

**STORMWATER REPORT FOR
PROPOSED MULTI USE FACILITY
117 UNION STREET
NEW BEDFORD, MA 02740**

PREPARED FOR:

**117 UNION STREET, LLC
128 UNION STREET
NEW BEDFORD, MA 02740**

PREPARED BY:

**PRIME ENGINEERING, INC.
P.O. BOX 1088
LAKEVILLE, MA 02347**



Richard J. Breau

MARCH 25, 2019

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1.0 INTRODUCTION

It is proposed to raze five existing buildings and a parking lot and construct a five story multi use building at 117 Union Street and a one story building at 127-129 Union Street in New Bedford. One of the requirements for the Site Plan Review application is the submission of a Stormwater Report. This report has been prepared to satisfy that requirement.

2.0 EXISTING CONDITIONS

The locus is a 10,173 square foot parcel bounded by Union Street on the south, North Second Street on the east and Barkers Lane on the north. It contains five attached single-story, brick faced retail buildings and a small paved parking lot. Each building is on an separately taxed lot and they are referenced as follows:

| Address | Assessor's Map | Assessor's Lot | Deed Reference Book | Deed Reference Page | Year Built Circa |
|-----------------------|----------------|----------------|---------------------|---------------------|------------------|
| 115 Union Street | 53 | 41 | 1838 | 1144 | 1920 |
| 117 Union Street | 53 | 216 | 1838 | 1144 | 1930 |
| 121 Union Street | 53 | 215 | 1838 | 1144 | 1930 |
| 7 North Second Street | 53 | 40 | 1838 | 1144 | 1910 |
| 127-129 Union Street | 53 | 146 | 1707 | 903 | 1865 |

There is an existing 42' by 47' paved parking lot at the northeast corner of the site but its odd dimensions only allow five cars to park in that area and involves a 25 foot curb cut on North Second Street and a 42 foot curb cut on Barkers Lane.

3.0 PROPOSED DEVELOPMENT

It is proposed to raze the five, existing one-story buildings and to construct a single five story building with a resident's lobby and public café/eatery on the first floor and forty-two residential apartments on the second through fifth floors. The northern portion of 127-129 Union Street will be a one story building bordered on the north by an 20' x 36' outdoor area that will contain a handicap parking space, gas meters, a transformer, walkways, and landscaping. Although permeable ground cover may be included in this area, the majority of the area will be impermeable, therefore, the hydrologic computations were conservatively based on the entire area being impermeable.

4.0 STORM WATER STANDARDS

The Massachusetts Department of Environmental Protection (MassDEP) issued Stormwater Management standards. The goal is to improve water quality and address water quantity problems, which are sometimes caused by development projects, by the implementation of performance standards for stormwater management. The project was designed to meet all relevant standards established in the policy. The following sections describe how each of these standards will be achieved on this project by incorporating Best Management Practices (BMPs) into the design.

4.1 UNTREATED STORMWATER - Standard 1

Standard 1 recommends that no new stormwater conveyance, such as storm drain outfalls, discharge untreated stormwater directly to wetlands or waterways of the Commonwealth. Flows from woods, fields, and other undeveloped areas are to be considered uncontaminated, however, runoff from paved road should receive treatment prior to discharge. The entire site will be roof and a small park so no runoff needs to be treated.

4.2 POST DEVELOPMENT PEAK DISCHARGE RATES - Standard 2

Standard 2 prescribes that stormwater management systems be implemented in order to ensure that post-development peak rates of discharge do not exceed existing rates of runoff for standard 2 year and 10 year 24 hour design storms. In addition, the pre and post peak rates for the 100 year storm must be evaluated to assure that there will not be increased off-site flooding. Hydrologic calculations have been conducted to ensure that this standard is satisfied.

Hydrocad version 7.10, a computer aided design program, was selected for modeling the hydrology and hydraulics of stormwater runoff for the site and its contributing drainage area. This program utilizes the latest techniques to predict the consequences of any given storm event and to verify that the drainage system is adequate to meet the performance standards for the area under

consideration. The Hydrocad computer model uses TR-20 and TR-55 methodologies to generate runoff hydrographs and perform hydraulic routings through the modeled project. Runoff hydrographs were generated for the catchment area (contributing drainage area). For post-development, sidewalks and roof areas were considered in determining composite runoff curve numbers for the catchment. For pre-development, sub-catchments were evaluated in their existing condition.

In evaluating the same areas under pre and post development conditions, a direct comparison can be made as to the net increase or decrease in runoff rates attributable to altered land uses. The Drainage Summary table below presents a summary of the hydrologic modeling conducted for this project.

| Design Storm | Pre-development Peak Run-off (CFS) | Post-development Run-off (CFS) |
|--------------|------------------------------------|--------------------------------|
| 2 year | .057 | .057 |
| 10 year | .082 | .082 |
| 100 year | .121 | .121 |

The hydrologic and hydraulic computations are presented in Appendix A.

4.3 RECHARGE TO GROUNDWATER - STANDARD 3

The site is currently 100% roof area and paved parking lot, that is, totally impervious ground cover. There will be no increase in impervious area, therefore, there is no need to infiltrate the stormwater.

4.4 SUSPENDED SOLIDS-STANDARD 4

A 2,024 square foot parking lot is being eliminated. The proposed development will have runoff from roof areas and from a small park area. This runoff is considered clean and does not require suspended solids removed, thereby meeting Standard 4.

4.5 USES WITH HIGHER POTENTIAL POLLUTANT LOADS - Standard 5

The DEP Stormwater Management Policy - Standard 5 requires that stormwater discharges with higher potential pollutant loads, such as gas stations, be provided with specific BMPs. The use of infiltration practices for these discharges prior to pretreatment is prohibited. However, DEP has determined that roofs and roadways are not to be considered to be high yield potential pollutant loads, therefore, this standard does not apply to this project.

4.6 STORMWATER DISCHARGES TO CRITICAL AREAS - Standard 6

Standard 6 of the DEP Stormwater Policy seeks to protect critical areas. Critical areas are specifically designated Outstanding Resource Waters, such as shell fish beds, swimming beaches, cold water fisheries and recharge areas for public water supplies. This project is not located in a critical area and, therefore, the project is not subject to this standard.

4.7 REDEVELOPMENT OF PREVIOUSLY DEVELOPED SITES - Standard 7

Standard 7 applies to sites which have been previously developed and are being redeveloped. Diminished performance of BMPs is allowed in these areas. This site does fall in that category, however, the performance standards are being met.

4.8 EROSION AND SEDIMENT CONTROL - Standard 8

Erosion and sediment control measures will be developed for this project as each phase of construction is initiated. The following supplemental provisions are also a part of this plan.

Erosion and sedimentation control measures which are proposed to be implemented during construction include the installation of hay bales, and silt fencing which has the bottom 6 inches buried in the ground. Any extra excavated soil which is not used to bury the base of the fence will be cast up gradient of the silt fence.

- Silt fence and haybales, if installed, shall be inspected after every major rainfall runoff event (over ½" depth of precipitation). Damaged or misaligned fences shall be immediately repaired. Silt shall be immediately removed from all areas of the silt fence when depth of accumulation exceeds 6 inches.
- Sumps and out falls shall be inspected after every major rainfall runoff event (over ½" depth of precipitation). Silt shall be immediately removed from all sumps where the depth of accumulation exceeds 9 inches.
- All exposed construction areas will be stabilized upon completion, in order to minimize the time that these areas are unstabilized.

With the full impact of the measures presented on the Erosion and Sedimentation Control Plans and the procedures in Appendix B of this report, along with the provisions stipulated above, Standard 8 will be satisfied.

4.9 OPERATIONS AND MAINTENANCE PLANS - Standard 9

Standard 9 of the DEP Stormwater Policy prescribes the adoption of a formal operation and maintenance plan to ensure that the stormwater management systems function properly as designed. Appendix C presents the Permanent Stormwater Operation and Maintenance Plan, so

Standard 9 is met.

4.10 PROHIBITION OF ILLICIT DISCHARGES - Standard 10

Standard 10 prohibits illicit discharges. Appendix E addresses the non-existence of illicit discharges.

5.0 CONCLUSION

The proposed development will produce a much needed multi use facility with minimal impact on the environment, the city's stormwater system and little impact on city services.

APPENDIX A

**HYDRAULIC AND
HYDROLOGIC COMPUTATIONS**

**Proposed Solar Facility
UNION STREET
NEW BEDFORD, MASSACHUSETTS**

**Drainage Summary
MARCH 22, 2019**

2 YR STORM (3.4 in.)

| Area | Pre Development | | Post Development | |
|------|-----------------|----------------|------------------|----------------|
| | Q Max (cfs) | Volume (ac.ft) | Q Max (cfs) | Volume (ac.ft) |
| 1S | 0.75 | 0.057 | 0.75 | 0.057 |

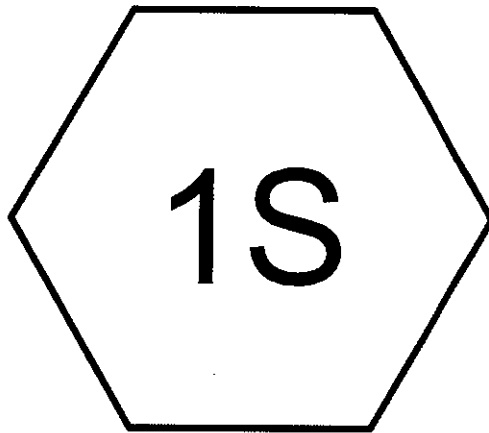
10 YR STORM (4.8 in.)hy

| Area | Pre Development | | Post Development | |
|------|-----------------|----------------|------------------|----------------|
| | Q Max (cfs) | Volume (ac.ft) | Q Max (cfs) | Volume (ac.ft) |
| 1S | 1.07 | 0.082 | 1.07 | 0.082 |

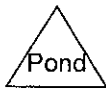
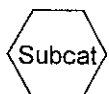
100 YR STORM (7.0 in.)

| Area | Pre Development | | Post Development | |
|------|-----------------|----------------|------------------|----------------|
| | Q Max (cfs) | Volume (ac.ft) | Q Max (cfs) | Volume (ac.ft) |
| 1S | 1.56 | 0.121 | 1.56 | 0.121 |

EXISTING CONDITIONS



EXISTING SITE





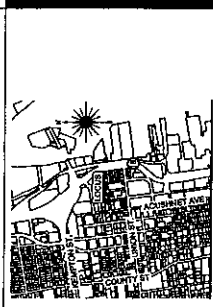
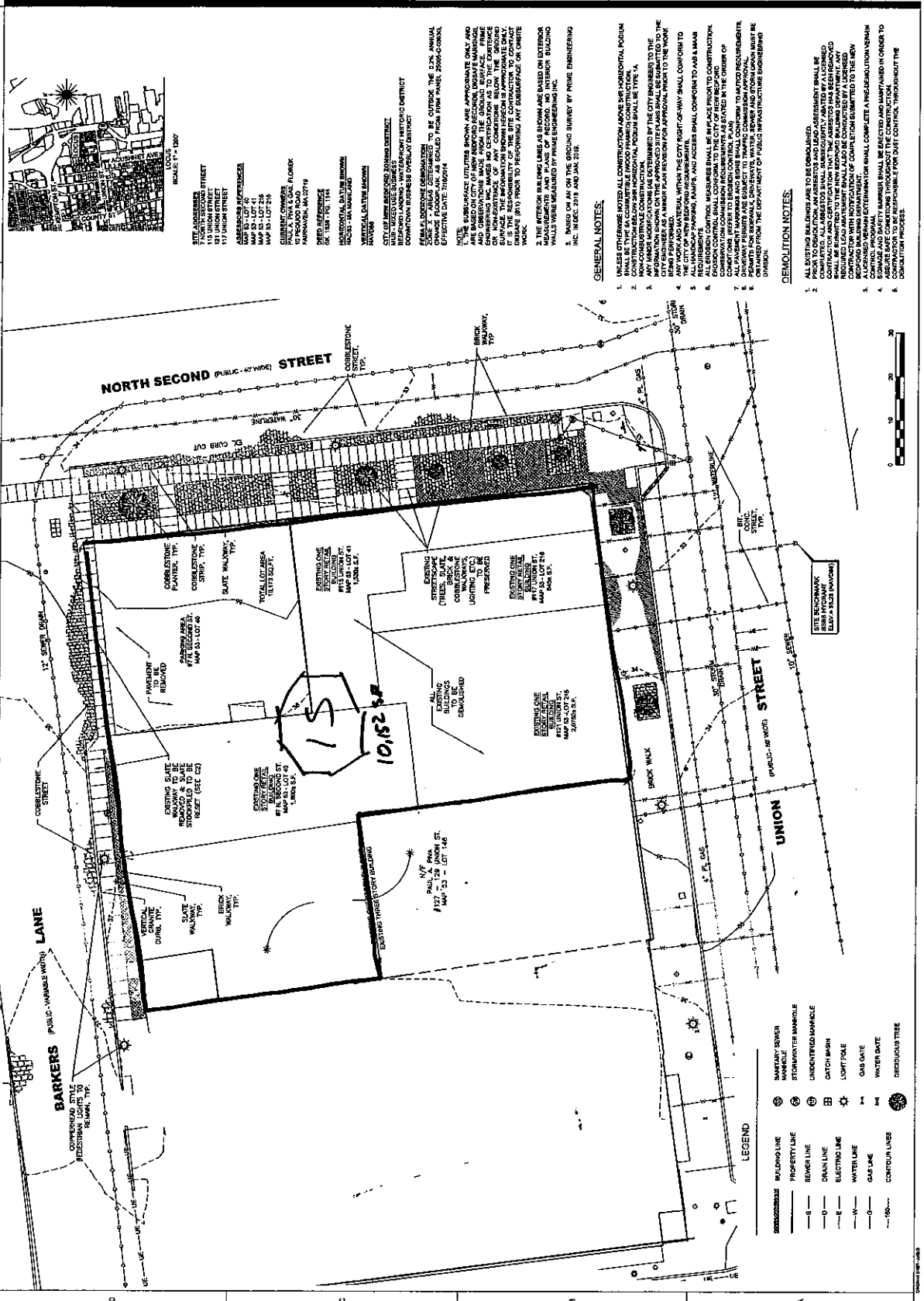
211 Sherman Street
Boston, MA 02203
Tel: 617 552-3000
www.stantec.com



PRIME ENGINEERING
115 Union Street
Boston, MA 02203
Tel: 617 552-3000
www.prime-engineering.com

| NO. | DATE | DESCRIPTION |
|-----|----------|-------------------|
| 1 | 10/15/10 | ISSUED FOR PERMIT |
| 2 | 10/15/10 | ISSUED FOR PERMIT |
| 3 | 10/15/10 | ISSUED FOR PERMIT |
| 4 | 10/15/10 | ISSUED FOR PERMIT |
| 5 | 10/15/10 | ISSUED FOR PERMIT |
| 6 | 10/15/10 | ISSUED FOR PERMIT |
| 7 | 10/15/10 | ISSUED FOR PERMIT |
| 8 | 10/15/10 | ISSUED FOR PERMIT |
| 9 | 10/15/10 | ISSUED FOR PERMIT |
| 10 | 10/15/10 | ISSUED FOR PERMIT |

17 Union Street
Cambridge, MA 02142
17 Union Street
Boston, MA 02203
17 Union Street
Boston, MA 02203



LOCAL MAP
PROJECT # 1052 SF

SITE ADDRESS
115 UNION STREET
BOSTON, MA 02203

ASSESSOR'S REFERENCES
MAP 23 - LOT 76
MAP 23 - LOT 216
MAP 23 - LOT 218

CURRENT ZONING
M-2A (MAP 23-022)

DEED REFERENCE
BOOK 1000, PAGE 100
BOOK 1000, PAGE 100

ADJACENT PROPERTIES
115 UNION STREET
117 UNION STREET
119 UNION STREET

ADJACENT UTILITIES
WATER, GAS, SEWER, TELEPHONE, CABLE, FIBER OPTIC

ADJACENT LAND USES
RESIDENTIAL, COMMERCIAL, OFFICE

ADJACENT STREET NAMES
NORTH SECOND STREET
UNION STREET
BARKERS LANE

GENERAL NOTES:

- UNLESS OTHERWISE NOTED ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY ENGINEER'S SPECIFICATIONS AND THE CITY ENGINEER'S APPROVAL SHALL BE OBTAINED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY ENGINEER'S APPROVAL.
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EXISTING CONDITIONS & DEMOLITION PLAN

1. ALL EXISTING BUILDINGS ARE TO BE DEMOLISHED.
2. DEMOLITION SHALL BE IN ACCORDANCE WITH THE CITY ENGINEER'S APPROVAL.
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4. DEMOLITION SHALL BE IN ACCORDANCE WITH THE CITY ENGINEER'S APPROVAL.
5. DEMOLITION SHALL BE IN ACCORDANCE WITH THE CITY ENGINEER'S APPROVAL.

LEGEND

- BUILDING LINE
- PROPERTY LINE
- SEWER LINE
- DRAIN LINE
- ELECTRIC LINE
- WATER LINE
- GAS LINE
- CONTIGUOUS LINE
- SEWER/SEWER
- STORMWATER MANHOLE
- UNIDENTIFIED MANHOLE
- CATCH BASIN
- LIGHT POLE
- GAS DATE
- WATER DATE
- DEGROUND TIE

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UNION STREET - PRE

Type III 24-hr 2-Year Rainfall=3.40"

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Page 2

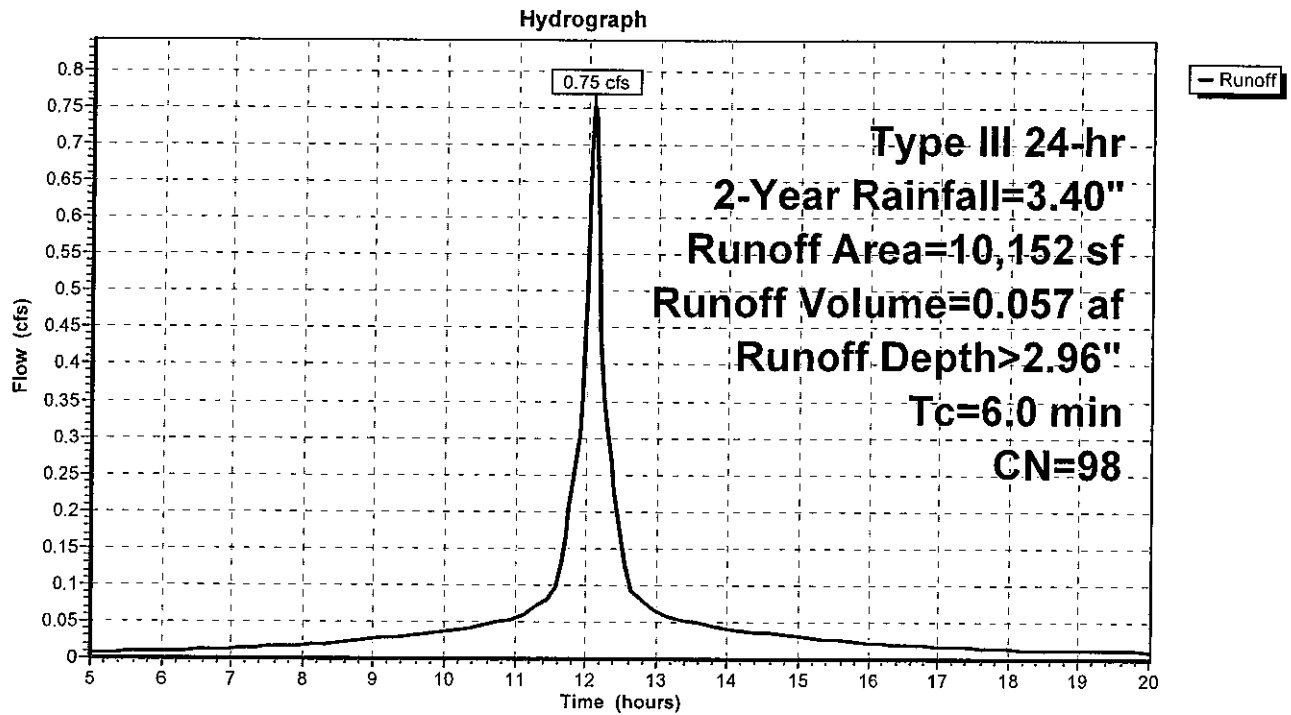
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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: EXISTING SITE

Runoff Area=10,152 sf 100.00% Impervious Runoff Depth>2.96"
Tc=6.0 min CN=98 Runoff=0.75 cfs 0.057 af

Total Runoff Area = 0.233 ac Runoff Volume = 0.057 af Average Runoff Depth = 2.96"
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.233 ac

Subcatchment 1S: EXISTING SITE



UNION STREET - PRE

Type III 24-hr 10-Year Rainfall=4.80"

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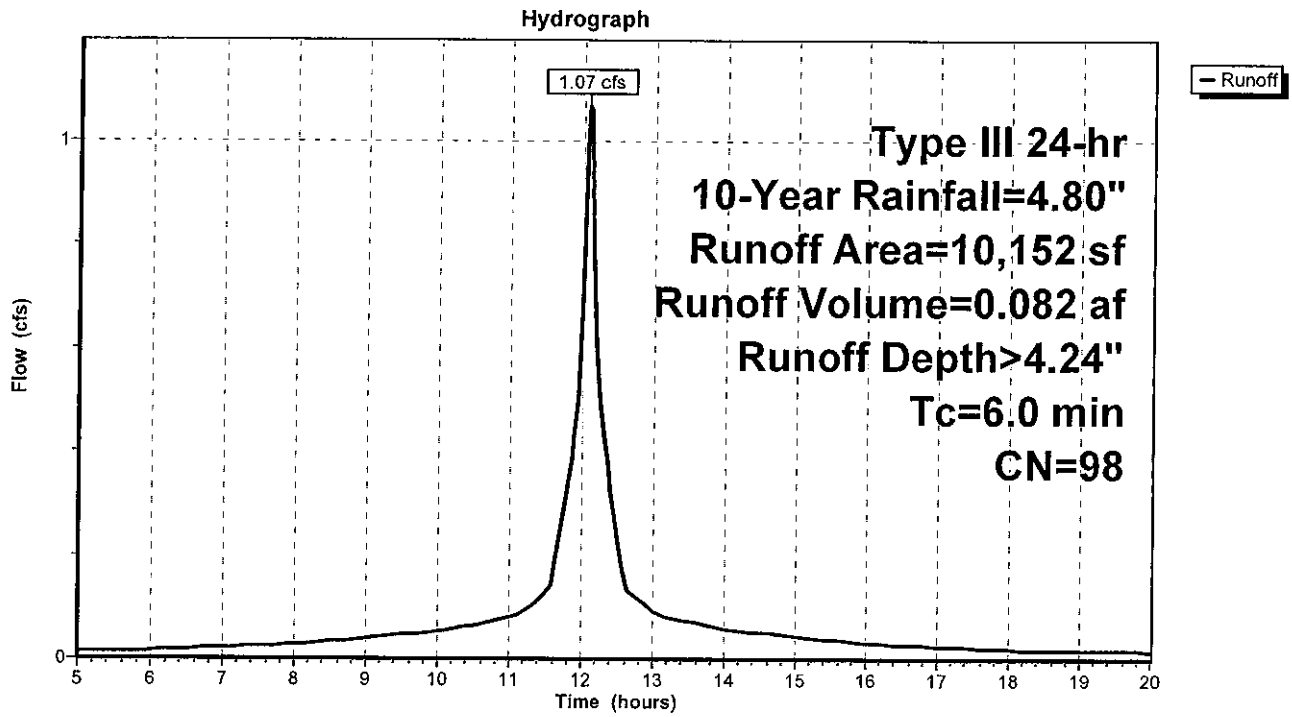
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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: EXISTING SITE

Runoff Area=10,152 sf 100.00% Impervious Runoff Depth>4.24"
Tc=6.0 min CN=98 Runoff=1.07 cfs 0.082 af

Total Runoff Area = 0.233 ac Runoff Volume = 0.082 af Average Runoff Depth = 4.24"
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.233 ac

Subcatchment 1S: EXISTING SITE



UNION STREET - PRE

Type III 24-hr 100-Year Rainfall=7.00"

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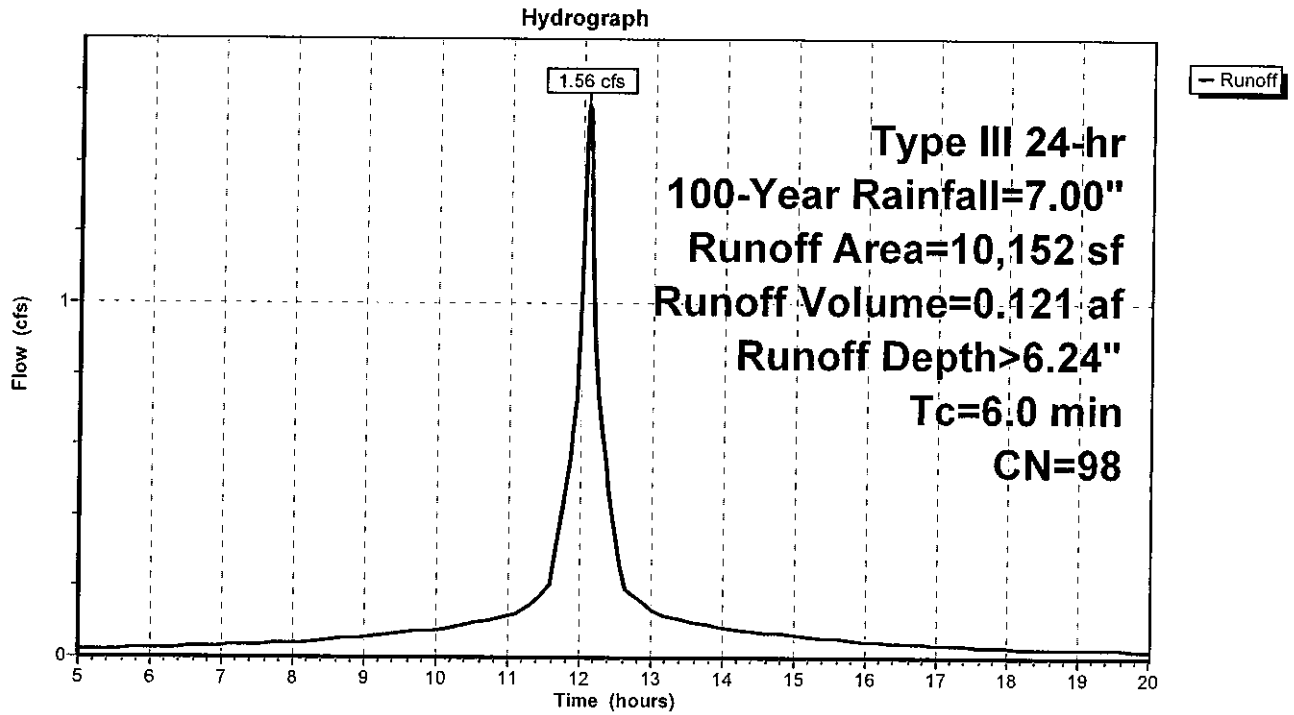
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Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: EXISTING SITE

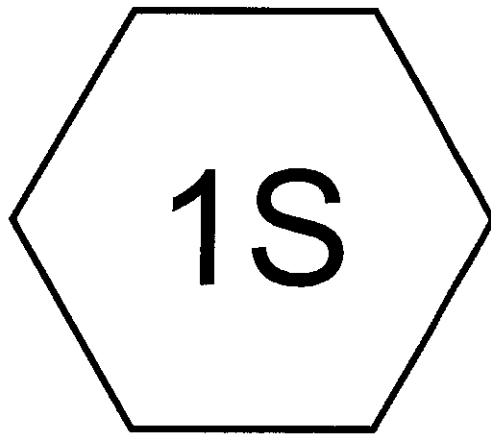
Runoff Area=10,152 sf 100.00% Impervious Runoff Depth>6.24"
Tc=6.0 min CN=98 Runoff=1.56 cfs 0.121 af

Total Runoff Area = 0.233 ac Runoff Volume = 0.121 af Average Runoff Depth = 6.24"
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.233 ac

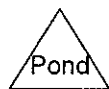
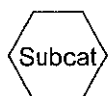
Subcatchment 1S: EXISTING SITE



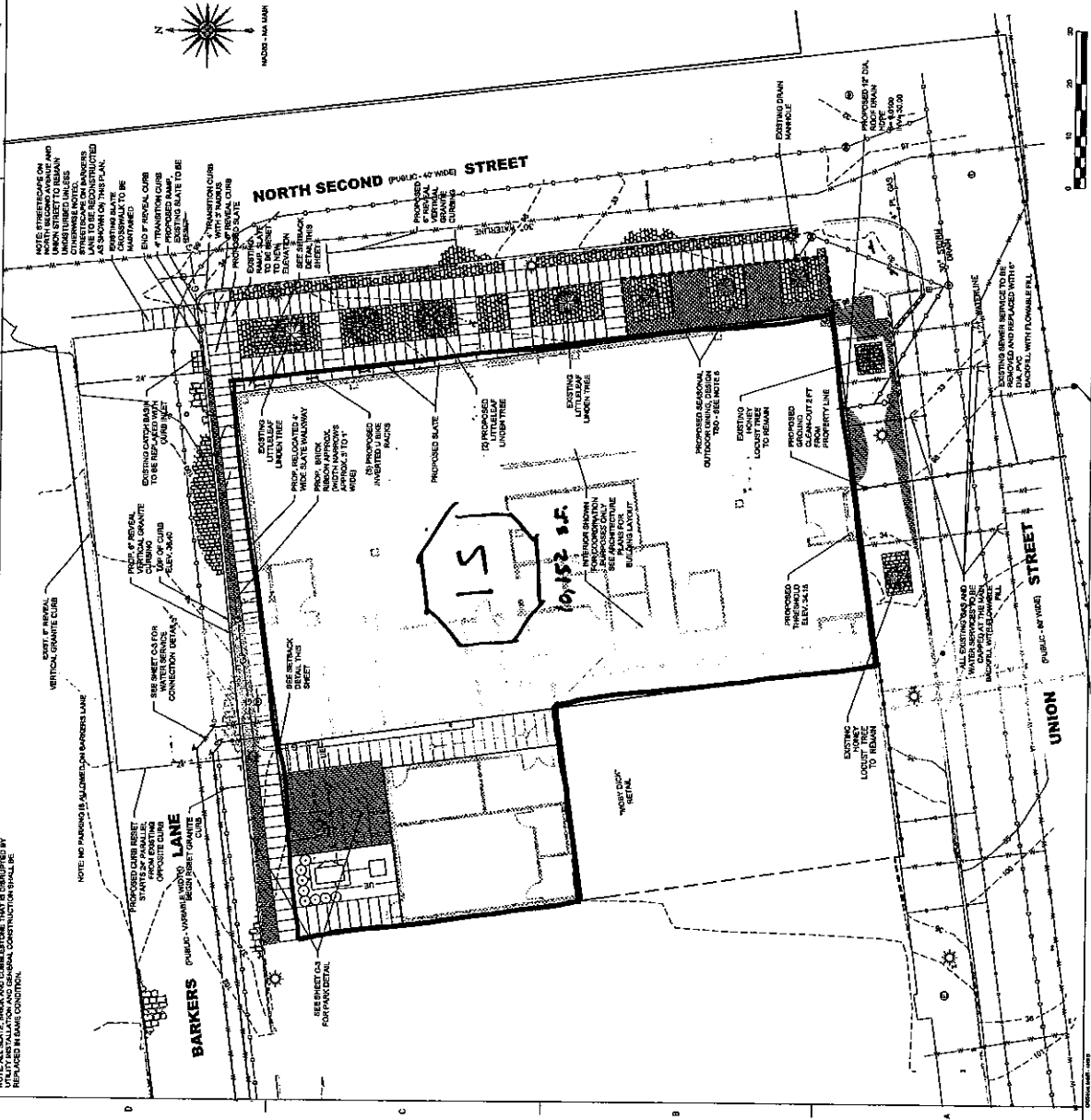
DEVELOPED CONDITIONS



PROPOSED SITE



Routing Diagram for UNION STREET - POST
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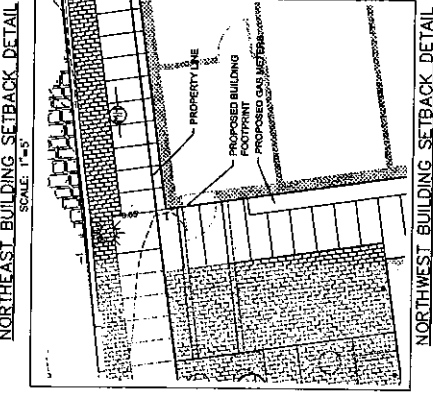
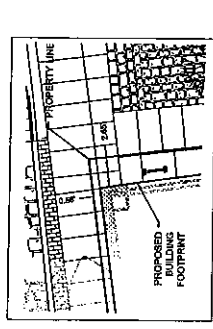


LAYOUT NOTES:

1. ANY UNION INDICATIONS ARE DETERMINED BY THE CITY ENGINEER TO THE LAYOUTS FOR THE BUILDING OR FOR THE APPROVED SITE PLAN SHALL BE SUBMITTED TO THE CITY ENGINEER AS A BUILDING PLAN REVISION PRIOR TO THE WORK BEING PERFORMED.
2. ALL EXISTING UTILITIES SHALL BE MAINTAINED WITHIN THE CITY RIGHT-OF-WAY SHALL CONFORM TO THE CITY OF NEW BEDFORD STANDARDS.
3. ALL EXISTING UTILITIES SHALL BE MAINTAINED WITHIN THE CITY RIGHT-OF-WAY SHALL CONFORM TO THE CITY OF NEW BEDFORD STANDARDS.
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UTILITY NOTES:

1. THE CONTRACTOR SHALL OBTAIN A STREET DETURBANCE AND OBSTRUCTION PERMIT PRIOR TO ANY CONSTRUCTION WITHIN THE RIGHT-OF-WAY.
2. ALL EXISTING UTILITIES SHALL BE MAINTAINED WITHIN THE CITY RIGHT-OF-WAY SHALL CONFORM TO THE CITY OF NEW BEDFORD STANDARDS.
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NOTE: ALL SWAY, BRICK AND CONCRETE MAY BE CHANGED BY THE CONTRACTOR AT HIS OWN RISK AND WITHOUT THE NECESSITY OF A PLAN REVISION. ALL OTHER MATERIALS SHALL BE AS SHOWN ON THIS PLAN.

NOTE: THE SETBACK FOR THE BAKERS LANE SHALL BE MAINTAINED WITHIN THE CITY RIGHT-OF-WAY SHALL CONFORM TO THE CITY OF NEW BEDFORD STANDARDS.

NOTE: THE SETBACK FOR THE UNION STREET SHALL BE MAINTAINED WITHIN THE CITY RIGHT-OF-WAY SHALL CONFORM TO THE CITY OF NEW BEDFORD STANDARDS.

NOTE: THE SETBACK FOR THE NORTH SECOND STREET SHALL BE MAINTAINED WITHIN THE CITY RIGHT-OF-WAY SHALL CONFORM TO THE CITY OF NEW BEDFORD STANDARDS.

Stantec
 STANTEC ENGINEERING & ARCHITECTURE
 1211 MARKET STREET
 NEW BEDFORD, MA 01909
 TEL: (508) 538-1100
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PRIME ENGINEERING
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 NEW BEDFORD, MA 01909
 TEL: (508) 538-1100
 WWW.PRIMEENGINEERING.COM

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Permitted

128 Union Street
 117 Union Street
 117 Union Street, LLC
 New Bedford, MA 01909
 Project No: 2012-001
 Drawing No: 117-1-1
 Scale: 1" = 5'

POST
 117-1-1
 SITE LAYOUT & UTILITIES PLAN

UNION STREET - POST

Type III 24-hr 2-Year Rainfall=3.40"

Prepared by {enter your company name here}

Printed 3/22/2019

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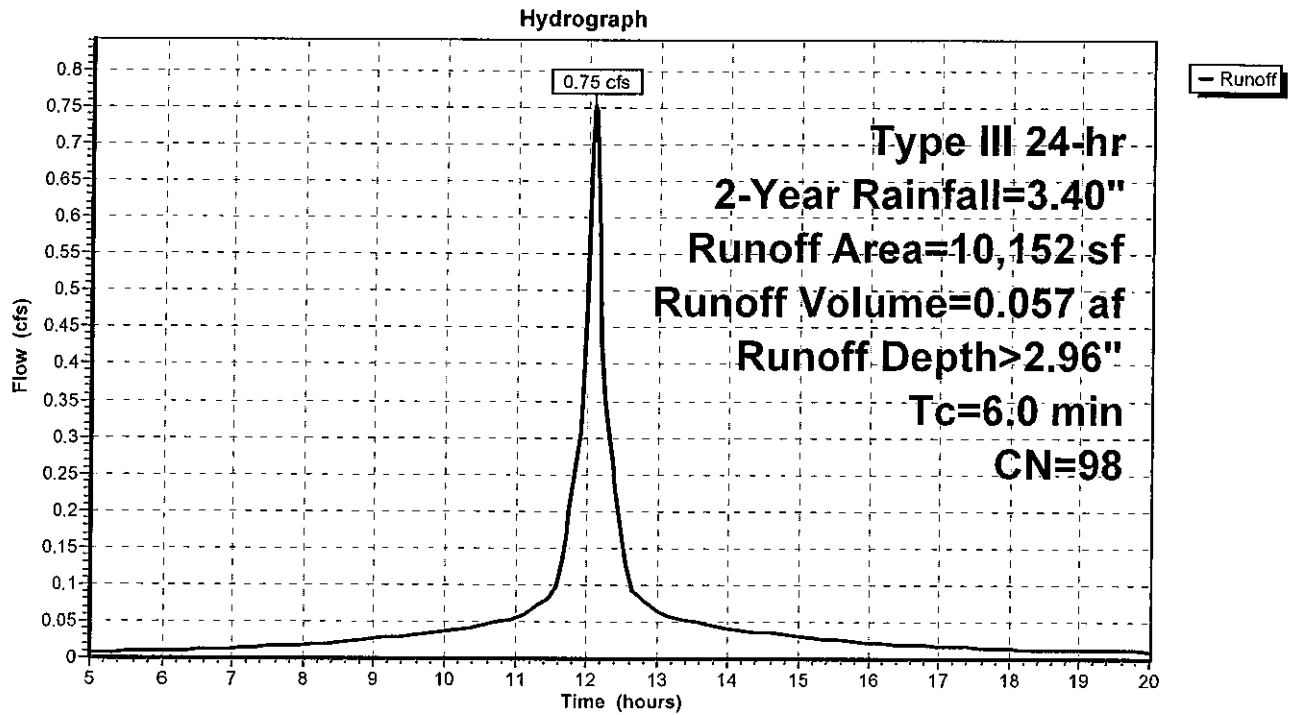
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Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: PROPOSED SITE

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Subcatchment 1S: PROPOSED SITE



UNION STREET - POST

Type III 24-hr 10-Year Rainfall=4.80"

Prepared by {enter your company name here}

Printed 3/22/2019

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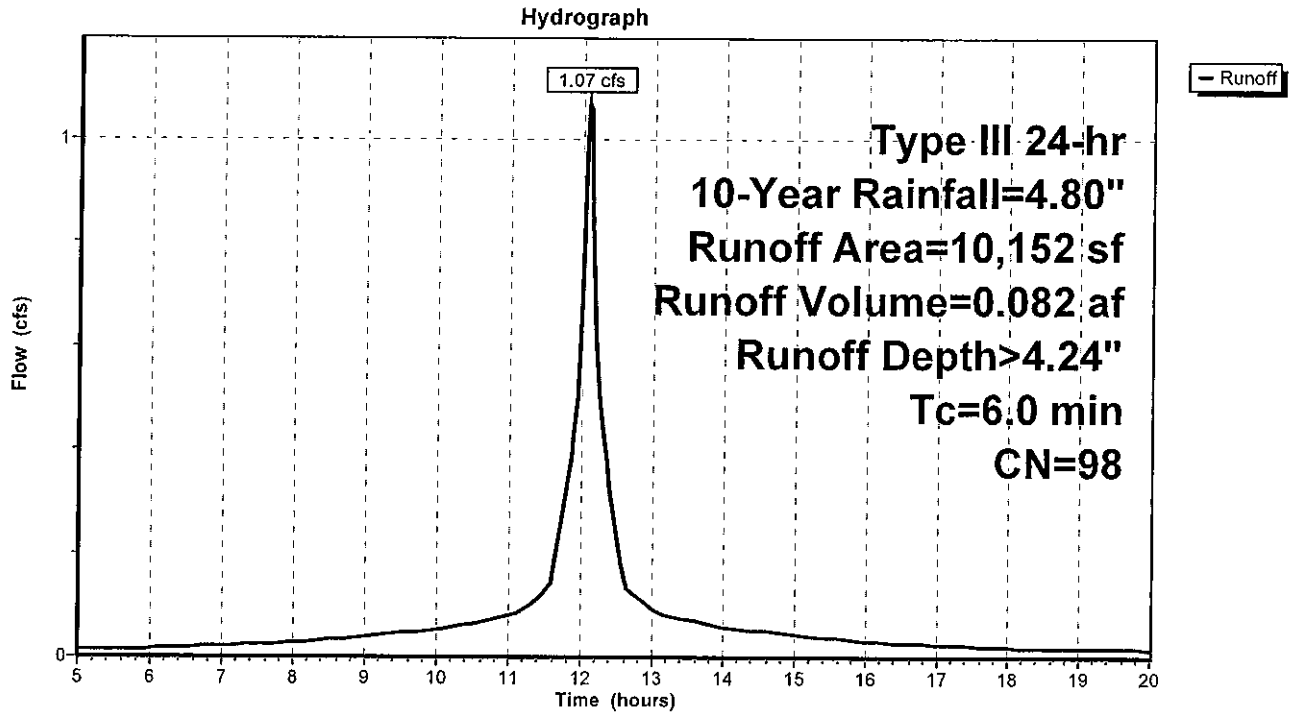
Page 4

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0.00% Pervious = 0.000 ac 100.00% Impervious = 0.233 ac

Subcatchment 1S: PROPOSED SITE



UNION STREET - POST

Type III 24-hr 100-Year Rainfall=7.00"

Prepared by {enter your company name here}

Printed 3/22/2019

HydroCAD® 10.00-22 s/n 01299 © 2018 HydroCAD Software Solutions LLC

Page 6

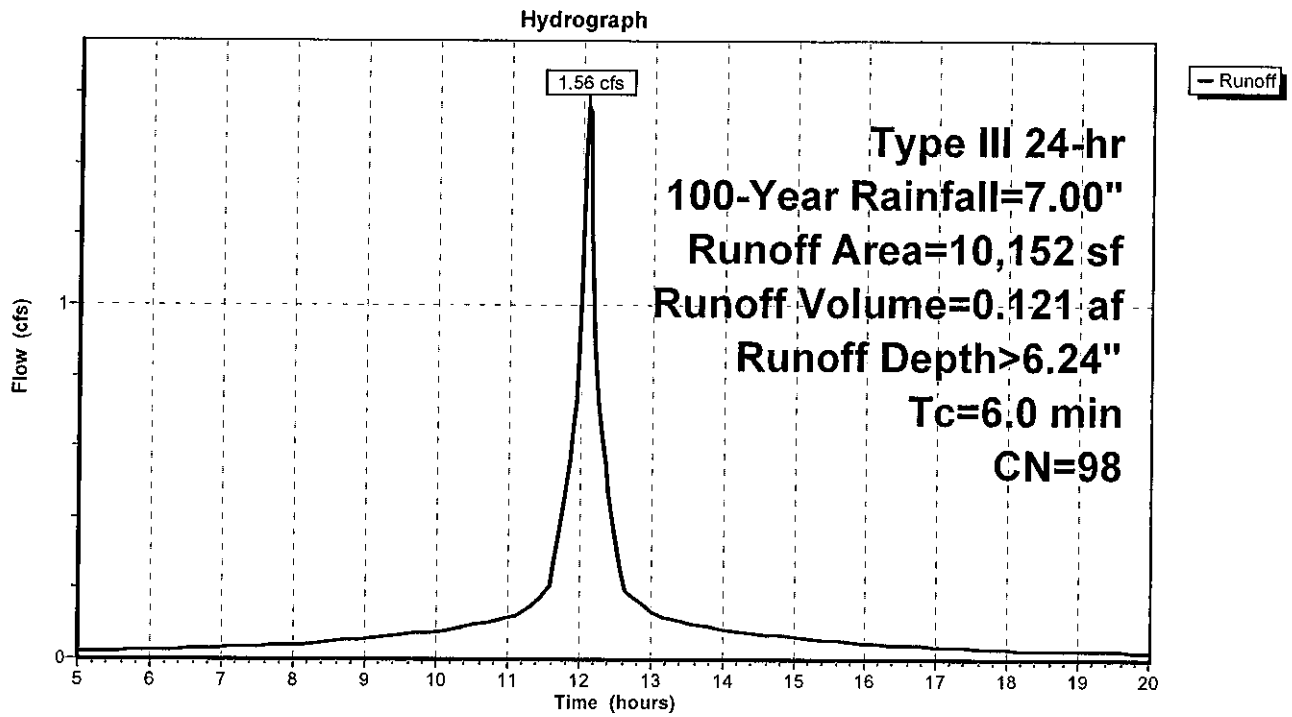
Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: PROPOSED SITE

Runoff Area=10,152 sf 100.00% Impervious Runoff Depth>6.24"
Tc=6.0 min CN=98 Runoff=1.56 cfs 0.121 af

Total Runoff Area = 0.233 ac Runoff Volume = 0.121 af Average Runoff Depth = 6.24"
0.00% Pervious = 0.000 ac 100.00% Impervious = 0.233 ac

Subcatchment 1S: PROPOSED SITE



APPENDIX B

EROSION AND SEDIMENT CONTROLS PLAN

EROSION AND SEDIMENT CONTROLS

Soil erosion is the process by which the surface of the land is worn away by the action of wind, water, ice, and gravity. Natural or geologic erosion is a factor in creating the topographic features of the earth as we know it today. Except for some cases of shoreline and stream channel erosion, natural erosion occurs at a very slow and uniform rate. Accelerated erosion occurs when the surface of the land is disturbed and vegetation is removed by either natural forces or man's activities. Exposed, unprotected soil is then subject to rapid erosion by the action of wind or water. The erosive action of water can be separated into two categories. Raindrop erosion is the result of the vertical force of falling water; sheet, rill, and gully erosion are the result of the horizontal force of flowing water. Both forces detach and move soil particles.

During construction, the contractor is directed to comply with the precautionary measures provided in the contract documents, and to conduct construction activities in such a manner as to prevent damage or impairment to the environment. It shall be the contractor's responsibility not to undertake at any time, in any particular area, more than that magnitude of work which can be safely and adequately controlled by the forces at their disposal. Failure on the part of the contractor to cooperate with the person whose responsibility it is to regulate the works set forth in the contract documents to successful completion shall constitute grounds for suspension of construction activities of the contract. An emphasis shall be made to control erosion before it occurs. Upon completion of the project, no soil shall be left exposed (bare) in any of the construction areas of the site.

Erosion and Sediment Control Plan

To address the above issues, an Erosion and Sediment Controls Plan has been developed which describes the potential for erosion and sedimentation problems and explains and illustrates the measures which are to be taken to control those issues. The plan is implemented by the project contractor based on requirements as shown on the construction drawings and technical specifications, as well as requirements detailed in permits which become part of the contract between the owner and contractor.

Erosion and Sediment Control Techniques

Erosion and sedimentation controls shall be employed to minimize erosion and transport of sediment into on-site and adjacent resource areas during the earthwork and construction phases of the project. The major erosion control techniques proposed include hay bale barriers, silt fence barriers, inlet sediment traps, a stabilized construction entrance, and erosion control matting. A detailed description of each technique is discussed below.

Temporary Erosion Control Measures

During construction and demolition activities, the following measures shall be employed to minimize the potential impacts to downstream water resources from siltation and sedimentation.

Drainage Swale Hay Bale Check Dams

Hay bales shall be placed across construction ditches during construction to limit the transport of sediment into drainage systems and waterways.

Silt Fences

Silt fences shall be placed at the limits of work where the slope is less than two percent. Typically, they shall be installed adjacent to resource areas, where soil will be exposed due to construction related activities, as depicted on the plans. They shall be placed in a sturdy, upright position and supported/anchored to withstand the forces of the elements and the circumstances of construction activities. The fences shall be installed in a manner that shall prevent runoff from passing over, under or around the fence (i.e. all of the runoff will pass through the fence). They shall be attached to posts (either steel or wood) in sufficient number to support the fence. The posts shall typically be placed 4 to 8 feet apart. It shall be the construction contractor's responsibility to maintain the fence in a functional condition throughout the duration of construction activities. The contractor shall also remove any large accumulations of sediment in a timely manner and dispose the material appropriately.

Hay Bales

Hay bales shall be placed, in conjunction with silt fences, at the limit of work on steep slopes only. Steep slopes for this project are those which are greater than six percent. The hay bales shall be staked with metal or wood stakes to anchor them to the ground. The contractor shall be responsible for maintaining the hay bales in good condition and replacing them as necessary. Bales that deteriorate and are no longer intact or that become plugged with sediment shall be removed and disposed. They shall be replaced with new hay bales installed as described above.

Erosion and Sediment Control - Maintenance

The project general contractor shall have primary responsibility for implementing temporary and permanent controls described in the plan and shall be responsible for assuring contractor compliance with contract documents including erosion and sediment control measures.

- The on-site contractor shall inspect sediment and erosion control structures weekly and after each rainfall event greater than one-half inch. Records of the inspections shall be prepared and maintained on site by the contractor (see Attachment B-1).
- Silt shall be removed from behind barriers if greater than 6 inches deep or as needed to ensure the stability of the control device.

- Damaged or deteriorated items shall be repaired or replaced immediately after identification.
- The underside of hay bales shall be kept in close contact with the earth and reset as necessary.

Once construction in a particular area has been completed and the areas have been stabilized, these temporary devices shall be removed.

ATTACHMENT B-1

INSPECTION AND MAINTENANCE REPORT FORM

**STORMWATER POLLUTION PREVENTION PLAN
WEEKLY INSPECTION AND MAINTENANCE REPORT FORM**

Inspector: _____ Title _____ Date: _____

Specific Site Location: _____

STABILIZATION MEASURES

| AREA | INSTALLED? (Yes/No) | CONDITION OF STABILIZATION MEASURE |
|------------------------------|------------------------|---------------------------------------|
| Silt Fences | | |
| Sediment Filter Mitt Berm | | |
| Stabilization for Stockpiles | | |
| Seeding and Planting | | |
| Geotextile Fabrics | | |

STABILIZATION REQUIRED:

TO BE PERFORMED BY: _____ **ON OR**

BEFORE: _____

Make note of the date and location of the following:

- The start of grading activities
- Temporary or permanent cease of grading activities
- Implementation of temporary stabilization
- Implementation of final stabilization

**STORMWATER POLLUTION PREVENTION PLAN
WEEKLY INSPECTION AND MAINTENANCE REPORT FORM
Continued**

Weather information for the period since the last inspection (or since commencement of construction activity if the first inspection) including a best estimate of the beginning of each storm event, duration of each storm event, approximate amount of rainfall for each storm event (in inches), and whether any discharges occurred;

Weather information and a description of any discharges occurring at the time of the inspection;

Form A-III

**STORMWATER POLLUTION PREVENTION PLAN (SWPPP)
INSPECTION CHECKLIST - TO BE COMPLETED BY CONTRACTOR**

Inspected By: _____, Title _____ Date: _____

| YES | NO | DOES NOT APPLY | ITEM |
|---------------------|----|----------------|---|
| | | | Are the BMPs called for on the SWPPP installed in the proper location and according to the specification of the SWPPP? |
| | | | Are all operational stormwater inlets protected from sediment flow? |
| | | | Do any erosion/siltation control measure require repair or clean-out to maintain adequate function? If yes, indicate which ones. |
| | | | Are on-site construction traffic routes, parking, and storage of equipment and supplies restricted to areas specifically designated for those uses? |
| | | | Are the locations of temporary soil stockpiles or construction materials in approved areas? |
| | | | Do any seeded or landscaped areas require maintenance irrigation, fertilization, seeding or mulching? |
| | | | Is there any evidence that sediment is leaving the site? |
| | | | Is there any evidence of erosion on cut or fill slopes? |
| | | | Is there any evidence of sediment, debris, or mud on public roads at intersections with site access roads? |
| | | | Notes: |
| Action to be Taken: | | | |

Note: See Page 13, Part 4 (Inspections) of the General Permit (Attachment "L") for additional inspection report requirements.

APPENDIX C

**PERMANENT STORMWATER
OPERATION AND MAINTENANCE PROGRAM**

**PERMANENT STORMWATER
OPERATION AND MAINTENANCE PROGRAM FOR
PROPOSED MULTI USE FACILITY AT 117 UNION STREET**

PREPARED FOR:

**117 UNION STREET, LLC
128 UNION STREET
NEW BEDFORD, MA 02740**

PREPARED BY:

**PRIME ENGINEERING, INC.
P.O. BOX 1088
LAKEVILLE, MA 02347**

MARCH 21, 2019

PERMANENT STORMWATER OPERATION AND MAINTENANCE PROGRAM

1.0 INTRODUCTION

The plans for the multi use facility at 117 Union Street have been designed to protect stormwater quality. In order for this to continue in the long term, it is necessary to implement the following Permanent Stormwater Operation and Maintenance Program.

2.0 RESPONSIBLE PARTY

Responsible Party: Michael Galasso
117 Union St LLC
128 Union Street
New Bedford, MA 02740
(617) 316-5895

3.0 SOURCE CONTROL MEASURES

The most effective means of providing clean runoff is to prevent pollutants from coming into contact with stormwater in the first place. This involves the following:

- Keeping fertilizers, stockpiles, etc. covered at all times. All such products shall be stored indoors.
- All landscaping, fertilization, and other grounds maintenance, if necessary, shall be performed by personnel who are informed on how to maintain the grounds.
- Periodic removal of windblown debris and litter from the properties.

4.0 MAINTENANCE OF STORM SYSTEM

This section presents the periodic maintenance that must be completed:

- All exterior areas are to be kept free of litter and debris.

5.0 SPILL PREVENTION AND RESPONSE PLAN

The Responsible Party shall train maintenance personnel in the proper handling and cleanup of spilled hazardous substances or oil. No spilled hazardous substances or oil shall be allowed to come in contact with stormwater discharges. If such contact occurs, the stormwater discharge shall be contained on site until appropriate measures in compliance with state and federal regulations are taken to dispose such contaminated stormwater. The Responsible Party shall train personnel in spill prevention and cleanup procedures.

In order to prevent or minimize the potential for a spill of hazardous substances or oil to come into contact with stormwater, the following steps shall be implemented:

- A spill control and containment kit (containing, for example, absorbent materials, rags, gloves, plastic and metal trash containers, etc.) shall be readily available.
- Manufacturer's recommended methods for spill cleanup shall be known and maintenance

personnel shall be trained regarding these procedures and the location of the information and cleanup supplies.

- The Responsible Party shall ensure that hazardous waste discovered or generated at the site is disposed properly by a licensed hazardous material disposal company. The Responsible Party shall not exceed hazardous waste storage requirements mandated by the EPA or state and local authorities.

In the event of a spill of hazardous substances or oil, the following procedures must be followed:

- Measures must be taken to contain and abate the spill and to prevent the discharge of the hazardous substance or oil to stormwater or off-site.
- For spills of less than a quarter gallon of material, proceed with source control and containment, clean-up with absorbent materials or other applicable means unless an imminent hazard or other circumstances dictate that the spill should be treated by a professional emergency response contractor.
- For spills greater than a quarter gallon of material, immediately contact Richard J. Rheaume, LSP, Prime Engineering, Inc., P.O. Box 1088, Lakeville, MA 02347 at (508) 947-0050. Provide information on the type of material spilled, the location of the spill, the quantity spilled, the time of the spill and proceed with prevention, containment and/or clean-up.
- Spills of amounts that exceed reportable quantities of certain substances specifically mentioned in federal regulations 40 CFR 110, 40 CFR 117, and 40 CFR 302 must be immediately reported to the EPA National Response Center at (800) 242-8802.

The Responsible Party shall designate the individuals who shall receive spill prevention and response training. These individuals shall each become responsible for a particular phase of prevention and response. The names of these personnel should be posted in the material storage area and in the property office.

Any spill that occurs shall be documented on a Blank Spill Report that is enclosed as Attachment C-1.

6.0 SNOW AND ICE REMOVAL

Snow and ice shall be removed primarily by mechanical means. Salt and de-icing chemicals shall be used sparingly and only when required to protect public safety.

ATTACHMENT C-1

BLANK SPILL REPORT

SPILL REPORT

SITE ADDRESS: _____

NAME OF PERSON COMPLETING THIS FORM: _____

DATE: _____

TYPE OF MATERIAL: _____ QUANTITY: _____

DESCRIPTION OF RELEASE: _____

CIRCUMSTANCES LEADING TO RELEASE: _____

LOCATION OF SPILL: _____

RESPONSE ACTIONS: _____

PERSONNEL: _____

ATTACH DOCUMENTATION OF NOTIFICATIONS AND CORRECTIVE MEASURES
IMPLEMENTED TO PREVENT REOCCURRENCE

(COPY AS NEEDED)

APPENDIX D

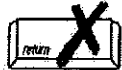
CHECKLIST FOR STORMWATER REPORT



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the Massachusetts Stormwater Handbook. The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature



Richard J. Rheaume
Signature and Date

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- New development
- Redevelopment
- Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
 - Credit 1
 - Credit 2
 - Credit 3
- Use of "country drainage" versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe): _____

Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - Static
 - Simple Dynamic
 - Dynamic Field¹
- Runoff from all impervious areas at the site discharging to the infiltration BMP.
- Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - Site is comprised solely of C and D soils and/or bedrock at the land surface
 - M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - Solid Waste Landfill pursuant to 310 CMR 19.000
 - Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - is within the Zone II or Interim Wellhead Protection Area
 - is near or to other critical areas
 - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - involves runoff from land uses with higher potential pollutant loads.
 - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
 - The ½" or 1" Water Quality Volume or
 - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the proprietary BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted *prior to* the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does *not* cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has *not* been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - Limited Project
 - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - Bike Path and/or Foot Path
 - Redevelopment Project
 - Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- The project is **not** covered by a NPDES Construction General Permit.
- The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - Name of the stormwater management system owners;
 - Party responsible for operation and maintenance;
 - Schedule for implementation of routine and non-routine maintenance tasks;
 - Plan showing the location of all stormwater BMPs maintenance access areas;
 - Description and delineation of public safety features;
 - Estimated operation and maintenance budget; and
 - Operation and Maintenance Log Form.
- The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached;
- NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

APPENDIX E

INTERIM ILLICIT DISCHARGE STATEMENT

INTERIM ILLICIT DISCHARGE STATEMENT

1.0 INTRODUCTION

The following is an Interim Illicit Discharge Statement based on existing conditions and design conditions. Once construction is complete, a final illicit discharge statement shall be issued to the New Bedford Department of Public Infrastructure based on as-built conditions.

2.0 EXISTING CONDITIONS


The existing facility consists of five buildings. There are no known illicit connections in this area. No sources of illicit discharges were uncovered when this system was recently surveyed. Based on this investigation, to the best of my knowledge, there are no current illicit discharges to the storm drainage system. If during construction, an illicit discharge is discovered, it shall be removed immediately.

3.0 PROPOSED DESIGN

The proposed design calls for connection to the existing storm system in Union Street. There are no points in the proposed storm drainage system where illicit discharges are likely to occur.

Certain types of discharges are allowable under the U.S. Environmental Protection Agency Construction General Permit and it is the intent of the site's Permanent Stormwater Operation and Maintenance Plan to allow such discharges. These types of discharges shall be allowed under the conditions that no pollutants shall be allowed to come in contact with the water prior to or after its discharge. The control measures which have been outlined in the Permanent Stormwater Operation and Maintenance Plan shall be strictly followed to ensure that no contamination of these non-stormwater discharges takes place.

I hereby certify that the preceding is accurate.



Richard J. Rheume, P.E., LSP
Prime Engineering, Inc.