Burlington Conservation Board
645 Pine Street
Burlington, VT 05401
http://www.burlingtonvt.gov/dpi
Telephone: (802) 865-7188

Conservation Board Meeting Public Notice

Monday, June 2, 2025, 5:30 PM

311 North Avenue, Conference Room or Remote via Zoom

Zoom: https://zoom.us/j/95590052709?pwd=MlhQcTVTNmUydW5qelBLeFUwZk9LZz09

Webinar ID: 955 9005 2709

Password: 346560

Telephone: 1 929 205 6099

1. Minutes

1.1. Accept minutes from May 5, 2025 meeting

2. Board Comment

3. Public Comment

4. Project Review

4.1. ZP-25-258; 216 Leddy Park Rd (Ward 4, RCO-RG) City of Burlington
Create approximately 2,070 linear feet of earthen surface bike trail with features built from native soils

5. Update & Discussion

5.1. Deer Management
Follow up from May 5 Open Space Subcommittee discussion

6. Executive Session

7. Adjournment

8. Informational and Non-Discrimination Statements

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marital status, veteran status, disability, HIV positive status, crime victim status or genetic information. The City is also committed to providing proper access to services, facilities and employment opportunities. The programs and services of the City of Burlington are accessible to people with disabilities. Individuals who require special arrangements, auxiliary aid, service for effective communication, or a modification of policies or procedures to participate in a program, service, or activity of the City of Burlington, should contact the office of the Title II Burlington ADA Coordinator at 802-865-7000 as soon as possible but no later than 48 hours before the scheduled event.

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Conservation Board Meeting Minutes

Monday, May 5, 2025 – 5:30 pm
Remote & In Person Meeting

Attendance

- **Board Members:** Zoe Richards (ZR), Caryn Connolly (CC), Rebecca Roman (RR), Leslie Spencer (LS), Kyle Tansley (KT), Ethan Ely (EE), Don Meals (DM)
- **Absent:** Elizabeth Cunningham (EC), Ryan Crehan (RC)
- **Public:** Sharon Bushor (Public Comment), Nick Warner, Lauren Chicote, & Andres Torizzo (WVPD application)
- **Staff:** Scott Gustin (Permitting & Inspections), Dan Cahill (Parks & Rec)

RR, chair, called the meeting to order at 5:34 p.m.

Minutes

April 7, 2025 minutes

A MOTION was made by KT and SECONDED by CC:

Approve the April 7 minutes as written.

Vote: 6-0-1, motion carried.

Board Comment

SG noted that wave 2 of the Open Space Plan stakeholder and public outreach and engagement starts next week.

Public Comment

Sharon Bushor noted the Open Space Plan could affect how the Conservation Legacy Fund is used. She'd like an actuary to look at the fund and help determine how its spent. She's worried that the fund could be used to supplement other shrinking funds.

Open Space Subcommittee

RR said Open Space Subcommittee talked about deer management and the deer problem in Burlington. We've got an outline of a process. We'd like to reach out to the Parks Commission, the City Council's PAC committee, and VT F&W. We'll engage in a public education effort. The Open Space Subcommittee could serve as host to the process.

DM, it would be helpful to hear if we've received public comments (complaints or otherwise) about deer in Burlington.

Update & Discussion

1. **Conservation Legacy Fund Application**
   Request by Winooski Valley Park District for funding of engineering design and construction cost estimates for riverbank work at Derway Cove.

Nick Warner, Andres Torizzo, and Lauren Chicote appeared on behalf of this item.

Nick Warner overviewed the project. We can try to piecemeal the project or try to do it comprehensively. We're hoping to do the latter. The city has already made an investment in the site, and it is literally being carved away. We are hoping that our work can coordinate with what the city is planning to do with the bridge abutment. Strategically, we think its best to present a design task first.

DM, it's a natural process that the outer bend of the river will erode. Are there any resources that could focus specifically on the bridge?

ZR said that Derway Cove is incredible. Its an accessible place to enjoy the floodplain forest.
DM feels that this item is deserving of our attention.

Andres Torizzo detailed the green "soft solution" to address the erosion with vegetation and woody debris. The design work has not occurred yet, but this is generally what we're aiming to do.

DM suggested using this work as an educational opportunity to showcase this natural stabilization work.

EE, is the money requested for the final design? Nick Warner, we will not be required to have as high level engineering as for a hard armoring design. We'll analyze where the energy is hitting and develop cross sections of areas along the corridor. EE, is there any hydrologic modeling to be done? Nick Warner, will defer to Andres.

A MOTION was made by DM and SECONDED by ZR:

Recommend approval to use Conservation Legacy Fund monies for the design work and construction cost estimates as requested.

Vote: 7-0-0, motion carried.

Adjournment

6:10 PM.

This project proposes to create approximately 2,070 linear feat of earthen surface bike trail with features built from native soils (as well as a fill soil pile located at the maintenance facility that has been approved for this use with respect to any soil contaminants). These trails will be classified as a beginner jump trail and beginner flow trail with return climbing trails. The start of each trail will include an earthen 'start mound' to achieve adequate grade for the features. The Green Flow Trail, Return Trail, and New Entrances will each average 6' wide. The Green Jump Trail will average 12' wide. This creates a total of 0.36 acres of new impervious surfaces. A 17' to 30' wide (depending on trail type and location) potential area of disturbance will be temporarily created from the center line of each new trail to allow for corridor clearing of small branches, etc., as well as for shallow soil borrow to build trail features. Disturbance will be minimized to the maximum extent practicable. All disturbed areas will be covered in leaf litter and branches following construction completion.

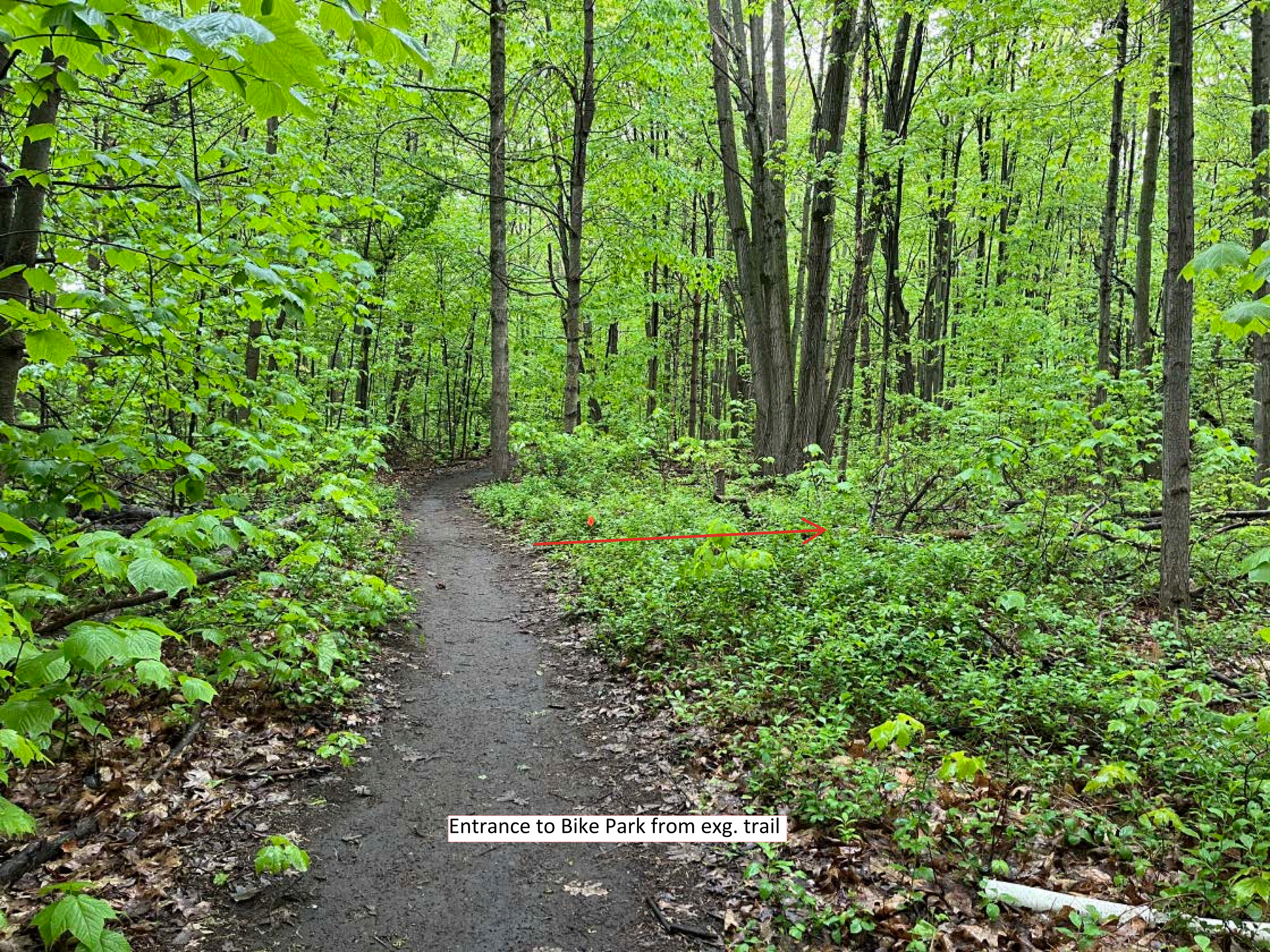
There are no catch basins, swales/ditches, or water bodies (streams, wetlands, or lakes/ponds) in immediate proximity to these features. Features will largely be at grade and not alter existing topography in a substantial way (i.e. overall existing drainage patterns will not change). Runoff created will be managed using simple vegetative disconnection, as well as the selective use of small infiltration pits or sumps adjacent to trail features to further enhance runoff management.

One construction entrance will be used for the entirely of the projects. This is an area located adjacent to a soil and mulch stockpile area. No tracking of earth is anticipated to occur on the Leddy Park access road. If any tracking does occur on paved areas, contractor will use best housekeeping practices to sweep up and store any tracked materials.

No permanent stormwater management features are to be constructed as part of this project. Stormwater management will make use of Simple Vegetative Disconnection. Annual inspections are to be performed to ensure that trail gradients are maintained to ensure that runoff is in the form of sheet flow and is non-erosive in nature. If erosive flows are found, minor grading using hand tools can be used to rectify the issue.


Borrow Pit Location
Orange flags show
approximate LOD


Potential Borrow Pit Location


Entrance to Bike Park from exg. trail

Entrance to Bike Park from exg. trail

Location of flow trail start mound

Exg conditions along flow trail

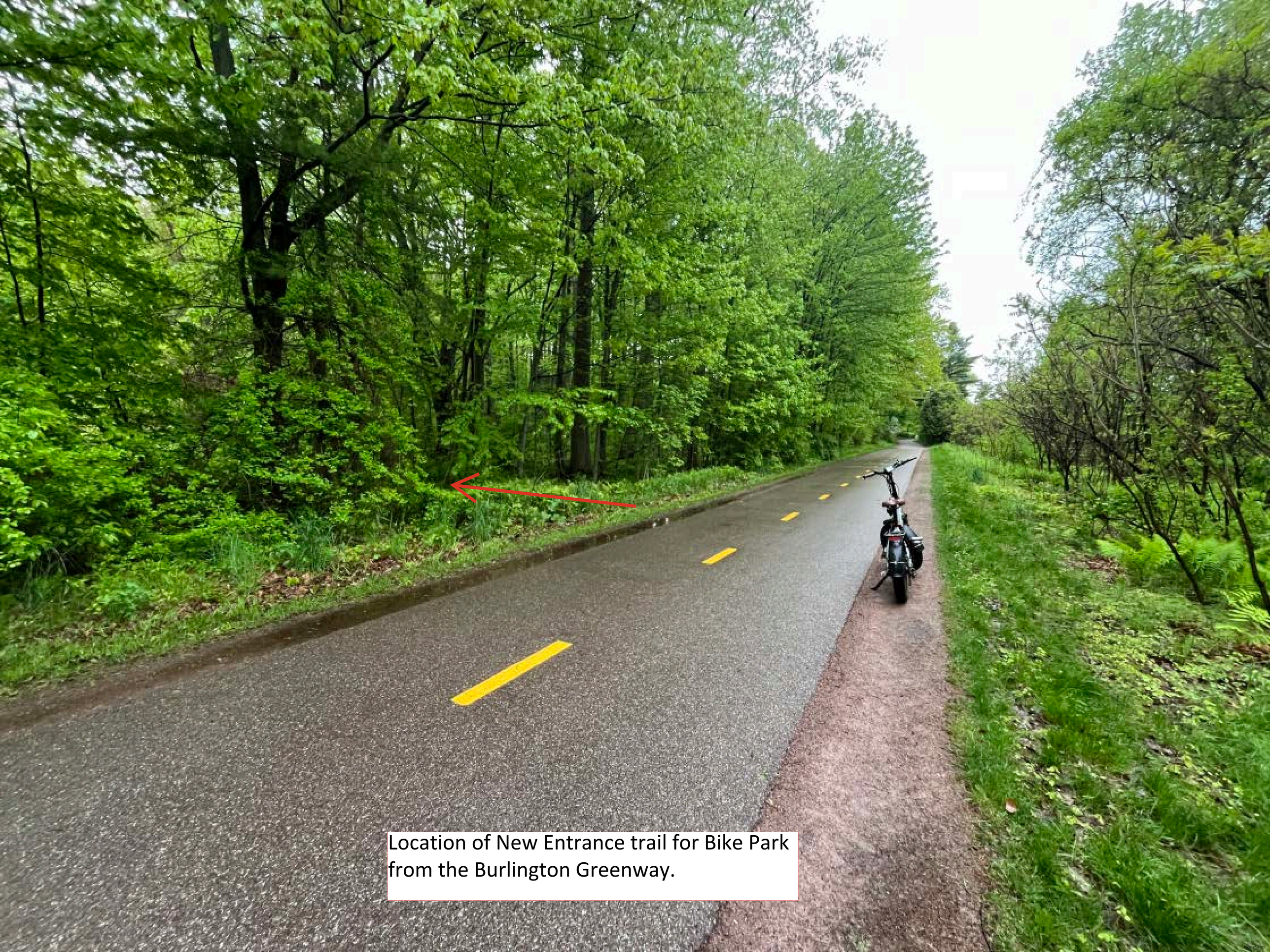
Exg informal and unmapped trail to be closed.

Location of Jump Lines Start Mound

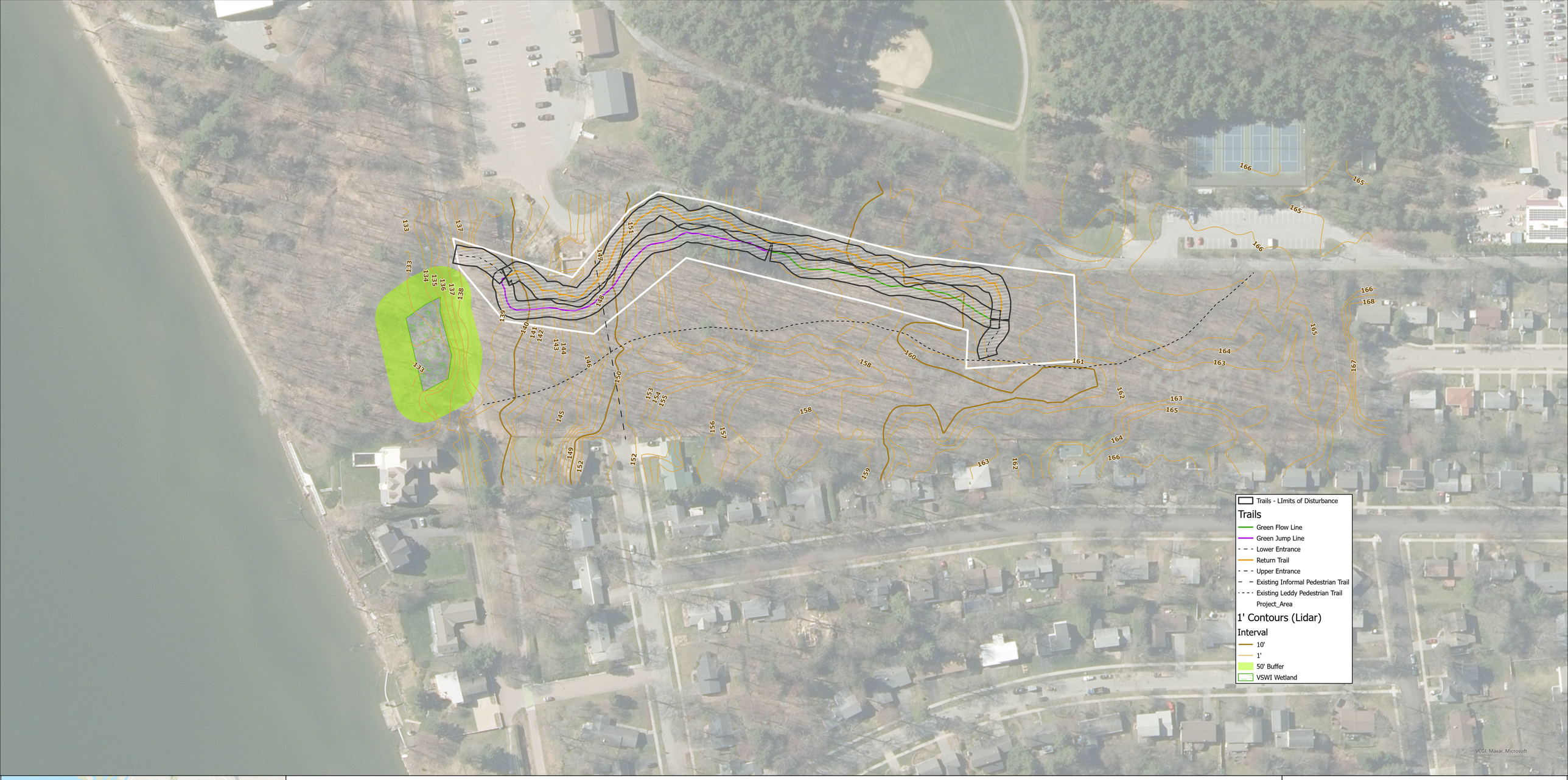
Segment of exg. trail that will cross bike park trails to be closed.

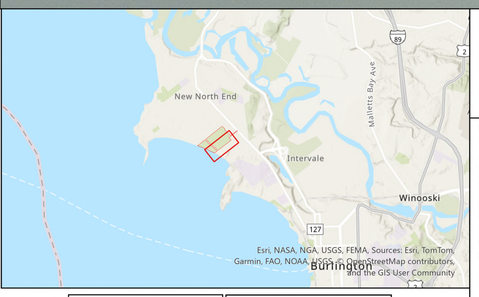

Location of Construction Entrance
through exg. Parks Storage Area

Location of new entrance to Bike Park from the Burlington Greenway.



Location of New Entrance trail for Bike Park from the Burlington Greenway.





FLUIDSTATE CONSULTING

48 Stowe Street
Waterbury, VT 05676
PH: (802) 999-9762
fluidstateconsulting.com

Leddy Park | Burlington, VT
Proposed Bike Park - Preconstruction Plan

EXISTING CONDITIONS NOTES:
1. THE PURPOSE OF THE EXISTING CONDITIONS PLAN IS TO DEPICT READILY APPARENT PERTINENT EXISTING CONDITIONS AS OF 5/23/2025 11:58 AM.
2. PARCEL DELINEATIONS ARE PRESENTED AS-IS FROM PUBLICLY AVAILABLE DATA (VT CENTER FOR GEOGRAPHIC INFORMATION) AND DO NOT CONSTITUTE A SURVEY.
3. TOPOGRAPHIC CONTOUR LINES FROM VCGI STATEWIDE LIDAR.
4. SOILS: HYDROLOGIC SOIL GROUP A - ADAMS & WINDSOR LOAMY SANDS, 0-5% SLOPES.
5. STORMWATER INFRASTRUCTURE DATA FROM CITY OF BURLINGTON PUBLIC WORKS DEPARTMENT.
6. WETLAND DELINEATION AS PER VERMONT SIGNIFICANT WETLAND INVENTORY (VSWI).
7. 1942 RENDERING PLANT FEATURES AS PER PLANS OBTAINED FROM 2013 WAITE-HEINDEL ENVIRONMENTAL MANAGEMENT STUDY AND GEOREFERENCED MANUALLY BY FLUIDSTATE CONSULTING.
8. VHB PAH STUDY PROVIDED BY BURLINGTON DEPARTMENT OF PARKS AND RECREATION AND MANUALLY GEOREFERENCED BY FLUIDSTATE CONSULTING. STUDY WAS CONDUCTED IN ASSOCIATION WITH CREATION OF BIOSWALE FOR MAINTENANCE BUILDING AND PARKING LOT.

0 130 260 Feet

1 INCH EQUALS 75 FEET
SPATIAL REFERENCE
Name: NAD 1983 2011 StatePlane Vermont FIPS 4400 Ft US
UPDATED: 5/23/2025 11:58 AM

CONCEPT DESIGN PLAN

Name	Length (ft)	Width (ft)	Impervious Area (square feet)	Impervious Area (Acres	Width of Disturbanc (ft)	Limits of Disturbance (square feet	Limits of Disturbanc (Acres)
Green Flow Line	397.49	6.00	2,384.96	0.05	17.00	6,757.38	0.16
Upper Entrance	67.03	6.00	402.16	0.01	17.00	1,139.46	0.03
Green Jump Line	530.98	12.00	6,371.71	0.15	30.00	15,929.28	0.37
Lower Entrance	94.13	6.00	564.80	0.01	17.00	1,600.25	0.04
Return Trail	983.81	6.00	5,902.86	0.14	17.00	16,724.76	0.38
TOTAL	**2,073.44**		**15,626.48**	**0.36**		**42,151.13**	**0.97**

Lower Entrance Sign
Do Not Enter
9" maple
9" maple
9" maple
7 - 17" Diameter
6 - 21" Diameter
8 - 24" Diameter
9 - 18" Diameter
10 - 21" Diameter
5 - 19" Diameter
1 - 16" Diameter
4 - 32" Diameter
2 - 24" Diameter
3 - 26" Diameter
9" beech
Upper Entrance Sign

- Utility Poles
- Start Mounds
- Signs
- Trees over 9" to Remove
- Borrow Pits

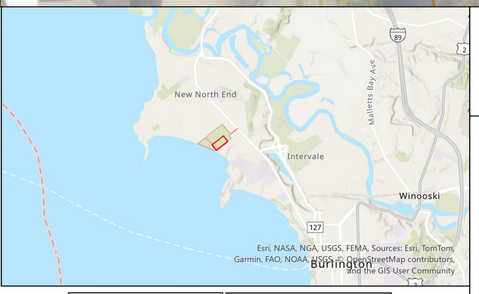
Trails

- Green Flow Line
- Green Jump Line
- Lower Entrance
- Return Trail
- Upper Entrance
- Trail Surface Treads
- Limits of Disturbance
- Construction Entrance
- Existing Informal Pedestrian Trail
- Existing Leddy Pedestrian Trail

1' Contours (Lidar)

Interval

- 10'
- 1'
- 50' Buffer
- VSWI Wetland
- Manholes
- Storm / Sewer Line



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Leddy Park | Burlington, VT
Proposed Bike Park - Concept Design - Green Trails

CONCEPT DESIGN NOTES:
1. THIS CONCEPT DESIGN IS CURRENT AS OF 5/23/2025 11:59 AM.
2. TRAIL LINES FLAGGED BY IDERIDE BUILDERS 5-15-2025.
3. IMPERVOUS COVER CALCULATED USING FLAGGED LENGTH OF TRAIL MULTIPLIED BY AVERAGE WIDTH. 6' CORRIDOR FOR FLOW TRAIL AND 12' WIDE CORRIDOR FOR JUMP TRAIL WILL BE COMPACTED FOR DURABILITY BY TRAIL USERS. TRAIL TREAD WILL GENERALLY BE AT OR ABOVE EXISTING GRADE ONCE ORGANIC LAYER OF SOIL HAS BEEN REMOVED. 15' LIMITS OF DISTURBANCE DEMARCATE AREAS OF POTENTIAL LOCAL SOIL BORROW. ALL DISTURBED AREAS WILL BE COVERED IN LEAF LITTER ('DUFF') AND BRANCHES FOLLOWING CONSTRUCTION.
4. SIGNS TO BE PROVIDED BY BURLINGTON PARKS AND RECREATION DEPARTMENT AND TO BE INSTALLED AT A LATER DATE BY PARKS AND RECREATION SEPARATE FROM THIS BUILD PROJECT. LOCATIONS SHOWN ARE FOR REFERENCE AND MAY BE SUBJECT TO CHANGE.
5. BORROW PITS WILL BE DUG OUT TO MAXIMUM 4' DEEP WITH GRADUAL SLOPED SIDES. ONCE MATERIAL HAS BEEN REMOVED FOR USE ON TRAIL FEATURES, PITS WILL BE COVERED WITH DUFF AND BRANCHES TO RE-NATURALIZE THE SURFACE. PRIOR TO EXCAVATING SOILS, A VISUAL TEST PIT WILL BE DUG TO INSPECT SOILS AND VERIFY THAT THEY ARE CONSISTENT WITH EXPECTED NATIVE SOILS.
6. START MOUNDS WILL BE CONSTRUCTING USING ON-SITE SOIL STORAGE MOUND AS APPROVED BY PARKS AND RECREATION. START MOUND SIDE SLOPES WILL BE LIGHTLY COMPACTED FOR EROSION RESISTANCE AND COVERED IN DUFF AND/OR PLANTED AND MULCHED FOLLOWING CONSTRUCTION.
7. STORMWATER MANAGEMENT WILL RELY ON SIMPLE DISCONNECTION AS ALL SOILS IN THE AREA ARE HYDROLOGIC SOIL GROUP A AND SLOPES ARE BELOW 5%. WHERE NECESSARY, SMALL INFILTRATION SUMPS WILL BE CREATED ADJACENT TO FEATURES TO CAPTURE AND INFILTRATE RUNOFF ABOVE AND BEYOND SIMPLE DISCONNECTION MANAGEMENT. ONE CONSTRUCTION ENTRANCE WILL BE USED TO MINIMIZE TRACKING ON PAVED SURFACES.
8. THE EXISTING INFORMAL PEDESTRIAN TRAIL (APPROXIMATELY FOLLOWING THE STORM/SEWER PIPE LINE) WILL BE CLOSED AFTER ITS INTERSECTION WITH THE EXISTING PEDESTRIAN TRAIL TO MINIMIZE CONFLICT WITH THE BIKE TRAILS WHILE MAINTAINING NEIGHBORHOOD ACCES ON AN INFORMAL BASIS TO THE PARK AND BIKE PATH.
9. ALL TREES OVER 9" DIAMETER AT BREAST HEIGHT (DBH) HAVE BEEN FLAGGED FOR REMOVAL AND APPROVED BY THE CITY ARBORIST. TREES UNDER 9" DBH WITHIN THE 6' CORRIDOR AND BORROW PITS WILL BE REMOVED AS NEEDED. BORROW PIT LOCATIONS HAVE BEEN CHOSEN TO MINIMIZE TREE REMOVAL WHEREVER POSSIBLE.
10. CLEARING ON THE SITE WILL BE LIMITED TO THE 6' OR 12' WIDE TRAIL CORRIDOR (+ 3' ADDITIONAL WIDTH ON EITHER SIDE FOR UNDERSTORY CLEARING) AND LIMITED TREE / SHRUB DISTURBANCE IN THE 30' WIDE CORRIDOR (IMPACT TO SMALL UNDERSTORY TREES / SHRUBS ONLY). CANOPY COVER IS NOT EXPECTED TO BE IMPACTED SIGNIFICANTLY.
11. NO PERMANENT STORMWATER MANAGEMENT FEATURES ARE TO BE CONSTRUCTED AS PART OF THIS PROJECT. ANNUAL INSPECTIONS ARE TO BE PERFORMED TO ENSURE THAT TRAIL GRADIENTS ARE MAINTAINED TO ENSURE THAT RUNOFF IS IN THE FORM OF SHEET FLOW AND IS NON-EROSIVE IN NATURE. IF EROSIVE FLOWS ARE FOUND, MINOR GRADING USING HAND TOOLS CAN BE USED TO RECTIFY THE ISSUE.

0 62.5 125 Feet

1 INCH EQUALS 35 FEET
SPATIAL REFERENCE
Name: NAD 1983 2011 StatePlane Vermont FIPS 4400 Ft US
UPDATED: 5/23/2025 11:59 AM

CONCEPT DESIGN PLAN

EPSC PLAN NARRATIVE

1. PROJECT DESCRIPTION

THIS PROJECT PROPOSES TO CREATE APPROXIMATELY 2,070 LINEAR FEAT OF EARTHEN SURFACE BIKE TRAIL WITH FEATURES BUILT FROM NATIVE SOILS (AS WELL AS A FILL SOIL PILE LOCATED AT THE MAINTENANCE FACILITY THAT HAS BEEN APPROVED FOR THIS USE WITH RESPECT TO ANY SOIL CONTAMINANTS). THESE TRAILS WILL BE CLASSIFIED AS A BEGINNER JUMP TRAIL AND BEGINNER FLOW TRAIL WITH RETURN CLIMBING TRAILS. THE START OF EACH TRAIL WILL INCLUDE AN EARTHEN 'START MOUND' TO ACHIEVE ADEQUATE GRADE FOR THE FEATURES. EACH TRAIL WILL AVERAGE APPROXIMATELY 6' WIDE, FOR A TOTAL IMPERVIOUS SURFACE COVERAGE OF 12,440 SQUARE FEET (~0.29 ACRES) OF NEW IMPERVIOUS SURFACES.A 30' WIDE POTENTIAL AREA OF DISTURBANCE WILL BE TEMPORARILY CREATED FROM THE CENTER LINE OF EACH NEW TRAIL TO ALLOW FOR CORRIDOR CLEARING OF SMALL BRANCHES, ETC., AS WELL AS FOR SHALLOW SOIL BORROW TO BUILD TRAIL FEATURES. DISTURBANCE WILL BE MINIMIZED TO THE MAXIMUM EXTENT PRACTICABLE. ALL DISTURBED AREAS WILL BE COVERED IN LEAF LITTER AND BRANCHES FOLLOWING CONSTRUCTION COMPLETION.

THERE ARE NO CATCH BASINS, SWALES/DITCHES, OR WATER BODIES (STREAMS, WETLANDS, OR LAKES/PONDS) IN IMMEDIATE PROXIMITY TO THESE FEATURES. FEATURES WILL LARGELY BE AT GRADE AND NOT ALTER EXISTING TOPOGRAPHY IN A SUBSTANTIAL WAY (I.E. OVERALL EXISTING DRAINAGE PATTERNS WILL NOT CHANGE). RUNOFF CREATED WILL BE MANAGED USING SIMPLE VEGETATIVE DISCONNECTION, AS WELL AS THE SELECTIVE USE OF SMALL INFILTRATION PITS OR SUMPS ADJACENT TO TRAIL FEATURES TO FURTHER ENHANCE RUNOFF MANAGEMENT.

ONE CONSTRUCTION ENTRANCE WILL BE USED FOR THE ENTIRELY OF THE PROJECTS. THIS IS AN AREA LOCATED ADJACENT TO A SOIL AND MULCH STOCKPILE AREA. NO TRACKING OF EARTH IS ANTICIPATED TO OCCUR ON THE LEDDY PARK ACCESS ROAD. IF ANY TRACKING DOES OCCUR ON PAVED AREAS, CONTRACTOR WILL USE BEST HOUSEKEEPING PRACTICES TO SWEEP UP AND STORE ANY TRACKED MATERIALS.

IT IS ANTICIPATED THAT CONSTRUCTION WILL COMMENCE 6/24/2025 AND FINISH 8/31/2025.

2. AMOUNT OF DISTURBANCE AND RISK EVALUATION

TOTAL AREA OF DISTURBANCE AS SHOWN ON THE ATTACHED EPSC PLAN IS APPROXIMATELY 0.97 ACRES.

ANY MODIFICATIONS TO THE PROJECT THAT INCREASE THE RISK TO ENVIRONMENTAL RESOURCES SHALL BE EVALUATED IN ACCORDANCE WITH THE PERMIT REQUIREMENTS. THE CONTRACTOR WILL BE RESPONSIBLE FOR ANY ADDITIONAL PERMITTING.

3. MAJOR COMPONENTS AND SEQUENCING

THE CONTRACTOR SHALL SEQUENCE CONSTRUCTION ACTIVITIES TO MINIMIZE THE EXTENT OF DISTURBED SOILS LEFT OPEN TO EROSION AT ANY GIVEN TIME.

CONSTRUCTION SEQUENCING SHALL BE AS FOLLOWS:
FLAG FINAL TRAIL LINES FOR DESCENT AND ASCENT TRAILS. FLAG BORROW PIT LOCATIONS AND ANY TREES OVER 9" DIAMETER AT BREAST HEIGHT TO BE REMOVED. CONSULTATION WITH BURLINGTON PARKS AND RECREATION DEPARTMENT AND CITY ARBORIST ON THESE LINES, PITS, AND TREES.

STAGE EQUIPMENT AND MATERIALS AT CONSTRUCTION ENTRANCE (BOTH TO BE TRANSPORTED TO THE SITE IN TRAILERS TO PREVENT TRACKING).

CLEAR CORRIDOR OF TREES, SHRUBS, AND UNDERSTORY PLANTS SMALLER THAN 9" DBH WITHIN DEFINED CORRIDOR (6' AVERAGE WIDTH FOR GREEN FLOW TRAIL, RETURN (CLIMB) TRAIL, AND NEW ENTRANCE TRAILS – 12' AVERAGE WIDTH FOR GREEN JUMP TRAIL) PLUS AN ADDITIONAL 3' TO EITHER SIDE OF THE DEFINED TRAIL CORRIDORS.

CLEAR TRAIL SURFACES OF LEAF LITTER AND ORGANIC SOILS. BUILD START MOUNDS FOR EACH OF THE JUMP AND FLOW TRAILS USING SOIL STORAGE PILE AS APPROVED BY BURLINGTON PARKS AND RECREATION. BORROW MATERIAL FROM BORROW PITS AS NEEDED. START MOUNDS TO BE COMPACTED DURING CONSTRUCTION. START MOUNDS WILL HAVE SLOPING SIDES COMPACTED AND SURFACE ROUGHENED DURING CONSTRUCTION TO REDUCE EROSION FROM MOUNDS. BORROW PITS TO BE SLOPED GRADUALLY FROM EDGE TO CENTER TO FACILITATE ACCESS AND REDUCE EROSION.

GREEN FLOW TRAIL TO BE CONSTRUCTION FIRST. AS TRAIL IS BUILT, FEATURES OR SECTIONS WILL BE COMPACTED BY MACHINE OR HAND TOOLS AS NEEDED. ANY ELEVATED SECTIONS WILL BE SLOPED ON THE SIDES TO REDUCE EROSION. WHERE NEEDED (PRIMARILY AFTER ELEVATED ROLLER OR BERM FEATURES) SMALL ON-SITE INFILTRATION SUMPS WILL BE CREATED TO ENHANCE WATER RUNOFF STORAGE IN ADDITION TO USING SIMPLE DISCONNECTION TO MANAGE RUNOFF. AS THE TRAIL IS BUILT, SIDE SLOPES WILL BE COVERED USING LEAF LITTER AND BRANCHES TO DEMARCATE THE TRAIL AND TO REDUCE THE POSSIBILITY OF EROSION FROM TRAIL SIDE SLOPES.

GREEN JUMP TRAIL TO BE BUILT FOLLOWING FLOW TRAIL COMPLETION AND STABILIZATION. CONSTRUCTION AND EROSION CONTROL OF THE JUMP TRAIL WILL BE ANALOGOUS TO THE METHODS USED FOR THE FLOW TRAIL.

THE ENTRANCES AND RETURN (CLIMB) TRAIL WILL BE CONSTRUCTED FOLLOWING COMPLETION OF THE FLOW AND JUMP TRAILS. THESE TRAILS WILL GENERALLY BE CONSTRUCTED AT GRADE (NO FEATURES SUCH AS TABLE JUMPS, ROLLERS, OR BERMS TO BE CONSTRUCTED). EROSION CONTROL METHODS WILL BE ANALOGOUS TO THOSE USED IN THE FLOW AND JUMP TRAILS.

FOLLOWING CONSTRUCTION, A SITE WALK THROUGH WILL BE PERFORMED WITH BURLINGTON PARKS AND RECREATION AND STORMWATER STAFF TO VERIFY SITE CONDITIONS AND MAKE ANY ADJUSTMENTS AS NEDED.

STORED MATERIALS AND EQUIPMENT TO BE REMOVED FROM THE STABILIZED CONSTRUCTION ENTRANCE AND ANY MATERIAL TRACKED ON PARKING SURFACES OR ROADS WILL BE SWEPT UP AND STORED IN STORAGE PILES AS DIRECTED BY BURLINGTON PARKS AND RECREATION.

4. SITE DESCRIPTION
4.1 VEGETATED BUFFERS

MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS, OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE IMPLEMENTED WHEREVER POSSIBLE.

THIS PROJECT HAS IDENTIFIED VEGETATED BUFFERS AS A MITIGATING RISK FACTOR. THERE ARE NO CATCH BASINS, STREAMS, WATER BODIES, OR WETLANDS TO WHICH THIS SITE CAN DRAIN. HOWEVER, THERE IS A WETLAND DOWNHILL OF THE BURLINGTON BIKE PATH, THE 50' BUFFER OF WHICH JUST TOUCHES THE LOWER SECTION OF THIS PROJECT AREA. NO CONSTRUCTION WILL TAKE PLACE WITHIN THIS 50' WETLAND BUFFER. FURTHER, EFFORTS ARE BEING MADE TO PRESERVE THE MAJORITY OF CANOPY TREES TO INTERCETP PRECIPITATION AND MINIMZE RUNOFF ON THE SITE. IT IS NOT ANTICIPATED THAT THIS PROJECT WILL RESULT IN A SIGNIFICANT LOSS OF CANOPY.

4.2 STREAM CROSSINGS

THIS PROJECT DOES NOT INCLUDE ANY PROPOSED STREAM CROSSINGS.

4.3 WETLANDS

THERE ARE NO WETLANDS OR WETLAND BUFFERS BEING IMPACTED WITHIN THE PROJECT LIMITS.

4.4 TOPOGRAPHY

THE TOPOGRAPHY OF THE PROJECT AREA IS GENERALLY LESS THAN 5% SLOPES (GENERALLY AVERAGING 1-3% OVERALL).

4.5 VEGETATION

THE VEGETATION IN THE PROJECT AREA CONSISTS OF MATURE TREE CANOPY (PINES, MAPLES, BEECHES) WITH ACTIVE UNDERSTORY VEGETATION. THE IMPACT TO VEGETATION WILL BE LIMITED TO WHAT IS DIRECTLY AFFECTED BY THE PROJECT. UPON COMPLETION, THE DISTURBED AREAS WILL BE COVERED IN LEAF LITTER AND BRANCHES MIMICKING THE NATURAL CONDITIONS CURRENTLY FOUND ON THE SITE. BURLINGTON PARKS AND RECREATION DEPARTMENT WILL ACTIVELY LOOK FOR OPPORTUNITIES TO REPLANT ANY UNDERSTORY VEGETATION ADJACENT TO TRAIL FEATURES FOLLOWING CONSTRUCTION COMPLETION.

4.6 SOILS

SOIL EROSION DATA FROM THE U.S. DEPARTMENT OF AGRICULTURE NATURAL RESOURCES CONSERVATION SERVICE INDICATES THAT SOILS ON THE PROJECT SITE INCLUDE:
ADAMS AND WINDSOR LOAMY SANDS, 0 TO 5 PERCENT SLOPES, K-FACTOR WHOLE SOIL: 0.10 (LOW EROSION POTENTIAL).

NOTE: K-VALUES GENERALLY INDICATE THE FOLLOWING:
0.0-0.23 = LOW EROSION POTENTIAL
0.24-0.36 = MODERATE EROSION POTENTIAL
0.37 AND HIGHER = HIGH EROSION POTENTIAL

5. DRAINAGE
5.1 RECEIVING WATERS

RECEIVING WATERS ARE WBID VT05-10 WHICH INCLUDES LAKE CHAMPLAIN DIRECT DRAINAGE.

5.2 DISCHARGE POINTS

THERE ARE NO DISCRETE DRAINAGE POINTS ASSOCIATED WITH THE PROJECT AS IT IS DISPERSED, LOW-SLOPE LINEAR TRAIL PROJECT. ALL DRAINAGE WILL BE DISPERSED AT MULTIPLE POINTS THROUGHOUT THE WOODS INTO LOW-SLOPE HYDROLOGIC SOIL GROUP A AREAS.

5.3 CONVEYANCE/ FLOW PATH FROM PROJECT TO WATERS

RUNOFF DRAINS OVERLAND ACROSS ADJACENT VEGETATED SIDE SLOPES BEFORE REACHING THE RECEIVING WATER. THERE IS MORE THAN 50' OF WELL VEGETATED AREA ACROSS ALL AREAS OF THE SLOPE BEFORE ANY RUNOFF FROM THE PROJECT WOULD REACH A RECEIVING WATER.

6. EROSION PREVENTION AND SEDIMENT CONTROL MEASURES

THE MEASURES INCLUDED IN THIS PLAN ARE PROVIDED AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. IT IS EXPECTED THAT THE CONTRACTORS MAY USE THIS PLAN, WITH ADJUSTMENTS AS NECESSARY, BASED ON THEIR SPECIFIC MEANS AND METHODS OF CONSTRUCTION.

APPLYING THESE MEASURES THROUGHOUT CONSTRUCTION IS CRITICAL TO THEIR SUCCESS IN MINIMIZING SEDIMENT TRANSPORT TO THE RECEIVING WATERS. REFER TO THE DETAILS INCLUDED IN THESE PLANS AND THE DEPARTMENT OF ENVIRONMENTAL CONSERVATION'S VERMONT STANDARDS AND SPECIFICATIONS FOR EROSION PREVENTION AND SEDIMENT CONTROL FOR SPECIFIC GUIDANCE.

6.1 IDENTIFY LIMITS OF DISTURBANCE

SITE BOUNDARIES AND AREAS CONSTRUCTION EQUIPMENT CAN ACCESS SHALL BE DELINEATED.

PROJECT DEMARCATION SHALL BE ACCOMPLISHED USING FLAGGED TRAIL CENTER LINES AND BORROW PIT CENTER POINT DEMARCATION ACCOMPANIED BY A STANDARD WIDTH FROM CENTER OR DIAMETER FROM CENTER. PROJECT DEMARCATION FENCING WILL NOT BE USED FOR THIS LINEAR PROJECT.

6.2 LIMIT CONCURRENT DISTURBANCE

LIMITING THE AMOUNT OF SOIL EXPOSED AT ONE TIME REDUCES THE POTENTIAL EROSION ON SITE. CONCURRENT EARTH DISTURBANCE CAN BE MINIMIZED THROUGH CONSTRUCTION PHASING BY ONLY DISTURBING EARTH AS NECESSARY AND EMPLOYING STABILIZATION PRACTICES IN INCREMENTAL STAGES AS PHASES CHANGE. THE PROJECT IS ENVISIONED IN THREE PRIMARY PHASES (FLOW TRAIL, JUMP TRAIL, AND RETURN / ENTRANCE TRAIL CONSTRUCTION) TO MINIMZE CONCURRENT DISTURBANCE.

6.3 STABILIZE DISTURBED AREAS
6.3.1 ACCESS POINTS/ ENTRANCE/ EXITS

TRACKING OF SEDIMENT ONTO PUBLIC HIGHWAYS SHALL BE MINIMIZED TO REDUCE THE POTENTIAL FOR RUNOFF ENTERING RECEIVING WATERS. INSTALLATION SHALL COINCIDE WITH THE CONTRACTORS PROGRESS SCHEDULE.

STABILIZED CONSTRUCTION ENTRANCES ARE ANTICIPATED ON THIS PROJECT AND SHALL BE LOCATED AS SHOWN ON THIS EPSC PLAN AND ANYWHERE EQUIPMENT WILL BE GOING FROM AREAS OF EXPOSED SOILS TO PAVED SURFACES.

6.3.2 TEMPORARY MEASURES FOR EXPOSED AREAS DURING CONSTRUCTION

ALL AREAS OF EARTH DISTURBANCE MUST HAVE STABILIZATION IN PLACE WITHIN 14 DAYS OF INITIAL DISTURBANCE AND DISTURBED AREAS MUST BE STABILIZED IN ADVANCE OF ANY RUNOFF PRODUCING EVENT.

STABILIZATION METHODS WILL INCLUDE SURFACE ROUGHENING OF EXPOSED SLOPES AND MULCHING USING ON-SITE NATURAL LEAF LITTER AND BRANCHES

6.3.3 PERMANENT STABILIZATION AT FINAL GRADE

EXPOSED SOIL MUST BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

STABILIZATION WILL INCLUDE SOIL COMPACTION TO REDUCE EROSION ON TRAIL SURFACES. TRAIL AND TRAIL FEATURE SIDE SLOPES WILL BE COMPACTED LIGHTLY WHERE NEEDED TO PREVENT EROSION AND LEAF LITTER AND BRANCHES ADDED TO MINIMZE EROSION POTENTIAL AND MIMIC NATURAL UNDERSTORY CONDITIONS.

6.4 DIVERT UPLAND RUNOFF

NO UPLAND RUNOFF IS ANTICIPATED TO IMPACT THIS PROJECT AREA AS THE SITE IS FLAT AND CONTAINS LOCALIZED LOW SPOTS WHICH WILL EFFECTIVELY CAPTURE ALL UPLAND RUNOFF.

7. CONSTRUCT PERMANENT CONTROLS

PERMANENT STORMWATER TREATMENT DEVICES ARE NOT ANTICIPATED TO BE NEEDED AS DESIGNED.

8. DEWATERING

NO DEWATERING IS ANTICIPATED TO OCCUR AS PART OF THIS PROJECT.

9. OFF-SITE AREAS

NO OFF-SITE WASTE OR BORROW AREAS WILL BE USED AS PART OF THIS PROJECT.

10. WINTER CONSTRUCTION

NO WINTER CONSTRUCTION WILL TAKE PLACE AS PART OF THIS PROJECT.

11. INSPECTION AND MAINTENANCE

INSPECTION AND MONITORING OF THE PROJECT'S EPSC MEASURES SHALL BE CONDUCTED IN ACCORDANCE WITH STANDARD SPECIFICATION 653.04 MONITORING EROSION PREVENTION AND SEDIMENT CONTROL PLAN, ALONG WITH PERMIT SPECIFIC INSPECTION REQUIREMENTS.

CONTRACTORS SHALL PROVIDE A COPY OF THEIR INSPECTION FORM AS PART OF THEIR EPSC PLAN.

ALL EPSC MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

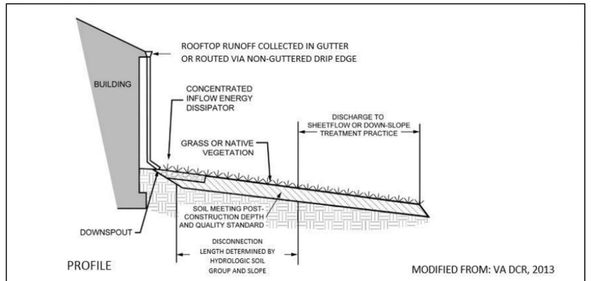


Figure 4-5. Simple Disconnection, Design Guidance

DETAIL: SIMPLE VEGETATIVE DISCONNECTION:
CRITERIA
IMPERVIOUS AREA LIMIT: EACH DISCONNECTION SHOULD HANDLE NO MORE THAN 1,000 SQUARE FEET OF IMPERVIOUS SURFACE.
FLOW PATH LENGTH: THE IMPERVIOUS FLOW PATH LEADING TO THE DISCONNECTION AREA SHOULD NOT EXCEED 75 FEET.
DISCONNECTION AREA WIDTH: THE WIDTH SHOULD BE EQUAL TO THE CONTRIBUTING WIDTH.
SOIL REQUIREMENTS: THE RECEIVING AREA MUST MEET THE POST-CONSTRUCTION SOIL DEPTH AND QUALITY STANDARDS.
SLOPE RESTRICTIONS: THE VEGETATED AREA SHOULD HAVE A MAXIMUM SLOPE OF 15% TO ENSURE EFFECTIVE INFILTRATION.
CONVEYANCE REQUIREMENTS
SHEET FLOW ENTRY: RUNOFF MUST ENTER THE DISCONNECTION AREA AS SHEET FLOW TO PREVENT EROSION AND ENSURE UNIFORM DISTRIBUTION.

TREATMENT AREA SPECIFICATIONS
FLOW PATH LENGTHS: SOILS ARE HSG A ON THIS SITE – SLOPES ARE 0 – 5%: 35' IS THE MINIMUM REQUIRED FLOW PATH LENGTH.
VEGETATION AND LANDSCAPING
VEGETATIVE COVER: A DENSE AND VIGOROUS VEGETATIVE COVER IS ESSENTIAL FOR EFFECTIVE INFILTRATION AND EROSION CONTROL.

Part 4 - Surface Roughening

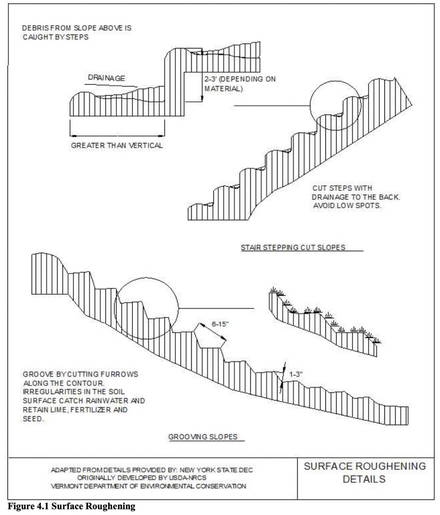


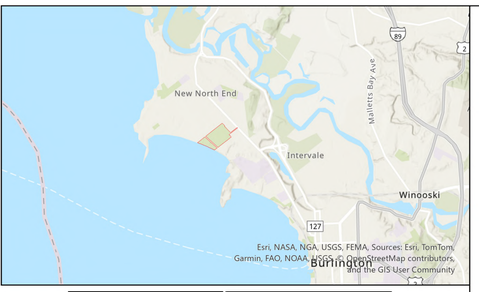
Figure 4.1 Surface Roughening

Mulch Material	Quality Standards	Per 1000 Sq.Ft.	Per Acre	Depth of Application	Remarks
Wood chips, shavings, or stump grindings	Air-dried. Free of objectionable coarse material.	500-900 lbs.	10-20 tons	2-7"	Used primarily around shrub and tree plantings and recreation trails to inhibit weed competition. Resistant to wind blowing. Decomposes slowly.
Wood fiber cellulose (partly digested wood fibers)	Made from natural wood usually with green dye and dispersing agent.	50 lbs.	2000 lbs.	—	Apply with hydromulcher. No tie down required. Less erosion control provided than 2 tons of hay or straw.
Gravel, or crushed stone	Washed; size 2B or 3A - 1.5".	9 cu.yds.	405 cu.yds.	3"	Excellent mulch for short slopes and around plants and ornaments. Use 2B where subject to traffic. (approximately 2,000 lbs./cu./yd.). Frequently used over filter fabric for better weed control.
Hay or straw	Air dried; free of undesirable seeds and coarse materials.	90-100 lbs. or 2-3 bales	2 tons or 100-120 bales	Cover about 90% surface	Use small grain straw where mulch is maintained for more than 3 months. Subject to wind blowing unless anchored. Most commonly used mulching material. Provides the best micro-environment for germinating seeds.
Compost	up to 3" pieces, moderately to highly stable.	3-9 cu.yds.	134-402 cu.yds.	1-3"	Coarser textured mulches may be more effective in reducing weed growth and wind erosion.

Figure 4.2 Guide to Mulch Materials, Rates, and Uses

Anchoring Method or Material	Kind of Mulch to be Anchored	How to Apply
1. Peg and twine	Hay or straw	After mulching divide areas into blocks approximately 1 sq.yd. in size. Drive 4-6 pegs per block to within 2" to 3" of soil surface. Secure mulch to surface by stretching twine between pegs in criss-cross pattern on each block. Secure twine around each peg with 2 or more tight turns. Drive pegs flush with soil. Driving states into ground tightens the twine.
2. Mulch netting	Hay or straw	Staple the light weight paper, jute, wood fiber, or plastic nettings to soil surface according to manufacturer's recommendations. Should be biodegradable. Most products are not suitable for foot traffic. To avoid wildlife entanglement, netting with fused joins is not approved. Refer to Figure 4.4 for RECP specifications.
3. Wood cellulose fiber	Hay or straw	Apply with hydroseeder immediately after mulching. Use 500 lbs. wood fiber per acre. Some products contain an adhesive material ("tackifier"), possibly advantageous.
4. Mulch anchoring tool	Hay or straw	Apply mulch and pull a mulch anchoring tool (blunt straight discs) over mulch as near to the contour as possible. Mulch material should be "tucked" into soil surface about 3".
5. Tackifier	Hay or straw	Mix and apply polymeric and gum tackifiers according to manufacturer's instructions. Avoid application during rain. A 24-hour curing period and a soil temperature higher than 45 degrees Fahrenheit are required.

Figure 4.3 Mulch Anchoring



Leddy Park | Burlington, VT

Proposed Bike Park - Erosion Prevention and Sediment Control (EPSC) Narrative and Details

Name	Length (ft)	Width (ft)	Impervious Area (square feet)	Impervious Area (Acres	Width of Disturbance (ft)	Limits of Disturbance (square feet	Limits of Disturbance (Acres)
Green Flow Line	397.49	6.00	2,384.96	0.05	17.00	6,757.38	0.16
Upper Entrance	67.03	6.00	402.16	0.01	17.00	1,139.46	0.03
Green Jump Line	530.98	12.00	6,371.71	0.15	30.00	15,929.28	0.37
Lower Entrance	94.13	6.00	564.80	0.01	17.00	1,600.25	0.04
Return Trail	983.81	6.00	5,902.86	0.14	17.00	16,724.76	0.38
TOTAL	**2,073.44**		**15,626.48**	**0.36**		**42,151.13**	**0.97**

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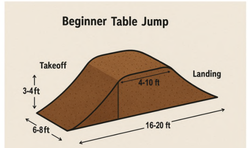
EPSC NARRATIVE AND DETAILS

DETAIL 1: TABLE JUMP

DETAIL:
1. TABLE JUMP - TO BE BUILT ALONG THE BEGINNER JUMP LINE ONLY (NOT ALONG THE BEGINNER FLOW LINE). DIMENSIONS SHOWN ARE TYPICAL FOR FEATURES OF THIS TYPE FOR THE BEGINNER SKILL LEVEL. JUMPS ARE MACHINE-COMPACTED. SIDE SLOPES OF EACH JUMP FEATURES ARE TAPERED (NOT ABRUPT) AND COMPACTED TO PREVENT EROSION. SIDE SLOPES TO BE DUFFED FOLLOWING CONSTRUCTION.



DETAIL 2: BERM

BERM FEATURES ARE TO BE CONSTRUCTED ALONG TRAIL CENTER LINE WITH HEIGHT VARYING FROM 1 - 3' AVERAGE.
RADII WILL VARY FROM 10 - 40' DEPENDING ON DESIRED TRAIL EXPERIENCE AND TOPOGRAPHY.
BACKSIDES OF BERMS WILL BE LIGHTLY COMPACTED AND COVERED IN LEAF LITTER AND BRANCHES TO PREVENT RUNOFF. WHERE NECESSARY, A SHALLOW INFILTRATION SUMP MAY BE LOCATED ON THE INSIDE OF BERMS TO CAPTURE RUNOFF IF OTHER POSITIVE DRAINAGE IS NOT FEASIBLE.

DETAIL 3: ROLLER

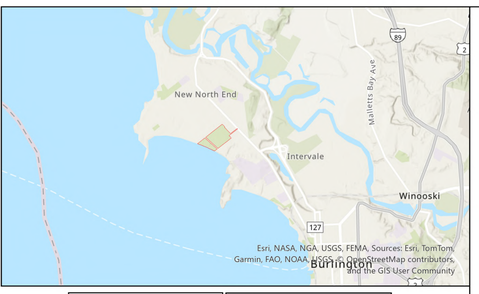
ROLLER FEATURES TO BE CONSTRUCTED WITH HEIGHT ABOVE GRADE TO VARY FROM 1 - 4' ON AVERAGE WITH A WIDTH OF 6 - 8' OF TRAIL SURFACE TREAD.
LENGTH WILL VARY FROM 10 - 40' DEPENDING ON DESIRED TRAIL EXPERIENCE AND TOPOGRAPHY.
SIDE SLOPES OF ROLLERS WILL BE LIGHTLY COMPACTED AND COVERED IN LEAF LITTER AND BRANCHES TO PREVENT RUNOFF.
POSITIVE DRAINAGE WILL BE MAINTAINED IN THE CENTER OF ROLLER FEATURES THROUGH THE USE OF OUT-SLOPING TO LOW-SLOPE ADJACENT AREAS AND/OR SHALLOW INFILTRATION SUMPS WHERE FEASIBLE OR NEEDED.

DETAIL 4: STEP DOWN

STEP DOWN FEATURES TO BE CONSTRUCTED WITH HEIGHT ABOVE GRADE TO VARY FROM 1 - 4' ON AVERAGE WITH A WIDTH OF 6 - 8' OF TRAIL SURFACE TREAD.
LENGTH WILL VARY FROM 10 - 20' DEPENDING ON DESIRED TRAIL EXPERIENCE AND TOPOGRAPHY.
SIDE SLOPES OF STEP DOWNS WILL BE LIGHTLY COMPACTED AND COVERED IN LEAF LITTER AND BRANCHES TO PREVENT RUNOFF.
POSITIVE DRAINAGE WILL BE MAINTAINED IN THE CENTER OF STEP DOWN FEATURES THROUGH THE USE OF OUT-SLOPING TO LOW-SLOPE ADJACENT AREAS AND/OR SHALLOW INFILTRATION SUMPS WHERE FEASIBLE OR NEEDED.

DETAIL 5: STEP UP

STEP UP FEATURES TO BE CONSTRUCTED WITH HEIGHT ABOVE GRADE TO VARY FROM 1 - 4' ON AVERAGE WITH A WIDTH OF 6 - 8' OF TRAIL SURFACE TREAD.
LENGTH WILL VARY FROM 10 - 20' DEPENDING ON DESIRED TRAIL EXPERIENCE AND TOPOGRAPHY.
SIDE SLOPES OF STEP UPS WILL BE LIGHTLY COMPACTED AND COVERED IN LEAF LITTER AND BRANCHES TO PREVENT RUNOFF.
POSITIVE DRAINAGE WILL BE MAINTAINED IN THE CENTER OF STEP UP FEATURES THROUGH THE USE OF OUT-SLOPING TO LOW-SLOPE ADJACENT AREAS AND/OR SHALLOW INFILTRATION SUMPS WHERE FEASIBLE OR NEEDED.



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Leddy Park | Burlington, VT
Proposed Bike Park - Details and Photos of Comparable Features

TRAIL FEATURES - DETAILS