360,584 sf 0.40% Impervious Runoff Depth>2.48"
Flow Length=1,034' Tc=55.7 min CN=72 Runoff=9.90 cfs 1.709 af

Reach SP1: Study Point 1 Inflow=6.03 cfs 0.866 af
Outflow=6.03 cfs 0.866 af

Reach SP2: Study Point 2 Inflow=9.74 cfs 1.700 af
Outflow=9.74 cfs 1.700 af

Reach SP3-4: Study Point 3-4 Inflow=94.10 cfs 14.819 af
Outflow=94.10 cfs 14.819 af

Reach SP5: Study Point 5 Inflow=9.90 cfs 1.708 af
Outflow=9.90 cfs 1.708 af

Total Runoff Area = 89.512 ac Runoff Volume = 19.108 af Average Runoff Depth = 2.56"
98.26% Pervious = 87.952 ac 1.74% Impervious = 1.561 ac

Summary for Subcatchment S1:

Runoff = 6.03 cfs @ 12.57 hrs, Volume= 0.867 af, Depth> 2.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
	123,980	70	Woods, Good, HSG C
*	8,742	98	Bedrock Surface
	43,204	77	2 acre lots, 12% imp, HSG C
	175,926	73	Weighted Average
	162,000		92.08% Pervious Area
	13,926		7.92% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.4	150	0.0670	0.08		**Sheet Flow, A - B** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.6	178	0.0510	1.13		**Shallow Concentrated Flow, B - C** Woodland Kv= 5.0 fps
4.8	275	0.0360	0.95		**Shallow Concentrated Flow, C - D** Woodland Kv= 5.0 fps
39.8	603	Total			

Summary for Subcatchment S2:

Runoff = 9.74 cfs @ 12.79 hrs, Volume= 1.701 af, Depth> 2.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
*	62,276	77	Woods, Good, HSG D, Wetland
*	19,217	98	Bedrock
	3,824	82	2 acre lots, 12% imp, HSG D
	4,533	77	Woods, Good, HSG D
	8,252	71	Meadow, non-grazed, HSG C
	248,708	70	Woods, Good, HSG C
	346,810	73	Weighted Average
	327,134		94.33% Pervious Area
	19,676		5.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.6	150	0.0530	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.7	60	0.0800	1.41		**Shallow Concentrated Flow, C-D** Woodland Kv= 5.0 fps
20.7	1,020	0.0270	0.82		**Shallow Concentrated Flow, D-E** Woodland Kv= 5.0 fps
57.0	1,230	Total			

Summary for Subcatchment S3-4:

Runoff = 94.10 cfs @ 12.67 hrs, Volume= 14.831 af, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
*	11,885	98	Bedrock
*	939,334	77	Woods, Good, HSG D/Wetlands
	175,471	82	2 acre lots, 12% imp, HSG D
	169,559	78	Meadow, non-grazed, HSG D
	7,837	91	Gravel roads, HSG D
	1,711,750	70	Woods, Good, HSG C
	3,015,836	73	Weighted Average
	2,982,894		98.91% Pervious Area
	32,942		1.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
21.5	150	0.0467	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
26.0	2,250	0.0830	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
47.5	2,400	Total			

Summary for Subcatchment S5:

Runoff = 9.90 cfs @ 12.78 hrs, Volume= 1.709 af, Depth> 2.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
*	83,225	77	Woods, Good, HSG D, Wetland
*	1,442	98	Bedrock
	25,143	71	Meadow, non-grazed, HSG C
	250,774	70	Woods, Good, HSG C
	360,584	72	Weighted Average
	359,142		99.60% Pervious Area
	1,442		0.40% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.6	150	0.0570	0.07		**Sheet Flow, A - B** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.5	142	0.0970	1.56		**Shallow Concentrated Flow, B - C** Woodland Kv= 5.0 fps
19.6	742	0.0160	0.63		**Shallow Concentrated Flow, C - D** Woodland Kv= 5.0 fps
55.7	1,034	Total			

Summary for Reach SP1: Study Point 1

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

Inflow Area = 4.039 ac, 7.92% Impervious, Inflow Depth > 2.57" for 25-year event
Inflow = 6.03 cfs @ 12.57 hrs, Volume= 0.866 af
Outflow = 6.03 cfs @ 12.62 hrs, Volume= 0.866 af, Atten= 0%, Lag= 3.0 min

Routing by Sim-Route method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach SP2: Study Point 2

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

Inflow Area = 7.962 ac, 5.67% Impervious, Inflow Depth > 2.56" for 25-year event
Inflow = 9.74 cfs @ 12.79 hrs, Volume= 1.700 af
Outflow = 9.74 cfs @ 12.84 hrs, Volume= 1.700 af, Atten= 0%, Lag= 3.0 min

Routing by Sim-Route method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach SP3-4: Study Point 3-4

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

Inflow Area = 69.234 ac, 1.09% Impervious, Inflow Depth > 2.57" for 25-year event
Inflow = 94.10 cfs @ 12.67 hrs, Volume= 14.819 af
Outflow = 94.10 cfs @ 12.72 hrs, Volume= 14.819 af, Atten= 0%, Lag= 3.0 min

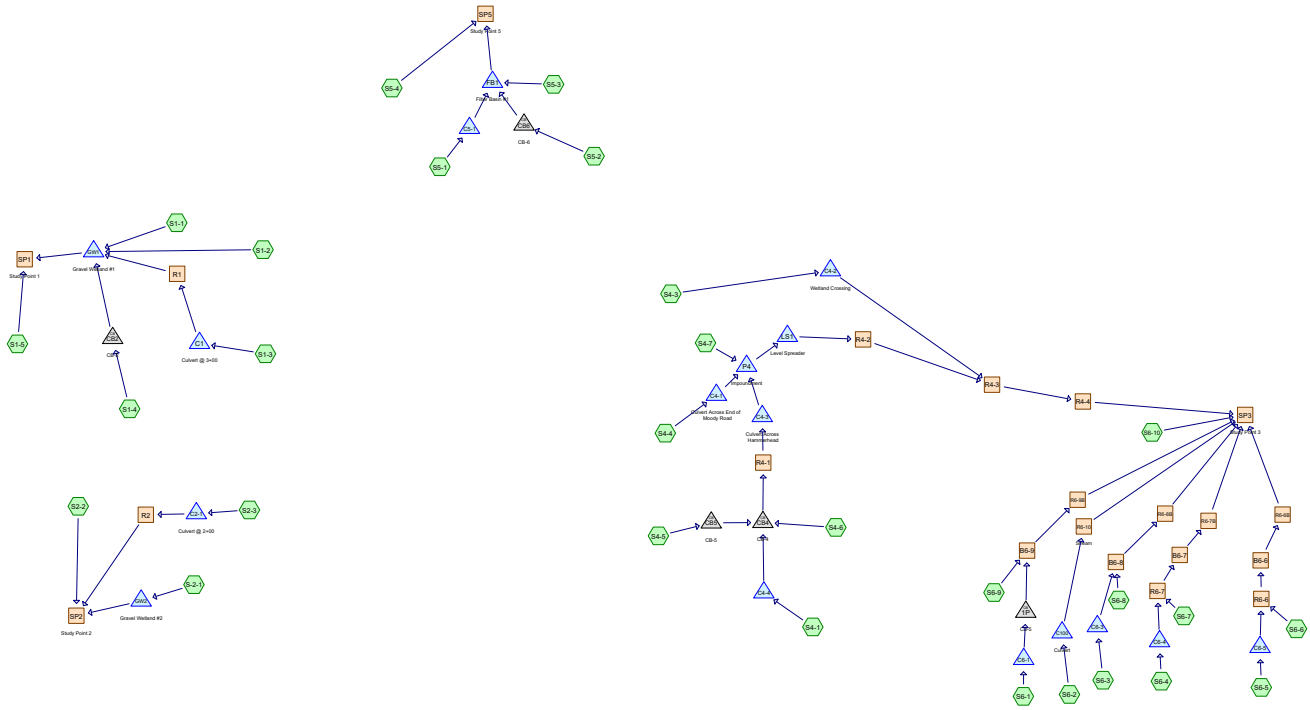
Routing by Sim-Route method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs

Summary for Reach SP5: Study Point 5

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

Inflow Area =	8.278 ac,	0.40% Impervious,	Inflow Depth >	2.48"	for 25-year event
Inflow =	9.90 cfs @	12.78 hrs, Volume=	1.708 af		
Outflow =	9.90 cfs @	12.83 hrs, Volume=	1.708 af,	Atten= 0%,	Lag= 3.0 min

Routing by Sim-Route method, Time Span= 5.00-24.00 hrs, dt= 0.05 hrs



Subcat | Reach | Pond | Link

Routing Diagram for 1840 Post

Prepared by {enter your company name here}, Printed 5/15/2019

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Time span=1.00-24.00 hrs, dt=0.01 hrs, 2301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-2-1: Runoff Area=174,886 sf 22.31% Impervious Runoff Depth>1.25"
Flow Length=795' Tc=9.1 min CN=80 Runoff=5.20 cfs 0.417 af

Subcatchment S1-1: Runoff Area=92,312 sf 21.77% Impervious Runoff Depth>1.30"
Flow Length=480' Tc=45.6 min CN=81 Runoff=1.48 cfs 0.229 af

Subcatchment S1-2: Runoff Area=52,260 sf 37.10% Impervious Runoff Depth>1.66"
Flow Length=745' Tc=11.6 min CN=86 Runoff=1.94 cfs 0.166 af

Subcatchment S1-3: Runoff Area=37,679 sf 34.27% Impervious Runoff Depth>1.65"
Flow Length=220' Tc=32.7 min CN=86 Runoff=0.92 cfs 0.119 af

Subcatchment S1-4: Runoff Area=2,433 sf 50.00% Impervious Runoff Depth>2.16"
Tc=2.0 min CN=92 Runoff=0.16 cfs 0.010 af

Subcatchment S1-5: Runoff Area=47,178 sf 17.18% Impervious Runoff Depth>1.17"
Flow Length=410' Tc=52.8 min CN=79 Runoff=0.62 cfs 0.106 af

Subcatchment S2-2: Runoff Area=137,182 sf 9.69% Impervious Runoff Depth>0.89"
Flow Length=1,020' Tc=58.1 min CN=74 Runoff=1.25 cfs 0.234 af

Subcatchment S2-3: Runoff Area=26,823 sf 28.64% Impervious Runoff Depth>1.38"
Tc=5.0 min CN=82 Runoff=1.03 cfs 0.071 af

Subcatchment S4-1: Runoff Area=25,130 sf 40.65% Impervious Runoff Depth>1.66"
Flow Length=450' Tc=7.3 min CN=86 Runoff=1.08 cfs 0.080 af

Subcatchment S4-3: Runoff Area=119,062 sf 4.20% Impervious Runoff Depth>0.85"
Flow Length=570' Tc=18.2 min CN=73 Runoff=1.76 cfs 0.194 af

Subcatchment S4-4: Runoff Area=19,236 sf 30.05% Impervious Runoff Depth>1.38"
Tc=7.5 min CN=82 Runoff=0.67 cfs 0.051 af

Subcatchment S4-5: Runoff Area=3,485 sf 100.00% Impervious Runoff Depth>2.77"
Tc=2.0 min CN=98 Runoff=0.27 cfs 0.018 af

Subcatchment S4-6: Runoff Area=1,952 sf 100.00% Impervious Runoff Depth>2.77"
Tc=2.0 min CN=98 Runoff=0.15 cfs 0.010 af

Subcatchment S4-7: Runoff Area=17,998 sf 40.59% Impervious Runoff Depth>1.98"
Tc=5.0 min CN=90 Runoff=0.99 cfs 0.068 af

Subcatchment S5-1: Runoff Area=72,012 sf 29.52% Impervious Runoff Depth>1.31"
Flow Length=310' Tc=7.9 min CN=81 Runoff=2.36 cfs 0.181 af

Subcatchment S5-2: Runoff Area=3,643 sf 100.00% Impervious Runoff Depth>2.77"
Tc=2.0 min CN=98 Runoff=0.28 cfs 0.019 af

Subcatchment S5-3: Runoff Area=11,152 sf 26.90% Impervious Runoff Depth>1.38"
Tc=2.0 min CN=82 Runoff=0.48 cfs 0.029 af

Subcatchment S5-4: Runoff Area=234,999 sf 10.72% Impervious Runoff Depth>0.94"
Flow Length=660' Slope=0.0100 '/' Tc=85.0 min CN=75 Runoff=1.78 cfs 0.421 af

Subcatchment S6-1: Runoff Area=53,013 sf 17.31% Impervious Runoff Depth>1.18"
Flow Length=270' Tc=38.7 min CN=79 Runoff=0.83 cfs 0.119 af

Subcatchment S6-10: Runoff Area=26.217 ac 2.78% Impervious Runoff Depth>1.05"
Flow Length=950' Tc=57.3 min CN=77 Runoff=12.77 cfs 2.304 af

Subcatchment S6-2: Runoff Area=16.790 ac 3.16% Impervious Runoff Depth>0.89"
Flow Length=1,610' Tc=62.6 min CN=74 Runoff=6.33 cfs 1.247 af

Subcatchment S6-3: Runoff Area=489,562 sf 2.77% Impervious Runoff Depth>0.84"
Flow Length=1,550' Tc=53.5 min CN=73 Runoff=4.35 cfs 0.790 af

Subcatchment S6-4: Runoff Area=145,753 sf 5.94% Impervious Runoff Depth>0.90"
Flow Length=925' Tc=45.3 min CN=74 Runoff=1.53 cfs 0.250 af

Subcatchment S6-5: Runoff Area=73,211 sf 12.61% Impervious Runoff Depth>1.06"
Flow Length=400' Tc=25.8 min CN=77 Runoff=1.23 cfs 0.149 af

Subcatchment S6-6: Runoff Area=118,144 sf 11.40% Impervious Runoff Depth>1.01"
Tc=10.0 min CN=76 Runoff=2.68 cfs 0.229 af

Subcatchment S6-7: Runoff Area=48,723 sf 27.65% Impervious Runoff Depth>1.25"
Tc=10.0 min CN=80 Runoff=1.41 cfs 0.116 af

Subcatchment S6-8: Runoff Area=14,290 sf 38.21% Impervious Runoff Depth>1.81"
Tc=10.0 min CN=88 Runoff=0.61 cfs 0.050 af

Subcatchment S6-9: Runoff Area=3,659 sf 100.00% Impervious Runoff Depth>2.77"
Tc=2.0 min CN=98 Runoff=0.28 cfs 0.019 af

Reach B6-6: Avg. Flow Depth=0.14' Max Vel=0.14 fps Inflow=3.34 cfs 0.377 af
n=0.800 L=150.0' S=0.0800 '/' Capacity=6.30 cfs Outflow=2.50 cfs 0.369 af

Reach B6-7: Avg. Flow Depth=0.14' Max Vel=0.14 fps Inflow=1.85 cfs 0.366 af
n=0.800 L=150.0' S=0.0800 '/' Capacity=4.74 cfs Outflow=1.73 cfs 0.358 af

Reach B6-8: Avg. Flow Depth=0.23' Max Vel=0.20 fps Inflow=4.43 cfs 0.839 af
n=0.800 L=150.0' S=0.0800 '/' Capacity=4.74 cfs Outflow=4.20 cfs 0.827 af

Reach B6-9: Avg. Flow Depth=0.08' Max Vel=0.10 fps Inflow=0.86 cfs 0.139 af
n=0.800 L=150.0' S=0.0800 '/' Capacity=4.74 cfs Outflow=0.70 cfs 0.135 af

Reach R1: Avg. Flow Depth=0.19' Max Vel=3.18 fps Inflow=0.92 cfs 0.119 af
n=0.030 L=190.0' S=0.0563 '/' Capacity=71.16 cfs Outflow=0.92 cfs 0.119 af

Reach R2: Avg. Flow Depth=0.07' Max Vel=0.90 fps Inflow=0.97 cfs 0.069 af
n=0.035 L=1,020.0' S=0.0275 '/' Capacity=178.82 cfs Outflow=0.53 cfs 0.068 af

Reach R4-1: Avg. Flow Depth=0.19' Max Vel=4.89 fps Inflow=1.33 cfs 0.109 af
n=0.022 L=160.0' S=0.0750 '/' Capacity=111.98 cfs Outflow=1.33 cfs 0.108 af

Reach R4-2: Avg. Flow Depth=0.11' Max Vel=0.19 fps Inflow=1.21 cfs 0.216 af
n=0.600 L=82.0' S=0.1220 '/' Capacity=66.00 cfs Outflow=1.20 cfs 0.214 af

Reach R4-3: Avg. Flow Depth=0.08' Max Vel=0.63 fps Inflow=2.87 cfs 0.408 af
n=0.100 L=178.0' S=0.0562 '/' Capacity=268.77 cfs Outflow=2.80 cfs 0.406 af

Reach R4-4: Avg. Flow Depth=0.10' Max Vel=0.40 fps Inflow=2.80 cfs 0.406 af
n=0.100 L=403.0' S=0.0161 '/' Capacity=144.01 cfs Outflow=2.29 cfs 0.399 af

Reach R6-10: Stream Avg. Flow Depth=0.41' Max Vel=5.39 fps Inflow=6.33 cfs 1.247 af
n=0.035 L=750.0' S=0.0787 '/' Capacity=151.95 cfs Outflow=6.32 cfs 1.245 af

Reach R6-6: Avg. Flow Depth=0.40' Max Vel=3.01 fps Inflow=3.35 cfs 0.378 af
n=0.069 L=200.0' S=0.1000 '/' Capacity=86.90 cfs Outflow=3.34 cfs 0.377 af

Reach R6-6B: Avg. Flow Depth=0.07' Max Vel=0.65 fps Inflow=2.50 cfs 0.369 af
n=0.100 L=315.0' S=0.0635 '/' Capacity=18.90 cfs Outflow=2.39 cfs 0.366 af

Reach R6-7: Avg. Flow Depth=0.28' Max Vel=2.56 fps Inflow=1.85 cfs 0.366 af
n=0.069 L=210.0' S=0.1048 '/' Capacity=88.94 cfs Outflow=1.85 cfs 0.366 af

Reach R6-7B: Avg. Flow Depth=0.05' Max Vel=0.64 fps Inflow=1.73 cfs 0.358 af
n=0.100 L=210.0' S=0.0952 '/' Capacity=23.15 cfs Outflow=1.72 cfs 0.356 af

Reach R6-8B: Avg. Flow Depth=0.09' Max Vel=0.86 fps Inflow=4.20 cfs 0.827 af
n=0.100 L=520.0' S=0.0808 '/' Capacity=21.32 cfs Outflow=4.05 cfs 0.818 af

Reach R6-9B: Avg. Flow Depth=0.03' Max Vel=0.37 fps Inflow=0.70 cfs 0.135 af
n=0.100 L=760.0' S=0.0711 '/' Capacity=20.00 cfs Outflow=0.54 cfs 0.130 af

Reach SP1: Study Point 1 Inflow=1.62 cfs 0.471 af
Outflow=1.62 cfs 0.471 af

Reach SP2: Study Point 2 Inflow=1.79 cfs 0.524 af
Outflow=1.79 cfs 0.524 af

Reach SP3: Study Point 3 Inflow=28.35 cfs 5.617 af
Outflow=28.35 cfs 5.617 af

Reach SP5: Study Point 5 Inflow=2.11 cfs 0.538 af
Outflow=2.11 cfs 0.538 af

Pond 1P: CB-5 Peak Elev=301.43' Inflow=0.83 cfs 0.119 af
15.0" Round Culvert n=0.012 L=14.0' S=0.0357 '/' Outflow=0.83 cfs 0.119 af

Pond C1: Culvert @ 3+00 Peak Elev=286.70' Storage=28 cf Inflow=0.92 cfs 0.119 af
Outflow=0.92 cfs 0.119 af

Pond C100: Culvert Peak Elev=300.68' Storage=46 cf Inflow=6.33 cfs 1.247 af
72.0" x 28.0", R=38.0" Arch Culvert n=0.035 L=70.0' S=0.0457 '/' Outflow=6.33 cfs 1.247 af

Pond C2-1: Culvert @ 2+00 Peak Elev=320.87' Storage=208 cf Inflow=1.03 cfs 0.071 af
Outflow=0.97 cfs 0.069 af

Pond C4-1: Culvert Across End of Moody Road Peak Elev=275.53' Storage=32 cf Inflow=0.67 cfs 0.051 af
Outflow=0.67 cfs 0.051 af

Pond C4-2: Wetland Crossing Peak Elev=272.79' Storage=63 cf Inflow=1.76 cfs 0.194 af
18.0" Round Culvert n=0.040 L=40.0' S=0.0250 '/' Outflow=1.75 cfs 0.194 af

Pond C4-3: Culvert Across Hammerhead Peak Elev=274.63' Storage=41 cf Inflow=1.33 cfs 0.108 af
15.0" Round Culvert n=0.013 L=70.0' S=0.0357 '/' Outflow=1.32 cfs 0.108 af

Pond C4-4: Peak Elev=291.56' Storage=32 cf Inflow=1.08 cfs 0.080 af
15.0" Round Culvert n=0.013 L=162.0' S=0.0210 '/' Outflow=1.07 cfs 0.080 af

Pond C5-1: Peak Elev=290.44' Storage=169 cf Inflow=2.36 cfs 0.181 af
15.0" Round Culvert n=0.013 L=50.0' S=0.0050 '/' Outflow=2.30 cfs 0.180 af

Pond C6-1: Peak Elev=302.99' Storage=18 cf Inflow=0.83 cfs 0.119 af
15.0" Round Culvert n=0.013 L=34.0' S=0.0147 '/' Outflow=0.83 cfs 0.119 af

Pond C6-3: Peak Elev=294.02' Storage=171 cf Inflow=4.35 cfs 0.790 af
24.0" Round Culvert n=0.013 L=54.0' S=0.0185 '/' Outflow=4.34 cfs 0.790 af

Pond C6-4: Peak Elev=296.14' Storage=48 cf Inflow=1.53 cfs 0.250 af
18.0" Round Culvert n=0.012 L=56.0' S=0.0268 '/' Outflow=1.53 cfs 0.250 af

Pond C6-5: Peak Elev=292.10' Storage=12 cf Inflow=1.23 cfs 0.149 af
15.0" Round Culvert n=0.012 L=60.0' S=0.0083 '/' Outflow=1.23 cfs 0.149 af

Pond CB2: CB-2 Peak Elev=275.89' Inflow=0.16 cfs 0.010 af
15.0" Round Culvert n=0.012 L=50.0' S=0.0100 '/' Outflow=0.16 cfs 0.010 af

Pond CB4: CB-4 Peak Elev=287.81' Inflow=1.33 cfs 0.109 af
15.0" Round Culvert n=0.012 L=20.0' S=0.0630 '/' Outflow=1.33 cfs 0.109 af

Pond CB5: CB-5 Peak Elev=287.84' Inflow=0.27 cfs 0.018 af
15.0" Round Culvert n=0.012 L=20.0' S=0.0100 '/' Outflow=0.27 cfs 0.018 af

Pond CB6: CB-6 Peak Elev=289.85' Inflow=0.28 cfs 0.019 af
12.0" Round Culvert n=0.012 L=60.0' S=0.0050 '/' Outflow=0.28 cfs 0.019 af

Pond FB1: Filter Basin #1 Peak Elev=289.31' Storage=5,092 cf Inflow=2.67 cfs 0.229 af
Outflow=0.52 cfs 0.116 af

Pond GW1: Gravel Wetland #1 Peak Elev=274.75' Storage=10,558 cf Inflow=3.08 cfs 0.524 af
Outflow=1.17 cfs 0.365 af

Pond GW2: Gravel Wetland #2 Peak Elev=289.96' Storage=9,996 cf Inflow=5.20 cfs 0.417 af
Outflow=0.47 cfs 0.222 af

Pond LS1: Level Spreader Peak Elev=263.03' Storage=243 cf Inflow=1.21 cfs 0.221 af
Outflow=1.21 cfs 0.216 af

Pond P4: Impoundment Peak Elev=264.17' Storage=2,495 cf Inflow=2.91 cfs 0.227 af
Outflow=1.21 cfs 0.221 af

Total Runoff Area = 89.512 ac Runoff Volume = 7.698 af Average Runoff Depth = 1.03"
91.28% Pervious = 81.705 ac 8.72% Impervious = 7.808 ac

Time span=1.00-24.00 hrs, dt=0.01 hrs, 2301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-2-1: Runoff Area=174,886 sf 22.31% Impervious Runoff Depth>2.29"
Flow Length=795' Tc=9.1 min CN=80 Runoff=9.70 cfs 0.765 af

Subcatchment S1-1: Runoff Area=92,312 sf 21.77% Impervious Runoff Depth>2.35"
Flow Length=480' Tc=45.6 min CN=81 Runoff=2.72 cfs 0.416 af

Subcatchment S1-2: Runoff Area=52,260 sf 37.10% Impervious Runoff Depth>2.81"
Flow Length=745' Tc=11.6 min CN=86 Runoff=3.28 cfs 0.281 af

Subcatchment S1-3: Runoff Area=37,679 sf 34.27% Impervious Runoff Depth>2.80"
Flow Length=220' Tc=32.7 min CN=86 Runoff=1.55 cfs 0.202 af

Subcatchment S1-4: Runoff Area=2,433 sf 50.00% Impervious Runoff Depth>3.41"
Tc=2.0 min CN=92 Runoff=0.25 cfs 0.016 af

Subcatchment S1-5: Runoff Area=47,178 sf 17.18% Impervious Runoff Depth>2.18"
Flow Length=410' Tc=52.8 min CN=79 Runoff=1.19 cfs 0.197 af

Subcatchment S2-2: Runoff Area=137,182 sf 9.69% Impervious Runoff Depth>1.79"
Flow Length=1,020' Tc=58.1 min CN=74 Runoff=2.64 cfs 0.471 af

Subcatchment S2-3: Runoff Area=26,823 sf 28.64% Impervious Runoff Depth>2.46"
Tc=5.0 min CN=82 Runoff=1.84 cfs 0.126 af

Subcatchment S4-1: Runoff Area=25,130 sf 40.65% Impervious Runoff Depth>2.82"
Flow Length=450' Tc=7.3 min CN=86 Runoff=1.81 cfs 0.135 af

Subcatchment S4-3: Runoff Area=119,062 sf 4.20% Impervious Runoff Depth>1.74"
Flow Length=570' Tc=18.2 min CN=73 Runoff=3.83 cfs 0.396 af

Subcatchment S4-4: Runoff Area=19,236 sf 30.05% Impervious Runoff Depth>2.46"
Tc=7.5 min CN=82 Runoff=1.21 cfs 0.090 af

Subcatchment S4-5: Runoff Area=3,485 sf 100.00% Impervious Runoff Depth>4.06"
Tc=2.0 min CN=98 Runoff=0.39 cfs 0.027 af

Subcatchment S4-6: Runoff Area=1,952 sf 100.00% Impervious Runoff Depth>4.06"
Tc=2.0 min CN=98 Runoff=0.22 cfs 0.015 af

Subcatchment S4-7: Runoff Area=17,998 sf 40.59% Impervious Runoff Depth>3.20"
Tc=5.0 min CN=90 Runoff=1.57 cfs 0.110 af

Subcatchment S5-1: Runoff Area=72,012 sf 29.52% Impervious Runoff Depth>2.37"
Flow Length=310' Tc=7.9 min CN=81 Runoff=4.31 cfs 0.327 af

Subcatchment S5-2: Runoff Area=3,643 sf 100.00% Impervious Runoff Depth>4.06"
Tc=2.0 min CN=98 Runoff=0.41 cfs 0.028 af

Subcatchment S5-3: Runoff Area=11,152 sf 26.90% Impervious Runoff Depth>2.46"
Tc=2.0 min CN=82 Runoff=0.85 cfs 0.052 af

Subcatchment S5-4: Runoff Area=234,999 sf 10.72% Impervious Runoff Depth>1.85"
Flow Length=660' Slope=0.0100 '/' Tc=85.0 min CN=75 Runoff=3.72 cfs 0.834 af

Subcatchment S6-1: Runoff Area=53,013 sf 17.31% Impervious Runoff Depth>2.19"
Flow Length=270' Tc=38.7 min CN=79 Runoff=1.57 cfs 0.222 af

Subcatchment S6-10: Runoff Area=26.217 ac 2.78% Impervious Runoff Depth>2.02"
Flow Length=950' Tc=57.3 min CN=77 Runoff=25.36 cfs 4.417 af

Subcatchment S6-2: Runoff Area=16.790 ac 3.16% Impervious Runoff Depth>1.79"
Flow Length=1,610' Tc=62.6 min CN=74 Runoff=13.51 cfs 2.506 af

Subcatchment S6-3: Runoff Area=489,562 sf 2.77% Impervious Runoff Depth>1.72"
Flow Length=1,550' Tc=53.5 min CN=73 Runoff=9.46 cfs 1.613 af

Subcatchment S6-4: Runoff Area=145,753 sf 5.94% Impervious Runoff Depth>1.80"
Flow Length=925' Tc=45.3 min CN=74 Runoff=3.24 cfs 0.502 af

Subcatchment S6-5: Runoff Area=73,211 sf 12.61% Impervious Runoff Depth>2.04"
Flow Length=400' Tc=25.8 min CN=77 Runoff=2.43 cfs 0.285 af

Subcatchment S6-6: Runoff Area=118,144 sf 11.40% Impervious Runoff Depth>1.97"
Tc=10.0 min CN=76 Runoff=5.43 cfs 0.445 af

Subcatchment S6-7: Runoff Area=48,723 sf 27.65% Impervious Runoff Depth>2.29"
Tc=10.0 min CN=80 Runoff=2.62 cfs 0.213 af

Subcatchment S6-8: Runoff Area=14,290 sf 38.21% Impervious Runoff Depth>3.00"
Tc=10.0 min CN=88 Runoff=1.00 cfs 0.082 af

Subcatchment S6-9: Runoff Area=3,659 sf 100.00% Impervious Runoff Depth>4.06"
Tc=2.0 min CN=98 Runoff=0.41 cfs 0.028 af

Reach B6-6: Avg. Flow Depth=0.23' Max Vel=0.19 fps Inflow=6.82 cfs 0.729 af
n=0.800 L=150.0' S=0.0800 '/' Capacity=6.30 cfs Outflow=5.46 cfs 0.719 af

Reach B6-7: Avg. Flow Depth=0.22' Max Vel=0.19 fps Inflow=3.82 cfs 0.714 af
n=0.800 L=150.0' S=0.0800 '/' Capacity=4.74 cfs Outflow=3.68 cfs 0.705 af

Reach B6-8: Avg. Flow Depth=0.39' Max Vel=0.25 fps Inflow=9.59 cfs 1.695 af
n=0.800 L=150.0' S=0.0800 '/' Capacity=4.74 cfs Outflow=9.19 cfs 1.678 af

Reach B6-9: Avg. Flow Depth=0.12' Max Vel=0.13 fps Inflow=1.62 cfs 0.251 af
n=0.800 L=150.0' S=0.0800 '/' Capacity=4.74 cfs Outflow=1.41 cfs 0.246 af

Reach R1: Avg. Flow Depth=0.26' Max Vel=3.69 fps Inflow=1.55 cfs 0.202 af
n=0.030 L=190.0' S=0.0563 '/' Capacity=71.16 cfs Outflow=1.55 cfs 0.202 af

Reach R2: Avg. Flow Depth=0.09' Max Vel=1.12 fps Inflow=1.76 cfs 0.124 af
n=0.035 L=1,020.0' S=0.0275 '/' Capacity=178.82 cfs Outflow=1.08 cfs 0.123 af

Reach R4-1: Avg. Flow Depth=0.24' Max Vel=5.63 fps Inflow=2.18 cfs 0.178 af
n=0.022 L=160.0' S=0.0750 '/' Capacity=111.98 cfs Outflow=2.18 cfs 0.177 af

Reach R4-2: Avg. Flow Depth=0.15' Max Vel=0.22 fps Inflow=1.90 cfs 0.365 af
n=0.600 L=82.0' S=0.1220 '/' Capacity=66.00 cfs Outflow=1.86 cfs 0.363 af

Reach R4-3: Avg. Flow Depth=0.12' Max Vel=0.80 fps Inflow=5.46 cfs 0.759 af
n=0.100 L=178.0' S=0.0562 '/' Capacity=268.77 cfs Outflow=5.36 cfs 0.756 af

Reach R4-4: Avg. Flow Depth=0.16' Max Vel=0.51 fps Inflow=5.36 cfs 0.756 af
n=0.100 L=403.0' S=0.0161 '/' Capacity=144.01 cfs Outflow=4.61 cfs 0.747 af

Reach R6-10: Stream Avg. Flow Depth=0.62' Max Vel=6.69 fps Inflow=13.51 cfs 2.506 af
n=0.035 L=750.0' S=0.0787 '/' Capacity=151.95 cfs Outflow=13.47 cfs 2.502 af

Reach R6-6: Avg. Flow Depth=0.58' Max Vel=3.70 fps Inflow=6.84 cfs 0.730 af
n=0.069 L=200.0' S=0.1000 '/' Capacity=86.90 cfs Outflow=6.82 cfs 0.729 af

Reach R6-6B: Avg. Flow Depth=0.12' Max Vel=0.88 fps Inflow=5.46 cfs 0.719 af
n=0.100 L=315.0' S=0.0635 '/' Capacity=18.90 cfs Outflow=5.32 cfs 0.714 af

Reach R6-7: Avg. Flow Depth=0.42' Max Vel=3.18 fps Inflow=3.82 cfs 0.715 af
n=0.069 L=210.0' S=0.1048 '/' Capacity=88.94 cfs Outflow=3.82 cfs 0.714 af

Reach R6-7B: Avg. Flow Depth=0.08' Max Vel=0.87 fps Inflow=3.68 cfs 0.705 af
n=0.100 L=210.0' S=0.0952 '/' Capacity=23.15 cfs Outflow=3.67 cfs 0.702 af

Reach R6-8B: Avg. Flow Depth=0.15' Max Vel=1.17 fps Inflow=9.19 cfs 1.678 af
n=0.100 L=520.0' S=0.0808 '/' Capacity=21.32 cfs Outflow=9.05 cfs 1.665 af

Reach R6-9B: Avg. Flow Depth=0.05' Max Vel=0.51 fps Inflow=1.41 cfs 0.246 af
n=0.100 L=760.0' S=0.0711 '/' Capacity=20.00 cfs Outflow=1.18 cfs 0.240 af

Reach SP1: Study Point 1 Inflow=3.74 cfs 0.945 af
Outflow=3.74 cfs 0.945 af

Reach SP2: Study Point 2 Inflow=5.51 cfs 1.157 af
Outflow=5.51 cfs 1.157 af

Reach SP3: Study Point 3 Inflow=58.46 cfs 10.986 af
Outflow=58.46 cfs 10.986 af

Reach SP5: Study Point 5 Inflow=4.66 cfs 1.128 af
Outflow=4.66 cfs 1.128 af

Pond 1P: CB-5 Peak Elev=301.61' Inflow=1.57 cfs 0.222 af
15.0" Round Culvert n=0.012 L=14.0' S=0.0357 '/' Outflow=1.57 cfs 0.222 af

Pond C1: Culvert @ 3+00 Peak Elev=286.86' Storage=41 cf Inflow=1.55 cfs 0.202 af
Outflow=1.55 cfs 0.202 af

Pond C100: Culvert Peak Elev=301.00' Storage=103 cf Inflow=13.51 cfs 2.506 af
72.0" x 28.0", R=38.0" Arch Culvert n=0.035 L=70.0' S=0.0457 '/' Outflow=13.51 cfs 2.506 af

Pond C2-1: Culvert @ 2+00 Peak Elev=321.05' Storage=283 cf Inflow=1.84 cfs 0.126 af
Outflow=1.76 cfs 0.124 af

Pond C4-1: Culvert Across End of Moody Road Peak Elev=275.70' Storage=50 cf Inflow=1.21 cfs 0.090 af
Outflow=1.20 cfs 0.090 af

Pond C4-2: Wetland Crossing Peak Elev=273.25' Storage=121 cf Inflow=3.83 cfs 0.396 af
18.0" Round Culvert n=0.040 L=40.0' S=0.0250 '/' Outflow=3.83 cfs 0.396 af

Pond C4-3: Culvert Across Hammerhead Peak Elev=274.84' Storage=60 cf Inflow=2.18 cfs 0.177 af
15.0" Round Culvert n=0.013 L=70.0' S=0.0357 '/' Outflow=2.17 cfs 0.177 af

Pond C4-4: Peak Elev=291.75' Storage=45 cf Inflow=1.81 cfs 0.135 af
15.0" Round Culvert n=0.013 L=162.0' S=0.0210 '/' Outflow=1.81 cfs 0.135 af

Pond C5-1: Peak Elev=290.92' Storage=330 cf Inflow=4.31 cfs 0.327 af
15.0" Round Culvert n=0.013 L=50.0' S=0.0050 '/' Outflow=4.15 cfs 0.327 af

Pond C6-1: Peak Elev=303.20' Storage=29 cf Inflow=1.57 cfs 0.222 af
15.0" Round Culvert n=0.013 L=34.0' S=0.0147 '/' Outflow=1.57 cfs 0.222 af

Pond C6-3: Peak Elev=294.63' Storage=394 cf Inflow=9.46 cfs 1.613 af
24.0" Round Culvert n=0.013 L=54.0' S=0.0185 '/' Outflow=9.45 cfs 1.613 af

Pond C6-4: Peak Elev=296.48' Storage=148 cf Inflow=3.24 cfs 0.502 af
18.0" Round Culvert n=0.012 L=56.0' S=0.0268 '/' Outflow=3.23 cfs 0.502 af

Pond C6-5: Peak Elev=292.40' Storage=27 cf Inflow=2.43 cfs 0.285 af
15.0" Round Culvert n=0.012 L=60.0' S=0.0083 '/' Outflow=2.43 cfs 0.285 af

Pond CB2: CB-2 Peak Elev=275.94' Inflow=0.25 cfs 0.016 af
15.0" Round Culvert n=0.012 L=50.0' S=0.0100 '/' Outflow=0.25 cfs 0.016 af

Pond CB4: CB-4 Peak Elev=287.99' Inflow=2.18 cfs 0.178 af
15.0" Round Culvert n=0.012 L=20.0' S=0.0630 '/' Outflow=2.18 cfs 0.178 af

Pond CB5: CB-5 Peak Elev=288.01' Inflow=0.39 cfs 0.027 af
15.0" Round Culvert n=0.012 L=20.0' S=0.0100 '/' Outflow=0.39 cfs 0.027 af

Pond CB6: CB-6 Peak Elev=289.91' Inflow=0.41 cfs 0.028 af
12.0" Round Culvert n=0.012 L=60.0' S=0.0050 '/' Outflow=0.41 cfs 0.028 af

Pond FB1: Filter Basin #1 Peak Elev=289.47' Storage=5,755 cf Inflow=4.73 cfs 0.407 af
Outflow=4.01 cfs 0.294 af

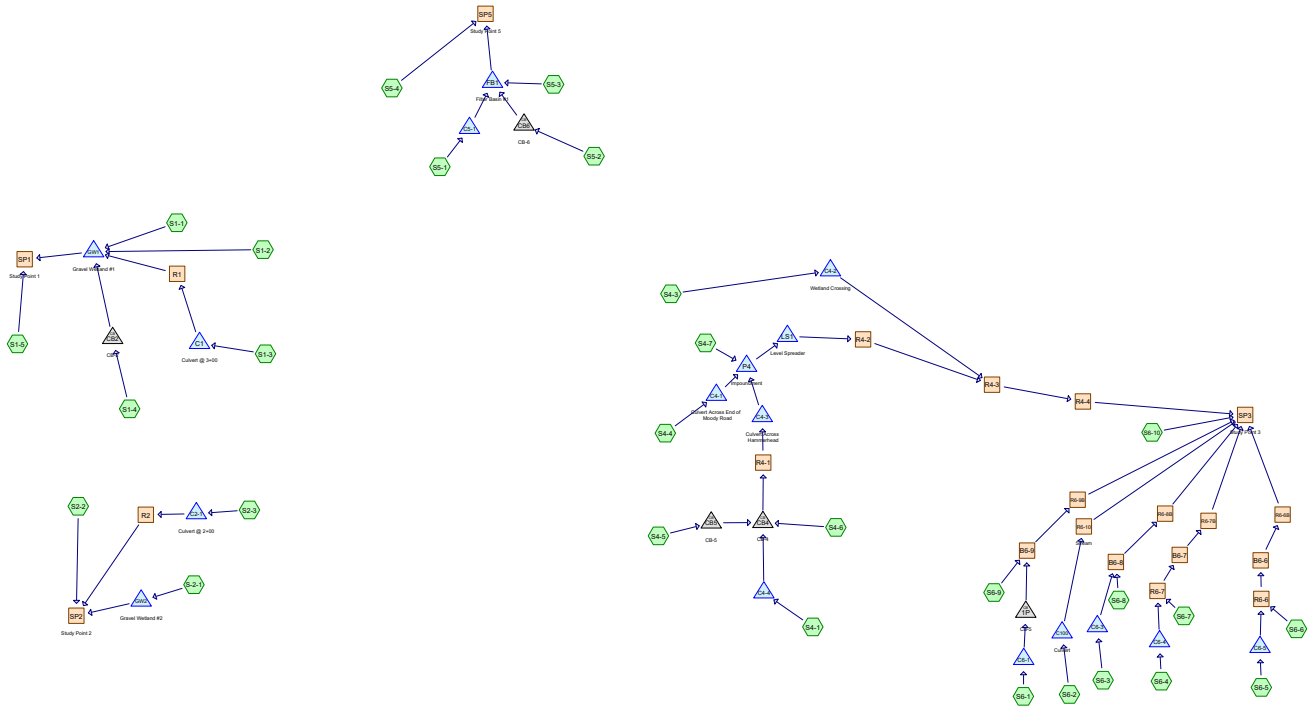
Pond GW1: Gravel Wetland #1 Peak Elev=275.40' Storage=15,946 cf Inflow=5.40 cfs 0.914 af
Outflow=2.67 cfs 0.748 af

Pond GW2: Gravel Wetland #2 Peak Elev=290.55' Storage=14,740 cf Inflow=9.70 cfs 0.765 af
Outflow=2.64 cfs 0.563 af

Pond LS1: Level Spreader Peak Elev=263.04' Storage=250 cf Inflow=1.90 cfs 0.370 af
Outflow=1.90 cfs 0.365 af

Pond P4: Impoundment Peak Elev=264.88' Storage=4,304 cf Inflow=4.83 cfs 0.378 af
Outflow=1.90 cfs 0.370 af

Total Runoff Area = 89.512 ac Runoff Volume = 14.804 af Average Runoff Depth = 1.98"
91.28% Pervious = 81.705 ac 8.72% Impervious = 7.808 ac



Subcat | Reach | Pond | Link

Routing Diagram for 1840 Post

Prepared by {enter your company name here}, Printed 5/15/2019

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Time span=1.00-24.00 hrs, dt=0.01 hrs, 2301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment S-2-1: Runoff Area=174,886 sf 22.31% Impervious Runoff Depth>3.24"
Flow Length=795' Tc=9.1 min CN=80 Runoff=13.72 cfs 1.084 af

Subcatchment S1-1: Runoff Area=92,312 sf 21.77% Impervious Runoff Depth>3.31"
Flow Length=480' Tc=45.6 min CN=81 Runoff=3.82 cfs 0.585 af

Subcatchment S1-2: Runoff Area=52,260 sf 37.10% Impervious Runoff Depth>3.83"
Flow Length=745' Tc=11.6 min CN=86 Runoff=4.43 cfs 0.383 af

Subcatchment S1-3: Runoff Area=37,679 sf 34.27% Impervious Runoff Depth>3.82"
Flow Length=220' Tc=32.7 min CN=86 Runoff=2.09 cfs 0.275 af

Subcatchment S1-4: Runoff Area=2,433 sf 50.00% Impervious Runoff Depth>4.48"
Tc=2.0 min CN=92 Runoff=0.32 cfs 0.021 af

Subcatchment S1-5: Runoff Area=47,178 sf 17.18% Impervious Runoff Depth>3.11"
Flow Length=410' Tc=52.8 min CN=79 Runoff=1.70 cfs 0.281 af

Subcatchment S2-2: Runoff Area=137,182 sf 9.69% Impervious Runoff Depth>2.65"
Flow Length=1,020' Tc=58.1 min CN=74 Runoff=3.95 cfs 0.696 af

Subcatchment S2-3: Runoff Area=26,823 sf 28.64% Impervious Runoff Depth>3.44"
Tc=5.0 min CN=82 Runoff=2.56 cfs 0.176 af

Subcatchment S4-1: Runoff Area=25,130 sf 40.65% Impervious Runoff Depth>3.84"
Flow Length=450' Tc=7.3 min CN=86 Runoff=2.44 cfs 0.184 af

Subcatchment S4-3: Runoff Area=119,062 sf 4.20% Impervious Runoff Depth>2.59"
Flow Length=570' Tc=18.2 min CN=73 Runoff=5.79 cfs 0.589 af

Subcatchment S4-4: Runoff Area=19,236 sf 30.05% Impervious Runoff Depth>3.43"
Tc=7.5 min CN=82 Runoff=1.68 cfs 0.126 af

Subcatchment S4-5: Runoff Area=3,485 sf 100.00% Impervious Runoff Depth>5.16"
Tc=2.0 min CN=98 Runoff=0.49 cfs 0.034 af

Subcatchment S4-6: Runoff Area=1,952 sf 100.00% Impervious Runoff Depth>5.16"
Tc=2.0 min CN=98 Runoff=0.27 cfs 0.019 af

Subcatchment S4-7: Runoff Area=17,998 sf 40.59% Impervious Runoff Depth>4.26"
Tc=5.0 min CN=90 Runoff=2.05 cfs 0.147 af

Subcatchment S5-1: Runoff Area=72,012 sf 29.52% Impervious Runoff Depth>3.34"
Flow Length=310' Tc=7.9 min CN=81 Runoff=6.05 cfs 0.460 af

Subcatchment S5-2: Runoff Area=3,643 sf 100.00% Impervious Runoff Depth>5.16"
Tc=2.0 min CN=98 Runoff=0.51 cfs 0.036 af

Subcatchment S5-3: Runoff Area=11,152 sf 26.90% Impervious Runoff Depth>3.44"
Tc=2.0 min CN=82 Runoff=1.19 cfs 0.073 af

Subcatchment S5-4: Runoff Area=234,999 sf 10.72% Impervious Runoff Depth>2.72"
Flow Length=660' Slope=0.0100 '/' Tc=85.0 min CN=75 Runoff=5.55 cfs 1.224 af

Subcatchment S6-1: Runoff Area=53,013 sf 17.31% Impervious Runoff Depth>3.12"
Flow Length=270' Tc=38.7 min CN=79 Runoff=2.25 cfs 0.317 af

Subcatchment S6-10: Runoff Area=26.217 ac 2.78% Impervious Runoff Depth>2.92"
Flow Length=950' Tc=57.3 min CN=77 Runoff=36.89 cfs 6.388 af

Subcatchment S6-2: Runoff Area=16.790 ac 3.16% Impervious Runoff Depth>2.65"
Flow Length=1,610' Tc=62.6 min CN=74 Runoff=20.25 cfs 3.706 af

Subcatchment S6-3: Runoff Area=489,562 sf 2.77% Impervious Runoff Depth>2.57"
Flow Length=1,550' Tc=53.5 min CN=73 Runoff=14.28 cfs 2.403 af

Subcatchment S6-4: Runoff Area=145,753 sf 5.94% Impervious Runoff Depth>2.66"
Flow Length=925' Tc=45.3 min CN=74 Runoff=4.86 cfs 0.742 af

Subcatchment S6-5: Runoff Area=73,211 sf 12.61% Impervious Runoff Depth>2.95"
Flow Length=400' Tc=25.8 min CN=77 Runoff=3.53 cfs 0.412 af

Subcatchment S6-6: Runoff Area=118,144 sf 11.40% Impervious Runoff Depth>2.86"
Tc=10.0 min CN=76 Runoff=7.97 cfs 0.647 af

Subcatchment S6-7: Runoff Area=48,723 sf 27.65% Impervious Runoff Depth>3.24"
Tc=10.0 min CN=80 Runoff=3.71 cfs 0.302 af

Subcatchment S6-8: Runoff Area=14,290 sf 38.21% Impervious Runoff Depth>4.04"
Tc=10.0 min CN=88 Runoff=1.33 cfs 0.111 af

Subcatchment S6-9: Runoff Area=3,659 sf 100.00% Impervious Runoff Depth>5.16"
Tc=2.0 min CN=98 Runoff=0.51 cfs 0.036 af

Reach B6-6: Avg. Flow Depth=0.30' Max Vel=0.23 fps Inflow=10.03 cfs 1.059 af
n=0.800 L=150.0' S=0.0800 '/' Capacity=6.30 cfs Outflow=8.23 cfs 1.046 af

Reach B6-7: Avg. Flow Depth=0.27' Max Vel=0.22 fps Inflow=5.62 cfs 1.042 af
n=0.800 L=150.0' S=0.0800 '/' Capacity=4.74 cfs Outflow=5.47 cfs 1.031 af

Reach B6-8: Avg. Flow Depth=0.54' Max Vel=0.27 fps Inflow=14.43 cfs 2.513 af
n=0.800 L=150.0' S=0.0800 '/' Capacity=4.74 cfs Outflow=13.88 cfs 2.493 af

Reach B6-9: Avg. Flow Depth=0.15' Max Vel=0.15 fps Inflow=2.31 cfs 0.353 af
n=0.800 L=150.0' S=0.0800 '/' Capacity=4.74 cfs Outflow=2.07 cfs 0.347 af

Reach R1: Avg. Flow Depth=0.30' Max Vel=4.01 fps Inflow=2.09 cfs 0.275 af
n=0.030 L=190.0' S=0.0563 '/' Capacity=71.16 cfs Outflow=2.09 cfs 0.275 af

Reach R2: Avg. Flow Depth=0.11' Max Vel=1.26 fps Inflow=2.44 cfs 0.174 af
n=0.035 L=1,020.0' S=0.0275 '/' Capacity=178.82 cfs Outflow=1.59 cfs 0.173 af

Reach R4-1: Avg. Flow Depth=0.28' Max Vel=6.11 fps Inflow=2.91 cfs 0.238 af
n=0.022 L=160.0' S=0.0750 '/' Capacity=111.98 cfs Outflow=2.91 cfs 0.238 af

Reach R4-2: Avg. Flow Depth=0.19' Max Vel=0.26 fps Inflow=3.07 cfs 0.497 af
n=0.600 L=82.0' S=0.1220 '/' Capacity=66.00 cfs Outflow=2.98 cfs 0.495 af

Reach R4-3: Avg. Flow Depth=0.16' Max Vel=0.94 fps Inflow=8.58 cfs 1.084 af
n=0.100 L=178.0' S=0.0562 '/' Capacity=268.77 cfs Outflow=8.44 cfs 1.081 af

Reach R4-4: Avg. Flow Depth=0.21' Max Vel=0.59 fps Inflow=8.44 cfs 1.081 af
n=0.100 L=403.0' S=0.0161 '/' Capacity=144.01 cfs Outflow=7.32 cfs 1.070 af

Reach R6-10: Stream Avg. Flow Depth=0.76' Max Vel=7.48 fps Inflow=20.25 cfs 3.705 af
n=0.035 L=750.0' S=0.0787 '/' Capacity=151.95 cfs Outflow=20.21 cfs 3.701 af

Reach R6-6: Avg. Flow Depth=0.71' Max Vel=4.12 fps Inflow=10.07 cfs 1.059 af
n=0.069 L=200.0' S=0.1000 '/' Capacity=86.90 cfs Outflow=10.03 cfs 1.059 af

Reach R6-6B: Avg. Flow Depth=0.15' Max Vel=1.04 fps Inflow=8.23 cfs 1.046 af
n=0.100 L=315.0' S=0.0635 '/' Capacity=18.90 cfs Outflow=8.07 cfs 1.040 af

Reach R6-7: Avg. Flow Depth=0.52' Max Vel=3.56 fps Inflow=5.63 cfs 1.043 af
n=0.069 L=210.0' S=0.1048 '/' Capacity=88.94 cfs Outflow=5.62 cfs 1.042 af

Reach R6-7B: Avg. Flow Depth=0.11' Max Vel=1.01 fps Inflow=5.47 cfs 1.031 af
n=0.100 L=210.0' S=0.0952 '/' Capacity=23.15 cfs Outflow=5.46 cfs 1.027 af

Reach R6-8B: Avg. Flow Depth=0.19' Max Vel=1.37 fps Inflow=13.88 cfs 2.493 af
n=0.100 L=520.0' S=0.0808 '/' Capacity=21.32 cfs Outflow=13.73 cfs 2.477 af

Reach R6-9B: Avg. Flow Depth=0.06' Max Vel=0.60 fps Inflow=2.07 cfs 0.347 af
n=0.100 L=760.0' S=0.0711 '/' Capacity=20.00 cfs Outflow=1.79 cfs 0.340 af

Reach SP1: Study Point 1 Inflow=5.14 cfs 1.373 af
Outflow=5.14 cfs 1.373 af

Reach SP2: Study Point 2 Inflow=8.62 cfs 1.745 af
Outflow=8.62 cfs 1.745 af

Reach SP3: Study Point 3 Inflow=86.21 cfs 16.043 af
Outflow=86.21 cfs 16.043 af

Reach SP5: Study Point 5 Inflow=7.14 cfs 1.679 af
Outflow=7.14 cfs 1.679 af

Pond 1P: CB-5 Peak Elev=301.75' Inflow=2.25 cfs 0.317 af
15.0" Round Culvert n=0.012 L=14.0' S=0.0357 '/' Outflow=2.25 cfs 0.317 af

Pond C1: Culvert @ 3+00 Peak Elev=286.97' Storage=51 cf Inflow=2.09 cfs 0.275 af
Outflow=2.09 cfs 0.275 af

Pond C100: Culvert Peak Elev=301.26' Storage=163 cf Inflow=20.25 cfs 3.706 af
72.0" x 28.0", R=38.0" Arch Culvert n=0.035 L=70.0' S=0.0457 '/' Outflow=20.25 cfs 3.705 af

Pond C2-1: Culvert @ 2+00 Peak Elev=321.18' Storage=346 cf Inflow=2.56 cfs 0.176 af
Outflow=2.44 cfs 0.174 af

Pond C4-1: Culvert Across End of Moody Road Peak Elev=275.82' Storage=65 cf Inflow=1.68 cfs 0.126 af
Outflow=1.67 cfs 0.126 af

Pond C4-2: Wetland Crossing Peak Elev=273.73' Storage=198 cf Inflow=5.79 cfs 0.589 af
18.0" Round Culvert n=0.040 L=40.0' S=0.0250 '/' Outflow=5.77 cfs 0.589 af

Pond C4-3: Culvert Across Hammerhead Peak Elev=275.02' Storage=77 cf Inflow=2.91 cfs 0.238 af
15.0" Round Culvert n=0.013 L=70.0' S=0.0357 '/' Outflow=2.90 cfs 0.238 af

Pond C4-4: Peak Elev=291.91' Storage=56 cf Inflow=2.44 cfs 0.184 af
15.0" Round Culvert n=0.013 L=162.0' S=0.0210 '/' Outflow=2.44 cfs 0.184 af

Pond C5-1: Peak Elev=291.51' Storage=595 cf Inflow=6.05 cfs 0.460 af
15.0" Round Culvert n=0.013 L=50.0' S=0.0050 '/' Outflow=5.50 cfs 0.459 af

Pond C6-1: Peak Elev=303.36' Storage=40 cf Inflow=2.25 cfs 0.317 af
15.0" Round Culvert n=0.013 L=34.0' S=0.0147 '/' Outflow=2.25 cfs 0.317 af

Pond C6-3: Peak Elev=295.42' Storage=807 cf Inflow=14.28 cfs 2.403 af
24.0" Round Culvert n=0.013 L=54.0' S=0.0185 '/' Outflow=14.25 cfs 2.403 af

Pond C6-4: Peak Elev=296.77' Storage=300 cf Inflow=4.86 cfs 0.742 af
18.0" Round Culvert n=0.012 L=56.0' S=0.0268 '/' Outflow=4.83 cfs 0.741 af

Pond C6-5: Peak Elev=292.69' Storage=50 cf Inflow=3.53 cfs 0.412 af
15.0" Round Culvert n=0.012 L=60.0' S=0.0083 '/' Outflow=3.53 cfs 0.412 af

Pond CB2: CB-2 Peak Elev=276.04' Inflow=0.32 cfs 0.021 af
15.0" Round Culvert n=0.012 L=50.0' S=0.0100 '/' Outflow=0.32 cfs 0.021 af

Pond CB4: CB-4 Peak Elev=288.13' Inflow=2.91 cfs 0.238 af
15.0" Round Culvert n=0.012 L=20.0' S=0.0630 '/' Outflow=2.91 cfs 0.238 af

Pond CB5: CB-5 Peak Elev=288.15' Inflow=0.49 cfs 0.034 af
15.0" Round Culvert n=0.012 L=20.0' S=0.0100 '/' Outflow=0.49 cfs 0.034 af

Pond CB6: CB-6 Peak Elev=289.96' Inflow=0.51 cfs 0.036 af
12.0" Round Culvert n=0.012 L=60.0' S=0.0050 '/' Outflow=0.51 cfs 0.036 af

Pond FB1: Filter Basin #1 Peak Elev=289.54' Storage=6,045 cf Inflow=6.23 cfs 0.569 af
Outflow=6.09 cfs 0.455 af

Pond GW1: Gravel Wetland #1 Peak Elev=276.04' Storage=21,604 cf Inflow=7.43 cfs 1.264 af
Outflow=3.58 cfs 1.092 af

Pond GW2: Gravel Wetland #2 Peak Elev=291.11' Storage=19,685 cf Inflow=13.72 cfs 1.084 af
Outflow=4.40 cfs 0.877 af

Pond LS1: Level Spreader Peak Elev=263.06' Storage=259 cf Inflow=3.07 cfs 0.502 af
Outflow=3.07 cfs 0.497 af

Pond P4: Impoundment Peak Elev=265.27' Storage=5,425 cf Inflow=6.48 cfs 0.511 af
Outflow=3.07 cfs 0.502 af

Total Runoff Area = 89.512 ac Runoff Volume = 21.458 af Average Runoff Depth = 2.88"
91.28% Pervious = 81.705 ac 8.72% Impervious = 7.808 ac

Summary for Subcatchment S-2-1:

Runoff = 13.72 cfs @ 12.13 hrs, Volume= 1.084 af, Depth> 3.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
*	18,900	74	Pond Area
	114,397	80	1/2 acre lots, 25% imp, HSG C
	20,822	92	Paved roads w/open ditches, 50% imp, HSG C
	20,767	70	Woods, Good, HSG C
	174,886	80	Weighted Average
	135,876		77.69% Pervious Area
	39,010		22.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.3	75	0.0900	0.29		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
4.8	720	0.0280	2.51		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
9.1	795	Total			

Summary for Subcatchment S1-1:

Runoff = 3.82 cfs @ 12.62 hrs, Volume= 0.585 af, Depth> 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
*	8,846	98	Bedrock
	24,959	79	Woods/grass comb., Good, HSG D
*	13,500	74	Pond Area
	45,007	80	1/2 acre lots, 25% imp, HSG C
	92,312	81	Weighted Average
	72,214		78.23% Pervious Area
	20,098		21.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
35.6	150	0.0530	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
6.1	90	0.0560	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
3.9	240	0.0420	1.02		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
45.6	480	Total			

Summary for Subcatchment S1-2:

Runoff = 4.43 cfs @ 12.16 hrs, Volume= 0.383 af, Depth> 3.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
*	0	98	Bedrock
	25,286	92	Paved roads w/open ditches, 50% imp, HSG C
	26,974	80	1/2 acre lots, 25% imp, HSG C
	0	79	Woods/grass comb., Good, HSG D
	52,260	86	Weighted Average
	32,874		62.90% Pervious Area
	19,387		37.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
3.7	670	0.0400	3.00		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
11.6	745	Total			

Summary for Subcatchment S1-3:

Runoff = 2.09 cfs @ 12.46 hrs, Volume= 0.275 af, Depth> 3.82"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
*	0	98	Bedrock
	22,082	92	Paved roads w/open ditches, 50% imp, HSG C
	15,597	77	2 acre lots, 12% imp, HSG C
	0	79	Woods/grass comb., Good, HSG D
	37,679	86	Weighted Average
	24,766		65.73% Pervious Area
	12,913		34.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.4	150	0.0670	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.3	70	0.0530	3.45		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
32.7	220	Total			

Summary for Subcatchment S1-4:

Runoff = 0.32 cfs @ 12.03 hrs, Volume= 0.021 af, Depth> 4.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
*	0	98	Bedrock
	2,433	92	Paved roads w/open ditches, 50% imp, HSG C
	0	80	1/2 acre lots, 25% imp, HSG C
	0	79	Woods/grass comb., Good, HSG D
	2,433	92	Weighted Average
	1,217		50.00% Pervious Area
	1,217		50.00% Impervious Area

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

Summary for Subcatchment S1-5:

Runoff = 1.70 cfs @ 12.73 hrs, Volume= 0.281 af, Depth> 3.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
*	0	98	Bedrock
	4,792	98	Paved roads w/curbs & sewers, HSG C
*	3,000	74	Pond Area
	27,607	77	2 acre lots, 12% imp, HSG C
	11,779	79	Woods/grass comb., Good, HSG D
	47,178	79	Weighted Average
	39,073		82.82% Pervious Area
	8,105		17.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
32.4	150	0.0670	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
19.1	90	0.0900	0.08		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.3	170	0.0200	2.12		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
52.8	410	Total			

Summary for Subcatchment S2-2:

Runoff = 3.95 cfs @ 12.79 hrs, Volume= 0.696 af, Depth> 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
20,000	80	1/2 acre lots, 25% imp, HSG C
16,595	92	Paved roads w/open ditches, 50% imp, HSG C
100,587	70	Woods, Good, HSG C
137,182	74	Weighted Average
123,885		90.31% Pervious Area
13,298		9.69% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.8	150	0.0400	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
18.3	870	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
58.1	1,020	Total			

Summary for Subcatchment S2-3:

Runoff = 2.56 cfs @ 12.07 hrs, Volume= 0.176 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
20,469	80	1/2 acre lots, 25% imp, HSG C
5,130	92	Paved roads w/open ditches, 50% imp, HSG C
1,224	70	Woods, Good, HSG C
26,823	82	Weighted Average
19,141		71.36% Pervious Area
7,682		28.64% Impervious Area

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

Summary for Subcatchment S4-1:

Runoff = 2.44 cfs @ 12.10 hrs, Volume= 0.184 af, Depth> 3.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
	15,728	92	Paved roads w/open ditches, 50% imp, HSG C
*	9,402	77	1/2 acre lots, 25% imp, HSG C
	0	79	Woods/grass comb., Good, HSG D
	25,130	86	Weighted Average
	14,916		59.35% Pervious Area
	10,215		40.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.7	50	0.0200	0.15		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.6	400	0.0800	4.24		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.3	450	Total			

Summary for Subcatchment S4-3:

Runoff = 5.79 cfs @ 12.25 hrs, Volume= 0.589 af, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
	0	92	Paved roads w/open ditches, 50% imp, HSG C
*	3,053	74	Ditching
*	20,000	77	1/2 acre lots, 25% imp, HSG C
	66,009	70	Woods, Good, HSG C
	30,000	77	Woods, Good, HSG D
	119,062	73	Weighted Average
	114,062		95.80% Pervious Area
	5,000		4.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.9	90	0.0400	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
11.3	480	0.0200	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
18.2	570	Total			

Summary for Subcatchment S4-4:

Runoff = 1.68 cfs @ 12.11 hrs, Volume= 0.126 af, Depth> 3.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
	7,561	92	Paved roads w/open ditches, 50% imp, HSG C
*	8,000	77	1/2 acre lots, 25% imp, HSG C
	3,675	70	Woods, Good, HSG C
	19,236	82	Weighted Average
	13,456		69.95% Pervious Area
	5,781		30.05% Impervious Area

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

Summary for Subcatchment S4-5:

Runoff = 0.49 cfs @ 12.03 hrs, Volume= 0.034 af, Depth> 5.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
3,485	98	Paved roads w/curbs & sewers, HSG C
3,485		100.00% Impervious Area

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

Summary for Subcatchment S4-6:

Runoff = 0.27 cfs @ 12.03 hrs, Volume= 0.019 af, Depth> 5.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
1,952	98	Paved roads w/curbs & sewers, HSG C
1,952		100.00% Impervious Area

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

Summary for Subcatchment S4-7:

Runoff = 2.05 cfs @ 12.07 hrs, Volume= 0.147 af, Depth> 4.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
	14,612	92	Paved roads w/open ditches, 50% imp, HSG C
*	0	77	1/2 acre lots, 25% imp, HSG C
	3,386	79	Woods/grass comb., Good, HSG D
	17,998	90	Weighted Average
	10,692		59.41% Pervious Area
	7,306		40.59% Impervious Area

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

Summary for Subcatchment S5-1:

Runoff = 6.05 cfs @ 12.11 hrs, Volume= 0.460 af, Depth> 3.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
	21,012	92	Paved roads w/open ditches, 50% imp, HSG C
*	43,000	77	1/2 acre lots, 25% imp, HSG C
	8,000	70	Woods, Good, HSG C
	72,012	81	Weighted Average
	50,756		70.48% Pervious Area
	21,256		29.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	70	0.0500	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
2.7	240	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.9	310	Total			

Summary for Subcatchment S5-2:

Runoff = 0.51 cfs @ 12.03 hrs, Volume= 0.036 af, Depth> 5.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
3,643	98	Paved roads w/curbs & sewers, HSG C
3,643		100.00% Impervious Area

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

Summary for Subcatchment S5-3:

Runoff = 1.19 cfs @ 12.03 hrs, Volume= 0.073 af, Depth> 3.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
6,000	92	Paved roads w/open ditches, 50% imp, HSG C
5,152	70	Woods, Good, HSG C
11,152	82	Weighted Average
8,152		73.10% Pervious Area
3,000		26.90% Impervious Area

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

Summary for Subcatchment S5-4:

Runoff = 5.55 cfs @ 13.13 hrs, Volume= 1.224 af, Depth> 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
	0	92	Paved roads w/open ditches, 50% imp, HSG C
*	95,000	77	1/2 acre lots, 25% imp, HSG C
	55,332	70	Woods, Good, HSG C
	83,225	77	Woods, Good, HSG D
*	1,442	98	Bedrock
	234,999	75	Weighted Average
	209,807		89.28% Pervious Area
	25,192		10.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
69.3	150	0.0100	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
13.3	400	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	40	0.0100	7.80	24.51	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.012
2.3	70	0.0100	0.50		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps

85.0	660	Total

Summary for Subcatchment S6-1:

Runoff = 2.25 cfs @ 12.52 hrs, Volume= 0.317 af, Depth> 3.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
7,351	92	Paved roads w/open ditches, 50% imp, HSG C
27,500	79	1 acre lots, 20% imp, HSG C
11,022	72	Woods/grass comb., Good, HSG C
7,140	79	Woods/grass comb., Good, HSG D
53,013	79	Weighted Average
43,838		82.69% Pervious Area
9,176		17.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
38.0	100	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
0.7	170	0.0700	3.97		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
38.7	270	Total			

Summary for Subcatchment S6-10:

Runoff = 36.89 cfs @ 12.80 hrs, Volume= 6.388 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (ac)	CN	Description
*	0.730	98	Lot Impervious (17-20,42,43,45)
*	2.020	74	Lot Grass
	8.467	72	Woods/grass comb., Good, HSG C
	15.000	79	Woods/grass comb., Good, HSG D
	26.217	77	Weighted Average
	25.487		97.22% Pervious Area
	0.730		2.78% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
46.8	150	0.0267	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
10.5	800	0.0650	1.27		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
57.3	950	Total			

Summary for Subcatchment S6-2:

Runoff = 20.25 cfs @ 12.87 hrs, Volume= 3.706 af, Depth> 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (ac)	CN	Description
*	0.030	98	Lot 24 Imp
*	0.140	74	Lot 24 Grass
	2.500	79	1 acre lots, 20% imp, HSG C
	12.120	72	Woods/grass comb., Good, HSG C
	2.000	79	Woods/grass comb., Good, HSG D
	16.790	74	Weighted Average
	16.260		96.84% Pervious Area
	0.530		3.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
44.7	150	0.0300	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
17.9	1,460	0.0740	1.36		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
62.6	1,610	Total			

Summary for Subcatchment S6-3:

Runoff = 14.28 cfs @ 12.77 hrs, Volume= 2.403 af, Depth> 2.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
9,102	92	Paved roads w/open ditches, 50% imp, HSG C
45,000	79	1 acre lots, 20% imp, HSG C
435,460	72	Woods/grass comb., Good, HSG C
0	79	Woods/grass comb., Good, HSG D
489,562	73	Weighted Average
476,011		97.23% Pervious Area
13,551		2.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.3	150	0.0470	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
13.0	1,100	0.0800	1.41		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	170	0.1000	2.21		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
1.9	130	0.0050	1.14		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
53.5	1,550	Total			

Summary for Subcatchment S6-4:

Runoff = 4.86 cfs @ 12.63 hrs, Volume= 0.742 af, Depth> 2.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
5,320	92	Paved roads w/open ditches, 50% imp, HSG C
30,000	79	1 acre lots, 20% imp, HSG C
110,433	72	Woods/grass comb., Good, HSG C
0	79	Woods/grass comb., Good, HSG D
145,753	74	Weighted Average
137,093		94.06% Pervious Area
8,660		5.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
37.3	150	0.0470	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
6.7	615	0.0940	1.53		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.3	160	0.0880	2.08		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
45.3	925	Total			

Summary for Subcatchment S6-5:

Runoff = 3.53 cfs @ 12.36 hrs, Volume= 0.412 af, Depth> 2.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
6,468	92	Paved roads w/open ditches, 50% imp, HSG C
30,000	79	1 acre lots, 20% imp, HSG C
36,743	72	Woods/grass comb., Good, HSG C
0	79	Woods/grass comb., Good, HSG D
73,211	77	Weighted Average
63,977		87.39% Pervious Area
9,234		12.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
23.7	150	0.1470	0.11		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.0	100	0.1200	1.73		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	150	0.1100	2.32		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
25.8	400	Total			

Summary for Subcatchment S6-6:

Runoff = 7.97 cfs @ 12.14 hrs, Volume= 0.647 af, Depth> 2.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
8,929	92	Paved roads w/open ditches, 50% imp, HSG C
45,000	79	1 acre lots, 20% imp, HSG C
64,215	72	Woods/grass comb., Good, HSG C
0	79	Woods/grass comb., Good, HSG D
118,144	76	Weighted Average
104,680		88.60% Pervious Area
13,465		11.40% Impervious Area

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

Summary for Subcatchment S6-7:

Runoff = 3.71 cfs @ 12.14 hrs, Volume= 0.302 af, Depth> 3.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

	Area (sf)	CN	Description
	4,943	92	Paved roads w/open ditches, 50% imp, HSG C
	15,000	79	1 acre lots, 20% imp, HSG C
*	8,000	98	Driveways
	20,780	72	Woods/grass comb., Good, HSG C
	0	79	Woods/grass comb., Good, HSG D
	48,723	80	Weighted Average
	35,252		72.35% Pervious Area
	13,472		27.65% Impervious Area

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

Summary for Subcatchment S6-8:

Runoff = 1.33 cfs @ 12.14 hrs, Volume= 0.111 af, Depth> 4.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
10,920	92	Paved roads w/open ditches, 50% imp, HSG C
3,370	74	>75% Grass cover, Good, HSG C
0	79	1 acre lots, 20% imp, HSG C
0	72	Woods/grass comb., Good, HSG C
0	79	Woods/grass comb., Good, HSG D
14,290	88	Weighted Average
8,830		61.79% Pervious Area
5,460		38.21% Impervious Area

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

Summary for Subcatchment S6-9:

Runoff = 0.51 cfs @ 12.03 hrs, Volume= 0.036 af, Depth> 5.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-year Rainfall=5.40"

Area (sf)	CN	Description
3,659	98	Paved roads w/curbs & sewers, HSG C
3,659		100.00% Impervious Area

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

Summary for Reach B6-6:

[91] Warning: Storage range exceeded by 0.05'
[55] Hint: Peak inflow is 159% of Manning's capacity
[61] Hint: Exceeded Reach R6-6 outlet invert by 0.30' @ 12.32 hrs

Inflow Area = 4.393 ac, 11.86% Impervious, Inflow Depth > 2.89" for 25-year event
Inflow = 10.03 cfs @ 12.17 hrs, Volume= 1.059 af
Outflow = 8.23 cfs @ 12.32 hrs, Volume= 1.046 af, Atten= 18%, Lag= 9.1 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.23 fps, Min. Travel Time= 11.0 min
Avg. Velocity = 0.07 fps, Avg. Travel Time= 33.6 min

Peak Storage= 5,456 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.30'
Bank-Full Depth= 0.25' Flow Area= 30.6 sf, Capacity= 6.30 cfs

120.00' x 0.25' deep channel, n= 0.800
Side Slope Z-value= 10.0 '/' Top Width= 125.00'
Length= 150.0' Slope= 0.0800 '/'
Inlet Invert= 270.00', Outlet Invert= 258.00'

Summary for Reach B6-7:

[91] Warning: Storage range exceeded by 0.02'
[55] Hint: Peak inflow is 119% of Manning's capacity

Inflow Area = 4.465 ac, 11.38% Impervious, Inflow Depth > 2.80" for 25-year event
Inflow = 5.62 cfs @ 12.56 hrs, Volume= 1.042 af
Outflow = 5.47 cfs @ 12.69 hrs, Volume= 1.031 af, Atten= 3%, Lag= 8.1 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.22 fps, Min. Travel Time= 11.6 min
Avg. Velocity = 0.08 fps, Avg. Travel Time= 31.5 min

Peak Storage= 3,799 cf @ 12.69 hrs
Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 0.25' Flow Area= 23.1 sf, Capacity= 4.74 cfs

90.00' x 0.25' deep channel, n= 0.800
Side Slope Z-value= 10.0 '/' Top Width= 95.00'
Length= 150.0' Slope= 0.0800 '/'
Inlet Invert= 270.00', Outlet Invert= 258.00'

‡

Summary for Reach B6-8:

[91] Warning: Storage range exceeded by 0.29'
[55] Hint: Peak inflow is 305% of Manning's capacity

Inflow Area = 11.567 ac, 3.77% Impervious, Inflow Depth > 2.61" for 25-year event
Inflow = 14.43 cfs @ 12.78 hrs, Volume= 2.513 af
Outflow = 13.88 cfs @ 12.89 hrs, Volume= 2.493 af, Atten= 4%, Lag= 6.6 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.27 fps, Min. Travel Time= 9.1 min
Avg. Velocity = 0.10 fps, Avg. Travel Time= 25.8 min

Peak Storage= 7,586 cf @ 12.89 hrs
Average Depth at Peak Storage= 0.54'
Bank-Full Depth= 0.25' Flow Area= 23.1 sf, Capacity= 4.74 cfs

90.00' x 0.25' deep channel, n= 0.800
Side Slope Z-value= 10.0 '/' Top Width= 95.00'
Length= 150.0' Slope= 0.0800 '/'
Inlet Invert= 292.00', Outlet Invert= 280.00'

‡

Summary for Reach B6-9:

Inflow Area = 1.301 ac, 22.65% Impervious, Inflow Depth > 3.25" for 25-year event
Inflow = 2.31 cfs @ 12.52 hrs, Volume= 0.353 af
Outflow = 2.07 cfs @ 12.70 hrs, Volume= 0.347 af, Atten= 10%, Lag= 10.7 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.15 fps, Min. Travel Time= 16.9 min
Avg. Velocity = 0.04 fps, Avg. Travel Time= 60.1 min

Peak Storage= 2,092 cf @ 12.70 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 0.25' Flow Area= 23.1 sf, Capacity= 4.74 cfs

90.00' x 0.25' deep channel, n= 0.800
Side Slope Z-value= 10.0 '/' Top Width= 95.00'
Length= 150.0' Slope= 0.0800 '/'
Inlet Invert= 292.00', Outlet Invert= 280.00'

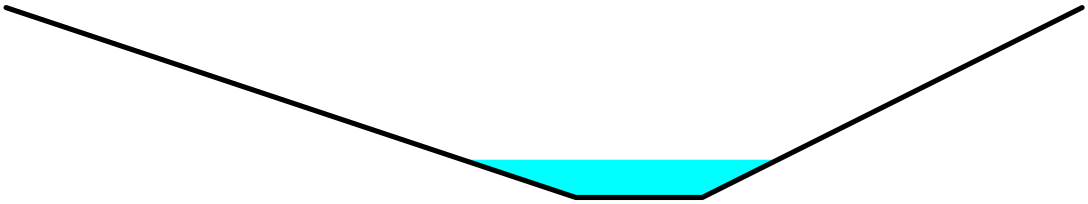
Summary for Reach R1:

Inflow Area = 0.865 ac, 34.27% Impervious, Inflow Depth > 3.82" for 25-year event
Inflow = 2.09 cfs @ 12.46 hrs, Volume= 0.275 af
Outflow = 2.09 cfs @ 12.46 hrs, Volume= 0.275 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.01 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.59 fps, Avg. Travel Time= 2.0 min

Peak Storage= 99 cf @ 12.46 hrs
Average Depth at Peak Storage= 0.30'
Bank-Full Depth= 1.50' Flow Area= 7.1 sf, Capacity= 71.16 cfs

1.00' x 1.50' deep channel, n= 0.030
Side Slope Z-value= 3.0 2.0 '/' Top Width= 8.50'
Length= 190.0' Slope= 0.0563 '/'
Inlet Invert= 285.70', Outlet Invert= 275.00'



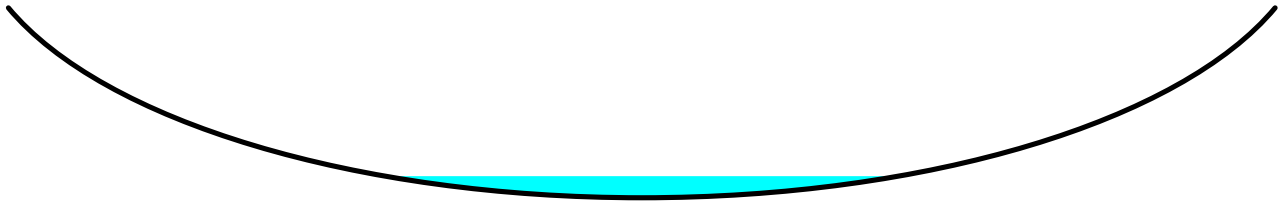
Summary for Reach R2:

Inflow Area = 0.616 ac, 28.64% Impervious, Inflow Depth > 3.40" for 25-year event
Inflow = 2.44 cfs @ 12.10 hrs, Volume= 0.174 af
Outflow = 1.59 cfs @ 12.19 hrs, Volume= 0.173 af, Atten= 35%, Lag= 5.8 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.26 fps, Min. Travel Time= 13.5 min
Avg. Velocity = 0.51 fps, Avg. Travel Time= 33.2 min

Peak Storage= 1,292 cf @ 12.19 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 1.00' Flow Area= 33.3 sf, Capacity= 178.82 cfs

50.00' x 1.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 1,020.0' Slope= 0.0275 '/'
Inlet Invert= 316.00', Outlet Invert= 288.00'



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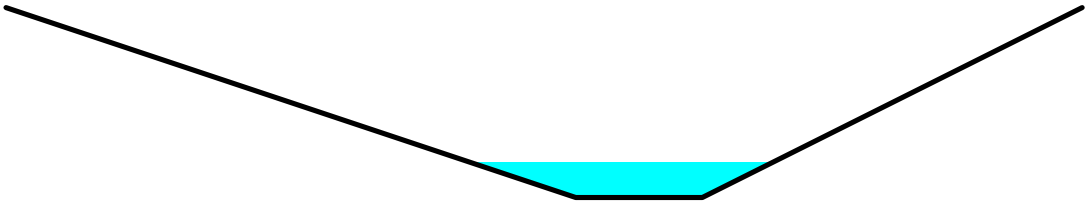
Summary for Reach R4-1:

Inflow Area = 0.702 ac, 51.20% Impervious, Inflow Depth > 4.07" for 25-year event
Inflow = 2.91 cfs @ 12.09 hrs, Volume= 0.238 af
Outflow = 2.91 cfs @ 12.10 hrs, Volume= 0.238 af, Atten= 0%, Lag= 0.3 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.11 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.86 fps, Avg. Travel Time= 1.4 min

Peak Storage= 76 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.50' Flow Area= 7.1 sf, Capacity= 111.98 cfs

1.00' x 1.50' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 2.0 '/' Top Width= 8.50'
Length= 160.0' Slope= 0.0750 '/'
Inlet Invert= 286.00', Outlet Invert= 274.00'



Summary for Reach R4-2:

Inflow Area = 1.556 ac, 42.39% Impervious, Inflow Depth > 3.83" for 25-year event
Inflow = 3.07 cfs @ 12.30 hrs, Volume= 0.497 af
Outflow = 2.98 cfs @ 12.37 hrs, Volume= 0.495 af, Atten= 3%, Lag= 4.6 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.26 fps, Min. Travel Time= 5.2 min
Avg. Velocity = 0.11 fps, Avg. Travel Time= 12.8 min

Peak Storage= 939 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 1.00' Flow Area= 100.0 sf, Capacity= 66.00 cfs

50.00' x 1.00' deep channel, n= 0.600
Side Slope Z-value= 50.0 '/' Top Width= 150.00'
Length= 82.0' Slope= 0.1220 '/'
Inlet Invert= 262.00', Outlet Invert= 252.00'

‡

Summary for Reach R4-3:

[61] Hint: Exceeded Reach R4-2 outlet invert by 0.16' @ 12.33 hrs

Inflow Area = 4.290 ac, 18.05% Impervious, Inflow Depth > 3.03" for 25-year event
Inflow = 8.58 cfs @ 12.29 hrs, Volume= 1.084 af
Outflow = 8.44 cfs @ 12.33 hrs, Volume= 1.081 af, Atten= 2%, Lag= 2.3 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.94 fps, Min. Travel Time= 3.2 min
Avg. Velocity = 0.34 fps, Avg. Travel Time= 8.7 min

Peak Storage= 1,602 cf @ 12.33 hrs
Average Depth at Peak Storage= 0.16'
Bank-Full Depth= 1.00' Flow Area= 100.0 sf, Capacity= 268.77 cfs

50.00' x 1.00' deep channel, n= 0.100 Heavy timber, flow below branches
Side Slope Z-value= 50.0 '/' Top Width= 150.00'
Length= 178.0' Slope= 0.0562 '/'
Inlet Invert= 252.00', Outlet Invert= 242.00'

‡

Summary for Reach R4-4:

[62] Hint: Exceeded Reach R4-3 OUTLET depth by 0.07' @ 12.67 hrs

Inflow Area = 4.290 ac, 18.05% Impervious, Inflow Depth > 3.02" for 25-year event
Inflow = 8.44 cfs @ 12.33 hrs, Volume= 1.081 af
Outflow = 7.32 cfs @ 12.47 hrs, Volume= 1.070 af, Atten= 13%, Lag= 8.4 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.59 fps, Min. Travel Time= 11.4 min
Avg. Velocity = 0.23 fps, Avg. Travel Time= 29.4 min

Peak Storage= 4,985 cf @ 12.47 hrs
Average Depth at Peak Storage= 0.21'
Bank-Full Depth= 1.00' Flow Area= 100.0 sf, Capacity= 144.01 cfs

50.00' x 1.00' deep channel, n= 0.100 Heavy timber, flow below branches
Side Slope Z-value= 50.0 '/' Top Width= 150.00'
Length= 403.0' Slope= 0.0161 '/'
Inlet Invert= 242.00', Outlet Invert= 235.50'

‡

Summary for Reach R6-10: Stream

Inflow Area = 16.790 ac, 3.16% Impervious, Inflow Depth > 2.65" for 25-year event
Inflow = 20.25 cfs @ 12.87 hrs, Volume= 3.705 af
Outflow = 20.21 cfs @ 12.88 hrs, Volume= 3.701 af, Atten= 0%, Lag= 0.9 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 7.48 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 3.59 fps, Avg. Travel Time= 3.5 min

Peak Storage= 2,025 cf @ 12.88 hrs
Average Depth at Peak Storage= 0.76'
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 151.95 cfs

2.00' x 2.00' deep channel, n= 0.035
Side Slope Z-value= 2.0 '/' Top Width= 10.00'
Length= 750.0' Slope= 0.0787 '/'
Inlet Invert= 297.00', Outlet Invert= 238.00'

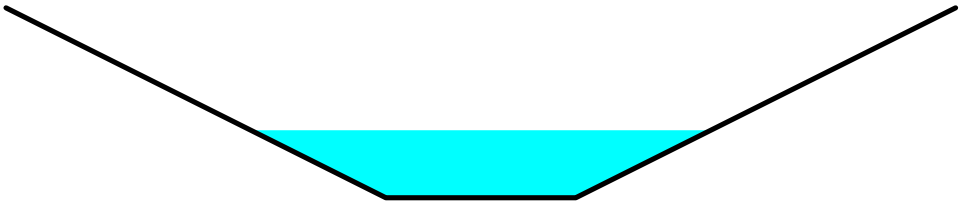
Summary for Reach R6-6:

Inflow Area = 4.393 ac, 11.86% Impervious, Inflow Depth > 2.89" for 25-year event
Inflow = 10.07 cfs @ 12.15 hrs, Volume= 1.059 af
Outflow = 10.03 cfs @ 12.17 hrs, Volume= 1.059 af, Atten= 0%, Lag= 0.7 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.12 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.60 fps, Avg. Travel Time= 2.1 min

Peak Storage= 487 cf @ 12.17 hrs
Average Depth at Peak Storage= 0.71'
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 86.90 cfs

2.00' x 2.00' deep channel, n= 0.069 Riprap, 6-inch
Side Slope Z-value= 2.0 '/' Top Width= 10.00'
Length= 200.0' Slope= 0.1000 '/'
Inlet Invert= 290.00', Outlet Invert= 270.00'



Summary for Reach R6-6B:

[61] Hint: Exceeded Reach B6-6 outlet invert by 0.15' @ 12.39 hrs

Inflow Area = 4.393 ac, 11.86% Impervious, Inflow Depth > 2.86" for 25-year event
Inflow = 8.23 cfs @ 12.32 hrs, Volume= 1.046 af
Outflow = 8.07 cfs @ 12.39 hrs, Volume= 1.040 af, Atten= 2%, Lag= 4.2 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.04 fps, Min. Travel Time= 5.0 min
Avg. Velocity = 0.34 fps, Avg. Travel Time= 15.2 min

Peak Storage= 2,444 cf @ 12.39 hrs
Average Depth at Peak Storage= 0.15'
Bank-Full Depth= 0.25' Flow Area= 13.1 sf, Capacity= 18.90 cfs

50.00' x 0.25' deep channel, n= 0.100 Heavy timber, flow below branches
Side Slope Z-value= 10.0 '/' Top Width= 55.00'
Length= 315.0' Slope= 0.0635 '/'
Inlet Invert= 258.00', Outlet Invert= 238.00'

‡

Summary for Reach R6-7:

Inflow Area = 4.465 ac, 11.38% Impervious, Inflow Depth > 2.80" for 25-year event
Inflow = 5.63 cfs @ 12.55 hrs, Volume= 1.043 af
Outflow = 5.62 cfs @ 12.56 hrs, Volume= 1.042 af, Atten= 0%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.56 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.56 fps, Avg. Travel Time= 2.2 min

Peak Storage= 332 cf @ 12.56 hrs
Average Depth at Peak Storage= 0.52'
Bank-Full Depth= 2.00' Flow Area= 12.0 sf, Capacity= 88.94 cfs

2.00' x 2.00' deep channel, n= 0.069 Riprap, 6-inch
Side Slope Z-value= 2.0 '/' Top Width= 10.00'
Length= 210.0' Slope= 0.1048 '/'
Inlet Invert= 294.00', Outlet Invert= 272.00'

Summary for Reach R6-7B:

[61] Hint: Exceeded Reach B6-7 outlet invert by 0.11' @ 12.73 hrs

Inflow Area = 4.465 ac, 11.38% Impervious, Inflow Depth > 2.77" for 25-year event
Inflow = 5.47 cfs @ 12.69 hrs, Volume= 1.031 af
Outflow = 5.46 cfs @ 12.73 hrs, Volume= 1.027 af, Atten= 0%, Lag= 2.1 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.01 fps, Min. Travel Time= 3.5 min
Avg. Velocity = 0.38 fps, Avg. Travel Time= 9.3 min

Peak Storage= 1,133 cf @ 12.73 hrs
Average Depth at Peak Storage= 0.11'
Bank-Full Depth= 0.25' Flow Area= 13.1 sf, Capacity= 23.15 cfs

50.00' x 0.25' deep channel, n= 0.100 Heavy timber, flow below branches
Side Slope Z-value= 10.0 '/' Top Width= 55.00'
Length= 210.0' Slope= 0.0952 '/'
Inlet Invert= 258.00', Outlet Invert= 238.00'

‡

Summary for Reach R6-8B:

[61] Hint: Exceeded Reach B6-8 outlet invert by 0.19' @ 12.96 hrs

Inflow Area = 11.567 ac, 3.77% Impervious, Inflow Depth > 2.59" for 25-year event
Inflow = 13.88 cfs @ 12.89 hrs, Volume= 2.493 af
Outflow = 13.73 cfs @ 12.96 hrs, Volume= 2.477 af, Atten= 1%, Lag= 3.9 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 1.37 fps, Min. Travel Time= 6.3 min
Avg. Velocity = 0.44 fps, Avg. Travel Time= 19.5 min

Peak Storage= 5,197 cf @ 12.96 hrs
Average Depth at Peak Storage= 0.19'
Bank-Full Depth= 0.25' Flow Area= 13.1 sf, Capacity= 21.32 cfs

50.00' x 0.25' deep channel, n= 0.100 Heavy timber, flow below branches
Side Slope Z-value= 10.0 '/' Top Width= 55.00'
Length= 520.0' Slope= 0.0808 '/'
Inlet Invert= 280.00', Outlet Invert= 238.00'

‡

Summary for Reach R6-9B:

[62] Hint: Exceeded Reach B6-9 OUTLET depth by 12.00' @ 1.00 hrs

Inflow Area = 1.301 ac, 22.65% Impervious, Inflow Depth > 3.20" for 25-year event
Inflow = 2.07 cfs @ 12.70 hrs, Volume= 0.347 af
Outflow = 1.79 cfs @ 12.92 hrs, Volume= 0.340 af, Atten= 13%, Lag= 13.2 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.60 fps, Min. Travel Time= 21.2 min
Avg. Velocity = 0.19 fps, Avg. Travel Time= 68.5 min

Peak Storage= 2,277 cf @ 12.92 hrs
Average Depth at Peak Storage= 0.06'
Bank-Full Depth= 0.25' Flow Area= 13.1 sf, Capacity= 20.00 cfs

50.00' x 0.25' deep channel, n= 0.100 Heavy timber, flow below branches
Side Slope Z-value= 10.0 '/' Top Width= 55.00'
Length= 760.0' Slope= 0.0711 '/'
Inlet Invert= 292.00', Outlet Invert= 238.00'

Summary for Reach SP1: Study Point 1

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

Inflow Area = 5.323 ac, 26.62% Impervious, Inflow Depth > 3.09" for 25-year event
Inflow = 5.14 cfs @ 12.83 hrs, Volume= 1.373 af
Outflow = 5.14 cfs @ 12.83 hrs, Volume= 1.373 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach SP2: Study Point 2

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

Inflow Area = 7.780 ac, 17.70% Impervious, Inflow Depth > 2.69" for 25-year event
Inflow = 8.62 cfs @ 12.65 hrs, Volume= 1.745 af
Outflow = 8.62 cfs @ 12.65 hrs, Volume= 1.745 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach SP3: Study Point 3

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

Inflow Area = 69.022 ac, 5.50% Impervious, Inflow Depth > 2.79" for 25-year event
Inflow = 86.21 cfs @ 12.80 hrs, Volume= 16.043 af
Outflow = 86.21 cfs @ 12.80 hrs, Volume= 16.043 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach SP5: Study Point 5

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

Inflow Area = 7.388 ac, 16.50% Impervious, Inflow Depth > 2.73" for 25-year event
Inflow = 7.14 cfs @ 12.19 hrs, Volume= 1.679 af
Outflow = 7.14 cfs @ 12.19 hrs, Volume= 1.679 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs

Summary for Pond 1P: CB-5

Inflow Area = 1.217 ac, 17.31% Impervious, Inflow Depth > 3.12" for 25-year event
Inflow = 2.25 cfs @ 12.53 hrs, Volume= 0.317 af
Outflow = 2.25 cfs @ 12.53 hrs, Volume= 0.317 af, Atten= 0%, Lag= 0.0 min
Primary = 2.25 cfs @ 12.53 hrs, Volume= 0.317 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 301.75' @ 12.53 hrs
Flood Elev= 305.72'

Device	Routing	Invert	Outlet Devices
#1	Primary	301.00'	**15.0" Round Culvert** L= 14.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 301.00' / 300.50' S= 0.0357 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.25 cfs @ 12.53 hrs HW=301.75' TW=292.14' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 2.25 cfs @ 2.94 fps)

Summary for Pond C1: Culvert @ 3+00

Inflow Area = 0.865 ac, 34.27% Impervious, Inflow Depth > 3.82" for 25-year event
Inflow = 2.09 cfs @ 12.46 hrs, Volume= 0.275 af
Outflow = 2.09 cfs @ 12.46 hrs, Volume= 0.275 af, Atten= 0%, Lag= 0.1 min
Primary = 2.09 cfs @ 12.46 hrs, Volume= 0.275 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 286.97' @ 12.46 hrs Surf.Area= 91 sf Storage= 51 cf

Plug-Flow detention time= 0.8 min calculated for 0.275 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (823.2 - 822.6)

Volume	Invert	Avail.Storage	Storage Description
#1	286.25'	1,575 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
286.25	50	0	0
288.00	150	175	175
290.00	500	650	825
291.00	1,000	750	1,575

Device	Routing	Invert	Outlet Devices
#1	Primary	286.25'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 286.25' / 285.75' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Primary	290.00'	**10.0' long x 5.0' 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) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=2.09 cfs @ 12.46 hrs HW=286.97' TW=286.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 2.09 cfs @ 4.09 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond C100: Culvert

Inflow Area = 16.790 ac, 3.16% Impervious, Inflow Depth > 2.65" for 25-year event
Inflow = 20.25 cfs @ 12.87 hrs, Volume= 3.706 af
Outflow = 20.25 cfs @ 12.87 hrs, Volume= 3.705 af, Atten= 0%, Lag= 0.1 min
Primary = 20.25 cfs @ 12.87 hrs, Volume= 3.705 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 301.26' @ 12.87 hrs Surf.Area= 256 sf Storage= 163 cf

Plug-Flow detention time= 0.1 min calculated for 3.705 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (877.7 - 877.6)

Volume	Invert	Avail.Storage	Storage Description
#1	300.20'	1,705 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
300.20	50	0	0
302.00	400	405	405
304.00	900	1,300	1,705

Device	Routing	Invert	Outlet Devices
#1	Primary	300.20'	**72.0" W x 28.0" H, R=38.0" Arch Culvert** L= 70.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 300.20' / 297.00' S= 0.0457 '/' Cc= 0.900 n= 0.035, Flow Area= 10.53 sf

Primary OutFlow Max=20.25 cfs @ 12.87 hrs HW=301.26' TW=297.76' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 20.25 cfs @ 3.37 fps)

Summary for Pond C2-1: Culvert @ 2+00

Inflow Area = 0.616 ac, 28.64% Impervious, Inflow Depth > 3.44" for 25-year event
Inflow = 2.56 cfs @ 12.07 hrs, Volume= 0.176 af
Outflow = 2.44 cfs @ 12.10 hrs, Volume= 0.174 af, Atten= 5%, Lag= 1.5 min
Primary = 2.44 cfs @ 12.10 hrs, Volume= 0.174 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 321.18' @ 12.10 hrs Surf.Area= 485 sf Storage= 346 cf

Plug-Flow detention time= 12.5 min calculated for 0.174 af (99% of inflow)
Center-of-Mass det. time= 5.9 min (817.5 - 811.7)

Volume	Invert	Avail.Storage	Storage Description
#1	320.00'	1,975 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
320.00	100	0	0
322.00	750	850	850
323.00	1,500	1,125	1,975

Device	Routing	Invert	Outlet Devices
#1	Primary	320.40'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 320.40' / 318.80' S= 0.0320 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf
#2	Primary	322.30'	**20.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=2.44 cfs @ 12.10 hrs HW=321.18' TW=316.10' (Dynamic Tailwater)
├─**1=Culvert** (Inlet Controls 2.44 cfs @ 3.01 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond C4-1: Culvert Across End of Moody Road

Inflow Area = 0.442 ac, 30.05% Impervious, Inflow Depth > 3.43" for 25-year event
Inflow = 1.68 cfs @ 12.11 hrs, Volume= 0.126 af
Outflow = 1.67 cfs @ 12.12 hrs, Volume= 0.126 af, Atten= 1%, Lag= 0.5 min
Primary = 1.67 cfs @ 12.12 hrs, Volume= 0.126 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 275.82' @ 12.12 hrs Surf.Area= 130 sf Storage= 65 cf

Plug-Flow detention time= 1.4 min calculated for 0.126 af (100% of inflow)
Center-of-Mass det. time= 1.0 min (814.7 - 813.7)

Volume	Invert	Avail.Storage	Storage Description
#1	275.10'	1,015 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
275.10	50	0	0
276.00	150	90	90
278.00	350	500	590
279.00	500	425	1,015

Device	Routing	Invert	Outlet Devices
#1	Primary	278.00'	**40.0' long x 50.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63
#2	Primary	275.10'	**15.0" Round Culvert** L= 56.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 275.10' / 273.00' S= 0.0375 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=1.67 cfs @ 12.12 hrs HW=275.82' TW=264.89' (Dynamic Tailwater)
└─**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
└─**2=Culvert** (Inlet Controls 1.67 cfs @ 2.28 fps)

Summary for Pond C4-2: Wetland Crossing

Inflow Area = 2.733 ac, 4.20% Impervious, Inflow Depth > 2.59" for 25-year event
Inflow = 5.79 cfs @ 12.25 hrs, Volume= 0.589 af
Outflow = 5.77 cfs @ 12.27 hrs, Volume= 0.589 af, Atten= 0%, Lag= 1.0 min
Primary = 5.77 cfs @ 12.27 hrs, Volume= 0.589 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 273.73' @ 12.27 hrs Surf.Area= 179 sf Storage= 198 cf

Plug-Flow detention time= 0.8 min calculated for 0.589 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (845.6 - 845.1)

Volume	Invert	Avail.Storage	Storage Description
#1	272.00'	800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
272.00	50	0	0
274.00	200	250	250
276.00	350	550	800

Device	Routing	Invert	Outlet Devices
#1	Primary	272.00'	**18.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 272.00' / 271.00' S= 0.0250 '/' Cc= 0.900 n= 0.040 Earth, cobble bottom, clean sides, Flow Area= 1.77 sf

Primary OutFlow Max=5.77 cfs @ 12.27 hrs HW=273.73' TW=252.15' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 5.77 cfs @ 3.56 fps)

Summary for Pond C4-3: Culvert Across Hammerhead

[62] Hint: Exceeded Reach R4-1 OUTLET depth by 0.74' @ 12.11 hrs

Inflow Area = 0.702 ac, 51.20% Impervious, Inflow Depth > 4.07" for 25-year event
Inflow = 2.91 cfs @ 12.10 hrs, Volume= 0.238 af
Outflow = 2.90 cfs @ 12.10 hrs, Volume= 0.238 af, Atten= 0%, Lag= 0.4 min
Primary = 2.90 cfs @ 12.10 hrs, Volume= 0.238 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 275.02' @ 12.10 hrs Surf.Area= 101 sf Storage= 77 cf

Plug-Flow detention time= 1.0 min calculated for 0.238 af (100% of inflow)
Center-of-Mass det. time= 0.8 min (790.7 - 789.9)

Volume	Invert	Avail.Storage	Storage Description
#1	274.00'	700 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
274.00	50	0	0
276.00	150	200	200
278.00	350	500	700

Device	Routing	Invert	Outlet Devices
#1	Primary	274.00'	**15.0" Round Culvert** L= 70.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 274.00' / 271.50' S= 0.0357 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.90 cfs @ 12.10 hrs HW=275.02' TW=264.82' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.90 cfs @ 2.71 fps)

Summary for Pond C4-4:

Inflow Area = 0.577 ac, 40.65% Impervious, Inflow Depth > 3.84" for 25-year event
Inflow = 2.44 cfs @ 12.10 hrs, Volume= 0.184 af
Outflow = 2.44 cfs @ 12.11 hrs, Volume= 0.184 af, Atten= 0%, Lag= 0.3 min
Primary = 2.44 cfs @ 12.11 hrs, Volume= 0.184 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 291.91' @ 12.11 hrs Surf.Area= 73 sf Storage= 56 cf

Plug-Flow detention time= 1.0 min calculated for 0.184 af (100% of inflow)
Center-of-Mass det. time= 0.7 min (802.7 - 802.0)

Volume	Invert	Avail.Storage	Storage Description
#1	291.00'	638 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
291.00	50	0	0
292.00	75	63	63
294.00	500	575	638

Device	Routing	Invert	Outlet Devices
#1	Primary	291.00'	**15.0" Round Culvert** L= 162.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 291.00' / 287.60' S= 0.0210 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.43 cfs @ 12.11 hrs HW=291.91' TW=288.13' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 2.43 cfs @ 2.56 fps)

Summary for Pond C5-1:

Inflow Area = 1.653 ac, 29.52% Impervious, Inflow Depth > 3.34" for 25-year event
Inflow = 6.05 cfs @ 12.11 hrs, Volume= 0.460 af
Outflow = 5.50 cfs @ 12.15 hrs, Volume= 0.459 af, Atten= 9%, Lag= 2.5 min
Primary = 5.50 cfs @ 12.15 hrs, Volume= 0.459 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 291.51' @ 12.15 hrs Surf.Area= 503 sf Storage= 595 cf

Plug-Flow detention time= 1.6 min calculated for 0.459 af (100% of inflow)
Center-of-Mass det. time= 1.3 min (818.0 - 816.7)

Volume	Invert	Avail.Storage	Storage Description
#1	289.50'	863 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
289.50	50	0	0
290.00	200	63	63
292.00	600	800	863

Device	Routing	Invert	Outlet Devices
#1	Primary	289.50'	**15.0" Round Culvert** L= 50.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 289.50' / 289.25' S= 0.0050 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.49 cfs @ 12.15 hrs HW=291.51' TW=289.54' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 5.49 cfs @ 4.48 fps)

Summary for Pond C6-1:

Inflow Area = 1.217 ac, 17.31% Impervious, Inflow Depth > 3.12" for 25-year event
Inflow = 2.25 cfs @ 12.52 hrs, Volume= 0.317 af
Outflow = 2.25 cfs @ 12.53 hrs, Volume= 0.317 af, Atten= 0%, Lag= 0.3 min
Primary = 2.25 cfs @ 12.53 hrs, Volume= 0.317 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 303.36' @ 12.53 hrs Surf.Area= 68 sf Storage= 40 cf

Plug-Flow detention time= 0.5 min calculated for 0.317 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (846.9 - 846.6)

Volume	Invert	Avail.Storage	Storage Description
#1	302.50'	944 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
302.50	25	0	0
304.00	100	94	94
306.00	750	850	944

Device	Routing	Invert	Outlet Devices
#1	Primary	302.50'	**15.0" Round Culvert** L= 34.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 302.50' / 302.00' S= 0.0147 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=2.25 cfs @ 12.53 hrs HW=303.36' TW=301.75' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 2.25 cfs @ 2.49 fps)

Summary for Pond C6-3:

Inflow Area = 11.239 ac, 2.77% Impervious, Inflow Depth > 2.57" for 25-year event
Inflow = 14.28 cfs @ 12.77 hrs, Volume= 2.403 af
Outflow = 14.25 cfs @ 12.79 hrs, Volume= 2.403 af, Atten= 0%, Lag= 1.0 min
Primary = 14.25 cfs @ 12.79 hrs, Volume= 2.403 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 295.42' @ 12.79 hrs Surf.Area= 616 sf Storage= 807 cf

Plug-Flow detention time= 0.8 min calculated for 2.401 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (873.4 - 872.8)

Volume	Invert	Avail.Storage	Storage Description
#1	293.00'	3,450 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
293.00	50	0	0
296.00	750	1,200	1,200
298.00	1,500	2,250	3,450

Device	Routing	Invert	Outlet Devices
#1	Primary	293.00'	**24.0" Round Culvert** L= 54.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 293.00' / 292.00' S= 0.0185 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf

Primary OutFlow Max=14.25 cfs @ 12.79 hrs HW=295.42' TW=292.53' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 14.25 cfs @ 4.54 fps)

Summary for Pond C6-4:

Inflow Area = 3.346 ac, 5.94% Impervious, Inflow Depth > 2.66" for 25-year event
Inflow = 4.86 cfs @ 12.63 hrs, Volume= 0.742 af
Outflow = 4.83 cfs @ 12.66 hrs, Volume= 0.741 af, Atten= 1%, Lag= 1.8 min
Primary = 4.83 cfs @ 12.66 hrs, Volume= 0.741 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 296.77' @ 12.66 hrs Surf.Area= 623 sf Storage= 300 cf

Plug-Flow detention time= 0.8 min calculated for 0.741 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (864.6 - 864.0)

Volume	Invert	Avail.Storage	Storage Description
#1	295.50'	3,356 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
295.50	50	0	0
296.00	75	31	31
298.00	1,500	1,575	1,606
299.00	2,000	1,750	3,356

Device	Routing	Invert	Outlet Devices
#1	Primary	295.50'	**18.0" Round Culvert** L= 56.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 295.50' / 294.00' S= 0.0268 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=4.83 cfs @ 12.66 hrs HW=296.77' TW=294.51' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 4.83 cfs @ 3.03 fps)

Summary for Pond C6-5:

Inflow Area = 1.681 ac, 12.61% Impervious, Inflow Depth > 2.95" for 25-year event
Inflow = 3.53 cfs @ 12.36 hrs, Volume= 0.412 af
Outflow = 3.53 cfs @ 12.37 hrs, Volume= 0.412 af, Atten= 0%, Lag= 0.5 min
Primary = 3.53 cfs @ 12.37 hrs, Volume= 0.412 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 292.69' @ 12.37 hrs Surf.Area= 94 sf Storage= 50 cf

Plug-Flow detention time= 0.2 min calculated for 0.412 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (841.5 - 841.3)

Volume	Invert	Avail.Storage	Storage Description
#1	291.50'	1,484 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
291.50	10	0	0
292.00	25	9	9
294.00	225	250	259
296.00	1,000	1,225	1,484

Device	Routing	Invert	Outlet Devices
#1	Primary	291.50'	**15.0" Round Culvert** L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 291.50' / 291.00' S= 0.0083 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=3.53 cfs @ 12.37 hrs HW=292.69' TW=290.62' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 3.53 cfs @ 2.93 fps)

Summary for Pond CB2: CB-2

Inflow Area = 0.056 ac, 50.00% Impervious, Inflow Depth > 4.48" for 25-year event
Inflow = 0.32 cfs @ 12.03 hrs, Volume= 0.021 af
Outflow = 0.32 cfs @ 12.03 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
Primary = 0.32 cfs @ 12.03 hrs, Volume= 0.021 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 276.04' @ 13.06 hrs
Flood Elev= 278.46'

Device	Routing	Invert	Outlet Devices
#1	Primary	275.71'	**15.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 275.71' / 275.21' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.32 cfs @ 12.03 hrs HW=275.97' TW=274.54' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 0.32 cfs @ 1.73 fps)

Summary for Pond CB4: CB-4

Inflow Area = 0.702 ac, 51.20% Impervious, Inflow Depth > 4.07" for 25-year event
Inflow = 2.91 cfs @ 12.09 hrs, Volume= 0.238 af
Outflow = 2.91 cfs @ 12.09 hrs, Volume= 0.238 af, Atten= 0%, Lag= 0.0 min
Primary = 2.91 cfs @ 12.09 hrs, Volume= 0.238 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 288.13' @ 12.09 hrs
Flood Elev= 290.46'

Device	Routing	Invert	Outlet Devices
#1	Primary	287.26'	**15.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 287.26' / 286.00' S= 0.0630 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=2.91 cfs @ 12.09 hrs HW=288.13' TW=286.28' (Dynamic Tailwater)
└**1=Culvert** (Inlet Controls 2.91 cfs @ 3.18 fps)

Summary for Pond CB5: CB-5

Inflow Area = 0.080 ac,100.00% Impervious, Inflow Depth > 5.16" for 25-year event
Inflow = 0.49 cfs @ 12.03 hrs, Volume= 0.034 af
Outflow = 0.49 cfs @ 12.03 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min
Primary = 0.49 cfs @ 12.03 hrs, Volume= 0.034 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 288.15' @ 12.10 hrs
Flood Elev= 290.46'

Device	Routing	Invert	Outlet Devices
#1	Primary	287.46'	**15.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 287.46' / 287.26' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.31 cfs @ 12.03 hrs HW=288.06' TW=288.04' (Dynamic Tailwater)
└─**1=Culvert** (Outlet Controls 0.31 cfs @ 0.78 fps)

Summary for Pond CB6: CB-6

Inflow Area = 0.084 ac,100.00% Impervious, Inflow Depth > 5.16" for 25-year event
Inflow = 0.51 cfs @ 12.03 hrs, Volume= 0.036 af
Outflow = 0.51 cfs @ 12.03 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min
Primary = 0.51 cfs @ 12.03 hrs, Volume= 0.036 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 289.96' @ 12.03 hrs
Flood Elev= 292.30'

Device	Routing	Invert	Outlet Devices
#1	Primary	289.55'	**12.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 289.55' / 289.25' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.51 cfs @ 12.03 hrs HW=289.96' TW=289.45' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 0.51 cfs @ 2.51 fps)

Summary for Pond FB1: Filter Basin #1

Inflow Area = 1.993 ac, 32.14% Impervious, Inflow Depth > 3.42" for 25-year event
Inflow = 6.23 cfs @ 12.15 hrs, Volume= 0.569 af
Outflow = 6.09 cfs @ 12.18 hrs, Volume= 0.455 af, Atten= 2%, Lag= 1.9 min
Primary = 6.09 cfs @ 12.18 hrs, Volume= 0.455 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 289.54' @ 12.18 hrs Surf.Area= 4,209 sf Storage= 6,045 cf

Plug-Flow detention time= 119.6 min calculated for 0.455 af (80% of inflow)
Center-of-Mass det. time= 43.6 min (855.6 - 812.1)

Volume	Invert	Avail.Storage	Storage Description
#1	287.75'	11,035 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
287.75	2,550	0	0
289.25	3,941	4,868	4,868
290.00	4,636	3,216	8,085
290.60	5,200	2,951	11,035

Device	Routing	Invert	Outlet Devices
#1	Primary	289.25'	**15.0' long x 13.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=6.09 cfs @ 12.18 hrs HW=289.54' TW=0.00' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 6.09 cfs @ 1.41 fps)

Summary for Pond GW1: Gravel Wetland #1

[62] Hint: Exceeded Reach R1 OUTLET depth by 0.88' @ 13.13 hrs

Inflow Area =	4.240 ac, 29.03% Impervious, Inflow Depth > 3.58" for 25-year event				
Inflow	=	7.43 cfs @	12.44 hrs, Volume=	1.264 af	
Outflow	=	3.58 cfs @	13.05 hrs, Volume=	1.092 af, Atten= 52%, Lag= 36.9 min	
Primary	=	3.58 cfs @	13.05 hrs, Volume=	1.092 af	

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 276.04' @ 13.05 hrs Surf.Area= 9,109 sf Storage= 21,604 cf

Plug-Flow detention time= 136.4 min calculated for 1.092 af (86% of inflow)
Center-of-Mass det. time= 78.2 min (906.4 - 828.3)

Volume	Invert	Avail.Storage	Storage Description
#1	273.10'	37,121 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
273.10	5,020	0	0
274.00	6,207	5,052	5,052
274.20	6,300	1,251	6,303
274.21	7,500	69	6,372
275.00	8,220	6,209	12,581
276.50	9,500	13,290	25,871
277.50	13,000	11,250	37,121

Device	Routing	Invert	Outlet Devices
#1	Primary	274.10'	**12.0" Round Culvert** L= 20.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 274.10' / 273.50' S= 0.0300 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Primary	276.20'	**15.0' long x 20.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=3.58 cfs @ 13.05 hrs HW=276.04' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 3.58 cfs @ 4.56 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond GW2: Gravel Wetland #2

Inflow Area = 4.015 ac, 22.31% Impervious, Inflow Depth > 3.24" for 25-year event
Inflow = 13.72 cfs @ 12.13 hrs, Volume= 1.084 af
Outflow = 4.40 cfs @ 12.49 hrs, Volume= 0.877 af, Atten= 68%, Lag= 21.9 min
Primary = 4.40 cfs @ 12.49 hrs, Volume= 0.877 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 291.11' @ 12.49 hrs Surf.Area= 9,263 sf Storage= 19,685 cf

Plug-Flow detention time= 144.9 min calculated for 0.877 af (81% of inflow)
Center-of-Mass det. time= 70.7 min (891.0 - 820.3)

Volume	Invert	Avail.Storage	Storage Description
#1	288.30'	32,845 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
288.30	4,740	0	0
289.60	6,630	7,391	7,391
289.61	7,000	68	7,459
290.30	8,037	5,188	12,646
292.40	11,200	20,199	32,845

Device	Routing	Invert	Outlet Devices
#1	Primary	289.60'	**15.0" Round Culvert** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 289.60' / 289.00' S= 0.0600 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf
#2	Primary	291.20'	**25.0' long x 13.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.60 2.64 2.70 2.66 2.65 2.66 2.65 2.63

Primary OutFlow Max=4.40 cfs @ 12.49 hrs HW=291.11' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 4.40 cfs @ 3.58 fps)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond LS1: Level Spreader

Inflow Area = 1.556 ac, 42.39% Impervious, Inflow Depth > 3.87" for 25-year event
Inflow = 3.07 cfs @ 12.29 hrs, Volume= 0.502 af
Outflow = 3.07 cfs @ 12.30 hrs, Volume= 0.497 af, Atten= 0%, Lag= 0.1 min
Primary = 3.07 cfs @ 12.30 hrs, Volume= 0.497 af

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs

Peak Elev= 263.06' @ 12.30 hrs Surf.Area= 644 sf Storage= 259 cf

Plug-Flow detention time= 10.5 min calculated for 0.497 af (99% of inflow)
Center-of-Mass det. time= 4.3 min (829.9 - 825.5)

Volume	Invert	Avail.Storage	Storage Description
#1	262.50'	625 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
262.50	300	0	0
263.00	600	225	225
263.50	1,000	400	625

Device	Routing	Invert	Outlet Devices
#1	Primary	263.00'	**100.0' 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=3.07 cfs @ 12.30 hrs HW=263.06' TW=262.19' (Dynamic Tailwater)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 3.07 cfs @ 0.56 fps)

Summary for Pond P4: Impoundment

Inflow Area =	1.556 ac, 42.39% Impervious, Inflow Depth > 3.94" for 25-year event			
Inflow =	6.48 cfs @	12.09 hrs, Volume=	0.511 af	
Outflow =	3.07 cfs @	12.29 hrs, Volume=	0.502 af, Atten= 53%, Lag= 11.9 min	
Primary =	3.07 cfs @	12.29 hrs, Volume=	0.502 af	

Routing by Dyn-Stor-Ind method, Time Span= 1.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 265.27' @ 12.29 hrs Surf.Area= 2,988 sf Storage= 5,425 cf

Plug-Flow detention time= 40.2 min calculated for 0.502 af (98% of inflow)
Center-of-Mass det. time= 30.1 min (825.5 - 795.5)

Volume	Invert	Avail.Storage	Storage Description
#1	263.00'	10,725 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
263.00	1,900	0	0
264.00	2,300	2,100	2,100
265.00	2,800	2,550	4,650
266.00	3,500	3,150	7,800
266.50	4,000	1,875	9,675
266.75	4,400	1,050	10,725

Device	Routing	Invert	Outlet Devices
#1	Primary	263.00'	**8.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 263.00' / 262.50' S= 0.0125 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#2	Primary	264.60'	**12.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 264.60' / 263.50' S= 0.0275 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#3	Primary	265.30'	**20.0' long x 5.0' 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) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

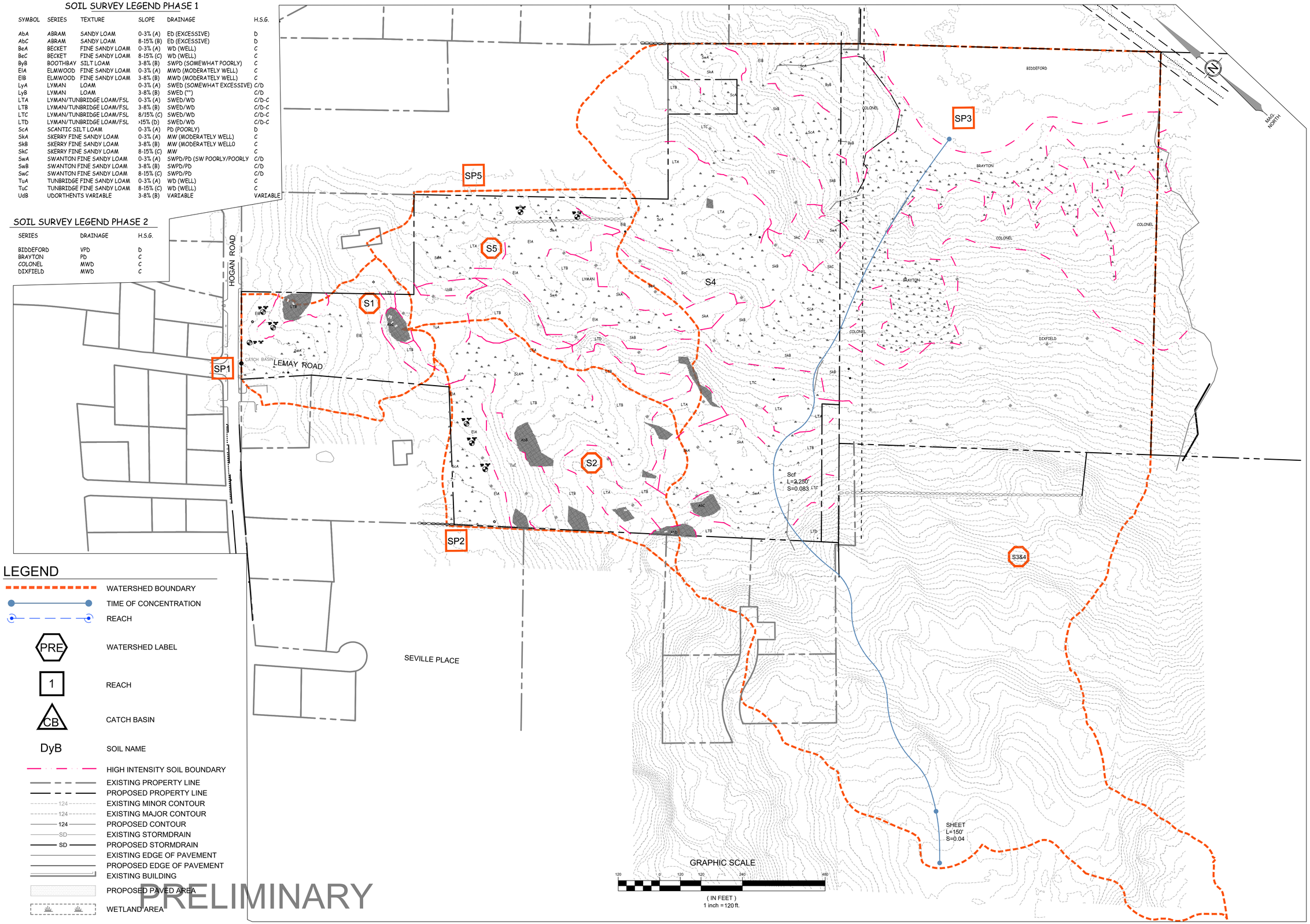
Primary OutFlow Max=3.07 cfs @ 12.29 hrs HW=265.27' TW=263.06' (Dynamic Tailwater)
- **1=Culvert** (Inlet Controls 1.85 cfs @ 5.29 fps)
- **2=Culvert** (Inlet Controls 1.22 cfs @ 2.20 fps)
- **3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

SOIL SURVEY LEGEND PHASE 1

SYMBOL	SERIES	TEXTURE	SLOPE	DRAINAGE	H.S.G.
AbA	ABRAM	SANDY LOAM	0-3% (A)	ED (EXCESSIVE)	D
AbC	ABRAM	SANDY LOAM	8-15% (B)	ED (EXCESSIVE)	D
BeA	BECKET	FINE SANDY LOAM	0-3% (A)	WD (WELL)	C
BeC	BECKET	FINE SANDY LOAM	8-15% (C)	WD (WELL)	C
ByB	BOOTHBAY	SILT LOAM	3-8% (B)	SWPD (SOMEWHAT POORLY)	C
ElA	ELMWOOD	FINE SANDY LOAM	0-3% (A)	MWD (MODERATELY WELL)	C
ElB	ELMWOOD	FINE SANDY LOAM	3-8% (B)	MWD (MODERATELY WELL)	C
LyA	LYMAN	LOAM	0-3% (A)	SWED (SOMEWHAT EXCESSIVE)	C/D
LyB	LYMAN	LOAM	3-8% (B)	SWED ("")	C/D
LTA	LYMAN/TUNBRIDGE LOAM/FSL		0-3% (A)	SWED/WD	C/D-C
LTB	LYMAN/TUNBRIDGE LOAM/FSL		3-8% (B)	SWED/WD	C/D-C
LTC	LYMAN/TUNBRIDGE LOAM/FSL		8/15% (C)	SWED/WD	C/D-C
LTD	LYMAN/TUNBRIDGE LOAM/FSL		>15% (D)	SWED/WD	C/D-C
ScA	SCANTIC SILT LOAM		0-3% (A)	PD (POORLY)	D
SkA	SKERRY FINE SANDY LOAM		0-3% (A)	MW (MODERATELY WELL)	C
SkB	SKERRY FINE SANDY LOAM		3-8% (B)	MW (MODERATELY WELL0	C
SkC	SKERRY FINE SANDY LOAM		8-15% (C)	MW	C
SwA	SWANTON FINE SANDY LOAM		0-3% (A)	SWPD/PD (SW POORLY/POORLY	C/D
SwB	SWANTON FINE SANDY LOAM		3-8% (B)	SWPD/PD	C/D
SwC	SWANTON FINE SANDY LOAM		8-15% (C)	SWPD/PD	C/D
TuA	TUNBRIDGE FINE SANDY LOAM		0-3% (A)	WD (WELL)	C
TuC	TUNBRIDGE FINE SANDY LOAM		8-15% (C)	WD (WELL)	C
UdB	UDORTHENTS VARIABLE		3-8% (B)	VARIABLE	VARIABLE

SOIL SURVEY LEGEND PHASE 2

SERIES	DRAINAGE	H.S.G.
BIDDEFORD	VPD	D
BRAYTON	PD	C
COLONEL	MWD	C
DIXFIELD	MWD	C



LEGEND

- WATERSHED BOUNDARY
- TIME OF CONCENTRATION
- REACH
- PRE — WATERSHED LABEL
- 1 — REACH
- CB — CATCH BASIN
- DyB — SOIL NAME
- HIGH INTENSITY SOIL BOUNDARY
- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- 124 — EXISTING MINOR CONTOUR
- 124 — EXISTING MAJOR CONTOUR
- 124 — PROPOSED CONTOUR
- SD — EXISTING STORMDRAIN
- SD — PROPOSED STORMDRAIN
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- EXISTING BUILDING
- PROPOSED PAVED AREA
- WETLAND AREA

PRELIMINARY

STATE OF MAINE — JEFFREY D. JAMES — No. 9167 — LICENSED — PROFESSIONAL ENGINEER

SIGNATURE DATE: 2/26/2019

NO.	DATE	REVISIONS	APP'D BY

TERRADYN
41 CAMPUS DRIVE SUITE 101 NEW GLOUCESTER, ME 04260
565 CONGRESS STREET SUITE 310 PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting

SHEET DESCRIPTION
SANCTUARY ESTATES PHASE 2
CHASE LANE EXT., LEWISTON, ME
PRE DEVELOPMENT WATERSHED MAP

PREPARED FOR
CHASE CUSTOM HOMES & FINANCE
290 BRIDGTON ROAD
WESTBROOK, MAINE 04092

DATE:	2/26/2019
SCALE:	1" = 120'
DESIGNED:	JDA
JOB NO:	1840
FILE:	
SHEET	C-7.0

SOIL SURVEY LEGEND PHASE 1

SYMBOL	SERIES	TEXTURE	SLOPE	DRAINAGE	H.S.G.
AbA	ABRAM	SANDY LOAM	0-3% (A)	ED (EXCESSIVE)	D
AbC	ABRAM	SANDY LOAM	8-15% (B)	ED (EXCESSIVE)	D
BeA	BECKET	FINE SANDY LOAM	0-3% (A)	WD (WELL)	C
BeC	BECKET	FINE SANDY LOAM	8-15% (C)	WD (WELL)	C
ByB	BOOTHBAY	SILT LOAM	3-8% (B)	SWPD (SOMEWHAT POORLY)	C
ElA	ELMWOOD	FINE SANDY LOAM	0-3% (A)	MWD (MODERATELY WELL)	C
ElB	ELMWOOD	FINE SANDY LOAM	3-8% (B)	MWD (MODERATELY WELL)	C
LyA	LYMAN	LOAM	0-3% (A)	SWED (SOMEWHAT EXCESSIVE)	C/D
LyB	LYMAN	LOAM	3-8% (B)	SWED ("")	C/D
LTA	LYMAN/TUNBRIDGE LOAM/FSL		0-3% (A)	SWED/WD	C/D-C
LTB	LYMAN/TUNBRIDGE LOAM/FSL		3-8% (B)	SWED/WD	C/D-C
LTC	LYMAN/TUNBRIDGE LOAM/FSL		8/15% (C)	SWED/WD	C/D-C
LTD	LYMAN/TUNBRIDGE LOAM/FSL		>15% (D)	SWED/WD	C/D-C
ScA	SCANTIC SILT LOAM		0-3% (A)	PD (POORLY)	D
SkA	SKERRY FINE SANDY LOAM		0-3% (A)	MW (MODERATELY WELL)	C
SkB	SKERRY FINE SANDY LOAM		3-8% (B)	MW (MODERATELY WELL0	C
SkC	SKERRY FINE SANDY LOAM		8-15% (C)	MW	C
SwA	SWANTON FINE SANDY LOAM		0-3% (A)	SWPD/PD (SW POORLY/POORLY	C/D
SwB	SWANTON FINE SANDY LOAM		3-8% (B)	SWPD/PD	C/D
SwC	SWANTON FINE SANDY LOAM		8-15% (C)	SWPD/PD	C/D
TuA	TUNBRIDGE FINE SANDY LOAM		0-3% (A)	WD (WELL)	C
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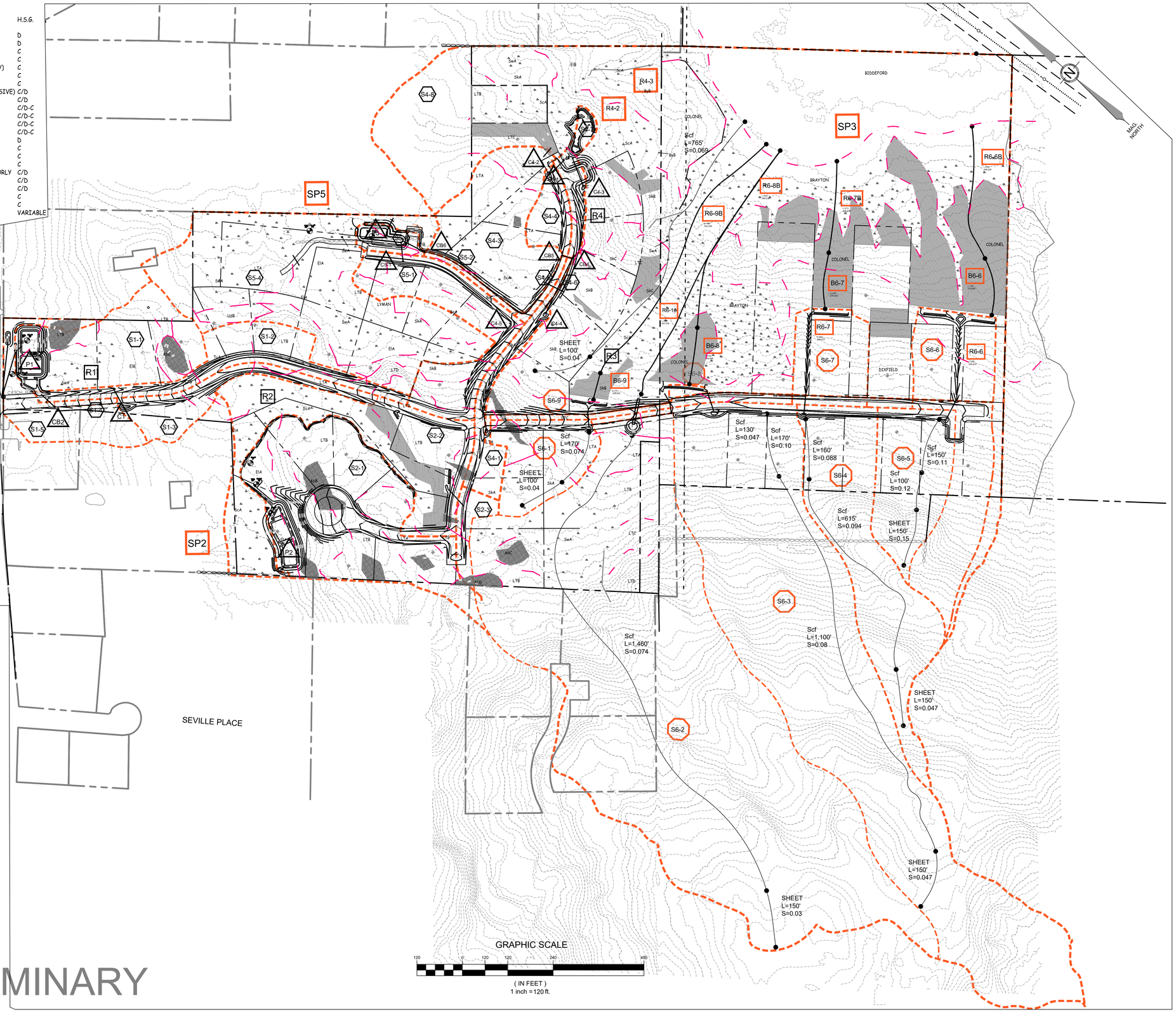
UdB	UDORTHENTS VARIABLE		3-8% (B)	VARIABLE	VARIABLE

SOIL SURVEY LEGEND PHASE 2

SERIES	DRAINAGE	H.S.G.
BIDDEFORD	VPD	D
BRAYTON	PD	C
COLONEL	MWD	C
DIXFIELD	MWD	C



LEGEND

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- TIME OF CONCENTRATION
- REACH
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- SD — EXISTING STORMDRAIN
- SD — PROPOSED STORMDRAIN
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- EXISTING BUILDING
- PROPOSED PAVED AREA
- WETLAND AREA

PRELIMINARY

STATE OF MAINE JEFFREY D. JAMES No. 9367 LICENSED PROFESSIONAL ENGINEER

SIGNATURE DATE: 2/26/2019

NO.	DATE	REVISIONS	APP'D BY

TERRADYN
41 CAMPUS DRIVE SUITE 101 NEW GLOUCESTER, ME 04260
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SHEET DESCRIPTION
SANCTUARY ESTATES PHASE 2
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DATE:	2/26/2019
SCALE:	1" = 120'
DESIGNED:	JDA
JOB NO:	1840
FILE:	
SHEET	C-7.1

Section 13 - Urban Impaired Stream Submissions

No change from previous application. The property is not located within the watershed of an urban impaired stream. This section is not applicable.

Section 14 - Basic Standards

Temporary and Permanent Erosion and Sedimentation Control

Introduction

This Erosion and Sediment Control Plan has been prepared to provide guidelines for soil erosion and sedimentation control during the construction of Sanctuary Estates Subdivision for Maine Custom Homes & Finance. This plan has been developed using the Maine Department of Environmental Protection's Best Management Practices and the standards.

Pre-Construction Phase

A person who conducts, or causes to be conducted, an activity that involves filling, displacing or exposing soil or other earthen materials shall take measures to prevent unreasonable erosion of soil or sediment beyond the project site or into a protected natural resource as defined in 38 MRSA § 480-B. Erosion control measures must be in place before the activity begins. Measures must remain in place and functional until the site is permanently stabilized. Adequate and timely temporary and permanent stabilization measures must be taken. The site must be maintained to prevent unreasonable erosion and sedimentation. Minimize disturbed areas and protect natural downgradient buffer areas to the extent practicable.

BMP Construction Phase

A. Sediment Barriers. Prior to the beginning of any construction**,** properly install sediment barriers at the edge of any downgradient disturbed area and adjacent to any drainage channels within the proposed disturbed area. Maintain the sediment barriers until the disturbed area is permanently stabilized. At a minimum, silt fences shall be inspected and repaired once a week or immediately following any significant rainfall or snow melt. Sediment trapped behind these barriers shall be excavated and re-graded onto the site when it reaches a depth of 6 inches. All silt fences shall be installed where shown on the plans and according to the engineer's specifications.

B. Construction Entrance: Prior to any clearing or grubbing, a construction entrance shall be constructed at the intersection with the proposed access drive and the existing roadway to avoid tracking of mud, dust and debris from the site.

C. Riprap: Since riprap is used where erosion potential is high, construction must be sequenced so that the riprap is put in place with the minimum delay. Disturbance of areas where riprap is to be placed should be undertaken only when final preparation and placement of the riprap can follow immediately behind the initial disturbance. Where riprap is used for outlet protection, the riprap should be placed before or in conjunction with the construction of the pipe or channel so that it is in place when the pipe or channel begins to operate.

Maintain temporary riprap, such as temporary check dams until the disturbed area is permanently stabilized.

D. Temporary Stabilization. Stabilize with temporary seeding, mulch, or other non-erodible cover any exposed soils that will remain unworked for more than 14 days except, stabilize areas within 100 feet of a wetland or waterbody within 7 days or prior to a predicted storm event, whichever comes first. If hay or straw mulch is used, the application rate must be 2 bales (70-90 pounds) per 1000 SF or 1.5 to 2 tons (90-100 bales) per acre to cover 75 to 90% of the ground surface. Hay mulch must be kept moist or anchored to prevent wind blowing. An erosion control blanket or mat shall be used at the base of grassed waterways, steep slopes (15% or greater) and on any disturbed soil within 100 feet of lakes, streams and wetlands. Grading shall be planned so as to minimize the length of time between initial soil exposure and final grading. On large projects this should be accomplished by phasing the operation and completing the first phase up to final grading and seeding before starting the second phase, and so on.

E. Vegetated Waterway. Upon final grading, the disturbed areas shall be immediately seeded to permanent vegetation and mulched and will not be used as outlets until a dense, vigorous vegetative cover has been obtained. Once soil is exposed for waterway construction, it should be immediately shaped, graded and stabilized. Vegetated waterways need to be stabilized early during the growing season (prior to September 15). If final seeding of waterways is delayed past September 15, emergency provisions such as sod or riprap may be required to stabilize the channel. Waterways should be fully stabilized prior to directing runoff to them.

Permanent Stabilization Defined

Permanent stabilization for the following list of BMPs is defined as:

A. 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.

B. 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.

C. 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.

D. Riprap. For areas stabilized with riprap, permanent stabilization means that slopes stabilized with riprap have an appropriate backing of a well-graded gravel or approved geotextile to prevent soil movement from behind the riprap. Stone must be sized appropriately. It is recommended that angular stone be used.

E. 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.

F. Paved areas. For paved areas, permanent stabilization means the placement of the compacted gravel subbase is completed.

G. Ditches, Channels, and Swales. For open channels, permanent stabilization means the channel is stabilized with mature vegetation at least three inches in height, with well-graded riprap, or with another non-erosive lining capable of withstanding the anticipated flow velocities and flow depths without reliance on check dams to slow flow. There must be no evidence of slumping of the lining, undercutting of the banks, or down-cutting of the channel.

General Construction Phase

The following erosion control measures shall be followed by the contractor throughout construction of this project:

A. All topsoil shall be collected, stockpiled, seeded with rye at 3 pounds/1,000 SF and mulched, and reused as required. Siltation fencing shall be placed down gradient from the stockpiled loam. Loam shall be stockpiled at location designated by the owner and inspecting engineer.

B. The inspecting engineer at his/her discretion, may require additional erosion control measures and/or supplemental vegetative provisions to maintain stability of earthworks and finish graded areas. The contractor shall be responsible for providing and installing any supplemental measures as directed by the inspecting engineer. Failure to comply with the engineer's directions will result in discontinuation of construction activities.

C. Erosion control mesh shall be applied in accordance with the plans over all finish seeded areas as specified on the design plans.

D. All graded or disturbed areas including slopes shall be protected during clearing and construction in accordance with the approved erosion and sediment control plan until they are adequately stabilized.

E. All erosion, and sediment control practices and measures shall be constructed, applied and maintained in accordance with the approved erosion and sediment control plan.

F. Areas to be filled shall be cleared, grubbed and stripped of topsoil to remove trees, vegetation, roots or other objectionable materials.

G. Unless otherwise authorized by the project engineer, any fill used on the site will meet M.D.O.T. Standard 703.08 for common borrow, 703.06(b) for subbase aggregate, and 703.06(a) for base.

H. Areas shall be scarified to a minimum depth of 3 inches prior to placement of topsoil.

I. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence or other related problems. Fill intended to support buildings, structures and conduits, etc., shall be compacted in accordance with local requirements or codes.

J. All fills shall be placed and compacted in layers not to exceed 8 inches in thickness.

K. Except for approved landfills or non-structural fills, fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris and other objectionable materials that would interfere with or prevent Construction of satisfactory lifts.

L. Frozen material or soft, mucky or highly compressible materials shall not be incorporated into fill slopes or structural fills.

M. Fill shall not be placed on a frozen foundation.

M. Seeps or springs encountered during construction shall be handled appropriately.

O. All graded areas shall be permanently stabilized immediately following finished grading.

P. Remove any temporary control measures, such as silt fence, within 30 days after permanent stabilization is attained. Remove any accumulated sediments and stabilize.

Permanent Vegetation

Permanent vegetative cover should be established on disturbed areas where permanent, long lived vegetative cover is needed to stabilize the soil, to reduce damages from sediment and runoff, and to enhance the environment.

Seedbed Preparation

A. Grade as feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application and anchoring, and maintenance.

B. Apply limestone and fertilizer according to soil tests such as those offered by the University of Maine Soil Testing Laboratory. Soil sample mailers are available from the local Cooperative Extension Service Office. If soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 800 pounds per acre or 18.4 pounds per 1,000 square feet using 10-20-20 (N-P2O5-K2O) or equivalent. Apply ground limestone (equivalent to 50% calcium plus magnesium oxide) at a rate of 3 tons per acre (138 lb. Per 1,000 sq. ft).

C. Work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, spring tooth harrow or other suitable equipment. The final harrowing operation should be on the general contour. Continue tillage until a reasonably uniform, fine seedbed is prepared. All but clay or silty soils and coarse sands should be rolled to firm the seedbed wherever feasible.

D. Remove from the surface all stones 2 inches or larger in any dimension. Remove all other debris, such as wire, cable, tree roots, concrete, clods, lumps or other unsuitable material.

E. Inspect seedbed just before seeding. If traffic has left the soil compacted; the area must be tilled and firmed as above.

F. Permanent seeding should be made 45 days prior to the first killing frost or as a dormant seeding with mulch after the first killing frost and before snowfall. When crown vetch is seeded in later summer, at least 35% of the seed should be hard seed (unscarified). If seeding cannot be done within the seeding dates, mulch according to the Temporary Mulching BMP and Over-winter Stabilization and Construction to protect the site and delay seeding until the next recommended seeding period.

G. Following seed bed preparation, swale areas, fill areas and back slopes shall be seeded at a rate of 3 lbs./1,000 S.F. with a mixture of 35% creeping red **h.** fescue, 6% red top, 24% Kentucky bluegrass, 10% perennial ryegrass, 20% annual ryegrass and 5% white dutch clover.

I. Areas which have been temporarily or permanently seeded shall be mulched immediately following seeding.

J. Areas which cannot be seeded within the growing season shall be mulched for over-winter protection and the area should be seeded at the beginning of the growing season.

Winter Construction phase

The winter construction period is from November 15 through April 15. If an area is not stabilized with temporary or permanent measures by November 15, then the site must be protected with additional stabilization measures.

A. Permanent stabilization consists of at least 90% vegetation, Pavement/gravel base or riprap.

B. Do not expose slopes or leave slopes exposed over the winter or for any other extended time of work suspension unless fully protected with Mulch.

C. Apply hay mulch at twice the standard rate (150 lbs. Per 1,000 sf). The mulch must be thick enough such that the ground surface will not be visible and must be anchored.

D. Use mulch and mulch netting or an erosion control mulch blanket or mix for all slopes greater than 8 % or other areas exposed to direct wind.

E. Install an erosion control blanket in all drainage ways (bottom and sides) with a slope greater than 3 %.

F. During frozen conditions, sediment barriers shall consist of wood-waste filter berms as frozen soil prevents the proper installation of hay bales and silt fences.

G. Between the dates of October 15th and April 1st, loam or seed will not be required. During periods of above freezing temperatures, finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loamed, final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched. Dormant seeding may be placed prior to the placement of mulch and fabric netting anchored with staples. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5lbs/1000 s.f. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas not sufficiently vegetated (less than 75 % catch) shall be re-vegetated by replacing loam, seed and mulch.

H. Winter excavation and earthwork shall be completed as such that no more than 1 acre of the site is without stabilization at any one time.

I. An area within 100 feet of a protected natural resource must be protected with a double row of sediment barrier.

J. Temporary mulch must be applied within 7 days of soil exposure or prior to any storm event, but after every workday in areas within 100 feet from a protected natural resource.

K. Areas that have been brought to final grade must be permanently mulched that same day.

L. In the event of a snowfall greater than 1 inch (fresh or cumulative), the snow shall be removed from the areas due to be seeded and mulched.

M. Loam shall be free of frozen clumps before it is applied.

N. 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.

O. Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snow storm or period of thawing and runoff, the site contractor shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to ensure their continuous function. Following the temporary and or final seeding

and mulching, the contractor shall in the spring inspect and repair any damages and/ or unestablished spots. Established vegetative cover means a minimum of 85 to 90% of areas vegetated with vigorous growth.

Construction Plan

The site work is estimated to take between 6 & 8 months to complete and would generally correspond to the following table:

	Start	Finish
1. Estimated construction time: 6 months	July 1, 2019	October 1, 2018
2 Erosion control measures placed	July 1, 2019	May 15, 2018
3. Site clearing, grubbing, excavation, filling and construction stormwater facilities	July 1, 2019	August 1, 2019
4. Excavation & construction of roads, parking lots and underground utilities.	July 1, 2019	August 1, 2019
5. Mulch spread for winter erosion control. (if necessary)	November 15, of construction year	May 1 the next year
6. Start progressive final seeding on prepared areas.	Within 24 hours of loam placement	September 15 of construction year
7. Bi-weekly monitoring of vegetative growth.	August 1, 2019	November 1, 2019
8. Re-seed, if necessary, and continue monitoring of growth until established.	August 1, 2019	November 1, 2019
9. Progressive removal of erosion control devices, based on field inspection.	August 1, 2019	November 1, 2019

Dates are subject to change at the discretion of the engineer depending on construction progress.

Maintenance and Inspection Phase

A. Contractor shall inspect disturbed and impervious areas, and erosion and stormwater control measures, areas used for storage that are exposed to precipitation, and locations where vehicles enter or exit the parcel at least once a week and before and after a storm event, prior to completion of permanent stabilization. A person with knowledge of erosion and stormwater must conduct the inspection. This person must be identified in the inspection log. If best management practices (BMPs) need to be modified or if additional 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.

Following the final seedings, reseeding will be carried out, with follow-up inspections, in the event of any failures. All erosion control measures will be removed within 10 days after

vegetation is adequately established. The applicant shall be responsible for making arrangements for the inspections.

B. A log (report) must be kept summarizing the scope of the inspection, name(s) and qualifications of the personnel making the inspection, the date(s) of the inspection, and major observations relating to operation of erosion and sedimentation controls and pollution prevention measures. Major observations must include: BMPs that need to be maintained; location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location; and location(s) where additional BMPs are needed that did not exist at the time of inspection. Follow-up to correct deficiencies or enhance controls must also be indicated in the log and dated, including what action was taken and when.

Section 15 - Groundwater

No change from previous application. The project will not have any expected impact to the groundwater. A figure was previously submitted that showed that the site is not located on a sand and gravel aquifer. The project will be serviced by public water and a stormwater collection and treatment system, which reduces the development's potential to negatively impact groundwater in the area.

Section 16 - Water Supply

No change from previous application. The Sanctuary Estates Subdivision will connect to Lewiston public water supply from the 12” water main on Hogan Road. The project will include an 8” water main that will extend through the development to provide both drinking water and fire protection. The City of Lewiston has ample capacity to serve the project.

Section 17 - Wastewater Disposal

Each lot in the Sanctuary Estates Subdivision will have its own septic system. George Bouchles of CadMaster Land Surveying & Septic Design performed a test pit evaluation for each lot. His report is attached. The test pits are shown on the attached construction plans.

CADmaster

586 Park Avenue - Auburn, Maine 04210
office - 207-689-3232 cell - 207-240-5567
e-mail - gsb@cadmasterr.com

Land Surveying and Septic Design

April 15, 2017

Mr. John Chase
c/o Chase Custom Homes & Finance, Inc.
290 Westbrook Road
Westbrook, Maine 04092

RE: Preliminary Soils Investigation Report
"Sanctuary Estates - Phase 2"
131 Hogan Road
Lewiston, Maine

Dear Mr. Chase:

At your request, preliminary Site/Soils Investigations were performed on fourteen (14) possible lots of a subdivision to be known as "Sanctuary Estates - Phase 2" you propose to create from a 24.93 acre parcel of land you own at the rear of 131 Hogan Road in the City of Lewiston, Maine. Reference is made to a plan entitled "Boundary Survey - Chase Custom Homes Property" dated January 29, 2019 by CADmaster Land Surveying and Septic Design for perimeter boundary information. Reference is also made to a Preliminary Plan prepared by Terradyn Consultants, Inc., located at 41 Campus Drive, Suite 101, New Gloucester, Maine 04260, for the preliminary location of each lot tested.

The purpose of the preliminary investigation was to determine suitability for on-site Subsurface Waste Water Disposal Systems to accommodate a four (4) bedroom single family dwelling on each of the lots in accordance with the current ***Maine Subsurface Waste Water Disposal Rules*** (SWWDR), dated January 1, 1998, and as amended.

Date of Investigation: February 16, 2019

Method of Investigation: Backhoe test pits

Method of Ground Control: Test pits were located in relationship to boundary information observed in the field and boundary information as shown on the above referenced boundary survey plan as well as existing survey control stations in relationship to proposed lot lines also shown on the above referenced plan.

Findings: The site is, for the most part, tree covered with a mix of hardwood and softwood. The terrain is generally sloping downhill towards the northerly property line.

Test pit results for the proposed fourteen (14) lots tested indicate the underlying Parent Material, in the areas of the test pits, to be of a "Basal Glacial Till" type material, and designated as 3C & 3D soils as defined in the current SWWDR referred to above.

Soil textures for these test pits consisted of approximately 1 to 2 inches of humus containing decaying leaves, twigs and sticks at the surface. The next 4 to 6 inches consisted of a brown to light brown fine sandy loam textured soils with roots present and angular rocks were observed. The next 10 to 20 inches consisted of a light yellowish brown fine sandy loam textured soils with roots present and angular rock fragments observed. The remainder of the profile consisted of a light yellowish brown to light olive gray fine sandy loam textured soil with no roots visible, angular rock fragments were still present with the soil textures being firm and difficult to excavate.

Pit depths were limited to 12 inches below the observed seasonal high water table or to refusal.

Recommendations: It is my recommendation that, based upon results of the test pits evaluated and site conditions observed, there is suitable soils and sufficient area for the fourteen (14) new single-family dwelling sites proposed.

Test Pit Summary

Test Pit no.	Preliminary Soil	Mottling	Restrictive Layer	Bedrock/ Refusal	System Type	Size Recomm.
32	3 C	-18"	-20"	none	Enviro-Septic	10x50
33	3 C	-20"	-22"	none	Enviro-Septic	10x50
34	3 C	-15"	-17"	none	Enviro-Septic	10x50
35	3 C	-16"	-18"	none	Enviro-Septic	10x50

36	3 C	-24"	-25"	none	Enviro-Septic 10x50
37	3 C	-24"	-26"	none	Enviro-Septic 10x50
38	3 C	-24"	-25"	none	Enviro-Septic 10x50
39	3 C	-18"	-20"	none	Enviro-Septic 10x50
40	3 C	-24"	-26"	none	Enviro-Septic 10x50
41	3 C	-24"	-26"	none	Enviro-Septic 10x50
42	3 C	-24"	-25"	none	Enviro-Septic 10x50
43	3 D	-13"	-14"	none	Enviro-Septic 10x50
44	3 C	-16"	-18"	none	Enviro-Septic 10x50
45	3 D	-12"	-14"	none	Enviro-Septic 10x50

The site and soils information contained within this report is preliminary and intended for the purpose of review and planning purposes only. Prior to the issuance of any municipal permits, a full site and soils evaluation of each lot will be required, and a complete design of the proposed subsurface waste water disposal system and location must be delineated on the State supplied HHE-200 soils design forms.

I trust the enclosed information will satisfy your immediate needs. Should you have any questions, feel free to give me a call.

Respectfully yours,
CADmaster Drafting & Septic Design

George S. Bouchles, LSE 338

Section 18 - Solid Waste

No change from previous application.

Construction of the Sanctuary Estates Subdivision, including the roads, lots & stormwater management system, will result in the clearing of approximately 22 acres. The existing parcel is an undeveloped forest. Limited debris is expected during the construction of the site (not including building construction).

The majority of the waste will be generated by the harvesting of the trees and the removal of the stumps. Marketable timber will be removed from the project site and sold. Smaller woody debris will be mulched and used as a soil amendment or as an erosion control measure. Stump grindings will be used to make erosion control mix berms, which will be used to augment or substitute for silt fence. Excess stumps and other organic debris may need to be disposed of at a licensed facility. An estimate of the amount of stumps/grinding waste can be calculated by assuming that 400 CY of material will be produced per acre of disturbance of mature forest. This approximation yields 6,400 CY over the 16 acres of disturbance, on a 35 acre site.

Any general construction debris associated with the Project, including packing or transportation materials, will be disposed of at appropriately licensed disposal facilities. We anticipate that construction and demolition debris will be transported to ReEnergy of Lewiston, ME., where it will be transported to the Juniper Ridge Landfill in West Old Town, ME.

Individual buildings will be constructed by Chase Custom Homes & Finance on a build to suit basis. Residential waste will be collected by the City of Lewiston once occupancy permits are granted.

Section 19 - Flooding

No change from previous application. The development area is not located within an area of flood hazard according to the City of Lewiston GIS system data. See Section 12 for attached map and further information on stormwater flows.

Section 20 - Blasting

No change from previous application. There are several areas of shallow ledge on site. However, the roads were designed as primarily fill sections to minimize the potential need for blasting. If blasting is required, it will most likely be minor areas of trench blasting for the installation of water lines. In these areas the contractor shall adhere to the following plan.

A professional (licensed in the State of Maine) blasting contractor will be employed to conduct any blasting work in accordance with applicable State and local laws. At a minimum, the blasting contractor shall conduct his work in accordance with the following criteria:

1. "Manual of Accident Prevention in Construction" issued by Associated General Contractors of America, Inc.
2. "Construction Safety Rules and Regulations" as adopted by the State Board of Construction Safety, Augusta, Maine.
3. Section 107.12 of the "Standard Specifications" Maine Department of Transportation.
4. 30 CMR 815.64.

The blasting contractor will be required to prepare and submit a blasting plan to the owner prior to construction. At a minimum, the plan shall outline his proposal for monitoring of blasts, sequencing of blasts, sketches of proposed drill patterns, and specified field procedures, including the hours of operation, use of blasting mats, safety procedures, security measures in the work zone, and warning sequences. Blasting mats or earth cover shall be used to limit peak air overpressures and to protect against uncontrolled blast rock. Blasting vibrations, frequencies and overpressures shall not exceed the limits established by State or local codes. The maximum Peak Particle Velocity (PPV) shall be based on Fig. B-1 of Appendix B from the U. S. Bureau of Mines RI 8507

The Contractor shall design his charges using the Scaled Distance Equation as follows:

$$W = (D/D_s)^2$$

Where:

W	=	Maximum allowable weight of explosives per delay of 8 milliseconds or greater.
D	=	The shortest distance between the blast area and any inhabitable structure not owned or controlled by the developer.
D_s	=	70 ft./lb$^{1/2}$

The contractor shall prepare and submit a blasting schedule which shall be presented to the owner, the municipality, and the MDEP prior to blasting. This schedule shall, at a minimum, include the following:

- Name, address and phone number of blaster;
- Identification of specific blasting areas;
- Dates and times of blasts;
- Methods to restrict access in the blast area and warning whistle announcements;
- All blasting work shall be the responsibility of the blasting contractor.

The blasting contractor shall maintain accurate and current blasting records which shall be submitted to the owner, the municipality, and the MDEP on a weekly basis during blasting operations. These records shall contain, at a minimum:

- General location of the blast
- Depth and number of drill holes
- Type and quantity of explosives used
  (including sizing calculations based on the scaled distance equation)
- Time of blast
- Seismographic record of each blast taken within 300' of the blast area

The blasting contractor shall retain an independent firm to provide a seismograph to be set up within a 300 foot radius of blasting activities. The seismograph shall have a Seismic Frequency Range of 2 to 150 Hertz and a sound frequency range of 1-500 Hz. It shall be capable to recording longitudinal, transverse, and vertical peak particle motion and frequency. The following information shall be printed out for each blast:

- Instrument Type
- Instrument Calibration Date
- Date and Time of Blast
- Instrument Location
- Distance to Blast
- Resultant Peak Particle Velocity (in/sec)
- Longitudinal, Vertical and Transverse Peak Particle Velocity (in/sec)
- Frequency (Hz)
- Seismograph Operator
- Airblast (dB)
- Stratum Directly Beneath Geophone

The seismograph shall be used to determine the air blast and peak particle velocity of each shot in the area where the seismograph is set. Peak particle velocities recorded with a 300'

radius which exceed the Frequency-Peak Particle Velocity Curve (Figure B from Appendix B of the US Bureau of Mines RI 8507) shall be documented and reported by the blaster to the owner's representative and a copy forwarded to the Department within 7 days of the record becoming available.

During the blasting operation, the blasting contractor shall be responsible for control of access in and around the general blast area. Equipment and traffic shall be stopped far enough away to ensure work area safety and shall not be released until the blast foreman issues the "all clear signal". Warning signals shall be issued prior to every shot as follows:

- 3 whistles at 5 minutes prior to blast
- 2 whistles at 1 minute prior to blast
- once the shot has been checked for any misfires, one whistle will issue the "all clear"

Blasting shall only occur as needed during the hours of 7:00 A.M. to 5:00 P.M. daily, Monday through Friday. Explosives shall be delivered to the job site on a daily basis. Only that amount necessary for the day's work shall be brought to the site. Explosives shall be transported and stored in approved magazines when not in use. No overnight storage of explosives on the site shall be permitted.

Section 21 - Air Emissions

No change from previous application. No significant adverse air emissions are anticipated. The proposed roads will be paved. No stacks or expansive gravel areas are proposed. The estimated peak hour vehicle trips are not expected to be a significant source of air emissions. Temporary emissions may occur during the construction of the project due to earth moving activities and construction equipment. These emissions are expected to be limited in nature and of short duration. Provisions for dust control, if needed during construction, have been included in the Erosion and Sediment Control Plan attached to Section 14 of this application. Once the construction phase is complete, no undue air emissions are expected.

Section 22 - Odors

No change from previous application. Odor generation is not expected to be significant and would be consistent with any normal residential use. Temporary limited odors may arise during constriction as a result of construction equipment working on the site. This short-term odor potential is also not expected to be significant.

Section 23 - Water Vapor

No change from previous application. Due to the proposed residential use of the property, no large scale water vapor emissions are anticipated.

Section 24 - Sunlight

No change from previous application. Due to the proposed residential use of the property, no sunlight exposure or deprivation problems are anticipated.

Section 25 - Notices

All public notifications will be performed by the City of Lewiston during the planning board public hearing process.

SANCTUARY ESTATES

PHASE 2

AN ADDITIONAL 14 LOT

RESIDENTIAL SUBDIVISION

CHASE LANE EXTENSION - LEWISTON, MAINE

PREPARED BY:

CIVIL ENGINEER:
TERRADYN CONSULTANTS, LLC
P.O. BOX 339
NEW GLOUCESTER, MAINE 04260
(207)926-5111

SURVEYOR:
LAND SURVEYING & SEPTIC DESIGNS CADMASTER DRAFTING
586 PARK AVENUE
AUBURN, MAINE 04210
(207) 240-5567

HIGH INTENSITY SOIL SURVEY & SEPTIC EVALUATION:
STATEWIDE SURVEYS, INC.
35 EASTMAN ROAD
CAPE ELIZABETH, MAINE 04107
(207) 767-4200

SHEET INDEX

C-0.0	COVER SHEET & LOCATION MAP
C-1.0	SITE LAYOUT PLAN
C-1.1	SITE LAYOUT PLAN
C-2.0	GRADING & EROSION CONTROL PLAN
C-2.1	GRADING & EROSION CONTROL PLAN
C-3.0	UTILITY PLAN
C-3.1	UTILITY PLAN
C-4.0	PROFILE
C-4.1	PROFILE & ROAD DETAILS
C-5.0	DETAILS & NOTES
C-5.1	DETAILS
C-5.2	DETAILS

APPLICANT:

CHASE CUSTOM HOMES & FINANCE
290 BRIDGTON ROAD
WESTBROOK, MAINE 04092

OWNER:

CHASE CUSTOM HOMES & FINANCE
290 BRIDGTON ROAD
WESTBROOK, MAINE 04092

PROJECT PARCEL SITE

CITY OF LEWISTON TAX ASSESSOR'S MAP & LOT NUMBERS

MAP	LOT
115	54

GENERAL NOTES:

1. THE APPROVAL WILL EXPIRE IN ACCORDANCE WITH ARTICLE XIII, SECTION 11(a)(1) OF THE CITY OF LEWISTON CODE OF ORDINANCES. THAT SECTION STATES THAT IF DEVELOPMENT HAS NOT OCCURRED AS DEFINED WITHIN THE SCOPE OF THE CODE WITHIN TWO YEARS, DEVELOPMENT REVIEW APPROVAL SHALL EXPIRE. THE APPLICANT MAY NOT BEGIN CONSTRUCTION OR OPERATION OF THE DEVELOPMENT UNTIL A NEW APPROVAL IS GRANTED.

2. PRIOR TO ANY CERTIFICATE OF OCCUPANCY BEING ISSUED, EVIDENCE OF A FINAL INSPECTION OF THE STORMWATER SYSTEM SHALL BE PROVIDED TO THE CITY BY THE DESIGNING ENGINEER ALONG WITH A WRITTEN STATEMENT INDICATING THAT THE STORMWATER SYSTEM AND ALL SITE IMPROVEMENTS HAVE BEEN COMPLETED IN ACCORDANCE WITH THE APPROVED PLANS.

APPROVED: CITY OF LEWISTON
PLANNING BOARD

_____ DATE

_____

_____

_____

_____

_____

_____

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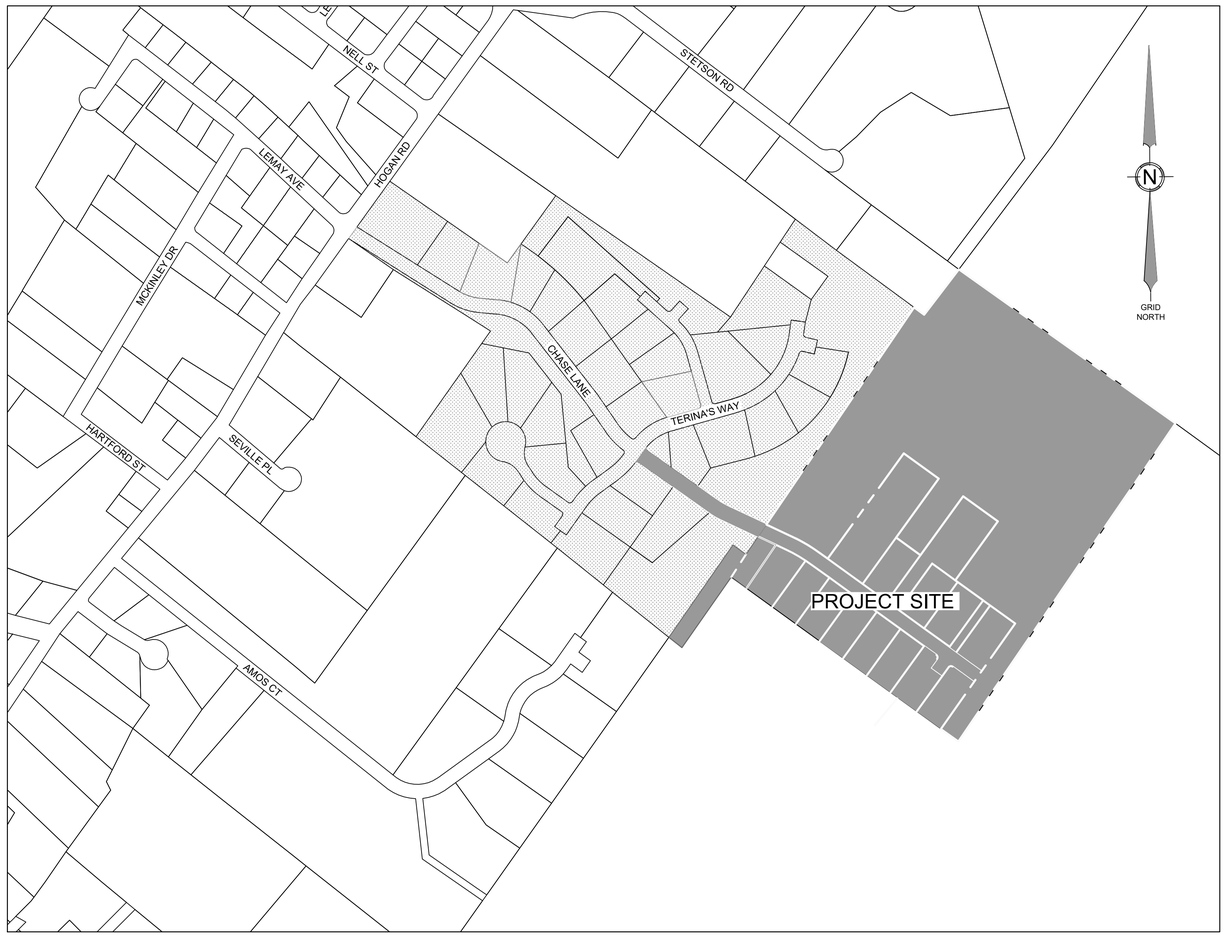


LOCATION MAP
1" = 250'

LEGEND

- EXISTING PROPERTY LINE
- PROPOSED PROPERTY LINE
- PROPOSED SETBACK LINE
- EXISTING SETBACK LINE
- EXISTING EASEMENT
- PROPOSED EASEMENT
- ROAD CENTERLINE
- 124 EXISTING MINOR CONTOUR
- 124 EXISTING MAJOR CONTOUR
- 124 PROPOSED CONTOUR
- SD EXISTING STORMDRAIN
- SD PROPOSED STORMDRAIN
- S EXISTING SANITARY SEWER
- S PROPOSED SANITARY SEWER
- W EXISTING WATER LINE
- W PROPOSED WATER LINE
- UD EXISTING UNDERDRAIN
- UD PROPOSED UNDERDRAIN
- OHE EXISTING OVERHEAD ELECTRIC & TELEPHONE
- OHE PROPOSED OVERHEAD ELECTRIC & TELEPHONE
- UGE EXISTING UNDERGROUND ELECTRIC & TELEPHONE
- UGE PROPOSED UNDERGROUND ELECTRIC & TELEPHONE
- EXISTING EDGE OF PAVEMENT
- PROPOSED EDGE OF PAVEMENT
- EXISTING EDGE OF GRAVEL
- PROPOSED EDGE OF GRAVEL
- EXISTING CURB
- PROPOSED CURB
- EDGE OF WATER
- EXISTING TREE LINE
- PROPOSED TREE LINE
- CHAIN LINK FENCE
- PROPOSED FENCE
- EXISTING GUARDRAIL
- PROPOSED GUARDRAIL
- SF SILT FENCE
- EXISTING VALVE
- PROPOSED VALVE
- EXISTING HYDRANT
- PROPOSED HYDRANT
- EXISTING TRANSFORMER
- PROPOSED TRANSFORMER
- EXISTING LIGHT POLE
- PROPOSED LIGHT POLE
- EXISTING UTILITY POLE
- PROPOSED UTILITY POLE
- EXISTING CATCH BASIN
- PROPOSED CATCH BASIN
- EXISTING SEWER MANHOLE
- PROPOSED SEWER MANHOLE
- 30.20 EXISTING SPOT GRADE
- 30.20 PROPOSED SPOT GRADE
- EXISTING SIGN
- PROPOSED SIGN
- EXISTING BUILDING
- PROPOSED BUILDING
- WETLAND AREA
- PROPOSED PAVEMENT
- RIPRAP
- SUBDIVISION PHASE 1
- SUBDIVISION PHASE 2

STATE OF MAINE
JEFFREY D. JAMES
14167
LICENSED
PROFESSIONAL ENGINEER

SIGNATURE DATE: 6/24/2019

NO.	DATE	REVISIONS	APP'D BY
1	06-24-2019	REVISED PER CITY REVIEW COMMENTS	

TERRADYN
41 CAMPUS DRIVE
SUITE 101
NEW GLOUCESTER, ME 04260
565 CONGRESS STREET
SUITE 310
PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting

SHEET DESCRIPTION
SANCTUARY ESTATES PHASE 2
CHASE LANE EXT., LEWISTON, ME
COVER/LOCATION MAP

PREPARED FOR
CHASE CUSTOM HOMES & FINANCE
290 BRIDGTON ROAD
WESTBROOK, MAINE 04092

DATE:	2/26/2019
SCALE:	AS SHOWN
DESIGNED:	JDA
JOB NO:	1840
FILE:	
SHEET	C-0.0

GENERAL NOTES:

1. THE RECORD OWNER OF THE PARCEL IS CHASE CUSTOM HOMES & FINANCE BY DEEDS RECORDED IN THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS IN BOOK 9,503/PAGE 150 RESPECTIVELY.

2. THE PROPERTY IS SHOWN AS LOT 54 ON THE CITY OF LEWISTON ASSESSOR'S MAP 115 AND IS LOCATED IN THE SUBURBAN RESIDENTIAL DISTRICT (SR).

3. BOUNDARY INFORMATION SHOWN HEREON IS BASED UPON A STANDARD BOUNDARY SURVEY BY LAND SURVEYING & SEPTIC DESIGNS CADMASTER DRAFTING ENTITLED "CHASE CUSTOM HOMES PROPERTY", DATED NOVEMBER 27, 2017.

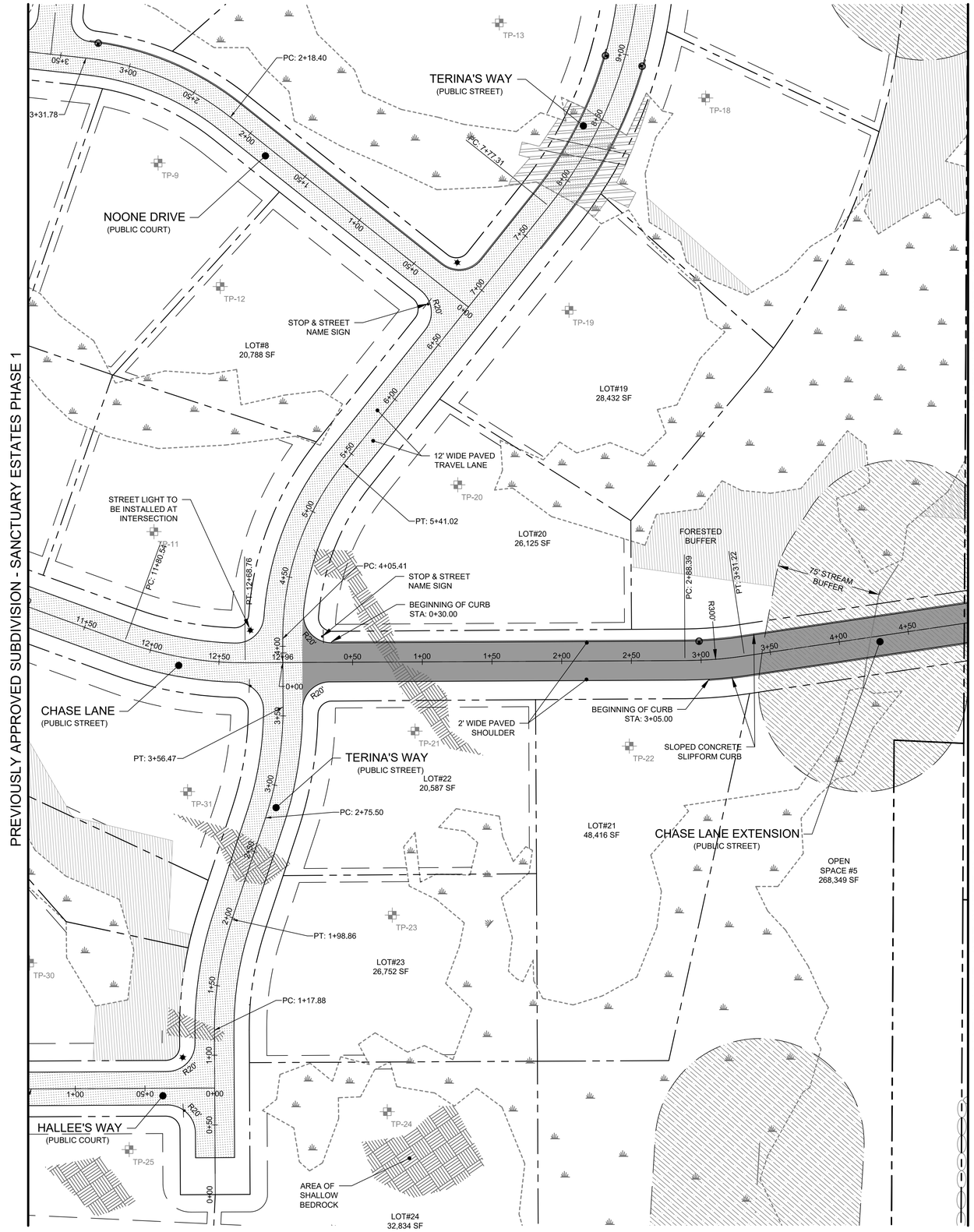
4. TOPOGRAPHIC INFORMATION SHOWN HEREIN IS BASED UPON AN EXISTING CONDITIONS TOPOGRAPHIC SURVEY BY LAND SURVEYING & SEPTIC DESIGNS CADMASTER DRAFTING, PREPARED NOVEMBER 2017.

5. THE TOTAL AREA OF PARCEL = 33.17 ACRES

6. SPACE AND BULK CRITERIA:

SUBURBAN RESIDENTIAL DISTRICT (SR)

MIN. LOT SIZE:	40,000 SF (WITHOUT PUBLIC SEWER)
MIN. LOT SIZE (CLUSTER DEVELOPMENT):	20,000 SF (WITHOUT PUBLIC SEWER)
MIN. STREET FRONTAGE:	125' (50' CLUSTER)
MIN. LOT DEPTH:	NA
MIN. FRONT SETBACK:	25' (12.5' CLUSTER)
MIN. SIDE SETBACK:	15' (5' CLUSTER)
MIN. REAR SETBACK:	15' (5' CLUSTER)
MAX. BUILDING HEIGHT:	35 FT
MAX. IMPERVIOUS SURFACE RATIO	20%
PROPOSED IMPERVIOUS SURFACE RATIO:	



GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch =40 ft.

STATE OF MAINE
JEFFREY D. ADAMS
No. 10167
LICENSED
PROFESSIONAL ENGINEER

SIGNATURE DATE: 6/24/2019

NO.	DATE	REVISIONS	APP'D BY
1	06-24-2019	REVISED PER CITY REVIEW COMMENTS	

TERRADYN
41 CAMPUS DRIVE
SUITE 101
NEW GLOUCESTER, ME 04260
565 CONGRESS STREET
SUITE 310
PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting

SHEET DESCRIPTION
SANCTUARY ESTATES PHASE 2
CHASE LANE EXT., LEWISTON, ME
SITE LAYOUT PLAN

PREPARED FOR
CHASE CUSTOM HOMES & FINANCE
280 BRIDGTON ROAD
WESTBROOK, MAINE 04092

DATE:	2/26/2019
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	1840
FILE: 1660S.DWG	
SHEET	C-1.0

STATE OF MAINE
JEFFREY D. ADAMS
No. 13167
LICENSED
PROFESSIONAL ENGINEER

SIGNATURE DATE: 6/24/2019

NO.	DATE	REVISIONS	APP'D BY
1	06-24-2019	REVISED PER CITY REVIEW COMMENTS	

TERRADYN
41 CAMPUS DRIVE SUITE 101 NEW GLOUCESTER, ME 04260
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DATE:	2/26/2019
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	1840
FILE:	
SHEET	C-1.1

CONSTRUCTION NOTES

1. ALL WORK SHALL CONFORM TO THE APPLICABLE CODES AND ORDINANCES.

2. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIM OR HERSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIM OR HERSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.

3. CONTRACTOR SHALL NOTIFY ENGINEER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND IN THE FIELD.

4. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND OWNER'S REQUIREMENTS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.

6. CONTRACTOR SHALL CLEAN AND REMOVE DEBRIS AND SEDIMENT DEPOSITED ON PUBLIC STREETS, SIDEWALKS, ADJACENT AREAS, OR OTHER PUBLIC WAYS DUE TO CONSTRUCTION.

7. CONTRACTOR SHALL INCORPORATE PROVISIONS AS NECESSARY IN CONSTRUCTION TO PROTECT EXISTING STRUCTURES, PHYSICAL FEATURES, AND MAINTAIN SITE STABILITY DURING CONSTRUCTION. CONTRACTOR SHALL RESTORE ALL AREAS TO ORIGINAL CONDITION AND AS DIRECTED BY DESIGN DRAWINGS.

8. SITE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO CONSTRUCTION.

9. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH "MAINE EROSION AND SEDIMENTATION CONTROL BMP'S" PUBLISHED BY THE MAINE DEP IN 2003.. A COPY OF THE MANUAL CAN BE FOUND AT HTTP://MAINE.GOV/DEP/BLWQ/DOCSTAND/ESCBMPS/INDEX.HTM. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO POSSESS A COPY OF THE EROSION CONTROL PLAN AT ALL TIMES.

10. THE CONTRACTOR IS HEREBY CAUTIONED THAT ALL SITE FEATURES SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS BY THE SURVEYOR AND BY INFORMATION PROVIDED BY UTILITY COMPANIES. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT DIG SAFE (1-888-DIGSAFE) AT LEAST THREE (3) BUT NOT MORE THAN THIRTY (30) DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION TO VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES. CONTRACTOR SHALL BE AWARE THAT DIG SAFE ONLY NOTIFIES ITS "MEMBER" UTILITIES ABOUT THE DIG. WHEN NOTIFIED, DIG SAFE WILL ADVISE CONTRACTOR OF MEMBER UTILITIES IN THE AREA. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND CONTACTING NON-MEMBER UTILITIES DIRECTLY. NON-MEMBER UTILITIES MAY INCLUDE TOWN OR CITY WATER AND SEWER DISTRICTS AND SMALL LOCAL UTILITIES, AS WELL AS USG PUBLIC WORKS SYSTEMS.

11. CONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE REQUIREMENTS OF 23 MRSA 3360-A. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE APPROPRIATE UTILITIES TO OBTAIN AUTHORIZATION PRIOR TO RELOCATION OF ANY EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS. IF A UTILITY CONFLICT ARISES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER, THE MUNICIPALITY AND APPROPRIATE UTILITY COMPANY PRIOR TO PROCEEDING WITH ANY RELOCATION.

12. ALL PAVEMENT MARKINGS AND DIRECTIONAL SIGNAGE SHOWN ON THE PLAN SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS.

13. ALL PAVEMENT JOINTS SHALL BE SAWCUT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.

14. NO HOLES, TRENCHES OR STRUCTURES SHALL BE LEFT OPEN OVERNIGHT IN ANY EXCAVATION ACCESSIBLE TO THE PUBLIC OR IN PUBLIC RIGHTS-OF-WAY.

15. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY SHALL REQUIRE A M.D.O.T. PERMIT AS WELL AS PERMITS FROM THE TOWN AS APPLICABLE.

16. THE PROPOSED LIMITS OF CLEARING SHOWN HEREON ARE APPROXIMATE BASED UPON THE PROPOSED LIMITS OF SITE GRADING. THE APPLICANT RESERVES THE RIGHT TO PERFORM NORMAL FOREST MANAGEMENT ACTIVITIES OUTSIDE OF THE CLEARING LIMIT AS SHOWN. TREE REMOVAL OUTSIDE OF THE LIMITS OF CLEARING MAY BE NECESSARY TO REMOVE DEAD OR DYING TREES OR TREE LIMBS. THIS REMOVAL IS DUE TO POTENTIAL SAFETY HAZARDS AND TO PROMOTE PROPER FOREST GROWTH.

17. IMMEDIATELY UPON COMPLETION OF CUTS/FILLS, THE CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH EROSION CONTROL NOTES AND AS SPECIFIED ON PLANS.

18. THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR THE REMOVAL, REPLACEMENT AND RECTIFICATION OF ALL DAMAGED AND DEFECTIVE MATERIAL AND WORKMANSHIP IN CONNECTION WITH THE CONTRACT WORK. THE CONTRACTOR SHALL REPLACE OR REPAIR AS DIRECTED BY THE OWNER ALL SUCH DAMAGED OR DEFECTIVE MATERIALS WHICH APPEAR WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION.

19. ALL WORK PERFORMED BY THE GENERAL CONTRACTOR AND/OR TRADE SUBCONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF LOCAL, STATE OR FEDERAL LAWS, AS WELL AS ANY OTHER GOVERNING REQUIREMENTS, WHETHER OR NOT SPECIFIED ON THE DRAWINGS.

21. WHERE THE TERMS "APPROVED EQUAL", "OTHER APPROVED", "EQUAL TO", "ACCEPTABLE" OR OTHER GENERAL QUALIFYING TERMS ARE USED IN THESE NOTES, IT SHALL BE UNDERSTOOD THAT REFERENCE IS MADE TO THE RULING AND JUDGMENT OF TERRADYN CONSULTANTS, LLC.

22. THE GENERAL CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTION FOR THE WORK UNTIL TURNED OVER TO THE OWNER. BEFORE THE FINAL ACCEPTANCE OF THE PROJECT, THE CONTRACTOR SHALL REMOVE ALL EQUIPMENT AND MATERIALS, REPAIR OR REPLACE PRIVATE OR PUBLIC PROPERTY WHICH MAY HAVE BEEN DAMAGED OR DESTROYED DURING CONSTRUCTION, CLEAN THE AREAS WITHIN AND ADJACENT TO THE PROJECT WHICH HAVE BEEN OBSTRUCTED BY HIS/HER OPERATIONS, AND LEAVE THE PROJECT AREA NEAT AND PRESENTABLE.

23. THE GENERAL CONTRACTOR SHALL MAINTAIN A CURRENT AND COMPLETE SET OF CONSTRUCTION DRAWINGS ON SITE DURING ALL PHASES OF CONSTRUCTION FOR USE OF ALL TRADES.

24. THE CONTRACTOR SHALL TAKE FULL RESPONSIBILITY FOR ANY CHANGES AND DEVIATION OF APPROVED PLANS NOT AUTHORIZED BY THE ARCHITECT/ENGINEER AND/OR CLIENT/OWNER.

25. DETAILS ARE INTENDED TO SHOW END RESULT OF DESIGN. ANY MODIFICATION TO SUIT FIELD DIMENSION AND CONDITION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR TO ANY WORK.

26. THE APPLICANT WILL RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER TO INSPECT THE CONSTRUCTION AND STABILIZATION OF ALL STORMWATER MANAGEMENT STRUCTURES. IF NECESSARY, THE INSPECTING ENGINEER WILL INTERPRET THE POND'S CONSTRUCTION PLAN FOR THE CONTRACTOR. ONCE ALL STORMWATER MANAGEMENT STRUCTURES ARE CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER WILL NOTIFY THE DEPARTMENT IN WRITING WITHIN 30 DAYS TO STATE THAT THE POND HAS BEEN COMPLETED. ACCOMPANYING THE ENGINEER'S NOTIFICATION MUST BE 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, AND INCLUDE ANY TESTING DATA OR SIEVE ANALYSIS DATA OF EVERY MINERAL SOIL AND SOIL MEDIA SPECIFIED IN THE PLANS AND USED ON SITE.

27. ADS SANTITE TO BE USED FOR ALL STORMDRAIN PIPE. ADS N-12 TO BE USED FOR ALL UNDERDRAIN.

HOUSEKEEPING NOTES:

1. SPILL PREVENTION. CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM BEING DISCHARGED FROM MATERIALS ON SITE, INCLUDING STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER, AND APPROPRIATE SPILL PREVENTION, CONTAINMENT, AND RESPONSE PLANNING AND IMPLEMENTATION.

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.

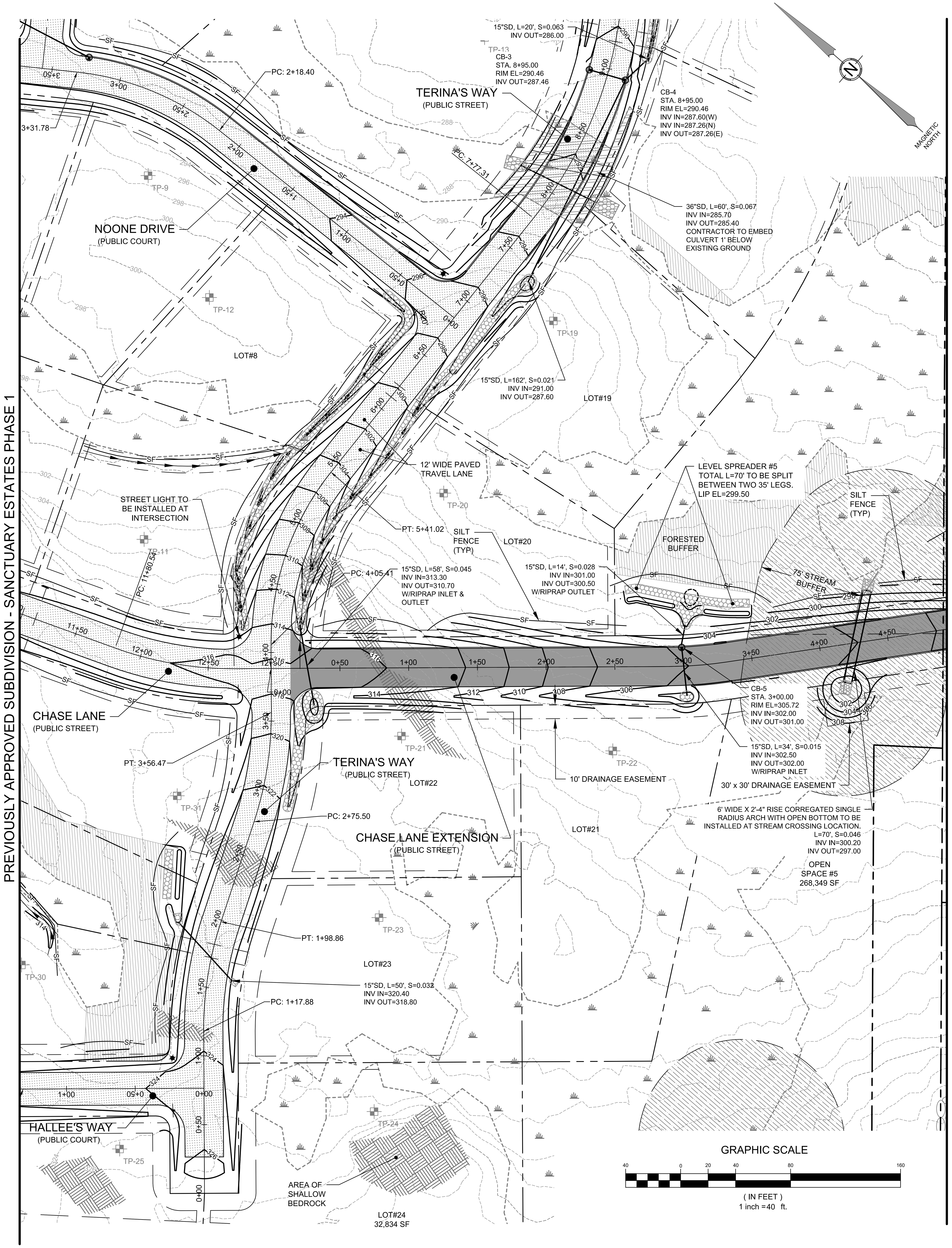
3. FUGITIVE SEDIMENT AND DUST. ACTIONS MUST BE TAKEN TO ENSURE THAT ACTIVITIES DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS DURING OR AFTER CONSTRUCTION. OIL MAY NOT BE USED FOR DUST CONTROL.

4. DEBRIS AND OTHER MATERIALS. LITTER, CONSTRUCTION DEBRIS, AND CHEMICALS EXPOSED TO STORMWATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE.

5. TRENCH OR FOUNDATION DE-WATERING. TRENCH 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 MUST BE REMOVED FROM THE PONDED AREA, EITHER THROUGH GRAVITY OR PUMPING, AND 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. NON-STORMWATER DISCHARGES. IDENTIFY AND PREVENT CONTAMINATION BY NON-STORMWATER DISCHARGES.

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



STATE OF MAINE
JEFFREY D. AMOS
No. 10167
LICENSED
PROFESSIONAL ENGINEER

SIGNATURE DATE: 6/24/2019

NO.	DATE	REVISIONS	APP'D BY
1	06-24-2019	REVISED PER CITY REVIEW COMMENTS	

TERRADYN

41 CAMPUS DRIVE
SUITE 101
NEW GLOUCESTER, ME 04260

565 CONGRESS STREET
SUITE 310
PORTLAND, ME 04102

OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com

Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting

SHEET DESCRIPTION
SANCTUARY ESTATES PHASE 2
CHASE LANE EXT., LEWISTON, ME
GRADING & EROSION CONTROL PLAN

PREPARED FOR
CHASE CUSTOM HOMES & FINANCE
290 BRIDGTON ROAD
WESTBROOK, MAINE 04092

DATE:	2/26/2019
SCALE:	1" = 40'
DESIGNED:	JDA
JOB NO:	1840
FILE: 1660S.DWG	
SHEET	C-2.0

ROAD OPENING NOTES:

1. TO MAINTAIN THE BEST TRAVEL SURFACE FEASIBLE, THERE SHALL BE NO EXCAVATION ON NEWLY PAVED OR SUBSTANTIALLY REPAIRED STREETS FOR A PERIOD OF FIVE (5) YEARS EXCEPT IN EMERGENCY SITUATIONS. IF A CITY STREET ABSOLUTELY MUST BE OPENED TO RESTORE AN EXISTING ESSENTIAL UTILITY SERVICE WITHIN THE FIVE (5) YEAR MORATORIUM, THE CITY MAY ISSUE A STREET OPENING THE FOLLOWING CONDITIONS FOR STREET RESTORATION SHALL APPLY:

2. IF THE REPAIR CAN BE PERFORMED BY EXCAVATING IN ONE LANE AND NOT EXCAVATING ACROSS, THE CENTERLINE OF THE STREET OR ROAD THEN THE PATCH IS TO BE PAVED WITH BINDER AND SURFACE FLUSH WITH THE EXISTING SURFACE PAVEMENT FOR THE FIRST YEAR. THE NEXT YEAR THE APPLICANT SHALL RETURN AND MILL ONE (1) FOOT WIDER THAN THE ORIGINAL PATCH IN ALL DIRECTIONS APPROXIMATELY ONE (1) INCH IN DEPTH. THIS IS TO BE PAVED WITH SURFACE PAVEMENT FLUSH WITH THE EXISTING PAVEMENT. THE APPLICANTS 36 MONTHS OF MAINTENANCE RESPONSIBILITY FOR THE PATCH SHALL BEGIN WHEN THE CITY INSPECTS AND ACCEPTS THE FINAL STREET RESTORATION.

3. IF THE APPLICANT IS REQUIRED TO EXCAVATE OR TRENCH ACROSS THE CENTERLINE OF THE STREET OR ROAD, THE PATCH IS TO BE PAVED WITH BINDER AND SURFACE FLUSH WITH EXISTING SURFACE PAVEMENT FOR THE FIRST YEAR. THE NEXT YEAR THE APPLICANT SHALL RETURN AND MILL THE ORIGINAL PATCH CURB TO CURB THE FULL WIDTH OF THE STREET A DISTANCE OF TWENTY (20) FEET FROM THE FURTHEST OUTSIDE EDGE OF THE ORIGINAL STREET OPENING APPROXIMATELY ONE (1) INCH IN DEPTH. THE COLD PLANED AREA SHALL THEN BE REPAVED WITH ONE (1) INCH OF SURFACE PAVEMENT UTILIZING A PAVING MACHINE AND COMPACTION EQUIPMENT IN COMPLIANCE WITH THE MOST RECENT ME DOT AND CITY SPECIFICATIONS.

4. IF ANY STREET OPENING OVERLAPS THE EDGE OF A PREVIOUS STREET OPENING, ON A MORATORIUM STREET, THE CITY MAY REQUIRE THE APPLICANT TO COLD PLAN AND REPAVE THE FULL WIDTH OF THE ROAD TO THE FURTHEST EDGE OF THAT PREVIOUS REPAIR. THE PERMIT FEE WILL BE BASED UPON THE TYPE OF PAVEMENT (ARTERIAL, COLLECTOR, RESIDENTIAL, SIDEWALK, ETC) AND THE TOTAL AREA OF THE OPENING IN THE STREET. THE DIRECTOR, MAY REQUIRE EXCAVATIONS THAT ARE PERFORMED DURING THE FIVE (5) YEAR MORATORIUM BE TREATED WITH THE INFRARED PROCESS OR OTHER APPROVED METHOD.

5. IN ALL CASES INVOLVING A MORATORIUM ISSUE THE DIRECTOR OR HIS REPRESENTATIVE SHALL APPROVE THE REPAIR PROCEDURE, TYPE OF HMA, AND REQUIRED PAVING EQUIPMENT.

6. TO PREVENT UNNECESSARY EXCAVATION AFTER RECONSTRUCTION OR REPAVING, THE CITY WILL ISSUE A MINIMUM 60-CALENDAR DAY NOTICE TO THE POTENTIALLY CONCERNED UTILITIES, AND ADJACENT PROPERTY OWNERS PRIOR TO THE ROADWAY BEING REPAVED.

STATE OF MAINE
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UTILITY CONSTRUCTION NOTES

1. ALL WORK SHALL CONFORM TO THE APPLICABLE CODES AND ORDINANCES.

2. CONTRACTOR SHALL VISIT THE SITE AND FAMILIARIZE HIM OR HERSELF WITH ALL CONDITIONS AFFECTING THE PROPOSED WORK AND SHALL MAKE PROVISIONS AS TO THE COST THEREOF. CONTRACTOR SHALL BE RESPONSIBLE FOR FAMILIARIZING HIM OR HERSELF WITH ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS AND CONFIRMING THAT THE WORK MAY BE ACCOMPLISHED AS SHOWN PRIOR TO PROCEEDING WITH CONSTRUCTION. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE COMMENCEMENT OF WORK.

3. CONTRACTOR SHALL NOTIFY ENGINEER OF ALL PRODUCTS OR ITEMS NOTED AS "EXISTING" WHICH ARE NOT FOUND IN THE FIELD.

4. INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND OWNER'S REQUIREMENTS UNLESS SPECIFICALLY OTHERWISE INDICATED OR WHERE LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE ENGINEER.

6. CONTRACTOR SHALL CLEAN AND REMOVE DEBRIS AND SEDIMENT DEPOSITED ON PUBLIC STREETS, SIDEWALKS, ADJACENT AREAS, OR OTHER PUBLIC WAYS DUE TO CONSTRUCTION.

7. CONTRACTOR SHALL INCORPORATE PROVISIONS AS NECESSARY IN CONSTRUCTION TO PROTECT EXISTING STRUCTURES, PHYSICAL FEATURES, AND MAINTAIN SITE STABILITY DURING CONSTRUCTION. CONTRACTOR SHALL RESTORE ALL AREAS TO ORIGINAL CONDITION AND AS DIRECTED BY DESIGN DRAWINGS.

8. SITE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS PRIOR TO CONSTRUCTION.

9. THE CONTRACTOR IS HEREBY CAUTIONED THAT ALL SITE FEATURES SHOWN HEREON ARE BASED ON FIELD OBSERVATIONS BY THE SURVEYOR AND BY INFORMATION PROVIDED BY UTILITY COMPANIES. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR SHALL CONTACT DIG SAFE (1-888-DIGSAFE) AT LEAST THREE (3) BUT NOT MORE THAN THIRTY (30) DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION TO VERIFY HORIZONTAL AND VERTICAL LOCATION OF ALL UTILITIES.

10. CONTRACTOR SHALL BE AWARE THAT DIG SAFE ONLY NOTIFIES ITS "MEMBER" UTILITIES ABOUT THE DIG. WHEN NOTIFIED, DIG SAFE WILL ADVISE CONTRACTOR OF MEMBER UTILITIES IN THE AREA. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND CONTACTING NON-MEMBER UTILITIES DIRECTLY. NON-MEMBER UTILITIES MAY INCLUDE TOWN OR CITY WATER AND SEWER DISTRICTS AND SMALL LOCAL UTILITIES, AS WELL AS USG PUBLIC WORKS SYSTEMS.

11. CONTRACTORS SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THE REQUIREMENTS OF 23 MRSA 3360-A. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE APPROPRIATE UTILITIES TO OBTAIN AUTHORIZATION PRIOR TO RELOCATION OF ANY EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS. IF A UTILITY CONFLICT ARISES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER, THE MUNICIPALITY AND APPROPRIATE UTILITY COMPANY PRIOR TO PROCEEDING WITH ANY RELOCATION.

12. ALL PAVEMENT JOINTS SHALL BE SAWCUT PRIOR TO PAVING TO PROVIDE A DURABLE AND UNIFORM JOINT.

13. NO HOLES, TRENCHES OR STRUCTURES SHALL BE LEFT OPEN OVERNIGHT IN ANY EXCAVATION ACCESSIBLE TO THE PUBLIC OR IN PUBLIC RIGHTS-OF-WAY.

14. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY SHALL REQUIRE A M.D.O.T. PERMIT AS WELL AS PERMITS FROM THE TOWN AS APPLICABLE.

WATERLINE INSTALLATION NOTES

1. ALL WATER MAIN MATERIALS SHALL CONFORM TO ALL SPECIFICATIONS OF THE LEWISTON WATER DISTRICT.

2. ALL DUCTILE IRON PIPE AND SERVICES SHALL BE WRAPPED IN POLYETHYLENE ENCASEMENT ONLY IF CORROSIVE SOILS ARE KNOWN TO BE PRESENT, PER AWWA STANDARDS AND DIPRA'S POLYETHYLENE ENCASEMENT INSTALLATION RECOMMENDATIONS.

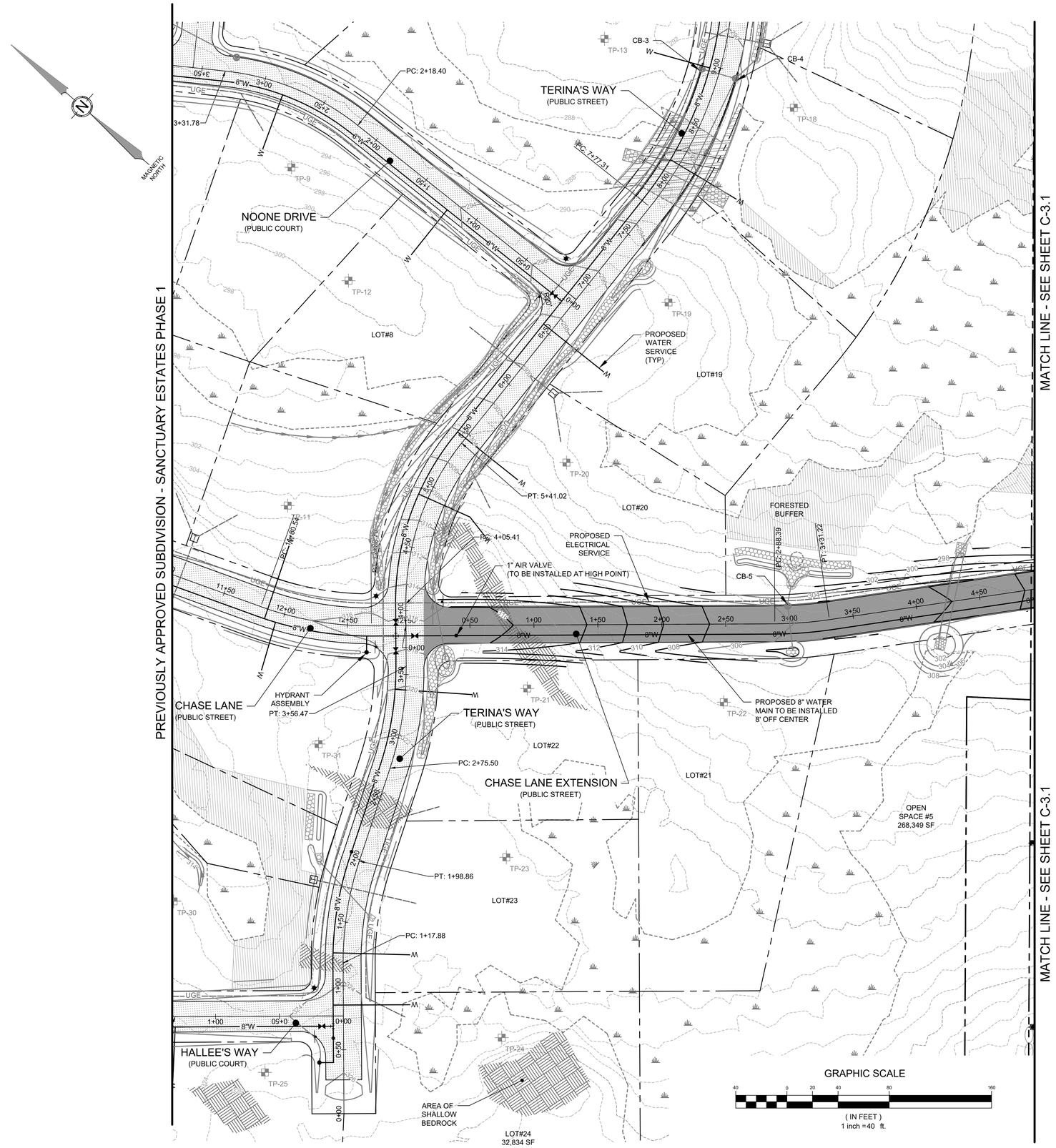
3. CURB STOPS TO BE INSTALLED ON WATER SERVICE AT THE PROPERTY LINE.

4. WATER PIPE SHALL BE LAID WITH A COVER OF SIX (6.0') FEET FROM ESTABLISHED FINISHED GRADE TO THE TOP OF THE PIPE.

5. THE CITY OF LEWISTON WILL COMPLETE THE TAP ON THE EXISTING WATER MAIN IN CHASE LANE. THE CONTRACTOR WILL BE RESPONSIBLE FOR EXCAVATING THE TRENCH, SHORING THE EXCAVATION, AND INSTALLING THE SLEEVE ON THE MAIN.

6. ALL WATER MATERIALS THAT WILL BE INSTALLED IN THE EXISTING RIGHT OF WAY AND FUTURE RIGHT OF WAY SHALL BE PURCHASED THROUGH THE CITY.

7. IN LOCATIONS WHERE STORM DRAINS CROSS THE WATER MAIN OR WATER SERVICES, 2" OF RIGID INSULATION SHOULD BE PLACED IN BETWEEN.



STATE OF MAINE
JEFFREY D. JAMES
No. 9167
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PROFESSIONAL ENGINEER

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UTILITY PLAN

PREPARED FOR
CHASE CUSTOM HOMES & FINANCE
290 BRIGSTON ROAD
WESTBROOK, MAINE 04092

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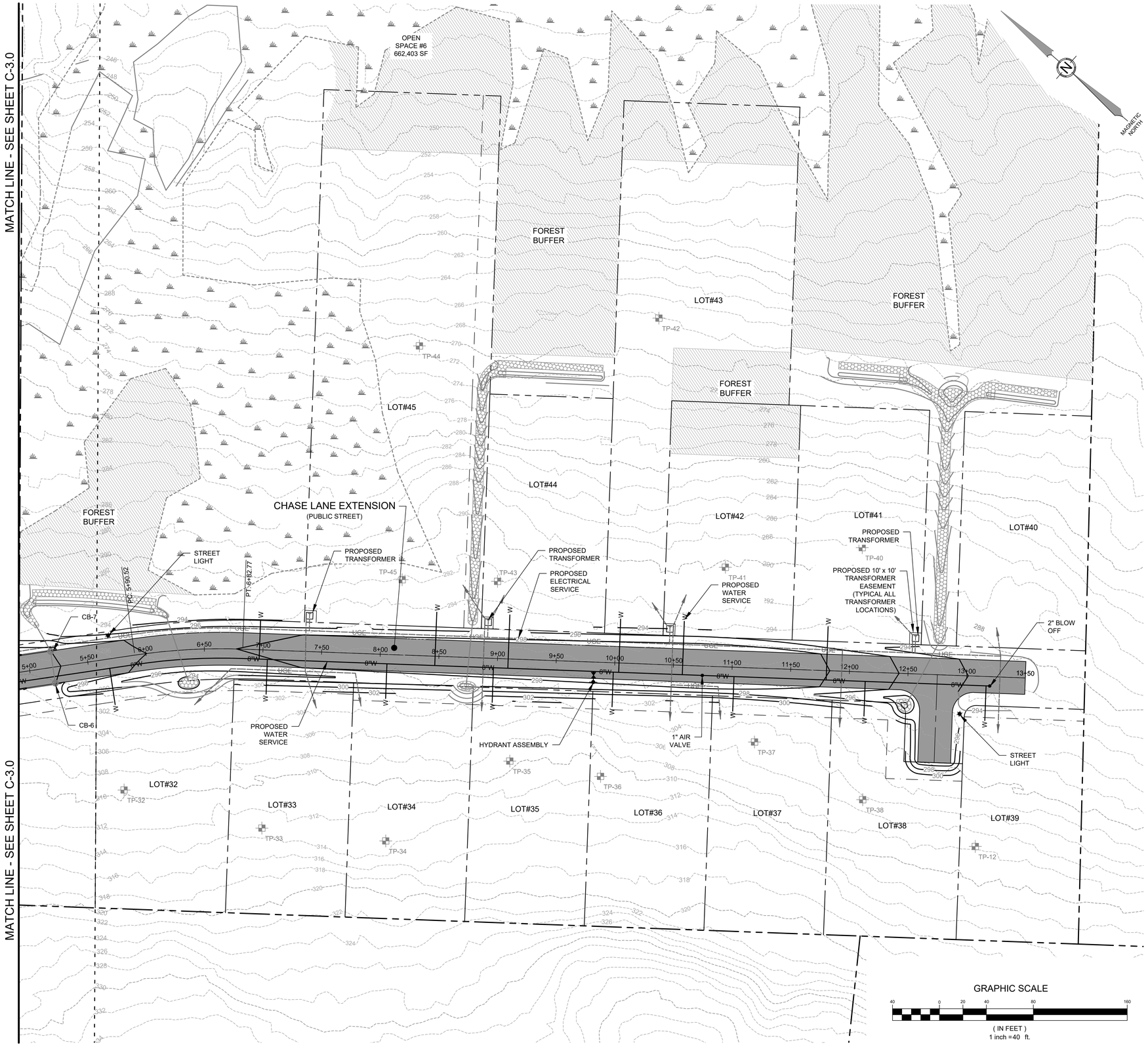
FILE: 1660S.DWG	
SHEET	C-3.0



STATE OF MAINE
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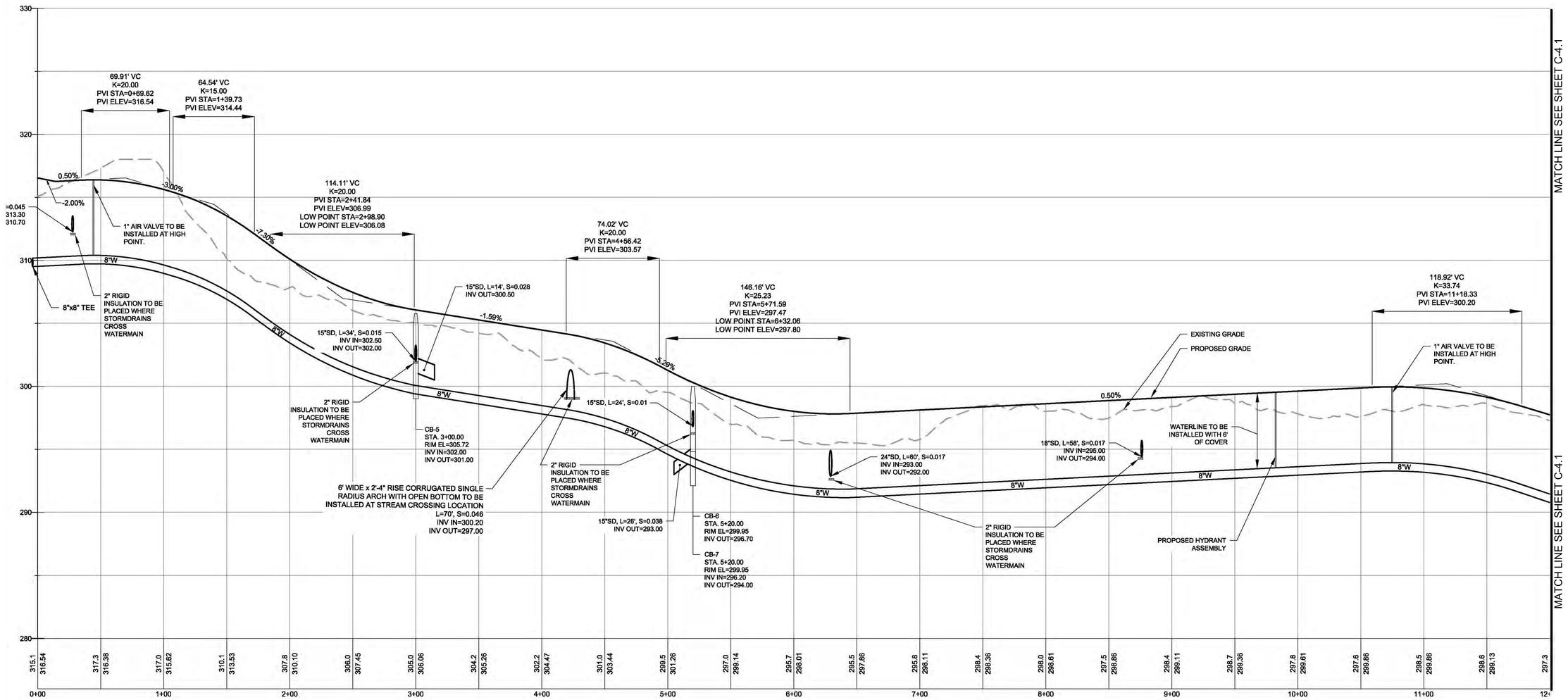

CHASE LANE EXTENSION: 0+00 - 12+00

SCALE: 1"=40' HORIZONTAL
1"=4" VERTICAL

STATE OF MAINE
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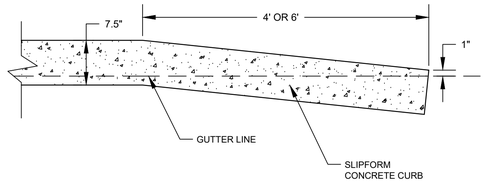
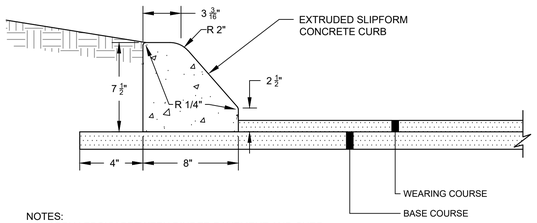


SLIPFORM CURB TIPDOWN DETAIL

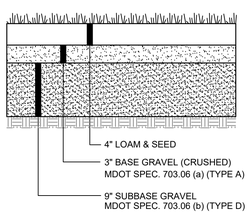
NOT TO SCALE



NOTES:
1. APPLY EPOXY BETWEEN BINDER PAVEMENT AND CURB
2. 1" TO 2" SLUMP
3. 5% TO 7% AIR ENTRAINMENT
4. 4,000 PSI CONCRETE WITH FIBER REINFORCEMENT

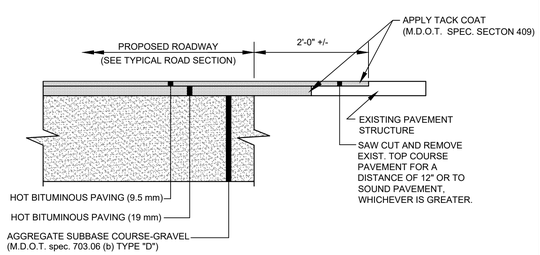
SLOPED SLIPFORM CONCRETE CURB DETAIL

NOT TO SCALE



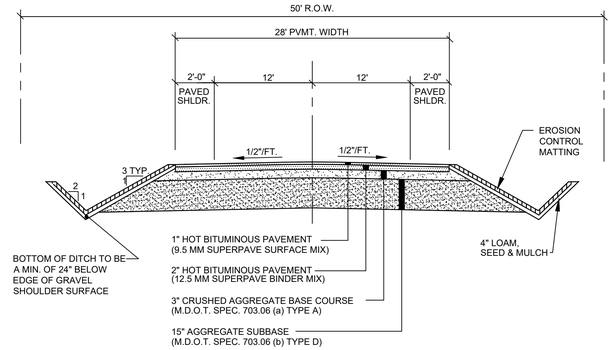
TYPICAL DETENTION BASIN ACCESS CROSS-SECTION

NOT TO SCALE



TYPICAL PAVEMENT JOINT

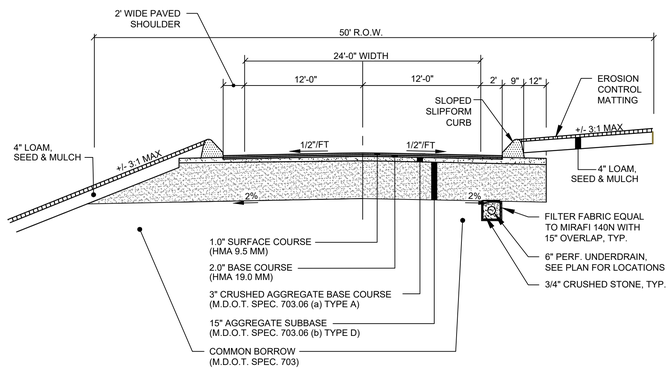
NOT TO SCALE



NOTE: FILL AREAS BENEATH DRIVING SURFACE SHALL BE GRANULAR BORROW. ALL OTHER FILL AREAS SHALL BE A COMMON BORROW MATERIAL SUITABLE FOR EMBANKMENT CONSTRUCTION, FREE FROM FROZEN MATERIAL, PERISHABLE RUBBLE, PEAT, ORGANICS, ROCKS LARGER THAN 12" IN DIAMETER, VEGETATION AND OTHER MATERIAL UNSUITABLE FOR ROADWAY AND SUB-GRADE CONSTRUCTION. EXCAVATED ONSITE MATERIALS MAY BE USED FOR FILL PROVIDED THE MATERIAL IS FREE FROM UNSUITABLE MATERIAL DESCRIBED IN THIS NOTE AND UPON APPROVAL OF THE ENGINEER. GRANULAR BORROW AND COMMON BORROW SHALL ADHERE TO MDOT SPECIFICATIONS 703.19 AND 703.18 RESPECTIVELY.

TYPICAL PUBLIC STREET SECTION

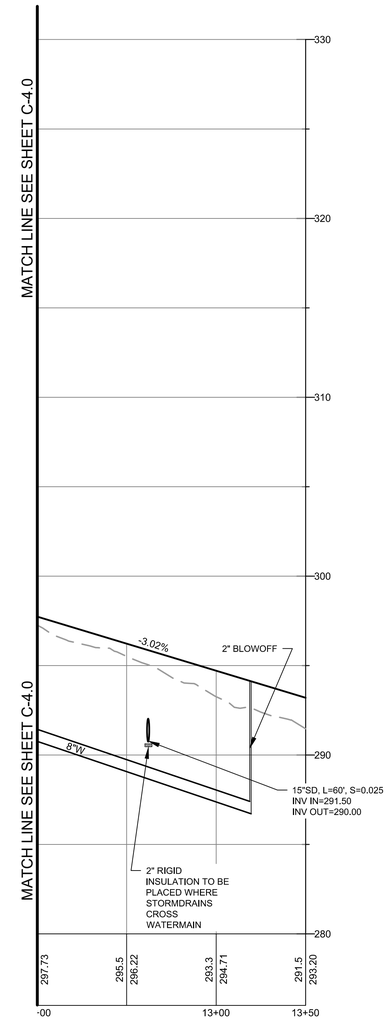
NOT TO SCALE



NOTE: FILL AREAS BENEATH DRIVING SURFACE SHALL BE GRANULAR BORROW. ALL OTHER FILL AREAS SHALL BE A COMMON BORROW MATERIAL SUITABLE FOR EMBANKMENT CONSTRUCTION, FREE FROM FROZEN MATERIAL, PERISHABLE RUBBLE, PEAT, ORGANICS, ROCKS LARGER THAN 12" IN DIAMETER, VEGETATION AND OTHER MATERIAL UNSUITABLE FOR ROADWAY AND SUB-GRADE CONSTRUCTION. EXCAVATED ONSITE MATERIALS MAY BE USED FOR FILL PROVIDED THE MATERIAL IS FREE FROM UNSUITABLE MATERIAL DESCRIBED IN THIS NOTE AND UPON APPROVAL OF THE ENGINEER. GRANULAR BORROW AND COMMON BORROW SHALL ADHERE TO MDOT SPECIFICATIONS 703.19 AND 703.18 RESPECTIVELY. ROCKS LARGER THAN 8" IN DIAMETER WILL NOT BE USED FOR EMBANKMENT CONSTRUCTION WITHIN A DEPTH OF 2 FEET BENEATH THE FINISHED ROADWAY SUBGRADE (PER MDOT SPECIFICATIONS 203.10)

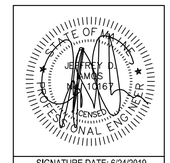
TYPICAL PUBLIC ROAD WITH CURB SECTION

NOT TO SCALE



CHASE LANE EXTENSION: 12+00 - END

SCALE: 1"=40' HORIZONTAL
1"=4" VERTICAL



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EROSION AND SEDIMENT CONTROL PLAN

Pre-Construction Phase
A person who conducts, or causes to be conducted, an activity that involves filling, displacing or exposing soil or other earthen materials shall take measures to prevent unreasonable erosion of soil or sediment beyond the project site or into a protected natural resource as defined in 38 mrsa § 480-b. Erosion control measures must be in place before the activity begins. Measures must remain in place and functional until the site is permanently stabilized. Adequate and timely temporary and permanent stabilization measures must be taken. The site must be maintained to prevent unreasonable erosion and sedimentation. Minimize disturbed areas and protect natural downgradient buffer areas to the extent practicable.

BMP Construction Phase
A. Sediment barriers. Prior to the beginning of any construction, properly install sediment barriers at the edge of any downgradient disturbed area and adjacent to any drainage channels within the proposed disturbed area. Maintain the sediment barriers until the disturbed area is permanently stabilized.

B. Construction entrance: Prior to any clearing or grubbing, a construction entrance shall be constructed at the intersection with the proposed access drive and the existing roadway to avoid tracking of mud, dust and debris from the site.

C. Riprap: Since riprap is used where erosion potential is high, construction must be sequenced so that the riprap is put in place with the minimum delay. Disturbance of areas where riprap is to be placed should be undertaken only when final preparation and placement of the riprap can follow immediately behind the initial disturbance. Where riprap is used for outlet protection, the riprap should be placed before or in conjunction with the construction of the pipe or channel so that it is in place when the pipe or channel begins to operate. Maintain temporary riprap, such as temporary check dams until the disturbed area is permanently stabilized.

D. Temporary stabilization. Stabilize with temporary seeding, mulch, or other non-erodable cover any exposed soils that will remain unworked for more than 14 days except, stabilize areas within 100 feet of a wetland or waterbody within 7 days or prior to a predicted storm event, whichever comes first. If hay or straw mulch is used, the application rate must be 2 bales (70-90 pounds) per 1000 sf or 1.5 to 2 tons (90-100 bales) per acre to cover 75 to 90% of the ground surface. Hay mulch must be kept moist or anchored to prevent wind blowing. An erosion control blanket or mat shall be used at the base of grassed waterways, steep slopes (15% or greater) and on any disturbed soil within 100 feet of lakes, streams and wetlands. Grading shall be planned so as to minimize the length of time between initial soil exposure and final grading. On large projects this should be accomplished by phasing the operation and completing the first phase up to final grading and seeding before starting the second phase, and so on.

E. Vegetated waterway. Upon final grading, the disturbed areas shall be immediately seeded to permanent vegetation and mulched and will not be used as outlets until a dense, vigorous vegetative cover has been obtained. Once soil is exposed for waterway construction, it should be immediately shaped, graded and stabilized. Vegetated waterways need to be stabilized early during the growing season (prior to september 15). If final seeding of waterways is delayed past september 15, emergency provisions such as sod or riprap may be required to stabilize the channel. Waterways should be fully stabilized prior to directing runoff to them.

Permanent stabilization defined
A. Seeded areas. For seeded areas, permanent stabilization means an 90% cover of the disturbed area with mature, healthy plants with no evidence of washing or rilling of the topsoil.

B. 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.

C. 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.

D. Riprap. For areas stabilized with riprap, permanent stabilization means that slopes stabilized with riprap have an appropriate backing of a well-graded gravel or approved geotextile to prevent soil movement from behind the riprap. Stone must be sized appropriately. It is recommended that angular stone be used.

E. 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.

F. Paved areas. For paved areas, permanent stabilization means the placement of the compacted gravel subbase is completed.

G. Ditches, channels, and swales. For open channels, permanent stabilization means the channel is stabilized with mature vegetation at least three inches in height, with well-graded riprap, or with another non-erosive lining capable of withstanding the anticipated flow velocities and flow depths without reliance on check dams to slow flow. There must be no evidence of slumping of the lining, undercutting of the banks, or down-cutting of the channel.

General Construction Phase
The following erosion control measures shall be followed by the contractor throughout construction of this project:

A. All topsoil shall be collected, stockpiled, seeded with rye at 3 pounds/1,000 sf and mulched, and reused as required. Silt fencing shall be placed down gradient from the stockpiled loam. Stockpile to be located by designation of the owner and inspecting engineer.

B. The inspecting engineer at his/her discretion, may require additional erosion control measures and/or supplemental vegetative provisions to maintain stability of earthworks and finish graded areas. The contractor shall be responsible for providing and installing any supplemental measures as directed by the inspecting engineer. Failure to comply with the engineer's directions will result in discontinuation of construction activities.

C. Erosion control mesh shall be applied in accordance with the plans over all finish seeded areas as specified on the design plans.

D. All graded or disturbed areas including slopes shall be protected during clearing and construction in accordance with the approved erosion and sediment control plan until they are adequately stabilized.

E. All erosion, and sediment control practices and measures shall be constructed, applied and maintained in accordance with the approved erosion and sediment control plan.

F. Areas to be filled shall be cleared, grubbed and stripped of topsoil to remove trees, vegetation, roots or other objectionable materials.

G. Areas shall be scarified to a minimum depth of 3 inches prior to placement of topsoil.

H. All fills shall be compacted as required to reduce erosion, slippage, settlement, subsidence or other related problems. Fill intended to support buildings, structures and conduits, etc., shall be compacted in accordance with local requirements or codes.

I. All fills shall be placed and compacted in layers not to exceed 8 inches in thickness.

J. Except for approved landfills or non-structural fills, fill material shall be free of brush, rubbish, rocks, logs, stumps, building debris and other objectionable materials that would interfere with or prevent construction of satisfactory lifts.

K. Frozen material or soft, mucky or highly compressible materials shall not be incorporated into fill slopes or structural fills.

L. Fill shall not be placed on a frozen foundation.

M. Seeps or springs encountered during construction shall be handled appropriately.

N. All graded areas shall be permanently stabilized immediately following finished grading.

O. Remove any temporary control measures, such as silt fence, within 30 days after permanent stabilization is attained. Remove any accumulated sediments and stabilize.

Permanent vegetation
Permanent vegetative cover should be established on disturbed areas where permanent, long lived vegetative cover is needed to stabilize the soil, to reduce damages from sediment and runoff, and to enhance the environment.

Seedbed preparation
A. Grade as feasible to permit the use of conventional equipment for seedbed preparation, seeding, mulch application and anchoring, and maintenance.

B. Apply limestone and fertilizer according to soil tests such as those offered by the university of maine soil testing laboratory. Soil sample mailers are available from the local cooperative extension service office. If soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 800 pounds per acre or 18.4 pounds per 1,000 square feet using 10-20-20 (n-p2o5-k2o) or equivalent. Apply ground limestone (equivalent to 50% calcium plus magnesium oxide) at
a rate of 3 tons per acre (138 lb. Per 1,000 sq. Ft).

C. Work lime and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, spring tooth harrow or other suitable equipment. The final harrowing operation should be on the general contour. Continue tillage until a reasonably uniform, fine seedbed is prepared. All but clay or silty soils and coarse sands should be rolled to firm the seedbed wherever feasible.D. Remove from the surface all stones 2 inches or larger in any dimension. Remove all other debris, such as wire, cable, tree roots, concrete, clods, lumps or other unsuitable material.

E. Inspect seedbed just before seeding. If traffic has left the soil compacted; the area must be tilled and firmed as above.

F. Permanent seeding should be made 45 days prior to the first killing frost or as a dormant seeding with mulch after the first killing frost and before snowfall. When crown vetch is seeded in later summer, at least 35% of the seed should be hard seed (unscarified). If seeding cannot be done within the seeding dates, mulch according to the temporary mulching bmp and overwinter stabilization and construction to protect the site and delay seeding until the next recommended seeding period.

G. Following seed bed prepartation, swale areas, fill areas and back slopes shall be seeded at a rate of 3 lbs./1,000 s.F. With a mixture of 35% creeping red h. Fescue, 6% red top, 24% kentucky bluegrass, 10% perennial ryegrass, 20% annual ryegrass and 5% white dutch clover.

I. Areas which have been temporarily or permanently seeded shall be mulched immediately following seeding.

J. Areas which cannot be seeded within the growing season shall be mulched for over-winter protection and the area should be seeded at the beginning of the growing season.

Winter construction phase
If an area is not stabilized with temporary or permanent measures by november 15, then the site must be protected with additional stabilization measures.

A. Permanent stabilization consists of at least 90% vegetation, pavement/gravel base or riprap.

B. Do not expose slopes or leave slopes exposed over the winter or for any other extended time of work suspension unless fully protected with mulch.

C. Apply hay mulch at twice the standard rate (150 lbs. Per 1,000 sf). The mulch must be thick enough such that the ground surface will not be visible and must be anchored.

D. Use mulch and mulch netting or an erosion control mulch blanket or all slopes greater than 8 % or other areas exposed to direct wind.

E. Install an erosion control blanket in all drainageways (bottom and sides) with a slope greater than 3 %.

F. See the vegetation measures for more information on seeding dates and types.

G. Winter excavation and earthwork shall be completed so that no more than 1 acre of the site is without stabilization at any one time.

H. An area within 100 feet of a protected natural resource must be protected with a double row of sediment barrier.

I. Temporary mulch must be applied within 7 days of soil exposure or prior to any storm event, but after every workday in areas within 100 feet from a protected natural resource.

J. Areas that have been brought to final grade must be permanently mulched that same day.

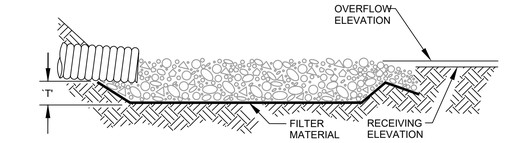
K. If snowfall is greater than 1 inch (fresh or cumulative), the snow shall be removed from the areas due to be seeded and mulched.

L. Loam shall be free of frozen clumps before it is applied.

M. 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.

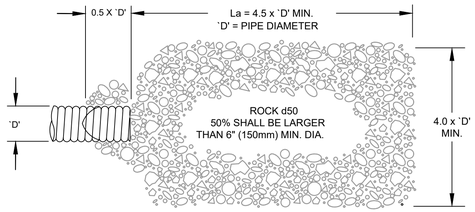
Maintenance and inspection phase
A. Contractor shall inspect disturbed and impervious areas, and erosion and stormwater control measures, areas used for storage that are exposed to precipitation, and locations where vehicles enter or exit the parcel at least once a week and before and after a storm event, prior to completion of permanent stabilization. A person with knowledge of erosion and stormwater must conduct the inspection. This person must be identified in the inspection log. If best management practices (bmps) need to be modified or if additional 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.

B. A log (report) must be kept summarizing the scope of the inspection, name(s) and qualifications of the personnel making the inspection, the date(s) of the inspection, and major observations relating to operation of erosion and sedimentation controls and pollution prevention measures. Major observations must include: bmps that need to be maintained; location(s) of bmps that failed to operate as designed or proved inadequate for a particular location; and location(s) where additional bmps are needed that did not exist at the time of inspection. Follow-up to correct deficiencies or enhance controls must also be indicated in the log and dated, including what action was taken and when.



THICKNESS ('T') = 2.25 x D50 RIPRAP SIZING - 6" (150mm) MIN.

SECTION



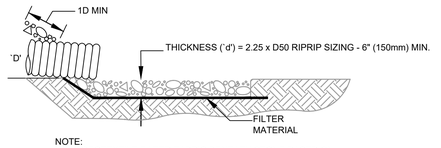
PLAN

PIPE OUTLET PROTECTION SIZING TABLE

PIPE SIZE (IN)	RIP RAP SIZING (D50)	LENGTH (FT)	WIDTH (FT)
6	3	2.5	2.0
12	5	5.0	4.0
15	6	6.25	5.0
18	8	7.5	6.0
24	10	10.0	8.0
30	12	13.0	10.0
36	14	15.0	12.0

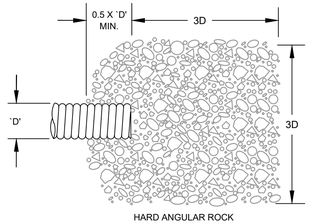
NOTES:
1. 'La' = LENGTH OF APRON. DISTANCE 'La' SHALL BE OF SUFFICIENT LENGTH TO DISSIPATE ENERGY.
2. APRON SHALL BE SET AT A ZERO GRADE AND ALIGNED STRAIGHT.
3. FILTER MATERIAL SHALL BE FILTER FABRIC (MIRAFI 600X OR APPROVED EQUAL) OR 6" (150mm) THICK MINIMUM GRADED GRAVEL LAYER.

PIPE OUTLET PROTECTION
NOT TO SCALE



NOTE:
1. GEOTEXTILE FILTER FABRIC BENEATH STONE BASED ON UNDISTURBED SOILS, OR 6" OF 4" MINUS BAN RUN GRAVEL FREE OF FINES, CLAYS, SILTS.
2. GEOTEXTILE TO BE MIRAFI 600X OR APPROVED EQUAL.

SECTION



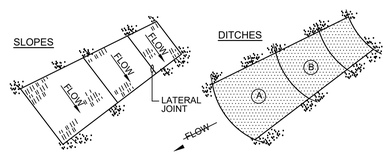
PLAN

PIPE INLET PROTECTION SIZING TABLE

PIPE SIZE (IN)	RIPRAP SIZING (D50)	LENGTH (FT)	WIDTH (FT)
6	3	2.0	1.5
12	5	3.5	3.0
15	6	4.5	3.75
18	8	5.25	4.5
24	10	7.0	6.0
30	12	8.75	7.5
36	14	10.5	9.0

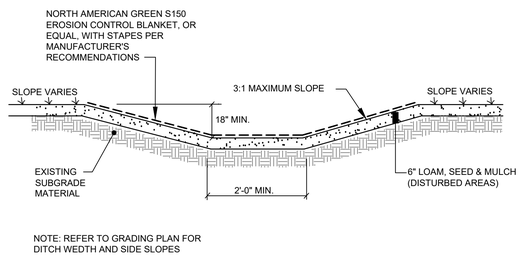
NOTES:
1. IN DEFINED CHANNELS, APRON SHALL EXTEND FULL WIDTH OF BOTTOM AND ONE FOOT ABOVE MAX. HEADWATER OR UP TO BANK FULL, WHICHEVER IS LESS.

PIPE INLET PROTECTION
NOT TO SCALE



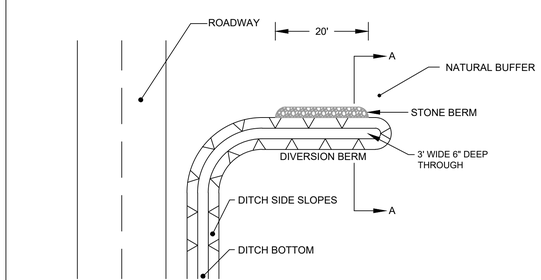
NOTES:
1. BURY THE TOP END OF THE MESH MATERIAL IN A 6" TRENCH AND BACKFILL AND TAMP TRENCHING SECURE END WITH STAPLES AT 6" SPACING, 4" DOWN FROM EXPOSED END.
2. FLOW DIRECTION JOINTS TO HAVE UPPER END OF LOWER STRIP BURIED WITH UPPER LAYERS OVERLAPPED 4" AND STAPLED. OVERLAP B OVER A.
3. LATERAL JOINTS TO HAVE 4" OVERLAP OF STRIPS. STAPLE 18" ON CENTER.
4. STAPLE OUTSIDE LATERAL EDGE 2' ON CENTER.
5. WIRE STAPLES TO BE MIN. OF #11 WIRE, 6" LONG & 1-1/2" WIDE.
6. USE NORTH AMERICAN GREEN DS 150 (OR APPROVED EQUAL) ON SLOPES BETWEEN 4:1-2:1. USE NORTH AMERICAN GREEN VMAX SC250 PERMANENT TURF REINFORCEMENT MAT (OR APPROVED EQUAL) ON SLOPES 2:1 AND STEEPER..

EROSION CONTROL BLANKET
NOT TO SCALE



NOTE: REFER TO GRADING PLAN FOR DITCH WEDTH AND SIDE SLOPES

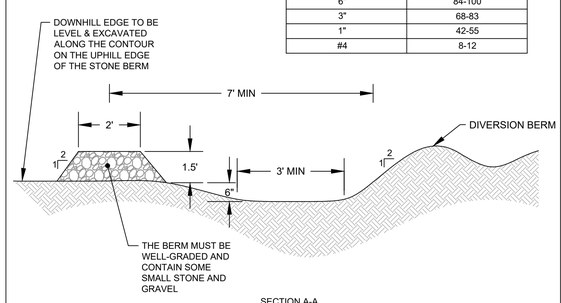
GRASSED SWALE
NOT TO SCALE



PLAN VIEW

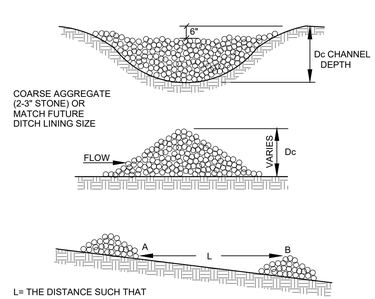
BERM STONE SIZE

SIEVE DESIGNATION	% BY WEIGHT PASSING SQUARE MESH SIEVES
12"	100
6"	84-100
3"	68-83
1"	42-55
#4	8-12



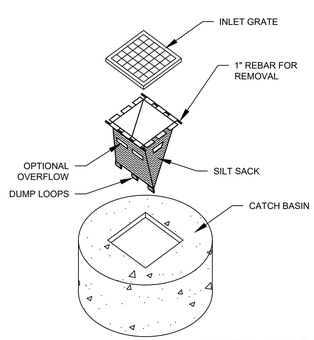
SECTION A-A

TYPICAL LEVEL LIP SPREADER
NOT TO SCALE



L= THE DISTANCE SUCH THAT POINTS A AND B ARE OF EQUAL ELEVATION

STONE CHECK DAM
NOT TO SCALE



NOTES:
1. SILT SACKS TO BE INSTALLED IN ALL CATCH BASINS RECEIVING RUNOFF FROM DISTURBED AREA
2. SILT SACK TO BE MAINTAINED UNTIL TRIBUTARY ARE IS FULLY STABILIZED

SILT SACK DETAIL
NOT TO SCALE

STATE OF MAINE
JEFFREY D. ADAMS
No. 10167
LICENSED
PROFESSIONAL ENGINEER

SIGNATURE DATE: 6/24/2019

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TERRADYN
41 CAMPUS DRIVE
SUITE 101
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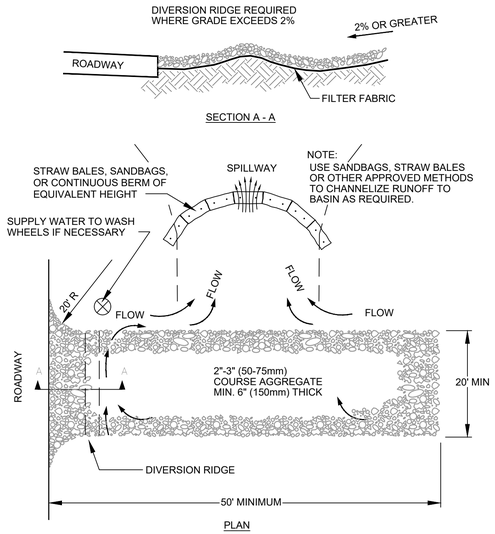
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradyncnsultants.com
Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting

SHEET DESCRIPTION
SANCTUARY ESTATES PHASE 2
CHASE LANE EXT., LEWISTON, ME
DETAILS & NOTES

PREPARED FOR
CHASE CUSTOM HOMES & FINANCE
290 BRIDGTON ROAD
WESTBROOK, MAINE 04092

DATE:	2/26/2019
SCALE:	NTS
DESIGNED:	JDA
JOB NO:	1840
FILE:	1840 D
SHEET	C-5.0



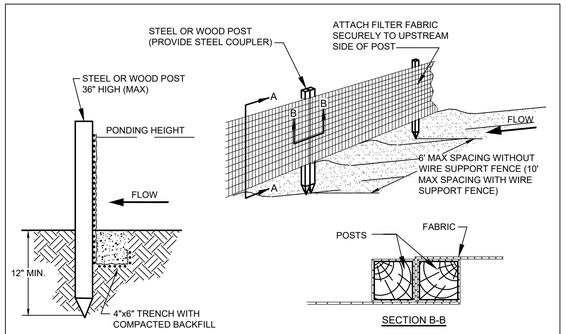
NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.

2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.

3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

STABILIZED CONSTRUCTION ENTRANCE

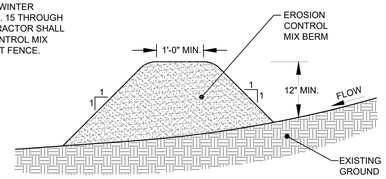
NOT TO SCALE



SILT FENCE

NOT TO SCALE

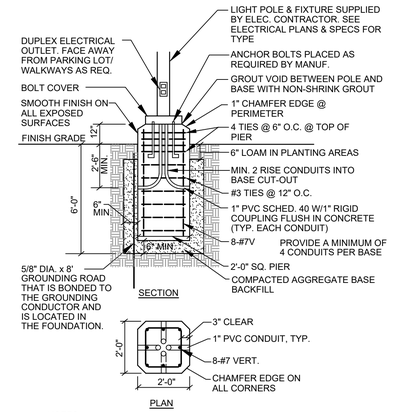
NOTE:
DURING PERIODS OF WINTER CONSTRUCTION (NOV. 15 THROUGH APRIL 15), THE CONTRACTOR SHALL INSTALL EROSION CONTROL MIX BERMS IN LIEU OF SILT FENCE.



EROSION CONTROL MIX:
EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES & MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH. THE MIX COMPOSITION SHALL MEET THE FOLLOWING STANDARDS:
- THE ORGANIC MATTER CONTENT SHALL BE BETWEEN 80% - 100% DRY WEIGHT BASIS
- PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 6" SCREEN AND A MINIMUM OF 70%, MAXIMUM OF 85% PASSING A 0.75" SCREEN
- THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED
- LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.
- SOLUBLE SALTS CONTENT SHALL BE < 4.0 mmhos/cm.
- ph SHALL FALL BETWEEN 5.0 - 8.0.

EROSION CONTROL MIX BERM

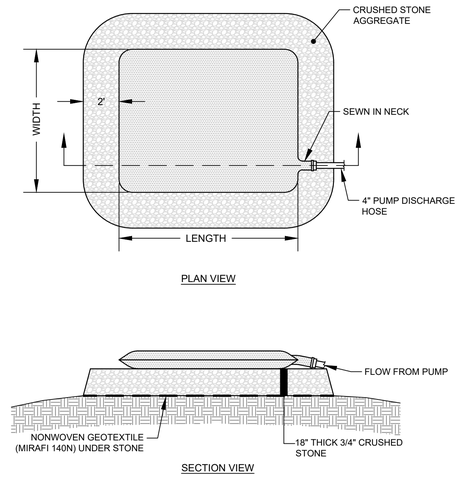
NOT TO SCALE



NOTES:
1. CONCRETE f'c=4000 psi.
2. REINF. STEEL GRADE 60 NEW BARS.
3. CONCRETE 3/4" AGG., 6 +/- 1% ENTRAINED AIR.
4. PROVIDE 2 COATS BITUMINOUS DAMPROOFING FOR ALL CONCRETE BELOW GRADE.
5. INSTALL BASE 3'-0" ABOVE FINISH GRADE IN LOCATIONS WHERE POLES ARE IN PARKING LOT PAVEMENT.
6. BID ALT - CONTRACTOR MAY SUBSTITUTE PRECAST CONCRETE LIGHT POLE BASE EQUAL TO ABOVE SPEC.

LIGHT POLE BASE

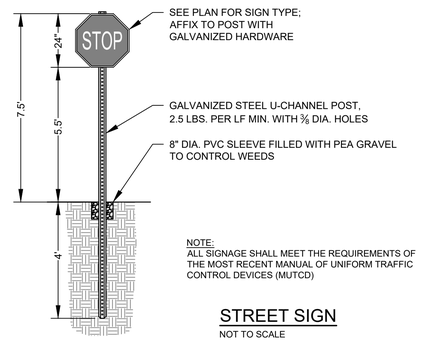
NOT TO SCALE



NOTES:
1. DIRTBAG BY ACF ENVIRONMENTAL
2. SEAMS MUST BE HIGH STRENGTH DOUBLE STITCHED "J" SEAMS.
3. CONSTRUCTION DEWATERING OF TURBID WATER SHALL BE PUMPED THROUGH A DIRTBAG AND RELEASED THROUGH A VEGETATED BUFFER AT LEAST 50' UPSTREAM OF WETLAND AREAS.
4. THE LOCATION OF THE DIRTBAG SHALL BE DETERMINED BY THE CONTRACTOR, BUT SHALL IT SHALL NOT BE SITED IN CRITICAL AREAS, SUCH AS WETLANDS.

DIRTBAG DETAIL

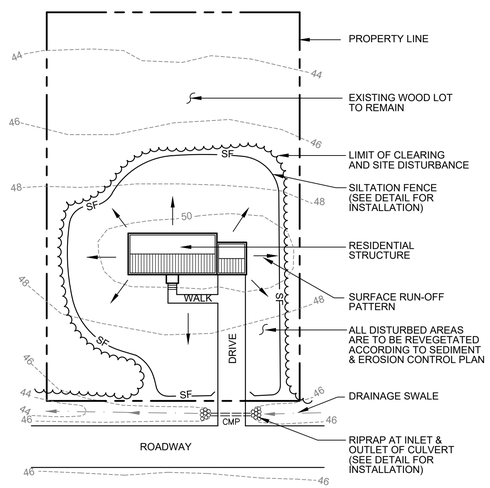
NOT TO SCALE



NOTE:
ALL SIGNAGE SHALL MEET THE REQUIREMENTS OF THE MOST RECENT MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD)

STREET SIGN

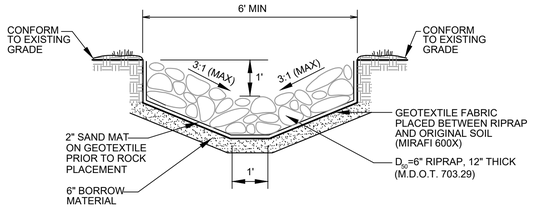
NOT TO SCALE



Inspection Notes for Lot Grading and Driveway location
Inspections by a professional engineer shall consist of a visit to the site prior to construction to consult with the earthwork contractor and a post construction meeting to confirm grading on lots and for all driveways to ensure runoff is directed according to plans and to oversee the re-stabilization of the lot into a vegetated cover.

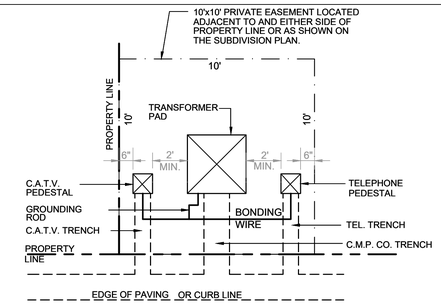
TYPICAL EROSION CONTROL MEASURES FOR DWELLING UNITS

NOT TO SCALE



RIPRAP SWALE

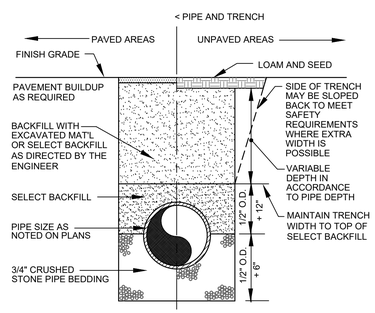
NOT TO SCALE



NOTE:
TRANSFORMER PAD AND COVER TO BE FIBERGLASS MEETING CENTRAL MAINE POWER SPECIFICATIONS.

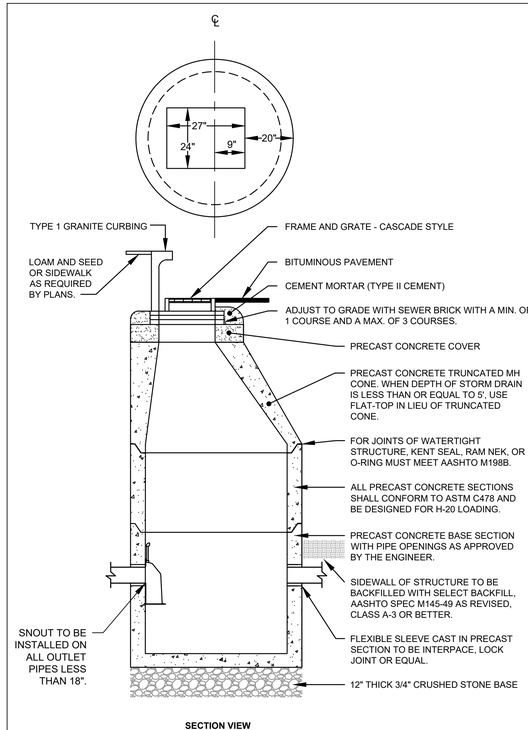
TRANSFORMER DETAIL

NOT TO SCALE



TYPICAL TRENCH SECTION

NOT TO SCALE



CATCH BASIN - CURB INLET

NOT TO SCALE

STATE OF MAINE
JEFFREY D. ADAMS
No. 10167
LICENSED
PROFESSIONAL ENGINEER

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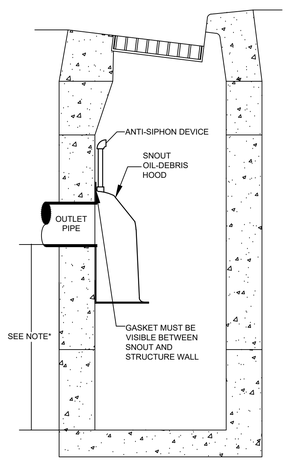
SHEET	C-5.1

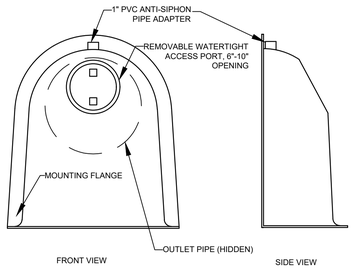
TYPICAL INSTALLATION



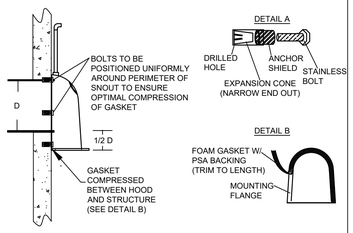
***NOTE-** SUMP DEPTH TO BE MIN. OF 2.5 TIMES THE OUTLET PIPE I.D. (E.G. 24" PIPE= 5' SUMP) 3' MIN FOR PIPES 12" I.D. OR LESS

CONFIGURATION DETAIL

SNOUT OIL-WATER DEBRIS SEPARATOR



INSTALLATION DETAIL



INSTALLATION NOTE:

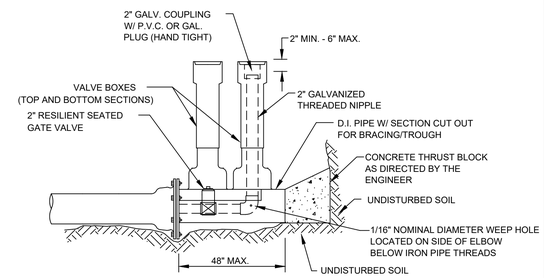
POSITION HOOD SUCH THAT BOTTOM FLANGE IS A DISTANCE OF 1/2 OUTLET PIPE DIAMETER (MIN.) BELOW THE PIPE INVERT. MINUMUM DISTANCE FOR PIPES < 12" I.D. IS 6".

CONSTRUCTION NOTES:

1. **CONFIGURATION:** ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, A MOUNTING FLANGE, AND AN ANTI-SIPHON VENT AS DRAWN. (SEE CONFIGURATION DETAIL)
2. **PIPE COVERAGE:** THE SIZE OF THE HOOD SHALL PERMIT THE O.D. OF THE OUTLET PIPE TO BE COVERED COMPLETELY.
3. **HOOD POSITION:** THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A MINIMUM DISTANCE EQUAL TO 1/2 THE OUTLET PIPE I.D. WITH A MINIMUM DISTANCE OF 6" FOR PIPES <12" I.D. GREATER INSERTION DEPTH IS PERMISSIBLE.
4. **ANTI-SIPHON VENT:** VENT WITH ELBOW AND FEMALE ADAPTER SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 24" ACCORDING TO STRUCTURE CONFIGURATION.
5. **MOUNTING SURFACE PREPARATION:** THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL.
6. **SNOUT/SRUCTURE INTERFACE:** THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH 3/8' STAINLESS STEEL BOLTS. OIL-RESISTANT GASKET AS SUPPLIED BY MANUFACTURER **MUST BE INSTALLED** TO PROVIDE PROPER SEAL. (SEE DETAIL "B")
7. **INSTALLATION INSTRUCTIONS:** INSTRUCTIONS SHALL BE FURNISHED UPON REQUEST OF INSPECTOR WITH MANUFACTURER SUPPLIED INSTALLATION KIT. INSTALLATION KIT SHALL INCLUDE:
   A. INSTALLATION INSTRUCTIONS
   B. PVC ANTI-SIPHON VENT PIPE, FEMALE ADAPTER WITH NUT, O-RING GASKETS
   C. OIL-RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
   D. 3/8" STAINLESS STEEL BOLTS
   E. ANCHOR SHIELDS
   F. STAINLESS NUTS AND BOLTS PLUS GASKET TO SECURE TOP AND BOTTOM OF SNOUT.
8. THE CITY OF LEWISTON REQUIRES SNOUTS ON ALL OUTLET PIPES LESS THAN 18" IN DIAMETER.

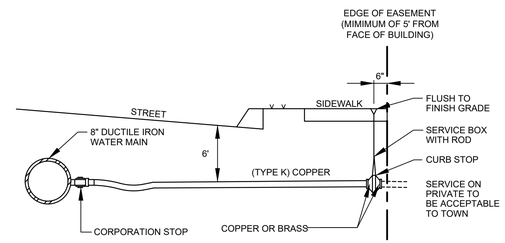
SNOUT HOOD DETAILS & NOTES

NOT TO SCALE



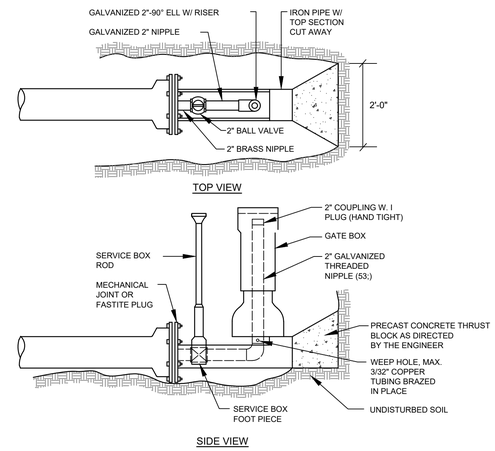
STANDARD 2" BLOW OFF

NOT TO SCALE



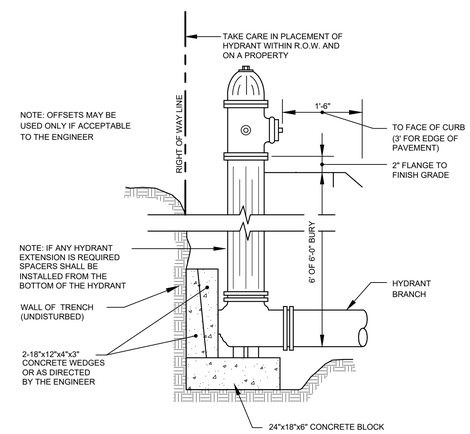
TYPICAL WATER SERVICE CONNECTION

NOT TO SCALE



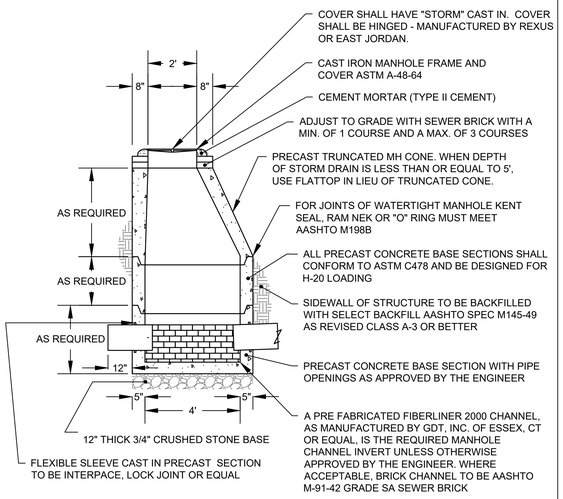
STANDARD 2" BLOW-OFF

NOT TO SCALE



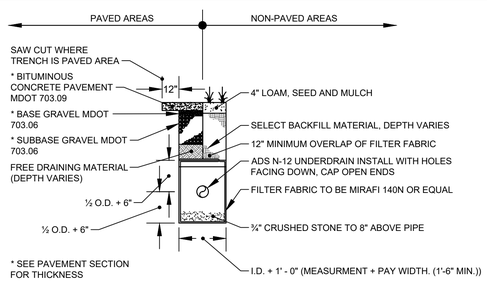
TYP. HYDRANT BLOCKING & REPLACEMENT

NOT TO SCALE



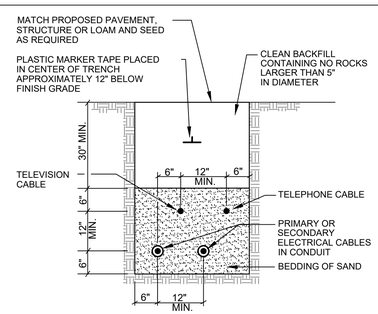
4' DIAMETER PRECAST STORM DRAIN MANHOLE

NOT TO SCALE



TYPICAL UNDERDRAIN TRENCH SECTION

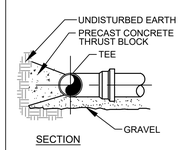
NOT TO SCALE



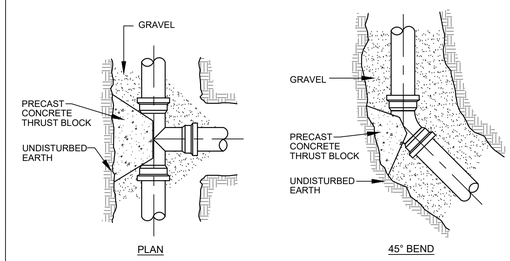
CABLES TO BE ENCASED IN SCHEDULE 40 PVC CONDUIT WHEN RUN BENEATH PAVED AREAS.

TYPICAL UNDERGROUND CABLE INSTALLATION

NOT TO SCALE



CONCRETE THRUST BLOCK SIZE REQUIREMENTS				
		SQ. FT. OF BEARING ON UNDISTURBED SOIL		
FITTINGS		90° BENDS	45° BENDS	TEES AND PLUGS
PIPE SIZE	6"	4.0	2.0	3.0
	8"	8.0	4.0	6.0
	12"	15	10	10



TEE & BEND DETAIL

NOT TO SCALE

STATE OF MAINE JEFFREY D. ADAMS No. 13167 LICENSED PROFESSIONAL ENGINEER

SIGNATURE DATE: 6/24/2019

NO.	DATE	REVISIONS	APP'D BY
1	06-24-2019	REVISED PER CITY REVIEW COMMENTS	

TERRADYN
41 CAMPUS DRIVE
SUITE 101
NEW GLOUCESTER, ME 04260
565 CONGRESS STREET
SUITE 310
PORTLAND, ME 04102
OFFICE: (207) 926-5111 FAX: (207) 221-1317
www.terradynconsultants.com
Civil Engineering - Land Planning - Stormwater Design - Environmental Permitting

SHEET DESCRIPTION
SANCTUARY ESTATES PHASE 2
CHASE LANE EXT., LEWISTON, ME
DETAILS

PREPARED FOR
CHASE CUSTOM HOMES & FINANCE
290 BRIDGTON ROAD
WESTBROOK, MAINE 04092

DATE:	2/26/2019
SCALE:	NTS
DESIGNED:	JDA
JOB NO:	1840
FILE:	1840 D
SHEET	C-5.2

NOTES:

1) ALL BEARINGS REFER TO MAGNETIC NORTH AS OBSERVED IN JULY OF 2017 AND CALCULATED FROM ANGLES OF A TRAVERSE PERFORMED BY THIS SURVEYOR.

2) ALL BOOK AND PAGE NUMBERS REFER TO THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS.

3) TOTAL AREA OF PARCEL SURVEYED = 33.63 ACRES.

4) OWNER OF RECORD = "CHASE CUSTOM HOMES & FINANCE, INC." - SEE DEED OF 200 ELM REALTY, LLC TO CHASE CUSTOM HOMES & FINANCE, INC. DATED NOVEMBER 1, 2016, AND RECORDED AT SAID REGISTRY IN BOOK 9503, PAGE 150.

5) REFERENCE IS MADE TO THE FOLLOWING PLANS:
A) "SEVILLE PLACE" DATED OCTOBER 1986 BY VINCE LEBLANC, PLS NO. 378, RECORDED AT SAID REGISTRY IN PLAN FILE BOOK 33, PAGE 9.
B) "SECOND SUBDIVISION - PLAN OF LOTS - LAURENT LEMIEUX" DATED MAY 28, 1987, BY ARTHUR MONTANA, PLS NO. 492, RECORDED AT SAID REGISTRY IN PLAN FILE BOOK 33, PAGE 11.
C) "MOUNTAIN VIEW ESTATES" BY SEBAGO TECHNICS, DATED DECEMBER 19, 2002, REVISED TO DECEMBER 29, 2003, RECORDED AT SAID REGISTRY IN PLAN FILE BOOK 43, PAGE 138.
D) "PLAN OF A BOUNDARY SURVEY FOR THE HOLY TRINITY GREEK ORTHODOX CHURCH" DATED JUNE 3, 2010 BY ROBIN REDMOND PLS NO. 2084, RECORDED AT SAID REGISTRY IN PLAN FILE BOOK 49, PAGE 10.
E) "FROM A PLAN BY COL. GARCELON" DATED MARCH 1857, RECORDED AT SAID REGISTRY IN THE UNRECORDED PLAN FILES NO. "HLEW-1".
F) "SANCTUARY ESTATES", DATED APRIL 25, 2018, BY CADMASTER LAND SURVEYING & SEPTIC DESIGN, RECORDED AT SAID REGISTRY IN PLAN FILE BOOK 52, PAGES 181 & 182.

6) SPACE AND BULK CRITERIA:

SUBURBAN RESIDENTIAL DISTRICT (SR)	
MIN. LOT SIZE	40,000 SQ. FT. (WITHOUT PUBLIC SEWER)
MIN. STREET FRONTAGE	125'
MIN. FRONT SETBACK	25'
MIN. SIDE SETBACK	15'
MIN. REAR SETBACK	15'
MAX. BUILDING HEIGHT	35 FT
MAX. IMPERVIOUS SURFACE RATIO	20%
PROPOSED IMPERVIOUS SURFACE RATIO:	20%

PROPOSED CLUSTER SPACE AND BULK CRITERIA:	
MIN. LOT SIZE	20,000 S.F. (WITHOUT PUBLIC SEWER)
MIN. STREET FRONTAGE	50'
MIN. FRONT SETBACK	12.5'
MIN. SIDE SETBACK	5'
MIN. REAR SETBACK	5'

THIS CLUSTER SUBDIVISION IS DESIGNED IN ACCORDANCE WITH ARTICLE X999, SECTION 7 OF THE ZONING AND LAND USE CODE. AS SUCH, LOT SIZE, STREET FRONTAGE & ALL SETBACK DISTANCES ARE PERMITTED TO BE REDUCED TO THE VALUES PRESENTED IN THE ABOVE TABLE.

IT SHOULD BE NOTED THAT THERE IS A MINIMUM 30' YARD & SETBACK AREA EVERYWHERE THAT IS ADJACENT TO THE OVERALL PROPERTY BOUNDARY.

7) THE WETLANDS ON THIS PLAN WERE DELINEATED BY DALE BREWER OF STATEWIDE SURVEY, INC.

8) THESE LOTS ARE TO BE SERVICED BY PUBLIC WATER, PRIVATE SEPTIC SYSTEMS AND UNDERGROUND UTILITIES.

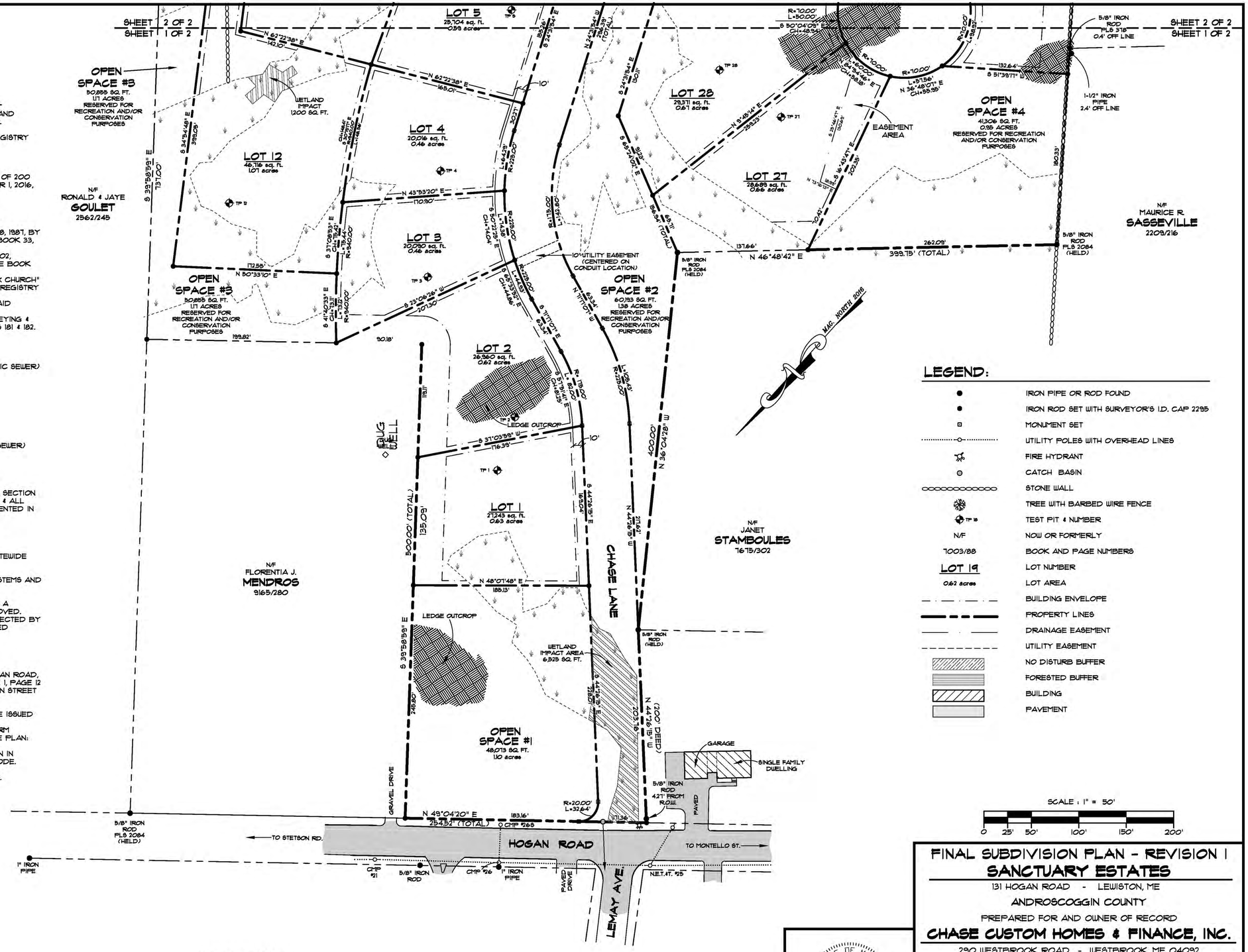
9) THE FORESTED BUFFERS SHOWN ON THIS PLAN ARE INTENDED TO REMAIN IN A NATURAL VEGETATIVE STATE. ONLY DEAD OR DISEASED TREES MAY BE REMOVED. THESE BUFFERS SHALL BE MARKED OUT WITH PERMANENT SIGNAGE AND PROTECTED BY DISTURBANCE IN ACCORDANCE WITH THE MAINE DEP CHAPTER 500 SUGGESTED TEMPLATES FOR DEED RESTRICTIONS PRIOR TO CONSTRUCTION.

10) THE SANCTUARY ESTATES HOMEOWNERS ASSOCIATION WILL HAVE THE RESPONSIBILITY OF MAINTAINING THE COMMON OPEN SPACE.

11) FOR INFORMATION WITH REGARDS TO THE APPARENT RIGHT OF WAY OF HOGAN ROAD, REFERENCE IS MADE TO THE CITY OF LEWISTON RECORD OF STREETS, VOLUME 1, PAGE 12 (3 RODS = 49.5' WIDE) DATED SEPTEMBER 12, 1842. SEE ALSO CITY OF LEWISTON STREET RECORD OF STREETS VOLUME 4, PAGE 71, DATED OCTOBER 6, 1987.

12) NO LOT OR PARCEL OF LAND MAY BE CONVEYED, AND NO PERMIT MAY BE ISSUED BY THE CITY OF ANY BUILDING OR OTHER PERMANENT STRUCTURE WITHIN THE DEVELOPMENT UNTIL THE COMPLETION OF THE STREET GRADING, PAVING, STORM DRAINAGE, UTILITIES AND OTHER SIMILAR IMPROVEMENTS AS SPECIFIED IN THE PLAN: AND ACCEPTANCE OF ANY PUBLIC IMPROVEMENTS BY THE CITY UNLESS A PERFORMANCE GUARANTEE HAS BEEN PROVIDED TO THE CITY'S SATISFACTION IN ACCORDANCE WITH ARTICLE XIII, SECTION 12 OF THE ZONING AND LAND USE CODE.

13) THIS PLAN WAS PREPARED UNDER THE DIRECT SUPERVISION OF GEORGE S. BOUCHLES, PLS 2295.



LEGEND:

●	IRON PIPE OR ROD FOUND
●	IRON ROD SET WITH SURVEYOR'S I.D. CAP 2295
⊡	MONUMENT SET
---o---	UTILITY POLES WITH OVERHEAD LINES
	FIRE HYDRANT
	CATCH BASIN
	STONE WALL
	TREE WITH BARBED WIRE FENCE
TP 18	TEST PIT & NUMBER
N/F	NOW OR FORMERLY
7003/88	BOOK AND PAGE NUMBERS
LOT 19	LOT NUMBER
0.62 acres	LOT AREA
	BUILDING ENVELOPE
	PROPERTY LINES
	DRAINAGE EASEMENT
	UTILITY EASEMENT
	NO DISTURB BUFFER
	FORESTED BUFFER
	BUILDING
	PAVEMENT

SCALE : 1" = 50'

0 25' 50' 100' 150' 200'

RECORDING DATA

ANDROSCOGGIN COUNTY REGISTRY OF DEEDS

RECEIVED _____ AT ___h.___m.___M.

RECORDED IN PLAN BOOK _____ PAGE _____

ATTEST _____
REGISTRAR

APPROVAL:

APPROVED BY THE CITY OF LEWISTON PLANNING BOARD

CHAIRPERSON: DATE:

STATE OF MAINE
GEORGE S. BOUCHLES
#2295
PROFESSIONAL LAND SURVEYOR

FINAL SUBDIVISION PLAN - REVISION 1
SANCTUARY ESTATES

131 HOGAN ROAD - LEWISTON, ME

ANDROSCOGGIN COUNTY

PREPARED FOR AND OWNER OF RECORD

CHASE CUSTOM HOMES & FINANCE, INC.

290 WESTBROOK ROAD - WESTBROOK, ME 04092

prepared by
CADmaster Drafting, Land Surveying & Septic Designs
586 Park Avenue. - Auburn, ME 04210
tel./fax = 689-3232 cell=240-5367

DATE: JUNE 21, 2019	SCALE: 1" = 50'	SHEET
JOB NUMBER: 17-064	CADD: 17-0648UBREV1.DWG	1 OF 2

APPROVAL:

APPROVED BY THE CITY OF LEWISTON PLANNING BOARD

CHAIRPERSON: ______________ DATE: ______________

RECORDING DATA

ANDROSCOGGIN COUNTY REGISTRY OF DEEDS

RECEIVED ____________ AT ___h.___m.___M.

RECORDED IN PLAN BOOK ________ PAGE ________

ATTEST ______________
REGISTRAR

SCALE : 1" = 50'

0 25' 50' 100' 150' 200'

FINAL SUBDIVISION PLAN - REVISION 1

SANCTUARY ESTATES

131 HOGAN ROAD - LEWISTON, ME

ANDROSCOGGIN COUNTY

PREPARED FOR AND OWNER OF RECORD

CHASE CUSTOM HOMES & FINANCE, INC.

290 WESTBROOK ROAD - WESTBROOK, ME 04092

prepared by

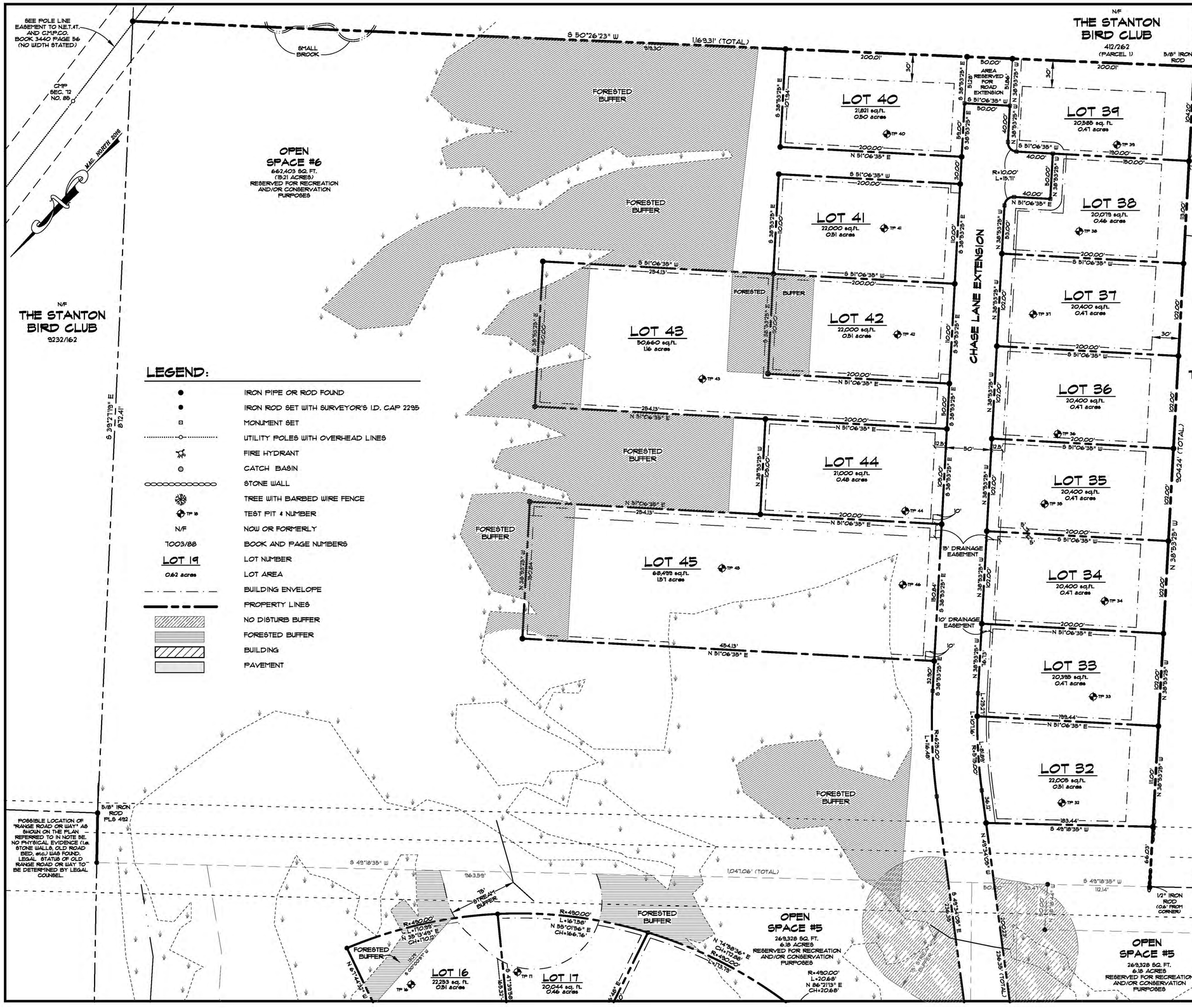
CADmaster Drafting, Land Surveying & Septic Designs

586 Park Avenue. - Auburn, ME 04210

tel./fax = 689-3232 cell=240-5567

STATE OF MAINE
GEORGE S. BOUCHLES
#2295
PROFESSIONAL LAND SURVEYOR

DATE: JUNE 21, 2019 JOB NUMBER: 17-064	SCALE: 1" = 50' CADD: 17-064SUBREV1.DWG	SHEET 2 OF 2



LEGEND:

- IRON PIPE OR ROD FOUND
- IRON ROD SET WITH SURVEYOR'S I.D. CAP 2295
- MONUMENT SET
- UTILITY POLES WITH OVERHEAD LINES
- FIRE HYDRANT
- CATCH BASIN
- STONE WALL
- TREE WITH BARBED WIRE FENCE
- TP 18 — TEST PIT & NUMBER
- N/F — NOW OR FORMERLY
- 7003/88 — BOOK AND PAGE NUMBERS
- LOT 19 — LOT NUMBER
- 0.62 acres — LOT AREA
- BUILDING ENVELOPE
- PROPERTY LINES
- NO DISTURB BUFFER
- FORESTED BUFFER
- BUILDING
- PAVEMENT

NOTES:

1) ALL BEARINGS REFER TO MAGNETIC NORTH AS OBSERVED IN JULY OF 2011 AND CALCULATED FROM ANGLES OF A TRAVERSE PERFORMED BY THIS SURVEYOR.

2) ALL BOOK AND PAGE NUMBERS REFER TO THE ANDROSCOGGIN COUNTY REGISTRY OF DEEDS.

3) TOTAL AREA OF PARCEL SURVEYED = 24.53 ACRES.

4) OWNER OF RECORD = ADELIE C. MACK (WIFE) - SEE ABSTRACT OF WILL FOR THE ESTATE OF SAMUEL RICHARD MACK (HUSBAND - DIED 9/12/2016.) DATED DECEMBER 22, 2016, PERSONAL REPRESENTATIVE ALVIN G. MACK, RECORDED AT SAID REGISTRY IN BOOK 9832, PAGE 304. REFERENCE IS ALSO MADE TO A DEED FROM OLYMPIC HEIGHTS, LLC TO S. RICHARD MACK DATED DECEMBER 14, 2006, AND RECORDED AT SAID REGISTRY IN BOOK 7003, PAGE 88.

5) REFERENCE IS MADE TO THE FOLLOWING PLANS:
A) "SEVILLE PLACE" DATED OCTOBER 1984 BY VINCE LEBLANC, PLS NO. 3118, RECORDED AT SAID REGISTRY IN PLAN FILE BOOK 33, PAGE 11.
B) "SECOND SUBDIVISION - PLAN OF LOTS - LAURENT LEHIEDU" DATED MAY 28, 1987, BY ARTHUR MONTANA, PLS NO. 492, RECORDED AT SAID REGISTRY IN PLAN FILE BOOK 33, PAGE 11.
C) "MOUNTAIN VIEW ESTATES" BY SEBAGO TECHNICS, DATED DECEMBER 19, 2002, REVISED TO DECEMBER 29, 2003, RECORDED AT SAID REGISTRY IN PLAN FILE BOOK 43, PAGE 138.
D) "PLAN OF A BOUNDARY SURVEY FOR THE HOLY TRINITY GREEK ORTHODOX CHURCH" DATED JUNE 3, 2010 BY ROBIN REDFIOND PLS NO. 2084, RECORDED AT SAID REGISTRY IN PLAN FILE BOOK 49, PAGE 10.
E) "FROM A PLAN BY COL. GARCELON" DATED MARCH 1887, RECORDED AT SAID REGISTRY IN THE UNRECORDED PLAN FILES NO. "HLEB-71".
F) "SANCTUARY ESTATES", DATED APRIL 25, 2018, BY CADMASTER LAND SURVEYING & SEPTIC DESIGN, RECORDED AT SAID REGISTRY IN PLAN FILE BOOK 57, PAGES 181 & 182.

6) SPACE AND BULK CRITERIA:

SUBURBAN RESIDENTIAL DISTRICT (SR)

MIN. LOT SIZE	40,000 SQ. FT. (WITHOUT PUBLIC SEWER)
MIN. STREET FRONTAGE	125'
MIN. FRONT SETBACK	25'
MIN. SIDE SETBACK	15'
MIN. REAR SETBACK	15'
MAX. BUILDING HEIGHT	35 FT
MAX. IMPERVIOUS SURFACE RATIO	20%
PROPOSED IMPERVIOUS SURFACE RATIO:	20%

PROPOSED CLUSTER SPACE AND BULK CRITERIA:

MIN. LOT SIZE	20,000 SF. (WITHOUT PUBLIC SEWER)
MIN. STREET FRONTAGE	50'
MIN. FRONT SETBACK	25'
MIN. SIDE SETBACK	5'
MIN. REAR SETBACK	5'

THIS CLUSTER SUBDIVISION IS DESIGNED IN ACCORDANCE WITH ARTICLE XVIII, SECTION 7 OF THE ZONING AND LAND USE CODE. AS SUCH, LOT SIZE, STREET FRONTAGE & ALL SETBACK DISTANCES ARE PERMITTED TO BE REDUCED TO THE VALUES PRESENTED IN THE ABOVE TABLE.

IT SHOULD BE NOTED THAT THERE IS A MINIMUM 30' YARD & SETBACK AREA EVERYWHERE THAT IS ADJACENT TO THE OVERALL PROPERTY BOUNDARY.

7) NO WETLAND FILL IS PERMITTED FOR DEVELOPMENT OF LOT 45.

8) THE WETLANDS ON THIS PLAN WERE DELINEATED BY DALE BREWER OF STATEWIDE SURVEY, INC.

9) THESE LOTS ARE TO BE SERVICED BY PUBLIC WATER, PRIVATE SEPTIC SYSTEMS AND UNDERGROUND UTILITIES.

10) THE FORESTED BUFFERS SHOWN ON THIS PLAN ARE INTENDED TO REMAIN IN A NATURAL VEGETATIVE STATE. ONLY DEAD OR DISEASED TREES MAY BE REMOVED. THESE BUFFERS SHALL BE MARKED OUT WITH PERMANENT SIGNAGE AND PROTECTED BY DISTURBANCE IN ACCORDANCE WITH THE MAINE DEP CHAPTER 500 SUGGESTED TEMPLATES FOR DEED RESTRICTIONS PRIOR TO CONSTRUCTION.

11) THE SANCTUARY ESTATES HOMEOWNERS ASSOCIATION WILL HAVE THE RESPONSIBILITY OF MAINTAINING THE COMMON OPEN SPACE AND STORMWATER FACILITIES WITHIN THE COMMON OPEN SPACE.

12) FOR INFORMATION WITH REGARDS TO THE APPARENT RIGHT OF WAY OF HOGAN ROAD, REFERENCE IS MADE TO THE CITY OF LEWISTON RECORD OF STREETS, VOLUME 1, PAGE 13 (3 ROOS + 49.5' WIDE) DATED SEPTEMBER 12, 1842. SEE ALSO CITY OF LEWISTON STREET RECORD OF STREETS VOLUME 4, PAGE 71, DATED OCTOBER 6, 1887.

13) NO LOT OR PARCEL OF LAND MAY BE CONVEYED, AND NO PERMIT MAY BE ISSUED BY THE CITY FOR ANY BUILDING OR OTHER PERMANENT STRUCTURE WITHIN THE DEVELOPMENT UNTIL THE COMPLETION OF THE STREET GRADING, PAVING, STORM DRAINAGE, UTILITIES AND OTHER SIMILAR IMPROVEMENTS AS SPECIFIED IN THE PLAN, AND ACCEPTANCE OF ANY PUBLIC IMPROVEMENTS BY THE CITY UNLESS A PERFORMANCE GUARANTEE HAS BEEN PROVIDED TO THE CITY'S SATISFACTION IN ACCORDANCE WITH ARTICLE XIII, SECTION 12 OF THE ZONING AND LAND USE CODE.

14) THIS PLAN WAS PREPARED UNDER THE DIRECT SUPERVISION OF GEORGE S. BOUCHLES, PLS 2295.

APPROVAL:

APPROVED BY THE CITY OF LEWISTON PLANNING BOARD

CHAIRPERSON: _____ DATE: _____

RECORDING DATA

ANDROSCOGGIN COUNTY REGISTRY OF DEEDS

RECEIVED _____ AT ___h. ___m. ___M.

RECORDED IN PLAN BOOK _____ PAGE _____

ATTEST _____

REGISTRAR

SCALE : 1" = 50'

0 25' 50' 100' 150' 200'

STATE OF MAINE GEORGE S. BOUCHLES #2295 PROFESSIONAL LAND SURVEYOR

PRELIMINARY SUBDIVISION PLAN
SANCTUARY ESTATES - PHASE 2

131 HOGAN ROAD (REAR) - LEWISTON, ME

ANDROSCOGGIN COUNTY

PREPARED FOR AND OWNER OF RECORD

CHASE CUSTOM HOMES & FINANCE, INC.

290 WESTBROOK ROAD - WESTBROOK, ME 04092

prepared by
CADmaster Drafting, Land Surveying & Septic Designs
386 Park Avenue. - Auburn, ME 04210
tel./fax = 689-3232 cell=240-5367

DATE: JUNE 21, 2019	SCALE: 1" = 50'	SHEET
JOB NUMBER: 17-064	CADD: 17-0649UB2.DWG	1 OF 1

CITY OF LEWISTON

Department of Planning & Code Enforcement

TO: **Planning Board**
FROM: **David Hediger, Director of Planning and Code Enforcement**
DATE: **July 2, 2019**
RE: **July 8, 2019 Planning Board Agenda Item V(a)**

Request for a recommendation the acquisition of 57 Knox Street and 31 Goodale Street.

Pursuant to Article VII, Section 4(h) of the Zoning and Land Use Code, the board shall review and make a recommendation to the city council with regard to the acquisition and disposition of all public ways, lands, buildings and other municipal facilities.

Staff has been directed to request a recommendation from the Planning Board for the acquisition two properties: 75 Knox Street and 31 Goodale Street.

57 Knox Street

This vacant property of 2,613 square feet is located in the Downtown (DR) district. Planning and Code Enforcement condemned a vacant three-unit structure previously located there in February 2018. Shore to Shore Title, LLC on behalf of the owner US Bank National Association worked with staff to pay for the property's demolition late 2018. The property has only 25' of frontage and therefore, is not developable (the minimum frontage needed is 50'). As a vacant lot, it is currently being assessed for $8,700. All taxes, fees, and utilities are paid and current. The owner's representative has approached other abutting lots regarding the possible sale of the property with no success. At this time, they are interested in donating the land to the City. The City owns the abutting lot at 61 Knox Street which is currently a community garden operated by St. Mary's Nutrition Center/ Lots to Gardens.

City staff recommends accepting the donation of this property given that it is not developable and that it may be combined with the abutting city owned land at 61 Knox Street for possible expansion of the community garden, open space, or future development.

31 Goodale Street

This property of approximately 3.28 acres is currently owned by Carol Cottle, Patricia Cyr, Pauline Hogan, and Jerome Hogan. Administration received a request from the owners and executor of Patricia Cyr indicating that all four parties intend to donate this land to the City upon acceptance from the City Council. The lot is currently undevelopable for a number of reasons. It is zoned Resource Conservation (RC) given the lot is mostly wetlands and floodplain associated with No Name Brook. The lot does not have frontage on a city accepted street. Access to the lot may be provided if a paper streets were ever constructed; however, these streets are also impacted by natural resources associated with No Name Stream. For these reasons, the

city has acquired many properties in this area deemed undevelopable, either through donation or failure to pay taxes. The lot abuts three other parcels, one of which is owned by the city. The other two lots are vacant and undevelopable for similar reasons. The current assessed value on this property is $11,760.

City staff recommends accepting the donation of this property given that it is not developable and it may be beneficial for future wetland mitigation or open space.

ACTION NECESSARY:

Make a motion pursuant to Article VII, Section 4(h) of the Zoning and Land Use Code to send a favorable recommendation to the City Council for the acquisition in the form of a donation of 57 Knox Street (including, if any, specific conditions raised by the Planning Board).

Make a motion pursuant to Article VII, Section 4(h) of the Zoning and Land Use Code to send a favorable recommendation to the City Council for the acquisition in the form of a donation of 31 Goodale Street (including, if any, specific conditions raised by the Planning Board).

57 Knox Street

July 2, 2019

1:480

0 20 40 80 ft

0 5 10 20 m

Lewiston, Maine
Lewiston Maine

City of Lewiston
City of Lewiston

57 Knox Street

July 2, 2019

1:480

0 20 40 80 ft

0 5 10 20 m

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),

City of Lewiston

City of Lewiston

David Hediger

From: Steven B. Greenfield <SGreenfield@florida-legal.net>
Sent: Friday, June 28, 2019 2:23 PM
To: 'Michael Carey'
Cc: David Hediger
Subject: RE: Donation of 57 Knox

Mike

I am pleased to confirm my client's interest in donating the property to the City.

Steven B. Greenfield, Esq.

President, Shore to Shore Title, LLC
6111 Broken Sound Parkway, NW
Suite 350
Boca Raton, FL 33487
(561) 288-8966 (Direct)
(561) 892-0916 (FAX)
Sgreenfield@florida-legal.net

PLEASE BE ADVISED THAT THIS COMMUNICATION MAY CONSTITUTE AN ATTEMPT TO COLLECT A DEBT. ANY INFORMATION OBTAINED WILL BE USED FOR THAT PURPOSE.

This e-mail and any attachments contain information from are intended solely for the use of the named recipient(s). This e-mail may contain privileged attorney-client communications or work product. Any dissemination of this e-mail or its attachments by anyone other than an intended recipient is strictly prohibited. If you are not a named recipient, you are prohibited from any further viewing of the e-mail or its attachments or from making any use of same. If you believe you have received this e-mail in error, please notify the sender by replying to this email or calling the sender at (561) 966-1441 and delete the e-mail from any drives or storage media and destroy any print out(s) of this e-mail or its attachments.

-----Original Message-----
From: Michael Carey [mailto:MCarey@brannlaw.com]
Sent: Friday, June 28, 2019 2:12 PM
To: Steven B. Greenfield <SGreenfield@florida-legal.net>
Cc: David Hediger <DHediger@lewistonmaine.gov>
Subject: Donation of 57 Knox

Steve – hope you are well! On behalf of the City, thanks again for the offer to donate 57 Knox.

The staff is beginning the public process to accept the donation. This is tentatively before the Planning Board next month. Can you confirm the owner's interest in donating the property the City?

Thanks,

Mike

Sent from my iPhone

BRANN & ISAACSON
ATTORNEYS AND COUNSELORS AT LAW

MICHAEL E. CAREY | Associate
mcarey@brannlaw.com

June 7, 2019

VIA EMAIL AND CERTIFIED MAIL

Steven B. Greenfield, Esq.
Greenfield Law Group, P.A.
6111 Broken Sound Parkway, NW, Suite 350
Boca Raton, Florida 33487

RE: Code Enforcement re 57 Knox Street—Demolition

Dear Steven:

On October 5, 2018, your client U.S. Bank National Association, as trustee, successor in interest to Bank of America (the "Owner") entered into a Consent Order and Judgment with the City of Lewiston (the "City") to demolish the Structure and stabilize the site located at 57 Knox Street, Lewiston, ME (the "Premises"). On October 1, 2018, as subsequently amended, the Owner and the City agreed to a process by which the City would aid the Owner in its court-ordered requirement of the Judgment to demolish the Structure and stabilize the site at the Premises. This agreement was memorialized in an October 3, 2018 letter. As part of that agreement, the Owner deposited $40,000 (the "Prepayment Funds") (one payment of $10,000 in October 2018 and a second payment of $30,000 in November 2018) into Brann & Isaacson's trust account for the reimbursement of demolition costs, administrative costs and attorney's fees and costs.

On January 4, 2019, I sent you a summary of the demolition at the Premises, including certain costs the City had incurred to date, which totaled $26,226.42, as well as estimated future costs. On January 11, 2019, a check in that amount was issued to the City from the Prepayment Funds to cover the January 4th City invoice. On June 6, 2019, I sent you the City's final invoice for the demolition of the Premises, which totaled $7,930.36, and which you authorized me to disburse to the City. Today, Brann & Isaacson issued a check in the amount of $7,930.36 to the City from the Prepayment Funds, leaving a remaining balance of $5,843.22 in the trust account.

We have previously sent you a copy of the satisfaction of the Consent Order and Judgment. Enclosed please find a check in the amount of $5,843.22 from the Brann & Isaacson trust account along with a copy of the Discharge of Writ of Execution.

If you have any questions, please do not hesitate to contact me.

Very truly yours,

BRANN & ISAACSON

Michael E. Carey

MEC/klb
Enclosure
cc: Allen Ward (by email)
Heather Hunter (by email)
Pamela LaBelle (by email)
David Hediger (by email)

COPY

DISCHARGE OF WRIT OF EXECUTION

City of Lewiston being the holder of a certain writ of execution against **US Bank National Association, as trustee, successor in interest to Bank of America, National Association as Trustee as successor by merger to LaSalle Bank National Association, as trustee for certificateholders of Bear Stearns Asset Backed Securities I LLC, Asset-Backed Certificates, Series 2005-HE6 and Select Portfolio Servicing, Inc.** dated December 20, 2018, and recorded in the Androscoggin County Registry of Deeds on December 26, 2018 in Book 9999, Page 330, hereby discharges and releases the writ of execution in its entirety. The City of Lewiston, having given notice of the pendency of this matter that resulted in said writ of execution by the recordation of a lis pendens in the Androscoggin County Registry of Deeds at Book 9853, Page 277, hereby releases, cancels and annuls the lis pendens as to the subject property.

City of Lewiston has caused this instrument to be executed in its corporate name by Edward A. Barrett its City Administrator, duly authorized, this 7th day of June, 2019.

CITY OF LEWISTON

Edward A. Barrett

By: Edward A. Barrett
Its: City Administrator

STATE OF MAINE
COUNTY OF ANDROSCOGGIN

June 7, 2019

Then personally appeared the above named Edward A. Barret and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act in deed of said municipality.

Before me,

Janet D. Labbe
Notary Public/Attorney at Law

Janet D. Labbe
Print Name
My Commission Expires: 06/07/2020

JANET D. LABBE
MY COMMISSION EXPIRES JUNE 7, 2020
NOTARY PUBLIC
MAINE

BRANN & ISAACSON
TRUST ACCOUNT
184 MAIN ST. - P.O. BOX 3070
LEWISTON, ME 04243-3070
(207) 786-3566

CAMDEN NATIONAL BANK
52-145/112

5705

DATE	NUMBER	AMOUNT
06/06/2019		**$5,843.22

PAY *** FIVE THOUSAND EIGHT HUNDRED FORTY-THREE & 22/100 DOLLARS

TO THE ORDER OF Greenfield Law Group Trust Account

Void after 90 days

AUTHORIZED SIGNATURE

⑈005705⑈ ⑆011201458⑆ 1400001504⑈

BRANN & ISAACSON - TRUST ACCOUNT

PAY TO Greenfield Law Group Trust Account

DATE	TRUST NAME	DESCRIPTION	AMOUNT
06/06/2019	CITY OF LEWISTON	1700001.259 City of Lewiston 57 Knox St.	5,843.22

CHECK DATE	CHECK NO.		CHECK AMOUNT
06/06/2019	5705		5,843.22

City of Lewiston

June 27, 2019

polygonLayer

Override 1

LewistonGIS.DBO.LEW_parcels_poly_sub_layeredwithdata_w

LewGIS.SDE.LEW_roadcl_geocode

City Limits

1:1,800

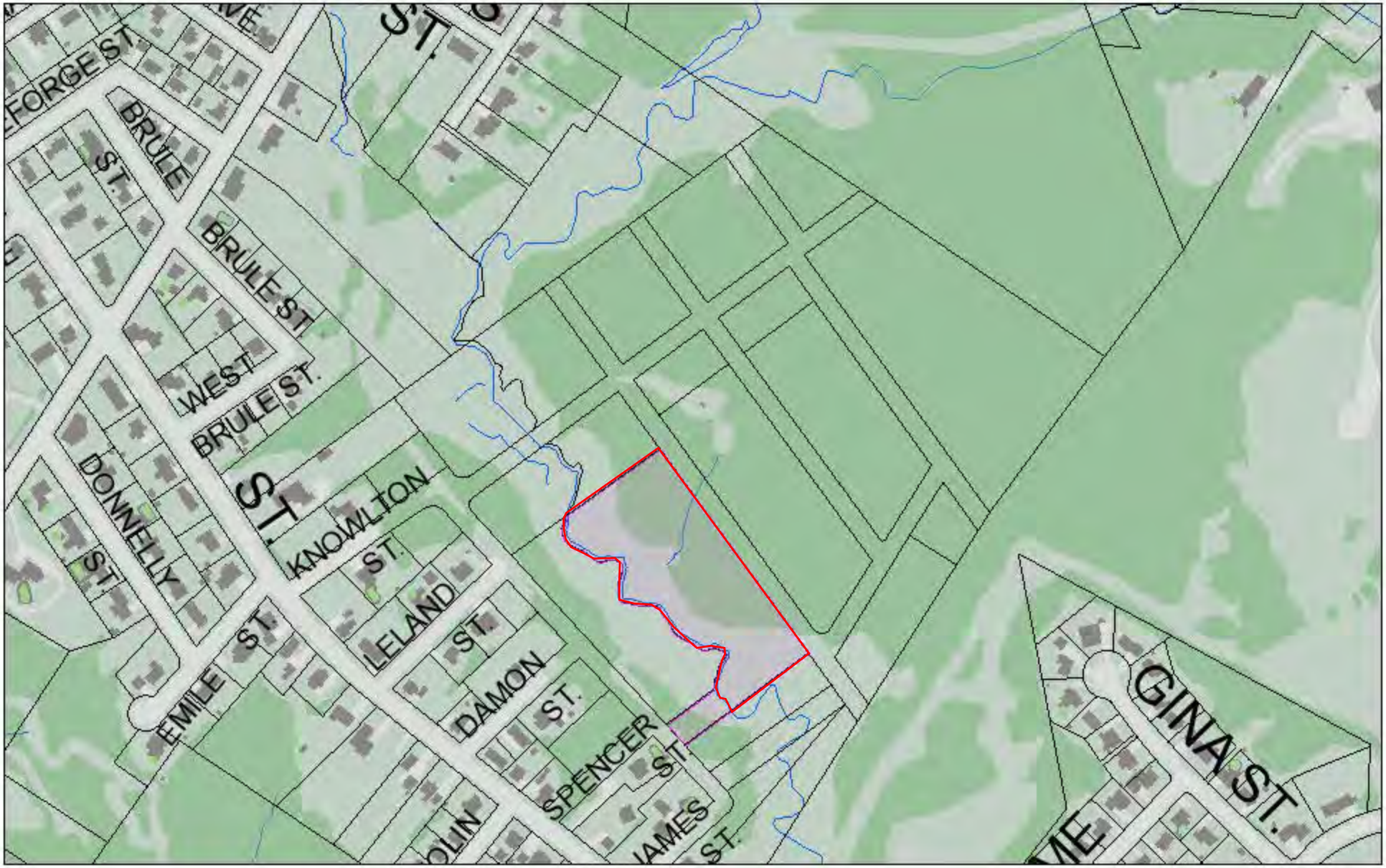
0 0.015 0.03 0.06 mi

0 0.0225 0.045 0.09 km

Lewiston, Maine
Lewiston Maine

City of Lewiston
City of Lewiston

City of Lewiston



June 27, 2019

1:3,840

0 0.0325 0.065 0.13 mi

0 0.05 0.1 0.2 km

polygonLayer

Override 1

LewistonGIS.DBO.LEW_parcels_poly_sub_layeredwithdata_w

LewGIS.SDE.LEW_roadcl_geocode

City Limits

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),

City of Lewiston

City of Lewiston

City of Lewiston

June 27, 2019

1:3,360

0 0.0275 0.055 0.11 mi

0 0.045 0.09 0.18 km

polygonLayer

Override 1

LewistonGIS.DBO.LEW_parcels_poly_sub_layeredwithdata_w

AdvancedDrawPolyline

Override 1

Override 2

LewGIS.SDE.LEW_roadcl_geocode

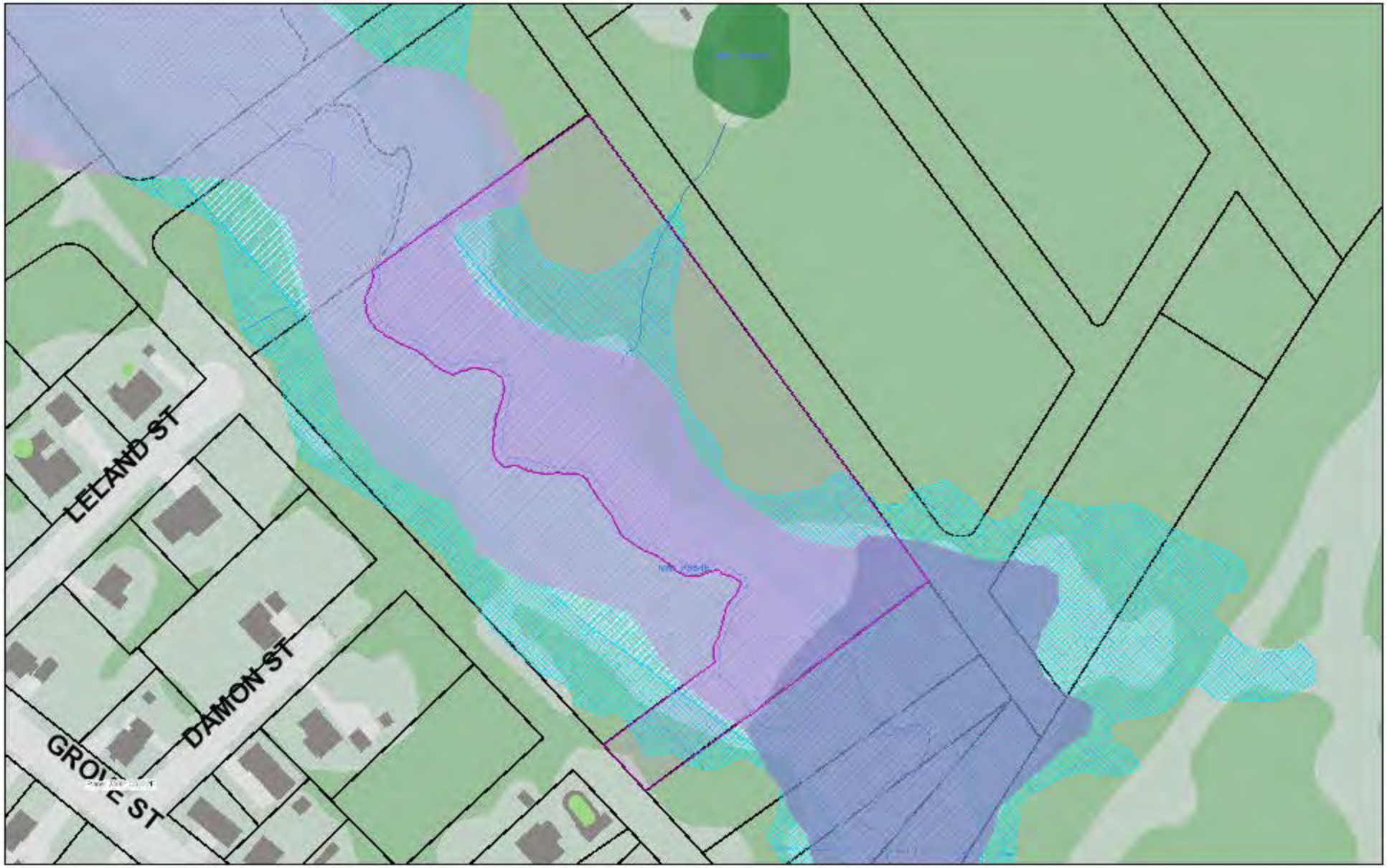
City Limits

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),

City of Lewiston

City of Lewiston

City of Lewiston



June 27, 2019

polygonLayer

Override 1

LewistonGIS.DBO.LEW_parcels_poly_sub_layeredwithdata_w

LewGIS.SDE.LEW_roadcl_geocode

City Limits

1:1,680

0 0.0125 0.025 0.05 mi

0 0.0225 0.045 0.09 km

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand),

City of Lewiston

City of Lewiston

Jean Rueda
845 Country Club Road
Bridgewater, NJ 08807
Cell: (908) 304-3359
Email: jmr0331cat@gmail.com

June 3, 2019

City of Lewiston
27 Pine Street
Lewiston, ME 04240

Attention: Ed Barrett

Re: 31 Goodale Street / Parcell #00-004778 /Account #4764

Dear Mr. Barrett:

The above referenced property is owned by four individuals: Carol Cottle, Patricia Cyr, Pauline Hogan & Jerome Hogan.

Patricia Cyr died April 18, 2018 and I was appointed executor of her estate on May 1, 2018 by the Union County (NJ) Surrogate's Court. I am providing you with the appointment of executor and a death certificate for your reference.

All four parties intend to make a gift of this land to the City of Lewiston upon acceptance of the City Council.

I am providing my intent for the estate's one-fourth owner of this property to make the gift to the City of Lewiston.

Please (if possible) return the original appointment of executor and a death certificate – I have provided a return envelope for your convenience.

Please advise if you require additional information.

Sincerely,

Jean Rueda

Jean Rueda
Executor for the
Estate of Patricia Cyr

Confidential

Internal

STATE OF NEW JERSEY

A0013726440

STATE FILE NUMBER

20180023869

CERTIFICATE OF DEATH

DECEASED NAME

PATRICIA J CYR

DATE OF BIRTH

01/11/1941

SEX

FEMALE

DATE OF DEATH

04/18/2018

PLACE OF DEATH

BRIDGEWATER TOWNSHIP

COUNTY OF DEATH

SOMERSET

RESIDENCE ADDRESS

60 RALPH PLACE

SOCIAL SECURITY NUMBER

004-38-6778

MUNICIPALITY OF RESIDENCE

BERKELEY HEIGHTS TOWNSHIP

COUNTY OF RESIDENCE

UNION

DOMESTIC STATUS

WIDOWED

MANNER OF DEATH: ***NATURAL***

CAUSE OF DEATH:
CARDIAC ARREST
COLON CANCER

DATE ISSUED: ***APRIL 23, 2018***

DATE FILED WITH REGISTRAR: ***04/23/2018***

AMENDED DATE:

ISSUED BY:
Bridgewater Township
Peter T Leung, Alternate Deputy Registrar

This is to certify that the above is correctly copied from a record on file in my office.

Certified copy not valid unless the raised Great Seal of the State of New Jersey or the seal of the issuing municipality or county, is affixed hereon.

Vincent T. Arrisi
State Registrar
Office of Vital Statistics and Registry

REG-42A
JUN 14

THIS DOCUMENT CONTAINS A UNIQUE STATE OF NJ WATERMARK HOLD AT LIGHT TO VERIFY

THIS DOCUMENT CONTAINS A UNIQUE STATE OF NJ WATERMARK HOLD AT LIGHT TO VERIFY

THIS DOCUMENT HAS MULTIPLE SECURITY FEATURES TO DETER FRAUD; VOID IF ALTERED

State of New Jersey
Union County Surrogate's Court

In the Matter of the Estate of:
Patricia J. Cyr (Widowed), Deceased
AKA: Patricia Jean Cyr, AKA: Patricia Cyr

EXECUTOR
SHORT FORM CERTIFICATE
OF LETTERS TESTAMENTARY

Date of Death: **April 18, 2018**

I, **James S. LaCorte**, Surrogate of the County of Union, do hereby certify that the Last Will and Testament of the decedent, late of Union County, State of New Jersey, was admitted to Probate by the Surrogate of Union County, on May 1, 2018; and that Letters Testamentary were issued to:

Jean Rueda AKA: Jean M. Rueda,

the Executor(s) named therein, who is duly authorized to administer the estate of said deceased agreeably to said Will and said Letters Testamentary have never been revoked and still remain in full force and effect.

WITNESS my hand and seal of office this
1st day of May, 2018

James S. LaCorte
Surrogate & Deputy Clerk of the Superior Court of NJ
Chancery Division, Probate Part, Union County

SURROGATE SEAL OF THE COUNTY OF UNION

Gmail

Jean Rueda <jmr0331cat@gmail.com>

31 Goodale St.

Ed Barrett <EBarrett@lewistonmaine.gov> Fri, May 24, 7:24 AM
To: Jean Rueda <jmr0331cat@gmail.com>
Cc: Douglas Greene <DGreene@lewistonmaine.gov>

Jean:

At this point letters from each owner indicating each owners intent to make a gift subject to acceptance by the City Council is sufficient. Once the City Council votes to accept the gift, then we will need a deed signed by all plus evidence re estate.

[Quoted text hidden]

CITY OF LEWISTON
REAL ESTATE TAX STATEMENT

Fiscal Year 2019
July 1, 2018-June 30, 2019

PARCEL NUMBER	ACCOUNT NUMBER	DATE OF BILLING
00-004778	4764	1/23/2019

LOCATION OF PROPERTY AND DESCRIPTION
00031 GOODALE ST
LAND-L 151-168/135-136

S54047 P0 - 1

2746 COTTLE, CAROL / CYR, PATRICIA
HOGAN, PAULINE/JEROME
PO BOX 111
HOULTON, ME 04730-0111

TOTAL TAXES	$337.16
BILL NUMBER	19A00004778
DUE SEPTEMBER 17, 2018	$0.00
DUE MARCH 15, 2019	$70.34
AMOUNT PAID TO DATE	($269.15)
INTEREST DUE	$0.00
BALANCE DUE	$70.34

CURRENT BILLING INFORMATION

Valuation	$11,760.00
Homestead Exemption	$0.00
Other Exemption	$0.00
Taxable Valuation	$11,760.00
Tax Rate	$28.67
TOTAL TAX	$337.16

PAYMENT & REMITTANCE INSTRUCTIONS

Please send remittance copy below
Payment by check: payable to: CITY OF LEWISTON
Payment by Credit/Debit Card: PLEASE NOTE: A 2.5% merchant fee (minimum of $1.00) will be charged on all credit/debit card transactions.
Please complete credit/debit card information and sign remittance copy below.

Mail to: City of Lewiston Tax Collector
27 Pine Street
Lewiston, ME 04240-7200

TAXPAYER NOTICE

Notice is hereby given that your property tax for fiscal year 2019 (July 1, 2018 through June 30, 2019) is payable in (2) equal installments on September 17, 2018 and March 15, 2019 and interest will be charged on the first installment at an annual rate of 8% from September 18, 2018. Interest will be charged on the second installment at an annual rate of 8% from March 16, 2019.

Pursuant to Title 36 ss 502 of Maine Law, the ownership and taxable valuation of all real and personal property subject to taxation shall be fixed as of April 1st of each year. If you have sold your property since April 1, 2018, it is your obligation to forward this bill to the current property owner.

This bill is for taxes due for the current fiscal year 2019 (July 1, 2018 through June 30, 2019). If "Prior Taxes Due" is indicated above, the outstanding amount for any prior tax year(s) is not included in the amount on this tax bill.

Your property taxes are utilized to fund the following:

City Budget:	57.8%
School Budget:	37.3%
County Budget:	4.9%

As a result of funds received from the state through the state municipal revenue sharing program, homestead exemption reimbursement and state aid to education, your property tax bill has already been reduced by 60.9%.

The City's outstanding bonded indebtedness as of June 30, 2018 is $182,982,450.00

QUESTIONS?

For valuations, call the Assessor's Office at (207) 513- 3122.
For payments and interest, call the Tax Collector's Office at (207) 513-3131.

OFFICE HOURS:

8:30 a.m. to 4:00 p.m. Monday through Friday

REMITTANCE COPY - PLEASE SUBMIT BOTTOM PORTION ALONG WITH YOUR PAYMENT

CITY OF LEWISTON
REAL ESTATE TAX STATEMENT

COTTLE, CAROL / CYR, PATRICIA
HOGAN, PAULINE/JEROME
PO BOX 111
HOULTON, ME 04730-0111

TELEPHONE #

If you wish to pay by credit card indicate card type and write number and signature below.

☐ MasterCard ☐ Visa ☐ Amex ☐ Discover

PLEASE NOTE: A 2.5% merchant fee ($1.00 minimum) will be charged on all credit/debit card transactions.

NAME ON CARD

ZIP CODE

Credit Card Number

Security Code

Expiration Date

Signature

LOCATION	00031 GOODALE ST LAND-L 151-168/135-136
PARCEL NUMBER	00-004778
ACCOUNT NUMBER	4764
DATE OF BILLING	1/23/2019
DUE SEPTEMBER 17, 2018	$0.00
DUE MARCH 15, 2019	$70.34
PAYMENT AMOUNT	

Carol Cottle
PO Box 111
Houlton, ME 04730
Home: 207-532-3911

June 3, 2019

City of Lewiston
27 Pine Street
Lewiston, ME 04240

Attention: Ed Barrett

Re: 31 Goodale Street / Parcell #00-004778 /Account #4764

Dear Mr. Barrett:

I am one fourth owner of the above referenced property (the other owners are Patricia Cyr, Pauline Hogan & Jerome Hogan).

All four parties intend to make a gift of this land to the City of Lewiston upon acceptance of the City Council.

I am providing my intent as one-fourth owner of this property to make the gift to the City of Lewiston.

Please advise if you require additional information.

Sincerely,

Carol Cottle

Carol Cottle

Confidential

Internal

Jerome Hogan
c/o Pauline Hogan Folsom
PO Box 523
Houlton, ME 04730
Home: 207-532-3911

June 3, 2019

City of Lewiston
27 Pine Street
Lewiston, ME 04240

Attention: Ed Barrett

Re: 31 Goodale Street / Parcell #00-004778 /Account #4764

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Please advise if you require additional information.

Sincerely,

Jerome Hogan

Jerome Hogan

Confidential

Internal

Pauline Hogan Folsom
PO Box 523
Houlton, ME 04730
Home: 207-532-3911

June 3, 2019

City of Lewiston
27 Pine Street
Lewiston, ME 04240

Attention: Ed Barrett

Re: 31 Goodale Street / Parcell #00-004778 /Account #4764

Dear Mr. Barrett:

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Please advise if you require additional information.

Sincerely,

Pauline Hogan Folsom

Pauline Hogan Folsom

Confidential

Internal