STORMWATER MANAGEMENT PROGRAM (SWMP)

VOLUME 1

MS4 Stormwater Runoff Control Measures, Flow Restoration Plan, Phosphorus Control Plan, Municipal Road Standards

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Executive Summary

In June 2003, April 2008, June 2013, January 2019, and January 2024, the Burlington International Airport (BTV) submitted a Notice of Intent (NOI) for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) to the Vermont Agency of Natural Resources to meet the regulations associated with the Environmental Protection Agency Phase II Stormwater Rule.

The Vermont Department of Environmental Conservation (DEC) issued General Permit 3-9014 (2023) for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) on January 16, 2024. Designed to address pollution from stormwater runoff, the re-issued MS4 permit applies to thirteen municipalities and three institutional entities within the Lake Champlain watershed. Communities already subject to the MS4 General Permit include; Burlington, Colchester, Essex, Essex Junction, Milton, Shelburne, South Burlington, Williston and Winooski, as well as the non-municipal or non-traditional entities including the Burlington International Airport, the University of Vermont, and the Vermont Agency of Transportation within the geographical boundaries of these municipalities.

The primary additional conditions of General Permit 3-9014 (2023) have the requirement to continue to update the approved Phosphorus Control Plan (PCP) for developed lands in the associated Total Maximum Daily Loads (TMDL) lake segments as applied to municipally owned developed lands.

To satisfy the requirements of the MS4 permit, BTV has developed a Stormwater Management Program (SWMP) designed to reduce the discharge of pollutants from the airport, to protect water quality and to satisfy the appropriate water quality requirements of the Clean Water Act.

The SWMP consists of three volumes:

Volume 1 – MS4 Minimum Control Measures and TMDL Implementation (Flow Restoration Plan, Phosphorus Reduction Plan, and Municipal Road Requirements)

Volume 1 contains information on how BTV has implemented six minimum stormwater runoff control measures and BTV's compliance with the re-authorized MS4 permit Section 8.0 (TMDL Implementation) for the development and implementation of a Stormwater Flow Restoration Plan, Lake Champlain Phosphorus Control Plan and Municipal Road Requirements.

The information and procedures contained in Volume 1 shall be used by BTV staff and representatives to comply with the Stormwater Rule.

Volume 2 – Stormwater Pollution Prevention Plan (SWPPP)

Volume 2 contains the Stormwater Pollution Prevention Plan which describes the BTV facility and its operations, develops an inventory of potential pollutant sources, identifies controls and best management practices (BMPs) for reducing the discharge of pollutants in stormwater runoff, and outlines measures for

implementation and review of this plan. The Stormwater Pollution Prevention Plan was developed as a requirement of the Multi-Sector General Permit 3-9003 (MSGP).

The Stormwater Pollution Prevention Plan shall be used by BTV staff and representatives to comply with the Stormwater Rule.

Volume 3 – Stormwater Management Study, Final Report

Volume 3 contains the Stormwater Management Study – Final Report was completed to meet regulations associated with the Phase II Stormwater Rule issued in 2002 and the proposed Vermont Watershed Improvement Permits (WIP). The study components are as follows:

- Review existing BTV stormwater discharge permits
- Update existing airport drainage system mapping
- Evaluate existing stormwater discharge outlets
- Development of a stormwater management action plan

This study provides historical information regarding BTVs efforts to comply with the Federal Phase II rule and forms the basis for Volumes 1 and 2 of the SWMP.

Failure to comply with the information and procedures contained in the Stormwater Management Program may lead to enforcement action against BTV.

Volumes 1 and 2 of the Stormwater Management Program shall be reviewed and updated annually by BTV staff and/or representatives. Volume 3 is included for informational purposes only and does not require updates. The most updated version of each volume will be posted to the BTV website.

1.0 INTRODUCTION

In June 2003, April 2008, June 2013, January 2019, and January 2024, the Burlington International Airport (BTV) submitted a Notice of Intent (NOI) for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) to the Vermont Agency of Natural Resources to meet the regulations associated with the Environmental Protection Agency Phase II Stormwater Rule.

To satisfy the requirements of the newly issued General Permit 3-9014 (2023) MS4 permits (herein referred to as the "reauthorized MS4 permit"). BTV has developed a Stormwater Management Program (SWMP) designed to reduce the discharge of pollutants from the airport, to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act.

The SWMP consists of three volumes:

- Volume 1 – Minimum Control Measures (MCMs) and Total Maximum Daily Loads (TMDL) Implementation (i.e., Flow Restoration Plan, Lake Champlain Phosphorus Control Plan, and Municipal Road Requirements)
- Volume 2 – Stormwater Pollution Prevention Plan
- Volume 3 – Stormwater Management Study Final Report

Volume 1 and 2 of the Stormwater Management Program will be updated on an annual basis. Volume 3 is a completed study, and therefore will not be updated.

Volume 1 contains information on how BTV has implemented the six minimum stormwater runoff control measures required by the MS4 permit. These six minimum control measures are as follows:

1. Public Education and Outreach
2. Public Participation/Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post-Construction Runoff Control
6. Pollution Prevention/Good Housekeeping

In addition, Volume 1 contains information related to discharges to impaired waters with approved Total Maximum Daily Loads (TMDL), and to impaired waters for which a TMDL has not yet been approved by the Secretary of the Vermont Agency of Natural Resources (VT ANR) or the U.S. Environmental Protection Agency (EPA). Specifically, Volume 1 contains information on the development and approval of BTV's Flow Restoration Plan (FRP) and BTV's Lake Champlain Phosphorus Control Plan (PCP), and compliance with Municipal Road Requirements as specified under Section 8.0 of the reauthorized MS4 permit.

The information and procedures contained in Volume 1 shall be used by BTV staff and representatives to comply with the Stormwater Rule. Failure to comply with the six minimum control measures and the discharges to impaired waters section may lead to enforcement action against BTV.

2.0 MINIMUM CONTROL MEASURES

2.1 PUBLIC EDUCATION AND OUTREACH (MCM #1)

The Burlington International Airport is a member of the Chittenden County Regional Stormwater Education Program (RSEP). The purpose of the RSEP is to educate the public on water quality issues and provide tips on how to keep pollutants out of stormwater. Please visit https://rethinkrunoff.org/ to learn more about how you can help improve water quality in Vermont.

For additional information on water quality issues in Burlington, please visit the following pages on the City of Burlington's website:

https://www.burlingtonvt.gov/stormwater

https://www.burlingtonvt.gov/water/quality

These links, a link to the RSEP website, previous MS4 Annual Reports, and BTV's Stormwater Management Program are posted on the environmental page of the airport's website:

http://www.btv.aero/index.php/airport-guide/community-connection

2.1.1 BMP #1: Website maintained with locally relevant stormwater information

***Rationale*:** BTV websites are often the place where residents first go to obtain information on stormwater issues. Provision of basic information on such websites will help form a strong initial form of engagement to site visitors.

Measurable Goals: BTV will maintain basic information about stormwater on a dedicated page within its website which describe its stormwater related programming and include links for visitors to learn more. BTV will track the annual number of visits to this page.

2.1.2 BMP #2: Maintain a program to identify opportunities and provide technical assistance on Low Impact BMPs

***Rationale*:** There are several organizations and agencies operating in the Chittenden County MS4 region. By providing such links, the visitor can figure out which entity is best suited to provide technical assistance.

Measurable Goals: BTV will provide links on a dedicated stormwater page within its website with links to relevant non-profits and government resource sites which can provide technical assistance.

2.1.3 BMP #3: Participate in a Regional Stormwater Education Strategy (RSEP)

Effective with meetings commencing in November 2015, the RSEP and the Chittenden County Stream Team (CCST) efforts were overseen by a separate *MS-4 Subcommittee* of the Chittenden County Clean Water Advisory Committee (CWAC). In April 2017, the twelve MS4 permittees in Chittenden County formally adopted an agreement that merged the RSEP and CCST – two regional efforts for which CCRPC has acted as the lead agency. The agreement became effective July 1, 2017, and Rethink Runoff was formed as an ongoing campaign managed by the Chittenden County Regional Planning Commission to help the MS4 permittees to meet the requirements of federal Environmental Protection Agency (EPA) permits regarding stormwater systems. The effort represents the unification of two previously separate permit-driven efforts: the RSEP and the CCST. The RSEP had been formed to meet the Public Education and Outreach requirement of the MS4 permit, while the CCST had been formed to meet the Public Involvement and Participation requirement. BTV will continue to work with the CWAC MS-4 Subcommittee and Rethink Runoff in the ongoing pursuit to educate the public as it relates to water quality issues.

***Rationale*:** Support of the campaign will educate the general public in the MS4 area about key storm water quality issues by using TV, radio, online media placements/advertising to drive viewers to the www.rethinkrunoff.org website.

Measurable Goals: BTV will participate in and provide financial support for operation of the regional Rethink Runoff campaign consisting generally of periodic advertising throughout each year supplemented by a survey of residents every 5 years to track reported behavior with regards to residential stormwater BMPs. Via an annual report provided by the Chittenden County RPC's subcontractor, BTV will document the annual number of site visits to www.rethinkrunoff.org as well as provide other metrics.

2.2 PUBLIC PARTICIPATION/INVOLVEMENT (MCM #2)

BTV has implemented three (3) programs to encourage public participation and involvement in Vermont's water quality improvement efforts.

2.2.1 BMP #1: Participate in a regional stormwater public involvement and participation strategy or develop an MS4 specific program

The Chittenden County Regional Planning Commission (CCRPC) created the CCST. This Team has become the community outreach of the CCRPC related to stormwater issues. BTV is, and will continue to be an active partner in the CCST mission.

***Rationale*:** Through support of the Stream Team, the regional campaign's "action arm", BTV will support the engagement of local residents in the MS4 area via outreach events and via hands-on participation events.

Measurable Goals: BTV will participate in and provide financial support for operation of the Rethink Runoff Stream Team consisting generally of both outreach and hands-on participation events in various MS4 towns on a rotating annual basis. Via an annual report provided by the Chittenden County RPC's subcontractor, BTV will document on an annual basis the number of participants and/or persons contacted by outreach events and hands-on activities through the Rethink Runoff Stream Team.

2.2.1.1 Background Information

In the fall of 2009, the MS4 communities began to explore a collaborative approach to fulfill the MCM#2 permit requirement. At the request of these MS4s, the CCRPC applied for and received two grants totaling $22,500. Using these grants, CCRPC assisted the MS4s in developing a regional pilot project called the CCST. In its pilot year, CCST created a logo, launched a website and Facebook page, surveyed local residents, hosted a number of workshops, and completed a variety of local projects. The success of the pilot project lead to the formal adoption of the CCST program in 2011 by eleven of the MS4 communities including Burlington, South Burlington, Williston, Winooski, Shelburne, Milton, Essex, Essex Junction, the University of Vermont, VTrans and BTV. The program was put out to bid and awarded to the Winooski Natural Resources Conservation District (WNRCD), a regional entity focused on natural resource protection and management. Under the guidance of the participating MS4s, the WNRCD completed a second successful year in fulfilling MCM#2 requirement and continues to do so presently.

2.2.1.2 Current Status

The CCST completes an annual report describing public involvement and participation in Rethink Runoff activities with communities. These reports, as well as the minutes from all Clean Water Advisory Committee (CWAC) and MS4 Sub-Committee meetings, is accessible via https://www.ccrpcvt.org/about-us/committees/clean-water-advisory-committee/.

Members of communities are reached in person and via the website and social media, the total numbers are recorded and summarized every year.
In 2023, the Rethink Runoff Stream Team (RRST) partnered with five (5) non-municipal organizations (see the annual report for further details and annual updates):

1. Hamline University: Staff at this university in Minnesota developed the Adopt-a-Drain program, which has been adopted by a number of cities in the country. The program encourages engagement from local volunteers to maintain storm drains by clearing them of trash, sediment, salt or other pollutants.
2. Lake Champlain Basin Program – Resource Room: At the ECHO Leahy Center for Lake Champlain, there is a Resource Room dedicated to RRST to distribute literature and enhance public participation and education about stormwater management.
3. Boves Inc: This company provides blue 55-gallon drums to be repurposed into rain barrels.
4. VHB Engineering: This company helped participate in an Earth Day Clean up to help teach local residents about stormwater infrastructure.
5. The UVM Horticulture Farm: This organization helped bring new water quality monitoring to Bartlett Brook, and teach the public about how to handle lead in soil.

2.2.1.3 CCST Goals

The program will engage citizens across an eight-town area in implementing programs to reduce non-point source pollution and stormwater volume at the local level to enable compliance by these MS4 permitees with MCM#2. The program will utilize social networking tools to form a cadre of concerned citizens and professionals interested in hands-on activities to reduce the harmful effects of stormwater. The program will then organize a series of events and workshops to engage the Stream Team members and citizens at large in discussion on the use of key Best Management Practices designed to address the negative effects of stormwater. The scope of services for the CCST is as follows:

1. Regular Tasks
    - Maintain Facebook page with regular postings;
    - Maintain website with up to date information on stormwater related workshops and projects sponsored by CCST as well as other partners;
    - Recruit and maintain volunteers from member communities, recruit neighborhood leaders to help spread the word and build esprit de corps by articulating the mission and vision of CCST, staying in touch with volunteers and keeping it fun!
    - Organize quarterly Steering Committee meetings and communicate with members between meetings.
    - Build relationships with and leverage expertise from other organizations working on water quality issues (i.e. Friends of the Winooski, Winooski Natural Resources Conservation District, Lake Champlain Committee, Green Up Day, Lake Champlain Basin Program) including potential joint sponsorship of workshops and projects.

2. Event-driven Tasks
    - Host a Spring kickoff event to get neighborhood leaders in touch with one another and excited about the upcoming field season;
    - Hold outreach events at spring farmers' markets or other spring/early summer events in three municipalities per year to continue to reach new volunteers;
    - Complete three workshops or projects in each year with at least one event in each of the areas of the full members over the five-year permit period;
    - Provide guidance to volunteers on techniques and materials they can use to host their own projects or workshops.

3. Annual Tasks
    - Prepare an annual summary including the number of events, number of participants and other measurable quantities showing how CCST met the MCM#2 requirements that members can use in their annual reports to Vermont ANR.

2.2.2 BMP #2: Advertisement Space

Rationale: Advertisements will educate the general public and visitors in the MS4 area about storm water pollution prevention and water quality.

Measurable Goals: BTV has designated advertisement space in the terminal building for public participation and involvement. Entities that can use the space include other traditional and non-traditional

MS4 communities, the State of Vermont, the Lake Champlain Committee, Friends of the Winooski River, and any other groups dedicated to the storm water pollution prevention and water quality. In addition, a banner displaying the RSEP web address is hung in the baggage claim area.

2.2.3 BMP #3: Storm Drain Tagging Program

Rationale: Tagging all publicly viewed storm drains inform the public as to where the drains lead to, and to discourage illegal dumping into the drains.

Measurable Goals: All publicly viewed storm drains have been tagged. The tags are inspected and replaced each year as necessary.

2.3 ILLICIT DISCHARGE DETECTION AND ELIMINATION PLAN (MCM #3)

As a permit condition, each MS4 must develop, implement and enforce a SWMP designed to reduce the discharge of pollutants from the MS4, if it has not already done so. This section of the SWMP consists of a plan to detect and eliminate all illicit discharges at BTV.

BTV completed a study to evaluate stormwater quality at outfall locations, evaluate existing stormwater discharge permits and establish a course of action for meeting State and Federal stormwater regulations. This study, entitled Burlington International Airport Stormwater Management Study – Final Report, was completed in December 2004, and is Volume 3 of the Stormwater Management Program.

As part of this study, a water quality monitoring program was undertaken by BTV to evaluate existing stormwater discharges at airport outfalls. The water quality monitoring program was undertaken from December 2002 to December 2003 and involved base flow and wet weather/storm event-based sampling. A total of ten individual sampling locations were designated at the various discharge points. Discharges sampled during the study included those occurring to Muddy Brook, a tributary to Potash Brook, and tributaries to the Winooski River. All outfall locations are shown on the Storm Sewer System Mapping contained in Appendix D. Sampling and analysis were conducted for hydrocarbons, trace metals, pathogens, sediment, nutrients and deicing products (Urea, Glycol). A total of three wet weather sampling events were conducted representing fall/winter, spring and summer. A second winter sampling event was conducted at the north end discharge point to evaluate discharge of deicing fluids. Dry weather sampling occurred during the fall/winter and summer.

The most significant result of the sampling program was the identification of deicing compounds or decay products at the north end outfall discharge to a tributary of the Winooski River during the winter wet weather sampling event (December 2003). Elevated levels of Propylene Glycol, BOD5 and COD were found and attributed to a failure of the existing aircraft de-icing pump system which directed aircraft deicing fluid to the South Burlington Airport Parkway Wastewater Treatment Facility. The airport implemented a temporary collection system for the remainder of the 2003-2007 winter seasons. A permanent underground aircraft deicing fluid (ADF) treatment facility was constructed for the Main Terminal Apron and the Note 2 Apron in 2007 and 2008. Two additional ADF treatment systems have been constructed since 2008 as well. The new, fully operational systems serve the Valley West Apron and the 890 Cargo Ramp. Each of

the three ADF treatment systems operate under Underground Injection Permits (UIC) and associated operational Stormwater Discharge Permit as noted below:

- UIC Permit No. 6-0137 which serves as a renewal and replacement of BTV's three previously issued UIC permits (6-0084(South End Apron), 6-0117(Air Cargo 890 Ramp), and 6-0075(Main Air Carrier Apron)).

At various sampling locations, elevated levels of ammonia nitrogen compounds were noted during certain sampling events during the 2002 – 2003 water quality monitoring program. These values were likely due to the use of Urea as a surface deicer on runways and taxiways. The airport has discontinued the use of Urea and has relied solely on Propylene Glycol. Otherwise, the sampling results generally indicated slightly elevated levels of metals, sediment, nutrient and pathogens from the sampled discharge points. These values were generally consistent with, and on the low end of the range of values typically observed from stormwater runoff from impervious surfaces. No significant detection of hydrocarbons were found at any of the sampling locations.

In addition to the illicit discharges discovered at the north outfalls, the study revealed that the rental car carwash facility was discharging to the storm drainage system. This was subsequently corrected by connecting the carwash discharge to the municipal sewer system.

Currently, the SWPPP (Volume 2) is updated and reported annually. This includes monitoring of potential pollutant sources and water sampling at three outfalls from BTV during the deicing season. Please see the most recent report for further information.

2.3.1 BMP #1: Plan to Detect and Address Future Non-Storm Water Discharges

BTV has established an outfall monitoring schedule and illicit discharge elimination plan to protect the quality of water resources.

***Rationale*:** Development and implementation of a plan to detect and eliminate illicit discharges, as well as continuation of the ongoing BTV stormwater study program, are paramount to meeting and achieving the goals outlined in the MS4 General Permit.

***Measurable Goals*:** Annual goals are as follows:

1) BTV will review and update the SWMP each year.

2) BTV will complete outfall monitoring as outlined in the monitoring schedule contained in the SWPPP (Volume 2).

3) BTV will participate in annual trainings for airport staff and tenants provided by DEC (Section 2.6.3).

2.3.1.1 Outfall Monitoring Schedule

A monitoring schedule of BTV outfalls consisting of quarterly visual and smell tests, benchmark monitoring, and annual monitoring of outfalls to impaired waterways has been established (Section 7 of SWPPP located in Volume 2). All monitoring and reporting shall be conducted as outlined in the SWPPP as provided in Volume 2.

2.3.1.2 Procedures for Tracking and Eliminating Illicit Discharges

Currently, all illicit discharges from BTV have been detected and eliminated. In the event future monitoring results reveal the presence of illicit discharges, BTV will establish a plan to track and eliminate the illicit discharge on a case-by-case basis.

2.3.1.3 Policy for Prohibiting Non-Storm Water Discharges

All non-stormwater discharges to the BTV storm sewer system other than those listed in Volume 2 – Stormwater Pollution Prevention Plan, Section 4 are strictly prohibited.

2.3.2 BMP #2: Storm Sewer System Mapping

Rationale: A comprehensive infrastructure map will aid the MS4 in targeting outfalls with dry weather flows and other suspicious discharges for more in-depth inspection and monitoring and will help coordinate management activities to remove illicit connections and track storm drain system maintenance.

Measurable Goals: A comprehensive storm sewer system map of the airport was developed that shows locations of all outfalls and names and locations of receiving waters. The original comprehensive map is contained in Volume 3 - Stormwater Management Study, December 2004. This mapping has been updated to include new development at the airport through 2023. Electronic files of the mapping are maintained to be compatible with Geographic Information System (GIS) software. The files will be updated once a year to include new developments or information. Appendix D contains a copy of the updated mapping with electronic files available upon request.

2.4 CONSTRUCTION SITE-RUNOFF CONTROL PLAN (MCM #4)

As a permit condition, each MS4 must develop, implement and enforce a SWMP designed to reduce the discharge of pollutants from the MS4, if it has not already done so. This section of the SWMP consists of a plan to prevent or reduce pollutants in construction site runoff.

2.4.1 BMP #1: Construction Site Runoff Control Policy

All projects that result in earth disturbance at BTV, with the exception of maintenance projects, are required to seek coverage under an Individual Construction General Permit (CGP) or Individual Construction Stormwater Discharge Permit (INDC) applications. In 2023, all active INDC permits were rolled into a single permit. As projects are started and completed, the INDC is updated accordingly. All documents referenced in the following procedure are contained in Appendix A.

Rationale: Development and implementation of a plan to prevent or reduce pollutants in construction site runoff, including compliance with the ANR CGP or INDC is the most effective way to ensure appropriate protection of waters of the state during construction activities.

Measurable Goals: All new projects will be covered by the applicable state stormwater permit and/or conform to BTV policy.

The following procedures shall be used by airport staff, designers, contractors, or anyone else who is proposing to disturb earth, to ensure that all construction projects at BTV employ proper erosion prevention and sediment control (EPSC) practices and are properly designed and permitted. Implementing these procedures will ensure that surface water pollution from construction site runoff at BTV is minimized. Failure to implement these procedures may lead to enforcement actions against BTV and other parties that maintain co-permittee status for state issued construction site runoff permits.

2.4.1.1 Construction Site Runoff Control Procedures

2.4.1.3.1 Non-Jurisdictional Projects (Maintenance Activities)

Earth disturbance that is a normal part of the long-term use or maintenance of airport property (e.g. pipe and structure repairs, dirt road re-grading, routine road and/or runway resurfacing) does not require coverage under the CGP-3-9020(2008) or Individual Construction Permit. The practices included in The *Low Risk Site Handbook for Erosion Prevention and Sediment Control* shall be implemented when necessary and as directed by the BTV Engineer.

2.4.1.3.2 Jurisdictional Projects

All earth disturbances that are not considered maintenance activities will require coverage under the CGP-3-9020 or an Individual Construction Permit. A Risk Evaluation (Appendix A of CGP-3-9020 (2008)) must be completed to determine if the proposed activities constitute Low-risk construction activities, Moderate-risk construction activities, or construction activities that require an Individual Permit.

Low-Risk

For projects that are determined to be Low-Risk the following procedure shall be followed. Earth disturbances covered under the following procedure shall also comply with the general conditions outlined in the Construction General Permit and the project specific conditions outlined in the Authorization issued by ANR. In the event of a conflict, the permit conditions shall take precedent over the following procedure.

STEP 1: No less than 70 days prior to Contract Plans Submittal, the following shall be submitted to the BTV Engineer for review and approval:

- CGP-3-9020(2008) Notice of Intent (NOI)
- Risk Evaluation (Appendix A of CGP-3-9020)

These forms shall be completed in accordance with Part 2 of CGP-3-9020(2008).

STEP 2: No less than 60 days prior to bid letting and upon approval by the BTV Engineer, the NOI, Appendix A, and the application fee shall be submitted to ANR. A copy of the NOI shall be submitted to the South Burlington City Clerk and a copy of the entire submittal shall be submitted to the BTV Engineer.

STEP 3: Upon issuance of Authorization from ANR, the following shall be included in the Contract Documents:

- Erosion Prevention and Sediment Control Plan Specification
- Completed Notice of Intent
- Completed Risk Evaluation (Appendix A of CGP-3-9020)
- ANR's authorization
- Notice of Addition of Co-Permittee
- Discharge Report

STEP 4: Once the contract has been awarded, the following shall be submitted to the BTV Engineer for approval. Upon approval, the information shall then be submitted to ANR:

- Completed Notice of Addition of Co-Permittee, if necessary, in accordance with Part 7.2 of CGP-3-9020.
- Contact information and qualifications of the On-Site Coordinator
- Any risk re-evaluations, permit amendments, NOI forms, fees, EPSC plans, etc. that are required as a result of "minor" or "major" changes to the project as defined in Part 5 of CGP-3-9020(2008).

STEP 5: During construction, the On-Site Coordinator shall implement all applicable erosion prevention and sediment control measures and conduct site inspections in accordance with The Low Risk Site Handbook for Erosion Prevention and Sediment Control and Part 6.1 of CGP-3-9020(2008).

STEP 6: Upon final and permanent stabilization of the construction site, all temporary erosion prevention and sediment control measures shall be removed.

Moderate-Risk

For projects that are determined to be Moderate-Risk the following procedures shall be followed. Earth disturbances covered under the following procedure shall also comply with the general conditions outlined in the Construction General Permit and the project specific conditions outlined in the Authorization issued by ANR. In the event of a conflict, the permit conditions shall take precedent over the following procedure.

STEP 1: No less than 70 days prior to Contract Plans Submittal, the following shall be submitted to the BTV Engineer for review and approval:

- CGP 3-9020 Notice of Intent (NOI)
- Risk Evaluation (Appendix A of CGP-3-9020)
- Erosion Prevention and Sediment Control Plan
- EPSC Plan Summary Forms

The NOI and Appendix A forms shall be completed in accordance with Part 3 of CGP-3-9020(2008). The EPSC Plans shall be developed in accordance with Part 4 and Appendix B of CGP-3-9020(2008).

STEP 2: No less than 60 days prior to bid letting and upon approval by the BTV Engineer, the NOI, Appendix A, EPSC Plans and Summary Forms, and the application fee shall be submitted to ANR. A copy of the NOI shall be submitted to the South Burlington City Clerk and a copy of the entire submittal shall be submitted to the BTV Engineer. The BTV Engineer shall file the submittal in the BTV records.

STEP 3: Upon issuance of Authorization from ANR, the following shall be included in the Contract Documents:

- EPSC Plan sheets
- Erosion Prevention and Sediment Control Plan Specification
- Completed CGP 3-9020(2008) Notice of Intent (NOI)
- Completed Risk Evaluation (Appendix A of CGP-3-9020(2008))
- ANR's authorization
- Notice of Addition of Co-Permittee
- Notice of Termination of Co-Permittee
- Notice of Termination for Portions of Ongoing Project
- Notice of Termination for Entire Project
- Notice of Winter Construction
- Notification of On-Site Plan Coordinator
- Minor Amendment Record
- Inspection Record
- Discharge Report

STEP 4: Once the contract has been awarded, the following shall be submitted to the BTV Engineer for approval. Upon approval, the information shall then be submitted to ANR:

- Completed Notice of Addition of Co-Permittee, if necessary, in accordance with Part 7.2 of CGP-3-9020(2008).
- Contact information and qualifications of the On-Site Coordinator
- Any risk re-evaluations, permit amendments, NOI forms, fees, EPSC plans, etc. that are required as a result of "minor" or "major" changes to the project as defined in Part 5 of CGP-3-9020(2008).

STEP 5: During construction, the On-Site Coordinator shall be responsible for ensuring that all applicable erosion prevention and sediment control measures are implemented and site inspections are conducted in accordance with the EPSC Plans, the EPSC Specification, ANR's Authorization, and Parts 6.2 – 6.5 of CGP-3-9020(2008).

STEP 6: Upon final, permanent stabilization of the construction site, all temporary erosion prevention and sediment control measures shall be removed and a completed Notice of Termination shall be submitted to the BTV Engineer for approval. Upon approval, the Notice of Termination shall be sent to ANR.

Individual Construction Permit

An Individual Construction Stormwater Discharge Permit is required when a project scores out of the low and moderate risk classification in Appendix A or as required by the Secretary of ANR. It is a customized permit for discharges of stormwater from construction activities specifically tailored to the proposed construction project and typically includes additional protective measures (e.g. the requirement for oversight by an Environmental Specialist and likely turbidity monitoring). Unlike a General Permit, which has already been through a public comment and appeal process, all Individual Permits require a 30-day public comment period and have a 30-day appeal period once they are issued.

The application process for an Individual Permit is similar to that of the CGP-3-9020(2008). Instead of a Notice of Intent, a Permit Application Form is filed, accompanied by an Erosion Prevention and Sediment Control Plan. The same general procedure described under Moderate Risk shall be employed.

Site Inspections

All construction projects with permits requiring an OSPC and EPSC Specialist are inspected based on their permit conditions. There is currently one INDC permit that incorporates all active construction projects on site. Per that permit, each site is inspected biweekly during active construction and monthly during inactive construction. Any other project within BTV property will be monitored by maintenance staff and inspected further by an EPSC specialist if any issue arises.

2.4.1.2 Temporary Erosion Prevention and Sediment Control Specification

Vermont's Low Risk Site Handbook for construction projects is provided and required to follow for all small scale and large scale projects at BTV. To comply with Federal Aviation Administration (FAA) regulations and prevent foreign object debris (FOD), hydroseed is used instead of hay mulch for temporary stabilization.

2.5 POST-CONSTRUCTION RUNOFF CONTROL PLAN (MCM #5)

As a permit condition, BTV implements and enforces this SWMP to reduce the discharge of pollutants from the MS4. This section of the SWMP consists of a plan to prevent or reduce pollutants in runoff from post-construction sites.

2.5.1 BMP #1: Compliance with ANR Stormwater Regulations

Rationale: Ensure MS4 compliance with ANR Stormwater regulations.

Measurable Goals: BTV will develop procedures to ensure compliance with ANR Stormwater regulations.

BTV has developed and implements procedures (BMP #2 Post Construction Runoff Control Plan) to identify projects that require an operational stormwater discharge permit and reporting these projects to the Secretary of ANR. All documents required for these procedures are contained in the Post Construction Runoff Control Plan - Appendix B.

1. Complete Post-Construction Site Runoff Control Project Summary Form.
2. Select flowchart based on the Receiving Water for the project.
3. Determine if permit coverage is required from the selected flowchart using the information on the Summary Form.
4. If permit coverage is required, send the Post-Construction Site Runoff Control Project Summary Letter with the Summary Form and shaded plan sheets attached to the ANR Regional Environmental Analyst requesting determination of permit coverage requirements. Note that completion of the Summary Form with auto-fill values to be included in the Summary Letter.

2.5.2 BMP #2: Post Construction Runoff Control Plan

Rationale: Development and implementation of a plan to prevent or reduce pollutants in post-construction site runoff, including compliance with the ANR Stormwater Rule, is the most effective way to ensure appropriate protection of waters of the state following the completion of construction activities.

Measurable Goals: BTV has developed and implemented procedures (BMP #2 Post Construction Runoff Control Plan) to identify projects that require an operational stormwater discharge permit and reporting of these projects to the Secretary of ANR. All documents required for these procedures are contained in the Post Construction Runoff Control Plan - Appendix B.

Source protection BMPs have been implemented at BTV to prevent and/or control pollutants in stormwater discharges from the site. Source protection BMPs are included in Volume 2 - Stormwater Pollution Prevention Plan, Section 5.

All new projects will be covered by the applicable state stormwater permit and/or conform to BTV policy. In order to identify projects that may require an operational Stormwater Discharge Permit, the following processes have been followed:

- Meet with VT ANR Stormwater Section personnel to discuss and review the project during design phase.
- Follow direction or finding(s) provided by VT ANR Stormwater Section personnel as to whether an operational Stormwater Discharge Permit is required.
- Document direction or finding(s) in meeting notes or meeting minutes.

Failure to properly report projects that require an operational stormwater discharge permit may lead to enforcement actions against BTV.

2.5.3 BMP #3: Inspection and Maintenance of Long Term Structural Best Management Practices

Rationale: Development and implementation of a plan to prevent or reduce pollutants in site runoff and encourage good housekeeping and pollution prevention practices is the most effective way to ensure appropriate protection of waters of the state.

Measurable Goals: Annually, all catch basins will be inspected and cleaned if necessary. In the event that a catch basin with a standard sump depth of 24" is inspected and found to contain greater than 12" depth of sediment, a recommendation will be made to clean out the sump.

All permitted long-term structural best management practices (BMPs) at BTV will be inspected in accordance with the terms of the permit. All permit summary and permits issued to BTV are contained in Appendix E. An operations and maintenance manual along with inspection, maintenance and reporting procedures are included for each permit. Operations and Maintenance Manuals are contained in Appendix F. Failure to comply with the inspection, maintenance, reporting schedule and procedures may lead to enforcement action against BTV.

2.6 POLLUTION PREVENTION AND GOOD HOUSEKEEPING PLAN (MCM #6)

As a permit condition, each MS4 must develop, implement and enforce a SWMP designed to reduce the discharge of pollutants from the MS4. This section of the SWMP consists of a plan to ensure pollution prevention and good housekeeping. In addition, please refer to Section 2.5.1 for Operations and Maintenance for Pollution Prevention and Reduction.

2.6.1 BMP #1: Staff and Tenant Training

BTV will conduct trainings annually to ensure that airport staff and tenants are following all rules and regulations. New employees will be trained within two weeks of hire. Topics included in the employee training are included in Volume 2 - Stormwater Pollution Prevention Plan, Section 6.2.

Rationale: Providing education on stormwater pollution awareness and water quality issues affords prospective employees and tenants with knowledge of how the BTV site is interconnected with the surrounding environment, and in what way can their actions have a direct impact on that environment.

Measurable Goals: BTV documented the number of BTV staff who have received the educational presentation using a sign-in attendance sheet. The presentation and quiz are made available to BTV staff and tenants.

2.6.2 BMP #2: Implement controls for reducing or eliminating the discharge of pollutants from the MS4

2.6.2.1 Existing Best Management Practices

Operations and Maintenance Manuals contained in Section F are to be used to inspect, maintain and operate the structural BMPs on site that are listed in Volume 2 – Stormwater Pollution Prevention Plan, Section 5.5.

Inspection and maintenance procedures are included in the O&M manual for each BMP. All permit summary and permits issued to BTV are contained in Appendix E. Failure to conduct scheduled inspections and report inspection results to ANR may lead to enforcement action against BTV.

Source protection, area specific and site-wide BMPs and procedures for spill response and vehicle/equipment washing are included in Volume 2 – Stormwater Pollution Prevention Plan, Section 5.

2.6.2.2 Future Best Management Practices

Operations and maintenance manuals must be provided by the design engineer for all future structural long-term BMPs constructed at BTV. The design engineer shall also be responsible for updating the master inspection and reporting schedule to include inspection/reporting requirements for the new BMP.

2.6.3 BMP #3: Proper Disposal of Removed Waste

Rationale: Proper waste handling, storage and disposal practices help minimize spills and reduce the risk of stormwater contact with potential pollutant sources.

Measurable Goals: BTV has developed proper handling, storage and disposal procedures for removed wastes. Procedures are included in Volume 2 - Stormwater Pollution Prevention Plan.

3.0 ASSUMPTION OF RESPONSBILITY FOR PREVIOUSLY PERMITTED STORMWATER SYSTEMS

In accordance with the reauthorized MS4 permit, BTV may assume full responsibility for a stormwater system that was previously permitted under an operational stormwater permit. The following Operational Stormwater Discharge Permits have previously been incorporated into BTV's MS4 reauthorization dated January 19, 2019:

1. Permit No. 3028-9010.A (BTV's Master Permit)
2. Permit No. 1-1391 (South Apron Expansion)
3. Permit 1-0839 (Redirect Airfield Drainage to North Outfall)
4. Permit No. 3028-9010.2 (Taxiways 'B', 'C', 'J', and 'G'); Muddy Brook Watershed
5. Permit No. 3028-INDS.AR (Taxiways 'B', 'C', 'J', and 'G'); Potash Brook Watershed
6. Permit No. 3028-9010.1(Reconstruct, Mark & Groove Runway 15-33) (to be terminated)
7. Permit No. 3028-INDS.3 (Aircraft Sewage Receiving Station)
8. Permit No. 3028-9015.1 (Quarry Area Access Road)
9. Permit No. 3028-9015.2 (Construct, Mark, and Light Taxiway 'G'/'K')
10. Permit No. 3845-9010 (Heritage Flight Aviation Campus Expansion)
11. Permit No. 3845-9015.1 (Heritage Aviation Parking Lot)
12. Permit No. 3028-INDS.4 (Consolidated Car Rental Facility)
13. Permit No. 3028-9015.3 (Taxiway 'B' Extension)
14. Permit No. 3028-INDS.6 (Parallel Taxiway 'G', Phase 2)
15. Permit No. 3028-INDS.7 (VT ANG Taxiway 'F' Widening and a portion of Reconstruct, Mark, and Groove Runway 15-33)

Three additional Stormwater Discharge Permits were incorporated into BTV's MS4 reauthorization dated January 16, 2024.

1. Permit No. 3028-INDS.10 (BETA Hangar Site)
2. Permit No. 3028-9050 (Taxiway K)
3. Permit No. 3028-9050.1 (Terminal Integration)

4. Permit No. 3028-9050.2 (BETA Technologies – BTV Assembly Facility)
5. Permit No. 3028-9050.3 (BETA Technologies General Aviation Hangar)
6. Permit No. 3028-9050.5A (BTV Rehabilitation Taxiway A)
7. Permit No. 3028-9050.7 (BTV Hotel)
8. Permit No. 3028-9050.8 (Extend Taxiway G and Construct New General Aviation South Apron)

See Appendix E for all permit authorizations.

4.0 DISCHARGES TO IMPAIRED WATERS

Impaired waters are those waters that the Secretary of the VT ANR has identified pursuant to Section 303(d) of the Clean Water Act as not meeting the Vermont Water Quality Standards. As part of the re-authorized General Permit 3-9014 (2012) MS4 permit requirements, each MS4 must evaluate, monitor, and develop plans for each discharge to an impaired water with approved Total Maximum Daily Loads (TMDL), and to impaired waters for which a TMDL has not yet been approved by the Secretary of the Vermont Agency of Natural Resources (VT ANR) or the U.S. Environmental Protection Agency (EPA).

BTV discharges stormwater runoff to three impaired waters of the State: Potash Brook, Centennial Brook, and Muddy Brook. Outfall designations have been updated as depicted on the Storm Sewer System Map contained in Appendix D. Five outfalls (Outfalls 5, 6, 7, 8, and 9) discharge to Class 2 wetlands contiguous to Potash Brook, one non-point source discharge (Outfall 3) flows to Centennial Brook, one outfall (Outfall 15) discharges directly to Muddy Brook, and five outfalls (Outfalls 10,11,12,13,14) discharge to a wetland contiguous with Muddy Brook. Potash and Centennial Brooks have an approved TMDL and therefore are part of BTV's Flow Restoration Plan (FRP). Muddy Brook is on the most recently published 303(d) list of impaired waters, but does not have an approved TMDL. Therefore, a response plan for Muddy Brook is included in this SWMP but is not included in BTV's FRP.

4.1 FLOW RESTORATION PLAN

In accordance with the Vermont DEC issued General Permit 3-9014 (2012) for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4) on December 5, 2012, BTV was required to develop and submit a Flow Restoration Plan (FRP) for the portion of each stormwater–impaired watershed located within a permittee's boundaries.

Per the re-authorized permit, BTV is also required to submit a report on a semi-annual basis on the development and implementation of the FRP. The FRP development and implementation schedule is presented in Table 3 below. Actual milestone dates are calculated from the date of issuance of an authorization to discharge to BTV under General Permit 3-9014 (2012) MS4. The most recent FRP is included in Appendix G of this SWMP.

Table 1: Flow Restoration Plan Development and Implementation Schedule

Due Date	Compliance Item
January 2, 2014	Submit to the Secretary for approval a plan for meeting the requirements of IV.C.1(e)(7) (flow monitoring plan).
April 1, 2014	Submit Annual Report and FRP Report
	Submit to the Secretary for approval a plan for addressing expired state stormwater permits discharging to the permittee's MS4 system.
	Identify the process the permittee intends to use to meet the requirements of IV.C.1 (development of FRP).
	Submit verification of implementation of the flow monitoring plan, per IV.C.1(e)(7).
April 1, 2024 to April 1, 2031	Continue to submit Annual Reports and FRP Report on April 1 of each year.
December 5, 2032	BTV will complete implementation of the approved FRP.

4.1.1 Discharges to Impaired Waters with an Approved TMDL

Potash Brook is an impaired water with a TMDL that was approved by the EPA on December 19, 2006. For the Potash Brook TMDL, stormwater runoff volume is limited overall and allocated among sources.

Table 1 below gives the overall Potash Brook TMDL allocation for the high flows only. The EPA does not consider the low flow targets applicable to an allocation scenario, and thus they were not presented as such in the TMDL.

It is noted that even though the low flow targets are not part of the formal TMDL allocation, VT DEC remains committed to retaining these low flow targets within the overall remediation plan for the watershed.

Table 2: Potash Brook TMDL High Flow Allocation at Q0.3%

Allocation Type	Location	TMDL %	Total %
Wasteload Allocation	Stormwater reduction from current Urban/Developed areas	-14.6%	-16.5%
	Additional stormwater flow reduction from Urban/Developed areas to account for future growth	-1.9 %	
Load Allocation	Stormwater reduction from Agriculture/Open areas		-1.4%
Total Potash Brook watershed stormwater flow reduction allocation at Q0.3%			-17.9 %

BTV has five discharges that drain to a Class 2 wetland, contiguous with a tributary to Potash Brook. Potash Brook in turn drains to Lake Champlain. The outfall designations are Outfalls 5, 6, 7, 8 and 9 as depicted on the Storm Sewer System Map contained in Appendix D. These five outfalls are located at the southern end of the BTV property site. Discharge point Outfall 7 is also a sampling point for Benchmark Monitoring as a condition of BTV's General Permit 3-9003 MSGP. It is noted that discharge point 8 has been plugged, buried and no longer serves as a discharge point for stormwater runoff.

Centennial Brook is an impaired water with a TMDL that was approved by the EPA on September 28, 2007. For the Centennial Brook TMDL, it is stormwater runoff volume that is being limited overall and allocated among sources.

Table 3 below gives the overall Centennial Brook TMDL allocation for high flows only. The EPA does not consider the low flow targets applicable to an allocation scenario, and thus they were not presented as such in the TMDL.

Table 3: Centennial Brook TMDL High Flow Allocation at Q0.3%

Allocation Type	Location	TMDL %	Total %
Wasteload Allocation	Stormwater reduction from current Urban/Developed areas	-49.9%	-63.0%
	Additional stormwater flow reduction from Urban/Developed areas to account for future growth	-13.1 %	
Load Allocation	Stormwater reduction from Agriculture/Open areas		-0.4%
Total Centennial Brook watershed stormwater flow reduction allocation at Q0.3%			-63.4 %

Due to BTV acquisition of houses for removal, BTV has one non-point source discharge (Outfall 3) to Centennial Brook. Centennial Brook in turn drains to Lake Champlain. The discharge location is depicted on the Site Drainage Map entitled "Burlington International Airport, Multi-Sector General Permit (MSGP)" contained in the facility's SWPPP. Discharge to Outfall 3 is located at the edge of the overflow parking area located at the north end of Airport Drive Extension and cannot be sampled since it is a non-point source discharge.

4.1.1.1 Flow Restoration Plan

BTV discharges to Potash Brook, a stormwater impaired water with an approved TMDL which is primarily located in the City of South Burlington. In addition, BTV has one non-point source discharge to Centennial Brook, another stormwater impaired water with an approved TMDL located in South Burlington. BTV is responsible for development and implementation of an FRP for the portions of the Potash Brook and Centennial Brook watersheds within its boundaries.

As an MS4, the City of South Burlington discharges to the same stormwater-impaired watersheds. MS4 entities that discharge into the same stormwater-impaired watershed may elect to cooperate to develop a single FRP for the watershed. To that end, BTV is collaborating with the City of South Burlington on these

FRPs. BTV worked with the City of South Burlington to develop a FRP in accordance with the General Permit 3-9014 (2012). On October 1, 2016, BTV submitted the FRP to VT ANR for review and approval (Appendix G). BTV's FRP was approved by VT ANR on December 22, 2017.

Table 4 summarizes the key elements or milestones in the development and implementation of BTV's Flow Restoration Plan and provides the compliance status of each requirement.

Table 4: FRP Development and Implementation Status

FRP Key Elements	**General Permit No. 3-9014 (2012) MS4 reference**	**Status**
Develop and submit a Flow and Precipitation Monitoring Plan	Section IV. C. 1. (e) (7)	BTV submitted a Flow and Precipitation Monitoring Plan (Appendix H) to VT ANR on January 2, 2014. Approval received via Act 171 MOA effective July 1, 2016.
Develop and submit a plan for addressing BTV's two expired state stormwater permits, Stormwater Discharge Permit Nos.1-0839 and 1-1391	Section IV. C. 1. (e) (3)	On September 30, 2015, BTV submitted a Notice of Intent to ANR formally seeking coverage of the two expired state stormwater permits under the re-authorized General Permit No. 3-9014 (2012) MS4. BTV received approval on December 22, 2017.
Identify the process BTV intends to use for development and submission of a FRP	Section IV. C. 1. (e) (1)	On October 1, 2016, BTV submitted the FRP to VT ANR (Appendix G). BTV's FRP was approved by VT ANR on December 22, 2017.
Submit verification of implementation of the Flow and Precipitation Monitoring Plan	Section IV. C. 1. (e) (7)	A Memorandum of Agreement (MOA) was developed by ANR to establish the Ecosystem Restoration and Water Quality Improvement Special Fund to aid MS4 permittees in obtaining compliance with their flow monitoring requirements. The MOA was approved on June 8, 2016. This program was completed in 2022 and a summary is included in the most recent FRP (Appendix G).

BTV has joined all Chittenden County MS4's to cooperatively pursue an MS4 FRP, including flow and precipitation monitoring of Potash and Centennial Brooks. The City of South Burlington has developed a single FRP for the Potash and Centennial Brook watersheds in cooperation with the BTV.

The FRPs for Potash Brook and Centennial Brook identify a suite of stormwater BMPs that will be used to achieve the flow restoration targets. The Potash Brook FRP identifies a total of 107 sites, while the Centennial Brook FRP identifies a total of 27 sites within the watershed. According to the MS4 General Permit, if a stormwater-impaired watershed includes lands outside the boundaries of a small MS4 permittee, the FRP shall address the permittee's commensurate share of necessary BMP implementation based on percent impervious land cover. BTV is collaborating with the City of South Burlington to achieve the flow restoration targets within the BTV MS4 area of Potash and Centennial Brooks. Each FRP project is evaluated for responsibility of construction and maintenance costs separately by BTV and the City of South Burlington together. Annual updates for FRP projects are included in the Annual MS4 Report completed by April 1.

BTV's commensurate share is a small fraction of the total impervious area within the Potash Brook watershed. The City of South Burlington's Potash Brook FRP identifies one (1) BMP that could address BTV's commensurate share of flow restoration responsibility in this area.

- South Burlington ID PB0009 (South Burlington STP MM21(1)) includes two proposed subsurface infiltration galleries to be constructed along Airport Drive. One will be located at the intersection of Airport Road, where a house was removed in 2015, and one will be located across from Airport Circle. Both of the project locations are on BTV owned land. There is a permanent easement granted to the City of South Burlington to maintain these stormwater systems and associated permitting.

The City of South Burlington has identified three (3) BMPs in the Centennial Brook FRP for which BTV could achieve its commensurate share of the flow restoration targets.

- South Burlington ID CB0008/Retrofit #21: Dumont Avenue. This includes construction of a subsurface infiltration gallery on Dumont Avenue. This would include diverting flow from catch basins to underground recharge chambers on an empty lot, with ultimate discharge to an existing pipe outlet to Centennial Brook.

- South Burlington ID CB0018/Retrofit #200 includes construction of an infiltration gallery on North Henry Court. This area is currently a dead-end road with excess impervious area. The proposed project includes construction of a rain garden/bioswale with an overflow to a leaching catch basin at the end of the road.

- South Burlington ID CB0023/Retrofit #25, the Picard Circle Infiltration Gallery, includes construction of a subsurface infiltration gallery within the lots acquired by BTV where houses were removed in 2015. The City of South Burlington Stormwater Utility received a grant from the Vermont Agency of Transportation to improve the existing stormwater system on Airport Parkway and install an underground stormwater treatment practice in Picard Circle. Currently, untreated stormwater runoff generated from a 51-acre drainage area—including 15 acres of impervious

surfaces—discharges directly to the impaired Centennial Brook near the intersection of Airport Parkway and Picard Circle. The project included the design and construction of a stormwater infiltration basin within the Picard Circle right-of-way (ROW) and drainage infrastructure which would allow for the treatment of up to a 51-acre drainage area that consists primarily of City-owned roadways. This system was designed to reduce peak flows and remove sediment load. The project received funding support from the Transportation Alternatives Grant Program administered by VTrans. The remaining project costs were paid using stormwater utility capital project funding. Construction was completed in August 2019.

BTV and the City intend to move forward with cost sharing discussions. It is also noted that BTV reserves the right to achieve its FRP commitments through implementing projects of its own choosing that may not be identified on South Burlington's present list of proposed watershed improvement projects.

4.1.2 Discharges to Impaired Waters without an Approved TMDL

BTV will comply with Part IV of General Permit 3-9014 (2012), and address in its SWMP and annual reports how any discharges that have the potential to cause or contribute to the impairment will be controlled so that they do not cause or contribute to the impairment.

BTV has one outfall discharging to Muddy Brook (Outfall 15), and five outfalls (Outfall 10,11,12,13,14) discharging to a wetland contiguous to Muddy Brook. This wetland is connected to outfall 15 via BTV constructed stormwater conveyance system under the airfield.

A list of 303(d) impaired waters was provided to Vermont's MS4 communities in January 2024. This list includes Muddy Brook Tributary #4 and Tributaries to Tributary #4, reference Waterbody ID VT108-02.03. BTV does not directly discharge to this area, but does have the one outfall listed above discharging to the Muddy Brook. Pollutants listed include chloride and toxicity.

Currently, there are three separate BMPs that treat stormwater prior to exiting the airfield at Outfall 15. BMP 16 is a swirl concentrator device, BMP 19 includes 2 separate infiltration basins, and a BMP that includes subsurface infiltration. The final BMP is part of the South Arpon project which is still under construction and is expected to be completed in 2024. Once this is completed the BMP will be numbered and inspected on a regular schedule along with the remaining BMPs at BTV.

Salt is not used at BTV to clear runways, so therefore a salt reduction plan should not be necessary. BTV will continue to monitor this outfall and inspect all necessary BMPs on a regular schedule.

4.2 LAKE CHAMPLAIN PHOSPHORUS CONTROL PLAN

BTV has developed and implemented a Phosphorus Control Plan (PCP) for developed land consistent with the Lake Champlain TMDLs for approval by the Secretary. The goal of the PCP is to determine and achieve a level of phosphorus reduction equivalent to the percent reduction target for developed lands in the Main Lake (20.2%) and Shelburne Bay (20.2%) segments, consistent with requirements of the Lake Champlain Phosphorus TMDL and the ANR Phase I Implementation Plan. In contrast to the Flow Restoration Plan

(FRPs) developed to address the impacts of urbanization on stream hydrology and flow, the PCP will be developed only for lands that BTV owns and controls.

4.2.1 Phosphorus Reduction Credits

The PCP may include, but is not limited to, reductions calculated from:

a) Implementation of the Municipal Road Standards (Section 5);

b) Street sweeping and catch basin cleaning practices;

c) Retrofits to municipally owned properties;

d) Implementation of stormwater treatment practice upgrades or retrofits to treat existing impervious surfaces after the adoption of the 2002 Vermont State Stormwater Manual;

e) Implementation of stormwater treatment practices after July 1, 2010, on developed lands that are not subject to the state's operational stormwater permit

f) Implementation of municipal ordinances or regulations to address sub-jurisdictional impervious surfaces.

The following conditions will be used to apply phosphorus reductions for application towards the PCP targets:

a) Where a PCP includes phosphorus reductions from non-municipally-owned developed lands that are otherwise subject to an operational stormwater permit that requires an upgrade of the stormwater treatment system pursuant to the Department's regulations, including 3-acre sites, the PCP shall be designed to achieve, in aggregate, a level of phosphorus reduction equivalent to the lake segment target as applied to municipally-owned developed land, and a 50% reduction from the non-municipally-owned developed lands.

b) Where a PCP includes non-municipally-owned developed lands that are subject to an operational stormwater permit that does not otherwise require an upgrade of the stormwater system pursuant to the Department's regulations, the management of stormwater from these lands is creditable.

c) Where a PCP includes non-municipally-owned developed lands that are not otherwise subject to an operational stormwater permit, the management of stormwater from these lands is creditable towards the phosphorus reduction target.

d) The PCP may include a component to address a reduction of future growth discharges of phosphorus from developed lands. The future growth component shall track the amount of development and the level of stormwater management achieved by local ordinances or regulations on future development. Future development is any development after July 1, 2010 that is not subject to a state operational permit.

Phosphorus reduction credits for each permitted project completed by BTV post July 1, 2010 were estimated using the Stormwater Treatment Practice Calculator tool (https://anrweb.vt.gov/DEC/CleanWaterDashboard/STPCalculator.aspx). Credits were determined only for capture and treatment of stormwater runoff from either existing impervious surfaces and/or redeveloped impervious surfaces. Treatment of stormwater runoff from new impervious surfaces was not credited towards phosphorus reduction goals.

As per the Department's watershed delineation of the Main Lake and Shelburne Bay segments (based upon the Lake Champlain Phosphorus TMDL and the ANR Phase I Implementation Plan; Figure 1), the calculated phosphorus reduction credit on BTV owned lands is summarized in the following Table 5.

Table 5: Phosphorus Reduction Credits for BTV owned lands

	Shelburne Bay	**Main Lake**
	Phosphorus Reduction (kg/yr)	
BTV Target Reductions	**23.50**	**51.60**
Projects Completed as of December 31, 2023	33.83	103.74
Total Phosphorus Reduction	**33.83**	**103.74**

Based upon these calculations, BTV currently exceeds the target reductions for phosphorus within the Shelburne Bay segment (target = 23.5 kg/yr) and Main Lake segment (target = 51.60 kg/yr). BTV tracks the phosphorus reduction from each project in a BMP Tracking Table, which is updated and submitted with the annual MS4 Report.

In addition to the calculated phosphorus credits shown in Table 5, BTV will evaluate additional opportunities for phosphorus reduction, including but not limited to the following:

- Removal of impervious surfaces via the house removal project(s);
- Implementation of STP upgrades or retrofits to treat existing impervious surfaces after the adoption of the 2002 Vermont State Stormwater Manual;
- Street sweeping and catch basin cleanouts;
- Disconnection of impervious surfaces.

The PCP will provide additional design details and backup phosphorus reduction calculation sheets for each permitted project. As well as anticipated construction completion dates for future planned projects.

4.2.2 Schedule of Compliance

BTV will prepare and submit PCP related documents and communication in accordance with the schedule in the following Table 6.

Table 6: Phosphorus Control Plan Development and Implementation Schedule

March 26, 2024	- Submit the Stormwater Management Program (SWMP) with the completed Phosphorus Control Plan (PCP)
April 1, 2024 and every year thereafter	- Submit Annual PCP Report with updated BMP Tracking Table
No later than June 17, 2036	- Complete full implementation of the approved PCP

Pursuant to the foregoing table, BTV will submit a report every April 1st on the development and implementation of the PCP. The reports will address actions taken to implement all PCP components, including:

1. Extent of implementation of Municipal Roads Standards and any necessary updates to the Implementation Table;
2. Extent of street sweeping and catch basin cleaning;
3. Extent of stormwater BMP implementation;
4. An estimate of the extent of remaining items requiring completion;
5. An assessment of the ability to meet outstanding schedule items;
6. A written statement signed by a designer acceptable to the Secretary; stating that any structural BMP built or implemented within the preceding six-month period was constructed in compliance with the approved plans.

4.3 MUNICIPAL ROAD STANDARDS

Each traditional municipality shall complete a Road Erosion Inventory (REI) of all hydrologically-connected road segments within the municipality. BTV is not classified as a traditional municipality and does not contain hydrologically-connected road segments on BTV owned lands. Therefore BTV is not required to complete the REI.

APPENDIX A: CONSTRUCTION SITE RUNOFF CONTROL POLICY DOCUMENTATION

Documents Included:

Stormwater Construction Permit Decision Tree

Application Requirements for Construction Permits

Application for Individual Construction (INDC) Stormwater Discharge Permit

Plan Set Reference and Requirements Form

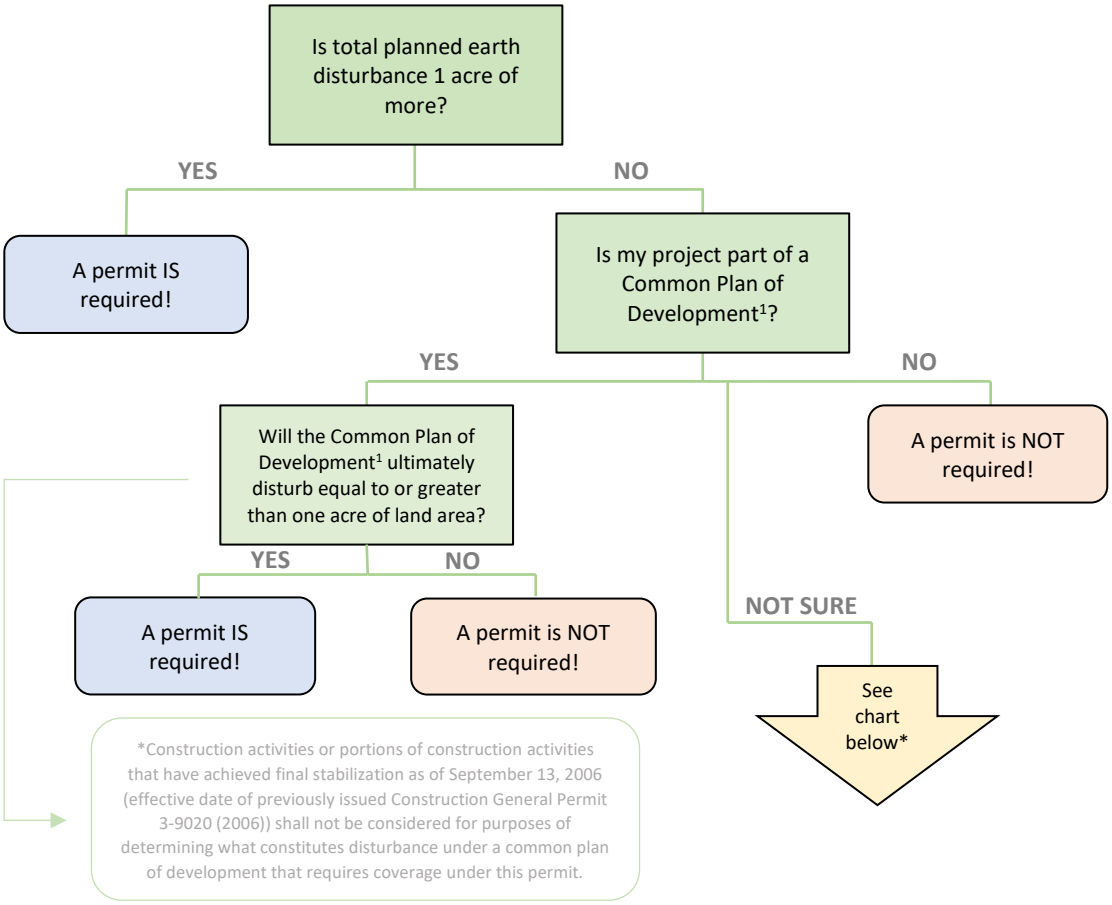
OSPC/EPSC Inspection Report for Moderate Risk & INDC Projects

Amendment Record for Low, Moderate, & INDC Projects

Stormwater Treatment Request for Moderate & INDC Projects

Discharge Report for Low, Moderate, & INDC Projects

Do I need a Stormwater Construction Permit?

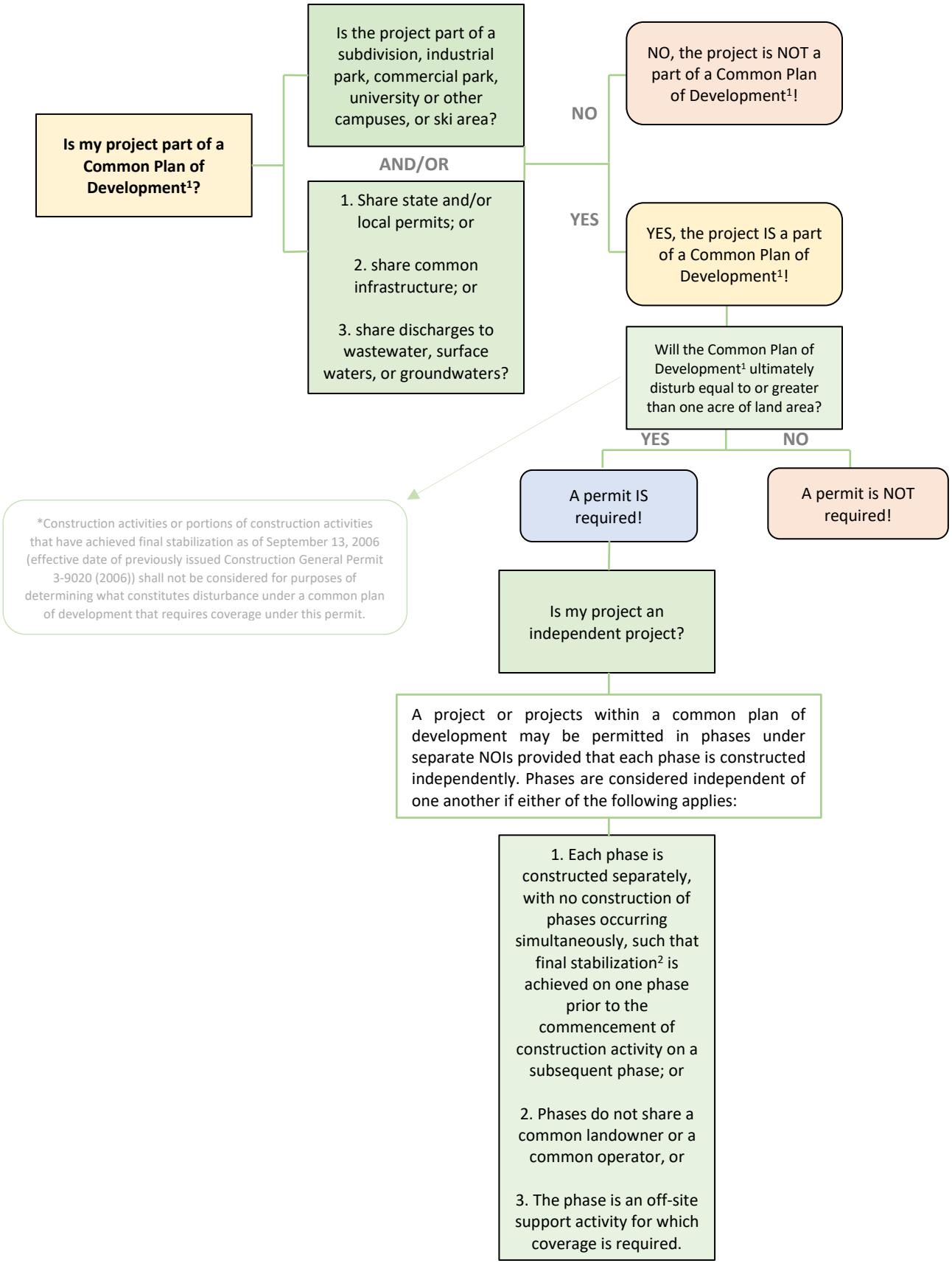


[1] **Common Plan of Development** means a development that is completed in phases or stages when such phases or stages share a common state or local permit related to the regulation of land use, the discharge of wastewater or a discharge to surface waters or groundwater, or a development designed with shared common infrastructure. Common plans include subdivisions, industrial and commercial parks, university and other campuses, and ski areas. Construction activities or portions of construction activities that have achieved final stabilization as of September 13, 2006 (effective date of previously issued Construction General Permit 3-9020 (2006)) shall not be considered for purposes of determining what constitutes disturbance under a common plan of development that requires coverage under this permit. Following completion of the common plan components on a parcel of land, any additional development of the parcel shall be considered as separate from the original common plan for the purposes of evaluating whether one or more acres of earth will be disturbed.

[2] **Final Stabilization** means that:

1. All soil disturbing activities at the site have been completed and either of the two following criteria are met:
    a. a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or
    b. equivalent final stabilization measures (such as pavement, cement, gravel, riprap, gabions, or geotextiles) have been employed.
2. When background native vegetation covers less than 100 percent of the ground (e.g., arid areas, beaches), the 70 percent coverage criterion is determined based on the percentage of background native vegetation. Example: if the native vegetation covers 50 percent of the ground, 70 percent of 50 percent (0.70 X 0.50 = 0.35) would require 35 percent total cover for final stabilization. On a beach with no natural vegetation, no stabilization is required.
3. For individual lots for residential construction, final stabilization means that either:
    a. The parcel has reached final stabilization as specified above, or
    b. The parcel has established temporary stabilization through seeding and mulching in accordance with this permit, and established perimeter controls for the individual lot, prior to occupation of the home by the homeowner, and the operator has informed the homeowner of the need for, and benefits of, final stabilization.
4. For construction activity on land used for agricultural purposes (e.g., pipelines across crop or range land, staging areas for highway construction, etc.), final stabilization may be accomplished by returning the disturbed land to its preconstruction agricultural use when such land will be used again for agricultural purposes immediately following construction activity. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to 'waters of the state,' and areas which are not being returned to their preconstruction agricultural use must meet the final stabilization criteria (1) and (2) above.

Do I need a Stormwater Construction Permit?



VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

2023 Vermont Application Requirements for Construction Permits

Last revised 03/29/2023

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Introduction

This document is intended to ensure that submissions of Vermont Construction Stormwater Discharge Permit applications are uniform in content and arrangement and establishes guidance to the design community on application preparation and submittal. Applications are REQUIRED to be submitted via the ANR Online Portal. Submittal of a paper application by mail must receive a pre-approved waiver from the Department and will only be allowed under limited circumstances.

The contents of this document represent the Stormwater Program's required format for application organization, required material, and supporting information. Failure to adhere to the application submittal requirements presented herein may delay application processing and review or result in the return or denial of a permit application. Variations to application submittal requirements may be approved by the Agency in advance of submittal, on a case-by-case basis, in consideration of specific circumstances for a particular project.

IMPORTANT: For **amendments to existing construction stormwater discharge permits**, and for applications for continued coverage of an expiring or expired authorization/permit, designers should also refer to Appendix 1 of this document, which will provide additional guidance and application requirements for amendments to existing stormwater construction discharge permits.

ATTENTION: Vermont Construction General Permit (CGP) 3-9020 was amended and reissued on February 19, 2020, along with updates to the Low Risk Handbook for Erosion Prevention and Sediment Control (LRHB) and The Vermont Standards and Specifications for Erosion Prevention and Sediment Control (VSS). Reissued CGP 3-9020 is effective on May 19, 2020. Link to the reissued and amended CGP, the Department's response to public comments (Response Summary), and copies of the updated LRHB and VSS are provided below.

Applications received after 11:59 PM on May 18, 2020 are subject to the reissued Vermont Construction General Permit (CGP) 3-9020, including applications for continued coverage of an expiring or expired authorization/permit and applications for an Individual Construction Stormwater Discharge Permits, to ensure consistency with updated permit application requirements as set forth in CGP 3-9020 and the Stormwater Permitting Rule (Environmental Protection Rules: Chapter 22). **Applications to reapply for permit coverage for expired or expiring permits are subject to applicable processing fees, regardless of whether the new application is submitted prior to current permit expiration. Current permits do however remain valid through expiration date.**

The amended CGP includes new application requirements for projects seeking permit coverage as Low Risk or Moderate Risk construction activity, and as applicable, to applications for Individual Construction Stormwater Discharge Permit coverage. In addition, and as noted above, electronic application submittal is required via ANR Online, unless submission by mail has been pre-approved, and a waiver has been granted in advance. The amended CGP includes changes to the Appendix A – Risk Evaluation criteria and scoring system, establishes limitations on concurrent earth disturbance and stabilization schedule for projects covered by the CGP, and includes a set of revised conditions for addressing and allowing certain types of project changes that may occur after an authorization has been

issued. Projects that receive an authorization as Low or Moderate Risk construction activity may be authorized for up to a 5-year permit term.

Permit coverage previously issued under the former CGP 3-9020 or an Individual Construction Stormwater Discharge Permit remain valid and in effect for the term of the issued authorization or individual discharge permit. Materials related to inspection and reporting, as applicable to applicants that applied or received permit coverage by May 18, 2020 are found at the bottom of the Stormwater Program construction permitting web page. Materials such as inspection forms, discharge reporting forms, and related forms will be updated to reflect changes with CGP 3-9020 (effective May 19, 2020) soon.

Applicants and design consultants are strongly advised to review the following Application Requirements for Submittal of Construction Stormwater Discharge Permits prior to submittal. In addition, applications through the ANR Online portal will require that the primary landowner and operator (if known at the time of application) submit the application in accordance with US EPA's Cross-Media Electronic Reporting Rule as set forth in Vermont's NPDES delegated permit authority.

Therefor it is strongly advised that design consultants engage early on with their clients on the requirements for establishing this identity identification protocol, including a Subscriber Agreement in ANR Online early on in the process in advance of application submittal. For detailed application submittal requirements, please see the following application requirements as outlined in this document.

This may require applicants, particularly for applications being prepared by someone other than the applicant to establish "sharing" within ANR Online with their application preparer. It's therefore important that application prepares become familiar with establishing the ability to "share" application submissions. More detail on this process and guidance can be found in Appendix 2 of this document, along with additional guidance on ANR Online submittal.

Part 1. Application Submittal Requirements

All permit applications must be submitted electronically via ANR Online unless prior approval for a waiver of electronic ANR Online has been approved. Adobe PDF Notice of Intent (NOI) form for Low and Moderate Risk Construction Activity will only be made available with such approval. Application submittals will not be accepted via email or through external document sharing sites. Applicable Application Processing Fees must be paid using ANR Online, unless prior approval for waiver as noted above has been approved, then payment by check via postal mail, payable to the State of Vermont may be made. For State of Vermont projects, such as those proposed by the Vermont Agency of Transportation, payment of application fees may be made through inter-Agency payment methods. Paper copies of application materials, including EPSC plans shall not be provided, unless they are specifically requested by the Stormwater Program.

It is also encouraged that all correspondence in response to administrative or technical review of an application subsequent to the initial submittal be conducted via email direct to either administrative

review staff or in the case of technical review, the Stormwater Program, District staff member. Correspondence with the Stormwater Program on issued construction permits should also be conducted electronically when possible as directed below.

Landowner Submittal Required

Applications through the ANR Online portal will require that the application be submitted by the Landowner for the project.

Only a single Landowner may apply at the time of application, and although applications may be in many cases prepared by a consulting designer, the application will first need to be "shared" once prepared to allow for the Landowner to complete the submission along with the certification and payment of the application fee. Applications must be submitted in accordance with US EPA's Cross-Media Electronic Reporting Rule as set forth in Vermont's NPDES delegated permit authority. It is therefore strongly advised that design consultants engage early on with their clients, on the requirements for establishing this identity identification protocol, including a Subscriber Agreement in ANR Online early on in the process in advance of application submittal.

Additional Landowner(s) and/or Operator(s) Additional Landowner(s) or Operator(s) that will be co-permittee, will also submit the request for co-permittee status (following authorization/permit issuance) in accordance with US EPA's Cross-Media Electronic Reporting Rule as set forth in Vermont's NPDES delegated permit authority. It is therefore again strongly advised that design consultants engage early on with their clients, including potential co-permittees, on the requirements for establishing this identity identification protocol, including a Subscriber Agreement in ANR Online early on in the process in advance of Request for Co-Permittee status submittal via ANR Online, for which time the submittal will identify the issued
authorization/permit number.

1.1 Application Format

A complete application for coverage under the Construction General Permit or under an Individual Construction Stormwater Discharge Permit is comprised of all the applicable application materials and payment for the application processing fee. For Construction General Permit applications, either Low or Moderate Risk, the Notice of Intent (NOI) information and completed Risk Evaluation criteria is entered directly into ANR Online. Individual Construction Stormwater Discharge Permits applications still rely on the submittal of a fillable Adobe PDF application form that is uploaded. All other materials may be uploaded as directed within ANR Online. For uploaded documents, files should be named as follows:

1.1.1 Low Risk Projects

1. NOI (completed along with Appendix A - Risk Evaluation through ANR Online, no file naming required)
2. Location Map (uploaded to ANR Online)
3. Soils Evaluation Tool (uploaded to ANR Online as PDF) if the Appendix A risk scoring requires you to answer questions D and I.
4. Site Drawing (uploaded to ANR Online)

1.1.2 Moderate Risk Projects

1. NOI (completed along with Appendix A Risk Evaluation through ANR Online, no file naming required)
2. Location Map (uploaded to ANR Online)
3. Soils Evaluation Tool (uploaded to ANR Online as PDF) if the Appendix A risk scoring requires you to answer questions D and I.
4. EPSC Plan (uploaded to ANR Online)
5. EPSC Plan Reference Form (uploaded to ANR Online)

1.1.3 Projects Requiring an Individual Permit

1. Individual Construction Stormwater Discharge Permit Application Form (complete Adobe PDF fillable form and upload document to ANR Online, file named as follows: INDC_APP)
2. Location Map (uploaded to ANR Online)
3. Appendix A Risk Evaluation
4. Soils Evaluation Tool (uploaded to ANR Online as PDF) if the Appendix A risk scoring requires you to answer questions D and I.
5. EPSC Plan (uploaded to ANR Online)
6. EPSC Plan Reference Form (uploaded to ANR Online)

More information on specific application materials.

Note: Please do not combine separate application materials into single files, such as combining Location Map with EPSC Plan. Use the above format and file naming convention, as able.

1. ***NOI / Application Form***
   Notice of Intent (NOI) is specific to both Low and Moderate Risk Construction Activity that are eligible for permit coverage under Construction General Permit 3-9020. Projects that do not qualify as Low or Moderate Risk must apply for an Individual Construction Stormwater Discharge Permit by submittal of the Individual Construction Stormwater Discharge Permit Application Form. Effective January 1, 2018, applications for Individual Construction Stormwater Discharge Permits (INDC) require the applicant to provide notice of application to adjoining property owners at the time of application and certify this on the application form. Specific instructions are provided on the INDC application form, including a link to a template that can be used for this notification.

   a. Appendix A – Risk Evaluation
      Risk evaluation for the project completed in accordance with the directions provided in the Appendix A, entered directly into the eNOI form within ANR Online for Low and Moderate Risk applications.

2. ***Location Map***
   Map of the project location uploaded in Adobe PDF format to the ANR Online system. The location map shall be in the form of a topographic map, or aerial image, extending one mile beyond the property boundaries of the activity, providing:
      a. Sufficient information to determine the location of the project and the receiving water; and
      b. As applicable for an existing facility, the location of:
         i. The facility and each of its intake and discharge structures;
         ii. Hazardous waste treatment, storage, or disposal facilities;
         iii. Wells where fluids from the facility are injected underground; and

iv. Wells, springs, other surface waters, and drinking water wells listed in public records or otherwise known to the applicant in the map area

The Agency's Natural Resource Atlas tool may be used to prepare project Location Map.

3. ***Soils Evaluation Tool***
The Soils Evaluation Tool is available in Microsoft (MS) Excel workbook format (submitted by PDF). This allows both the Stormwater Program and the public (during notice of application), with an opportunity to review details specific to the completed risk evaluation in consideration of soil disturbance, and related depth-weighted soil erodibility. It's important that designers may find this calculation may differ from the soil erodibility mapped via NRCS Web Soil survey which considers the surface layer of the soil, so in consideration of a depth-weighted average as required, there may be some variation from information gathered strictly specific the to upper most soil horizon.

4. ***Site Plan or Site Drawing (for Low Risk projects only)***
Map or plan drawn to scale and uploaded as a single Adobe PDF attachment to the ANR Online system, depicting the relevant information, including property boundaries, limits of disturbance, vegetated buffers, and all surface waters.

5. ***EPSC Plan (for Moderate Risk projects and projects that require an Individual Construction Stormwater Discharge Permit only)***
EPSC Plan uploaded as a single Adobe PDF attachment to the ANR Online system. If file limitations do not allow as a single attachment, multiple attachments may be allowable and should be named EPSC Plan 1, EPSC Plan 2, EPSC Plan 3, etc. , recognizing that this filing naming for upload will differ from plan-specific information to be listed in the Plan Set Reference Form as outlined below. The EPSC Plan for Moderate Risk projects and for projects subject to an Individual Construction Stormwater Discharge Permit shall be developed in accordance with Appendix B of Construction General Permit 3-9020, as applicable, and The Vermont Standards and Specifications for Erosion Prevention and Sediment Control.

6. ***Plan Set Reference Form (for Moderate Risk projects and projects that require an Individual Construction Stormwater Discharge Permit only)***
This form, uploaded as a single Adobe PDF attachment, must be completed to provide a complete list of all plans applicable to the stormwater management design and EPSC Plan that is included with the application. If plans are revised during the review process this form will need to be revised with the final set of application EPSC Plans, dated, and inclusive of revision dates, if applicable.

List the plans using the following format: Sheet [##], "[Sheet Title]", dated [mm/dd/yyyy], last revised [mm/dd/yyyy]; (e.g. Sheet 1, "Existing Condition Plan", dated 01/15/2019, last revised 02/06/2020.

1.2 Permit Application Correspondence and Revisions

Submission of permit-application related correspondence (e.g. response to administrative or technical review comments, plan changes, application material revisions) shall be provided via email following the initial submittal of the application.

If revisions to original application materials are requested by the Stormwater Program, the applicant shall re-submit a complete attachment with the response to comments. For example, if an EPSC Plan sheet needs to be revised, then the entire EPSC Plans attachment should be resubmitted and named as such "2020-5-22 EPSC Plans". In certain cases that involve large file sizes, the Stormwater Program may consider allowing single sheets to be revised without resubmittal of the entire attachment. It is advised that you consult with Program district staff in this situation to review available options for resubmittal.

In the response to comments, correspondence shall include a description of the location of any changes to the revised complete attachment (i.e. "Winter Construction requirements inserted on Sheet E-6")

1.3 Correspondence and Reporting for Issued Permits/Authorizations

Addition of Co-Permittees

A Notice of Addition of Owners or Operators (or generally, "Co-Permittees") for coverage under Stormwater Discharge Permit shall be completed **AFTER** a permit has been issued to add site operators or additional landowners as co-permittees to the permit. Currently only one entity may sign the ANR Online eNOI form as a permittee at the time of submittal, though existing capabilities to this system may be upgraded in the future. At least one site operator must be added as a co-permittee prior to commencement of construction activities, IF the landowner is not the Operator. Notice of Addition of Co-Permittee forms shall be submitted electronically via ANR Online. A link to the form is available on the Stormwater Program's Construction Stormwater Discharge Permits site: https://dec.vermont.gov/watershed/stormwater/permit-information-applications-fees/stormwater-construction-discharge-permits.

For ANR Online user account setup click the following link: https://anronline.vermont.gov/. Please contact Megan McIntyre in the Watershed Management Division's Business and Operational and Support Services Program if you have any questions regarding submittal of forms via ANR Online. Megan McIntyre may be reached at megan.mcintyre@vermont.gov or 802-490-6110. If you have questions or issues related to ANR Online, please contact our online support staff at anr.onlineservices@vermont.gov.

In addition, applications through the ANR Online portal will require that additional requests for co-permittee, whether Landowner or Operator submit the request in accordance with US EPA's Cross-Media Electronic Reporting Rule as set forth in Vermont's NPDES delegated permit authority. It is

therefore strongly advised that design consultants engage early on with their clients, on the requirements for establishing this identity identification protocol, including a Subscriber Agreement in ANR Online early on in the process in advance of application submittal.

Transfers

A transfer of an authorization to discharge may occur only in connection with the transfer of the entire construction site to a new Landowner. Expired authorizations are not transferrable. Notice of Transfer of Authorization to Discharge forms shall be submitted electronically via ANR Online no later than 30 days after the transfer and shall include all information specified in Section 7.2 of the 2020 Construction General Permit. .

Portions of a construction site may be transferred to a new Landowner prior to completion of all soil disturbing activities and final stabilization. The new Landowner must either (1) file a Notice of Addition of Co-Permittee form with the Stormwater Program, or (2) must obtain separate permit coverage under the CGP or an individual permit for the transferred portion of the site, and coverage for that same portion of the site must be terminated by the original permittee by filing a Notice of Termination for Portions of an On-Going Site form via email to the Stormwater Program, District staff member.

Notices of Termination

A Notice of Termination (NOT) may be submitted for a portion of an on-going construction site or for an entire construction site, if at least one of the conditions specific to each type of termination is met. Refer to the 2020 Construction General Permit, Sections 7.4 and 7.5 for these conditions. Notices of Termination are available now for both Low and Moderate Risk authorizations and for projects requiring an Individual Construction Stormwater Discharge Permit.

Additional Forms, Reports, and Notices

Currently all forms for issued authorizations **other than** the Notice of Addition of Co-Permittee and Notice of Transfer forms are available as PDFs on the Program's Construction Stormwater Discharge Permits website. These forms shall be submitted via email to Stormwater Program District Staff.

General Correspondence

All general correspondence related to a previously issued permit should be directed to Stormwater Program District staff via email. A Stormwater Program District Staff directory can be found here: http://dec.vermont.gov/watershed/stormwater/contacts

For additional stormwater permitting information, please visit the Stormwater Program website: http://dec.vermont.gov/watershed/stormwater

Part 2: NOI / Application

Applicant(s)

Applications through the ANR Online portal will require that the primary Landowner and Operator (if known at the time of application) submit the application in accordance with US EPA's Cross-Media Electronic Reporting Rule as set forth in Vermont's NPDES delegated permit authority. It is therefore strongly advised that design consultants engage early on with their clients, on the requirements for establishing this identity identification protocol, including a Subscriber Agreement in ANR Online early on in the process in advance of application submittal. For detailed application submittal requirements, please see the Application Requirements for Construction Stormwater Discharge Permits in this document.

ANR Online submittal for Low and Moderate Risk construction activity will only allow for a single Landowner at the time of application and all other Landowner(s) or Operators must submit a Notice of Addition of Co-Permittee following authorization issuance. Similarly, any additional Notice of Additions of Co-Permittee would be completed in the same manner through ANR Online. Application forms for Individual Construction Stormwater Discharge Permits is also through ANR Online, however the application is completed as a fillable Adobe PDF document and uploaded.

The applicant(s) shall be the Landowner(s) and the Operator(s). In the case of a municipal, state, or regional transportation or utility project crossing one or more properties, the applicant(s) shall be the municipal, state, or regional transportation or utility authority that controls the project site by ownership, easement, right-of-way, or legal access agreement. For purposes of this permit, "operator" means all parties associated with the construction activity, including sub-contractors, that meet either of the following two criteria:

1. The party has operational control over construction plans and specifications including the ability to make modifications to those plans and specifications; or

2. The party has continuous day-to-day operational control of those activities at a project that are necessary to ensure compliance with the Low Risk Site Handbook for Erosion Prevention and Sediment Control and other permit conditions.

Project Name

The project name will appear on the Notice of Authorization that will be posted for public viewing and shall provide a unique identifier to assist the public in distinguishing it from other projects. While a project name given as "Proposed Site Improvements" is not acceptable, providing the name, address, or a general location of the site with that descriptor is sufficient: "Smith Hill Road Creamery Proposed Site Improvements."

Description of Construction Activities to be Permitted

The description of construction activities to be permitted for the project will appear on the Notice of Authorization that must be posted at a location visible to the public following issuance of a permit. While it may be brief, the project description shall provide enough detail to enable the public to understand the nature of the activities that are covered by the authorization. It shall include a description of the types of earth-disturbing activities that will be necessary for the project (clearing, grading,

excavating, or other) and of the infrastructure that will be constructed. The approximate size and purpose of the proposed infrastructure shall be included as applicable (ex. "15,000 square foot building that will contain a retail tool supply store").

Receiving Waters

The receiving water is the name of the water of the State that stormwater runoff from the site first enters. If the receiving water does not have a name, use the designation of "unnamed tributary to the X," where X is the first named waterbody. "Waters" means all rivers, streams, creeks, brooks, reservoirs, ponds, lakes, springs, and all bodies of surface waters, artificial or natural, which are contained within, flow through, or border upon the state of Vermont or any portion of it. If the receiving water is a wetland, be specific as to the wetland's relationship to other waters. For instance: 1) Wetland tributary to X; or 2) Wetland draining into X. In situations where all stormwater is discharged to groundwater (infiltrated), the receiving water is "groundwater within the X watershed." In the instance that the site discharges to groundwater, but some overflow is expected via surface runoff into a Water of the State, the receiving water is "groundwater with overflow to X."

Project Risk Category

Construction activity risk is determined through the completion of CGP 3-9020, Appendix A – Risk Evaluation, which may be done initially in advance of permit application by referencing CGP 3-9020. At time of application, this evaluation is completed using the eNOI within ANR Online AND the Soils Evaluation Tool, to be uploaded as PDF as part of application submittal.

Latitude and Longitude

This is the location in Decimal Degrees (including at least the first five digits after the decimal point) format for the project location. The latitude and longitude must be accurate for the location of the project. The ANR Online submittal portal allows applicants to click on the location of their project on the map. This should be the approximate center of the proposed construction activity.

SPAN (School Property Account Number)

All property in Vermont is issued a School Property Account Number (SPAN), which is printed on the property tax bill. If SPANs have not been identified yet, such as in the case of a proposed subdivision of a parcel, and the municipality has not provided yet, applicants may list the SPAN(s) applicable to the existing parcel(s) or complete the SPAN using all zero digits. Public Transportation Projects may identify that no SPAN is applicable within the eNOI. The Department may request to update application record once a SPAN becomes available, if no SPAN was available at the time of application.

Common Plan of Development

Per Appendix C of CGP 3-9020 common plan of development means a development that is completed in phases or stages when such phases or stages share a common state or local permit related to the regulation of land use, the discharge of wastewater or a discharge to surface waters or groundwater, or a development designed with shared common infrastructure. Common plans include subdivisions, industrial and commercial parks, university and other campuses, and ski areas. Construction activities or portions of construction activities that have achieved final stabilization as of September 13, 2006 (effective date of previously issued Construction General Permit 3-9020 (2006)) shall not be considered for purposes of determining what constitutes disturbance under a common plan of development that

requires coverage under this permit. Following completion of the common plan components on a parcel of land, any additional development of the parcel shall be considered as separate from the original common plan for the purposes of evaluating whether one or more acres of earth will be disturbed.

Previously Issued or Pending Stormwater Discharge Permits

If a project has previously issued construction, operational, or industrial (Multi-Sector General Permit, i.e. MSGP) stormwater discharge permits, the most recent permit number must be specified on the eNOI. Any pending stormwater discharge permit application numbers must also be specified at the time of applications if the pending permit number is known. If the pending permit number is unknown, please enter "pending [permit type]."

Total Area of Disturbance

The total area of disturbance for the project, in acres, must be provided as a whole number without inequality symbols ("<" and ">.") The total area of disturbance is the total of all areas on the project site that will be disturbed for construction, rather than the maximum area that will be disturbed at any one time. All areas of a project site and associated support activities where earth disturbance may occur must be included in the total area of disturbance unless areas of the project site are physically demarcated and excluded from construction access. Please ensure that the total area of disturbance identified at the time of application and submittal of the eNOI / Application Form matches the total noted on the EPSC Plan and does not conflict with the Appendix A – Risk Evaluation answers for the project.

> Earth Disturbance: In addition to clearing, grading, and soil excavating activities, exposed soil and loss of vegetation resulting from vehicular access, concentrated work areas, staging activities, or other construction-related work resulting in soil being exposed to the elements is "earth disturbance." When determining the total area of earth disturbance for a project, all areas of a project site or that are part of associated support activities, where there is a possibility of disturbance occurring, must be included in the total earth disturbance determination unless areas are physically demarcated and excluded from construction access. Disturbance within self-contained excavations with no outlet, and with a depth of 2 feet or greater, is exempt from soil stabilization requirements but is not exempt from calculations of the total area of earth disturbance for a project.
>
> Independent Project: Phases of projects may be permitted under separate eNOIs provided that each project phase is constructed independently. Project phases are independent if either of the three criteria in Section 1.7 of the General Permit 3-9020 applies. If none of the three criteria apply to the phases a single eNOI must be submitted for the project that is inclusive of each phase.

Estimated Date of Construction Commencement

The date entered in the permit application is intended to be an estimate only, and will not affect issued permit term, which for construction stormwater discharge permits is 5 years. Construction, however, may not commence until an authorization/permit is received from the Department.

Estimated Date of Construction Completion / Site at Final Stabilization

The date entered in the permit application is intended to be an estimate only, and will not affect issued permit term, which for construction stormwater discharge permits is 5 years. Applicants may indicate a date beyond the anticipated permit term but must be aware that permittees are required to reapply prior to expiration for continued permit coverage, if construction activity is anticipated to continue beyond the 5-year permit term. Final stabilization means that:

1. All soil disturbing activities at the site have been completed and either of the two following criteria are met:
    a. a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70 percent of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or
    b. equivalent final stabilization measures (such as pavement, cement, gravel, riprap, gabions, or geotextiles) have been employed.
2. When background native vegetation covers less than 100 percent of the ground (e.g., arid areas, beaches), the 70 percent coverage criterion is determined based on the percentage of background native vegetation. Example: if the native vegetation covers 50 percent of the ground, 70 percent of 50 percent (0.70 X 0.50 = 0.35) would require 35 percent total cover for final stabilization. On a beach with no natural vegetation, no stabilization is required.

Existing Impervious Surfaces at the Project Site

Impervious surfaces means those manmade surfaces, including paved and unpaved roads, roofs, driveways, and walkways, for which precipitation runs off rather than infiltrates. The definition of site is generally inclusive of all areas of earth disturbance seeking permit coverage and therefore for purposes of this calculation, designers may opt to identify this portion of the site and also included existing impervious surfaces associated with the project, including prior phases or development. Applicants may contact Stormwater Program District staff if necessary, in identification of existing and proposed impervious surfaces at the project site.

Increases in Impervious Surface Area as a Result of the Project

As noted above, impervious surfaces means those manmade surfaces, including paved and unpaved roads, roofs, driveways, and walkways, for which precipitation runs off rather than infiltrates. While these surfaces are not regulated under construction stormwater discharge permitting, it is required to identify any proposed increases as a result of the project. This shall not include temporary impervious surfaces as defined in the Stormwater Permitting Rule, associated with construction that will be restored to a pervious surface.

Estimated Volumetric Runoff Coefficient (R_v)for the Site *after* Construction Completion

Example calculation provided below:

Estimated Volumetric Runoff coefficient (R_v) is calculated as follows:

$R_v = [0.05 + 0.009 (I)]$

Where (I) is equal to site imperviousness expressed as a whole number percent (%). Impervious areas include the measured aerial footprint of all surfaces such as buildings/rooftops, paved and/or graveled surfaces, sidewalk etc. for which stormwater runs off rather than infiltrates. Site Area (A) shall include the entire parcel/tract of land to be developed, included areas that will not be disturbed during construction.

Example:
Total Site Area (A) in (acres) = 7.00 acres
Total Site Impervious after construction in (acres) = 2.50 acres
% Impervious (I) = 2.50 acres / 7.00 acres = 0.36, when expressed as a whole number percent (%) = 36 percent (%).

When the calculated percent (%) impervious value is considered in the volumetric runoff coefficient (R_v) calculation, the resulting value is as follows:
$R_v = [0.05 + 0.009 (I)]$
$R_v = [0.05 + 0.009 (36)]$
$R_v = [0.05 + 0.32)]$
$R_v = 0.37$

Fill Material Expected to be Utilized for Construction
This should include fill material that may be imported from off-site sources, as opposed to cut/fill activity on site.

Type and Nature of Soil that will be Disturbed on Site
This may be a general description of existing soils, such as sandy or clay soils, previously disturbed or logged forest cover, or description of existing agricultural use may be included in this description.

Quality of Existing Stormwater Discharges on Site
This may be a general description of existing stormwater runoff patterns, or an existing conveyance for stormwater, including infrastructure such as pipes and other closed drainage systems or open conveyance such as ditches or swales. Identification of any known discharge points to surface waters or wetlands may also be noted.

Additional Municipal Stormwater Requirements Applicable During Construction
If necessary, contact your municipality to determine whether other requirements are applicable during construction.

Additional Municipal Stormwater Requirements Applicable Post-Construction
If necessary, contact your municipality to determine whether other requirements are applicable post-construction.

Other Post-Construction Stormwater Treatment or Control Measures Proposed, Not Otherwise Identified

This may include voluntary measures that are part of the project design to address stormwater treatment and/or control, otherwise not identified above.

Project Stormwater Discharges to Groundwater via Infiltration Basin or Similar Practice

This would not include stormwater disconnected over vegetated surfaces but structural practices such as an infiltration basin, infiltrating rain garden/bioretention system, or subsurface infiltration chambers/beds.

Proposed Stormwater Discharges to Groundwater Located within Zone 1 or Zone 2 of a Public Groundwater Source Protection Area (SPA)

The Vermont Natural Resources Atlas found on the Agency of Natural Resources website provides this information and is currently found under the Drinking Water and Groundwater Protection layer in the Atlas. Source Protection Areas (SPA) may include both groundwater and surface water source protections, and this question is specific to Groundwater Source Protection Areas (SPA) only.

Is the Proposed Stormwater Discharges to Groundwater Located within a Groundwater Protection Overlay District Established by a Municipality Pursuant to 24 V.S.A. S 4414(2)

The Vermont Natural Resources Atlas found on the Agency of Natural Resources website DOES NOT provide this information and applicants must contact a municipality directly to determine if there has been a municipal Groundwater Protection Overlay District established in the project location.

Part 3: Location Map

The location map shall be in the form of a topographic map; an aerial image is also acceptable if a topographic map is unavailable. The map must extend one mile beyond the boundaries of the property where construction activities are proposed and must provide sufficient information to determine the location of the project and the receiving water; and as applicable for an existing facility, the location of:

i. The facility and each of its intake and discharge structures;
ii. Hazardous waste treatment, storage, or disposal facilities;
iii. Wells where fluids from the facility are injected underground; and
iv. Wells, springs, other surface waters, and drinking water wells listed in public records or otherwise known to the applicant in the map area.

The Agency's Vermont Natural Resource Atlas tool may be used to prepare the project Location Map.

Part 4: Soils Evaluation Tool

A completed Soils Evaluation Tool, in Microsoft (MS) Excel workbook format must be submitted as a PDF for each project requiring a discharge permit for stormwater runoff from construction

activities, if required based on the risk scoring in the Appendix A, specific to questions D and I. This is in addition to the ANR Online eNOI questions for Low and Moderate Risk construction activity, and to accompany all applications submitted for individual construction stormwater discharge permits. This document allows the public to view the completed Risk Evaluation and the applicant to calculate their erodibility rating in consideration of a depth-weighted average as required. This tool and the ANR Online eNOI submission will determine if the project is eligible for coverage under the Construction General Permit, and if so whether the project qualifies as Low Risk or Moderate Risk construction activity or otherwise requires an individual construction stormwater discharge permit. Please ensure that the answers provided for the Soils Evaluation Tool questionnaire are consistent with information provided in other application attachments and the eNOI or individual construction stormwater discharge permit application form.

Part 5: Map or Plan Drawn to Scale (Low Risk); or Erosion Prevention and Sediment Control (EPSC) Plan (Moderate Risk and Individual Permit Applications)

Low Risk Construction Activity

A map or plan drawn to scale, depicting property boundaries, proposed limits of earth disturbance, proposed vegetated buffers used in determining the risk score of the project, all waters of the State.

Moderate Risk Construction Activity and Individual Permit Applications

A site-specific EPSC Plan must be submitted for all Moderate Risk projects and all projects requiring an Individual Stormwater Construction Discharge permit. All plan sheets shall be compiled into a single separate pdf called "EPSC Plan." EPSC Plans and Maps shall be drawn at an appropriate scale to clearly depict the EPSC design and details. The EPSC Plan shall include the minimum required elements identified in Appendix B of the Construction General Permit 3-9020 and Part 3 of the Vermont Standards and Specifications for Erosion Prevention and Sediment Control (2020). These elements must be organized into five components:

1) Project Description
2) Location Map
3) Pre-Construction Plan
4) Construction Plan
5) Stabilization Plan

Multiple plan sheets will be required for most applications to convey this information at the appropriate scale and level of clarity. In some instances, certain components may be combined as appropriate, dependent on size and scope of project, but the expected sequencing of EPSC measures to be implemented for the Pre-Construction Plan, Construction Plan, and Stabilization Plan must be clearly presented rather than mixing requirements for each component together into a single plan. An exception is made for linear projects such as roads, pipelines, and utility installations. The Pre-Construction Plan, Construction Plan, and Stabilization Plan for linear projects may be combined into one plan.

The number of plan sheets, sheet titles, sheet letters/numbers, and dates of submitted plan sheets in the Plan Set Reference attachment must match that of the plan set attachment included with the applciation Project plan sheets that exclusively contain information unrelated to erosion prevention and sediment control (ex. utilities, lighting, other civil engineering details unrelated to management of stormwater runoff) shall not be included in the EPSC Plan attachment. This unrelated content may be included in the submitted attachment on a limited basis if it is on the same plan sheet as erosion prevention and sediment control information that is relevant to the permit requirements.

References or directives to comply with *The Low Risk Site Handbook for Erosion Prevention and Sediment Control* or to permit requirements specific to Low Risk construction activity shall not be included in the EPSC Plan.

5.1 EPSC Plan Guidance

EPSC Plans shall be developed in accordance with the requirements of Construction General Permit 3-9020, Appendix B and *The Vermont Standards and Specifications for Erosion Prevention and Sediment Control*.

All site-specific EPSC plans must include, where applicable:

1. Legend
2. Scale bar
3. Compass/North arrow
4. Site boundary and limits of disturbance
5. Labeled discharge points and points of interest (as applicable)
6. Labeled locations of all proposed EPSC practices
7. Labeled locations of surface waters and existing drainage conveyance or stormwater treatment features that are within the project boundaries or that will receive stormwater runoff from the project, with direction of stormwater flow indicated (as applicable)
8. Delineation of phased work activities and project areas to minimize the total area and duration of exposed soil (as applicable)
9. Dated plans including current revision dates (as applicable)

- **Preconstruction Plan**: Depict the limits of the construction site and the limits of earth disturbance (including the methods of demarcation), existing contours of the construction site and the surrounding area 300 feet outside of the limits of disturbance, existing vegetation and impervious surfaces (as applicable), existing surface water and drainage features (including off-site areas that drain through the project area and existing storm drain inlets), buffers or setbacks from water bodies and conveyances to water bodies (with directions for avoiding impacts in these areas), other areas of existing vegetation to be marked off and preserved (including methods of in-field demarcation with barriers), locations of soil types, and geologic features (rock outcrops, seeps, etc., as applicable). The locations of all sediment control measures to be installed prior to initiating primary earth disturbance activities must be shown, with directions for installation ahead of the earth disturbance. These practices may include, but are not limited to, silt fences, diversion berms, check dams, grass channels, or sediment basins. If operational stormwater treatment practices are proposed directions must be provided to complete stabilization of these practices before directing runoff to them. This is particularly important if

the proposed treatment practice infiltrates stormwater. If the treatment practices are utilized during construction as sediment control measures, directions must be provided to modify and stabilize them (as necessary) prior to completion of construction, such that the treatment practices will meet all requirements for treatment and control of post-construction stormwater runoff. All EPSC measures and other features shall be included in a legend.

- **Construction Plan**: Depict property lines of the project, the limits of the construction site and limits of earth disturbance (provide the total acreage consistent with the total area of disturbance specified in the completed eNOI), existing and proposed contours, buffers or setbacks from water bodies and conveyances to water bodies (with directions for avoiding impacts in these areas that are consistent with the completed Appendix A – Risk Evaluation), and locations of all existing and proposed structures (roads, utilities, buildings, drainage inlets). If construction activity will be phased, the proposed phase boundaries and sequencing of EPSC measures within each phase, the order of phases to be constructed, and required actions that must be completed prior to initiating earth-disturbing work for a subsequent phase must be shown. If earth disturbance at any one time has been given a specified limit on the Appendix A, directions for limiting concurrent disturbance consistent with that limit must be provided. Locations of all erosion prevention measures and sediment control measures must be shown, including measures implemented in the pre-construction phase. Consistent with the completed Appendix A, directions for stabilization of a given area within 14 days following initial disturbance must be provided (or a period exceeding 14 days if the application is for Individual Discharge Permit coverage), including the directive that once this time period has passed, the disturbed area must be temporarily or permanently stabilized in advance of any event producing runoff. If construction activities are planned or expected to potentially occur during the winter construction period (October 15 through April 15), the EPSC Plan must identify erosion prevention and sediment control measures specific to the winter season that are consistent with the Vermont Standards and Specifications for Erosion Prevention and Sediment Control, Section 3.3. If <u>all</u> applicable winter EPSC measures listed in Section 3.3 are not identified in the EPSC Plan at the time of application, and the permittee subsequently plans to undertake construction activities during the winter season, the EPSC Plan must be amended and resubmitted to the Stormwater Program for approval prior to any construction activities being performed during the winter construction period. If dewatering activities are anticipated, the location of dewatering discharges must be shown. Locations of proposed staging and stockpile areas must be shown, including directions for stabilizing stockpile areas. Directions for inspections, including inspection frequency, that are consistent with the requirements specific to the permit, shall be provided. All EPSC measures and other features shall be included in a legend.

- **Construction Details:** As part of the Construction Plan, a detail drawing and specification must be provided for each EPSC practice proposed for the project, with all applicable notes regarding installation and maintenance of the practice. Details may be included on separate plan sheets, as necessary. Practice details must conform to the technical standards and specifications in Parts 4 and 5 of the 2020 Vermont DEC Standards and Specifications for Erosion Prevention and Sediment Control. The use of alternate standards or specifications, proprietary practices, or of practice components or materials, including those in the Vermont Department of Transportation Standard Specifications for Construction, is subject to review and may be approved on a case-by-case basis.

- **Stabilization Plan**: Depict property lines of the project, final grade contours, locations of all existing and proposed structures, temporary and final stabilization measures required for all areas of disturbance, and specifications for areas to be stabilized with vegetation (including seed mixes, fertilization, and other soil amendments). For areas where final stabilization is not scheduled to occur prior to the winter construction period directions must be provided to complete seeding after April 15 and before September 15. Directions must be provided to removal all temporary EPSC practices within 30 days of achieving final stabilization. Inspection frequency consistent with the permit must be specified, including an indication of when inspections may be discontinued. All EPSC measures and other features shall be included in a legend.

- **Other Plan Sheets:** Other plan sheets may be included if they are applicable to stormwater management and/or erosion prevention and sediment control.

Appendices

Appendix 1: Amendments to Existing Stormwater Construction Discharge Permits and Applications to Reauthorize Construction Activity Prior to, or After Permit Expiration.

Permitted Low Risk and Moderate Risk Projects for which changes are proposed may require a permit amendment, a new application submittal, or a new Individual Construction Stormwater Discharge Permit. Refer to Section 5.1 of the General Permit 3-9020 for project changes that would require a permittee to obtain an amendment to its existing authorization or an Individual Construction Stormwater Discharge Permit. Section 5.2 describes project changes that would not require an amendment to an existing authorization and permittees must review an existing Individual Construction Stormwater Discharge Permit issued for project construction activity on any specific conditions that govern project changes and permitting requirements. Note: Applications to reauthorize construction activities due to an expired or expiring permit, are not considered amendments or renewals, and must submit a new application for permit coverage, either under the 2020 CGP or an individual construction stormwater discharge permit, if applicable. Furthermore, authorizations/permits issued prior to May 19, 2020 may not be amended under the former CGP, and will be required to obtain coverage under the new CGP or individual construction stormwater discharge permit.

The application formatting and submittal requirements for an amendment of a permit authorization are the same as would be applicable for a new application. If the Appendix A overall risk score increases due to a project change such that the risk category changes, the application requirements specific to the new risk category apply. Depending on the type or nature of the changes, all permit application materials may need to be updated even if the overall risk category does not change.

The first project change listed in Section 5.2 is the use of interchangeable practices found in the *Low Risk Site Handbook for Erosion Prevention and Sediment Control* or in *The Vermont Standards and Specifications for Erosion Prevention and Sediment Control*.

Interchangeable Practice: An EPSC practice is interchangeable with another practice if it is described as having the same general functional use. The Planning Flow Charts on pages 14-16 of *The Vermont Standards and Specifications for Erosion Prevention and Sediment Control* may be used as a guide to select an interchangeable practice that may be more practical, efficient, adaptable, or economical to the site than the permitted practice, or the Stormwater Program district technical analyst may be contacted for guidance. When practices specified in the approved plans are replaced with an interchangeable practice the on-site EPSC Plan must be updated with the new practice but an amendment to the permit is not required. Replacement of a permitted practice with a non-interchangeable practice requires amendment of the issued permit. The Low Risk Handbook for Erosion Prevention and Sediment Control also includes practices that serve the same purpose and accomplish the prevention and control for a given requirement as set forth in the handbook.

Appendix 2: ANR Online Instructions for Construction Stormwater Permit Application and Form Submittals; and US. EPA's Cross Media Electronic Reporting Regulation (CROMERR) Compliance for Application Submittal

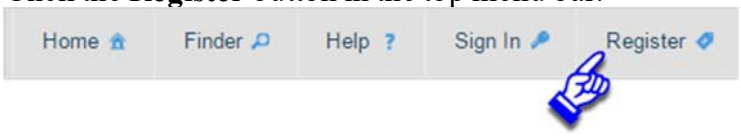
The following instructions should help you through the process of submitting Construction Stormwater Permit applications and required forms. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

If you have any questions related to completing the compliance forms, please contact the Stormwater Program at anr.wsmdstormwatergeneral@vermont.gov or 802-490-6110. If you have questions or issues related to the ANR Online system, please contact the ANR Online support staff at ANR.OnlineServices@vermont.gov.

Creating a User Account

In order to access forms in ANR Online (https://anronline.vermont.gov), you need to have an account in the website. The first time you use ANR Online you will need to register to create an account. Follow these steps to create an account:

1. Click the **Register** button in the top menu bar.



2. The **Create User Profile** page will open, complete the user profile form. Fields marked with a red asterisk * are required. After entering your mailing address, click the **Validate Address** button and then click the **Save** button. If the address validation fails you can still click the **Save** button to create your account.
3. Once you save your User Profile, the system will send you an email that includes a link. You need to click that link to activate your account. If after a few minutes you have not received the email, check your junk mail folder. If the message is not there, contact the ANR Online Administrator at ANR.OnlineServices@vermont.gov.

Signing In

Once you have activated your account you can Sign In. To sign in to ANR Online:

1. Click the **Sign In** button in the top menu bar.



2. In the Sign In window, enter your User ID (this is your account email address) and your password (the password you entered when creating your account) and click the OK button.

Subscriber Agreement

This is required for all applicants. A link to this form in ANR Online is found here.

https://anronline.vermont.gov/?formtag=AID_SA

Sharing Access to Submissions

Overview

ANR Online has a feature that allows submissions to be shared among users. Access can be shared while submissions are being drafted or after they have been submitted. Some reasons for sharing access to submissions, include:

- So multiple individuals can contribute to filling out an application/report;
- If one person is preparing the application/report, but another person needs to review and submit it;
- If one person is submitting an application, but another person needs to pay the fee online.

The person(s) you want to share access with **MUST** have an ANR Online account at the time you share the submission. When you share access to a submission it applies to only that submission. It does not give the person access to all of your submissions or even other submissions of the same type. Each time you want to share a submission you will need to go through this process.

Information related to Sharing Submissions is also provided via the ANR Online construction stormwater permitting eNOI landing page:

https://anronline.vermont.gov/app/#/formversion/fb2e5d13-8a15-49c1-958c-5bb057fdab1d?formtag=SW_CGP_NOI

Application for

Individual Construction (INDC) Stormwater Discharge Permit

Under Individual Discharge Permit

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

Submission of this application constitutes notice that the Applicant(s) in Section A request to be authorized to discharge pollutants to waters of the State, from the project identified in Section C under an Individual Construction Stormwater Discharge Permit. Submission of the application constitutes notice that the Applicant(s) identified in Section A of this form have determined that the project does not qualify for coverage under Vermont's Construction General Permit(CGP) 3-9020, and therefore are requesting construction stormwater discharge permit coverage under an individual permit. In order to be granted coverage, all information required on this form must be provided and an application fee payable to the State of Vermont must be submitted. Adjoining property owners must be noticed by the applicant/application preparer prior to application submittal. Note this application is subject to a minimum 30-day comment period.

A. Applicant Information *Emails are required

1. Landowner Name:_____ Date:_____

Mailing Address:

Street/PO Box:_____

City/Town:_____ State:_____ Zip:_____

Contact Information

Phone:_____ *Email:_____

*Additional Email:_____

Is the Landowner identified above also the Operator? ☐ Yes ☐ No

2. Additional Contact Name/Email(if applicable):_____

Mailing Address:

Street/PO Box:_____

City/Town:_____ State:_____ Zip:_____

Contact Information

Phone:_____ *Email:_____

*Additional Email:_____

B. Application Preparer Information

1. Company Name:_____ 2. Contact Name:_____

Mailing Address:

Street/PO Box:_____

City/Town:_____ State: _____ Zip: _____

Contact Information

Phone:_____ *Email: _____

*Additional Email:_____

2. Is this project receiving funding by a State ARPA program? ☐ Yes ☐ No

C. Project Information

1. Project Name:_____

2. Physical Address of Project:
   Street:_____

   City/Town:_____ State:_____ Zip:_____

3. Project Coordinates(project center in Decimal Degrees with 5 digits to the right of the decimal):
   Latitude:_____ Longitude:_____

4. Is this project part of a Common Plan of Development? ☐ Yes ☐ No

   "Common Plan of Development" - Development or redevelopment that is completed in phases or stages when such phases or stages share a common state or local permit related to the regulation of land use, the discharge or wastewater, or a discharge to surface waters or groundwater, or a development designed with common infrastructure. Common plans include subdivisions, industrial and commercial parks, university and other campuses, and ski areas.

   4a. If yes, specify Common Plan of Development's name:_____

5. Does this project have any previously issued or pending stormwater discharge permits? ☐ Yes ☐ No

   5a. If yes, specify most recent permit number or pending application number(if known):_____

6. Is this a Public Transportation or Utility ROW/Easement project? ☐ Yes ☐ No

7. Parcel(s) SPAN: Enter the 11-digit number that is printed on the property tax bill for the applicable parcel(s). Projects that involve more than 1 parcel shall list all applicable SPANs.

   _____ _____ _____ _____

   _____ _____ _____ _____

   _____ _____ _____ _____

8. Name of receiving water(s): _____

   Receiving water is the name of the waterbody that runoff from the site first enters. In the case of an unnamed water, specify that the receiving water is an unnamed tributary, or wetland, etc. and state the first named receiving water downstream.

9. Description of project construction activities:

   e.g., "Removal of multiple existing buildings, construction and regrading of roadways/driveways, the construction of an11,000 SF footprint office building, the construction of an on-site septic system, and the trenching and installation of utility lines"

10. Estimated Date of Construction Commencement: _____

11. Estimated Date of Construction Completion/Site at Final Stabilization: _____

12. Total Area of Disturbance(acres, to no more than two decimal places): _____

13. Existing Impervious Surface(acres, to no more than two decimal places): _____

14. Will the project result in an increase in impervious surface area? ☐ Yes ☐ No

    14a. If yes, what is the amount of increased impervious surface area? _____

15. Runoff Coefficient Calculation:

Runoff coefficient = Rv = [0.05 + 0.009 (I)]

where:

I = (c/a)*100

NaN*100 = 0.00

I = Site Imperviousness(expressed as a whole number percent)

a = Total Site Area(acres)

c = Estimated Impervious Cover After Completion of Construction(acres)

Estimated Runoff Coefficient:

Estimated Impervious Cover Post-Construction (acres, to no more than two decimal places)	Site Area (acres, to no more than two decimal places)	Runoff Coefficient
0.00		0.05

16. Will any fill material be utilized for construction? ☐ Yes ☐ No

16a. Describe the nature of the fill material that is expected to be utilized for construction:

17. Briefly Describe the type and nature of any soil that will be disturbed on site:

18. Briefly describe the quality of any existing stormwater discharges from the site(if known):

D. Additional Municipal Stormwater Requirements

1. Are there any additional municipal stormwater requirements applicable during construction?
   ☐ Yes ☐ No
2. Are there any additional municipal stormwater requirements applicable post-construction?
   ☐ Yes ☐ No
3. Are there any other post-construction stormwater treatment or control measures proposed, that were not identified above?
   ☐ Yes ☐ No
4. Briefly identify other post-construction stormwater treatment or control measures proposed that were not identified above:

E. Project Discharges to Groundwater

1. Will the project discharge stormwater to groundwater via infiltration basin or similar practice?
   ☐ Yes ☐ No
2. Is the proposed discharge to groundwater located within Zone 1 or Zone 2 of a Public Water Source Protection Area?
   ☐ Yes ☐ No
3. Is the proposed discharge to groundwater located within a Groundwater Protection Overlay District established by a municipality pursuant to 24 V.S.A. S 4414(2)?
   ☐ Yes ☐ No

G. Adjoining Property Notification

_____ By initialing to the left, I certify that I have notified adjoining property owners of the proposed project using the DEC Adjoiner form prior to submitting this application.

H. Applicant(s) Certification

I hereby certify that the information provided on this completed application, and included attachments is, to the best of my knowledge and belief, true, accurate, and complete. I agree to abide by all terms and conditions of an individual construction stormwater discharge permit and certify that construction activity will adhere to the authorized Erosion Prevention and Sediment Control Plan for the duration of the project for which this application is submitted.

Landowner Name: _____ Title: _____

Signature: _____ Date: _____

I. Application Preparer Certification

I hereby certify that the information provided on this completed application, and included attachments is, to the best of my knowledge and belief, true, accurate, and complete. I also certify that the Erosion Prevention and Sediment Control Plan designed for this project meets the applicable requirements set forth in the Vermont Standards and Specifications for Erosion Prevention and Sediment Control.

Application Preparer: _____ Title: _____
(if applicable)

Signature: _____ Date: _____

Please submit this form including the application fee using ANROnline at: https://anronline.vermont.gov/?formtag=WSMD_Intake

The fee for this application is $1200.00 if < 10 acres ; or $1800.00 if >10 acres

Direct questions to: ANR.WSMDStormwaterGeneral@vermont.gov

Refund Policy

If an application is modified, withdrawn or denied after technical review has commenced; application review fees are retained.

- If an application is withdrawn prior to commencement of technical review, deemed administratively incomplete and returned to applicant, or determined that a permit is not required; application review fees will be refunded.

Application Packet Shall Include:

1. **Individual Construction Stormwater Discharge Permit Application Form** (complete Adobe PDF fillable form and upload document to ANR Online, file named as follows: INDC_APP)
   - NOI / Application Form

     Notice of Intent (NOI) is specific to both Low and Moderate Risk Construction Activity that are eligible for permit coverage under Construction General Permit 3-9020. Projects that do not qualify as Low or Moderate Risk must apply for an Individual Construction Stormwater Discharge Permit by submittal of the Individual Construction Stormwater Discharge Permit Application Form. Effective January 1, 2018, applications for Individual Construction Stormwater Discharge Permits (INDC) require the applicant to provide notice of application to adjoining property owners at the time of application and certify this on the application form. Specific instructions are provided on the INDC application form, including a link to a template that can be used for this notification.
2. **Location Map** (Uploaded to ANR Online)
   - Location Map

     Map of the project location uploaded in Adobe PDF format to the ANR Online system. The location map shall be in the form of a topographic map, or aerial image, extending one mile beyond the property boundaries of the activity, providing:

     a. Sufficient information to determine the location of the project and the receiving water; and
     b. As applicable for an existing facility, the location of:
        i. The facility and each of its intake and discharge structures;
        ii. Hazardous waste treatment, storage, or disposal facilities;
        iii. Wells where fluids from the facility are injected underground; and
        iv. Wells, springs, other surface waters, and drinking water wells listed in public records or otherwise known to the applicant in the map area

   The Agency's Natural Resource Atlas tool may be used to prepare project Location Map.
3. **Appendix A - Soils Evaluation Tool** (uploaded to ANR Online as MS Excel document)
   - Appendix A – Soils Evaluation Tool

     The Appendix A – Soils Evaluation Tool is available in Microsoft (MS) Excel workbook format and the Appendix A – Risk Evaluation component shall be completed along with the Soils Evaluation component of the workbook. This allows both the Stormwater Program and the public (during notice of application), with an opportunity to review details specific to the completed risk evaluation in consideration of soil disturbance, and related depth-weighted soil erodibility. Applicants should be aware that the ANR Online submittal process does preserve the document as submitted, and unedited, so applicants should be comfortable that the document as submitted will not be modified by the Department following submission. Applicants may also choose to password protect their document prior to submission. It's important that designers may find this calculation may differ from the soil erodibility mapped via NRCS Web Soil survey which considers the surface layer of the soil, so in consideration of a depth-weighted average as required, there may be some variation from information gathered strictly specific to the upper most soil horizon.
4. **EPSC Plan** (Uploaded to ANR Online)
   - EPSC Plan (for Moderate Risk projects and projects that require an Individual Construction Stormwater Discharge Permit only)

     EPSC Plan uploaded as a single Adobe PDF attachment to the ANR Online system. If file limitations do not allow as a single attachment, multiple attachments may be allowable and should be named EPSC Plan 1, EPSC Plan 2, EPSC Plan 3, etc. , recognizing that this filing naming for upload will differ from plan-specific information to be listed in the Plan Set Reference Form as outlined below. The EPSC Plan for Moderate Risk projects and for projects subject to an Individual Construction Stormwater Discharge Permit shall be developed in accordance with Appendix B of Construction General Permit 3-9020, as applicable, and The Vermont Standards and Specifications for Erosion Prevention and Sediment Control.
5. **EPSC Plan Reference Form** (Uploaded to ANR Online)
   - Plan Set Reference Form (for Moderate Risk projects and projects that require an Individual Construction Stormwater Discharge Permit)

     This form, uploaded as a single Adobe PDF attachment, must be completed to provide a complete list of all plans applicable to the stormwater management design and EPSC Plan that is included with the application. If plans are revised during the review process this form will need to be revised with the final set of application EPSC Plans, dated, and inclusive of revision dates, if applicable.

     List the plans using the following format: Sheet [##], "[Sheet Title]", dated [mm/dd/yyyy], last revised [mm/dd/yyyy]; (e.g. Sheet 1, "Existing Condition Plan", dated 01/15/2019, last revised 02/06/2020.

See *2020 Vermont Application Requirements for Construction Permits* document for more information.

Plan Set Reference and Requirements Form

For Moderate & INDC Projects Under General Permit 3-9020 & Individual Discharge Permit

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

Use this form to provide a complete list of all plans applicable to the stormwater management design and Erosion Prevention and Sediment Control Plan(EPSC Plan) that have been included with this application. EPSC Plans must be prepared in accordance with The Vermont Standards and Specifications for Erosion Prevention and Sediment Control. If plans are revised during the review process this form must be revised with the final set of application EPSC Plans, dated with revision dates, if applicable. Please check off each item listed as requirements of the EPSC Plans.

A. Plan Preparer

1. Project Name: 2. Company Name:

3. Project Risk Score: ☐ Moderate ☐ INDC

B. EPSC Plan Requirements Checklist

Below are the minimum required EPSC plan sheets to be included with the application. Any application that does not include a Location Map, Overall Site Plan and Phasing Plan, a Pre-Construction and Existing Conditions Plan, a Construction Plan, a Stabilization Plan, and a Details and Notations Plan will be placed on a technically incomplete status, until all details have been included. Project plan sheets that contain information unrelated to erosion prevention and sediment control shall not be included.

Each required plan sheet below shall include -

- ☐ 1. Name of plan and sheet number
- ☐ 2. Name of designer
- ☐ 3. Date of the plan and revision date
- ☐ 4. North arrow
- ☐ 5. Scale and scale bar

Sheet #: Location Map, Overall Site Plan and Phasing Plan:

- ☐ 1. Complete legend
- ☐ 2. Location map (aerial or topographic) extending one mile beyond the property boundary of the disturbance area
- ☐ 3. An overall aerial view of the entire project site
- ☐ 4. Property lines
- ☐ 5. Limits of disturbance outline
- ☐ 6. The type of project and description of the major project components
- ☐ 7. Total proposed earth disturbance area (acres)
- ☐ 8. Maximum proposed concurrent earth disturbance area (acres)
- ☐ 9. Phasing description
- ☐ 10. Directions for limiting concurrent earth disturbance (phasing)
- ☐ 11. Phasing plan outlines (in differentiating colors, hatching or line types)
- ☐ 12. Phasing schedule, phasing sequencing, and disturbance acreage of each phase
- ☐ 13. Directions to physically delineate each phase on site until the project has reached final stabilization
- ☐ 14. Directions to complete stabilization of the prior phase before initiating the subsequent phase
- ☐ 15. Locations/names of receiving waters
- ☐ 16. Locations of discharge points
- ☐ 17. Locations of any wells, springs, other surface waters, and drinking water wells
- ☐ 18. Locations of any hazardous waste, treatment, storage or disposal facilities

Sheet #: Pre-Construction and Existing Conditions Plan:

- ☐ 1. Existing Contours
- ☐ 2. Property lines
- ☐ 3. Identified buffers and setbacks
- ☐ 4. Locations of all existing structures (roads, utilities, buildings, parking, drainage inlets, etc.)
- ☐ 5. Existing water and drainage features (streams, ponds, wetlands, channels, gullies, etc.)
- ☐ 6. Existing vegetation
- ☐ 7. Locations of soil types corresponding to NRCS Soil Maps
- ☐ 8. Limits of disturbance
- ☐ 9. Locations of all pre-construction EPSC measures called out (LOD, silt fence, construction entrance, permit posting, etc.)

Sheet #: **Construction Plan (for projects of more than 5 acres total earth disturbance, one phase per sheet):**

- ☐ 1. Existing and proposed contours
- ☐ 2. Property lines
- ☐ 3. Identified buffers and setbacks
- ☐ 4. Locations of all existing and proposed structures (roads, utilities, buildings, parking, drainage inlets, discharge structures, stream crossings, etc.)
- ☐ 5. Existing and proposed water and drainage features (streams, ponds, wetlands, channels, gullies, etc.)
- ☐ 6. Existing vegetation
- ☐ 7. Limits of disturbance
- ☐ 8. Direction of flows of construction site to discharge points
- ☐ 9. A dewatering plan, including the location of dewatering discharges
- ☐ 10. Locations of all EPSC measures called out
- ☐ 11. Locations of all EPSC measures called out employed for construction during the winter construction period (October 15 through April 15)

Sheet #: **Stabilization Plan:**

- ☐ 1. Finish grade contours
- ☐ 2. Property lines
- ☐ 3. Identified buffers and setbacks
- ☐ 4. Locations of all final structures (roads, utilities, buildings, parking, drainage inlets, discharge structures, stream crossings, etc.)
- ☐ 5. Final water and drainage features (streams, ponds, wetlands, channels, gullies, etc.)
- ☐ 6. Final vegetation
- ☐ 7. Limits of disturbance
- ☐ 8. Temporary stabilization EPSC measures required for all areas of disturbance called out
- ☐ 9. Final stabilization EPSC measures required for all areas of disturbance where structures are not installed called out, including areas requiring stone, rolled erosion control products, seeding and mulching, etc.

Sheet #: **Details and Notations Plan:**

- ☐ 1. The type of project and description of the major project components
- ☐ 2. Total proposed earth disturbance area (acres)
- ☐ 3. Maximum proposed concurrent earth disturbance area (acres)
- ☐ 4. Name of receiving waters
- ☐ 5. Directions for EPSC and OPSC inspections, including inspection frequency and when inspections can be discontinued, please reference the general permit requirements specifically
- ☐ 6. Directions to install all EPSC measures - "All EPSC measures will be installed ahead of primary earth disturbing activities."
- ☐ 7. Directions for maintenance of all EPSC measures
- ☐ 8. Directions for avoiding impacts in buffer and setback areas
- ☐ 9. Directions for stock pile stabilization and protection
- ☐ 10. Directions for pollution prevention strategies to minimize material discharged from the site
- ☐ 11. Notations for any off-site waste or borrow areas
- ☐ 12. Directions to complete stabilization of operational stormwater treatment practices before direction runoff to them. If utilized during construction as sediment control measures, include directions to ensure these features are modified and stabilized as necessary prior to construction completion such that operational stormwater treatment practices will meet applicable design requirements for the treatment and control of post-construction stromwater runoff
- ☐ 13. Directions for stabilization "all areas of earth disturbance must have temporary or final stabilization within 14 days of the initial disturbance. After this time, disturbed areas must be temporarily or permanently stabilized in advance of any runoff producing event."
- ☐ 14. Specifications for seed mixes, fertilization and other soil amendments for areas to be stabilized with vegetation
- ☐ 15. Directions for completing seeding after April 15 and before September 15 for areas where final stabilization
- ☐ 16. Notations about whether earth disturbing activities are anticipated during the winter construction period (October 15 through April 15)
- ☐ 17. Directions to remove all temporary erosion and sediment control practices within 30 days of achieving final stabilization
- ☐ 18. Reference flow chart Figures 3.1, 3.2 and 3.3 for EPSC selections for runoff control, soil stabilization and sediment control located in the VT Standards and Specs

By checking the above boxes, you certify that the EPSC plans include the information required in the Construction General Permit and the Vermont Standards and Specifications for Erosion Prevention and Sediment Control.

C. Plan Set Reference

Dated plans are required. Using the below format enter the plan set reference for the project in the space below. If more space is required, provide an attachment.

Sheet [##], "[Sheet Title]," dated [mm/dd/yyyy], last revised[mm/dd/yyyy]; (e.g. Sheet 1, "Existing Condition Plan", dated 01/15/2019, last revised 02/06/2020;).

OSPC/EPSC Inspection Report

For Moderate Risk & INDC Projects
Under General Permit 3-9020 &
Individual Discharge Permit

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

This form shall be completed by the On-Site Plan Coordinator(OSPC) or a person acting under the direction of the OSPC at least once every 7 calendar days and within 24 hours of the end of a storm event resulting in a discharge of stormwater from the construction site. This form shall also be completed by the EPSC Specialist(*INDCs*) biweekly during earth disturbing activity and not less than once a month during no earth disturbing activities. During winter construction(October 15–April 15) inspections shall be conducted daily during active earthwork. Inspections may be limited to once per month if all areas of the site have temporary or permanent stabilization. All inspection reports shall be retained on site for the duration of the project. Inspections shall cover all areas of the site disturbed by construction activity including areas of temporary stabilization and all discharge locations. Attach additional sheets if more room is needed to complete the report. This report must be retained along with the EPSC Plan for the duration of the project.

A. Project Information

1. Project Name:
2. Permit Number:

3. Project Risk Score: ☐ Moderate ☐ INDC

4. Inspector Title: ☐ On-Site Plan Coordinator(OSPC) ☐ EPSC Specialist

B. Inspection Information

1. Date of Inspection:
2. Time of Inspection:

3. Inspector Name:
4. Inspector Title:

5. Reason for Inspection:
☐ Biweekly ☐ Weekly ☐ Daily(Winter Conditions) ☐ Post Rain Event ☐ Other(Please describe):

6. Weather Conditions
a. Since last inspection:
b. Current conditions:
☐ Raining ☐ Snowing ☐ No precipitation ☐ Windy ☐ Other(Please describe):
c. 24-hour forecast:

7. Ground Conditions(check all that apply):
☐ Saturated ☐ Wet, not Saturated ☐ Dry ☐ Frozen ☐ Other(Please describe):

C. Discharges Summary(*Note: fully evaluate site in accordance with Part III.B. of Stormwater Discharge Permit*)

1. Was there stormwater leaving the construction site? ☐ No ☐ Yes
If 'No', proceed to section **D below**.
If 'Yes', proceed to **item 2**.

2. Was stormwater leaving the construction site visibly discolored? ☐ No ☐ Yes
If 'No', proceed to section **D below.**
If 'Yes', fill out a ***Discharge Report*** and submit it to DEC within 72 hours of first discovering a discharge, and the complete *Inspection, Sampling and Corrective Action Requirements* in accordance with Part III.B of the Construction Stormwater Discharge Permit, including immediate notification to the Stormwater Program as applicable. Proceed to section **D below**.

D. Description of Current Work

1. Authorized Concurrent Earth Disturbance:
2. Authorized Total Earth Disturbance:

3. Phase Under Construction(if applicable):
4. Currently Disturbed Acreage:

5. Temporarily Stabilized Acreage:
6. Finally Stabilized Acreage:

7. Locations/Description of Disturbed Areas(e.g., Lot 2–1.05 acres, Access Road–1.98 acres, Stockpile–0.25 acres, etc.):

E. BMP/EPSC Plan Review

1. List BMPs being utilized(e.g., delineated LOD, stabilized construction entrance, silt fence, inlet protection, etc.):

2. List BMPs that were corrected or implemented since the last inspection:

3. List BMPs that require maintenance before the next inspection:

4. List BMPs that failed and require a resolution before the next inspection:

5. Describe any corrective action required including any necessary changes to the EPSC Plan and implementation dates(please submit an *Amendment Record):*

G. Compliance Certification

Complete only if the report does not have any identified areas of non-compliance.

I hereby certify that, since the previous inspection, the project has been in compliance with the EPSC plan and with the authorization under General Permit 3-9020 or Individual Discharge Permit.

Signature: _____ Date: _____

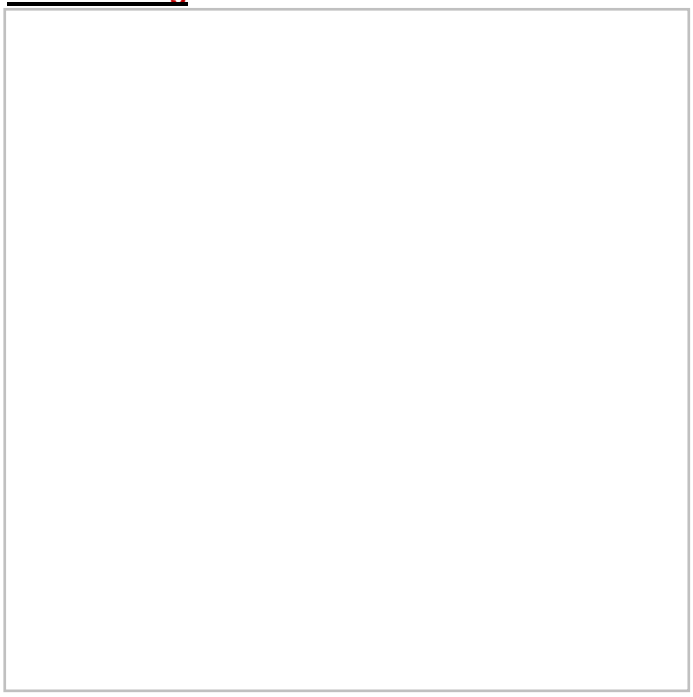
H. Certification of Report Accuracy

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

Signature: _____ Date: _____

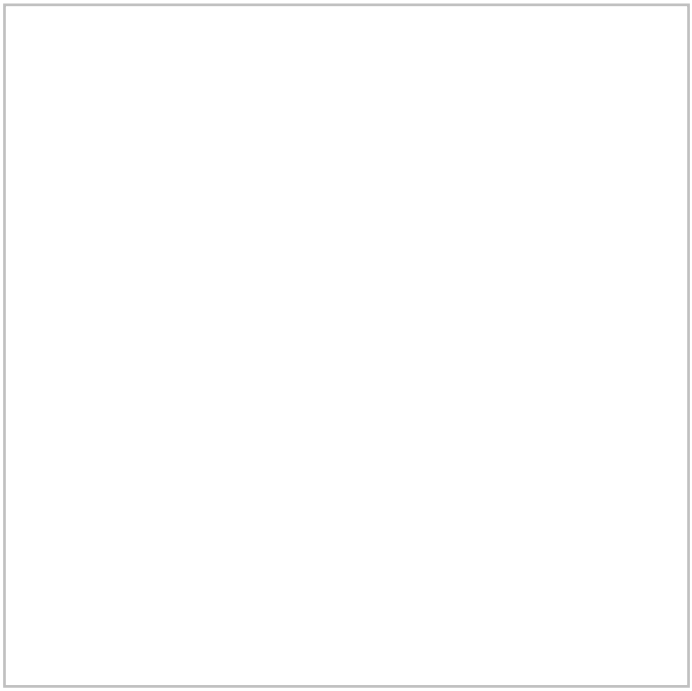
****Report shall include at least one photo of all implemented BMPs and all BMPs delineated on the EPSC plans (inlcuding but not limited to:** runoff control practices, sediment control practices, soil stabilization practices, limits of disturbance, dewatering activities, winter construction adjustments, off site support activities, soil stock piles, etc.)

NOA Posting:



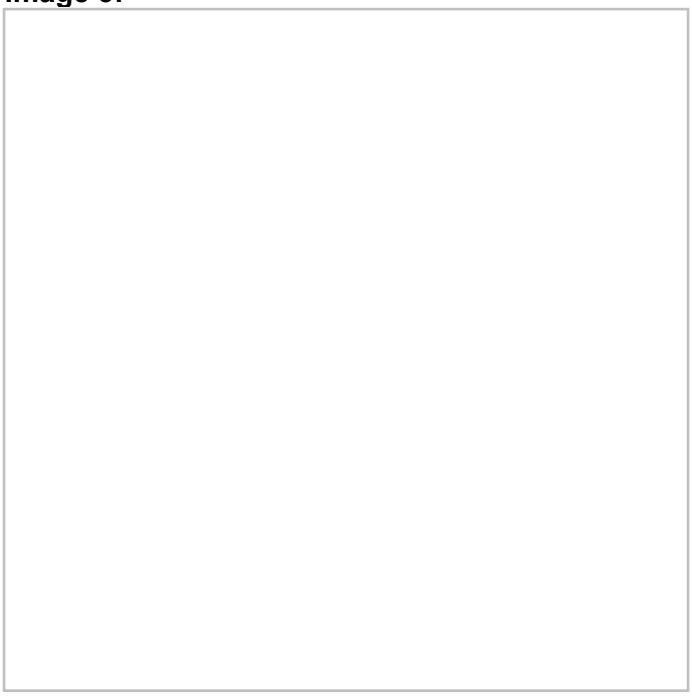
Description 1

Construction Entrance:



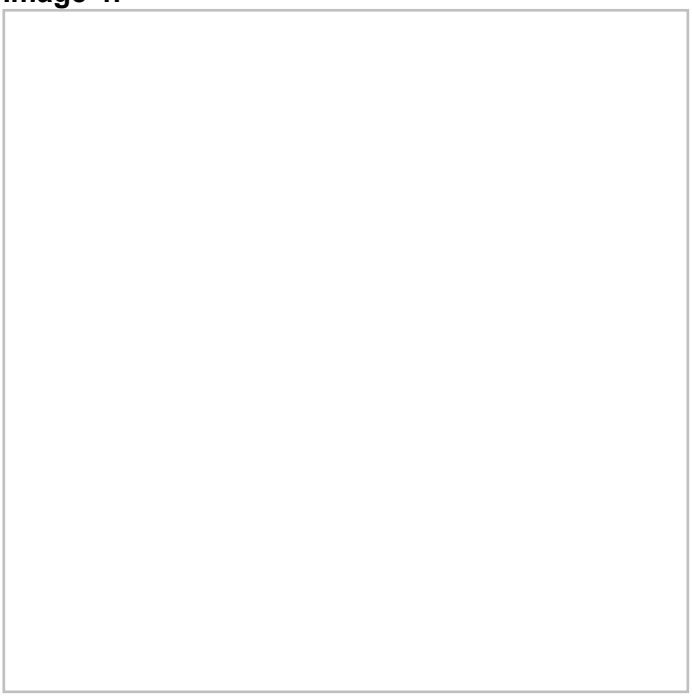
Description 2

Image 3:



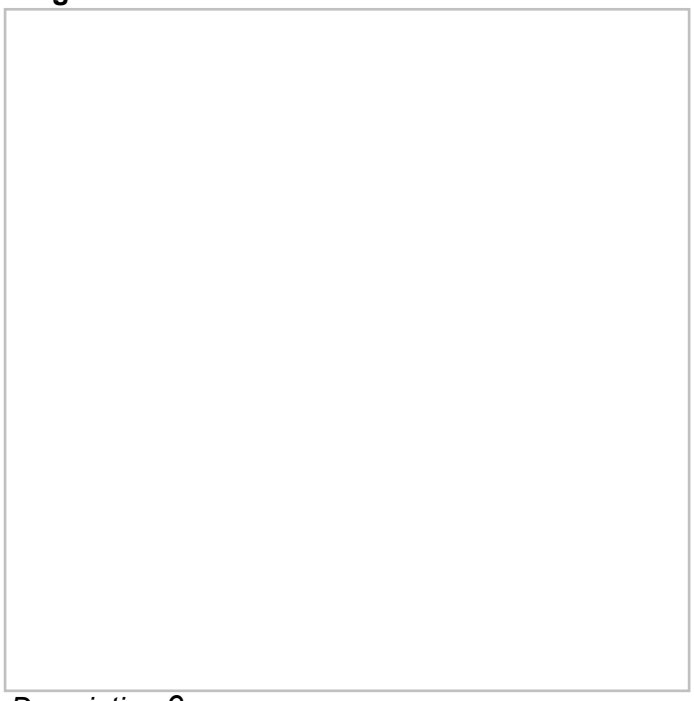
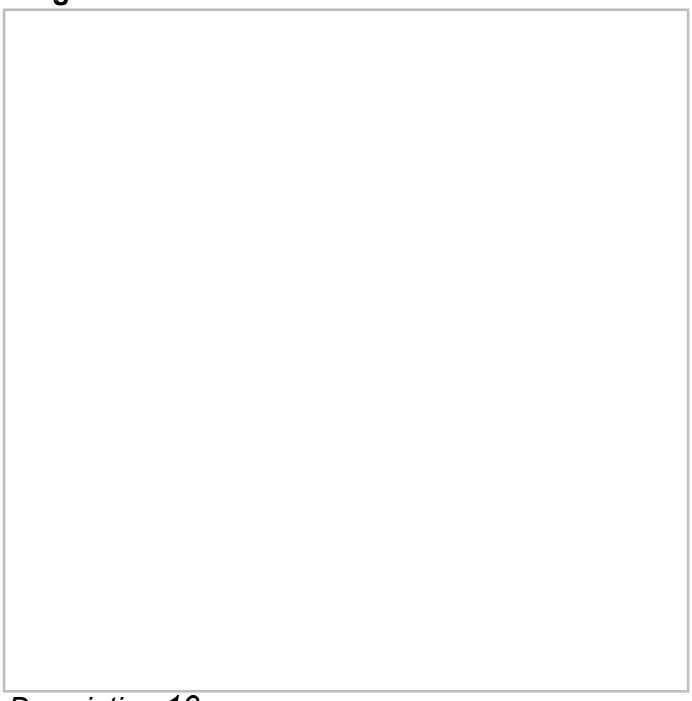
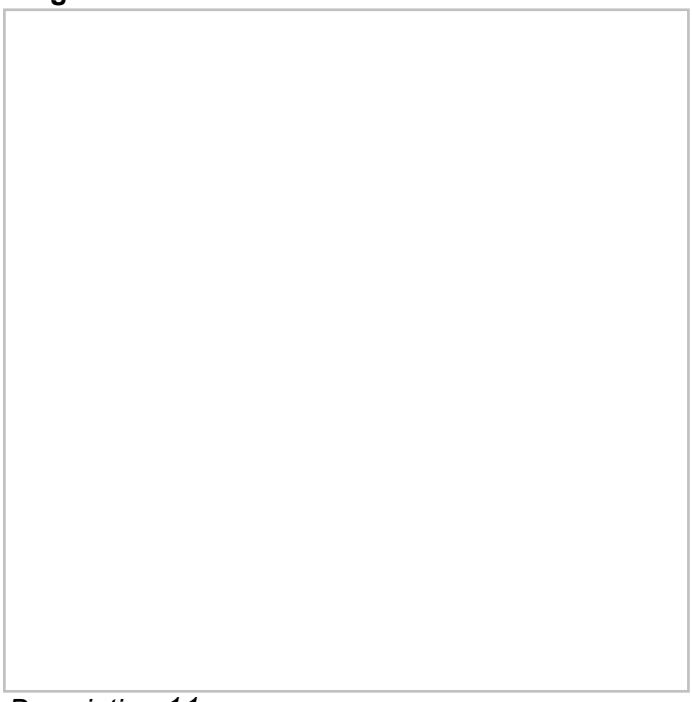
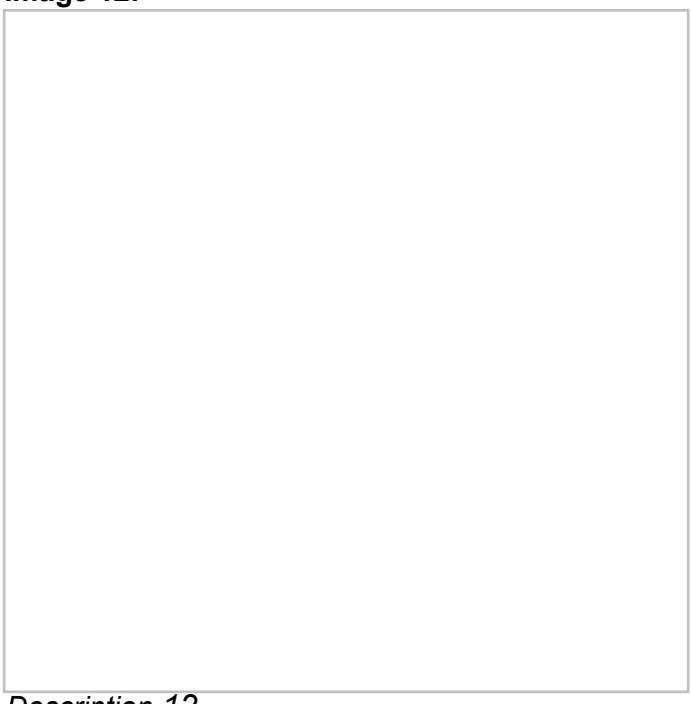
Description 3

Image 4:



Description 4

Image 5: *Description 5*	**Image 6:** *Description 6*
Image 7: *Description 7*	**Image 8:** *Description 8*

Image 9:  *Description 9*	**Image 10:**  *Description 10*
Image 11:  *Description 11*	**Image 12:**  *Description 12*

Amendment Record

For Low, Moderate & INDC Projects
Under General Permit 3-9020 &
Individual Discharge Permit

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

This form shall be completed by the On-Site Plan Coordinator(OSPC), a person acting under the OSPC and/or the original designer, a professional engineer(licensed in the State of Vermont), or a Certified Professional in Erosion Prevention and Sediment Control(EPSC) for changes to the Authorization and/or EPSC Plan that does not increase the risk category of the project by re-scoring in Appendix A per General Permit 3-9020 or the Individual Construction Stormwater Discharge Permit. This form should be maintained on site and sent to DEC.

A. Project Information

1. Project Name:

2. Permit Number:

3. Project Risk Score: ☐ Low ☐ Moderate ☐ INDC

B. Certifying Professional

1. Name:

2. Mailing Address:
   a. Street/PO Box:

   b. City/Town:

   c. State:

   d. Zip:

3. Contact Information
   a. Phone:

   b. Email:

C. Amendment Description

1. Describe details of the request; disturbance area changes, EPSC Plan changes, location(s), and other pertinent design information.
   **Attach revised site plans and/or EPSC Plans and any other information to document the proposed changes.*

2. List other amendment records relative to this authorization with their dates and disturbance area:

3. The proposed change involves the following and requires a permit amendment (check all that apply):
   - ☐ Increases in the areal extent of disturbed land that is open at any one time.
   - ☐ Increases in the length of time that a given area will remain disturbed without temporary or final stabilization.
   - ☐ Increases in the area of disturbance on more erodible soils or steeper slopes.
   - ☐ Reductions in the use or effectiveness of vegetated buffers between the project and receiving waters.

   **If any of the above are checked, attach completed Appendix-A demonstrating the project remains qualified under the same risk score. If the proposed changes increase the risk category, you must first amend the authorization or obtain coverage under an Individual Discharge Permit before implementing the change.*

4. Describe the proposed EPSC Plan changes, if they apply* (check all that apply):
   - ☐ Change in grading plan
   - ☐ Addition of an EPSC Practice
   - ☐ Removal of EPSC Practice
   - ☐ Change in phasing plan
   - ☐ Change of an EPSC practice
   - ☐ Change due to discharge
   - ☐ Other:

5. Is the proposed change in accordance with the Vermont Standards and Specifications for Erosion Prevention and Sediment Control? ☐ Yes ☐ No

   ** If 'No', the proposed change must be authorized by DEC.*
   **Any change involving earth disturbance substantially outside of the originally authorized limits of disturbance either requires coverage under a separate authorization or an amendment to the permit.*

D. Amendment Not Required

1. The proposed change involves the following and does not require a permit amendment
   - ☐ A change that increases total project earth disturbance by 10% or less than the previously authorized total.
     **Attach completed Appendix-A demonstrating that the project remains qualified under the same risk score.*
   - ☐ The use of Interchangeable practices found in the Low Risk Handbook and the VT Standards and Specifications.

E. Certification

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

Name: _____ Title: _____

Signature: _____ Date: _____

Stormwater Treatment Request

For Moderate & INDC Projects Under
General Permit 3-9020 &
Individual Discharge Permit

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

This form shall be completed by the On-Site Plan Coordinator(OSPC), a person acting under the OSPC and/or the original designer, a professional engineer(licensed in the State of Vermont), or a Certified Professional in Erosion Prevention and Sediment Control(EPSC) for changes allowed without an amendment of the authorization or individual permit for the use of active stormwater treatments. **The use of active stormwater treatments, including flocculants, shall not occur until the permittee has received written approval from DEC.** This is the written request form to be approved by DEC and shall be maintained on site.

A. Project Information

1. Project Name:
2. Permit Number:
3. Project Risk Score: ☐ Moderate ☐ INDC
4. Receiving Water:

B. Certifying Professional

1. Name:
2. Mailing Address:
   a. Street/PO Box:
   b. City/Town:
   c. State:
   d. Zip:
3. Contact Information
   a. Phone:
   b. Email:

C. Treatment Description

1. Describe details of the stormwater treatment request, not previously approved as part of the existing authorization; description, location, reasons why, chemicals used, etc.;
   **Attach revised EPSC Plans, Safety Data Sheets and any other information to document the proposed changes.*

D. Certification

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

Name: _____ Title: _____

Signature: _____ Date: _____

Discharge Report

For Low, Moderate, & INDC Projects
Under General Permit 3-9020 &
Individual Discharge Permit

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

This form shall be completed by the permittee(l*ow risk*) or the On-Site Plan Coordinator(OSPC) or a person acting under the direction of the OSPC(*moderate/INDC*) after observation of any visibly discolored stormwater leaving the construction site. Attach additional pages as necessary to completely document the discharge. Submit a copy to DEC if turbidity readings above 25 NTU are noted. Retain a copy on site for all recorded discharges. '*Discharge' is the placing, depositing, or emission of any wastes, directly or indirectly, into an injection well or into the waters of the State.*

A. Project Information

1. Project Name:

2. Permit Number:

3. Project Risk Score: ☐ Low* ☐ Moderate ☐ INDC

B. Project Status

1. Describe the work occurring on site that contributed to the discharge(s):

2. At the time of the discharge, was the EPSC Plan(*moderate/INDCs ONLY*) or EPSC practices(*low risk ONLY*) fully implemented for the work contributing to the discharge? ☐ Yes ☐ No

3. If 'No', describe what EPSC practices were not fully implemented and why:

C. Discharge Information

1. Date of discharge:

2. Time discharge was detected:

3. Describe location(s) of the discharge(s):

4. Duration of the discharge(s):

5. Cause of the discharge(s):

*If '**Low**' risk, proceed to section **F below.**

6a. Were any of the discharge(s) visibly turbid? ☐ Yes ☐ No
If 'No', only complete section **F below**.
If 'Yes', proceed to **item 6b**.

6b. Did the visibly discolored stormwater leaving the construction site reach waters of the state(including but not limited to wetlands)? ☐ Yes ☐ No
If 'No', supplement BMPs as necessary to correct the discolored stormwater leaving the construction site. OSPC shall continue to inspect, maintain, and supplement BMPs until it is corrected. Only complete section **F below.**
If 'Yes', proceed to **item 7a**.

7a. Did the OSPC immediately inspect and maintain BMPs for compliance with the approved EPSC Plan? ☐ Yes ☐ No

7b. Describe any deficiencies in compliance with the EPSC Plan that contributed to the discharge:

D. Corrective Action

1. Fully describe BMP maintenance performed to address the discharge(e.g., locations, BMP deficiencies, actions taken, etc.):

2. Did the OSPC immediately evaluate the need for supplemental BMPs and install BMPs to correct or eliminate the discharge? ☐ Yes ☐ No

3. Fully describe the supplemental BMPs installed to correct or eliminate the discharge:

E. Results

1. After inspection, maintenance, and/or installation of supplemental BMPs, did visibly discolored stormwater continue to leave the construction site? ☐ Yes ☐ No
   If 'No', only complete section **F below**.
   If 'Yes', proceed to **item 2**.

2. Did the visibly discolored stormwater leaving the construction site reach waters of the state(including but not limited to wetlands)? ☐ Yes ☐ No
   If 'No', supplement BMPs as necessary to correct the discolored stormwater leaving the construction site. OSPC shall continue to inspect, maintain, and supplement BMPs until it is corrected. Complete section **F below.**
   If 'Yes', refer to **below statement.**

> *"If the turbidity sample is 25 NTU or lower, then no further action is needed. If the turbidity sample is greater than 25 NTU, the OSPC shall immediately notify the Stormwater Program. DEC may require the OSPC to reevaluate existing BMPs and install supplemental BMPs as necessary to correct the discharge. At the Secretary's discretion, DEC may also require the OSPC to continue sampling discharges when discharges are occurring until:*
>
> 1. *Turbidity is 25 NTU or lower; or*
> 2. *The discharge stops or is eliminated."*

F. Certification Statement

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

Signature: _____ Date: _____

****This report shall include at least one photo of all discharge location(s), sample result(s), and corrective action(s). Photos should be taken during the discharge and once the water has a turbidity of less than 25 NTUs.**

Image 1:	**Image 2:**
Description 1	*Description 2*
Image 3:	**Image 4:**
Description 3	*Description 4*

Image 5: *Description 5*	**Image 6:** *Description 6*
Image 7: *Description 7*	**Image 8:** *Description 8*

APPENDIX B: POST-CONSTRUCTION RUNOFF CONTROL PLAN DOCUMENTATION

Documents Included:

Vermont Operational Stormwater Discharge Permitting Flow Chart

Application Requirements for Operational Permits

Annual Inspection Instructions

Watershed Management Division Electronic Application Submittal Instructions

Do I Need to Obtain a State Operational Stormwater Discharge Permit?

Permitting Flow Chart for Stormwater Discharges from Impervious Surfaces

Are you constructing new impervious or redeveloping existing impervious surfaces? If you are doing both, examine jurisdiction for each type.

New or Expanded Impervious Surface

Are you constructing > 5000 s.f. of impervious?

YES

Are you constructing ≥ 1/2 (0.5) acre of new impervious?*

YES

You must obtain coverage for the new surfaces under a State Discharge permit by demonstrating compliance with the 2017 VT Stormwater Management Manual. §22-107(b)(2)

NO

Is there any existing impervious in the project or on any related parcels?

YES

Is the total resulting (new + existing/redeveloped) impervious surface ≥ 1 acre?

YES

You must obtain coverage under a State Discharge Permit for the new surfaces by demonstrating compliance with the 2017 VT Stormwater Management Manual; existing surfaces that were previously permitted must receive the same treatment as in their original permit, unless an expansion results in the site becoming a three-acre site.** Changes to previously permitted existing surfaces may require a permit amendment. §22-107(b)(3), §22-901(a)(1)(C), & §22-310

NO

No permit necessary for new surfaces and existing surfaces that were previously permitted must still receive the same treatment as in their original permit, unless an expansion results in the site becoming a three-acre site.** Changes to previously permitted existing impervious surfaces may require a permit amendment. §22-402, §22-310

NO

Has there been any construction of impervious on the property or within a shared common plan of development since 7/4/2005?

YES

Will the amount you are constructing plus what has been built since 7/4/2005 exceed 5000 s.f.?

YES

Is there any existing impervious in the project or on any related parcels?

YES

Is the total resulting (new + existing/redeveloped) impervious surface ≥ 1 acre?

YES

You must obtain coverage for the new surfaces under a State Discharge Permit by demonstrating compliance with the 2017 VT Stormwater Management Manual; existing surfaces that were previously permitted must receive the same treatment as in their original permit, unless an expansion results in the site becoming a three-acre site.** Changes to previously permitted existing surfaces may require a permit amendment. §22-107(b)(3), §22-901(a)(1)(C), & §22-310

NO

No permit necessary, unless an expansion results in the site becoming a three-acre site**

NO

No permit necessary for new surfaces and existing surfaces that were previously permitted must still receive the same treatment as in their original permit, unless an expansion results in the site becoming a three-acre site.** Changes to previously permitted existing impervious surfaces may require a permit amendment. §22-402, §22-310

Existing Impervious Surface

Does your site have ≥ 3 acres of total existing impervious, any portion of which was never previously permitted or was permitted under standards predating the 2002 Stormwater Management Manual, and does your site meet the definition of an "impervious surface of three or more acres" in the Chapter 22 Stormwater Permitting Rule and General Permit 3-9050?

NO

No permit necessary, unless an expansion results in the site becoming a three-acre site**

YES

You must obtain coverage under a State Discharge Permit for all existing impervious surfaces. Existing surfaces that are unpermitted or permitted to pre-2002 Stormwater Manual standards are subject to compliance with the 2017 VT Stormwater Management Manual and the requirements in General Permit 3-9050 specific to "three-acre sites." §22-107(b)(4)

Redevelopment of Existing Impervious Surface

Does the surface being redeveloped have an existing, valid stormwater permit?

NO

Are you redeveloping ≥ 1/2 (0.5) acre of impervious?

YES

You must obtain coverage under a State Discharge Permit for these redeveloped surfaces by demonstrating compliance with the 2017 VT Stormwater Management Manual. §22-107(b)(2)

NO

No permit necessary, unless an expansion results in the site becoming a three-acre site**

YES

The redevelopment may be able to be permitted under a minor amendment of the existing permit without new treatment or control, subject to review. No matter how much you are redeveloping, you must provide the same or better level of treatment and control that was in the previous permit. §22-402

*The 1/2 acre impervious permitting threshold applies to new development - defined as the construction of impervious surface on a tract or tracts of land where no impervious previously existed - and redevelopment. An expansion of impervious on a site where there is existing impervious and no existing, valid operational stormwater permit needs permit coverage only if the total resulting impervious surface (new + existing/redeveloped) is ≥ 1 acre. §22-201 (17), §22-201(29), §22-201(42), §22-107(b)(3)

**If an expansion of impervious of any amount in the project or on a related parcel results in the total impervious (new + existing) increasing from < 3 acres to ≥ 3 acres such that the site meets the definition of an "impervious surface of three or more acres" in the Chapter 22 Stormwater Permitting Rule and General Permit 3-9050, and as described in 3-9050 1.3(D), the entire site becomes subject to the 3-acre permitting requirements. and you must obtain coverage under a State Discharge Permit for surfaces that are unpermitted or permitted to standards that predate the 2002 VSMM. §22-201(24)

IMPORTANT: this flow chart is guidance and does not constitute a jurisdictional determination from the DEC Stormwater Program. The examples of impervious surface development noted herein should not be assumed to be mutually exclusive.

Section sign characters (§) reference sections of the Environmental Protection Rule, Chapter 22 Stormwater Permitting Rule. https://dec.vermont.gov/sites/dec/files/wsm/stormwater/docs/2019_02_15%3B%20Final%20Adopted%20Chapter%2022%2C%20Stormwater%20Permitting%20Rule.pdf

Exemptions from Operational Permit Coverage (§22-105):
1) Stormwater discharges from farms in compliance with agricultural practices adopted by the Agency of Agriculture, Food, and Markets.
2) Stormwater discharges from accepted silvicultural practices as defined by the Comissioner of Forests, Parks, and Recreation.
3) Stormwater discharges from areas permitted under a NPDES Wastewater Discharge Permit issued pursuant to 10 V.S.A. § 1263.
4) Stormwater runoff from dams & the portion of a bridge superstructure that spans the ordinary high water mark of a water.

General Permit 3-9050
Application Requirements for Operational Stormwater Permits

January 2022

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Introduction

IMPORTANT:

The information that follows aims to support applicants and application preparers in their submission of State of Vermont, operational stormwater discharge permit applications, which MUST be submitted through the Vermont Agency of Natural Resources (ANR) web-based application submission portal, ANR Online. This system is set up to receive operational stormwater discharge permit applications through an electronic NOI (eNOI) system, including an eNOI for Stormwater General Permit 3-9050. The system also accommodates the submission of Individual operational stormwater discharge permit applications when determined to be required, specific to projects that are not eligible for permit coverage under General Permit 3-9050. All operational stormwater discharge permit applications require submissions be certified by a PE, licensed in the State of Vermont, and practicing within the scope of their expertise.

This document is intended to ensure that submissions of State of Vermont, operational stormwater discharge permit applications are uniform in content and arrangement. It establishes guidance to the design community on application preparation and submittal. The contents of this document represent the Stormwater Program's required format for application organization, required material, and supporting information. Failure to adhere to the application submittal requirements presented herein may delay application processing and review or result in the return or denial of a permit application. Variations to application submittal requirements may be approved by the Agency in advance of submittal, on a case-by-case basis, in consideration of specific circumstances for a particular project.

Authority

Operational stormwater discharge permits are issued pursuant to the Stormwater Permitting Rule, Chapter 22 of the Environmental Protection Rules, and General Permit 3-9050 for Operational Stormwater Discharges. The Chapter 22 Rule became effective March 15, 2019 and replaced the previous Chapter 18 Stormwater Permitting Rule and previously issued version of Chapter 22. Except for applications initially received by the Department prior to March 15, 2019, all operational stormwater discharge permit applications are subject to the requirements of the Chapter 22 Rule.

General Permit 3-9050 became effective December 1, 2020 and has superseded the previous General Permits 3-9010. 3-9015, and 3-9030. Except for applications initially received by the Department prior to December 1, 2020, all operational stormwater discharge permit applications are subject to the requirements of General Permit 3-9050. New permit applications must reference the current Chapter 22 Rule and, unless the submittal is for an Individual Discharge Permit, the General Permit 3-9050, rather than previous Rules or General Permits governing operational stormwater discharges.

Introduction

Permit Application Coverage

General Permit 3-9050 covers ALL operational stormwater discharge permitting except for projects that are not eligible for coverage under the General Permit, which must apply for an Individual Stormwater Discharge Permit. New development, redevelopment, permit renewal, permitting for discharges to stormwater-impaired waters, and permitting for "three-acre sites" are all eligible under General Permit 3-9050. In addition, projects that utilize the site balancing or net reduction design strategies are eligible for coverage under General Permit 3-9050.

Process

Following submittal by an applicant, a permit application undergoes administrative review. Once the information submitted contains all initially required documentation, all required attachments, and any required permit application fee, the application is deemed administratively complete and is assigned to Stormwater Program district staff for technical review. An administratively complete application is posted to the VT Department of Environmental Conservation's (DEC) Environmental Notice Bulletin (ENB). The ENB provides basic project information, important dates in the permit process (including the beginning and end of the public comment period), and contact information for the Stormwater Program staff who can provide additional information. Submitted permit application materials are posted to the ENB. Following technical review and a determination that the application is technically complete, a draft decision (draft of the permit authorization) is prepared and posted to the ENB with all final application materials, which may have been revised during the course of review. A required public notice period then begins, as set forth in Title 10 V.S.A., Chapter 170. General Permit 3-9050 applications have a 14-day public notice period; individual discharge permit applications have a 30-day notice period. Permits are not issued until the public notice period has concluded. If public comments are received during the public notice period , the Department will review the public comments and may request additional information from the applicant to address any relevant comments, The DEC is required to provide a written response to public comments received in conjunction with a decision on the permit application.

New to the ENB? Start Here.

IMPORTANT:

For permit application submittals for Public Transportation Projects, as defined in Subchapter 6.0 of the 2017 Vermont Stormwater Management Manual, designers should also refer to Appendix 1 of this document for application format requirements, including for specific content of Attachments, 1 through 6, which may differ and will be inclusive of transportation specific documents. For amendments to existing stormwater discharge permits, designers should also refer to Appendix 2 of this document, which provides additional guidance and application requirements for amendments to existing stormwater discharge permits. Designers preparing a stormwater permit application to amend an existing permit should contact the Stormwater Program in advance to discuss proposed changes and applicable requirements. Amendments may fall into three categories, per STATUTE; Administrative Amendment, Minor Amendment, and Major Amendment, all of which may have different submittal requirements, as set forth in Appendix 2.

Part 1 Application Submittal Requirements

All permit applications must be submitted through ANR Online using the Electronic Notice of Intent (eNOI) or the generic submittal form for Individual Stormwater Discharge Permit Applications. Fee payments can also be completed through ANR Online, otherwise a check made payable to State of Vermont can be accepted. For State of Vermont projects, such as those proposed by the Vermont Agency of Transportation, payment of application fees may be made through inter-Agency payment methods. Paper copies of application materials, including site plans shall not be provided, unless they are specifically requested by the Stormwater Program.

It is also encouraged that all correspondence in response to administrative or technical review of an application subsequent to the initial submittal be conducted via email. This request applies to all regularly submitted stormwater permit applications, including applications for permit coverage under General Permit 3-9050 or its replacement, and all applications for individual stormwater discharge permits. Correspondence with the Stormwater Program on issued operational stormwater discharge permits should also be conducted electronically when possible as directed below.

Each of the above referenced files should contain the following materials. Applications should always be submitted using the most current version of the application forms, workbooks, and worksheets. Current versions of all application forms can be downloaded from the Stormwater Program website.

1.1 Application Format

A complete application is comprised of all the applicable application materials and payment for the administrative processing and application review fees, as applicable. These materials should be organized into seven (7) separate documents, saved individually as PDFs. Note, PDF submittal is required, however Stormwater Program may request certain materials be submitted in Excel format, or in HCP file extensions supportive of HydroCAD to assist in technical review of the application.

Applicants may consider voluntary submittal of Attachment 2 and Attachment 3 in Excel spreadsheet format, and Attachment 4 as HCP file extension to assist in Stormwater Program Review, however, must always submit PDF copies of all materials. All files should be named as noted below, with subsequent submissions or revisions dated according to the revision, resubmission, or transmission date. PDFs should not be saved using the “Portfolio” function, as this makes review of documents difficult. The seven (7) document files should be named as follows:

eNOI (submitted directly via ANR Online)

NOI for Individual Permit Applications (INDS) submitted via ANR Online generic intake form

1. YYYY-MM-DD_Narrative
2. YYYY-MM-DD_Workbooks
3. YYYY-MM-DD_Worksheets
4. YYYY-MM-DD_Modeling
5. YYYY-MM-DD_Plans
6. YYYY-MM-DD_Plan Set Reference
7. Applicant signature page

New to the eNOI? Start Here.

Each of the above referenced files should contain the materials contained on the following pages.

Applications should always be submitted using the most current version of the application forms, workbooks, and worksheets. Current versions of all application forms can be downloaded from the Stormwater Program website.

Application Materials Page

1.1 Application Format Cont'd

eNOI

Applications for coverage under General Permit 3-9050 will use the eNOI available on ANR Online.

1. Applicants will sign the eNOI using the Applicant Certification Form
2. Applicants will be required to include information specifically requested therein and supportive of the following:

    - Total impervious for each discharge point, or POI;
    - Each post-2002 structural treatment practice and/or non-structural treatment practice within said discharge point / POI;
    - Total areas of impervious and previous surface contributing to treatment practice; and
    - Infiltration rate, and/or storage volume up to the 1-yr event (should include 1-yr flows to low flow orifice).
    - Necessary justification for rates and storage volume may be appended to Attachment 3.

Applications for Individual Permits will use the INDS NOI fillable document submitted as an attachment on the ANR Online Generic Intake Form.

3. Signature

    - The applicant(s) and the application preparer should sign the Notice of Intent (NOI) form electronically before sending the final version.
    - To sign the document, please use the Adobe "Sign" tool to place a signature in the signature block.
    - They may choose from the options under "Place Signature" to either "Type My Signature", "Draw my Signature" or "Use an Image".
    - If one has never signed electronically, further help can be found on the Adobe help site.

Effective January 1, 2018, applications for Individual Stormwater Discharge Permits (INDS) now require the applicant to provide notice of application to adjoining property owners at the time of application and certify this on the application form (NOI). Specific instructions are provided on the INDS application form (NOI), including a link to a template that can be used for this notification.

IMPORTANT:

The Stormwater Program is required by Act 76, The Vermont Clean Water Service Delivery Act (2019), to track and report phosphorus reductions achieved via installation of regulatory stormwater treatment practices implemented under operational stormwater permits. Phosphorus reduction targets are a key priority in monitoring progress towards meeting state water quality goals. Certain data required for phosphorus accounting have not always been tracked in DEC's Stormwater Management database. Details related to permitted stormwater treatment practices are requested in the General Permit 3-9050 eNOI's Discharge Point section to meet this requirement. This information is only needed for practices credited towards the Water Quality Treatment Standard and only for those permitted under the 2002 Vermont Stormwater Management Manual standards or those of a subsequently adopted Manual. The detailed information is not needed for practices permitted to pre-2002 Manual standards. Please note that for renewals of permits subject to the 2002 Manual that utilized grass channels for Water Quality treatment as a Structural Open Channel System rather than the Grass Channel Credit, "Grass Channel (2002 Renewals)" must be selected as a structural practice rather than the non-structural "Grass Channels (2002)" option. This will enable the storage volume for grass channels used as a structural STP to be captured. The non-structural "Grass Channels (2002)" STP may be selected for grass channels permitted under the Grass Channel Credit criteria.

Refer to the guidance in **Appendix 4** for determining STP storage volumes.

1.1 Application Format Cont'd

Narrative

1. The project narrative prepared in accordance with Narrative Template or another written format, provided all of the required information is included.
2. If site balancing is used the narrative shall include a clear description of the impervious areas used for site balancing (existing area treated and untreated expansion area) and how it is depicted in the Standards Compliance workbook. The narrative shall also include justification for the use of site balancing consistent with the Vermont Stormwater Management Manual.
3. Location map depicting site boundaries (parcel boundary and limits of development activity), the discharge point(s), points of interest, if applicable (e.g. study point at which stormwater leaves project boundary prior to reaching receiving water), and the location of the receiving water(s). The location map shall be in the form of a topographic map, or equivalent depicting the relevant information. The ANR Atlas tool may be used to prepare project location map.
4. Soils map prepared from the NRCS online Web Soil Survey or the soils data may be overlaid on the existing conditions plan sheet or other plan sheet. The ANR Atlas tool may also be used to prepare this map of project site with mapped soils overlay.

Workbooks

Stormwater Treatment Practice (STP) Selection Tool – more information on completing this workbook can be found in Part 2: STP Selection Tool. This shall include written justification for the use of Tier 2 and/or Tier 3 Practices (if applicable).

Standards Compliance Workbook - more information on completing this workbook can be found in Part 3: Standards Compliance Workbook.

IMPORTANT:

Workbooks are required to be submitted in PDF format, however applicants may also consider submitting as Excel workbooks (xlsx) to aid in the Stormwater Program's review of application. The Stormwater Program may request this in Excel format as determined necessary for any given project. Designers may choose to lock Excel workbooks "marking as final" within the Excel file menu.

Worksheets

The following worksheets should be included. Additional information on completing the worksheets can be found in Part 4: Worksheets.

1. Post-Construction Soil Depth and Quality Worksheet.
2. STP Worksheets for each STP.
3. Standard Waiver Worksheets (if applicable).
4. As needed, written or cited justification for soil test pits, infiltration rates and storage volumes for post-2002 treatment practices as required within NOI.
5. STP Worksheets and Standard Waiver Worksheet should be organized by discharge point in that order. Please include section breaks between discharge points where able.

Modeling

Hydrologic modeling for all pertinent rainfall events. See Part 5: Runoff Modeling of this document for specific instructions. The Stormwater Program may request an applicant provide the original modeling HCP file extensions in certain instances to aid in the technical review of an application.

1.1 Application Format Cont'd

Plans

Plan set including existing condition site plan, proposed condition site plan, detail sheet for all proposed STPs and related infrastructure, an annotated maintenance plan, and Post Construction Soil Depth and Quality plan as required with Subpart 3.0 of the 2017 Manual. See Part 6: Plan Sheet Guidance for details on how plan sheets should be formatted and submitted.

Plan Set Reference

The plan set reference form is required for all projects submitting plans. The plans will be listed in the following format: Sheet #, "Title", dated MM/DD/YYYY, last revised MM/DD/YYYY.

Applicant Signature Page

This can be found on the Stormwater website on the operational Application Instructions, Forms & Worksheets page. A signature page is required for each permittee.

1.2 Stormwater Discharge Permit Applications for "3-Acre" Sites

Application Format for Initial NOI Applications

An Initial NOI permit application for a site meeting the definition of an impervious surface of three or more acres requires submittal of basic project information comprised of limited application materials and a payment for the applicable administrative review fee - application review fees are not required. The application materials are an eNOI, submitted via ANR Online, a signed Applicant Certification for each applicant named on the NOI, and a site plan identifying impervious surface on the parcel(s) requiring permit coverage to meet the 3-acre permit requirements. The Applicant Certification and Delineation Plan must be submitted as PDFs via ANR Online. The delineation of impervious surface for an Initial NOI does not require an in-field survey. Available remote imagery, GIS-based applications, or existing site plans may be used. The impervious surface must be delineated and distinguished from pervious surface on the site and from impervious surfaces on the site that are not subject to the 3-acre permitting requirements. Delineation of parcel boundaries only, where there is pervious surface on the site, will not be accepted. Designers will have an opportunity to revise the site plan and the amount of impervious surface for permit coverage, as needed, when the Full NOI is submitted.

1. eNOI (submitted via ANR Online)
2. YYYY_MM_DD_Applicant Certification
3. YYYY_MM_DD_Impervious Surface Delineation Plan

Note: all Initial NOI's must be submitted as eNOI's via ANR Online, including projects that may ultimately require an Individual Permit Application NOI for the Full NOI submittal.

Application Format for Full NOI Applications

Like standard applications, a Full NOI permit application for a 3-acre site with impervious surfaces of three or more acres is comprised of all the applicable application materials and a payment for the applicable administrative and application review fees. A Full NOI application for a 3-acre site requires an additional attachment, the Engineering Feasibility Analysis (EFA). The EFA shall be submitted as a pdf attachment that documents the technical feasibility of meeting the required standards in General Permit 3-9050 and the 2017 Vermont Stormwater Management Manual for the 3-acre site. The EFA must be conducted pursuant to Subpart 4.1 of General Permit 3-9050 and shall be provided for all 3-acre Full NOI applications. If the EFA determines that the project cannot fully comply with the required standards offset or impact fee requirements in the General Permit apply. A permit will not be issued to the applicant until the impact fees have been paid, and an offset for a 3-acre site must be completed prior to the end of the permit term or as otherwise required by the permit. If there are no stormwater improvements determined to be technically feasible on the site, the application may be limited to an NOI, Applicant Certification, and EFA. All impervious surfaces on a 3-acre site subject to the requirements of Subpart 1.3.D of General Permit 3-950 shall be included in the NOI for permit coverage - including those that will receive no stormwater treatment or control improvements.

An EFA may be sent as an email attachment or by other approved methods to a Stormwater Program district analyst ahead of the full 3-acre permit application to facilitate Program feedback on the approach. The final EFA must be submitted as part of the application submittal through ANR Online. Feedback provided ahead of a full application submittal does not constitute a formal decision or determination by the Department.

1. eNOI (submitted via ANR Online; INDS Application submitted via ANR Online generic form)
2. YYYY_MM_DD_Applicant Certification
3. YYYY_MM_DD_Narrative
4. YYYY_MM_DD_Engineering Feasibility Analysis
5. YYYY_MM_DD_Workbook
6. YYYY_MM_DD_Worksheets
7. YYYY_MM_DD_Modeling
8. YYYY_MM_DD_Plans
9. YYYY_MM_DD_Plan Set Reference

1.2 Stormwater Discharge Permit Applications for "3-Acre" Sites Cont'd

Effect of Existing Permits

An existing stormwater discharge permit covering discharges from impervious surfaces of three or more acres to the watersheds of a stormwater impaired water, Lake Champlain, or Lake Memphremagog, that did not incorporate the design standards of the 2002 or 2017 Vermont Stormwater Management Manual (VSMM) may only be renewed under General Permit 3-9050 by submitting an Initial or Full NOI Application for permit coverage of the pre-2002 permit impervious surface and any unpermitted impervious surface. For 3-acre sites with multiple existing permits (whether pre-2002 or post-2002 VSMM) discharging to the watersheds of a stormwater-impaired water, Lake Champlain, or Lake Memphremagog, this application must be submitted prior to the earliest expiration date of those permits, but no later than June 1, 2023.

An application for coverage of the "3-acre" impervious surface may include other previously issued permits for the project or site to combine and consolidate multiple permits. Existing authorizations for discharges from impervious surfaces of three or more acres to waters not impaired for stormwater runoff and located outside of the Lake Champlain and Lake Memphremagog watersheds must be renewed per the existing permit term, as "timely renewals" under General Permit 3-9050 covering only the previously permitted impervious surface. Permit coverage meeting requirements for three-acre sites will not be needed for these projects until a date to be determined, but no later than October 1, 2033.

Effect of Permit Terms

An Initial NOI authorization is effective for no more than 18 months from the date of the authorization. Prior to the expiration date of the Initial NOI authorization applicants must submit a Full NOI application. Applicants and designers submitting a Full NOI Application for a 3-acre site should be aware that the permit issuance date will initiate the five-year permit term. The permitted stormwater treatment and control practices for impervious surfaces subject to the 3-acre requirements must be implemented on the site prior to the end of that five-year term.

If an applicant foregos the Initial NOI and submits a Full NOI, there is not an 18- month short-term authorization and the five-year permit term begins on the permit issuance date following a public notice period.

1.3 Permit Applications, Correspondence, and Revisions

Submission of permit-application related correspondence (e.g. response to administrative or technical review comments, plan changes, application material revisions) shall be provided via email following the initial submittal of the application.

If revisions to original application materials are requested by the Stormwater Program, the applicant shall re-submit a complete attachment with the response to comments. For example, if an Stormwater Treatment Practice (STP) worksheet in Attachment 2 needs to be revised, then the entire Attachment 2 should be resubmitted and named as such "YYYY-MM-DD_Worksheets". In certain cases that involve large file sizes, the Stormwater Program may consider allowing single sheets to be revised without resubmittal of the entire attachment. It is advised that you consult with Program district staff in this situation to review available options for resubmittal.

The applicant or application preparer shall respond to all technical comments, either in writing or via email.

In the response to comments, correspondence shall include a description of the location of any changes to the revised complete attachment (i.e. "bioretention worksheet inserted at p.10 of Worksheet attachment" or "Modeling revised for 1-year storm event; p. 28-32 of Modeling attachment".)

1.4 Correspondence and Reporting for Issued Permits / Authorizations

Annual Inspections and Restatements of Compliance

All forms, except for the initial application documents, such as Annual Inspection Reports and Restatement of Compliance submittals, shall be submitted electronically via ANR Online.

To access ANR Online and submit compliance reports, click the following link: https://anronline.vermont.gov/ to set up a user account. Appendix 3: ANR Online Instructions for Compliance Report Submittals provides a step by step guide on how to register and submit your compliance reports.
Please contact Catherine Gott in the Watershed Management Division's Business and Operational and Support Services Program if you have any questions regarding submittal of these reports via ANR Online. Catherine Gott may be reached at catherine.gott@vermont.gov or 802-490-6104.. If you have questions or issues related to ANR Online, please contact our online support staff at anr.onlineservices@vermont.gov.

Transfers

Parties listed as permittees on issued stormwater permits must request to transfer the permit if they sell the property covered by that permit, or if they intend to add a new landowner or operator to the permit. Transfer forms can be downloaded from the Stormwater Program website. Requests for Transfer of a Stormwater Discharge Permit shall be submitted via ANR Online with applicable fee, or otherwise via mail per the directions on the form. If completed at the time of renewal, permits may be transferred without the need for a separate transfer form.
If there are multiple permittees we may need certification that all permittees are aware of and agree to the transfer and addition or removal of a previous permittee.

If transferred permits include multiple landowners, an association shall be registered with the Vermont Secretary of State and said association will act as the single point of contact for the project and signatory for the transfer application. Annual Operating Fees

Invoices for applicable Annual Operating Fees are sent each year to the address DEC has on file for the applicable permit. All fees must be paid via ANR Online.

General Correspondence

All general correspondence related to a previously issued permit should be directed to district technical staff member via email. A Stormwater Program district staff directory can be found here:
http://dec.vermont.gov/watershed/stormwater/contacts

Your assistance in the submittal of paper-free permit applications is greatly appreciated. For additional stormwater permitting information, please visit the Stormwater Program website:
http://dec.vermont.gov/watershed/stormwater

Part 2 STP Selection Tool

2.0 STP Selection Tool Overview

Under the 2017 Vermont Stormwater Management Manual (VSMM), stormwater treatment practices (STPs) acceptable for meeting the Water Quality Treatment Standard have been divided into three tiers: Tier 1, Tier 2, and Tier 3. Tier 1 practices must first be considered, as they provide a higher level of water quality treatment with regard to removal of total phosphorus (TP) and total suspended solids (TSS) and also maximize treatment volume (TV) credit under the remaining standards as a result of their ability to infiltrate, retain, or reduce stormwater runoff.

The STP Selection Tool provides designers an objective framework to evaluate their projects and determine the highest tier practice that can be used based on site characteristics and the feasibility requirements of each practice. The STP Selection Tool will direct designers through consideration of Tier 1, Tier 2, and Tier 3 STPs for each discharge point. As indicated by the STP Selection Tool and as required by the 2017 VSMM, the use of Tier 3 Practices requires designers to provide written justification for use of Tier 3 Practices based on feasibility indicating why Tier 1 and Tier 2 Practices cannot be implemented on the project, along with any relevant supporting information. More information about this justification is provided in the 2017 VSMM (Section 2.2.4.1.).

Part 3 Standards Compliance Workbook

3.0 Standards Compliance Workbook Overview

The Standards Compliance Workbook is designed to guide designers through the calculations and sizing of stormwater treatment and control practices to meet applicable Standards in the 2017 Vermont Stormwater Management Manual (VSMM). Each tab of the Excel workbook must be completed for each discharge point of the project seeking permit coverage. Designers may also consider completing a tab for each point of interest (POI), where stormwater may leave the site, to be representative of each subcatchment or drainage area within the site, contributing to one or more discharge points to a receiving water. The workbook is designed to individually calculate by drainage area, POI, or by discharge point, and either approach may be valid depending on site and project design. For designers familiar with stormwater permit application submittal under the 2002 VSMM, the workbook replaces the need for Schedule A's and water quality volume (WQV) and groundwater recharge volume (ReV) worksheets. Designers should ensure that the information provided in the workbook is consistent with the impervious surface included for permit coverage on the NOI, the STP Worksheets and as depicted on the plans.

The workbook is comprised of a Summary tab and several discharge point tabs, labeled SN1, SN2, etc. The Summary tab provides an overview of how the Standards are met across discharge points or POIs. The workbook contains several different types of fields: (1) fields that are to be completed by the designer, (2) fields that will auto-populate based on designer-entered information, and (3) optional fields that may be completed by the designer when applicable or when needed to provide additional information. The designer will primarily enter information on the discharge point tabs to describe site land use and project characteristics and the treatment and control utilized to meet applicable standards. The Standards Compliance Workbook is supported by the sizing and volume calculations completed in the STP Worksheets completed for each STP, which may include Treatment Volume (Tv), the volume in which a practice is able to infiltrate, retain, or otherwise reduce stormwater runoff. In addition, hydrologic modeling results prepared by designers will inform certain fields in both the Standards Compliance Workbook and the STP Worksheets (See Part 4: Worksheets).

Each discharge point tab contains a table for pre-development land use and post-development land use. These land use tables for pre-development and post development need to have matching area totals for sites that are utilizing the Hydrologic Condition Method for the Channel Protection Standard. The redevelopment standard (50% Water Quality Volume) is required

3.0 Standards Compliance Workbook Overview Cont'd

when the project will engage in the redevelopment of 1-acre or greater of existing surface. Areas input in the redevelopment cell will drive the workbook to consider the redevelopment standard for those surfaces, and requires the practices be designed/ sized accordingly, an application and operating fee will be associated to the entire surface area being redeveloped.

Subcatchments, POIs, and drainage areas shall be considered and delineated based on existing and proposed contours, and shall not be arbitrarily limited by parcel boundaries. The stormwater practice shall consider all contributing flows in design and sizing, or necessary bypass considered.

3.1 Discharge Points

A discharge point is defined as the location where stormwater runoff from the site first enters waters of the State. Waters means all rivers, streams, creeks, brooks, reservoirs, ponds, lakes, springs, and all bodies of surface waters, artificial or natural, which are contained within, flow through, or border upon the State of Vermont or any portion of it. Wetlands, which are in most cases surface waters, are often identified as an unnamed tributary to "first-named" waters of the State. Wetland Primary and Secondary indicators of ponding, inundation, or drainage pattern should be considered. The site is generally defined as the area occupied by the impervious surfaces and disturbed pervious areas on the project and may include undisturbed areas proposed for reforestation/tree planting, and undisturbed vegetated buffers or other areas utilized for non-structural treatment. A complete definition of site can be found in Subchapter 7.0 of the 2017 VSMM.

When discharge points are located far from the site boundary, applicants may use points of interest (POIs) as locations where compliance is demonstrated. A POI is a location where flow discharges from the site, but that can be well upslope of the discharge point (waters of the State). In general, if compliance with the treatment standards is demonstrated at a POI located at site boundary, then compliance will be presumed at the actual discharge point. However, certain situations may require additional analysis to the discharge point, particularly if a downstream analysis is required. A designer may utilize the discharge point tabs in the workbook (SN1, SN2, etc.) for information specific to a POI.

3.2 Filling Out the Workbook When Using Site Balancing

The Site Balancing Design Strategy (2017 VSMM, Section 2.1.1.) (Site Balancing) may be used when control or treatment of certain areas of expanded or redeveloped impervious surface is not reasonably feasible or will have marginal benefits due to site constraints. Under Site Balancing, the impact from those areas is compensated for by providing equivalent treatment of surfaces within the project limits, or as otherwise specified and allowable, that would not otherwise be subject to treatment or control requirements. This can be accomplished by providing compensatory and equivalent treatment or control for existing surfaces which otherwise would not require or have such standards.

When Site Balancing is utilized, the Standards Compliance Workbook must always be completed to reflect actual pre-development and post-development conditions. If existing impervious is being treated, that area should be identified on the plans and identified in the application narrative, and subsequently reflected in STP Worksheet and STP design and sizing. For example, if you are expanding impervious by 0.25 acres and site constraints prevent you from treating the expanded portion to current standards, treatment may be provided for 0.25 acres of existing impervious, if treatment is not otherwise required for that existing impervious area.

3.2 Filling Out the Workbook When Using Site Balancing Cont'd

How to Fill Out the Workbook

1. Untreated-new surfaces within the "Post-Development Land Use" section shall be accounted for as "Existing Impervious Not For Permit Coverage" within the subcatchment, POI, or drainage area (tab) where it's actually located.
2. Compensatory treated-existing surfaces within the "Post-Development Land Use" section shall be accounted for as "Existing For Permit Coverage – Treated To New Standards", within the subcatchment, POI, or drainage area (tab) where it's actually located.
3. The applicant shall indicate in the "Water Quality Notes" field of the drainage point or POI tab where compensatory treatment of existing is actually located and within the "General Notes" field located at the bottom of the "Summary" tab that Site Balancing is used to meet standards. The applicant shall identify the amount of existing impervious surface treated in lieu of new impervious that cannot be treated, the location of each impervious surface (by discharge point), and a description of the treatment provided.

For example:

"Site Balancing was used to meet standards. 0.25-acre of existing impervious surface located in SN001 has been treated and control provided within a proposed Dry Swale to compensate for 0.25-acre of untreated new surface within SN002, as identified on site plan A1."

Designers that voluntarily treat more than required under Site Balancing may note this larger impervious area as treated. Practices may always be upsized to account for voluntary treatment without necessitating additional permit coverage for that surface, if not otherwise required. Designers shall document such oversizing within site balancing justification with the project narrative.

IMPORTANT:

It should be noted, when practices are designed to take runoff from more surfaces than required, the additional volume may need to also meet applicable control standards, see Section 2.2.5 of the 2017 Manual.

When Site Balancing is utilized, it is extremely important for designers to clearly identify all the areas of treated new impervious, treated existing impervious, untreated new impervious, untreated existing impervious, redeveloped impervious, and removed impervious on a site plan as well as in the narrative (a table with areas of each type of impervious is helpful). Color coding or hatching/shading of these areas on a supplemental site plan may also assist with depicting this information.

All site balancing justifications or strategies shall be reviewed on a pre-application basis with the project's district technical reviewer.

Use of site balancing on site will not absolve one's obligation or requirement as considered within §22-107(b)(4), and General Permit 3-9050 Part 1.3D. It is strongly advised that designers check in with District Staff prior to submitting an application that proposes site balancing on a 3-acre site.

3.3 Filling Out the Workbook When Using Net Reduction

The Net Reduction Design Strategy (2017 VSMM, Section 2.1.1.) (Net Reduction) may be used on developed sites that pre-date modern stormwater design requirements and may present unique opportunities to greatly improve stormwater treatment and control. Expansion and redevelopment projects often involve reconfigurations of parking, drives, or buildings that can result in a net reduction in impervious surface, despite the expansion or redevelopment of existing impervious (area of 1-ac or greater) that requires an operational stormwater discharge permit. This is generally the result of reconfiguration and removal of impervious surfaces, and the incorporation of green space on a project site. A net reduction of impervious surface can have both stormwater quality and volume reduction benefits. While the Water Quality Treatment Standard applicable to redevelopment allows for credit towards removal of impervious, the partial benefit of an overall net reduction in impervious is not specifically considered when projects also involve new impervious surfaces. Therefore, Net Reduction allows for looking at the project in part as a Redevelopment project, where the overall water quality volume (WQv) required for treatment is reduced, adjusted for the net reduction in impervious surface. In addition, control for larger storm events may also be waived.

When Net Reduction is used, the Standards Compliance Workbook must always be completed to reflect actual pre-development and post-development conditions. The workbook calculates the difference in stormwater runoff conditions between the pre- and post-developed impervious to determine if impervious cover has been reduced by the proposed project. The designer must select whether the reduction will be applied as part of the "% Removed Existing Impervious (Redevelopment)" Water Quality Treatment Standard , for projects only involving the redevelopment of impervious surfaces, or "%Net Reduction", where the project may involve an expansion, redevelopment, and removal of impervious surfaces. Based on the selection of the designer, the Standards Compliance Workbook will adjust the required WQV for that discharge point. When Net Reduction is utilized a designer may also select this choice from the drop down menus in the workbook sections for Channel Protection, Overbank Flood Protection, and Extreme Flood Protection Standards as justification why those standards do not apply. The designer should note in the "General Notes" field located at the bottom of the "Summary" tab that Net Reduction is used and shall identify the amount of existing impervious surface being reduced and how the project in general used this design strategy to reduce the overall required Water Quality Volume (WQV).

IMPORTANT:

When Net Reduction is utilized it is extremely important for designers to clearly identify all the areas of treated new impervious, untreated new impervious, treated existing impervious, untreated existing impervious, redeveloped impervious (1-acre or greater), and removed impervious on a site plan as well as in the narrative (a table with areas of each type of impervious is helpful). Color coding or hatching/shading of these areas on a supplemental site plan may also assist with depicting this information.

Terminology

Definitions are specified in Subchapter 7.0 of the 2017 Vermont Stormwater Management Manual (VSMM). Additional information is provided here to assist designers in permit application preparation and design.

Receiving Waters

The receiving water is the name of the water of the State that stormwater runoff from the site first enters. If the receiving water does not have a name, use the designation of "unnamed tributary to X," where X is the first named water body. "Waters" means all rivers, streams, creeks, brooks, reservoirs, ponds, lakes, springs, and all bodies of surface waters, artificial or natural, which are contained within, flow through or border upon the State of Vermont or any portion of it. If the receiving water is a wetland, be specific as to the wetland's relationship to other waters. For instance: 1) Wetland tributary to X; or 2) Wetland draining into X. In situations where all of the stormwater is discharged to groundwater (infiltrated), the receiving water is "groundwater within the X watershed." In the instance that the site discharges to groundwater, but some overflow is expected via surface runoff into a Water of the State, the receiving water is "groundwater with overflow to X."

Latitude & Longitude of Discharge Point

This is the location in Decimal Degrees (including at least the first five digits after the decimal point) format where the runoff from the project site first enters a water for each discharge point.

Existing Impervious Surfaces

Existing impervious surfaces shall be identified in the Standards Compliance Workbook representative of both pre- and post-development conditions. Existing impervious surfaces that are not proposed for permit coverage and do not require permit coverage or treatment may be excluded from the NOI. Existing impervious surfaces that are included for permit coverage must meet applicable treatment standards. Existing impervious surfaces which are utilized as part of Site Balancing shall be included for permit coverage and shall be included within the NOI.

Redevelopment

If the project involves the redevelopment of an area of impervious surface where the existing stormwater discharge is covered under an existing stormwater discharge permit (valid or expired) please contact the Stormwater Program to discuss whether coverage of this impervious surface is required under a new stormwater discharge permit or can be authorized under the existing permit. Redevelopment is defined within the Manual and is considered to include work/ excavation which extends into the existing sub base.

Typically, redeveloped surfaces are held to a reduced Water Quality Standard; however, in cases where the areas were previously permitted as new or held to another standard under a previously issued permit, "backsliding" on treatment or control is not allowable under Chapter 22 of the Environmental Protection Rules: Stormwater Permitting Rule.

Part 4 Worksheets

4.0 Post Construction Soil Depth and Quality Worksheet Overview

Every project application must include a completed Post-Construction Soil Depth and Quality (PCSDQ) Worksheet, along with a supporting site plan that identifies the areas of the project site that will be subject to the standard and locations of the proposed method and locations for verification of the standard during or following implementation. A single Post-Construction Soil Depth and Quality worksheet shall be submitted for the project seeking permit coverage.

The Post-Construction Soil Depth and Quality Plan should identify the individual or entity whom will be responsible for this investigation and certification.

4.1 STP Worksheets

Stormwater Treatment Practice (STP) Worksheets must be completed for each of the primary STP that are to be utilized on the project. Completion of the STP Worksheets require the calculation of the STP's required water quality volume and treatment volume (TV), the volume that will be applied to all standards under the runoff reduction framework of the 2017 Vermont Stormwater Management Manual (VSMM), if a Tier 1 Practice, or other practice that provides some Tv. Infiltrated or disconnected Tv may be applied to all standards, including the Hydrologic Condition Method of the Channel Protection Standard, and larger control events as applicable. The STP Worksheets also cover and summarize some of the required design elements for STPs to ensure that the STP is designed according to the 2017 Vermont Stormwater Management Manual (VSMM). While this will guide designers in meeting requirements, designers are urged to review the complete list of required elements in the 2017 VSMM as the STP Worksheets are not inclusive of all requirements but focus on key elements.

Most questions on the worksheets refer to required elements in the 2017 VSMM and, therefore, must be addressed. An answer of "No" to a required element is subject to Agency approval, may not be allowable, and must be accompanied by a detailed explanation and certification of why this design element is not met and whether the minor variation from numerical design criteria will not compromise equivalent performance of the STP. Some questions on the worksheets ask if a particular design element, such as check dams or an under drain, will be incorporated into the design of the STP. A selection of "Yes" will populate additional questions within the worksheet that must be answered. The worksheet is, therefore, interactive and is in part, responsive to entries made by the designer.

The "Practice Drainage Area" shall match subcatchment delineation on the project plan(s) and subcatchment drainage within the Model. Worksheets rely on practice sizing values taken from TR-20 calculations, HydroCAD modeling or equivalent or in some cases the sizing equations given in the 2017 VSMM. The calculated treatment volume is directly entered on the worksheet. The treatment volume is used to calculate a separate storage volume. The storage volume is used for tracking and not directly evaluated for treatment standard requirements.

4.2 Worksheet Format

Worksheets applicable to each discharge point shall be bundled together. The bundle, is then included in a single PDF called "YYYY-MM-DD_Worksheets." The dated Worksheets PDF will include the Post-Construction Soil Depth and Quality Worksheet, STP Worksheets, and Standard Waiver Worksheets (if applicable) in that order, grouped by discharge point or point of interest (POI) and accurately identified/named so as to facilitate correlation with a given practice in the model and on the project plan(s).

If waiver worksheets for the Channel Protection or Overbank Flood Protection Standards that utilize the < 2 cfs pre-routed post-development stormwater discharge rate are provided, designers must provide runoff calculations or hydrologic modeling for the pre-routed, post-development discharge during the applicable storm event.

Find Worksheets Here

Part 5 Runoff Modeling

5.0 Runoff Modeling Overview

The information presented here aims to allow for efficient technical review of operational stormwater application information by Stormwater Program staff, specific to hydrologic modeling of the stormwater management design. This information also sets forth the expected format and methods to be used when completing modeling required by the 2017 Vermont Stormwater Management Manual (VSMM to ensure application consistency. Below are several figures showing modeling outputs that have been underlined or circled in red indicating that these items are expected to be highlighted on the modeling output summary sheets prepared by the designer and submitted with the application to clearly demonstrate compliance with applicable treatment standards. The below figures depict one type of software that is commonly used for preparing the required modeling, however the Agency accepts other modeling based on TR-20 or approved equivalent for determining stormwater runoff volume, determining peak discharge rates, and for routing of detention STPs. If the project modeling reports are printed directly to PDF, the pertinent text can be highlighted or otherwise marked with tools in Adobe without printing a hard copy of the reports. Thus, this request can be met while maintaining the goal of paperless applications.

It should be noted that stormwater practice worksheets may include sizing calculations, and that these calculations may not provide adequate information to suffice as replacement of hydrologic modeling.

5.1 Time of Concentration Tc

Subcatchment Hydraulic Length *l*

Simply calculated using the empirical relation presented in Equation 2-5 of the Manual (Section 2.2.4.3.) which only requires the subcatchment area (A) to do so.

Subcatchment Average Catchment Slope *Y*

Must be calculated using AutoCAD, ArcGIS, or direct plan measurements of contour length (C) and contour interval (I), or by using any of the methods identified in the 2017 VSMM. One acceptable method includes calculating the slope of multiple flow paths through the subcatchment and taking the average. Once average catchment slope (Y) is calculated, this value, along with the hydraulic length (l) value, can be entered in the Standards Compliance Workbook for auto-calculation of the subcatchment Tc.

IMPORTANT:

In all cases, the hydraulic length (l) and average catchment slope (Y) calculations shall be included as an attachment to the modeling, where applicable, or otherwise included with the application materials. In addition, flow paths utilized for calculations shall be labeled and drawn on applicable plan sheets. In cases where the average catchment slope (Y) is auto-calculated using AutoCAD or other program, the actual calculation is not required to be provided but the method used can be identified in the application materials, such as within the Narrative, or attached to the modeling PDF document.

5.1.2 Subcatchment Summary

On the first subcatchment summary sheet for each storm event please highlight the following information:

1. Runoff generation method (shall be flow weighted (Weighted-Q), not area weighted (Weighted-CN) unless pre-application agency approval has been given.
2. Unit hydrograph used
3. Model time span
4. Model time step
5. Rainfall distribution type
6. Rainfall amount

Summary for Subcatchment 1e: Existing Basin 1

Runoff = 2.03 cfs @ 12.05 hrs, Volume= 0.128 af, Depth= 0.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-Q, Time Span= 1.00-90.00 hrs, dt= 0.01 hrs
Type II 24-hr 1yr Storm Rainfall=2.20"

Area (ac)	CN	Description
0.033	77	Woods, Good, HSG D
2.626	77	Woods, Good, HSG D
0.099	70	Woods, Good, HSG C
0.046	70	Woods, Good, HSG C
2.804		Weighted Average
2.804		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					**Direct Entry, Watershed Lag**

Figure 1: Subcatchment summary sheet showing the general model information that should be highlighted on the first subcatchment summary sheet for each rainfall event. The above depicts this information for the 1-year, 24-hour storm event under a Type II rainfall distribution for the project area.

5.2 Water Quality Treatment Standard

1. When modeling the Water Quality Storm (1.0") with NRCS methods, a modified CN must be used. On the subcatchment summary sheet for the Water Quality Storm please highlight the modified CN. STP Worksheets also allow for auto-calculation of a modified CN for the Water Quality Storm, based on inputs for a particular subcatchment.

	Area (ac)	CN	Description
*	1.200	88	Modified CN
	1.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description

Figure 2: Subcatchment summary sheet for the Water Quality Storm showing the use of a Modified CN.

5.3 Channel Protection Standard CPv

Discharge points that meet the Channel Protection Standard entirely by use of the Hydrologic Condition Method (HCM) (i.e. infiltration) may not require the above modeling when STPs have been sized for the required TV based on infiltration rate, contributing drainage, and practice geometry, in consideration of all applicable design requirements, including design sizing equation set forth in the 2017 VSMM. In the case when a full model is not provided, designers shall include the source material and justification for the Tv claimed in the application. This is typically, and preferably achieved with the single TR-20 derived sheet of the 1-yr event which includes the discarded volume, as illustrated below.:

19-061VT BBF SN004 POSTDEVELOPMENT *Type II 24-hr 1 YR Rainfall=2.54"*
Prepared by {enter your company name here} Printed 11/25/2020
HydroCAD® 10.00-26 s/n 09376 © 2020 HydroCAD Software Solutions LLC Page 16

Summary for Pond DW-10: DELI-STORE DRY WELL

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=562)

Inflow Area = 0.046 ac, 59.68% Impervious, Inflow Depth = 1.09" for 1 YR event
Inflow = 0.11 cfs @ 11.90 hrs, Volume= 0.004 af
Outflow = 0.02 cfs @ 11.79 hrs, Volume= 0.004 af, Atten= 78%, Lag= 0.0 min
Discarded = 0.02 cfs @ 11.79 hrs, Volume= 0.004 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 2
Peak Elev= 829.12' @ 11.99 hrs Surf.Area= 210 sf Storage= 39 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 6.8 min (842.6 - 835.7)

Volume	Invert	Avail.Storage	Storage Description
#1	828.50'	221 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc) 735 cf Overall x 30.0% Voids

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
828.50	210	0	0
829.50	210	210	210
830.50	210	210	420
831.50	210	210	630
832.00	210	105	735

Device	Routing	Invert	Outlet Devices
#1	Secondary	831.75'	**4.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32
#2	Discarded	828.50'	**5.000 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.02 cfs @ 11.79 hrs HW=828.54' (Free Discharge)
↑—**2=Exfiltration** (Exfiltration Controls 0.02 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=828.50' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Figure 3: Preferred Tv justification sheet for infiltration practices where overall modeling is not provided

5.3 Channel Protection Standard CPv Cont'd

Designers may opt to provide full modeling to demonstrate practice sizing and compliance with the Channel Protection Standards through infiltration/exfiltration of the required TV. Designers that utilize modeling to demonstrate compliance with the Channel Protection Standard through the HCM must not use adjusted Curve Number (CNadj) as described in the 2017 VSMM when the modeling also considers infiltration/exfiltration for discarded outflow, so as not to "double count" the runoff reduction. The WQ storm model should still use the modified CN to correctly reflect runoff conditions during the Water Quality Storm event (1 inch)

Discharge points that partially meet the Channel Protection Standard by use of the HCM, may use an adjusted Curve Number (CNadj) (2017 VSMM, Section 2.2.5.3) in the model to account for any TV that was provided and shall demonstrate extended detention for any remaining channel protection volume, unless as stated above, the practice/ model included discarded outflow via infiltration/exfiltration.

To demonstrate compliance with the Channel Protection Standard when met with Extended Detention (ED), please highlight the Center of Mass detention time on the pond/practice summary sheet. The Center of Mass detention time should be as close to 720 minutes as possible for a 12-hour detention time or 1440 minutes for a 24-hour required detention time, depending on the fisheries designation of the receiving water. The Center of Mass detention time shall not significantly exceed 24-hours, in consideration of the timing of sequential storm events

The model time span must be long enough so that the pond elevation returns to the permanent pool elevation for the 1-year, 24-hour storm event. Otherwise, the Center of Mass detention time reported by the software may be truncated. This can be confirmed by verifying that the inflow and outflow volumes for the storm event are the same.

If the STP has a permanent pool, the model shall only consider the area above the permanent pool for compliance with the Channel Protection Standard. This can be accomplished by setting the starting elevation at the permanent pool elevation, or by not defining the permanent pool storage.

Inflow Area = 1.000 ac,100.00% Impervious, Inflow Depth = 2.77"
Inflow = 3.68 cfs @ 12.01 hrs, Volume= 0.231 af
Outflow = 0.11 cfs @ 14.36 hrs, Volume= 0.231 af, Atten= 97%, Lag= 141.3 min
Primary = 0.11 cfs @ 14.36 hrs, Volume= 0.231 af

Routing by Stor-Ind method, Time Span= 0.00-140.00 hrs, dt= 0.05 hrs
Starting Elev= 6.75' Surf.Area= 2,700 sf Storage= 2,588 cf
Peak Elev= 8.41' @ 14.36 hrs Surf.Area= 5,513 sf Storage= 9,078 cf (6,490 cf above start)

Plug-Flow detention time= 1,064.8 min calculated for 0.171 af (74% of inflow)
Center-of-Mass det. time= 727.7 min (1,485.3 - 757.6)

Volume	Invert	Avail.Storage	Storage Description
#1	5.00'	12,800 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.00	0	0	0
6.00	1,800	900	900
7.00	3,000	2,400	3,300
8.00	4,500	3,750	7,050
9.00	7,000	5,750	12,800

Figure 4: Subcatchment summary sheet showing an appropriate model time span and center of mass detention time, verified by equivalent inflow and outflow volumes.

5.3 Channel Protection Standard CPv Cont'd

The minimum orifice size is 1 inch; designers will not be required to demonstrate more detention time than a 1-inch orifice can provide. Designers may also consider the inclusion of an orifice size that is easily drilled during construction or standard pipe sizes, as opposed to setting an odd orifice size that may prove difficult to achieve during construction (e.g. 1.75" vs. 1.8"). However, to maximize the detention time provided by the 1 inch orifice, the pond should have the available storage to contain the CPV between the 1 inch orifice and the next highest outlet control (i.e. there should be no discharge through the next highest outlet control for the 1-year storm).

5.4 Overbank (Qp10) and Extreme (Qp100) Flood Protection Standards

These standards set forth in the 2017 VSMM aim to address the potential for increases in peak discharges from larger storm events as a result of increases in runoff volume in the post-development condition. In part, they may also address concerns with known flooding conditions, either on site or off site, including downstream concerns for existing drainage infrastructure and other structures.

Compliance with these standards is met by demonstrating that the routed post-development peak discharge rate does not exceed the pre-development peak flow rate for the 10-year, 24-hour and 100-year, 24-hour storm events, under the Type II rainfall distribution (QP10post ≤ QP10pre and QP100post ≤ QP100pre).

To demonstrate this in the modeling output, highlight the peak flow rate from the most downstream node in the pre-development/existing condition and the most downstream node in the proposed condition to show that the flow rate from the proposed condition is less than or equal to the existing condition. In the example below, the peak flow rate from node 5S would be compared to the peak flow rate from node 3P for demonstrating compliance with the Overbank Flood Protection (QP10) and Extreme Flood Protection (QP100) Standards.

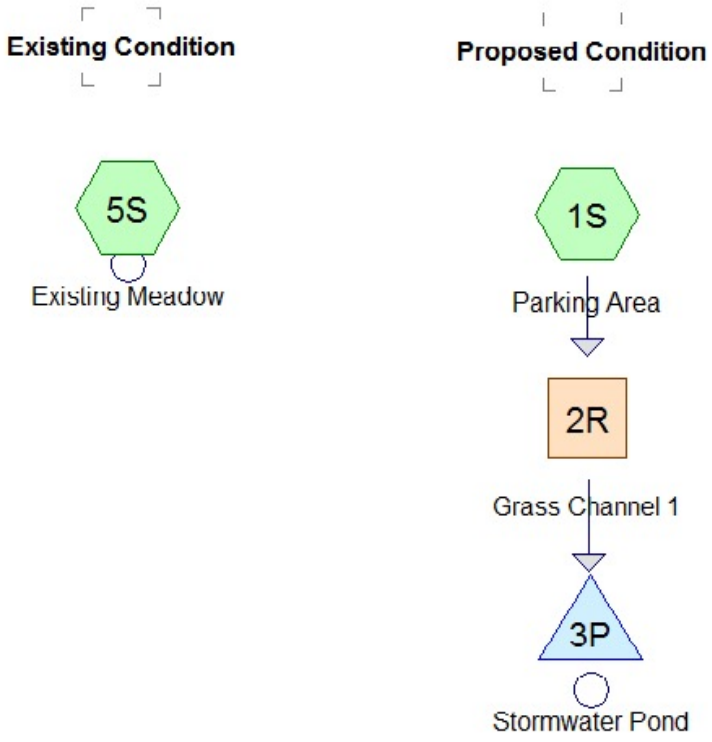


Figure 5: Routing diagram for the Overbank Flood Protection and Extreme Flood Protection Standards example.

5.4 Overbank (Qp10) and Extreme (Qp100) Flood Protection Standards Cont'd

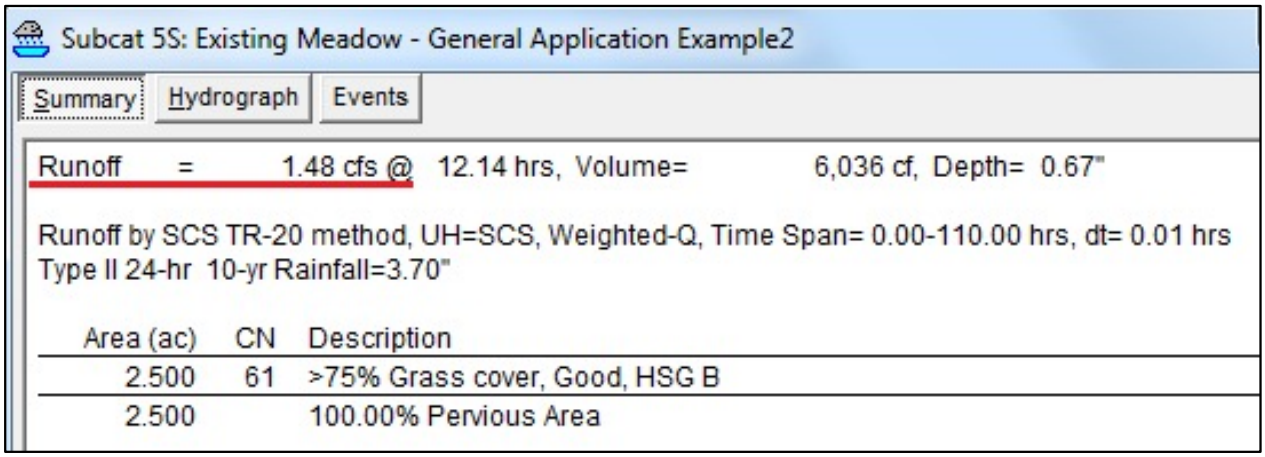


Figure 6: Subcatchment summary sheet showing peak flow rate for the pre-development condition for node 5S.

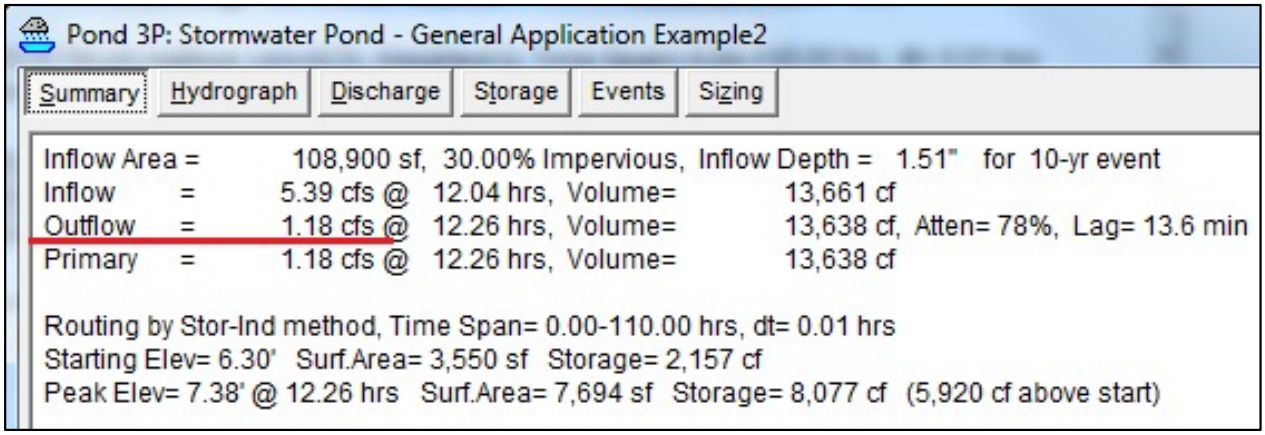


Figure 7: Subcatchment summary sheet showing the peak flow rate for the proposed condition.

Note that for practices with multiple outflow designations (primary and secondary) the flows should be combined. For ponds with exfiltration specified as an outlet control (discarded flows) this flow will be considered in the total outflow calculation, but does not need to be considered for compliance purposes with the QP10 and QP100 standards. In these cases, the total flow rate for compliance purposes is the outflow less the runoff discarded via infiltration/exfiltration.

Discharge points that partially meet the Overbank Flood Protection Standard and/or Extreme Flood Protection Standard by use of the HCM (i.e. infiltration), will use an adjusted Curve Number (CNadj) (2017 VSMM, Section 2.2.5.3) in the model to account for any TV that was provided, rather than representing by exfiltration (discarded flows). Designers shall not use both the CNadj and exfiltration in their model.

In addition to demonstrating compliance with each standard, conformance with STP requirements must also be demonstrated by highlighting pertinent information on the modeling summary sheets for the specific practice being used to meet the standards. If a "Required Element" as set forth in the 2017 VSMM can be identified in the modeling, it should be highlighted in the modeling to demonstrate compliance. This effort on the part of the designer will facilitate the efficient Stormwater Program review of a permit application.

5.5 Practices Utilized for Detention

Stormwater treatment practices that provide either a permanent pool and/or detention volume should include several elements highlighted in the modeling output. These include practices such as Gravel Wetlands, Bioretention systems, and other practices such as Wet Ponds or Dry Detention Basins.

- 1-year peak flow rate from the pond outlet
- Volume of the permanent pool
- Starting elevation (based on elevation of permanent pool and lowest outlet control)
- Outlet control structure type, size, and invert elevation (including barrel), consistent with the provided outlet control structure detail
- Outlet routing diagram demonstrating proper routing of the various outlet control structures through the riser barrel

Inflow Area = 119,790 sf, 36.36% Impervious, Inflow Depth = 0.84" for 1-yr event
Inflow = 2.56 cfs @ 12.15 hrs, Volume= 8,415 cf
Outflow = 0.23 cfs @ 13.04 hrs, Volume= 8,394 cf, Atten= 91%, Lag= 53.5 min
Primary = 0.23 cfs @ 13.04 hrs, Volume= 8,394 cf

1-yr Peak Flow Rate

Routing by Stor-Ind method, Time Span= 0.00-110.00 hrs, dt= 0.01 hrs
Starting Elev= 6.30' Surf.Area= 3,550 sf Storage= 2,157 cf
Peak Elev= 7.21' @ 13.04 hrs Surf.Area= 6,948 sf Storage= 6,864 cf (4,706 cf above start)

Plug-Flow detention time= 1,082.4 min calculated for 6,236 cf (74% of inflow)
Center-of-Mass det. time= 720.8 min (1,526.4 - 805.7)

Volume	Invert	Avail.Storage	Storage Description
#1	5.00'	13,750 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
5.00	0	0	0
6.00	2,500	1,250	1,250
6.30	3,550	907	2,157
7.00	6,000	3,343	5,500
8.00	10,500	8,250	13,750

Volume of Permanent Pool

Device	Routing	Invert	Outlet Devices
#1	Primary	5.00'	**12.0" Round Culvert** L= 50.0' Ke= 0.010 Inlet / Outlet Invert= 5.00' / 4.00' S= 0.0200 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf
#2	Device 1	6.30'	**1.7" Vert. Orifice/Grate** C= 0.600
#3	Device 1	7.15'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Outlet Device Summary Table indicating outlets that conform with outlet control structure detail

Primary OutFlow Max=0.22 cfs @ 13.04 hrs HW=7.21' (Free Discharge)
└**1=Culvert** (Passes 0.22 cfs of 3.59 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.07 cfs @ 4.41 fps)
  └**3=Orifice/Grate** (Weir Controls 0.15 cfs @ 0.81 fps)

Outlet Routing Diagram- Outlet devices properly routed through riser barrel

Figure 8: Summary sheet showing pertinent information that needs to be highlighted

5.5 Outlet Routing

The use of compound outlet structures is common for STP design. When modeling a compound outlet structure, it is important to include not only the various outlet control structures on the riser, but also the riser barrel where stormwater flows from the individual outlet control devices combine before discharging to a stable conveyance or receiving water.

Designating an outlet device as Primary assumes free discharge for that device. In compound outlet structures, such as risers with multiple outlet control devices/orifices, this is often not a valid assumption, as the barrel can act to control flow rate even if the sum of individual outlet control devices has the potential to pass more flow.

Proper outlet routing involves specifying the barrel as an outlet control device, designating it as the primary outflow, and then routing the other outlet control devices on the riser (orifices, weirs, overflow grates) through the barrel. The easiest way to do this is to enter the barrel (described here as a culvert) as Device #1 in the "Outlet" table and then route the other devices through Device #1, as shown below

Device	Routing	Invert	Outlet Devices
#1	Primary	5.00'	**12.0" Round Culvert** L= 50.0' Ke= 0.010 Inlet / Outlet Invert= 5.00' / 4.00' S= 0.0200 '/' Cc= 0.900 n= 0.025 Corrugated metal, Flow Area= 0.79 sf
#2	Device 1	6.30'	**1.7" Vert. Orifice/Grate** C= 0.600
#3	Device 1	7.15'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.18 cfs @ 12.26 hrs HW=7.38' (Free Discharge)
└**1=Culvert** (Passes 1.18 cfs of 3.72 cfs potential flow)
  ├**2=Orifice/Grate** (Orifice Controls 0.08 cfs @ 4.83 fps)
  └**3=Orifice/Grate** (Weir Controls 1.11 cfs @ 1.56 fps)

Figure 9: Outlet summary table and routing diagram showing inclusion of the barrel and proper routing of the other outlet control devices.

This will ensure that flows are properly combined in the barrel and will allow for barrel control if necessary. Note that the barrel should be modeled at the size specified in the outlet structure detail that would be included with the application. A common application error that often delays application review includes inconsistencies between the inverts/device sizes depicting in the plans and the modeling. Designers are urged to double check these references and details to avoid this misstep.

Stormwater Wet Ponds or stormwater Shallow Surface Treatment Wetlands that require the use of a Gravel Outlet Trench, the modeling included with the application may consider only the pipe outlet size and elevation as it exits the trench and will not be required to consider porosity through the stone or the dimensions of the trench in route to the outlet.

5.5.1 Starting Elevation

Practices, such as Gravel Wetlands, Wet Ponds, and Shallow Surface Treatment Wetlands, with established permanent pools must also include the elevation of the permanent pool in the modeling. This is done by specifying a pond starting elevation to ensure that the volume of the permanent pool is not counted toward the available storage volume of the pond. The inflow and outflow volumes should be the same for a given rainfall event. If the outflow is significantly less than the inflow, this may indicate that the starting elevation has not been appropriately set. The starting elevation of the pond is established by the elevation of the lowest outlet control in the pond. The pond summary sheet below illustrates a properly established starting elevation for a wet pond with a permanent pool.

Inflow Area = 2.000 ac, 0.00% Impervious, Inflow Depth = 4.16" for 100-yr event
Inflow = 13.41 cfs @ 11.98 hrs, Volume= 0.693 af
Outflow = 1.34 cfs @ 12.41 hrs, Volume= 0.693 af, Atten=
Primary = 1.34 cfs @ 12.41 hrs, Volume= 0.693 af

Inflow and outflow volumes are equivalent

Routing by Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Starting Elev= 814.00' Surf.Area= 3,000 sf Storage= 2,500 cf
Peak Elev= 816.14' @ 12.41 hrs Surf.Area= 12,830 sf Storage= 17,718 c

Starting elevation listed between routing info and peak elevation

Plug-Flow detention time= 277.2 min calculated for 0.635 af (92% of inflow
Center-of-Mass det. time= 201.0 min (990.5 - 789.4)

Volume	Invert	Avail.Storage	Storage Description
#1	812.00'	31,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
812.00	0	0	0
813.00	1,000	500	500
814.00	3,000	2,000	2,500
815.00	6,000	4,500	7,000
816.00	12,000	9,000	16,000
817.00	18,000	15,000	31,000

Device	Routing	Invert	Outlet Devices
#1	Primary	812.00'	**12.0" Round Culvert** L= 50.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 812.00' / 811.50' S= 0.0100 '/' Cc= 0.900 n= 0.025 Corrugated metal Flow Area= 0.79 sf
#2	Device 1	814.00'	**3.0" Vert. Orifice/Grate** C= 0.600
#3	Device 1	815.00'	**6.0" Horiz. Orifice/Grate** C= 0.600 Limite

Starting elevation is determined by elevation of lowest outlet control

Primary OutFlow Max=1.34 cfs @ 12.41 hrs HW=816.14' (Free Discharge)
↑**1=Culvert** (Passes 1.34 cfs of 4.45 cfs potential flow)
↑**2=Orifice/Grate** (Orifice Controls 0.34 cfs @ 6.83 fps)
3=Orifice/Grate (Orifice Controls 1.01 cfs @ 5.14 fps)

Figure 10: Summary sheet showing a properly established pond starting elevation to represent the permanent pool. Please highlight these items if using a pond with a permanent pool.

Notice that the inflow and outflow volumes are equivalent, and that the starting elevation corresponds with the elevation of the lowest outlet control device on the compound outlet structure, in this case a 3" vertically orientated orifice.

5.6 Subsurface Gravel Wetlands

Stormwater Subsurface Gravel Wetlands (Gravel Wetlands) are similar to practices such as Wet Ponds and Shallow Surface Wetlands in that they also have a permanent pool, controlled by the lowest elevation of the compound outlet structure. However, because Gravel Wetlands are designed to treat stormwater runoff horizontally through the gravel filter bed subsurface, the compound outlet structure is most often designed with a section of perforated pipe, horizontally aligned subsurface, that ties into the larger structure with a solid "T" pipe. The permanent pool elevation is, therefore, not controlled by this Water Quality Storm outlet, but by an additional orifice generally set at an elevation within the Gravel Wetland soil surface, most often 4 inches below the planted surface. This orifice is typically set by a weir within the outlet structure or a riser from the perforated pipe inlet to the outlet structure.

Because these practices utilize a permanent pool stored within a gravel filter bed, a designer may need to include additional calculations for demonstration of the requisite Water Quality Volume (WQv) that is stored within the stone bed, to ensure that the identified permanent pool storage is adequate and to ensure that the model correctly identifies the cumulative storage that is located all below any available storage utilized for extended detention (i.e. starting elevation). The model must show that the entire WQv is discharged via the subsurface gravel and does not utilize a surface outlet structure which would allow runoff to bypass the gravel.

Given subsurface gravel wetland treatment occurs in a horizontal fashion within substrate and microbe-rich environment, it is critical the designer consider and prevent any short circuiting during the water quality event. To achieve this, wetland soil or a dense root mat shall be incorporated.

5.7 Shallow Surface Treatment Wetlands

Stormwater Shallow Surface Treatment Wetlands share many of the same required elements as Stormwater Wet Ponds. Unless specified in the 2017 VSMM, all of the pond criteria listed above also apply to Shallow Surface Treatment Wetlands including: conveyance criteria, outlet control device routing, forebay depths, and ponding depths for permanent pools. Refer to the above pond section for a list of requirements that can be demonstrated in modeling output for Shallow Surface Treatment Wetlands.

For Stormwater Wet Ponds or Shallow Surface Treatment Wetlands that require the use of a Gravel Outlet Trench, the modeling may consider the outlet pipe structure sizing and elevation located within the gravel trench and will not be required to consider porosity through the stone associated with the gravel outlet trench on the practice bench in route to the outlet.

5.8 Shallow Surface Treatment Wetlands

Stormwater Shallow Surface Treatment Wetlands share many of the same required elements as Stormwater Wet Ponds. Unless specified in the 2017 VSMM, all of the pond criteria listed above also apply to Shallow Surface Treatment Wetlands including: conveyance criteria, outlet control device routing, forebay depths, and ponding depths for permanent pools. Refer to the above pond section for a list of requirements that can be demonstrated in modeling output for Shallow Surface Treatment Wetlands.

For Stormwater Wet Ponds or Shallow Surface Treatment Wetlands that require the use of a Gravel Outlet Trench, the modeling may consider the outlet pipe structure sizing and elevation located within the gravel trench and will not be required to consider porosity through the stone associated with the gravel outlet trench on the practice bench in route to the outlet.

5.9 Infiltration Practices

When modeling infiltration practices to demonstrate TV infiltrated or compliance with other standards, the designer shall not use a CNadj that takes into account the practice being modeled. For example, if the designer is attempting to demonstrate that outflow from an infiltration basin will satisfy QP10, the adjusted curve number shall not reflect TV credit from the infiltration basin. The CN may be adjusted based on any-upstream Tier 1 practices, provided they are not explicitly modeled for exfiltration, which would result in a double-counting of runoff reduction.

The following required elements for infiltration practices should be highlighted in the modeling output when modeling is necessary:

- Exfiltration by constant velocity limited to 0.01 ft. above the floor of the practice OR by constant flow rate at all elevations by calculation from the infiltration rate and the bottom area of the practice (see example below).

Infiltration is typically modeled by selecting “Exfiltration” as the outlet control device and specifying “Discarded” as the routing option. Exfiltration can correctly be modeled using either a constant velocity (infiltration rate) over the surface area of the bottom of the practice or constant flow rate (product of infiltration rate and bottom area of practice). Both approaches are demonstrated below.

5.9.1 Constant Velocity Infiltration

This approach involves entering the field verified infiltration rate (with a safety factor of 2) into the model as the velocity term and limiting infiltration to a very small height (0.01 ft.) above the bottom elevation of the practice. This will restrict infiltration to the bottom of the practice only. If side slopes are to be considered, this height may be adjusted. If an infiltration basin has a bottom surface area of 2,000 sf, a bottom elevation of 2.00 ft. and an infiltration rate of 5.00 in/hr, the correct way of setting this up using HydroCAD modeling software would be as shown below.

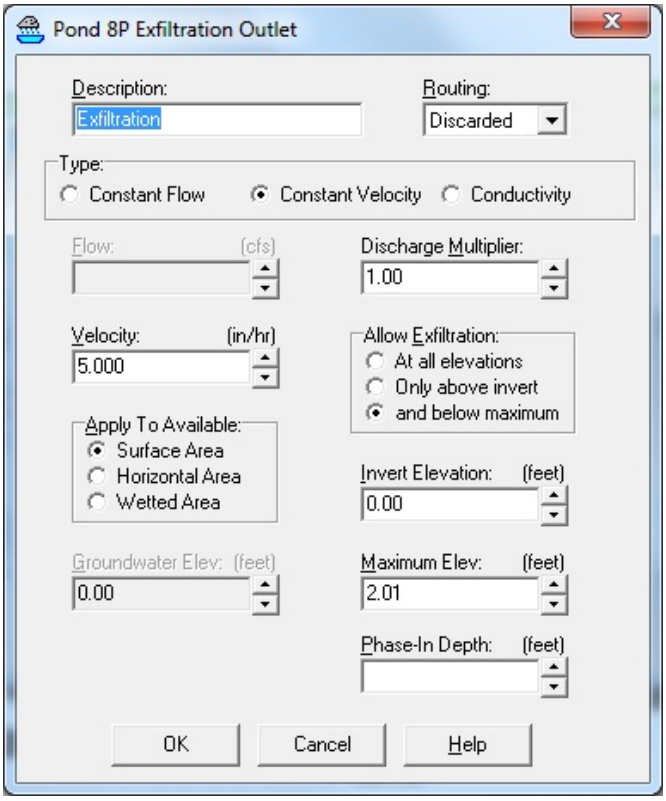


Figure 11: Exfiltration screen showing constant velocity exfiltration.

5.9.1 Constant Velocity Infiltration Cont'd

Note that although the bottom elevation of the basin is at 2.00 ft., the invert elevation is specified as 0.00 ft. This is because the model treats the invert elevation as an impervious layer, through which there is no infiltration. Because of this, the invert elevation specified on the infiltration screen must be less than the actual bottom elevation of the infiltration basin. In effect, it doesn't matter how much less; the invert elevation could be 1.99 ft. and the model will respond in the same manner as if it were 0.00 ft.

Specifying the invert elevation less than the bottom elevation of the basin allows for infiltration through the entire bottom surface area of the basin and specifying the maximum exfiltration elevation as 0.01 ft. above the bottom elevation of the basin minimizes exfiltration through the side slopes of the basin. The 2002 VSMM previously specified that only the bottom of the basin could be considered for infiltration area, which may be advisable and a conservative design approach, dependent on site and project specifics, however this may now be adjusted to consider infiltration through side slopes under the 2017 VSMM. The output summary for the example model is included below:

Inflow Area = 119,790 sf, 36.36% Impervious, Inflow Depth = 0.84" for 1-yr event
Inflow = 2.95 cfs @ 12.01 hrs, Volume= 8,415 cf
Outflow = 0.23 cfs @ 11.59 hrs, Volume= 8,415 cf, Atten= 92%, Lag= 0.0 min
Discarded = 0.23 cfs @ 11.59 hrs, Volume= 8,415 cf

Routing by Stor-Ind method, Time Span= 0.00-110.00 hrs, dt= 0.01 hrs
Peak Elev= 3.01' @ 12.72 hrs Surf.Area= 4,024 sf Storage= 3,048 cf

Plug-Flow detention time= 93.3 min calculated for 8,414 cf (100% of inflow)
Center-of-Mass det. time= 93.3 min (879.6 - 786.3)

Volume	Invert	Avail.Storage	Storage Description
#1	2.00'	15,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
2.00	2,000	0	0
3.00	4,000	3,000	3,000
4.00	6,000	5,000	8,000
5.00	8,000	7,000	15,000

Device	Routing	Invert	Outlet Devices
#1	Discarded	2.00'	**5.000 in/hr Exfiltration over Surface area below 2.01'**

Discarded OutFlow Max=0.23 cfs @ 11.59 hrs HW=2.03' (Free Discharge)
↑**1=Exfiltration** (Exfiltration Controls 0.23 cfs)

Figure 12: Pond summary sheet demonstrating constant velocity exfiltration. Items in red should be highlighted on the final output.

5.10 Modeling Open Channel Systems: Pretreatment and Conveyance Swales

When modeling is necessary to demonstrate design conformance with the Required Elements for Pre-Treatment Swales and Conveyance Swales (where applicable), the following should be highlighted in the modeling output:

- Peak velocity associated with the Water Quality Storm and the 1-year storm. Must be ≤ 1 fps for the Water Quality Storm and non-erosive for the 1-year storm.
- Minimum Travel Time (residence time) for the Water Quality Storm
- Channel Geometry (length, bottom width, side slopes)
- Flow Depth
- Manning's Number (varied with depth for different storm events)
- Longitudinal Slope
- Freeboard during 10-year storm (must be at least 6" during peak depth)

An example for a Pre-Treatment Swale is shown below.

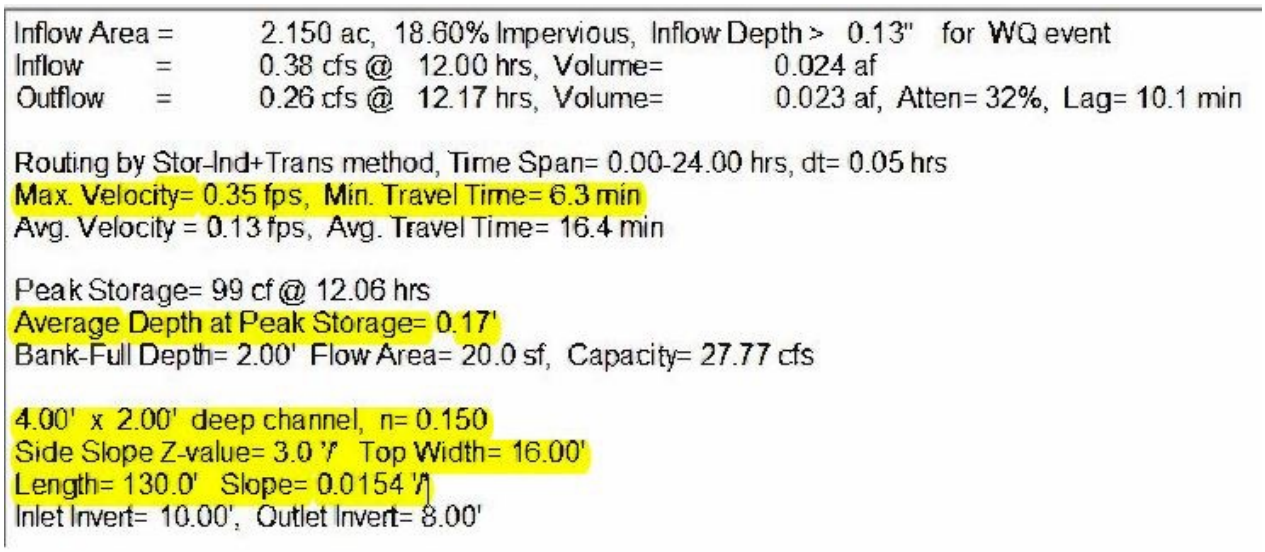


Figure 13: Reach summary sheet showing the conformance with the required elements of a Pre-Treatment Swale. Items highlighted are representative of required design elements, however may require other storm event modeling in addition to the WQ storm event.

6.0 Plan Sheet Content and Formatting Guidelines

Site plans and maps shall be drawn at an appropriate scale to clearly depict stormwater management design and details. Plans shall be compiled into a single distinct PDF called "YYYY-MM-DD_Plans". Upon revision of one or more sheets, plan preparers shall submit the entire plan set in its entirety (having updated the file name to represent the most recent date of revision or resubmission) marking individual pages that required revisions with the date of revision within the titleblock. Do not submit separate plan sheets.

Plan sets should generally be in the following order:

1. Existing Condition
2. Proposed Condition
3. Stormwater Construction Details
4. Annotated Maintenance Plan

In some instances, certain plan sheets may be combined as appropriate, dependent on size and scope of project. Existing condition and proposed conditions plans shall remain distinct plans.

Plan preparers shall ensure that legend items match displayed objects, that information is clearly interpreted when combining existing and proposed line work, and that PDF exports of plans contain no extraneous artifacts or unnecessary layers or objects when imported into a reader program (e.g. Adobe Acrobat, etc).

Plan preparers shall flatten or otherwise consolidate vector / layer information upon export to avoid submission of layers, bookmarks, and other remnants from drafting programs.

Plan preparers shall review their exported drawings prior to submission to ensure that the drawings adhere to all necessary requirements as outlined in this section, legibility and relevance of displayed information, and appropriateness of information presented prior to submitting for permit review. Plans depicting site elements or objects not directly associated with the permit being applied for (e.g. lighting, photometrics, furnishings, sanitary water or septic details etc) shall be scrubbed from the drawing set prior to submission.

Plan preparers shall fill out the appropriate plan set reference form available both on the Stormwater Website and through the district technical reviewer.

Although emphasis and graphical hierarchy may vary according to which plan is being viewed, all plan sheets must include the following drawing conventions, site characteristics, or other elements:

1. Legend
2. Scale bar
3. Compass/North arrow
4. Site Parcel boundary, and limits of disturbance / limits of work
5. Existing and or Proposed 2-ft contours (at minimum) on site, and in cases 20-ft contours (at minimum) off site
6. Existing contours shall be shown, when contrasted with or presented in tandem with proposed contours, in a graphic style and linetype distinct from the proposed contours.
7. Labeled discharge points and points of interest (if applicable)
8. Labeled locations or delineations of STPs including Pre-Treatment Practices
9. Subcatchment boundaries and labels that correspond with subcatchment/reach/pond names in the runoff modeling
10. Delineation of impervious types including treated new impervious, untreated new impervious, treated existing impervious, untreated existing impervious, redeveloped impervious and removed/reclaimed impervious
11. Time of concentration (Tc) information for each subcatchment (average catchment slope (Y) and hydraulic length (l)), or Tc path locations utilized as supported by attached calculations.
12. Dated plans including current revision dates (as applicable). Do not re-date plans in lieu of providing accurate revision dates on resubmittals.

Part 6 Plan Sheet Guidance

6.1 Plan Sheet Descriptions and Requirements

Existing conditions site plan

Depict all existing features and existing subwatershed delineations and Tc information utilized in modeling, discharge points and POI (if applicable). Generally, existing subwatersheds may be representative of the proposed subwatershed size and discharge point, so as to be able to compare like size areas for demonstration of compliance with the applicable standards. If subwatersheds are significantly modified from pre- to post-development conditions in area and drainage pattern, the Stormwater Program may require additional modeling or a modification to the application materials. This plan sheet shall include existing contours of the site, and as necessary to support drainage points and subcatchments. This plan sheet may include an overlay of the soil series and hydrologic soil groups. Infiltration evaluation and testing locations may be identified on this plan sheet or other site plans.

Proposed conditions site plans

Identify treated and or untreated existing impervious treated and or untreated redeveloped impervious, removed impervious, and treated and or untreated new (expanded) impervious clearly in the legend. Types of impervious shall be depicted for all surfaces within the LOD, and or draining to the practice. Label discharge points (and POIs) and all STPs and Pre-Treatment Practices that are utilized for treatment, including required disconnection areas, through delineated hatching or shading. Proposed conditions plans shall also depict post-development subwatershed delineations and Tc information utilized in modeling and all proposed contours. Drainage points watersheds and subcatchment watersheds shall be based on proposed contours and shall not be arbitrarily truncated. Identify access points for maintenance of STPs where necessary, unless identified on the Annotated Maintenance Plan. Identify areas that are subject to the Post-Construction Soil Depth and Quality Standard, including areas that will remain undisturbed and protected from compaction during construction, and verification testing locations. Multiple plan sheets may be necessary to provide the required information, and would be acceptable in order to ensure plan sheets depict the information at the appropriate scale and clarity.

Detail Sheet

Include details for all applicable Stormwater Treatment Practices (STPs) proposed by the project, or as previously approved for use on the project, including Pre-Treatment Practices, and disconnection details (if applicable) demonstrating adherence to the required design criteria including; practice cross sections, outlet structures with orifice sizing and placement (invert), barrel dimension, and all applicable design details. Also include typical details when and where practices requiring specific criteria will be utilized to meet applicable treatment standards. Other infrastructure utilized for detention and conveyance may also require details, including any proprietary infrastructure. Methods proposed for compliance with the Post-Construction Soil Depth and Quality Standard, along with notes for contractor shall be included as applicable. The detail sheet shall also include construction notes regarding phasing and routing of stormwater to sensitive practices such as infiltration practices prior to their completion, in order to minimize and prevent as necessary sediment impacts to infiltration practices or other practices that have completed construction.

Annotated Maintenance Plan

Include a plan sheet identifying all STPs, including Pre-Treatment Practices and disconnection areas, that are included in the stormwater treatment system design. For each practice, identify maintenance activities that should be regularly performed and specific conditions that indicate when maintenance is needed. Maintenance access locations and instructions may also be included as necessary. This plan is to aid the permittee in maintaining their stormwater practices and performing annual inspections, and should be organized and worded with them in mind.

Other plan sheets may be included if they are applicable to stormwater management.

Part 7 Impact Fees and Offsets

7.0 Impact Fees Reference

This guidance is offered in support of the information provided in 10 V.S.A. §1264, 22 of the Environmental Protection Rules: Stormwater Permitting Rule and Part 4 of General Permit 3-9050 (2020) for Operational Stormwater Discharges. There are three subsections of Part 3 of General Permit 3-9050 which outline specific stormwater treatment standards based on the project watershed.

The applicable subsection for a given project from Part 3 will determine the potential impact fees outlined in Part 4, when a project or site cannot fully meet the applicable treatment standards.

Section 3.1.A

Applies to discharges outside of the Lake Champlain and Lake Memphremagog watersheds and outside of stormwater impaired watersheds.

Section 3.1.B

Applies to discharges to stormwater-impaired waters that do not have an adopted TMDL or WQRP, as well as discharges of phosphorus to Lake Champlain and Lake Memphremagog or for discharges of phosphorus to a water that contributes to the impairment of Lake Champlain or Lake Memphremagog, for which there is not an adopted TMDL.

Section 3.1.B

Applies to discharges to stormwater-impaired waters that do not have an adopted TMDL or WQRP, as well as discharges of phosphorus to Lake Champlain and Lake Memphremagog or for discharges of phosphorus to a water that contributes to the impairment of Lake Champlain or Lake Memphremagog, for which there is not an adopted TMDL.

IMPORTANT:

Currently the phosphorus TMDLs for Lake Champlain and Lake Memphremagog are adopted and account for phosphorus inputs from stormwater and therefore the only receiving waters for which Section 3.1.B is applicable are those stormwater-impaired waters and contributing watersheds that do not have an adopted TMDL or WQRP.

Section 3.1.C

Applies to discharges to a stormwater-impaired water with an adopted TMDL or WQRP, or discharges to Lake Champlain or Lake Memphremagog for which a TMDL or WQRP has been adopted. This is applicable to most projects in the Lake Champlain and Lake Memphremagog watersheds, with the exception of stormwater impaired watersheds without an adopted TMDL, as noted above.

All jurisdictional new development, expansions, and redevelopment will need to satisfy the requirements of Vermont Stormwater Management Manual. For projects in category 3.1.B (see above) the discharge shall also not increase the pollutant load in the receiving water for stormwater. Demonstrating infiltration of the 1-year/24-hour storm event volume satisfies the no increase in pollutant load requirement. If this cannot be achieved the project applicant must pay impact fees, which are in addition to application processing fees, or they must provide an offset for the increased loading.

Each of the subsections in Part 3 also reference projects subject to Section 1.3.D. This is the section which outlines projects which are a “three acre site”. Three-acre sites that fall under subsection 3.1.B must meet the recharge, channel protection and water quality standard.

Three-acre sites (GP 3-9050 1.3.D) falling in to the categories outside of 3.1.B will be required to meet the redevelopment standard, with the exception of three acre sites discharging to a stormwater impaired watershed with an adopted TMDL, which will be required to maximize both the redevelopment standard and the channel protection standard, 50% water quality volume and 70% of the site channel protection, respectively.

7.0 Impact Fees Reference Cont'd

The ability to meet the applicable treatment standards above dictates whether impact fees apply to a project or site. The ability to exceed applicable treatment standards may also make a project or site eligible to receive impact fees. The Impact Fee calculations are outlined in Part 4.

Part 4 starts with a description of maximization, which outlines that a project or site must maximize the required treatment, and therefore cannot opt to pay impact fees in lieu of installing best management practices unless those BMPs will increase compliance with an applicable standard by a factor of 10% or less.

Additionally, Part 4outlines that the following activities are not required to maximize compliance:

- The purchase or acquisition of land for off-site treatment of stormwater;
- Removal of, or actions that would permanently preclude the use or operation of existing structures, utilities, roads, parking areas, sidewalks, and similar infrastructure;
- Site re-grading or site re-contouring that would permanently preclude the existing land use;
- Pumping of stormwater runoff;
- Infiltration where basement flooding or subsurface pollutant plume transport would occur based on a site-specific analysis identifying seasonal high-water table, soil-infiltrative capacity, and direction of groundwater flow;
- Construction that would not be in compliance with the Agency's "Flood Hazard Area and River Corridor Protection Procedure";
- Construction within any wetland or its 50-foot buffer zone, which shall not preclude implementation of passive reforestation within any wetland or buffer;
- Destruction of contiguous forested areas exceeding 5,000 square feet where such forested areas are to remain forested under the terms of a permit issued pursuant to this general permit; and
- Activities not approvable under local, state, and federal laws or regulations.

7.1 Fees and Calculations

Redevelopment Standard

$25,000 per acre of impervious surface multiplied by the difference between the required water quality volume and the average water quality volume achieved.

$25,000 * Impervious Area subject to requirement * [($WQv_{required(50\%)} - WQv_{achieved}$) / WQvTotal]

Water Quality Treatment

$25,000.00 per acre of impervious surface for which water quality treatment is required by the treatment standard but not achieved. For projects that must comply with the groundwater recharge standard, compliance with that standard shall be counted towards compliance with the water quality treatment standard. Discharges falling into the 3.1.B category (stormwater impaired waters without an adopted TMDL or discharging phosphorous to Lake Champlain or Lake Memphremagog without an adopted TMDL) must also have sufficient offset capacity within the watershed to allow for the loading.

*$25,000 * Impervious Area subject to requirement * [(WQv – $WQv_{achieved}$)/WQv]*

Channel Protection

$25,000.00 per acre of impervious surface for which channel protection is required by the treatment standard but not achieved.

*$25,000 * Impervious Area not meeting standard*

7.2 Receipt of Impact Fees

Certain projects outlined below with language from General Permit 3-9050 which will improve compliance with the applicable standard by at least 10% over existing conditions, are eligible for receipt of stormwater impact fees.

For projects that discharge to stormwater-impaired waters that do not have an approved TMDL or WQRP, as well as waters that discharge phosphorus to Lake Champlain and Lake Memphremagog or for discharges of phosphorus to a water that contributes to the impairment of Lake Champlain or Lake Memphremagog, for which there is not an approved TMDL (3.1.B) that comply with the water quality treatment or channel protection standards of the Vermont Stormwater Management Manual on 85% or more of a site shall be eligible to receive funds for the portions of the site exceeding 75% that are in compliance with the applicable standards.

Projects discharging to Lake Champlain and Lake Memphremagog or to a stormwater impaired watershed with an adopted TMDL are eligible as follows:

1. Projects required to meet the redevelopment standard that achieve 60% or more of the water quality volume shall be eligible to receive funds for the portions of the site exceeding the redevelopment standard;
2. Permit renewals that exceed the applicable standards shall be eligible to receive funds for the portions of the site exceeding the standards that are in compliance with the water quality treatment and channel protection standards;
3. Projects required to comply with the channel protection standard that do so on 85% or more of a site shall be eligible to receive funds for the portions of the site exceeding 75% that are in compliance with the channel protection standard

Projects in stormwater impaired waters or Lake Champlain or Lake Memphremagog or waters that contribute to the impairment of Lake Champlain or Lake Memphremagog not otherwise required to have permit coverage under Subpart 1.3 of General Permit 3-9050 that comply with the water quality treatment or channel protection standards of the Vermont Stormwater Management Manual on any portion of the site shall be eligible to receive funds for the portions of the site in compliance with the water quality treatment and channel protection standards

Redevelopment Standard Impact Fee Receipt Calculation

$\$25{,}000 * \text{Impervious Area} * [(WQv_{achieved} - WQv_{required(50\%)})/WQvTotal]$

Water Quality Standard Impact Fee Receipt Calculation

*$25,000 * Impervious Area in excess of requirement*

Channel Protection Standard Impact Fee Receipt Calculation

*$25,000 * Impervious Area in excess of requirement*

Offsets

Projects discharging to stormwater impaired watersheds without an adopted TMDL or for phosphorus discharges to Lake Champlain or Lake Memphremagog without an adopted TMDL or for which the Secretary determines the adopted TMDL does have adequate capacity for the discharge may be subject to providing an offset.

When an offset is required this can be accomplished by providing treatment greater than that required for the site as outlined above in the receipt of impact fee section. The offset must be created in the same watershed for which the project requiring an offset is located.

If an offset is being done to comply with the no increase in pollutant loading requirement, the applicant must provide modeling to demonstrate that the offset will provide adequate reduction in pollutant loading.

7.3 Simple Method Calculations

The Simple Method is used to estimate pollutant loading from stormwater runoff for urban and developing areas. Results of the pollutant loading calculations show the net increase or decrease in loading over pre-development or existing conditions and are used to determine the total pollutant load that must be offset.

The Stormwater Program has made available a spreadsheet for the purpose of calculation of pollutant loading which can be found here with other application materials. Specify each land use type and the pollutant concentration (C) value you chose to represent that use. Be sure to include a reference for where the C value was obtained and a reference for where the annual precipitation information was obtained. To the extent possible, specify uniform land use areas with individual C values as they will generate more accurate loading calculations. For example, identify the amount of parking, roads, lawns and rooftop along with their individual C values rather than using one C value for commercial or residential development. Include in the calculations what if any margin of safety was considered in the calculation. Designers are advised to consult with Stormwater Program staff on any questions related to characterization of existing or pre-development land use ahead of permit application submittal.

Chapter 8 of the New Hampshire Stormwater Manual provides a technical reference for pollutant loading calculations, including pollutant concentration values. .

This provides background on the simple method calculations and how they should be used in estimating pollutant loads from pre- and post-development conditions. HydroCAD also provides reference to New York's stormwater manual, the simple method and other published pollutant concentration values. .

Because values may differ slightly, designers should use appropriate best professional judgment and the source of the information when applying these values in their pollutant loading calculations.

Application Materials Page

NH Stormwater Manual

New York Stormwater

The final simple method calculations must identify between the pre- and post-development loading as well as call out the margin of safety used. Write a short summary of your findings in the Narrative document under a new heading called Pollutant Load Offset Calculations. After calculating pre and post development loads, please include the following information on a pollutant offset calculation sheet:

- Annual Pre-Development Pollutant Load: _____lbs.
- Annual Post-Development Pollutant Load: _____lbs.
- Post-Development Load Including Proposed Stormwater Treatment Practices (% reduction in pollutant loading for areas meeting Water Quality Treatment Standard dependent on practice): _____lbs.
- Margin of Safety ____
- Net Change in Annual Pollutant Load: ____ lbs.
- Percent Change: _____%

If runoff from the site can be infiltrated into up to the 1-year, 24-hour storm, that portion of the site can apply a 100% reduction in pollutant loading rather than the applicable % that is assigned for non-infiltrating stormwater treatment practices.

Appendix 1: Public Transportation Projects

A.1.1 Public Transportation Projects Application Format

The 2017 VSMM defines a Public Transportation Project as a state highway project, town highway project, or other public road project; or a linear public transportation project, such as a trail, bicycle path, or sidewalk project. Subchapter 6.0 of the 2017 VSMM categorizes three types of Public Transportation Projects, each for which application requirements and format will vary to some degree. These types include Redevelopment – Major Maintenance (Section 6.1.1.), Redevelopment with Expansion (Section 6.1.2.), and New Construction (Section 6.1.3.).

Like applications for other project types, a complete application is comprised of all the applicable application materials and payment for the applicable administrative review and application review fees. Similarly, these materials should be organized like other applications into 6 separate documents, saved individually as PDFs or spreadsheets.

In some cases, certain types of Public Transportation Projects may not require modeling, or other materials, which will be dependent on the specific project design and applicable design criteria and requirements found in Subchapter 6.0, based on site and project specific conditions. For more specific detail on preparation of certain application materials, designers are encouraged to review this entire document.

A payment shall be included for applicable administrative review and application review fees. If payment is made by check, it should be made payable to the State of Vermont. For projects which are programmed by the Vermont Agency of Transportation (VTrans) that have an active EA (expenditure account), a check should not be provided but rather the VTrans Environmental Services will coordinate an interagency transfer between VTrans and the VT DEC Financial Operations office. This option may also be available to other State of Vermont Agencies.

Please do not combine all of the application materials into a single file. Use the referenced format and file naming convention and content noted below. Please also note that, as shown below, different scenarios require different materials.

Redevelopment – Major Maintenance

1. eNOI (submitted directly via ANR Online) or NOI for INDS Application submitted via ANR Online intake form
2. YYYY-MM-DD_Narrative
3. YYYY-MM-DD_Workbooks
4. YYYY-MM-DD_Worksheets
5. YYYY-MM-DD_Modeling
6. YYYY-MM-DD_Plans
7. YYYY-MM-DD_Plan Set Reference
8. Applicant signature page

eNOI

- Applications submitted under General Permit 3-9050 will use the eNOI through ANR Online. Applications submitted for Individual Permit coverage will submit a PDF of the NOI via the ANR Online generic submittal page.

Narrative

- The project narrative – prepared in accordance with Narrative Template which may be adapted accordingly for Public Transportation Projects and applicable requirements.
- Location map – showing the outline of the site, the discharge point(s) and the location of the receiving water(s) on a topographical map.
- Soils map – prepared from the NRCS online Web Soil Survey or the soils data may be overlaid on the existing conditions plan sheet or other plan sheet.

Appendix 1: Public Transportation Projects

A.1.1 Public Transportation Projects Application Format Cont'd

Workbooks

1. Public Transportation Workbook
   - Project Classification Tool
   - Design Worksheet 6.1.1. tab, completed project-wide.
2. STP Selection Tool
   - The STP Selection Tool will be completed for Redevelopment – Major Maintenance projects that are incorporating STPs where practicable, per the requirements of Subchapter 6.0.
   - Written justification for the use of Tier 3 Practices (if applicable)

Worksheets

- Post-Construction Soil Depth and Quality Worksheet
- STP Worksheets for each STP (if applicable)

Where applicable, STP Worksheets should be organized by discharge point. Include section breaks between discharge points.

Modeling

- If applicable, hydrologic modeling should be included for all pertinent rainfall events. See the Modeling section of this document for specific instructions. Modeling may not be required for all Redevelopment – Major Maintenance projects, particularly in cases where additional STPs are not practicable or where STPs are volumetrically sized based on Water Quality volume (WQv) only.

Plans

- Complete plan set including existing condition site plan, proposed condition site plan, detail sheet for all proposed STPs, and any proposed practices or site modifications that will be used to improve pre-existing stormwater runoff conditions, including notes as applicable. An annotated maintenance plan will be required for projects that are not subject to other routine inspection maintenance schedule as part of required transportation infrastructure oversight, specifically through MS4 or TS4 permit conditions.

Plans Set Reference

- The plan set reference form is required for all projects submitting plans. The plans will be listed in the following format: Sheet #, "Title", dated MM/DD/YYYY, last revised MM/DD/YYYY.

Appendix 1: Public Transportation Projects

A.1.1 Public Transportation Projects Application Format Cont'd

Redevelopment with Expansion

1. eNOI (submitted directly via ANR Online) or NOI for INDS Application submitted via ANR Online intake form
2. YYYY-MM-DD_Narrative
3. YYYY-MM-DD_Workbooks
4. YYYY-MM-DD_Worksheets
5. YYYY-MM-DD_Modeling
6. YYYY-MM-DD_Plans
7. YYYY-MM-DD_Plan Set Reference
8. Applicant signature page

eNOI

- Applications submitted under General Permit 3-9050 will use the eNOI through ANR Online. Applications submitted for Individual Permit coverage will submit a PDF of the NOI via the ANR Online generic submittal page.

Narrative

- The project narrative – prepared in accordance with Narrative Template which may be adapted accordingly for Public Transportation Projects and applicable requirements.
- Location map – showing the outline of the site, the discharge point(s) and the location of the receiving water(s) on a topographical map.
- Soils map – prepared from the NRCS online Web Soil Survey or the soils data may be overlaid on the existing conditions plan sheet or other plan sheet.

Workbooks

1. Public Transportation Workbook
   - Project Classification Tool
   - Design Worksheet 6.1.2., each tab completed individually for each point of interest/discharge point on the project.
2. STP Selection Tool
   - The STP Selection Tool will be completed for Redevelopment with Expansion project individually for each discharge point/point of interest that will include STPs for meeting the applicable Treatment Standards, per the requirements of Subchapter 6.0.
3. Standards Compliance Workbook
   - The Standards Compliance Workbook will be completed for Redevelopment with Expansion projects where the net increase in impervious surface exceeds 1 acre discharging to any one receiving water, per the requirements of Subchapter 6.0.
   - Written justification for the use of Tier 3 Practices (if applicable)

Worksheets

1. Post-Construction Soil Depth and Quality Worksheet
   - STP Worksheets for each STP
2. STP Worksheets should be organized by discharge point. Include section breaks between discharge points

Modeling

- If applicable, hydrologic modeling should be included for all pertinent rainfall events. See the Modeling section of this document for specific instructions. Modeling may not be required for all Redevelopment with Expansion projects, particularly in cases where STPs are volumetrically sized based on Water Quality volume (WQv) only.

Appendix 1: Public Transportation Projects

A.1.1 Public Transportation Projects Application Format Cont'd

Plans

- Complete plan set including existing condition site plan, proposed condition site plan, detail sheet for all proposed STPs, and any proposed practices or site modifications that will be used to improve pre-existing stormwater runoff conditions, including notes as applicable. An annotated maintenance plan will be required for projects that are not subject to other routine inspection maintenance schedule as part of required transportation infrastructure oversight, as would be included specifically through MS4 or TS4 permit conditions.

Plan Set Reference

- The plan set reference form is required for all projects submitting plans. The plans will be listed in the following format: Sheet #, "Title", dated MM/DD/YYYY, last revised MM/DD/YYYY.

New Construction

Public Transportation Projects that are considered to be New Construction, per Subchapter 6.1.3. of the 2017 VSMM, are subject to the full suite of stormwater treatment standards, as applicable, set forth in Subchapter 2.0 of 2017 VSMM. For Public Transportation Projects that are considered to be New Construction designers shall refer to Part 1.1 of this document for applicable format and required application materials.

A.1.2 Public Transportation Workbook

The Public Transportation Workbook is designed to guide designers of these specific types of project through the applicable Standards in the 2017 Vermont Stormwater Management Manual, in consideration of the type of Public Transportation Project, specifically applicable for Redevelopment – Major Maintenance and Redevelopment with Expansion. Public Transportation Projects that are categorized as New Construction do not complete this workbook and must follow the standard application instructions at the front of this document.

For designers familiar with stormwater permit application submittal under the workbooks replace the need for Schedule A's, WQV and ReV worksheets. Designers should ensure that the information provided in the workbook is consistent with the impervious surface included for permit coverage on the NOI and the STP Worksheets, where applicable.

The workbook is generally comprised of three parts, addressed through several tabs within the Excel Spreadsheet:

1. A Project Classification Tool
   - This first tab allows for a designer to classify the type of Public Transportation Project; Redevelopment – Major Maintenance, Redevelopment with Expansion, or New Construction.
2. Design Worksheet tab and Justification tab for Redevelopment – Major Maintenance (VSMM Section 6.1.1) projects.
3. Design Worksheet tabs and Justification tabs for Redevelopment with Expansion (VSMM Section 6.1.2) projects.

IMPORTANT:

In cases where a Public Transportation Project involves a net increase in impervious surface of 1 acre or more to any one receiving water, the Standards Compliance Workbook will also be required for completion for full assessment of applicable Standards. In cases where tributaries contribute to a single receiving water, the designer shall evaluate what standards are applicable in consideration of the cumulative net increase in impervious surface contributing to the receiving water.

Appendix 2: Amendments to Existing Stormwater Discharge Permits

A.2 Amendments General Overview

Projects that propose modification or expansion of previously permitted impervious surfaces will often require a permit amendment. In advance of application submittal, designers are encouraged to discuss with Stormwater Program staff whether an amendment to the existing permit is the most efficient and acceptable path forward. There are also different categories of permit amendments, that have direct bearing on the types of changes permittable, application materials, and the public notice requirements.

Changes such as those made to correct an administrative or typographical error may qualify as an Administrative Amendment.

Other changes to existing permits would be considered through a Minor Amendment or Major Amendment. The differences amongst the categories of amendments as they pertain to Operational Stormwater Permits are explained in greater detail below.

Public noticing requirements for these three categories of amendments is established in statute, specifically under 10 V.S.A. Chapter 170. Furthermore, the terms Administrative Amendment, Minor Amendment, and Major Amendment are all defined in this statute.

Administrative Amendments

An administrative or typographical error may be corrected through an Administrative Amendment, and may be requested and completed rather simply, without a new application, without fee, and without public notice. This could also include mailing address changes, and changes to a permittee's name. However, a request to transfer a permit to a new owner or operator is not considered an Administrative Amendment. The Department may also initiate the Administrative Amendment of a permit if an administrative or typographical error is identified by the Department following permit issuance. In all cases, the Department will issue a new permit to the permittee with a new permit number inclusive of the correction made.

Process: If a permittee would like to request that an administrative or typographical error be corrected in their permit, they may submit a request for permit correction through Administrative Amendment to the Department's Stormwater Program in writing, either by email or by letter. The request should identify the error that requires correction.

Minor Amendments

Certain types of project changes may be captured through a Minor Amendment. A Minor Amendment means an amendment to an individual permit or notice of intent under a general permit that requires a change in a condition , requirement, or configuration of the site, does not necessitate technical review, and is not an administrative amendment. The Stormwater Program has further identified the types of changes that would be allowable, given they generally do not necessitate a new technical review.

These changes include the following:

- Updates to the approved project design and plan set reference, due to a shift in location of previously permitted project impervious surface, a shift in location of stormwater infrastructure, including shape or configuration of stormwater treatment practices, provided there is no reduction in sizing, or change in specified type of treatment/ control.
- Updates to written manner of discharge, provided the type and nature of stormwater treatment and control is not changing, and the location of the discharge point is not substantially changing.
- Expansions of impervious surface of less than 0.01 acres of impervious surface, provided multiple cumulative expansions of less than 0.01 are not proposed, such that the total expansion will exceed 0.01 acres.
- Decreases in the amount of impervious surface covered by the permit.

Appendix 2: Amendments to Existing Stormwater Discharge Permits

A.2 Amendments General Overview Cont'd

Process

- While Minor Amendments are subject to public noticing requirements, the application fee and the amount of materials submitted with the application are substantially less. If a permittee would like to request a Minor Amendment of an existing permit, the permittee shall submit:
- A NOI or INDS application form, as applicable to the type of permit for amendment.
    - The application form shall identify all project plans and all written manners of discharge that remain applicable to the project. This information shall also be updated to capture any changes.
- Cover letter/narrative that in detail identifies the type and nature of change seeking amendment.
- If applicable, complete plan set, with applicable revision dates, submitted as the entire Attachment file.
- If applicable, updated application materials, specific to the change. When a change is made to a particular application Attachment, the entire Attachment file shall be included, with the updated information clearly identified.
- Applicable administrative processing fee as identified on the application form.

Major Amendment

Certain types of project changes must be captured through a Major Amendment. A Major Amendment means an amendment to an individual permit or notice of intent under a general permit that necessitates technical review. The Stormwater Program has further identified the specific types of changes that would be required to seek a Major Amendment. These changes include the following:

- Updates to the approved project design and plan set reference, due to a shift in the location of previously permitted project impervious surface, when the shift will significantly affect site drainage features, drainage area size, or will necessitate sizing changes to the previously permitted stormwater treatment and control practices.
- Changes in the type or nature of stormwater treatment or control. Changes in the type or nature of treatment or control likely requires a design to the 2017 Vermont Stormwater Management Manual, subject to Stormwater Program review. Designers seeking to change the type or nature of treatment or control are encouraged to contact Stormwater Program staff in advance of application submittal.
- Updates to written manner of discharge, due to a substantial change to the location of the discharge point.
- New impervious surface, including expansions of impervious surface, when greater than or equal to 0.01 or more acres of impervious surface, in consideration of any proposed cumulative expansions at the previously permitted site.
- Redevelopment of 1 acre or more of impervious surface at the previously permitted site.
- Designers are urged to contact District Staff prior to considering an amended project design under the 2002 VSMM design standards.

Process

Major Amendments are subject to public noticing requirements, and the process is similar to that of a new permit application. If a permittee would like to request a Major Amendment of an existing permit, the permittee shall submit:

- A standard NOI or INDS application form, as applicable to the type of permit for amendment. The application form will allow the applicant to identify that the application is for an amendment of an existing permit.

The application form shall identify:

- All project plans and all written manners of discharge that remain applicable to the project. This information shall also be updated to capture any changes.
- All impervious surfaces in total for permit coverage, including previously permitted, new/expansions, redevelopment, and if applicable, any existing unpermitted surfaces for which an applicant is seeking new permit coverage.

Appendix 2: Amendments to Existing Stormwater Discharge Permits

A.2 Amendments General Overview Cont'd

In addition to the NOI or INDS application form, a Major Amendment application shall include all of the Attachments listed below. However, the Narrative, Workbook, Worksheets, and Modeling may be limited to and specific to the subcatchment or drainage area which is the subject of the amendment. Designers may opt to replace all materials applicable to the project site when able. The Plans attachment must include plans applicable to the current project and all previously approved plans that remain applicable, regardless of the original designer of those plans. The plan set in total shall be bundled together into a single document. Previously approved plans and the existing permit file may be requested from the Department's Stormwater Program.

Amendment Application Format

1. eNOI (or NOI for INDS Application submitted via ANR Online intake form)
2. YYYY-MM-DD - Narrative
3. YYYY-MM-DD - Workbooks
4. YYYY-MM-DD - Worksheets
5. YYYY-MM-DD - Modeling
6. YYYY-MM-DD – Plans

For a complete description of the above submittal requirements and instructions, designers shall refer to Parts 1 through 6 of this document. Additional considerations specific to Major Amendment applications follow.

Common Plans of Development

If any proposed expansions or redeveloped impervious surfaces will utilize a previously permitted treatment system, the existing permit will require amendment. This is often the case where a larger common plan of development exists as does existing stormwater treatment. If the expansion or redevelopment will be managed separately, then the applicant may choose to apply for a separate new permit that only covers the new project. The total resulting impervious from the entire common plan may still affect the jurisdictional threshold for permit requirements and may impact waiver eligibility for the Channel Protection, Overbank Flood Protection, and Extreme Flood Protection Standards, even if the new project is to be covered under a separate permit from the larger common plan.

A.2.1 Water Quality Practice Selection / Use of Existing Stormwater Treatment Practices

Designers must refer to the 2017 VSMM, Section 2.2.4.1. when considering what practices will be used to meet the applicable Water Quality Treatment Standard (WQTS). Designers must first consider the use of higher performing practices, starting with Tier 1 Practices, prior to considering use of a Tier 2, or Tier 3 Practice which may be a pre-existing and previously permitted STP on the site. In addition, 2002 VSMM stormwater treatment practices (STPs) that are no longer considered acceptable STPs in the 2017 VSMM, such as grass channels and wet swales, are not eligible for use under the 2017 VSMM to meet the WQTS. Use of an existing 2002 VSMM STP may require written justification as part of an amendment application, in the STP Selection Tool Workbook, similar to new permit applications.

A.2.2 Application Format – Amendments to Existing Stormwater Discharge Permits

Like standard applications, a complete Major Amendment application is comprised of all the applicable application materials and payment of the applicable administrative review and application review fees. An amendment application often only affects a portion of the project site, in which case new materials and forms need only be submitted for those portions of the project that are being revised under the amendment. All previously permitted plans that remain relevant to the project site must be bundled together with the Attachment 6 – Plans document. This ensures that the Department will have a complete plan record for the amended permit. In some cases, these plans may have been initially prepared and submitted by a different designer., In advance of Major Amendment application submittal, the designer may contact the Stormwater Program to request an electronic copy of the previously authorized application materials and any additional information as necessary.

Appendix 2: Amendments to Existing Stormwater Discharge Permits

A.2.2 Application Format – Amendments to Existing Stormwater Discharge Permits

Payment shall be included for applicable application fees. Checks should be made payable to the State of Vermont. The degree and type of change may also affect the applicable application review fee. Typically, any increase in impervious or change to treatment or discharge for specified impervious area will be subject to application review fee, but otherwise previously permitted surfaces would not typically be subject to new application review fee when the previously issued permit remains valid. Designers are encouraged to contact Stormwater Program district staff with any questions regarding application review fees.

Note: Please do not combine all the application materials into a single file. Use the referenced format and file naming convention noted in previous sections.

Appendix 3: ANR Online Instructions for Compliance Report Submittals

ANR Online - User Creation / Login Procedure / Stormwater Compliance Form Search

The following instructions should help you through the process of submitting your Stormwater Permit Compliance Forms. This includes the Designer's Initial Statement of Compliance, Designer's Restatement of Compliance, and Annual Inspection Report. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

If you have any questions related to completing the compliance forms, please contact the Stormwater Program at anr.wsmdstormwatergeneral@vermont.gov or 802-490-6110. If you have questions or issues related to the ANR Online system, please contact the ANR Online support staff at ANR.OnlineServices@vermont.gov.

Creating a User Account

- In order to access forms in ANR Online (https://anronline.vermont.gov), you need to have an account in the website. The first time you use ANR Online you will need to register to create an account. Follow these steps to create an account:

1. Click on the Register button in the menu bar



2. The Create User Profile page will open, complete the user profile form. Fields marked with a red asterisk * are required. After entering your mailing address, click the Validate Address button and then click the Save button. If the address validation fails you can still click the Save button to create your account.
3. Once you save your User Profile, the system will send you an email that includes a link. You need to click that link to activate your account. If after a few minutes you have not received the email, check your junk mail folder. If the message is not there, contact the ANR Online Administrator at ANR.OnlineServices@vermont.gov.

Signing In

Once you have activated your account you can Sign In. To sign in to ANR Online:

1. Click the Sign In button in the top menu bar.

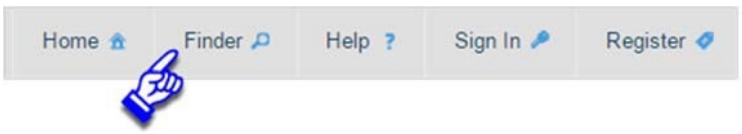


2. In the Sign In window, enter your User ID (this is your account email address) and your password (the password you entered when creating your account) and click the OK button.

Finding and Completing a Stormwater Compliance Form

Once you sign in, the easiest way to find the form you want to complete is to use the site's Form Finder tool. To use the Form Finder:

1. Click the Finder button in the top menu bar.



2. Enter the name of the form if you know it. Otherwise, enter a word or phrase that describes the topic associated with the form (i.e. stormwater). The system will begin trying to find a match for what you type after you have entered the third character.

Appendix 3: ANR Online Instructions for Compliance Report Submittals

ANR Online - User Creation / Login Procedure / Stormwater Compliance Form Search

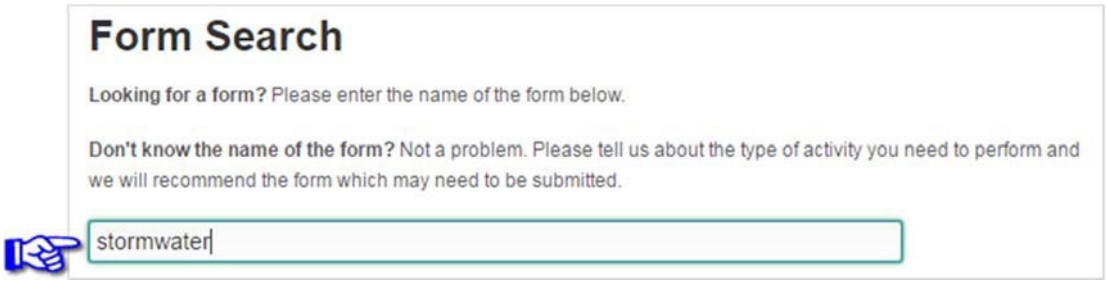
Finding and Completing a Stormwater Compliance Form

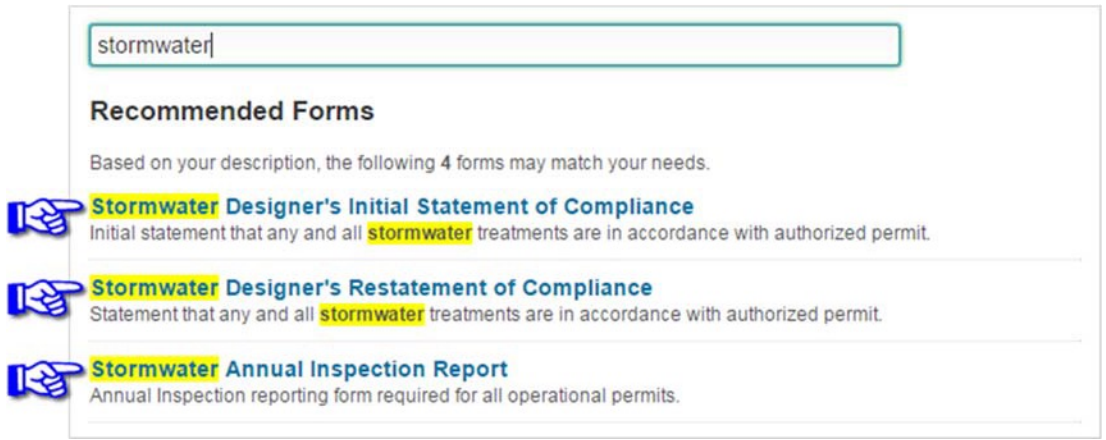
- Once you sign in, the easiest way to find the form you want to complete is to use the site's Form Finder tool. To use the Form Finder

1. Click on the Finder button in the menu bar

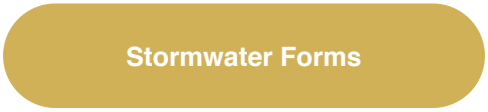


2. Enter the name of the form if you know it. Otherwise, enter a word or phrase that describes the topic associated with the form (i.e. stormwater). The system will begin trying to find a match for what you type after you have entered the third character. A list of recommended forms will be displayed below the search box under Recommended Forms. Click the link to the form you want to complete.





3. Clicking the blue link will take you to the form's landing page.

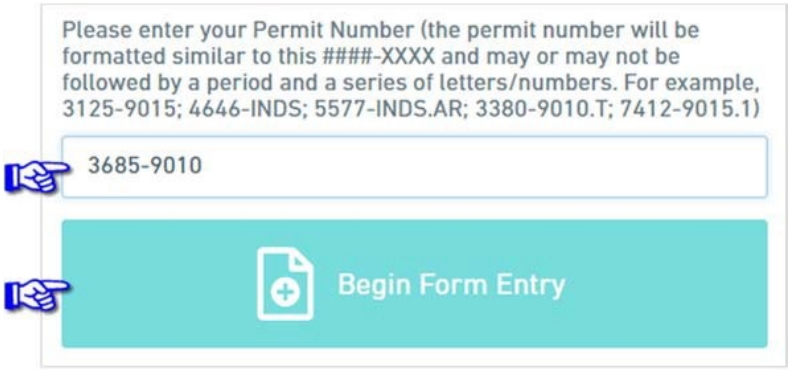


Appendix 3: ANR Online Instructions for Compliance Report Submittals

Completing a Form

When you click a link to access one of the Stormwater compliance forms, you will be taken to the form's landing page. This page includes general information/instructions for the form and contact information for the Stormwater Program.

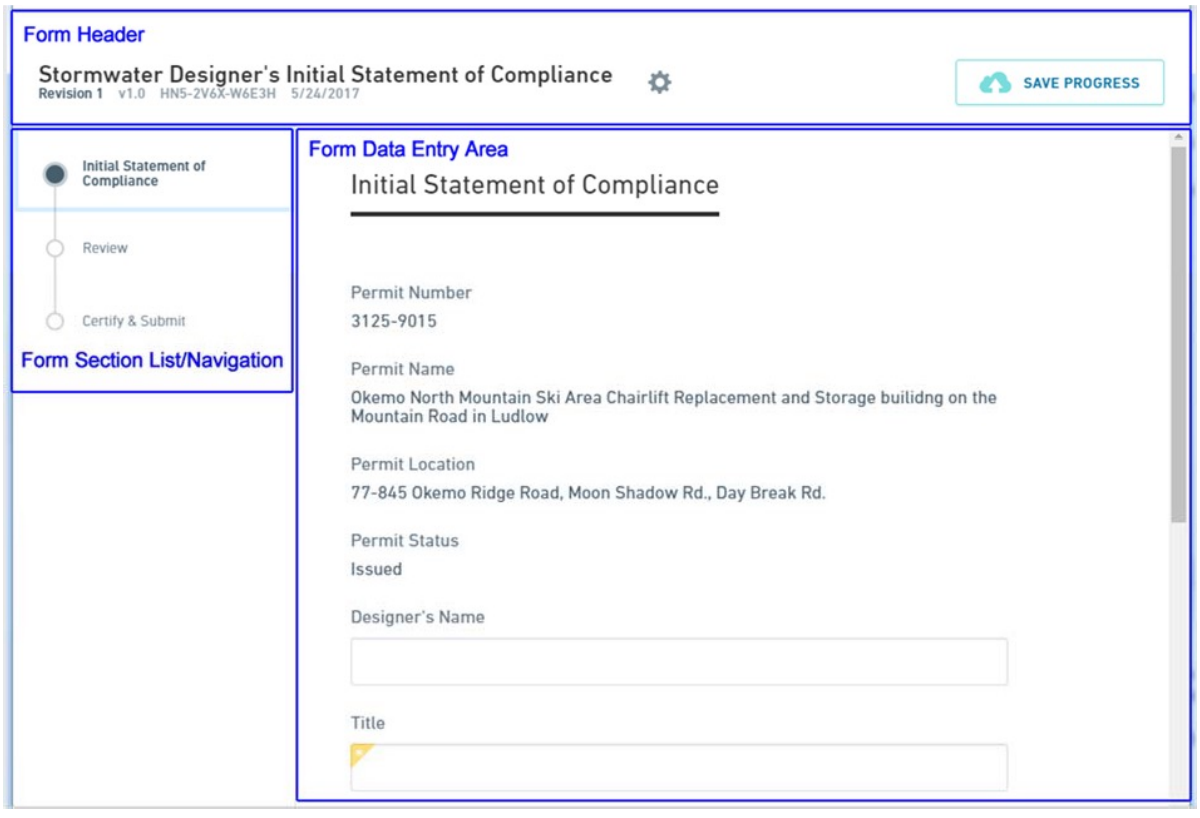
To access the form and begin filling it out, scroll down to the bottom of the page and enter your Permit Number (in the format described below) and then click the Begin Form Entry button. The form will open and will include some prefilled information based on the Permit Number you entered. Your permit number will be indicated at the top of your issued permit. If you do not know what your permit number is, refer to the Environmental Research Tool



Environmental Research Tool

Form Layout and Navigation

Forms in ANR Online are divided into three areas. Those are the Form Header, the Form Section List/Navigation, and the Data Entry area as shown in the figure below.



Appendix 3: ANR Online Instructions for Compliance Report Submittals

Form Header



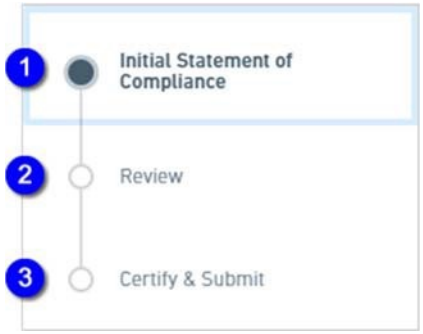
Header Content

- The Form Header includes the following items:

1. The name of the submission (by default this is the form name, you can change this to anything you want, see Renaming Your Submissions below).
2. The revision number of the submission you are currently working on. Forms that you have submitted in ANR Online can be revised and resubmitted if you need to make a change after you submit your form. The first submission is identified as “Revision 1”, subsequent revisions will have the same “Submission Number” (see item 4 below) but will be identified as “Revision 2”, “Revision 3”, etc.
3. The current published version of the form you are filling out. This number will change over time as ANR makes changes to the form and publish updated versions.
4. The unique Submission Number the ANR Online system generates for each new submission created. This number is often used as a reference to identify a specific submission in the ANR Online system. As mentioned in item 2 above, the Submission Number will not change if you create a revision to a previous submission.
5. The date the submission was created.
6. The Tools menu. There are currently two functions that you can access by clicking this button; you can use the “Delete Draft” function to delete the submission you are currently working on and you can use the “Manage Shared Access” feature to share the submission with other users of ANR Online.
7. Clicking the “Save Progress” button will save the current state of your submission in case you need to leave it before its complete and return to it at a later time. The system also saves your work automatically as you move through the form. An indication of when your work was last saved will be displayed in text above the button.

Form Section / Navigation List

Header Content



- The Form Section List/Navigation area (left column) lists all of the sections and steps included in the form completion and submission process. You can use this area to move to the different sections or steps in the form by just clicking on the one you want to move to. The example on the right includes the following sections and steps:

1. This form includes only one section and that section is titled “Initial Statement of Compliance”
2. “Review” is not a section, it is a step in the submission process. Most, but not all, ANR Online forms include this review step. It is provided as an opportunity to review all of the information you entered in all of a form’s sections on a single screen before proceeding to the Certify & Submit step.
3. The “Certify & Submit” step is the final step in the process and is where you actually submit the form.

Appendix 3: ANR Online Instructions for Compliance Report Submittals

Form Section / Navigation List Cont'd

The Form Section List/Navigation area also will indicate of whether all of the required fields have been completed. When you leave a section, if there are required fields that are missing data, the section title will turn red and there will be a red circle with an "X" in it displayed. Once you return to that section and fill in the missing data, the section title will turn green and a check will be displayed indicating the all required fields are complete.



Form Data Entry Area

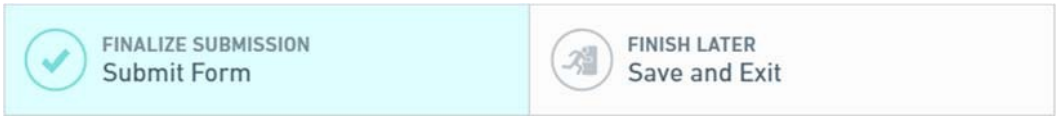
The Form Data Entry area is where you will be entering your data. Depending on the form you are filling out, some of the data on the form may be prefilled for you. This data may be editable or it may be read-only.

Any required fields in a section will be marked with this symbol in the left corner of the field.

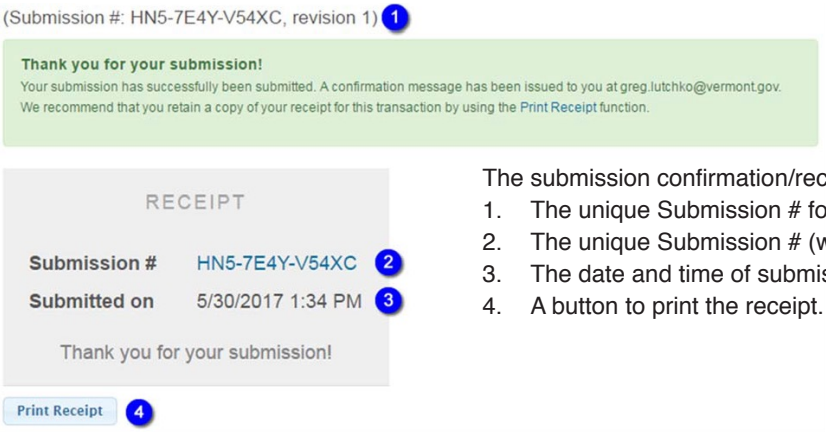
You must complete all fields before being able to submit the form. You will know when these sections are complete by seeing a green check, as mentioned above. In addition to being able to navigate through the sections/steps of the form using the form section list/navigation area, there are also buttons at the bottom and top of each section that you can click to move to the next or previous section/step of the form. Those buttons look like this:



Once you finish entering data in all of the form's sections you will move to the Review step. Review the information that you have entered in the form. If you need to make any changes, use the Previous Section button or the Form Section List/Navigation area to move back to the section/field you need to change, otherwise, proceed to the Certify & Submit step. Once in the Certify & Submit step, if you are ready to submit the form, click the Submit Form button. If you are not ready to submit the form, click the Save and Exit button and your work will be saved to work on later.



Once you click the Submit Form button you will be taken to a submission confirmation/receipt page. It is recommended that you click the Print Receipt button to either print or save a copy of this confirmation page for your records.



The submission confirmation/receipt page includes the following information:

1. The unique Submission # for the submission, including the revision number.
2. The unique Submission # (without the revision number).
3. The date and time of submission.
4. A button to print the receipt.

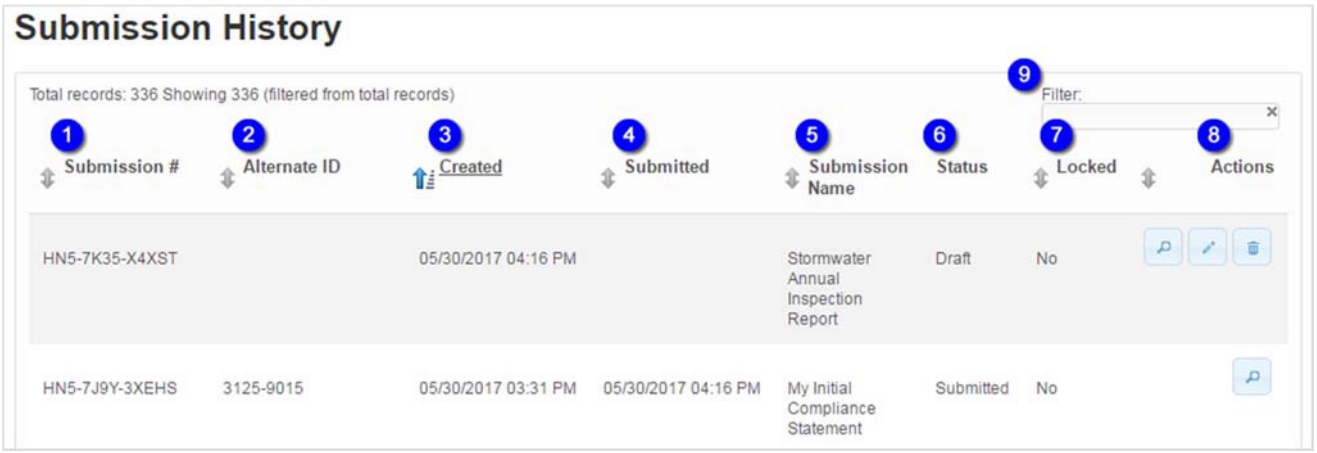
Appendix 3: ANR Online Instructions for Compliance Report Submittals

Managing Your Submission

Submission History

All of your draft and completed submissions are available in your History. To access your History, Sign In to ANR Online and then click on the History button in the top menu bar. The History includes the following items and features:

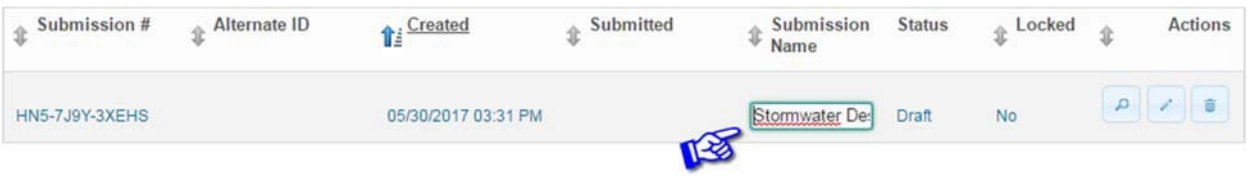
1. The Submission # column displays the unique submission identifier assigned by the system.
2. The Alternate ID column displays a value that can be used to identify your submission. For the Stormwater Compliance forms this value is your Permit Number. This value is only displayed after the form is submitted.
3. The date and time the submission was created.
4. The date and time the submission was submitted.
5. The name of the submission (this can be changed, see Renaming Your Submissions below).
6. The current Status of your submission in the system. This status will change as your submission is processed.
7. The Locked status of your submission. We sometimes lock a submission to prevent the submitter from making changes to it while we are reviewing it.
8. The Actions column may contain as many as three buttons depending on the current status of the submission. While your submission has a Status of “Draft”, there are three buttons available, View, Edit, and Remove. Once its submitted there will only be a View button.
9. The Filter feature can be used to filter the submissions displayed in your History list. You can filter on any of the information displayed in the History table.



Renaming Your Submission

By default, the system gives your submission the same name as the form you are filling out. It’s helpful to give your submission a more specific name so you can more easily distinguish it from other submissions in your list, especially as the number of submissions in your list grows. To change the name of a submission, follow these steps:

1. Go to your History.
2. Find the submission you want to change the name of in your History list.
3. Click on the Submission Name for the submission, that will turn it into an editable field.
4. Type the new name for the submission.
5. Click outside of the Submission Name field and the new name will be saved



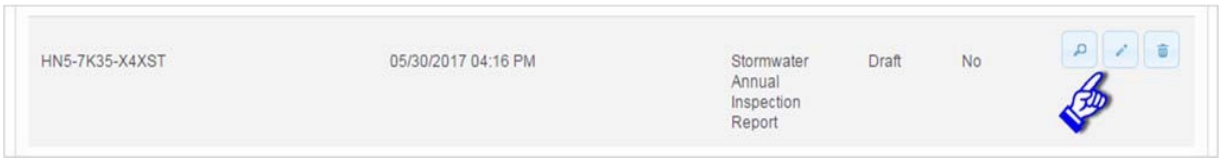
Appendix 3: ANR Online Instructions for Compliance Report Submittals

Managing Your Submission Cont'd

Editing a Draft Submission

The system allows you to partially complete a submission and return to it at a later time to complete and submit it. To return to a previously started submission:

1. Go to your history
2. Find the submission you want to edit and click the edit button, the one that looks like a pencil.



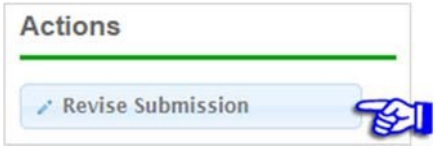
Revising and Resubmitting

If you need to make changes to something you have already submitted, the system has a Revise Submission feature that is used to do that. To revise a submission:

1. Go to your history
2. Find the submission you want to edit and click the edit button, the one that looks like a pencil.
3. Click on the View button, the one that looks like a magnifying glass, in the Actions column for the submission.



4. The Submission View page will open. Click on the Revise Submission button in the Actions menu on the left.



5. You will be asked to confirm that you want to create a revision, click OK.
6. A revised submission will open. The revision will have the same Submission # as the original but will have a different revision number. The revision will include all of the data and any attachments you included in the initial submission.

Deleting a Draft Submission

If you want to delete a draft submission that you do not need from your History list:

1. Go to your History.
2. Find the draft submission you want to delete.
3. Click Remove, the one that looks like a trash can, in the Actions column right of the submission.

Appendix 4: Stormwater Treatment Practice Volume Calculations

Appendix C. Stormwater Treatment Practice Types & Storage Volume Equations

Table C-1. Stormwater treatment practice type storage volume equations. Table adapted from Tetra Tech (2016).

STP Type	Description	STP Calculator Curve	Method for Calculating Design Storage Volume (DSV)
Infiltration Trench	Provides storage of runoff using the void spaces within the soil/sand/gravel mixture within the trench for infiltration into the surrounding soils.	Infiltration Trench	DSV = void space volumes of stone and sand layers DSV = (A_{trench} x D_{stone} x n_{stone})+ (A_{trench} x D_{sand} x n_{sand}) n = 0.33
Subsurface Infiltration	Provides storage of runoff using the combination of storage structures and void spaces within the washed stone within the system for infiltration into the surrounding soils.	Infiltration Trench	DSV = storage volume of storage units and void space of backfill materials. Example for subsurface galleys backfilled with washed stone: DSV = (L x W x D)$_{galley}$ + ($A_{backfill}$ x D_{stone} x n_{gravel}) n_{gravel} = 0.33
Surface Infiltration	Provides storage of runoff through surface ponding (e.g., basin or swale) for subsequent infiltration into the underlying soils.	Surface Infiltration	DSV = volume of storage structure before bypass. Example for linear trapezoidal vegetated swale. DSV = (L x ((W_{bottom}+$W_{top@Dmax}$)/2) x D)
Rain Garden/ Bioretention (no underdrains)	Provides storage of runoff through surface ponding and possibly void spaces within the soil/sand/washed stone mixture that is used to filter runoff prior to infiltration into underlying soils.	Surface Infiltration	DSV = Ponding water storage volume and void space volumes of soil filter media. Example for raingarden: DSV = (A_{pond} x D_{pond}) + (A_{soil} x D_{soil} x $n_{soil\ mix}$) $n_{soil\ mix}$ = 0.33
Rain Garden/ Bioretention (w/underdrain)	Provides storage of runoff by filtering through an engineered soil media. The storage capacity includes void spaces in the filter media and temporary ponding at the surface. After runoff passes through the filter media it discharges through an under-drain pipe.	Bioretention	DSV = Ponding water storage volume and void space volume of soil filter media. DSV = (A_{bed} x $D_{ponding}$) + (A_{bed} x D_{soil} x n_{soil}) n_{soil} = 0.33
Gravel Wetland	Provides surface storage of runoff in a wetland cell that is routed to an underlying saturated gravel internal storage reservoir (ISR). Outflow is controlled by an orifice that has its invert elevation equal to the top of the ISR layer and provides retention of at least 24 hrs.	Gravel Wetland	DSV = pretreatment volume + ponding volume + void space volume of gravel ISR. DSV = ($A_{pretreatment}$ x $D_{Pretreatment}$) + ($A_{wetland}$ x $D_{ponding}$) + (A_{ISR} x D_{gravel} x n_{gravel}) n_{gravel} = 0.33 See (a) below.

STP Type	Description	STP Calculator Curve	Method for Calculating Design Storage Volume (DSV)
Porous Pavement with infiltration	Provides filtering of runoff through a filter course and temporary storage of runoff within the void spaces of a subsurface gravel reservoir prior to infiltration into subsoils.	Infiltration Trench	DSV = void space volumes of gravel layer DSV = ($A_{pavement}$ x D_{stone} x n_{gravel}) n_{gravel} = 0.33
Porous pavement w/ impermeable underlining or underdrain	Provides filtering of runoff through a filter course and temporary storage of runoff within the void spaces prior to discharge by way of an underdrain.	Porous Pavement	Depth of Filter Course = D_{FC}
Sand Filter w/underdrain	Provides filtering of runoff through a sand filter course and temporary storage of runoff through surface ponding and within void spaces of the sand and washed stone layers prior to discharge by way of an underdrain.	Sand Filter	DSV = pretreatment volume + ponding volume + void space volume of sand and washed stone layers. DSV = ($A_{pretreatment}$ x $D_{preTreatment}$) + (A_{bed} x $D_{ponding}$) + (A_{bed} x D_{sand} x n_{sand}) + (A_{bed} x D_{stone} x n_{stone}) n = 0.33
Wet Pond	Provides treatment of runoff through routing through permanent pool.	Wet Pond	DSV= Permanent pool volume prior to high flow bypass. See (a) below.
Extended Dry Detention Basin	Provides temporary detention storage for the design storage volume to drain in 24 hours through multiple outlet controls.	Dry Pond	DSV= Ponding volume prior to high flow bypass DSV=A_{pond} x D_{pond} (does not include pretreatment volume)
Grass Conveyance Swale	Conveys runoff through an open channel vegetated with grass. Primary removal mechanism is infiltration.	Grass Swale	DSV = Volume of swale at full design flow See (b) below.
Footnotes:			
DSV= Design Storage Volume = physical storage capacity			
L= length, W= width, D= depth at design capacity before bypass, n=porosity fill material, A= average surface area for calculating volume			
Infiltration rate = saturated soil hydraulic conductivity			

DRAFT

Appendix 4: Stormwater Treatment Practice Volume Calculations

a. Storage Volume for Ponds and Wetlands

For wet ponds and gravel wetlands, there is typically a large outlet at or near the top of the outlet riser that allows larger storms to exit the practice quickly. Storage above that level is considered flood storage and should be excluded from credit calculations.

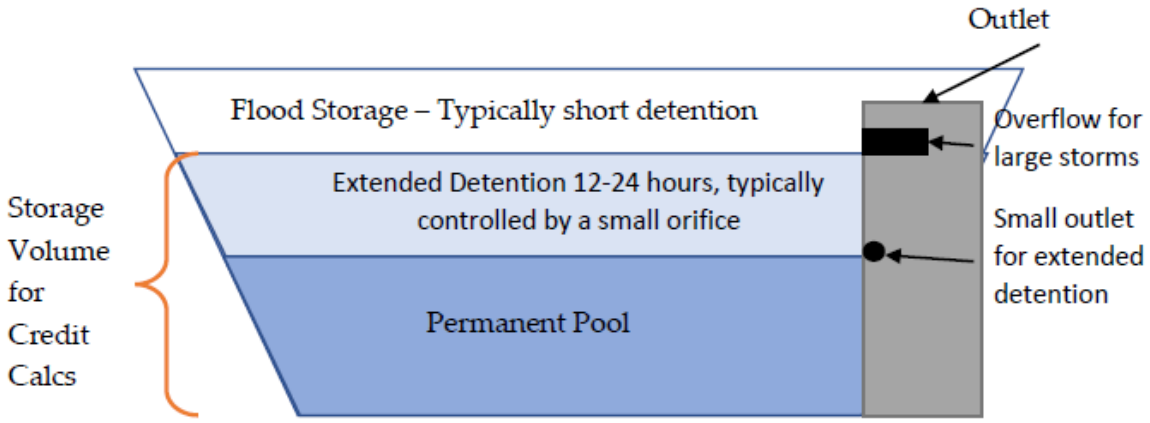


Figure C-1. Generalized schematic of a Wet Pond

Modeling documentation for the practice should include a stage vs. storage table that can be used to determine the appropriate volume for crediting.

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
364.00	27	0	0
365.00	2,208	1,118	1,118
366.00	3,123	2,666	3,783
368.00	5,591	8,714	12,497
370.00	8,301	13,892	26,389
372.00	11,418	19,719	46,108

Storage volume @ 370′ = 26,389 ft³

Device	Routing	Invert	Outlet Devices
#1	Primary	365.00′	**15.0" Round Culvert** L= 50.0′ CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 365.00′ / 360.50′ S= 0.0900 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	368.00′	**2.2" Vert. Orifice/Grate** C= 0.600
#3	Device 1	370.00′	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	371.00′	**4.0′ long x 8.0′ breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00

Overflow Orifice

Figure C-2. Storage volume determination from a HydroCAD summary.

Many ponds built prior to the adoption of the 2002 Vermont Stormwater Management Manual were designed for peak flow attenuation and have neither a permanent pool nor extended detention. Ponds lacking these features are not assigned a phosphorus credit as they do not provide significant treatment.

b. Storage Volume for Grass Channels

Grass channels were a popular treatment practice under the 2002 Vermont Stormwater Management Manual (VSMM). Grass channels were typically sized to provide treatment for the water quality storm, which was the 0.9″ storm under the 2002 VSMM. Grass channel typically have volume to convey large storms but credit calculations should be based on the peak volume of water in the swale during the water quality storm.

Summary for Reach 16R: Grass Channel 1

Inflow Area = 0.653 ac,100.00% Impervious, Inflow Depth > 0.65" for Wqv event
Inflow = 0.65 cfs @ 12.01 hrs, Volume= 0.035 af
Outflow = 0.47 cfs @ 12.28 hrs, Volume= 0.035 af, Atten= 28%, Lag= 16.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.27 fps, Min. Travel Time= 11.2 min
Avg. Velocity = 0.07 fps, Avg. Travel Time= 40.3 min

Peak Storage= 320 cf @ 12.09 hrs, Average Depth at Peak Storage= 0.26'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 11.16 cfs

6.00' x 1.50' deep channel, n= 0.150 Sheet flow over Short Grass
Side Slope Z-value= 3.0 '/' Top Width= 15.00'
Length= 178.0' Slope= 0.0050 '/'
Inlet Invert= 698.50', Outlet Invert= 697.61'



Figure C-3. HydroCAD summary of a grass channel during the water quality storm event.

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

Annual Inspection Instructions

for Operational Stormwater Discharge Permits

Due July 15th Every Year

Purpose. Annual Inspection Reports are a compliance requirement for all Operational Stormwater Discharge Permits issued by the Vermont Department of Environmental Conservation (DEC). An Annual Inspection report may be completed by the permittee, an authorized representative, or a stormwater system designer, provided the person completing the inspection and report is qualified to do so. The Annual Inspection report then must be submitted through DEC's electronic reporting system, ANRonline, by July 15th annually.

Method of Reporting. With the Annual Inspection Report form moving to the Department of Environmental Conversation's electronic reporting platform, ANRonline, this list of questions serves as a copy of what will be asked and information that will be needed to adequately complete the online form. Once you've completed your inspection and can answer the below questions, please go to ANRonline (https://anronline.vermont.gov/) to create an account if you are a new user, and to submit the Annual Inspection Report.

This list of questions below are not intended to limit or otherwise preclude the person completing the annual inspection from reviewing and inspecting all components of the stormwater management system necessary to ensure that the system is maintained as required by the authorization to discharge stormwater runoff.

Timing of Annual Inspection. The inspection itself shall be conducted between the conclusion of spring snow melt and June 15th. A complete inspection report is due by July 15th of each year (or by July 30th if performed by a municipal utility pursuant to a duly adopted stormwater management ordinance).

Please refer to the Authorization to Discharge issued for the project for specific information regarding the frequency of maintenance, inspection, and reporting requirements.

ANNUAL INSPECTION REPORT QUESTIONS:

1. Has ownership changed since previous authorization?
    - If yes, you must complete and submit an Application for Transfer of Stormwater Operational Permits available at: http://dec.vermont.gov/sites/dec/files/wsm/stormwater/docs/Permitinformation/sw_Transfer_Application.pdf

2. Has project name changed since previous authorization?
    - *If yes, provide the updated project name.*

3. Has amount of impervious area changed since previous authorization?
    - If yes, provide an explanation.

4. Has the project been constructed?
    - If no, you may mark the remaining questions as “Not Constructed”.

5. Are there any vegetated areas that require mowing or other maintenance?
    - If yes, provide an explanation and schedule for mowing or maintenance to be completed.

6. Do catch basins need maintenance or sediment removed from sumps?
    - If yes, provide an explanation and schedule for maintenance or cleaning to be completed.

7. To the best of your knowledge, have there been any illicit discharges to the system (illicit discharges would include dumping of oil, gas, detergent, vehicle wash water, etc.)?
    - If yes, provide an explanation and preventative measures taken.

8. Has there been any re-routing of stormwater to avoid the system?
    - If yes, provide an explanation.

9. Was any erosion noted during inspection (for example in areas of exposed soil in channels, outlets, or on pond berms)?
    - If yes, provide an explanation and schedule for repair.

10. Was any accumulation of sediment noted in the basins, ponds, or constructed wetlands?
    - If yes, provide an explanation and schedule for cleaning.

11. Is there any additional maintenance or repairs needed at this time?
    - If yes, provide an explanation and schedule for maintenance or repairs to be completed.

Conclusion of Annual Inspection

Based on the information gathered during the inspection, the inspector must select one of the following statements at the conclusion of the inspection.

1- **Maintained:** Based on the above observations, and to the best of my knowledge, this report can serve as confirmation that the stormwater system is being maintained and operated in general conformance with the approved plans and the discharge permit referenced above, and that the stormwater system is in good operating condition.

Or

2- **Not Maintained:** Based on the above observations, and to the best of my knowledge, this report can serve as notification that the stormwater system is not being maintained and operated in general conformance with the approved plans and the discharge permit referenced above, and that the stormwater system is not in good operating condition**. NOTE: If checked, attach an explanation noting any deficiencies as well as a schedule for correction of the deficiencies. Any deficiencies noted during inspection shall be corrected as soon as possible, but not later than sixty (60) days after detection.**

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION

Watershed Management Division Electronic Application Submittal Instructions

You may now submit your Stormwater application and pay your application fee online via the Watershed Management Division Generic Application/Report Submission and Fee Payment Form: https://anronline.vermont.gov/?formtag=WSMD_Intake. Payments may be made using either acredit/debit card or directly from a bank account (eCheck).

Step-by-step instructions on how to submit a Stormwater NOI using this form:

- Scroll to the bottom of the page and select 'Begin Form Entry'
- You will be prompted to sign in. You may log in to an existing account, register for a account, or continue as a guest user (note: you may submit this form as a guest user, you do not need to register for an account to submit this form).
- General Information – Complete all required information (indicated with a red *), select the Watershed Management Division Program that you are submitting the NOI/application for, select the 'Stormwater' option for Stormwater NOI/applications; Select 'permit application' for submission type when submitting NOI/applications; Select the type of permit that the NOI/application is being submitted for; Select the type of application being submitted. Once complete click 'Attach Forms/Supporting Materials' to continue to the next section of the form.
- Attach Forms and Supporting Materials by uploading them from your computer or dragging and dropping them into the outlined box. Once complete, click 'Fee Payment'.
- Fee Payment – Enter the amount of the payment you will be submitting. Once complete, click 'Review'.
- Review – Review the information and select 'Certify & Submit'
- Certify and Submit – The form will be submitted, when you click 'Submit Form', however is still awaiting payment (Note: you may be prompted again to sign in or continue as a guest user).
- Payment Required to Complete Submission – Click 'Pay Online' on the pop-up
- Payment – You may submit a payment using either a credit/debit card or directly from a bank account (eCheck); complete all required information on this page and click 'Pay Now' at the bottom of the page.
- Payment Complete – You will be routed back to your submission which will now show the fee has been paid, you may print a confirmation/receipt from here if needed.

Step-by-step instructions on how to submit a payment only using this form:

- Scroll to the bottom of the page and select 'Begin Form Entry'
- You will be prompted to sign in. You may log in to an existing account, register for an account, or continue as a guest user (note: you may submit this form as a guest user, you do not need to register for an account to submit this form).
- General Information – Complete all required information (indicated with a red *), select the Watershed Management Division Program that you are paying a fee for, select the 'fee payment alone' option, and enter your permit number. Once complete click 'Attach Forms/Supporting Materials' to continue to the next section of the form.
- Attach Forms/Supporting Materials – You may upload/attach a copy of an invoice or related email (this is not required) here. Once complete, click 'Fee Payment'.
- Fee Payment – Enter the amount of the payment you will be submitting. Once complete, click 'Review'.
- Review – Review the information and select 'Certify & Submit'
- Certify and Submit – The form will be submitted, when you click 'Submit Form', however is still awaiting payment (Note: you may be prompted again to sign in or continue as a guest user)
- Payment Required to Complete Submission – Click 'Pay Online' on the pop-up
- Payment – You may submit a payment using either a credit/debit card or directly from a bank account (eCheck); complete all required information on this page and click 'Pay Now' at the bottom of the page.
- Payment Complete – You will be routed back to your submission which will now show the fee has been paid, you may print a confirmation/receipt from here if needed.

VERMONT

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

PATRICK LEAHY BURLINGTON INTERNATION AIRPORT
STORMWATER MANAGEMENT PROGRAM (SWMP)

APPENDIX C: VERMONT LOW RISK SITE HANDBOOK FOR CONSTRUCTION PROJECTS

EIV Technical Services

Low Risk Site Handbook

for

Erosion Prevention and Sediment Control

VERMONT
ENVIRONMENTAL CONSERVATION

February 2020



Low Risk Site Handbook for Erosion Prevention and Sediment Control

A construction stormwater discharge permit must be obtained for construction activity that results in total land disturbance of equal to or greater than 1 acre, including construction activities where disturbance is less than 1 acre, but is part of a larger common plan of development, if the larger development will ultimately result in the disturbance of 1 or more acres.

Vermont Construction General Permit (CGP) 3-9020 guides an applicant in assessing the potential risk to water quality from the proposed construction activity and categorizes the project activity as Low Risk, Moderate Risk, or that which requires an Individual Permit.

The practices in this handbook serve as the required Erosion Prevention and Sediment Control Plan for construction activity that is determined to be “Low Risk” under CGP 3-9020.

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Section 1
Introduction

What is erosion prevention and sediment control?

Stormwater runoff carrying sediment into streams, lakes, and wetlands is a large contributor to surface water quality problems in Vermont. Sediment discharges from unmanaged construction sites can adversely impact aquatic habitat, and may have lasting impacts on fish and other aquatic organisms.

On most construction sites, the existing vegetation that holds the soil in place and protects it from the erosive forces of rain and runoff is removed, leaving large areas of soil exposed. During rainfall or snowmelt, the exposed soil may be easily eroded and transported to nearby streams, lakes, or wetlands*.



To prevent this from happening, a small number of practices to prevent erosion and contain soil on the construction site must be used. The most effective approach to prevent a sediment discharge is temporary and final stabilization of exposed soils. Controls for sediment laden runoff are necessary at times, but should not be used as the primary means of prevention.

*Projects involving work within a jurisdictional (perennial) waterway for stream alteration, please contact your regional River Management Engineer for technical and permitting assistance.

*Projects involving work within or adjacent to jurisdictional lakes or buffers, please contact your regional Lakes and Ponds permitting staff for technical and permitting assistance.

*Projects involving work within jurisdictional wetlands or buffers, please contact your regional Wetland Ecologist for technical and permitting assistance.

Section 2
The Requirements

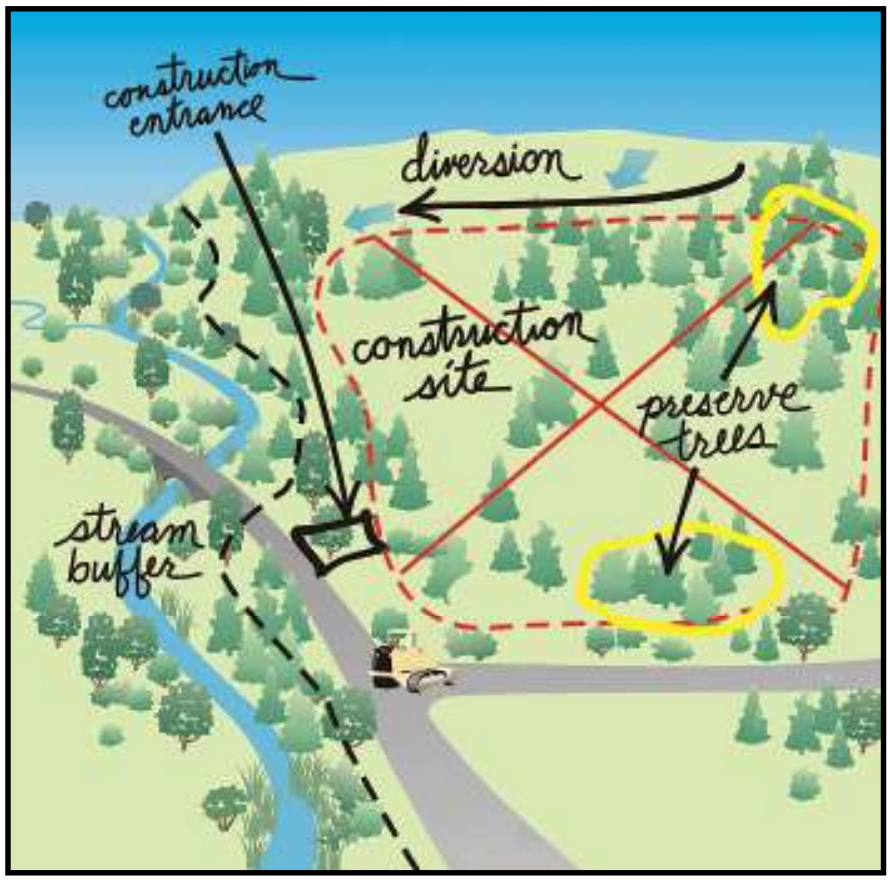
1. Demarcate Limits of Disturbance

Purpose:

Delineating the site will help to: limit the area of disturbance to only what is necessary for construction, prevent unauthorized disturbance, preserve existing vegetation, and limit erosion potential on the site.

Requirement:

You must physically mark the limits of construction activity using one of the methods described below.

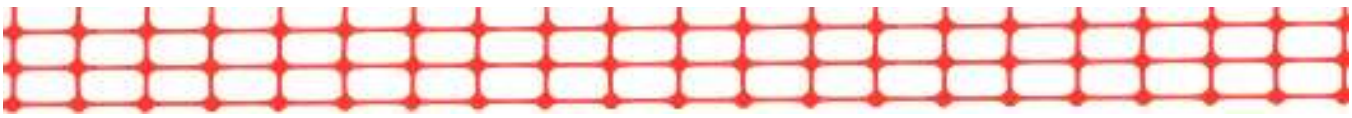


How to comply:

Before initiating any earth disturbing activities, install a perimeter fence, orange barrier tape, or flagging on stakes or trees to physically demarcate the approved limits of earth disturbance.



Properly placed barrier tape marks the boundaries and limits of construction on this site.



2. Pollution Prevention

Purpose:

Many construction sites require storage of chemicals and materials that have detrimental effects if released into our waterways. A storage plan for these potential pollution sources as well as a spill prevention and clean up plan are required to mitigate these risks.

Requirement:

Design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented and maintained in accordance with the following requirements.

How to comply:

1. Minimize the exposure of the following to precipitation and to stormwater:

    - building materials,
    - building products,
    - construction wastes,
    - trash,
    - landscape materials,
    - fertilizers,
    - pesticides,
    - herbicides,
    - detergents,
    - sanitary waste, and
    - other materials present on the site.

2. Minimization of exposure is not required in cases where the exposure to precipitation and to stormwater will not result in a discharge of pollutants, or where exposure of a specific material or product poses little risk of stormwater contamination (such as final products and materials intended for outdoor use).

3. Limit Concurrent Earth Disturbance

Purpose:

Limit the amount of soil exposed at one time to reduce the potential erosion on the construction site.

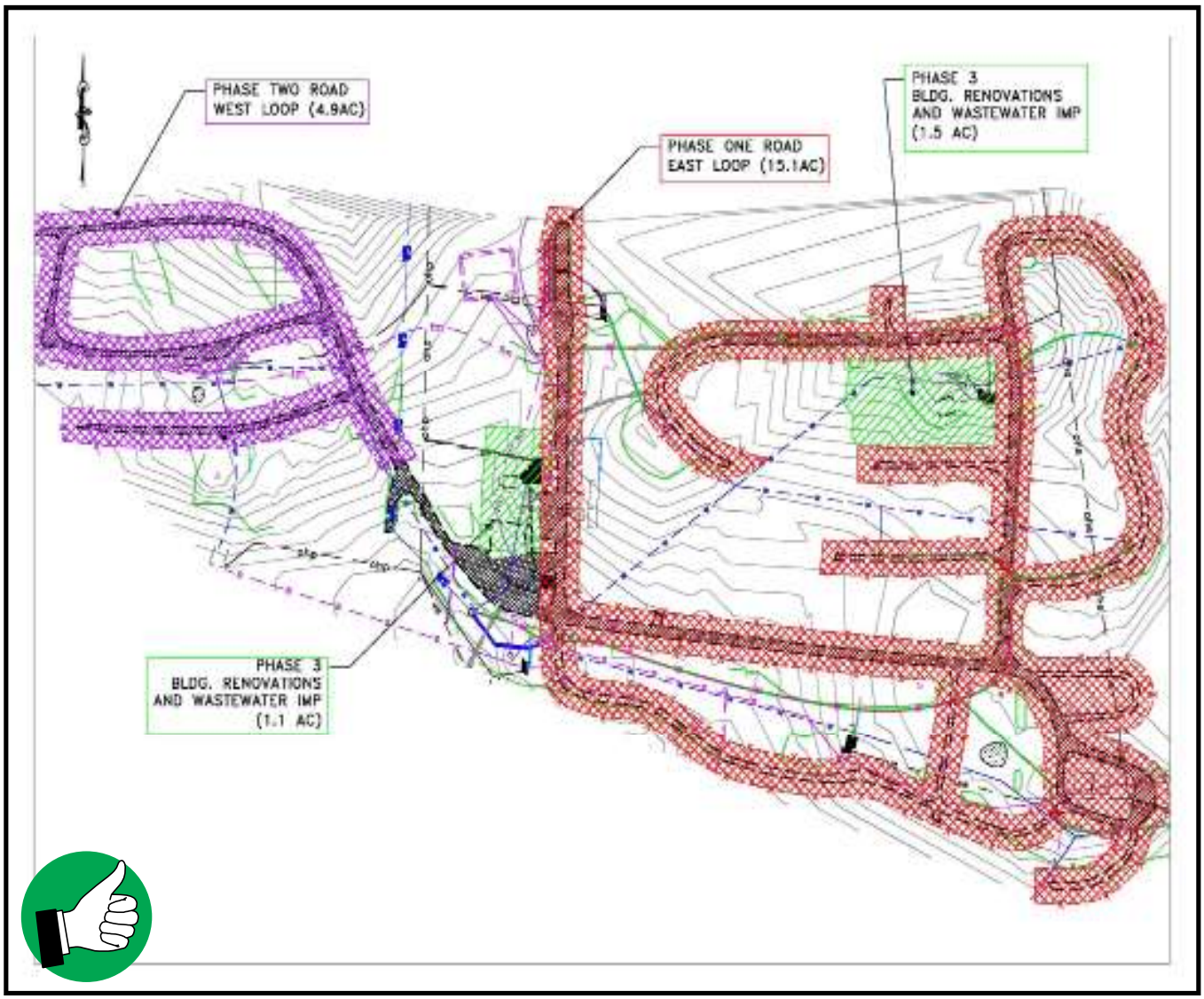
Requirement:

The maximum area of concurrent earth disturbance is specified on the site's written authorization to discharge. Earth disturbance at any one time cannot exceed the maximum concurrent disturbance identified in the authorization. Areas that are at final stabilization or that have been temporarily stabilized in accordance with Section 4 of this handbook, are not counted toward the maximum concurrent disturbance area.

How to comply:

Plan ahead and phase the construction activities to ensure that no more than the permitted maximum concurrent acreage is disturbed and unstabilized at one time.

Be sure to properly stabilize exposed soil using one of the methods introduced in Section 4 of this handbook before beginning work in a new section of the site.



4. Site Stabilization

Purpose:

Seeding and mulching, applying erosion control matting, and hydroseeding are all methods to temporarily stabilize exposed soil and prevent soil erosion prior to vegetative growth. Mulches and matting protect the soil surface while grass is establishing. Areas of earth disturbance may also be stabilized with stone, such as rip-rap or gravel, or other impervious surfaces such as pavement and concrete.

Requirements for Temporary Stabilization:

All areas of earth disturbance must have temporary or final stabilization within 14 days of initial disturbance, as stated in the project authorization. After this time, disturbed areas must be temporarily stabilized or permanently stabilized in advance of any runoff producing event. A runoff producing event is an event that produces runoff from the construction site.

The following exception applies:

- Temporary stabilization is not required if the work is occurring in a self-contained excavation (i.e. no outlet) with a depth of 2 feet or greater (e.g. house foundation excavation, utility trenches), provided any dewatering, if necessary, is conducted in accordance with Part 13.

How to comply:

As required by the authorization, temporary stabilization for areas of earth disturbance shall be completed utilizing one or more of the methods below:

Hay or Straw Mulch

Mulching Rates

April 16 - Oct. 14 -- Hay or Straw*: 1 inch deep (1-2 bales/1000 s.f.)

Oct. 15 - April 15 -- Hay or Straw*: 2 inch deep (2-4 bales/1000 s.f.)

*seed may also be incorporated



Excellent application of hay mulch. Good mulch cover and perimeter control around soil stockpile.

Wood Chip Mulch or Stump Grindings

Cover entire area with 2-7 inches or more of wood chip mulch or stump grindings.



Good application of wood chip mulch and stump grindings.

Hydroseed

As per manufacturer's instructions.

- Must include mulch component
- Not acceptable stabilization for winter construction period



Excellent application of hydroseed with a mulch component. Entire soil surface has been covered and is temporarily stabilized.



Poor hydroseed application. Not applied at the appropriate rate, soil not prepared, and very little mulch component in mix.

Requirements for Dust Control:

Construction roads, access points, and other disturbed areas subject to surface dust movement and dust blowing during dry periods where off-site damage may occur if dust is not controlled shall be sprayed with water to prevent dust mobilization. **Chemical applications, including the use of chloride, shall not be applied without written approval from the VT DEC.**

Requirements for Final Stabilization:

All areas of disturbance must have permanent stabilization within 48 hours of reaching final grade.

- Bring the site or sections of the site to final grade as soon as possible after construction is completed. This will reduce the need for additional sediment and erosion control measures and will reduce the total disturbed area.
- Prepare bare soil for seeding by grading the top 4 to 6 inches of soil and removing any large rocks or debris, and apply seed per suppliers specifications.

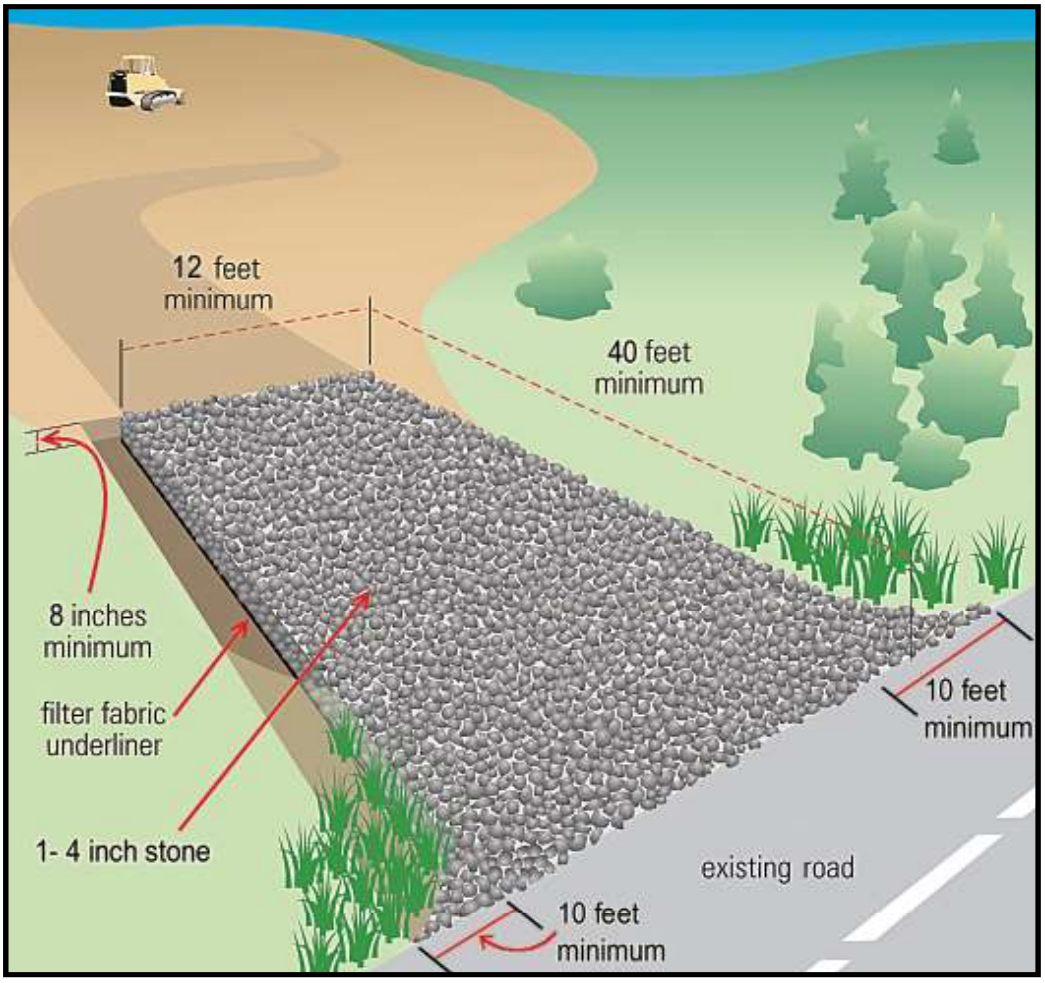
5. Stabilized Construction Access

Purpose:

A stabilized construction access helps remove mud and sediment from vehicles and equipment to prevent tracking onto streets.

Requirements:

If there will be any vehicle or equipment traffic off of the construction site, you must install a stabilized construction access at the start of construction.



Construction access detail. Access pad must keep mud from tracking onto both paved and gravel roads.

How to install:

Rock Size: Use a mix of 1 to 4 inch stone
Depth: 8 inches minimum
Width: 12 feet minimum, flared at road for vehicle turning
Length: 40 feet minimum (or length of driveway for residential projects, if shorter)
Geotextile: Place filter cloth under entire stone bed

Maintenance:

Redress with clean stone or scarify to open voids as required to keep sediment from tracking onto the street.



Good stabilized construction access. Adequate width to accommodate construction traffic and prevent mud tracking offsite. Ensure that the pad is 8 inches deep and 40 feet long.



Poor construction access. Rock pad is poorly constructed; rock is too small. Filter fabric is required under the 1 - 4 inch rock. Mud should not be tracked onto street.

- Where sediment has been tracked-out from your site onto paved roads, sidewalks, or other paved areas outside of your site, remove the deposited sediment by the end of the same business day in which the track-out occurs or by the end of the next business day if track-out occurs on a non-business day.
- Remove the track-out by sweeping, shoveling, or vacuuming these surfaces, or by using other similarly effective means of sediment removal.
- You are prohibited from hosing or sweeping tracked-out sediment into any stormwater conveyance, storm drain inlet, or water of the state.

6. Divert Upland Runoff

Purpose:

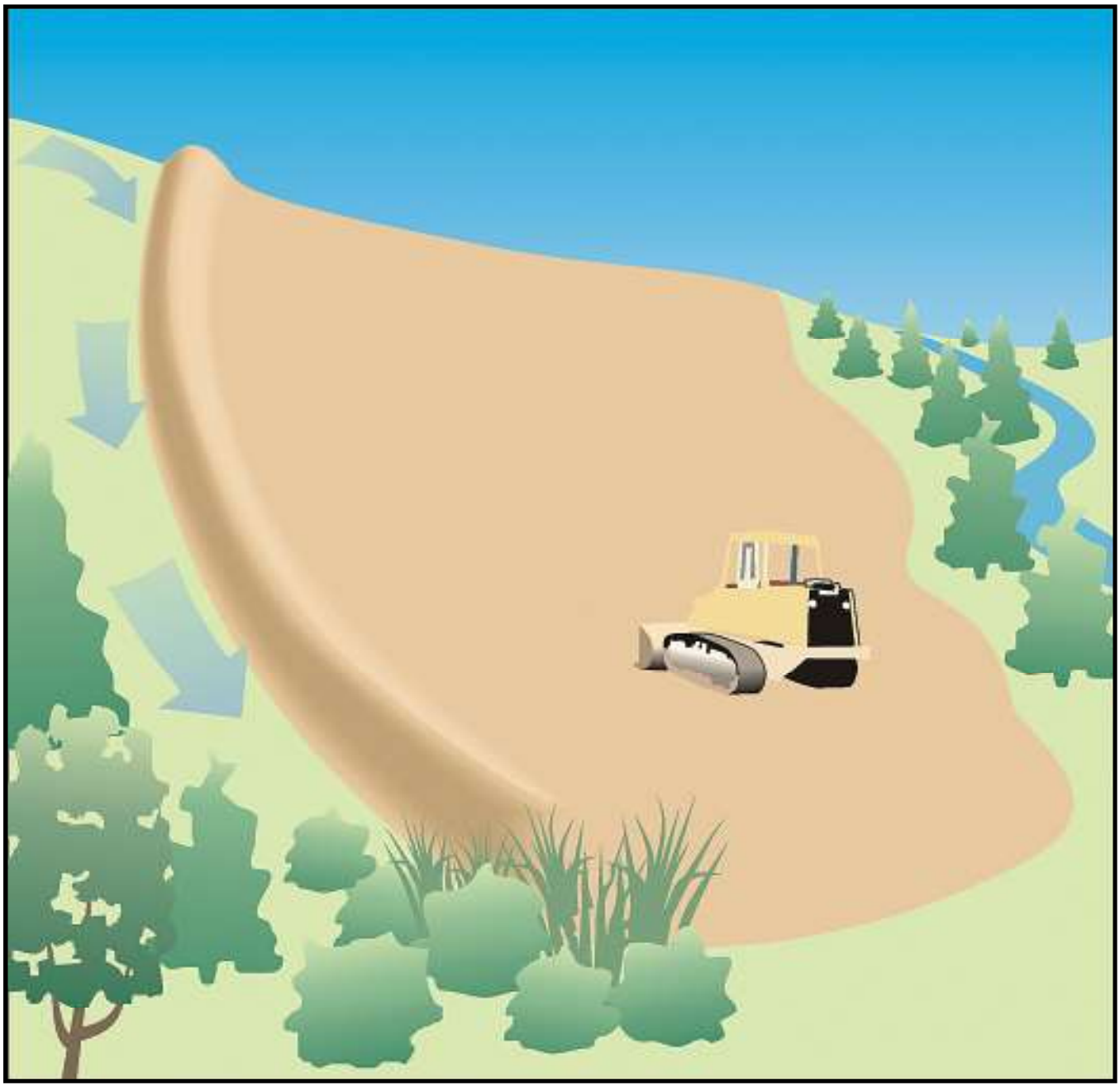
Diversion berms intercept stormwater runoff contributing from above the construction site and direct it around the disturbed area. This prevents offsite runoff from entering the construction site, thus reducing the potential for erosion and reducing the drainage area contributing to the site.

Requirements:

If stormwater runoff contributes to the construction site from upslope areas and the site meets the following two conditions, you are required to first install a diversion berm and stabilized swale before disturbing any additional soil.

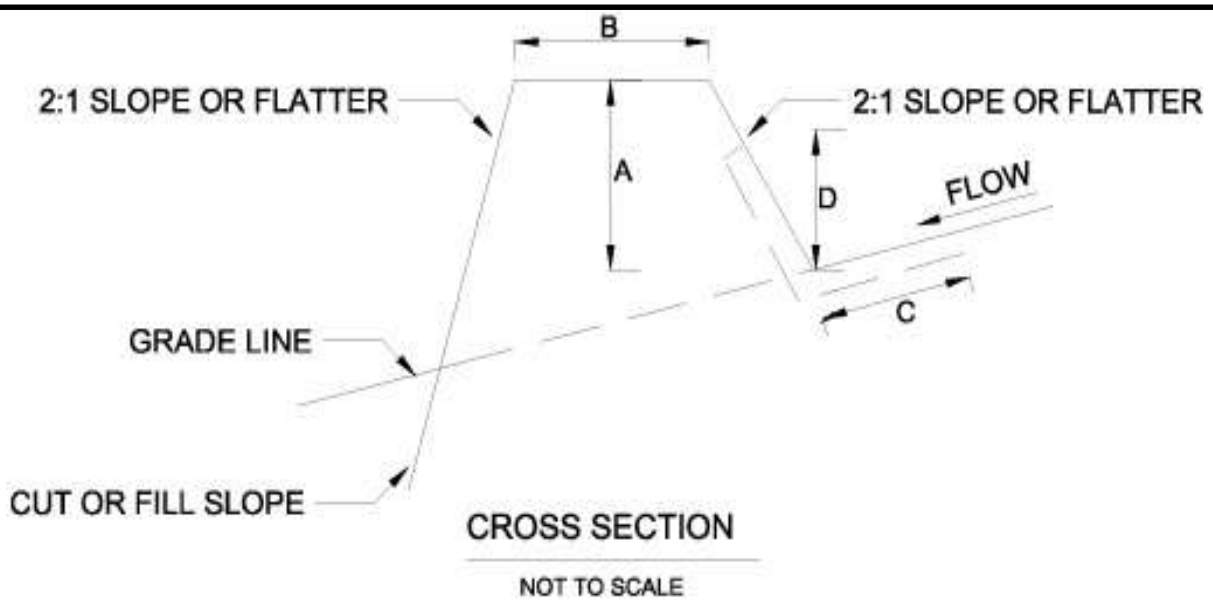
1. One or more acres of soil will be disturbed at any one time.
2. Average slope of the disturbed area is 20% or steeper.*

* See page 63 for slope calculations.



Berms and ditches divert upslope contributing runoff around construction sites and reduce erosion and sedimentation problems. Stabilize berms and ditches after construction.

Diversion Berm installation:



A - Berm Height: 1.5 feet
B - Berm Width: 2 feet
Side slopes: 2:1 (H:V) or flatter
C - Flow width: 4 feet
D - Flow depth: 8 inches

1. Construct berm to the minimum specification above.
2. Compact the berm with a shovel or earth-moving equipment.
3. Seed and mulch berm or cover with erosion control matting immediately after installation.
4. Stabilize the flow channel with seed and mulch or erosion control matting. Line the channel with 4 inch stone if the channel slope is greater than 20%.
5. Ensure the berm drains to an outlet stabilized with riprap. Ensure that there is no erosion at the outlet.

6. The diversion berm shall remain in place until the disturbed areas are completely stabilized.



Good construction, seeding, and stabilization of diversion berm. Note that diversion ditch is lined with grass on flatter part of slope, and with rock on steeper part.

7. Install Perimeter Controls

Purpose:

Silt Fence and Erosion Control Berms intercept runoff and allow suspended sediment to settle or filter out. Filter Socks and Straw Wattles also filter construction runoff and are acceptable for use in specific situations.

Silt Fence, Erosion Control Berms, Filter Socks and Straw Wattles are all acceptable perimeter controls based on site specific conditions. Permittee(s) must ensure the right practice is selected for erosion prevention and sediment control.

Requirements:

Perimeter controls must be installed:

- On the downhill side of the construction activities
- Between any ditch, swale, storm drain, or surface water and the disturbed soil
- Perimeter controls not labeled as biodegradable shall be removed once the drainage area has reached final stabilization

** Hay bales must not be used exclusively as sediment barriers due to their tendency to degrade and fall apart and may only be used in support of other required practices.*

How to Comply:

Select and install a perimeter control from the following options: Silt Fence, Erosion Control Berms, Filter Socks, or Straw Wattles.

Where to place:

- Place perimeter controls on the downhill side of disturbed soil. If space is available, place perimeter control 10 ft from the bottom of the slope, otherwise place along the contour at the bottom of the slope.
- Ensure the perimeter control catches all runoff from distrubed soil.
- Maximum drainage area is ¼ acre for 100 feet of silt fence and erosion control berm.
- Install perimeter controls across the slope (not up and down slope)
- Install multiple rows of perimeter control on long slopes to intercept flow.
- Do not install perimeter controls across ditches, channels, or streams.
- Maximum slope length (in feet) above a filter sock or straw wattle:

Slope (%)	Sock Diameter (in)			
	12"	18"	24"	32"
<5	225	250	275	325
5-10	125	150	200	275
10-20	65	70	130	150
20-25	50	55	100	120
25-33	40	45	60	75
>33	25	30	35	50

Slope	Straw Wattle (12")
<6:1	50
6:1-4:1	25
4:1-2:1	20
2:1-1:1	10
>1:1	5

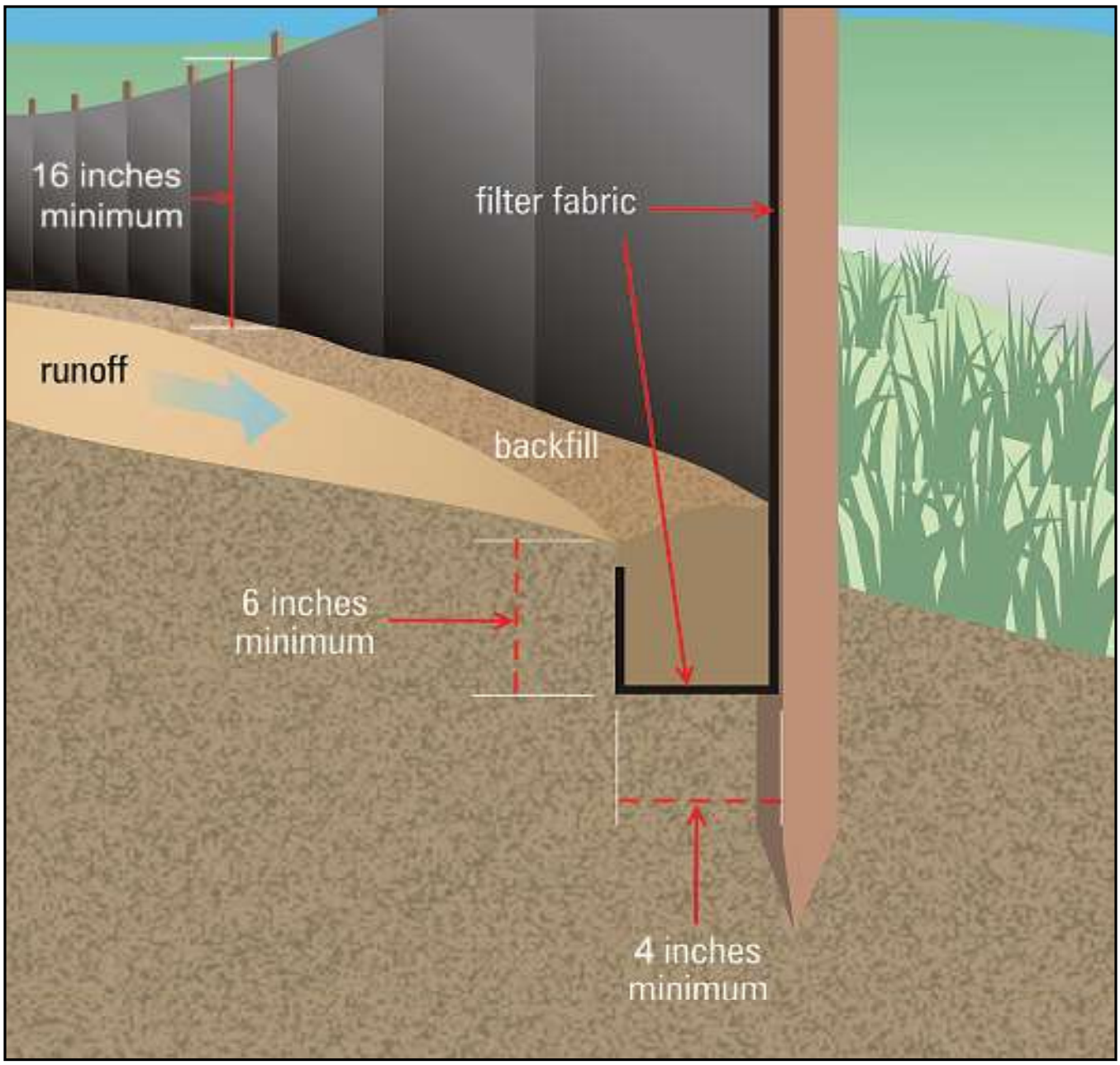
Perimeter Control Construction Specifications

Silt Fence

A temporary barrier of geotextile fabric installed on the contours across a project site to intercept sediment laden runoff from small drainage areas of disturbed soil.

Silt Fence Installation:

- Dig a trench 6 inches deep across the slope
- Unroll silt fence along the trench
- Ensure stakes are on the downhill side of the fence
- Join fencing by rolling the end stakes together
- Drive stakes in against downhill side of trench
- Drive stakes until 16 inches of fabric is in trench
- Push fabric into trench; spread along bottom
- Fill trench with soil and pack down
- Gravel can be used to create ground contact with filter fabric when bedrock, ledge, or nearby tree roots do not allow for trenching. (A secondary perimeter control can be effective in these locations as well.)



Silt Fence Maintenance:

- Remove accumulated sediment before it is halfway up the fence.
- Ensure that silt fence is trenched in ground and there are no gaps.
- Replace any silt fence that is torn, ripped, or otherwise damaged that is no longer effective.

Good use of J-hook in silt fence to trap sediment in water running along the fence. Sediment must be removed before it reaches halfway to top of fence.

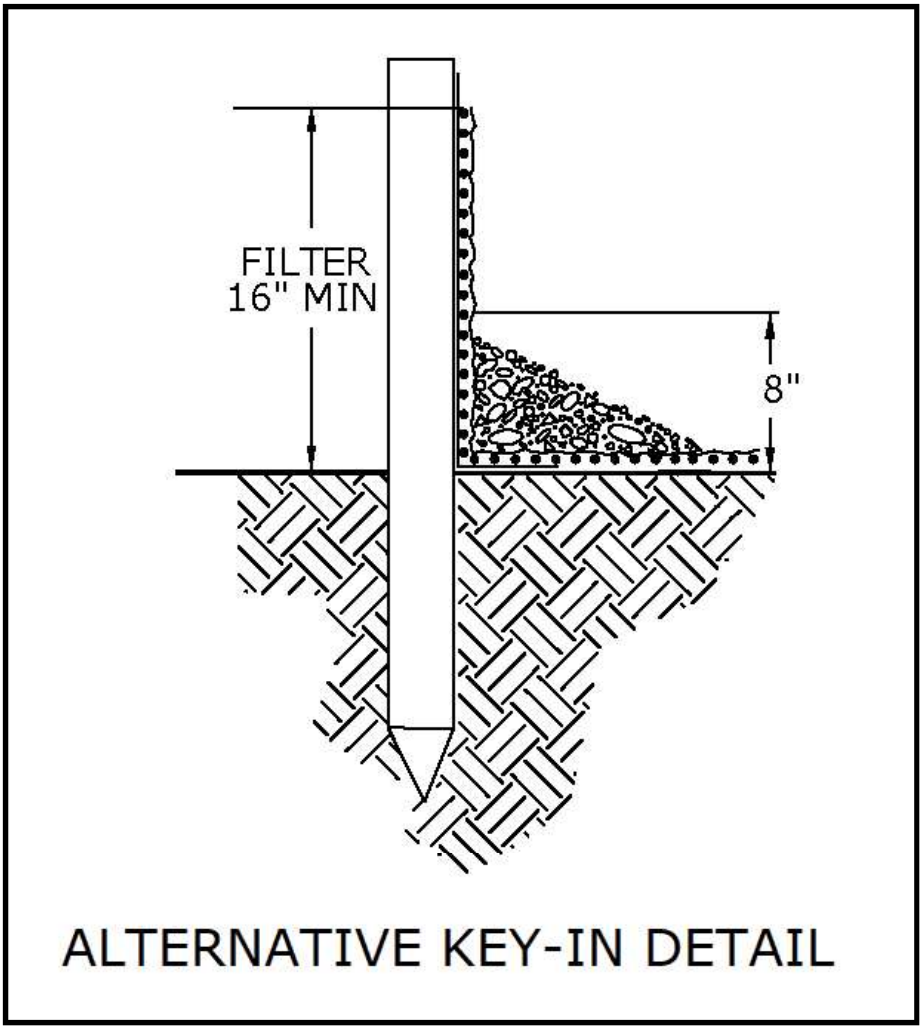




Poor installation of silt fencing. Silt fence must be trenched in along bottom. Hay bales are not approved as sediment barriers.



Excellent installation of reinforced silt fence and j-hooks in front of a stone-lined drainage channel.



Erosion Control Berms

Erosion control berms are comprised of a dense mixture of intertwining wood fragments and grit that form a stable, long lasting mulch. Common sources include stump grindings, and aged wood waste.

Erosion Control Berm Installation:

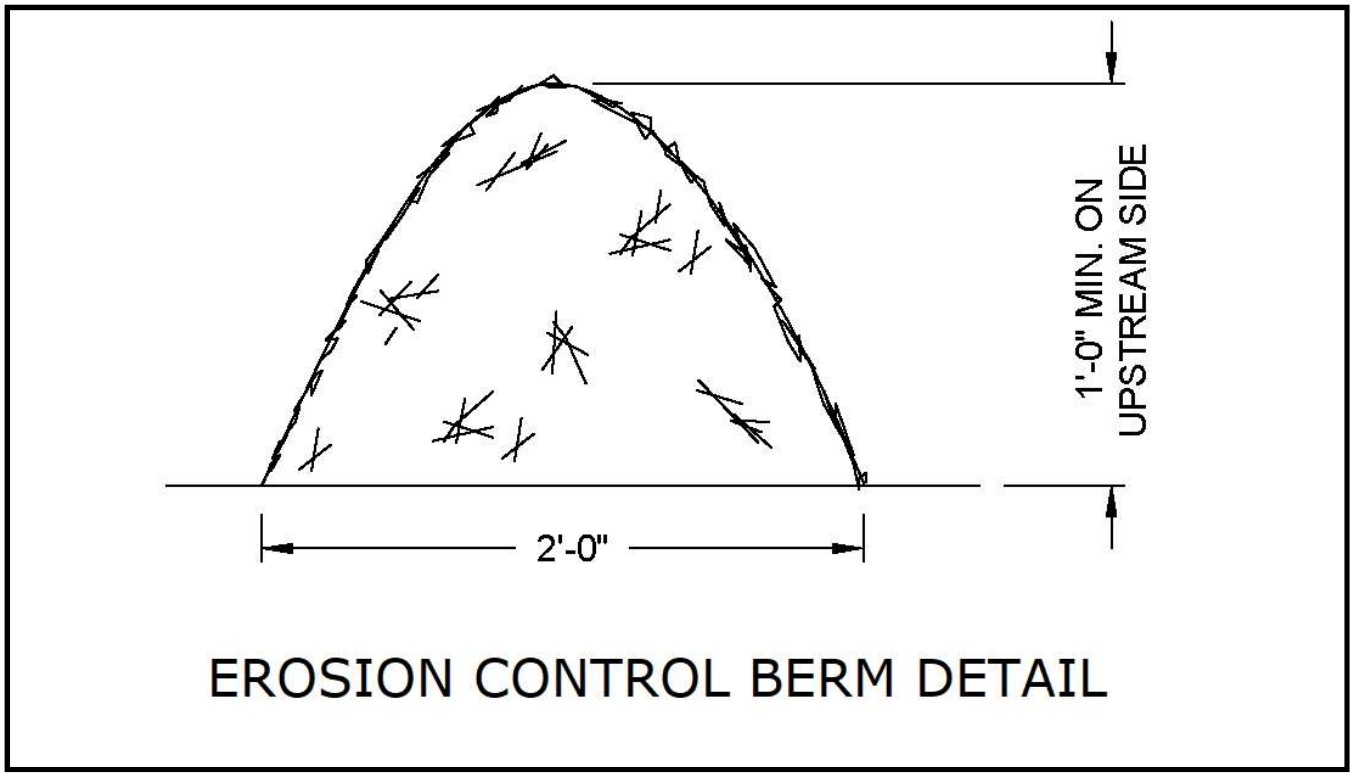
- Stump grindings from land clearing are an excellent source of material for erosion control berms, and may be readily produced when the area to be developed is forested.
- Erosion control berms are effective on frozen ground, rock outcrops, and forested areas with heavy root cover. It may be necessary to pack down or remove vegetation to prevent the creation of voids or bridges which will allow berm washout and pass sediment laden water offsite.
- The erosion control berm should be a minimum of 1 foot tall and 2 feet wide. On longer or steeper slopes a larger berm may be necessary.

Erosion Control Berm Maintenance:

- Erosion control berms must be redressed and reshaped as necessary to ensure that sediment doesn't accumulate more than halfway up the berm face.



The erosion control berm above is allowing for both ponding and filtering of stormwater.



Filter Socks

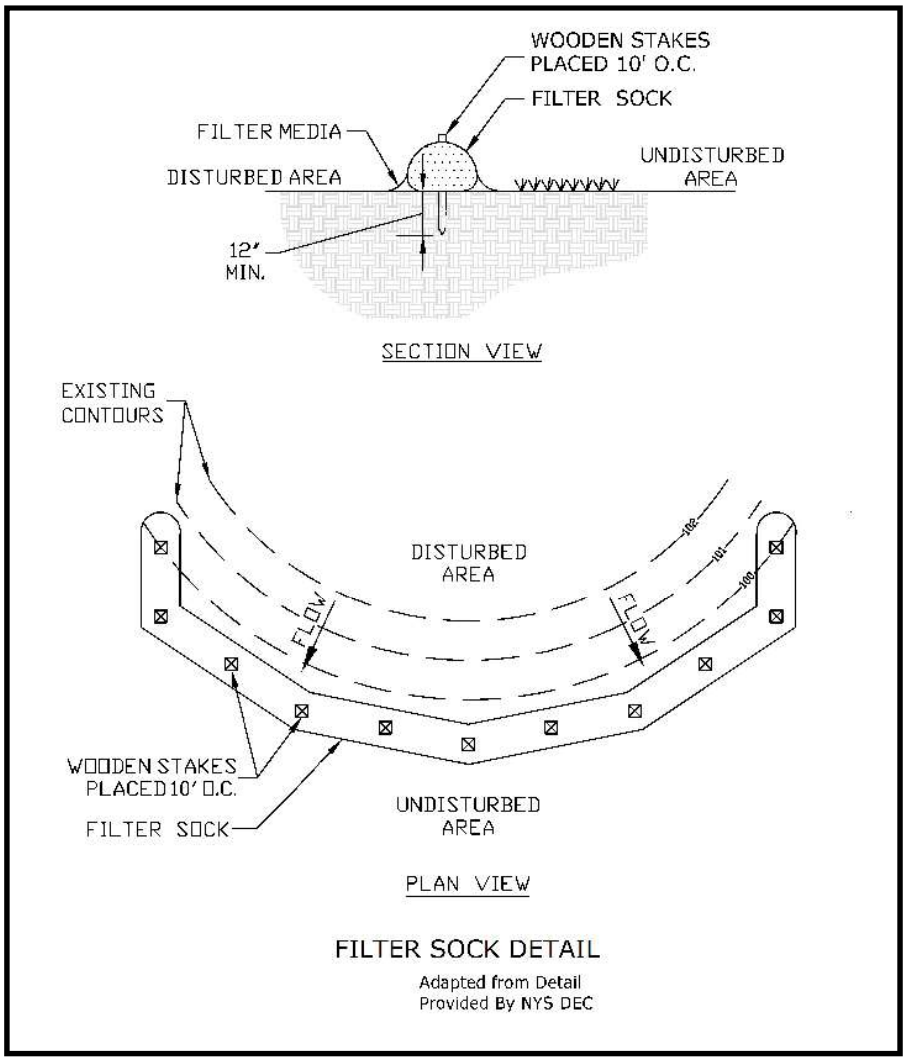
A manufactured tube made of either a synthetic material or an organic fiber which is filled with erosion control mix or other finely shredded organic material such as coconut fiber. They are an excellent practice for slowing runoff on long open slopes and for use around stockpiles.

Filter Sock Installation:

- Filter socks are best used for small areas of disturbance, at the base of stockpiles, across slope contours and across paved areas.
- Full contact with the ground is critical for filter socks to be effective and to prevent bypass. A trench 2”-3” deep shall be dug along the path of the filter sock, with the exception of installations across paved areas.
- Most applications will require staking at 10 ft intervals, which should help both keep the filter sock in place and push it downward for maximum contact with the ground.

Filter Sock Maintenance:

- Accumulated sediment should be removed and placed in an upland location when material reaches half of the filter sock height.
- Filter socks can be reshaped if they become flattened or caked in sediment.





Good use of filter socks along a slope to slow runoff velocity.

Straw Wattles

Straw wattles are similar to filter socks, but with less density due to straw filling material. These can be used in successive rows to slow sheet flow and collect sediment on long slopes or around the base of soil stock piles, but are not appropriate for application on impervious surfaces such as asphalt, concrete, or ledge.

Straw Wattle Installation:

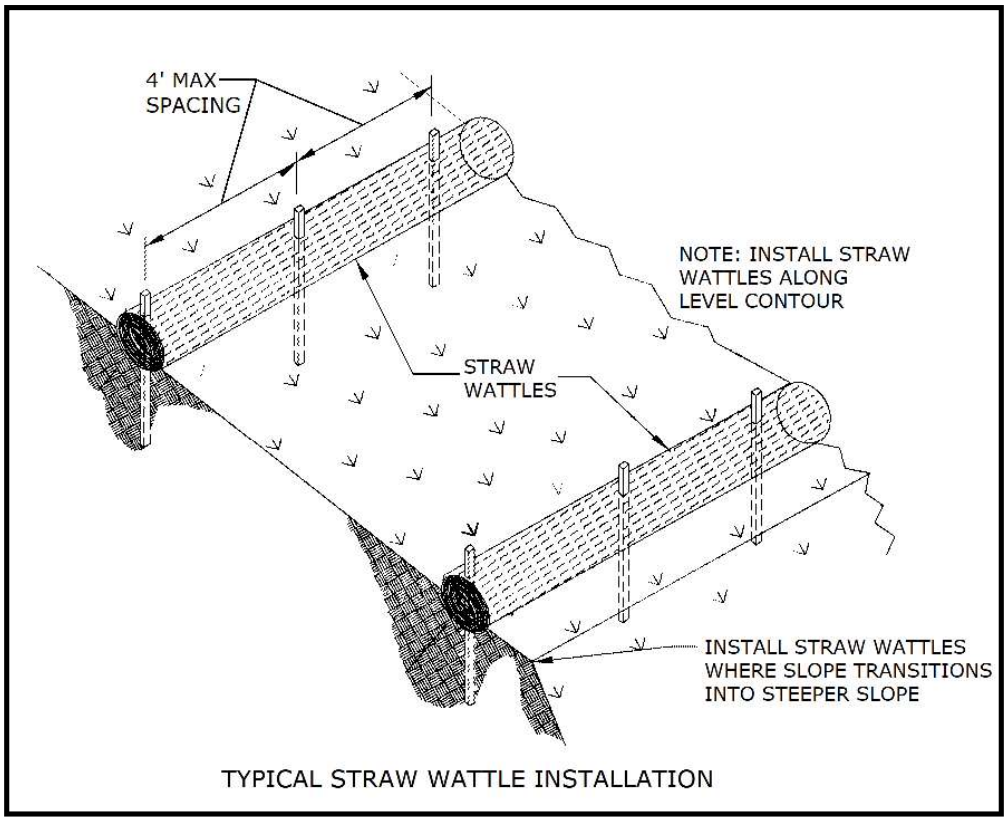
Straw Wattles are best used for small areas of disturbance, at the base of stockpiles,and across slope contours.

- Full contact with the ground is critical for straw wattles to be effective and to prevent short circuiting. A trench 2”-3” deep shall be dug along the path of the wattle.
- Straw wattles shall be secured with 18-24” stakes every 3-4’ and with a stake at each end. Stakes shall be driven through the middle of the wattle and perpendicular to slope, leaving at least 2-3” of stake extending above wattle. In limited cases, wattles may be secured without stakes by use of sandbags if staking is not feasible.
- Adjacent wattles shall tightly abut or overlap.

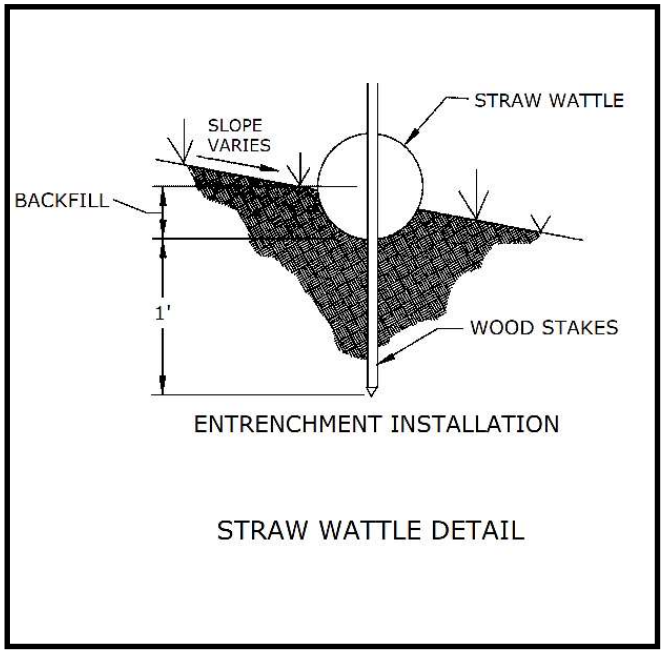
Straw Wattle Maintenance:

- Accumulated sediment should be removed and placed in an upland location.

- Straw wattles can be reshaped if they become flattened or caked in sediment.



TYPICAL STRAW WATTLE INSTALLATION



ENTRENCHMENT INSTALLATION

STRAW WATTLE DETAIL



Straw wattle properly staked in and providing settling of runoff from this shallow slope. Note a clean wattle was placed in front of an older less effective wattle.

8. Storm Inlet Protection

Purpose:

Existing or new storm inlets on construction sites constitute a site perimeter and must be protected from sediment laden runoff. The practices below allow stormwater to settle and filter through the practice and not bypass the inlet entirely.

Requirements:

Stormwater inlets shall be 4 inches above grade or an acceptable inlet control/protection should be installed.

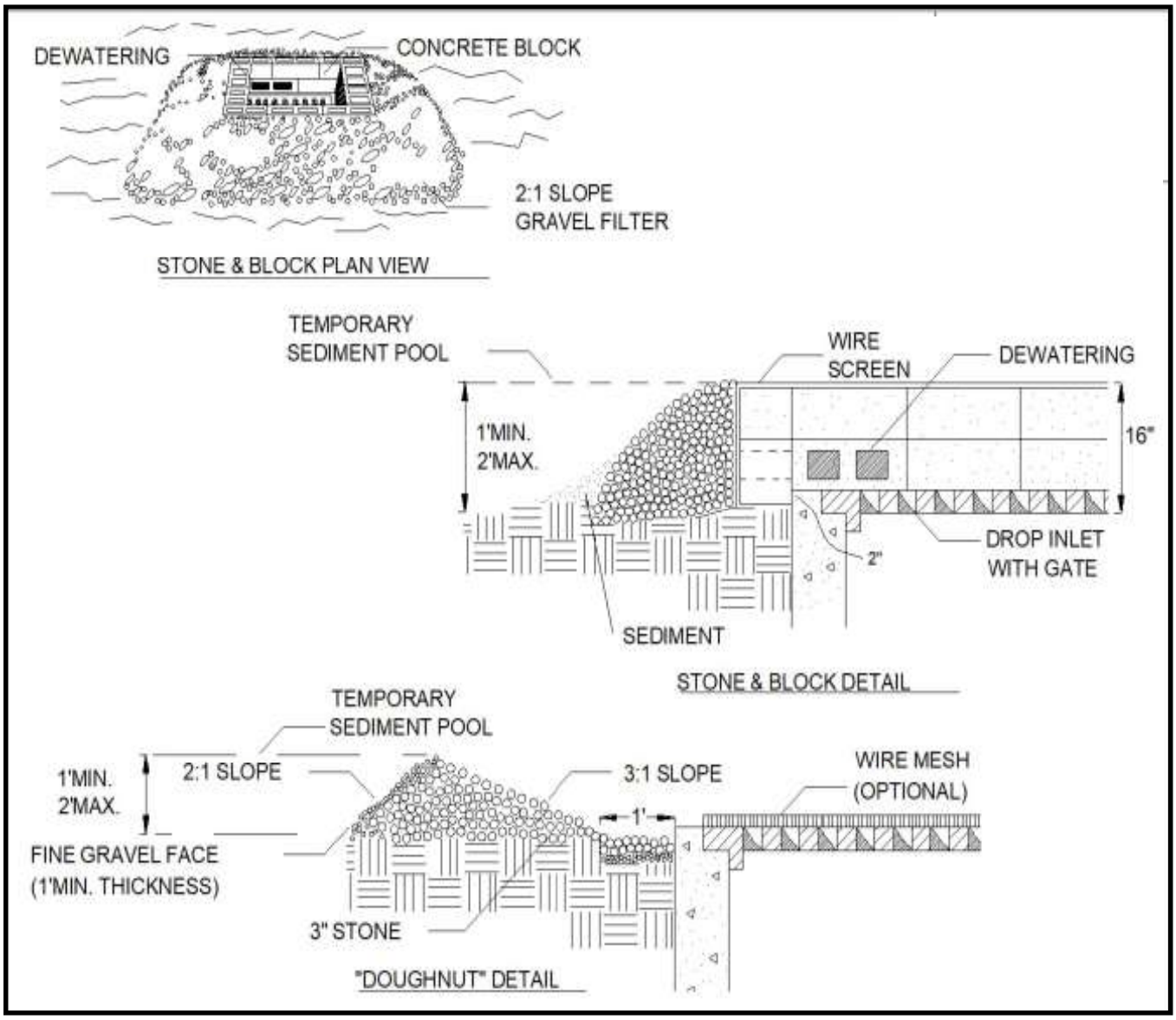
Inlet Protection Installation:

Proprietary Inlet Protection:

Shall provide for storage and removal of sediment and be sized appropriately for the drainage area, while allowing stormwater to filter through. These may be used if installed and maintained in accordance with the manufacturer's specifications.

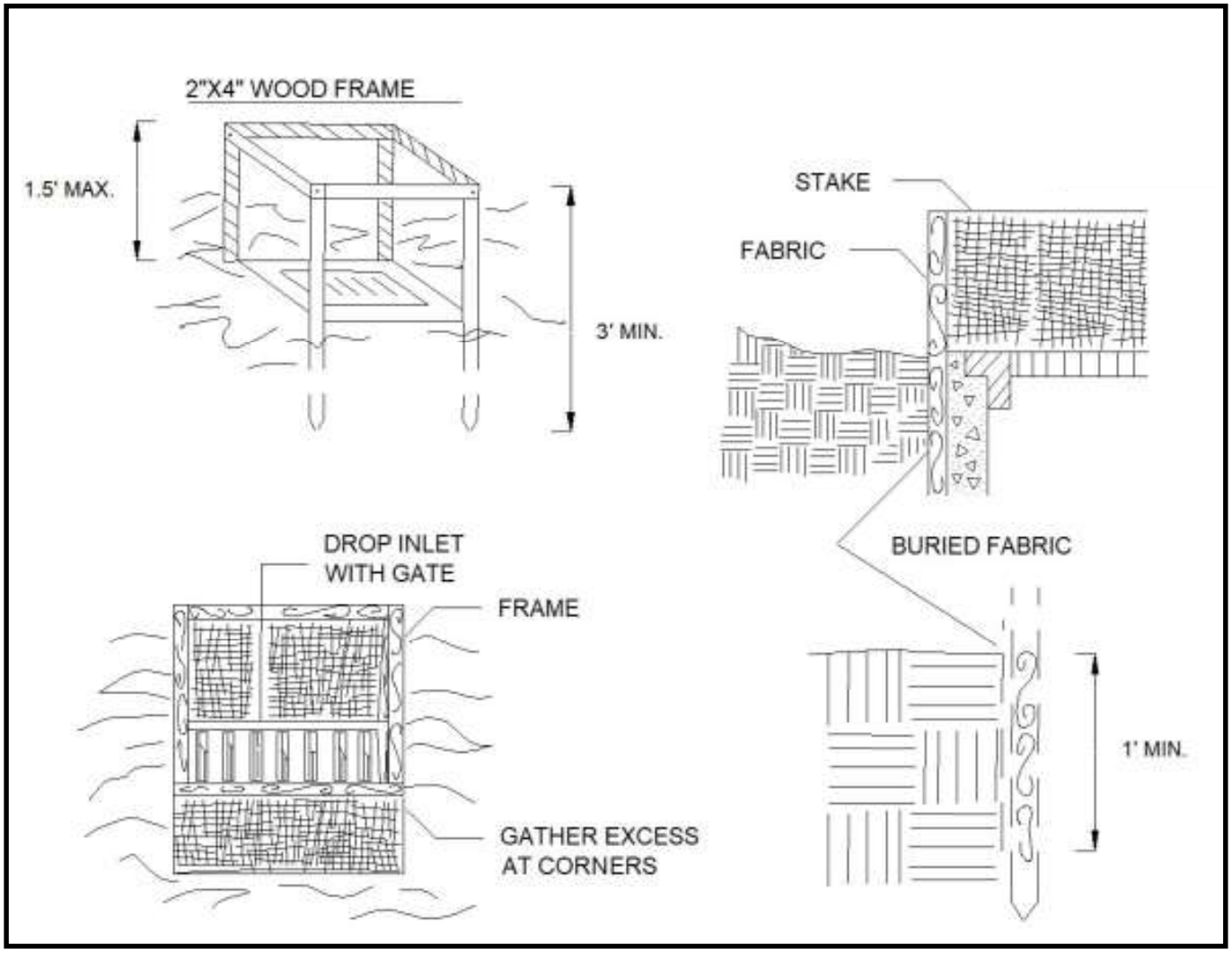
Stone and Block Inlet Protection:

Concrete blocks placed around an inlet with a circle of filtering stone sloped against the blocks.


DEWATERING
CONCRETE BLOCK
2:1 SLOPE
GRAVEL FILTER
STONE & BLOCK PLAN VIEW
TEMPORARY
SEDIMENT POOL
WIRE
SCREEN
DEWATERING
1'MIN.
2'MAX.
16"
2"
DROP INLET
WITH GATE
SEDIMENT
STONE & BLOCK DETAIL
TEMPORARY
SEDIMENT POOL
1'MIN.
2'MAX.
2:1 SLOPE
3:1 SLOPE
WIRE MESH
(OPTIONAL)
1'
FINE GRAVEL FACE
(1'MIN. THICKNESS)
3" STONE
"DOUGHNUT" DETAIL

Filter Fabric and Stone Inlet Protection:

Vertical filter fabric installed around drop inlet with stone around fabric for stormwater filtering and creating ground contact with filter fabric. Alternatively, fabric may be buried below ground.





Use of stone inlet protection with the incorporation of a straw wattle in place of cinder blocks for the stone and block specification.

9. Water Bars

Purpose:

Some sites may benefit from the use of water bars on the construction site. When installed these may capture and redirect runoff to a stable low gradient location. Water bars limit the erosive velocity of water by diverting surface runoff at pre-designed intervals.

Requirements:

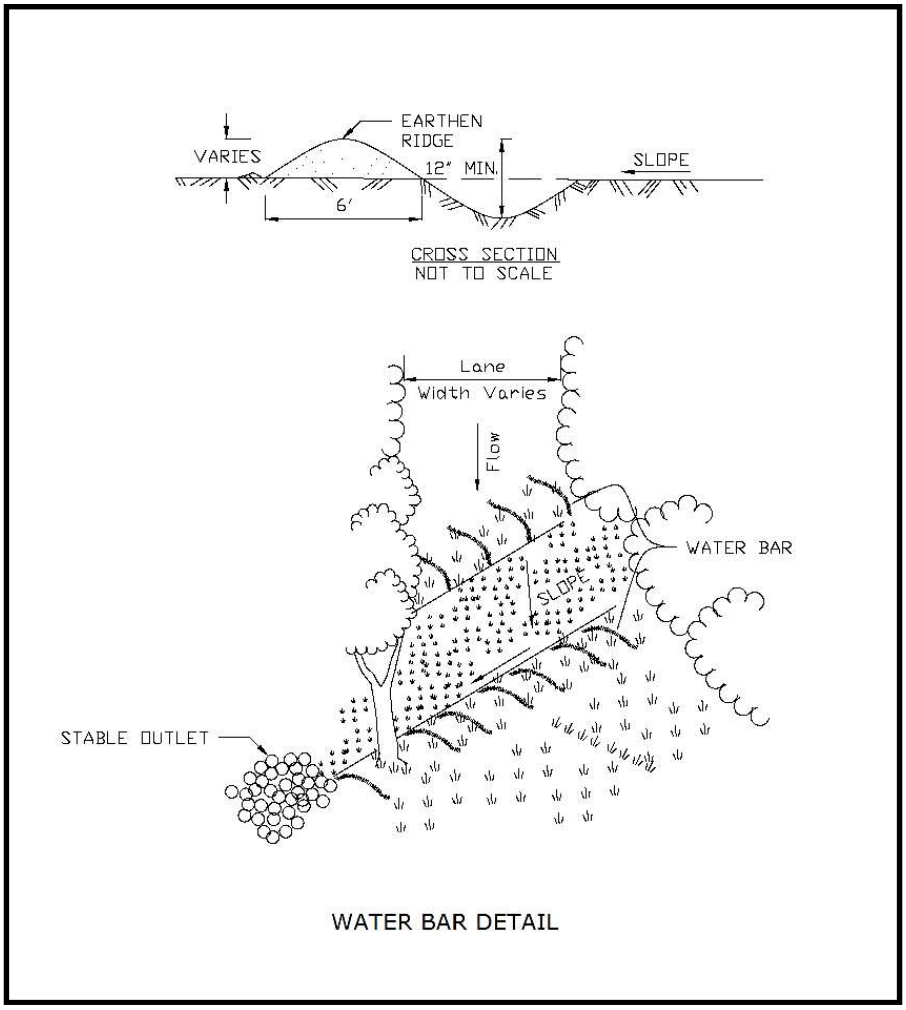
These can be constructed per the following detail, with side slopes no steeper than 4:1 where vehicles cross with a minimum design height of 12 inches, measured from channel bottom to ridge top.

Water Bar installation:

Water bars should have stable outlets, either natural or constructed. The spacing should follow Table 1.

Table 1. Water Bar Spacing

Slope (%)	Distance between structures (ft)
< 5	125
5 - 10	100
10 - 20	75
20 - 35	50
> 35	25



WATER BAR DETAIL



Good installation of a water bar along an access road.

10. Slow Down Channelized Runoff

Purpose:

Stone check dams reduce erosion in drainage channels by slowing down the stormwater flow.

Requirements:

If there is a concentrated flow (e.g. in a ditch or channel) of stormwater on your site, then you are required to install stone check dams. Hay bales and silt fence must not be used as check dams.

Check Dam installation:

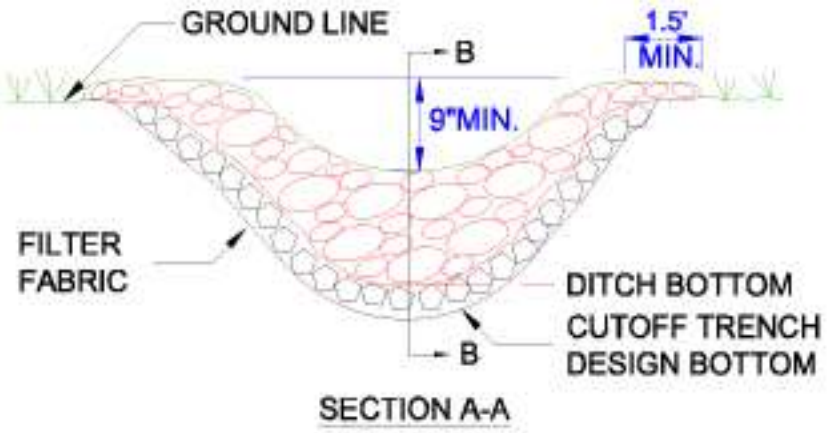
- **Height:** No greater than 2 feet. Center of dam should be 9 inches lower than the side elevation
- **Side slopes:** 2:1 or flatter (see p.63 for slope calculation)
- **Stone size:** Use a mixture of 2 to 9 inch stone; the larger stone should act as armoring, while the smaller stone helps to filter the channelized runoff. The small stone should be placed primarily in the interior of the check dam and the large stone should be placed in an armoring layer on the outside.
- **Width:** Dams should span the width of the channel and extend up the sides of the banks

- **Spacing:** Space the dams so that the bottom (toe) of the upstream dam is at the elevation of the top (crest) of the downstream dam. This spacing is equal to the height of the check dam divided by the channel slope.

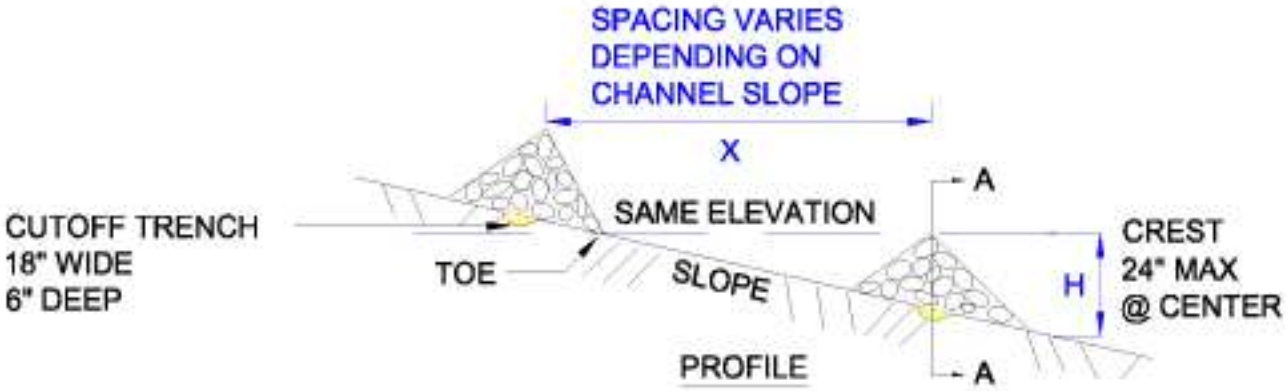
$$\text{Spacing (in feet)} = \frac{\text{Height of check dam (in feet)}}{\text{Slope in channel (ft/ft)}}$$

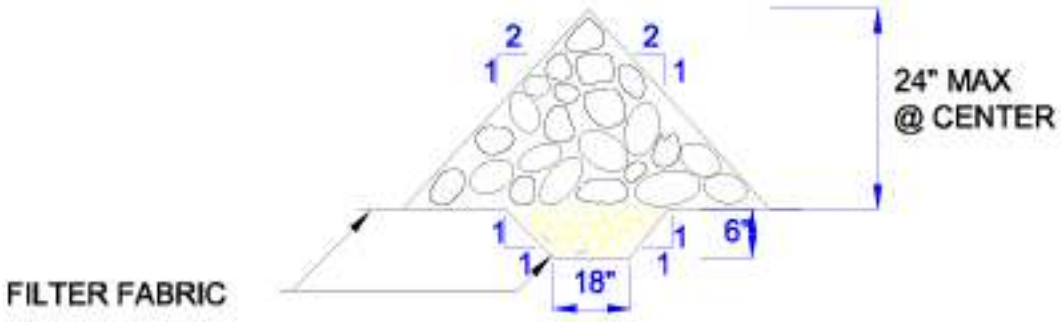
Check Dam Maintenance:

- Correct all observed damage immediately after every runoff event.
- Remove all sediment accumulated behind the check dams and dispose of in an upland location.
- If significant erosion is observed between check dams, the channel shall be stone lined.



SECTION A-A





SECTION B-B



Good installation of rock check dams. The check dams should extend up the sides of the banks. Middle section should be lower than the sides. Clean out sediment as it accumulates.



Hay bales must not be used as check dams due to their high failure rates.

Rock Outlet Protection:

- Waterways or outlets with concentrated stormwater runoff shall be stabilized with riprap, proprietary stabilization product or permanent material. This additional stabilization is applicable in areas where the channel slope and velocity or soil type require additional stabilization.
- All outlets from concentrated stormwater flows will require a stabilized bed.
- Stone shall be sized so it is not mobilized during high flows.

The images on page 44 show the before and after of an eroding channel from a culvert outlet, stabilized with stone, to a small pool for energy dissipation at the bottom of the slope.



Before installing rock outlet protection



After installing rock outlet protection

11. Slope Stabilization

Purpose:

Surface covering designed to protect and stabilize an area prone to erosion where seeding and mulching may be inadequate, generally slopes 3:1 or greater. The erosion potential may be due solely to slope angle; however, a more gradual slope and poor soil structure can also require additional stabilization.

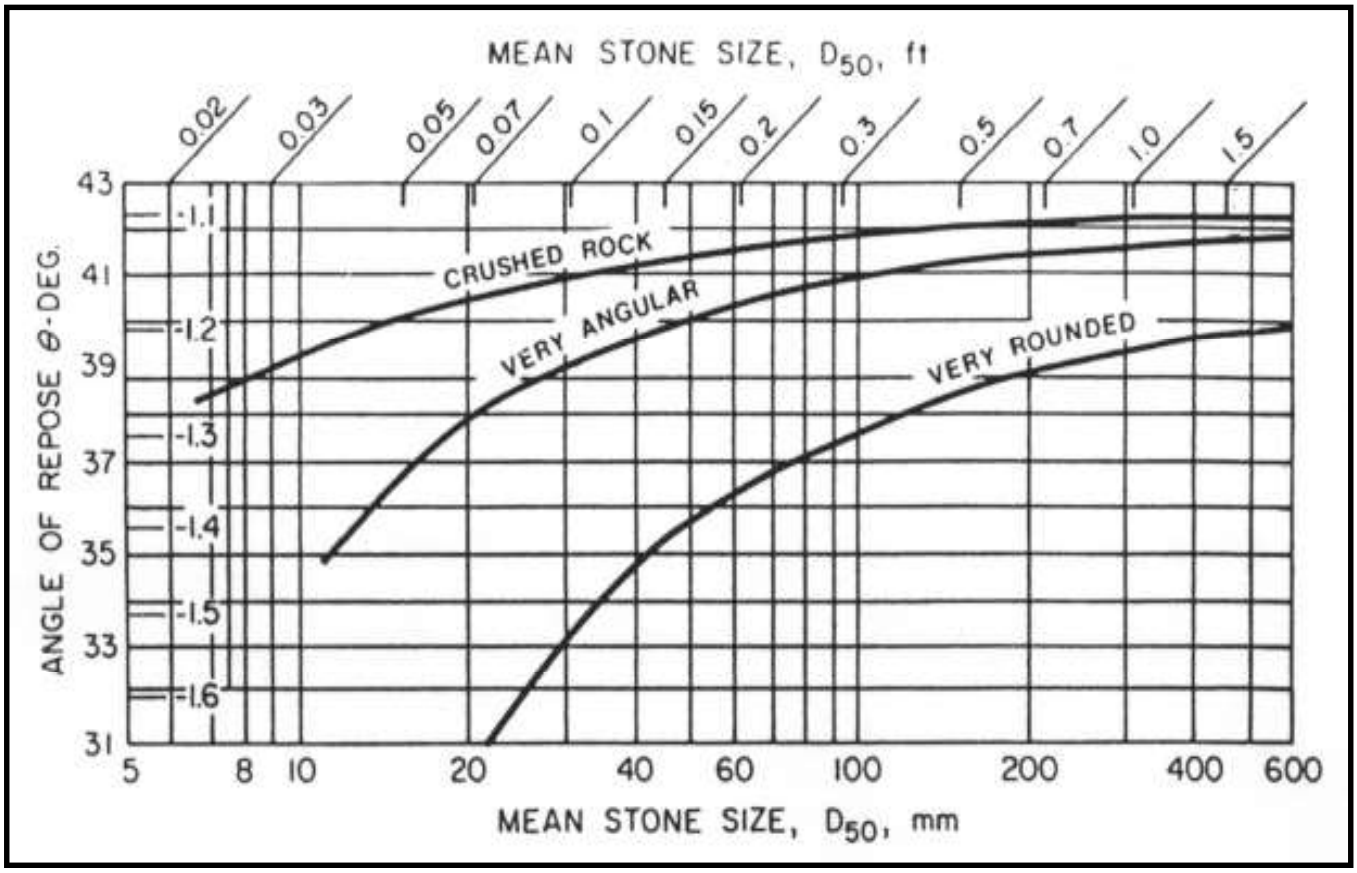
Requirements for Temporary Stabilization:

Use of one of the listed slope protection practices below on slopes 3:1 and greater or as needed on flatter slopes based on soil type.

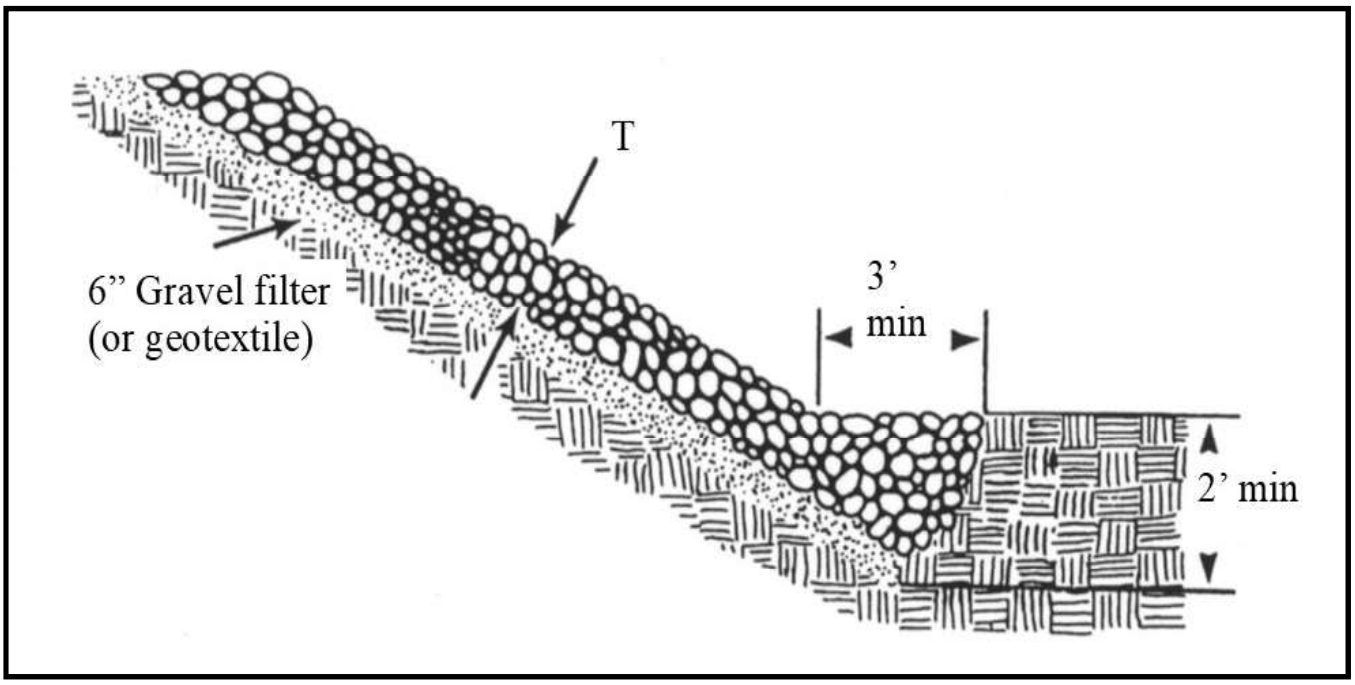
Riprap: A layer of stone designed to protect and stabilize areas subject to erosion.



Stone rip-rap installed on an unstable slope with a stormwater outlet pipe along the slope.



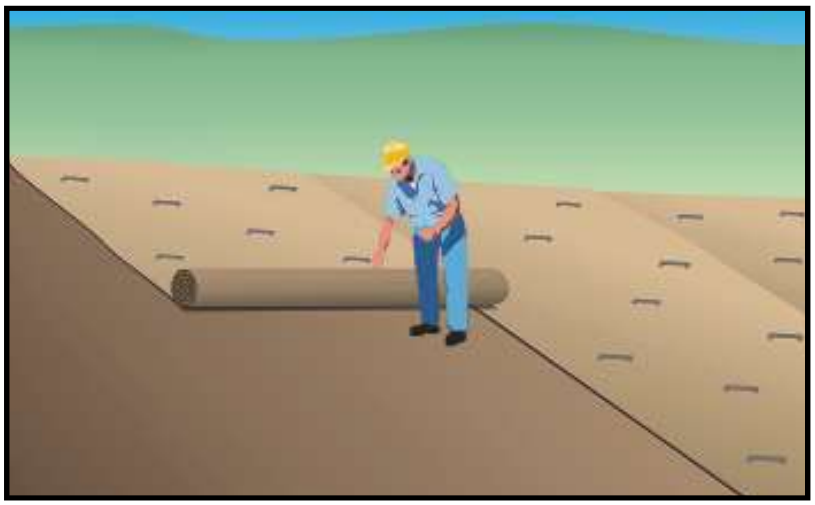
Angle of repose of riprap stones (FHWA)



Typical riprap slope protection detal

Rolled Erosion Control Product:

A preformed protective blanket of straw or other plant residue, formed into a mat, with a supporting mesh framework on one or both sides. This mesh cannot be made of a material with welded joints.



Install blankets and mats vertically on long slopes. Unroll from top of hill and staple as you unroll it. Do not stretch blankets.

Erosion Control Matting:

Install per manufacturer's instructions.



Excellent stabilization of large slopes to limit the area of disturbance. Make sure to install erosion control matting within 48 hours of grading to ensure good contact between soil and mat.

IMPORTANT NOTE:

Rolled Erosion Control Product (RECP) materials have the potential to ensnare animals such as snakes and birds, which can lead to injury or fatality. This has been observed to be most problematic in products with a plastic mesh, whether biodegradable or not.



Accordingly, only woven and interlinked products are approved for use in RECP applications.

(See Tables 4.3 and 4.4 of the Vermont Standards & Specifications for Erosion Prevention and Sediment Control)

12. Winter Construction Requirements October 15 - April 15

Purpose:

'Winter construction' as discussed here, describes the period from October 15 through April 15, when erosion prevention and sediment control is significantly more difficult. There are specific requirements for sites that conduct earth disturbance during the defined Winter Construction Period and for sites where disturbed areas have not reached final stabilization by October 15.

Rains in late fall, thaws throughout the winter, and spring melt and rains can produce significant flows over frozen and saturated ground, greatly increasing the potential for erosion. A construction site can be managed to anticipate these conditions to prevent erosion and thus minimize the risk to water quality during this time period.

Requirements for Winter Shutdown:

For projects or areas of a site that will have completed earth disturbance activities prior to the winter construction period (October 15 through April 15), the following requirements must be adhered to:

1. For areas to be stabilized for the winter through the establishment of vegetation, seeding and mulching shall be completed no later than September 15 to ensure adequate growth and cover before the start of the winter period.



Stabilization and seeding of slopes before winter will reduce or eliminate erosion in the spring.

2. If seeding is not completed by September 15, additional non-vegetative protection must be used to stabilize the site for the winter period. Areas of disturbance not seeded and mulched by September 15 are required to temporarily stabilize by one of the following methods:

- Implement Rolled Erosion Control Products (i.e. matting) over the areas of earth disturbance.
- Apply a 2" mulch layer to areas of earth disturbance, equivalent to double the standard rate. Mulch should be tracked in open areas vulnerable to wind.
- Seeding with winter rye is recommended to allow for early germination during wet spring conditions.

Requirements for Winter Construction

If construction activities involving earth disturbance continue into the winter construction period, the following requirements apply:

1. Enlarged access points, stabilized to provide for snow stockpiling.
2. Snow shall be managed with adequate storage and control of meltwater, requiring cleared snow to be stored down slope of all areas of disturbance and out of stormwater treatment structures.

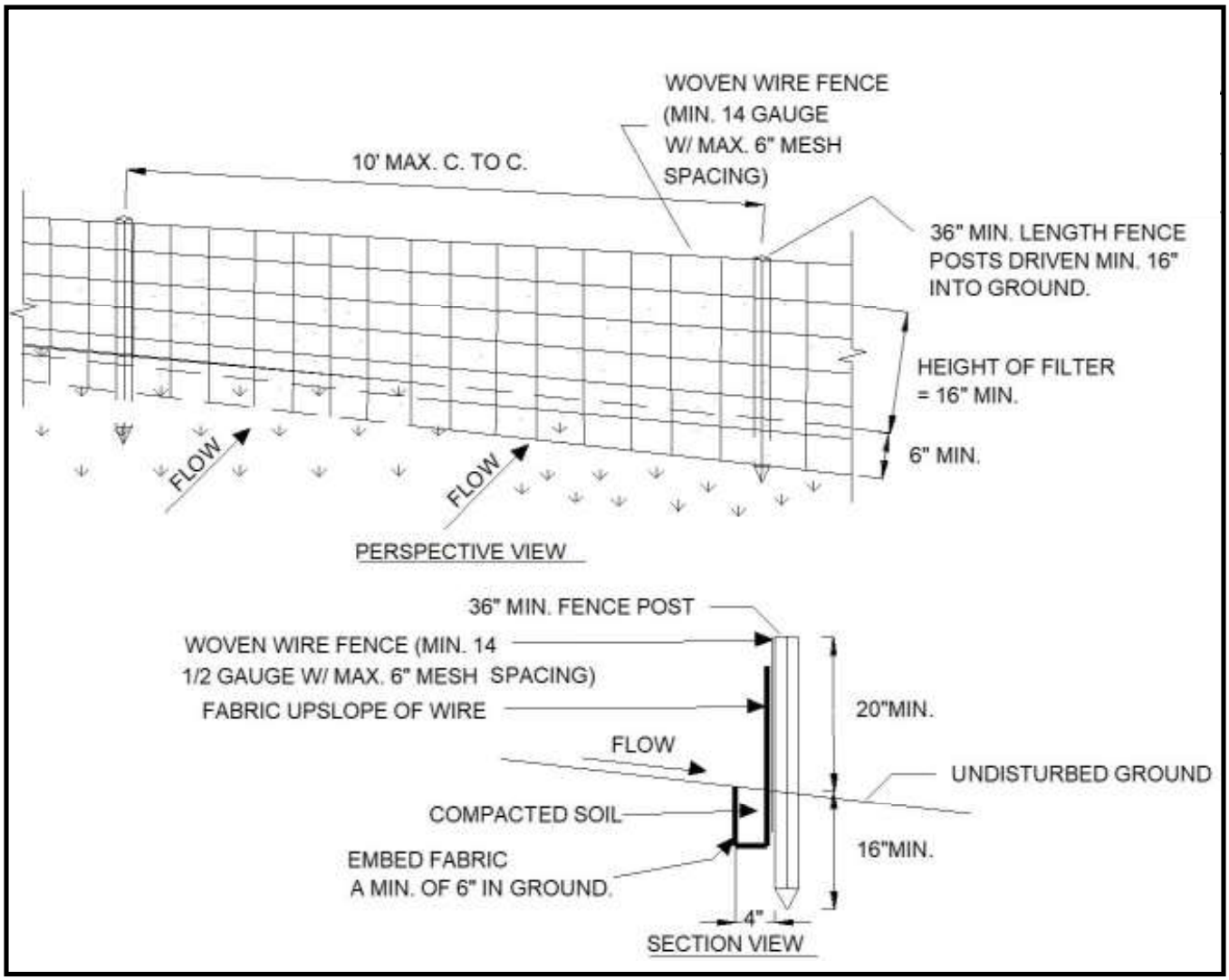
3. For areas of disturbance within 100 ft of a waterbody, the following must be installed across the slope, down gradient of the earth disturbance:

   - a combination of one practice from group A placed in front of a practice from group B, or
   - two group B practices, or
   - a single row of Reinforced Silt Fence

Group A	Group B
Filter Socks	Silt Fence
Straw Wattles	Erosion Control Berms



Use of a combination of silt fence and filter sock in place of reinforced silt fence for winter construction perimeter control requirements in proximity to a water resource area.



4. Drainage structures must be kept open and free of snow and ice dams.

5. Silt fence and other practices requiring earth disturbance must be installed ahead of frozen ground.

6. Mulch used for temporary stabilization must be applied at a minimum of 2 inches with an 80-90% cover.

7. To ensure cover of disturbed soil in advance of a precipitation or melt event, areas of disturbed soil must be stabilized prior to any runoff producing event.
    - Stabilization is not required if the work is occuring in a self-contained excavation (i.e. no outlet) with a depth of 2 feet or greater (e.g. house foundation excavation, utility trenches), provided any dewatering, if necessary, is conducted in accordance with Part 13.

8. Prior to stabilization, snow or ice must be removed to the extent practicable.

9. Use stone to stabilize areas such as the perimeter of buildings under construction or where construction vehicle traffic is anticipated. Stone paths should be sufficient width to accommodate vehicle or equipment traffic.

13. Dewatering Activities

Purpose:

To minimize and prevent discharges of sediment as a result of dewatering activities.

Requirements:

Stormwater and groundwater from dewatering activities shall be uncontaminated and shall be filtered or passed through a sediment trapping device, or both, and routed in a manner that does not result in visually turbid discharges to waters. Pump intake for dewatering must be at or near the surface of the ponding area to prevent disturbance of the settled material. Visually turbid water must not be pumped directly to storm drains or other conveyance that leads to waters without implementing one or more of the practices described below.

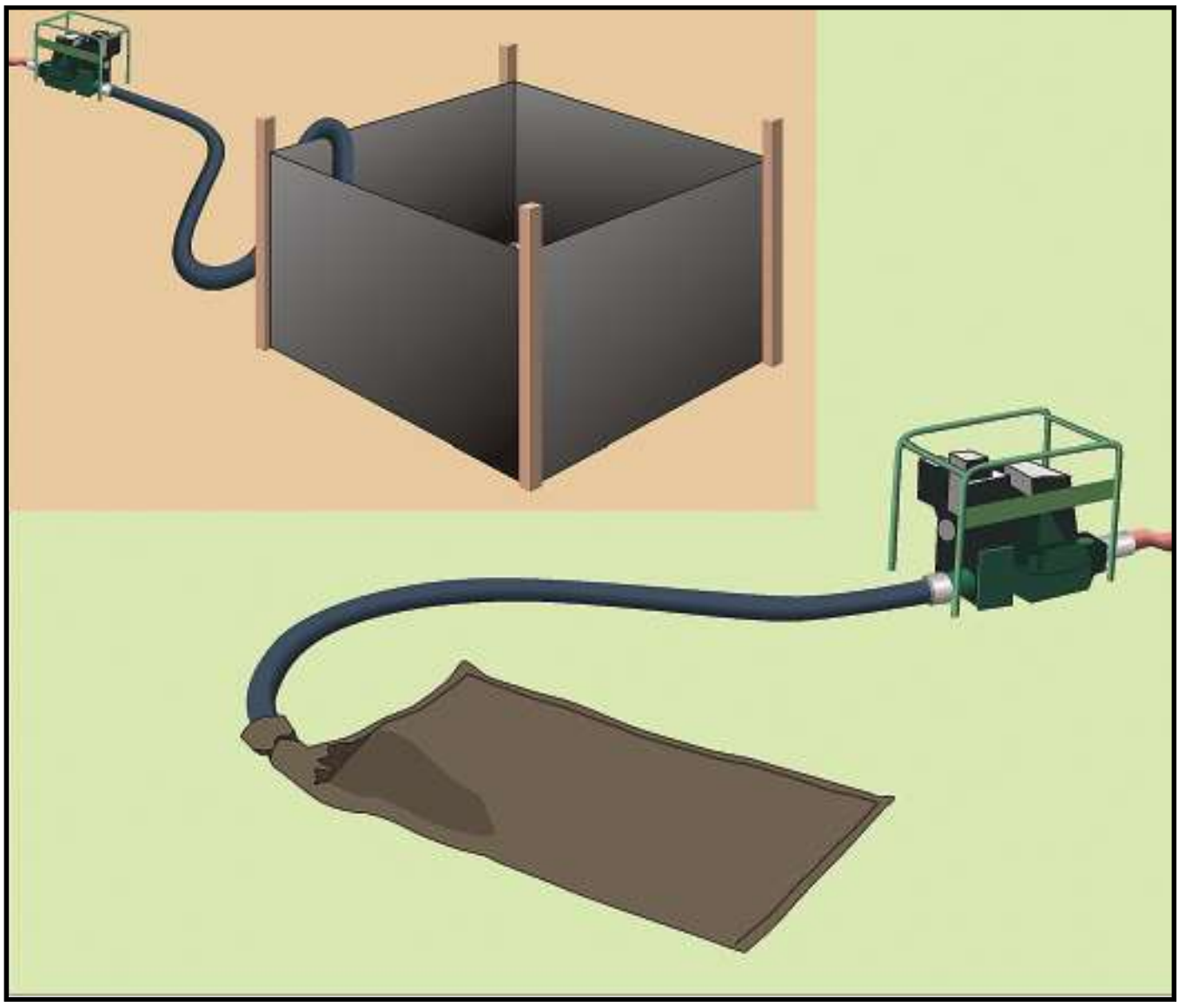
How to comply:

Implement one or more of the following practices when dewatering:

- Implement sock filters or sediment filter bags on dewatering pump discharge hoses or pipes.
- Route dewatering pump into silt fence enclosures or into staked hay bale enclosures lined with fabric.

- Route dewatering pump to vegetated area at least 50 feet from surface waters and at a slope no greater than 5%.

Remove accumulated sediment after the water has dispersed or infiltrated and stabilize the area with seed and mulch as necessary. A sufficient area of vegetation greatly improves the efficacy of filtering/settling of turbid water discharged from a dewatering enclosure.



Water is pumped from the construction site into a silt fence enclosure on a vegetated area or into a sock filter away from waterways.

14. Concrete Washout

Purpose:

Concrete wash water often contains a slurry of heavy metals, can be caustic, and has a high pH. As a result, concrete washwater is not a permitted discharge.

Requirements:

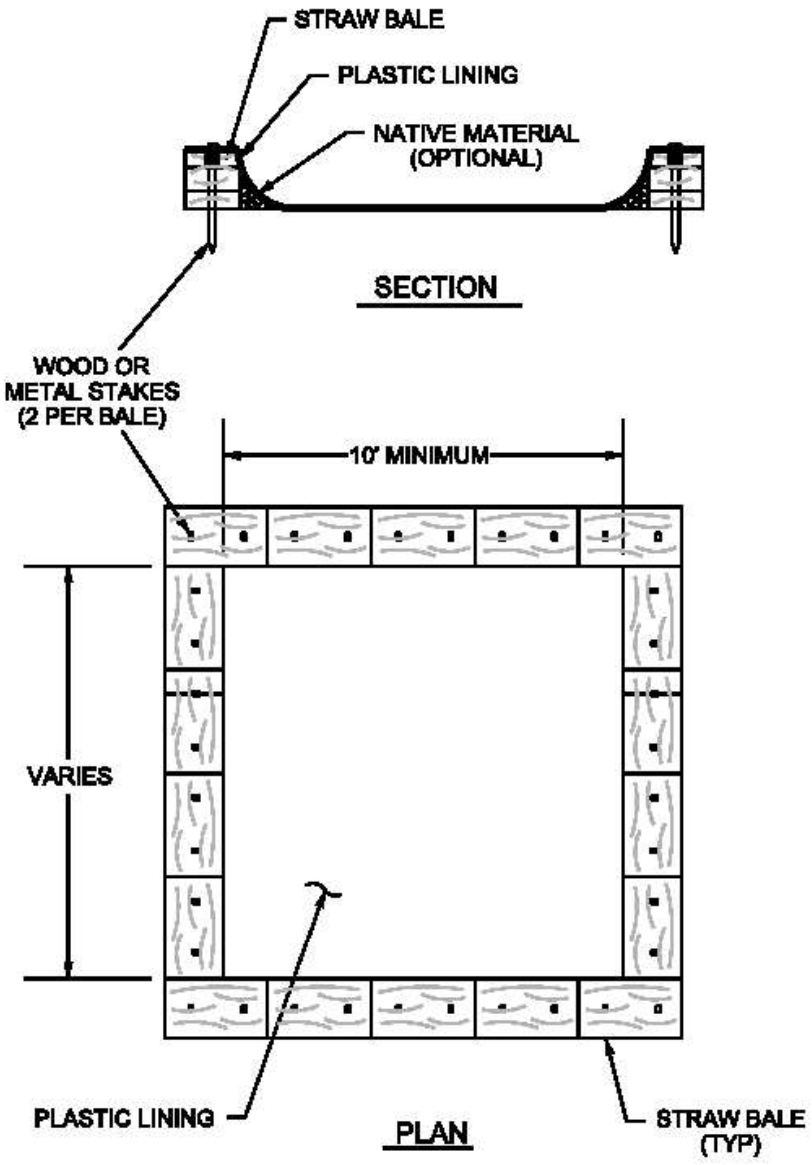
Concrete washwater and excess washout concrete should go in a lined washout. This washout should be accessible to the cement truck and at least 50 feet away from stormwater inlets and surface water.

Concrete Washout Installation:

If cement washout is going to occur on site, a lined concrete washout as shown below shall be used onsite. Care should be given to assure that the washout does not overtop during a storm event. Proprietary lined and contained concrete washout basins may also be utilized in accordance with manufacturer's specifications.

Concrete Washout Maintenance:

Concrete washout shall be pumped to a concrete truck as necessary, for disposal or reuse at a batch plant. Washout may also be allowed to evaporate/harden for disposal in accordance with all applicable local, state, and federal regulations.



ABOVE GRADE STRAW BALE
CONCRETE WASHOUT DETAIL



15. Permanent Controls

Permanent stormwater treatment practices are constructed to maintain water quality, preserve existing water table elevations, prevent downstream flooding, and are often required for a project under a Vermont operational stormwater discharge permit applicable to the construction or redevelopment of impervious surfaces.*

Permanent Stormwater Treatment Practices (STPs) include infiltration and filtering practices as well as detention ponds and treatment wetlands. **It is critical that infiltration practices do not receive runoff until the site area has reached final stabilization.**

The outlet of permanent controls that are used as temporary storage and sediment basins during construction constitutes a potential discharge point and therefore must be managed to minimize and prevent sediment laden stormwater discharges. These practices will often need to be reshaped to meet the operational design criteria for volumes, grades and geometry once final grading and stabilization has occurred.

*An impervious surface is a manmade surface, including, but not limited to, paved and unpaved roads, parking areas, roofs, driveways, and walkways, from which precipitation runs off rather than infiltrates.



Infiltrating stormwater practices such as this bioretention system should be kept offline until the drainage area has been fully stabilized.



Install all permanent stormwater treatment practices before constructing any impervious surfaces on site. This stormwater wetland treats stormwater runoff from the adjacent parking lot.

16. Inspection, Maintenance, and Discharge Reporting

Site inspections are required to ensure that all erosion prevention and sediment control practices are sufficient and functioning properly. Regular inspections and maintenance of practices will help to reduce costly repairs and minimize the risk to water quality from construction stormwater discharges.

Requirements:

Inspect the site at least once every 7 days and after every rainfall or snowmelt that results in stormwater runoff. Perform maintenance to ensure that practices are functioning according to the specifications outlined in this handbook.

In the event of a visibly turbid discharge from the construction site, you must take immediate action to inspect and maintain existing erosion prevention and sediment control practices. Additional erosion prevention and sediment control measures must be installed as necessary, including temporary stabilization, to minimize and prevent the discharge of sediment laden stormwater runoff.

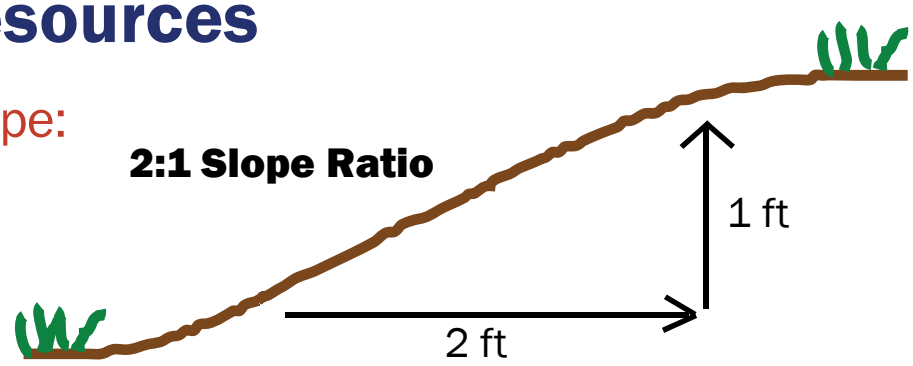
If after maintaining and supplementing BMPs, a discharge of visibly discolored stormwater from the construction site to surface waters continues, the permittee is required to notify DEC within 24 hours.

While documentation of a routine inspection is not required, example inspection forms and forms for required discharge reporting are available at the Stormwater Program website. Permittees shall review Construction General Permit 3-9020 for all discharge reporting requirements.

- A copy of the Low Risk Site Handbook shall be kept on-site.
- Daily inspections are required from October 15 through April 15.

Section 3
Additional Resources

How to calculate slope:



Approximate Slope Conversions			
Steepness	**Percent**	**Slope ratio (ft/ft)**	**Degrees**
Very steep	100%	1:1	45°
	50%	2:1	27°
Moderate	33%	3:1	18°
	25%	4:1	14°
Slight	10%	10:1	6°
	5%	20:1	3°

How to estimate disturbance area:

1 acre = 43,560 square feet = 4,840 square yards

Area in acres (width in feet x length in feet)						
(w) **x** *(l)*	100	150	200	300	400	500
100	0.2	0.3	0.5	0.7	0.9	1.1
150	0.3	0.5	0.7	1.0	1.4	1.7
200	0.5	0.7	0.9	1.4	1.8	2.3
300	0.7	1.0	1.4	2.1	2.8	3.4
400	0.9	1.4	1.8	2.8	3.7	4.6
500	1.1	1.7	2.3	3.4	4.6	5.7

Acknowledgements

Some design details and standards were adopted from those provided by: Vermont Electric Power Company (VELCO), TRC Solutions, Connecticut Department of Transportation (CTDOT) and the New York Department of Environmental Conservation (NYDEC).

Vermont Department of Environmental Conservation
Watershed Management Division
1 National Life Drive
Montpelier, VT 05620-3522

dec.vermont.gov/watershed/stormwater

APPENDIX D: STORM SEWER MAPPING

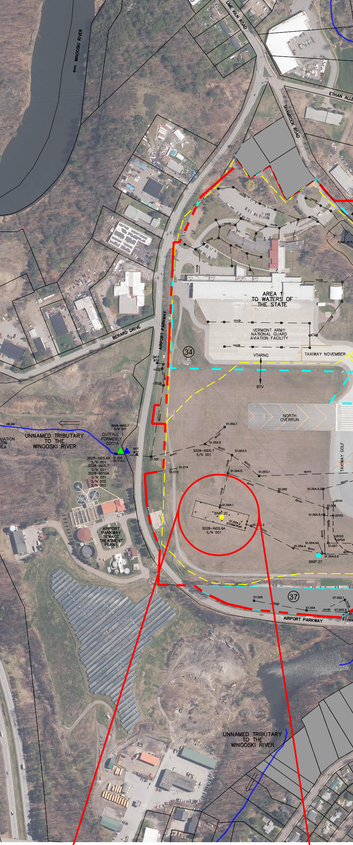
GENERAL NOTES

1) THE PURPOSE OF THIS PLAN IS TO SERVE AS A MASTER RECORD FILE OF THE EXISTING DRAINAGE SYSTEM ASSOCIATED WITH THE BURLINGTON INTERNATIONAL AIRPORT AND SURROUNDING AREAS. INFORMATION PROVIDED ON THIS PLAN IS BASED ON A COMPILATION OF AS-BUILT AND DESIGN PLANS PROVIDED BY A VARIETY OF DIFFERENT OUTFITS FOR VARIOUS PROJECTS AT AND AROUND THE BURLINGTON INTERNATIONAL AIRPORT. CATAMOUNT CONSULTING ENGINEERS, PLLC (CCE) HAS PERFORMED NO FIELD SURVEY WORK IN PREPARATION OF THIS PLAN AND TAKES NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF THE DRAINAGE SYSTEM AND STRUCTURES SHOWN ON THIS PLAN.

2) ORIENTATION AND COORDINATES SHOWN ARE BASED UPON THE VERMONT STATE PLANE COORDINATE SYSTEM (SPCS) DATUM (NAD 83) ESTABLISHED IN THE FILES PROVIDED FOR THE PREPARATION OF THIS MASTER PLAN.

3) PROPERTY LINES SHOWN ARE FROM GIS MAPPING AND HAVE BEEN MODIFIED SLIGHTLY TO BETTER DEPICT THE BOUNDARY OF THE BURLINGTON INTERNATIONAL AIRPORT.

4) DUE TO SOME DISTORTION IN THE PHOTOGRAPH BASE, SOME GIS PROPERTY LINES MAY NOT FIT THE PHYSICAL FEATURES SHOWN IN THE PHOTO.



DMH AND CB OPENINGS IN THE STORMTRAP – NO SCALE

STORMWATER DISCHARGE POINTS FOR THE BURLINGTON INTERNATIONAL AIRPORT

OUTFALL NUMBER	DISCHARGE DESIGNATION	STRUCTURE DESIGNATION	LATITUDE – NORTH				LONGITUDE – WEST			
			DEGREES	MINUTES	DEGREES	DECIMAL	DEGREES	MINUTES	DEGREES	DECIMAL
1	Q001A	S1.000	44	28	56.68	44.482411	73	10	12.06	73.170017
2	AP700	S7.001	44	28	41.52	44.478200	73	10	5.55	73.168208
3	CN001	CN001	44	28	26.26	44.473861	73	9	55.46	73.159850
4	SW001	SW001	44	27	47.51	44.463197	73	9	14.50	73.154028
5	P007	S2.042	44	27	46.85	44.463014	73	9	8.82	73.152450
6	P006	S2.033	44	27	47.09	44.463081	73	9	8.48	73.152356
7	P005	S2.020	44	27	48.23	44.463397	73	9	1.84	73.150511
8	P001	S2.001	44	27	48.19	44.463386	73	8	57.68	73.149356
9	P002	S3.001	44	27	46.54	44.462928	73	8	54.60	73.148500
10	MU01	S3.043	44	27	43.78	44.462161	73	8	49.62	73.147117
11	MU02	S3.007	44	27	47.10	44.463083	73	8	42.67	73.145186
12	MU03	S3.039	44	27	43.33	44.462036	73	8	38.86	73.144128
13	MU04	S3.033	44	27	41.16	44.461433	73	8	34.77	73.142992
14	MU05	S3.023	44	27	39.65	44.461014	73	8	34.88	73.143022
15	D018	S4.001	44	27	52.01	44.464447	73	8	19.50	73.138750
16	NG001–P	S6.016	44	28	46.20	44.479500	73	9	23.74	73.156594
17	NG002–N	S6.012	44	28	49.05	44.480292	73	9	32.34	73.158983
18	NG003–O	S6.005.0	44	28	52.44	44.481233	73	9	36.89	73.160247
19	NG004–M	S6.001	44	28	54.67	44.481853	73	9	40.56	73.161267

LEGEND

- DRAINAGE AREA LIMIT
- APPROXIMATE STORM DRAINAGE LINE
- APPROXIMATE UNDERDRAIN LINE
- APPROXIMATE DRAINAGE LINE PREVIOUSLY REMOVED
- DRAINAGE AREA LIMIT
- ADDITIONAL PROPERTIES OWNED BY BTV
- (35) BUILDING NUMBER, SEE TABLE 1 OF REPORT
- DRAINAGE MANHOLE
- CATCH BASIN
- SX.XXX DRAINAGE STRUCTURE NUMBER
- DIRECTION OF FLOW

DRAINAGE DISCHARGE POINT –

- AP_____ FINAL DISCHARGE TO UNNAMED TRIBUTARY OF THE WINOOSKI RIVER
- CN_____ NON-POINT SOURCE DISCHARGE TO CENTENNIAL BROOK
- D_____ FINAL DISCHARGE TO MUDDY BROOK
- MU_____ INTERNAL DISCHARGE TO MUDDY BROOK
- NG_____ ALONG NATIONAL GUARD AVENUE
- PO_____ TO POTASH BROOK
- Q_____ TO UNNAMED TRIBUTARY OF WINOOSKI RIVER
- SW_____ TO SO. BURLINGTON MUNICIPAL SEWER SYSTEM
- _____ MSGP BENCHMARK SAMPLING POINT

BMP (BEST MANAGEMENT PRACTICE) –

- BMP_ STORMWATER DETENTION BASIN
- BMP_ STORMWATER INFILTRATION CHAMBER
- BMP_ OIL/GREASE SEPARATOR
- BMP_ EXFILTRATING SAND FILTER
- BMP_ SWIRL CONCENTRATOR DEVICE/ HYDRODYNAMIC SEPARATOR

PPS (POSSIBLE POLLUTION SOURCE) –

- PPS_ CONTAMINANT STORAGE
- PPS_ AIRCRAFT DE-ICING
- PPS_ GAS/FUEL PUMP OR STORAGE
- PPS_ OLD EQUIPMENT STORAGE
- PPS_ MATERIAL STOCKPILE LOCATION

GRAPHIC SCALE

400 0 200 400 800 1600

(IN FEET)
1 inch = 400 ft.

CATAMOUNT
consulting eningeers, pllc
PO Box 65067 I Burlington VT I 05406
802-598-8081 I www.ccevt.com

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OWNER:

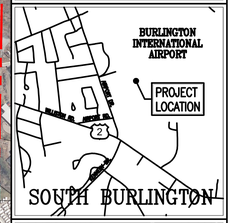
Burlington International Airport
Airport Dr.
South Burlington, VT 05403

PROJECT:

Master Drainage Summary Plan
Airport Dr.
South Burlington, VT 05403

SHEET TITLE:

Overall Existing Conditions Site Plan



LOCATION MAP 1" = ±2,000'

- [x] PRELIMINARY
- [ ] FOR PERMITTING
- [ ] NOT FOR CONSTRUCTION
- [ ] FOR CONSTRUCTION

PROJECT NO.: 21065
DATE: FEBRUARY 21, 2022
SCALE: 1" = 400'

REV. NO.	DESCRIPTION	DATE
1	UPDATE w/2022-23 PROJECTS	3/10/23
2		
3		
4		
5		
6		
7		
8		
9		
10		

SHEET NUMBER:

C1.0

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

PATRICK LEAHY BURLINGTON INTERNATION AIRPORT
STORMWATER MANAGEMENT PROGRAM (SWMP)

APPENDIX E: PERMIT SUMMARY AND ALL PREVIOUSLY ISSUED PERMITS

EIV Technical Services

EIV Technical Services

Revised April 1, 2024

Burlington International Airport
Operational Stormwater Permit Summary

Current Permit Number	Description	Issued	Expires	Permit Previously Incorporated into MS4 GP	Permit is propsed for incorporation to MS4 GP on 1/16/2024	Active/Not Active	Notes
3028-9010.A	BTV's Master Permit (Outfalls S/N 001 through S/N 009)	12/22/2009	12/22/2019	Yes	No	Not Active	
1-1391	South Apron Expansion (Vortechs unit)	12/9/1999	9/30/2004	Yes	No	Not Active	
1-0839	Redirect Airfield Drainage to North Outfall	6/11/1990	3/31/1995	Yes	No	Not Active	
3028-9010.2	Reconstruct TW B & C; Relocate TW J; Construct TW G (Muddy Brook discharge)	11/5/2015	11/5/2025	Yes	No	Active	
3028-INDS.AR	Reconstruct TW B & C; Relocate TW J; Construct TW G (Potash Brook discharge)	12/4/2015	12/4/2020	Yes	No	Not Active	Replaced 3028-INDS.A
~~3028--9010.1~~	~~Reconstruct Mark & Groove Runway 15-33~~ See Note below for S/N coverage.	8/13/2015	8/13/2025	No	No	Not Active	Replaced by 3028-INDS.5 & 3028-INDS.7
3845-9010	Heritage Flight Aviation Campus Expansion	8/13/2015	8/13/2025	Yes	No	Active	Replaces 3028-9015
3028-9015.1	Quarry Area Access Road	11/20/2012	11/20/2022	Yes	No	Not Active	
3028-INDS.3	Aircraft Sewage Receiving Station	9/4/2013	9/4/2018	Yes	No	Not Active	
3028-9015.2	Construct, Mark and Light Taxiway "G"/"K"	5/27/2015	5/27/2025	Yes	No	Active	
3845-9015.1	Heritage Aviation Parking Lot	8/25/2015	8/25/2025	Yes	No	Active	
3028-INDS.4	BTV Consolidated Car Rental Facility	7/19/2016	7/19/2021	Yes	No	Not Active	
3028-9015.3	Taxiway 'B' Extension	10/24/2016	10/24/2021	Yes	No	Not Active	
3028-INDS.6 A	Parallel Taxiway 'G', Phase 2	3/26/2019	3/25/2024	Yes	No	Active	Replaced 3028-INDS.6
3028-INDS.7	VT ANG Taxiway 'F' Widening and a portion of Reconstruct, Mark, and Groove Runway 15-33	3/22/2017	3/22/2022	Yes	No	Not Active	
3105-9050	Vermont Air National Guard Base	12/27/2022	12/26/2027	No	No	Active	Replaces BTV permit 3028-INDS.5
3028-9015.4	BTV Hotel	8/29/2019	8/28/2024	No	No	Active	to be replaced by 3028-9050.7
3028-INDS.8	Heritage Flight Hangar Addition	4/28/2020	4/27/2025	No	No	Not Active	Terminated
3028-INDS.9	~~Remain Overnight Apron (Phase 7)~~	6/9/2020	6/8/2025	No	No	Not Active	Replaced by 3028-9050.5 & 3028-9050.5A
3028-INDS.10	BETA Hangar Site	9/28/2020	9/27/2025	No	Yes	Active	Completed
3028-9050	Taxiway K	9/30/2021	9/29/2026	No	Yes	Active	Completed
3028-9050.1	Terminal Integration	8/11/2021	8/10/2026	No	Yes	Active	Completed
3028-9050.2	BETA Technologies - BTV Assembly Facility	4/26/2022	4/25/2027	No	Yes	Active	Under construction, expected completion spring 2024
3028-9050.3	BETA Technologies General Aviation Hangar	4/27/2022	4/26/2027	No	Yes	Active	Completed
3028-9050.5A	BTV Rehabilitate Taxiway A	6/2/2023	6/1/2028	No	Yes	Active	Replaced 3028-9050.5, under construction, expected completion spring 2024
3028-9050.6	Heritage Aviation Fuel Farm Expansion	7/13/2022	7/12/2027	No	No	Active	Completed
3028-9050.7	BTV Hotel	4/12/2023	4/11/2028	No	Yes	Active	not constructed
3028-9050.8	Extend Taxiway G and Construct New General Aviation South Apron	4/20/2023	4/19/2028	No	Yes	Active	Under construction, expected completion 2024

Permits acquired in the last 5 years:
- Acquired in 2019
- Acquired in 2020
- Acquired in 2021
- Acquired in 2022
- Acquired in 2023

Permits incorporated into MS4:
- Incorporated into MS4 12/22/2017
- Incorporated into MS4 4/30/2019
- Incorporated into MS4 1/16/2024

NOTE: Upon issuance, S/N 001, 002, 004, 005, and 006 was covered under 3028-INDS.7 (*VT ANG Taxiway 'F' Widening and a portion of Reconstruct, Mark, and Groove Runway 15-33*),
and
S/N 003 was covered under 3028-INDS.5 (*VT ANG Taxiway 'F' and 'D' Widening, North and South Arm Pad, Apron Repair Project, and a portion of Reconstruct, Mark, and Groove Runway 15-33*).

As a result, Permit 3028-9010.1 *(Reconstruct, Mark, and Groove Runway 15-33)* was terminated.

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

PATRICK LEAHY BURLINGTON INTERNATION AIRPORT
STORMWATER MANAGEMENT PROGRAM (SWMP)

APPENDIX E1:

MS4-Incorporated Operational Stormwater Discharge Permits
March 26, 2024

3028-9010.A (BTV Master Permit)

1-1391 (South Apron Expansion)

1-0839 (Redirect Airfield Drainage to North Outfall)

3028-9010.2 (Taxiways ‘B’, ‘C’, ‘J’, and ‘G’ to Muddy Brook)

3028-INDS.AR (Taxiways ‘B’, ‘C’, ‘J’, and ‘G’ to Potash Brook)

3028-9010.1 (Reconstruct Mark & Groove Runway 15-33) – Permit Terminated, BTV’s discharge replaced with 3028-INDS.7

3845-9010 (Heritage Flight Aviation Campus Expansion)

3028-9015.1 (Quarry Area Access Road)

3028-INDS.3 (Aircraft Sewage Receiving Station)

3028-9015.2 (Construct Mark and Light Taxiway ‘G-K’)

3845-9015.1 (Heritage Aviation Parking Lot)

3028-INDS.4 (BTV Consolidated Car Rental Facility)

3028-9015.3 (Taxiway ‘B’ Extension)

3028-INDS.6A (Parallel Taxiway ‘G’, Phase 2)

3028-INDS.7 (VT ANG Taxiway ‘F’ Widening and a portion of Reconstruct, Mark, and Groove Runway 15-33)

EIV Technical Services

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

MS4 Incorporated Operational Stormwater Discharge Permits

3028-9010.A (BTV's Master Permit)

VERMONT

Vermont Department of Environmental Conservation
Water Quality Division
103 South Main Street, Building 10 North
Waterbury, VT 05671-0408

Agency of Natural Resources

[phone] 802-241-3770
[fax] 802-241-3287

RECEIVED
JAN 04 2010
STANTEC
SOUTH BURLINGTON, VT

December 22, 2009

City of Burlington-Burlington International Airport
Attn: Heather Kendrew
1200 Airport Drive #1
South Burlington, VT 05403

Re: Authorization to Discharge Permit No. 3028-9010.A

Dear Ms. Kendrew:

Enclosed is your copy of an Amended Authorization to Discharge pursuant to General Permit 3-9010 Amended (May 2007), which has been signed by the Stormwater Program Manager of the Stormwater Management Section on behalf of the Commissioner of the Department of Environmental Conservation.

This authorizes the discharge of treated stormwater runoff from:

- the Burlington International Airport (BTV) north runway;
- the north end terminal expansion and concrete apron;
- parking lots, roofs and roads associated with expanded BTV parking facilities;
- the Pratt & Whitney Building;
- the Building 880 replacement;
- the South End Development Phase 2 Project; and
- the Quarry Overflow Parking Area.

The properties are located on Airport Drive, Army Guard Road, Eagle Drive and Aviation Avenue in South Burlington, Vermont and will discharge to an unnamed tributary of the Winooski River, groundwater in the Winooski River watershed, a wetland tributary to Muddy Brook, and groundwater in the Muddy Brook watershed.

Please read this authorization to discharge carefully and note the inspection and reporting requirements, and other operating conditions including payment of annual operating fees.

If you have any questions, please call me at (802) 241-1452.

Sincerely,

Vicki L. Hill, Environmental Technician
Stormwater Management Section

Enclosures
cc: Gregory Goyette, Stantec Consulting Services
Peter Keibel, Act 250 District Coordinator, Essex Junction

Permit Number 3028-9010.A
Project ID Number EJ96-0386

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AMENDED AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9010 AMENDED (MAY 2007)

A determination has been made that the applicant:

City of Burlington -Burlington International Airport
1200 Airport Drive, #1
South Burlington, VT 05403
(Impervious area: 63.815 acres)

meets the criteria necessary for inclusion under General Permit 3-9010 Amended (May 2007). Here after the named applicant shall be referred to as the permittee. Subject to the conditions of General Permit No. 3-9010 Amended (May 2007), the permittee is authorized to discharge stormwater from the Burlington International Airport (BTV) facilities in South Burlington, Vermont as follows: (1) the BTV north runway to an unnamed tributary of the Winooski River previously described in General Permit Authorization 3028-9010 and Individual Permit No. 1-0839 discharge point 1 (S/N 001); (2) the north end terminal expansion and concrete apron to an unnamed tributary of the Winooski River and groundwater in the Winooski River watershed previously described in General Permit Authorization 3972-9015 (S/N 002); (3) parking lots, roofs and roads associated with expanded BTV parking facilities to an unnamed tributary of the Winooski River and groundwater in the Winooski River watershed previously described in General Permit Authorization 3028-9010 and Individual Permit No. 1-1580 (S/N 003-4); (4) the Pratt & Whitney Building located at 15 Eagle Drive to a wetland contiguous with Muddy Brook previously described in Individual Permit No. 1-1270 (S/N 005-6); (5) the Building 880 replacement located on Aviation Avenue to a wetland contiguous with Muddy Brook previously described in General Permit Authorization 3845-9015 (S/N 007); (6) the South End development Phase 2 project to a wetland contiguous with Muddy Brook previously described in General Permit Authorization 4026-9015 (S/N 008); and (7) the Quarry Overflow Parking Area to groundwater in the Muddy Brook watershed previously described in General Permit Authorization 3028-9015 (S/N 009).

Manner of Discharge:

S/N 001: Stormwater runoff from the airport runway via a network of catch basins and storm drains including grass-lined swales, a trench drain on the terminal apron, several dry wells and perforated storm drain pipe, then through a rip-rapped outlet, prior to discharge to an unnamed tributary of the Winooski River.

S/N 002: Stormwater runoff from the north end of the airport terminal and concrete apron via a closed system to a Vortechs/StormTech treatment system that discharges to groundwater, with overflow to an unnamed tributary to the

Winooski River. During periods of plane de-icing stormwater runoff will be diverted to a pump station and disposed of in an underground infiltration system

Note: infiltrated discharges are covered under the VTDEC Underground Injection Control Program.

S/N 003: Stormwater runoff from impervious surfaces associated with the deck of the new garage, rental car lot, long-term lot, loop road extension, garage exit ramps, and rental lot, via area drains, catch basins, grass swale and closed system to an unnamed tributary to the Winooski River.

S/N 004: Stormwater runoff from impervious surfaces associated with the employee and long-term parking lots (Catchment #2) via catch basins to a closed system to an exfiltrating sand filter to groundwater in the Winooski River watershed.

S/N 005: Stormwater runoff from the Pratt & Whitney building and parking area via grassed,swales to a collection system, then discharging to a wetland tributary to Muddy Brook.

S/N006: Stormwater runoff from the Pratt & Whitney access road via overland flow then discharging to a wetland tributary to Muddy Brook.

S/N007: Stormwater runoff from the BTV Building 880 replacement project eastern rooftop and paved parking areas via closed piping system, and from western rooftop and paved parking areas via grass channel to a closed piping system, discharging to a wetland tributary to Muddy Brook

S/N008: Stormwater runoff from paved parking areas and rooftops via sheet flow to grassed channels and pipes conveyed to an infiltration basin and Vortechnics underground storage vault, then discharging to a wetland tributary to Muddy Brook. Note: infiltrated discharges are covered under the VTDEC Underground Injection Control Program.

S/N009: Stormwater runoff from the expanded portion of the south end quarry (0.105 acres of new impervious) via overland sheet flow to vegetated areas for treatment in accordance with the Disconnection of Non-rooftop Runoff Credit and then conveyed via a grass channel to the existing quarry discharging to groundwater in the Muddy Brook watershed.

Compliance with General Permit 3-9010 Amended (May 2007) and this Authorization

The permittee shall comply with this authorization and all the terms and conditions of General Permit 3-9010 Amended (May 2007), including the payment of annual operating fees to the Department. A billing statement for such fees will be sent to the permittee each year. The first year's statement is enclosed. Any permit non-compliance, including a failure to pay the annual operating fee, constitutes a violation of 10 V.S.A. Chapter 47 and may be grounds for an enforcement action or revocation of this authorization to discharge.

Transferability

This authorization to discharge is not transferable to any person except in compliance with Part VI.D. of General Permit 3-9010 Amended (May 2007). A copy of General Permit 3-9010 Amended (May 2007) is available from the Department via the internet at http://www.vtwaterquality.org/stormwater/htm/sw_3-9010.htm

Changes to Permitted Development

In accordance with Part V.G. of General Permit 3-9010 Amended (May 2007), the permittee shall notify the Department of any planned development or facility expansions or changes that may result in new or increased stormwater discharges. The Department shall determine the appropriateness of continued inclusion under General Permit 3-9010 Amended (May 2007) by the modified development or facility.

Annual Inspection and Report

The stormwater collection, treatment and control system authorized herein shall be properly operated and maintained. An inspection shall be conducted between the conclusion of spring snow melt and June 15th of each year. The inspection shall evaluate the operation and maintenance and condition of the stormwater collection, treatment and control system. The permittee shall prepare an annual inspection report on a form available from the Department. The permittee shall submit an inspection report to the Department by July 15th of each year or by July 30th if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance.

Restatement of Compliance

Every 3 years, the permittee shall submit to the Department a written statement signed by a designer that the stormwater collection, treatment and control system authorized herein is properly operating and maintained. The first re-statement of compliance is due December 22, 2012. Failure to submit a designer's restatement of compliance shall constitute a violation of General Permit 3-9010 Amended (May 2007) and may result in the revocation of this authorization to discharge.

Filing of this Authorization with Local Land Records

In accordance with Part VI.N. of General Permit 3-9010 Amended (May 2007), the permittee shall file a copy of this authorization to discharge in the land records within seven (7) days of its issuance and a copy of the recording shall be provided to the Department within fourteen (14) days of the permittee's receipt of a copy of the recording from the local land records.

Rights to Appeal to the Environmental Court

Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Court within 30 days of the date of the decision. The appellant must attach to the Notice of Appeal the entry fee of $250.00, payable to the state of Vermont. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Court; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also

serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings, available on line at www.vermontjudiciary.org. The address for the Environmental Court is 2418 Airport Road, Suite 1, Barre, VT 05641 (Tel. # 802-828-1660).

Effective Date and Expiration Date of this Authorization

This amended authorization to discharge shall become effective on December 22, 2009 and shall continue until December 22, 2019. The permittee shall reapply for coverage at least sixty (60) days prior to December 22, 2019.

Dated at Waterbury, VT this 22nd day of December, 2009.

Justin G. Johnson, Commissioner
Department of Environmental Conservation

By _____
Padraic Monks
Stormwater Program Manager

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

MS4 Incorporated Operational Stormwater Discharge Permits

1-1391 (South Apron Expansion)

File No. 04-04
Permit No. 1-1391
PIN No. EJ96-0386

STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DISCHARGE PERMIT
STORMWATER RUNOFF INTO DRAINAGE WELLS

In compliance with provisions of 10 V.S.A. 1263

Burlington International Airport
1200 Airport Drive #1
South Burlington, VT 05403

and in accordance with "Terms and Conditions" hereinafter specified, the above named permittee is hereby granted permission to discharge stormwater runoff from the taxiways and ramp from the Burlington International Airport 'South Apron Expansion', South Burlington, VT to groundwater via a stormwater drainage well.

1. Expiration Date: **September 30, 2004.** Note: This permit, unless revoked, shall be valid until the designated expiration date despite any intervening change in water quality, effluent, or treatment standards of the classification of the receiving waters, including groundwater. However, any such changed standard or classification shall be applied in determining whether or not to renew the permit pursuant to 10 V.S.A. 1263.

   Re-apply for a discharge permit by March 31, 2004.

2. Revocation: 10 V.S.A. 1267 provides as follows:

   "The Secretary may revoke any permit issued by him pursuant to this subchapter if he finds that the permit holder submitted false or inaccurate information in his application or has violated any requirement, restriction, or condition of the permit issued. Revocation shall be effective upon actual notice thereof to the permit holder."

3. Transfer of Permit: This permit is not transferable without prior written approval of the Secretary. The permittee shall notify the Secretary immediately, in writing, of any sale, lease, or other transfer of ownership of the property from which the discharge originates. The permittee shall provide a copy of this permit to the new owner or tenant and shall inform the new owner or tenant of his responsibility to make application for a permit which shall be issued in his name. Any failure to do so shall be considered a violation of this permit.

4. Right of Entry : The permittee shall allow the Secretary or their authorized representative, upon presentation of credentials, to enter the permittee's premises where the effluent sources authorized by this permit are located and at reasonable times to have access to copy any records required to be kept under the terms and conditions of this permit, and to inspect any treatment device, monitoring equipment, or monitoring method required in this permit, and to sample any discharge of pollutants.

5. Receiving Waters: Groundwater.

6. Manner of Discharge:
S/N 001 (infiltration basin trench): Stormwater from the South Apron expansion (ramp and taxiways) collected in catch basins and piped to a 'Vortechs' treatment unit, then discharging to an infiltration trench system which in turn infiltrates into the groundwater.

7. Wastes Permitted:
Stormwater runoff from the taxiways and ramp after treatment via 'Vortechs' treatment unit.

8. Volumes Permitted and Frequency of Discharge: Such volumes and frequency as required by the discharges specified in No. 6 above

9. Approved Project Design: Treatment as specified in No.7 above. The project shall be constructed and operated in accordance with the Edwards and Kelcey, Inc plans specified below, and supporting information:

Sheet 13, 18, and 19 of 34, dated 8/18/99

By reference the above noted plans are made a part of this permit.

10. Maintenance and Maintenance Reporting Requirements:

a. The permittee shall inspect the Vortechs unit and measure the accumulated sediment volume in the aluminum grit chamber **quarterly**.

b. The permittee shall remove the accumulated sediment and clean the Vortechs unit when the sediment depth has accumulated to within 6 inches of the dry-weather water level.

i. The permittee shall strictly follow the maintenance procedures prescribed by the manufacturer when removing sediment.

c. Any sediment removed from the swales, or sedimentation basin shall be disposed of properly and not within 100 feet of Waters of the State.

d. By **SEPTEMBER 30 OF EACH YEAR** a written report shall be submitted to the Department of Environmental Conservation, 103 South Main Street, Waterbury, VT 05671-0405. This report shall include, as a minimum:

i. the dates of inspection and sediment depth measurements for the year.

ii. the dates of sediment removal and an estimate of the volume removed.

f. Any stormwater devices used during construction for erosion control shall be inspected and cleaned to design specifications immediately after construction has been completed.

11. Personnel and Training Requirements: Such personnel and training as necessary to fulfill the requirements of #10 above.

12. Monitoring and Reporting Requirement:
a. *By no later than September 30, 2001,* the permittee shall submit a study to the Department documenting the efficiency of the 'Vortechs' unit. This study shall investigate the removal efficiency of the 'Vortechs' unit for total suspended solids (TSS) and total petroleum hydrocarbons (TPH) and shall include the following:

i. a minimum of six storm events shall be sampled.

ii. the study shall follow the same protocol as used in the Delorme Publishing Company, Yarmouth, ME. field study.

iii. sediment depth, system maintenance activities, etc. shall also be noted in the report and considered.

iv. the study shall be conducted by an independent entity other than the manufacturer of the treatment unit.

b. Other reporting required as specified in #10 above.

13. Other Requirements:
a. Treated stormwater runoff is the only waste authorized for disposal under the terms and conditions of this permit. The discharge for any hazardous materials or hazardous waste into the stormwater management system is prohibited.

b. The permittee shall contact the Agency of Natural Resources, Wastewater Management Division, within 24 hours or the next business day if a spill occurs and materials enter the stormwater collection system.

14. Issue Date of Permit: December 9, 1999

AGENCY OF NATURAL RESOURCES
Canute E. Dalmasse, Commissioner
Department of Environmental Conservation

By Marilyn J. Davis
Marilyn J. Davis, Director
Wastewater Management Division

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

MS4 Incorporated Operational Stormwater Discharge Permits

1-0839 (Redirect Airfield Drainage to North Outfall)

STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

DISCHARGE PERMIT

File No. 04-14-052

Permit No. 1-0839

In compliance with provisions of 10 V.S.A. 1263

Burlington International Airport
Box 1 - Airport Drive
Burlington, Vermont 05401

and in accordance with "Terms and Conditions" hereinafter specified, the above named permittee is hereby granted permission to discharge stormwater runoff from the Burlington International Airport to an unnamed tributary of the Winooski River and an unnamed tributary of Potash Brook.

1. Expiration Date: March 31, 1995. Note: This permit, unless revoked, shall be valid until the designated expiration date despite any intervening change in water quality, effluent, or treatment standards or the classification of the receiving waters. However, any such changed standard or classification shall be applied in determining whether or not to renew the permit pursuant to 10 V.S.A. 1263.

   Reapply for a discharge permit by September 30, 1994.

2. Revocation: 10 V.S.A. 1267 provides as follows:

   "The Secretary may revoke any permit issued by him pursuant to this subchapter if he finds that the permit holder submitted false or inaccurate information in his application or has violated any requirement, restriction, or condition of the permit issued. Revocation shall be effective upon actual notice thereof to the permit holder."

3. Transfer of Permit: This permit is not transferable without prior written approval of the Secretary. The permittee shall notify the Secretary immediately, in writing, of any sale, lease, or other transfer of ownership of the property from which the discharge originates. The permittee shall also inform the new owner or tenant of his responsibility to make application for a permit which shall be issued in his name. Any failure to do so shall be considered a violation of this permit.

4. Receiving Waters:

S/N 001 - Unnamed tributary of the Winooski River.
S/N 002 - Unnamed tributary of Potash Brook.
S/N 003 - Unnamed tributary of Potash Brook.

5. Manner of Discharge:

S/N 001 - Via a network of catch basins and storm drains, through a rip-rapped outlet, prior to discharge to an unnamed tributary of the Winooski River. The drainage network includes grass-lined swales, a trench drain on the terminal apron, some leaching catch basins, an oil/water separator, and a section of perforated storm drain pipe.

S/N 002 - Via overland flow across vegetated terrain to a network of catch basins, through perforated storm drains, including a series of lateral exfiltrating underdrains, to a rip-rapped outlet, prior to discharge to an unnamed wetland, which discharges to a tributary of Potash Brook.

S/N 003 - Via overland flow across vegetated terrain to a network of catch basins, through perforated storm drains to a rip-rapped outlet, prior to discharge to an unnamed tributary of Potash Brook.

6. Wastes Permitted:

S/N 001 - Stormwater runoff from roofs, the airport terminal apron, paved runways, taxiways, roads and parking areas, following treatment by overland flow across vegetated terrain, in grass-lined drainage swales, and in an oil/water separator.

S/N 002 - Stormwater runoff from the southern section of taxiway A, following treatment by overland flow across vegetated terrain.

S/N 003 - Stormwater runoff from taxiway G3, following treatment by overland flow across vegetated terrain.

Note: Discharge point S/N 001 incorporates stormwater discharges from areas previously permitted by Amended Temporary Pollution Permit #2-0188.

7. Volumes Permitted: Such volumes as required by the discharge specified in #5 above.

8. Frequency of Discharge: Daily

9. Operation and Treatment: Treatment as specified in #6 above. For details on the treatment and conveyance of stormwater runoff for this project see the following plans and details:

Hoyle, Tanner and Associates (1983)
Wiemann-Lamphere, Architects (September 1985)
Hoyle, Tanner and Associates (August 1986)
Hoyle, Tanner and Associates (February 1989)
Hoyle, Tanner and Associates (January and March 1990)

10. Maintenance and Maintenance Reporting Requirements: All catch basins, grass-lined swales, sedimentation ponds, and other treatment and conveyance devices shall be maintained in good operating order at all times and shall be inspected at least quarterly and cleaned at such times as necessary to maintain design performance levels. NO LATER THAN JANUARY 31 OF EACH YEAR A WRITTEN REPORT SHALL BE SUBMITTED TO THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION, NPDES PERMIT SECTION, 103 SOUTH MAIN STREET, WATERBURY, VERMONT 05676, PROVIDING THE DATES AND NATURE OF CLEANING OPERATIONS CARRIED OUT IN THE PRECEDING YEAR.

11. Personnel and Training Requirements: Such personnel and training as necessary to fulfill the requirements of #10 above.

12. Monitoring and Reporting Requirements: No monitoring required; reporting requirement as specified in #10 above.

13. Miscellaneous Requirements: Not applicable

14. Issue Date of Permit: 11 Jun 1990

Timothy J. Burke, Commissioner
Department of Environmental Conservation

By _____
Gary Schultz, Director
Permits, Compliance & Protection

_____
Prepared and Reviewed by

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

MS4 Incorporated Operational Stormwater Discharge Permits

3028-9010.2 (Taxiways ‘B’, ‘C’, ‘J’, and ‘G’ to Muddy Brook)

Permit Number 3028-9010.2
Project ID Number EJ96-0386

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9010

A determination has been made that the applicant:

City of Burlington, Burlington International Airport
1200 Airport Drive, #1
South Burlington, VT 05403

Impervious Area: 18.03 acres

meets the criteria necessary for inclusion under General Permit 3-9010. Hereinafter the named applicant shall be referred to as the permittee. Subject to the conditions of General Permit No. 3-9010, the permittee is authorized to discharge stormwater from reconstructed Taxiways 'B' and 'C', and relocated Taxiway 'J' and newly constructed Taxiway 'G': AIP No. 3-50-0005-XX-2009, located at the Burlington International Airport, 1200 Airport Drive, in South Burlington, Vermont to Muddy Brook. This permit renews and replaces previously authorized permit 3028-INDS.A for the portion draining to Muddy Brook, S/N 001 only. (The remaining portion from 3028-INDS.A drains to Potash Brook is renewed under 3028-INDS.AR.)

Manner of Discharge:
S/N 001: Stormwater runoff from taxiway surfaces via sheet flow over designated vegetated disconnection areas, then via overland flow discharging to groundwater, to a catch basin and pipe closed drainage system, or via conveyance swale, discharging to Muddy Brook.

Stormwater runoff from taxiway surfaces via sheet flow for treatment in Grass Channel #1, with underdrain, routed to a catch basin and pipe closed drainage system, discharging to Muddy Brook.

Stormwater runoff from runway and taxiway surfaces via sheet flow for treatment in Grass Channel #2, with underdrain, routed to a catch basin and pipe closed drainage system, discharging to Muddy Brook.

Stormwater runoff from runway and taxiway surfaces via sheet flow for treatment in Grass Channel #3, with underdrain, routed to a catch basin and pipe closed drainage system, discharging to Muddy Brook.

Stormwater runoff from taxiway surfaces via sheet flow for treatment in Grass Channel #4, with underdrain, routed to a catch basin and pipe closed drainage system, discharging to Muddy Brook.

Note: The VT DEC Stormwater Program's Site Balancing Procedure for the Discharge of Stormwater Runoff from the Expansion or Redevelopment of Impervious Surfaces was utilized to meet applicable treatment standards in drainage area S/N 001, discharging to Muddy Brook. In addition, areas of impervious surface previously authorized under Discharge Permit #1-0839, drainage area S/N 003, were redeveloped, subject to the Agency's 2002 Stormwater Management Manual, and are now covered by this discharge permit.

Compliance with General Permit 3-9010 and this Authorization

The permittee shall comply with this authorization and all the terms and conditions of General Permit 3-9010, including the payment of annual operating fees to the Department. A billing statement for such fees will be sent to the permittee each year. The first year's statement is enclosed. Any permit non-compliance, including a failure to pay the annual operating fee, constitutes a violation of 10 V.S.A. Chapter 47 and may be grounds for an enforcement action or revocation of this authorization to discharge.

Transferability

This authorization to discharge is not transferable to any person except in compliance with Part VI.D. of General Permit 3-9010. A copy of General Permit 3-9010 is available from the Department via the internet at
http://www.vtwaterquality.org/stormwater/htm/sw_3-9010.htm

Changes to Permitted Development

In accordance with Part V.G. of General Permit 3-9010, the permittee shall notify the Department of any planned development or facility expansions or changes that may result in new or increased stormwater discharges. The Department shall determine the appropriateness of continued inclusion under General Permit 3-9010 by the modified development or facility.

Annual Inspection and Report

The stormwater collection, treatment and control system shall be properly operated. The permittee shall submit an annual inspection report on the operation, maintenance and condition of the stormwater collection, treatment and control system. The inspection report shall be submitted regardless of whether the project has been constructed. The inspection shall be conducted between the conclusion of spring snow melt and June 15th of each year and the inspection report shall be submitted to the Secretary by July 15th of each year, or by July 30th if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. The inspection report shall note all problem areas and all measures taken to correct any problems and to prevent future problems.

Restatement of Compliance

Every **5** years, the permittee shall submit to the Department a written statement signed by a designer that the stormwater collection, treatment and control system authorized herein is properly operating and maintained. The first re-statement of compliance is due July 15, 2020. Failure to submit a designer's restatement of compliance shall constitute a violation of General Permit 3-9010 and may result in the revocation of this authorization to discharge. Forms for completing this requirement are available on the Stormwater Management Program's website.

Recording in Land Records: The permittee shall record a one-page notice of issuance of this discharge permit in the local land records within fourteen (14) days of issuance of this authorization to discharge on the form provided by the Secretary, per §18-312 of Stormwater Management Rule. The permittee shall provide a copy of the recording to the Stormwater Management Program within fourteen (14) days of the permittee's receipt of the copy of the recording from the local land records.

Renewable Energy Projects – Right to Appeal to Public Service Board:
If this decision relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. §248, any appeal of this decision must be filed with the Vermont Public Service Board pursuant to 10 V.S.A. §8506. This section does not apply to a facility that is subject to 10 V.S.A. §1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. §1006 (certification of hydroelectric projects) or 10 V.S.A. Chapter 43 (dams). Any appeal under this section must be filed with the clerk of the Public Service Board within 30 days of the date of this decision. For further information, see the Public Service Board website at http://psb.vermont.gov or call (802) 828-2358. The address for the Public Service Board is 112 State Street Montpelier, Vermont 05620-2701.

All Other Projects - Right to Appeal to the Environmental Court
Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Court within 30 days of the date of the decision. The appellant must attach to the Notice of Appeal the entry fee of $250.00, payable to the state of Vermont. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Court; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings, available on line at www.vermontjudiciary.org. The address for the Environmental Court is 32 Cherry Street, 2nd Floor Suite 303 Burlington, Vermont 05401 (Tel. # 802-951-1740).

Effective Date and Expiration Date of this Authorization
This authorization to discharge shall become effective on November 5, 2015 and shall continue until November 5, 2025. The permittee shall reapply for coverage at least sixty (60) days prior to November 5, 2025.

Dated this 5th day of November, 2015.

Alyssa Schuren, Commissioner
Department of Environmental Conservation

By _____
Padraic Monks, Stormwater Program Manager
Stormwater Management Program

NOTICE OF ISSUANCE OF STORMWATER DISCHARGE PERMIT BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that an individual stormwater discharge permit or an authorization to discharge pursuant to a general stormwater discharge permit has been issued by the Vermont Department of Environmental Conservation to Permittee(s) named herein for the discharge of stormwater runoff from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. Section 1264 for the property identified below. The permit/authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

****

Permittee(s): _____

Permit/Authorization Number: _____

911 Address of Property: _____

Name of condominium, subdivision or planned community association (if applicable): _____

Signature of Permittee or Authorized Representative: _____

Printed Name of Permittee or Authorized Representative: _____

Date of Signature: _____

****

Recording information: Municipal clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee". Please index this document listing the above named Permittee(s) as "Grantor(s)". Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor".

Please mail this stamped/recorded/completed form to:

DEC – Watershed Management Division
Stormwater Management Program
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Or email to: anr.wsmdstormwatergeneral@state.vt.us

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

MS4 Incorporated Operational Stormwater Discharge Permits

3028-INDS.AR (Taxiways ‘B’, ‘C’, ‘J’, and ‘G’ to Potash Brook)

STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STORMWATER DISCHARGE PERMIT

STORMWATER RUNOFF TO WATERS OF THE STATE

In compliance with provisions of 10 V.S.A. §1264, the Stormwater Management Rule for Stormwater-Impaired Waters and in accordance with "Terms and Conditions" hereinafter specified,

City of Burlington, Burlington International Airport
1200 Airport Drive, #1
South Burlington, VT 05403

Impervious Area: 2.30 acres

the permittee, is hereby granted permission to discharge stormwater runoff from reconstructed Taxiways 'B' and 'C', and relocated Taxiway 'J' and newly constructed Taxiway 'G': AIP No. 3-50-0005-XX-2009, located at the Burlington International Airport, 1200 Airport Drive, in South Burlington, Vermont to a Class II wetland contiguous to Potash Brook. This permit renews and replaces previously authorized permit 3028-INDS.A for the portion draining to Potash Brook, S/N002 only. (The remaining impervious from 3028-INDS.A is renewed under 3028-9010.2.)

1. Expiration Date: Five years from issuance date of final permit. Note: This permit, unless revoked, modified or suspended, shall be valid until the designated expiration date not withstanding any intervening change in water quality, effluent, or treatment standards, or classification of the receiving waters including groundwater. However, any such changed standard or classification, and any applicable requirement in a total maximum daily load (TMDL) for Potash Brook, shall be applied in determining whether or not to renew this permit, and in determining the conditions of a renewed permit.

   The permittee shall reapply for a renewed discharge permit ninety days prior to the expiration date of this permit.

2. Revocation: 10 V.S.A. §1267 provides as follows:

   The Secretary may, after notice and opportunity for a public hearing, revoke, modify or suspend this permit if it is found that the permittee submitted false or inaccurate information in its application or has violated any requirement, restrictions, or condition of this permit, or if there is any change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge. The Secretary shall impose conditions as the Secretary deems necessary for regulating the discharges of a permittee whose permit has been revoked, modified or suspended. Revocation shall be effective upon actual notice thereof to the permittee.

3. Operating Fees: This discharge is subject to operating fees under 3 V.S.A. §2822. The permittee shall submit the operating fees to the Agency in accordance with procedures provided by the Secretary.

4. Recording in Land Records: The permittee shall record a one-page notice of issuance of this discharge permit in the local land records within fourteen (14) days of issuance of this permit on the form provided by the Secretary, per §22-312 of the Stormwater Management Rule for Stormwater-Impaired Waters. A copy of this form is available on the Stormwater Management Program website. The permittee shall provide a copy of the recording to the Stormwater Management Program within fourteen (14) days of the permittee's receipt of the copy of the recording from the local land records.

5. Transfer of Permit: This permit is not transferable without prior written approval of the Secretary. Provided all applicable fees under 3 V.S.A. §2822 have been paid, a permittee may submit a notice of transfer to the Stormwater Management Program. The notice shall be submitted at least five (5) days prior to the proposed date of transfer. The notice shall state that the prospective permittee has adequate funding to comply with this permit. The permittee shall provide a copy of this permit to the new owner or tenant and inform him of the responsibility to make application for a permit which shall be issued in his name. Any failure to do so shall be considered a violation of this permit.

6. Right of Entry: The permittee shall allow the Secretary, or his or her authorized representatives, at reasonable times, upon presentation of credentials, to enter upon and inspect the permitted premises, and the stormwater collection, treatment and control system; and to sample any discharge to determine compliance with this permit; and to have access to and inspect and copy any records required to be kept pursuant to this permit.

7. Receiving Waters: Class II Wetland contiguous to Potash Brook

8. Manner of Discharge:
S/N 002: Stormwater runoff from taxiway surfaces via sheet flow over designated vegetated disconnection areas, then overland flow discharging to a catch basin and pipe closed drainage system, discharging to a Class II wetland contiguous to Potash Brook.

9. Wastes Permitted: Stormwater runoff from S/N 002 of the above named project after treatment from the Disconnection of Non-Rooftop Runoff Credit.

10. Volumes Permitted and Frequency of Discharge: Such volumes and frequency as required by the discharge specified in #8 above.

11. Approved Project Design: This project shall be constructed and operated in accordance with the following site plans and details prepared by Stantec and by Campbell & Paris Engineers, and supporting information:

Stantec

Drawing No. 1, “Stormwater Management Plan,” dated 5/28/2009;
Drawing No. 16, “Grading and Drainage Plan, Sheet 1 of 2,” dated 5/28/2009;
Drawing No. 17, “Grading and Drainage Plan, Sheet 2 of 2,” dated 5/28/2009;
Drawing No. 19, “Drainage Details,” dated 5/28/2009;
Drawing No. 21, “Typical Sections,” dated 5/28/2009;
Drawing No. 22, “Typical Sections and Pavement Details,” dated 5/28/2009.

Campbell & Paris Engineers
Sheets SW2 and SW3, "Stormwater Management Plan," dated 3/25/2009, and last revised 02/2010;
Sheets SW4 through SW7, "Stormwater Management Plan," dated 3/25/2009;
Sheets 20 and 21, "Schedule 1 Grading & Drainage Plan," dated 5/14/2009;
Sheet 22, "Schedule 2 Grading & Drainage Plan," dated 5/14/2009;
Sheet 36, "Pavement and Typical Sections & Misc. Details," dated 5/14/2009;
Sheet 20A, "Schedule IV Grading & Drainage Plan," dated 5/14/2009, and last revised 5/2009.

By reference, the above noted plans are made a part of this permit.

12. Inspection and Maintenance Reporting Requirements:

a. The basins, grass channels, and related stormwater collection, treatment and control system shall be maintained in good operating condition at all times and **shall be inspected annually and cleaned as necessary to maintain design specifications**. **The inspections shall be conducted between the conclusion of spring snow melt and June 15th of each year**.

b. Any sediment removed from the basins, grass channels, and related stormwater collection, treatment and control system shall be disposed of properly in accordance with state and federal statutes and regulations.

c. **By July 15 of each year the permittee shall submit an annual inspection report to the Secretary; or by July 30 of each year if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. Annual Inspection Reports shall be submitted to:**

Department of Environmental Conservation
Watershed Management Division
Stormwater Program
1 National Life Drive, Main 2
Montpelier, Vermont 05620-3522

Or by email to anr.wsmdstormwatergeneral@state.vt.us

This report shall include, at a minimum items c.i. through c.vii. below. The permittee(s) may utilize the Annual Inspection Report form available from the Stormwater Program if determined by inspector to be sufficient to fully document inspection and maintenance of the authorized system.

i. Unless previously submitted by the permittee(s) under a previously issued authorization or discharge permit, the first report shall include an inspection and designer's certification that the project was built in compliance with the Approved Project Design per #11 above;

ii. A description of any vegetated areas that require mowing or other maintenance;

iii. A description of any catch basins that require maintenance or sediment removed from sumps;

iv. A description of any illicit discharges to the system (illicit discharges would include dumping of oil, gas, detergent, vehicle wash water, etc.) and corrective action/preventative measures taken if applicable;

v. A description of any re-routing of stormwater to avoid the system;

vi. A description of any erosion noted during inspection (i.e. areas of exposed soil in channels, outlets, or on pond berms);

vii. A description of any cleaning, maintenance operations, or repairs needed to maintain design specifications, including a schedule for correction of any identified deficiencies;

d. Should any erosion problems occur, the permittee is required to immediately correct any such problems.

e. Any basins, grass channels, or related stormwater devices used during construction for erosion control shall be inspected and cleaned to design specifications immediately after construction has been completed.

13. Description of Required Offset (on-site): In order to meet the statutory standard for new discharges set forth in 10 V.S.A. §1264 and the Stormwater Management Rule for Stormwater-Impaired Waters, the permittee has demonstrated that the project will not increase the pollutant load over existing conditions. This has been accomplished by treating runoff from existing impervious surfaces within the Potash Brook watershed project limits. The project achieves a net reduction in sediment loading to Potash Brook of 3,466 pounds per year.

14. Secretary's Determination: The Secretary has determined that this project meets the requirements of the Agency's 2002 Stormwater Management Manual and does not increase the sediment or hydrologic load of the receiving stormwater-impaired waters. The Secretary has determined that the proposed discharge will not reduce the quality of the receiving waters below the classification established for them.

15. Personnel and Training Requirements: Such personnel and training as necessary to fulfill the requirements of #12 above.

16. Monitoring and Reporting Requirement: No monitoring required; reporting requirement as specified in #12 above.

17. Other Requirements:

a. Treated stormwater runoff is the only waste authorized for disposal under the terms and conditions of this permit. The discharge of any hazardous materials or hazardous waste into the stormwater management system is prohibited.

b. The issuance of this permit does not relieve the permittee from the responsibility to obtain any other local, state or federal permits required by law.

18. Compliance with Anti-degradation and Water Quality Standards: The Secretary has determined that the permitted discharges satisfy Vermont's Anti-degradation Policy provided in Section 1-

03 of the Vermont Water Quality Standards and the Department of Environmental Conservation's Interim Anti-degradation Implementation Procedure because the applicant has demonstrated how the proposed development will implement practices and offset projects as necessary to ensure water quality is maintained in receiving waters. In particular, the applicant has demonstrated how the proposed development will implement appropriate best management practices (BMPs) designed in accordance with the requirements of the Vermont Stormwater Management Manual, Volume I and as necessary offset projects in accordance with Chapter 22: Stormwater Management Rule for Stormwater-Impaired Waters. These BMPs and offset projects where necessary will manage and mitigate the proposed stormwater discharge from the project such that no lowering of water quality is expected to occur in the receiving waters.

19. Renewable Energy Projects – Right to Appeal to Public Service Board:
Any appeal of this decision must be filed with the clerk of the Vermont Public Service Board pursuant to 10 V.S.A. §8506 within 30 days of the date of this decision. The appellant must file with the Clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. §8504(c)(2), and shall also serve a copy of the Notice of Appeal on the Vermont Department of Public Service. For information, see the Rules and General orders of the Public Service Board available on line at www.psb.vermont.gov. The address for the Public Service Board is 112 State Street Montpelier, Vermont 05620-2701 (Tel. #802-828-2358).

All Other Projects – Right to Appeal to Environmental Court:
Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Court within 30 days of the date of the decision. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Court; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings, available online at www.vermontjudiciary.org or call (802) 951-1740. The address for the Environmental Court is 32 Cherry Street, 2nd Floor Suite 303 Burlington, Vermont 05401.

20. Dated this 4th day of December, 2015

Alyssa Schuren, Commissioner
Department of Environmental Conservation

By _____
Padraic Monks, Program Manager
Stormwater Management Program

NOTICE OF ISSUANCE OF STORMWATER DISCHARGE PERMIT
BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that an individual stormwater discharge permit or an authorization to discharge pursuant to a general stormwater discharge permit has been issued by the Vermont Department of Environmental Conservation to Permittee(s) named herein for the discharge of stormwater runoff from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. Section 1264 for the property identified below. The permit/authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

****

Permittee(s): _____

Permit/Authorization Number: _____

911 Address of Property: _____

Name of condominium, subdivision or planned community association (if applicable):
_____

Signature of Permittee or Authorized Representative: _____

Printed Name of Permittee or Authorized Representative: _____

Date of Signature: _____

****

Recording information: Municipal clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee". Please index this document listing the above named Permittee(s) as "Grantor(s)". Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor".

Please mail this stamped/recorded/completed form to:

DEC – Watershed Management Division
Stormwater Management Program
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Or email to: anr.wsmdstormwatergeneral@state.vt.us

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

MS4 Incorporated Operational Stormwater Discharge Permits

3028-9010.1 (Reconstruct Mark & Groove Runway 15-33) – Permit Terminated, BTV's discharge replaced by 3028-INDS.7

Permit Number: 3028-9010.1
Project ID Number EJ96-0386

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9010

A determination has been made that the applicant:

City of Burlington, Burlington International Airport
1200 Airport Drive, #1
South Burlington, VT 05403

Impervious Area: 14.80 acres

meets the criteria necessary for inclusion under General Permit 3-9010. Hereinafter the named applicant shall be referred to as the permittee. Subject to the conditions of General Permit No. 3-9010, the permittee is authorized to discharge stormwater from BTV Reconstruct, Mark & Groove Runway 15-33; AIP No. 3-50-0005-XX located at Burlington International Airport in South Burlington, Vermont to unnamed tributaries of the Winooski River, Muddy Brook, and to groundwater in the unnamed tributary to the Winooski River watershed and to groundwater in the Muddy Brook watershed as previously described in General Permit No. 3028-INDS.1:

Manner of Discharge:

S/N 001: Stormwater runoff from taxiway and runway surfaces via disconnected sheet flow over vegetated areas, then to catch basin and pipe, closed drainage system, discharging to an unnamed tributary of the Winooski River.

Stormwater runoff from taxiway and runway surfaces via disconnected sheet flow over vegetated areas, then overland to a dry swale (detention area #3), discharging to catch basin and pipe, closed drainage system to an unnamed tributary of the Winooski River.

S/N 002: Stormwater runoff from taxiway and runway surfaces via disconnected sheet flow over vegetated areas, then to catch basin and pipe, closed drainage system, discharging to an unnamed tributary of the Winooski River.

Stormwater runoff from taxiway and runway surfaces via disconnected sheet flow over vegetated areas, then overland to an underground detention system (detention area #1), then to catch basin and pipe, closed drainage system discharging to an unnamed tributary of the Winooski River.

Stormwater runoff from taxiway and runway surfaces via disconnected sheet flow over vegetated areas and via channel flow, to catch basin and pipe, closed drainage system, routed to an underground detention area (detention area #2), infiltrating to groundwater, and discharging to closed drainage system to an unnamed tributary of the Winooski River.

S/N 003: Stormwater runoff from taxiway and runway surfaces via disconnected sheet flow over vegetated areas, then overland to a grass swale, routed to the Vermont Air National Guard closed drainage system, discharging to an unnamed tributary to the Winooski River.

S/N 004: Stormwater runoff from taxiway and runway surfaces via disconnected sheet flow over vegetated areas, then overland to existing closed drainage infiltration system, discharging to groundwater in the Muddy Brook watershed.

S/N 005: Stormwater runoff from taxiway and runway surfaces via disconnected sheet flow over vegetated areas, then overland to catch basin and pipe, closed drainage system, discharging to Muddy Brook.

S/N 006: Stormwater runoff from taxiway and runway surfaces via disconnected sheet flow over vegetated areas, then overland and via channel flow to catch basin and pipe, closed drainage system, routed to an underground infiltration area (detention area #4), infiltrating to groundwater in the Muddy Brook watershed

Note: The Disconnection of Non-Rooftop Runoff Credit utilized to meet applicable stormwater treatment standards. In addition, the *Site Balancing Procedure for the Discharge of Stormwater Runoff from the Expansion or Redevelopment of Impervious Surfaces* was utilized to meet applicable stormwater treatment standards.

Compliance with General Permit 3-9010 and this Authorization

The permittee shall comply with this authorization and all the terms and conditions of General Permit 3-9010, including the payment of annual operating fees to the Department. A billing statement for such fees will be sent to the permittee each year. The first year's statement is enclosed. Any permit non-compliance, including a failure to pay the annual operating fee, constitutes a violation of 10 V.S.A. Chapter 47 and may be grounds for an enforcement action or revocation of this authorization to discharge.

Transferability

This authorization to discharge is not transferable to any person except in compliance with Part VI.D. of General Permit 3-9010. A copy of General Permit 3-9010 is available from the Department via the internet at http://www.vtwaterquality.org/stormwater/htm/sw_3-9010.htm

Changes to Permitted Development
In accordance with Part V.G. of General Permit 3-9010, the permittee shall notify the Department of any planned development or facility expansions or changes that may result in new or increased stormwater discharges. The Department shall determine the appropriateness of continued inclusion under General Permit 3-9010 by the modified development or facility.

Annual Inspection and Report
The stormwater collection, treatment and control system shall be properly operated. The permittee shall submit an annual inspection report on the operation, maintenance and condition of the stormwater collection, treatment and control system. The inspection report shall be submitted regardless of whether the project has been constructed. The inspection shall be conducted between the conclusion of spring snow melt and June 15th of each year and the inspection report shall be submitted to the Secretary by July 15th of each year, or by July 30th if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. The inspection report shall note all problem areas and all measures taken to correct any problems and to prevent future problems.

Restatement of Compliance
Every 3 years, the permittee shall submit to the Department a written statement signed by a designer that the stormwater collection, treatment and control system authorized herein is properly operating and maintained. The first re-statement of compliance is due July 15, 2018. Failure to submit a designer's restatement of compliance shall constitute a violation of General Permit 3-9010 and may result in the revocation of this authorization to discharge. Forms for completing this requirement are available on the Stormwater Management Program's website.

Recording in Land Records: The permittee shall record a one-page notice of issuance of this discharge permit in the local land records within fourteen (14) days of issuance of this authorization to discharge on the form provided by the Secretary, per §18-312 of Stormwater Management Rule. The permittee shall provide a copy of the recording to the Stormwater Management Program within fourteen (14) days of the permittee's receipt of the copy of the recording from the local land records.

Renewable Energy Projects – Right to Appeal to Public Service Board:
If this decision relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. §248, any appeal of this decision must be filed with the Vermont Public Service Board pursuant to 10 V.S.A. §8506. This section does not apply to a facility that is subject to 10 V.S.A. §1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. §1006 (certification of hydroelectric projects) or 10 V.S.A. Chapter 43 (dams). Any appeal under this section must be filed with the clerk of the Public Service Board within 30 days of the date of this decision. For further information, see the Public Service Board website at http://psb.vermont.gov or call (802) 828-2358. The address for the Public Service Board is 112 State Street Montpelier, Vermont 05620-2701.

All Other Projects - Right to Appeal to the Environmental Court
Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the

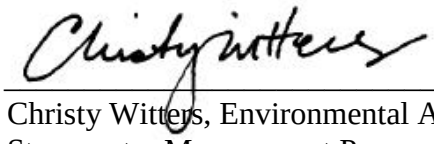
clerk of the Environmental Court within 30 days of the date of the decision. The appellant must attach to the Notice of Appeal the entry fee of $250.00, payable to the state of Vermont. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Court; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings, available on line at www.vermontjudiciary.org. The address for the Environmental Court is 32 Cherry Street, 2nd Floor Suite 303 Burlington, Vermont 05401 (Tel. # 802-951-1740).

Effective Date and Expiration Date of this Authorization

This authorization to discharge shall become effective on August 13, 2015 and shall continue until August 13, 2025. The permittee shall reapply for coverage at least sixty (60) days prior to August 13, 2025.

Dated this 13th day of August, 2015.

Alyssa Schuren, Commissioner
Department of Environmental Conservation

By 

Christy Witters, Environmental Analyst
Stormwater Management Program

NOTICE OF ISSUANCE OF STORMWATER DISCHARGE PERMIT BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that an individual stormwater discharge permit or an authorization to discharge pursuant to a general stormwater discharge permit has been issued by the Vermont Department of Environmental Conservation to Permittee(s) named herein for the discharge of stormwater runoff from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. Section 1264 for the property identified below. The permit/authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

****

Permittee(s): _____

Permit/Authorization Number: _____

911 Address of Property: _____

Name of condominium, subdivision or planned community association (if applicable): _____

Signature of Permittee or Authorized Representative: _____

Printed Name of Permittee or Authorized Representative: _____

Date of Signature: _____

****

Recording information: Municipal clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee". Please index this document listing the above named Permittee(s) as "Grantor(s)". Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor".

Please mail this stamped/recorded/completed form to:

DEC – Watershed Management Division
Stormwater Management Program
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Or email to: anr.wsmdstormwatergeneral@state.vt.us

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

MS4 Incorporated Operational Stormwater Discharge Permits

3845-9010 (Heritage Flight Aviation Campus Expansion)

Permit Number 3845-9010
Project ID Number EJ96-0386

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9010

A determination has been made that the applicant:

City of Burlington, Burlington International Airport
1200 Airport Drive, #1
South Burlington, VT 05403

Impervious Area: 2.03 acres

meets the criteria necessary for inclusion under General Permit 3-9010. Hereinafter the named applicant shall be referred to as the permittee. Subject to the conditions of General Permit No. 3-9010, the permittee is authorized to discharge stormwater from Heritage Flight Aviation Campus Expansion project located at Burlington International Airport in South Burlington, Vermont to class 2 wetland contiguous with Muddy Brook as previously described in General Permit No. 3845-INDS.A:

Manner of Discharge:

S/N 001: Runoff from roadways and rooftops is conveyed by a closed collection system to a 36" reinforced concrete pipe which conveys the flow to the wetland contiguous with Muddy Brook.

S/N 002: Runoff from rooftop areas, including a green roof on Heritage Flight Hangar, is collected in a closed system and conveyed to a bioretention/detention basin for treatment and attenuation of peak flows. Stormwater is discharged from the basin into a stone-lined swale that runs along Eagle Drive. The stone lined swale conveys the runoff to POI #2. From POI #2, the runoff is conveyed underneath Eagle Drive to S/N 002 via an existing 24" pipe culvert.

The *Stormwater Site Balancing Procedure* was utilized to meet applicable treatment standards for this drainage area as follows: Runoff from additional existing impervious areas are provided treatment and detention to balance new impervious areas that discharge to S/N 001 and S/N 002 without treatment and detention.

Compliance with General Permit 3-9010 and this Authorization

The permittee shall comply with this authorization and all the terms and conditions of General Permit 3-9010, including the payment of annual operating fees to the Department. A billing statement for such fees will be sent to the permittee each year. The first year's statement is enclosed. Any permit non-compliance, including a failure to pay

the annual operating fee, constitutes a violation of 10 V.S.A. Chapter 47 and may be grounds for an enforcement action or revocation of this authorization to discharge.

Transferability

This authorization to discharge is not transferable to any person except in compliance with Part VI.D. of General Permit 3-9010. A copy of General Permit 3-9010 is available from the Department via the internet at http://www.vtwaterquality.org/stormwater/htm/sw_3-9010.htm

Changes to Permitted Development

In accordance with Part V.G. of General Permit 3-9010, the permittee shall notify the Department of any planned development or facility expansions or changes that may result in new or increased stormwater discharges. The Department shall determine the appropriateness of continued inclusion under General Permit 3-9010 by the modified development or facility.

Annual Inspection and Report

The stormwater collection, treatment and control system shall be properly operated. The permittee shall submit an annual inspection report on the operation, maintenance and condition of the stormwater collection, treatment and control system. The inspection report shall be submitted regardless of whether the project has been constructed. The inspection shall be conducted between the conclusion of spring snow melt and June 15th of each year and the inspection report shall be submitted to the Secretary by July 15th of each year, or by July 30th if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. The inspection report shall note all problem areas and all measures taken to correct any problems and to prevent future problems.

Restatement of Compliance

Every 3 years, the permittee shall submit to the Department a written statement signed by a designer that the stormwater collection, treatment and control system authorized herein is properly operating and maintained. The first re-statement of compliance is due July 15, 2018. Failure to submit a designer's restatement of compliance shall constitute a violation of General Permit 3-9010 and may result in the revocation of this authorization to discharge. Forms for completing this requirement are available on the Stormwater Management Program's website.

Recording in Land Records: The permittee shall record a one-page notice of issuance of this discharge permit in the local land records within fourteen (14) days of issuance of this authorization to discharge on the form provided by the Secretary, per §18-312 of Stormwater Management Rule. The permittee shall provide a copy of the recording to the Stormwater Management Program within fourteen (14) days of the permittee's receipt of the copy of the recording from the local land records.

Renewable Energy Projects – Right to Appeal to Public Service Board:

If this decision relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. §248, any appeal of this decision must be filed with the Vermont Public Service Board pursuant to 10 V.S.A. §8506. This section does not apply to a facility that is subject to 10 V.S.A. §1004 (dams before the Federal Energy

Regulatory Commission), 10 V.S.A. §1006 (certification of hydroelectric projects) or 10 V.S.A. Chapter 43 (dams). Any appeal under this section must be filed with the clerk of the Public Service Board within 30 days of the date of this decision. For further information, see the Public Service Board website at http://psb.vermont.gov or call (802) 828-2358. The address for the Public Service Board is 112 State Street Montpelier, Vermont 05620-2701.

All Other Projects - Right to Appeal to the Environmental Court

Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Court within 30 days of the date of the decision. The appellant must attach to the Notice of Appeal the entry fee of $250.00, payable to the state of Vermont. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Court; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings, available on line at www.vermontjudiciary.org. The address for the Environmental Court is 32 Cherry Street, 2nd Floor Suite 303 Burlington, Vermont 05401 (Tel. # 802-951-1740).

Effective Date and Expiration Date of this Authorization

This authorization to discharge shall become effective on August 13, 2015 and shall continue until August 13, 2025. The permittee shall reapply for coverage at least sixty (60) days prior to August 13, 2025.

Dated this 13th day of August, 2015.

Alyssa Schuren, Commissioner
Department of Environmental Conservation

By _____
Christy Witters, Environmental Analyst
Stormwater Management Program

NOTICE OF ISSUANCE OF STORMWATER DISCHARGE PERMIT BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that an individual stormwater discharge permit or an authorization to discharge pursuant to a general stormwater discharge permit has been issued by the Vermont Department of Environmental Conservation to Permittee(s) named herein for the discharge of stormwater runoff from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. Section 1264 for the property identified below. The permit/authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

****

Permittee(s): _____

Permit/Authorization Number: _____

911 Address of Property: _____

Name of condominium, subdivision or planned community association (if applicable): _____

Signature of Permittee or Authorized Representative: _____

Printed Name of Permittee or Authorized Representative: _____

Date of Signature: _____

****

Recording information: Municipal clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee". Please index this document listing the above named Permittee(s) as "Grantor(s)". Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor".

Please mail this stamped/recorded/completed form to:

DEC – Watershed Management Division
Stormwater Management Program
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Or email to: anr.wsmdstormwatergeneral@state.vt.us

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

MS4 Incorporated Operational Stormwater Discharge Permits

3028-9015.1 (Quarry Area Access Road)

VERMONT

Vermont Department of Environmental Conservation
Watershed Management Division
Main Building, Second Floor
One National Life Drive
Montpelier, VT 05620-3522

Agency of Natural Resources

(phone) 802-828-1535
(fax) 802 828-1544

November 20, 2012

D. Campbell

RECEIVED
NOV 26 2012
STANTEC
SOUTH BURLINGTON, VT

City of Burlington-Burlington International Airport
c/o Heather Kendrew
1200 Airport Drive, #1
South Burlington, VT 05403

Re: Authorization to Discharge Permit No. 3028-9015.1
Quarry Area Access Road

Dear Ms. Kendrew:

Enclosed is your copy of an Authorization to Discharge pursuant to General Permit 3-9015, which has been signed by the Stormwater Program Manager of the Stormwater Management Section on behalf of the Commissioner of the Department of Environmental Conservation. This authorizes the discharge of treated stormwater runoff from impervious surfaces associated with your project.

Please read this authorization to discharge carefully and note the inspection and reporting requirements, and other operating conditions including payment of annual operating fees.

In addition, per the authorization, the permittee shall record a one page notice of issuance of this authorization in the local land records within fourteen (14) days of issuance of this authorization on the form provided. The permittee shall then provide a copy of the recording to the Stormwater Management Program, by submitting a copy of the recording from the local land records to this office within fourteen (14) days of the permittee's receipt of the recorded copy.

If you have any questions pertaining to this authorization, please contact the Stormwater Management Program's Environmental Analyst assigned to your district, or by email at stormwater@state.vt.us. Additional Stormwater Management Program contact information and stormwater permitting information is available at www.vtwaterquality.org.

Sincerely,

Stormwater Management Program

Enclosures

cc: √Douglas M. Campbell, PE, Stantec Consulting Services, Inc.
Peter Keibel, Act 250 District Coordinator, Essex Junction

Permit Number 3028-9015.1
Project ID Number EJ96-0386

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9015

A determination has been made that the applicant:

City of Burlington, Burlington International Airport
1200 Airport Drive, #1
South Burlington, VT 05403

Impervious Area: 0.17 acres

meets the criteria necessary for inclusion under General Permit 3- 9015. Hereinafter the named applicant shall be referred to as the permittee. Subject to the conditions of General Permit No. 3-9015, the permittee is authorized to discharge stormwater from Quarry Area Access Road located on 1200 Airport Drive, #1, in South Burlington, Vermont to groundwater in the Muddy Brook watershed.

Manner of Discharge:
S/N 002: Stormwater runoff from proposed access road via overland sheet flow, disconnected in accordance with the Disconnection of Non-Rooftop Runoff Credit, discharging to groundwater in the Muddy Brook watershed.

Design: This project shall be constructed and operated in accordance with the site plans and details designed by Stantec (Sheet 1, "Existing Conditions Plan," dated 7/11/2012; Sheet 2, "Site Plan," dated 7/11/2012; Sheet 3, "; and supporting information).

By reference, the above noted plans are made part of this authorization.

Compliance with General Permit 3-9015 and this Authorization
The permittee shall comply with this authorization and all the terms and conditions of General Permit 3-9015, including the payment of annual operating fees to the Department. A billing statement for such fees will be sent to the permittee each year. The first year's statement is enclosed. Any permit non-compliance, including a failure to pay the annual operating fee, constitutes a violation of 10 V.S.A. Chapter 47 and may be grounds for an enforcement action or revocation of this authorization to discharge.

Transferability
This authorization to discharge is not transferable to any person except in compliance with Part VI.D. of General Permit 3-9015. A copy of General Permit 3-9015 is available from the Department via the internet at
http://www.anr.state.vt.us/dec/waterq/stormwater/docs/sw_3-9015-finalpermit.pdf

Changes to Permitted Development
In accordance with Part V.G. of General Permit 3-9015, the permittee shall notify the Department of any planned development or facility expansions or changes that may result in new or increased stormwater discharges. The Department shall determine the appropriateness of continued inclusion under General Permit 3-9015 by the modified development or facility.

Semi-Annual Inspection and Report
The stormwater collection, treatment and control system authorized herein shall be properly operated and maintained and shall be inspected at least twice per year, once in the spring after snowmelt and once in the fall prior to snow fall. The inspection shall evaluate the operation and maintenance and condition of the stormwater collection, treatment and control system. The permittee shall prepare a semiannual inspection report on a form available from the Department, which can be found on the Stormwater Management Program's website. The permittee shall, by November 1st and June 1st of each year, submit an inspection report to the Department.

Restatement of Compliance
An initial statement of compliance, signed by a designer, must be submitted to the Stormwater Management Program no later than 6 months following completion of construction of the stormwater management system. Then, every 5 years, the permittee shall submit to the Department a written statement signed by a designer that the stormwater collection, treatment and control system authorized herein is properly operating and maintained. The first re-statement of compliance is due November 20, 2017. Failure to submit a designer's restatement of compliance shall constitute a violation of General Permit 3-9015 and may result in the revocation of this authorization to discharge. Forms for completing this requirement are available on the Stormwater Management Program's website.

Recording in Land Records: The permittee shall record a one-page notice of issuance of this discharge permit in the local land records within fourteen (14) days of issuance of this authorization to discharge on the form provided by the Secretary, per §18-312 of Stormwater Management Rule. The permittee shall provide a copy of the recording to the Stormwater Management Program within fourteen (14) days of the permittee's receipt of the copy of the recording from the local land records.

Renewable Energy Projects – Right to Appeal to Public Service Board:
Any appeal of this decision must be filed with the clerk of the Vermont Public Service Board pursuant to 10 V.S.A. §8506 within 30 days of the date of this decision. The appellant must file with the Clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. §8504(c)(2), and shall also serve a copy of the Notice of Appeal on the Vermont Department of Public Service. For information, see the Rules and General orders of the Public Service Board available on line at www.psb.vermont.gov. The address for the Public Service Board is 112 State Street Montpelier, Vermont 05620-2701 (Tel. #802-828-2358).

All Other Projects – Right to Appeal to the Environmental Court
Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Court within 30 days of the date of the decision. The appellant must attach to the Notice of Appeal the entry fee of $250.00, payable to the state of Vermont. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Court; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings, available on line at www.vermontjudiciary.org. The address for the Environmental Court is 2418 Airport Road, Suite 1, Barre, VT 05641 (Telephone #802-828-1660).

Effective Date and Expiration Date of this Authorization
This authorization to discharge shall become effective on November 20, 2012 and shall continue until November 20, 2022. The permittee shall reapply for coverage at least sixty (60) days prior to November 20, 2022.

Dated this 20th day of November, 2012.

David K. Mears, Commissioner
Department of Environmental Conservation

By Padraic Monks
Padraic Monks, Stormwater Program Manager
Stormwater Management Program

NOTICE OF ISSUANCE OF STORMWATER DISCHARGE PERMIT BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that an individual stormwater discharge permit or an authorization to discharge pursuant to a general stormwater discharge permit has been issued by the Vermont Department of Environmental Conservation to Permittee(s) named herein for the discharge of stormwater runoff from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. Section 1264 for the property identified below. The permit/authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

****

Permittee(s): _____

Permit/Authorization Number: _____

911 Address of Property: _____

Name of condominium, subdivision or planned community association (if applicable):

_____

Signature of Permittee or Authorized Representative: _____

Printed Name of Permittee or Authorized Representative: _____

Date of Signature: _____

****

Recording information: Municipal clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee". Please index this document listing the above named Permittee(s) as "Grantor(s)". Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor".

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

MS4 Incorporated Operational Stormwater Discharge Permits

3028-INDS.3 (Aircraft Sewage Receiving Station)

BTV Sewage Receiving Station
19531077S
File, Jon, Doug, Harry

VERMONT

Vermont Department of Environmental Conservation
Watershed Management Division
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Agency of Natural Resources

(phone) 802-828-1535
(fax) 802 828-1544

September 4, 2013

RECEIVED
SEP 09 2013
STANTEC
SOUTH BURLINGTON, VT

City of Burlington / Burlington International Airport
Heather Kendrew
1200 Airport Drive #1
South Burlington, VT 05403

Re: Discharge Permit #3028-INDS.3
Aircraft Sewage Receiving Station

Dear Permittee:

Enclosed is your copy of Discharge Permit #3028-INDS.3. The permit authorizes the discharge of treated stormwater runoff from impervious surfaces associated with your project.

Please read this permit carefully and note the inspection, maintenance, and reporting requirements, and other operating conditions including operating fees.

In addition, per the authorization, the permittee shall record a one page-page notice of issuance of this discharge permit in the local land records within fourteen (14) days of issuance of this permit on the form provided. The permittee shall then provide a copy of the recording to the Stormwater Management Program within fourteen (14) days of the permittee's receipt of the copy of the recording from the local land records.

Since we did not receive any public comments during the notice period, the final permit is unchanged from the draft that was placed on public notice.

If you have any questions pertaining to this permit, please contact the Stormwater Management Program's Environmental Analyst assigned to your district. Additional Stormwater Management Program contact information and stormwater permitting information is available at http://www.watershedmanagement.vt.gov/.

Sincerely,

Stormwater Management Program

Enclosures

cc: ✓Douglas M. Campbell, PE, Stantec Consulting Services, Inc.
Peter Keibel, Act 250 District Coordinator, Essex Junction

Permit No. 3028-INDS.3
Project ID No. EJ96-0386

STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STORMWATER DISCHARGE PERMIT

STORMWATER RUNOFF TO WATERS OF THE STATE

In compliance with provisions of 10 V.S.A. §1264, the Stormwater Management Rule for Stormwater-Impaired Waters and in accordance with "Terms and Conditions" hereinafter specified,

City of Burlington, Burlington International Airport
1200 Airport Drive, #1
South Burlington, VT 05403

Impervious Area: 0.03 acres

the permittee, is hereby granted permission to discharge stormwater runoff from the Aircraft Sewage Receiving Station located at the Burlington International Airport in the Town of South Burlington, Vermont to groundwater contiguous with the Potash Brook watershed.

1. Expiration Date: Five years from issuance date of final permit. Note: This permit, unless revoked, modified or suspended, shall be valid until the designated expiration date not withstanding any intervening change in water quality, effluent, or treatment standards, or classification of the receiving waters including groundwater. However, any such changed standard or classification, and any applicable requirement in a total maximum daily load (TMDL) for the receiving water, shall be applied in determining whether or not to renew this permit, and in determining the conditions of a renewed permit.

   The permittee shall reapply for a renewed discharge permit ninety days prior to the expiration date of this permit.

2. Revocation: 10 V.S.A. §1267 provides as follows:

   The Secretary may, after notice and opportunity for a public hearing, revoke, modify or suspend this permit if it is found that the permittee submitted false or inaccurate information in its application or has violated any requirement, restrictions, or condition of this permit, or if there is any change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge. The Secretary shall impose conditions as the Secretary deems necessary for regulating the discharges of a permittee whose permit has been revoked, modified or suspended. Revocation shall be effective upon actual notice thereof to the permittee.

3. Operating Fees: This discharge is subject to operating fees under 3 V.S.A. §2822. The permittee shall submit the operating fees to the Agency in accordance with procedures provided by the Secretary.

4. Recording in Land Records: The permittee shall record a one-page notice of issuance of this discharge permit in the local land records within fourteen (14) days of issuance of this permit on the form provided by the Secretary, per §22-312 of the Stormwater Management Rule for

Stormwater-Impaired Waters. A copy of this form is available on the Stormwater Management Program website. The permittee shall provide a copy of the recording to the Stormwater Management Program within fourteen (14) days of the permittee's receipt of the copy of the recording from the local land records.

5. Transfer of Permit: This permit is not transferable without prior written approval of the Secretary. Provided all applicable fees under 3 V.S.A. §2822 have been paid, a permittee may submit a notice of transfer to the Stormwater Management Program. The notice shall be submitted at least five (5) days prior to the proposed date of transfer. The notice shall state that the prospective permittee has adequate funding to comply with this permit. The permittee shall provide a copy of this permit to the new owner or tenant and inform him of the responsibility to make application for a permit which shall be issued in his name. Any failure to do so shall be considered a violation of this permit.

6. Right of Entry: The permittee shall allow the Secretary, or his or her authorized representatives, at reasonable times, upon presentation of credentials, to enter upon and inspect the permitted premises, and the stormwater collection, treatment and control system; and to sample any discharge to determine compliance with this permit; and to have access to and inspect and copy any records required to be kept pursuant to this permit.

7. Receiving Waters: Groundwater contiguous with the Potash Brook watershed.

8. Manner of Discharge:
S/N 001: Stormwater runoff from rooftop drives/parking to an underground infiltration trench system, discharging to groundwater contiguous with the Potash Brook watershed.

9. Wastes Permitted: Stormwater runoff from S/N 001 of the Aircraft Sewage Receiving Station project after treatment from underground infiltration trench system.

10. Volumes Permitted and Frequency of Discharge: Such volumes and frequency as required by the discharge specified in #8 above.

11. Approved Project Design: This project shall be constructed and operated in accordance with the following site plans and details prepared by Stantec Consulting Service, Inc.:

- Drawing No. 1, "Overall Site Plan;"
- Drawing No. 1, Sheet 1 of 2, Pre-Development Drainage Areas, 5/03/13;
- Drawing No. 2, Sheet 2 of 2, Post Development Drainage Areas, 5/03/13;
- Drawing No. G1, Sheet 1, Cover Sheet, 5/03/13;
- Drawing No. C1, Sheet 2, Site Plan, 5/03/13;
- Drawing No. C3, Sheet 5, Site Layout and Grading Plan, 5/03/13;
- Drawing No. C4, Sheet 7, Utility Plan, 5/03/13;
- Drawing No. C8A, Sheet 11, Civil/Site Details, 5/03/13;
- Drawing No. C8B, Sheet 12, Civil/Site Details, 5/03/13;
- Drawing No. C10, Sheet 14, Erosion Control Plan and Details, 5/03/13;
- Drawing No. A100, Sheet 17, Building Plan, Elevations and Details, 5/03/13; and all supporting information

By reference, the above noted plans are made a part of this permit.

12. Inspection and Maintenance Reporting Requirements:

a. The basins, grass channels, and related stormwater collection, treatment and control system shall be maintained in good operating condition at all times and **shall be inspected annually and cleaned as necessary to maintain design specifications. The inspections shall be conducted between the conclusion of spring snow melt and June 15th of each year.**

b. Any sediment removed from the basins, grass channels, and related stormwater collection, treatment and control system shall be disposed of properly in accordance with state and federal statutes and regulations.

c. **By July 15 of each year the permittee shall submit an annual inspection report to the Secretary; or by July 30 of each year if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. Annual Inspection Reports shall be submitted to:**

Department of Environmental Conservation
Watershed Management Division
Stormwater Program
1 National Life Drive, Main 2
Montpelier, Vermont 05620-3522

Or by email to anr.wsmdstormwatergeneral@state.vt.us

This report shall include, at a minimum items c.i. through c.vii. below. The permittee(s) may utilize the Annual Inspection Report form available from the Stormwater Program if determined by inspector to be sufficient to fully document inspection and maintenance of the authorized system.

i. Unless previously submitted by the permittee(s) under a previously issued authorization or discharge permit, the first report shall include an inspection and designer's certification that the project was built in compliance with the Approved Project Design per #11 above;

ii. A description of any vegetated areas that require mowing or other maintenance;

iii. A description of any catch basins that require maintenance or sediment removed from sumps;

iv. A description of any illicit discharges to the system (illicit discharges would include dumping of oil, gas, detergent, vehicle wash water, etc.) and corrective action/preventative measures taken if applicable;

v. A description of any re-routing of stormwater to avoid the system;

vi. A description of any erosion noted during inspection (i.e. areas of exposed soil in channels, outlets, or on pond berms);

vii. A description of any cleaning, maintenance operations, or repairs needed to maintain design specifications, including a schedule for correction of any identified deficiencies;

d. Should any erosion problems occur, the permittee is required to immediately correct any such problems.

e. Any basins, grass channels, or related stormwater devices used during construction for erosion control shall be inspected and cleaned to design specifications immediately after construction has been completed.

13. Description of Required Offset: In order to meet the statutory standard for new discharges set forth in 10 V.S.A. §1264 and the Stormwater Management Rule for Stormwater-Impaired Waters, the permittee has demonstrated that the project will not increase the pollutant load over existing conditions. This has been accomplished by treatment of stormwater runoff from new and existing impervious surfaces through infiltration. The project achieves a net reduction in sediment loading to Potash Brook of 166 pounds per year.

14. Secretary's Determination: The Secretary has determined that this project meets the requirements of the Agency's 2002 Stormwater Management Manual and does not increase the sediment or hydrologic load of the receiving stormwater-impaired waters. The Secretary has determined that the proposed discharge will not reduce the quality of the receiving waters below the classification established for them.

15. Personnel and Training Requirements: Such personnel and training as necessary to fulfill the requirements of #12 above.

16. Monitoring and Reporting Requirement: No monitoring required; reporting requirement as specified in #12 above.

17. Other Requirements:

a. Treated stormwater runoff is the only waste authorized for disposal under the terms and conditions of this permit. The discharge of any hazardous materials or hazardous waste into the stormwater management system is prohibited.

b. The issuance of this permit does not relieve the permittee from the responsibility to obtain any other local, state or federal permits required by law.

18. Compliance with Anti-degradation and Water Quality Standards: The Secretary has determined that the permitted discharges satisfy Vermont's Anti-degradation Policy provided in Section 1-03 of the Vermont Water Quality Standards and the Department of Environmental Conservation's Interim Anti-degradation Implementation Procedure because the applicant has demonstrated how the proposed development will implement practices and offset projects as necessary to ensure water quality is maintained in receiving waters. In particular, the applicant has demonstrated how the proposed development will implement appropriate best management practices (BMPs) designed in accordance with the requirements of the Vermont Stormwater Management Manual, Volume I and as necessary offset projects in accordance with Chapter 22: Stormwater Management Rule for Stormwater-Impaired Waters. These BMPs and offset projects where necessary will manage and mitigate the proposed stormwater discharge from the project such that no lowering of water quality is expected to occur in the receiving waters.

19. Renewable Energy Projects – Right to Appeal to Public Service Board:
Any appeal of this decision must be filed with the clerk of the Vermont Public Service Board pursuant to 10 V.S.A. §8506 within 30 days of the date of this decision. The appellant must file with the Clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. §8504(c)(2), and shall also serve a copy of the Notice of Appeal on the Vermont Department of Public Service. For information, see the Rules and General orders of the Public Service Board available on line at www.psb.vermont.gov. The address for the Public Service Board is 112 State Street Montpelier, Vermont 05620-2701 (Tel. #802-828-2358).

All Other Projects – Right to Appeal to Environmental Court:
Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Court within 30 days of the date of the decision. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Court; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings, available online at www.vermontjudiciary.org or call (802) 828-1660. The address for the Environmental Court is 2418 Airport Road, Suite 1, Barre, Vermont 05641.

20. Dated this 4th day of September, 2013

David K. Mears, Commissioner
Department of Environmental Conservation

By Padraic Monks
Padraic Monks, Program Manager
Stormwater Management Program

NOTICE OF ISSUANCE OF STORMWATER DISCHARGE PERMIT BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that an individual stormwater discharge permit or an authorization to discharge pursuant to a general stormwater discharge permit has been issued by the Vermont Department of Environmental Conservation to Permittee(s) named herein for the discharge of stormwater runoff from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. Section 1264 for the property identified below. The permit/authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

****

Permittee(s): _____

Permit/Authorization Number: _____

911 Address of Property: _____

Name of condominium, subdivision or planned community association (if applicable):

_____

Signature of Permittee or Authorized Representative: _____

Printed Name of Permittee or Authorized Representative: _____

Date of Signature: _____

****

Recording information: Municipal clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee". Please index this document listing the above named Permittee(s) as "Grantor(s)". Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor".

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

MS4 Incorporated Operational Stormwater Discharge Permits

3028-9015.2 (Construct Mark and Light Taxiway ‘G-K’)

Permit Number 3028-9015.2
Project ID Number EJ96-0386

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9015

A determination has been made that the applicant:

City of Burlington, Burlington International Airport
1200 Airport Drive, #1
South Burlington, VT 05403

Impervious Area: 0.68 acres

meets the criteria necessary for inclusion under General Permit 3- 9015. Hereinafter the named applicant shall be referred to as the permittee. Subject to the conditions of General Permit No. 3-9015, the permittee is authorized to discharge stormwater from Construct, Mark and Light Taxiway "G"/"K" (widening project), located on 1200 Airport Drive in South Burlington, Vermont to Muddy Brook.

Manner of Discharge:
S/N 001: Stormwater runoff from the widening of Taxiway 'G'/'K' is conveyed via sheet flow to a disconnection area before draining to a closed system discharging directly to Muddy Brook.

Note: This permit uses the Disconnection of Non-Rooftop Runoff credit to treat all of the proposed new impervious. It is discharging to Muddy Brook that has a greater than 10 square mile drainage area.

Design: This project shall be constructed and operated in accordance with the site plans and details designed by Stantec Consulting Services, Inc. (Sheet 1, "Complete Taxiway "G"/"K" Project", dated 7/11/14; Sheet C.015 "Layout Plan Sheet 1 of 2", dated 3/26/15; Sheet C.016 "Layout Plan Sheet 2 of 2", dated 3/26/15; Sheet C.020 "Grading Plan and Profile STA. 65+00-74+50", dated 3/26/15; Sheet C.021 "Grading Plan and Profile STA. 73+50-84+00", dated 3/26/15; Sheet C.035 "Typical Sections and Pavement Details", dated 3/26/15; Sheet C.040 "Civil Details", dated 3/26/15; Sheet C.020 "Grading Plan and Profile STA. 65+00-74+50", dated 3/26/15; and supporting information).

By reference, the above noted plans are made part of this authorization.

Compliance with General Permit 3-9015 and this Authorization
The permittee shall comply with this authorization and all the terms and conditions of General Permit 3-9015, including the payment of annual operating fees to the Department. A billing statement for such fees will be sent to the permittee each year. The first year's statement is enclosed. Any permit non-compliance, including a failure to pay

the annual operating fee, constitutes a violation of 10 V.S.A. Chapter 47 and may be grounds for an enforcement action or revocation of this authorization to discharge.

Transferability

This authorization to discharge is not transferable to any person except in compliance with Part VI.D. of General Permit 3-9015. A copy of General Permit 3-9015 is available from the Department via the internet at http://www.anr.state.vt.us/dec/waterq/stormwater/docs/sw_3-9015-finalpermit.pdf

Changes to Permitted Development

In accordance with Part V.G. of General Permit 3-9015, the permittee shall notify the Department of any planned development or facility expansions or changes that may result in new or increased stormwater discharges. The Department shall determine the appropriateness of continued inclusion under General Permit 3-9015 by the modified development or facility.

Annual Inspection and Report

The stormwater collection, treatment and control system shall be properly operated. The permittee shall submit an annual inspection report on the operation, maintenance and condition of the stormwater collection, treatment and control system. The inspection report shall be submitted regardless of whether the project has been constructed. The inspection shall be conducted between the conclusion of spring snow melt and June 15th of each year and the inspection report shall be submitted to the Secretary by July 15th of each year, or by July 30th if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. The inspection report shall note all problem areas and all measures taken to correct any problems and to prevent future problems.

Restatement of Compliance

An initial statement of compliance, signed by a designer, must be submitted to the Stormwater Management Program no later than 6 months following completion of construction of the stormwater management system. Additionally, every 5 years, the permittee shall submit to the Department a written statement signed by a designer that the stormwater collection, treatment and control system authorized herein is properly operating and maintained. The first re-statement of compliance is due July 15, 2020. The restatement of compliance shall be submitted regardless of whether the project has been constructed. Failure to submit a designer's restatement of compliance shall constitute a violation of General Permit 3-9015 and may result in the revocation of this authorization to discharge. Forms for completing this requirement are available on the Stormwater Management Program's website.

Recording in Land Records: The permittee shall record a one-page notice of issuance of this discharge permit in the local land records within fourteen (14) days of issuance of this authorization to discharge on the form provided by the Secretary, per §18-312 of Stormwater Management Rule. The permittee shall provide a copy of the recording to the Stormwater Management Program within fourteen (14) days of the permittee's receipt of the copy of the recording from the local land records.

Renewable Energy Projects – Right to Appeal to Public Service Board:

Any appeal of this decision must be filed with the clerk of the Vermont Public Service Board pursuant to 10 V.S.A. §8506 within 30 days of the date of this decision. The appellant must file with the Clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. §8504(c)(2), and shall also serve a copy of the Notice of Appeal on the Vermont Department of Public Service. For information, see the Rules and General orders of the Public Service Board available on line at www.psb.vermont.gov. The address for the Public Service Board is 112 State Street Montpelier, Vermont 05620-2701 (Tel. #802-828-2358).

All Other Projects – Right to Appeal to the Environmental Court

Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Court within 30 days of the date of the decision. The appellant must attach to the Notice of Appeal the entry fee of $250.00, payable to the state of Vermont. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Court; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings, available on line at www.vermontjudiciary.org. The address for the Environmental Court is 32 Cherry Street, 2nd Floor Suite 303 Burlington, Vermont 05401 (Tel. # 802-951-1740).

Effective Date and Expiration Date of this Authorization

This authorization to discharge shall become effective on May 27, 2015 and shall continue until May 27, 2025. The permittee shall reapply for coverage at least sixty (60) days prior to May 27, 2025.

Dated this 27th day of May, 2015.

David K. Mears, Commissioner
Department of Environmental Conservation

By Padraic Monks

Padraic Monks, Stormwater Program Manager
Stormwater Management Program

NOTICE OF ISSUANCE OF STORMWATER DISCHARGE PERMIT BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that an individual stormwater discharge permit or an authorization to discharge pursuant to a general stormwater discharge permit has been issued by the Vermont Department of Environmental Conservation to Permittee(s) named herein for the discharge of stormwater runoff from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. Section 1264 for the property identified below. The permit/authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

****

Permittee(s): _____

Permit/Authorization Number: _____

911 Address of Property: _____

Name of condominium, subdivision or planned community association (if applicable): _____

Signature of Permittee or Authorized Representative: _____

Printed Name of Permittee or Authorized Representative: _____

Date of Signature: _____

****

Recording information: Municipal clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee". Please index this document listing the above named Permittee(s) as "Grantor(s)". Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor".

Please mail this stamped/recorded/completed form to:

DEC – Watershed Management Division
Stormwater Management Program
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Or email to: anr.wsmdstormwatergeneral@state.vt.us

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

MS4 Incorporated Operational Stormwater Discharge Permits

3845-9015.1 (Heritage Aviation Parking Lot)

Permit Number 3845-9015.1
Project ID Number EJ96-0386

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9015

A determination has been made that the applicant:

City of Burlington, Burlington International Airport
1200 Airport Drive, #1
South Burlington, VT 05403

Impervious Area: 1.18 acres

meets the criteria necessary for inclusion under General Permit 3- 9015. Hereinafter the named applicant shall be referred to as the permittee. Subject to the conditions of General Permit No. 3-9015, the permittee is authorized to discharge stormwater from the Heritage Aviation Parking Lot located at 228 Aviation Ave, South Burlington, Vermont to a Wetland contiguous to Muddy Brook.

Manner of Discharge:
S/N 001: Runoff originates from the impervious parking lot and sheet flows south across the lot and into a pretreatment area. Runoff then flows into two infiltration basins sized to detain the 10-year storm. The runoff is then infiltrated into the ground water over a 24-hour period. Runoff from events greater than the 10 year storm will pass through emergency spillways into existing ditches along the road then into a 36" culvert under Eagle Drive.

Design: This project shall be constructed and operated in accordance with the site plans and details designed by Stantec, Inc. (Sheet "Existing Conditions," dated 5/8/2015; Sheet "Site Details," dated 5/8/2015; Sheet "Predevelopment Sub-watershed Delineations," dated 5/8/2015; Sheet C-103, "Construction Plan," dated 5/8/2015, revised 7/30/2015; Sheet C-104 "Post-development Sub-watershed Delineations," dated 5/8/2015; Sheet C-105, "Proposed Conditions," dated 5/8/2015, revised 7/30/2015; and all supporting information).

By reference, the above noted plans are made part of this authorization.

Compliance with General Permit 3-9015 and this Authorization
The permittee shall comply with this authorization and all the terms and conditions of General Permit 3-9015, including the payment of annual operating fees to the Department. A billing statement for such fees will be sent to the permittee each year. The first year's statement is enclosed. Any permit non-compliance, including a failure to pay the annual operating fee, constitutes a violation of 10 V.S.A. Chapter 47 and may be grounds for an enforcement action or revocation of this authorization to discharge.

Transferability
This authorization to discharge is not transferable to any person except in compliance with Part VI.D. of General Permit 3-9015. A copy of General Permit 3-9015 is available from the Department via the internet at
http://www.anr.state.vt.us/dec/waterq/stormwater/docs/sw_3-9015-finalpermit.pdf

Changes to Permitted Development
In accordance with Part V.G. of General Permit 3-9015, the permittee shall notify the Department of any planned development or facility expansions or changes that may result in new or increased stormwater discharges. The Department shall determine the appropriateness of continued inclusion under General Permit 3-9015 by the modified development or facility.

Annual Inspection and Report
The stormwater collection, treatment and control system shall be properly operated. The permittee shall submit an annual inspection report on the operation, maintenance and condition of the stormwater collection, treatment and control system. The inspection report shall be submitted regardless of whether the project has been constructed. The inspection shall be conducted between the conclusion of spring snow melt and June 15th of each year and the inspection report shall be submitted to the Secretary by July 15th of each year, or by July 30th if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. The inspection report shall note all problem areas and all measures taken to correct any problems and to prevent future problems.

Restatement of Compliance
An initial statement of compliance, signed by a designer, must be submitted to the Stormwater Management Program no later than 6 months following completion of construction of the stormwater management system. Additionally, every 3 years, the permittee shall submit to the Department a written statement signed by a designer that the stormwater collection, treatment and control system authorized herein is properly operating and maintained. The first re-statement of compliance is due July 15, 2018. The restatement of compliance shall be submitted regardless of whether the project has been constructed. Failure to submit a designer's restatement of compliance shall constitute a violation of General Permit 3-9015 and may result in the revocation of this authorization to discharge. Forms for completing this requirement are available on the Stormwater Management Program's website.

Recording in Land Records: The permittee shall record a one-page notice of issuance of this discharge permit in the local land records within fourteen (14) days of issuance of this authorization to discharge on the form provided by the Secretary, per §18-312 of Stormwater Management Rule. The permittee shall provide a copy of the recording to the Stormwater Management Program within fourteen (14) days of the permittee's receipt of the copy of the recording from the local land records.

Renewable Energy Projects – Right to Appeal to Public Service Board:
Any appeal of this decision must be filed with the clerk of the Vermont Public Service Board pursuant to 10 V.S.A. §8506 within 30 days of the date of this decision. The appellant must file with the Clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. §8504(c)(2),

and shall also serve a copy of the Notice of Appeal on the Vermont Department of Public Service. For information, see the Rules and General orders of the Public Service Board available on line at www.psb.vermont.gov. The address for the Public Service Board is 112 State Street Montpelier, Vermont 05620-2701 (Tel. #802-828-2358).

All Other Projects – Right to Appeal to the Environmental Court

Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Court within 30 days of the date of the decision. The appellant must attach to the Notice of Appeal the entry fee of $250.00, payable to the state of Vermont. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Court; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings, available on line at www.vermontjudiciary.org. The address for the Environmental Court is 32 Cherry Street, 2nd Floor Suite 303 Burlington, Vermont 05401 (Tel. # 802-951-1740).

Effective Date and Expiration Date of this Authorization

This authorization to discharge shall become effective on August 25, 2015 and shall continue until August 25, 2025. The permittee shall reapply for coverage at least sixty (60) days prior to August 25, 2025.

Dated this 25th day of August, 2015.

Alyssa Schuren, Commissioner
Department of Environmental Conservation

By _____
Padraic Monks, Stormwater Program Manager
Stormwater Management Program

NOTICE OF ISSUANCE OF STORMWATER DISCHARGE PERMIT BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that an individual stormwater discharge permit or an authorization to discharge pursuant to a general stormwater discharge permit has been issued by the Vermont Department of Environmental Conservation to Permittee(s) named herein for the discharge of stormwater runoff from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. Section 1264 for the property identified below. The permit/authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

****

Permittee(s): _____

Permit/Authorization Number: _____

911 Address of Property: _____

Name of condominium, subdivision or planned community association (if applicable): _____

Signature of Permittee or Authorized Representative: _____

Printed Name of Permittee or Authorized Representative: _____

Date of Signature: _____

****

Recording information: Municipal clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee". Please index this document listing the above named Permittee(s) as "Grantor(s)". Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor".

Please mail this stamped/recorded/completed form to:

DEC – Watershed Management Division
Stormwater Management Program
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Or email to: anr.wsmdstormwatergeneral@state.vt.us

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

MS4 Incorporated Operational Stormwater Discharge Permits

3028-INDS.4 (BTV Consolidated Car Rental Facility)

Permit No. 3028-INDS.4
Project ID No. EJ96-0386

STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STORMWATER DISCHARGE PERMIT

STORMWATER RUNOFF TO WATERS OF THE STATE

In compliance with provisions of 10 V.S.A. §1264, and in accordance with "Terms and Conditions" hereinafter specified,

City of Burlington, Burlington International Airport
1200 Airport Drive, #1
South Burlington, VT 05403

Impervious Area: 2.68 acres

the permittee, is hereby granted permission to discharge stormwater runoff from BTV Consolidated Rental Car Facility located at 1376 Airport Drive in South Burlington, Vermont to an unnamed tributary of the Winooski River.

1. Expiration Date: Five years from issuance date of final permit. Note: This permit, unless revoked, modified or suspended, shall be valid until the designated expiration date not withstanding any intervening change in water quality, effluent, or treatment standards, or classification of the receiving waters including groundwater. However, any such changed standard or classification, and any applicable requirement in a total maximum daily load (TMDL), shall be applied in determining whether or not to renew this permit, and in determining the conditions of a renewed permit.

   The permittee shall reapply for a renewed discharge permit ninety days prior to the expiration date of this permit.

2. Revocation: 10 V.S.A. §1267 provides as follows:
   The Secretary may, after notice and opportunity for a public hearing, revoke, modify or suspend this permit if it is found that the permittee submitted false or inaccurate information in its application or has violated any requirement, restrictions, or condition of this permit, or if there is any change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge. The Secretary shall impose conditions as the Secretary deems necessary for regulating the discharges of a permittee whose permit has been revoked, modified or suspended. Revocation shall be effective upon actual notice thereof to the permittee.

3. Operating Fees: This discharge is subject to operating fees under 3 V.S.A. §2822. The permittee shall submit the operating fees to the Agency in accordance with procedures provided by the Secretary.

4. Recording in Land Records: The permittee shall record a one-page notice of issuance of this discharge permit in the local land records within fourteen (14) days of issuance of this permit

on the form provided by the Secretary, per §22-312 of the Stormwater Management Rule for Stormwater-Impaired Waters and §18-312 of the Stormwater Management Rule. A copy of this form is available on the Stormwater Management Program website. The permittee shall provide a copy of the recording to the Stormwater Management Program within fourteen (14) days of the permittee's receipt of the copy of the recording from the local land records.

5. Transfer of Permit: This permit is not transferable without prior written approval of the Secretary. Provided all applicable fees under 3 V.S.A. §2822 have been paid, a permittee may submit a notice of transfer to the Stormwater Management Program. The notice shall be submitted at least five (5) days prior to the proposed date of transfer. The notice shall state that the prospective permittee has adequate funding to comply with this permit. The permittee shall provide a copy of this permit to the new owner or tenant and inform him of the responsibility to make application for a permit which shall be issued in his name. Any failure to do so shall be considered a violation of this permit.

6. Right of Entry: The permittee shall allow the Secretary, or his or her authorized representatives, at reasonable times, upon presentation of credentials, to enter upon and inspect the permitted premises, and the stormwater collection, treatment and control system; and to sample any discharge to determine compliance with this permit; and to have access to and inspect and copy any records required to be kept pursuant to this permit.

7. Receiving Waters: Unnamed Tributary to the Winooski River

8. Manner of Discharge:
   S/N 001: Stormwater runoff from impervious surfaces associated with the new rental car lot, the new fuel dispensary and the new car wash/maintenance building is conveyed via catch basins with integral “Snout” outlet hood, to a Stormceptor pretreatment system and subsurface infiltration systems discharging to groundwater within the Winooski River Watershed. Additional runoff areas associated with hotspot areas are isolated from the infiltration system and discharged via catch basins and trench drains via an oil water separator to an unnamed tributary of the Winooski River.

9. Wastes Permitted: Stormwater runoff from the above named areas of the project herein after treatment as specified in the manner of discharge.

10. Volumes Permitted and Frequency of Discharge: Such volumes and frequency as required by the discharge specified in the manner of discharge above.

11. Approved Project Design: This project shall be constructed and operated in accordance with the following site plans and details and supporting information prepared by Stantec, Inc. By reference, the following plans are made a part of this permit.

Sheet No.	**Sheet Title**	**Date Created**
SW-01	Predevelopment Drainage Plan	03/31/2016
SW-02	Post Development Drainage Plan	03/31/2016
SW-03	Water Quality Volume Plan	03/31/2016
C-601&C-604	Civil/Site details	03/31/2016
C-002	Existing Conditions Plan	03/31/2016
C-201	Grading Plan	03/31/2016
C-301	Utility Plan	03/31/2016

C-302	Pipe and Structural Tables	03/31/2016

12. Inspection and Maintenance Reporting Requirements:

a. The stormwater collection, treatment and control system, shall be maintained in good operating condition at all times and **shall be inspected annually and cleaned as necessary to maintain design specifications**. **The inspections shall be conducted between the conclusion of spring snow melt and June 15th of each year**.

b. Any sediment removed from the stormwater collection, treatment and control system shall be disposed of properly in accordance with state and federal statutes and regulations.

c. **By July 15 of each year the permittee shall submit an annual inspection report to the Secretary; or by July 30 of each year if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. Annual Inspection Reports shall be submitted to:**

DEC – Watershed Management Division
Stormwater Program
1 National Life Drive, Main 2
Montpelier, Vermont 05620-3522

Or by email to anr.wsmdstormwatergeneral@state.vt.us

This report shall include, at a minimum items c.i. through c.vii. below. The permittee(s) may utilize the Annual Inspection Report form available from the Stormwater Program if determined by inspector to be sufficient to fully document inspection and maintenance of the authorized system.

i. Unless previously submitted by the permittee(s) under a previously issued authorization or discharge permit, the first report shall include an inspection and designer's certification that the project was built in compliance with the Approved Project Design;

ii. A description of any vegetated areas that require mowing or other maintenance;

iii. A description of any catch basins that require maintenance or sediment removed from sumps;

iv. A description of any illicit discharges to the system (illicit discharges would include dumping of oil, gas, detergent, vehicle wash water, etc.) and corrective action/preventative measures taken if applicable;

v. A description of any re-routing of stormwater to avoid the system;

vi. A description of any erosion noted during inspection (i.e. areas of exposed soil in channels, outlets, or on pond berms);

vii. A description of any cleaning, maintenance operations, or repairs needed to

maintain design specifications, including a schedule for correction of any identified deficiencies;

d. Should any erosion problems occur; the permittee is required to immediately correct any such problems.

e. Any basins, grass channels, or related stormwater devices used during construction for erosion control shall be inspected and cleaned to design specifications immediately after construction has been completed.

13. Personnel and Training Requirements: Such personnel and training as necessary to fulfill the requirements of the Inspection and Maintenance Reporting above.

14. Monitoring and Reporting Requirement: No monitoring required; reporting requirement as specified in the Inspection and Maintenance Reporting above.

15. Other Requirements:
    a. Treated stormwater runoff is the only waste authorized for disposal under the terms and conditions of this permit. The discharge of any hazardous materials or hazardous waste into the stormwater management system is prohibited.

    b. The issuance of this permit does not relieve the permittee from the responsibility to obtain any other local, state or federal permits required by law.

16. Compliance with Anti-degradation and Water Quality Standards: The Secretary has determined that the permitted discharges satisfy Vermont's Anti-Degradation Policy described in the Department of Environmental Conservation's Interim Anti-Degradation Implementation Procedure, because the procedure allows a presumption of compliance for discharges that are in compliance with the Vermont Stormwater Management Manual and any additional best management practices that will be used to control the stormwater discharge as described in Section IX.D.1.d of the Department's Interim Anti-Degradation Implementation Procedure. The Secretary has also determined that for such discharges that qualify for the presumption under IX.D.1.d, all existing uses of surface waters, and the level of water quality necessary to protect those existing uses will be maintained and protected. The Secretary has determined that if the permittee is in full compliance with all permit conditions, including approved plans, monitoring, reporting and recordkeeping conditions, and is fully implementing stormwater BMPs required by this permit, the permitted discharges will meet the requirements of the Vermont Stormwater Management Manual and qualify for the presumption described in Section IX.D.1.d of the Department's Interim Anti-Degradation Implementation Procedure and will be presumed to comply with the Vermont Water Quality Standards, including but not limited to §1-03 (Anti-degradation Policy).

17. Renewable Energy Projects – Right to Appeal to Public Service Board: Any appeal of this decision must be filed with the clerk of the Vermont Public Service Board pursuant to 10 V.S.A. §8506 within 30 days of the date of this decision. The appellant must file with the Clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. §8504(c)(2), and shall also serve a copy of the Notice of Appeal on the Vermont Department of Public Service. For information, see the Rules and General orders of the Public Service Board available on line atwww.psb.vermont.gov. The address for the Public Service Board is 112 State Street Montpelier, Vermont 05620-2701 (Tel. #802-828-

2358).

18. All Other Projects – Right to Appeal to Environmental Court: Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Court within 30 days of the date of the decision. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Court; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings, available online at www.vermontjudiciary.org or call (802) 951-1740. The address for the Environmental Court is 32 Cherry Street, 2nd Floor Suite 303 Burlington, Vermont 05401.

19. Dated this 19th day of July, 2016

Alyssa B. Schuren, Commissioner
Department of Environmental Conservation

By Padraic Monks
Padraic Monks, Program Manager
Stormwater Management Program

NOTICE OF ISSUANCE OF STORMWATER DISCHARGE PERMIT
BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that an individual stormwater discharge permit or an authorization to discharge pursuant to a general stormwater discharge permit has been issued by the Vermont Department of Environmental Conservation to Permittee(s) named herein for the discharge of stormwater runoff from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. Section 1264 for the property identified below. The permit/authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

****

Permittee(s): City of Burlington, Burlington International Airport

Permit/Authorization Number: 3028-INDS.4

911 Address of Property: 1376 Airport Drive

Name of condominium, subdivision or planned community association (if applicable):
_____

Signature of Permittee or Authorized Representative: _____

Printed Name of Permittee or Authorized Representative: _____

Date of Signature: _____

****

Recording information: Municipal clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee". Please index this document listing the above named Permittee(s) as "Grantor(s)". Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor".

Please mail this stamped/recorded/completed form to:

DEC – Watershed Management Division
Stormwater Management Program
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Or email to: anr.wsmdstormwatergeneral@vermont.gov

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

MS4 Incorporated Operational Stormwater Discharge Permits

3028-9015.3 (Taxiway ‘B’ Extension)

VERMONT

Vermont Department of Environmental Conservation
Watershed Management Division
1 National Life Drive, Main Bldg, 2nd Fl.
Montpelier, VT 05620-3522

Agency of Natural Resources

Telephone: 802-828-1535

10/24/2016

City of Burlington, Burlington International Airport
1200 Airport Drive, #1
South Burlington, VT 05403

Dear Permittee:

Attached is your copy of an Authorization to Discharge under Permit 3028-9015.3, which has been signed by the Stormwater Program Manager of the Stormwater Management Section on behalf of the Commissioner of the Department of Environmental Conservation. This authorizes the discharge of treated stormwater runoff from impervious surfaces associated with your project. Please read this authorization to discharge carefully and note the inspection and reporting requirements, and other operating conditions including payment of annual operating fees.

In addition, per the authorization, the permittee shall record a one page notice of issuance of this authorization in the local land records within fourteen (14) days of issuance of this authorization on the form provided. The permittee shall then provide a copy of the recording to the Stormwater Management Program, by submitting a copy of the recording from the local land records to this office within fourteen (14) days of the permittee's receipt of the recorded copy.

Please note these important due dates associated with your permit:

- Land Recording Due- 11/7/2016
- Annual Operating Fee Due- 11/24/2016 (See enclosed invoice with payment details.)
- Initial Statement of Compliance Due- 6 months following completion of construction.
- Annual Inspection Due- 7/15/2017
- Permit Renewal Due- 8/24/2021
- Permit Expiration Due- 10/24/2021

If you have any questions pertaining to this authorization, please contact the Stormwater Management Program's Environmental Analyst assigned to your district: Jenna Calvi at Jenna.Calvi@vermont.gov.

Sincerely,

Stormwater Management Program

Permit Number: 3028-9015.3

PIN: EJ96-0386

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9015

A determination has been made that the applicant(s):

City of Burlington, Burlington International Airport
1200 Airport Drive, #1
South Burlington, VT 05403

Impervious Area: 2.77 acres

meets the criteria necessary for inclusion under General Permit 3-9015. Hereinafter the named applicant shall be referred to as the permittee. Subject to the conditions of General Permit No. 3-9015, the permittee is authorized to discharge stormwater as described herein:

Project Name: Taxiway 'B' Extension

Project Location: 1200 Airport Drive in South Burlington, Vermont

Receiving Waters: Groundwater in the Muddy Brook watershed

Manner of Discharge: S/N 001: Stormwater runoff from Taxiway 'B', a portion of the Taxiway 'E' stubs, a portion of existing runway 15-33, a portion of existing runway 1-19, a portion of existing Taxiway 'E' and a portion of future proposed Taxiway 'E' via ditches, inlets and pipes to hydrodynamic separators pretreatment devices (Storm ceptor) to underground concrete infiltration chambers (Storm Trap) discharging to groundwater in the Muddy Brook watershed.

S/N 002: Stormwater runoff from Taxiway 'B', a portion of the Taxiway 'E' stubs a portion of future proposed Taxiway 'E' via disconnection with overflow to an underground infiltration system (StormTrap) discharging to groundwater in the Muddy Brook watershed.

Design: This project shall be constructed and operated in accordance with the site plans and details designed by Stantec Consulting Services, Inc., Sheet 1, "Cover Sheet", dated 09/02/2016; Sheet 2, "Construction Safety and Phasing Plan, Overall Plan", dated 06/10/2016; Sheet 3, "Existing Conditions", dated 09/06/2016; Sheet 4, "Proposed Conditions", dated 9/06/2016; Sheet 5, "Grading Plan and Profile, Sta. 580+09.37 to 590+00", dated 06/10/2016; Sheet 6, "Grading Plan and Profile, Sta. 590+00 to 600+00", dated 06/10/2016; Sheet 7, "Stormwater Details and Typical Sections", dated 09/06/2016; Sheet 8, "Stormtrap, Single Trap Installation Specifications", dated 06/03/2016; Sheet 9, "Stormtrap, Recommended Single Trap Installation Specifications", dated 06/03/2016; Sheet 10, "Stormtrap, 3'-6" Single Trap Unit Types", dated 06/03/2016; Sheet 11, "Taxiway 'A' Relocate, Borings and Test Pits", dated 09/06/2016; and all supporting information.

By reference, the above noted plans are made part of this authorization.

Compliance with General Permit 3-9015 and this Authorization
The permittee shall comply with this authorization and all the terms and conditions of General Permit 3-9015, including the payment of annual operating fees to the Department. A billing statement for such fees will be sent to the permittee each year. The first year's statement is enclosed. Any permit non-compliance, including a failure to pay the annual operating fee, constitutes a violation of 10 V.S.A. Chapter 47 and may be grounds for an enforcement action or revocation of this authorization to discharge.

Transferability
This authorization to discharge is not transferable to any person except in compliance with Part VI.D. of General Permit 3-9015. A copy of General Permit 3-9015 is available from the Department via the internet at http://dec.vermont.gov/sites/dec/files/wsm/stormwater/docs/GeneralPermit9015/sw_3-9015_final_signed.pdf.

Changes to Permitted Development
In accordance with Part V.G. of General Permit 3-9015, the permittee shall notify the Department of any planned development or facility expansions or changes that may result in new or increased stormwater discharges. The Department shall determine the appropriateness of continued inclusion under General Permit 3-9015 by the modified development or facility.

Annual Inspection and Report
The stormwater collection, treatment and control system shall be properly operated. The permittee shall submit an annual inspection report on the operation, maintenance and condition of the stormwater collection, treatment and control system. The inspection report shall be submitted regardless of whether the project has been constructed. The inspection shall be conducted between the conclusion of spring snow melt and June 15th of each year and the inspection report shall be submitted to the Secretary by July 15th of each year, or by July 30th if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. The inspection report shall note all problem areas and all measures taken to correct any problems and to prevent future problems.

Initial Statement of Compliance
An initial statement of compliance, signed by a designer, must be submitted to the Stormwater Management Program no later than 6 months following completion of construction of the stormwater management system. Failure to submit an initial statement of compliance shall constitute a violation of General Permit 3-9015 and may result in the revocation of this authorization to discharge. Forms for completing this requirement are available on the Stormwater Management Program's website.

Recording in Land Records
The permittee shall record a one-page notice of issuance of this discharge permit in the local land records within fourteen (14) days of issuance of this authorization to discharge on the form provided by the Secretary, per §18-312 of Stormwater Management Rule. The permittee shall provide a copy of the recording to the Stormwater Management Program within fourteen (14) days of the permittee's receipt of the copy of the recording from the local land records.

Renewable Energy Projects – Right to Appeal to Public Service Board
Any appeal of this decision must be filed with the clerk of the Vermont Public Service Board pursuant to 10 V.S.A. §8506 within 30 days of the date of this decision. The appellant must file with the Clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. §8504(c)(2), and shall also serve a copy of the Notice of Appeal on the Vermont Department of Public Service. For information, see the Rules and General orders of the Public Service Board available on line at www.psb.vermont.gov. The address for the Public Service Board is 112 State Street Montpelier, Vermont 05620-2701 (Tel. #802-828-2358).

All Other Projects – Right to Appeal to the Environmental Court

Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Court within 30 days of the date of the decision. The appellant must attach to the Notice of Appeal the entry fee of $250.00, payable to the state of Vermont. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Court; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings, available on line at www.vermontjudiciary.org. The address for the Environmental Court is 32 Cherry Street, 2nd Floor Suite 303 Burlington, Vermont 05401 (Tel. # 802-951-1740).

Effective Date and Expiration Date of this Authorization

This authorization to discharge shall become effective on October 24, 2016 and shall continue until October 24, 2021. The permittee shall reapply for coverage at least sixty (60) days prior to October 24, 2021.

Dated Monday, October 24, 2016.

Alyssa Schuren, Commissioner
Department of Environmental Conservation

By: Padraic Monks

Padraic Monks, Stormwater Program Manager
Stormwater Management Program

NOTICE OF ISSUANCE OF STORMWATER DISCHARGE PERMIT
BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that an individual stormwater discharge permit or an authorization to discharge pursuant to a general stormwater discharge permit has been issued by the Vermont Department of Environmental Conservation to Permittee(s) named herein for the discharge of stormwater runoff from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. Section 1264 for the property identified below. The permit/authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

Permittee(s): **City of Burlington, Burlington International Airport**

Permit/Authorization Number: **3028-9015.3**

911 Address of Property: **1200 Airport Drive, South Burlington**

Signature of Permittee or Authorized Representative: _____

Printed Name of Permittee or Authorized Representative: _____

Date of Signature: _____

Recording information: Municipal clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee". Please index this document listing the above-named Permittee(s) as "Grantor(s)". Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor".

Please mail this stamped/recorded/completed form to:

DEC – Watershed Management Division
Stormwater Management Program
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Or email to: anr.wsmdstormwatergeneral@vermont.gov

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

MS4 Incorporated Operational Stormwater Discharge Permits

3028-INDS.6A (Parallel Taxiway 'G', Phase 2)

STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STORMWATER DISCHARGE PERMIT

STORMWATER RUNOFF TO WATERS OF THE STATE

In compliance with provisions of 10 V.S.A. §1264, the Stormwater Management Rule for Stormwater-Impaired Waters and in accordance with "Terms and Conditions" hereinafter specified,

City of Burlington, Burlington International Airport
1200 Airport Drive Number 1
South Burlington, VT 05403

Impervious Area: 30.44 acres

the permittee, is hereby granted permission to discharge stormwater runoff from Taxiway 'G' Relocation located at 1200 Airport Drive in South Burlington, Vermont to an unnamed tributary to the Winooski River and groundwater in the Muddy Brook watershed. This permit amends and renews previously authorized permit 3028-INDS.6.

1. Expiration Date: This permit, unless revoked, modified or suspended, shall be valid until the designated expiration date not withstanding any intervening change in water quality, effluent, or treatment standards, or classification of the receiving waters including groundwater. However, any such changed standard or classification, and any applicable requirement in a total maximum daily load (TMDL) for, shall be applied in determining whether or not to renew this permit, and in determining the conditions of a renewed permit.

2. Revocation: 10 V.S.A. §1267 provides as follows:
   The Secretary may, after notice and opportunity for a public hearing, revoke, modify or suspend this permit if it is found that the permittee submitted false or inaccurate information in its application or has violated any requirement, restrictions, or condition of this permit, or if there is any change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge. The Secretary shall impose conditions as the Secretary deems necessary for regulating the discharges of a permittee whose permit has been revoked, modified or suspended. Revocation shall be effective upon actual notice thereof to the permittee.

3. Operating Fees: This discharge is subject to operating fees under 3 V.S.A. §2822. The permittee shall submit the operating fees to the Agency in accordance with procedures provided by the Secretary.

4. Recording in Land Records: The permittee shall record a one-page town recording form for this discharge permit in the local land records within fourteen (14) days of issuance of this permit on the form provided by the Secretary, per §22-312 of the Stormwater Management Rule for Stormwater-Impaired Waters. A copy of this form is available on the Stormwater Management Program website. The permittee shall provide a copy of the recording to the Stormwater Management Program within fourteen (14) days of the permittee's receipt of the copy of the recording from the local land records.

5. Transfer of Permit: This permit is not transferable without prior written approval of the Secretary. Provided all applicable fees under 3 V.S.A. §2822 have been paid, a permittee may submit a notice of transfer to the Stormwater Management Program. The notice shall be submitted at least five (5) days prior to the proposed date of transfer. The notice shall state that the prospective permittee has adequate funding to comply with this permit. The permittee shall provide a copy of this permit to the new owner or tenant and inform him of the responsibility to make application for a permit which shall be issued in his name. Any failure to do so shall be considered a violation of this permit.

6. Right of Entry: The permittee shall allow the Secretary, or his or her authorized representatives, at reasonable times, upon presentation of credentials, to enter upon and inspect the permitted premises, and the stormwater collection, treatment and control system; and to sample any discharge to determine compliance with this permit; and to have access to and inspect and copy any records required to be kept pursuant to this permit.

7. Receiving Waters: Unnamed tributary to the Winooski River and groundwater in the Muddy Brook watershed.

8. Manner of Discharge:
   S/N 001: Stormwater runoff from northern portion of Taxiway 'G', the holding bay, Portion of Taxiway 'M', Portion of Taxiway 'H', portion of reconstructed Taxiway 'A', portion of existing runway via filter trips, grass channels or hydrodynamic separator pretreatment device to inlets and pipes to pretreatment forebay within underground concrete infiltration chamber to outlet structure discharging to an unnamed tributary to the Winooski River.

   S/N 002: Stormwater runoff from portion of Taxiway 'A', portion of Taxiway 'G', portion of existing Runway 1-19, portion of existing Runway 15-33, portion of existing Taxiway 'B', to inlets and pipes to hydrodynamic separator pretreatment device to underground concrete infiltration chamber discharging to groundwater in the Muddy Brook watershed.

9. Wastes Permitted: Stormwater runoff from the above named areas of the project herein after treatment as specified in the manner of discharge.

10. Volumes Permitted and Frequency of Discharge: Such volumes and frequency as required by the discharge specified in the Manner of Discharge above.

11. Approved Project Design: This project shall be constructed and operated in accordance with the following site plans and details prepared by Stantec. By reference, the following plans are made a part of this permit: Sheet 1, "Existing Conditions Site Plan", dated 1/16/2019; Sheet 2, "Proposed Conditions Site Plan", dated 1/16/2019; Sheet 3, "Disconnection Area Plan", dated 1/16/2019; Sheet 4, "Annotated Maintenance Plan", dated 1/16/2019; Sheets 5-9, "Soil Stabilization Plans", dated 1/2/2019; Sheets 10-19, "Taxiway 'G' Plans and Details - First Phase of Construction", dated 3/29/2017; Sheets 20-27, "Taxiway 'G' Plans and Details - Second Phase of Construction", dated 1/2/2019; and all supporting information.

12. Inspection and Maintenance Reporting Requirements:
    a. The stormwater collection, treatment and control system shall be maintained in good operating condition at all times and **shall be inspected annually and cleaned as necessary to maintain design specifications**. **The inspections shall be conducted between the conclusion of spring snow melt and June 15th of each year**.

    b. Any sediment removed from the stormwater collection, treatment and control system shall be disposed of properly in accordance with state and federal statutes and regulations.

    c. **By July 15 of each year the permittee shall submit an annual inspection report to the Secretary; or by July 30 of each year if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. Annual Inspection Reports shall be submitted electronically to the DEC – Watershed Management Division, Stormwater Program at:** https://anronline.vermont.gov

        i. Unless previously submitted by the permittee(s) under a previously issued authorization or discharge permit, the first report submitted after construction completion shall also be submitted with a Designer's Initial Statement of Compliance that the project was built in compliance with the Approved Project Design outlined above at https://anronline.vermont.gov.

13. Secretary's Determination: The Secretary has determined that this project meets the requirements of the Agency's 2017 Stormwater Management Manual. The Secretary has determined that the proposed discharge will not reduce the quality of the receiving waters below the classification established for them.

14. Personnel and Training Requirements: Such personnel and training as necessary to fulfill the requirements of the Inspection and Maintenance Reporting above.

15. Monitoring and Reporting Requirement: No monitoring required; reporting requirement as specified in the Inspection and Maintenance Reporting above.

16. Other Requirements:
    a. Treated stormwater runoff is the only waste authorized for disposal under the terms and conditions of this permit. The discharge of any hazardous materials or hazardous waste into the stormwater management system is prohibited.

    b. The issuance of this permit does not relieve the permittee from the responsibility to obtain any other local, state or federal permits required by law.

17. Compliance with Anti-degradation and Water Quality Standards: The Secretary has determined that the permitted discharges satisfy Vermont's Anti-degradation Policy provided in Section 1-03 of the Vermont Water Quality Standards and the Department of Environmental Conservation's Interim Anti-degradation Implementation Procedure because the applicant has demonstrated how the proposed development will implement practices and offset projects as necessary to ensure water quality is maintained in receiving waters. In particular, the applicant has demonstrated how the proposed development will implement appropriate best management practices (BMPs) designed in accordance with the requirements of the Vermont Stormwater Management Manual and as necessary offset projects in accordance with Chapter 22: Stormwater Management Rule for Stormwater-Impaired Waters. These BMPs and offset projects where necessary will manage and mitigate the proposed stormwater discharge from the project such that no lowering of water quality is expected to occur in the receiving waters.

18. Right to Appeal:
    (A) Pursuant to 10 V.S.A. Chapter 220, any appeal of this permit, except for appeal of a renewable energy plant as described in (B), must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The notice of appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant's attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the notice of appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings.

    (B) If this permit relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. § 248, any appeal of this decision must be filed with the Vermont Public Utility Commission pursuant to 10 V.S.A. § 8506. This section does not apply to a facility that is subject to 10 V.S.A. § 1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. § 1006 (certification of hydroelectric projects), or 10 V.S.A. Chapter 43 (dams). Any appeal under this section must be filed with the clerk of the Public Utility Commission within 30 days of the date of this decision; the appellant must file with the clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. § 8504(c)(2) and shall also serve a copy of the notice of appeal on the Vermont Public Service Department. For further information, see the Rules and General Orders of the Public Utility Commission.

19. Effective Date and Expiration Date of this Authorization: This authorization to discharge shall become effective on March 26, 2019 and shall expire on March 25, 2024.

Dated this 26th day of March, 2019

Emily Boedecker, Commissioner
Department of Environmental Conservation

By: Padraic Monks

Padraic Monks, Program Manager
Stormwater Management Program

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

Town Recording of Permit Issued
FOR STORMWATER DISCHARGE PERMIT BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that the Vermont Department of Environmental Conservation gives authorization to discharge pursuant to a general stormwater discharge permit that has been issued to Permittee(s) named herein for the discharge of stormwater runoff for the property identified below from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. 1264. The authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

Permittee(s): **City of Burlington, Burlington International Airport**

Permit/Authorization Number: **3028-INDS.6A**

911 Address of Property: **1200 Airport Drive, South Burlington**

Printed Name of Permittee or Authorized Representative: _____

Signature of Permittee or Authorized Representative: _____ Date: _____

FOR TOWN CLERK USE ONLY:

Recorded under Book: _____ Page: _____

Date Recorded with Town: _____ Signature / Stamp: _____

Recording information for Municipal Clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee," and listing the above-named Permittee(s) as "Grantor(s)." Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor."

Please upload this completed form to ANR Online by visiting the following link
https://anronline.vermont.gov

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

MS4 Incorporated Operational Stormwater Discharge Permits

3028-INDS.7 (VT ANG Taxiway 'F' Widening and a portion of Reconstruct, Mark, and Groove Runway 15-33)

VERMONT

Vermont Department of Environmental Conservation
Watershed Management Division
1 National Life Drive, Main Bldg, 2nd Fl.
Montpelier, VT 05620-3522

Agency of Natural Resources

Telephone: 802-828-1535

3/22/2017

City of Burlington
Burlington International Airport
1200 Airport Drive Number 1
South Burlington, VT 05403

Dear Permittee:

Attached is your copy of an Authorization to Discharge under Permit 3028-INDS.7, which has been signed by the Stormwater Program Manager of the Stormwater Management Section on behalf of the Commissioner of the Department of Environmental Conservation. This authorizes the discharge of treated stormwater runoff from impervious surfaces associated with your project. Please read this authorization to discharge carefully and note the inspection and reporting requirements, and other operating conditions including payment of annual operating fees.

In addition, per the authorization, the permittee shall record a one page notice of issuance of this authorization in the local land records within fourteen (14) days of issuance of this authorization on the form provided. The permittee shall then provide a copy of the recording to the Stormwater Management Program, by submitting a copy of the recording from the local land records to this office within fourteen (14) days of the permittee's receipt of the recorded copy.

Please note these important due dates associated with your permit:

- Land Recording Due- 4/5/2017
- Annual Operating Fee Due- 4/21/2017 (The payor will receive a separate invoice with payment details.)
- Initial Statement of Compliance Due- 6 months following completion of construction.
- Annual Inspection Due- 7/15/2017
- Permit Renewal Due- 12/22/2021
- Permit Expiration Due- 3/22/2022

If you have any questions pertaining to this authorization, please contact the Stormwater Management Program's Environmental Analyst assigned to your district: Kevin Burke at Kevin.Burke@vermont.gov.

Sincerely,

Stormwater Management Program

Permit No. 3028-INDS.7
Project ID No. EJ96-0386

STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STORMWATER DISCHARGE PERMIT

STORMWATER RUNOFF TO WATERS OF THE STATE

In compliance with provisions of 10 V.S.A. §1264, the Stormwater Management Rule and in accordance with "Terms and Conditions" hereinafter specified,

City of Burlington
Burlington International Airport
1200 Airport Drive, #1
South Burlington, VT 05403

Impervious Area: 16.37 acres

the permittee, is hereby granted permission to discharge stormwater runoff from Vermont Air National Guard (VT ANG) Taxiway F Widening Project, and as previously permitted, a portion of the BTV Reconstruct, Mark & Groove Runway 15-33; AIP No. 3-50-0005-XX Project, located at Burlington International Airport, 160 NCO Drive, in South Burlington, Vermont to unnamed tributaries of the Winooski River, Muddy Brook, groundwater to unnamed tributaries of the Winooski River, and groundwater to Muddy Brook. This individual permit covers discharge points S/N 001, 002, 004, 005, and 006, previously subject to permit #3028-9010.1. This individual permit is required due to procedures used outside the scope of the General Permit 3-9015.

1. Expiration Date: Five years from issuance date of final permit. Note: This permit, unless revoked, modified or suspended, shall be valid until the designated expiration date not withstanding any intervening change in water quality, effluent, or treatment standards, or classification of the receiving waters including groundwater. However, any such changed standard or classification, and any applicable requirement in a total maximum daily load (TMDL) shall be applied in determining whether or not to renew this permit, and in determining the conditions of a renewed permit.

   The permittee shall reapply for a renewed discharge permit ninety days prior to the expiration date of this permit.

2. Revocation: 10 V.S.A. §1267 provides as follows:
   The Secretary may, after notice and opportunity for a public hearing, revoke, modify or suspend this permit if it is found that the permittee submitted false or inaccurate information in its application or has violated any requirement, restrictions, or condition of this permit, or if there is any change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge. The Secretary shall impose conditions as the Secretary deems necessary for regulating the discharges of a permittee whose permit has been revoked, modified or suspended. Revocation shall be effective upon actual notice thereof to the permittee.

3. Operating Fees: This discharge is subject to operating fees under 3 V.S.A. §2822. The permittee shall submit the operating fees to the Agency in accordance with procedures provided by the Secretary.

4. Transfer of Permit: This permit is not transferable without prior written approval of the Secretary. Provided all applicable fees under 3 V.S.A. §2822 have been paid, a permittee may submit a notice of transfer to the Stormwater Management Program. The notice shall be submitted at least five (5) days prior to the proposed date of transfer. The notice shall state that the prospective permittee has adequate funding to comply with this permit. The permittee shall provide a copy of this permit to the new owner or tenant and inform him of the responsibility to make application for a permit which shall be issued in his name. Any failure to do so shall be considered a violation of this permit.
5. Right of Entry: The permittee shall allow the Secretary, or his or her authorized representatives, at reasonable times, upon presentation of credentials, to enter upon and inspect the permitted premises, and the stormwater collection, treatment and control system; and to sample any discharge to determine compliance with this permit; and to have access to and inspect and copy any records required to be kept pursuant to this permit.

6. Receiving Waters: Unnamed tributaries of the Winooski River, Muddy Brook, and groundwater to unnamed tributaries of the Winooski River, and groundwater to Muddy Brook.

7. Manner of Discharge:
S/N 001: Stormwater runoff from taxiway and runway surfaces via disconnected sheet flow over vegetated areas, then to catch basin and pipe, closed drainage system, discharging to an unnamed tributary of the Winooski River.

Stormwater runoff from taxiway and runway surfaces via disconnected sheet flow over vegetated areas, then overland to a dry swale (detention area #3), discharging to catch basin and pipe, closed drainage system to an unnamed tributary of the Winooski River.

S/N 002: Stormwater runoff from Taxiway Foxtrot via sheet flow, overland flow to stormwater inlets, pipe network. Stormwater collection system routes through pre-treatment practice, infiltration gallery, infiltrates to groundwater, which discharges to nearest unnamed tributary upstream of the Winooski River.

S/N 004: Stormwater runoff from taxiway and runway surfaces via disconnected sheet flow over vegetated areas, then overland to existing closed drainage infiltration system, discharging to groundwater in the Muddy Brook watershed.

S/N 005: Stormwater runoff from taxiway and runway surfaces via disconnected sheet flow over vegetated areas, then overland to catch basin and pipe, closed drainage system, discharging to Muddy Brook.

S/N 006: Stormwater runoff from taxiway and runway surfaces via disconnected sheet flow over vegetated areas, then overland and via channel flow to catch basin and pipe, closed drainage system, routed to an underground infiltration area (detention area #4), infiltrating to groundwater in the Muddy Brook watershed.

The *Site Balancing Procedure for the Discharge of Stormwater Runoff from the Expansion or Redevelopment of Impervious Surfaces* was utilized to meet applicable treatment standards for this project.

8. Wastes Permitted: Stormwater runoff from the above named areas of the project permitted herein after treatment as specified in the Manner of Discharge.

9. Volumes Permitted and Frequency of Discharge: Such volumes and frequency as required by the discharge specified in the Manner of Discharge above.

10. Approved Project Design: This project shall be constructed and operated in accordance with the following site plans, details and supporting information prepared by Pond & Company. By reference, the following plans are made a part of this permit.

Sheet No.	Sheet Title	Date Created	Revision Date
TAXIWAY FOXTROT			
B-101, "Existing Conditions and Boring Location Plan Taxiway Foxtrot STA. 100+00 – 110+50", dated 06/08/2016			
B-102, "Existing Conditions and Boring Location Plan Taxiway Foxtrot STA. 110+50 – 120+00", dated 06/08/2016			
B-103, "Existing Conditions and Boring Location Plan Taxiway Foxtrot STA. 120+00 – 130+00", dated 06/08/2016			
B-104, "Existing Conditions and Boring Location Plan Taxiway Foxtrot STA. 130+00 – 140+00", dated 06/08/2016			
B-105, "Existing Conditions and Boring Location Plan Taxiway Foxtrot STA. 140+00 – 144+78.60", dated 06/08/2016			
CG101, "Grading and Drainage Plan Taxiway Foxtrot STA. 100+00 – 110+50", dated 06/08/2016			
CG102, "Grading and Drainage Plan Taxiway Foxtrot STA. 110+50 – 120+00", dated 06/08/2016			
CG103, "Grading and Drainage Plan Taxiway Foxtrot STA. 120+00 – 130+00", dated 06/08/2016			
CG104, "Grading and Drainage Plan Taxiway Foxtrot STA. 130+00 – 140+00", dated 06/08/2016			
CG105, "Grading and Drainage Plan Taxiway Foxtrot STA. 140+00 – 144+78.60", dated 06/08/2016			
CG201, "Storm Drainage Profiles Taxiway Foxtrot Profiles", dated 06/08/2016			
CG202, "Storm Drainage Profiles Taxiway Foxtrot Profiles", dated 06/08/2016			
CG203, "Storm Drainage Profiles Taxiway Foxtrot Profiles", dated 06/08/2016			
CG204, "Storm Drainage Profiles Taxiway Foxtrot Profiles", dated 06/08/2016			
CG501, "Grading and Drainage Details – Sheet 1", dated 06/08/2016			
CG502, "Grading and Drainage Details – Sheet 2", dated 06/08/2016			
CG503, "Grading and Drainage Details – Sheet 3", dated 06/08/2016			
CG504, "Grading and Drainage Details – Sheet 4", dated 06/08/2016			
CG505, "Grading and Drainage Details – Sheet 5", dated 06/08/2016			
CG506, "Grading and Drainage Details – Sheet 6", dated 06/08/2016			
CG506A, "Grading and Drainage Details – Sheet 7", dated 06/08/2016			
CG506B, "Grading and Drainage Details – Sheet 8", dated 06/08/2016			

11. Inspection and Maintenance Reporting Requirements:

a. The stormwater collection, treatment and control system shall be maintained in good operating condition at all times and **shall be inspected annually and cleaned as necessary to maintain design specifications**. **The inspections shall be conducted between the conclusion of spring snow melt and June 15th of each year**.

b. Any sediment removed from the stormwater collection, treatment and control system shall be disposed of properly in accordance with state and federal statutes and regulations.

c. **By July 15 of each year the permittee shall submit an annual inspection report to the Secretary; or by July 30 of each year if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. Annual Inspection Reports shall be submitted to:**

DEC- Watershed Management Division
Stormwater Program
1 National Life Drive, Main 2
Montpelier, Vermont 05620-3522

Or by email to anr.wsmdstormwatergeneral@vermont.gov

This report shall include, at a minimum items c.i. through c.vii. below. The permittee(s) may utilize the Annual Inspection Report form available from the Stormwater Program if determined by inspector to be sufficient to fully document inspection and maintenance of the authorized system.

i. Unless previously submitted by the permittee(s) under a previously issued authorization or discharge permit, the first report shall include an inspection and designer's certification that the project was built in compliance with the Approved Project Design;

ii. A description of any vegetated areas that require mowing or other maintenance;

iii. A description of any catch basins that require maintenance or sediment removed from sumps;

iv. A description of any illicit discharges to the system (illicit discharges would include dumping of oil, gas, detergent, vehicle wash water, etc.) and corrective action/preventative measures taken if applicable;

v. A description of any re-routing of stormwater to avoid the system;

vi. A description of any erosion noted during inspection (i.e. areas of exposed soil in channels, outlets, or on pond berms);

vii. A description of any cleaning, maintenance operations, or repairs needed to maintain design specifications, including a schedule for correction of any identified deficiencies;

d. Should any erosion problems occur; the permittee is required to immediately correct any such problems.

e. Any basins, grass channels, or related stormwater devices used during construction for erosion control shall be inspected and cleaned to design specifications immediately after construction has been completed.

12. Personnel and Training Requirements: Such personnel and training as necessary to fulfill the requirements of the Inspection and Maintenance Reporting above.

13. Monitoring and Reporting Requirement: No monitoring required; reporting requirement as specified in the Inspection and Maintenance Reporting above.

14. Other Requirements:

a. Treated stormwater runoff is the only waste authorized for disposal under the terms and conditions of this permit. The discharge of any hazardous materials or hazardous waste into the stormwater management system is prohibited.

b. The issuance of this permit does not relieve the permittee from the responsibility to obtain any other local, state or federal permits required by law.

15. Compliance with Anti-degradation and Water Quality Standards: The Secretary has determined that the permitted discharges satisfy Vermont's Anti-Degradation Policy described in the Department of Environmental Conservation's Interim Anti-Degradation Implementation Procedure, because the procedure allows a presumption of compliance for discharges that are in compliance with the Vermont Stormwater Management Manual and any additional best management practices that will be used to control the stormwater discharge as described in Section IX.D.1.d of the Department's Interim Anti-Degradation Implementation Procedure. The Secretary has also determined that for such discharges that qualify for the presumption under IX.D.1.d, all existing uses of surface waters, and the level of water quality necessary to protect those existing uses will be maintained and protected. The Secretary has determined that if the permittee is in full compliance with all permit conditions, including approved plans, monitoring, reporting and recordkeeping conditions, and is fully implementing stormwater BMPs required by this permit, the permitted discharges will meet the requirements of the Vermont Stormwater Management Manual and qualify for the presumption described in Section IX.D.1.d of the Department's Interim Anti-Degradation Implementation Procedure and will be presumed to comply with the Vermont Water Quality Standards, including but not limited to §1-03 (Anti-degradation Policy).

16. Renewable Energy Projects – Right to Appeal to Public Service Board:
Any appeal of this decision must be filed with the clerk of the Vermont Public Service Board pursuant to 10 V.S.A. §8506 within 30 days of the date of this decision. The appellant must file with the Clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. §8504(c)(2), and shall also serve a copy of the Notice of Appeal on the Vermont Department of Public Service. For information, see the Rules and General orders of the Public Service Board available on line at www.psb.vermont.gov. The address for the Public Service Board is 112 State Street, Montpelier, Vermont 05620-2701 (Tel. #802-828-2358).

All Other Projects – Right to Appeal to Environmental Court:
Pursuant to 10 V.S.A. Chapter 220, any appeal of this decision must be filed with the clerk of the Environmental Court within 30 days of the date of the decision. The Notice of Appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Court; and must be signed by the appellant or their attorney. In addition, the appeal must give the address or location and description of the property, project or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the Notice of Appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings, available online at www.vermontjudiciary.org or call (802) 951-1740. The address for the Environmental Court is 32 Cherry Street, 2nd Floor Suite 303 Burlington, Vermont 05401.

Dated this 22nd day of March, 2017

Emily Boedecker, Commissioner
Department of Environmental Conservation

By: Padraic Monks
Padraic Monks, Program Manager
Stormwater Management Program

PATRICK LEAHY BURLINGTON INTERNATION AIRPORT
STORMWATER MANAGEMENT PROGRAM (SWMP)

APPENDIX E2:

Operational Stormwater Discharge Permits proposed for Incorporation into MS4 Authorization
March 26, 2024

3028-INDS.10 (BETA Hangar Site)

3028-9050 (Taxiway K)

3028-9050.1 (Terminal Integration)

3028-9050.2 (BETA Technologies – BTV Assembly Facility)

3028-9050.3 (BETA Technologies General Aviation Hangar)

3028-9050.5A (BTV Rehabilitate Taxiway A)

3028-9050.7 (BTV Hotel)

3028-9050.8 (Extend Taxiway G and Construct New General Aviation South Apron)

EIV Technical Services

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

Operational Stormwater Discharge Permits proposed for Incorporation into MS4 Authorization

3028-INDS.10 (BETA Hangar Site)

STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STORMWATER DISCHARGE PERMIT

STORMWATER RUNOFF TO WATERS OF THE STATE

In compliance with provisions of 10 V.S.A. §1264, the Stormwater Permitting Rule, and in accordance with "Terms and Conditions" hereinafter specified,

Burlington International Airport
1200 Airport Drive #1
South Burlington, VT 05403

BETA AIR, LLC
1150 Airport Drive
South Burlington, VT 05403

Impervious Area: 0.68 acres

the permittee is hereby granted permission to discharge stormwater runoff from the BETA Hangar Site located at 1150 Airport Drive in South Burlington, Vermont to Potash Brook and groundwater in the Potash Brook watershed. This individual permit is required due to the impairment of the receiving water.

1. Expiration Date: This permit, unless revoked, modified, or suspended, shall be valid until the designated expiration date not withstanding any intervening change in water quality, effluent, or treatment standards, or classification of the receiving waters including groundwater. However, any such changed standard or classification, and any applicable requirement in a total maximum daily load (TMDL) for, shall be applied in determining whether or not to renew this permit, and in determining the conditions of a renewed permit.

   The permittee shall reapply for a renewed discharge permit sixty (60) days prior to the expiration date of this permit.

2. Revocation: 10 V.S.A. §1267 provides as follows:
   The Secretary may, after notice and opportunity for a public hearing, revoke, modify or suspend this permit if it is found that the permittee submitted false or inaccurate information in its application or has violated any requirement, restrictions, or condition of this permit, or if there is any change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge. The Secretary shall impose conditions as the Secretary deems necessary for regulating the discharges of a permittee whose permit has been revoked, modified, or suspended. Revocation shall be effective upon actual notice thereof to the permittee.

3. Operating Fees: This discharge is subject to operating fees under 3 V.S.A. §2822. The permittee shall submit the operating fees to the Agency in accordance with procedures provided by the Secretary.

4. Recording in Land Records: The permittee shall record a one-page town recording form for this discharge permit in the local land records within thirty (30) days of issuance of this permit on the form provided by the Secretary, per §22-901 of the Stormwater Permitting Rule. A copy of this form is available on the Stormwater Management Program website. The permittee shall provide a copy of the recording to the Stormwater Management Program within fourteen (14) days of the permittee's receipt of the copy of the recording from the local land records. Permits for public linear transportation projects shall be exempt from this requirement, provided the permit is retained by the permittee in the official project file.

5. Transfer of Permit: This permit is not transferable without prior written approval of the Secretary. Provided all applicable fees under 3 V.S.A. §2822 have been paid, a permittee may submit a notice of transfer to the Stormwater Management Program. The notice shall be submitted at least five (5) days prior to the proposed date

of transfer. The notice shall state that the prospective permittee has adequate funding to comply with this permit. The permittee shall provide a copy of this permit to the new owner or tenant and inform him of the responsibility to make application for a permit which shall be issued in his name. Any failure to do so shall be considered a violation of this permit.

6. Right of Entry: The permittee shall allow the Secretary, or his or her authorized representatives, at reasonable times, upon presentation of credentials, to enter upon and inspect the permitted premises, and the stormwater collection, treatment and control system; and to sample any discharge to determine compliance with this permit; and to have access to and inspect and copy any records required to be kept pursuant to this permit.

7. Receiving Waters: Potash Brook and groundwater in the Potash Brook watershed

8. Manner of Discharge:
   S/N 001: Stormwater runoff from a portion of the existing hangar building rooftop and a portion of the proposed paved parking area, via sheet flow to a pre-treatment filter strip with pea-gravel diaphragm routed to an infiltration basin with outlet control structure discharging to BTV's drainage system discharging to Potash brook.

   S/N 002: Stormwater runoff from a proposed paved parking lot via sheet flow to a perimeter drain discharging to a deep sump catch basin for pre-treatment routed to an existing underground infiltration trench (36" perforated pipe set in a gravel bed) discharging up to the 100 year storm to groundwater contiguous to Potash Brook.

   S/N 003: Stormwater Runoff from new and redeveloped Access Drives via gutter flow to nearest existing inlet on Airport Drive and discharging to Potash Brook treated via site balancing.

   S/N 004: Stormwater Runoff from redeveloped access drive, discharging to an existing inlet connected to BTV's stormwater collection system and eventually discharging to Potash Brook treated via site balancing.

9. Wastes Permitted: Stormwater runoff from the above-named areas of the project herein after treatment as specified in the manner of discharge.

10. Volumes Permitted and Frequency of Discharge: Such volumes and frequency as required by the discharge specified in the Manner of Discharge above.

11. Approved Project Design: This project shall be constructed and operated in accordance with the following site plans and details prepared by Stantec. By reference, the following plans are made a part of this permit:

    Sheet C-001 “Existing Conditions Site Plan”, dated 6/12/2020, last revised 6/26/2020;
    Sheet C-002 “Proposed Conditions Site Plan”, dated 6/12/2020, last revised 6/26/2020;
    Sheet C-003 “Annotated Maintenance Plan”, dated 6/12/2020, last revised 6/26/2020;
    Sheet C-101 “Index, Legend and Notes”, dated 6/12/2020, last revised 6/26/2020;
    Sheet C-102 “Existing Conditions and Demo Plan”, dated 6/12/2020, last revised 6/26/2020;
    Sheet C-103 “Site Layout, Grading and Drainage Plan”, dated 6/12/2020, last revised 6/26/2020;
    Sheet C-105 “Drainage Details”, dated 6/12/2020, last revised 6/26/2020;
    Sheet C-110 “EPSC Plan”, dated 6/12/2020, last revised 6/26/2020;
    Sheet C-112 “EPSC Notes and Details”, dated 6/12/2020, last revised 6/26/2020;
    Sheet L200 “Landscape Details, dated 03/20/2020 (By Wagner Hodgson Landscape Architecture);
    Sheet DR-1 “Overall Drainage Plan”, dated 08/24/2020;
    and all supporting information.

12. Inspection and Maintenance Reporting Requirements:
    a. The stormwater collection, treatment and control system shall be maintained in good operating condition at all times and **shall be inspected annually and cleaned as necessary to maintain design specifications**. **The inspections shall be conducted between the conclusion of spring snow melt and June 15th of each year**.

b. Any sediment removed from the stormwater collection, treatment and control system shall be disposed of properly in accordance with state and federal statutes and regulations.

c. **By July 15 of each year the permittee shall submit an annual inspection report to the Secretary; or by July 30 of each year if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. Annual Inspection Reports shall be submitted electronically to the DEC – Watershed Management Division, Stormwater Program at:**

https://anronline.vermont.gov

i. Unless previously submitted by the permittee(s) under a previously issued authorization or discharge permit, the first report submitted after construction completion shall also be submitted with a Designer's Initial Statement of Compliance that the project was built in compliance with the Approved Project Design outlined above at https://anronline.vermont.gov.

13. Secretary's Determination: The Secretary has determined that this project meets the requirements of the Agency's 2017 Stormwater Management Manual. The Secretary has determined that the proposed discharge will not reduce the quality of the receiving waters below the classification established for them.

14. Personnel and Training Requirements: Such personnel and training as necessary to fulfill the requirements of the Inspection and Maintenance Reporting above.

15. Monitoring and Reporting Requirement: No monitoring required; reporting requirement as specified in the Inspection and Maintenance Reporting above.

16. Other Requirements:
    a. Treated stormwater runoff is the only waste authorized for disposal under the terms and conditions of this permit. The discharge of any hazardous materials or hazardous waste into the stormwater management system is prohibited.

    b. The issuance of this permit does not relieve the permittee from the responsibility to obtain any other local, state, or federal permits required by law.

17. Compliance with Anti-degradation and Water Quality Standards: The Secretary has determined that the permitted discharges satisfy Vermont's Anti-degradation Policy provided in Section 1-03 of the Vermont Water Quality Standards and the Department of Environmental Conservation's Interim Anti-degradation Implementation Procedure because the applicant has demonstrated how the proposed development will implement practices and offset projects as necessary to ensure water quality is maintained in receiving waters. In particular, the applicant has demonstrated how the proposed development will implement appropriate best management practices (BMPs) designed in accordance with the requirements of the Vermont Stormwater Management Manual and as necessary offset projects in accordance with Chapter 22: Stormwater Permitting Rule. These BMPs and offset projects where necessary will manage and mitigate the proposed stormwater discharge from the project such that no lowering of water quality is expected to occur in the receiving waters.

18. Right to Appeal:
(A) Pursuant to 10 V.S.A. Chapter 220, any appeal of this permit, except for appeal of a renewable energy plant as described in (B), must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The notice of appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant's attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the notice of appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings.

(B) If this permit relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. § 248, any appeal of this decision must be filed with the Vermont Public Utility Commission pursuant to 10 V.S.A. § 8506. This section does not apply to a facility that is subject to 10 V.S.A. § 1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. § 1006 (certification of hydroelectric projects), or 10 V.S.A. Chapter 43 (dams). Any appeal under this section must be filed with the clerk of the Public Utility Commission within 30 days of the date of this decision; the appellant must file with the clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. § 8504(c)(2) and shall also serve a copy of the notice of appeal on the Vermont Public Service Department. For further information, see the Rules and General Orders of the Public Utility Commission.

19. Effective Date and Expiration Date of this Authorization: This authorization to discharge shall become effective on September 28, 2020 and shall expire on September 27, 2025.

Dated September 28, 2020

Peter Walke, Commissioner
Department of Environmental Conservation

By: Padraic Monks
Padraic Monks, Program Manager
Stormwater Management Program

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

Town Recording of Permit Issued

FOR STORMWATER DISCHARGE PERMIT BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that the Vermont Department of Environmental Conservation gives authorization to discharge pursuant to a general stormwater discharge permit that has been issued to Permittee(s) named herein for the discharge of stormwater runoff for the property identified below from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. 1264. The authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

Permittee(s): **Burlington International Airport and BETA AIR, LLC**

Permit/Authorization Number: **3028-INDS.10**

911 Address of Property: **1150 Airport Drive, South Burlington**

Name of association (if applicable): _____
(condominium, subdivision, or planned community)

Printed Name of Permittee or Authorized Representative: _____

Signature of Permittee or Authorized Representative: _____ Date: _____

FOR TOWN CLERK USE ONLY:

Recorded under Book: _____ Page: _____

Date Recorded with Town: _____ Signature / Stamp: _____

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Recording information for Municipal Clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee," and listing the above-named Permittee(s) as "Grantor(s)." Additionally, if this notice lists the name of a condominium, subdivision, or planned community association, please list the named association as an additional "Grantor."

Please upload this completed form to ANR Online by visiting the following link
https://anronline.vermont.gov

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

Operational Stormwater Discharge Permits proposed for Incorporation into MS4 Authorization

3028-9050 (Taxiway K)

Permit Number: 3028-9050

PIN: EJ96-0386

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9050

A determination has been made that the applicant(s):

City of Burlington, Burlington International Airport
1200 Airport Drive No. 1
South Burlington, VT 05403

Impervious Area: 0.50 acres

meets the criteria necessary for inclusion under General Permit 3-9050. Hereinafter, the named applicant shall be referred to as the permittee. Subject to the conditions of General Permit No. 3-9050, the permittee is authorized to discharge stormwater as described herein:

Project Name: Taxiway K

Project Location: 1200 Airport Drive No. 1 in South Burlington, Vermont

Receiving Waters: Class II wetlands to Potash Brook

Manner of Discharge: S/N 001: Stormwater runoff from Taxiway 'K', which is an asphalt surface, via sheet flow to a grass swale, discharging to infiltration pipes and eventually into class II wetlands tributary to Potash Brook located on the south side of the airport service road.

Design: This project shall be constructed and operated in accordance with the site plans and details designed by CHA Companies
Sheet 1, "Title Sheet" dated 02/12/2021, last revised 02/12/2021;
Sheet 2, "Project Scope" dated 02/12/2021, last revised 02/12/2021;
Sheet 3, "Horizontal and Vertical Control Plan" dated 03/03/2021, last revised 03/03/2021;
Sheet 4, "General Notes", dated 03/03/2021, last revised 03/03/2021;
Sheet 5, "General Notes -2" dated 03/03/2021, last revised 03/03/2021;
Sheet 6, "Soil Boring Plan", dated 02/12/2021, last revised 02/12/2021;
Sheet 7, "Grading Plan", dated 06/11/2021, last revised 08/11/2021;
Sheet 8, "Profile Plan", dated 02/12/2021, last revised 02/12/2021;
Sheet 9, "Drainage Details", dated 02/12/2021, last revised 07/22/2021;
Sheet 10, "Erosion and Sediment Control Plan", dated 02/12/2021, last revised 07/22/2021;
Sheet 1 of 2, "Existing Conditions", dated 2/19/2021, last revised 07/22/2021;
Sheet 2 of 2, "Proposed Conditions", dated 2/19/2021, last revised 07/22/2021; and all supporting information.

By reference, the above noted plans are made part of this authorization.

Compliance with General Permit 3-9050 and this Authorization

The permittee shall comply with this authorization and all the terms and conditions of General Permit 3-9050, including the payment of annual operating fees to the Department. A billing statement for such fees will be sent to the permittee each year. An invoice for the first year's operating fee will be sent separately. Any permit non-compliance, including a failure to pay the annual operating fee, constitutes a violation of 10 V.S.A. Chapter 47 and may be grounds for an enforcement action or revocation of this authorization to discharge.

Construction of the Stormwater Management System:

The stormwater management system as described in the approved Design above shall be installed prior to the discharge of stormwater from any new or redeveloped impervious surface covered by this authorization. Where stormwater from existing impervious surface is being treated pursuant to “Site Balancing”, per the Approved Design, the stormwater system treating such areas shall be installed prior to the discharge of stormwater from new or redeveloped impervious surface.

For any existing impervious surface covered by this authorization, except for existing impervious surfaces used for Site Balancing, as noted above, the stormwater management system as described in the approved Design above shall be installed no later than 9/29/2026.

Annual Inspection and Report
The stormwater management system shall be properly operated. The permittee shall submit an annual inspection report on the operation, maintenance and condition of the stormwater management system. The inspection report shall be submitted regardless of whether the project has been constructed. The inspection shall be conducted between the conclusion of spring snow melt and June 15th of each year and the inspection report shall be submitted to the Secretary by July 15th of each year, or by July 30th if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. The inspection report shall note all problem areas and all measures taken to correct any problems and to prevent future problems. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

Initial Statement of Compliance
An initial statement of compliance, signed by a designer, must be submitted to the Stormwater Management Program no later than 30 days following completion of construction of the stormwater management system. Forms for completing this requirement are available on the Stormwater Management Program's website. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

Transferability
This authorization to discharge is not transferable to any person except in compliance with Part 8.4 of General Permit 3-9050. A copy of General Permit 3-9050 is available from the Department via the internet at https://dec.vermont.gov/sites/dec/files/wsm/stormwater/docs/2020_09_01%20Final%20GP%203-9050.pdf

Changes to Permitted Development
In accordance with Part 8.6. of General Permit 3-9050, the permittee shall notify the Department of any planned development or facility expansions or changes that may result in new or increased stormwater discharges. The Department shall determine the appropriateness of continued inclusion under General Permit 3-9050 by the modified development or facility.

Recording in Land Records
The permittee shall record in the local land records, within 30 days of issuance of this authorization, a one-page notice of permit coverage. A one-page notice form may be obtained from the Secretary. A copy of the recording shall be provided to the Secretary within 14 days of the permittee's receipt of a copy of the recording from the local land records. Permits for public linear transportation projects shall be exempt from this requirement provided the permit is retained by the permittee in the official project file.

Right to Appeal
(A) Pursuant to 10 V.S.A. Chapter 220, any appeal of this permit, except for appeal of a renewable energy plant as described in (B), must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The notice of appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant's attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the notice of appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings.

(B) If this permit relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. § 248, any appeal of this decision must be filed with the Vermont Public Utility Commission pursuant to 10 V.S.A. § 8506. This section does not apply to a facility that is subject to 10 V.S.A. § 1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. § 1006 (certification of hydroelectric projects), or 10 V.S.A. Chapter 43 (dams). Any appeal under this section must be filed with the clerk of the Public Utility Commission within 30 days of the date of this decision; the appellant must file with the clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. § 8504(c)(2) and shall also serve a copy of the notice of appeal on the Vermont Public Service Department. For further information, see the Rules and General Orders of the Public Utility Commission.

Effective Date and Expiration Date of this Authorization

This authorization to discharge shall become effective on September 30, 2021 and shall expire on September 29, 2026. The permittee shall reapply for coverage prior to the expiration of this authorization.

Dated September 30, 2021.

Peter Walke, Commissioner
Department of Environmental Conservation

By: 

Kevin Burke, Environmental Analyst
Stormwater Management Program

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

Town Recording of Permit Issued

FOR STORMWATER DISCHARGE PERMIT BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that the Vermont Department of Environmental Conservation gives authorization to discharge pursuant to a general stormwater discharge permit that has been issued to Permittee(s) named herein for the discharge of stormwater runoff for the property identified below from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. 1264. The authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

Permittee(s): **City of Burlington, Burlington International Airport**

Permit/Authorization Number: **3028-9050**

911 Address of Property: **1200 Airport Drive No. 1, South Burlington**

Name of association (if applicable): _____
(condominium, subdivision or planned community)

Printed Name of Permittee or Authorized Representative: _____

Signature of Permittee or Authorized Representative: _____ Date:_____

FOR TOWN CLERK USE ONLY:

Recorded under Book: _____ Page:_____

Date Recorded with Town: _____ Signature / Stamp:_____

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Recording information for Municipal Clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee," and listing the above-named Permittee(s) as "Grantor(s)." Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor."

Can be Completed by Clerk or Permittee:
Please upload this completed form to ANR Online by visiting the following link
https://anronline.vermont.gov

January 2019

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

Operational Stormwater Discharge Permits proposed for Incorporation into MS4 Authorization

3028-9050.1 (Terminal Integration)

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9050

A determination has been made that the applicant(s):

City of Burlington, Burlington International Airport
1200 Airport Drive 1
South Burlington, VT 05403

Impervious Area: 0.86 acres

meets the criteria necessary for inclusion under General Permit 3-9050. Hereinafter, the named applicant shall be referred to as the permittee. Subject to the conditions of General Permit No. 3-9050, the permittee is authorized to discharge stormwater as described herein:

Project Name: BTV Terminal Integration Project

Project Location: 1200 Airport Drive #1 in South Burlington, Vermont

Receiving Waters: Potash Brook

Manner of Discharge: S/N 001: Stormwater runoff from the Terminal Integration Building rooftop will discharge to an existing drainage manhole with outlet control structure discharging to an infiltration system to BTV's drainage system discharging to Potash Brook.

Design: This project shall be constructed and operated in accordance with the site plans and details designed by Jacobs - BTV Terminal Integration Project (TIP)
Sheet D-1, "Pre Construction Plan", dated June 2021;
Sheet D-2, "Post Construction Plan", dated June 2021;
Sheet D-3, "Infiltration System Catchment Areas", dated June 2021;
Sheet D-4, "Infiltration System Plan", dated June 2021;
Sheet D-5, "Infiltration System Details", dated June 2021;
Edwards and Kelcey: Jacobs – 1-1391 Permit Application – South Apron Expansion;
Drawing No. 4.1, Sheet 13 of 34, "Grading and Drainage Plan", dated 8/18/99;
Drawing No. 4.6, Sheet 18 of 34, "Storm Drainage Treatment System", dated 8/18/99 (Revised 9/99 per Addendum #2);
Drawing No. 4.7, Sheet 19 of 34, "Infiltration and Storm Treatment System Details", dated 8/18/99;
Hoyle, Tanner & Associates – Terminal Integration Project:
Drawing No. C2.101, Sheet 4 of 10, "Proposed Utility Plan", dated February 2021;
Hoyle, Tanner & Associates – Construct Remain Overnight Apron:
Drawing No. BR1.1, Sheet 40 of 41, "Boring Logs Sheet 1 of 2", dated March 2020;
Drawing No. BR1.2, Sheet 41 of 41, "Boring Logs Sheet 2 of 2", dated March 2020; and all supporting information.

By reference, the above noted plans are made part of this authorization.

Compliance with General Permit 3-9050 and this Authorization

The permittee shall comply with this authorization and all the terms and conditions of General Permit 3-9050, including the payment of annual operating fees to the Department. A billing statement for such fees will be sent to the permittee each year. An invoice for the first year's operating fee will be sent separately. Any permit non-compliance, including a failure to pay the annual operating fee, constitutes a violation of 10 V.S.A. Chapter 47 and may be grounds for an enforcement action or revocation of this authorization to discharge.

Construction of the Stormwater Management System:
The stormwater management system as described in the approved Design above shall be installed prior to the discharge of stormwater from any new or redeveloped impervious surface covered by this authorization. Where stormwater from existing impervious surface is being treated pursuant to "Site Balancing", per the Approved Design, the stormwater system treating such areas shall be installed prior to the discharge of stormwater from new or redeveloped impervious surface.

For any existing impervious surface covered by this authorization, except for existing impervious surfaces used for Site Balancing, as noted above, the stormwater management system as described in the approved Design above shall be installed no later than 8/10/2026.

Annual Inspection and Report
The stormwater management system shall be properly operated. The permittee shall submit an annual inspection report on the operation, maintenance and condition of the stormwater management system. The inspection report shall be submitted regardless of whether the project has been constructed. The inspection shall be conducted between the conclusion of spring snow melt and June 15th of each year and the inspection report shall be submitted to the Secretary by July 15th of each year, or by July 30th if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. The inspection report shall note all problem areas and all measures taken to correct any problems and to prevent future problems. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

Initial Statement of Compliance
An initial statement of compliance, signed by a designer, must be submitted to the Stormwater Management Program no later than 30 days following completion of construction of the stormwater management system. Forms for completing this requirement are available on the Stormwater Management Program's website. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

Transferability
This authorization to discharge is not transferable to any person except in compliance with Part 8.4 of General Permit 3-9050. A copy of General Permit 3-9050 is available from the Department via the internet at https://dec.vermont.gov/sites/dec/files/wsm/stormwater/docs/2020_09_01%20Final%20GP%203-9050.pdf

Changes to Permitted Development
In accordance with Part 8.6. of General Permit 3-9050, the permittee shall notify the Department of any planned development or facility expansions or changes that may result in new or increased stormwater discharges. The Department shall determine the appropriateness of continued inclusion under General Permit 3-9050 by the modified development or facility.

Recording in Land Records
The permittee shall record in the local land records, within 30 days of issuance of this authorization, a one-page notice of permit coverage. A one-page notice form may be obtained from the Secretary. A copy of the recording shall be provided to the Secretary within 14 days of the permittee's receipt of a copy of the recording from the local land records. Permits for public linear transportation projects shall be exempt from this requirement provided the permit is retained by the permittee in the official project file.

Right to Appeal
(A) Pursuant to 10 V.S.A. Chapter 220, any appeal of this permit, except for appeal of a renewable energy plant as described in (B), must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The notice of appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant's attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the notice of appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings.

(B) If this permit relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. § 248, any appeal of this decision must be filed with the Vermont Public Utility Commission pursuant to 10 V.S.A. § 8506. This section does not apply to a facility that is subject to 10 V.S.A. § 1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. § 1006 (certification of hydroelectric projects), or 10 V.S.A. Chapter 43 (dams). Any appeal under

this section must be filed with the clerk of the Public Utility Commission within 30 days of the date of this decision; the appellant must file with the clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. § 8504(c)(2) and shall also serve a copy of the notice of appeal on the Vermont Public Service Department. For further information, see the Rules and General Orders of the Public Utility Commission.

Effective Date and Expiration Date of this Authorization

This authorization to discharge shall become effective on August 11, 2021 and shall expire on August 10, 2026. The permittee shall reapply for coverage prior to the expiration of this authorization.

Dated August 11, 2021.

Peter Walke, Commissioner
Department of Environmental Conservation

By: 

Kevin Burke, Environmental Analyst - Stormwater Management Program

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

Town Recording of Permit Issued

FOR STORMWATER DISCHARGE PERMIT BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that the Vermont Department of Environmental Conservation gives authorization to discharge pursuant to a general stormwater discharge permit that has been issued to Permittee(s) named herein for the discharge of stormwater runoff for the property identified below from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. 1264. The authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

Permittee(s): **City of Burlington, Burlington International Airport**

Permit/Authorization Number: **3028-9050.1**

911 Address of Property: **1200 Airport Drive #1, South Burlington**

Name of association (if applicable): _____
(condominium, subdivision or planned community)

Printed Name of Permittee or Authorized Representative: _____

Signature of Permittee or Authorized Representative: _____ Date:_____

FOR TOWN CLERK USE ONLY:

Recorded under Book: _____ Page:_____

Date Recorded with Town: _____ Signature / Stamp:_____

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Recording information for Municipal Clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee," and listing the above-named Permittee(s) as "Grantor(s)." Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor."

Can be Completed by Clerk or Permittee:
Please upload this completed form to ANR Online by visiting the following link
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January 2019

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

Operational Stormwater Discharge Permits proposed for Incorporation into MS4 Authorization

3028-9050.2 (BETA Technologies – BTV Assembly Facility)

Permit Number: 3028-9050.2

PIN: EJ96-0386

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9050

A determination has been made that the applicant(s):

Beta Technologies, Inc. (BETA)
461 Avenue D
Williston, VT 05495

And
City of Burlington, Burlington International Airport (BTV)
1200 Airport Drive, 1
South Burlington, VT 05403

Impervious Area: 12.32 acres

meets the criteria necessary for inclusion under General Permit 3-9050. Hereinafter, the named applicant shall be referred to as the permittee. Subject to the conditions of General Permit No. 3-9050, the permittee is authorized to discharge stormwater as described herein:

Project Name: BETA Technologies - BTV Assembly Facility

Project Location: 1200 Airport Drive in South Burlington, Vermont

Receiving Waters: Muddy Brook

Manner of Discharge: S/N 001: The proposed stormwater system for the project consists of nine (9) internal drainage areas (1, 2, 2A, 2.1, 3, 4, 5, 6, 6.1) which will discharge to the Muddy Brook via outfall S/N 001. Corresponding stormwater management practices (SMPs) include a combination of bioretention basins (Areas 1, 2, 2A, 4, and 5), a subsurface sand filter (Area 3), and a gravel wetland (Areas 6 and 6.1). Rooftop runoff is collected in two subsurface cisterns to satisfy the rainwater harvesting practice criteria. A 5-ft wide sidewalk which parallels the main access road as well as a 5-ft sidewalk and a concrete pad along the western edge of the assembly facility building will be treated via simple disconnection. Discharge from the internal drainage areas 1 through 5 are to an adjacent Class II wetland which drains under the airport via a network of stormwater piping, eventually combining with drainage area 6 and discharging directly to Muddy Brook at S/N 001.

Design: This project shall be constructed and operated in accordance with the site plans and details designed by Stantec Consulting Services.

Sheet C-000, "Title Sheet and Index," dated 01/25/2022, last revised 01/25/2022;
Sheet C-001, "Existing Drainage Plan," dated 01/25/2022, last revised 01/25/2022;
Sheet C-002, "Proposed Drainage Plan," dated 01/25/2022, last revised 01/25/2022;
Sheet C-003, "Grading and Drainage Plan," dated 01/25/2022, last revised 01/25/2022;
Sheet C-004, "Grading and Drainage Plan," dated 01/25/2022, last revised 01/25/2022;
Sheet C-005, "Drainage Pipe and Structure Tables," dated 01/25/2022, last revised 01/25/2022;
Sheet C-006, "Drainage Pipe and Structure Tables," dated 01/25/2022, last revised 01/25/2022;
Sheet C-007, "Stormwater Management Practices," dated 01/25/2022, last revised 01/25/2022;
Sheet C-008, "Details 1," dated 01/25/2022, last revised 01/25/2022;
Sheet C-009, "Details 2," dated 01/25/2022, last revised 01/25/2022;
Sheet C-010, "Details 3," dated 01/25/2022, last revised 01/25/2022;
Sheet C-011, "Details 4," dated 01/25/2022, last revised 01/25/2022;
Sheet C-012, "Details 5," dated 01/25/2022, last revised 04/08/2022;

Sheet C-013, "Post Construction Soils Plan," dated 01/25/2022, last revised 01/25/2022;
Sheet C-014, "Stormwater Maintenance Plan," dated 01/25/2022, last revised 01/25/2022; and all supporting information.

By reference, the above noted plans are made part of this authorization.

Compliance with General Permit 3-9050 and this Authorization
The permittee shall comply with this authorization and all the terms and conditions of General Permit 3-9050, including the payment of annual operating fees to the Department. A billing statement for such fees will be sent to the permittee each year. An invoice for the first year's operating fee will be sent separately. Any permit non-compliance, including a failure to pay the annual operating fee, constitutes a violation of 10 V.S.A. Chapter 47 and may be grounds for an enforcement action or revocation of this authorization to discharge.

Construction of the Stormwater Management System:
The stormwater management system as described in the approved Design above shall be installed prior to the discharge of stormwater from any new or redeveloped impervious surface covered by this authorization. Where stormwater from existing impervious surface is being treated pursuant to "Site Balancing", per the Approved Design, the stormwater system treating such areas shall be installed prior to the discharge of stormwater from new or redeveloped impervious surface.

For any existing impervious surface covered by this authorization, except for existing impervious surfaces used for Site Balancing, as noted above, the stormwater management system as described in the approved Design above shall be installed no later than 4/25/2027.

Annual Inspection and Report
The stormwater management system shall be properly operated. The permittee shall submit an annual inspection report on the operation, maintenance and condition of the stormwater management system. The inspection report shall be submitted regardless of whether the project has been constructed. The inspection shall be conducted between the conclusion of spring snow melt and June 15th of each year and the inspection report shall be submitted to the Secretary by July 15th of each year, or by July 30th if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. The inspection report shall note all problem areas and all measures taken to correct any problems and to prevent future problems. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

Initial Statement of Compliance
An initial statement of compliance, signed by a designer, must be submitted to the Stormwater Management Program no later than 30 days following completion of construction of the stormwater management system. Forms for completing this requirement are available on the Stormwater Management Program's website. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

Transferability
This authorization to discharge is not transferable to any person except in compliance with Part 8.4 of General Permit 3-9050. A copy of General Permit 3-9050 is available from the Department via the internet at https://dec.vermont.gov/sites/dec/files/wsm/stormwater/docs/2020_09_01%20Final%20GP%203-9050.pdf

Changes to Permitted Development
In accordance with Part 8.6. of General Permit 3-9050, the permittee shall notify the Department of any planned development or facility expansions or changes that may result in new or increased stormwater discharges. The Department shall determine the appropriateness of continued inclusion under General Permit 3-9050 by the modified development or facility.

Recording in Land Records
The permittee shall record in the local land records, within 30 days of issuance of this authorization, a one-page notice of permit coverage. A one-page notice form may be obtained from the Secretary. A copy of the recording shall be provided to the Secretary within 14 days of the permittee's receipt of a copy of the recording from the local land records. Permits for public linear transportation projects shall be exempt from this requirement provided the permit is retained by the permittee in the official project file.

Right to Appeal
(A) Pursuant to 10 V.S.A. Chapter 220, any appeal of this permit, except for appeal of a renewable energy plant as described in (B), must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the

decision. The notice of appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant's attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the notice of appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings.

(B) If this permit relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. § 248, any appeal of this decision must be filed with the Vermont Public Utility Commission pursuant to 10 V.S.A. § 8506. This section does not apply to a facility that is subject to 10 V.S.A. § 1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. § 1006 (certification of hydroelectric projects), or 10 V.S.A. Chapter 43 (dams). Any appeal under this section must be filed with the clerk of the Public Utility Commission within 30 days of the date of this decision; the appellant must file with the clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. § 8504(c)(2) and shall also serve a copy of the notice of appeal on the Vermont Public Service Department. For further information, see the Rules and General Orders of the Public Utility Commission.

Effective Date and Expiration Date of this Authorization

This authorization to discharge shall become effective on April 26, 2022 and shall expire on April 25, 2027. The permittee shall reapply for coverage prior to the expiration of this authorization.

Dated April 26, 2022.

Julia S. Moore, Secretary
Agency of Natural Resources

By: 

Chris Gianfagna, Program Manager
Stormwater Management Program

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

Town Recording of Permit Issued

FOR STORMWATER DISCHARGE PERMIT BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that the Vermont Department of Environmental Conservation gives authorization to discharge pursuant to a general stormwater discharge permit that has been issued to Permittee(s) named herein for the discharge of stormwater runoff for the property identified below from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. 1264. The authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

Permittee(s): **City of Burlington, Burlington International Airport (BTV); Beta Technologies, Inc. (BETA)**

Permit/Authorization Number: **3028-9050.2**

911 Address of Property: **1200 Airport Drive, South Burlington**

Name of association (if applicable): _____
(condominium, subdivision or planned community)

Printed Name of Permittee or Authorized Representative: _____

Signature of Permittee or Authorized Representative: _____ Date:_____

FOR TOWN CLERK USE ONLY:

Recorded under Book: _____ Page:_____

Date Recorded with Town: _____ Signature / Stamp:_____

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Recording information for Municipal Clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee," and listing the above-named Permittee(s) as "Grantor(s)." Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor."

Can be Completed by Clerk or Permittee:
Please upload this completed form to ANR Online by visiting the following link
https://anronline.vermont.gov

January 2019

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

Operational Stormwater Discharge Permits proposed for Incorporation into MS4 Authorization

3028-9050.3 (BETA Technologies General Aviation Hangar)

Permit Number: 3028-9050.3

PIN: EJ96-0386

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9050

A determination has been made that the applicant(s):

Beta Technologies Inc. (BETA)
1150 Airport Drive
South Burlington, VT 05403

And
City of Burlington, Burlington International Airport (BTV)
1200 Airport Drive, #1
South Burlington, VT 05403

Impervious Area: 1.12 acres

meets the criteria necessary for inclusion under General Permit 3-9050. Hereinafter, the named applicant shall be referred to as the permittee. Subject to the conditions of General Permit No. 3-9050, the permittee is authorized to discharge stormwater as described herein:

Project Name:	BETA General Aviation Hangar
Project Location:	1200 Airport Drive in South Burlington, Vermont
Receiving Waters:	Muddy Brook
Manner of Discharge:	S/N 001: Area 4 and 5 consist of sidewalks along the southern portion of the hangar that were not able to be routed to the proposed stormwater management practices and drain to bioretention basins 4 and 5 from the BETA Technologies – BTV Assembly Facility project, respectively. Both bioretention basin 4 and 5 have capacity for the additional area as shown in the updated model for the BTV Assembly Facility project. Area 7 drains to bioretention basin 7 and areas 8 and 8.1 drain to bioretention basin 8. Areas 10, 11, and 12 all drain to an existing stormwater system and the existing impervious in those drainage areas is not being altered. Discharge from all internal drainage areas are to an adjacent Class II wetland which drains under the airport via a network of stormwater piping, eventually discharging directly to Muddy Brook at S/N 001.
Design:	This project shall be constructed and operated in accordance with the site plans and details designed by Stantec Sheet C-000, "Title Sheet and Index," dated 03/11/2022, revised 03/11/2022; Sheet C-001, "Existing Drainage Plan," dated 03/11/2022, revised 03/11/2022; Sheet C-002, "Proposed Drainage Plan," dated 03/11/2022, revised 03/11/2022; Sheet C-003, "Grading and Drainage Plan," dated 03/11/2022, revised 03/11/2022; Sheet C-004, "Details 1," dated 03/11/2022, revised 03/11/2022; Sheet C-005, "Details 2," dated 03/11/2022, revised 03/11/2022; Sheet C-006, "Details 3," dated 03/11/2022, revised 03/11/2022; Sheet C-007, "Post Construction Soils Plan," dated 03/11/2022, revised 03/11/2022; Sheet C-008, "Stormwater Maintenance Plan," dated 03/11/2022, revised 03/11/2022; and all supporting information. By reference, the above noted plans are made part of this authorization.

Compliance with General Permit 3-9050 and this Authorization

The permittee shall comply with this authorization and all the terms and conditions of General Permit 3-9050, including the payment of annual operating fees to the Department. A billing statement for such fees will be sent to the permittee each year. An invoice for the first year's operating fee will be sent separately. Any permit non-compliance, including a failure to pay the

annual operating fee, constitutes a violation of 10 V.S.A. Chapter 47 and may be grounds for an enforcement action or revocation of this authorization to discharge.

Construction of the Stormwater Management System:
The stormwater management system as described in the approved Design above shall be installed prior to the discharge of stormwater from any new or redeveloped impervious surface covered by this authorization. Where stormwater from existing impervious surface is being treated pursuant to "Site Balancing", per the Approved Design, the stormwater system treating such areas shall be installed prior to the discharge of stormwater from new or redeveloped impervious surface.

For any existing impervious surface covered by this authorization, except for existing impervious surfaces used for Site Balancing, as noted above, the stormwater management system as described in the approved Design above shall be installed no later than 4/26/2027.

Annual Inspection and Report
The stormwater management system shall be properly operated. The permittee shall submit an annual inspection report on the operation, maintenance and condition of the stormwater management system. The inspection report shall be submitted regardless of whether the project has been constructed. The inspection shall be conducted between the conclusion of spring snow melt and June 15th of each year and the inspection report shall be submitted to the Secretary by July 15th of each year, or by July 30th if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. The inspection report shall note all problem areas and all measures taken to correct any problems and to prevent future problems. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

Initial Statement of Compliance
An initial statement of compliance, signed by a designer, must be submitted to the Stormwater Management Program no later than 30 days following completion of construction of the stormwater management system. Forms for completing this requirement are available on the Stormwater Management Program's website. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

Transferability
This authorization to discharge is not transferable to any person except in compliance with Part 8.4 of General Permit 3-9050. A copy of General Permit 3-9050 is available from the Department via the internet at https://dec.vermont.gov/sites/dec/files/wsm/stormwater/docs/2020_09_01%20Final%20GP%203-9050.pdf

Changes to Permitted Development
In accordance with Part 8.6. of General Permit 3-9050, the permittee shall notify the Department of any planned development or facility expansions or changes that may result in new or increased stormwater discharges. The Department shall determine the appropriateness of continued inclusion under General Permit 3-9050 by the modified development or facility.

Recording in Land Records
The permittee shall record in the local land records, within 30 days of issuance of this authorization, a one-page notice of permit coverage. A one-page notice form may be obtained from the Secretary. A copy of the recording shall be provided to the Secretary within 14 days of the permittee's receipt of a copy of the recording from the local land records. Permits for public linear transportation projects shall be exempt from this requirement provided the permit is retained by the permittee in the official project file.

Right to Appeal
(A) Pursuant to 10 V.S.A. Chapter 220, any appeal of this permit, except for appeal of a renewable energy plant as described in (B), must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The notice of appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant's attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the notice of appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings.

(B) If this permit relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. § 248, any appeal of this decision must be filed with the Vermont Public Utility Commission pursuant to 10 V.S.A. § 8506. This

section does not apply to a facility that is subject to 10 V.S.A. § 1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. § 1006 (certification of hydroelectric projects), or 10 V.S.A. Chapter 43 (dams). Any appeal under this section must be filed with the clerk of the Public Utility Commission within 30 days of the date of this decision; the appellant must file with the clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. § 8504(c)(2) and shall also serve a copy of the notice of appeal on the Vermont Public Service Department. For further information, see the Rules and General Orders of the Public Utility Commission.

Effective Date and Expiration Date of this Authorization

This authorization to discharge shall become effective on April 27, 2022 and shall expire on April 26, 2027. The permittee shall reapply for coverage prior to the expiration of this authorization.

Dated April 27, 2022.

Julia S. Moore, Secretary
Agency of Natural Resources

By: 

Chris Gianfagna, Program Manager
Stormwater Management Program

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

Town Recording of Permit Issued

FOR STORMWATER DISCHARGE PERMIT BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that the Vermont Department of Environmental Conservation gives authorization to discharge pursuant to a general stormwater discharge permit that has been issued to Permittee(s) named herein for the discharge of stormwater runoff for the property identified below from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. 1264. The authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

Permittee(s): **City of Burlington, Burlington International Airport (BTV); Beta Technologies Inc. (BETA)**

Permit/Authorization Number: **3028-9050.3**

911 Address of Property: **1200 Airport Drive, South Burlington**

Name of association (if applicable): _____
(condominium, subdivision or planned community)

Printed Name of Permittee or Authorized Representative: _____

Signature of Permittee or Authorized Representative: _____ Date:_____

FOR TOWN CLERK USE ONLY:

Recorded under Book: _____ Page:_____

Date Recorded with Town: _____ Signature / Stamp:_____

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Recording information for Municipal Clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee," and listing the above-named Permittee(s) as "Grantor(s)." Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor."

Can be Completed by Clerk or Permittee:
Please upload this completed form to ANR Online by visiting the following link
https://anronline.vermont.gov

January 2019

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

Operational Stormwater Discharge Permits proposed for Incorporation into MS4 Authorization

3028-9050.5A (BTV Rehabilitate Taxiway A)

Permit Number: 3028-9050.5A

PIN: EJ96-0386

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9050

A determination has been made that the applicant(s):

City of Burlington, Burlington International Airport
1200 Airport Drive, 1
South Burlington, VT 05403

Impervious Area: 9.04 acres

meets the criteria necessary for inclusion under General Permit 3-9050. Hereinafter, the named applicant shall be referred to as the permittee. Subject to the conditions of General Permit No. 3-9050, the permittee is authorized to discharge stormwater as described herein. This permit amends and replaces permit 3028-9050.5

Project Name: BTV Rehabilitate Taxiway A

Project Location: 1200 Airport Drive 1 in South Burlington, Vermont

Receiving Waters:
- Centennial Brook
- Potash Brook

Replacing Permit #(s): 3028-9050.5

Manner of Discharge: S/N 001: Stormwater runoff from Taxiway A, Taxiway B and Runway 1-19 flows via grassed inland to a subsurface infiltration chamber through a 120-foot-long perforated infiltration pipe. The perforated infiltration pipe performs pretreatment and discharges as ground water in the Centennial Brook watershed area.

S/N 002: Stormwater runoff from Taxiway A, Taxiway C and Runway 1-19 flows via grassed inland area to a closed pipe drainage system to an existing subsurface infiltration chamber discharging to ground water in the Potash Brook. Pavement has been reduced to the existing system.

S/N 003:3028-9050.5 discharging to ground water in the Potash Brook watershed area.

S/N 004: The proposed stormwater system will consist of 13 catch basins capturing runoff from approximately 6.14 acres of impervious surfaces, of this 1.43 acres is pervious surface to be converted to impervious surface. The rehabilitation of Taxiway A and Taxiway C project includes a change to the slope of the pavement that will direct runoff from approximately 0.34 acres to the
system of catch basins located on the overnight apron. An unlined storage chamber will be installed to satisfy required peak flow requirements and a lined filtration system will be installed to satisfy water quality standards. The lined portion is designed to treat the water quality volume as described in the narrative and shown on the plans attachment. The impervious areas within the work area are included in multiple permits for BTV. The project will outlet to an impaired stream, Potash Brook.

Design: This project shall be constructed and operated in accordance with the site plans and details designed by McFarland Johnson and Hoyle, Tanner & Associates, Inc.:

Taxiway A Title Sheet, dated 12/05/2022;
Sheet GN-01 General Notes, Legends and Index to Drawings, dated March 23, 2022;
Sheet GP-01, General Plan and Airfield Survey Control, dated March 23, 2022;
Sheet 1 of 2, Existing Conditions Plan, dated March 3, 2022;
Sheet 2 of 2, Existing Conditions Plan, dated March 3, 2022;

Sheet GR-01 Grading, Drainage and Erosion Control Plan (Sheet 1 of 2) dated October 31, 2022;
Sheet GR-02 Grading, Drainage and Erosion Control Plan (Sheet 2 of 2) dated December 6, 2022;
Sheet DR-01 Pre-Developed Treatment Plan, dated March 20, 2023;
Sheet DR-02 Pre-Developed Treatment Plan, dated March 20, 2023;
Sheet DR-03 Pre-Developed Treatment Plan, dated March 20, 2023;
Sheet DR-04 Pre-Developed Treatment Plan, dated March 20, 2023;
Sheet MP-01 Annotated Maintenance Plan (Sheet 1 of 2), dated December 4, 2022;
Sheet MP-02 Annotated Maintenance Plan (Sheet 2 of 2), dated December 4, 2022;
Sheet MP-03 Annotated Maintenance Notes (Sheet 3 of 3), dated December 4, 2022;
Sheet EC-01 Drainage and Erosion Control Notes and Details (1 of 7), dated October 31, 2022;
Sheet EC-02 Drainage and Erosion Control Notes and Details (2 of 7), dated March 23, 2022;
Sheet EC-03 Drainage and Erosion Control Notes and Details (3 of 7), dated October 31, 2022;
Sheet EC-07 Drainage and Erosion Control Notes and Details (7 of 7), dated October 31, 2022;
Sheet P1.1, Existing Conditions Sheet 1 of 2, dated March 2020, last revised 3/17/2022;
Sheet P1.2, Existing Conditions Sheet 2 of 2, dated March 2022, last revised 3/17/2022;
Sheet P1.3, Proposed Conditions Sheet 1 of 3, dated March 2022, last revised 3/17/2022;
Sheet P1.4, Proposed Conditions Sheet 2 of 3, dated March 2022, last revised 3/17/2022;
Sheet P1.5, Proposed Conditions Sheet 3 of 3, dated March 2022, last revised 3/17/2022;
Sheet P1.6, Maintenance Plan, dated March 2022, last revised 3/17/2022;
Sheet G1.5, Construction Safety and Phasing Plan - Overall, dated March 2022, last revised 3/17/2022;
Sheet G1.13, Erosion Control Notes and Details, dated Match 2022, last revised 3/17/2022;
Sheet GD1.1, Grading and Drainage Plan Sheet 1 of 3, dated March 2022, last revised 3/17/2022;
Sheet GD1.2, Grading and Drainage Plan Sheet 2 of 3, dated March 2022, last revised 3/17/2022;
Sheet GD1.3, Grading and Drainage Plan Sheet 3 of 3, dated March 2022, last revised 3/17/2022;
Sheet GD3.1, Drainage Details, dated March 2022, last revised 3/17/2022;
Sheet GD4.1, Stormwater System Details, dated March 2022, last revised 3/17/2022;
Sheet GD4.2, Drainage System Details, dated March 2022, last revised 3/17/2022;
Sheet GD5.1 Glycol System Details Sheet 1 of 2, dated March 2022;
Sheet GD5.2 Glycol System Details Sheet 1 of 2, dated March 2022; and all supporting information.

By reference, the above noted plans are made part of this authorization.

Compliance with General Permit 3-9050 and this Authorization

The permittee shall comply with this authorization and all the terms and conditions of General Permit 3-9050, including the payment of annual operating fees to the Department. A billing statement for such fees will be sent to the permittee each year. An invoice for the first year's operating fee will be sent separately. Any permit non-compliance, including a failure to pay the annual operating fee, constitutes a violation of 10 V.S.A. Chapter 47 and may be grounds for an enforcement action or revocation of this authorization to discharge.

Construction of the Stormwater Management System:

The stormwater management system as described in the approved design above shall be installed prior to the discharge of stormwater from any new or redeveloped impervious surface covered by this authorization. Where stormwater from existing impervious surface is being treated pursuant to “Site Balancing”, per the approved design, the stormwater system treating such areas shall be installed prior to the discharge of stormwater from new or redeveloped impervious surface.

For any existing impervious surface covered by this authorization, except for existing impervious surfaces used for Site Balancing, as noted above, the stormwater management system as described in the approved design above shall be installed no later than 6/1/2028.

Annual Inspection and Report

The stormwater management system shall be properly operated. The permittee shall submit an annual inspection report on the operation, maintenance and condition of the stormwater management system. The inspection report shall be submitted regardless of whether the project has been constructed. The inspection shall be conducted between the conclusion of spring snow melt and June 15th of each year and the inspection report shall be submitted to the Secretary by July 15th of each year, or by July 30th if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. The inspection report shall note all problem areas and all measures taken to correct any problems and to prevent future problems. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

Initial Statement of Compliance

An initial statement of compliance, signed by a designer, must be submitted to the Stormwater Management Program no later than 30 days following completion of construction of the stormwater management system. Forms for completing this requirement are available on the Stormwater Management Program's website. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

Transferability

This authorization to discharge is not transferable to any person except in compliance with Part 8.4 of General Permit 3-9050. A copy of General Permit 3-9050 is available from the Department via the internet at https://dec.vermont.gov/sites/dec/files/wsm/stormwater/docs/2020_09_01%20Final%20GP%203-9050.pdf

Changes to Permitted Development

In accordance with Part 8.6. of General Permit 3-9050, the permittee shall notify the Department of any planned development or facility expansions or changes that may result in new or increased stormwater discharges. The Department shall determine the appropriateness of continued inclusion under General Permit 3-9050 by the modified development or facility.

Recording in Land Records

The permittee shall record in the local land records, within 30 days of issuance of this authorization, a one-page notice of permit coverage. A one-page notice form may be obtained from the Secretary. A copy of the recording shall be provided to the Secretary within 14 days of the permittee's receipt of a copy of the recording from the local land records. Permits for public linear transportation projects shall be exempt from this requirement provided the permit is retained by the permittee in the official project file.

Right to Appeal

(A) Pursuant to 10 V.S.A. Chapter 220, any appeal of this permit, except for appeal of a renewable energy plant as described in (B), must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The notice of appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant's attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the notice of appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings.

(B) If this permit relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. § 248, any appeal of this decision must be filed with the Vermont Public Utility Commission pursuant to 10 V.S.A. § 8506. This section does not apply to a facility that is subject to 10 V.S.A. § 1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. § 1006 (certification of hydroelectric projects), or 10 V.S.A. Chapter 43 (dams). Any appeal under this section must be filed with the clerk of the Public Utility Commission within 30 days of the date of this decision; the appellant must file with the clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. § 8504(c)(2) and shall also serve a copy of the

notice of appeal on the Vermont Public Service Department. For further information, see the Rules and General Orders of the Public Utility Commission.

Effective Date and Expiration Date of this Authorization

This authorization to discharge shall become effective on June 2, 2023 and shall expire on June 1, 2028. The permittee shall reapply for coverage prior to the expiration of this authorization.

Dated June 2, 2023.

Julia S. Moore, Secretary
Agency of Natural Resources

By: 

Chris Gianfagna, Program Manager
Stormwater Management Program

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

Operational Stormwater Discharge Permits proposed for Incorporation into MS4 Authorization

3028-9050.7 (BTV Hotel)

Permit Number: 3028-9050.7

PIN:

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9050

A determination has been made that the applicant(s):

BTV Hotel, LLC
277 Blair Park Road, Suite 130
Williston, VT 05495

And
City of Burlington, Burlington International Airport (BTV)
1200 Airport Drive #1
South Burlington, VT 05403

Impervious Area: 0.82 acres

meets the criteria necessary for inclusion under General Permit 3-9050. Hereinafter, the named applicant shall be referred to as the permittee. Subject to the conditions of General Permit No. 3-9050, the permittee is authorized to discharge stormwater as described herein:

Project Name:	BTV Hotel
Project Location:	1200 Airport Drive in South Burlington, Vermont
Receiving Waters:	Unnamed Tributary to the Winooski River
Manner of Discharge:	S/N 001: Stormwater runoff from the proposed hotel roof, parking lot, access drives, patios, and sidewalks sheet flows into catch basins on the site which connect to the existing permitted stormwater system consisting of a grass channel and sediment forebay for pretreatment and an exfiltrating surface sand filter for treatment. The stormwater then enters into a system of stormwater pipes and inlets to an unnamed tributary to the Winooski River.
Design:	This project shall be constructed and operated in accordance with the site plans and details designed by Stantec; Sheet C-000, "Title Sheet and Index", dated 06/09/2022; Sheet C-001, "Existing Conditions Plan", dated 06/09/2022, last revised 09/06/2022; Sheet C-002, "Proposed Conditions Plan", dated 06/09/2022, last revised 09/06/2022; Sheet C-003, "Drainage Details", dated 06/09/2022; Sheet C-004, "Annotated Maintenance Plan", dated 06/09/2022; Sheet DD.1, "Drainage Details", dated 10/25/2002, revised 02/07/2003; Sheet SWM.1, "Stormwater Management 1", dated 10/25/2002, revised 02/07/2003; Sheet SWM.2, "Stormwater Management 2", dated 10/25/2002, revised 02/07/2003; Sheet SWM.3, "Stormwater Management 3", dated 10/25/2002, revised 02/07/2003; and all supporting information. By reference, the above noted plans are made part of this authorization.

Compliance with General Permit 3-9050 and this Authorization

The permittee shall comply with this authorization and all the terms and conditions of General Permit 3-9050, including the payment of annual operating fees to the Department. A billing statement for such fees will be sent to the permittee each year. An invoice for the first year's operating fee will be sent separately. Any permit non-compliance, including a failure to pay the annual operating fee, constitutes a violation of 10 V.S.A. Chapter 47 and may be grounds for an enforcement action or revocation of this authorization to discharge.

Construction of the Stormwater Management System:
The stormwater management system as described in the approved design above shall be installed prior to the discharge of stormwater from any new or redeveloped impervious surface covered by this authorization. Where stormwater from existing impervious surface is being treated pursuant to "Site Balancing", per the approved design, the stormwater system treating such areas shall be installed prior to the discharge of stormwater from new or redeveloped impervious surface.

For any existing impervious surface covered by this authorization, except for existing impervious surfaces used for Site Balancing, as noted above, the stormwater management system as described in the approved design above shall be installed no later than 4/11/2028.

Annual Inspection and Report
The stormwater management system shall be properly operated. The permittee shall submit an annual inspection report on the operation, maintenance and condition of the stormwater management system. The inspection report shall be submitted regardless of whether the project has been constructed. The inspection shall be conducted between the conclusion of spring snow melt and June 15th of each year and the inspection report shall be submitted to the Secretary by July 15th of each year, or by July 30th if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. The inspection report shall note all problem areas and all measures taken to correct any problems and to prevent future problems. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

Initial Statement of Compliance
An initial statement of compliance, signed by a designer, must be submitted to the Stormwater Management Program no later than 30 days following completion of construction of the stormwater management system. Forms for completing this requirement are available on the Stormwater Management Program's website. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

Transferability
This authorization to discharge is not transferable to any person except in compliance with Part 8.4 of General Permit 3-9050. A copy of General Permit 3-9050 is available from the Department via the internet at https://dec.vermont.gov/sites/dec/files/wsm/stormwater/docs/2020_09_01%20Final%20GP%203-9050.pdf

Changes to Permitted Development
In accordance with Part 8.6. of General Permit 3-9050, the permittee shall notify the Department of any planned development or facility expansions or changes that may result in new or increased stormwater discharges. The Department shall determine the appropriateness of continued inclusion under General Permit 3-9050 by the modified development or facility.

Recording in Land Records
The permittee shall record in the local land records, within 30 days of issuance of this authorization, a one-page notice of permit coverage. A one-page notice form may be obtained from the Secretary. A copy of the recording shall be provided to the Secretary within 14 days of the permittee's receipt of a copy of the recording from the local land records. Permits for public linear transportation projects shall be exempt from this requirement provided the permit is retained by the permittee in the official project file.

Right to Appeal
(A) Pursuant to 10 V.S.A. Chapter 220, any appeal of this permit, except for appeal of a renewable energy plant as described in (B), must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The notice of appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant's attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the notice of appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings.

(B) If this permit relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. § 248, any appeal of this decision must be filed with the Vermont Public Utility Commission pursuant to 10 V.S.A. § 8506. This section does not apply to a facility that is subject to 10 V.S.A. § 1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. § 1006 (certification of hydroelectric projects), or 10 V.S.A. Chapter 43 (dams). Any appeal under

this section must be filed with the clerk of the Public Utility Commission within 30 days of the date of this decision; the appellant must file with the clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. § 8504(c)(2) and shall also serve a copy of the notice of appeal on the Vermont Public Service Department. For further information, see the Rules and General Orders of the Public Utility Commission.

Effective Date and Expiration Date of this Authorization

This authorization to discharge shall become effective on April 12, 2023 and shall expire on April 11, 2028. The permittee shall reapply for coverage prior to the expiration of this authorization.

Dated April 12, 2023.

Julia S. Moore, Secretary
Agency of Natural Resources

By: 

Chris Gianfagna, Program Manager
Stormwater Management Program

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
STORMWATER PROGRAM

Town Recording of Permit Issued

FOR STORMWATER DISCHARGE PERMIT BY THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Notice is hereby given that the Vermont Department of Environmental Conservation gives authorization to discharge pursuant to a general stormwater discharge permit that has been issued to Permittee(s) named herein for the discharge of stormwater runoff for the property identified below from impervious surfaces (e.g. roadways, rooftops, parking lots, walkways) pursuant to 10 V.S.A. 1264. The authorization requires treatment and control of stormwater runoff, long-term maintenance of the treatment and control structures and payment of yearly operational fees.

Permittee(s): **BTV Hotel, LLC; City of Burlington, Burlington International Airport (BTV)**

Permit/Authorization Number: **3028-9050.7**

911 Address of Property: **1200 Airport Drive, South Burlington**

Name of association (if applicable): _____
(condominium, subdivision or planned community)

Printed Name of Permittee or Authorized Representative: _____

Signature of Permittee or Authorized Representative: _____ Date:_____

FOR TOWN CLERK USE ONLY:

Recorded under Book: _____ Page:_____

Date Recorded with Town: _____ Signature / Stamp:_____

****

Recording information for Municipal Clerks - please index this document listing the State of Vermont, Department of Environmental Conservation as "Grantee," and listing the above-named Permittee(s) as "Grantor(s)." Additionally, if this notice lists the name of a condominium, subdivision or planned community association, please list the named association as an additional "Grantor."

Can be Completed by Clerk or Permittee:
Please upload this completed form to ANR Online by visiting the following link
https://anronline.vermont.gov/?formtag=WS_Storm_TownRecording

January 2019

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

Operational Stormwater Discharge Permits proposed for Incorporation into MS4 Authorization

3028-9050.8 (Extend Taxiway G and Construct New General Aviation South Apron)

Permit Number: 3028-9050.8

PIN:

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
AUTHORIZATION TO DISCHARGE UNDER
GENERAL PERMIT 3-9050

A determination has been made that the applicant(s):

City of Burlington, Burlington International Airport
1200 Airport Drive, 1
South Burlington, VT 05403

Impervious Area: 6.20 acres

meets the criteria necessary for inclusion under General Permit 3-9050. Hereinafter, the named applicant shall be referred to as the permittee. Subject to the conditions of General Permit No. 3-9050, the permittee is authorized to discharge stormwater as described herein:

Project Name: Extend Taxiway G and Construct New General Aviation South Apron

Project Location: 1200 Airport Drive in South Burlington, Vermont

Receiving Waters: Muddy Brook

Manner of Discharge: S/N 001: The impervious surfaces consist of the runway and apron at the airport. Water will sheet flows from the pavement to the two treatment systems and to the Muddy Brook after being treated. Within the area of the project there is an infiltrating basin treatment and a lined filtration treatment due to the presence of fueling activities on the apron creating a 'hot spot'. The Tier one practice will allow for infiltration beyond the engineered sand layer. The Tier three practice will collect the filtered water in a 6" perforated underdrain pipe and discharged into the outlet control structure.

Design: This project shall be constructed and operated in accordance with the site plans and details designed by Hoyle Tanner;
Sheet 1, "GP1.1: Overall Site Plan", dated 05/2022, last revised 01/06/2023;
Sheet 2, "SW 1.1: Existing Conditions" dated 05/2022, last revised 12/19/2022;
Sheet 3, "SW1.2: Proposed Conditions", dated 05/2022, last revised 01/23/2023;
Sheet 4, "G1.6: Construction Safety and Phasing Plan Phase 1", dated 05/2022, last revised 01/06/2023;
Sheet 5, "G1.7: Construction Safety and Phasing Plan Phase 2", dated 05/2022, last revised 01/06/2023
Sheet 6, "ER1.1: Erosion Control Notes and Details", dated 05/2022, last revised 01/23/2023;
Sheet 7, "ER1.2: Erosion Control Plan and Details", dated 05/2022, last revised 12/19/2022;
Sheet 8, "ER1.3: Erosion Control Plan and Details", dated 05/2022, last revised 01/06/2023;
Sheet 9, "GD1.1: Grading and Drainage Plan", dated 05/2022, last revised 01/13/2023;
Sheet 10, "GD1.2: Grading and Drainage Plan Sheet 2 of 2", dated 05/2022, last revised 01/12/2023;
Sheet 11, "GD2.1 Drainage Details Sheet 1 of 4", dated 05/2022, last revised 12/19/2022;
Sheet 12, "GD2.2: Drainage Details Sheet 2 of 4", dated 05/2022, last revised 01/06/2023;
Sheet 13, "GD2.3: Drainage Details Sheet 3 of 4", dated 05/2022, last revised 01/06/2023;
Sheet 14, "GD2.4: Drainage Details Sheet 4 of 4", dated 05/2022, last revised 01/13/2023;
Sheet 15, "GD3.1: Soils Management Plan", dated 12/19/2022, last revised 01/23/2023; and all supporting information.

By reference, the above noted plans are made part of this authorization.

Compliance with General Permit 3-9050 and this Authorization

The permittee shall comply with this authorization and all the terms and conditions of General Permit 3-9050, including the payment of annual operating fees to the Department. A billing statement for such fees will be sent to the permittee each year.

An invoice for the first year's operating fee will be sent separately. Any permit non-compliance, including a failure to pay the annual operating fee, constitutes a violation of 10 V.S.A. Chapter 47 and may be grounds for an enforcement action or revocation of this authorization to discharge.

Construction of the Stormwater Management System:
The stormwater management system as described in the approved design above shall be installed prior to the discharge of stormwater from any new or redeveloped impervious surface covered by this authorization. Where stormwater from existing impervious surface is being treated pursuant to "Site Balancing", per the approved design, the stormwater system treating such areas shall be installed prior to the discharge of stormwater from new or redeveloped impervious surface.

For any existing impervious surface covered by this authorization, except for existing impervious surfaces used for Site Balancing, as noted above, the stormwater management system as described in the approved design above shall be installed no later than 4/19/2028.

Annual Inspection and Report
The stormwater management system shall be properly operated. The permittee shall submit an annual inspection report on the operation, maintenance and condition of the stormwater management system. The inspection report shall be submitted regardless of whether the project has been constructed. The inspection shall be conducted between the conclusion of spring snow melt and June 15th of each year and the inspection report shall be submitted to the Secretary by July 15th of each year, or by July 30th if performed by a utility or municipality pursuant to a duly adopted stormwater management ordinance. The inspection report shall note all problem areas and all measures taken to correct any problems and to prevent future problems. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

Initial Statement of Compliance
An initial statement of compliance, signed by a designer, must be submitted to the Stormwater Management Program no later than 30 days following completion of construction of the stormwater management system. Forms for completing this requirement are available on the Stormwater Management Program's website. The online submittal system, ANR Online, can be accessed at https://anronline.vermont.gov.

Transferability
This authorization to discharge is not transferable to any person except in compliance with Part 8.4 of General Permit 3-9050. A copy of General Permit 3-9050 is available from the Department via the internet at https://dec.vermont.gov/sites/dec/files/wsm/stormwater/docs/2020_09_01%20Final%20GP%203-9050.pdf

Changes to Permitted Development
In accordance with Part 8.6. of General Permit 3-9050, the permittee shall notify the Department of any planned development or facility expansions or changes that may result in new or increased stormwater discharges. The Department shall determine the appropriateness of continued inclusion under General Permit 3-9050 by the modified development or facility.

Recording in Land Records
The permittee shall record in the local land records, within 30 days of issuance of this authorization, a one-page notice of permit coverage. A one-page notice form may be obtained from the Secretary. A copy of the recording shall be provided to the Secretary within 14 days of the permittee's receipt of a copy of the recording from the local land records. Permits for public linear transportation projects shall be exempt from this requirement provided the permit is retained by the permittee in the official project file.

Right to Appeal
(A) Pursuant to 10 V.S.A. Chapter 220, any appeal of this permit, except for appeal of a renewable energy plant as described in (B), must be filed with the clerk of the Environmental Division of the Superior Court within 30 days of the date of the decision. The notice of appeal must specify the parties taking the appeal and the statutory provision under which each party claims party status; must designate the act or decision appealed from; must name the Environmental Division; and must be signed by the appellant or the appellant's attorney. In addition, the appeal must give the address or location and description of the property, project, or facility with which the appeal is concerned and the name of the applicant or any permit involved in the appeal. The appellant must also serve a copy of the notice of appeal in accordance with Rule 5(b)(4)(B) of the Vermont Rules for Environmental Court Proceedings. For further information, see the Vermont Rules for Environmental Court Proceedings.

(B) If this permit relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. § 248, any appeal of this decision must be filed with the Vermont Public Utility Commission pursuant to 10 V.S.A. § 8506. This section does not apply to a facility that is subject to 10 V.S.A. § 1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. § 1006 (certification of hydroelectric projects), or 10 V.S.A. Chapter 43 (dams). Any appeal under this section must be filed with the clerk of the Public Utility Commission within 30 days of the date of this decision; the appellant must file with the clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. § 8504(c)(2) and shall also serve a copy of the notice of appeal on the Vermont Public Service Department. For further information, see the Rules and General Orders of the Public Utility Commission.

Effective Date and Expiration Date of this Authorization

This authorization to discharge shall become effective on April 20, 2023 and shall expire on April 19, 2028. The permittee shall reapply for coverage prior to the expiration of this authorization.

Dated April 20, 2023.

Julia S. Moore, Secretary
Agency of Natural Resources

By: 

Chris Gianfagna, Program Manager
Stormwater Management Program

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

PATRICK LEAHY BURLINGTON INTERNATION AIRPORT
STORMWATER MANAGEMENT PROGRAM (SWMP)

APPENDIX E3:

Underground Injection Control (UIC) Permits
March 26, 2024

UIC Permit #6-0137 (Issued June 11, 2020)

This combines previous permits:

6-0084 (South End Apron)

6-0117 (Air Cargo 890 Ramp)

6-0075 (Main Air Carrier Apron)

EIV Technical Services

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT
Underground Injection Control (UIC) Permits

UIC Permit #6-0137
Issued June 11, 2020

STATE OF VERMONT
AGENCY OF NATURAL RESOURCES
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DRINKING WATER AND GROUNDWATER PROTECTION DIVISION
ONE NATIONAL LIFE DRIVE – DAVIS 4
MONTPELIER, VERMONT 05620-3521

ENVIRONMENTAL PROTECTION RULES, CHAPTER 11
UNDERGROUND INJECTION CONTROL REGULATIONS

Permit No.: UIC-6-0137
PIN: EJ96-0386

In compliance with the provisions of the Vermont Water Pollution Control Act as amended (10 V.S.A. chapter 47), and Part C of the Safe Drinking Water Act (SDWA), and the Underground Injection Control (UIC) Regulations as amended (Environmental Protection Rules, Chapter 11), the permittee:

Burlington International Airport (BTV)
City of Burlington
1200 Airport Drive, #1
South Burlington, Vermont 05403-6028

is authorized by the Secretary of the Agency of Natural Resources ("Secretary") to discharge stormwater runoff containing aircraft deicing fluid (AFD) to groundwater through Class V underground injection wells in accordance with the following conditions. These collection, treatment and disposal systems qualify for this Underground Injection Control Permit in accordance with §11-302(a,2) of the Underground Injection Control Regulations.

INTRODUCTION:

This is a renewal and amendment UIC permit that combines three permits originally issued to the Burlington International Airport: 6-0084 (issued by VT DEC on March 21, 2008), 6-0117 (issued by VT DEC on August 10, 2012), and 6-0075 (issued by VT DEC on February 9, 2007 and amended on April 25, 2016) authorizing disposal to four separate Class V injection wells. This permit serves as a renewal and replacement for UIC permits 6-0084 (ADF treatment system, South End apron) and 6-0117 (ADF treatment system, Air Cargo 890 Ramp), and as an amendment and replacement for permit 6-0075 (ADF treatment systems, Main Air Carrier [MAC] apron and Note2 apron). The conditions in this permit apply to all underground injection wells and associated infrastructure listed herein. This permit specifically amends the former permit 6-0075 by approving the addition or replacement of specific components of the Stormwater/ ADF

INTRODUCTION (continued):

collection, treatment, and disposal system, as listed in section C3. This permit also adds monitoring requirements for specific chemical parameters, daily stormwater/ ADF flow volume measurement for all injection wells named herein, estimation of average daily ADF application volume, and measurement of daily ambient temperature and daily precipitation at the airport.

PERMIT SUMMARY:

Expiration date:
March 31, 2024

Type of waste to be disposed:
Stormwater comingled with aircraft deicing fluid (ADF) containing propylene glycol

Treatment system:
Collection drain system, collection vaults, swirl separators, pump stations, leach fields. Oil/water separators are also planned to be installed in the MAC apron and NOTE2 apron collection systems as pretreatment.

Disposal system:
The various collection systems are connected to a total of four leach fields (injection wells) on the site. The four leach fields compose three infiltration areas. The MAC and NOTE2 fields are considered to form one infiltration area because they share a compliance point.

Potential receiving streams:
The South End Apron and Air Cargo 890 Ramp systems are potentially received by a Class 2 wetland contiguous with Muddy Brook, which is a tributary to the Winooski River. The MAC apron and NOTE2 apron systems are potentially received by an unnamed tributary to the Winooski River approximately 2300 feet North of the new MAC leach field. The South MAC apron area is potentially received by a Class 2 wetland contiguous to Potash Brook, which is a tributary to Lake Champlain.

Compliance Schedule:
The following schedule summarizes the actions and requirements necessary for compliance with the conditions of this permit. The permittee shall complete the requirements in accordance with the dates indicated. See the designated section for specific details.

Permit Summary (continued):

Table 1: Compliance schedule

Condition #	Description	Schedule Date
A4(a)	Submit Fuel Spill Mitigation Plan	5/31/2021
A4(b)	Submit Flow Monitoring Upgrade Plan	5/31/2021
A5 & A6	Conduct effluent and groundwater sampling	Twice annually, as noted in section
A7	Submit updated QA/QC plan	Within 90 days of permit issuance
B1	Submit results of monitoring and analyses	Within 45 days of sampling event
B5(a)	Have a Vermont Licensed Professional Engineer complete an inspection of stormwater/ ADF collection, treatment, and disposal system	Once annually in the months of April - May
B5(b)	Submit annual inspection report	Annually by June 30th
B5(c)	Submit schedule for implementing Engineer's recommendations from the annual inspection	Annually by July 31st
C4(h)	Submit construction certification	Within 30 days of construction completion
C5(e)	Submit construction progress reports	Quarterly after permit issuance
D1	Apply for renewal of UIC Permit	3/31/2024

SECTION A: SYSTEM OPERATION

A1. General Operating Requirements:

The collection, treatment, and disposal system authorized in this permit shall be operated at all times in a manner that will: (1) not result in the direct discharge of stormwater containing aircraft deicing fluid to waters of the state; (2) assure that wastes discharged to the injection well will not surface at the point of discharge or within 300 feet of the point of discharge and (3) prevents waste from backing up into a treatment unit, if there is one, or into the collection system; (4) not result in exceedances of the limitations identified in Condition A5; (5) not result in a violation of the Vermont Groundwater Protection Rule and Strategy; and (6) not result in a violation of the Vermont Water Quality Standards.

A2. Proper Operation and Maintenance:

The permittee shall at all times, properly operate and maintain all facilities and systems of treatment and controls (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance includes: effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit.

A3. Discharge Restrictions:

Stormwater runoff containing aircraft deicing fluid (ADF) collected from impervious surfaces is the only waste allowed to be discharged to the Class V injection wells. The permittee shall not use this disposal system to dispose of hazardous materials. This permit authorizes only the disposal of ADF containing propylene glycol, as described in the application, and any proposed change in the ADF utilized will require the permittee to apply for and obtain a permit amendment.

A4. Special Conditions:

a. Fuel Spill Mitigation Plan

The permittee shall develop and submit a plan to address permanent mitigation measures to physically prevent incidental and potential catastrophic releases of hazardous materials from reaching the leach fields. This plan must be submitted to the Secretary for approval by May 31, 2021.

b. Flow Monitoring Upgrades

The permittee shall develop and submit a plan for accurately estimating the total daily flow through the NOTE2 system, to facilitate the reporting of flow data. This plan must be submitted to the Secretary for approval by May 31, 2021.

A5. Effluent Monitoring and Limitations:

Effluent from the stormwater/ ADF collection, treatment, and disposal systems shall meet the following limits and monitoring frequencies and shall be sampled pursuant to the following monitoring requirements by a qualified professional proficient in the sampling procedures specified in Condition B4.

Table 2: Effluent limitations and monitoring requirements

EFFLUENT CHARACTERISTICS	DISCHARGE Limitations	MONITORING REQUIREMENTS	
		Measurement Frequency	Sample Type
Flow: Main Air Carrier (MAC) apron	501,908 gpd design limit	Daily total w/ monthly avg	Meter
Flow: NOTE2 apron	60,363 gpd design limit	Daily total w/ monthly avg	Meter
Flow: Air Cargo 890 ramp	161,568 gpd design limit	Daily total w/ monthly avg	Meter
Flow: South End apron	233,376 gpd design limit	Daily total w/ monthly avg	Meter
Precipitation (rain or snow)	Monitor only	Daily total w/rain or snow notation	Gauge
Ambient temperature at airport	Monitor only	Daily high and low	Meter
Volume of ADF solution applied	Monitor only	Daily average volume	Estimate
BOD_5	Monitor only	2 × year[1]	Composite
1,4 Dioxane	Monitor only	2 × year[1]	Grab
Formaldehyde	Monitor only	2 × year[1]	Grab
Propylene Glycol (PG)	Monitor only	2 × year[1]	Grab
Ethylene Glycol (EG)	Monitor only	2 × year[1]	Grab
Chloride	Monitor only	2 × year[1]	Grab
Nitrate	Monitor only	2 × year[1]	Grab
Total Dissolved Solids	Monitor only	2 × year[1]	Grab
Alkalinity	Monitor only	2 × year[1]	Grab
pH	Monitor only	2 × year[1]	Grab
Conductivity	Monitor only	2 × year[1]	Grab

Samples collected in compliance with the monitoring requirements specified above shall be collected at the pump station or other agreed upon location as outlined in the QA/QC Plan.

[1] Samples shall be collected twice annually, once during the period of October-November, and again in the spring within 21 days of the conclusion of deicing activities. A sampling event within the period of 21 days before or after the conclusion of deicing activities will be in compliance with this permit requirement. Effluent sampling shall be concurrent with the groundwater quality sampling.

A6. Groundwater Monitoring:

Groundwater samples shall be monitored pursuant to the following monitoring requirements by a qualified professional proficient in the sampling procedures specified in Condition B4, and samples shall be collected at the locations shown on the document entitled "Burlington International Airport UIC System Monitoring Map" created by VHB dated 6/24/2016:

Table 3: Groundwater monitoring requirements

SAMPLING PARAMETER	PERMIT LIMITATIONS	MONITORING REQUIREMENTS	
		Measurement Frequency	Sample Type
Water level	Monitor only	2 × year[1]	Grab
BOD_5	Monitor only	2 × year[1]	Grab
Propylene Glycol (PG)	Monitor only	2 × year[1]	Grab
Ethylene Glycol	Monitor only	2 × year[1]	Grab
1,4 Dioxane	0.03 µg/L	2 × year[1]	Grab
Formaldehyde	1000 µg/L	2 × year[1]	Grab
Chloride	Monitor only	2 × year[1]	Grab
Nitrate	10 mg/L	2 × year[1]	Grab
Total Dissolved Solids	Monitor only	2 × year[1]	Grab
Alkalinity	Monitor only	2 × year[1]	Grab
pH	Monitor only	2 × year[1]	Grab
Conductivity	Monitor only	2 × year[1]	Grab

Samples collected in compliance with the monitoring requirements specified above shall be collected from all upgradient and downgradient monitoring wells associated with the injection wells or other agreed upon location as outlined in the QA/QC Plan.

[1] Samples shall be collected twice annually, once during the period of October-November, and again in the spring within 21 days of the conclusion of deicing activities. A sampling event within the period of 21 days before or after the conclusion of deicing activities will be in compliance with this permit requirement. Groundwater quality sampling shall be concurrent with the effluent sampling.

A7. Quality Assurance/Quality Control Plan:

Within 90 days of the issuance of this permit, the permittee shall submit an ***updated*** Quality Assurance/Quality Control (QA/QC) Plan of all required monitoring for review and approval. The plan shall include identification of all analytical procedures, detection limits, personnel who will conduct sampling, sampling methods, sample preservation methods, all sampling locations, sampling frequency, reporting times, laboratory used for analysis and quality control measures for both sampling and analysis. The plan shall also include an assessment of the condition and placement of all monitoring wells to produce the most representative monitoring well arrangement. The plan shall be subject to review and approval of the Secretary.

SECTION B: REPORTING AND INSPECTION REQUIREMENTS

B1. Monitoring Reports:

a. Reports shall be submitted within 45 days of each sampling event required in condition A5 and A6. Reports shall include all groundwater levels, flow and chemistry data collected during the sampling event, a tabulation of all historic data, a current groundwater contour map based on the groundwater level measurements, a narrative describing the stormwater collection, treatment, and discharge system operation, and an assessment of regulatory compliance.

b. All reports and any other correspondence required by any condition of this permit shall be submitted to the UIC Program at:

Underground Injection Control Program
Department of Environmental Conservation
Drinking Water & Groundwater Protection Division
One National Life Drive – Davis 4,
Montpelier, VT 05620-3521
Or submitted to the UIC inbox at:
ANR.DWGWPUICPermits@vermont.gov

The report shall be signed by the permittee, under the following statement:

"I certify under penalty of law that I have personally examined, and am familiar with, the information submitted herein. Based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment."

B2. Records Requirements:

a. The permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation; retain copies of all reports required by this permit; and retain records of all data used to complete the application for this permit, for a period of at least five (5) years from the date of the sample, measurement, report, or application. This period may be extended by the Secretary at any time. The permittee shall also furnish to the Secretary, upon request, copies of records required to be kept by this permit;

b. Records of monitoring information shall include:

i. the date, exact place, and time of sampling or measurements;
ii. the individual(s) who performed the sampling or measurements;
iii. the date(s) analyses were performed;
iv. the individual(s) who performed the analyses;
v. the analytical techniques or methods used; and
vi. the results of such analyses
vii. an assessment of compliance for each sampling event (ie: were any permit limits exceeded?)

The permittee shall retain all records concerning the nature and composition of any effluent, groundwater, and surface waters tested until five (5) years after completion of any plugging and abandonment procedures specified in the permit. The Secretary may require the owner or operator to deliver the records to the Secretary at the conclusion of the retention period.

B3. Miscellaneous monitoring:

If the permittee monitors any required parameter set forth in this permit more frequently or at additional locations than is required by this permit, the results of such monitoring shall be submitted to the Secretary.

B4. Sampling and Test Procedures:

All sampling, preservation, handling and test procedures used to comply with the monitoring requirements herein shall conform to procedures specified in the most current edition of Standard Methods for the Examination of Water and Wastewater APHA - AWWA - WPCF, and the Vermont Water Quality Standards unless written approval of an alternate method is received from the Agency. Sampling shall be completed by a qualified professional proficient in the sampling procedures specified above. Samples and measurements taken for monitoring shall be representative of the monitored activity.

B4. Sampling and Test Procedures (continued):

The laboratory utilized for analyzing the samples shall demonstrate successful participation in third party proficiency testing recognized by ISO or NELAP for all parameters and shall analyze any check sample provided by the Secretary. Failure to obtain an acceptable result for either the Secretary's check sample or successful third-party proficiency testing may be a basis for requiring an alternate analytical laboratory.

B5. Annual Engineer Inspection, Report and Implementation:

a. Inspection:

Annually, during the months of April - May, the permittee shall retain a Professional Engineer registered in the State of Vermont to perform a thorough inspection of the collection system, treatment system, and subsurface disposal systems. The engineer shall prepare an annual report on the system operation, maintenance, and compliance of the system. The report shall include discussions related to:

1. A complete list of the items evaluated and the results of the system evaluation;

2. Examination of the subsurface disposal systems looking for signs of surfacing or other problems;

3. A description and date of any maintenance and repairs performed on the collection system, treatment system or subsurface disposal system during the previous year and the outcome of the repairs;

4. A description of any necessary maintenance to be performed;

5. A description of any operational and performance issues associated with the systems along with recommended changes to physical infrastructure/operational regimes/maintenance practices to address these issues;

6. An evaluation of the past year's discharge and groundwater monitoring results relative to compliance with the permit limits and the Groundwater Protection Rule and Strategy (as amended) for the previous calendar year.

B5. Annual Engineer Inspection, Report and Implementation (continued):

b. Report:

By **June 30th** each year an inspection is performed, the permittee shall have a professional engineer submit the prepared report. The annual report shall include a review of all information about the system from March 1st of one year to February 28th of the following year.

c. Implementation:

By **July 31st** each year, the permittee shall notify the Secretary in writing stating how the engineer's recommendations were or are to be implemented, including submittal of a schedule for the required repair and maintenance items which have not yet been completed.

B6. Other Monitoring Requirements:

The Secretary reserves the right to require additional monitoring of the collection, treatment, and disposal systems, to include effluent, groundwater, and/or surface water monitoring, should operation of the system fail to meet the requirements of Conditions A1, A2, A3, A5 or A6, or if it is determined that a violation of the Groundwater Enforcement Standards has occurred. These determinations will be made on a case by case basis.

SECTION C: UNDERGROUND INJECTION WELL SYSTEM INFORMATION

C1. Location of Underground Injection Discharge Site:

This collection, treatment, and disposal system is located at N Latitude 44.473425°, W Longitude 73.156189° at the Burlington International Airport, 1200 Airport Drive, #1, South Burlington, Vermont 05403-6028.

C2. Approved Collection, Treatment and Disposal Systems:

This permit approves the operation of a multiple-injection-well disposal system for stormwater runoff containing aircraft deicing fluid (ADF). Runoff from four aprons and/or ramps (Main Carrier Apron including the South MAC Apron, NOTE2, South End Apron, and Air Cargo 890 Ramp) is conveyed to storm drains and directed to four different leach field systems (Class 5 injection wells) as shown on the document “Burlington International Airport UIC System Monitoring Map”. Individual site plans are referenced below. The four leach field systems comprise three infiltration areas. The old Main Apron leach field is no longer in service and is slated to be removed.

C2. Approved Collection, Treatment and Disposal Systems (continued):

a. The Main Air Carrier (MAC) apron treatment system, as outlined in plan document "Air Carrier Apron – Glycol Treatment System Improvements, drawing C1, Site Plan" dated March 18, 2016, was activated on February 3, 2017 and is designed to dispose of up to 67,100 cubic feet ("ft^3"), or 501,908 gallons of stormwater/ ADF per day, equivalent to the Channel Protection Volume (one-year storm event) for 10.4 acres of impervious area at the Main Apron site, which has a total drainage area of 11.86 acres. The Channel Protection Volume corresponds to the runoff from a 2.1-inch, 24-hour storm event, with a one-year recurrence interval. The system is comprised of the following components:

- Approximately 1,500' of concrete trench drain
- Thirty-three (33) catch basins and drainage manholes
- Collection system piping consisting of 36", 30" 24", and 18" RCP and CMP pipe
- One Diversion Structure with concrete diversion weir
- One 138,400-gallon underground concrete Stormwater Storage Tank
- One Triplex Pump Station including electrical controls located in an underground concrete Electrical Vault
- Approximately 420 LF of 8" C900 PVC Force Main
- One Valve Vault and one Cleanout Manhole along the force main
- One - 210' long x 52' wide infiltration field. Depth of crushed stone is 1.75' deep.

The southern portion of the Main Air Carrier Apron (South MAC apron) is temporarily tied in via a collection and pumping system capable of delivering 29,900 gallons per day to the Main Air Carrier treatment system, as noted in record set "Temporary South Apron Overflow Force Main – Emergency Action Plan". It is planned to be tied permanently into the Main Air Carrier System in order to capture stormwater containing ADF that would otherwise be discharged to a stormwater infiltration gallery. The collection system serving the southern portion of the Main Air Carrier Apron is comprised of the following components:

- Approximately 40' of concrete trench drain.
- Four (4) catch basins and one (1) drainage manhole located on the South Apron.
- One temporary simplex pump station with concrete/aluminum plate diversion weir.
- One Vortech swirl separator (structure is off-line (plugged off) while temporary pump station is active).

C2. Approved Collection, Treatment and Disposal Systems (continued):

- Simplex pump station with electrical controls. Pump is a Gorman-Rupp, submersible pump, electric motor driven, Model S3B1, 230-volt, single phase. Design pump rate is 320 gpm at 51' TDH.
- Approximately 500' of 4" SDR 13.5 HDPE temporary force main located in the in-field area easterly of Taxiway 'Alpha' with discharge to Catch Basin S1.024.6
- No flow meter is installed at this pump station to monitor and record historical flows

Electrical & Control Equipment at Perimeter Road:
- Disconnect #3 (100 amp Main Power)
- Transformer
- Pump Station Control Panel with Red Alarm Beacon
- Pump H-O-A with Breaker

Electrical Equipment at the North Hangar (Exterior North Wall):
- Disconnect #2 (100 amp Main Power)

Electrical Equipment at the North Hangar (Interior North Wall):
- Disconnect #3 (100 amp Main Power)

b. The NOTE2 collection, treatment, and disposal system collects a portion of the flow in the MAC apron, as noted in document C504 "Drainage Plan – 4". The system is designed to dispose of up to 8,070 ft^3, or 60,363 gallons of stormwater/ADF per day, equivalent to the Water Quality Volume for 2.6 acres of impervious area at the north terminal site. The Water Quality Volume corresponds to the runoff from a 0.9-inch, 24-hour storm event, representing 90 percent of all probable storm events at the site, as specified by the Vermont Stormwater Management Manual (ANR 2002). It is comprised of the following components:

- Approximately 450' of concrete trench drain
- One diversion drainage manhole with slot for removable weir to abandoned pump station wet well
- Abandoned pump station wet well; Not in service nor connected to system
- One Vortechnics swirl separator
- One diversion manhole with weir
- One - 32' wide x 172' long Stormtech infiltration field. Depth of crushed stone is 5.67'deep.

*The system has no electrical components or control equipment.

c. The South End Apron treatment system, as outlined in plan document "Construct Stormwater Treatment Pumping and Infiltration System for General Aviation Apron – South End Development Phase II, Drawing C1, Overall Site Plan", dated August 7, 2008, is designed to dispose of a daily

C2. Approved Collection, Treatment and Disposal Systems (continued):

volume of up to 31,200 ft^3, or 233,376 gallons per day of stormwater/ ADF, which is equivalent to the one-year, twenty-four-hour storm volume, or 2.1 inches of rainfall (ANR 2002). The design volume includes the Water Quality Volume of 14,636 cubic feet for the 4.6-acre south end site. It is comprised of the following components:

- Approximately 400' of concrete trench drain
- Three (3) catch basins
- Eight (8) drainage manholes including flow control manhole and overflow manhole
- One bypass structure
- One Vortech swirl separator,
- One cast-in-place concrete 240,000-gallon stormwater detention tank
- One duplex pump station including electrical controls
- One valve vault with flow meter
- Approximately 2,250' of 4" SCH 80 PVC force main
- Nine (9) cleanout manholes
- One – 15' wide x 300' long infiltration field with 8 flushing valves. Depth of crushed stone is 3.0' deep.

d. The Air Cargo 890 ramp treatment system, as outlined in plan document "Construct Aircraft Deicing Fluid Treatment System, 890 Ramp, sheet 2, drawing number C1 Site plan" dated September 29, 2010, is designed to dispose a daily volume of up to 21,600 ft^3, or 161,568 gallons per day of stormwater/ADF, equal to the Water Quality Volume (ANR, 2002) for the pre-existing 10.4-acre impervious surface. It is comprised of the following components:

- Four (4) catch basins
- Three (3) drainage manholes
- One diversion structure
- One cast-in-place concrete 193,000-gallon stormwater detention tank
- One duplex pump station including electrical controls
- One valve vault with flow meter
- Approximately 290' of 6" SDR 11 HDPE force main
- Two (2) cleanout manholes
- One – 40' wide x 500' long infiltration field with 32 flushing valves. Depth of crushed stone is 3.0' deep.

e. The old Main Air Carrier apron system has been decommissioned and is planned to be removed, as noted in document C003: "Civil Demolition Plan". Operation of the old Main Air Carrier Apron system is not approved by this permit.

C3. Approved System Changes/ Permit Amendments

a. Addition of a pump station and force main to move ADF and stormwater from the 3.5-acre South MAC apron area to the MAC apron deicing fluid treatment system, as noted in the record drawing set titled “Temporary South Apron Overflow Force Main – Emergency Action Plan”. A temporary pump station and surface piping have been in use since December 6, 2017. The temporary pump station is designed to convey a maximum of 28,700 gallons per day of stormwater/ ADF to the MAC apron ADF treatment system, per record drawings dated March 15, 2018, Sheet C4, New Temporary Pump Station Details, detail entitled: Section A-A, New Temporary Pump Station. The permittee has indicated that the MAC Apron system can accommodate the flow from either the South MAC Apron area, or the NOTE2 Apron, but not both at the current design flows (Channel Protection Volume). Alternatively, the MAC apron ADF treatment system can accommodate the flow from both the South MAC Apron area and the NOTE2 Apron if the design flow is the Water Quality Volume for all three areas. The Permittee does not have plans to reclassify the design volume at the time of issuance of this permit.

b. Calculations submitted by the permittee indicate that the MAC apron ADF treatment system can accommodate the flow from the NOTE2 apron. As part of the Taxiway ‘G’ project, a valve will be installed that can redirect runoff from the NOTE2 apron to the MAC apron. Installation of this valve enables the NOTE2 infiltration system to continue to be used as the primary infiltration field for the NOTE2 Apron, but can allow that flow to be diverted to the MAC treatment system as a backup in case of problems with the NOTE2 infiltration field, as noted in the document “Drainage Plan - 4”.

c. As part of the “Taxiway G” project three new oil/water separators will be installed (see document “Drainage Details - 1”). Two will pretreat runoff from the MAC apron, and one will pretreat runoff from the NOTE2 apron, as noted in the document “Drainage Plan - 4”. These systems are designed to capture petroleum spills, residual oils and sediment from large storm events (1st 1” of rainfall).

d. Collection system changes:

   1. The existing trench drain that collects runoff from the NOTE2 apron will be replaced and reduced in overall length from 320’ to 318’, as noted in the document “Drainage Plan - 4”.

C3. Approved System Changes/ Permit Amendments (continued):

2. A dry well near the electrical vault that has experienced flooding problems from stormwater runoff containing ADF will be connected to the MAC apron collection system, as noted in document “Drainage Plan - 4”. This modification will slightly increase the deicing drainage area of that system.

3. An existing length of pipe that is damaged and perforated will be removed and replaced, as noted in the document “Drainage Plan - 4”. Replacing this pipe should reduce the base flow that enters the treatment system, and potentially reduce clogging in the system due to amorphous iron oxides.

4. A new structure will be added between Taxiway ‘A’ and Runway 1-19 to accommodate grading changes in this area, as noted in the document “Drainage Plan - 5”. Due to this change, MAC apron drainage area will increase slightly, but deicing area will remain the same.

e. The Old Main Apron stormwater/ADF treatment system, which has been abandoned, will be removed as noted in document “Civil Demolition Plan - 3”.

C4. Construction Approvals

The permittee shall construct changes to the Main Air Carrier Apron collection, treatment, and disposal system in accordance with the following plans and specifications stamped by David W. Rich of Stantec Consulting Services Inc. on May 1, 2019, as well as record drawings provided for the South Main Air Carrier Apron Temporary Pump Station:

Drawing Number, Sheet Title, Date Last Revised:
C003: “Civil Demolition Plan” dated May 1, 2019
C503: “Drainage Plan - 3” dated May 1, 2019
C504: “Drainage Plan - 4” dated May 1, 2019
C505: “Drainage Plan - 5” dated May 1, 2019
C511: “Drainage Details - 1” dated May 1, 2019
C1-C7 (Record Drawing Set): “Temporary South Apron Overflow Force Main - Emergency Action Plan”, dated March 15, 2018.

C5. Construction Inspection and Certification:

a. The engineer or designated representative, or a licensed surveyor, shall stake out the location of the new oil/water separators, collection lines, manholes, tanks and associated infrastructure in accordance with the approved plans.

b. The engineer or designated representative shall provide general inspection of the work at reasonable intervals to assure that construction is completed in accordance with the approved plans.

C5. Construction Inspection and Certification (continued):

c. The engineer or designated representative shall be present for the installation of all major system components.

d. The engineer or designated representative shall be present for all required leakage and pressure testing of all tankage and collection lines, and shall verify the proper operation of all alarms, floats, valves, pumps, controls and any other component of the collection, treatment, and disposal system.

e. The engineer or designated representative shall maintain written reports of all inspections performed including dates, items inspected and comments. Copies of all inspection reports shall be submitted to the Secretary a minimum of every three months.

f. While the stone and geotextile filter fabric is intended to be left in place after removal of the infiltration piping, the engineer or designated representative shall ensure that any stone or soils removed from the old Main Air Carrier leach field is disposed in accordance with all applicable regulations.

g. The engineer or designated representative shall develop a plan for the proper management of stormwater containing ADF during construction if service will be interrupted. The plan shall be submitted to the Secretary for review and approval prior to construction. During construction, the engineer or designated representative shall ensure that stormwater containing ADF is managed in accordance with this UIC permit.

h. Within 30 days following completion of construction, the inspecting professional engineer shall certify in writing to the Secretary that the collection, treatment, and disposal system was constructed in accordance with the approved plans and specifications. As-Built plans of the collection, treatment and disposal system shall be submitted to the Secretary with the certification.

C6. General

The design and construction of the collection, treatment and disposal systems approved in this permit shall not deviate from the above listed plans. Before making modifications to the collection, treatment and disposal system, the permittee shall submit revised plans to the Secretary. These plans must be approved in writing before any of the modifications or additions are made. Changes to the design and construction may require a permit amendment.

C7. Compliance with the VT Groundwater Protection Rule and Strategy

Based on information submitted with the application for permit renewal, the Secretary concludes that this collection, treatment, and disposal system is in compliance with §12-604(a) of the Groundwater Protection Rule & Strategy.

SECTION D: ADMINISTRATION

D1. Expiration Date/Permit Renewal:

This permit, unless revoked or amended, shall be valid until March 31, 2024. Renewal of this permit will be subject to all rules applicable at the time of renewal. For the purposes of Title 3, an application for renewal of this permit will be considered timely if a complete application is received by the expiration date. However, it is recommended that the permittee apply for renewal 90 days in advance of permit expiration.

D2. Revocation:

The Secretary may revoke this permit in accordance with 10 V.S.A. Chapter 47 § 1267 and Section 11-702 of the UIC regulations.

D3. Transfer of Permit:

This permit is not transferable through the issuance of this permit to a new permittee without written approval of the Secretary. The current permittee shall notify the Secretary in writing, before any sale, lease, or other transfer of ownership of the property from which the permitted discharge originates. To obtain this permit, the proposed transferee shall make application for this permit to be reissued in their name.

D4. Operating Fees:

This underground injection discharge is subject to operating fees. The permittee shall submit the operating fees in accordance with the schedule provided in the "Drinking Water & Groundwater Protection Division Fees", issued under 10 VSA Chapter 47 & 10 VSA §1272. Each of the four injection wells will be subject to operating fees based on average daily disposal volume, as listed in table 4 below. The total annual operating fee is based on the combined annual average daily flow of the Main Air Carrier (MAC) Apron, South MAC Apron, NOTE2 Apron, Air Cargo 890 Ramp, and South End Apron stormwater/ ADF collection, treatment and disposal systems.

D4. Operating Fees (continued):

Table 4: Annual Average Daily Flows						
Site	**Main Air Carrier Apron**	**South MAC Apron**	**NOTE2**	**Air Cargo 890 Apron**	**South End Apron**	**Total**
Total Watershed (Acres)	11.86	3.5	2.6	10.97	4.6	**33.53**
Annual Average Flow (gpd)	29,296	6,905	5,952	19,381	10,635	**72,169**

D5. Permit Availability:

A copy of this permit shall remain at the office of the permittee and, upon request, shall be made available for inspection by the Secretary.

D6. Right of Secretary to Inspect:

The permittee shall allow the Secretary, or the Secretary's authorized representative, upon the presentation of their credentials and at reasonable times:

a. To enter upon permittee's premises in which any waste source, treatment or disposal system is located or in which any records are required to be kept under the conditions of this permit;

b. To have access to and copy any records required to be kept under conditions of this permit;

c. To inspect any monitoring equipment or method required in this permit;

d. To sample any discharge of waste, groundwater or surface water; and

e. To inspect any collection, treatment, pollution management and disposal system required by this permit.

D7. Minor Modifications to System:

Minor modifications of the approved disposal system or operation of the system which does not reduce the treatment effectiveness or exceed the disposal capacity may be approved without a permit amendment. Before making modifications to collection, treatment and disposal system, the permittee shall submit revised plans to the Secretary. These plans must be approved in writing before any of the modifications or additions are made.

D8. Notification Requirements

a. Planned changes - The permittee shall give notice to the Secretary as soon as possible of any planned physical alterations or additions to the permitted facility. Before making modifications to the collection, treatment, and disposal facility, the permittee shall submit plans to the Secretary. These plans must be approved in writing before any of the modifications or additions are made;

b. Anticipated noncompliance - The permittee shall give advance notice to the Secretary of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements;

c. Non-compliance/Violations - The permittee shall report any noncompliance which may violate the Vermont Ground Water Protection Rule and Strategy or endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The following shall be included as information which must be reported within 24 hours:

   i. Any monitoring or other information which indicates that any contaminant may cause an endangerment to an underground source of drinking water (USDW); and

   ii. Any noncompliance with a permit condition or malfunction of the injection system which may cause fluid migration into or between USDWs.

d. Other information - Where the permittee becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Secretary, it shall promptly submit such facts or information.

D9. Reporting of Failures and Unpermitted Discharges to Surface Waters:

The permittee shall immediately report any failure of the stormwater/ ADF collection, treatment, or disposal system to the Secretary, first by telephone within 24 hours of the failure and then in writing within 5 days of the failure. A failed system is a system that is functioning in a manner (1) that allows stormwater/ADF to be exposed to the open air after being discharged, pool on the surface of the ground, discharge directly to surface water, or back up into the collection system; (2) that results in a potable water supply being contaminated and rendered not potable; or (3) that presents a threat to human health. The written notice shall include a discussion of the actions taken or to be taken to correct the failure. The permittee shall also report any spills or introductions of wastes not approved to be disposed through the stormwater/ ADF collection, treatment, and disposal system.

D10. Replacement of Failed Disposal System:

In the event the stormwater/ ADF disposal system fails, the permittee shall apply for a permit amendment for a replacement disposal system that meets the requirements of the Underground Injection Control Regulations. The engineering plans for the replacement system shall be reviewed and approved by the Secretary before any construction occurs.

D11. Plugging and Abandonment

a. Prior to abandoning a Class V well authorized in this permit, the permittee shall notify the Secretary in writing with a plan describing how the well will be plugged and abandoned in a manner that assures future compliance with the Ground Water Protection Rule and Strategy and that prevents the movement of fluid containing any contaminant into a current or future USDW.

b. The Secretary shall review and approve all closure plans prior to closure.

c. Closure plans shall be based on standard hydrogeologic principles and engineering practices.

d. The permittee shall dispose of or otherwise manage any soil, gravel, sludge, liquids, or other materials removed from or adjacent to the well in accordance with all applicable Federal, State, and local regulations and requirements.

e. Within 30 days of plugging or abandoning a well, a report shall be prepared and submitted to the Secretary for approval. The report shall include a statement that the well was plugged in accordance with the plan previously submitted to the Secretary.

D12. Corrective Actions

If the results of any inspection or monitoring indicate that an exceedance of the disposal limits identified in Condition A5, or a violation of the Vermont Ground Water Protection Rule and Strategy is occurring, or is likely to occur, the Secretary may require the permittee to take appropriate corrective actions to eliminate a violation or reduce the possibility of a violation.

D13. Performance Objectives

The issuance of this permit relies upon the data, designs, judgement and other information supplied by the applicant, the applicant's consultants and other experts who have participated in the preparation of the application. The Secretary makes no assurance that this system will meet the performance objectives of the applicant and no warranties or guarantees are given or implied.

D14. Effective date

This permit is effective on the date of signature.

D15. Appeal Rights

This permit may be appealed to the Environmental Division of the Vermont Superior Court within 30 days of the date the final permit is posted to the Environmental Notice Bulletin in accordance with 10 V.S.A., Chapter 220.

Peter Walke, Commissioner
Department of Environmental Conservation

By:  Date: June 11, 2020

Bryan Harrington, Indirect Discharge and UIC Program Supervisor
Drinking Water and Groundwater Protection Division

APPENDIX F: OPERATIONS AND MAINTENANCE (O&M) MANUAL

Underground Injection Control
Operations and Maintenance Manual

- UIC Permit No. 6-0075 (Aircraft Deicing Fluid Treatment Facility, Main Air Carrier Apron and NOTE2 Apron)
- UIC Permit No. 6-0084 (Aircraft Deicing Fluid Runoff, South End Development, Phase 2)
- UIC Permit No. 6-0117 (Aircraft Deicing Fluid Treatment System, 890 Ramp)

Prepared for:

Burlington International Airport
1200 Airport Drive, #1
South Burlington, Vermont

Prepared by:

Stantec Consulting Services, Inc.
55 Green Mountain Drive
South Burlington, VT 05403

January 31, 2019

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1.0 GENERAL SYSTEM OVERVIEW

The Burlington International Airport (BTV) owns and operates three pump stations moving glycol contaminated stormwater runoff from aircraft de-icing fluid (ADF) activities to three underground injection fields. The first system, known as the "Main Air Carrier Apron System", is a triplex pump system with an underground control panel located between Taxiway 'Golf' and Runway 15-33 just east of the Infiltration field as shown on *Figure 1*. The second system, known as the "Valley West Apron System", is a duplex pump station with an above ground control panel located east of the Pratt and Whitney Building as shown on *Figure 1*. The third system, known as the "890 Ramp System", is duplex pump system with an above ground control panel located north of the 890 Ramp across taxiway 'Charlie' as shown on *Figure 1*.

This operations and maintenance manual has been prepared to guide BTV maintenance staff in performing the tasks necessary to operate and maintain the three systems.

1.1 MAIN AIR CARRIER APRON - SYSTEM DESIGN AND CONFIGURATION

The Main Air Carrier Apron ADF treatment system is designed to convey and treat 67,100 cubic feet (ft^3) of stormwater per day. This represents the volume of runoff from the 1-year storm event. Stormwater runoff in excess of 67,100 ft^3 per storm event is conveyed via a diversion structure with concrete diversion weir to an unnamed tributary of the Winooski River via BTV's North Outfall.

The Main Air Carrier Apron ADF treatment system is comprised of the following components:

- Approximately 1,500' of concrete trench drain
- Thirty-three (33) catch basins and drainage manholes
- Collection system piping consisting of 36", 30" 24", and 18" RCP and CMP pipe
- One Diversion Structure with concrete diversion weir
- One 138,400 gallon underground concrete Stormwater Storage Tank
- One Triplex Pump Station including electrical controls located in an underground concrete Electrical Vault
- Approximately 420 LF of 8" C900 PVC Force Main
- One Valve Vault and one Cleanout Manhole along the force main
- One - 210' long x 52' wide infiltration field. Depth of crushed stone is 1.75' deep.

Pump Station electrical control equipment includes:

- Pump Station Control Panel

- Pump Station Alarm Panel #4
- Transient Voltage Surge Suppressor (TVSS)
- Main Electrical Panelboard HP
- Panelboard LP
- Ultrasonic Level Sensor and Local Display
- Magnetic Flowmeter and Local Display
- Hazardous Gas Detector and Local Display with Audible Horn and Alarm Beacon
- Telephonic Autodialer for Alarm Conveyance
- Remote Red Alarm Beacon
- Integration with existing SCADA system via fiber optic communications cable (Functionally Terminated)
- Underground Electrical Vault sump pump
- Mission Real-Time Alarm and Monitoring System via cellular uplink

ADF collects on the pavement and is washed with runoff into existing catch basins and trench drains at the Air Carrier Apron. The stormwater runoff is then conveyed through storm drains to a precast concrete diversion structure. From the diversion structure, the channel protection volume is directed to the underground storage tank. A tri-plex pump station then pumps the ADF through a valve vault into the infiltration field for ADF treatment. Deicing areas for the Main Air Carrier Apron and the NOTE2 Apron are presented in *Figure 2*. The Main Air Carrier Apron and NOTE2 collection and infiltration systems are presented in *Figure 3*.

Pictorial diagrams of key components are provided in Appendix A. Each system component must be inspected for condition, functionality, and operational readiness in accordance with the checklists provided in Sections 2-6.

Pump Operating Parameters:

One Pump Running:	610 GPM at 33' TDH (Motor Frequency 47 Hz) 840 GPM at 46' TDH (Motor Frequency 60 Hz)
Two Pumps Running:	1,220 GPM at 63' TDH (Motor Frequencies 60 Hz)

1.2 SOUTHERN PORTION OF MAIN AIR CARRIER RAMP (SOUTH APRON) - SYSTEM DESIGN AND CONFIGURATION

The Southern Portion of the Main Air Carrier Ramp (herein referred to as the South Apron) temporary pump station is designed to convey 29,900 gallons (4,000 ft^3) of stormwater runoff per day to the Main Air Carrier Apron ADF system. This represents the volume of runoff from an approximate 0.43 inch storm event. Stormwater in excess of 29,900 gallons (4,000 ft^3) per 24 hour storm event is directed over a concrete/aluminum plate diversion weir contained in the

temporary pump station to an infiltration gallery with overflow to a Class 2 wetland contiguous to Potash Brook.

The temporary South Apron pump station is comprised of the following components:

- Approximately 40' of concrete trench drain.
- Four (4) catch basins and one (1) drainage manhole located on the South Apron.
- One temporary simplex pump station with concrete/aluminum plate diversion weir.
- One Vortech swirl separator (structure is off-line (plugged off) while temporary pump station is active).
- Six (6) drainage manholes for infiltration gallery access.
- Simplex pump station with electrical controls. Pump is a Gorman-Rupp, submersible pump, electric motor driven, Model S3B1, 230-volt, single phase. Design pump rate is 320 gpm at 51' TDH.
- Approximately 500' of 4" SDR 13.5 HDPE temporary force main located in the in-field area easterly of Taxiway 'Alpha' with discharge to Catch Basin S1.024.6
- No flow meter is installed at this pump station to monitor and record historical flows.

Pump Station electrical control equipment includes:

Electrical & Control Equipment at Perimeter Road

- Disconnect #3 (100 amp Main Power)
- Transformer
- Pump Station Control Panel with Red Alarm Beacon
- Pump H-O-A with Breaker

Electrical Equipment at the North Hangar (Exterior North Wall)

- Disconnect #2 (100 amp Main Power)

Electrical Equipment at the North Hangar (Interior North Wall)

- Disconnect #3 (100 amp Main Power)

ADF comingles with stormwater runoff on the pavement of the 3.49 acre South Apron and is then conveyed to the temporary South Apron pump station via four catch basins and an existing trench drain. The temporary South Apron pump station contains a concrete/aluminum plate diversion weir for flow splitting. A simplex pump then pumps the stormwater to an existing catch basin located at the headwaters of the Main Air Carrier Apron collection system. The South Apron temporary pump station collection system is presented in *Figure 6*.

Pictorial diagrams of key pump station electrical components are provided in Appendix D. Each system component must be inspected for condition, functionality, and operational readiness in accordance with the checklists provided in Sections 2-6.

1.3 VALLEY WEST APRON - SYSTEM DESIGN AND CONFIGURATION

The Valley West Apron ADF treatment system is designed to convey and treat 31,200 ft^3 of stormwater per day. This represents the volume of runoff from the 1-year storm event. Stormwater runoff in excess of 31,200 ft^3 per storm event is directed via a bypass structure to a Class 2 wetland contiguous with Muddy Brook.

The Valley West Apron ADF treatment system is comprised of the following components:

- Approximately 400' of concrete trench drain
- Three (3) catch basins
- Eight (8) drainage manholes including flow control manhole and overflow manhole
- One bypass structure
- One Vortech swirl separator,
- One cast-in-place concrete 240,000 gallon stormwater detention tank
- One duplex pump station including electrical controls
- One valve vault with flow meter
- Approximately 2,250' of 4" SCH 80 PVC force main
- Nine (9) cleanout manholes
- One – 15' wide x 300' long infiltration field with 8 flushing valves. Depth of crushed stone is 3.0' deep.

Pump Station electrical control equipment includes:

North Side of Panel Equipment

- Utility Meter with Main Breaker
- Disconnect #1 (200 amp Main Power)
- Disconnect #2 (Panelboard LP)
- Disconnect #3 (Pump Station Control Panel)
- Pump Station Control Panel with Red Alarm Beacon

South Side of Panel Equipment

- Transformer
- Transient Voltage Surge Suppressor (TVSS)
- Panelboard LP
- Combustible Gas Detector Local Display (Sensor in Pump Station)
- Alarm Panel with White Alarm Beacon

- Automatic Telephone Dialer and Telephone Equipment (Disconnected and replaced with wireless communications)
- WiFi Communications Circuit
- Integration with LCS Controls SCADA system (Functionally Terminated)
- Mission Real-Time Alarm and Monitoring System via cellular uplink

ADF collects on the pavement and is washed with runoff into the existing trench drain at the Valley West Apron. The stormwater runoff is then conveyed through storm drains to a precast concrete flow splitter (bypass structure). From the flow splitter, 1-year, 24-hour storm is directed to a Vortech stormwater treatment system to remove sediment and solids. Subsequently, runoff is directed to an underground storage tank. A duplex pump station then pumps the ADF through a valve vault into the infiltration field for ADF treatment. The Valley West Apron collection and infiltration system is presented in *Figure 4*.

Pictorial diagrams of key components are provided in Appendix B. Each system component must be inspected for condition, functionality, and operational readiness in accordance with the checklists provided in Sections 2-6.

Pump Operating Parameters: The pump's operating point is specified to be 162 GPM @ 53' TDH.

1.4 890 RAMP - SYSTEM DESIGN AND CONFIGURATION

The 890 Ramp ADF treatment system is designed to convey and treat 21,600 ft^3 of stormwater per day. This represents the volume of runoff from an approximate 0.90 inch storm event referred to as the Water Quality Volume (WQ_V) for purposes of treatment. Stormwater runoff in excess of 21,600 ft^3 per storm event is directed via a diversion structure to a Class 2 wetland contiguous with Muddy Brook.

The 890 Ramp ADF treatment system is comprised of the following components:

- Four (4) catch basins
- Three (3) drainage manholes
- One diversion structure
- One cast-in-place concrete 193,000 gallon stormwater detention tank
- One duplex pump station including electrical controls
- One valve vault with flow meter
- Approximately 290' of 6" SDR 11 HDPE force main
- Two (2) cleanout manholes
- One – 40' wide x 500' long infiltration field with 32 flushing valves. Depth of crushed stone is 3.0' deep.

Pump Station electrical control equipment includes:

North Side of Panel Equipment

- Main Breaker (100 amp)
- Transient Voltage Surge Suppressor (TVSS)
- Transformer and Transformer Breaker
- Panelboard LP
- Automatic Telephone Dialer and Telephone Equipment (Disconnected and replaced with wireless communications)
- WiFi Communications Circuit

South Side of Panel Equipment

- Control Panel Breaker
- Pump Station Control Panel with Red Alarm Beacon
- Alarm Panel with White Alarm Beacon
- Combustible Gas Detector Local Display (Sensor in Pump Station)
- Combustible Gas Detector Red Alarm Beacon
- BANA Communications Circuit (Circuit Terminated)
- Integration with LCS Controls SCADA system (Functionally Terminated)
- Mission Real-Time Alarm and Monitoring System via cellular uplink

Electrical Service Source - North Side of Panel Equipment at the Valley West Apron

- Main Breaker (100 amp)

As shown in Figure 4, ADF collects on the pavement and is washed with runoff into existing catch basins and storm drains at the Air Cargo Ramp. The stormwater runoff is then conveyed through storm drains to a precast concrete diversion structure. From the diversion structure, the water quality volume is directed to the underground storage tank. A duplex pump station then pumps the ADF through a valve vault into the infiltration field for ADF treatment. The 890 Ramp collection and infiltration system is presented in *Figure 5*.

Pictorial diagrams of key components are provided in Appendix C. Each system component must be inspected for condition, functionality and operational readiness in accordance with the checklists provided in Sections 2-6.

Pump Operating Parameters: The pump's operating point is specified to be 380 GPM @ 30' TDH.

2.0 DAILY MONITORING AND MAINTENANCE REQUIREMENTS

Recommended Daily Operations and Maintenance Tasks	
☐	Drive to each station; Check Warning Lights and Alarms
☐	Check pump operation; Operating Parameters: Main Air Carrier Apron: One Pump Running: 610 GPM at 33' TDH (Motor Frequency 47 Hz) 840 GPM at 46' TDH (Motor Frequency 60 Hz) Two Pumps Running: 1,220 GPM at 63' TDH (Motor Frequencies 60 Hz) Temporary South Apron Pump Station 320 GPM at 51' TDH. Valley West Apron: 162 GPM @ 53' TDH. 890 Ramp: 380 GPM @ 30' TDH
☐	Log onto Mission System and check alarm status, run time, flow recording, pump cycling rate, and wet well level. (Excluding Temporary South Apron Pump Station)

3.0 WEEKLY MONITORING AND MAINTENANCE REQUIREMENTS

Recommended Weekly Operations and Maintenance Tasks	
☐	Remove debris from wet well
☐	Run each pump in hand/manual control and watch level control to ensure pumps are operating properly, then put controls back in auto position.
☐	Test all panel lights and change as needed
☐	Check pump cycle rate- troubleshoot excessive pump cycling
☐	Check exhaust fan (Main Air Carrier Apron only)
☐	Visually inspect and operate sump pump (Main Air Carrier Apron only)
☐	Check integrity of inflatable rubber plug by observing downstream structure for signs of leakage (Temporary South Apron Pump Station only)

4.0 MONTHLY MONITORING AND MAINTENANCE REQUIREMENTS

Recommended Monthly Operations and Maintenance Tasks	
☐	Main Air Carrier Apron. Inspect Exhaust fan air filter on control panel cabinet. Replace if necessary. See O & M Manual for Pump Equipment, Flow Meters, and Level Sensors, Tab A-3
☐	Main Air Carrier Apron. Inspect Primex Level Transducer for clogged nose cap. Clean per manufacturers recommendations. See O & M Manual for Pump Equipment, Flow Meters, and Level Sensors, Tab A-4.
☐	Main Air Carrier Apron. Inspect Det-Tronics Gas Detector weather baffle, optics, and O-ring per manufacturers recommendations. See O & M Manual for Instrumentation and Controls, Tab A-2, Det-tronics Manual, page 23.
☐	890 Ramp. Inspect Det-Tronics Gas Detector weather baffle, optics, and O-ring per manufacturers recommendations. See O & M Manual for Electrical operations 2 of 2, Tab 5, Det-tronics Manual, page 24.
☐	Valley West Apron Gas Detector. Need info from Brian K. on new detector
☐	Open wet well and inspect each pump
☐	Completely pump down wet well to its lowest level and make visual inspection
☐	Check wet well floats for debris build up and clean when needed
☐	Check pumps and piping visually for defects
☐	Clean pump intakes, if required

5.0 BI-ANNUAL MONITORING AND MAINTENANCE REQUIREMENTS

Recommended Bi-Annual Operations and Maintenance Tasks	
☐	Main Air Carrier Apron Pump Inspection. Inspect per HOMA operations and Maintenance Manual, Stormwater Pump Equipment Manual, Tab A-2, page 8. Inspect cable entry, cables, motor insulation resistance, external pump parts, seal chamber oil, and impeller.
☐	890 Ramp Pump Inspection. Inspect per Flygt operations and maintenance manual, 890 Ramp O & M Manual, tab 3, page 38-43.
☐	Valley West Apron Pump Inspection. Inspect per Flygt operations and maintenance manual.
☐	Verify accuracy of flow meters
☐	Operate all valves through full range, reset to correct position, confined space by others
☐	CRITICAL TASK: Jet and flush infiltration field (May and September)

6.0 ANNUAL MONITORING AND MAINTENANCE REQUIREMENTS

Recommended Annual Operations and Maintenance Tasks	
☐	Inspect stormwater structures and remove accumulated sediment
☐	Remove sediment from insect screen at each stormwater tank vent (Air Carrier Ramp Only)
☐	Measure Pump capacity in GPM to detect pump output problems

UIC System Monitoring and Maintenance Inspection Completion Forms including Daily, Weekly, and Monthly Forms, are presented in Appendix F.

7.0 ALARM CONDITIONS

Alarm Conditions/actions	
Mission Channel	Main Air Carrier Ramp
7	Gas Detector Alarm – indicator of hazardous atmosphere. Call OPS, they will contact AARF.
9	Pump #1 Fail – pump has failed, troubleshoot
10	Pump #2 Fail – pump has failed, troubleshoot
11	Pump #3 Fail – pump has failed, troubleshoot
4	Wet Well High Level (Transducer) – investigate, troubleshoot
5	Wet Well High Level (Float) – investigate, troubleshoot
8	Diversion level alarm – high flows, information only
6	Common alarm - troubleshoot
12	Electrical Vault High Level - investigate
Valley West Apron	
8	Pump Station Combustible Gas – indicator of hazardous atmosphere. Call OPS, they will contact AARF.
5	Pump #1 Fail – pump has failed, troubleshoot
6	Pump #2 Fail – pump has failed, troubleshoot
9	Wet Well High Level (Transducer)– investigate, troubleshoot
4	Wet Well High Level (Float) – investigate, troubleshoot
10	Common Alarm - troubleshoot
890 Ramp	
6	Pump #1 Fail – pump has failed, troubleshoot
7	Pump #2 Fail – pump has failed, troubleshoot
4	Wet Well High Level (Transducer)– investigate, troubleshoot
5	Wet Well High Level (Float)- investigate, troubleshoot
Not Connected	Pump Station Combustible Gas – indicator of hazardous atmosphere. Call OPS, they will contact AARF.

NOTE: The Temporary South Apron Pump Station is not connected to the Mission System. Red alarm beacon is local only.

8.0 MISSION SYSTEM OVERVIEW

The Mission SCADA system transmits pump station operational status; flow information; and alarm conditions to a cloud based secure server using cellular communication technology. This information is then accessible by authorized users via Missions Customer Website. Appendix E provides an overview of system components and instructions for logging on to the system and downloading data. For additional information please refer to the Mission System Users Guide. The Mission System can be accessed from any computer by logging onto the Mission System Customer website. Pertinent login information is as follows:

Mission Customer Web Site: www.123mc.com

User Name: _____

Password: _____

User name and password to be provided by BTV

9.0 BTV EMERGENCY CONTACT LIST HIERARCHY

Airport Operations: 316-6014

Travis Mott, Maintenance Technician: 598-6918

Brian Kusupski, Electrician: 316-9712

Bryon Ladd, Electrician: 598-0567

Rick Brown, Director of Maintenance: 316-9713

Larry Lackey, Director of Engineering: 338-8106

Kelly Colling, Director of Operations: 316-2061

Gene Richards, Director of Aviation: 343-9909

Nic Longo, Director of Planning and Development: 503-7368

10.0 MANUFACTURER CONTACTS

Main Air Carrier Ramp			
Component	Company	Name	Phone
Homa Pumps & Primax Controls, Mission System	Champlin Associates 137 Iroquois Drive Essex Junction, VT 05452	David Crawford Jon Champlin	802-879-7136
Rosemont Level Sensor and flow meter	Pond Technical Services (Connecticut)	Amanda Keely	860-316-2570
Gas detection system, alarm panel	LCS Controls, Inc. PO Box 286 Rochester, VT 05767	Dan Crickard Tom Allen	802-767-3128
Air Handling	Vermont Mechanical PO Box 728 Williston, VT 05495	Brian Norris	802-862-5900
Electrical Equipment	Peck Electric 4050 Williston Road South Burlington, VT 05403	Tony Boulanger	802-316-2269
Temporary South Apron Pump Station			
Gorman-Rupp Submersible Pump	The Gorman-Rupp Company 100 Rupp Rd. Dock 5 Mansfield, OH 44903	Local Municipal Distributer: Water Industries, Inc. 74 Suncook Valley Rd. Alton, NH 03809 Office: (603) 875-7000 Local Industrial Distributer: Emerick Associates Inc. 1107 New Loudon Rd. Cohoes, NY 12047 Office: (518) 785-6692	Gorman-Rupp Main Facility (419) 755-1011
Electrical Equipment	Pratt & Smith Electrical Contractors, Inc. 578 Route 7 South Milton, VT 05468	Dan Pratt	(802) 893-1437

Manufacturer contacts continued next page.

Valley West Apron			
Flygt Pumps	Xylem, Inc. Flygt Products 78K Olympia Avenue Woburn, MA 18015	Shawn Grey	781-935-6516
Rosemont Flow meters	Rolfe Industries	Rick Johnson	518-383-2244
Instrumentation and Controls	LCS Controls, Inc. PO Box 286 Rochester, VT 05767	Dan Crickard Tom Allen	802-767-3128
Electrical Equipment	Benoit Electric?		
890 Ramp			
Flygt Pumps	Xylem, Inc. Flygt Products 78K Olympia Avenue Woburn, MA 18015	Steve McCaughey	781-935-6516
Flow meter	Rolfe Industries	Rick Johnson	518-383-2244
Gas detection system, alarm panel	Carl Lueders, Inc.	Mark Lueders	508-359-7577
Pump station	Camp Precast	Mark Pfenning	802-893-2401
Electrical Equipment	Omega Electric	Bill Lepore	802-316-2665

11.0 HISTORICAL FLOW REPORTING FOR UIC PERMIT COMPLIANCE

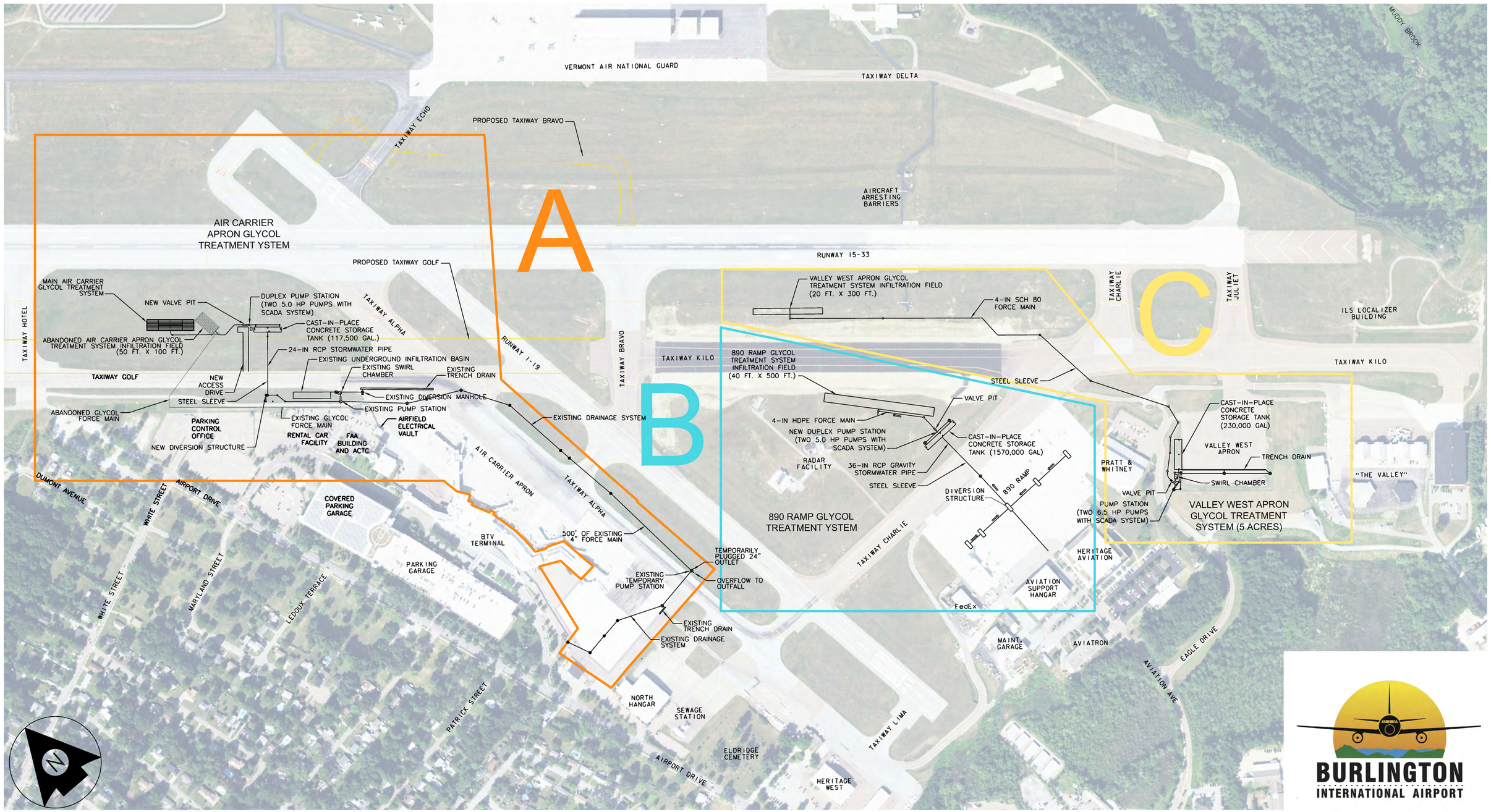
Permits for the Main Air Carrier Apron and 890 Ramp Systems specify that wastewater flow monitoring should consist of weekly flow measurements during the first 12 months of system operation, followed by monthly flow measurements. Flows shall be measured with an in-line magnetic flow meter. Both systems have magnetic flow meters that provide for readout at each meter as well as transmission of data through the Mission System for recording and for generation of monthly reports.

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FIGURES

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BURLINGTON INTERNATIONAL AIRPORT GLYCOL TREATMENT SYSTEMS



KEY

- **A** Air Carrier Apron System
- **B** 890 Ramp System
- **C** Vallley West System

Figure 1 - BTV UIC Glycol Treatment Systems

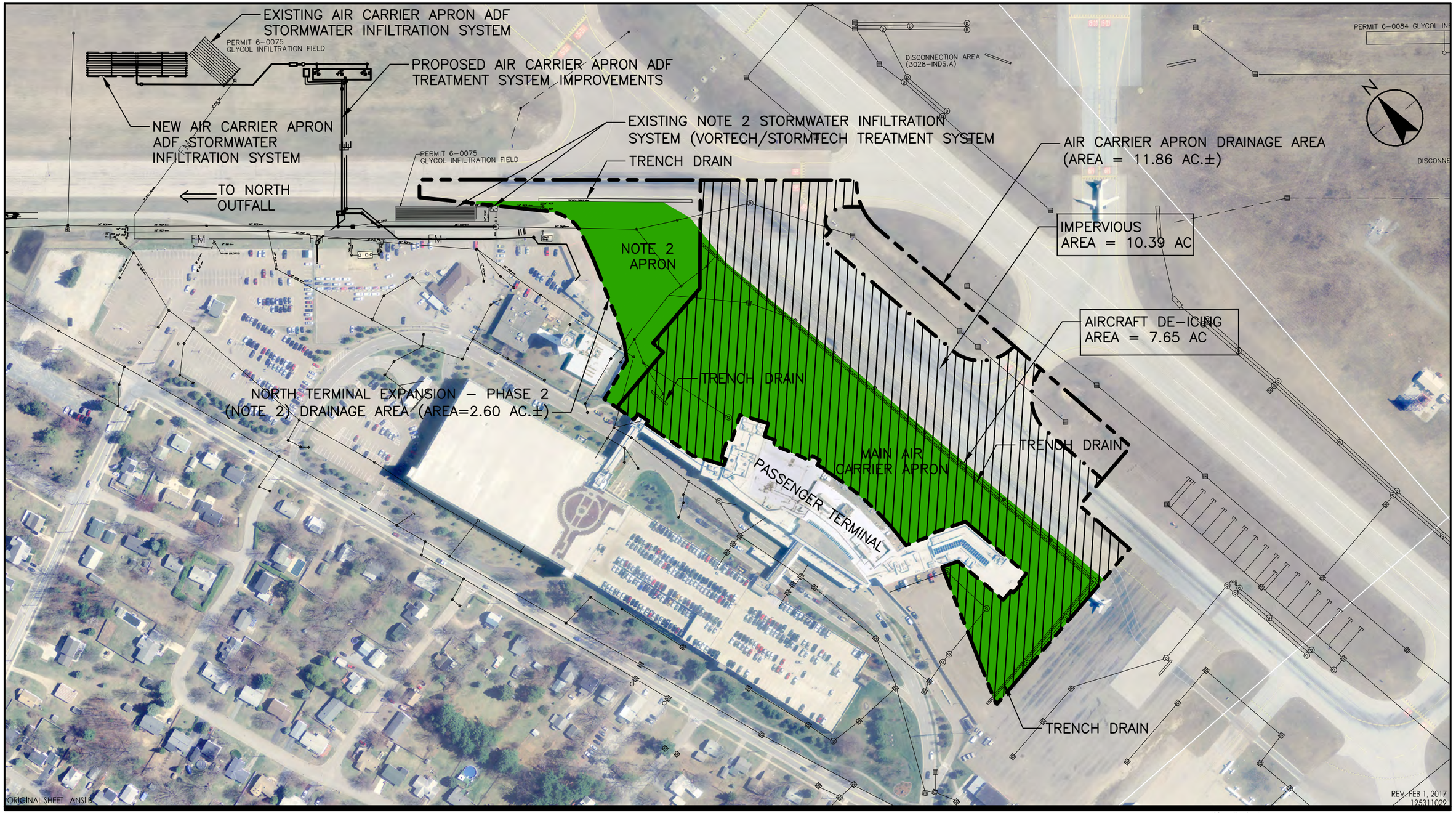
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September 4, 2018

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0 200' 400'

Notes

ADF = AIRCRAFT DEICING FLUID

IMPERVIOUS AREA

AIRCRAFT DE-ICING AREA

FIGURE 2 - MAIN AIR CARRIER APRON & NOTE2 DEICING AREAS

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BURLINGTON INTERNATIONAL AIRPORT

AIR CARRIER APRON AIRCRAFT DEICING FLUID (ADF) TREATMENT SYSTEM IMPROVEMENTS

Figure No.

1.1

Title

WATERSHED BOUNDARIES WITH AIRCRAFT DE-ICING AREA

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File Name: 6-0075 site plan.dwg	DDH Dwn.	DMC Chkd.	DMC Dsgn.	16.06.22 YY.MM.DD

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Figure 3 - Main Air Carrier Apron and NOTE2 Apron Collection and Infiltration Systems

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BURLINGTON INTERNATIONAL AIRPORT

ANNUAL INSPECTION REPORT FOR
UIC PERMITS
South Burlington, Vermont

Title
UIC PERMIT NO. 6-0075
AIRCRAFT DEICING FLUID TREATMENT FACILITY, MAIN APRON AND NOTE2

Project No.	Scale	
195311256	AS NOTED	
Drawing No.	Sheet	Revision
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UIC APRIL 2017 INSPECTION NOTE:

THE MAIN AIR CARRIER APRON ADF TREATMENT SYSTEM WAS BROUGHT ON–LINE ON FEBRUARY 3, 2017 AFTER OPERATOR TRAINING WAS PROVIDED TO THE BURLINGTON INTERNATIONAL AIRPORT MAINTENANCE STAFF. AFTER SUCCESSFUL COMPLETION OF THE 1 MONTH SYSTEM PERFORMANCE TESTING REQUIREMENTS, A CERTIFICATE OF SUBSTANTIAL COMPLETION WAS ISSUED FOR THE NEW ADF TREATMENT SYSTEM ON MARCH 3, 2017, AND THUS, TRANSFERRING OPERATIONAL RESPONSIBILITY TO BTV. A PUNCH LIST OF REMAINING ITEMS OF WORK WAS ISSUED TO THE CONTRACTOR AS AN ATTACHMENT TO THE CERTIFICATE OF SUBSTANTIAL COMPLETION.

PRIMARY ITEMS OF WORK REMAINING AS NOTED DURING UIC SYSTEM INSPECTION INCLUDE REMOVAL OF THE EXISTING INFILTRATION FIELD PIPING AND DISTRIBUTION MANHOLE, DEMOLITION OF THE EXISTING PUMP STATION INCLUDING PUMP, WEIR, AND ELECTRICAL CONTROLS, AND UPGRADE THE EXISTING SCADA SOFTWARE TO PROVIDE FOR HISTORICAL REPORTING OF PUMP STATION DAILY AND CUMULATIVE FLOW DATA.

1	CONSTRUCTION UPDATES	DDH	DMC	17.06.30
Revision		By	Appd.	YY.MM.DD
Issued		By	Appd.	YY.MM.DD
File Name: 6-0075 site plan.dwg		DDH Dwn.	DMC Chkd.	DMC 16.06.22 Dsgn. YY.MM.DD

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Figure 3 - Main Air Carrier Apron and NOTE2 Apron Collection and Infiltration Systems

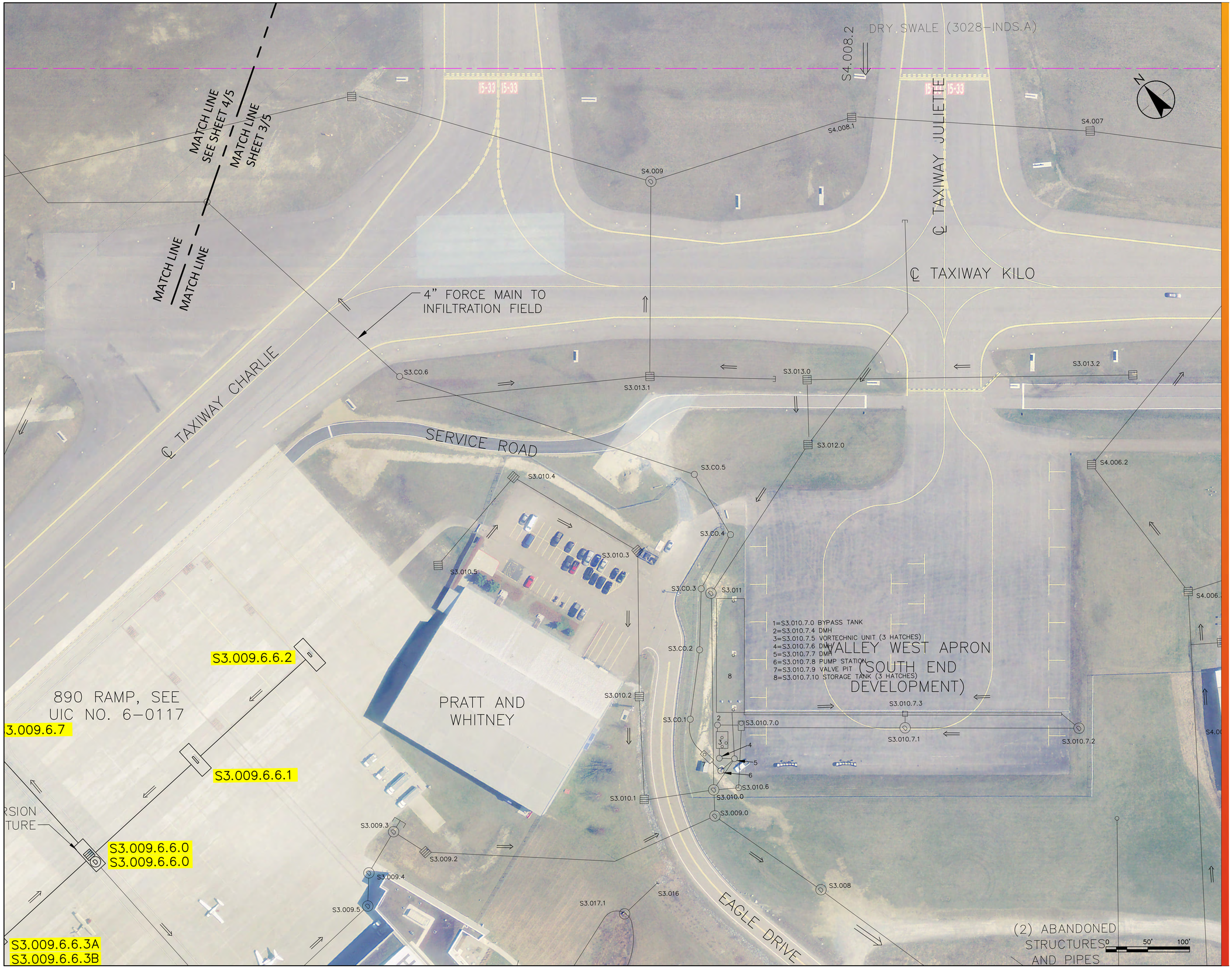
Client/Project
BURLINGTON INTERNATIONAL AIRPORT

ANNUAL INSPECTION REPORT FOR
UIC PERMITS
South Burlington, Vermont

Title
UIC PERMIT NO. 6-0075
AIRCRAFT DEICING FLUID TREATMENT FACILITY, MAIN APRON AND NOTE2

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Figure 4 - Valley West Apron Collection and Infiltration System

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BURLINGTON INTERNATIONAL AIRPORT

ANNUAL INSPECTION REPORT FOR
UIC PERMITS
South Burlington, Vermont

Title
UIC PERMIT NO. 6-0084
AIRCRAFT DEICING FLUID RUNOFF
SOUTH END DEVELOPMENT, PHASE 2

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195311256	AS NOTED	
Drawing No.	**Sheet**	**Revision**
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℄ RUNWAY 15–33

N

PERMIT 6–0084 GLYCOL INFILTRATION FIELD

4" FORCE MAIN FROM VALLEY WEST APRON TO INFILTRATION FIELD

AIR NATIONAL GUARD SOUTH BARRIER

DISCONNECTION AREA (3028–9010.2)

MATCH LINE SEE SHEET 4/5

MATCH LINE SHEET 3/5

MATCH LINE

MATCH LINE

S4.011.5

S4.011.4

S4.011.3

S4.011.2

PERMIT 6–0117 GLYCOL INFILTRATION FIELD

12

8

11

10

8

9

7

6

890 RAMP SYSTEM, SEE UIC NO. 6–0117

1=S3.009.6.8 STORAGE TANK (4 HATCHES)
2=S3.009.6.9 DMH
3=S3.009.6.10 DMH
4=S3.009.6.11 PUMP STATION
5=S3.009.6.12 VALVE PIT
6=S3.009.CO.1 (FM CLEANOUT MANHOLE)
7=S3.009.CO.2 (FM CLEANOUT MANHOLE)
8=S3.009.6.13 (GLYCOL INFILTRATION FIELD)
9=ROW OF EIGHT FLUSHING VALVES
10=ROW OF EIGHT FLUSHING VALVES

3

2

5

4

1

S2.011.5

℄ TAXIWAY CHARLIE

890 RAMP

RADAR FACILITY

0 50' 100'

S3.009.6.2

Stantec

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	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Figure 4 - Valley West Apron Collection and Infiltration System

Client/Project
BURLINGTON INTERNATIONAL AIRPORT

ANNUAL INSPECTION REPORT FOR UIC PERMITS
South Burlington, Vermont

Title
UIC PERMIT NO. 6-0084
AIRCRAFT DEICING FLUID RUNOFF
SOUTH END DEVELOPMENT, PHASE 2

Project No.	Scale	
195311256	AS NOTED	
Drawing No.	Sheet	Revision
4	4 of 5	0

V:\195311256\active\195311256\transportation\drawing\6-0075 site plan.dwg, PAGE 4, 6/8/2017 10:49:54 AM, hharrington, DWG To PDF (600 dpi).pc3

ORIGINAL SHEET - ARCH D

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BURLINGTON INTERNATIONAL AIRPORT

Legend

Notes

Revision	By	Appd.	YY.MM.DD

Issued	By	Appd.	YY.MM.DD

File Name: 6-0075 site plan.dwg	DDH Dwn.	DMC Chkd.	DMC Dsgn.	16.06.22 YY.MM.DD

Permit-Seal

Figure 5 - 890 Ramp Collection and Infiltration System

Client/Project
BURLINGTON INTERNATIONAL AIRPORT

ANNUAL INSPECTION REPORT FOR UIC PERMITS
South Burlington, Vermont

Title
UIC PERMIT NO. 6-0017
AIRCRAFT DEICING FLUID TREATMENT SYSTEM, 890 RAMP

Project No.	Scale	
195311256	AS NOTED	
Drawing No.	**Sheet**	**Revision**
5	5 of 5	0

V:\195\active\195311256\transportation\drawing\6-0075 site plan.dwg, PAGE 5, 6/8/2017 10:50:17 AM, hharrington, DWG To PDF (600 dpi).pc3

ORIGINAL SHEET - ARCH D

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EXISTING AIRPORT TAXIWAY SIGN
NOTE: EXISTING CATCH BASIN S1.024.6 PERMITTED UNDER S/N 001 OF 3028-9010.A AND UIC PERMIT 6-0075

CORE INTO WALL OF EXISTING CATCH BASIN AND INSTALL NEW 4" HDPE FORCE MAIN AND SEAL OPENING WITH KOR-N-SEAL RUBBER BOOT

85.0' TO CTR

ABANDONED 18" RCP

S1.024.6

55+00

54+00

53+00

52+00

51+00

TAXIWAY ALPHA OBJECT FREE AREA

TAXIWAY ALPHA SAFETY AREA

RUNWAY 1-19 OBJECT FREE AREA

RUNWAY 1-19 SAFETY AREA

℄ RUNWAY 1-19

℄ TAXIWAY ALPHA

ROFA

TOFA

TSA

RSA

NEW 4" SDR 17 HDPE TEMPORARY EMERGENCY FORCE MAIN (5' MIN. DEPTH, TYP.) SEE PROFILE ON SHEET C3.

±500' OF 4" FORCE MAIN

INFILTRATION GALLERY CURRENTLY PERMITTED UNDER S/N 002 OF PERMIT #1-0839

EXISTING 24" RCP PIPE TO BE TEMPORARILY PLUGGED, SEE DETAIL ON SHEET C3

INSTALL NEW PUMP IN EXISTING DIVERSION STRUCTURE S2.028.7, SEE DETAIL ON SHEET C3

HH #4

EXISTING SWIRL CHAMBER

S2.028.7

54.6

51.7

33+00

34+00

⇒ 24" RCP

1-2" HDPE SDR 13.5 ELECT. CONDUITS
1-2" COMM AND 1-2" POWER

INFILTRATION GALLERY CURRENTLY PERMITTED UNDER S/N 001 OF PERMIT #1-1391

MONITOR WELL A

32+00

31+00

15+46=
30+00

15+00

14+00

EXISTING AIR CARRIER APRON STORMWATER COLLECTION SYSTEM TRENCH DRAIN, PERMITTED UNDER S/N 001 OF 3028-9010.A AND UIC PERMIT 6-0075

S2.028.8.0

S2.028.8.1

EXISTING TRENCH DRAIN

35+00

36+00

⇒ 18" CPEP

S2.028.9

37+00

NEW PUMP CONTROL PANEL, 8' MIN FROM SIGN FOUNDATION. SEE SHEET 8 FOR DETAIL

EXISTING SIDA ENTRY SIGN

HH #3

NOTE: 6'-0" FROM EXISTING GROUND TO TOP OF 18" RCP

±144'

UGE

EXISTING SOUTH APRON STORMWATER COLLECTION SYSTEM, SEE PROFILE ON SHEET C3

⇒ 18" RCP

38+00

S2.028.10

⇒ 15" RCP

39+00

S2.028.12

⇒ 12" RCP

40+00

S2.028.11

HH #2

1-2" HDPE SDR 13.5 ELECT. CONDUIT FOR POWER

NEW ELECTRICAL HAND HOLE, TYP.

PAVED DRIVEWAY

EXISTING PERIMETER ROAD

GRASSED STRIP

NEW UG ELECTRICAL SERVICE

SOUTH APRON DRAINAGE AREA
3.49 ACRES ±

NEW ELECTRICAL SERVICE (INTERIOR)

EXISTING LIGHT POLE WITH THREE LIGHTS

GRASSED AREA

HH #1

OLD NORTH HANGAR

NEW ELECTRICAL DISCONNECT ON FACE OF EXTERIOR WALL. SEE SHEET 8 FOR DETAIL

0 40' 80'

N

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BURLINGTON INTERNATIONAL AIRPORT

Legend

Notes

NOTE: DISTANCES SHOWN FROM THE CENTERLINE OF TAXIWAY ALPHA TO THE CENTER OF THE VARIOUS STRUCTURES ARE FIELD MEASUREMENTS.

RECORD DRAWING

THESE RECORD DOCUMENTS HAVE BEEN PREPARED BASED ON INFORMATION PROVIDED BY OTHERS. STANTEC HAS NOT VERIFIED THE ACCURACY AND/OR COMPLETENESS OF THIS INFORMATION AND SHALL NOT BE RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY BE INCORPORATED HEREIN AS A RESULT.

Revision	By	Appd.	YY.MM.DD
2 RECORD DRAWING	DDH	DMC	18.03.15
1 FIELD LAYOUT REVISIONS	DDH	DMC	17.10.12

Issued	By	Appd.	YY.MM.DD

File Name: C2 South Apron PLAN.dwg	Dwn.	Chkd.	Dsgn.	
	DDH	DMC	STANTEC	17.10.06

Permit-Seal

Figure 6 - South Apron Temporary Pump Station Collection System

Client/Project
CITY OF BURLINGTON, VERMONT
BURLINGTON INTERNATIONAL AIRPORT

TEMPORARY SOUTH APRON OVERFLOW FORCE MAIN - EMERGENCY ACTION PLAN
South Burlington, Vermont

Title
SOUTH APRON COLLECTION SYSTEM PLAN

Project No.	Scale	
195311533	AS NOTED	
Drawing No.	Sheet	Revision
C2a	3 of 8	2

V:\195\active\195311079\transportation\drawing\Action Plan\C2 South Apron PLAN.dwg, Power, 3/15/2018 8:53:59 AM, hhamington, DWG To PDF (150 dpi).pc3

ORIGINAL SHEET - ARCH D

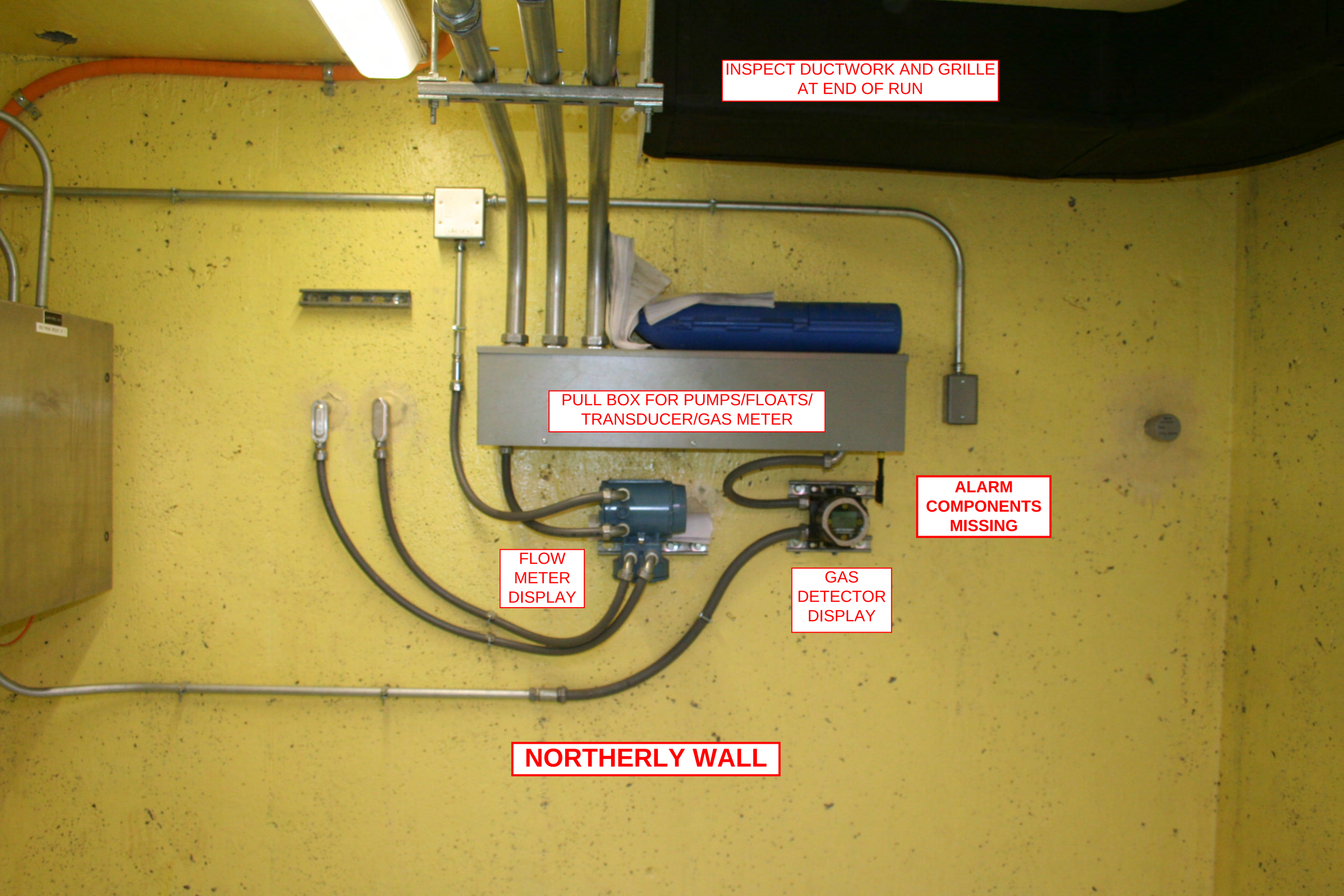
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APPENDIX A

PICTORIAL DIAGRAMS OF MAIN AIR CARRIER RAMP SYSTEM

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ULTRASONIC LEVEL SENSOR
ALARM PANEL #4
PANEL HP
PANEL LP
STORMWATER PUMP STATION CONTROL PANEL
AUTO DIALER FOR ALARM PANEL #4
TVSS SURGE SUPPRESSOR
WESTERLY WALL


INSPECT DUCTWORK AND GRILLE AT END OF RUN
PULL BOX FOR PUMPS/FLOATS/ TRANSDUCER/GAS METER
ALARM COMPONENTS MISSING
FLOW METER DISPLAY
GAS DETECTOR DISPLAY
NORTHERLY WALL

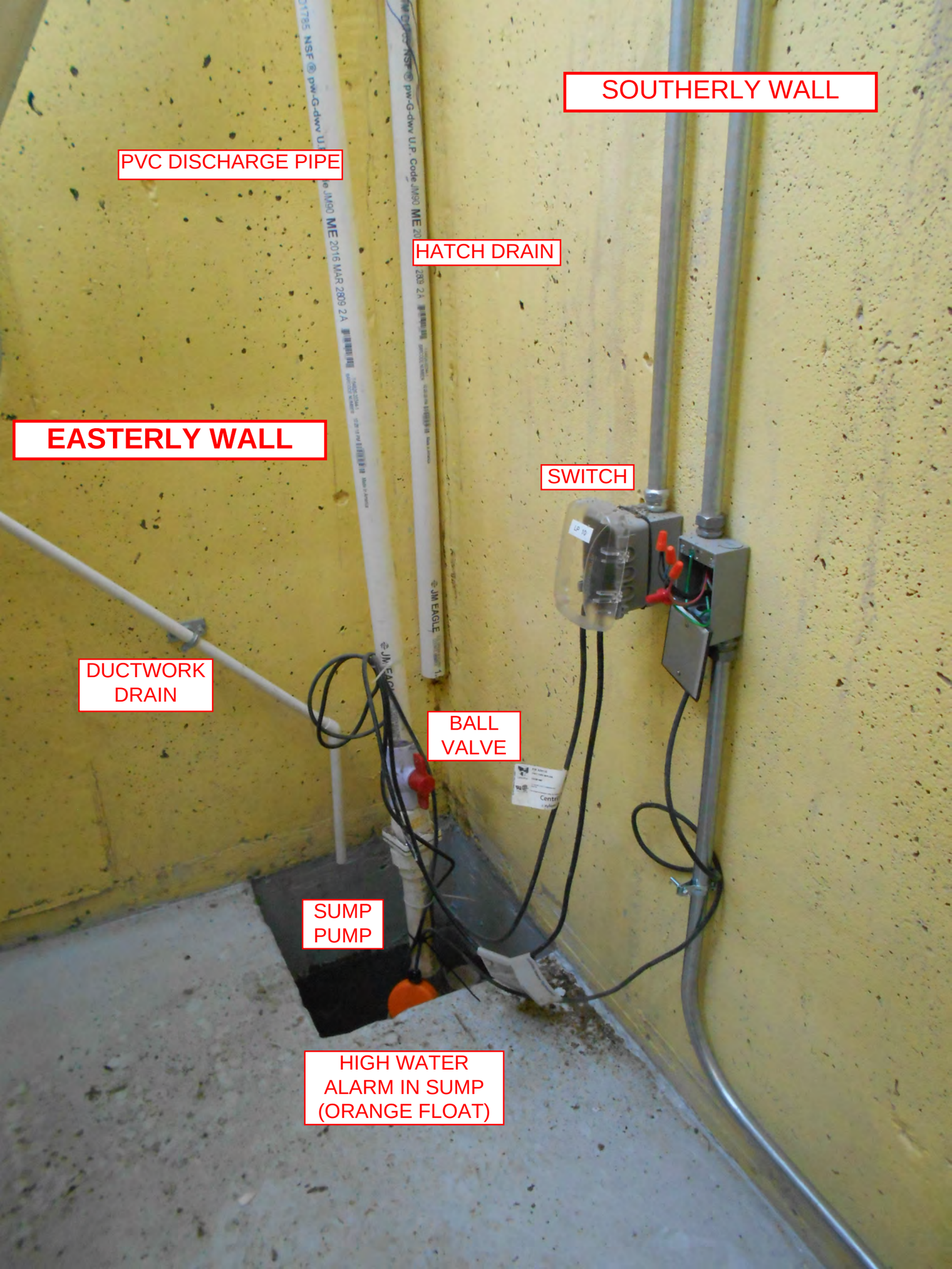
VENTILATOR DUCTWORK

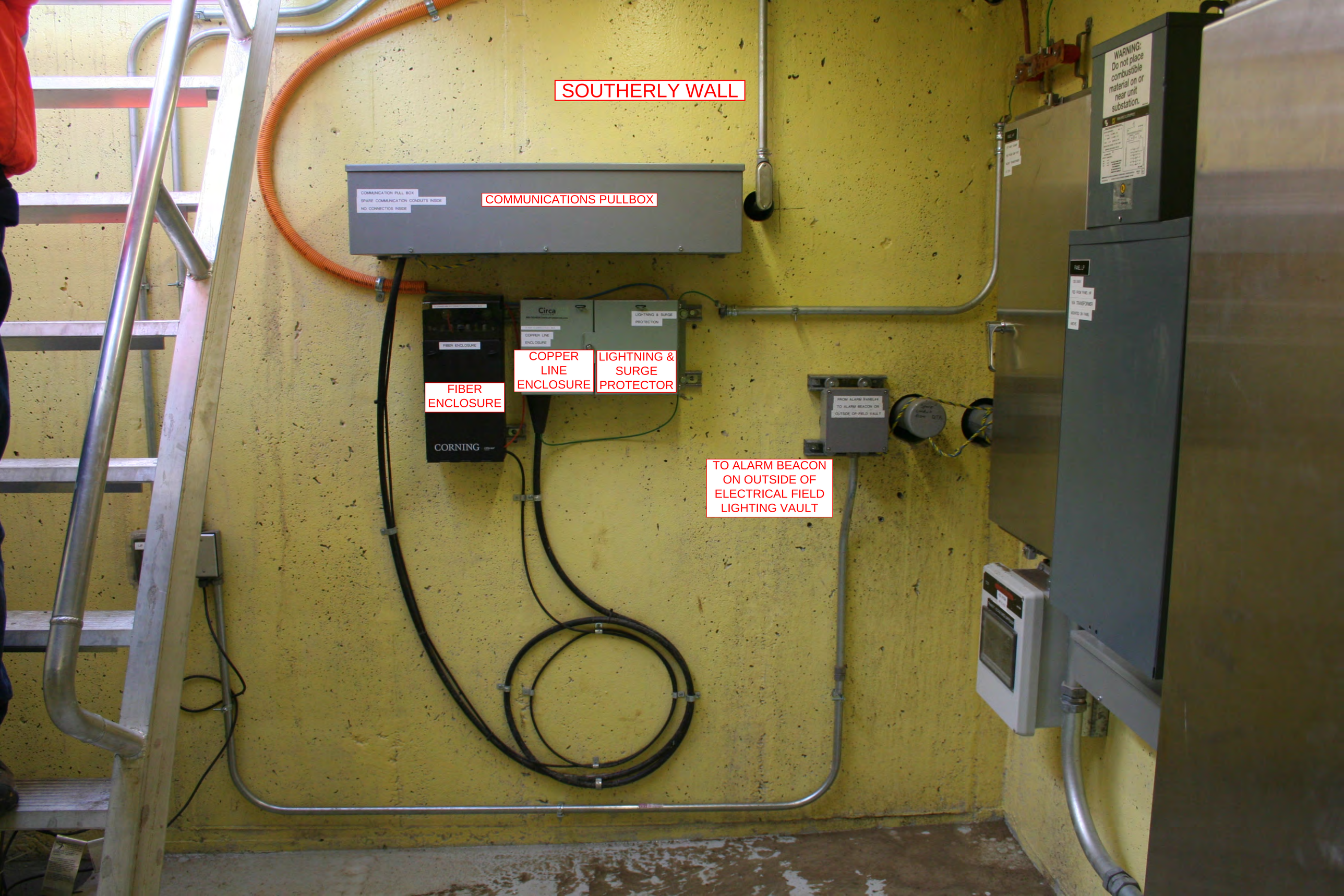
VENTILATOR DUCTWORK

BLOWER

ELECTRICAL VAULT LIGHTING

EASTERLY WALL


SOUTHERLY WALL
PVC DISCHARGE PIPE
HATCH DRAIN
EASTERLY WALL
SWITCH
DUCTWORK DRAIN
BALL VALVE
SUMP PUMP
HIGH WATER ALARM IN SUMP (ORANGE FLOAT)


SOUTHERLY WALL
COMMUNICATIONS PULLBOX
COMMUNICATION PULL BOX
SPARE COMMUNICATION CONDUITS INSIDE
NO CONNECTIOS INSIDE
FIBER ENCLOSURE
CORNING
COPPER LINE ENCLOSURE
LIGHTNING & SURGE PROTECTION
Circa
TO ALARM BEACON ON OUTSIDE OF ELECTRICAL FIELD LIGHTING VAULT
WARNING: Do not place combustible material on or near unit substation.

8" FLOW METER
SENSOR AT AIR
CARRIER VALVE VAULT

APPENDIX B

PICTORIAL DIAGRAMS OF VALLEY WEST APRON SYSTEM

This page intentionally left blank.

VALLEY WEST APRON
NORTH SIDE

Gas Meter
Display

Pump Station
Control Panel

Disconnect
3

Breaker

Disconnect
1

Disconnect
2

Raceway

Junction
Box

Main Breaker
for the 890
Ramp

VALLEY WEST APRON
SOUTH SIDE

Transient Voltage Surge Suppressor (TVSS)

Panel LP

Gas Detector Local Display

Alarm Panel

Telephone Equipment

Transformer

Junction Box

VALLEY WEST APRON
WEST SIDE

Communications:
Antennae
Transmitter

See "Valley
West Apron
North Side"

See "Valley
West Apron
South Side"

Junction
Box

Junction
Box

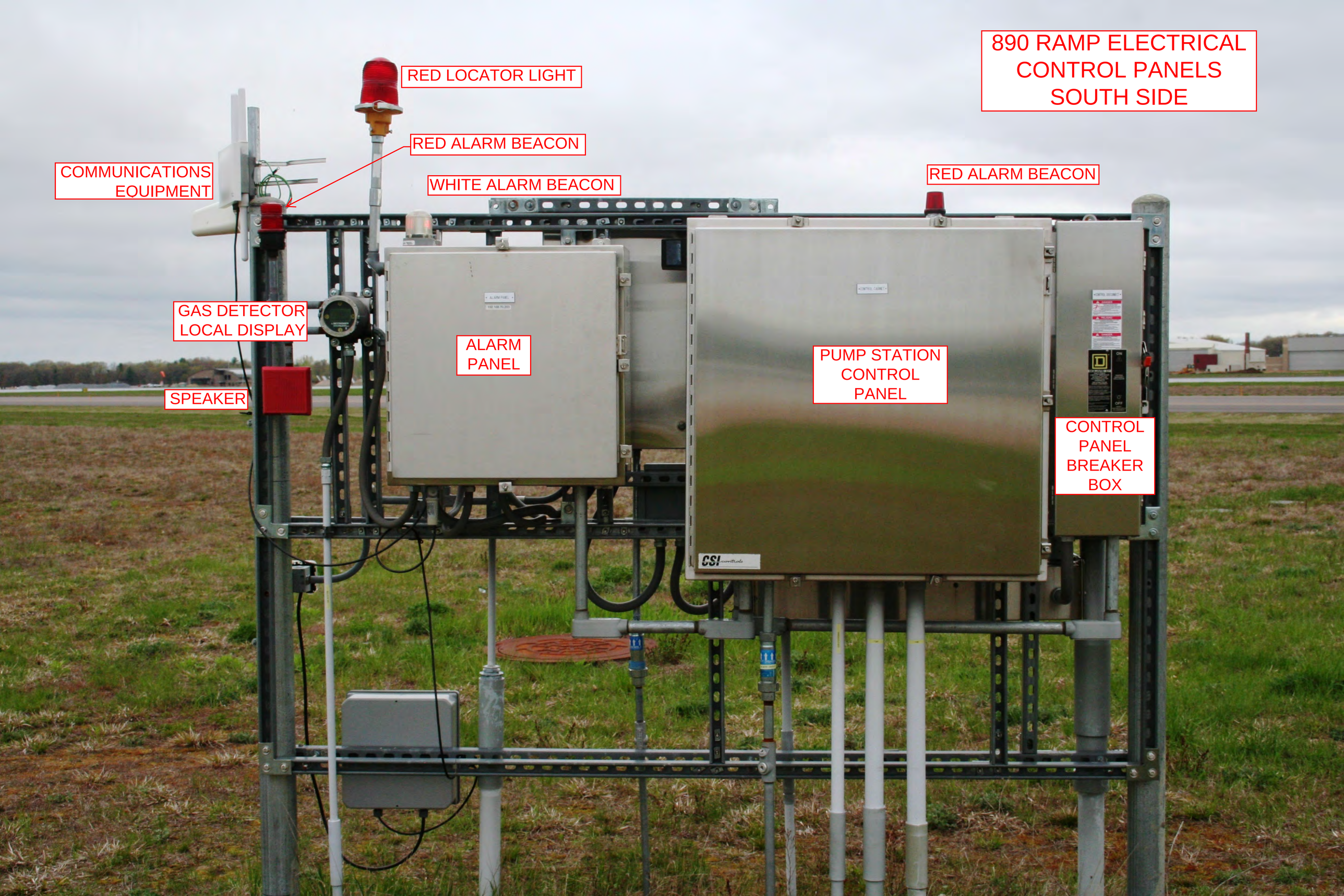
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APPENDIX C

PICTORIAL DIAGRAMS OF 890 RAMP SYSTEM

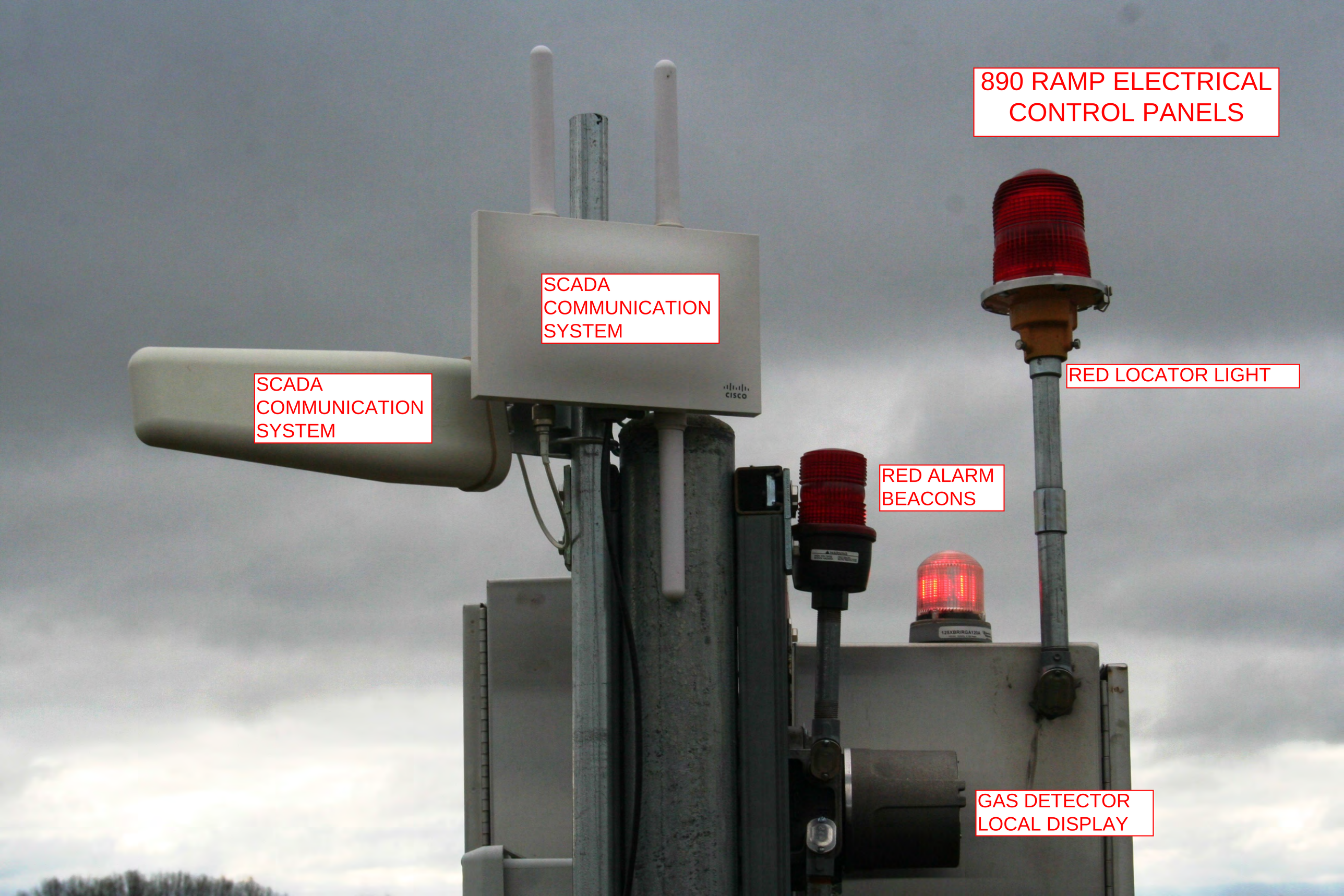
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890 RAMP ELECTRICAL CONTROL PANELS SOUTH SIDE



890 RAMP ELECTRICAL CONTROL PANELS NORTH SIDE



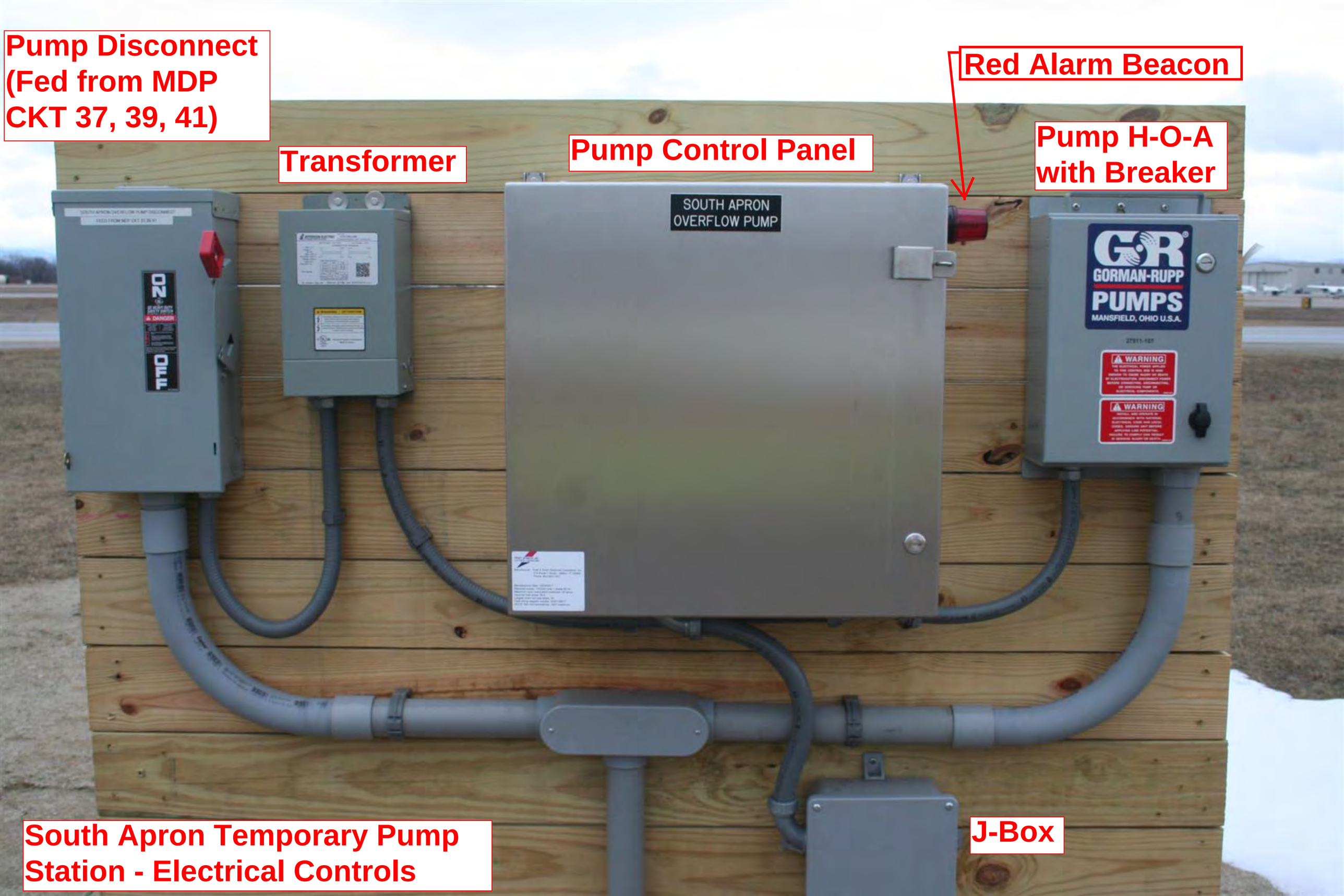

890 RAMP ELECTRICAL CONTROL PANELS
SCADA COMMUNICATION SYSTEM
SCADA COMMUNICATION SYSTEM
RED LOCATOR LIGHT
RED ALARM BEACONS
GAS DETECTOR LOCAL DISPLAY


SIEMENS
DISCONNECT #2
PANEL LP THRU TRANSFORMER
MAIN DISCONNECT
890 PUMP STATION
DANGER
PELIGRO
DANGER
ON
OFF
VALLEY WEST APRON
NORTH SIDE
Main Breaker for the 890 Ramp Pump Station Record Data Under UIC Permit 6-0117

APPENDIX D

PICTORIAL DIAGRAMS OF SOUTH APRON ELECTRICAL SYSTEM

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Pump Disconnect
(Fed from MDP
CKT 37, 39, 41)
Transformer
Pump Control Panel
Red Alarm Beacon
Pump H-O-A
with Breaker
SOUTH APRON
OVERFLOW PUMP
GORMAN-RUPP
PUMPS
MANSFIELD, OHIO U.S.A.
WARNING
WARNING
J-Box
South Apron Temporary Pump
Station - Electrical Controls

South Apron Pump Station - Exterior Pump Disconnect at the North Hanger (Fed from MDP CKT 37, 39, 41)

SOUTH APRON OVERFLOW PUMP DISCONNECT

FEED FROM MDP CKT 37.39.41

SERVICE DISCONNECT

SQUARE D

HEAVY DUTY SAFETY SWITCH
INTERRUPTOR DE SEGURIDAD DE SERVICIO PESADO
60 A
240 Vac / V~ 250 Vdc / ⎓

DANGER / PELIGRO

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH
PELIGRO DE DESCARGA ELÉCTRICA, EXPLOSIÓN O DESTELLO POR ARQUEO

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E
- This equipment must only be installed and serviced by qualified electrical personnel
- Never operate energized switch with door open. Keep door fastened.
- Turn off switch before removing or installing fuses or making load side connections.
- Always use a properly rated voltage sensing device at all line and load fuse clips to confirm switch is off.
- Turn off power supplying switch before doing any other work on or inside switch.
- Do not use renewable link fuses in fused switches.

Failure to follow these instructions will result in death or serious injury.

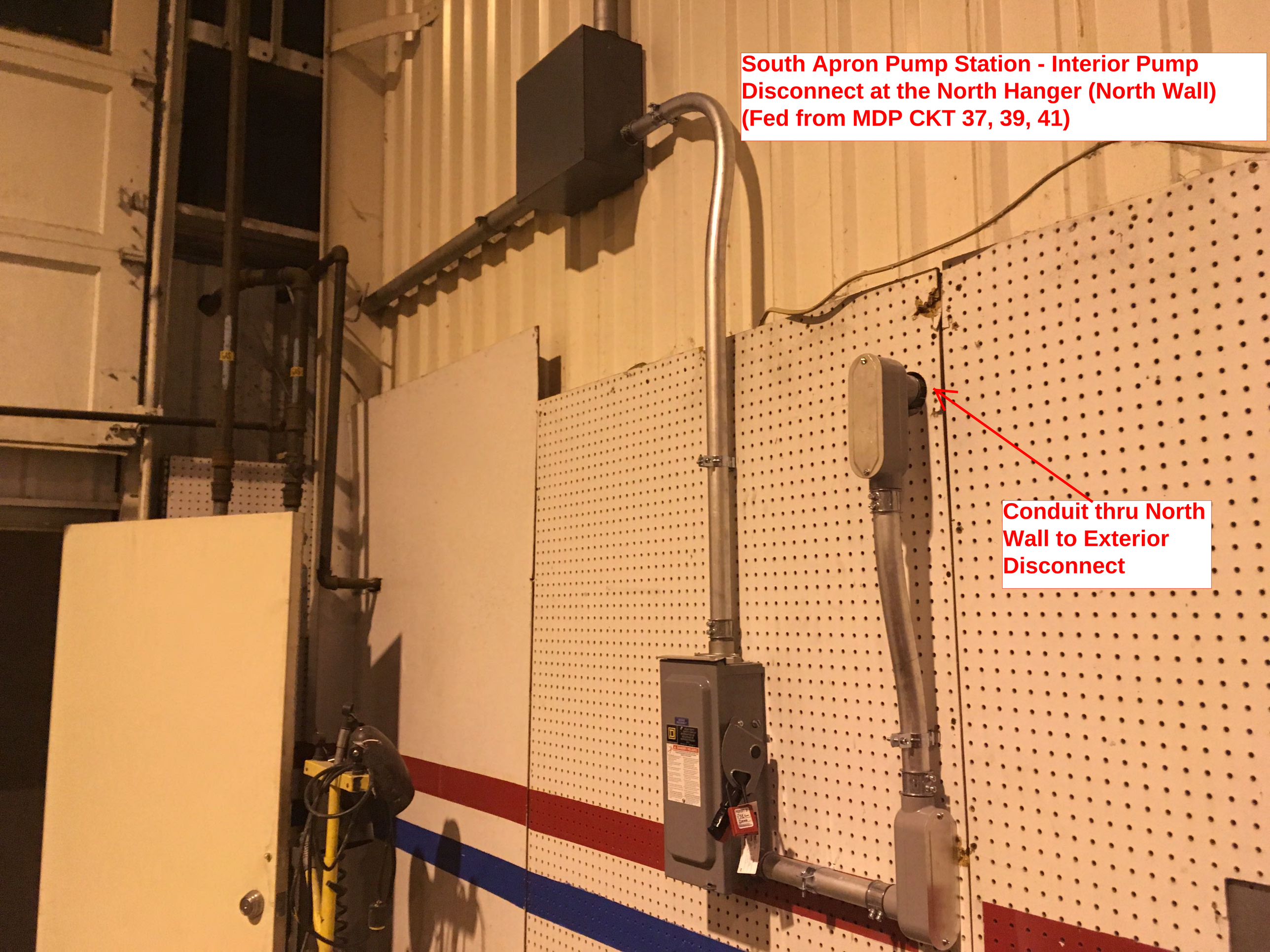
- Utilice equipo de protección personal (EPP) apropiado y siga las prácticas de seguridad eléctrica establecidas por su Compañía (consulte la norma NFPA 70E).
- Solamente el personal eléctrico especializado deberá instalar y prestar servicio de mantenimiento a este equipo.
- Nunca haga funcionar el interruptor con la puerta abierta cuando esté energizado. Mantenga la puerta asegurada.
- Desenergice el interruptor antes de extraer o instalar fusibles o de hacer conexiones en el lado de carga.
- Siempre utilice un dispositivo de tensión nominal adecuado en los clips para fusibles de los lados de carga y línea para confirmar la desenergización del interruptor.
- Desenergice el interruptor antes de realizar cualquier otro trabajo en el interruptor.
- No utilice fusibles de cinta renovables en los interruptores de fusible.

El incumplimiento de estas precauciones podrá causar la muerte o lesiones serias.

To lock out switch, place padlock hasp through hole in lockplate and above handle.

Para bloquear el interruptor, la aldaba del candado debe pasar por el agujero en la placa de inmovilización y por encima de la manija.

40275-941-02


South Apron Pump Station - Interior Pump Disconnect at the North Hanger (North Wall) (Fed from MDP CKT 37, 39, 41)
Conduit thru North Wall to Exterior Disconnect

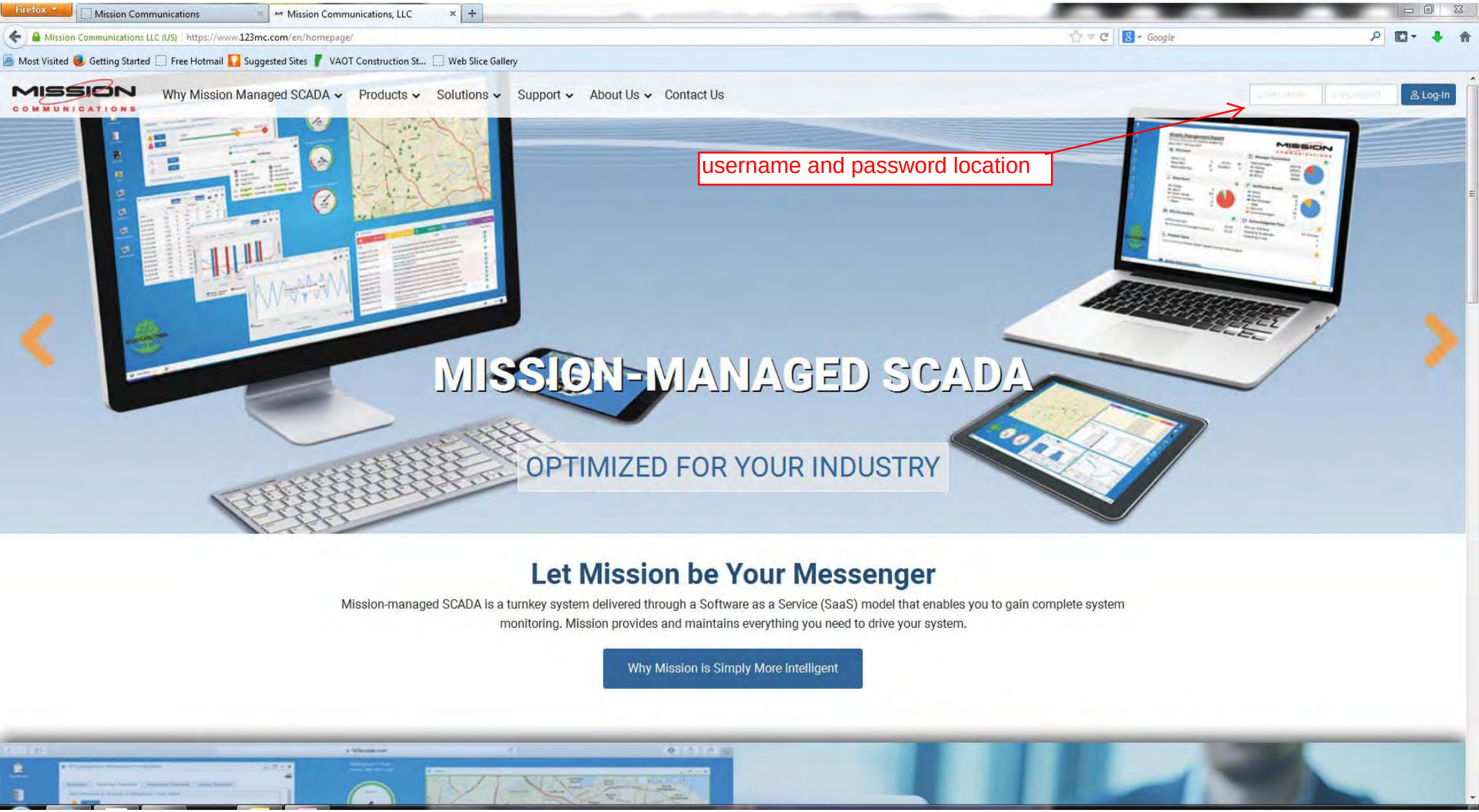
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APPENDIX E

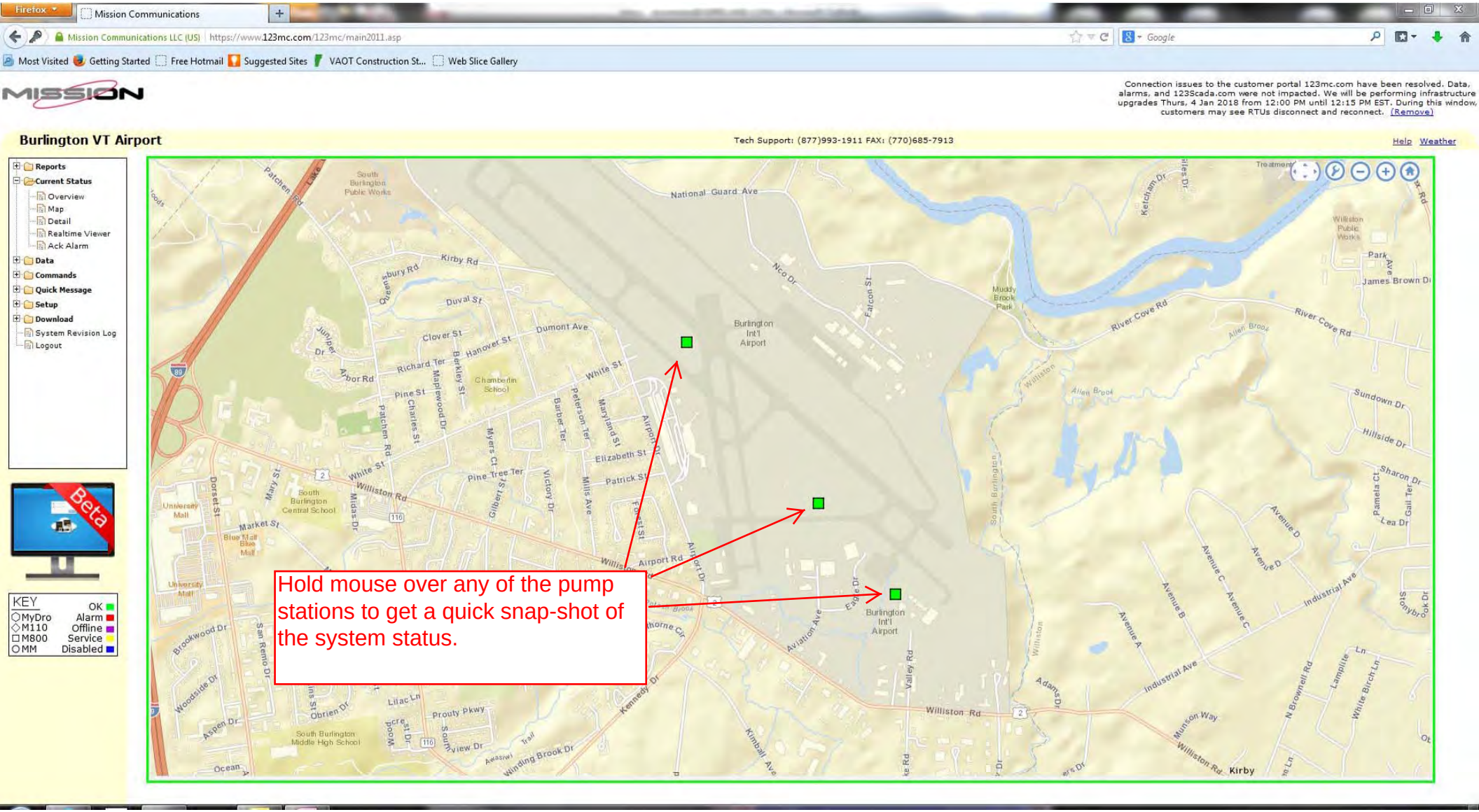
MISSION SYSTEM GRAPHICS

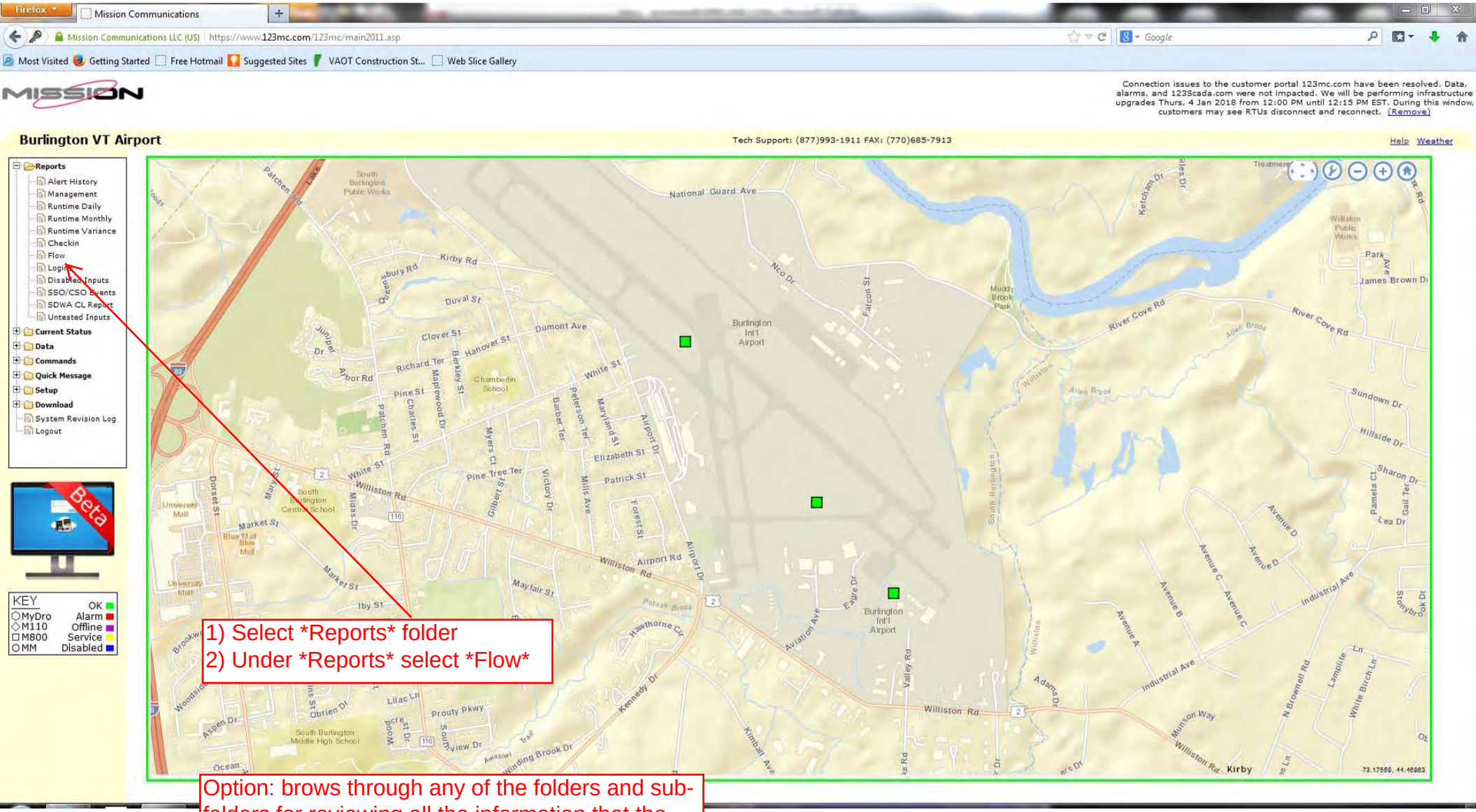
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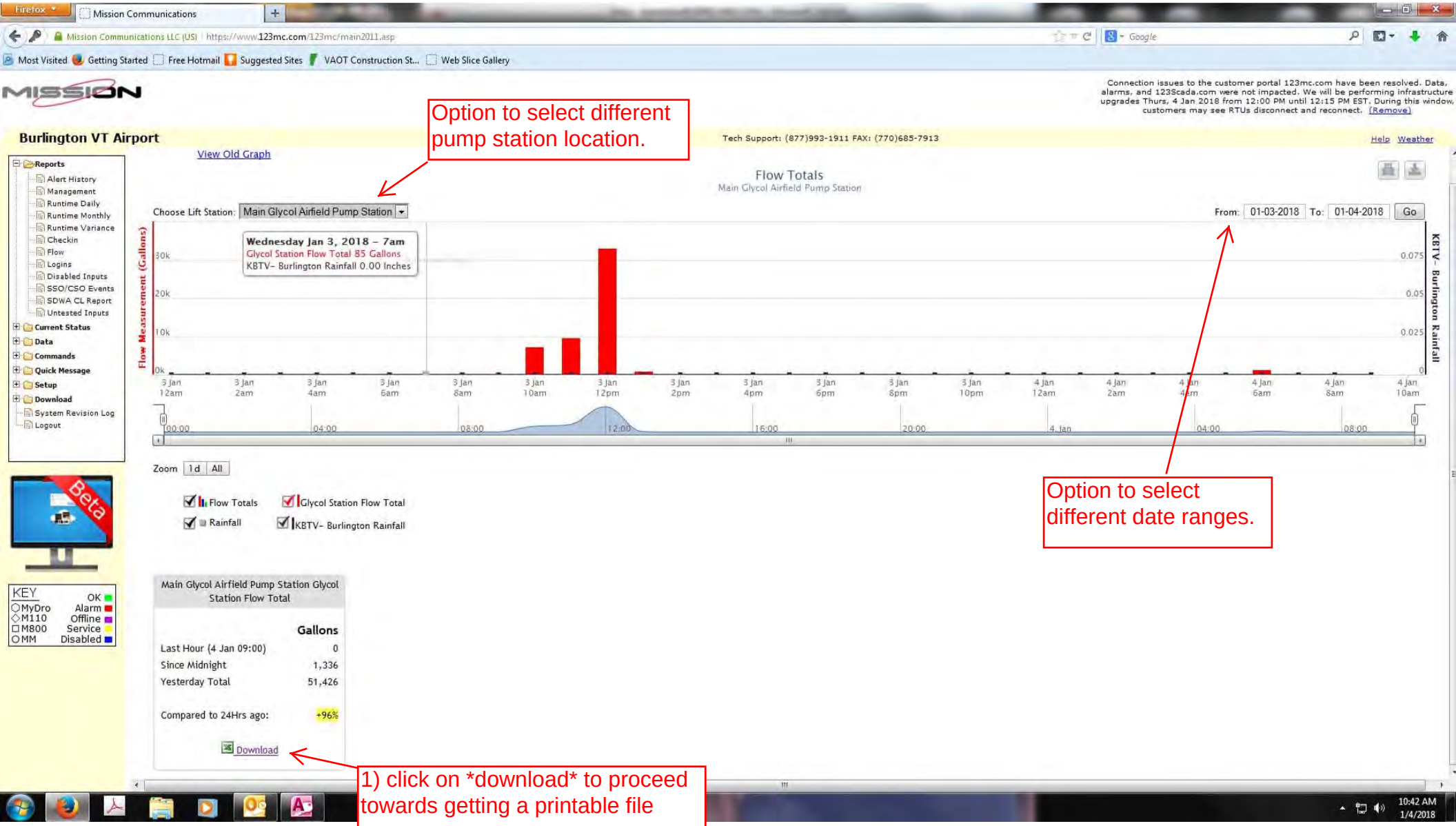
To Start: www.123mc.com

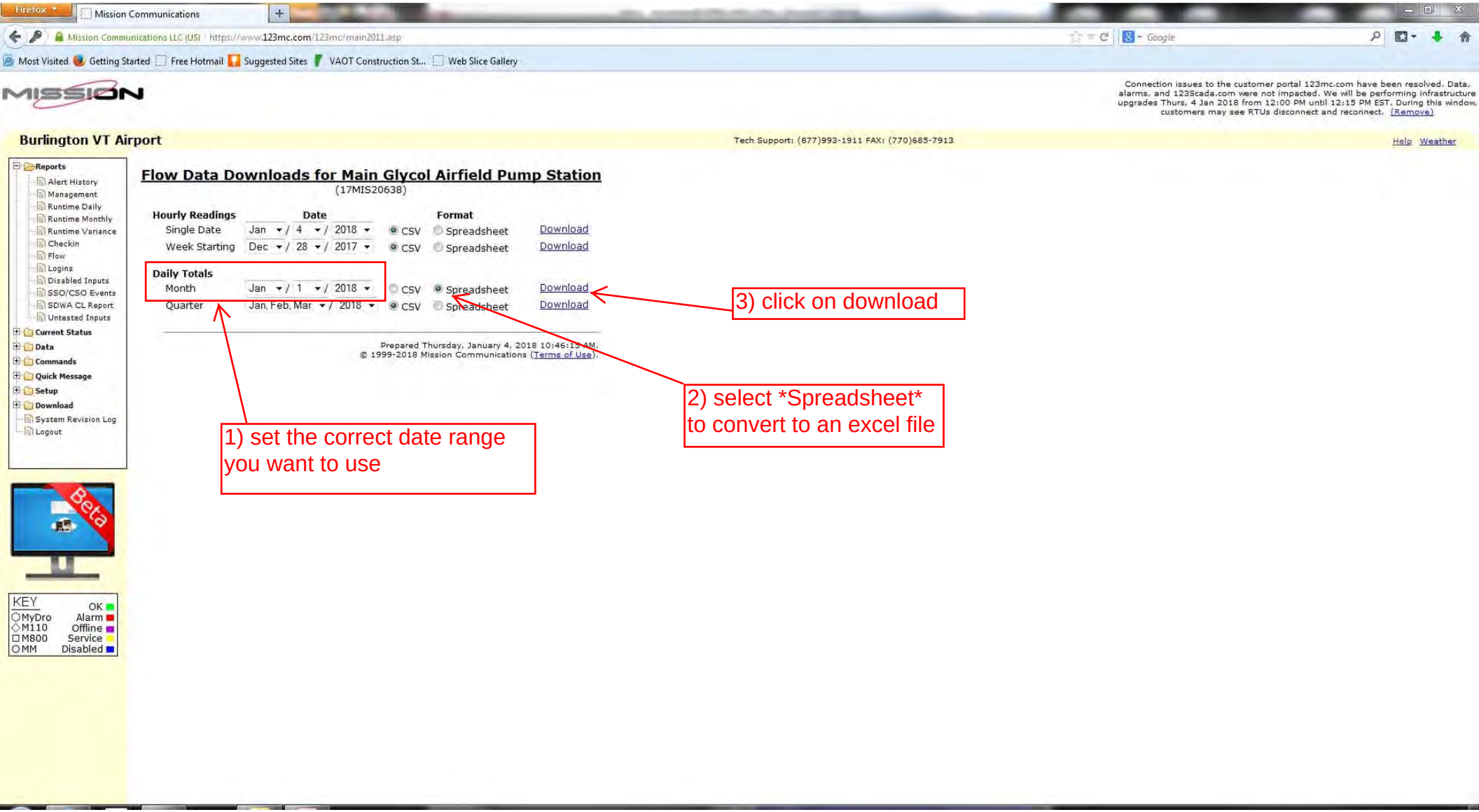


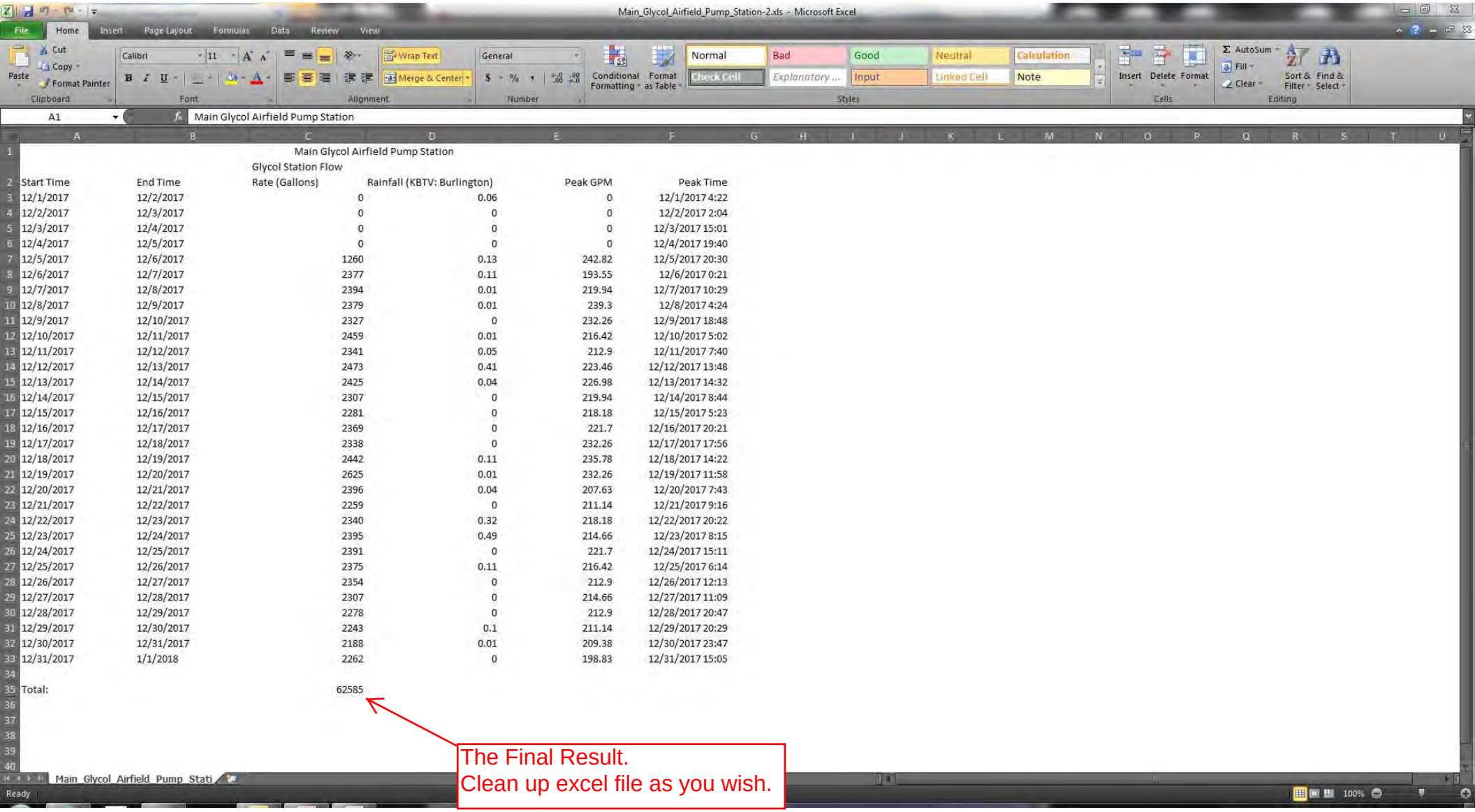
Main Starting Page after you log in.




Firefox
Mission Communications
Mission Communications LLC (US)
https://www.123mc.com/123mc/main2011.asp
Most Visited
Getting Started
Free Hotmail
Suggested Sites
VAOT Construction St...
Web Slice Gallery
MISSION
Connection issues to the customer portal 123mc.com have been resolved. Data, alarms, and 123Scada.com were not impacted. We will be performing infrastructure upgrades Thurs, 4 Jan 2018 from 12:00 PM until 12:15 PM EST. During this window, customers may see RTUs disconnect and reconnect. [Remove]
Burlington VT Airport
Tech Support: (877)993-1911 FAX: (770)685-7913
Help
Weather
Reports
Alert History
Management
Runtime Daily
Runtime Monthly
Runtime Variance
Checkin
Flow
Login
Disabled Inputs
SSO/CSO Events
SDWA CL Report
Untested Inputs
Current Status
Data
Commands
Quick Message
Setup
Download
System Revision Log
Logout
Beta
KEY
OK
MyDro
Alarm
M110
Offline
M800
Service
MM
Disabled
1) Select *Reports* folder
2) Under *Reports* select *Flow*
Option: brows through any of the folders and sub-folders for reviewing all the information that the Mission Unit has to offer.


Option to select different pump station location.
Burlington VT Airport
Tech Support: (877)993-1911 FAX: (770)685-7913
Help Weather
View Old Graph
Flow Totals
Main Glycol Airfield Pump Station
Choose Lift Station: Main Glycol Airfield Pump Station
From: 01-03-2018 To: 01-04-2018 Go
Wednesday Jan 3, 2018 – 7am
Glycol Station Flow Total 85 Gallons
KBTV- Burlington Rainfall 0.00 Inches
Flow Measurement (Gallons)
KBTV- Burlington Rainfall
Zoom 1d All
Flow Totals
Glycol Station Flow Total
Rainfall
KBTV- Burlington Rainfall
Option to select different date ranges.
Main Glycol Airfield Pump Station Glycol Station Flow Total
Gallons
Last Hour (4 Jan 09:00) 0
Since Midnight 1,336
Yesterday Total 51,426
Compared to 24Hrs ago: +96%
Download
1) click on *download* to proceed towards getting a printable file


Mission Communications
https://www.123mc.com/123mc/main2011.asp
Most Visited
Getting Started
Free Hotmail
Suggested Sites
VAOT Construction St...
Web Slice Gallery
MISSION
Connection issues to the customer portal 123mc.com have been resolved. Data, alarms, and 123Scada.com were not impacted. We will be performing infrastructure upgrades Thurs, 4 Jan 2018 from 12:00 PM until 12:15 PM EST. During this window, customers may see RTUs disconnect and reconnect. [Remove]
Burlington VT Airport
Tech Support: (877)993-1911 FAX: (770)685-7913
Help
Weather
Reports
Alert History
Management
Runtime Daily
Runtime Monthly
Runtime Variance
Checkin
Flow
Logins
Disabled Inputs
SSO/CSO Events
SDWA CL Report
Untested Inputs
Current Status
Data
Commands
Quick Message
Setup
Download
System Revision Log
Logout
Flow Data Downloads for Main Glycol Airfield Pump Station
(17MIS20638)
Hourly Readings
Date
Format
Single Date
Jan / 4 / 2018
CSV
Spreadsheet
Download
Week Starting
Dec / 28 / 2017
CSV
Spreadsheet
Download
Daily Totals
Month
Jan / 1 / 2018
CSV
Spreadsheet
Download
Quarter
Jan, Feb, Mar / 2018
CSV
Spreadsheet
Download
Prepared Thursday, January 4, 2018 10:46:13 AM.
© 1999-2018 Mission Communications (Terms of Use).
Beta
KEY
MyDro
M110
M800
MM
OK
Alarm
Offline
Service
Disabled
1) set the correct date range you want to use
2) select *Spreadsheet* to convert to an excel file
3) click on download



Start Time	End Time	Glycol Station Flow Rate (Gallons)	Rainfall (KBTV: Burlington)	Peak GPM	Peak Time
12/1/2017	12/2/2017	0	0.06	0	12/1/2017 4:22
12/2/2017	12/3/2017	0	0	0	12/2/2017 2:04
12/3/2017	12/4/2017	0	0	0	12/3/2017 15:01
12/4/2017	12/5/2017	0	0	0	12/4/2017 19:40
12/5/2017	12/6/2017	1260	0.13	242.82	12/5/2017 20:30
12/6/2017	12/7/2017	2377	0.11	193.55	12/6/2017 0:21
12/7/2017	12/8/2017	2394	0.01	219.94	12/7/2017 10:29
12/8/2017	12/9/2017	2379	0.01	239.3	12/8/2017 4:24
12/9/2017	12/10/2017	2327	0	232.26	12/9/2017 18:48
12/10/2017	12/11/2017	2459	0.01	216.42	12/10/2017 5:02
12/11/2017	12/12/2017	2341	0.05	212.9	12/11/2017 7:40
12/12/2017	12/13/2017	2473	0.41	223.46	12/12/2017 13:48
12/13/2017	12/14/2017	2425	0.04	226.98	12/13/2017 14:32
12/14/2017	12/15/2017	2307	0	219.94	12/14/2017 8:44
12/15/2017	12/16/2017	2281	0	218.18	12/15/2017 5:23
12/16/2017	12/17/2017	2369	0	221.7	12/16/2017 20:21
12/17/2017	12/18/2017	2338	0	232.26	12/17/2017 17:56
12/18/2017	12/19/2017	2442	0.11	235.78	12/18/2017 14:22
12/19/2017	12/20/2017	2625	0.01	232.26	12/19/2017 11:58
12/20/2017	12/21/2017	2396	0.04	207.63	12/20/2017 7:43
12/21/2017	12/22/2017	2259	0	211.14	12/21/2017 9:16
12/22/2017	12/23/2017	2340	0.32	218.18	12/22/2017 20:22
12/23/2017	12/24/2017	2395	0.49	214.66	12/23/2017 8:15
12/24/2017	12/25/2017	2391	0	221.7	12/24/2017 15:11
12/25/2017	12/26/2017	2375	0.11	216.42	12/25/2017 6:14
12/26/2017	12/27/2017	2354	0	212.9	12/26/2017 12:13
12/27/2017	12/28/2017	2307	0	214.66	12/27/2017 11:09
12/28/2017	12/29/2017	2278	0	212.9	12/28/2017 20:47
12/29/2017	12/30/2017	2243	0.1	211.14	12/29/2017 20:29
12/30/2017	12/31/2017	2188	0.01	209.38	12/30/2017 23:47
12/31/2017	1/1/2018	2262	0	198.83	12/31/2017 15:05
Total:		62585			

APPENDIX F

UIC SYSTEM MONITORING AND MAINTENANCE INSPECTION COMPLETION FORMS (DAILY, WEEKLY, AND MONTHLY)

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Underground Injection Control Systems
Daily Monitoring and Maintenance Requirements

	Drive to each station and Check Warning Lights and Alarms		**Check pump operation**		**Log into Mission System check alarm status and System Level** (Excluding Temporary South Apron Pump Station)	
Day	**Completed by initials**	**Date**	**Completed by initials**	**Date**	**Completed by initials**	**Date**
1-Jan						
2-Jan						
3-Jan						
4-Jan						
5-Jan						
6-Jan						
7-Jan						
8-Jan						
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22-Jan						
23-Jan						
24-Jan						
25-Jan						
26-Jan						
27-Jan						
28-Jan						
29-Jan						
30-Jan						
31-Jan						
1-Feb						

Underground Injection Control Systems
<u>Daily</u> Monitoring and Maintenance Requirements

	Drive to each station and Check Warning Lights and Alarms		**Check pump operation**		**Log into Mission System check alarm status and System Level** (Excluding Temporary South Apron Pump Station)	
Day	**Completed by initials**	**Date**	**Completed by initials**	**Date**	**Completed by initials**	**Date**
2-Feb						
3-Feb						
4-Feb						
5-Feb						
6-Feb						
7-Feb						
8-Feb						
9-Feb						
10-Feb						
11-Feb						
12-Feb						
13-Feb						
14-Feb						
15-Feb						
16-Feb						
17-Feb						
18-Feb						
19-Feb						
20-Feb						
21-Feb						
22-Feb						
23-Feb						
24-Feb						
25-Feb						
26-Feb						
27-Feb						
28-Feb						
1-Mar						
2-Mar						
3-Mar						
4-Mar						
5-Mar						

Underground Injection Control Systems
Daily Monitoring and Maintenance Requirements

	Drive to each station and Check Warning Lights and Alarms		**Check pump operation**		**Log into Mission System check alarm status and System Level** (Excluding Temporary South Apron Pump Station)	
Day	**Completed by initials**	**Date**	**Completed by initials**	**Date**	**Completed by initials**	**Date**
6-Mar						
7-Mar						
8-Mar						
9-Mar						
10-Mar						
11-Mar						
12-Mar						
13-Mar						
14-Mar						
15-Mar						
16-Mar						
17-Mar						
18-Mar						
19-Mar						
20-Mar						
21-Mar						
22-Mar						
23-Mar						
24-Mar						
25-Mar						
26-Mar						
27-Mar						
28-Mar						
29-Mar						
30-Mar						
31-Mar						
1-Apr						
2-Apr						
3-Apr						
4-Apr						
5-Apr						
6-Apr						

Underground Injection Control Systems
Daily Monitoring and Maintenance Requirements

	Drive to each station and Check Warning Lights and Alarms		**Check pump operation**		**Log into Mission System check alarm status and System Level** (Excluding Temporary South Apron Pump Station)	
Day	**Completed by initials**	**Date**	**Completed by initials**	**Date**	**Completed by initials**	**Date**
7-Apr						
8-Apr						
9-Apr						
10-Apr						
11-Apr						
12-Apr						
13-Apr						
14-Apr						
15-Apr						
16-Apr						
17-Apr						
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19-Apr						
20-Apr						
21-Apr						
22-Apr						
23-Apr						
24-Apr						
25-Apr						
26-Apr						
27-Apr						
28-Apr						
29-Apr						
30-Apr						
1-May						
2-May						
3-May						
4-May						
5-May						
6-May						
7-May						
8-May						

Underground Injection Control Systems
Daily Monitoring and Maintenance Requirements

	Drive to each station and Check Warning Lights and Alarms		**Check pump operation**		**Log into Mission System check alarm status and System Level** (Excluding Temporary South Apron Pump Station)	
Day	**Completed by initials**	**Date**	**Completed by initials**	**Date**	**Completed by initials**	**Date**
9-May						
10-May						
11-May						
12-May						
13-May						
14-May						
15-May						
16-May						
17-May						
18-May						
19-May						
20-May						
21-May						
22-May						
23-May						
24-May						
25-May						
26-May						
27-May						
28-May						
29-May						
30-May						
31-May						
1-Jun						
2-Jun						
3-Jun						
4-Jun						
5-Jun						
6-Jun						
7-Jun						
8-Jun						
9-Jun						

Underground Injection Control Systems
Daily Monitoring and Maintenance Requirements

	Drive to each station and Check Warning Lights and Alarms		**Check pump operation**		**Log into Mission System check alarm status and System Level** (Excluding Temporary South Apron Pump Station)	
Day	**Completed by initials**	**Date**	**Completed by initials**	**Date**	**Completed by initials**	**Date**
10-Jun						
11-Jun						
12-Jun						
13-Jun						
14-Jun						
15-Jun						
16-Jun						
17-Jun						
18-Jun						
19-Jun						
20-Jun						
21-Jun						
22-Jun						
23-Jun						
24-Jun						
25-Jun						
26-Jun						
27-Jun						
28-Jun						
29-Jun						
30-Jun						
1-Jul						
2-Jul						
3-Jul						
4-Jul						
5-Jul						
6-Jul						
7-Jul						
8-Jul						
9-Jul						
10-Jul						
11-Jul						

Underground Injection Control Systems
Daily Monitoring and Maintenance Requirements

	Drive to each station and Check Warning Lights and Alarms		**Check pump operation**		**Log into Mission System check alarm status and System Level** (Excluding Temporary South Apron Pump Station)	
Day	**Completed by initials**	**Date**	**Completed by initials**	**Date**	**Completed by initials**	**Date**
12-Jul						
13-Jul						
14-Jul						
15-Jul						
16-Jul						
17-Jul						
18-Jul						
19-Jul						
20-Jul						
21-Jul						
22-Jul						
23-Jul						
24-Jul						
25-Jul						
26-Jul						
27-Jul						
28-Jul						
29-Jul						
30-Jul						
31-Jul						
1-Aug						
2-Aug						
3-Aug						
4-Aug						
5-Aug						
6-Aug						
7-Aug						
8-Aug						
9-Aug						
10-Aug						
11-Aug						
12-Aug						

Underground Injection Control Systems
Daily Monitoring and Maintenance Requirements

	Drive to each station and Check Warning Lights and Alarms		**Check pump operation**		**Log into Mission System check alarm status and System Level** (Excluding Temporary South Apron Pump Station)	
Day	**Completed by initials**	**Date**	**Completed by initials**	**Date**	**Completed by initials**	**Date**
13-Aug						
14-Aug						
15-Aug						
16-Aug						
17-Aug						
18-Aug						
19-Aug						
20-Aug						
21-Aug						
22-Aug						
23-Aug						
24-Aug						
25-Aug						
26-Aug						
27-Aug						
28-Aug						
29-Aug						
30-Aug						
31-Aug						
1-Sep						
2-Sep						
3-Sep						
4-Sep						
5-Sep						
6-Sep						
7-Sep						
8-Sep						
9-Sep						
10-Sep						
11-Sep						
12-Sep						
13-Sep						

Underground Injection Control Systems
Daily Monitoring and Maintenance Requirements

	Drive to each station and Check Warning Lights and Alarms		**Check pump operation**		**Log into Mission System check alarm status and System Level** (Excluding Temporary South Apron Pump Station)	
Day	**Completed by initials**	**Date**	**Completed by initials**	**Date**	**Completed by initials**	**Date**
14-Sep						
15-Sep						
16-Sep						
17-Sep						
18-Sep						
19-Sep						
20-Sep						
21-Sep						
22-Sep						
23-Sep						
24-Sep						
25-Sep						
26-Sep						
27-Sep						
28-Sep						
29-Sep						
30-Sep						
1-Oct						
2-Oct						
3-Oct						
4-Oct						
5-Oct						
6-Oct						
7-Oct						
8-Oct						
9-Oct						
10-Oct						
11-Oct						
12-Oct						
13-Oct						
14-Oct						
15-Oct						

Underground Injection Control Systems
<u>Daily</u> Monitoring and Maintenance Requirements

	Drive to each station and Check Warning Lights and Alarms		**Check pump operation**		**Log into Mission System check alarm status and System Level** (Excluding Temporary South Apron Pump Station)	
Day	**Completed by initials**	**Date**	**Completed by initials**	**Date**	**Completed by initials**	**Date**
16-Oct						
17-Oct						
18-Oct						
19-Oct						
20-Oct						
21-Oct						
22-Oct						
23-Oct						
24-Oct						
25-Oct						
26-Oct						
27-Oct						
28-Oct						
29-Oct						
30-Oct						
31-Oct						
1-Nov						
2-Nov						
3-Nov						
4-Nov						
5-Nov						
6-Nov						
7-Nov						
8-Nov						
9-Nov						
10-Nov						
11-Nov						
12-Nov						
13-Nov						
14-Nov						
15-Nov						
16-Nov						

Underground Injection Control Systems
Daily Monitoring and Maintenance Requirements

	Drive to each station and Check Warning Lights and Alarms		**Check pump operation**		**Log into Mission System check alarm status and System Level** (Excluding Temporary South Apron Pump Station)	
Day	**Completed by initials**	**Date**	**Completed by initials**	**Date**	**Completed by initials**	**Date**
17-Nov						
18-Nov						
19-Nov						
20-Nov						
21-Nov						
22-Nov						
23-Nov						
24-Nov						
25-Nov						
26-Nov						
27-Nov						
28-Nov						
29-Nov						
30-Nov						
1-Dec						
2-Dec						
3-Dec						
4-Dec						
5-Dec						
6-Dec						
7-Dec						
8-Dec						
9-Dec						
10-Dec						
11-Dec						
12-Dec						
13-Dec						
14-Dec						
15-Dec						
16-Dec						
17-Dec						
18-Dec						

Underground Injection Control Systems
<u>Daily</u> Monitoring and Maintenance Requirements

	Drive to each station and Check Warning Lights and Alarms		**Check pump operation**		**Log into Mission System check alarm status and System Level** (Excluding Temporary South Apron Pump Station)	
Day	**Completed by initials**	**Date**	**Completed by initials**	**Date**	**Completed by initials**	**Date**
19-Dec						
20-Dec						
21-Dec						
22-Dec						
23-Dec						
24-Dec						
25-Dec						
26-Dec						
27-Dec						
28-Dec						
29-Dec						
30-Dec						
31-Dec						

Main Air Carrier Apron - Underground Injection Control System
Weekly Monitoring and Maintenance Requirements

week	Remove Debris from Wet Well		Run each pump in hand/manual control and watch water level to ensure pumps are operating properly		Test all panel lights and change as needed		Check pump cycle rate - troubleshoot excessive pump cycling		Check exhaust fan (Main Air Carrier System Apron only)		Visually Inspect and operate sump pump (Main Air Carrier Apron System only)	
	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date
1-Jan to 5-Jan												
6-Jan to 12-Jan												
13-Jan to 19-Jan												
20-Jan to 26-Jan												
27-Jan to 2-Feb												
3-Feb to 9-Feb												
10-Feb to 16-Feb												
17-Feb to 23-Feb												
24-Feb to 2-Mar												
3-Mar to 9-Mar												
10-Mar to 16-Mar												
17-Mar to 23-Mar												
24-Mar to 30-Mar												
31-Mar to 6-Apr												
7-Apr to 13-Apr												
14-Apr to 20-Apr												
21-Apr to 27-Apr												
28-Apr to 4-May												
5-May to 11-May												
12-May to 18-May												
19-May to 25-May												
26-May to 1-Jun												
2-Jun to 8-Jun												
9-Jun to 15-Jun												
16-Jun to 22-Jun												
23-Jun to 29-Jun												
30-Jun to 6-Jul												
7-Jul to 13-Jul												
14-Jul to 20-Jul												
21-Jul to 27-Jul												
28-Jul to 3-Aug												
4-Aug to 10-Aug												
11-Aug to 17-Aug												
18-Aug to 24-Aug												
25-Aug to 31-Aug												
1-Sep to 7-Sep												
8-Sep to 14-Sep												
15-Sep to 21-Sep												
22-Sep to 28-Sep												
29-Sep to 5-Oct												
6-Oct to 12-Oct												
13-Oct to 19-Oct												
20-Oct to 26-Oct												
27-Oct to 2-Nov												
3-Nov to 9-Nov												
10-Nov to 16-Nov												
17-Nov to 23-Nov												
24-Nov to 30-Nov												

Main Air Carrier Apron - Underground Injection Control System
Weekly Monitoring and Maintenance Requirements

	Remove Debris from Wet Well		Run each pump in hand/manual control and watch water level to ensure pumps are operating properly		Test all panel lights and change as needed		Check pump cycle rate - troubleshoot excessive pump cycling		Check exhaust fan (Main Air Carrier System Apron only)		Visually Inspect and operate sump pump (Main Air Carrier Apron System only)	
week	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date
1-Dec to 7-Dec												
8-Dec to 14-Dec												
15-Dec to 21-Dec												
22-Dec to 28-Dec												
29-Dec to 4-Jan												

Temporary South Apron Pump Station - Underground Injection Control System
<u>Weekly</u> Monitoring and Maintenance Requirements

	Remove Debris from Wet Well		Run pump in hand/manual control and watch water level to ensure pumps are operating properly		Test panel light and change as needed		Check Integrity of Inflatable Rubber Plug by Observing Downstream Structure for Signs of Leakage	
week	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date
1-Jan to 5-Jan								
6-Jan to 12-Jan								
13-Jan to 19-Jan								
20-Jan to 26-Jan								
27-Jan to 2-Feb								
3-Feb to 9-Feb								
10-Feb to 16-Feb								
17-Feb to 23-Feb								
24-Feb to 2-Mar								
3-Mar to 9-Mar								
10-Mar to 16-Mar								
17-Mar to 23-Mar								
24-Mar to 30-Mar								
31-Mar to 6-Apr								
7-Apr to 13-Apr								
14-Apr to 20-Apr								
21-Apr to 27-Apr								
28-Apr to 4-May								
5-May to 11-May								
12-May to 18-May								
19-May to 25-May								
26-May to 1-Jun								
2-Jun to 8-Jun								
9-Jun to 15-Jun								
16-Jun to 22-Jun								
23-Jun to 29-Jun								
30-Jun to 6-Jul								
7-Jul to 13-Jul								
14-Jul to 20-Jul								
21-Jul to 27-Jul								
28-Jul to 3-Aug								
4-Aug to 10-Aug								
11-Aug to 17-Aug								

Temporary South Apron Pump Station - Underground Injection Control System
<u>Weekly</u> Monitoring and Maintenance Requirements

	Remove Debris from Wet Well		Run pump in hand/manual control and watch water level to ensure pumps are operating properly		Test panel light and change as needed		Check Integrity of Inflatable Rubber Plug by Observing Downstream Structure for Signs of Leakage	
week	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date
18-Aug to 24-Aug								
25-Aug to 31-Aug								
1-Sep to 7-Sep								
8-Sep to 14-Sep								
15-Sep to 21-Sep								
22-Sep to 28-Sep								
29-Sep to 5-Oct								
6-Oct to 12-Oct								
13-Oct to 19-Oct								
20-Oct to 26-Oct								
27-Oct to 2-Nov								
3-Nov to 9-Nov								
10-Nov to 16-Nov								
17-Nov to 23-Nov								
24-Nov to 30-Nov								
1-Dec to 7-Dec								
8-Dec to 14-Dec								
15-Dec to 21-Dec								
22-Dec to 28-Dec								
29-Dec to 4-Jan								

890 Ramp - Underground Injection Control System
Weekly Monitoring and Maintenance Requirements

week	Remove Debris from Wet Well		Run each pump in hand/manual control and watch water level to ensure pumps are operating properly		Test all panel lights and change as needed		Check pump cycle rate - troubleshoot excessive pump cycling	
	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date
1-Jan to 5-Jan								
6-Jan to 12-Jan								
13-Jan to 19-Jan								
20-Jan to 26-Jan								
27-Jan to 2-Feb								
3-Feb to 9-Feb								
10-Feb to 16-Feb								
17-Feb to 23-Feb								
24-Feb to 2-Mar								
3-Mar to 9-Mar								
10-Mar to 16-Mar								
17-Mar to 23-Mar								
24-Mar to 30-Mar								
31-Mar to 6-Apr								
7-Apr to 13-Apr								
14-Apr to 20-Apr								
21-Apr to 27-Apr								
28-Apr to 4-May								
5-May to 11-May								
12-May to 18-May								
19-May to 25-May								
26-May to 1-Jun								
2-Jun to 8-Jun								
9-Jun to 15-Jun								
16-Jun to 22-Jun								
23-Jun to 29-Jun								
30-Jun to 6-Jul								
7-Jul to 13-Jul								
14-Jul to 20-Jul								
21-Jul to 27-Jul								
28-Jul to 3-Aug								

890 Ramp - Underground Injection Control System
Weekly Monitoring and Maintenance Requirements

	Remove Debris from Wet Well		Run each pump in hand/manual control and watch water level to ensure pumps are operating properly		Test all panel lights and change as needed		Check pump cycle rate - troubleshoot excessive pump cycling	
week	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date
4-Aug to 10-Aug								
11-Aug to 17-Aug								
18-Aug to 24-Aug								
25-Aug to 31-Aug								
1-Sep to 7-Sep								
8-Sep to 14-Sep								
15-Sep to 21-Sep								
22-Sep to 28-Sep								
29-Sep to 5-Oct								
6-Oct to 12-Oct								
13-Oct to 19-Oct								
20-Oct to 26-Oct								
27-Oct to 2-Nov								
3-Nov to 9-Nov								
10-Nov to 16-Nov								
17-Nov to 23-Nov								
24-Nov to 30-Nov								
1-Dec to 7-Dec								
8-Dec to 14-Dec								
15-Dec to 21-Dec								
22-Dec to 28-Dec								
29-Dec to 4-Jan								

Valley West - Underground Injection Control System
Weekly Monitoring and Maintenance Requirements

	Remove Debris from Wet Well		Run each pump in hand/manual control and watch water level to ensure pumps are operating properly		Test all panel lights and change as needed		Check pump cycle rate - troubleshoot excessive pump cycling	
week	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date
1-Jan to 5-Jan								
6-Jan to 12-Jan								
13-Jan to 19-Jan								
20-Jan to 26-Jan								
27-Jan to 2-Feb								
3-Feb to 9-Feb								
10-Feb to 16-Feb								
17-Feb to 23-Feb								
24-Feb to 2-Mar								
3-Mar to 9-Mar								
10-Mar to 16-Mar								
17-Mar to 23-Mar								
24-Mar to 30-Mar								
31-Mar to 6-Apr								
7-Apr to 13-Apr								
14-Apr to 20-Apr								
21-Apr to 27-Apr								
28-Apr to 4-May								
5-May to 11-May								
12-May to 18-May								
19-May to 25-May								
26-May to 1-Jun								
2-Jun to 8-Jun								
9-Jun to 15-Jun								
16-Jun to 22-Jun								
23-Jun to 29-Jun								
30-Jun to 6-Jul								
7-Jul to 13-Jul								
14-Jul to 20-Jul								
21-Jul to 27-Jul								
28-Jul to 3-Aug								

Valley West - Underground Injection Control System
Weekly Monitoring and Maintenance Requirements

		Remove Debris from Wet Well		Run each pump in hand/manual control and watch water level to ensure pumps are operating properly		Test all panel lights and change as needed		Check pump cycle rate - troubleshoot excessive pump cycling	
week		Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date
4-Aug	to 10-Aug								
11-Aug	to 17-Aug								
18-Aug	to 24-Aug								
25-Aug	to 31-Aug								
1-Sep	to 7-Sep								
8-Sep	to 14-Sep								
15-Sep	to 21-Sep								
22-Sep	to 28-Sep								
29-Sep	to 5-Oct								
6-Oct	to 12-Oct								
13-Oct	to 19-Oct								
20-Oct	to 26-Oct								
27-Oct	to 2-Nov								
3-Nov	to 9-Nov								
10-Nov	to 16-Nov								
17-Nov	to 23-Nov								
24-Nov	to 30-Nov								
1-Dec	to 7-Dec								
8-Dec	to 14-Dec								
15-Dec	to 21-Dec								
22-Dec	to 28-Dec								
29-Dec	to 4-Jan								

Main Air Carrier Apron - Underground Injection Control System
Monthly Monitoring and Maintenance Requirements

	Inspect Exhaust fan air filter on control cabinet (Main Air Carrier System Apron only)		Inspect Primex Level Transducer for clogged nose cap		Inspect Det-Tronics Gas Detector weather baffle, optics, and O-ring (Main Air Carrier System Apron only)		Open wet well and inpsect each pump		Completely pump down wet well to its lowest level and make visual inspection		Check wet well floats for debris		Check pumps and piping visually for defects		Clean pump intakes, if required	
Month	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date
January																
February																
March																
April																
May																
June																
July																
August																
September																
October																
November																
December																

Temporary South Apron Pump Station - Underground Injection Control System
<u>Monthly</u> Monitoring and Maintenance Requirements

	Open wet well and inpsect pump		Completely pump down wet well to its lowest level and make visual inspection		Check wet well floats for debris		Check pump and piping visually for defects		Clean pump intake, if required	
Month	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date
January										
February										
March										
April										
May										
June										
July										
August										
September										
October										
November										
December										

890 Ramp - Underground Injection Control System
Monthly Monitoring and Maintenance Requirements

	Inspect Primex Level Transducer for clogged nose cap		Open wet well and inpsect each pump		Completely pump down wet well to its lowest level and make visual inspection		Check wet well floats for debris		Check pumps and piping visually for defects		Clean pump intakes, if required	
Month	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date
January												
February												
March												
April												
May												
June												
July												
August												
September												
October												
November												
December												

890 Ramp - Underground Injection Control System
Monthly Monitoring and Maintenance Requirements

	Inspect Primex Level Transducer for clogged nose cap		Open wet well and inpsect each pump		Completely pump down wet well to its lowest level and make visual inspection		Check wet well floats for debris		Check pumps and piping visually for defects		Clean pump intakes, if required	
Month	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date	Completed by initials	Date
January												
February												
March												
April												
May												
June												
July												
August												
September												
October												
November												
December												

PATRICK LEAHY BURLINGTON INTERNATIONAL AIRPORT

PATRICK LEAHY BURLINGTON INTERNATION AIRPORT
STORMWATER MANAGEMENT PROGRAM (SWMP)

APPENDIX G: FLOW RESTORATION PLAN

April 1, 2024
Christy Witters, AICP, MS4 and MSGP Program Coordinator

Reference:
Patrick Leahy Burlington International Airport (BTV)
General Permit 3-9014 (2018) MS4
Annual Flow Restoration Report for Permit No. 7021-9014.A2R

Attention: Christy Witters, AICP, MS4 and MSGP Program Coordinator
Vermont DEC – Watershed Management Division
Stormwater Management Program
One National Life Drive, Main 2
Montpelier, VT 05620-3522

Dear Christy,

On behalf of the City of Burlington, Patrick Leahy Burlington International Airport (BTV), this report shall serve as BTV's Annual Flow Restoration Plan (FRP) Report for Permit No. 7021-9014.A2R1 [reference Municipal Separate Storm Sewer System (MS4) General Permit 3-9014 (2023)]. This annual report details BTV's development and implementation progress of the FRP from April 1, 2023 through April 1, 2024. The report includes a status update on BTV's FRP, Flow Monitoring Program, and incorporation of expired permits.

Prior to the reporting period, BTV was previously covered under the General Permit 3-9014 (2018) MS4 as issued on April 30, 2019. However, General Permit 3-9014 (2018) MS4 was re-authorized on September 28, 2023. Subsequently, BTV submitted a Notice of Intent (NOI) for review and approval was received and issued Permit No. 7021-9014.A2R1 on January 16, 2024. An updated Stormwater Management Program (SWMP) was submitted on March 26, 2024.

FRP reporting continues to be required on an annual basis. The issued permit on January 16, 2024 specifies that all measures necessary to achieve the flow restoration targets in the approved Flow Restoration Plans shall be implemented no later than December 5, 2032.

The original text from BTV's FRP prepared by Stantec as submitted to Vermont DEC on September 30, 2016 is included below in ***italics*** with status updates noted in a **bold** font.

INTRODUCTION

BTV has five outfalls that discharge to Potash Brook, a stormwater impaired water with an approved Total Maximum Daily Load (TMDL). The outfalls discharge to a Class 2 wetland that is contiguous to Potash Brook. In addition, BTV has one non-point source discharge to Centennial Brook, another stormwater impaired water with an approved TMDL. As such, BTV is responsible for development and implementation of an FRP for the portions of the Potash Brook and Centennial Brook watersheds within its boundaries. MS4 communities that discharge into the same stormwater impaired watershed may elect to cooperate to develop a single FRP for the watershed. To that end, BTV is collaborating with the City of South Burlington on these FRPs.

FLOW RESTORATION PLAN

The City of South Burlington has developed an FRP for the Potash Brook watershed. The Potash Brook FRP will become part of the Stormwater Management Plans (SWMPs) prepared by the MS4 permittees in the Potash Brook watershed, including the City of South Burlington, the Vermont Agency of Transportation (VTrans), the City of Burlington, the University of Vermont (UVM), and BTV. The Potash Brook FRP will act as a guidance document for the MS4 entities as they implement the stormwater Best Management Practices (BMPs) necessary to attain the flow restoration targets established by the Potash Brook TMDL. The Potash Brook TMDL was approved by the U.S. Environmental Protection Agency (EPA) on December 19, 2006. The TMDL suggests an 11.2% increase in stream flow during low flow conditions, and requires a 16.5% reduction in stream flow during high flow conditions (established as the 1-year storm event).

The City of South Burlington has also developed an FRP for the Centennial Brook watershed, which will act as a guidance document for the MS4 entities as they implement the stormwater BMPs necessary to attain the flow restoration targets established by the Centennial Brook TMDL. The Centennial Brook TMDL was approved by the U.S. EPA on September 28, 2007. This TMDL suggests a 23.2% increase in stream flow during low flow conditions, and requires a 63.4% reduction in stream flow during high flow conditions (established as the 1-year storm event). The Chittenden County Regional Planning Commission (CCRPC) completed a study in July, 2013 to estimate the expected non-jurisdictional impervious area future growth in the Centennial Brook watershed over the next 20 years. The CCRPC study resulted in a reduction of the high flow target from 63.4% to 51.6%, and this is the target used in the City of South Burlington's Centennial Brook FRP.

In accordance with the requirements in the MS4 General Permit, the FRP for discharges to impaired waters with an approved TMDL (Potash Brook and Centennial Brook) contain the following elements:

- *Identification of Required Controls*

- *Design and Construction Schedule*
- *Financial Plan*
- *Regulatory Analysis*
- *Identification of Regulatory Assistance*
- *Third-Party Implementation*

April 1, 2024 FRP Status Update:

A. Background and Permit Information

As noted above, BTV was issued Permit No. 7021-9014.A2R1 on January 16, 2024. BTV's FRP reporting will continue to be updated on an annual basis until the complete implementation.

BTV currently has two (2) stormwater permits that are not incorporated into the MS4:

3028-INDS.8 (dated April 28, 2020)	**Heritage Flight Hangar Addition**
3028-9050.6 (dated July 13, 2022)	**Heritage Aviation Fuel Farm Expansion**

When General Permit 3-9014 (2023) MS4 was re-authorized on January 16, 2024, eight (8) previously authorized State Stormwater Discharge Permits were incorporated into BTV's MS4:

3028-9050	**Taxiway K**
3028-9050.1	**Terminal Integration**
3028-9050.2	**BETA Technologies – BTV Assembly Facility**
3028-9050.3	**BETA Technologies – General Aviation Hangar**
3028-9050.5A	**BTV Rehabilitate Taxiway A**
3028-9050.7	**BTV Hotel**
3028-9050.8	**Extend Taxiway G and Construct New General Aviation South Apron**
3028-INDS.10	**BETA Hangar Site**

Permit No. 7021-9014.A2R1 now includes the above listed previously authorized State Stormwater Permits and the following, previously incorporated State Stormwater Permits:

3028-9010.A	**3028-9010.2**	**3028-INDS.AR**
3028-INDS.4	**3028-9015.1**	**3028-INDS.3**
3028-9015.2	**3845-9010**	**3845-9015.1**
1-0839 (Formerly Expired)	**1-1391 (Formerly Expired)**	**3028-9015.3**
3028-INDS.7		

It is noted that Stormwater Discharge Permit No. 3028-9010.1 was terminated and not incorporated into the MS4 permit as the impervious areas covered under that permit were previously reauthorized under Permit Nos. 3028-INDS.5 and 3028-INDS.7.

In addition, Stormwater Discharge Permit 3028-9050.5A replaces Stormwater Discharge Permit 3028-9050.5, which replaced Stormwater Discharge Permit 3028-INDS.9. All discharges in both 3028-9050.5 and 3028-INDS.9 are covered in the existing permit 3028-9050.5A.

See FRP Attachment #1 for a current stormwater discharge permit summary.

B. Proposed BMP's

The City of South Burlington has identified three (3) BMPs in the Centennial Brook FRP which drains to the Winooski River and ultimately the Main Lake segment of Lake Champlain and one (2) BMPs for the Potash Brook FRP which drains into the LaPlatte River and ultimately the Shelburne Bay segment of Lake Champlain.

Centennial Brook FRP:

- **South Burlington ID CB0023/Retrofit #25: The Picard Circle Infiltration Gallery was completed in August 2019. The April 1, 2020 FRP Report has further details on construction. The City of South Burlington continues to maintain and inspect this project location.**

- **<u>South Burlington ID CB0008/Retrofit #21</u>: The Dumont Avenue Infiltration Gallery is proposed within a house lot along the north side of Dumont Avenue that was acquired by BTV where houses were removed in 2018 and 2019.**

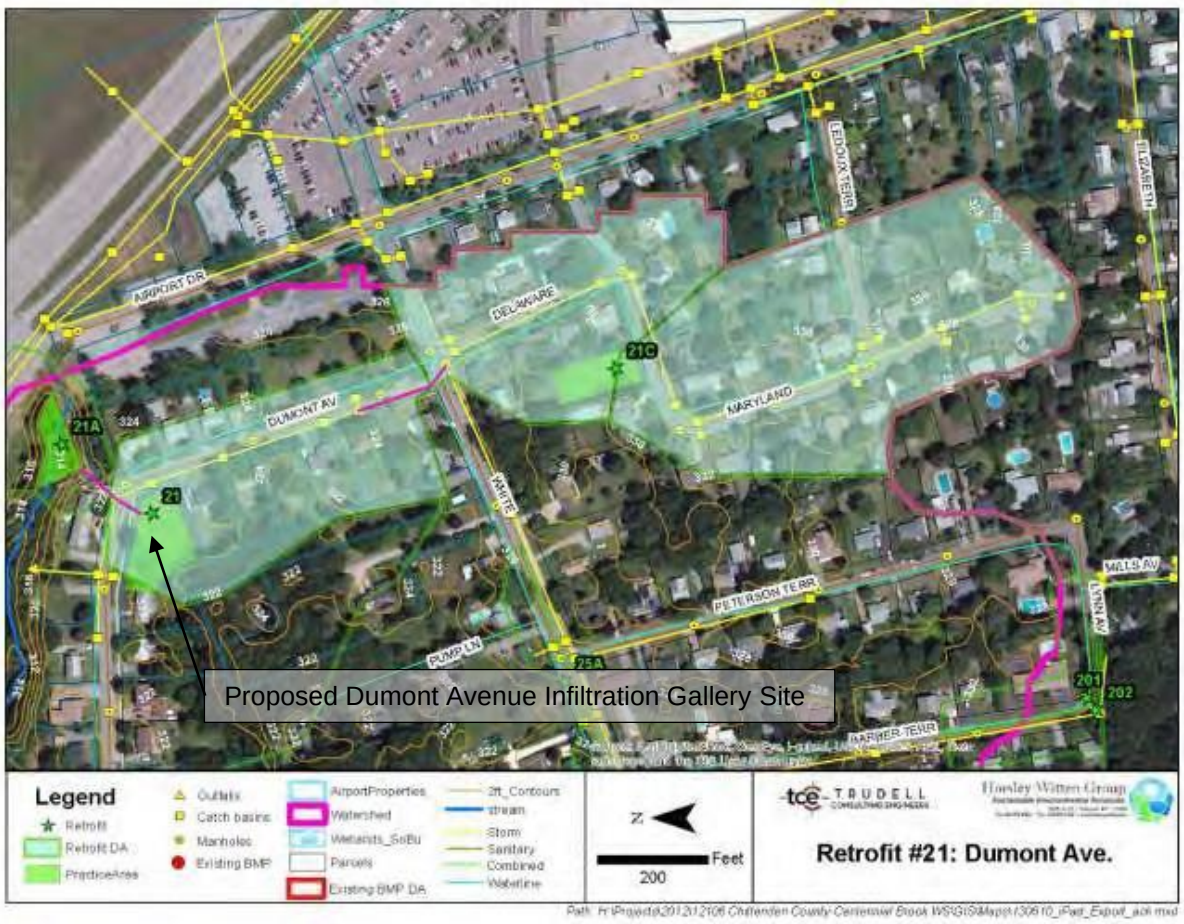
  Currently, there is untreated stormwater runoff generated from a 3.96 acre residential drainage area (including 0.86 acres of impervious surface) that discharges directly into a wetland which is the headwaters of the impaired Centennial Brook. Existing conditions for stormwater include catch basins and conveyance of runoff via underground piping along Maryland Avenue, Delaware Avenue, and Dumont Avenue.

  The proposed project includes the design and construction of a new stormwater infiltration gallery to be sited on a single parcel of land that is currently owned and controlled by BTV. Overflow discharge from the infiltration gallery is proposed to be to an existing stormwater detention basin located on the northerly side of Dumont Avenue and on the 'air side' of the airport facility. The existing stormwater detention basin represents the headwater of the Centennial Brook. Based on HydroCAD modeling conducted by the City of South Burlington's consultant, the project is designed to infiltrate a volume of 0.05 acre-feet.

  Construction of the Dumont Avenue Infiltration Gallery was originally scheduled by the City of South Burlington for 2020 as presented in the BTV's final FRP dated May 5, 2017. Discussions are on-going for cost sharing with the City of South Burlington for the Dumont Avenue Infiltration Gallery, and include land use of the proposed parcel which is owned by BTV.

  The City of South Burlington has gained all necessary funding for the Airport Rd/Airport Dr BMP and plans to move forward with that before they continue with Dumont Ave. The scope of the Dumont Ave project may change in the future depending on other surrounding stormwater BMPs. Discussions will continue in the future and there is not a date set in stone for construction of this BMP.

  A location plan and site drainage area as prepared by the City of South Burlington's design consultant is presented below.



Proposed Dumont Avenue Infiltration Gallery Location Plan and Site Drainage Area

Existing condition photographs of the proposed Dumont Avenue site and BTV's existing stormwater detention basin are presented below. Photo provided by Stantec in their April 1, 2020 FRP Annual Report.

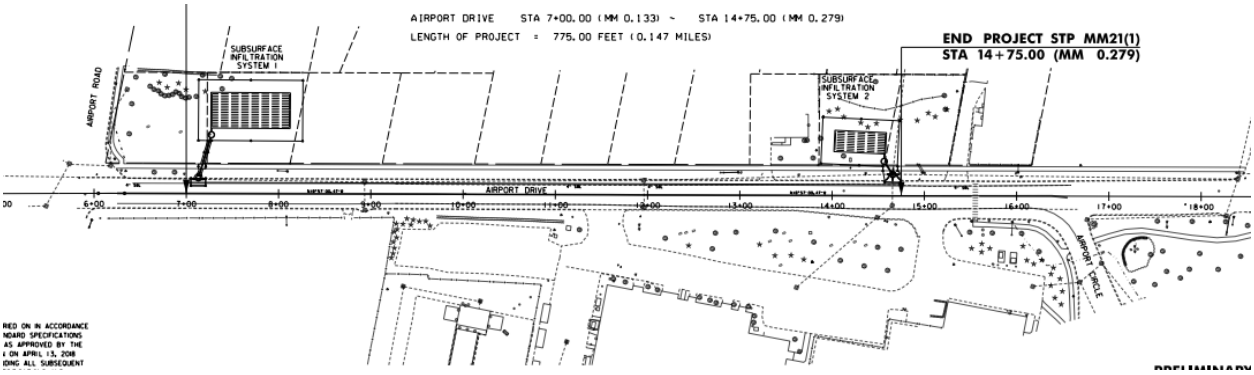
- **<u>South Burlington ID CB0018/Retrofit#200</u>, North Henry Court Infiltration Gallery has a potential construction date for 2032 as noted in BTV's SWMP. The scope of this project could change in the future and depends on surrounding stormwater BMP projects. Discussions have included the idea of removing pavement there and will continue in the future.**

Potash Brook FRP:

- **<u>Airport Drive Stormwater Treatment Systems (South Burlington STP MM21(1)):</u> This project is located along the west side of Airport Drive, with one system at the**

intersection with Airport Rd and one across from Airport Circle. This will divert runoff to proposed subsurface infiltration systems to provide stormwater treatment. There is a memorandum dated March 8, 2021 that states South Burlington will be covering the cost of the project as well as maintenance for 25 years but the property is still owned by BTV. The City of South Burlington has gained full funding from a VTrans grant. All upkeep and maintenance costs of Stormwater improvements are taken on by the city of South Burlington except for any damage by Burlington.

Final design plans are in progress and construction is expected in 2024. There is a permanent easement granted to the City of South Burlington to maintain these stormwater systems and associated permitting. The easement extends 20 feet from each stormwater improvement shown on the associated plan set.



Proposed Airport Drive Infiltration Systems location and site plan (photo provided by the City of South Burlington)

C. Flow Monitoring Program

In September of 2015, VTDEC received bids from three independent contractors/consultants to perform a joint MS4 flow monitoring program. Under the proposed flow monitoring program, eleven stream gauge stations will be established and maintained for a period of three years with an option for two additional years. After bid review by DEC and selected MS4 community representatives, Stone Environmental, Inc., of Montpelier, Vermont was selected as the primary consultant for establishing and maintaining the stream gauge stations.

During review of the bids, several cost allocation formulas for covering the cost of the flow monitoring program were circulated and reviewed amongst all MS4 communities. A proposed formula was subsequently agreed upon by all MS4 communities, including BTV.

A draft Memorandum of Agreement (MOA) between VTDEC and the MS4 communities, including proposed cost allocations, was circulated to MS4 communities in November, 2015 for review. The final MOA was subsequently issued for public notice beginning on November 17, 2015, and

extending through December 17, 2015. No external comments were received during the public notice period. The final MOA was distributed to MS4 community members for approval and signature on February 22, 2016.

The final cost sharing for BTV includes $3,623 for Year 2017, $2,805 for Year 2018, $2,796 for Year 2019, $2,087 for Year 2020, and $2,140 for Year 2021. The fees will begin for Fiscal Year 2017 with invoices to be sent out to individual MS4 communities on July 1, 2016. Invoices will be due May 1, 2017.

April 1, 2024 Status Update:

BTV is cooperatively pursuing an MS4 precipitation and streamflow monitoring program with Chittenden County's other MS4 entities in compliance with NPDES General Permit 3-9014, Section IV. C. 1. (e) (7). This group has approved a Memorandum of Agreement (MOU) with Stone Environmental, Inc. to install, maintain, and collect data, and report for all flow monitoring stations to obtain compliance with the flow monitoring requirements of their MS4 permits. Under the flow monitoring program, eleven stream gauge stations have been established and will be maintained for a period of three years with an option for two additional years. Streamflow monitoring stations have been installed on Allen, Bartlett, Centennial, Englesby, Indian, Morehouse, Monroe, Potash, Rugg, Stevens, and Sunderland Brooks.

Establishment and maintenance of the stream gauge stations began in 2016. Each streamflow monitoring station collects data at five-minute intervals, and the gaging data is available for review on a website: http://vt-ms4-flow.stone-env.com/FlowDev/index.html. The data generated by the monitoring program will be used to compute flow duration curves of measured streamflows, which will be compared to the flow duration curves used to establish the TMDL targets.

Currently, daily stream flow data for Potash Brook and Centennial Brook, including stream gauge data, are available on the website for all of 2017, 2018, 2019, and through April 1, 2021. Rain gauge data is not available for Potash Brook and Centennial Brook.

Daily average watershed precipitation and daily mean discharge data are available for all of 2017, 2018, 2019, and 2020. Each year has a link to an excel sheet with a 5-minute data. Stream Monitoring will not continue past December 2021. Stone Environmental presented a final report of their findings from this study in 2022.

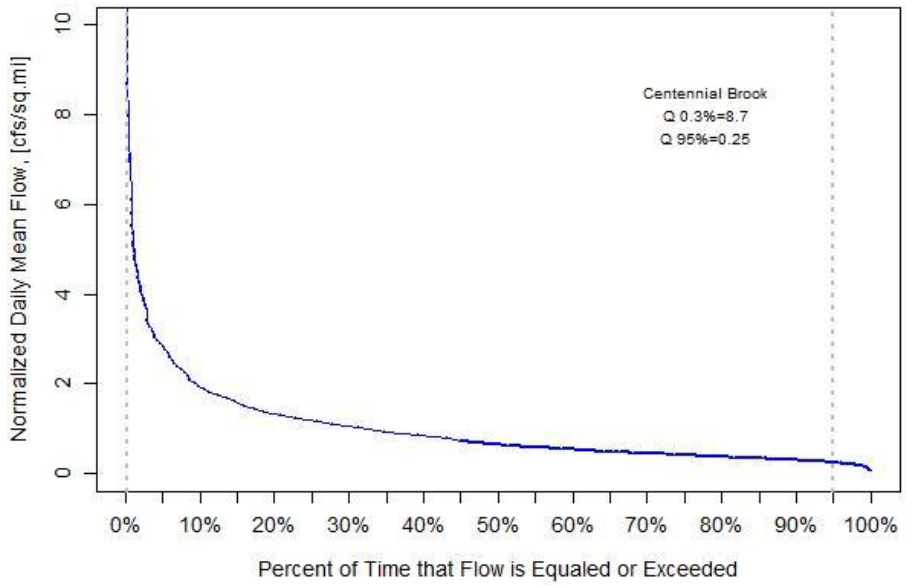
Stone Environmental calculated the 0.3% and 95% flow exceedances of impaired waterbodies and determined that the time interval and inclusion/exclusion of winter flows significantly impacted estimates.

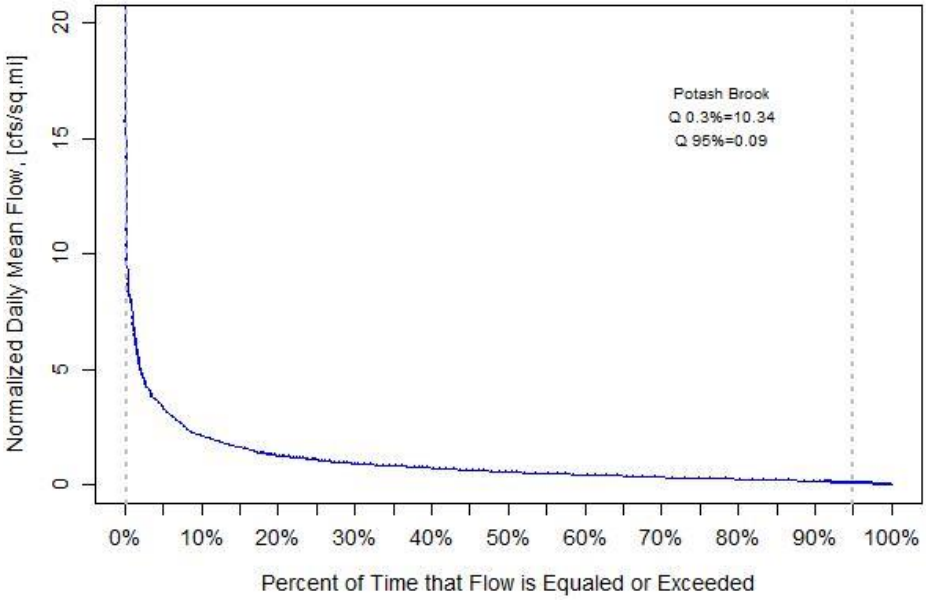
Comparing calculated 0.3% and 95% flow exceedances and corresponding modeled and attainment flows:

	From Daily Data	From Hourly Data	From Hourly Data	From Daily Data	From Hourly Data	From Hourly Data
Stream	2017-2020 Q 0.3% (cfs/mi^2)	Modeled Q 0.3% (cfs/mi^2)	Attainment Q 0.3% (cfs/mi^2)	2017-2020 Q 95% (cfs/mi^2)	Modeled Q 95% (cfs/mi^2)	Attainment Q 95% (cfs/mi^2)
Allen	14.53	11.74	11.27	0.02	0.20	0.22
Bartlett	8.93	11.35	10.27	0.05	0.20	0.22
Centennial	8.70	16.04	7.96	0.24	0.19	0.23
Englesby	8.42	15.46	11.53	0.00	0.19	0.21
Indian	11.54	11.64	11.53	0.10	0.21	0.21
Morehouse[1]	5.41	16.88	8.14	0.09	0.19	0.22
Munroe	15.73	12.01	11.27	0.00	0.20	0.22
Potash	10.34	12.24	10.27	0.08	0.20	0.22
Rugg[2]	28.29	11.32	8.87	0.01	0.20	0.25
Stevens[2]	14.29	11.91	8.87	0.00	0.20	0.25
Sunderland	7.59	8.25	7.96	0.27	0.22	0.23
1. Morehouse Brook watershed is DEC's boundary—does not exclude stormwater diversion to Winooski River						
2.High flow diversion from Stevens to Rugg Brook above the gauges not considered in watershed areas						

Flow Duration Curves:

***Note: Stone Environmental was unable to produce directly comparable hourly FDCs and 0.3% and 95% exceedance values within the project's scope.**


Centennial Brook
Q 0.3%=8.7
Q 95%=0.25
Normalized Daily Mean Flow, [cfs/sq.mi]
0
2
4
6
8
10
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time that Flow is Equaled or Exceeded


Potash Brook
Q 0.3%=10.34
Q 95%=0.09
Normalized Daily Mean Flow, [cfs/sq.mi]
0
5
10
15
20
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time that Flow is Equaled or Exceeded

D. Status of Expired Permits

On September 30, 2015, BTV formally requested incorporation of BTV's two (2) expired operational stormwater discharge permits (Permit Nos. 1-0839 and 1-1391) into BTV's General Permit 3-9014 (2012) MS4 authorization per subsection IV., C., 1.,c), (3), Schedule of Compliance, Month 24.

As part of this submittal, BTV submitted a Notice of Intent (NOI) for Stormwater Discharges from Municipal Separate Storm Sewer Systems (MS4) General Permit 3-9014, Initial Designer's Statement of Compliance for Permit Nos. 1-0839 and 1-1391, revisions to Volume 1 of BTV's SWMP, and the application fee. The fee was subsequently refunded as VTDEC determined that incorporation of an operational permit by the MS4 does not constitute a "change in activities."

Stormwater system evaluations for both expired permit systems as prepared by Stantec Consulting Services. Inc., for the South Burlington Stormwater Utility and as documented in the BTV Stormwater Utility Credit Analysis dated February 22, 2013 were also submitted for VTDEC review.

VTDEC review and MS4 permit amendment were pending authorization of the Lake Champlain TMDL by U.S. EPA. On June 17, 2016, EPA established new phosphorus TMDLs *for the twelve Vermont segments of* Lake Champlain. *VTDEC made the following comment during review:*

> *"The compliance schedule in the 2012 MS4 permit includes a requirement that expired state stormwater permits be addressed. Permits may be addressed either by incorporation into your MS4 General Permit authorization, provided the systems are verified as being in compliance with the most recent expired permit, or by requesting that they be issued a permit under DEC's authority. The airport has chosen to incorporate both active expired permits, 1-0839 and 1-1391, and the majority of the currently issued permits into their MS4."*

April 1, 2024 Status Update:

No updates on expired permits.

There are no further FRP updates at this time.

Should you have any questions, or require further information, please do not hesitate to contact us.

Regards,

Heidi Miller

Heidi Miller, Civil and Environmental Engineer
EIV Technical Services
355 Main Street, Suite 500
Winooski, VT 05404

cc: Larry Lackey (BTV Director of Engineering and Environmental Compliance)
Jacqueline Dagesse, MBA, CPESC (EIV)



APPENDIX H: FLOW AND PRECIPITATION MONITORING PROGRAM

Documents Included:

Stone Environmental Project Proposal: Streamflow and Precipitation Monitoring for Vermont MS4s

Memorandum of Agreement Between the VT DEC and the Listed MS4 Communities

Streamflow and Precipitation Monitoring for MS4s: 2022 Progress Report

Streamflow and Precipitation Monitoring for Vermont MS4s

About the Project

Stone Environmental and Fitzgerald Environmental Associates are working with Vermont DEC and many of Vermont's Municipal Separate Storm Sewer Systems (MS4) General Permit holders to conduct precipitation and streamflow monitoring. Section IV.C.1.e(7)(a) of the MS4 General Permit requires certain permittees—namely Burlington, Colchester, Essex, Essex Junction, Shelburne, South Burlington, St. Albans City, St. Albans Town, Williston, Winooski, the Burlington Airport, the University of Vermont, and the Vermont Agency of Transportation—to implement, or otherwise fund, a flow and precipitation monitoring program, subject to approval by the Secretary, in their respective stormwater impaired watersheds.

The stormwater impaired watersheds requiring monitoring are Allen, Bartlett, Centennial, Englesby, Indian, Morehouse, Munroe, Potash, Rugg, Stevens, and Sunderland Brooks. Biomonitoring data have indicated that portions of each of these streams do not fully support designated aquatic uses (aquatic life), and that the biological impairment results from multiple impacts associated with excess stormwater runoff. Monitoring of the primary stressor (flow) is necessary to reveal if practices intended to improve the hydrologic regime of these streams are having or will have the desired impact.

The Stone team is implementing a rigorous monitoring plan that will enable Vermont DEC and the MS4s to evaluate progress towards attainment of flow targets specified in the total maximum daily load (TMDL) document promulgated for each stream. The data generated by this monitoring program will be used to compute flow duration curves of measured streamflows, which may be compared to the flow duration curves upon which the TMDL targets are based.



Streamflow and precipitation monitoring station at Sunderland Brook.

Click here for precipitation-only stations:
http://vt-ms4-flow.stone-env.com/precip/index.html

About this Website

This website displays the current status of streamflow and precipitation monitoring stations throughout the network, which was established in the fall/winter of 2016.

Each streamflow monitoring station has a separate page that can be accessed by navigating through the tabs at the top of the screen.

All measurements are collected at five minute intervals and indexed to time and date. Monitoring stations are enabled to provide near-real-time remote data access with a communications and data loss notification system.

Final, quality-controlled streamflow and precipitation datasets will be provided via this website on a quarterly basis (see Final Data tab).

Available Data and Disclaimers

ALL NEAR-REAL-TIME DATA DISPLAYED ON THIS SITE ARE PROVISIONAL AND SUBJECT TO REVISION.

Date/time is reported in the Atlantic time zone (UTC-4:00) without correction for Daylight Savings Time. Wintertime time/date stamps will appear to be an hour ahead of local time.

Data available at the 11 streamflow stations:

- Air temperature (within monitoring enclosure), degrees Celsius
- Water temperature, degrees Celsius
- Stream stage, feet
- Discharge, cubic feet/second (not currently displayed, pending development of initial stage-discharge rating curves)

Data available at the 10 precipitation monitoring stations:

- Air temperature (within monitoring enclosure), degrees Celsius
- Total rainfall (inches)

Note that five of the precipitation monitoring stations are co-located with streamflow monitoring stations. In these instances, real-time streamflow and precipitation data are displayed on the same web page.

For More Information

For further information about this project or the data we are generating, please contact one of the individuals listed below:

Vermont DEC:
Blaine Hastings, Project Coordinator
blaine.hastings@vermont.gov

Stone Environmental:
Dave Braun, Senior Scientist
dbraun@stone-env.com

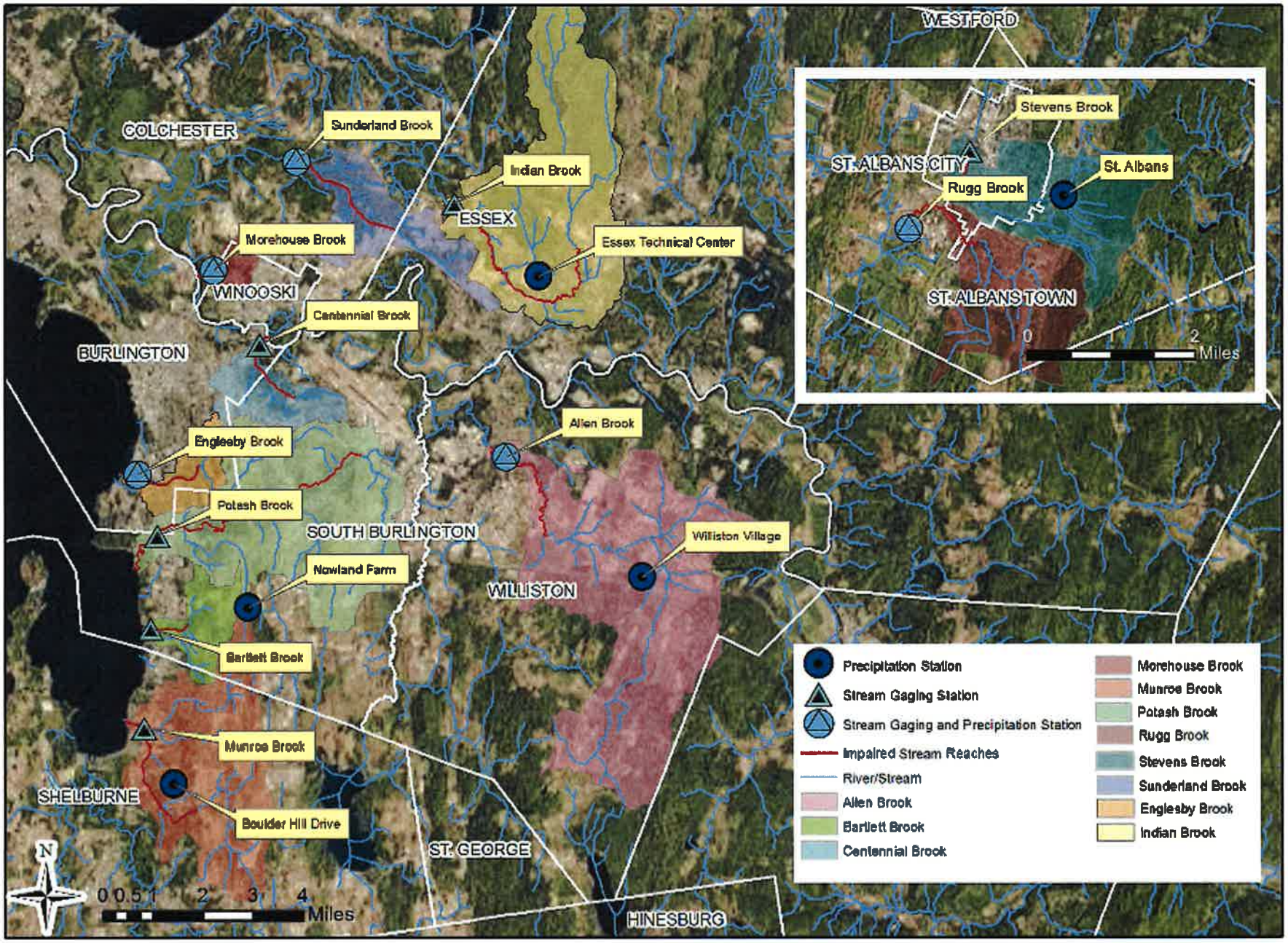
Fitzgerald Environmental:
Joe Bartlett, Project Hydrologist
joe@fitzgeraldenvironmental.com

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Fitzgerald Environmental Associates, LLC.
Applied Watershed Science & Ecology

Streamflow and Precipitation Monitoring for Vermont MS4s



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Final Data, All Stations

5-minute precipitation totals, 5-minute stream stage, daily mean discharge, and daily watershed average precipitation totals for each monitoring station. Included with each data category is a key to flags.

Rain Gauge Data

(5-minute totals)

Key to Precipitation Flags

Allen Rain Gauge @ Allen Brook: 2017 2018

WillVil Rain Gauge @ Allen Brook: 2017 2018

Nowland Farm Rain Gauge @ Bartlett Brook: 2017 2018

Englesby Rain Gauge @ Englesby Brook: 2017 2018

Essex Junction Rain Gauge @ Indian Brook: 2017 2018

Morehouse Rain Gauge @ Morehouse Brook: 2017 2018

Boulder Hill Rain Gauge @ Munroe Brook: 2017 2018

Rugg Rain Gauge @ Rugg Brook: 2017 2018

St. Albans Rain Gauge @ Stevens Brook: 2017 2018

Sunderland Rain Gauge @ Sunderland Brook: 2017 2018

Stream Stage Data

(5-minute average)

Key to Stream Stage Flags

Allen Brook: 2017 2018

Bartlett Brook: 2017 2018

Centennial Brook: 2017 2018

Englesby Brook: 2017 2018

Indian Brook: 2017 2018

Morehouse Brook: 2017 2018

Munroe Brook: 2017 2018

Potash Brook: 2017 2018

Rugg Brook: 2017 2018

Stevens Brook: 2017 2018

Sunderland Brook: 2017 2018

Daily Average Watershed Precipitation

2017

Daily Mean Discharge

2017

Key to Daily Mean Flow Flags

Centennial Brook Streamflow Station

Provisional Data, Subject to Revision

Communication Status Alarm:  (Modem powered down 12:00 to 07:00 daily)

Battery voltage (hourly min.): 12.5 volts

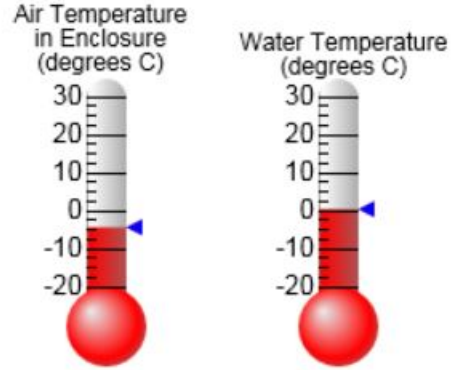
Latest Values (5-Minute Data)

1/15/2019 2:00:00 PM

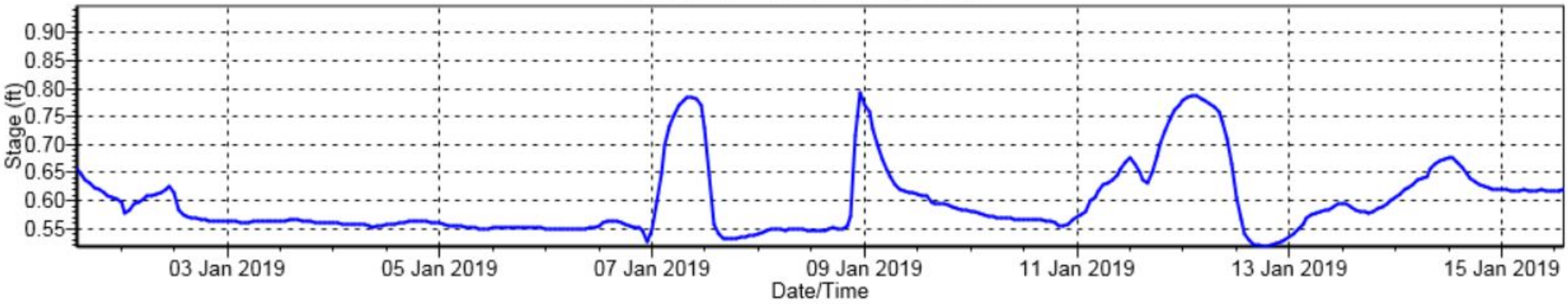
All dates and times reported at this station are Atlantic Time (UTC-4:00), without adjustment for Daylight Savings Time.

Stage (avg): 0.618 feet

Discharge (avg): In development



Centennial Brook: Hourly Stage



Centennial Brook: Hourly Temperature and Stage Data

Timestamp	Air Temp. (Enclosure), deg. C	Water Temp., deg. C	Stage (avg.), ft.
1/15/2019 2:00:00 PM	-4.38	0.37	0.62
1/15/2019 1:00:00 PM	-5.54	0.37	0.62
1/15/2019 12:00:00 PM	-6.77	0.35	0.62
1/15/2019 11:00:00 AM	-7.75	0.35	0.62
1/15/2019 10:00:00 AM	-8.58	0.33	0.62
1/15/2019 9:00:00 AM	-9.14	0.33	0.62
1/15/2019 8:00:00 AM	-9.57	0.32	0.62
1/15/2019 7:00:00 AM	-10.17	0.32	0.62

Centennial Brook Streamflow Station

Provisional Data, Subject to Revision

Communication Status Alarm: (Modem powered down 12:00 to 07:00 daily)

Battery voltage (hourly min.): 12.5 volts

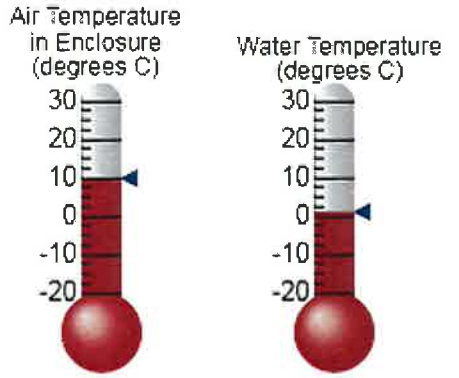
Latest Values (5-Minute Data)

2/20/2018, 4:00:00 PM

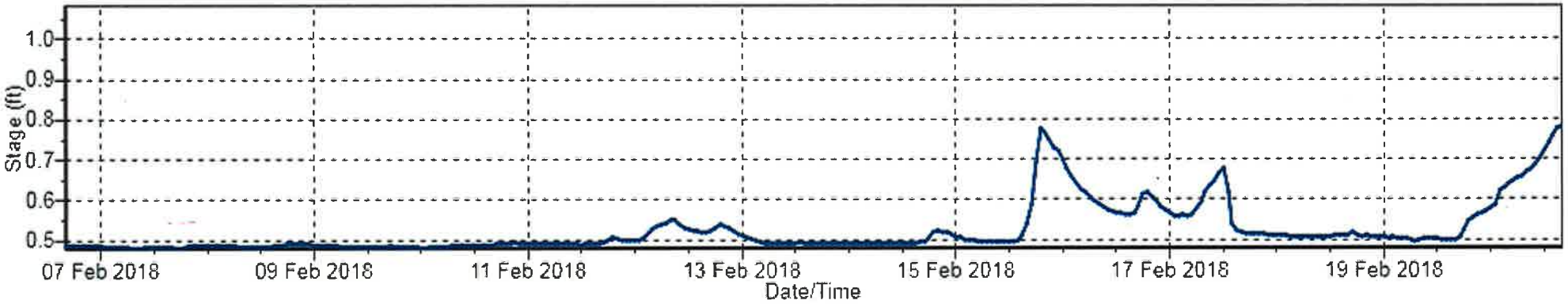
All dates and times reported at this station are Atlantic Time (UTC-4:00), without adjustment for Daylight Savings Time.

Stage (avg): 0.780 feet

Discharge (avg): In development



Centennial Brook: Hourly Stage



Centennial Brook: Hourly Temperature and Stage Data

Timestamp	Air Temp. (Enclosure), deg. C	Water Temp., deg. C	Stage (avg.), ft.
2/20/2018, 4:00:00 PM	9.78	1.02	0.78
2/20/2018, 3:00:00 PM	9.09	1.02	0.78
2/20/2018, 2:00:00 PM	8.72	0.97	0.76
2/20/2018, 1:00:00 PM	8.00	0.92	0.74
2/20/2018, 12:00:00 PM	7.50	0.85	0.72
2/20/2018, 11:00:00 AM	6.96	0.75	0.70
2/20/2018, 10:00:00 AM	5.97	0.76	0.68
2/20/2018, 9:00:00 AM	5.26	0.72	0.68

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STONE ENVIRONMENTAL

fitzgerald Environmental Associates, LLC.
Applied Watershed Science & Ecology

Potash Brook Streamflow Station

Provisional Data, Subject to Revision

Communication Status Alarm:  (Modem powered down 12:00 to 07:00 daily)

Battery voltage (hourly min.): 12.6 volts

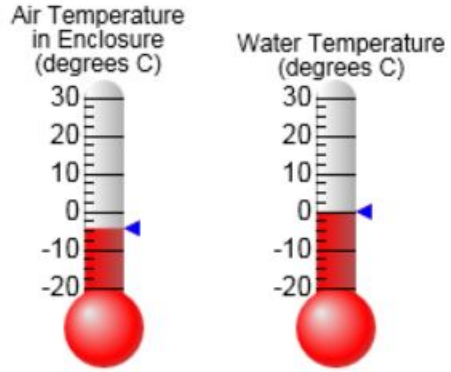
Latest Values (5-Minute Data)

1/15/2019 2:00:00 PM

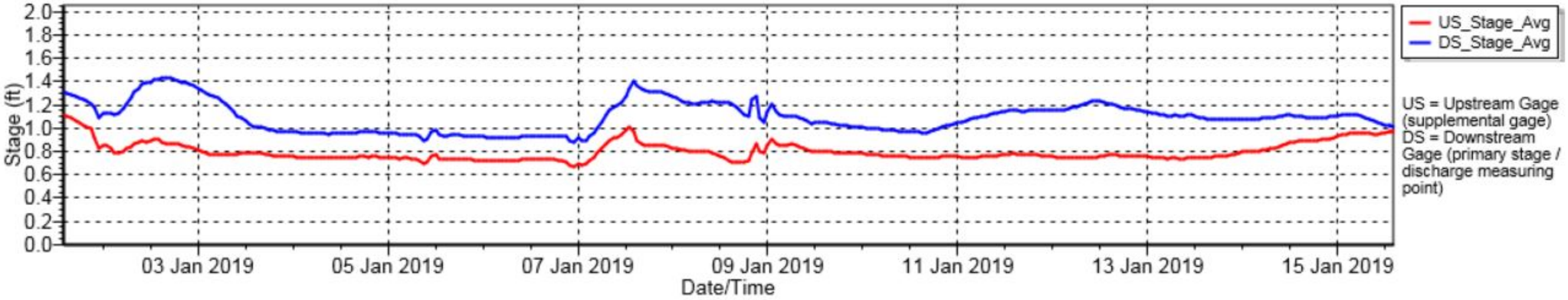
All dates and times reported at this station are Atlantic Time (UTC-4:00), without adjustment for Daylight Savings Time.

Stage (avg): 1.008 feet

Discharge (avg): In development



Potash Brook: Hourly Stage



Potash Brook: Hourly Temperature and Stage Data - Downstream Gage

Timestamp	Air Temp. (Enclosure), deg. C	Water Temp., deg. C	Stage (ft.)
1/15/2019 2:00:00 PM	-4.32	0.06	1.01
1/15/2019 1:00:00 PM	-5.52	0.06	1.02
1/15/2019 12:00:00 PM	-6.64	0.05	1.03
1/15/2019 11:00:00 AM	-7.48	0.05	1.04
1/15/2019 10:00:00 AM	-8.22	0.05	1.06
1/15/2019 9:00:00 AM	-8.77	0.04	1.07
1/15/2019 8:00:00 AM	-9.19	0.04	1.08
1/15/2019 7:00:00 AM	-9.60	0.04	1.09

VERMONT
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STONE ENVIRONMENTAL

Fitzgerald Environmental Associates, LLC.
Applied Watershed Science & Ecology

Potash Brook Streamflow Station

Provisional Data, Subject to Revision

Communication Status Alarm: (Modem powered down 12:00 to 07:00 daily)

Battery voltage (hourly min.): 12.7 volts

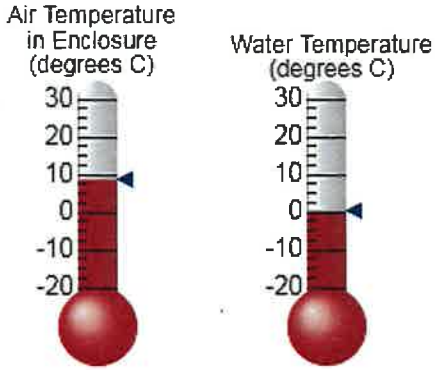
Latest Values (5-Minute Data)

2/20/20 18. 4:00:00 PM

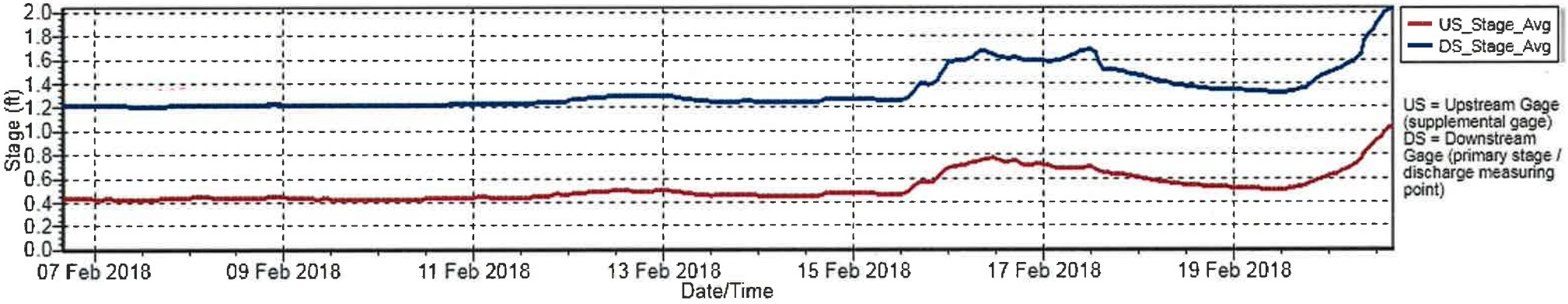
All dates and times reported at this station are Atlantic Time (UTC-4:00), without adjustment for Daylight Savings Time.

Stage (avg): 2.040 feet

Discharge (avg): In development



Potash Brook: Hourly Stage



Potash Brook: Hourly Temperature and Stage Data - Downstream Gage

Timestamp	Air Temp. (Enclosure), deg. C	Water Temp., deg. C	Stage (ft.)
2/20/2018, 4:00:00 PM	8.68	0.24	2.04
2/20/2018, 3:00:00 PM	8.70	0.23	2.03
2/20/2018, 2:00:00 PM	8.42	0.25	2.00
2/20/2018, 1:00:00 PM	7.81	0.25	1.96
2/20/2018, 12:00:00 PM	6.88	0.23	1.91
2/20/2018, 11:00:00 AM	6.26	0.25	1.86
2/20/2018, 10:00:00 AM	5.76	0.24	1.82
2/20/2018, 9:00:00 AM	5.33	0.21	1.77

VERMONT
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

STONE ENVIRONMENTAL

fitzgerald Environmental Associates, LLC.
Applied Watershed Science & Ecology

Streamflow and Precipitation Monitoring for Vermont MS4s

Final Data, All Stations

Final datasets are anticipated to be published here when available. However, if this platform (which is primarily designed to serve real-time datalogger results) cannot ultimately serve the final datasets, they will be published to a separate website and links to the final data will be provided here.

Data will be available in comma-delimited text file format per streamflow and/or precipitation station. Anticipated data deliverables are listed in the tables at right.

Streamflow Monitoring Data

Latest Dataset Available: Qxx, 2017

Watershed Name	Stage / Discharge Data			Daily Total Precipitation (Watershed Average)
	5-minute	Hourly	Daily	
Allen Brook				
Bartlett Brook				
Centennial Brook				
Englesby Brook				
Indian Brook				
Morehouse Brook				
Munroe Brook				
Potash Brook				
Rugg Brook				
Stevens Brook				
Sunderland Brook				

Precipitation Monitoring Data

Latest Dataset Available: Qxx, 2017

Watershed or Station Name	Precipitation Data		
	5-minute	Hourly	Daily
Allen Brook			
Englesby Brook			
Essex Junction			
Morehouse Brook			
Munroe Brook			
Nowland Farm			
Rugg Brook			
St. Albans			
Sunderland Brook			
Williston Village			

MEMORANDUM OF AGREEMENT BETWEEN THE VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION AND THE LISTED MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) COMMUNITIES

This Memorandum of Agreement sets forth the agreement between the parties, Vermont Department of Environmental Conservation (DEC) and the following Municipal Separate Storm Sewer System (MS4) Permittees: Burlington International Airport (BTV), City of Burlington (Burlington), Town of Colchester (Colchester), Village of Essex Junction (Essex Junction), Town of Essex (Essex), Town of Shelburne (Shelburne), City of South Burlington (South Burlington), City of Saint Albans (St. Albans City), Town of Saint Albans (St. Albans Town), University of Vermont (UVM), Vermont Agency of Transportation (VTrans), Town of Williston (Williston), and City of Winooski (Winooski) (collectively referred to as "the Parties"), for the purpose of participating in the Ecosystem Restoration and Water Quality Improvement Special Fund to perform the monitoring and other data collection required under the MS4 permitting program.

I. PROJECT PURPOSE:

The purpose of this Agreement, per Act 171 (H.650), Titled: Conservation and land development; stormwater; municipal separate storm sewer systems, is to aid participating MS4 Permittees in obtaining compliance with the flow monitoring requirements of their MS4 permits.

II. SCOPE OF WORK:

The parties agree to the following:

DEC will develop and manage a contract with a third party to carry out flow monitoring requirements as outlined in the existing MS4 permits. Upon signature of this Agreement, DEC will work with the undersigned MS4 Permittees and the contractor to ensure the flow monitoring requirements are met. As long as the MS4 Permittee contributes to the Water Quality Improvement Special Fund as outlined in Section V, they will be considered in compliance with the flow monitoring requirement of the MS4 permit. All management of the Contractor and non-compliance due to the Contractor will be the responsibility of DEC and will not result in any violations under the MS4 permit for any MS4 Permittee signed onto this MOU. DEC will provide the deliverables as outlined in section VIII.

The Parties will provide data on existing flow monitoring gauge sites, precipitation gauge sites, and other information considered to be necessary for the Contractor to complete the work. The Parties will provide funds, as agreed to in Section V, in order to initiate the flow monitoring. Failure to provide the funds as specified will be considered as non-compliance

with this Agreement and the Party will be responsible for maintaining compliance with the MS4 flow monitoring requirements through other means.

III. PROJECT BENEFITS

This project will help to assess the effectiveness of flow restoration plans for up to eleven stormwater impaired streams. Vermont's stormwater Total Maximum Daily Loads (TMDL) utilize flow targets to represent a range of stressors to water quality, from pollutant loads, land based and instream erosion, to increased flooding. Implementation of the flow restoration may take over fifteen years in some watersheds. Flow monitoring will be used by DEC and the Parties to ensure that the management practices implemented under the flow restoration plans are making progress towards the TMDL targets, and redirect efforts if needed.

IV. ENTITY ELIGIBILITY

The entities eligible to participate under the memorandum of understanding include any entity that is subject to the Vermont Municipal Separate Storm Sewer System (MS4) General Permit, signed on December 12, 2012. This includes the following MS4 Permittees: Burlington, Colchester, Essex, Essex Junction, Milton, Rutland Town, Rutland City, St. Albans City, St. Albans Town, Shelburne, South Burlington, Williston, Winooski, UVM, BTV, and VTrans.

V. FINANCIAL CONTRIBUTIONS

As developed by the eligible entities, all participating MS4 communities will divide the costs of the contracted work and pay DEC according to the table below.

		Costs by State Fiscal Years (July 1 – June 30)				
MS4 Permittee	**% of Total Cost**	**2017**	**2018**	**2019**	**2020**	**2021**
BTV	2.1%	$3,623	$2,805	$2,796	$2,087	$2,140
Burlington	7.4%	$12,782	$9,898	$9,866	$7,364	$7,549
Colchester	5.3%	$9,232	$7,149	$7,126	$5,319	$5,452
Essex Junction	6.1%	$10,625	$8,228	$8,201	$6,122	$6,275
Essex	6.0%	$10,473	$8,111	$8,084	$6,034	$6,185
Shelburne	7.0%	$12,185	$9,436	$9,405	$7,021	$7,196
South Burlington	17.4%	$30,170	$23,363	$23,287	$17,383	$17,818
St. Albans City	6.6%	$11,418	$8,842	$8,813	$6,579	$6,743
St. Albans Town	7.1%	$12,287	$9,515	$9,483	$7,079	$7,256
UVM	5.5%	$9,564	$7,407	$7,382	$5,510	$5,648
VTrans	16.6%	$28,794	$22,298	$22,225	$16,590	$17,005
Williston	6.2%	$10,668	$8,261	$8,234	$6,146	$6,300
Winooski	6.6%	$11,363	$8,799	$8,770	$6,547	$6,711

		Costs by State Fiscal Years (July 1 – June 30)				
MS4 Permittee	**% of Total Cost**	**2017**	**2018**	**2019**	**2020**	**2021**
Total	**100.0%**	**$173,184**	**$134,112**	**$133,672**	**$99,781**	**$102,278**

Each participating MS4 Permittee to this agreement is required to submit the payment listed above on or before May 1 each year in order to be considered in compliance with the terms of the agreement for that year. Payments shall be made directly to DEC. If payment is not received in time, monitoring services as provided by the Contractor to the State will be discontinued.

Actual costs are dependent on the finalization of the Contract with the selected Contractor. Fiscal year 2020 and 2021 are anticipated costs based on renewal of the Contract for monitoring services with the selected Contractor.

VI. PROJECT CONTACTS

Parties Contacts
See Attachment A

DEC Contact
David Pasco
Admin. and Innovation Division
802-490-6112
david.pasco@vermont.gov

VII. EFFECTIVE DATE; MODIFICATION

This Memorandum of Agreement shall be effective from the date of execution and shall terminate on June 30, 2021. This Memorandum of Agreement may be amended or modified at any time by mutual written agreement of all Parties.

This agreement will provide monitoring services for the participating MS4 Permittees from State Fiscal Year 2017 (July 1, 2016) through State Fiscal Year 2021 (June 30, 2021).

VIII. DELIVERABLES

Each of the Parties will provide the following deliverables to DEC:

1. Data on existing flow monitoring gauge sites, precipitation gauge sites, and other information considered to be necessary for the Contractor to complete the work, as requested.

2. Notification of any changes in the MS4 Communities' participation in this agreement as early as practicable.

3. Payment of funds as outlined in Section V.

DEC will provide the following deliverables to all participating entities:

1. A comprehensive report outlining Quality Assurance/Quality Control protocols, shall be submitted to all participating entities prior to the initiation of monitoring.

2. Mean daily discharge in cubic feet per second at each site for each day of the monitoring period calculated from measurements taken at five minute intervals.

3. A platform for continuous remote access to streamflow gaging station data (i.e., satellite, radio, or cellular telemetry) complete with real-time data loss notification systems.

4. Mean daily depth of precipitation in inches (to the nearest 0.01 inch) at each site for each day of the monitoring period, calculated from measurements taken at five minute intervals and form of precipitation identified (rain vs. snow).

5. An annual report on each impaired stream with the flow duration curve and calculated flow metrics, and a brief narrative describing the preceding field season, gage configuration, and how data was collected and compiled.

6. On an annual basis, compiled sub-daily data, with field notes available upon request.

WE, THE UNDERSIGNED PARTIES, AGREE TO BE BOUND BY THIS AGREEMENT.

STATE OF VERMONT

Dept of Environmental Conservation

By: e-Signed by George Desch on 2016-06-08 18:31:23 GMT

Commissioner

Dept of Environmental Conservation

Date: _____

THE PARTICIPATING PARTIES:

BURLINGTON INTERNATIONAL AIRPORT

By: [signature]

Gene Richards, III

Title: Director of Aviation

Burlington International Airport

Date: 5/11/16

WE, THE UNDERSIGNED PARTIES, AGREE TO BE BOUND BY THIS AGREEMENT.

STATE OF VERMONT

Dept of Environmental Conservation

By: e-Signed by George Desch on 2016-06-08 18:31:23 GMT

Commissioner

Dept of Environmental Conservation

Date: _____

THE PARTICIPATING PARTIES:

CITY OF BURLINGTON

By: _____

Title: Director

City of Burlington

Date: 5/2/16

WE, THE UNDERSIGNED PARTIES, AGREE TO BE BOUND BY THIS AGREEMENT.

STATE OF VERMONT

Dept of Environmental Conservation

By: e-Signed by George Desch on 2016-06-08 18:31:23 GMT

Commissioner

Dept of Environmental Conservation

Date: _____

THE PARTICIPATING PARTIES:

TOWN OF COLCHESTER

By: Bryan K. Osborne

Title: Director of Public Works

Town of Colchester

Date: 3/21/16

WE, THE UNDERSIGNED PARTIES, AGREE TO BE BOUND BY THIS AGREEMENT.

STATE OF VERMONT

Dept of Environmental Conservation

By: e-Signed by George Desch on 2016-06-08 18:31:23 GMT

Commissioner

Dept of Environmental Conservation

Date: _____

THE PARTICIPATING PARTIES:

VILLAGE OF ESSEX JUNCTION

By: Patrick C. Scheidel

Title: Municipal Manager

Village of Essex Junction

Date: March 15, 2016

WE, THE UNDERSIGNED PARTIES, AGREE TO BE BOUND BY THIS AGREEMENT.

STATE OF VERMONT

Dept of Environmental Conservation

By: e-Signed by George Desch on 2016-06-08 18:31:23 GMT

Commissioner

Dept of Environmental Conservation

Date: _____

THE PARTICIPATING PARTIES:

TOWN OF ESSEX

By: Patrick C. Scheidel

Title: Municipal Manager

Town of Essex

Date: March 15, 2016

WE, THE UNDERSIGNED PARTIES, AGREE TO BE BOUND BY THIS AGREEMENT.

STATE OF VERMONT

Dept of Environmental Conservation

By: e-Signed by George Desch on 2016-06-08 18:31:23 GMT

Commissioner

Dept of Environmental Conservation

Date: _____

THE PARTICIPATING PARTIES:

TOWN OF SHELBURNE

By: _____

Title: Town Manager

Town of Shelburne

Date: 22-FEB-2016

WE, THE UNDERSIGNED PARTIES, AGREE TO BE BOUND BY THIS AGREEMENT.

STATE OF VERMONT

Dept of Environmental Conservation

By: e-Signed by George Desch on 2016-06-08 18:31:23 GMT

Commissioner

Dept of Environmental Conservation

Date: _____

THE PARTICIPATING PARTIES:

CITY OF SOUTH BURLINGTON

By: _____

Title: City Manager

City of South Burlington

Date: 3/9/16

WE, THE UNDERSIGNED PARTIES, AGREE TO BE BOUND BY THIS AGREEMENT.

STATE OF VERMONT

Dept of Environmental Conservation

By: e-Signed by George Desch on 2016-06-08 18:31:23 GMT

Commissioner

Dept of Environmental Conservation

Date: _____

THE PARTICIPATING PARTIES:

CITY OF ST. ALBANS

By: _____

Title: City Manager

City of St. Albans

Date: 2/23/16

WE, THE UNDERSIGNED PARTIES, AGREE TO BE BOUND BY THIS AGREEMENT.

STATE OF VERMONT

Dept of Environmental Conservation

By: e-Signed by George Desch on 2016-06-08 18:31:23 GMT

Commissioner

Dept of Environmental Conservation

Date: _____

THE PARTICIPATING PARTIES:

TOWN OF ST. ALBANS

By: _____

Title: Town Manager

Town of St. Albans

Date: 5/3/16

WE, THE UNDERSIGNED PARTIES, AGREE TO BE BOUND BY THIS AGREEMENT.

STATE OF VERMONT

Dept of Environmental Conservation

By: e-Signed by George Desch on 2016-06-08 18:31:23 GMT

Commissioner

Dept of Environmental Conservation

Date: _____

THE PARTICIPATING PARTIES:

UNIVERSITY OF VERMONT

By: Linda Seavey

Title: Director Campus Planning S&C

University of Vermont

Date: 5/3/16

WE, THE UNDERSIGNED PARTIES, AGREE TO BE BOUND BY THIS AGREEMENT.

STATE OF VERMONT

Dept of Environmental Conservation

By: e-Signed by George Desch on 2016-06-08 18:31:23 GMT

Commissioner

Dept of Environmental Conservation

Date: _____

THE PARTICIPATING PARTIES:

VERMONT AGENCY OF TRANSPORTATION

By: e-Signed by Chris Cole on 2016-05-19 14:09:05 GMT

Title: _____

Vermont Agency of Transportation

Date: _____

WE, THE UNDERSIGNED PARTIES, AGREE TO BE BOUND BY THIS AGREEMENT.

STATE OF VERMONT

Dept of Environmental Conservation

By: e-Signed by George Desch on 2016-06-08 18:31:23 GMT

Commissioner

Dept of Environmental Conservation

Date: _____

THE PARTICIPATING PARTIES:

TOWN OF WILLISTON

By: _____

Title: Town Manager

Town of Williston

Date: February 22, 2016

WE, THE UNDERSIGNED PARTIES, AGREE TO BE BOUND BY THIS AGREEMENT.

STATE OF VERMONT

Dept of Environmental Conservation

By: e-Signed by George Desch on 2016-06-08 18:31:23 GMT

Commissioner

Dept of Environmental Conservation

Date: _____

THE PARTICIPATING PARTIES:

CITY OF WINOOSKI

By: _____

Title: City Manager

City of Winooski

Date: 2.25.16

Attachment A

Project Contacts

Parties Contacts

Burlington International Airport
Amanda Hanaway-Corrente, Director of Environmental Compliance
802-863-2874
ahanaway@btv.aero

City of Burlington
Megan Moir, Stormwater Program Manager
802-540-1748
mmoir@burlingtonvt.gov

Town of Colchester
Bryan Osborne, Public Works Director
802-264-5625
bosborne@cochestervt.gov

Village of Essex Junction
Jim Jutras, Public Works
802-878-6943
jim@essexjunction.org

Town of Essex
Dennis Lutz, Public Works Director
802-878-1344
dennis@essex.org

City of South Burlington
Tom DiPietro, Public Works Deputy
802-658-7961
tdipietro@sburl.com

Town of Shelburne
Chris Robinson, Water Quality Superintendent
802-985-3700
crobinson@shelburnevt.org

City of St. Albans
Chip Sawyer, Planner
802-524-1500
c.sawyer@stalbansvt.com

Town of St. Albans
Nathaniel Neider, Planner
802-524-7589
satplanner@comcast.net

University of Vermont
Linda Seavey, Planning Director
802-656-0215
Linda.seavey@uvm.edu

Vermont Agency of Transportation
Craig DiGiammarino, Manager
802-922-4681
Craig.digiammarino@vermont.gov

Town of Williston
James Sherrard, Stormwater Coordinator
802-878-1239
jsherradrd@willistonvt.org

City of Winooski
John Choate, Utility Manager
802-655-6421
jchoate@winooskivt.org



STONE ENVIRONMENTAL

Fitzgerald Environmental Associates, LLC

Flow and Precipitation Monitoring Program for Stormwater-Impaired Streams in Vermont

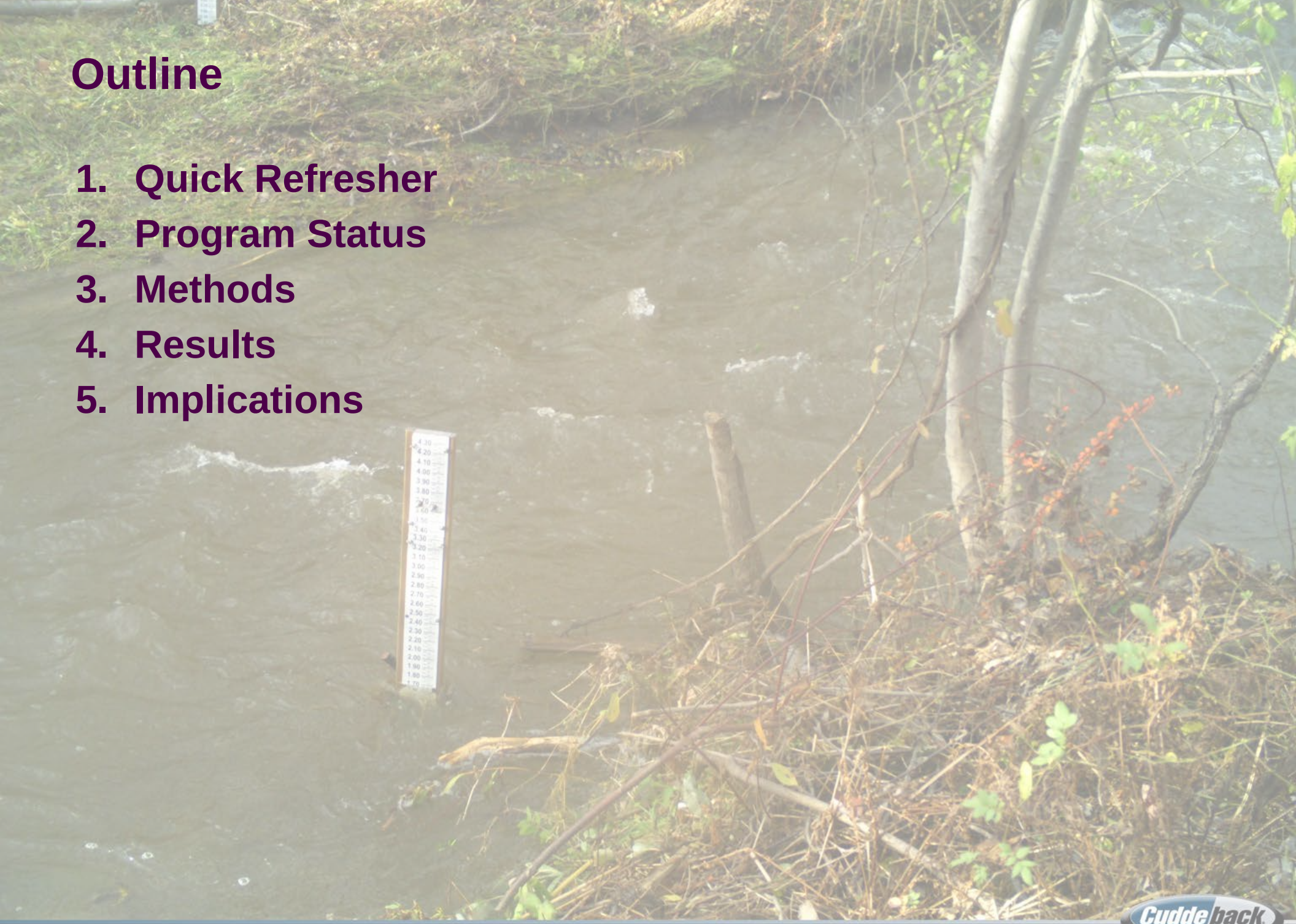
Progress Report

February 1, 2022

Dave Braun and Meghan Arpino

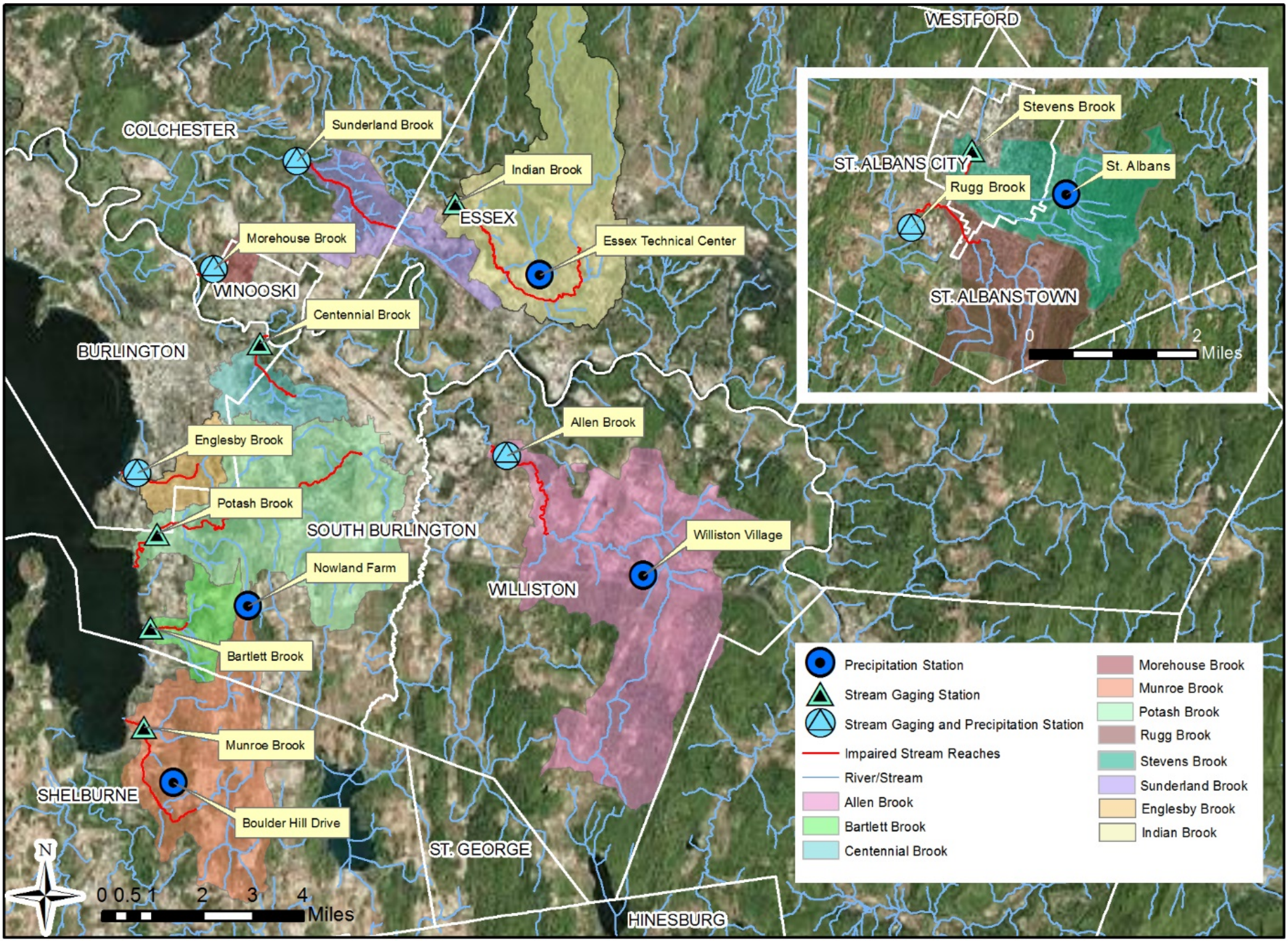
Outline

1. Quick Refresher
2. Program Status
3. Methods
4. Results
5. Implications



Stormwater-impaired streams in Chittenden and Franklin Counties. Each has a TMDL to address biological impairment

Stream	Municipality
Allen Brook	Williston
Bartlett Brook	South Burlington, Shelburne
Centennial Brook	South Burlington, Burlington
Englesby Brook	Burlington, South Burlington
Indian Brook	Essex
Morehouse Brook	Winooski, Colchester
Munroe Brook	Shelburne, South Burlington
Potash Brook	South Burlington, Burlington
Rugg Brook	St. Albans Town, St. Albans City
Stevens Brook	St. Albans City, St. Albans Town
Sunderland Brook	Colchester, Essex Junction

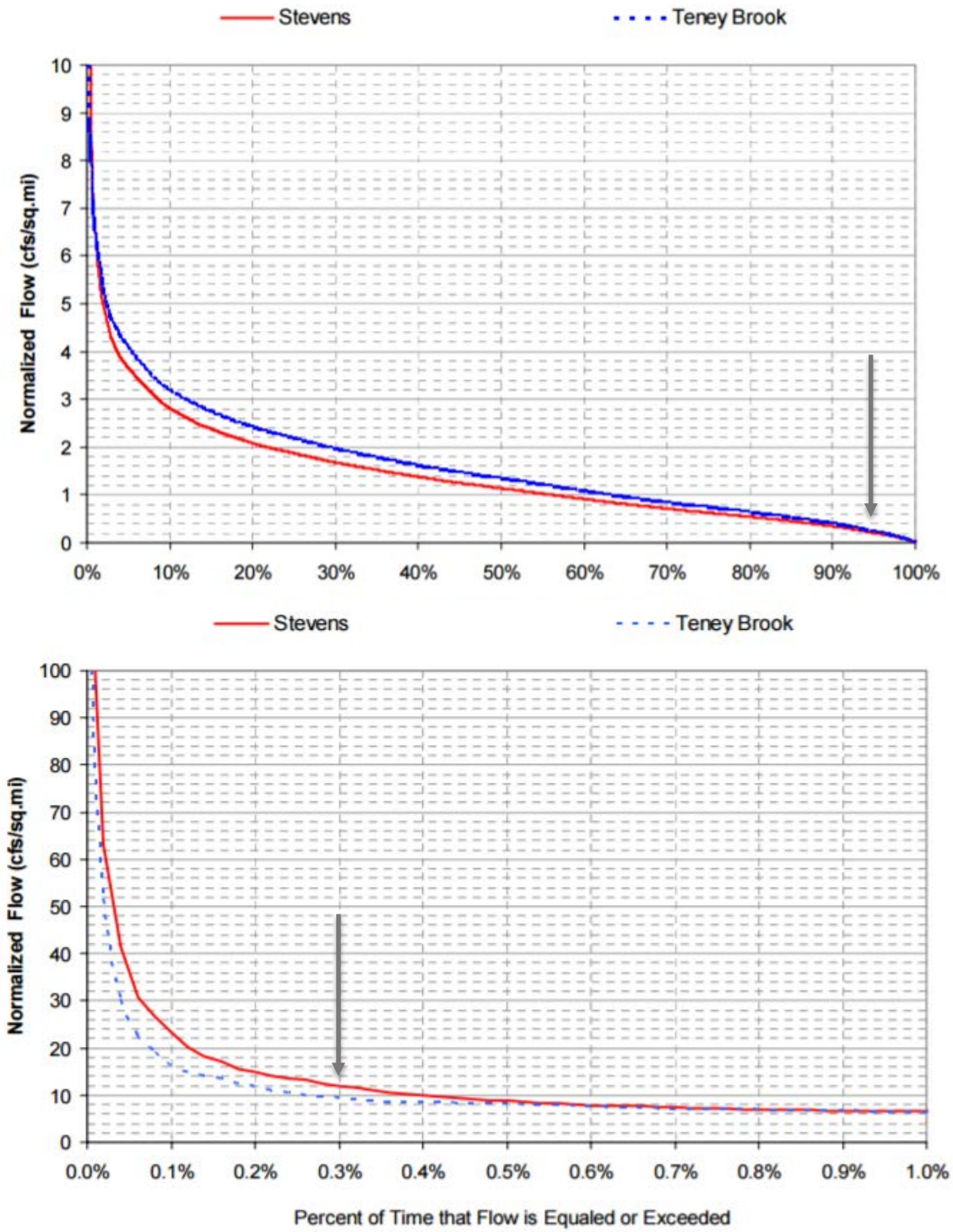

WESTFORD
COLCHESTER
Sunderland Brook
Indian Brook
ESSEX
Morehouse Brook
Essex Technical Center
WINOOSKI
Centennial Brook
BURLINGTON
Englesby Brook
Allen Brook
Potash Brook
SOUTH BURLINGTON
Williston Village
Nowland Farm
WILLISTON
Bartlett Brook
Munroe Brook
SHELBURNE
Boulder Hill Drive
ST. GEORGE
HINESBURG
N
0 0.5 1 2 3 4 Miles
Stevens Brook
ST. ALBANS CITY
St. Albans
Rugg Brook
ST. ALBANS TOWN
0 1 2 Miles
Precipitation Station
Stream Gaging Station
Stream Gaging and Precipitation Station
Impaired Stream Reaches
River/Stream
Allen Brook
Bartlett Brook
Centennial Brook
Morehouse Brook
Munroe Brook
Potash Brook
Rugg Brook
Stevens Brook
Sunderland Brook
Englesby Brook
Indian Brook

TMDL Hydrologic Targets

Flow used as a surrogate measure for multiple stressors affecting the capacity of the stream to support aquatic life

High flow (0.3% exceedance)
TMDL mandated reductions range from 1 to 54%

Low flow (95% exceedance)
TMDL mandated increases range from 0.4 to 27%



TMDL to Address Biological Impairment in Stevens Brook, Franklin County, Vermont. October 2008. VTDEC

Status Update

Recent Milestones

1. Completed the final year of monitoring December 31, 2021 (2017-2021)
2. Completed the 2020 annual report in October 2021
3. Completed processing/QA of 2021 stage data through September (Q3)
4. Completed processing/QA of 2021 precipitation data through October

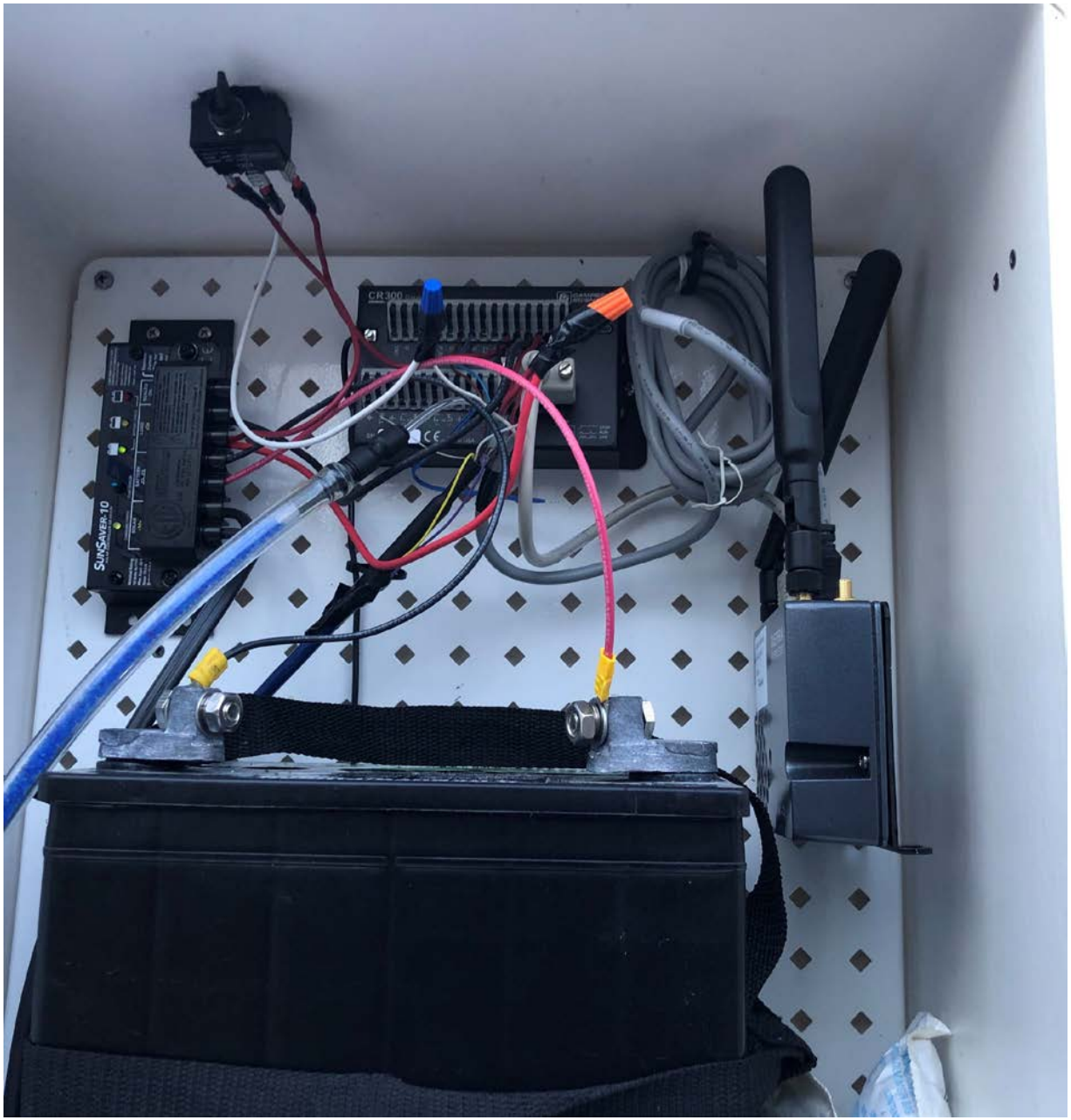
Remaining Tasks

1. Complete processing/QA of 2021 stage data through December (Q4)
2. Complete processing/QA of 2021 precipitation data through December
3. Remove equipment in spring/summer 2022 (unless continuing monitoring under municipal contract)
4. Complete 2021 annual report / final report October 2022

Instrumentation and Equipment

Stream Monitoring Station

- Fiberglass enclosure
- Datalogger (Campbell CR300)
- Cellular modem
- Pressure transducer (INW)
- Staff plate
- Time-lapse camera
- Solar panel (12-20W)
- Charge controller
- 12-V deep cycle battery



Open-Channel Monitoring Stations



Station Construction Details

Rugged materials required for extended and year-round deployment

- Galvanized steel conduit
- Anchored to bedrock with ½” stainless steel threaded rod
- Anchored to streambeds with heavy (1 1/8”) rebar and 3/8” steel brackets

Custom weir plates at 3 sites

- Munroe, Morehouse, and Englesby Brook



Controlled Cross-Section Monitoring Stations



Precipitation Monitoring Stations



Field Activities Review

- **Discharge measurements**
- **Annual survey of benchmarks and staff gauges**
- **Annual calibration of tipping bucket rain gauges**
- **Routine maintenance (approximately monthly)**
  - Time-lapse camera download and battery replacement
  - Staff gauge cleaning and reading / pressure transducer calibration
  - Desiccant replacement
  - Clear minor debris from channel
  - Flushing pressure transducer conduits to remove sediment
- **Non-routine maintenance (2020)**
  - Datalogger malfunction at Rugg Brook
  - Weir pool drained and cleaned out at Englesby Brook
  - Beaver dams at Sunderland Brook in June 2020
  - Debris jam at Bartlett, Potash, and Stevens Brooks
  - New camera installed at Englesby and Rugg Brooks
  - Pressure transducer at Morehouse buried by sediment
  - Caddis flies clogged holes in PT cap at Stevens
- **Non-routine maintenance (2021)**
  - Pressure transducer replacement and malfunction at several sites
  - Beavers returned to Sunderland Brook
  - Debris jam at Morehouse

High Flow Measurements



AA Price current meter



RiverSurveyor S5 ADCP

Low Flow Measurements



Baski Cutthroat Flume



Continuous rate salt addition



Pygmy flowmeter

Field Data Collection









http://vt-ms4-flow.stone-env.com/FlowDev/index.html

Allen Brook Streamflow Station

Provisional Data, Subject to Revision

Communication Status Alarm: (Modem powered down 12:00 to 07:00 daily)

Battery voltage (hourly min.): 14.2 volts

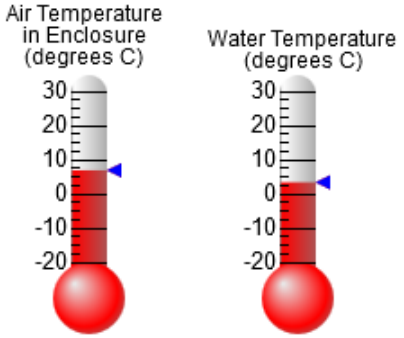
Latest Values (5-Minute Data)

4/ 17/20 18. 2:00:00 PM

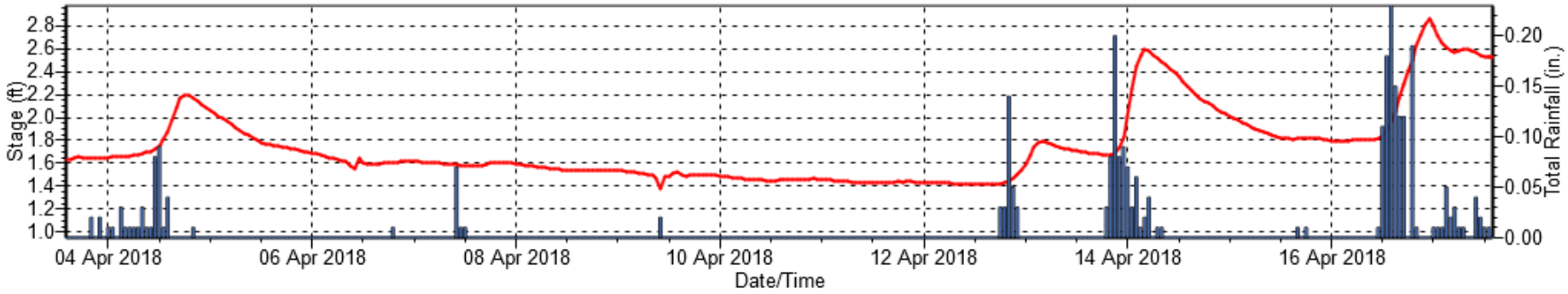
All dates and times reported at this station are Atlantic Time (UTC-4:00), without adjustment for Daylight Savings Time.

Stage (avg): 2.542 feet

Discharge (avg): In development



Allen Brook: Hourly Stage and Rainfall



Allen Brook: Hourly Temperature, Precipitation, and Stage Data

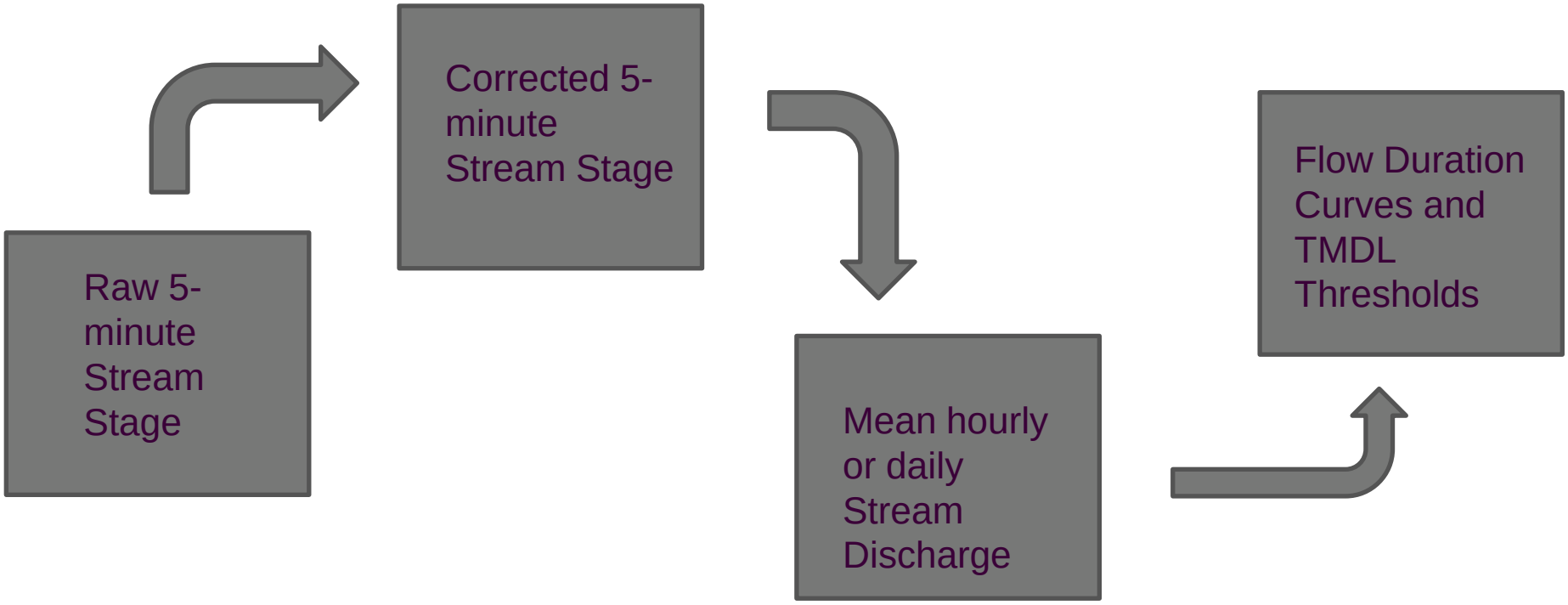
Timestamp	Air Temp. (Enclosure), deg. C	Water Temp., deg. C	Rainfall (total), in.	Stage (avg.), ft.
4/17/2018, 2:00:00 PM	6.88	3.36	0.00	2.54
4/17/2018, 1:00:00 PM	5.87	3.05	0.01	2.53
4/17/2018, 12:00:00 PM	5.22	2.84	0.01	2.54
4/17/2018, 11:00:00 AM	4.50	2.68	0.02	2.55
4/17/2018, 10:00:00 AM	3.95	2.59	0.04	2.56
4/17/2018, 9:00:00 AM	3.49	2.56	0.00	2.58
4/17/2018, 8:00:00 AM	3.16	2.56	0.00	2.60
4/17/2018, 7:00:00 AM	2.88	2.58	0.01	2.59

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

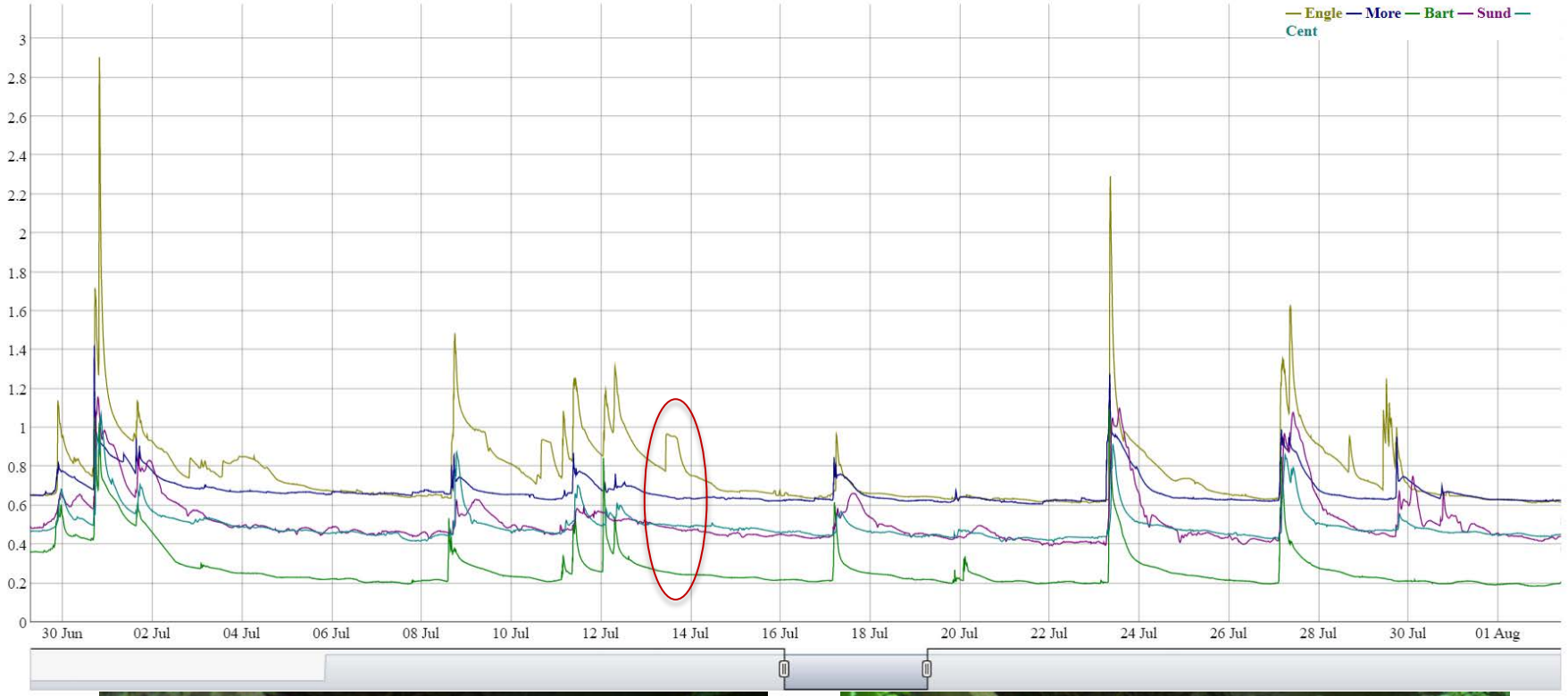
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Going from Stage to Discharge to FDCs



Review and Correct 5-min Stage Data



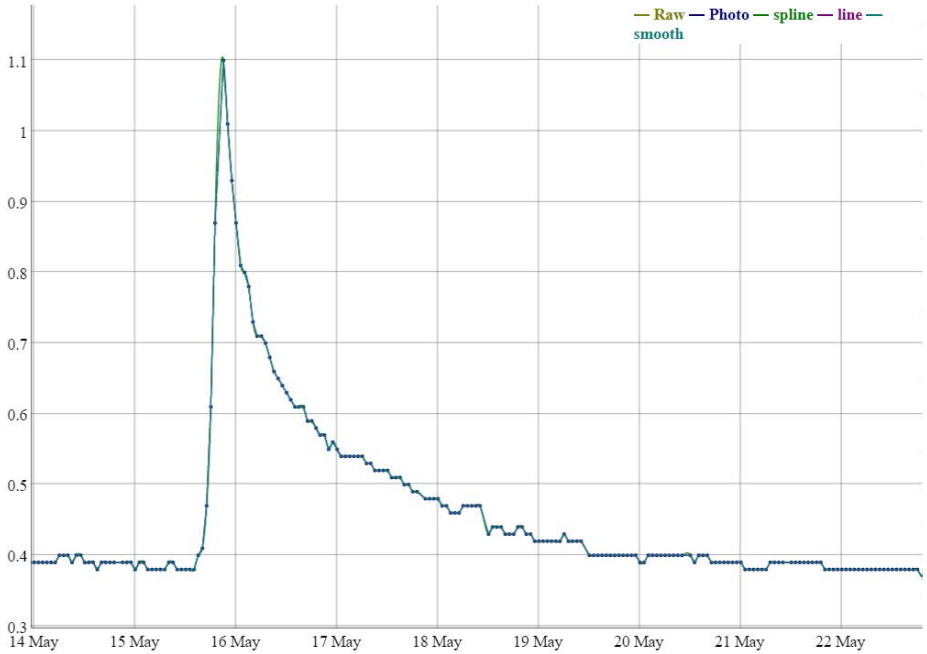




Use of Time-lapse Cameras in Data Processing

Time lapse cameras aimed at staff plates have allowed for:

- Recreation of lost stage data (Ex. Gap at Rugg Brook in May 2020).
- Discovery of new problems (Ex. Sediment build up at Centennial resulted in suppressed hydrograph peak in 2020).
- Identification of ice-in and ice-out.



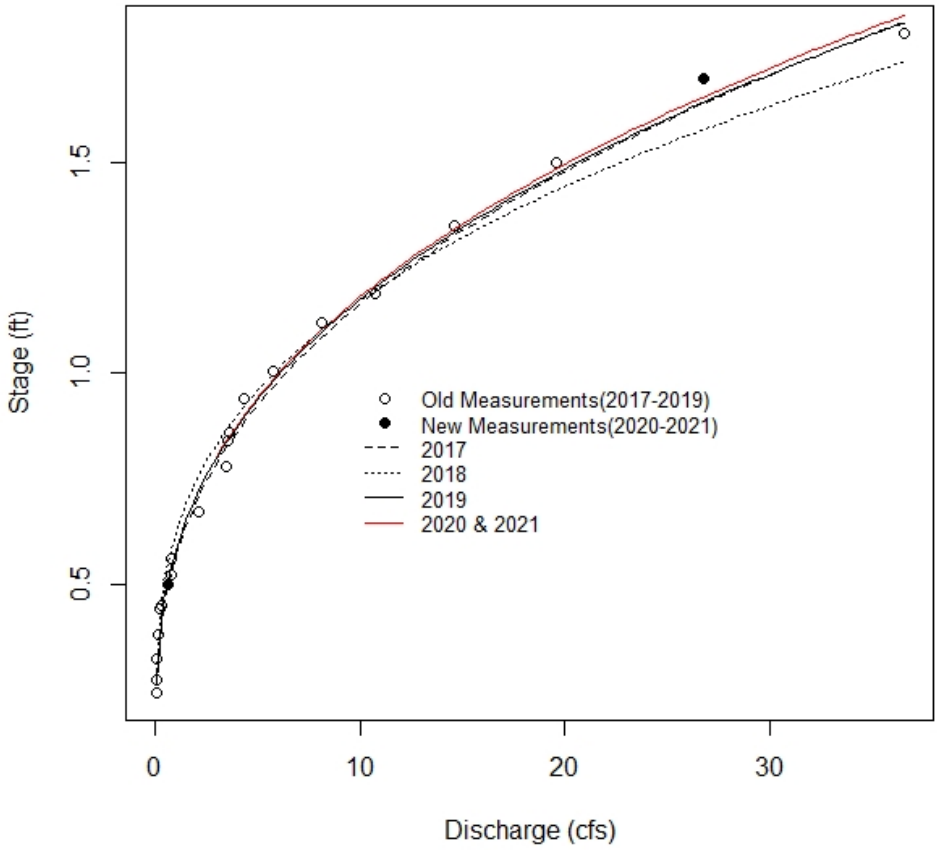


Calculate Hourly or Mean Daily Discharge

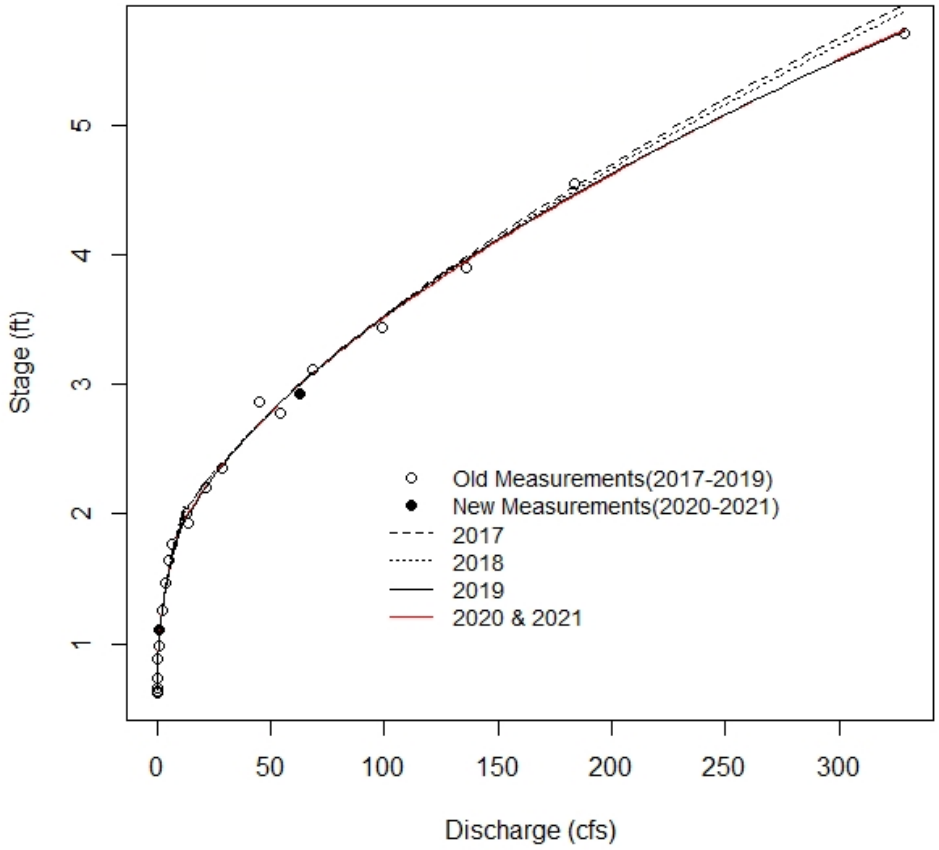


Rating Curves

Stevens Brook Rating



Munroe Brook Rating



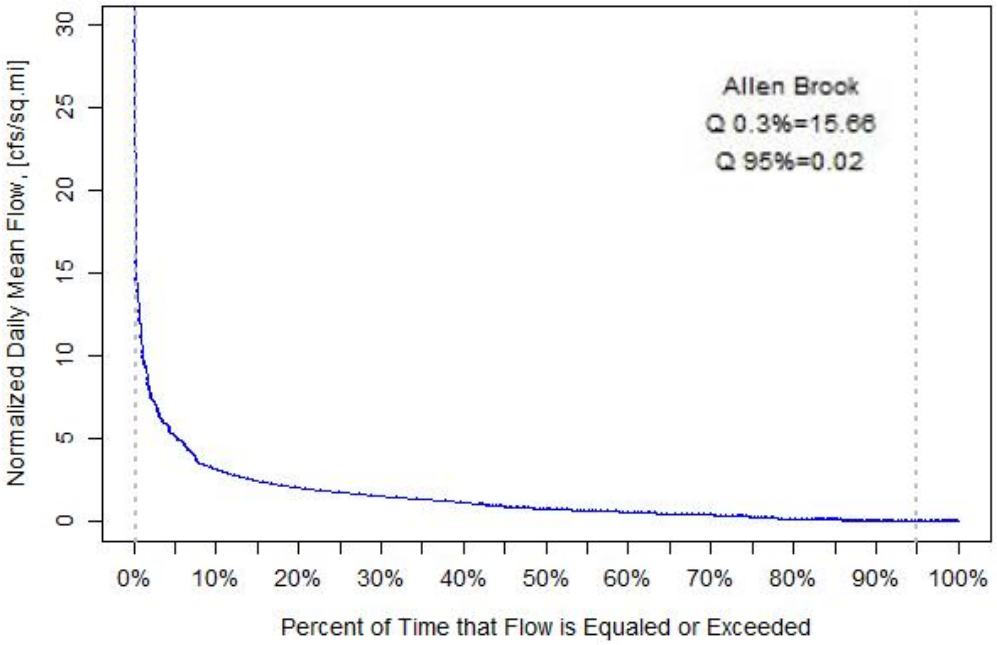
Rating Equations: $Q=C(h-a)^n$



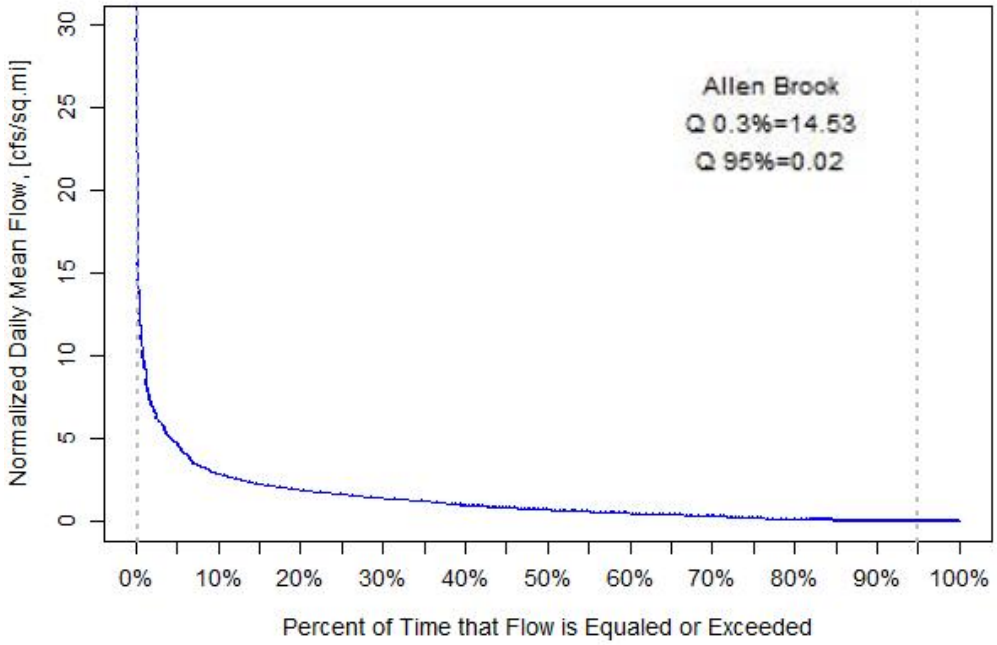
Stream	2017 Rating Coefficients			2018 Rating Coefficients			2019 Rating Coefficients			2020 Rating Coefficients		
	a	C	n	a	C	n	a	C	n	A	C	n
Allen	0.510	12.148	2.923	0.510	12.265	2.913	0.557	14.371	2.806	0.552	13.865	2.836
Bartlett	0.060	7.536	2.854	-0.060	7.620	2.915	-0.007	8.836	2.714	-0.029	8.255	2.789
Centennial	0.230	23.708	2.520	0.230	24.905	2.596	0.308	29.715	2.284	0.310	29.858	2.276
Englesby	0.590	3.873	2.596	0.590	3.869	2.597	0.59	3.907	2.570	0.590	3.913	2.566
Indian	0.205	7.068	2.923	-0.205	7.039	2.932	-0.02	11.919	2.532	-0.016	12.209	2.512
Morehouse	0.470	4.897	2.868	0.470	4.824	2.846	0.47	4.76	2.767	0.470	4.767	2.767
Munroe I	0.595	5.502	2.116	0.595	5.414	2.092	0.595	5.806	2.231	0.595	5.711	2.290
Munroe II	1.508	34.142	1.524	1.508	34.223	1.536	1.257	23.582	1.761	1.332	26.579	1.698
Potash US	0.050	20.161	3.067	-0.050	19.664	2.860	0.196	40.164	2.124	0.200	40.579	2.098
RuggPre	0.207	6.110	3.009	-0.207	6.312	2.804	-0.105	8.375	2.613	-0.105	8.375	2.613
RuggPost	na	na	na	na	na	na	0.10	14.615	2.206	0.098	14.570	2.207
Stevens	0.180	10.392	2.496	0.180	10.175	2.509	0.178	10.046	2.563	0.182	9.975	2.536
Sunderland	0.100	7.056	2.843	0.100	6.856	2.877	-0.114	3.389	3.463	-0.294	1.714	3.989

Flow Duration Curves and TMDL Thresholds

2019



2020



Precipitation Data Processing

Raw 5-minute Tipping Bucket Precipitation

↓

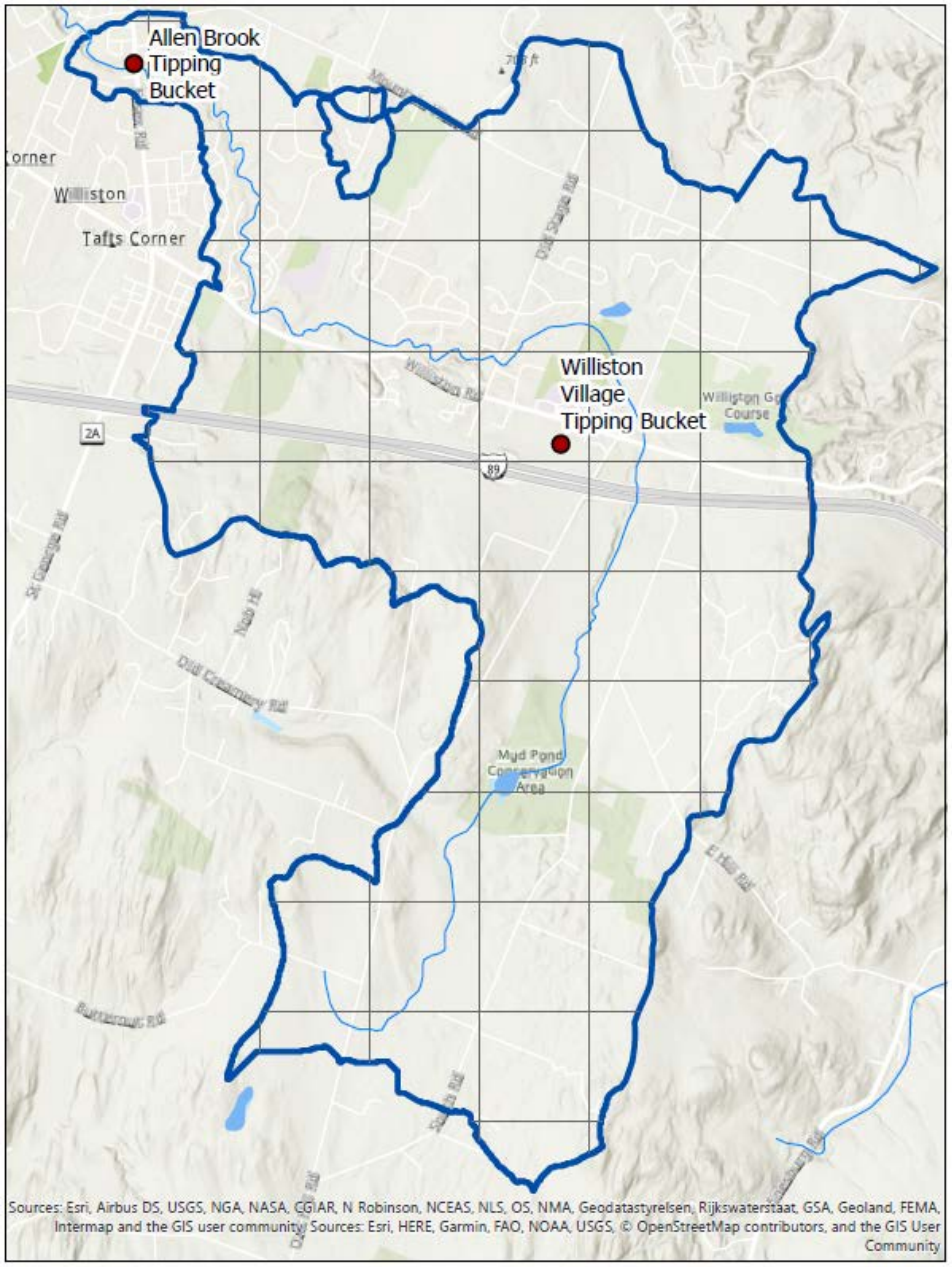
Corrected Total Daily Precipitation

→

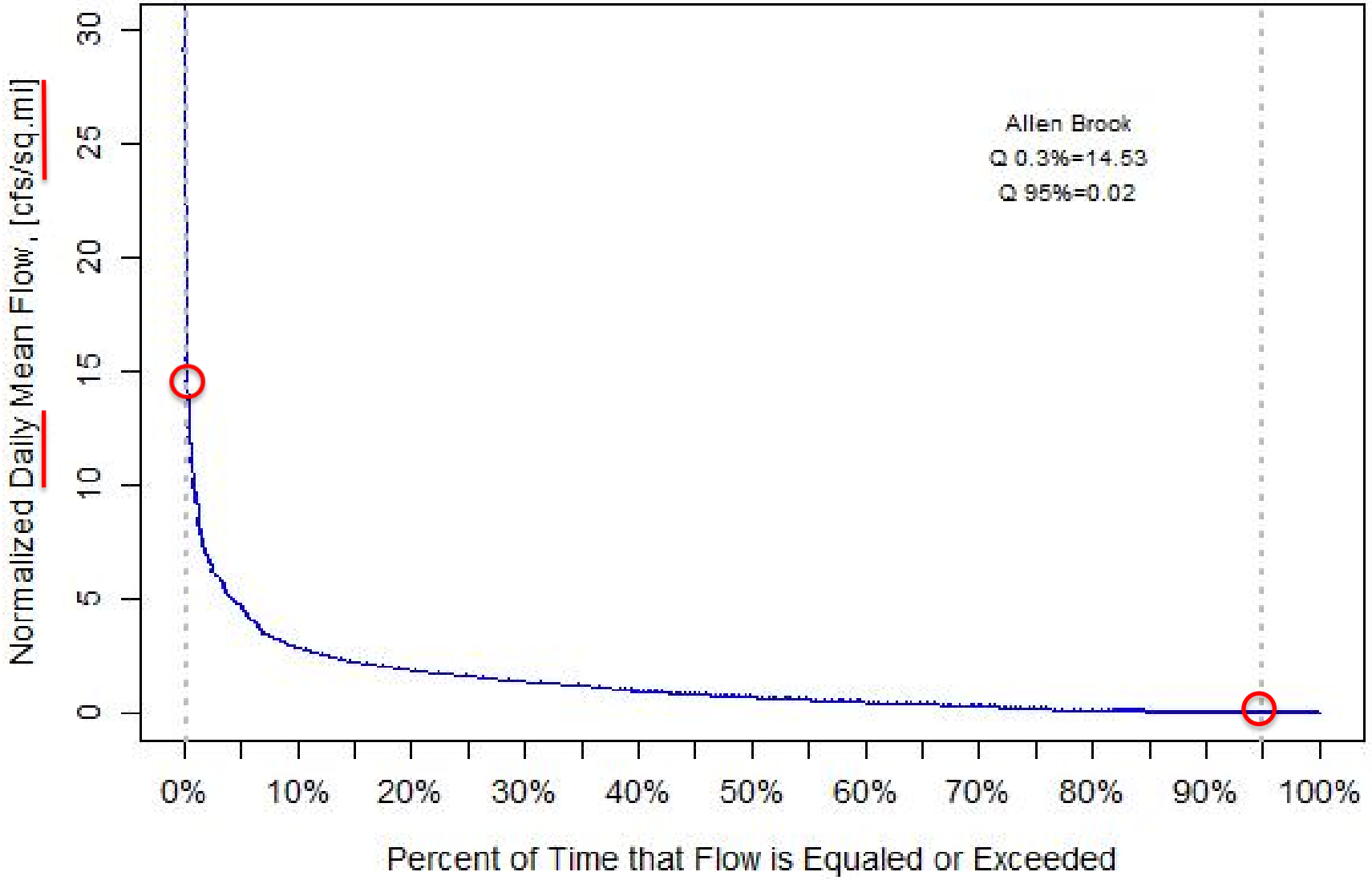
PRISM Model

↓

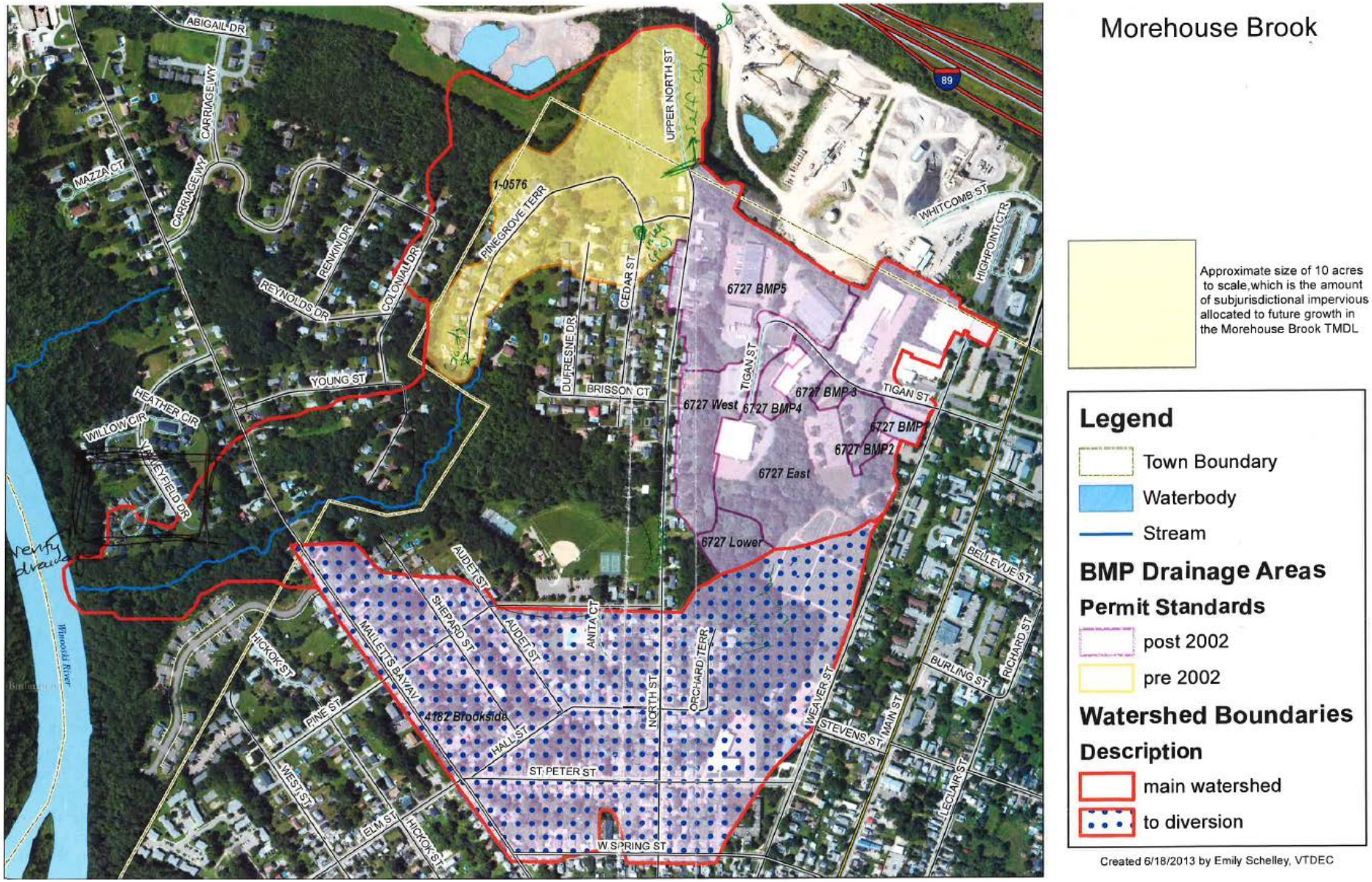
Watershed Average Precipitation Totals



Calculating 0.3% and 95% flow exceedances:
We determined that both data interval (daily vs. hourly) and inclusion/exclusion of winter flows significantly impact these estimates.



Beware the impact of the watershed area in comparing unit area flow metrics…



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Comparing calculated 0.3% and 95% flow exceedances and corresponding modeled and attainment flows
Please recognize that the daily versus hourly data interval mismatch problem remains

	From Daily Data	From Hourly Data	From Hourly Data	From Daily Data	From Hourly Data	From Hourly Data
Stream	2017-2020 Q 0.3% (cfs/mi^2)	Modeled Q 0.3% (cfs/mi^2)	Attainment Q 0.3% (cfs/mi^2)	2017-2020 Q 95% (cfs/mi^2)	Modeled Q 95% (cfs/mi^2)	Attainment Q 95% (cfs/mi^2)
Allen	14.53	11.74	11.27	0.02	0.20	0.22
Bartlett	8.93	11.35	10.27	0.05	0.20	0.22
Centennial	8.70	16.04	7.96	0.24	0.19	0.23
Englesby	8.42	15.46	11.53	0.00	0.19	0.21
Indian	11.54	11.64	11.53	0.10	0.21	0.21
Morehouse[1]	5.41	16.88	8.14	0.09	0.19	0.22
Munroe	15.73	12.01	11.27	0.00	0.20	0.22
Potash	10.34	12.24	10.27	0.08	0.20	0.22
Rugg[2]	28.29	11.32	8.87	0.01	0.20	0.25
Stevens[2]	14.29	11.91	8.87	0.00	0.20	0.25
Sunderland	7.59	8.25	7.96	0.27	0.22	0.23

1. Morehouse Brook watershed is DEC's boundary—does not exclude stormwater diversion to Winooski River

2.High flow diversion from Stevens to Rugg Brook above the gauges not considered in watershed areas



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Thank you!



Extra slides

Stevens ⇨ Rugg Brook flow diversion



Stormwater as a Pollutant of Concern

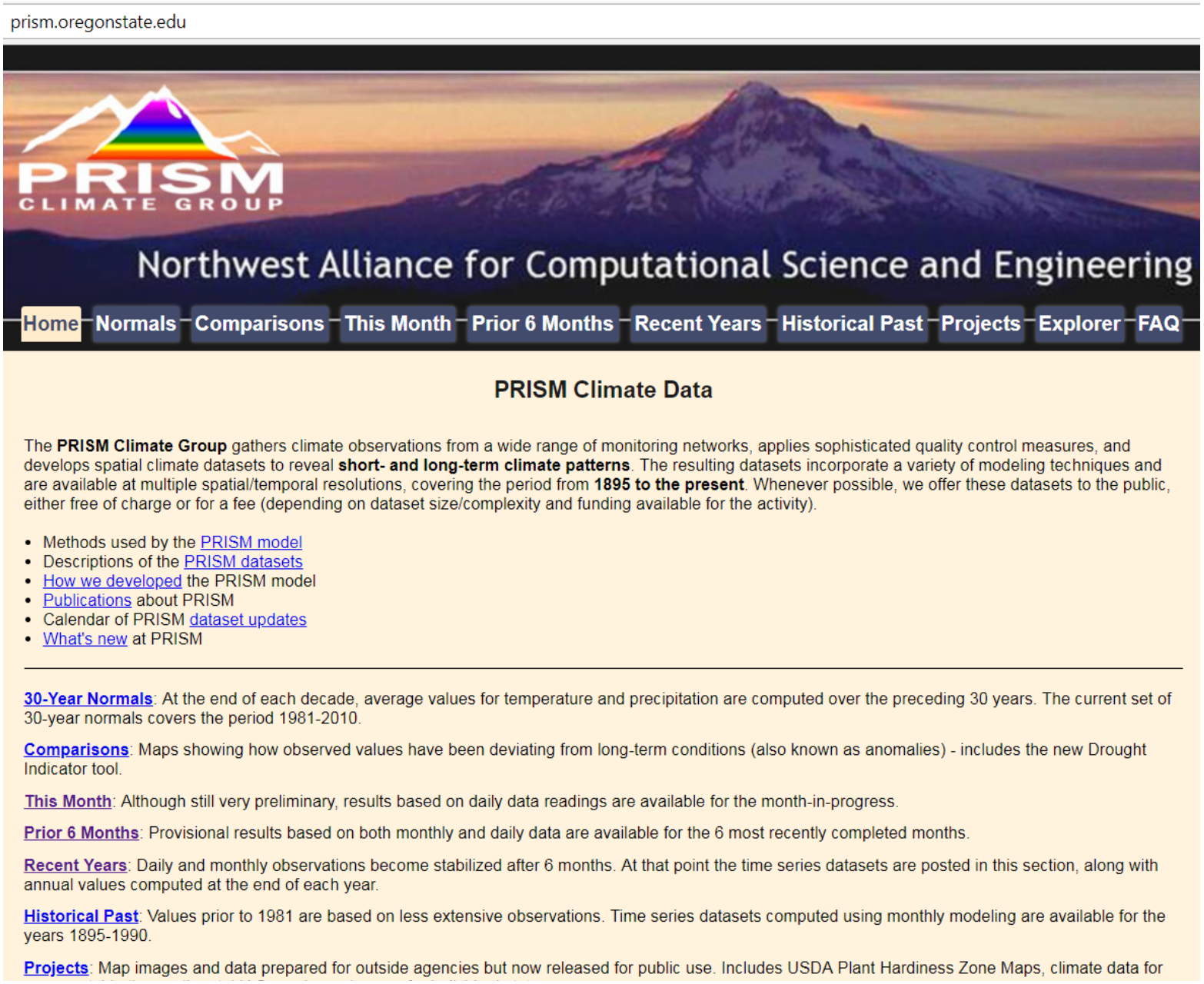
For aquatic life impairments, there often is not one specific pollutant of concern; instead, the impairment may be caused by a mix of pollutants and physical alterations to the stream system. Therefore, Vermont's TMDLs use stormwater as it represents a combination of stressors. The use of this surrogate has the primary benefit of addressing the physical impacts to the stream channel caused by stormwater runoff such as sediment release from channel erosion and scour from increased flows. These physical alterations to the stream are substantial contributors to the aquatic life impairment. Also, reductions in stormwater runoff volume will help restore diminished base flow (increased groundwater recharge), another aquatic life stressor.

http://dec.vermont.gov/watershed/stormwater/impaired-waters/stormwater-tmdls

Controlled Cross-Section Monitoring Stations

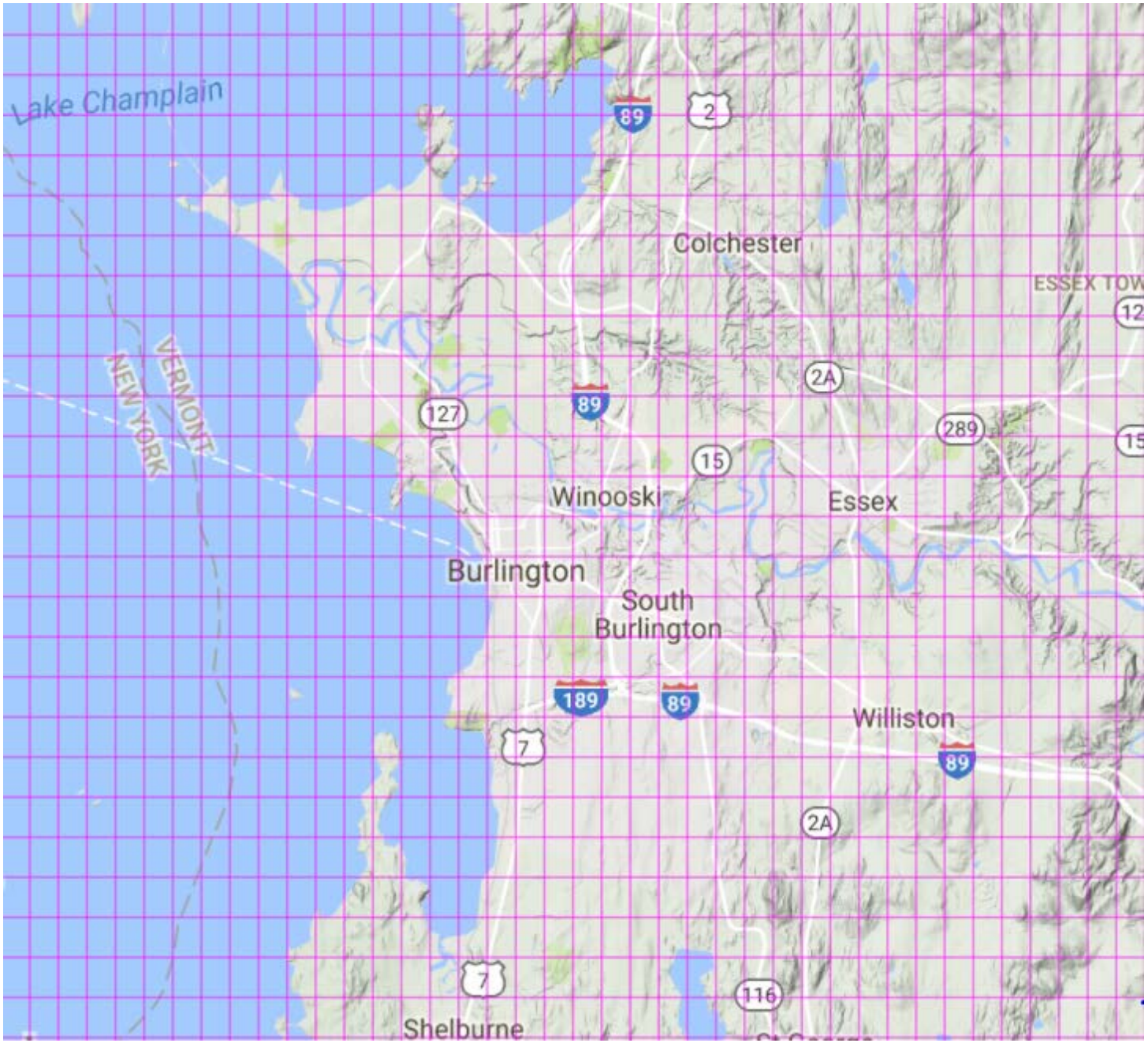


PRISM: Parameter-elevation regressions on independent slopes model



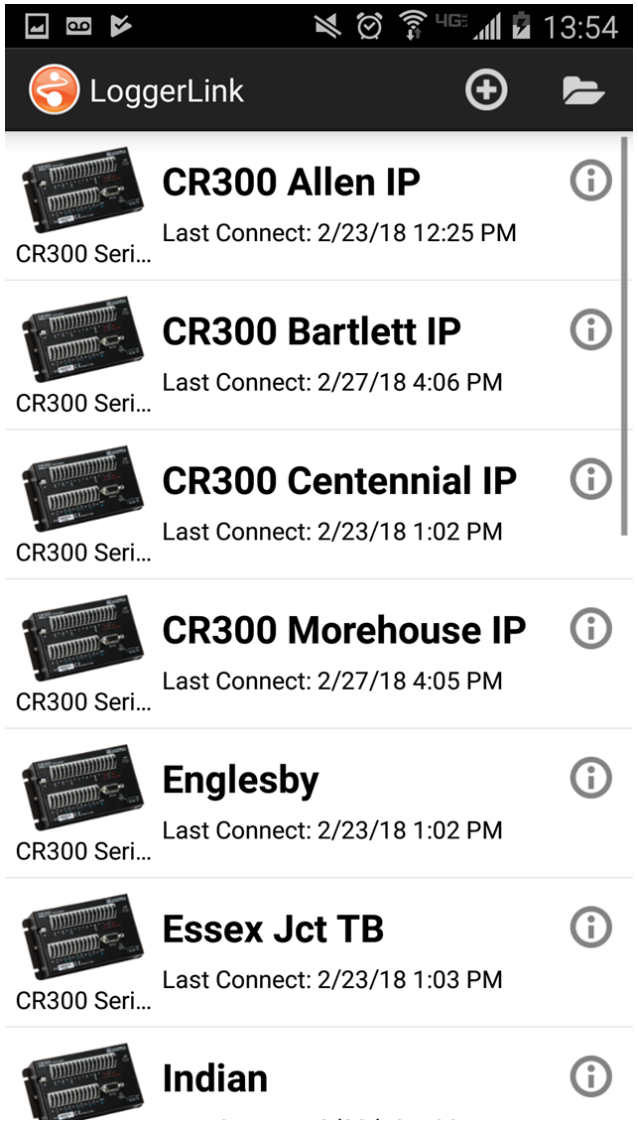
Daly, C., et al. 2002. A knowledge-based approach to the statistical mapping of climate. Climate Research, 22: 99-113.

PRISM 800-m precipitation grid in Chittenden County

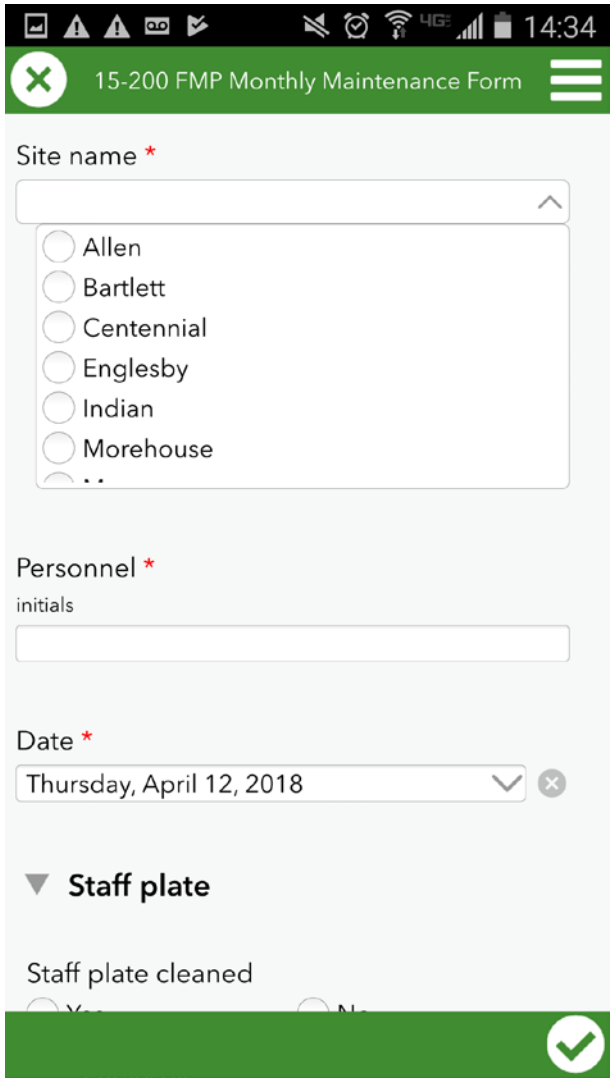


PRISM Climate Group, Oregon State University, http://prism.oregonstate.edu, created 4 Feb 2004.

Field Data Management Improvements







APPENDIX I: PHOSPHORUS CONTROL PLAN

April 1, 2024
File: E2340
Christy Witters, AICP, MS4, and MSGP Program Coordinator

Reference:
Burlington International Airport (BTV)
General Permit 3-9014 (2018) MS4
Phosphorus Control Plan (PCP)

Attention: Christy Witters, AICP, MS4, and MSGP Program Coordinator
Vermont DEC – Watershed Management Division
Stormwater Management Program
One National Life Drive, Main 2
Montpelier, VT 05620-3522

Dear Christy,

On behalf of the City of Burlington, Burlington International Airport (BTV), this report shall serve as BTV's Phosphorus Control Plan (PCP) for Permit No 7021-9014.A2R [reference Municipal Separate Storm Sewer System (MS4) General permit 3-9014 (2018)].

Burlington International Airport discharges to two segments of Lake Champlain: Shelburne Bay and Main Lake. DEC's TMDL provides goals for these segments as 23.50 kg/year in Shelburne Bay and 51.60 kg/year in Main Lake. As recorded and calculated in the BMP Tracking Table, BTV has completed 33.83 total kg/year of phosphorus removal in Shelburne Bay and 103.74 total kg/year of phosphorus removal in Main Lake. Goals for both lake segments have been reached at this time. BTV intends on maintaining all BMPs in place and continuing BMP development as airport improvements are made.

Regards,

Heidi Miller, Civil and Environmental Engineer
EIV Technical Services
355 Main St. Suite 500

Cc: Larry Lackey (BTV Director of Engineering and Environmental Compliance)

	BMP Identification								Design, Construction and Maintence					Basin Information			BMP Tracking Specifications											Phosphorus Calculations						
Unique ID	Burlington International Airport (BTV) BMP Tracking Table Date: April 1, 2024 Project Name	Land Owner	Responsible Party	Latitude (decimal degrees)	Longitude (decimal degrees)	Existing SW permit number (if applicable)	Watershed Projects Database ID (if known)	Part of MS4/ Incorporated into MS4	Cost Estimate (optional)	BMP Status	Year Planned Construction	Date Constructed	Date of last Inspection	Maintenance needed?	Applicable FRP	LC TMDL Drainare Area	LC TMDL Lake Segment	Eligible for Phosphorus Credit?	BMP Type	Impervious area (acres)	Pervious Entry Method	Pervious HSG A	Pervious HSG B	Pervious HSG C	Pervious HSG D	Total Pervious area (acres)	Storage volume (ft³)	Infiltration rate (in/hr)	* Load Before Treatment (lbs/ac/yr)	* Storage Depth (inches)	Upper Efficiency - Lower Efficience	Percent of Storage Depth Sizes	* Practice Efficiency	* P Reduction (lbs/year)	Manual P Reduction (lbs/yr)	Is this an upgrade to an existing BMP?	Does the upgrade changed the drainage area?	% Credit to MS4	* P Credit (lbs/yr)
SHELBURNE BAY LAKE SEGMENT																																			
BTV BCJG-1	Taxiway B, C, J, G (Swale #1)	Burlington International Airport	Burlington Int'l Airport MS4	44.46750	-73.14722	3028-9010.2	3028-9010.2	Yes		Complete		August /September 2016		No	Potash Brook	Laplatte River	Shelburne Bay	Yes	Grass Channel	1.50	Total Pervious					1.57	8,295	8.27 in/hr	1.70	1.14		0.28			0.28		100%	0.28
BTV BCJG-2	Taxiway B, C, J, G (Swale #2)	Burlington International Airport	Burlington Int'l Airport MS4	44.46750	-73.14722	3028-9010.2	3028-9010.2	Yes		Complete		August /September 2016		No	Potash Brook	Laplatte River	Shelburne Bay	Yes	Grass Channel	1.15	Total Pervious					1.21	7,722	8.27 in/hr	1.64	1.05		0.09			0.22		100%	0.22
BTV BCJG-3	Taxiway B, C, J, G (Swale #3)	Burlington International Airport	Burlington Int'l Airport MS4	44.46750	-73.14722	3028-9010.2	3028-9010.2	Yes		Complete		August /September 2016		No	Potash Brook	Laplatte River	Shelburne Bay	Yes	Grass Channel	2.81	Total Pervious					2.81	7,722	8.27 in/hr	1.64	1.05		0.09			0.25		100%	0.25
BTV BCJG-4	Taxiway B, C, J, G (Swale #4)	Burlington International Airport	Burlington Int'l Airport MS4	44.46750	-73.14722	3028-9010.2	3028-9010.2	Yes		Complete		August /September 2016		No	Potash Brook	Laplatte River	Shelburne Bay	Yes	Grass Channel	0.20	Total Pervious					0.58	1,268	8.27 in/hr	0.29	1.04		0.08			0.04		100%	0.04
BTV HEA	Heritage Flight Aviation	Burlington International Airport	Burlington Int'l Airport MS4	44.46389	-73.14722	3845-9010	3845-9010	Yes		Complete		7/28/16; 8/9/16		No	Potash Brook	Laplatte River	Shelburne Bay	Yes	Bioretention (infiltrating)	0.78	Total Pervious					0.52	6,382	8.27 in/hr	0.83	1.71	0.00	0.42	100.00%	0.83	0.82		100%	0.82
BTV SFS	Sewage Receiving Station	Burlington International Airport	Burlington Int'l Airport MS4	44.46580	-73.15472	3028-9025.3	3028-9025.3	Yes		Complete		8/4/2016		No	Potash Brook	Laplatte River	Shelburne Bay	Yes	Infiltration Trench	0.24	Total Pervious					0.173	885	8.27 in/hr	0.26	0.86	0.01	0.28	98.28%	0.26	0.25		100%	0.25
BTV HAPL (POI 1)	Heritage Aviation Parking Lot (POI 1)	Burlington International Airport	Burlington Int'l Airport MS4	44.46389	-73.14722	3845-9015.1	3845-9015.1	Yes		Complete		5/19/16; 6/2/16; 6/16/16; 6/29/16; 7/13/16; 7		No	Potash Brook	Laplatte River	Shelburne Bay	Yes	Infiltration Trench	0.00001	Total Pervious					0.00001	1,455	8.27 in/hr	0.00	2.00	0.00		100.00%	0.00	0.00		100%	0.00
BTV HAPL (POI 2)	Heritage Aviation Parking Lot (POI 2)	Burlington International Airport	Burlington Int'l Airport MS4	44.46389	-73.14722	3845-9015.1	3845-9015.1	Yes		Complete		5/19/16; 6/2/16; 6/16/16; 6/29/16; 7/13/16; 7		No	Potash Brook	Laplatte River	Shelburne Bay	Yes	Infiltration Trench	0.00	Total Pervious					0.00001	2,173	8.27 in/hr	0.00	2.00	0.00		100.00%	0.00	0.00		100%	0.00
BTV BMP 17	BMP 17 Glycol Infiltration Field	Burlington International Airport	Burlington Int'l Airport MS4			UIC #6-0117	UIC #6-0117	Yes		Complete		3/23/2013		No	Potash Brook	Laplatte River	Shelburne Bay	Yes	Infiltration Trench	10.97	Total Pervious					0.54	21,600	8.27 in/hr	10.54	0.54	0.19	0.69	88.34%	9.29	9.56		100%	9.56
BTV STE	BTV South Terminal Expansion	Burlington International Airport	Burlington Int'l Airport MS4	TBD	TBD	n/a	TBD	Yes		Planned					Potash Brook	Laplatte River	Shelburne Bay	Yes		n/a	Total Pervious					n/a	n/a										100%	0.00
BTV BLDG 7 001	BTV Beta Technologies Hanger (Bld 7) S/N 0	Burlington International Airport	Burlington Int'l Airport MS4	44.46674	-73.15104	3028-9025.10	TBD	No		Complete					Potash Brook	Laplatte River	Shelburne Bay	Yes	Infiltration Basin	0.52	Total Pervious					0.4	1,612	8.27 in/hr	0.56	0.74	0.03	0.68	98.04%	0.55	0.00		100%	0.00
BTV BLDG 7 002	BTV Beta Technologies Hanger (Bld 7) S/N 0	Burlington International Airport	Burlington Int'l Airport MS4	44.46555	-73.15442	3028-9025.10	TBD	No		Complete					Potash Brook	Laplatte River	Shelburne Bay	Yes	Infiltration Chambers	0.25	Total Pervious					0.107	3,093	8.27 in/hr	0.26	2.00	0.00		100.00%	0.26	0.00		100%	0.00
BTV BLDG 7 003	BTV Beta Technologies Hanger (Bld 7) S/N 0	Burlington International Airport	Burlington Int'l Airport MS4	44.46595	-73.15525	3028-9025.10	TBD	No		Complete					Potash Brook	Laplatte River	Shelburne Bay	Yes	Infiltration Basin	0.05						n/a	n/a								0.00		100%	0.00
BTV BLDG 7 004	BTV Beta Technologies Hanger (Bld 7) S/N 0	Burlington International Airport	Burlington Int'l Airport MS4	44.46603	-73.15466	3028-9025.10	TBD	No		Complete					Potash Brook	Laplatte River	Shelburne Bay	Yes	Infiltration Basin	0.02						n/a	n/a								0.00		100%	0.00
BTV FRF 1	Airport Drive Infiltration Gallery	Burlington International Airport	Burlington Int'l Airport MS4	TBD	TBD	n/a	TBD	Yes	$439,000	Planned	Summer 2024				Potash Brook	Laplatte River	Shelburne Bay	Yes	Infiltration Trench	2.70	Total Pervious					6.95	20,037	8.27 in/hr	3.77	1.13	0.01	0.26	99.26%	3.74	3.74	No	100%	3.74
HERITAGE ADDITION	Heritage Flight Hanger Addition S/N 001	Burlington International Airport	Burlington Int'l Airport MS4	44.46206	-73.15468	3028-9025.8	TBD	No		Complete					Potash Brook	Laplatte River	Shelburne Bay	Yes	Infiltration Chambers	0.57	Total Pervious					0.405	3,223	8.27 in/hr	0.62	1.24	0.01	0.49	99.49%	0.61	0.00		100%	0.00
BTV RON	Remain Overnight Aepon (Phase 7)	Burlington International Airport	Burlington Int'l Airport MS4	TBD	TBD	3028-9025.9	TBD	Yes		Complete					Potash Brook	Laplatte River	Shelburne Bay	Yes	Infiltration Chambers	3.82	Total Pervious					1.44	8,926	8.27 in/hr	3.88	0.60	0.04	0.02	94.09%	3.65	0.00		100%	0.00
BTV TW 4	Taxiway K	Burlington International Airport	Burlington Int'l Airport MS4	44.46583	-73.15139	3028-9050	TBD	Yes		Complete					Potash Brook	Laplatte River	Shelburne Bay	Yes	Grass Channel	0.50	Total Pervious					0.07441689	5,824		0.49	2.00	0.07		29.00%	0.14	0.00		100%	0.00
BTV TERMINT	BTV Terminal Integration	Burlington International Airport	Burlington Int'l Airport MS4	44.46822	-73.15402	3028-9050.1	TBD	Yes		Complete	Fall 2022				Potash Brook	Laplatte River	Shelburne Bay	No											0.00							0.00	N/A	100%	0.00
BTV Re_TW A (001)	Rehabilitate Taxiway A	Burlington International Airport	Burlington Int'l Airport MS4	44.46776	-73.15304	3028-9050.5A		Yes		Under Construction	2023				Centennial Brook	Laplatte River	Shelburne Bay	Yes	Infiltration Chambers	0.49	Total Pervious					2.28	11,374	8.27 in/hr	0.86	1.87	0.00	0.74	100.00%	0.86	0.00	N/A	100%	0.00
MAIN LAKE SEGMENT																																			
BTV TW G-1	Taxiway G (Dry Detention Pond 001)	Burlington International Airport	Burlington Int'l Airport MS4	44.48239	-73.16999	3028-9025.6A	3028-9025.6A	Yes		Complete		Spring 2019		No	n/a	Winooski River	Main Lake	Yes	Extended Dry Detention Pond	10.71	Total Pervious					47.31	110,555	8.83 in/hr	22.89	1.17		0.33			2.53		100%	2.53
BTV TW G-2, Phase 1	Taxiway G Underground Chamber #1 001)	Burlington International Airport	Burlington Int'l Airport MS4	44.48239	-73.16999	3028-9025.6A	3028-9025.6A	Yes		Complete		October, 2018		No	n/a	Winooski River	Main Lake	Yes	Infiltration Trench	10.31	Total Pervious					20.497	87,617	2.41 in/hr	16.25	1.34	0.02	0.68	97.37%	15.83	14.35		100%	14.35
BTV TW G-3, Phase 2	Taxiway G Underground Infiltration Tank #(	Burlington International Airport	Burlington Int'l Airport MS4	44.47066	-73.15167	3028-9025.6A	3028-9025.6A	Yes		Complete		October, 2019		No	n/a	Winooski River	Main Lake	Yes	Infiltration Trench	0.69	Total Pervious					1.007	9,074	2.41 in/hr	1.00	2.00	0.00		100.00%	1.00	0.92		100%	0.92
BTV TW F	Taxiway F (S/N 002)	Burlington International Airport	Burlington Int'l Airport MS4	44.47667	-73.15744	3028-9025.7	3028-9025.7	Yes		Complete		October, 2019		No	n/a	Winooski River	Main Lake	Yes	Infiltration Trench	8.47	Total Pervious					27.6	15,536	8.27 in/hr	15.84	0.37	0.25	0.87	71.69%	11.35	10.33		100%	10.33
BTV RW 15-33 (006)	Reconstruct, Mark, and Groove Runway 15-	Burlington International Airport	Burlington Int'l Airport MS4	44.49306	-73.17222	3028-9025.7	3028-9025.7	Yes		Complete		Spring 2019		No	n/a	Winooski River	Main Lake	Yes	Infiltration Trench	1.75	Total Pervious					5.17	2,654	8.27 in/hr	3.15	0.33	0.25	0.63	65.76%	2.07	1.70		100%	1.70
BTV RW 15-33 (004)	Reconstruct, Mark, and Groove Runway 15-	Burlington International Airport	Burlington Int'l Airport MS4	44.49306	-73.17222	3028-9025.7	3028-9025.7	Yes		Complete		Spring 2019		No	n/a	Winooski River	Main Lake	Yes	Infiltration Trench	0.47	Total Pervious					2.61	7,147	8.27 in/hr	1.13	1.35	0.01	0.71	99.71%	1.12	1.06		100%	1.06
BTV RW 15-33 (003)	Reconstruct, Mark, and Groove Runway 15-	Burlington International Airport	Burlington Int'l Airport MS4	44.49306	-73.17222	3028-9025.7	3028-9025.7	Yes		Complete		Spring 2019		No	n/a	Winooski River	Main Lake	Yes	Grass Channel	4.43	Total Pervious					10.96	8,839	8.27 in/hr	5.04	0.59		0.96			0.41		100%	0.41
BTV RW 15-33 (002)	Reconstruct, Mark, and Groove Runway 15-	Burlington International Airport	Burlington Int'l Airport MS4	44.49306	-73.17222	3028-9025.7	3028-9025.7	Yes		Complete		Spring 2019		No	n/a	Winooski River	Main Lake	Yes	Infiltration Trench	4.19	Total Pervious					15.2	17,183	8.27 in/hr	8.19	0.67	0.04	0.35	95.39%	7.81	5.57		100%	5.57
BTV RW 15-33 (001)	Reconstruct, Mark, and Groove Runway 15-	Burlington International Airport	Burlington Int'l Airport MS4	44.49306	-73.17222	3028-9025.7	3028-9025.7	Yes		Complete		Spring 2019		No	n/a	Winooski River	Main Lake	Yes	Grass Channel	7.57	Total Pervious					11.5	22,247	8.27 in/hr	11.11	0.64		0.18			0.95		100%	0.95
BTV BMP 3	BMP 3 Glycol Infiltration Field	Burlington International Airport	Burlington Int'l Airport MS4	44.47243	-73.15619	UIC #6-0075	UIC #6-0075	Yes		Complete		2/28/2017		Yes	n/a	Winooski River	Main Lake	Yes	Infiltration Trench	15.36	Total Pervious					1.47	67,100	8.27 in/hr	17.50	1.17	0.01	0.33	99.33%	17.38	17.50		100%	17.50
BTV CRCF	Consolidated Rental Car Facility (US-System	Burlington International Airport	Burlington Int'l Airport MS4	44.47180	-73.15646	3028-9025.4	3028-9025.4	Yes		Complete		August, 2020			n/a	Winooski River	Main Lake	Yes	Infiltration Trench	0.89	Total Pervious					0.33	5,695	8.27 in/hr	1.07	1.52	0.00	0.05	100.00%	1.07	1.06		100%	1.06
BTV TW B-1	Taxiway B Extension (Storm Trap 1)	Burlington International Airport	Burlington Int'l Airport MS4	44.47291	-73.15213	3028-9015.3	3028-9015.3	Yes		Complete					n/a	Winooski River	Main Lake	Yes	Infiltration Trench	0.66	Total Pervious					1.28	3,659	8.27 in/hr	1.03	0.99	0.01	0.96	98.96%	1.02	1.00		100%	1.00
BTV TW B-2	Taxiway B Extension (Storm Trap 2)	Burlington International Airport	Burlington Int'l Airport MS4	44.47291	-73.15213	3028-9015.3	3028-9015.3	Yes		Complete				n/a	n/a	Winooski River	Main Lake	Yes	Infiltration Trench	1.34	Total Pervious					2.42	7,466	8.27 in/hr	2.06	1.01	0.01	0.03	99.03%	2.04	2.00		100%	2.00
BTV HOTEL 001	BTV HOTEL S/N 001	Burlington International Airport	Burlington Int'l Airport MS4	TBD	TBD	3028-9050.7	TBD	Yes		Planned	2025				Centennial Brook	Winooski River	Main Lake	Yes	Gravel Wetland	0.13	Total Pervious					0.001	n/a		0.15						0.00		100%	0.00
BTV HOTEL 002	BTV HOTEL S/N 002	Burlington International Airport	Burlington Int'l Airport MS4	TBD	TBD	3028-9050.7	TBD	Yes		Planned	2025				Centennial Brook	Winooski River	Main Lake	Yes	Infiltration Basin	0.28	Total Pervious					0	1,699	8.27 in/hr	0.31						0.00		100%	0.00
BTV HOTEL 003	BTV HOTEL S/N 003	Burlington International Airport	Burlington Int'l Airport MS4	TBD	TBD	3028-9050.7	TBD	Yes		Planned	2025				Centennial Brook	Winooski River	Main Lake	Yes		0.01	Total Pervious					0	44	8.27 in/hr	0.01						0.00		100%	0.00
BETA AK (001)	BETA Technologies - BTV Assembly Facility	Burlington International Airport	Burlington Int'l Airport MS4	44.46540	-73.13752	3028-9050.2	3028-9050.2	Yes		Under Construction	2023				n/a	Winooski River	Main Lake		Gravel Wetland	12.318	Total Pervious					7.854	46,143	0.53 in/hr	15.57	0.89		0.45	58.79%	9.16	9.16	No			9.16
BETA GA (001)	BETA General Aviation Hanger	Burlington International Airport	Burlington Int'l Airport MS4	44.46540	-73.13752	3028-9050.3	3028-9050.3	Yes		Under Construction	2023				n/a	Winooski River	Main Lake		Bioretention (w/ underdrain)	1.066	Total Pervious					0.298	4,278	0.53 in/hr	1.26	1.03		0.05	53.23%	0.67	0.67	No			0.67
BETA FF (002)	Heritage Aviation Fuel Farm Expansion	Burlington International Airport	Burlington Int'l Airport MS4	44.46317	-73.14717	3028-9050.6	3028-9050.6	Yes		Under Construction	2023				n/a	Winooski River	Main Lake		Infiltration Basin	0.763	Total Pervious					0.204	3,293	0.52 in/hr	0.90	1.10	0.03	0.20	92.59%	0.83	0.83	Yes			0.83
RTY 1-4/RIN/EXT TW G	Extend Taxiway G and Construct New Gener	Burlington International Airport	Burlington Int'l Airport MS4	44.46443	-73.13875	3028-9050.8		Yes		Under Construction	2023				n/a	Winooski River	Main Lake	Yes	Infiltration Chambers	2.18	Total Pervious					1.83	7,884	8.27 in/hr	2.44						1.83	Yes			1.83
IMPERVIOUS SURFACE REMOVAL																																			
HOUSE REMOVAL A	House Removal Centennial	Burlington International Airport	Burlington Int'l Airport MS4					Yes		Complete					Centennial Brook	Winooski River	Main Lake	Yes											0.00							4.9		100%	4.90
HOUSE REMOVAL B	House Removal Potash	Burlington International Airport	Burlington Int'l Airport MS4					Yes		Complete					Potash Brook	Laplatte River	Shelburne Bay	Yes											0.00							0.8		100%	0.80
RUNWAY REMOVAL	Taxiway G	Burlington International Airport	Burlington Int'l Airport MS4					Yes		Complete					n/a	Winooski River	Main Lake	Yes											0.00							4.3		100%	4.30
DISCONNECTION																																			
BTV BCJG-001	Taxiway B, C, J, G (disconnection 001)	Burlington International Airport	Burlington Int'l Airport MS4	44.46750	-73.14722	3028-9025.AR	3028-9025.AR	Yes		Complete			8/11/2016	5/27/2021	No	Potash Brook	Laplatte River	Shelburne Bay	Yes							2.22	Total Pervious		15.11						8.27 in/hr	4.71	0.00							3.30			
BTV BCJG-002	Taxiway B, C, J, G (disconnection 002)	Burlington International Airport	Burlington Int'l Airport MS4	44.46750	-73.14722	3028-9025.AR	3028-9025.AR	Yes		Complete			8/11/2016	5/27/2021	No	Potash Brook	Laplatte River	Shelburne Bay	Yes							1.19	Total Pervious		5.88						8.27 in/hr	2.34	0.00							1.74			
BTV RW 15-33 (001)	Reconstruct, Mark, and Groove Runway 15-	Burlington International Airport	Burlington Int'l Airport MS4	44.49306	-73.17222	3028-9025.7	3028-9025.7	Yes		Complete		Spring 2019	6/11/2021	No	n/a	Winooski River	Main Lake	Yes								8.98	Total Pervious		11.5						8.27 in/hr	12.69	0.00							9.10			
BTV RW 15-33 (002)	Reconstruct, Mark, and Groove Runway 15-	Burlington International Airport	Burlington Int'l Airport MS4	44.49306	-73.17222	3028-9025.7	3028-9025.7	Yes		Complete		Spring 2019	6/11/2021	No	Potash Brook	Laplatte River	Shelburne Bay	Yes								7.91	Total Pervious		15.2						8.27 in/hr	10.14	0.00							7.79			
BTV RW 15-33 (003)	Reconstruct, Mark, and Groove Runway 15-	Burlington International Airport	Burlington Int'l Airport MS4	44.49306	-73.17222	3028-9025.7	3028-9025.7	Yes		Complete		Spring 2019	6/11/2021	No	n/a	Winooski River	Main Lake	Yes								3.58	Total Pervious		10.36						8.27 in/hr	6.32	0.00							5.02			
BTV RW 15-33 (004)	Reconstruct, Mark, and Groove Runway 15-	Burlington International Airport	Burlington Int'l Airport MS4	44.49306	-73.17222	3028-9025.7	3028-9025.7	Yes		Complete		Spring 2019	6/11/2021	No	n/a	Winooski River	Main Lake	Yes								0.67	Total Pervious		2.61						8.27 in/hr	1.35	0.00							1.00			
BTV RW 15-33 (005)	Reconstruct, Mark, and Groove Runway 15-	Burlington International Airport	Burlington Int'l Airport MS4	44.49306	-73.17222	3028-9025.7	3028-9025.7	Yes		Complete		Spring 2019	6/11/2021	No	n/a	Winooski River	Main Lake	Yes								3.94	Total Pervious		7.4						8.27 in/hr	6.11	0.00							4.54			
BTV RW 15-33 (006)	Reconstruct, Mark, and Groove Runway 15-	Burlington International Airport	Burlington Int'l Airport MS4	44.49306	-73.17222	3028-9025.7	3028-9025.7	Yes		Complete		Spring 2019	6/11/2021	No	n/a	Winooski River	Main Lake	Yes								2.34	Total Pervious		5.17						8.27 in/hr	3.81	0.00							3.03			
BTV QA	Quarry Access Road (disconnection S/N 002	Burlington International Airport	Burlington Int'l Airport MS4	44.46019	-73.13989	3028-9015.1	3028-9015.1	Yes		Complete			6/23/2016	5/21/2021	No	Potash Brook	Laplatte River	Shelburne Bay	Yes							0.05	Total Pervious		0.298						2.41 in/hr	0.10	0.00							0.08			
BTV TW G/K	Construct Mark & Light TW G/K (disconnect	Burlington International Airport	Burlington Int'l Airport MS4	44.46750	-73.14722	3028-9025.3	9028-9015.2	Yes		Complete			9/20/2016	5/27/21-6/1/1	No	Potash Brook	Laplatte River	Shelburne Bay	Yes							5.04	Total Pervious		8.69						8.27 in/hr	6.29	0.00							4.93			