

December 24, 2021

Ben Grover  
Construction Aggregate Inc  
North Yarmouth, Maine 04344



Re: Proposed 4 Unit Complex, Route 115, North Yarmouth  
Erosion Control Narrative

Dear Ben,

Construction Aggregates is proposing to develop a new residential complex consisting of four 2300 sf units with associated paved parking and turnaround movements. Approximately 19,700 sf of impervious area will be created. Stormwater will be directed and controlled onsite into a soil filter pond. The front portion of the building roofs will be infiltrated into the ground through stone drip edges. It is anticipated that this projects site infrastructure will be started in 2022.

The site is identified as Tax Map 7 Lot 34, 17D of the Town's Tax Map. The parcel is approximately 2.33 acres in size and lies within the Village Center Zoning District and the Groundwater Protection Overlay Zone.

#### Existing Site Conditions

The existing site consists of previously disturbed soil areas with a mostly cleared meadow area (proposed developed area) and remaining undeveloped woods. Existing conditions have been taken from plans prepared by Sevee/Mahar Engineering Phase 2 subdivision development and blended with LIDAR contours and aerial photography of offsite areas. The topography of the proposed developed site is shown at a one foot contour interval. The slope of the property varies from 1% along the flatter areas to 30% along the banks of the steeper slopes of the property.

#### Adjacent Areas

Adjacent areas and land uses are similar in nature to that being proposed (residential housing). Runoff from the property enters into an 18" diameter culvert (CMP) under Walnut Hill Road (AKA Route 115).

We have prepared stormwater quantity/quality narratives and calculations under separate cover. This narrative is to address erosion and sediment control during (and after) the construction of the project.

## Soils

Soils delineation was taken from the medium intensity soils maps of the Cumberland County Soil Survey. I have overlaid the proposed developed site onto this map. Onsite soils are identified as being Windsor loamy sand (hydro group "A", K= 0.17).

The K number is an erodibility index number which is a value assigned to the soil based on a no erosion potential of .10 to a high erosion potential of .64. An index number greater than .32 indicates a high level of erosion control measures must be taken in order to control erosion of this soil. The hydrological group rating is a rating system of the relative permeability of the soil with Group "A" being extremely permeable such as a beach sand, to Group "D" being slow draining such as a wetland area.

## Erosion and Sediment Control Practices

This plan has been developed to provide a strategy for dealing with soil erosion during and after the construction of the project. This plan is based on the standards and specifications for erosion prevention as contained in the "2016 Best Management Practices Manual for Designers and Engineers" by the Soil and Water Conservation District and Maine DEP.

The Contractor shall limit construction disturbance to (ie disturbed unstable ground surface) to no more than 10 acres at any one time. An area considered "opened" includes any area not stabilized with pavement, vegetation, mulch, mats, riprap, or gravel base on road/pavement locations. Open areas must have temporary erosion control installed within 14 days of disturbance (and prior to a  $\frac{1}{2}$ " or more rain event). Areas opened within 100' of environmental resources (wetlands) must have temporary erosion controls installed within 7 days. While the erosion control plan is comprehensive, additional measures may be necessary to control erosion from the site.

It shall be the Contractors responsibility to be aware of weather conditions at any time during the construction of the project, and to make appropriate erosion control decisions regarding the current condition of the site for the anticipated rainfall event. The site erosion controls must be able to prevent significant erosion during the expected event.

A pre-construction meeting with the Town, Owner, and Contractor shall be required to specifically discuss how the erosion control plan will be constructed and monitored.



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Construction is expected to begin following obtaining permits for approval. It is expected that construction activities will be started in the Spring of 2022. Special attention should be given to the sections pertaining to Fall and Winter seeding, as the project may overlap into the winter construction season.

The principal erosion control devices will be silt fences (or erosion control mulch berms), hay mulch, stabilized construction entrance, and seed to protect existing trees, buildings, and drainage paths from the regions undergoing construction. Features such as grassed waterways and landscaping will be constructed as permanent erosion controls.

Prior to construction, the Contractor will install the stabilized construction entrance to minimize potential tracking of soils from the project construction onto paved public roads.

### Structural Measures

1. Silt fencing/erosion control mix berm shall be installed along the contour and perpendicular to the predominant slope of the land just beyond the downslope limits of clearing and grubbing and/or just above any adjacent property line and streams where indicated on the plan to protect against construction related erosion. Installation shall be as shown on the plans or approved equal.
2. Riprap materials shall be placed in all inlets/outlets of pipe culverts. These aprons will prevent scour at stormwater outlets and minimize the potential for downstream erosion by reducing the velocity of concentrated stormwater flows. Average design size stone, D50, shall be as called out in the detail on the plans. Largest size of stone in the riprap is to be 1.5 times the D50 size.
3. Protective mats on steep slopes will aid in controlling erosion on critical areas during the establishment period of vegetation.
4. Naturally vegetated buffers and grass filter strips remove sediment and other pollutants from runoff by infiltration, deposition, absorption and decomposition.

Filters are effective only if used to remove sediment from sheet (overland) flow.

5. Stabilized construction entrance is to be placed during construction, where traffic is entering or leaving construction site. This will reduce or eliminate the tracking or flowing of sediment onto public rights of way. A 8" thick layer of 3"-4" crushed stone 50' in length has been designed and shown on the plan. If soil tracking does occur, the Contractor shall vacuum sweep the paved surface of the roadway by the close of business that day.
6. Temporary storm drain inlet protection (crushed stone, silt sack in the catch basin, waddles, etc.) will prevent sediment from entering the storm drain system during construction and also stop erosion at its' source. The idea is to provide a filtering device at the entrance to the storm drain system such that sediments become trapped.
7. A stone check dam is a filtering and energy dissipation device that limits the erosion process. These dams are 2"-3" crushed stone, 24" in height and are placed in drainage ditches as a temporary erosion control measure. The dams are to be removed prior to final acceptance of the project and riprap installed in its' place.
8. Soil stockpiles shall be hay mulched within 24 hours of stockpiling. The downslope side of the stockpile shall have a ring of erosion control barrier placed (silt fence, erosion control berm mix, waddles). Stockpiles are not to be located within 100' of environmental resources where possible.
9. Trench dewatering shall be pumped to filter bags prior to discharge from the site. They shall be located in upland areas greater than 100' from environmental resources.
10. Dust control will be addressed through the use of water trucks spraying the ground with water and/or applying



calcium chloride to the surface to minimize dust creation.

### Vegetative Measures

1. Topsoil on site shall be stockpiled at a stable location on site and covered with anchored mulch for temporary erosion control.
2. If any disturbed area of soil will be left bare for more than two weeks, or if construction is to be completed in phases over an extended duration, temporary seeding and mulching shall commence immediately following initial fine grading of site. **In sensitive areas (within 100' of wetlands) temporary mulch must be applied within 7 days or prior to any storm event on all disturbed surfaces.** It shall be maintained and reseeded as necessary to insure good vegetative cover for the entire duration of construction. Seed will be selected from the following table, according to the time of the year.

#### Temporary Seed Mixture

Seed Type	lbs acre	lbs 1000 sf	Seeding Depth	Recommended Seeding Date
Winter Rye	112	2.6	1"-1.5"	8/15 - 10/1
Oats or Annual Ryegrass	80 40	1.8 0.9	1"-1.5" .25"	4/1 - 7/1 and 8/15 - 9/15
Sudangrass	40	0.9	.5"-1"	5/15 - 8/15
Perennial Ryegrass	40	0.9	.25"	8/15 - 9/15
Temporary Mulch with or without dormant seeding				10/1 - 4/1

Mulch will be applied with seeding according to mulch table. If it is not possible to seed 45 days or more prior to frost, than dormant seeding and anchored mulch shall be applied. The application of mulch shall be

such that the bare ground is barely visible.

3. Permanent seedings of grass cover shall be applied to all disturbed areas. All surface water control measures and final land grading in the vicinity should be completed. Ground preparation shall include tilling to a minimum 3" depth of fine but friable soil free of clods or stones. Permanent seed shall be selected according to its final destination. (See permanent seed mixture table)
4. All seeding will require mulch. Mulch provides several benefits: conserves moisture, prevents surface compaction, improves water quality, reduces runoff and erosion, controls weeds, and helps establish plant cover. Mulch shall be applied according to the following tables:

**Permanent Seed Mix**

**Application Rate**

	Parks & Lawns lbs/1000 sf	Roadside Areas ditches, basins lbs/1000 sf
Kentucky Bluegrass	.46	
Creeping Red Fescue	.46	.46
Perennial Ryegrass	.11	
Redtop		.05
Tall Fescue		.46
<b>Total Seed Rate</b>	<b>1.03</b>	<b>0.97</b>

Note: 1. The contractor may wish to final seed from 10/1 to 11/1 with the same soil preparations, seeding mixes (doubling the seed rate) and mulching, but it may result in winter kill. Vegetation must be inspected and reseeded as necessary in the following spring to assure good vegetative cover.

2. No seeding shall be permitted on the snow.
3. Mulch shall be applied after all seed applications



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(see mulch) and in enough quantity to cover all bare spots such that bare ground is not visible. Any site grading performed in winter conditions shall be covered with mulch on a daily basis. Mulch rate shall be twice the normal rate.

4. Permanent seedings should be made 45 days or more prior to the first killing frost (Seed by September 15th ) or as a temporary and dormant seeding after the first killing frost.

## Maintenance

During the period of construction and/or until long term vegetation is established:

1. Seeded areas will be fertilized and reseeded as necessary to insure 90% vegetative establishment.
2. At a minimum, the hay bale/silt fence barriers shall be inspected and repaired once a week and immediately following all significant rainfall or snow melt. Sediment trapped behind these barriers shall be excavated when it reaches a depth of 6 six inches and regraded onto the site.
3. Diversion ditches and swales will be checked weekly and repaired when necessary until adequate vegetation is established.
4. The Owner and contractor shall be responsible for the construction and maintenance of all proposed temporary and permanent erosion control measures including vegetation. The contractor must install or construct all required improvements shown on the plans. The contractor must incorporate all other site improvements, restrictions, construction limits, drainage improvements, natural vegetated buffers, proposed landscaping, etc. The contractor must obtain a complete set of plans, reports, permit approvals, and documents pertaining to the project before beginning construction.
5. The contractor shall remove all temporary erosion control devices from the site after construction is complete and the site is permanently stabilized.

## WINTER CONSTRUCTION (as applicable)

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 riprap by November 15, then the site needs to be protected with over-winter stabilization. An area considered open is any area not stabilized with pavement; vegetation, mulching, erosion control mats, riprap or gravel base on a road. Winter excavation and earthwork shall be completed such that no more than 1 acres of the site is without stabilization at any one time. Limit the exposed area to those areas in which work is expected to be undertaken during the proceeding 15 days and that can be mulched in one day prior to any snow event.

All areas shall be considered to be denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch rate shall be a minimum of 150 lbs./1,000 s.f. (3 tons/acre) and shall be properly anchored.

The contractor must install any added measures which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions.

Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

## SOIL STOCKPILES

Stockpiles of soil or subsoil will be mulched for over winter protection with hay or straw at twice the normal rate or at 150 lbs/1,000 s.f. (3 tons per acre) or with a four-inch (4") layer of erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpile will not be placed (even covered with hay or straw) within 100 feet from any natural resources.

## NATURAL RESOURCES PROTECTION

Any areas within 100 feet from any natural resources, if not stabilized with a minimum of 75 % mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with erosion control mats.

During winter construction, a double line of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area.



Projects crossing a 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.

## SEDIMENT BARRIERS

During frozen conditions, sediment barriers shall consist of erosion control filter berms as frozen soil prevents the proper installation of hay bales and sediment silt fences.

## MULCHING

All area shall be considered to be denuded until areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored.

Mulch shall not be spread on top of snow. The snow will be removed down to a one-inch depth or less prior to application.

After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.

An area shall be considered to have been stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 150 lb. per 1,000 square feet (3 tons/acre) and adequately anchored so that the ground surface is not visible through 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, tracking into the surface or wood cellulose fiber. The mulch cover is sufficient when the ground surface is not visible. After November 1, mulch and anchoring of all bare soil shall occur at the end of each final grading workday.

## MULCHING ON SLOPES AND DITCHES

Slopes shall not be left exposed for any extended time of work suspension unless fully mulched and anchored with peg and netting or with erosion control blankets. Mulching shall be applied at a rate of 230 lbs/1,000 sf on all slopes greater than 8%.

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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 slopes 8% or greater. Erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

## 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 and mulched until such time as the final treatment can be applied. If the date is after November 1 and 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 selected to be placed prior to the placement of mulch and fabric netting anchored with staples. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5lbs/1000 s.f. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75 % catch) shall be revegetated by removing the mulch and reseeding and remulching.

If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

## 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 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.

## 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 inspect and repair any damages and unvegetated spots. Established vegetative cover means a minimum of 85 to 90 % of areas vegetated with vigorous growth.

## STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

**1. Standard for the timely stabilization of ditches and channels:** The contractor will construct and stabilize all stone-lined ditches and channels on the site by November 15. 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.

**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 pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

**Install a stone lining in the ditch:** The contractor will line the ditch with stone riprap by November 15. 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 for the timely stabilization of disturbed slopes:** The contractor will construct and stabilize stone-covered slopes by November 15. The contractor will seed and mulch all slopes to be vegetated by September 15. The department will consider any area having a grade greater than 15% to be a slope. If the contractor fails to stabilize any slope to be vegetated by September 15, then the contractor will take one of the following actions to stabilize the slope for late fall and winter.

**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 (or mulch with jute netting) over the mulched slope. The contractor will monitor growth of the rye over

the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed slope by November 1, then the contractor will cover the slope with an additional layer of winter mulch application, stone riprap, or erosion control mix as described below.

**Stabilize the slope with sod:** The contractor will stabilize the disturbed slope with properly installed sod by October 1. Proper installation includes the contractor pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The contractor will not use late-season sod installation to stabilize slopes having a grade greater than 33%.

**Stabilize the slope with erosion control mix:** The contractor will place a six-inch layer of erosion control mix on the slope by November 15. Prior to placing the erosion control mix, the contractor will remove any snow accumulation on the disturbed slope. The contractor will not use erosion control mix to stabilize slopes having grades greater than 50% or having groundwater seeps on the slope face.

**Stabilize the slope with stone riprap:** The contractor will place a layer of stone riprap on the slope by November 15. The contractor will hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

**3. Standard for the timely stabilization of disturbed soils:** By September 15 the 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:

**Stabilize the soil with temporary vegetation:** By October 1, the contractor will seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1000 square feet, and anchor the mulch with plastic or jute 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 75% of the disturbed soil before November 15, then the contractor will mulch the area for



over-winter protection as described in one of the items below of this standard.

**Stabilize the soil with sod:** The contractor will stabilize the disturbed soil with properly installed sod by October 1. Proper installation includes the contractor pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

**Stabilize the soil with mulch:** By November 15, 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 or jute netting to prevent wind from moving the mulch off the disturbed soil.

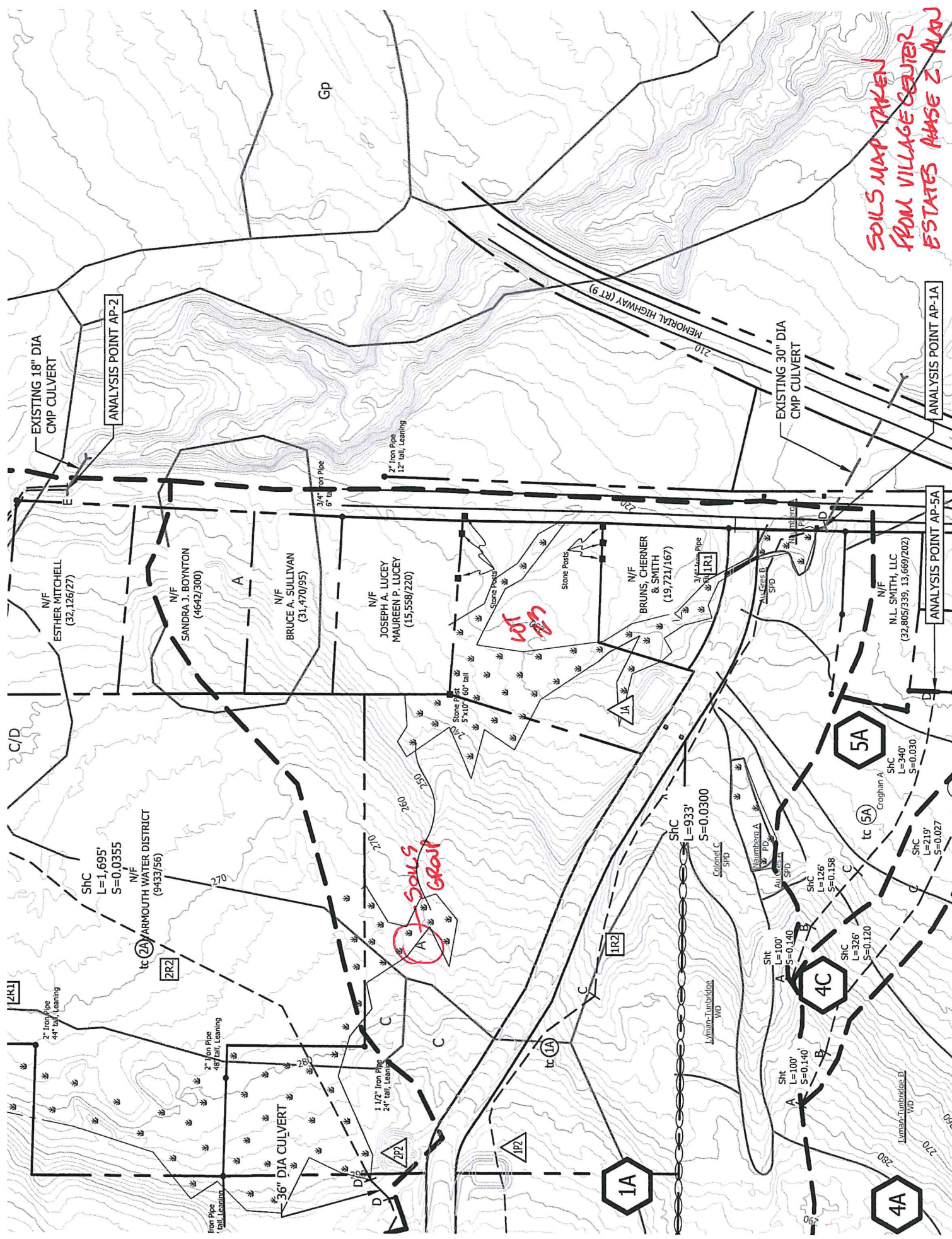
Please feel free to contact me if you have any questions concerning the use of these measures. We feel that these measures if properly constructed and maintained will be sufficient to control erosion on your project without any adverse impact to the area. Thank you for involving this firm on your project.

Sincerely yours,



Stephen Roberge, PE  
for SJR Engineering Inc.

SOILS MAP TAKEN FROM VILLAGE CENTER ESTATES PHASE 2 PLAN



SHC  
L=1.695'  
S=0.0355  
N/F  
ARMOUTH WATER DISTRICT  
(9433/56)

SHC  
L=933'  
S=0.0300

SHC  
L=340'  
S=0.030

SHC  
L=126'  
S=0.158

SHC  
L=326'  
S=0.120

Sht  
L=100'  
S=0.140

36" DIA CULVERT

2" Iron Pipe  
44" tall, Leaning

2" Iron Pipe  
46" tall, Leaning

3/4" Iron Pipe  
6" tall

2" Iron Pipe  
12" tall, Leaning

3/4" Iron Pipe  
6" tall

C/D

Gp

EXISTING 18" DIA  
CMP CULVERT

EXISTING 30" DIA  
CMP CULVERT

36" DIA CULVERT

ANALYSIS POINT AP-2

ANALYSIS POINT AP-1A

ANALYSIS POINT AP-5A

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4A

4C

5A

5A

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MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

5700

Village Center Estates  
Walnut Hill Road  
North Yarmouth, ME  
Construction Aggregate, Inc.

**Soil Narrative Report**

DATE: Soil Profiles observed on November 14, 2019

BASE MAP: Base plan provided by Sevee & Maher Engineers  
scale 1 inch equals 120 feet and two foot contours.

GROUND CONTROL: Soil survey boundaries located by Mark Hampton Associates,  
Inc. for Class B Soil Survey

**Class B-High Intensity Soil Survey (Minimum Standards)**

Mapping units of 1 acre or larger.  
Scale of 1"= 200 feet or larger.  
Up to 25% inclusions in mapping units of which no more than 15% may be dissimilar soils.  
Ground Control – test pits located by means of compass by chaining, pacing or taping from known control points.  
Base Map –5 foot contour intervals

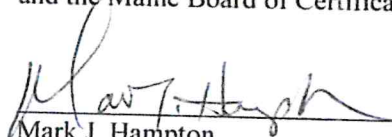
**Provided:**

Mapping units of 1/2 acre or larger  
Base map scale of 1"= 120 feet.  
Up to 25 percent inclusions in mapping units of which no more than 15 percent is dissimilar soils.  
Baseline information and test pits located by gps equipment with accuracy to 3 feet.  
Ground topographic survey with one foot contours and ground control provided.

P.O. BOX 1931 • PORTLAND, ME 04104-1931 • 207-756-2900 • mhampto1@maine.rr.com

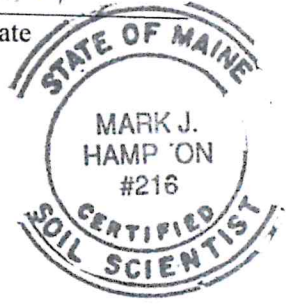
*Quality services that meet your deadline*

The accompanying soil profile descriptions, soil map, and this soil narrative report were done in accordance with the standards adopted by the Maine Association of Professional Soil Scientists, and the Maine Board of Certification of Geologists and Soil Scientists.

  
Mark J. Hampton

C.S.S. #216, L.S.E. #263 12/3/19

Date







MARK HAMPTON ASSOCIATES, INC.

SOIL EVALUATION • WETLAND DELINEATIONS • SOIL SURVEYS • WETLAND PERMITTING

5700

Village Center Estates  
Walnut Hill Road  
North Yarmouth, ME  
Construction Aggregate, Inc.

LYMAN-TUNBRIDGE COMPLEX

SETTING

PARENT MATERIAL: Loamy glacial till  
LANDFORM: Glaciated uplands  
POSITION IN LANDSCAPE: Uppermost locations, sideslopes, shoulders and crests  
SLOPE GRADIENT RANGES: (B) 3-8%, (C) 8-15%, (D) 15-25%

COMPOSITION AND SOIL CHARACTERISTICS

DRAINAGE CLASS: Excessively well drained Lyman (10-20 inches to bedrock) and Tunbridge (20-40 inches to bedrock)  
These soils occur in a nonrepeating pattern with exposed bedrock outcrops and cannot be separated.

TYPICAL PROFILE:  
Surface Layer: Reddish brown fine sandy loam, 0-4 inches  
Subsurface Layer: Red brown fine sandy loam 4-12"  
Subsoil Layer: Dark red fine sandy loam 12-18"  
Substratum: Brown fine sandy loam 18-36"

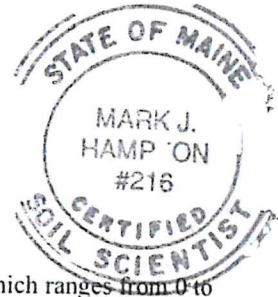
HYDROLOGIC GROUP: Group C/D  
PERMEABILITY: Slow to rapid, depending on slope and bedrock outcrops.  
DEPTH TO BEDROCK: Shallow (Lyman 10-20 inches) to moderately deep (Tunbridge 20-40 inches).  
HAZARD TO FLOODING: None

INCLUSIONS  
(Within Mapping Unit)

CONTRASTING: Colonel, Au Gres, Croghan, Naumburg

USE AND MANAGEMENT

Development: The limiting factor for building site development is depth to bedrock which ranges from 0 to 40 inches within this complex. Tunbridge and Lyman (deeper than 11 inches) soils may be suitable for subsurface wastewater disposal.





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Construction Aggregate, Inc.

**Croghan**  
(Aquic Haplorthods)

**SETTING**

PARENT MATERIAL: Derived from outwash and deltaic sandy deposits.  
LANDFORM: Outwash plains, deltas, and terraces  
POSITION IN LANDSCAPE: Sidehill, shoulders and plains  
SLOPE GRADIENT RANGES: (A) 0-3%

**COMPOSITION AND SOIL CHARACTERISTICS**

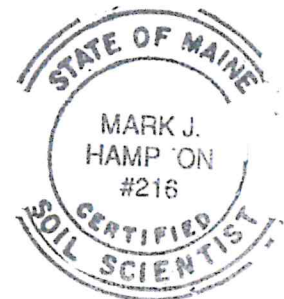
DRAINAGE CLASS: Moderately well drained Depth to seasonal high watertable ranges from 1.5 to 2.0 feet below the surface at some time from November to May.

TYPICAL PROFILE:  
Surface Layer: Dark Brown fine sand, 0-7"  
Subsurface Layer: Reddish brown sand, 7-16"  
Subsoil Layer: Brown sand, 16-32"  
Substratum: Gray sand, 32-65"

HYDROLOGIC GROUP: Group B  
SURFACE RUNOFF: Moderately rapid to rapid  
PERMEABILITY: Rapid or very rapid  
DEPTH TO BEDROCK: Greater than 65 inches  
HAZARD TO FLOODING: None

**INCLUSIONS**  
(Within Mapping Unit)

CONTRASTING: Lyman-Tunbridge, Naumburg



**USE AND MANAGEMENT**

DEVELOPMENT: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.

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Construction Aggregate, Inc.

**Colonel**  
(Aquic Haplorthods)

**SETTING**

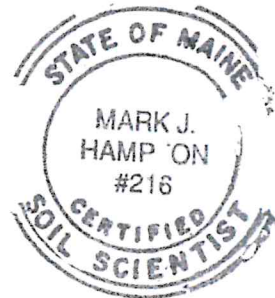
PARENT MATERIAL: Derived from dense, loamy glacial till  
LANDFORM: Drumlins and Sideslopes of glaciated uplands  
POSITION IN LANDSCAPE: Mid-positions on landform  
SLOPE GRADIENT RANGES: (C) 8-15%

**COMPOSITION AND SOIL CHARACTERISTICS**

DRAINAGE CLASS: Somewhat poorly drained with a perched watertable from 1.0 to 2.0 feet below the surface at some time from October to May or during periods of heavy precipitation.

TYPICAL PROFILE: Surface Layer: Dk gray brown, stony sandy loam 0-3"  
Subsurface Layer: Dark Brown, stony sandy loam, 3-12"  
Subsoil Layer: Olive Brown, stony sandy loam, 12-18"  
Substratum: Olive, stony, sandy loam, 18-65"

HYDROLOGIC GROUP: Group C  
SURFACE RUNOFF: Moderate to moderately slow  
PERMEABILITY: Moderate and moderately slow  
DEPTH TO BEDROCK: Greater than 65 inches  
HAZARD TO FLOODING: None



**INCLUSIONS**

(Within Mapping Unit)

CONTRASTING: Brayton, Lyman-Tunbridge, Au Gres,

**USE AND MANAGEMENT**

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.



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**Naumburg**  
(Typic Endoaquods)

**SETTING**

PARENT MATERIAL: Derived from outwash and deltaic sandy deposits.  
LANDFORM: Outwash plains, deltas, and terraces  
POSITION IN LANDSCAPE: Low depressions and plains  
SLOPE GRADIENT RANGES: (A) 0-3%

**COMPOSITION AND SOIL CHARACTERISTICS**

DRAINAGE CLASS: Poorly drained. Depth to seasonal high watertable ranges from 0.0 to 1.0 feet below the surface at some time from November to May.

TYPICAL PROFILE: Surface Layer: Black loamy sand, 0-7"  
Subsurface Layer: Reddish brown sand, 8-15"  
Subsoil Layer: Brown fine sand, 15-32"  
Substratum: Gray sand, 42-65"

HYDROLOGIC GROUP: Group C  
SURFACE RUNOFF: Slow to very slow  
PERMEABILITY: Rapid or very rapid  
DEPTH TO BEDROCK: Greater than 65 inches  
HAZARD TO FLOODING: None

**INCLUSIONS**  
(Within Mapping Unit)

CONTRASTING: Croghan, Lyman-Tunbridge



**USE AND MANAGEMENT**

DEVELOPMENT: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended. Naumburg may be hydric and may be mapped as wetlands.





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**Au Gres**  
(Typic Endoaquods)

**SETTING**

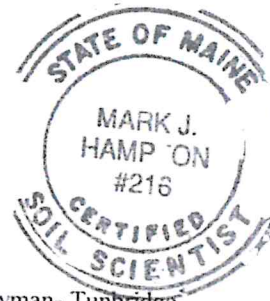
PARENT MATERIAL: Derived from outwash and deltaic sandy deposits.  
LANDFORM: Outwash plains, deltas, and terraces  
POSITION IN LANDSCAPE: Low depressions and plains  
SLOPE GRADIENT RANGES: (A) 0-3%

**COMPOSITION AND SOIL CHARACTERISTICS**

DRAINAGE CLASS: Somewhat poorly drained. Depth to seasonal high watertable ranges from 0.0 to 1.0 feet below the surface at some time from November to May.

TYPICAL PROFILE: Surface Layer: Dark Brown loamy sand, 0-7"  
Subsurface Layer: Reddish brown sand, 8-15"  
Subsoil Layer: Brown sand, 15-32"  
Substratum: Gray sand, 42-65"

HYDROLOGIC GROUP: Group C  
SURFACE RUNOFF: Slow to very slow  
PERMEABILITY: Rapid or very rapid  
DEPTH TO BEDROCK: Greater than 65 inches  
HAZARD TO FLOODING: None



**INCLUSIONS**

(Within Mapping Unit)

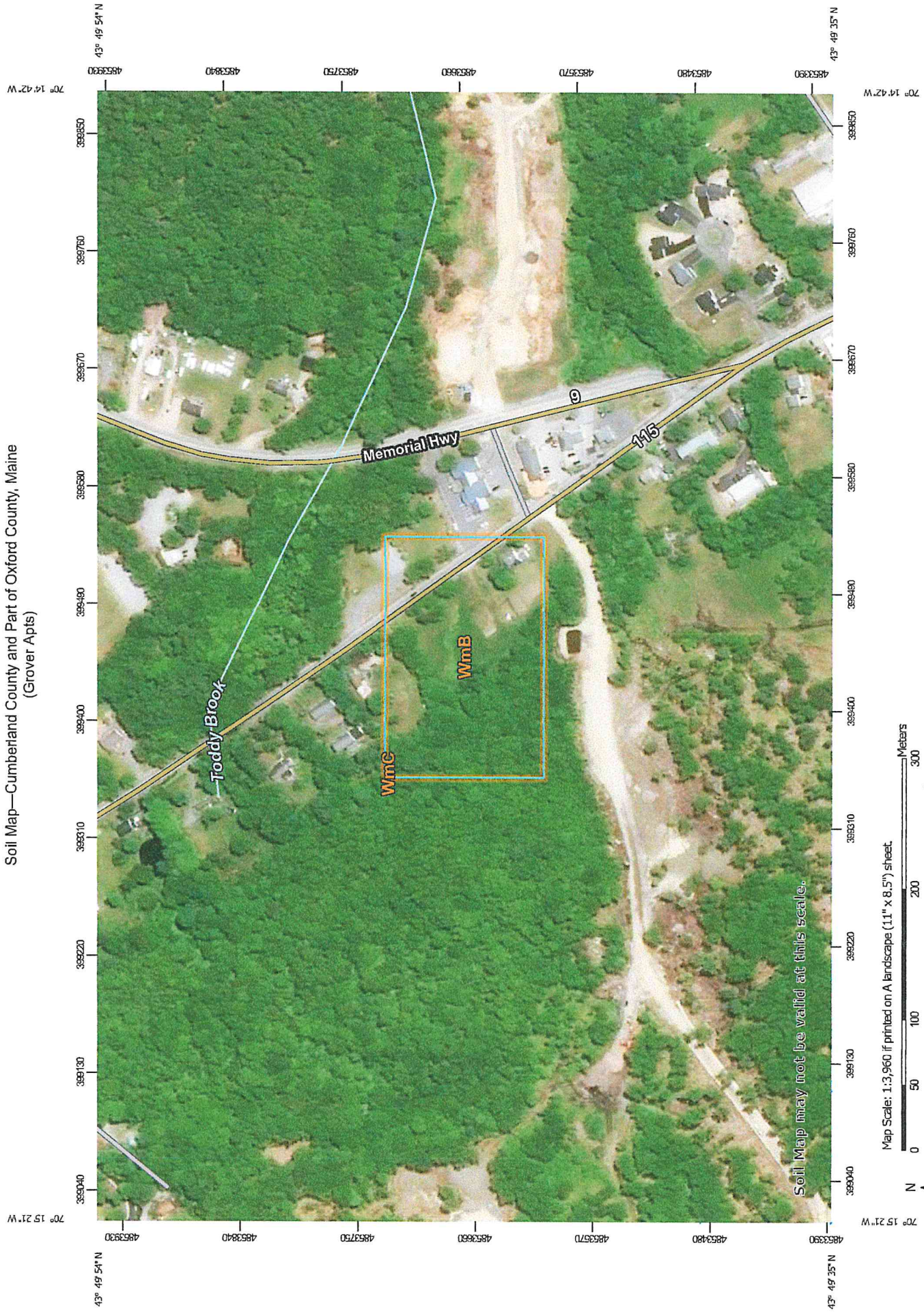
CONTRASTING: Croghan, Naumburg, Colonel, Lyman- Tunbridge

**USE AND MANAGEMENT**

Development: The limiting factor for building site development is wetness due to the presence of a high watertable for a portion of the year. Proper foundation drainage or site modification is recommended.



Soil Map—Cumberland County and Part of Oxford County, Maine  
(Grover Apts)



Map Scale: 1:3,960 if printed on A landscape (11" x 8.5") sheet.



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













































Natural Resources  
Conservation Service

Web Soil Survey  
National Cooperative Soil Survey



## MAP LEGEND

-  Area of Interest (AOI)
-  Area of Interest (AOI)
-  Soils
-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points
-  Special Point Features
-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features
-  Water Features
-  Streams and Canals
-  Transportation
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
-  Background
-  Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Cumberland County and Part of Oxford County, Maine  
Survey Area Data: Version 18, Aug 31, 2021

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

Date(s) aerial images were photographed: Jun 7, 2019—Jul 2, 2019

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

## Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
WmB	Windsor loamy sand, 0 to 8 percent slopes	5.6	99.9%
WmC	Windsor loamy sand, 8 to 15 percent slopes	0.0	0.1%
<b>Totals for Area of Interest</b>		<b>5.6</b>	<b>100.0%</b>