EROSION AND SEDIMENTATION CONTROL REPORT

MOTHERHOUSE SENIOR HOUSING
605 STEVENS AVENUE
PORTLAND, MAINE

Prepared for:

MOTHERHOUSE ASSOCIATES LP
100 COMMERCIAL STREET
SUITE 414
PORTLAND ME 04101

Prepared by:

FAY, SPOFFORD &THORNDIKE
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, MAINE 04106
(207) 775-1121

JUNE 2015

TABLE OF CONTENTS

EROSION AND SEDIMENTATION CONTROL REPORT

I. INTRODUCTION

Fay, Spofford & Thorndike (FST) has been retained as a consultant to Motherhouse Associates, LP for the preparation of site designs and assistance in site permitting for the redevelopment of the existing Sisters of Mercy Motherhouse site, located at 605 Stevens Avenue in the City of Portland, Maine. The project will include re-use of the existing building at the site, and the renovation and reconfiguration of existing access, parking, stormwater, and utility infrastructure.

II. EXISTING SITE CONDITIONS

The project site is part of an existing land parcel located at 605 Stevens Avenue in the City of Portland, and has frontage on Stevens Avenue and Walton Street. The overall parcel area is approximately 19 acres, and includes Catherine McAuley High School in addition to the Motherhouse building and the associated site improvements. The Motherhouse lot will be subdivided from the overall parcel as part of this project.

In addition to the Motherhouse building, the project site includes the entrance driveway onto Walton Street, a ceremonial entrance and exit onto Stevens Avenue, paved parking areas, landscaping and utility infrastructure that serves the building.

Surface water runoff from the site drains in a generally easterly direction towards a wetland area at the foot of the embankment, adjacent to the eastern property line. There is limited stormwater infrastructure and no existing provision is made for detention or water quality treatment. In addition, the existing building roof drains are currently connected to the combined sewer system serving the site. Approximately half of the downspouts from the existing roofs are broken at, or above ground level and discharge directly to the adjacent ground. The site is located in Flood Zone X (areas outside the 500-year flood zone), according to FEMA Flood Insurance Rate Map, Community Panel Number 230051 0007C.

The Natural Resource Conservation Service (NRCS) Web Soil Survey identifies predominant subsurface soils at the site as Windsor loamy sands. Summit GeoEngineering Services conducted geotechnical investigations at the project site, including nine test borings. The investigations confirmed the general Web Soil Survey mapping, indicating well drained, granular soils. Groundwater was observed at depths greater than five feet and up to eleven feet across the site.

There are no existing areas of erosion on the site. The existing conditions are shown on the site survey and existing conditions plans.

III. Overview of Soil Erosion and Sedimentation Concerns

The primary concern relating to soil erosion and sediment control at the site is the containment of soil materials from the limited areas that will be exposed during the site work activities, and protection of the stormwater management BMPs during construction. The susceptibility of soils to erosion is indicated on a relative “K” scale of values over a range of 0.02 to 0.69. The “K” value is frequently used with the universal soil loss equation. The higher values are indicative of the more erodible soils. The majority of the project area consists of made land with pavements and building slabs covering most of the work site. There are limited areas of existing landscaping that will be disturbed as part of this project and these are all underlain by Windsor loamy sand soils. The relative K values of the underlying material would be as follows:

Soil Name	Soil Description	K Value
Windsor	Somewhat excessively drained (0 to 8%)	0.15

Based on a review of the K values, the onsite soils in the area are moderately susceptible to erosion after the cover material is stripped.

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 with measures to prevent erosion from occurring.
- The plan includes measures to intercept and convey runoff to temporary sediment control devices as the construction of the project occurs.
- Stabilization of areas denuded to underlying parent material to minimize the period of soil exposure.
- Stabilization of drainage paths to avoid rill and gully erosion.
- The use of on-site measures to capture sediment (hay bales/silt fence, etc.) before it is conveyed to sediment sumps.

IV. DESCRIPTION AND LOCATION OF LIMITS OF ALL PROPOSED EARTH MOVEMENTS

The construction of the project will disturb limited areas of the existing site. The main building footprint will be untouched, and large areas of existing pavement will be milled and overlaid as opposed to completely removed. Where the surface pavement is in poor condition it will be removed, the base gravels regraded and the area repaved. This activity will result in limited exposure of erodible materials. In limited areas of the site, the existing surface cover will be changed from landscaping to pavement, or from pavement to landscaping to achieve the new design layout. This activity will result in exposure of topsoil, or native soil materials that will require erosion controls to be installed. The plans that accompany this application show the work and grading limits for the project. A summary of post development conditions is provided earlier in this narrative. The grading plan depicts the limits of earthwork attendant with reshaping the project site.

The earth moving will include trenching for new underground utility services, removal of existing deteriorated pavement materials, and minor excavation for the roadway curbing and sidewalk improvements associated with the project.

V. EXISTING AND PROPOSED DRAINAGE FEATURES

The existing drainage at the site drains by sheet flow from areas around the building towards the playing fields and the associated underdrain and surface drainage system. The proposed redevelopment of the site does not propose any significant changes to the existing drainage patterns. However, several small, Low Impact Development (LID) BMPs are proposed to capture, detain and treat runoff from existing and proposed impervious areas before draining to the same receiving stormwater system. This will lead to an improvement in water quality treatment for impervious areas of the site, and a reduction in both peak runoff and the volume of runoff to the receiving system. The existing inlet structures will be retained and the associated piping will be replaced at the same locations to ensure infiltration into the system is minimized.

VI. CRITICAL AREAS

The critical areas of the site include protection of the downstream storm drain infrastructure, new stormwater BMPs, the receiving wetland, and adjacent streets and properties.

VII. 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 Erosion and Sediment Control Handbook for Construction: Best Management Practices dated March 2003*. The Contractor will also be obligated to follow the SMP that has been prepared for the site. This gives details of requirements for soil handling measures, storage, isolation and testing of any contaminated soils, and dust control measures.

1. Siltation fence shall be installed down slope of any disturbed areas to trap runoff borne sediments. The silt fence 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 fence 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 reoccurrence. Typically, this requires that stabilization measures be undertaken. Proper placement of stakes and keying the bottom of the fabric into the ground is critical to the fence's effectiveness. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence, the barrier shall be replaced with a stone check dam and measures taken to avoid the concentration of flows not intended to be directed to the silt fence.
2. Silt fence shall be installed along the downgradient side of construction work areas, with locations being adjusted along with the construction phasing areas.
3. Temporary sediment sumps will provide sedimentation control for stormwater runoff from disturbed areas during construction until stabilization has been achieved.
4. A construction entrance will be constructed at all access points onto the site to prevent tracking of soil onto adjacent local roads and streets and the existing parking lot.
5. 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.
6. 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.
7. Silt logs are an option for stone check dams and may be substituted provided the devices are well anchored.
8. Sorbent booms are intended to capture oils and the asphalt sheen from paved surfaces and shall be installed in all catch basins before pavement is installed.

VIII. TEMPORARY EROSION/SEDIMENTATION CONTROL MEASURES

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

1. The primary and most effective soil erosion and sediment control measure is proactive work scheduling to minimize exposure of erodible soils. The Contractor will make every effort to promptly stabilize and disturbed areas on the site. This will limit exposure of native soils and fill materials and provide a stable surface with minimal erosion potential.
2. Crushed stone-stabilized construction entrances shall be placed at any construction access points to disturbed work areas from adjacent pavement. 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 driveways. 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.

3. Siltation fence shall be installed along the downgradient side of the proposed improvement areas. The silt fence will remain in place and properly maintained until the site is acceptably stabilized. Silt fence needs to be checked to insure the bottom is properly keyed in and inspected after significant rains. Wood chips from clearing are often used on the construction site of the silt fence to provide an extra margin of safety and security for the silt fence. This practice is encouraged, provided the chips are removed when the fence is removed.

4. Dirtbags™ shall be installed in accordance with the details in the plan set. The Dirtbags'™ function on the project 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 under the Dirtbag™ shall be removed and replaced concurrently with the replacement of the Dirtbag™.

5. Temporary stockpiles of common excavation will be protected with silt fence barriers and temporary mulch, as appropriate:

6. Stone check dams, silt logs, or hay bale barriers will be installed at any evident concentrated flow discharge points during construction and earthwork operations

7. 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.

8. Storm drain catch basin inlet protection shall be provided through the use of stone sediment barriers or a premanufactured SiltSack™ as distributed by A. H. Harris Company, Portland, Maine. 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.

9. All slopes steeper than 4:1 shall receive erosion control blanket. All blanket shall be 100% biodegradable, consisting of a coir fiber matrix in a double (top and bottom) jute fabric net (north American Green©, Bionet®, C125BN, or approved equal.

10. 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.

11. 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.

IX. 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.

1. 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.

2. Cover stockpiles of fine-grained materials, or excavated soils which are susceptible to erosion. To protect from the intense, short-duration storms which are more prevalent in the summer months.

3. Take additional steps needed, including watering, or covering excavated materials to control fugitive dust emissions to minimize reductions in visibility and the airborne disbursement of fine-grained soils. This is particularly important given the potential presence of soil contaminants, and the proximity of along the adjacent streets and properties.

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

X. PERMANENT EROSION CONTROL MEASURES

The following permanent erosion control measures have been designed as part of the Erosion/Sedimentation Control Plan:

1. The drainage conveyance systems have been designed to intercept and convey the 25-year storm.

2. All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.), will be loamed, limed, fertilized, mulched, and seeded. Fabric netting, anchored with staples, shall be placed over the mulch in areas where the finish grade slope is greater than 10 percent. Native topsoil shall be stockpiled and temporarily stabilized with seed and mulch and reused for final restoration when it is of sufficient quality.

3. Catch basins shall be provided with sediment sumps for all outlet pipes that are 12” in diameter or greater or where winter sand use is contemplated. A sediment collection shall be installed in all basins.

XI. TIMING AND SEQUENCE OF EROSION/SEDIMENTATION CONTROL MEASURES

The following construction sequence shall be required to insure the effectiveness of the erosion and sedimentation control measures is optimized.

The following construction sequence is required:

1. Install construction entrances.
2. Install safety and construction fence to secure the site for demolition.
3. Install inlet protection at catch basins within the site.

4. Install all siltation fence and perimeter controls.
5. Conduct demolition activities including salvage of materials that can be used for site work aggregate.
6. Construct activities on the site to optimize the handling of materials and restrict the denuded areas to the time stipulated.
7. Install underground utilities and storm drain piping.
8. Construct parking lots and drives in segments which will comply with the limitations for denuded areas of the plan.
9. Install solvent catch basin logs or booms.
10. Install binder pavement.
11. Install curbs.
12. Landscape (loam and seed).
13. Install surface pavements.
14. Install striping, signage, and miscellaneous site improvements.
15. Review and punch the site.
16. Remove any temporary erosion control measures.

It is anticipated that site work will be complete and the site will be fully stabilized before the onset of winter. However, should site activities continue after November 1st, the General Contractor shall schedule a meeting with the Owner, a representative of City of Portland DPS and Owner's representatives to review the site for conformance with the plan and to review the need for additional erosion control measures. This meeting shall be scheduled at least 10 days prior to October 1st. The Owner may elect to provide the Contractor with a punch list for measures to be completed to satisfy this erosion control plan before the interim shutdown. The Owner's punch list shall not obviate the Contractor's responsibility for compliance with the erosion control requirements of the project or permits.

XII. CONTRACTING PROCEDURE

The project will be constructed by a General Contractor under contract to the Owner/Applicant. The Contractor shall submit a schedule for the completion of the work, which will satisfy the following criteria:

1. The above construction sequence should generally be completed in the specified order; however, several separate items may be constructed simultaneously. Work must also be scheduled or phased to prevent the extent of the exposed areas as specified below. The intent of this sequence is to provide for erosion control and to have structural measures such as silt fence and construction entrances in place before large areas of land are denuded.
2. The work shall be conducted in sections which will:
    a) Limit the amount of exposed area to those areas in which work is expected to be undertaken during the proceeding 30 days.
    b) Stabilize disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading and temporarily stabilized within 7 days of initial disturbance or before a predicted storm event of over ½" of rain.
    c) Incorporate planned inlets and drainage system as early as possible into the construction phase.

4. The area of denuded, non-stabilized construction shall be limited to the minimum area practicable. An area shall be considered to be denuded until the subbase gravel is installed in parking areas, or the areas of future loam and seed have been loamed, seeded, and mulched, or stabilized with erosion control blanket.

5. The schedule shall be subject to the approval of the Owner.

7. The Contractor must maintain an accurate set of record drawings indicating the date when an area is first denuded, the date of temporary stabilization, and the date of final stabilization. On October 1 of any calendar year, the Contractor shall submit a detailed plan for stabilizing the site for the winter and a description of what activities are planned during the winter.

8. The Contractor must install any added measures which may be necessary to control erosion/sedimentation and fugitive dust emissions from the site, with adjustments made dependent upon forecasted and actual site and weather conditions.

XIII. PROVISIONS FOR MAINTENANCE OF THE EROSION/SEDIMENTATION CONTROL FEATURES

The project will be contracted by the Owner. The Contractor shall prepare a list and designate by name, address and telephone number all individuals who will be responsible for implementation, inspection, and maintenance of all erosion control measures identified within this section and as contained in the Erosion and Sedimentation Control Plan of the contract drawings. Specific responsibilities of the inspector(s) will include:

1. Execution of the Contractor/Subcontractor Certification contained in Attachment B by any and all parties responsible for erosion control measures on the site.

2. Assuring and certifying the Owner's construction sequence is in conformance with the specified schedule of this section. A weekly certification stating compliance, any deviations, and corrective measures necessary to comply with the erosion control requirements of this section shall be prepared and signed by the inspector(s).

3. In addition to the weekly certifications, the inspector(s) shall maintain written reports recording construction activities on site which include:

   · Dates when major grading activities occur in a particular areas.

   · Dates when major construction activities cease in a particular area, either temporarily or permanently.

   · Dates when an area is stabilized.

4. Inspection of this project work site on a weekly basis and after each significant rainfall event (0.5 inch or more within any consecutive 24-hour period) during construction until permanent erosion control measures have been properly installed and the site has been stabilized. Inspection of the project work site shall include:

   · Identification of proper erosion control measure installation in accordance with the erosion control detail sheet or as specified in this section.

   · Determine whether each erosion control measure is properly operating. If not, identify damage to the control device and determine remedial measures.

   · Identify areas which appear vulnerable to erosion and determine additional erosion control measures which should be used to improve conditions.

   · Inspect areas of recent seeding to determine percent catch of grass. A minimum catch of 90 percent is required prior to removal of erosion control measures.

- All erosion controls shall be removed within 30 days of permanent stabilization except for mulch and netting not detrimental to the project. Removals shall include but not be limited to all silt fence, hay bales, inlet protection, and stone check dams.

- Accumulated silt/sediment should be removed when the depth of sediment reaches 50 percent of the barrier height. Accumulated silt/sediment should be removed from behind silt fencing when the depth of the sediment reaches 6 inches.

- Silt sacks should be removed and replaced at least every three months and at any time where the weekly inspection reveals that siltation has significantly retarded the rate of flow through the silt sack.

5. If inspection of the site indicates a change should be made to the erosion control plan, to either improve effectiveness or correct a site-specific deficiency, the inspector shall immediately implement the corrective measure and notify the Owner of the change.

All certifications, inspection forms, and written reports prepared by the inspector(s) shall be filed with the Owner, and the Permit File contained on the project site. All written certifications, inspection forms, and written reports must be filed within one (1) week of the inspection date.

The Contractor has sole responsibility for complying with the erosion/sediment control report, including control of fugitive dust, and shall be responsible for any monetary penalties resulting from failure to comply with these standards.

The contract specifications for erosion and sedimentation control have additional requirements and are appended to this narrative.

Once construction has been completed, long-term maintenance of the stormwater management system will be the responsibility of the applicant. Operation and maintenance items with a list of maintenance requirements and frequency are listed in the Stormwater Management Report for this project.

XIV. PRECONSTRUCTION CONFERENCE

Prior to any construction at the site, representatives of the Contractor, the Architect, the Owner, and the site design engineer shall meet to discuss the scheduling of the site construction and the designation of the responsible parties for implementing the plan. The Contractor shall be responsible for scheduling the meeting. Prior to the meeting, the Contractor will prepare a detailed schedule and a marked-up site plan indicating areas and components of the work and key dates showing date of disturbance and completion of the work. The Contractor shall conduct a meeting with employees and sub-contractors to review the erosion control plan, the construction techniques which will be employed to implement the plan, and provide a list of attendees and items discussed at the meeting to the Owner. Three copies of the schedule, the Contractor's meeting minutes, and marked-up site plan shall be provided to the Owner.

XV. ATTACHMENTS

Attachment A –Sample Erosion Control Compliance Certification and Inspection Forms

XVI. PLAN REFERENCES

Grading, Drainage and Erosion Control Plan

ATTACHMENT A

Sample Erosion Control Compliance Certification and Inspection Forms

CONTRACTOR/SUBCONTRACTOR CERTIFICATION

PROJECT INFORMATION

Project Name: Motherhouse Senior Housing

Address: 605 Stevens Avenue, Portland, Maine

CONTRACTOR/SUBCONTRACTOR INFORMATION

Firm Name:

Address:

Telephone:

Type of Firm:

CERTIFICATION STATEMENT

"I certify under penalty of law that I understand the terms and conditions of the Maine Construction General Permit (MCGP) permit that authorizes the stormwater discharges associated with construction activity from the project site identified as part of this certification."

_____
Signature

_____
Typed Name

_____
Title

_____
Date

SOIL EROSION AND SEDIMENT CONTROL

INSPECTION REPORT

PROJECT INFORMATION

Project Name: Motherhouse Senior Housing

Address: 605 Stevens Avenue, Portland, Maine

INSPECTOR INFORMATION

Inspector Name: _____

Firm: _____

Title: _____

Qualifications: _____

INSPECTION SUMMARY

Date of Inspection: _____

Major Observations: _____

_____

_____

_____

THE FACILITY IS IN COMPLIANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN WITH THE FOLLOWING EXCEPTIONS:

_____

_____

_____

_____

ACTIONS NECESSARY TO BRING FACILITY INTO COMPLIANCE:

_____

_____

REQUIRED MODIFICATIONS TO STORMWATER POLLUTION PREVENTION PLAN (MUST BE IMPLEMENTED WITHIN 7 DAYS OF INSPECTION):

_____

_____

_____

_____

CERTIFICATION STATEMENT:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the systems, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of find and imprisonment for knowing violations."

_____

Signature

_____

Typed Name

_____

Title

_____

Date