SECTION 02 00 00

INTRODUCTION TO SITEWORK

PART 1 GENERAL

1.1 SUMMARY

A. Standard Specifications:

1. All Work included or ordered under this Contract shall be done in conformity with the applicable provisions of the State of Maine Department of Transportation “Standard Specifications”, latest edition, hereinafter referred to as “Standard Specifications” and the City of Portland rules, regulations, codes, ordinances and specifications and utility company specifications.

2. Division 100 - "General Provisions" of the "Standard Specifications" will not apply to this Project except as follows:

a. When any of the technical specifications of Divisions 200 through 700 of the "Standard Specifications" reference Division 100.

1) Definition: Wherever the word "Engineer" is referred to in the Standard Specifications, it shall mean Tighe & Bond, Inc. and its authorized representatives.

1.2 SUMMARY OF SITEWORK

A. The entire Work called for on the Drawings and Specifications including, but not limited to layout, demolition, erosion and sediment control, earthwork, natural gas system, electric and communications services, fire protection and domestic water systems, sanitary sewer system, stormwater drainage system, Site lighting system, curbing and sidewalks, retaining walls, landscaping, loaming and seeding, grading, building pad construction, pavement and aggregate base courses, pavement markings, traffic signs, guardrail, fencing, bollards, offsite roadway improvements, coordination with existing businesses, traffic control, construction permits and fees, cleanup, and general conditions necessary to complete sitework construction for the Neighborhood Center at 1342 Congress Street in Portland, Maine.

B. The following list is provided to generally describe the sitework and is not intended to be a full and definitive Project description. The Work is more fully described in the Drawings and Specifications.

1. Layout/As-Built

a. Layout all lines and grades.

b. Provide As-Built drawings of all completed sitework stamped by a licensed Maine land surveyor at completion of Work.

2. Demolition

a. Remove all trees, shrubs, brush and plantings within limits of Work unless specifically identified to remain.

b. Grub and remove all stumps within limits of Work and dispose of off-site in accordance with all Laws and Regulations.

c. Demolish and completely remove all building foundation walls. Lowest level basement slabs and basement level footings shall remain.

d. Sawcut and remove existing pavement one foot off proposed edge of pavement in all areas where new curb or pavement abuts existing pavement or concrete to remain.

e. Remove and dispose of all Site elements not incorporated into the Work within the areas to be disturbed (concrete pads, curbing, pavement, lighting, manholes, catch basins, utility poles, fixtures, pads, stairs, signs, fences, utilities, etc.)

f. Remove and provide for off-site disposal of construction debris piles.

g. Removal and disposal of building debris at a facility properly permitted to accept this debris and provide documentation of disposal to Owner.

3. Erosion Control

a. Furnish and install silt sock, inlet protection barriers and other erosion control measures where shown.

b. Inspect and maintain erosion control devices at least once each week and following any storm event of ¼ inch or greater.

c. Provide water truck for dust control and use other dust control agents where applicable.

d. Furnish and install stabilized construction entrances prior to any excavation activities.

e. Provide for street sweeping of offsite roadways during heavy haul periods.

f. Provide temporary stabilization of disturbed areas left inactive for more than twenty-one (21) days.

g. Provide for inspection reports of erosion control items.

4. Earthwork

a. Strip and stockpile topsoil to be reused on Site. All excess topsoil stripped from the Site shall become property of the Contractor, and shall be legally disposed of offsite by the Contractor.

b. Prepare building pad in accordance with the Specifications.

c. Complete earthwork to subgrade for remaining Site. All excess material shall become property of the Contractor, and shall be legally disposed of offsite by the Contractor.

d. Dewatering, including removal of unstable natural subgrade soils and replacement with structural fill if necessary

e. Prepare subgrade, backfill or import fill as required by Drawings and Specifications.

5. Natural Gas

a. Coordinate all Work with Unitil.

b. Provide trenching and backfill for gas service pipes.

c. Gas meter location to be coordinated with Owner, Contractor, and Unitil.

d. Gas pipe to be installed by Unitil.

e. Obtain permit for trenching in offsite roadways.

6. Site Electric and Communications

a. Coordinate all Work with Central Maine Power and Fairpoint Communications.

b. Furnish and install all conduits for primary electric service from the drop pole to the transformer pad.

c. Furnish and install all conduits for communications services from pole to the building.

d. Furnish and install concrete transformer pad, and electrical and communications manholes.

e. Electric company to install transformer and primary cables.

f. Obtain approval from electric company for all buried conduit Work completed.

7. Water

a. Coordinate and schedule all Work to be completed by Portland Water District.

b. Furnish and install pipe, valves, hydrants, fittings, and appurtenances to provide the water services from the taps to the building foundation.

c. Flush, disinfect, and test water service.

d. Set all valve covers to finish grade.

e. Arrange for all local inspections and coordinate with inspector.

f. Obtain permit for trenching in offsite roadways if required.

8. Drainage

a. Furnish and install all drainage pipe and structures as shown, including manholes, catch basins, underground detention, and roof drains to the building foundations.

b. Set all structures to finish grade.

c. Construct temporary sedimentation basins, temporary standpipes and temporary piping.

9. Sewer

a. Furnish and install manholes and grease traps.

b. Furnish and install all piping as shown on the Drawings to the building foundation.

c. Obtain permit for sewer connection.

d. Test all completed lines.

e. Arrange for all local inspections and coordinate with inspector.

f. Set all structures to finish grade.

g. Obtain permit for trenching in offsite roadways if required.

10. Site Lighting

a. Furnish and install light pole bases, fixtures, poles, conduit and wiring to the building.

b. Provide labor warrantee on installation.

c. Obtain electrical permit and coordinate inspections for wiring.

d. See electrical Drawings for Site lighting layout and details.

e. See electrical Drawings for Site electrical layout and details.

11. Landscaping

a. Pre-purchase planted materials and arrange for delivery to meet Project schedule. It may be necessary to pre-dig certain species well in advance of actual planting date (fall digging hazards).

b. Furnish and install screened loam on-site as indicated on the Drawings.

c. Furnish and install plantings as indicated on the Drawings.

d. Fertilize and seed lawn areas and mulch other areas.

e. Maintain lawn areas until healthy turf is established and accepted by the Owner's representative.

f. Maintain plantings until acceptance by the Owner's representative.

g. Provide one (1) year warranty on all plantings. Plantings must have at least 80% healthy growth one (1) year beyond acceptance by the Owner's representative.

12. Pavement

a. Furnish and install crushed aggregate base and subbase.

b. Compact and fine grade crushed aggregate base and subbase.

c. Sawcut all edges of pavement where new pavement abuts existing.

d. Provide and place pavement binder and wearing courses per pavement sections.

e. Provide wearing course pavement immediately prior to Neighborhood Center opening and coordinate final pavement schedule with building schedule.

13. Curbing and Sidewalks

a. Furnish and install curbing in areas located on the Drawings.

b. Furnish and install concrete backfill for curbing as indicated on the Drawings.

c. Protect curbing until Substantial Completion (replacement of damaged curbing to be subsidiary to the Work).

d. Furnish and install sidewalks as indicated on the Drawings.

e. Furnish and install concrete handicap ramps as indicated on the Drawings.

14. Site Appurtenances

a. Furnish and install pavement markings for all parking stalls, handicap spaces, etc. as indicated on the Drawings.

b. Furnish and install traffic control signs.

c. Furnish and install fencing and bollards where shown on Drawings.

15. Traffic Control

a. Provide temporary barriers, signs, illumination devices, flag personnel and uniformed officers as necessary for traffic control.

16. Permits

a. Obtain all utility installation licenses and permits, roadway trenching permits, miscellaneous construction permits and building permits required for wall, etc.

b. Coordinate inspection with local authorities and utilities.

17. Final Cleanup

a. Clean all manholes, catch basins and drain lines (new and existing)

b. Remove all litter and trash immediately prior to Neighborhood Center opening.

c. Sweep parking lot immediately prior to Neighborhood Center opening.

18. General Conditions

a. Provide full-time on-site Superintendent.

b. Provide field office.

c. Coordinate Work and cooperate with abutters.

19. Offsite Construction

a. Construct all offsite improvements including but not limited to excavation, drainage construction, loam and seeding, all other indicated items necessary to complete the Work as shown on the Offsite Grading and Drainage Plan.

1.3 REFERENCES

A. In addition to the "Standard Specifications" the Work shall be completed in conformance with the Supplemental Specifications consisting of sections:

1. Section 02 00 00 - Introduction to Sitework
2. Section 02 20 50 - Geotechnical Data
3. Section 02 41 00 - Demolition
4. Section 31 10 00 - Site Preparation
5. Section 31 23 00 - Earthwork
6. Section 31 23 01 - Building Pad Earthwork
7. Section 31 25 00 - Erosion Control
8. Section 31 25 39 - Underground Warning Tape
9. Section 32 12 00 - Paving, Curbs, and Walks
10. Section 32 17 23 - Pavement Markings
11. Section 33 08 40 - Testing of Sanitary Sewer and Storm Drainage Systems
12. Section 33 10 00 - Water Supply
13. Section 33 30 00 - Sanitary Sewerage
14. Section 33 39 14 - Breaking into Existing Manholes and Catch Basins
15. Section 33 40 00 - Storm Drainage
16. Section 33 49 13 – Manholes and Catch Basins
17. Appendix A Geotechnical Report
18. Appendix B Permits

B. If conflicts arise between any of these specifications, the most stringent specifications shall govern.

C. Latest revision of federal, state and ASTM Specifications shall be used where only the specification number without date or revision number is given in the specification.

D. The omissions from the Drawings and/or Specifications of express reference to any labor or materials reasonably to be inferred therefrom and necessary for the proper execution of the Work shall not relieve the Contractor or Subcontractor from furnishing them of a kind in keeping with the general character of the Work.

E. The Owner's representative shall decide all questions which may arise as to the quality, quantity, acceptability, fitness and rate of progress of the several kinds of Work and materials to be performed and furnished under the Contract, and shall decide all questions which may arise as to the fulfillment of the Contract on the part of the Sitework Contractor. The Owner's representative's determination and decision shall be final and conclusive.

1.4 PROJECT/SITE CONDITIONS

A. It was not possible for the Owner, and/or Engineer to observe all existing conditions in the completion of these documents. Unforeseen conditions are expected to be discovered. The accuracy of the existing conditions data is not guaranteed to the Contractor. During the execution of the Work it shall be the Contractor's responsibility to discover, identify, and observe existing conditions not anticipated by the Construction Documents, and promptly notify the Owner's representative of such conditions and proposed solutions at no additional cost. The Contractor's Bid shall anticipate delays associated with conflicts with existing utilities.

B. Permits

1. The following permits are required to complete the sitework construction. Contractor is responsible for familiarizing himself with the conditions of these permits and conducting all Work in accordance with these permits:

a. City of Portland Planning Board Site Plan Approval

b. Notice of Intent (NOI) filing to comply with Maine Construction General Permit required by Maine DEP.

2. The Contractor is responsible for obtaining all construction related permits including, but not limited to; building, blasting, electrical, earthwork, plumbing, roadway opening, etc. The Contractor shall arrange for necessary inspections and approvals from authorities having jurisdiction.

C. Utilities

1. The Contractor shall send proper notices, make all necessary arrangements and perform all other services required for the removal or the care, protection and maintenance of all utilities, including, but not limited to: water, sewer, electric, gas, alarm, television, telephone, and telegraph poles and wires, and all other items of this character above or below the ground, on and around the Site, assuming all responsibility and paying all costs related thereto. Related services to any existing facilities shall not be disrupted without the prior approval of the Owner, and then only to the minimum extent required. The Contractor shall call Digsafe at least 72 working day hours in advance of excavating near or around any underground utility installations.

D. Job Site Layout, Conditions and Measurements

1. Contractor shall employ a licensed engineer/surveyor to determine all lines and grades and to field verify existing job conditions and measurements shown on the Drawings. All discrepancies shall be reported to the Owner's representative for clarification. The contractor shall carefully examine the Site and Contract Documents prior to proceeding with the Work and satisfy himself as to the conditions under which he must perform the Work. No additional compensation will be made to the Contractor for any error or negligence on his part, nor for discrepancies between actual conditions found at the buildings and Sites and as indicated in the Contract Documents after the Work has commenced.

2. The Owner will provide traverse coordinate information and benchmarks prior to start of construction. It is the Contractor's responsibility to protect, maintain, transfer and offset the baselines and benchmarks as required throughout the construction period. Should the baselines and/or benchmarks be lost or destroyed the Owner will provide additional layout at a cost to the Contractor.

3. Contractor's surveyor shall issue interim certifications to the Owner's representative that the construction installation is proceeding according to the Drawings.

    a. Initial building layout prior to excavating

    b. Foundation installation complete

    c. Pavement limits prior to paving

    d. Record Plans

4. Provide all field engineering services required for the Project including:

    a. Survey work required to layout the Project from control points.

    b. Civil, structural or other professional engineering services specified, or required to execute Contractor's construction methods.

5. Surveyor: Submit to the Engineer the name of the surveyor proposed to be employed for the Project survey work. Survey work shall only be carried out by a registered land surveyor, distinct from the superintendent and acceptable to the Owner.

6. Professional Engineers: Submit to the Engineer the names of only professional engineers proposed to be employed to provide engineering services specified or required by the Contractor's construction methods. Engineering work shall be done only by registered Professional Engineers licensed in the State in which the Project is located and who are acceptable to the Owner.

7. Survey Reference Points: The Owner shall provide permanent control points and benchmarks. The Contractor shall protect control points prior to starting the Work, and preserve all permanent reference points during construction.

    a. Make no changes or relocations without prior written notice to Engineer.

b. Report to Engineer when any reference point is lost or destroyed.

c. Contractor's surveyor to replace Project control points, which may be lost or destroyed. Establish replacements based on original survey control.

8. Project Bench Marks: Maintain a minimum of two (2) permanent benchmarks on the Site, referenced to data established by survey control points. Record locations, with horizontal and vertical data, on Project Record Documents.

9. Field Measurements: Continually check and compare dimensions at the Site with those shown on the Drawings. Immediately bring discrepancies to the attention of the Engineer in writing. Mark on Shop Drawings prior to submission to the Engineer, relevant field dimensions and note any conflicts with the submitted material.

1.5 ADMINISTRATIVE REQUIREMENTS

A. Coordination

1. The Contractor shall be fully responsible for coordinating all construction activities, verifying dimensions and existing field conditions, establishing on-site lines of authority and communication, monitoring schedules and progress, monitoring quality, maintaining records and reports and in general assuring the proper administration of the Work. The Contractor shall cooperate with the Owner to the greatest extent possible.

2. The Contractor's cooperative efforts shall include, but shall not necessarily be limited to:

a. Storing on-site materials at locations acceptable to the Owner and governing authorities.

b. Controlling construction parking and traffic and limiting it to areas acceptable to the Owner and governing authorities.

c. Providing access for and cooperating with other Contractors to be employed by the Owner.

d. Accommodating local businesses and other ongoing activities within and about the Project until the end of construction. Such accommodations shall include, but shall not necessarily be limited to:

1) All Work shall be completed in such a manner so as to maintain an open and clear entrance and egress at all times.

2) Maintaining electrical power, fire alarm system, telephone services, water, sewer, gas and other services required for operation of the businesses and surrounding properties.

3) Maintaining access acceptable to governing authorities at all times.

4) Providing adequate dirt, dust, fume, vapor and noise control.

e. Protecting existing building construction, Site utilities, Site improvements and features and all other improvements within and about the Project area until the Project has been completed.

B. Safety

1. The Contractor shall assume full responsibility for all means, methods, procedures, sequences and techniques of construction employed and shall take all measures required to ensure the public's safety. The Contractor shall take into full consideration and assure himself that all necessary barricades and fencing are provided and that they comply with applicable regulations and standards of good practice. The public shall be guarded from all construction hazards and/or attractive nuisances. The Contractor shall pay all costs necessary for temporary partitioning, barricading, fencing, security and safety devices required for the maintenance of a clean and safe construction Site.

C. Superintendent - Supervision

1. The Contractor shall place and maintain a competent, experienced construction superintendent in charge of the Work, on the job Site at all times while Work is in progress, including overtime operations by the Contractor's forces or by Subcontractors. No changes in this position shall be made without the Owner's prior approval. The Owner shall have the right to review the qualifications of the proposed superintendent and ask for a replacement if in his opinion the person does not meet the qualifications, which the Project will demand.

2. The superintendent shall be responsible to make satisfactory arrangements with the Owner to service emergencies or complaints, which may occur at night, over the weekend, holidays or when the job is shut down.

D. Vandalism/Accidents

1. The Contractor shall take all reasonable precautions necessary to prevent loss or damage caused by vandalism, theft, burglary, pilferage, or unexplained disappearance of property of the Owner, whether or not forming part of the Work, located within those areas of the Project to which the Contractor has access until the Work has been substantially completed and accepted by the Engineer.

2. The Contractor shall be responsible for all costs required to repair or replace all losses from vandalism or accidents including resetting of damaged curb and repair of lawn areas at no additional cost to the Owner until the Project is substantially complete.

1.6 SUBMITTALS

A. Sitework Record Drawings

1. Keep on file at job Site one (1) complete set of up-to-date Contract Documents, including Drawings and Specifications, Addenda, Shop Drawings and product data, testing data, Change Orders, Field Orders and other modifications. Store reference documents neatly and securely, in files or on

racks, clearly indexed. Do not use record documents for construction purposes.

2. At a minimum, record the following information:

   a. Drawings: Locations of underground utilities, field changes of dimensions and details, changes resulting from Change Order or Field Order, and details not on original Drawings.

   b. Shop Drawings and manufacturer's literature.

3. Keep marked up set up to date. At weekly progress meetings, review Work completed in the preceding week and demonstrate that record drawings are up to date. Inadequate record drawings shall be cause for Owner to withhold a portion of progress payments.

1.7 CLOSEOUT SUBMITTALS

A. Final Documents:

1. Contractor shall submit As-Built Drawings of all sitework improvements and utilities, structure rim and invert elevations, two (2) foot contours and spot grades at all sidewalks, crosswalks, handicap parking areas and ramps sufficient to demonstrate that design grading requirements have been met and at all locations shown on Construction Drawings. As-Built Drawings shall be provided on reproducible mylar medium and digital (.DWG) format to the Owner and Engineer upon Project completion and prior to final payment. As-Built Drawings shall be prepared and certified correct by a Maine Licensed Land Surveyor or Professional Engineer.

1.8 QUALITY ASSURANCE

A. Geotechnical Testing

1. The Owner shall provide the services of a geotechnical testing firm for inspection of all Work. The Contractor shall be responsible for coordinating and scheduling the daily needs for the geotechnical testing firm. If the geotechnical testing firm is scheduled by the Contractor to be on-site and no testing is required, the Contractor agrees to pay for the services of the testing firm for that day.

1.9 WARRANTY

A. Guarantee

1. The Contractor shall guarantee the entire Work to be free from defective or improper Work or materials, and shall make good any damage due to such Work or materials for a term of one (1) year from the date of the satisfactory completion and acceptance of the Work. In general, the commencement date for warranties and guarantees shall be the date of Substantial Completion. Under no circumstances shall any warranties or guarantees for any individual or collective materials or items of equipment commence prior to the date of Substantial Completion. Additionally, the dates of commencement for all materials and equipment, which have not been made satisfactorily operational upon or prior to the date of Substantial Completion, shall be the first day of

continuous satisfactory performance of said materials or equipment. Extended guarantees or warranties shall be provided as specified elsewhere.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 PREPARATION

A. Protection of In-Place Conditions

1. Traffic Regulations and Parking

a. Contractor shall provide adequate personnel, flagmen, sign, barricades and equipment to properly regulate traffic at times when the Work interferes with the normal flow of traffic both on and off the Site. Parking for workmen and construction vehicles shall be limited to areas designated by the Owner. Parking areas and roadways outside the limits of the Contract shall be kept free of debris resulting from construction related traffic. If at any time the Owner's representative, Engineer, or City of Portland determines that additional traffic control personnel are required to execute the Work, Contractor shall provide additional personnel at no additional cost.

2. Roads and Access to the Site

a. Access to the Site for workmen and the delivery or removal of construction materials and/or equipment shall be made only from locations approved by the Owner. Existing roads, lanes and other required fire access shall remain accessible to fire vehicles at all times. Hauling permits and route approvals shall be obtained from governing authorities as applicable.

3. Dust Control

a. Contractor shall continuously implement a dust control program to minimize dust until the Project is complete. The Contractor shall have a water truck on Site at all times. The water truck shall be used daily on all access roads and internal haul roads. The Contractor shall limit the maximum area of disturbance to minimize dust.

b. Areas to be left undisturbed for more than 21 days shall be temporarily seeded by the fourteenth day after construction activity has permanently or temporarily ceased in that area.

c. Any complaints from abutting properties or the City of Portland due to damage from dust shall be immediately acted upon by the Contractor. The Contractor shall provide cleaning services or other restoration at no additional expense to the Owner for any valid Claim.

4. Dewatering

a. The Contractor shall protect the Work, including but not limited to all excavations, trenches, buildings and materials from storm water, ground water, back-up or leakage of sewers, drains or other piping, and

from water of any other origin and shall control, collect and dispose of any accumulation of such water. Dewatering operations shall include, but not be limited to:

1) Furnishing, operating, and maintaining all pumps, piping, drains and other equipment, including spare units available for immediate use in the event of equipment breakdowns.

2) Disposing of all water in a safe and proper manner, acceptable to governing authorities.

b. The Contractor shall pay all costs related to dewatering including any required permits. All damage resulting from dewatering operations, or the failure of the Contractor to maintain the Work in a suitable dry condition, shall be promptly repaired by the Contractor at no additional cost to the Owner.

5. Protection of Adjoining Property

a. The Contractor shall provide all shoring, fencing, and other Work necessary to support, protect and keep unharmed all walls, buildings, walks, roadways and all other parts of any existing buildings, facilities, Site improvements, land forms, trees and plant materials, etc. The Contractor shall hold the Owner harmless from any such damage due to any operations under this Contract. Any existing Work or property damaged or disrupted as a result of this Contract shall be replaced or repaired to match original existing conditions at no additional cost to the Owner.

B. Demolition/Removal

1. Existing Materials and Equipment

a. All materials scheduled to be removed shall become the property of the Contractor unless otherwise specified. The Contractor shall dispose of all material off-site in accordance with all federal, state and local regulations, ordinances, and codes.

3.2 CLOSEOUT ACTIVITIES

A. Final Cleanup

1. As part of the base Bid, the Contractor's price includes removal of all rubbish on-site as part of final cleanup immediately prior to the Neighborhood Center grand opening. This includes all rubbish, litter, debris, etc. originating from his operations or not. This also includes a final sweeping of the parking lots. The base Bid shall include cleaning all new and existing manholes, catch basins and drain lines within the Work limits as part of the final cleanup regardless of whether the structure was impacted from construction or not.

END OF SECTION

SECTION 02 20 50

GEOTECHNICAL DATA

PART 1 GENERAL

1.1 SUMMARY

A. Soils investigations (test pits, test borings and related report) were prepared for the Owner by S.W. Cole Engineering, Inc., Gray, Maine. A copy of this report has been included in Appendix A.

B. Use of Data

1. These investigations were obtained by the Owner only for the Engineer's use in design, and are not a part of the Contract Documents. The related reports are made available for Bidder's information, but are not a warranty of subsurface conditions. (In particular, the Owner and Engineer claim no responsibility for or endorsement of any construction methods, means, or techniques which may be contained in the above referenced logs and reports.

2. Bidders shall visit the site and familiarize themselves with all existing conditions. Prior to bidding, Bidders may make their own subsurface investigations to satisfy themselves as to site and subsurface conditions, but all such investigations shall be performed under time schedule and arrangements approved in advance by the Owner.

3. Neither the Owner nor the Engineer can guarantee the continuity of subsurface conditions between test locations, nor the accuracy or completeness of related documents and reports.

4. It is expressly understood that neither the Owner nor the Engineer will be responsible for any deduction, interpretation, or conclusion made by any Contractor.

5. No claim for extra cost or extension of time resulting from the Contractor's deductions, interpretations, or conclusions shall be allowed.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION – NOT USED

END OF SECTION

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SECTION 02 41 00

DEMOLITION

PART 1.0 - GENERAL

1.1 DESCRIPTION

A. Work Included:

1. The Contractor shall furnish all labor, materials, tools, equipment and apparatus necessary and shall do all work required to complete the demolition, removal and alterations of existing facilities as indicated on the Drawings, as herein specified, and/or as directed by the Engineer. The work in general includes the demolition and legal disposal of materials shown to be removed on the drawings and as required for new construction. Note that this site was previously developed and occupied by other structures and that subsurface elements from previous construction may exist.

2. All equipment, piping and other materials that are not to be relocated or to be returned to the Owner shall become the property of the Contractor and shall be disposed of by him, away from the site of the work and at his own expense.

3. All demolition or removal of existing structures, utilities, equipment and appurtenances shall be accomplished without damaging the integrity of existing structures, equipment and appurtenances to remain, to be salvaged for relocation or stored for future use.

4. Such items that are damaged shall be either repaired or replaced at the Contractor's expense to a condition at least equal to that which existed prior to the start of work.

B. Related Work Specified Elsewhere: (When Applicable)

1. Section 31 23 00 – Earthwork.

1.2 JOB CONDITIONS

A. Condition of Structures:

1. The contractor shall inspect the premises prior to submittal of his proposal for verification of existing conditions which will affect his work.

2. The owner assumes no responsibility for the actual condition of structures to be demolished or abandoned.

3. Conditions existing at the time of inspection for bidding purposes will be maintained by the Owner as far as practicable.

1.3 UTILITIES

A. Utility Locations:

1. Utility locations shown on the plans are approximate only, based on information supplied by the utility companies.

B. Coordination with Utilities:

1. The Contractor shall make all necessary arrangements and perform any necessary work to the satisfaction of affected utility companies and government divisions involved with the discontinuance or interruption of affected public utilities and services.

1.4 SUBMITTALS

A. Schedule – Demolition:

1. Submit two (2) copies of proposed methods and operations of demolition to the Engineer for review prior to the start of work. Include in the schedule the coordination for shut-off, capping and continuation of utility services as required.

2. Provide a detailed sequence of demolition and removal work to ensure the uninterrupted progress of the Owner's operations or operation of the adjacent facilities.

1.5 PROTECTIONS

A. Ensure the safe passage of persons around the area of demolition. Conduct operations to prevent injury to adjacent buildings, structures, other facilities and persons. Erect temporary, covered passageways as required by authorities having jurisdiction.

B. Provide interior and exterior shoring, bracing or support to prevent movement, settlement or collapse of structures to be demolished and adjacent facilities to remain.

1.6 DAMAGES

A. The Contractor shall promptly repair damages caused by demolition operations to adjacent facilities at no cost to the Owner.

1.7 PERMITS

A. The contractor shall obtain all permits required by local, state and federal governing authorities for removal and disposal of all demolition materials.

PART 2.0 - PRODUCTS

Not Applicable.

PART 3.0 - GENERAL

3.1 PERFORMANCE

A. Remove and dispose of non-salvageable material in accordance with all applicable local and state laws, ordinances and code requirements.

B. Dispose of material daily as in accumulates. Any demolition materials that are temporarily stored on site will not be stored in piles on the ground. These materials will be temporarily stored in dumpsters provided by the contractor while awaiting offsite disposal.

C. Carefully remove, store and protect from damage all materials to be salvaged.

D. Burning of materials will not be permitted on the site.

E. Buildings and Adjacent Property:

1. Protect all buildings and property adjacent to equipment to be removed from damage by erecting suitable barriers or by other suitable means.

2. Leave such buildings in a permanently safe and satisfactory condition.

F. Maintaining Traffic:

1. Ensure minimum interference with roads, streets, driveways, sidewalks and adjacent facilities.

2. Do not close or obstruct street, sidewalks, alleys or passageways without permission from authorities having jurisdiction.

3.2 POLLUTION CONTROL

A. Use water, sprinklering, temporary enclosures and other suitable methods to limit dust and rising and scattering in air to the lowest level possible. Comply with governing regulations pertaining to environmental protection.

END OF SECTION

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SECTION 31 10 00

SITE PREPARATION

PART 1 GENERAL

1.1 SUMMARY

A. Section includes

1. Clearing and grubbing

2. Grading

3. Stripping and stockpiling of soil and sod

1.2 SUBMITTALS

A. Submit construction methods and equipment that will be utilized for the clearing, grubbing, and waste material disposal specified within this Section.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 CLEARING AND GRUBBING

A. Except as otherwise directed, cut, grub, remove and dispose of all trees, stumps, brush, shrubs, roots and any other objectionable material within the limits of the Work on the site and where required to construct the work.

B. Protect trees or groups of trees, designated by the Engineer to remain, from damage by all construction operations by erecting suitable barriers, or by other approved means. Conduct clearing operations to prevent falling trees from damaging trees designated to remain.

1. All damage done to the trees by the Contractor's operation shall be trimmed and painted where cut as directed or as necessary to provide adequate vertical clearance for construction activities. The dressing or paint shall be applied no later than two days after the cuts are made.

2. Use all necessary precautions to prevent injury to other desirable growth in all areas. Contractor shall assume full responsibility for any damage.

C. Protect areas outside the limits of clearing from damage. No equipment or materials shall be stored in these areas.

D. No stumps, trees, limbs, or brush shall be buried in fills or embankments.

3.2 DISPOSAL OF MATERIALS

A. Remove all tree trunks, limbs, roots, stumps, brush, foliage, other vegetation and objectionable material from the site and dispose of in a legal manner.

B. Burning or direct burial of cleared and grubbed materials on-site will not be permitted.

3.3 GRADING

A. In preparation for placing loam, paved drives and appurtenances, perform grading to the lines, grades and elevations shown on the Drawings, and otherwise directed by the Engineer and perform in such a manner that the requirements for formation of embankments can be followed. All material encountered, regardless of its nature, within the limits indicated, shall be removed and disposed of as directed. During the process of grading, maintain the subgrade in such condition that it will be well drained at all times. Install temporary drains and drainage ditches to intercept or divert surface water that may affect the work when necessary.

B. If at the time of grading it is not possible to place material in its final location, stockpile material in approved areas for later use. No extra payment will be made for the stockpiling or double handling of excavated material.

C. The right is reserved to make minor adjustments or revisions in lines or grades if found necessary as the work progresses.

D. Stones or rock fragments larger than 4 inches in their greatest dimensions will not be permitted in the top 12 inches of the finished subgrade of all fills or embankments except along the access roadways and rip-rap where shown on the Drawings.

E. In cuts, loose or protruding rocks on the excavated slopes shall be barred loose or otherwise removed to line or finished grade of slope. Cut and fill slopes shall be uniformly dressed to the slope, cross-section and alignment shown on the Drawings or as directed by the Engineer.

3.4 DUTCH ELM WOOD

A. Dutch Elm diseased wood shall be disposed of in accordance with any local regulations.

B. Where the work includes the removal of elm trees or the limbs of elm trees, such trees or limbs thereof shall be disposed of immediately after cutting or removal and in such a manner as to prevent the spread of Dutch Elm disease. This shall be accomplished by covering them with earth to a depth of at least 6 inches in areas outside the right-of-way locations where the Contractor has arranged for disposal.

C. Where the work includes the removal and disposal of stumps of elm trees, such stumps shall be completely disposed of immediately after cutting in the manner specified above.

END OF SECTION

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SECTION 31 23 00

EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. All labor, materials, equipment, and services, etc. and perform all operations necessary for earthwork required for the execution of all construction as indicated on the Drawings, specified herein, or otherwise required for a complete and proper job.

2. Without limiting the generality thereof, the scope of Work under this Section shall include, but shall not necessarily be limited to, the following items:

a. Excavation and stockpiling of materials suitable for reuse in an on-site location approved by the Owner.

b. Removing existing material **including unsuitable materials** and replacing that material in a suitable manner in accordance with the requirements of the Drawings and these Specifications.

c. Removal and off-site disposal of existing pavements, foundations, and utilities, which may be encountered, and backfilling to the grades shown on the plans.

d. Excavation, fill, refill, backfill, subgrade preparation, and compaction as indicated or required, including, but not necessarily limited to, all Work related to utilities, walks, pavements, yards, fields, as well as general earthwork.

e. Excavation and disposal (off-site) of unsuitable or excess materials. Excavation of all traces of rock, loam, peat or other unsuitable materials to depths necessary to provide suitable bearing, including granular refill and compaction.

f. Proofrolling subgrade for all construction areas.

g. Trench and pit excavations, beddings, fills and backfills, including compaction.

h. Base and sub-base course material under walks and pavements including compaction.

i. Rough and finish grading. (NOTE: The Owner's Representative's authorization shall be required prior to proceeding with finish grading.)

j. Dewatering and control of water for all construction operations.

k. Protection of existing trees, pavements, walks, utilities, buildings, landscaping, etc. to remain.

l. Dust, erosion, siltation, and environmental controls.

m. Sheeting, shoring and bracing of all excavations and as otherwise required.

n. Protection of excavated subgrade areas including diverting surface runoff from excavations. Note subgrade soils which become wet or unstable after excavation shall be replaced with crushed stone underlain with a woven geotextile. This Work is considered subsidiary and will not be paid for as extra Work.

o. Removal and disposal of building debris debris at a facility properly permitted to accept this debris and provide documentation of disposal to Owner.

B. Related Sections

1. Section 31 23 01 – Building Pad Earthwork

1.2 PRICE AND PAYMENT PROCEDURES

A. The Contract Drawings indicate limits of construction for this Project. These Specifications specify material and Work requirements for this Project. Both are complementary to each other, and both shall be followed to properly complete the Work.

1.3 SUBMITTALS

A. All fill material shall be subject to the review of the Owner's Representative. Qualified materials shall not change in source or character unless requalified. The Owner's Representatives review of a material shall not in any way diminish the Contractor's responsibility to fulfill all requirements of the Specifications.

B. For approval of fill materials, the Contractor shall:

1. Notify the Owner's Representative at least four (4) working days in advance of intention to import material.

2. Provide sample to Geotechnical Engineer for the examination and certification of the material.

3. Sources shall be accessible to the Owner, or his agent, for inspection or additional sampling.

1.4 QUALITY ASSURANCE

A. All Work shall be accomplished in accordance with Laws and Regulations of local, county and state agencies and national or local utility company standards as they apply.

1.5 SITE CONDITIONS

A. The Contractor acknowledges that he has satisfied himself as to the nature and location of the Work, the general and local conditions, particularly those bearing upon transportation, disposal, handling, and storage of materials, availability of labor, water, electric power, roads and uncertainties of weather, ground water table or similar physical conditions at the Site, the confirmation of subsurface materials to be encountered, the character of equipment and facilities needed prior to and during

the prosecution of the Work and all other matters which can in any way affect the Work or the cost thereof under this contract. Any failure by the Contractor to acquaint himself with all information concerning these conditions will not relieve him from responsibility for estimating properly the difficulty or cost of successfully performing the Work.

PART 2 PRODUCTS

2.1 IMPORTED FILL MATERIAL

A. Granular Borrow

The material shall consist of sand or silty sand meeting the requirements of MaineDOT Standard Specification 703.19 Granular Borrow and shall conform to the following gradation:

Sieve Size	Percentage by Weight Passing
3 inch	-
No. 40	0 - 70
No. 200	0 – 20.0

*Gradation is for part that passes a 3-inch sieve.

B. Structural Fill

1. The material shall consist of clean, non-frost susceptible sand and gravel and shall conform to the following gradation:

Sieve Size	Percentage by Weight Passing
4 inch	100
3 inch	90-100
1/4 inch	25 – 90
No. 40	0 – 30
No. 200	0 - 5

C. Crushed Stone

1. The material shall meet the requirements of MaineDOT Standard Specifications 703.22 “Underdrain Backfill Type C” and conform to the following gradation:

Sieve Size	Percentage by Weight Passing
1 inch	100
¾ inch	90 – 100
3/8 inch	0 – 75
No. 4	0 – 25
No. 10	0 - 5

2. The material shall meet the requirements of MaineDOT Standard Specifications 703.22 "Underdrain Backfill Type B" and conform to the following gradation:

Sieve Size	Percentage by Weight Passing
1 inch	95 - 100
1/2 inch	75 – 100
No. 4	50 – 100
No. 20	15 - 80
No. 50	0 - 15
No. 200	0 – 5.0

D. Sand Blanket (Pipe Backfill)

1. The material shall consist of clean sand free of organic, frozen or other deleterious materials, and conform to the following gradation:

Sieve Size	Percentage by Weight Passing
½ inch	90 – 100
No. 200	0 - 15

E. Aggregate for Pavement Subbase

1. The material shall meet the requirements of MaineDOT Standard Specifications 703.06 Type D and shall conform to the following gradation:

Sieve Size	Percentage by Weight Passing
1/2 inch	35 - 80
1/4 inch	25 - 65
No. 40	0 - 30
No. 200	0 – 7.0

*Gradation is for part that passes a 3-inch sieve.

F. Aggregate for Pavement Base

1. The material shall meet the requirements of MaineDOT Standard Specifications 703.06 Type A and shall conform to the following gradation:

Sieve Size	Percentage by Weight Passing
1/2 inch	45 - 70
1/4 inch	30 - 55
No. 40	0 - 20
No. 200	0 – 6.0

*Gradation is for part that passes a 3-inch sieve.

G. Aggregate for Sidewalk Base

1. The material shall meet the requirements of MaineDOT Standard Specifications 703.06 Type B and shall conform to the following gradation:

Sieve Size	Percentage by Weight Passing
1/2 inch	35 - 75
1/4 inch	25 - 60
No. 40	0 - 25
No. 200	0 – 6.0

*Gradation is for part that passes a 3-inch sieve.

H. Washed Round Stone (Peastone)

1. The material shall consist of washed stone free of organic, frozen or other deleterious materials, and shall conform to the following gradation:

Sieve Size	Percentage by Weight Passing
5/8 inch	100
½ inch	85 – 100
3/8 inch	15 – 45
No. 4	0 – 15
No. 8	0 - 5

I. On-Site Material

1. The existing uncontrolled fills consist of clays, silts, and sands with varying portions of gravel and organics. The native site soils consist of glaciomarine silty clays. These existing site soils are unsuitable for reuse below new building and pavement, but may be reused in landscape areas. The use of on-

site fill material shall be strictly subject to the prior approval of the Owner's Representative.

2.2 USE OF MATERIAL

A. Granular Borrow

1. Material meeting at least the minimum requirements of granular borrow specified herein shall be used as follows:

a. Fill to raise grades over dry subgrades and during non-freezing conditions.

b. Backfill of over-excavations and for backfilling the existing basement area in dry and non-freezing conditions.

c. Backfill of interior footings not exposed to freezing.

B. Structural Fill

1. Material meeting at least the minimum requirements of granular borrow specified herein shall be used as follows:

a. Fill and to raise grades over wet subgrades and during cold weather conditions.

b. Backfill of over-excavations and for backfilling the existing basement area in wet and cold weather conditions.

c. Backfill against foundations exposed to freezing.

d. Backfill within frost zones below entrance slabs.

C. Crushed Stone

1. MaineDOT Standard Specifications 703.22 “Underdrain Backfill Type C”. Material meeting at least the minimum requirements of crushed stone specified herein shall be used as follows:

a. Beneath foundations, for underdrain aggregate, for utility trenches, saturated areas at or below the water table, as bedding material for utility pipelines and structures.

2. MaineDOT Standard Specifications 703.22 “Underdrain Backfill Type B”. Material meeting at least the minimum requirements of crushed stone specified herein shall be used as follows:

a. Reservoir course in the underdrained soil filter.

D. Sand Blanket

1. Material meeting the requirements of sand blanket specified herein shall be used as bedding and backfill material for utility pipelines as indicated on the Drawings.

E. Aggregate for Pavement Subbase

1. Material meeting the requirements of aggregate for pavement subbase specified herin shall be used as subbase material in proposed pavement areas.

F. Aggregate for Pavement Base

1. Material meeting the requirements of aggregate for pavement base specified herin shall be used as base material in proposed pavement areas.

G. Aggregate for Sidewalk Base

1. Material meeting the requirements of aggregate for sidewalk base specified herin shall be used as base material in proposed sidewalk areas.

H. Washed Round Stone (Peastone)

1. Material meeting the requirements of washed round stone (peastone) specified herin shall be used as transition material between the filter course and crushed stone reservoir course in the underdrained soil filter.

I. On-Site Material

1. The existing uncontrolled fills consist of clays, silts, and sands with varying portions of gravel and organics. The native site soils consist of glaciomarine silty clays. These existing site soils are unsuitable for reuse below new building and pavement, but may be reused in landscape areas. The use of on-site fill material shall be strictly subject to the prior approval of the Owner's Representative.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verification of Conditions

1. Prior to all Work of this section, the Contractor shall become thoroughly familiar with the Site, the building and Site conditions, and all portions of the Work covered by this section. The Contractor shall satisfy himself, by actual examination of the Site of the Work, as to the existing conditions, contours and the elevations and the amount of Work required under this section.

2. Subsoils at the Site consist of naturally deposited glacial till and marine deposits. These soils are highly moisture sensitive. Therefore, it is recommended that drainage measures be completed as early as practical in the construction process so that excavations, foundation and utility construction, and backfilling can be completed in-the-dry.

3. Material encountered in the excavation may include pipe, storm drains, or other utility services, lumber, masonry, and other materials from previous constructions. Material may also include loam, or other unsuitable organics. The Contractor shall make his own investigations to determine the presence of such materials.

3.2 PREPARATION

A. Dust Control

1. Use all means necessary to control dust on and near the Work and on and near all off-site borrow areas if such dust is caused by the Contractor's operations during performance of the Work or if resulting from the condition in which the Contractor leaves the Site. Thoroughly moisten all surfaces as required to prevent dust from being a nuisance to the public, neighbors, and concurrent performance of other Work on the Site.

B. Protection

1. Use all means necessary to protect all materials of this section before, during, and after installation and to protect all objects designated to remain. In the event of damage, immediately make all repairs and replacements necessary to the approval of the Owner's Representative and at no additional cost to the Owner.

C. Bracing

1. Properly support all trenches and all other excavations in strict accordance with all pertinent rules and Laws and Regulations. Brace, sheet, and support trench walls and other excavations in such a manner that they will be safe and that the ground alongside the excavation will not slide or settle, and that all existing improvements of every kind, whether on public or private property, will be fully protected from damage. In the event of damage to such improvements, immediately make all repairs and replacements necessary to the approval of the Owner's Representative and at no additional cost to the Owner.

3.3 STRIPPING UNSUITABLE OR EXCESS MATERIALS

A. All unsuitable or excess materials shall be stripped to their entire depths from areas of new construction or regrading. Materials suitable for use shall be stored in designated locations that will not interfere with building or utility operations. Topsoil shall be stripped and stored before any underlying excavating is begun. Stripped topsoil approved by the Owner’s Representative to be reused shall be free from clay, stones larger than 1" diameter and debris. Excess materials and all materials not suitable for reuse shall be legally disposed of off-site. All excavations shall be performed in a manner to minimize the disturbance of underlying natural ground to remain and existing structures to remain.

B. The Contractor shall excavate all unsuitable material to specified grade or to suitable subgrade soils in building, structure and pavement areas in the manner specified below and as directed by the Owner’s Representative.

C. Unsuitable materials are defined as topsoils, existing soils containing decomposable material, or any material not meeting the gradation requirements or having unsuitable bearing capacity for uses specified herein that are below subgrade limits.

D. The Contractor shall follow a construction procedure which permits visual identification of subgrade soils. In the event that groundwater is encountered, the size of the open excavation shall be limited to that which can be handled by the

Contractor's chosen method of dewatering and allow visual observation of the bottom and placement of crushed stone and backfill in the dry.

E. The Contractor shall avoid trafficking the Site with heavy equipment when the Site soils are wet. If subgrade soils become loose and saturated, the Contractor shall be required to remove the soils and replace with crushed stone. Stabilization of areas which become disturbed due to construction traffic, surface runoff, subsurface seepage pressures, etc. is considered subsidiary and will not be paid for as Extra Work.

F. Over Excavation Correction

1. Excavation beyond indicated or authorized limits shall be refilled with structural fill or other approved suitable granular borrow material. Refills shall be compacted to 95 percent (Modified Proctor) of the maximum dry density at optimum moisture content. Refills shall be provided as required by the Owner's Representative and at no additional cost to the Owner.

3.4 GRADES AND ELEVATIONS

A. The Drawings indicate, in general, the alignment and finished grade elevations of Site structures. The Owner's Representative; however, may make such adjustments in grades and alignment as are found necessary in order to avoid interferences and other special conditions encountered. Grading between indicated final grades shall provide smooth, even surfaces, except as otherwise required.

3.5 BUILDING PAD PREPARATION

A. See Section 31 23 01 – Building Pad Earthwork.

3.6 EXCAVATION FOR SITE STRUCTURES

A. The Contractor shall remove completely below grade and above grade all Site obstructions, which interfere with the construction of Site structures. Any buried slabs, foundations, utilities or other Work found shall be completely removed and backfilled with compacted borrow or structural fill, as specified.

B. If suitable bearing for structures is not encountered at the depth indicated on the Drawings or as required in these Specifications, the Owner's Representative shall be notified immediately. The Work shall not proceed further until instructions are given.

3.7 SITE EXCAVATION, FILL AND BACKFILL

A. Pavement Subgrade Preparation

1. All topsoil, organic material, existing pavement and uncontrolled fill shall be removed from proposed pavement areas. Remove all material to finish subgrade lines shown on the Drawings. Remove any material below the subgrade levels that become soft or yielding or contain organic materials. The resulting subgrade shall be compacted with minimum ten (10) ton vibratory equipment providing at least four 3-5 passes. During the proofrolling process, the subgrade shall be observed by the Geotechnical Engineer. Unstable areas and exposed silt layers shall be over excavated and replaced with Structural Fill. All excess excavated material shall be legally disposed of

off-site. A woven geotextile, such as Mirafi 600X or approved equal shall be used over pavement subgrades consisting of native silty clay.

2. Once proofrolling is finished, subgrade fills, where required, may be placed in loose lifts not exceeding 12 inch thickness and compacted to at least 95 percent of the maximum dry density as determined by ASTM D-1557. Pavement subgrade fill may consist of compacted granular borrow or structural fill.

3. The groundwater table shall be maintained at least three (3) feet below finish pavement grade.

B. Unpaved and Landscaped Area Preparation

1. Surficial topsoil and fill may be left in place in landscape and unpaved areas. Fills in landscape areas, where required, may be placed in 12 inch thick lifts and compacted to at least 90 percent of the maximum dry density as determined by ASTM D-1557. Unpaved and landscaped area fill may consist of onsite materials.

3.8 SITE DEWATERING

A. The Contractor shall be required to maintain a dewatered and stable subgrade during construction. Surface water should be diverted away from the excavation. Subgrade soils that remain unstable shall be replaced with crushed stone underlain with a geotextile fabric.

B. The Contractor shall provide, at his own expense, adequate pumping equipment (including standby) and drainage facilities to keep the excavated Site areas sufficiently dry from groundwater and/or surface runoff so as not to adversely affect Site construction procedures or cause excessive disturbance of underlying natural ground. The drainage of all water resulting from pumping shall be discharged into existing drainage system or courses so as not to cause damages to adjacent property.

C. The Contractor shall secure all necessary permits, and satisfy all local, state and federal environmental conservation and water control requirements for discharge of groundwater to surface waters.

3.9 SHEETING, SHORING AND BRACING

A. Provide shoring, sheeting, and/or bracing of excavations as required to assure complete safety against collapse of earth at side of excavations. Alternatively, lay back excavations to a stable slope.

B. Excavations shall be adequately sheeted, shored and braced as necessary to permit proper execution of the Work and to protect all slopes and earth banks until new structures are cured and acceptable for backfill. Sheet piling shall be installed if required to prevent cave-ins or settlement and to protect workmen and utilities. Shoring and bracing may be removed as the backfilling progresses, but only when banks are safe against caving, taking all necessary precautions to prevent collapse of excavation sides.

1. The Geotechnical Engineer may direct that sheeting, shoring, and bracing be left in place at any time during the progress of the Work and direct that timber

used for sheeting and bracing, authorized to be left in place, but cut off at a specified elevation. In removing sheeting or bracing, all necessary precautions shall be taken to prevent voids and collapse of excavation sides. Voids, if formed, shall immediately be filled with structural fill and then compacted.

2. The installation of sheeting, shoring, and bracing shall comply with the safety precautions as outlined in the Associated General Contractors of America "Manual of Accident Prevention in Construction," and all local and state Laws and Regulations. Dewatering shall be performed as required or as directed by the Geotechnical Engineer for all excavations below ground water level.

C. The Contractor should be aware that slope height, slope inclination, or excavation depths (including utility trench excavations) should in no case exceed those specified in local, state, or federal safety Laws and Regulations (i.e., OSHA Health and Safety Standards for Excavations, 29 CFS Part 1926, or successor Laws and Regulations). Such Laws and Regulations are strictly enforced and, if they are not followed, the Owner, Contractor, and/or earthwork and utility Subcontractors could be liable for substantial penalties.

D. As a safety measure, it is recommended that all vehicles and spoil piles be kept a minimum lateral distance from the top of excavations equal to no less than 100 percent of the slope height. Exposed slope faces should be protected against the elements.

3.10 PLACING SITE FILL

A. Base courses for Site structures, pavements and sidewalks shall be made with materials indicated on the Drawings, and specified herein.

B. Frost

1. Do not excavate to full indicated depth when freezing temperatures may be expected, unless fill material or structures can be constructed immediately after the excavation has been completed. Protect the excavation from frost if placing of fill or structure is delayed.

2. Fill shall not be placed over frozen soil. Soil that is frozen shall be removed prior to placement of compacted fill. Remove all frozen uncompacted soil prior to placing additional fill for compaction.

C. Protect fill area by grading to drain and providing a smooth surface which will readily shed water. Grade the surface of the areas in such a manner as to prevent ponding of surface runoff water in areas to receive compacted fill.

D. To the extent that it is practicable, each layer of fill shall be compacted to the specified density the same day it is placed.

E. Fill that is too wet for proper compaction shall be diced, harrowed or otherwise dried to the proper moisture content for compaction to the required density. If the fill material cannot be dried within 48 hours of placement, it shall be removed and replaced with drier fill.

F. Fill that is too dry for proper compaction shall receive water uniformly applied over the surface of the loose layer. Sufficient water shall be added to allow compaction to the required density.

G. Fill shall be placed in horizontal layers not to exceed thicknesses previously specified. Where the horizontal layer meets a natural rising slope, the layer shall be keyed into the slope by cutting a bench.

H. The subgrade areas to be fine graded for loaming and seeding, mulching and landscaping shall be raked to remove all stones larger than 1" diameter and other unsatisfactory material and shall then be rolled. Any depressions, which may occur during the rolling, shall be filled with additional suitable material and the surface regraded and rerolled until true to the lines and grades required. Care shall be taken not to affect the line or grade of walls and footings during grading and rolling operations.

I. All fill materials shall be spread uniformly by acceptable methods over the areas required to be covered so that the required thickness after compaction shall be obtained. The material shall be thoroughly consolidated by vibratory tampers, hand tamping or other approved means, to the final compacted grades as required. In no case shall the fill materials be placed in excess of 12 inches for each lift before compaction.

3.11 COMPACTION

A. Fills, refills and backfills within the new building and pavement areas, beneath all Site structures and slabs, and the various areas listed below shall be compacted to not less than the following specified maximum dry densities as determined by ASTM D-1557. Allow the Geotechnical Engineer sufficient time to make necessary observations and density testing.

B. Compaction Requirements

Areas	Minimum Degree of Compaction
Within Building Pad Area and Footing Bearing Zone	95%
Below Pavement	95%
Trench Bedding Material and Sand Blanket Backfill	95%
Wall Backfill	95%
Below Grassed or Landscaped Areas	90%

C. Methods: The compaction guidelines given are stated to provide minimum compaction standards only and in no way relieves the Contractor of his obligation to achieve the above specified degree of compaction by whatever additional effort is necessary.

D. Compaction requirements specified herein for all soils shall be in accordance with ASTM maximum dry densities as determined by ASTM D-1557 for soils that exhibit a well drained moisture density relationship and in accordance with ASTM D-2049 for soils which do not exhibit a well drained moisture density relationship.

E. The in-place soil density shall be determined in accordance with ASTM Standard Method of Density of Soil and Soil Aggregate in Place by Nuclear Methods (shallow depth), Designation D-2922.

F. Minimum compaction testing shall not be less than one (1) compaction test for every 2,500 square foot per lift in building areas and not less than one compaction test for every 10,000 square foot of disturbed Site area per lift.

G. Test Prior to Placement

1. All soil Samples proposed to be used for fills, refills, and backfills shall be sampled by the Geotechnical Engineer.

H. Tests After Field Compaction

1. Compaction tests shall be performed following field compaction. These field density tests shall be made by the Geotechnical Engineer to determine the actual in-place densities being attained.

I. Correction of Improper Compaction

1. If any of the field density test results fail to meet the density as specified herein for the earthwork involved, then the Contractor shall remove all of the earthwork in that portion of the Work involved as determined by the Owner's Representative, and shall replace it in accordance with these Specifications to the required density. After the Work is replaced additional field density tests shall be made by the Geotechnical Engineer and the Contractor shall be responsible for all costs for such additional testing.

J. No rolling equipment shall be used to compact materials within four (4) feet of the vertical faces of any concrete walls or utility pipes or within the height of the wall for walls, which retain soil. Plate vibratory tampers shall be used in these restricted areas and in other areas too confined to satisfactorily use rolling equipment.

3.12 GRADING

A. General

1. Perform all rough and finish grading required to attain the elevations shown on the Drawings, or as otherwise directed by the Owner's Representative or required for a complete and proper job.

B. Rough Grading

1. Proper allowances shall be made for paving, or other finish surfaces. Rough grading shall be reasonably even and free from irregularities, and shall provide positive drainage away from structures without ditching or pools.

C. Fine Grading

1. Any depressions, which may occur, shall then be filled with additional suitable materials and the surface then regraded until true to the lines and grade required. Areas to be fine graded for loaming and seeding shall be raked to remove all stones and other unsatisfactory materials and shall be suitably compacted.

D. Treatment After Completion of Grading

1. After grading is completed, permit no further excavating, filling, or grading. Use all means necessary to prevent erosion of freshly graded areas during construction and until such time as permanent drainage and erosion control measures have been installed.

3.13 EARTHWORK IN WET ENVIRONMENTS

A. During wet environment, the underlying soils may be unsuitable for reuse or may require stabilization methods on subgrades as recommended herein.

3.14 SITE QUALITY CONTROL

A. Site Tests and Inspection

1. Do not allow or cause any of the Work performed or installed to be covered up or enclosed by Work of this section prior to all required inspections, tests, and approvals. Should any of the Work be so enclosed or covered up before it has been approved, uncover all such Work at no additional cost. After the Work has been completely tested, inspected and approved, make all repairs and replacements necessary to restore the Work to the condition in which it was found at the time of uncovering, all at no additional cost to the Owner.

B. Soils Observation

1. A Geotechnical Engineer will perform on-site observations during this phase of the construction operations. The services of the Geotechnical Engineer will include, but not be limited to, the following:

2. Observations during excavation and dewatering within new building and controlled fill areas.

3. Observations during backfilling and compacting operations within that area defined as the new building area and other areas as appropriate.

4. The field observations performed by the Geotechnical Engineer and his presence does not include supervision or direction of the actual Work by the Contractor, his employees, or agents. Neither the presence of the Geotechnical Engineer nor any observations performed by him shall excuse the Contractor from meeting the soils and compaction requirements as specified or correcting any defects in his Work.

5. The Contractor shall cooperate fully in obtaining the information desired and shall allow the Geotechnical Engineer sufficient time to make necessary tests and observations.

6. Payment for testing shall be made by the Owner. If test results indicate inadequate compaction or fill materials not meeting the Specifications, all costs associated with correcting the deficiencies and retesting to the satisfaction of the Geotechnical Engineer and Owner shall be borne by the Contractor.

3.15 PROTECTION

A. The Contractor shall protect existing utilities, the location of which may be shown approximately on the Drawings, or which are located in the field by the Contractor or others. Utilities whose location is not known shall be protected insofar as possible. All costs for repair of utilities broken or damaged by the Contractor or his Subcontractor shall be the responsibility of the Contractor.

B. Dust, Erosion, and Environmental Controls

1. Dust control shall be maintained constantly throughout the construction period and shall be accomplished by the uniform application of calcium chloride at the rate of 1 1/2 pounds per square yard by means of a lime spreader or other approved method. Water may also be used for dust control and applied by sprinkling with water trucks with distributors for that purpose as required or directed by the Owner's Representative to maintain dust control.

2. The Contractor shall be responsible for exercising every precaution to prevent erosion and siltation of lower elevations and existing drainage systems and water courses throughout the construction period. All damage caused by inadequate erosion control measures shall be repaired at the Contractor's expense. Erosion control and siltation of lower elevations and existing drainage systems shall be effectively controlled by the construction and continual use of baled hay or straw, or filter fabric barriers as shown on drawings and as directed by the Owner's Representative.

3. All environmental controls shall be performed in accordance with all applicable rules and Laws and Regulations of local, county and state agencies having jurisdiction.

END OF SECTION

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SECTION 31 23 01

BUILDING PAD EARTHWORK

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Building pad construction

a. Bring all fill within the building pad to the bottom of the proposed slab.

B. Related Sections

1. See Section 31 23 00 – Earthwork

1.2 REFERENCES

A. Definitions

1. Building Pad Area - The building area to 10 feet outside of the proposed building footprint, including attached walkways, canopies, sidewalks, retaining walls, and any other such appurtenances that are necessary for construction of the building.

2. Zone of Influence - The area extending laterally one foot from the edge of the footing then outward and downward at a 1H:1V slope.

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 BUILDING PAD PREPARATION

A. Cut and remove all trees, shrubs, saplings, brush, vines, stumps, and other debris as required.

B. Strip topsoil, forest mat, organic laden subsoil, construction debris and deleterious matter from the proposed Building Pad Area.

C. Remove all footings, foundations, slabs, utility pipes and drainage lines within the proposed Building Pad Area with the exception of the existing lowest level basement slabs and basement level footings.

D. Remove all uncontrolled fill and disturbed soil in the building pad area and backfill to raise to grade prior to excavating for foundations. Over excavation of existing fill shall extend 1H:1V from edge of perimeter footings to depth below footing subgrade. Removal of uncontrolled fills below the building pad area and backfilling shall be observed by the Geotechnical Engineer.

E. Placement of Fill Within Building Pad Area

1. Fill shall not be placed over frozen soil. Soil that is frozen shall be removed prior to placement of compacted fill. Remove all frozen fill prior to placing additional fill for compaction.

2. Protect fill area by grading to drain and providing a smooth surface, which will readily shed water. Grade the surface of the areas in such a manner as to prevent ponding of surface runoff water in areas to receive compacted fill.

3. To the extent that it is practicable, each layer of fill shall be compacted to the specified density the same day it is placed. When freezing temperatures are expected, do not compact the last lift for the day. Prior to starting Work the following day, remove frozen material then compact.

4. Fill that is too wet for proper compaction shall be diced, harrowed or otherwise dried to the proper moisture content for compaction to the required density. If the fill material cannot be dried within 24 hours of placement, it shall be removed and replaced with drier fill.

5. Fill shall be placed in horizontal layers not to exceed thicknesses specified. Where the horizontal layer meets a natural rising slope, the layer shall be keyed into the slope by cutting a bench.

6. Fill shall be placed in lifts not exceeding 12 inches thick.

   a. Fill shall be compacted to at least 95 percent of the maximum dry density as determined by ASTM D-1557.

F. After uncontrolled fills are removed and building pad area is raised to grade, remove material:

1. To 6 inches below the bottom of all footings and walls.

2. To 12 inches below the bottom of the concrete floor slabs

3. To 4.5 feet below the top of the full width of the building entrance slab. Thereafter, remove material up to the bottom of adjacent sidewalk or pavement subbase course at 3H:1V or flatter slope.

G. Excavation of bearing surfaces should be completed with a smooth-edged bucket to lessen subgrade disturbance. The excavated subgrade shall be compacted with five passes of a vibratory compactor. During the proofrolling process, the subgrade shall be observed by the Geotechnical Engineer to identify soft or loose areas. Over excavation of existing fill and unstable zones areas within the Building Pad Area and the footing Zone of Influence shall be over-excavated and be replaced with granular borrow.

H. Since the naturally deposited soils are considered highly frost-susceptible, the footing and slab subgrades should not be allowed to freeze. The Contractor should make every effort to prevent freezing of subgrade soils. In the event that frost penetration occurs, the frozen soils should be removed and replaced with compacted structural fill.

I. Place and compact a minimum the following in the building pad area:

1. 6 inches of non-woven geotextile wrapped crushed stone immediately below the bottom of the perimeter footings.

2. 6 inches of crushed stone immediately below the bottom of the floor slab over 6 inches of structural fill.
3. 4.5 feet of structural fill below the top of entrance slabs

3.2 COMPACTION

A. Fills, refills and backfills within the new Building Pad Area shall be compacted as indicated above.

B. As a minimum, the following testing procedures shall be followed for granular material:

1. Compaction requirements for all soils shall be in accordance with ASTM maximum dry densities as determined by ASTM D-1557 for soils that exhibit a well drained moisture density relationship and in accordance with ASTM D-2049 for soils which do not exhibit a well drained moisture density relationship.
2. The in-place soil density shall be determined in accordance with ASTM Standard Method of Density of Soil and Soil Aggregate in Place by Nuclear Methods (shallow depth), Designation D-2922.
3. Minimum compaction testing shall be not less than one compaction test for every 2,500 square feet in Building Pad Area, per lift.
4. Minimum documentation to be provided to the Owner and the Engineer by testing company:
    a. Report by testing agency, including field report and compaction control summary sheet.
    b. Gradation and moisture density proctor report for all granular materials used on Site.
    c. Report shall consist of narrative and sketch and include as a minimum:
        1) Date and job Project number on each sheet.
        2) Testing lab name, telephone number, technician name.
        3) Location of each test on Site sketch.
        4) Test Sample number shown on Site sketch at location of test.
        5) Elevation of test (or roller passes if crushed rock).
        6) Date(s) of compaction (or number of roller passes if crushed rock).
        7) Date(s) of testing (or witnessing roller pass).
        8) Lab maximum densities and optimum moisture and field density at each test location if applicable.

9) Outline of all foundation walls.

10) Outline of all underground piping and tracking.

d. Copies of all final documents to be submitted to the Engineer and the Owner.

END OF SECTION

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SECTION 31 25 00

EROSION CONTROL

PART 1 GENERAL

1.1 SUMMARY

A. Standard Specifications

1. All Work shall be in compliance with the most current edition of the "Standard Specifications".

2. Maine Erosion and Sedimentation Control Handbook for Construction Best Management Practices prepared by Cumberland County Soil and Water Conservation District and Maine Department of Environmental Protection.

B. Scope of Work

1. Provide such erosion control measures as may be necessary to correct conditions that develop prior to the completion of permanent erosion control devices or as required to control erosion that occurs during normal construction operations.

2. Construction operations shall comply with all federal, state and local Regulations pertaining to erosion control.

3. Prior to commencement of construction activities, meet with the Engineer and approval agency to discuss erosion control requirements and develop a mutual understanding relative to details of erosion control.

C. Related Sections

1. Section 31 10 00 – Site Preparation

2. Section 31 23 00 – Earthwork

PART 2 PRODUCTS

2.1 MATERIALS

A. Silt Sock: Sediment control used for perimeter control of sediment and soluble pollutants in storm runoff shall meet Filtrexx Material Specifications and use certified Filtrexx Filter Media.

B. Sand Bags: Heavy cloth bags of approximately one cubic foot capacity filled with sand or gravel.

C. Mulches: Compost, manure, corn stalks, gravel, crushed stone, loose hay, straw, peat moss, pine straw or needles, sawdust, wood chips, wood excelsior, or wood fiber cellulose.

D. Mats and Nettings

1. Jute matting shall be of open weave, single jute yarn averaging 130 pounds per spindle of 14,400 yards. The yarn shall be of loosely twisted construction, not varying the thickness by more than 1/2 its normal diameter.

The woven material shall be 48 inches wide, plus or minus one 1 inch, and with approximately 78 warp ends per width of cloth and 41 weft ends per linear yard. The woven material shall weigh 1.22 pounds per linear yard with a tolerance of plus or minus 5 percent.

2. Excelsior matting shall be wood excelsior, at least 35 inches in width, weighing 0.8 pounds per square yard plus or minus 5 percent. The excelsior material shall be covered with a netting on one side to facilitate handling and to increase strength.

3. Staples shall be number 11 (or heavier) plain iron wire, made from lengths of at least 12 inches each.

E. Seed

1. Standard conservation mix of 100% annual Ryegrass.

2. Equivalent seed mixture may be used as approved by the Owner's Representative based on its suitability for use in controlling erosion of the various soil types and slopes.

3. If the seeding fails to grow, it shall be re-established as required to provide adequate erosion control.

F. Sod

1. Grown from certified seed of adapted varieties to produce high quality sod free of any serious thatch, weeds, insects, diseases and other pest problems.

PART 3 EXECUTION

3.1 SILT SOCK

A. Place and maintain staked silt sock along the entire length of the proposed construction where shown on the Drawings or required by permit.

B. Contractor is required to be Filtrexx certified or use pre-filled Filtrexx sediment control products.

C. Install as follows:

1. Sediment control should be installed parallel to the base of the slope or other disturbed area.

2. Stakes shall be installed through the middle of the silt sock on 10 ft centers, using 2 inch by 2 inch by 3 feet wooden stakes. In the event staking is not possible, (i.e. when used on pavement) heavy concrete blocks shall be used behind the silt sock to help stabilize during rainfall/runoff events.

3. Staking depth for sand and silt loam soils shall be 12 inches and 8 inches for clay soils.

4. Loose compost may be backfilled along the upslope side of the silt sock, filling the seam between the soil surface and the device, improving filtration and sediment retention.

D. Silt sock barriers shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. They shall be repaired if there are any signs of undercutting at the center or edges, or impounding of large volumes of water behind them, sediment barriers should be replaced with a temporary check dam.

E. Should the fabric on a silt sock barrier decompose or become ineffective prior to the end of the expected usable life and the barrier still is necessary, the fabric shall be replaced promptly.

F. The silt sock filter media and remaining sediment deposits remaining in place after the silt sock barrier is no longer required shall be dressed to conform to the existing grade and restored.

3.2 MULCH

A. Mulching shall be done immediately after each area has been properly prepared. When seed for erosion control is sown prior to placing the mulch, the mulch shall be placed on the seeded areas within 24 hours after seeding. Hay that has been thoroughly fluffed shall be applied at approximately, three (3) tons per acre unless ordered. Blowing chopped mulch will be permitted when authorized. Authorization will be given when it can be determined that the mulch fibers will be of such length and applied in such a manner that there will be a minimum amount of matting that would retard the growth of plants. Hay mulch should cover the ground enough to shade it, but the mulch should not be so thick that a person standing cannot see ground through the mulch. Matted mulch or bunches shall be removed or otherwise taken care of.

B. In order to prevent its being blown away, after the mulch has been spread to the required depth, a light covering of loose branches, a system of pegs and strings, or other approved anchoring method shall be employed. Unless otherwise ordered, such means of control shall be removed prior to the acceptance of the Project.

C. All baling wire or rope, such as that used in the shipment of mulch shall be disposed of outside the limits of the Project in approved areas.

3.3 MATTING

A. Surfaces of ditches and slopes to receive matting shall conform to the grades and cross sections shown on the plans and shall be finished to a smooth and even condition with all debris, roots, stones, and lumps raked out and removed. The soil surface shall be sufficiently loose to permit bedding of the matting. Unless otherwise directed, seed ordered shall be applied prior to placement of the matting.

B. Jute

1. Strips of jute matting shall be placed lengthwise in the direction of the flow of water. Where strips are laid parallel or meet as in a tee, they shall overlap at least four (4) inches. Ends shall overlap at least six (6) inches, shingle fashion. In addition, the upslope end of each strip of the matting shall be turned down and buried to a depth of not less than six (6) inches with the soil firmly tamped against it. The Owner's Representative may require that any other edge exposed to more than normal flow of water be buried in a similar manner.

C. Check slots, built at right angles to the direction of the flow of water, shall be placed so that one check slot or one end occurs within each 50 feet of length of slope. Check slots shall be constructed by placing a tight fold of the matting at least six (6) inches vertically into the ground. These shall be tamped the same as the upslope ends.

3.4 EXCELSIOR

A. When excelsior matting is being laid, the material shall be unrolled in the direction of the flow of water.

B. Where strips of excelsior matting are laid end to end, the adjoining ends shall be butted.

C. When adjoining rolls of excelsior matting are laid parallel to one another, the matting shall be butted snugly.

D. Except where jute matting is turned down, all matting shall be spread evenly and smoothly so that it is in close contact with the ground. Bulging seams in either matting material shall be cut out and joints formed as described above. When ordered, additional seed shall be spread over jute matting, particularly at those locations disturbed by building the slots. Jute matting shall then be pressed onto the ground with a light lawn roller or by other satisfactory means.

E. Matting shall be held tightly to the soil by staples driven approximately vertically onto the ground flush with the surface of the matting. On slopes flatter than 4:1, staples shall be spaced not more than three (3) feet apart in three rows for each strip, with one row along each edge and one row, alternately spaced, down the center. On grades 4:1 or steeper, staples shall be placed in the same three rows, but spaced 2 feet apart. On all overlapping or butting edges, the number of staples shall be doubled, with the spacing halved; all ends of the matting and all required check slots shall likewise have staples spaced every 12" and matting placed adjacent to boulders or other obstructions shall be stapled with no spaces between the staples, to eliminate any loose edges of matting.

F. The above specified spacing of staples may be changed as ordered, depending upon varying factors such as the season the year or the amount of water encountered or anticipated.

G. In driving the staples, care shall be taken so as not to form depressions or bulges in the surface of the matting.

H. Other Matting. Approved, alternate matting shall be applied in accordance with the recommendations of the manufacturer and as directed.

3.5 SEED FOR EROSION CONTROL

A. Seeding, when required, shall be performed as ordered and in accordance with references and standards listed in Section 2.1 E Materials.

B. Areas to be left temporarily and which will be re-graded or otherwise disturbed later during construction may be ordered to be seeded to obtain temporary control. The seed shall be sown at the rate indicated on the Drawings.

3.6 MAINTENANCE

A. If any staples become loosened or raised, or if any matting becomes loose, torn, or undermined, satisfactory repairs shall be made immediately.

B. Hay mulch that blows or washes away shall be replaced immediately.

END OF SECTION

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SECTION 31 25 39

UNDERGROUND WARNING TAPE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Underground Warning Tape

1.2 SUBMITTALS

A. Shop Drawing Submittals

1. Product Data

PART 2 PRODUCTS

2.1 MATERIALS

A. Metallic warning tape for underground piping shall be polyethylene tape with metallic core for easy detection and location of piping with a metal detector.

B. Tape shall be 6 inches wide.

C. Tape shall be as manufactured by Seton Name Plate Corp., New Haven, CT; Presco Detectable Underground Warning tape, Sherman, Texas; Blackburn Manufacturing, Neligh, NE; Mercotape, Hachensach, NJ; or equal.

D. The warning tape shall be heavy gauge 0.004 inch polyethylene and shall be resistant to acids, alkalis and other soil components. It shall be highly visible in the following colors with the associated phrases stamped in black letters and repeated at a maximum interval of 40 inches.

Type of Utility	Color	Warning Message
Sanitary Sewer	Green	CAUTION - SANITARY SEWER BURIED BELOW
Storm Drain	Green	CAUTION - STORM DRAIN BURIED BELOW
Water	Blue	CAUTION – WATER LINE BURIED BELOW
Electric	Red	CAUTION – ELECTRIC LINE BURIED BELOW
Telephone / Communications	Orange	CAUTION – TELEPHONE LINE BURIED BELOW
Gas	Yellow	CAUTION – GAS LINE BURIED BELOW

E. The tape shall be of the type specifically manufactured for marking and locating utilities.

PART 3 EXECUTION

3.1 INSTALLATION

A. All buried pipe and fittings shall be installed with metallic-lined underground warning tape located no more than 24 inches below final grade to allow detection by a metal detector.

END OF SECTION

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SECTION 32 12 00

PAVING, CURBS, AND WALKS

PART 1.0 - GENERAL

1.1 REFERENCES

A. Refer to other divisions of these specifications, other sections in this division, and drawings for related work, which may affect the work of this section.

B. The Contract Drawings indicate limits of construction for this project. These specifications specify material and work requirements for this project. Both are complementary to each other, and both shall be followed to properly complete the work.

1.2 SCOPE OF WORK

A. Without limiting the generality thereof, the work under this section consists of furnishing all labor, equipment, supplies and materials and performing all operations in connection with the placing and compacting of gravel subbase and base, bituminous concrete base and wearing courses, cleaning and sweeping areas within the work under this contract and all other operations and incidental work pertaining thereto; all to be in accordance with these specifications and drawings.

B. The Contractor shall schedule a pre installation meeting with the Owner prior to the installation of pavement, curbs, and walks.

1.3 RELATED WORK IN OTHER SECTIONS

A. Following is a list of related work items performed or furnished under other sections.

1. Section 31 10 00 – Site Preparation

2. Section 31 23 00 – Earthwork.

3. Section 33 40 00 – Storm Drainage

1.4 GRADES AND ELEVATIONS

A. The drawings indicate, in general, the alignment and finish grade elevations. The Owner's Representative, however, may make such adjustment in finish grades alignment as is found necessary.

PART 2.0 - PRODUCTS

2.1 PRODUCTS

A. Base Courses

1. Aggregate subbase and base courses shall be in accordance with the applicable paragraphs of the Standard Specifications and as shown on the Drawings.

B. Bituminous Concrete Pavement

1. Bituminous concrete pavement shall be in accordance with the applicable paragraphs of the Standard Specifications and as shown on the Drawings. Bituminous concrete pavement shall be supplied from only Maine DOT approved asphalt mix plants.

C. Sidewalks

1. Sidewalks shall be in accordance with the applicable paragraphs of the Standard Specifications and as shown of the Drawings.

D. Curbs

1. Curbs shall be constructed in accordance with the applicable paragraphs of the Standard Specifications and as shown on the Drawings.

PART 3.0 - EXECUTION

3.1 PREPARATION

A. Subgrades

1. Do all necessary regrading and fine grading to bring subgrades to the required grades and section, including compaction of the subgrade surface prior to placing the gravel base courses.

2. Compact the existing subgrade as specified in Section 31 23 00 – Earthwork.

3. Adjustment of Existing Castings to Remain

4. All cast iron manhole frames and covers, catchbasin frames/grates, valve boxes, and all other castings located within the areas of new pavements and replacement areas shall be adjusted to the new pavement surface prior to commencing paving.

3.2 CONSTRUCTION

A. Aggregate Subbase and Base Courses

1. Place and compact the gravel subbase and crushed gravel base courses in accordance with the applicable paragraphs of the Standard Specifications.

2. The base courses shall be compacted as specified in Section 31 23 00 - Earthwork.

3. It is the intent of these compaction requirements that the minimum in-place dry density of the compacted materials resulting from passes of the compaction equipment will be equal to or greater than the minimum percentages specified herein. Additional passes of the specified equipment will be required if the minimum percentages of ASTM in-place dry densities as specified are not obtained. Moisture conditioning by wetting or drying shall be used as required or directed to obtain the required compaction results.

B. Pavement Binder and Wearing Courses

1. Paving shall consist of a bituminous concrete base course pavement and wearing course as shown on the drawings and details. Paving shall be constructed in accordance with the applicable paragraphs of the Standard Specifications.

C. Sidewalks

1. Sidewalks shall be constructed as shown on the drawings and details and in accordance with the applicable paragraphs of the Standard Specifications.

D. Curbs

1. Curbs shall be constructed as shown on the drawings and details, and in accordance with the applicable paragraphs of the Standard Specifications.

- End of Section –

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SECTION 32 17 23

PAVEMENT MARKINGS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. All labor, materials, accessories, service and equipment necessary to furnish and apply all pavement striping, parking stalls, and traffic markings as indicated on the Drawings and as specified herein.

a. New painted pavement markings

b. Replacement of pavement markings disturbed as part of construction activities

c. Replacement of pavement markings in permanent pavement repair areas

B. Related Sections

1. Section 32 12 00 – Paving, Curbs, and Walks

1.2 REFERENCES

A. AASHTO Standard Specifications for Transportation Materials and Methods of Sampling and Testing, 1986 Edition, as amended.

B. State of Maine Department of Transportation "Standard Specifications", latest edition.

1.3 SUBMITTALS

A. Submit manufacturers literature and material specifications for all materials furnished under this Section including, but not limited to, the following:

1. Pavement marking paint

2. Paint application system and equipment

B. Submit affidavit stating submitted materials comply with the above-noted Standards.

1.4 WARRANTY

A. Provide a written one-year unconditional guarantee against fading, chipping, peeling, wearing, etc.

PART 2 PRODUCTS

2.1 MATERIALS

A. Waterborne Pavement Marking Paint

1. All paint for parking stall and traffic markings shall be fast drying white or yellow traffic paint complying with the applicable paragraphs of the Standard Specifications. The paint shall be capable of being applied to bituminous and

portland cement concrete pavements with striping equipment that does not require heating above ambient temperatures.

2. The following additional pavement marking paint requirements shall be met:

   a. The total nonvolatile content shall not be less than 70% by weight.

   b. Pigment shall be 45-55% by weight.

   c. Weight per gallon shall not be less than 12.5 pounds.

   d. Drying time to no pickup shall be 15 minutes.

3. No reflective glass beads will be required.

4. The material shall not lift from the pavement in the freezing weather, and shall not smear or spread under normal traffic conditions or at temperature below 120 degrees F.

5. The paint shall not deteriorate by contact with sand, sodium, chloride, calcium chloride or other chemicals used against the formation of ice on the pavement, because of the oil content of pavement materials, or from gasoline, grease and oil drippings from vehicles.

PART 3 EXECUTION

3.1 PREPARATION

A. Protect the building, walks, pavement, curbing, trees, shrubs, mulch, etc. from over-spray of paint and damage.

B. Clean and sweep all areas to be striped or re-striped of all sand, dirt, grease, oil, etc. Large areas of tar, grease or foreign materials may require sand blasting, steam cleaning or power brooming to accomplish complete removal.

C. Application of markings shall not proceed until authorization is received from Engineer.

D. Bituminous concrete pavements shall have been in place for at least 7 days prior to the application of pavement markings.

3.2 INSTALLATION

A. Installation shall be by skilled workers who are experienced and normally employed in the Work of installing pavement markings.

B. All permanent pavement repair areas shall be repainted to match the original pavement markings.

C. New pavement markings shall be as shown on the Drawings and as specified herein.

D. Painting shall be in accordance with State of Maine Department of Transportation "Standard Specifications", latest edition.

E. Stripe all stalls as shown on the Drawings, accurately and paint all parking stall striping in white four (4) inch wide single stripes. Striping, symbols, and arrows shall be painted to the size, length, and spacing as specified and indicated on the Drawings.

F. All stripes shall be applied one coat with brush, spray or marking machine over dry clean pavement only.

G. All paint shall be installed at a rate of not more than 300 linear feet of 4- inch wide lines per gallon of paint (approximately 0.016 inch dry film thickness).

H. If material is applied to the pavement by an extrusion method, one side of the shaping die shall be the pavement and the other three sides are contained by, or are part of, suitable equipment for controlling the flow of paint.

I. All stalls shown on the plan are to be "single stripe," and shall be spaced equally, each stall being separated from the next by a single line marking the stall width. The line indicated on the Drawings is on the center line of the stall striping. The line between rows of stalls shall be a single line.

J. Where entire areas are to be cross-hatched as directed by the Drawings, the 4-inch-wide straight white parallel stripes 36 inches on center shall be laid out and painted in solid lines.

K. After application and proper drying time, the material shall show no appreciable deformation or discoloration under traffic conditions and in air and/or road temperature ranging from 0 - 120 degrees F.

L. The stripe shall maintain its original dimensions and placement. The exposed surface shall be free from tack. Cold ductility of the material shall permit normal movement with the pavement surface without chipping or cracking.

M. No paint or pavement marking material shall be heated above the temperature allowed per manufacturer's instructions.

N. All painting shall be performed in a neat and workmanlike manner.

O. Lines shall sharp and clear with no feathered edging or fogging.

P. If, for any reason, material is spilled or tracked on the pavement or any markings applied by Contractor, in Engineer's judgment, are not acceptable, then the Contractor shall remove such material by a method that shall not damage the roadway surface and is acceptable to Engineer, clean and prepare the surface for a reapplication of markings, and reapply the markings as directed.

Q. Application Requirements

1. Marking paint shall be applied at a rate of 100 to 115 square feet per gallon.

2. Material application temperature shall be from 40°F to 120°F.

3. No thinners shall be used for the above listed pavement marking applications except in accordance with the manufacturer's specifications and at the direction of the Engineer.

4. Minimum finished paint thickness shall be 15 mils.

3.3 PROTECTION

A. Markings shall remain protected until sufficiently dry to bear traffic on roadways that are open to traffic.

B. Precautions shall be taken to prevent tracking by tires of the striping equipment.

C. Traffic cones used for protection of markings shall be not less than 28 inches in height.

END OF SECTION

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SECTION 33 08 40

TESTING OF SANITARY SEWER AND STORM DRAINAGE SYSTEMS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Testing of Storm Drainage Systems

2. Testing of Gravity Sewer Systems

B. Related Sections

1. Section 33 30 00 – Sanitary Sewerage

2. Section 33 40 00 – Storm Drainage

PART 2 PRODUCTS – NOT USED

PART 3 EXECUTION

3.1 TESTING OF STORM DRAINAGE SYSTEMS

A. Visually inspect all storm drainage structures included in the Work to ensure that all structures are clean of debris and sediment, and have frames, covers, grates, inverts, sumps, and other required appurtenances.

B. All flexible pipe types including polyvinyl chloride (PVC), high-density polyethylene (HDPE), or polypropylene (PP) shall be tested for deflection in accordance with Paragraph 3.2.D of this Section at least forty five (45) days after it has been backfilled.

3.2 TESTING OF GRAVITY SEWER SYSTEMS

A. Test all gravity sewers for allowable leakage by low pressure air test or by an infiltration/exfiltration water test as described herein.

B. No building shall be connected to a newly installed sewer until the sewer has been satisfactorily tested.

1. Low Pressure Air Test

a. After completing backfill of a section of pipe including laterals, conduct a line acceptance test using low-pressure air. Perform the test under the supervision of the Engineer.

b. Seal-test pneumatic plugs before use in the actual test installation. Lay one length of pipe on the ground and seal at both ends with the pneumatic plugs to be checked. Introduce air into the plugs to 25 psig. Pressurize the sealed pipe to 5 psig. Satisfactory pneumatic plugs will hold against this pressure without bracing and without movement of the plugs out of the pipe.

c. After a manhole reach of pipe has been backfilled and cleaned, and the pneumatic plugs have been checked, place a plug in each end of the line (at each manhole), and inflate the plugs to 25 psig. Introduce low pressure air into this sealed line until the internal air pressure reaches 4 psig greater than the average back pressure of any groundwater that may be over the pipe. Allow a minimum of two minutes for the air pressure to stabilize. After the stabilization period (3.5 psig minimum pressure in the pipe), disconnect the air hose from the control panel to the air supply. The portion of the line being tested has passed the test if the time required in minutes for the pressure to decrease from 3.5 to 2.5 psig (greater than the average back pressure of any groundwater that may be over the pipe) is not less than the time shown for the given diameters and lengths in Table 1 at the end of this Section.

d. Air tests shall cover a 1.0 psig pressure drop; 0.5 psig pressure drop tests are not acceptable.

e. In areas where groundwater is known to exist, install a one-half inch diameter capped pipe nipple, approximately 10 inches long, through the manhole wall on top of one of the sewer lines entering the manhole. The nipple shall be installed at the time the sewer line is installed. Immediately prior to the line acceptance test, determine the elevation of the groundwater by removing the pipe cap, blowing air through the pipe nipple to remove any obstructions, and then connecting clear plastic tube to the nipple. Hold the hose vertically and measure the height after the water has stopped rising in this plastic tube. Divide the height in feet by 2.3 to establish the pressure in pounds per square inch (psig) that will be added to all readings. (For example, if the height of water is 11.5 feet, then the added pressure will be 5 psig. This increases the 3.5 psig to 8.5 psig, and the 2.5 psig to 7.5 psig. The allowable drop of one pound per square inch and the timing remain the same.)

f. The maximum starting test pressure should not exceed 9 psig, regardless of groundwater level above the pipe. If the groundwater level is such that the added pressure would be greater than 5.5 psig (12.7 feet), the pipe section may be tested using a starting pressure of 9 psig.

g. Each pipe nipple installed to measure groundwater levels should be recapped subsequent to the air testing procedure to prevent future infiltration.

h. As an alternative to installing a pipe nipple in a manhole to measure the height of groundwater, excavate a test pit over the pipe to determine the height of groundwater.

2. Infiltration/Exfiltration Test

a. Where new sewers are installed in areas having a high groundwater level, conduct an infiltration test for a minimum of four hours under the supervision of the Engineer. Isolate various sections of the sewer using

of watertight plugs, and measure the quantity of water entering the pipe during a predetermined time. If the conditions are such that groundwater table varies depending on surrounding influence and time of the year, or if the table elevation is unknown at the time of testing, excavate test holes as directed by the Engineer.

b. Where lines are installed in relatively dry areas, conduct an exfiltration test. Isolate various sections of the line using watertight plugs, and fill the line with water to a predetermined level. Determine the loss of water in a predetermined time by measuring the quantity of water required to refill the line to the original level.

c. The Engineer will determine the length of new sewer to be tested at one time, depending on the grade of the sewer.

d. Include losses through manholes in determining the loss in a sewer line. For an exfiltration test, fill manholes to the bottom of the cone or flat top section and allow the level to stabilize before beginning the test. Refilling to the reference line may be required before commencing the test.

e. The maximum acceptable loss, through either infiltration or exfiltration, shall not exceed 100 gallons per mile per 24 hours per inch of diameter of the pipe tested. When two or more pipeline sections are tested at the same time, the allowable leakage for the shortest section shall be used as the acceptable loss for the entire length being tested.

C. Vacuum Test for Manholes - Gravity Sewer Lines

1. After a manhole has been constructed, conduct a manhole acceptance test using the following vacuum test procedure:

a. Plug all lift holes with an approved non-shrink grout.

b. Plug all pipes entering the manhole, taking care to securely brace the plug from being drawn into the manhole.

c. Place the test head at the inside of the top of the precast concrete cone section and inflate the seal in accordance with the manufacturers' recommendations.

d. Draw a vacuum of 10 inches of mercury and shut off the vacuum pump. With the valves closed, measure the time for the vacuum to drop to 9 inches. The manhole shall pass if the time is greater than:

1 min. 0 sec. for 0-ft. to 10-ft. deep manholes

1 min. 15 sec. for 10-ft. to 15-ft. deep manholes

1 min. 30 sec. for 15-ft. to 25-ft. deep manholes

e. If the manhole fails the initial test, make repairs with a non-shrink grout. Re-test until a satisfactory test is obtained.

D. Allowable Deflection Test for flexible pipe types including polyvinyl chloride (PVC), high-density polyethylene (HDPE), or polypropylene (PP)

1. Pipe deflection measured not less than 45 days after the backfill has been completed shall not exceed 5 percent. Deflection shall be computed by multiplying the amount of deflection (average outside diameter less twice the average wall thickness diameter when measured) by 100 and dividing by the nominal diameter of the pipe.

2. Deflection shall be measured with a rigid mandrel (Go-No-Go) device cylindrical in shape and constructed with a minimum of nine or ten evenly spaced arms or prongs. Submit drawings of the mandrel with complete dimensions for each diameter of pipe to be tested. Hand-pull the mandrel through all sewer and drain lines.

3. Uncover any section of pipe not passing the mandrel and replace the bedding and backfill to prevent excessive deflection. Replace sections of the pipe as necessary. Retest repaired pipe immediately upon backfilling of trench until acceptable.

4. Retest the repaired section of pipeline again, from manhole to manhole, after the 45-day backfill period, until acceptable.

E. Test Failures

1. In case leakage or deflection exceeds the above specified amount, locate the failure and repair it in accordance with applicable Sections of this Contract.

2. Pipelines with shear-type breaks, “fishmouths” or damaged gaskets, cracked bells or couplings, hairline fractures, or structural damage shall be replaced. Mechanical sleeve couplings, poured concrete collars or similar repairs are not permitted. The use of pressure grouting repair techniques will not be allowed without the written consent of the Engineer.

3. After repairs have been made, re-test the line and repeat the process of repairing and re-testing until satisfactory test results, as specified in this Section, are obtained.

F. Alignment of Gravity Sewers and Drains

1. Lay gravity sewers and drains accurately to line and grade.

2. After the pipe is laid and backfill complete, TV inspect the interior of the pipe from manhole to manhole. If excessive deviation in either the horizontal or vertical alignment is observed by the Engineer, the alignment is considered unacceptable.

3. If the alignment is unacceptable due to horizontal displacement, the Contractor will be allowed to construct intermediate manholes at his own expense. If the alignment is unacceptable due to vertical displacement, remove and replace the pipe to the proper grade.

END OF SECTION

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SECTION 33 10 00

WATER SUPPLY

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:

1. Entire exterior domestic water and fire protection system, connections to the building services, and all equipment necessary for the completion of the Work. All Work must conform to the local water department's requirements.

2. Secure and pay for all permits. The Contractor shall pay all inspection, installations and testing fees.

3. No backfilling shall occur without the acceptance of the local water department.

1.2 SUBMITTALS

A. Submit Shop Drawings and product data (pipe, fittings, hydrants, etc.) for all water supply items described or indicated on the Drawings for approval at least four (4) weeks prior to ordering.

PART 2 MATERIALS

2.1 GENERAL

A. Materials for new water mains shall be of new and unused materials and shall conform to the requirements of the local water department. Materials meeting the requirements specified herein shall be provided if the local water department's requirements are less stringent.

2.2 PIPE AND FITTINGS

A. Pipe

1. The ductile iron pipe shall be Class 52 (150 psi) modified and conforming to AWWA Specifications C151 with Megalug type restraints. The bell for this type of joint shall be cast with a shouldered gasket groove of a shape, which will prevent the gasket from being blown or forced out of the joint. Gaskets shall be formed of neoprene and meet the requirements of the AWWA Specification C111.

B. Fittings

1. Fittings shall be ductile iron, 350 psi pressure rating or cast iron, 250 psi pressure rating. Ductile or cast iron fittings shall conform to ANSI A21.10/AWWA C110 with mechanical joints. Joints and gaskets shall conform to ANSI A21.11 AWWA C111. Joints shall be furnished with retainer glands. Fittings shall be cement-lined and seal-coated inside and out in accordance with ANSI A21.4/AWWA C104.

2. All hardware shall be stainless steel.

C. Lining and Coatings

1. The inside of ductile iron pipe and fittings shall be given a cement lining and bituminous seal coat in accordance with AWWA Specification C104.

2. The outside of ductile iron pipe and fittings shall be coated with bituminous varnish as required in AWWA Specification C151.

3. Machined surfaces shall be cleaned and coated with a suitable rust-preventive coating at the shop immediately after being machined.

D. Rigid Connections

1. The pipe couplings shall be mechanical type, to mechanically engage and lock the grooved pipe ends in a position couple and to allow for some degree of angular deflection and contraction and expansion. Each coupling shall consist of malleable iron housing clamps in two or more parts, a single C-shaped composition sealing gasket with internal sealing lips projecting diagonally inward so that internal pressure serves to increase the tightness of seal when installed, and two or more track head steel bolts as required to assemble the housing clamps. The couplings shall be per the local water department's requirements.

2.3 COPPER PIPE AND FITTINGS

A. Pipe

1. Type K, soft annealed copper seamless water tube, ASTM B88.

B. Fittings

1. Buried fittings: Water works brass, compression fittings with Buna N' Gasket – acceptable manufacturer: Mueller, Decatur, IL or equal.

2.4 VALVES AND APPURTENANCES

A. Gate Valves

1. The manufacturer and model shall be per the local water department's requirements. They shall conform to the requirements specified in the governing AWWA Standard for Gate Valves.

2. Gate valves shall open per the local water department's standards.

3. All gate valves shall be mechanical joints with retainer glands.

4. All hardware shall be stainless steel.

B. Valve Boxes

1. Unless otherwise specified or required, each buried valve shall be provided with a valve box. Valve boxes shall be ductile iron, sliding Erie type with rod and shall be coated and of the adjustable, slip, heavy pattern type. They shall be so designed and constructed as to prevent the direct transmission of traffic loads to the pipe or valve.

2. The upper or sliding section of the box shall be provided with a flange having sufficient bearing area to prevent undue settlement. The lower section of the box shall be designed to enclose the operating nut and stuffing box of the valve. The boxes shall be adjustable through at least 6 inches vertically without reduction of the lap between sections to less than 4 inches.

3. The inside diameter of boxes shall be at least 5-1/4 inches and the lengths shall be as necessary for the depth of the valves with which the boxes are to be used.

4. Covers shall be close fitting and substantially dirt-tight. The top of the cover shall be flush with the top of the box rim. Markings shall be cast in the top of the cover per the local water department's requirements.

C. Wrenches for Buried Valves

1. The Contractor shall furnish one (1) tee handle wrench of sufficient length to permit operation of all buried valves, regardless of depth, by operators of average height working in normal positions.

D. Painting

1. Interior surfaces of all valves, and exterior surfaces of buried or submerged valves and miscellaneous piping appurtenances shall be given a shop finish of an asphalt varnish conforming to Federal Specification TT-V-51c, for Varnish, Asphalt, as specified in AWWA Specification C500.

2. Parts customarily finished at the shop shall be given coats of paint filler and enamel or other approved treatment customary with the manufacture.

3. After thorough cleaning exterior surfaces of various parts of valves and miscellaneous piping appurtenances exposed within structures shall be given one shop coat of an approved rust inhibitive primer compatible with the field coats and applied in accordance with the instructions of the paint manufacturer.

4. Ferrous surfaces obviously not to be painted shall be given a shop coat of grease or other suitable rust resistant coating.

PART 3 EXECUTION

3.1 INSTALLATION

A. Ductile Iron Pipe and Fittings

1. Laying Pipe and Fittings: Gasket type joints shall be made up by first inserting the gasket in to the groove of the bell and applying a thin film of special non toxic gasket lubricant uniformly over the inner surface of the gasket which will be in contact with the spigot end of the pipe. The end of the plain pipe shall be chamfered to facilitate assembly. The end shall be inserted into the gasket and then forced past it until it seats against the bottom of the socket. All fittings shall be mechanical joint with retainer glands. All push on pipe joints shall have two serrated brass wedges installed to provide electrical continuity.

2. Piping Supports

3. The Contractor shall furnish and install all supports necessary to hold the piping and appurtenances in a firm, substantial manner at the lines and grades indicated on the Drawings or Specifications.

4. All bends, tees and other fittings shall be backed up with Class C concrete thrust blocks placed against undisturbed earth where firm support can be obtained. Thrust blocks shall be as required by the local water department. If the soil does not provide firm support, then suitable bridle rods, clamps and accessories to brace the fitting properly shall be provided. Such bridle rods, etc., shall be coated thoroughly and heavily with an approved bituminous paint after assembly or, if necessary, before assembly.

5. Handling and Cutting Pipe: The Contractor's attention is directed to the fact that ductile iron pipe and the cement lining are brittle. Every care shall be taken in handling and laying pipe and fittings to avoid damaging the pipe or lining, scratching or marring machined surfaces, and abrasion of the pipe coating or lining.

6. Any fitting showing a crack and any fitting or pipe which has received a severe blow that may have caused an incipient fracture, even though no such fracture can be seen, shall be marked as rejected and removed at once from the Work.

7. In any pipe showing a distinct crack and in which it is believed there is no incipient fracture beyond the limits of the visible crack, the cracked portion, if so approved, may be cut off by and at the expense of the Contractor before the pipe is laid so that the pipe used may be perfectly sound. The cut shall be made in the sound barrel at a point at least 12 inches from the visible limits of the crack.

B. Water Service Connection

1. Water Service Connections

a. The Contractor shall furnish all labor, material and equipment necessary to install water service connections as herein specified. The Work shall include all excavation and backfill.

b. Permanent service connections shall be made after the new water main is completed.

c. Before any temporary or permanent connection is put into service, the Contractor shall disinfect the piping as specified herein.

3.2 WATER MAIN TESTING

A. Field Testing – Pressure and leakage tests shall be performed as directed by the local water department. At a minimum, the following testing procedure shall be followed should the local water department's requirements be less stringent:

1. The pipe shall be given pressure and leakage tests in sections of approved lengths. The Contractor shall furnish and install a suitable temporary testing plug or cap for the pipeline; all necessary pressure pumps, pipe connections,

and other similar equipment; and all labor required; all without additional compensation. The meter and gauge shall be installed by the Contractor in such a manner that all water entering the section under test will be measured and the pressure in the section indicated, and they shall be kept in use during both tests.

2. The schedule of pressure and leakage tests shall be as directed by the local water department in accordance with AWWA Specification C600. Minimum testing pressure shall be 1.5 times the working pressure at the highest point along the test section, but not less than 150 PSI for a period of not less than two (2) hours or as directed by the local water department.

3. Unless it has already been done, the section of pipe to be tested shall be filled with water of approved quality, and all air shall be expelled from the pipe. If hydrants or blowoffs are not available at high points for releasing air, the Contractor shall make the necessary excavations and do the necessary backfilling, and the Contractor shall make the necessary taps at such points and shall plug said holes after completion of the test with brass or bronze plugs.

4. For the pressure test, the Contractor shall, by pumping, raise the water pressure (based on the elevation at the lowest point of the section under test and corrected to the gauge location) to a pressure in pounds per square inch numerically equal to the class rating of the pipe. If the Contractor cannot achieve the specified pressure and maintain it for a period of two hours, the section under test shall be considered as having failed to pass the pressure test.

5. Following a successful pressure test, the Contractor shall make a leakage test by metering the flow of water into the pipe while maintaining in the section being tested, a pressure equal to the average pressure to which the pipe will be subjected under normal conditions of service. This shall be done by placing the section under system pressure by pumping.

6. The amount of leaking that will be permitted shall be in accordance with the Specifications for Installation of Ductile Iron Water Mains by AWWA C600 or as allowed by local water department.

7. If the section shall fail to pass the pressure test, the leakage test, or both, the Contractor shall do everything necessary to locate, uncover, even to the extent of uncovering the entire section, and repair or replace the defective pipe, fitting, or joint, all at his own expense and without extension of time for completion of the Work.

3.3 DISINFECTION AND FLUSHING

A. Field Chlorination – Chlorination treatment shall be performed as directed by the local water department. At a minimum, the following procedure shall be followed should the town's requirements be less stringent:

1. After a section of the main has been pressure tested and found acceptable, it shall be flushed thoroughly by the Contractor in accordance with the following table:

Pipe Size	Flushing Flow
6”	750 gpm
8”	1000 gpm
10”	1500 gpm

2. After completion of the flushing operation, the Contractor shall disinfect potable water mains with a solution consisting of 50 ppm of chlorine in accordance with the AWWA Specification C651 for Disinfecting Water Mains.

3. Following chlorination, the mains shall be flushed again.

4. Following the chlorination period, all treated water shall be flushed from the lines at their extremities, and replaced with water from the distribution system. The Contractor shall then make bacteriological sampling and analysis of the replacement water in full accordance with AWWA. The Contractor shall be required to rechlorinate, if necessary, and the line shall not be placed in service until the requirements of the State Public Health Department are met.

END OF SECTION

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SECTION 33 30 00

SANITARY SEWERAGE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Furnish and install the new connections, piping, concrete structures, and all equipment necessary for the completion of the Work indicated on the Drawings and specified herein. Coordinate all Work with the Owner and the local municipality.

1.2 REFERENCES

A. The Drawings indicate and show limits for construction of this Project. These Specifications specify material and Work requirements for this Project. Both are complementary to each other, and both shall be followed to properly complete the Work.

1.3 SUBMITTALS

A. Submit Shop Drawings for all sanitary sewerage items described or indicated on the Drawings for approval at least four weeks prior to ordering.

1.4 QUALITY ASSURANCE

A. All Work shall be completed in accordance with state Laws and Regulations and Specifications.

B. Secure and pay for all necessary permits and connection fees for the municipal and state departments having jurisdiction prior to construction and furnish proof of acceptance upon completion of the Work.

PART 2 PRODUCTS

2.1 GENERAL

A. Materials for new sanitary sewers shall be of new and unused material, unless otherwise approved by Owner's representative, and shall conform to the requirements specified herein.

2.2 PLASTIC PIPE

A. Plastic gravity sewer pipe shall be PVC (SDR-35). Plastic gravity sewer pipe and fittings shall comply with ASTM D3034-04a or ASTM F1760-01(2005)e1. Plastic sewer pipe shall have a pipe stiffness of at least 46 pounds per square inch at five (5) percent pipe diameter deflection as measured in accordance with ASTM D2412-02 during manufacture. Joint seals for PVC pipe shall be oil resistant compression rings of elastomeric material conforming to ASTM D3212-96(a)(2003)e1 and shall be push on, bell-and-spigot type.

2.3 CLOSED CELL INSULATION

A. Closed cell insulation minimum requirements shall be as follows:

Physical Properties

Property and Test Method	Value
Thermal Resistance per inch, ASTM C518 @ 75°F mean temp., ft²●h●°F/Btu min., R-value	5 X 2" = 10
Compressive Strength(1), ASTM D1621, psi, min.	25
Water Absorption, ASTM C272, % by volume, max	0.1
Water Vapor Permeance, ASTM E96, per, max.	1.1
Maximum Use Temperature, °F	165
Coefficient of Linear Thermal Expansion, ASTM D696, in/lin●°F	3.5×10^{-5}

[1]Vertical compressive strength is measured by 10% deformation or at yield, whichever occurs first.

PART 3 EXECUTION

3.1 INSTALLATION OF PIPE

A. Pipe Handling

1. The Contractor shall arrange for the delivery of the pipe sections at approved locations in the vicinity of that portion of the sewer line in which the pipe sections are to be laid. To this end, he shall do such Work as is necessary for access and for delivery of the pipe. Pipes shall be stored in an approved, orderly manner so that there will be a minimum of rehandling from the storage area to the final position in the trench and so that there is a minimum of obstruction and inconvenience to any kind of traffic. Deliveries shall be scheduled so that the progress of the Work is at no time delayed and also so that large quantities of pipe shall not be stored for excessive lengths of time in crowded locations or in locations where large storage areas might be considered objectionable. Storage of pipe will be restricted to approved or permitted areas.

2. Each pipe section shall be handled into its position in the trench in such a manner that these operations are restricted to those considered safe for the workmen and such as to cause no injury to the pipe or to any property.

3. The Contractor shall be required to furnish slings, straps and/or approved devices to provide satisfactory support of the pipe when it is lifted. Transportation from delivery areas to the trench shall be restricted to operations, which can cause no injury to the pipe units.

4. The pipe shall not be dropped from trucks or into the trench.

5. The Contractor shall have on the Site with each pipe laying crew, all the proper tools to handle and cut the pipe. The use of hammer and chisel, or any

other method, which results in rough edges, chips and damaged pipe, shall be prohibited.

6. Damaged pipe coating and/or lining shall be restored before installation.

B. Control of Alignment and Grade

1. The Contractor will establish the location of the pipe, manholes and other appurtenances, and will establish benchmarks along the route of the pipelines at convenient intervals for his own reference in checking the pipe and manhole invert and other elevations throughout the Project.

2. The Contractor may use a laser beam to assist in setting the pipe.

3. The use of string levels, hand levels, carpenters levels or other relatively crude devices for transferring grade or setting pipe will not be permitted.

4. The Contractor shall not proceed until he has made timely demand upon the local municipality for, and has received from them, such controls and instructions as may be necessary as the Work progresses. The Work shall be done in strict conformity with controls and instructions. The Contractor shall carefully preserve benchmarks, reference points and stakes, and in the case of willful or careless destruction by his own men, he will be charged with the resulting expense and shall be responsible for any mistakes or delay that may be caused by their unnecessary loss or disturbance.

C. Preparation of Bed

1. As soon as excavation has been completed to proper depth as shown on the Typical Pipe Trench Detail, a layer of bedding material shall be placed and compacted to the elevation necessary to bring the pipe to grade.

2. The compacted bed shall be rounded so that at least the bottom quadrant of the pipe shall rest firmly for the full length of the barrel. Suitable holes for bells or couplings shall be dug around the pipe joints to provide ample space for making tight joints.

3. It shall be the Contractor's responsibility to control any water in the trench below the pipe invert and he shall place concrete, clay or other impermeable material in the bedding at 100 foot intervals to prevent horizontal movement of the groundwater, which might induce settling of the bed, or make it difficult to handle water in the trench.

D. Laying Pipe

1. Each pipe length shall be inspected for cracks, defects in coating or lining, and any other evidences of unsuitability. Before lowering in place, the pipe shall be struck with a suitable tool to verify its soundness.

2. Pipe shall be laid in the dry and at no time shall water in the trench be permitted to flow into the sewer.

3. The pipe shall then be laid on the trench bedding as shown on the Typical Pipe Trench Detail, and the spigot pushed home. Jointing shall be in accordance with the manufacturer’s instructions and appropriate ASTM

Standards and the Contractor shall have on hand for each pipe laying crew, the necessary tools, gauges, pipe cutters, etc., necessary to install the pipe in a workmanlike manner. Pipe laying shall proceed upgrade with spigot ends pointing in the direction of the flow.

4. Blocking under the pipe will not be permitted except where a concrete cradle is proposed, in which case precast concrete blocks shall be used.

5. After the pipe has been set to grade, additional bedding material shall be placed in 6 inch layers up to the springline of the pipe. Tamping bars shall be carefully employed to assure compaction of the bedding under the lower quadrants of the pipe.

6. At this point, the pipe shall be checked for line and grade and any debris, tools, etc. shall be removed.

7. After this, the backfill material shall be carefully placed in 6 inch layers to a depth of 12 inches over the crown of the pipe. Each layer shall be thoroughly compacted with mechanical equipment. Care shall be taken that the equipment does not damage the pipe.

8. If inspection of the pipe is satisfactory, the Contractor may then refill or backfill the remainder of the trench in accordance with the Typical Pipe Trench Detail.

9. At any time that Work is not in progress, the end of the pipe shall be suitably closed to prevent the entry of animals, earth, etc.

10. At the end of each day's Work or at intervals of no more than 100 feet of pipe, the Owner's representative, with the Contractor, will inspect the pipe for alignment with lamps or mirrors. Unsatisfactory Work shall be dug up and reinstalled to the satisfaction of the Owner's representative.

E. Testing

1. Leakage Tests:

   a. All portions of all sewers shall be subjected to leakage tests under the direction of the Owner's Representative and witnessed by them. The Contractor shall have on hand, all plugs, pumps, etc. necessary to conduct the test. Should the Work fail the leakage test, corrective action shall be taken by the Contractor in a manner approved by the Owner's representative. If directed by the Owner's representative, all portions of the section tested shall be dug up and re-laid.

   b. In general, the use of sealants, applied from the inside of the pipe, will not be approved.

   c. All gravity sewer shall be air tested. Tests should be completed in accordance with ASTM F1417-92 (2005) or Uni-Bell PVC Pipe Association Uni-B-6 "Low-Pressure Air Testing of Installed Sewer Pipe" (1998). Each section of pipe shall meet the above criteria.

2. Testing limits and test gauge diameter for plastic pipe:

a. Acceptance limit for deflection tests of installed flexible sewer pipe shall be 7-1/2% of average inside diameter. A test shall be conducted after a minimum of thirty days following installation.

b. The deflection gauge diameter (G) for this test shall be determined by the following formula:

G = .925 D inches (nominal)

where D is the average inside diameter given in the applicable ASTM standard.

3. One hundred percent (100%) of the pipe shall be tested for deflection.

4. Deflection shall not exceed these standards for any pipe length.

3.2 CONNECTIONS TO EXISTING SEWERS AND MANHOLES

A. General

1. The Contractor shall make tight joint connections to the existing facilities as indicated on the Drawings and as herein specified, or as directed.

2. The Contractor shall furnish all pipe, fittings and appurtenances. The Contractor shall do all excavation and backfill as required.

3. Existing pipeline or structures damaged by the Contractor shall be replaced by him at his own expense in a manner approved by the local municipality.

4. Service Connections

a. Service connections constructed where there is no connection fitting or where the fitting has been damaged by or cannot be located by the Contractor shall be constructed of cast iron saddles.

b. Existing sewers shall be tapped by mechanical tapping machines specifically designed for such Work. Tapping by use of hammer or chisel is not allowed.

5. Manholes

a. Where new construction is installed to connect to an existing brick or block manhole, the existing manhole shall be replaced. If the existing manhole is concrete and in satisfactory condition as determined by the local municipality the manhole may remain if allowed by the local municipality. In this case a hole shall be mechanically cored and a Kor N Seal type rubber boot installed to provide a water tight connection.

B. Interference

1. The Contractor shall develop a program for the construction and placing in service of the new Work to the approval of the local municipality. All Work involving cutting into and connecting to the existing facilities shall be planned so as to interfere with the operation of the existing facilities for the shortest possible time and where the demands on the system best permit. Such

interferences shall be limited even to the extent of working outside normal working hours to meet these requirements.

2. The Contractor shall have all possible preparatory Work done and shall provide all labor, tools, material and equipment required to do the Work in one continuous operation.

3.3 PROXIMITY TO WATER MAINS

A. A minimum ten (10) feet horizontal separation is required between sanitary sewers and water lines. However, should construction operations reveal or expose a water line (main or service) running approximately parallel to and less than ten (10) feet horizontally from the proposed sewer installation and where it is not practicable to relocate the sewer, the following methods of protection must be employed:

1. Sewer pipe shall be PVC pressure class pipe if horizontal separation cannot be met.

B. Whenever sewers must cross water mains, the sewer shall be constructed as follows:

1. Sewer pipe joints shall be located at least six (6) feet horizontally from the water main.

2. Vertical separation of the sewer and water main shall not be less than 18" with water above sewer.

3.4 ADJUSTING

A. Grades and Elevations

1. The Drawings indicate the alignment and utility invert grades. The Owner's representative, however, may make such adjustment in grades and alignment as is found necessary in order to avoid interference and to adapt the piping to any other special conditions that may be encountered.

END OF SECTION

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SECTION 33 39 14

BREAKING INTO EXISTING MANHOLES AND CATCH BASINS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Breaking through the walls and inverts of existing manholes.

2. Connecting new pipes to existing structures.

3. Ancillary work associated with making the new connections to the existing structures.

1.2 REFERENCES

A. ASTM C443 – Standard Specification for Joints for Circular Concrete Sewer and Culvert Piping Using Rubber Gaskets.

B. ASTM C923 - Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Laterals.

1.3 SUBMITTALS

A. Submit shop drawings showing pipe connection details.

1.4 QUALITY ASSURANCE

A. Personnel shall have confined space entry training as appropriate for the work to be performed.

PART 2 PRODUCTS

2.1 MATERIALS

A. Flexible Pipe-to-Structure Connectors

1. The flexible connectors shall be designed to provide a positive seal between the connector and the structure wall and between the connector and the pipe.

2. The flexible boot shall be manufactured of EPDM synthetic rubber in accordance with ASTM C443 and C923 and shall be 3/8 inch thick or greater.

3. The external bands shall be made entirely of 304 series non-magnetic stainless steel.

4. The flexible connectors shall be provided with a wedge-type or toggle-type expander to secure the pipe in the structure opening.

5. The flexible connectors shall meet the following criteria, in accordance with ASTM C923:

a. Shall not leak when subjected to a head pressure of 10 psi for 10 minutes.

b. Shall have the ability to deflect 7 degrees in any direction without leakage under the head pressure conditions described above.

c. Shall not leak when subject to a load of 150 lbs./in. pipe diameter and the head pressure conditions described above.

B. Non-shrink, water-proof grout

1. Non-shrink, water-proof grout shall be Hallemite; Waterplug; Embeco; or equal.

PART 3 EXECUTION

3.1 INSTALLATION

A. General

1. Core drill into existing structures in such a fashion as to make an opening of suitable size to accommodate the connecting pipe without excessive damage to the existing structure.

B. Manholes

1. For manholes, break out and rebuild existing inverts as required to provide an adequate base under the new channels being installed, and shaped to provide smooth continuous hydraulic flow through the manhole.

2. Control existing flows as required during the period of construction. No sewage will be permitted to flow directly against concrete or other masonry work until it is at least 48 hours old.

a. Temporary handling of sewage flows may be accomplished by inserting pipes from the inlet to the outlet of the manhole and by using temporary plugs, where appropriate, provided that such pipes do not interfere with satisfactory completion of the work and shaping of the inverts, nor cause excessive backing-up in the existing system upstream of the diversion. In cases where this type of temporary handling of flows is not possible, provide the necessary dams, plugs, etc., as required in upstream manholes, and pump the flow around the structure under construction.

b. When sewage is pumped or otherwise diverted around a particular structure, it shall be discharged back into the sewage system through existing downstream manholes. Under no circumstances shall sewage be permitted to run onto the surface of the ground.

C. Pipe Connections

1. Rebuild and tightly close existing manhole walls and inverts o provide an integral, water-tight structure around the new pipes.

2. For pipes with smooth exterior surfaces (PVC, ductile iron, HDPE, steel, etc), use flexible pipe-to-structure connectors.

3. Where flexible pipe-to-structure connectors cannot be used, such as pipes with rough, irregular or corrugated exterior surfaces (concrete, corrugated metal or HDPE, etc):

   a. After the new pipe has been set in place, completely fill the hole around the new pipe and structure with non-shrink, water-proof grout.

   b. Place a 6 inch thick concrete encasement a total of 12 inches in length around the pipe stub adjacent to the exterior wall of the structure. Concrete shall have a 28 day compressive strength of 3,000 psi.

END OF SECTION

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SECTION 33 40 00

STORM DRAINAGE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. All labor, equipment, supplies, services and materials and performing all operations in connection with the installation of the building underdrainage systems and the storm drainage system, including piping, pipe end sections, and connection to building roof drains, and all related Work required for the storm drainage system as indicated on the Drawings and as specified herein.

B. Related Requirements

1. Section 31 23 00 – Earthwork

2. The Drawings indicate and show limits of construction for this Project. The Specifications specify material and work requirements for this Project. Both are complementary to each other, and both shall be followed to properly complete the work.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordination

1. All work shall be accomplished in accordance with Laws and Regulations of local, county and state agencies as they apply.

2. Secure all necessary permits from municipal, county and state departments having jurisdiction prior to the start of construction and furnish proof of acceptance upon completion of the Work.

1.3 SUBMITTALS

A. Submit Shop Drawings for all storm drainage items, described or indicated on the Drawings for approval prior to ordering.

1.4 SITE CONDITIONS

A. Grades and Elevations

1. The Drawings indicate the alignment, invert and finished grade elevations of all structures and utilities. The Owner's representative, however, may make such adjustments in grades and alignment as are found necessary in order to avoid interference and to adapt the utilities and piping to other special conditions encountered.

PART 2 PRODUCTS

2.1 PIPING

A. Reinforced Concrete Pipe

1. This pipe shall conform to the requirements of AASHTO M170, except as follows: Wall A thickness will be allowed in Class III pipe only. When the plans call for reinforced concrete pipe capable of withstanding an ultimate load greater than 3750D, the design requirements of Class V shall be met with further provision that the pipe will withstand the ultimate D load of a 4,000 D.

2. Basis of acceptance of concrete pipe shall conform to AASHTO M170, Section 5.1.1 test requirements shall be as provided in Section 10.3.1 and 10.5 with the further provision that the pipe will withstand an additional ten (10) percent of the D load specified or brought to destruction. Permissible variation in pipe tolerances shall conform to AASHTO M170, Section 11.

TABLE 1
Minimum Strength Requirements

D-Load to Produce the Ultimate Load = Class	D-Load to Produce a 0.01 inch Crack	AASHTO Designation Class
1,500 D	1,000	II
2,000 D	1,350	III
3,000 D	2,000	IV
3,750 D	3,000	V
4,000 D	--	--

3. Unless a different class is specified on the plans, reinforced concrete pipe shall meet the requirements of AASHTO Class IV designations.

4. Workmanship and finish shall conform to AASHTO M170, Section 12. Pipe shall be subject to rejection on account of failure to conform to any of the Specification requirements of AASHTO M170, section 15.

5. Markings on pipe shall conform to AASHTO M170, Section 16.

6. Joints shall conform to AASHTO M198, Type A rubber gaskets.

B. Polyethylene Pipe

1. The products supplied under this Specification shall be high density polyethylene corrugated exterior/smooth interior pipe. Four thru ten inch diameters shall meet all requirements of AASHTO M252 with the addition that the pipe have a smooth interior liner. Twelve (12) to thirty-six (36) inch diameters shall conform to AASHTO M294 Type S. Forty-two and forty-eight inch diameters shall have minimum pipe stiffness of 20 and 17 psi, respectively, at 5% deflection; and shall meet all other requirements of AASHTO M294.

C. Polyvinyl Chloride (PVC)

1. PVC pipe shall meet the requirements of ASTM D 3034 SDR 35 for gasketed joints, ASTM F 447

PART 3 EXECUTION

3.1 CONSTRUCTION

A. Site and Trench Excavation, Fill and Backfill

1. Perform all pavement replacement, repair and patching, as specified under bituminous pavement sawcut and patch.

2. Trench widths shall be sufficient to permit proper installation of the Work, and bottoms of trenches shall be evenly graded. The maximum allowable width of trenches for pipe shall be as indicated on the details. Excavations below required depths shall be refilled with crushed stone and compacted. Immediately after trench excavations have been carried to the required grades, the exposed surface of the existing bottom shall be cleaned of all loose disturbed materials. Where the trench bottom is below the water level or within saturated earth materials, bedding below the storm drain shall be made with a minimum of six (6) inches of crushed stone. Pipe beds in bedding material shall be rounded to accommodate the bottom quadrant of the pipe and to provide full support and uniform bearing for the entire length of the pipe barrel.

3. Control and pitch the grading to prevent water from running into the excavated areas of the Site or drain, or to prevent damage to other structures or Work already accomplished.

4. Furnish all pumping and other dewatering equipment necessary to keep excavated areas dry during construction. Water shall not be conducted onto adjacent property except in existing water courses.

5. After piping and structures have been installed, tested, inspected and approved by the Owner's representative, crushed stone bedding material as specified shall be carefully hand placed and hand tamped in six (6) inch layers, under, around and to the spring line of the pipe. After this, the blanket material shall be carefully placed in six (6) inch layers to a level one (1) foot above the top of the piping. The remaining excavation shall be backfilled with approved backfill materials, compacted in six (6) inch layers loose measure. Backfill shall be compacted to not less than 95 percent of the ASTM maximum dry densities as specified herein.

6. Obtain information from the Owner and proper authorities concerning locations of existing utilities within the scope of this Work in order to avoid damage to such utilities. The Owner will not be responsible for any such damage. Restore any structure and repair any resultant damage without additional cost to the Owner.

   a. Rules and regulations governing the respective utilities shall be observed. Active utilities shall be adequately protected from damage and shall not be removed or relocated except as indicated or directed. Inactive and abandoned utilities shall be reported in writing to the Owner's representative and shall be removed, plugged or capped as directed.

7. Excavations shall be adequately sheeted, shored and braced as necessary to permit proper execution of the Work and to protect all slopes and earth banks. Sheet piling shall be installed if required to prevent cave-ins or settlement and to protect workmen, adjacent structures and utilities. Shoring and piling may be removed as the backfilling progresses, but only when banks are safe against caving.

8. Excavation of earth, boulders of rock beyond indicated or authorized limits shall be refilled at no additional expense to the Owner with gravel compacted to 95 percent of the maximum dry density at optimum moisture content, or crushed stone, as required by the Owner's representative.

END OF SECTION

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SECTION 33 49 13

MANHOLES AND CATCH BASINS

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes

1. Precast concrete manholes
2. Precast concrete catch basins
3. Cast iron manhole frames and covers
4. Cast iron catch basin frames and grates

B. Related Sections

1. Section 33 30 00 – Sanitary Sewerage
2. Section 33 40 00 - Storm Drainage

1.2 REFERENCES

A. AASHTO – American Association of State Highway and Transportation Officials, Standard Specifications for Highways and Bridges, most recent edition

B. ASTM C32 - Standard Specification for Sewer and Manhole Brick (made from clay or shale)

C. ASTM A48 – Standard Specification for Gray Iron Castings

D. ASTM C150 – Standard Specification for Portland Cement

E. ASTM C207 – Standard Specification for Hydrated Lime for Masonry Purposes

F. ASTM C478 – Standard Specification for Precast Reinforced Concrete Manhole Sections

G. ASTM C443 – Standard Specification for Joints for Circular Concrete Sewer and Culvert Piping Using Rubber Gaskets

H. ASTM C923 - Standard Specification for Resilient Connectors between Reinforced Concrete Manhole Structures, Pipes and Laterals

I. ASTM C990 – Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants

1.3 SUBMITTALS

A. Submit Shop Drawings, showing all details of construction, including, but not limited to, structure dimensions, reinforcing, joints, and pipe connections to structures.

B. Submit on all materials and products included in this specification, including, but not limited to, manhole rungs, manhole frames and covers, dampproofing coating, brick masonry, mortar, non-shrink water-proof grout, catch basin frames and grates

C. Submit weights of manhole frames and covers and catch basin frames and grates.

D. Submit design calculations including verification of adequate anti-flotation features and lateral earth pressures. Calculations shall verify that the manhole structure has been designed to withstand the burial depth, submergence due to flooding, flotation, and dead and live loads.

1.4 QUALITY ASSURANCE

A. The quality of materials, the process of manufacture, and the finished sections shall be subject to inspection and approval by the Engineer, or other representative of the Owner. Such inspection may be made at the place of manufacture, or at the Site after delivery, or at both places, and the materials shall be subject to rejection at any time on account of failure to meet any of the Specification requirements, even though samples may have been accepted as satisfactory at the place of manufacture. Material rejected after delivery to the job shall be marked for identification and shall be removed from the job at once. Materials which have been damaged after delivery will be rejected, and if already installed, shall be acceptably repaired, if permitted, or removed and replaced, at no additional cost to the Owner.

B. At the time of inspection, the materials will be carefully examined for compliance with the latest ASTM designation specified and these Specifications, and with the approved manufacturer's drawings. Manhole sections will be inspected for general appearance, dimension, "scratch-strength," blisters, cracks, roughness, and soundness. The surface shall be dense and close-textured.

C. Imperfections in manhole sections may be repaired, subject to the approval of the Engineer, after demonstration by the manufacturer that strong and permanent repairs result. Repairs will be carefully inspected before final approval. Cement mortar used for repairs shall have a minimum compressive strength of 4,000 psi at 7 days and 5,000 psi at 28 days, when tested in 3 inch by 6 inch cylinders stored in the standard manner. Epoxy mortar may be utilized for repairs subject to the approval of the Engineer.

D. Personnel shall have confined space entry training as appropriate for the work to be performed.

E. Manholes and catch basins shall be designed for lateral earth pressures and to resist flotation.

PART 2 PRODUCTS

2.1 PRECAST CONCRETE MANHOLE AND CATCH BASIN SECTIONS

A. Precast concrete barrel sections and transition top sections, shall conform to ASTM C478 and the following requirements:

1. The wall thickness shall not be less than 5 inches for 48 inch diameter reinforced barrel sections, 6 inches for 60 inch diameter reinforced barrel sections and 7 inches for 72 inch diameter reinforced barrel sections.

2. Top sections shall be eccentric except that flat top sections shall be used where shallow cover requires a top section less than 4 feet as shown on the Drawings.

3. Barrel sections shall have tongue and groove joints.

4. All sections shall be cured by an approved method and shall not be shipped nor subjected to loading until the concrete compressive strength has attained 3,000 psi and not before 5 days after fabrication and/or repair, whichever is longer.

5. Precast concrete barrel sections with precast top slabs and precast concrete transition sections shall be designed for a minimum of AASHTO HS20-44 loading plus the weight of the soil above at 120 pcf.

6. The date of manufacture and the name and trademark of the manufacturer shall be clearly marked on each precast section.

7. Precast concrete bases shall be monolithically constructed. The thickness of the bottom slab of the precast bases shall not be less than the barrel sections or top slab whichever is greater. Precast concrete bases shall be constructed with a 6 inch extended base, unless otherwise shown on the Drawings.

8. Knock out panels for piping shall be provided in precast sections at the locations shown on the Drawings. They shall be integrally cast with the section, 2½ inches thick and shall be sized as shown on the Drawings. There shall be no steel reinforcing in knock out panels.

9. The side wall height of the base section shall be a minimum of 12 inches above the top of the pipe coming into the manholes and catch basins.

10. A 4'-0" deep sump shall be provided below catch basin outlet pipes.

2.2 BRICK MASONRY

A. Bricks shall be good, sound, hard and uniformly burned, regular and uniform in shape and size, of compact texture. Underburned or salmon brick will not be acceptable and only whole brick shall be used unless otherwise permitted. In case bricks are rejected by the Engineer, they shall be immediately removed from the site of the work and satisfactory bricks substituted, at no additional cost to the Owner.

1. Bricks for the channels and shelves shall comply with the latest specifications of ASTM C32 for Sewer Brick, Grade SM.

2. Bricks for building up and leveling manhole frames shall conform to ASTM C32 Grade MS.

3. Poured concrete inverts will not be allowed.

B. Mortar used in the brickwork shall be composed of one part Type II portland cement conforming to ASTM C150 to two parts sand to which a small amount of hydrated lime not to exceed 10 lbs. to each bag of cement shall be added.

C. Sand used shall be washed, cleaned, screened, sharp and well graded as to different sizes and with no grain larger than will pass a No. 4 sieve. Sand shall be free from vegetable matter, loam, organic or other materials of such nature or of such quantity as to render it unsatisfactory.

D. Hydrated lime shall conform to ASTM C207, Type S.

2.3 MANHOLE FRAMES AND COVERS

A. Manhole frames and covers shall be of good quality, strong, tough, even grained cast iron, smooth, free from scale, lumps, blisters, sand holes and defects of any kind. Manhole covers and frame seats shall be machined to a true surface. Castings shall be thoroughly cleaned and subject to hammer inspection. Cast iron shall conform to ASTM A48, Class 30B or ASTM A48, Class 35B.

B. Manhole covers shall have a diamond pattern, pickholes and the word "DRAIN", as appropriate, cast in 3 inch letters. Manhole frame and covers shall be manufactured by East Jordan Iron Works; Mechanics Iron Foundry; Neenah Foundry or equal.

C. Manhole frames and covers shall comply with the detail shown on the Drawings.

D. Manhole frames and covers shall be designed for a minimum of AASHTO HS20-44 loading.

2.4 CATCH BASIN FRAMES AND GRATES

A. Catch basin frames and grates shall be of good quality, strong, tough, even grained cast iron, smooth, free from scale, lumps, blisters, sand holes and defects of any kind which render them unfit for the service for which they are intended. Grate and frame seats shall be machined to a true surface. Castings shall be thoroughly cleaned and subject to hammer inspection. Cast iron shall conform to ASTM A48, Class 30B or ASTM A48, Class 35B.

B. The catch basin frames and grates shall comply with the details shown on the Drawings.

C. Catch basin frames and grates shall be designed for a minimum of AASHTO HS20-44 loading.

2.5 JOINTING PRECAST MANHOLE SECTIONS

A. Tongue and groove joints of precast manhole sections shall be sealed with a preformed flexible joint sealant. The preformed flexible joint sealant shall conform to ASTM C990.

2.6 MANHOLE RUNGS

A. Manhole rungs shall be drop front design, 14 inches wide with an abrasive step surface, steel reinforced, copolymer, polypropylene, plastic. Manhole rungs shall conform to OSHA requirements.

2.7 FLEXIBLE PIPE TO-STRUCTURE CONNECTORS

A. The flexible pipe-to-structure connectors shall be designed to provide a positive seal between the connector and the structure wall and between the connector and the pipe.

B. The flexible boot shall be manufactured of EPDM synthetic rubber in accordance with ASTM C443 and C923 and shall be 3/8 inch thick or greater.

C. The external bands shall be made entirely of 304 series non-magnetic stainless steel.

D. The flexible connectors shall be provided with a wedge-type or toggle-type expander to secure the pipe in the structure opening.

E. The flexible connectors shall meet the following criteria, in accordance with ASTM C923:

1. Shall not leak when subjected to a head pressure of 10 psi for 10 minutes.

2. Shall have the ability to deflect 7 degrees in any direction without leakage under the head pressure conditions described above.

3. Shall not leak when subject to a load of 150 lbs./in. pipe diameter and the head pressure conditions described above.

2.8 DAMPPROOFING

A. Dampproofing is required for all sanitary sewer structures.

B. Provide two coats of bituminous dampproofing on outer surfaces of precast manholes at the rate of 20-25 square feet per gallon in accordance with manufacturer's instructions.

C. Dampproofing coating shall be a factory-applied asphalt compound specially made to adhere to below grade concrete structures.

D. The dampproofing shall be Sonoshield semi-mastic, as manufactured by BASF; Dehydratine 4 by Euclid Chemical; RIW Marine Liquid by Toch Brothers; or approved equal.

2.9 NON-SHRINK, WATER-PROOF GROUT

A. Non-shrink, water-proof grout shall be Hallemite; Waterplug; Embeco; or equal.

PART 3 EXECUTION

3.1 INSTALLATION

A. Installation

1. Construct manholes and catch basins to the dimensions shown on the Drawings and as specified. Protect all work against flooding and flotation.

2. Set precast concrete barrel sections so as to be plumb and with sections in true alignment with a ¼ inch maximum tolerance to be allowed.

3. Install the precast sections in a manner that will result in a watertight joint. Seal the joints of precast concrete barrel sections with the preformed flexible joint sealant used in sufficient quantity to fill 75% of the joint cavity. Fill the outside and inside precast section joints with non-shrink grout and finish flush with the adjoining surfaces. Plug holes in the concrete barrel sections required for handling or other purposes with a non-shrink, water-proof grout or concrete and rubber plugs, and finish flush on the inside.

4. Backfilling shall be done in a careful manner, bringing the fill up evenly on all sides.

B. Pipe Connections

1. Stubs

a. Connect pipe stubs for future extensions to the structures as shown on the Drawings and close the stub end by a suitable watertight plug.

2. For pipes with smooth exterior surfaces (PVC, ductile iron, HDPE pressure pipe, steel, etc), use flexible pipe-to-structure connectors.

3. Where flexible pipe-to-structure connectors cannot be used, such as pipes with rough, irregular or corrugated exterior surfaces (concrete, corrugated metal, HDPE drainage pipe, etc):

a. After the new pipe has been set in place, completely fill the hole around the new pipe and structure with non-shrink, water-proof grout.

b. Place a 6 inch thick concrete encasement a total of 12 inches in length around the pipe stub adjacent to the exterior wall of the structure. Concrete shall have a 28 day compressive strength of 3,000 psi.

C. Manhole Rung Installation

1. Steel reinforced copolymer polypropylene plastic steps shall be press fitted by hand driven hammer into preformed holes in cured precast sections, on 12 inch centers, by the precast concrete manufacturer.

D. Brickwork

1. Mix mortar only in such quantity as may be required for immediate use and use before the initial set has taken place. Do not retain mortar for more than one and one-half hours and constantly work over with a hoe or shovel until used. Anti-freeze mixtures will not be allowed in the mortar. No masonry shall be laid when the outside temperature is below 40°F unless provisions are made to protect the mortar, bricks, and finished work from frost by heating and enclosing the work with tarpaulins or other suitable material. The Engineer's decision as to the adequacy of protection against freezing shall be final.

2. Construct channels and shelves of brick as shown on the Drawings. The brick channels shall correspond in shape with the lower half of the pipe. The top of the shelf shall be set at the elevation of the crown of the highest pipe and shall be sloped 1 inch per foot to drain toward the flow through channel. Construct brick surfaces exposed to sewage flow with the nominal 2 inch by 8 inch face exposed (i.e., bricks on edge).

3. Set manhole covers and frames and catch basin frames and grates in a full mortar bed and bricks, a maximum of 12 inches thick for conical tops and 6 inches thick for flat top sections, utilized to assure frame and cover are set to the existing grade. Reset the manhole frames and covers and catch basin frames and grates to final grade prior to placement of final paving.

3.2 LEAKAGE TEST

A. Leak test sewer manholes in conjunction with the pipeline in accordance with Section 33 08 40.

3.3 CLEANING

A. Clean new manholes and catch basins of silt, debris and foreign matter of any kind, prior to final inspection.

END OF SECTION

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Appendix A

REPORT

September 18, 2015
15-0668 S

Geotechnical Engineering Services

Proposed Community Building
1342 Congress Street
Portland, Maine

PREPARED FOR:
Jewish Community Alliance
Attention: Steve Brinn
57 Ashmont Street
Portland, Maine 04101

PREPARED BY:
S. W. Cole Engineering, Inc.
286 Portland Road
Gray, Maine 04039
207-657-2866

S.W.COLE ENGINEERING, INC.

- *Geotechnical Engineering*
- *Construction Materials Testing*
- *GeoEnvironmental Services*
- *Ecological Services*

www.swcole.com

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15-0668 S

September 18, 2015

Jewish Community Alliance
Attention: Steve Brinn
57 Ashmont Street
Portland, Maine 04101

Subject: Geotechnical Engineering Services
Proposed Community Building
1342 Congress Street
Portland, Maine

Dear Steve:

In accordance with our Proposal, dated July 14, 2015, we have performed subsurface explorations for the subject project. This report summarizes our findings and geotechnical recommendations and its contents are subject to the limitations set forth in Attachment A.

1.0 INTRODUCTION

1.1 Scope and Purpose

The purpose of our services was to obtain subsurface information at the site in order to develop geotechnical recommendations relative to foundations, earthwork and pavement associated with the proposed construction. Our scope of services included a review of historical subsurface data, nine test boring explorations, soils laboratory testing, a geotechnical analysis of the subsurface findings and preparation of this report.

1.2 Site and Proposed Construction

The site is located at 1342 Congress Street in Portland, Maine and is currently occupied by a vacant church building with basement and associated paved and landscape areas. We understand redevelopment plans call for razing the existing church facility and construction of a new community building.

Based on information provided by Harriman (project architect/engineer), we understand the proposed community building will be an L-shaped, single-story structure with a slab-on-grade floor. The proposed building will occupy about 19,300 square feet in plan footprint situated partially over the demolished church building. The proposed building will have a finish floor elevation of 106 feet requiring tapered fills approaching 4 feet thick in the southerly end of the building and tapered cuts approaching 2 feet thick in the central to northerly end of the building. We understand column loads will approach a maximum of 72 kips (total load).

Paved entrances will be provided off of Congress Street and off of the adjacent retail lot. Paved parking will be provided in the southerly portion of the site which will require tapered fills approaching 3 feet thick. A subsurface stormwater system will be constructed on the westerly side of the site and an underdrained stormwater soil filter will be constructed in the southerly end of the site.

Proposed and existing site features are shown on the "Exploration Location Plan" attached as Sheet 1.

2.0 EXPLORATION AND TESTING

2.1 Explorations

Nine test borings (B-101 through B-108 and B-104A) were made at the site on August 20 and 21, 2015. The explorations were made by S. W. Cole Explorations, LLC of Augusta, Maine working under subcontract to S. W. Cole Engineering, Inc. (S.W.COLE). The exploration locations were selected by Harriman and established in the field by S.W.COLE using measurements from existing site features. The approximate exploration locations are shown on the "Exploration Location Plan" attached as Sheet 1.

Logs of the explorations are attached as Sheets 2 through 10. The elevations shown on the logs were estimated based on topographic information shown on Sheet 1. A key to the notes and symbols used on the logs is attached as Sheet 11.

A portion of the plan set showing 1962 test boring information for the existing church building was provided by Harriman. This historic subsurface data is attached as Appendix A.

2.2 Testing

The test borings were drilled using a combination of hollow-stem auger and cased wash-boring techniques. The soils were sampled at 2 to 5 foot intervals using a split spoon sampler and Standard Penetration Testing (SPT) techniques. Pocket Penetrometer Testing (PPT) was performed where stiffer clays were encountered. Vane Shear Testing (VST) and Shelby tube sampling was performed in softer clays at borings B-104A and B-106. SPT blow counts and PPT and VST results are shown on the logs.

Soil samples obtained from the explorations were returned to our laboratory for further classification and testing. Laboratory testing included Atterberg Limits, moisture content and one-dimensional consolidation testing. Atterberg Limits and moisture content test results are noted on the logs. The results of two, one-dimensional laboratory consolidation tests are attached as Sheets 12 and 13.

3.0 SITE AND SUBSURFACE CONDITIONS

3.1 Surficial

Based on observations made at the site and information shown on plans of the existing church building, we understand the basement floor is at the same elevation beneath the main church building and in the boiler room, but steps up about 2.5 area beneath the rectory area. Historical elevations do not coincide with the present survey; however it appears the top of basement slab beneath the church/boiler room area is at about elevation 97 feet and top of basement slab beneath the rectory is at about elevation 99 feet in terms of the current project datum. Thus, it appears the church/boiler room basement slab is on the order of 5 to 10 feet below current exterior grades while the basement slab beneath the rectory is on the order of 3 to 7 feet below existing exterior grades. Based on historical plans, it appears that the basement slab is up to approximately 2.5 feet thick in some areas of the building. A concrete sump pit with standing water was observed in the existing boiler room area of the basement.

Existing grades around the church building generally slope down to the south, from approximate elevation 105 feet adjacent to Congress Street to approximate elevation 98 feet on the southerly side of the building. Existing site features are shown on Sheet 1.

3.2 Soil and Bedrock

The borings encountered a subsurface profile generally consisting of topsoil and uncontrolled fill, overlying glaciomarine clays, overlying glacial till and refusal surfaces. The principal soils encountered at the explorations are summarized below; refer to the attached boring logs for more detailed descriptions of the subsurface findings. Historical logs from explorations made in 1962 by others for the original church construction are attached as Appendix A for informational purposes.

Uncontrolled Fill: Borings B-101 through B-106, performed for the proposed building, encountered a layer of uncontrolled fill and/or disturbed soils extending to depths varying from about 5 to 8 feet. The uncontrolled fill consists of loose to medium dense silty clay and/or silty sand with varying portions of gravel, organics and debris such as asphalt, brick and ash. Boring B-107, performed for the proposed subsurface stormwater system, encountered clayey silt fill soils to a depth of about 1 foot. The uncontrolled fill appears to be thicker adjacent to the existing church building and in the northerly portion of the site, approaching Congress Street.

Glaciomarine Clay: Underlying the uncontrolled fill, the borings encountered glaciomarine silty clay generally consisting of an upper layer of hard to stiff brown silty clay extending to depths varying from about 13 to 16.5 feet below the ground surface, transitioning to softer gray silty clay with varying frequency of sand seams and layers. Borings B-107 and B-108 were terminated in the stiffer brown silty clay at a depth of 12 feet. Where penetrated, the softer gray silty clay extended to depths varying from about 18 to 24 feet below the ground surface.

Vane Shear Testing in the gray silty clay indicate undrained shear strengths generally greater than 890 psf. Laboratory consolidation testing performed on samples of the gray silty clay indicate the soils are overconsolidated by approximately 2 ksf.

Glacial Till: Underlying the glaciomarine clay, most of the borings encountered glacial till consisting of medium dense gray silty sand with varying portions of gravel. The till was

encountered at depths varying from about 18 to 24 feet below the ground surface. Boring B-104 was terminated in the glacial till at depth of 27 feet.

Refusal Surfaces: Underlying the glaciomarine clay and/or glacial till, borings B-101 through B-103 and B-105 encountered refusal surfaces (probable bedrock) at depths varying from 22.0 to 26.3 below the ground surface.

3.3 Groundwater

The soils encountered at the test borings were generally damp to moist below 5 to 10 feet. Saturated soils were encountered at depths varying from about 11 to 16 feet. Groundwater likely becomes perched on the relatively impervious silty clay and within the uncontrolled fill soils encountered at the test borings. Long term groundwater information is not available. It should be anticipated that seasonal groundwater levels will fluctuate, especially during periods of snowmelt and precipitation.

It should be noted that a sump containing free water was observed in the boiler room of the existing church building. The free water is indicative of groundwater perched on the silty clay soils at the site.

3.4 Seismic and Frost

The 100-year Air Freezing Index for the Portland, Maine area is about 1,407-Fahrenheit degree-days, which corresponds to a frost penetration depth on the order of 4.5 feet. Based on the subsurface findings, we interpret the site soils to correspond to Seismic Soil Site Class D according to 2009 IBC.

3.5 Subsurface Stormwater and Soil Filter Systems

As requested, borings B-107 and B-108 were made for the subsurface stormwater and soil filter systems. These borings generally encountered topsoil and organics overlying very stiff to stiff brown silty clay with some fine sand. These borings were terminated at the depths of 12 feet below the ground surface. Refer to the attached boring logs for more detailed descriptions of the subsurface findings.

4.0 EVALUATION AND RECOMMENDATIONS

4.1 General Findings

Based on the subsurface findings, the proposed construction appears feasible from a geotechnical standpoint. The principle geotechnical considerations are:

- The explorations encountered a layer of uncontrolled fill and disturbed soils up to approximately 8 feet thick. The fills and disturbed soils are unsuitable for support of the proposed building and must be removed and backfilled with compacted Granular Borrow. In paved areas, we recommend proof-rolling the existing fills and repairing soft areas prior to placing compacted fills or pavement gravels.

- We anticipate the existing basement slabs and lower footings bear on sensitive, wet silty clay. We recommend leaving the existing lowest level basement slab and basement level footings (beneath church and boiler room areas) in place to help reduce potential clay subgrade disturbance. All other existing structures which will influence new construction (existing entrance areas and stairways, rectory basement and garage slab and footings and all foundation walls) should be completely removed and backfilled with compacted Granular Borrow.

- We understand current planning includes razing the existing site building in a demolition phase separate from new construction. We recommend including overexcavation and backfill of unsuitable materials below the proposed building as part of the demolition phase. In any case, demolition and removal of unsuitable soil must be done in a careful, controlled manner to minimize disturbance of bearing soils. S.W.COLE should be engaged to observe demolition of basement walls, foundations, overexcavation of unsuitable soils and backfilling.

- The building site is underlain by glaciomarine clays that will compress under the weight of new fills and building loads. To help reduce post-construction building settlement, all site fills needed to raise grades in building and paved areas should be placed to subgrade elevation prior to excavating for building foundations.

- Conventional spread footing foundations and on-grade floor slabs bearing on properly prepared subgrades appear suitable for the proposed building.

Geotextile fabric wrapped Crushed Stone should be provided below perimeter footings to protect subgrade soils during construction and to provide a drainage blanket for short and long-term underdrainage. Interior footings are anticipated to be founded on compacted Granular Borrow.

- Subgrades across the site will consist of sensitive clay, silt and silty sand. Earthwork and grading activities should occur during drier Summer and Fall seasons. Rubber tired construction equipment should not operate directly on foundation bearing surfaces. Excavation of bearing surfaces should be completed with a smooth-edged bucket to lessen subgrade disturbance.

- Imported Granular Borrow, Structural Fill, and Crushed Stone will be needed for construction. The existing fill and native soils are unsuitable for reuse below building or paved areas, but may be suitable for reuse in landscape areas.

4.2 Site and Subgrade Preparation

We recommend that site preparation begin with the construction of an erosion control system to protect adjacent drainage ways and areas outside the construction limits. As much vegetation as possible should remain outside the construction areas to lessen the potential for erosion and site disturbance. All forest duff, topsoil, and organics should be completely removed from areas of proposed construction. Uncontrolled fills must be removed from beneath the proposed building area. Final cuts to subgrade elevation should be made with a smooth-edge bucket to lessen subgrade disturbance. We offer the following recommendations for site and subgrade preparation in building and paved areas.

4.2.1 Building Area

We understand site preparation will begin with demolition of the existing building. Demolition must be performed in a careful, controlled manner to minimize disturbance to bearing soils. We recommend leaving the existing lowest level basement slabs and basement level footings (beneath church and boiler room areas) in place to preclude disturbing the underlying sensitive clay.

As discussed, uncontrolled fill on the order of to 5 to 8 feet was encountered at the test borings performed in the proposed building area. It appears that the uncontrolled fill is thickest within the backfill zone of the existing church basement area and in the northerly portion of the site, approaching Congress Street. All uncontrolled fill and disturbed soil

must be removed from beneath the proposed building footprint. Overexcavation of existing fill should extend 1-foot horizontally outward from edge of perimeter footings for every 1-foot of vertical depth below footing subgrade elevation (1H:1V bearing splay). We recommend that consideration be given to including removal of uncontrolled fills below the proposed building and backfilling with compacted Granular Borrow during the demolition phase of work. S.W.COLE should be engaged to observe demolition, overexcavation, subgrade preparation, backfilling and preparation of the building pad.

In order to reduce post-construction settlement, we recommend that all new fills needed to raise grade in the building area be placed prior to excavating for building foundations.

4.2.2 Paved Areas

We recommend proof-rolling and densifying existing uncontrolled fill in proposed paved areas with 3 to 5 passes of a 10 ton roller compactor. Areas that become soft or yielding after proof-rolling and areas of subgrade which contain organics should be overexcavated and replaced with Structural Fill. Construction documents should contain unit rate provisions for overexcavation and replacement of unsuitable soils in paved areas. We recommend that woven geotextile, such as Mirafi 600X or equivalent, be provided over pavement subgrades which consist of native silty clay.

4.3 Excavation and Dewatering

Excavation work will generally encounter uncontrolled fills and glaciomarine clays. Care must be exercised during construction to limit disturbance of the bearing soils. Earthwork and grading activities should occur during drier Summer and Fall seasons. Rubber tired construction equipment should not operate directly on the native clays. Final cuts to subgrade in clayey soils should be performed with a smooth-edged bucket to help reduce soil disturbance.

Sumping and pumping dewatering techniques should be adequate to control groundwater in excavations. Controlling the water levels to about one foot below planned excavation depths will help stabilize subgrades during construction. Excavations must be properly shored or sloped in accordance with OSHA trenching regulations to prevent sloughing and caving of the sidewalls during construction. Excavations must not undermine adjacent utilities, structures, and paved areas, including the overexcavations approaching Congress Street. The design and planning of excavations, excavation support systems, and dewatering are the responsibility of the contractor.

4.4 Foundations

We recommend the proposed buildings be supported on spread footings founded on properly prepared subgrades. We recommend perimeter footings be founded on at least 6-inches of Crushed Stone fully wrapped in non-woven geotextile fabric; the subgrade elevation below perimeter footings should be constant for positive drainage to the underdrain pipe which will result in varying depth of Crushed Stone of 6 or more inches. Interior footings are anticipated to be founded on compacted Granular Borrow.

For spread footings bearing on properly prepared subgrades, we recommend the following geotechnical parameters for design consideration:

Geotechnical Parameters for Spread Footings and Walls	
Design Frost Depth	4.5 feet
Net Allowable Soil Bearing Pressure	2.5 ksf or less
Base Friction Factor	0.35
Total Unit Weight of Backfill	125 pcf
At-Rest Lateral Earth Pressure Coefficient	0.5
Internal Friction Angle of Backfill	30°
Seismic Soil Site Class	D (IBC 2009)

Based on our understanding of the proposed construction and the subsurface findings, we estimate that post-construction settlement may approach ¾ inch total and ¾ inch differential between the south side of the proposed building requiring tapered fills and north side requiring tapered cuts. These estimates assume that all fill needed to raise site grades in building and paved areas will be placed prior to excavating for foundations.

4.5 Foundation Drainage

We recommend an underdrain system be installed on the outside edge of the geotextile fabric wrapped Crushed Stone layer recommended below perimeter footings. The subgrade elevation below perimeter footings should be constant for positive drainage to the underdrain pipe which will result in a varying depth of crushed stone of 6 or more inches. The underdrain pipe should consist of 4-inch diameter, perforated SDR-35 foundation drain pipe with a positive gravity outlet protected from freezing, clogging and backflow. Surface grades should be sloped away from the building for positive drainage. General underdrain details are illustrated on Sheet 14.

4.6 Slab-On-Grade

On-grade floor slabs in heated areas may be designed using a subgrade reaction modulus of 100 pci (pounds per cubic inch) provided the slab is underlain by at least 12-inches of compacted Structural Fill placed over properly prepared subgrades. The structural engineer or concrete consultant must design steel reinforcing and joint spacing appropriate to slab thickness and function.

We recommend a sub-slab vapor retarder particularly in areas of the building where the concrete slab will be covered with an impermeable surface treatment or floor covering that may be sensitive to moisture vapors. The vapor retarder must have a permeance that is less than the floor cover or surface treatment that is applied to the slab. The vapor retarder must have sufficient durability to withstand direct contact with the sub-slab base material and construction activity. The vapor retarder material should be placed according to the manufacturer's recommended method, including the taping and lapping of all joints and wall connections. The architect and/or flooring consultant should select the vapor retarder products compatible with flooring and adhesive materials.

The floor slab should be appropriately cured using moisture retention methods after casting. Typical floor slab curing methods should be used for at least 7 days. The architect or flooring consultant should assign curing methods consistent with current applicable American Concrete Institute (ACI) procedures with consideration of curing method compatibility to proposed surface treatments, flooring and adhesive materials.

4.7 Entrance Slabs and Sidewalks

Entrance slabs and sidewalks adjacent to the building must be designed to reduce the effects of differential frost action between adjacent pavement, doorways, and entrances. We recommend that non-frost susceptible Structural Fill be provided to a depth of at least 4.5 feet below the top of entrance slabs. This thickness of Structural Fill should extend the full width of the entrance slab and outward at least 4.5 feet, thereafter transitioning up to the bottom of the adjacent sidewalk or pavement gravels at a 3H:1V or flatter slope. General details of this frost transition zone are attached as Sheet 14.

4.8 Backfill and Compaction

The on-site soils are unsuitable for reuse in building and paved areas, but may be reused in landscape areas. For building and paved areas, we recommend the following fill and backfill materials:

Granular Borrow: Sand or silty sand meeting the requirements of MaineDOT Standard Specification 703.19 Granular Borrow. Granular Borrow is recommended for use as:

- Fill to raise grades over dry subgrades and during non-freezing conditions
- Backfill of overexcavations and for backfilling the existing basement area in dry and non-freezing conditions
- Backfill of interior footings not exposed to freezing

Structural Fill: Clean, non-frost susceptible sand and gravel meeting the gradation requirements for Structural Fill as given below.

Structural Fill	
Sieve Size	**Percent Finer by Weight**
4 inch	100
3 inch	90 to 100
¼ inch	25 to 90
#40	0 to 30
#200	0 to 5

Structural Fill is recommended for use as:

- Fill and to raise grades over wet subgrades and during cold weather conditions
- Backfill for overexcavations and for backfilling the existing basement area in wet or cold weather conditions
- Backfill against foundations exposed to freezing
- Backfill within frost transition zones below entrances and sidewalks

Crushed Stone: Crushed Stone, used beneath foundations and for underdrain aggregate should meet the requirements of MaineDOT Standard Specifications 703.22 “Underdrain Backfill Type C”.

Reuse of Site Soils: The existing uncontrolled fills consist of clays, silts, and sands with varying portions of gravel and organics. The native site soils consist of glaciomarine silty clays. These existing site soils are unsuitable for reuse below new building and pavement, but may be reused in landscape areas.

Placement and Compaction: Fill should be placed in horizontal lifts and compacted such that the desired density is achieved throughout the lift thickness with 3 to 5 passes of the compaction equipment. Loose lift thicknesses for grading, fill and backfill activities should not exceed 12 inches. We recommend that fill and backfill in building and paved areas be compacted to at least 95 percent of its maximum dry density as determined by ASTM D-1557. Crushed Stone should be compacted with 3 to 5 passes of a vibratory plate compactor having a static weight of at least 600 pounds.

4.9 Weather Considerations

Construction activity should be limited during wet and freezing weather and the site soils may require drying before construction activities may continue. The contractor should anticipate the need for water to temper fills in order to facilitate compaction during dry weather. If construction takes place during cold weather, subgrades, foundations and floor slabs must be protected during freezing conditions. Concrete and fill must not be placed on frozen soil; and once placed, the concrete and soil beneath the structure must be protected from freezing.

4.10 Paved Areas

We anticipate paved areas will be subjected primarily to passenger vehicle and light delivery truck traffic. Considering the site soils and proposed usage, we offer the following pavement section for consideration. Materials are based on Maine Department of Transportation Standard Specifications.

Flexible Pavement Section	
Layer	**Thickness**
9.5 mm Hot Mix Asphalt (50 Gyration Design)	1 ¼ inches
19.0 mm Hot Mix Asphalt (50 Gyration Design)	2 ¼ inches
MaineDOT 703.06 Type A, Crushed Aggregate Base	3 inches
Maine DOT 703.06 Type D, Crushed Aggregate Subbase	15 inches
Woven Geotextile Fabric, Mirafi 600X on Native Clay Subgrades	

The base and subbase materials should be compacted to at least 95 percent of their maximum dry density as determined by ASTM D-1557. Hot mix asphalt pavement should be compacted to 92 to 97 percent of its theoretical maximum density as determined by ASTM D-2041. A tack coat should be used between successive lifts of bituminous pavement.

It should be understood that frost penetration can be on the order of 4.5 feet in this area. In the absence of full depth excavation of frost susceptible soils below paved areas and subsequent replacement with non-frost susceptible compacted fill, frost penetration into the subgrade will occur and some heaving and distress of pavement must be anticipated. To help mitigate frost related damage, we recommend pavement gravels be daylighted to sideslopes and foundation wall backfill for positive drainage relief.

4.11 Design Review and Construction Testing

S.W.COLE should be retained to review the civil and foundation construction documents to determine that our earthwork, foundation and pavement recommendations have been properly interpreted and implemented.

S.W.COLE should be on-site during demolition of the existing basement and foundations and during overexcavation and backfill of existing uncontrolled fills.

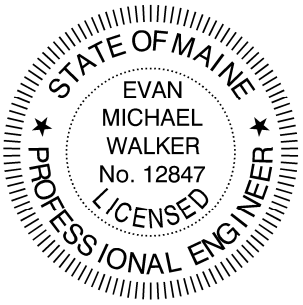
A soils and concrete testing program should be implemented during construction to observe compliance with the design concepts, plans, and specifications. S.W.COLE is available to provide subgrade observations for foundations as well as testing services for soils, concrete, asphalt, steel and spray-applied fireproofing construction materials.

5.0 CLOSURE

It has been a pleasure to be of assistance to you with this phase of your project. We look forward to working with you during the construction phase of the project.

Sincerely,

S. W. Cole Engineering, Inc.



Evan M. Walker, P.E.
Geotechnical Engineer

EMW:pfk/tjb

C: James Fortin, P.E. - Harriman

Attachment A
Limitations

This report has been prepared for the exclusive use of Jewish Community Alliance for specific application to the proposed Community Building at 1342 Congress Street in Portland, Maine. S. W. Cole Engineering, Inc. (S.W.COLE) has endeavored to conduct the work in accordance with generally accepted soil and foundation engineering practices. No warranty, expressed or implied, is made.

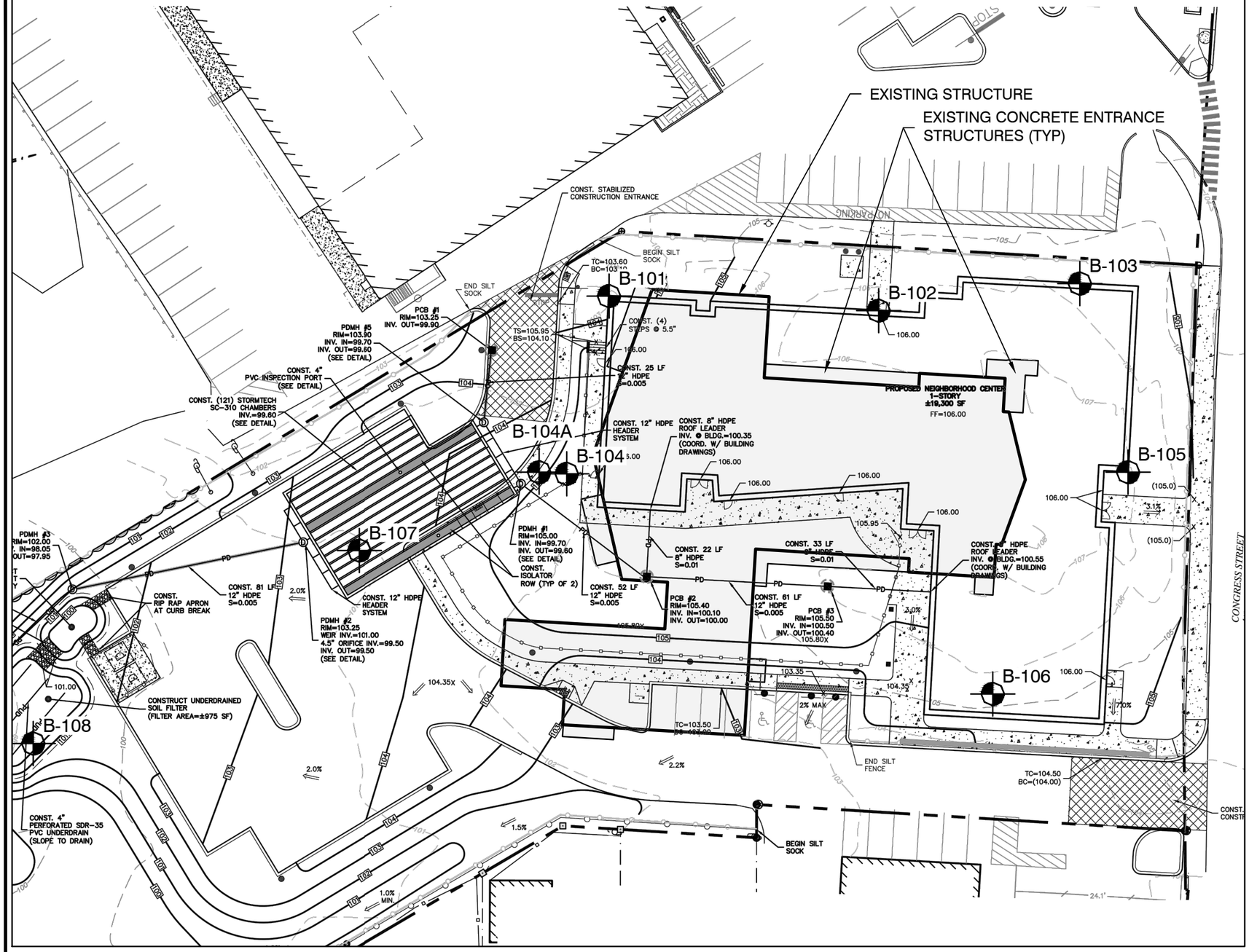
The soil profiles described in the report are intended to convey general trends in subsurface conditions. The boundaries between strata are approximate and are based upon interpretation of exploration data and samples.

The analyses performed during this investigation and recommendations presented in this report are based in part upon the data obtained from subsurface explorations made at the site. Variations in subsurface conditions may occur between explorations and may not become evident until construction. If variations in subsurface conditions become evident after submission of this report, it will be necessary to evaluate their nature and to review the recommendations of this report.

Observations have been made during exploration work to assess site groundwater levels. Fluctuations in water levels will occur due to variations in rainfall, temperature, and other factors.

S.W.COLE's scope of work has not included the investigation, detection, or prevention of any Biological Pollutants at the project site or in any existing or proposed structure at the site. The term "Biological Pollutants" includes, but is not limited to, molds, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms.

Recommendations contained in this report are based substantially upon information provided by others regarding the proposed project. In the event that any changes are made in the design, nature, or location of the proposed project, S.W.COLE should review such changes as they relate to analyses associated with this report. Recommendations contained in this report shall not be considered valid unless the changes are reviewed by S.W.COLE.



LEGEND:

APPROXIMATE BORING LOCATION

NOTES:

1. EXPLORATION LOCATION PLAN WAS PREPARED FROM A 1"=20' SCALE PLAN OF THE SITE ENTITLED "GRADING, DRAINAGE, AND EROSION CONTROL PLAN," PREPARED BY TIGHE & BOND CONSULTING ENGINEERS, DATED APRIL 03, 2015, REVISED JUNE 23, 2015 AND PROVIDED AS A PORTABLE DOCUMENT FORMAT (PDF) FILE.
2. EXISTING STRUCTURE INFORMATION TAKEN FROM A 1"=20' SCALE PLAN OF THE SITE ENTITLED "EXISTING CONDITIONS AND DEMOLITION PLAN," PREPARED BY TIGHE & BOND CONSULTING ENGINEERS, DATED APRIL 3, 2015, REVISED JUNE 23, 2015 AND PROVIDED AS A PORTABLE DOCUMENT FORMAT (PDF) FILE.
3. THE BORINGS WERE LOCATED IN THE FIELD BY TAPED MEASUREMENTS FROM EXISTING SITE FEATURES.
4. THIS PLAN SHOULD BE USED IN CONJUNCTION WITH THE ASSOCIATED S. W. COLE ENGINEERING, INC. GEOTECHNICAL REPORT.
5. THE PURPOSE OF THIS PLAN IS ONLY TO DEPICT THE LOCATION OF THE EXPLORATIONS IN RELATION TO THE EXISTING CONDITIONS AND PROPOSED CONSTRUCTION AND IS NOT TO BE USED FOR CONSTRUCTION.

0 40 80 Feet

S.W.COLE ENGINEERING, INC.

JEWISH COMMUNITY ALLIANCE

EXPLORATION LOCATION PLAN

PROPOSED COMMUNITY BUILDING
1342 CONGRESS STREET
PORTLAND, MAINE

Job No.:	15-0668	Scale:	1" = 40'
Date :	09/18/2015	Sheet:	1

R:\2015\15-0668\CAD\Drawings\15-0668 ELP.dwg, 9/18/2015 11:28:38 AM, 1:1, CEM, S. W. Cole Engineering, Inc.

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-101**
SHEET: 1 OF 1
PROJECT NO.: 15-0668

PROJECT: PROPOSED COMMUNITY BUILDING
CLIENT : JEWISH COMMUNITY ALLIANCE
LOCATION: 1342 CONGRESS STREET, PORTLAND, MAINE
DRILLING FIRM: S.W. COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 8/20/2015
DATE FINISH: 8/20/2015
ELEVATION: 103' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS DAMP BELOW 5', MOIST BELOW 10',
SATURATED BELOW 15' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
	1D	24"	20"	2.0'	3	7	8	8	5.0'	BROWN SILTY SAND, SOME GRAVEL WITH ORGANICS AND TRACE ASPHALT (FILL) ~ MEDIUM DENSE ~
	2D	24"	20"	7.0'	6	9	11	11		~ HARD TO VERY STIFF ~ q_p =8 - 9 KSF BROWN SILTY CLAY, SOME SAND WITH OCCASIONAL FINE SAND SEAMS
	3D	24"	22"	12.0'	3	4	4	5	13.0'	~ STIFF ~ q_p = 3 - 4 KSF
	4D	24"	24"	17.0'	2	1-12"		2		GRAY SILTY CLAY WITH FREQUENT FINE SAND SEAMS ~ MEDIUM ~
	5D	24"	24"	22.0'	WOH-12"		1	2	21.9'	
	6D	3"	3"	25.3'	50-3"				25.2'	GRAY SILTY GRAVEL AND SAND (GLACIAL TILL) ~ MEDIUM DENSE ~
										REFUSAL @ 25.2' PROBABLE BOULDER OR BEDROCK

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-101**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-102**
SHEET: 1 OF 1
PROJECT NO.: 15-0668

PROJECT: PROPOSED COMMUNITY BUILDING
CLIENT : JEWISH COMMUNITY ALLIANCE
LOCATION: 1342 CONGRESS STREET, PORTLAND, MAINE
DRILLING FIRM: S.W. COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 8/20/2015
DATE FINISH: 8/20/2015
ELEVATION: 106' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS DAMP BELOW 2', MOIST BELOW 10',
SATURATED BELOW 13' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.5'	VEGETATION / DARK BROWN CLAYEY SILT SAND WITH ORGANICS
	1D	24"	14"	2.0'	2	4	4	5		BROWN TO DARK GRAY-BROWN SANDY SILTY CLAY WITH TRACE BRICK, ASH, AND ORGANICS (FILL)
	2D	24"	22"	4.0'	5	8	8	7	5.0'	~ STIFF / MEDIUM DENSE ~
									5.5'	GRAY-BROWN MOTTLED SILTY CLAY, TRACE SAND (APPEARS DISTURBED)
	3D	24"	22"	7.0'	4	5	8	10		~ HARD ~ q_p =8 - 9 KSF BROWN SILTY CLAY WITH OCCASIONAL SAND SEAMS
	4D	24"	24"	12.0'	4	5	6	7	13.0'	~ VERY STIFF ~ q_p = 6 KSF
	5D	24"	24"	17.0'	1-12"		2	2		GRAY SILTY CLAY WITH OCCASIONAL SAND SEAMS ~ MEDIUM ~
	6D	24"	24"	22.0'	4	9	8	9	18.0'	GRAY GRAVELLY SILTY SAND (GLACIAL TILL) ~ MEDIUM DENSE ~
	7D	15"	10"	26.3'	4	5	50-3"		26.3'	SAMPLER REFUSAL @ 26.3' PROBABLE BOULDER OR BEDROCK

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-102**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-103**
SHEET: 1 OF 1
PROJECT NO.: 15-0668

PROJECT: PROPOSED COMMUNITY BUILDING
CLIENT : JEWISH COMMUNITY ALLIANCE
LOCATION: 1342 CONGRESS STREET, PORTLAND, MAINE
DRILLING FIRM: S.W. COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 8/20/2015
DATE FINISH: 8/20/2015
ELEVATION: 105.5' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS MOIST BELOW 10'
SOILS SATURATED BELOW 14' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
										VEGETATION / DARK BROWN SILTY SAND WITH ORGANICS
	1D	24"	18"	2.0'	2	3	6	7	2.0'	
	2D	24"	14"	4.0'	7	7	7	8		BROWN TO ORANGE-BROWN SILTY SAND, SOME GRAVEL,
									5.0'	WITH TRACE ORGANICS (FILL) ~ MEDIUM DENSE ~
	3D	24"	24"	7.0'	5	7	10	12		BROWN WITH ORANGE-BROWN MOTTLING q_p = 9 KSF
										SILTY CLAY, SOME FINE SAND…
										~ HARD ~
	4D	24"	24"	12.0'	4	5	7	6		…BECOMES BROWN SILTY CLAY
										q_p = 4 -5 KSF
										~ VERY STIFF ~
									14.0'	
	5D	24"	24"	17.0'	WOH	2	1	4		GRAY SILTY CLAY WITH FREQUENT FINE SAND SEAMS AND LAYERS
										~ MEDIUM ~
	6D	24"	24"	22.0'	WOH	1-12"		1		
									24.1'	
	7D	3"	3"	25.3'	50-3"				25.2'	GRAY GRAVELLY SILTY SAND (GLACIAL TILL)
									25.3'	WEATHERED BEDROCK
										SAMPLER REFUSAL @ 25.3'
										PROBABLE BEDROCK

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-103**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-104**
SHEET: 1 OF 1
PROJECT NO.: 15-0668

PROJECT: PROPOSED COMMUNITY BUILDING
CLIENT : JEWISH COMMUNITY ALLIANCE
LOCATION: 1342 CONGRESS STREET, PORTLAND, MAINE
DRILLING FIRM: S.W. COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 8/20/2015
DATE FINISH: 8/20/2015
ELEVATION: 101.5' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS DAMP BELOW 2', WET BELOW 5',
SATURATED BELOW 11' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.8'	VEGETATION / DARK BROWN CLAYEY SILTY SAND WITH ORGANICS (TOPSOIL)
	1D	24"	18"	2.0'	3	7	8	9		BROWN SILTY CLAY, SOME SAND, TRACE GRAVEL, TRACE ORGANICS (FILL)
	2D	24"	16"	4.0'	8	11	14	11		~ LOOSE TO MEDIUM DENSE ~
	3D	24"	16"	7.0'	2	2	3	7	8' +/-	
	4D	24"	22"	12.0'	2	1	2	2	14.0'	~ STIFF ~ GRAY-BROWN SILTY CLAY WITH FREQUENT FINE SAND SEAMS w = 40.1% ~ MEDIUM ~ q_p = 0.5 - 1 KSF
	5D	24"	24"	17.0'	WOH - 18"			2		w = 41.7% GRAY SILTY CLAY WITH FREQUENT FINE SAND SEAMS ~ MEDIUM ~
	6D	24"	24"	22.0'	WOH - 12"		1	1	23.0'	w = 35.5%
	7D	24"	10"	27.0'	25	7	7	6	27.0'	GRAY SILTY GRAVEL AND SAND (GLACIAL TILL) ~ MEDIUM DENSE ~
										BOTTOM OF EXPLORATION @ 27.0'

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-104**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-104A**
SHEET: 1 OF 1
PROJECT NO.: 15-0668

PROJECT: PROPOSED COMMUNITY BUILDING
CLIENT : JEWISH COMMUNITY ALLIANCE
LOCATION: 1342 CONGRESS STREET, PORTLAND, MAINE
DRILLING FIRM: S.W. COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 8/21/2015
DATE FINISH: 8/21/2015
ELEVATION: 101.5' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	HYD. PUSH	
SAMPLER:				
CORE BARREL:				

WATER LEVEL INFORMATION
SEE BORING B-104

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
										DRILL TO 15' - NO SAMPLING SEE BORING B-104 FOR APPROXIMATE STRATA
									15.0'	
										w = 41.2%, W_L = 38, W_P = 20
	1C	24"	24"	17.0'	HYDRAULIC PUSH					GRAY SILTY CLAY WITH OCCASIONAL FINE SAND SEAMS
	1V			17.8'	3 5/8" X 7" VANE					S_v = 0.89 KSF / 0.12 KSF ~ MEDIUM ~
	1V'			18.6'	3 5/8" X 7" VANE				18.6'	S_v > 1.24 KSF (NO ROTATION - PROBABLE SAND LAYER)
										BOTTOM OF EXPLORATION @ 18.6'

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-104A**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-105**
SHEET: 1 OF 1
PROJECT NO.: 15-0668

PROJECT: PROPOSED COMMUNITY BUILDING
CLIENT : JEWISH COMMUNITY ALLIANCE
LOCATION: 1342 CONGRESS STREET, PORTLAND, MAINE
DRILLING FIRM: S.W. COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 8/20/2015
DATE FINISH: 8/20/2015
ELEVATION: 107' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS MOIST BELOW 6', WET BELOW 15'
SATURATED BELOW 16' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.5'	VEGETATION / DARK BROWN SILTY SAND WITH ORGANICS
	1D	24"	18"	2.0'	4	4	6	5		BROWN SILTY SAND, SOME CLAY, SOME GRAVEL (FILL)
									3.0'	~ MEDIUM DENSE ~
	2D	18"	14"	3.5'	6	32	50			ORANGE-BROWN SAND AND GRAVEL, SOME SILT (FILL)
									5.0'	~ DENSE ~
	3D	24"	16"	7.0'	20	19	13	13		BROWN TO GRAY-BROWN GRAVELLY SILTY SAND, SOME CLAY (FILL)
									8.0'	~ DENSE ~
										BROWN SILTY CLAY
	4D	24"	24"	12.0'	5	7	7	9		~ VERY STIFF ~ q_p = 7-8 KSF
									15.0'	
										GRAY-BROWN SILTY CLAY WITH FREQUENT FINE SAND SEAMS AND LAYERS
	5D	24"	22"	17.0'	3	3	3	2	16.5'	~ MEDIUM ~ q_p = 0.5 - 1.5 KSF
										GRAY SILTY CLAY WITH FREQUENT FINE SAND SEAMS
	6D	24"	24"	22.0'	WOH - 12"		1	1		~ MEDIUM ~
									23.1'	
										GRAY GRAVELLY SILTY SAND (GLACIAL TILL)
	7D	3"	3"	25.3'	50-3"				25.3'	~ MEDIUM DENSE ~
										SAMPLER REFUSAL @ 25.3'
										PROBABLE BEDROCK

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-105**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-106**
SHEET: 1 OF 1
PROJECT NO.: 15-0668

PROJECT: PROPOSED COMMUNITY BUILDING
CLIENT : JEWISH COMMUNITY ALLIANCE
LOCATION: 1342 CONGRESS STREET, PORTLAND, MAINE
DRILLING FIRM: S.W. COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 8/20/2015
DATE FINISH: 8/20/2015
ELEVATION: 105' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"	HYD. PUSH	
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS DAMP BELOW 2', MOIST BELOW 10',
SATURATED BELOW 15' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.5'	VEGETATION / DARK BROWN SILTY CLAYEY SAND WITH ORGANICS
	1D	24"	18"	2.0'	3	5	7	9		
										GRAY-BROWN SILTY CLAY, SOME SAND, TRACE GRAVEL (FILL)
	2D	24"	18"	4.0'	7	9	11	12	3.5'	~ STIFF ~
										BROWN SILTY CLAY (DISTURBED / REWORKED)
									5.5'	~ STIFF ~
	3D	24"	16"	7.0'	5	6	10	10		w = 22.2% q_p = 9 KSF
										BROWN MOTTLED SILTY CLAY, SOME FINE SAND
										~ HARD TO VERY STIFF ~
									10.0'	
										w = 28.9%
	4D	24"	22"	12.0'	4	6	6	7		GRAY-BROWN SILTY CLAY q_p = 4.5 - 5.5 KSF
										~ VERY STIFF ~
										~ MEDIUM ~
	5D	24"	24"	17.0'	2	1	1	2	16.5'	w = 32.8%
										GRAY SILTY CLAY
										~ MEDIUM ~
	1C	24"	24"	21.0'	HYD. PUSH					w = 43.2%, W_L = 30, W_P = 17
	1V			21.8'	3 5/8" X 7" VANE				22.0'	S_v > 1.14 KSF (NO ROTATION -SAND LAYER / BOTTOM OF CLAY STRATUM)
										REFUSAL @ 22.0'
										PROBABLE BEDROCK

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-106**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-107**
SHEET: 1 OF 1
PROJECT NO.: 15-0668

PROJECT: PROPOSED COMMUNITY BUILDING
CLIENT : JEWISH COMMUNITY ALLIANCE
LOCATION: 1342 CONGRESS STREET, PORTLAND, MAINE
DRILLING FIRM: S.W. COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 8/20/2015
DATE FINISH: 8/20/2015
ELEVATION: 101' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
ALL SOILS MOIST

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.4'	VEGETATION / DARK BROWN CLAYEY SILTY SAND WITH ORGANICS
	1D	24"	16"	2.0'	1	2	3	5	1.0'	BROWN CLAYEY SILT AND WITH ORGANICS (FILL)
	2D	24"	18"	4.0'	6	8	10	12		q_p = 6.5-7 KSF
										BROWN SILTY CLAY
	3D	24"	22"	7.0'	5	6	8	9		~ VERY STIFF ~ q_p = 6.5 KSF
	4D	24"	24"	12.0'	2	2	2	2	12.0'	~ STIFF ~ q_p = 2.5 KSF
										BOTTOM OF EXPLORATION @ 12.0'

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-107**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-108**
SHEET: 1 OF 1
PROJECT NO.: 15-0668

PROJECT: PROPOSED COMMUNITY BUILDING
CLIENT : JEWISH COMMUNITY ALLIANCE
LOCATION: 1342 CONGRESS STREET, PORTLAND, MAINE
DRILLING FIRM: S.W. COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 8/20/2015
DATE FINISH: 8/20/2015
ELEVATION: 100' +/-
SWC REP.: E. WALKER

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HSA	2 1/4"		
SAMPLER:	SS	1 3/8"	140 LBS.	30"
CORE BARREL:				

WATER LEVEL INFORMATION
SOILS MOIST AT GROUND SURFACE
SOILS WET BELOW 5' +/-

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.8'	VEGETATION / DARK BROWN CLAYEY SILTY SAND WITH ORGANICS
	1D	24"	18"	2.0'	2	1	3	5		q_p = 7 KSF
										BROWN SILTY CLAY, TRACE FINE SAND
	2D	24"	20"	7.0'	5	6	7	10		~ VERY STIFF ~ q_p = 7 KSF
									10.0'	
										GRAY-BROWN SILTY CLAY
	3D	24"	22"	12.0'	2	2	2	3	12.0'	~ STIFF ~ q_p = 3 - 3.5 KSF
										BOTTOM OF EXPLORATION @ 12.0'

SAMPLES:
D = SPLIT SPOON
C = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-108**

KEY TO THE NOTES & SYMBOLS
Test Boring and Test Pit Explorations

All stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q_u	-	unconfined compressive strength, kips/sq. ft. - laboratory test
S_v	-	field vane shear strength, kips/sq. ft.
L_v	-	lab vane shear strength, kips/sq. ft.
q_p	-	unconfined compressive strength, kips/sq. ft. – pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W_L	-	liquid limit - Atterberg test
W_P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass.
γ_T	-	total soil weight
γ_B	-	buoyant soil weight

Description of Proportions:

Trace:	0 to 5%
Some:	5 to 12%
"Y"	12 to 35%
And	35+%

Description of Stratified Soils

Parting:	0 to 1/16" thickness
Seam:	1/16" to ½" thickness
Layer:	½" to 12" thickness
Varved:	Alternating seams or layers
Occasional:	one or less per foot of thickness
Frequent:	more than one per foot of thickness

REFUSAL: **Test Boring Explorations** - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: **Test Pit Explorations** - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.

S.W.COLE ENGINEERING, INC.

Consolidation Test

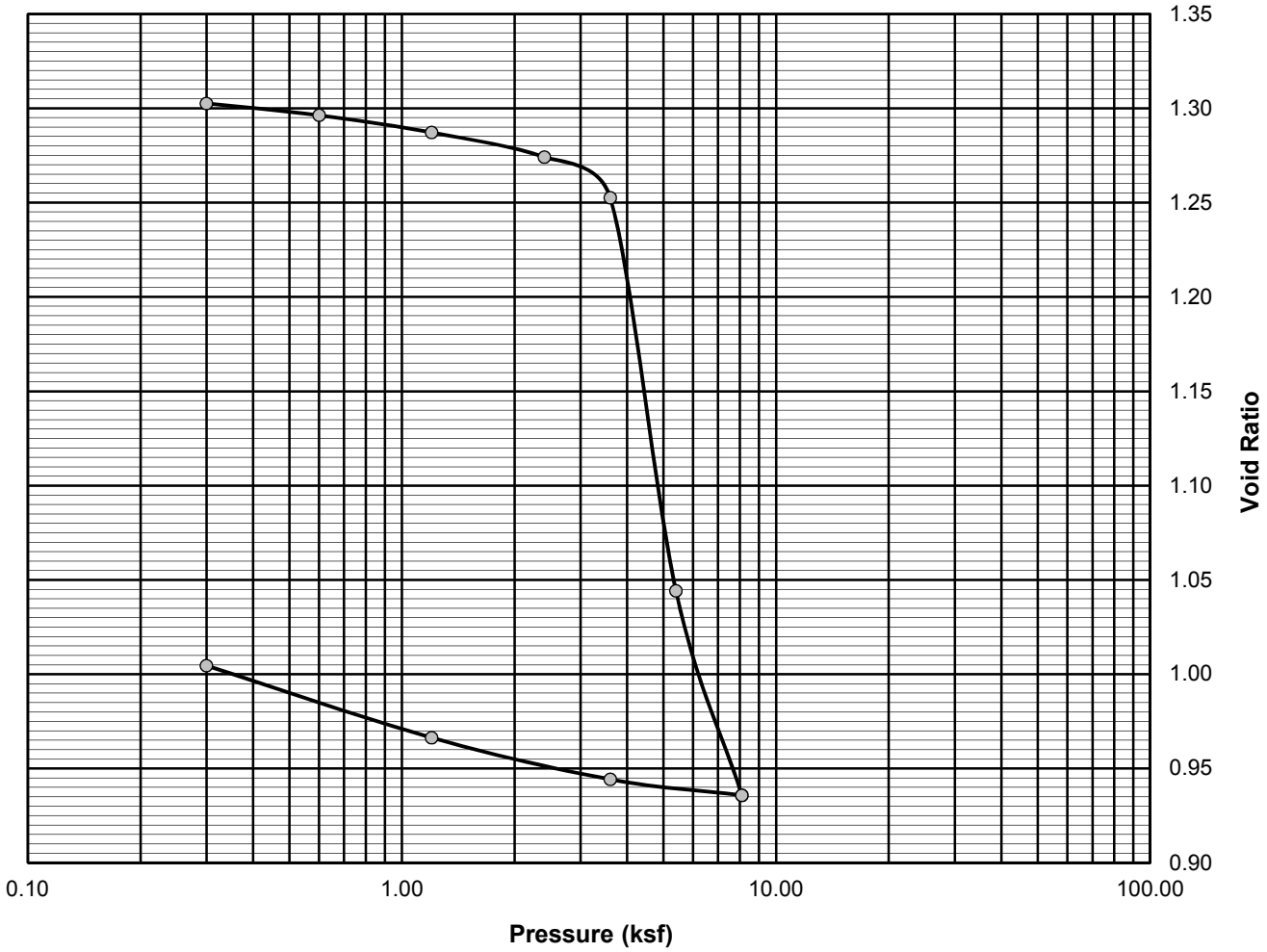
ASTM D-4767

Project Name: 1342 Congress Street Building
Client: The Jewish Community Alliance of Southern Maine

Project Number: 15-0668
Lab ID: 18818B
Date: 8/21/2015

Boring: B-104A
Sample: 1C
Depth: 15-17'

P_C =	3.6 KSF
C_C =	1.18
C_R =	0.03
w =	41.2%
W_L =	38
W_P =	20



Comments:

EMW
Reviewed By

S.W.COLE ENGINEERING, INC.

Consolidation Test

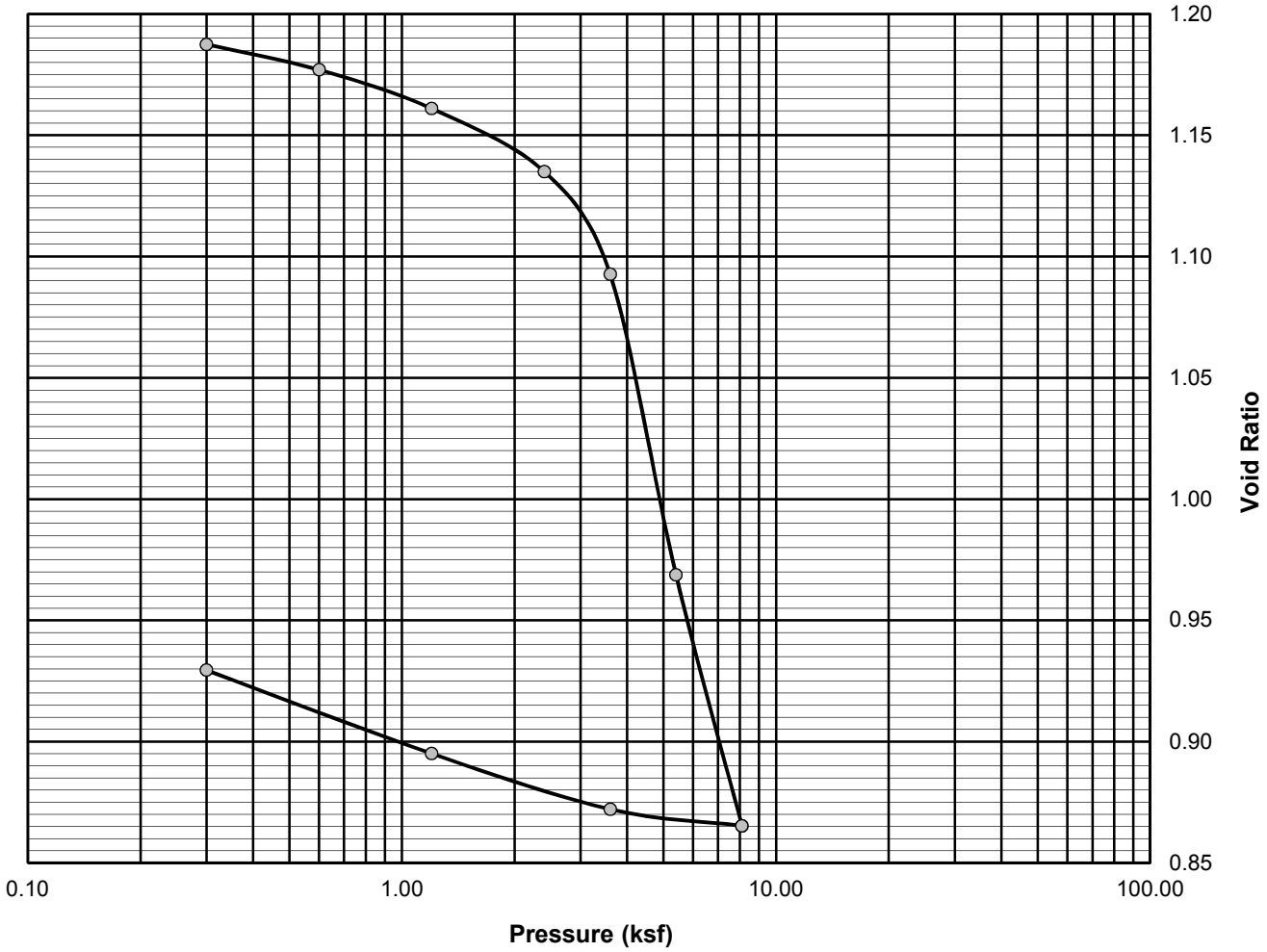
ASTM D-4767

Project Name: 1342 Congress Street Building
Client: The Jewish Community Alliance of Southern Maine

Project Number: 15-0668
Lab ID: 18819B
Date: 8/21/2015

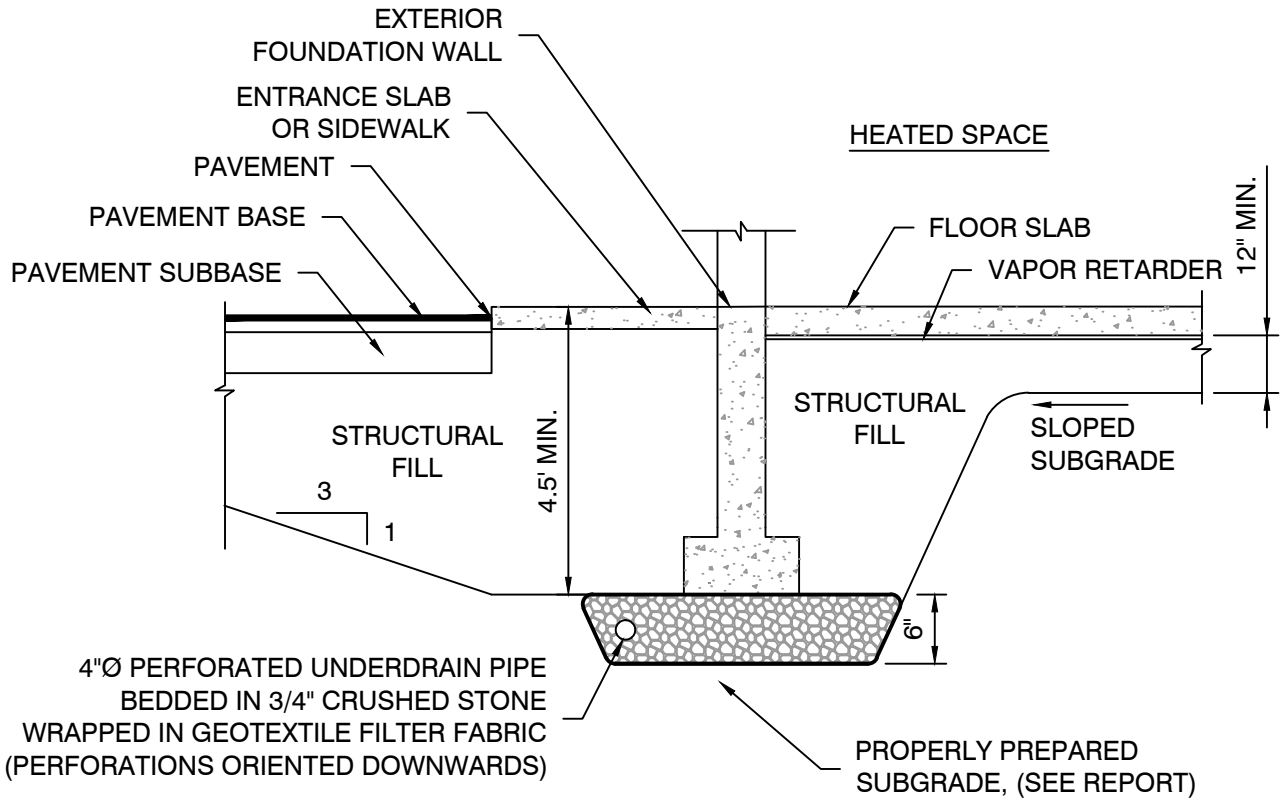
Boring: B-106
Sample: 1C
Depth: 19-21'

P_C =	3.6 KSF
C_C =	0.71
C_R =	0.03
w =	43.2%
W_L =	30
W_P =	17



Comments:

EMW
Reviewed By



NOTE:

1. UNDERDRAIN INSTALLATION AND MATERIAL GRADATION RECOMMENDATIONS ARE CONTAINED WITHIN THIS REPORT.

2. DETAIL IS PROVIDED FOR ILLUSTRATIVE PURPOSES ONLY, NOT FOR CONSTRUCTION.

S.W.COLE ENGINEERING, INC.

JEWISH COMMUNITY ALLIANCE

UNDERDRAIN DETAIL

PROPOSED COMMUNITY BUILDING
1342 CONGRESS STREET
PORTLAND, MAINE

Job No.:	15-0668	Scale:	Not to Scale
Date :	09/18/2015	Sheet:	14

APPENDIX A

HISTORICAL SUBSURFACE DATA

BORING #1

GROUND SURFACE ELEV. 48.33

0'0"	LOOSE LOAMY SAND	7
4'0"	VERY STIFF YELLOW CLAY	20
13'0"	SOFT BLUE CLAY & INORGANIC SILT	4
19'6"	SOFT BLUE CLAY, SOME FINE SAND	6
22'6"	FIRM FINE SAND & GRAVEL	28
24'6"	REFUSAL	

WATER LEVEL 4'0" BELOW GROUND SURFACE

DATE: 6-25-62

BORING #2

GROUND SURFACE ELEV. 48.51

0'0"	FIRM LOAMY SAND, SOME GRAVEL	14
6'0"	VERY STIFF YELLOW CLAY	24
13'0"	FINE SAND & CLAY	8
17'0"	FINE SAND & CLAY, SOME INORGANIC SILT	6
22'0"	FIRM FINE SAND & GRAVEL, SOME INORGANIC SILT	24
26'0"	REFUSAL	

WATER LEVEL 5'0" BELOW GROUND SURFACE

DATE: 6-20-62

BORING #3

GROUND SURFACE ELEV. 48.03

0'0"	FIRM LOAMY SAND	10
3'6"	VERY STIFF YELLOW CLAY	21
13'0"	SOFT BLUE CLAY & INORGANIC SILT	3
20'6"	MEDIUM BLUE CLAY, SOME FINE SAND	7
22'0"	HARD FINE SAND & GRAVEL	31
24'6"	REFUSAL	

WATER LEVEL 4'6" BELOW GROUND SURFACE

DATE: 6-26-62

BORING #4

GROUND SURFACE ELEV. 46.81

0'0"	LOOSE LOAMY SAND	7
2'6"	VERY STIFF YELLOW CLAY	19
12'6"	SOFT BLUE CLAY & INORGANIC SILT	4
15'0"	SOFT BLUE CLAY, SOME INORGANIC SILT	3
20'0"	FIRM FINE SAND & GRAVEL	25
23'0"	REFUSAL	

WATER LEVEL 5'0" BELOW GROUD SURFACE

DATE: 6-26-62

BORING #5

GROUND SURFACE ELEV. 46.26

0'0"	LOOSE LOAMY SAND	7
2'6"	VERY STIFF YELLOW CLAY	19
13'0"	SOFT BLUE CLAY, SOME FINE SAND, TRACE OF INORGANIC SILT	5
20'0"	FIRM FINE SAND & GRAVEL	26
21'6"	REFUSAL	

WATER LEVEL 5'6" BELOW GROUND SURFACE

DATE: 6-25-62

BORING #6

GROUND SURFACE ELEV. 45.87

0'0"	FIRM LOAMY SAND, SOME GRAVEL	9
3'0"	VERY STIFF YELLOW CLAY	22
9'0"	FIRM FINE SAND & CLAY	15
14'0"	MEDIUM BLUE CLAY, SOME FINE SAND	7
16'0"	SOFT BLUE CLAY, SOME FINE SAND & INORGANIC SILT	3
20'0"	HARD FINE SAND & GRAVEL	32
26'0"	REFUSAL	

WATER LEVEL 5'0" BELOW GROUND SURFACE

DATE: 6-20-62

BORING #7

GROUND SURFACE ELEV. 45.17

0'0"	LOOSE LOAMY SAND, SOME GRAVEL	8
2'6"	VERY STIFF YELLOW CLAY	16
13'0"	SOFT BLUE CLAY & INORGANIC SILT, TRACE OF FINE SAND	5
19'0"	SOFT BLUE CLAY	5
24'0"	FIRM FINE SAND & GRAVEL	28
29'0"		

WATER LEVEL 3'0" BELOW GROUND SURFACE

DATE: 6-21-62

BORING #13

GROUND SURFACE ELEV. 45.36

0'0"	FIRM LOAMY SAND	11
2'6"	VERY STIFF YELLOW CLAY	18
11'0"	SOFT BLUE CLAY & INORGANIC SILT, TRACE OF FINE SAND	4
25'0"	FIRM FINE SAND & GRAVEL	26
28'0"	REFUSAL	

WATER LEVEL 3'0" BELOW GROUND SURFACE

DATE: 6-22-62

BORING #14

GROUND SURFACE ELEV. 46.13

0'0"	LOOSE LOAMY SAND	7
2'6"	VERY STIFF YELLOW CLAY	18
10'0"	SOFT BLUE CLAY, SOME INORGANIC SILT	5
13'0"	SOFT BLUE CLAY, SOME INORGANIC SILT	3
22'6"	HARD FINE SAND & GRAVEL	34
26'6"	REFUSAL	

WATER LEVEL 2'6" BELOW GROUND SURFACE

DATE: 6-22-62

BORING #15

GROUND SURFACE ELEV. 47.63

0'0"	LOOSE LOAMY SAND	6
2'6"	VERY STIFF YELLOW CLAY	18
12'6"	SOFT BLUE CLAY, SOME INORGANIC SILT, TRACE OF FINE SAND	4
21'0"	FIRM FINE SAND & GRAVEL	22
25'0"	REFUSAL	

WATER LEVEL 3'0" BELOW GROUND SURFACE

DATE: 6-26-62

BORING #16

GROUND SURFACE ELEV. 47.68

0'0"	LOOSE LOAMY SAND	8
3'6"	VERY STIFF YELLOW CLAY	18
14'0"	SOFT BLUE CLAY, SOME INORGANIC SILT	3
19'0"	SOFT BLUE CLAY, SOME INORGANIC SILT, TRACE OF FINE SAND	4
21'0"	FIRM FINE SAND & GRAVEL	23
24'0"	REFUSAL	

WATER LEVEL 3'6" BELOW GROUND SURFACE

DATE: 6-25-62

Appendix B

CITY OF PORTLAND, MAINE
PLANNING BOARD

July 20th, 2015

Steve Brinn
Jewish Community Alliance of Southern Maine
57 Ashmont Street
Portland ME 04103

Bradlee Mezquita, PE
Tighe & Bond
177 Corporate Drive
Portsmouth, NH 03801

Project Name: Jewish Community Center and Preschool/Daycare
Conditional Use and Level III Site Plan
Project #: #2015-058 (Conditional Use and Site Plan)
Address: 1342 Congress Street, Portland
CBL: 191-B016 & 017
Applicant: Jewish Community Alliance of Southern Maine
Planner: Jean Fraser

Dear Mr. Brinn and Mr Mezquita:

On July 14th, 2015, the Planning Board considered the Conditional Use and Site Plan application for the construction of a neighborhood center (defined as a "Place of Assembly") and preschool/daycare on the site of the existing St. Patrick's Catholic Church at 1342 Congress Street. The project includes demolition of the existing church (14,960 sq. ft.) and construction of a single story 19,300 sq ft building on a site of 91,126 sq feet. The Planning Board reviewed the proposal for conformance with the standards of the Conditional Use Review and Site Plan Ordinance, and approved the application with the following waivers and conditions as presented below.

A. WAIVERS

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board report for the public hearing on July 14, 2015 for application #2015-058 (Conditional Use and Site Plan) (1342 Congress Street) relevant to Portland's Technical and Design Standards and other regulations; and the testimony presented at the Planning Board hearing:

1. ***Driveway width:***
   The Planning Board voted 6-0 (Morrissette absent) to waive Technical Design Standard Section *1.7.1.3* to allow the proposed driveway to be 22.7 feet wide for one section near Congress Street as shown on the Site Plan in Plan P6;

2. ***Soil survey***
   The Planning Board voted 6-0 (Morrissette absent) to waive Technical Design Standard Section 7 *Soil Survey Standards* that require a soil survey as the applicant has previously taken soil borings as part of an earlier environmental assessment.

B. CONDITIONAL USE

On the basis of the application, plans, reports and other information submitted by the applicant, findings and recommendations contained in the Planning Board Report for the public hearing on July 14, 2015 for application #2015-058 (Conditional Use and Site Plan) (1342 Congress Street), relevant to Portland's Conditional Use Standards and other regulations, and the testimony presented at the Planning Board hearing:

The Planning Board voted 6-0 (Morrissette absent) that the proposed conditional use for a place of assembly at 1342 Congress Street as described in the application does meet the standards of Section 14-474 and the standards of Section 14.118 (b) 3 for the R5 zone, without any conditions but granted for two years.

C. SITE PLAN

On the basis of the application, plans, reports and other information submitted by the applicant, findings and recommendations contained in Planning Board Report for the public hearing on July 14, 2015 for application #2015-058 (Conditional Use and Site Plan) (1342 Congress Street), relevant to the Site Plan Ordinance and other regulations and the testimony presented at the Planning Board hearing:

The Planning Board voted 6-0 (Morrissette absent) that the plan is in conformance with the site plan standards of the land use code, subject to the following conditions:

i. That the recorded easement with Charter Westgate, regarding use of the shared drive, shall be submitted to the Planning Authority prior to the issuance of a building permit; and

ii. That the Parking License (for use of the abutting dental offices lot) and the Drainage Improvements and Temporary Construction Easement (abutters to south) shall be executed and submitted to the Planning Authority prior to the issuance of a building permit; and

iii. That the applicant revise the curb ramp layout at Congress Street in accordance with the comments of Tom Errico dated June 26, 2015, with revised plans to be reviewed and approved by the Planning

iv. That the height of the boundary fence along the eastern boundary and associated buffer treatment be the subject of further discussion with the City Arborist, Planning Authority and nearest neighbor (P Bernard) and any agreed revisions be shown on a revised Site Plan/Landscape Plan for final approval prior to the issuance of a building permit; and

v. The developer/contractor/subcontractor must comply with conditions of the submitted and approved stormwater management plan and sediment and erosion control plan and associated inspection and maintenance manual, based on City standards and state guidelines. The owner/operator of the approved stormwater management system and all assigns shall comply with the conditions of Chapter 32 Stormwater including Article III, Post Construction Stormwater Management, which specifies the annual inspections and reporting requirements. The two maintenance agreements (one for the applicants site and one for the abutters site) for the stormwater drainage system shall be submitted, signed and recorded with a copy to the Planning Division and Department of Public Services prior to the issuance of a building permit; and

vi. That additional lighting information shall be submitted in respect of the widened drive access and building entrance nearest to Congress Street to show that the site lighting meets the City Technical Standards, and any deficiencies shall be addressed in a revised lighting plan for review and approval prior to the issuance of a building permit; and

vii. That all heating, ventilation and air conditioning shall be screened and located away from abutting residential properties.

STANDARD CONDITIONS OF APPROVAL

Please note the following standard conditions of approval and requirements for all approved site plans:

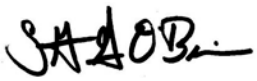
1. **Develop Site According to Plan** The site shall be developed and maintained as depicted on the site plan and in the written submission of the applicant. Modification of any approved site plan or alteration of a parcel which was the subject of site plan approval after May 20, 1974, shall require the prior approval of a revised site plan by the Planning Board or the Planning Authority pursuant to the terms of Chapter 14, Land Use, of the Portland City Code.
2. **Separate Building Permits Are Required** This approval does not constitute approval of building plans, which must be reviewed and approved by the City of Portland's Inspection Division.
3. **Site Plan Expiration** The site plan approval will be deemed to have expired unless work has commenced within one (1) year of the approval or within a time period up to three (3) years from the approval date as agreed upon in writing by the City and the applicant. Requests to extend site plan approval must be received before the one (1) year expiration date. The Conditional Use permit will be deemed to have expired unless work has commenced within two (2) years of the approval.

4. **Performance Guarantee and Inspection Fees** A performance guarantee covering the site improvements as well as an inspection fee payment of 2.0% of the guarantee amount and seven (7) final sets of plans must be submitted to and approved by the Planning Division and Public Services Department prior to the release of a building permit, street opening permit or certificate of occupancy for site plans. If you need to make any modifications to the approved plans, you must submit a revised site plan application for staff review and approval.
5. **Defect Guarantee** A defect guarantee, consisting of 10% of the performance guarantee, must be posted before the performance guarantee will be released.
6. **Preconstruction Meeting** Prior to the release of a building permit or site construction, a pre-construction meeting shall be held at the project site. This meeting will be held with the contractor, Development Review Coordinator, Public Service's representative and owner to review the construction schedule and critical aspects of the site work. At that time, the Development Review Coordinator will confirm that the contractor is working from the approved site plan. The site/building contractor shall provide three (3) copies of a detailed construction schedule to the attending City representatives. It shall be the contractor's responsibility to arrange a mutually agreeable time for the pre-construction meeting.
7. **Department of Public Services Permits** If work will occur within the public right-of-way such as utilities, curb, sidewalk and driveway construction, a street opening permit(s) is required for your site. Please contact Carol Merritt at 874-8300, ext. 8828. (Only excavators licensed by the City of Portland are eligible.)
8. **As-Built Final Plans** Final sets of as-built plans shall be submitted digitally to the Planning Division, on a CD or DVD, in AutoCAD format (*,dwg), release AutoCAD 2005 or greater.

The Development Review Coordinator must be notified five (5) working days prior to date required for final site inspection. The Development Review Coordinator can be reached at the Planning Division at 874-8632. All site plan requirements must be completed and approved by the Development Review Coordinator prior to issuance of a Certificate of Occupancy. Please schedule any property closing with these requirements in mind.

If there are any questions, please contact Jean Fraser at 874-8728 or via jf@portlandmaine.gov.

Sincerely,



Stuart O'Brien, Chair
Portland Planning Board

Attachments:

1. Traffic engineering Review comments dated 6.26.2015
2. Planning Board Report
3. City Code Chapter 32
4. Sample Stormwater Maintenance Agreement
5. Performance Guarantee Packet

Electronic Distribution:

Jeff Levine, AICP, Director of Planning and Urban Development
Barbara Barhydt, Development Review Services Manager
Jean Fraser, Planner
Philip DiPierro, Development Review Coordinator, Planning
Ann Machado, Zoning Administrator, Inspections Division
Tammy Munson, Inspections Division Director
Jonathan Rioux, Inspections Division Deputy Director
Jeanie Bourke, Plan Reviewer/CEO, Inspections Division
Lannie Dobson, Administration, Inspections Division
Brad Saucier, Administration, Inspections Division
Michael Bobinsky, Public Services Director
Katherine Earley, Engineering Services Manager, Public Services
Bill Clark, Project Engineer, Public Services
David Margolis-Pineo, Deputy City Engineer, Public Services
Doug Roncarati, Stormwater Coordinator, Public Services
Greg Vining, Associate Engineer, Public Services
Michelle Sweeney, Associate Engineer
John Low, Associate Engineer, Public Services
Rhonda Zazzara, Field Inspection Coordinator, Public Services
Mike Farmer, Project Engineer, Public Services
Jane Ward, Administration, Public Services
Jeff Tarling, City Arborist, Public Services
Jeremiah Bartlett, Public Services
Keith Gautreau, Fire Department
Jennifer Thompson, Corporation Counsel
Thomas Errico, P.E., TY Lin Associates
David Senus, P.E., Woodard and Curran
Rick Blackburn, Assessor's Department
Approval Letter File

Attachment 1

6/26/2015 10:38:35 AM
From: Tom Errico thomas.errico@tylin.com
To: Fraser, Jean
CC: Bartlett, Jeremiah Earley, Katherine Margolis-Pineo, David Tarling, Jeff
Subject: Jewish Community Center - Final Traffic Comments

Jean – I have reviewed the revised application materials and the following represents a status update on my previous comments.

- Maine Traffic Resources conducted a Trip Generation Analysis for the project and concludes that the proposed Jewish Community Center will generate less traffic as compared to St Patrick's Church. The applicant should provide an estimated comparison between the former Church use and the proposed project during the weekday AM and PM peak hours. My general sense in that during the AM peak hour the net change may not be significant given weekday morning Church services. During the weekday PM peak hour, I suspect the Church did not have regular weekday activities, while the proposed use will add traffic in conjunction with the day-care use.

Status: The applicant has submitted updated trip generation information and is estimating an increase of 50 to 60 additional PM peak hours trips as compared to the former St. Patrick's Church. The applicant has noted that this estimate is likely high given existing facility conditions, which I agree with given my site observations. I find the trip generation estimate to be reasonable and I have no further comment.

- I find driveway conditions along Congress Street to be improved with the elimination of existing driveways.

Status: I have no further comment.

- The driveway entering the site from Congress Street is noted as having a width of 22.7 feet. This width (in the area where parking maneuvers occur) does not meet City standards and thus a formal waiver should be requested by the applicant.

Status: I find the proposed driveway width to be acceptable given that most vehicles will be passenger cars and that a secondary driveway via the Westgate Shopping Center will be provided. I support this waiver request.

- A detectible warning panel is not required at the site driveway on Congress Street.

Status: The plans have been revised and I have no further comment.

- I would suggest a tip-down curb entering the driveway on Congress Street, as currently provided.

Status: The curb ramp layout should be revised so that the ramp flare does not impact accessibility along the sidewalk route. Having a tip-down design will help to address this issue.

- The applicant shall provide a Parking Supply analysis that documents parking needs both under a typical weekday scenario and during Community Center events.

Status: The applicant has provided an analysis of event parking demand and estimates a need for approximately 50 vehicles. I find this estimate to be generally reasonable and given agreements for use of abutting parking lots, I find the projects parking supply to be acceptable. I have no further comment.

- I find the vehicular connection to Westgate Shopping Center to be an excellent access management strategy that will allow traffic from the Community Center to utilize the traffic signal at Stevens Avenue. I would note that this connection can also serve traffic from the abutting medical office building and traffic from Lassell Street. Accordingly, I would suggest that access use rights be provided. While I would prefer that the connection to the Westgate Shopping Center to be more direct, given the potential for vehicle/pedestrian conflict, the proposed plan appears acceptable. The applicant should provide a response on this issue and how they see traffic circulation interacting with site activity.

Status: An agreement has been provided and I have no further comment.

- The applicant shall consider the formal delineation of the driveway along the medical office property boundary, when entering from Congress Street.

Status: The site plan has been revised and I find conditions to be acceptable.

- The applicant should provide specifics about how the Daycare pick-up and drop-off activity will be managed from traffic perspective.

Status: The applicant has provided the requested information and I have no further comment.

- I'm concerned that the ITE data is not a good source for estimating traffic for the proposed project. I would suggest that the applicant conduct traffic counts/surveys at existing facilities to better estimate traffic levels. I would also like to get a better understanding on historic traffic activity at St. Patrick's Church. I recognize that traffic volumes are not likely to be available, but information on daily services and other event details would be helpful for my review and understanding of project impacts. The applicant should attempt to provide specific church service information, if available.

Status: As noted above the applicant has provided a reasonable estimate and I have no further comment.

- The pick-up and drop-off of daycare and others will need to be carefully managed. Accordingly, the applicant should provide specific details on how this process will take place. This should include what building entrances will be used, sidewalk facilities between parking spaces and the noted entrance, etc. I would note that the pick-up/drop-off program must be managed such that vehicles are not parking along the driveway off Congress Street.

Status: I have reviewed existing JCA activity at their current Portland site and I have recommended that a barrier be constructed that prevents pedestrians from accessing the building entrance near Congress Street. The applicant has revised the site plan to include a 18" sitting wall along the curb. While the height of the wall in mountable by pedestrians, I do believe the physical presence of the wall will deter drop-off and pick-up activity near Congress Street. Accordingly, I find conditions to be acceptable.

Please contact me if you have any questions.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
TY LIN INTERNATIONAL
12 Northbrook Drive
Falmouth, ME 04105
207.781.4721 (main)
207.347.4354 (direct)
207.400.0719 (mobile)
207.781.4753 (fax)
thomas.errico@tylin.com
Visit us online at www.tylin.com
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PLANNING BOARD REPORT
PORTLAND, MAINE

Jewish Community Center and Preschool/Daycare 1342 Congress Street

Conditional Use & Level III Site Plan Review

Jewish Community Alliance of Southern Maine, Applicant

Project # 2015-058

CBL: 191 B-16 & 17

Submitted to: Portland Planning Board Public Hearing Date: July 14, 2015	Prepared by: Jean Fraser, Planner Date: July 10, 2015

I. INTRODUCTION

The Jewish Community Alliance of Southern Maine, as represented by Bradlee Mezquita of Tighe & Bond, has submitted a final Level III Site Plan and Conditional Use application for the construction of a single story 19,300 sq ft neighborhood center (defined as a "Place of Assembly") and preschool/daycare on the site of the existing St. Patrick's Catholic Church next to Westgate Shopping Center and extending back to Lassall Street behind residential properties.

The Planning Board considered this project at a Workshop on May 19, 2015 and since then the applicants have developed a comprehensive final submission that includes agreements with neighbors and addresses all of the traffic, parking and stormwater management concerns.

The existing church was closed in 2013 and its removal is a requirement in the terms of the sale (P&S Agreement in Attachment D) from the Roman Catholic Bishop of Portland. It will be demolished and a new building constructed. The existing church is not designated an historic landmark nor is within an historic district, so the demolition is not part of the current review.

The two acre site is located in the R5 residential zone where both "Places of Assembly" and "Day care facilities" are conditional uses, although in this case the Planning Board is the reviewing authority for the "Places of Assembly" aspect of the proposal, and the Zoning Board of Appeals (ZBA) has approved the preschool/daycare element of the project (Attachment 8).

Applicant: Jewish Community Alliance of Southern Maine
Consultants: Bradlee Mezquita of Tighe & Bond

II. REQUIRED REVIEWS

Applicant's Proposal	*Applicable Standards*
New structure of 19, 300 sq ft	Level III Site Plan
Place of Assembly (Neighborhood Center) of 10,000 sq ft or less	Institutional Conditional Use in the R5 zone [14.118 (b) 3] (Planning Board review)
Day care facilities	Other Conditional Use in the R5 zone [14.118 (c) 3] (Zoning Board of Appeals review)

III. WAIVERS:

Waiver	*Standard*
Soil survey: The applicant requests a waiver for completing a soil survey, as they have undertaken soil borings as part of an earlier environmental assessment.	*Technical Manual Section 7 Soil* Survey *Standards* requires soil surveys for all Level III site plan applications. Staff support a waiver of this requirement.
Driveway Width: The applicant requests a waiver from the 24 feet width requirement to provide 22.7 foot wide drive for one section near Congress Street where it is opposite the abutters existing parking, some of which is on the applicant's property.	*Technical Manual Section 1.7.1.3* specifies that driveway access is preferred to be 24 feet wide, and a minimum of 20 feet. Staff support this waiver (Att 2)

IV. PROJECT DATA

SUBJECT	*DATA*
Existing Zoning	R-5 Residential
Existing Use	Vacant church
Proposed Use	Place of Assembly and Day Care (new building)
Parcel Size	2 acres (91,146 sq ft)
Impervious Surface Area **--Existing** **--Proposed** **--Net Change**	 36,810 sq ft 48,310 sq ft 11,500 sq ft
Total Disturbed Area	Approx 85,000 sq ft
Building Footprint **--Existing** **--Proposed** **--Net Change**	(both are single story buildings) 14,960 sq ft 19,300 sq ft 4,340 sq ft
Parking Spaces **-Existing** **-Proposed** **# handicapped**	 13 50 2
Bicycle parking Spaces **-Existing** **-Proposed**	 0 3
Estimated cost of the project	TBD

V. EXISTING CONDITIONS

The parcel is in the R5 zone and located between the Westgate Shopping center (B2 zone) to the west and the 1330 Dental offices to the east, on the south side of Congress Street. The paved area alongside the dental building is part of the site and includes one of the existing access drives, which would be enhanced for the proposed neighborhood center. The Congress Street sidewalk is in good condition (Att 4), but the area of the drive access is not clearly defined and the proposal will remove the row of five (5) trees along the side. There is other existing peripheral vegetation that is also proposed to be removed.

The existing St Patrick's Catholic Church faces Congress Street with a looped drop off drive to the door.

The Westgate Plaza parking lot hugs the western edge of the site, and there is a shared access driveway that links the Plaza and the rear part of the church site. The owners of the Plaza have formalized the previous shared use in a signed easement (Att J).

The site is triangular in shape with the southern corner on Lassall Street. It includes a large area of grass at the rear (with some edge vegetation) and is bounded on the east by 5 properties: a commercial dental office and four residential buildings that front Lassall Street. Two of the residential owners are concerned about the fencing of the grassed area that connects to Lassall Street (see right and PC 1 and 4).

V. PROPOSED DEVELOPMENT

The applicant proposes to demolish the existing church building and construct a new single story building with a larger footprint (19,300 sq ft) to accommodate a neighborhood center and daycare facility (described in Attachment A and shown in Plans P2 to P16).

The neighborhood center is at the front of the building and falls under the ordinance definition (14-47) of a neighborhood center:

> *Neighborhood Center: A building or portion of a building used for recreational, artistic, social, educational, health, culture, or similar activities and services, usually owned and operated by a public or nonprofit group or agency. A neighborhood center is 10,000 square feet or less.*

The floor plan helps to understand how the site will work in terms of pedestrian and vehicle access, and play areas for the children. A detailed and slightly revised floorplan is in Attachment K, but this colored version helps to clarify the combination of uses: (Congress Street is to the right):

- Orange: Approx 4000 sq ft assembly area
- Blue: Offices
- Green: Day care

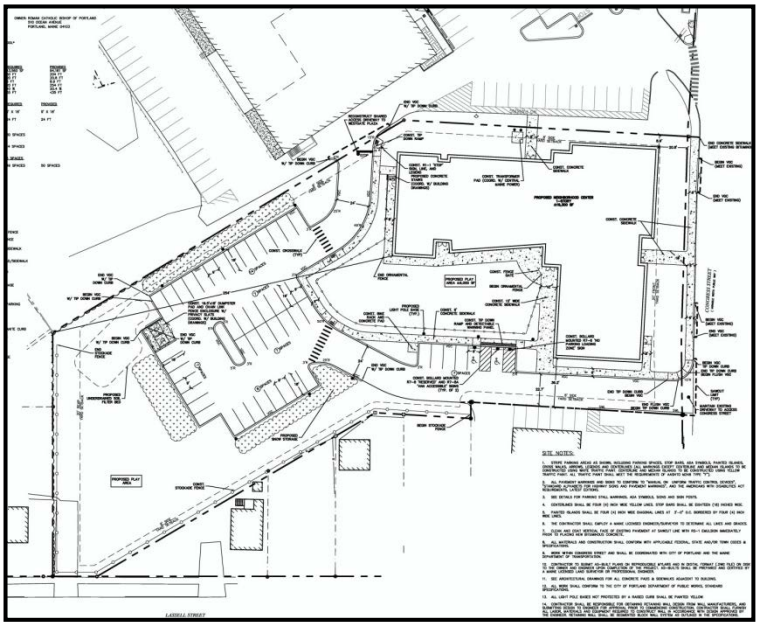
The Site Plan below (and in Plans P5 and P6) includes:

- Two drives (drop off loop at front removed)
- Parking lot for 50 vehicles
- Two play areas, both fenced
- Lighting in the rear part of the site
- Snow storage around parking lot
- Stormwater management
- Stockade fence along the two sides of the rear boundary

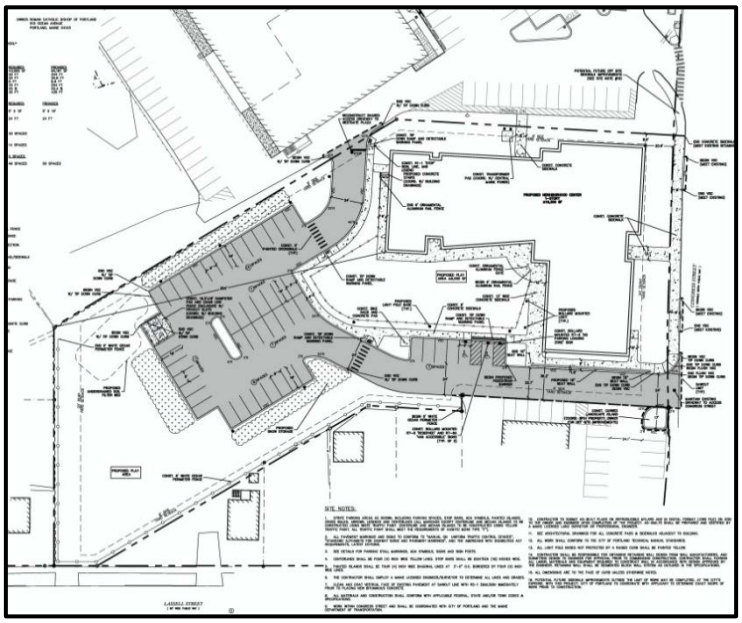
Added since the Workshop: (see comparison of plans below)

- 17 foot wide curbed landscaped island to delineate the driveway off of Congress Street
- Incorporated a barrier along west side of the main drive to prevent cars stopping to drop off
- Additional planting
- Revised lighting to reduce trespass
- Revised stormwater management and treatment
- Revised the elevations

The applicant has also arranged for 3 easements to facilitate the development and the stormwater agreements have also been submitted (Attachments J, M and N).



As presented to Workshop



Final for hearing (see also Plan P6)

VI. PUBLIC COMMENT AND WORKSHOP DISCUSSIONS

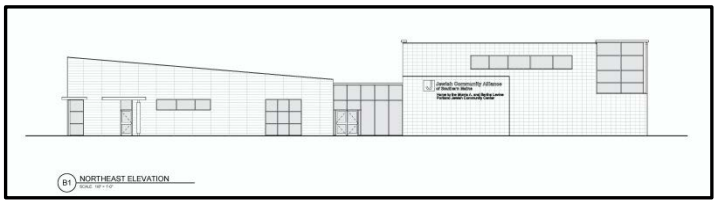
Workshop on May 19, 2015
The preliminary site plan submission was considered by the Board to be somewhat weak because a number of issues did not appear to have been addressed, including traffic and parking safety in respect of the daycare use; how the parking demand would be addressed; and information on the scale and compatibility of the design. The applicant has submitted a final application that is very comprehensive although the design element may still be an issue.

Public comments
A total of 147 notices of this Hearing were sent to property owners within 500 feet and to interested citizens, and the notice was published in the July 3rd / 6th, 2015 editions of the *Portland Press-Herald*. A Neighborhood Meeting is required for this project and was held on May 5, 2015 and attended by 16 people; the notes of the meeting are included at Attachment I. As of the time of completing this Report, the Planning office has received a total of 5 public comments (Attached as PC1- PC5), of which the last two are since the Workshop. PC1 and PC4 are from Patricia Bernard who is the closest neighbor, backs onto the area nearest to the day care entrance and has a number of concerns. These are discussed within the site plan review section of this report.

The letter from the Libbytown Neighborhood Association (PC 5) raises concerns regarding the design of the new building as it faces Congress Street. There are no design standards that apply to this R5 location and the proposed front and east elevations are shown below:

AS PRESENTED AT WORKSHOP:

AS PRESENTED FOR HEARING:
(extract from Plan P2)



The applicant was requested to clarify the thinking behind the design and submitted the following (Attachment O):

We are very appreciative with the feedback provided us from the Libbytown Neighborhood Association in their letter to the Jewish Community Alliance of Southern Maine dated June 30, 2015. With respect to the concern raised regarding the elevation of the front façade of the community hall, and the desire for additional embellishment, we offer the following. The form of the community hall is being carefully designed to consider the appropriate scale at both a vehicular and pedestrian level on the north corner of the site while responding to internal program demands. Its architectural expression is principally achieved through its cladding and fenestration materials and layout as well as the graphic nature of the building's sign, all of which are being constantly refined through the design process. The exterior elevations submitted as part of the Planning Board submission graphically represent these qualities but don't offer the experiential perception of perspective and the relationship of this form to its context – the surrounding neighborhood and adjacent structures. We are glad to continue to update interested parties as we progress in this endeavor and are confident that this building's expression will be an enhancement to the community.

VII. RIGHT, TITLE AND INTEREST AND FINANCIAL/TECHNICAL CAPACITY

Right, Title and Interest

The owner of the property is the Roman Catholic Bishop of Portland and a Purchase and Sale Agreement between the owner and the applicant was submitted (Attachment D). The applicant was requested to secure the rights to access from the Westgate Plaza owners prior to the hearing because the project would not be possible without it, and that was submitted in Attachment J. The City's legal Department reviewed this easement and finds it acceptable while noting the limitations on the easement running with the land (outlined in Paragraph 5) means that the easement will no longer be in effect if the ownership or use of the property changes substantially (Attachment 6).

Financial Capacity

A letter from Key Bank dated April 2, 2015 was submitted as evidence of financial capacity (Attachment E).

VIII. STAFF REVIEW

A. ZONING ASSESSMENT

The site is located in the R5 residential zone and the submitted site plan includes a zoning assessment in respect of dimensions, and the proposal meets these zoning requirements. The daycare is a conditional use in this zone (14-118) and was reviewed by the ZBA on May 21, 2015 and found to be in compliance with the standards (Attachment 7).

B. CONDITIONAL USE REVIEW

The site was previously a religious place of assembly and is now proposed as a neighborhood center with a large daycare facility. The daycare use is a ZBA conditional use review. The proposed neighborhood center is approximately 6500 sq ft (according to the data on the overall site plan (Plan P5) and comprises an assembly room of about 4000 sq ft and offices and conference rooms in the wing nearest Congress Street. The applicant's cover letter addresses the conditional use standards (Attachment A).

Per 14-118 (b) 3, the Planning Board is the reviewing authority for the Neighborhood Center which is classified as a Place of Assembly, as defined:

> *Place of assembly: A building or portion of a building used as a community hall, neighborhood center, private and fraternal organization or place of religious assembly. This definition shall not include buildings or portions of buildings used as a community hall, neighborhood center, private and fraternal organization or place of religious assembly where fifteen (15) or fewer people, not including the permanent residents of a single family dwelling, assemble.*

The ordinance standards and staff comments are listed below (ordinance text is in *italics*):

> Sec. 14-118. Conditional uses.
> *The following uses shall be permitted only upon the issuance of a conditional use permit, subject to the provisions of section 14-474 (conditional uses) and any special provisions, standards or requirements specified below:*
>
> *(b) Institutional: Any of the following conditional uses provided that, notwithstanding section 14-474(a) (conditional uses) of this article, or any other provision of this Code, the Planning Board shall be substituted for the board of appeals as the reviewing authority:*

3. Places of assembly;

Such uses shall be subject to the following conditions and standards in addition to the provisions of section 14-474:

a. In the case of expansion of existing such uses onto land other than the lot on which the principal use is located, it shall be demonstrated that the proposed use cannot reasonably be accommodated on the existing site through more efficient utilization of land or buildings, and will not cause significant physical encroachment into established residential areas; and

Staff comment: The proposal is replacing a religious place of assembly with a neighborhood center place of assembly with no expansion.

b. The proposed use will not cause significant displacement or conversion of residential uses existing as of June 1, 1983, or thereafter; and

Staff comment: The proposal does not displace any residential uses.

c. In the case of a use or use expansion which constitutes a combination of the above-listed uses with capacity for concurrent operations, the applicable minimum lot sizes shall be cumulative; and

Staff comment: The daycare facility is not considered an institutional use and therefore there is just the neighborhood center to be considered.

d. Article V (site plan) sections 14-522 and 14-523 notwithstanding, in the case of places of assembly the proposed use shall be subject to the requirements of article V (site plan) of this chapter; and

Staff comment: The applicant has submitted a Level III Site Plan application which is being reviewed concurrently.

The following standards apply to all conditional uses:

2. Standards. The Board shall, after review of required materials, authorize issuance of a conditional use permit, upon a showing that the proposed use, at the size and intensity contemplated at the proposed location, will not have substantially greater negative impacts than would normally occur from surrounding uses or other allowable uses in the same zoning district. The Board shall find that this standard is satisfied if it finds that:

a. The volume and type of vehicle traffic to be generated, hours of operation, expanse of pavement, and the number of parking spaces required are not substantially greater than would normally occur at surrounding uses or other allowable uses in the same zone; and

Staff comment: The site is in the R5 zone which allows schools, hospitals, colleges and universities, most of which would have greater traffic generation and parking requirements than the proposed use. It is located immediately adjacent to the B2 zone, which allows a range of business uses (eg restaurants, theatres and performance halls) as well as the institutional uses allowed in the R5 zone.

b. The proposed use will not create unsanitary or harmful conditions by reason of noise, glare, dust, sewage disposal, emissions to the air, odor, lighting, or litter; and

Staff comment: The proposed "place of assembly" creates different impacts as compared to the former church, in that the daycare would be operating every day and the hours and frequency of evening use are not identified in the submissions. It is therefore possible that there could be some noise impacts on the immediate neighbors (4 immediate properties in total with some multifamily) since the parking, access and building entrances are nearer to these residents. However, it is unlikely that the proposed "place of assembly" use would create more noise than a school, hospital, or college/university, which are allowed uses in the R5 zone.

If the Planning Board believes that noise may be a potential concern associated with this conditional use, staff suggest a condition of approval that defines the hours of operation to limit noise issues in the late evening. The B-1 zone, which acts as a transitional zone between residential and commercial uses, currently limits the hours of operation for retail and restaurant uses to 6:00 am to 11:00pm and could be used as a model for this project. The lighting would need to be designed to avoid any impacts on abutters and that would be addressed in the site plan review.

c. The design and operation of the proposed use, including but not limited to landscaping, screening, signs, loading, deliveries, trash or waste generation, arrangement of structures, and materials storage will not have a substantially greater effect/impact on surrounding properties than those associated with surrounding uses or other allowable uses in the zone.

Staff comment: The place of assembly use is similar to the former church, with gatherings generally occurring at off-peak hours and with potentially less traffic (due to the proposed assembly room areas being smaller - see details in the Traffic Memo in Attachment F). Larger gatherings will be accommodated with on-site parking, the agreed parking during off peak times at the abutting dental offices, and shared-use parking at the adjacent shopping center, with similar or fewer impacts than those associated with surrounding uses or other allowable uses in the zone.

C. DEVELOPMENT REVIEW (SITE PLAN STANDARDS in Section 14-526)

The applicant has provided a comprehensive application, with additional information and easement/agreements as necessary to facilitate the project (Attachments A to O and Plans P1 to P16. The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's site plan ordinance and applicable regulations.

A. *Transportation Standards*

Impact on Surrounding Street system and Access and Circulation

The proposed neighborhood center and daycare would utilize the two main existing drives which currently serve about a dozen parking spaces. The proposed site plan (Plan P5 and Plan P6) shows that these drives would be providing access to 50 space parking spaces, which would be used regularly for dropping off and picking up children from the daycare use.

At the Workshop there were a number of questions regarding the traffic generated by the daycare use and whether it was safe relative to Congress Street, plus other concerns about pedestrian safety. Since then the applicant has met with Tom Errico, Traffic engineering Reviewer, and submitted additional information to address all of the issues raised at the Workshop as described in detail in their cover letter (page 3 & 4 of Attachment A).

Tom Errico, the Traffic Engineering Reviewer, has confirmed that his comments have been addressed in full (Attachment 2) :

- *Maine Traffic Resources conducted a Trip Generation Analysis for the project and concludes that the proposed Jewish Community Center will generate less traffic as compared to St Patrick's Church. The applicant should provide an estimated comparison between the former Church use and the proposed project during the weekday AM and PM peak hours. My general sense in that during the AM peak hour the net change may not be significant given weekday morning Church services. During the weekday PM peak hour, I suspect the Church did not have regular weekday activities, while the proposed use will add traffic in conjunction with the day-care use.*

Status: The applicant has submitted updated trip generation information and is estimating an increase of 50 to 60 additional PM peak hours trips as compared to the former St. Patrick's Church. The applicant has noted that this estimate is likely high given existing facility conditions, which I agree with given my site observations. I find the trip generation estimate to be reasonable and I have no further comment.

- *I find driveway conditions along Congress Street to be improved with the elimination of existing driveways.*

Status: I have no further comment.

- *The driveway entering the site from Congress Street is noted as having a width of 22.7 feet. This width (in the area where parking maneuvers occur) does not meet City standards and thus a formal waiver should be requested by the applicant.*

Status: I find the proposed driveway width to be acceptable given that most vehicles will be passenger cars and that a secondary driveway via the Westgate Shopping Center will be provided. I support this waiver request.

- *A detectible warning panel is not required at the site driveway on Congress Street.*

Status: The plans have been revised and I have no further comment.

- *I would suggest a tip-down curb entering the driveway on Congress Street, as currently provided.*

Status: The curb ramp layout should be revised so that the ramp flare does not impact accessibility along the sidewalk route. Having a tip-down design will help to address this issue.

- *I find the vehicular connection to Westgate Shopping Center to be an excellent access management strategy that will allow traffic from the Community Center to utilize the traffic signal at Stevens Avenue. I would note that this connection can also serve traffic from the abutting medical office building and traffic from Lassell Street. Accordingly, I would suggest that access use rights be provided. While I would prefer that the connection to the Westgate Shopping Center to be more direct, given the potential for vehicle/pedestrian conflict, the proposed plan appears acceptable. The applicant should provide a response on this issue and how they see traffic circulation interacting with site activity.*

Status: An agreement has been provided and I have no further comment.

- *The applicant shall consider the formal delineation of the driveway along the medical office property boundary, when entering from Congress Street.*

Status: The site plan has been revised and I find conditions to be acceptable.

- *The applicant should provide specifics about how the Daycare pick-up and drop-off activity will be managed from traffic perspective.*

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Status: As noted above the applicant has provided a reasonable estimate and I have no further comment.

- *The pick-up and drop-off of daycare and others will need to be carefully managed. Accordingly, the applicant should provide specific details on how this process will take place. This should include what building entrances will be used, sidewalk facilities between parking spaces and the noted entrance, etc. I would note that the pick-up/drop-off program must be managed such that vehicles are not parking along the driveway off Congress Street.*

Status: I have reviewed existing JCA activity at their current Portland site and I have recommended that a barrier be constructed that prevents pedestrians from accessing the building entrance near Congress Street. The applicant has revised the site plan to include a 18" sitting wall along the curb. While the height of the wall in mountable by pedestrians, I do believe the physical presence of the wall will deter drop-off and pick-up activity near Congress Street. Accordingly, I find conditions to be acceptable.

Parking: The Site Plan (Plan P5) shows 50 spaces on the plan and this meets the zoning requirement of 49 spaces that is based on:

- 30 spaces for the neighborhood center – based on 1 parking space for each 150 sq ft of floor area used for the neighborhood center, which the Zoning Administrator advises applies to the assembly room/ multipurpose rooms only (4375 sq ft);
- 14 spaces for the day care - based on 1 space for each of the 14 day care staff members; and
- 5 spaces for the office component- based on 2000 sq ft of offices and 1 space per 400 sq ft.

The on-site provision did not address the demand for special events, and the applicant has provided additional information on the expected parking demand (Attachment A and F) and secured a parking license for about 40+ parking spaces in the dental offices parking lot immediately abutting the site and accessible from the same drive (Attachment N).

Mr Errico has confirmed (Attachment 2):

- *The applicant shall provide a Parking Supply analysis that documents parking needs both under a typical weekday scenario and during Community Center events.*

Status: The applicant has provided an analysis of event parking demand and estimates a need for approximately 50 vehicles. I find this estimate to be generally reasonable and given agreements for use of abutting parking lots, I find the projects parking supply to be acceptable. I have no further comment.

B. ***Environmental Quality Standards***

Landscape Preservation, Buffers and Parking Lot Landscaping

The Demolition Plan in Plan P4 shows the proposed removal of the 5 trees alongside the drive by the dental offices, and a considerable area of vegetation around the back of the site is also removed including near Lassall Street. A further 12 conifer trees are removed along the west boundary, which will become snow storage and parking area. The City Arborist expressed concern about the loss of the trees and also suggested the incorporation of a landscaped island at Congress Street (Attachment 5)

The Landscape Plan (Plan P16) was revised to include additional planting and a 17 foot wide landscaped island between the parking in the dental offices site and the widened drive into the neighborhood center.

At the time of completing this report the City Arborist has not provided final comments and these will be circulated to the Board at the hearing. The creation of the new island is welcomed.

The nearest neighbor (Pat Bernard, see PC 4) is concerned about the height of the stockade fence but is on vacation and there has not been an opportunity to discuss this with her. The applicant has noted her concern in their response letter (Attachment O) and are open to lowering the fence, as is the City Arborist. A suggested condition of approval addresses this unresolved issue of boundary treatment for the nearest neighbor.

Water quality; Stormwater Management; Erosion control:

The proposal creates an additional 11,500 sq ft of impervious surface and includes an improved stormwater management and treatment system comprising Stormtech chambers and an underdrained soil filter bed. The applicant submitted a Drainage Study as part of the original submission and revised it prior to the Workshop in response to the Peer Engineer Dave Senus's comments. At that time there were three outstanding issues (roof discharge; upgrade and responsibility for the southern outfall, and planting plan for the rain garden) and these have now been addressed to the satisfaction of the Peer Engineering Reviewer (Attachment 1).

The final arrangements involve a temporary easement with the abutter and a stormwater agreement with the abutter as well as the applicant, and these have been drafted and are included in Attachment M. A suggested condition of approval requires these to be executed prior to the issuance of a building permit.

C. ***Public Infrastructure and Community Safety Standards (1)***

Consistency with Master Plans and Public Safety and Fire Prevention

The proposals are generally acceptable in relation to these standards; the Fire Department has reviewed the fire truck turning templates and considers the access satisfactory (Attachment 4).

Public Utilities

The capacity to serve letters have been submitted in respect of all utilities except wastewater disposal (Attachment G); a suggested condition of approval relates to that being submitted prior to the issuance of a building permit.

D. ***Site Design Standards***

(note: there are no design standards that apply to this site)

Historic Resources:
One of the public comments (PC 2) has suggested that the existing building has historic value and should not be demolished. The City's Historic Preservation Program Manager has been consulted and she confirmed that this question was raised with her in the past and at that time she researched the building/architecture and determined that it did not meet the criteria for historic designation.
The church that is selling the property has made it a requirement of the sale that the building be demolished. Whether it should be designated historic is a decision for the Historic Preservation Program Manager and the Historic Preservation Board.

Exterior Lighting:
The lighting plan has been revised since the Workshop to address earlier concerns regarding trespass (Plan P15). At the Workshop staff had requested further lighting information regarding the area along the improved access drive from Congress Street (at the Congress Street end) and on the front of the building by the entrance from the sidewalk, as the earlier plan did not show any lighting for these areas. Staff requested additional information to evaluate the existing lighting in these areas and whether some additional lighting should be added to address safety and security in those areas. This has not been received, so a suggested condition requests this information.

Noise and Vibration:
There are no anticipated impacts, but the ordinance standards have been reinforced in a suggested condition of approval.

IX. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Division staff recommends that the Planning Board approve the proposed day care center and neighborhood center as proposed by Jewish Community Alliance of Southern Maine. The suggested conditions of approval are largely minor, although staff request guidance from the Board regarding a possilbe conditional use condition regarding the hours of use for the neighborhood center element of the project (see discussion in VIII B).

VIII. MOTIONS FOR THE BOARD TO CONSIDER

A. WAIVERS

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board report for the public hearing on March 24, 2015 for application #2014-054 (Conditional Use) and #2013-248 (Site Plan) (709-713 Congress Street), relevant to Portland's Technical and Design Standards and other regulations; and the testimony presented at the Planning Board hearing:

1. ***Driveway width:***
   The Planning Board (**waives/does not waive**) Technical Design Standard Section *1.7.1.3* to allow the proposed driveway to be 22.7 feet wide for one section near Congress Street as shown on the Site Plan in Plan P6;

2. ***Soil survey***
   The Planning Board (**waives/does not waive**) Technical Design Standard Section 7 *Soil Survey Standards* that require a soil survey as the applicant has previously taken soil borings as part of an earlier environmental assessment.

B. CONDITIONAL USE

On the basis of the application, plans, reports and other information submitted by the applicant, findings and recommendations contained in the Planning Board Report for the public hearing on July 14, 2015 for application #2014-058 (Conditional Use and Site Plan) (1342 Congress Street), relevant to Portland's Conditional Use Standards and other regulations, and the testimony presented at the Planning Board hearing:

The Planning Board finds that the proposed conditional use for place of assembly at 1342 Congress Street as described in the application **does / does not** meet the standards of Section 14-474 and the standards of Section 14.118 (b) 3 for the R5 zone, subject to the following conditions:

i. The Jewish Neighborhood Center shall be limited to hours of operation from 6:00 am to 11:00 pm.

C. SITE PLAN

On the basis of the application, plans, reports and other information submitted by the applicant, findings and recommendations contained in Planning Board Report for the public hearing on July 14, 2015 for application #2014-058 (Conditional Use and Site Plan) (1342 Congress Street), relevant to the Site Plan Ordinance and other regulations and the testimony presented at the Planning Board hearing:

The Planning Board finds that the plan **is / is not** in conformance with the site plan standards of the land use code, subject to the following conditions:

i. That the recorded easement with Charter Westgate, regarding use of the shared drive, shall be submitted to the Planning Authority prior to the issuance of a building permit; and

ii. That the Parking License (for use of the abutting dental offices lot) and the Drainage Improvements and Temporary Construction Easement (abutters to south) shall be executed and submitted to the Planning Authority prior to the issuance of a building permit; and

iii. That the applicant revise the curb ramp layout at Congress Street in accordance with the comments of Tom Errico dated June 26, 2015, with revised plans to be reviewed and approved by the Planning Authority prior to the issuance of a building permit; and

iv. That the height of the boundary fence along the eastern boundary and associated buffer treatment be the subject of further discussion with the City Arborist, Planning Authority and nearest neighbor (P Bernard) and any agreed revisions be shown on a revised Site Plan/Landscape Plan for final approval prior to the issuance of a building permit; and

v. That the final comments of the Department of Public Services shall be addressed to the satisfaction of the Planning Authority prior to the issuance of a building permit; and

vi. That the outstanding utility letter be submitted to the Planning Authority prior to the issuance of a building permit; and

vii. The developer/contractor/subcontractor must comply with conditions of the submitted and approved stormwater management plan and sediment and erosion control plan and associated inspection and maintenance manual, based on City standards and state guidelines. The owner/operator of the approved stormwater management system and all assigns shall comply with the conditions of Chapter 32 Stormwater including Article III, Post Construction Stormwater Management, which specifies the annual inspections and reporting requirements. The two maintenance agreements (one for the applicants site and one for the abutters site) for the stormwater drainage system shall be submitted, signed and recorded with a copy to the Planning Division and Department of Public Services prior to the issuance of a building permit; and

viii. That additional lighting information shall be submitted in respect of the widened drive access and building entrance nearest to Congress Street to show that the site lighting meets the City Technical Standards, and any deficiencies shall be addressed in a revised lighting plan for review and approval prior to the issuance of a building permit; and

ix. That all heating, ventilation and air conditioning shall be screened and located away from abutting residential properties.

[Attachments on next page]

ATTACHMENTS:

Report attachments

1. Peer Engineering Reviewer, Dave Senus comments
2. Traffic Eng. Reviewer Tom Errico comments
3. Dept of Public Services comments
4. Fire Dept. Keith Gautreau comments
5. City Arborist comments 5.15.2015
6. Legal Dept comments re Plaza easement
7. ZBA Determination re Day Care Cond. Use

Public Comments

PC 1 P Barnard
PC 2 P Jeffrey
PC 3 P Jeffrey
PC 4 P Bernard
PC 5 Libbytown Neighborhood Association

Applicants submittal

A. Tighe & Bond cover letter 6.24.2015
B. Final Site Plan application
C. Final Conditional use application (Places of Assembly)
D. P&S Agreement
E. Letter of financial capacity (Key Bank) 4.2.2015
F. Traffic Analysis 3.19.2015; 3.13.2015 and 6.4.2015
G. Utility letters
H. Fire Dept Checklist & Wastewater application

Applicants submittal, con't

I. Neighborhood Meeting documents
J. Charter Westgate Easement Agreement
K. Floor Plan
L. Drainage Study
M. Stormwater agreements
N. Parking license re dental lot
O. Response to public comments 7.8.2015

Plans

P1. Survey
P2. Exterior elevations
P3. Cover Page
P4. Existing Conditions and Demolition Plan
P5. Overall site Plan
P6. Site plan
P7. Grading, Drainage and Erosion Control Plan
P8. Utilities Plan
P9. Erosion Control Notes and Details
P10. P13. Details
P14. Offsite Drainage
P15. Site Lighting Plan
P16. Landscape Plan

CHAPTER 32 STORM WATER

ARTICLE I. IN GENERAL

Sec. 32-1. Definitions.

For the purposes of this article, the terms listed below are defined as follows:

Applicant. "Applicant" means a person with requisite right, title or interest or an agent for such person who has filed an application for a development project that requires a post-construction stormwater management plan under this article.

Best management practices ("BMP"). "Best management practices" or "BMPs" means schedules or activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Clean Water Act. "Clean Water Act" means the federal Water Pollution Control Act (33 U.S.C. § 1251 *et seq.*, also known as the "Clean Water Act"), and any subsequent amendments thereto.

Discharge. "Discharge" means any spilling, leaking, pumping, pouring, emptying, dumping, disposing or other addition of pollutants to "waters of the state." "Direct discharge" or "point source" means any discernable, confined and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation or vessel or other floating craft, from which pollutants are or may be discharged.

Enforcement authority. "Enforcement authority" means the person(s) or department authorized under section 32-3 of this article to administer and enforce this article.

Exempt person or discharge. "Exempt person or discharge" means any person who is subject to a multi-sector general permit for industrial activities, a general permit for construction activity, a general permit for the discharge of storm water from the Maine department of transportation and the Maine turnpike authority

municipal separate storm sewer systems, or a general permit for the discharge of storm water from state or federally owned authority municipal separate storm sewer system facilities; and any non-storm water discharge permitted under a NPDES permit, waiver, or waste discharge license or order issued to the discharger and administered under the authority of the U.S. environmental protection agency ("EPA") or the Maine department of environmental protection ("DEP").City of Portland

Municipality. "Municipality" means the city of Portland.

Municipal separate storm sewer system, or MS4. "Municipal separate storm sewer system" or "MS4," means conveyances for storm water, including, but not limited to, roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels or storm drains (other than publicly owned treatment works and combined sewers) owned or operated by any municipality, sewer or sewage district, fire district, state agency or federal agency or other public entity that discharges directly to surface waters of the state.

National pollutant discharge elimination system (NPDES) storm water discharge permit. "National pollutant discharge elimination system (NPDES) storm water discharge permit" means a permit issued by the EPA or by the DEP that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

Non-storm water discharge. "Non-storm water discharge" means any discharge to an MS4 that is not composed entirely of storm water.

Person. "Person" means any individual, firm, corporation, municipality, quasi-municipal corporation, state agency or federal agency or other legal entity which creates, initiates, originates or maintains a discharge of storm water or a non-storm water discharge.

Pollutant. "Pollutant" means dredged spoil, solid waste, junk, incinerator residue, sewage, refuse, effluent, garbage, sewage sludge, munitions, chemicals, biological or radiological materials, oil, petroleum products or by-products, heat, wrecked or discarded equipment, rock, sand, dirt and industrial, municipal, domestic, commercial or agricultural wastes of any kind.

Post-construction stormwater management plan. "Post-construction stormwater management plan" means BMPs employed by a development project to meet the stormwater standards of Section V of the department of planning and urban development's Technical and Design Standards and Guidelines.

Premises. "Premises" means any building, lot, parcel of land, or portion of land, whether improved or unimproved, including adjacent sidewalks and parking strips, located within the municipality from which discharges into the storm drainage system are or may be created, initiated, originated or maintained.

Qualified post-construction stormwater inspector. "Qualified post-construction stormwater inspector" means a person who conducts post-construction stormwater best management practice inspections for compensation and who has received the appropriate training for the same from DEP or otherwise meets DEP requirements to perform said inspections.

Regulated small MS4. "Regulated small MS4" means any small MS4 regulated by the State of Maine "general permit for the discharge of storm water from small municipal separate storm sewer systems" dated July 1, 2008 ("general permit") or the general permits for the discharge of storm water from the Maine department of transportation and Maine turnpike authority small MS4s or state or federally owned or operated small MS4s, including all those located partially or entirely within an urbanized area (UA).

Small municipal separate storm sewer system, or small MS4. "Small municipal separate storm sewer system", or "small MS4," means any MS4 that is not already covered by the phase I MS4 storm water program including municipally owned or operated storm sewer systems, state or federally-owned systems, such as colleges, universities, prisons, Maine department of transportation and Maine turnpike authority road systems and facilities, and military bases and facilities.

Storm drainage system. "Storm drainage system" means the City of Portland's regulated small MS4 and other conveyances for storm water located in areas outside the UA that drain into the regulated small MS4.

Storm water. "Storm water" means any storm water runoff, snowmelt runoff, and surface runoff and drainage; "Stormwater" has the same meaning as "storm water".

Urbanized area ("UA"). "Urbanized area" or "UA" means the areas of the State of Maine so defined by the latest decennial (2000) census by the U.S. Bureau of Census.
(Ord. No. 85-08/09, 10-20-08; Ord. No. 35-09/10, 8-17-09)

Sec. 32-2. Reserved.
Sec. 32-3. Reserved.

Sec. 32-4. Reserved.

Sec. 32-5. Reserved.
Sec. 32-6. Reserved.
Sec. 32-7. Reserved.
Sec. 32-8. Reserved.
Sec. 32-9. Reserved.
Sec. 32-10. Reserved.
Sec. 32-11. Reserved.
Sec. 32-12. Reserved.
Sec. 32-13. Reserved.
Sec. 32-14. Reserved.
Sec. 32-15. Reserved.

ARICLE II. PROHIBITED DISCHARGES

Sec. 32-16. Applicability.

This Article shall apply to all persons discharging storm water and/or non-storm water discharges from any premises into the storm drainage system.
(Ord. No. 85-08/09, 10-20-08; Ord. No. 35-09/10, 8-17-09)

Sec. 32-17. Responsibility for administration.

The department of public services is the enforcement authority who shall administer, implement, and enforce the provisions of this article.
(Ord. No. 85-08/09, 10-20-08; Ord. No. 35-09/10; 8-17-09)

Sec. 32-18. Prohibition of non-storm water discharges.

(a) *General prohibition.* Except as allowed or exempted herein, no person shall create, initiate, originate or maintain a non-storm water discharge to the storm drainage system. Such non-storm water discharges are prohibited notwithstanding the fact that the city may have approved the connections, drains or conveyances by which a person discharges un-allowed non-storm water discharges to the storm drainage system.

(b) *Allowed non-storm water discharges.* The creation, initiation, origination and maintenance of the following non-storm water discharges to the storm drainage system is allowed:

(1) Landscape irrigation; diverted stream flows; rising ground waters; uncontaminated flows from foundation drains; air conditioning and compressor condensate; irrigation water; flows from uncontaminated springs; uncontaminated water from crawl space pumps; uncontaminated flows from footing drains; lawn watering runoff; flows from riparian habitats and wetlands; residual street wash water (where spills/leaks of toxic or hazardous materials have not

occurred, unless all spilled material has been removed and detergents are not used); hydrant flushing and fire fighting activity runoff; water line flushing and discharges from potable water sources; individual residential car washing; and de-chlorinated swimming pool discharges.

(2) Discharges specified in writing by the enforcement authority as being necessary to protect public health and safety.

(3) Dye testing, with verbal notification to the enforcement authority prior to the time of the test.

(c) *Exempt person or discharge.* This article shall not apply to an exempt person or discharge, except that the enforcement authority may request from exempt persons and persons with exempt discharges copies of permits, notices of intent, licenses and orders from the EPA or DEP that authorize the discharge(s).
(Ord. No. 85-08/09, 10-20-08; Ord. No. 35-09/10, 8-17-09)

Sec. 32-19. Suspension of access to the city's small MS4.

The enforcement authority may, without prior notice, physically suspend discharge access to the storm drainage system to a person when such suspension is necessary to stop an actual or threatened non-storm water discharge to the storm drainage system which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the storm drainage system, or which may cause the city to violate the terms of its environmental permits. Such suspension may include, but is not limited to, blocking pipes, constructing dams or taking other measures, on public ways or public property, to physically block the discharge to prevent or minimize a non-storm water discharge to the storm drainage system. If a person fails to comply with a suspension order issued in an emergency, the enforcement authority may take such steps as deemed necessary to prevent or minimize damage to the storm drainage system, or to minimize danger to persons.
(Ord. No. 85-08/09, 10-20-08; Ord. No. 35-09/10, 8-17-09)

Sec. 32-20. Monitoring of discharges.

In order to determine compliance with this article, the enforcement authority may enter upon and inspect premises subject to this article at reasonable hours to inspect the premises and connections thereon to the storm drainage system; and to conduct monitoring, sampling and testing of the discharge to the storm drainage system.
(Ord. No. 85-08/09, 10-20-08; Ord. No. 35-09/10, 8-17-09)

Sec. 32-21. Enforcement.

It shall be unlawful for any person to violate any provision of or to fail to comply with any of the requirements of this article. Whenever the enforcement authority believes that a person has violated this article, the enforcement authority may enforce this article in accordance with 30-A M.R.S.A. § 4452.

(a) *Notice of violation.* Whenever the enforcement authority believes that a person has violated this article, the enforcement authority may order compliance with this article by written notice of violation to that person indicating the nature of the violation and ordering the action necessary to correct it, including, without limitation:

(1) The elimination of non-storm water discharges to the storm drainage system, including, but not limited to, disconnection of the premises from the MS4.

(2) The cessation of discharges, practices, or operations in violation of this article.

(3) At the Person's expense, the abatement or remediation (in accordance with best management practices in DEP rules and regulations) of non-storm water discharges to the storm drainage system and the restoration of any affected property; and/or

(4) The payment of fines, of the city's remediation costs and of the city's reasonable administrative costs and attorneys' fees and costs. If abatement of a violation and/or restoration of affected property is required, the notice shall set forth a deadline within which such abatement or restoration must be completed.

(b) *Penalties/fines/injunctive relief.* In addition to the imposition of any other costs or penalties provided for herein, any person who violates this section shall be subject to fines, penalties and orders for injunctive relief and shall be responsible for the city's attorney's fees and costs, all in accordance with 30-A M.R.S.A. § 4452. Each day such violation continues shall constitute a separate violation. Moreover, any person who violates this section also shall be responsible for any and all fines, penalties, damages and costs, including, but not limited to attorneys' fees and costs, incurred by the city for violation of federal and State environmental laws and

regulations caused by or related to that person's violation of this article; this responsibility shall be in addition to any penalties, fines or injunctive relief imposed under this section.

(c) *Consent agreement.* The enforcement authority may, with the approval of the city manager, enter into a written consent agreement with the violator to address timely abatement of the violation(s) of this article for the purposes of eliminating violations of this article and of recovering fines, costs and fees without court action.

(d) *Appeal of notice of violation.* Any person receiving a notice of violation or suspension notice may appeal the determination of the enforcement authority to the city manager or his or her designee. The notice of appeal must be received within 30 days from the date of receipt of the notice of violation. The city manager shall hold a hearing on the appeal within 30 days from the date of receipt of the notice of appeal, except that such hearing may be delayed by agreement of the city manager and the appellant. The city manager may affirm, reverse or modify the decision of the enforcement authority. A suspension under Section 32-5 of this article remains in place unless or until lifted by the city manager or by a reviewing court. A party aggrieved by the decision of the city manager may appeal that decision to the Maine superior court within 45 days of the date of the city manager's decision pursuant to Rule 80B of the Maine Rules of Civil Procedure.

(e) *Enforcement measures.* If the violation has not been corrected pursuant to the requirements set forth in the notice of violation, or, in the event of an appeal to the city manager, within 45 days of a decision of the city manager affirming the enforcement authority's decision, then the enforcement authority may recommend that the corporation counsel's office file an enforcement action in a Maine court of competent jurisdiction under Rule 80K of the Maine Rules of Civil Procedure.

(f) *Ultimate responsibility of discharger.* The standards set forth herein are minimum standards; therefore this article does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants into waters of the U.S. caused by said person. This article shall not create liability on the part of the city, or any officer agent or employee thereof for any damages that

result from any person's reliance on this article or any administrative decision lawfully made hereunder.

(Ord. No. 85-08/09, 10-20-08; Ord. No. 35-09/10, 8-17-09)

Sec. 32-22. Severability.

The provisions of this article are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this article or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions, clauses, sentences, or paragraphs or application of this article.

(Ord. No. 85-08/09, 10-20-08; Ord. No. 35-09/10, 8-17-09)

Sec. 32-23. Reserved.
Sec. 32-24. Reserved.
Sec. 32-25. Reserved.
Sec. 32-26. Reserved.
Sec. 32-27. Reserved.
Sec. 32-28. Reserved.
Sec. 32-29. Reserved.
Sec. 32-30. Reserved.
Sec. 32-31. Reserved.
Sec. 32-32. Reserved.
Sec. 32-33. Reserved.
Sec. 32-34. Reserved.
Sec. 32-35. Reserved.

ARTICLE III. POST-CONSTRUCTION STORMWATER MANAGEMENT.

Sec. 32-36. Applicability.

This article applies to all development projects that require a stormwater management plan pursuant to section V of the department of planning and urban development's Technical and Design Standards and Guidelines.

(Ord. No. 35-09/10, 8-17-09)

Sec. 32-37. Post-construction stormwater management plan approval.

Notwithstanding any ordinance provision to the contrary, no applicant for a development project to which this article is applicable shall receive approval for that development project unless the applicant also receives approval for its post-construction stormwater management plan and for the best management practices ("BMPs") for that development project.

(Ord. No. 35-09/10, 9-17-09)

Sec. 32-38. Post-construction stormwater management plan compliance.

Any person owning, operating, or otherwise having control over a BMP required by a post construction stormwater management plan shall maintain the BMPs in accordance with the approved plan and shall demonstrate compliance with that plan as follows:

(a) *Inspections.* The owner or operator of a BMP shall hire a qualified post-construction stormwater inspector to at least annually, inspect the BMPs, including but not limited to any parking areas, catch basins, drainage swales, detention basins and ponds, pipes and related structures, in accordance with all municipal and state inspection, cleaning and maintenance requirements of the approved post-construction stormwater management plan.

(b) *Maintenance and repair.* If the BMP requires maintenance, repair or replacement to function as intended by the approved post-construction stormwater management plan, the owner or operator of the BMP shall take corrective action(s) to address the deficiency or deficiencies as soon as possible after the deficiency is discovered and shall provide a record of the deficiency and corrective action(s) to the department of public services ("DPS") in the annual report.

(c) *Annual report.* The owner or operator of a BMP or a qualified post-construction stormwater inspector hired by that person, shall, on or by June 30 of each year, provide a completed and signed certification to DPS in a form provided by DPS, certifying that the person has inspected the BMP(s) and that the yare adequately maintained and functioning as intended by the approved post-construction stormwater management plan, or that they require maintenance or repair, including the record of the deficiency and corrective action(s) taken.

(d) *Filing fee.* Any persons required to file and annual certification under this section shall include with the annual certification a filing fee established by DPS to pay the administrative and technical costs of review of the annual certification.

(e) *Right of entry.* In order to determine compliance with this article and with the post-construction stormwater management plan, DPS may enter upon property at reasonable hours with the consent of the owner, occupant or agent to inspect the BMPs.

Sec. 32-39. Enforcement.

It shall be unlawful for any person to violate any provision of or to fail to comply with any of the requirements of this article or of the post-construction stormwater management plan. Whenever the enforcement authority believes that a person has violated this article, DPS may enforce this article in accordance with 30-A M.R.S.A. § 4452. Each day on which a violation exists shall constitute a separate violation for purposes of this section.

(a) *Notice of violation.* Whenever DPS believes that a person has violated this article or the post-construction stormwater management plan, DPS may order compliance by written notice of violation to that person indicating the nature of the violation and ordering eh action necessary to correct it, including, without limitation:

(1) The abatement of violations, and the cessation of practices or operations in violation of this article or of the post-construction stormwater management plan;

(2) At the person's expense, compliance with BMPs required as a condition of approval of the development project, the repair of BMPs and/or the restoration of any affected property; and/or

(3) The payment of fines, of the City's remediation costs and of the City's reasonable administrative costs and attorneys' fees and costs.

(4) If abatement of a violation, compliance with BMPs, repair of BMPs and/or restoration of affected property is required, the notice shall set forth a deadline within which such abatement, compliance, repair and/or restoration must be completed.

(b) *Penalties/fines/injunctive relief.* In addition to the imposition of any other costs or penalties provided for herein, any person who violates this section shall be subject to fines, penalties and orders for injunctive relief and shall be responsible for the city's attorney's fees and costs, all in accordance with 30-A M.R.S.A. § 4452. Each day such violation continues shall constitute a separate violation. Moreover, any person who violates this section also shall be responsible for any and all fines, penalties, damages and costs, including, but not limited to

attorneys' fees and costs, incurred b y the city for violation of federal and state environmental laws and regulations caused by or related to that person's violation of this article; this responsibility shall be in addition to any penalties, fines or injunctive relief imposed under this section.

(c) *Consent agreement.* The enforcement authority may, without approval of the city manager, enter into a written consent agreement with the violator to address timely abatement of the violation(s) of this article for the purposes of eliminating violations of this article and of recovering fines, costs and fees without court action.

(d) *Appeal of notice of violation.* Any person receiving a notice of violation or suspension notice may appeal the determination of the enforcement authority to the city manager or his or her designee. The notice of appeal must be received within 30 days from the date of receipt of the notice of violation. The city manager shall hold a hearing on the appeal within 30 days from the date of receipt of the notice of appeal, except that such hearing may be delayed by agreement of the city manager and the appellant. The city manager may affirm, reverse or modify the decision of the DPS. A party aggrieved by the decision of the city manager may appeal that decision to the Maine superior court within forty-five (45) days of the date of the city manager's decision pursuant to Rule 80B of the Maine Rules of Civil Procedure.

(e) *Enforcement measures.* If the violation has not been corrected pursuant to the requirements set forth in the notice of violation, or , in the event of an appeal to the city manger, within forty-five (45) days of a decision of the city manager affirming the enforcement authority's decision, then the enforcement authority may recommend that the corporation counsel's office file an enforcement action in a Maine court of competent jurisdiction under Rule 80K of the Maine Rules of Civil Procedure.

(Ord. No. 35-09/10, 8-17-09)

Sec. 32-40. Severability.

The provisions of this article are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this article or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions, clauses, sentences, or paragraphs or application of this article.

(Ord. No. 35-09/10, 8-17-09)

STORMWATER DRAINAGE SYSTEM
MAINTENANCE AGREEMENT

For SITE PLANS (THAT ARE NOT SUBDIVISIONS)

IN CONSIDERATION OF the site plan approval granted by the Planning Board/Planning Authority of the City of Portland to the proposed _____ (*name of development and project number)*), and the associated Grading, Drainage & Erosion Control Plan (*insert correct name of plan)* (Exhibit A) submitted by_____, prepared by _____ (*engineer/agent*) of _____(address) dated _____, and pursuant to a condition thereof, _____ (*name of owner*) a Maine limited liability company with a principal place of business in Portland, Maine, and having a mailing address of _____, the owner of the subject premises, does hereby agree, for itself, its successors and assigns (the "Owner"), as follows:

Maintenance Agreement

That it, its successors and assigns, will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order the _____ (*details of the system such as underdrained subsurface sand filter BMP system, rain gardens, storm drain pipes, underdrain pipes, catch basins*), (hereinafter collectively referred to as the "stormwater system"), as shown on the _____Plan in Exhibit A and in strict compliance with the approved Stormwater Maintenance and Inspection Agreement (*insert correct name of document)* prepared for the Owner by _____ (copy attached at Exhibit B) and Chapter 32 of the Portland City Code.

Owner of the subject premises further agrees, at its own cost, to keep a Stormwater Maintenance Log. Such log shall be made available for inspection by the City of Portland upon reasonable notice and request.

Said agreement is for the benefit of the said City of Portland and all persons in lawful possession of said premises and abutters thereto; further, that the said City of Portland and said persons in lawful possession may enforce this Agreement by an action at law or in equity in any court of competent jurisdiction; further, that after giving the Owner written notice and a stated time to perform, the said City of Portland, by its authorized agents or representatives, may, but is not obligated to, enter upon said premises to maintain, repair, or replace said stormwater system in the event of any failure or neglect thereof, the cost and expense thereof to be reimbursed in full to the said City of Portland by the Owner upon written demand. Any funds owed to the City under this paragraph shall be secured by a lien on the property.

This Agreement shall also not be construed to allow any change or deviation from the requirements of the site plan most recently and formally approved by the Planning Board/Planning Authority of the City of Portland.

This agreement shall bind the undersigned only so long as it retains any interest in said premises, and shall run with the land and be binding upon the Owner's successors and assigns as their interests may from time to time appear.

The Owner agrees to record a copy of this Agreement in the Cumberland County Registry of Deeds within thirty (30) days of final execution of this Agreement. The Owner further agrees to provide a copy of this Agreement to any Condominium Association or management company, and to any successor or assign and to forward to the City an Addendum signed by any successor or assign in which the successor or assign states that the successor or assign has read the Agreement, agrees to all its terms and conditions and the successor or assign will obtain and forward to the City's Department of Public Services and Department of Planning and Urban Development a similar Addendum from any other successor or assign.

For the purpose of this agreement and release "Owner" is any person or entity who is a successor or assign and has a legal interest in part, or all, of the real estate and any building. The real estate shown by chart, block and lot number in the records on file in the City Assessor's office shall constitute "the property" that may be entered by the City and liened if the City is not paid all of its costs and charges following the mailing of a written demand for payment to the owner pursuant to the process and with the same force and effect as that established by 36 M.R.S.A. §§ 942 and 943 for real estate tax liens.

Any written notices or demands required by the agreement shall be complete on the date the notice is attached to one or more doors providing entry to any buildings and mailed by certified mail, return receipt requested or ordinary mail or both to the owner of record as shown on the tax roles on file in the City Assessor's Office.

If the property has more than one owner on the tax rolls, service shall be complete by mailing it to only the first listed owner. The failure to receive any written notice required by this agreement shall not prevent the City from entering the property and performing maintenance or repairs on the stormwater system, or any component thereof, or liening it or create a cause of action against the City.

Dated at Portland, Maine this _____ day of _____, 2014.

_____
(*name of company*)

_____
(*representative of owner, name and title*)

STATE OF MAINE
CUMBERLAND, ss. Date: _____

Personally appeared the above-named _____(*name and title*), and acknowledged the foregoing instrument to be his free act and deed in his said capacity.

Before me,

_____
Notary Public/Attorney at Law

Print name: _____

Exhibit A: Approved Grading and Drainage Plan *(name of the plan showing the Stormwater System in detail)*

Exhibit B: Approved Stormwater Maintenance and Inspection Agreement

PORTLAND MAINE

Strengthening a Remarkable City, Building a Community for Life • www.portlandmaine.gov

Planning & Urban Development Department
Jeff Levine, AICP, Director

Planning Division
Alexander Jaegerman, FAICP, Director

Performance Guarantee and Infrastructure Financial Contribution Packet

The municipal code requires that all development falling under site plan and/or subdivision review in the City of Portland be subject to a performance guarantee for various required site improvements. The code further requires developers to pay a fee for the administrative costs associated with inspecting construction activity to ensure that it conforms with plans and specifications.

The performance guarantee covers major site improvements related to site plan and subdivision review, such as paving, roadway, utility connections, drainage, landscaping, lighting, etc. A detailed itemized cost estimate is required to be submitted, which upon review and approval by the City, determines the amount of the performance guarantee. The performance guarantee will usually be a letter of credit from a financial institution, although escrow accounts are acceptable. The form, terms, and conditions of the performance guarantee must be approved by the City through the Planning Division. The performance guarantee plus a check to the City of Portland in the amount of 2.0% of the performance guarantee or as assessed by the planning or public works engineer, must be submitted prior to the issuance of any building permit for affected development.

Administration of performance guarantee and defect bonds is through the Planning Division. Inspections for improvements within existing and proposed public right-of-ways are the responsibility of the Department of Public Services. Inspections for site improvements are the responsibility of the Development Review Coordinator in the Planning Division.

Performance Guarantees will not be released by the City until all required improvements are completed and approved by the City and a Defect Bond has been submitted to and approved by the City.

If an infrastructure financial contribution is required by the City as part of a development approval, please complete the contribution form and submit it along with the designated contribution to the Planning Division. Please make checks payable to the City of Portland.

Attachments

1. Cost Estimate of Improvements Form
2. Performance Guarantee Letter of Credit Form (with private financial institution)
3. Performance Guarantee Escrow Account Form (with private financial institution)
4. Performance Guarantee Form with the City of Portland
5. Infrastructure Financial Contribution Form with the City of Portland

SUBDIVISION/SITE DEVELOPMENT
Cost Estimate of Improvements to be covered by Performance Guarantee

Date: _____

Name of Project: _____

Address/Location: _____

Application ID #: _____

Developer: _____

Form of Performance Guarantee: _____

Type of Development: Subdivision _____ Site Plan (Level I, II or III) _____

TO BE FILLED OUT BY THE APPLICANT:

		PUBLIC			**PRIVATE**		
Item	Quantity	Unit Cost	Subtotal	Quantity	Unit Cost	Subtotal
1. STREET/SIDEWALK						
Road/Parking Areas	_____	_____	_____	_____	_____	_____
Curbing	_____	_____	_____	_____	_____	_____
Sidewalks	_____	_____	_____	_____	_____	_____
Esplanades	_____	_____	_____	_____	_____	_____
Monuments	_____	_____	_____	_____	_____	_____
Street Lighting	_____	_____	_____	_____	_____	_____
Street Opening Repairs	_____	_____	_____	_____	_____	_____
Other	_____	_____	_____	_____	_____	_____
2. EARTH WORK						
Cut	_____	_____	_____	_____	_____	_____
Fill	_____	_____	_____	_____	_____	_____
3. SANITARY SEWER						
Manholes	_____	_____	_____	_____	_____	_____
Piping	_____	_____	_____	_____	_____	_____
Connections	_____	_____	_____	_____	_____	_____
Main Line Piping	_____	_____	_____	_____	_____	_____
House Sewer Service Piping	_____	_____	_____	_____	_____	_____
Pump Stations	_____	_____	_____	_____	_____	_____
Other	_____	_____	_____	_____	_____	_____
4. WATER MAINS	_____	_____	_____	_____	_____	_____
5. STORM DRAINAGE						
Manholes	_____	_____	_____	_____	_____	_____
Catchbasins	_____	_____	_____	_____	_____	_____
Piping	_____	_____	_____	_____	_____	_____
Detention Basin	_____	_____	_____	_____	_____	_____
Stormwater Quality Units	_____	_____	_____	_____	_____	_____
Other	_____	_____	_____	_____	_____	_____

6.	SITE LIGHTING	_____	_____	_____	_____	_____	_____
7.	EROSION CONTROL						
	Silt Fence	_____	_____	_____	_____	_____	_____
	Check Dams	_____	_____	_____	_____	_____	_____
	Pipe Inlet/Outlet Protection	_____	_____	_____	_____	_____	_____
	Level Lip Spreader	_____	_____	_____	_____	_____	_____
	Slope Stabilization	_____	_____	_____	_____	_____	_____
	Geotextile	_____	_____	_____	_____	_____	_____
	Hay Bale Barriers	_____	_____	_____	_____	_____	_____
	Catch Basin Inlet Protection	_____	_____	_____	_____	_____	_____
8.	RECREATION AND OPEN SPACE AMENITIES	_____	_____	_____	_____	_____	_____
9.	LANDSCAPING (Attach breakdown of plant materials,quantities, and unit costs)	_____	_____	_____	_____	_____	_____
10.	MISCELLANEOUS	_____	_____	_____	_____	_____	_____
	TOTAL:	_____			_____		
	GRAND TOTAL:	_____			_____		

INSPECTION FEE (to be filled out by the City)

		PUBLIC	**PRIVATE**	**TOTAL**
A:	2.0% of totals:	_____	_____	_____
	or			
B:	Alternative Assessment:	_____	_____	_____
	Assessed by:	_____ (name)	_____ (name)	_____

SAMPLE FORM

SITE PLAN/SUBDIVISION
PERFORMANCE GUARANTEE
LETTER OF CREDIT
[ACCOUNT NUMBER]

[**Date**]

Jeff Levine
Director of Planning and Urban Development
City of Portland
389 Congress Street
Portland, Maine 04101

Re: **[Insert: Name of Developer]**
[Insert: Address of Project, **Portland, Maine**]
[**Insert: Application ID #**]

[**Insert: Name of Bank**] hereby issues its Irrevocable Letter of Credit for the account of [**Insert: Name of Developer**], (hereinafter referred to as "Developer"), held for the exclusive benefit of the City of Portland, in the aggregate amount of [**Insert: amount of original performance guarantee**]. These funds represent the estimated cost of installing site improvements as depicted on the [**Insert: subdivision and/ or site plan**], approved on [**Insert: Date**] and as required under Portland Code of Ordinances Chapter 14 §§499, 499.5, 525 and Chapter 25 §§46 through 65.

This Letter of Credit is required under Portland Code of Ordinances Chapter 14 §§499, 499.5, 525 and Chapter 25 §46 through 65 and is intended to satisfy the Developer's obligation, under Portland Code of Ordinances Chapter 14 §§501, 502 and 525, to post a performance guarantee for the above referenced development.

The City, through its Director of Planning and Urban Development and in his/her sole discretion, may draw on this Letter of Credit by presentation of a sight draft and the Letter of Credit and all amendments thereto, up to thirty (30) days before or sixty (60) days after its expiration, stating any one of the following:

1. the Developer has failed to satisfactorily complete the work on the improvements contained within the [I**nsert: subdivision and/ or site plan**] approval, dated [I**nsert date**]; or

2. the Developer has failed to deliver to the City a deed containing the metes and bounds description of any streets, easements or other improvements required to be deeded to the City; or

3. the Developer has failed to notify the City for inspections.

In the event of the Bank's dishonor of the City of Portland's sight draft, the Bank shall inform the City of Portland in writing of the reason or reasons thereof within three (3) business days of the dishonor.

After all underground work has been completed and inspected to the satisfaction of the Department of Public Services and Planning Division, including but not limited to sanitary sewers, storm drains, catch basins, manholes, electrical conduits, and other required improvements constructed chiefly below grade, the City of Portland Director of Planning and Urban Development or its Director of Finance as provided in Chapter 14 §501 of the Portland Code of Ordinances, may authorize the [**Bank**], by written certification, to reduce the available amount of the escrowed money by a specified amount.

This performance guarantee will automatically expire on [**Insert date between April 16 and October 30 of the following year**] ("Expiration Date") or on the date when the City determines that all improvements guaranteed by this Letter of Credit are satisfactorily completed, whichever is later. It is a condition of this Letter of Credit that it is deemed to be automatically extended without amendment for period(s) of one year each from the current Expiration Date hereof, or any future Expiration Date, unless within thirty (30) days prior to any expiration, the Bank notifies the City by certified mail (restricted delivery to Ellen Sanborn, Director of Finance, City of Portland, 389 Congress Street, Portland, Maine 04101) that the Bank elects not to consider this Letter of Credit renewed for any such additional period.

In the event of such notice, the City, in its sole discretion, may draw hereunder by presentation of a sight draft drawn on the Bank, accompanied by this Letter of Credit and all amendments thereto, and a statement purportedly signed by the Director of Planning and Urban Development, at Bank's offices located at _____ stating that:

this drawing results from notification that the Bank has elected not to renew its Letter of Credit No. _____.

On its Expiration Date or on the date the City determines that all improvements guaranteed by this Letter of Credit are satisfactorily completed, this Performance Guarantee Letter of Credit shall be reduced by the City to ten (10) percent of its original amount and shall automatically convert to an Irrevocable Defect Letter of Credit. Written notice of such reduction shall be forwarded by the City to the Bank. The Defect Letter of Credit shall ensure the workmanship and durability of all materials used in the construction of the [**Insert: subdivision and/ or site plan**] approval, dated [**Insert: Date**] as required by City Code §14-501, 525 and shall automatically expire one (1) year from the date of its creation ("Termination Date").

The City, through its Director of Planning and Urban Development and in his/her sole discretion, may draw on the Defect Letter of Credit by presentation of a sight draft and this Letter of Credit and all amendments thereto, at Bank's offices located at _____, prior to the Termination Date, stating any one of the following:

1. the Developer has failed to complete any unfinished improvements; or
2. the Developer has failed to correct any defects in workmanship; or
3. the Developer has failed to use durable materials in the construction and installation of improvements contained within the [**Insert: subdivision and/ or site improvements**].

Date: _____ By: _____

[Name]
[Title]
Its Duly Authorized Agent

SAMPLE FORM

SITE PLAN/SUBDIVISION
PERFORMANCE GUARANTEE
ESCROW ACCOUNT
[ACCOUNT NUMBER]

[**Date**]

Jeff Levine
Director of Planning and Urban Development
City of Portland
389 Congress Street
Portland, Maine 04101

Re: [**Insert: Name of Developer**]
[**Insert: Address of Project, Portland, Maine**]
[**Insert: Application ID #**]

[**Insert: Name of Bank**] hereby certifies to the City of Portland that [**Bank**] will hold the sum of [**Insert: amount of original performance guarantee**] in an interest bearing account established with the Bank. These funds shall be held for the exclusive benefit of the City of Portland and shall represent the estimated cost of installing site improvements as depicted on the [**Insert: subdivision and/or site plan]**, approved on [**Insert: date**] as required under Portland Code of Ordinances Chapter 14 §§499, 499.5, 525 and Chapter 25 §§46 through 65. It is intended to satisfy the Developer's obligation, under Portland Code of Ordinances Chapter 14 §§501, 502 and 525, to post a performance guarantee for the above referenced development. All costs associated with establishing, maintaining and disbursing funds from the Escrow Account shall be borne by [**Insert: Developer**].

[**Bank**] will hold these funds as escrow agent for the benefit of the City subject to the following:

The City, through its Director of Planning and Urban Development and in his/her sole discretion, may draw against this Escrow Account by presentation of a draft in the event that:

1. the Developer has failed to satisfactorily complete the work on the improvements contained within the [I**nsert: subdivision and/ or site plan**] approval, dated [I**nsert date**]; or

2. the Developer has failed to deliver to the City a deed containing the metes and bounds description of any streets, easements or other improvements required to be deeded to the City; or

3. the Developer has failed to notify the City for inspections.

In the event of the Bank's dishonor of the City of Portland's sight draft, the Bank shall inform the City of Portland in writing of the reason or reasons thereof within three (3) business days of the dishonor.

After all underground work has been completed and inspected to the satisfaction of the Department of Public Services and Planning Division, including but not limited to sanitary sewers, storm drains, catch basins, manholes, electrical conduits, and other required improvements constructed chiefly below grade, the City of Portland Director of Planning and Urban Development or its Director of Finance as provided in Chapter 14 §501 of the Portland Code of Ordinances, may authorize the [**Bank**], by written certification, to reduce the available amount of the escrowed money by a specified amount.

This performance guarantee will automatically expire on [**Insert date between April 16 and October 30 of the following year**] ("Expiration Date") or on the date when the City determines that all improvements guaranteed by this Letter of Credit are satisfactorily completed, whichever is later. It is a condition of this agreement that it is deemed to be automatically extended without amendment for period(s) of one year each from the current Expiration Date hereof, or any future Expiration Date, unless within thirty (30) days prior to any expiration, the Bank notifies the City by certified mail (restricted delivery to Ellen Sanborn, Director of Finance, City of Portland, 389 Congress Street, Portland, Maine 04101) that the Bank elects not to consider the Escrow Account renewed for any such additional period.

In the event of such notice, the City, in its sole discretion, may draw against the Escrow Account by presentation of a sight draft drawn on the Bank and a statement purportedly signed by the Director of Planning and Urban Development, at Bank's offices located at _____ stating that:

this drawing results from notification that the Bank has elected not to renew its Letter of Credit No. _____.

On its Expiration Date or on the date the City determines that all improvements guaranteed by this Escrow Account are satisfactorily completed, this Performance Guarantee shall be reduced by the City to ten (10) percent of its original amount and shall automatically convert to an Irrevocable Defect Guarantee. Written notice of such reduction shall be forwarded by the City to the Bank. The Defect Guarantee shall ensure the workmanship and durability of all materials used in the construction of the [**Insert: subdivision and/ or site plan**] approval, dated [**Insert: Date**] as required by City Code §14-501, 525 and shall automatically expire one (1) year from the date of its creation ("Termination Date").

The City, through its Director of Planning and Urban Development and in his/her sole discretion, may draw on the Defect Guarantee by presentation of a sight draft at Bank's offices located at _____, prior to the Termination Date, stating any one of the following:

1. the Developer has failed to complete any unfinished improvements; or
2. the Developer has failed to correct any defects in workmanship; or
3. the Developer has failed to use durable materials in the construction and installation of improvements contained within the [**Insert: subdivision and/ or site improvements**].

Date: _____ By: _____

[Name]
[Title]
Its Duly Authorized Agent

Seen and Agreed to: [**Applicant**]

By: _____

PERFORMANCE GUARANTEE
with the City of Portland

Developer's Tax Identification Number: _____

Developer's Name and Mailing Address: _____

_____

_____

City Account Number: _____

Application ID #: _____

Application of _____ [**Applicant**] for _____ [**Insert street/Project Name**] at _____ [**Address**], Portland, Maine.

The City of Portland (hereinafter the "City") will hold the sum of $_____[**amount of performance guarantee**] on behalf of _____ [**Applicant**] in a non-interest bearing account established with the City. This account shall represent the estimated cost of installing _____ [**insert: subdivision and/ or site improvements (as applicable)**] as depicted on the subdivision/site plan, approved on _____ [**date**] as required under Portland Code of Ordinances Chapter 14 §§499, 499.5, 525 and Chapter 25 §§46 through 65. It is intended to satisfy the Applicant's obligation, under Portland Code of Ordinances Chapter 14 §§501, 502 and 525, to post a performance guarantee for the above referenced development.

The City, through its Director of Planning and Urban Development and in his/her sole discretion, may draw against this Escrow Account in the event that:

1. the Developer has failed to satisfactorily complete the work on the improvements contained within the _____ [**insert: subdivision and/ or site improvements (as applicable)**] approval, dated _____ [**insert date**]; or

2. the Developer has failed to deliver to the City a deed containing the metes and bounds description of any streets, easements or other improvements required to be deeded to the City; or

3. the Developer has failed to notify the City for inspections in conjunction with the installation of improvements noted in paragraph one.

The Director of Planning and Urban Development may draw on this Guarantee, at his/her option,

either thirty days prior to the expiration date contained herein, or s/he may draw against this escrow for a period not to exceed sixty (60) days after the expiration of this commitment; provided that the Applicant, or its representative, will give the City written notice, by certified mail (restricted delivery to Ellen Sanborn, Director of Finance, City of Portland, 389 Congress Street, Room 110, Portland, Maine) of the expiration of this escrow within sixty (60) days prior thereto.

After all underground work has been completed and inspected to the satisfaction of the Department of Public Works and Planning, including but not limited to sanitary sewers, storm drains, catch basins, manholes, electrical conduits, and other required improvements constructed chiefly below grade, the City of Portland Director of Planning and Urban Development or its Director of Finance as provided in Chapter 14 §501 of the Portland Code of Ordinances, may authorize the City to reduce the available amount of the escrowed money by a specified amount.

This Guarantee will automatically expire on [**Insert date between April 16 and October 30 of the following year**] ("Expiration Date") or on the date when the City determines that all improvements guaranteed by this Performance Guarantee are satisfactorily completed, whichever is later. At such time, this Guarantee shall be reduced by the City to ten (10) percent of its original amount and shall automatically convert to an Irrevocable Defect Guarantee. Written notice of such reduction and conversion shall be forwarded by the City to [**the applicant]**. The Defect Guarantee shall expire one (1) year from the date of its creation and shall ensure the workmanship and durability of all materials used in the construction of the [**Insert: Subdivision and/ or site plan**] approval, dated [**Insert: Date**] as required by City Code §14-501, 525.

The City, through its Director of Planning and Urban Development and in his/her sole discretion, may draw on the Defect Guarantee should any one of the following occur:

1. the Developer has failed to complete any unfinished improvements; or
2. the Developer has failed to correct any defects in workmanship; or
3. the Developer has failed to use durable materials in the construction and installation of improvements contained within the [**Insert: subdivision and/ or site improvements**].

Seen and Agreed to:

By: _____ Date: _____
[Applicant]

By: _____ Date: _____
********Planning Division Director

By: _____ Date: _____
Development Review Coordinator

Attach **Letter of Approval and Estimated Cost of Improvements** to this form.

Distribution

1. This information will be completed by Planning Staff.
2. The account number can be obtained by calling Cathy Ricker, ext. 8665.
3. The Agreement will be executed with one original signed by the Developer.
4. The original signed Agreement will be scanned by the Planning Staff then forwarded to the Finance Office, together with a copy of the Cash Receipts Set.
5. ********Signature required if over $50,000.00.

Infrastructure Financial Contribution Form
Planning and Urban Development Department - Planning Division

Amount $

City Account Number: 710-0000-236-98-00
Project Code: ________________
(This number can be obtained by calling Cathy Ricker, x8665)

Project Name:

Application ID #:

Project Location:

Project Description:

Funds intended for:

Applicant's Name:

Applicant's Address:

Expiration:

☐ If funds are not expended or encumbered for the intended purpose by _____________________, funds, or any balance of remaining funds, shall be returned to contributor within six months of said date.

☐ Funds shall be permanently retained by the City.

☐ Other (describe in detail) ____

Form of Contribution:

☐ Escrow Account ☐ Cash Contribution

Interest Disbursement: Interest on funds to be paid to contributor only if project is not commenced.

Terms of Draw Down of Funds: The City shall periodically draw down the funds via a payment requisition from Public Works, which form shall specify use of City Account # shown above.

Date of Form:
Planner:

- -

- Attach the approval letter, condition of approval or other documentation of the required contribution.
- One copy sent to the Applicant.

Electronic Distribution to:
Peggy Axelsen, Finance Department
Catherine Baier, Public Services Department
Barbara Barhydt, Planning Division
Jeremiah Bartlett, Public Services Department
Michael Bobinsky, Public Services Department
Diane Butts, Finance Department
Philip DiPierro, Planning Division
Katherine Earley, Public Services Department
Michael Farmer, Public Services Department
Alex Jaegerman, Planning Division
David Margolis Pineo, Public Services Department
Matt Rancourt, Public Services Department
Jeff Tarling, Public Services Department
Planner for Project