ITEM 4

Town of Kittery

Planning Board Meeting

October 14, 2021

ITEM 4—524 US Route 1—Final Site and Right-of-Way Plan Review

Action: continue to a subsequent meeting; approve or deny final plan. Pursuant to §16.3.2.13 Mixed-Use, §16.8 Design and Performance Standards for Built Environment and Article V Preliminary Plan Application Review of §16.10 Development Plan Application of the Town of Kittery Land Use and Development Code, the Planning Board shall consider an final site and right-of-way plan application from applicant/owner C-Coast Properties and agent Altus Engineering, Inc. requesting final approval to construct 20,000-sf manufacturing building with appurtenant infrastructure and landscaping on real property with an address of 524 U.S. Route 1 (Tax Map 67, Lot 1) located in the Mixed-Use (MU) and Residential-Rural (R-RL) Zones and Shoreland (OZ-SL-250) and Resource Protection (OZ-RP) Overlay Zones.

PROJECT TRACKING

REQ'D	ACTION	COMMENTS	STATUS
YES	Sketch Plan	May 27, 2021	APPROVED
YES	Site Visit	August 31, 2021	HELD
YES	Preliminary Plan Review Completeness/Acceptance	August 12, 2021	HELD
YES	Public Hearing	September 9 ,2021	HELD
YES	Preliminary Plan Approval	September 9, 2021	APPROVED
YES	Final Plan Review and Decision	May occur on October 14, 2021	PENDING

Applicant: Prior to the signing of the approved Plan any **Conditions of Approval related to the Findings of Fact along with waivers and variances (by the BOA) must be placed on the Final Plan and, when applicable, recorded at the York County Registry of Deeds. PLACE THE MAP AND LOT NUMBER IN 1/4" HIGH LETTERS AT LOWER RIGHT BORDER OF ALL PLAN SHEETS.** As per Section 16.4.4.13 - Grading/Construction Final Plan Required. - Grading or construction of roads, grading of land or lots, or construction of buildings is prohibited until the original copy of the approved final plan endorsed has been duly recorded in the York County registry of deeds when applicable.

Project Introduction

This is a preliminary review for a proposed commercial manufacture (specialty food facility) development located at 524 US Route 1 in the Mixed-Use Zone. The applicant is proposing to construct a 20,000-sf. specialty food facility that will process and package dehydrated foods. To access and support the facility, the applicant intends to construct a new right-of-way off U.S. Route 1 to access the new facility and parking area, which will comprise 38 spaces, two of which are designated exclusively for ADA use, and a loading dock area.

Currently, the lot appears to be located in both the Town of Kittery and Town of York, however, the proposed plan intends to divide the lot in two with the proposed development totally within the Town of Kittery and the other lot to remain as currently constituted. The existing lot as currently configured possesses a few accessory structures to the dwelling unit, a cemetery in near proximity thereof, ancient walls; a logging road; and natural features such has wetlands, vernal pools, and forested lands. The division of the lot will place most of those features within the lot not proposed for development apart from the wetlands. The lot proposed for development does have shoreland and resource protection overlay zones, but those zones reside towards the rear of the lot, nowhere near the proposed development. A few wetlands have been identified on the properties as well, but they appear not to be impacted by any of the proposed development activity. This is especially true concerning the vernal pool, for the site plans appear to depict no development activity occurring within the protective buffer space (250-ft) from the edge of the vernal pool.

Supplementing the site plan application is a right-of-way plan that intends to create frontage for the proposed lot and development. The applicant has requested a few waivers concerning the construction and features therein. Further, the application incorporates a traffic impact analysis and stormwater report which are being reviewed by MainDOT and Maine DEP respectively.

§16.10.7.2 *Final Plan application submittal content*	
A. Preliminary plan information, including vicinity map and any amendments thereto suggested or required by the Planning Board or other required reviewing agency.	This requirement appears to be satisfied.
B. Street names and lines, pedestrian ways, lots, easements and areas to be reserved for or dedicated to public use.	This requirement appears to be satisfied. Although, the Planning Board may want to inquire about the total width of the pole (electrical?) easement as only the centerline is depicted. Further, the proposed development appears to be located within the pole easement. The Board may want to make inquire of the applicant if the easement would be overburden.
C. Street length of all straight lines, the deflection angles, radii, lengths of curves and central angles of all curves, tangent distances and tangent bearings.	This requirement appears to be satisfied.
D. Lots and blocks within a subdivision, numbered in accordance with local practice.	This requirement not applicable.
E. Markers/permanent reference monuments: Their location, source references and, where required, constructed in accordance with specifications herein.	This requirement appears to be satisfied.
F. Structures: their location and description, including signs, to be placed on the site, floor plans and elevations of principal structures as well as detail of all structures, showing building materials and colors, and accesses located within 100 feet of the property line.	This requirement is mostly satisfied besides that fact that the floor plans of the building and the color scheme for the building elevation were not submitted. The Planning Board should determine if this information is needed before moving forward or have the applicant provide answers during the meeting.
G. Outdoor lighting and signage plan if the application involves the construction of more than 5,000 square feet of nonresidential floor area; or the creation of more than 20,000 square feet of impervious area; or the creation of three or more dwelling units in a building — prepared by a qualified lighting professional, showing at least the following at the same scale as the site plan: (1) All buildings, parking areas, driveways, service areas, pedestrian areas, landscaping and proposed exterior lighting fixtures; (2) All proposed lighting fixture specifications and illustrations, including photometric data, designation as "cutoff" fixtures, color rendering index (CRI) of all lamps (bulbs), and other descriptive information on the fixtures; (3) Mounting height of all exterior lighting fixtures; (4) Lighting analyses and luminance level diagrams or photometric point-by-point diagrams on a twenty-foot grid, showing that the proposed installation conforms to the lighting level standards of the ordinance codified in this section together with statistical summaries documenting the average luminance, maximum luminance, minimum luminance, average-to-minimum uniformity ratio, and maximum-to-minimum uniformity ratio for each parking area, drive, canopy and sales or storage area; (5) Drawings of all relevant building elevations, showing the fixtures, the portions of the walls to be illuminated, the luminance levels of the walls, and the aiming points for any remote light fixtures; and (6) A narrative that describes the hierarchy of site lighting and how the lighting will be used to provides safety, security and aesthetic effects.	These requirements appears to be satisfied.

H. Machinery in permanently installed locations likely to cause appreciable noise at the lot lines.	This requirement appears to be satisfied.
I. Materials (raw, finished or waste) storage areas, their types and location, and any stored toxic or hazardous materials, their types and locations.	This requirement is not applicable.
J. Fences, retaining walls and other artificial features locations and dimensions proposed.	This requirement appears to be satisfied.
K. Landscaping plan, including location, size and type of plant material.	This requirement appears to be satisfied.
L. Municipal impact analysis of the relationship of the revenues to the Town from the development and the costs of additional publicly funded resources, including: (1) Review for impacts. A list of the construction items that will be completed by the developer prior to the sale of lots. (2) Municipal construction and maintenance items. A list of construction and maintenance items that must be borne by the municipality, which must include, but not be limited to: (a) Schools, including busing; (b) Road maintenance and snow removal; (c) Police and fire protection; (d) Solid waste disposal; (e) Recreation facilities; (f) Runoff water disposal drainageways and/or storm sewer enlargement with sediment traps. (3) Municipal costs and revenues. Cost estimates to the Town for the above services and the expected tax revenue of the development.	List of constructions items were provided in the form of design details as depicted on plan sheets D1-D10. No items of the proposed development will fall under the Town's responsibility to construct. No information was provided estimating the projected cost and revenues of the proposed development. The Planning Board should decide if this information is necessary in order to make a final decision.
M. Open space land cession offers. Written offers of cession to the municipality of all public open space shown on the plan, and copies of agreements or other documents showing the manner in which space(s), title to which is reserved by the subdivider, are to be maintained.	No cession offers to the municipality are planned.
N. Open space land cession offers acknowledgement by Town. Written evidence that the municipal officers are satisfied with the legal sufficiency of the documents referred to in § 16.10.7.2M. Such written evidence does not constitute an acceptance by the municipality of any public open space referred to in § 16.10.7.2M	This requirement is not applicable.
O. Performance guaranty and Town acceptance to secure completion of all improvements required by the Planning Board, and written evidence the Town Manager is satisfied with the sufficiency of such guaranty. (1) Where improvements for the common use of lessees or the general public have been approved, the Planning Board must require a performance guaranty of amount sufficient to pay for said improvements as a part of the agreement. (2) Process. Prior to the issue of a building permit, the applicant must, in an amount and form acceptable to the Town Manager, file with the Municipal Treasurer an instrument to cover the full cost of the required improvements. A period of one year (or such other period as the Planning Board may determine appropriate, not to exceed three years) is the guaranty time within which required improvements must be completed. The performance guaranty must include an amount required for recreation land or improvements, as specified	This requirement appears to be satisfied and will be a requirement prior to the issuance of a building permit in the instance the final plan is approved by the Planning Board.

P. Maintenance plan and agreement defining maintenance responsibilities, responsible parties, shared costs and schedule. Where applicable, a maintenance agreement must be included in the document of covenants, homeowners' documents and/or as riders to the individual deed.	The maintenance of the site will be the sole responsibility of the applicant as there is no planned association to be formed.
Q. Stormwater management plan for stormwater and other surface water drainage prepared by a registered professional engineer, including the location of stormwater and other surface water drainage area; a post-construction stormwater management plan that defines maintenance responsibilities, responsible parties, shared costs, and schedule for maintenance; a draft maintenance agreement for stormwater management facilities; and, where applicable, draft documents creating a homeowners' association referencing the maintenance responsibilities. Where applicable, the maintenance agreement must be included in the document of covenants, homeowners' documents and/or as riders to the individual deed and recorded with the York County Registry of Deeds.	This requirement appears to be satisfied.

Waivers as authorized under §16.7 Article IV *Waivers*	
Table 1 of §16.8 *Design and Performance Standards for Built Environment*	
Standard	Comment
Secondary Collector (201 – 800 ADT)	
Sidewalks	Applicant has proposed no sidewalks on the new right-of-way
Longitudinal Street Gradient	Applicant has proposed to increase gradient from 7.5 to 7
Side Slope	Applicant has proposed 2:1 & 1:2 in deep cuts and leges where 3:1 is required.
Tangent between Reverse Curves	Applicant has proposed 0', 50' & 54.42' proposed where 100' required.
Minimal Centerline Curve Radius	Applicant has proposed 150', 200' & 200' proposed where 300' required.

§16.3.2.13.D(2)	
Standard	Comment
(a) Minimum lot size: [1] Lots with frontage on Route 1: 200,000-sf. [2] Lots without frontage on Route 1: 80,000-sf.	This standard appears to be satisfied.
(b) Minimum street frontage: On Route 1: 250-ff. [1] Other Streets: 150-ft.	This standard appears to be satisfied.
(c) Minimum front setback: 30-ft.	This standard appears to be satisfied.
(d) Minimum rear and side setbacks: 30-ft.	This standard appears to be satisfied.
(e) Maximum building height: 40-ft.	This standard appears to be satisfied.
(f) Maximum height above grade of building-mounted signs: 40-ft.	This standard appears to be satisfied.
(h) Minimum setback from streams, water bodies and wetlands: in accordance with Table 16.9, § 16.3.2.17 and Appendix A, Fee Schedules.	This standard appears to be satisfied.
(l) Buffer to neighboring lot with an existing residence within 100 feet of the lot line: 40-ft	This standard appears to be satisfied.
§16.3.2.13.D(5) Location and screening of parking areas	
All new parking areas must be located at the side of, and/or to the rear of, principal buildings. Where unique circumstances exist and it is demonstrated to the Planning Board that prohibition of parking in front of the principal building is not practicable, with the Board's approval, 10 or fewer parking spaces may be located closer to the front lot line than a principal building. All new or altered parking must be visually screened from U.S. Route 1, Lewis Road, Cutts Road, and Haley Road by extensive landscaping, earthen berms, and/or fencing (see Design Handbook for examples of acceptable screening).	This standard appears to be satisfied.

§16.3.2.13.D(6) Building design standards	
Standard	Comment
Kittery's characteristic buildings reflect its historic seacoast past. The primary architectural styles are New England Colonial (such as Cape Cod and saltbox), Georgian, Federal, and Classical Revival. New buildings should be compatible with Kittery's characteristic styles in form, scale, material, and color. In general, buildings should be oriented to the street with the front of the building facing the street. The front or street facade must be designed as the front of the building. The front elevation must contain one or more of the following elements: (1) a front door although other provisions for access to the building may be provided, (2) windows, or (3) display cases (see Design Handbook for examples of acceptable materials and designs). Though strict imitation is not required, design techniques can be used to maintain compatibility with characteristic styles and still leave enough flexibility for architectural variety. To achieve this purpose, the following design standards apply to new and remodeled building projects:	This standard appears to be satisfied.
(a) Exterior building materials and details. Building materials and details strongly define a project's architectural style and overall character (see Design Handbook for examples of acceptable materials, building scale, and designs). "One-sided" schemes are prohibited; similar materials and details must be used on all sides of a building to achieve continuity and completeness of design. [1] Predominant exterior building materials. Predominant exterior building materials must be of good quality and characteristic of Kittery, such as horizontal wood board siding, vertical wood boards, wood shakes, brick, stone or simulated stone, glass and vinyl, or metal clapboard. Stucco, adobe, sheet metal, standard concrete block, tilt-up concrete panels, plywood or particle board are prohibited as the primary materials. [2] Blank walls. A wall may not extend for a length of more than 50 linear feet without an architectural feature such as a dormer, pilaster, cornice, corner, window, porch, or visually compatible door to break up the large mass of a featureless wall (see Design Handbook for examples of the appropriate treatment of walls). As an exception, walls with a clapboard facade may extend for a length of up to 100 feet without such an architectural feature. [3] Light industrial and boatyard uses. Such uses must comply with the above standards only along the front face and extending back 100 feet along the side walls.	This standard appears to be satisfied.
b. Roofs. Roofs must meet the following standards: [1] Form. A building's prominent roofs must be pitched a minimum of 4:12 unless demonstrated to the Planning Board's satisfaction that this is not practicable. Acceptable roof styles are gabled, gambrel, and hipped roofs. Flat roofs, shed roofs, and roof facades (such as "stuck on" mansards) are not acceptable as primary roof forms. [2] Color. Roof colors must be muted (see Design Handbook for examples). [3] Rooftop mechanical and electrical equipment. Rooftops must be free of clutter. The roof design must screen or camouflage rooftop protrusions to minimize the visual impact of air conditioning units, air handler units, exhaust vents, transformer boxes, and the like (see Design Handbook for examples of appropriate treatments). Interior-mounted equipment is encouraged. Whenever possible, utility equipment areas must be placed in an obscure location and screened from view.	It appears that the pitch of the room does not meet the minimal criteria; however, the Planning Board has discretion to modify this standard. Considering the use type, it appears the relief would not be unreasonable. Also, it is unclear what the roof color type will be. The Planning Board should inquire of the applicant the type of roof color planned.

[4] Loading docks and overhead doors. Loading docks and overhead doors must be located on the side or rear of the building and be screened from view from public streets.	
§16.3.2.13.D(7) Landscaping standards	
Standard	Comment
(a) Landscape planter strip. A vegetated landscape planter strip 30 feet in depth (as measured from the edge of the property line) must be provided along the length of all developed portions of a parcel that are adjacent to a street right-of-way. The planter strip must include the following landscape elements:	It appears the 30-ft. landscaping buffer has been accommodated for.
[1] Ground cover. The entire landscape planter strip must be vegetated except for approved driveways, walkways, bikeways, and screened utility equipment.	The standard appears to be satisfied.
[2]Streetside trees. A minimum of one street tree must be planted for each 25 feet of street frontage. The trees may be spaced along the frontage or grouped or clustered to enhance the visual quality of the site (see Design Handbook for examples). The trees must be a minimum 2.5 inch caliper, and be at least 12 feet high at the time of planting. The species should be selected from the list of approved street trees in the Design Handbook. Existing large healthy trees must be preserved if practical and will count toward this requirement.	This standard appears to be satisfied with the combination of existing trees and proposed plantings.
[3] Planter strip. Shrubs and flowering perennials must be planted at a minimum of 10 plants per 40 linear feet of street frontage unless existing woodlands are being retained or such planting is inconsistent with the retention of rural landscape features. The plant material should be selected from the list of approved materials in the Design Handbook. The plants must be placed within the planter strip to enhance the visual character of the site and augment natural features and vegetation (see Design Handbook for examples of appropriate treatments).	The standard appears to be satisfied.
[4] Special Situations [a] Expansions of less than 500 square feet to existing uses are exempt from the landscaping standard of this subsection.	The standard is not applicable.
[b] Depth of landscape planter strip. In instances where the required average depth of the landscape planter strip is legally utilized, in accordance with previous permits or approval, for parking, display, storage, building, or necessary vehicle circulation, the depth may be narrowed by the Planning Board to the minimum extent necessary to achieve the objective of the proposed project, provided that the required shrubs and perennials are planted along the street frontage to soften the appearance of the development from the public street. If providing the required landscape planter strip along with other required landscaping and required vegetated areas in and around wetlands would cause the project to exceed the required open space standards, the depth of the landscape planter strip and the front	The applicant is proposing the utilize the front yead areas primarily for stormwater purposes, which will consist of grassed swale; however, proposed landscaping seems to be appropriate and honor's the purpose of the landscaping buffer.

yard may be reduced by the Planning Board so that the open space standards are not exceeded, but in no case to less than 20 feet for this reason.	
[c] Additions and changes in use. For additions to existing buildings and changes of residential structures to a nonresidential use, one streetside tree (see list of recommended street trees in Design Handbook) is required for every 500 square feet of additional gross floor area added or converted to nonresidential use. In instances where parking, display area, storage, building or necessary vehicle circulation exists at the time of enactment of this section, the required trees may be clustered and/or relocated away from the road as is necessary to be practicable. The preservation of existing large trees is encouraged; therefore, the Planning Board may permit the preservation of existing healthy, large, mature trees within the landscape planter strip or other developed areas of the site to be substituted for the planting of new trees.	The standard appears to be satisfied.
[d] Residences. Residential additions to existing single- and two-family dwellings and proposed single- and duplex-family dwellings are exempt from the landscaping standards of this subsection.	This standard is not applicable.
(b) Buffer area. Where buffering is required, it must provide a year-round visual screen to minimize adverse impacts and screen new development (see Design Guidelines for examples of appropriate buffers for various situations), and may consist of fencing, evergreens, retention of existing vegetation, berms, rocks, boulders, mounds or combinations thereof. Within three growing seasons, the buffer must provide a year-round screen at least eight feet in height or such lower height as determined by the Planning Board to be appropriate for the situation. Buffer areas must be maintained and kept free of all outdoor storage, debris, and rubbish. The width of the buffer area may be reduced by the Planning Board if the function of the buffer is still fulfilled	The standard appears to be satisfied.
(c) Rural landscape features. Rural landscape features such as stonewalls, berms, and other agricultural structures, and tree lines or fields must be retained to the maximum extent practicable.	The existing rock wall along the proposed parking lot will be preserved and in part reconstructed. The standard appears to be satisfied.
(d) Lighting. Outdoor lighting must provide the minimum illumination needed for the safe use of the site while enhancing the nighttime visual character of the site. Lighting must conform to the standards for outdoor lighting in Chapter 16.8.	The standard appears to be satisfied.
(e) Outdoor service and storage areas. Service and storage areas must be located to the side or rear of the building. Facilities for waste storage such as dumpsters must be located within an enclosure and be visually buffered by fencing, landscaping, and/or other treatments (see Design Handbook for examples of appropriate buffering).	The standard appears to be satisfied.
§16.3.2.13.D(8) Traffic and circulation standards	
Standard	Comment

Sidewalks and roadways must be provided within the site to internally join abutting properties that are determined by the Planning Board to be compatible. In addition, safe pedestrian route(s) must be provided to allow pedestrians to move within the site and between the principal customer entrance and the front lot line where a sidewalk exists or will be provided or where the Planning Board determines that such a route is needed for adequate pedestrian safety and movement.	The applicant is proposing sidewalks along US Route 1 so as to provide connectivity with the existing sidewalk at Landmark Hill. However, the applicant, is proposing to

§16.3.2.13.D(9) Open space standards	
Standard	Comment
Open space standards. Open space must be provided as a percentage of the total area of the lot, including freshwater wetlands, water bodies, streams, and setbacks. Thirty-five percent of each lot must be designated as open space. Required open space must be shown on the plan with a note dedicating it as "open space."	It is unclear where the open space will be located as that applicant has depicted on the proposed site plan an open space allotment of 92.5%. The Planning Board should inquire of the applicant the location of the open space and clarify areas that may be developed in the future and adjust the calculations accordingly.
(a) An objective of the open space standard is to encourage the integration of open space throughout the entire development and with the open space on adjoining properties in order to alter the pattern of commercial activity along Route 1. To this end, a minimum of 25% of the required open space must be located in the front 50% of the lot area closest to U.S. Route 1, or if not fronting Route 1, closest to the public street used to enter the lot. The Planning Board may modify this requirement when it is demonstrated to the Board's satisfaction that the objective is met to the greatest practicable extent.	The applicant has not provided this information. The Planning Board should request this information to be provided and, at its discretion, if warranted, make adjustments accordingly.
(b) The open space must be located to create an attractive environment on the site, minimize environmental impacts, protect significant natural features or resources on the site, and maintain wildlife habitat. Where possible, the open space must be located to allow the creation of continuous open space networks in conjunction with existing or potential open space on adjacent properties.	The standard appears to be satisfied.
(c) Special situations. [1] Cases where integrating open space would require exceeding the open space standards. In cases where the topography, wetlands, and existing development on the lot dictates that more than 75% of the required open space be located outside the front portion of the lot, a percentage of the open space normally required in the front portion of the lot may be shifted to the rear portion of the lot in order to achieve the required amount of vegetated open space and not reduce the allowable developable area on the lot, provided minimum landscaping standards are satisfied. [2] Small lots. The required amount of designated open space is reduced to 20% of each lot that is less than 100,000 square feet in size.	The Planning Board should discuss this standard with the applicant as it appears that the application would qualify; however, it needs to be delineated on the site plan

§16.8.4.5 Access control and traffic impacts	
Standard	Comment
A. Vehicular access to the development must be arranged to avoid traffic use of local residential streets.	The standard appears to be satisfied.

B. Where a lot has frontage on two or more streets, the access to the lot must be provided to the lot across the frontage and to the street where there is lesser potential for traffic congestion and for hazards to traffic and pedestrians.	The standard appears to be satisfied.
C. The street giving access to the lot and neighboring streets which can be expected to carry traffic to and from the development must have traffic-carrying capacity and be suitably improved to accommodate the amount and types of traffic generated by the proposed use. No development may increase the volume/capacity ratio of any street above 0.8 nor reduce any intersection or link level of service to "D" or below.	The standard appears to be satisfied.
D. Where necessary to safeguard against hazards to traffic and pedestrians and/or to avoid traffic congestion, provision must be made for turning lanes, traffic directional islands, frontage roads, driveways and traffic controls within public streets.	MaineDOT will review the plan and provide guidance to the applicant, if necessary. Otherwise, the standard appears to be satisfied.
E. Accessways must be of a design and have sufficient capacity to avoid hazardous queuing of entering vehicles on any street.	The standard appears to be satisfied.
F. Where topographic and other conditions allow, provision must be made for circulation driveway connections to adjoining lots of similar existing or potential use: (1) When such driveway connection will facilitate fire protection services as approved by the Fire Chief; or (2) When such driveway will enable the public to travel between two existing or potential uses, generally open to the public, without need to travel upon a street.	This standard appears is not applicable.

§16.8.4.13 Sidewalks	
Standard	Comment
Where required, sidewalks must be installed to meet minimum requirements as specified in Table 1 of this chapter	The applicant is providing sidewalk along US Route 1, however, is requesting a waiver not to construct any on the proposed right-of-way. Nevertheless, they are providing the layout for the installation of a future sidewalk.
§16.8 Article VI Water Supply	
Standard	Comment
§16.8.6.1 Service Required	The standard appears to be satisfied.
§16.8 Article VII Sewage Disposal	
§16.8.7.1 *Sewers*	The standard appears to be satisfied.
§16.8 Article VIII Surface Drainage	
§16.8.8.1 & §16.8.8.2	

	CMA has reviewed the stormwater plan and has found it acceptable. Please reference CMA's October 6, 2021 letter.
§16.8.9.4 Off-Street Parking	
D. When determination of the number of parking spaces required results in a requirement of a fractional space, any fraction of 1/2 or less may be disregarded, while a fraction in excess of 1/2 is counted as one parking space… Restaurant: 1 parking space for each three seats. Seating is calculated by dividing the total floor area with customer access by 15	The standard appears to be satisfied.
§16.8 Article X Signs	
F§16.8.10.3 *Sign Locations*	The standard appears to be satisfied.

§16.8 Article XVI Lots	
§16.8.16.7 *Multiple frontages* When lots have frontage on two or more streets, the plan and deed restrictions must indicate vehicular access to be located only on the least-traveled way.	The standard appears to be satisfied.
§16.8 Article XVII Utilities	
§16.8.17.2 *Underground installation* Utilities, where feasible, are to be installed underground. The Board must require the developer to adopt a prudent avoidance approach when aboveground electrical installations are approved.	The standard appears to be satisfied.
§16.8 Article XVIII Landscaping	
§16.8.18.1 *General*	The standard appears to be satisfied.
§16.8 Article XXIV Exterior Lighting	
§16.8.24.2.C Except for ornamental lighting fixtures that utilize lamps with initial lumen ratings of 8,500 lumens or less, wall-mounted building lights must include full-face shielding consisting of either a solid panel or full-face louvers. Exposed lamps, reflectors or refractors may not be visible from any part of the fixture except the bottom light-emitting surface.	The standard appears to be satisfied.
§16.9 Article I General	
Standard	Comment
§16.9.1.3 Prevention of erosion	The standard appears to be satisfied.
§16.9.1.4 Soil suitability	The standard appears to be satisfied.
16.9 Article III Conservation of Wetlands Including Vernal Pools	
§16.9.3.1.C Wetlands of special significance have one or more of the following characteristics: (1) Critically imperiled or imperiled community. The freshwater wetland contains a natural community that is "critically imperiled" as defined by the Maine Natural Areas Program. (2) Significant wildlife habitat. The freshwater wetland contains significant wildlife habitat as defined by 38 M.R.S. § 480-B(10). (3) Location near coastal wetland. The freshwater wetland is located within 250 feet of a coastal wetland. (4) Location near a water body. The freshwater wetland is located within 250 feet of the normal high-water line and within the same watershed of a lake or pond. (5) Aquatic vegetation, emergent marsh vegetation or open water. The freshwater wetland contains, under normal circumstances, at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water, unless the twenty-thousand or more square foot area is the result of an artificial pond or impoundment.	These standards appear to be satisfied.

(6) Wetlands subject to flooding. The freshwater wetland is inundated with floodwater during a one-hundred-year flood event based on flood insurance maps produced by the Federal Emergency Management Agency or other site-specific information. (7) Peatlands. The freshwater wetland is or contains peatlands, except that the Planning Board may determine that a previously mined peatland, or portion thereof, is not a wetland of special significance. (8) River, stream or brook. The freshwater wetland is located within 25 feet of a river, stream or brook. (9) Monetary value. An estimation can be determined based on the importance of the wetland with respect to the individual or collective functions it provides. (10) Vernal pools. The wetland contains a particular aquatic habitat as defined by the Maine Department of Environmental Protection (MDEP), including those mapped as significant vernal pools by MDEP.	

Discussion and Next Steps

Once large discussion point was the status of the proposed right-of-way. Town Staff and the applicant met on October 7, 202,1 to discuss the possibility of the town accepting the road. Town staff communicated that it is their policy not to recommend acceptance of the road if any waivers are granted for it design. This is consistent with other applications that the town has reviewed and approved. If the applicant were to apply for public acceptance, they would need to return to the Planning Board for there review and recommendation to Town Council, who is the ultimate approval authority. It appears that CMA's has minor issues with the final plan and the Planning Board should review them with the applicant and request a response.

Other than the items listed above, Town staff is of the opinion that the Planning Board can move on a final decision for approval.

Recommended Motions

Below are recommended motions for the Board's use and consideration:

Motion to continue application

Move to continue the final site plan and right-of-way application from applicant/owner C-Coast Properties and agent Altus Engineering, Inc. requesting approval to construct 20,000-sf manufacturing building with appurtenant infrastructure and landscaping on real property with an address of 524 U.S. Route 1 (Tax Map 67, Lot 1) located in the Mixed-Use (MU) and Residential-Rural (R-RL) Zones and Shoreland (OZ-SL-250) and Resource Protection (OZ-RP) Overlay Zones with the following conditions:

Motion to approve

Move to approve the site plan and right-of-way application from applicant/owner C-Coast Properties and agent Altus Engineering, Inc. requesting approval to construct 20,000-sf manufacturing building with appurtenant infrastructure and landscaping on real property with an address of 524 U.S. Route 1 (Tax Map 67, Lot 1) located in the Mixed-Use (MU) and Residential-Rural (R-RL) Zones and Shoreland (OZ-SL-250) and Resource Protection (OZ-RP) Overlay Zones with the following conditions:

KITTERY PLANNING BOARD **M 67 L 1**

FINDINGS OF FACT - **UnApproved**

for

524 US Route 1

Site and Right-of-Way Plan Review

Note: This approval by the Planning Board constitutes an agreement between the Town and the Developer incorporating the Development plan and supporting documentation, the Findings of Fact, and all waivers and/or conditions approved and required by the Planning Board.

WHEREAS: applicant/owner C-Coast Properties and agent Altus Engineering, Inc. requests final approval to construct 20,000-sf manufacturing building with appurtenant infrastructure and landscaping on real property with an address of 524 U.S. Route 1 (Tax Map 67, Lot 1) located in the Mixed-Use (MU) and Residential-Rural (R-RL) Zones and Shoreland (OZ-SL-250) and Resource Protection (OZ-RP) Overlay Zones.

Hereinafter the "Development".

Pursuant to the Plan Review meetings conducted by the Planning Board as duly noted in the Plan Review Notes dated 10/14/2021;

Sketch Plan	May 27, 2021	APPROVED
Site Visit	August 31, 2021	HELD
Preliminary Plan Review Completeness/Acceptance	August 12, 2021	HELD
Public Hearing	September 9 ,2021	HELD
Preliminary Plan Approval	September 9, 2021	APPROVED
Final Plan Review and Decision	May occur on October 14, 2021	PENDING

and pursuant to the Project Application and Plan and other documents considered to be a part of the approval by the Planning Board in this finding consist of the following and as noted in the Plan Review Notes dated 06/10/2021 (Hereinafter the "Plan").

1. Final Plan Review Documents, Altus Engineering, Inc. letter dated September 23, 2021
2. Traffic Impact Study, Sewall, dated July 22, 2021
3. Landscaping plan, Woodburn & Co., dated July 22, 2021
4. Lighting analysis/plan, Visible Light, dated September 23, 2021
5. Good-to-Go Site Plan and Details, Altus Engineering, Inc. dated September 23, 2021
6. Response Letter, dated September 23, 2021
7. Standard Boundary Survey & Existing Conditions Plan, Civil Consultants Inc., dated April 14, 2021
8. CMA Review Letters, dated and October 6, 2021

NOW THEREFORE, based on the entire record before the Planning Board as and pursuant to the applicable standards in the Land Use and Development Code, the Planning Board makes the following factual findings as required by Section §**16.10.8.3.D. and as recorded below:**

FINDINGS OF FACT

Action by the Board shall be based upon findings of fact which certify or waive compliance with all the required standards of this title, and which certify that the development satisfies the following requirements:

A. Development Conforms to Local Ordinances.

Standard: *The proposed development conforms to a duly adopted comprehensive plan as per adopted provisions in the Town Code, zoning ordinance, subdivision regulation or ordinance, development plan or land use plan, if any. In making this determination, the municipal reviewing authority may interpret these ordinances and plans.*

Finding: The proposed development conforms to Title 16,

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

B. Freshwater Wetlands Identified.

Standard: *All freshwater wetlands within the project area have been identified on any maps submitted as part of the application, regardless of the size of these wetlands.*

Finding: The wetlands boundaries have been delineated/flagged by Michael Cuomo, Maine Certified Soil Scientist and depicted on the site plan. No wetlands will be impacted by the development.

Conclusion: This standard is appears to be met.

Vote of __ in favor __ against __ abstaining

C. River, Stream or Brook Identified.

Standard: *Any river, stream or brook within or abutting the proposed project area has been identified on any maps submitted as part of the application. For purposes of this section, "river, stream or brook" has the same meaning as in 38 M.R.S. §480-B, Subsection 9.*

Finding: There is a creek that abuts the property to the southeast.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

D. Water Supply Sufficient. *{and}*

The proposed development has sufficient water available for the reasonably foreseeable needs of the development.

E. Municipal Water Supply Available.

Standard The proposed development will not cause an unreasonable burden on an existing water supply, if one is to be used.

Finding: The proposed facility is to connect to an existing 12-inch municipal water main along US Route 1 Road with a proposed 8-inch water main along the new roadway. The applicant has submitted a letter from the

Kittery Water District indicating that it will be capable of servicing this project and that the design of the water infrastructure and materials meets their specifications.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

F. Sewage Disposal Adequate.

Standard: *The proposed development will provide for adequate sewage waste disposal and will not cause an unreasonable burden on municipal services if they are utilized.*

Finding: The proposed manufacturing facility will be connected to the Town's sewer system and has been determine that it will not impose a significant burden to municipal services.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

G. Municipal Solid Waste Disposal Available.

Standard: The proposed development will not cause an unreasonable burden on the municipality's ability to dispose of solid waste, if municipal services are to be used.

Finding: The proposed development doesn't not require any changes to municipal solid waste services.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

H. Water Body Quality and Shoreline Protected.

Standard: *Whenever situated entirely or partially within two hundred fifty (250) feet of any wetland, the proposed development will not adversely affect the quality of that body of water or unreasonably affect the shoreline of that body of water.*

Finding: The proposed manufacturing facility appears not to have any elements within that will adversely impact of surface water.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

I. Groundwater Protected.

Standard: The proposed development will not, alone or in conjunction with existing activities, adversely affect the quality or quantity of groundwater.

Finding: The proposed manufacturing facility appears not to have any elements within that will adversely impact the quality or quantity of the groundwater. Moreover, the facilty will be connected to the Town's sewer system and the Kittery Water District.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

J. Flood Areas Identified and Development Conditioned.

Standard: *All flood-prone areas within the project area have been identified on maps submitted as part of the application based on the Federal Emergency Management Agency's Flood Boundary and Floodway Maps and Flood Insurance Rate Maps, and information presented by the applicant. If the proposed development, or any part of it, is in such an area, the applicant must determine the one hundred (100) year flood elevation and flood hazard boundaries within the project area. The proposed plan must include a condition of plan approval requiring that principal structures in the development will be constructed with their lowest floor, including the basement, at least one foot above the one hundred (100) year flood elevation.*

Finding: No flood hazard zones were identified to be located on the property, per FIRM Map #2301710004C

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

K. Stormwater Managed.

Standard: *Stormwater Managed. The proposed development will provide for adequate stormwater management*

Finding: The design was prepared by Altus Engineering, Inc. and reviewed by CMA Engineers, Town peer-review engineer. CMA reported that the applicant has prepared a complete stormwater design and associated analysis and the proposed development meets the requirements of the Title 16.

Stormwater from impervious and disturbed areas on the site will be treated by the use of stormwater BMPs designed to remove fine particulates and suspended sediments. A grassed underdrain soil filter, wooded buffers, grass swales, level spreaders and riprap are utilized to obtain the required stormwater treatment. A comprehensive review of the stormwater management plan will be performed by MDEP under the *Stormwater Law License* permit.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

***L.* Erosion Controlled.**

Standard: *The proposed development will not cause unreasonable soil erosion or a reduction in the land's capacity to hold water so that a dangerous or unhealthy condition results.*

The Contractor shall follow MDEP best management practices for erosion and sediment control (silt fencing, silt sacks, etc.), and CMA Engineers will be notified to observe application during construction.

Finding: Runoff is primarily maintained as sheet flow and minimized concentrated flow. Other best management practices include the use of undisturbed wooded buffers, grass swales, riprap protection, minimization of pavement widths, stabilized construction exit and silt barriers. Best management practices for erosion control will be reviewed as part of the MDEP *Stormwater Law License* permit.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

M. Traffic Managed.

Standard: *The proposed development will:*

1. Not cause unreasonable highway or public road congestion or unsafe conditions with respect to the use of the highways or public roads existing or proposed; and

2. Provide adequate traffic circulation, both on-site and off-site.

Finding: The applicant has provided a Traffic Generator Summary and Traffic Impact Analysis for the development and the ADT peak hour and peak day appears to be appropriate for the new right-of-way and US Route 1.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

N. Water and Air Pollution Minimized.

Standard: *The proposed development will not result in undue water or air pollution. In making this determination, the following must be considered:*

1. Elevation of the land above sea level and its relation to the floodplains;

2. Nature of soils and sub-soils and their ability to adequately support waste disposal;

3. Slope of the land and its effect on effluents;

4. Availability of streams for disposal of effluents;

5. Applicable state and local health and water resource rules and regulations; and

6. Safe transportation, disposal and storage of hazardous materials.

Finding:

1. No filling or development is proposed within the 100-year floodplain.

2. Not applicable as sewer is proposed.

3. Not applicable.

4. Not applicable.

5. The applicant has applied for a MDEP *Stormwater Law License permit.*

6. Not applicable

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

O. Aesthetic, Cultural and Natural Values Protected.

Standard: *The proposed development will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites, significant wildlife habitat identified by the department of inland fisheries and wildlife or the municipality, or rare and irreplaceable natural areas or any public rights for physical or visual access to the shoreline.*

Finding: The proposed development will create an 11.32 acres of common open space, encompassing 92.5% of the total site. There is a vernal pools on the parcel, which will be protected.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

P. Developer Financially and Technically Capable.

Standard: *Developer is financially and technically capable to meet the standards of this section.*

Finding: The developer will provide an inspection escrow in an amount suitable to cover the costs of on-site inspection by the Peer Review Engineer to ensure the proposed development is constructed according to the approved plan.

Conclusion: This standard appears to be met.

Vote of __ in favor __ against __ abstaining

16.10.8.3.D(19) For Right-of-Way Plans

Standard:

(a) Does not create any nonconforming lots or buildings; and

(b) Could reasonably permit the right of passage for an automobile.

Finding: The proposed Right-of-Way plan appears not to create any nonconforming lots and is design in a fashion that would permit reasonable passage for vehicular travel.

Conclusion: This standard appears to be met.

NOW THEREFORE the Kittery Planning Board adopts each of the foregoing Findings of Fact and based on these Findings determines the proposed Development will have no significant detrimental impact, and the Kittery Planning Board hereby grants final approval for the Development at the above referenced property, including any waivers granted or conditions as noted.

Waivers: Table 16.8 Attachment 1

a. Sidewalks
b. Longitudinal Street Gradient
c. Side Slop
d. Tangent between Reverse Curves
e. Minimal Centerline Curve Radius

Conditions of Approval (to be included as notes on the final plan in addition to the existing notes):

1. No changes, erasures, modifications or revisions may be made to any Planning Board approved final plan. (Title 16.10.9.1.2)
2. Applicant/contractor will follow Maine DEP *Best Management Practices* for all work associated with site and building construction to ensure adequate erosion control and slope stabilization.
3. Prior to the commencement of grading and/or construction within a building envelope, as shown on the Plan, the owner and/or developer must stake all corners of the envelope. These markers must remain in place until the Code Enforcement Officer determines construction is completed and there is no danger of damage to areas that are, per Planning Board approval, to remain undisturbed.
4. All Notices to Applicant contained in the Findings of Fact (dated: 10/14/2021).

Conditions of Approval (Not to be included as notes on the final plan):

1. Incorporate any plan revisions on the final plan as recommended by Staff, Planning Board, or Peer Review Engineer, and submit for Staff review prior to presentation of final plan for endorsement. .

Notices to Applicant: (not to be included on the final plan)

1. Prior to the release of the signed plans, the applicant must pay all outstanding fees associated with review, including, but not limited to, Town Attorney fees, peer review, newspaper advertisements and abutter notification.
2. State law requires all subdivision and shoreland development plans, and any plans receiving waivers or variances, be recorded at the York County Registry of Deeds within 90 days of the final approval.
3. Three (3) paper copies of the final recorded plan and any and all related state/federal permits or legal documents that may be required, must be submitted to the Town Planning Department. Date of Planning Board approval shall be included on the final plan in the Signature Block.
4. The owner and/or developer, in an amount and form acceptable to the Town Manager, must file with the municipal treasurer an instrument to cover the cost of all infrastructure and right-of-way improvements and site erosion and stormwater stabilization, including inspection fees for same.
5. This approval by the Town Planning Board constitutes an agreement between the Town and the Developer, incorporating the Plan and supporting documentation, the Findings of Fact, and any Conditions of Approval.

The Planning Board authorizes the Planning Board Chair, or Vice Chair, to sign the Final Plan and the Findings of Fact upon confirmation of compliance with any conditions of approval.

Vote of _in favor_against_ abstaining

APPROVED BY THE KITTERY PLANNING BOARD ON October 14, 2021

_____

Dutch Dunkelberger, Planning Board Chair

Appeal:

Per Title 16.6.2.A - An aggrieved party with legal standing may appeal a final decision of the Planning Board to the York County Superior Court in accordance with Maine Rules of Civil Procedures Section 80B, within forty-five (45) days from the date the decision by the Planning Board was rendered.

ALTUS ENGINEERING, INC.

Civil
Site Planning
Environmental
Engineering

133 Court Street
Portsmouth, NH
03801-4413

September 23, 2021

Kittery Planning Board
200 Rogers Road
Kittery, Maine 03904

Re: Site Plan Review and Right of Way Applications
Good To-Go
524 U.S. Route 1
Kittery, Maine

Dear Members of the Board,

Altus Engineering, Inc. (Altus) is in receipt of CMA Engineers review letter dated September 2, 2021 and comments from the Kittery Technical Review Committee dated September 3, 2021. We offer the following in response to their comments:

CMA Engineers, September 2, 2021 –
Where necessary, we have added a numeric indicator after the Article number to differentiate multiple comments in a section of the review.

16.8.4.7 As shown on the Right of Way and Easement Plan - A (Sheet C-1.A), a 60'-wide easement to the Town of Kittery is provided at the intersection of Good To-Go's driveway and Adventure Avenue. This allows for the driveway to be used of a hammerhead-style turnaround which is allowed in town. Given that the potential use of the abutting land is unknown, the construction of an additional turnaround such as another hammerhead or cul-de-sac was determined to be an unnecessary expense, especially where there exists the possibility that any such installation may need to be modified and/or demolished as part of the future development. As currently shown, the design adequately serves the needs of the Applicant, provides a legal means to turnaround and maintains as much flexibility as possible for the abutting landowner.

16.8.4.8.b Given that the relocated gravel driveway only serves a single-family residence, the odds of vehicular stacking on Adventure Avenue at its intersection with U.S. Route 1 conflicting with an in- or outbound vehicle to or from the house are extremely limited. In the unlikely event of a conflict, we would expect that any outbound vehicle would be courteously allowed to join the queue and an inbound vehicle would be extended the same courtesy and allowed to cross the westbound lane into their driveway. If the inbound vehicle is delayed by a queue, there will be adequate staking space in the eastbound lane behind the waiting car to accommodate any vehicle turning into Adventure Avenue, preventing any backup onto Route 1.

16.8.4.8.c The Site Plan (Sheet C-3) clearly shows all pavement markings and signage at the intersection of Adventure Avenue and U.S. Route 1. We note that a painted crosswalk has been added to the plans since the last iteration.

16.8.4.8.d Maine DOT does have jurisdiction over the site's curb cut on U.S. Route 1. An entrance permit application was filed with them on August 17, 2021.

16.8.4.8.e Kittery DPW submitted comments via the Kittery TRC dated September 3, 2021.

16.8.4.13.b We disagree that a waiver is required for excluding a cul-de-sac. As discussed above, the plan makes adequate provision for a turn-around with a hammerhead secured via easement.

Article VI.d It is assumed that the Kittery Water District would own and operate the watermain in Adventure Avenue.

Article VI.e The Applicant has no idea as to what may or may not occur on the abutting land. Therefore, any effort to conceptualize potential uses or site layouts and attempt to design utilities around them would be an exercise in futility. We have, however, provided for the future extension of water and sewer services as shown on the Utilities Plan (Sheet C-8). KWD has also commented on the location of the proposed fire hydrant as discussed below.

Article VII.a As shown on the Right of Way and Easement Plan - A (Sheet C-1.A), the Adventure Avenue right of way does not maintain a consistent 60'-width along U.S. Route 1. This is to allow the grassed underdrained soils filter and the forcemain to remain accessible without an easement. This design also prevents a small portion of the remaining land from being marooned on the opposite side of the roadway.

Article VII.b The pressure sewer has been designed to accommodate flows from Good To-Go and a reasonable amount of development on the abutting land. Based on metered water useage at their existing facility, we expect Good To-Go to generate approximately 2,400 GPD of sewer discharge. Assuming a conservative maximum flow of 40 GPM over a twelve-hour daytime period, it would be expected that the 2" forcemain would be handle to handle 28,800 GPD. This equates to 26,400 GPD of reserve capacity for the future. While this site plan includes a 1,500 gal. private grease trap, any grease or oil removal for an adjoining future project would need to be addressed as part of their site plan.

Article VII.d In conjunction with our response to (b) above, the proposed pump station is private and intended only to serve Good To-Go. The forcemain in Adventure Avenue would be a shared piece of public infrastructure, but any development on the abutting land would need to provide their own pump.

Article VII.e DOT has been provided with plans and an updated set will be forwarded to them.

Article VIII.a As noted above, DOT has been provided with plans.

Article VIII.b A level spreader has been added to the outfall as shown on the Erosion and Sediment Control Plan (Sheet C-7).

16.8.8.2.a Although the maintenance manual includes all the stormwater infrastructure shown on the plans, it is expected that the Kittery DPW will be responsible for any BMP's in the Adventure Avenue right of way.

16.8.8.2.b The O&M manual has been updated to include the new wet pond and the town's reporting requirements.

16.8.9.1.d As stated above, the DOT has jurisdiction over the intersection of Adventure Avenue and U.S. Route 1 and have been provided with plans.

16.8.9.1.e A truck movement template has been included with the resubmission package.

16.8.9.1.f Similar to Good To-Go's existing facility on Route 1, truck backing motions in the Adventure Avenue right of way will be required to access the loading dock. This is expected to occur no more than once per day.

Article XVI As stated above, there are no known plans for the remaining land at the present time.

Article XIXI Fire suppression design will be included in the building permit package.

Article II We feel that parking to access the existing cemetery would not be utilized. In the unlikely event of someone visiting, it would be appropriate and safe to park along Adventure Avenue.

Other Both MFIW and US Fish and Wildlife Service (FWS) do not list the site as habitat for the NE Cottontail Rabbit. FWS does list the Northern Long-Eared Bat as a potential threatened species in the area but has determined that the project is "not likely to result in unauthorized take of the northern long-eared bat." Relevant documentation is attached

Kittery TRC, September 3, 2021 –

1. We disagree that the Adventure Avenue right of way should remain private. Although a few waivers have been requested regarding roadway geometry, they are appropriate given the site conditions and have been supported by the town engineer as indicated in their September 2, 2021 review of the project. Each parcel of land is unique and the waiver mechanism exists for this exact reason. Foisting the long-term maintenance of the road on an established local business, employer and taxpayer like Good To-Go and the abutting landowner is an immense hardship. This is only compounded when the indefinite nature of the abutting land is taken into account. The legal complexities of dividing responsibility between Good To-Go and unknown potential future users and/or residents is a nightmare in and of itself. Given that the road will be constructed to town standards, there is no reasonable argument to prevent this from becoming a public way. We respectfully ask that DPW reconsider their position and that the road be designated as a public way.

2. Per our discussions with the Planning Board, we have added a sidewalk on U.S. Route 1 from Landmark Lane to just across Adventure Avenue as shown on the Shite Pan (Sheet C-3).

3. The new sidewalk has been incorporated into the revised drainage design.

4. South of Adventure Avenue, U.S. Route 1 is superelevated to the west which ensures that any roadway drainage is already directed away from the project site. We have sloped the roadway shoulder and sidewalk in the reverse direction away from the roadway towards a vegetated swale on the east side of the sidewalk which will discharge to a new pipe tributary to an existing culvert under Route 1. As shown in the Drainage Analysis, flows to this culvert have been reduced from the existing conditions.

5. We understand that this comment is in reference to stormwater, not sewer.

6. The fire hydrant has been relocated as suggested.

7. As noted above, an MDOT Entrance Permit has been applied for and they are in receipt of the plans and traffic study.

8. We have revised the curb detail as suggested.

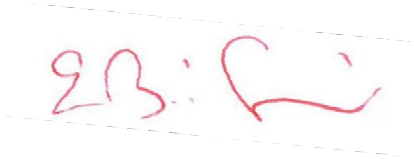
9. Revised architectural elevations are included in the revised plan set.

We hope that the above information and attached data satisfies your concerns and that you will be able to issue a permit at your earliest convenience. If you have any questions or require additional information please contact us and we will get you what you need right away. Thank you for your time and consideration.

If you have any questions or need additional information, please contact us. Thank you for your time and consideration.

Sincerely,

ALTUS ENGINEERING, INC.



Erik B. Saari
Vice President

ebs/5116-ResponseLetter-092321

Enclosures

CMA ENGINEERS, INC.
CIVIL | ENVIRONMENTAL | STRUCTURAL

35 Bow Street
Portsmouth, New Hampshire
03801-3819

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

October 6, 2021

Bart McDonough, Town Planner
Town of Kittery
200 Rogers Road
Kittery, Maine 03904

RE: Town of Kittery, Planning Board Services
524 US Route 1, Good To-Go Site Plan and ROW Application- *Second Review*
Tax Map 67, Lot 1; MU Zone
CMA #591.136

Dear Bart:

Following our first review letter (dated September 2, 2021) of the Good To-Go facility site plan and Right of Way application (located at 525 US Route 1, Map 67 Lot 1 in the Mixed-Use Zone) CMA Engineers has received the following additional information prepared by the applicant:

1) Response letter to comments by CMA Engineers and the Kittery TRC, prepared by Erik Saari Altus Engineering, Inc. of Portsmouth NH, dated September 23, 2021.
2) Updated Drawings (Updated September 23, 2021) titled Good To-Go Specialty Food Facility (24 sheets), 524 U.S. Route 1, Kittery Maine Assessor's Parcel 67, Map 1, by Altus Engineering, Inc of Portsmouth, NH.
3) Updated Drainage Analysis (Updated September 23, 2021) for Site Development for Good To-Go, 524 U.S. Route 1 Tax Map 67, Lot 1, Prepared by Altus Engineering, Inc of Portsmouth, NH.
4) Truck turning template dated September23, 2021.
5) Habitat information from US Fish and Wildlife Service Maine Ecological Services Field Office dated September 8, 2021, and other sources.

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

This current letter provides comments in response to the September 23, 2021 letter from Erik Saari of Altus, and the additional information provided.

16.8 Design and Performance Standards-Built Environment

16.8.4.7 Dead End Streets

Our September 3, 2021 letter noted that the ROW as proposed is a dead end, which is allowed for this street classification. The design does not include a cul-de-sac. The truck movements into the proposed facility apparently use the public ROW for turning into the private property. A cul-de-sac in the public ROW should be provided, or an explanation of why it is no required, with a waiver request.

The response letter states that an easement is proposed for the benefit of the Town of Kittery that would allow users the roadway to have a hammer-head turn around in lieu of a cul-de-sac. This may be reasonable, but the hammer-head is not allowed in Table 1 (street standards) for a public street. Altus describes a hammer-head as being allowed in Kittery, and a waiver is not required. However, in Table 1 a hammer-head is only allowed for a low-volume private street.

We believe a waiver is required for the street classification proposed by the applicant.

16.8.4.8 Grades, Intersections and Sight Distances

The applicant has confirmed that the Maine DOT has jurisdiction for the entrance to US Route 1. The application to Maine DOT should be provided to the Town, along with any permit action by Maine DOT.

The Kittery DPW should also be consulted about any comments they may have on the intersection. Is there any response to the DPW's comments?

The new driveway to the residence is appropriate and removes it from US Route 1. However, it is within about 75 feet of the intersection. An analysis that location, including any "stacking" of exiting vehicles including trucks, should be completed to determine if any conflicts would result. Altus describes a low risk of conflicts, which may or may not play out. Can the entrance off the new roadway be shifted to the east to provide more separation?

Article VI Water Supply

The project proposes to use Kittery Water District water. An 8-inch water main extension is proposed within the new ROW off an existing 12-inch main in US Route 1. The Kittery water district has indicted via letter that capacity is available to provide the facility with required water. Separate domestic and fire protection services are included to the facility in the preliminary design. A single fire hydrant is proposed in the ROW near the entrance to the manufacturing facility.

The Kittery Water District should review and provide comment or concurrence with layout, design, and design details, including connection to the existing main, services at the facility, and number and location of hydrants. Has this been done?

Article VII Sewage Disposal

Prior to final approval, a basis of design report should be prepared for the pressure sewer system, providing documentation of sizing and design of the system, existing and future flows, nature of the sewage including grease/oil removal.

The Kittery Sewer Department has indicated capacity to accept sewage from the facility. However, the KSD should review the specific design details associated with the facilities, particularly with respect to the connection to the KSD sewer in US Route 1.

Please provide Maine DOT comments or approvals for water and sewer construction in Maine DOT ROW.

Article VIII. Surface Drainage

16.8.8.1 Stormwater Drainage

The project, including the ROW and site development probably trigger Chapter 500 jurisdiction. Applicant should describe that process and provided to the town application documents when prepared.

16.8.8.2 Post-Construction Stormwater Management

Maintenance is left to Good To-Go c/o Cape House Management. Altus indicated the expectation is that if the Town accepts the roadway, that the Kittery DPW will accomplish the maintenance of features within the ROW. What is the DPW's position on this?

Article IX. Parking, Loading and Traffic

16.8.9.1

Altus has provided a truck turning template that shows that trucks entering and leaving the facility will use the proposed Town roadway /ROW for necessary turning movements. That is not contemplated in the Table 1 standards and is counter the use of a public street. While with just the development of the Good to Go facility, and no further development of land beyond the facility, there is no disruption of other traffic. However, with any extension of the street conflicts would be likely, and not be acceptable. If the street is to become public, alternatives to use of the public street appear necessary for private truck movements. Alternatively, the roadway could remain privately owned and used by the facility without restriction.

Article XVI. Lots

The applicant generally described future division of the lot, but no subdivision has been proposed. Lot configuration (and uses) are of general interest in the review of the current proposal, but information on possible uses is not available. If the lot is subdivided and further developed, the roadway uses beyond the dead-end will increase.

16.8 Design and Performance Standards-Built Environment

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

16.9.2.5.A The site contains a cemetery that is outside the proposed ROW and site plan development. Altus states that no accommodations for parking or visiting the cemetery are planned. We have seen modest parking or access accommodations to small cemeteries on numerous projects. The applicant should confirm the Maine laws and policies regarding providing access to cemeteries and family plots and describe how the proposed design is consistent with such requirements.

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

Very truly yours,

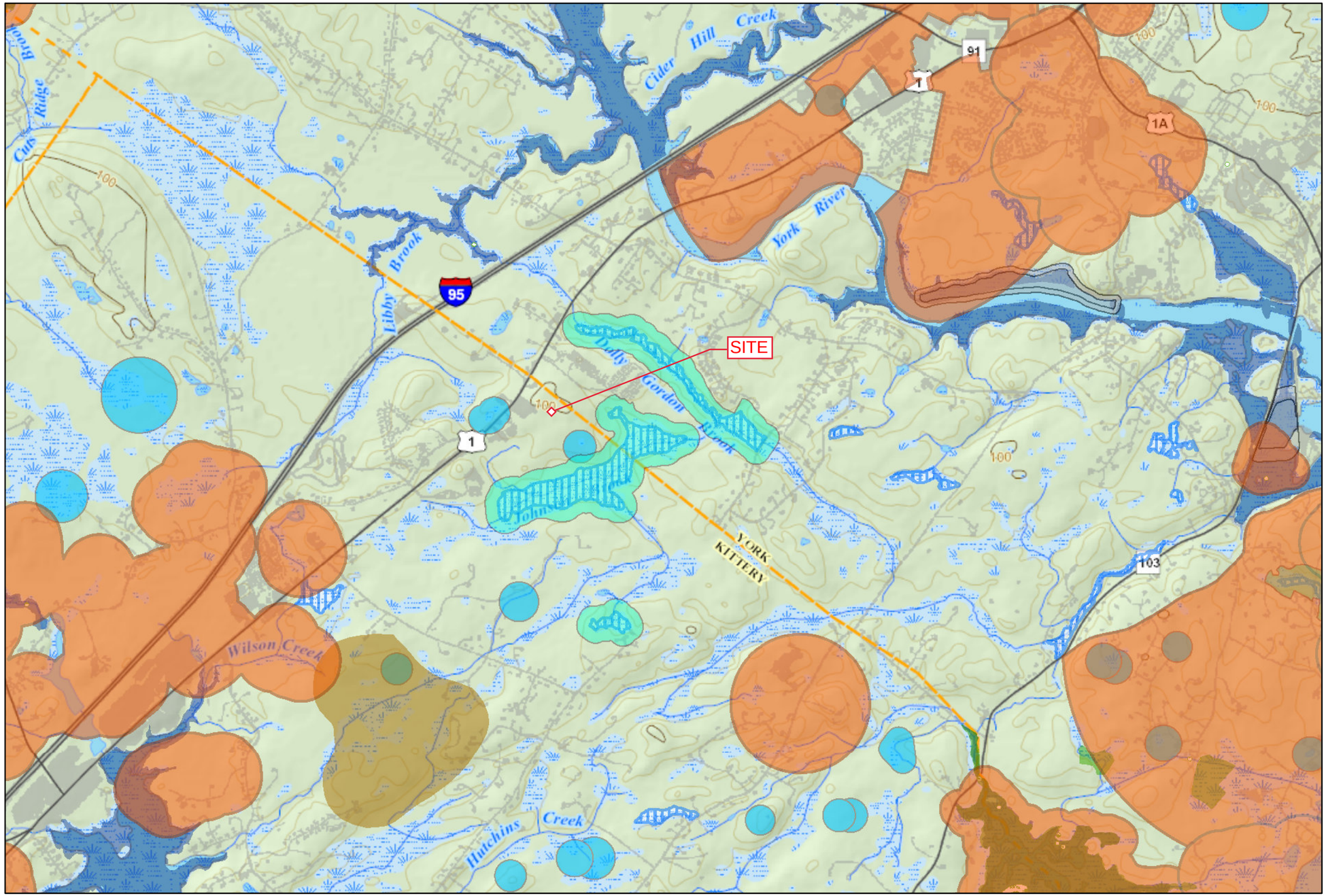
CMA ENGINEERS, INC.

Jodie Bray Strickland, P.E.
Senior Project Engineer

William A. Straub, P.E.
Principal

WAS/JBS/kao

cc: Erik Saari, Altus Engineering
Eric Weinrieb, P.E. Altus Engineering



BEGINNING WITH HABITAT

Legend

- City/Township
- 1
- 2
- Watershed Divide (HUC 12)
- Watershed Divide (HUC 10)
- Watershed Divide (HUC 8)
- Watershed Divide (HUC 6)
- Wetlands
- Great Ponds
- Stream_Buffers_75ft
- Shellfish Beds
- Public Water Supply Wells
- Source Protection
- Aquifers
- ETSC Animal Habitat Buffers
- Rare Plants and Natural Communities
- Natural Communities
- Wild Brook Trout Habitat
- Atlantic Salmon Rearing Habitat
- Atlantic Salmon Spawning Habitat
- Roseate Tern, Piping Plover or Least Tern Nesting Areas
- Deer Wintering
- Inland Wading Bird and Waterfowl Habitat
- Wildlife Wetlands
- Seabird Nesting Island
- Shorebird Habitat
- Tidal Wading Bird and Waterfowl Habitat
- Significant Vernal Pools
- Less than 2000 Vehicles/Day
- More than 2000 Vehicles/Day
- Less than 2000 Vehicles/Day
- More than 2000 Vehicles/Day
- Undeveloped Habitat Blocks
- Highway Bridge Connectors
- Maine Conserved Lands
- Federal
- Municipal
- Water Dist., etc.
- Private
- State
- Conserved Lands Easements
- Focus

State of Maine

0 0.425 0.85 1.7 2.55 mi

N W E S

Supported in part by Maine Outdoor Heritage Fund lottery ticket sales

Map Prepared by Maine Department of Inland Fisheries & Wildlife
September 2021

Supported in part by Loon Conservation Plate funds

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
Phone: (207) 469-7300 Fax: (207) 902-1588
http://www.fws.gov/mainefieldoffice/index.html

IPaC Record Locator: 828-105469871 September 08, 2021

Subject: Consistency letter for the 'Good To-Go' project indicating that any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Dear Erik Saari:

The U.S. Fish and Wildlife Service (Service) received on September 08, 2021 your effects determination for the 'Good To-Go' (the Action) using the northern long-eared bat (*Myotis septentrionalis*) key within the Information for Planning and Consultation (IPaC) system. You indicated that no Federal agencies are involved in funding or authorizing this Action. This IPaC key assists users in determining whether a non-Federal action may cause "take"[1] of the northern long-eared bat that is prohibited under the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o). Unless the Service advises you within 30 days of the date of this letter that your IPaC-assisted determination was incorrect, this letter verifies that the Action is not likely to result in unauthorized take of the northern long-eared bat.

Please report to our office any changes to the information about the Action that you entered into IPaC, the results of any bat surveys conducted in the Action area, and any dead, injured, or sick northern long-eared bats that are found during Action implementation.

If your Action proceeds as described and no additional information about the Action's effects on species protected under the ESA becomes available, no further coordination with the Service is required with respect to the northern long-eared bat.

The IPaC-assisted determination for the northern long-eared bat **does not** apply to the following ESA-protected species that also may occur in your Action area:

- Monarch Butterfly *Danaus plexippus* Candidate

You may coordinate with our Office to determine whether the Action may cause prohibited take of the animal species listed above.

[1]Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct [ESA Section 3(19)].

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

Good To-Go

2. Description

The following description was provided for the project 'Good To-Go':

> Construction of a 850lf roadway to access a 20,000sf building with associated parking and infrastructure.

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@43.130806199999995,-70.70119736593162,14z

Determination Key Result

This non-Federal Action may affect the northern long-eared bat; however, any take of this species that may occur incidental to this Action is not prohibited under the final 4(d) rule at 50 CFR §17.40(o).

Determination Key Description: Northern Long-eared Bat 4(d) Rule
This key was last updated in IPaC on **May 15, 2017**. Keys are subject to periodic revision.

This key is intended for actions that may affect the threatened northern long-eared bat.

The purpose of the key for non-Federal actions is to assist determinations as to whether proposed actions are excepted from take prohibitions under the northern long-eared bat 4(d) rule.

If a non-Federal action may cause prohibited take of northern long-eared bats or other ESA-listed animal species, we recommend that you coordinate with the Service.

Determination Key Result

Based upon your IPaC submission, any take of the northern long-eared bat that may occur as a result of the Action is not prohibited under the ESA Section 4(d) rule adopted for this species at 50 CFR §17.40(o).

Qualification Interview

1. Is the action authorized, funded, or being carried out by a Federal agency?

   No

2. Will your activity purposefully **Take** northern long-eared bats?

   No

3. [Semantic] Is the project action area located wholly outside the White-nose Syndrome Zone?

   Automatically answered
   No

4. [Semantic] Is the project action area located within 0.25 miles of a known northern long-eared bat hibernaculum?

   Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency

   Automatically answered
   No

5. [Semantic] Is the project action area located within 150 feet of a known occupied northern long-eared bat maternity roost tree?

   Note: The map queried for this question contains proprietary information and cannot be displayed. If you need additional information, please contact your State wildlife agency

   Automatically answered
   No

Project Questionnaire

If the project includes forest conversion, report the appropriate acreages below. Otherwise, type '0' in questions 1-3.

1. Estimated total acres of forest conversion:

2.87

2. If known, estimated acres of forest conversion from April 1 to October 31

0

3. If known, estimated acres of forest conversion from June 1 to July 31

0

If the project includes timber harvest, report the appropriate acreages below. Otherwise, type '0' in questions 4-6.

4. Estimated total acres of timber harvest

0

5. If known, estimated acres of timber harvest from April 1 to October 31

0

6. If known, estimated acres of timber harvest from June 1 to July 31

0

If the project includes prescribed fire, report the appropriate acreages below. Otherwise, type '0' in questions 7-9.

7. Estimated total acres of prescribed fire

0

8. If known, estimated acres of prescribed fire from April 1 to October 31

0

9. If known, estimated acres of prescribed fire from June 1 to July 31

0

If the project includes new wind turbines, report the megawatts of wind capacity below. Otherwise, type '0' in question 10.

10. What is the estimated wind capacity (in megawatts) of the new turbine(s)?

0

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

York County, Maine

Local office

Maine Ecological Services Field Office

(207) 469-7300
(207) 902-1588

MAILING ADDRESS

P. O. Box A
East Orland, ME 04431

PHYSICAL ADDRESS

306 Hatchery Road
East Orland, ME 04431

http://www.fws.gov/mainefieldoffice/index.html

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an

office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Northern Long-eared Bat Myotis septentrionalis Wherever found No critical habitat has been designated for this species. http://ecos.fws.gov/ecp/species/9045	Threatened

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found No critical habitat has been designated for this species. http://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON (IF A BREEDING SEASON IS INDICATED FOR A BIRD ON YOUR LIST, THE BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus* This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities. http://ecos.fws.gov/ecp/species/1626	Breeds Oct 15 to Aug 31
Blue-winged Warbler *Vermivora pinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds May 1 to Jun 30
Bobolink *Dolichonyx oryzivorus* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Jul 31
Canada Warbler *Cardellina canadensis* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10
Lesser Yellowlegs *Tringa flavipes* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. http://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Prairie Warbler *Dendroica discolor* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Purple Sandpiper *Calidris maritima* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Ruddy Turnstone *Arenaria interpres morinella* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere
Rusty Blackbird *Euphagus carolinus* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds elsewhere

Wood Thrush Hylocichla mustelina — Breeds May 10 to Aug 31

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

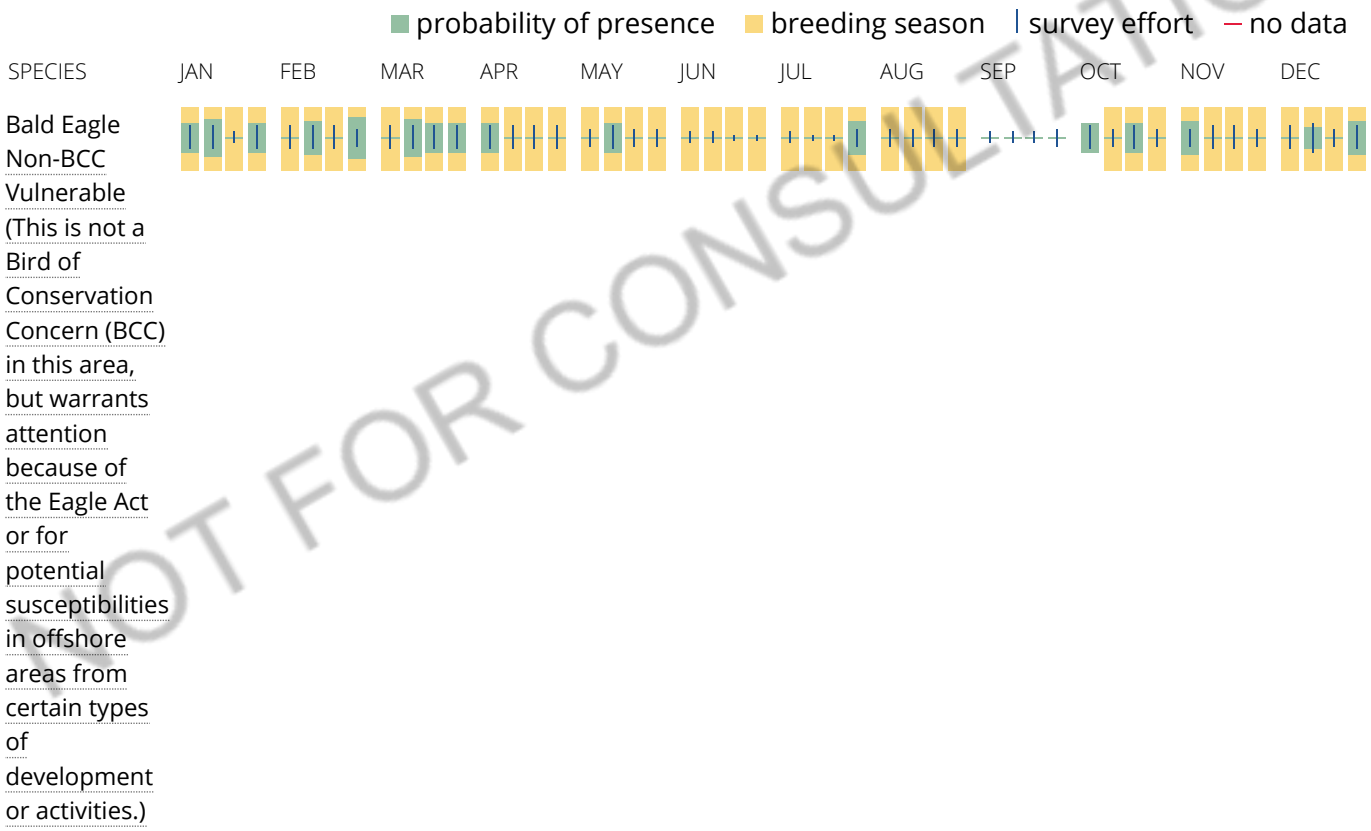
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

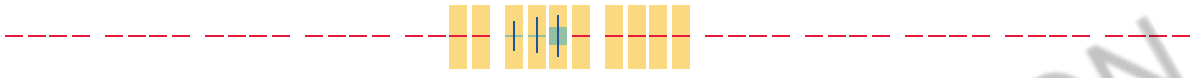
No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

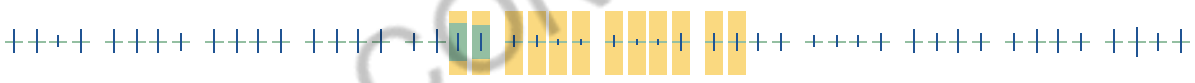


Blue-winged Warbler BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)

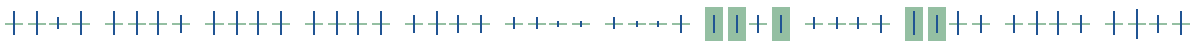
Bobolink BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



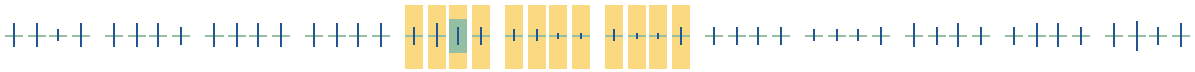
Canada Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Lesser Yellowlegs BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

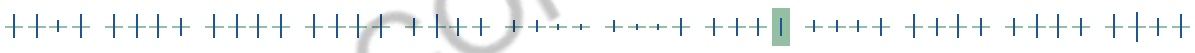


Prairie Warbler BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

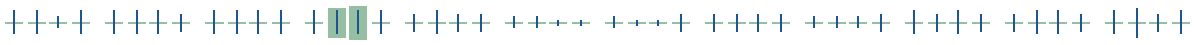


Purple Sandpiper BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)

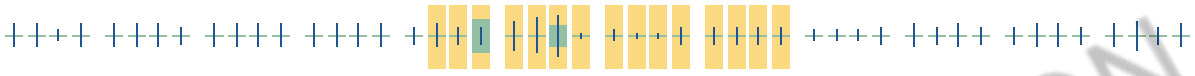
Ruddy Turnstone BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Rusty Blackbird BCC - BCR (This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA)



Wood Thrush BCC Rangewide (CON) (This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.)



Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project

area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be

helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

R4SBCx

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

THIS DRAWING SET HAS NOT BEEN RELEASED FOR CONSTRUCTION

GOOD TO-GO
SPECIALTY FOOD FACILITY

524 U.S. ROUTE 1
KITTERY, MAINE

Assessor's Parcel 67, Lot 1

Owner:
C-COAST PROPERTIES, LLC
8 Banks Rock
York Harbor, Maine 03911

Applicant:
GOOD TO-GO
c/o Cape House Management, LLC
484 U.S. Route 1
Kittery, Maine 03904
(207) 451-9060

Civil Engineer:
ALTUS ENGINEERING, INC.
133 Court Street, Portsmouth, NH 03801
(603) 433-2335, www.altus-eng.com

Soil and Wetland Scientist:
Michael Cuomo, M.S.S. #211
6 York Pond Road
York, ME 03909
(207) 363-4532

Surveyor:
CIVIL CONSULTANTS
Engineers, Planners, Surveyors
P.O. Box 100, South Berwick, Maine 03908
Tel. 207-384-2550
www.civcon.com

Architect:
Bild Architecture
30 Danforth St., Suite 213
Portland, Maine 004101
(207) 408-0168

General Contractor:
Sheridan Construction Corp.
33 Sheridan Drive
Fairfield, Maine 04937
(207) 453-9311

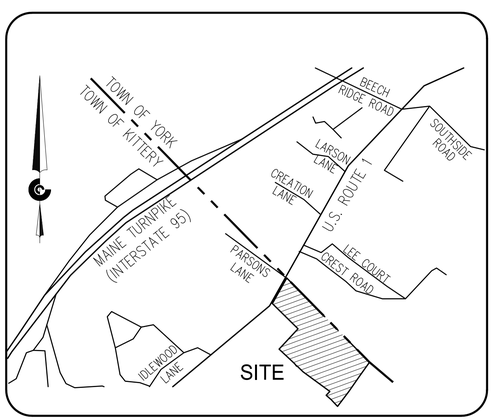
Landscape Architect:
woodburn & company
LANDSCAPE ARCHITECTURE
103 Kent Place Newmarket, New Hampshire Phone: 603.659.5949

Traffic Consultant:
Sewal
The evolution of expertise
Since 1880
40 Forest Falls Avenue | Suite 2
Yarmouth, Maine 04096
T: +1. 207.817.5440 | F: +1. 207.827.3641

Lighting Consultant:
VISIBLELIGHT
24 STICKNEY TERRACE, SUITE 6
HAMPTON, NH 03842
(603) 926-6049

Plan Issue Date:

September 23, 2021
Planning Board Submission



LOCUS NOT TO SCALE

Sheet Index Title	*Sheet No.:*	*Rev.*	*Date*
Existing Conditions Plan	XC1	0	04/14/21
Right of Way and Easement Plan – A	C-1.A	1	09/23/21
Right of Way and Easement Plan – B	C-1.B	0	07/22/21
Soils Plan	C-2	0	07/22/21
Site Plan	C-3	0	09/23/21
Roadway Plan and Profile	C-4	0	09/23/21
Highway Access Plan	C-5	0	09/23/21
Stormwater Management Plan	C-6	0	09/23/21
Erosion and Sediment Control Plan	C-7	1	09/23/21
Utility Plan	C-8	0	09/23/21
Lighting Plan	C-9	0	09/23/21
Landscape Plan	L-1	0	07/22/21
Detail Sheet	D-1	1	08/18/21
Detail Sheet	D-2	0	07/22/21
Detail Sheet	D-3	2	09/23/21
Detail Sheet	D-4	2	09/23/21
Detail Sheet	D-5	1	09/23/21
Detail Sheet	D-6	1	09/23/21
Detail Sheet	D-7	1	09/23/21
Detail Sheet	D-8	1	09/23/21
Detail Sheet	D-9	1	09/23/21
Detail Sheet	D-10	0	09/23/21
Elevations	A-200	0	09/16/21

Permit Summary:	*Submitted*	*Received*
Kittery Site Plan Approval	07/22/21	-/-/-
MDEP Stormwater Permit	08/18/21	-/-/-
MDOT Entrance Permit	08/17/21	-/-/-
Notice of Intent	By Contractor 14 days prior to construction	

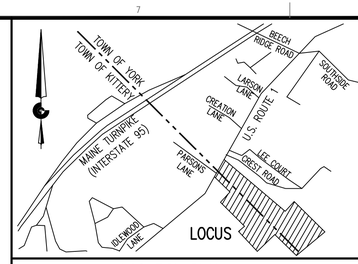
P5116.1

REFERENCE PLANS:

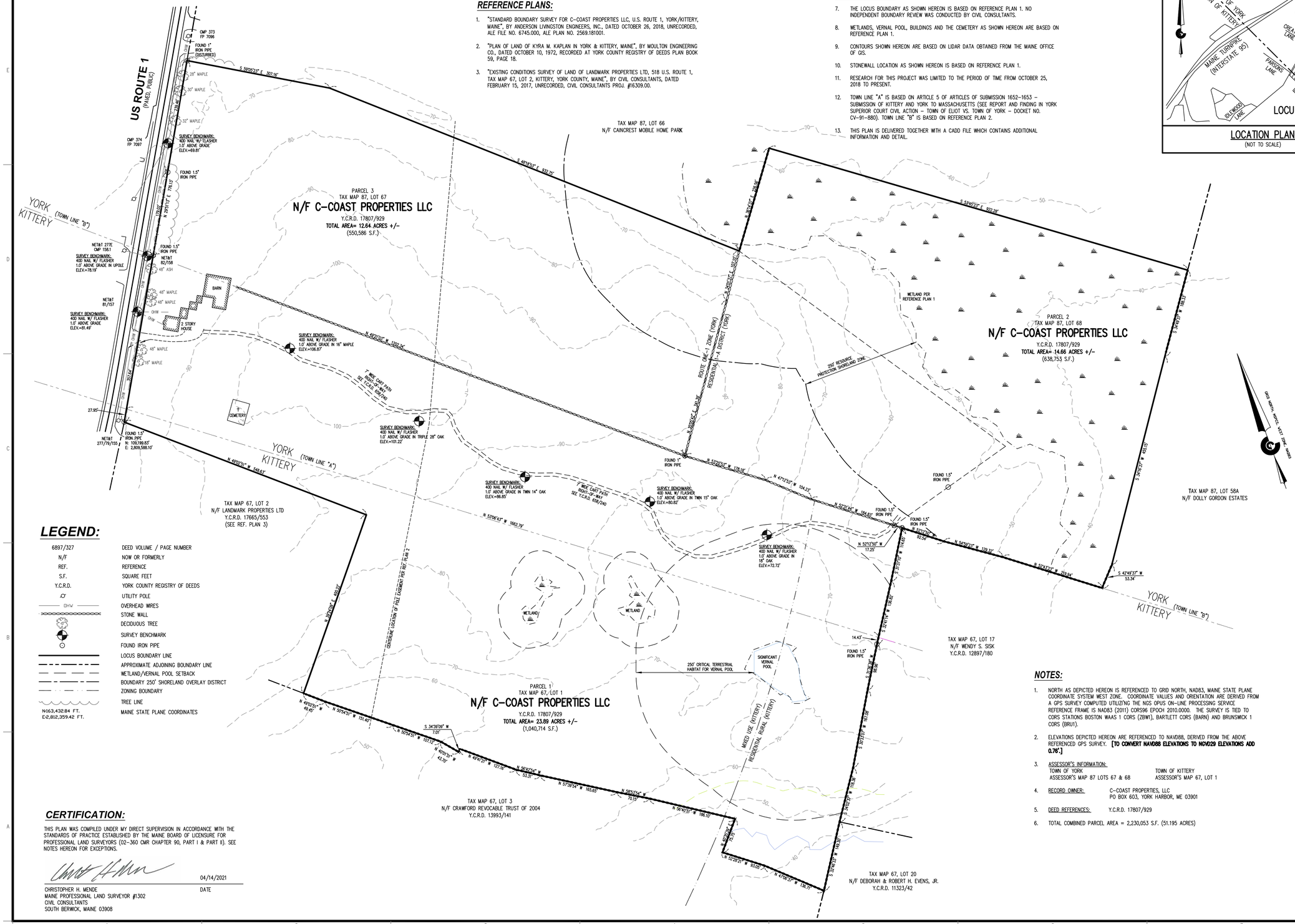
1. "STANDARD BOUNDARY SURVEY FOR C-COAST PROPERTIES LLC, U.S. ROUTE 1, YORK/KITTERY, MAINE", BY ANDERSON LIVINGSTON ENGINEERS, INC., DATED OCTOBER 26, 2018, UNRECORDED, ALE FILE NO. 6745.000, ALE PLAN NO. 2569.181001.
2. "PLAN OF LAND OF KYRA M. KAPLAN IN YORK & KITTERY, MAINE", BY MOULTON ENGINEERING CO., DATED OCTOBER 10, 1972, RECORDED AT YORK COUNTY REGISTRY OF DEEDS PLAN BOOK 59, PAGE 18.
3. "EXISTING CONDITIONS SURVEY OF LAND OF LANDMARK PROPERTIES LTD, 518 U.S. ROUTE 1, TAX MAP 67, LOT 2, KITTERY, YORK COUNTY, MAINE", BY CIVIL CONSULTANTS, DATED FEBRUARY 15, 2017, UNRECORDED, CIVIL CONSULTANTS PROJ. #16309.00.

NOTES : (CONT.)

7. THE LOCUS BOUNDARY AS SHOWN HEREON IS BASED ON REFERENCE PLAN 1. NO INDEPENDENT BOUNDARY REVIEW WAS CONDUCTED BY CIVIL CONSULTANTS.
8. WETLANDS, VERNAL POOL, BUILDINGS AND THE CEMETERY AS SHOWN HEREON ARE BASED ON REFERENCE PLAN 1.
9. CONTOURS SHOWN HEREON ARE BASED ON LIDAR DATA OBTAINED FROM THE MAINE OFFICE OF GIS.
10. STONEWALL LOCATION AS SHOWN HEREON IS BASED ON REFERENCE PLAN 1.
11. RESEARCH FOR THIS PROJECT WAS LIMITED TO THE PERIOD OF TIME FROM OCTOBER 25, 2018 TO PRESENT.
12. TOWN LINE "A" IS BASED ON ARTICLE 5 OF ARTICLES OF SUBMISSION 1652–1653 – SUBMISSION OF KITTERY AND YORK TO MASSACHUSETTS (SEE REPORT AND FINDING IN YORK SUPERIOR COURT CIVIL ACTION – TOWN OF ELIOT VS. TOWN OF YORK – DOCKET NO. CV–91–880). TOWN LINE "B" IS BASED ON REFERENCE PLAN 2.
13. THIS PLAN IS DELIVERED TOGETHER WITH A CADD FILE WHICH CONTAINS ADDITIONAL INFORMATION AND DETAIL.



LOCATION PLAN
(NOT TO SCALE)



LEGEND:

6897/327	DEED VOLUME / PAGE NUMBER
N/F	NOW OR FORMERLY
REF.	REFERENCE
S.F.	SQUARE FEET
Y.C.R.D.	YORK COUNTY REGISTRY OF DEEDS
	UTILITY POLE
OHW	OVERHEAD WIRES
	STONE WALL
	DECIDUOUS TREE
	SURVEY BENCHMARK
	FOUND IRON PIPE
	LOCUS BOUNDARY LINE
	APPROXIMATE ADJOINING BOUNDARY LINE
	WETLAND/VERNAL POOL SETBACK
	BOUNDARY 250' SHORELAND OVERLAY DISTRICT
	ZONING BOUNDARY
	TREE LINE
N163,432.84 FT. E=2,812,359.42 FT.	MAINE STATE PLANE COORDINATES

NOTES:

1. NORTH AS DEPICTED HEREON IS REFERENCED TO GRID NORTH, NAD83, MAINE STATE PLANE COORDINATE SYSTEM WEST ZONE. COORDINATE VALUES AND ORIENTATION ARE DERIVED FROM A GPS SURVEY COMPUTED UTILIZING THE NGS OPUS ON–LINE PROCESSING SERVICE REFERENCE FRAME IS NAD83 (2011) CORS96 EPOCH 2010.0000. THE SURVEY IS TIED TO CORS STATIONS BOSTON WAAS 1 CORS (ZBW1), BARTLETT CORS (BARN) AND BRUNSWICK 1 CORS (BRU1).
2. ELEVATIONS DEPICTED HEREON ARE REFERENCED TO NAVD88, DERIVED FROM THE ABOVE REFERENCED GPS SURVEY. **[TO CONVERT NAVD88 ELEVATIONS TO NGVD29 ELEVATIONS ADD 0.76'.]**
3. ASSESSOR'S INFORMATION:
   TOWN OF YORK — ASSESSOR'S MAP 87 LOTS 67 & 68
   TOWN OF KITTERY — ASSESSOR'S MAP 67, LOT 1
4. RECORD OWNER: C–COAST PROPERTIES, LLC PO BOX 603, YORK HARBOR, ME 03901
5. DEED REFERENCES: Y.C.R.D. 17807/929
6. TOTAL COMBINED PARCEL AREA = 2,230,053 S.F. (51.195 ACRES)

CERTIFICATION:

THIS PLAN WAS COMPILED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH THE STANDARDS OF PRACTICE ESTABLISHED BY THE MAINE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS (02–360 CMR CHAPTER 90, PART I & PART II). SEE NOTES HEREON FOR EXCEPTIONS.

04/14/2021
DATE

CHRISTOPHER H. MENDE
MAINE PROFESSIONAL LAND SURVEYOR #1302
CIVIL CONSULTANTS
SOUTH BERWICK, MAINE 03908

STATE OF MAINE — CHRISTOPHER H. MENDE PLS 1302 — PROFESSIONAL LAND SURVEYOR

© CIVIL CONSULTANTS
CIVIL CONSULTANTS
Engineers
Planners
Surveyors
P.O. Box 100
South Berwick
Maine
03908
207-384-2550
www.civcon.com

NO.	REVISIONS	DATE	INT.
1			

RECORD OWNER:
C–COAST PROPERTIES, LLC

OWNER ADDRESS:
PO BOX 603
YORK HARBOR, ME 03911

PLAN OF LANDS OF C-COAST PROPERTIES, LLC
KITTERY TAX MAP 67, LOT 1
YORK TAX MAP 87, LOTS 67 & 68
US ROUTE 1, KITTERY AND YORK, YORK COUNTY, MAINE

PREPARED FOR:
ALTUS ENGINEERING, INC.
133 COURT STREET, PORTSMOUTH, NH 03801

CLIENT ADDRESS:

1"=100'
0' 100'

DATE: 04/14/2021
DRAWN BY: CBS
CHECKED BY: CHM
APPROVED BY: CHM

EXISTING CONDITIONS PLAN

PROJECT NO: 20–320.00

XC1

SHEET: 1 OF 1

COORDINATE FILE: J:\AAA\2020\2032000\CARLSON\SURVEY\PNTS\203200–MSPCS83W.CRD
CADD FILE: J:\AAA\2020\2032000\CARLSON\SURVEY\DRAWING\2032000–MSPCS83W.DWG
PLOT DATE: 4/21/2021 10:19 AM

YORK TAX MAP 87
LOT 1B
N/F PETER &
VALERIE BELESIS
Y.C.R.D. 11681/321

YORK TAX MAP 87, LOT 67
N/F C-COAST PROPERTIES LLC
Y.C.R.D. 17807/929

MATCH LINE
SHEET C-1.B

FOUND 1" I.P.
(DISTURBED)

N49°21'03"W 1202.34'

FOUND 1"
IRON PIPE

PARSONS
LANE

US ROUTE 1
(PAVED, PUBLIC)

163.03'
N29°51'13"E 357.64'

BARN

2
STORY
HOUSE

7' WIDE CART PATH
RIGHT-OF-WAY
SEE Y.C.R.D. 658/240

GRAVEL DRIVE

C1
C2
C3
C4
C5
C6

194.61'
N29°51'13"E 175.61'

CEMETERY

CENTERLINE LOCATION
OF POLE EASEMENT

PROPOSED
10'-WIDE SLOPE
EASEMENT FOR THE
BENEFIT OF THE
TOWN OF KITTERY

PROPOSED LOT 1
±441,825 S.F.
(±10.14 AC.)
DOES NOT INCLUDE
ROW AREA

S36°53'17"W
10.00'

N53°06'43"W 332.61'
332.61'

N53°06'43"W
501.82'

N36°53'17"E
10.00'

169.21'

N36°53'17"E
60.00'

TAX MAP 87, LOT 1B
N/F PETER & VALERIE BELESIS
Y.C.R.D. 11681/321

PROPOSED SLOPE AND
DRAINAGE EASEMENT
FOR THE BENEFIT OF
MAINE DOT

50.00'
N49°02'51"W

N63°27'33"W
54.41'

PROPOSED PUBLIC
RIGHT OF WAY
±70,328 S.F.
(±1.61 AC.)

18.53'

FOUND
1.5" I.P.

286.89'

N49°02'51"W 548.63'

S63°27'33"E
83.49'

243.21'

157.62'

S53°06'43"E 501.82'

284.14'

60.06'

S39°24'09"W
45.04'

47.68'
N39°24'09"E

60.00'
S50°35'50"E

PROPOSED TEMPORARY
60'-WIDE ACCESS EASEMENT
FOR THE BENEFIT OF THE
TOWN OF KITTERY –
EAESMENT SHALL EXTINGUISH
UPON FUTURE EXTENSION OF
PUBLIC RIGHT OF WAY AND/OR
CONSTRUCTION OF A
TURNAROUND MEETING TOWN
OF KITTERY STANDARDS

50'
WETLAND
SETBACK

GRID NORTH, MSPCS5, WEST ZONE, NAD83

US ROUTE 1

TAX MAP 67, LOT 2
N/F LANDMARK
PROPERTIES LTD
Y.C.R.D. 17665/553

N39°24'09"E 400.22'

PROPOSED LOT 2
±528,561 S.F.
±12.13 ACRES

S34°39'09"W
7.01'

N49°02'51"W
49.45'

N50°54'51"W 151.40'

N50°54'51"W 107.12'

N40°01'51"W
43.70'

N49°41'21"W 127.16'

N56°42'54"W
53.31'

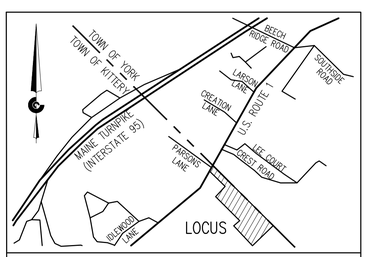
N57°39'5

TAX MAP 67, LOT 3
N/F CRAWFORD REVOCABLE
TRUST OF 2004
Y.C.R.D. 13993/141

MATCH LINE
SHEET C-1.B

LEGEND

- PERIMETER BOUNDARY
- WETLANDS
- PROPOSED LOT LINE
- IRON REBAR w/CAP OR DRILL HOLE TO BE SET
- GRANITE BOUND TO BE SET



LOCATION PLAN
(NOT TO SCALE)

PROPROSED CURVE TABLE			
Curve	Radius	Arc Length	Delta Angle
C1	25.00'	32.67'	74°10'57"
C2	180.00'	132.95'	42°19'14"
C3	170.00'	139.57'	47°02'21"
C4	170.00'	42.76'	14°24'43"
C5	330.00'	59.60'	10°20'51"
C6	270.00'	48.76'	10°20'51"

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)

P5116

ALTUS ENGINEERING, INC.
133 Court Street
(603) 433-2335
Portsmouth, NH 03801
www.altus-eng.com

CIVIL CONSULTANTS
Engineers
Planners
Surveyors
P.O. Box 100
South Berwick
Maine
03908
207-384-2550
www.civcon.com

NOT FOR CONSTRUCTION

ISSUED FOR:
PLANNING BOARD

ISSUE DATE:
SEPTEMBER 23, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	PLANNING BOARD	EBS	09/23/21

DRAWN BY: RMB
APPROVED BY: EBS
DRAWING FILE: 5116SITE.dwg

SCALE:
22" x 34" – 1" = 50'
11" x 17" – 1" = 100'

OWNER:
C-COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

APPLICANT:
GOOD TO-GO
c/o CAPE HOUSE
MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO-GO
SPECIALTY FOOD
FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
RIGHT OF WAY
AND
EASEMENT PLAN - A

SHEET NUMBER:
C-1.A

NOTES

ZONING SUMMARY:

AREA: 1,040,714 S.F. (23.89± ACRES)
ZONE: MIXED USE (MU)
SHORELAND OVERLAY ZONE

DIMENSIONAL STANDARDS (MU)

MINIMUM LOT AREA	40,000 S.F.
ROAD FRONTAGE	150 FT.
FRONT YARD	40 FT.
SIDE YARD	20 FT.
REAR YARD	20 FT.

NOTES:

1. THE PERIMETER BOUNDARY SHOWN HERON IS PER PLAN REFERENCE #1.
2. NORTH AS DEPICTED HERON IS REFERENCED TO GRID NORTH, NAD83, MAINE STATE PLAN COORDINATE SYSTEM WEST ZONE. ORIENTATION IS DERIVED FROM A GPS SURVEY COMPUTES UTILIZING THE NGS ON-LINE PROCESSING SERVICE REFERENCE FRAME IS NAD83 (2011) CORS96 EPOCH 2010.0000. THE SURVEY IS TIED TO CORS STATION BOSTON WAAS 1 CORS (ZBW1), BARLETT CORS (BARN) AND BRUNSWICK CORS (BRU1).
3. WETLANDS, VERNAL POOL, BUILDING, CEMETERY AND STONEWALL LOCATIONS AS SHOWN ARE BASED ON REFERENCE PLAN 2.

PLAN REFERENCE;

1. "EXISTING CONDITIONS PLAN, PLAN OF LANDS OF C-COAST PROPERTIES, LLC, KITTERY TAX MAP 67, LOT 1, YORK TAX MAP 87, LOTS 67 & 68, US ROUTE 1, KITTERY AND YORK, MAINE" BY CIVIL CONSULTANTS, DATED APRIL 14, 2021, UNRECORDED.
2. "STANDARD BOUNDARY SURVEY FOR C-COAST PROPERTIES LLC, US ROUTE 1, YORK/KITTERY, MAINE" BY ANDERSON LIVINGSTON ENGINEERS, INC., DATED OCTOBER 26, 2018, UNRECORDED, ALE FILE NO. 6745.0000, ALE PLAN NO. 2569.181001.

MONUMENTATION;

PRIOR TO CERTIFICATION OF OCCUPANCY OF ANY LOT SHOWN HEREON, MONUMENTS SHOWN AS "TO BE SET" MUST BE SET UNDER THE DIRECTION OF A MAINE LICENSED LAND SURVEYOR. ROADWAY MONUMENTATION SHALL BE A MINIMUM OF FOUR (4) INCHES SQUARE STONE MONUMENTS AND INSTALLED AS SHOWN ON SUBDIVISION PLAN AND PER TOWN STANDARDS.

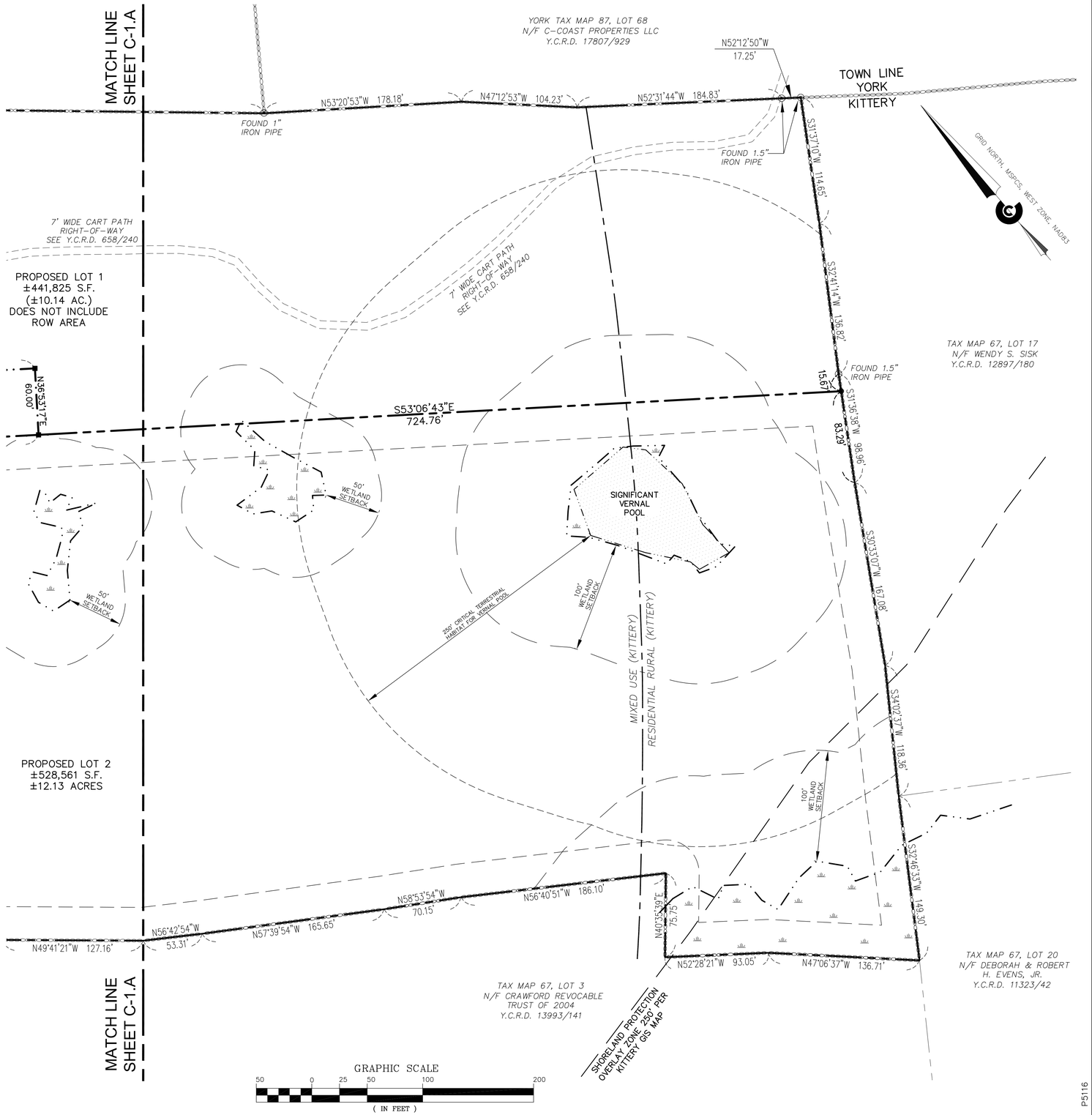
APPROVALS;

KITTERY PLANNING BOARD –
PRELIMINARY SITE PLAN APPROVAL, DATED 05/27/21
ROAD NAME APPROVAL, DATED _____
FINAL APPROVAL, DATED _____
WAIVERS GRANTED, DATED _____
1. SECTION 16.8, ATTACHMENT 1, TABLE 1 (SECONDARY COLLECTOR ROAD):
- SIDEWALK (NOT PROPOSED WHERE REQUIRED)
- LONGITUDINAL STREET GRADIENT (7.5% WHERE 7% REQUIRED)
- SIDE SLOPE (2:1 IN DEEP CUTS OR 1:2 IN LEDGE WHERE 3:1 REQUIRED)
- TANGENT BETWEEN REVERSE CURVES (0', 50' & 54.42' WHERE 100' REQ.)
- MIN. CENTERLINE CURVE RADIUS (150', 200' & 200' WHERE 300' REQ.)

MAINE DEP STORMWATER PERMIT, DATED _____
MAINE DOT ENTRANCE PERMIT, DATED _____

TOWN OF KITTERY CONDITIONS OF APPROVAL;

1. NO CHANGES, ERASURES, MODIFICATIONS OR REVISIONS MAY BE MADE TO ANY PLANNING BOARD APPROVED FINAL PLAN (TITLE 16.10.9.1.2).
2. APPLICANT/CONTRACTOR WILL FOLLOW MAINE DEP BEST MANAGEMENT PRACTICES FOR ALL WORK ASSOCIATED WITH SITE AND BUILDING CONSTRUCTION TO ENSURE ADEQUATE EROSION CONTROL AND SLOPE STABILIZATION.
3. PRIOR TO THE COMMENCEMENT OF GRADING AND/OR CONSTRUCTION WITHIN A BUILDING ENVELOPE, AS SHOWN ON THE PLAN, THE OWNER AND/OR DEVELOPER MUST STAKE ALL CORNERS OF THE ENVELOPE. THESE MARKERS MUST REMAIN IN PLACE UNTIL THE CODE ENFORCEMENT OFFICER DETERMINES CONSTRUCTION IS COMPLETED AND THERE IS NO DANGER TO AREAS THAT ARE, PER PLANNING BOARD APPROVAL, TO REMAIN UNDISTURBED.
4. ALL NOTICES TO APPLICANT CONTAINED IN THE FINDINGS OF FACT (DATED --/--/--).



P5116

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NOT FOR CONSTRUCTION

ISSUED FOR:
PLANNING BOARD

ISSUE DATE:
JULY 22, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	PLANNING BOARD	EBS	07/22/21

DRAWN BY: RMB
APPROVED BY: EBS
DRAWING FILE: 5116SITE.dwg

SCALE:
22" x 34" – 1" = 50'
11" x 17" – 1" = 100'

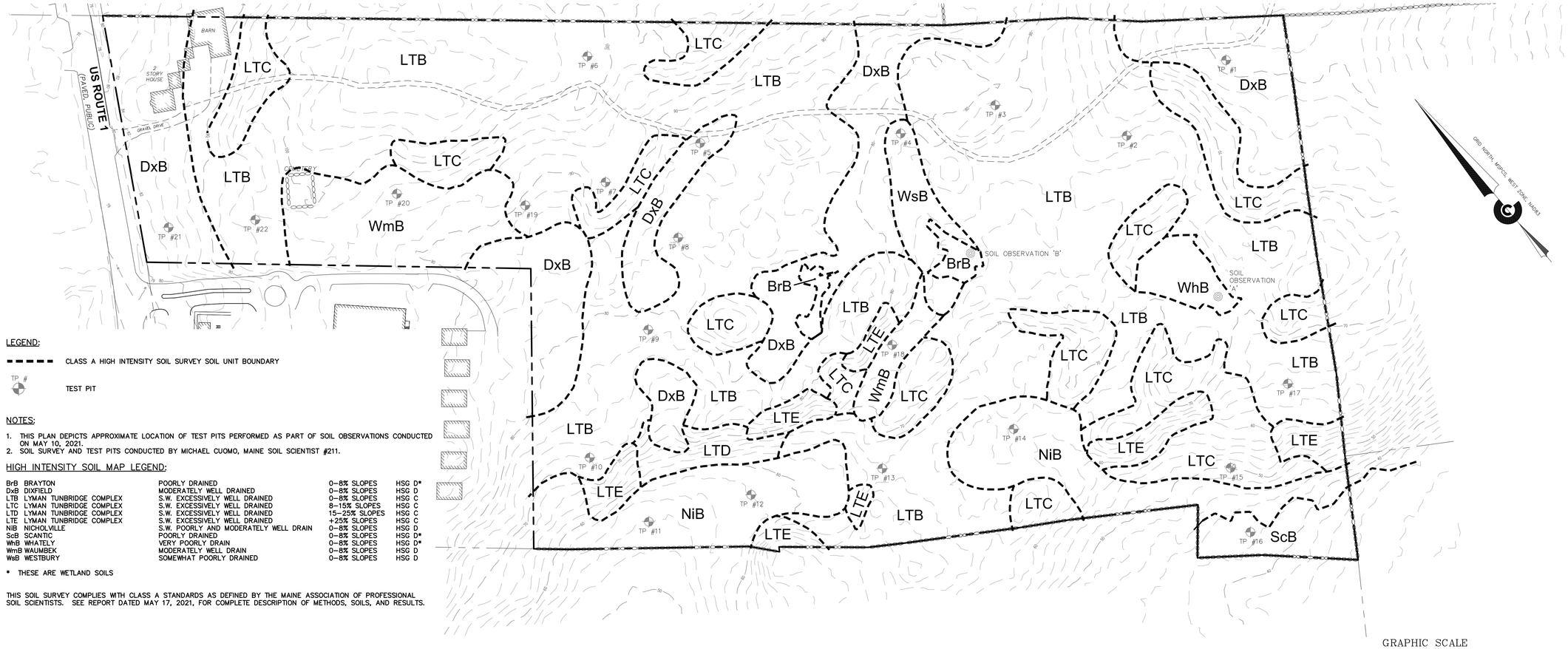
OWNER:
C-COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

APPLICANT:
GOOD TO-GO
c/o CAPE HOUSE
MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO-GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
RIGHT OF WAY AND EASEMENT PLAN - B

SHEET NUMBER:
C-1.B



LEGEND:

CLASS A HIGH INTENSITY SOIL SURVEY SOIL UNIT BOUNDARY

TP # TEST PIT

NOTES:

1. THIS PLAN DEPICTS APPROXIMATE LOCATION OF TEST PITS PERFORMED AS PART OF SOIL OBSERVATIONS CONDUCTED ON MAY 10, 2021.
2. SOIL SURVEY AND TEST PITS CONDUCTED BY MICHAEL CUOMO, MAINE SOIL SCIENTIST #211.

HIGH INTENSITY SOIL MAP LEGEND:

BrB BRAYTON	POORLY DRAINED	0–8% SLOPES	HSG D*
DxB DIXFIELD	MODERATELY WELL DRAINED	0–8% SLOPES	HSG D
LTB LYMAN TUNBRIDGE COMPLEX	S.W. EXCESSIVELY WELL DRAINED	0–8% SLOPES	HSG C
LTC LYMAN TUNBRIDGE COMPLEX	S.W. EXCESSIVELY WELL DRAINED	8–15% SLOPES	HSG C
LTD LYMAN TUNBRIDGE COMPLEX	S.W. EXCESSIVELY WELL DRAINED	15–25% SLOPES	HSG C
LTE LYMAN TUNBRIDGE COMPLEX	S.W. EXCESSIVELY WELL DRAINED	+25% SLOPES	HSG C
NiB NICHOLVILLE	S.W. POORLY AND MODERATELY WELL DRAIN	0–8% SLOPES	HSG D
ScB SCANTIC	POORLY DRAINED	0–8% SLOPES	HSG D*
WhB WHATELY	VERY POORLY DRAIN	0–8% SLOPES	HSG D*
WmB WAUMBEK	MODERATELY WELL DRAIN	0–8% SLOPES	HSG D
WsB WESTBURY	SOMEWHAT POORLY DRAINED	0–8% SLOPES	HSG D

* THESE ARE WETLAND SOILS

THIS SOIL SURVEY COMPLIES WITH CLASS A STANDARDS AS DEFINED BY THE MAINE ASSOCIATION OF PROFESSIONAL SOIL SCIENTISTS. SEE REPORT DATED MAY 17, 2021, FOR COMPLETE DESCRIPTION OF METHODS, SOILS, AND RESULTS.

MICHAEL CUOMO
MAINE SOIL SCIENTIST #211

TEXT PIT LOGS

Test Pit Number: 1
Depth — Description
2" — Leaf litter.
0–9" — Dark brown (10YR 3/3) fine sandy loam, granular, friable.
9–24" — Dark yellowish brown (10YR 4/6) fine sandy loam, blocky, friable.
24–35" — Light olive brown (2.5Y 5/4) fine sandy loam, blocky, friable, redox.
35–48" — Dark olive brown (2.5Y 3/3) stony fine sandy loam, massive, firm, redox.
Soil Name: Dixfield
Depth to Seasonal High Water Table: 24"
Depth to Bedrock: 48"

Test Pit Number: 2
Depth — Description
1" — Leaf litter.
0–8" — Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
8–20" — Dark yellowish brown (10YR 4/6) stony fine sandy loam, blocky, friable.
Soil Name: Tunbridge
Depth to Seasonal High Water Table: none
Depth to Bedrock: 20"

Test Pit Number: 3
Depth — Description
2" — Leaf litter.
0–8" — Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
8–18" — Dark yellowish brown (10YR 4/6) stony fine sandy loam, blocky, friable.
Soil Name: Lyman
Depth to Seasonal High Water Table: none
Depth to Bedrock: 18"

Test Pit Number: 4
Depth — Description
2" — Leaf litter.
0–8" — Dark grayish brown (2.5Y 4/2) fine sandy loam, granular, friable.
8–16" — Dark yellowish brown (10YR 4/6) fine sandy loam, blocky, friable, redox.
16–24" — Light yellowish brown (2.5Y 6/4) fine sandy loam, blocky, firm, redox.
Soil Name: Westbury variant
Depth to Seasonal High Water Table: 8"
Depth to Bedrock: 24"

Test Pit Number: 5
Depth — Description
1" — Leaf litter.
0–22" — Yellowish brown (10YR 5/4) fine sandy loam, blocky, friable.
22–32" — Dark yellowish brown (10YR 4/6) gravelly loamy sand, blocky, friable, redox.
32–44" — Dark olive brown (2.5Y 3/3) gravelly sand, loose, massive, redox.
44–56" — Light olive brown (2.5Y 5/4)stony fine sandy loam, massive, firm, redox.
Soil Name: Dixfield
Depth to Seasonal High Water Table: 22"
Depth to Bedrock: 56"

Test Pit Number: 6
Depth — Description
1" — Leaf litter.
0–10" — Dark brown (10YR 3/3) fine sandy loam, granular, friable.
10–24" — Dark yellowish brown (10YR 4/6) fine sandy loam, blocky, friable.
24–38" — Light yellowish brown (2.5Y 6/4) stony fine sandy loam, massive, firm, redox.
Soil Name: Tunbridge variant
Depth to Seasonal High Water Table: 24"
Depth to Bedrock: 38"

Test Pit Number: 7
Depth — Description
1" — Leaf litter.
0–7" — Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
7–18" — Yellowish brown (10YR 5/6) stony fine sandy loam, blocky, friable.
Soil Name: Lyman
Depth to Seasonal High Water Table: none
Depth to Bedrock: 18"

Test Pit Number: 8
Depth — Description
2" — Leaf litter.
0–3" — Very dark gray (10YR 3/1) stony fine sandy loam, granular, friable.
Soil Name: Abram
Depth to Seasonal High Water Table: none
Depth to Bedrock: 3"

Test Pit Number: 9
Depth — Description
2" — Leaf litter.
0–6" — Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
6–27" — Yellowish brown (10YR 5/6) stony fine sandy loam, blocky, friable.
Soil Name: Tunbridge
Depth to Seasonal High Water Table: none
Depth to Bedrock: 27"

Test Pit Number: 10
Depth — Description
2" — Leaf litter.
0–6" — Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
Soil Name: Abram
Depth to Seasonal High Water Table: none
Depth to Bedrock: 6"

Test Pit Number: 11
Depth — Description
2" — Leaf litter.
0–7" — Dark brown (10YR 3/3) silt loam, granular, friable.
7–10" — Light yellowish brown (2.5Y 6/4) silt loam, blocky, friable, redox.
10–28" — Pale olive (5Y 6/3) silt loam, massive, friable, redox.
29–44" — Light yellowish brown (2.5Y 6/4) fine sandy loam, massive, firm, redox.
44–96" — Olive brown (2.5Y 4/4) sand, massive, loose, w/ strata of firm silt, redox.
Soil Name: Westbury variant
Depth to Seasonal High Water Table: 7"
Depth to Bedrock: none

Test Pit Number: 12
Depth — Description
1" — Leaf litter.
0–7" — Dark brown (10YR 3/3) silt loam, granular, friable.
7–11" — Yellowish brown (10YR 5/6) silt loam, blocky, friable.
11–28" — Light yellowish brown (2.5Y 6/4) silt loam, blocky, friable, redox.
28–64" — Olive brown (2.5Y 4/4) sand, massive, loose, redox.
64–96" — Olive brown (2.5Y 4/4) silt loam, massive, firm, redox.
Soil Name: Nicholville variant
Depth to Seasonal High Water Table: 11"
Depth to Bedrock: none

Test Pit Number: 13
Depth — Description
1" — Leaf litter.
0–10" — Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
10–24" — Strong brown (7.5YR 4/6) stony fine sandy loam, blocky, friable.
24–32" — Light yellowish brown (2.5Y 6/4) stony fine sandy loam, blocky, firm, redox.
Soil Name: Tunbridge variant
Depth to Seasonal High Water Table: 24"
Depth to Bedrock: 32"

Test Pit Number: 14
Depth — Description
2" — Leaf litter.
0–6" — Brown (10YR 4/3) fine sandy loam, granular, friable.
6–17" — Yellowish brown (10YR 5/6) fine sandy loam, blocky, friable, redox.
17–24" — Olive brown (2.5Y 4/4) sand, massive, loose, redox.
24–52" — Light olive brown (2.5Y 5/4) stratified fine sand and silt, massive, firm, redox.
Soil Name: Nicholville
Depth to Seasonal High Water Table: 17"
Depth to Bedrock: none

Test Pit Number: 15
Depth — Description
1" — Leaf litter.
0–6" — Dark brown (10YR 4/3) stony fine sandy loam, granular, friable.
6–12" — Dark yellowish brown (10YR 5/6) stony fine sandy loam, blocky, friable.
12–18" — Light yellowish brown (2.5Y 6/4) stony fine sandy loam, blocky, friable.
Soil Name: Lyman
Depth to Seasonal High Water Table: none
Depth to Bedrock: 18"

Test Pit Number: 16
Depth — Description
1" — Leaf litter.
0–7" — Very dark gray (2.5Y 3/1) silt loam, granular, friable, redox.
7–13" — Light gray (2.5Y 7/1) silt loam, blocky, friable, redox.
13–22" — Olive brown (2.5Y 4/4) silt loam, blocky, firm, redox.
22–50" — Olive (5Y 5/4) silty clay loam, massive, firm, redox.
Soil Name: Scantic
Depth to Seasonal High Water Table: surface
Depth to Bedrock: none

Test Pit Number: 17
Depth — Description
2" — Leaf litter.
0–5" — Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
5–12" — Strong brown (7.5YR 4/6) stony fine sandy loam, blocky, friable.
Soil Name: Lyman
Depth to Seasonal High Water Table: none
Depth to Bedrock: 12"

Test Pit Number: 18
Depth — Description
1" — Leaf litter.
0–5 — Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
5–17" — Yellowish brown (10YR 5/4) fine sandy loam, blocky, friable.
17–24" — Light olive brown (2.5Y 5/4) stony fine sandy loam, blocky, friable, redox.
24–54" — Light yellowish brown (2.5Y 6/4) sand, massive, loose, redox.
Soil Name: Waumbek
Depth to Seasonal High Water Table: 17"
Depth to Bedrock: none

Test Pit Number: 19
Depth — Description
0" — Leaf litter.
0–8" — Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
8–28" — Dark yellowish brown (10YR 4/4) stony fine sandy loam, blocky, friable.
Soil Name: Tunbridge
Depth to Seasonal High Water Table: none
Depth to Bedrock: 28"

Test Pit Number: 20
Depth — Description
0" — Leaf litter.
0–10 — Brown (10YR 4/3) stony fine sandy loam, granular, friable.
10–28" — Dark yellowish brown (10YR 4/4) fine sandy loam, blocky, friable.
28–46" — Light yellowish brown (2.5Y 6/4) gravelly loamy sand, massive, friable, redox.
Soil Name: Waumbek
Depth to Seasonal High Water Table: 28"
Depth to Bedrock: 46"

Test Pit Number: 21
Depth — Description
0" — Leaf litter.
0–10" — Very dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
10–28" — Dark yellowish brown (10YR 4/6) stony fine sandy loam, blocky, friable.
28–66" — Light olive brown (2.5Y 5/4) stony fine sandy loam, massive, firm, redox.
Soil Name: Marlow
Depth to Seasonal High Water Table: 28"
Depth to Bedrock: 66"

Test Pit Number: 22
Depth — Description
0" — Leaf litter.
0–6" — Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
6–12" — Yellowish brown (10YR 5/6) stony fine sandy loam, blocky, friable.
Soil Name: Lyman
Depth to Seasonal High Water Table: none
Depth to Bedrock: 12"

Soil Observation: A
Depth — Description
3" — Leaf litter.
0–10" — Black (10YR2/1) mucky peat, massive, friable, redox.
10–20" — Gray (2.5Y 5/1) loamy fine sand, massive, friable, redox.
20–28" — Olive gray (5Y 5/2) very fine sandy loam, massive, friable, redox.
28–36" — Gray (2.5Y 5/1) fine sand, massive, friable, redox.
36–42" — Olive brown (2.5Y 4/4) very fine sandy loam, massive, firm, redox.
Soil Name: Whately
Depth to Seasonal High Water Table: surface
Depth to Bedrock: none

Soil Observation: B
Depth — Description
4" — Leaf litter.
0–8" — Very dark gray (2.5Y 3/1) stony fine sandy loam, massive, friable, redox.
8–14" — Dark gray (2.5Y 4/1) stony fine sandy loam, massive, friable, redox.
14–28" — Light yellowish brown (2.5Y 6/3) stony fine sandy loam, massive, friable, redox.
Soil Name: Brayton variant
Depth to Seasonal High Water Table: surface
Depth to Bedrock: 28"

P5116

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NOT FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: JULY 22, 2021

REVISIONS
NO. DESCRIPTION BY DATE
0 PLANNING BOARD EBS 07/22/21

DRAWN BY: RMB
APPROVED BY: EBS
DRAWING FILE: 5116SITE.dwg

SCALE:
22" x 34" – 1" = 80'
11" x 17" – 1" = 160'

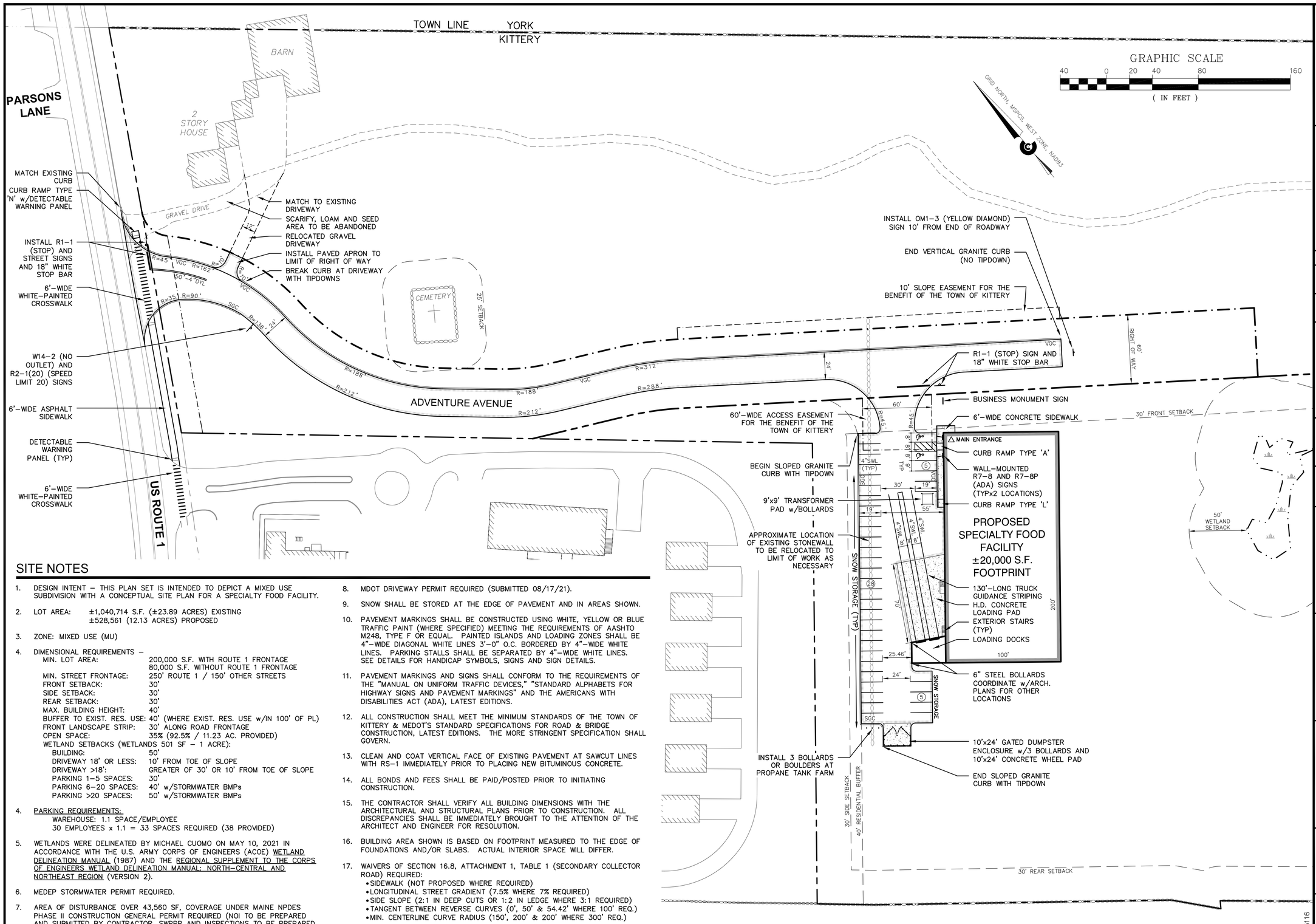
OWNER:
C–COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

APPLICANT:
GOOD TO–GO
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO-GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
SOILS PLAN

SHEET NUMBER:
C-2



SITE NOTES

1. DESIGN INTENT – THIS PLAN SET IS INTENDED TO DEPICT A MIXED USE SUBDIVISION WITH A CONCEPTUAL SITE PLAN FOR A SPECIALTY FOOD FACILITY.
2. LOT AREA: ±1,040,714 S.F. (±23.89 ACRES) EXISTING
   ±528,561 (12.13 ACRES) PROPOSED
3. ZONE: MIXED USE (MU)
4. DIMENSIONAL REQUIREMENTS –

MIN. LOT AREA:	200,000 S.F. WITH ROUTE 1 FRONTAGE 80,000 S.F. WITHOUT ROUTE 1 FRONTAGE
MIN. STREET FRONTAGE:	250' ROUTE 1 / 150' OTHER STREETS
FRONT SETBACK:	30'
SIDE SETBACK:	30'
REAR SETBACK:	30'
MAX. BUILDING HEIGHT:	40'
BUFFER TO EXIST. RES. USE:	40' (WHERE EXIST. RES. USE w/IN 100' OF PL)
FRONT LANDSCAPE STRIP:	30' ALONG ROAD FRONTAGE
OPEN SPACE:	35% (92.5% / 11.23 AC. PROVIDED)
WETLAND SETBACKS (WETLANDS 501 SF – 1 ACRE):	
BUILDING:	50'
DRIVEWAY 18' OR LESS:	10' FROM TOE OF SLOPE
DRIVEWAY >18':	GREATER OF 30' OR 10' FROM TOE OF SLOPE
PARKING 1–5 SPACES:	30'
PARKING 6–20 SPACES:	40' w/STORMWATER BMPs
PARKING >20 SPACES:	50' w/STORMWATER BMPs

4. PARKING REQUIREMENTS:
   WAREHOUSE: 1.1 SPACE/EMPLOYEE
   30 EMPLOYEES x 1.1 = 33 SPACES REQUIRED (38 PROVIDED)
5. WETLANDS WERE DELINEATED BY MICHAEL CUOMO ON MAY 10, 2021 IN ACCORDANCE WITH THE U.S. ARMY CORPS OF ENGINEERS (ACOE) WETLAND DELINEATION MANUAL (1987) AND THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTH–CENTRAL AND NORTHEAST REGION (VERSION 2).
6. MEDEP STORMWATER PERMIT REQUIRED.
7. AREA OF DISTURBANCE OVER 43,560 SF, COVERAGE UNDER MAINE NPDES PHASE II CONSTRUCTION GENERAL PERMIT REQUIRED (NOI TO BE PREPARED AND SUBMITTED BY CONTRACTOR, SWPPP AND INSPECTIONS TO BE PREPARED AND PERFORMED BY CONTRACTOR).
8. MDOT DRIVEWAY PERMIT REQUIRED (SUBMITTED 08/17/21).
9. SNOW SHALL BE STORED AT THE EDGE OF PAVEMENT AND IN AREAS SHOWN.
10. PAVEMENT MARKINGS SHALL BE CONSTRUCTED USING WHITE, YELLOW OR BLUE TRAFFIC PAINT (WHERE SPECIFIED) MEETING THE REQUIREMENTS OF AASHTO M248, TYPE F OR EQUAL. PAINTED ISLANDS AND LOADING ZONES SHALL BE 4"–WIDE DIAGONAL WHITE LINES 3'–0" O.C. BORDERED BY 4"–WIDE WHITE LINES. PARKING STALLS SHALL BE SEPARATED BY 4"–WIDE WHITE LINES. SEE DETAILS FOR HANDICAP SYMBOLS, SIGNS AND SIGN DETAILS.
11. PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE REQUIREMENTS OF THE "MANUAL ON UNIFORM TRAFFIC DEVICES," "STANDARD ALPHABETS FOR HIGHWAY SIGNS AND PAVEMENT MARKINGS" AND THE AMERICANS WITH DISABILITIES ACT (ADA), LATEST EDITIONS.
12. ALL CONSTRUCTION SHALL MEET THE MINIMUM STANDARDS OF THE TOWN OF KITTERY & MEDOT'S STANDARD SPECIFICATIONS FOR ROAD & BRIDGE CONSTRUCTION, LATEST EDITIONS. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
13. CLEAN AND COAT VERTICAL FACE OF EXISTING PAVEMENT AT SAWCUT LINES WITH RS–1 IMMEDIATELY PRIOR TO PLACING NEW BITUMINOUS CONCRETE.
14. ALL BONDS AND FEES SHALL BE PAID/POSTED PRIOR TO INITIATING CONSTRUCTION.
15. THE CONTRACTOR SHALL VERIFY ALL BUILDING DIMENSIONS WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PRIOR TO CONSTRUCTION. ALL DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ARCHITECT AND ENGINEER FOR RESOLUTION.
16. BUILDING AREA SHOWN IS BASED ON FOOTPRINT MEASURED TO THE EDGE OF FOUNDATIONS AND/OR SLABS. ACTUAL INTERIOR SPACE WILL DIFFER.
17. WAIVERS OF SECTION 16.8, ATTACHMENT 1, TABLE 1 (SECONDARY COLLECTOR ROAD) REQUIRED:
    - SIDEWALK (NOT PROPOSED WHERE REQUIRED)
    - LONGITUDINAL STREET GRADIENT (7.5% WHERE 7% REQUIRED)
    - SIDE SLOPE (2:1 IN DEEP CUTS OR 1:2 IN LEDGE WHERE 3:1 REQUIRED)
    - TANGENT BETWEEN REVERSE CURVES (0', 50' & 54.42' WHERE 100' REQ.)
    - MIN. CENTERLINE CURVE RADIUS (150', 200' & 200' WHERE 300' REQ.)
18. SEE SHEET D–8 FOR LEGEND.

P5116

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

STATE OF MAINE
ERIC D. WEINRIEB
No. 6658
LICENSED PROFESSIONAL ENGINEER
9/23/21

NOT FOR CONSTRUCTION

ISSUED FOR:
PLANNING BOARD

ISSUE DATE:
SEPTEMBER 23, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	PLANNING BOARD	EBS	07/22/21
1	PLANNING BOARD	EBS	09/23/21

DRAWN BY: EBS
APPROVED BY: EBS
DRAWING FILE: 5116-SITE.dwg

SCALE:
22" x 34" – 1" = 40'
11" x 17" – 1" = 80'

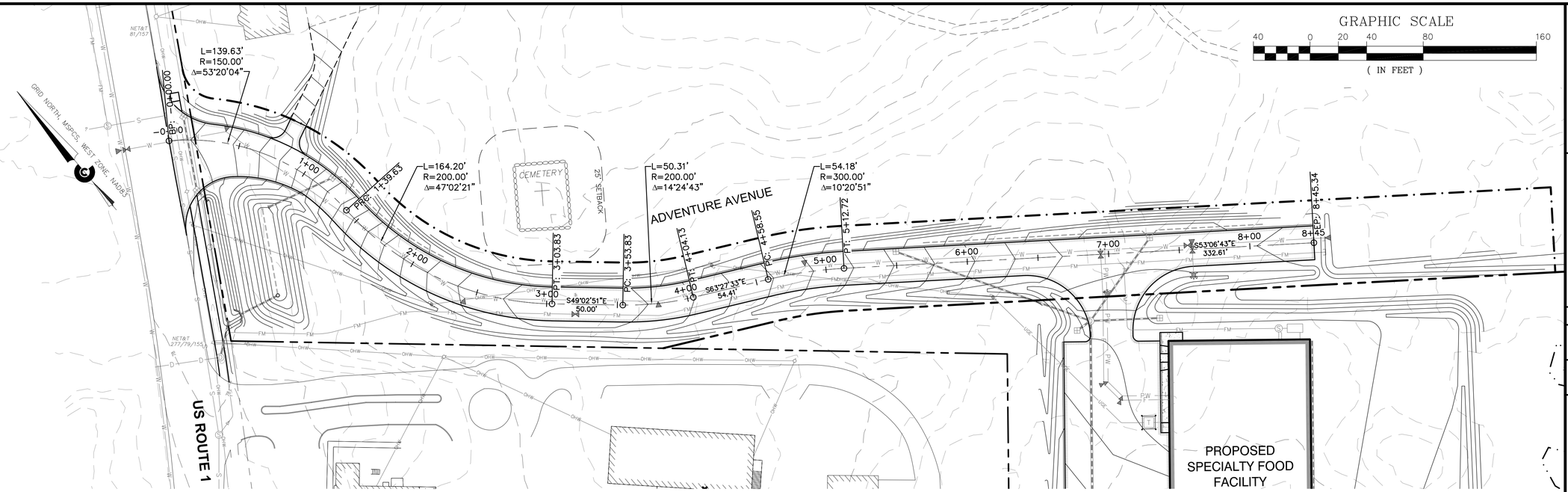
OWNER:
C–COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

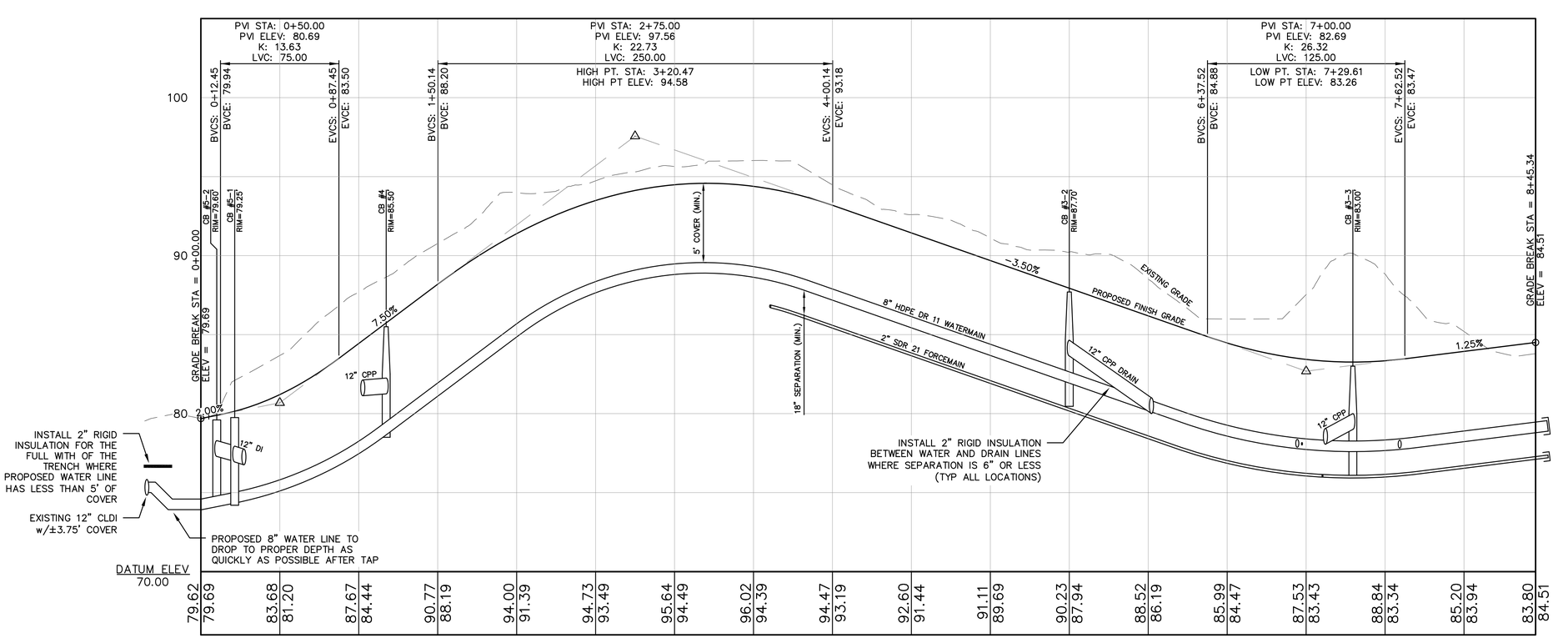
APPLICANT:
GOOD TO–GO
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

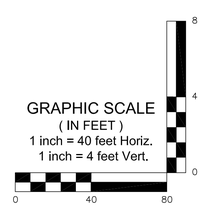
PROJECT:
GOOD TO-GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
SITE PLAN

SHEET NUMBER:
C-3







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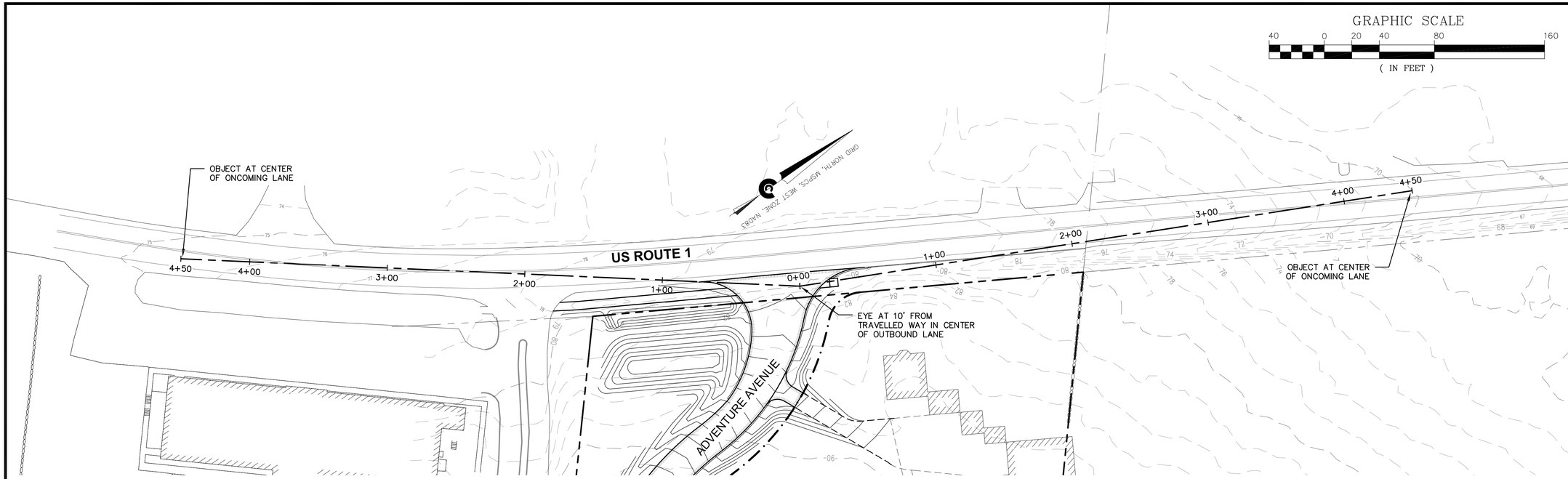
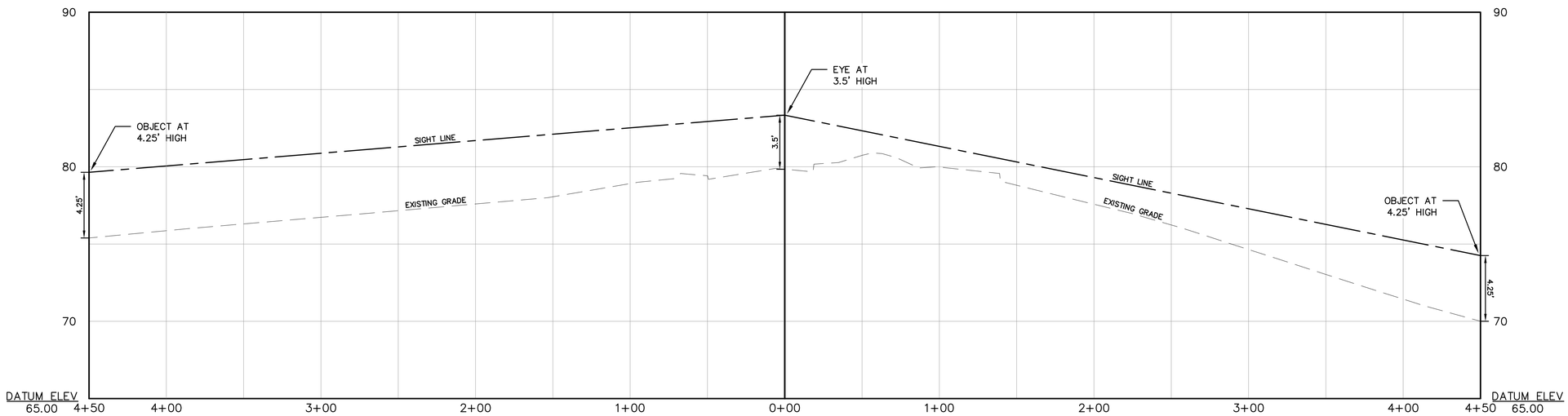
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO-GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
ROADWAY PLAN AND PROFILE

SHEET NUMBER:
C-4





SIGHT LINE PROFILE - ADVENTURE AVENUE AT U.S. 1 LOOKING SOUTH

SIGHT LINE PROFILE - ADVENTURE AVENUE AT U.S. 1 LOOKING NORTH

GRAPHIC SCALE
(IN FEET)
1 inch = 40 feet Horiz.
1 inch = 4 feet Vert.
0 40 80
0 4 8

P5116

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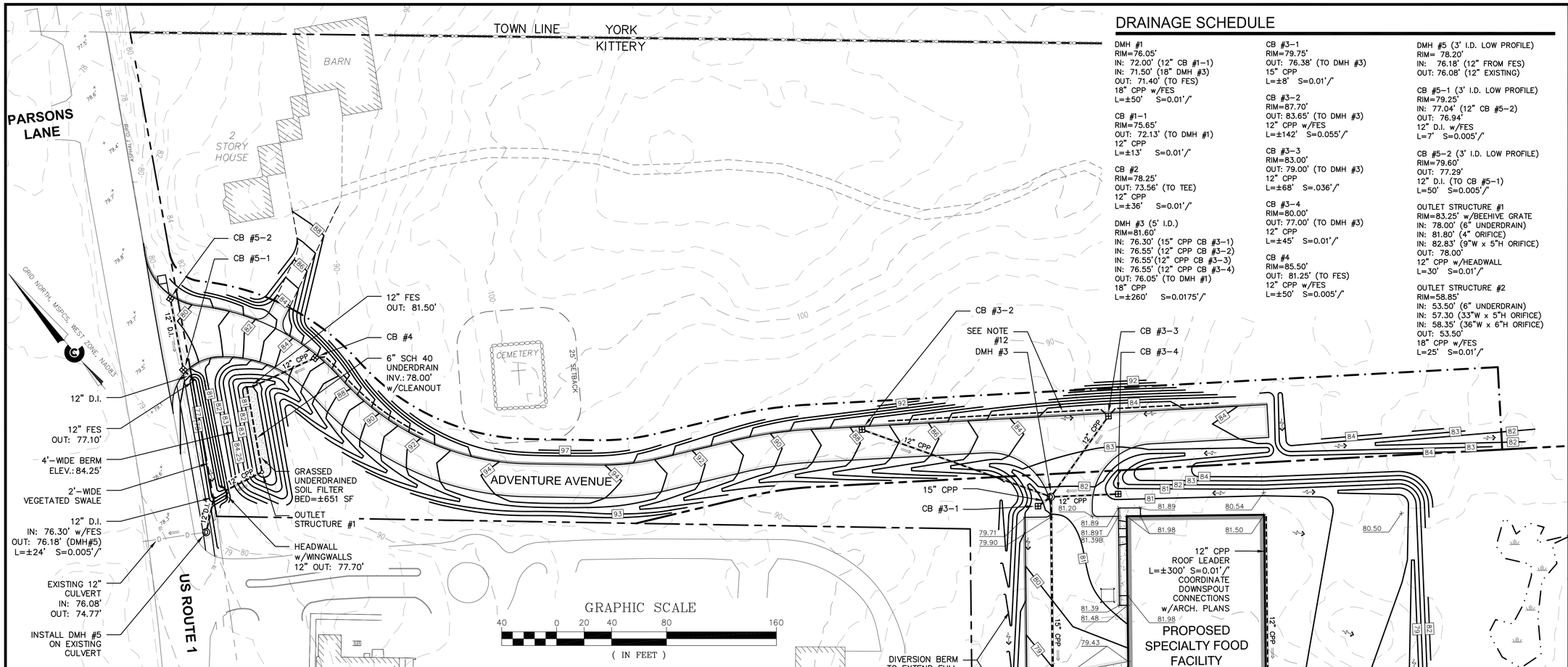
GOOD TO-GO
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO-GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
HIGHWAY ACCESS PLAN

SHEET NUMBER:
C-5



DRAINAGE SCHEDULE

DMH #1
RIM=76.05'
IN: 72.00' (12" CB #1-1)
IN: 71.50' (18" DMH #3)
OUT: 71.40' (TO FES)
18" CPP w/FES
L=±50' S=0.01'/'

CB #1-1
RIM=75.65'
OUT: 72.13' (TO DMH #1)
12" CPP
L=±13' S=0.01'/'

CB #2
RIM=78.25'
OUT: 73.56' (TO TEE)
12" CPP
L=±36' S=0.01'/'

DMH #3 (5' I.D.)
RIM=81.60'
IN: 76.30' (15" CPP CB #3-1)
IN: 76.55' (12" CPP CB #3-2)
IN: 76.55'(12" CPP CB #3-3)
IN: 76.55' (12" CPP CB #3-4)
OUT: 76.05' (TO DMH #1)
18" CPP
L=±260' S=0.0175'/'

CB #3-1
RIM=79.75'
OUT: 76.38' (TO DMH #3)
15" CPP
L=±8' S=0.01'/'

CB #3-2
RIM=87.70'
OUT: 83.65' (TO DMH #3)
12" CPP w/FES
L=±142' S=0.055'/'

CB #3-3
RIM=83.00'
OUT: 79.00' (TO DMH #3)
12" CPP
L=±68' S=.036'/'

CB #3-4
RIM=80.00'
OUT: 77.00' (TO DMH #3)
12" CPP
L=±45' S=0.01'/'

CB #4
RIM=85.50'
OUT: 81.25' (TO FES)
12" CPP w/FES
L=±50' S=0.005'/'

DMH #5 (3' I.D. LOW PROFILE)
RIM= 78.20'
IN: 76.18' (12" FROM FES)
OUT: 76.08' (12" EXISTING)

CB #5-1 (3' I.D. LOW PROFILE)
RIM=79.25'
IN: 77.04' (12" CB #5-2)
OUT: 76.94'
12" D.I. w/FES
L=7' S=0.005'/'

CB #5-2 (3' I.D. LOW PROFILE)
RIM=79.60'
OUT: 77.29'
12" D.I. (TO CB #5-1)
L=50' S=0.005'/'

OUTLET STRUCTURE #1
RIM=83.25' w/BEEHIVE GRATE
IN: 78.00' (6" UNDERDRAIN)
IN: 81.80' (4" ORIFICE)
IN: 82.83' (9"W x 5"H ORIFICE)
OUT: 78.00'
12" CPP w/HEADWALL
L=30' S=0.01'/'

OUTLET STRUCTURE #2
RIM=58.85'
IN: 53.50' (6" UNDERDRAIN)
IN: 57.30 (33"W x 5"H ORIFICE)
IN: 58.35' (36"W x 6"H ORIFICE)
OUT: 53.50'
18" CPP w/FES
L=25' S=0.01'/'

GRADING AND DRAINAGE NOTES

1. DO NOT BEGIN CONSTRUCTION UNTIL ALL STATE AND LOCAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
2. CONTRACTOR SHALL OBTAIN A "DIGSAFE" NUMBER AT LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION.
3. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE TOWN OF KITTERY AND MDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
4. UNLESS OTHERWISE AGREED IN WRITING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING TEMPORARY BENCHMARKS (TBM) AND PERFORMING ALL CONSTRUCTION SURVEY LAYOUT.
5. PRIOR TO CONSTRUCTION, FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING STORMWATER AND UTILITY LINES. PRESERVE AND PROTECT LINES TO BE RETAINED.
6. ALL BENCHMARKS AND TOPOGRAPHY SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO INITIATING CONSTRUCTION.
7. TEMPORARY INLET PROTECTION MEASURES SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASINS WITHIN 100' OF THE PROJECT SITE WHEN SITE WORK WITHIN CONTRIBUTING AREAS IS ACTIVE OR SAID AREAS HAVE NOT BEEN STABILIZED.
8. PROTECTION OF SUBGRADE: THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN STABLE, DEWATERED SUBGRADES FOR FOUNDATIONS, PAVEMENT AREAS, UTILITY TRENCHES, AND OTHER AREAS DURING CONSTRUCTION. SUBGRADE DISTURBANCE MAY BE INFLUENCED BY EXCAVATION METHODS, MOISTURE, PRECIPITATION, GROUNDWATER CONTROL, AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT SUBGRADE DISTURBANCE. SUCH PRECAUTIONS MAY INCLUDE DIVERTING STORMWATER RUNOFF AWAY FROM CONSTRUCTION AREAS, REDUCING TRAFFIC IN SENSITIVE AREAS, AND MAINTAINING AN EFFECTIVE DEWATERING PROGRAM. SOILS EXHIBITING HEAVING OR INSTABILITY SHALL BE OVER EXCAVATED TO MORE COMPETENT BEARING SOIL AND REPLACED WITH FREE DRAINING STRUCTURAL FILL. IF THE EARTHWORK IS PERFORMED DURING FREEZING WEATHER, EXPOSED SUBGRADES ARE SUSCEPTIBLE TO FROST. NO FILL OR UTILITIES SHALL BE PLACED ON FROZEN GROUND. THIS WILL LIKELY REQUIRE REMOVAL OF A FROZEN SOIL CRUST AT THE COMMENCEMENT OF EACH DAY'S OPERATIONS. THE FINAL SUBGRADE ELEVATION WOULD ALSO REQUIRE AN APPROPRIATE DEGREE OF INSULATION AGAINST FREEZING.
9. IF SUITABLE, EXCAVATED MATERIALS SHALL BE PLACED AS FILL WITHIN UPLAND AREAS ONLY AND SHALL NOT BE PLACED WITHIN WETLANDS. PLACEMENT OF BORROW MATERIALS SHALL BE PERFORMED IN A MANNER THAT PREVENTS LONG TERM DIFFERENTIAL SETTLEMENT. EXCESSIVELY WET MATERIALS SHALL BE STOCKPILED AND ALLOWED TO DRAIN BEFORE PLACEMENT. FROZEN MATERIAL SHALL NOT BE USED FOR CONSTRUCTION.
10. BLASTING OPERATIONS, IF REQUIRED, SHALL MEET THE AIR BLAST STANDARDS OF THE MDEP RULES, CHAPTER 375.10(C)(4)(C). GROUND VIBRATION AT STRUCTURES NOT OWNED OR CONTROLLED BY THE OWNER MUST BE NO GREATER THAN THE FREQUENCY-DEPENDENT LIMITS DEFINED IN FIGURE B-1 OF APPENDIX B, U.S. BUREAU OF MINES RI 8507. FLYROCK MAY NOT LEAVE PROPERTY OWNED OR CONTROLLED BY THE OWNER OR ENTER A PROTECTED RESOURCE.
11. DRAINAGE PIPE SHALL BE CORRUGATED POLYETHYLENE PIPE (CPP), TYPE ADS N-12 OR HANCOR H1-Q, OR DUCTILE IRON CLASS 52 WHERE SPECIFIED. ALL FLARED END SECTIONS SHALL BE METAL.
12. ADDITIONAL ROADWAY UNDERDRAIN MAY BE REQUIRED UPON DETERMINATION OF THE ENGINEER. CONTRACTOR SHALL INCLUDE 500 LF OF 4" UNDERDRAIN w/TRENCHING AND BACKFILL IN BID PRICE.
13. ALL CATCH BASIN, MANHOLE AND OTHER DRAINAGE RIMS SHALL BE SET FLUSH WITH OR NO LESS THAN 0.1' BELOW FINISH GRADE. ANY RIM ABOVE SURROUNDING FINISH GRADE SHALL NOT BE ACCEPTED.
14. ALL SPOT GRADES ARE AT FINISH GRADE AND BOTTOM OF CURB WHERE APPLICABLE.
15. ALL ROOF DRAIN RISERS SHALL BE LOCATED IN COORDINATION WITH THE ARCHITECTURAL PLANS TO MATCH GUTTER DOWNSPOUTS. RISERS SHALL BE SET TO FINISH GRADE PLUS 1' (MIN.).
16. IN ORDER TO PROVIDE VISUAL CLARITY ON THE PLANS, DRAINAGE AND OTHER UTILITY STRUCTURES MAY NOT BE DRAWN TO SCALE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER SIZING AND LOCATION OF ALL STRUCTURES AND IS DIRECTED TO RESOLVE ANY POTENTIAL DISCREPANCY WITH THE ENGINEER PRIOR TO CONSTRUCTION.
17. WORK HOURS FOR CONSTRUCTION SHALL BE AS APPROVED BY TOWN OF KITTERY. STANDARD WORK HOURS SHALL BE 7AM TO 7PM, MONDAY – SATURDAY.
18. SEE SHEET D-8 FOR LEGEND.

ALTUS ENGINEERING, INC.
133 Court Street
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www.altus-eng.com

STATE OF MAINE
ERIC D. WEINRIEB
No. 6658
LICENSED
PROFESSIONAL ENGINEER
9/23/21

NOT FOR CONSTRUCTION

ISSUED FOR:
PLANNING BOARD

ISSUE DATE:
SEPTEMBER 23, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
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1	PLANNING BOARD	EBS	09/23/21

DRAWN BY: EBS
APPROVED BY: EBS
DRAWING FILE: 5116-SITE.dwg

SCALE:
22" x 34" - 1" = 40'
11" x 17" - 1" = 80'

OWNER:
C-COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

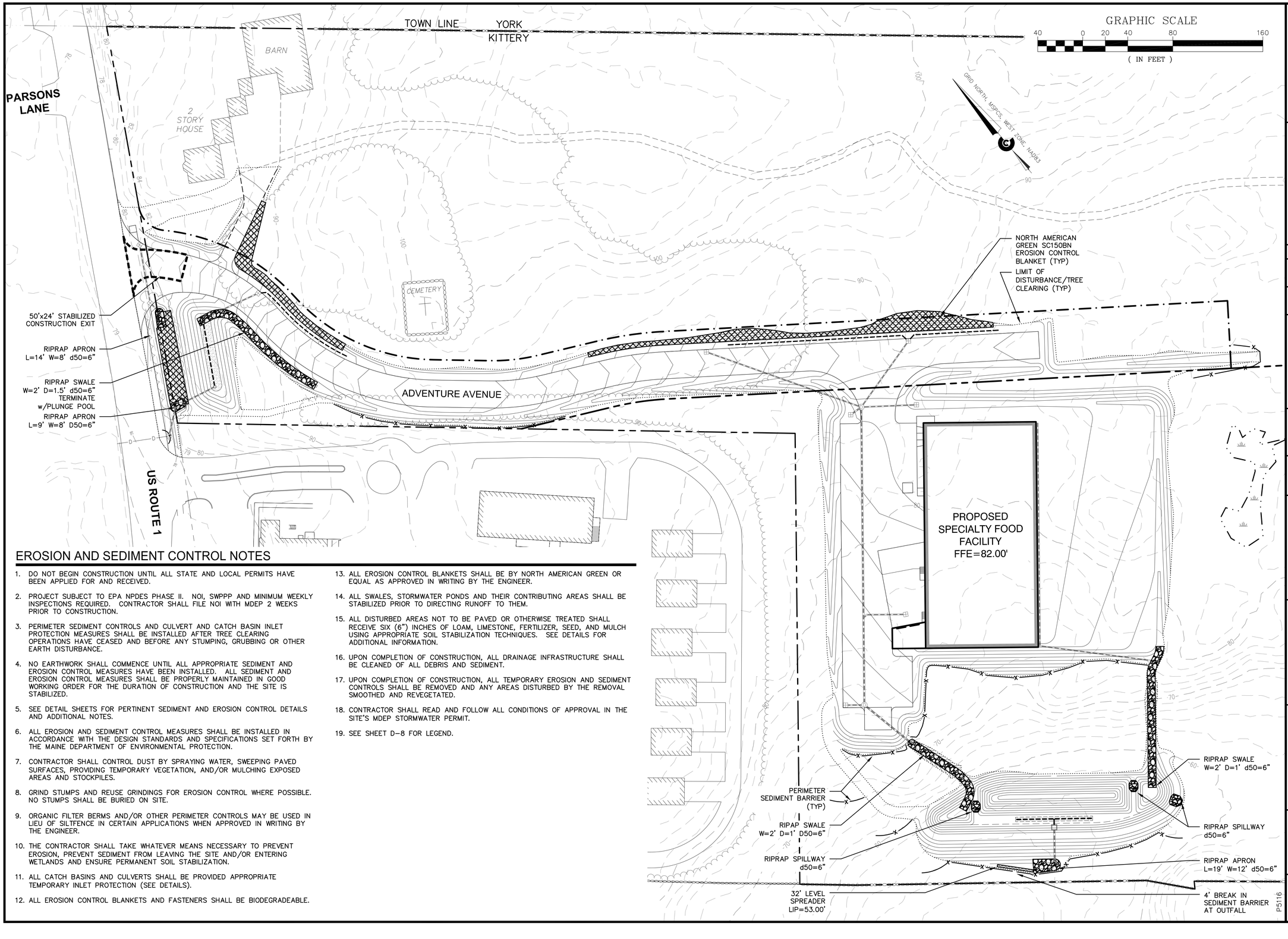
APPLICANT:
GOOD TO-GO
c/o CAPE HOUSE
MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO-GO
SPECIALTY FOOD
FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
STORMWATER
MANAGEMENT PLAN

SHEET NUMBER:
C-6

P5116



EROSION AND SEDIMENT CONTROL NOTES

1. DO NOT BEGIN CONSTRUCTION UNTIL ALL STATE AND LOCAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
2. PROJECT SUBJECT TO EPA NPDES PHASE II. NOI, SWPPP AND MINIMUM WEEKLY INSPECTIONS REQUIRED. CONTRACTOR SHALL FILE NOI WITH MDEP 2 WEEKS PRIOR TO CONSTRUCTION.
3. PERIMETER SEDIMENT CONTROLS AND CULVERT AND CATCH BASIN INLET PROTECTION MEASURES SHALL BE INSTALLED AFTER TREE CLEARING OPERATIONS HAVE CEASED AND BEFORE ANY STUMPING, GRUBBING OR OTHER EARTH DISTURBANCE.
4. NO EARTHWORK SHALL COMMENCE UNTIL ALL APPROPRIATE SEDIMENT AND EROSION CONTROL MEASURES HAVE BEEN INSTALLED. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE PROPERLY MAINTAINED IN GOOD WORKING ORDER FOR THE DURATION OF CONSTRUCTION AND THE SITE IS STABILIZED.
5. SEE DETAIL SHEETS FOR PERTINENT SEDIMENT AND EROSION CONTROL DETAILS AND ADDITIONAL NOTES.
6. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE DESIGN STANDARDS AND SPECIFICATIONS SET FORTH BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION.
7. CONTRACTOR SHALL CONTROL DUST BY SPRAYING WATER, SWEEPING PAVED SURFACES, PROVIDING TEMPORARY VEGETATION, AND/OR MULCHING EXPOSED AREAS AND STOCKPILES.
8. GRIND STUMPS AND REUSE GRINDINGS FOR EROSION CONTROL WHERE POSSIBLE. NO STUMPS SHALL BE BURIED ON SITE.
9. ORGANIC FILTER BERMS AND/OR OTHER PERIMETER CONTROLS MAY BE USED IN LIEU OF SILTFENCE IN CERTAIN APPLICATIONS WHEN APPROVED IN WRITING BY THE ENGINEER.
10. THE CONTRACTOR SHALL TAKE WHATEVER MEANS NECESSARY TO PREVENT EROSION, PREVENT SEDIMENT FROM LEAVING THE SITE AND/OR ENTERING WETLANDS AND ENSURE PERMANENT SOIL STABILIZATION.
11. ALL CATCH BASINS AND CULVERTS SHALL BE PROVIDED APPROPRIATE TEMPORARY INLET PROTECTION (SEE DETAILS).
12. ALL EROSION CONTROL BLANKETS AND FASTENERS SHALL BE BIODEGRADEABLE.
13. ALL EROSION CONTROL BLANKETS SHALL BE BY NORTH AMERICAN GREEN OR EQUAL AS APPROVED IN WRITING BY THE ENGINEER.
14. ALL SWALES, STORMWATER PONDS AND THEIR CONTRIBUTING AREAS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.
15. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE SIX (6") INCHES OF LOAM, LIMESTONE, FERTILIZER, SEED, AND MULCH USING APPROPRIATE SOIL STABILIZATION TECHNIQUES. SEE DETAILS FOR ADDITIONAL INFORMATION.
16. UPON COMPLETION OF CONSTRUCTION, ALL DRAINAGE INFRASTRUCTURE SHALL BE CLEANED OF ALL DEBRIS AND SEDIMENT.
17. UPON COMPLETION OF CONSTRUCTION, ALL TEMPORARY EROSION AND SEDIMENT CONTROLS SHALL BE REMOVED AND ANY AREAS DISTURBED BY THE REMOVAL SMOOTHED AND REVEGETATED.
18. CONTRACTOR SHALL READ AND FOLLOW ALL CONDITIONS OF APPROVAL IN THE SITE'S MDEP STORMWATER PERMIT.
19. SEE SHEET D-8 FOR LEGEND.

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STATE OF MAINE
ERIC D. WEINRIEB
No. 6658
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2	PLANNING BOARD	EBS	09/23/21

DRAWN BY: EBS
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DRAWING FILE: 5116-SITE.dwg

SCALE:
22" x 34" - 1" = 40'
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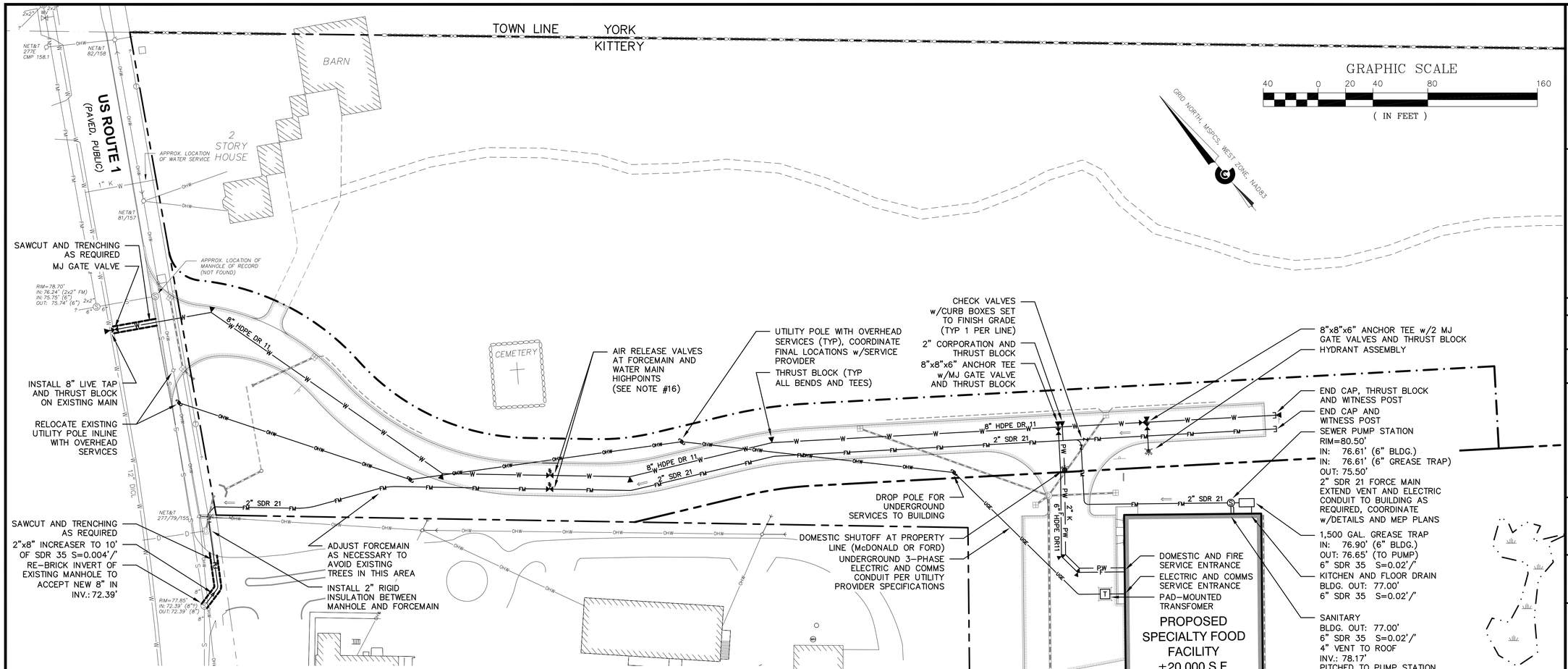
OWNER:
C-COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

APPLICANT:
GOOD TO-GO
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO-GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
EROSION AND SEDIMENT CONTROL PLAN

SHEET NUMBER:
C-7



UTILITY NOTES

1. THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES SHOWN HEREON ARE APPROXIMATE AND ARE BASED UPON THE FIELD LOCATION OF ALL VISIBLE STRUCTURES (IE. CATCH BASINS, MANHOLES, WATER GATES, ETC.) AND INFORMATION COMPILED FROM PLANS PROVIDED BY UTILITY PROVIDERS AND GOVERNMENTAL AGENCIES. AS SUCH, THEY ARE NOT INCLUSIVE AS OTHER UTILITIES AND UNDERGROUND STRUCTURES THAT ARE NOT SHOWN ON THE PLANS MAY EXIST. THE ENGINEER, SURVEYOR AND OWNER ACCEPT NO RESPONSIBILITY FOR POTENTIAL INACCURACIES IN THE PLAN AND/OR UNFORESEEN CONDITIONS. THE CONTRACTOR SHALL NOTIFY, IN WRITING, SAID AGENCIES, UTILITY PROVIDERS, CITY OF WESTBROOK DPW AND OWNER'S AUTHORIZED REPRESENTATIVE AND CALL DIG SAFE AT 1 (800) DIG-SAFE AT LEAST SEVENTY-TWO (72) HOURS PRIOR TO ANY EXCAVATION WORK.
2. PRIOR TO CONSTRUCTION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING AND PROPOSED STORMWATER AND UTILITY LINES. CONFLICTS SHALL BE ANTICIPATED AND ALL EXISTING LINES TO BE RETAINED SHALL BE PROTECTED. ANY DAMAGE DONE TO EXISTING UTILITIES SHALL BE REPAIRED AND, IF NECESSARY, EXISTING UTILITIES SHALL BE RELOCATED AT NO EXTRA COST TO THE OWNER. ALL CONFLICTS SHALL BE RESOLVED WITH THE INVOLVEMENT OF THE ENGINEER, DPW AND APPROPRIATE UTILITIES.
3. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE TOWN OF KITTERY AND MDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE POSTING OF ALL BONDS AND PAYMENT OF ALL TAP, TIE-IN AND CONNECTION FEES.
5. IF REQUIRED, ALL ROAD/LANE CLOSURES OR OTHER TRAFFIC INTERRUPTIONS SHALL BE COORDINATED WITH THE KITTERY POLICE DEPARTMENT, DPW, MDOT AND ABUTTING PROPERTY OWNERS (WHERE APPROPRIATE) AT LEAST TWO WEEKS PRIOR TO COMMENCING RELATED CONSTRUCTION.
6. ALL TRENCHING, PIPE LAYING AND BACKFILLING SHALL CONFORM TO FEDERAL OSHA AND CITY REGULATIONS.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRENCHING, BEDDING, BACKFILL & COMPACTION FOR ALL UTILITY TRENCHING IN ADDITION TO ALL CONDUIT INSTALLATION AND COORDINATION OF ALL REQUIRED INSPECTIONS.
8. DETECTABLE WARNING TAPE SHALL BE PLACED OVER THE ENTIRE LENGTH OF ALL BURIED UTILITIES, COLORS PER THE RESPECTIVE UTILITY PROVIDERS.
9. SEE ARCHITECTURAL/MECHANICAL DRAWINGS FOR EXACT LOCATIONS & ELEVATIONS OF UTILITY CONNECTIONS AT BUILDING. COORDINATE ALL WORK WITHIN FIVE (5) FEET OF BUILDINGS WITH BUILDING CONTRACTOR AND ARCHITECTURAL/MECHANICAL DRAWINGS. ALL CONFLICTS AND DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IMMEDIATELY AND PRIOR TO COMMENCING RELATED WORK.
10. UTILITY PROVIDERS:
    WATER: KITTERY WATER DISTRICT, (207) 439-1128
    SEWER: KITTERY WASTEWATER TREATMENT, (207) 439-4646
    CABLE/INTERNET/TELECOMMUNICATIONS: PROVIDER PER OWNER
    ELECTRIC: CENTRAL MAINE POWER, (800) 565-3181
    PROPANE: PROVIDER PER OWNER
11. ALL WATER AND SEWER INSTALLATIONS SHALL BE CONSTRUCTED AND TESTED PER THE TOWN OF KITTERY'S STANDARDS AND SPECIFICATIONS. ALL OTHER UTILITIES SHALL BE TO THE STANDARDS AND SPECIFICATIONS OF THE RESPECTIVE UTILITY PROVIDERS.
12. WHERE WATER LINES CROSS, RUN ADJACENT TO OR ARE WITHIN 5' OF STORM DRAINAGE PIPES OR STRUCTURES, 2"-THICK CLOSED CELL RIGID BOARD INSULATION SHALL BE INSTALLED FOR FROST PROTECTION.
13. WHERE WATER OR SEWER LINES ARE INSTALLED WITH LESS THAT 5' OF COVER, 2"-THICK CLOSED CELL RIGID BOARD INSULATION SHALL BE INSTALLED FOR THE FULL WIDTH OF THE TRENCH FOR FROST PROTECTION.
14. WATER AND SANITARY SEWER LINES SHALL BE LOCATED AT LEAST 10' HORIZONTALLY FROM EACH OTHER. WHERE CROSSING, 18" MINIMUM VERTICAL CLEARANCE SHALL BE PROVIDED WITH WATER INSTALLED OVER SEWER.
15. CONTRACTOR TO PROVIDE BOLLARDS AT SERVICE ENTRANCES PER THE SPECIFICATIONS OF THE RESPECTIVE UTILITY PROVIDERS.
16. WATER AIR RELEASE VALVE TO BE PROVIDED BY KITTERY WATER DISTRICT. FORCEMAIN RELEASE VALVE TO BE INSTALLED IN MANHOLE PER DETAILS AND KITTERY WASTEWATER SPECIFICATIONS.
17. SEE SHEET D-8 FOR LEGEND.

P5116

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133 Court Street Portsmouth, NH 03801
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STATE OF MAINE
ERIC D. WEINRIEB
No. 6658
LICENSED PROFESSIONAL ENGINEER
9/23/21

NOT FOR CONSTRUCTION

ISSUED FOR:
PLANNING BOARD

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REVISIONS

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0	PLANNING BOARD	EBS	07/22/21
1	PLANNING BOARD	EBS	09/23/21

DRAWN BY: EBS
APPROVED BY: EBS
DRAWING FILE: 5116-SITE.dwg

SCALE:
22" x 34" - 1" = 40'
11" x 17" - 1" = 80'

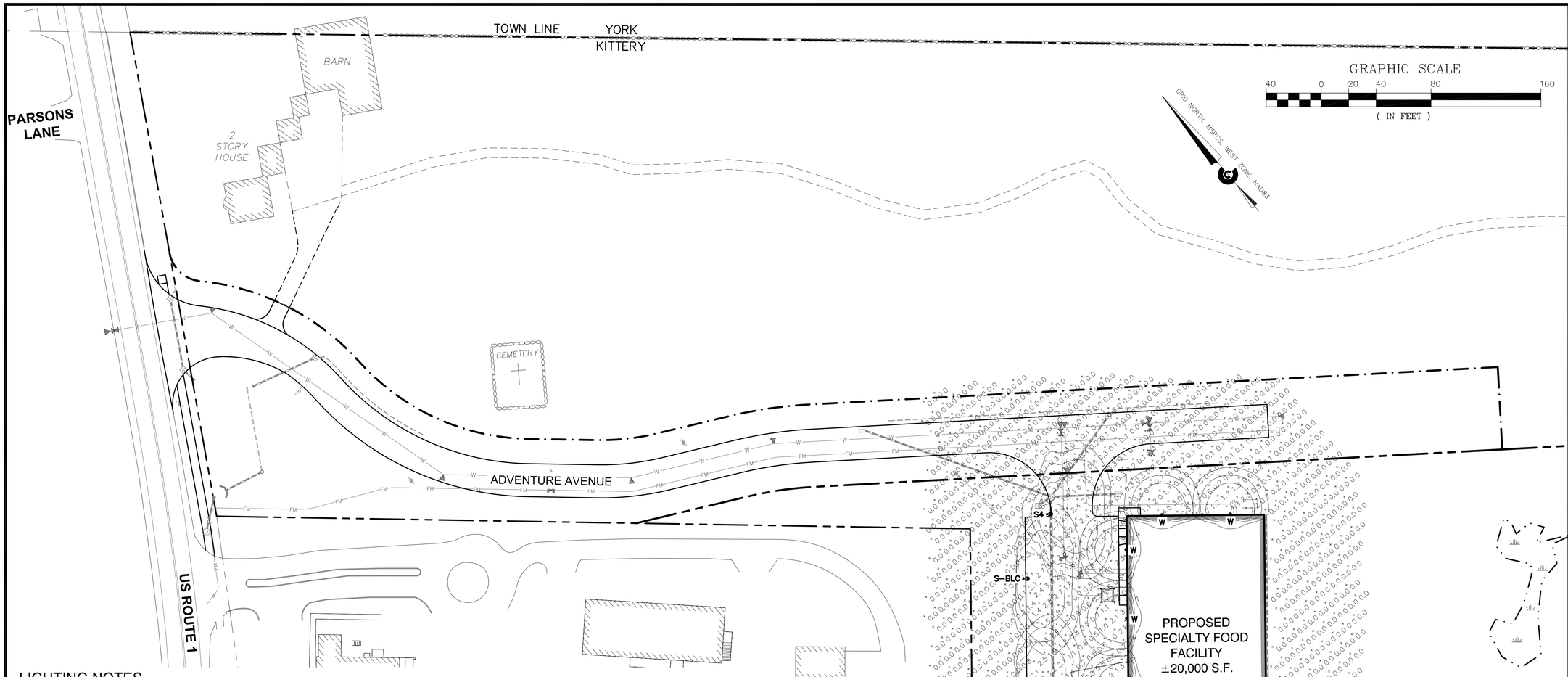
OWNER:
C-COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

APPLICANT:
GOOD TO-GO
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO-GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
UTILITIES PLAN

SHEET NUMBER:
C-8



LIGHTING NOTES

1. SITE ELECTRICAL CONTRACTOR SHALL COORDINATE LOCATION OF UNDERGROUND UTILITIES, AND DRAINAGE BEFORE INSTALLING POLE BASES.
2. DETECTABLE WARNING TAPE SHALL BE PLACED OVER THE ENTIRE LENGTH OF ALL BURIED UTILITIES, COLORS PER THE RESPECTIVE UTILITY PROVIDERS.
3. LIGHTING CONDUIT SHALL BE PVC SCH 40.
4. ALL LIGHTING MATERIALS AND WORKMANSHIP SHALL CONFORM TO THE NATIONAL ELECTRICAL CODE AND LOCAL REGULATIONS.
5. ALL LIGHTING FIXTURES SHALL BE FULL CUT–OFF AND 3000K COLOR TEMPERATURE SO AS TO BE DARK–SKY COMPLIANT.
6. CONTRACTOR SHALL COORDINATE WITH ARCHITECT AND BUILDING ELECTRICAL CONTRACTOR FOR ALL SITE ELECTRICAL WORK INCLUDING BUT NOT LIMITED TO ALL SERVICE ENTRANCES/EXITS, RISERS, CIRCUITRY, METERS, SUB–METERS, ETC.
7. COORDINATE WITH ARCHITECTURAL PLANS FOR ALL BUILDING–MOUNTED FIXTURES, TYPES, LOCATIONS AND WIRING.
8. 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.
9. THIS LIGHTING DESIGN IS BASED ON LIMITED INFORMATION PROVIDED BY VISIBLE LIGHT, INC., 24 STICKNEY TERRACE, SUITE 6, HAMPTON, NH 03842. FIELD DEVIATIONS MAY SIGNIFICANTLY AFFECT PREDICTED PERFORMANCE. PRIOR TO INSTALLATION, CRITICAL SITE INFORMATION (POLE LOCATIONS, ORIENTATION, MOUNTING HEIGHT, CIRCUITRY, ETC.) SHALL BE COORDINATED BETWEEN THE CONTRACTOR, ARCHITECT AND SPECIFIER.
10. SEE DETAIL SHEETS FOR FIXTURE CUT SHEETS AND POLE BASE DETAIL.

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Outside of Parking Lot	+	0.1 fc	4.5 fc	0.0 fc	N/A	N/A
Parking Lot	+	1.6 fc	4.7 fc	0.4 fc	11.8:1	4.0:1

Schedule

Symbol	Label	QTY	Manufacturer	Catalog Number	Description	Lamp		Filename	Lumens per Lamp	LLF	Distribution
	S4	2	Lithonia Lighting	DSX0 LED P3 30K TFTM MVOLT HS SPA DDBXD with SSS 16 4C DM19AS DDBXD	DSX0 LED Area Fixture with houseside shield; mounted at 18ft (16ft pole on 2ft base)	LED		DSX0_LED_P3_30K_TFTM_MVOLT_HS.ies	6122	0.9	TYPE III, VERY SHORT BUG RATING: B1 – U0 – G2
	S–BLC	3	Lithonia Lighting	DSX0 LED P3 30K BLC MVOLT HS SPA DDBXD with SSS 16 4C DM19AS DDBXD	DSX0 LED Area Fixture; mounted at 18ft (16ft pole on 2ft base)	LED		DSX0_LED_P3_30K_BLC_MVOLT.ies	6428	0.9	TYPE III, SHORT, BUG RATING: B1 – U0 – G2
	W	6	Lithonia Lighting	WDGE2 LED P3 30K 80CRI MVOLT DDBXD	WDGE2 LED Wallpack; mounted at 16ft	LED		WDGE2_LED_P3_30K_80CRI_VF.ies	3015	0.9	TYPE III, VERY SHORT BUG RATING: B1 – U0 – G0

P5116

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VISIBLELIGHT

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APPLICANT:
GOOD TO–GO
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO–GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
LIGHTING PLAN

SHEET NUMBER:
C-9

SEDIMENT AND EROSION CONTROL NOTES

PROJECT NAME AND LOCATION

Good To-Go, Inc.
524 U.S. Route 1
Kittery, Maine

Latitude: 043° 07' 52" N
Longitude: 070° 42' 04" W

DESCRIPTION

The project includes the development of a specialty food manufacturing facility with an access road, paved parking lot and associated utility and drainage improvements.

SEQUENCE OF MAJOR ACTIVITIES

1. Install temporary erosion control measures, including perimeter controls and stabilized construction entrances.
2. Clear and grub wooded areas to the limits of work and strip and stockpile loam. Stockpiles shall be temporarily stabilized with hay mulch and surrounded by a hay bale or silt fence barrier until material is removed and final grading is complete.
3. Rough grade site to include stormwater facilities.
4. Construct building foundation.
5. Construct drainage structures and utilities.
6. Install roadway and parking lot base materials.
7. Install pavement binder course.
8. Complete building construction.
9. Install curbing.
10. Install loam where required and stormwater basin filter material where specified.
11. Install pavement top course.
12. Install other site features and landscaping.
13. Stabilize any remaining disturbed areas.
14. When all construction activity is complete and site is stabilized, remove perimeter controls and sediment that has been trapped by these devices.

NAME OF RECEIVING WATER

The site drains to the Atlantic Ocean by way of Johnson Brook and Libby Brook.

TEMPORARY EROSION AND SEDIMENT CONTROLS AND STABILIZATION PRACTICES

All work shall be in accordance with state and local permits. Installation or construction of erosion control measures shall conform to the practices described in the "2014 Revision to the 2003 Maine Erosion and Sediment Control Field Guide for Contractors, published by the Maine Department of Environmental Protection.

Minimum erosion control measures will need to be implemented and the contractor 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.

As indicated in the sequence of Major Activities, perimeter controls shall be installed prior to commencing any clearing or grading of the site. Structural controls shall be installed concurrently with the applicable activity. Once construction activity ceases permanently in an area, silt fences and hay bale barriers and any earth/dikes will be removed once permanent measures are established.

During construction, runoff will be diverted around the site with stabilized channels where possible channels where possible. Sheet runoff from the site will be filtered through hay bale barriers, stone check dams, and/or silt fences. All storm drain inlets shall be provided with inlet filters or stone check dams. Stone rip rap shall be provided at the outlets of drain pipes and culverts where shown on the drawings.

Temporary and permanent vegetation and mulching is an integral component of the erosion and sedimentation control plan. All areas shall be inspected and maintained until desires vegetative cover is established. These control measures are essential to erosion prevention and also reduce costly rework of graded and shaped areas.

Temporary vegetation shall be maintained in these areas until permanent seeding is applied. Additionally, erosion sedimentation measures shall be maintained until permanent vegetation is established.

INSTALLATION, MAINTENANCE AND INSPECTION PROCEDURES FOR TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES

A. GENERAL

1. Perimeter controls shall be installed prior to earth moving operations.
2. The smallest practical portion of the site will be denuded at one time and no more than be mulched in one day. All disturbed areas must be stabilized by temporary measures within 5 days of initial disturbance and stabilized by permanent measures immediately after final grading.
2. Sediment barriers shall be installed downgradient of stockpiles and diversion swales installed upgradient of stockpiles to prevent movement of soil.
3. Built-up sediment shall be removed from silt fence or other barriers when it has reached one-third the height of the tubular barrier or bale, or when "bulges" occur in silt fence.
4. All diversion dikes shall be inspected and any breaches promptly repaired.
5. Temporary seeding and planting shall be inspected for bare spots, washouts, and unhealthy growth.
6. The owner's authorized engineer shall inspect the site on a periodic basis to review compliance with the plans.
7. All ditches and swales shall be stabilized prior to directing runoff to them. All diversion dikes will be inspected and any breaches promptly repaired.
8. Temporary water diversion (swales, basins, etc) shall be used as necessary until areas are stabilized.
9. Ponds and swales shall be installed early on in the construction sequence (before rough grading site).
10. All cut and fill slopes shall be seeded/loamed within 72 hours of achieving finished grade.
11. An area shall be considered stable if one of the following has occurred:

a. Base coarse gravels have been installed in areas to be paved;
b. A minimum of 90% vegetated growth as been established;
c. A minimum of 3 inches of non-erosive material such as stone of riprap has been installed; or
d. Erosion control blankets have been properly installed.

B. MULCHING

Application

* In sensitive areas (within 100 ft of streams, wetlands and in lake watersheds) temporary mulch shall be applied within 7 days of exposing soil or prior to any storm event.
* Areas, which have been temporarily or permanently seeded, shall be mulched immediately following seeding.
* 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.
* Mulch anchoring should be used on slopes greater than 5% in late fall (past September 15), and over-winter (September 15 – April 15).

Type of Mulch

Hay or Straw Mulches

Organic mulches, including hay and straw, shall be air-dried, free of undesirable seeds and coarse materials. Application rate shall be 2 bales (70-90 pounds) per 1000 sq. ft. or 1.5 to 2 tons (90-100 bales) per acre to cover 75 to 90 % of the ground surface. Hay mulch subject to wind blowing shall be anchored via: netting; peg and twine or tracking.

Erosion Control Mix

Erosion control mix shall consist primarily of organic material and shall include any of the following: shredded bark, stump grindings, composted bark or other acceptable products based on a similar raw source. Wood or bark chips, ground construction debris or reprocessed wood products shall not be acceptable as the organic component of the mix.
It can be used as a stand-alone reinforcement:

* On slopes 2 horizontal to 1 vertical or less.
* On frozen ground or forested areas.
* At the edge of gravel parking areas and areas under construction.

Other reinforcement BMPs (i.e. riprap) should be used:

* On slopes with groundwater seepage;
* At low points with concentrated flows and in gullies;
* At the bottom of steep perimeter slopes exceeding 100 feet in length;
* Below culvert outlet aprons; and
* Around catch basins and closed storm systems.

Composition

Erosion control mix shall contain a well-graded mixture of particle sizes and 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 and 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, cloys or fine sands are not acceptable in the mix.

Installation

* Erosion control mix shall not be used on slopes steeper than 2:1.
* On slopes of 3:1 or less; 2 inches plus an additional 1/2 inch per 20 feet of slope up to 100 feet.
* On slopes between 3:1 and 2:1, 4 inch plus an additional 1/2 inch per 20 feet of slope up to 100 feet.

The thickness of the mulch at the bottom of the slope needs to be:

	<3:1 slope	slopes between 3:1 and 2:1
<20' of slope	2.0"	4.0'
<60' of slope	3.0"	5.0'
<100' of slope	4.0"	6.0'

* It shall be placed evenly and must provide 100% coverage with the soil totally invisible.

Any required repairs shall be made immediately, with additional erosion control mix placed on top of the mulch to reach the recommended thickness. When the mix is decomposed, clogged with sediment, eroded or ineffective, it shall be replaced or repaired. Erosion control mix mulch shall be left in place. If the mulch needs to be removed spread it out into the landscape.

Maintenance

All mulches must be inspected periodically, in particular after rainstorms, to check for rill erosion. If less than 90% of the soil surface is covered by mulch, additional mulch shall be immediately applied. Nets shall be inspected after rain events for dislocation or failure. If washouts or breakage occur, re-install the nets as necessary after repairing damage to the slope.
Inspections shall take place until grasses are firmly established (95% soil surface covered with grass). Where mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface. Repair as needed.

C. TEMPORARY VEGETATION

Considerations

* Proper seedbed preparation and the use of quality seed are important in this practice just as in permanent seeding. Failure to carefully follow sound agronomic recommendations will often result in an inadequate stand of vegetation that provides little or no erosion control.
* Nutrients and pesticides used to establish and maintain a vegetation cover shall be managed to protect the surface and ground water quality.
* Temporary seeding shall be used extensively in sensitive areas (ponds and lake watersheds, steep slopes, streambanks, etc.).
* Late fall seeding may fail and cause water quality deterioration in spring runoff events, thus

other measures such as mulching shall be implemented.

Specifications

Seedbed Preparation

Apply limestone and fertilizer according to soil test recommendations. If soil testing is not feasible on small or variable sites, or where timing is critical, fertilizer may be applied at the rate of 600 pounds per acre or 13.8 pounds per 1,000 square feet of 10-10-10 (N-P2OS-K20) or equivalent. Apply limestone (equivalent to 50 percent calcium plus magnesium oxide) at a rate of 3 tons per acre (138 lb. per 1,000 square feet).

Seeding

* Select seed from recommendations in enclosed table.
* Where the soil has been compacted by construction operations, loosen soil to a depth of 2 inches before applying fertilizer, lime and seed.
* Apply seed uniformly by hand, cyclone seeder, drill, cultipacker type seeder or hydroseeder (slurry including seed and fertilizer). Hydroseeding that includes mulch may be left on soil surface. Seeding rates must be increased 10% when hydroseeding.

Mulching

Apply mulch over seeded area according to the TEMPORARY MULCHING BMP.

Maintenance

Temporary seeding shall be periodically inspected. At a minimum, 95% of the soil surface should be covered by vegetation. If any evidence of erosion or sedimentation is apparent, repairs shall be made and other temporary measures used in the interim (mulch, filter barriers, check dams, etc.).

Temporary Seeding Rates and Dates

Seed	Lb./Ac	Seeding Depth	Recommended Seeding Dates	Remarks
Winter Rye	112 (2.0 bu)	1-1.5 in	8/15-10/1	Good for fall seeding. Select a hardy species, such as Aroostook Rye.
Oats	80 (2.5 bu)	1-1.5 in	4/1-7/1 Early fall winter protection.	8/15-9/15 seeding will die when weather moved in, but mulch will provide
Annual Ryegrass	40	.25 in	4/1-7/1	Grows quickly but is of short duration. Use where appearance is important. With mulch, seeding may be done throughout growing season.
Sudangrass	40 (1.0 bu)	.5-1 in	5/15-8/15	Good growth during hot summer periods.
Perennial	40 (2.0 bu)	.25 in	8/15-9/15	Good cover, longer lasting than Annual Ryegrass. Mulching will allow seeding throughout growing season.
Temporary mulch with or MULCHING BMP and/or without dormant seeding PERMANENT VEGETATION BMP.			10/1-4/1	Refer to TEMPORARY

D. FILTERS

Tubular Sediment Barrier

a. To be provided by an approved manufacturer or supplier:
b. Installed per manufacturer's specifications;
c. Barrier shall be removed when they have served their useful purpose but not before the upslope areas has been permanently stabilized.

Organic Filter Berm See detail

Installation

* Sediment barriers shall be installed along the down gradient side of proposed ground disturbance areas prior to any construction activities.
* The barrier must be placed along a relatively level contour.

Maintenance

* Hay bale barriers, silt fences and filter berms shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired immediately if there are any signs of erosion or sedimentation below them. If there are signs of undercutting at the center or the edges of the barrier, or impounding of large volumes of water behind them, sediment barriers shall be replaced with a temporary check dam.
* Should the fabric on a silt fence or filter barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly.
* Sediment deposits should be removed when deposits reach approximately one third (1/3) the height of the barrier.
* Filter berms should be reshaped as needed.
* Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed or removed to conform to the existing grade, prepared and seeded.
* Additional stone may have to be added to the construction stabilized entrance, rock barriers, stone lined swales, etc., periodically to maintain proper function of the erosion control structure.

E. PERMANENT SEEDING

1. Bedding – stones larger than 1 1/2", trash, roots, and other debris that will interfere with seeding and future maintenance of the area should be removed. Where feasible, the soil should be tilled to a depth of 6" to prepare a seedbed and mix fertilizer (refer to Landscape Drawings and Specifications) into the soil.

2. Fertilizer (refer to Landscape Drawings and Specifications) – lime and fertilizer should be applied evenly over the area prior to or at the time of seeding and incorporated into the soil. Kinds and amounts of lime and fertilizer should be based on an evaluation of soil tests.

3. Seed Mixture (See Landscape Drawings for additional information):
   3.1. Lawn seed mix shall be a fresh, clean new seed crop. The Contractor shall furnish a dealer's guaranteed statement of the composition of the mixture and the percentage of purity and germination of each variety.
   3.2. Seed mixture shall conform to landscape specifications
4. Sodding – sodding is done where it is desirable to rapidly establish cover on a disturbed area. Sodding an area may be substituted for permanent seeding procedures anywhere on site. Bed preparation, fertilizing, and placement of sod shall be performed according to the S.C.S. Handbook. Sodding is recommended for steep sloped areas, areas immediately adjacent to sensitive water courses, easily erodible soils (fine sand/silt), etc.

DEWATERING

A dewatering plan shall be implemented to address excavation de-watering following heavy rainfall events or where the excavation may intercept the groundwater table during construction. The collected water needs treatment and a discharge point that will not cause downgradient erosion and offsite sedimentation or within a resource.

All dewatering discharge locations shall be located on relatively flat ground at least 75' from streams and 25' from wetlands. The contractor shall utilize dirtbags, erosion control mix berms, or similar methods for filtration of dewatering and shall conform to the Maine Erosion and Sediment Control BMPs.

MONITORING SCHEDULE

The contractor shall be responsible for installing, monitoring, maintaining, repairing, replacing and removing all of the erosion and sedimentation controls or appointing a qualified subcontractor to do so. Maintenance measures will be applied as needed during the entire construction cycle. immediately following any significant rainfall, and at least once a week, a visual inspection will be made of all erosion and sedimentation controls as follows:

1. Silt fence shall be inspected and repaired. Sediment trapped behind these barriers shall be excavated when it reaches a depth of 6"and redistributed to areas undergoing final grading.
2. Construction entrance shall be visually inspected and repaired as needed. Any areas subject to rutting shall be stabilized immediately. If the voids of the construction entrance become filled with mud, more crushed stone shall be added as needed. The public roadway shall be swept should mud be deposited/tracked onto them.

STANDARDS FOR STABILIZING SITES FOR THE WINTER

The following standards and methodologies shall be used for stabilizing the site during the winter construction period:

1. Standard for the timely stabilization of disturbed slopes (any area having a grade greater than 25%) – the contractor will seed and mulch all slopes to be vegetated by September 15th. If the contractor fails to stabilize any slope to be vegetated by September 15th, 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 1st the contractor will seed the disturbed slope with winter rye at a rate of 3 pounds per 1000 square feet and then install erosion control mats or anchored hay mulch over the seeding. The contractor will monitor growth of the rye over the next 30 days.
B. Stabilize the slope with wood-waste compost: the contractor will place a six-inch layer of wood-waste compost on the slope by November 15th. The contractor will not use wood-waste compost to stabilize slopes having grades greater than 50% (2h:iv) or having groundwater seeps on the slope face.
C. Stabilize the slope with stone riprap: the contractor will place a layer of stone riprap on the slope by November 15th. The developmentt's owner will hire a registered professional engineer to determine the stone size needed for stability on the slope and to design a filter layer for underneath the riprap.

2. Standard for the timely stabilization of disturbed soils – by September 15th the contractor will seed and mulch all disturbed soils on the site. If the contractor fails to stabilize these soils by this date, then the contractor will take on of the following actions to stabilize the soil for late fall and winter.

A. Stabilize the soil with temporary vegetation: by October 1st 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 contractor will monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before November 1, then the contractor will mulch the area for over-winter protection as described in item iii of this standard.
B. Stabilize the soil with sod: the contractor will stabilize the disturbed soil with properly installed sod by October 1st. proper installation includes the contractor 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 15th the contractor 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. Immediately after applying the mulch, the contractor will anchor the mulch with netting or other method to prevent wind from moving the mulch off the disturbed soil.

Winter inspections shall be preformed after, each rainfall, snowstorm or thawing and at least once a week. All areas within 75 feet of a protected natural resource must be protected with a double row of sediment barrier.

EROSION CONTROL REMOVAL

An area is considered stable if it is paved or if 90% growth of planted seeds is established. once an area is considered stable, the erosion control measures can be removed as follows:

1. Silt Fence: Silt fence shall be disposed of legally and properly off-site. all sediment trapped behind these controls shall be distributed to an area undergoing final grading or removed and relocated off-site.
2. Stabilized Construction Entrance: The stabilized construction entrance shall be removed once the compacted roadway base in in place. Stone and sediment from the construction entrance shall be redistributed to an area undergoing grading or removed and relocated offsite.
3. Miscellaneous: Once all the trapped sediments have been removed from the temporary sedimentation devices the disturbed areas must be regraded in an aesthetic manner to conform to the surrounding topography. Once graded these disturbed areas must be loamed (if necessary), fertilized, seeded and mulched in accordance with the rates previously stated.

The above erosion controls must be removed within 30 days of final stabilization of the site. Conformance with this plan and following these practices will result in a project that complies with the state regulations and the standards of the natural resources protection act, and will protect water quality in areas downstream from the project.

INSPECTION AND MAINTENANCE

1. All sediment control measures shall be inspected at least once each week and following any storm event of 0.5 inches or greater for the duration of construction and until the site is fully stabilized. An inspection report shall be made after each inspection by a qualified inspector engaged by the Owner. The qualified inspector shall be a Professional Engineer licensed in Maine or be a Certified Professional in Erosion and Sediment Control approved by the Owner.
2. All measures shall be maintained in good working order; if a repair is necessary, it will be initiated within 24 hours and completed within 72 hours.
3. Inspection and maintenance requirements: Inspect disturbed and impervious areas, erosion and stormwater control measures, areas used for storage that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and after a 0.5 inches or greater storm event and prior to completion of permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards in the MCGP and any departmental companion document to the MCGP, 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 area permanently stabilized.
4. Inspection Log (report): 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 maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and locations(s) where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the inspection log the correct action taken and when it was taken. The log must be made accessible to the department staff and a copy must be provided upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of the permanent stabilization.

HOUSEKEEPING

1. Spill prevention: Controls must be used to prevent pollutants from construction and waste materials stored onsite, including storage practices to minimize exposure of the materials to stormwater and appropriate spill prevention, containment, and response planning implementation. The contractor and owners need to take care with construction and waste materials such that contaminates do not enter the stormwater. The storage of materials such as paint, petroleum products, cleaning agents and the like are to be stored in watertight containers. The use of the products should be in accordance with manufacturer recommendations. When fueling equipment, including snowblowers and lawnmowers, have oil absorbent pads available below the fueling. Refueling of small engines by the owner should occur in the garage or on a paved surface. Any spill or release of toxic or hazardous substances must be reported to the department. For oil spills, call 1-800-482-0777 which is available 24 hours a day. For spills of toxic or hazardous material, call 1-800-452-4664 which is available 24 hours a day. For more information, visit the department's website at: HTTP: /WWW.MAINE.GOV/DEP/SPILLS/EMERGSPILLRESP/

2. Groundwater protection: Protection of the groundwater is required by the contractor and owner. 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. Petroleum products should be stored in manufactured cans designed for the purpose. 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. Spill preventions procedures should be followed.

Note: Lack of appropriate pollutant removal BMPs may result in violations of the groundwater quality standard established by 39 M.R.S.A. §465-C(1). Any project proposing infiltration of stormwater must provide adequate pre-treatment of stormwater prior to discharge of stormwater to the infiltration area, or provide treatment within the infiltration area, in order to prevent accumulation of fines, reductions 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.

Note: Dewatering a stream without a permit from the department violates state water quality standards and the Natural Resources Protection Act.

4. Debris and other materials: Litter, construction debris, and construction chemicals exposed to stormwater must be prevented from becoming a pollutant source. Construction materials and construction debris should be covered to prevent rainwater from washing contaminants off the site. Any fertilizers, cleaning products, herbicides should be protected from the weather and used in accordance with manufacturers recommendations.

Note: Any contaminants that are washed off the site by rainwater is a violation of the Clean Waters Act. To prevent these materials from becoming a source of pollutants, construction activities related to a project may be required to comply with applicable provisions 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 dewatering: Trench dewatering 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.

Note: For guidance on dewatering controls, consult the Maine Erosion and Sediment Control BMPs, published by the Maine Department of Environmental Protection.

6. 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:
   - Discharges from firefighting activities
   - Fire hydrant flushings
   - Vehicle washwater if detergents are not used and washing is limited to the exterior of vehicles (engine, undercarriage, and transmission washing is prohibited
   - Dust control runoff in accordance with permit conditions
   - Routine external building washdown, not including surface paint removal, that does not involve detergents
   - 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
   - Uncontaminated air conditioning or compressor condensate
   - Uncontaminated groundwater or spring water
   - Foundation or footer drain-water where flows are not contaminated
   - Uncontaminated excavation dewatering
   - Potable water sources including waterline flushings

7. Unauthorized non-stormwater discharges: Identify and prevent contamination from discharges that is mixed with a source of non-stormwater, other than those discharges in compliance with 6. Unauthorized non-stormwater discharges are:
   - Wastewater from the washout or cleanout of concrete, stucco, paint, form release oils, curing compounds or other construction materials;
   - Fuels, oils, or other pollutants used in vehicle and equipment operations and maintenance;
   - Soaps, solvents or detergents used in vehicle and equipment wash;
   - Toxic or hazardous substances from a spill or other release.

Allowable non-stormwater discharges cannot be authorized unless they are directly related to and originate from a construction site or dedicated support activity.

P5116

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

ERIC D. WEINREB No. 10881 STATE OF MAINE REGISTERED PROFESSIONAL ENGINEER
8/18/21

NOT FOR CONSTRUCTION

ISSUED FOR: DEP

ISSUE DATE: AUGUST 18, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	PLANNING BOARD	EBS	07/22/21
1	DEP	EBS	08/18/21

DRAWN BY: EBS
APPROVED BY: EBS
DRAWING FILE: 5116-SITE.dwg

SCALE: NOT TO SCALE

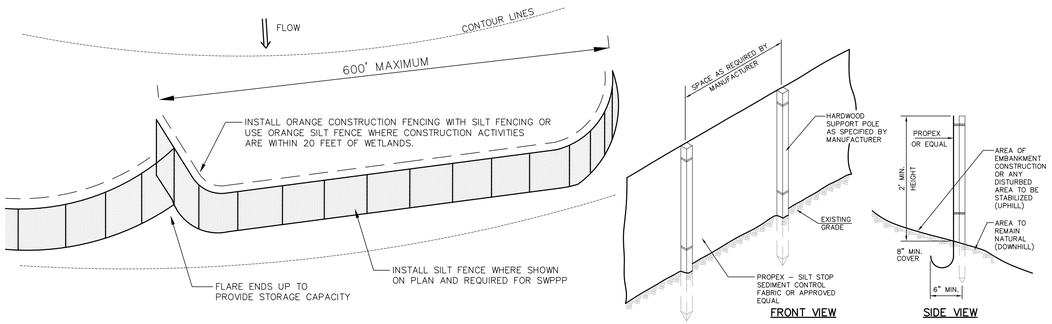
OWNER:
C-COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

APPLICANT:
GOOD TO-GO
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO-GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

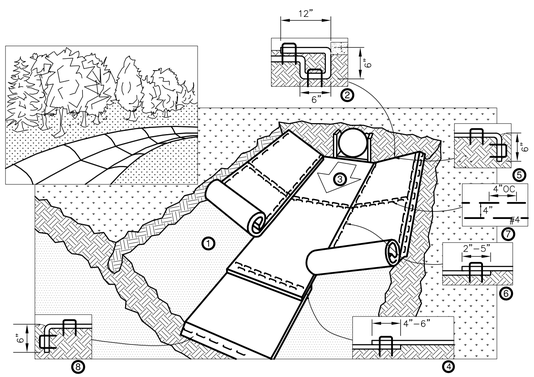
TITLE:
EROSION AND SEDIMENT CONTROL NOTES

SHEET NUMBER:
D-1



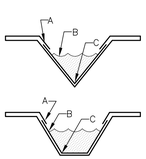
SILT AND ORANGE CONSTRUCTION FENCE LAYOUT DETAIL

NOT TO SCALE



NOTES

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4"-6" OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER TO SECURE BLANKETS.
5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (DEPENDING ON BLANKET TYPE) AND STAPLED. TO INSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE BLANKET BEING OVERLAPPED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" APART AND 4" ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.
8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN A 6" DEEP BY 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.



CRITICAL POINTS:

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

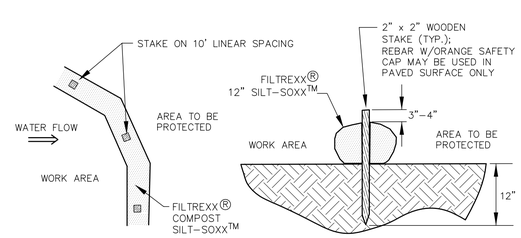
NOTES:

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

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

EROSION CONTROL BLANKET - SWALE

NOT TO SCALE

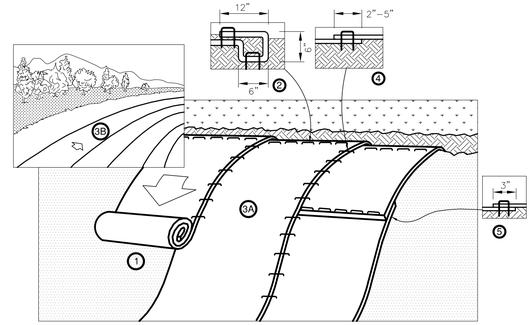


NOTES:

1. SILTSOXX MAY BY USED IN PLACE OF SILT FENCE OR OTHER SEDIMENT BARRIERS.
2. ALL MATERIAL TO MEET FILTREXX SPECIFICATIONS.
3. SILTSOXX COMPOST/SOIL/ROCK/SEED FILL MATERIAL SHALL BE ADJUSTED AS NECESSARY TO MEET THE REQUIREMENTS OF THE SPECIFIC APPLICATION.
4. ALL SEDIMENT TRAPPED BY SILTSOXX SHALL BE DISPOSED OF PROPERLY.

TUBULAR SEDIMENT BARRIER

NOT TO SCALE



NOTES

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.
2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP BY 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.
3. ROLL THE BLANKETS (A) DOWN OR (B) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE.
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH. NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

EROSION CONTROL BLANKET - SLOPE

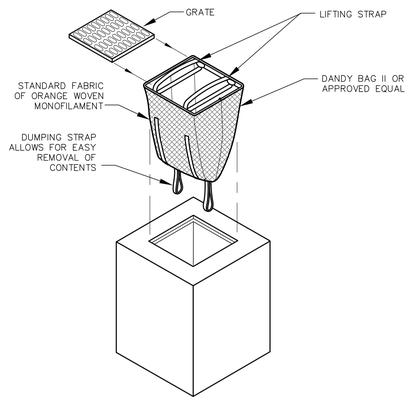
NOT TO SCALE

NOTES

1. ORGANIC FILTER BERMS MAY BE UTILIZED IN LIEU OF SILT FENCE OR OTHER SEDIMENT BARRIERS.
2. THE EROSION CONTROL MIXTURE USED IN FILTER BERMS SHALL BE A WELL-GRADED MIX OF PARTICLE SIZES THAT MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER, STUMP GRINDINGS, SHREDDED OR COMPOSTED BARK, AND/OR ACCEPTABLE MANUFACTURED PRODUCTS AND SHALL BE FREE OF REFUSE, PHYSICAL CONTAMINANTS AND MATERIAL TOXIC TO PLANT GROWTH. EROSION CONTROL MIXTURE SHALL MEET THE FOLLOWING STANDARDS:
   a) THE ORGANIC CONTENT SHALL BE 80-100% OF DRY WEIGHT.
   b) PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 6" SCREEN, AND 70-85% PASSING A 0.75" SCREEN.
   c) THE ORGANIC PORTION SHALL BE FIBROUS AND ELONGATED.
   d) LARGE PORTIONS OF SILTS, CLAYS, OR FINE SANDS SHALL NOT BE INCLUDED IN THE MIXTURE.
   e) SOLUBLE SALTS CONTENT SHALL BE >4.0mmhos/cm.
   f) THE pH SHALL BE BETWEEN 5.0 AND 8.0.
3. ORGANIC FILTER BERMS SHALL BE INSTALLED ALONG A RELATIVELY LEVEL CONTOUR. IT MAY BE NECESSARY TO CUT TALL GRASSES OR WOODY VEGETATION TO AVOID CREATING VOIDS AND BRIDGES THAT WOULD ENABLE FINES TO WASH UNDER THE BERM.
4. ON SLOPES LESS THAN 5%, OR AT THE BOTTOM OF SLOPES NO STEEPER THAN 3:1 AND UP TO 20' LONG, THE BERM SHALL BE A MINIMUM OF 12" HIGH (AS MEASURED ON THE UPHILL SIDE) AND A MINIMUM OF 36" WIDE. ON LONGER AND/OR STEEPER SLOPES, THE BERM SHALL BE TALLER AND WIDER TO ACCOMMODATE THE POTENTIAL FOR ADDITIONAL RUNOFF (MAXIMUM HEIGHT SHALL NOT EXCEED 2').
5. FROZEN GROUND, OUTCROPS OF BEDROCK, AND VERY ROOTED FORESTED AREAS PRESENT THE MOST PRACTICAL AND EFFECTIVE LOCATIONS FOR ORGANIC FILTER BERMS. OTHER BMP'S SHOULD BE USED AT LOW POINTS OF CONCENTRATED RUNOFF, BELOW CULVERT OUTLET APRONS, AROUND CATCH BASINS, AND AT THE BOTTOM OF STEEP PERIMETER SLOPES THAT HAVE A LARGE CONTRIBUTING AREA.
6. SEDIMENT SHALL BE REMOVED FROM BEHIND THE FILTER BERMS WHEN IT HAS ACCUMULATED TO ONE HALF THE ORIGINAL HEIGHT OF THE BERM.
7. ORGANIC FILTER BERMS MAY BE LEFT IN PLACE ONCE THE SITE IS STABILIZED PROVIDED ANY SEDIMENT DEPOSITS TRAPPED BY THEM ARE REMOVED AND DISPOSED OF PROPERLY.
8. FILTER BERMS ARE PROHIBITED AT THE BASE OF SLOPES STEEPER THAN 8% OR WHERE THERE IS FLOWING WATER WITHOUT THE SUPPORT OF ADDITIONAL MEASURES SUCH AS SILTFENCE.

ORGANIC FILTER BERM

NOT TO SCALE



INSTALLATION AND MAINTENANCE:

INSTALLATION: REMOVE THE GRATE FROM CATCH BASIN. IF USING OPTIONAL OIL ABSORBENTS; PLACE ABSORBENT PILLOW IN UNIT. STAND GRATE ON END. MOVE THE TOP LIFTING STRAPS OUT OF THE WAY AND PLACE THE GRATE INTO CATCH BASIN INSERT SO THE GRATE IS BELOW THE TOP STRAPS AND ABOVE THE LOWER STRAPS. HOLDING THE LIFTING DEVICES, INSERT THE GRATE INTO THE INLET.

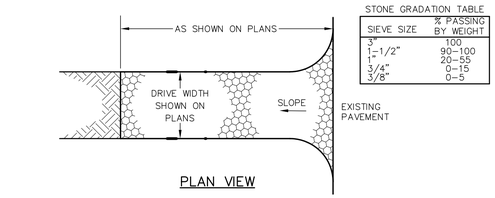
MAINTENANCE: REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM VICINITY OF THE UNIT AFTER EACH STORM EVENT. AFTER EACH STORM EVENT AND AT REGULAR INTERVALS, LOOK INTO THE CATCH BASIN INSERT. IF THE CONTAINMENT AREA IS MORE THAN 1/3 FULL OF SEDIMENT, THE UNIT MUST BE EMPTIED. TO EMPTY THE UNIT, LIFT THE UNIT OUT OF THE INLET USING THE LIFTING STRAPS AND REMOVE THE GRATE. IF USING OPTIONAL ABSORBENTS; REPLACE ABSORBENT WHEN NEAR SATURATION.

UNACCEPTABLE INLET PROTECTION METHOD:

A SIMPLE SHEET OF GEOTEXTILE UNDER THE GRATE IS NOT ACCEPTABLE.

STORM DRAIN INLET PROTECTION

NOT TO SCALE



STONE GRADATION TABLE

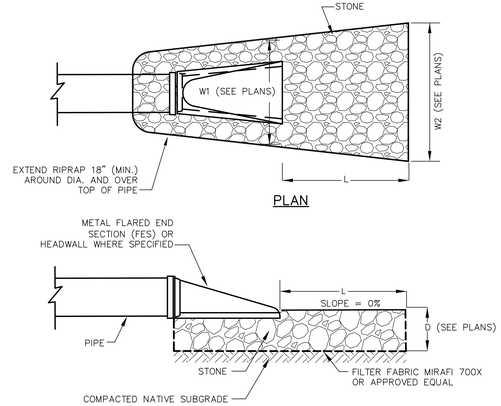
SIEVE SIZE	% PASSING BY WEIGHT
3"	100
1-1/2"	90-100
1"	20-55
3/4"	0-15
3/8"	0-5

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - NHDOT STANDARD STONE SIZE #4 - SECTION 703 OF NHDOT STANDARD.
2. LENGTH - DETAILED ON PLANS (50 FOOT MINIMUM).
3. THICKNESS - SIX (6) INCHES (MINIMUM).
4. WIDTH - FULL DRIVE WIDTH UNLESS OTHERWISE SPECIFIED.
5. FILTER FABRIC - MIRAFI 600X OR EQUAL APPROVED BY ENGINEER.
6. SURFACE WATER CONTROL - ALL SURFACE WATER THAT IS FLOWING TO OR DIVERTED TOWARD THE CONSTRUCTION ENTRANCE SHALL BE PIPED BENEATH THE ENTRANCE. IF PIPING IS IMPRACTICAL, A BERM WITH 5:1 SLOPES THAT CAN BE CROSSED BY VEHICLES MAY BE SUBSTITUTED FOR THE PIPE.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS WILL REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WHEELS SHALL BE CLEANED TO REMOVE MUD PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. STABILIZED CONSTRUCTION EXITS SHALL BE INSTALLED AT ALL ENTRANCES TO PUBLIC RIGHTS-OF-WAY, AT LOCATIONS SHOWN ON THE PLANS, AND/OR WHERE AS DIRECTED BY THE ENGINEER.

STABILIZED CONSTRUCTION EXIT

NOT TO SCALE



MAINTENANCE

THE OUTLET PROTECTION SHOULD BE CHECKED AT LEAST ANNUALLY AND AFTER EVERY MAJOR STORM. IF THE RIPRAP HAS BEEN DISPLACED, UNDERMINED OR DAMAGED, IT SHOULD BE REPAIRED IMMEDIATELY. THE CHANNEL IMMEDIATELY BELOW THE OUTLET SHOULD BE CHECKED TO SEE THAT EROSION IS NOT OCCURRING. THE DOWNSTREAM CHANNEL SHOULD BE KEPT CLEAR OF OBSTRUCTIONS SUCH AS FALLEN TREES, DEBRIS, AND SEDIMENT THAT COULD CHANGE FLOW PATTERNS AND/OR TAILWATER DEPTHS ON THE PIPES. REPAIRS MUST BE CARRIED OUT IMMEDIATELY TO AVOID ADDITIONAL DAMAGE TO THE OUTLET PROTECTION APRON.

CONSTRUCTION SPECIFICATIONS

1. THE SUBGRADE FOR THE FILTER MATERIAL, GEOTEXTILE FABRIC, AND RIPRAP SHALL BE PREPARED TO THE LINES AND GRADES SHOWN ON THE PLANS.
2. THE ROCK OR GRAVEL USED FOR FILTER OR RIPRAP SHALL CONFORM TO THE SPECIFIED GRADATION.
3. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE ROCK RIPRAP. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 12 INCHES.
4. STONE FOR THE RIP RAP MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

RIPRAP OUTLET PROTECTION

NOT TO SCALE

P5116

ALTUS ENGINEERING, INC.
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(603) 433-2335
Portsmouth, NH 03801
www.altus-eng.com

STATE OF MAINE
ERIC D. WEINRIEB
No. 6658
LICENSED PROFESSIONAL ENGINEER
7/22/21

NOT FOR CONSTRUCTION

ISSUED FOR:
PLANNING BOARD

ISSUE DATE:
JULY 22, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	PLANNING BOARD	EBS	07/22/21

DRAWN BY: EBS
APPROVED BY: EBS
DRAWING FILE: 5116-SITE.dwg

SCALE:
NOT TO SCALE

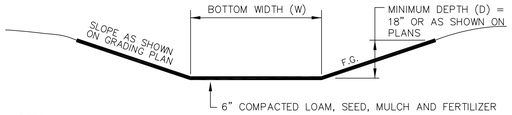
OWNER:
C-COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

APPLICANT:
GOOD TO-GO
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO-GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
DETAILS

SHEET NUMBER:
D-2

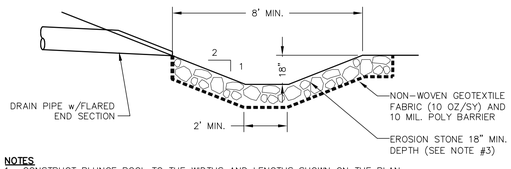


NOTES

1. THE FOUNDATION AREA OF THE SWALE SHALL BE CLEARED AND GRUBBED OF ALL TREES, BRUSH, STUMPS, AND OTHER OBJECTIONABLE MATERIAL.
2. THE SWALE SHALL BE EXCAVATED OR SHAPED TO LINE, GRADE AND CROSS SECTION AS REQUIRED TO MEET THE DESIGN CRITERIA AND BE FREE OF IRREGULARITIES.
3. EARTH FILLS REQUIRED TO MEET SUBGRADE REQUIREMENTS BECAUSE OF OVER EXCAVATION OR TOPOGRAPHY SHALL BE COMPACTED TO THE SAME DENSITY AS THE SURROUNDING SOIL TO PREVENT UNEQUAL SETTLEMENT THAT COULD CAUSE DAMAGE TO THE COMPLETED SWALE.
4. VEGETATION SHALL BE ESTABLISHED IN THE SWALE OR AN EROSION CONTROL MATTING INSTALLED PRIOR TO DIRECTING STORMWATER TO IT.
5. MAINTENANCE OF THE VEGETATION IS EXTREMELY IMPORTANT IN ORDER TO PREVENT RILLING, EROSION, AND FAILURE OF THE SWALE. MOWING SHALL BE DONE FREQUENTLY ENOUGH TO CONTROL ENCROACHMENT OF WEEDS AND WOODY VEGETATION AND TO KEEP GRASSES IN A VIGOROUS CONDITION. THE VEGETATION SHALL NOT BE MOWED TOO CLOSELY SO AS TO REDUCE THE EROSION RESISTANCE IN THE SWALE.
6. THE SWALE SHOULD BE INSPECTED PERIODICALLY AND AFTER ANY STORM GREATER THAN 0.5" OF RAINFALL IN 24 HOURS TO DETERMINE ITS CONDITION. RILLS AND DAMAGED AREAS SHOULD BE PROMPTLY REPAIRED AND REVEGETATED AS NECESSARY TO PREVENT FURTHER DETERIORATION.

VEGETATED SWALE

NOT TO SCALE



NOTES

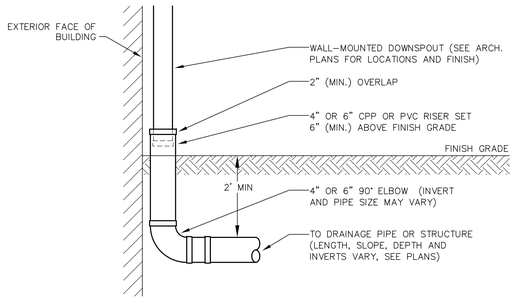
1. CONSTRUCT PLUNGE POOL TO THE WIDTHS AND LENGTHS SHOWN ON THE PLAN.
2. THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIPRAP SHALL BE PREPARED TO ACCOUNT FOR THE DEPTH OF RIPRAP.
3. EROSION STONE USED FOR THE PLUNGE POOL SHALL MEET THE FOLLOWING GRADATION:

SIZE	PERCENT PASSING BY WEIGHT
18"	100
12"	90–100
4"	0–15

4. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE EROSION STONE. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 18".
5. THE EROSION STONE MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

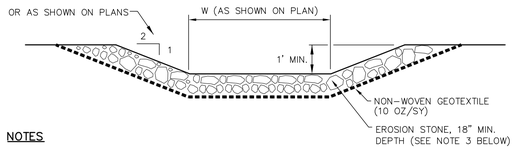
PLUNGE POOL

NOT TO SCALE



EXTERIOR ROOF DRAIN CONNECTION

NOT TO SCALE

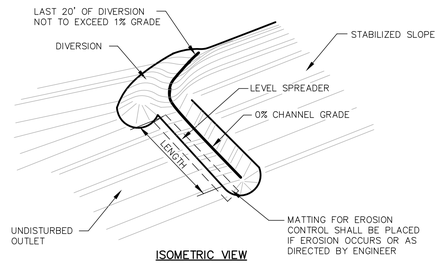


NOTES

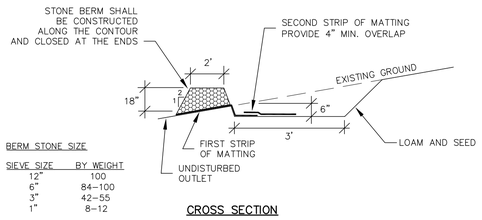
1. CONSTRUCT RIP RAP LINED SWALE TO THE WIDTHS AND LENGTHS SHOWN ON THE PLAN.
2. THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIPRAP SHALL BE PREPARED TO LINES AND GRADES SHOWN ON THE PLANS.
3. EROSION STONE USED FOR THE RIP RAP LINED SWALE SHALL MEET THE GRADATION SHOWN ON THE PLANS.
4. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE EROSION STONE. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 18 INCHES.
5. THE EROSION STONE MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

RIPRAP LINED SWALE

NOT TO SCALE



ISOMETRIC VIEW



BERM STONE SIZE	
SIEVE SIZE	BY WEIGHT
12"	100
6"	84–100
3"	42–55
1"	8–12

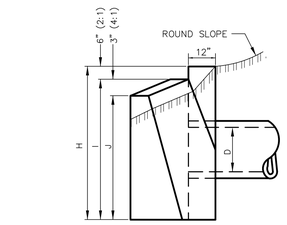
CROSS SECTION

NOTES

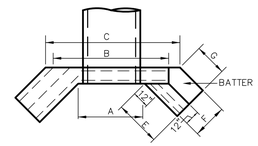
1. LEVEL SPREADERS SHALL BE CONSTRUCTED PER STORMWATER MANAGEMENT FOR MAINE, "VOLUME III BMPS TECHNICAL DESIGN MANUAL, CHAPTER 5.2.2, BUFFER WITH STONE BERMED LEVEL LIP SPREADER", JANUARY 2006 SPECIFICATIONS.
2. FOR STAPLE REQUIREMENTS SEE MANUFACTURER'S STANDARDS & SPECIFICATIONS FOR PROTECTIVE MATERIALS.
3. AREAS BELOW LEVEL SPREADERS SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM.

LEVEL SPREADER

NOT TO SCALE



SIDE ELEVATION

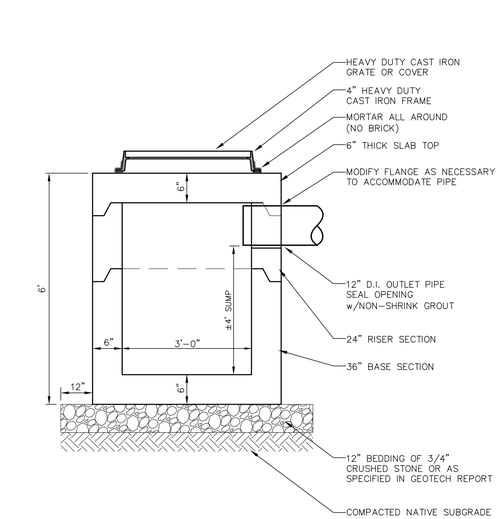


END ELEVATION

DIA. D (=PIPE DIA.+5")	DIMENSIONS (2:1 SLOPE)									
	A	B	C	E	F	G	H	I	J	K
17"	2'–0"	4'–1"	5'–4"	3'–0"	1'–9"	2'–0"	4'–3"	3'–9"	3'–4"	1'–6"

CONCRETE HEADWALL w/WINGWALLS

NOT TO SCALE

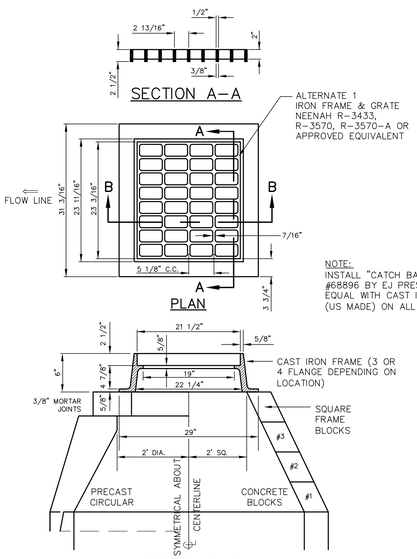


NOTES

1. STRUCTURE SHALL TO ACCOMMODATE HEAVY DUTY 24" SQ. C.I. FRAME AND GRATE.
2. "3' DIAMETER AREA DRAIN" AVAILABLE FROM PHOENIX PRECAST PRODUCTS (800-639-2199) OR APPROVED EQUAL.
3. CONCRETE: 4,000 PSI AFTER 28 DAYS
4. STRUCTURE SHALL BE STEEL REINFORCED MEET OR EXCEED H-20 LOADING.
5. SEAL ALL TONGUE AND GROOVE JOINTS w/BUTYL RUBBER JOINT COMPOUND.

3' I.D. LOW PROFILE CB / DMH

NOT TO SCALE

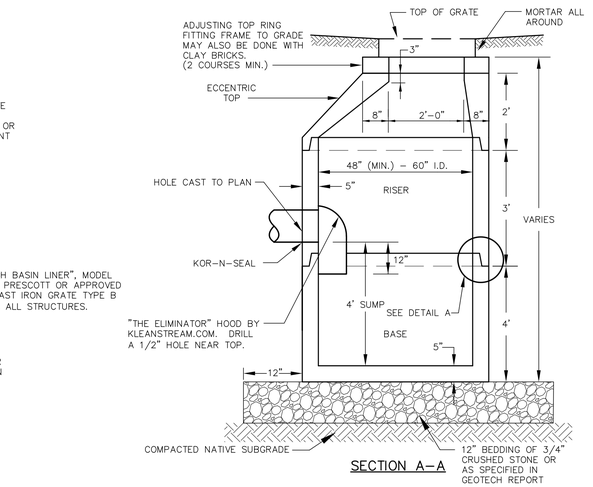


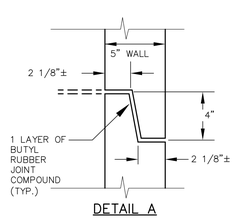
NOTES

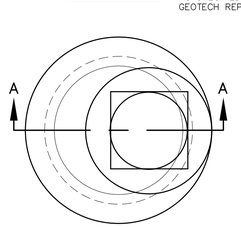
1. ALL SECTIONS SHALL BE CONCRETE CLASS AA (4000 PSI).
2. CIRCUMFERENTIAL REINFORCEMENT SHALL BE 0.12 SQ.IN. PER LINEAR FT. IN ALL SECTIONS AND SHALL BE PLACED IN THE CENTER THIRD OF THE WALL.
3. THE TONGUE OR GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. THE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
6. USE H20 LOADING SLAB TOP SECTION IN LIEU OF ECCENTRIC TOP WHERE PIPE INVERT IS WITHIN 4' OF FINISH GRADE.
7. FRAME AND GRATE DIMENSIONS ARE TYPICAL BUT MAY VARY BASED ON PRODUCT SELECTED OR EQUIVALENT APPROVED BY THE ENGINEER.

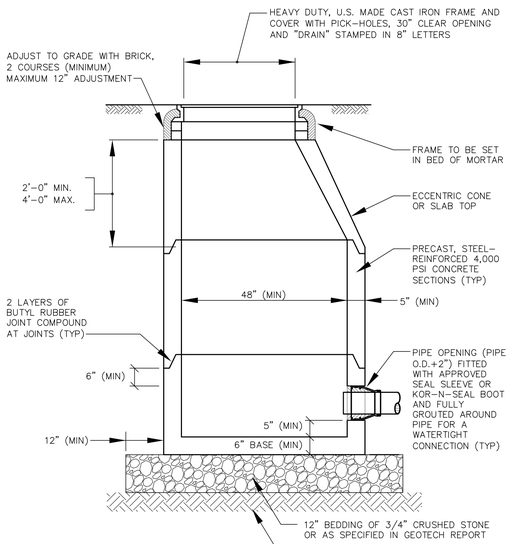
DEEP SUMP CATCH BASIN (CB)

NOT TO SCALE









NOTES

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3. THE TONGUE OR GROOVE OF THE JOINT SHALL CONTAIN ONE LINE OF CIRCUMFERENTIAL REINFORCEMENT EQUAL TO 0.12 SQ. IN. PER LINEAR FT.
4. RISERS OF 1', 2', 3' & 4' CAN BE USED TO REACH DESIRED DEPTH.
5. ALL MANHOLE STRUCTURES SHALL BE DESIGNED FOR H20 LOADING.
6. USE H-20 LOADING SLAB TOP SECTION IN LIEU OF ECCENTRIC TOP WHERE PIPE INVERT IS WITHIN 4 FT OF GRADE.
7. MANHOLE STEPS ARE NOT PERMITTED.

DRAIN MANHOLE DETAIL (DMH)

NOT TO SCALE

P5116

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

STATE OF MAINE
ERIC D. WEINRIEB
No. 6658
LICENSED
PROFESSIONAL ENGINEER
9/23/21

NOT FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: SEPTEMBER 23, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	PLANNING BOARD	EBS	07/22/21
1	DEP	EBS	08/18/21
2	PLANNING BOARD	EBS	09/23/21

DRAWN BY: EBS
APPROVED BY: EBS
DRAWING FILE: 5116-SITE.dwg

SCALE: NOT TO SCALE

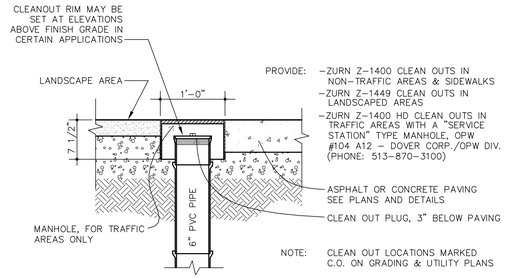
OWNER:
C-COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

APPLICANT:
GOOD TO-GO
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO-GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

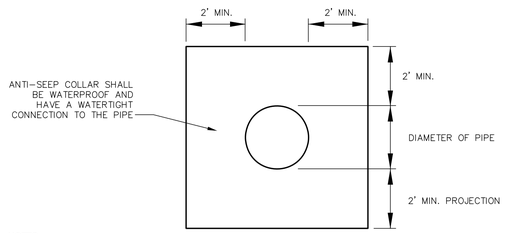
TITLE:
DETAILS

SHEET NUMBER:
D-3



STORMWATER CLEANOUT DETAIL

NOT TO SCALE

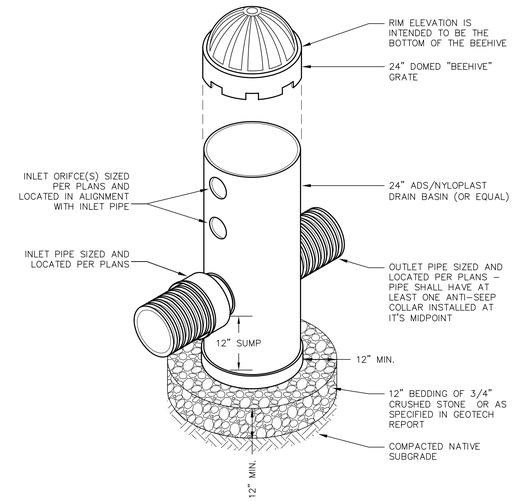


NOTES

ANTI-SEEP COLLARS SHALL BE CLAY, CONCRETE, PLASTIC (AGRI-DRAIN), OR EQUAL APPROVED BY THE ENGINEER.

ANTI-SEEP COLLAR

NOT TO SCALE



NOTES:

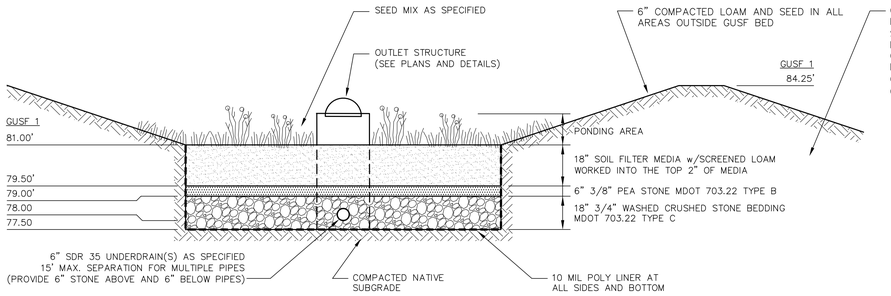
1. FRAMES AND GRATES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
2. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN AND DETAILS.
3. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE, N-12HP AND PVC SEWER.
4. INLINE DRAIN TO BE PVC DIAMETER AS SPECIFIED AND AS MANUFACTURED BY ADS OR APPROVED EQUAL.
5. THE CONTRACTOR SHALL INSTALL THE DRAIN BASIN PER THE MANUFACTURER'S RECOMMENDATIONS AND AS SHOWN ON THE DRAWINGS.

OUTLET STRUCTURE #1

NOT TO SCALE

SOIL FILTER MEDIA		
FILTER MEDIA	MIXUTRE BY VOLUME	SPECIFICATION
SAND	50-55%	MEDOT SPECICATION #703.01 FINE AGGREGATE FOR CONCRETE MODIFIED TO HAVE 8-10% PASSING THE #200 SIEVE
TOPSOIL	20-30%	SANDY LOAM TOPSOIL WITH MINIMAL CLAY CONTENT AND BETWEEN 20-70% PASSING THE #200 SIEVE
MULCH	20-30%	MODERATELY FINE, SHREDDED BARK OR WOOD FIBER MULCH WITH LESS THAN 5% PASSING #200 SIEVE

MDOT 703.22 TYPE B		MDOT 703.22 TYPE C	
SIEVE SIZE	% BY WEIGHT	SIEVE SIZE	% BY WEIGHT
1"	95-100	1"	100
1/2"	75-100	3/4"	90-100
#4	50-100	3/8"	0-75
#20	15-80	#4	0-25
#50	0-15	#10	0-5
#200	0-5		



SEEDING (CONSERVATION MIX)	
TYPE	LB/AC
CREEPING RED FESCUE	20
TALL FESCUE	20
BIRD'S FOOT TREFOIL	8
ANNUAL RYE	20
TOTAL	68

BERM GRANULAR FILL GRADATION	
Sieve size	Embankment Material % Passing sieve
4	90-100%
40	50-80%
100	29-43%
200	15-30%

GRASSED UNDERDRAIN SOIL FILTER (GUSF) NOTES

The contractor will retain the services of a qualified professional to inspect the construction and stabilization of all stormwater management structures. If necessary, the qualified professional shall interpret the pond's construction plan for the contractor. Once all stormwater management structures are constructed and stabilized, the qualified professional will notify the department in writing within 30 days to state that the pond has been completed. Accompanying the notification must be a log of the 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.

Construction Sequence: The soil filter media and vegetation must not be installed until the area that drains to the filter has been permanently stabilized with pavement or other structure, 90% vegetation cover, or other permanent stabilization unless the runoff from the contributing drainage area is diverted around the filter until stabilization is completed.

Compaction of Soil Filter: Filter soil media and underdrain bedding material must be compacted to between 90% and 92% standard proctor. The bed should be installed in at least 2 lifts of 9 inches to prevent pockets of loose media.

Construction Oversight: Inspection by a professional engineer will occur at a minimum:
- After the preliminary construction of the filter grades and once the underdrain pipes are installed but not backfilled,
- After the drainage layer is constructed and prior to the installation of the filter media,
- After the filter media has been installed and seeded. Bio-retention cells must be stabilized per the provided planting scheme and density for the canopy coverage of 30 and 50%.
- After one year to inspect health of the vegetation and make corrections, and
- All the material used for the construction of the filter basin must be confirmed as suitable by the design engineer. Testing must be done by a certified laboratory to show that they are passing DEP specifications.

Testing and Submittals: The contractor shall identify the location of the source of each component of the soil filter media. All results of field and laboratory testing shall be submitted to the project engineer for confirmation. The contractor shall:
- Select samples for sampling of each type of material to be blended for the mixed filter media and samples of the underdrain bedding material. Samples must be a composite of three different locations (grabs) from the stockpile or pit face. Sample size required will be determined by the testing laboratory.
- Perform a sieve analysis conforming to ASTM C136 (Standard Test Method for Sieve Analysis of fine and Course Aggregates 1996A) on each type of the sample material. The resulting soil filter media mixture must have 8% to 12% by weight passing the #200 sieve, a clay content of less than 2% (determined hydrometer grain size analysis) and have 10% dry weight of organic matter.
- Perform a permeability test on the soil filter media mixture conforming to ASTM D2434 with the mixture compacted to 90-92% of maximum dry density based on ASTM D698. Alternative soil filter media source: MDEP approved filter mix is available from Shaw Brothers, Gorham, Maine at http://shawbrothers.com/

Outlet Discharge: Outflow of the filter basin underdrain is controlled with a ball valve within a three-piece valve box. Upon completion of the installation of the soil filter media and the establishment of 90% of grass cover over the filter media, the contractor shall flood the vegetated basin with 8" of clean water and adjust the outflow to obtain between 24 to 48 hour release time.

Maintenance: 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. any bare area or erosion rills shall be repaired with new filter media, seeded and mulched.
- Maintenance Agreement: Applicant or its representatives shall be responsibility for inspecting and maintaining any underdrained filter.
- Inlets and Outlets: The inlets and outlets of the pond shall be checked to ensure that flow structures are not blocked by debris.
- Drainage: The filter shall drain within 24 to 48 hours following a one-inch storm or greater. If the system drains too fast, an orifice may need to be added on the underdrain outlet or may need to be modified if already present.
- Sediment Removal: Sediment and plant debris shall 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 shall 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 shall be avoided unless absolutely necessary to establish vegetation.
- Harvesting and Weeding: Harvesting and pruning of excessive growth shall be done occasionally. weeding to control unwanted or invasive plants may also be necessary.
- Grass Cover: Maintaining a healthy cover of grass will minimize clogging with fine sediments. If ponding exceeds 48 hours, the top of the filter bed shall be rototilled to reestablish the soil's filtration capacity.
- Soil Filter Replacement: The top several inches of the filter shall be replaced with fresh material if water is ponding for more than 72 hours, or the basin can be rototilled, seeded and mulched. Once the filter is mature, adding new material (a 1-inch to 2-inch cover of mature compost) can compensate for subsidence.

TYPICAL GRASSED UNDERDRAINED SOIL FILTER (GUSF)

NOT TO SCALE

P5116

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

STATE OF MAINE
ERIC D. WEINRIEB
No. 6658
LICENSED PROFESSIONAL ENGINEER
9/23/21

NOT FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: SEPTEMBER 23, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	PLANNING BOARD	EBS	07/22/21
1	DEP	EBS	08/18/21
2	PLANNING BOARD	EBS	09/23/21

DRAWN BY: EBS
APPROVED BY: EBS
DRAWING FILE: 5116-SITE.dwg

SCALE: NOT TO SCALE

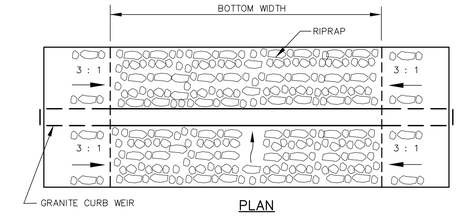
OWNER:
C-COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

APPLICANT:
GOOD TO-GO
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

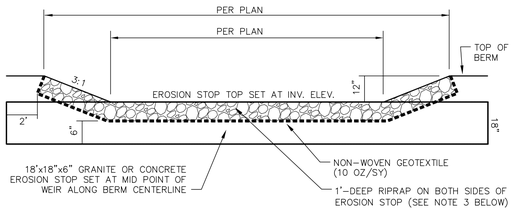
PROJECT:
GOOD TO-GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
DETAILS

SHEET NUMBER:
D-4



PLAN

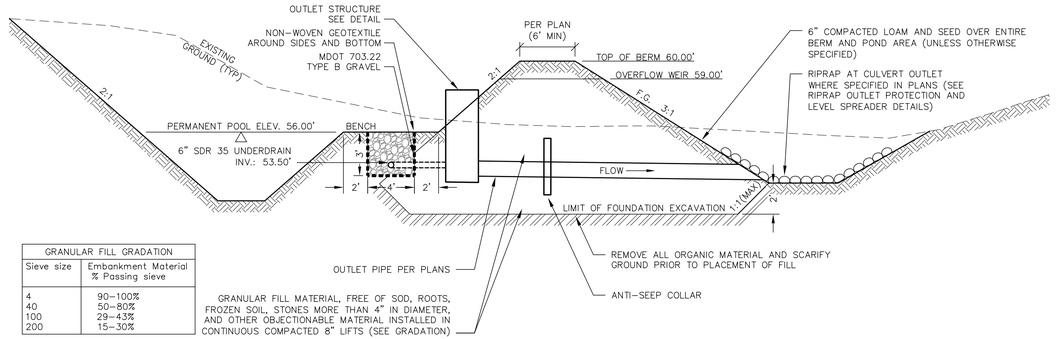


1. CONSTRUCT EMERGENCY OVERFLOW WEIR TO THE WIDTHS AND LENGTHS SHOWN ON THE PLAN.
2. THE SUBGRADE FOR THE GEOTEXTILE FABRIC AND RIPRAP SHALL BE PREPARED TO LINES AND GRADES SHOWN ON THE PLANS.
3. UNLESS OTHERWISE SPECIFIED OR DIRECTED, RIPRAP USED FOR THE EMERGENCY OVERFLOW WEIR SHALL MEET THE FOLLOWING GRADATION:

SIZE	PERCENT PASSING BY WEIGHT
4"	90–100
2"	0–15

4. GEOTEXTILE FABRICS SHALL BE PROTECTED FROM PUNCTURE OR TEARING DURING THE PLACEMENT OF THE EROSION STONE. DAMAGED AREAS IN THE FABRIC SHALL BE REPAIRED BY PLACING A PIECE OF FABRIC OVER THE DAMAGED AREA OR BY COMPLETE REPLACEMENT OF THE FABRIC. ALL OVERLAPS REQUIRED FOR REPAIRS OR JOINING TWO PIECES OF FABRIC SHALL BE A MINIMUM OF 18 INCHES.
5. THE EROSION STONE MAY BE PLACED BY EQUIPMENT AND SHALL BE CONSTRUCTED TO THE FULL LAYER THICKNESS IN ONE OPERATION AND IN SUCH A MANNER AS TO PREVENT SEGREGATION OF THE STONE SIZES.

RIPRAP SPILLWAY / OVERFLOW WEIR NOT TO SCALE



GRANULAR FILL GRADATION	
Sieve size	Embankment Material % Passing sieve
4	90–100%
40	50–80%
100	29–43%
200	15–30%

Construction Criteria

1. Foundation Preparation –– The foundation shall be cleared of trees, logs, stumps, roots, brush, boulders, sod, and rubbish. If suitable for reuse, the topsoil and sod shall be stockpiled and spread on the completed embankment and spillways. Foundation surfaces shall be sloped no steeper than 1:1. The foundation area shall be thoroughly scarified before placement of fill material. The surface shall have moisture added and/or it shall be compacted if necessary so that the first layer of fill can be bonded to the foundation.

   The cutoff trench and any other required excavations shall be dug to the lines and grades shown on the plans or as staked in the field. If they are suitable, excavated materials shall be used in the permanent fill.

   Existing stream channels in the foundation area shall be sloped no steeper than 1:1 and deepened and widened as necessary to remove all stones, gravel, sand, stumps, roots, and other objectionable material and to accommodate compaction equipment.

   Foundation areas shall be kept free of standing water when fill is being placed on them.

2. Granular Fill Placement –– The material placed in the fill shall be free of sod, roots, frozen soil, stones more than 4 inches in diameter and other objectionable material.

   Selected backfill material shall be placed around structures, pipe conduits, and drainage diaphragm at about the same rate on all sides to prevent damage from unequal loading.

   The placing and spreading of fill material shall be started at the lowest point of the foundation and the fill brought up in horizontal layers of such thickness that the required compaction can be obtained. The fill shall be constructed in 8" continuous horizontal layers except where openings or sectionalized fills are required. In those cases, the slope of the bonding surfaces between the embankment in place and the embankment to be placed shall not be steeper than 3 horizontal to 1 vertical. The bonding surface shall be treated the same as that specified for the foundation so as to insure a good bond with the new fill.

   The distribution and gradation of materials shall be such that no lenses, pockets, streaks, or layers of material differ substantially in texture of gradation from the surrounding material. If it is necessary to use materials of varying texture and gradation, the more impervious material shall be placed in the center and upstream parts of the fill. If zoned fills of substantially differing materials are specified, the zones shall be placed according to the lines and grades shown on the drawings. The complete work shall conform to the lines, grades, and elevations shown on the drawings or as staked in the field.

3. Moisture Control –– The moisture content of the fill material shall be adequate for obtaining the required compaction. Material that is too wet shall be dried to meet this requirement, and material that is too dry shall have water added and mixed until the requirement is met.

4. Compaction –– Construction equipment shall be operated over the areas of each layer of fill to insure that the required compaction is obtained. Special equipment shall be used if needed to obtain the required compaction.

   Fill material shall be compacted to not less than 95% of AASHTO T99 Method C compaction method.

   Fill adjacent to structures, pipe conduits, and drainage diaphragm shall be compacted to a density equivalent to that of the surrounding fill by means of hand tamping or manually directed power tamper or plate vibrators. Fill adjacent to concrete structures shall not be compacted until the concrete is strong enough to support the load.

5. Protection –– A protective cover of vegetation shall be established on all exposed surfaces of the embankment, spillway, and borrow area in accordance with the plans. If soil or climatic conditions preclude the use of vegetation and protection is needed, non–vegetative means, such as mulches or gravel, may be used. In some places, temporary vegetation may be used until conditions permit establishment of permanent vegetation.

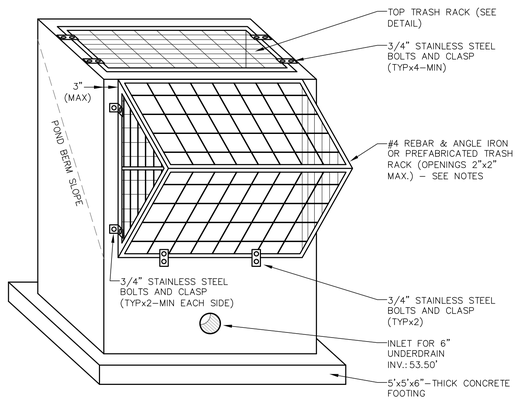
Maintenance

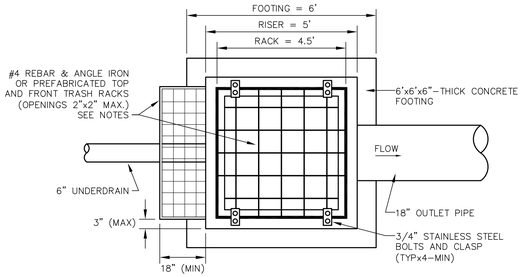
Maintenance is necessary if detention/retention basins are to continue to function as originally designed. A local government, a designated group such as a homeowners' association, or an individual must be assigned responsibility for maintaining the structures and the basin area. A maintenance plan should be developed that outlines the maintenance operations and a schedule for carrying out the procedures.

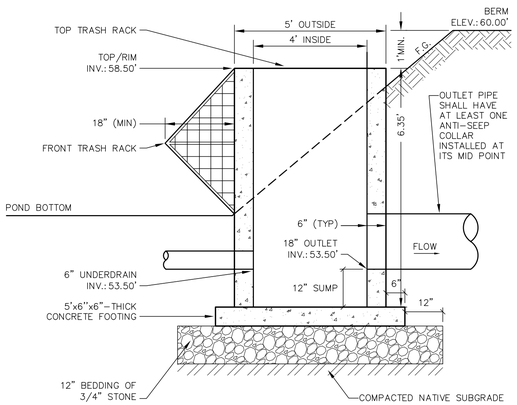
The following should be considered in formulating a maintenance plan:

1. Embankment –– The embankment should be inspected annually to determine if rodent burrows, wet areas, or erosion of the fill is taking place.
2. Vegetation –– The vegetated areas of the structure should be protected from damage by fire, grazing, traffic, and dense weed growth. Lime and fertilizer should be applied as necessary as determined by soil tests. Trees and shrubs should be kept off the embankment and emergency spillway areas.
3. Inlets –– Pipe inlets and spillway structures should be inspected annually and after every major storm. Accumulated debris and sediment should be removed.
4. Outlets –– Pipe outlets should be inspected annually and after every major storm. The condition of the pipes should be noted and repairs made as necessary. If erosion is taking place, then measures should be taken to stabilize and protect the affected area.
5. Sediment –– Sediment should be continually checked in the basin. When sediment accumulations reach the predetermined design elevation, then the sediment should be removed and properly disposed of.
6. Safety Inspections –– All permanent impoundments should be inspected by a qualified professional engineer on a periodic basis. If there is potential for significant damage or loss of life downstream, then the inspection should be carried out annually.

STORMWATER POND BERM DETAIL NOT TO SCALE







CONSTRUCTION SPECIFICATIONS

1. OUTLET STRUCTURE SHALL BE CONSTRUCTED OF STEEL REINFORCED CONCRETE FABRICATED ONSITE OR PRECAST TO EQUAL DIMENSIONS AND REINFORCING.
2. CONCRETE FOOTING TO BE CONSTRUCTED INTEGRAL WITH BASE. IF CONSTRUCTED SEPARATELY, FOOTING SHALL HAVE A CONTINUOUS KEYWAY INSTALLED AND REBAR CAST INTO IT THAT SHALL EXTEND ABOVE THE SLAB A MINIMUM OF 8" FOR CONNECTION TO THE BOX AND ANY REINFORCING.
3. ALL JOINTS AND PIPE OPENINGS SHALL BE SEALED WATERTIGHT WITH MORTAR.
4. ALL EXPOSED REBAR TO BE PAINTED WITH RUST–RESISTANT PAINT OR HOT–DIPPED GALVANIZED.
5. PRE–FABRICATED TRASH RACKS ARE ACCEPTABLE UPON WRITTEN ACCEPTANCE BY THE ENGINEER.
6. STRUCTURE IS TO BE BUILT TO WITHSTAND H20 LOADING.
7. NATIVE IN SITU SOILS UNDERLYING THE STRUCTURE'S STONE BASE PAD AND THE PAD ITSELF ARE TO BE COMPACTED PRIOR TO INSTALLING STRUCTURE..
8. ALL CONCRETE SHALL BE 4,000 PSI MINIMUM.
9. STAINLESS STEEL BOLTS FOR TRASH RACK TO BE INSTALLED WITH HILTI AND EPOXY OR CAST IN.
10. EXTERIOR TRASH RACK DIMENSIONS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TRASH RACKS THAT ALLOW FULL SCREENING PROTECTION TO EVERY INLET ORIFICE AND THE TOP OF THE STRUCTURE. THIS MAY REQUIRE CUSTOM FABRICATION AND/OR ALTERNATE METHODS TO CONNECT THE RACKS TO THE OUTLET STRUCTURE.

OUTLET STRUCTURE #2 NOT TO SCALE

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

STATE OF MAINE
ERIC D. WEINRIEB
No. 6658
LICENSED PROFESSIONAL ENGINEER
9/23/21

NOT FOR CONSTRUCTION

ISSUED FOR:
PLANNING BOARD

ISSUE DATE:
SEPTEMBER 23, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	PLANNING BOARD	EBS	07/22/21
1	PLANNING BOARD	EBS	09/23/21

DRAWN BY: EBS
APPROVED BY: EBS
DRAWING FILE: 5116–SITE.dwg

SCALE: NOT TO SCALE

OWNER:
C–COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

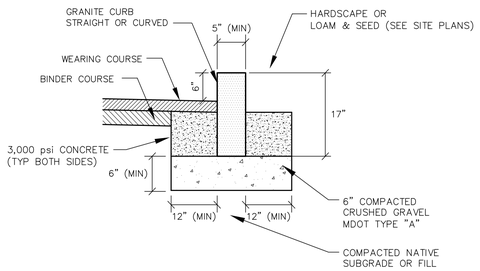
APPLICANT:
GOOD TO–GO
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO–GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
DETAILS

SHEET NUMBER:
D-5

P5116



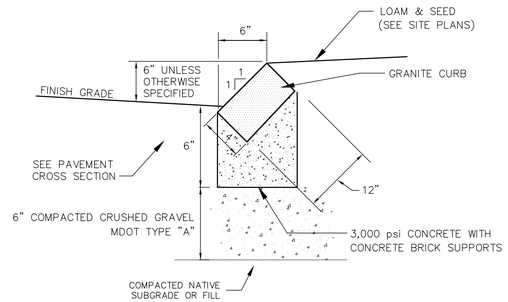
NOTES:

1. SEE PLANS FOR CURB LOCATION.
2. ADJOINING STONES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.
3. MINIMUM LENGTH OF CURB STONES = 3'
4. MAXIMUM LENGTH OF CURB STONES = 10'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES – SEE CHART.
6. CURB ENDS TO ROUNDED AND BATTERED FACES TO BE CUT WHEN CALLED FOR ON THE PLANS.

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

VERTICAL GRANITE CURB

NOT TO SCALE



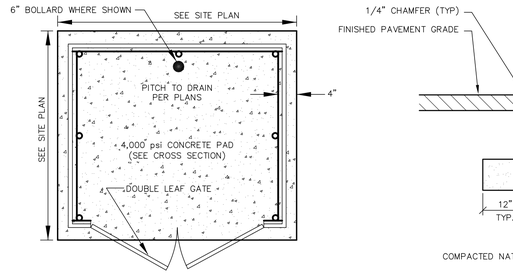
NOTES

1. SEE SITE PLAN FOR LIMITS OF CURBING
2. ADJOINING STONES OF STRAIGHT CURB LAID ON CURVES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH
3. MINIMUM LENGTH OF STRAIGHT CURB STONES = 18"
4. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'
5. MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES – SEE CHART

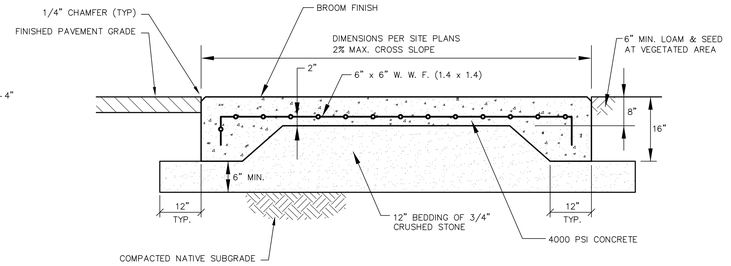
RADIUS FOR STONES WITH SQUARE JOINTS	MAXIMUM LENGTH
16'–28'	1'–6"
29'–41'	2'
42'–55'	3'
56'–68'	4'
69'–82'	5'
83'–96'	6'
97'–110'	7'
OVER 110'	8'

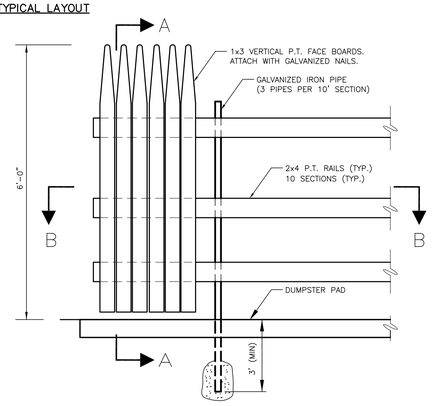
SLOPED GRANITE CURB

NOT TO SCALE

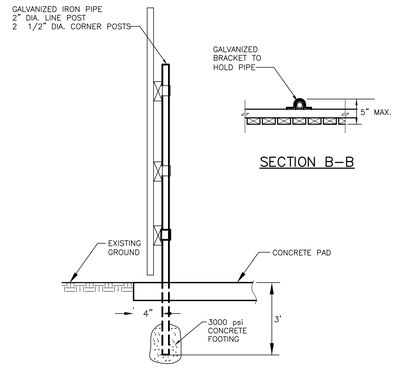


PLAN – TYPICAL LAYOUT





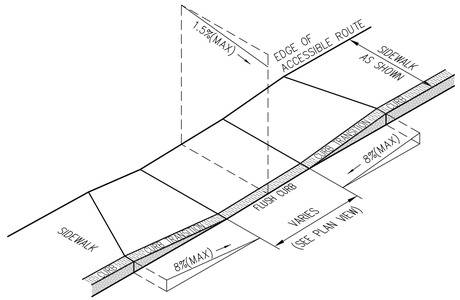
ELEVATION



SECTION A–A

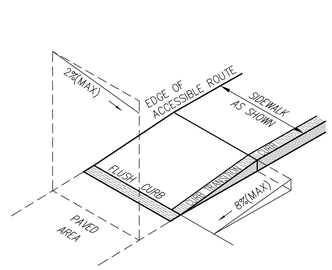
DUMPSTER ENCLOSURE AND PAD

NOT TO SCALE



CURB RAMP (TYPE 'A')

NOT TO SCALE



CURB RAMP (TYPE 'L')

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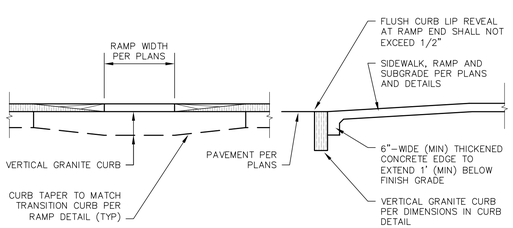
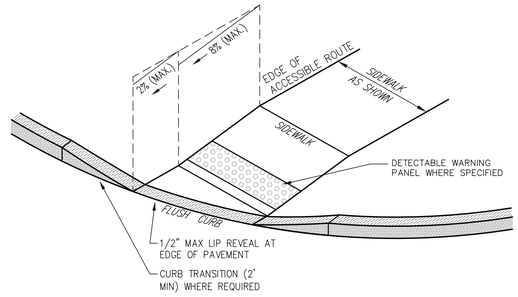


FLUSH CURB AT RAMP DETAIL

NOT TO SCALE



CURB RAMP (TYPE 'N')

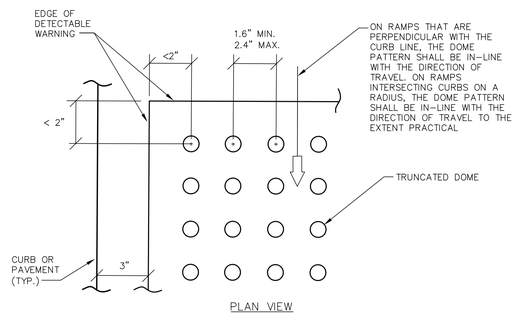
NOT TO SCALE

NOTES APPLICABLE TO ALL CURB RAMPS:

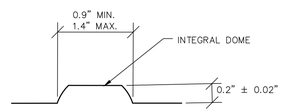
1. THE MAXIMUM ALLOWABLE CROSS SLOPE OF AN ACCESSIBLE ROUTE (SIDEWALK) AND CURB SHALL BE 1.5%.
2. THE MAXIMUM ALLOWABLE RUNNING SLOPE OF AN ACCESSIBLE ROUTE EXCLUDING CURB RAMPS SHALL BE 5%.
3. THE MAXIMUM ALLOWABLE RUNNING SLOPE OF AN ACCESSIBLE ROUTE (SIDEWALK) CURB RAMP SHALL BE 8.3% FOR A MAXIMUM ELEVATION CHANGE OF 6".
4. CURB TREATMENT VARIES, SEE PLANS FOR CURB TYPE.
5. BASE OF RAMP SHALL BE GRADED TO PREVENT THE PONDING OF WATER.
6. SEE CONCRETE SIDEWALK SECTION FOR RAMP CONSTRUCTION.
7. ALL CURB RAMPS SHALL BE CONSTRUCTED IN ACCORDANCE WITH AMERICANS WITH DISABILITIES ACT (ADA) AND ALL APPLICABLE CODES.
8. FLUSH CURB SECTIONS SHALL HAVE A MAXIMUM LIP REVEAL OF 1/4" WITH A BEVEL AT THE EDGE OF PAVEMENT.
9. EDGES OF SIDEWALK FOOTINGS ALONG FLUSH CURBS SHALL BE HAUNCHED SO AS TO EXTEND TO A MINIMUM DEPTH OF 1' BELOW FINISH GRADE.
10. NO RAMP SHALL BE LESS THAN 4' IN WIDTH.
11. CURB RAMPS SHALL HAVE A FLAT 2% MAX LANDING AT THE TOP AND BOTTOM OF THE RAMPS WHEN THERE IS A CHANGE IN DIRECTION.

CURB RAMP NOTES

NOT TO SCALE



PLAN VIEW



TRUNCATED DOME

NOTES:

1. BASE–TO–BASE SPACING SHALL BE 0.65" MINIMUM BETWEEN DOMES.
2. ALL SIDEWALK CURB RAMPS SHALL HAVE DETECTABLE WARNING SURFACES THAT EXTEND THE FULL WIDTH OF THE RAMP AND 2' DEPTH IN THE DIRECTION OF TRAVEL.
3. THE TOP WIDTH OF THE DOME SHALL BE A MINIMUM OF 50% AND A MAXIMUM OF 65% OF THE BASE DIAMETER.
4. WARNING PANELS TO BE CAST IRON ("IRON DOME" OR EQUAL).
5. PANEL SHALL BE INSTALLED SO THAT THE EDGE 3" FROM THE CURB LINE OR GUTTER.

DETECTABLE WARNING PANEL

NOT TO SCALE

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(603) 433-2335
Portsmouth, NH 03801
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STATE OF MAINE
ERIC D. WEINRIEB
No. 6658
LICENSED
PROFESSIONAL ENGINEER
9/23/21

NOT FOR CONSTRUCTION

ISSUED FOR:
PLANNING BOARD

ISSUE DATE:
SEPTEMBER 23, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	PLANNING BOARD	EBS	07/22/21
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APPROVED BY: EBS
DRAWING FILE: 5116–SITE.dwg

SCALE:
NOT TO SCALE

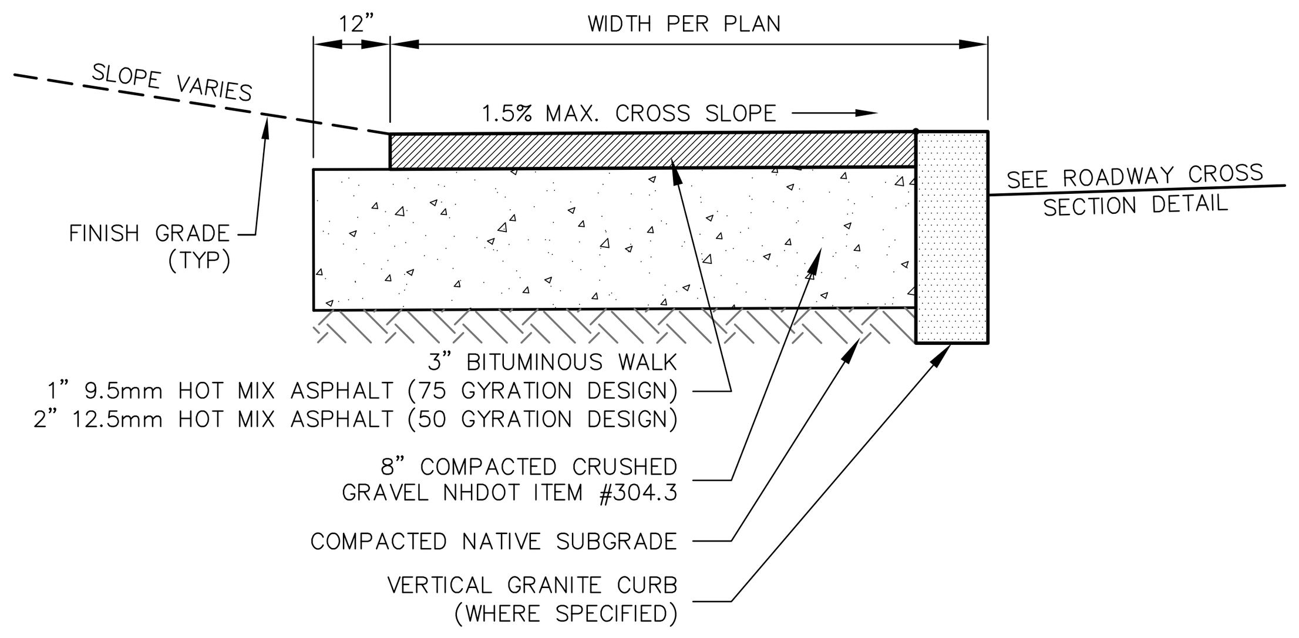
OWNER:
C–COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

APPLICANT:
GOOD TO–GO
c/o CAPE HOUSE
MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO–GO
SPECIALTY FOOD
FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

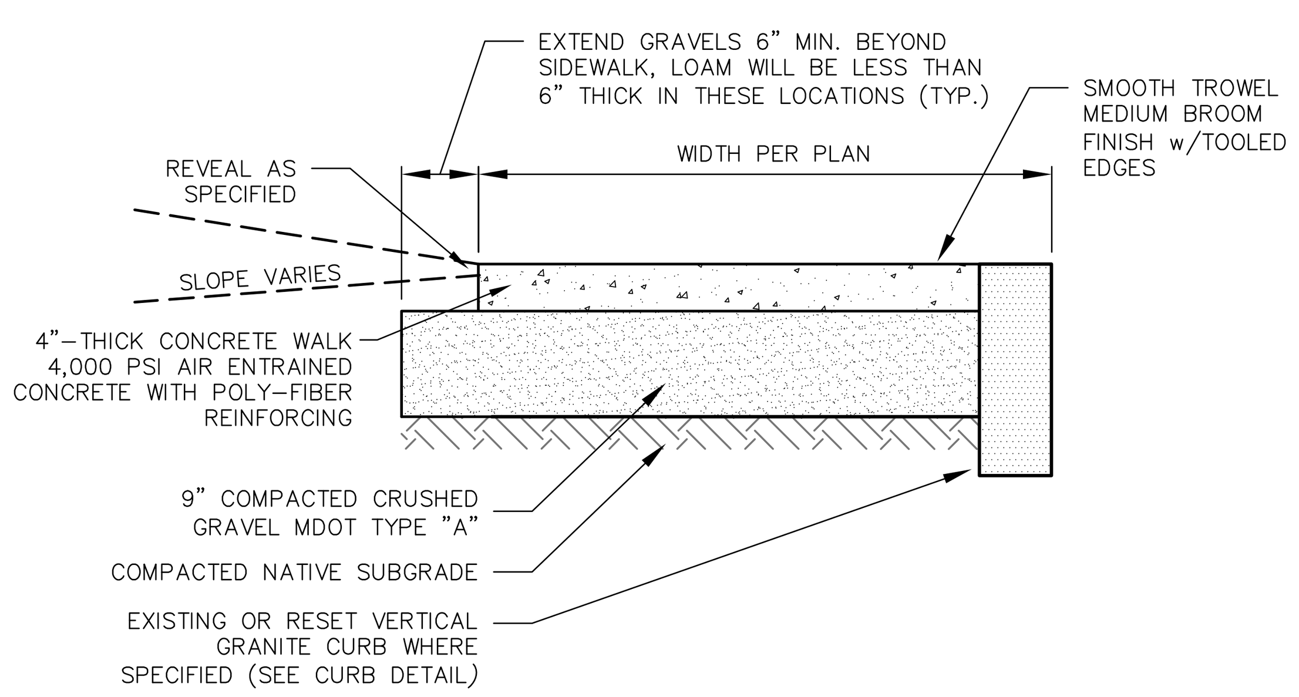
TITLE:
DETAILS

SHEET NUMBER:
D-6



BITUMINOUS SIDEWALK

NOT TO SCALE

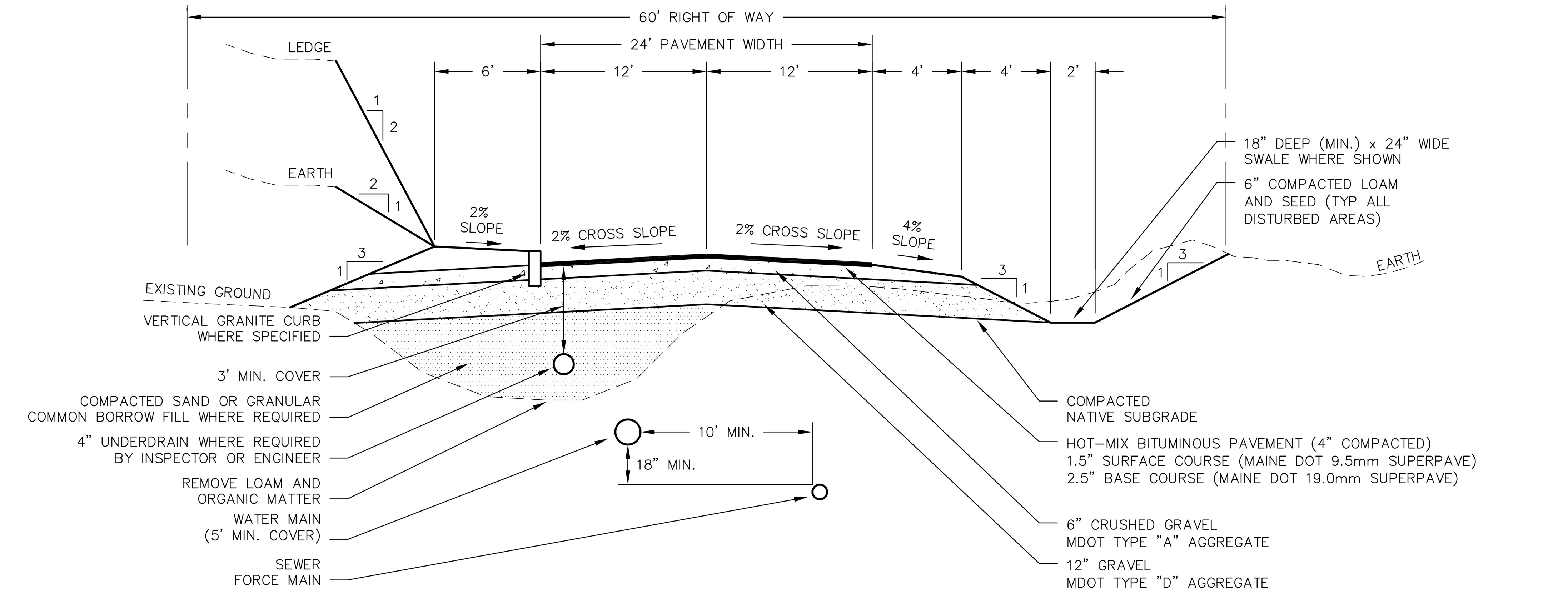


NOTE

1. JOINTS IN CONCRETE SIDEWALKS SHALL CONFORM TO THE TYPES AND LOCATIONS SHOWN IN THE HEAVY-DUTY CONCRETE PAVEMENT DETAIL

CONCRETE SIDEWALK

NOT TO SCALE

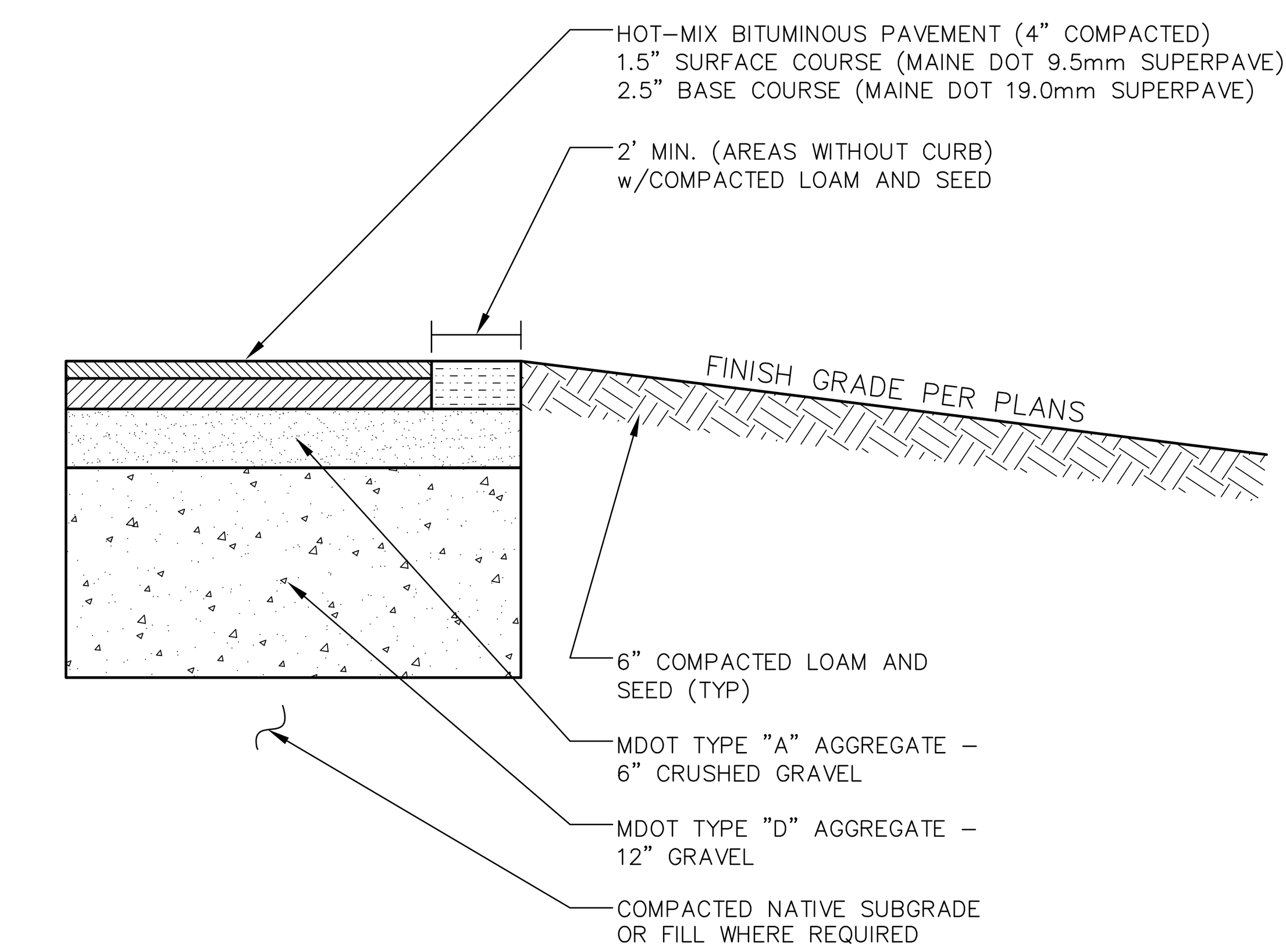


NOTES

1. EACH GRAVEL BASE COURSE TO BE CONSTRUCTED AT THE PAVEMENT CROSS SLOPE.
2. REMOVE LEDGE 18" BELOW LOWEST WORK BEING INSTALLED.
3. REMOVE ALL LOAM, CLAY, MUCK, ORGANIC, YIELDING OR OTHERWISE UNSTABLE MATERIAL TO A MINIMUM OF 18" BELOW FINISHED GRADE. ADDITIONAL DEPTH MAY BE REQUIRED BY THE GEOTECHNICAL REPORT.
4. THE OVER-EXCAVATION OF UNSUITABLE MATERIAL BEYOND THAT SPECIFIED ABOVE, THE INSTALLATION OF UNDERDRAINAGE, AND/OR THE INSTALLATION OF GEOTEXTILE FABRIC SHALL BE PROVIDED UPON DETERMINATION OF THE INSPECTOR OR THE ENGINEER.
5. FILL BELOW PAVEMENT SUBGRADE SHALL BE SAND OR GRANULAR COMMON BORROW COMPACTED PER MDOT REQUIREMENTS.
6. SITEWORK CONTRACTOR SHALL COORDINATE GEOTECHNICAL ENGINEERING INSPECTIONS PRIOR TO PLACEING GRAVELS.
7. SUBGRADE SHALL BE FREE OF VOIDS THAT ALLOW MOVEMENT AND/OR SETTLEMENT OF MATERIALS.
8. SUBGRADE SHALL BE ROLLED WITH A MINIMUM OF SIX PASSES OF A 10-TON VIBRATORY COMPACTOR OPERATING AT PEAK RATED FREQUENCY OR BY OTHER MEANS APPROVED BY THE ENGINEER.
9. BASE AND SUBBASE MATERIALS SHALL BE COMPACTED TO AT LEAST 95 PERCENT OF THEIR MAXIMUM DRY DENSITIES AS DETERMINED BY ASTM D-1557.
10. SUBGRADE SHALL BE PROOF-ROLLED WITH A FULLY LOADED DUMP TRUCK PRIOR TO PLACEMENT OF SELECT GRAVELS. PROOF-ROLLING SHALL BE WITNESSED AND APPROVED BY THE ENGINEER.
11. BITUMINOUS PAVEMENT SHALL BE COMPACTED TO 90 TO 97 PERCENT OF ITS THEORETICAL MAXIMUM DENSITY AS DETERMINED BY ASTM D-2041.
12. TACK COAT SHALL BE APPLIED BETWEEN SUCCESSIVE LIFTS OF ASPHALT PAVEMENT.

TYPICAL ROADWAY CROSS SECTION

NOT TO SCALE

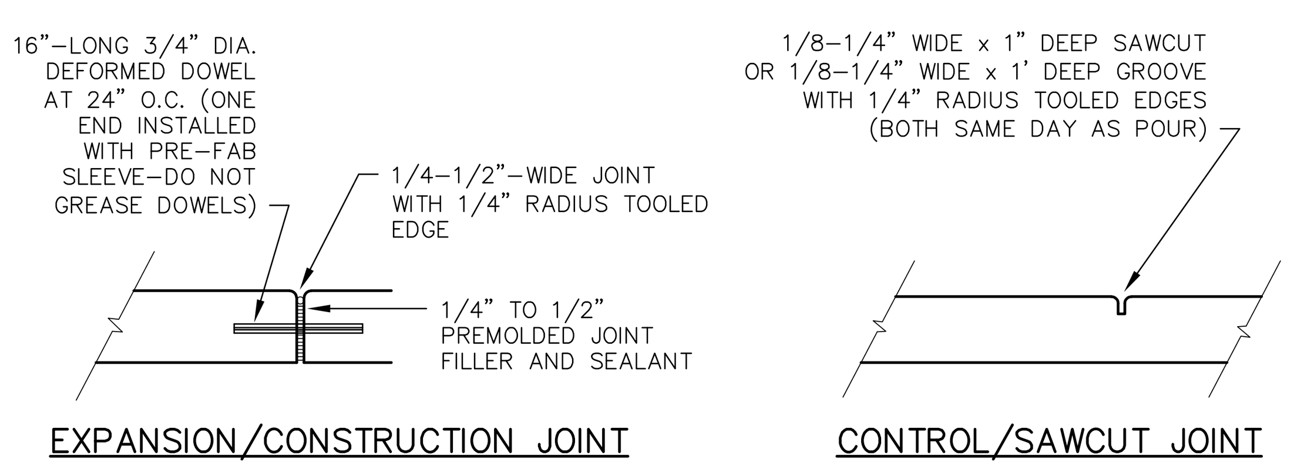


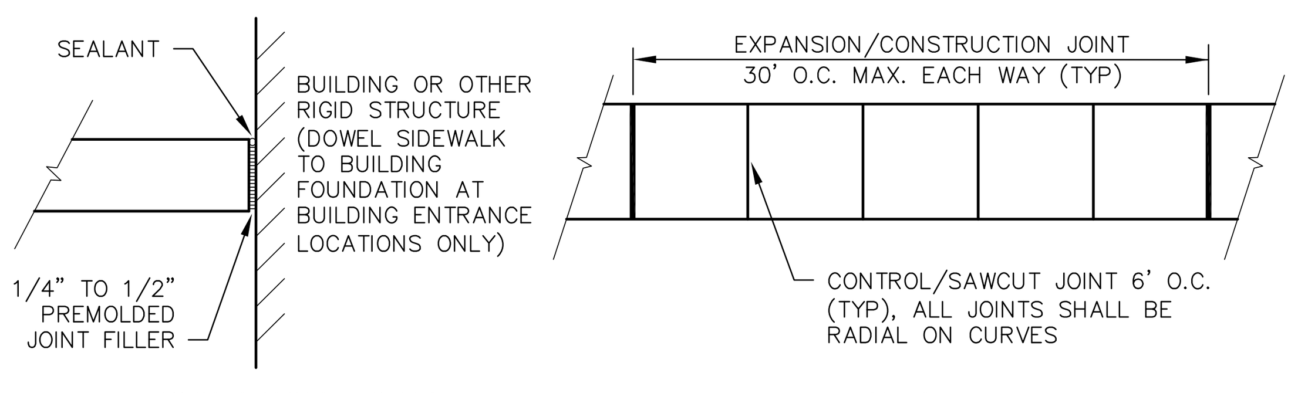
NOTES

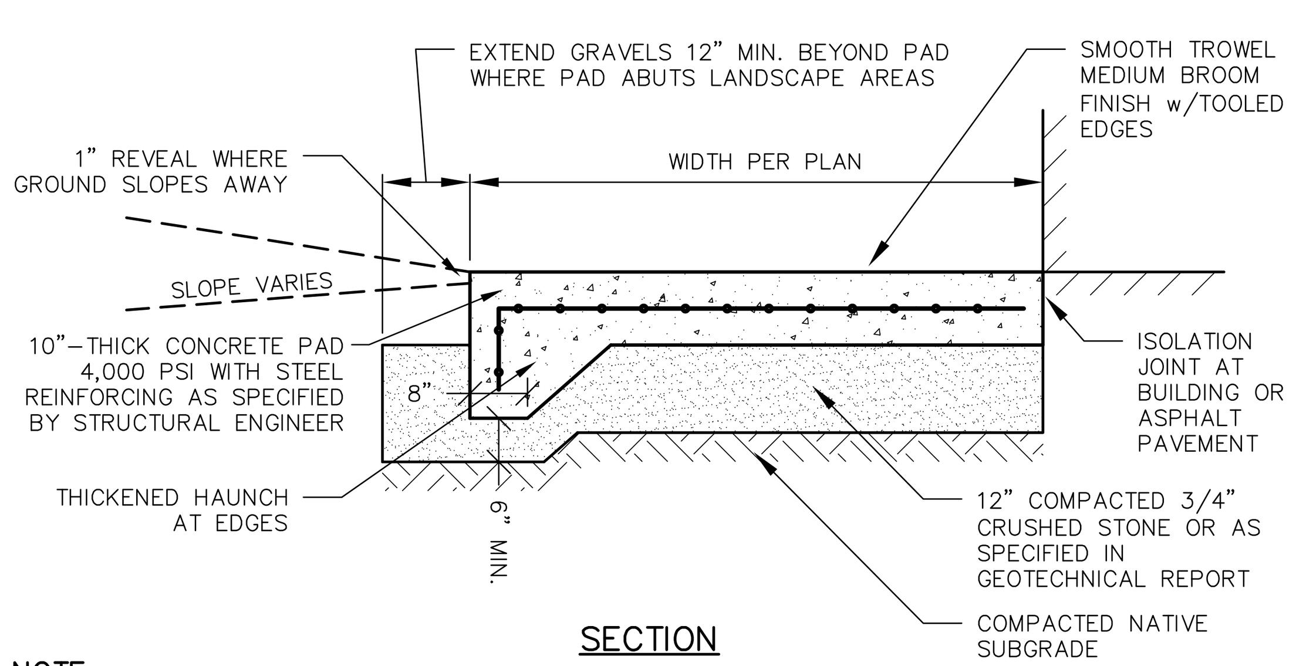
1. PROJECT GEOTECHNICAL REPORT MAY REQUIRE A DIFFERENT PAVEMENT CROSS SECTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR READING AND FOLLOWING ALL RECOMMENDATIONS IN THE GEOTECHNICAL REPORT. IN THE EVENT THAT THE REPORT AND CIVIL PLANS DIFFER, THE MORE STRINGENT SPECIFICATION SHALL APPLY.
2. ALL EXISTING FILL, BURIED ORGANIC MATTER, CLAY, LOAM, MUCK, AND/OR OTHER QUESTIONABLE MATERIAL SHALL BE REMOVED FROM BELOW ALL PAVEMENT, SHOULDERS AND UNDERGROUND PIPING/UTILITIES TO DEPTHS RECOMMENDED IN GEOTECHNICAL REPORT.
3. SUBGRADE SHALL BE PROOFROLLED A MINIMUM OF 6 PASSES WITH A 10-TON VIBRATORY COMPACTOR OPERATING AT PEAK RATED FREQUENCY OR BY MEANS APPROVED BY THE ENGINEER.
4. FILL BELOW PAVEMENT GRADES SHALL BE GRANULAR BORROW COMPACTED PER MDOT REQUIREMENTS.
5. SITEWORK CONTRACTOR SHALL COORDINATE GEOTECHNICAL ENGINEERING INSPECTIONS WITH THE CONSTRUCTION MANAGER PRIOR TO PLACING GRAVELS.
6. TACK COAT SHALL BE APPLIED BETWEEN SUCCESSIVE LIFTS OF ASPHALT.
7. THE BITUMINOUS PAVEMENT SHALL BE COMPACTED TO 92 TO 97 PERCENT OF ITS THEORETICAL MAXIMUM DENSITY AS DETERMINED BY ASTM D-2041. THE BASE AND SUBBASE MATERIALS SHOULD BE COMPACTED TO AT LEAST 95 PERCENT OF THEIR MAXIMUM DRY DENSITIES AS DETERMINED BY ASTM D-1557.

SITE PAVEMENT CROSS SECTION

NOT TO SCALE







NOTE

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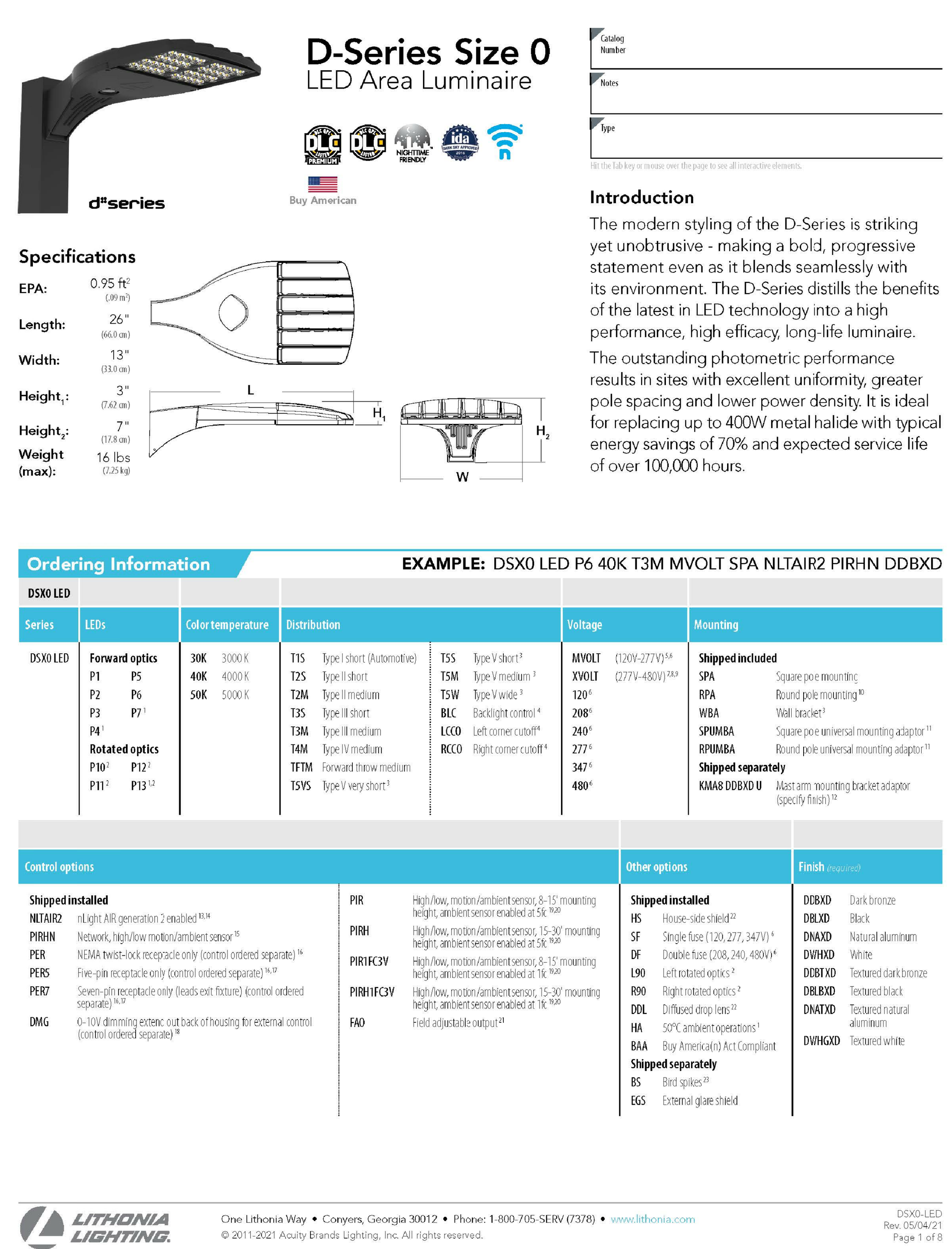
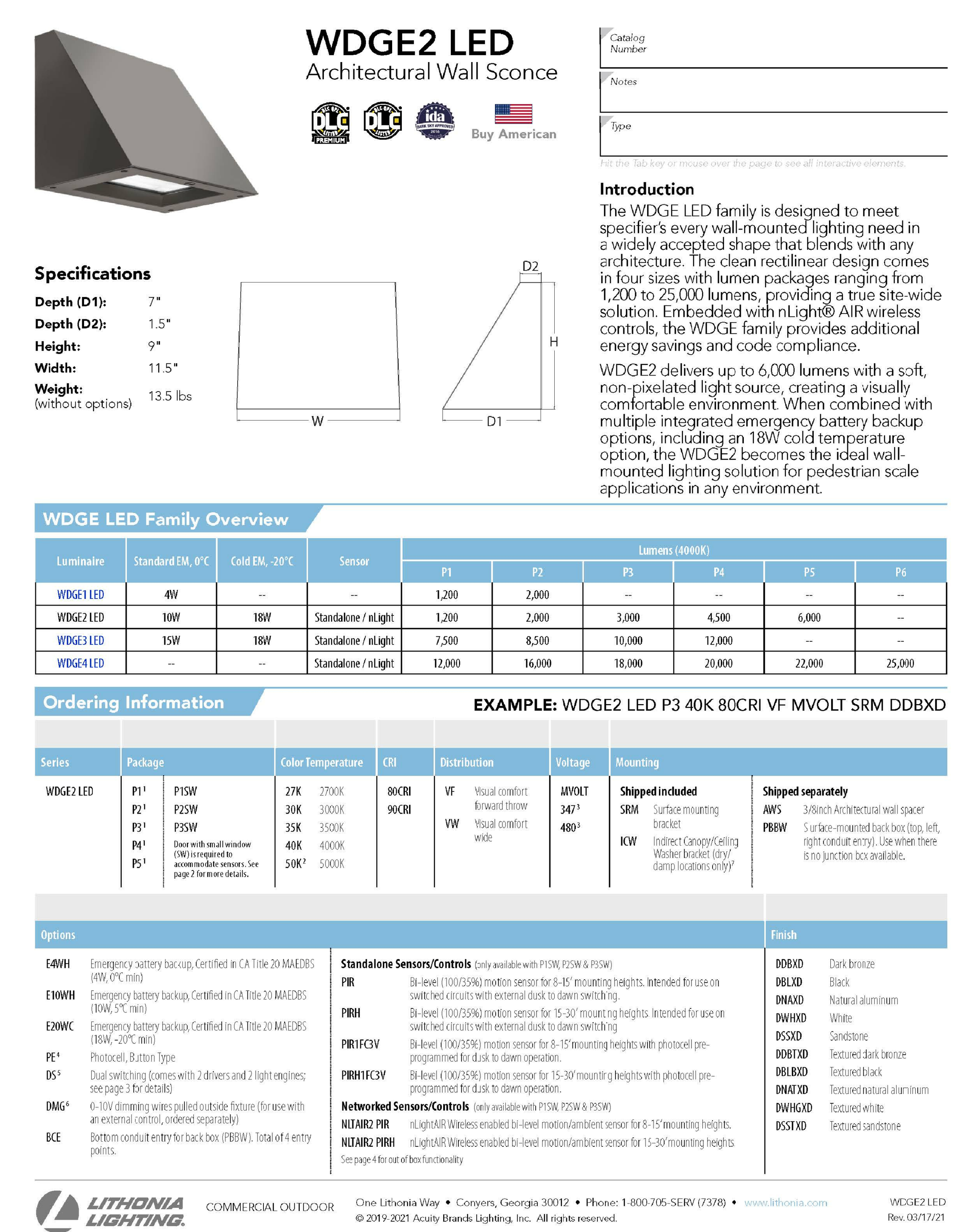
HEAVY-DUTY CONCRETE PAVEMENT

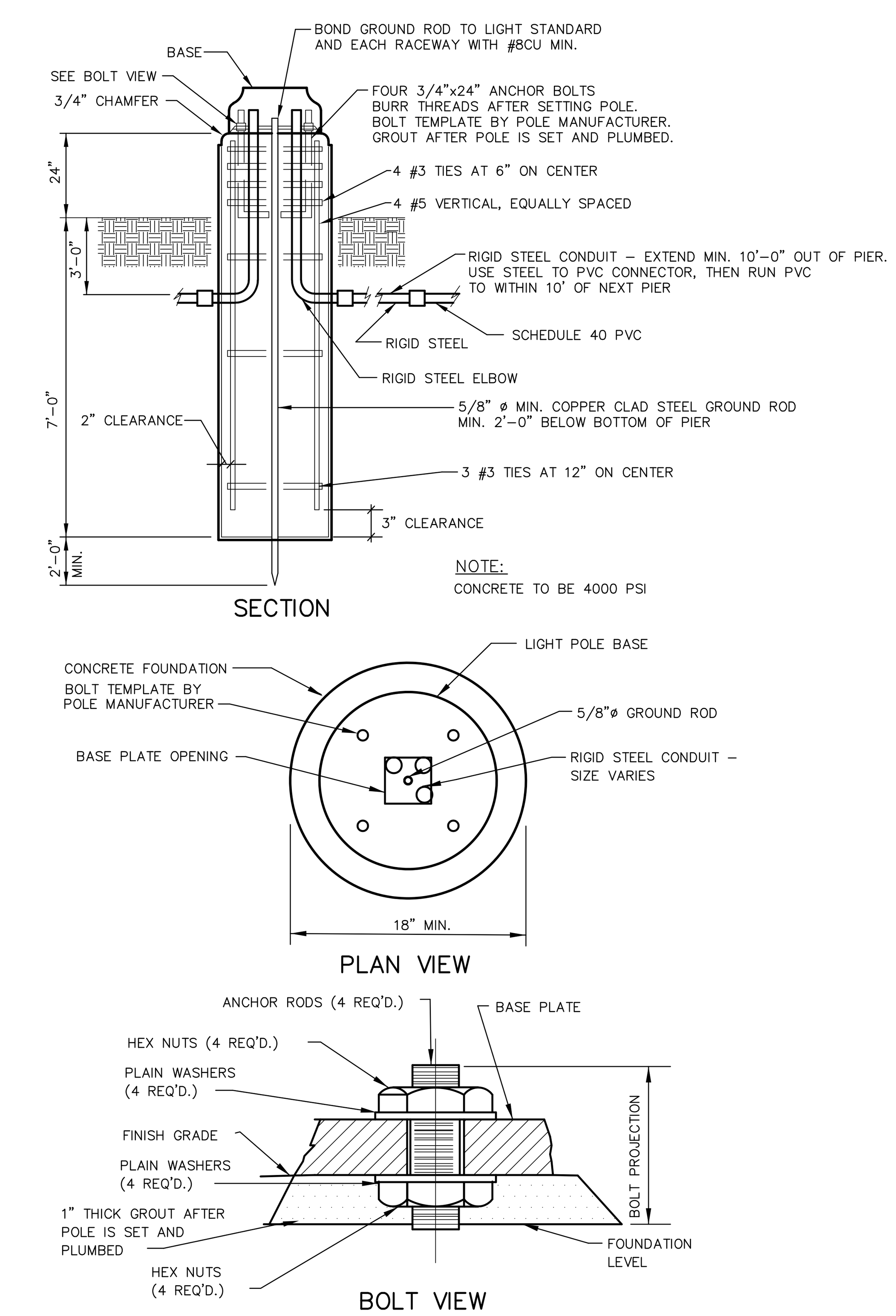
NOT TO SCALE





LIGHT FIXTURE CUT SHEETS

NOT TO SCALE



LIGHT POLE BASE DETAIL

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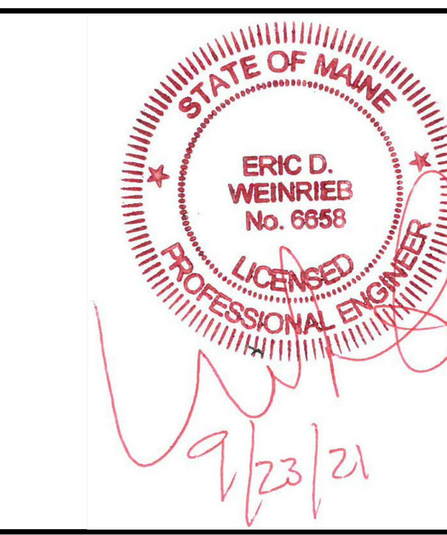

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ISSUED FOR:
PLANNING BOARD

ISSUE DATE:
JULY 22, 2021

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KITTERY, MAINE

TITLE:
DETAILS

SHEET NUMBER:
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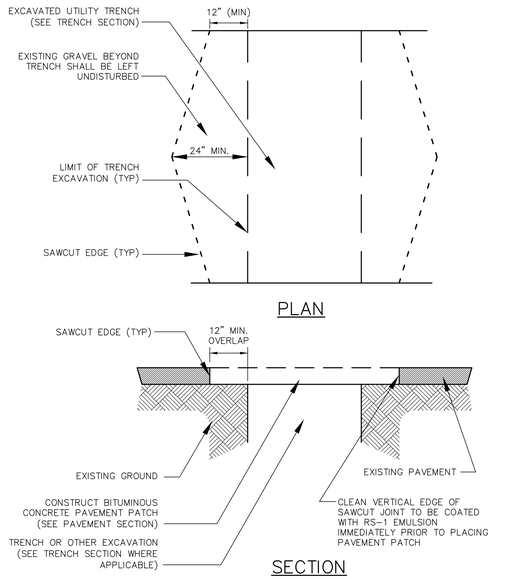
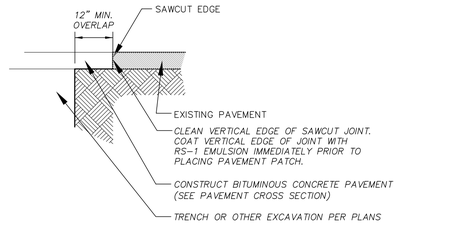


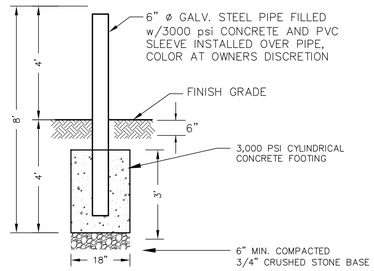
NOTES

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

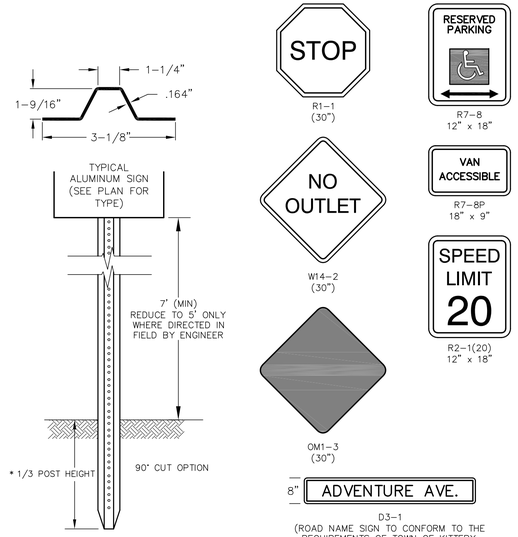
TYPICAL TRENCH PATCH NOT TO SCALE



TYPICAL PAVEMENT SAWCUT NOT TO SCALE



BOLLARD NOT TO SCALE



LENGTH: AS REQUIRED

WEIGHT PER LINEAR FOOT: 2.50 LBS (MIN.)

HOLES: 3/8" DIAMETER, 1" C-C FULL LENGTH

STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASTM A-576 (GRADE 1070 – 1080)

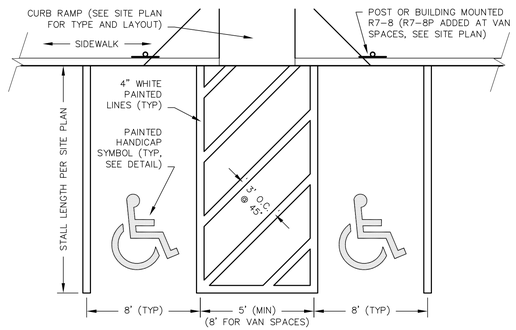
NOTES

1. ALL SIGNS SHALL MEET THE REQUIREMENTS OF AND BE INSTALLED AS INDICATED IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITION.

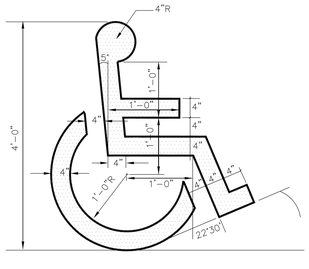
SIGN DETAILS NOT TO SCALE

LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- EASEMENT
- BUILDING SETBACK
- WETLAND SETBACK
- 250' VERNAL POOL SETBACK
- 250' SHORELAND PROTECTION OVERLAY ZONE
- STONEWALL
- WETLAND BOUNDARY
- HISS SOIL BOUNDARY
- DxB — HISS SOIL DESIGNATION
- TP #11 — TESTPIT OR BORING LOCATION
- EXISTING/PROPOSED GRAVEL
- VGC SGC — EXISTING PAVEMENT/CURB
- VGC SGC — PROPOSED PAVEMENT/VERTICAL OR SLOPED GRANITE CURB
- SWL SYL DYL — SINGLE WHITE LINE/SINGLE YELLOW LINE/DOUBLE YELLOW LINE
- EXISTING/PROPOSED GUARDRAIL
- EXISTING/PROPOSED STOCKADE FENCE
- EXISTING/PROPOSED CHAINLINK FENCE
- 60 — EXISTING CONTOUR
- 60 — PROPOSED CONTOUR/INTERMEDIATE CONTOUR
- x 100.00 — x 104.00T 100.00B — PROPOSED SPOT GRADE/TOP & BOTTOM OF WALL OR CURB
- PROPOSED RETAINING WALL
- W — EXISTING WATER/CURB STOP/VALVE/HYDRANT
- S — EXISTING SEWER/MANHOLE
- G — EXISTING GAS/VALVE
- OHW — UGU — EXIST. OVERHEAD/UNDERGROUND UTILITIES/POLE
- D — EXISTING DRAINAGE/CB/DMH
- W — PROPOSED THRUST BLOCK/CURB STOP/VALVE/HYDRANT
- PW — F — PROPOSED DOMESTIC/FIRE WATER SERVICE LINE
- S — PROPOSED SEWER/MANHOLE/CLEANOUT
- FM — PROPOSED SEWER FORCEMAIN/AIR RELIEF VALVE
- G — PROPOSED GAS OR PROPANE
- OHW — PROPOSED OVERHEAD UTILITIES/UTILITY POLE
- UGE — PROPOSED UNDERGROUND ELECTRIC/PHONE/TV
- PROPOSED DRAINAGE (HARD PIPE)/CB/DCB/DMH/FES
- PROPOSED DRAINAGE (PERFORATED PIPE)/CLEANOUT
- CPP FES HDWL — CORRUGATED PLASTIC PIPE/FLARED END SECTION/HEADWALL
- 4% — PROPOSED GROUND SLOPE/APPROX. GRADE/STONE CHECK DAM
- x — x — SILTFENCE/SEDIMENT BARRIER/CONST. FENCE
- STABILIZED CONSTRUCTION EXIT
- PROPOSED LIMIT OF DISTURBANCE/TREE CLEARING
- PROPOSED SAWCUT
- EXISTING TREE/DRIP LINE
- PROPOSED TREELINE
- (44) 226 — PARKING COUNT PER ROW/FOR TOTAL SITE
- PROPOSED EROSION CONTROL BLANKET
- PROPOSED RIPRAP
- PROPOSED GRASSED UNDERDRAINED SOIL FILTER (GUSF)



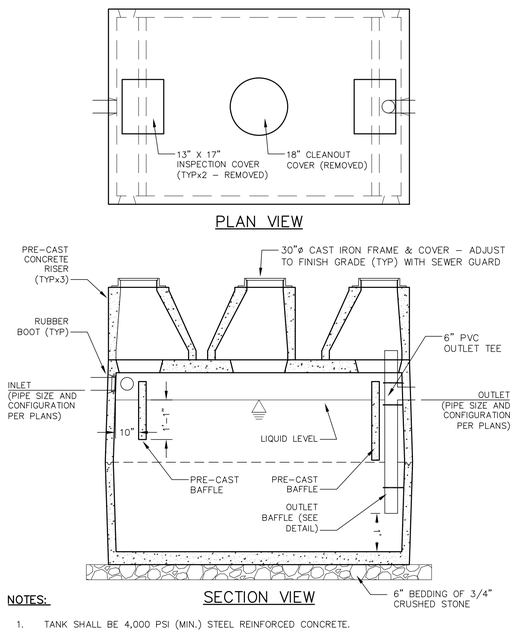
HANDICAP PARKING STALL LAYOUT NOT TO SCALE



NOTES

1. SYMBOL TO BE PAINTED IN ALL HANDICAPPED ACCESSIBLE SPACES IN WHITE PAINT (BLUE-PAINTED SQUARE BACKGROUND OPTIONAL).

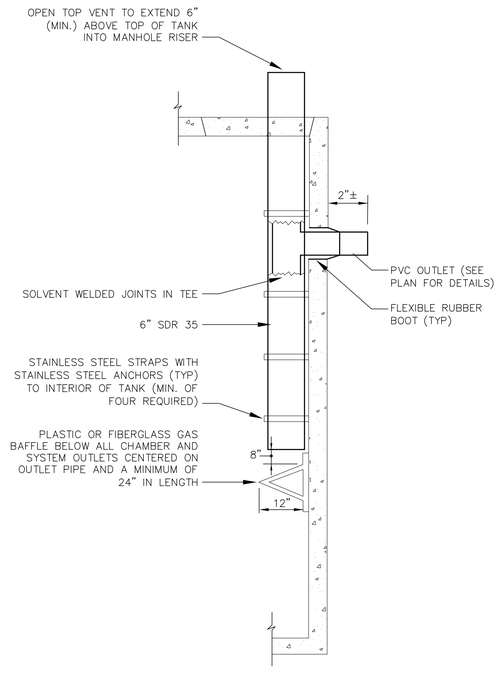
PAINTED HANDICAP SYMBOL NOT TO SCALE



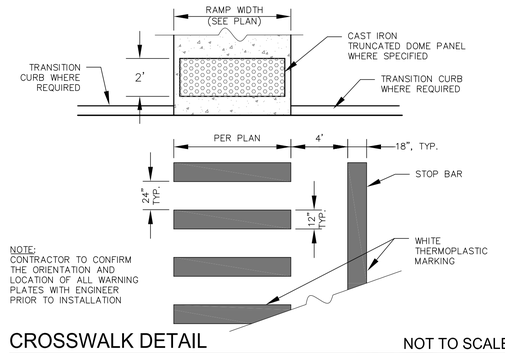
NOTES:

1. TANK SHALL BE 4,000 PSI (MIN.) STEEL REINFORCED CONCRETE.
2. KEYED TANK JOINTS SHALL BE SEALED WITH BUTYL RUBBER.
3. TANK SHALL BE MANUFACTURED BY SHEA CONCRETE PRODUTS OR APPROVED EQUAL. TANK DIMENSIONS MAY VARY DEPENDING ON THE MANUFACTURER.
4. INLET AND OUTLET PIPE SIZES AND CONFIGURATION SHALL BE CONSTRUCTED PER THE PLANS.

1,500 GALLON GREASE TRAP NOT TO SCALE



GREASE TRAP OUTLET BAFFLE DETAIL NOT TO SCALE



CROSSWALK DETAIL NOT TO SCALE

P5116

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STATE OF MAINE — ERIC D. WEINRIEB No. 6658 — LICENSED PROFESSIONAL ENGINEER

9/23/21

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TITLE:
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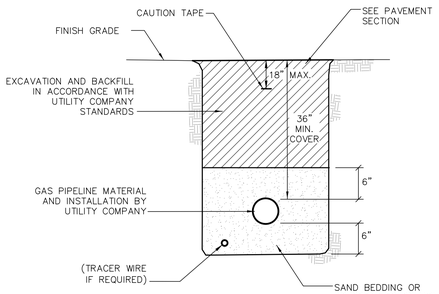


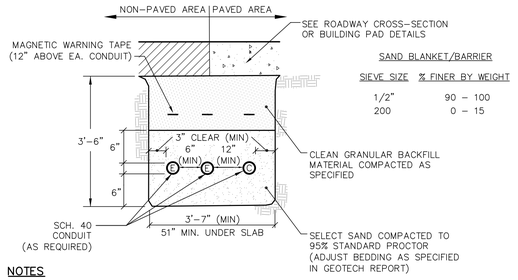
SAND BLANKET/BARRIER

SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

NOTES

1. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY AND PROVIDE ALL EXCAVATION, COMPACTION AND BACKFILL FOR PIPE INSTALLATION.
2. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.

GAS TRENCH NOT TO SCALE



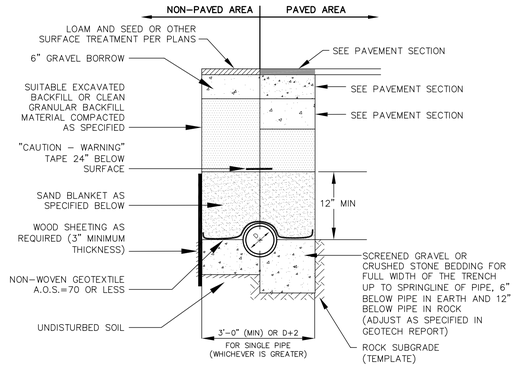
SAND BLANKET/BARRIER

SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

NOTES

1. ALL CONDUIT IS TO BE SCHEDULE 40 PVC, ELECTRICAL GRADE, GRAY IN COLOR AND INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. A 10–FOOT HORIZONTAL SECTION OF RIGID GALVANIZED STEEL CONDUIT WILL BE REQUIRED AT EACH SWEEP, UNLESS IN THE OPINION OF THE SERVICE PROVIDER DESIGNER, THE SWEEP–PVC JOINT IS NOT SUBJECT TO FAILURE DURING PULLING OF THE CABLE. ALL JOINTS ARE TO BE WATERTIGHT.
2. ALL 90 DEGREE SWEEPS WILL BE MADE WITH RIGID GALVANIZED STEEL WITH A MINIMUM RADIUS OF 36 INCHES FOR PRIMARY CABLES AND 24 INCHES FOR SECONDARY CABLES.
3. BACKFILL MAY BE MADE WITH EXCAVATED MATERIAL OR COMPARABLE, UNLESS MATERIAL IS DEEMED UNSUITABLE BY SERVICE PROVIDER. BACKFILL SHALL BE FREE OF FROZEN LUMPS, ROCKS, DEBRIS, AND RUBBISH. ORGANIC MATERIAL SHALL NOT BE USED AS BACKFILL. BACKFILL SHALL BE IN 6–INCH LAYERS AND THOROUGHLY COMPACTED.
4. A SUITABLE PULLING STRING, CAPABLE OF 300 POUNDS OF PULL, MUST BE INSTALLED IN THE CONDUIT BEFORE SERVICE PROVIDER IS NOTIFIED TO INSTALL CABLE. THE STRING SHOULD BE BLOWN INTO THE CONDUIT AFTER THE RUN IS ASSEMBLED TO AVOID BONDING THE STRING TO THE CONDUIT. A MINIMUM OF TWENTY–FOUR (24") INCHES OF ROPE SLACK SHALL REMAIN AT THE END OF EACH DUCT. PULL ROPE SHALL BE INSTALLED IN ALL CONDUIT FOR FUTURE PULLS. PULL ROPE SHALL BE NYLON ROPE HAVING A MINIMUM TENSILE STRENGTH OF THREE HUNDRED (300#) LBS.
5. SERVICE PROVIDER SHALL BE GIVEN THE OPPORTUNITY TO INSPECT ALL CONDUIT PRIOR TO BACKFILL. THE CONTRACTOR IS RESPONSIBLE FOR ALL REPAIRS SHOULD SERVICE PROVIDER BE UNABLE TO INSTALL ITS CABLE IN A SUITABLE MANNER.
6. TYPICAL CONDUIT SIZES ARE 3–INCH FOR SINGLE PHASE PRIMARY AND SECONDARY VOLTAGE CABLES, 4–INCH FOR THREE PHASE SECONDARY, AND 5–INCH FOR THREE PHASE PRIMARY. HOWEVER, SERVICE PROVIDERS MAY REQUIRE DIFFERENT NUMBERS, TYPES AND SIZES OF CONDUIT THAN THOSE SHOWN HERE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL CONDUIT SIZES, TYPES AND NUMBERS WITH EACH SERVICE PROVIDER PRIOR TO ORDERING THEM.
7. ROUTING OF CONDUIT, LOCATION OF MANHOLES, TRANSFORMERS, CABINETS, HANDHOLES, ETC., SHALL BE DETERMINED BY SERVICE PROVIDER DESIGN PERSONNEL. THE CONTRACTOR SHALL COORDINATE WITH ALL SERVICE PROVIDERS PRIOR TO THE INSTALLATION OF ANY CONDUIT.
8. ALL CONDUIT INSTALLATIONS MUST CONFORM TO THE CURRENT EDITION OF THE NATIONAL ELECTRIC SAFETY CODE, STATE AND LOCAL CODES AND ORDINANCES, AND WHERE APPLICABLE, THE NATIONAL ELECTRIC CODE. WHERE REQUIRED BY UTILITY PROVIDER, CONDUIT SHALL BE SUPPORTED IN PLACE USING PIPE STANCHIONS PLACED EVERY FIVE (5') FEET ALONG THE CONDUIT RUN.
9. UNDER A BUILDING SLAB THE CONDUIT SHALL BE ENCASED IN 8" OF CONCRETE ON ALL SIDES.
10. ALL CONDUIT TERMINATIONS SHALL BE CAPPED TO PREVENT DEBRIS FROM ENTERING CONDUIT.

ELECTRIC / COMMUNICATION TRENCH NOT TO SCALE



NOTES

1. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.
2. INSULATE GRAVITY SEWER AND FORCEMAINS WHERE THERE IS LESS THAN 5'–0" OF COVER WITH 2" THICK CLOSED CELL RIGID BOARD INSULATION, 18" ON EACH SIDE OF PIPE.
3. MAINTAIN 12" MINIMUM HORIZONTAL SEPARATION AND WIDEN TRENCH ACCORDINGLY IF MULTIPLE PIPES ARE IN TRENCH.

SAND BLANKET/BARRIER

SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

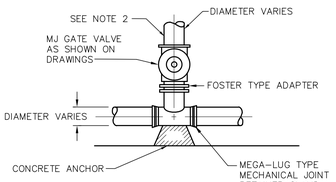
SCREENED GRAVEL OR CRUSHED STONE BEDDING

SIEVE SIZE	% PASSING BY WEIGHT
1"	100
3/4"	90 – 100
3/8"	20 – 55
# 4	0 – 10
# 8	0 – 5

DRAINAGE AND SEWER TRENCH NOT TO SCALE

STANDARD TRENCH NOTES

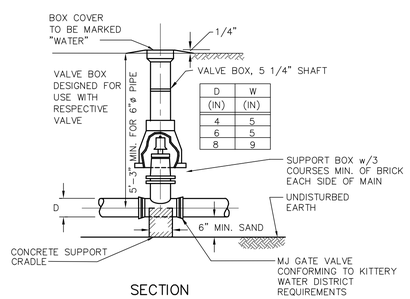
1. ORDERED EXCAVATION OF UNSUITABLE MATERIAL BELOW GRADE: BACKFILL AS STATED IN THE TECHNICAL SPECIFICATIONS OR AS SHOWN ON THE DRAWING.
2. BEDDING: SCREENED GRAVEL AND/OR CRUSHED STONE FREE FROM CLAY, LOAM, ORGANIC MATTER AND MEETING THE GRADATION SHOWN IN THE TRENCH DETAIL. WHERE ORDERED BY THE ENGINEER TO STABILIZE THE BASE, SCREENED GRAVEL OR CRUSHED STONE 1–1/2 INCH TO 1/2 INCH SHALL BE USED.
3. SAND BLANKET: CLEAN SAND FREE FROM ORGANIC MATTER MEETING THE GRADATION SHOWN IN THE TRENCH DETAIL. BLANKET MAY BE REPLACED WITH BEDDING MATERIAL FOR CAST–IRON, DUCTILE IRON, AND REINFORCED CONCRETE PIPE PROVIDED THAT NO STONE LARGER THAN 2" IS IN CONTACT WITH THE PIPE AND THE GEOTEXTILE IS RELOCATED ACCORDINGLY.
4. SUITABLE MATERIAL: IN ROADS, ROAD SHOULDERS, WALKWAYS AND TRAVELED WAYS, SUITABLE MATERIAL FOR TRENCH BACKFILL SHALL BE THE NATURAL MATERIAL EXCAVATED DURING THE COURSE OF CONSTRUCTION, BUT SHALL EXCLUDE DEBRIS, PIECES OF PAVEMENT, ORGANIC MATTER, TOP SOIL, ALL WET OR SOFT MUCK, PEAT, OR CLAY, ALL EXCAVATED LEDGE MATERIAL, ALL ROCKS OVER 6 INCHES IN LARGEST DIMENSION, AND ANY MATERIAL WHICH, AS DETERMINED BY THE ENGINEER, WILL NOT PROVIDE SUFFICIENT SUPPORT OR MAINTAIN THE COMPLETED CONSTRUCTION IN A STABLE CONDITION. IN CROSS COUNTRY CONSTRUCTION, SUITABLE MATERIAL SHALL BE AS DESCRIBED ABOVE, EXCEPT THAT THE ENGINEER MAY PERMIT THE USE OF TOP SOIL, LOAM, MUCK, OR PEAT, IF SATISFIED THAT THE COMPLETED CONSTRUCTION WILL BE ENTIRELY STABLE AND PROVIDED THAT EASY ACCESS TO THE SEWER FOR MAINTENANCE AND POSSIBLE RECONSTRUCTION WILL BE PRESERVED.
5. BASE COURSE AND PAVEMENT SHALL MEET THE REQUIREMENTS OF THE MAINE DEPARTMENT OF TRANSPORTATION'S LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES – DIVISION 700.
6. SHEETING, IF REQUIRED: WHERE SHEETING IS PLACED ALONGSIDE THE PIPE AND EXTENDS BELOW MID–DIAMETER, IT SHALL BE CUT OFF AND LEFT IN PLACE TO AN ELEVATION 1 FOOT ABOVE THE TOP OF PIPE. WHERE SHEETING IS ORDERED BY THE ENGINEER TO BE LEFT IN PLACE, IT SHALL BE CUT OFF AT LEAST 3 FEET BELOW FINISHED GRADE, BUT NOT LESS THAT 1 FOOT ABOVE THE TOP OF THE PIPE.
7. W = MAXIMUM ALLOWABLE TRENCH WIDTH TO A PLANE 12 INCHES ABOVE THE PIPE. FOR PIPES 15 INCHES NOMINAL DIAMETER OR LESS, W SHALL BE NO MORE THAN 36 INCHES. FOR PIPES GREATER THAN 15 INCHES IN NOMINAL DIAMETER, W SHALL BE 24 INCHES PLUS PIPE OUTSIDE DIAMETER (O.D.) ALSO, W SHALL BE THE PAYMENT WIDTH FOR LEDGE EXCAVATION AND FOR ORDERED EXCAVATION BELOW GRADE.
8. FOR CROSS COUNTRY CONSTRUCTION, BACKFILL, FILL AND/OR LOAM SHALL BE MOUNDED TO A HEIGHT OF 6 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
9. CONCRETE FOR ENCASEMENT SHALL CONFORM TO THE MAINE DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS STANDARD SPECIFICATION REQUIREMENTS FOR CLASS A (3000#) CONCRETE AS FOLLOWS:
   CEMENT: 6.0 BAGS PER CUBIC YARD
   WATER: 5.75 GALLONS PER BAG
   CEMENT MAXIMUM SIZE OF AGGREGATE: 1 INCH
   CONCRETE ENCASEMENT IS NOT ALLOWED FOR PVC PIPE.
10. CONCRETE FULL ENCASEMENT: IF FULL ENCASEMENT IS UTILIZED, DEPTH OF CONCRETE BELOW PIPE SHALL BE 1/4 I.D. (4" MINIMUM). BLOCK SUPPORT SHALL BE SOLID CONCRETE BLOCKS.
11. MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION DESIGN STANDARDS REQUIRE TEN FEET (10') SEPARATION BETWEEN WATER AND SEWER. REFER TO TOWN'S STANDARD SPECIFICATIONS FOR METHODS OF PROTECTION IN AREAS THAT CANNOT MEET THESE REQUIREMENTS.



NOTES:

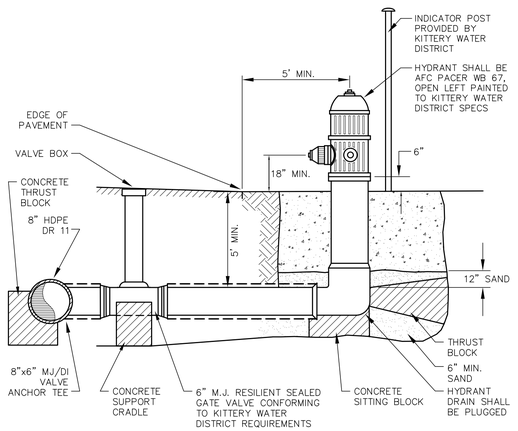
1. GATE VALVES MUST OPEN LEFT AND CONFORM TO ALL KITTERY WATER DISTRICT REQUIREMENTS.
2. BRANCH PIPING SHALL BE MECHANICALLY RESTRAINED AS NOTED UNDER THRUST BLOCK DETAIL REQUIREMENTS.

TEE & GATE VALVE ASSEMBLY DETAIL NOT TO SCALE



D (IN)	W (IN)
4	5
6	5
8	9

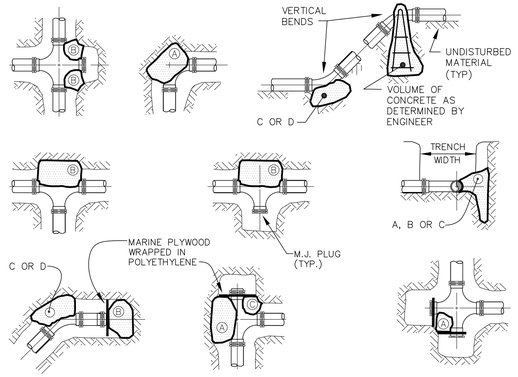
WATER VALVE DETAIL NOT TO SCALE



NOTES

1. OPERATION OF HYDRANTS AND VALVES SHALL BE OPEN LEFT PER THE REQUIREMENTS OF THE KITTERY WATER DISTRICT.
2. ALL WORK SHALL CONFORM TO KITTERY WATER DISTRICT "WATER MAIN MATERIAL AND INSTALLATION SPECIFICATIONS, MARCH 2009". CONTRACTOR SHALL OBTAIN A COPY OF SAID SPECIFICATIONS AND MEET WITH THE KITTERY WATER DISTRICT PRIOR TO PURCHASING MATERIALS OR COMMENCING CONSTRUCTION.
3. MECHANICAL JOINT FITTINGS ARE TO BE CLASS 350 AND HAVE ROMAC "GRIP RING" RETAINER GLANDS WITH CORTEN LOW ALLOY STEEL NUTS AND BOLTS OR MEGALUG RETAINER GLANDS.

FIRE HYDRANT NOT TO SCALE



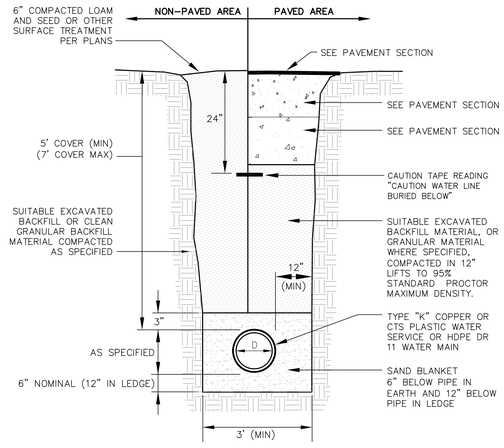
TEST PRESSURE = 150 psi	REACTION TYPE	PIPE SIZE 4"	6"	8"	10"	12"
	A 90°	0.89	2.19	3.82	11.14	17.24
	B 180°	0.65	1.55	2.78	8.38	12.00
	C 45°	0.48	1.19	2.12	6.02	9.32
	D 22–1/2°	0.25	0.60	1.06	3.08	4.74
	E 11–1/4°	0.13	0.30	0.54	1.54	2.38

SQUARE FEET OF CONCRETE THRUST BLOCKING BEARING ON UNDISTURBED MATERIAL

NOTES

1. POUR THRUST BLOCKS AGAINST UNDISTURBED MATERIAL. WHERE TRENCH WALL HAS BEEN DISTURBED, EXCAVATE LOOSE MATERIAL AND EXTEND THRUST BLOCK TO UNDISTURBED MATERIAL.
2. NO JOINTS SHALL BE COVERED WITH CONCRETE. POLYETHYLENE (6 MIL) SHALL BE PLACED AROUND FITTINGS PRIOR TO CONCRETE PLACEMENT.
3. ON BENDS AND TEES, EXTEND THRUST BLOCKS FULL LENGTH OF FITTING.
4. PLACE BOARD IN FRONT OF ALL PLUGS BEFORE POURING THRUST BLOCKS. WHERE M.J. PIPE IS USED, M.J. PLUG WITH RETAINER GLAND MAY BE SUBSTITUTED FOR END BLOCKINGS.

THRUST BLOCKING NOT TO SCALE



SAND BLANKET/BARRIER

SIEVE SIZE	% FINER BY WEIGHT
1/2"	90 – 100
200	0 – 15

NOTES

1. BACKFILL MATERIAL BELOW PAVED OR CONCRETE AREAS, BEDDING MATERIAL, AND SAND BLANKET SHALL BE COMPACTED TO NOT LESS THAN 95% OF AASHTO T 99, METHOD C. SUITABLE BACKFILL MATERIAL BELOW LOAM AREAS SHALL BE COMPACTED TO NOT LESS THAN 90% OF AASHTO T 99, METHOD C.
2. ALL TRENCHING AND BACKFILL SHALL CONFORM WITH THE STANDARDS OF THE KITTERY WATER DISTRICT.

WATER MAIN TRENCH NOT TO SCALE

P5116

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

ERIC D. WEINRIEB No. 6658 LICENSED PROFESSIONAL ENGINEER
9/23/21

NOT FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: SEPTEMBER 23, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	PLANNING BOARD	EBS	07/22/21
1	PLANNING BOARD	EBS	09/23/21

DRAWN BY: EBS
APPROVED BY: EBS
DRAWING FILE: 5116–SITE.dwg

SCALE: NOT TO SCALE

OWNER:
C–COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

APPLICANT:
GOOD TO–GO
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO–GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE: DETAILS

SHEET NUMBER: D-9

NOTES

1. STYLE "DT-HD" ACCESS HATCH, AS MANUFACTURED BY SYRACUSE CASTINGS, CICERO, NEW YORK (315-699-2601) OR APPROVED EQUAL.

2. MATERIAL SHALL BE 6061-T6 ALUMINUM FOR BARS, ANGLES, AND EXTRUSIONS. 1/4" DIAMOND PLATE SHALL BE 5086 ALUMINUM.

3. UNIT DESIGNED HEAVY DUTY, FOR H-20 WHEEL LOADS, WHERE NOT SUBJECT TO HIGH DENSITY TRAFFIC. FRAME AND BEARING PLATE MUST BE CAST INTO AND SUPPORTED BY CONCRETE DESIGNED FOR H-20 WHEEL LOADS.

4. UNIT SUPPLIED WITH A HEAVY DUTY PNEU-SPRING, FOR EASE OF OPERATION WHEN OPENING COVER. COVER SHALL BE COUNTERBALANCED, SO ONE PERSON CAN EASILY OPEN THE HATCH DOOR.

5. FRAME SHALL BE OF EXTRUDED ALUMINUM WITH A CONTINUOUS 1-1/4" ANCHOR FLANGE. A DOVETAIL GROOVE SHALL BE EXTRUDED INTO THE SEAT OF THE FRAME FOR A 1/8" SILICONE GASKET.

6. EACH HATCH SHALL BE EQUIPPED WITH A STAINLESS STEEL HOLD OPEN ARM. DOOR SHALL LOCK OPEN IN THE 90 DEGREE POSITION. HOLD OPEN ARM SHALL BE FASTENED TO THE FRAME WITH A 1/2" GRADE 316 STAINLESS STEEL BOLT.

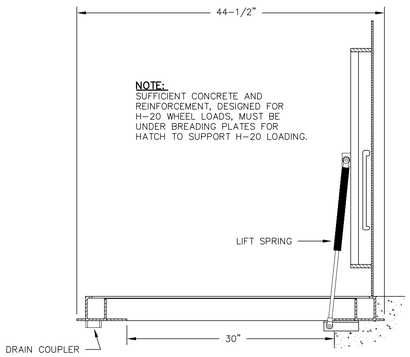
7. HINGES SHALL BE OF HEAVY DUTY DESIGN. MATERIAL SHALL BE GRADE 316 STAINLESS STEEL. EACH HINGE SHALL HAVE A GRADE 316 STAINLESS STEEL, 3/8" DIAMETER HINGE PIN. HINGE SHALL BE FASTENED TO THE CHANNEL FRAME AND DIAMOND PLATE WITH GRADE 316 STAINLESS STEEL BOLTS AND NY-LOCK NUTS.

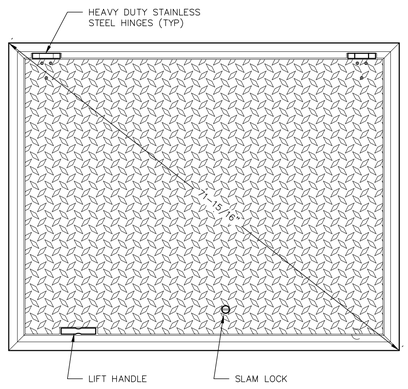
8. ALUMINUM SHALL BE SUPPLIED WITH MILL FINISH. EXTERIOR OF FRAME WHICH COMES IN CONTACT WITH CONCRETE SHALL HAVE ONE COAT BLACK PRIMER.

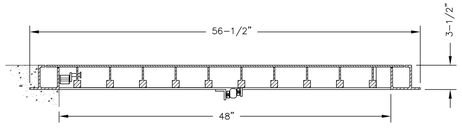
9. EACH HATCH SHALL BE SUPPLIED WITH A STAINLESS STEEL SLAM LOCK, WITH THE KEY WAY PROTECTED BY A THREADED ALUMINUM PLUG. THE PLUG SHALL BE FLUSH WITH THE TOP OF THE 1/4" DIAMOND PLATE. THE SLAM LOCK SHALL BE FASTENED WITH GRADE 316 STAINLESS STEEL BOLTS AND WASHERS.

10. EACH HATCH SHALL BE EQUIPPED WITH A STAINLESS STEEL LIFT HANDLE. LIFT HANDLE SHALL BE FLUSH WITH TOP OF 1/4" DIAMOND PLATE.

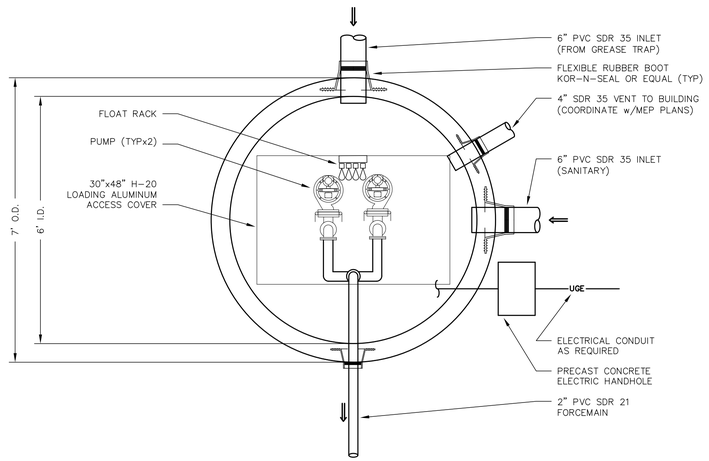
11. EACH "DT-HD" STYLE HATCH IS SUPPLIED WITH A 1-1/2" THREADED DRAIN COUPLER ON THE UNDERSIDE OF CHANNEL FRAME, FOR PIPE CONNECTION.



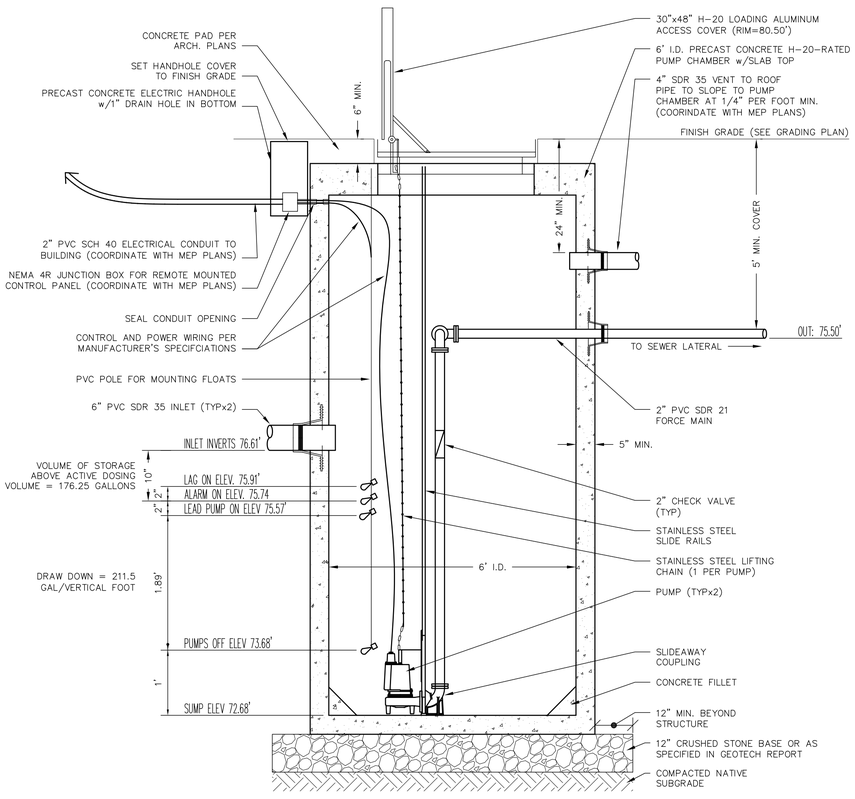




SINGLE LEAF H-20 ALUMINUM HATCH NOT TO SCALE

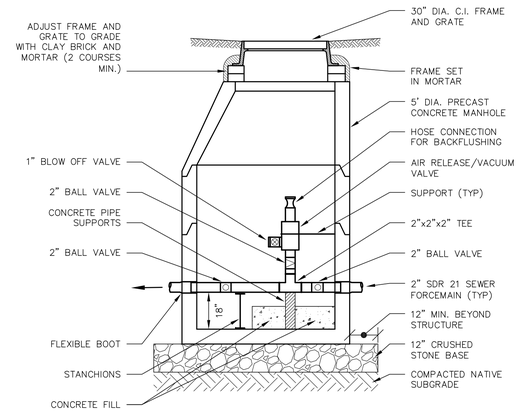


PLAN



TYPICAL SECTION

DUPLEX PUMP STATION NOT TO SCALE



NOTES

1. CONTRACTOR SHALL SUPPORT PIPING PER MANUFACTURERS REQUIREMENTS.
2. ALL MANHOLE STRUCTURES, FRAMES AND GRATES SHALL BE DESIGNED FOR H20 LOADING.
3. MANHOLE STEPS ARE NOT PERMITTED

SEWER AIR RELEASE MANHOLE NOT TO SCALE

SEWER FLOW CALCULATIONS

SPECAILTY FOOD FACILITY:
AVERAGE DAILY FLOW CALCULATED FROM THE AVERAGE METERED WATER USE OVER A SIX MONTH PERIOD AT THE EXISTING 5,500 S.F. GOOD TO-GO FACILITY AT 484 U.S. ROUTE 1, KITTERY, MAINE:

13,978 CF / 154 DAYS = 90.77 CF/DAY (SUNDAYS EXCLUDED)
90.77 CF/DAY x 7.48 GAL/CF = 679 GPD
679 GPD / 5,500 SF = 0.12 GPD/SF
0.12 GPD/SF x 20,000 SF = 2,400 GPD DESIGN FLOW

PUMP STATION SPECIFICATIONS

PUMP STATION:
Furnish and install pump station as shown on the plans. Station shall include, but not be limited to, a concrete pump chamber, pumps, slide rail assemblies, duplex controller, access covers discharge piping, fittings, valves, junction box, level sensors, alarms, electric service and level controls. All wiring shall be in compliance with local codes.

PUMP CHAMBER:
Pump chamber shall be an 6-foot inside diameter precast concrete pump chamber to the depth shown on the Drawings. Chamber shall be rated for H-20 loading.

ACCESS COVER:
The access covers shall be rigidly constructed to provide an H-20 rating with a 2'-6" X 4'-0" clear opening, maufactured by Syracuse Castings or approved equal. Cover shall be sealed with neoprene seal at openings and have hinges constructed of 316 stainless steel.

PUMPS:
Pumps shall be supplied to operate at the following range of flow vs. TDH: Flow of 40 gpm with a total dynamic head of 34.2'. Provide pump motors with adequate horsepower to deliver flows at the TDH required to reach the receiving point, taking into account the manufacturer's rated efficiency. Motors shall be 200-240 volt, 3-phase, 60 Hz 3,450 rpm. Pumps shall be submersible non-clog sewage pumps with 2" discharges as specified by the manufacturer and approved by the Engineer. Impellers shall have a diameter of 6.75" (172mm). Pumps shall be Barnes 2SEV1092L (1 hp) or approved equal. Provide discharge piping assembly for installation and removal of pump without entering wetwell with stainless steel lift-out rail system.

CONTROLLER:
Duplex control to perform equal alternation of both pumps. Control to consist of two circuit breakers with through-door operating handle, two magnetic starters with ambient compensated quick-trip overloads in each line, discharge piping by manufacturer, duplex unit, running lights, lightening arrestor, door-mounted resets, hour meters, and door-mounted hand-off-automatic selector switches for each pump. Enclosure to include continuous hinge, neoprene gasket in cover and continuous seam weld. Controller shall be Barnes Three Phase Duplex Alternating Versatrol Control Panel or approved equal. The controls shall be NEMA 4x weathertight construction and mounted on the adjacent building. All conduit and wiring between the station junction boxes and control panel shall be included.

SLIDE RAIL ASSEMBLY:
The slide rail assembly, mounting hardware, and lifting chain shall be AISI Type 316 stainless steel. Slide rails to be provided with AISI Type 316 stainless guide supports. Discharge coupling to be machined cast iron and support the pump four (4) inches above the floor.

PIPING:
The discharge pipe shall be two inch (2") diameter SDR 21 PVC pipe. All fittings shall be cemented or threaded. PVC ball check valves shall be provided with teflon seats. The working pressure of the check valves shall be 150 psi.

LEVEL CONTROL:
Four (4) liquid level control sensors shall be provided to control operation of the pumps and provide a high water alarm. The level control sensors shall be mounted on a PVC pipe. The controls shall be set at elevations shown on the plans and for a dosage rate of 400 gallons.

ALARM:
Alarm shall be exterior mounted audio and visual in a location as determined by the Owner. Contractor shall provide a sign for identification.

DOSAGE:
Design flow 2,400 GPD / 6 doses per day = 400 gallons per dose
400 gal / 40 gal/min = 10 minute run time

OWNER'S MAINTENANCE NOTES

1. PUMP CHAMBER TO BE PUMPED ANNUALLY BY A LICENSED SANITARY DISPOSAL CONTRACTOR.

P5116

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

STATE OF MAINE
ERIC D. WEINRIEB
No. 6658
LICENSED
PROFESSIONAL ENGINEER
9/23/21

NOT FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: SEPTEMBER 23, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	PLANNING BOARD	EBS	09/23/21

DRAWN BY: EBS
APPROVED BY: EBS
DRAWING FILE: 5116-SITE.dwg

SCALE: NOT TO SCALE

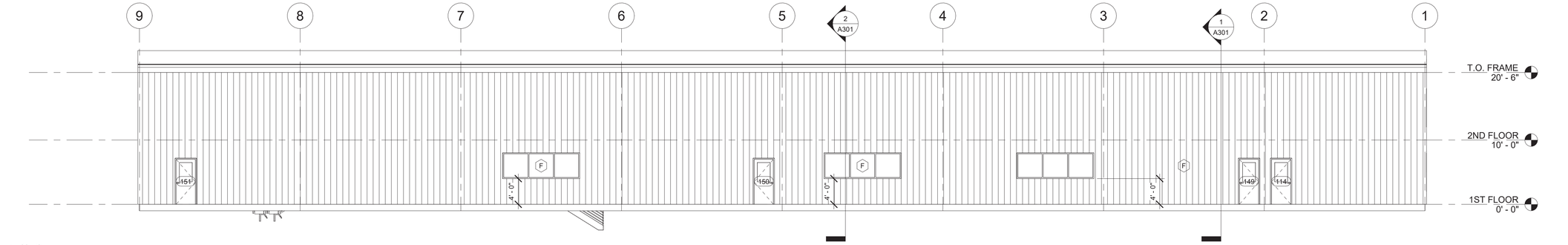
OWNER:
C-COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

APPLICANT:
GOOD TO-GO
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

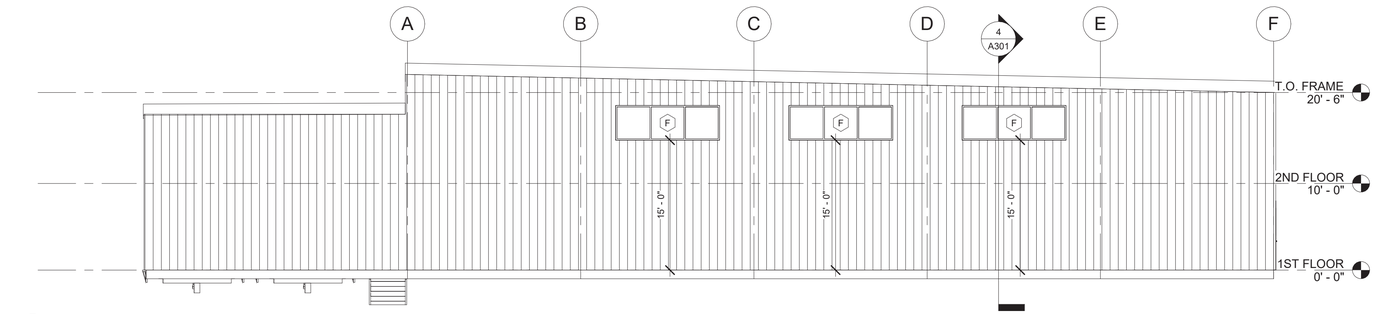
PROJECT:
GOOD TO-GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE: DETAILS

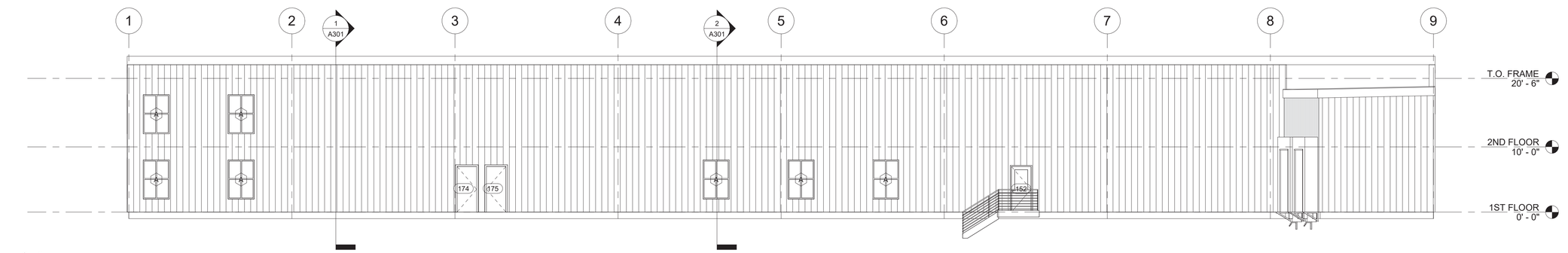
SHEET NUMBER: D-10



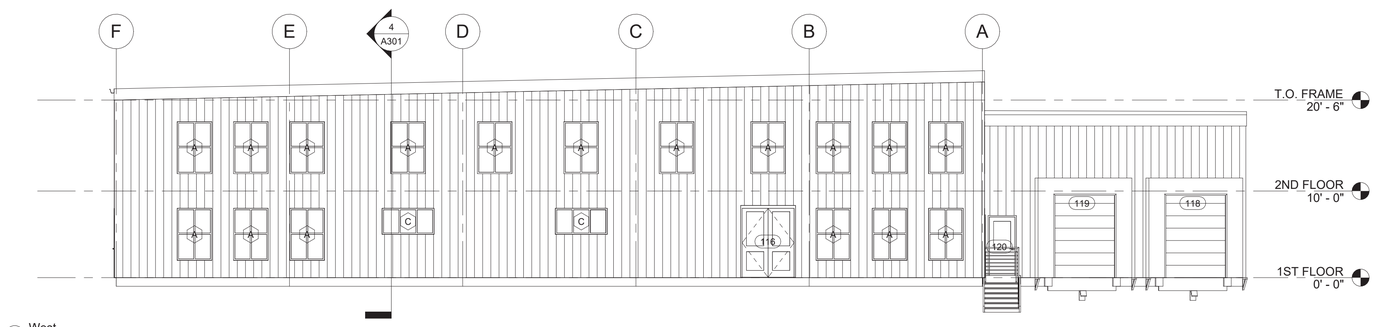
4 North
1/8" = 1'-0"



3 East
1/8" = 1'-0"



2 South
1/8" = 1'-0"



1 West
1/8" = 1'-0"

Bild Architecture
PO Box 8235
Portland, ME
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207 408 0168
evan@bildarchitecture.com

bild ARCHITECTURE

STAMP

CONSULTANT

PROJECT NUMBER
21007

PROJECT NAME
GOOD TO GO FACILITY
KITTERY, MAINE

SET TITLE
SCHEMATIC SET (NOT FOR CONSTRUCTION)

DRAWN BY
Author

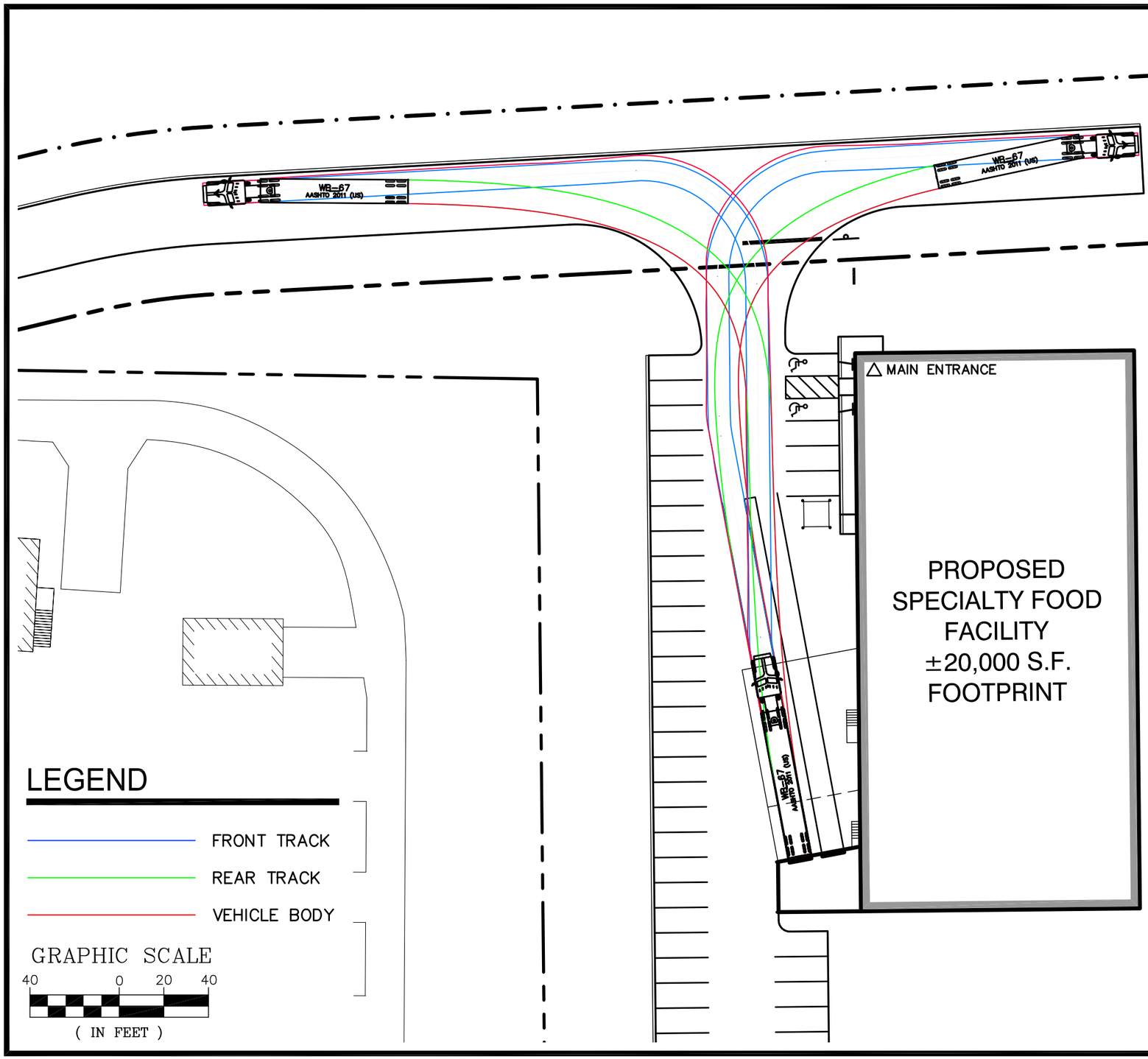
SHEET TITLE
ELEVATIONS

SET ISSUE DATE
9/16/2021

REVISIONS

No.	Date

A200



SCALE: 11"x17" 1" = 40'

ISSUED FOR: REVIEW

ISSUE DATE: SEPTEMBER 23, 2021

REVISIONS:

NO.	DESCRIPTION	BY
0	TAC	EBS 09/23/21

OWNER:

C-COAST PROPERTIES, LLC

8 BANKS ROCK
YORK HARBOR, MAINE 03911

APPLICANT:

GOOD TO-GO c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:

GOOD TO-GO
SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:

WB-67 TRUCK TURNING EXHIBIT

SHEET NUMBER:

EXH-1

P5116

DRAINAGE ANALYSIS

FOR

Site Development
for
Good To-Go

524 U.S. Route 1
Kittery, Maine

Tax Map 67, Lot 1

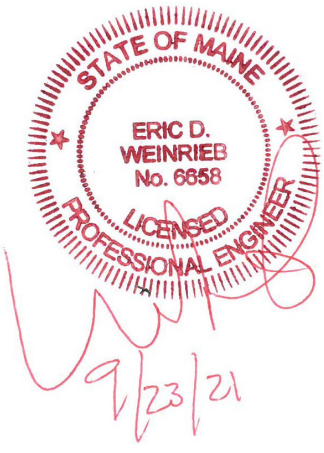
July 22, 2021
Revised September 23, 2021

Prepared For:

Good To-Go c/o Cape House Management, LLC
484 U.S. Route 1
Kittery, Maine 03904

Prepared By:

ALTUS ENGINEERING, INC.
133 Court Street
Portsmouth, NH 03801
Phone: (603) 433-2335



ALTUS ENGINEERING, INC.

Altus Project 5116.1

Table of Contents

ALTUS ENGINEERING, INC.

Section 1

Narrative

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PROJECT DESCRIPTION

Good To-Go, a Kittery-based specialty food company focused on outdoor activities, is proposing to develop a commercial lot located at 524 U.S. Route 1 in Kittery, Maine. The 23.89 acre property is identified as Assessor's Map 47, Lot 201 and is located in the Mixed Use (MU) district. The site is primarily wooded and undeveloped save for an existing residence with several outbuildings, a woods road and several side trails.

The proposed project will construct a new public road to access a commercial specialty food facility with a 20,000 sf building serviced by municipal water and sewer, a paved parking area and new stormwater treatment measures. These measures will include a wet pond and a grassed underdrained soil filter. Pretreatment will be provided by catch basins with deep sumps and grease hoods and sediment forebays

The stormwater management system proposed for the site will reduce peak flows and treat runoff from 100% of the site's impervious areas and 75.2% of the linear access roadway prior to leaving the site.

Site Soils

A Class A High Intensity Soils Survey (HISS) was conducted on the site which indicated that the soils are generally poor with low rates of infiltration, relatively high water tables and numerous areas of shallow ledge. These soils fall into the following primary classifications:

BrB – Brayton, Hydrologic Soil Group (HSG) D
DxB – Dixfield, HSG D
LTB – Lyman Tunbridge Complex, HSG C
LTC – Lyman Tunbridge Complex, HSG C
LTD – Lyman Tunbridge Complex, HSG C
LTE – Lyman Tunbridge Complex, HSG C
NiB – Nicholville, HSG D
ScB – Scantic, HSG D
WhB – Whately, HSG D
WmB – Waumbek, HSG D
WsB – Westbury, HSG D

For the purposes of this analysis, offsite watershed areas beyond the limit of the HISS were classified using the USDA's NRCS Web Soil Survey.

Pre-Development (Existing Conditions)

The Pre-Development Watershed Plan (Sheet WS-1) reflects the current conditions of the site which include the existing building and parking areas. The current site can be divided into two (2) subcatchments which discharge to the west to a culvert under Route 1 at Point of Analysis (POA) #1 (HydroCAD Link 100L) and south to the property boundary at Point of Analysis #2 (HydroCAD Link 200L).

Post-Development (Proposed Conditions)

The proposed project will construct a new building, drainage system and associated site improvements.

As shown on the attached Post-Development Watershed Plan (Sheet WS-2), the site was divided into fifteen (15) subcatchment areas in the post-development conditions. The same points of analysis that were used in the Pre-Development model (POA #'s 1 and 2) were used for comparison of the Pre- and Post-development conditions.

CALCULATION METHODS

The drainage study was completed using the USDA SCS TR-20 Method within the HydroCAD Stormwater Modeling System. Reservoir routing was performed with the Dynamic Storage Indication method with automated calculation of tailwater conditions. A Type III 24-hour rainfall distribution was utilized in analyzing the data for the 2, 10 and 25 year - 24-hour storm events using rainfall data provided by Maine DEP. Infiltration rates through biofilter media were set at 2.41 in/hr with a phase-in depth of 0.01'.

Disclaimer

Altus Engineering, Inc. notes that stormwater modeling is limited in its capacity to precisely predict peak rates of runoff and flood elevations. Results should not be considered to represent actual storm events due to the number of variables and assumptions involved in the modeling effort. Surface roughness coefficients (n), entrance loss coefficients (ke), velocity factors (kv) and times of concentration (Tc) are based on subjective field observations and engineering judgment using available data. For design purposes, curve numbers (Cn) describe the average conditions. However, curve numbers will vary from storm to storm depending on the antecedent runoff conditions (ARC) including saturation and frozen ground. Also, higher water elevations than predicted by modeling could occur if drainage channels, closed drain systems or culverts are not maintained and/or become blocked by debris before and/or during a storm event as this will impact flow capacity of the structures. Structures should be re-evaluated if future changes occur within relevant drainage areas in order to assess any required design modifications.

Drainage Analysis

A complete summary of the drainage model is included in the appendix of this report. The following table compares pre- and post-development peak rates at the Point of Analysis identified on the plans for the 2, 10 and 25-year storm events:

Stormwater Modeling Summary
Peak Q (cfs) for Type III 24-Hour Storm Events

	2-Yr Storm (3.30 inch)	10-Yr Storm (4.90 inch)	25-Yr Storm (6.20 inch)
POA #1 (US 1 Culvert)			
Pre	2.74	5.55	6.75
Post	2.23	2.86	2.90
Change	**-0.51**	**-2.69**	**-3.85**
POA #2 (South Property Line)			
Pre	9.33	20.19	29.85
Post	7.14	13.54	26.88
Change	**-2.19**	**-6.65**	**-2.97**

As the above table demonstrates, the proposed peak rates of runoff will be decreased from the existing conditions for all analyzed storm events.

CONCLUSION

This proposed roadway and site development off U.S Route 1 in Kittery, ME will have minimal adverse effect on abutting properties and infrastructure as a result of stormwater runoff or siltation. Post-construction peak rates of runoff from the site will be lower than the existing conditions for all analyzed storm events. The new stormwater management system will also provide appropriate treatment to runoff from 100% of the proposed impervious surfaces from the site and 75.2% of the access road. Appropriate steps will be taken to properly mitigate erosion and sedimentation through the use of temporary and permanent Best Management Practices for sediment and erosion control, including deep sump catch basins with grease hoods, a wet pond with sediment forebays and a grassed underdrained soil filter designed in accordance with the MDEP Stormwater Best Practices Manual.

Section 2

Aerial Photo and USGS Map

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Burrito Betty's
Mexican Grill
Takeout • Delivery
Parsons Ln
U.S. Rte 1
Crest Rd
Crest Rd
Crest Rd
Crest Rd
Crest Rd
Seidels
Caincrest Rd
Caincrest Rd
Caincrest Rd
Caincrest Rd
Caincrest Rd
North
518 Noodle Bar
Takeout
SITE
Johnson Brook
Google


Smelt Brook Preserve
Scituate
Scotland
York River
Fall Mill Rd
Chase Pond Rd
Cider Hill
Scotland Bridge Rd
Beech Ridge
Maine Turnpike
York Corner
US Route 1
Betty Welch Rd
Gee Rd
York River
York Golf and Tennis Club
South Side
Cain Crest Trailer Park
SITE
Cutts Rd
US Route 1
Lewis Rd
Kittee Ln
Norton Rd
Bartlett Rd
Payne Rd
Route 103
Drake Ln
Parsonage Way
Bartlett Rd
Miller Rd
Bedell Crossing
Haley Rd
Briggs Corner
Spruce Creek

Section 3

Drainage Calculations

Pre-Development
2-Year, 24-Hour Summary
10-Year, 24-Hour Complete
25-Year, 24-Hour Summary

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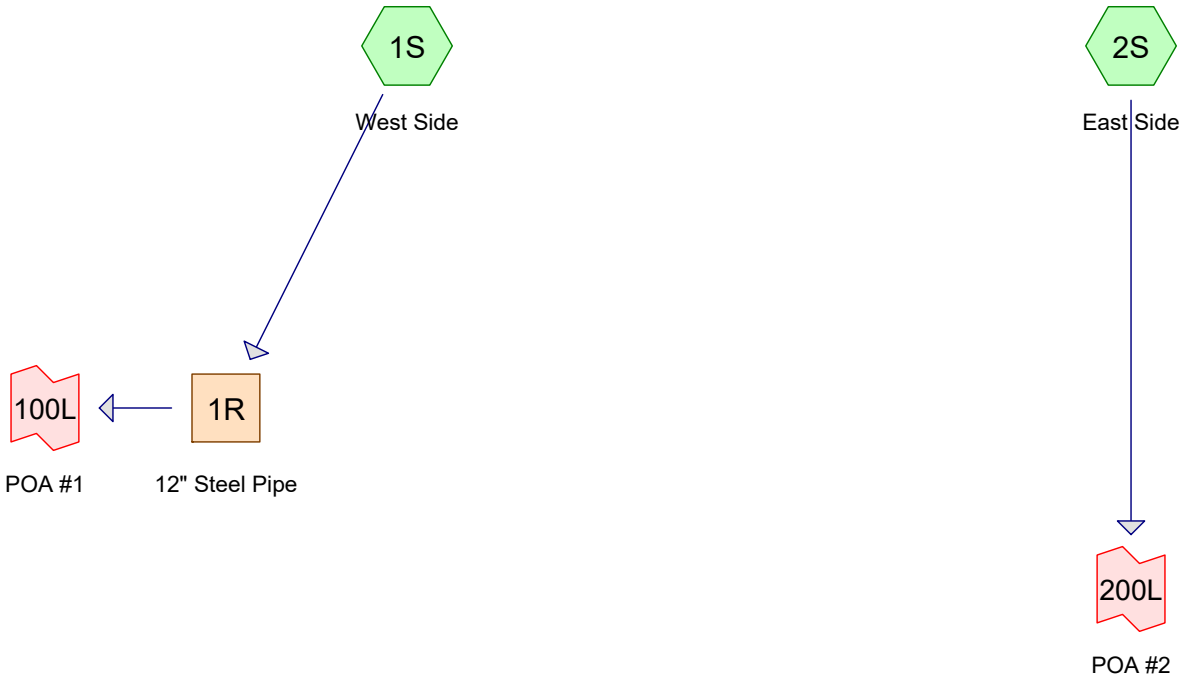


PRE-DEVELOPMENT

Subcat Reach Pond Link

Routing Diagram for 5116-Pre-061721
Prepared by Altus Engineering, Inc., Printed 7/1/2021

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 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 1S: West Side Runoff Area=86,228 sf 2.71% Impervious Runoff Depth>1.28"
Flow Length=611' Tc=7.7 min CN=77 Runoff=2.74 cfs 0.211 af

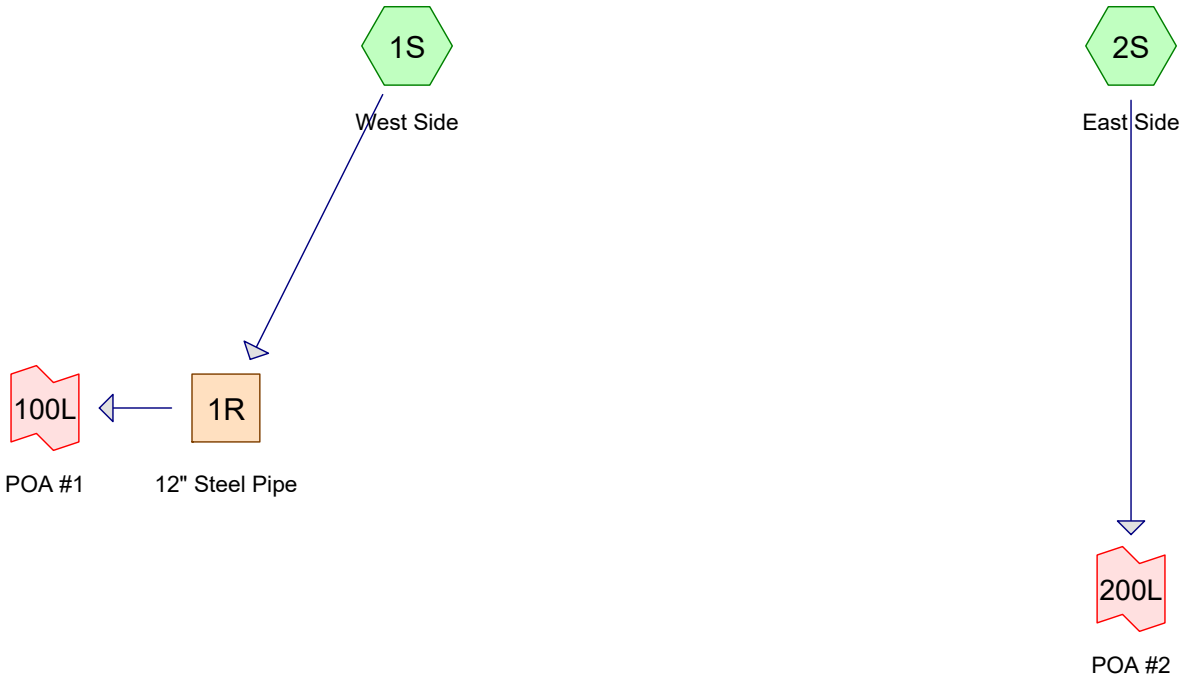
Subcatchment 2S: East Side Runoff Area=609,713 sf 2.66% Impervious Runoff Depth>1.09"
Flow Length=1,208' Tc=32.9 min CN=74 Runoff=9.33 cfs 1.276 af

Reach 1R: 12" Steel Pipe Avg. Flow Depth=0.45' Max Vel=8.00 fps Inflow=2.74 cfs 0.211 af
12.0" Round Pipe n=0.012 L=45.0' S=0.0291 '/' Capacity=6.59 cfs Outflow=2.74 cfs 0.211 af

Link 100L: POA #1 Inflow=2.74 cfs 0.211 af
Primary=2.74 cfs 0.211 af

Link 200L: POA #2 Inflow=9.33 cfs 1.276 af
Primary=9.33 cfs 1.276 af

Total Runoff Area = 15.977 ac Runoff Volume = 1.488 af Average Runoff Depth = 1.12"
97.34% Pervious = 15.551 ac 2.66% Impervious = 0.426 ac



PRE-DEVELOPMENT

Subcat Reach Pond Link

Routing Diagram for 5116-Pre-061721
Prepared by Altus Engineering, Inc., Printed 7/1/2021

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 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 1S: West Side Runoff Area=86,228 sf 2.71% Impervious Runoff Depth>2.54"
Flow Length=611' Tc=7.7 min CN=77 Runoff=5.55 cfs 0.418 af

Subcatchment 2S: East Side Runoff Area=609,713 sf 2.66% Impervious Runoff Depth>2.27"
Flow Length=1,208' Tc=32.9 min CN=74 Runoff=20.19 cfs 2.645 af

Reach 1R: 12" Steel Pipe Avg. Flow Depth=0.70' Max Vel=9.40 fps Inflow=5.55 cfs 0.418 af
12.0" Round Pipe n=0.012 L=45.0' S=0.0291 '/' Capacity=6.59 cfs Outflow=5.55 cfs 0.418 af

Link 100L: POA #1 Inflow=5.55 cfs 0.418 af
Primary=5.55 cfs 0.418 af

Link 200L: POA #2 Inflow=20.19 cfs 2.645 af
Primary=20.19 cfs 2.645 af

Total Runoff Area = 15.977 ac Runoff Volume = 3.063 af Average Runoff Depth = 2.30"
97.34% Pervious = 15.551 ac 2.66% Impervious = 0.426 ac

Summary for Subcatchment 1S: West Side

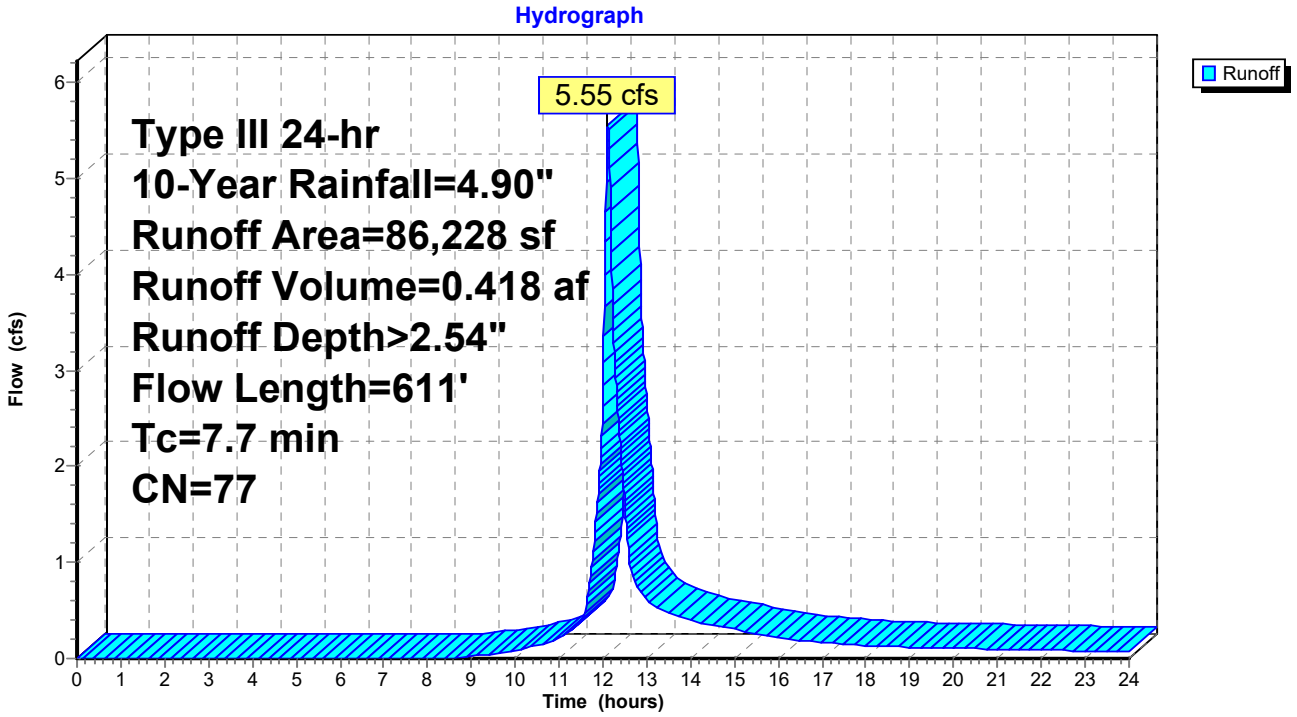
Runoff = 5.55 cfs @ 12.11 hrs, Volume= 0.418 af, Depth> 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	1,015	98	Impervious Existing Pavement
*	1,318	98	Impervious Existing Building
	1,648	96	Gravel surface, HSG D
	3,325	96	Gravel surface, HSG C
	1,629	87	Dirt roads, HSG C
	27,302	80	>75% Grass cover, Good, HSG D
	2,700	77	Woods, Good, HSG D
	22,240	74	>75% Grass cover, Good, HSG C
	25,051	70	Woods, Good, HSG C
	86,228	77	Weighted Average
	83,895		97.29% Pervious Area
	2,333		2.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	54	0.0579	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
1.5	192	0.0941	2.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	97	0.0336	2.95		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	80	0.0750	4.41		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.2	16	0.0060	1.57		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.3	172	0.0214	2.19		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
7.7	611	Total			

Subcatchment 1S: West Side



Summary for Subcatchment 2S: East Side

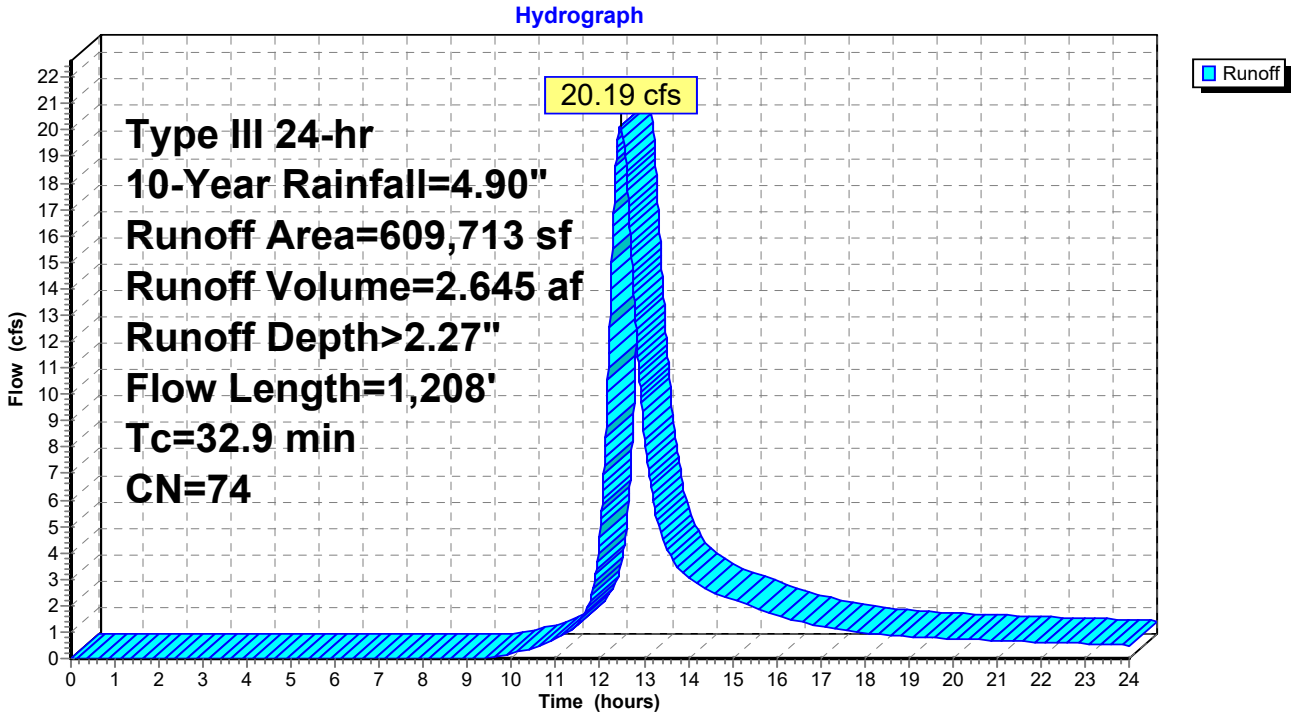
Runoff = 20.19 cfs @ 12.47 hrs, Volume= 2.645 af, Depth> 2.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	11,834	98	Impervious Existing Pavement
*	4,369	98	Impervious Existing Building
	1,161	89	Dirt roads, HSG D
	4,839	87	Dirt roads, HSG C
	51,144	80	>75% Grass cover, Good, HSG D
	193,586	77	Woods, Good, HSG D
	22,432	74	>75% Grass cover, Good, HSG C
	320,348	70	Woods, Good, HSG C
	609,713	74	Weighted Average
	593,510		97.34% Pervious Area
	16,203		2.66% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	83	0.1231	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
1.4	121	0.0826	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.1	301	0.0199	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.8	223	0.0090	0.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	77	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	98	0.0816	1.43		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	305	0.0393	0.99		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
32.9	1,208	Total			

Subcatchment 2S: East Side



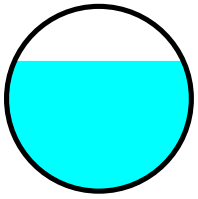
Summary for Reach 1R: 12" Steel Pipe

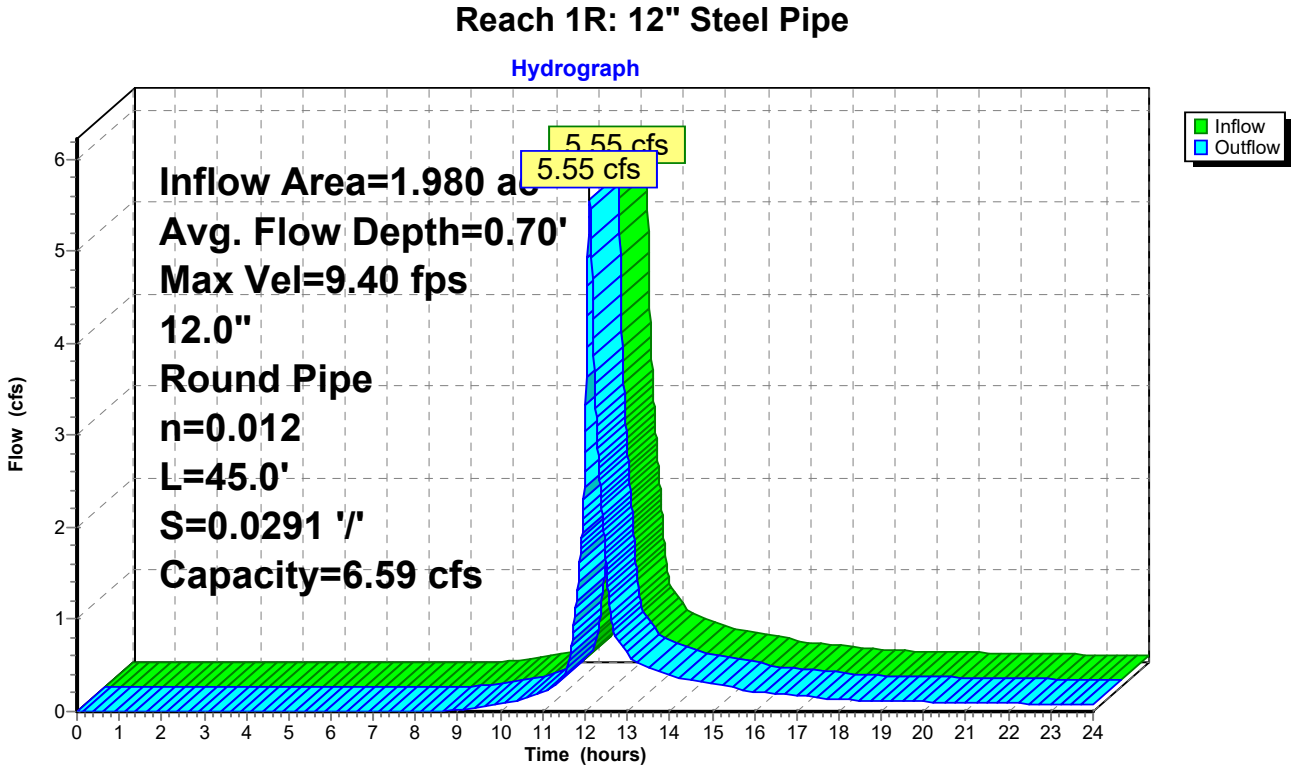
Inflow Area = 1.980 ac, 2.71% Impervious, Inflow Depth > 2.54" for 10-Year event
Inflow = 5.55 cfs @ 12.11 hrs, Volume= 0.418 af
Outflow = 5.55 cfs @ 12.11 hrs, Volume= 0.418 af, Atten= 0%, Lag= 0.1 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Max. Velocity= 9.40 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.68 fps, Avg. Travel Time= 0.2 min

Peak Storage= 27 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.70'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 6.59 cfs

12.0" Round Pipe
n= 0.012
Length= 45.0' Slope= 0.0291 '/'
Inlet Invert= 76.08', Outlet Invert= 74.77'



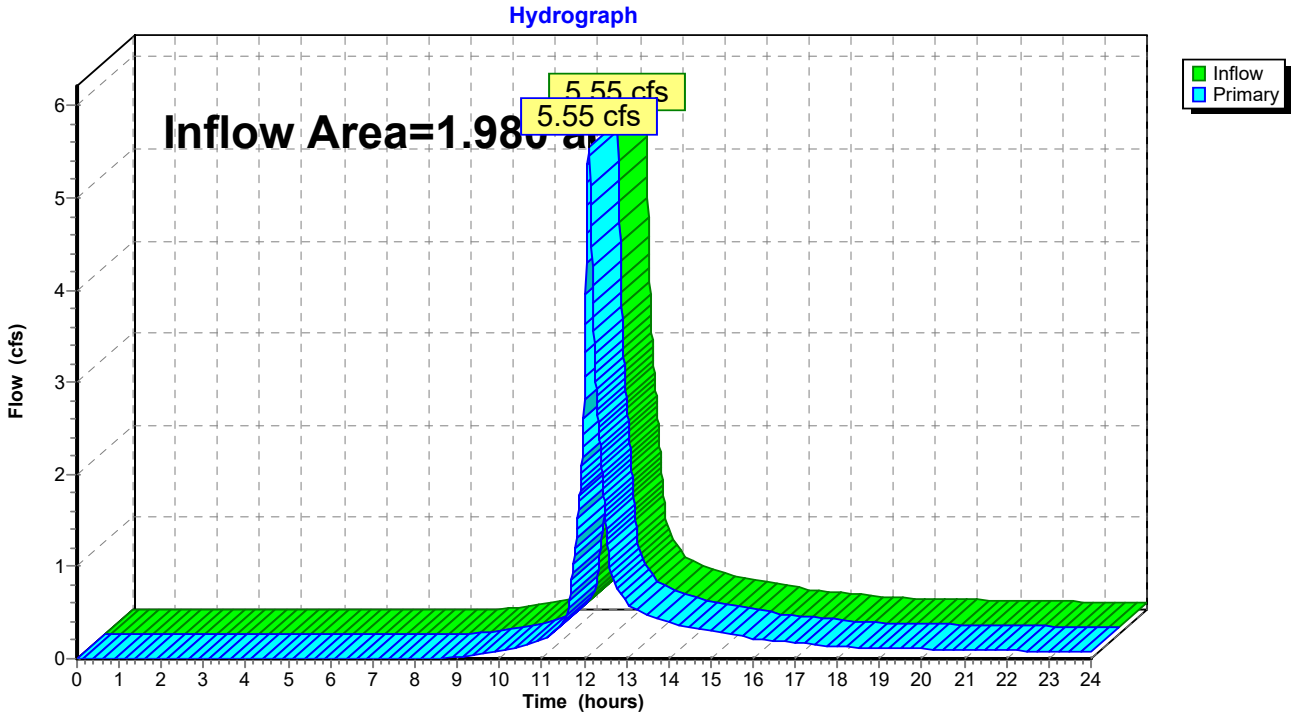


Summary for Link 100L: POA #1

Inflow Area = 1.980 ac, 2.71% Impervious, Inflow Depth > 2.54" for 10-Year event
Inflow = 5.55 cfs @ 12.11 hrs, Volume= 0.418 af
Primary = 5.55 cfs @ 12.11 hrs, Volume= 0.418 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 100L: POA #1

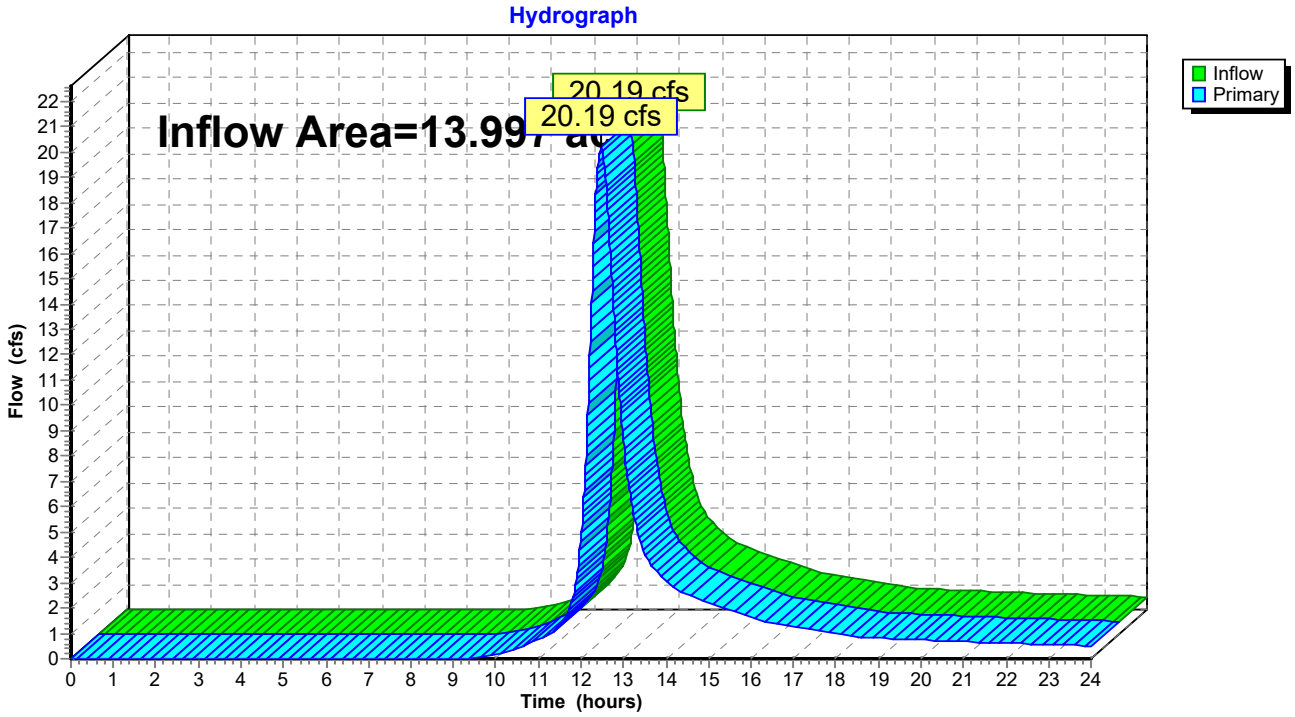


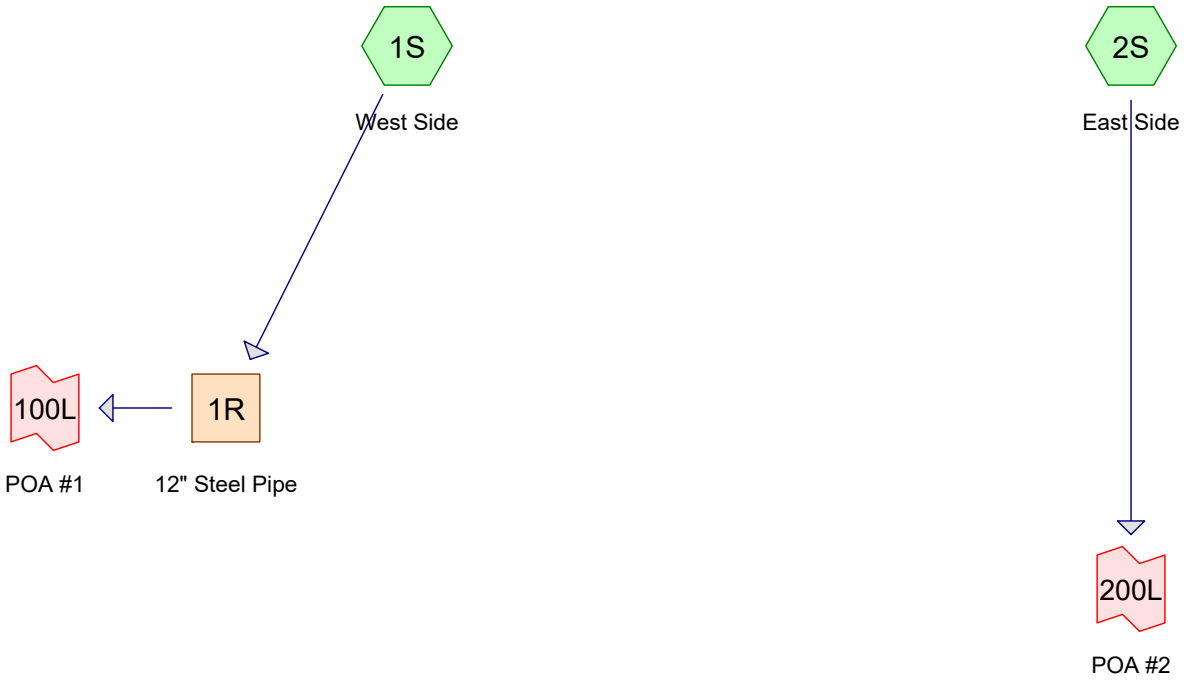
Summary for Link 200L: POA #2

Inflow Area = 13.997 ac, 2.66% Impervious, Inflow Depth > 2.27" for 10-Year event
Inflow = 20.19 cfs @ 12.47 hrs, Volume= 2.645 af
Primary = 20.19 cfs @ 12.47 hrs, Volume= 2.645 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link 200L: POA #2





PRE-DEVELOPMENT

Subcat Reach Pond Link

Routing Diagram for 5116-Pre-061721
Prepared by Altus Engineering, Inc., Printed 7/1/2021

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 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 1S: West Side Runoff Area=86,228 sf 2.71% Impervious Runoff Depth>3.65"
Flow Length=611' Tc=7.7 min CN=77 Runoff=7.99 cfs 0.602 af

Subcatchment 2S: East Side Runoff Area=609,713 sf 2.66% Impervious Runoff Depth>3.33"
Flow Length=1,208' Tc=32.9 min CN=74 Runoff=29.85 cfs 3.885 af

Reach 1R: 12" Steel Pipe Avg. Flow Depth=1.00' Max Vel=9.55 fps Inflow=7.99 cfs 0.602 af
12.0" Round Pipe n=0.012 L=45.0' S=0.0291 '/' Capacity=6.59 cfs Outflow=6.75 cfs 0.602 af

Link 100L: POA #1 Inflow=6.75 cfs 0.602 af
Primary=6.75 cfs 0.602 af

Link 200L: POA #2 Inflow=29.85 cfs 3.885 af
Primary=29.85 cfs 3.885 af

Total Runoff Area = 15.977 ac Runoff Volume = 4.487 af Average Runoff Depth = 3.37"
97.34% Pervious = 15.551 ac 2.66% Impervious = 0.426 ac

Section 4

Drainage Calculations

Post-Development
2-Year, 24-Hour Summary
10-Year, 24-Hour Complete
25-Year, 24-Hour Summary

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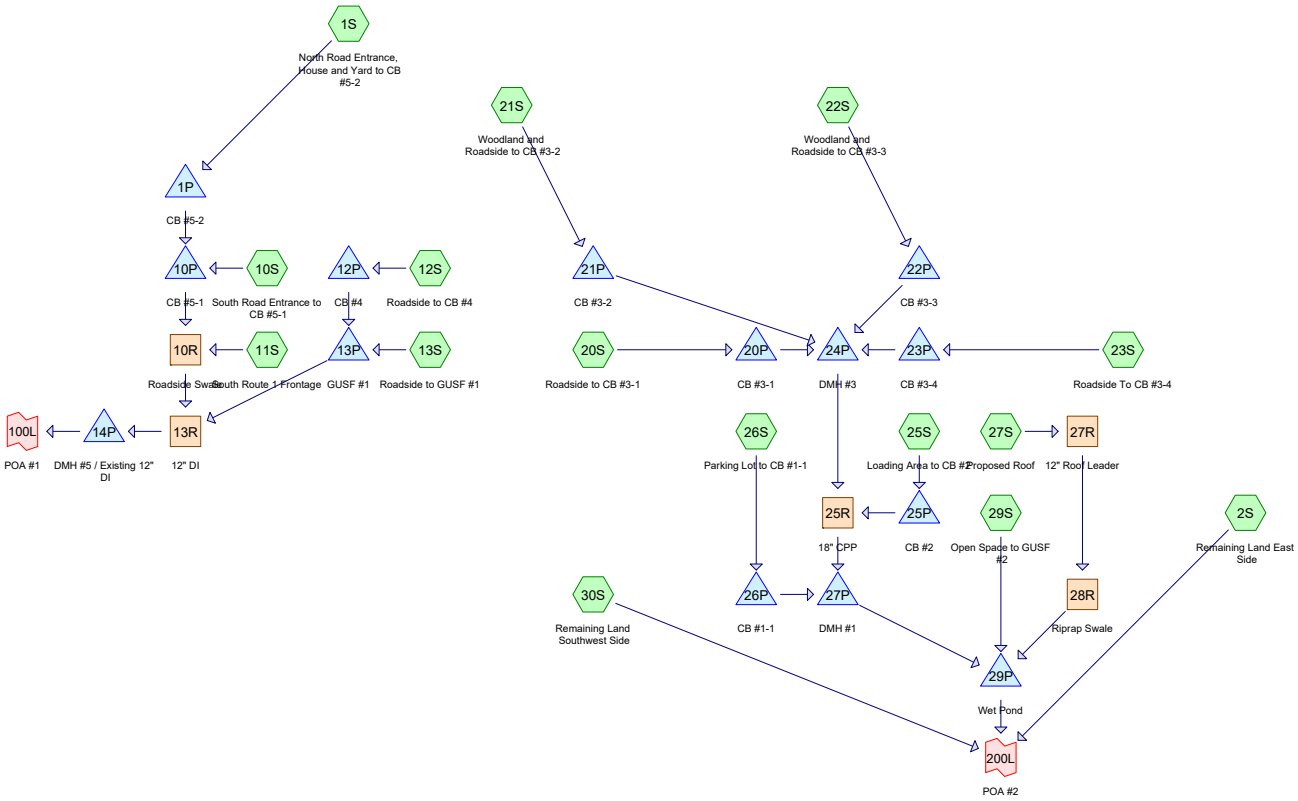


POST-DEVELOPMENT

Subcat Reach Pond Link

Routing Diagram for 5116-Post-092021
Prepared by Altus Engineering, Inc., Printed 9/23/2021

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 1S: North Road Entrance, Runoff Area=51,236 sf 8.13% Impervious Runoff Depth=1.28"
Flow Length=432' Tc=6.3 min CN=77 Runoff=1.71 cfs 0.126 af

Subcatchment 2S: Remaining Land East Runoff Area=279,061 sf 0.00% Impervious Runoff Depth=1.05"
Flow Length=1,208' Tc=32.9 min CN=73 Runoff=4.01 cfs 0.559 af

Subcatchment 10S: South Road Entrance to Runoff Area=3,377 sf 82.44% Impervious Runoff Depth=2.74"
Flow Length=139' Tc=6.0 min CN=95 Runoff=0.24 cfs 0.018 af

Subcatchment 11S: South Route 1 Frontage Runoff Area=6,211 sf 11.74% Impervious Runoff Depth=1.62"
Flow Length=142' Tc=6.0 min CN=82 Runoff=0.27 cfs 0.019 af

Subcatchment 12S: Roadside to CB #4 Runoff Area=9,746 sf 23.27% Impervious Runoff Depth=1.55"
Flow Length=282' Tc=9.6 min CN=81 Runoff=0.36 cfs 0.029 af

Subcatchment 13S: Roadside to GUSF #1 Runoff Area=13,602 sf 16.81% Impervious Runoff Depth=1.55"
Flow Length=264' Tc=6.0 min CN=81 Runoff=0.56 cfs 0.040 af

Subcatchment 20S: Roadside to CB #3-1 Runoff Area=11,105 sf 40.77% Impervious Runoff Depth=2.00"
Flow Length=390' Tc=6.0 min CN=87 Runoff=0.60 cfs 0.043 af

Subcatchment 21S: Woodland and Runoff Area=40,322 sf 6.67% Impervious Runoff Depth=1.28"
Flow Length=338' Tc=6.5 min CN=77 Runoff=1.34 cfs 0.099 af

Subcatchment 22S: Woodland and Runoff Area=53,034 sf 6.79% Impervious Runoff Depth=1.10"
Flow Length=408' Tc=16.0 min CN=74 Runoff=1.10 cfs 0.112 af

Subcatchment 23S: Roadside To CB #3-4 Runoff Area=8,495 sf 25.20% Impervious Runoff Depth=1.48"
Flow Length=150' Tc=6.0 min CN=80 Runoff=0.34 cfs 0.024 af

Subcatchment 25S: Loading Area to CB #2 Runoff Area=4,411 sf 100.00% Impervious Runoff Depth=3.07"
Flow Length=137' Tc=6.0 min CN=98 Runoff=0.32 cfs 0.026 af

Subcatchment 26S: Parking Lot to CB #1-1 Runoff Area=18,776 sf 85.85% Impervious Runoff Depth=2.74"
Flow Length=332' Tc=6.0 min CN=95 Runoff=1.31 cfs 0.099 af

Subcatchment 27S: Proposed Roof Runoff Area=20,000 sf 100.00% Impervious Runoff Depth=3.07"
Tc=6.0 min CN=98 Runoff=1.47 cfs 0.117 af

Subcatchment 29S: Open Space to GUSF #2 Runoff Area=90,054 sf 0.00% Impervious Runoff Depth=1.10"
Flow Length=457' Tc=6.0 min CN=74 Runoff=2.55 cfs 0.190 af

Subcatchment 30S: Remaining Land Runoff Area=86,511 sf 18.73% Impervious Runoff Depth=1.55"
Flow Length=760' Tc=12.0 min CN=81 Runoff=2.94 cfs 0.256 af

Reach 10R: Roadside Swale Avg. Flow Depth=0.35' Max Vel=2.35 fps Inflow=2.21 cfs 0.163 af
n=0.022 L=85.0' S=0.0072 '/' Capacity=16.61 cfs Outflow=2.20 cfs 0.163 af

Reach 13R: 12" DI Avg. Flow Depth=0.69' Max Vel=3.87 fps Inflow=2.23 cfs 0.232 af
12.0" Round Pipe n=0.012 L=24.0' S=0.0050 '/' Capacity=2.73 cfs Outflow=2.23 cfs 0.232 af

Reach 25R: 18" CPP Avg. Flow Depth=0.47' Max Vel=6.80 fps Inflow=3.27 cfs 0.304 af
18.0" Round Pipe n=0.012 L=83.0' S=0.0175 '/' Capacity=15.04 cfs Outflow=3.27 cfs 0.304 af

Reach 27R: 12" Roof Leader Avg. Flow Depth=0.43' Max Vel=4.57 fps Inflow=1.47 cfs 0.117 af
12.0" Round Pipe n=0.012 L=300.0' S=0.0100 '/' Capacity=3.86 cfs Outflow=1.45 cfs 0.117 af

Reach 28R: Riprap Swale Avg. Flow Depth=0.21' Max Vel=2.82 fps Inflow=1.45 cfs 0.117 af
n=0.069 L=108.0' S=0.1759 '/' Capacity=26.22 cfs Outflow=1.45 cfs 0.117 af

Pond 1P: CB #5-2 Peak Elev=78.23' Storage=12 cf Inflow=1.71 cfs 0.126 af
12.0" Round Culvert n=0.012 L=50.0' S=0.0050 '/' Outflow=1.71 cfs 0.126 af

Pond 10P: CB #5-1 Peak Elev=77.89' Storage=12 cf Inflow=1.94 cfs 0.144 af
12.0" Round Culvert n=0.012 L=7.0' S=0.0043 '/' Outflow=1.94 cfs 0.144 af

Pond 12P: CB #4 Peak Elev=82.35' Storage=14 cf Inflow=0.36 cfs 0.029 af
12.0" Round Culvert n=0.120 L=50.0' S=0.0050 '/' Outflow=0.35 cfs 0.029 af

Pond 13P: GUSF #1 Peak Elev=82.22' Storage=2,024 cf Inflow=0.88 cfs 0.069 af
Outflow=0.25 cfs 0.069 af

Pond 14P: DMH #5 / Existing 12" DI Peak Elev=76.93' Storage=11 cf Inflow=2.23 cfs 0.232 af
12.0" Round Culvert n=0.012 L=45.0' S=0.0291 '/' Outflow=2.23 cfs 0.232 af

Pond 20P: CB #3-1 Peak Elev=76.93' Storage=7 cf Inflow=0.60 cfs 0.043 af
15.0" Round Culvert n=0.012 L=8.0' S=0.0100 '/' Outflow=0.59 cfs 0.043 af

Pond 21P: CB #3-2 Peak Elev=84.26' Storage=8 cf Inflow=1.34 cfs 0.099 af
12.0" Round Culvert n=0.012 L=142.0' S=0.0500 '/' Outflow=1.34 cfs 0.099 af

Pond 22P: CB #3-3 Peak Elev=79.54' Storage=7 cf Inflow=1.10 cfs 0.112 af
12.0" Round Culvert n=0.012 L=68.0' S=0.0360 '/' Outflow=1.10 cfs 0.112 af

Pond 23P: CB #3-4 Peak Elev=77.29' Storage=4 cf Inflow=0.34 cfs 0.024 af
12.0" Round Culvert n=0.012 L=45.0' S=0.0100 '/' Outflow=0.33 cfs 0.024 af

Pond 24P: DMH #3 Peak Elev=76.86' Storage=16 cf Inflow=2.96 cfs 0.278 af
18.0" Round Culvert n=0.012 L=177.0' S=0.0175 '/' Outflow=2.96 cfs 0.278 af

Pond 25P: CB #2 Peak Elev=73.84' Storage=4 cf Inflow=0.32 cfs 0.026 af
12.0" Round Culvert n=0.012 L=36.0' S=0.0100 '/' Outflow=0.32 cfs 0.026 af

Pond 26P: CB #1-1 Peak Elev=72.81' Storage=9 cf Inflow=1.31 cfs 0.099 af
12.0" Round Culvert n=0.012 L=13.0' S=0.0100 '/' Outflow=1.31 cfs 0.099 af

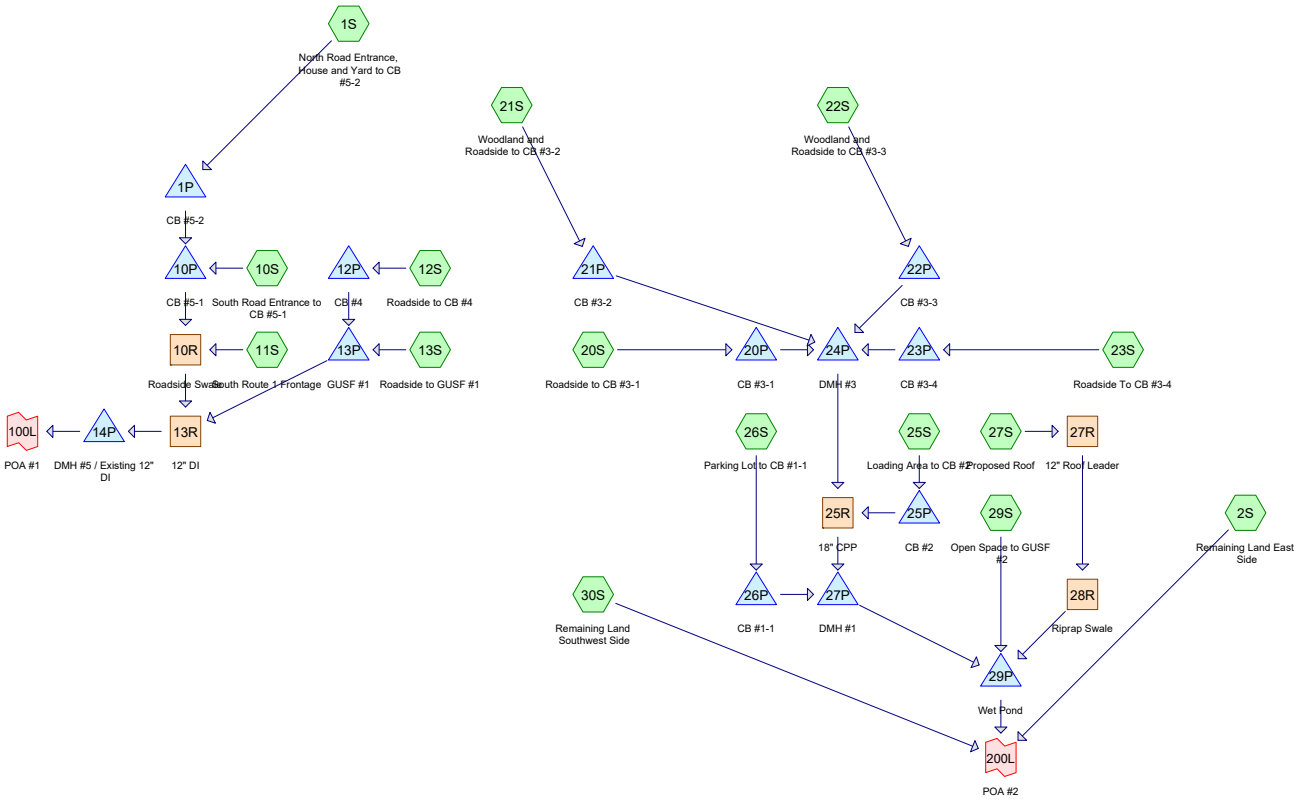
Pond 27P: DMH #1 Peak Elev=72.47' Storage=14 cf Inflow=4.53 cfs 0.402 af
18.0" Round Culvert n=0.012 L=50.0' S=0.0100 '/' Outflow=4.53 cfs 0.402 af

Pond 29P: Wet Pond Peak Elev=57.11' Storage=26,282 cf Inflow=8.52 cfs 0.710 af
Outflow=1.73 cfs 0.710 af

Link 100L: POA #1 Inflow=2.23 cfs 0.232 af
Primary=2.23 cfs 0.232 af

Link 200L: POA #2 Inflow=7.14 cfs 1.525 af
Primary=7.14 cfs 1.525 af

Total Runoff Area = 15.977 ac Runoff Volume = 1.757 af Average Runoff Depth = 1.32"
88.23% Pervious = 14.096 ac 11.77% Impervious = 1.881 ac



POST-DEVELOPMENT

Subcat Reach Pond Link

Routing Diagram for 5116-Post-092021
Prepared by Altus Engineering, Inc., Printed 9/23/2021

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.040	74	>75% Grass cover, Good, HSG C (1S, 2S, 12S, 13S, 20S, 21S, 22S, 23S, 26S, 29S, 30S)
2.157	80	>75% Grass cover, Good, HSG D (1S, 2S, 10S, 11S, 12S, 13S, 20S, 21S, 22S, 23S, 26S, 29S, 30S)
0.148	87	Dirt roads, HSG C (1S, 2S, 21S, 22S)
0.027	89	Dirt roads, HSG D (2S)
0.086	96	Gravel surface, HSG C (1S)
0.008	96	Gravel surface, HSG D (1S)
0.017	98	Impervious (11S)
0.030	98	Impervious Existing Building (1S)
0.292	98	Impervious Existing Pavement (1S, 10S, 30S)
0.100	98	Impervious Existing Roof (30S)
0.934	98	Impervious Proposed Pavement (1S, 10S, 12S, 13S, 20S, 21S, 22S, 25S, 26S)
0.459	98	Impervious Proposed Roof (27S)
0.049	98	Impervoius Proposed Pavement (23S)
6.139	70	Woods, Good, HSG C (1S, 2S, 12S, 13S, 21S, 22S, 29S, 30S)
3.491	77	Woods, Good, HSG D (1S, 2S, 12S, 13S, 21S, 22S, 29S, 30S)
15.977	**77**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
8.414	HSG C	1S, 2S, 12S, 13S, 20S, 21S, 22S, 23S, 26S, 29S, 30S
5.682	HSG D	1S, 2S, 10S, 11S, 12S, 13S, 20S, 21S, 22S, 23S, 26S, 29S, 30S
1.881	Other	1S, 10S, 11S, 12S, 13S, 20S, 21S, 22S, 23S, 25S, 26S, 27S, 30S
15.977		**TOTAL AREA**

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 1S: North Road Entrance, Runoff Area=51,236 sf 8.13% Impervious Runoff Depth=2.54"
Flow Length=432' Tc=6.3 min CN=77 Runoff=3.47 cfs 0.249 af

Subcatchment 2S: Remaining Land East Runoff Area=279,061 sf 0.00% Impervious Runoff Depth=2.20"
Flow Length=1,208' Tc=32.9 min CN=73 Runoff=8.88 cfs 1.176 af

Subcatchment 10S: South Road Entrance to Runoff Area=3,377 sf 82.44% Impervious Runoff Depth=4.32"
Flow Length=139' Tc=6.0 min CN=95 Runoff=0.36 cfs 0.028 af

Subcatchment 11S: South Route 1 Frontage Runoff Area=6,211 sf 11.74% Impervious Runoff Depth=2.99"
Flow Length=142' Tc=6.0 min CN=82 Runoff=0.50 cfs 0.036 af

Subcatchment 12S: Roadside to CB #4 Runoff Area=9,746 sf 23.27% Impervious Runoff Depth=2.90"
Flow Length=282' Tc=9.6 min CN=81 Runoff=0.67 cfs 0.054 af

Subcatchment 13S: Roadside to GUSF #1 Runoff Area=13,602 sf 16.81% Impervious Runoff Depth=2.90"
Flow Length=264' Tc=6.0 min CN=81 Runoff=1.06 cfs 0.075 af

Subcatchment 20S: Roadside to CB #3-1 Runoff Area=11,105 sf 40.77% Impervious Runoff Depth=3.47"
Flow Length=390' Tc=6.0 min CN=87 Runoff=1.02 cfs 0.074 af

Subcatchment 21S: Woodland and Runoff Area=40,322 sf 6.67% Impervious Runoff Depth=2.54"
Flow Length=338' Tc=6.5 min CN=77 Runoff=2.71 cfs 0.196 af

Subcatchment 22S: Woodland and Runoff Area=53,034 sf 6.79% Impervious Runoff Depth=2.28"
Flow Length=408' Tc=16.0 min CN=74 Runoff=2.39 cfs 0.232 af

Subcatchment 23S: Roadside To CB #3-4 Runoff Area=8,495 sf 25.20% Impervious Runoff Depth=2.81"
Flow Length=150' Tc=6.0 min CN=80 Runoff=0.64 cfs 0.046 af

Subcatchment 25S: Loading Area to CB #2 Runoff Area=4,411 sf 100.00% Impervious Runoff Depth=4.66"
Flow Length=137' Tc=6.0 min CN=98 Runoff=0.49 cfs 0.039 af

Subcatchment 26S: Parking Lot to CB #1-1 Runoff Area=18,776 sf 85.85% Impervious Runoff Depth=4.32"
Flow Length=332' Tc=6.0 min CN=95 Runoff=2.01 cfs 0.155 af

Subcatchment 27S: Proposed Roof Runoff Area=20,000 sf 100.00% Impervious Runoff Depth=4.66"
Tc=6.0 min CN=98 Runoff=2.20 cfs 0.178 af

Subcatchment 29S: Open Space to GUSF #2 Runoff Area=90,054 sf 0.00% Impervious Runoff Depth=2.28"
Flow Length=457' Tc=6.0 min CN=74 Runoff=5.51 cfs 0.394 af

Subcatchment 30S: Remaining Land Runoff Area=86,511 sf 18.73% Impervious Runoff Depth=2.90"
Flow Length=760' Tc=12.0 min CN=81 Runoff=5.54 cfs 0.479 af

Reach 10R: Roadside Swale Avg. Flow Depth=0.50' Max Vel=2.87 fps Inflow=4.32 cfs 0.312 af
n=0.022 L=85.0' S=0.0072 '/' Capacity=16.61 cfs Outflow=4.31 cfs 0.312 af

Reach 13R: 12" DI Avg. Flow Depth=1.00' Max Vel=3.96 fps Inflow=4.63 cfs 0.441 af
12.0" Round Pipe n=0.012 L=24.0' S=0.0050 '/' Capacity=2.73 cfs Outflow=2.89 cfs 0.441 af

Reach 25R: 18" CPP Avg. Flow Depth=0.69' Max Vel=8.18 fps Inflow=6.43 cfs 0.586 af
18.0" Round Pipe n=0.012 L=83.0' S=0.0175 '/' Capacity=15.04 cfs Outflow=6.43 cfs 0.586 af

Reach 27R: 12" Roof Leader Avg. Flow Depth=0.54' Max Vel=5.06 fps Inflow=2.20 cfs 0.178 af
12.0" Round Pipe n=0.012 L=300.0' S=0.0100 '/' Capacity=3.86 cfs Outflow=2.17 cfs 0.178 af

Reach 28R: Riprap Swale Avg. Flow Depth=0.27' Max Vel=3.21 fps Inflow=2.17 cfs 0.178 af
n=0.069 L=108.0' S=0.1759 '/' Capacity=26.22 cfs Outflow=2.17 cfs 0.178 af

Pond 1P: CB #5-2 Peak Elev=79.38' Storage=24 cf Inflow=3.47 cfs 0.249 af
12.0" Round Culvert n=0.012 L=50.0' S=0.0050 '/' Outflow=3.46 cfs 0.249 af

Pond 10P: CB #5-1 Peak Elev=78.53' Storage=20 cf Inflow=3.82 cfs 0.277 af
12.0" Round Culvert n=0.012 L=7.0' S=0.0043 '/' Outflow=3.82 cfs 0.277 af

Pond 12P: CB #4 Peak Elev=84.00' Storage=36 cf Inflow=0.67 cfs 0.054 af
12.0" Round Culvert n=0.120 L=50.0' S=0.0050 '/' Outflow=0.65 cfs 0.054 af

Pond 13P: GUSF #1 Peak Elev=82.88' Storage=3,027 cf Inflow=1.63 cfs 0.129 af
Outflow=0.49 cfs 0.129 af

Pond 14P: DMH #5 / Existing 12" DI Peak Elev=77.15' Storage=14 cf Inflow=2.89 cfs 0.441 af
12.0" Round Culvert n=0.012 L=45.0' S=0.0291 '/' Outflow=2.86 cfs 0.441 af

Pond 20P: CB #3-1 Peak Elev=77.34' Storage=12 cf Inflow=1.02 cfs 0.074 af
15.0" Round Culvert n=0.012 L=8.0' S=0.0100 '/' Outflow=1.01 cfs 0.074 af

Pond 21P: CB #3-2 Peak Elev=84.66' Storage=13 cf Inflow=2.71 cfs 0.196 af
12.0" Round Culvert n=0.012 L=142.0' S=0.0500 '/' Outflow=2.71 cfs 0.196 af

Pond 22P: CB #3-3 Peak Elev=79.89' Storage=12 cf Inflow=2.39 cfs 0.232 af
12.0" Round Culvert n=0.012 L=68.0' S=0.0360 '/' Outflow=2.39 cfs 0.232 af

Pond 23P: CB #3-4 Peak Elev=77.52' Storage=7 cf Inflow=0.64 cfs 0.046 af
12.0" Round Culvert n=0.012 L=45.0' S=0.0100 '/' Outflow=0.64 cfs 0.046 af

Pond 24P: DMH #3 Peak Elev=77.30' Storage=25 cf Inflow=5.97 cfs 0.547 af
18.0" Round Culvert n=0.012 L=177.0' S=0.0175 '/' Outflow=5.97 cfs 0.547 af

Pond 25P: CB #2 Peak Elev=73.94' Storage=5 cf Inflow=0.49 cfs 0.039 af
12.0" Round Culvert n=0.012 L=36.0' S=0.0100 '/' Outflow=0.48 cfs 0.039 af

Pond 26P: CB #1-1 Peak Elev=73.37' Storage=16 cf Inflow=2.01 cfs 0.155 af
12.0" Round Culvert n=0.012 L=13.0' S=0.0100 '/' Outflow=1.98 cfs 0.155 af

Pond 27P: DMH #1 Peak Elev=73.12' Storage=22 cf Inflow=8.36 cfs 0.742 af
18.0" Round Culvert n=0.012 L=50.0' S=0.0100 '/' Outflow=8.36 cfs 0.742 af

Pond 29P: Wet Pond Peak Elev=58.46' Storage=38,227 cf Inflow=16.00 cfs 1.314 af
Outflow=2.05 cfs 1.314 af

Link 100L: POA #1 Inflow=2.86 cfs 0.441 af
Primary=2.86 cfs 0.441 af

Link 200L: POA #2 Inflow=13.54 cfs 2.969 af
Primary=13.54 cfs 2.969 af

Total Runoff Area = 15.977 ac Runoff Volume = 3.411 af Average Runoff Depth = 2.56"
88.23% Pervious = 14.096 ac 11.77% Impervious = 1.881 ac

Summary for Subcatchment 1S: North Road Entrance, House and Yard to CB #5-2

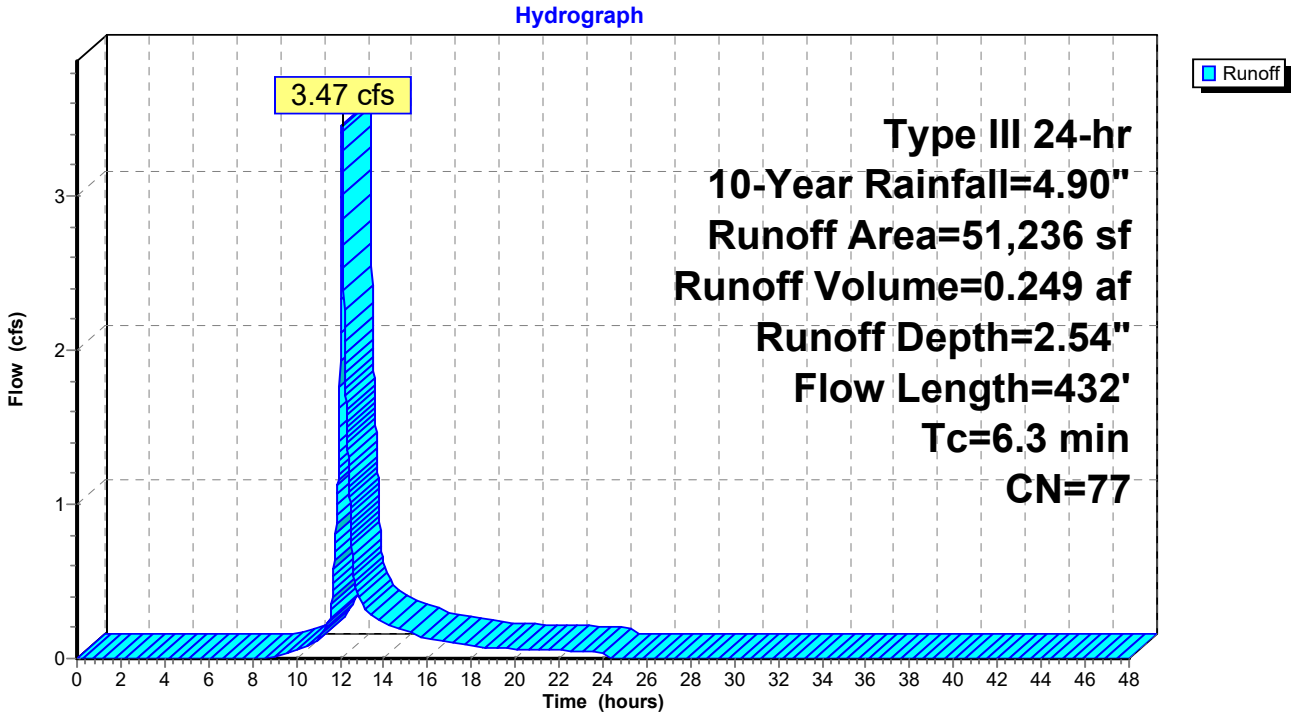
Runoff = 3.47 cfs @ 12.09 hrs, Volume= 0.249 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	741	98	Impervious Existing Pavement
*	1,318	98	Impervious Existing Building
*	2,105	98	Impervious Proposed Pavement
	333	96	Gravel surface, HSG D
	3,755	96	Gravel surface, HSG C
	1,629	87	Dirt roads, HSG C
	7,139	80	>75% Grass cover, Good, HSG D
	818	77	Woods, Good, HSG D
	14,145	74	>75% Grass cover, Good, HSG C
	19,253	70	Woods, Good, HSG C
	51,236	77	Weighted Average
	47,072		91.87% Pervious Area
	4,164		8.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	54	0.0579	0.23		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
1.5	192	0.0941	2.15		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	97	0.0336	2.95		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.3	80	0.0750	4.41		**Shallow Concentrated Flow,** Unpaved Kv= 16.1 fps
0.1	9	0.0075	1.76		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.3	432	Total			

Subcatchment 1S: North Road Entrance, House and Yard to CB #5-2



Summary for Subcatchment 2S: Remaining Land East Side

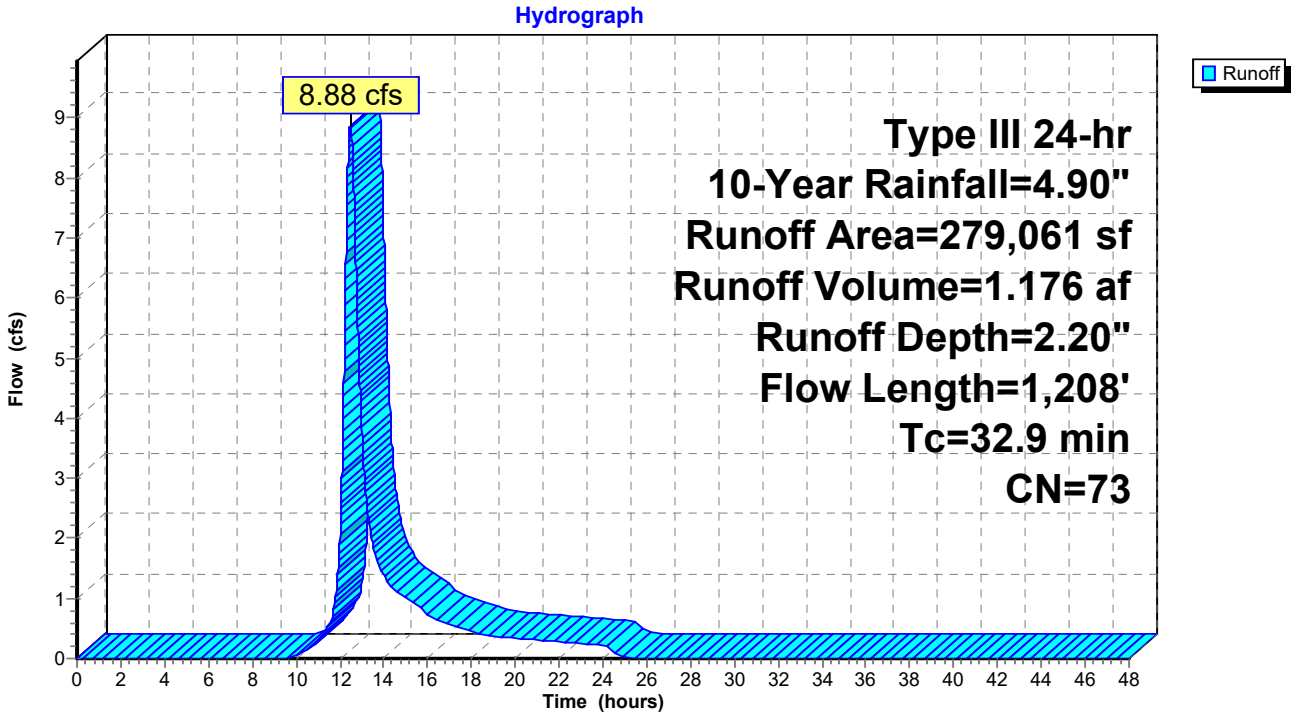
Runoff = 8.88 cfs @ 12.47 hrs, Volume= 1.176 af, Depth= 2.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
1,161	89	Dirt roads, HSG D
2,559	87	Dirt roads, HSG C
2,459	80	>75% Grass cover, Good, HSG D
93,993	77	Woods, Good, HSG D
3,899	74	>75% Grass cover, Good, HSG C
174,990	70	Woods, Good, HSG C
279,061	73	Weighted Average
279,061		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	83	0.1231	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
1.4	121	0.0826	1.44		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.1	301	0.0199	0.71		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
7.8	223	0.0090	0.47		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.6	77	0.0250	0.79		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.1	98	0.0816	1.43		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
5.1	305	0.0393	0.99		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
32.9	1,208	Total			

Subcatchment 2S: Remaining Land East Side



Summary for Subcatchment 10S: South Road Entrance to CB #5-1

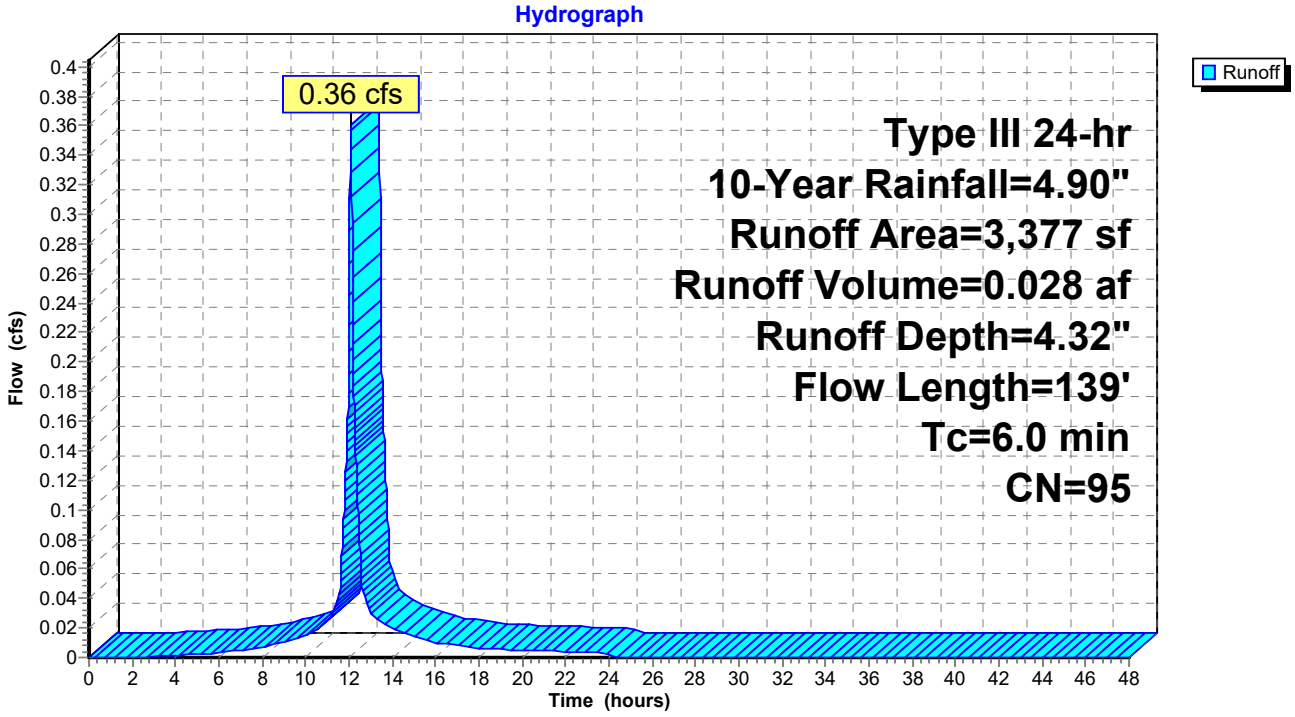
Runoff = 0.36 cfs @ 12.08 hrs, Volume= 0.028 af, Depth= 4.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	129	98	Impervious Existing Pavement
*	2,655	98	Impervious Proposed Pavement
	593	80	>75% Grass cover, Good, HSG D
	3,377	95	Weighted Average
	593		17.56% Pervious Area
	2,784		82.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	50	0.0801	2.12		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.30"
0.1	34	0.0783	5.68		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	37	0.0543	4.73		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	18	0.0444	4.28		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.7	139	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 10S: South Road Entrance to CB #5-1



Summary for Subcatchment 11S: South Route 1 Frontage

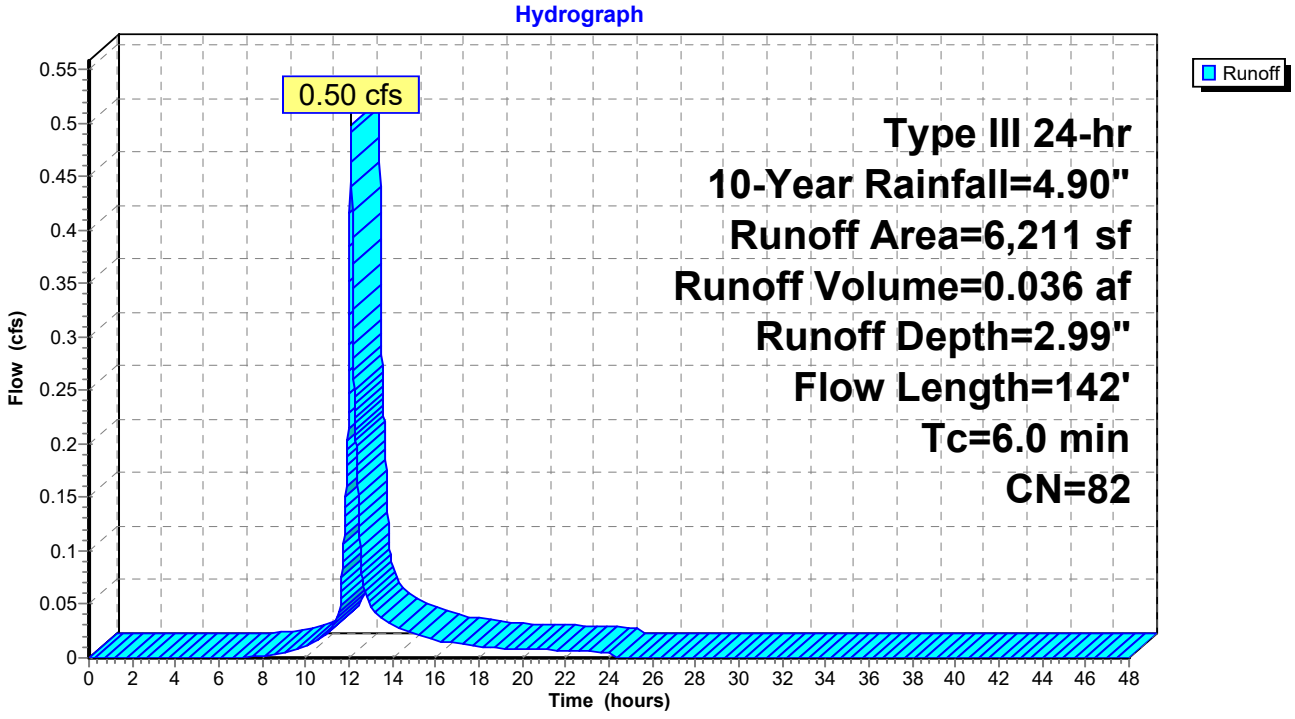
Runoff = 0.50 cfs @ 12.09 hrs, Volume= 0.036 af, Depth= 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	729	98	Impervious
	5,482	80	>75% Grass cover, Good, HSG D
	6,211	82	Weighted Average
	5,482		88.26% Pervious Area
	729		11.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0660	0.24		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.6	92	0.1326	2.55		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
4.0	142	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 11S: South Route 1 Frontage



Summary for Subcatchment 12S: Roadside to CB #4

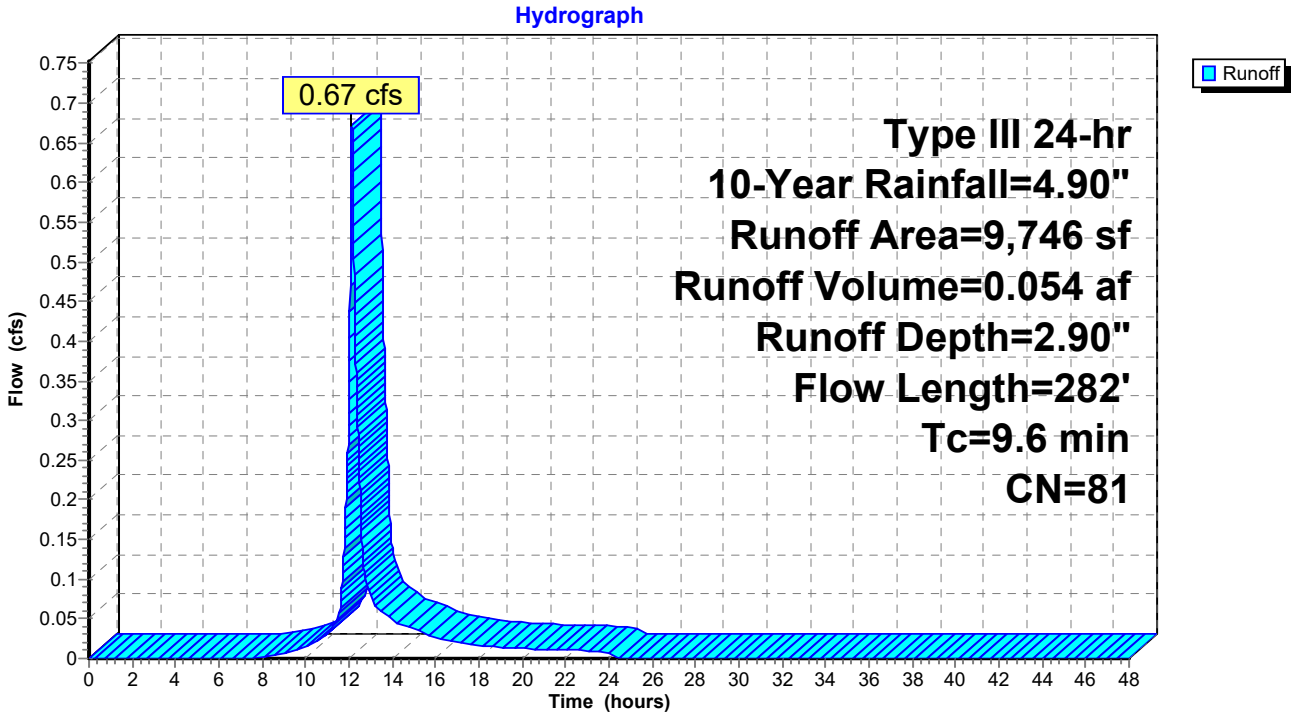
Runoff = 0.67 cfs @ 12.13 hrs, Volume= 0.054 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	2,268	98	Impervious Proposed Pavement
	1,740	80	>75% Grass cover, Good, HSG D
	1,668	77	Woods, Good, HSG D
	3,711	74	>75% Grass cover, Good, HSG C
	359	70	Woods, Good, HSG C
	9,746	81	Weighted Average
	7,478		76.73% Pervious Area
	2,268		23.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	41	0.0399	0.09		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
0.9	61	0.0492	1.11		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	37	0.0849	2.04		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	11	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	132	0.0614	5.03		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
9.6	282	Total			

Subcatchment 12S: Roadside to CB #4



Summary for Subcatchment 13S: Roadside to GUSF #1

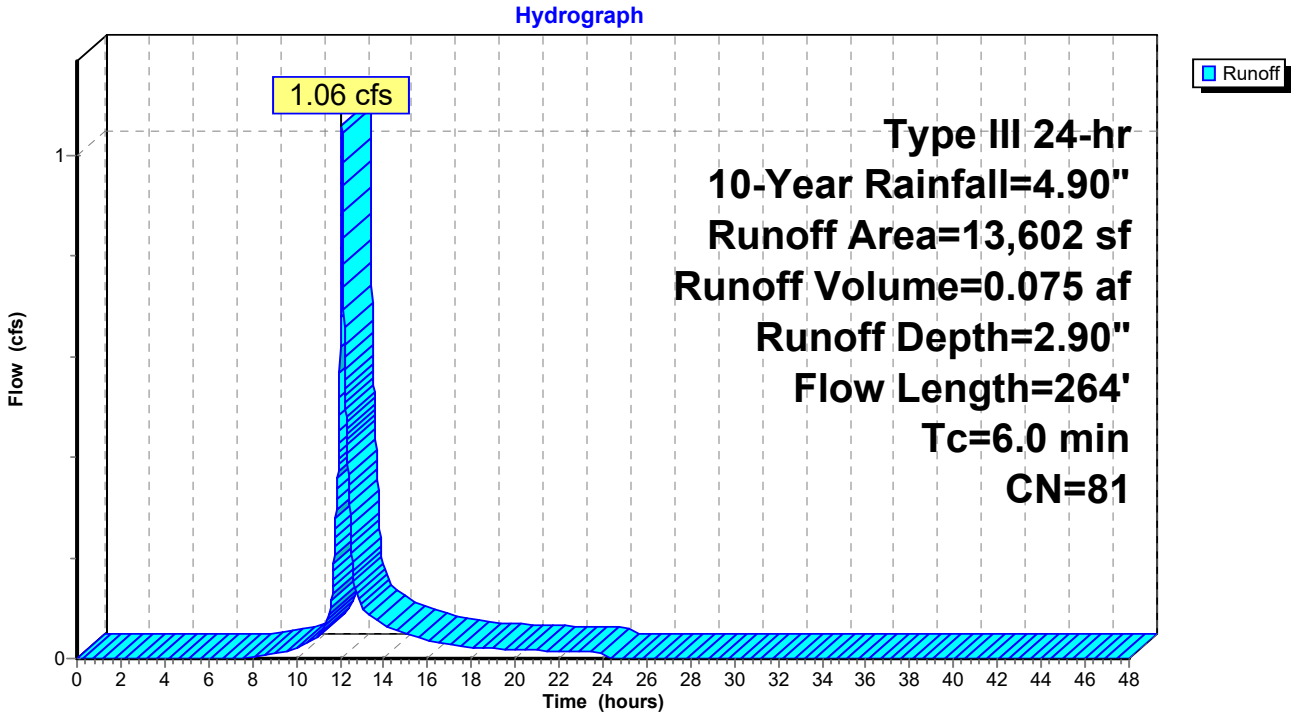
Runoff = 1.06 cfs @ 12.09 hrs, Volume= 0.075 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	2,286	98	Impervious Proposed Pavement
	7,996	80	>75% Grass cover, Good, HSG D
	33	77	Woods, Good, HSG D
	2,443	74	>75% Grass cover, Good, HSG C
	844	70	Woods, Good, HSG C
	13,602	81	Weighted Average
	11,316		83.19% Pervious Area
	2,286		16.81% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.91		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.30"
0.0	8	0.3333	4.04		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	63	0.0159	1.89		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.3	57	0.0351	2.81		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.4	82	0.0610	3.70		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	42	0.0952	4.63		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.7	264	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 13S: Roadside to GUSF #1



Summary for Subcatchment 20S: Roadside to CB #3-1

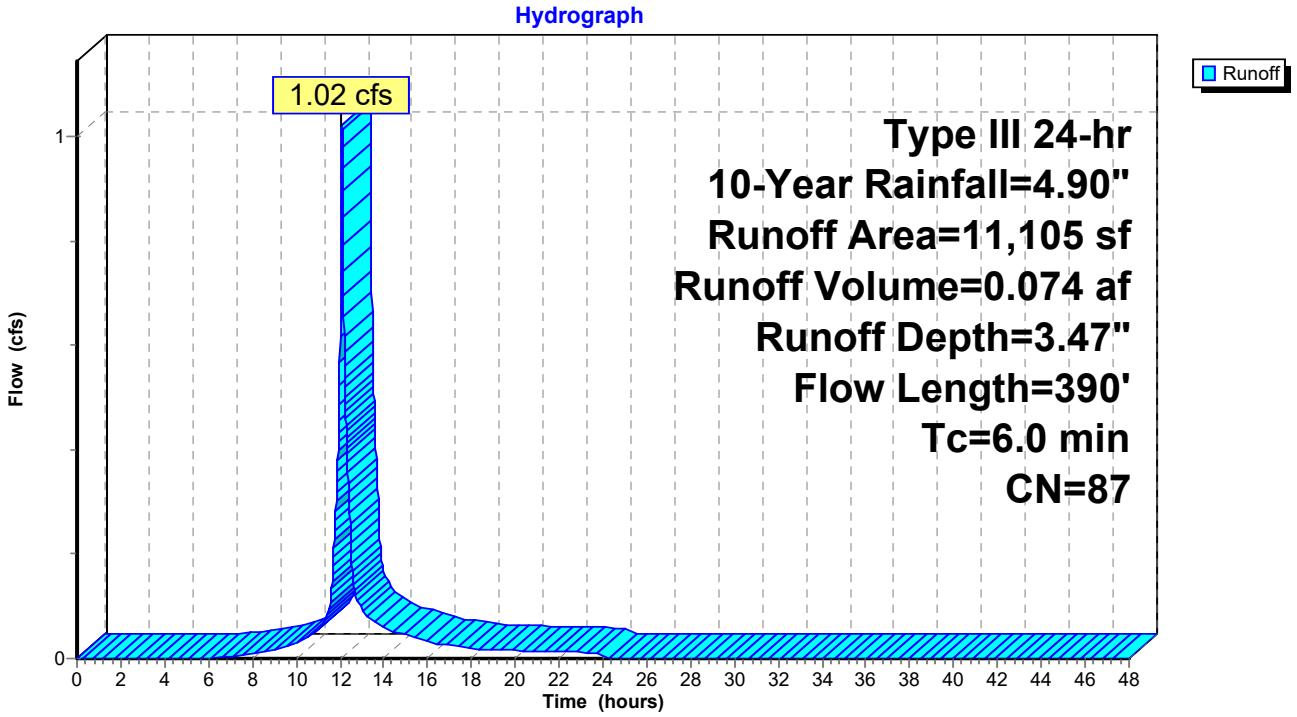
Runoff = 1.02 cfs @ 12.09 hrs, Volume= 0.074 af, Depth= 3.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	4,527	98	Impervious Proposed Pavement
	6,371	80	>75% Grass cover, Good, HSG D
	207	74	>75% Grass cover, Good, HSG C
	11,105	87	Weighted Average
	6,578		59.23% Pervious Area
	4,527		40.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	12	0.0200	0.91		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.30"
0.0	8	0.3333	4.04		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.6	63	0.0159	1.89		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.5	257	0.0350	2.81		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.2	50	0.0650	3.82		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
2.5	390	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 20S: Roadside to CB #3-1



Summary for Subcatchment 21S: Woodland and Roadside to CB #3-2

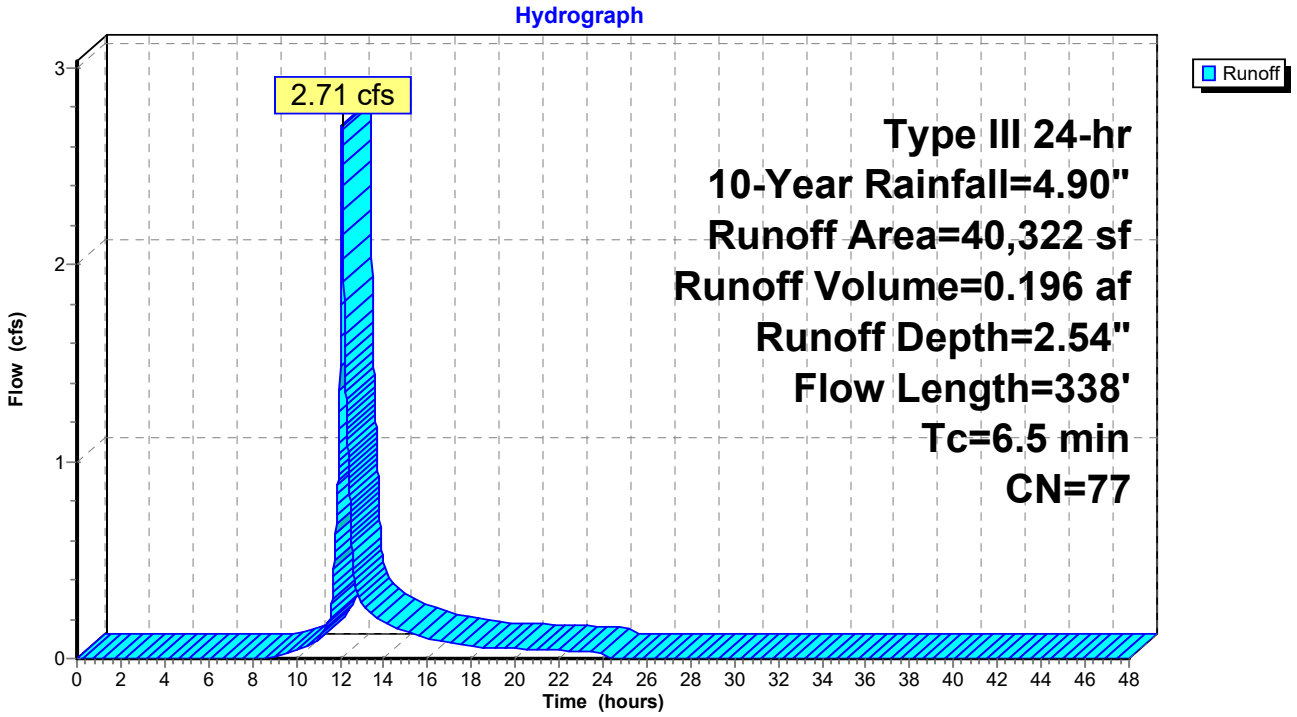
Runoff = 2.71 cfs @ 12.10 hrs, Volume= 0.196 af, Depth= 2.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	2,690	98	Impervious Proposed Pavement
	304	87	Dirt roads, HSG C
	14,485	80	>75% Grass cover, Good, HSG D
	873	77	Woods, Good, HSG D
	15,967	74	>75% Grass cover, Good, HSG C
	6,003	70	Woods, Good, HSG C
	40,322	77	Weighted Average
	37,632		93.33% Pervious Area
	2,690		6.67% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.9	50	0.0493	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
2.1	180	0.0402	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.1	11	0.0402	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	97	0.0341	3.75		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
6.5	338	Total			

Subcatchment 21S: Woodland and Roadside to CB #3-2



Summary for Subcatchment 22S: Woodland and Roadside to CB #3-3

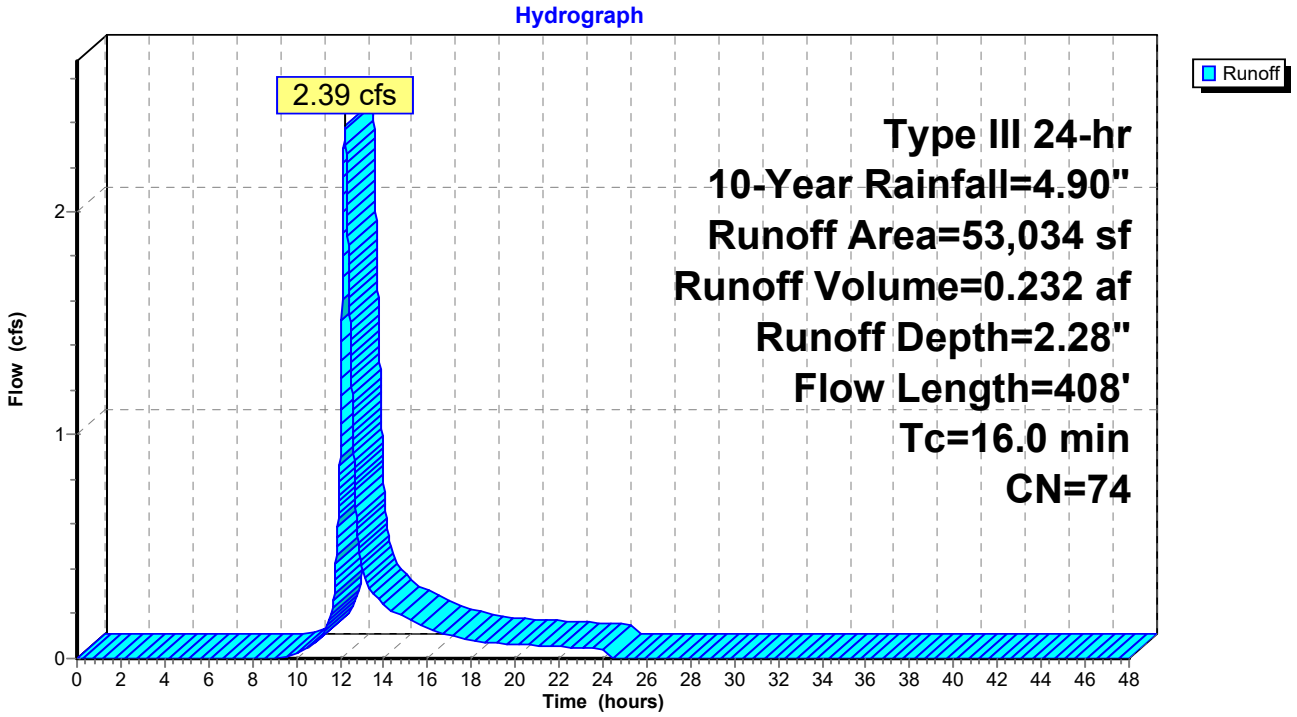
Runoff = 2.39 cfs @ 12.22 hrs, Volume= 0.232 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	3,603	98	Impervious Proposed Pavement
	1,976	87	Dirt roads, HSG C
	3,978	80	>75% Grass cover, Good, HSG D
	442	77	Woods, Good, HSG D
	8,850	74	>75% Grass cover, Good, HSG C
	34,185	70	Woods, Good, HSG C
	53,034	74	Weighted Average
	49,431		93.21% Pervious Area
	3,603		6.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	50	0.0191	0.07		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.30"
1.9	185	0.1017	1.59		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.4	52	0.0769	1.94		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.7	44	0.0471	1.09		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.1	8	0.0350	1.31		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	69	0.0140	2.40		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
16.0	408	Total			

Subcatchment 22S: Woodland and Roadside to CB #3-3



Summary for Subcatchment 23S: Roadside To CB #3-4

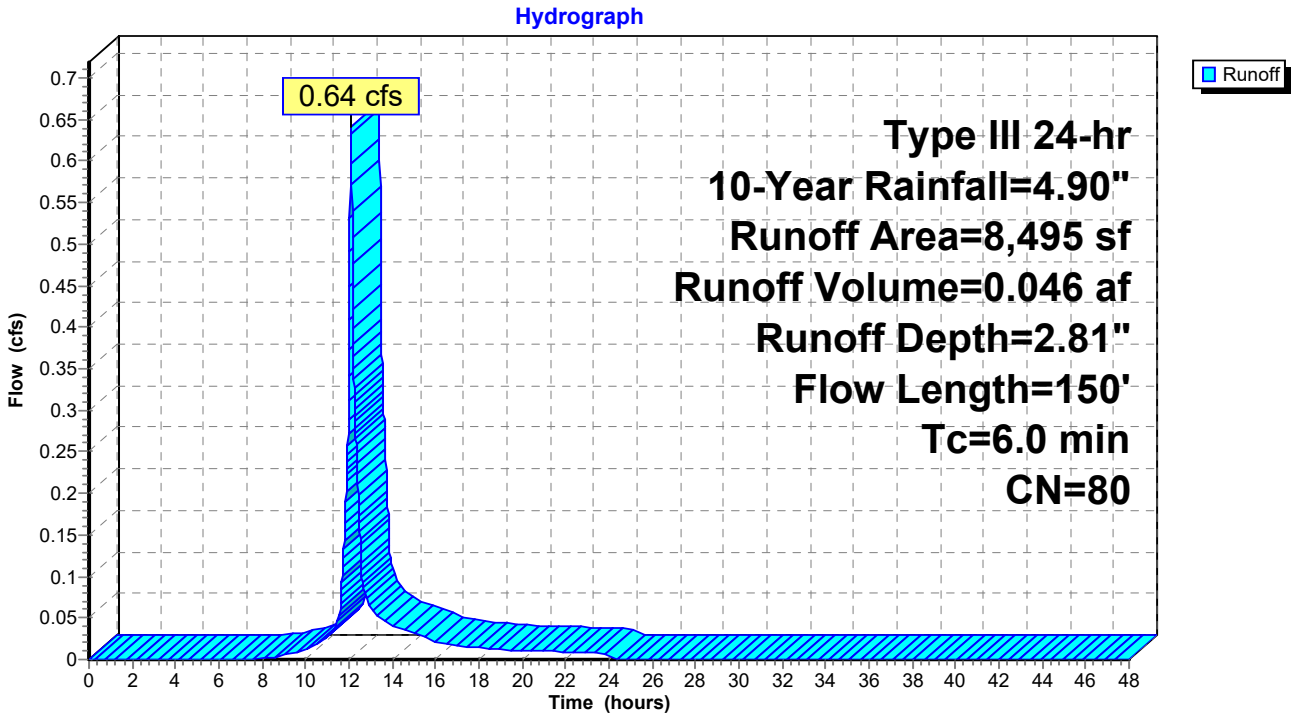
Runoff = 0.64 cfs @ 12.09 hrs, Volume= 0.046 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	2,141	98	Impervoius Proposed Pavement
	224	80	>75% Grass cover, Good, HSG D
	6,130	74	>75% Grass cover, Good, HSG C
	8,495	80	Weighted Average
	6,354		74.80% Pervious Area
	2,141		25.20% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	14	0.0200	0.94		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.30"
0.0	4	0.0400	1.40		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.0	5	0.3333	4.04		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.9	127	0.0222	2.23		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.1	150	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 23S: Roadside To CB #3-4



Summary for Subcatchment 25S: Loading Area to CB #2

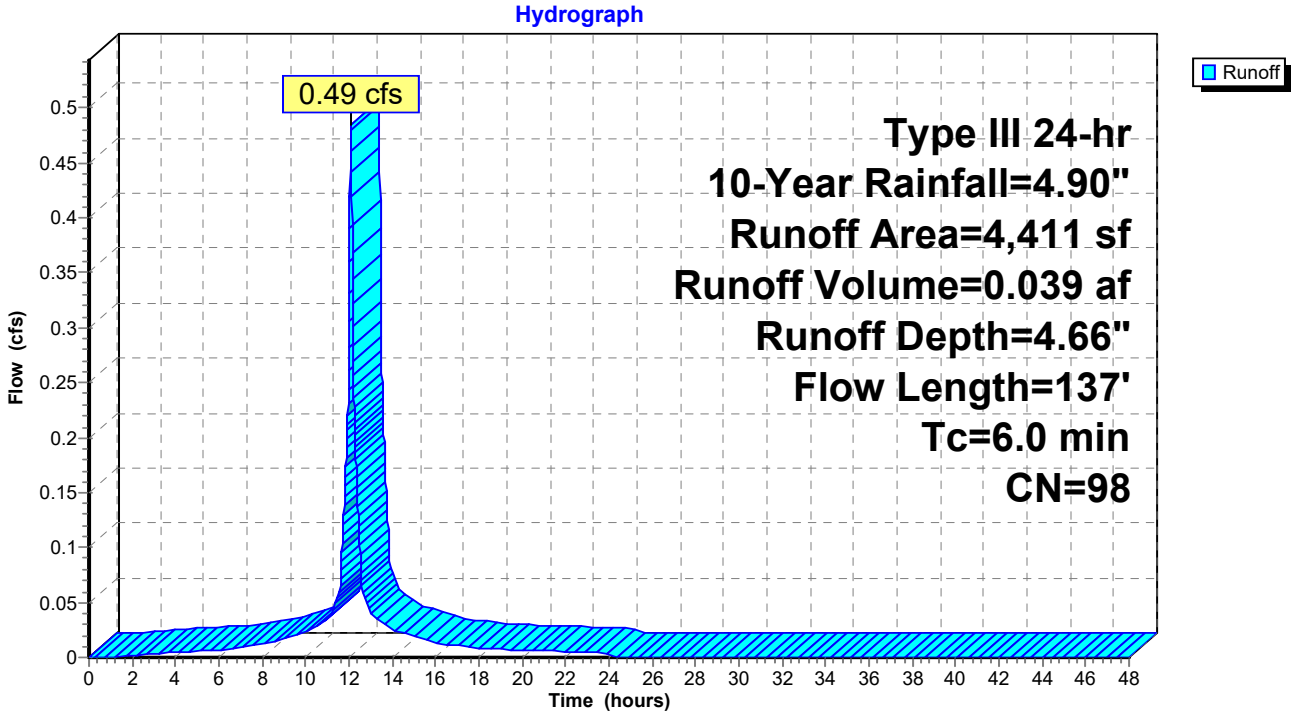
Runoff = 0.49 cfs @ 12.08 hrs, Volume= 0.039 af, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	4,411	98	Impervious Proposed Pavement
	4,411		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	44	0.0316	1.42		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.30"
0.1	24	0.0238	3.13		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	60	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	9	0.0040	1.28		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	137	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 25S: Loading Area to CB #2



Summary for Subcatchment 26S: Parking Lot to CB #1-1

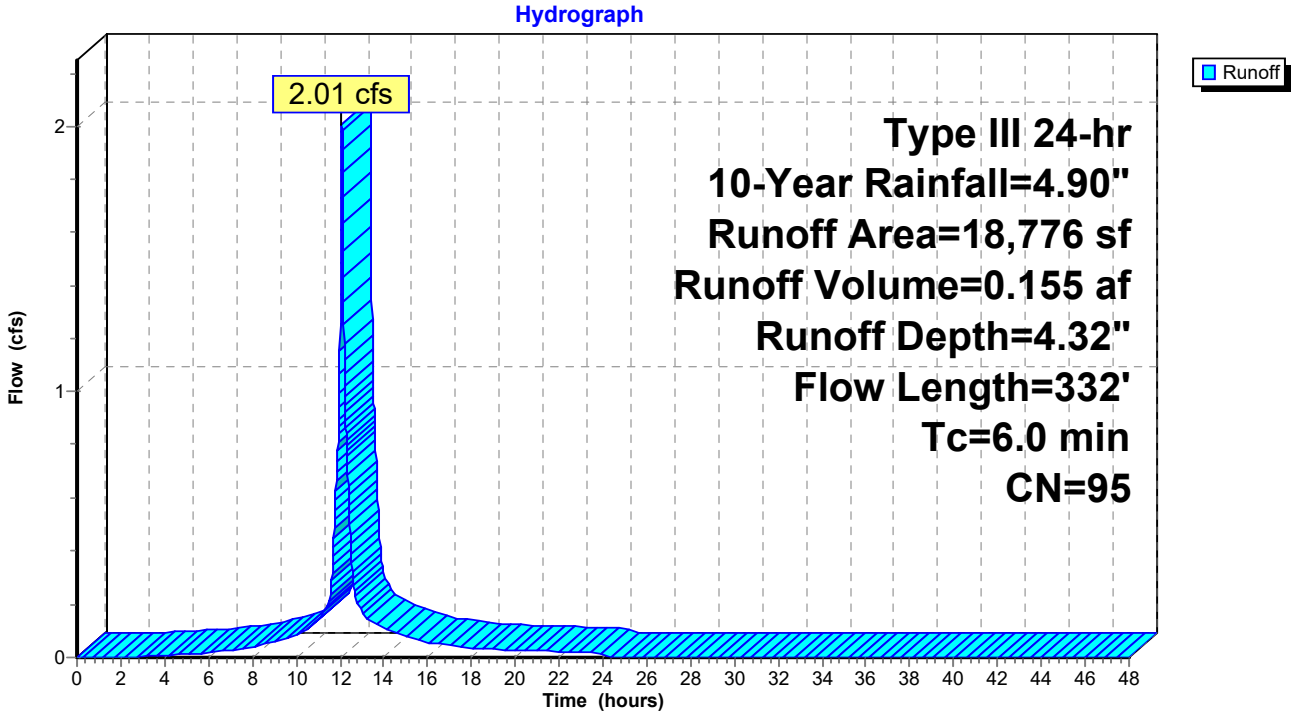
Runoff = 2.01 cfs @ 12.08 hrs, Volume= 0.155 af, Depth= 4.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	16,120	98	Impervious Proposed Pavement
	2,295	80	>75% Grass cover, Good, HSG D
	361	74	>75% Grass cover, Good, HSG C
	18,776	95	Weighted Average
	2,656		14.15% Pervious Area
	16,120		85.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0444	1.67		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.30"
0.2	48	0.0334	3.71		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.4	234	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
2.1	332	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 26S: Parking Lot to CB #1-1



Summary for Subcatchment 27S: Proposed Roof

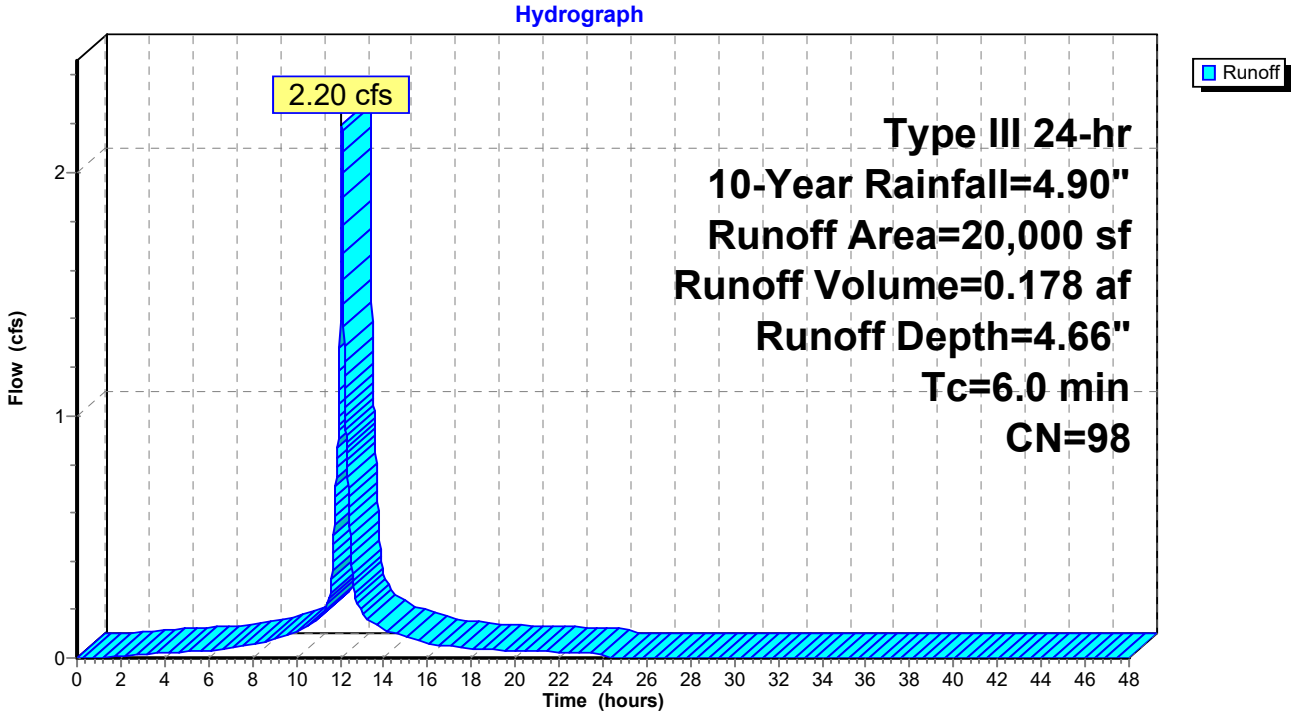
Runoff = 2.20 cfs @ 12.08 hrs, Volume= 0.178 af, Depth= 4.66"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	20,000	98	Impervious Proposed Roof
	20,000		100.00% Impervious Area

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

Subcatchment 27S: Proposed Roof



Summary for Subcatchment 29S: Open Space to GUSF #2

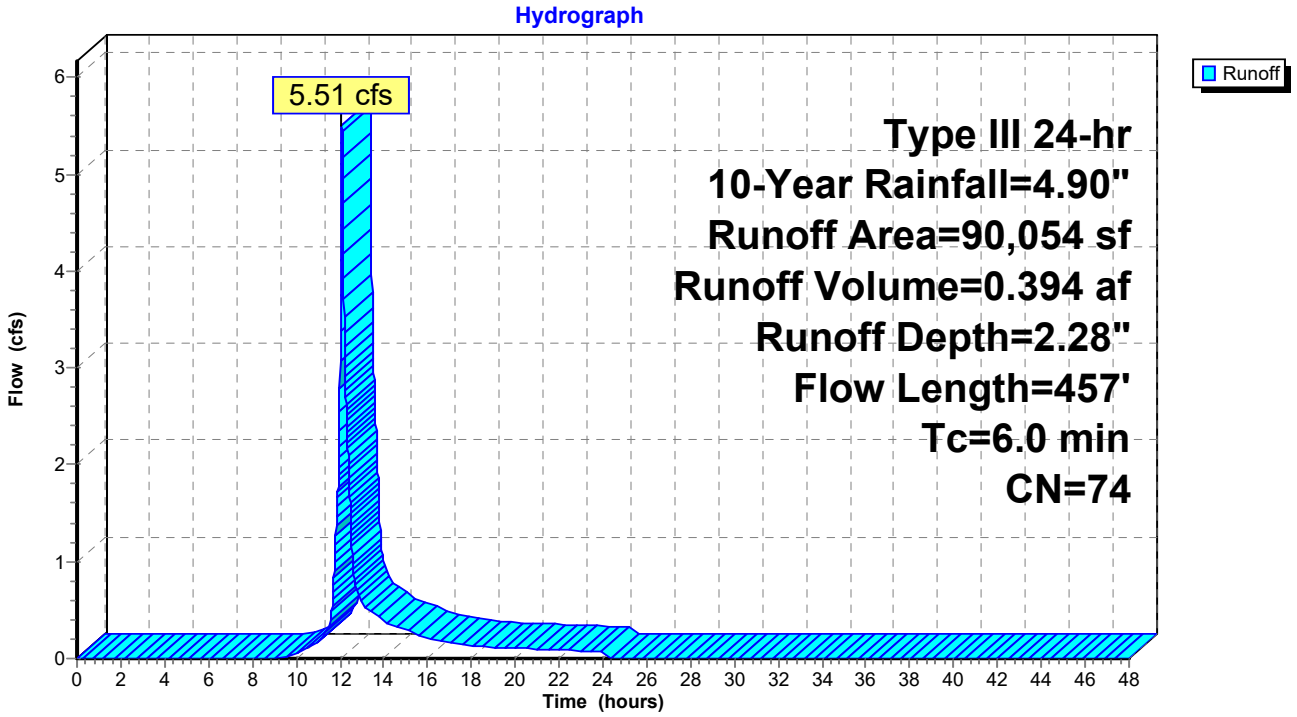
Runoff = 5.51 cfs @ 12.09 hrs, Volume= 0.394 af, Depth= 2.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

Area (sf)	CN	Description
13,841	80	>75% Grass cover, Good, HSG D
18,593	77	Woods, Good, HSG D
31,340	74	>75% Grass cover, Good, HSG C
26,280	70	Woods, Good, HSG C
90,054	74	Weighted Average
90,054		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	16	0.0582	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
3.5	319	0.0100	1.50		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.1	27	0.1290	5.44	13.61	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=1.00' Z= 0.5 '/' Top.W=3.00' n= 0.069 Riprap, 6-inch
0.1	48	0.2800	8.02	20.05	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=1.00' Z= 0.5 '/' Top.W=3.00' n= 0.069 Riprap, 6-inch
0.2	47	0.0950	4.67	11.68	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=1.00' Z= 0.5 '/' Top.W=3.00' n= 0.069 Riprap, 6-inch
5.4	457	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 29S: Open Space to GUSF #2



Summary for Subcatchment 30S: Remaining Land Southwest Side

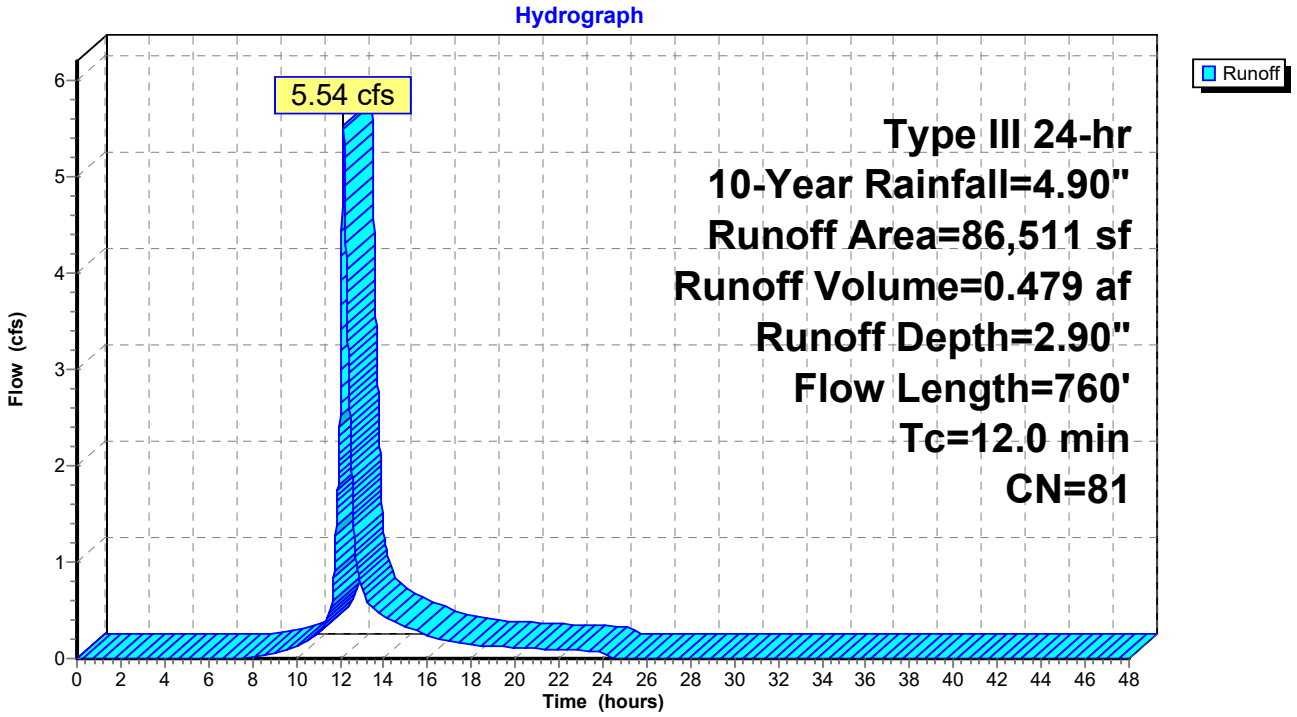
Runoff = 5.54 cfs @ 12.17 hrs, Volume= 0.479 af, Depth= 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.90"

	Area (sf)	CN	Description
*	11,834	98	Impervious Existing Pavement
*	4,369	98	Impervious Existing Roof
	27,369	80	>75% Grass cover, Good, HSG D
	35,628	77	Woods, Good, HSG D
	1,815	74	>75% Grass cover, Good, HSG C
	5,496	70	Woods, Good, HSG C
	86,511	81	Weighted Average
	70,308		81.27% Pervious Area
	16,203		18.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	31	0.0200	0.14		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.30"
0.1	15	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.2	74	0.0203	1.00		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
3.8	209	0.0335	0.92		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
1.4	207	0.0290	2.55		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
0.3	75	0.0933	4.58		**Shallow Concentrated Flow,** Grassed Waterway Kv= 15.0 fps
1.4	149	0.1208	1.74		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
12.0	760	Total			

Subcatchment 30S: Remaining Land Southwest Side



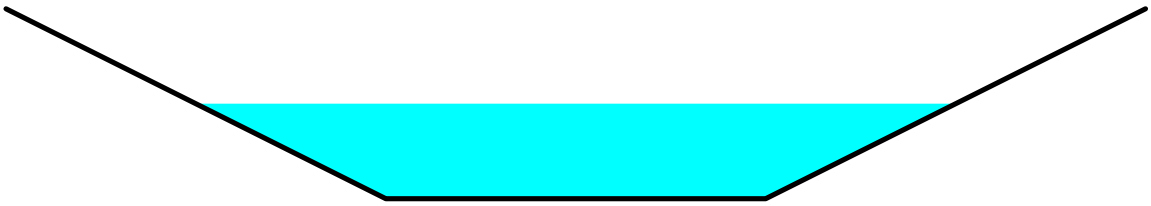
Summary for Reach 10R: Roadside Swale

Inflow Area = 1.396 ac, 12.62% Impervious, Inflow Depth = 2.68" for 10-Year event
Inflow = 4.32 cfs @ 12.09 hrs, Volume= 0.312 af
Outflow = 4.31 cfs @ 12.10 hrs, Volume= 0.312 af, Atten= 0%, Lag= 0.4 min

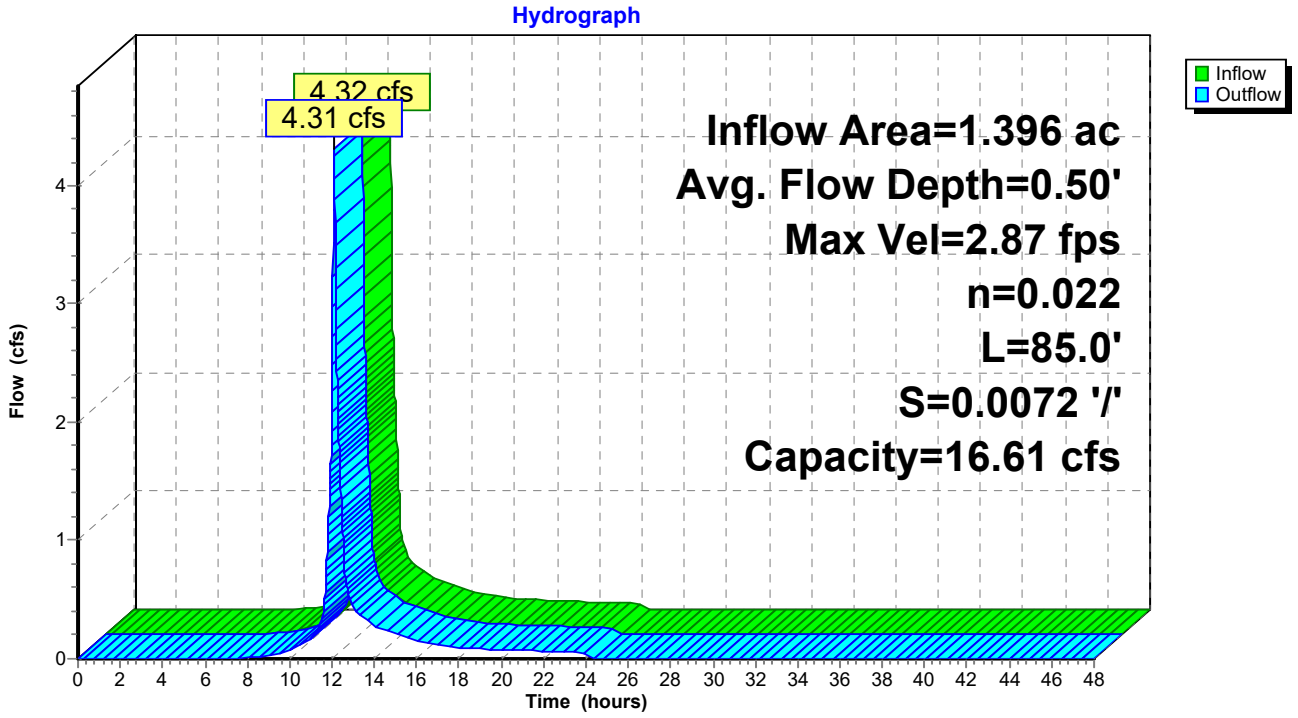
Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.87 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 0.74 fps, Avg. Travel Time= 1.9 min

Peak Storage= 128 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.50'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 16.61 cfs

2.00' x 1.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 2.0 '/' Top Width= 6.00'
Length= 85.0' Slope= 0.0072 '/'
Inlet Invert= 76.91', Outlet Invert= 76.30'



Reach 10R: Roadside Swale



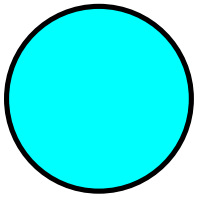
Summary for Reach 13R: 12" DI

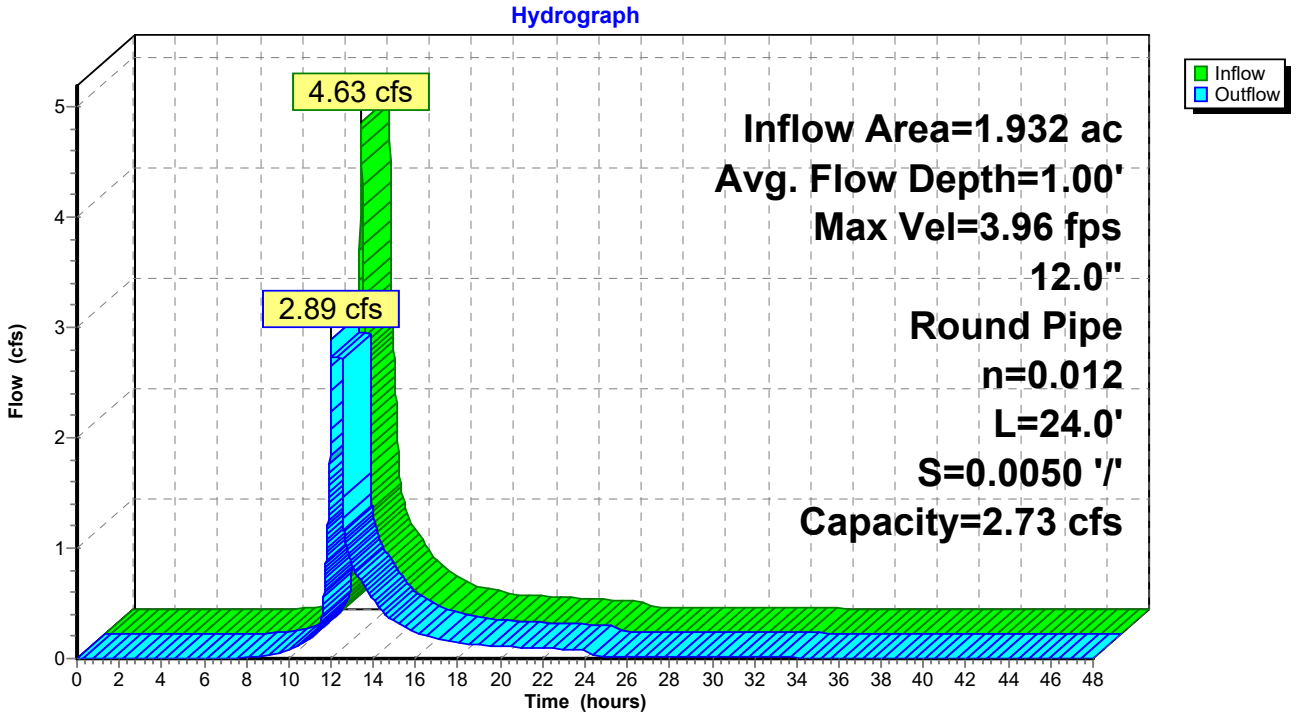
Inflow Area = 1.932 ac, 14.53% Impervious, Inflow Depth > 2.74" for 10-Year event
Inflow = 4.63 cfs @ 12.10 hrs, Volume= 0.441 af
Outflow = 2.89 cfs @ 12.02 hrs, Volume= 0.441 af, Atten= 38%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.96 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.14 fps, Avg. Travel Time= 0.4 min

Peak Storage= 19 cf @ 12.03 hrs
Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 2.73 cfs

12.0" Round Pipe
n= 0.012
Length= 24.0' Slope= 0.0050 '/'
Inlet Invert= 76.30', Outlet Invert= 76.18'





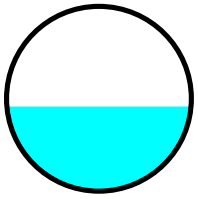
Summary for Reach 25R: 18" CPP

Inflow Area = 2.694 ac, 14.80% Impervious, Inflow Depth = 2.61" for 10-Year event
Inflow = 6.43 cfs @ 12.11 hrs, Volume= 0.586 af
Outflow = 6.43 cfs @ 12.11 hrs, Volume= 0.586 af, Atten= 0%, Lag= 0.1 min

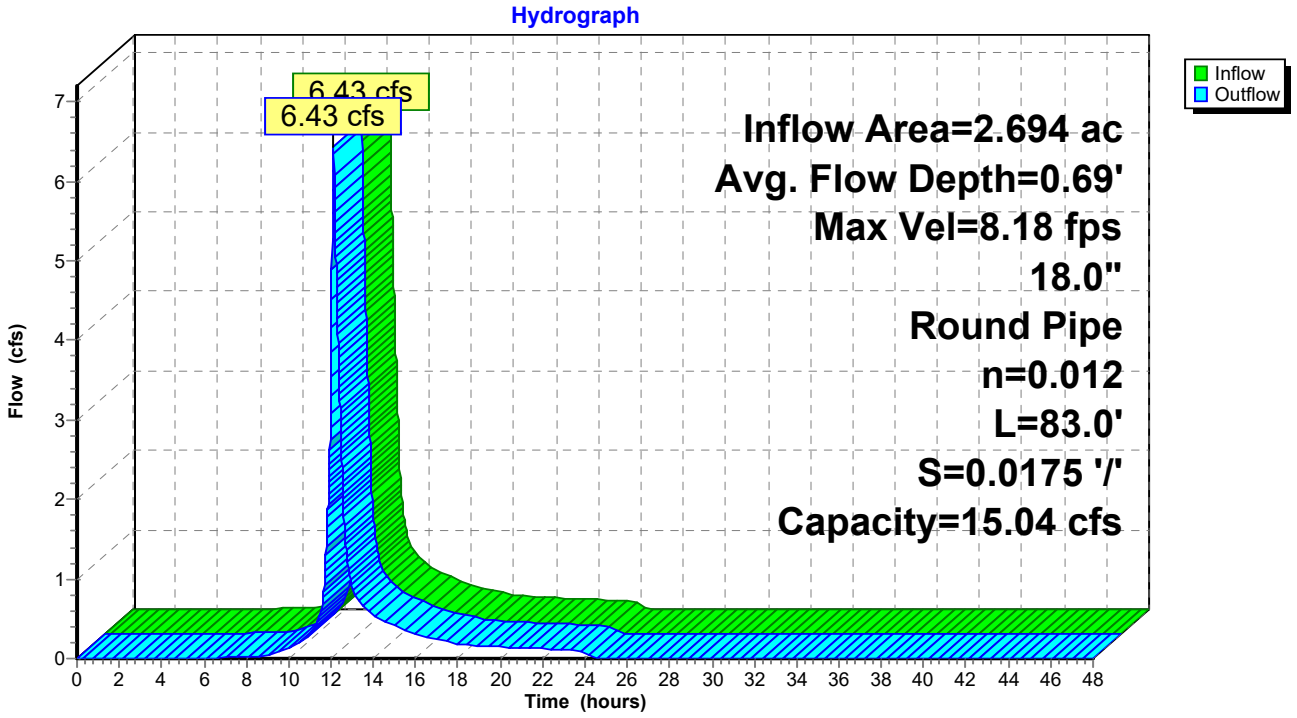
Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 8.18 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.49 fps, Avg. Travel Time= 0.6 min

Peak Storage= 65 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.69'
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 15.04 cfs

18.0" Round Pipe
n= 0.012
Length= 83.0' Slope= 0.0175 '/'
Inlet Invert= 72.95', Outlet Invert= 71.50'



Reach 25R: 18" CPP



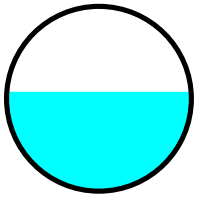
Summary for Reach 27R: 12" Roof Leader

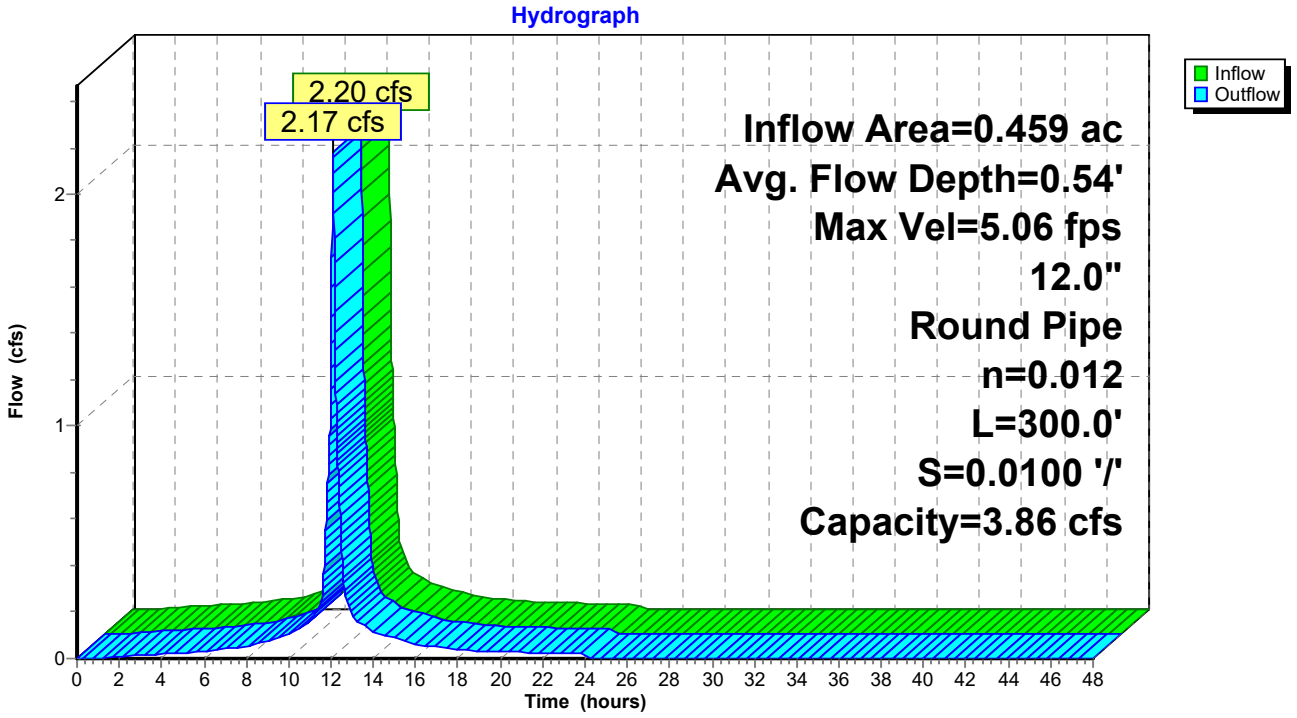
Inflow Area = 0.459 ac,100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 2.20 cfs @ 12.08 hrs, Volume= 0.178 af
Outflow = 2.17 cfs @ 12.10 hrs, Volume= 0.178 af, Atten= 1%, Lag= 0.8 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 5.06 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 1.70 fps, Avg. Travel Time= 2.9 min

Peak Storage= 129 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.54'
Bank-Full Depth= 1.00' Flow Area= 0.8 sf, Capacity= 3.86 cfs

12.0" Round Pipe
n= 0.012
Length= 300.0' Slope= 0.0100 '/'
Inlet Invert= 78.50', Outlet Invert= 75.50'





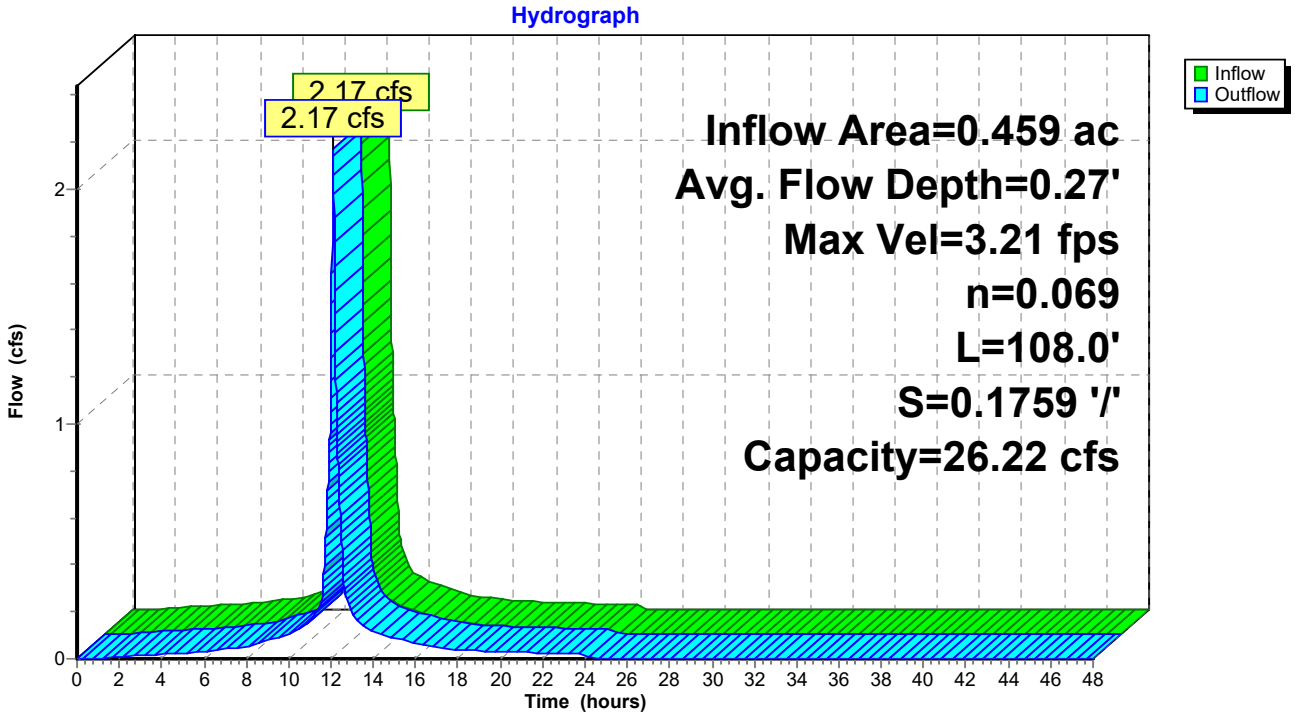
Summary for Reach 28R: Riprap Swale

Inflow Area = 0.459 ac,100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 2.17 cfs @ 12.10 hrs, Volume= 0.178 af
Outflow = 2.17 cfs @ 12.10 hrs, Volume= 0.178 af, Atten= 0%, Lag= 0.4 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.21 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 0.86 fps, Avg. Travel Time= 2.1 min

Peak Storage= 73 cf @ 12.10 hrs
Average Depth at Peak Storage= 0.27'
Bank-Full Depth= 1.00' Flow Area= 4.0 sf, Capacity= 26.22 cfs

2.00' x 1.00' deep channel, n= 0.069 Riprap, 6-inch
Side Slope Z-value= 2.0 '/' Top Width= 6.00'
Length= 108.0' Slope= 0.1759 '/'
Inlet Invert= 75.50', Outlet Invert= 56.50'



Summary for Pond 1P: CB #5-2

Inflow Area = 1.176 ac, 8.13% Impervious, Inflow Depth = 2.54" for 10-Year event
Inflow = 3.47 cfs @ 12.09 hrs, Volume= 0.249 af
Outflow = 3.46 cfs @ 12.09 hrs, Volume= 0.249 af, Atten= 0%, Lag= 0.0 min
Primary = 3.46 cfs @ 12.09 hrs, Volume= 0.249 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 79.38' @ 12.10 hrs Surf.Area= 6 sf Storage= 24 cf

Plug-Flow detention time= 0.2 min calculated for 0.249 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (831.2 - 830.9)

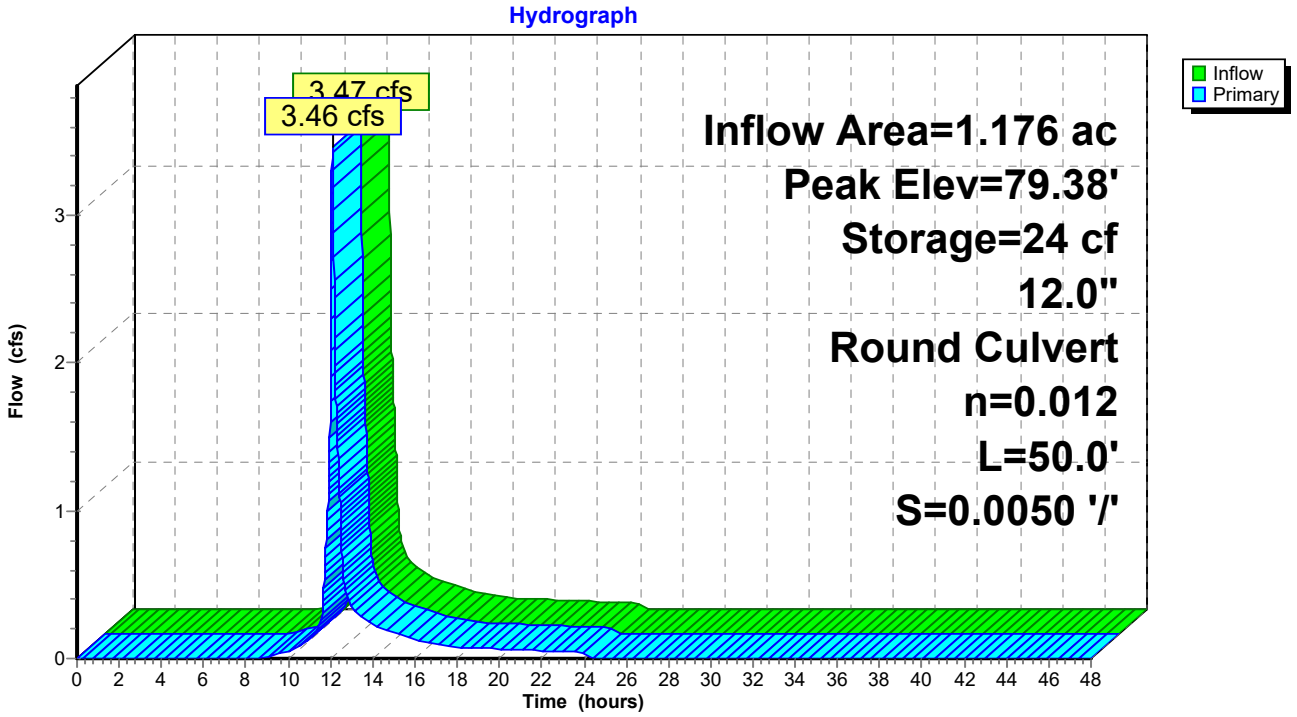
Volume	Invert	Avail.Storage	Storage Description
#1	77.29'	132 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.29	13	0	0
78.60	13	17	17
79.60	4	9	26
80.00	529	107	132

Device	Routing	Invert	Outlet Devices
#1	Primary	77.29'	**12.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 77.29' / 77.04' S= 0.0050 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.43 cfs @ 12.09 hrs HW=79.37' TW=78.53' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 3.43 cfs @ 4.37 fps)

Pond 1P: CB #5-2


Hydrograph
3.47 cfs
3.46 cfs
Inflow Area=1.176 ac
Peak Elev=79.38'
Storage=24 cf
12.0"
Round Culvert
n=0.012
L=50.0'
S=0.0050 '/'
Inflow
Primary
Flow (cfs)
Time (hours)
0
1
2
3
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond 10P: CB #5-1

Inflow Area = 1.254 ac, 12.72% Impervious, Inflow Depth = 2.65" for 10-Year event
Inflow = 3.82 cfs @ 12.09 hrs, Volume= 0.277 af
Outflow = 3.82 cfs @ 12.09 hrs, Volume= 0.277 af, Atten= 0%, Lag= 0.0 min
Primary = 3.82 cfs @ 12.09 hrs, Volume= 0.277 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 78.53' @ 12.09 hrs Surf.Area= 10 sf Storage= 20 cf

Plug-Flow detention time= 0.3 min calculated for 0.277 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (825.1 - 824.9)

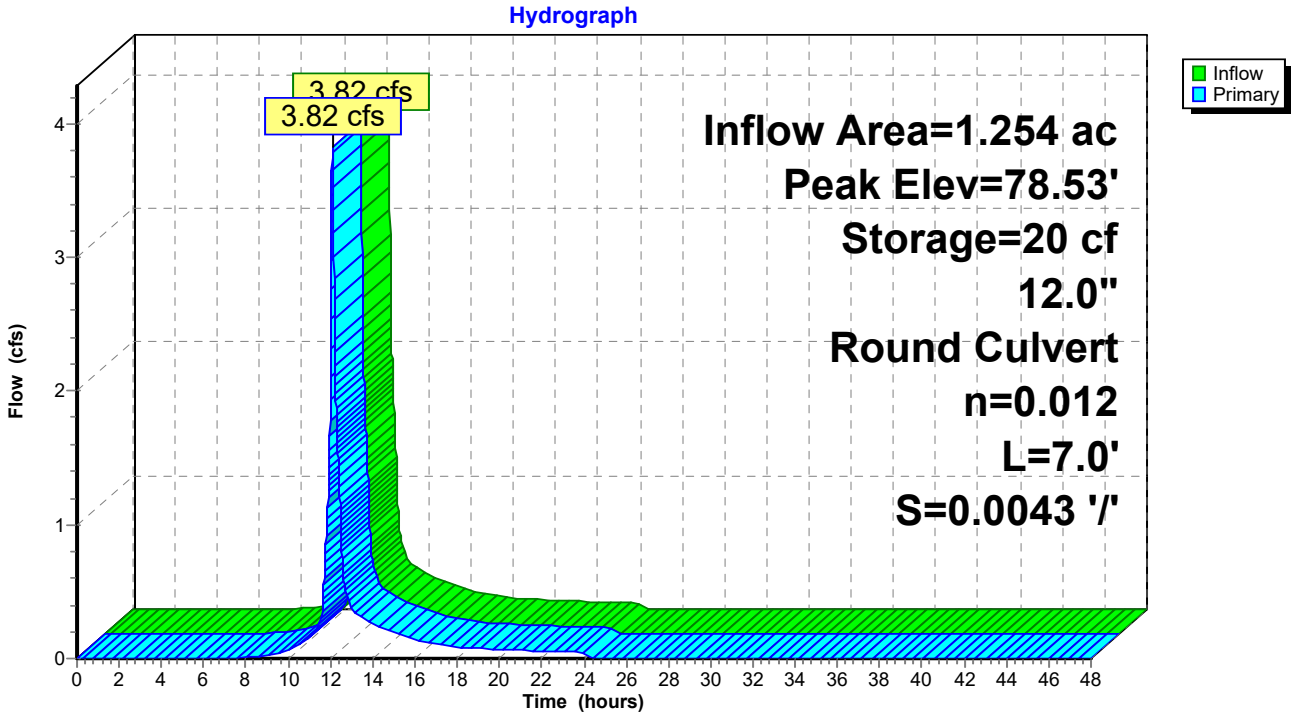
Volume	Invert	Avail.Storage	Storage Description
#1	76.94'	374 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.94	13	0	0
78.25	13	17	17
79.25	4	9	26
80.00	925	348	374

Device	Routing	Invert	Outlet Devices
#1	Primary	76.94'	**12.0" Round Culvert** L= 7.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 76.94' / 76.91' S= 0.0043 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=3.81 cfs @ 12.09 hrs HW=78.53' TW=77.41' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 3.81 cfs @ 4.86 fps)

Pond 10P: CB #5-1



Summary for Pond 12P: CB #4

Inflow Area = 0.224 ac, 23.27% Impervious, Inflow Depth = 2.90" for 10-Year event
Inflow = 0.67 cfs @ 12.13 hrs, Volume= 0.054 af
Outflow = 0.65 cfs @ 12.15 hrs, Volume= 0.054 af, Atten= 3%, Lag= 1.0 min
Primary = 0.65 cfs @ 12.15 hrs, Volume= 0.054 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 84.00' @ 12.16 hrs Surf.Area= 13 sf Storage= 36 cf

Plug-Flow detention time= 4.5 min calculated for 0.054 af (100% of inflow)
Center-of-Mass det. time= 4.4 min (827.7 - 823.3)

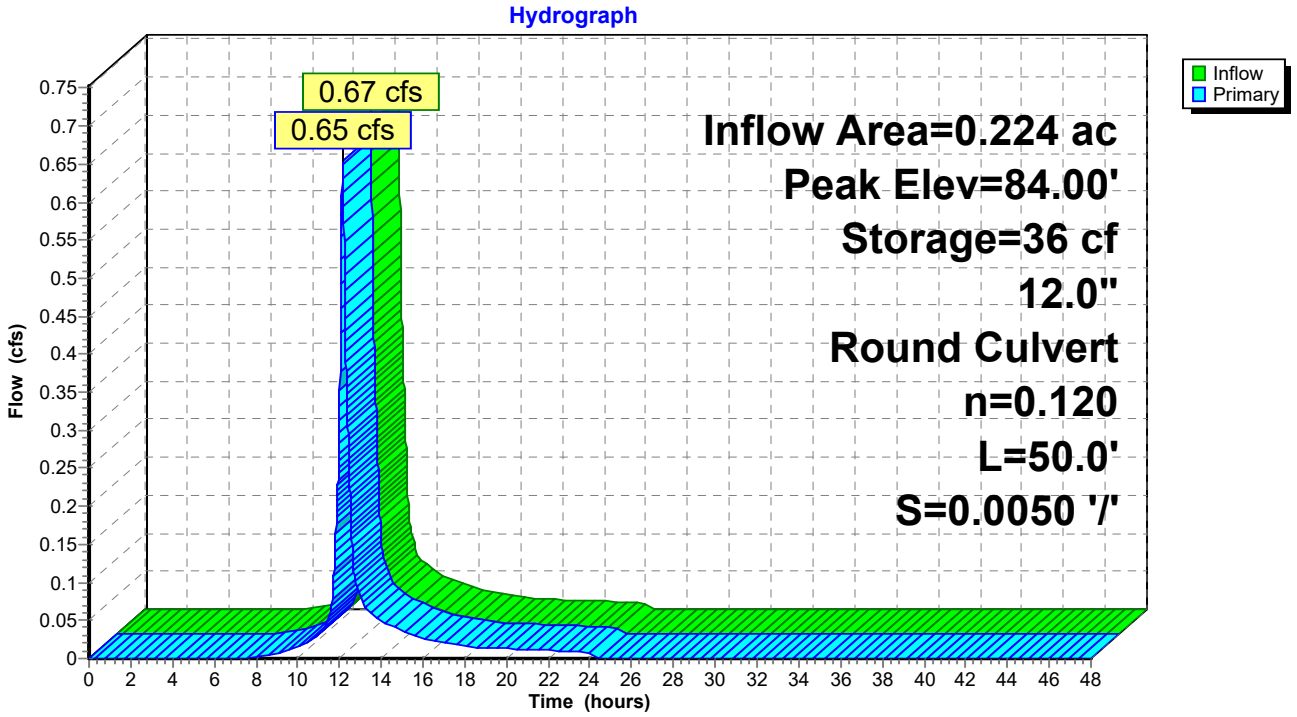
Volume	Invert	Avail.Storage	Storage Description
#1	81.25'	51 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
81.25	13	0	0
84.50	13	42	42
85.50	4	9	51

Device	Routing	Invert	Outlet Devices
#1	Primary	81.25'	**12.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 81.25' / 81.00' S= 0.0050 '/' Cc= 0.900 n= 0.120, Flow Area= 0.79 sf

Primary OutFlow Max=0.65 cfs @ 12.15 hrs HW=83.98' TW=82.56' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.65 cfs @ 0.82 fps)

Pond 12P: CB #4


Hydrograph
Inflow
Primary
0.67 cfs
0.65 cfs
Inflow Area=0.224 ac
Peak Elev=84.00'
Storage=36 cf
12.0"
Round Culvert
n=0.120
L=50.0'
S=0.0050 '/'
Flow (cfs)
Time (hours)
0 0.05 0.1 0.15 0.2 0.25 0.3 0.35 0.4 0.45 0.5 0.55 0.6 0.65 0.7 0.75
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 46 48

Summary for Pond 13P: GUSF #1

Inflow Area = 0.536 ac, 19.50% Impervious, Inflow Depth = 2.90" for 10-Year event
Inflow = 1.63 cfs @ 12.10 hrs, Volume= 0.129 af
Outflow = 0.49 cfs @ 12.49 hrs, Volume= 0.129 af, Atten= 70%, Lag= 23.3 min
Primary = 0.49 cfs @ 12.49 hrs, Volume= 0.129 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 81.00' Surf.Area= 651 sf Storage= 843 cf
Peak Elev= 82.88' @ 12.49 hrs Surf.Area= 1,724 sf Storage= 3,027 cf (2,184 cf above start)
Flood Elev= 84.25' Surf.Area= 2,730 sf Storage= 6,066 cf (5,223 cf above start)

Plug-Flow detention time= 291.9 min calculated for 0.110 af (85% of inflow)
Center-of-Mass det. time= 177.0 min (1,000.1 - 823.2)

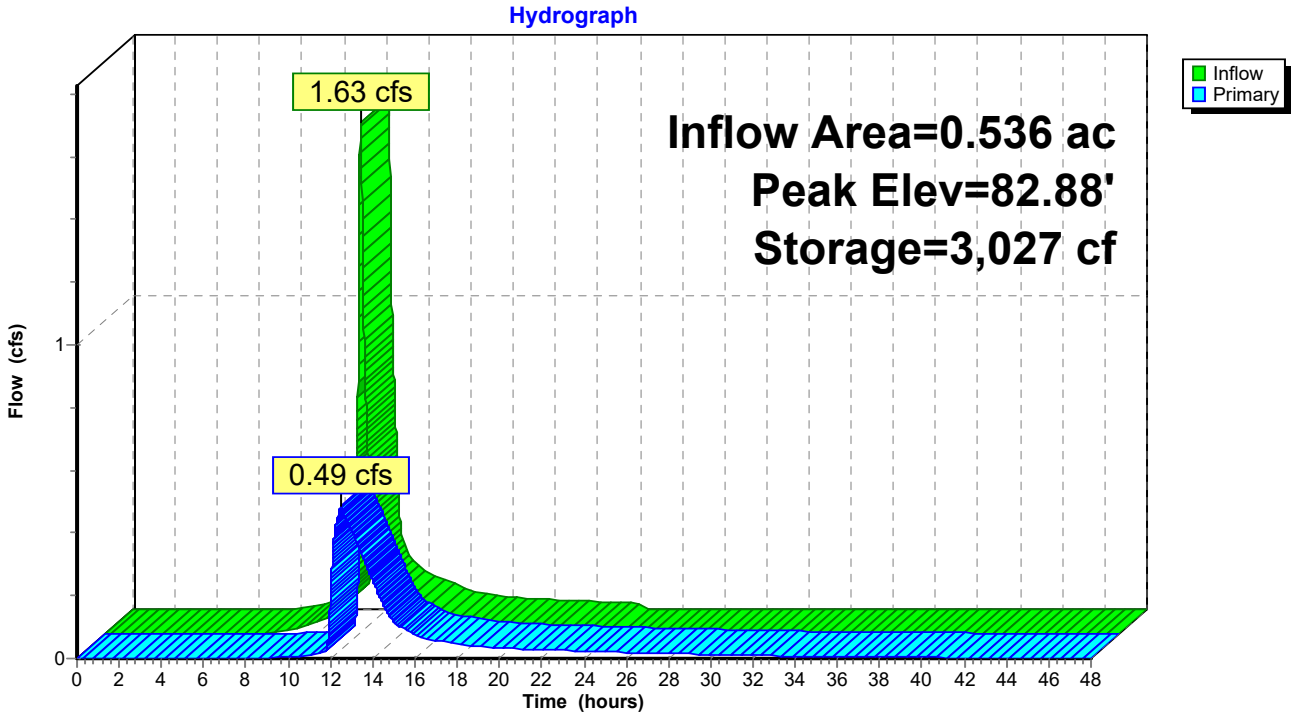
Volume	Invert	Avail.Storage	Storage Description
#1	77.50'	6,066 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.50	651	0.0	0	0
79.00	651	40.0	391	391
79.50	651	40.0	130	521
81.00	651	33.0	322	843
81.80	1,067	100.0	687	1,530
82.00	1,177	100.0	224	1,755
83.00	1,800	100.0	1,489	3,243
84.00	2,531	100.0	2,166	5,409
84.25	2,730	100.0	658	6,066

Device	Routing	Invert	Outlet Devices
#1	Primary	78.00'	**12.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 78.00' / 77.70' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf
#2	Device 1	78.00'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	81.80'	**4.0" Vert. Orifice/Grate** C= 0.600
#4	Device 1	82.83'	**9.0" W x 5.0" H Vert. Orifice/Grate** C= 0.600
#5	Device 1	83.25'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 2	81.00'	**2.410 in/hr Exfiltration over Surface area above 81.00'** Excluded Surface area = 651 sf Phase-In= 0.01'

Primary OutFlow Max=0.49 cfs @ 12.49 hrs HW=82.88' TW=77.30' (Dynamic Tailwater)
- **1=Culvert** (Passes 0.49 cfs of 7.91 cfs potential flow)
  - **2=Orifice/Grate** (Passes 0.06 cfs of 2.03 cfs potential flow)
    - **6=Exfiltration** (Exfiltration Controls 0.06 cfs)
  - **3=Orifice/Grate** (Orifice Controls 0.40 cfs @ 4.60 fps)
  - **4=Orifice/Grate** (Orifice Controls 0.02 cfs @ 0.70 fps)
  - **5=Orifice/Grate** (Controls 0.00 cfs)

Pond 13P: GUSF #1



Summary for Pond 14P: DMH #5 / Existing 12" DI

Inflow Area = 1.932 ac, 14.53% Impervious, Inflow Depth > 2.74" for 10-Year event
Inflow = 2.89 cfs @ 12.02 hrs, Volume= 0.441 af
Outflow = 2.86 cfs @ 12.02 hrs, Volume= 0.441 af, Atten= 1%, Lag= 0.1 min
Primary = 2.86 cfs @ 12.02 hrs, Volume= 0.441 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 77.15' @ 12.02 hrs Surf.Area= 13 sf Storage= 14 cf

Plug-Flow detention time= 0.2 min calculated for 0.441 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (877.6 - 877.4)

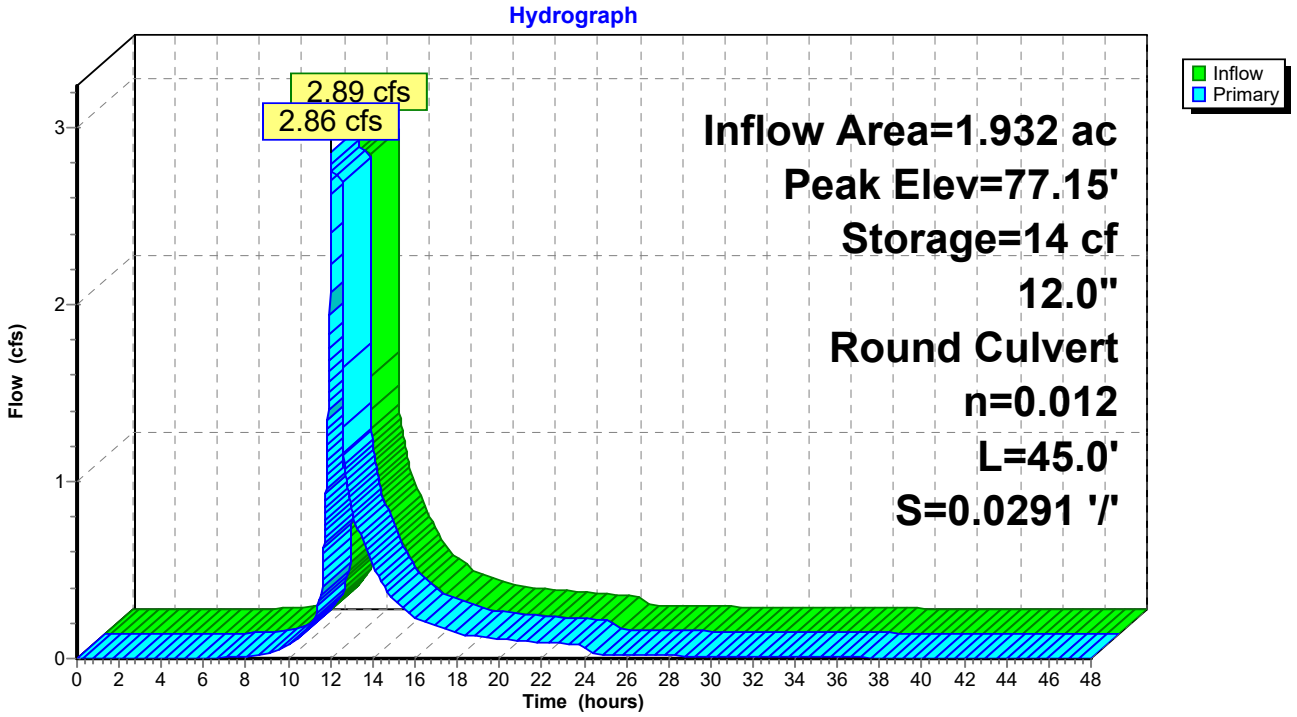
Volume	Invert	Avail.Storage	Storage Description
#1	76.08'	23 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.08	13	0	0
77.20	13	15	15
78.20	4	9	23

Device	Routing	Invert	Outlet Devices
#1	Primary	76.08'	**12.0" Round Culvert** L= 45.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 76.08' / 74.77' S= 0.0291 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.83 cfs @ 12.02 hrs HW=77.14' TW=0.00' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.83 cfs @ 3.60 fps)

Pond 14P: DMH #5 / Existing 12" DI



Summary for Pond 20P: CB #3-1

Inflow Area = 0.255 ac, 40.77% Impervious, Inflow Depth = 3.47" for 10-Year event
Inflow = 1.02 cfs @ 12.09 hrs, Volume= 0.074 af
Outflow = 1.01 cfs @ 12.09 hrs, Volume= 0.074 af, Atten= 1%, Lag= 0.1 min
Primary = 1.01 cfs @ 12.09 hrs, Volume= 0.074 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 77.34' @ 12.12 hrs Surf.Area= 13 sf Storage= 12 cf

Plug-Flow detention time= 0.6 min calculated for 0.074 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (802.4 - 802.0)

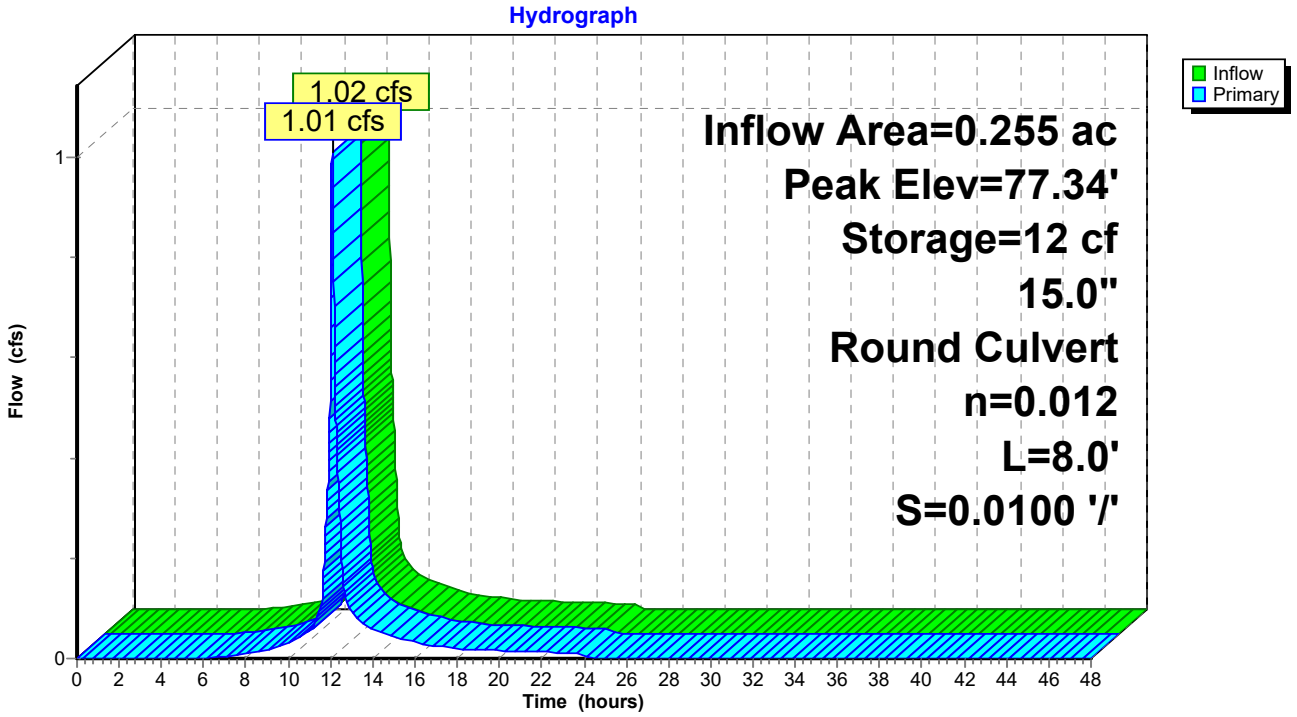
Volume	Invert	Avail.Storage	Storage Description
#1	76.38'	106 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.38	13	0	0
78.75	13	31	31
79.75	4	9	39
80.00	40	6	45
80.71	131	61	106

Device	Routing	Invert	Outlet Devices
#1	Primary	76.38'	**15.0" Round Culvert** L= 8.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 76.38' / 76.30' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=0.75 cfs @ 12.09 hrs HW=77.30' TW=77.27' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.75 cfs @ 1.07 fps)

Pond 20P: CB #3-1



Summary for Pond 21P: CB #3-2

Inflow Area = 0.926 ac, 6.67% Impervious, Inflow Depth = 2.54" for 10-Year event
Inflow = 2.71 cfs @ 12.10 hrs, Volume= 0.196 af
Outflow = 2.71 cfs @ 12.10 hrs, Volume= 0.196 af, Atten= 0%, Lag= 0.1 min
Primary = 2.71 cfs @ 12.10 hrs, Volume= 0.196 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 84.66' @ 12.10 hrs Surf.Area= 13 sf Storage= 13 cf

Plug-Flow detention time= 0.4 min calculated for 0.196 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (831.3 - 831.1)

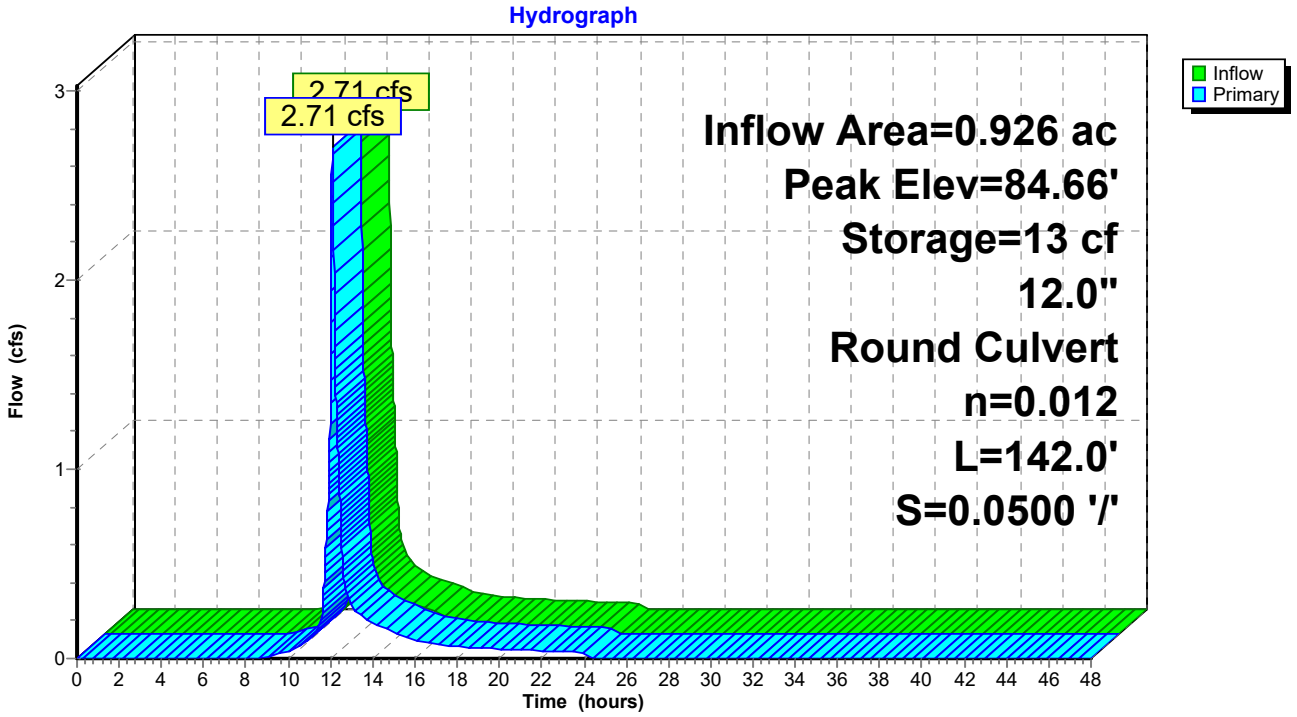
Volume	Invert	Avail.Storage	Storage Description
#1	83.65'	48 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
83.65	13	0	0
86.70	13	40	40
87.70	4	9	48

Device	Routing	Invert	Outlet Devices
#1	Primary	83.65'	**12.0" Round Culvert** L= 142.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 83.65' / 76.55' S= 0.0500 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.70 cfs @ 12.10 hrs HW=84.66' TW=77.29' (Dynamic Tailwater)
1=Culvert (Inlet Controls 2.70 cfs @ 3.44 fps)

Pond 21P: CB #3-2



Summary for Pond 22P: CB #3-3

Inflow Area = 1.217 ac, 6.79% Impervious, Inflow Depth = 2.28" for 10-Year event
Inflow = 2.39 cfs @ 12.22 hrs, Volume= 0.232 af
Outflow = 2.39 cfs @ 12.22 hrs, Volume= 0.232 af, Atten= 0%, Lag= 0.0 min
Primary = 2.39 cfs @ 12.22 hrs, Volume= 0.232 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 79.89' @ 12.22 hrs Surf.Area= 13 sf Storage= 12 cf

Plug-Flow detention time= 0.4 min calculated for 0.232 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (847.9 - 847.7)

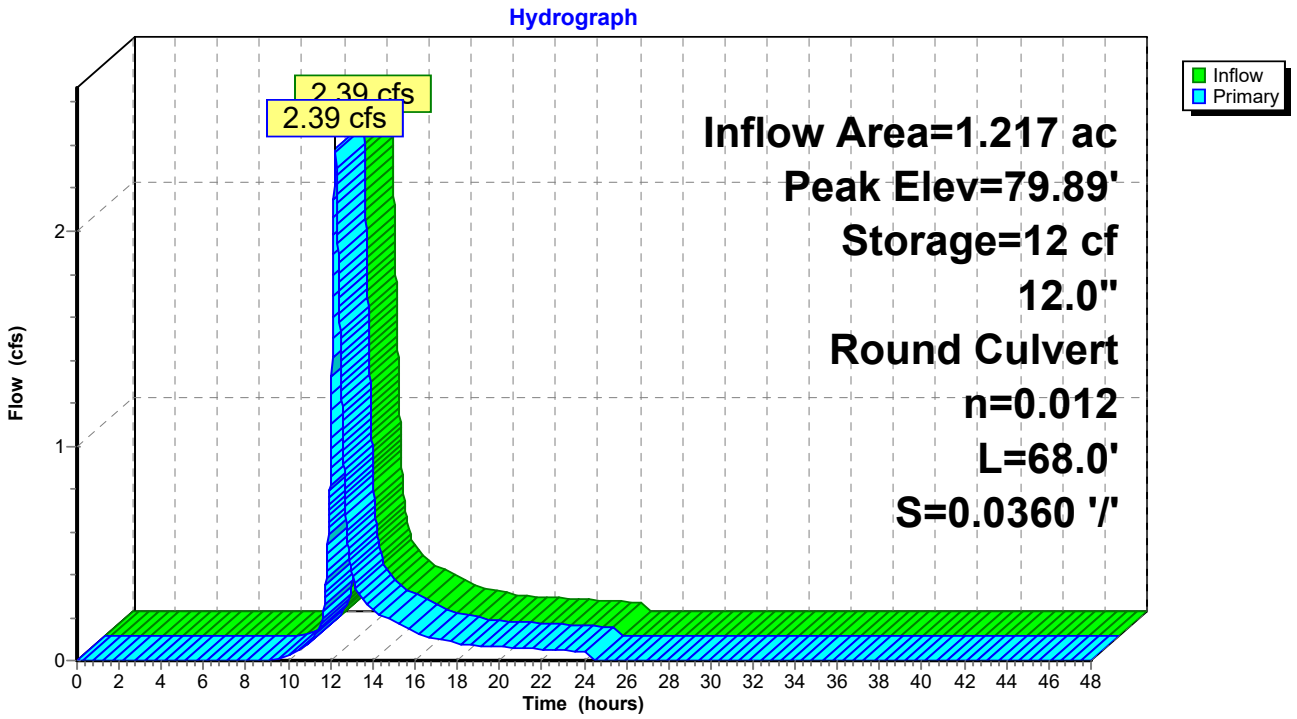
Volume	Invert	Avail.Storage	Storage Description
#1	79.00'	48 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
79.00	13	0	0
82.00	13	39	39
83.00	4	9	48

Device	Routing	Invert	Outlet Devices
#1	Primary	79.00'	**12.0" Round Culvert** L= 68.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 79.00' / 76.55' S= 0.0360 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=2.38 cfs @ 12.22 hrs HW=79.89' TW=77.13' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 2.38 cfs @ 3.22 fps)

Pond 22P: CB #3-3



Summary for Pond 23P: CB #3-4

Inflow Area = 0.195 ac, 25.20% Impervious, Inflow Depth = 2.81" for 10-Year event
Inflow = 0.64 cfs @ 12.09 hrs, Volume= 0.046 af
Outflow = 0.64 cfs @ 12.09 hrs, Volume= 0.046 af, Atten= 1%, Lag= 0.1 min
Primary = 0.64 cfs @ 12.09 hrs, Volume= 0.046 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 77.52' @ 12.11 hrs Surf.Area= 13 sf Storage= 7 cf

Plug-Flow detention time= 0.5 min calculated for 0.046 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (823.2 - 822.7)

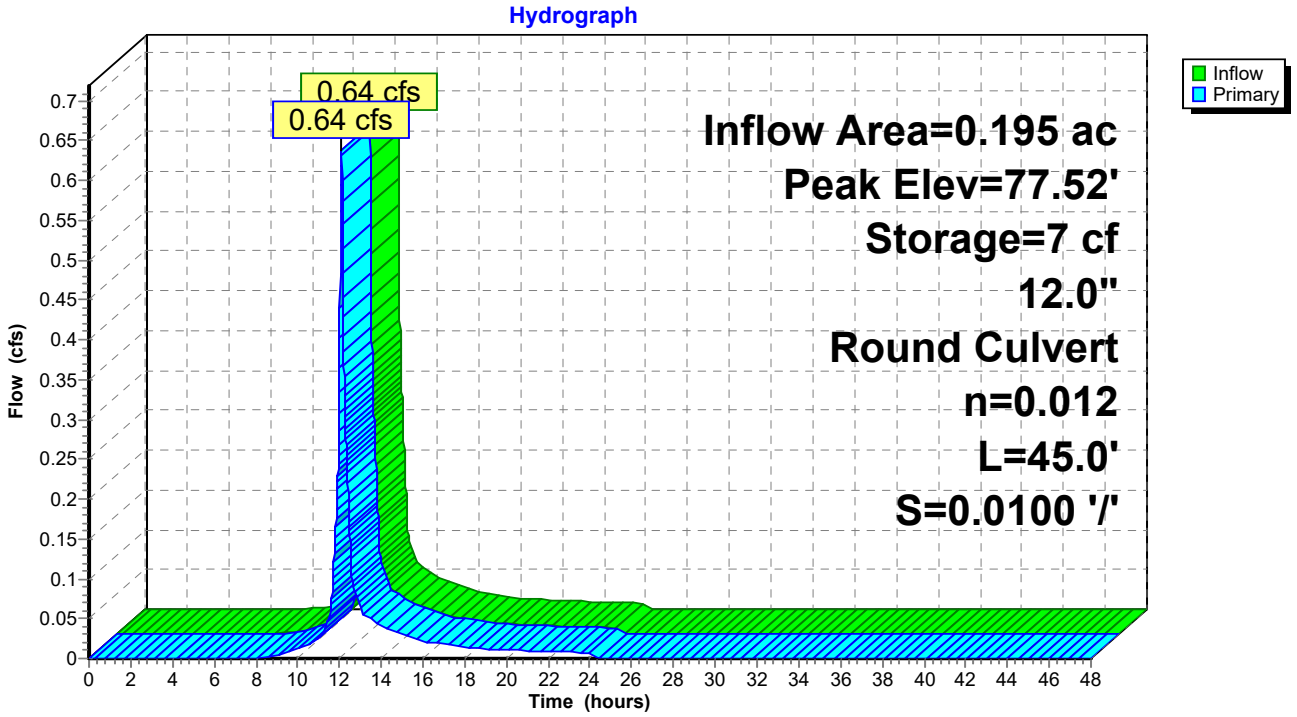
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	133 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	13	0	0
79.00	13	26	26
80.00	4	9	35
80.50	388	98	133

Device	Routing	Invert	Outlet Devices
#1	Primary	77.00'	**12.0" Round Culvert** L= 45.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 77.00' / 76.55' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.61 cfs @ 12.09 hrs HW=77.51' TW=77.28' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.61 cfs @ 2.21 fps)

Pond 23P: CB #3-4



Summary for Pond 24P: DMH #3

Inflow Area = 2.593 ac, 11.47% Impervious, Inflow Depth = 2.53" for 10-Year event
Inflow = 5.97 cfs @ 12.11 hrs, Volume= 0.547 af
Outflow = 5.97 cfs @ 12.11 hrs, Volume= 0.547 af, Atten= 0%, Lag= 0.0 min
Primary = 5.97 cfs @ 12.11 hrs, Volume= 0.547 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 77.30' @ 12.11 hrs Surf.Area= 20 sf Storage= 25 cf

Plug-Flow detention time= 0.2 min calculated for 0.547 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (834.0 - 833.8)

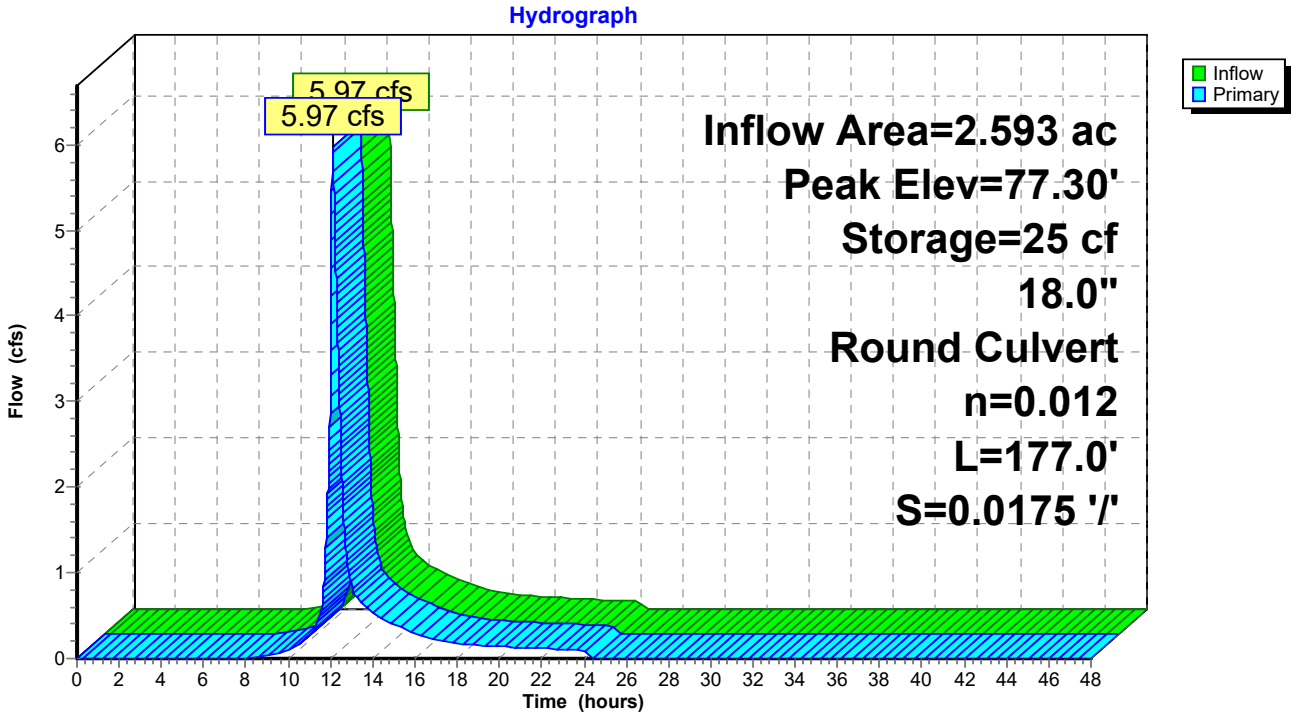
Volume	Invert	Avail.Storage	Storage Description
#1	76.05'	103 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.05	20	0	0
80.60	20	91	91
81.60	4	12	103

Device	Routing	Invert	Outlet Devices
#1	Primary	76.05'	**18.0" Round Culvert** L= 177.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 76.05' / 72.95' S= 0.0175 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=5.97 cfs @ 12.11 hrs HW=77.30' TW=73.63' (Dynamic Tailwater)
1=Culvert (Inlet Controls 5.97 cfs @ 3.80 fps)

Pond 24P: DMH #3



Summary for Pond 25P: CB #2

Inflow Area = 0.101 ac,100.00% Impervious, Inflow Depth = 4.66" for 10-Year event
Inflow = 0.49 cfs @ 12.08 hrs, Volume= 0.039 af
Outflow = 0.48 cfs @ 12.08 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.1 min
Primary = 0.48 cfs @ 12.08 hrs, Volume= 0.039 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 73.94' @ 12.10 hrs Surf.Area= 13 sf Storage= 5 cf

Plug-Flow detention time= 0.8 min calculated for 0.039 af (100% of inflow)
Center-of-Mass det. time= 0.6 min (749.0 - 748.4)

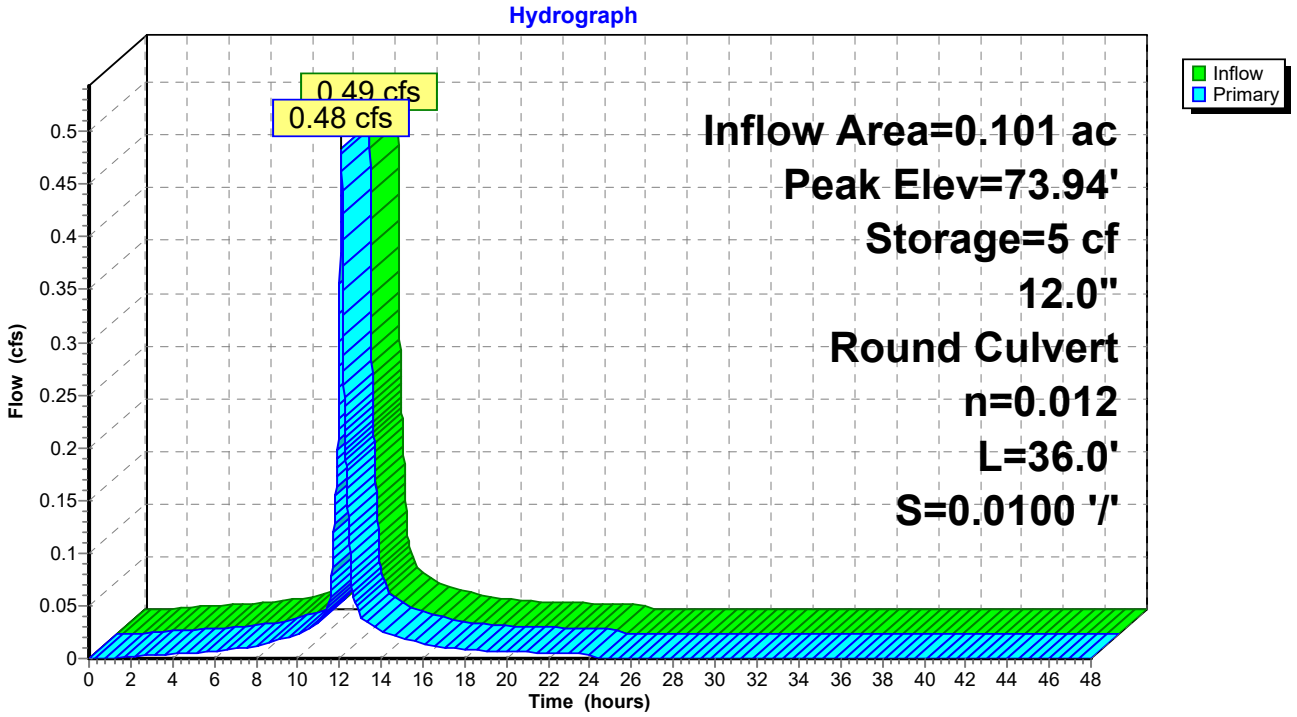
Volume	Invert	Avail.Storage	Storage Description
#1	73.56'	56 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
73.56	13	0	0
77.25	13	48	48
78.25	4	9	56

Device	Routing	Invert	Outlet Devices
#1	Primary	73.56'	**12.0" Round Culvert** L= 36.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 73.56' / 73.20' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=0.47 cfs @ 12.08 hrs HW=73.94' TW=73.62' (Dynamic Tailwater)
1=Culvert (Outlet Controls 0.47 cfs @ 2.55 fps)

Pond 25P: CB #2


Hydrograph
0.49 cfs
0.48 cfs
Inflow Area=0.101 ac
Peak Elev=73.94'
Storage=5 cf
12.0"
Round Culvert
n=0.012
L=36.0'
S=0.0100 '/'
Inflow
Primary
Flow (cfs)
Time (hours)

Summary for Pond 26P: CB #1-1

Inflow Area = 0.431 ac, 85.85% Impervious, Inflow Depth = 4.32" for 10-Year event
Inflow = 2.01 cfs @ 12.08 hrs, Volume= 0.155 af
Outflow = 1.98 cfs @ 12.09 hrs, Volume= 0.155 af, Atten= 1%, Lag= 0.1 min
Primary = 1.98 cfs @ 12.09 hrs, Volume= 0.155 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 73.37' @ 12.11 hrs Surf.Area= 13 sf Storage= 16 cf

Plug-Flow detention time= 0.5 min calculated for 0.155 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (769.1 - 768.8)

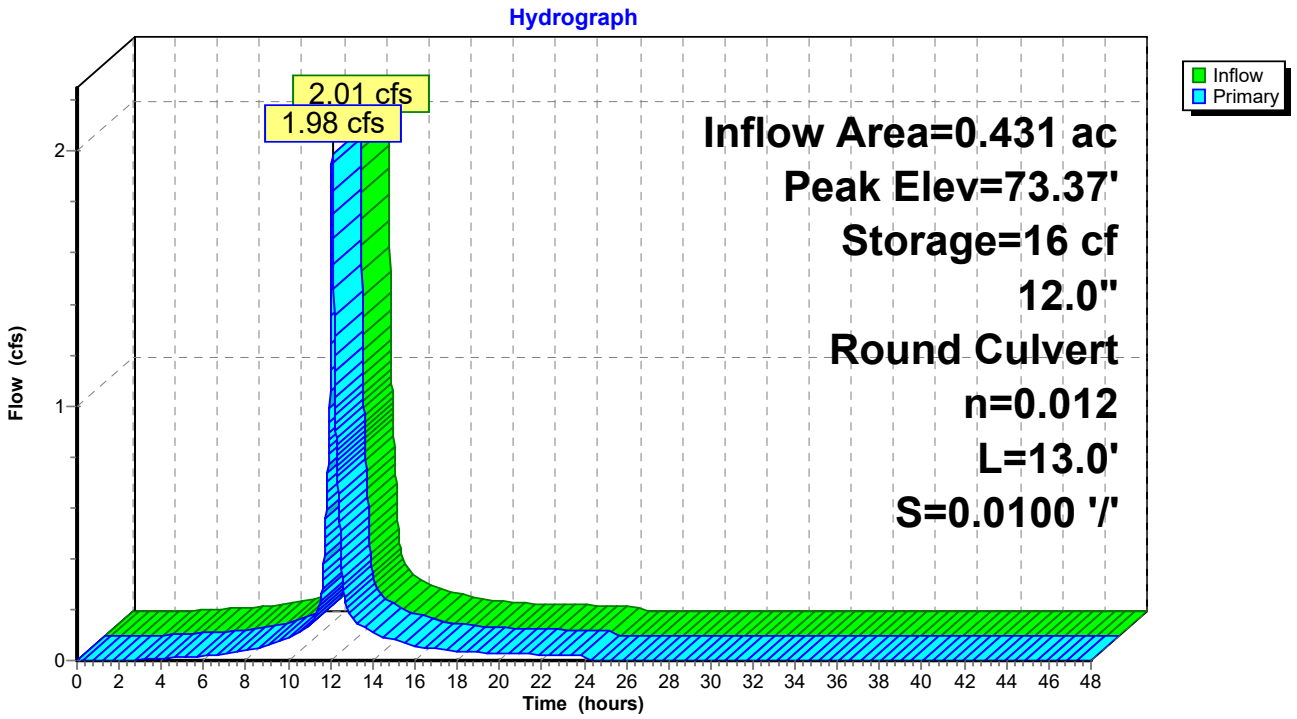
Volume	Invert	Avail.Storage	Storage Description
#1	72.13'	66 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
72.13	13	0	0
74.65	13	33	33
75.65	4	9	41
76.00	136	24	66

Device	Routing	Invert	Outlet Devices
#1	Primary	72.13'	**12.0" Round Culvert** L= 13.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 72.13' / 72.00' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.79 sf

Primary OutFlow Max=1.80 cfs @ 12.09 hrs HW=73.30' TW=73.08' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 1.80 cfs @ 2.29 fps)

Pond 26P: CB #1-1



Summary for Pond 27P: DMH #1

Inflow Area = 3.125 ac, 24.60% Impervious, Inflow Depth = 2.85" for 10-Year event
Inflow = 8.36 cfs @ 12.10 hrs, Volume= 0.742 af
Outflow = 8.36 cfs @ 12.10 hrs, Volume= 0.742 af, Atten= 0%, Lag= 0.1 min
Primary = 8.36 cfs @ 12.10 hrs, Volume= 0.742 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 73.12' @ 12.10 hrs Surf.Area= 13 sf Storage= 22 cf

Plug-Flow detention time= 0.1 min calculated for 0.741 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (816.3 - 816.1)

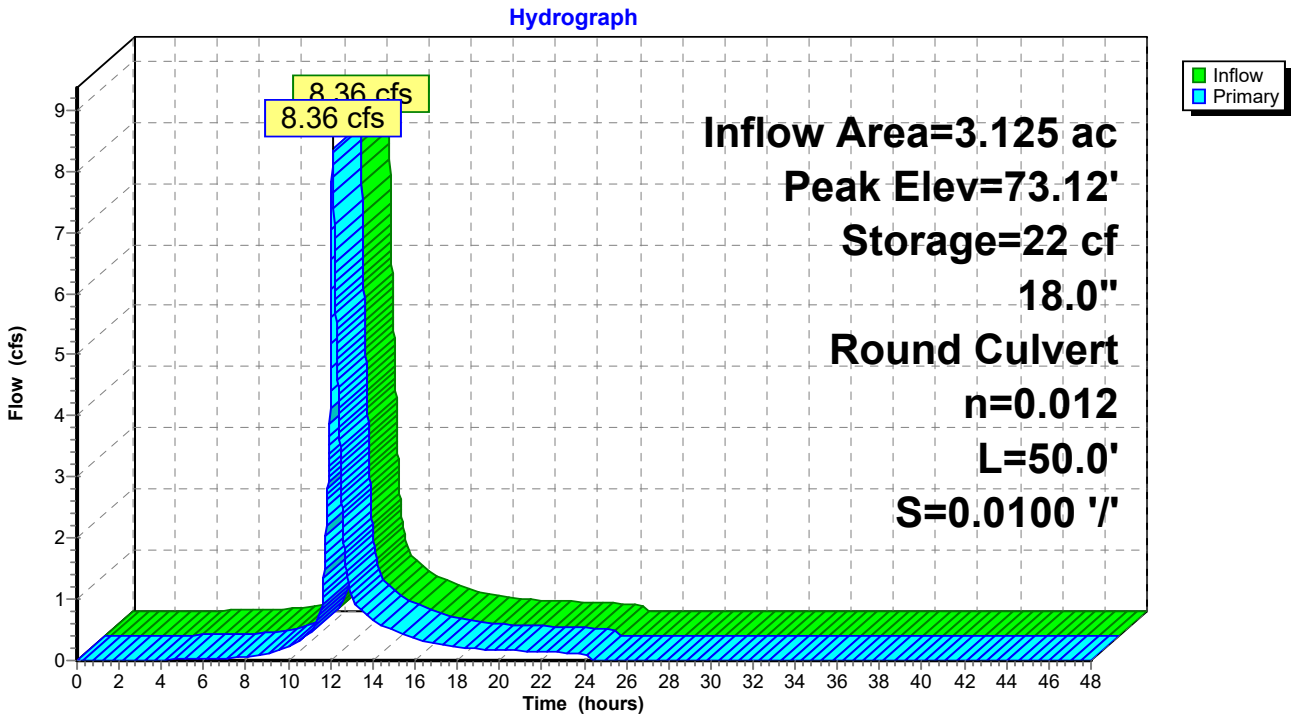
Volume	Invert	Avail.Storage	Storage Description
#1	71.40'	56 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
71.40	13	0	0
75.05	13	47	47
76.05	4	9	56

Device	Routing	Invert	Outlet Devices
#1	Primary	71.40'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 71.40' / 70.90' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf

Primary OutFlow Max=8.35 cfs @ 12.10 hrs HW=73.11' TW=57.16' (Dynamic Tailwater)
1=Culvert (Inlet Controls 8.35 cfs @ 4.73 fps)

Pond 27P: DMH #1



Summary for Pond 29P: Wet Pond

Inflow Area = 5.652 ac, 21.73% Impervious, Inflow Depth = 2.79" for 10-Year event
Inflow = 16.00 cfs @ 12.10 hrs, Volume= 1.314 af
Outflow = 2.05 cfs @ 12.90 hrs, Volume= 1.314 af, Atten= 87%, Lag= 48.3 min
Primary = 2.05 cfs @ 12.90 hrs, Volume= 1.314 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Starting Elev= 56.00' Surf.Area= 12,582 sf Storage= 18,005 cf
Peak Elev= 58.46' @ 12.90 hrs Surf.Area= 15,501 sf Storage= 38,227 cf (20,222 cf above start)
Flood Elev= 60.00' Surf.Area= 18,420 sf Storage= 55,506 cf (37,501 cf above start)

Plug-Flow detention time= 279.0 min calculated for 0.900 af (69% of inflow)
Center-of-Mass det. time= 83.7 min (897.8 - 814.1)

Volume	Invert	Avail.Storage	Storage Description
#1	56.00'	37,501 cf	**Stormwater Detention Volume (Prismatic)**Listed below (Recalc)
#2	49.00'	15,617 cf	**Permanent Pool (Prismatic)**Listed below (Recalc)
#3	53.00'	1,176 cf	**Forebay West (Prismatic)**Listed below (Recalc)
#4	53.00'	1,213 cf	**Forebay East (Prismatic)**Listed below (Recalc)
		55,506 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
56.00	6,883	0	0
57.00	7,871	7,377	7,377
58.00	9,065	8,468	15,845
58.50	9,859	4,731	20,576
59.00	10,799	5,165	25,741
60.00	12,721	11,760	37,501

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
49.00	411	0	0
50.00	876	644	644
51.00	1,367	1,122	1,765
52.00	1,890	1,629	3,394
53.00	2,443	2,167	5,560
54.00	3,028	2,736	8,296
55.00	3,643	3,336	11,631
56.00	4,329	3,986	15,617

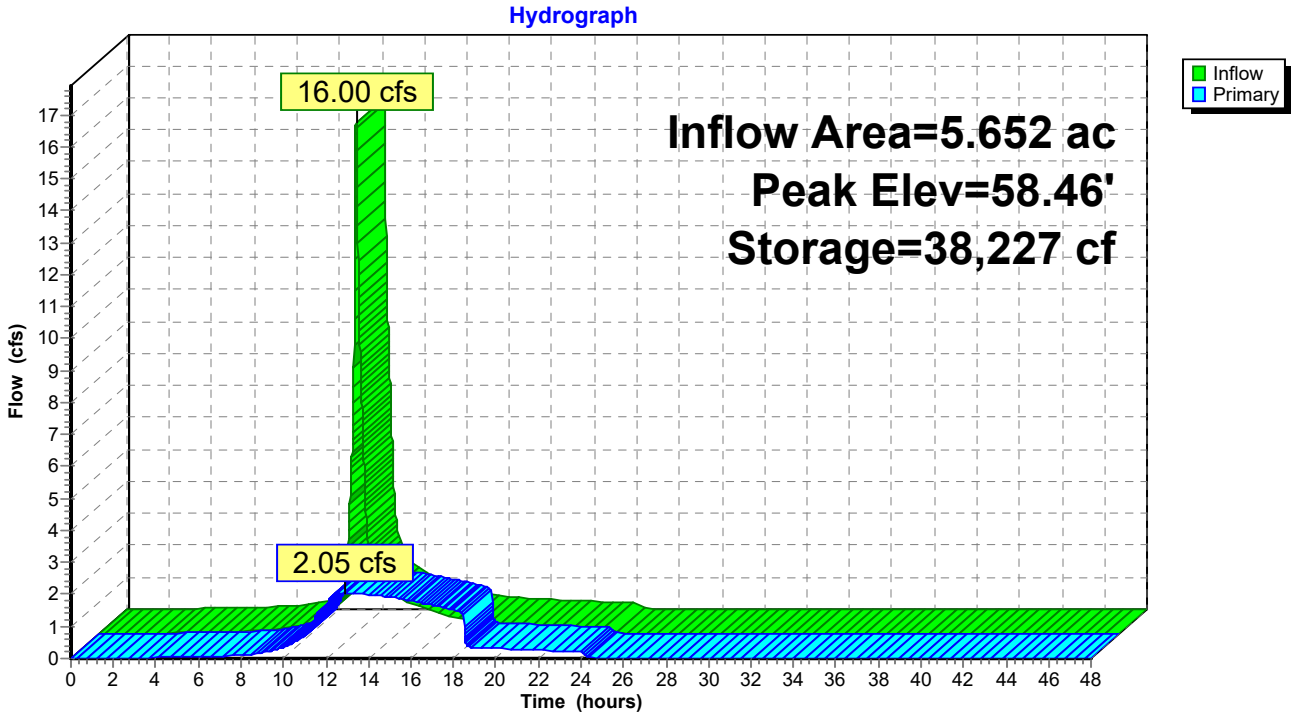
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
53.00	142	0	0
54.00	292	217	217
55.00	465	379	596
56.00	695	580	1,176

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
53.00	184	0	0
54.00	309	247	247
55.00	474	392	638
56.00	675	575	1,213

Device	Routing	Invert	Outlet Devices
#1	Device 2	56.00'	**70.0' long x 2.0' 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 Coef. (English) 2.54 2.61 2.61 2.60 2.66 2.70 2.77 2.89 2.88 2.85 3.07 3.20 3.32
#2	Device 3	53.50'	**6.0" Vert. Orifice/Grate** C= 0.600
#3	Primary	53.50'	**18.0" Round Culvert** L= 25.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 53.50' / 53.25' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 1.77 sf
#4	Device 3	58.50'	**48.0" x 48.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Primary	59.00'	**4.0' long x 11.0' 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) 2.53 2.59 2.70 2.68 2.67 2.68 2.66 2.64

Primary OutFlow Max=2.05 cfs @ 12.90 hrs HW=58.46' TW=0.00' (Dynamic Tailwater)
- **3=Culvert** (Passes 2.05 cfs of 17.47 cfs potential flow)
  - **2=Orifice/Grate** (Orifice Controls 2.05 cfs @ 10.45 fps)
    - **1=Broad-Crested Rectangular Weir** (Passes 2.05 cfs of 826.89 cfs potential flow)
  - **4=Orifice/Grate** (Controls 0.00 cfs)
- **5=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 29P: Wet Pond

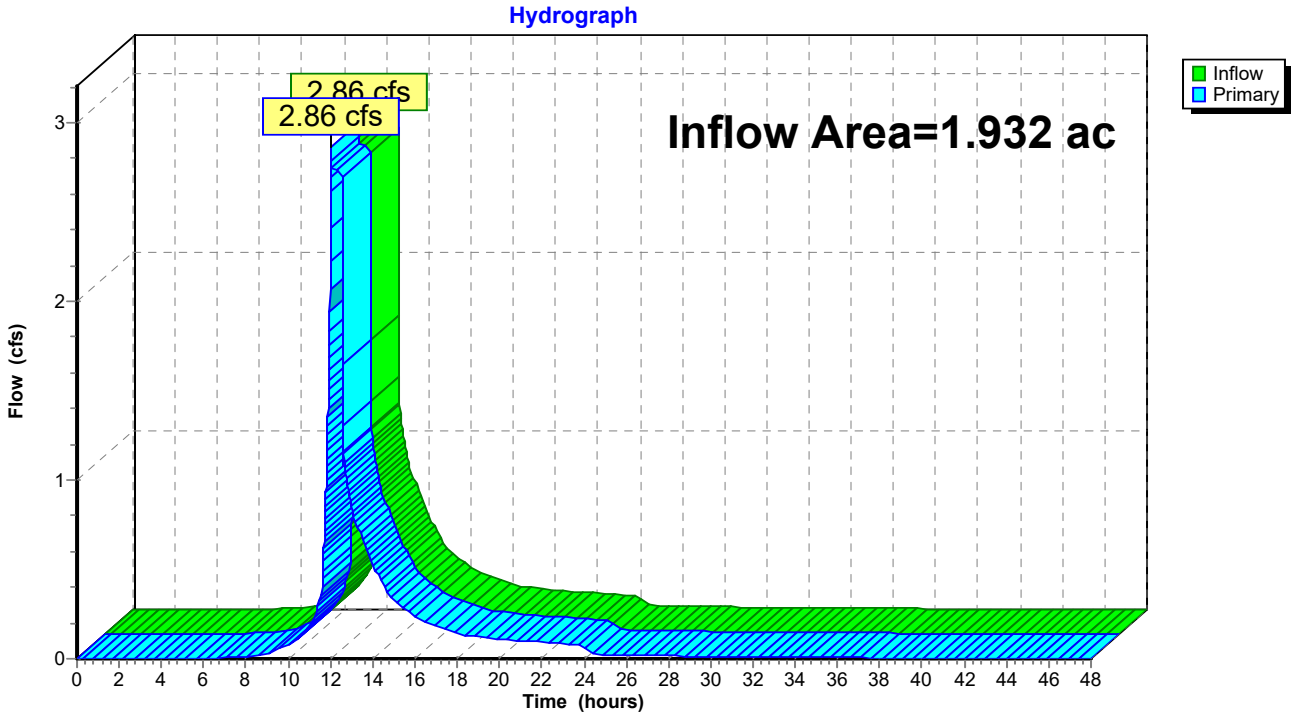


Summary for Link 100L: POA #1

Inflow Area = 1.932 ac, 14.53% Impervious, Inflow Depth > 2.74" for 10-Year event
Inflow = 2.86 cfs @ 12.02 hrs, Volume= 0.441 af
Primary = 2.86 cfs @ 12.02 hrs, Volume= 0.441 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link 100L: POA #1

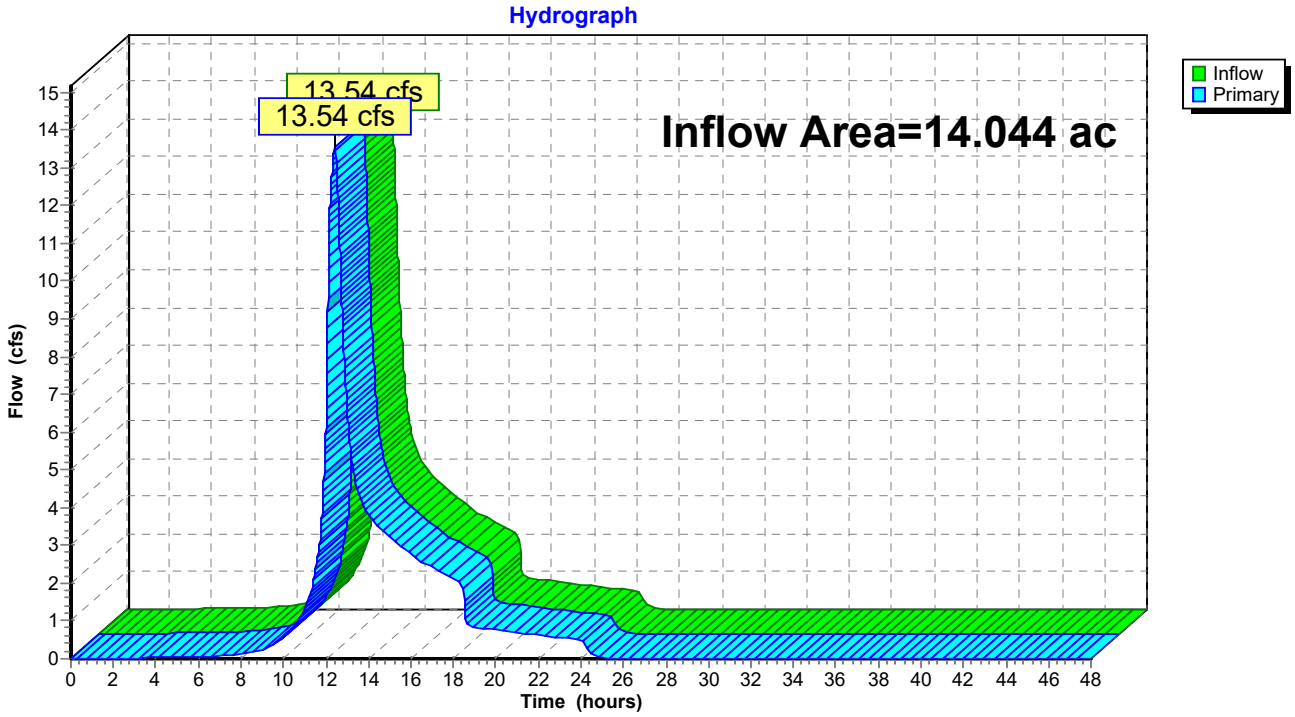


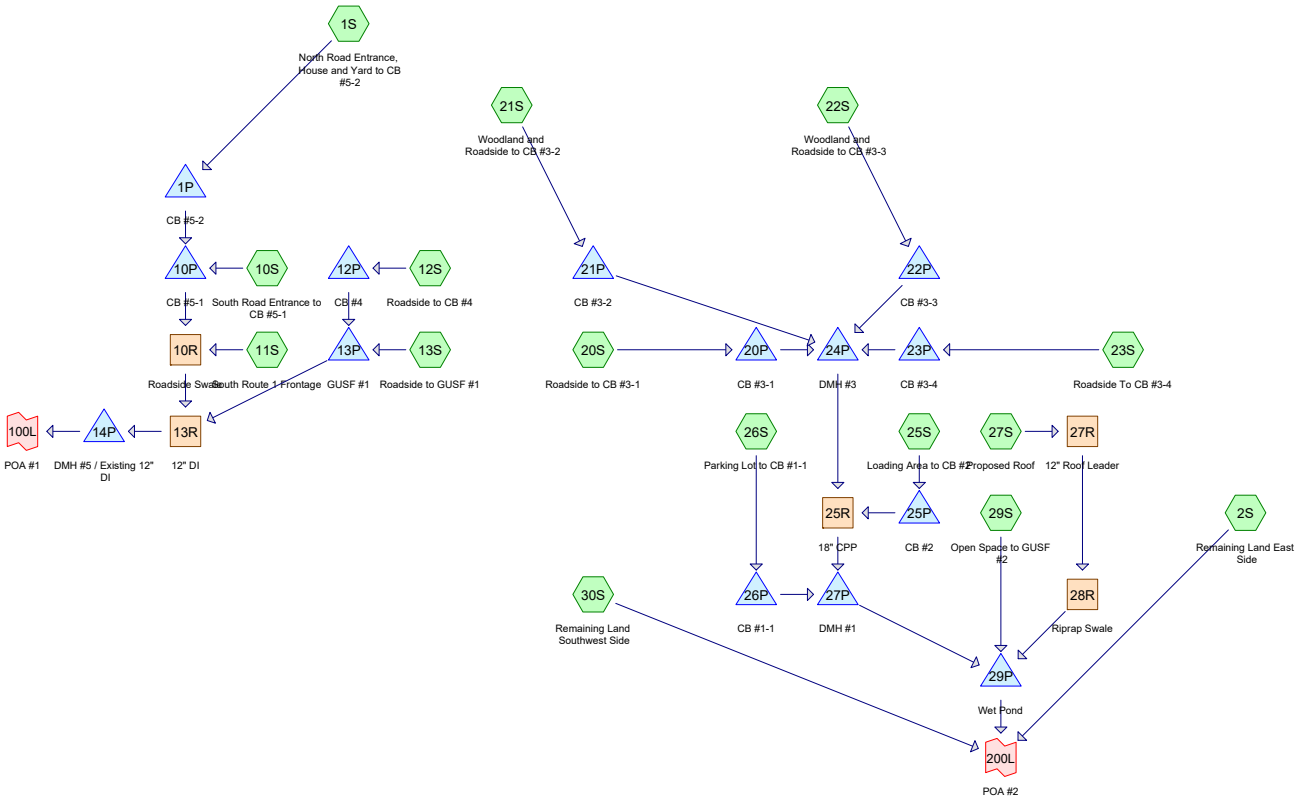
Summary for Link 200L: POA #2

Inflow Area = 14.044 ac, 11.39% Impervious, Inflow Depth = 2.54" for 10-Year event
Inflow = 13.54 cfs @ 12.39 hrs, Volume= 2.969 af
Primary = 13.54 cfs @ 12.39 hrs, Volume= 2.969 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Link 200L: POA #2





POST-DEVELOPMENT

Subcat Reach Pond Link

Routing Diagram for 5116-Post-092021
Prepared by Altus Engineering, Inc., Printed 9/23/2021

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 1S: North Road Entrance, Runoff Area=51,236 sf 8.13% Impervious Runoff Depth=3.65"
Flow Length=432' Tc=6.3 min CN=77 Runoff=4.99 cfs 0.358 af

Subcatchment 2S: Remaining Land East Runoff Area=279,061 sf 0.00% Impervious Runoff Depth=3.26"
Flow Length=1,208' Tc=32.9 min CN=73 Runoff=13.25 cfs 1.738 af

Subcatchment 10S: South Road Entrance to Runoff Area=3,377 sf 82.44% Impervious Runoff Depth=5.61"
Flow Length=139' Tc=6.0 min CN=95 Runoff=0.46 cfs 0.036 af

Subcatchment 11S: South Route 1 Frontage Runoff Area=6,211 sf 11.74% Impervious Runoff Depth=4.17"
Flow Length=142' Tc=6.0 min CN=82 Runoff=0.69 cfs 0.050 af

Subcatchment 12S: Roadside to CB #4 Runoff Area=9,746 sf 23.27% Impervious Runoff Depth=4.07"
Flow Length=282' Tc=9.6 min CN=81 Runoff=0.94 cfs 0.076 af

Subcatchment 13S: Roadside to GUSF #1 Runoff Area=13,602 sf 16.81% Impervious Runoff Depth=4.07"
Flow Length=264' Tc=6.0 min CN=81 Runoff=1.48 cfs 0.106 af

Subcatchment 20S: Roadside to CB #3-1 Runoff Area=11,105 sf 40.77% Impervious Runoff Depth=4.71"
Flow Length=390' Tc=6.0 min CN=87 Runoff=1.36 cfs 0.100 af

Subcatchment 21S: Woodland and Runoff Area=40,322 sf 6.67% Impervious Runoff Depth=3.65"
Flow Length=338' Tc=6.5 min CN=77 Runoff=3.89 cfs 0.282 af

Subcatchment 22S: Woodland and Runoff Area=53,034 sf 6.79% Impervious Runoff Depth=3.35"
Flow Length=408' Tc=16.0 min CN=74 Runoff=3.53 cfs 0.340 af

Subcatchment 23S: Roadside To CB #3-4 Runoff Area=8,495 sf 25.20% Impervious Runoff Depth=3.96"
Flow Length=150' Tc=6.0 min CN=80 Runoff=0.90 cfs 0.064 af

Subcatchment 25S: Loading Area to CB #2 Runoff Area=4,411 sf 100.00% Impervious Runoff Depth=5.96"
Flow Length=137' Tc=6.0 min CN=98 Runoff=0.62 cfs 0.050 af

Subcatchment 26S: Parking Lot to CB #1-1 Runoff Area=18,776 sf 85.85% Impervious Runoff Depth=5.61"
Flow Length=332' Tc=6.0 min CN=95 Runoff=2.57 cfs 0.202 af

Subcatchment 27S: Proposed Roof Runoff Area=20,000 sf 100.00% Impervious Runoff Depth=5.96"
Tc=6.0 min CN=98 Runoff=2.79 cfs 0.228 af

Subcatchment 29S: Open Space to GUSF #2 Runoff Area=90,054 sf 0.00% Impervious Runoff Depth=3.35"
Flow Length=457' Tc=6.0 min CN=74 Runoff=8.13 cfs 0.578 af

Subcatchment 30S: Remaining Land Runoff Area=86,511 sf 18.73% Impervious Runoff Depth=4.07"
Flow Length=760' Tc=12.0 min CN=81 Runoff=7.73 cfs 0.673 af

Reach 10R: Roadside Swale Avg. Flow Depth=0.59' Max Vel=3.14 fps Inflow=5.92 cfs 0.444 af
n=0.022 L=85.0' S=0.0072 '/' Capacity=16.61 cfs Outflow=5.91 cfs 0.444 af

Reach 13R: 12" DI Avg. Flow Depth=1.00' Max Vel=3.96 fps Inflow=6.36 cfs 0.625 af
12.0" Round Pipe n=0.012 L=24.0' S=0.0050 '/' Capacity=2.73 cfs Outflow=2.93 cfs 0.625 af

Reach 25R: 18" CPP Avg. Flow Depth=0.85' Max Vel=8.93 fps Inflow=9.17 cfs 0.837 af
18.0" Round Pipe n=0.012 L=83.0' S=0.0175 '/' Capacity=15.04 cfs Outflow=9.16 cfs 0.837 af

Reach 27R: 12" Roof Leader Avg. Flow Depth=0.63' Max Vel=5.34 fps Inflow=2.79 cfs 0.228 af
12.0" Round Pipe n=0.012 L=300.0' S=0.0100 '/' Capacity=3.86 cfs Outflow=2.76 cfs 0.228 af

Reach 28R: Riprap Swale Avg. Flow Depth=0.31' Max Vel=3.46 fps Inflow=2.76 cfs 0.228 af
n=0.069 L=108.0' S=0.1759 '/' Capacity=26.22 cfs Outflow=2.75 cfs 0.228 af

Pond 1P: CB #5-2 Peak Elev=81.29' Storage=132 cf Inflow=4.99 cfs 0.358 af
12.0" Round Culvert n=0.012 L=50.0' S=0.0050 '/' Outflow=5.29 cfs 0.358 af

Pond 10P: CB #5-1 Peak Elev=79.42' Storage=45 cf Inflow=5.75 cfs 0.394 af
12.0" Round Culvert n=0.012 L=7.0' S=0.0043 '/' Outflow=5.24 cfs 0.394 af

Pond 12P: CB #4 Peak Elev=85.87' Storage=51 cf Inflow=0.94 cfs 0.076 af
12.0" Round Culvert n=0.120 L=50.0' S=0.0050 '/' Outflow=0.94 cfs 0.076 af

Pond 13P: GUSF #1 Peak Elev=83.17' Storage=3,569 cf Inflow=2.30 cfs 0.182 af
Outflow=1.02 cfs 0.181 af

Pond 14P: DMH #5 / Existing 12" DI Peak Elev=77.17' Storage=14 cf Inflow=2.93 cfs 0.625 af
12.0" Round Culvert n=0.012 L=45.0' S=0.0291 '/' Outflow=2.90 cfs 0.625 af

Pond 20P: CB #3-1 Peak Elev=77.86' Storage=19 cf Inflow=1.36 cfs 0.100 af
15.0" Round Culvert n=0.012 L=8.0' S=0.0100 '/' Outflow=1.34 cfs 0.100 af

Pond 21P: CB #3-2 Peak Elev=85.21' Storage=20 cf Inflow=3.89 cfs 0.282 af
12.0" Round Culvert n=0.012 L=142.0' S=0.0500 '/' Outflow=3.89 cfs 0.282 af

Pond 22P: CB #3-3 Peak Elev=80.37' Storage=18 cf Inflow=3.53 cfs 0.340 af
12.0" Round Culvert n=0.012 L=68.0' S=0.0360 '/' Outflow=3.53 cfs 0.340 af

Pond 23P: CB #3-4 Peak Elev=77.90' Storage=12 cf Inflow=0.90 cfs 0.064 af
12.0" Round Culvert n=0.012 L=45.0' S=0.0100 '/' Outflow=0.88 cfs 0.064 af

Pond 24P: DMH #3 Peak Elev=77.82' Storage=35 cf Inflow=8.58 cfs 0.787 af
18.0" Round Culvert n=0.012 L=177.0' S=0.0175 '/' Outflow=8.58 cfs 0.787 af

Pond 25P: CB #2 Peak Elev=74.04' Storage=6 cf Inflow=0.62 cfs 0.050 af
12.0" Round Culvert n=0.012 L=36.0' S=0.0100 '/' Outflow=0.61 cfs 0.050 af

Pond 26P: CB #1-1 Peak Elev=74.43' Storage=30 cf Inflow=2.57 cfs 0.202 af
12.0" Round Culvert n=0.012 L=13.0' S=0.0100 '/' Outflow=2.53 cfs 0.202 af

Pond 27P: DMH #1 Peak Elev=74.01' Storage=34 cf Inflow=11.62 cfs 1.038 af
18.0" Round Culvert n=0.012 L=50.0' S=0.0100 '/' Outflow=11.62 cfs 1.038 af

Pond 29P: Wet Pond Peak Elev=58.78' Storage=41,433 cf Inflow=22.42 cfs 1.844 af
Outflow=9.95 cfs 1.844 af

Link 100L: POA #1 Inflow=2.90 cfs 0.625 af
Primary=2.90 cfs 0.625 af

Link 200L: POA #2 Inflow=26.88 cfs 4.255 af
Primary=26.88 cfs 4.255 af

Total Runoff Area = 15.977 ac Runoff Volume = 4.881 af Average Runoff Depth = 3.67"
88.23% Pervious = 14.096 ac 11.77% Impervious = 1.881 ac

Section 5

Precipitation Table

ALTUS
ENGINEERING, INC.

APPENDIX H. 24-hour duration rainfalls for various return periods

COUNTY	Storm Type	1-YR	2-YR	5-YR	10-YR	25-YR	50-YR	100-YR	500-YR
ANDROSCOGGIN	III	2.5	3.0	3.7	4.3	5.4	6.4	7.6	11.1
AROOSTOOK C (Presque Isle Area)	II	1.9	2.3	2.8	3.2	3.9	4.6	5.3	7.6
AROOSTOOK N (Fort Kent Area)	II	1.9	2.2	2.7	3.1	3.7	4.3	5.0	7.0
AROOSTOOK S (Houlton Area)	II	2.1	2.5	3.0	3.4	4.1	4.7	5.4	7.5
CUMBERLAND NW (Bridgton Area)	III	2.5	3.0	3.7	4.3	5.4	6.3	7.5	10.9
CUMBERLAND SE (N Windham Area)	III	2.6	3.1	3.9	4.6	5.8	6.9	8.1	12.1
FRANKLIN	II	2.0	2.4	2.9	3.4	4.2	4.9	5.7	8.2
HANCOCK	III	2.5	2.9	3.6	4.2	5.2	6.1	7.2	10.5
KENNEBEC	III	2.4	2.8	3.5	4.2	5.2	6.1	7.2	10.6
KNOX	III	2.6	3.2	3.9	4.6	5.7	6.7	7.9	11.5
LINCOLN	III	2.5	3.1	3.8	4.5	5.5	6.5	7.6	11.1
OXFORD E (Rumford Area)	II[1]	2.3	2.7	3.3	3.9	4.8	5.7	6.7	9.7
OXFORD W (Gilead Area)	II	2.2	2.7	3.4	4.0	4.9	5.8	6.9	10.1
PENOBSCOT N (Millinocket Area)	II	2.2	2.6	3.2	3.8	4.7	5.6	6.5	9.5
PENOBSCOT S (Hudson Area)	II	2.3	2.7	3.4	3.9	4.9	5.7	6.7	9.7
PISCATAQUIS N (Chesuncook Area)	II	2.0	2.4	2.9	3.4	4.2	5.0	5.8	8.5
PISCATAQUIS S (Monson Area)	II	2.2	2.7	3.3	3.9	4.8	5.7	6.8	10.0
SAGADAHOC	III	2.6	3.2	3.9	4.6	5.7	6.7	7.8	11.4
SOMERSET N (Pittston Farm Area)	II	2.0	2.3	2.8	3.3	4.0	4.7	5.4	7.8
SOMERSET S (Solon Area)	II	2.3	2.7	3.4	3.9	4.9	5.7	6.7	9.8
WALDO	III	2.4	2.9	3.6	4.2	5.2	6.1	7.2	10.5
WASHINGTON	III	2.5	2.8	3.4	3.9	4.8	5.5	6.4	9.0
YORK	III	2.6	3.3	4.1	4.9	6.2	7.3	8.7	13.2

1 Use Type III rainfall for the towns of Brownfield, Buckfield, Denmark, Hartford, Hebron, Hiram, Oxford, and Porter.

Source: Data extracted by the Maine Department of Environmental Protection from the Northeast Regional Climate Center website (http://precip.eas.cornell.edu), Extreme Precipitation Tables. Data from this website was obtained from the National Oceanic and Atmospheric Administration's Regional Climate Center Program.
June 2014

Section 6

Class A High Intensity Soil Survey
Test Pit Logs

ALTUS
ENGINEERING, INC.

Michael Cuomo, Soil Scientist
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Class A

High Intensity Soil Survey Report

Tax map 67, Lot 1

US Route One

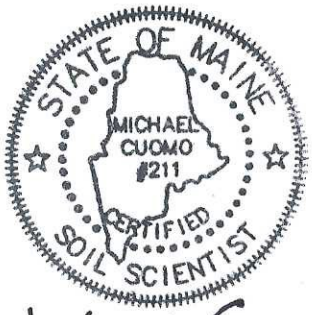
Kittery, Maine

prepared for:

Altus Engineering

133 Court Street

Portsmouth, NH 03801



17 May 2021

This report is in reference to this +/32 acre property at 514 US Route One in Kittery, Maine. In May of 2021 a class 'A' High Intensity Soil Survey of this property was completed in compliance with the standards created by the Maine Association of Professional Soil Scientists. The purpose of this soil investigation is to assist in planning a commercial development served by municipal water and sewer service. This report will explain the methods, limitations, and results of this work.

A high intensity soil survey is comprised of two components: a soil map and this report. The soil map is made by traversing the property and observing the soil at locations thought to be representative of the landform. Because soil is highly variable, it is not possible to represent every soil variation on the map. The map is a simplified two-dimensional interpretation of the complex three dimensional soil-landscape relationship. Class A standards allow for inclusions of soils other than those named in the map unit label, so long as no inclusion limiting for the proposed land use is greater than one-eighth acre in size. Boundaries between different soils are shown as lines on the soil map, but may be diffuse transition zones.

Soil names were selected using best fit with soils already researched in detail and found to occur extensively in Maine by the United States Department of Agriculture's Natural Resource Conservation Service. The map unit design and the interpretations of soil properties in this report are specific to this site and were selected considering the proposed use. Therefore, the interpretations and limitations described in this report may be insufficient for other uses. For example, soil suitability for on-site wastewater disposal was ignored in map unit design.

This soil map is based on 22 test pits dug with an excavator and two hand dug soil observations. The data for these is attached at the rear of this report, and their locations are shown on the base map. Other shallow soil observations were previously made to determine the edge of the wetland soils, but the data and locations of these were not recorded.

Hydrologic soil groups were assigned using the "HSG Triangle" developed by the University of Rhode Island.

The soil map is presented on a base plan: a two foot contour interval topographic and boundary survey with wetland flag locations prepared by Altus Engineering.

Eight different soils were mapped on the property and are described below.

Brayton (BrB)
Drainage class: poorly drained.
Parent material: basal till or loose till.
Texture range: stony fine sandy loam.
Description: see soil observation B.
Landscape position: lowland.
Landform: ground moraine.
Slope range: 0 to 8%.
Permeability: moderate in the upper layers and slow in the lower layers.
Bedrock class: moderately deep to deep.
Hydrologic soil group: D.
Saturated hydraulic conductivity: 0.0 to 0.6 in/hr in the most restrictive horizons.
Flood hazard: water ponds at the surface seasonally.
Inclusions: on this site Brayton map units represents poorly drained basal till soils which have variable bedrock depth.
Use and management: Land uses are limited by wetness close to the surface for prolonged periods of time during an average year. These are wetland soils and may not be drained or filled without permits.

Dixfield (DxB)
Drainage class: moderately well drained.
Parent material: basal till.
Texture range: stony fine sandy loam.
Description: see test pit one.
Landscape position: upland.
Landform: gently rolling.
Slope range: 0 to 8%.
Permeability: moderate in the upper layers and slow in the lower layers.
Bedrock class: very deep.
Hydrologic group: D.
Flood hazard: none.
Inclusions: test pit 5 has some horizons which are more sandy; Test pit 21 is an inclusion of the similar Marlow soil.
Use and management: land uses are slightly limited by the presence of basal till, which causes the ground water to perch after rain events and snow melt. This limitation can be overcome by appropriate grading and drainage.

Lyman-Tunbridge (LT)

Drainage class: somewhat excessively well and well drained.
Parent material: loose glacial till.
Texture range: stony fine sandy loam.
Description: Lyman is described in test pit 3 and Tunbridge in test pit 9.
Landscape position: upland.
Landform: gently rolling to steep.
Slope range: 0 to greater than 25%.
Permeability: moderately rapid.
Bedrock class: shallow and moderately deep.
Hydrologic soil group: the predominant HSG is C.
Saturated hydraulic conductivity: 0.1 to 14 in/hr in the most restrictive horizon.
Flood hazard: none.
Inclusions: This soil map unit represents upland soils with variable bedrock depth. Inclusions are the very shallow Abram soils in test pit 8; test pit 6, which has basal till over moderately deep bedrock; and few bedrock outcroppings at the surface.
Use and management: land uses are limited by bedrock 0 to 40 inches from the soil surface, which can be overcome by blasting and filling.

Nicholville (NiB)

Drainage class: somewhat poorly and moderately well drained.
Parent material: lacustrine and shallow marine sediments.
Texture range: very fine sandy loam in the upper part over silt loam in the lower part.
Description: test pits 12 and 14.
Landscape position: lowland.
Landform: gently rolling to nearly level plains.
Slope range: 0 to 8%.
Permeability: moderate in the upper part and slow in the lower part.
Bedrock class: very deep.
Hydrologic group: D.
Flood hazard: none.
Inclusions: Nicholville is typically a moderately well drained soil, but on this site the name includes the extensive somewhat poorly drained variant.
Use and management: Land uses are limited by seasonal wetness close to the surface. These are not wetland soils and may be drained or filled to overcome this limitation. The Nicholville soils are highly erosive and have low bearing strength when wet.

Scantic (ScB)
Drainage class: poorly drained.
Parent material: marine.
Texture range: silt loam over silty clay loam.
Description: see test pit 16.
Landscape position: wetland.
Landform: glacial deltas, bays.
Slope range: 0 to 8%.
Permeability: slow in the upper layers and very slow in the lower layers.
Bedrock class: very deep.
Hydrologic group: D.
Flood hazard: water ponds at the surface seasonally.
Inclusions: none noted.
Use and management: Land uses are limited by frequent saturation to the surface and fine texture of the soil which makes it difficult to work in when wet. These are wetlands soils and may be not be drained or filled without permits.

Waumbek (WmB)
Drainage class: moderately well drained.
Parent material: loose glacial till.
Texture range: stony fine sandy loam over gravelly sand.
Description: see test pit 20.
Landscape position: upland.
Landform: sideslopes.
Slope range: 0 to 8%.
Permeability: moderately rapid in the upper layers and rapid in the lower layers.
Bedrock class: very deep.
Hydrologic group: D.
Flood hazard: none.
Inclusions: none noted.
Use and management: land uses are slightly limited by the presence of brief duration ground water within 2 feet of the surface. This limitation can be overcome by appropriate grading and drainage.

Westbury (WsB)
Drainage class: somewhat poorly drained.
Parent material: basal till and loose till.
Texture range: fine sandy loam to loamy sand.
Description: see test pit 4.
Landscape position: lowland.
Landform: nearly level.
Slope range: 0 to 8%.
Permeability: moderate in the upper layers and slow to rapid in

the lower layers.
Bedrock class: moderately deep to deep.
Hydrologic group: D.
Flood hazard: water will pond at the surface briefly after significant rainstorms or snow melt.
Inclusions: Though typically deep to bedrock, on this site the Westbury soils have significant area which is moderately deep to bedrock.
Use and management: land uses are limited by seasonal wetness close to the surface. These are not wetland soils and may be drained or filled to overcome this limitation.

Whately (WhB)
Drainage class: very poorly drained.
Parent material: glacial lacustrine or aeolian.
Texture range: very fine sandy loam to sand.
Description: see soil observation A.
Landscape position: wetland.
Landform: deltas, bays.
Slope range: 0 to 8%.
Permeability: moderately rapid in the upper layers and very slow in the lower layers.
Bedrock class: very deep.
Hydrologic soil group: D.
Saturated hydraulic conductivity: 0.6 to 20 in/hr.
Flood hazard: water ponds at the surface frequently.
Inclusions: none noted.
Use and management: Land uses are limited by near constant saturation to the surface and low bearing strength. These are regulated wetlands and may be not be drained or filled without permits.

Conclusion
The soils on this site are similar to those encountered elsewhere in York County. The limitations that the non-wetland soils present can be overcome by:
1) identifying the soils and their limitations, as has been done in this report;
2) engineering and designing measures such as construction sequencing, material specifications, drainage structures, grading, blasting, and erosion/sediment control in response to the limitations identified; and
3) implementing the designed measures properly.

The Brayton, Scantic, and Whately soils are regulated wetlands. No filling is allowed without permits. Proper erosion and sediment techniques must be employed to protect the wetlands during construction.

THIS LEGEND MUST APPEAR ON THE PLAN WHICH CONTAINS THE SOIL MAP.

High Intensity Soil Map Legend

BrB Brayton, 0-8% slopes*
DxB Dixfield, 0-8% slopes
LTB Lyman Tunbridge complex, 0-8% slopes
LTC Lyman Tunbridge complex, 8-15% slopes
LTD Lyman Tunbridge complex, 15-25% slopes
LTE Lyman Tunbridge complex, +25% slopes
NiB Nicholville, 0-8% slopes
ScB Scantic, 0-8% slopes*
WmB Waumbek, 0-8% slopes
WhB Whately, 0-8% slopes*
WsB Westbury, 0-8% slopes

* These are wetland soils.

This soil survey complies with Class A standards as defined by the Maine Association of Professional Soil Scientists. See report dated 17 May 2021, for complete description of methods, soils, and results.

Michael Cuomo
Maine Soil Scientist #211

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TEST PIT DATA

Client: Altus Engineering
Location: 514 US Route One, Kittery
Date: 10 May 2021

Test Pit Number: 1

Depth	Description
2″	Leaf litter.
0-9″	Dark brown (10YR 3/3) fine sandy loam, granular, friable.
9-24″	Dark yellowish brown (10YR 4/6) fine sandy loam, blocky, friable.
24-35″	Light olive brown (2.5Y 5/4) fine sandy loam, blocky, friable, redox.
35-48″	Dark olive brown (2.5Y 3/3) stony fine sandy loam, massive, firm, redox.

Soil Name: Dixfield
Depth to Seasonal High Water Table: 24″
Depth to Bedrock: 48″

Test Pit Number: 2

Depth	Description
1″	Leaf litter.
0-8″	Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
8-20″	Dark yellowish brown (10YR 4/6) stony fine sandy loam, blocky, friable.

Soil Name: Tunbridge
Depth to Seasonal High Water Table: none
Depth to Bedrock: 20″

Test Pit Number: 3

Depth	Description
2″	Leaf litter.
0-8″	Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
8-18″	Dark yellowish brown (10YR 4/6) stony fine sandy loam, blocky, friable.

Soil Name: Lyman
Depth to Seasonal High Water Table: none
Depth to Bedrock: 18″

Test Pit Number: 4

Depth	Description
2″	Leaf litter.
0-8″	Dark grayish brown (2.5Y 4/2) fine sandy loam, granular, friable.
8-16″	Dark yellowish brown (10YR 4/6) fine sandy loam, blocky, friable, redox.
16-24″	Light yellowish brown (2.5Y 6/4) fine sandy loam, blocky, firm, redox.

Soil Name: Westbury variant
Depth to Seasonal High Water Table: 8″
Depth to Bedrock: 24″

Test Pit Number: 5

Depth	Description
1"	Leaf litter.
0-22"	Yellowish brown (10YR 5/4) fine sandy loam, blocky, friable.
22-32"	Dark yellowish brown (10YR 4/6) gravelly loamy sand, blocky, friable, redox.
32-44"	Dark olive brown (2.5Y 3/3) gravelly sand, loose, massive, redox.
44-56"	Light olive brown (2.5Y 5/4)stony fine sandy loam, massive, firm, redox.

Soil Name: Dixfield
Depth to Seasonal High Water Table: 22"
Depth to Bedrock: 56"

Test Pit Number: 6

Depth	Description
1"	Leaf litter.
0-10"	Dark brown (10YR 3/3) fine sandy loam, granular, friable.
10-24"	Dark yellowish brown (10YR 4/6) fine sandy loam, blocky, friable.
24-38"	Light yellowish brown (2.5Y 6/4) stony fine sandy loam, massive, firm, redox.

Soil Name: Tunbridge variant
Depth to Seasonal High Water Table: 24"
Depth to Bedrock: 38"

Test Pit Number: 7

Depth	Description
1"	Leaf litter.
0-7"	Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
7-18"	Yellowish brown (10YR 5/6) stony fine sandy loam, blocky, friable.

Soil Name: Lyman
Depth to Seasonal High Water Table: none
Depth to Bedrock: 18"

Test Pit Number: 8

Depth	Description
2"	Leaf litter.
0-3"	Very dark gray (10YR 3/1) stony fine sandy loam, granular, friable.

Soil Name: Abram
Depth to Seasonal High Water Table: none
Depth to Bedrock: 3"

Test Pit Number: 9

Depth	Description
2"	Leaf litter.
0-6"	Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
6-27"	Yellowish brown (10YR 5/6) stony fine sandy loam, blocky, friable.

Soil Name: Tunbridge
Depth to Seasonal High Water Table: none
Depth to Bedrock: 27"

Test Pit Number: 10

Depth	Description
2″	Leaf litter.
0-6″	Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.

Soil Name: Abram
Depth to Seasonal High Water Table: none
Depth to Bedrock: 6″

Test Pit Number: 11

Depth	Description
2″	Leaf litter.
0-7″	Dark brown (10YR 3/3) silt loam, granular, friable.
7-10″	Light yellowish brown (2.5Y 6/4) silt loam, blocky, friable, redox.
10-28″	Pale olive (5Y 6/3) silt loam, massive, friable, redox.
29-44″	Light yellowish brown (2.5Y 6/4) fine sandy loam, massive, firm, redox.
44-96″	Olive brown (2.5Y 4/4) sand, massive, loose, with strata of firm silt, redox.

Soil Name: Westbury variant
Depth to Seasonal High Water Table: 7″
Depth to Bedrock: none

Test Pit Number: 12

Depth	Description
1″	Leaf litter.
0-7″	Dark brown (10YR 3/3) silt loam, granular, friable.
7-11″	Yellowish brown (10YR 5/6) silt loam, blocky, friable.
11-28″	Light yellowish brown (2.5Y 6/4) silt loam, blocky, friable, redox.
28-64″	Olive brown (2.5Y 4/4) sand, massive, loose, redox.
64-96″	Olive brown (2.5Y 4/4) silt loam, massive, firm, redox.

Soil Name: Nicholville variant
Depth to Seasonal High Water Table: 11″
Depth to Bedrock: none

Test Pit Number: 13

Depth	Description
1″	Leaf litter.
0-10″	Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
10-24″	Strong brown (7.5YR 4/6) stony fine sandy loam, blocky, friable.
24-32″	Light yellowish brown (2.5Y 6/4) stony fine sandy loam, blocky, firm, redox.

Soil Name: Tunbridge variant
Depth to Seasonal High Water Table: 24″
Depth to Bedrock: 32″

Test Pit Number: 14

Depth	Description
2″	Leaf litter.
0-6″	Brown (10YR 4/3) fine sandy loam, granular, friable.
6-17″	Yellowish brown (10YR 5/6) fine sandy loam, blocky, friable, redox.
17-24″	Olive brown (2.5Y 4/4) sand, massive, loose, redox.
24-52″	Light olive brown (2.5Y 5/4) stratified fine sand and silt, massive, firm, redox.

Soil Name: Nicholville

Depth to Seasonal High Water Table: 17"
Depth to Bedrock: none

Test Pit Number: 15

Depth	Description
1"	Leaf litter.
0-6"	Brown (10YR 4/3) stony fine sandy loam, granular, friable.
6-12"	Dark yellowish brown (10YR 5/6) stony fine sandy loam, blocky, friable.
12-18"	Light yellowish brown (2.5Y 6/4) stony fine sandy loam, blocky, friable.

Soil Name: Lyman
Depth to Seasonal High Water Table: none
Depth to Bedrock: 18"

Test Pit Number: 16

Depth	Description
1"	Leaf litter.
0-7"	Very dark gray (2.5Y 3/1) silt loam, granular, friable, redox.
7-13"	Light gray (2.5Y 7/1) silt loam, blocky, friable, redox.
13-22"	Olive brown (2.5Y 4/4) silt loam, blocky, firm, redox.
22-50"	Olive (5Y 5/4) silty clay loam, massive, firm, redox.

Soil Name: Scantic
Depth to Seasonal High Water Table: surface
Depth to Bedrock: none

Test Pit Number: 17

Depth	Description
2"	Leaf litter.
0-5"	Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
5-12"	Strong brown (7.5YR 4/6) stony fine sandy loam, blocky, friable.

Soil Name: Lyman
Depth to Seasonal High Water Table: none
Depth to Bedrock: 12"

Test Pit Number: 18

Depth	Description
1"	Leaf litter.
0-5	Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
5-17"	Yellowish brown (10YR 5/4) fine sandy loam, blocky, friable.
17-24"	Light olive brown (2.5Y 5/4) stony fine sandy loam, blocky, friable, redox.
24-54"	Light yellowish brown (2.5Y 6/4) sand, massive, loose, redox.

Soil Name: Waumbek
Depth to Seasonal High Water Table: 17"
Depth to Bedrock: none

Test Pit Number: 19

Depth	Description
0"	Leaf litter.
0-8"	Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
8-28"	Dark yellowish brown (10YR 4/4) stony fine sandy loam, blocky, friable.

Soil Name: Tunbridge
Depth to Seasonal High Water Table: none
Depth to Bedrock: 28"

Test Pit Number: 20

Depth	Description
0"	Leaf litter.
0-10	Dark brown (10YR 3/3) fine sandy loam, granular, friable.
10-28"	Dark yellowish brown (10YR 4/4) fine sandy loam, blocky, friable.
28-46"	Light yellowish brown (2.5Y 6/4) gravelly loamy sand, massive, friable, redox.

Soil Name: Waumbek
Depth to Seasonal High Water Table: 28"
Depth to Bedrock: 46"

Test Pit Number: 21

Depth	Description
0"	Leaf litter.
0-10"	Very dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
10-28"	Dark yellowish brown (10YR 4/6) stony fine sandy loam, blocky, friable.
28-66"	Light olive brown (2.5Y 5/4) stony fine sandy loam, massive, firm, redox.

Soil Name: Marlow
Depth to Seasonal High Water Table: 28"
Depth to Bedrock: 66"

Test Pit Number: 22

Depth	Description
0"	Leaf litter.
0-6"	Dark brown (10YR 3/3) stony fine sandy loam, granular, friable.
6-12"	Yellowish brown (10YR 5/6) stony fine sandy loam, blocky, friable.

Soil Name: Lyman
Depth to Seasonal High Water Table: none
Depth to Bedrock: 12"

Soil Observation: A

Depth	Description
3"	Leaf litter.
0-10"	Black (10YR2/1) mucky peat, massive, friable, redox.
10-20"	Gray (2.5Y 5/1) loamy fine sand, massive, friable, redox.
20-28"	Olive gray (5Y 5/2) very fine sandy loam, massive, friable, redox.
28-36"	Gray (2.5Y 5/1) fine sand, massive, friable, redox.
36-42"	Olive brown (2.5Y 4/4) very fine sandy loam, massive, firm, redox.

Soil Name: Whately
Depth to Seasonal High Water Table: surface
Depth to Bedrock: none

Soil Observation: B

Depth	Description
4"	Leaf litter.
0-8"	Very dark gray (2.5Y 3/1) stony fine sandy loam, massive, friable, redox.
8-14"	Dark gray (2.5Y 4/1) stony fine sandy loam, massive, friable, redox.
14-28"	Light yellowish brown (2.5Y 6/3) stony fine sandy loam, massive, friable, redox.

Soil Name: Brayton variant
Depth to Seasonal High Water Table: surface
Depth to Bedrock: 28"

Section 7

NRCS Soils Report

ALTUS
ENGINEERING, INC.

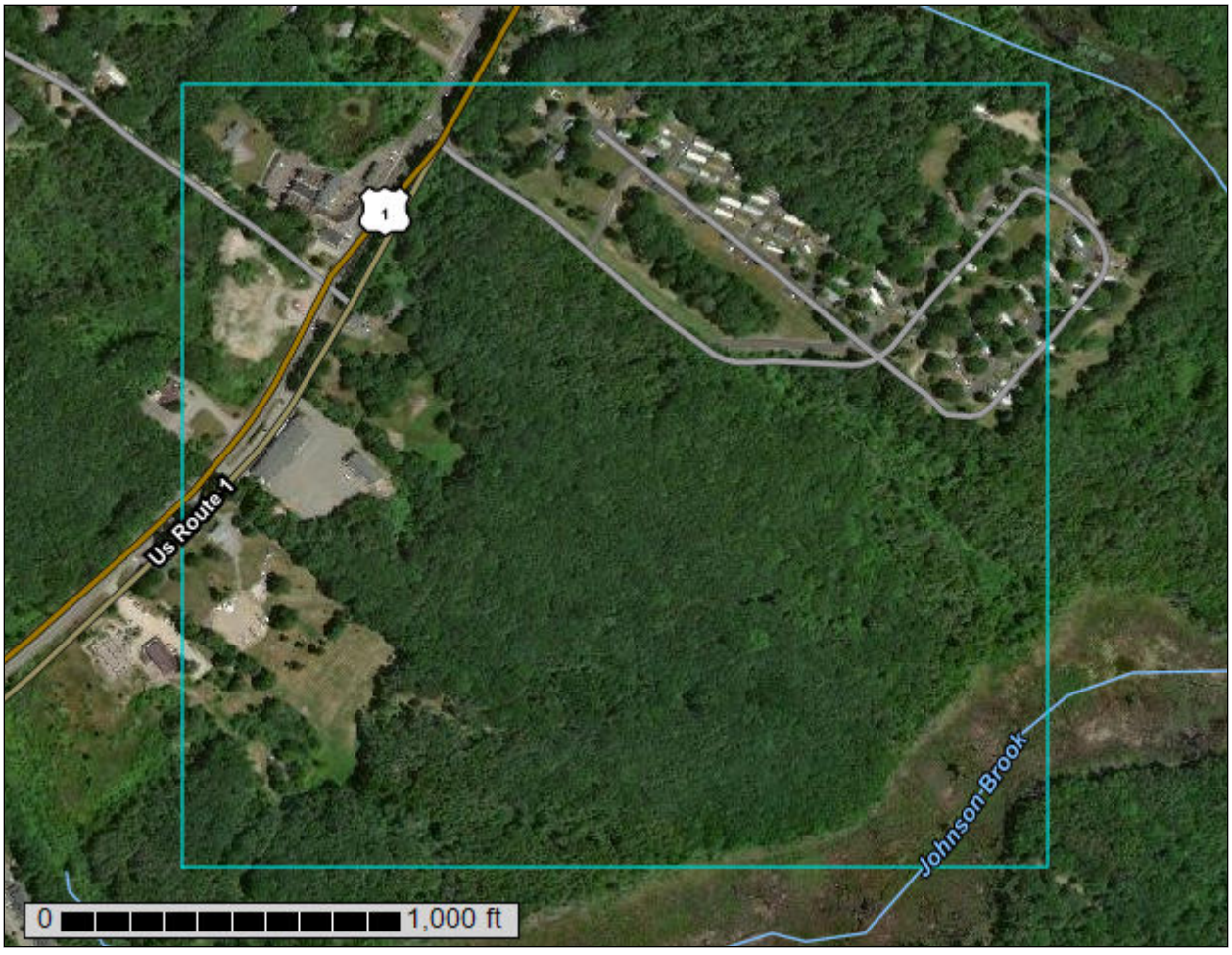
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for York County, Maine



July 1, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

70° 42' 26" W
70° 41' 29" W
43° 8' 4" N
43° 7' 37" N
361200 361300 361400 361500 361600 361700 361800 361900 362000 362100 362200 362300 362400
4777100 4777000 4776900 4776800 4776700 4776600 4776500 4776400

Map Scale: 1:5,940 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 50 100 200 300

Feet
0 250 500 1000 1500

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

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: York County, Maine
Survey Area Data: Version 19, May 29, 2020

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

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

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
Bm	Biddeford mucky peat, 0 to 3 percent slopes	11.1	8.2%
BrB	Brayton and Westbury fine sandy loams, 0 to 8 percent slopes	3.6	2.7%
BuB	Buxton silt loam, 3 to 8 percent slopes	1.2	0.9%
HeC	Hermon sandy loam, 8 to 15 percent slopes	21.2	15.7%
LnB	Lyman loam, 3 to 8 percent slopes, rocky	10.5	7.8%
LnC	Lyman loam, 8 to 15 percent slopes, rocky	20.0	14.8%
LnD	Lyman loam, 15 to 25 percent slopes, rocky	1.1	0.8%
LyC	Lyman-Rock outcrop complex, 8 to 15 percent slopes	1.2	0.9%
LyE	Lyman-Rock outcrop complex, 15 to 80 percent slopes	8.3	6.2%
MrB	Marlow fine sandy loam, 3 to 8 percent slopes	16.4	12.1%
MrC2	Marlow fine sandy loam, 8 to 15 percent slopes	4.7	3.5%
PeB	Peru fine sandy loam, 3 to 8 percent slopes	11.0	8.2%
Sa	Saco mucky silt loam	0.0	0.0%
Sc	Scantic silt loam, 0 to 3 percent slopes	25.0	18.5%
Totals for Area of Interest		**135.1**	**100.0%**

Map Unit Descriptions

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

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class.

Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

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

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

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

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

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

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

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

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The

pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

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

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

York County, Maine

Bm—Biddeford mucky peat, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2t0jn
Elevation: 10 to 1,200 feet
Mean annual precipitation: 33 to 60 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Biddeford and similar soils: 82 percent
Minor components: 18 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Biddeford

Setting

Landform: Marine terraces, river valleys
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave, linear
Parent material: Organic material over glaciomarine deposits

Typical profile

Oe - 0 to 12 inches: mucky peat
Eg - 12 to 16 inches: silt loam
Bg - 16 to 45 inches: silty clay
Cg - 45 to 65 inches: clay

Properties and qualities

Slope: 0 to 3 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.14 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Available water capacity: High (about 11.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: D
Ecological site: F144BY002ME - Marine Terrace Depression
Hydric soil rating: Yes

Minor Components

Scantic

Percent of map unit: 9 percent

Landform: Marine terraces, river valleys
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F144BY001ME - Marine Terrace Flat
Hydric soil rating: Yes

Wonsqueak

Percent of map unit: 6 percent
Landform: Marine terraces, river valleys
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Swanville

Percent of map unit: 2 percent
Landform: Lake plains, marine terraces
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Lamoine

Percent of map unit: 1 percent
Landform: Marine terraces, river valleys
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

BrB—Brayton and Westbury fine sandy loams, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9k52
Elevation: 10 to 2,500 feet
Mean annual precipitation: 34 to 48 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Brayton and similar soils: 70 percent
Westbury and similar soils: 25 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Brayton

Setting

Landform: Till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from mica schist and/or coarse-loamy lodgment till derived from gneiss

Typical profile

H1 - 0 to 8 inches: fine sandy loam
H2 - 8 to 14 inches: fine sandy loam
H3 - 14 to 65 inches: fine sandy loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 10 to 20 inches to densic material
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.60 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Description of Westbury

Setting

Landform: Till plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till derived from granite and gneiss

Typical profile

H1 - 0 to 4 inches: fine sandy loam
H2 - 4 to 23 inches: fine sandy loam
H3 - 23 to 36 inches: fine sandy loam
H4 - 36 to 65 inches: sandy loam

Properties and qualities

Slope: 0 to 8 percent
Depth to restrictive feature: 13 to 24 inches to densic material
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 7 to 18 inches
Frequency of flooding: None

Frequency of ponding: None
Available water capacity: Very low (about 2.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Skerry

Percent of map unit: 3 percent
Landform: Till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Peru

Percent of map unit: 1 percent
Landform: Till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Westbury, slopes >8%

Percent of map unit: 1 percent
Landform: Till plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

BuB—Buxton silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 9k54
Elevation: 10 to 900 feet
Mean annual precipitation: 34 to 48 inches
Mean annual air temperature: 43 to 46 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Buxton and similar soils: 85 percent

Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Buxton

Setting

Landform: Coastal plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Glaciolacustrine deposits derived from siltstone and/or fine-silty marine deposits

Typical profile

H1 - 0 to 7 inches: silt loam
H2 - 7 to 19 inches: silt loam
H3 - 19 to 37 inches: silty clay
H4 - 37 to 65 inches: silty clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: About 7 to 18 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Scantic

Percent of map unit: 5 percent
Landform: Coastal plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: Yes

Buxton mod well drained

Percent of map unit: 5 percent
Landform: Coastal plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Biddeford

Percent of map unit: 2 percent
Landform: Coastal plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Scio

Percent of map unit: 1 percent
Landform: Coastal plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Hydric soil rating: No

Buxton, slopes >8%

Percent of map unit: 1 percent
Landform: Coastal plains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Buxton, 0.1 to 3% stone cover

Percent of map unit: 1 percent
Landform: Coastal plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

HeC—Hermon sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w9r9
Elevation: 0 to 980 feet
Mean annual precipitation: 31 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hermon and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hermon

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountainbase, mountainflank, side slope, nose slope, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly supraglacial meltout till derived from granite and gneiss

Typical profile

Ap - 0 to 9 inches: sandy loam
Bs1 - 9 to 16 inches: very gravelly sandy loam
Bs2 - 16 to 32 inches: extremely gravelly loamy sand
C - 32 to 65 inches: very gravelly coarse sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (1.42 to 14.17 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Monadnock

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountainflank, mountainbase, side slope, nose slope, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Peru

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Mountainflank, mountainbase, side slope, nose slope, interfluve
Microfeatures of landform position: Open depressions, closed depressions, closed depressions, open depressions

Down-slope shape: Convex, concave
Across-slope shape: Linear, concave
Hydric soil rating: No

Tunbridge

Percent of map unit: 1 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountainbase, mountainflank, side slope, nose slope, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Brayton

Percent of map unit: 1 percent
Landform: Mountains, hills
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainflank, mountainbase, side slope, nose slope, interfluve
Microfeatures of landform position: Closed depressions, open depressions, closed depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

LnB—Lyman loam, 3 to 8 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2trq7
Elevation: 0 to 520 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Lyman, rocky, and similar soils: 86 percent
Minor components: 14 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman, Rocky

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Mountaintop, mountainbase, crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex

Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Tunbridge, rocky

Percent of map unit: 6 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountaintop, mountainbase, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Skerry, rocky

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Mountaintop, mountainbase, crest, side slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Hermon, rocky

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, summit, shoulder

Landform position (three-dimensional): Mountaintop, mountainbase, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Brayton, rocky

Percent of map unit: 1 percent
Landform: Hills, mountains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountaintop, mountainbase, crest, side slope
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

LnC—Lyman loam, 8 to 15 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2trq9
Elevation: 0 to 690 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Lyman, rocky, and similar soils: 86 percent
Minor components: 14 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman, Rocky

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Mountaintop, mountainbase, mountainflank, crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam

Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Tunbridge, rocky

Percent of map unit: 6 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountaintop, mountainbase, mountainflank, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Skerry, rocky

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Mountaintop, mountainbase, mountainflank, crest, side slope
Microfeatures of landform position: Closed depressions, closed depressions, open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Hermon, rocky

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainbase, mountainflank, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Brayton, rocky

Percent of map unit: 1 percent

Landform: Hills, mountains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountaintop, mountainbase, mountainflank, crest, side slope
Microfeatures of landform position: Open depressions, open depressions, closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

LnD—Lyman loam, 15 to 25 percent slopes, rocky

Map Unit Setting

National map unit symbol: 2trqd
Elevation: 0 to 850 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Lyman, rocky, and similar soils: 92 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman, Rocky

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock

Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Tunbridge, rocky

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Hermon, rocky

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainflank, mountaintop, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Skerry, rocky

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountaintop, mountainflank, crest, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Brayton, rocky

Percent of map unit: 1 percent
Landform: Hills, mountains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

LyC—Lyman-Rock outcrop complex, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2trqj
Elevation: 0 to 790 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Lyman, very stony, and similar soils: 62 percent
Rock outcrop: 25 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman, Very Stony

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Mountaintop, mountainbase, crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainbase, crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Igneous and metamorphic rock

Typical profile

R - 0 to 10 inches: bedrock

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 14.17 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

Skerry, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountaintop, mountainbase, crest, side slope
Microfeatures of landform position: Closed depressions, closed depressions, open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Hermon, very stony

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainbase, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Tunbridge, very stony

Percent of map unit: 3 percent

Landform: Mountains, hills
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountaintop, mountainbase, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Brayton, very stony

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountaintop, mountainbase, crest, side slope
Microfeatures of landform position: Closed depressions, closed depressions, open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

LyE—Lyman-Rock outcrop complex, 15 to 80 percent slopes

Map Unit Setting

National map unit symbol: 2trqp
Elevation: 0 to 980 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 60 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Lyman, very stony, and similar soils: 60 percent
Rock outcrop: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lyman, Very Stony

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, crest, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy supraglacial till derived from granite and gneiss and/or loamy supraglacial till derived from phyllite and/or loamy supraglacial till derived from mica schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 3 inches: loam
E - 3 to 5 inches: fine sandy loam
Bhs - 5 to 7 inches: loam
Bs1 - 7 to 11 inches: loam
Bs2 - 11 to 18 inches: channery loam
R - 18 to 28 inches: bedrock

Properties and qualities

Slope: 15 to 80 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 11 to 24 inches to lithic bedrock
Drainage class: Somewhat excessively drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to high (0.00 to 14.03 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 3.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Rock Outcrop

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, crest, side slope, free face
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Igneous and metamorphic rock

Typical profile

R - 0 to 10 inches: bedrock

Properties and qualities

Slope: 15 to 80 percent
Depth to restrictive feature: 0 inches to lithic bedrock
Capacity of the most limiting layer to transmit water (Ksat): Very low to very high (0.00 to 14.17 in/hr)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

Tunbridge, very stony

Percent of map unit: 4 percent
Landform: Hills, mountains

Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Hermon, very stony

Percent of map unit: 3 percent
Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountaintop, mountainflank, side slope, crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Skerry, very stony

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountaintop, mountainflank, crest, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Brayton, very stony

Percent of map unit: 1 percent
Landform: Hills, mountains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountaintop, mountainflank, crest, side slope
Microfeatures of landform position: Open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

MrB—Marlow fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2ty5d
Elevation: 0 to 690 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Marlow and similar soils: 87 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Marlow

Setting

Landform: Mountains, hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, side slope, nose slope, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

Typical profile

Ap - 0 to 4 inches: fine sandy loam
E - 4 to 6 inches: fine sandy loam
Bs1 - 6 to 10 inches: fine sandy loam
Bs2 - 10 to 15 inches: fine sandy loam
Bs3 - 15 to 20 inches: fine sandy loam
BC - 20 to 24 inches: fine sandy loam
Cd - 24 to 65 inches: fine sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Peru

Percent of map unit: 6 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Mountainbase, side slope, nose slope, interfluve
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Tunbridge

Percent of map unit: 4 percent
Landform: Mountains, hills
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountainbase, side slope, nose slope, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Brayton

Percent of map unit: 2 percent
Landform: Hills, mountains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase, side slope, nose slope, interfluve
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Colonel

Percent of map unit: 1 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase, side slope, nose slope, interfluve
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: No

MrC2—Marlow fine sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2ty5g
Elevation: 0 to 820 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Marlow and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Marlow

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, mountainflank, side slope, nose slope, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

Typical profile

Ap - 0 to 4 inches: fine sandy loam
E - 4 to 6 inches: fine sandy loam
Bs1 - 6 to 10 inches: fine sandy loam
Bs2 - 10 to 15 inches: fine sandy loam
Bs3 - 15 to 20 inches: fine sandy loam
BC - 20 to 24 inches: fine sandy loam
Cd - 24 to 65 inches: fine sandy loam

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Hydric soil rating: No

Minor Components

Tunbridge

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, summit, shoulder
Landform position (three-dimensional): Mountainbase, mountainflank, side slope, nose slope, interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Peru

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Footslope, backslope

Landform position (three-dimensional): Mountainbase, mountainflank, side slope, nose slope, interfluve
Microfeatures of landform position: Closed depressions, closed depressions, open depressions, open depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: No

Brayton

Percent of map unit: 2 percent
Landform: Mountains, hills
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase, mountainflank, side slope, nose slope, interfluve
Microfeatures of landform position: Open depressions, open depressions, closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

PeB—Peru fine sandy loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2ty5x
Elevation: 0 to 720 feet
Mean annual precipitation: 36 to 65 inches
Mean annual air temperature: 36 to 52 degrees F
Frost-free period: 90 to 160 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Peru and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Peru

Setting

Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy lodgment till derived from granite and/or loamy lodgment till derived from mica schist and/or loamy lodgment till derived from phyllite

Typical profile

Ap - 0 to 6 inches: fine sandy loam
Bhs - 6 to 8 inches: fine sandy loam
Bs1 - 8 to 12 inches: fine sandy loam

Bs2 - 12 to 18 inches: fine sandy loam
Bs3 - 18 to 21 inches: fine sandy loam
BC - 21 to 24 inches: fine sandy loam
Cd - 24 to 65 inches: sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 39 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.01 to 1.42 in/hr)
Depth to water table: About 16 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Brayton

Percent of map unit: 5 percent
Landform: Hills, mountains
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Sunapee

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Mountainbase, interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Marlow

Percent of map unit: 3 percent
Landform: Hills, mountains
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Mountainbase, interfluve
Microfeatures of landform position: Rises, rises
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Colonel

Percent of map unit: 1 percent
Landform: Hills, mountains

Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Mountainbase, interfluve
Microfeatures of landform position: Closed depressions, closed depressions
Down-slope shape: Linear, concave
Across-slope shape: Concave
Hydric soil rating: No

Sa—Saco mucky silt loam

Map Unit Setting

National map unit symbol: 9k6j
Elevation: 10 to 2,000 feet
Mean annual precipitation: 34 to 48 inches
Mean annual air temperature: 37 to 46 degrees F
Frost-free period: 80 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition

Saco and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Saco

Setting

Landform: Flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-silty alluvium

Typical profile

H1 - 0 to 13 inches: mucky silt loam
H2 - 13 to 24 inches: silt loam
H3 - 24 to 65 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Available water capacity: Very high (about 16.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6w

Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Rumney
Percent of map unit: 8 percent
Landform: Flood plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: Yes

Chocorua
Percent of map unit: 7 percent
Landform: Bogs
Hydric soil rating: Yes

Sc—Scantic silt loam, 0 to 3 percent slopes

Map Unit Setting
National map unit symbol: 2slv3
Elevation: 10 to 900 feet
Mean annual precipitation: 33 to 60 inches
Mean annual air temperature: 39 to 45 degrees F
Frost-free period: 90 to 160 days
Farmland classification: Not prime farmland

Map Unit Composition
Scantic and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Scantic

Setting
Landform: Marine terraces, river valleys
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Glaciomarine deposits

Typical profile
Ap - 0 to 9 inches: silt loam
Bg1 - 9 to 16 inches: silty clay loam
Bg2 - 16 to 29 inches: silty clay
Cg - 29 to 65 inches: silty clay

Properties and qualities
Slope: 0 to 3 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4w
Hydrologic Soil Group: D
Hydric soil rating: Yes

Minor Components

Lamoine

Percent of map unit: 8 percent
Landform: River valleys, marine terraces
Landform position (three-dimensional): Riser, rise
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Biddeford

Percent of map unit: 3 percent
Landform: Marine terraces, river valleys
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave, linear
Ecological site: F144BY002ME - Marine Terrace Depression
Hydric soil rating: Yes

Buxton

Percent of map unit: 2 percent
Landform: Marine terraces, river valleys
Landform position (three-dimensional): Riser, rise
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Roundabout

Percent of map unit: 2 percent
Landform: River valleys, marine terraces
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Section 8

BMP Sizing Calculations
Riprap Calculations

ALTUS
ENGINEERING, INC.

BMP Calculations

BMP: **Grassed Underdrained Soil Filter #1 (Pond 13P)**

	Area (sf)	Ratio (in/sf)	WQV (cf)	
Impervious	4554	1	380	cf
Landscape	8462	0.4	282	cf
Total WQV Required:			662	cf
Available Storage (cf):				
Surface to Lowest Outlet:			687	cf
Total Storage Provided:			687	cf
		Surplus/Deficit:	**25**	**cf**
Filter Area:		% Area Req.		
Impervious	4554	5%	228	sf
Landscape	8462	2%	169	sf
Total Filter Area Required:			397	sf
Filter Area Provided:			651	sf
		Surplus/Deficit:	**254**	**sf**

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BMP Calculations

BMP: Wet Pond #1 (Pond 29P)

Permanent Pool -

	Area (sf)	Ratio (in/sf)	WQV (cf)	
Impervious	53,461	2	8,910	cf
Landscape	67,237	0.8	4,482	cf
		Total Permanent Pool Required:	13,393	cf
		Total Permanent Pool Provided:	15,617	cf
		Surplus/Deficit:	**2,224**	**cf**

Channel Protection Volume -

	Area (sf)	Ratio (in/sf)	WQV (cf)	
Impervious	53,461	1	4,455	cf
Landscape	67,237	0.5	2,802	cf
		Total CPV Required:	7,257	cf
		Total CPV Provided:	20,576	cf
		Surplus/Deficit:	**13,319**	**cf**

Mean Depth -

Volume @ 1' Below Permanent Pool:	11,631	cf
Area @ 1' Below Permanent Pool:	3,643	sf
Mean Permanent Pool Depth:	**3.19**	**ft**

Forebay (West) -

Sanded Area (Pavement):	0.77	ac
Sand per acre per storm:	500	lb
Weight Conversion:	90	lb/cf
Number of Storms:	10	/year
Forebay Volume Required:	**43**	**cf**
Forebay Volume Provided:	**1,176**	**cf**
Surplus/Deficit:	**1,133**	**cf**

Forebay (East) -

Sanded Area (Pavement):	0.00	ac
Sand per acre per storm:	500	lb
Weight Conversion:	90	lb/cf
Number of Storms:	10	/year
Forebay Volume Required:	**0**	**cf**
Forebay Volume Provided:	**1,213**	**cf**
Surplus/Deficit:	**1,213**	**cf**

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Table: MDEP General Standards Calculations																
		A		B	C		D		E		F	G		H		
Subcat. Number	Subcat. Area (s.f.)	Proposed New Impervious - Site (s.f.)	Proposed New Lawn Area - Site (s.f.)	Total New Developed Area - Site (s.f.)	Proposed New Impervious - Road (s.f.)	Proposed New Lawn Area - Road (s.f.)	Total New Developed Area - Road (s.f.)	Propsed Undeveloped Area (s.f.)	Treated New Impervious- Site (s.f.)	Treated New Lawn Area - Site (s.f.)	Treated New Developed Area - Site (s.f.)	Treated New Impervious - Road (s.f.)	Treated New Lawn Area - Road (s.f.)	Treated New Developed Area - Road (s.f.)	BMP Description	Pre-Treatment
1	51,965	0	0	0	3,425	4,580	8,005	43,960	0	0	0	0	0	0	None	Deep Sump Catch Basin
2	279,061	0	3,597	3,597	0	3,899	3,899	271,565	0	0	0	0	0	0	None	None (Site Perimeter)
10	3,383	0	0	0	2,655	593	3,248	135	0	0	0	0	0	0	None	Deep Sump Catch Basin
11	6,211	0	0	0	0	3,494	3,494	2,717	0	0	0	0	0	0	None	Deep Sump Catch Basin
12	9,017	0	0	0	2,268	1,845	4,113	4,904	0	0	0	2,268	1,845	4,113	Grassed Soil Filter #1	Deep Sump Catch Basin
13	13,596	0	0	0	2,286	6,515	8,801	4,795	0	0	0	2,286	6,515	8,801	Grassed Soil Filter #1	Deep Sump Catch Basin
20	40,322	70	930	1,000	4,457	5,488	9,945	29,377	70	930	1,000	4,457	5,488	9,945	Wet Pond	Deep Sump CB & Forebay
21	11,105	0	0	0	2,690	2,316	5,006	6,099	0	0	0	2,690	2,316	5,006	Wet Pond	Deep Sump CB & Forebay
22	53,034	0	0	0	3,603	4,308	7,911	45,123	0	0	0	3,603	4,308	7,911	Wet Pond	Deep Sump CB & Forebay
23	8,495	155	4,281	4,436	1,986	2,073	4,059	0	155	4,281	4,436	1,986	2,073	4,059	Wet Pond	Deep Sump CB & Forebay
25	4,411	4,411	0	4,411	0	0	0	0	4,411	0	4,411	0	0	0	Wet Pond	Deep Sump CB & Forebay
26	18,776	14,979	2,656	17,635	1,141	0	1,141	0	14,979	2,656	17,635	1,141	0	1,141	Wet Pond	Deep Sump CB & Forebay
27	20,000	20,000	0	20,000	0	0	0	0	20,000	0	20,000	0	0	0	Wet Pond	None (Roof)
29	90,054	0	45,345	45,345	0	0	0	44,709	0	45,345	45,345	0	0	0	Wet Pond	None (Open Space)
30	86,511	0	3,636	3,636	0	0	0	82,875	0	0	0	0	0	0	None	None (Site Perimeter)
Total	**695,941**	**39,615**	**60,445**	**100,060**	**24,511**	**35,111**	**59,622**	**536,259**	**39,615**	**53,212**	**92,827**	**18,431**	**22,545**	**40,976**		

Site		
Total New Impervious Area - Site (s.f.)	[col. A]	39,615
Total New Developed Area - Site (s.f.)	[col. B]	100,060
Total Treated New Impervious Area - Site (s.f.)	[col. E]	39,615
Total Treated New Developed Area - Site (s.f.)	[col. F]	92,827
New Impervious Area Treatment (%)		**100.0%**
New Developed Area Treatment (%)		**92.8%**

Roadway (Public)		
Total New Impervious Area - Road (s.f.)	[col. C]	24,511
Total New Developed Area - Road (s.f.)	[col. D]	59,622
Total Treated New Impervious Area - Road (s.f.)	[col. G]	18,431
Total Treated New Developed Area - Road (s.f.)	[col. H]	40,976
New Impervious Area Treatment (%)		**75.2%**
New Developed Area Treatment (%)		**68.7%**

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RIPRAP CALCULATIONS

Location: CB #5-1, 12" Culvert (HydroCAD Pond #10P)

Date: 9/23/2021 By: EBS

La	Apron Length, Ft.	Calculated
Tw	**Tailwater, Ft.**	**0.5**
Q	**Flow, 10 Yr Storm, CFS**	**3.82**
D50	Median Stone Dia., Ft.	Calculated
D	Depth of Stone, In	Calculated
Do	**Pipe Diameter, Ft**	**1.00**
W1	Width @ Start, Ft.	Calculated
W2	Width @ End, Ft	Calculated
W	**Width of Channel**	**2**

W1:

3(Do)= 3 Ft.

Width @ Start: 3 Ft.

D50: $\frac{0.02(Q)^{4/3}}{Tw(Do)}$ D50= 0.24 Ft.

or 2.9 In.

Median Stone Size: 6 In.

D: 2.25*D50

Depth of Riprap: 14 In.

La: If Tw<= Do/2: Do/2= 0.5 Ft.

$La=1.8Q/Do^{3/2} + 7Do$ Tw= 0.5 Ft.

and W2=width of channel

or

W2=3Do+La

If Tw>Do/2:

$La=3Q/Do^{3/2} + 7Do$

and W2=width of channel

or

Length of Apron: 14 Ft.

W2=3Do+0.4La

Width @ End: 2 Ft.

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RIPRAP CALCULATIONS

Location: CB #4, 12" Culvert (HydroCAD Pond #12P)

Date: 9/23/2021 By: EBS

La	Apron Length, Ft.	Calculated
Tw	**Tailwater, Ft.**	**0.5**
Q	**Flow, 10 Yr Storm, CFS**	**0.65**
D50	Median Stone Dia., Ft.	Calculated
D	Depth of Stone, In	Calculated
Do	**Pipe Diameter, Ft**	**1.00**
W1	Width @ Start, Ft.	Calculated
W2	Width @ End, Ft	Calculated
W	**Width of Channel**	**2**

W1:

3(Do)= 3 Ft.

Width @ Start: 3 Ft.

D50: $\frac{0.02(Q)^{4/3}}{Tw(Do)}$ D50= 0.02 Ft.

or 0.3 In.

Median Stone Size: 6 In.

D: 2.25*D50

Depth of Riprap: 14 In.

La: If Tw<= Do/2: Do/2= 0.5 Ft.

$La=1.8Q/Do^{3/2} + 7Do$ Tw= 0.5 Ft.

and W2=width of channel

or

W2=3Do+La

If Tw>Do/2:

$La=3Q/Do^{3/2} + 7Do$

and W2=width of channel

or

W2=3Do+0.4La

Length of Apron: 9 Ft.

Width @ End: 2 Ft.

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RIPRAP CALCULATIONS

Location: GUSF #1, 12" Culvert (HydroCAD Pond #13P)

Date: 9/23/2021 By: EBS

La	Apron Length, Ft.	Calculated
Tw	**Tailwater, Ft.**	**0.5**
Q	**Flow, 10 Yr Storm, CFS**	**0.49**
D50	Median Stone Dia., Ft.	Calculated
D	Depth of Stone, In	Calculated
Do	**Pipe Diameter, Ft**	**1.00**
W1	Width @ Start, Ft.	Calculated
W2	Width @ End, Ft	Calculated
W	**Width of Channel**	**2**

W1:

3(Do)= 3 Ft.

Width @ Start: 3 Ft.

D50: $\frac{0.02(Q)^{4/3}}{Tw(Do)}$

D50= 0.02 Ft.

or 0.2 In.

Median Stone Size: 6 In.

D: 2.25*D50

Depth of Riprap: 14 In.

La: If Tw<= Do/2:

Do/2= 0.5 Ft.

$La=1.8Q/Do^{3/2} + 7Do$

Tw= 0.5 Ft.

and W2=width of channel

or

W2=3Do+La

If Tw>Do/2:

$La=3Q/Do^{3/2} + 7Do$

and W2=width of channel

or

W2=3Do+0.4La

Length of Apron: 8 Ft.

Width @ End: 2 Ft.

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RIPRAP CALCULATIONS

Location: Wet Pond, 18" Culvert (HydroCAD Pond #29P)

Date: 12/31/2020 By: EBS

La	Apron Length, Ft.	Calculated
Tw	**Tailwater, Ft.**	**0.5**
Q	**Flow, 10 Yr Storm, CFS**	**2.05**
D50	Median Stone Dia., Ft.	Calculated
D	Depth of Stone, In	Calculated
Do	**Pipe Diameter, Ft**	**1.50**
W1	Width @ Start, Ft.	Calculated
W2	Width @ End, Ft	Calculated
W	**Width of Channel**	**2**

W1:

3(Do)= 4.5 Ft.

Width @ Start: 5 Ft.

D50: $\frac{0.02(Q)^{4/3}}{Tw(Do)}$ D50= 0.07 Ft.

or 0.8 In.

Median Stone Size: 6 In.

D: 2.25*D50

Depth of Riprap: 14 In.

La: If Tw<= Do/2: Do/2= 0.75 Ft.

$La=1.8Q/Do^{3/2} + 7Do$ Tw= 0.5 Ft.

and W2=width of channel

or

W2=3Do+La

If Tw>Do/2:

$La=3Q/Do^{3/2} + 7Do$

and W2=width of channel

or

W2=3Do+0.4La

Length of Apron: 13 Ft.

Width @ End: 2 Ft.

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LEVEL SPREADER CALCULATIONS

Date: 9/23/2021 By: EBS

Based on Maine Volume III BMP's Technical Design Manual
Level Spreader Length based on 10-Year 24-Hour storm at 0.25 cfs per foot.
Minimum level spreader length = 3'

Location: GUSF #2 Outfall (Pond # 29P)

10-Year Peak Rate:	2.05	cfs
Required Length:	**8.2**	**feet**

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Section 9

Stormwater Operations & Maintenance Plan

ALTUS
ENGINEERING, INC.

STORMWATER INSPECTION AND MAINTENANCE MANUAL

Good To-Go
Kittery Assessor's Map 67, Lot 1

OWNER AT TIME OF APPROVAL:
Good To-Go c/o Cape House Management, LLC
484 U.S. Route 1
Kittery, Maine 03904

Proper inspection, maintenance, and repair are key elements in maintaining a successful stormwater management program on a developed property. Routine inspections ensure permit compliance and reduce the potential for deterioration of infrastructure or reduced water quality. Inspections should also be carried out after any rainfall of 1" or more. Qualified inspectors shall be Professional Engineers licensed in the State of Maine or Certified Professionals in Erosion and Sediment Control. The following responsible parties shall be in charge of managing the stormwater facilities:

RESPONSIBLE PARTIES:

Owner:	*Good To-Go c/o Cape House Management*		*(207) 451-9060*
	Name	*Company*	*Phone*
Inspection:	*Good To-Go c/o Cape House Management*		*(207) 451-9060*
	Name	*Company*	*Phone*
Maintenance:	*Good To-Go c/o Cape House Management*		*(207) 451-9060*
	Name	*Company*	*Phone*

NOTES:

Inspection and maintenance responsibilities shall transfer to any future property owner(s).

This manual shall be updated as needed to reflect any changes related to any transfer of ownership and/or any delegation of inspection and maintenance responsibilities to any entity other than those listed above.

ALTUS ENGINEERING, INC.

GRASSED UNDERDRAINED SOIL FILTERS

Underdrain soil filters control stormwater quality by capturing and retaining runoff and passing it through a filter bed comprised of a specific media. The basin shall be inspected semi-annually and following major storm events for evidence of erosion, clogging or of bypass conditions.

Maintenance

- *Drainage:* The filter should within 24 to 48 hours following a one-inch storm or greater. If the system drains too fast, adjust the outlet release valve opening to regulate the outflow.
- *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.
- *Weeding:* Weeding to control unwanted or invasive plants if necessary.
- *Grass cover:* Maintaining a healthy cover of grass will minimize clogging with fine sediments. If ponding exceeds 48 hours, the top of the filter bed should be rototilled to reestablish the soil's filtration capacity.
- *Soil Filter Replacement:* The top several inches of the filter can be replaced with fresh material if water is ponding for more than 72 hours, or the basin can be rototilled, seeded and mulched. Once the filter is mature, adding new material (a 1-inch to 2-inch cover of mature compost) can compensate for subsidence.

CULVERTS AND DRAINAGE PIPES

Function – Culverts and drainage pipes convey stormwater away from buildings, walkways, and parking areas and to surface waters or closed drainage systems.

Maintenance

- Culverts and drainage pipes shall be inspected semi-annually, or more often as needed, for accumulation of debris and structural integrity. Leaves and other debris shall be removed from the inlet and outlet to insure the functionality of drainage structures. Debris shall be disposed of on site where it will not concentrate back at the drainage structures or at a solid waste disposal facility.
- Riprap Areas - Culvert outlets and inlets shall be inspected during annual maintenance and operations for erosion and scour. If scour or erosion is identified, the owner shall take appropriate means to prevent further erosion.

DEEP SUMP CATCH BASINS

Function – Catch basins collect stormwater, primarily from paved surfaces and roofs. Stormwater from paved areas often contains sediment and contaminants. Catch basin sumps serve to trap sediment, trace metals, nutrients and debris. Hooded catch basins trap hydrocarbons and floating debris.

Maintenance

- Remove leaves and debris from structure grates on an as-needed basis.
- Sumps shall be inspected and cleaned annually and any removed sediment and debris shall be disposed of at a solid waste disposal facility.

LANDSCAPED AREAS - FERTILIZER MANAGEMENT

Function – Fertilizer management involves controlling the rate, timing and method of fertilizer application so that the nutrients are taken up by the plants thereby reducing the chance of polluting the surface and ground waters. Fertilizer management can be effective in reducing the amounts of phosphorus and nitrogen in runoff from landscaped areas, particularly lawns.

Maintenance

- Have the soil tested by your landscaper or local Soil Conservation Service for nutrient requirements and follow the recommendations.
- Do not apply fertilizer to frozen ground.
- Clean up any fertilizer spills.
- Do not allow fertilizer to be broadcast into water bodies.
- When fertilizing a lawn, water thoroughly, but do not create a situation where water runs off the surface of the lawn.

LANDSCAPED AREAS - LITTER CONTROL

Function – Landscaped areas tend to filter debris and contaminates that may block drainage systems and pollute the surface and ground waters.

Maintenance

- Litter Control and lawn maintenance involves removing litter such as trash, leaves, lawn clippings, pet wastes, oil and chemicals from streets, parking lots, and lawns before materials are transported into surface waters.
- Litter control shall be implemented as part of the grounds maintenance program.

VEGETATIVE SWALES

Function – Vegetative swales filter sediment from stormwater, promote infiltration, and the uptake of contaminates. They are designed to treat runoff and dispose of it safely into the natural drainage system.

Maintenance

- Timely maintenance is important to keep a swale in good working condition. Mowing of grassed swales shall be monthly to keep the vegetation in vigorous condition. The cut vegetation shall be removed to prevent the decaying organic litter from adding pollutants to the discharge from the swale.
- Fertilizing shall be bi-annual or as recommended from soil testing.
- Inspect swales following significant rainfall events.
- Woody vegetation shall not be allowed to become established in the swales or rock riprap outlet protection and if present shall be removed.
- Accumulated debris disrupts flow and leads to clogging and erosion. Remove debris and litter as necessary.
- Inspect for eroded areas. Determine cause of erosion and correct deficiency as required. Monitor repaired areas.

RIP RAP OUTLETS, SWALES, LEVEL SPREADERS AND BUFFERS

Function – Rip rap outlets slow the velocity of runoff, minimizing erosion and maximizing the treatment capabilities of associated buffers. Vegetated buffers, either forested or meadow, slow runoff which promotes and reduces peak rates of runoff. The reduced velocities and the presence of vegetation encourage the filtration of sediment and the limited bio-uptake of nutrients.

Maintenance

- Inspect riprap, level spreaders and buffers at least annually for signs of erosion, sediment buildup, or vegetation loss.
- Inspect level for signs of condensed flows. Level spreader and rip rap shall be maintained to disperse flows evenly over level spreader.
- If a meadow buffer, provide periodic mowing as needed to maintain a healthy stand of herbaceous vegetation.
- If a forested buffer, then the buffer should be maintained in an undisturbed condition, unless erosion occurs.
- If erosion of the buffer (forested or meadow) occurs, eroded areas should be repaired and replanted with vegetation similar to the remaining buffer. Corrective action should include eliminating the source of the erosion problem and may require retrofit or reconstruction of the level spreader.
- Remove debris and accumulated sediment and dispose of properly.

WET PONDS

Function – Wet ponds have a permanent pool of water and have the capacity to temporarily store stormwater runoff and release it at a controlled rate, provide flood control and provide water quality treatment.

Maintenance

- For the first year of operation, the wet pond shall be inspected after every major storm to ensure proper functioning. Thereafter, the basin shall be inspected at least once every six months. Inspections shall include verification that the pond is slowly emptying through the gravel filter for a short time (12-24 hours) after a storm.
- Inlets and Outlets: The inlets and outlets of the pond shall be checked periodically to ensure that flow structures are not blocked by debris. All ditches or pipes connecting ponds in series shall be checked for debris that may obstruct flow.
- Gravel Trench: The gravel trench shall be clear of clogging material (e.g., decaying leaves) so that discharge through the trench is not impeded. The top several inches of the gravel in the outlet trench shall be replaced with fresh material when water ponds above the permanent pool for more than 72 hours. The sediments removed from the wet pond shall be disposed of in accordance with application regulations.
- Embankments: Wet ponds shall be inspected annually for erosion, side slopes destabilization, embankment settling or other signs of structural failure. Corrective actions shall be taken immediately upon identification of a problem.
- Mowing: Wet pond berms and side slopes should be mowed at least twice annually to prevent the establishment of woody vegetation.

GENERAL CLEAN UP

- Upon completion of the project, the contractor shall remove all temporary stormwater structures (i.e., temporary stone check dams, silt fence, temporary diversion swales, catch basin inlet filter, etc.). Any sediment deposits remaining in place after the silt fence or filter barrier is no longer required shall be dressed to conform to the existing grade, prepared, and seeded. Remove any sediment in catch basins and clean drain pipes that may have accumulated during construction.
- Once in operation, all paved areas of the site should be swept at least once annually at the end of winter/early spring prior to significant spring rains.

MUNICIPAL REPORTING

The Owner shall retain a qualified post-construction stormwater inspector to inspect the site's stormwater infrastructure. By July 1 of each year, said inspector shall provide a completed and signed certification to the Town's Code Enforcement Officer that the inspection has been completed. The notification shall include a determination of the ongoing maintenance and functionality of the infrastructure, describe any deficiencies, and outline any necessary corrective action taken or recommended to the Owner.

APPPENDIX

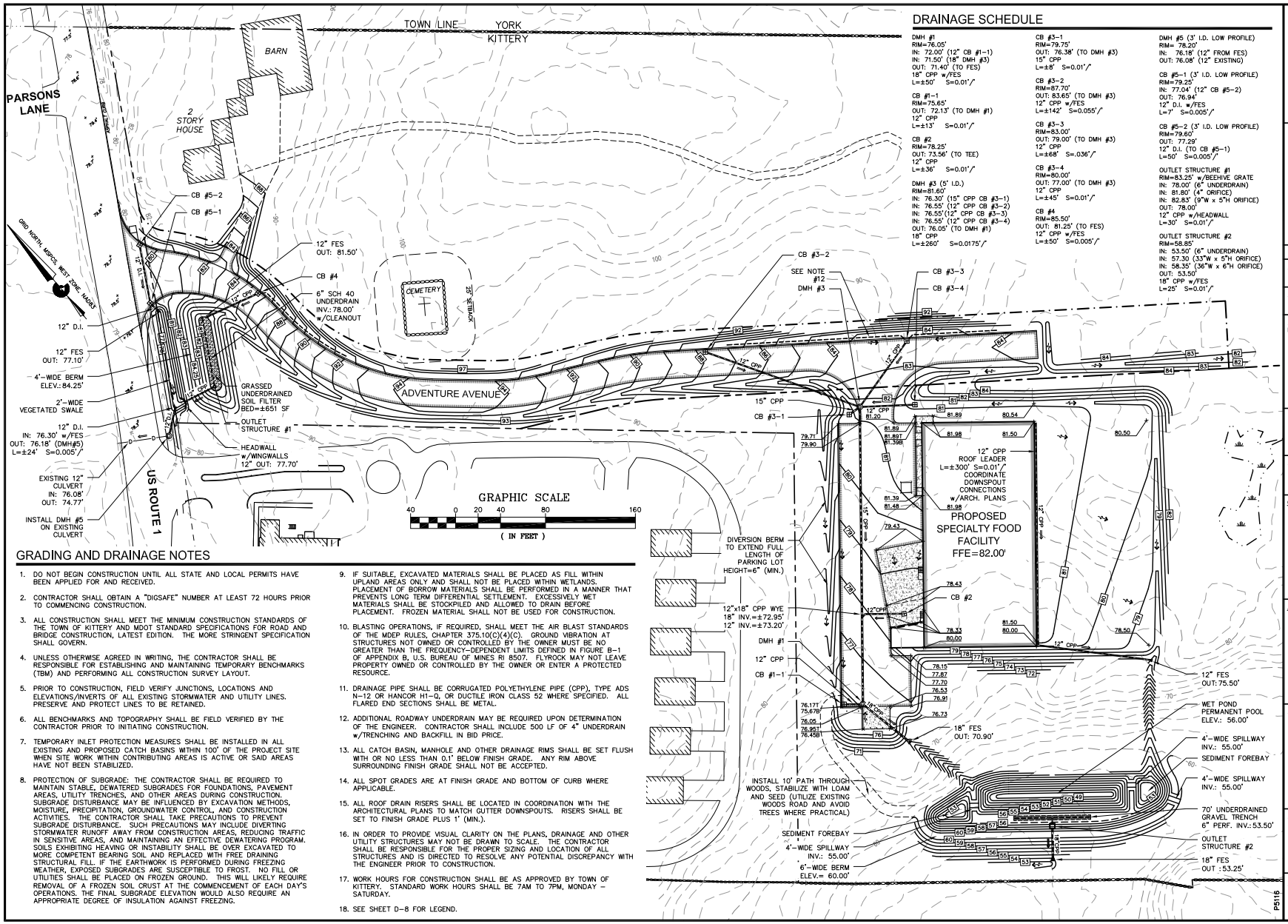
A. Stormwater System Operations and Maintenance Report
B. Site Grading and Drainage Plan

STORM WATER SYSTEM OPERATION AND MAINTENANCE REPORT

General Information			
Project Name			
Owner			
Inspector's Name(s)			
Inspector's Contact Information			
Date of Inspection		**Start Time:**	**End Time:**
Type of Inspection: ☐ Annual Report ☐ Post-storm event ☐ Due to a discharge of significant amounts of sediment			
Notes:			

General Site Questions and Discharges of Significant Amounts of Sediment			
Subject		**Status**	**Notes**
A discharge of significant amounts of sediment may be indicated by (but is not limited to) observations of the following. Note whether any are observed during this inspection:			*Notes/ Action taken:*
1	Do the current site conditions reflect the attached site plan?	❑Yes ❑No	
2	Is the site permanently stabilized, temporary erosion and sediment controls are removed, and stormwater discharges from construction activity are eliminated?	❑Yes ❑No	
3	Is there evidence of the discharge of significant amounts of sediment to surface waters, or conveyance systems leading to surface waters?	❑Yes ❑No	

Permit Coverage and Plans				
#	**BMP/Facility**	**Inspected**	**Corrective Action Needed and Notes**	**Date Corrected**
	Grassed Underdrained Soil Filters	❑Yes ❑No		
	Catch Basins	❑Yes ❑No		
	Drainage Pipes	❑Yes ❑No		
	Riprap Aprons	❑Yes ❑No		
	Wet Ponds	❑Yes ❑No		
		❑Yes ❑No		
		❑Yes ❑No		



DRAINAGE SCHEDULE

DMH #1
RIM=76.05'
IN: 72.00' (12" CB #1-1)
IN: 71.50' (18" DMH #3)
OUT: 71.40' (TO FES)
18" CPP w/FES
L=±50' S=0.01'/'

CB #1-1
RIM=75.65'
OUT: 72.13' (TO DMH #1)
12" CPP
L=±13' S=0.01'/'

CB #2
RIM=78.25'
OUT: 73.56' (TO TEE)
12" CPP
L=±36' S=0.01'/'

DMH #3 (5' I.D.)
RIM=81.60'
IN: 76.30' (15" CPP CB #3-1)
IN: 76.55' (12" CPP CB #3-2)
IN: 76.55' (12" CPP CB #3-3)
IN: 76.55' (12" CPP CB #3-4)
OUT: 76.05' (TO DMH #1)
18" CPP
L=±260' S=0.0175'/'

CB #3-1
RIM=79.75'
OUT: 76.38' (TO DMH #3)
15" CPP
L=±8' S=0.01'/'

CB #3-2
RIM=87.70'
OUT: 83.65' (TO DMH #3)
12" CPP w/FES
L=±142' S=0.055'/'

CB #3-3
RIM=83.00'
OUT: 79.00' (TO DMH #3)
12" CPP
L=±68' S=.036'/'

CB #3-4
RIM=80.00'
OUT: 77.00' (TO DMH #3)
12" CPP
L=±45' S=0.01'/'

CB #4
RIM=85.50'
OUT: 81.25' (TO FES)
12" CPP w/FES
L=±50' S=0.005'/'

DMH #5 (3' I.D. LOW PROFILE)
RIM= 78.20'
IN: 76.18' (12" FROM FES)
OUT: 76.08' (12" EXISTING)

CB #5-1 (3' I.D. LOW PROFILE)
RIM=79.25'
IN: 77.04' (12" CB #5-2)
OUT: 76.94'
12" D.I. w/FES
L=7' S=0.005'/'

CB #5-2 (3' I.D. LOW PROFILE)
RIM=79.60'
OUT: 77.29'
12" D.I. (TO CB #5-1)
L=50' S=0.005'/'

OUTLET STRUCTURE #1
RIM=83.25' w/BEEHIVE GRATE
IN: 78.00' (6" UNDERDRAIN)
IN: 81.80' (4" ORIFICE)
IN: 82.83' (9"W x 5"H ORIFICE)
OUT: 78.00'
12" CPP w/HEADWALL
L=30' S=0.01'/'

OUTLET STRUCTURE #2
RIM=58.85'
IN: 53.50' (6" UNDERDRAIN)
IN: 57.30 (33"W x 5"H ORIFICE)
IN: 58.35' (36"W x 6"H ORIFICE)
OUT: 53.50'
18" CPP w/FES
L=25' S=0.01'/'

GRADING AND DRAINAGE NOTES

1. DO NOT BEGIN CONSTRUCTION UNTIL ALL STATE AND LOCAL PERMITS HAVE BEEN APPLIED FOR AND RECEIVED.
2. CONTRACTOR SHALL OBTAIN A "DIGSAFE" NUMBER AT LEAST 72 HOURS PRIOR TO COMMENCING CONSTRUCTION.
3. ALL CONSTRUCTION SHALL MEET THE MINIMUM CONSTRUCTION STANDARDS OF THE TOWN OF KITTERY AND MDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION. THE MORE STRINGENT SPECIFICATION SHALL GOVERN.
4. UNLESS OTHERWISE AGREED IN WRITING, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING TEMPORARY BENCHMARKS (TBM) AND PERFORMING ALL CONSTRUCTION SURVEY LAYOUT.
5. PRIOR TO CONSTRUCTION, FIELD VERIFY JUNCTIONS, LOCATIONS AND ELEVATIONS/INVERTS OF ALL EXISTING STORMWATER AND UTILITY LINES. PRESERVE AND PROTECT LINES TO BE RETAINED.
6. ALL BENCHMARKS AND TOPOGRAPHY SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO INITIATING CONSTRUCTION.
7. TEMPORARY INLET PROTECTION MEASURES SHALL BE INSTALLED IN ALL EXISTING AND PROPOSED CATCH BASINS WITHIN 100' OF THE PROJECT SITE WHEN SITE WORK WITHIN CONTRIBUTING AREAS IS ACTIVE OR SAID AREAS HAVE NOT BEEN STABILIZED.
8. PROTECTION OF SUBGRADE: THE CONTRACTOR SHALL BE REQUIRED TO MAINTAIN STABLE, DEWATERED SUBGRADES FOR FOUNDATIONS, PAVEMENT AREAS, UTILITY TRENCHES, AND OTHER AREAS DURING CONSTRUCTION. SUBGRADE DISTURBANCE MAY BE INFLUENCED BY EXCAVATION METHODS, MOISTURE, PRECIPITATION, GROUNDWATER CONTROL, AND CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO PREVENT SUBGRADE DISTURBANCE. SUCH PRECAUTIONS MAY INCLUDE DIVERTING STORMWATER RUNOFF AWAY FROM CONSTRUCTION AREAS, REDUCING TRAFFIC IN SENSITIVE AREAS, AND MAINTAINING AN EFFECTIVE DEWATERING PROGRAM. SOILS EXHIBITING HEAVING OR INSTABILITY SHALL BE OVER EXCAVATED TO MORE COMPETENT BEARING SOIL AND REPLACED WITH FREE DRAINING STRUCTURAL FILL. IF THE EARTHWORK IS PERFORMED DURING FREEZING WEATHER, EXPOSED SUBGRADES ARE SUSCEPTIBLE TO FROST. NO FILL OR UTILITIES SHALL BE PLACED ON FROZEN GROUND. THIS WILL LIKELY REQUIRE REMOVAL OF A FROZEN SOIL CRUST AT THE COMMENCEMENT OF EACH DAY'S OPERATIONS. THE FINAL SUBGRADE ELEVATION WOULD ALSO REQUIRE AN APPROPRIATE DEGREE OF INSULATION AGAINST FREEZING.
9. IF SUITABLE, EXCAVATED MATERIALS SHALL BE PLACED AS FILL WITHIN UPLAND AREAS ONLY AND SHALL NOT BE PLACED WITHIN WETLANDS. PLACEMENT OF BORROW MATERIALS SHALL BE PERFORMED IN A MANNER THAT PREVENTS LONG TERM DIFFERENTIAL SETTLEMENT. EXCESSIVELY WET MATERIALS SHALL BE STOCKPILED AND ALLOWED TO DRAIN BEFORE PLACEMENT. FROZEN MATERIAL SHALL NOT BE USED FOR CONSTRUCTION.
10. BLASTING OPERATIONS, IF REQUIRED, SHALL MEET THE AIR BLAST STANDARDS OF THE MOEP RULES, CHAPTER 375.10(C)(4)(C). GROUND VIBRATION AT STRUCTURES NOT OWNED OR CONTROLLED BY THE OWNER MUST BE NO GREATER THAN THE FREQUENCY-DEPENDENT LIMITS DEFINED IN FIGURE B-1 OF APPENDIX B, U.S. BUREAU OF MINES RI 8507. FLYROCK MAY NOT LEAVE PROPERTY OWNED OR CONTROLLED BY THE OWNER OR ENTER A PROTECTED RESOURCE.
11. DRAINAGE PIPE SHALL BE CORRUGATED POLYETHYLENE PIPE (CPP), TYPE ADS N-12 OR HANCOR H1-Q, OR DUCTILE IRON CLASS 52 WHERE SPECIFIED. ALL FLARED END SECTIONS SHALL BE METAL.
12. ADDITIONAL ROADWAY UNDERDRAIN MAY BE REQUIRED UPON DETERMINATION OF THE ENGINEER. CONTRACTOR SHALL INCLUDE 500 LF OF 4" UNDERDRAIN w/TRENCHING AND BACKFILL IN BID PRICE.
13. ALL CATCH BASIN, MANHOLE AND OTHER DRAINAGE RIMS SHALL BE SET FLUSH WITH OR NO LESS THAN 0.1' BELOW FINISH GRADE. ANY RIM ABOVE SURROUNDING FINISH GRADE SHALL NOT BE ACCEPTED.
14. ALL SPOT GRADES ARE AT FINISH GRADE AND BOTTOM OF CURB WHERE APPLICABLE.
15. ALL ROOF DRAIN RISERS SHALL BE LOCATED IN COORDINATION WITH THE ARCHITECTURAL PLANS TO MATCH GUTTER DOWNSPOUTS. RISERS SHALL BE SET TO FINISH GRADE PLUS 1' (MIN.).
16. IN ORDER TO PROVIDE VISUAL CLARITY ON THE PLANS, DRAINAGE AND OTHER UTILITY STRUCTURES MAY NOT BE DRAWN TO SCALE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER SIZING AND LOCATION OF ALL STRUCTURES AND IS DIRECTED TO RESOLVE ANY POTENTIAL DISCREPANCY WITH THE ENGINEER PRIOR TO CONSTRUCTION.
17. WORK HOURS FOR CONSTRUCTION SHALL BE AS APPROVED BY TOWN OF KITTERY. STANDARD WORK HOURS SHALL BE 7AM TO 7PM, MONDAY – SATURDAY.
18. SEE SHEET D-8 FOR LEGEND.

ALTUS ENGINEERING, INC.
133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

NOT FOR CONSTRUCTION

ISSUED FOR: PLANNING BOARD

ISSUE DATE: SEPTEMBER 23, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	PLANNING BOARD	EBS	07/22/21
1	PLANNING BOARD	EBS	09/23/21

DRAWN BY: EBS
APPROVED BY: EBS
DRAWING FILE: 5116-SITE.dwg

SCALE:
22" x 34" - 1" = 40'
11" x 17" - 1" = 80'

OWNER:
C-COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

APPLICANT:
GOOD TO-GO
c/o CAPE HOUSE
MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO-GO
SPECIALTY FOOD
FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
STORMWATER
MANAGEMENT PLAN

SHEET NUMBER:
C-6

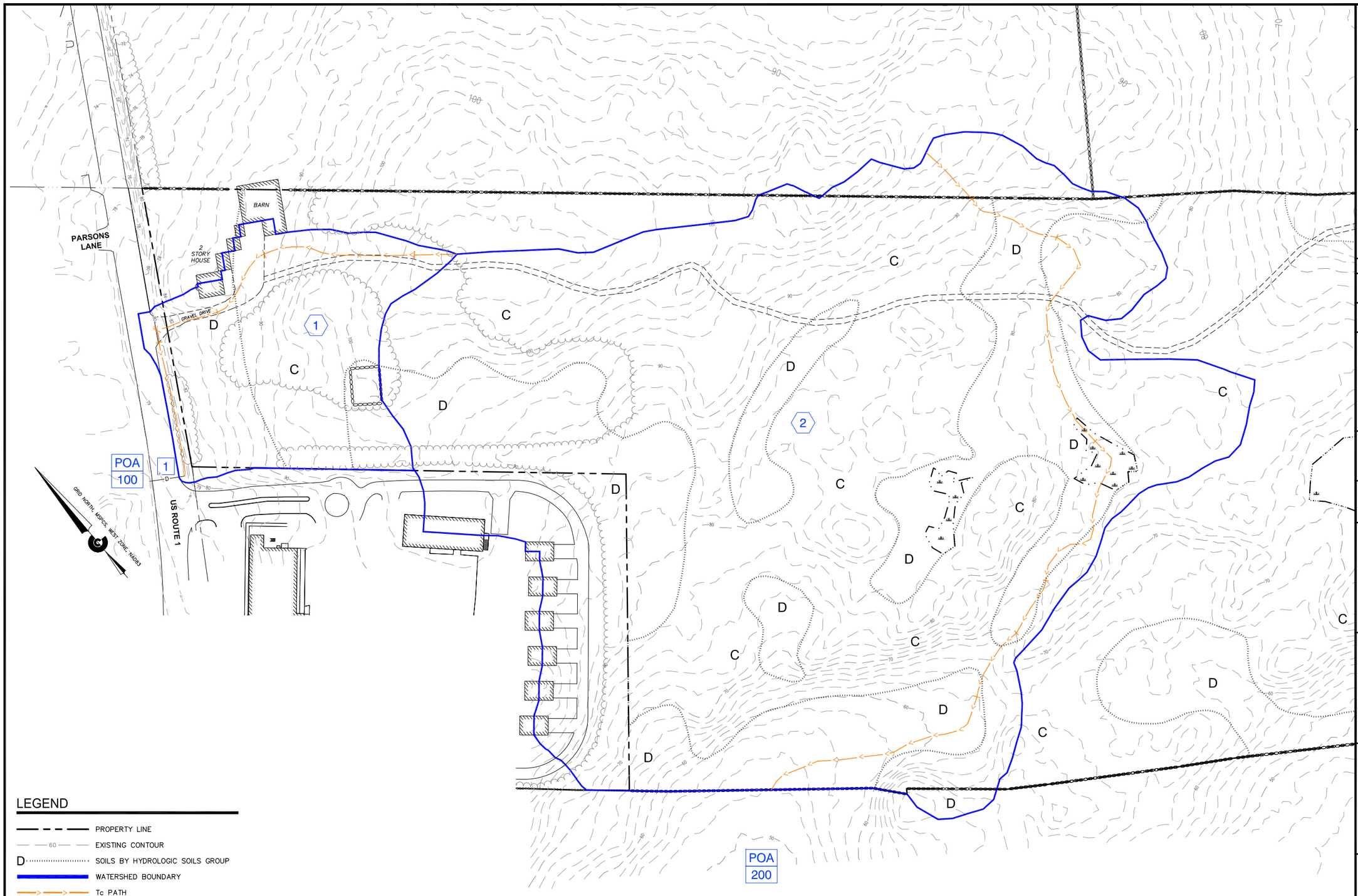
P5116

Section 10

Watershed Plans

Pre-Development Drainage Area Plan
Post-Development Drainage Area Plan

ALTUS
ENGINEERING, INC.



LEGEND

- PROPERTY LINE
- 60 EXISTING CONTOUR
- D SOILS BY HYDROLOGIC SOILS GROUP
- WATERSHED BOUNDARY
- Tc PATH
- PROPOSED GROUND SLOPE DIRECTION
- 1 1 1 SUBCATCHMENT/POND/REACH
- POA POINT OF ANALYSIS

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)

P5116

ALTUS ENGINEERING, INC.

133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

STATE OF MAINE
ERIC D. WEINRIEB
No. 6658
LICENSED PROFESSIONAL ENGINEER
7/22/21

NOT FOR CONSTRUCTION

ISSUED FOR:
PLANNING BOARD

ISSUE DATE:
JULY 22, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	PLANNING BOARD	EBS	07/22/21

DRAWN BY: EBS
APPROVED BY: EBS
DRAWING FILE: 5116-SITE.dwg

SCALE:
22" x 34" - 1" = 60'
11" x 17" - 1" = 120'

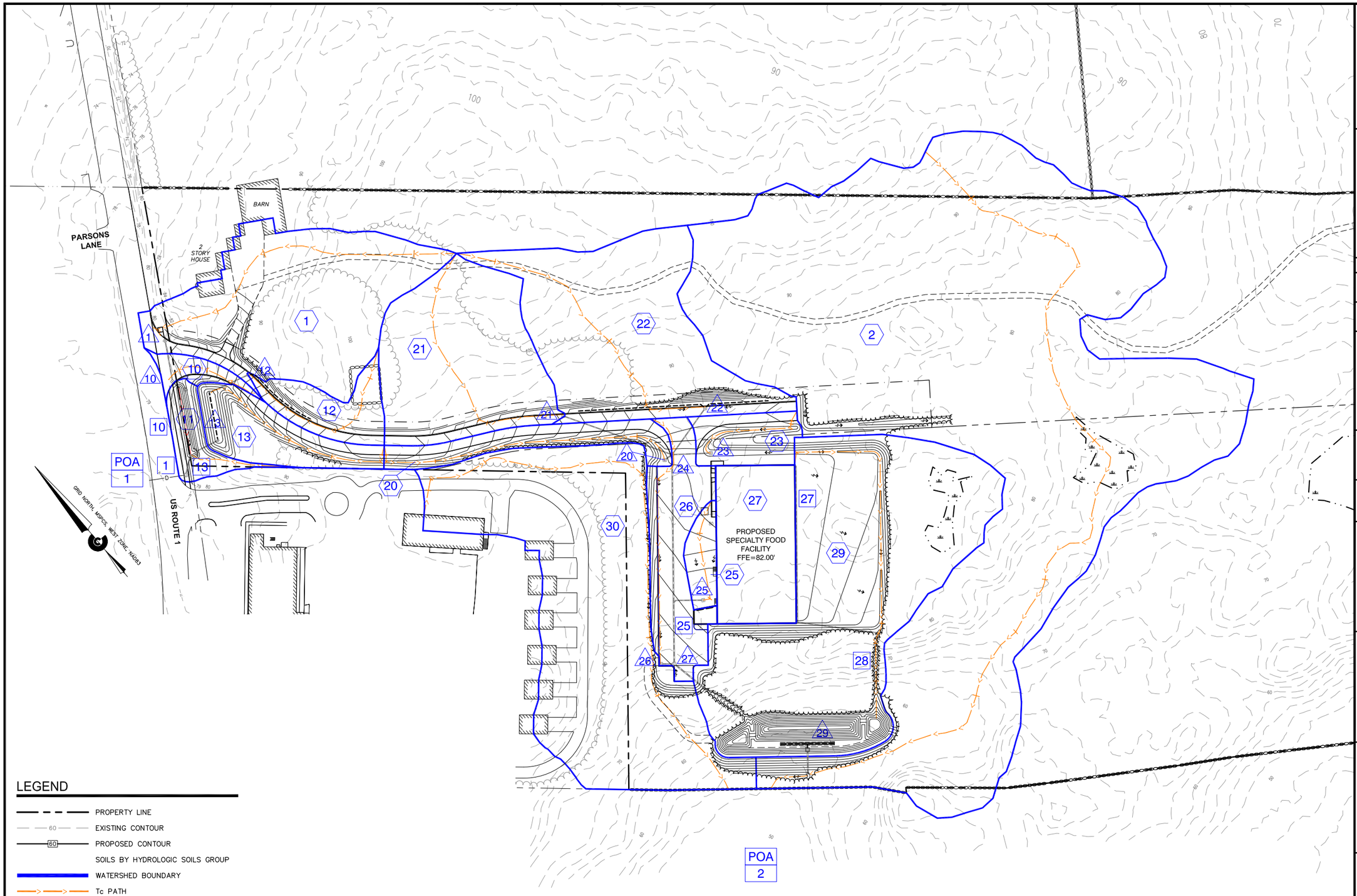
OWNER:
C-COAST PROPERTIES, LLC
8 BANKS ROCK
YORK HARBOR, MAINE 03911

APPLICANT:
GOOD TO-GO
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO-GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
PRE-DEVELOPMENT WATERHSED PLAN

SHEET NUMBER:
WS-1



LEGEND

- PROPERTY LINE
- 60 EXISTING CONTOUR
- 60 PROPOSED CONTOUR
- SOILS BY HYDROLOGIC SOILS GROUP
- WATERSHED BOUNDARY
- Tc PATH
- PROPOSED GROUND SLOPE DIRECTION
- 1 / 1 / 1 SUBCATCHMENT/POND/REACH
- POA POINT OF ANALYSIS

GRAPHIC SCALE

60 0 30 60 120 240

(IN FEET)

P5116

ALTUS ENGINEERING, INC.

133 Court Street Portsmouth, NH 03801
(603) 433-2335 www.altus-eng.com

STATE OF MAINE
ERIC D. WEINRIEB
No. 6658
LICENSED PROFESSIONAL ENGINEER

9/23/21

NOT FOR CONSTRUCTION

ISSUED FOR:
PLANNING BOARD

ISSUE DATE:
SEPTEMBER 23, 2021

REVISIONS

NO.	DESCRIPTION	BY	DATE
0	PLANNING BOARD	EBS	07/22/21
1	PLANNING BOARD	EBS	09/23/22

DRAWN BY: EBS
APPROVED BY: EBS
DRAWING FILE: 5116-SITE.dwg

SCALE:
22" x 34" - 1" = 60'
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YORK HARBOR, MAINE 03911

APPLICANT:
GOOD TO-GO
c/o CAPE HOUSE MANAGEMENT, LLC
484 US ROUTE 1
KITTERY, MAINE 03904

PROJECT:
GOOD TO-GO SPECIALTY FOOD FACILITY
TAX MAP 67, LOT 1
524 U.S. ROUTE 1
KITTERY, MAINE

TITLE:
POST-DEVELOPMENT WATERHSED PLAN

SHEET NUMBER:
WS-2