



Review Memorandum

To: Audie Arbo - Permitting and Compliance Manager
Land Use Planning Commission
22 State House Station
Augusta, Maine 04333-0022

From: Kendra J. Marass - Sebago Technics, Inc.

Date: March 4, 2025

Subject: LUPC Stormwater Review (Application #: RP 3313)

Project: Beaver Cove Access Road (STI # 250115)
Burnt Jacket Road
Beaver Cove, ME
Map, Plan, and Lot # 001-001-A

Applicant: Burnt Jacket Holdings I, LLC
4 Blanchard Road, PO Box 85A
Cumberland, ME 04021

I. Project Description & Background

This above-referenced project qualifies for review under Land Use and Planning Commission (LUPC) Chapter 10, Subchapter III, 10.25, L "Phosphorus Control" due to the driveway being used to access "a few" dwelling units, its overall length, and its use of repeated passage of motorized vehicles for agricultural or forest management activities. The proposed driveway is longer than 1,000 feet and will result in greater than one (1) acre of impervious area in the direct watershed of a body of standing water that is 10+ acres in size (Moosehead Lake). We received a packet of materials from the LUPC, which included the application, a soils report by Flycatcher, LLC dated November 14, 2024, and design plans by Sevee and Maher Engineers, dated January 2025.

The proposed driveway is located off Burnt Jacket Road just north of the Evergreen Point Road intersection and is approximately 4,059 feet in total length. The subject parcel is approximately 1,400 acres in size and is identified as Lot 1 on Tax Map 01. The cottage shown on the design plans, which is located approximately 600 feet from Burnt Jacket Road, was approved by the LUPC under Building Permit #17544. The proposed driveway features steep slopes, riprap ditches, guard rail, retaining walls, and turn-arounds for emergency vehicles.

The project is in the direct watershed of Moosehead Lake. In the existing condition, stormwater runoff flows northerly toward Moosehead Lake and its tributary wetlands by means of naturally

created depressions and swales crossing Burnt Jacket Road and several other roads within the woods. Runoff from the proposed driveway is collected by means of reinforced swales conveying the flow to cross culverts, which utilize riprap aprons and level spreaders at the point of discharge. The purpose of this review is to address phosphorus export from the proposed development, evaluate the proposed stormwater management plan, and determine how natural resource areas may be impacted.

II. Technical Review

We have reviewed the submitted design by Sevee & Maher Engineers, as well as the application and supporting documentation provided by the applicant through the LUPC Greenville Office. The following sections outline compliance with the Maine Department of Environmental Protection (MDEP) Best Management Practices (BMP) Manual, as they relate to stormwater treatment, removal of phosphorus, and erosion/sedimentation.

Review Statement: Based on the application materials submitted, we have determined that the project meets the required Project Phosphorus Budget of 41.22 lbs./year by having a total Project Phosphorus Export of 10.79 lbs./year. The project uses the per acre phosphorus allocation budgeted for Greenville since Beaver Cove is not listed as a part of the MDEP BMP Manual, Volume II-Phosphorus Control Appendix C “Per Acre Phosphorus Allocation for Selected Maine Lakes.” Since the Project Acreage is greater than the Small Watershed Threshold for Greenville, the total phosphorus budget was determined by considering the total project acreage, the allowable increase in the annual phosphorus load (Appendix C), and the area available for development (Appendix C).

Typical Design Practices to Address Phosphorus Export for a non-residential road:

Roadway projects that require phosphorus reduction by mitigation or treatment are required to provide calculations supporting mitigation credits and treatment factors to the design standards in the MDEP BMP Manual, Volume II-Phosphorus Control in Lake Watersheds. The treatment factor depends on the selected Best Management Practice as defined in the aforementioned reference. Typical BMPs for this type of development included wetponds, soil filters, and deeded wood buffers. Since the project does not include a BMP for treatment, a treatment factor of 1.0 is used. The project also takes a conservative approach to the amount of phosphorus being exported by assuming the soils are all classified as Hydraulic Soil Group D using the high export option (no restrictions on fertilizer use, road surface or ditch design and construction).

Erosion Control and Runoff Conveyance

Temporary and permanent erosion control measures are critical to ensuring a project does not adversely affect downstream natural resources or increase runoff in a way that threatens downstream developments. Erosion control measures should follow the Maine Erosion and Sediment Control Practices Field Guide for Contracts by the MDEP and Chapter 10.25.M “Erosion Sedimentation Control” of the LUPC Rules. Additionally, given the length of the driveway and number of proposed structures, the roadway should also follow Chapter 10.27.D “Roads and

Water Crossings” of the LUPC rules. When evaluating steep mountainous roads, it is important to ensure the design accounts for both the quantity and the velocity of the runoff. This is determined by clearly identifying on the plans the limits of ditching (bottom width, depth, & length) and extent of additional erosion control measures (riprap, slope blankets). Water that discharges from relief culverts should similarly be evaluated with extra considerations, such as increasing the size of the riprap rock and/or the riprap apron.

III. Assessment and Recommendations:

The included phosphorus calculations are missing Worksheets #3 and #4, which can be found within the Stormwater BMP Manual, Volume II-Phosphorus Control in Lake Watersheds. It is important to note in Worksheet #3 that the project does not take any mitigation credits or that mitigation credits are not applicable. Worksheet #4 provides a summary of the calculations and confirmation that the project meets the watersheds phosphorus budget, therefore, requiring no additional treatment.

The reviewed phosphorus calculations only consider the existing roads, and the proposed impervious and landscaped area associated with the driveway. It should be noted that Chapter 2 of the LUPC rules define the term “driveway” as “a vehicular access-way, other than land management road, less than 1,000 feet in length serving two or fewer lots or dwelling units”. It is stated in Exhibit 2 that that the driveway will provide access to “a few residential structures”; based on the anticipated future development of 3+ homes and the length of the proposed access way being over 1,000 linear feet, this shall be considered a private roadway. Accordingly, the private roadway should be designed and constructed to private roadway standards, as defined in Section 10.27 (D) Roads & Water Crossings. The applicant should consider adding cross-culverts at the required interval along portions of the roadway that are between 11% and 15% slope.

Additionally, if a third dwelling unit is constructed within 5 years of the proposed subdivision law would apply.

On the included plans multiple turnaround locations are proposed without showing the design elements such as grading, radii, and total length. One of the proposed turnaround locations also conflicts with a proposed retaining wall and guard rail. Erosion control devices should also extend past the impact of the proposed turnaround.

On the included plans there are areas where the proposed ditch does not align with the proposed riprap and flow channeling devices.

The Erosion control notes on the plans allude to the use of erosion control blankets or mats but do not specify the locations where they are to be used on the roadway plans. Exposed slopes being steeper than 3H:1V not receiving riprap should have some form of reinforcement to prevent erosion and undermining.

Below are our suggested Bullet points to assist with approval of the project:

- The Applicant should provide Worksheet #3 and Worksheet #4 with the included phosphorus calculations.
- If the final number of structures on the parcel is unknown, the applicant should consider adding the proposed cottage and future structures to the total phosphorus export calculations, as this may be the only opportunity to consider phosphorus removal associated with those impervious sources.
- Plan Sheets C-201 and C-203 should be revised to show the design elements associated with the proposed turnaround locations such that they may be constructed in a way for use of the determined design emergency vehicle. Limits of disturbance including grading should also be shown and the erosion control devices extended to cover such limits.
- Plan Sheet C-201 and C-203 should be revised to show the riprap ditch lined up with the swale indicated by the grading. On sheet C-203, the swale appears to diverge from the road around STA. 36+00 while maintaining a slope of 12%. The riprap ditch should extend through this section. Additionally, from station 39+00 to station 30+00 there is no planned relief culvert. It is recommended to follow the ditch relief culvert spacing and alignment standard outlined in LUPC Chapter 10.27 D. Roads and Water Crossings, given the steep slope of the roadway. Please provide calculations for adequate riprap diameter in proposed aprons based on anticipated flow.
- Plan sheets C-201 and C-203 should be revised to show additional erosion control measures such as slope blankets or mesh on the exposed side slopes being steeper than 3H:1V and not receiving riprap.
- Plan sheet C-203 Depicts the end of the access road at a grade of 11%. There should be a barrier installed at the end to prevent vehicles from driving past the end of the road and down the steep slope. Similarly, erosion control measures should be extended past the end of the road to prevent erosion of the existing hillside in this area.
- The plan views on the plan and profile sheets should more clearly label the centerline horizontal curvature. In particular, the curves at the end of the road would seem to make it difficult for the selected design vehicle to maneuver.

IV. Summary:

Our review of the project finds that in general the strategies to address Phosphorus export could be acceptable with some minor revisions and added details or information. With the suggestions we have outlined we feel the applicant is well within the allotted phosphorus export budget for the parcel. We note that only the submitted plans have been included in the phosphorus review and that any additional structures, paved parking areas, or landscaped areas added in the future may require additional review.

These are recommendations for LUPC use and are not meant as final determinations. Final decisions, if appropriate, are left with the LUPC at their discretion.

Respectfully Submitted,
SEBAGO TECHNICS, INC.

A handwritten signature in black ink that reads "K. Marass". The signature is written in a cursive, flowing style.

Kendra J. Marass
Senior Civil Engineer/Project Manager