

The Morin-Cameron GROUP, INC.

July 11, 2025

Conservation Commission
37 Shattuck Street
1st Floor, B100
Littleton, MA 01460

Re: Notice of Intent – 97 & 99 Mill Road
Owner: Town of Littleton, Municipal Light Department, 39 Ayer Rd, Littleton, MA 01460
Applicant: Littleton BESS LLC, c/o Citizens Energy Corporation

Dear Mass DEP/Commission Members:

On behalf of the applicant, Littleton BESS LLC ('*Proponent*'), The Morin-Cameron Group, Inc. ('*MCG*') hereby submits a revised WPA Form 3: Notice of Intent Application to construct a new Battery Energy Storage System ('*BESS*') at 97 & 99 Mill Road which is owned by Town of Littleton Municipal Light Department ('*LMLD*'). The proposed project involves the construction of an enclosed electrical equipment area, five (5) utility poles that will service the electrical equipment area, removal of stockpiles, stabilization of gravel access areas and restoration of previously degraded/disturbed riverfront area. The proposed electrical equipment area includes four (4) BESS Enclosures, three (3) Transformers, one (1) 25kV SGU (Switchgear Unit) and one (1) BOS (Balance of System) Control Panel. The electrical equipment area is proposed to be put into service through proposed underground and overhead cables, a series of five (5) new utility poles will be installed along the existing access route and connected to an existing utility pole at the Northern corner of the property near the intersection of Warren Street and Mill Road.

The proposed BESS enclosure is situated along the boundary of Route 495 on within a 4.4 acre property with frontage on Mill Road. The property is entirely developed between lot lines and Beaver Brook as a mill and lumberyard. The property was recently acquired by LMLD and now being used for municipal electric and light operations as well as other temporary contracting uses such as materials stockpiling. The property is within the Industrial B (IB) Zoning District. The property is bounded by Beaver Brook, a perennial stream which has a 200' riverfront area extending from its bank. LEC Environmental Consultants, Inc. ('*LEC*') conducted a site evaluation on April 17, 2024 to identify and delineate protectable Wetland Resource Areas associated with Beaver Brook. There is also a small isolated vegetated wetland located within the Route 495 right of way which has a 100' buffer zone under the Little Wetland Bylaw that extends into the site. LEC delineated with sequentially numbered, blue flags numbered R1 through R45, The Bank - MAHW (Mean Annual High Water) Line. MCG used these flag locations to determine the 100' & 200' Riverfront Area, which are shown on the Redevelopment Site

Plans ('Plans'). In addition to the stream, according to the July 7, 2014 Federal Emergency Management Agency Flood Insurance Rate Map for Littleton, Massachusetts (Map No: 25017C0236F), the property is partially located within Zone X [Area determined to be outside of the 0.2% annual chance floodplain, Zone AE [Special flood hazard areas subject to inundation by the 1% annual chance flood: Base Flood Elevation of 214.2 feet (NAVD88) identified by "water surface elevation" as established at cross section "Q" and the Zone AE Floodway [*The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights*]. The FEMA Flood Profile Baseline Elevation 214.2 (BLSF) was location was determined from an on-the-ground existing conditions instrument survey performed by MCG in April/June 2024 and is shown on the Plans.

According to the Act Regulations, [310 CMR 10.58 29a)], Riverfront Area is defined as the area of land between a river's mean annual high-water and a parallel line measured horizontally 200 feet away. The Riverfront Area is not defined in the Town of Littleton bylaw. The Riverfront Area extends 200 feet horizontally from the Bank - MAHW line of Beaver Brook as described above and includes portions of the existing developed buildings and other cleared and/or grassed areas. The total Riverfront Area on the property is approximately 171, 287 SF (square feet) with approximately 94,711 SF being previously degraded (areas with absence of topsoil and with impervious surfaces). The proposed work falls mostly within the riverfront area and entirely within previously degraded portions of the property.

The proponent proposes to construct a 42' x 105'-4" fenced enclosure to secure the new electrical equipment. The enclosure is situated in a portion of the parcel as far from the stream as possible without impacting access to existing buildings and structures on the premises. Full access around the enclosure is also necessary for maintenance and emergency access. Despite the efforts to keep the enclosure as far as possible from the stream, it still falls entirely within the outer 100'-200' riverfront area. This work, within previously developed riverfront area is permissible under the Wetlands Protection Act Regulations, 310 CMR 10.58.

According to 310 CMR 10.58(5), the project is considered "*Redevelopment Within Previously Developed Riverfront Area*" because it falls entirely within the footprint of the developed riverfront area. According to the regulation, "*the issuing authority may allow work to redevelop a previously developed riverfront area, provided the proposed work improves existing conditions*". The project is considered redevelopment because it falls within a "*degraded or previously developed area*". The regulations go on to state that "*A previously developed riverfront area contains areas degraded prior to August 7, 1996 by impervious surfaces from existing structures or pavement, absence of topsoil, junkyards, or abandoned dumping grounds*". In this case, the property is devoid of topsoil and consists of areas of pavement and buildings that have been in place since well before August 7, 1996. The issuing authority can permit work within the degraded riverfront area provided that the proponent demonstrates compliance with eight (8) performance standards.

- (a) *At a minimum, proposed work shall result in an improvement over existing conditions of the capacity of the riverfront area to protect the interests identified in M.G.L. c. 131 § 40. When a lot is previously developed but no portion of the riverfront area is degraded, the requirements of 310 CMR 10.58(4) shall be met.*

The proposed project will result in an improvement over existing conditions of the capacity of the riverfront area to protect to protect the interest of the Wetlands Protection Act. The project proposes to remove compacted gravel (impervious) surfaces and to loam/seed these areas to a pervious surface. This reduction in impervious surface will improve stormwater management within the RFA.

The project includes provisions to restore a portion of the inner-most riverfront area adjacent to the proposed work. This includes removal of fill and gravel and replacement with loam and a pollinator meadow mix. The work will not disturb any mature trees and maintain two (2) mature trees. A total of 4,356 square feet of land will be restored between 18' to 90' from the stream bank.

(b) Stormwater management is provided according to standards established by the Department.

The project will result in a reduction in impervious surface area by removing 2 concrete structures and the gravel mentioned above. The proponent proposes to remove and dispose of approximately 719 SF of existing sheds (2) where the proposed crushed stone access route will be constructed. The proposed electrical equipment area will add a total of 1,572 SF of impervious area (concrete pad platforms). The proposed removal/restoration of gravel and the addition of crushed stone will result in a net reduction of approximately 638 SF of gravel area on site. Overall the project has been designed to reduce the amount of compacted gravel/impervious surfaces within the 100'/200' RFA, which results in a net reduction of impervious surfaces on site by 20,596 SF.

An HydroCAD analysis is provided with this resubmission to show that, within the limit of proposed work, the runoff rates for the 2-yr, 10-yr and 100-yr 24-hour storm events decreases from existing to proposed conditions.

With the reduction in impervious area, mitigation of runoff is not necessary, and the project will improve it's capacity to infiltrate stormwater by decreasing impervious area. The use also does not involve any paved surfaces with vehicles requiring treatment. During construction, erosion control measures will be deployed to ensure silt is contained on site during construction. The project fully complies with standards 1-10 of the Stormwater Management Handbook as a redevelopment project.

(c) Within 200-foot riverfront areas, proposed work shall not be located closer to the river than existing conditions or 100 feet, whichever is less, or not closer than existing conditions within 25-foot riverfront areas, except in accordance with 310 CMR 10.58(5)(f) or (g).

No work is proposed closer to the stream bank than the existing condition. Restoration efforts will increase the natural buffer between 24' to 90' from the stream bank.

(d) *Proposed work, including expansion of existing structures, shall be located outside the riverfront area or toward the riverfront area boundary and away from the river, except in accordance with 310 CMR 10.58(5)(f) or (g).*

The fence enclosure was situated outside the 100' buffer zone. Further, the enclosure was value engineered to reduce its footprint size by approximately 30% during pre-application consultation with the Littleton Conservation Commission Agent. Any other area on the property that would accommodate the enclosure and required access around it would have to be situated within the 100' riverfront area which is not desirable.

(e) *The area of proposed work shall not exceed the amount of degraded area, provided that the proposed work may alter up to 10% if the degraded area is less than 10% of the riverfront area, except in accordance with 310 CMR 10.58(5)(f) or (g).*

All work occurs within the degraded riverfront area. No new riverfront area alteration is proposed.

(f) *When an applicant proposes restoration on-site of degraded riverfront area, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), and (e) at a ratio in square feet of at least 1:1 of restored area to area of alteration not conforming to the criteria. Areas immediately along the river shall be selected for restoration. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Restoration shall include: 1. removal of all debris but retaining any trees or other mature vegetation; 2. grading to a topography which reduces runoff and increases infiltration; 3. coverage by topsoil at a depth consistent with natural conditions at the site; and 4. seeding and planting with an erosion control seed mixture, followed by plantings of herbaceous and woody species appropriate to the site;*

There is no new alteration proposed that requires restoration. During the survey, it was determined that the developed portion of the site extended beyond the property line into land owned by the Littleton Conservation Commission (Assessor's Map U35, Lot 30). This land, plus land within the property will be restored. The restoration area is 4,356 square feet with 3,314 square feet being offsite. There will be no changes to existing topography and no removal of mature trees. Some minor pruning of hanging limbs will be necessary but not removal of mature trees.

(g) *When an applicant proposes mitigation either on-site or in the riverfront area within the same general area of the river basin, alteration may be allowed notwithstanding the criteria of 310 CMR 10.58(5)(c), (d), or (e) at a ratio in square feet of at least 2:1 of mitigation area to area of alteration not conforming to the criteria or an equivalent level of environmental protection where square footage is not a relevant measure. Alteration not conforming to the criteria shall begin at the riverfront area boundary. Mitigation may include off-site restoration of riverfront areas, conservation restrictions under M.G.L. c. 184, §§ 31 through 33 to preserve undisturbed riverfront areas that could be otherwise altered under 310 CMR 10.00, the purchase of development rights within the riverfront area, the restoration of bordering vegetated wetland, projects to remedy an existing adverse impact on the interests identified in M.G.L. c. 131, § 40*

for which the applicant is not legally responsible, or similar activities undertaken voluntarily by the applicant which will support a determination by the issuing authority of no significant adverse impact. Preference shall be given to potential mitigation projects, if any, identified in a River Basin Plan approved by the Secretary of the Executive Office of Energy and Environmental Affairs

The project does not propose any mitigation. This standard does not apply.

(h) *The issuing authority shall include a continuing condition in the Certificate of Compliance for projects under 310 CMR 10.58(5)(f) or (g) prohibiting further alteration within the restoration or mitigation area, except as may be required to maintain the area in its restored or mitigated condition. Prior to requesting the issuance of the Certificate of Compliance, the applicant shall demonstrate the restoration or mitigation has been successfully completed for at least two growing seasons.*

This condition will be met once the final certificate of compliance is issued by the commission and recorded to the title of the property. This prohibition of alteration to the restored area is typically noted in this recording.

MA Stormwater Standards Compliance Review:

The proposed work is by definition a "*Redevelopment Within Previously Developed Riverfront Area*" because it falls entirely within the footprint of the developed riverfront area.

- 1) No New Untreated Discharges

There are no new untreated discharges associated with the proposed work. The proposed redevelopment meets this standard.

- 2) Peak Rate Attenuation

The proposed work will decrease impervious area on site and will increase the ability for stormwater to infiltrate into the ground on site. HydroCAD analysis included with this document shows all peak discharges decrease from existing to proposed conditions for the 2-yr, 10-yr and 100-yr 24-hour storm. The proposed redevelopment meets this standard and mitigation of runoff is not necessary.

- 3) Recharge

The proposed work will decrease impervious area on site and will increase the ability for stormwater to infiltrate into the ground on site. A Stormwater Management Calculation was previously submitted to show the amount of additional recharge that is being provided due to the decreased impervious area on site/additional pervious gravel on site. The proposed redevelopment meets this standard.

- 4) Water Quality

The proposed work will decrease impervious area on site, will increase the ability for stormwater to infiltrate into the ground on site and increase the buffer to Beaver Brook with proposed restoration areas. A Long-Term Pollution Prevention Plan is attached and the proposed redevelopment meets this standard.

- 5) Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

The proposed redevelopment is not proposing a LUHPPL, therefore this standard is not applicable.

- 6) Critical Areas

The proposed redevelopment is within a Zone II Wellhead Protection Area. The proposed work will decrease impervious area on site, will increase the ability for stormwater to infiltrate into the ground on site, resurfacing of the existing gravel will not alter the existing drainage pattern or generate new discharges and HydroCAD analysis has shown to reduce the peak runoff rates for the 2-yr, 10-yr and 100-yr 24-hour storm events. The proposed redevelopment meets this standard.

- 7) Redevelopment and Other Projects Subject to the Standards only to the maximum extent practicable

The proposed work will decrease impervious area on site, will increase the ability for stormwater to infiltrate into the ground on site and HydroCAD analysis has shown to reduce the peak runoff rates for the 2-yr, 10-yr and 100-yr 24-hour storm events. The proposed redevelopment meets this standard to the maximum extent practicable.

- 8) Construction Period Pollutants Prevention and Erosion & Sedimentation Control

A Construction Period Pollutants Prevention and Erosion & Sedimentation Control Plan can be found attached to this submittal.

- 9) Operations and Maintenance Plan

No BMPs are proposed, therefore no O&M plan is necessary.

- 10) Prohibition of Illicit Discharges

A Long-Term Pollution Prevention Plan (includes measures to prevent illicit discharges) and an Illicit Discharge Compliance Statement can be found attached to this submittal.

Alternatives Analysis

Evidence has been put forth that the project qualifies as a redevelopment of degraded riverfront area. As such, the performance standards for new work within the riverfront area do not apply. However, in consulting with the Littleton Conservation Commission agent, it was requested to walk through the alternative designs that were considered for this project proposal as efforts were made to minimize it's footprint and impact within the riverfront area. The following is an abbreviated alternatives analysis.

Alternative Locations

Alternative locations were considered for the fence enclosure. The most desirable location is near the entrance of the site, east of the driveway entrance and nearest to Mill Road. This area would place the fence enclosure entirely within degraded riverfront area but between 25' to 75' from the bank. This was not a desirable location as it was very close to the bank.

Situating the enclosure in the middle of the site, outside the riverfront area was considered. This would require demolition and removal of existing structures that are currently in use on the property. This would not work because of the loss of these buildings which causes operational and economic adversity

for the owner and does not garner any benefit to the interests of the riverfront area over that of the desired alternative.

The proponent considered shifting the enclosure closer to the existing building and further away from Beaver Brook. This option would not allow for emergency vehicles to access around the entirety of the proposed enclosure.

Alternative Designs

The original design was approximately 30% larger than that which is proposed on the plans included herewith. During the design process, the Littleton Conservation Commission agent requested that we examine a smaller footprint for the fence enclosure. The proponent had engineers redesign the enclosure to reduce its length by approximately 30'. This reduced footprint allowed the enclosure to be situated entirely outside the 100' riverfront area and maintain the emergency access around the nearest building. The larger enclosure was not as desirable as the selected alternative.

Selected Alternative

The selected alternative is that which is described herein to place the reduced enclosure footprint, outside the 100' riverfront area. It includes restoration of the inner riparian zone and stabilization of surfaces currently encumbered by soil stockpiles and debris. The proposed alternative will also reduce impervious area. No other alternative balanced the interests of the act, minimized impacts to the existing uses of the property and still achieved the project goals of bringing battery energy storage to the Littleton Electric system.

On behalf of the proponent, we humbly request the Commission's vote in support of approving an Order of Conditions for the project. Should you have any questions or concerns, or require additional information, please do not hesitate to contact the undersigned at (978) 777-8586.

Sincerely,

THE MORIN-CAMERON GROUP, INC.



Daniel Sievers, PE
Project Engineer

DTS

Attachments

cc: Littleton BESS LLC
Mass DEP



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.

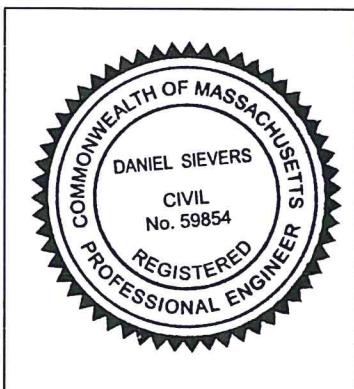
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the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

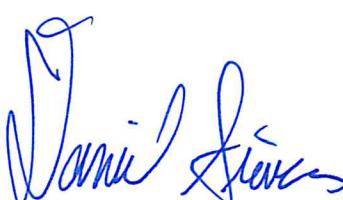
A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

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



 7/11/2025

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 (Wet)
- 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 (*The proposed work will decrease impervious area on site and will increase the ability for stormwater to infiltrate into the ground on site. The proposed redevelopment meets this standard to the maximum extent practicable and mitigation of runoff is not necessary. HydroCAD analysis included with this document shows all peak discharges decrease from existing to proposed conditions for the 2, 10 and 100 yr 24-hour storm*)

- 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 (*The proposed work will decrease impervious area on site and will increase the ability for stormwater to infiltrate into the ground on site. The proposed redevelopment meets this standard to the maximum extent practicable.*)

- 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



Checklist for Stormwater Report

- 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 (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 proposed work will decrease impervious area on site and will increase the ability for stormwater to infiltrate into the ground on site. The proposed redevelopment meets this standard to the maximum extent practicable.*)

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 LUHPPPL;
- 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



Checklist for Stormwater Report

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: ***(The proposed work will decrease impervious area on site and will increase the ability for stormwater to infiltrate into the ground on site. The proposed redevelopment meets this standard to the maximum extent practicable.)***

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 (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 proposed redevelopment is not proposing a LUHPPL, therefore this standard is not applicable)

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



Checklist for Stormwater Report

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 proposed redevelopment is within a Zone II Wellhead Protection Area. The proposed work will decrease impervious area on site, will increase the ability for stormwater to infiltrate into the ground on site, resurfacing of the existing gravel will not alter the existing drainage pattern or generate new discharges and HydroCAD analysis has shown to reduce the peak runoff rates for the 2-yr, 10-yr and 100-yr 24-hour storm events. The proposed redevelopment meets this standard to the maximum extent practicable.)

- 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 (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.



Checklist for Stormwater Report

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 proposed work will decrease impervious area on site and will increase the ability for stormwater to infiltrate into the ground on site. The proposed redevelopment meets this standard to the maximum extent practicable. Each standard is covered in the revised Narrative]

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 (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.



Checklist for Stormwater Report

- 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. **(No BMPs Proposed)**

- 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.

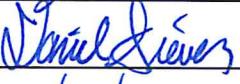
Illicit Discharge Compliance Statement

I, Daniel Sievers, PE, hereby notify the Littleton Conservation Commission that I have not witnessed, nor am aware of any existing illicit discharges at the site known as 97 & 99 Mill Road in Littleton, Massachusetts. I also hereby certify that the development of said property as illustrated on the final plans entitled "Site Redevelopment Plan in Littleton, Massachusetts, 97 & 99 Mill Road," prepared by The Morin-Cameron Group, Inc. dated April 29, 2025 and as revised and approved by the Littleton Conservation Commission and maintenance thereof in accordance with the "Construction Period Pollution Prevention & Erosion and Sedimentation Control Plan" and "Long-Term Best Management Practices Operation and Maintenance Plan" prepared by The Morin-Cameron Group, Inc dated June 10, 2025 and as revised and approved by the Littleton Conservation Commission will not create any new illicit discharges. There is no warranty implied regarding future illicit discharges that may occur as a result of improper construction or maintenance of the stormwater management system or unforeseen accidents.

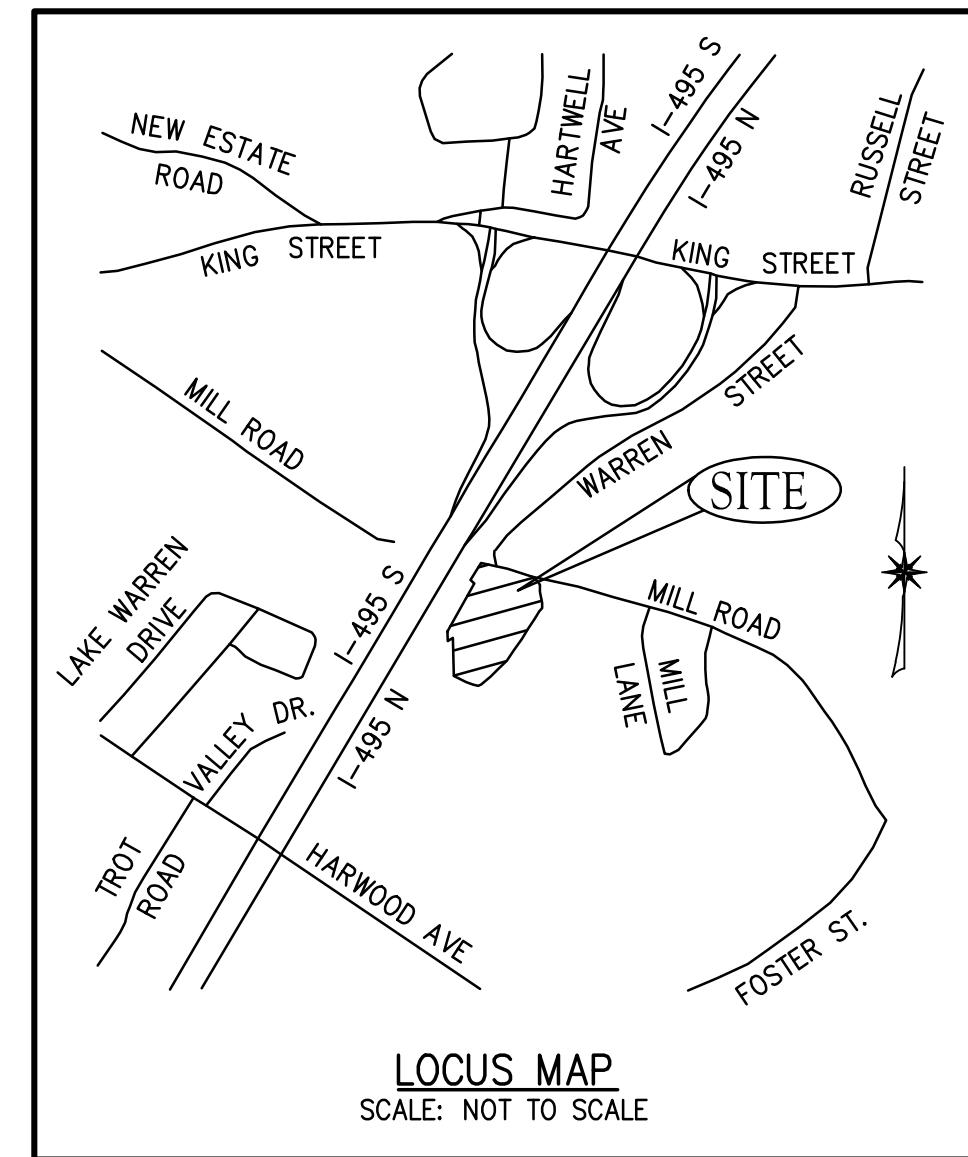
Name: Daniel Sievers, PE

Company: The Morin-Cameron Group, Inc.

Title: Owner's Representative

Signature: 

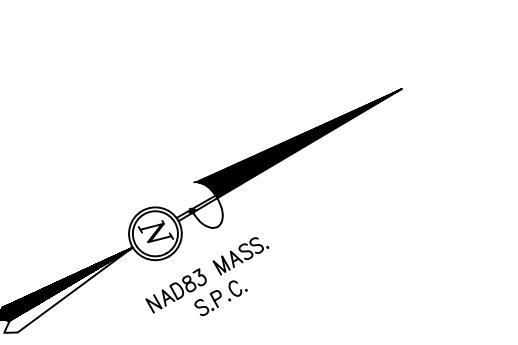
Date: 7/10/2025



RECORD OWNER (97 & 99 MILL ROAD):
TOWN OF LITTLETON
MUNICIPAL LIGHT DEPARTMENT
39 AYER ROAD
LITTLETON, MA 01460
DEED BOOK 81505, PAGE 533 (97 MILL ROAD)
DEED BOOK 82573, PAGE 396 (99 MILL ROAD)
PROJECT CONTACT: NICK LAWLER, (978) 540-2251

APPLICANT:
LITTLETON BESS LLC (STEVE BERN)
C/O CITIZENS ENERGY CORPORATION
2 SEAPORT LANE, SUITE SC
BOSTON, MA 02210
(617) 951-0409

PROPOSED LIMIT OF WORK

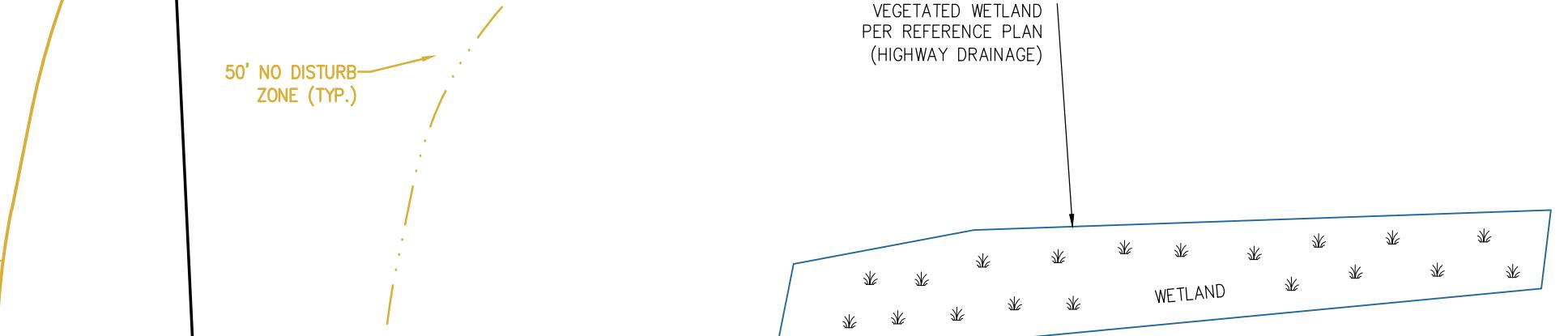


PROPOSED LIMIT OF GRAVEL PATH

PROPOSED LIMIT OF ELECTRICAL EQUIPMENT ENCLOSURE

INTERSTATE ROUTE 495
(1960 STATE HIGHWAY LAYOUT NO. 4891)
(NO ACCESS)

100' BUFFER TO ISOLATED
VEGETATED WETLAND (TYP.)



PROPOSED
RESTORATION
AREAS

LIMIT OF BANK-MEAN ANNUAL HIGH WATER (MAHW)
(EXTENDED DELINEATION PER RECORD PLAN)

PROPERTY BOUNDARY (TYP.)

BEAVER BROOK

BOULDERS (TYP.)

EDGE OF WATER

WF-R45

WF-R44

WF-R43

WF-R42

WF-R41

WF-R40

R39

WF-R38

WF-R37

WF-R36

WF-R35

WF-R34

WF-R33

WF-R32

WF-R31

WF-R30

WF-R29

WF-R28

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WF-R-122

WF-R-123

WF-R-124

WF-R-125

97 & 99 Mill Road: Degraded Area Aerial Imagery/2025 Site Photo Examples

Standard MASS Mapper: The green areas shown as vegetation near/where we are proposing regrading of the existing gravel has tree overhang that is showing a larger vegetation footprint than what is actually there. Our survey data is more accurate and the edge of gravel/stockpiling areas have been located and the proposed work is within that boundary. For instance the whole entrance path from Mill road is shown as grass on the MASS Mapper image below.



MASS mapper (**1990s Aerial Imagery**): Shows the entire site was previously degraded at this point in time. It was previously a lumber mill with almost the whole site being used for the operation.



MASS mapper (**2019 Aerial Imagery**): Shows most of the site is bare and similarly degraded. As you can see the entrance path is clearly established at this point in time.



MASS mapper (**2023 Aerial Imagery**): Shows most of the site is bare and similarly degraded.



2025 Site photos: The below photos represent the current conditions of the site where we are proposing work within the degraded areas.



2025 Site photos: The below photos represent the current conditions of the site where we are proposing work within the degraded areas. (Cont.)



2025 Site photos: The below photos represent the current conditions of the site where we are proposing work within the degraded areas. (Cont.)

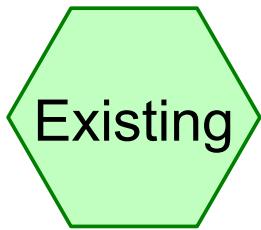


2025 Site photos: The below photos represent the current conditions of the site where we are proposing work. (Cont.)

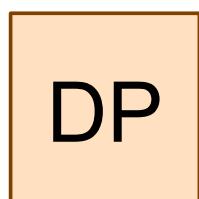
The two sheds pictured to the left are proposed to be removed (see Site Plan).



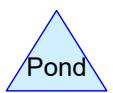
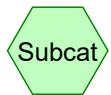
Existing Conditions Hydrologic Report



Existing area within
LOW



Beaver Brook



Routing Diagram for 4268 Existing Conditions

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4268 Existing Conditions

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Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NRCC 24-hr	D	Default	24.00	1	3.16	2
2	10-Year	NRCC 24-hr	D	Default	24.00	1	4.77	2
3	100-Year	NRCC 24-hr	D	Default	24.00	1	8.62	2

4268 Existing Conditions

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Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
4,694	80	>75% Grass cover, Good, HSG D (Existing)
32,207	96	Gravel surface, HSG D (Existing)
719	98	Roofs, HSG D (Existing)

4268 Existing Conditions

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Page 4

Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
37,620	HSG D	Existing
0	Other	

4268 Existing Conditions

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NRCC 24-hr D 2-Year Rainfall=3.16"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment Existing: Existing area

Runoff Area=37,620 sf 1.91% Impervious Runoff Depth=2.51"

Tc=6.0 min CN=94 Runoff=2.27 cfs 7,853 cf

Reach DP: Beaver Brook

Inflow=2.27 cfs 7,853 cf

Outflow=2.27 cfs 7,853 cf

4268 Existing Conditions

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NRCC 24-hr D 2-Year Rainfall=3.16"

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Summary for Subcatchment Existing: Existing area within LOW

Runoff = 2.27 cfs @ 12.13 hrs, Volume= 7,853 cf, Depth= 2.51"
Routed to Reach DP : Beaver Brook

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 2-Year Rainfall=3.16"

Area (sf)	CN	Description
719	98	Roofs, HSG D
4,694	80	>75% Grass cover, Good, HSG D
32,207	96	Gravel surface, HSG D
37,620	94	Weighted Average
36,901		98.09% Pervious Area
719		1.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Reach DP: Beaver Brook

Inflow Area = 37,620 sf, 1.91% Impervious, Inflow Depth = 2.51" for 2-Year event
Inflow = 2.27 cfs @ 12.13 hrs, Volume= 7,853 cf
Outflow = 2.27 cfs @ 12.13 hrs, Volume= 7,853 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

4268 Existing Conditions

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NRCC 24-hr D 10-Year Rainfall=4.77"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment Existing: Existing area

Runoff Area=37,620 sf 1.91% Impervious Runoff Depth=4.08"
Tc=6.0 min CN=94 Runoff=3.58 cfs 12,795 cf

Reach DP: Beaver Brook

Inflow=3.58 cfs 12,795 cf
Outflow=3.58 cfs 12,795 cf

4268 Existing Conditions

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NRCC 24-hr D 10-Year Rainfall=4.77"

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Summary for Subcatchment Existing: Existing area within LOW

Runoff = 3.58 cfs @ 12.13 hrs, Volume= 12,795 cf, Depth= 4.08"
Routed to Reach DP : Beaver Brook

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
719	98	Roofs, HSG D
4,694	80	>75% Grass cover, Good, HSG D
32,207	96	Gravel surface, HSG D
37,620	94	Weighted Average
36,901		98.09% Pervious Area
719		1.91% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Reach DP: Beaver Brook

Inflow Area = 37,620 sf, 1.91% Impervious, Inflow Depth = 4.08" for 10-Year event
Inflow = 3.58 cfs @ 12.13 hrs, Volume= 12,795 cf
Outflow = 3.58 cfs @ 12.13 hrs, Volume= 12,795 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

4268 Existing Conditions

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NRCC 24-hr D 100-Year Rainfall=8.62"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment Existing: Existing area

Runoff Area=37,620 sf 1.91% Impervious Runoff Depth=7.90"
Tc=6.0 min CN=94 Runoff=6.67 cfs 24,762 cf

Reach DP: Beaver Brook

Inflow=6.67 cfs 24,762 cf
Outflow=6.67 cfs 24,762 cf

4268 Existing Conditions

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NRCC 24-hr D 100-Year Rainfall=8.62"

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Summary for Subcatchment Existing: Existing area within LOW

Runoff = 6.67 cfs @ 12.13 hrs, Volume= 24,762 cf, Depth= 7.90"
Routed to Reach DP : Beaver Brook

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
NRCC 24-hr D 100-Year Rainfall=8.62"

Area (sf)	CN	Description
719	98	Roofs, HSG D
4,694	80	>75% Grass cover, Good, HSG D
32,207	96	Gravel surface, HSG D
37,620	94	Weighted Average
36,901		98.09% Pervious Area
719		1.91% Impervious Area

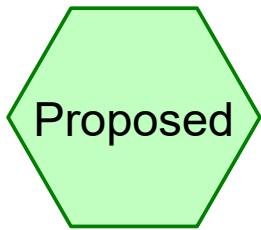
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Reach DP: Beaver Brook

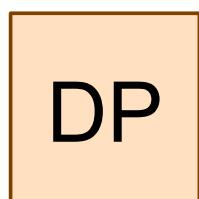
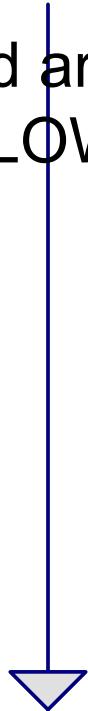
Inflow Area = 37,620 sf, 1.91% Impervious, Inflow Depth = 7.90" for 100-Year event
Inflow = 6.67 cfs @ 12.13 hrs, Volume= 24,762 cf
Outflow = 6.67 cfs @ 12.13 hrs, Volume= 24,762 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

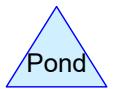
Proposed Conditions Hydrologic Report



Proposed area within
LOW



Beaver Brook



Routing Diagram for 4268 PRoposed Conditions
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Page 2

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2-Year	NRCC 24-hr	D	Default	24.00	1	3.16	2
2	10-Year	NRCC 24-hr	D	Default	24.00	1	4.77	2
3	100-Year	NRCC 24-hr	D	Default	24.00	1	8.62	2

4268 PRoposed Conditions

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Page 3

Area Listing (all nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
11,638	80	>75% Grass cover, Good, HSG D (Proposed)
1,572	98	Concrete Pads- Elec.area, HSG D (Proposed)
24,410	96	Gravel surface, HSG D (Proposed)

4268 PRoposed Conditions

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Soil Listing (all nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
37,620	HSG D	Proposed
0	Other	

4268 PRoposed Conditions

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NRCC 24-hr D 2-Year Rainfall=3.16"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment Proposed: Proposed area Runoff Area=37,620 sf 4.18% Impervious Runoff Depth=2.22"
Tc=6.0 min CN=91 Runoff=2.08 cfs 6,962 cf

Reach DP: Beaver Brook Inflow=2.08 cfs 6,962 cf
Outflow=2.08 cfs 6,962 cf

4268 PRoposed Conditions

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NRCC 24-hr D 2-Year Rainfall=3.16"

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Summary for Subcatchment Proposed: Proposed area within LOW

Runoff = 2.08 cfs @ 12.13 hrs, Volume= 6,962 cf, Depth= 2.22"
 Routed to Reach DP : Beaver Brook

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 2-Year Rainfall=3.16"

Area (sf)	CN	Description
*		
1,572	98	Concrete Pads- Elec.area, HSG D
11,638	80	>75% Grass cover, Good, HSG D
24,410	96	Gravel surface, HSG D
37,620	91	Weighted Average
36,048		95.82% Pervious Area
1,572		4.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Reach DP: Beaver Brook

Inflow Area = 37,620 sf, 4.18% Impervious, Inflow Depth = 2.22" for 2-Year event
 Inflow = 2.08 cfs @ 12.13 hrs, Volume= 6,962 cf
 Outflow = 2.08 cfs @ 12.13 hrs, Volume= 6,962 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

4268 PRoposed Conditions

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NRCC 24-hr D 10-Year Rainfall=4.77"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment Proposed: Proposed area

Runoff Area=37,620 sf 4.18% Impervious Runoff Depth=3.76"
Tc=6.0 min CN=91 Runoff=3.41 cfs 11,785 cf

Reach DP: Beaver Brook

Inflow=3.41 cfs 11,785 cf
Outflow=3.41 cfs 11,785 cf

4268 PRoposed Conditions

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NRCC 24-hr D 10-Year Rainfall=4.77"

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Summary for Subcatchment Proposed: Proposed area within LOW

Runoff = 3.41 cfs @ 12.13 hrs, Volume= 11,785 cf, Depth= 3.76"
 Routed to Reach DP : Beaver Brook

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 10-Year Rainfall=4.77"

Area (sf)	CN	Description
*		
1,572	98	Concrete Pads- Elec.area, HSG D
11,638	80	>75% Grass cover, Good, HSG D
24,410	96	Gravel surface, HSG D
37,620	91	Weighted Average
36,048		95.82% Pervious Area
1,572		4.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Reach DP: Beaver Brook

Inflow Area = 37,620 sf, 4.18% Impervious, Inflow Depth = 3.76" for 10-Year event
 Inflow = 3.41 cfs @ 12.13 hrs, Volume= 11,785 cf
 Outflow = 3.41 cfs @ 12.13 hrs, Volume= 11,785 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

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NRCC 24-hr D 100-Year Rainfall=8.62"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment Proposed: Proposed area

Runoff Area=37,620 sf 4.18% Impervious Runoff Depth=7.54"
Tc=6.0 min CN=91 Runoff=6.54 cfs 23,629 cf

Reach DP: Beaver Brook

Inflow=6.54 cfs 23,629 cf
Outflow=6.54 cfs 23,629 cf

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NRCC 24-hr D 100-Year Rainfall=8.62"

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Summary for Subcatchment Proposed: Proposed area within LOW

Runoff = 6.54 cfs @ 12.13 hrs, Volume= 23,629 cf, Depth= 7.54"
 Routed to Reach DP : Beaver Brook

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 NRCC 24-hr D 100-Year Rainfall=8.62"

Area (sf)	CN	Description
*		
1,572	98	Concrete Pads- Elec.area, HSG D
11,638	80	>75% Grass cover, Good, HSG D
24,410	96	Gravel surface, HSG D
37,620	91	Weighted Average
36,048		95.82% Pervious Area
1,572		4.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Summary for Reach DP: Beaver Brook

Inflow Area = 37,620 sf, 4.18% Impervious, Inflow Depth = 7.54" for 100-Year event
 Inflow = 6.54 cfs @ 12.13 hrs, Volume= 23,629 cf
 Outflow = 6.54 cfs @ 12.13 hrs, Volume= 23,629 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs