

Date September 13, 2018  
To Town of Cumberland Planning Board  
From Carla Nixon, Town Planner  
Subject **Major Site Review: Belted Cow Office Building**

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**REQUEST/PROJECT DESCRIPTION:**

The applicant is the Belted Cow Realty, LLC. Jim Taylor of 247 Portland Street, Yarmouth. Mr. Taylor is proposing to construct a multi-unit (4 separate units) office building containing approximately 15,970 sf on Lot 5 of Cumberland Foreside Village subdivision located on Route 1 and as shown on Tax Assessor Map R01, Lot 11-5. There will be two loading docks and parking for 54 vehicles.

Pinkham and Greer, Consulting Engineers, prepared the site plan and application and will represent the owner at the Planning Board meeting.

**PROJECT HISTORY:** None

**DESCRIPTION:**

Right, Title or Interest:	Warranty Deed
Zoning:	Contract Zone with underlying Office Commercial South
Min. Lot Size:	1 acre
Parcel size:	2.82 acres
Frontage:	150'
Setbacks:	Front: 25'; Rear: 40'; Side: 20'
Proposed Use:	Office Commercial and Light Manufacturing.
Access:	24' x 200' paved access drive from Route One.
Parking:	51 spaces with 3 handicapped spaces.
Water:	Public
Sewer:	Public
Electrical:	Underground from Route 1.
Wetland Impact:	0
Floodplain:	Map # 2301620018 C - Designation: Zone C (area of minimal flooding)

Natural Features: None

Solid Waste Disposal: Inside storage; no dumpster proposed.

Days/Hours of Operation: 7 days per week/ 7 a.m to 7 p.m.

Signs: One sign. Size and location TBD on site and approved with Sign Permit from Town.

Outside Agency Approvals:

- Portland Water District: Letter dated 9/4/18 on file.
- MDEP Site Location of Development permit amendment: Outstanding
- MDOT Entrance Permit: Outstanding

**DEPARTMENT HEAD REVIEWS:**

**William Longley, Code Enforcement Officer:** No comments

**Charles Rumsey, Police Chief:** No comments

**Dan Small, Fire Chief:**

After reviewing the application for this project I have the following comments:

1. The building shall be equipped with a fire alarm system that is monitored by an approved fire alarm company. The system shall have a remote annunciator panel located at the main entrance that can be silenced with the push of one button from this location. The strobe or other visual alarm signaling devices shall remain active when the system is silenced. The alarm system shall identify the exact location of each individual initiation device with plain text at the fire alarm panel.
2. The building shall be equipped with a hinged key box approved by the fire department.
3. An automatic fire protection sprinkler system shall be installed and shall meet the requirements of the National Fire Protection Association. The fire department connection shall be equipped with a 5" locking coupling that is located in an area that is approved by the fire department. The sprinkler system shall send a water flow signal to the fire alarm panel whenever water is moving throughout the system. The fire department shall receive a copy of the sprinkler system drawings that have been approved and permitted by the State Fire Marshal's Office.
4. A fire hydrant shall either be installed or confirmed to be within 10' from the Route 1 project entrance and must be located within a public right of way.

**LANDS AND CONSERVATION COMMISSION REVIEW: No comments**

**WAIVER REQUESTS: None, but see Town Engineer's comments.**

## **PLANNER'S COMMENTS:**

1. Is the letter from Wells Fargo date 8/22/18 sufficient for showing financial capacity?
2. Photometric plan shows slight spillover along rear property line. Proposed condition of approval.
3. Why is a 4' tall chainlink fence shown along rear of parcel?
4. Will all the existing stones from the stone wall be placed around the sign?
5. Outstanding DEP SLODA amendment permit.
6. Outstanding MDOT Entrance Permit.
7. Outstanding Town Engineer's comments.
8. Waivers?

## **PEER REVIEW ENGINEER'S COMMENTS: Jeff Read, P.E. Sevee and Maher Engingeers.**

September 10, 2018

Ms. Carla Nixon, Town Planner  
Town of Cumberland  
290 Tuttle Road  
Cumberland, Maine 04021

Subject: Peer Review of Belted Cow Site Plan Application  
Lot 5, Cumberland Foreside Village  
Cumberland, Maine

Dear Ms. Nixon:

As requested, Sevee & Maher Engineers, Inc. (SME) has completed a peer review of the Site Plan Application for the proposed Belted Cow Headquarters on Lot 5 of Cumberland Foreside Village, located off US Route One in Cumberland. The application materials received by SME were prepared by Walsh Engineering Associates (Walsh), and consist of:

- Cover letter by Thomas S. Greer, dated August 22, 2018;
- Site Plan Application Form and Submission Checklist;
- Letter of Authorization;
- Property Quitclaim Deed with Covenant;
- Abutters List;
- Letter demonstrating Financial Capacity;
- Letter from Traffic Solutions, dated August 22, 2018;
- Sewer Capacity Letter from the Town of Cumberland, dated August 22, 2018;
- Photometric Plan with lighting cut sheets;
- Stormwater Management Report, dated August 22, 2018;
- Inspection and Maintenance Plan for Stormwater Management Facilities, dated August 2018;
- Housekeeping Report, dated August 2018; and
- Project plan set, dated July 31, 2018.

## **PROJECT DESCRIPTION**

The project area is located on Lot 5 of the Cumberland Foreside Village Subdivision in Cumberland. Proposed development includes construction of a 15,970 square foot (sf) single story office building with a loading dock, parking, Stormwater Management, and landscaping. The building will be served with public utilities, including water, sewer, and underground electric service. Development on the property is regulated by an existing Maine Department of Environmental Protection (MEDEP) Site location of Development Act (SLODA) Permit.

## **Chapter 229: Site Plan Review**

SME has evaluated the application for conformance with all sections of the Site Plan Review Ordinance. The following are our findings and comments on each section of Section 229-10 Approval Standards and Criteria.

Section 229-10-A. – Utilization of the Site – SME reviewed and has no comments.

Section 229-10-B. – Traffic, circulation and parking

1. SME recommends the Applicant provide a copy of the existing Maine Department of Transportation Driveway Entrance Permit for site access from this lot to US Route One prior to final approval.
2. SME recommends the Applicant verify the grade of the proposed access drive does not exceed +3% for a minimum of two car lengths, or 40 feet, from the intersection.
3. SME Recommends the Applicant provide a written explanation outlining direct access to US Route One as a reasonable alternate to using the common access easement at the back of the lot as outlined in the Fourth Amended Subdivision Plan.
4. SME recommends adding a crosswalk and appropriate signage where the existing footpath parallel to US Route One crosses the access drive.

Section 229-10-C. – Stormwater Management and erosion control

5. The Stormwater Management Report outlined an increase in impervious area beyond what was previously approved. Please verify an amendment is not required for the existing MEDEP SLODA permit for the site.
6. The Pre-Development treatment area is 0.67 acres larger than the Post-Development treatment area. This is outlined on plan sheets D1.0 and D2.0 and the Area Listings included in the Stormwater Management Report. Please update the runoff calculations to provide an accurate representation of peak flow increases on the property.

Section 229-10-D. – Water, sewer, and fire protection

7. SME recommends the Applicant provide a letter from the Portland Water District to demonstrate adequate capacity to serve the project prior to final approval.

Section 229-10-E. – Water Protection – SME has reviewed and has no comments.

Section 229-10-F. – Floodplain management - SME has reviewed and has no comments.

Section 229-10-G. – Historic and archaeological resources

8. SME recommends the Applicant provide a letter from the Maine Historic Preservation Commission (MHPC) prior to final approval.

Section 229-10-H. – Exterior lighting - SME has reviewed and has no comments.



Section 229-10-I. – Buffering and landscaping - SME has reviewed and has no comments.

Section 229-10-J. – Noise – SME reviewed and has no comments.

Section 229-10-K. – Storage of materials – SME reviewed and has no comments.

Section 229-10-L. – Capacity of the applicant - SME reviewed and has no comments.

Section 229-10-M. – Design and performance standards – SME reviewed and has no comments.

### **Chapter 315: Zoning**

SME has evaluated the application for conformance with the applicable sections of the Zoning Ordinance and Contract Zone. The following are our findings and comments.

Section 315-57 – Parking and loading

9. This section outlines one parking space for each 250 square feet of gross leasable area for professional offices and business services, medical clinics and retail business in commercial districts. SME recommends the applicant update the plan set to reflect the requirement or request a waiver.

### **General Comments:**

10. Plan sheet C1.1 outlines wetlands mapping is taken from a plan dated March 20, 2007. Industry standard generally requires updated mapping for surveys older than 5 years. SME recommends the applicant provide updated wetland information prior to final approval.
11. SME recommends the Applicant request waivers from the requirement to provide a high intensity soils survey, a hydro geologic evaluation, a market study, location of proposed recreation areas, and location and type of outdoor furniture and features.

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## **Chapter 229 – SITE PLAN REVIEW**

### **SECTION 10: APPROVAL STANDARDS AND CRITERIA**

The following criteria shall be used by the Planning Board in reviewing applications for site plan review and shall serve as minimum requirements for approval of the application. The application shall be approved unless the Planning Board determines that the applicant has failed to meet one or more of these standards. In all instances, the burden of proof shall be on the applicant who must produce evidence sufficient to warrant a finding that all applicable criteria have been met.

#### **10.1 Utilization of the Site**

Utilization of the Site - The plan for the development, including buildings, lots, and support facilities, must reflect the natural capabilities of the site to support development. Environmentally sensitive areas, including but not limited to, wetlands, steep slopes, floodplains, significant wildlife habitats, fisheries, scenic areas, habitat for rare and endangered plants and animals, unique natural

communities and natural areas, and sand and gravel aquifers must be maintained and preserved to the maximum extent. The development must include appropriate measures for protecting these resources, including but not limited to, modification of the proposed design of the site, timing of construction, and limiting the extent of excavation.

*This is an approved subdivision parcel that is suitable for development as proposed. There are no known environmentally sensitive areas on the parcel. The site is not located within habitat for rare and endangered plants and animals, or significant wildlife or fisheries habitat. There are no wetlands or other environmentally sensitive areas on the site as evidenced by letters received from State agencies during subdivision review however, the Town Engineer has recommended that updated wetlands information be provided prior to the preconstruction conference.*

**Based on the above findings of fact, the Board finds the standards of this section have NOT YET been met.**

## **10.2 Traffic, Circulation and Parking**

### **10.2.1 Traffic Access and Parking**

Vehicular access to and from the development must be safe and convenient.

**10.2.1.1** Any driveway or proposed street must be designed so as to provide the minimum sight distance according to the Maine Department of Transportation standards, to the maximum extent possible.

**10.2.1.2** Points of access and egress must be located to avoid hazardous conflicts with existing turning movements and traffic flows.

**10.2.1.3** The grade of any proposed drive or street must be not more than +3% for a minimum of two (2) car lengths, or forty (40) feet, from the intersection.

**10.2.1.4** The intersection of any access/egress drive or proposed street must function: (a) at a Level of Service D, or better, following development if the project will generate one thousand (1,000) or more vehicle trips per twenty-four (24) hour period; or (b) at a level which will allow safe access into and out of the project if less than one thousand (1,000) trips are generated.

**10.2.1.5** Where a lot has frontage on two (2) or more streets, the primary access to and egress from the lot must be provided from the street where there is less potential for traffic congestion and for traffic and pedestrians hazards. Access from other streets may be allowed if it is safe and does not promote short cutting through the site.

**10.2.1.6** Where it is necessary to safeguard against hazards to traffic and pedestrians and/ or to avoid traffic congestion, the applicant shall

be responsible for providing turning lanes, traffic directional islands, and traffic controls within public streets.

**10.2.1.7** Access ways must be designed and have sufficient capacity to avoid queuing of entering vehicles on any public street.

**10.2.1.8** The following criteria must be used to limit the number of driveways serving a proposed project:

- a. No use which generates less than one hundred (1) vehicle trips per day shall have more than one (1) two-way driveway onto a single roadway. Such driveway must be no greater than thirty (30) feet wide.
- b. No use which generates one hundred (1) or more vehicle trips per day shall have more than two (2) points of entry from and two (2) points of egress to a single roadway. The combined width of all access ways must not exceed sixty (60) feet.

## **10.2.2 Access way Location and Spacing**

Access ways must meet the following standards:

**10.2.2.1** Private entrance / exits must be located at least fifty (50) feet from the closest un-signalized intersection and one hundred fifty (150) feet from the closest signalized intersection, as measured from the point of tangency for the corner to the point of tangency for the access way. This requirement may be reduced if the shape of the site does not allow conformance with this standard.

**10.2.2.2** Private access ways in or out of a development must be separated by a minimum of seventy-five (75) feet where possible.

## **10.2.3 Internal Vehicular Circulation**

The layout of the site must provide for the safe movement of passenger, service, and emergency vehicles through the site.

**10.2.3.1** Projects that will be served by delivery vehicles must provide a clear route for such vehicles with appropriate geometric design to allow turning and backing.

**10.2.3.2** Clear routes of access must be provided and maintained for emergency vehicles to and around buildings and must be posted with appropriate signage (fire lane - no parking).

**10.2.3.3** The layout and design of parking areas must provide for safe and convenient circulation of vehicles throughout the lot.

**10.2.3.4** All roadways must be designed to harmonize with the topographic and natural features of the site insofar as practical by minimizing filling, grading, excavation, or other similar activities which result in unstable soil conditions and soil erosion, by fitting the development to the natural contour of the land and avoiding substantial areas of excessive grade and tree removal, and by retaining existing vegetation during construction. The road network must provide for vehicular, pedestrian, and cyclist safety, all season emergency access, snow storage, and delivery and collection services.

#### **10.2.4 Parking Layout and Design**

Off street parking must conform to the following standards:

**10.2.4.1** Parking areas with more than two (2) parking spaces must be arranged so that it is not necessary for vehicles to back into the street.

**10.2.4.2** All parking spaces, access drives, and impervious surfaces must be located at least fifteen (15) feet from any side or rear lot line, except where standards for buffer yards require a greater distance. No parking spaces or asphalt type surface shall be located within fifteen (15) feet of the front property line. Parking lots on adjoining lots may be connected by accessways not exceeding twenty-four (24) feet in width.

**10.2.4.3** Parking stalls and aisle layout must conform to the following standards.

Parking Angle	Stall Width	Skew Width	Stall Depth	Aisle Width
90°	9'-0"		18'-0"	24'-0" 2-way
60°	8'-6"	10'-6"	18'-0"	16'-0" 1-way
45°	8'-6"	12'-9"	17'-6"	12'-0" 1-way
30°	8'-6"	17'-0"	17'-0"	12'-0" 1 way

**10.2.4.4** In lots utilizing diagonal parking, the direction of proper traffic flow must be indicated by signs, pavement markings or other permanent indications and maintained as necessary.

**10.2.4.5** Parking areas must be designed to permit each motor vehicle to proceed to and from the parking space provided for it without requiring the moving of any other motor vehicles.

**10.2.4.6** Provisions must be made to restrict the "overhang" of parked vehicles when it might restrict traffic flow on adjacent through roads, restrict pedestrian or bicycle movement on adjacent walkways, or damage landscape materials.

*The Town Engineer has noted several areas of concern relating to parking, access and circulation.*

Based on the above findings of fact, the Board finds the standards of this section have **NOT YET** been met.

### **10.2.5 Building and Parking Placement**

**10.2.5.1** The site design should avoid creating a building surrounded by a parking lot. Parking should be to the side and preferably in the back. In rural, uncongested areas buildings should be set well back from the road so as to conform to the rural character of the area. If the parking is in front, a generous, landscaped buffer between road and parking lot is to be provided. Unused areas should be kept natural, as field, forest, wetland, etc.

**10.2.5.2** Where two or more buildings are proposed, the buildings should be grouped and linked with sidewalks; tree planting should be used to provide shade and break up the scale of the site. Parking areas should be separated from the building by a minimum of five (5) to ten (10) feet. Plantings should be provided along the building edge, particularly where building facades consist of long or unbroken walls.

### **10.2.6 Pedestrian Circulation**

The site plan must provide for a system of pedestrian ways within the development appropriate to the type and scale of development. This system must connect the major building entrances/ exits with parking areas and with existing sidewalks, if they exist or are planned in the vicinity of the project. The pedestrian network may be located either in the street right-of-way or outside of the right-of-way in open space or recreation areas. The system must be designed to link the project with residential, recreational, and commercial facilities, schools, bus stops, and existing sidewalks in the neighborhood or, when appropriate, to connect the amenities such as parks or open space on or adjacent to the site.

*The layout of the parking area allows for safe vehicular and pedestrian circulation. The receipt of the MDOT Entrance Permit is a condition of approval.*

Based on the above findings of fact, the Board finds the standards of this section have **NOT YET** been met.

## **10.3 Stormwater Management and Erosion Control**

### **10.3.1 Stormwater Management**

Adequate provisions must be made for the collection and disposal of all stormwater that runs off proposed streets, parking areas, roofs, and other surfaces, through a stormwater drainage system and maintenance

plan, which must not have adverse impacts on abutting or downstream properties.

**10.3.1.1** To the extent possible, the plan must retain stormwater on the site using the natural features of the site.

**10.3.1.2** Unless the discharge is directly to the ocean or major river segment, stormwater runoff systems must detain or retain water such that the rate of flow from the site after development does not exceed the predevelopment rate.

**10.3.1.3** The applicant must demonstrate that on - and off-site downstream channel or system capacity is sufficient to carry the flow without adverse effects, including but not limited to, flooding and erosion of shoreland areas, or that he / she will be responsible for whatever improvements are needed to provide the required increase in capacity and / or mitigation.

**10.3.1.4** All natural drainage ways must be preserved at their natural gradients and must not be filled or converted to a closed system unless approved as part of the site plan review.

**10.3.1.5** The design of the stormwater drainage system must provide for the disposal of stormwater without damage to streets, adjacent properties, downstream properties, soils, and vegetation.

**10.3.1.6** The design of the storm drainage systems must be fully cognizant of upstream runoff which must pass over or through the site to be developed and provide for this movement.

**10.3.1.7** The biological and chemical properties of the receiving waters must not be degraded by the stormwater runoff from the development site. The use of oil and grease traps in manholes, the use of on-site vegetated waterways, and vegetated buffer strips along waterways and drainage swales, and the reduction in use of deicing salts and fertilizers may be required, especially where the development stormwater discharges into a gravel aquifer area or other water supply source, or a great pond.

## **10.3.2 Erosion Control**

**10.3.2.1** All building, site, and roadway designs and layouts must harmonize with existing topography and conserve desirable natural surroundings to the fullest extent possible, such that filling, excavation and earth moving activity must be kept to a minimum. Parking lots on sloped sites must be terraced to avoid undue cut and fill, and / or the need for retaining walls. Natural vegetation must be preserved and protected wherever possible.

**10.3.2.2** Soil erosion and sedimentation of watercourses and water bodies must be minimized by an active program meeting the

requirements of the Maine Erosion and Sediment Control Handbook for Construction: Best Management Practices, dated March 1991, and as amended from time to time.

*A complete stormwater report has been completed for the proposed development and has been included in submission packet.*

*An erosion control report has been prepared and is included in the submission packet. The Town Engineer has reviewed and approved the stormwater and erosion control plan.*

**Based on the above findings of fact, the Board finds the standards of this section have been met.**

## **10.4 Water, Sewer, Utilities and Fire Protection**

### **10.4.1 Water Supply Provisions**

The development must be provided with a system of water supply that provides each use with an adequate supply of water. If the project is to be served by a public water supply, the applicant must secure and submit a written statement from the supplier that the proposed water supply system conforms with its design and construction standards, will not result in an undue burden on the source of distribution system, and will be installed in a manner adequate to provide needed domestic and fire protection flows.

### **10.4.2 Sewage Disposal Provisions**

The development must be provided with a method of disposing of sewage which is in compliance with the State Plumbing Code. If provisions are proposed for on-site waste disposal, all such systems must conform to the Subsurface Wastewater Disposal Rules.

### **10.4.3 Utilities**

The development must be provided with electrical, telephone, and telecommunication service adequate to meet the anticipated use of the project. New utility lines and facilities must be screened from view to the extent feasible. If the service in the street or on adjoining lots is underground, the new service must be placed underground.

### **10.4.4 Fire Protection**

The site design must comply with the Fire Protection Ordinance. The Fire Chief shall issue the applicant a "Certificate of Compliance" once the applicant has met the design requirement of the Town's Fire Protection Ordinance.

*The proposed water, sewer will be provided by the Portland Water District. An ability to serve letter from the Portland Water District is on file.*

**Based on the above findings of fact, the Board finds the standards of this section have been met.**

## **10.5 Water Protection**

### **10.5.1 Groundwater Protection**

The proposed site development and use must not adversely impact either the quality or quantity of groundwater available to abutting properties or to the public water supply systems. Applicants whose projects involve on-site water supply or sewage disposal systems with a capacity of two thousand (2,000) gallons per day or greater must demonstrate that the groundwater at the property line will comply, following development, with the standards for safe drinking water as established by the State of Maine.

*The project will not utilize subsurface water or produce 2,000 gallons or greater per day of wastewater. Storage of fuels or chemicals is not anticipated.*

### **10.5.2 Water Quality**

All aspects of the project must be designed so that:

**10.5.2.1** No person shall locate, store, discharge, or permit the discharge of any treated, untreated, or inadequately treated liquid, gaseous, or solid materials of such nature, quantity, obnoxious, toxicity, or temperature that may run off, seep, percolate, or wash into surface or groundwaters so as to contaminate, pollute, or harm such waters or cause nuisances, such as objectionable shore deposits, floating or submerged debris, oil or scum, color, odor, taste, or unsightliness or be harmful to human, animal, plant, or aquatic life.

**10.5.2.2** All storage facilities for fuel, chemicals, chemical or industrial wastes, and biodegradable raw materials, must meet the standards of the Maine Department of Environmental Protection and the State Fire Marshall's Office.

*There is no outdoor storage of petroleum products. A dumpster and underground propane tank are shown on the site plan.*

### **10.5.3 Aquifer Protection**

If the site is located within the Town Aquifer Protection Area, a positive finding by the Board that the proposed plan will not adversely affect the aquifer is required.

***The site is not located within the Town Aquifer Protection Area.***



## **10.6 Floodplain Management**

If any portion of the site is located within a special flood hazard area as identified by the Federal Emergency Management Agency, all use and development of that portion of the site must be consistent with the Town's Floodplain management provisions.

*The site is not located within a floodplain. See Attachment 11 for a FEMA Flood map of the area.*

*Based on the above finding of fact, the Board finds the standards of this section have been met.*

## **10.7 Historic and Archaeological Resources**

If any portion of the site has been identified as containing historic or archaeological resources, the development must include appropriate measures for protecting these resources, including but not limited to, modification of the proposed design of the site, timing of construction, and limiting the extent of excavation.

*A letter from the Maine Historic Preservation Commission was submitted as part of the subdivision review.*

*Based on the above finding of fact, the Board finds the standards of this section have been met.*

## **10.8 Exterior Lighting**

The proposed development must have adequate exterior lighting to provide for its safe use during nighttime hours, if such use is contemplated. All exterior lighting must be designed and shielded to avoid undue glare, adverse impact on neighboring properties and rights - of way, and the unnecessary lighting of the night sky.

*The submission included a photometric plan that shows adequate lighting for safe use during nighttime hours, however there is slight light trespass at the rear property line. A revised plan is a proposed condition of approval.*

*Based on the above findings of fact, the Board finds the standards of this section have been met.*

## **10.9 Buffering and Landscaping**

### **10.9.1 Buffering of Adjacent Uses**

The development must provide for the buffering of adjacent uses where there is a transition from one type of use to another use and for the screening of mechanical equipment and service and storage areas. The buffer may be provided by distance, landscaping, fencing, changes in grade, and / or a combination of these or other techniques.

### **10.9.2 Landscaping**

Landscaping must be provided as part of site design. The landscape plan for the entire site must use landscape materials to integrate the various elements on site, preserve and enhance the particular identity of the site, and create a pleasing site character. The landscaping should define street edges, break up parking areas, soften the appearance of the development, and protect abutting properties.

***A landscaping plan is included in the plan set; it shows a mixture of plantings that are suitable to the site and provide for a pleasing effect and buffering for adjacent properties.***

***Based on the above findings of fact, the Board finds the standards of this section have been met.***

## **10.0 Noise**

The development must control noise levels such that it will not create a nuisance for neighboring properties.

***Potential point source generators of noise are the heating and ventilation equipment and delivery trucks. With these design considerations it is not anticipated that this development would generate excessive noise beyond the limits of the site.***

***Development maintenance activities may produce elevated noise levels periodically. The noise could come from, but is not limited to, the operation of lawn mowers, snow removal equipment, and sweeper/vacuum trucks. The buffer areas provided are expected to minimize noise impact on adjacent properties.***

***There will be a period of time during the construction phase that may create elevated noise levels compared to normal operation of the development, but will not be permanent noises associated with the development. Anticipated noises that could possibly occur during construction could come from, but are not limited to, equipment noise.***

***It is anticipated that no adverse impact will occur on the surrounding area.***

***Based on the above findings of fact, the Board finds the standards of this section have been met.***

## **10.11 Storage of Materials**

**10.11.1** Exposed nonresidential storage areas, exposed machinery, and areas used for the storage or collection of discarded automobiles, auto parts, metals or other articles of salvage or refuse must have sufficient setbacks and screening (such as a stockade fence or a dense evergreen hedge) to provide a

visual buffer sufficient to minimize their impact on abutting residential uses and users of public streets.

**10.11.2** All dumpsters or similar large collection receptacles for trash or other wastes must be located on level surfaces which are paved or graveled. Where the dumpster or receptacle is located in a yard which abuts a residential or institutional use or a public street, it must be screened by fencing or landscaping.

**10.11.3** Where a potential safety hazard to children is likely to arise, physical screening sufficient to deter small children from entering the premises must be provided and maintained in good condition.

*There will be no outdoor storage of petroleum products. A screened dumpster is shown on the plan.*

*Based on the above findings of fact, the Board finds the standards of this section have been met.*

## **10.12 Capacity of the Applicant**

The applicant must demonstrate that he / she has the financial and technical capacity to carry out the project in accordance with this ordinance and the approved plan.

- **Technical Ability:** *The applicant has retained Walsh Engineering to prepare plans and site permit applications; Additional consulting professional include: surveyor, soils scientist, architect and landscape architect.*
- **Financial Capacity:** *The applicant has provided a letter from Wells Fargo. The Board shall consider whether this constitutes evidence of financial capacity.*

**Based on the above findings of fact, the Board finds the standards of this section have been met.**

## **Route One Design Design and Performance Standards**

**The project is subject to the Route 1 Design Standards.**

### **Compliance with Route 1 Design Standards**

*The development will be in general compliance with the Route 1 Design Standards. Specifically, the development has been designed by a licensed Civil Engineer to provide the qualities desired by the Design Standard. The proposed building has been set back from Route 1 which along with existing and proposed vegetation will provide a visual buffer to the Route 1 corridor. The building architecture consists of gabled roofs and clapboard siding. Building elevations are included in Attachment 12. Since the proposed development footprint is compact, open space has been provided around the development. The large open space onsite provides for ample area for snow storage. Erosion and sedimentation control will be in accordance with the MDEP BMP's. Stormwater runoff will be controlled through a level lip spreader.. Municipal water service will be utilized for the development. Electrical, telephone, and cable service will be underground to minimize visual distractions along the Route 1 corridor. The onsite lighting will be fully shielded to limit light trespass. The minimum illumination required to provide safe lighting levels at the building has been provided.*

### 1.1 Master Planning

On properties that are large enough to accommodate more than a single structure, developers will be expected to prepare a conceptual master plan to show the Planning Board the general location of future buildings, parking lots, circulation patterns, open space, utilities, provisions for stormwater management, and other components of site development.

On sites with multiple buildings, the outdoor space defined by the structures should be designed as a focal point for the development, with provisions for seating and other outdoor use. Landscaping, bollards and other site features should maintain a safe separation between vehicles and pedestrians.

***FINDING: This project is on an approved subdivision lot.***

### 1.2 Professional Design

Developers shall have their site plans designed by licensed professionals (civil engineers, architects or landscape architects) as required by State of Maine professional licensing requirements to address the health, safety, welfare and visual pleasure of the general public, during all hours of operation and all seasons of the year.

***FINDING: The applicant used licensed professional consultants in the design of the project.***

### 1.3 Vehicular Access

Development along Cumberland's Route 1 corridor should promote safe, user-friendly and efficient vehicular movement while reducing both the number of trips on the roadway and the number of curb cuts wherever possible. The vehicular movements discussed in this chapter, both on-site and off-site, shall be designed by a professional engineer and shall be in conformance with all Maine Department of Transportation requirements.

***FINDING: With the proposed condition of approval for submission of the MDOT Entrance Permit prior to the preconstruction conference, this finding will be met.***

#### 1.3.1 Route 1 Curb Cuts

To promote vehicular, bicycle and pedestrian safety, the number of curb cuts on Route 1 should be kept to a minimum. Adjacent uses are encouraged to use shared driveways wherever possible, thereby reducing the number of turning motions onto and off of Route 1. This practice will increase motorist, bicycle and pedestrian safety, and has the added environmental benefit of helping to reduce impervious (paved) area.

Driveways and their associated turning movements should be carefully designed and spaced to reduce interruptions in Route 1's level of service and to promote safe and easily understandable vehicular movements. Where curb cuts will interrupt sidewalks, ADA requires that the cross slope not exceed 2% in order to maintain accessibility.

New driveways and existing driveways for which the use has changed or expanded require a Maine Department of Transportation "Driveway Entrance Permit." The Planning Board will not grant project approval until the Town has been provided a copy of the permit, or alternately, until the applicant provides the Town a letter from the DOT stating that such a permit is not required. The MDOT may also require a Traffic Movement Permit if the number of vehicle trips exceeds the threshold established by the MDOT.

***FINDING: With the proposed condition of approval for submission of the MDOT Entrance Permit prior to the preconstruction conference, this finding will be met.***

### **1.3.2 Site Circulation**

Internal vehicular movement on each site should be designed to achieve the following goals: to ensure the safety of motorists, delivery vehicles, pedestrians and cyclists by providing clear cues to the motorist as to where to drive or park, etc., once they enter the site. Landscaping, to reduce impervious areas, is encouraged as much possible.

Every effort should be made to restrict paved surfaces to a maximum of two sides of the building. The site should not feature a building surrounded by drive lanes and parking.

To ensure safe and easily understandable circulation, parking spaces, directional arrows, crosswalks and other markings on the ground should be painted on the pavement paint or shown by other suitable methods.

***FINDING: The site plan illustrates the above requirements.***

### **1.3.3 Driveways between Parcels**

Driveways between adjacent parcels should be used where feasible in order to make deliveries easier and reduce unnecessary trips and turning movements on Route 1.

These driveways should provide safe, direct access between adjacent lots, but only where the paved areas of the two adjacent lots are reasonably close together. However, they are inappropriate where they would require excessive impervious (paved) area or impose undue financial burden on the owner.

All such driveways between parcels should have pedestrian walkways when possible.

***FINDING: N/A***

## **1.4 Building Placement**

***Objective:*** Buildings should be placed on their sites in a way that is sensitive to existing site conditions and respectful of adjacent uses.

### **1.4.1 Location of Building on the Site**

In placing the building on the site, the designer should carefully consider the building's relationship to existing site features such as the size of the site, existing vegetation and topography, drainage, etc., as well as the abutting land uses.

The site design should make every effort to avoid creating a building surrounded by parking lot. In addition, buildings should generally be square to Route 1 and should avoid unusual geometry in building placement unless the site requires it.

***FINDING: The building faces Route 1 and shows parking to the side and rear of the building.***

### **1.4.2 Building Entrances**

The building's main entrance should be a dominant architectural feature of the building, clearly demarcated by the site design and landscaping. Main entrances should front onto the most convenient parking area.

At building entrance areas and drop-off areas, site furnishings such as benches, sitting walls and, if appropriate, bicycle racks should be encouraged. Additional plantings may be desirable at these points to clearly identify the building entrance and to invite pedestrians into it.

Where building entrances do not face Route 1, the Route 1 façade should still be made interesting and attractive to drivers on Route 1.

***FINDING: The façade facing Route 1 is interesting and attractive and features defined entrance areas.***

#### **1.4.3 Building Setbacks**

If adjacent building facades are parallel with Route 1 and buildings have consistent setbacks from Route 1, the visual effect from the road will be orderly and attractive.

Side and rear building setbacks must conform to the requirements of the underlying zone.

***FINDING: The location of the building conforms to all setbacks.***

#### **1.4.4 Hillside Development**

When a proposed development is located on a hillside that is visible from Route 1 or from other public areas, its presence will be much more obvious than development on a level site. Because of this, it is even more important that the structure be designed to fit harmoniously into the visual environment. The use of berms and plantings, where appropriate, will help soften the impact of buildings located in open fields.

Site clearing should also be minimized and vegetation should be retained or provided to minimize the visual impact of the development. Issues of drainage, run-off and erosion should also be closely examined.

***FINDING: N/A***

#### **1.4.5 Universal Accessibility**

Development of all properties, buildings, parking lots, crosswalks, walkways and other site features must comply with the applicable standards of the Americans with Disabilities Act (ADA).

***FINDING: All ADA requirements will be complied with.***

### **1.5 Parking**

***Objective:*** Development should provide safe, convenient and attractive parking. Parking lots should be designed to complement adjacent buildings, the site and the Route 1 corridor without becoming a dominant visual element. Every effort should be made to break up the scale of parking lots by reducing the amount of pavement visible from the road. Careful attention should be given to circulation, landscaping, lighting and walkways.

***FINDING: The parking areas feature landscaping, lighting and walkways.***

#### **1.5.1 Location**

Parking lots should be located to the side or rear of buildings. Parking should only be placed between the building and Route 1 if natural site constraints such as wetlands or topography, allow no other option. If parking must be built between the building and Route 1, it should be limited, if at all possible, to only one row of parking spaces and be adequately buffered.

***FINDING: Parking is located to the side and rear of the building.***

#### **1.5.2 Landscaping**

A 25' landscaping easement to the Town of Cumberland will be required of each new development that is on Route 1. This easement will provide an area for the Town to install curbing, if needed, a sidewalk and the planting of trees. Beyond this easement, the developer will provide adequate landscaping to insure that views from Route 1 are attractive and to buffer the presence of the parking and buildings.

Parking should be separated from the building by a landscaped strip a minimum of five to ten feet wide.

Landscaping around and within parking lots will shade hot surfaces and visually soften the appearance of the hard surfaces. Parking lots should be designed and landscaped to create a pedestrian-friendly environment. A landscaped border around parking lots is encouraged, and landscaping should screen the parking area from adjacent residential uses. Tree plantings between rows of parking are very desirable. Granite curbs, while more expensive, are more attractive and require less maintenance than asphalt ones.

Where there are trees in the 25' landscaping easement between Route 1 and the building, existing healthy trees should be maintained in their natural state. Where there are few or no trees in the 25' buffer, the buffer area should be landscaped either with trees, or with flowering shrubs, fencing, or such architectural elements as stone walls.

Where plantings do not survive, or grow to a point where they no longer serve as effective buffers, they shall be replaced or enhanced to meet the intent of the approved plan.

***FINDING: The above landscaping elements have been incorporated into the site plan.***

### **1.5.3 Snow Storage**

Provision should be made for snow storage in the design of all parking areas, and these areas should be indicated on the site plan. The area used for snow storage should not conflict with proposed landscaping or circulation patterns. These areas should be sited to avoid problems with visibility, drainage or icing during winter months.

***FINDING: There is ample area for snow storage within the site.***

### **1.5.4 Impervious Surfaces**

The amount of paved surface required for parking, driveways and service areas should be limited as much as possible in order to provide green space, reduce run-off and preserve site character. This will have the added benefit of reducing construction and maintenance costs.

***FINDING: The amount of proposed parking is consistent with this requirement.***

## **1.6 Service Areas**

**Objective:** Service areas include exterior dumpsters, recycling facilities, mechanical units, loading docks and other similar uses. Service areas associated with uses along Route 1 should be designed to meet the needs of the facility with a minimum of visual, odor or noise problems. They should be the smallest size needed to fit the specific requirements of the building and its intended operation, and should be fully screened from view by either plantings or architectural elements such as attractive fences.

### **1.6.1 Location**

Service areas should, if possible, be located so that they are not visible from Route 1 or from the building entrance. Locations that face abutting residential properties should also be avoided wherever possible.

Dumpster, recycling facilities and other outdoor service facilities should be consolidated into a single site location, in accordance with appropriate life safety requirements.

***FINDING: The dumpster is located to the rear of the building and will be fenced.***

### 1.6.2 Design

Service areas should be designed to accommodate the turning movements of anticipated vehicles, and should be separated from other vehicle movements, parking areas and pedestrian routes.

Wherever possible, service drives should be separated from areas where people will be walking by landscaped islands, grade changes, berms, or other devices to minimize conflicts.

Gates on enclosures should be designed to prevent sagging or binding. Wooden fencing is always preferred, but where chain link is necessary for safety considerations, it should be screened by landscaping and painted a dark color, or coated with dark vinyl.

***FINDING: The above elements have been incorporated into the site plan.***

### 1.6.3 Buffering/Screening

Service areas should be screened to minimize visibility from sensitive viewpoints such as Route 1, nearby residential dwellings, public open space, pedestrian pathways, and building entrances. Landscape screening may consist of evergreen trees, shrubs, and/or planted earth berms. Architectural screening may consist of walls, fences or shed structures, and should complement the design of the main structure through repetition of materials, detailing, scale and color.

Where plantings do not survive, or where they grow to a point where they no longer serve as effective screens, they shall be replaced or supplemented to meet the intent of the plan as approved by the Planning Board.

***FINDING: The above elements have been incorporated into the site plan.***

## 1.7 Open Space

**Objective:** In order to provide an attractive, hospitable and usable environment, future development along Route 1 should have generous amounts of open space and attractive site details for such elements as pavement, curbing, sitting and other public areas, landscaping, planters, walls, signage, lighting, bollards, waste receptacles and other elements in the landscape.

***FINDING: The subdivision plan provided for areas of open space. There is one such area adjacent to this development.***

### 1.7.1 Internal Walkways

Internal walkways should invite pedestrians onto the property and make them feel welcome.

Walkways extending the full length of a commercial building are encouraged along any façade that features a customer entrance and an abutting parking area. Such walkways should be located five to ten feet from the face of the building to allow for planting beds. Such walkways should be shown on the project's landscaping plan.

Wherever feasible, interconnections between adjacent properties should be developed to encourage pedestrian movement and reduce vehicle trips.

At a minimum bituminous concrete should be used as the primary material for internal walkways, except that for entrance areas and other special features the use of brick or special paving shall be encouraged. Walkways should be separated from parking areas and travel lanes by raised curbing. Granite is strongly preferred for its durability, appearance and low maintenance requirements.

Driveway crosswalks should be marked by a change in pavement texture, pattern or color to maximize pedestrian safety in parking and other potentially hazardous areas.

***FINDING: The above elements have been incorporated into the site plan.***



### **1.7.2 Landscaping**

Where there are trees in the 25' buffer between Route 1 and the building, existing healthy trees should be maintained in their natural state. Where there are few or no trees in the 75' buffer, the buffer area should be landscaped either with trees, or with flowering shrubs, fencing, or such architectural elements as stone walls.

Where plantings do not survive, or grow to a point where they no longer serve as effective buffers, they shall be replaced or enhanced to meet the intent of the approved plan.

***FINDING: The above elements have been incorporated into the site plan.***

### **1.7.3 Usable Open Space**

Whenever possible, site plans should provide inviting open spaces where people can sit, relax and socialize. Open spaces should be thought of as outdoor rooms, with consideration to ground surfaces, landscaping, lighting and other physical elements. Examples of such spaces include a forecourt outside a building entrance, or a peaceful place outdoors where employees can sit down and eat lunch or have breaks.

***FINDING: The above elements have been incorporated into the site plan.***

## **1.8 Buffering of Adjacent Uses**

**Objective:** Buffering or screening may be necessary to effectively separate quite different land uses such as housing and office or commercial buildings. Plantings, earth berms, stone walls, grade changes, fences, distance and other means can be used to create the necessary visual and psychological separation.

### **1.8.1 Appropriateness**

The selection of the proper type of buffer should result from considering existing site conditions, distances to property lines, the intensity (size, number of users) of the proposed land use, and the degree of concern expressed by the Planning Department, Planning Board, and abutting landowners. Discussions regarding the need for buffers, and appropriate sizes and types, should begin at the sketch plan stage of review.

***FINDING: The above elements have been incorporated into the site plan.***

### **1.8.2 Design**

Buffers and screens should be considered an integral part of the site and landscaping plans. Stone walls, plantings, fencing, landforms, berms, and other materials used for buffers should be similar in form, texture, scale and appearance to other landscape elements. Structural measures, such as screening walls, should likewise be related to the architecture in terms of scale, materials, forms and surface treatment.

***FINDING: The above elements have been incorporated into the site plan.***

### **1.8.3 Maintenance**

Where plantings do not survive, or where they grow to a point where they no longer serve as effective buffers, they shall be replaced or supplemented to meet the intent of the plan as approved by the Planning Board.

**Objective:** Protecting the natural environment in Cumberland is as much a priority in these design guidelines as protecting the visual environment. A developer should take every measure possible in the construction and operation of a project to ensure that little or no adverse impact to the natural environment occurs. These measures should be as visually attractive as possible.

#### **1.10.1 Erosion and Sedimentation**

Before any site work, construction or the disturbance of any soil occurs on a property, methods, techniques, designs, practices and other means to control erosion and sedimentation, as approved or required by the Maine Department of Environmental Protection, shall be in place. For guidance developers should refer to “Maine Erosion and Sedimentation Control Handbook for Construction – Best Management Practices,” produced by the Cumberland County Soil and Water Conservation District and the Maine DEP.

**FINDING:** *The erosion and stormwater management plan has been reviewed and approved by the Town Engineer and will require Maine DEP permitting; receipt of the MDEP permit is a condition of approval.*

### 1.10 Utilities

**Objective:** It is important to make efficient use of the utility infrastructure that exists along the Route 1 corridor, and to ensure that utility connections to individual development lots are as inconspicuous as possible.

**FINDING:** *Utilities will be underground.*

#### **1.10.1 Water and Sewer**

All proposed development along the Route 1 Corridor must connect to the municipal water supply and the municipal sewer, wherever such connections are available. Proposed connections are subject to review by the Town and/or its peer reviewers.

**FINDING:** *Project will connect to public water and sewer located along Route 1.*

#### **1.10.2 Electric, Telephone and Cable**

Electric, telephone, cable and other wired connections from existing utilities on Route 1 should be made to individual development lots via underground conduit wherever possible. This prevents the accumulation of unsightly overhead wires, and preserves the natural character of the corridor.

**FINDING:** *Utilities will be underground from Route 1*

## 2. Building Types

The purpose of these guidelines is to encourage architectural styles within the Route 1 corridor that draw their inspiration from traditional New England examples. “Vernacular” or commonly used styles that are well represented in Cumberland are center-chimney Federal buildings in brick or clapboard, 1 and a half story Greek Revival “capes” with dormers, in white clapboard with corner pilasters or columns, and Victorians buildings with more steeply pitched roofs, porches and gingerbread trim. Except for mill buildings, the scale and nature of older commercial buildings in towns like Cumberland and Yarmouth, was similar to that of houses of the same period. Modern interpretations and versions of these styles, are entirely appropriate and encouraged. Because of their larger size, traditional barns are also sometimes used as inspiration for modern commercial buildings.

## 2.1 General Architectural Form

Traditional New England buildings look like they do because of the climate, the materials and technologies available for building and the styles and fads of the 19<sup>th</sup> century. This is what is meant when people talk about “vernacular architecture”. It is the architecture that develops in a particular geographic area. Typically, while there may be architects who work in a particular “vernacular”, vernacular architecture evolves over time and is not the product of a particular person’s powerful vision.

These guidelines encourage the use of materials and forms that are characteristic of the construction of ordinary houses and commercial buildings of 19<sup>th</sup> century in northern New England, and particularly in Maine. Modern interpretations and versions of these materials and forms are entirely appropriate and encouraged.

***FINDING: These elements have been incorporated into the design of the building.***

### 2.1.1 Roofs

Because of the need to shed snow, New England roofs have generally been pitched rather than flat. Federal roofs are sometimes gambrel-shaped. In the Greek Revival style they are often gabled or have dormers, and have decorative “returns” at the bottom edge of the gable or dormers, suggesting the pediment of a Greek temple. Victorian houses typically have more steeply sloped roofs. Flat roofs are to be avoided.

***FINDING: These elements have been incorporated into the design of the building.***

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□

### 2.1.2 Windows

Windows are typically vertical rectangles, often with two or more panes of glass. They may have shutters. If shutters are used, each should be wide enough to actually cover half of the window. Horizontal and vertical “lights”, rows of small panes of New England buildings such as parapets. Where parapets are used to break up a flat roofline, the height of glass, are common over and next to doors. Window frames often have a decorative wood or stone pediment over them.

***FINDING: These elements have been incorporated into the design of the building.***

### 2.1.3 Detailing

Each historical period also has its characteristic embellishments. Federal buildings may have a decorative fanlight over the entrance door. Greek Revival buildings have corner-boards in the form of pilasters or even rows of actual columns across 1 façade, below a pediment. Victorian buildings use a wealth of turned columns and decorative scroll-work and shingle-work. Too many embellishments can look “busy”, and mixing the details of several periods or styles can also spoil the desired effect. Modern interpretations of older styles often used simplified forms to suggest the details that were more elaborately defined in earlier periods.

***FINDING: These elements have been incorporated into the design of the building.***

### 2.1.4 Building Materials

Traditional siding materials common to Northern New England are brick, painted clapboard and either painted or unpainted shingles. Contemporary materials that have the same visual characteristics as traditional materials (e.g., cementitious clapboards or vinyl siding) are acceptable if attention is paid to detailing (e.g., corners, trim at openings, changes in material). Metal cladding is not permitted.

Common traditional roofing materials are shingles – cedar originally or asphalt now, as well as standing seam metal. Where visible, the roofing color should be selected to complement the color and texture of the building’s façade. Roofing colors are usually darker than the color of the façade.

Colors commonly found in historic New England houses vary by period. In the Federal and Greek Revival periods, white was the most common color, often with green or black shutters. But houses were not infrequently painted “sober” colors such as dull mustard or gray. In the Victorian period much brighter colors were often used, with trim in complementary colors. The characteristic colors for barns are white, barn red, or weathered shingle.

**FINDING: These elements have been incorporated into the design of the building.**



## 2.2 Large Scale Buildings

**Objective:** Due to their visibility and mass, the design of new large structures (10,000 square feet or greater) have the ability to greatly enhance or detract from Route 1’s visual character. These structures should be designed as attractive pieces of commercial architecture that are responsive to their site and compatible with adjacent development.

**FINDING: These elements have been incorporated into the design of the building.**

### 2.2.1 Design and Massing

Large structures should be designed so that their large mass is broken up into smaller visual components through the use of clustered volumes, projections, recesses and varied façade treatment. The design should provide variation to add shadow and depth and a feeling of reduced scale.

**FINDING: These elements have been incorporated into the design of the building.**

### 2.2.2 Site Design

Wherever possible, large buildings should fit into the existing topography and vegetation, and should not require dramatic grade changes around their perimeter. Landscaping, site walls, pedestrian amenities and existing trees can be effective in reducing the apparent scale of large buildings.

**FINDING: These elements have been incorporated into the design of the building.**

### 2.2.3 Architectural Details

Large structures should have the same degree of detailing found in well-designed smaller and medium sized buildings along the Route 1 corridor. Architectural details can be used to reduce the scale and uniformity of large buildings. Elements such as colonnades, pilasters, gable ends, awnings, display windows and appropriately positioned light fixtures can be effective means of achieving a human scale.

**FINDING: These elements have been incorporated into the design of the building.**

### 2.2.4 Facades and Exterior Walls

Unbroken facades in excess of 80 feet are overwhelming whether they are visible from Route 1, other roadways or pedestrian areas, or when they abut residential areas. Breaking up the plane of the wall can reduce this sense of overwhelming scale. Where the plane of the wall is broken, the offset should be proportionate to the building’s height and length. A general rule of thumb for such projections or recesses is that their depth shall be at least 3% of the façade’s length, and they shall extend for at least 20% of the façade’s length.

Other devices to add interest to long walls include strong shadow lines, changes in rooflines, pilasters and similar architectural details, as well as patterns in the surface material and wall openings. All façade elements should be coordinated with the landscape plan.

Facades of commercial buildings that face Route 1 or other roadways should have transparent openings (e.g. display windows or entry areas) along 30% or more of the length of the ground floor. Blank or unadorned walls facing public roads, residential neighborhoods, or abutting properties are boring and unattractive.

***FINDING: These elements have been incorporated into the design of the building.***

### **2.2.5 Building Entrances**

Large structures should have clearly defined and highly visible entrances emphasized through such devices as significant variations in rooflines or cornice lines, changes in materials, porticos, landscape treatments, distinctive lighting or other architectural treatments.

***FINDING: These elements have been incorporated into the design of the building.***

## **2.3 Linear Commercial Buildings**

**Objective:** Linear commercial structures, such as multi-tenant offices or commercial buildings may be appropriate along Route 1 provided that they are designed with façade and roofline elements that reduce their sense of large scale and add visual interest.

### **2.3.1 Design**

Buildings with multiple storefronts should be visually unified through the use of complementary architectural forms, similar materials and colors, consistent details, and a uniform signage size and mounting system.

***FINDING: These elements have been incorporated into the design of the building.***

### **2.3.2 Façade Design**

The use of covered walkways, arcades, or open colonnades is strongly encouraged along long facades to provide shelter, encourage people to walk from store to store, and to visually unite the structure. Pedestrian entrances to each business or tenant should be clearly defined and easily accessible.

***FINDING: N/A***

### **2.3.3 Focal Points**

Linear commercial buildings can include a focal point – such as a raised entranceway or clock tower, or other architectural element – to add visual interest and help reduce the scale of the building.

***FINDING: These elements have been incorporated into the design of the building.***

### **2.3.4 Façade Offsets**

Variations in the plane of the front façade add visual interest. They also create opportunities for common entries, and social or landscaped spaces.

***FINDING: These elements have been incorporated into the design of the building.***

### **2.3.5 Rooflines**

Variations in rooflines, detailing, cornice lines and building heights should be incorporated into the design to break up the scale of linear commercial buildings.

***FINDING: These elements have been incorporated into the design of the building.***

## **2.4 Smaller Freestanding Commercial Buildings**

**Objective:** Smaller freestanding commercial buildings can easily make use of traditional New England building forms and should be designed to be attractive pieces of architecture, expressive of their use and compatible with surrounding buildings.

### 2.4.1 Single Use Buildings

Buildings that are constructed for use by a single business are generally smaller in scale than multi-tenant buildings. Single use buildings should be designed to be attractive and architecturally cohesive. To the greatest extent possible, the same materials, window types and roof types should be used throughout.

**FINDING:** *These elements have been incorporated into the design of the building.*

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### 2.4.2 Franchise Design

Franchise architecture with highly contrasting color schemes, non-traditional forms, reflective siding and roof materials are not related to any traditional New England style. They are buildings that are stylized to the point where the structure is a form of advertising. However, franchises have been willing to use existing “vernacular” buildings, and sometimes have designs that somewhat reflect local styles.

**FINDING:** *N/A*

### 2.4.3. Mixed Use Buildings

Buildings containing mixed uses (e.g., health club on the first floor with professional offices on the second floor) are encouraged. The architecture of a mixed-use building can reflect the different uses on the upper floors by a difference in façade treatment, as long as the building has a unified design theme.

**FINDING:** *N/A*

## 2.5 Residential Structures

**Objective:** Cumberland's future housing stock in the Route 1 corridor should be well designed and constructed, and is encouraged to have some connection to the traditional styles of New England residential architecture. The large mass of multiplex dwellings, can be broken up by façade articulation and architectural detailing in order to reduce their apparent size.

**FINDING:** *N/A*

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## 2.6 Residential Care Facilities

**Objective:** Ensure that the future needs of Cumberland's aging population are met in healthy and well-designed facilities, and that the architecture and site design of such facilities fit into the Cumberland context.

**FINDING:** *N/A*

▮

## 2.7 Hotels

**Objective:** To ensure that any future hotels in the Town of Cumberland are in keeping with the character of the surrounding area, and that the scale and design respects the architectural context of the region.

Using traditional building materials and colors is encouraged, and the use of large blocks of bright, primary colors is discouraged.

The signage and lighting standards contained in this publication will help as well.

**FINDING:** *N/A*

### 2.7.1 All Building Types: Awnings and Canopies

Awnings and canopies can enhance the appearance and function of a building by providing shade, shelter, shadow patterns, and visual interest. Where awnings are used, they should complement the overall design and color of the building.

Whether fixed or retractable, awnings and canopies should be an integral element of the architecture. They should be located directly over windows and doors to provide protection from the elements. Awnings or canopies should not be used as light sources or advertising features. Graphics and wording located on canopies and awnings will be considered part of the total signage area. Any such graphics shall be designed as an integral part of the signage program for the property, and coordinated with other sign elements in terms of typeface, color and spacing.

## 3 Signage

*Signs play a central role in providing much-needed information and setting the tone for the Route 1 corridor. They inform motorists and pedestrians, and have a direct effect on the overall appearance of the roadway. Signage should not create visual clutter along the roadway, yet must provide basic, legible information about commercial goods and services. Signs should be compatible with the architecture and the context of the development.*

### 3.1 Sign Design

**Objective:** Commercial uses along Route 1 in Cumberland should be identified by attractive, legible signs that serve the need of the individual business, while complementing the site and the architecture. All signage shall comply with the requirements of the Zoning Ordinance of the Town of Cumberland.

#### 3.1.1 Signage Plan

For development proposals requiring one or more signs, the applicant shall provide a detailed signage plan as part of Site Plan or Subdivision review. The signage plan should show the location of all signs on a site plan drawing and on building elevations, as well as sign construction details, dimensions, elevations, etc., and accurate graphic representations of the proposed wording.

**FINDING:** *The sign location is depicted on the site plan. Sign design will be in conformance with these standards at time of sign permit application.*

#### 3.1.2 Sign Location

Signs should be placed in locations that do not interfere with the safe and logical usage of the site. They should not block motorists' lines of sight or create hazards for pedestrians or bicyclists. Roof mounted signs are not encouraged.

**FINDING:** *This has been met.*

#### 3.1.3 Sign Design

The shape and materials and finish of all proposed signage should complement the architectural features of the associated building. Simple geometric forms are preferable for all signs. All signage shall comply with the requirements of the Zoning Ordinance of the Town of Cumberland.

**FINDING:** *Sign design will be in conformance with these standards at time of sign permit application.*

#### 3.1.4 Sign Colors

Signs should be limited to two or three contrasting colors that are clearly complimentary to the colors of the associated building.

***FINDING: Sign design will be in conformance with these standards at time of sign permit application.***

### **3.1.5 Sign Content**

To ensure a clear and easily readable message, a single sign with a minimum of informational content should be used. As a general rule no more than about 30 letters should be used on any sign.

Lettering on any sign intended to be read by passing motorists needs to be legible at the posted speed limit. In general a minimum letter height of 6 inches is appropriate. Smaller letters can require motorists to slow down thereby creating traffic and safety hazards. Upper and lower case lettering is preferred to all upper case, as it is easier to read.

The use of variable message “reader boards”, sponsor logos, slogans or other messages that promote products or services other than the tenants’ are not permitted.

Signage for any proposed development should prominently feature its assigned street address to facilitate general way-finding and e-911 emergency response.

***FINDING: Sign design will be in conformance with these standards at time of sign permit application.***

## **3.2 Sign Type**

**Objective:** To ensure that any sign type complements the architecture of the associated building, and to ensure that they are attractively designed and functional while clearly delivering the intended information.

### **3.2.1 Building Mounted Signs**

Building or façade mounted signs should be designed as an integral element of the architecture, and should not obscure any of the architectural details of the building. Signage should be mounted on vertical surfaces and should not project past or interfere with any fascia trim. Signs should be located a minimum of 18” from the edge of a vertical wall, however the overall proportions of both the wall and sign should be taken into consideration in the placement of the sign.

Flush mounted (flat) signage should be mounted with concealed hardware. Perpendicularly mounted hanging signs should be mounted with hardware designed to complement the building’s architecture. All metal hardware should be corrosion and rust resistant to prevent staining or discoloration of the building.

***FINDING; N/A***

### **3.2.2 Freestanding Signs**

An alternative to a façade-mounted sign is a freestanding “pylon” sign. These signs are typically located between the building and the roadway right-of-way, adjacent to the site’s vehicular entry point.

As with façade-mounted signage, design and content standards shall apply. Because freestanding signs amount to architecture themselves, it is important that they be carefully designed to complement the associated building. This will entail similar forms, materials, colors and finishes. Landscaping surrounding the base of such signs shall be consistent with the landscaping of the entire site.

Where a freestanding sign lists multiple tenants, there should be an apparent hierarchy: i.e., Address, name of the building or development, primary tenant, other tenants.

***FINDING: Sign design will be in conformance with these standards at time of sign permit application.***



### 3.2.3 Wayfinding Signs

To prevent visual clutter and motorist confusion, additional smaller signs indicating site circulation are generally discouraged. However they are sometimes needed to clarify complex circulation patterns. Wayfinding signage is also sometimes required to indicate different areas of site usage, such as secondary building entries, loading, or service areas. The Planning Board shall exercise its discretion in the requirement or prohibition of such signs.

Where required, wayfinding signage should be unobtrusive, no taller than absolutely necessary, and shall complement the overall architecture and signage plan in terms of materials, color, form and finishes.

**FINDING: N/A**

### 3.3 Sign Illumination

Only externally lit signs are permitted in the Route 1 corridor because, compared with internally lit signs, the direction and intensity of the light can be more easily controlled. Externally illuminated signs are made of an opaque material and have a dedicated light fixture or fixtures mounted in close proximity, aimed directly at the sign face. The illumination level on the vertical surface of the sign should create a noticeable contrast with the surrounding building or landscape without causing undue reflection or glare.

Lighting fixtures should be located, aimed and shielded such that light is only directed onto the surface of the sign. Wherever possible, fixtures should be mounted above the sign and be aimed downward to prevent illumination of the sky.

**FINDING: TBD**

## 4 Lighting

*Outdoor lighting is used to identify businesses and illuminate roadways, parking lots, yards, sidewalks and buildings. When well designed and properly installed it can be very useful in providing us with better visibility, safety, and a sense of security, while at the same time minimizing energy use and operating costs. If outdoor lighting is not well designed or is improperly installed it can be a costly and inefficient nuisance. The main issues are glare (hampering the safety of motorists and pedestrians rather than enhancing it), light trespass (shining onto neighboring properties and into residential windows), energy waste (lighting too brightly or lighting areas other than intended or necessary), and sky glow (lighting shining outward and upward washing out views of the nighttime sky).*

### 4.1 Good Lighting

**Objective:** Good lighting does only the job it is intended to do, and with minimum adverse impact on the environment. Common sense and respect for neighbors goes a long way toward attaining this goal.

The applicant should provide sufficient lighting for the job without over-illuminating.

Fixtures should be fully shielded, giving off no light above the horizontal plane. They should also direct the light onto the intended areas. Fully shielded produce very little glare, which can dazzle the eyes of motorists and pedestrians.

**FINDING: These elements have been incorporated into the design of the lighting.**

### 4.2 The Lighting Plan

**Objective:** As part of Site Plan or Subdivision review the Planning Board may, at its discretion, require that a lighting plan be provided. It should be prepared by a professional with expertise in lighting design.

The intent of the lighting plan is to show how the least amount of light possible will be provided to achieve the lighting requirements.

#### **4.2.1 Elements of the Lighting Plan**

In addition to meeting the requirements of the Zoning Ordinance, the Lighting Plan should contain a narrative that describes the hierarchy of site lighting, describes how lighting will be used to provide safety and security, and describes how it will achieve aesthetic goals. The Lighting Plan should include specifications and illustrations of all proposed fixtures, including mounting heights, photometric data, and other descriptive information. It should also include a maintenance and replacement schedule for the fixtures and bulbs.

The Planning Board may require a photometric diagram that shows illumination levels from all externally and internally visible light sources, including signage.

The location and design of lighting systems should complement adjacent buildings, pedestrian routes, and site plan features. Pole fixtures should be proportionate to the buildings and spaces they are designed to illuminate.

Buffers, screen walls, fencing and other landscape elements should be coordinated with the lighting plan to avoid dark spots and potential hiding places.

Where proposed lighting abuts residential areas, parking lot lighting and other use-related site lighting should be substantially reduced in intensity within one hour of the business closing.

***FINDING: These elements have been incorporated into the design of the lighting.***

### **4.3 Types of Lighting**

#### **4.3.1 Façade and Landscaping Lighting**

Lighting on the front of a building can highlight architectural features or details of a building and add depth and interest to landscaping. This style of lighting should not be used to wash an entire façade in light or light the entire yard. Rather should be used to emphasize particular aspects of the project. All fixtures should be located, aimed and shielded so that they only illuminate the façade or particular plantings and do not illuminate nearby roadways, sidewalks or adjacent properties. For lighting a façade, the fixtures should be designed to illuminate the portion of the face of the building from above, aimed downward, to eliminate skyglow.

#### **4.3.2 Parking Lot and Driveway Lighting**

Parking lot and driveway lighting should be designed to provide the minimum lighting necessary for safety and visibility. Poles and fixtures should be in proportion to the roadways and areas they are intended to illuminate.

All fixtures should be fully shielded or “cut-off” style, such that no light is cast above the horizontal plane. Decorative fixtures are strongly encouraged as long as they meet the cut-off criteria, and their design and color complements the architecture and landscaping of the project.

***These elements have been incorporated into the design of the site.***

***FINDING: These elements have been incorporated into the design of the site.***

#### **4.3.3 Pedestrian Lighting**

Places where people walk, such as sidewalks, stairs, sitting areas, curbs and landscaping should be adequately but not excessively illuminated.

Mounting heights for pedestrian lighting should be appropriate in design and scale for the project and its setting. Bollard fixtures of 3' to 4' in height and ornamental fixtures of up to 12' in height are encouraged. Fixtures should be a maximum of 1 watts and should not create glare or light trespass onto abutting properties.

***FINDING: These elements have been incorporated into the design of the building.***

---

### **LIMITATION OF APPROVAL:**

Construction of the improvements covered by any site plan approval must be substantially commenced within twelve (12) months of the date upon which the approval was granted. If construction has not been substantially commenced and substantially completed within the specified period, the approval shall be null and void. The applicant may request an extension of the approval deadline prior to expiration of the period. Such request must be in writing and must be made to the Planning Board. The Planning Board may grant up to two (2), six (6) month extensions to the periods if the approved plan conforms to the ordinances in effect at the time the extension is granted and any and all federal and state approvals and permits are current.

### **STANDARD CONDITION OF APPROVAL:**

This approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted by the applicant. Any variation from the plans, proposals and supporting documents, except de minimus changes as so determined by the Town Planner which do not affect approval standards, is subject to review and approval of the Planning Board prior to implementation.

### **PROPOSED CONDITIONS OF APPROVAL:**

1. The MDOT Entrance Permit shall be submitted to the Town Planner prior to the preconstruction conference.
2. All outstanding fees shall be paid prior the issuance of a building permit.
3. A preconstruction conference shall be held prior to the start of construction.
4. All clearing limits shall be clearly flagged by the applicant and inspected and approved by the town engineer prior to the preconstruction conference.
5. A performance guarantee in an amount acceptable to the Town Manager and Town Engineer shall be provided prior to the preconstruction conference.
6. There shall be no indoor or outdoor storage of any hazardous materials.
7. The applicant shall obtain a sign permit from the Town of Cumberland that shows consistency with the Route 1 Standards.
8. The applicant shall comply with all state and local fire regulations.

File: 441

August 22, 2018

Ms. Carla Nixon  
Town of Cumberland  
290 Tuttle Rd  
Cumberland, ME 04021

**RE: Site Plan Application**  
**Lot 5, Cumberland Foreside Village, Belted Cow, Cumberland**

Dear Carla,

On behalf of Jim Taylor of Belted Cow we are pleased to submit the attached application for Site Plan Approval for Lot 5 of Cumberland Foreside Village. This plan is very similar to the concept plan approved in 2007. We have submitted it to DEP and expect an updated permit.

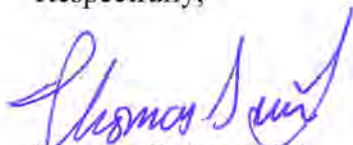
This plan shows the 15,970 sq. ft. building in the center of the site. It maintains the 50 foot buffer in the rear where the houses are now located and it replants the 25 foot buffer in the front.

The project will be served by public water and public sewer. We expect capacity approval letters from Portland Water District and Bill Shane shortly.

The plantings by Mohr & Seredin have significant plantings that will provide buffering and a very nice site. The architecture has been completed in accordance with the Design Guidelines, with a pitched roof, clapboard siding and natural colors.

Please review our application and let me know if you have any questions.

Respectfully,



Thomas S. Greer, PE  
Walsh Engineering Associates, Inc.

cc: Jim Taylor, Dale Akeley, File  
Enc.

**SITE PLAN REVIEW  
Town of Cumberland**

**Appendix C  
Planning Board Site Plan Review Application**

Applicant's name Belted Cow Realty, LLC - Jim Taylor  
Applicant's address 247 Portland Street, Suite 500, Yarmouth, ME 04096  
Cell phone \_\_\_\_\_ Home phone \_\_\_\_\_ Office phone 207-846-3364  
Email Address jimtaylor@beltaedcom.com  
Project address Lot 5, Cumberland Foreside Village, Route One  
Project name Belted Cow Headquarters  
Describe project Construction of a 15,970 sq. ft. building.  
Number of employees See Traffic Report  
Days and hours of operation 7 days, 7am to 7pm  
Project review and notice fee \_\_\_\_\_  
Name of representative Walsh Engineering Associates, Inc, Thomas Greer  
Contact information: Cell: \_\_\_\_\_ Office: 207-553-9898

What is the applicant's interest in the property?

Own x Lease \_\_\_\_\_ Purchase and sale agreement \_\_\_\_\_ (provide copy of document)  
If you are not the owner, list owner's name, address and phone number \_\_\_\_\_

If you are not the owner, list owner's name, address and phone number \_\_\_\_\_

**Boundary Survey**

Submitted? Yes \_\_\_\_\_ No x Part of an existing subdivision

Are there any deed restrictions or easements? Yes \_\_\_\_\_ No x If yes, provide information and show easement location on site plan.

**Building Information**

Are there existing buildings on the site? Yes \_\_\_\_\_ No x Number: \_\_\_\_\_  
Will they be removed? Yes \_\_\_\_\_ No \_\_\_\_\_ (Note: A demolition permit is required 10 days prior to demolition.)

Will a new structure(s) be built on the site? Yes x No \_\_\_\_\_

Describe: See Architectural Plans

Number of new buildings 1

Square footage 15,970 sq. ft.

Number of floor levels including basement 2

**Parking**Number of existing parking spaces 0Number of new parking spaces 51Number of handicapped spaces 3Will parking area be paved? x Yes    No**Entrance**Location: Route OneWidth 24' Length 200'+/-Is it paved? x Yes    No    If not, do you plan to pave it?

Where will snow storage for entrance and parking be located? Show on site plan. See Site Plan

**Utilities****Water:** Public water x Well    (Show location on site plan.)**Sewer/septic:** Public sewer x Private septic    Show location on site plan and submit HHE-200 septic design or location of passing test pit locations if new system is proposed. Also show any wells on abutting properties within 200 feet of the site.**Electric:** On site? Yes x No   

Show location of existing and proposed utilities on the site plan and indicate if they are above or below ground.

**Signs**Number: 1Size: Unknown at this time.Material:   

Submit sign design and completed sign application.

Will the sign be lighted?    Submit information on type and wattage of lights.

Show location of sign(s) on the site plan.

**Natural Features**

Show location of any of the following on the site plan:

River    Stream    Wetland    Pond    Lake    Stone walls xAre there any other historic or natural features? No**Lighting**Will there be any exterior lights? Yes x No    Show location on site plan (e.g., pole fixtures, wall packs on building) and provide fixture and lumen information.**Trees**

Show location of existing trees on the site plan and indicate if any are to be removed. See Site Plan

**Landscaping**Is there existing landscaping on the site? Yes x No    Show type and location on site plan. Forested

Is new landscaping proposed? (Note: if property has frontage on Route 100, a twenty-five-foot landscape easement to the Town is required.) See Site Plan

**Buffering**

Show any existing or proposed buffering measures for adjacent properties, e.g., plantings, fences. See Landscape Plan

**Erosion Control**

Has an erosion and sedimentation control plan been submitted? Yes   x   No       

**Stormwater Management Plan**

Provide stormwater information for both pre and post development of the site. Show location of any detention areas and/or culverts on the site plan.

**Fire Protection**

Location of nearest hydrant        Sprinklers? Yes   x   No       

Do you plan to have an alarm system? Yes   x   No        Please contact the Fire/EMS Department at 829-4573 to discuss any Town or state requirements.

**Trash**

Will trash be stored inside        outside   x  . If outside, will a dumpster be used? Yes   x   No       . Show location on site plan and show type of screening proposed (e.g., fencing, plantings).

**Technical Capacity**

List and provide contact information for all consultants who worked on the project, for example: licensed land surveyor, licensed soils evaluator, professional engineer, attorney, etc.

       See List of Consultants on Cover Sheet

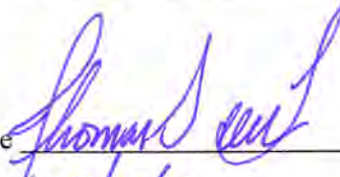
**Financial Capacity**

Please indicate how project will be financed. If obtaining a bank loan, provide a letter from the bank   See Wells Fargo   Letter dated 8/22/2018

- Zoning district: Contract Zone
- Minimum lot size: 1 acre
- Classification of proposed use: Office & Personal Trainer
- Parcel size: 2.82 acres
- Frontage: 150'
- Setbacks: Front 25' Side 20' Rear 40'
- Board of Appeals Required? n/a
- Tax Map R01 Lot 11-5 Deed book 34767 Deed page 170
- Floodplain map number 2301620018C Designation
- Vernal pool identified? None
- Is parcel in a subdivision? Yes
- Outside agency permits required:  
MDEP Tier 1 N/A MDEP Tier 2 N/A Army Corps of Engineers N/A  
MDEP general construction (stormwater) permit (for disturbance of 1 acre or more)
- MDOT entrance permit Existing
- MDOT traffic movement permit Existing
- Traffic study required Provided
- Hydrogeologic evaluation N/A
- Market study N/A
- Route 1 Design Guidelines? Yes
- Route 100, VMU or TCD Design Standards? N/A

Applicant's signature

Submission date:

  
8/28/18



# **PLANNING BOARD SITE PLAN REVIEW SUBMISSION CHECKLIST**

## **FOR ALL PROJECTS:**

<b>Submission Requirement</b>	<b>Provide Location in Application Packet (e.g., plan sheet number, binder section, narrative</b>	<b>If requesting a waiver, indicate below:</b>
<i>Example: Erosion Control</i>	<i>Plan Sheet E-1</i>	
<b>General Information:</b>		
Completed Site Plan Application Form	Attached	
Names and addresses of all consultants	Cover Sheet	
Narrative describing existing conditions and the proposed project	Cover Letter	
Evidence of right, title or interest (deed, option, etc.)	Deed Attached	
Names and Addresses of all property owners within 200 feet	Abutter List Attached	
Boundaries of all contiguous property under control of owner	See Sheet C1.1 - Site Plan	
Tax map and lot numbers	See Sheet C1.1 - Site Plan	
Area of the parcel	See Sheet C1.1 - Site Plan	
FEMA Floodplain designation & map #	2301620018C	
Zoning classification	See Sheet C1.1 - Site Plan	
Evidence of technical and financial capability to carry out the project	Technical and Financial Capacity Attached	
Boundary survey	See Sheet 1-SD - Fourth Amended Subdivision Plan	
List of waiver requests on separate sheet with reason for request.	N/A	
Proposed solid waste disposal plan	On Site Dumpster	
<b>Existing Conditions Plan showing:</b>		
Name, registration number and seal of person who prepared plan	See Sheet C1.2 - Existing Conditions and Demo Plan	
North arrow, date, scale, legend	See Sheet C1.2 - Existing Conditions and Demo Plan	
Area of the parcel	See Sheet C1.1 - Site Plan	
Setbacks and building envelope	See Sheet C1.2 - Existing Conditions and Demo Plan	
Utilities, including sewer & water, culverts & drains, on-site sewage	See Sheet C1.2 - Existing Conditions and Demo Plan	
Location of any septic systems	N/A	
Location, names, widths of existing public or private streets ROW's	See Sheet C1.1 - Site Plan	

Location, dimension of ground floor elevation of all existing buildings	N/A	
Location, dimension of existing driveways, parking, loading, walkways	N/A	
Location of intersecting roads & driveways within 200 feet of the site	See Sheet C1.2 - Existing Conditions and Demo Plan	
Wetland areas	See Sheet C1.2 - Existing Conditions and Demo Plan	
Natural and historic features such as water bodies, stands of trees, streams, graveyards, stonewalls, floodplains	See Sheet C1.2 - Existing Conditions and Demo Plan	
Direction of existing surface water drainage across the site & off site	See Sheet D1.0 - Drainage Analysis Existing ...	
Location, front view, dimensions and lighting of existing signs	N/A	
Location and dimensions of existing easements & copies of documents	N/A	
Location of nearest fire hydrant or water supply for fire protection	See Sheet C1.1 - Site Plan	
<b>Proposed Development Site Plan showing:</b>		
Name of development	All Drawings	
Date	All Drawings	
North arrow	All Plan Drawings	
Scale	All Plan Drawings	
Legend	All Plan Drawings	
Landscape plan	See Sheets L1.0 & L1.1	
Stormwater management	See Sheets C2.0 & C2.1	
Wetland delineation	No Wetlands On Site	
Current & proposed stands of trees	See Sheets C1.2 & L1.0	
Erosion control plan	See sheets C2.1 & C3.0	
Landscape plan	See Sheets L1.0 & L1.1	
Lighting/photometric plan	See Photometric Plan (11x17)	
Location and dimensions of all proposed buildings	See Sheet C1.1 - Site Plan	
Location and size of utilities, including sewer, water, culverts and drains	See Sheet C1.3 - Grading and Utility Plan	
Location and dimension of proposed on-site septic system; test pit locations and nitrate plumes	N/A	
Location of wells on subject property and within 200' of the site	N/A	
Location, names and widths of existing and proposed streets and ROW's	See Sheet C1.1 - Site Plan	

Location and dimensions of all accessways and loading and unloading facilities	See Sheet C1.1 - Site Plan	
Location and dimension of all existing and proposed pedestrian ways	See Sheet C1.1 - Site Plan	
Location, dimension and # of spaces of proposed parking areas, including handicapped spaces	See Sheet C1.1 - Site Plan	
Total floor area and ground coverage of each proposed building and structure	See Sheet C1.1 - Site Plan	
Proposed sign location and sign lighting	See Sheet C1.1 - Site Plan	
Proposed lighting location and details	See Sheet C1.1 & Photometric Plan (11x17) and Cut Sheets	
Covenants and deed restrictions proposed	N/A	
Snow storage location	See Sheet C1.1 - Site Plan	
Solid waste storage location and fencing/buffering	See Sheets C1.1 & C3.2	
Location of all fire protection		
Location of all temporary & permanent monuments	See Sheet C1.1 - Site Plan	
Street plans and profiles	N/A	

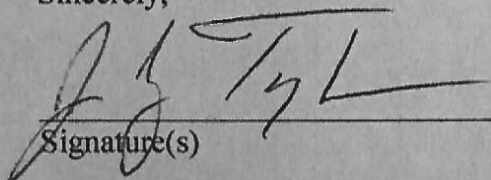
**ADDITIONAL REQUIREMENTS FOR MAJOR SITE PLAN PROJECTS:**

<b>Submission Requirement</b>	<b>Provide Location in Application Packet (e.g., plan sheet number, binder section, narrative)</b>	<b>If requesting a waiver, indicate below:</b>
High intensity soils survey	Previous Approval	
Hydro geologic evaluation	N/A	
Traffic Study	See Traffic Letter	
Market Study	N/A	
Location of proposed recreation areas (parks, playgrounds, other public areas)	N/A	
Location and type of outdoor furniture and features such as benches, fountains.	N/A	

To Whom It May Concern,

By this letter, the undersigned authorizes Walsh Engineering Associates, Inc. to act as the agent for the undersigned in the preparation and submission of all Federal, State, and Local City permit applications and relevant documents and correspondence for all necessary permits for the construction on the property at Cumberland Foreside Village, Lot 5, Route 1, Cumberland, Belted Cow Realty LLC to attend meetings and site visits; to appear before all boards, commissions, and committees, and to provide such other services as are necessary and appropriate in furtherance of the aforementioned project.

Sincerely,

  
Signature(s)

6-11-18  
Date

James Z Taylor  
Owner(s)

MAINE REAL ESTATE TAX PAID

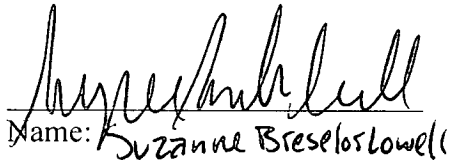
QUITCLAIM DEED WITH COVENANT

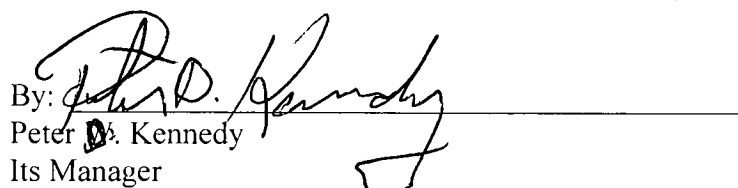
**HERITAGE VILLAGE DEVELOPMENT GROUP, LLC**, a Florida limited liability company, with a mailing address of 2630 Harborside Drive, Longboat Key, FL 34228 (the "Grantor"), FOR CONSIDERATION PAID, grants to **BELTED COW REALTY, LLC**, a Maine limited liability company, with a mailing address of 247 Portland Street, Suite 500, Yarmouth, ME 04096 (the "Grantee"), with QUITCLAIM COVENANT, certain real property, together with any improvements thereon, situated in the Town of Cumberland, County of Cumberland and State of Maine, and more particularly described on Exhibit A attached hereto and made a part hereof.

IN WITNESS WHEREOF, HERITAGE VILLAGE DEVELOPMENT GROUP, LLC has caused this instrument to be executed by Peter W. Kennedy, its Sole Manager/Member thereunto duly authorized, as of this 9th day of April, 2018.

WITNESS:

HERITAGE VILLAGE DEVELOPMENT GROUP, LLC

  
Name: Suzanne Bresler Lowell

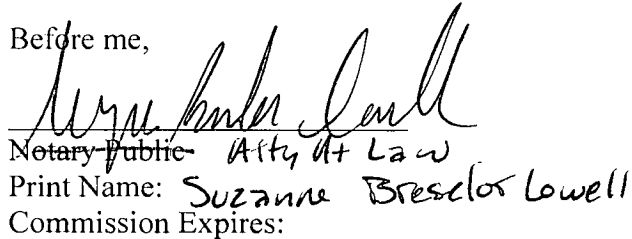
By:   
Peter W. Kennedy  
Its Manager

State of Maine  
County of Cumberland, ss.

April 9, 2018

PERSONALLY APPEARED the above-named Peter W. Kennedy, Sole Manager/Member of HERITAGE VILLAGE DEVELOPMENT GROUP, LLC as aforesaid, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said limited liability company.

Before me,

  
Notary Public - Atty At Law  
Print Name: Suzanne Bresler Lowell  
Commission Expires:

**EXHIBIT A**

A certain lot or parcel of land, together with the buildings and improvements thereon, situated on the northerly side of U.S. Route 1, in the Town of Cumberland, County of Cumberland, State of Maine, and being Commercial Lot 5 as shown on Fourth Amended Subdivision Plan, Cumberland Foreside Village for HERITAGE VILLAGE DEVELOPMENT GROUP, LLC by Owen Haskell, Inc. dated January 26, 2007 and recorded at the Cumberland County Registry of Deeds in Plan Book 217, Page 85, as may have been further amended (the "Plan").

This property is subject to all restrictions, covenants, conditions, and easements of record that may affect the premises herein conveyed, including the conditions to approval, drainage easement, common access easement and 25' buffer zone shown on the Plan.

For Grantor's source of title see: Deed from Cumberland Foreside Village, LLC to Heritage Village Development Group, LLC, a Maine limited liability company, dated October 10, 2017 recorded at the Cumberland County Registry of Deeds in Book 34376, Page 332, as corrected by Corrective Deed from Cumberland Foreside Village, LLC to Heritage Village Development Group, LLC, a Florida limited liability company, to be recorded at said Registry of Deeds.

Received  
Recorded Register of Deeds  
Apr 10, 2018 01:29:33P  
Cumberland County  
Nancy A. Lane

R01/11/7A  
Matthew Williams & Heather Harman  
6 Casco Bay Drive  
Cumberland Foreside, ME 04110

R01/11/7B  
Elena Ardito  
8 Casco Bay Drive  
Cumberland Foreside, ME 04110

R01/11/7C  
Michael Jepson  
10 Casco Bay Drive  
Cumberland Foreside, ME 04110

R01/11/7D  
Kimberly & Berton Beaulieu  
4 Nautical Drive  
Cumberland Foreside, ME 04110

R01/11/7E  
Tracey & Christopher Lydon  
6 Nautical Drive  
Cumberland Foreside, ME 04110

R01/11/7F  
Kathleen & Michael Mitchell  
463 Ray Street  
Portland, ME 04103

R01/11/7G  
Melissa & James McManus IV  
10 Anson Road  
Portland, ME 04102

R01/11/7H  
Susan & Gary Conway  
12 Nautical Drive  
Cumberland Foreside, ME 04110

R01/11/7I  
Maria Troconis & Carlos Bello  
100 Clearwater Drive, Unit 152  
Falmouth, ME 04105

R01/11/7J  
Ariel & Nathan Thompson  
16 Nautical Drive  
Cumberland Foreside, ME 04110

R01/11/7K  
Elizabeth Ives  
1174 Summit Park Avenue  
Portland, ME 04103

R01/11/7L  
Terry Bell Jr. & Ronnie-Lynn Smith  
38 Ray Street  
South Portland, ME 04106

R01/11/7M  
Susan & Peter McKenney  
21 Nautical Drive  
Cumberland Foreside, ME 04110

R01/11/7N  
Elaine Clark  
30 South Road  
Chebeague Island, ME 04017

R01/11/7O  
John O'Brion & Jennifer Lapierre  
17 Nautical Drive  
Cumberland Foreside, ME 04110

R01/11/7P  
Dorothy Hartman  
15 Nautical Drive  
Cumberland Foreside, ME 04110

R01/11/7Q  
Ryan Brownell & Kelsi Wry  
15 Northwood Drive  
Portland, ME 04103

R01/11/7R  
Ame McGinty & Sean Costigan  
24 Wendy Way  
Portland, ME 04103

R01/11/7S  
Andrea & Thomas Hutchinson  
9 Nautical Drive  
Cumberland Foreside, ME 04110

R01/11/7T  
Angela & Bruce Yates Jr.  
46 Longfellow Drive  
Cape Elizabeth, ME 04107

U04/8/A/U1  
David & Linda Parker  
11 Amy Lane  
Cumberland Foreside, ME 04110

U04/8/A/U2  
Meredith Strang Burgess  
155 Tuttle Road  
Cumberland Center, ME 04021

U04/8/A/U3  
Thomas Charest & Thomas Dunker  
6 Amy Lane  
Cumberland Foreside, ME 04110

U04/8/A/U4  
Carlos & Jean Quijano  
4 Amy Lane  
Cumberland Foreside, ME 04110

U04/8/A/U5  
Vicki & John Mark Koshliek  
5 True Spring Drive  
Cumberland Foreside, ME 04110

U04/8/A/U6  
Marcia Hunter & Peter Wolinsky  
7 True Spring Drive  
Cumberland Foreside, ME 04110

U04/8/A/U7  
Frank Oneill & Monica Indart  
1 Granite Ridge Road  
Cumberland Foreside, ME 04110

U04/8/A/U8  
Douglas Woodbury  
2 Granite Ridge Road  
Cumberland Foreside, ME 04110

U04/8/A/U9  
Steven & Jane Bonville  
3 Granite Ridge Road  
Cumberland Foreside, ME 04110

U04/8/A/U10  
Gary & Alice Chapin Rev Trust  
5 Granite Ridge Road  
Cumberland Foreside, ME 04110

U04/8/A/U11  
Robert & Marianne Matulonis  
7 Granite Ridge Road  
Cumberland Foreside, ME 04110

U04/8/A/U12  
Patricia Peard & Alice Brock  
9 Granite Ridge Road  
Cumberland Foreside, ME 04110

U04/8/A/U13  
Carole A. Potter, as Trustee  
1813 NW Buttonbush Circle  
Palm City, FL 34990

U04/8/A/U14  
Matthew & Lynn Goldfarb  
17 Granite Ridge Road  
Cumberland Foreside, ME 04110

U04/8/A/U15  
Victor & Jillian Parisien Living Trust  
23 Granite Ridge Road  
Cumberland Foreside, ME 04110

U04/8/A/U16  
Susan Dilworth  
25 Granite Ridge Road  
Cumberland Foreside, ME 04110

U04/8/A/U17  
Thomas & Janet Foley  
29 Granite Ridge Road  
Cumberland Foreside, ME 04110

U04/8/A/U18  
Carolyn Penrose  
31 Granite Ridge Road  
Cumberland Foreside, ME 04110

U04/8/A/U19  
Francine E. Schneit  
35 Granite Ridge Road  
Cumberland Foreside, ME 04110

U04/8AU20  
Elizabeth K. Cimino Trustee  
Elizabeth K. Cimino Revocable Trust  
24480 Reserve Court Apt 102  
Bonita Springs, FL 34134

U04/8/B/U1  
Anita & Antonio Gotto Jr  
3666 WICKERSHAM LANE  
HOUSTON, TX 77027-4138

U04/8/B/U2/  
Loralane Garon & Timothy Cloudman  
7 Eagles Way  
Cumberland Foreside, ME 04110

U04/8B/U3  
Jennifer & Bruce Cassidy  
12 Eagles Way  
Cumberland Foreside, ME 04110

U04/8/B/U4  
Joan & Robert Walsh  
10 Eagles Way  
Cumberland Foreside, ME 04110

U04/8/B/U5  
Teri & Stephen Goble  
6 Eagles Way  
Cumberland Foreside, ME 04110

U04/8/B/U6  
Judith & Robert Krupp  
4 Eagles Way  
Cumberland Foreside, ME 04110

U04/8/B/U7  
Ellen Jane & Timothy Nastro  
15 Falcon Drive  
Cumberland Foreside, ME 04110

U04/8/B/U8  
Josiah Drummond Jr Trustee  
Attn: Donna Raymond  
PO Box 477  
Concord, NH 03302

U04/8/B/U9  
Robert Hintze Trustee &  
Barbara Hintze Trustee  
337 Marsh Creek Road  
VENICE, FL 34292

U04/8/B/U10  
Gail Volk  
23 Falcon Drive  
Cumberland Foreside, ME 04110

U04/8/B/U11  
John, Susan & Kristie Berger  
27 Falcon Drive  
Cumberland Foreside, ME 04110

U04/8/B/U12  
Gauthier Emile Paul Trustee  
125 Spinnaker Lane  
Havelock, NC 28532

U04/8/B/U13  
Carolyn Thomas  
20 Falcon Drive  
Cumberland Foreside, ME 04110

U04/8/B/U14  
Mary Ann Mclean  
22 Falcon Drive  
Cumberland Foreside, ME 04110

Town of Cumberland  
290 Tuttle Rd  
Cumberland Ctr., ME 04021

R01/11/4  
Heritage Village Development Group LLC  
2630 Harborside Drive  
Longboat Key, FL 34228

R01/11/5 (Subect Parcel)  
Belted Cow Realty, LLC  
247 Portland Street, Suite 500  
Yarmouth, ME 04096





Wells Fargo Advisors  
MAC H3386-010  
10 Mechanic Street  
Worcester, MA 01608  
Tel: 508-752-6773  
Fax: 508-753-1639  
Toll Free: 800-922-8189

Town of Cumberland and  
Department of Environmental Protection  
290 Tuttle Road  
Cumberland Center, ME 04021

8/22/2018

To whom it may concern,

I have known James and Elizabeth Taylor of Yarmouth ME for over 10 years and believe that they have the financial capacity to complete the project.

Please let me know if you have any questions.

Sincerely,

Peter V. Caruso  
Financial Advisor  
First Vice President – Investment Officer  
Wells Fargo Advisors  
508-368-0040





**Traffic Solutions**  
*William J. Bray, P.E.*  
235 Bancroft Street  
Portland, ME 04102  
(207) 774-3603  
(207) 400-6890 mobile  
[trafficsolutions@maine.rr.com](mailto:trafficsolutions@maine.rr.com)

August 22, 2018

Tom Greer, P.E.  
Walsh Engineering Associates, Inc.  
One Karen Drive, Suite 2A  
Westbrook, Maine 04092

RE: Cumberland Foreside Village Subdivision – Lot #5

Dear Tom:

It is my understanding Jim Taylor, with Belted Cow, is proposing construction of a multi-unit (four separate units) building of approximately 15,925 square feet on Lot #5 within the Cumberland Foreside Village Subdivision. The largest building unit (5,624 square feet) will be occupied by Belted Cow as their headquarters, two building units of 4,124 square feet each will be marketed as single-tenant office space and the final building unit of 2,053 square feet will be a small fitness facility with a maximum of 2 to 3 clients on site at any given time. The Belted Cow headquarter building is expected to operate with a total of 6 employees.

The Maine Department of Transportation (MaineDOT) Traffic Movement Permit (TMP) issued on August 16, 2016 for the Cumberland Foreside Village Subdivision assumed the total peak hour traffic demand generated by Lot #5 at twenty-four (24) trips in the AM peak hour and twenty-two (22) trips during the PM peak hour.

Peak hour trip estimates were prepared for the proposed development plan on Lot #5 consistent with the earlier process used in securing the Traffic Movement Permit TMP for Cumberland Foreside Village Subdivision. The following trip rates presented in the seventh edition of the Institute of Transportation Engineers “**TRIP GENERATION**” publication was used to calculate the trip generation of the revised development plan:

**Land-Use Code #492 – Health/Fitness Club (2,053 square foot unit)**

AM Peak Hour	= 1.21 trips /1,000sf of building area	= 3
PM Peak Hour	= 4.05 trips/1,000sf of building area	= 8

**Land-Use Code #715 – Single Tenant Office Building (8,248 square foot unit)**

AM Peak Hour	= 1.80 trips /1,000sf of building area	= 15
PM Peak Hour	= 1.73 trips /1,000sf of building area	= 14

**Land-Use Code #715 – Single Tenant Office Building (6 total employees)**

AM Peak Hour	= 0.53 trips /employee	= 2
PM Peak Hour	= 0.50 trips /employee	= 8

Accordingly, the revised development proposal on Lot #5 will generate a total of 20 trips in the AM peak hour and 30 trips in the PM peak hour. The projected peak hour trip values for the proposed site plan, when compared



to the trip values estimated for the overall subdivision plan, represent a trip reduction of 4 trips in the morning peak hour and a very minor increase of eight trips in the evening peak hour.

MaineDOT's TMP regulations do not require a TMP modification if the peak hour volume increases are less than 100 trips during any peak hour time period. A prior development modification to Lot #9 approved in 2016 was forecast to increase trip generation during both peak hour times by an additional 7 trips. Combined, the very minor change in trip generation forecast for both development parcels is well below MaineDOT's threshold value of 100 peak hour trips; whereby, a modification to an approved TMP is required.

Vehicle sight distance was field measured at the proposed driveway entrance intersection to Lot #5 at U.S. Route 1 in accordance with MaineDOT standard practices. The Maine Department of Transportation's Highway Entrance and Driveway Rules, require the following sight distances for a non-mobility roadway:

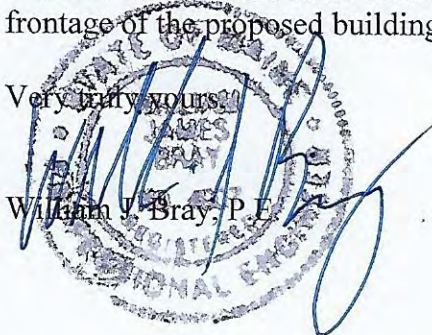
#### Sight Distance Standards

Speed Limit	Sight Distance
25 mph	200 feet
30	250
35	305
40	360
45	425
<b>50</b>	<b>495</b>
55	570

U.S. Route 1 is currently posted at 50mph in the vicinity of the proposed site, which requires an unobstructed sightline of 495 feet. Sightline measurements in excess of 600-feet are attainable in both directions of travel with removal of all trees and tree limbs that encroach within 10-feet of the existing edge of pavement across the full frontage of the proposed building lot.

Very truly yours,

William J. Bray, P.E.





TOWN OF CUMBERLAND, MAINE  
290 TUTTLE ROAD  
CUMBERLAND, MAINE 04021  
TEL: 207-829-2205 FAX: 829-2224

August 22, 2018

Portland Water District  
225 Douglass Street  
PO Box 3553  
Portland, ME 04104

Re: Sewer Capacity Letter for the "Belted Cow" Heritage Village (aka CFV)

To Whom It May Concern:

The Town of Cumberland has agreed to accept the sewer design flow of 600 gallons per day of commercial use to its municipal sewer system from this new location designed by Walsh Engineering Associates, Inc.

Cumberland is a relatively new sewer system and we have been fortunate to have limited inflow and infiltration in our system. We presently own 30% of the Falmouth Treatment Plant. This new flow would be pumped via our Route One distribution system.

Please let me know if you have any additional questions regarding this request.

Sincerely,

William R. Shane, P.E.  
Town Manager

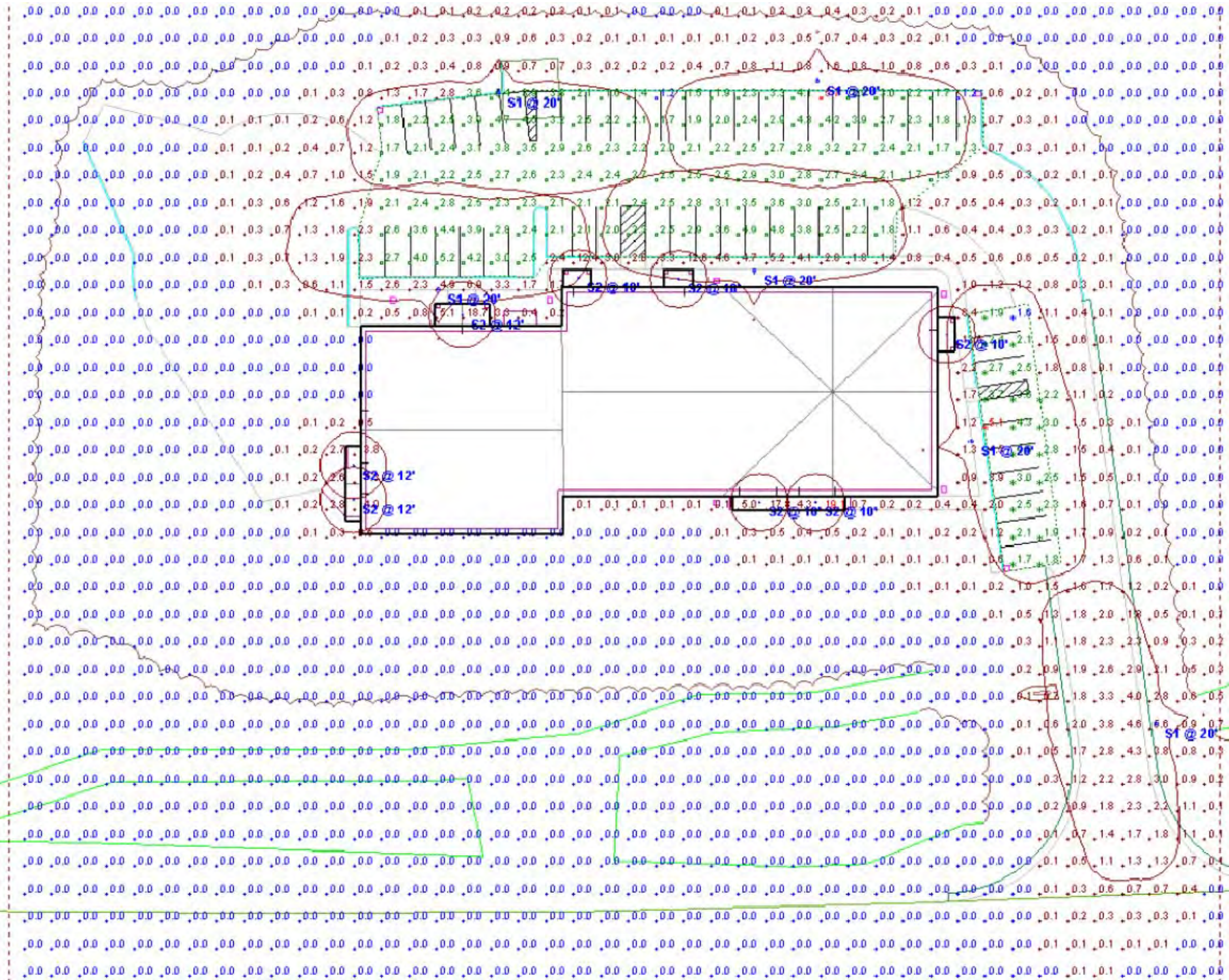
cc: Chris Bolduc, Assistant Manager  
Mike Crosby, Deputy Sewer Supt.





Belted Cow  
Photometric

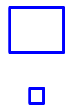
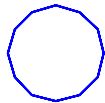
Designer  
SAJ  
Date  
8/21/2018  
Scale  
Not to Scale  
Drawing No.  
E0  
Summary



Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min	Avg/Max
East Parking Area	✕	2.7 fc	5.1 fc	1.6 fc	3.2:1	1.7:1	0.5:1
North Parking Area	□	2.7 fc	5.7 fc	1.2 fc	4.8:1	2.3:1	0.5:1
Overall Site	+	0.6 fc	19.1 fc	0.0 fc	N/A	N/A	0.0:1



Luminaire Schedule											
Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Number Lamps	Filename	Lumens Per Lamp	Light Loss Factor	Wattage
	S1	6	Hubbell Lighting Inc, dba Beacon Products	VP-S-48L-110-4K7-3		X-70-CRI DATA SHOWN IS SCALED FROM TEST 11604137.05	1	VP-S-48L-110-4K7-3.ies	12275.12	1	108
	S2	8	Indy	L6 40LM 35K 120 G4 80CRI ZT P CD-WET	INDY 6" DIA. 1-LED 4000LM, 35K 80 CRI, GEN4 RECESSED LENS LITE W/ CLEAR SATIN ALZAK (CD) PARABOLIC CONE AND FROSTED CONVEX GLASS LENS	1-WHITE LED LIGHT ENGINE, LUMEN RATING = -1/ABSOLUTE PHOTOMETRY	1	L6_40LM_35K_120_G4_ 80CRI_ZT_P_CD.ies	2961.456	1	42.14



Belted Cow  
Photometric

Designer  
SAJ  
Date  
8/21/2018  
Scale  
Not to Scale  
Drawing No.  
E0  
Summary

# VP-S OPTICS STRIKE

## Viper (Small)

SITE/ROADWAY



### FEATURES

- The Beacon Viper luminaire is available in two sizes with a wide choice of different LED wattage configurations and optical distributions designed to replace HID lighting up to 1000W MH or HPS and with 4 different mounting options for application in a wide variety of new and existing installations.
- Each Viper luminaire is supplied with an one piece optical cartridge system consisting of an LED engine, LED lamps, optics, gasket and stainless steel bezel.
- A thermal circuit, LIFESHIELD™, shall protect the luminaire from excessive temperature by interfacing with the 0-10V dimmable drivers to reduce drive current as necessary.
- Aluminum thermal clad board with 0.062" thick aluminum base layer, thermally conductive dielectric layer, 0.0014" thick copper circuit layer designed with copper pours to minimize thermal impedance across dielectric.

### ORDERING INFORMATION

VPS								
SERIES	LED ENGINE	CCT/CRI	ROTATION	VOLTAGE	COLOR	OPTIONS		
VPS Viper	<b>24L-55</b> 55W, LED array	<b>3K7</b> 3000K, 70 CRI	Leave blank for no rotation	<b>UNV</b> 120-277V	<b>DBT</b> Dark Bronze Textured	<b>F</b> Fusing		
	<b>36L-65</b> 65W, LED array	<b>4K7</b> 4000K, 70 CRI	<b>L<sup>5</sup></b> Optic rotation left	<b>120</b> 120V	<b>BMT</b> Black Matte Textured	<b>BSP</b> Bird Spikes		
	<b>36L-80</b> 80W, LED array	<b>5K7</b> 5000K, 70 CRI	<b>R<sup>5</sup></b> Optic rotation right	<b>208</b> 208V	<b>PS</b> Platinum Silver Smooth	<b>BC</b> Backlight control (limited to Type 4W only)		
	<b>48L-110</b> 110W, LED array			<b>240</b> 240V	<b>WHT</b> White Textured			
	<b>60L-136</b> 136W, LED array			<b>277</b> 277V	<b>CC</b> Custom Color (RAL#)			
		<b>DISTRIBUTION</b>				<b>CONTROL OPTIONS</b>		
		<b>FR</b> Type 1/Front Row				<b>7PR</b> 7-Pin Receptacle only (shorting cap, photo control, or wireless control provided by others)		
		<b>2</b> Type 2				<b>7PR-SC</b> 7-Pin Receptacle w/Shorting Cap		
		<b>3</b> Type 3				<b>7PR-TL</b> 7-Pin Receptacle w/Twist Lock photo control		
		<b>4</b> Type 4				<b>SCP/_F<sup>1,2,6</sup></b> Programmable Occupancy Sensor w/ daylight control (120-277 volts only)		
		<b>4W</b> Type 4 Wide		<b>A</b> Rectangular Arm (formerly RA)		<b>GENI-XX<sup>3</sup></b> ENERGENI		
		<b>5QM</b> Type 5QM		<b>MAF</b> Mast Arm Fitter (formerly SF2)		<b>SWF<sup>1</sup></b> SiteSync Field Commission		
		<b>5R</b> Type 5R (rectangular)		<b>K</b> Knuckle (formerly PK2) limit to 45° tilt		<b>SWFM<sup>1,2</sup></b> SiteSync Field Commission w/ Sensor		
		<b>5W</b> Type 5W (round wide)		<b>WB</b> Wall Bracket		<b>SWP<sup>1,4</sup></b> SiteSync Pre-Commission		
				<b>ADSQ</b> Universal Arm for square pole		<b>SWPM<sup>1,2,4</sup></b> SiteSync Pre-Comm w/ Sensor		
				<b>AD34</b> Universal Arm for 2.4"-4.1" round pole				
				<b>AD45</b> Universal Arm for 4.2" to 5.3" round pole				
				<b>AD56</b> Universal Arm for 5.5" to 6.5" round pole				

## ENVIRONMENTALLY FRIENDLY, ENERGY EFFICIENT

- Lumen packages suitable for ceiling heights ranging from 8' to in excess of 100'
- Efficacies up to 124 lm/w
- Superior-quality white LED light output using Chip on Board technology
- No harmful ultraviolet or infrared wavelengths • No lead or mercury

## PRODUCT SPECIFICATIONS

**Atrius™ - Ready Product:** Select models of the L-series product line deliver valuable data and connectivity to the Atrius IoT location based platform services. For more information, please refer to [www.acuitybrands.com/Atrius](http://www.acuitybrands.com/Atrius).

### OPTICS

**Hyperbolic:** Unique hyperbolic shape optimized for small, directional LED source, maximizes fixture efficiency while creating the "Silent Ceiling" appearance by reducing lamp image and aperture brightness • Geometry of hyperbolic curve provides unique aperture appearance and smoother light distribution

**Parabolic/Lens:** Computer-optimized parabolic reflector with frosted convex lens regressed into cone provides uniform distribution with no striations

**Wall Wash:** Available in Hyperbolic and Parabolic. Both providing uniform distributions with no striations

**Baffle:** White or black painted deep multi-groove aluminum baffle insert with integral white painted flange and frosted convex glass lens

### ELECTRICAL

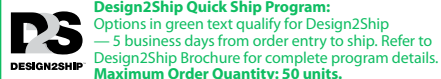
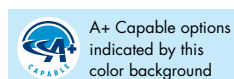
**LED Light Engine:** Compact light source delivers uniform illumination without pixilation, enabling excellent beam control • 2SDCM (5000K within 3SDCM) • 80, 90 & 97 CRI

• Replaceable light engine with push in wire connections mounts directly to heat sink and is easily replaceable

**Passive Cooling:** Aluminum heat sink integrated directly with housing provides superior thermal management to ensure the long life of LED

**LED Driver:** Power factor >0.9 • Easily replaceable from above or below the ceiling

**Dimming:** Dimmable via 0-10V protocol standard • Optional drivers available for use with eldoLED, Lutron EcoSystem, 2-wire dimmers, DMX, or DALI • For a list of compatible dimmers, see [LED-DIM](#).



## ORDERING INFORMATION Complete Catalog# Example Includes (Rough-In, option, reflector, accessory) Ordering Example: L6 08LM 35K MVOLT G4 80CRI ZT LDI HW CS PF HBT

### ROUGH-IN

Series	Lumen Package	Color Temperature	Voltage	Generation	CRI	Driver	Rough-In Options
L6 New Construction Downlight LRM6 <sup>14</sup> 6" L-Series Remodel Rough-in	08LM 800 Lumens	27K 2700K	120 120 Volt	G4 Gen 4	80CRI 80+ CRI 90CRI 90+ CRI 97CRI <sup>2</sup> 97+ CRI	DALI DALI Control Dimming	F <sup>3,9</sup> Fuse and Fuse Holder
	13LM 1300 Lumens	30K 3000K	277 277 Volt			DMXR DMX/RDM Driver	CP <sup>10</sup> Chicago Plenum
	15LM 1500 Lumens	35K 3500K	347 347 Volt			EDAB <sup>4,5</sup> eldoLED SOLOdrive DALI, Logarithmic dimming to <1%	LDI Lumen Depreciation Indicator
	17LM 1700 Lumens	40K 4000K	MVOLT <sup>1</sup> Multi-Volt (120-277)			EDXB <sup>4,6</sup> eldoLED POWERdrive DMX/RDM w/ Phoenix Connectors, Logarithmic dimming to <1%	BR <sup>3,13</sup> Emergency Battery Pack w/Remote Test Switch
	23LM 2300 Lumens	50K 5000K				EZ10 <sup>4,5</sup> eldoLED 0-10V ECOdrive, Linear dimming to 10% min.	BRT20C <sup>3,13</sup> Emergency Battery Pack w/ Remote Test Switch, CEC Title 20 Compliant
	28LM 2800 Lumens					EZ1 <sup>4,5</sup> eldoLED 0-10V ECOdrive, Linear dimming to 1% min.	HBR <sup>3,13</sup> High Lumen Emergency Battery Pack w/Remote Test Switch
	33LM 3300 Lumens					EZB <sup>4,5</sup> eldoLED 0-10V SOLOdrive, Logarithmic dimming to <1%	NL <sup>9,11</sup> nLight® Dimming Pack Controls
	40LM 4000 Lumens					FD <sup>5,7</sup> Forward or Reverse Phase Dimming Driver	NLER <sup>9,11</sup> nLight® dimming pack controls. nLER controls fixtures on emergency circuit
	45LM 4500 Lumens					FDL <sup>7,8,18</sup> Forward Phase Dimming Lutron Driver	NLTAIR <sup>2,3,11,21</sup> nLight® AIR Dimming Pack Wireless Controls
	50LM 5000 Lumens					PD <sup>8,18</sup> Lutron Ecosystem Dimming Driver	NLTAIRER <sup>2,3,11,21</sup> nLight® AIR Dimming Pack Wireless Controls. Controls fixtures on emergency circuit
	55LM 5500 Lumens					ZT 0-10V Dimming to 10% min	AE1BN <sup>20</sup> Atrius™ - Ready, Bluetooth® beacons, network and in fixture power supply
	60LM 6000 Lumens					GZ1 <sup>5</sup> 0-10V Dimming to 1% min	
	65LM 6500 Lumens						
	70LM 7000 Lumens						
	75LM 7500 Lumens						
	80LM 8000 Lumens						
	85LM 8500 Lumens						
	90LM 9000 Lumens						



**REFLECTOR** To order reflector separately, use "L6" prefix before reflector option values. Ex: L6 HW CS PF

Trim Style	Finish	Trim Options	Mounting
<b>BAF</b> <sup>12,14</sup> Baffle <b>HM</b> <sup>13</sup> Hyperbolic Medium <b>HN</b> <sup>13</sup> Hyperbolic Narrow <b>HW</b> <sup>13</sup> Hyperbolic Wide <b>HWS</b> <sup>13</sup> Hyperbolic Single Wall Wash	<b>P</b> Parabolic <b>WC</b> <sup>13</sup> Corner Wall Wash <b>WD</b> <sup>13</sup> Double Wall Wash <b>WS</b> <sup>13</sup> Single Wall Wash	<b>BD</b> Black Diffuse <b>BL</b> Black (Baffle) <b>BS</b> Black Specular <b>BZD</b> Bronze Diffuse <b>BZS</b> Bronze Specular <b>CD</b> Clear Diffuse <b>CS</b> Clear Specular <b>CSS</b> Clear Semi-Specular	<b>GD</b> Gold Diffuse <b>GS</b> Gold Specular <b>PTD</b> Pewter Diffuse <b>PTS</b> Pewter Specular <b>WH</b> White <b>WTD</b> Wheat Diffuse <b>WTS</b> Wheat Specular
		<b>PF</b> <sup>16</sup> White Flange <b>WET</b> Wet Location	<b>Blank</b> Flanged <b>FM</b> <sup>13,17</sup> Flangeless

Accessories <sup>19</sup>			
<b>IFMA</b> <sup>6,15</sup>	6" Flangeless Adapter for Drywall Ceilings	<b>SCA6/05</b> <sup>14</sup>	6" Sloped Ceiling Adapter, 5° Angle
<b>HB28</b>	28" C-Channel Bar Hangers, Pair	<b>SCA6/10</b> <sup>14</sup>	6" Sloped Ceiling Adapter, 10° Angle
<b>HB52</b>	52" C-Channel Bar Hangers, Pair	<b>SCA6/15</b> <sup>14</sup>	6" Sloped Ceiling Adapter, 15° Angle
<b>HBTL</b>	25" Tru-Lock Grid Ceiling Bar Hanger, Pair	<b>SCA6/20</b> <sup>14</sup>	6" Sloped Ceiling Adapter, 20° Angle
<b>LB27</b>	27" Linear Bar Hangers, Pair	<b>SCA6/25</b> <sup>14</sup>	6" Sloped Ceiling Adapter, 25° Angle
		<b>SCA6/30</b> <sup>14</sup>	6" Sloped Ceiling Adapter, 30° Angle

#### Ordering Notes

- Only 800, 1300, 1500 and 1700 lumen fixtures are MVOLT.
- 2700K & 3000K only.
- Not available with 347V.
- Not compatible with LDI.
- Not available for 6000 lumens and up.
- Not available for 4000 and 5500 lumens and up.
- 120V only.
- Not available for 5000 lumens and up.
- Specify voltage.
- See CP notes in following table for compatibility with other options.
- Only compatible with GZ1 (for 55LM and below) and ZT (for 60LM - 90LM) drivers.
- Only available with BL or WH trim finish.

13 Not compatible with WET.

14 Not compatible with FM.

15 Required for FM.

16 Not required when specifying WH finish.

17 When ordering rough-in and trim separately FM designator must be applied to both items.

18 Not compatible with BR, BRT20C, HBR, or LDI.

19 Not compatible with LRM6.

20 See AE1BN notes in following table for compatibility with other options.

21 NLTAIR2, NLTAIRER2, AE1BN not recommended for metal ceiling installations

#### CP Notes

BR, BRT20C, HBR, EDXB, NL, NLER, NLTAIR2, NLTAIRER2, AE1BN not compatible with CP.

DALI, DMXR, ZT not available for CP with FM at 8500 lumens and up.

#### AE1BN Notes

Not available with 347 for LRM6 series.

Only compatible with ZT, GZ1, EZ1, EZB, EZ10 drivers.

CP, BR, BRT20C, HBR, NL, NLER, NLTAIR2, NLTAIRER2 not compatible with AE1BN.

Recommended ceiling height of 30' and under; not intended for use on ceilings greater than 40' or metal ceiling installations.

The Bluetooth® word mark and logos are registered trademarks owned by Bluetooth SIG, Inc. and any use of such marks by Acuity Brands Lighting is under license.

## PRODUCT SPECIFICATIONS (cont.)

### MECHANICAL

**New Construction Housing:** Low profile, universal housing design installs in suspended grid, plaster or drywall • Integral heat sink conducts heat away from LED light engine • Driver is accessible from above and below ceiling and can be upgraded to accommodate future technology improvements

**Mounting Frame:** Heavy gauge steel lower housing ring accommodates ceilings up to 2" thick • For thicker ceilings; consult factory

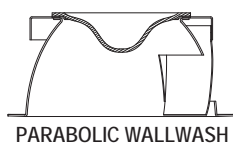
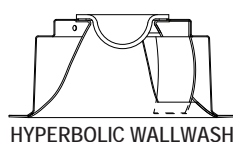
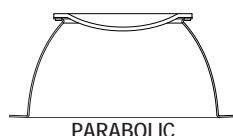
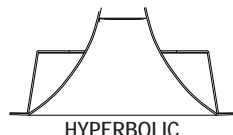
**Mounting Bracket:** New Construction mounting brackets have 3" vertical adjustment and accepts most commercial bar hangers, including our proprietary Tru-Lock bar hangers • Our one-piece Tru-Lock bar hangers have integral T-bar locking screws and alignment notches for locating and locking fixture in the center or 1/4" tile increments

**Junction Box:** Over size 4" x 6" galvanized steel junction box with (6) 1/2" (2) 3/4" knockouts facilitate quick wiring • New Construction junction box rated for four (4) No. 12 AWG 90° C branch circuit conductors (2-in, 2-out)

**Flangeless Adapter:** Must specify IFMA6 when flangeless, "FM" option, is specified

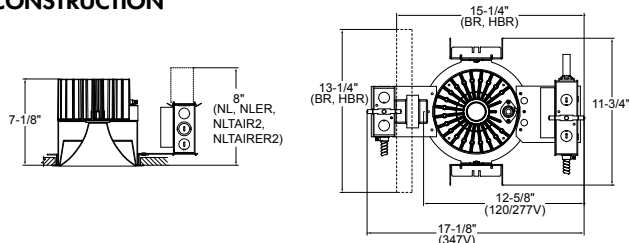
**Remodel Housing:** Housing installs from below ceiling in applications where above ceiling access is not available • Secured in place by factory installed remodel springs • Remodel springs accommodate ceilings from 1/2" to 1-1/8" thick • Integral heat sink conducts heat away from LED light engine • Driver is accessible from below the ceiling and can be upgraded to accommodate future technology improvements.

### TRIMS:

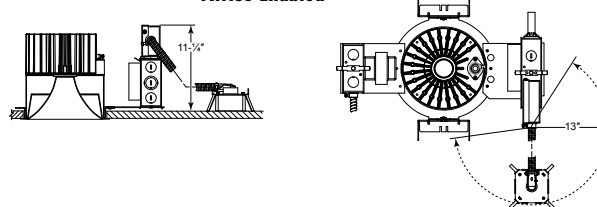


APERTURE: 6-1/8" Dia.  
CEILING CUTOUT: 6-7/8" Dia.  
OVERLAP TRIM: 7-3/8" Dia.

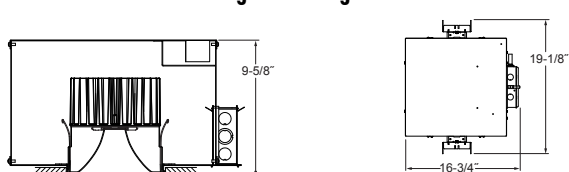
### NEW CONSTRUCTION



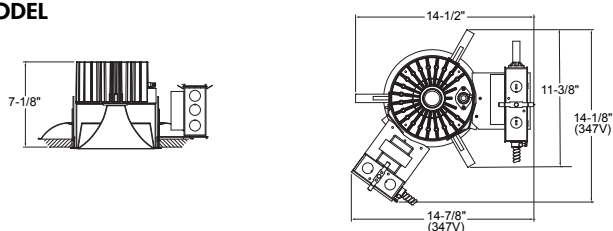
#### Atrius Enabled



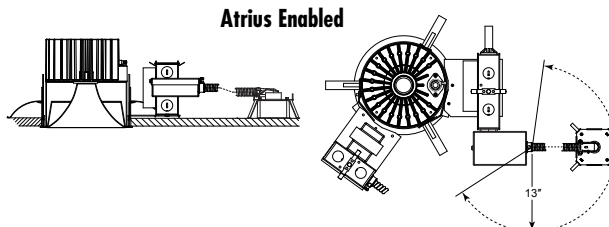
#### Flangeless Chicago Plenum



### REMODEL



#### Atrius Enabled





**STORMWATER MANAGEMENT REPORT**  
**LOT 5, U.S. Route One, CUMBERLAND FORESIDE VILLAGE**  
**CUMBERLAND, MAINE**  
**August 22, 2018**

***Project Description:*** The development of Lot 5 is in general conformance with the Concept Plan developed in 2007. There is a slight increase in the impervious area beyond what was approved. The site was also reconfigured to be accessed from Route One. As such the Stormwater model was revised to reflect these changes.

***Existing Conditions:***

Currently the site is undeveloped. The site is predominately wooded with exposed ledge in the center of the site. The front of the site is wooded along Route One with a break in the trees where a utility line stub was installed. A pedestrian path has been constructed along Route One, in the right-of-way.

***Developed Conditions:***

The site will be accessed off U.S. Route One up a driveway along the north side of the lot to a parking lot behind the building. The building will be 15,970 square feet, split into three (4) units. Belted Cow will be in the southern side of the building. *The site will be paved with drainage directed to the underdrained soil filter.*

The total impervious is 57,880 sq. ft. with 26,692 sq. ft. of landscaped area.

***Methodology:***

This stormwater analysis was performed using HydroCad Software based on TR-55 modeling conditions. This model requires assumptions as to the land cover, slopes and soils. These are enhanced by the topography mapping, soils mapping, and on-site observations. The flows were determined using a Type III coastal storm and rainfall totals for the 24-hour period for a 2-year storm, 3.1", for a 10-year storm, 4.6", for a 25-year storm, 5.8", and for a 100-year storm, 8.1". These data are published in the manual for Stormwater Management for Maine: Best Management Practices, published by the Maine Department of Environmental Protection.



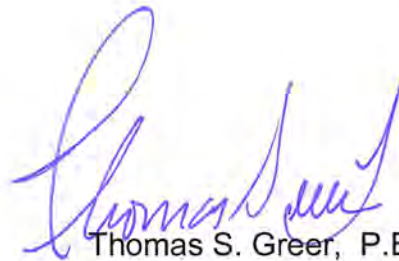
**Stormwater Treatment:**

The site uses one underdrained soil filter to treat the stormwater runoff from the site. It is sized to treat the first 1" of runoff from the pavement and the building, and 0.4" from the landscaped areas. It has some additional volume to assist in the control of peak flows. See sheet D2.0 for a chart showing treatment criteria.

**Peak Flows:** The peak flows from this area flow through a culvert that crosses Route One in front of the neighboring lot, Lot 4. This culvert leads to the stream on the east side of Route One. The model uses the stream as Point of Analysis #2 (POA #2). Below are the new flows:

TABLE 1 - PEAK FLOWS (CFS)								
	EXISTING CONDITIONS				LOT 5 DEVELOPED			
	2-YR	10-YR	25-YR	100-YR	2-YR	10-YR	25-YR	100-YR
POA 2	3.13	6.49	9.10	15.77	1.75	3.66	5.23	8.97

**Conclusion:** This project will use an underdrained soil filter to control peak flows and the stormwater runoff from the developed site. It will have no unreasonable adverse impacts on downstream properties or environments.

  
Thomas S. Greer, P.E.

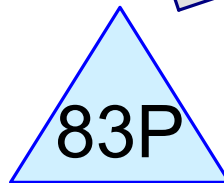




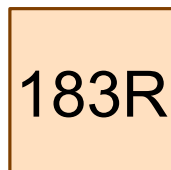
# EXISTING CONDITION



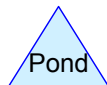
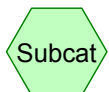
FLOW TO RT 1 EAST  
END 2



CULVERT X RT ONE



STREAM EAST SIDE  
OF RT ONE POA 2



## Routing Diagram for CFV LOT 5

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## CFV LOT 5

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Page 2

### Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.273	98	PAVED RT ONE (43S)
4.490	75	WOODS C/D SOILS (43S)
<b>4.763</b>	<b>76</b>	<b>TOTAL AREA</b>



**CFV LOT 5**

Type III 24-hr 2-YEAR Rainfall=3.10"

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Page 3

**Summary for Subcatchment 43S: FLOW TO RT 1 EAST END 2**

Runoff = 3.23 cfs @ 12.46 hrs, Volume= 0.389 af, Depth&gt; 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-YEAR Rainfall=3.10"

	Area (sf)	CN	Description
*	11,880	98	PAVED RT ONE
*	195,601	75	WOODS C/D SOILS
	207,481	76	Weighted Average
	195,601		94.27% Pervious Area
	11,880		5.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3	200	0.1000	0.16		<b>Sheet Flow, SHEET</b>
					Woods: Light underbrush n= 0.400 P2= 3.00"
10.7	800	0.0625	1.25		<b>Shallow Concentrated Flow, SHALLOW</b>
					Woodland Kv= 5.0 fps
31.0	1,000	Total			

**Summary for Reach 183R: STREAM EAST SIDE OF RT ONE POA 2**

Inflow Area = 4.763 ac, 5.73% Impervious, Inflow Depth > 0.97" for 2-YEAR event  
 Inflow = 3.18 cfs @ 12.51 hrs, Volume= 0.385 af  
 Outflow = 3.13 cfs @ 12.62 hrs, Volume= 0.382 af, Atten= 1%, Lag= 6.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 1.78 fps, Min. Travel Time= 3.7 min  
 Avg. Velocity= 0.77 fps, Avg. Travel Time= 8.6 min

Peak Storage= 706 cf @ 12.56 hrs  
 Average Depth at Peak Storage= 0.31'  
 Bank-Full Depth= 1.00' Flow Area= 7.0 sf, Capacity= 24.05 cfs

5.00' x 1.00' deep channel, n= 0.050  
 Side Slope Z-value= 2.0 ' ' Top Width= 9.00'  
 Length= 400.0' Slope= 0.0200 ' '  
 Inlet Invert= 0.00', Outlet Invert= -8.00'



**CFV LOT 5**

Type III 24-hr 2-YEAR Rainfall=3.10"

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**Summary for Pond 83P: CULVERT X RT ONE**

Inflow Area = 4.763 ac, 5.73% Impervious, Inflow Depth > 0.98" for 2-YEAR event  
 Inflow = 3.23 cfs @ 12.46 hrs, Volume= 0.389 af  
 Outflow = 3.18 cfs @ 12.51 hrs, Volume= 0.385 af, Atten= 1%, Lag= 3.0 min  
 Primary = 3.18 cfs @ 12.51 hrs, Volume= 0.385 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 103.74' @ 12.51 hrs Surf.Area= 1,563 sf Storage= 903 cf

Plug-Flow detention time= 9.6 min calculated for 0.384 af (99% of inflow)  
 Center-of-Mass det. time= 5.8 min ( 839.7 - 833.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	102.90'	5,682 cf	<b>Custom Stage Data (Prismatic)</b> Listed below
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.90	150	0	0
104.00	2,000	1,182	1,182
106.00	2,500	4,500	5,682

Device	Routing	Invert	Outlet Devices
#1	Primary	102.90'	<b>18.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 102.90' / 100.30' S= 0.0260 '/ Cc= 0.900 n= 0.023, Flow Area= 1.77 sf

**Primary OutFlow** Max=3.17 cfs @ 12.51 hrs HW=103.74' (Free Discharge)  
 ↑1=Culvert (Inlet Controls 3.17 cfs @ 3.12 fps)

**CFV LOT 5**

Type III 24-hr 10-YEAR Rainfall=4.60"

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**Summary for Subcatchment 43S: FLOW TO RT 1 EAST END 2**

Runoff = 6.83 cfs @ 12.44 hrs, Volume= 0.806 af, Depth&gt; 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-YEAR Rainfall=4.60"

	Area (sf)	CN	Description
*	11,880	98	PAVED RT ONE
*	195,601	75	WOODS C/D SOILS
	207,481	76	Weighted Average
	195,601		94.27% Pervious Area
	11,880		5.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3	200	0.1000	0.16		<b>Sheet Flow, SHEET</b>
					Woods: Light underbrush n= 0.400 P2= 3.00"
10.7	800	0.0625	1.25		<b>Shallow Concentrated Flow, SHALLOW</b>
					Woodland Kv= 5.0 fps
31.0	1,000	Total			

**Summary for Reach 183R: STREAM EAST SIDE OF RT ONE POA 2**

Inflow Area = 4.763 ac, 5.73% Impervious, Inflow Depth > 2.02" for 10-YEAR event  
 Inflow = 6.52 cfs @ 12.53 hrs, Volume= 0.800 af  
 Outflow = 6.49 cfs @ 12.61 hrs, Volume= 0.796 af, Atten= 1%, Lag= 4.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 2.28 fps, Min. Travel Time= 2.9 min  
 Avg. Velocity= 0.93 fps, Avg. Travel Time= 7.1 min

Peak Storage= 1,140 cf @ 12.56 hrs  
 Average Depth at Peak Storage= 0.48'  
 Bank-Full Depth= 1.00' Flow Area= 7.0 sf, Capacity= 24.05 cfs

5.00' x 1.00' deep channel, n= 0.050  
 Side Slope Z-value= 2.0 ' ' Top Width= 9.00'  
 Length= 400.0' Slope= 0.0200 ' '  
 Inlet Invert= 0.00', Outlet Invert= -8.00'



**CFV LOT 5**

Type III 24-hr 10-YEAR Rainfall=4.60"

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**Summary for Pond 83P: CULVERT X RT ONE**

Inflow Area = 4.763 ac, 5.73% Impervious, Inflow Depth > 2.03" for 10-YEAR event  
 Inflow = 6.83 cfs @ 12.44 hrs, Volume= 0.806 af  
 Outflow = 6.52 cfs @ 12.53 hrs, Volume= 0.800 af, Atten= 4%, Lag= 5.2 min  
 Primary = 6.52 cfs @ 12.53 hrs, Volume= 0.800 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 104.23' @ 12.53 hrs Surf.Area= 2,058 sf Storage= 1,707 cf

Plug-Flow detention time= 7.3 min calculated for 0.800 af (99% of inflow)  
 Center-of-Mass det. time= 4.8 min ( 822.9 - 818.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	102.90'	5,682 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.90	150	0	0
104.00	2,000	1,182	1,182
106.00	2,500	4,500	5,682

Device	Routing	Invert	Outlet Devices
#1	Primary	102.90'	<b>18.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 102.90' / 100.30' S= 0.0260 '/ Cc= 0.900 n= 0.023, Flow Area= 1.77 sf

**Primary OutFlow** Max=6.51 cfs @ 12.53 hrs HW=104.23' (Free Discharge)

↑**1=Culvert** (Inlet Controls 6.51 cfs @ 3.93 fps)

**CFV LOT 5**

Type III 24-hr 25-YEAR Rainfall=5.80"

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**Summary for Subcatchment 43S: FLOW TO RT 1 EAST END 2**

Runoff = 9.97 cfs @ 12.44 hrs, Volume= 1.177 af, Depth&gt; 2.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	11,880	98	PAVED RT ONE
*	195,601	75	WOODS C/D SOILS
	207,481	76	Weighted Average
	195,601		94.27% Pervious Area
	11,880		5.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3	200	0.1000	0.16		<b>Sheet Flow, SHEET</b>
					Woods: Light underbrush n= 0.400 P2= 3.00"
10.7	800	0.0625	1.25		<b>Shallow Concentrated Flow, SHALLOW</b>
					Woodland Kv= 5.0 fps
31.0	1,000	Total			

**Summary for Reach 183R: STREAM EAST SIDE OF RT ONE POA 2**

Inflow Area = 4.763 ac, 5.73% Impervious, Inflow Depth > 2.95" for 25-YEAR event  
 Inflow = 9.15 cfs @ 12.56 hrs, Volume= 1.171 af  
 Outflow = 9.10 cfs @ 12.63 hrs, Volume= 1.166 af, Atten= 0%, Lag= 4.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 2.54 fps, Min. Travel Time= 2.6 min  
 Avg. Velocity= 1.03 fps, Avg. Travel Time= 6.5 min

Peak Storage= 1,432 cf @ 12.59 hrs  
 Average Depth at Peak Storage= 0.58'  
 Bank-Full Depth= 1.00' Flow Area= 7.0 sf, Capacity= 24.05 cfs

5.00' x 1.00' deep channel, n= 0.050  
 Side Slope Z-value= 2.0 ' ' Top Width= 9.00'  
 Length= 400.0' Slope= 0.0200 ' '  
 Inlet Invert= 0.00', Outlet Invert= -8.00'



‡

**CFV LOT 5**

Type III 24-hr 25-YEAR Rainfall=5.80"

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Page 4

**Summary for Pond 83P: CULVERT X RT ONE**

Inflow Area = 4.763 ac, 5.73% Impervious, Inflow Depth > 2.97" for 25-YEAR event  
 Inflow = 9.97 cfs @ 12.44 hrs, Volume= 1.177 af  
 Outflow = 9.15 cfs @ 12.56 hrs, Volume= 1.171 af, Atten= 8%, Lag= 7.2 min  
 Primary = 9.15 cfs @ 12.56 hrs, Volume= 1.171 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 104.81' @ 12.56 hrs Surf.Area= 2,202 sf Storage= 2,997 cf

Plug-Flow detention time= 6.8 min calculated for 1.171 af (99% of inflow)  
 Center-of-Mass det. time= 4.8 min ( 814.5 - 809.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	102.90'	5,682 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.90	150	0	0
104.00	2,000	1,182	1,182
106.00	2,500	4,500	5,682

Device	Routing	Invert	Outlet Devices
#1	Primary	102.90'	<b>18.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 102.90' / 100.30' S= 0.0260 '/ Cc= 0.900 n= 0.023, Flow Area= 1.77 sf

**Primary OutFlow** Max=9.14 cfs @ 12.56 hrs HW=104.80' (Free Discharge)

↑**1=Culvert** (Inlet Controls 9.14 cfs @ 5.17 fps)



**CFV LOT 5**

Type III 24-hr 100-YEAR Rainfall=8.10"

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Page 5

**Summary for Subcatchment 43S: FLOW TO RT 1 EAST END 2**

Runoff = 16.24 cfs @ 12.43 hrs, Volume= 1.940 af, Depth&gt; 4.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-YEAR Rainfall=8.10"

	Area (sf)	CN	Description
*	11,880	98	PAVED RT ONE
*	195,601	75	WOODS C/D SOILS
	207,481	76	Weighted Average
	195,601		94.27% Pervious Area
	11,880		5.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.3	200	0.1000	0.16		<b>Sheet Flow, SHEET</b>
					Woods: Light underbrush n= 0.400 P2= 3.00"
10.7	800	0.0625	1.25		<b>Shallow Concentrated Flow, SHALLOW</b>
					Woodland Kv= 5.0 fps
31.0	1,000	Total			

**Summary for Reach 183R: STREAM EAST SIDE OF RT ONE POA 2**

Inflow Area = 4.763 ac, 5.73% Impervious, Inflow Depth > 4.87" for 100-YEAR event  
 Inflow = 20.28 cfs @ 12.45 hrs, Volume= 1.933 af  
 Outflow = 15.77 cfs @ 12.54 hrs, Volume= 1.926 af, Atten= 22%, Lag= 5.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 3.03 fps, Min. Travel Time= 2.2 min  
 Avg. Velocity= 1.16 fps, Avg. Travel Time= 5.8 min

Peak Storage= 2,101 cf @ 12.50 hrs  
 Average Depth at Peak Storage= 0.80'  
 Bank-Full Depth= 1.00' Flow Area= 7.0 sf, Capacity= 24.05 cfs

5.00' x 1.00' deep channel, n= 0.050  
 Side Slope Z-value= 2.0 ' ' Top Width= 9.00'  
 Length= 400.0' Slope= 0.0200 ' '  
 Inlet Invert= 0.00', Outlet Invert= -8.00'



**CFV LOT 5**

Type III 24-hr 100-YEAR Rainfall=8.10"

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Page 6

**Summary for Pond 83P: CULVERT X RT ONE**

Inflow Area = 4.763 ac, 5.73% Impervious, Inflow Depth > 4.89" for 100-YEAR event  
 Inflow = 16.24 cfs @ 12.43 hrs, Volume= 1.940 af  
 Outflow = 20.28 cfs @ 12.45 hrs, Volume= 1.933 af, Atten= 0%, Lag= 1.5 min  
 Primary = 20.28 cfs @ 12.45 hrs, Volume= 1.933 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 116.57' @ 12.45 hrs Surf.Area= 2,500 sf Storage= 5,682 cf

Plug-Flow detention time= 6.8 min calculated for 1.926 af (99% of inflow)  
 Center-of-Mass det. time= 5.3 min ( 803.7 - 798.4 )

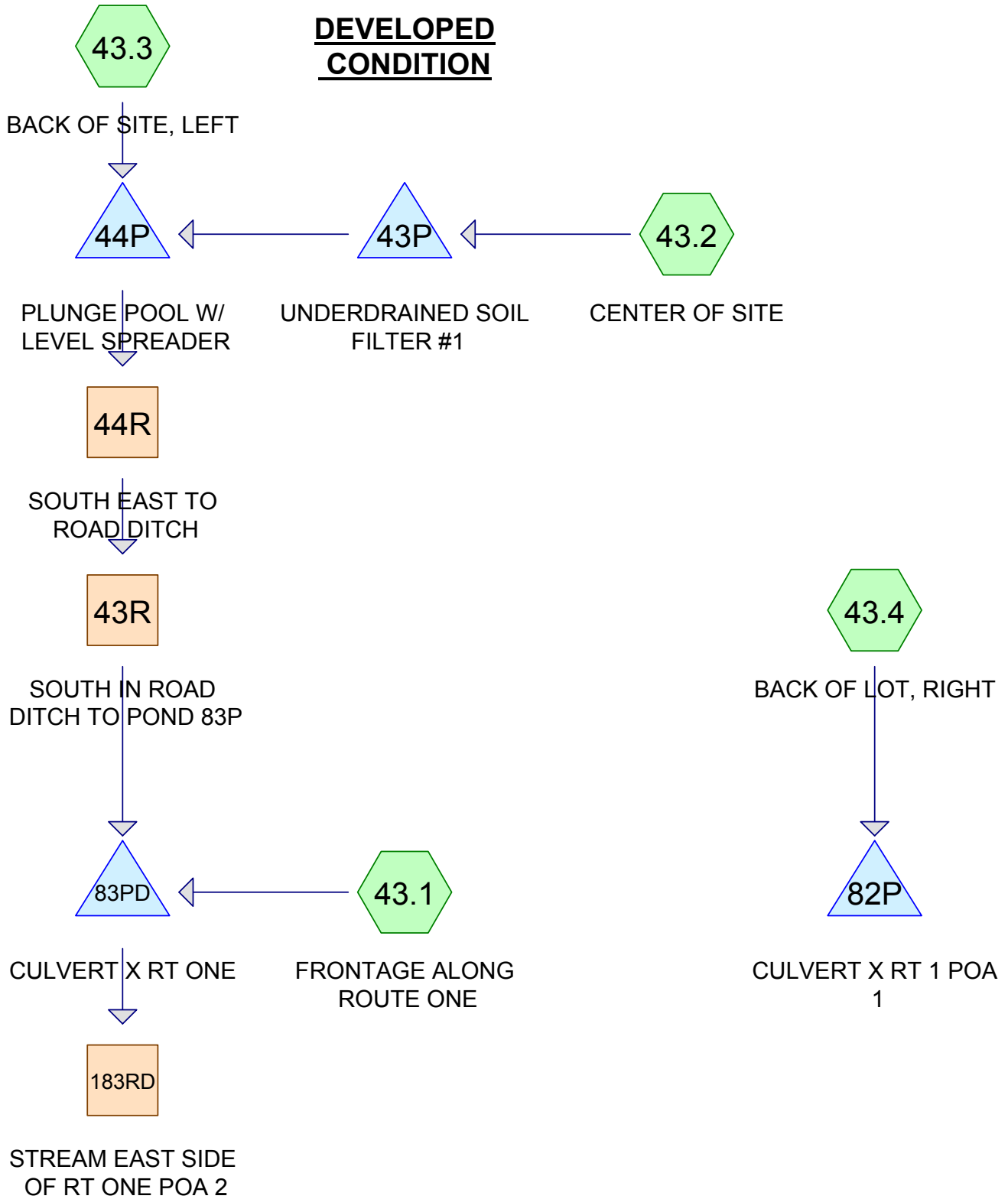
Volume	Invert	Avail.Storage	Storage Description
#1	102.90'	5,682 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.90	150	0	0
104.00	2,000	1,182	1,182
106.00	2,500	4,500	5,682

Device	Routing	Invert	Outlet Devices
#1	Primary	102.90'	<b>18.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 102.90' / 100.30' S= 0.0260 '/ Cc= 0.900 n= 0.023, Flow Area= 1.77 sf

**Primary OutFlow** Max=20.11 cfs @ 12.45 hrs HW=116.33' (Free Discharge)  
 ↑1=Culvert (Barrel Controls 20.11 cfs @ 11.38 fps)

## DEVELOPED CONDITION



### Routing Diagram for CFV LOT 5

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Page 2

**Area Listing (selected nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
0.981	74	>75% Grass cover, Good, HSG C (43.2, 43.3, 43.4)
0.467	69	Brush, Good, HSG C/D (43.1)
0.102	98	DRIVEWAY, Paved parking, HSG C (43.1, 43.4)
0.711	98	Paved parking, HSG C (43.2)
0.259	98	ROUTE ONE, Paved parking, HSG C (43.1, 43.4)
0.388	98	Roofs, HSG C (43.2)
0.016	96	SHOULDER & WALKING PATH, Gravel surface, HSG C (43.4)
0.094	96	SHOULDER & WALKING TRAIL, Gravel surface, HSG C (43.1)
1.074	75	Woods, Good, HSG C/D (43.1, 43.3, 43.4)
<b>4.093</b>	<b>83</b>	<b>TOTAL AREA</b>



**CFV LOT 5**

Type III 24-hr 2-YEAR Rainfall=3.10"

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Page 3

**Summary for Subcatchment 43.1: FRONTAGE ALONG ROUTE ONE**

Runoff = 1.58 cfs @ 12.22 hrs, Volume= 0.139 af, Depth&gt; 1.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-YEAR Rainfall=3.10"

Area (sf)	CN	Description
* 10,823	98	ROUTE ONE, Paved parking, HSG C
* 3,056	98	DRIVEWAY, Paved parking, HSG C
* 4,114	96	SHOULDER & WALKING TRAIL, Gravel surface, HSG C
* 21,373	75	Woods, Good, HSG C/D
* 20,329	69	Brush, Good, HSG C/D
59,695	80	Weighted Average
45,816		76.75% Pervious Area
13,879		23.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	80	0.1000	0.14		<b>Sheet Flow, SOUTH IN WOODS TO DITCH</b> Woods: Light underbrush n= 0.400 P2= 3.10"
5.4	371	0.0270	1.15		<b>Shallow Concentrated Flow, SOUTH WEST IN ROAD DITCH</b> Short Grass Pasture Kv= 7.0 fps
15.0	451	Total			

**Summary for Subcatchment 43.2: CENTER OF SITE**

Runoff = 3.89 cfs @ 12.09 hrs, Volume= 0.266 af, Depth&gt; 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-YEAR Rainfall=3.10"

Area (sf)	CN	Description
16,912	98	Roofs, HSG C
30,968	98	Paved parking, HSG C
26,692	74	>75% Grass cover, Good, HSG C
74,572	89	Weighted Average
26,692		35.79% Pervious Area
47,880		64.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 43.3: BACK OF SITE, LEFT**

Runoff = 0.45 cfs @ 12.15 hrs, Volume= 0.035 af, Depth&gt; 0.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-YEAR Rainfall=3.10"

**CFV LOT 5**

Type III 24-hr 2-YEAR Rainfall=3.10"

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Page 4

	Area (sf)	CN	Description
*	11,547	75	Woods, Good, HSG C/D
	7,949	74	>75% Grass cover, Good, HSG C
	19,496	75	Weighted Average
	19,496		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.2000	0.19		<b>Sheet Flow, SOUTH EAST DOWN SLOPE IN WOODS</b> Woods: Light underbrush n= 0.400 P2= 3.10"
0.6	80	0.0250	2.37		<b>Shallow Concentrated Flow, SOUTH EAST IN GRASSED DITCH</b> Grassed Waterway Kv= 15.0 fps
0.1	78	0.0640	11.48	9.01	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
9.4	258	Total			

**Summary for Subcatchment 43.4: BACK OF LOT, RIGHT**

Runoff = 0.61 cfs @ 12.16 hrs, Volume= 0.049 af, Depth&gt; 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 2-YEAR Rainfall=3.10"

	Area (sf)	CN	Description
*	451	98	ROUTE ONE, Paved parking, HSG C
*	1,405	98	DRIVEWAY, Paved parking, HSG C
*	709	96	SHOULDER & WALKING PATH, Gravel surface, HSG C
*	13,865	75	Woods, Good, HSG C/D
	8,098	74	>75% Grass cover, Good, HSG C
	24,528	77	Weighted Average
	22,672		92.43% Pervious Area
	1,856		7.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	115	0.2000	0.20		<b>Sheet Flow, EAST IN WOODS</b> Woods: Light underbrush n= 0.400 P2= 3.10"
1.3	245	0.0430	3.11		<b>Shallow Concentrated Flow, EAST IN DRIVEWAY DITCH</b> Grassed Waterway Kv= 15.0 fps
11.0	360	Total			

**Summary for Reach 43R: SOUTH IN ROAD DITCH TO POND 83P**

Inflow Area = 2.160 ac, 50.90% Impervious, Inflow Depth > 0.64" for 2-YEAR event  
 Inflow = 0.49 cfs @ 12.30 hrs, Volume= 0.116 af  
 Outflow = 0.48 cfs @ 12.36 hrs, Volume= 0.115 af, Atten= 2%, Lag= 3.4 min



**CFV LOT 5**

Type III 24-hr 2-YEAR Rainfall=3.10"

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Page 5

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.89 fps, Min. Travel Time= 1.9 min

Avg. Velocity = 0.58 fps, Avg. Travel Time= 2.9 min

Peak Storage= 54 cf @ 12.32 hrs

Average Depth at Peak Storage= 0.10'

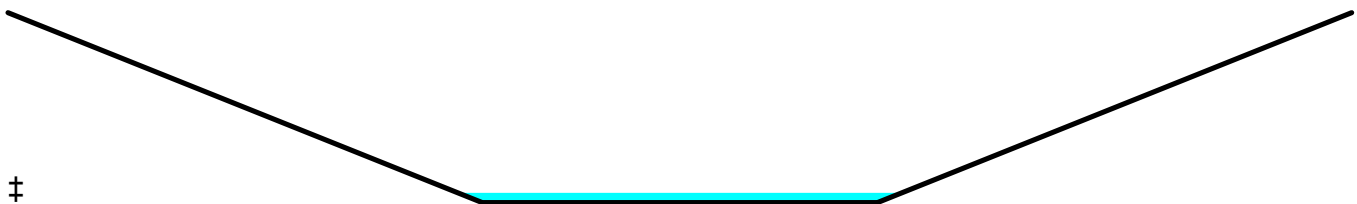
Bank-Full Depth= 2.00' Flow Area= 22.0 sf, Capacity= 108.19 cfs

5.00' x 2.00' deep channel, n= 0.035 Earth, dense weeds

Side Slope Z-value= 3.0 '/' Top Width= 17.00'

Length= 100.0' Slope= 0.0100 '/'

Inlet Invert= 107.00', Outlet Invert= 106.00'

**Summary for Reach 44R: SOUTH EAST TO ROAD DITCH**

Inflow Area = 2.160 ac, 50.90% Impervious, Inflow Depth &gt; 0.66" for 2-YEAR event

Inflow = 0.54 cfs @ 12.16 hrs, Volume= 0.118 af

Outflow = 0.49 cfs @ 12.30 hrs, Volume= 0.116 af, Atten= 9%, Lag= 8.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.28 fps, Min. Travel Time= 5.1 min

Avg. Velocity = 0.18 fps, Avg. Travel Time= 7.9 min

Peak Storage= 150 cf @ 12.21 hrs

Average Depth at Peak Storage= 0.11'

Bank-Full Depth= 0.20' Flow Area= 3.4 sf, Capacity= 1.37 cfs

15.00' x 0.20' deep channel, n= 0.400 Sheet flow: Woods+light brush

Side Slope Z-value= 10.0 '/' Top Width= 19.00'

Length= 85.0' Slope= 0.1176 '/'

Inlet Invert= 117.00', Outlet Invert= 107.00'



**CFV LOT 5**

Type III 24-hr 2-YEAR Rainfall=3.10"

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Page 6

**Summary for Reach 183RD: STREAM EAST SIDE OF RT ONE POA 2**

Inflow Area = 3.530 ac, 40.17% Impervious, Inflow Depth > 0.85" for 2-YEAR event  
 Inflow = 1.82 cfs @ 12.31 hrs, Volume= 0.249 af  
 Outflow = 1.75 cfs @ 12.45 hrs, Volume= 0.245 af, Atten= 4%, Lag= 8.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 1.45 fps, Min. Travel Time= 4.6 min  
 Avg. Velocity= 0.66 fps, Avg. Travel Time= 10.2 min

Peak Storage= 487 cf @ 12.37 hrs  
 Average Depth at Peak Storage= 0.22'  
 Bank-Full Depth= 1.00' Flow Area= 7.0 sf, Capacity= 24.05 cfs

5.00' x 1.00' deep channel, n= 0.050  
 Side Slope Z-value= 2.0 ' / ' Top Width= 9.00'  
 Length= 400.0' Slope= 0.0200 ' / '  
 Inlet Invert= 0.00', Outlet Invert= -8.00'

**Summary for Pond 43P: UNDERDRAINED SOIL FILTER #1**

Inflow Area = 1.712 ac, 64.21% Impervious, Inflow Depth > 1.87" for 2-YEAR event  
 Inflow = 3.89 cfs @ 12.09 hrs, Volume= 0.266 af  
 Outflow = 0.12 cfs @ 16.14 hrs, Volume= 0.088 af, Atten= 97%, Lag= 243.1 min  
 Primary = 0.12 cfs @ 16.14 hrs, Volume= 0.088 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 123.52' @ 16.14 hrs Surf.Area= 5,312 sf Storage= 8,288 cf

Plug-Flow detention time= 254.7 min calculated for 0.087 af (33% of inflow)  
 Center-of-Mass det. time= 156.6 min ( 935.8 - 779.2 )

Volume	Invert	Avail.Storage	Storage Description	
#1	119.00'	27,764 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
119.00	3,435	0.0	0	0
119.10	3,435	30.0	103	103
122.40	3,435	30.0	3,401	3,504
122.50	3,435	100.0	343	3,847
124.00	6,208	100.0	7,232	11,079
125.50	9,342	100.0	11,663	22,742
126.00	10,746	100.0	5,022	27,764

**CFV LOT 5**

Type III 24-hr 2-YEAR Rainfall=3.10"

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Page 7

Device	Routing	Invert	Outlet Devices
#1	Primary	125.00'	<b>10.0' long x 5.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	119.50'	<b>4.0" Round Culvert</b> L= 33.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 119.50' / 117.00' S= 0.0758 ' S Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Device 2	119.00'	<b>1.000 in/hr Exfiltration over Surface area</b>

Primary OutFlow Max=0.12 cfs @ 16.14 hrs HW=123.52' (Free Discharge)

↑1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

↑2=Culvert (Passes 0.12 cfs of 0.65 cfs potential flow)

↑3=Exfiltration (Exfiltration Controls 0.12 cfs)

### Summary for Pond 44P: PLUNGE POOL W/ LEVEL SPREADER

Inflow Area = 2.160 ac, 50.90% Impervious, Inflow Depth > 0.68" for 2-YEAR event  
 Inflow = 0.54 cfs @ 12.15 hrs, Volume= 0.123 af  
 Outflow = 0.54 cfs @ 12.16 hrs, Volume= 0.118 af, Atten= 0%, Lag= 0.4 min  
 Primary = 0.54 cfs @ 12.16 hrs, Volume= 0.118 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 117.56' @ 12.16 hrs Surf.Area= 294 sf Storage= 216 cf

Plug-Flow detention time= 21.3 min calculated for 0.118 af (96% of inflow)

Center-of-Mass det. time= 9.9 min ( 912.7 - 902.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	116.00'	371 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
116.00	30	0	0
117.00	153	92	92
118.00	405	279	371

Device	Routing	Invert	Outlet Devices
#1	Primary	117.50'	<b>15.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> 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

Primary OutFlow Max=0.53 cfs @ 12.16 hrs HW=117.56' (Free Discharge)

↑1=Broad-Crested Rectangular Weir (Weir Controls 0.53 cfs @ 0.61 fps)

**CFV LOT 5**

Type III 24-hr 2-YEAR Rainfall=3.10"

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Page 8

**Summary for Pond 82P: CULVERT X RT 1 POA 1**

Inflow Area = 0.563 ac, 7.57% Impervious, Inflow Depth > 1.04" for 2-YEAR event  
 Inflow = 0.61 cfs @ 12.16 hrs, Volume= 0.049 af  
 Outflow = 0.59 cfs @ 12.20 hrs, Volume= 0.049 af, Atten= 3%, Lag= 1.9 min  
 Primary = 0.59 cfs @ 12.20 hrs, Volume= 0.049 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 112.91' @ 12.20 hrs Surf.Area= 228 sf Storage= 102 cf

Plug-Flow detention time= 7.0 min calculated for 0.049 af (99% of inflow)  
 Center-of-Mass det. time= 4.6 min ( 820.9 - 816.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	112.60'	11,368 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
112.60	150	0	0
114.00	500	455	455
116.00	844	1,344	1,799
118.00	3,350	4,194	5,993
119.00	7,400	5,375	11,368

Device	Routing	Invert	Outlet Devices
#1	Primary	112.60'	<b>36.0" Round Culvert</b> L= 110.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 112.60' / 101.30' S= 0.1027 ' /' Cc= 0.900 n= 0.023, Flow Area= 7.07 sf

**Primary OutFlow** Max=0.59 cfs @ 12.20 hrs HW=112.91' (Free Discharge)  
 ↑1=Culvert (Inlet Controls 0.59 cfs @ 1.50 fps)

**Summary for Pond 83PD: CULVERT X RT ONE**

Inflow Area = 3.530 ac, 40.17% Impervious, Inflow Depth > 0.86" for 2-YEAR event  
 Inflow = 1.90 cfs @ 12.25 hrs, Volume= 0.254 af  
 Outflow = 1.82 cfs @ 12.31 hrs, Volume= 0.249 af, Atten= 4%, Lag= 4.0 min  
 Primary = 1.82 cfs @ 12.31 hrs, Volume= 0.249 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 103.51' @ 12.31 hrs Surf.Area= 1,184 sf Storage= 661 cf

Plug-Flow detention time= 12.8 min calculated for 0.248 af (98% of inflow)  
 Center-of-Mass det. time= 6.7 min ( 868.3 - 861.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	102.90'	5,682 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

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Page 9

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.90	150	0	0
104.00	2,000	1,182	1,182
106.00	2,500	4,500	5,682

Device	Routing	Invert	Outlet Devices
#1	Primary	102.90'	<b>18.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 102.90' / 100.30' S= 0.0260 '/' Cc= 0.900 n= 0.023, Flow Area= 1.77 sf

**Primary OutFlow** Max=1.81 cfs @ 12.31 hrs HW=103.51' (Free Discharge)↑**1=Culvert** (Inlet Controls 1.81 cfs @ 2.66 fps)

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Type III 24-hr 10-YEAR Rainfall=4.60"

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Page 1

**Summary for Subcatchment 43.1: FRONTAGE ALONG ROUTE ONE**

Runoff = 3.08 cfs @ 12.21 hrs, Volume= 0.270 af, Depth&gt; 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-YEAR Rainfall=4.60"

	Area (sf)	CN	Description
*	10,823	98	ROUTE ONE, Paved parking, HSG C
*	3,056	98	DRIVEWAY, Paved parking, HSG C
*	4,114	96	SHOULDER & WALKING TRAIL, Gravel surface, HSG C
*	21,373	75	Woods, Good, HSG C/D
*	20,329	69	Brush, Good, HSG C/D
	59,695	80	Weighted Average
	45,816		76.75% Pervious Area
	13,879		23.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	80	0.1000	0.14		<b>Sheet Flow, SOUTH IN WOODS TO DITCH</b> Woods: Light underbrush n= 0.400 P2= 3.10"
5.4	371	0.0270	1.15		<b>Shallow Concentrated Flow, SOUTH WEST IN ROAD DITCH</b> Short Grass Pasture Kv= 7.0 fps
15.0	451	Total			

**Summary for Subcatchment 43.2: CENTER OF SITE**

Runoff = 6.49 cfs @ 12.09 hrs, Volume= 0.456 af, Depth&gt; 3.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-YEAR Rainfall=4.60"

	Area (sf)	CN	Description
	16,912	98	Roofs, HSG C
	30,968	98	Paved parking, HSG C
	26,692	74	>75% Grass cover, Good, HSG C
	74,572	89	Weighted Average
	26,692		35.79% Pervious Area
	47,880		64.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 43.3: BACK OF SITE, LEFT**

Runoff = 0.97 cfs @ 12.14 hrs, Volume= 0.073 af, Depth&gt; 1.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-YEAR Rainfall=4.60"

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Type III 24-hr 10-YEAR Rainfall=4.60"

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Page 2

	Area (sf)	CN	Description
*	11,547	75	Woods, Good, HSG C/D
	7,949	74	>75% Grass cover, Good, HSG C
	19,496	75	Weighted Average
	19,496		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.2000	0.19		<b>Sheet Flow, SOUTH EAST DOWN SLOPE IN WOODS</b> Woods: Light underbrush n= 0.400 P2= 3.10"
0.6	80	0.0250	2.37		<b>Shallow Concentrated Flow, SOUTH EAST IN GRASSED DITCH</b> Grassed Waterway Kv= 15.0 fps
0.1	78	0.0640	11.48	9.01	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
9.4	258	Total			

**Summary for Subcatchment 43.4: BACK OF LOT, RIGHT**

Runoff = 1.27 cfs @ 12.16 hrs, Volume= 0.100 af, Depth&gt; 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 10-YEAR Rainfall=4.60"

	Area (sf)	CN	Description
*	451	98	ROUTE ONE, Paved parking, HSG C
*	1,405	98	DRIVEWAY, Paved parking, HSG C
*	709	96	SHOULDER & WALKING PATH, Gravel surface, HSG C
*	13,865	75	Woods, Good, HSG C/D
	8,098	74	>75% Grass cover, Good, HSG C
	24,528	77	Weighted Average
	22,672		92.43% Pervious Area
	1,856		7.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	115	0.2000	0.20		<b>Sheet Flow, EAST IN WOODS</b> Woods: Light underbrush n= 0.400 P2= 3.10"
1.3	245	0.0430	3.11		<b>Shallow Concentrated Flow, EAST IN DRIVEWAY DITCH</b> Grassed Waterway Kv= 15.0 fps
11.0	360	Total			

**Summary for Reach 43R: SOUTH IN ROAD DITCH TO POND 83P**

Inflow Area = 2.160 ac, 50.90% Impervious, Inflow Depth > 1.08" for 10-YEAR event  
 Inflow = 1.01 cfs @ 12.26 hrs, Volume= 0.194 af  
 Outflow = 0.99 cfs @ 12.30 hrs, Volume= 0.193 af, Atten= 2%, Lag= 2.7 min

**CFV LOT 5**

Type III 24-hr 10-YEAR Rainfall=4.60"

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Page 3

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.16 fps, Min. Travel Time= 1.4 min

Avg. Velocity = 0.65 fps, Avg. Travel Time= 2.5 min

Peak Storage= 86 cf @ 12.27 hrs

Average Depth at Peak Storage= 0.16'

Bank-Full Depth= 2.00' Flow Area= 22.0 sf, Capacity= 108.19 cfs

5.00' x 2.00' deep channel, n= 0.035 Earth, dense weeds

Side Slope Z-value= 3.0 '/' Top Width= 17.00'

Length= 100.0' Slope= 0.0100 '/'

Inlet Invert= 107.00', Outlet Invert= 106.00'

**Summary for Reach 44R: SOUTH EAST TO ROAD DITCH**

Inflow Area = 2.160 ac, 50.90% Impervious, Inflow Depth &gt; 1.09" for 10-YEAR event

Inflow = 1.10 cfs @ 12.15 hrs, Volume= 0.197 af

Outflow = 1.01 cfs @ 12.26 hrs, Volume= 0.194 af, Atten= 8%, Lag= 6.7 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.36 fps, Min. Travel Time= 3.9 min

Avg. Velocity = 0.20 fps, Avg. Travel Time= 7.0 min

Peak Storage= 239 cf @ 12.19 hrs

Average Depth at Peak Storage= 0.17'

Bank-Full Depth= 0.20' Flow Area= 3.4 sf, Capacity= 1.37 cfs

15.00' x 0.20' deep channel, n= 0.400 Sheet flow: Woods+light brush

Side Slope Z-value= 10.0 '/' Top Width= 19.00'

Length= 85.0' Slope= 0.1176 '/'

Inlet Invert= 117.00', Outlet Invert= 107.00'





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Type III 24-hr 10-YEAR Rainfall=4.60"

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Page 4

**Summary for Reach 183RD: STREAM EAST SIDE OF RT ONE POA 2**

Inflow Area = 3.530 ac, 40.17% Impervious, Inflow Depth > 1.56" for 10-YEAR event  
 Inflow = 3.77 cfs @ 12.28 hrs, Volume= 0.457 af  
 Outflow = 3.66 cfs @ 12.39 hrs, Volume= 0.453 af, Atten= 3%, Lag= 6.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 1.88 fps, Min. Travel Time= 3.6 min  
 Avg. Velocity= 0.76 fps, Avg. Travel Time= 8.7 min

Peak Storage= 784 cf @ 12.32 hrs  
 Average Depth at Peak Storage= 0.34'  
 Bank-Full Depth= 1.00' Flow Area= 7.0 sf, Capacity= 24.05 cfs

5.00' x 1.00' deep channel, n= 0.050  
 Side Slope Z-value= 2.0 ' / ' Top Width= 9.00'  
 Length= 400.0' Slope= 0.0200 ' / '  
 Inlet Invert= 0.00', Outlet Invert= -8.00'

**Summary for Pond 43P: UNDERDRAINED SOIL FILTER #1**

Inflow Area = 1.712 ac, 64.21% Impervious, Inflow Depth > 3.20" for 10-YEAR event  
 Inflow = 6.49 cfs @ 12.09 hrs, Volume= 0.456 af  
 Outflow = 0.17 cfs @ 16.74 hrs, Volume= 0.128 af, Atten= 97%, Lag= 278.8 min  
 Primary = 0.17 cfs @ 16.74 hrs, Volume= 0.128 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 124.55' @ 16.74 hrs Surf.Area= 7,363 sf Storage= 14,830 cf

Plug-Flow detention time= 269.2 min calculated for 0.128 af (28% of inflow)  
 Center-of-Mass det. time= 150.8 min ( 917.2 - 766.3 )

Volume	Invert	Avail.Storage	Storage Description	
#1	119.00'	27,764 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
119.00	3,435	0.0	0	0
119.10	3,435	30.0	103	103
122.40	3,435	30.0	3,401	3,504
122.50	3,435	100.0	343	3,847
124.00	6,208	100.0	7,232	11,079
125.50	9,342	100.0	11,663	22,742
126.00	10,746	100.0	5,022	27,764

**CFV LOT 5**

Type III 24-hr 10-YEAR Rainfall=4.60"

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Page 5

Device	Routing	Invert	Outlet Devices
#1	Primary	125.00'	<b>10.0' long x 5.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	119.50'	<b>4.0" Round Culvert</b> L= 33.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 119.50' / 117.00' S= 0.0758 ' S= 0.0758 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Device 2	119.00'	<b>1.000 in/hr Exfiltration over Surface area</b>

**Primary OutFlow** Max=0.17 cfs @ 16.74 hrs HW=124.55' (Free Discharge)

↑ **1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

↑ **2=Culvert** (Passes 0.17 cfs of 0.73 cfs potential flow)

↑ **3=Exfiltration** (Exfiltration Controls 0.17 cfs)

### Summary for Pond 44P: PLUNGE POOL W/ LEVEL SPREADER

Inflow Area = 2.160 ac, 50.90% Impervious, Inflow Depth > 1.12" for 10-YEAR event  
Inflow = 1.09 cfs @ 12.14 hrs, Volume= 0.201 af  
Outflow = 1.10 cfs @ 12.15 hrs, Volume= 0.197 af, Atten= 0%, Lag= 0.3 min  
Primary = 1.10 cfs @ 12.15 hrs, Volume= 0.197 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Peak Elev= 117.59' @ 12.15 hrs Surf.Area= 303 sf Storage= 227 cf

Plug-Flow detention time= 15.1 min calculated for 0.197 af (98% of inflow)  
Center-of-Mass det. time= 7.5 min ( 883.2 - 875.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	116.00'	371 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
116.00	30	0	0
117.00	153	92	92
118.00	405	279	371

Device	Routing	Invert	Outlet Devices
#1	Primary	117.50'	<b>15.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> 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

**Primary OutFlow** Max=1.09 cfs @ 12.15 hrs HW=117.59' (Free Discharge)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 1.09 cfs @ 0.78 fps)

**CFV LOT 5**

Type III 24-hr 10-YEAR Rainfall=4.60"

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Page 6

**Summary for Pond 82P: CULVERT X RT 1 POA 1**

Inflow Area = 0.563 ac, 7.57% Impervious, Inflow Depth > 2.12" for 10-YEAR event  
 Inflow = 1.27 cfs @ 12.16 hrs, Volume= 0.100 af  
 Outflow = 1.24 cfs @ 12.18 hrs, Volume= 0.099 af, Atten= 2%, Lag= 1.2 min  
 Primary = 1.24 cfs @ 12.18 hrs, Volume= 0.099 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 113.06' @ 12.18 hrs Surf.Area= 265 sf Storage= 149 cf

Plug-Flow detention time= 5.2 min calculated for 0.099 af (99% of inflow)  
 Center-of-Mass det. time= 3.3 min ( 803.8 - 800.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	112.60'	11,368 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
112.60	150	0	0
114.00	500	455	455
116.00	844	1,344	1,799
118.00	3,350	4,194	5,993
119.00	7,400	5,375	11,368

Device	Routing	Invert	Outlet Devices
#1	Primary	112.60'	<b>36.0" Round Culvert</b> L= 110.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 112.60' / 101.30' S= 0.1027 ' /' Cc= 0.900 n= 0.023, Flow Area= 7.07 sf

**Primary OutFlow** Max=1.22 cfs @ 12.18 hrs HW=113.05' (Free Discharge)  
 ↑**1=Culvert** (Inlet Controls 1.22 cfs @ 1.81 fps)

**Summary for Pond 83PD: CULVERT X RT ONE**

Inflow Area = 3.530 ac, 40.17% Impervious, Inflow Depth > 1.57" for 10-YEAR event  
 Inflow = 3.90 cfs @ 12.23 hrs, Volume= 0.463 af  
 Outflow = 3.77 cfs @ 12.28 hrs, Volume= 0.457 af, Atten= 3%, Lag= 2.9 min  
 Primary = 3.77 cfs @ 12.28 hrs, Volume= 0.457 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 103.83' @ 12.28 hrs Surf.Area= 1,711 sf Storage= 998 cf

Plug-Flow detention time= 10.0 min calculated for 0.457 af (99% of inflow)  
 Center-of-Mass det. time= 5.6 min ( 841.8 - 836.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	102.90'	5,682 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

**CFV LOT 5**

Type III 24-hr 10-YEAR Rainfall=4.60"

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Page 7

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.90	150	0	0
104.00	2,000	1,182	1,182
106.00	2,500	4,500	5,682

Device	Routing	Invert	Outlet Devices
#1	Primary	102.90'	<b>18.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 102.90' / 100.30' S= 0.0260 '/' Cc= 0.900 n= 0.023, Flow Area= 1.77 sf

**Primary OutFlow** Max=3.74 cfs @ 12.28 hrs HW=103.82' (Free Discharge)↑**1=Culvert** (Inlet Controls 3.74 cfs @ 3.27 fps)

**CFV LOT 5**

Type III 24-hr 25-YEAR Rainfall=5.80"

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Page 8

**Summary for Subcatchment 43.1: FRONTAGE ALONG ROUTE ONE**

Runoff = 4.35 cfs @ 12.21 hrs, Volume= 0.384 af, Depth&gt; 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-YEAR Rainfall=5.80"

Area (sf)	CN	Description
* 10,823	98	ROUTE ONE, Paved parking, HSG C
* 3,056	98	DRIVEWAY, Paved parking, HSG C
* 4,114	96	SHOULDER & WALKING TRAIL, Gravel surface, HSG C
* 21,373	75	Woods, Good, HSG C/D
* 20,329	69	Brush, Good, HSG C/D
59,695	80	Weighted Average
45,816		76.75% Pervious Area
13,879		23.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	80	0.1000	0.14		<b>Sheet Flow, SOUTH IN WOODS TO DITCH</b> Woods: Light underbrush n= 0.400 P2= 3.10"
5.4	371	0.0270	1.15		<b>Shallow Concentrated Flow, SOUTH WEST IN ROAD DITCH</b> Short Grass Pasture Kv= 7.0 fps
15.0	451	Total			

**Summary for Subcatchment 43.2: CENTER OF SITE**

Runoff = 8.57 cfs @ 12.09 hrs, Volume= 0.612 af, Depth&gt; 4.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-YEAR Rainfall=5.80"

Area (sf)	CN	Description
16,912	98	Roofs, HSG C
30,968	98	Paved parking, HSG C
26,692	74	>75% Grass cover, Good, HSG C
74,572	89	Weighted Average
26,692		35.79% Pervious Area
47,880		64.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 43.3: BACK OF SITE, LEFT**

Runoff = 1.43 cfs @ 12.14 hrs, Volume= 0.108 af, Depth&gt; 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-YEAR Rainfall=5.80"

**CFV LOT 5**

Type III 24-hr 25-YEAR Rainfall=5.80"

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Page 9

	Area (sf)	CN	Description
*	11,547	75	Woods, Good, HSG C/D
	7,949	74	>75% Grass cover, Good, HSG C
	19,496	75	Weighted Average
	19,496		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.2000	0.19		<b>Sheet Flow, SOUTH EAST DOWN SLOPE IN WOODS</b> Woods: Light underbrush n= 0.400 P2= 3.10"
0.6	80	0.0250	2.37		<b>Shallow Concentrated Flow, SOUTH EAST IN GRASSED DITCH</b> Grassed Waterway Kv= 15.0 fps
0.1	78	0.0640	11.48	9.01	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
9.4	258	Total			

**Summary for Subcatchment 43.4: BACK OF LOT, RIGHT**

Runoff = 1.83 cfs @ 12.16 hrs, Volume= 0.145 af, Depth&gt; 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 25-YEAR Rainfall=5.80"

	Area (sf)	CN	Description
*	451	98	ROUTE ONE, Paved parking, HSG C
*	1,405	98	DRIVEWAY, Paved parking, HSG C
*	709	96	SHOULDER & WALKING PATH, Gravel surface, HSG C
*	13,865	75	Woods, Good, HSG C/D
	8,098	74	>75% Grass cover, Good, HSG C
	24,528	77	Weighted Average
	22,672		92.43% Pervious Area
	1,856		7.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	115	0.2000	0.20		<b>Sheet Flow, EAST IN WOODS</b> Woods: Light underbrush n= 0.400 P2= 3.10"
1.3	245	0.0430	3.11		<b>Shallow Concentrated Flow, EAST IN DRIVEWAY DITCH</b> Grassed Waterway Kv= 15.0 fps
11.0	360	Total			

**Summary for Reach 43R: SOUTH IN ROAD DITCH TO POND 83P**

Inflow Area = 2.160 ac, 50.90% Impervious, Inflow Depth > 1.67" for 25-YEAR event  
 Inflow = 1.48 cfs @ 12.24 hrs, Volume= 0.300 af  
 Outflow = 1.44 cfs @ 12.28 hrs, Volume= 0.299 af, Atten= 3%, Lag= 2.2 min

**CFV LOT 5**

Type III 24-hr 25-YEAR Rainfall=5.80"

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Page 10

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 1.34 fps, Min. Travel Time= 1.2 min

Avg. Velocity = 0.73 fps, Avg. Travel Time= 2.3 min

Peak Storage= 111 cf @ 12.26 hrs

Average Depth at Peak Storage= 0.20'

Bank-Full Depth= 2.00' Flow Area= 22.0 sf, Capacity= 108.19 cfs

5.00' x 2.00' deep channel, n= 0.035 Earth, dense weeds

Side Slope Z-value= 3.0 '/' Top Width= 17.00'

Length= 100.0' Slope= 0.0100 '/'

Inlet Invert= 107.00', Outlet Invert= 106.00'

**Summary for Reach 44R: SOUTH EAST TO ROAD DITCH**

Inflow Area = 2.160 ac, 50.90% Impervious, Inflow Depth &gt; 1.68" for 25-YEAR event

Inflow = 1.58 cfs @ 12.14 hrs, Volume= 0.303 af

Outflow = 1.48 cfs @ 12.24 hrs, Volume= 0.300 af, Atten= 6%, Lag= 5.9 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.41 fps, Min. Travel Time= 3.4 min

Avg. Velocity = 0.23 fps, Avg. Travel Time= 6.2 min

Peak Storage= 305 cf @ 12.18 hrs

Average Depth at Peak Storage= 0.21'

Bank-Full Depth= 0.20' Flow Area= 3.4 sf, Capacity= 1.37 cfs

15.00' x 0.20' deep channel, n= 0.400 Sheet flow: Woods+light brush

Side Slope Z-value= 10.0 '/' Top Width= 19.00'

Length= 85.0' Slope= 0.1176 '/'

Inlet Invert= 117.00', Outlet Invert= 107.00'



**CFV LOT 5**

Type III 24-hr 25-YEAR Rainfall=5.80"

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Page 11

**Summary for Reach 183RD: STREAM EAST SIDE OF RT ONE POA 2**

Inflow Area = 3.530 ac, 40.17% Impervious, Inflow Depth > 2.30" for 25-YEAR event  
 Inflow = 5.29 cfs @ 12.29 hrs, Volume= 0.677 af  
 Outflow = 5.23 cfs @ 12.38 hrs, Volume= 0.672 af, Atten= 1%, Lag= 5.3 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 2.12 fps, Min. Travel Time= 3.2 min  
 Avg. Velocity= 0.85 fps, Avg. Travel Time= 7.9 min

Peak Storage= 987 cf @ 12.32 hrs  
 Average Depth at Peak Storage= 0.42'  
 Bank-Full Depth= 1.00' Flow Area= 7.0 sf, Capacity= 24.05 cfs

5.00' x 1.00' deep channel, n= 0.050  
 Side Slope Z-value= 2.0 ' / ' Top Width= 9.00'  
 Length= 400.0' Slope= 0.0200 ' / '  
 Inlet Invert= 0.00', Outlet Invert= -8.00'

**Summary for Pond 43P: UNDERDRAINED SOIL FILTER #1**

Inflow Area = 1.712 ac, 64.21% Impervious, Inflow Depth > 4.29" for 25-YEAR event  
 Inflow = 8.57 cfs @ 12.09 hrs, Volume= 0.612 af  
 Outflow = 0.48 cfs @ 14.06 hrs, Volume= 0.200 af, Atten= 94%, Lag= 118.5 min  
 Primary = 0.48 cfs @ 14.06 hrs, Volume= 0.200 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 125.05' @ 14.06 hrs Surf.Area= 8,395 sf Storage= 18,721 cf

Plug-Flow detention time= 256.5 min calculated for 0.200 af (33% of inflow)  
 Center-of-Mass det. time= 142.5 min ( 902.2 - 759.7 )

Volume	Invert	Avail.Storage	Storage Description	
#1	119.00'	27,764 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
119.00	3,435	0.0	0	0
119.10	3,435	30.0	103	103
122.40	3,435	30.0	3,401	3,504
122.50	3,435	100.0	343	3,847
124.00	6,208	100.0	7,232	11,079
125.50	9,342	100.0	11,663	22,742
126.00	10,746	100.0	5,022	27,764



**CFV LOT 5**

Type III 24-hr 25-YEAR Rainfall=5.80"

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Page 12

Device	Routing	Invert	Outlet Devices
#1	Primary	125.00'	<b>10.0' long x 5.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	119.50'	<b>4.0" Round Culvert</b> L= 33.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 119.50' / 117.00' S= 0.0758 ' S= 0.0758 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Device 2	119.00'	<b>1.000 in/hr Exfiltration over Surface area</b>

**Primary OutFlow** Max=0.43 cfs @ 14.06 hrs HW=125.05' (Free Discharge)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 0.24 cfs @ 0.51 fps)

↑ **2=Culvert** (Passes 0.19 cfs of 0.77 cfs potential flow)

↑ **3=Exfiltration** (Exfiltration Controls 0.19 cfs)

### Summary for Pond 44P: PLUNGE POOL W/ LEVEL SPREADER

Inflow Area = 2.160 ac, 50.90% Impervious, Inflow Depth > 1.71" for 25-YEAR event  
Inflow = 1.58 cfs @ 12.14 hrs, Volume= 0.308 af  
Outflow = 1.58 cfs @ 12.14 hrs, Volume= 0.303 af, Atten= 0%, Lag= 0.3 min  
Primary = 1.58 cfs @ 12.14 hrs, Volume= 0.303 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 117.62' @ 12.14 hrs Surf.Area= 309 sf Storage= 235 cf

Plug-Flow detention time= 10.8 min calculated for 0.303 af (98% of inflow)

Center-of-Mass det. time= 5.6 min ( 870.1 - 864.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	116.00'	371 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
116.00	30	0	0
117.00	153	92	92
118.00	405	279	371

Device	Routing	Invert	Outlet Devices
#1	Primary	117.50'	<b>15.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> 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

**Primary OutFlow** Max=1.57 cfs @ 12.14 hrs HW=117.62' (Free Discharge)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 1.57 cfs @ 0.88 fps)

**CFV LOT 5**

Type III 24-hr 25-YEAR Rainfall=5.80"

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Page 13

**Summary for Pond 82P: CULVERT X RT 1 POA 1**

Inflow Area = 0.563 ac, 7.57% Impervious, Inflow Depth > 3.08" for 25-YEAR event  
 Inflow = 1.83 cfs @ 12.16 hrs, Volume= 0.145 af  
 Outflow = 1.82 cfs @ 12.17 hrs, Volume= 0.144 af, Atten= 1%, Lag= 0.9 min  
 Primary = 1.82 cfs @ 12.17 hrs, Volume= 0.144 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 113.16' @ 12.17 hrs Surf.Area= 289 sf Storage= 181 cf

Plug-Flow detention time= 4.5 min calculated for 0.144 af (100% of inflow)  
 Center-of-Mass det. time= 3.0 min ( 795.0 - 792.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	112.60'	11,368 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
112.60	150	0	0
114.00	500	455	455
116.00	844	1,344	1,799
118.00	3,350	4,194	5,993
119.00	7,400	5,375	11,368

Device	Routing	Invert	Outlet Devices
#1	Primary	112.60'	<b>36.0" Round Culvert</b> L= 110.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 112.60' / 101.30' S= 0.1027 ' /' Cc= 0.900 n= 0.023, Flow Area= 7.07 sf

**Primary OutFlow** Max=1.77 cfs @ 12.17 hrs HW=113.15' (Free Discharge)  
 ↑1=Culvert (Inlet Controls 1.77 cfs @ 1.99 fps)

**Summary for Pond 83PD: CULVERT X RT ONE**

Inflow Area = 3.530 ac, 40.17% Impervious, Inflow Depth > 2.32" for 25-YEAR event  
 Inflow = 5.63 cfs @ 12.23 hrs, Volume= 0.683 af  
 Outflow = 5.29 cfs @ 12.29 hrs, Volume= 0.677 af, Atten= 6%, Lag= 3.6 min  
 Primary = 5.29 cfs @ 12.29 hrs, Volume= 0.677 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 104.05' @ 12.29 hrs Surf.Area= 2,012 sf Storage= 1,290 cf

Plug-Flow detention time= 8.5 min calculated for 0.675 af (99% of inflow)  
 Center-of-Mass det. time= 5.2 min ( 833.1 - 827.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	102.90'	5,682 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

**CFV LOT 5**

Type III 24-hr 25-YEAR Rainfall=5.80"

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Page 14

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.90	150	0	0
104.00	2,000	1,182	1,182
106.00	2,500	4,500	5,682

Device	Routing	Invert	Outlet Devices
#1	Primary	102.90'	<b>18.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 102.90' / 100.30' S= 0.0260 '/' Cc= 0.900 n= 0.023, Flow Area= 1.77 sf

**Primary OutFlow** Max=5.27 cfs @ 12.29 hrs HW=104.04' (Free Discharge)↑**1=Culvert** (Inlet Controls 5.27 cfs @ 3.64 fps)

**CFV LOT 5**

Type III 24-hr 100-YEAR Rainfall=8.10"

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Page 15

**Summary for Subcatchment 43.1: FRONTAGE ALONG ROUTE ONE**

Runoff = 6.83 cfs @ 12.20 hrs, Volume= 0.613 af, Depth&gt; 5.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-YEAR Rainfall=8.10"

Area (sf)	CN	Description
* 10,823	98	ROUTE ONE, Paved parking, HSG C
* 3,056	98	DRIVEWAY, Paved parking, HSG C
* 4,114	96	SHOULDER & WALKING TRAIL, Gravel surface, HSG C
* 21,373	75	Woods, Good, HSG C/D
* 20,329	69	Brush, Good, HSG C/D
59,695	80	Weighted Average
45,816		76.75% Pervious Area
13,879		23.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	80	0.1000	0.14		<b>Sheet Flow, SOUTH IN WOODS TO DITCH</b> Woods: Light underbrush n= 0.400 P2= 3.10"
5.4	371	0.0270	1.15		<b>Shallow Concentrated Flow, SOUTH WEST IN ROAD DITCH</b> Short Grass Pasture Kv= 7.0 fps
15.0	451	Total			

**Summary for Subcatchment 43.2: CENTER OF SITE**

Runoff = 12.52 cfs @ 12.09 hrs, Volume= 0.914 af, Depth&gt; 6.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-YEAR Rainfall=8.10"

Area (sf)	CN	Description
16,912	98	Roofs, HSG C
30,968	98	Paved parking, HSG C
26,692	74	>75% Grass cover, Good, HSG C
74,572	89	Weighted Average
26,692		35.79% Pervious Area
47,880		64.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					<b>Direct Entry,</b>

**Summary for Subcatchment 43.3: BACK OF SITE, LEFT**

Runoff = 2.35 cfs @ 12.13 hrs, Volume= 0.179 af, Depth&gt; 4.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-YEAR Rainfall=8.10"

**CFV LOT 5**

Type III 24-hr 100-YEAR Rainfall=8.10"

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Page 16

	Area (sf)	CN	Description
*	11,547	75	Woods, Good, HSG C/D
	7,949	74	>75% Grass cover, Good, HSG C
	19,496	75	Weighted Average
	19,496		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.7	100	0.2000	0.19		<b>Sheet Flow, SOUTH EAST DOWN SLOPE IN WOODS</b> Woods: Light underbrush n= 0.400 P2= 3.10"
0.6	80	0.0250	2.37		<b>Shallow Concentrated Flow, SOUTH EAST IN GRASSED DITCH</b> Grassed Waterway Kv= 15.0 fps
0.1	78	0.0640	11.48	9.01	<b>Pipe Channel,</b> 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
9.4	258	Total			

**Summary for Subcatchment 43.4: BACK OF LOT, RIGHT**

Runoff = 2.96 cfs @ 12.15 hrs, Volume= 0.236 af, Depth&gt; 5.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
Type III 24-hr 100-YEAR Rainfall=8.10"

	Area (sf)	CN	Description
*	451	98	ROUTE ONE, Paved parking, HSG C
*	1,405	98	DRIVEWAY, Paved parking, HSG C
*	709	96	SHOULDER & WALKING PATH, Gravel surface, HSG C
*	13,865	75	Woods, Good, HSG C/D
	8,098	74	>75% Grass cover, Good, HSG C
	24,528	77	Weighted Average
	22,672		92.43% Pervious Area
	1,856		7.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.7	115	0.2000	0.20		<b>Sheet Flow, EAST IN WOODS</b> Woods: Light underbrush n= 0.400 P2= 3.10"
1.3	245	0.0430	3.11		<b>Shallow Concentrated Flow, EAST IN DRIVEWAY DITCH</b> Grassed Waterway Kv= 15.0 fps
11.0	360	Total			

**Summary for Reach 43R: SOUTH IN ROAD DITCH TO POND 83P**

Inflow Area = 2.160 ac, 50.90% Impervious, Inflow Depth > 3.69" for 100-YEAR event  
 Inflow = 5.37 cfs @ 12.43 hrs, Volume= 0.665 af  
 Outflow = 5.35 cfs @ 12.46 hrs, Volume= 0.664 af, Atten= 1%, Lag= 1.5 min

**CFV LOT 5**

Type III 24-hr 100-YEAR Rainfall=8.10"

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Page 17

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 2.07 fps, Min. Travel Time= 0.8 min

Avg. Velocity = 0.87 fps, Avg. Travel Time= 1.9 min

Peak Storage= 260 cf @ 12.44 hrs

Average Depth at Peak Storage= 0.42'

Bank-Full Depth= 2.00' Flow Area= 22.0 sf, Capacity= 108.19 cfs

5.00' x 2.00' deep channel, n= 0.035 Earth, dense weeds

Side Slope Z-value= 3.0 '/' Top Width= 17.00'

Length= 100.0' Slope= 0.0100 '/'

Inlet Invert= 107.00', Outlet Invert= 106.00'

**Summary for Reach 44R: SOUTH EAST TO ROAD DITCH**

Inflow Area = 2.160 ac, 50.90% Impervious, Inflow Depth &gt; 3.71" for 100-YEAR event

Inflow = 5.52 cfs @ 12.35 hrs, Volume= 0.668 af

Outflow = 5.37 cfs @ 12.43 hrs, Volume= 0.665 af, Atten= 3%, Lag= 5.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Max. Velocity= 0.55 fps, Min. Travel Time= 2.6 min

Avg. Velocity = 0.27 fps, Avg. Travel Time= 5.3 min

Peak Storage= 839 cf @ 12.39 hrs

Average Depth at Peak Storage= 0.54'

Bank-Full Depth= 0.20' Flow Area= 3.4 sf, Capacity= 1.37 cfs

15.00' x 0.20' deep channel, n= 0.400 Sheet flow: Woods+light brush

Side Slope Z-value= 10.0 '/' Top Width= 19.00'

Length= 85.0' Slope= 0.1176 '/'

Inlet Invert= 117.00', Outlet Invert= 107.00'



**CFV LOT 5**

Type III 24-hr 100-YEAR Rainfall=8.10"

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Page 18

**Summary for Reach 183RD: STREAM EAST SIDE OF RT ONE POA 2**

Inflow Area = 3.530 ac, 40.17% Impervious, Inflow Depth > 4.32" for 100-YEAR event  
 Inflow = 9.00 cfs @ 12.46 hrs, Volume= 1.270 af  
 Outflow = 8.97 cfs @ 12.54 hrs, Volume= 1.265 af, Atten= 0%, Lag= 4.4 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Max. Velocity= 2.53 fps, Min. Travel Time= 2.6 min  
 Avg. Velocity= 0.97 fps, Avg. Travel Time= 6.9 min

Peak Storage= 1,417 cf @ 12.49 hrs  
 Average Depth at Peak Storage= 0.58'  
 Bank-Full Depth= 1.00' Flow Area= 7.0 sf, Capacity= 24.05 cfs

5.00' x 1.00' deep channel, n= 0.050  
 Side Slope Z-value= 2.0 ' Top Width= 9.00'  
 Length= 400.0' Slope= 0.0200 '  
 Inlet Invert= 0.00', Outlet Invert= -8.00'

**Summary for Pond 43P: UNDERDRAINED SOIL FILTER #1**

Inflow Area = 1.712 ac, 64.21% Impervious, Inflow Depth > 6.41" for 100-YEAR event  
 Inflow = 12.52 cfs @ 12.09 hrs, Volume= 0.914 af  
 Outflow = 4.32 cfs @ 12.37 hrs, Volume= 0.493 af, Atten= 65%, Lag= 16.8 min  
 Primary = 4.32 cfs @ 12.37 hrs, Volume= 0.493 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 125.31' @ 12.37 hrs Surf.Area= 8,937 sf Storage= 20,972 cf

Plug-Flow detention time= 165.6 min calculated for 0.493 af (54% of inflow)  
 Center-of-Mass det. time= 81.5 min ( 833.2 - 751.7 )

Volume	Invert	Avail.Storage	Storage Description	
#1	119.00'	27,764 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
119.00	3,435	0.0	0	0
119.10	3,435	30.0	103	103
122.40	3,435	30.0	3,401	3,504
122.50	3,435	100.0	343	3,847
124.00	6,208	100.0	7,232	11,079
125.50	9,342	100.0	11,663	22,742
126.00	10,746	100.0	5,022	27,764

**CFV LOT 5**

Type III 24-hr 100-YEAR Rainfall=8.10"

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Page 19

Device	Routing	Invert	Outlet Devices
#1	Primary	125.00'	<b>10.0' long x 5.0' breadth Broad-Crested Rectangular Weir</b> Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Primary	119.50'	<b>4.0" Round Culvert</b> L= 33.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 119.50' / 117.00' S= 0.0758 ' S= 0.0758 ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.09 sf
#3	Device 2	119.00'	<b>1.000 in/hr Exfiltration over Surface area</b>

**Primary OutFlow** Max=4.28 cfs @ 12.37 hrs HW=125.30' (Free Discharge)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 4.07 cfs @ 1.34 fps)

↑ **2=Culvert** (Passes 0.21 cfs of 0.78 cfs potential flow)

↑ **3=Exfiltration** (Exfiltration Controls 0.21 cfs)

### Summary for Pond 44P: PLUNGE POOL W/ LEVEL SPREADER

Inflow Area = 2.160 ac, 50.90% Impervious, Inflow Depth > 3.74" for 100-YEAR event  
Inflow = 5.49 cfs @ 12.34 hrs, Volume= 0.673 af  
Outflow = 5.52 cfs @ 12.35 hrs, Volume= 0.668 af, Atten= 0%, Lag= 0.4 min  
Primary = 5.52 cfs @ 12.35 hrs, Volume= 0.668 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Peak Elev= 117.77' @ 12.35 hrs Surf.Area= 348 sf Storage= 285 cf

Plug-Flow detention time= 5.5 min calculated for 0.668 af (99% of inflow)

Center-of-Mass det. time= 2.9 min ( 822.7 - 819.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	116.00'	371 cf	<b>Custom Stage Data (Prismatic)</b> Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
116.00	30	0	0
117.00	153	92	92
118.00	405	279	371

Device	Routing	Invert	Outlet Devices
#1	Primary	117.50'	<b>15.0' long x 2.0' breadth Broad-Crested Rectangular Weir</b> 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

**Primary OutFlow** Max=5.51 cfs @ 12.35 hrs HW=117.77' (Free Discharge)

↑ **1=Broad-Crested Rectangular Weir** (Weir Controls 5.51 cfs @ 1.34 fps)



**CFV LOT 5**

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Page 20

**Summary for Pond 82P: CULVERT X RT 1 POA 1**

Inflow Area = 0.563 ac, 7.57% Impervious, Inflow Depth > 5.03" for 100-YEAR event  
 Inflow = 2.96 cfs @ 12.15 hrs, Volume= 0.236 af  
 Outflow = 2.94 cfs @ 12.17 hrs, Volume= 0.235 af, Atten= 0%, Lag= 0.7 min  
 Primary = 2.94 cfs @ 12.17 hrs, Volume= 0.235 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 113.32' @ 12.17 hrs Surf.Area= 329 sf Storage= 233 cf

Plug-Flow detention time= 3.7 min calculated for 0.235 af (100% of inflow)  
 Center-of-Mass det. time= 2.6 min ( 783.1 - 780.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	112.60'	11,368 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
112.60	150	0	0
114.00	500	455	455
116.00	844	1,344	1,799
118.00	3,350	4,194	5,993
119.00	7,400	5,375	11,368

Device	Routing	Invert	Outlet Devices
#1	Primary	112.60'	<b>36.0" Round Culvert</b> L= 110.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 112.60' / 101.30' S= 0.1027 ' /' Cc= 0.900 n= 0.023, Flow Area= 7.07 sf

**Primary OutFlow** Max=2.88 cfs @ 12.17 hrs HW=113.31' (Free Discharge)  
 ↑1=Culvert (Inlet Controls 2.88 cfs @ 2.26 fps)

**Summary for Pond 83PD: CULVERT X RT ONE**

Inflow Area = 3.530 ac, 40.17% Impervious, Inflow Depth > 4.34" for 100-YEAR event  
 Inflow = 9.58 cfs @ 12.36 hrs, Volume= 1.277 af  
 Outflow = 9.00 cfs @ 12.46 hrs, Volume= 1.270 af, Atten= 6%, Lag= 6.0 min  
 Primary = 9.00 cfs @ 12.46 hrs, Volume= 1.270 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs  
 Peak Elev= 104.77' @ 12.46 hrs Surf.Area= 2,192 sf Storage= 2,915 cf

Plug-Flow detention time= 6.9 min calculated for 1.266 af (99% of inflow)  
 Center-of-Mass det. time= 4.9 min ( 809.5 - 804.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	102.90'	5,682 cf	<b>Custom Stage Data (Prismatic)</b> Listed below

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Page 21

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
102.90	150	0	0
104.00	2,000	1,182	1,182
106.00	2,500	4,500	5,682

Device	Routing	Invert	Outlet Devices
#1	Primary	102.90'	<b>18.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 102.90' / 100.30' S= 0.0260 '/' Cc= 0.900 n= 0.023, Flow Area= 1.77 sf

**Primary OutFlow** Max=8.99 cfs @ 12.46 hrs HW=104.77' (Free Discharge)↑**1=Culvert** (Inlet Controls 8.99 cfs @ 5.09 fps)

**Inspection and Maintenance Plan  
For Stormwater Management Facilities  
Belted Cow, Lot 5, Cumberland Foreside Village  
Cumberland, Maine**

**August, 2018**

Stormwater management facilities include paved surfaces, ditches/swales, catch basins, culverts, storm drain pipe, and a grassed underdrain soil filters. The maintenance of all stormwater measures, the establishment of any contract services required to implement the program, and the keeping of records and maintenance log book will be the responsibility of the Owner.

At a minimum, the following inspection and maintenance activities for each stormwater management system shall be performed on a prescribed schedule as follows:

**Recertification Requirement**

Within three months of the expiration of each five-year interval from the date of issuance of the permit, the Owner shall certify the following to the department:

- a) All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.
- b) All aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the facilities.
- c) The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the department and the maintenance log is being maintained and kept on file with Town Engineers office.
- d) A copy of the certification along with any required mitigation shall be provided to the Town Engineer.

**Paved Surfaces**

The Owner shall retain a contractor to remove accumulations of winter sand along paved surfaces shall be cleared at least once a year, preferably in the spring, and periodically during the year on an as-needed basis, to minimize transportation of sediment during rainfall events. Accumulations on pavement may be removed by pavement sweeping or vacuuming. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader.

## **Ditches and Swales**

Open swales and ditches shall be inspected twice per year (in spring and fall) to assure that debris and/or sediments do not reduce the effectiveness of the system. Debris and sediments shall be removed at that time. Any sign of erosion or blockage shall be immediately repaired to assure a vigorous growth of vegetation for the stability of the ditches and slopes proper function. Maintenance shall include, but not be limited to, mowing, trimming and removal of vegetation in the ditches and slopes as required in order to prevent vegetation from blocking or diverting storm flows, replacement of riprap channel lining to prevent scour of the channel invert, removing vegetation and debris from the culverts.

Vegetated ditches should be mowed at least monthly during the growing season. Larger brush or trees must not be allowed to become established in the channel. Any areas where the vegetation fails will be subject to erosion and should be reseeded and mulched immediately.

## **Catch Basins**

All catch basins, and any other field inlets throughout the collection system, shall be inspected twice per year (in spring and fall) to assure that the inlet entry and grates are clear of debris and will accept the intended flows. Any debris and sediments shall be cleared.

Sediment should be removed from these structures when it accumulates within 12 inches of the lowest pipe invert. At a minimum, remove floating debris and hydrocarbons at the time of the inspection. The removed material must be disposed of in accordance with the Maine Solid Waste Disposal Rules. Confined space entry safety procedures shall be practiced should entry into these structures be required.

## **Culverts and Storm Drainage Pipes**

Culverts and piped drainage systems shall be inspected on an annual basis to remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit; and to repair any erosion damage at the pipe inlet and outlet. Sediment should be removed when its level exceeds 20% of the pipe diameter. This may be accomplished by hydraulic flushing or any mechanical means; however, care should be taken to contain the sediment at the pipe outlet, and not flush the sediments into the stormwater filter or wetland areas.

Riprap aprons where stone is displaced should be replaced and chinked to assure stability. With time, additional riprap may be added. Vegetation growing through riprap should be removed on an annual basis.

## **Underdrained Soil Filters**

Mowing and removal of woody growth – underdrained soil filters are designed to grow water tolerant plantings and mowing is not required in the interior of the structure. However, the external and top slopes of earthen embankments will be mowed up to three times per growing season to control over growth.

Outlet inspection and cleaning – The soil filter outlet consists of a layer of planting loam and sand with a stone and perforated pipe underdrain. Influx of sediments will be limited by sumps on all upstream catch basin structures and vegetated swales. Outlet inspections shall include flushing of the underdrain through the cleanouts at the end of the pipes. Trash, sediment, and debris shall be removed from the vicinity of the outlet and disposed of at a licensed off-site facility. The basin shall be inspected bi-annually for evidence of excessive retention or rapid release of flow.

If the filter fails to drain within 72 hours, the surface of the pond shall be rototilled to promote aeration of the filter media and vegetation shall be re-established. If aeration of the surface soil fails to promote filtration of impounded water within 72 hours, then the filter media shall be replaced as necessary. The stone underdrain shall also be replaced at this time, along with the perforated pipe.

If the filter drains too rapidly, (i.e. prior to 24 hours), then an adjustable orifice shall be installed on the underdrain outlet pipe. The orifice shall be adjusted such that the filter completely drains within 24 to 72 hours.

Underdrained soil filters shall not be used for snow storage area.

Vehicular equipment used to maintain or rehabilitate underdrained soil filters should work from the basin perimeter and not enter the basin area, as this will compact the soil surface and reduce the design infiltration rate.

## **Disposal**

Any sediment or debris removed during maintenance of the stormwater system must be disposed of in accordance with the Maine Solid Waste Disposal Rules.

**Sample Inspection Report:**

BELTED COW, LOT 5, CUMBERLAND FORESIDE VILLAGE  
CUMBERLAND, MAINE  
STORMWATER FACILITIES INSPECTION REPORT

NAME: \_\_\_\_\_ SIGNATURE: \_\_\_\_\_

TITLE: \_\_\_\_\_ COMPANY: \_\_\_\_\_

DATE: \_\_\_\_\_

OBSERVATIONS:

<u>BMP</u>	<u>Defects</u>	<u>Location(s)</u>	<u>Repair/Action Needed</u>	<u>Date/Action taken</u>
Ditches/ Swales	Yes/no			
Paved Areas	Yes/no			
Catch Basins	Yes/no			
Pipes and Culverts	Yes/no			
Riprap Aprons	Yes/no			
Grassed Underdrained Soil Filters	Yes/no			



## **HOUSEKEEPING REPORT**

### **BELTED COW, LOT 5, CUMBERLAND FORESIDE VILLAGE CUMBERLAND, MAINE**

**August, 2018**

Housekeeping: The developer is responsible for notifying the contractor and owner of the housekeeping standards.

1. **Spill Prevention:** The contractor and owners need to take care with construction and waste materials such that contaminants 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.

Staging areas are noted on the plans for the contractor's use. 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. Petroleum products should be stored in manufactured cans designed for the purpose. Spill preventions procedures should be followed.
3. **Fugitive Sediment and Dust:** The contractor is required to minimize dust from the construction operation. The road should be swept regularly (weekly) and prior to any rain event. The gravel areas are to be watered regularly to minimize dust. Any mud that is tracked off site should be cleaned up prior to it drying and becoming a dust issue.

Do not use oil to control dust.

Dewatering a stream without a permit from the Department may violate state water quality standards and the Natural Resources Protection Act.

4. **Debris and Other Materials:** 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.

Storage Handling and Disposal of Solid Waste items must comply with Maine's Solid Waste Management Rules. Lack of appropriate pollutant control may result in violations of the Groundwater Quality Standards.

This project has a written Erosion Control Plan and Stormwater Maintenance Plan. Modifications to the plan must be approved by the Town.

Maintenance of stormwater treatment and control systems must occur regularly. The Stormwater Maintenance Report provides inspection details and time lines for doing the inspections and reporting to the Town and DEP.



BELTED COW HEADQUARTERS  
CUMBERLAND FORESIDE VILLAGE, LOT 5  
U.S. ROUTE ONE  
CUMBERLAND, MAINE

Prepared For:  
BELTED COW  
247 PORTLAND STREET  
SUITE 500  
YARMOUTH, ME 04096  
SITE PLAN APPLICATION - August 28, 2018

Design Consultants:

CIVIL ENGINEER  
WALSH ENGINEERING  
ASSOCIATES, INC.  
ONE KAREN DRIVE, SUITE 2A  
WESTBROOK, MAINE 04092  
207-553-9898

LANDSCAPE ARCHITECT  
MOHR & SEREDIN LANDSCAPE  
ARCHITECTS, INC.  
18 PLEASANT STREET  
PORTLAND, ME 04101  
207-871-0003

LAND SURVEYOR  
MAINE SURVEY CONSULTANTS,  
INC.  
PO BOX 485  
HARRISON, MAINE  
207-583-6159

ARCHITECT  
DAVID MATERO ARCHITECTURE  
100 FRONT STREET, SUITE 40  
BATH, ME 04530  
207-389-4278

SOIL SCIENTIST  
MARK HAMPTON ASSOCIATES  
PO BOX 1931  
PORTLAND, ME 04101  
207-773-8650

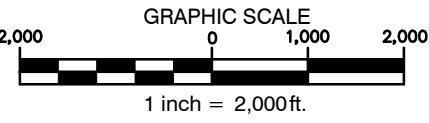
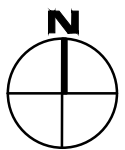
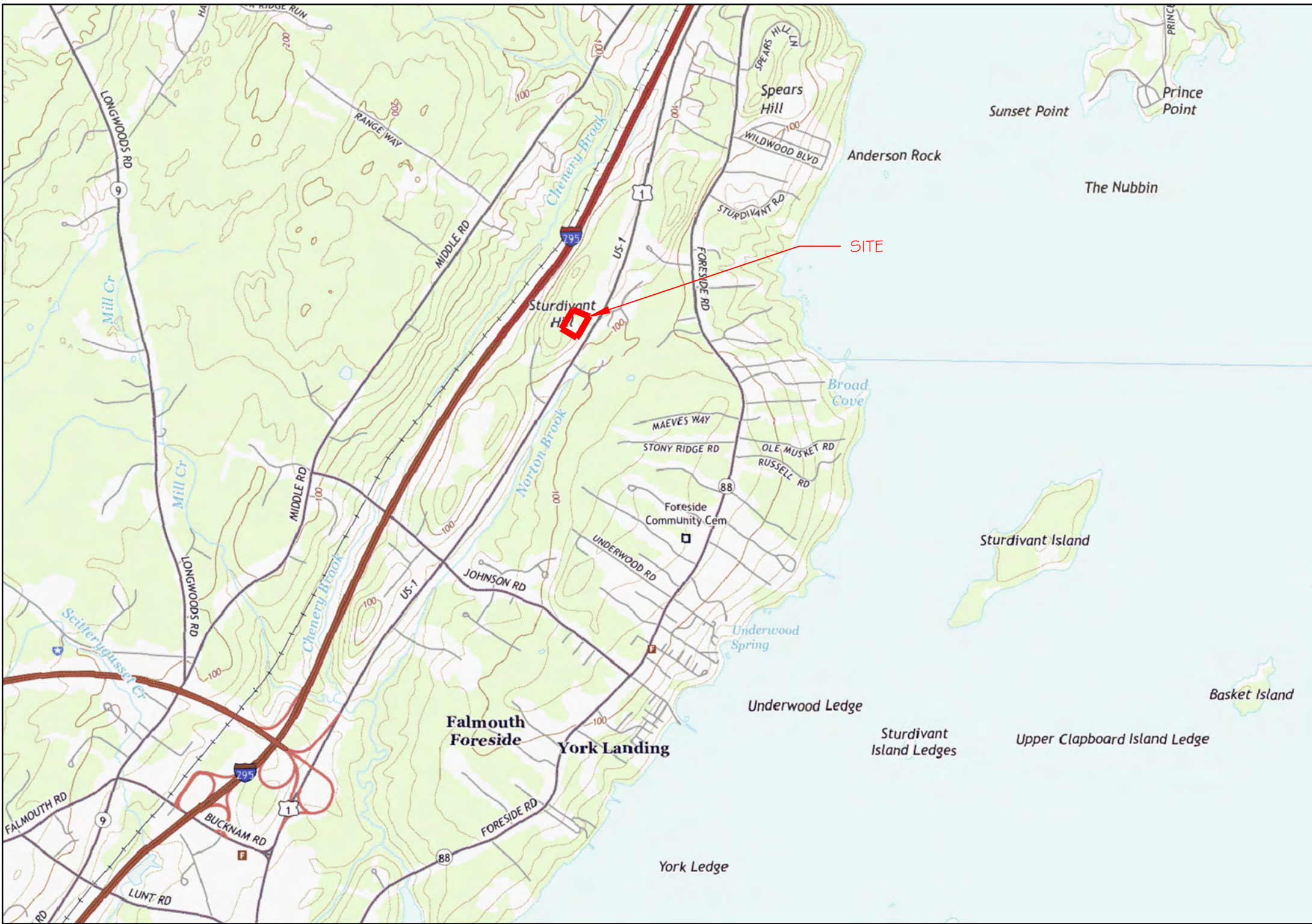
PROJECT MANAGEMENT  
PROJECTS RESOURCES, INC.  
PO BOX 661  
YARMOUTH, ME 04096

TRAFFIC ENGINEER  
TRAFFIC SOLUTIONS  
235 BANCROFT ST  
PORTLAND, ME 04102  
207-774-3603

ELECTRICAL ENGINEERING  
BENNETT ENGINEERING  
7 BENNETT ROAD  
PO BOX 297  
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207-865-9475

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List of Drawings:

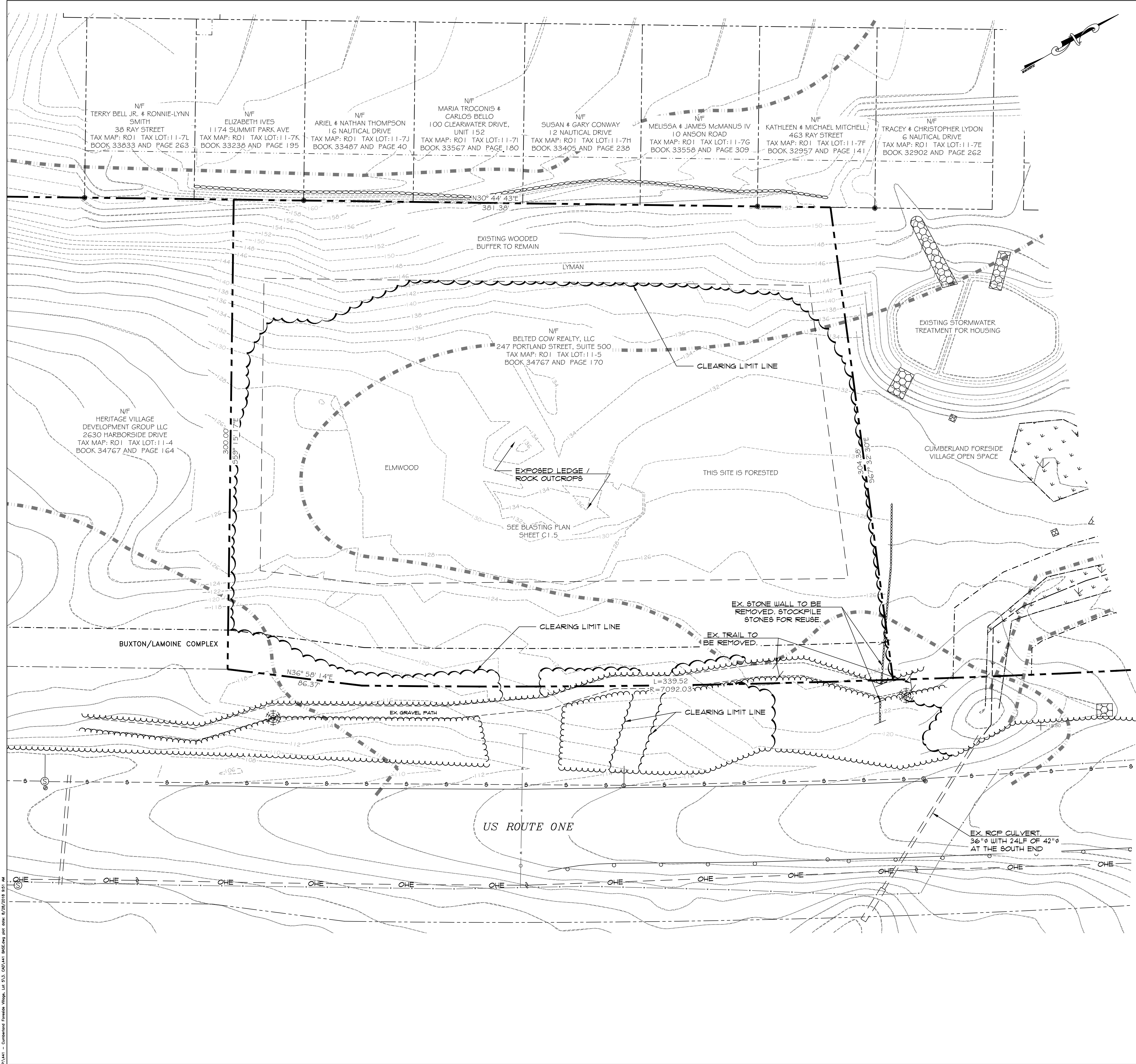
SHEET NO.	SHEET TITLE
	COVER SHEET
C1.1	SITE PLAN
C1.2	EXISTING CONDITIONS AND DEMOLITION PLAN
C1.3	GRADING AND UTILITY PLAN
C1.4	CROSS-SECTION
C1.5	BLASTING PLAN
C1.6	LOADING DOCK TRUCK PLAN
C2.0	UNDERDRAIN SOIL FILTER PLAN
C2.1	EROSION CONTROL PLAN
C3.0	EROSION CONTROL NOTES & DETAILS
C3.1	SITE DETAILS
C3.2	SITE DETAILS
L1.0	LANDSCAPE PLAN
L1.1	LANDSCAPE DETAILS
D1.0	DRAINAGE ANALYSIS - EXISTING CONDITIONS 2006
D2.0	DRAINAGE ANALYSIS - DEVELOPED CONDITIONS & TREATMENT PLAN
A1.1	FLOOR PLAN
A1.2	MEZZANINE FLOOR PLAN
A2.1	PROPOSED ELEVATIONS
A2.2	COLOR RENDERING
1-SD	FOURTH AMENDED SUBDIVISION PLAN

Record Owner:  
BELTED COW REALTY, LLC  
247 PORTLAND STREET, SUITE 500  
YARMOUTH, MAINE  
C.C.R.D. BK: 34767 PG: 170

Parcel ID:  
MAP R01  
LOT 11-5







LEGEND

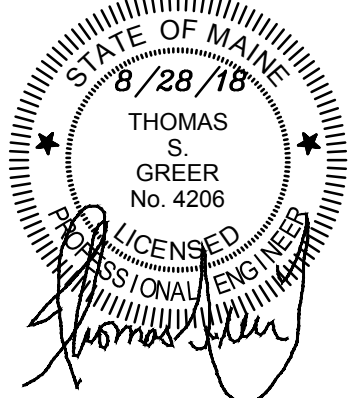
EXISTING

- PROPERTY LINE
- BUILDING SETBACK
- ABUTTERS PROPER
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- CONTOURS
- WETLAND LIMIT
- WATERCOURSE
- SANITARY SEWER
- OVERHEAD UTILITY
- WATER LINE
- SEWER MANHOLE
- UTILITY POLE
- TREE
- TREELINE
- GUARDRAIL
- BENCHMARK
- STONE WALL
- SOILS BOUNDARY

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BELTED COW HEADQUARTERS

U.S. ROUTE ONE  
CUMBERLAND, MAINE

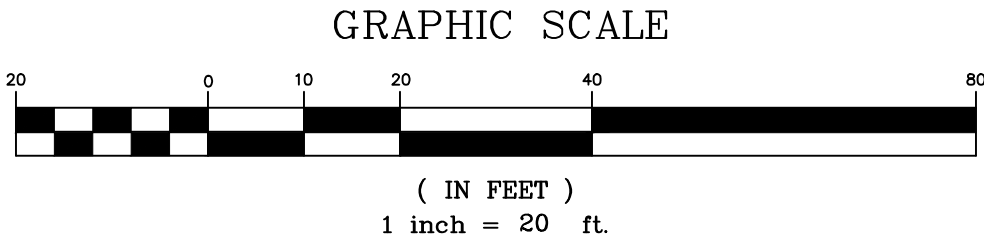
BELTED COW

247 PORTLAND STREET  
SUITE 500  
YARMOUTH, ME 04096

Rev.	Date	Description	Drawn	Check

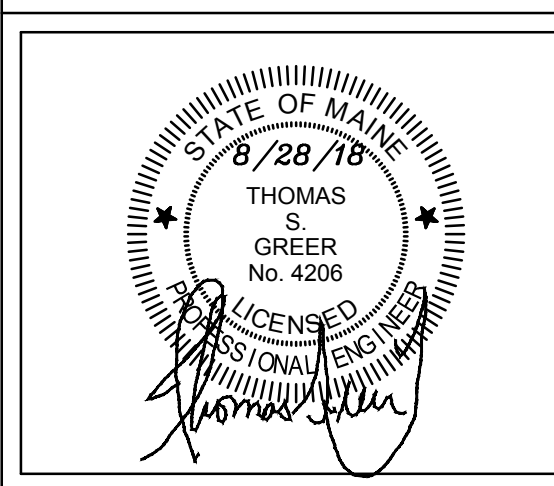
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EXISTING  
CONDITIONS AND  
DEMOLITION PLAN

Job No.:	441	Sheet No.:	C1.2
Date:	8/28/18	Scale:	AS SHOWN
Drawn:	JWG	Checked:	TSG





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STATE OF MAINE  
6/28/18  
THOMAS S. GREER  
No. 4206  
LICENSED PROFESSIONAL ENGINEER

U.S. ROUTE ONE  
CUMBERLAND, MAINE

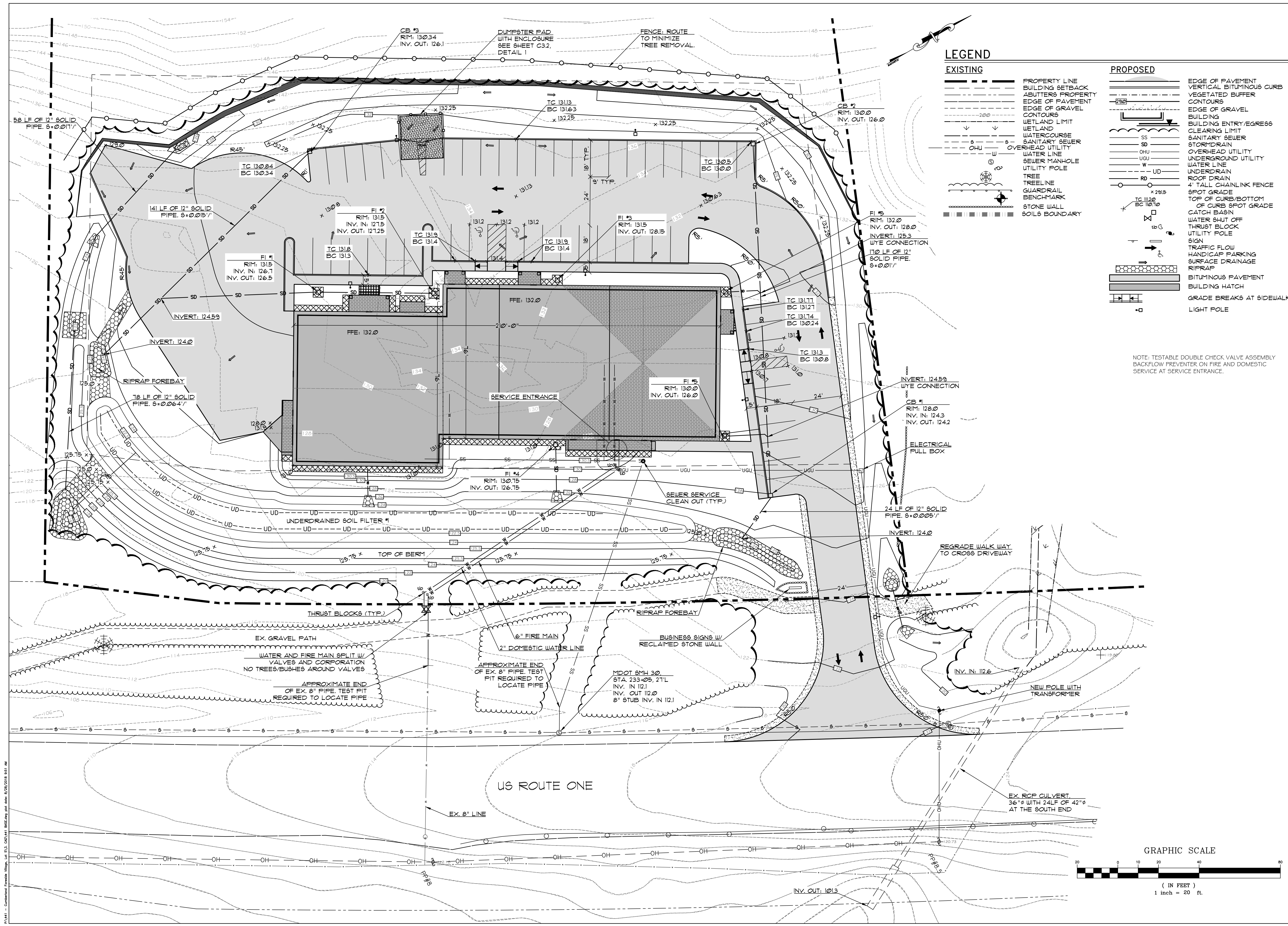
BELTED COW HEADQUARTERS  
U.S. ROUTE ONE  
CUMBERLAND, MAINE

BELTED COW  
247 PORTLAND STREET  
SUITE 500  
YARMOUTH, ME 04096

Rev.	Date	Description	Drawn	Check

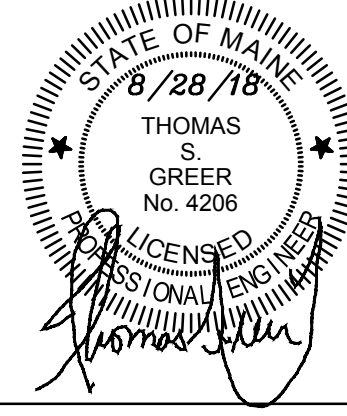
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Job No.: 441	Sheet No.: C1.3
Date: 8/28/18	Scale: AS SHOWN
Drawn: JWG	Checked: TSG

MAP: R01 / LOT: 11-5



P:\441 - Cumberland Farms Village, Lot 833, DOW 441 BUC-Eng job.dwg 8/28/2018 9:51 AM





**BELTED COW HEADQUARTERS**  
U.S. ROUTE ONE  
CUMBERLAND, MAINE

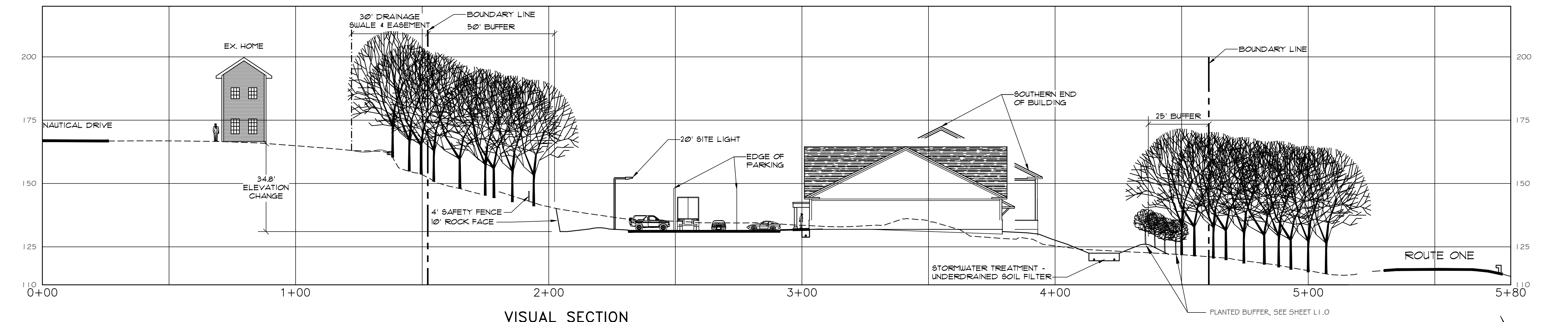
**BELTED COW**  
247 PORTLAND STREET  
SUITE 500  
YARMOUTH, ME 04096

Rev.	Date	Description	Drawn	Check

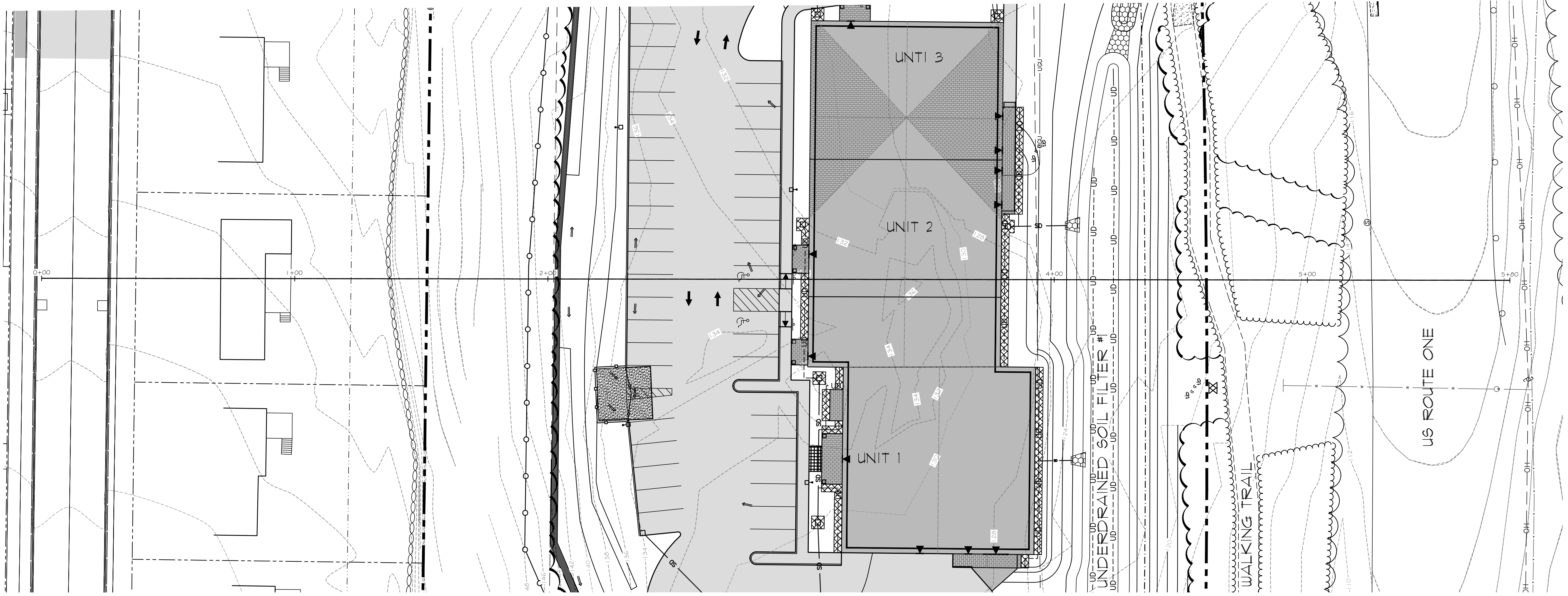
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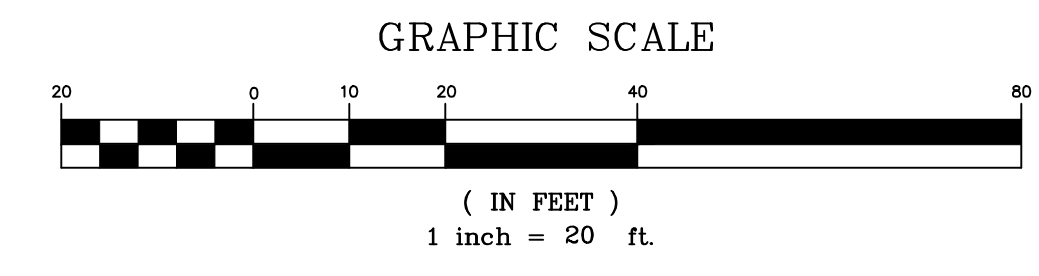
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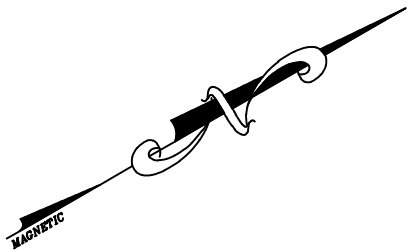
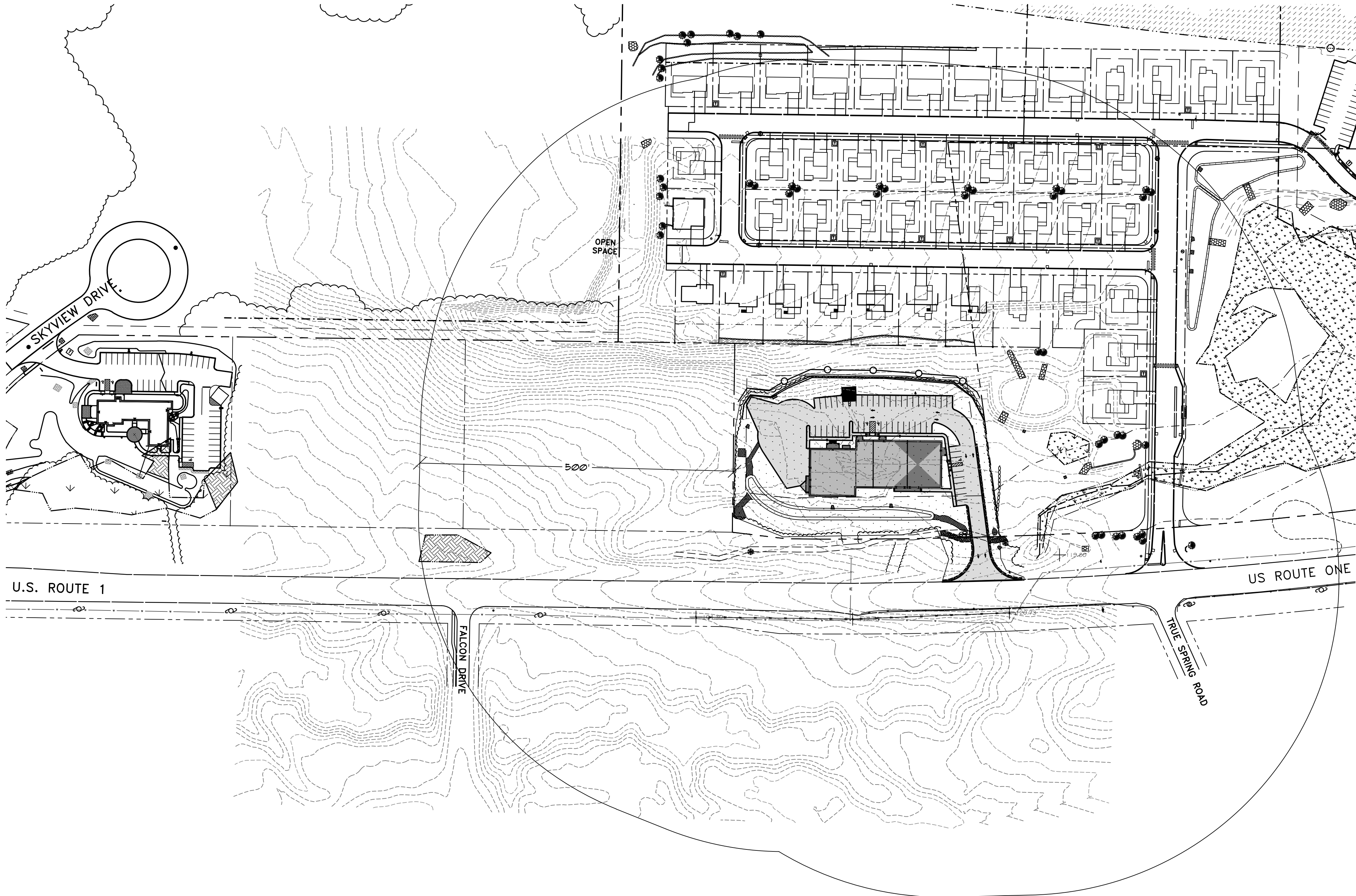
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SCALE: HORIZ. 1"=20'  
VERT. 1"=20'



**VISUAL SECTION PLAN**  
SCALE: 1"=20'



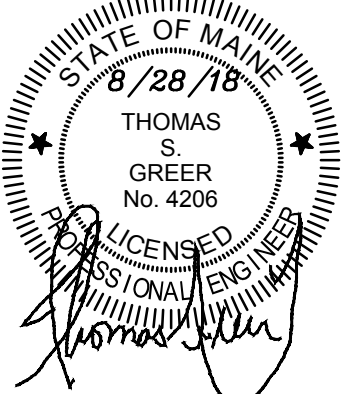
P:\441 - Cumberland Foreside Village, Lot 833, DOV441 BUC-Eng plot.dwg 8/28/2018 9:50 AM



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## BELTED COW HEADQUARTERS

U.S. ROUTE ONE  
CUMBERLAND, MAINE

**BELTED COW**

247 PORTLAND STREET  
SUITE 500  
YARMOUTH, ME 04096

### ROCK REMOVAL GUIDELINES:

THESE GUIDELINES APPLY TO ROCK REMOVAL ASSOCIATED WITH THE CONSTRUCTION OF THE BUILDING, ROAD, AND UTILITIES AT CUMBERLAND FORESIDE VILLAGE, LOT 5, BELTED COW. ROCK EXCAVATION IS THE REMOVAL AND DISPOSAL OF MATERIALS THAT CANNOT BE EXCAVATED WITHOUT MODERN, TRACK-MOUNTED, HEAVY-DUTY EXCAVATING EQUIPMENT, WITHOUT DRILLING, BLASTING, OR RIPPING. TYPICAL MATERIALS CLASSIFIED AS ROCK ARE SOLID ROCK, ROCK IN LEDGES, AND ROCKHARD CEMENTITIOUS AGGREGATE DEPOSITS ONE CUBIC YARD OR MORE IN VOLUME.

### NOTIFICATIONS:

- THE CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE ADJACENT PROPERTIES A MINIMUM OF ONE WEEK IN ADVANCE OF PRE-BLAST SURVEYS. A WRITTEN SCHEDULE OF THE LIKELY BLASTING WILL BE FILED WITH THE PLANNING DEPARTMENT PRIOR TO CONSTRUCTION AND WILL BE UPDATED MONTHLY UNTIL THE WORK IS COMPLETE.

### BLASTING PROCEDURES:

ALL BLASTING WILL BE PERFORMED IN ACCORDANCE WITH ALL PERTINENT PROVISIONS OF THE "MANUAL OF ACCIDENT PREVENTION IN CONSTRUCTION" ISSUED BY THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC., AND MAINE DEPARTMENT OF TRANSPORTATION SPECIFICATIONS SECTION 105.2.7, "USE OF EXPLOSIVES". BLASTING THROUGH THE OVERBURDEN WILL BE ALLOWED UNDER THE FOLLOWING CONDITIONS:

- ALL BLASTS MUST BE COVERED WITH APPROPRIATE MATS AND/OR EARTH.
- DRILLING EQUIPMENT WILL BE EQUIPPED WITH SUITABLE DUST CONTROL APPARATUS THAT MUST BE KEPT IN REPAIR AND USED DURING ALL DRILLING OPERATIONS.
- BLASTING WILL NOT PRODUCE PEAK PARTICLE VELOCITIES IN EXCESS THOSE SHOWN IN FIGURE B-1 APPENDIX B, U.S. BUREAU OF MINES REPORT OF INVESTIGATIONS 8507, AT THE CLOSEST STRUCTURE OR WATER SUPPLY WELL.
- SOUND FROM CONSTRUCTION OF DEVELOPMENTS.
  - THE SOUND FROM CONSTRUCTION ACTIVITIES BETWEEN 7:00 P.M. AND 7:00 A.M. IS SUBJECT TO THE FOLLOWING LIMITS:
    - SOUND FROM NIGHTTIME CONSTRUCTION ACTIVITIES SHALL BE SUBJECT TO THE NIGHTTIME ROUTINE OPERATION SOUND LEVEL LIMITS CONTAINED IN SECTION 10. "NOISE CONTROL", C. "NOISE LEVEL LIMITS" SUBSECTIONS 1(a) AND 1(b) OF MAINE DEP CHAPTER 375 "NO ADVERSE EFFECT STANDARDS OF THE SITE LOCATION OF DEVELOPMENT".
    - IF CONSTRUCTION ACTIVITIES ARE CONDUCTED CONCURRENTLY WITH ROUTINE OPERATION, THEN THE COMBINED TOTAL OF CONSTRUCTION AND ROUTINE OPERATION SOUND SHALL BE SUBJECT TO THE NIGHTTIME ROUTINE OPERATION SOUND LEVEL LIMITS CONTAINED IN SUBSECTIONS 1(a) AND 1(b).
    - HIGHER LEVELS OF NIGHTTIME CONSTRUCTION SOUND ARE PERMITTED WHEN A DULY ISSUED PERMIT AUTHORIZING NIGHTTIME CONSTRUCTION SOUND IN EXCESS OF THESE LIMITS HAS BEEN GRANTED BY:

- THE LOCAL MUNICIPALITY WHEN THE DURATION OF THE NIGHTTIME CONSTRUCTION ACTIVITY IS LESS THAN OR EQUAL TO 90 DAYS.

- THE LOCAL MUNICIPALITY AND THE BOARD WHEN THE DURATION OF THE NIGHTTIME CONSTRUCTION ACTIVITY IS GREATER THAN 90 DAYS.

- SOUND FROM CONSTRUCTION ACTIVITIES BETWEEN 7:00 A.M. AND 7:00 P.M. SHALL NOT EXCEED THE FOLLOWING LIMITS AT ANY PROTECTED LOCATION:

DURATION OF ACTIVITY	HOURLY SOUND LEVEL LIMIT
1/2 HOURS	87 DBA
8 HOURS	90 DBA
6 HOURS	92 DBA
4 HOURS	95 DBA
3 HOURS	97 DBA
2 HOURS	100 DBA
1 HOUR OR LESS	105 DBA

- ALL EQUIPMENT USED IN CONSTRUCTION ON DEVELOPMENT SITES SHALL COMPLY WITH APPLICABLE FEDERAL NOISE REGULATIONS AND SHALL INCLUDE ENVIRONMENTAL NOISE CONTROL DEVICES IN PROPER WORKING CONDITION, AS ORIGINALLY PROVIDED WITH THE EQUIPMENT BY ITS MANUFACTURER.
- ALL BLASTS MUST BE MONITORED USING FIELD SEISMOGRAPHS. ALL FIELD SEISMOGRAPHS MUST RECORD THE FULL ANALOG WAVE FORM OF EACH OF THE 3 MUTUALLY PERPENDICULAR COMPONENTS OF MOTION IN TERMS OF PARTICLE VELOCITY. ALL SEISMOGRAPHS MUST BE CAPABLE OF SENSOR CHECK AND MUST BE CALIBRATED ACCORDING TO THE MANUFACTURERS RECOMMENDATIONS.
- TO THE EXTENT POSSIBLE, BLASTING WILL BE ACCOMPLISHED TOWARD AN OPEN FACE FOR RELIEF PURPOSES.
- FLYROCK. THE CONTRACTOR IS TO CONTROL FLYROCK WITH MATS OR OTHER SUITABLE COVER TO PREVENT FLYROCK FROM ENTERING ANY WETLANDS.

### PRE-BLAST SURVEY:

- THE CONTRACTOR WILL CONDUCT A PRE-BLAST SURVEY OF ALL STRUCTURES WITHIN 500' OF THE BLAST AREA, AND PROVIDE THE TOWN WITH A WRITTEN REPORT OF THE PRE-BLAST SURVEY PRIOR TO ANY BLASTING. AT A MINIMUM THE SURVEY WILL COVER THE EXTERIOR OF EACH BUILDING, INCLUDING EXPOSED FOUNDATIONS. INTERIOR SURVEYS ARE AT THE DISCRETION OF THE INDIVIDUAL PROPERTY OWNERS. VIDEO TAPE WITH VOICE MUST BE EMPLOYED AND CLEAR IDENTIFICATION OF EACH STRUCTURE AND PART OF THAT STRUCTURE IS REQUIRED.
- THE REPORT SUBMITTED TO THE TOWN ENGINEER MUST INCLUDE AS A MINIMUM A LIST OF THE HOMES AND OTHER BUILDINGS INSPECTED AND INDICATE THE TYPE OF INSPECTION.

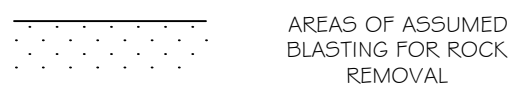
### TEST BLAST:

- THE BLASTING CONTRACTOR WILL DEVELOP A TEST SHOT UNDER THE OBSERVATION OF THE TOWN'S DESIGNATED INSPECTOR. THE TEST SHOT MUST BE INSTRUMENTED WITH AT LEAST TWO (2) RECORDING SEISMOGRAPHS ORIENTED AT RIGHT ANGLES TO EACH OTHER AND SPACED EQUIDISTANT FROM THE SHOT. THE SHOT AND SEISMOGRAPHS SHOULD BE ORIENTED TO PROVIDE DATA PARALLEL AND PERPENDICULAR TO THE GENERAL BEDROCK TREND AT THE SITE.

### RECORDS:

- THE CONTRACTOR WILL PROVIDE THE TOWN WITH A BLASTING LOG FOR ALL BLASTS INCLUDING THE TEST BLASTS. THE BLASTING LOG MUST CONTAIN THE FOLLOWING INFORMATION:
  - NAME OF BLASTING COMPANY OR BLASTING CONTRACTOR.
  - LOCATION, DATE, AND TIME OF BLAST.
  - NAMES, SIGNATURE, AND SOCIAL SECURITY NUMBER OF BLASTER.
  - TYPE OF MATERIAL BLASTED.
  - NUMBER AND SPACING OF HOLES AND DEPTH OF BURDEN OR STEMMING.
  - DIAMETER AND DEPTH OF HOLES.
  - TYPE OF EXPLOSIVES USED.
  - TOTAL AMOUNT OF EXPLOSIVES USED.
  - MAXIMUM AMOUNT OF EXPLOSIVES USED PER DELAY PERIOD OF 8 MILLISEC ONDS OR GREATER.
  - MAXIMUM NUMBER OF HOLES PER DELAY PERIOD OF 8 MILLISEC ONDS OR GREATER.
  - METHOD OF FIRING AND TYPE OF CIRCUIT.
  - DIRECTION AND DISTANCE IN FEET TO THE NEAREST DWELLING, PUBLIC BUILDING, SCHOOL, CHURCH OR COMMERCIAL OR INSTITUTIONAL BUILDING NEITHER OWNED NOR CONTROLLED BY THE DEVELOPER.
  - WEATHER CONDITIONS, INCLUDING FACTORS SUCH AS WIND DIRECTION AND CLOUD COVER.
  - HEIGHT OR LENGTH OF STEMMING.
  - AMOUNT OF MATS OR OTHER PROTECTION USED.
  - TYPE OF DETONATORS USED AND DELAY PERIODS USED.
  - THE EXACT LOCATION OF EACH SEISMOGRAPH AND THE DISTANCE OF EACH SEISMOGRAPH FROM THE BLAST.
  - SEISMOGRAPHIC READINGS.
  - NAME AND SIGNATURE OF THE PERSON OPERATING EACH SEISMOGRAPH.
  - NAMES OF THE PERSON AND THE FIRM ANALYZING THE SEISMOGRAPHIC DATA.

### SHEET LEGEND



### GRAPHIC SCALE



( IN FEET )  
1 inch = 100 ft.

Rev.	Date	Description	Drawn	Check

Sheet Title:

## BLASTING PLAN

Job No.: 441

Sheet No.:

Date: 8/28/18

Scale: AS SHOWN

Drawn: JWG

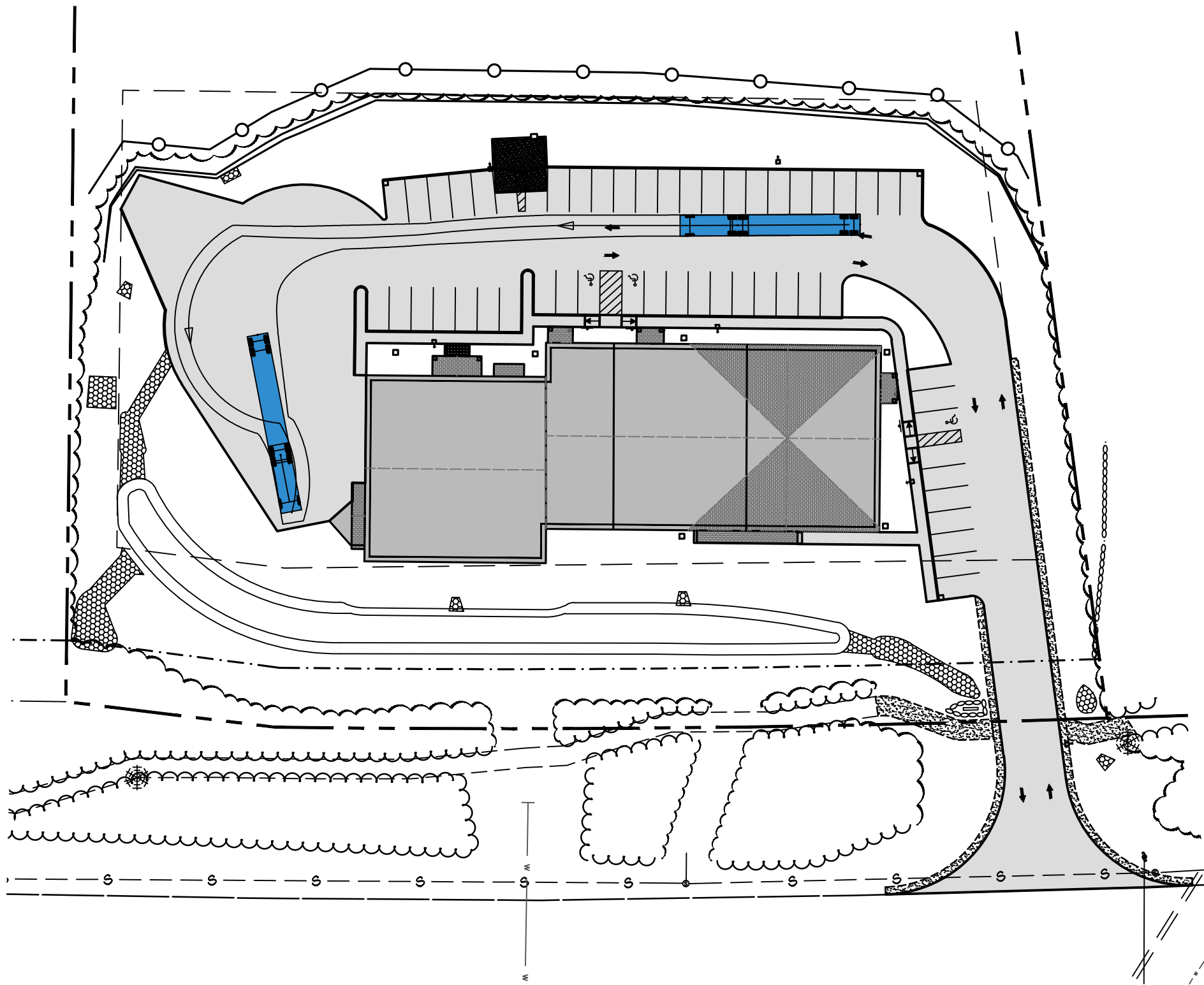
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# C15

MAP: R01 / LOT: 11-5

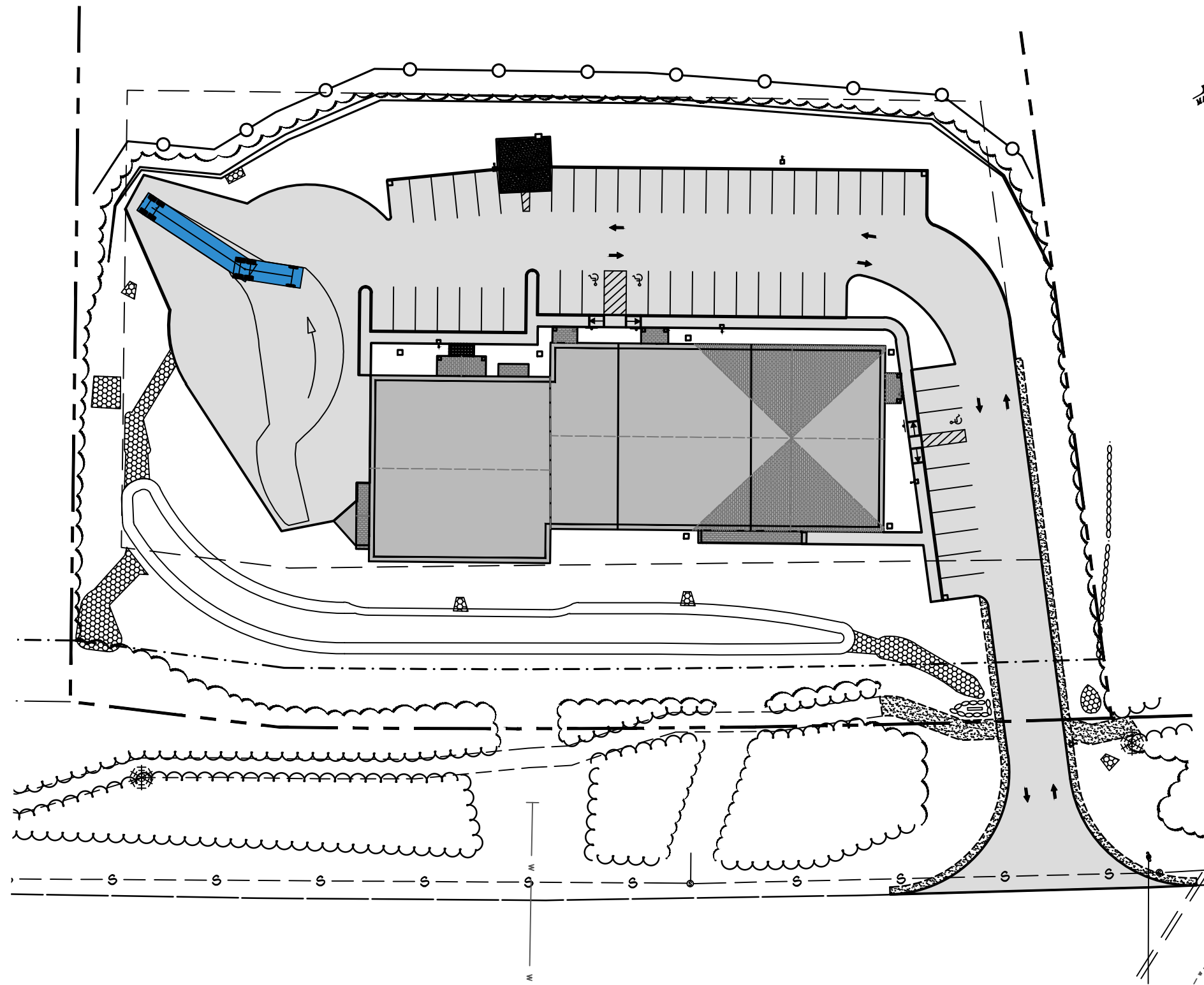


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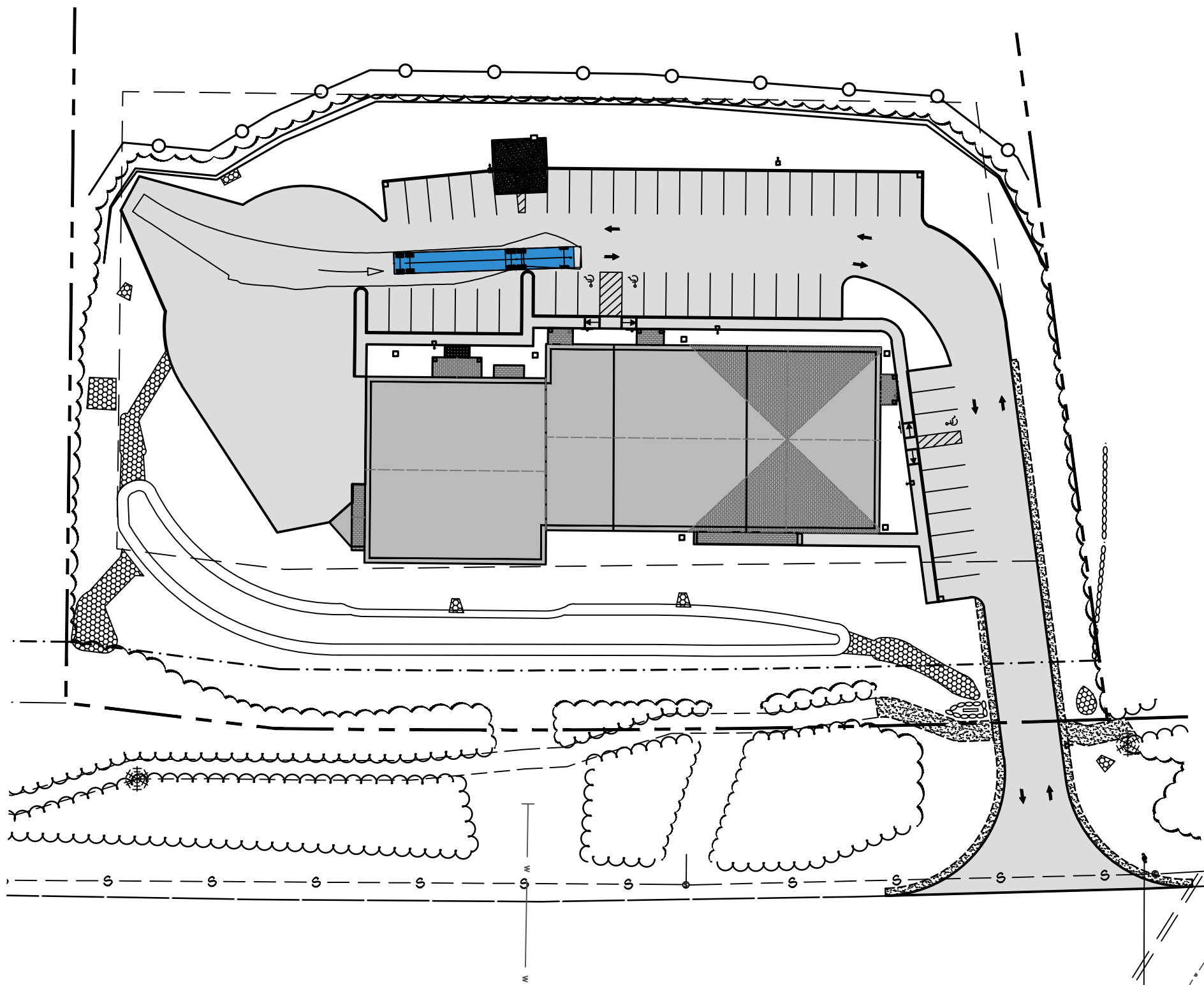
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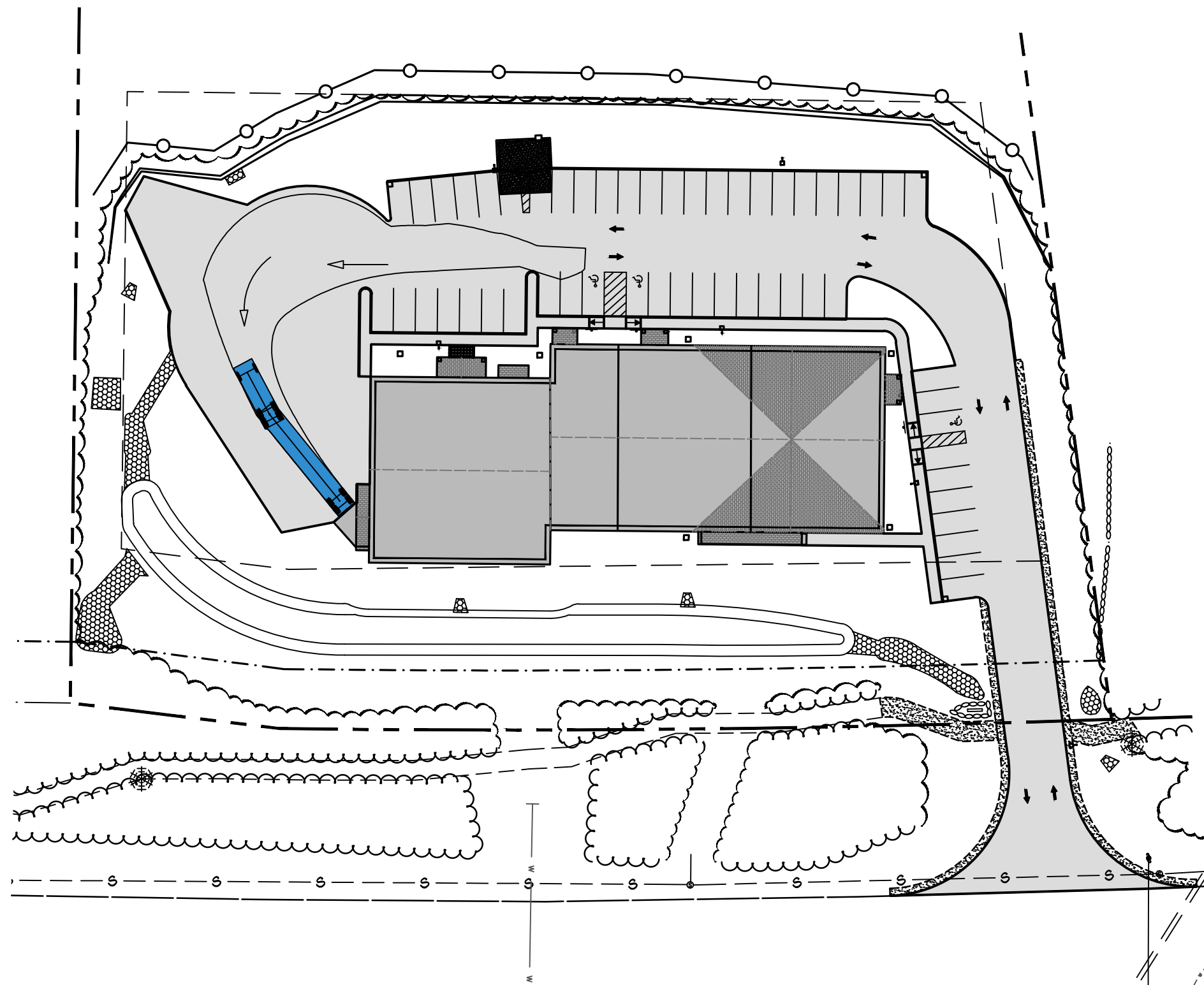
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STEP 3

SCALE: 1"=50'



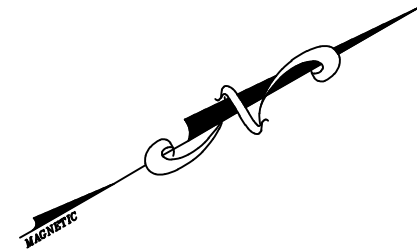
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GRAPHIC SCALE

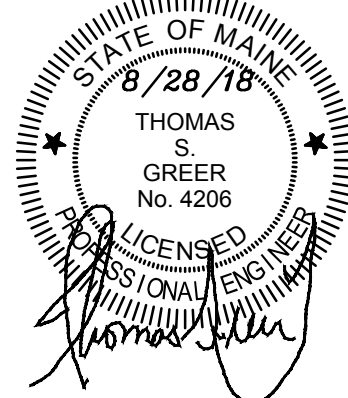
( IN FEET )  
1 inch = 50 ft.



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**BELTED COW HEADQUARTERS**

U.S. ROUTE ONE  
CUMBERLAND, MAINE

**BELTED COW**

247 PORTLAND STREET  
SUITE 500  
YARMOUTH, ME 04096

Rev.	Date	Description	Drawn	Check

Sheet Title:

**LOADING DOCK  
TRUCK PLAN**

Job No.: 441  
Date: 8/28/18  
Scale: AS SHOWN  
Drawn: JWG  
Checked: TSG

Sheet No.:

**C1.6**

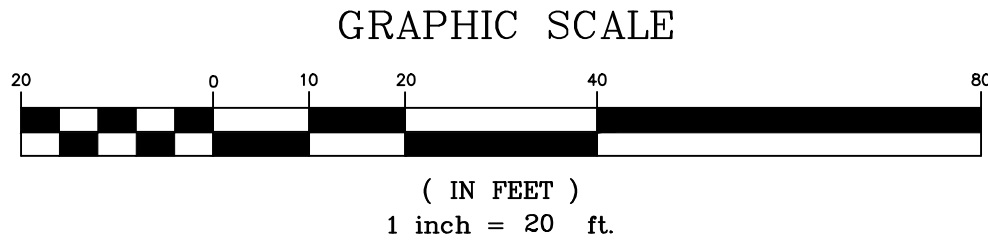
MAP: R01 / LOT: 11-5



INSPECTION OF THE FILTER BASIN MUST BE COMPLETED FOR EACH PHASE OF CONSTRUCTION BY THE DESIGN ENGINEER WITH REQUIRED REPORTING TO THE DEP. ALL MATERIAL INTENDED FOR THE FILTER BASIN MUST BE APPROVED BY THE DESIGN ENGINEER AFTER TESTS BY A CERTIFIED LABORATORY SHOW THAT THE MATERIAL CONFORMS TO ALL DEP SPECIFICATIONS.

- AFTER THE FILTER HAS BEEN CONSTRUCTED TO SUBGRADE.
- AFTER THE INSTALLATION OF THE FILTER LINER.
- AFTER INSTALLATION OF THE UNDERDRAIN PIPES HAVE BEEN INSTALLED, BUT NOT BACKFILLED.
- AFTER THE DRAINAGE LAYER IS CONSTRUCTED AND PRIOR TO INSTALLATION OF THE SOIL FILTER MEDIA.
- AFTER THE SOIL FILTER MEDIA HAS BEEN INSTALLED, SEEDS AND MULCHES.
- AFTER ONE YEAR TO INSPECT VEGETATION AND MAKE CORRECTIONS.

- SUBMIT SAMPLES OF EACH TYPE OF MATERIAL TO BE BLENDED FOR THE MIXED FILTER MEDIA AND SAMPLES OF THE UNDERDRIN 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 COARSE AGGREGATES: 1936A) ON EACH TYPE OF THE SAMPLE MATERIAL.
- PERFORM A PERMEABILITY TEST ON THE SOIL FILTER MEDIA MIXTURE CONFORMING TO ASTM D4234 WITH THE MIXTURE COMPACTED TO 90-92% OF MAXIMUM DRY DENSITY BASED ON ASTM D698.



1. THE SOIL FILTER MUST BE AT LEAST 12 INCHES DEEP AND MUST EXTEND ACROSS THE BOTTOM OF THE ENTIRE FILTER AREA AND UP THE SIDES TO THE DEPTH OR ELEVATION SPECIFIED. THIS SOIL MIXTURE SHALL BE A UNIFORM MIX, FREE OF ANY FOREIGN SUBSTANCES, AND SHALL BE HEAVIER THAN THE SOIL LARGER THAN TWO INCHES. NO OTHER MATERIALS OR SUBSTANCES THAT MAY BE HARMFUL TO PLANT GROWTH OR PROVE A HINDRANCE TO THE PLANTING OR MAINTENANCE OPERATIONS CAN BE MIXED WITHIN THE FILTER. THE RESULTANT MIXTURE SHOULD HAVE MINIMAL CLAY CONTENT WITH NO LESS THAN 8% FINES PASSING THE #200 SIEVE. DURING CONSTRUCTION, CARE SHOULD BE TAKEN TO AVOID COMPACTION OF BOTH THE GRAVEL AND SOIL FILTER. COMPACTION SHOULD BE BY SATURATION ONLY, UNLESS SPECIAL LOW COMPACTION EQUIPMENT IS AVAILABLE.
2. CARE SHOULD BE TAKEN, ESPECIALLY IN AREAS WHERE THE PREDOMINANT SOIL AND OVERBURDEN CONTAINS MARINE CLAY, TO BE SURE THAT THE SAND AND TOPSOIL USED IN THE MIXTURE HAVE VERY LITTLE OR NO CLAY CONTENT. USE OF SOILS WITH MORE THAN 2% CLAY CONTENT COULD CAUSE FAILURE OF THE SYSTEM.
3. THE SOIL FILTER MEDIA MUST BE COMPOSED OF A THOROUGHLY BLENDED MIXTURE OF MATERIALS MEETING THE SPECIFICATIONS IN TABLE B. JUST THE PROPORTIONS BASED ON THE ORGANIC CONTENT AND AMOUNT OF FINES OF EACH COMPONENT, IF THE SAND IS VERY CLEAN OR THE MULCH IS RELATIVELY COARSE, USE MORE MULCH AND LESS SAND WHILE STAYING WITHIN THE ESTABLISHED RANGES. IF THE SAND IS SILTY OR THE MULCH LOAMY, USE MORE SAND AND LESS MULCH.

1. PRIOR TO CONSTRUCTION OF UNDERDRAINED SOIL FILTER STABILIZE AREAS THAT DRAIN TO THEM WITH EITHER TEMPORARY OR PERMANENT EROSION CONTROL MEASURES IN ACCORDANCE WITH THE EROSION & SEDIMENT CONTROL PLAN, NOTES & DETAILS.
2. DO NOT PLACE THE FILTER MEDIA UNTIL AFTER THE SOIL FILTER AREA IS USED FOR A SETTLING BASIN DURING CONSTRUCTION AND ALL AREAS THAT DRAIN TO THE BASIN HAVE BEEN STABILIZED. PRIOR TO PLACEMENT OF THE FILTER MEDIA ALL SEDIMENT RESULTING FROM CONSTRUCTION ACTIVITIES MUST BE REMOVED.
3. EXCAVATE UNDERDRAINED SOIL FILTER AND DITCH IN A MANNER THAT WILL NOT COMPACT THE SUBGRADE. DO NOT OPERATE HEAVY MACHINERY INSIDE THE UNDERDRAINED SOIL FILTER.
4. THE TOP 6" OF SOIL FILTER MEDIA SHALL CONSIST OF LOAM TOPSOIL WITH 5-8% HUMIFIED ORGANIC MATTER. SCREENED TOPSOIL FROM THE DEVELOPMENT MAY BE APPROPRIATE BUT SHOULD BE TESTED FOR ORGANIC CONTENT. THE MEDIA SHOULD HAVE SUFFICIENT NUTRIENT CONTENT TO SUPPORT A GOOD STAND OF GRASS TYPE VEGETATION, OR ORGANIC MATTER (SUCH AS SUPERHUMUS OR EQUIVALENT) CAN BE ADDED IF NECESSARY AND PROVIDED THAT THE TEXTURE IS SUITABLE.
5. IF 20 MIL GEOMEMBRANE IS USED:  
THE CONTRACTOR SHALL PROVIDE DETAILS FOR THE PROPOSED RUFCO 2010B BLENDED LINEAR POLYETHYLENE LINER SYSTEM TO BE INSTALLED WITHIN THE SOIL FILTER BASIN. INFORMATION SHALL INCLUDE MANUFACTURER'S SPECIFICATIONS AND INSTALLATION PROCEDURES THAT ADDRESS:
  - SEAMING OF LINER PANELS
  - BOOT INSTALLATION FOR PIPE PENETRATIONS
  - SEAM TESTING PROCEDURES
  - METHOD OF SUBGRADE PREPARATION
  - PLACEMENT AND COMPACTION OF STONE (TO MINIMIZE RISK OF FUNCTURING OF INSTALLED LINER)
6. PLACE UNDERDRAIN BEDDING, UNDERDRAIN PIPE AND BACKFILL MATERIAL IN A MANNER THAT DOES NOT COMPACT THE SUBGRADE, BEDDING OR BACKFILL.
7. PLACE SOIL FILTER BED OVER THE PREPARED SURFACES WITH AN EXCAVATOR WORKING FROM OUTSIDE THE SWALE OR DITCH SO THAT WHEN SHAPED TO FINISH GRADE DEPTH IS AT LEAST 18 INCHES. DO NOT COMPACT.
8. SUBMIT SAMPLES OF THE SCREENED SOIL FILTER BED MATERIAL TO A SOIL TESTING LABORATORY FOR TESTING TO DETERMINE LIME AND FERTILIZER APPLICATION NECESSARY FOR THE TOPSOIL FILTER TO GROW GRASS.
9. APPLY LIMESTONE AND FERTILIZER OVER THE TOPSOIL FILTER ACCORDING TO THE SOIL TEST RECOMMENDATIONS USING LIGHT SPREADING EQUIPMENT. WORK LIME AND FERTILIZER INTO TOPSOIL FILTER TO A DEPTH OF 2 INCHES USING LIGHT EQUIPMENT.
10. APPLY SEED UNIFORMLY BY HAND, CYCLONE SEEDER, DRILL OR HYDROSEEDER (USING A SLURRY INCLUDING SEED AND FERTILIZER).

SEED MIXTURE	LB'S/ACRE	LB'S/1000 SF
CREEPING RED FESCUE (PENN. LAWN, ENGYLVA OR WINTERGREEN)	20	0.46
RED TOP	2	0.05
TALL FESCUE (KENTUCKY 31)	20	0.46
TOTAL	42	0.97

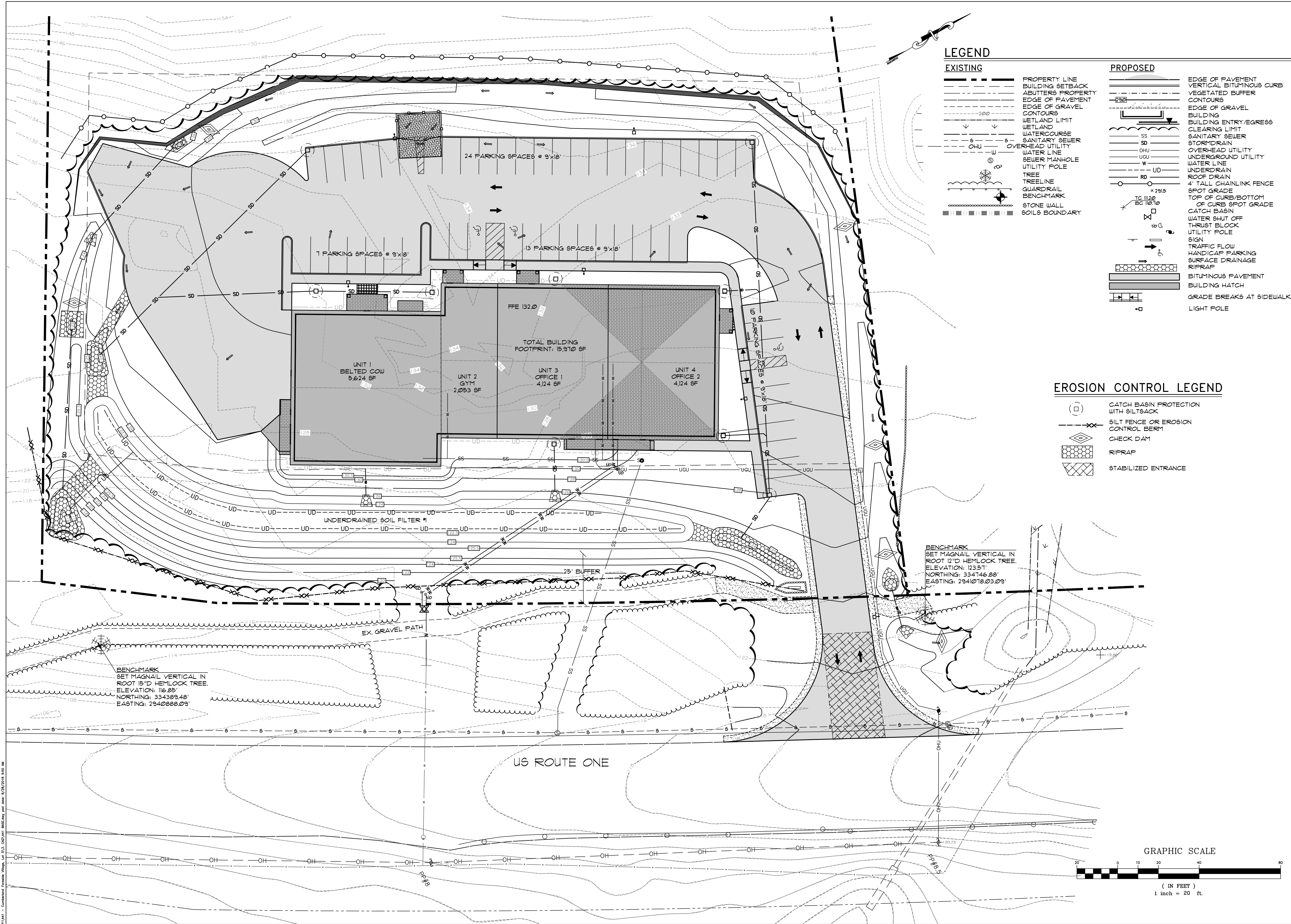
1. A LIQUID LIMIT GREATER THAN OR EQUAL TO 20, AND A PLASTICITY INDEX GREATER THAN OR EQUAL TO 8 BUT LESS THAN OR EQUAL TO 30, AS DETERMINED USING ASTM D-4318, STANDARD TEST METHOD FOR LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS. GLACIAL TILL SOILS DO NOT NEED TO MEET LIQUID LIMIT AND PLASTICITY INDEX REQUIREMENTS.
2. A MINIMUM FINES CONTENT OF 35%.
3. A MAXIMUM PARTICLE SIZE OF LESS THAN OR EQUAL TO 3 INCHES.
4. HAVE A MINIMUM IN-PLACE DENSITY OF 92% OF THE MAXIMUM DRY DENSITY AS MEASURED BY ASTM D-698, STANDARD TEST METHOD FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORT (12,400 FT-LBF/FT<sup>3</sup> (600 KN-M/M<sup>3</sup>)).
5. BE COMPACTED USING A KNEADING ACTION TO REMOLD THE SOIL WITHIN 0-4% ABOVE OPTIMUM MOISTURE CONTENT AS DETERMINED USING ASTM D-698.
6. HAVE A MAXIMUM COMPACTED LIFT THICKNESS OF 3 INCHES AND PROVIDE A MEANS TO ENSURE LIFT INTERFACE BONDING.

### UNDERDRAINED SOIL FILTER CROSS-SECTION

## UNDERDRAINED SOIL FILTER SECTIONS



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## LEGEND

### EXISTING

- PROPERTY LINE
- BUILDING SETBACK
- ABUTTERS PROPERTY
- EDGE OF PAVEMENT
- EDGE OF GRAVEL
- CONTOURS
- WETLAND LIMIT
- WATERCOURSE
- SANITARY SEWER
- OVERHEAD UTILITY
- WATER LINE
- SEWER MANHOLE
- UTILITY POLE
- TREE
- TREELINE
- GUARDRAIL
- BENCHMARK
- STONE WALL
- SOILS BOUNDARY

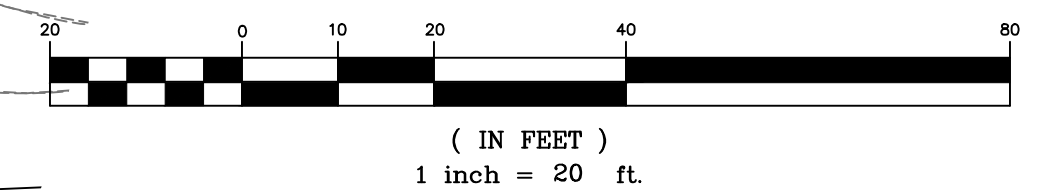
### PROPOSED

- EDGE OF PAVEMENT
- VERTICAL BITUMINOUS CURB
- VEGETATED BUFFER
- CONTOURS
- EDGE OF GRAVEL
- BUILDING
- BUILDING ENTRY/EGRESS
- CLEARING LIMIT
- SANITARY SEWER
- STORM DRAIN
- OVERHEAD UTILITY
- UNDERGROUND UTILITY
- WATER LINE
- UNDERDRAIN
- ROOF DRAIN
- 4' TALL CHAINLINK FENCE
- SPOT GRADE
- TOP OF CURB/BOTTOM
- OF CURB SPOT GRADE
- CATCH BASIN
- WATER SHUT OFF
- THRUST BLOCK
- UTILITY POLE
- SIGN
- TRAFFIC FLOW
- HANDICAP PARKING
- SURFACE DRAINAGE
- RIPRAP
- BITUMINOUS PAVEMENT
- BUILDING HATCH
- GRADE BREAKS AT SIDEWALK
- LIGHT POLE

## EROSION CONTROL LEGEND

- CATCH BASIN PROTECTION WITH SILTSACK
- SILT FENCE OR EROSION CONTROL BERM
- CHECK DAM
- RIPRAP
- STABILIZED ENTRANCE

## GRAPHIC SCALE

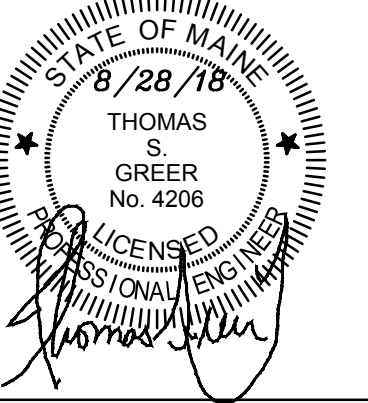


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## BELTED COW HEADQUARTERS

U.S. ROUTE ONE  
CUMBERLAND, MAINE

## BELTED COW

247 PORTLAND STREET  
SUITE 500  
YARMOUTH, ME 04096

Rev.	Date	Description	Drawn	Check

## Sheet Title: EROSION CONTROL PLAN

Job No.:	441	Sheet No.:	
Date:	8/28/18	Scale:	AS SHOWN
Drawn:	JWG	Checked:	TSG

# C2.1

MAP: R01 / LOT: 11-5



EROSION CONTROL NOTES

GENERAL:

THE DRAWINGS DEPICT THE REQUIRED SOIL EROSION CONTROL MEASURES. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING THE CONSTRUCTION SITE IN SUCH A MANNER THAT:

- 1. SOIL EROSION IS KEPT TO A MINIMUM.
- 2. NO SEDIMENT LEAVES THE CONSTRUCTION SITE PROPER.
- 3. ALL POSSIBLE MEASURES ARE EMPLOYED TO PREVENT SEDIMENT FROM ENTERING DRAINAGE COURSES AND WETLANDS EVEN BEYOND THE DETAILS SHOWN ON THIS PLAN IF NECESSARY.

- 1. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPs PUBLISHED BY THE BUREAU OF LAND AND WATER QUALITY, MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 2003.

- 2. THE CONTRACTOR IS RESPONSIBLE FOR ALL FINES RESULTING FROM EROSION OR SEDIMENTATION FROM THE SITE TO SURROUNDING PROPERTIES, WATERBODIES, OR WETLAND AS A RESULT OF THIS PROJECT.

- 3. LOAM AND SEED ALL DISTURBED AREAS AS SOON AS POSSIBLE AFTER DISTURBANCE, BUT NO LONGER THAN 7 DAYS. LOAM AND SEED ANY DISTURBED AREA WITHIN 15' OF WETLANDS OR WATERBODIES WITHIN 48 HOURS OR PRIOR TO AND STORM EVENT. USE WINTER SEED RATES AND SPECIFICATIONS IF APPROPRIATE.

- 4. INSPECT SOIL EROSION MEASURES WEEKLY AND AFTER SIGNIFICANT STORM EVENTS. MAKE ALL NECESSARY REPAIRS TO FACILITIES AS SOON AS POSSIBLE, BUT NO LONGER THAN 2 DAYS. CLEAN AND RESET SILT FENCES AND STONE CHECK DAMS WHICH ACCUMULATE SEDIMENT AND DEBRIS.

- 5. PROTECT AND STABILIZE ALL AREAS NOT SCHEDULED FOR EROSION PREVENTION OR STABILIZATION BUT THAT SHOW SIGNS OF EROSION. NOTIFY OWNER OF ANY SIGNIFICANT EROSION PROBLEM.

- 6. APPLY MULCH TO BARE SOILS WITHIN 1 DAYS OF INITIAL DISTURBANCE OF SOILS WITHIN 48 HOURS IF WITHIN 15' OF WETLAND OR WATERBODY, PRIOR TO ANY RAIN EVENT, OR PRIOR TO ANY WORK SHUTDOWN LASTING MORE THAN ONE DAY.

- 7. TEMPORARILY SEED WITHIN 1 DAYS ANY AREA WHICH WILL BE LEFT DISTURBED AND UNWORKED FOR MORE THAN 14 DAYS WITH THE TEMPORARY SEED MIX LISTED BELOW. IF AREA IS WITHIN 15' OF A WETLAND OR WATERBODY, SEED WITHIN 48 HOURS. PERMANENTLY SEED ANY AREA WHICH CAN BE LOAMED AS SOON AS POSSIBLE WITH THE PERMANENT SEED MIX LISTED BELOW. DO NOT USE PERMANENT SEED MIX AFTER SEPTEMBER 15.

- 8. MULCH ALL AREAS SEEDED SO THAT SOIL IS NOT VISIBLE THROUGH THE MULCH REGARDLESS OF THE APPLICATION RATE. DURING THE GROWING SEASON (APRIL 15 - SEPT. 30) USE EROSION CONTROL MESH (OR MULCH AND NETTING) ON:
  - THE BASE OF GRASSSED WATERWAYS
  - SLOPES STEEPER THAN 15%
  - WITHIN 100 FT. OF STREAMS AND WETLANDS BETWEEN OCT. 1 AND APRIL 14 USE EROSION CONTROL MESH (OR MULCH AND NETTING) ON:
    - SIDE SLOPES OF GRASSSED WATERWAYS
    - SLOPES STEEPER THAN 8%

- 9. FOLLOW SILT FENCE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS FOR INSTALLATION OF SILT FENCE. SECURE ENTIRE BOTTOM OF FENCE EITHER BY BURYING BOTTOM OF FENCE IN A TRENCH OR BERMING WITH SOIL OR CHIPPED GRUBBINGS. REFER TO SILT FENCE DETAILS.

- 10. PLACE AND GRADE LOAM IN A REASONABLY UNIFORM MANNER. WORK LINE AND FERTILIZER INTO THE SOIL TO A DEPTH OF 4 INCHES WITH A DISC SPRING TOOTH HARROW OR OTHER SUITABLE EQUIPMENT. CONTINUE TILLAGE UNTIL A REASONABLY UNIFORM SEED BED IS PREPARED. REMOVE FROM SURFACE ALL STONES LARGER THAN 2" AND ALL OTHER UNSUITABLE MATERIAL. LIME AND FERTILIZER SHOULD BE MIXED INTO SOIL PRIOR TO ROLLING EXCEPT IF INCLUDED IN HYDROSEED MIXTURE. PERMANENT STABILIZATION OF REVEGETATED AREAS IS CONSIDERED AS 90% CATCH.

- 11. DITCHES AND CHANNELS DESIGNATED TO BE LINED WITH RIFRAP AND/OR EROSION CONTROL MESH MUST BE INSTALLED WITHIN 48 HOURS OF COMPLETING THE GRADING OF THAT SECTION OF DITCH OR CHANNEL.

- 12. ALL CATCH BASINS, NEW OR EXISTING, THAT MAY RECEIVE RUNOFF FROM DISTURBED AREAS MUST BE PROTECTED BY INSTALLING AND MAINTAINING SILT SACKS DURING CONSTRUCTION.

- 13. WATER FROM CONSTRUCTION TRENCH DEWATERING OR TEMPORARY STREAM DIVERSION WILL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE OR EROSION CONTROL MIX LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, ICING, AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE.

TOPSOIL:

- 1. SUITABLE TOPSOIL, SALVAGED FROM SITE OR SCREENED, LOOSE AND FRIABLE SANDY LOAM OR LOAM AS DEFINED BY THE USDA SOIL CONSERVATION SERVICE CLASSIFICATION SYSTEM, FREE FROM ADMIXTURE OF SUBSOIL, REFUSE, LARGE STONES, CLODS, ROOTS, WEEDS, RHIZOMES OR OTHER UNDESIRABLE FOREIGN MATTER AS DETERMINED BY THE INSPECTING AUTHORITY. CONTRACTOR SHALL SUBMIT REPORTS OF LOAM TEST RESULTS PERFORMED BY AN INDEPENDENT TESTING LABORATORY FOR TOPSOIL FROM DIFFERENT SOURCES PRIOR TO PLACING. THE COST OF TESTING SHALL BE INCIDENTAL TO THE COST OF TOPSOIL. TOPSOIL SHALL MEET THE FOLLOWING SPECIFICATIONS:

- 2. MATERIAL

SAND - 0.008 IN. TO 0.002 IN. DIAMETER (% BY VOLUME)..... 45 - 75  
SILT - 0.002 IN. TO 0.00008 IN. DIAMETER (% BY VOLUME)..... 20 - 40  
CLAY - LESS THAN 0.00008 IN. DIAMETER (% BY VOLUME)..... 5 - 15

ORGANICS (SHALL MEET THE REQUIREMENTS OF MDOT STANDARD SPECIFICATION 111.03 FEAT HUMUS) (% BY VOLUME) : 10 - 20

NUTRIENTS:  
CALCIUM (CA) (% SATURATION) ..... 60 - 80  
MAGNESIUM (MG) (% SATURATION) ..... 10 - 25  
POTASSIUM (K) (% SATURATION) ..... 21 - 3.0  
PHOSPHORUS (P) (POUNDS/ACRE) ..... 10 - 40  
PH ..... 6.0 - 6.5

PERMEABILITY (INCHES PER HOUR) ..... 3 - 10

MAXIMUM STONE SIZE (INCHES) ..... 3/4

SEEDING:

USE PERMANENT SEED MIXES AND RATES BETWEEN 5/15 AND 9/30. USE TEMPORARY SEED MIXES FOR PERIODS LESS THAN 12 MONTHS. IF USING TEMPORARY SEED MIXES AND RATES BETWEEN 10/1 AND 5/14, RE-SEED WITH PERMANENT SEED MIX AFTER 5/15.

PERMANENT SEED:

MDOT 111.03(a) METHOD NUMBER 3

TEMPORARY SEED:

OATS ..... 80.00 LBS/ACRE 4/01 - 5/14  
ANNUAL RYEGRASS ..... 40.00 LBS/ACRE  
SUDANGRASS ..... 40.00 LBS/ACRE 5/15 - 8/14  
ANNUAL RYEGRASS ..... 80.00 LBS/ACRE 5/15 - 9/14  
WINTER RYE ..... 112.00 LBS/ACRE 9/15 - 9/30  
WINTER RYE (W/ MULCH COVER) ..... 112.00 LBS/ACRE 10/01 - 3/31

LIME AND FERTILIZER:

APPLY GROUND LIMESTONE (EQUIVALENT TO 50% CALCIUM PLUS MAGNESIUM OXIDE) AT A RATE OF 3 TONS PER ACRE (138 POUNDS PER 1000 SQUARE FEET). APPLY FERTILIZER (10-20-20) AT A RATE OF 800 POUNDS PER ACRE (18.4 POUNDS PER 1000 SQUARE FEET).

MULCH:

STRAW OR HAY (ANCHORED) ..... 10 - 30 LBS PROTECTED AREAS  
STRAW OR HAY (ANCHORED) ..... 185 - 215 LBS WINDY AREAS  
SHREDDED OR CHOPPED ..... 185 - 215 LBS  
JUTE MESH ..... AS REQUIRED MODERATE TO HIGH VELOCITY AREAS & STEEP SLOPES  
EXCELSDIOR MAT ..... AS REQUIRED

MULCH ANCHORING

PEG AND TWINE ..... LIQUID ASPHALT  
MULCH NETTING ..... WOOD CELLULOSE FIBER  
ASPHALT EMULSION ..... CHEMICAL TACK

HOUSEKEEPING

THE DEVELOPER IS RESPONSIBLE FOR NOTIFYING THE CONTRACTOR AND OWNER OF THE HOUSEKEEPING STANDARDS.

- 1. SPILL PREVENTION: THE CONTRACTOR AND OWNERS NEED TO TAKE CARE WITH CONSTRUCTION AND WASTE MATERIALS SUCH THAT CONTAMINANTS 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.

STAGING AREAS ARE NOTED ON THE PLANS FOR THE CONTRACTOR'S USE. 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 1-800-482-0711 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/ENERGSPILLRESP/

- 2. GROUNDWATER PROTECTION: PROTECTION OF THE GROUNDWATER IS REQUIRED BY THE CONTRACTOR AND OWNER. PETROLEUM PRODUCTS SHOULD BE STORED IN MANUFACTURED CANS DESIGNED FOR THE PURPOSE. SPILL PREVENTIONS PROCEDURES SHOULD BE FOLLOWED.

- 3. FUGITIVE SEDIMENT AND DUST: THE CONTRACTOR IS REQUIRED TO MINIMIZE DUST FROM THE CONSTRUCTION OPERATION. THE ROAD SHOULD BE SWEEP REGULARLY (WEEKLY) AND PRIOR TO ANY RAIN EVENT. THE GRAVEL AREAS ARE TO BE WATERED REGULARLY TO MINIMIZE DUST. ANY MUD THAT IS TRACKED OFF SITE SHOULD BE CLEANED UP PRIOR TO IT DRYING AND BECOMING A DUST ISSUE.

DO NOT USE OIL TO CONTROL DUST. DEWATERING A STREAM WITHOUT A PERMIT FROM THE DEPARTMENT MAY VIOLATE STATE WATER QUALITY STANDARDS AND THE NATURAL RESOURCES PROTECTION ACT.

- 4. DEBRIS AND OTHER MATERIALS: 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.

STORAGE HANDLING AND DISPOSAL OF SOLID WASTE ITEMS MUST COMPLY WITH MAINE'S SOLID WASTE MANAGEMENT RULES. LACK OF APPROPRIATE POLLUTANT CONTROL MAY RESULT IN VIOLATIONS OF THE GROUNDWATER QUALITY STANDARDS.

THIS PROJECT HAS A WRITTEN EROSION CONTROL PLAN AND STORMWATER MAINTENANCE PLAN. MODIFICATIONS TO THE PLAN MUST BE APPROVED BY THE TOWN.

MAINTENANCE OF STORMWATER TREATMENT AND CONTROL SYSTEMS MUST OCCUR REGULARLY. THE STORMWATER MAINTENANCE REPORT PROVIDES INSPECTION DETAILS AND TIME LINES FOR DOING THE INSPECTIONS AND REPORTING TO THE TOWN AND DEP.

STABILIZING SITE FOR THE WINTER:

- 1. STANDARD CONDITIONS REQUIRING THE TIMELY STABILIZATION OF DITCHES AND CHANNELS - THE CONTRACTOR WILL CONSTRUCT AND STABILIZE ALL STONE-LINED DITCHES AND CHANNELS ON THE SITE BY NOVEMBER 1. THE CONTRACTOR WILL CONSTRUCT AND STABILIZE ALL GRASS-LINED DITCHES AND CHANNELS ON THE SITE BY SEPTEMBER 15. IF THE CONTRACTOR FAILS TO STABILIZE A DITCH OR CHANNEL TO BE GRASS-LINED BY SEPTEMBER 15, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE DITCH FOR LATE FALL AND WINTER:

- a. INSTALL A SOD LINING IN THE DITCH - THE CONTRACTOR WILL LINE THE DITCH WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE CONTRACTOR FINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL, AND ANCHORING THE SOD WITH JUTE OR PLASTIC MESH TO PREVENT THE SOD STRIPS FROM SLOUGHING DURING FLOW CONDITIONS.

- b. INSTALL A STONE LINING IN THE DITCH - THE CONTRACTOR WILL LINE THE DITCH WITH STONE RIFRAP BY NOVEMBER 1. THE CONTRACTOR WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE AND LINING THICKNESS NEEDED TO WITHSTAND THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHIN THE DITCH. IF NECESSARY, THE CONTRACTOR WILL REGRADE THE DITCH PRIOR TO PLACING THE STONE LINING SO TO PREVENT THE STONE LINING FROM REDUCING THE DITCH'S CROSS-SECTIONAL AREA.

- 2. STANDARD CONDITIONS REQUIRING THE TIMELY STABILIZATION OF DISTURBED SLOPES - THE CONTRACTOR WILL CONSTRUCT AND STABILIZE STONE-COVERED SLOPES BY NOVEMBER 1. THE CONTRACTOR WILL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 15. ANY AREA HAVING A GRADE GREATER THAN 15% (20:1V) IS A SLOPE. IF THE CONTRACTOR FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 15, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER:

- a. STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS - BY OCTOBER 1 THE CONTRACTOR WILL SEED THE DISTURBED SLOPE WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET AND APPLY EROSION CONTROL MATS OVER THE MULCHED SLOPE. THE CONTRACTOR WILL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 15% OF THE DISTURBED SLOPE BEFORE NOVEMBER 1, THEN THE CONTRACTOR WILL COVER THE SLOPE WITH A LAYER OF WOODWASTE COMPOST AS DESCRIBED IN ITEM C OF THIS CONDITION OR WITH STONE RIFRAP AS DESCRIBED IN ITEM D OF THIS CONDITION.

- b. STABILIZE THE SLOPE WITH SOD - THE CONTRACTOR WILL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE CONTRACTOR FINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE CONTRACTOR WILL NOT USE LATE-SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33% (3H:1V).

- c. STABILIZE THE SLOPE WITH WOODWASTE COMPOST - THE CONTRACTOR WILL PLACE A SIX-INCH LAYER OF WOODWASTE COMPOST ON THE SLOPE BY NOVEMBER 1. PRIOR TO PLACING THE WOODWASTE COMPOST, THE CONTRACTOR WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE. THE CONTRACTOR WILL NOT USE WOODWASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% (2H:1V) OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.

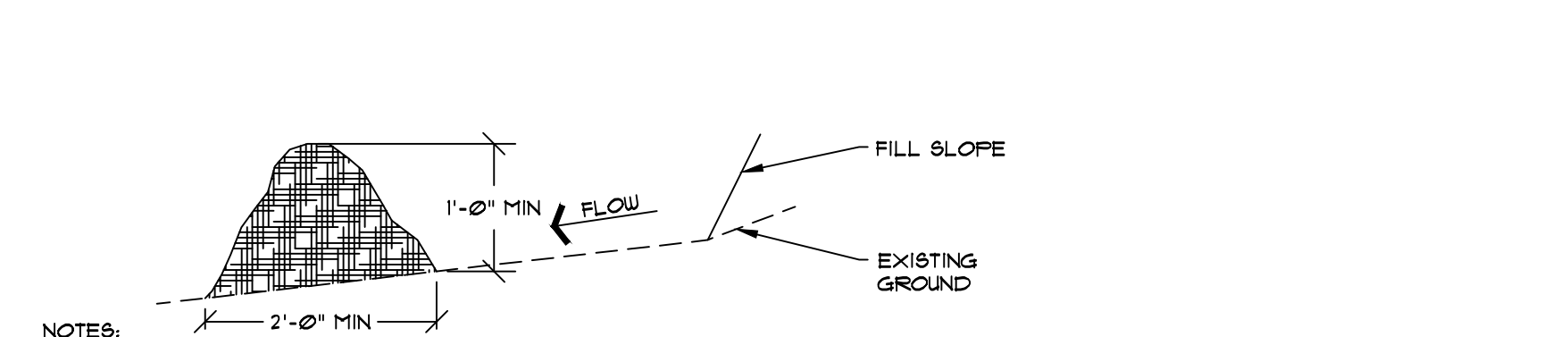
- d. STABILIZE THE SLOPE WITH STONE RIFRAP - THE CONTRACTOR WILL PLACE A LAYER OF STONE RIFRAP ON THE SLOPE BY NOVEMBER 1. THE CONTRACTOR WILL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR DRAINAGE AND SOIL SEPARATION.

- 3. STANDARD CONDITIONS REQUIRING THE TIMELY STABILIZATION OF DISTURBED SOILS - BY SEPTEMBER 15 THE CONTRACTOR WILL SEED AND MULCH ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15%. IF THE CONTRACTOR FAILS TO STABILIZE THESE SOILS BY THIS DATE, THEN THE CONTRACTOR WILL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SOIL FOR LATE FALL AND WINTER:

- a. STABILIZING THE SOIL WITH TEMPORARY VEGETATION - BY OCTOBER 1 THE CONTRACTOR WILL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 POUNDS PER 1000 SQUARE FEET 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 COVER AT LEAST 15% OF THE DISTURBED SOIL BEFORE NOVEMBER 1, THEN THE CONTRACTOR WILL MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED IN ITEM C OF THIS STANDARD CONDITION.

- b. STABILIZE THE SOIL WITH SOD - THE CONTRACTOR WILL STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1. PROPER INSTALLATION INCLUDES THE CONTRACTOR FINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.

- c. STABILIZE THE SOIL WITH MULCH - BY NOVEMBER 1 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. PRIOR TO APPLYING THE MULCH, THE CONTRACTOR WILL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED AREA. IMMEDIATELY AFTER APPLYING THE MULCH, THE CONTRACTOR WILL ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.



- 1. EROSION CONTROL MIX CAN BE MANUFACTURED ON OR OFF THE SITE. IT MUST CONSIST PRIMARILY OF ORGANIC MATERIAL SEPARATED AT THE POINT OF GENERATION, AND MAY INCLUDE: SHREDDED BARK, SUMP GRINDINGS, COMPOSTED BARK OR FLUME GRIT AND FRAGMENTED WOOD GENERATED FROM WATER-FLUME LOG HANDLING SYSTEMS, WOOD CHIPS, GROUND CONSTRUCTION DEBRIS, REPROCESSED WOOD PRODUCTS OR BARK CHIPS WILL NOT BE ACCEPTABLE AS THE ORGANIC COMPONENT OF THE MIX. 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:
  - A. ORGANIC MATERIAL: BETWEEN 20% - 100% (DRY WEIGHT BASIS)
  - B. PARTICLE SIZE: BY WEIGHT, 100% PASSING #1 SCREEN, 10-85% PASSING #10 SCREEN
  - C. THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED.
  - D. LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.
  - E. SOLUBLE SALTS CONTENT SHALL BE LESS THAN 4.0 MMHOS/CM.
  - F. PH: 5.0 - 8.0
- 2. ON SLOPES LESS THAN 5% OR AT THE BOTTOM OF SLOPES 2:1 OR LESS UP TO 20 FEET LONG, THE BARRIER MUST CONFORM TO THE ABOVE DIMENSIONS. ON THE LONGER OR STEEPER SLOPES, THE BARRIER SHOULD BE WIDER TO ACCOMMODATE THE ADDITIONAL FLOW.
- 3. THE BARRIER MUST BE PLACED ALONG A RELATIVELY LEVEL ELEVATION. 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 BARRIER THROUGH THE GRASS BLADES OR PLANT STEMS.
- 4. LOCATIONS WHERE OTHER BMP'S SHOULD BE USED:
  - A. AT LOW POINTS OF CONCENTRATED FLOW
  - B. BELOW CULVERT OUTLET APRONS
  - C. WHERE A PREVIOUS STAND-ALONE EROSION CONTROL MIX APPLICATION HAS FAILED
  - D. AT THE BOTTOM OF STEEP PERIMETER SLOPES THAT ARE MORE THAN 50 FEET FROM TOP TO BOTTOM (LARGE UPGRADE/ DRAINAGE)
  - E. AROUND CATCH BASINS AND CLOSED STORM DRAIN SYSTEMS.
- 5. THE EROSION CONTROL MIX BARRIERS SHOULD BE INSPECTED REGULARLY AND AFTER EACH LARGE RAINFALL, REPAIR ALL DAMAGED SECTIONS OF BERM IMMEDIATELY BY REPLACING OR ADDING ADDITIONAL MATERIAL PLACED ON THE BERM TO THE DESIRED HEIGHT AND WIDTH.
- 6. IT MAY BE NECESSARY TO REINFORCE THE BARRIER WITH SILT FENCE OR STONE CHECK DAMS IF THERE ARE SIGNS OF UNDERCUTTING OR THE INFILTRATION OF LARGE VOLUMES OF WATER.
- 1. SEDIMENT DEPOSITS SHOULD BE REMOVED WHEN THEY REACH APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.
- 2. REPAIR SECTIONS OF BERM THAT DECOMPOSE, BECOME CLOGGED WITH SEDIMENT OR OTHERWISE BECOME INEFFECTIVE. THE BARRIER SHOULD BE RESHAPED AS NEEDED.
- 3. EROSION CONTROL MIX BARRIERS CAN BE LEFT IN PLACE AFTER CONSTRUCTION. ANY SEDIMENT THAT PLACES IS NO LONGER REQUIRED SHOULD BE SPREAD TO CONFORM TO THE EXISTING GRADE AND BE SEEDED AND MULCHED. WOODY VEGETATION CAN BE PLANTED INTO THE BARRIERS, OR THEY CAN BE OVER-SEEDED WITH LEGUMES. IF THE BARRIER NEEDS TO BE REMOVED, IT CAN BE SPREAD OUT INTO THE LANDSCAPE.

1. EROSION CONTROL MIX SEDIMENT BARRIER SURFACE DRAINAGE SEDIMENT CONTROL

WINTER CONSTRUCTION:

THE WINTER CONSTRUCTION PERIOD IS FROM NOVEMBER 1 THROUGH APRIL 15. IF THE CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIP RAP BY NOVEMBER 15 THEN THE SITE NEEDS TO BE PROTECTED WITH OVER-WINTER STABILIZATION. AN AREA CANNOT BE OPEN TO ANY AREA NOT STABILIZED WITH PAVEMENT, VEGETATION, MULCHING, EROSION CONTROL MATS, RIP RAP OR GRAVEL BASE ON A ROAD. WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SUCH THAT NO MORE THAN 1 ACRE OF THE SITE IS WITHOUT STABILIZATION AT ANY ONE TIME. LIMIT THE EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDER TAKEN DURING THE PRECEEDING 15 DAYS AND THAT CAN BE MULCHED IN ONE DAY PRIOR TO ANY SNOW EVENT. ALL AREA SHALL BE CONSIDERED TO BE DENUDED UNTIL THE SUBBASE GRAVEL IS INSTALLED IN ROADWAY AREAS OR THE AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH RATE SHALL BE A MINIMUM OF 150 LBS./1000 SF. (3 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. THE CONTRACTOR MUST INSTALL ANY ADDED MEASURES WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDENT UPON THE ACTUAL SITE AND WEATHER CONDITIONS. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.

- 1. SOIL STOCKPILES STOCKPILES OF SOIL OR SUBSOIL WILL BE MULCHED FOR OVER-WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR AT 150 LBS./1000 SF. (3 TONS/ACRE) OR WITH A FOUR INCH LAYER OF EROSION CONTROL MIX. THIS WILL BE DONE WITHIN 24 HOURS OF STOCKING AND WILL BE REESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL. SOIL STOCKPILES WILL NOT BE PLACED (EVEN COVERED WITH HAY OR STRAW) WITHIN 100 FEET FROM ANY NATURAL RESOURCES.

- 2. NATURAL RESOURCES PROTECTION ANY AREAS WITHIN 100 FEET FROM ANY NATURAL RESOURCES, IF NOT STABILIZED WITH A MINIMUM OF 75% MATURE VEGETATION CATCH, SHALL BE MULCHED BY DECEMBER 1 AND ANCHORED WITH PLASTIC NETTING OR PROTECTED WITH EROSION CONTROL MATS. DURING WINTER CONSTRUCTION, A DOUBLE LINE OF SEDIMENT BARRIERS (IE. SILT FENCE BACKED WITH HAY BALES OR EROSION CONTROL MIX) WILL BE PLACED BETWEEN ANY NATURAL RESOURCE AND THE DISTURBED AREA. PROJECTS CROSSING THE NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 100 FEET ON EITHER SIDE FROM THE RESOURCE. EXISTING PROJECTS NOT STABILIZED BY DECEMBER 1 SHALL BE PROTECTED WITH THE SECOND LINE OF SEDIMENT BARRIER TO ENSURE FUNCTIONALITY DURING THE SPRING THAW AND RAINS.

- 3. SEDIMENT BARRIERS DURING FROZEN CONDITIONS, SEDIMENT BARRIERS SHALL CONSIST OF EROSION CONTROL MIX SEDIMENT BARRIERS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES AND SEDIMENT SILT FENCES.

- 4. MULCHING ALL AREA SHALL BE CONSIDERED TO BE DENUDED UNTIL AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 150 LBS./1000 SF. OR 3 TONS/ACRE (TWICE THE NORMAL ACCEPTED RATE OF 75 LBS./1000 SF. OR 15 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW WILL BE REMOVED DOWN TO A ONE INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA WILL BE PROPERLY STABILIZED WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN MULCHED WITH STRAW OR HAY AT A RATE OF 150 LBS./1000 SF. (3 TONS/ACRE) AND ADEQUATELY ANCHORED SO THAT GROUND SURFACE IS NOT VISIBLE THOUGH THE MULCH.

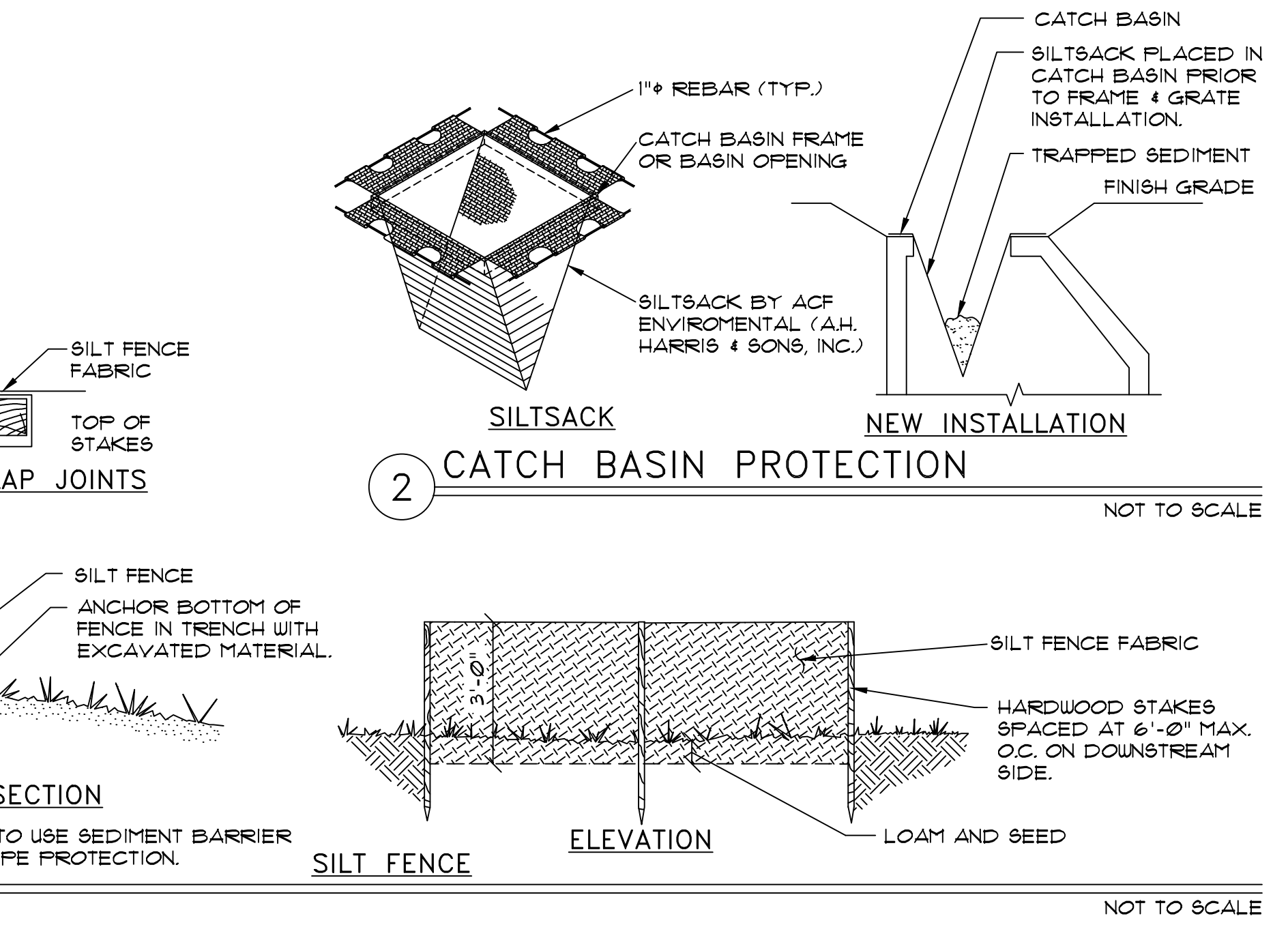
BETWEEN THE DATES OF NOVEMBER 1 AND APRIL 15, ALL MULCH SHALL BE ANCHORED BY EITHER PEG LINE, MULCH NETTING, ASPHALT EMULSION CHEMICAL TACK, OR WOOD CELLULOSE FIBER. WHEN GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH THEN COVER IS SUFFICIENT. AFTER NOVEMBER 1, MULCH AND ANCHORING OF ALL BARE SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORK DAY.

- 5. MULCHING ON SLOPES AND DITCHES SLOPES SHALL NOT BE LEFT EXPOSED FOR ANY EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY MULCHED AND ANCHORED WITH PEG AND NETTING OR WITH EROSION CONTROL BLANKETS. MULCHING SHALL BE APPLIED AT A RATE OF 220 LBS./1000 SF. ON ALL SLOPES GREATER THAN 8%. MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%. EROSION CONTROL BLANKETS SHALL BE USED IN LIEU OF MULCH IN ALL DRAINAGE WAYS WITH SLOPE GREATER THAN 8%. EROSION CONTROL MIX CAN BE USED AS A SUBSTITUTE FOR EROSION CONTROL BLANKETS ON ALL SLOPES EXCEPT DITCHES.

- 6. SEEDING BETWEEN THE DATES OF OCTOBER 15 AND APRIL 1, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES FINISHED AREAS SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED. MULCHING SHALL BE APPLIED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. AFTER NOVEMBER 1 IF THE EXPOSED AREA HAS BEEN LOAMED AND FINAL GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF 3 TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. DORMANT SEEDING MAY BE PLACED PRIOR TO THE PLACEMENT OF MULCH AND FABRIC NETTING ANCHORED WITH STAPLES. IF DORMANT SEEDING IS USED FOR THE SITE, ALL DISTURBED AREAS SHALL RECEIVE 4" OF LOAM AND BE SEEDED AT AN APPLICATION RATE OF 5 LBS./1000 SF. ALL AREAS SEEDED DURING THE WINTER WILL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 75 % CATCH) SHALL BE REVEGETATED BY REPLACING LOAM, SEED AND MULCH. IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL AREAS DISTURBED IN THE WINTER SHALL BE VEGETATED IN THE SPRING.

- 7. TRENCH DEWATERING AND TEMPORARY STREAM DIVERSION WATER FROM CONSTRUCTION TRENCH DEWATERING OR TEMPORARY STREAM DIVERSION WILL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE OR EROSION CONTROL MIX LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, ICING, AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE.

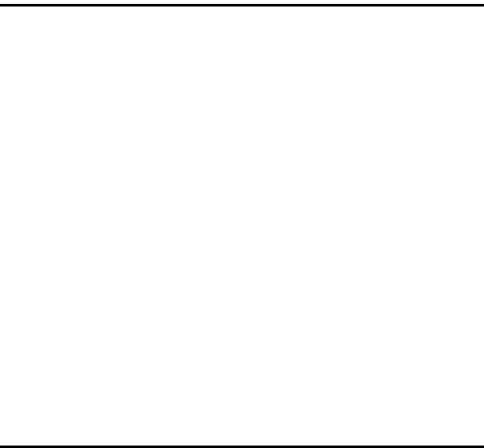
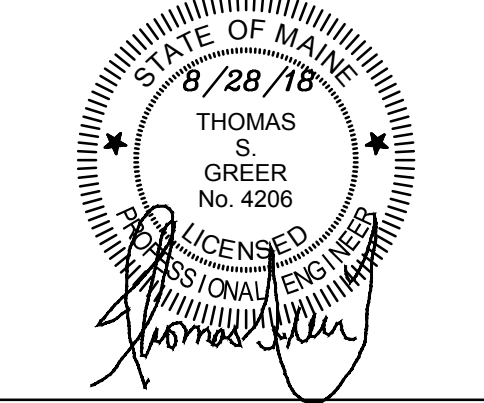
- 8. INSPECTION AND MONITORING MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUOUS FUNCTION. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL, IN THE SPRING, INSPECT AND REPAIR ANY DAMAGED AND/OR UNESTABLISHED SPOTS. ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 85 TO 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.



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BELTED COW HEADQUARTERS  
U.S. ROUTE ONE  
CUMBERLAND, MAINE  
BELTED COW  
247 PORTLAND STREET  
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YARMOUTH, ME 04096

Rev.	Date	Description	Drawn	Check

Sheet Title:				
EROSION CONTROL NOTES & DETAILS				
Job No.:	441	Sheet No.:		
Date:	8/28/18	Scale:	AS SHOWN	
Drawn:	JWG	Checked:	TSG	

C3.0

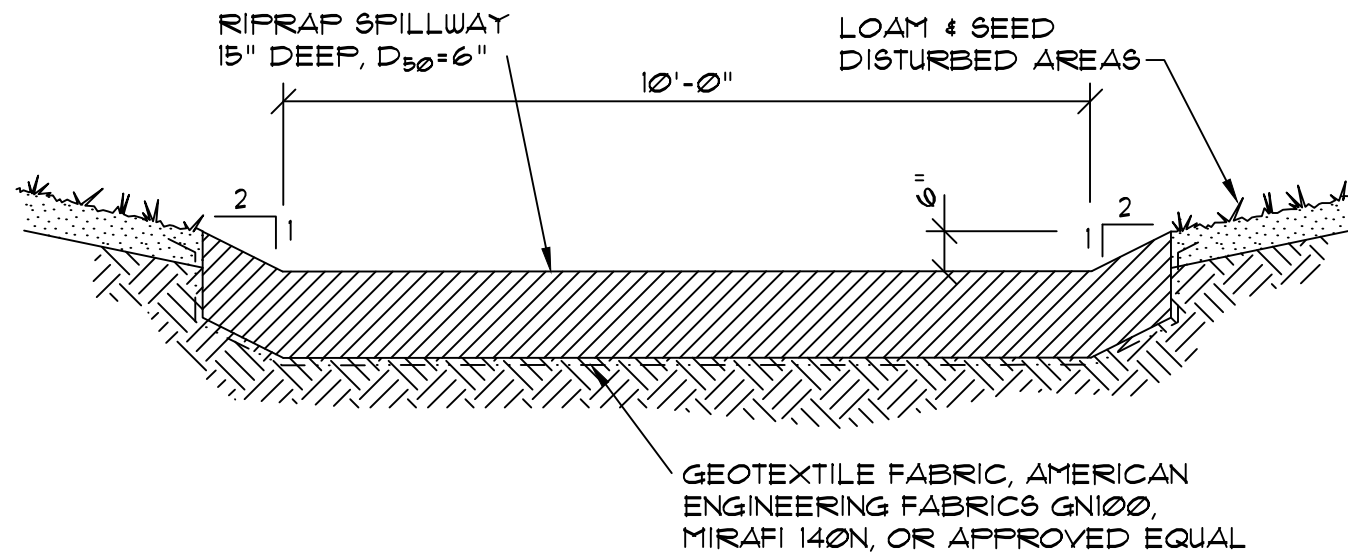


CONSTRUCTION	USE
	BITUMINOUS ACCESS ROAD PARKING LOT
	BITUMINOUS SIDEWALKS
	GRAVEL PATH
	GRASS ALL DISTURBED AREAS

- NOTES:
- HMA = HOT MIX ASPHALT.  
MDOT = MAINE DEPARTMENT OF TRANSPORTATION.
  - ALL COURSE THICKNESS AFTER FINAL COMPACTION.

## 7 SCHEDULE OF SURFACE FINISHES

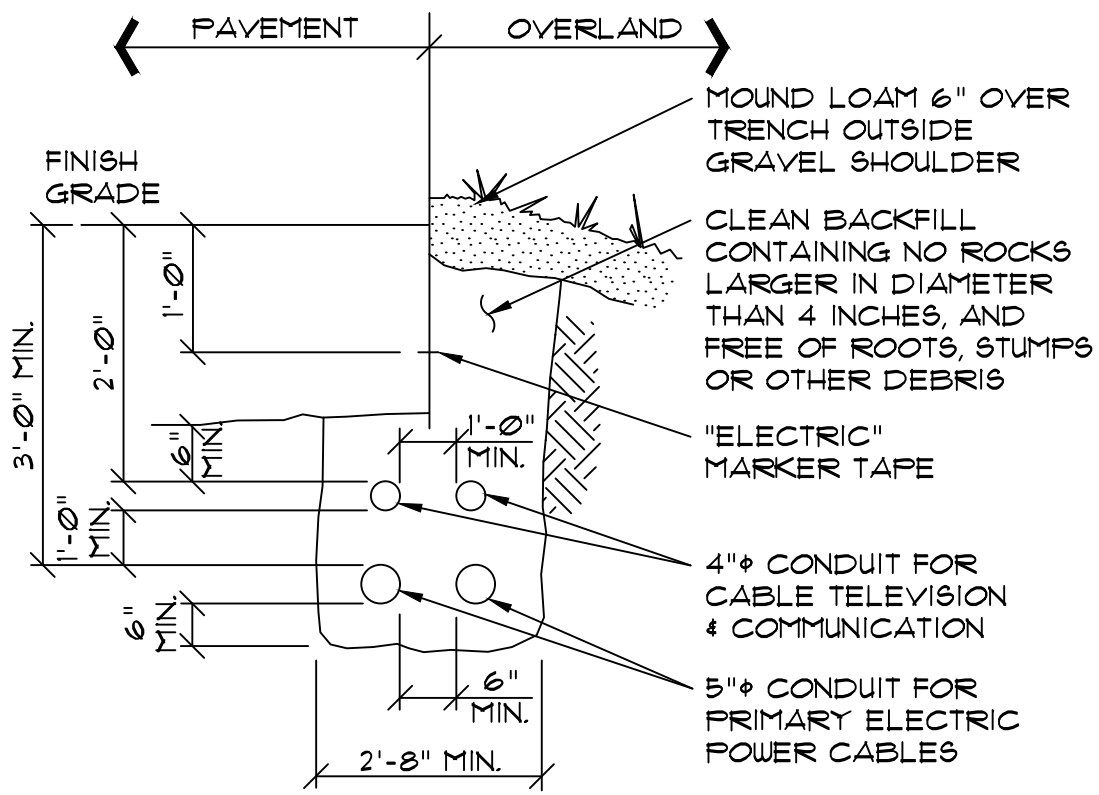
NOT TO SCALE



- NOTES:
- SUBGRADE PREPARATION: SHAPE THE SUBGRADE TO THE LINES AND GRADES AS SHOWN ON THE DRAWINGS AND AS SHOWN ON THE DETAILS. REMOVE ALL ORGANIC MATTER, DEBRIS AND SOIL THAT IS TOO WET TO SUPPORT RIPRAP. IF FILL IS REQUIRED PROVIDE SUITABLE SOIL FROM ON SITE OR COMMON BORROW (MDOT 103.12) COMPACTED TO A DENSITY APPROXIMATELY THAT OF THE SURROUNDING UNDISTURBED SOIL BUT NOT LESS THAN 92% (ASTM D1557).
  - GEOTEXTILE FABRIC: PLACE AND ANCHOR GEOTEXTILE (FILTER FABRIC) IMMEDIATELY AFTER SUBGRADE PREPARATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
  - STONE PLACEMENT: PLACE RIPRAP IMMEDIATELY AFTER PLACING GEOTEXTILE FABRIC. PLACE RIPRAP SO THAT IT PRODUCES A DENSE, WELL-GRADED MASS OF STONE WITH A MINIMUM OF VOIDS.
  - MAINTENANCE: INSPECT RIPRAP FOLLOWING SIGNIFICANT RAINFALL EVENTS (3 INCHES OR MORE IN 24 HOURS) AND AFTER THE SPRING THAW. REPAIR DAMAGED AREAS IMMEDIATELY.
  - RIPRAP: SOUND DURABLE ROCK WHICH WILL NOT DISINTEGRATE BY EXPOSURE TO WATER OR WEATHER. EITHER FIELD STONE OR ROUGH, UNEVEN QUARRY STONE MAY BE USED. STONES SHALL BE ANGULAR AND AS NEARLY RECTANGULAR IN CROSS-SECTION AS PRACTICABLE. DO NOT USE ROUNDED BOULDERS OR COBBLES. USE A WELL GRADED MIXTURE OF STONE SIZES WITH 50 PERCENT OF THE MIXTURE BY WEIGHT BEING LARGER THAN THE D SIZE SPECIFIED AND 50 PERCENT SMALLER.

## 8 EMERGENCY OVERFLOW SECTION

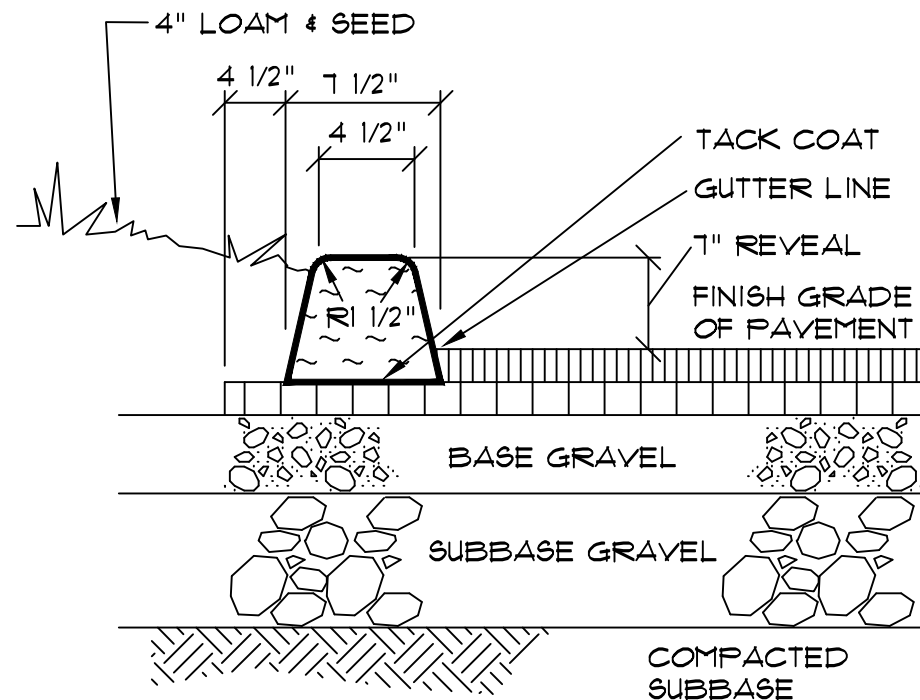
NOT TO SCALE



- NOTES:
- INSTALLATION SHALL NOT ALLOW INTER-TWINING OF CABLES.
  - DIRECT BURY ELECTRICAL CABLES MAY BE USED IF ALLOWED BY CENTRAL MAINE POWER.
  - DIRECT BURY CABLES EXCEPT UNDER PAVED AREAS. PROVIDE SCH. 40 PVC CONDUIT UNDER PAVED AREAS, EXTEND CONDUIT 5'-0" BEYOND EDGE OF PAVEMENT.
  - CONFIRM CONDUIT SIZES WITH INDIVIDUAL UTILITY COMPANIES PRIOR TO INSTALLATION.
  - COORDINATE FINAL LAYOUT WITH INDIVIDUAL UTILITY COMPANIES.

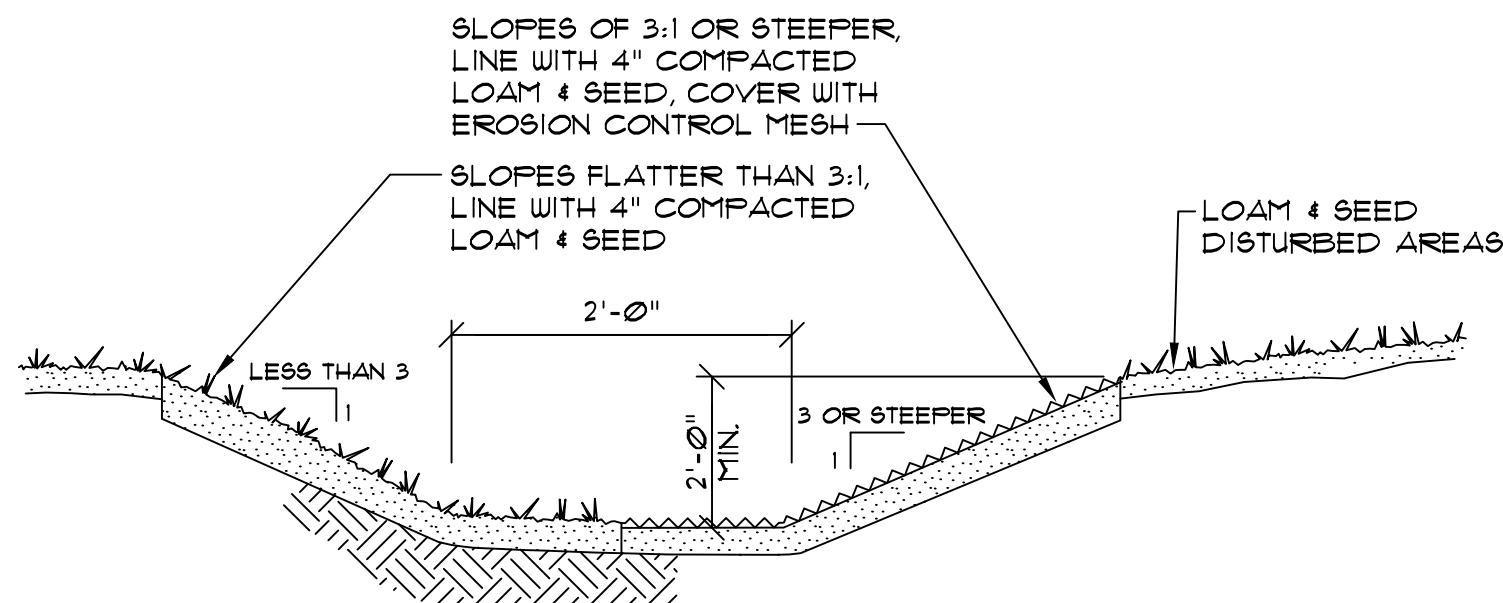
## 4 CABLE TRENCH SECTION

NOT TO SCALE



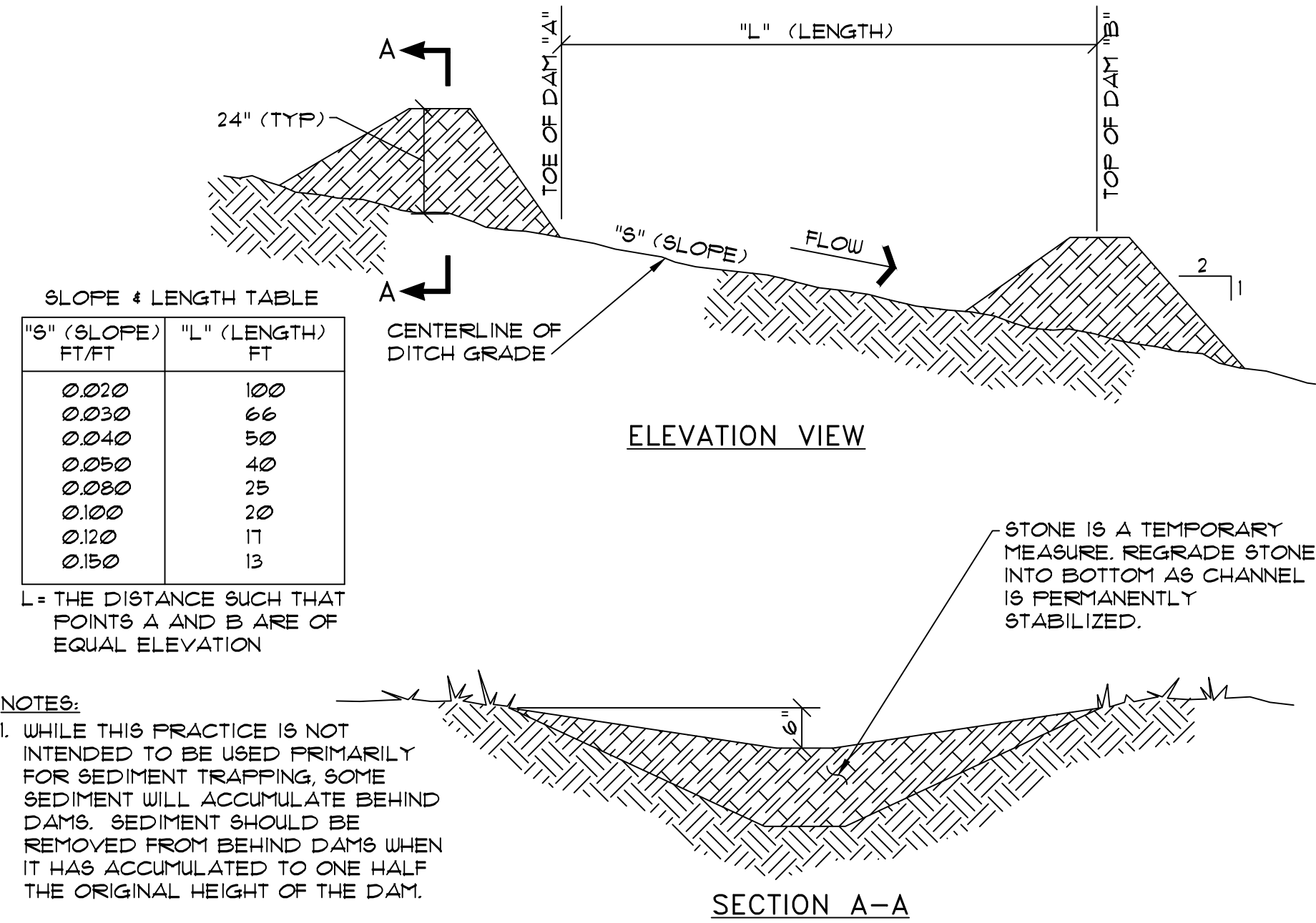
## 5 BITUMINOUS CURB DETAIL

NOT TO SCALE



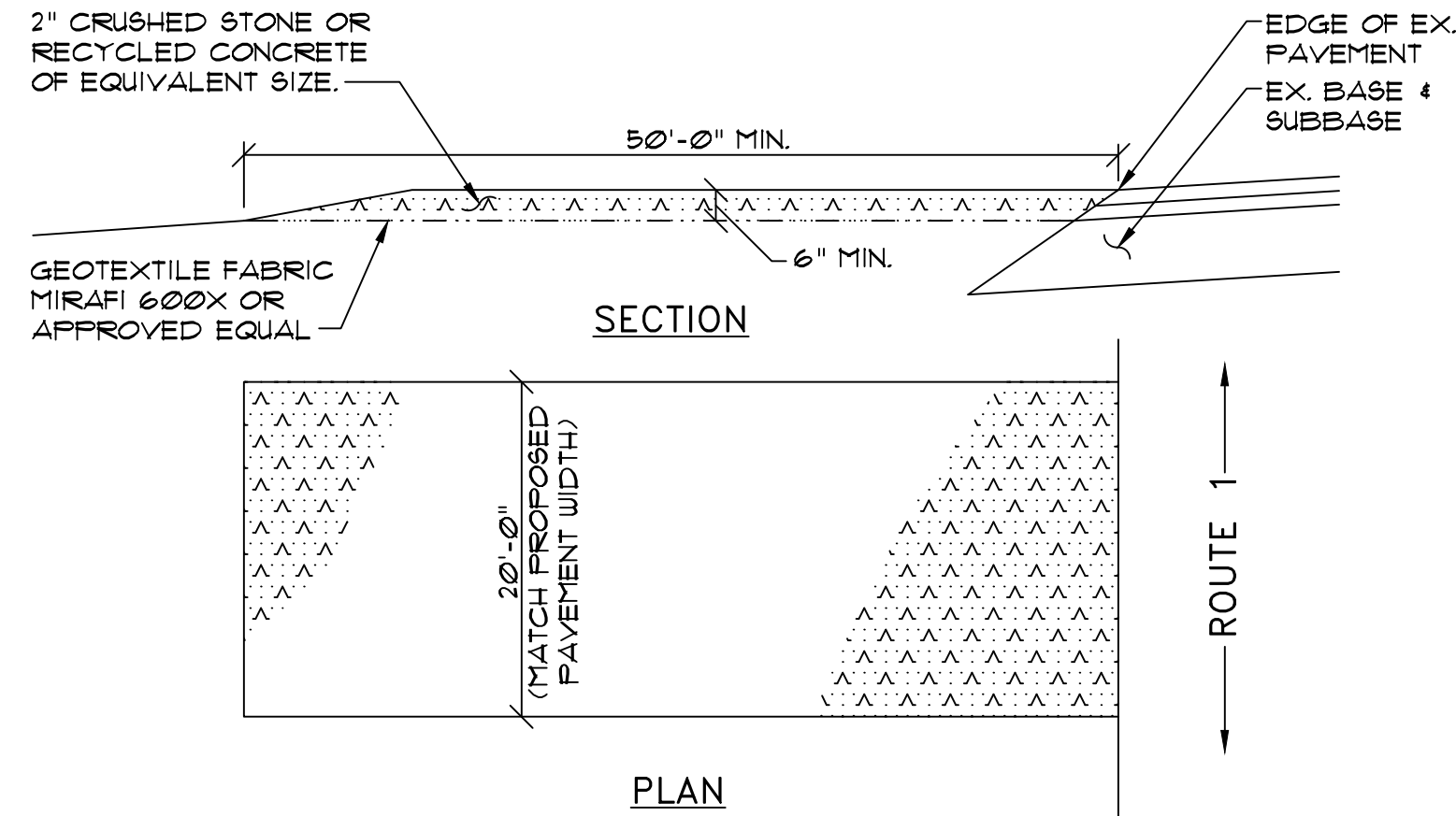
## 6 GRASS DITCH SECTION

NOT TO SCALE



## 1 STONE CHECK DAM DETAIL

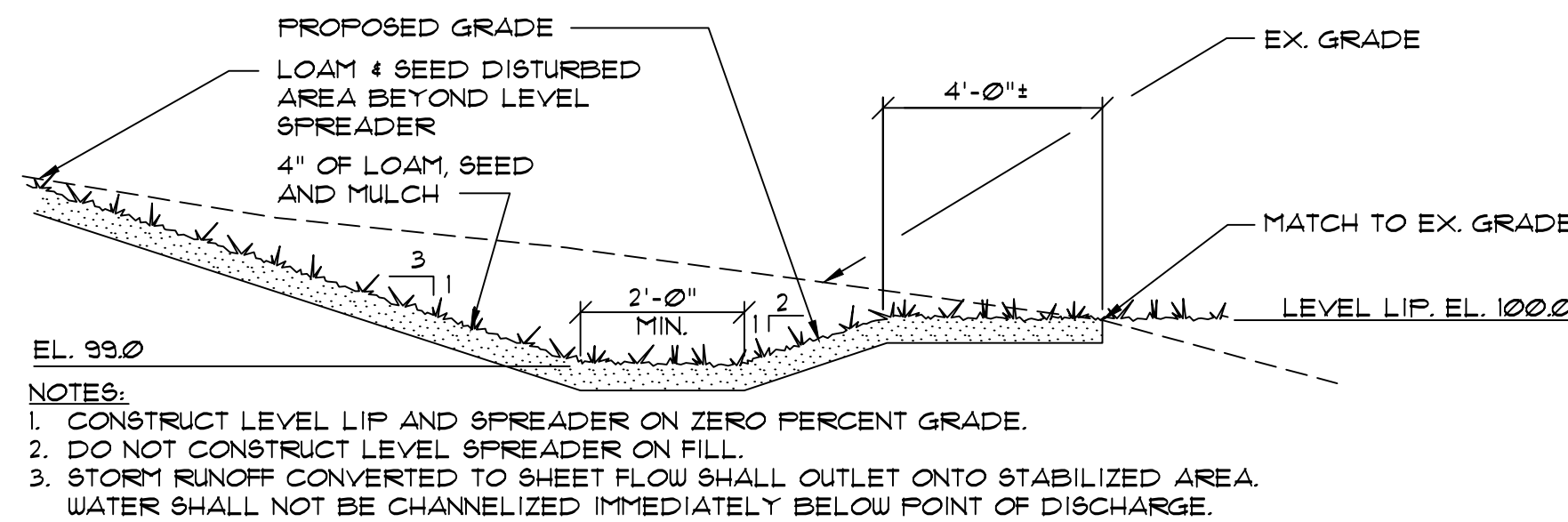
NOT TO SCALE



- NOTES:
- MAINTAIN ENTRANCE IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAY. IF WASHING IS REQUIRED PREVENT SEDIMENT FROM ENTERING WATERWAYS, DITCHES OR STORM DRAINS.
  - REMOVE STABILIZED CONSTRUCTION ENTRANCE TO FINISH ROAD CONSTRUCTION & PAVEMENT.

## 2 STABILIZED CONSTRUCTION ENTRANCE DETAIL

NOT TO SCALE



## 3 LEVEL SPREADER SECTION

NOT TO SCALE

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STATE OF MAINE

8/28/18

THOMAS S. GREER

No. 4206

REGISTERED PROFESSIONAL ENGINEER

THOMAS S. GREER

BELTED COW HEADQUARTERS

U.S. ROUTE ONE

CUMBERLAND, MAINE

BELTED COW

247 PORTLAND STREET

SUITE 500

YARMOUTH, ME 04096

Rev.	Date	Description	Drawn	Check

Sheet Title:

SITE DETAILS

Job No.: 441

Date: 8/28/18

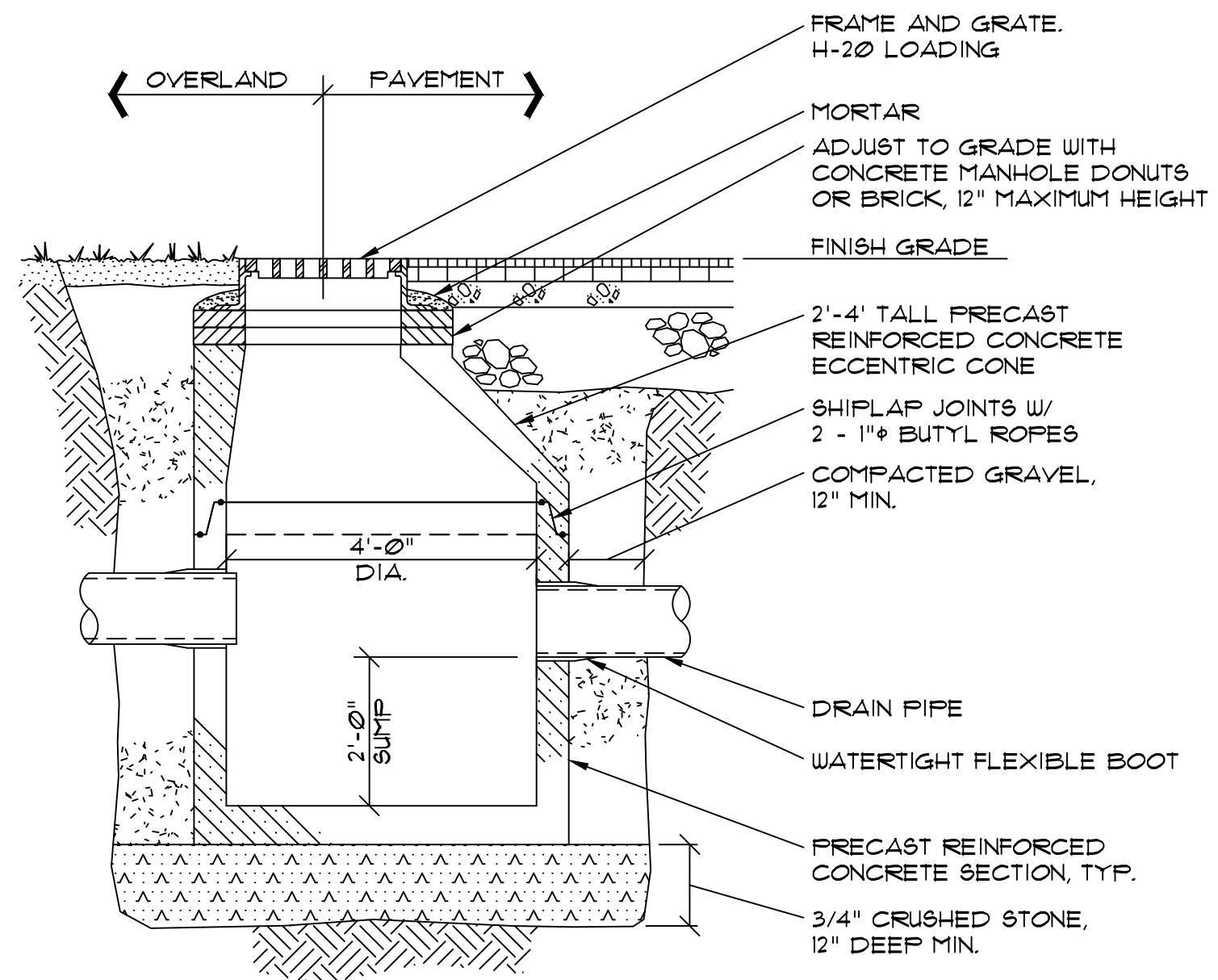
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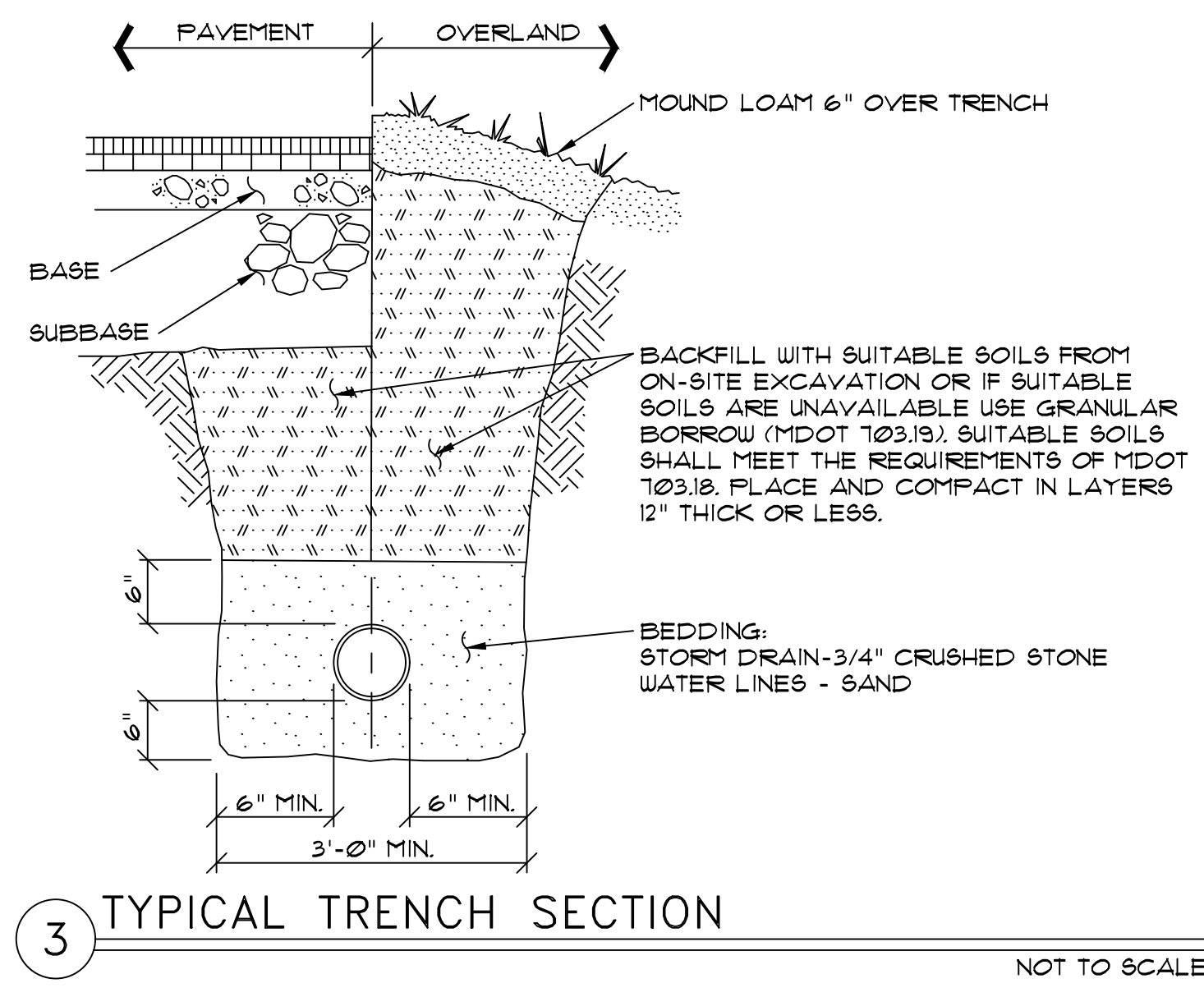
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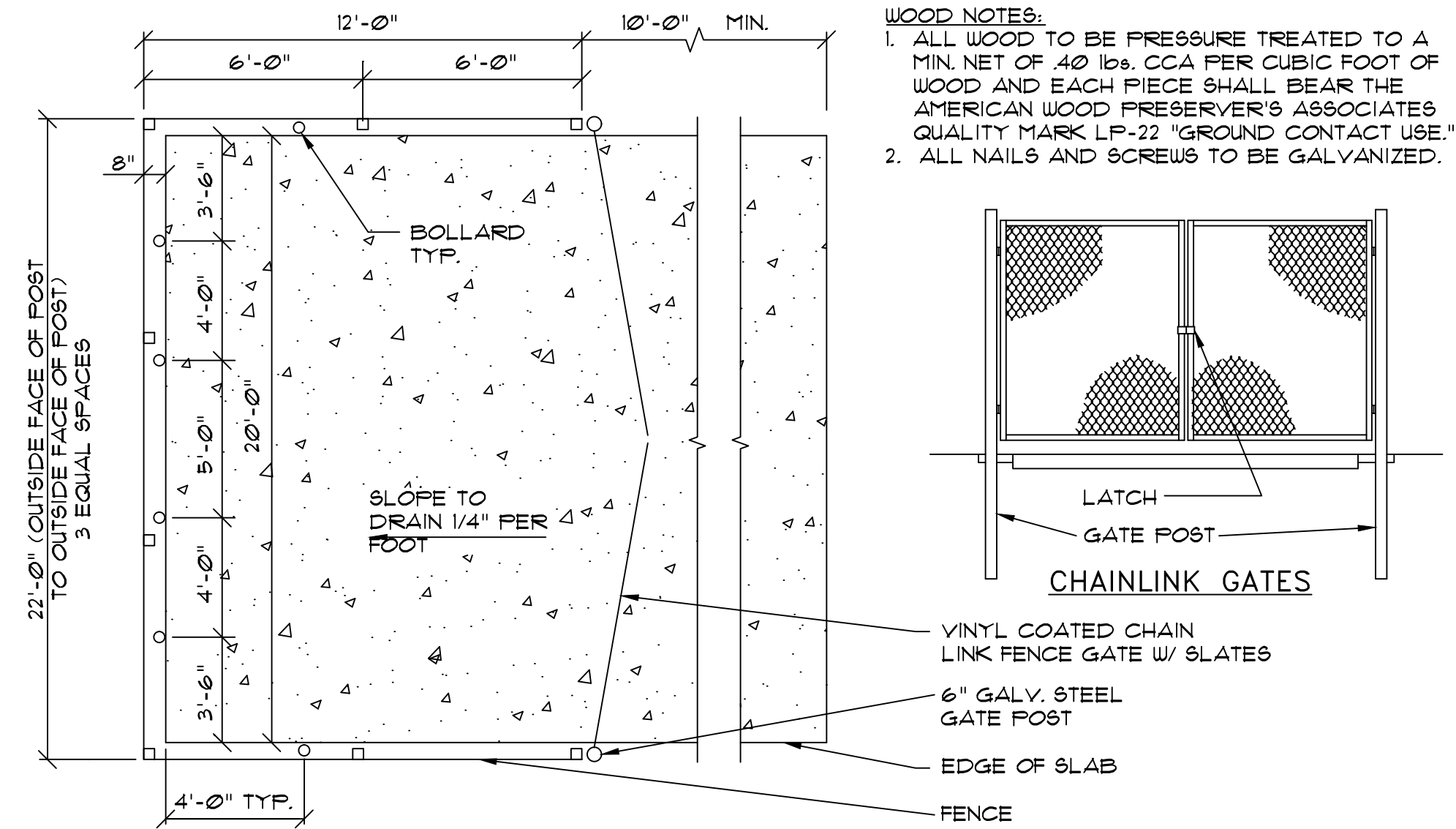
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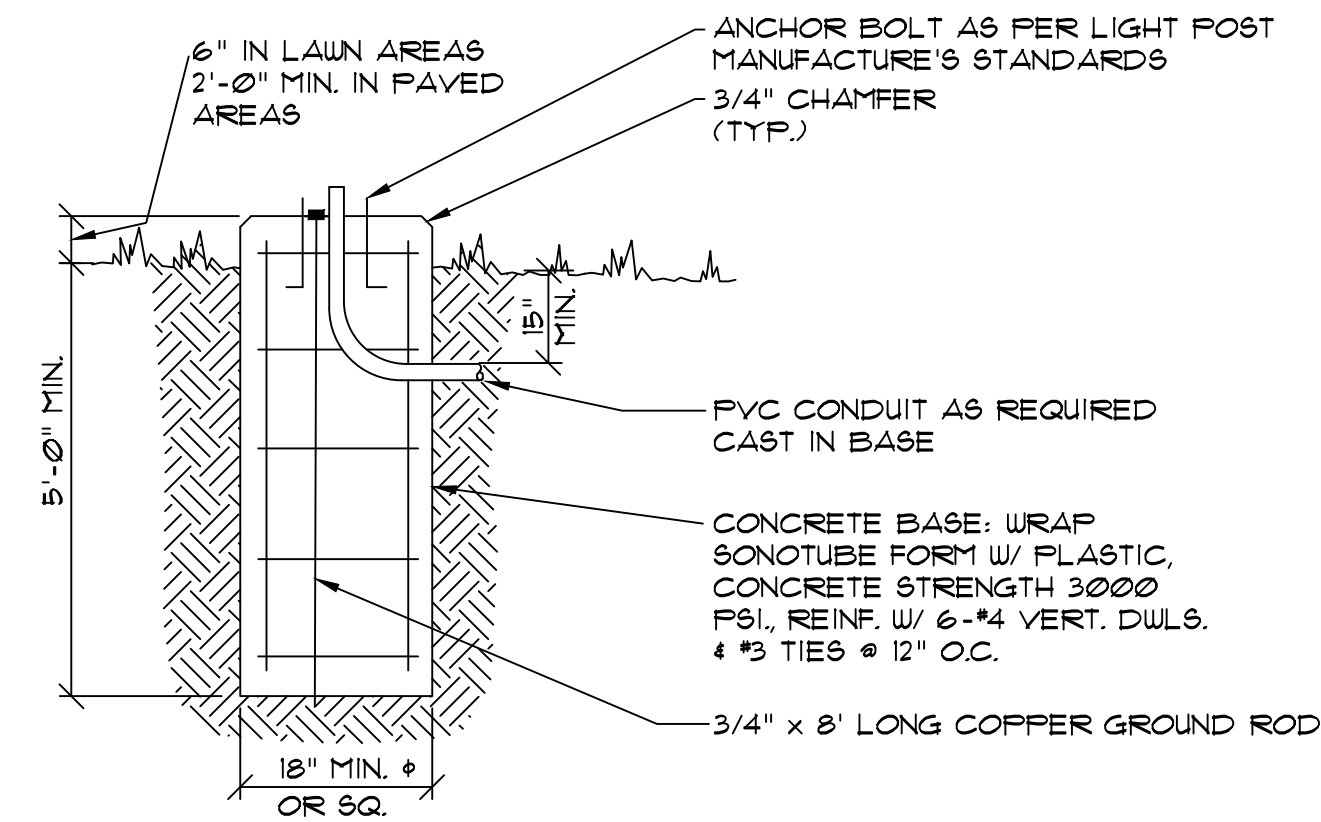
6 TYPICAL CATCH BASIN SECTION  
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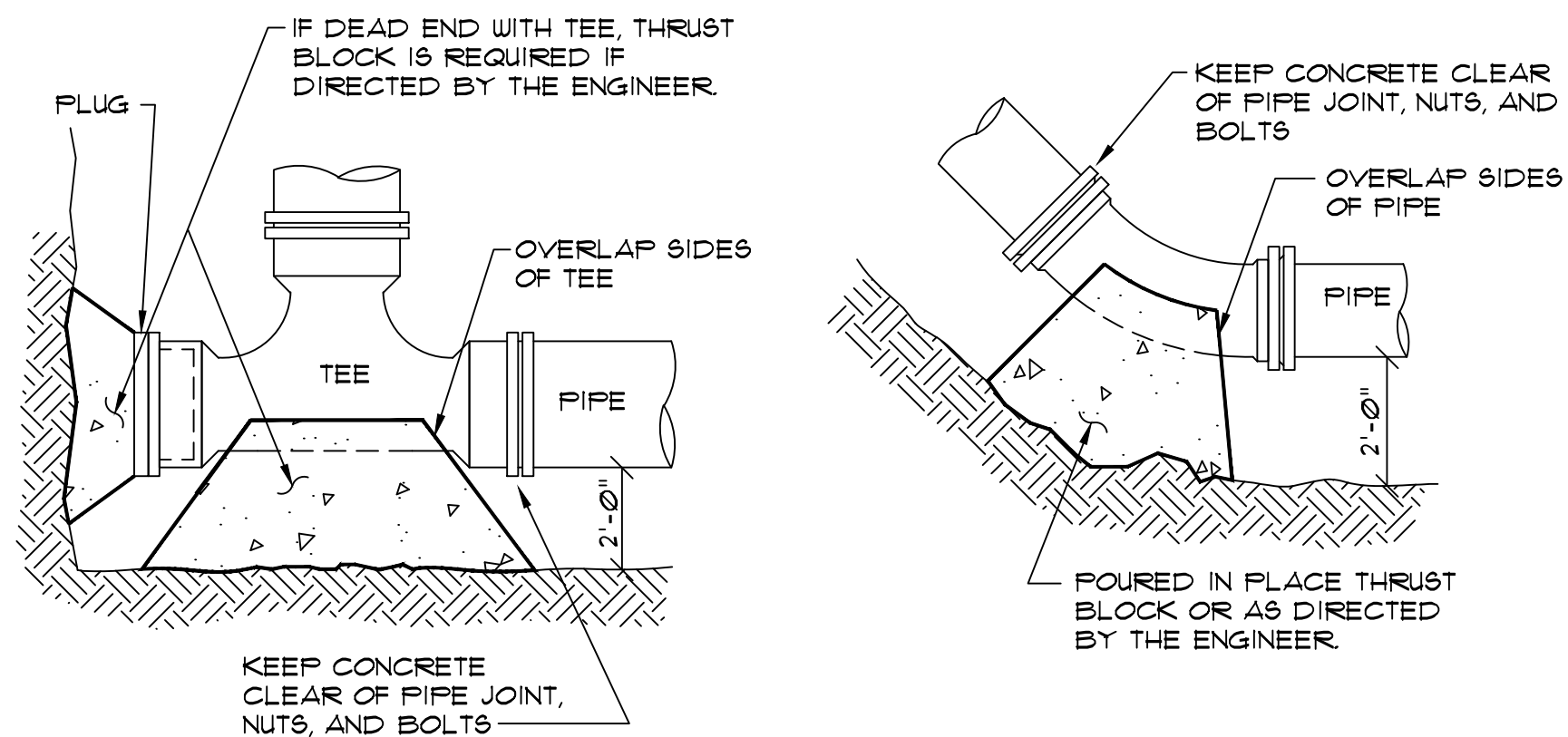
3 TYPICAL TRENCH SECTION  
NOT TO SCALE



1 DUMPSTER ENCLOSURE DETAIL  
NOT TO SCALE



4 LIGHT POLE BASE DETAIL  
NOT TO SCALE

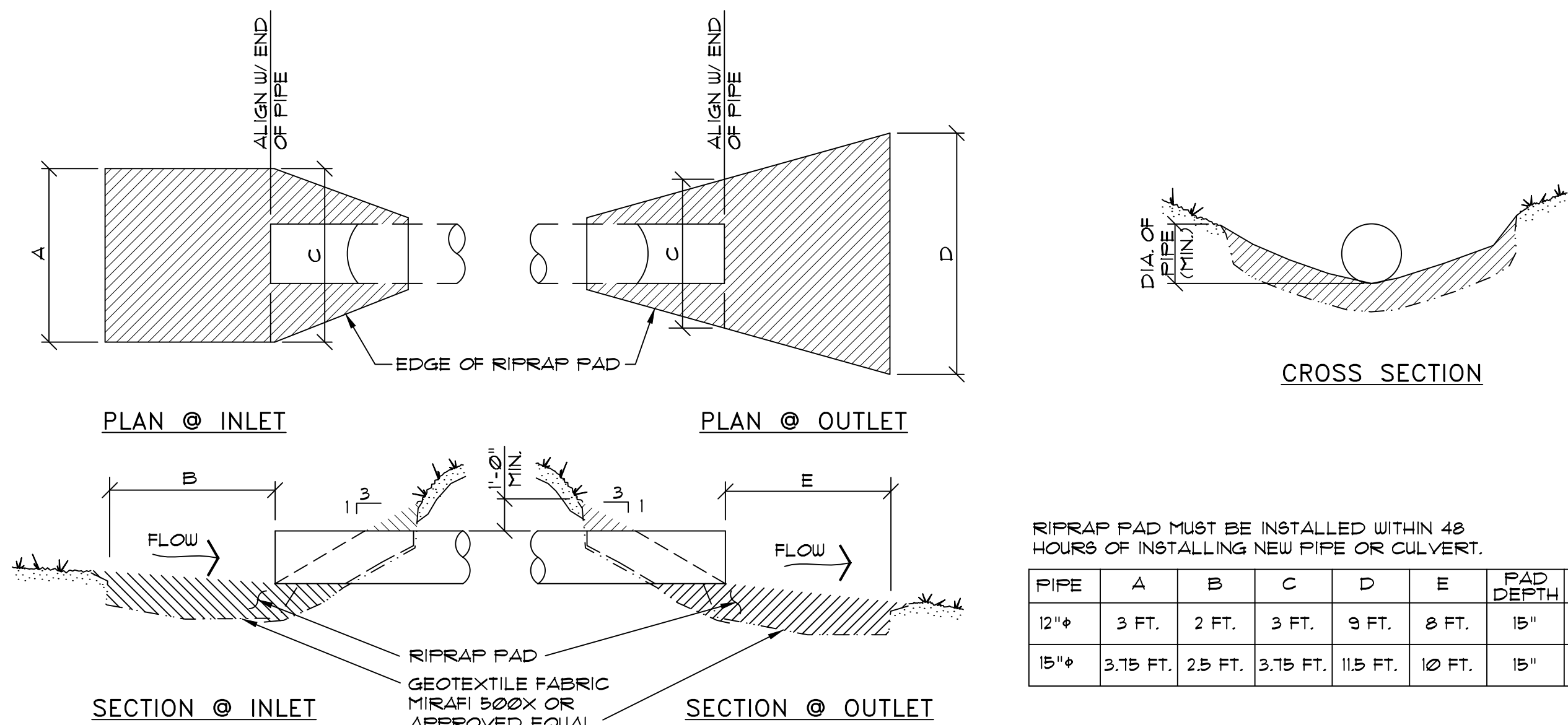


PIPE SIZE IN	90° ELBOW	45° ELBOW	VALVES, TEES AND DEAD ENDS
4"	2,600	1,420	1,850
6"	5,400	2,900	3,800
8"	9,300	5,000	6,500
10"	13,900	7,550	10,850
12"	19,100	10,800	13,900

PIPE SIZE	90° BEND	TEE	PLUG	45° BEND	22 1/2° AND SMALLER
16"	28	22	20	15	8
12"	16	14	11	9	4
8"	7	6	5	4	2
6"	5	4	3	2	2

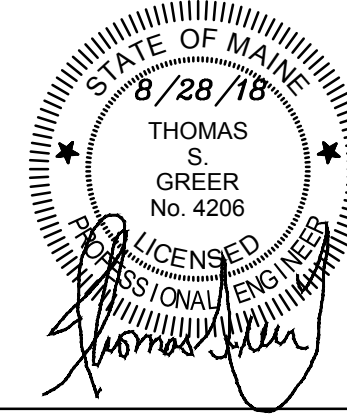
1. SIZE OF THRUST BLOCK MAY BE INCREASED BY THE ENGINEER TO MEET SOIL CONDITIONS FOUND DURING CONSTRUCTION.  
2. FOR PIPES 6" OR SMALLER USE THRUST BLOCK FOR 6" PIPE.

5 THRUST BLOCK DETAIL  
NOT TO SCALE



2 PIPE INLET/OUTLET DETAILS  
NOT TO SCALE

PIPE	A	B	C	D	E	PAD DEPTH	D <sub>50</sub>
12"Ø	3 FT.	2 FT.	3 FT.	3 FT.	8 FT.	15"	6"
15"Ø	3.75 FT.	2.5 FT.	3.75 FT.	11.5 FT.	10 FT.	15"	6"



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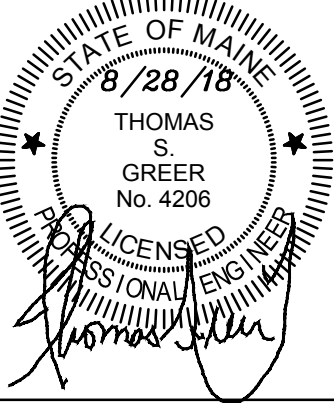
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SITE DETAILS

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BELTED COW HEADQUARTERS

U.S. ROUTE ONE  
CUMBERLAND, MAINE

BELTED COW

247 PORTLAND STREET  
SUITE 500  
YARMOUTH, ME 04096

Rev.	Date	Description	Drawn	Check

Sheet Title:  
**DRAINAGE ANALYSIS -  
EXISTING CONDITIONS  
2006**

Job No.:	441	Sheet No.:	<b>D1.0</b>
Date:	8/28/18		
Scale:	AS SHOWN		
Drawn:	JWG		
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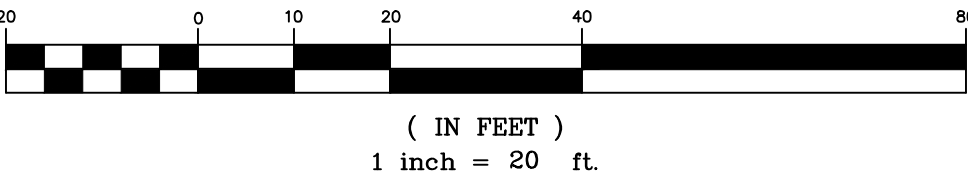
DRAINAGE LEGEND

	SUBCATCHMENT PERIMETER
	SUBCATCHMENT NUMBER
	POINT OF ANALYSIS
	TIME OF CONCENTRATION (Tc PATH)
	REACH
	POND

LEGEND

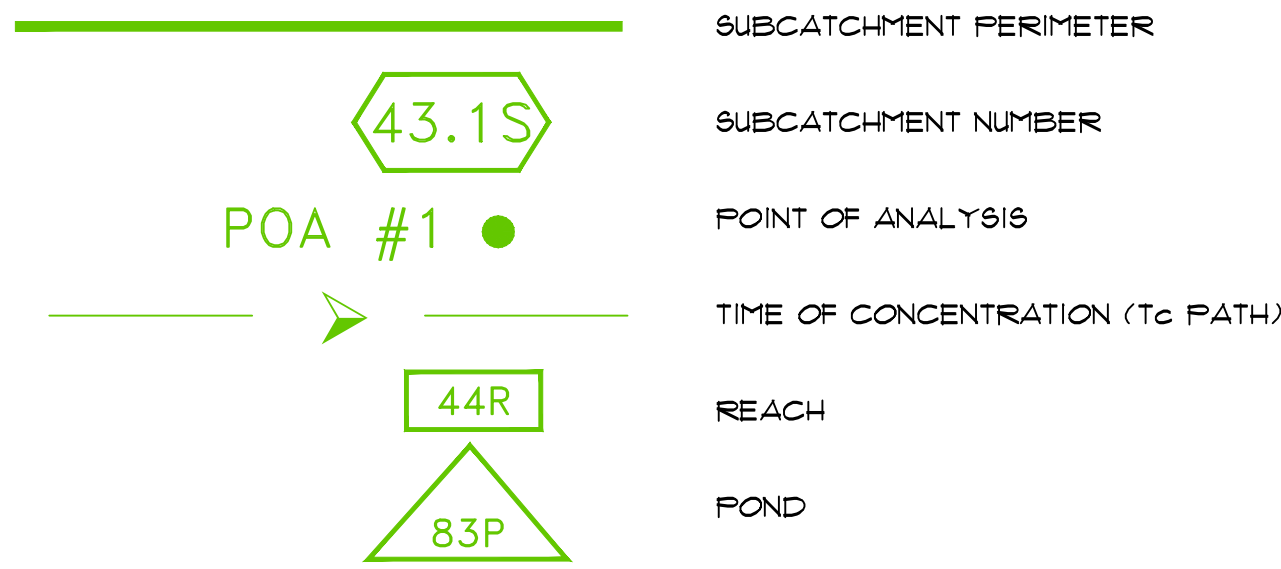
EXISTING	PROPOSED
	PROPERTY LINE
	ABUTTER'S PROPERTY
	EASEMENT
	EDGE OF PAVEMENT
	EDGE OF GRAVEL
	WETLAND LIMIT
	WETLAND
	TOWN LINE
	SANITARY SEWER
	WATER LINE
	CATCH BASIN
	SEWER MANHOLE
	STONE WALL
	LOT LINE
	EASEMENT
	EDGE OF PAVEMENT
	CONTOURS
	BUILDING
	STORMDRAIN
	WATER LINE
	WATER SHUT OFF
	CENTERLINE
	SPOT GRADE
	CATCH BASIN
	SANITARY MANHOLE
	BITUMINOUS PAVEMENT

GRAPHIC SCALE





DRAINAGE LEGEND



TREATMENT AREA



TIME OF CONCENTRATION

SUBCATCHMENT 43.1  
9.6 MIN. 80' @ 0.10'/' SHEET FLOW  
5.4 MIN. 371' @ 0.027'/' SHA. CONC. FLOW

SUBCATCHMENT 43.2  
6 MIN. DIRECT ENTRY

SUBCATCHMENT 43.3  
8.1 MIN. 100' @ 0.20'/' SHEET FLOW  
0.6 MIN. 80' @ 0.025'/' SHA. CONC. FLOW  
0.1 MIN. 18' @ 0.064'/' PIPE CHANNEL

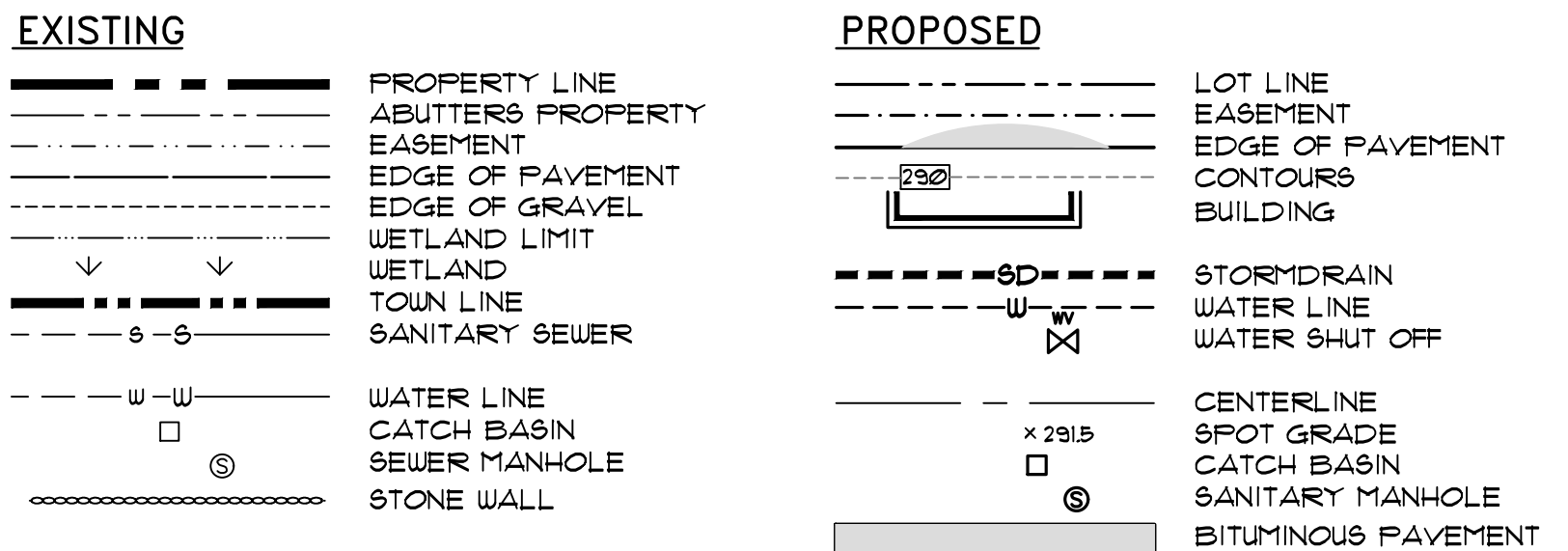
SUBCATCHMENT 43.4  
9.1 MIN. 115' @ 0.20'/' SHEET FLOW  
1.3 MIN. 245' @ 0.043'/' SHA. CONC. FLOW

TREATMENT CALCULATIONS

TOTAL IMPERVIOUS AREA: 54,840 SF  
TOTAL TREATED IMPERVIOUS: 53,550 SF  
% TREATED: 97.7%

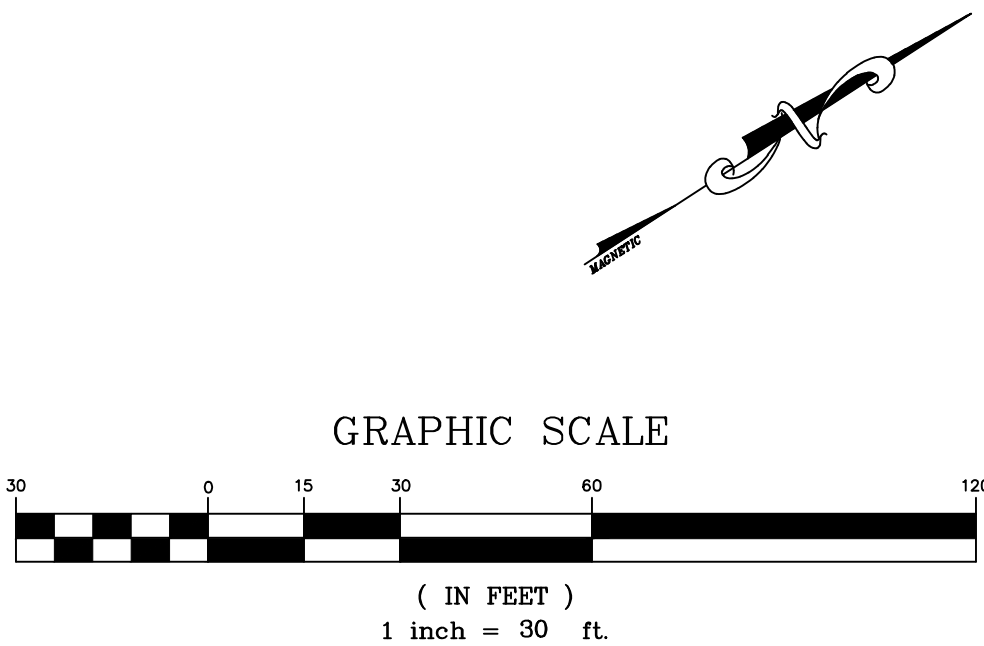
TOTAL DEVELOPED AREA: 19,626 SF  
TOTAL TREATED DEVELOPED AREA: 14,512 SF  
% TREATED: 73.9%

LEGEND



UNDERDRAIN SOIL FILTER SIZING CALCULATIONS					CHANNEL PROTECTION VOLUME	
DEVICE	IMP. (SF)	LS. (SF)	1" OFF IMP.	0.4" OFF LS	VOL. REQ. (CF)	VOL. PROV. (CF)
UDSF #1	41,880	26,692	3,990	890	4,880	1,232

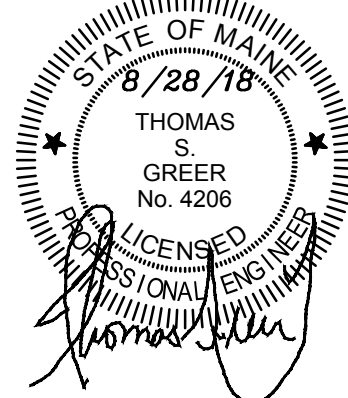
IMP. = IMPERVIOUS AREA DRAINING TO DEVICE.  
LS. = LANDSCAPE AREA DRAINING TO DEVICE.  
VOL. = VOLUME  
REQ. = REQUIRED  
PROV. = PROVIDED  
VOLUME REQUIRED = 1" OFF IMP. + 0.4" OFF LS.



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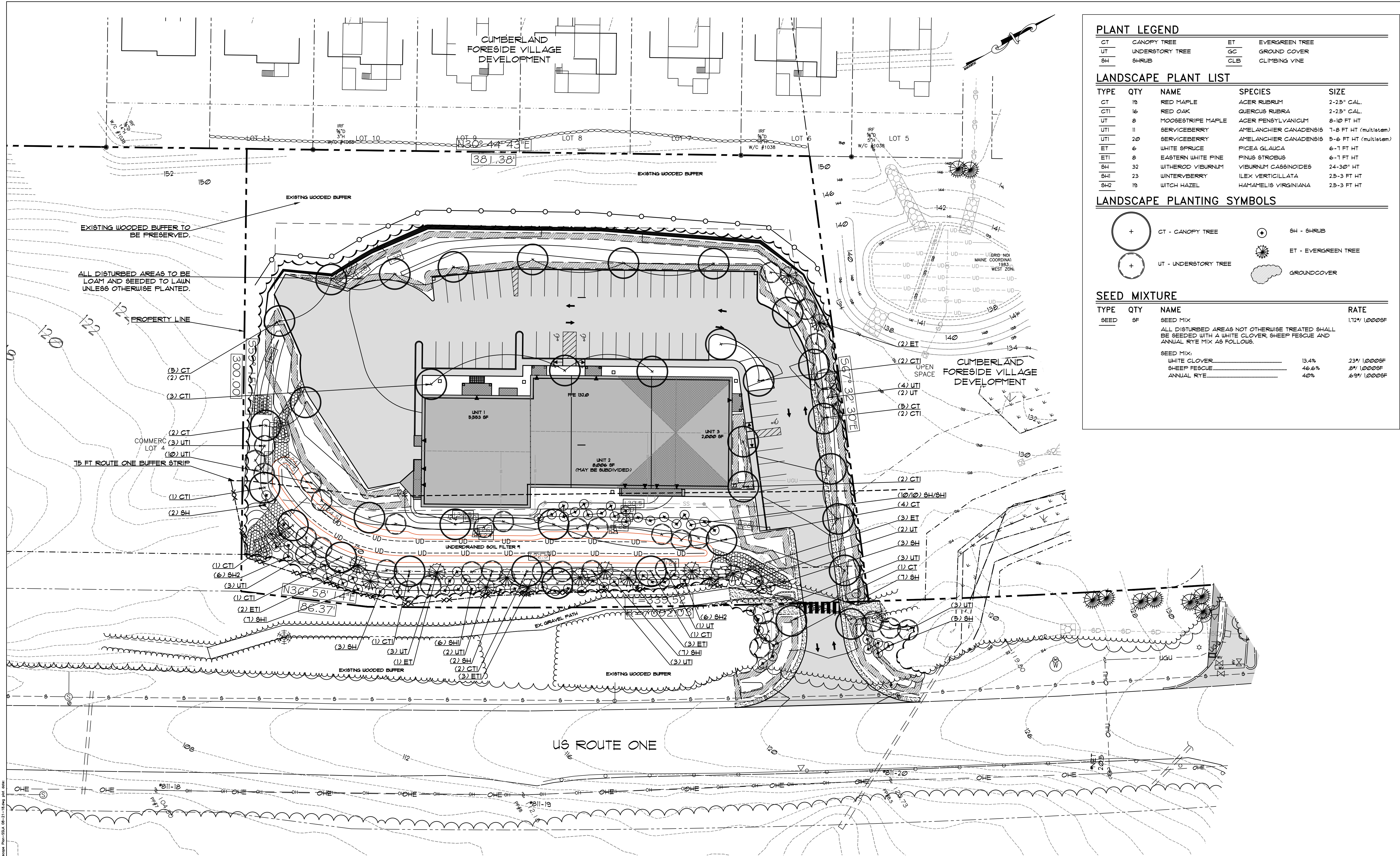
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DRAINAGE ANALYSIS -  
DEVELOPED  
CONDITIONS &  
TREATMENT PLAN

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**D2.0**

MAP: R01 / LOT: 11-5





PLANT LEGEND			
CT	CANOPY TREE	ET	EVERGREEN TREE
UT	UNDERSTORY TREE	GC	GROUND COVER
SH	SHRUB	CLB	CLIMBING VINE

LANDSCAPE PLANT LIST				
TYPE	QTY	NAME	SPECIES	SIZE
CT	19	RED MAPLE	ACER RUBRUM	2-2.5" CAL.
CTI	16	RED OAK	QUERCUS RUBRA	2-2.5" CAL.
UT	8	MOOSESTRIPE MAPLE	ACER PENNSYLANICUM	8-10 FT HT
UTI	11	SERVICEBERRY	AMELANCHIER CANADENSIS	7-8 FT HT (multi-stem)
UTI	20	SERVICEBERRY	AMELANCHIER CANADENSIS	5-6 FT HT (multi-stem)
ET	6	WHITE SPRUCE	PICEA GLAUC	6-7 FT HT
ETI	8	EASTERN WHITE PINE	PINUS STROBUS	6-7 FT HT
SH	32	WITHEROD VIBURNUM	VIBURNUM CASSINOIDES	24-30" HT
SHI	23	WINTERBERRY	ILEX VERTICILLATA	2.5-3 FT HT
SH2	19	WITCH HAZEL	HAMAMELIS VIRGINIANA	2.5-3 FT HT

LANDSCAPE PLANTING SYMBOLS			
	CT - CANOPY TREE		SH - SHRUB
	UT - UNDERSTORY TREE		ET - EVERGREEN TREE
			GROUND COVER

SEED MIXTURE			
TYPE	QTY	NAME	RATE
SEED	SF	SEED MIX	1.72"/1,000SF
ALL DISTURBED AREAS NOT OTHERWISE TREATED SHALL BE SEEDED WITH A WHITE CLOVER, SHEEP FESCUE AND ANNUAL RYE MIX AS FOLLOWS.			
SEED MIX:			
		WHITE CLOVER	13.4% 23"/1,000SF
		SHEEP FESCUE	46.6% 87"/1,000SF
		ANNUAL RYE	40% 69"/1,000SF

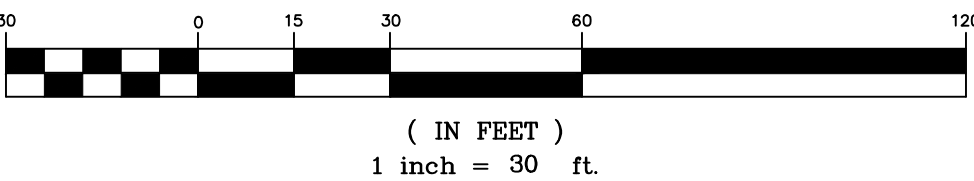
PLANTING NOTES:

1. THE LANDSCAPE CONTRACTOR SHALL SUPPLY ALL PLANTS IN QUANTITIES SUFFICIENT TO COMPLETE THE WORK SHOWN ON THE PLAN.
2. ANY SUBSTITUTION OF SPECIFIED PLANTS SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT. ONLY NATIVE SPECIES AND/OR VARIETIES WILL BE ACCEPTABLE.
3. ALL TREE, SHRUB, VINE, AND PLANT BED (GROUNDCOVERS, PERENNIALS, BULBS, ETC.) LOCATIONS SHALL BE STAKED OR MARKED BY CONTRACTOR AND THEN APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD PRIOR TO PLANTING. CONTRACTOR MUST GIVE A MINIMUM 3 DAY NOTICE BETWEEN STAKING AND PLANTING.
4. CHALK MARK NORTH AT TREE BASE PRIOR TO DIGGING AT NURSERY. REPLANT ON SITE WITH SAME NORTH ORIENTATION FOR ALL TREES.
5. ALL PLANTS INSTALLED SHALL MEET THE SPECIFICATIONS OF THE AMERICAN STANDARD FOR NURSERY STOCK (LATEST ADDITION) AS SET FORTH BY THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
6. ALL PLANTS SHALL BE DELIVERED TO THE SITE FOR REVIEW BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

7. THE LANDSCAPE CONTRACTOR IS ADVISED OF THE EXISTENCE OF UNDERGROUND UTILITIES, THE LOCATION OF WHICH SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY EXCAVATION OPERATIONS. SHOULD THE LOCATION OF PROPOSED PLANTINGS CONFLICT WITH ANY OF SAID UTILITIES, ADJUST PLANT LOCATIONS ACCORDINGLY AFTER CONSULTATION WITH THE LANDSCAPE ARCHITECT.
8. PLANTING TREES AND SHRUBS: EXCAVATE PLANTING PITS WITH SLOPING SIDES, AND WITH BOTTOM OF EXCAVATION RAISED IN CENTER FOR DRAINAGE. LOOSEN HARD SUBSOIL IN BOTTOM OF EXCAVATION, AND LOOSEN SOIL ON SIDES OF SLOPES. SET PLANTS IN CENTER OF PIT WITH TOP OF BALL RAISED SLIGHTLY ABOVE FINISH GRADES. PLACE A SETTING LAYER OF COMPACTED PLANTING MIX. REMOVE BURLAP AND WIRE BASKETS FROM TOP OF BALLS. ON SIDES, FOLD BACK WIRE AND REMOVE UPPER PORTIONS OF BURLAP. DO NOT USE PLANT IF ROOT BALL IS CRACKED OR BROKEN. IF CONTAINER, REMOVE CONTAINER AND SCOUR PERIMETER SOIL AND ROOTS. PLACE PLANTING MIX AROUND BALL/CONTAINER IN LAYERS, TAMPING TO ELIMINATE VOIDS AND AIR POCKETS. DO NOT COVER TOP OF ROOT BALL. PRUNE, THIN, AND SHAPE AFTER PLANTING.
9. MULCH PLANTING BEDS AND TREE PITS WITH 2" FINELY SHREDDED AND AGED PINE BARK MULCH OR AS SPECIFIED ON THE PLAN.
10. ALL DISTURBED LAWN AREAS TO BE LOAMED AND SEEDED AS NECESSARY AT NO ADDITIONAL COST TO OWNER(S).

11. REFER TO DRAWING L1J FOR PLANTING DETAILS AND LOAM AND SEEDING DETAILS.
12. GRADES SHOWN REPRESENT PROPOSED GRADES PER CONTRACT. CONTRACTOR TO VERIFY GRADES AS NEEDED.
13. PLANT MATERIALS SHALL BE GUARANTEED FOR ONE (1) YEAR AFTER PLANTING. ANY DEAD, UNSIGHTLY, OR UNHEALTHY PLANTS SHALL BE REPLACED IN KIND AT NO COST TO THE OWNER(S).
14. THE CONTRACTOR SHALL REPLACE OR REPAIR TO ORIGINAL CONDITION ANY AND ALL UTILITIES, PAVING, CURBING, ETC., DAMAGED AS A RESULT OF THEIR OPERATIONS AT NO ADDITIONAL COST TO THE OWNER(S).
15. A PRE-CONSTRUCTION MEETING SHALL BE HELD PRIOR TO LANDSCAPE CONTRACTOR BEGINNING CONSTRUCTION OR ORDERING PLANT MATERIALS.

GRAPHIC SCALE



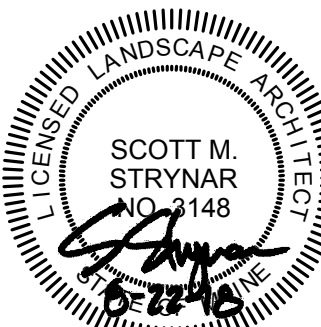
PRELIMINARY PLAN - NOT FOR CONSTRUCTION

WALSH  
ENGINEERING ASSOCIATES, INC.

One Karen Dr., Suite 2A | Westbrook, Maine 04092  
ph: 207.553.9898 | www.walsh-eng.com

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(t) 207-957-4441  
www.scottstrynar.com



BELTED COW HEADQUARTERS

U.S. ROUTE ONE  
CUMBERLAND, MAINE

BELTED COW

247 PORTLAND STREET  
SUITE 500  
YARMOUTH, ME 04096

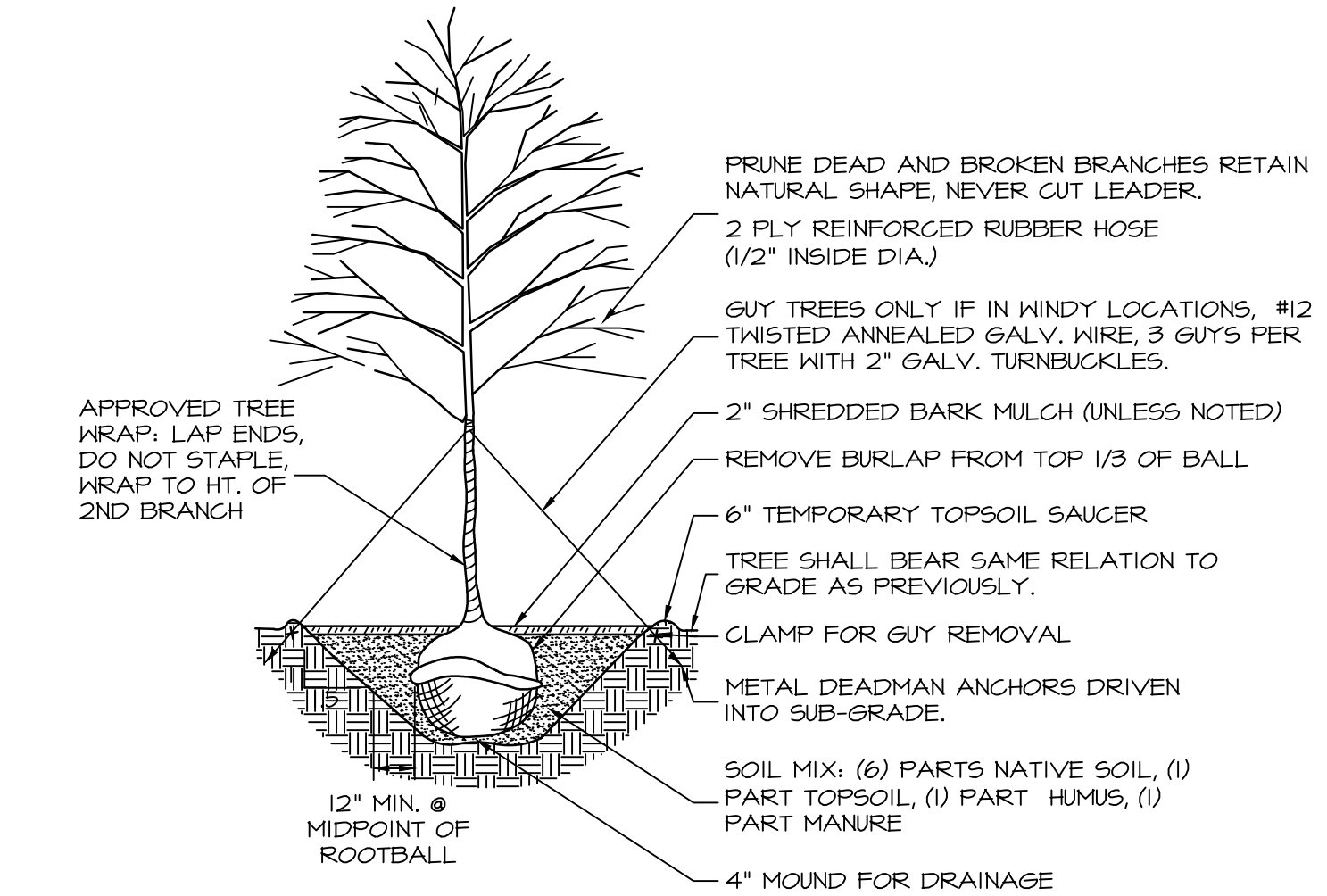
Rev.	Date	Description	Drawn	Check

Sheet Title:  
LANDSCAPE PLAN

Job No.:	999	Sheet No.:	
Date:	7/10/18		
Scale:	AS SHOWN		
Drawn:	TS/SS		
Checked:			

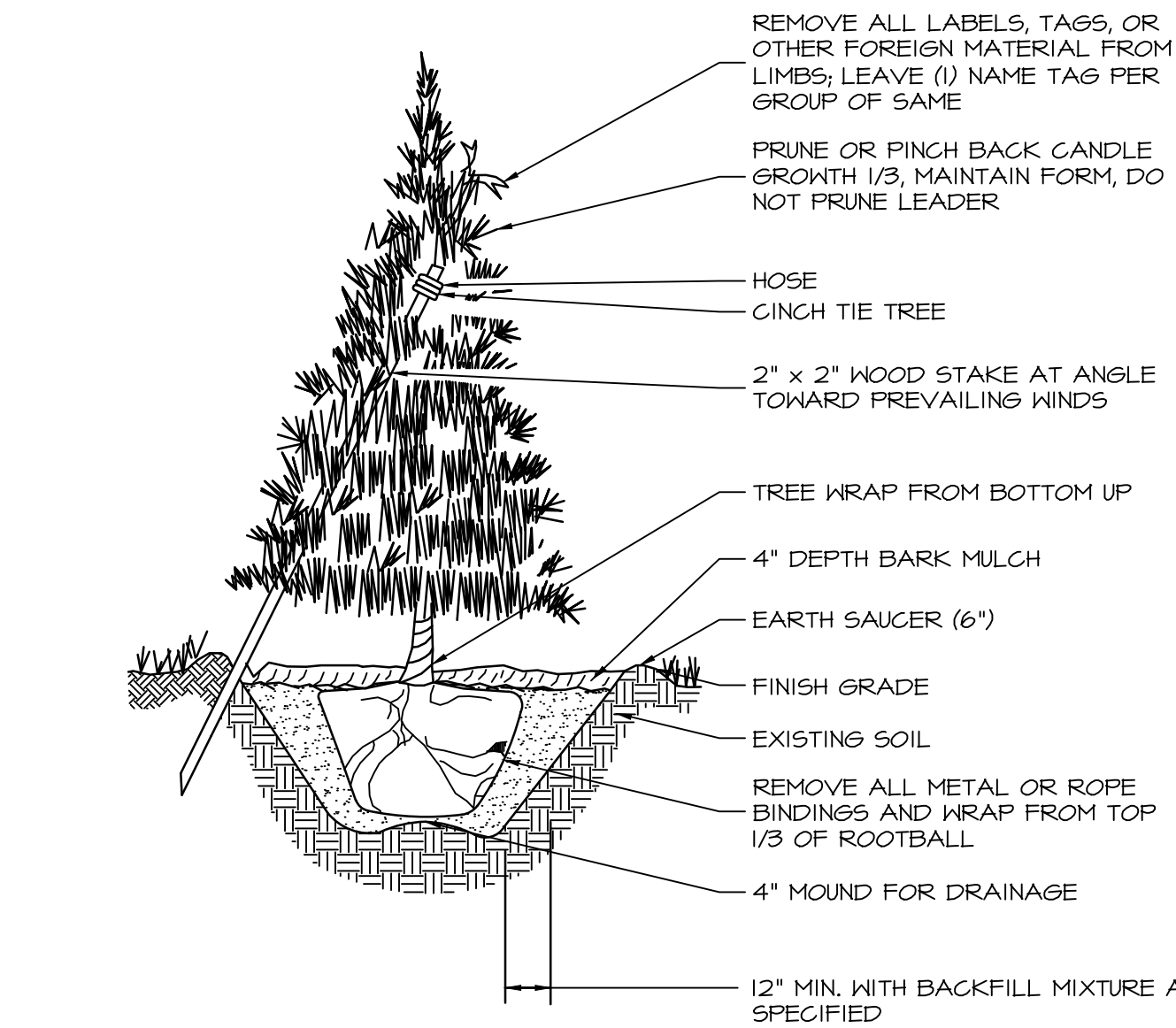
L1.0





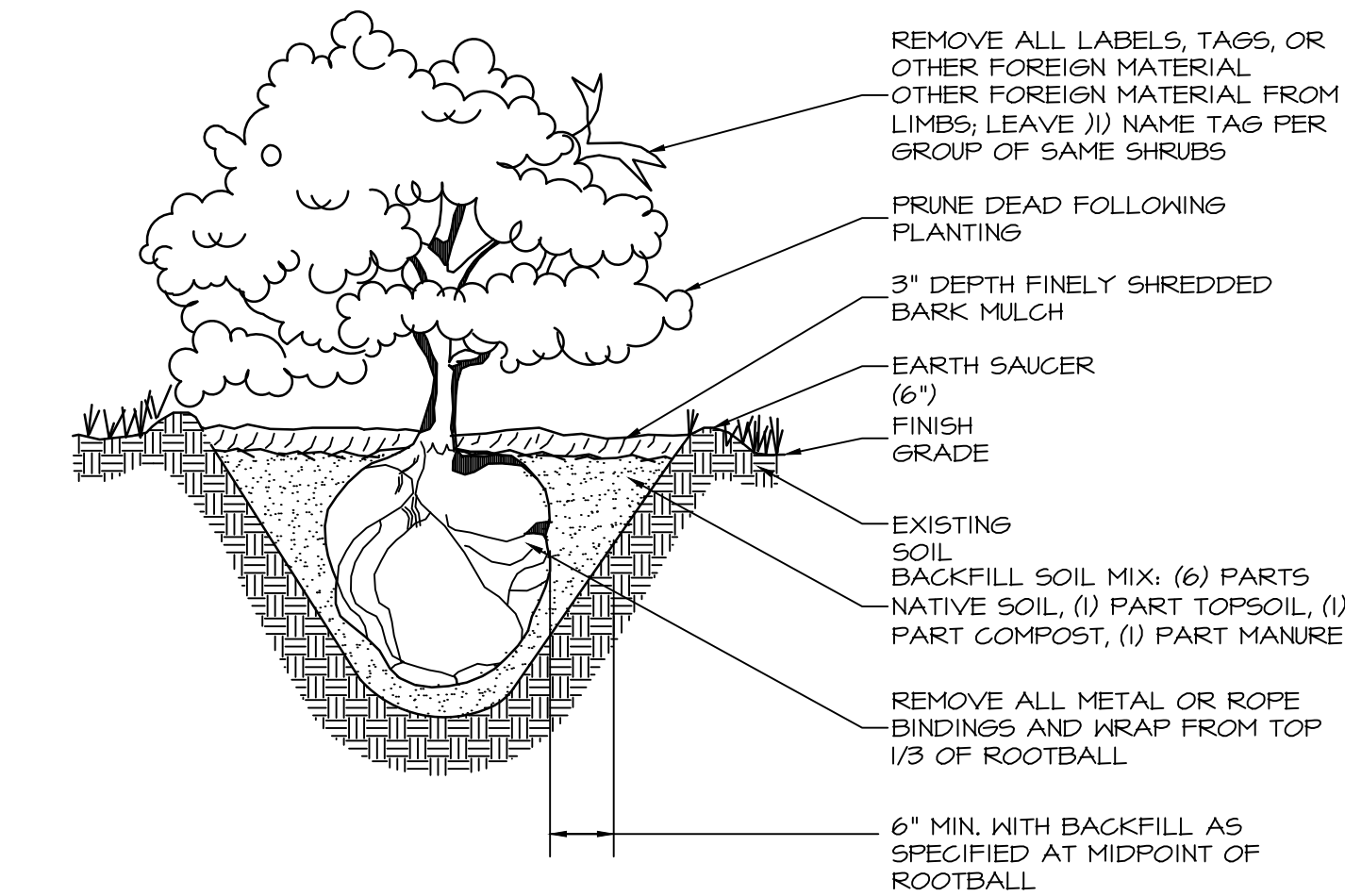
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L1.1  
NOT TO SCALE

TREE PLANTING INSTALLATION



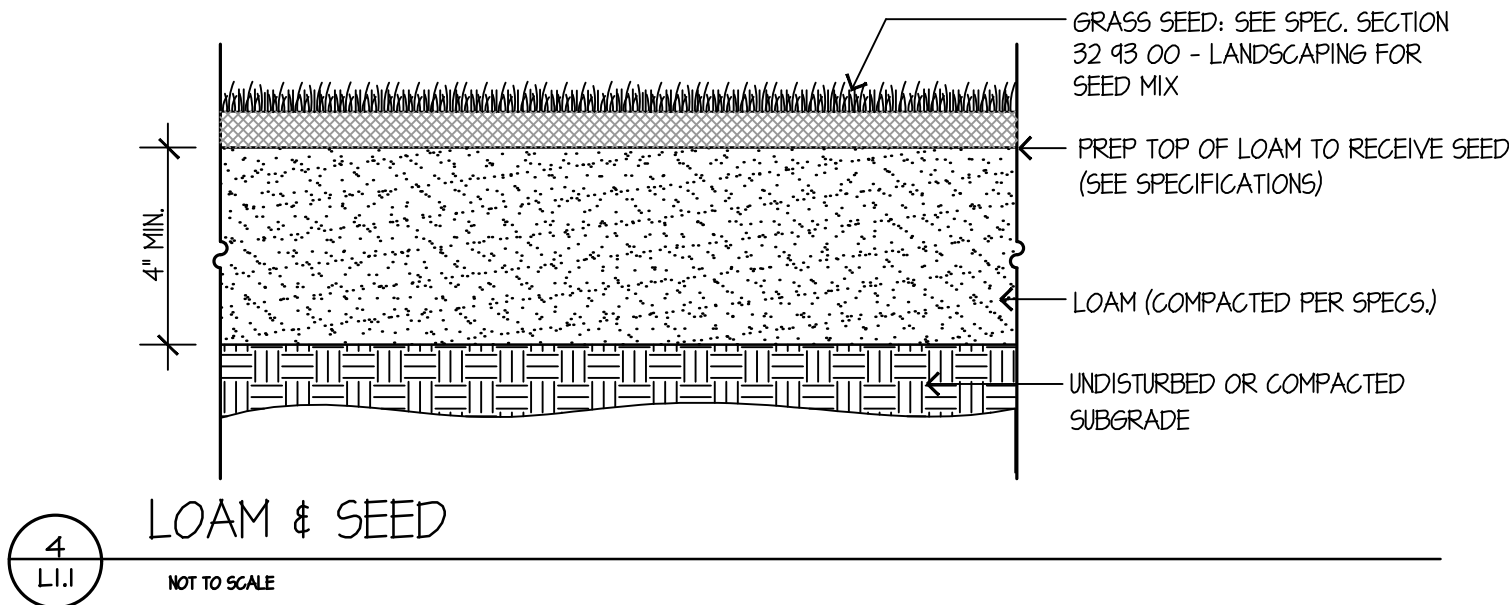
2  
L1.1  
NOT TO SCALE

EVERGREEN TREE PLANTING



3  
L1.1  
NOT TO SCALE

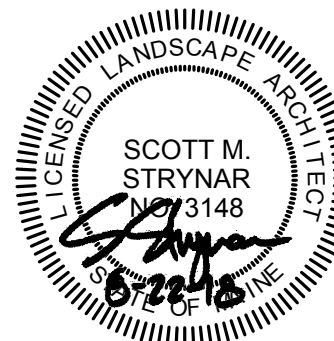
SHRUB PLANTING INSTALLATION



4  
L1.1  
NOT TO SCALE

LOAM & SEED

Scott Strynar  
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BELTED COW HEADQUARTERS

U.S. ROUTE ONE  
CUMBERLAND, MAINE

BELTED COW

247 PORTLAND STREET  
SUITE 500  
YARMOUTH, ME 04096

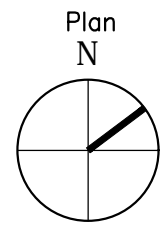
Rev.	Date	Description	Drawn	Check

Sheet Title:  
**LANDSCAPE  
DETAILS**

Job No.:	999	Sheet No.:	
Date:	6/24/18		
Scale:	AS SHOWN		
Drawn:	TS/SS		
Checked:			

L1.1





Consultants

Revisions

Belted Cow  
Company

Route One  
Cumberland, Maine



Job Number: 18.027

Date: 08.07.18

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

Drawing Title:

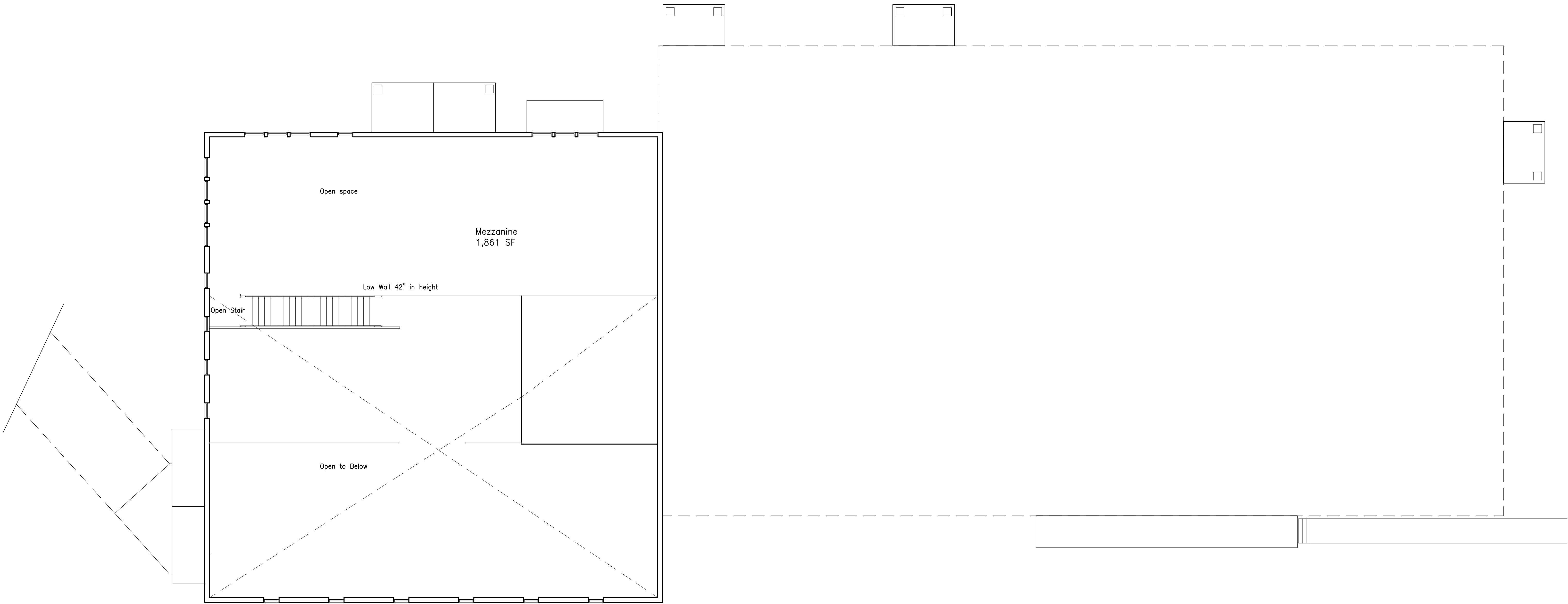
First Floor  
Plan

A1.1  
Cumberland  
Planning Board



1 Proposed First Floor Plan

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

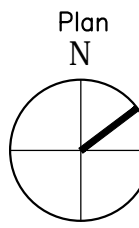


2 Proposed Mezzanine Plan

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

David Matero  
Architecture

100 Front Street  
Suite 40  
Bath, Maine 04530  
207.389.4278  
info@davidmatero.com

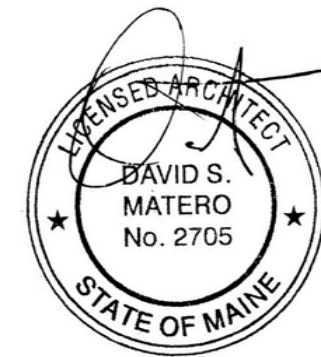


Consultants

Revisions

Belted Cow  
Company

Route One  
Cumberland, Maine



Job Number: 18.027

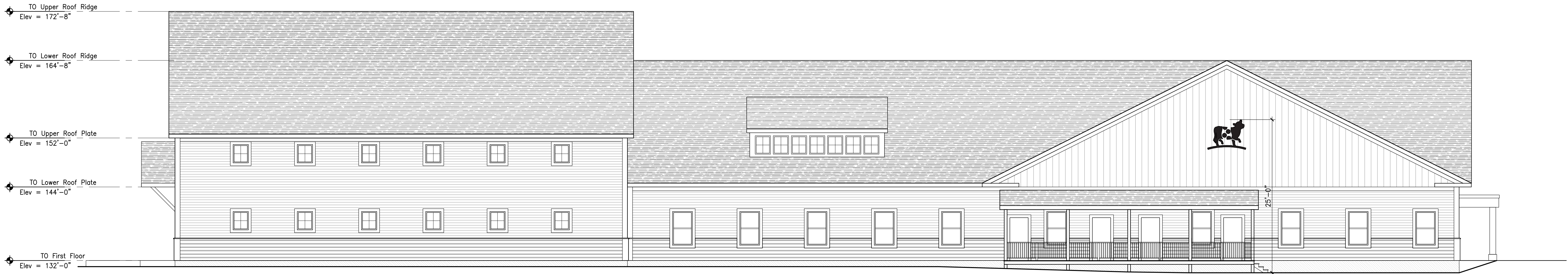
Date: 08.07.18

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

Drawing Title:

Mezzanine  
Floor Plan

A1.2  
Cumberland  
Planning Board



1 South Exterior Elevation

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



2 East Exterior Elevation

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



3 West Exterior Elevation

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



4 North [Route 1] Exterior Elevation

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

David Matero  
Architecture

100 Front Street  
Suite 40  
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207.389.4278  
info@davidmatero.com

Consultants

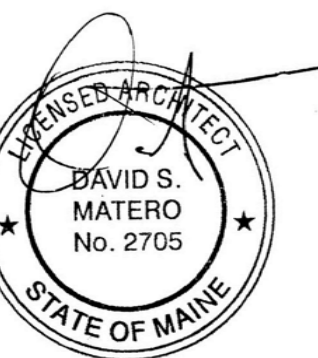
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Revisions

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Belted Cow  
Company

Route One  
Cumberland, Maine

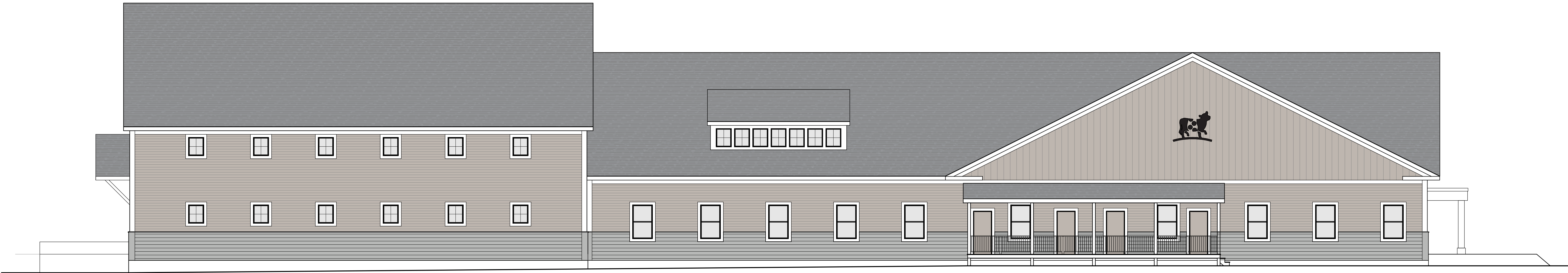


Job Number: 18.027  
Date: 08.07.18  
Scale: 1/8" = 1'-0"

Drawing Title:  
Proposed  
Elevations

A2.1  
Cumberland  
Planning Board

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Architecture, LLC



4 South Exterior Elevation - Cobblestone Color Palette

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

Materials Legend:

Base Siding: Boral Channel Bevel siding, painted to match Cobblestone (2 shades darker)

Siding: HardiePlank Lap Siding, prefinished Cobble Stone color, fiber cement by James Hardie

Gable Siding: HardiePanel Vertical Siding, prefinished Cobble Stone color, fiber cement by James Hardie

Trim: Azek PVC white trim or Boral trim, painted white

Roof: Grand Manor Luxury shingles by Certain Teed Saint-Gobain, color Weathered Wood

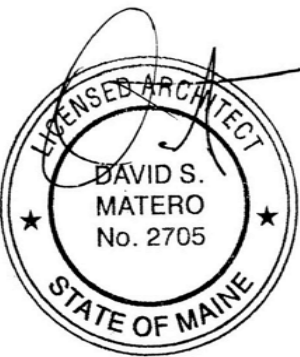
Windows: Pre-finished black aluminum or fiberglass clad windows by Marvin, Pella or Anderson.

Consultants

Revisions

Belted Cow  
Company

Route One  
Cumberland, Maine



Job Number: 18.027

Date: 08.07.18

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

Drawing Title:

Color  
Rendering

A2.2

Cumberland  
Planning Board







File: 441

September 12, 2018

Ms. Carla Nixon  
Town of Cumberland  
290 Tuttle Rd  
Cumberland, ME 04021

**RE: Response to Memo 9/10/18 by Jeff Read  
Lot 5, Cumberland Foreside Village, Belted Cow, Cumberland**

Dear Carla,

Below are responses to t Jeff's comments for Belted Cow.

Chapter 229: Site Plan Review

Section 229-10-B. – Traffic, circulation and parking

1. SME recommends the Applicant provide a copy of the existing Maine Department of Transportation Driveway Entrance Permit for site access from this lot to US Route One prior to final approval.  
**The entrance to this site has been part of the Master Plan for a long time. Bill Bray has looked at it for traffic safety and found it acceptable. We will provide an access permit to the Staff prior to construction.**
2. SME recommends the Applicant verify the grade of the proposed access drive does not exceed +3% for a minimum of two car lengths, or 40 feet, from the intersection.  
**Attached is a plan showing the grade along the driveway. It slopes at less than 3% along the center line.**
3. SME Recommends the Applicant provide a written explanation outlining direct access to US Route One as a reasonable alternate to using the common access easement at the back of the lot as outlined in the Fourth Amended Subdivision Plan.  
**The access to this lot has been from Route One from the beginning. The access across the back is not constructed and is not likely to be constructed for some time if ever. Please note the access does not extend to Route One across Lot 5. The rear access would benefit this lot but not the remaining lots. This access allows this lot to be developed now.**
4. SME recommends adding a crosswalk and appropriate signage where the existing footpath parallel to US Route One crosses the access drive.  
**We have added the crosswalk markings and signs to the attached driveway plan. These will be on future submittals.**

#### Section 229-10-C. – Stormwater Management and erosion control

5. The Stormwater Management Report outlined an increase in impervious area beyond what was previously approved. Please verify an amendment is not required for the existing MEDEP SLODA permit for the site.

**We have submitted the plan to DEP for a minor amendment.**

6. The Pre-Development treatment area is 0.67 acres larger than the Post-Development treatment area. This is outlined on plan sheets D1.0 and D2.0 and the Area Listings included in the Stormwater Management Report. Please update the runoff calculations to provide an accurate representation of peak flow increases on the property.

**The existing drainage calculations are correct. We used the original existing conditions plan prior to the development of the housing. The housing project handles the top of the existing drainage, in a different direction.**

#### Section 229-10-D. – Water, sewer, and fire protection

7. SME recommends the Applicant provide a letter from the Portland Water District to demonstrate adequate capacity to serve the project prior to final approval.

**The letter was submitted under a separate cover on 9/5/18.**

Section 229-10-E. – Water Protection – SME has reviewed and has no comments.

Section 229-10-F. – Floodplain management - SME has reviewed and has no comments.

#### Section 229-10-G. – Historic and archaeological resources

8. SME recommends the Applicant provide a letter from the Maine Historic Preservation Commission (MHPC) prior to final approval.

**The Maine Historic Preservation has looked at this site as part of the Site Law approvals. No new letter is required.**

Section 229-10-H. – Exterior lighting - SME has reviewed and has no comments.

Section 229-10-I. – Buffering and landscaping - SME has reviewed and has no comments.

Section 229-10-J. – Noise – SME reviewed and has no comments.

Section 229-10-K. – Storage of materials – SME reviewed and has no comments.

Section 229-10-L. – Capacity of the applicant - SME reviewed and has no comments.

Section 229-10-M. – Design and performance standards – SME reviewed and has no comments.

#### Chapter 315: Zoning

SME has evaluated the application for conformance with the applicable sections of the Zoning Ordinance and Contract Zone. The following are our findings and comments.

Section 315-57 – Parking and loading

9. This section outlines one parking space for each 250 square feet of gross leasable area for professional offices and business services, medical clinics and retail business in commercial districts. SME recommends the applicant update the plan set to reflect the requirement or request a waiver.

**We request the Board grant a waiver for the parking. The Belted Cow and Gym uses for the building will require 10 to 12 spaces for 7,722 sq. ft. This is 1 space per 643 sq. ft. The remaining spaces will have 42 spaces available for a 196 sq. ft. per space meeting the code. Overflow parking is available at the loading dock end if necessary.**

General Comments:

10. Plan sheet C1.1 outlines wetlands mapping is taken from a plan dated March 20, 2007. Industry standard generally requires updated mapping for surveys older than 5 years. SME recommends the applicant provide updated wetland information prior to final approval.

**The site was mapped as part of the original approval and site conditions haven't changed. Mapping of the site wetlands is not necessary. There are no wetlands on site.**

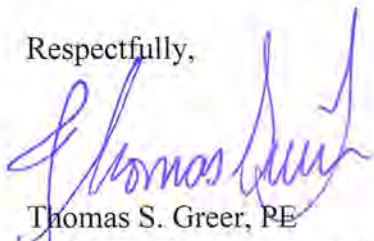
11. SME recommends the Applicant request waivers from the requirement to provide a high intensity soils survey, a hydro geologic evaluation, a market study, location of proposed recreation areas, and location and type of outdoor furniture and features.

**We request the Board grand waivers for the following items:**

- a. **High Intensity Soils Map. It was completed as part of the Subdivision Approval.**
- b. **Hydro geologic Evaluation. The site is on public sewer and will have no discharge to the groundwater.**
- c. **Market Study: Belted Cow is an existing business looking for a new home.**
- d. **Location of Recreational Areas and Outdoor Furniture. This project will not have a recreational area or outdoor furniture.**

Hopefully you find our responses appropriated for the Board. Let me know if you have any questions.

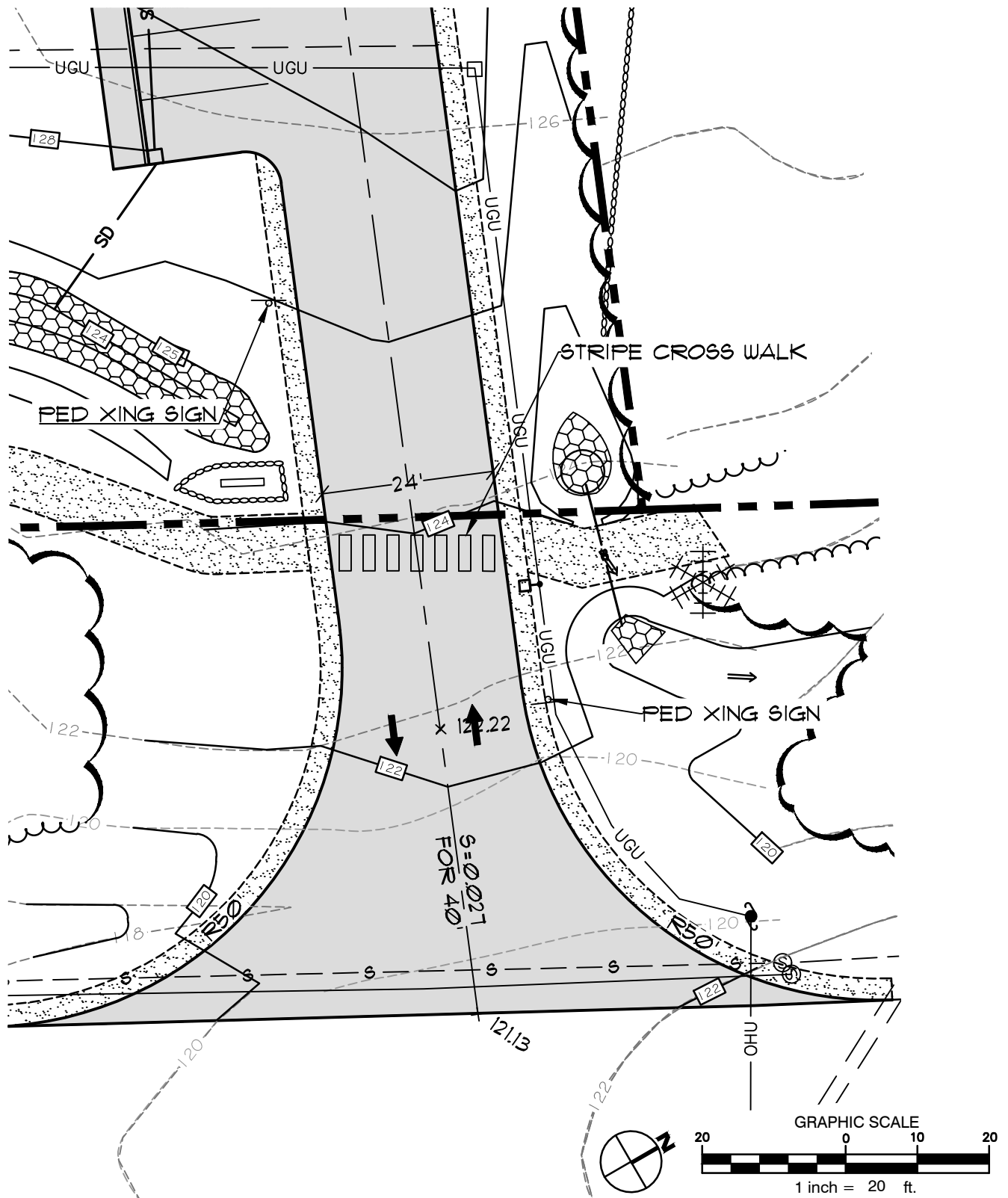
Respectfully,



Thomas S. Greer, PE  
Walsh Engineering Associates, Inc.

cc: Jim Taylor, Dale Akeley, File  
Enc.





**WALSH**  
ENGINEERING ASSOCIATES, INC.

One Karen Dr., Suite 2A | Westbrook, Maine 04092  
ph: 207.553.9898 | www.walsh-eng.com

## BELTED COW HEADQUARTERS

U.S. ROUTE ONE  
CUMBERLAND, MAINE

Sheet Title:  
**DRIVEWAY  
SLOPE**

Job No.:	441
Date:	9/12/18
Scale:	AS SHOWN
Drawn:	JWG
Checked:	TSG