

A. INTRODUCTION

New Yard LLC proposes to construct, own, and operate a new boat maintenance and repair yard within approximately 22 acres of land located prominently along the West Commercial Street waterfront. The project represents an ideal reuse of a former highly industrialized property that over the years has fallen into non-use except for some ongoing LP and Natural Gas storage and distribution facilities. The property maintained a prominent role in the City's Waterfront District for well over a century and a half as the Portland Gas Light Company and Maine Central Railroad operated active business interests up until at least the 1970's. In more recent times, the site has been undeveloped except for the ongoing LP/Natural Gas operations.

The proposed project includes multiple buildings to be constructed over two or more phases along with new shorefront uses including one or more boat ramps, docks, new or reconstructed piers and a travel lift basin. The applicant's plans include up to three buildings constructed to support the boat maintenance and repair operations. Additional future buildings are also contemplated to support marine related operations including retail/warehouse space, yacht brokerage/sales, marine product processing and the potential of large vessel berthing. The applicant is currently seeking Phase I approval for the construction of a single building, related yard improvements, boat ramps, and surface stabilization.

The project includes site development activities involving earthwork, grading, shorefront stabilization, pier rehabilitation, boat ramps, building construction, utilities and overall site stabilization. This work will be completed cooperatively with the landowners, and in accordance with site remedial activities to be accomplished by existing landowners under the State's Voluntary Response Action Program (VRAP).

This section of the permit application presents the Erosion Sediment Control Plan designed for the project. The erosion control plan will be contained in the contract documents for implementation by the Contractor who is awarded the bid for the project. Similarly, the applicant's own work force will also comply with these requirements. The construction of the project will be phased. This project is coordinated with the MeDEP erosion control requirements. The contract documents will require that turbid discharges from the site do not occur (measured by NTU with non-turbid runoff defined by representative samples with turbidity below 280 NTU at any discharge location), fugitive dust emissions will be controlled, the requirements of this erosion control plan, and all permit requirements will be fulfilled. Winter construction will be required. Specific erosion controls stipulated by the plan and this report are minimum requirements.

B. Existing CONDITIONS

The site consists of approximately 22.5 acres of land that is composed of four primary areas described as follows:

- Inland Parcel (Map 59A, Lot 2):** Consists of a triangular shaped 3.96-acre area owned by Northern Utilities, Inc. (dba Unitil) and occupied by both Unitil and NGL Propane. This area is centrally located within the development site and is accessed from a single entrance off Commercial Street, opposite the Beach Street intersection. This area will continue to function as an LP gas distribution facility into the future under a long-term lease agreement. This area is also a Transportation Worker Identification Credential (TWIC) secured area that is, and will remain, fenced around its perimeter.
- Portland Terminal Parcel (Map 59A, Lots 1, 2, 4, 7, 8, 11 and 12):** This area is irregularly shaped and contains frontage along Commercial Street along with the site's westerly frontage. The site area is approximately 9.8 acres. Active rail tracks occupy the westerly side and those tracks are basically used for deliveries to the Unitil terminal. Remnant tracks remain east of the Unitil driveway, although they are not in use and will be removed as part of the project. Most of the Portland Terminal site is currently undeveloped land. It is noted that the northwest area of this parcel was also the headwater of the original Cumberland and Oxford Canal, generally opposite the end of what is now Clark Street. It is for this reason the project's name has been crafted as Canal Landing New Yard.
- The Shoreline Parcel (Map 59A, Lots 5, 6, 9 and 10):** This 4.17-acre area is irregularly shaped and contains approximately 1,075 LF of waterfront. The property is generally unoccupied although there is an existing gangway that provides access to a remnant pier line and dilapidated pilings are located throughout the frontage.
- The Option Parcel (Map 59A, portion of Lot 3):** This area consists of approximately 4 acres of Portland Terminal Land to the far west side of the land under consideration. This land includes the active tracks closer to Commercial Street as well as dilapidated pier remains along the shorefront. This area also contains a remnant concrete foundation floor slab that previously served as the foundation for a clay storage silo for the paper mills.

In general, the NGL Propane site is operated under a long-term lease and is unaffected by the proposed boat yard operations. The gas site contains four structures and ancillary infrastructure related to the ongoing LP Gas distribution and storage operations. Within the fenced operations area there are five existing LP Gas storage tanks ranging in size from 30,000 gallons to 60,000 gallons. These tanks are anticipated to remain in the future.

Owen Haskell, Inc. has completed a topographic survey of the property. The site is relatively flat with the highest points along the Commercial Street frontage, sloping to the middle of the site. Site elevations along Commercial Street trend down from west to east from elevation 18' (NGVD 1929) to elevation 15'. The site's low areas are near elevation 9'-10' while most of the waterfront top of bank is near elevation 12'. The High Annual Tide Line (HAT) for the Fore River is elevation 7.4' and mean low water is approximately elevation 4.0'. Owen Haskell, Inc. has also completed bathymetric survey data collection and found water depths within 50' of the low water line to be 10' to 30'. The Federal Channel is also represented on the project's preliminary drawings and it is generally located 60' to 120' off the shorefront. No activities are proposed beyond the Federal Channel line.

Generally speaking, the site's runoff infiltrates into the ground or drains directly to the Fore River via overland flow. There are no drainage systems on site, although there is a closed storm drainage system within Commercial Street. The Commercial Street drainage system ultimately ties into the 42" interceptor sewer.

Due to the site's historic industrial condition much of the surface consists of sand and gravel fill, asphalt or otherwise sparsely vegetated ground surface.

The site has undergone extensive review related to the environmental conditions associated with the previous site uses. As part of previous soil investigation at the site, over 250 subsurface explorations including 120 soil borings, 25 test pits, and 107 core penetrometer tests have been completed. The site's soil layers are generally characterized as follows:

- 10 to 15 feet of sand and gravel fill - there is little to no organic surface layer throughout the site.
- 5 to 10 feet of silt and sand.
- 10 to 40 feet of gray clay identified as the Presumpscot formation.
- 30 to 40 feet of dense silty marine sands.
- An undetermined thickness of dense silty sand and gravel identified as glacial till overlying bedrock.

Observed soils conditions at the ground surface include fill material containing coal, coal ash, clinker, brick, degraded asphalt, and hardened tar combined with scarified sand and gravel. Eroded soils conditions have been observed along the shoreline in and behind the existing granite revetment wall and remnant pier areas. The project's site development activities include restoration, rehabilitation, and stabilization of these areas.

According to various investigation data, depth to groundwater varies from 3 to 7 feet and this likely varies with tidal conditions in the Fore River. Generally speaking, the groundwater flows from the northwest to the southeast across the site.

C. Proposed PROJECT

The applicant proposes to redevelop the property in a manner consistent with the WPDZ Standards as well as VRAP requirements. The development program includes the following components:

Onsite

The development involves a cooperative effort between the existing property owners and the applicant to complete remedial actions on the site to address recognized environmental conditions. These actions may include excavation and removal, capping or other remedies. Northern Utilities/ Unitil, with their participation in the VRAP program, has received a No Action Assurance letter from the MeDEP, as evidence of the MeDEP's acceptance of the plans.

In addition to the remedial activities, the development program includes phased development of boat maintenance facilities and future ancillary marine related uses. Phase 1 and future Master Plan development activities are summarized as follows:

Phase 1 - Will Include:

- Site clearing, stabilization and general clean up.
- Construction of a 19,200 SF building for storage and boat maintenance operations.
- Construction of two concrete boat ramps along shorefront. One at the east end of the site and the second towards the west.
- Establishment of yard areas and surfaces for heavy equipment including travel lift, trucks, and boat repair. (Repair and maintenance often takes place outside, particularly if the vessel is large and does not fit into a building.) Boats that are out of the water for the winter season all need to have work done on them to prepare them for re-launching.)
- Installation of utilities for initial building use as well as future phase activities.

- Shore front improvements including revetment repairs and ground surface stabilization with riprap and stabilized fill.
- Rehabilitation of former pier pilings for use as part of a new dock system along the waterfront. Custom Floating docks are proposed to be into the existing system of pilings and dolphins located along the waterfront.
- A 20' x 36' wood framed single story structure is proposed as an office space for a yacht brokerage operation. The building and display of vessels are proposed along the Commercial Street frontage.
- The location of a 1,500 ton dry dock.
- A travel lift basin to be constructed of sheet piling within the westerly shoreline. The travel lift basin will allow larger vessels to be removed from the water for repairs and maintenance.
- Remedial activities performed by Contractors under the direction of Northern Utilities/Unitil.

Offsite

Site access is proposed via Commercial Street as well as from the Fore River. A primary site entrance is proposed at the site's far easterly frontage. This entrance will be shared with the MDOT for their occasional access to a maintenance building. This primary access is proposed during Phase 1 development.

D. Overview of Soil Erosion and Sedimentation Concerns

The primary emphasis of the Erosion and Sedimentation Control Plan to be implemented for this project is as follows:

- **Temporary Measures:** Planning the project to have erosion resistant measures in place by implementing measures intended to prevent erosion from occurring.
- **Phasing Sequencing:** The plan includes measures to intercept and convey runoff to temporary sediment sumps as the construction of the project occurs. The use of small temporary collection sumps with a clean sand filter above an undrained discharge is recommended to supplement the principal sumps to help reduce turbidity. Turbidity should be controlled to fewer than 280 NTUs in any discharge through the use of settling basins, filters, Dirtbags™, or chemical coagulants.
- **Use of Type I Settling:** Installing sediment sumps and swales early in the construction sequence to provide secondary relief for erosion control measures within the site until late in the project when the sedimentation areas need to be removed for final restoration.
- **Restabilization:** Stabilization of areas denuded to underlying parent material must occur within stipulated time frame to minimize the period of soil exposure and stabilization of drainage paths to avoid rill and gully erosion.
- **Interim Entrapment:** The use of on-site measures to capture sediment (hay bales/silt fence, etc.) before it is conveyed to sediment sumps.
- **Long Term Site Protection:** The implementation of long-term measures for erosion/sediment and pollutant treatment through the construction of permanent water quality measures.
- **Special Winter Construction Measures:** These will be required for work between September 15 and April 15.

E. Description and Location of Limits of All Proposed Earth Movements

The construction of the project will disturb about 7.3 acres of land. The limit of disturbance is generally coincident with the limit of grading.

The earth moving will include trenching for underground utilities, earthwork to reshape the site and construct trenches along the easterly edge, earthwork to prepare and shape the prepared boatyard surface, and excavation attendant with the buildings and excavation and borrow for the project improvements. Some additional work is required pursuant to the MeDEP VRAP to be addressed by Unitil and their assigns. Activities related to pile removal/replacement will occur below the mean low water mark and these activities may result in a temporary reduction in water quality due to suspended solids/sediments and are considered an unavoidable impact.

F. Critical Areas

Critical resource areas include the Fore River and associated shoreline stabilization. No special species habitats have been identified. It is noted that stormwater system consisting of a infiltration through the proposed prepared boatyard stone surface shall not be activated until the tributary areas have been stabilized.

G. Erosion/Sedimentation Control Devices

As part of the site development, the Contractor will be obligated to implement the following erosion and sediment control devices. These devices shall be installed as indicated on the plans or as described within this report. For further reference on these devices, see the *Maine Department of Environmental Protection Erosion and Sediment Control BMPs Manual (March, 2003)*.

- Siltation barrier shall be installed down slope of any disturbed areas to trap runoff born sediments until the site is revegetated. The silt barrier shall be installed per the detail provided in the plan set and inspected immediately after each rainfall and at least daily during prolonged rainfall. The Contractor shall make repairs immediately if there are any signs of erosion or sedimentation below the barrier line. If such erosion is observed, the Contractor shall take proactive action to identify the cause of the erosion and take action to avoid its recurrence. Typically, this requires that stabilization measures be undertaken. Proper placement of stakes and keying the bottom of the silt barrier fabric into the ground is critical to the barrier's effectiveness. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the barrier, the barrier shall be replaced with a stone check dam and measures taken to avoid the concentration of flows not directed to the silt barrier.
- Silt barrier is shown by three types, depending upon the timing and intent, as follows:

SCHEDULE OF SILT BARRIER REQUIREMENTS		
Silt Barrier	Type/Purpose	Time of Installation
Condition 1	To trap sediment along the grading edge where the new contours nearly parallel existing contours.	At initial site preparation, prior to other work.
Condition 2	To trap sediment from the work area; install in short sections parallel to existing contour; typically occurs where proposed and existing contours form a "V" shape.	At initial site preparation, prior to other work. On occasion, this needs to be deferred until the area for the silt barrier installation can be reached.
Condition 3	To trap sediment along the base of proposed contours, typically in cut areas.	During construction after new grade is shaped. Time between work in area and shaping new grade to allow silt barrier to be installed shall be minimized.

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- Straw or hay mulch including hydrossedding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulching should be occurring several times per week when the site construction activity is high and at sufficient intervals to reduce the period of exposure of bare soils to the time limits set forth in this plan. Mulch placed on slopes of less than 10 percent shall be anchored by applying water; mulch placed on slopes steeper than 10 percent shall be covered with fabric netting as immediately after mulching as practicable and anchored with staples in accordance with the manufacturer's recommendations. Proposed drainage channels, which are to be revegetated, shall receive Curlex blankets by American Green selected for the slope, velocity, and whether the measure is temporary or intended to be in place for a sustained period. Mulch application rates are provided in Appendix A of this section. Hay mulch shall be available on site at all times in order to provide immediate temporary stabilization when necessary. Where necessary, a windrow of crushed stone and/or gravel shall be placed at the top of the slope and directed to a temporary stone channel or pipe sluice to convey runoff down slopes. A dispersion device such as stone or a plunge pool should be installed at the base of the slope and sluice outlet to dissipate the energy of the water from the sluice or channel.

- Temporary sediment sumps will provide sedimentation control for stormwater runoff from disturbed areas during construction until stabilization has been achieved. The sediment sumps need to include a sand filter above an underdrain or a chemical coagulant to remove fine-grained sediment. Appropriate measures to reduce sediment suspended in discharges to less than 280 NTUs will be required.
- Riprap slopes, ditch linings, stone check dams, hay bale barriers, and culvert outlet aprons are intended to stabilize and protect denuded soil surfaces or dissipate the energy and erosive forces from concentrated flows. Installation details and stone sizes are provided in the construction plan set on the erosion control detail sheets.
- A construction entrance will be constructed at all access points onto the site to prevent tracking of soil onto adjacent local roads and streets. Routine pavement sweeping will be necessary during construction and as part of regular operations.
- Stone sediment traps or a premanufactured SiltSack™ and a sediment bag will be installed at catch basin inlets to prevent silt from entering the storm drain system. Installation details are provided in the plan set on the erosion control detail sheets.
- Dirtbags™ will be required to be on site and available for construction dewatering. The Contractor will be required to provide four Dirtbags™ with one prepared for operation prior to commencing any trenching operations. Dirtbags™ will need to be installed above filter sand and crushed stone in accordance with the details shown on the plan set will need to be installed.
- Loam and seed is intended to serve as the primary permanent revegetative measure for all denuded areas not provided with other erosion control measures, such as riprap or manmade pervious surface. Application rates are provided in Appendix A of this section for temporary and permanent seeding. It is anticipated there will be a limited area of grass establishment beyond what currently exists based on the project's needs for boat storage.
- Stone check dams will be installed in areas noted on the plan or as warranted, based upon observations during construction of the site.
- Silt logs are an option for stone check dams and may be substituted provided the devices are well anchored.
- Sorbent booms are intended to capture oils and the asphalt shoen from paved surfaces and shall be installed in all catch basins adjacent to paved drives prior to pavement being installed.
- DirtGlue™ is an acceptable means of temporary stabilization and is intended to form a "crust" on the surface that is resistant to erosion. However, applications where DirtGlue™ is used must be protected from traffic that would crack the "crust" and the DirtGlue™ will have temperature limitations that restrict the periods of use. Use of this material shall conform to the requirements of Appendix D.

H. Temporary Erosion/Sedimentation Control Measures

The following are planned as temporary erosion/sedimentation control measures during construction:

- Crushed stone-stabilized construction entrances shall be placed at any construction access points from adjacent streets or the existing parking lot. The locations of the construction entrances shown on the drawings should be considered illustrative and will need to be adjusted as appropriate and located at any area where there is the potential for tracking of mud and debris onto existing roads or streets. Stone stabilized construction entrances will require the stone to be removed and replaced, as it becomes covered or filled with mud and material tracked by vehicles exiting the site.
- Condition 1 and 2 silt barrier shall be installed along the downgradient side of the proposed improvement areas. The silt barrier will remain in place and properly maintained until the site is acceptably re-vegetated. Condition 3 silt barrier is to be used along the contour of significant fill slopes as illustrated on the erosion control plan site drawings. Silt barrier needs to be checked to insure the bottom is properly keyed in and inspected after significant rains. Wood chips or Erosion Control Mix is often used on the construction side of the silt barrier to provide an extra margin of safety and security for the silt barrier. This practice is encouraged, provided the chips are removed when the barrier is removed.
- Dirtbags™ shall be used in accordance with the details in the plan set. The purpose of the Dirtbags™ is to receive any water pumped from excavations during construction. A Dirtbag™ shall be installed and prepared for operation prior to any trenching on site. When Dirtbags™ are observed to be at 50% capacity, they shall be cleaned or replaced. Stone and filter sand under the Dirtbag™ shall be removed and replaced concurrently with the replacement of the Dirtbag™.
- Temporary stockpiles of common excavation will be protected as follows:
 - Temporary stockpiles shall not be located at least 50 feet upgradient of the perimeter silt barrier.
 - Inactive stockpiles shall be stabilized within 5 days by either temporarily seeding the stockpile with a hydrossed method containing an emulsified mulch tackifier or by covering the stockpile with mulch. If necessary, mesh shall be installed to prevent wind from removing the mulch.
- All denuded areas except gravel areas shall receive mulch, erosion control mesh fabric, or other approved temporary erosion sediment measure within 7 days of initial disturbance of soil or before a predicted rain event of >1/2" unless permanent measures are installed.
- All soils disturbed between September 15 and April 15 will be covered with mulch within 5 days of disturbance, prior to any predicted storm event of the equivalent of 1/2" of rainfall in a 24-hour period, or prior to any work shutdown lasting more than 35 hours (including weekends and holidays). The mulch rate shall be double the normal rate.
- For work that is conducted between September 15 and April 15 of any calendar year, all denuded areas will be covered with hay mulch, applied at twice the normal application rate, and (in areas over 10% grade) anchored with a fabric netting. The time period for applying mulch shall be limited to 5 days for all areas, or immediately in advance of a predicted rainfall event.
- Stone check dams, silt logs, or hay bale barriers will be installed at any evident concentrated flow discharge points during construction and earthwork operations.
- Silt fencing with a maximum stake spacing of 6 feet should be used, unless the fence is supported by wire fence reinforcement of minimum 14 gauge and with a maximum mesh spacing of 6 inches, in which case stakes may be spaced a maximum of 10 feet apart. The bottom of the fence should be properly anchored a minimum of 6" per the plan detail and backfilled. Any silt fence identified by the owner or reviewing agencies as not being properly installed during construction shall be immediately repaired in accordance with the installation details.
- Storm drain catch basin inlet protection shall be provided through the use of stone sediment barriers or a premanufactured SiltSack™. Stone sediment barrier installation details are provided in the plan set. The barriers or SiltSacks™ shall be inspected after each rainfall and repairs made as necessary, including the removal of sediment. Sediment shall be removed and the barrier or SiltSack™ restored to its original dimensions when the sediment has accumulated to one-half the design depth of the barrier. Sediment shall be removed from SiltSacks™ as necessary. Inlet protection shall be removed when the tributary drainage area has been stabilized.
- All slopes steeper than 4:1 shall receive erosion control mesh.
- Slopes steeper than 3:1 shall receive reinforced turf.
- Condition 3 silt barriers shall be installed as construction progresses.
- Areas of visible erosion and the temporary sediment sumps shall be stabilized with crushed stone. The size of the stone shall be determined by the contractor's designated representative in consultation with the Owner.
- All catch basins, which receive runoff from current or paved areas being constructed as part of this project, shall have a sorbent boom installed prior to placing the basin in operation installing binder pavement, or overlays. These sorbent booms shall be checked weekly for the three weeks following paving and replaced as necessary with the booms disposed of in accordance with local and State regulations.
- Any flow from the site that is concentrated must be directed to a sump with sand filter and underdrained discharge.
- Concentrated runoff shall be diverted away from slopes of over 10 percent unless the slope is armored with stone.
- Underground utilities must be installed in compliance with the following standards and other requirements of this erosion control plan:

- No more than 500 linear feet of trench may be opened at one time;
- Excavated materials shall be placed on the uphill side of trenches;
- Dewatering of the trench shall be pumped through a Dirtbag™ and appropriate sediment control facilities to avoid a turbid discharge; and
- Stabilization shall occur as soon as practicable.

- Rice straw wattles shall be used to control localized erosion.
- Maintenance of the erosion control, sedimentation facilities, and control of fugitive dust must occur until the site is stabilized with permanent erosion control measures.

I. Standards for Stabilizing Sites for the Winter

The construction of the project may require winter construction. The project is anticipated to require about 6 months to construct. For permitted winter construction, the erosion control measures are substantially more stringent due to the cold temperatures and lack of weather conditions which aid in drying the subgrade soils through evaporation.

If construction activities involving earth disturbance continue past September 15 or begin before April 15, the following must be incorporated with the erosion control plan and implementation:

- Enlarged access points must be stabilized to provide for snow stockpiling.
- Limits of disturbance shall be reduced to the extent practicable.
- A snow management plan including adequate storage and control of snowmelt, requiring cleared snow to be stored downgradient of all areas of disturbance shall be prepared by the contractor and submitted to the Owner for review and approval.
- Snow shall not be stored in sediment basins or to preclude drainage structures from operating as intended.

- A minimum 25-foot buffer maintained from perimeter controls such as silt fence shall be maintained on the "work area side" to allow for snow clearing and maintenance.
- Drainage systems intended to operate during the winter shall be catalogued, shown on a plan, and inspected after each snow removal period to make sure the drainage structures are open and free of snow and ice dams.
- To ensure cover of disturbed soil in advance of a melt event, areas of disturbed soil must be stabilized at the end of each work day, with the following exceptions:
 - If no precipitation within 24 hours is forecast and work will resume in the same disturbed area within 24 hours, daily stabilization is not necessary.
 - Disturbed areas that collect and retain runoff, such as house foundations or open utility trenches.

Standard for the timely stabilization of ditches and channels: The Contractor shall construct and stabilize all stone-lined ditches and channels on the site by September 15. The Contractor shall construct and stabilize all grass-lined ditches and channels on the site by September 1. If the Contractor fails to stabilize a ditch or channel to be grass-lined by September 1, then the Contractor shall take one of the following actions to stabilize the ditch for late fall and winter.

- Install a soil lining in the ditch. The contractor shall line the ditch with properly installed sod by September 15. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.
- Install a stone lining in the ditch. The contractor shall line the ditch with stone riprap by September 15. The contractor shall 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 shall regrade the ditch prior to placing the stone lining so as to prevent the stone lining from reducing the ditch's cross-sectional area.
- Standard for the timely stabilization of disturbed slopes:** The Contractor shall construct and stabilize stone-covered slopes by September 15. The Contractor shall seed and mulch all slopes to be vegetated by September 1. The Department will consider any area having a grade greater than 15% (10H:1V) to be a slope. If the Contractor fails to stabilize any slope to be vegetated by September 1, then the Contractor shall take one of the following actions to stabilize the slope for late fall and winter.
 - Stabilize the soil with temporary vegetation and erosion control mesh. By September 15, the Contractor shall seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1,000 square feet and apply erosion control mats over the mulched slope. The contractor shall monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed slope by September 15, then the Contractor shall cover the slope with a layer of wood waste compost as described in item iii of this standard or with stone rip rap as described in item iv of this standard.

ii. Stabilize the slope with sod. The Contractor shall stabilize the disturbed slope with properly installed sod by September 15. 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 shall not use late-season sod installation to stabilize slopes having a grade greater than 33% (3H:1V) or having groundwater seeps on the slope face.

iii. Stabilize the slope with wood waste compost. The Contractor shall place a six-inch layer of wood waste compost on the slope by September 15. Prior to placing the wood waste compost, the Contractor shall remove any snow accumulation on the disturbed slope. The contractor shall not use wood waste compost to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

iv. Stabilize the slope with stone rip rap. The Contractor shall place a layer of stone riprap on the slope by September 15. The Contractor shall hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

Standard for the timely stabilization of disturbed soil: By September 1, the Contractor shall 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 shall take one of the following actions to stabilize the soil for late fall and winter.

i. Stabilize the soil with temporary vegetation. By September 15, the Contractor shall seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1,000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1,000 square feet, and anchor the mulch with plastic netting. The Contractor shall monitor the growth of the rye over the next 30 days. If the rye fails to grow at least three inches or fails to cover at least 75% of the disturbed soil before September 15, then the Contractor shall mulch the area for over-winter protection as described in item iii of this standard.

ii. Stabilize the soil with sod. The Contractor shall stabilize the disturbed soil with properly installed sod by September 15. 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.

iii. Stabilize the soil with mulch. By September 15, the Contractor shall mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1,000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, the Contractor shall remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the Contractor shall anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

iv. Stabilize all stockpiles with mulch within 24 hours.

J. Special Measures for Summer Construction

The summer period is generally optimum for construction in Maine, but it is also the period when intense short duration storms are most common, making denuded areas very susceptible to erosion, when dust control needs to be the most stringent, and when the potential to establish vegetation is often restricted by moisture deficit. During these periods, the Contractor must:

- Implement a program to apply dust control measures on a daily basis except those days where the precipitation exceeds 0.25 inch. This program shall extend to and include adjacent streets used by construction vehicles.
- Spray any mulches with water after anchoring to dampen the soil and encourage early growth. Spraying may be required several times. Temporary seed may be required until the late summer seeding season.
- Mulch, cover, and moisten stockpiles of fine-grained materials, which are susceptible to erosion. In the summer months, the potential for wind erosion is of concern, as well as erosion from the intense, short-duration storms, which are more prevalent in the summer months.
- Take additional steps needed to control fugitive dust emissions to minimize reductions in visibility and the airborne disbursement of fine-grained soils. This is particularly important along the adjacent streets.

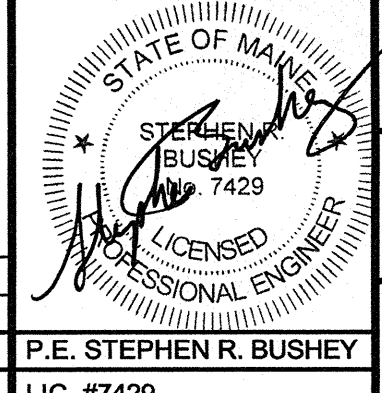

These measures may also be required in the spring and fall during the drier periods of these seasons.

K. Sedimentation Sumps

The sediment sumps shall be sized in accordance with the plan and specifications. The bottom of the sumps is intended to be used for infiltration.

Discharge must be through a sand filter over an undrained outlet to aid in the control of turbidity levels in the discharge. An emergency bypass shall be included and shall be constructed of 6" of stone overlying filter fabric and discharge to undisturbed turf.

PRELIMINARY - NOT FOR CONSTRUCTION

2		10.31.12	FINAL SITE PLAN APPLICATION SUBMISSION		PROJECT CANAL LANDING SHEET TITLE EROSION CONTROL NARRATIVE CLIENT NEW YARD LLC 58 FORE STREET PORTLAND, ME 04101	 DeLUCA-HOFFMAN ASSOCIATES, INC. 778 MAIN STREET, SUITE 8 SOUTH PORTLAND, ME 04106 207.775.1121 WWW.DELUCAHOFFMAN.COM
1		08.21.12	PRELIMINARY APPLICATION TO CITY OF PORTLAND			
REV	DATE	DESCRIPTION	REVISIONS			
				P.E. STEPHEN R. BUSHEY LIC. #7429	DRAWN: LA DATE: DESIGNED: RJW SCALE: AS SHOWN CHECKED: SRB JOB NO. 3091 FILE NAME: 3091-DET SHEET C-6.4	