



511Plymouth Engineering, Inc.

P.O. Box 46 – 30 Lower Detroit Road
Plymouth, Maine 04969
info@plymouthengineering.com
Tel: (207) 257-2071 fax: (207) 257-2130

STORMWATER MANAGEMENT PLAN

7 Cumberland Avenue
Portland, Maine

The following Stormwater Management Plan has been prepared for Banner Properties, LLC to evaluate stormwater runoff and erosion control for the proposed 6-unit residential building to be located at 7 Cumberland Avenue, Portland, Maine.

Site Calculations

Total Property Area	5,100 S.F.
Existing Impervious Area	1,509 S.F.
New Pervious Parking/Drive	2,190 S.F.
New Impervious Roof	1,824 S.F.
Total Landscaped Area	1,086 S.F.
Total Developed Area	5,100 S.F.
Total New Impervious Area	315 S.F.

Existing Conditions

The development parcel is located on the northerly side of Cumberland Ave., near the intersection with Merrill Street in Portland, Maine. The property is 5,100 square feet in area and currently includes a two-unit residential building with driveways. There is a brick sidewalk along the frontage of the lot and a street tree.

The lot gently slopes from north to south (back to front). Runoff is conveyed to Cumberland Ave. via overland flow, in the lot's current state. A combined sewer overflow system within the street collects stormwater runoff in a limited number of catchbasins.

Proposed Development

The applicant is proposing to remove the existing building and replace it with a three-story building that will house (6) six residential units. A new, (5) five space parking lot will be constructed at the rear of the property. The parking lot will be accessed via an access easement over a recently approved driveway and parking area at 30 Merrill Street. The developer of 30 Merrill Street is also the developer of this project. The driveway and parking areas are and will be constructed with pervious, interlocking pavers. Project fencing will be installed along the rear and side property lines.

Drainage Pattern

Runoff leaves the development area via overland flow to Cumberland Ave. Runoff will continue to flow off the site via overland flow in the developed state. The entire parking area will be pervious pavers that will allow treatment of the first flush. First flush runoff will be collected within the filter layers of the sub-base and treated prior to being released into native soils and overflowing to the existing sidewalk at the front of the property. Once the sub-soil collection system is full, runoff will flow overland to Cumberland Ave., as it does today.

Flooding

The development area is not located within an area of flood hazard according to the Federal Insurance Rate Map 2300510014 B. See attached map.

Onsite & Offsite Soils

The on-site soils are shown on the attached Medium Intensity Soil Survey and are categorized as follows:

Soil Type Summary Table		
Soil Symbol	Soil Name	HSG
HIB	Hinckley Loamy Sand	A

Water Quality (BMP Standard)

The use of LID features, such as the pervious pavers, reduces the overall impervious footprint of the site while offering water quality treatment for runoff from the highest areas for potential contaminants. For this particular project, the water quality requirements will be met by use of pervious pavers within the driveway and parking areas.

Pervious Paver Filter Bed Sizing

We propose to provide treatment for the driveway/parking area by constructing a Pervious Paver Filter Bed within the sub-base of the and parking area and connecting the new system to the newly constructed system at 30 Merrill Street:

This bed will receive the runoff from approximately 2,156 s.f. of pervious pavers. The reservoir course of the Filter Bed is required to provide storage volume for 1" of runoff from the contributing area. The bed sizing is as follows:

Area of Watershed: 2,190 SF

Treatment Volume Required: Area x runoff depth: 2,156 SF x 1/12 FT = **179.66 CF**

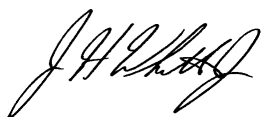
Treatment Volume Provided:

Porosity = 40%, Bed Area = 2,190 s.f., Bed Depth = 1.25', Total Volume Treated = **1,095 CF**

Summary

Based on the results of this evaluation, the proposed stormwater design is not expected to cause flooding, erosion or other significant adverse effects downstream of the site.

Prepared by:
PLYMOUTH ENGINEERING, INC.



Jon H. Whitten, Jr., P.E.
Senior Project Manager