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LUPC Development Permit Application
For Big Moose Resort

Prepared for:

Big Lake Development, LLC

March 22, 2021

#85716E

A TFIC Company

40 Forest Falls Drive, Suite 2 • Yarmouth, Maine 04096 • +1.207.817.5440 • sewall.com • info@sewall.com

LUPC Applicant, Agent, and Property Information Form

APPLICANT INFORMATION **Please Print Legibly**

Applicant Name(s)	Title *(if representing a corporation)*	
Perry Williams Big Lake Development, LLC	Managing Partner Phone 207-632-9616	
Mailing Address PO Box 390	Email perry@skimoosehead.com	
Town Spruce Head	State ME	Zip Code 04859

AGENT INFORMATION (If applicable)

Agent Name(s)	Phone	
Matt Dieterich	207-318-2166	
Business Name James W. Sewall Company		
Mailing Address PO Box 433	Email diema@sewall.com	
Town Old Town	State ME	Zip Code 04468

APPLICANT AND AGENT SIGNATURES

I have personally examined and am familiar with all information submitted in this application, and to the best of my knowledge, it is true, accurate, and complete. I am aware that there may be significant penalties for submitting false information. I understand that the applicant is responsible for complying with all conditions of any permits issued by the Land Use Planning Commission.

Please check **one** of the boxes below:

☐ I authorize staff of the Land Use Planning Commission to access the project site as necessary between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday.

☑ I request that staff of the Land Use Planning Commission make reasonable efforts to contact me in advance to coordinate access to the project site.

Authorization of Agent by Applicant: *By signing below, I authorize the individual or business listed above to act as my legal agent in all matters relating to this application.*

Applicant Signature: [signature] **Date:** 3/22/2021

Agent Signature: [signature] **Date:** 03/22/2021

Revised 8/2020

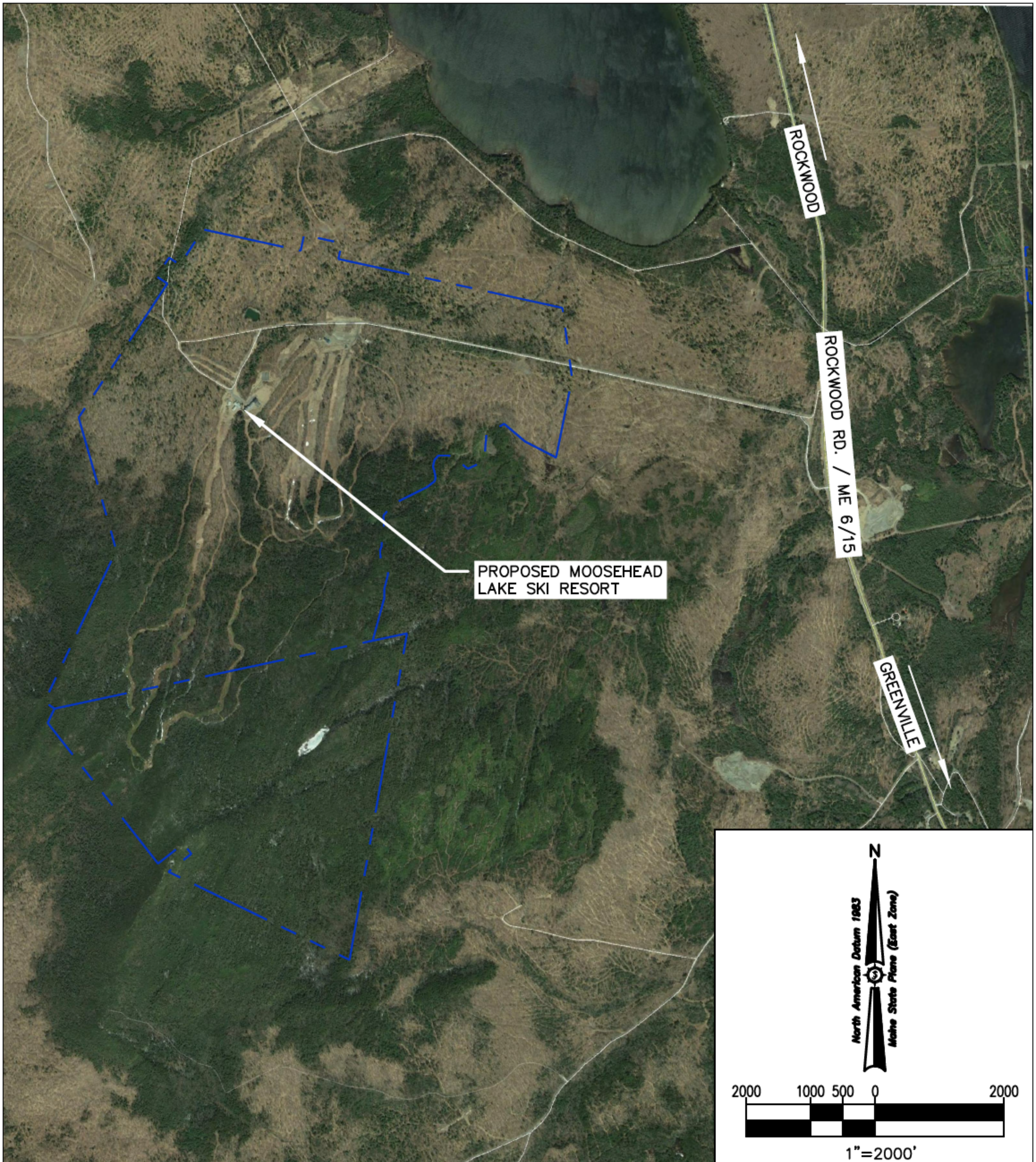
LUPC Applicant, Agent, and Property Information Form

PROPERTY INFORMATION. Provide the following details about your property location. Tax map, plan, and lot numbers are listed on your property tax bill. If you lease your property, check your lease to find out whether any unique lease lot numbers have been assigned to the property.

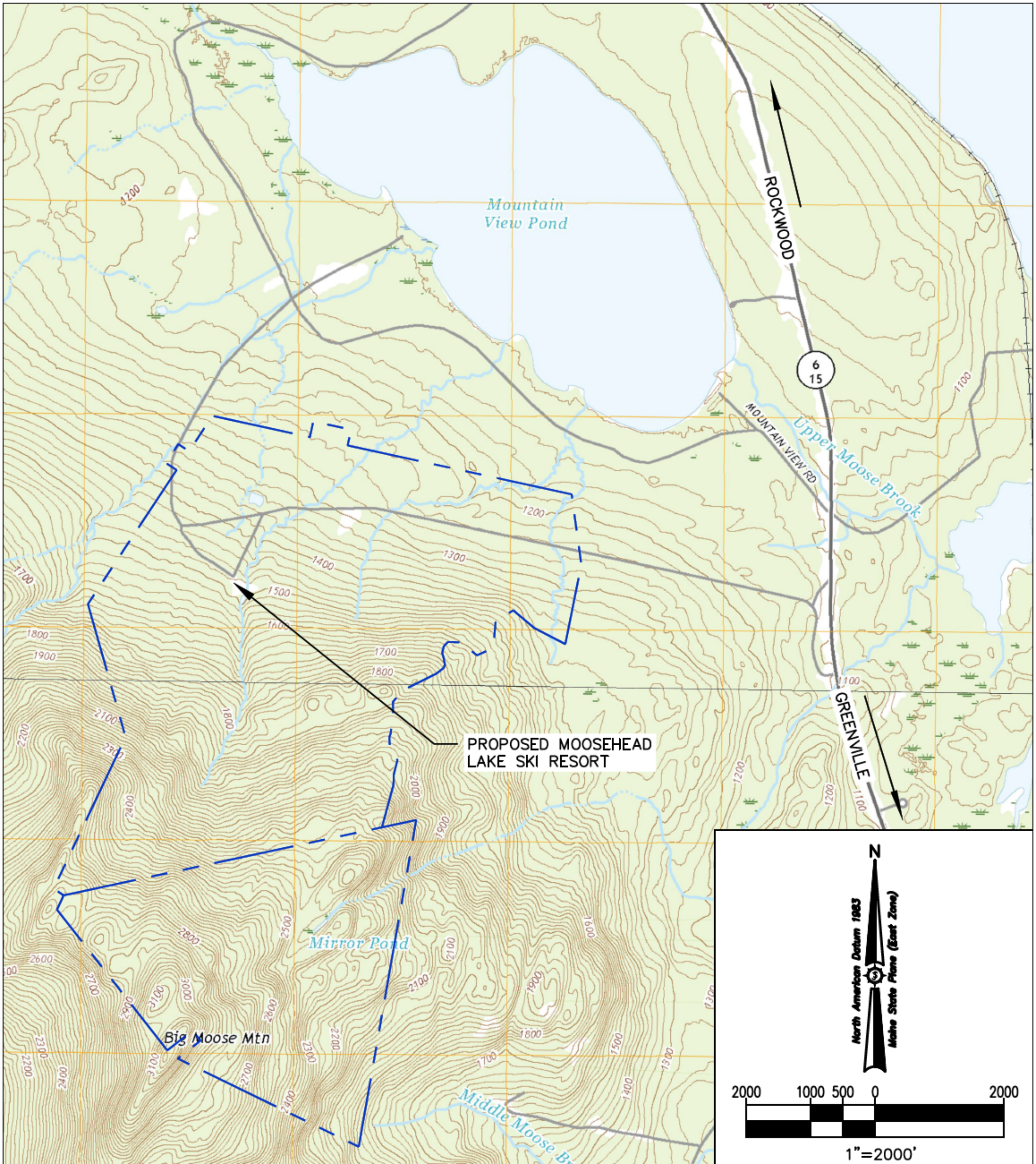
Township, Town or Plantation Big Moose Township	County Piscataquis
Tax Map, Plan, and Lot Numbers *[list all applicable; check tax bill(s)]* Map PI009, Plan 01, Lot 2-3	
Lot size *(in acres, or in square feet if less than 1 acre)*	Deed Book and Page #'s, and lease information if applicable *(include any lessor or lease lot numbers assigned by a property owner)* Bk 1849, Pg 4
All Zoning on Property *(check the LUPC Land Use Guidance Map)* D-GN and P-MA	Zoning at Development Site D-GN and P-MA
Road Frontage: List the name(s) and frontage(s) (in feet) for any public or private roads, or other rights-of-way adjacent to your lot: Road #1____________________ Frontage_____ft. Road #2____________________ Frontage _____ft.	**Water Frontage:** List the name(s) and frontage(s) (in feet) for any lakes, ponds, rivers, streams (named and unnamed), or coastal wetlands on or adjacent to your lot: Waterbody #1___________________ Frontage_____ft. Waterbody #2___________________ Frontage _____ft.
If there is no road frontage, describe the access for the property.	
LUPC Approved Subdivision: If the lot is part of an LUPC approved subdivision, provide the subdivision permit and lot numbers: Subdivision Permit # N/A and Lot #_____________ *(usually included in deed description)*	
BRIEF PROJECT SUMMARY *(include proposed zoning if submitting an application for zone change)*	
Proposed Project Name *(if applicable)* Big Moose Resort	

Exhibit 1 – Directions and Location Map

The project site is in Big Moose Township at the old Big Squaw Mountain Ski Area. To get to the site take Route 15 from Bangor to Dover-Foxcroft then take a left onto Route 6/15 (W. Main St). Continue to Guilford. Take a right onto Route 150 (Blaine Ave). Continue to North Guilford then take a left onto N. Guilford Road. Continue on Route 15/6 through Greenville. Take a left onto Ski Resort Road. The project site is 1.5 miles up the road on the left. See the attached location map.



Project No. 85716E	**MOOSEHEAD LAKE SKI RESOT** **BIG LAKE DEVELOPMENT CO., LLC.** BIG MOOSE TWP., MAINE
Engineer: ENGINEERING Sewall SURVEYING www.sewall.com The evolution of expertise 1 800 648 4202	Project Location: ROCKWOOD ROAD; Date: 03/30/2020; Drawn by: FAB; Checked by: JAO
	Drawing Description: **PROJECT LOCATION MAP**; Scale: AS SHOWN



Project No.

85716E

Engineer

ENGINEERING SURVEYING

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MOOSEHEAD LAKE SKI RESORT

BIG LAKE DEVELOPMENT CO., LLC.

BIG MOOSE TWP., MAINE

Project Location	Date	Drawn by	Checked by
ROCKWOOD ROAD	03/30/2020	FAB	JAO

Drawing Description

Scale: AS SHOWN

PROJECT LOCATION MAP

Exhibit 2 – Project Description

Big Moose Resort is a hidden gem and a quality ski resort that needs new ownership to bring it back to its former glory and make it available once again for the next generation of outdoor enthusiasts. It boasts breathtaking views over Moosehead Lake and onto Mount Katahdin… the termination point of the Appalachian Trail. The re-development of this property will create hundreds of jobs and help the local economy thrive as a true four-seasons recreation destination.

The property sits on the north side of Big Moose Mountain in Big Moose Township, Piscataquis County, Maine approximately 6 miles north of Greenville, Maine on State highway Route 15/6.

Currently operated as Big Squaw, the resort is a year-round mountain community nestled between 3,196 ft. Big Moose Mountain and 75,000-acre Moosehead Lake in the Greenville region of western Maine. It is envisioned that through careful growth, the community will foster an alliance of recreation and relaxation, while preserving the integrity of this pristine mountain environment.

The heart of Big Moose Resort is the Mountain Village. Upon completion, in addition to revitalized skiing, it will be home to award- winning restaurants, abundant outdoor activities, a boutique hotel and rustically elegant conference facilities tucked into the surrounding forest. Unmatched natural scenery and countless activities in every season make for a truly unique atmosphere. Guests will enjoy everything from alpine and cross-county skiing, snowboarding and snowmobiling in the winter, to hiking, mountain biking, zip lining, boating, whitewater rafting and fly fishing on Maine's largest lake and countless streams and ponds in summer and fall.

Big Moose Resort is more than a ski resort – it's a unique celebration of New England's rich history combining recreation, relaxation, mountains, lakes and streams to create a truly special place.

Key Elements

- Alpine & Nordic skiing
- Snowmobiling
- Access to Moosehead Lake
- Zip-Tour system
- Dark-Sky Galactic viewing
- Swiss made six - seat detachable chairlift
- T-Bar
- 60 room hotel & conference center
- Eco-friendly design and construction
- State of the art architecture

The above list includes the key revenue generators, working together to attract outdoor adventure seekers from New England and beyond. The character of the development will be extremely important in building a personality and market niche for the Resort. Properly executed, with a consistent "theme" of resort development, the project will be an economic driver for the Moosehead Lake region.

Pending applicable permitting, it the goal of the development team to be able to open the Village for the start of the 2022/2023 ski season, with construction commencing in the summer of 2021.

Projected Schedule

1. Ski Lift Installation – Start Summer 2021/complete Dec. 2021
2. Demolition of existing structures – Summer 2021
   (Includes site prep/utilities prep for spring 2022 work)
3. Site Infrastructure – Start Summer 2021/Complete Nov. 2022
4. Base Lodge – Start Summer 2021/Complete Nov. 2022
5. Tap House – Start Summer 2021/Complete Nov. 2022
6. Hotel – Start Summer 2021/Complete Nov. 2022
7. Event Pavilion/Pool – Start Summer 2021/Complete June 2022
8. Zipline – Start summer 2021/Complete Spring 2022

Acquisition and re-development of Big Moose Resort, includes the following:

- Replacement of existing double chairlift to summit with a new high speed, 6 - seat detachable chairlift
- A new surface lift (T-bar) to be installed along former T-bar line (defunct)
- A top to bottom dual line Zip Rider system with departure and arrival platforms and training areas
- 60 room boutique hotel and conference center to replace current dilapidated hotel in new location outside of stream buffers
- New 28,500 SF (14,250 SF footprint) Base lodge to replace existing base lodge. Location moved slightly to remain outside of stream buffers.
- New Brew Pub/Taphouse with inside climbing wall to be located between base lodge and hotel
- Replacement of snow making intake with clearwell pump station adjacent to Mountain View Pond using existing intake
- Replacement of existing snow making pipe from Mountain View Pond (buried under existing access roadway along new easement) and on mountain distribution system
- Construction of new mid-mountain pumpstation and compressor building to be located near top of existing triple chair

- New Outdoor Center for cross country skiing, skating and snowshoeing, including repurposed wastewater lagoon and upgraded skating surface
- New event pavilion/pool/event lawn facility to accommodate outdoor events and weddings
- Repair of existing maintenance garage to allow for vehicle storage in off season
- New maintenance facility to accommodate new groomer technology and provide staff offices and bathrooms
- New Sanity Sewer line to connect to Moosehead Sanitary District in Greenville
- New potable water system, consisting of shallow gravel wells, 6-inch water main, booster pump station and 32,000 gallon cistern located at appropriate elevation to provide both potable water and adequate fire protection
- Electrical line upgrades to eliminate unsightly power lines in key areas and provided necessary power for the re-development, snow making and lift operation requirements.
- Rehabilitation/reclamation of existing parking areas
- Replacement of existing culvert/overflow at upper village with bridges
- New roadway section to service hotel, parking and base village, including drop-off for hotel and improved access to the base lodge
- Rehabilitated of roadways from end of existing county-maintained access road to base village, including new round about
- Rehabilitation/repaving of existing parking areas at base village
- Removal of derelict wastewater treatment facility
- Creation of park areas with selective clearing to create view windows
- Construction of stormwater management BMPs to support new roadway construction, building locations and upgrade existing roadways to current standards
- Installation of new signage
  - replace existing sign at intersection of the access road and route 15
  - new signage along access road
  - new resort signage in base village
  - directional/informational signage

It is anticipated that the use of the resort will remain consistent with its historical use, with skiing and access to Moosehead Lake and the surrounding area as a primary draw. With the redevelopment of the hotel, base lodge and brew pub/taphouse is envisioned that the property will be utilized on a more constant year-round basis than it has been in recent years as the existing facilities were allowed to deteriorate and usage was concentrated during the winter months. The addition of the zipline and astro-tourism in a dark sky area will add activities that will attract visitors on a year-round basis. The hotel, base lodge and event pavilion/event lawn will also support groups such as conferences and other outdoor events.

Exhibit 3 – Deed, Lease, Sales Contract, or Easement

The Big Moose Resort consists of two parcels owned The Mountain Inc. and OFLC Inc. Both are owned and controlled by Mr. James Confalone. The applicant has a purchase and sales agreement with the owner, along with an amendment that extends the original term of the agreement. See the attached copies of TRI for the project.

TENTH AMENDMENT TO REAL ESTATE PURCHASE AND SALE AGREEMENT

Re: Real Estate Purchase and Sale Agreement dated October 2, 2109 (Amending and Restating that certain Amended and Restated Purchase and Sale Agreement dated May 1, 2019), between OFLC, Inc. and Moosehead Mountain Resort, Inc., as Seller, and Big Lake Development Company, LLC, as Buyer as previously amended (the "Agreement")

The undersigned Seller and Buyer hereby agree to amend the Agreement as follows:

1. The Closing under the Agreement shall occur on March 1, 2021, or on such earlier date as the parties may agree, as provided in the Agreement.

2. In consideration of Seller's agreement to extend the Closing to March 1, 2021, Buyer agrees to pay to Seller within two (2) business days of the date of execution of this Amendment an extension fee in the amount of Fifty Thousand ($50,000) Dollars for each Thirty (30) day period over the next three months. (the "Extension Fee"). The Extension Fee shall not be applied to the purchase price, and is non-refundable.

3. This extension is requested with these permit requirements due to the Seller being unable to provide a loan payoff letter and a Partial Release of Mortgage. Therefore the seller hereby guarantees that he will be able to obtain from Carmen Rebozo Foundation, Inc. ("Rebozo") a loan payoff letter and a Partial Release of Mortgage relating to those certain mortgages and related security instruments affecting the Property currently held by Rebozo, in form and substance that will enable Buyer to obtain a title insurance policy for the Property without exception for the Rebozzo Mortgage.

4. If Buyer is unable to close by March 1, 2021 for reasons beyond Buyer's reasonable control (such as Maine DEP permitting related reasons), then Buyer shall have the right to extend the closing date for Three (3) additional Thirty (30) day periods of time by paying to seller an Extension Fee of Fifty Thousand ($50,000) Dollars for each 30-day period.

5. Except as amended hereby, the Agreement shall be unmodified and continue in full force and effect. All defined terms herein not otherwise defined shall have the meaning given in the Agreement.

[signatures appear on following page]

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SEEN AND AGREED TO as of this 20 day of November, 2020.

OFLC, INC.

By: Jim Confalone
Jim Confalone, President

MOOSEHEAD MOUNTAIN RESORT, INC.

By: Jim Confalone
Jim Confalone, President

BIG LAKE DEVELOPMENT COMPANY, LLC

By: ____________________
Perry Williams, Managing Partner

AMENDED AND RESTATED REAL ESTATE PURCHASE AND SALE AGREEMENT

THIS AMENDED AND RESTATED REAL ESTATE PURCHASE AND SALE AGREEMENT (this "Agreement") is made as of the 2 day of October, 2019, by and between **OFLC, INC.**, a Florida corporation ("OFLC") and **MOOSEHEAD MOUNTAIN RESORT, INC.**, a Florida corporation ("MMR"), each with a mailing address of P.O. Box 415, Rye Beach, NH 03871 (OFLC and MMR are collectively, "Seller") and **BIG LAKE DEVELOPMENT COMPANY, LLC,** a Maine limited liability company, with a mailing address of P.O. Box 1317, Rangeley, ME 04970 ("Buyer"). This Amended and Restated Real Estate Purchase and Sale Agreement replaces in its entirety that certain Real Estate Purchase and Sale Agreement among Seller and Buyer dated May 1, 2019.

In consideration of the mutual covenants contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereby agree as follows:

1. **PURCHASE AND SALE OF PROPERTY**. Seller agrees to sell and Buyer agrees to buy, on the terms and conditions hereinafter set forth, the land and buildings described as follows:

(a) The "Ski Mountain Property" being all of the property owned by MMR and described in a deed recorded in the Piscataquis County Registry of Deeds in Book 999, Page 232 (the "Ski Mountain Deed"). The Ski Mountain Property is the property described in the Ski Mountain Deed and shown on the "Property Sketch" attached hereto as Exhibit A. The Ski Mountain Property shall be conveyed subject to a certain lease with MMR as landlord and Friends of Big Squaw, as tenant, (the "Friends Lease") which Friends Lease will be assigned to Buyer at closing. The Ski Mountain Property also includes, among other things spelled out in this contract, (i) the "Marina Property" being a 12.3 +/- acre parcel on Moosehead Lake described in Article Fourth of the Ski Mountain Deed; (ii) an access easement between the Marina Property and Rockwood Road (a/k/a Route 6 and Route 15) (the "Marina Property Easement"); and (iii) the "Snowmaking Easement" being an easement to draw water via a pipeline from Mountain View Pond described in Article Third of the Ski Mountain Deed.

(b) The "Additional Land" owned by OFLC, being a portion of the property described in a deed recorded in the Piscataquis County Registry of Deeds in Book 1678, Page 144 (the "OFLC Deed"). The Additional Land is that portion of property described in the OFLC Deed and shown on the "Property Sketch". The land described in the OFLC Deed exclusive of the Additional Land, is referred to herein as the "OFLC Retained Land". OFLC shall reserve an access and utilities easement to benefit OFLC and their guests over the Additional Land on existing gravel roads beginning at the westerly end of Ski Resort Road and continuing in a westerly direction to the westerly boundary of the Additional Land as shown on Exhibit A (the "Reserved Easement"). Buyer shall be permitted to use the Reserved Easement in common with Seller. The Reserved Easement may not be used by Seller for industrial purposes. Seller shall be responsible for maintaining the Reserved Easement. The parties shall negotiate the full terms of the Reserved Easement prior to the end of the Due Diligence Period.

The OFLC Retained Land will be subject to a permanent deed restriction, approved by any mortgage holders, that no clearing of trees and no construction shall occur and no signs shall be installed within 175 feet of the northerly boundary of the Ski Mountain Property and the Additional Land except that Seller shall have the right to install no more than three curb cuts in the northern side of Ski Resort Road along the northern boundary of the Ski Mountain Property and the Additional Land, provided that such roads are used for residential purposes only and clearing associated with those roads is permitted. Street signs shall be permitted at each curb cut.

For avoidance of doubt, the Ski Mountain Property together with the Additional Land as shown on the Property Sketch (not including the Marina Property) has the following boundaries: the northerly boundary is the center line of the Ski Resort Road (including the northern entry to Route 6) to the point at which the ski area parcel crosses the access road (subject to County ownership or easement) then continuing to follow the ski area northern boundary line to the westerly boundary; the easterly boundary is Rockwood Road (a/k/a Route 6 and Route 15); the southerly boundary is the southerly boundary of the real estate owned by Seller south of the northerly boundary; and the westerly boundary line is the same as the current dividing line between MMR land and OFLC land, starting at the southwestern most point at the top of the mountain and proceeding northerly along said ski area boundary line. Said boundary line is also described in the Ski Mountain Deed. The parties shall finalize the boundaries, with the assistance of a surveyor, prior to the expiration of the Due Diligence Period (defined below).

All of the above being the "Property." The Property shall be conveyed together with all buildings and improvements thereon including, without limitation, all chairlifts and related equipment, all air rights, water rights, mineral rights, all appurtenances and all permits and approvals that Buyer elects to assume. With respect to the Marina Property Easement, Buyer reserves the right to require any modifications to the Marina Property Easement that may be reasonably necessary to facilitate the development and use of the Marina Property as a lake front marina for private and/or public use, including, without limitation, express rights to install utilities and cost sharing for maintenance. With respect to the Snowmaking Easement, Buyer reserves the right to require Seller to revive or re-grant the easement to the extent it has merged or been abandoned, at the Buyer's sole expense. The Property shall also include all of Seller's rights to the name "Squaw Mountain," "Big Squaw Mountain," and "Big Squaw Mountain Resort" (collectively, the "Trade Names"). The Property shall also include all personal property, (with the exception of the sellers personal property located on the Ski Mountain Property, which Seller shall remove from the Ski Mountain Property on or before the Closing) and the Additional Land, exclusive of personal property owned by the Friends of Big Squaw. The Property shall include the right to use, in common with others, all snowmobile trails and cross country ski trails as may exist from time to time in on the OFLC Retained Land, until seller elects to close them at Seller's sole discretion.

2. **PURCHASE PRICE**. Subject to any adjustments and prorations hereinafter described, Buyer agrees to pay for the Property the sum of $3,950,000.00 (the "Cash

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Consideration"), one to-be-constructed "Condominium Unit" and Season Passes, described below (the "Non-Cash Consideration"). The Cash Consideration shall be payable as follows:

(a) $50,000.00 in the form of Buyer's check shall be payable to Murray Plumb & Murray("Escrow Agent") by Buyer within 3 business days of the full execution of this Agreement (the "Deposit"), which Deposit shall be held by Escrow Agent as an earnest money deposit hereunder and shall be applied as part payment of the purchase price; and

(b) The balance of the Cash Consideration, subject to adjustment and credit as provided herein, shall be paid by Buyer to Seller at the closing of title pursuant to Section 9 below (the "Closing") by certified bank check or by wire transfer. The Cash Consideration and the Non-Cash Consideration together constitute the "Purchase Price".

3. **PRORATIONS, ADJUSTMENTS, COSTS AND ALLOCATION.**

(a) Real estate taxes and utility charges (if any), and any other charges and assessments affecting the Property shall be apportioned between Seller and Buyer as of the Closing Date. If the amount of real estate taxes has not been determined at the Closing Date, real estate taxes shall be apportioned at the Closing on the basis of the taxes assessed for the preceding fiscal year, with a reapportionment as soon as the new tax rate and valuation can be ascertained. Any land in tree growth status, having a tax shall be paid by the Buyer.

(b) Seller and Buyer shall each pay their respective real estate transfer tax in accordance with 36 M.R.S.A. §4641-A based on the Purchase Price and the allocation of the Purchase Price. The recording fee for the Deeds shall be paid by Buyer.

(c) Seller shall be responsible for the payment of all outstanding liens and mortgages encumbering the Property at Closing, in amounts satisfactory to all lienholders to release the Property from said liens and mortgages, and for the payment of all outstanding utility charges with respect to the Property at Closing.

(d) Each party shall pay any costs and expenses incurred by such party in connection with the transactions contemplated by this Agreement not adjusted as set forth in this Section 3 or not otherwise provided for herein.

(e) The Purchase Price shall be allocated as follows: (a) $2,500,000 of the Cash Consideration shall be allocated to the value of the Additional Land. (b) a portion of the cash consideration, $1,100,000 shall be allocated to the ski mountain property, comprised of a 60,000 sf hotel building, together with (2) restaurants and out buildings. The remainder of $350,000 shall be allocated to the ski lifts and land due to the impending lift replacement cost and the price reflects the State of Maine's lawsuit.

4. **CONVEYANCE AND TITLE.**

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(a) Each Seller shall convey the Property it owns to Buyer by good and sufficient Quitclaim Deed with Covenant (each a "Deed"). Title to the Property shall be good and marketable and shall be free and clear of all liens and encumbrances except any "Defects of Title" (as defined below) accepted or waived by Buyer pursuant to Section 4(b).

(b) The Property shall not be considered to be in compliance with the provisions of this Agreement with respect to title unless the following conditions are satisfied:

(i) all structures and improvements on the Property shall be wholly within the lot lines of the Property and shall not encroach upon or under any property not within such lot lines and no building, structure, improvement or property of any kind encroaches upon or onto the Property;

(ii) title to the Property is insurable, for the benefit of Buyer, at customary rates, in the ALTA form currently in use, subject only to those Defects of Title (as defined below) accepted by Buyer;

(iii) all leases, rights of first refusal or other agreements of similar nature encumbering all or any portion of the Property have been terminated and the Property are free of any tenants or claims of any third parties; with the exception of the Friends Lease and

(iv) no new or incremental rights of way, easements or other permissions of any kind are conveyed to any third party prior to Closing.

(c) Buyer has previously notified Seller of certain defects found in title as of the Effective Date that would make Seller unable to give title to the Property as stipulated herein (each referred to herein as a "Defect of Title"). Seller hereby acknowledges receipt of such Notice of Defect of Title. Seller shall have until or at Closing days to cure all Defects of Title. If Seller is unable to cure any defects to the satisfaction of Buyer, then Buyer has the option to close on the Property, with said defects or, terminate this Agreement, in which case the Deposit shall be returned to Buyer and all obligations of the parties hereunder shall cease and neither party shall have any claims against the other by reason of this Agreement. Notwithstanding the forgoing, Buyer shall have until the Closing to object to any Defects of Title first arising of record after the Effective Date, and upon such notice Seller shall have the same time to cure and Buyer shall have the same right to terminate as set forth in this subparagraph (c), except that the Closing shall be extended accordingly.

5. **CONTINGENCIES.**

(a) Buyer's obligations hereunder are contingent upon Seller executing a Consent Decree to settle the litigation between the State of Maine and others, as plaintiffs, and Seller as defendants in the Kennebec County Superior Court, Docket No. CV-16-147 (the "Ski Mountain

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Lawsuit"). Buyer and Seller shall cooperate and use good faith efforts to reach a settlement of the Ski Mountain Lawsuit. Seller acknowledges and agrees that it shall not require any financial compensation from the plaintiffs as part of a settlement. Seller hereby gives Buyer consent to contact the plaintiffs in the Ski Mountain Lawsuit in order to pursue a settlement. If, despite those efforts a settlement of the Ski Mountain Lawsuit satisfactory to Buyer and Seller in their sole and absolute discretion has not been obtained prior to the expiration of the Due Diligence Period, then Buyer may terminate this Agreement upon written notice to Seller on or before the end of the Due Diligence Period. If Buyer timely gives notice of such termination then upon such termination the Deposit shall be returned to Buyer and all obligations of the parties hereunder shall cease and neither party shall have any claims against the other by reason of this Agreement.

(b) Buyer agrees to comply with the deed restrictions as stated in the Release Deed between the State of Maine and the Big Squaw Mountain Corporation, dated November 6, 1986 and recorded in the Piscataquis County Registry of Deed in Book 617, Page 126.

6. **<u>DUE DILIGENCE INSPECTION, DISCLOSURE OF DOCUMENTS</u>**.

(a) Buyer shall have until October 7, 2019 (the "Due Diligence Period") to satisfy itself that all matters related to the Property and the transaction, such as leases, soils, zoning, land use, environmental matters, structural and engineering inspection of improvements, including without limitation, water testing, soil testing, and inspection of heating, cooling, lighting, electrical, plumbing and septic systems, the availability of satisfactory insurance policies (including satisfactory coverage and cost), the availability of satisfactory financing, and any other criteria determined by Buyer, are acceptable to Buyer, in its sole discretion. Buyer and its agents shall have the right, at Buyer's sole cost and expense, and at Buyer's sole risk, to access the Property prior to Closing to perform such inspections and tests, and to perform such other analysis, inquiries, investigations related thereto as Buyer shall deem necessary or appropriate with respect to its acquisition and inspection of the Property, and as set forth above. Seller believes there may be records related to the Property located on the Property (the "On Site Documents"). Buyer shall be permitted to access and review the On Site Documents, including removing the On Site Documents from the Property for review provided that if the Buyer elects to terminate the Agreement pursuant to this Section 6, Buyer shall return the On Site Documents to Seller. If Buyer is not satisfied with the results of any of its inspections of the Property's, or any other due diligence items, then Buyer may elect, by giving written notice to Seller on or before the end of the Due Diligence Period, to terminate this Agreement. If Buyer timely gives notice of such termination then upon such termination the Deposit shall be returned to Buyer and all obligations of the parties hereunder shall cease and neither party shall have any claims against the other by reason of this Agreement.

(b) Within 7 business days of the Effective Date Seller shall deliver to Buyer copies of any of the following documents in Seller's possession if available with respect to the Property (excluding the On Site Documents): surveys, plans, engineering reports, environmental reports,

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permits, title insurance commitments or policies and financial information related to the prior operation of the Property as a ski mountain.

7. **RISK OF LOSS**.

If between the date of this Agreement and the Closing any part of the Property is lost or damaged as a result of casualty, or taken in condemnation or under the right of eminent domain, Buyer shall have the option to close at the same purchase price or to terminate this Agreement and have the Deposit returned by giving written notice given to Seller on or before the Closing.

8. **POSSESSION OF THE PROPERTY AND LEASES**.

(a) The Property shall be delivered to the Buyer at Closing free and clear of all tenancies or occupancies by any person or entity, except for the Friends Lease.

9. **CLOSING.**

(a) The Closing shall take place on the first business day that is 30 days after the expiration of the Due Diligence Period, or at such earlier date as the parties may agree, or at such later date as provided in this Agreement, at 10 a.m. at the offices of Buyer's attorney, or at such other place as the parties may agree. TIME IS OF THE ESSENCE.

(b) The following shall occur at the Closing, each being a condition precedent to the others and all being considered as occurring simultaneously:

(i) Each Seller shall execute, have acknowledged and deliver to Buyer, a Deed, subject only to the matters described in Section 4(a) and any Defects of Title accepted by Buyer pursuant to Section 4(b), delivered to the Buyer;

(ii) Seller shall deliver executed title insurance affidavits if available of a form and substance satisfactory to Buyer, regarding mechanics and materialmen's liens and parties in possession, sufficient to eliminate any title insurance exception for these matters;

(iii) Seller shall deliver an Affidavit indicating that Seller is not a foreign person and that the transaction is exempt from the requirements of 26 U.S.C. § 1445, or in lieu thereof, Buyer shall be entitled to withhold and account for a portion of the Purchase Price as required by such statute and corresponding regulations;

(iv) Seller shall deliver an Affidavit indicating that Seller is a Maine resident, or in lieu thereof or of another applicable exemption, Buyer shall be entitled to withhold and account for a portion of the Purchase Price as required by 33 M.R.S.A. §5250-A;

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(v) Each party shall deliver to the other such other documents, certificates and the like as may be required herein or as may be necessary or helpful to carry out its obligations under this Agreement, including, without limitation, corporate authority documentation in the form and substance sufficient to satisfy Buyer's title company;

(vi) Seller and Buyer shall execute a settlement statement satisfactory to all parties itemizing the various payments and prorations contemplated hereby;

(vii) Seller shall assign and Buyer shall assume the Friends Lease ;

(viii) Seller shall assign and transfer to Buyer all rights in and to the Trade Names; and

(ix) Buyer shall pay to Seller the balance of the Cash Consideration in accordance with Section 2 above.

10. **REPRESENTATIONS AND WARRANTIES OF SELLER**. Seller represents and warrants to Buyer that the following are true as of the date of this Agreement and will be true as of the closing:

(a) Seller warrants that it has the full right, power and authority to sell and convey the Property to Buyer as provided in this Agreement and to carry out all of Seller's obligations hereunder and that the joinder of no person or entity other than Seller will be necessary to convey the Property fully and completely to Buyer at the Closing.

(b) To the best of Seller's knowledge, the Property is in compliance with applicable laws, ordinances and regulations, except for the Ski Mountain Lawsuit.

(c) Between the Effective Date and the Closing Date, Seller shall not dispose of any interest in the Property; shall not increase the existing mortgage, except for extensions and rate adjustments, grant any new mortgage, pledge or subject to lien and other encumbrances any interest in the Property and shall not enter into any other agreement relating to the Property that would affect the sale or survive the Closing or enter into any new leases or use arrangements affecting the Property, or any portion thereof. The property and equipment is being sold in "As Is" "As Shown" condition with no representations or warranties as to physical condition

(d) Between the date of this Agreement and the Closing Date, Seller shall not take any action or fail to take any action that would cause any Defects of Title, cause the Property not to conform with the provisions of this Agreement, would cause any of Seller's representations or warranties hereunder to be untrue or incorrect or would otherwise cause Seller to be unable to perform its obligations under this Agreement.

(e) To the best of Seller's knowledge, the Property is free of underground storage tanks, urea, formaldehyde foam insulation, radon, asbestos containing materials, lead paint,

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waste oil, petroleum and any other hazardous, biomedical, radioactive or toxic, substances, materials or wastes. The terms used in the foregoing sentence shall include, without limitation, all substances, materials, etc., designated by such terms under any laws, ordinances or regulations, whether federal, state or local.

(f) Excepting the Ski Mountain Lawsuit, there are no outstanding pending or threatened liens, claims, rights of first refusal, or encumbrances against the Property, except as set forth on Exhibit A, which liens seller shall cause to be released at or prior to Closing.

(g) Except for Seller, and excepting the Friends Lease, no person or entity has any right to occupy, encroach upon, or otherwise use all or any portion of the Property and there are no outstanding contracts, leases, option agreements, rights of first refusal or offer or other agreements that grant any third party the right or option to purchase, use or occupy all or any portion of the Property. There are no outstanding claims, losses or demands against Seller by any tenant or other person respecting Seller's ownership, use and/or occupancy of the Property.

(h) There are no boundary disputes or encroachments affecting the Property.

11. **DEFAULT**.

(a) If Buyer defaults in performing its obligations hereunder prior to or at the Closing, and Seller has performed or tendered performance of its obligations hereunder, Seller shall have the right, as their exclusive remedy, to terminate this Agreement and retain the Deposit as liquidated damages and the parties shall be relieved of any further liability or obligation hereunder. The parties acknowledge that Seller's damages because of Buyer's default hereunder are difficult to ascertain and that the amount of the Deposit represents a reasonable estimate of Seller's damages.

(b) If Seller defaults in performing its obligations hereunder prior to or at the Closing, and Buyer has performed or tendered performance of its obligations hereunder, then Buyer's sole remedy shall be to either (i) terminate this Agreement and have the Deposit returned to it and the parties shall be relieved of any further liability, or (ii) seek specific performance of this agreement.

(c) In the event it shall be necessary for any party to this Agreement to bring suit to enforce any provisions herein or for damages on account of any default of this Agreement, including, without limitation an action for specific performance, the prevailing party in any such litigation and any appeals therefrom shall be entitled to recover from the adverse party or parties, in addition to any damages or other relief granted as a result of such litigation, all costs and expenses of such litigation and a reasonable attorney's fees.

12. **CONDITIONS PRECEDENT TO BUYER'S OBLIGATION TO CLOSE**. The obligation of Buyer to close is subject to the satisfaction at or before the closing that all representations and warranties of Seller contained in this Agreement remain true as of the

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Closing. In the event that the foregoing condition is not satisfied prior to or at the Closing, Buyer shall have the option of terminating this Agreement and receiving back the Deposit.

13. **BROKERS**. Seller and Buyer warrant and represent to each other that neither has employed or engaged any broker or agent in connection with this transaction, and each party hereto agrees to hold the other party harmless from and against any and all costs, expenses, claims, losses, or damages, including reasonable attorney's fees, resulting from any other agent, broker or other personal claiming to be acting on behalf of the indemnifying parties for fees, commissions or other compensation. The provisions of this Section shall survive the Closing.

14. **CONDOMINIUM UNIT AND SEASON PASSES**. As partial consideration for the OFLC, Inc. Property, Buyer shall convey to OFLC a condominium unit as describe below (the "Condominium Unit") on or before the 4th anniversary of the Closing. The parties agree that the cash value of the Condominium Units is $300,000 (the "Cash Value"). The Condominium Units shall be residential and at least 1,200 square feet in size in the condominium development Buyer intends to construct on the Ski Mountain Property. The Condominium Unit shall be on the side of the building facing Moosehead Lake. The Condominium Unit shall be conveyed by quitclaim with covenant deed and shall be subject to all matters set forth in the condominium declaration. OFLC and Buyer shall each pay their respective real estate transfer tax in accordance with 36 M.R.S.A. §4641-A and OFLC shall be responsible for the recording fee and for the cost of any title insurance OFLC elects to purchase. Buyer agrees to pay the condo fees on the Condominium Unit (exclusive of property taxes and special assessments) for a period ending on the earlier to occur of (i) OFLC conveying the Condominium Unit to a third party; and (ii) the 10th anniversary of the conveyance of the Condominium Unit to OFLC. If Buyer is unable to convey the Condominium Unit on or before the 4th anniversary of the Closing, or if Buyer elects not to convey the Condominium Unit to OFLC, then Buyer shall pay the Cash Value to OFLC in immediately available funds on or before the 4th anniversary of the Closing.

Buyer or future owners of the Ski area agree to provide free lifetime season passes for skiing/boarding and rental equipment for James Confalone and those listed on Exhibit B, attached hereto]. The Confalones shall also be entitled to four free day ski passes each day for accompanied guests. The provisions of this Section shall survive the Closing.

15. **MISCELLANEOUS.**

(a) This Agreement shall inure to the benefit of and be binding upon the parties hereto and their respective heirs, personal representatives, successors in interest and permitted assigns. Buyer may assign this Agreement without Seller consent, provided that any such assignment shall be in writing, such assignee shall assume all of Buyer's obligations herein, and Buyer provides notice of such assignment to Seller.

(b) It is understood and agreed that all understandings, agreements, warranties or representations, either oral or in writing, including without limitation any letters of intent or prior

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agreements, heretofore between the parties hereto are merged in and superseded by this Agreement, which document alone fully and completely expresses the parties' agreement with respect to the transactions covered hereby. This Agreement may not be modified in any manner except by a subsequent instrument in writing signed by Seller and Buyer.

(c) This Agreement may be simultaneously executed in any number of counterparts, each of which when so executed and delivered shall be an original; but such counterparts shall constitute but one and the same instrument.

(d) If the date for performance of any obligation hereunder, or the giving of any notice hereunder, falls on a Saturday, Sunday or a legal holiday in the State of Maine, the period for such performance, or the giving of any notice hereunder, shall be extended to the next business day.

(e) The Deposit made hereunder shall be held in escrow by the Escrow Agent as escrow agent in a non-interest bearing account subject to the terms of this Agreement and shall be duly accounted for at the time for performance of this Agreement and otherwise disbursed in accordance with the terms of this Agreement. In the event of any dispute between the parties regarding the disposition of all such deposits, the Escrow Agent shall be authorized to pay over the amount of all such deposits only upon receipt of either a letter signed by both Seller and Buyer directing disposition of such funds or an order of a court of competent jurisdiction directing the disposition thereof. The parties acknowledge that Murray Plumb & Murray is counsel to Buyer. In the event of a dispute between the parties, the commencement of an Interpleader action or the resignation by Murray Plumb & Murray as Escrow Agent, Murray Plumb & Murray shall be free to continue to represent Buyer in any and all matters, including matters substantially related to the Deposit or this Agreement. If the Escrow Agent receives or becomes aware of any conflicting demands or claims with respect to Deposit or the rights of any of the parties, the Escrow Agent shall have the right, but not the obligation, to discontinue in any and all further acts on its part until such conflict is resolved to its satisfaction. The Escrow Agent shall have the right, but not the obligation, to file a suit in Interpleader in any court of competent jurisdiction and pursuant thereto to deposit the Deposit, whereupon the Escrow Agent shall be fully released and discharged from any further obligations with respect to the Deposit.

(f) This Agreement shall be construed and enforced in accordance with and governed by the laws of the State of Maine.

(g) No party will make any public announcement of the transaction contemplated by this Agreement prior to the Closing without the prior written approval of the other party. The foregoing shall not restrict in any respect the ability of each party to communicate with its respective partners, equity owners, affiliates, officers, directors, employees, agents and professional advisers, and with third parties whose consent is required in connection with the transaction contemplated by this Agreement.

(h) The "Effective Date" of this Agreement shall be the date that the last party as executed this Agreement and that fact has been communicated to the other party.

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(i) Notice. Any demand or notice required or permitted hereunder, shall be effective if either: (i) sent via electronic mail to the address set forth below; (ii) hand-delivered to the addressee, or (iii) deposited in the mail, registered or certified, return receipt requested and postage prepaid, or delivered to a private express company addressed to the addressee: (A) at the address shown below, or (B) if such party has provided the other in writing with a change of address, at the last address so provided. Any notice or demand mailed as provided in this paragraph shall be deemed given and received on the earlier of:

(x) the date received, or

(y) the date of delivery, refusal or non-delivery as indicated on the return receipt, if sent by electronic mail, mail or private express as provided above;

All notices required to be given, or which may be given hereunder, shall be in writing and if mailed, shall be sent by mail to the party to be notified as follows:

Seller:

James Confalone
C/O Moosehead Mountain Resort, Inc.
P.O. Box 415
Rye Beach, NH 03871

With copy to:

Buyer:

Big Lake Development Company, LLC
Attention: Perry Williams
P.O. Box 1317
Rangeley, ME 04970
perry@niboban.com

With copy to:

Murray Plumb & Murray
Attention: Drew Anderson, Esq.
75 Pearl Street, P.O. Box 9785
Portland, Me. 04104
danderson@mpmlaw.com

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or to such other addresses as one party may from time to time hereafter designate by like notice to the other.

(j) Notwithstanding any other provision of this Agreement, Seller may desire to effectuate the sale of the Property by means of an exchange of "like-kind" property which will qualify as such under Section 1031 of the Internal Revenue Code of 1986 and regulations thereunder, provided the Buyer incurs no additional expenses or liability and is not delayed in its acquisition of the Property. It is the intent of the parties that Buyer incur no income tax liability as a result of cooperating with Seller in consummating a tax-deferred exchange, and that Buyer incur no expenses or liability of any nature in connection with the acquisition or subsequent conveyance of the exchange property. Seller hereby agrees to pay any increase cost incurred by Buyer as a result of the like-kind exchange and to indemnify Buyer from any tax liability arising from Seller's like-kind exchange.

[Signatures on Following Page]

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IN WITNESS WHEREOF, Seller and Buyer have executed this Agreement as of this 2 day of October, 2019.

SELLER:

OFLC, INC.,
a Florida corporation

WITNESS

By:
Name: JAMES CONFALONE
Its: OFFICER

MOOSEHEAD MOUNTAIN RESORT, INC.,
a Florida corporation

WITNESS

By:
Name: JAMES CONFALONE
Its: President

BUYER:

BIG LAKE DEVELOPMENT COMPANY, LLC,
a Maine limited liability company

WITNESS

By:
Name:
Its: manager

Exhibit A

Property Sketch

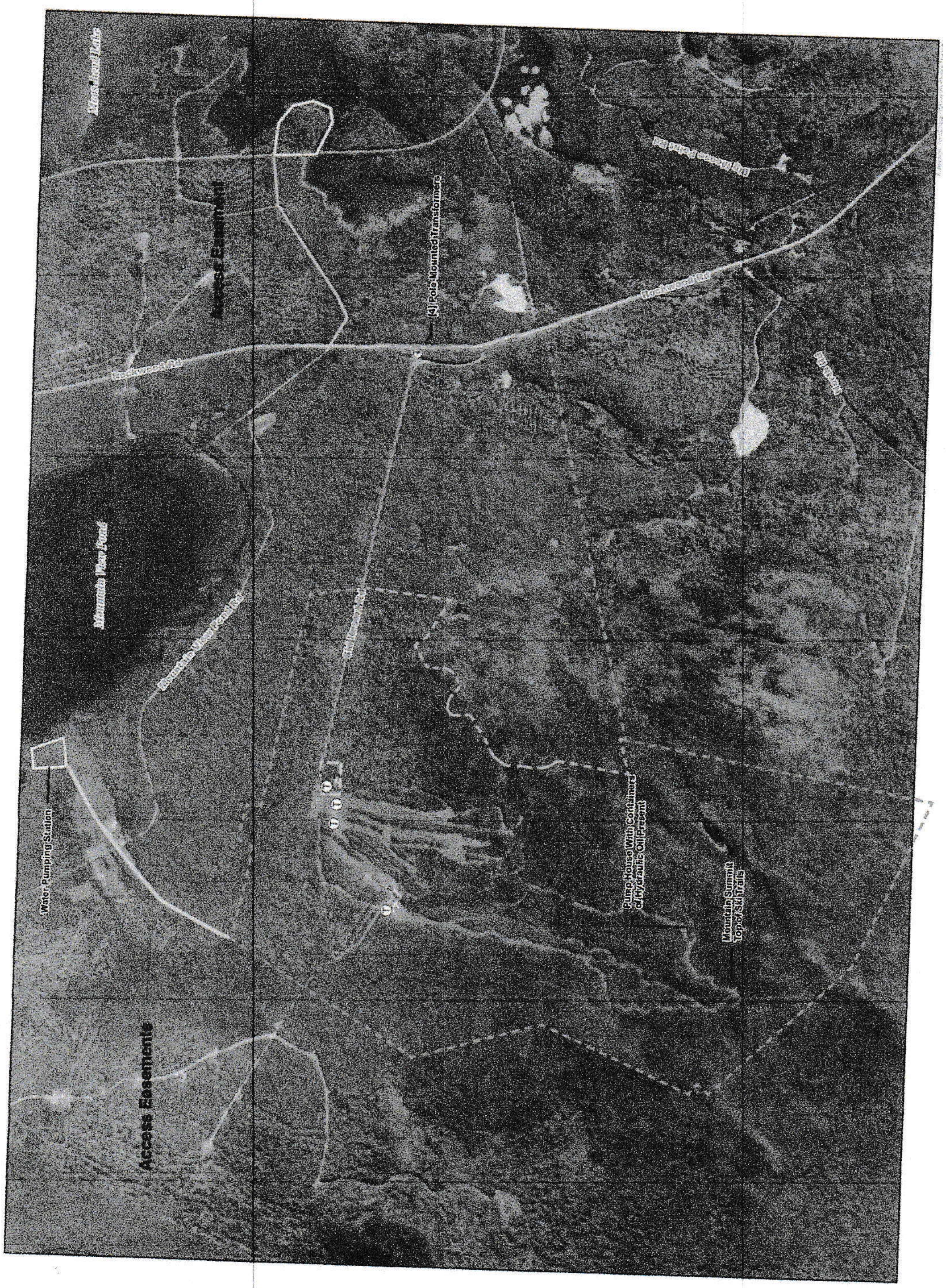

Exhibit B

Karen Confalone
Jim Confalone
(2) Daughters and spouses:
    Charlene
    Monique
Grand Children
Great Grandchildren

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(KW)

Exhibit 4 – Financial Capacity

The entire village resort redevelopment project is expected to cost $113.5 million. This includes the site work, erosion control, stormwater treatment structures, utility installation, building construction and construction of the new roads and parking lots as shown on the plans. See the estimated costs in the table below.

Big Moose Resort

Uses of Project Funding		
Uses		
Resort/Property Acquisition	$	3,950,000
New 6-person chairlift	$	6,750,000
New T-bar	$	750,000
Base Lodge/ Conference ctr.	$	8,686,000
Tap House	$	5,175,000
Hotel	$	11,922,000
Ancillary buidlings	$	750,000
Event Center	$	1,500,000
Village buidings FF&E	$	4,610,000
Village construction soft costs	$	2,870,000
Developers contingency	$	2,900,000
Site work / roads	$	2,000,000
Infrastructure upgrades (water, sewer, elec.)	$	10,000,000
Mountain top activities	$	300,000
Snowmaking upgrades	$	6,000,000
Maintenance Garage	$	900,000
Marina	$	1,500,000
Zip line	$	2,750,000
Trails-grounds-parking-off season options	$	600,000
Pre-development expenses	$	2,175,000
*Includes costs prior to closing (survey, engineering, soils survey, erosion & stormwater design)		
Legal Fees	$	650,000
Cost of Bond Issuance	$	1,250,000
Capitalized Interest / Debt Service Reserve	$	35,508,335
Total uses	**$**	**113,496,335**

these uses are subject to change based on final cost estimates from vendors

Attached is a letter from the funding source indicating their willingness and ability to fund the project, along with a memo that provides an overview of the financial structure.

A special purpose, tax exempt entity has been established that will be responsible for the operation and maintenance of the resort. Revenues from a variety of sources (skiing, zipline adventures, astro tourism, events, etc.) will provide the means for short and long term maintenance of the newly constructed facilities. The resort will employ year round staff that will be responsible for these maintenance activities.

BARCLAYS

Debra Kaczowski
Land Use Planning Commission – Greenville Office
43 Lakeview Street
PO Box 1107
Greenville, ME 04441

Re: Moosehead Lake Ski Resort
Financing Considerations and Description

March 17, 2021

Dear Ms. Kaczowski,

On behalf of Barclays Capital Inc. ("Barclays"), we are pleased to present this letter to the Maine Land Use Planning Commission, regarding our involvement in the Moosehead Lake ski resort redevelopment (the "Project"). Barclays is honored to be a participant in this Project and we are excited at the prospects for regional economic benefit that the Project promises.

Barclays has entered into an engagement letter agreement with Big Lake Development LLC and Provident Resources Group, dated 10 December 2020, whereunder our firm is tasked with coordinating and facilitating the Project's funding and ultimately to act as underwriter for its financing. Attached to this letter is a brief document (in DRAFT form) that summarizes the current plan of finance that Barclays is working towards. Subject to the customary and usual due diligence, market conditions, approvals and the necessary contributions of other Project participants, Barclays continues to believe that the financing envisioned is reasonable for this undertaking.

Barclays Capital Inc. is the U.S.-based investment banking division of Barclays Bank PLC. A publicly traded U.K.-domiciled bank that was founded in England in 1690, Barclays Bank PLC is a global financial services provider engaged in corporate and investment banking, retail banking and credit cards, with an extensive international presence in the Americas, Europe, and Asia. Barclays has dedicated a team of five banking professionals in New York, San Francisco and Seattle to this Project.

PLEASE NOTE that nothing in this letter or attached transaction description is intended to be or is construed as a commitment or guarantee by Barclays to lend money or provide funds, and should not be relied upon as such. Any such commitment to lend or underwrite would be stated explicitly in writing and would require completion of satisfactory due diligence and necessary internal approvals within Barclays in Barclays' sole discretion. No such due diligence has been completed and no such approvals have been sought to date. Nothing in this letter or accompanying documents shall be construed to be accounting, legal or tax advice.

Barclays looks forward to the progress of the developers on this Project, and to a successful conclusion of our work with the highly capable and professional development team. Please do not hesitate to contact us with any questions.

Very best regards,

Tony Hughes

Anthony Hughes, Managing Director

$105,856,000*

FINANCE AUTHORITY OF MAINE

2021 PROJECT REVENUE BONDS

(MOOSEHEAD LAKE SKI RESORT)

Summary of Proposed Financing Opportunity

February 24, 2021

The Project

- Provident Group – Moosehead Lake L3C ("Owner") is a Maine 501(c)(3) limited liability company formed by Provident Resources Group for the sole purpose of acquiring, financing, developing, owning, and operating the Moosehead Lake Ski Resort in Maine. The resort is being designed and built to function as an attractive, four-season, "drive-to" destination within one of the most beautiful mountain areas of Maine.
- The Owner will issue its non-AMT tax exempt revenue bonds through a conduit issuer in an aggregate principal amount not to exceed $135,000,000, the proceeds of which will be used to finance the costs of acquiring the site and designing, constructing and equipping the Project.
- The Project includes primarily: a ski resort with a new chairlift, surface lifts and a snow-making system overlooking Moosehead Lake; a base lodge and conference center; a 60-key hotel and accompanying restaurant; non-winter activities including a 200-slip marina facility, extensive zip-lining course and facilities to support night-sky "astro-tourism"; and the backbone infrastructure (e.g., roads, streetlights, water, sewer and electricity, etc.) to support the residential real estate located within the Project Area.

Key Parties

- **Owner/Borrower:** Provident Group – Moosehead Lake L3C, a sole purpose 501(c)(3) limited liability company formed by Provident Resources Group
- **Developer:** Big Lake Development, LLC and Treadwell Franklin Infrastructure Capital, LLC
- **Construction Firm:** PC Construction - A Vermont-based construction firm with annual billings in excess of $500 million and a deep track record of high-quality, "on-mountain" construction including, most recently, projects at Stowe, Killington and Stratton (all in Vermont).
- **Ski and Hotel Operator:** TBD (a nationally recognized entity)
- **Structuring Advisor:** Piedmont Securities LLC
- **Market Feasibility Study Consultant:** CBRE
- **Construction Monitor and Technical Advisor:** CBRE Construction Management Services
- **Conduit Issuer:** Finance Authority of Maine
- **Underwriter:** Barclays (Sole)

Background

- The Project Area consists of 1,700 acres of land located in northern Maine, within Piscataquis County (the "County") on the southeast corner of Moosehead Lake. With 280 miles of shoreline, Moosehead Lake is the largest mountain lake in the eastern United States.
- The Project will be the complete overhaul and redevelopment of an existing, two chair-lift ski area that was built in the early 1960s that has been operated intermittently as "Big Squaw" by a local non-profit group for the past 50 years and the existing marina on Moosehead Lake, near the base of the mountain.
- The Owner will acquire fee title in the land and then develop, own and operate the Project under a Cooperation Agreement with the County for the duration of the repayment of the Bonds. Upon payment in full of the Bonds, the Owner will have the option either to: (i) transfer the Project to the County; (ii) continue to own, operate and maintain the Project; or (iii) sell the Project.
- The Project is being supported by the County because of the economic development benefits it will generate in an area of the State that is currently characterized as having low average wages and high unemployment.

Security and Sources of Payment

- The bonds will be secured by: (i) net revenues of the Project as well various residential real-estate related revenues as described below; (ii) pledged assets and mortgages on the Project properties; (iii) debt service reserve fund (for the first and second liens); (iv) operating reserve fund (for the first and second liens); and (v) supplemental reserve fund to support an extended ramp up period.*
- Net revenues of the Project include:
  - Ski, mountain and marina activity-related revenue from a four-season resort including, food & beverage and hotel net revenues.
- Real Estate-Related Revenues include:
  - Lot release contributions generated by the sale of residential plots that are gifted to the Owner as charitable contributions.
  - Tax increment revenues that are returned to the Owner as the assessed valuation on the residential real estate increases.
  - Annual Assessments on the residential plots specifically designed to fund maintenance, major maintenance and necessary repair and replacement, as the backbone infrastructure supporting the residential real-estate development. Note: these Annual Assessments are in addition to the standard homeowner's association dues that each residential landowner will be required to pay.

Proposed Capital Structure

- The Project will be funded with the proceeds of a $105.9 million* three-tranche transaction split among senior bonds (public offering), junior bonds (public offering), and subordinate lien bonds (placed by the developer with local investors or, potentially, by Barclays).
- Target debt service coverages for the Bonds are as follows:
  - Senior lien: 3.00x
  - Junior lien: 2.00x
  - Subordinate lien: 1.10x

* *Preliminary; subject to change.*

- **Tax-Status:** Tax-exempt, not subject to AMT, with the potential for a de-minimis taxable tail to fund additional capitalized interest or certain costs of issuance.
- **Amortization:** Level debt service after a ramp-up period with 30-year final maturity.
- **Ratings:** TBD

Key Project Attributes

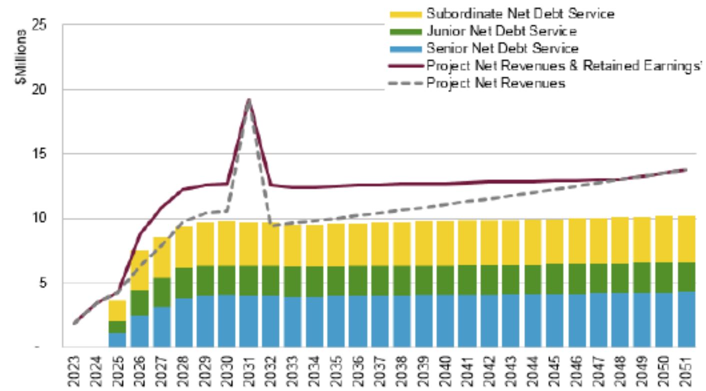
- One of a very few New England destination ski resorts located next to a major lake offering year-round recreation opportunities.
- There is a panoramic view of Moosehead Lake from the ski slopes, similar to the Lake Tahoe basin ski resorts.
- Bondholders will have a secured mortgage interest in all of the underlying Project assets.
- Approximately 25% of the debt will be fully subordinated and placed by the Developer with local investors or by Barclays if we elect to do so.
- The Moosehead Lake Ski Resort is located approximately 60 miles east of the Canadian border and 270 miles north of Boston.

Project Sources & Uses ($mm)*

	Senior Bonds	*Junior Bonds*	*Subordinate Bonds*	*Total*
Par Amount	$52.63	$27.06	$26.18	$105.86
EDA Grant	2.98	1.53	1.48	6.00
Total Sources	**$55.61**	**$28.59**	**$27.66**	**$111.86**
Project Fund	$40.05	$17.48	$15.29	$72.81
CAPI	8.15	6.90	11.44	26.48
DSRF	4.26	2.32	-	6.59
Operating Reserve	0.50	0.25	-	0.75
Cost of Issuance	0.63	0.32	0.31	1.26
UWD – per bond ($1.50/$2.50/$3.50)	2.03	1.32	0.62	3.97
Total Uses	**$55.61**	**$28.59**	**$27.66**	**$111.86**

Project Debt Service Coverage*

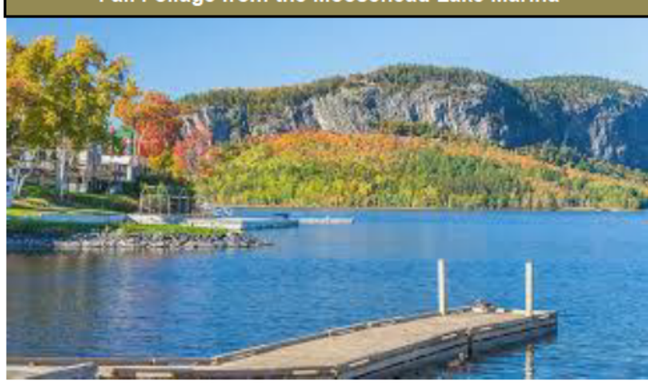
Lien	*Minimum Coverage*	*Par ($mm)*
Senior	3.11x	$52.6
Junior	2.00x	27.1
Subordinate	1.16x	26.2



Big Squaw Resort, circa 1970

Moosehead Lake Ski Resort Project Rendering

Fall Foliage from the Moosehead Lake Marina



Project Structure

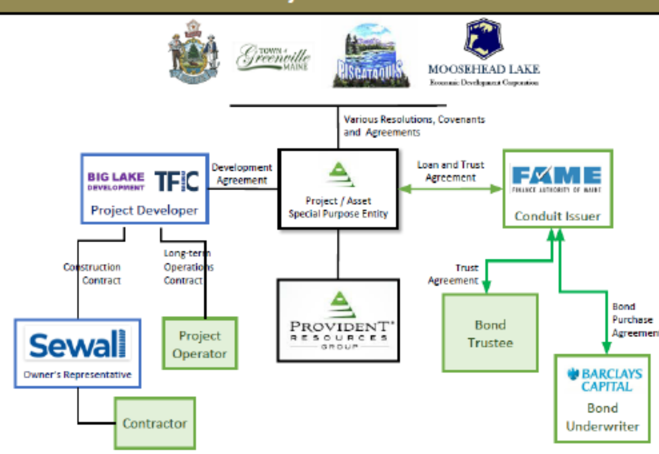


Exhibit 5 – Technical Ability

Developer

Big Lake Development Company, LLC is owned by Perry Williams and Steve Malcom, both lifelong skiers and Maine residents.
Perry Williams is an entrepreneurial and driven Chief Executive with 20 years of leading industry experience in founding numerous companies in the real estate development marketplace.

Having grown up in Falmouth, Maine and spending all his childhood summers on Sebago Lake, he developed a deep love of the Maine lake experience. After several seasons skiing in Wyoming and Colorado, he returned to Maine and married his high school sweetheart. Together they started their first of many businesses in 1985, and they continue to work together today.

Over time Perry moved into the real estate development field, and in 2000 he founded and developed a log home resort using the time-share model of fractional sales, growing it to an owner base of 2,800 members. This project presented multiple challenges, including product design and development, permitting, financing, marketing and sales. Ultimately Rangeley Lake Resort has become a tremendous success for the Town of Rangeley and the families that enjoy their vacation time on Rangeley Lake.

Being a life-long skier and active real estate developer, in 2002 Perry provided the visionary leadership and management direction to create The Timbers and Timberline Lodges, two of the most successful condominium projects at Sugarloaf, USA. Combined, these projects have developed and sold over 120 units of luxury mountainside accommodations.

Steve Malcom, CEO of the Knickerbocker Group in Boothbay, is a man of multiple talents, innumerable connections and strong personal integrity. Having spent his college summers as a sailing instructor at the local yacht club, Steve returned to Maine when he graduated from Hamilton College in 1974. He found the midcoastal to be an area to which he was deeply connected - a community full of friends and co-workers with strong work ethic, extraordinary skills and artistry, and a whole lot of ingenuity.

For 2 years, he gained carpentry knowledge and began developing relationships, leading him to form a construction group of his own that encompassed the values that endeared him to Maine. Boothbay Home Builders was formed in 1978, and quickly became known for its quality craftsmanship and attention to detail. By recognizing needs and trends in the building construction business and by responding proactively to meet those needs, the construction company quickly began to grow and evolve. In 1985, an opportunity arose which led to the formation of a custom millwork shop. Working with several local craftsmen, the shop allowed the artistry and functionality of the cabinetry to personalize the interior spaces, including architectural carving as a company trademark.

As time passed, it became increasingly apparent that the successful projection were those where the builder was part of the team at an early date.   Malcom recruited a team of individuals with specialized talent in architecture, engineering and design. In Steve's words, building house is part design, part construction and a whole lot of psychology."

In 1990, Knickerbocker Group thus began offering both architecture and interior design services. In 1993, wanting to challenge the traditional values of energy consumption, Steve built his first "off the grid" home as his private residence. This influenced the direction of the company as they went on to build several off the grid houses, including a compound a Spencer Lake that the time had the largest photovoltaic system in the State. The company's history in "green building" began there; and has grown over the years to become a philosophy that incorporates all aspects of building performance. Today, the same ore values that drew Steve to Maine define the character of the company has built; strong work ethic, extraordinary skills and artistry and a whole lot of ingenuity.

He has a passion for revitalizing real estate, recently completing successful transformation and operation of Maine resorts and inns.

Site Design, Engineering and Permitting

The design, permitting and owner's representation during construction will be led by Sewall who will employ additional technical resources to augment its internal capabilities as needed. James W. Sewall Company (Sewall) is a full-service consulting firm based in Old Town, Maine. The 140-year-old company offers a wide range of professional services, including civil and transportation engineering, surveying, construction management/administration and inspection, alternative site evaluation and permitting, land use planning, geospatial solutions (aerial & satellite imaging, mapping, application development, and asset management), and natural resources consulting. The Engineering Division includes professional engineers, professional land surveyors, GIS analysts, and technicians with expertise in virtually every discipline of civil engineering, including highway and intersection design, traffic and transportation engineering, site design, structural design, and environmental permitting.

Sewall was established in 1880 by a civil engineering alumnus of Bowdoin College and a citizen of Old Town. In its early days, the small firm established a market niche in surveying and forestry appraisals for private and public sector clients, while also performing large civil engineering design projects throughout the eastern US. Since that time, Sewall has expanded to include over 50 employees and six offices in four states. Sewall is owned by Treadwell Franklin Infrastructure Capital (TFIC), a company that undertakes project origination and development, financial structuring and project finance for the commercial infrastructure of the United States.

Sewall's corporate headquarters is located at 136 Center Street, Old Town, ME 04468; telephone: 207 827 4456. Sewall/TFIC offices are located at 40 Forest Falls Drive, Suite 2, Yarmouth, Maine 04096; telephone 207 817 5410.

Sewall offers the following site design and development services:

- Feasibility analysis, site selection analysis and conceptual planning

- Full site layout and design including:
  - Facility orientation
  - Parking lot layout and traffic/pedestrian circulation analysis
  - ADA analysis
  - Road, intersection, and entrance design
- Grading and balancing of site (cuts and fills)
- Storm water treatment design; erosion and sedimentation control planning
- Utility Design
  - Water distribution design
  - Sewer collection & pump station design
  - Electric design
  - Gas design
- Traffic Permitting
  - Traffic impact studies for local approvals
  - State traffic movement permits
  - Temporary traffic control plans
  - Traffic signal design
  - Parking studies
- Land development & environmental permitting (see reverse for more information)
- Topographic and boundary surveying, ALTA/ACSM, 3D scanning
- Structural Design and Assessment
  - Analyze & design structural components of retail/commercial developments and industrial buildings; educational, medical and military facilities
  - Design industrial equipment foundations; assess building reuse and design construction shoring
  - Develop construction drawings, specifications and cost estimates
- Construction Administration
  - Prepare issued for construction (IFC) plans and technical specifications
  - Assist with bidding and contractor selection
  - Construction inspection

- Environmental Permitting
  Sewall staff has developed close working relationships with a variety of regulatory agencies to assist our clients in obtaining the appropriate environmental permitting. Services include:
  - Municipal permitting. Building permits, development applications, planning board approval, driveway permits, subdivision review, etc.
  - State permitting. Construction general permit, Permit by Rule, Stormwater Permitting, Site Location of Development Permits (SLOD or Site Law), Natural Resources Protection Act (NRPA), National Pollution Discharge Elimination System (NPDES).
  - Federal Permitting. National Environmental Policy Act (NEPA) process including Categorical Exclusion and Environmental Assessments (EAs), Army Corps of Engineers Programmatic General Permit (PGP) and Individual Permits
  - Stormwater Pollution Prevention Plans (SWPPP) and Spill Prevention, Control, and Containment (SPCC) plans.

- Environmental Site Assessments (ESA) Phase 1 and select Phase 2
- Stormwater & construction inspections

The Sewall team is led by Matthew Dieterich, Executive Vice President. Mr. Dieterich has extensive experience in real estate development and construction management, including over 12 years working on real estate projects for major ski area at Bretton Woods, Sunday River, Sugarloaf, The Canyons, Steamboat, Heavenly, Killington, Mount Snow and Attitash. Mr. Dieterich has more than 25 years of experience in the construction and development industry, including managing numerous historic renovation and resort hospitality projects. He currently oversees geospatial services and construction management/program management services for Sewall and its parent company, Treadwell Franklin Infrastructure Capital.

Prior to joining James W. Sewall Company, Mr. Dieterich provided program and construction management services for federal and private sector clients, with over $160 million of projects for the National Park Service, including the Rehabilitation of the Lincoln Memorial Reflecting Pool, Repair of Earthquake Damage to the Washington Monument, Seawall Repair at Ellis Island, Tram Control Upgrades at the St. Louis Arch and Structural Repairs at Alcatraz.

Mr. Dieterich also managed real estate development and hospitality projects at Bretton Woods, Sunday River, Sugarloaf, Attitash, Sugarbush, Killington, Mount Snow, Steamboat, The Canyons and Heavenly. Projects included development of the Sunday River Golf Club (Golf Digest Top 100 you can play, Golfweek #1 course you can play in ME), restoration of the Donald Ross designed Mount Washington Golf Course (Golfweek #1 course you can play in NH), construction of the Steamboat Grand, restoration of the Mount Washington Hotel (a National Historic Landmark) and Spa and Conference Center expansion that was awarded the 2009 Construction Management Association of America Project of the Year and received a 2010 ACEC National Recognition Award.

Mr. Dieterich has a Bachelor of Science in Civil Engineering and a Master of Science in Civil Engineering (Construction Engineering Management Program), from the Massachusetts Institute of Technology.

Jodi O'Neal, PE
Jodi O''Neal is leading the design and permitting efforts for the project. Her substantial experience includes over 17 years of planning, design and permitting for public and private sector clients throughout Maine. Her primary focus is in wind power, highway design, commercial/retail development and subdivision design which includes site and utility design, stormwater management, and environmental and construction related permitting.

BS, Civil Engineering, University of Maine

Licensed Professional Engineer (ME#13020, NH#15509, TN#120787, MS#29014, OH#82658, DE#21985, WV#22895, RI#12410, KY#34512, MO#2020008181, WY#17931)

Certified Professional in Erosion and Sediment Control #3888

Maine Department of Transportation Certified Local Project Administrator

Diane W. Morabito, PE, PTOE, Vice President of Traffic Engineering

As Vice President of Traffic Engineering, Ms. Morabito leads the Traffic Engineering division of Sewall. Diane has over thirty-five years' experience as a Transportation Engineer in Maine. She has performed hundreds of Traffic Impact Studies for both local and state permitting of development projects. Through this work she is extremely well versed in traffic analysis. Additionally, she has provided peer review services to numerous Maine municipalities that are without in-house traffic engineering staff. She holds the MaineDOT LPA certification as well as IMSA certifications. Diane also provides design services for intersection improvements, including traffic signal installations and modifications. Rounding out her transportation background, she has been involved in numerous pedestrian and bicycle facility development projects. She also has substantial experience in developing temporary traffic control plans for complicated construction and utility projects in high traffic volume areas.

MS, Civil Engineering, University of Massachusetts, Amherst
BS, Civil Engineering, University of Massachusetts, Amherst
Short Courses, Federal Highway Administration in Transportation Engineering
Professional Engineer (Maine, No. 5077)
Professional Engineer (New Hampshire, No. 9585)
Professional Traffic Operations Engineer (Transportation Professional Certification Board, Inc., No. 571)

Building Design

Building Design will be handled by Simons Architects. Simons Architects has been involved in the project from conception, diligently working to provide overall planning and building design services.

Simons Architects is well known for innovative solutions to design challenges, large and small. They are committed to design excellence that is grounded in sustainability and elevates human potential. They are responsive, working as a team to create buildings that resonate within their communities.

They believe the art and science of designing buildings is about more than the building; it's about creating opportunities to enhance human potential.
As designers they feel purpose, creativity and depth of inquiry are vital to success. Through dialogue and thoughtful listening, they create compelling places to live, learn, work, and play. In their work with educational, recreational, and cultural clients, they combine their design skills and technical expertise to create buildings of substance, beauty, and lasting value.

Their office is organized as an open design studio. Members of the design team are involved at all stages of each project, from initial planning and conceptualization through completed

construction and occupancy. They extend this working method to our interactions with our clients, encouraging them to share their ideas and suggestions throughout the process. Their team approach creates thoughtful design, careful attention to the budget, and quality outcomes.
Simons Architects has been awarded over 35 American Institute of Architects national, regional, and state design awards in recognition of our overall commitment to excellence. The Simons Architects team is led by Scott Simons. Scott Simons has over thirty years of professional experience and is well known for his thoughtful and innovative solutions to complex projects. He brings a unique design approach to all the firm's work. Scott's commitment to designing buildings of exceptional beauty and substance underscore all of SA's projects. His drive to find the best possible solutions for our projects energizes the studio and makes the design process a dynamic experience for our clients.

Scott is a founding member of the Portland Society of Architects and is on the AIA Maine Board of Directors. Scott has served as a design critic at the University of Pennsylvania, Harvard University, and Northeastern University, among many others.

University of Pennsylvania, Master of Architecture
Dartmouth College, Bachelor of Arts
Institute for Civic Leadership, 2008 Distinguished Alumni

Simons Architects.
75 York Street
Portland, ME
04101
Founded in 1995
Licensed in ME, NH, VT, MA, NY, CT, RI, PA, FL

Ski Resort Design

Alpentech is well known for designing changes to existing areas, upgrading and expanding trail and lifts systems to diversify their use. We are called to assist ski areas with complex mountain grading projects. Internationally, Alpentech is best known for **new mountain resort planning and development** taking place most recently in China.

With a solid engineering foundation, Alpentech contributed to the ski industry involve during the last 40 years. Alpentech gained practical experience from the ground up, applying invaluable field experience. A National Award was received for best ski area layout, a Regional (Golden Wrench) Award for best service and a County Award for good water quality management.

Alpentech uses unique modeling techniques during mountain resort layout and planning since 1982, when combined terrain suitability and wind modeling were provided to the French government. In addition to advanced map analysis, our forte is fitting venue layout in the field, working with Google Earth and state of art tools. Smart adjustment to changing markets of summer and winter sport in mountains is indeed the objective for new- and re-development.

Beat vonAllmen, P.E., President, Mountain Planning Engineer

Beat incorporated Alpentech in 1978 to improve the experience of summer and winter vacationing in the mountains. Having grown up in Mürren, a car free Swiss resort, and working for aerial tramway firms, he became a hands-on specialist in mountain transportation systems. Building on his background, fitting professional education and experience, the evolution and accessibility of alpine summer and winter sports has been the primary focus of his work. Searching for better, more comprehensive mountain use has awarded him recognition in recreation planning. This special interest, coupled with studies in mechanical, civil and environmental engineering give Beat a leading edge in mountain facility layout by combining his field advantage with advanced computer modeling, Beat is the U.S. correspondent to the International Aerial Tramway Review. Fluent in French and German, he has written numerous articles on subjects related to mountain development.
As a member of the Swiss National Ski Team, he was listed in the first 15 in the FIS list and has won several international events. In the 1964 Olympic Winter Games at Innsbruck, Austria, he placed 14th.

MS Civil Engineering -- University of Utah, Salt Lake City, 12/1973
MS Mechanical Engineering -- University of Vermont, Burlington, 6/1971
Design Engineer (HTL-Maschinenbau) -- State College, Biel, Switzerland, 1968
Draftsman Diploma (Maschinen) -- vonRoll AG / Gewerbe Schule, Bern, CH 1964
Swiss Army -- Alpine Corps training, mountain infantry corporal, 1962/63
Business Administration Diploma -- Nobs & Co./K.V., Thun, Switzerland, 1961
Professional Engineer: P.E. Utah (4838) 22-156074-2202, Utah Tramway Engineer
2012 Intermountain Ski Hall of Fame

Landscape Architecture, Planning and Visualization

Terrence J. DeWan & Associates is a professional landscape architectural and planning firm in Yarmouth, Maine dedicated to approaching land use opportunities with creativity, environmental sensitivity, and an awareness of client needs.
The staff of eight is composed of professionals with backgrounds in landscape architecture, recreation planning, land planning, visual resource assessment, permitting, graphic design, model making, research, and technical writing.

TJD&A is committed to appropriate design solutions that evolve from effective communication with the client and municipal and state officials. The firm has an underlying commitment to land stewardship and faith in the future of New England.
The services offered by the firm include:

- **Site Planning and Design**
  Site analysis; single family homes; residential subdivisions; cluster housing; apartment and condominium complexes; land reclamation; commercial, institutional, and industrial site planning; landscape restoration.
- **Master Planning**
  Site selection studies; open space planning; campus planning; waterfront planning; municipal comprehensive planning; zoning and land-use studies; resort communities; resource management studies; natural resource inventories.

- **Recreational Planning**
  Municipal inventories; waterfront land use studies; park, playground and facility design; trail planning; recreation management.
- **Visual Inventories and Assessment**
  Scenic inventories; facility siting; highway location studies; transmission line studies; windpower visual studies, visual impact assessments; mitigation planning.
- **Permitting**
  Coordination of applications under Maine's NRPA (Natural Resource Protection Act), Maine Department of Environmental Protection (DEP) Site Location of Development Permit, and Army Corps of Engineers Permits.

Terrence J. DeWan FASLA, Principal

Maine Licensed Landscape Architect
Terry DeWan has over 40 years of professional experience in landscape architecture, visual resource assessment, site planning, design guidelines, and community development. His experience includes work with communities, state agencies, private developers, utility companies, and the forest products industry in New England. He has written numerous studies on community planning, visual impacts, recreation planning, water access, and highway corridor redevelopment.

Construction

PC Construction has been retained to be the prime contractor for all of the major elements of the capital program.

PC Construction (PC) was founded in 1958 and has since grown to become a local leader in New England's construction industry. They offer construction management, general contracting and design-build services to private and public entities for projects of all sizes. Today, PC is 100% employee owned with headquarters in Vermont and offices in Maine, New Hampshire, Florida, Georgia, New York and North Carolina, and construction projects spanning the east coast.

Their five-year average annual construction volume of $500 million includes extensive work in each of our primary markets of Hospitality and Resort, Education and Campus, Health Care and Life Sciences, Commercial, Manufacturing and Industrial and Water Treatment. PC's commitment to outstanding job completion, exceptional customer service and superior safety performance has made us a partner of choice in the industry.

Building and Facility Construction in Maine

PC began its successful association with the State of Maine in the late 1960s with the construction of water and wastewater treatment facilities. More than 150 projects have been completed or are currently underway for a wide variety of clients including IDEXX

Laboratories, Martin's Point Health Care, The University of Maine System, L.L.Bean and Bath Iron Works.

PC has established a very important regional office in Portland, Maine, to oversee all of our operations in the state. This includes a team of employee-owners that love to live and work in the state.

For more than 50 years, PC has performed and managed construction in Maine including developing strong relationships with subcontractors and suppliers in the state. We have firsthand experience with these firms' capacity, workmanship, financial strength, resources, safety, quality and other performance factors that are key to adding value and reducing risk from projects.

Resort Construction

For the past 40 years, PC Construction has been a trusted partner on many of the most unique and challenging resort projects in Northern New England. PC brings an understanding of the challenges involved with constructing exceptional properties in exclusive—but geographically-challenging—locations that deliver beyond the owner's and guest's expectations.

Their experience constructing on-mountain improvements—from day lodges and ice rinks to private residence clubs—provides them with the ability to deliver our client's vision, every time. Go one step further and they help developers explore the feasibility and creation of on-mountain and base-mountain residential and mixed-use projects.

While constructing in the heart of an operating resort, the guest experience is paramount and cannot be compromised. Their seasoned teams understand the nuances of harsh climates, remote or constrained building sites, steep topography, fragile ecosystems, distinctive regional/historical context, sustainability and shortened building seasons, and they cover all the bases so the focus can remain on what really matters - the guests.

The following list of professional consultants is or has been involved in the development of the proposed project:

James W. Sewall Company 136 Center Street, P.O. Box 433 Old Town, ME 04468 Contact: Jodi O'Neal, P.E., CPESC Tel: (207) 827-4456	Site Design Permit Preparation Storm Drainage Surveying
Eco-Analysts, Inc PO Box 224 Bath, Maine 04530 Contact: Bud Brown Tel: (207) 837-2442	Wetland Delineation

Burman Land and Tree Company, LLC PO Box 145 Hamilton Hill Orrington, ME 04474 Contact: Aleita Burman Tel: (207) 825-4050	Wetland Delineation
Boyle Associates 254 Commercial Street Merrill's Wharf, Suite 101 Portland, Maine 04101 Contact: Dale Knapp Tel: (207) 631-9134	Soils Mapping
Tjd&a 121 West Main Street Yarmouth, Maine Contact: Terry DeWan Tel: (207) 632-7030	Visual Impact Assessment
Weston & Sampson 100 International Drive Portsmouth, NH 03801 Contact: Frank Getchell Tel: 603-570-6319	Water Supply Hydrology

Refer to the attached resumes for qualifications of individuals associated with the design team.

The evolution of expertise

Matthew Dieterich

Executive Vice President

Matthew Dieterich joined Sewall in 2018 with over 27 years' experience in program, asset, and development management. He oversees the geospatial operations division of Sewall, and in the engineering division, specializes in construction management. His previous experience included providing capital program support for the Trust for the National Mall in Washington, DC, overseeing master scheduling, contractor selection, contract document development, design reviews, and on-site construction management for the $120 million rehabilitation of Constitution Gardens. He also served as the program manager for the National Park Service Construction Management Services nationwide contract. He has overseen contracted construction support services for the Department of State at overseas embassies (Moscow, Russia; Freetown, Sierra Leone; Wellington, New Zealand; Shenyang, China; and Nuevo Laredo, Mexico).

Previously, Matt worked as Development Manager for Celebration Associates at the Mount Washington Resort on a 980 unit resort real estate development program and resort capital projects, and as the Director of Asset Management for American Skiing Company.

EDUCATION

- MS, Civil Engineering, Construction Management Program, Massachusetts Institute of Technology
- BS, Civil Engineering, Massachusetts Institute of Technology

HONORS/ORGANIZATIONS

- EIT—Commonwealth of Massachusetts
- Board Member, Paris Utility District, 2014-Present
- Member, Construction Management Association of America (CMMA)

RELEVANT EXPERIENCE

2018 – Present, James W. Sewall Company

Executive Vice President

Provides corporate oversight for all operations at Sewall, including direct responsibility for geospatial services that includes budgeting, sales, and production. Responsible for implementation of a new enterprise resource planning (ERP) system and oversight of resources and corporate strategy. Oversees construction management services at Sewall that includes work for advisory services for new real estate developments and owner's representation services on supported construction projects. Mr. Dieterich currently serves as the Project Manager for the Biddeford Parking Garage, an innovative public/private partnership project that will provide 640 parking spaces to support the ongoing development in the Biddeford Mill District.

2009 – 2018, The Louis Berger Group, Inc., Washington, DC, and Portland, ME

Senior Program Manager

Ocean County, Toms River, NJ. Project Manager for development of a Facilities Capital Improvement Plan to support the long-term growth strategies of Ocean County relative to its managed facilities. The County-wide provided a methodical, efficient means for reorganization of facilities occupancy and development in response to the current conditions and anticipated operational needs across the entire County. The project analyzed all of the existing facilities owned and operated by Ocean County, developed a matrix of anticipated future needs based upon changing demographics and economic drivers and created a plan for the phasing and development of Ocean County facilities that included; emergency services, court operations, road and highway maintenance, health and human services and all required infrastructure to support these operations.

Trust for the National Mall, Washington, DC. Provided support for capital programs, including the $120 million rehabilitation of Constitution Gardens. Phase I services include master scheduling, contractor selection, contract document development, design reviews and on-site construction management.

Overseas Building Operations (OBO). Deputy Program Manager for overseeing contracted construction support services for the Department of State at overseas embassies and other real property. Responsible for proposal preparation, personnel mobilization and task order management. Locations include Moscow, Russia, Freetown, Sierra Leone, Wellington, New Zealand, Shenyang China, and Nuevo Laredo, Mexico.

National Park Service Construction Management Services. Program Manager responsible for administration and oversight of Nationwide Program in excess of $165 million in construction value, including solicitation response, project management, and client interaction. Projects included:

- National Mall and Parks (Washington, DC)
  - Potomac Park Levee- Design management for new structure across 17th Street ($5 million)
  - Lincoln Memorial Reflecting Pool Rehabilitation ($34.9 million)
    2015 ACEC Metro Washington Engineering Excellence Award, Grand Award Winner, Design
  - Washington Monument Earthquake Damage Repair ($11.3 million)
    2014 ENR MidAtlantic—Best Cultural/Worship Project
    2014 ENR MidAtlantic—Safety Award of Merit
    2015 ACEC Metro Washington Engineering Excellence Award, Grand Award Winner, Non-Design
    2015 ACEC Engineering Excellence Award, National Recognition Award
- Hawaii Volcanoes National Park (Volcano, HI). Visitor Emergency Operations Center ($4.4 million) and Volcano House Life Safety Upgrades ($2.7 million)
- Jefferson Expansion National Monument (St. Louis, MO. Old Courthouse Roof Replacement ($4 million) and St. Louis Arch Trams PLC Upgrade ($2.7 million)
- Statue of Liberty National Monument (New York, NY). Statue of Liberty- Life Safety Upgrades in preparation for crown re-opening ($1.2 million) and Ellis Island- Seawall Repair ($19.9 million)
- Perry's Victory National Monument (Put-in-Bay, OH). Restoration ($4.25 million)
- Acadia National Park (Bar Harbor, ME). Roadway & Culvert Improvements ($3.7 million)
- Shenandoah National Park (Luray, VA). Roadway Improvements ($21.9 million)

2006 – 2009, Celebration Associates/Mount Washington Resort, Bretton Woods, NH

Development Manager

Responsible for planning, permitting, and financial model development for a 980 unit resort real estate development program and resort capital projects. Scope included four major residential areas and mixed use residential/commercial village at base of Bretton Woods Ski Area.

2002 – 2006, American Skiing Company, Bethel, ME

Director of Asset Management

Responsible for real estate development at Sunday River, Sugarloaf, Killington, Mount Snow, and Attitash ski resorts. Duties included negotiation of sales and/or development of joint venture projects to support corporate disposition strategy. Responsibilities included site planning, design, permitting, plan review, and marketing and sales support.

1999 – 2002, American Skiing Company Resort Properties, Inc., Bethel, ME

Vice President—Eastern Real Estate Development

Responsible for management of real estate development and sales organizations at five ski areas: Sunday River, Sugarloaf, Killington, Mount Snow and Attitash. Duties included project conception, design development, financial analysis and pro-forma development, permitting, contract negotiation, construction management, and marketing.

Director of Construction Services

Oversight of construction and pre-construction activities including procurement of design and construction services, project management, dispute avoidance and resolution, and risk management. Advisory role supporting senior management, regarding all construction related issues, including organization and personnel issues, contract review and finance/delivery recommendations.

Director of Infrastructure Development

Responsible for overseeing infrastructure related projects for the real estate development division at all nine resorts owned by the American Skiing Company. Included analysis of needs, development of budgets and schedules, design, procurement of services, and project management. Successfully completed, on schedule and under budget, a $9 million infrastructure project at The Canyons resort in Park City, Utah.

1996 – 1997, Massachusetts Institute of Technology, Department of Civil Engineering, Cambridge, MA

Tren Urbano Research Project (Master's Thesis)

Detailed review of overall project contract for proposed commuter rail system in San Juan, Puerto Rico, highlighting delivery and quality implications of contract structure.

1991 – 1996, Hydro Group, Inc., Schoharie, NY

Project Engineer, Layne Well and Pump Division

Responsibilities included sales, marketing, and project management across upstate New York for development of new groundwater supplies and additional groundwater sources for municipalities and industry. Provided routine and emergency service of groundwater delivery and treatment systems. Supervised environmental drilling programs and construction of remedial treatment facilities.

Jodi O'Neal, PE, CPESC

Project Manager

Mrs. O'Neal joined the James W. Sewall Company in January of 2007. She has 17 years of experience in engineering design and permitting. Her primary focus is in wind power, highway design, commercial/retail development and subdivision design which includes site and utility design, stormwater management, and environmental and construction related permitting.

EDUCATION

- BS, Civil Engineering, University of Maine

PROFESSIONAL AFFILIATIONS & LICENSES

- Licensed Professional Engineer (ME#13020, NH#15509, TN#120787, MS#29014, OH#82658, DE#21985, WV#22895, RI#12410, KY#34512, MO#2020008181, WY#17931)
- Certified Professional in Erosion and Sediment Control #3888
- Maine Department of Transportation Certified Local Project Administrator

RELEVANT EXPERIENCE

PROJECT MANAGER

Stormwater Design and Analyses Successfully designed and permitted many stormwater systems for many different types of sites from complex wind power projects, commercial developments, subdivisions and mining operations to small site reconfigurations throughout the state. She uses the existing grade of the land to accomplish stormwater treatment to the best extent possible. This preserves the natural beauty of the site and minimizes development costs.

Outer Benton Ave Improvements Project, Winslow, Maine. Designed full depth reclamation with HMA overlay, ditching, and culvert replacements along a 1.5 mile section of Benton Ave. Project included design, bid, construction administration and inspection services. We worked with the Town and MaineDOT on this Municipal Partnership Initiative project.

Kebo Ridge/Hamilton Hill Subdivision, Bar Harbor, Maine. Designed roadway, utilities and lotting for a 30 lot residential subdivision. The project had Town water and sewer which included the design of 1305 ft of gravity sewer and 740 ft of sewer force main. Used underdrain soil filter, detention ponds and buffers for stormwater drainage control. Represented the client at planning board meetings. Achieved State and local approval.

Coldbrook Road & Newburgh Road Road Reconstruction Project, Hermon, Maine. Designed full depth reclamation with HMA overlay, ditching, and culvert replacements along a 2.27 mile section of Newburgh Road. In addition, the project included a preservation project along a 1.14 mile section of Coldbrook Road involving a 1.25 inch overlay, shim, ditching, and culvert replacement. We worked with the Town and MaineDOT on this Business Partnership Initiative project.

Route 2/6 (West Broadway) Widening Project, Lincoln, Maine. Designed a continuous two-way left turn lane (CTWLTL), 2-12' travel ways and 2-5' shoulders along 4,542 feet of US Route 2 in Lincoln. These improvements resulted in the widening of West Broadway, stormwater management improvements, new curb and guardrail. We worked with the Town and MaineDOT on this Business Partnership Initiative project.

Route 201 (Maine Avenue) Reconstruction, Farmingdale, Maine. Stormwater management and design for 1.5 mile reconstruction of Route 201 Design Build Project for MaineDOT. Project includes modifications to existing horizontal and vertical alignments, drainage improvements, retaining walls, and new curb and sidewalk.

Pleasant Point Passamaquoddy Tribe, Perry, Maine. Stormwater management and design for the construction of six residential roads in Pleasant Point, Maine. Project included extensive underdrain and stormwater collection systems and full depth roadway reconstruction. Review required by Bureau of Indian Affairs and the Federal Highway Administration.

Passadumkeag Wind Project, Grand Falls TWP, Maine. Stormwater design/analysis, erosion and sedimentation control, and permitting for civil road and site design for proposed 42-megawatt (MW) wind farm including 14 Vestas V112 3.0-MW wind turbine generators. Permitting was done through the Maine Department of Environmental Protection for a Site Location of Development Act permit.

Bull Hill Wind Power Project, T16 MD, Maine. Stormwater analysis, erosion and sedimentation control and permitting for civil road and site redesign for proposed 34.2MW wind farm including 19 Vestas V100 1.8MW wind turbine generators. Permitting was done through the Maine Land Use Regulation Commission.

Record Hill Wind Project, Roxbury, Maine. Stormwater analysis, erosion and sedimentation control and permitting for civil road and site redesign for proposed 50.6MW wind farm including 22 Siemens 23MW wind turbine generators. Permitting was done through the Maine Department of Environmental Protection for a Site Location of Development Act permit.

Husson University, Bangor, Maine. Site design, stormwater analysis, utility layout, erosion and sedimentation control, and permitting was completed for several projects on campus. Projects included the first phase of the Village Townhouse project, Maintenance Facility, President's garage, the University's LEED certified Living Learning Center, Dickerman Dining Commons, walkway improvements, overall Campus Masterplan and parking areas. Permitting was done through the Maine Department of Environmental Protection, City of Bangor and the Army Corps of Engineers.

Matt Cooke

Vice President

21 YRS

Matt brings demonstrated leadership capabilities, excellent problem-solving skills and technical construction skills to every project he leads. He possesses field engineering, project engineering and construction supervision experience for a broad range of clients, providing a diverse background in all areas of the company's business. His construction management and preconstruction experience provides the experience necessary to maximize construction dollars while meeting the client's objectives.

As a Vice President, Matt provides technical input and guidance to the project team and is invaluable during the planning, coordination and execution of projects.

Relevant Project Experience

Hillside Lofts at O'Brien Farm

South Burlington, VT | $45M | CM at-Risk | Preconstruction Services

Construction of two buildings totaling approximately 320,000 square feet to house 223 apartment units with common areas, lobbies, support space and associated parking garages. Site and stormwater improvements will also be completed to support the new facilities.

One Spruce Peak at Stowe Mountain Resort

Stowe, VT | $44.5M | CM at-Risk

New construction consists of a 117,000 square-foot, six-story residential facility featuring 27 luxury condo units including three penthouse units, pool facilities, ski lockers, a lobby and ground floor parking garage.

Omni Mount Washington Resort Guestroom Addition

Bretton Woods, NH | $25.2M | Design-Bid-Build

Construction includes a 60,000-square-foot, four-story, 69-room hotel addition with a guest lounge, public restrooms and a poolside grille. The project also includes a conference center kitchen upgrade and extensive roof improvements featuring a new rooftop bar, patio, restrooms and landscaping.

The Village Townhomes at Spruce Peak

Stowe, VT | $14.1M | Design-Bid-Build

Construction of 18 townhomes within six, 45,000-square-foot alpine-style residential buildings. Each townhome has four-bedrooms, three bathrooms, two decks, a great room, a kitchen and garage. Interior high-end finishes include exposed wood beam ceilings, Caesarstone® Bianco Drift surface countertops, Shaker-style wood cabinets, vintage oak flooring in the great room and kitchen and 20-foot-high, double-height windows in the great room.

Spruce Peak Village Center at Stowe Mountain Resort

Stowe, VT | $73.7M | CM at-Risk

A new member-only Alpine Clubhouse featuring a restaurant, bar, lounges, locker room and ski valet facilities; a four-season adventure center with ski school, rock climbing wall, lounge, cafeteria and daycare; 19 luxurious penthouse residences; and a single-story below-grade parking structure.

Hotel Vermont

Burlington, VT | $14.4M | CM at-Risk | LEED Certified

A six-story 85,000-square-foot, 125-room, eco-friendly boutique hotel includes shared conference, lobby with a wood-burning hearth and meeting space. The hotel includes more than 9,500 square feet of outdoor space, including the city's first hotel with a green roof and garden overlooking Lake Champlain and the Adirondack Mountains. Hotel amenities include a full-service spa, fitness center, lounge, library, business and administrative offices. Construction was completed on a very tight urban footprint, with pedestrian, vehicular and parking garage access maintained at all times.

Education

BS, Construction Management, Wentworth Institute of Technology

Professional Activities

Leadership Champlain, LCRCC Graduate

Licenses & Certifications

ASHE Health Care Construction (HCC) Certificate

Industry Training

First Aid/CPR and AED

OSHA 10-hour

PC Advanced Leadership Program

PC Field Safety Training

Dale Knapp
Principal
Boyle / a CEA Company

SUMMARY OF EXPERIENCE

Recognized Senior Energy Program Manager with more than 18 years of experience in wind and solar power along with high voltage transmission projects. Participated in numerous other types of development projects, ranging from quarry expansions to subdivisions. Effective as a team leader and client liaison with extensive expertise and a demonstrated track record of successfully taking conceptual ideas and turning them into operational assets and completed projects.

Addressing client satisfaction, managing business development, project administration and management, proposal response coordination and work scope development, overseeing ecological field surveys, strategic planning for permitting, and report preparation are part of the package. In addition to managing and implementing large scale permitting for energy projects across all of New England. This includes comprehensive senior oversight and leadership on projects, some with capital costs in excess of 750 million dollars

PROJECTS

A sample of my project experience is included below. Played a key role in the permitting of 17 operational wind projects, supported the development of over 25 grid scale solar projects, and the planning or permitting of 11 high voltage transmission lines to date. Along with many assorted residential, commercial, transportation, landfill, and mining projects.

HINCKLEY SOLAR AND WINSLOW SOLAR

Senior Consultant responsible for managing the State and Federal permitting. Oversaw wetland delineation, environmental permitting, wildlife surveys, vernal pool surveys, conducted agency outreach, and soil assessments for both the 20-MW Hinckley Solar Project in Hinckley, Maine and the 20-MW Winslow Solar Project in Clinton, Maine.

Additionally provided on-going strategic guidance to the client and led agency negotiations in support of developing the successful permitting strategy. Served as the Senior Project Manager leading the project design and permitting, including the teams responsible for civil and electrical engineering, visual assessments, site survey, and cultural resources due diligence. Both projects are fully permitted.

QUINEBAUG SOLAR, CONSTITUTION SOLAR, NUTMEG SOLAR

Senior Consultant responsible to lead this suite of three grid-scale solar projects in Connecticut through State and Federal permitting, including expert witness testimony before the Connecticut Siting Council. Provided oversight of wetland delineations, environmental permitting, wildlife surveys, vernal pool surveys, conducted agency outreach, and soil assessments for the 50-MW Quinebaug project in Brooklyn and Canterbury, the 20-MW Constitution Solar Project in Plainfield, and the 20-MW Solar Project in Enfield. Responsible for development of project timelines and strategy and ultimately developing a permitting strategy for each project. Served as the Senior Project Manager leading the project design and permitting effort, including the teams responsible for civil and electrical engineering, visual assessments, site survey, and cultural resources due diligence.

EVERGREEN EXPRESS

Senior Consultant responsible for the initial development phase for State and Federal permitting. Providing wetland delineation, environmental permitting support, wildlife surveys, cultural surveys and soil assessments for New Hampshire Transmission's proposal to build an approximately 176 mile above ground electric transmission line known as the Evergreen Express. The line would be capable of delivering more than 800 megawatts of power generated from clean and renewable resources. The preferred route connects power generation in western Maine and Quebec to the ISO New

England grid in Auburn, Maine. Actively engaged in public outreach, routing and siting, developing a project narrative and introducing the project to State, Local, and Federal regulators. Lead author of the project bid that was submitted to the 2016 Tri-State Clean Energy RFP.

BINGHAM WIND PROJECT

Senior Project Manager who led all environmental surveys and completed required permitting necessary for construction of the 56-turbine, 186-MW Bingham Wind Project, now the largest operational facility in the northeast. Responsible for managing, organizing, and overseeing all natural resource evaluations, including, wetland delineations, wildlife surveys, vernal pools, soils, rare and threatened species, and archaeological surveys, as well as shadow flicker analysis.

Facilitated design preparation minimizing environmental impacts, federal, state, and local regulatory agency coordination and meeting facilitation, and permit application preparation for state and federal jurisdictions.

CHINOOK SOLAR

Senior Consultant and Client Liaison leading team performing wildlife consulting services for presence/absences surveys for federally/state listed bats. Surveys involved the deployment of full spectrum acoustic detectors and associated reporting and data analysis for the 50-MW Chinook Solar Project in Fitzwilliam, New Hampshire.

NORTHEAST RENEWABLE LINK

Senior Consultant responsible for the initial development phase for State and Federal permitting. Providing wetland delineation, environmental permitting support, wildlife surveys, cultural surveys and soil assessments for National Grid's proposal to build an approximately 25 mile 345 Kv electric transmission line . The line would be capable of delivering more than 600 megawatts of power generated from clean and renewable resources. The preferred route connects power generation in upstate New York to the ISO New England grid in Western Massachusetts. Played a key role and engaged in public outreach, routing and siting, developing a project narrative and introducing the project to State, Local, and Federal regulators. Lead author of the project bid that was submitted to the Massachusetts Clean Energy RFP.

CHARIOT SOLAR

Senior Consultant and Client Liaison leading team performing wildlife consulting services for presence/absence surveys for federally/state listed bats. Surveys involved the deployment of full spectrum acoustic detectors and associated reporting and data analysis for the 50-MW Chariot Solar Project in Hinsdale, New Hampshire.

FARMINGTON SOLAR

Senior Consultant and Client Liaison leading team performing wildlife consulting services for presence/absence surveys for federally listed bats. Surveys involved the deployment of full spectrum acoustic detectors and associated reporting and data analysis for the 80-MW Farmington Solar Project in Farmington, Maine. In addition, providing strategic guidance and support with agency negotiation and permitting strategy.

GRANITE STATE POWER LINK

Senior Consultant responsible for the initial development phase for State and Federal permitting. Providing wetland delineation, environmental permitting support, wildlife surveys, cultural surveys and soil assessments for National Grid's proposal to build an approximately 160 mile above ground HVDC electric transmission line. The line would be capable of delivering more than 1,200 megawatts of power generated from clean and renewable resources. The preferred route connects power generation in Quebec to the ISO New England grid in Southern New Hampshire. Played a key role and engaged in public outreach, routing and siting, developing a project narrative and introducing the project to State, Local, and Federal regulators. Lead author of the project bid that was submitted to the Massachusetts Clean Energy RFP.

SANFORD SOLAR

Senior Consultant and Client Liaison leading team performing wildlife consulting services for presence/absence surveys for federally/state listed bats. Surveys involved the deployment of full spectrum acoustic detectors and associated reporting and data analysis for the 50-MW Sanford Airport Solar Project in Sanford, Maine. In addition, also providing strategic guidance and support with agency negotiation and permitting strategy.

Dale Knapp
Principal
Boyle / a CEA Company

WINTERGREEN SOLAR

Senior Consultant managing the State and Federal permitting. Providing wetland delineation, environmental permitting support, wildlife surveys, cultural surveys and soil assessments for the 150-MW Wintergreen Solar Project in Moscow, Maine. In addition provided strategic guidance and conducted agency negotiation and developed a detailed permitting strategy. Served as a lead author of the project bid that was submitted to the 2016 Tri-State Clean Energy RFP.

SADDLEBACK WIND EXPANSION PROJECT

Senior Consultant providing project leadership and environmental consulting services associated with the expansion of the existing Saddleback Ridge Wind Project in Carthage, ME. Responsible for project technical oversight, quality assurance, and review of all project activities. Surveys included high elevation bird survey/Bicknell's thrush survey, breeding bird survey, peregrine falcon/eagle use survey, and bat acoustic survey. Identifying critical issues associated with project development and expansion of the existing wind project.

CANTON WIND PROJECT

Senior Consultant provided project leadership and comprehensive environmental consulting services for the Canton Mountain Wind Project in Canton, ME. Responsible for project technical oversight, quality assurance, and review for project activities associated with post-construction mortality monitoring, and a Phase I Environmental Site

Assessment. Responsible for managing, organizing, and overseeing all natural resource evaluations, including, wetland delineations, wildlife surveys, vernal pools, soils, rare and threatened species, and archaeological surveys, as well as shadow flicker analysis. Facilitated design preparation minimizing environmental impacts, federal, state, and local regulatory agency coordination and meeting facilitation, and permit application preparation for state and federal jurisdictions.

DIXFIELD WIND PROJECT

Senior Consultant provided project leadership and environmental consulting services for the proposed Timberwinds Wind Project in Dixfield, ME. Responsible for project technical oversight, quality assurance, and review of all project activities. Managed the State and Federal permitting. Provided wetland delineation, environmental permitting, wildlife surveys, vernal pool surveys, agency outreach, and soil assessments for this ten turbine wind. In addition, provided strategic guidance and conducted agency negotiation and developed permitting strategy and project timeline. Served as the Senior Project Manager leading the project design and permitting effort, including the teams responsible for civil and electrical engineering, visual assessments, site survey, and cultural resources due diligence.

Dale Knapp
Principal
Boyle / a CEA Company

SPRUCE MOUNTAIN WIND PROJECT

Senior Consultant provided project leadership and environmental consulting services for the Spruce Mountain Wind Project in Woodstock, ME. Responsible for project technical oversight, quality assurance, and review of all project

activities associated with post-construction fatality monitoring and agency coordination and consultation. Coordination of project team calls and correspondence, reviewed and evaluated similar and recent project permitting and

post-construction monitoring decisions, prepared all agency correspondence, and represented the project in federal and state agency meetings.

SARAH MILDRED LONG BRIDGE PROJECT

Senior Project Manager responsible for oversight of natural resource surveys and assessments in association with the replacement of the Sara Mildred Long Memorial Bridge which runs between Kittery, Maine and Portsmouth, New Hampshire; managed wetland delineations, function and value assessments, and reporting for the Maine Department of Transportation along the New Hampshire side of the bridge.

MDOT ROUTES 2, 17, AND 302 REBUILDS

Senior Project Manager responsible for organization and oversight of natural resource surveys and assessments along multiple corridors in western Maine; managed wetland delineations, function and value assessments, and reporting along Route 2 , Route 17, and Route 302 in preparation for road upgrades and expansion.

NB SOUTHERN RAILROAD ESA

Senior Project Manager responsible for oversight, organization, and direct performance of a Phase I Environmental Site Assessment that included identification of recognized environmental conditions and business environmental risks in connection with the site, with future recommendations on approximately 28 miles of rail line in Aroostook County, Maine.

OAKFIELD WIND PROJECT

Senior Project Manager responsible for organizing and managing natural resource surveys for a 48 - turbine wind project, including 12 miles of collector line, capable of generating 148 megawatts of renewable energy. Survey efforts included wetland delineations, vernal pool surveys, and rare, threatened and endangered species plant and wildlife surveys. He also oversaw the QA/QC of natural community mapping and permitting efforts, which included Maine Department of Environmental Protection, U.S. Army Corps of Engineers, and local permit applications. Project work included the wind projects 59-mile transmission line, responsible for overseeing and organizing natural resource evaluations, rare species and habitat identification, wetland delineations, and in-season vernal pool surveys and supported permit preparation for the transmission line, traversing 12 communities, multiple state jurisdictions, and crossing various state and federal waterways, including the Penobscot River.

JUNIPER RIDGE PIPELINE PROJECT

Senior Project Manager responsible for providing direction of vernal pool surveys along a proposed landfill gas pipeline corridor in Old Town, Maine. The corridor included four individual segments ranging in lengths from 2.5 miles to 6 miles. Assisted in the completion of required mapping and reporting products and Maine Department of Inland Fisheries and Wildlife vernal pool data forms.

PORTLAND QUARRY PROJECT

Senior Project Manager responsible for preparation of U.S. Army Corps of Engineers Jurisdictional Determination forms in order to allow Dragon to alter a 3.5-acre artificial impoundment area, which would result in an expanded area for materials storage and pre-cast products, as well as improved water quality on the site. Negotiations with the Corps were successful and the area was deemed non-jurisdictional.

FIFTEEN MILE FALLS HYDRO PROJECT

Senior Project Manager responsible for overseeing and facilitating natural resource evaluations, rare species and habitat identification, wetland delineations, design preparation, and permit application preparation for numerous fisheries mitigation projects in the Fifteen Mile Falls area of Vermont and New Hampshire.

STETSON WIND PROJECT

Senior Project Scientist responsible for completing natural resource surveys on a 1,300-acre project area for this wind project. Functioned as field leader responsible for leading teams of 6 person crews. Studies included wetland delineations, vernal pool surveys, natural community mapping, and RTE plant and wildlife surveys. Assisted in the completion of required state and federal permit applications filed in support of the project.

STETSON II WIND PROJECT

Senior Project Manager responsible for organizing and managing all natural resource surveys for a wind project consisting of 17 turbines along mountain ridgelines and the collector line connecting this project to the Stetson Wind Project. Survey efforts included wetland delineations, vernal pool surveys, and rare, threatened and endangered species plant and wildlife surveys. Also oversaw the QA/QC of natural community mapping and permitting efforts, which included Maine Department of Environmental Protection, U.S. Army Corps of Engineers, and local permit applications.

THOMASTON QUARRY EXPANSION PROJECT

Senior Project Manager responsible for conducting a wetland delineation and function-value assessments in association with a proposed expansion project at the quarry. Efforts also included preparing Natural Resource Protection Act and U.S. Army Corps of Engineers permit applications, and conducting a Forensic Site Law Application review consisting of studying the existing Site Location of Development Permit applications and modifications submitted and approved for previous expansion projects at the quarry.

BULL HILL WIND PROJECT

Senior Project Manager responsible for organizing and managing all natural resource surveys for a wind project consisting of 19 turbines along Bull Hill and Heifer Hill ridges in T16 MD, Hancock County. Survey efforts included

wetland delineations, vernal pool surveys, and rare, threatened and endangered species plant and wildlife surveys. Also oversaw the QA/QC of natural community mapping and permitting efforts, which included Land Use Regulation Commission, U.S. Army Corps of Engineers, and local permit applications, and provided expert witness testimony and support following application filing.

ROLLINS WIND PROJECT

Senior Project Manager responsible for organizing and managing all natural resource surveys for a wind project consisting of 40 turbines, 2 transmission lines, an electrical substation, and an operations and maintenance building. Also helped address agency questions and concerns, including those of the U.S. Fish and Wildlife Service regarding impacts to eagles and oversaw the QA/QC of all natural community mapping and permitting efforts, which included Maine Department of Environmental Protection, U.S. Army Corps of Engineers, and local permit applications.

PENOBSCOT RIVER RESTORATION PROJECT

Senior Project Scientist coordinated and participated in comprehensive natural resource assessments of three large dam impoundments along a 10-mile stretch of the Penobscot and Piscataquis Rivers. Characterized existing ecological resources and collected existing infrastructure information. Tasks included wetland reconnaissance, site specific delineation, and Function Value Assessments along the backwater of all three impoundments. In addition, coordination of invasive/exotic plant management and supporting development of a forecast used to predict possible ecological changes post dam removal.

Dale Knapp
Principal
Boyle / a CEA Company

MAINE POWER CONNECTION PROJECT

Senior Project Manager responsible for the organization and management and oversaw the QA/QC of the wetland delineations, vernal pool surveys, natural community mapping, and RTE plant and wildlife surveys conducted along over 140 miles of existing and proposed power line corridor between Haynesville and Chester, Maine.

RECORD HILL WIND PROJECT

Senior Project Manager supported the Record Hill wind project, which is a 22-turbine, 55 MW wind project on a forested ridge environment in the western Maine Mountains. This project has included planning and feasibility studies, wetland delineations, wildlife impact studies, noise and visual impact assessments, and coordination of all state and federal environmental permitting.

REDINGTON WIND PROJECT

Senior Project Scientist responsible for completing natural resource surveys on a 1,700-acre project area. Functioned a project leader responsible for directing teams of 4-6 scientists. Studies included wetland delineations, vernal pool surveys, natural community mapping, and RTE plant and wildlife surveys. Assisted in the completion of required state and federal permit applications filed in support of the project.

GRAND MANAN WIND PROJECT

Senior Project Manager responsible for organization and management of all wetland delineations and impact assessments for a 20 MW wind project covering hundreds of acres on the island of Grand Manan. This project also included planning and feasibility studies, wildlife impact studies, noise and visual impact assessments, and planning and preparation for permitting with the provincial government.

SADDLEBACK WIND PROJECT

Senior Consultant provided project leadership and environmental consulting services associated with required

post-construction monitoring, bird and bat surveys, development and implementation of a Bird and Bat Conservation Strategy, and state and federal agency consultation. Responsible for project technical oversight, quality assurance, and review of all project activities.

HANCOCK WIND PROJECT

Senior Project Scientist for an 18-turbine wind project, responsible for oversight of natural resource evaluations, wetland and stream delineations, including vernal pool surveys in proposed summit corridors, potential access road corridors, proposed collector lines and proposed Operations and

Maintenance Building locations, wildlife habitat surveys and rare, endangered or threatened species surveys within the project area as well as preparation of state, federal, and local permit applications.

NORTHERN MAINE RELIABILITY INTERCONNECT

Senior Project Manager responsible for the organization and management and of the environmental impact assessment to support this project petition submitted to the Maine Public Utilities Commission. Provided QA/QC of the dockets filed and participated in adjudicatory hearings in support of a proposed 150 miles of power line corridor that would connect the northern Maine grid to ISO-New England.

EDUCATION

M.S. Organizational Leadership, 2012, Southern New Hampshire University – Hooksett, NH

B.S. Liberal Arts & Science (conc. In Soil Science & Geology), 2003, University of Maine – Orono, ME

Dale Knapp
Principal
Boyle / a CEA Company

CERTIFICATIONS AND AFFILIATIONS

Ceritifed Professional Soil Scientist 479

Licensed Site Evaluator 386

Professional Wetland Scientist 2769

Certified Environmental Professional 20151

Onsite Sewage Disposal System Inspector 523

Recognized Wetland Delineator in New Brunswick

40-Hour HAZWOPER Certified

Certified in Basic and Advanced Erosion Control Practices

SOLO Wilderness First Aid Certified

Maine Center for Economic Development, Top Gun Prep Graduate

Certified Mediator, Charbonneau and Galloway

Legislative Chair and Past President, Maine Association of Wetland Scientists

Executive Director and Past President, Maine Association of Site Evaluators

Member and Previous Chair, Society of Wetland Scientists New England Chapter Membership Committee, E2Tech

Energy Committee Member, Northeast Energy and Commerce Association Member Maine Chapter The Wildlife Society

Member New England Canadian Business Council

Member Soil Science Society of Southern New England Member Maine Association of Professional Soil Scientists

PUBLICATIONS AND PRESENTATIONS

Guest Lecturer: College Level Course Administrative Law. University of Maine Law School, Portland, Maine, 2014.

Knapp, Dale. Identifying and Addressing Subsurface Hydrologic Connections in Association with Large-Scale Linear Projects. Poster presented at the Annual Maine Water Conference, Augusta, Maine, 2013.

Identifying and Addressing Subsurface Hydrologic Connections in Higher Elevations in Association with Linear Projects. Presentation. Society for Wetland Scientists Annual Meeting, 2013.

Knapp, Dale and T. Tetreau. Adaptive Techniques for Large-Scale Wetland Delineation. Poster presented at the International Association for Ecology Annual Meeting, Orlando, FL, 2012.

Hart, Brett and D. Knapp. Collaborative Project Execution: Strategies to Meet Deadlines and Save Money. Poster presented at the American Wind Energy Association Northeast Regional Conference, Portland, ME, 2012.

Applying Best Management Practices for Vernal Pool Protection Along Utility Corridors in the Northeast.. Presentation. Northeast Partners in Amphibian Reptile Conservation Annual Meeting, Bretton Woods, NH, 2012.

Carpentier, Geno, D. Knapp, and D. Tetreau. Stetson Wind Project Line 56 Pre- and Post-Construction Vernal Pool Production Monitoring. Poster presented at the Northeast Partners in Amphibian Reptile Conservation Annual Meeting, Millersville, MD, 2011.

Emerson, B., D. Knapp, and G. Carpentier. Potential Alteration of Wetland Functions and Values from Dam Removal. Poster presented at New England Water Environment Association 2010 Annual Conference, Boston, Massachusetts, 2010.

Guest Lecturer: College Level Course PSE 413/PSE 533 Wetland Delineation and Mapping. University of Maine, Orono, Maine, 2009.

Presentation: The Dirty Side of Wetland Science. Distinguished Speaker Series: University of Maine Fort Kent, Fort Kent, Maine, 2009.

Emerson, B., D. Knapp, J.D. DeGraaf, and G.

Carpentier. Potential Impacts to Wetland Functions and Values from Dam Removal. Poster presented at The Diadromous Species Restoration Research Network Science Meeting, University of Maine, Orono, Maine, 2009.

Workshop: Hydric Soil Determination. Stantec Consulting, 2007.

Workshop: Intro to Soil Science. Stantec Consulting, 2006.

JESSICA WAGNER KIMBALL

PLANNER | LANDSCAPE ARCHITECT

Jessica has a background in community planning, landscape architectural design, and visual impact assessments. Her experience includes visualization studies, master planning, design guideline development, recreational trail planning, and construction detailing.

Jessica is proficient with AutoCAD, Adobe Creative Suite, Google Earth Pro, SketchUp, Rhino, Arc GIS, and all Microsoft applications.

PROFESSIONAL LICENSURE

Maine Licensed Landscape Architect #4375

EDUCATION

MLA	University of Toronto Master of Landscape Architecture
BCD	Dalhousie University Bachelor of Community Design

PROFESSIONAL EMPLOYMENT

2014 - present	Terrence J Dewan & Associates Landscape Architects & Planners Yarmouth, ME
2013 - 2014	Sasaki Associates Landscape Architects Watertown, MA
2007 - 2010	Town of Old Orchard Beach Town Planning Old Orchard Beach, ME
2007 - 2010	Member of Eastern Trail Management District Vice President (2009-2010)
Spring 2007	Ekistics Planning and Design Planning Intern Dartmouth, Nova Scotia

AWARDS AND EXHIBITIONS

2013	Waterfront Visions 2050 Masters thesis on sea level rise adaptation exhibit at Portland Society for Architecture Symposium, Portland, ME
2013	American Society of Landscape Architects Merit Award
2012	Site models published in work: Amoroso, Nadia ed. Representing Landscapes: A Visual Collection of Landscape Architectural Drawings. New York: Routledge, 2012.

SELECTED PROJECT EXPERIENCE

NEW ENGLAND AQUA VENTUS, *Off Monhegan Island, ME.* Visual Impact Assessment (VIA) for a 12 MW floating wind pilot project to produce rrenewable energy off Maine's shore. The project will deploy two 6 MW turbines on semi-submersible hulls designed by the University of Maine. University of Maine and partners.

NORTHERN PASS TRANSMISSION PROJECT, *Northern and Central NH.* A Visual Impact Assessment for a 192-mile transmission line from Pittsburg NH to Deerfield NH. Work included over 70 photosimulations, viewshed mapping, extensive written analysis of the transmission line's visual impact on the surrounding landscape. Served as project manager and as an expert witness in support of this project.

EAST BEACH WATER ACCESS DESIGN, *Francestown, NH.* A concept design for an existing sand beach and boating area at Crotched Mountain Rehabilitation Center. The design was based on the development of a specialized access ramp to the beach, an accessible recreation area, and water access for students with physical disabilities. The landscape concepts will open up access to the beach for all students and residents.

UT AUSTIN LANDSCAPE MASTER PLAN, *Austin, TX** A Landscape Master Plan and Design Guidelines document was development for the University at Austin Campus. This work evaluated the opportunities and issues relating to landscape on the historic campus. The report guided various approaches to planting, circulation, security, and open space, furnishings, and sustainability across campus.

IOWA STATE UNIVERSITY SPORTS FIELD PLAN, *Ames, IA** Iowa State sought to expand recreational sports fields while expanding the parking area around the Jack Trice Stadium for football games. An analysis of potential build out options was conducted to guide their decision making around recreational expansions.

PARKS AND RECREATION MASTER PLAN, *Bloomfield, CT** A master plan document for a community-wide parks system. The work included inventory analysis of existing park infrastructure, GIS mapping of the park system, community meetings, and recommendations for how to improve individual park spaces and strengthen the municipal park system as a whole.

58 FORE STREET, *Portland, ME** A master plan for proposed mixed-use development at the location of the former Portland Company on Portland's waterfront. Master plan included new residential and commerical space, boating access, and waterfront public space. Work on this project included graphic representation and modelling of the proposed site improvements.

LAWN ON D, *Boston, MA** This 2.7-acre open space located next the BCEC is a flexible open space capable of hosting a wide range of programs and events. Work on this project included construction documentation and work with the lighting contractor to develop a unique and vibrant urban park space.

**denotes projects completed while at Sasaki Associates*

tjd&a

Dan Noblet

Construction Executive

31 YRS

Dan is PC's Construction Executive responsible for operations in Maine, New Hampshire and northern Massachusetts. He will provide executive oversight and leadership for the project while monitoring progress and aligning strategic resources. Dan is a demonstrated leader widely known for his collaboration and construction management skills. For 20 years, Dan has been a project manager with PC completing many high-profile projects across New England ranging from complex manufacturing expansions to historical renovations. As the leader of our design-build team, Dan coordinates all efforts of the architects, engineers and construction team to ensure successful project completion. Dan will bring his extensive experience of close coordination, scheduling and phasing construction activities to ensure the design-build team delivers your project on time and within budget.

Relevant Project Experience

Edgebrook Residences

Merrimack, NH | $43.1M | Design-Bid-Build

Construction of four individual five-story residential buildings with parking garages totaling 319,000 square feet and housing 232 apartments. New construction includes a 5,000-square-foot clubhouse featuring community space, a leasing office, exercise and yoga rooms, and a cyber café.

Biddeford Parking Garage

Biddeford, ME | $19.6M | Design-Build

PC is the lead design-builder building a five-story, 636-space parking facility in Biddeford's downtown Mill District. The project is a key transformation to the city's historic downtown area including further development of Biddeford's RiverWalk, pedestrian paths along the Saco River.

University of New Hampshire Whittemore Center - Arena Ice Floor System

Durham, NH | $8.8M | Design-Build | Preconstruction Services

Phase 1 of the project consists of the replacement of the existing ice and refrigeration system, and narrowing of the ice surface to 90 feet wide. As part of this improvement, a new ammonia-based refrigeration system will be installed and the existing ice system, both cold and warm floors, will be reconstructed. A new dasher board system will also be part of the overall ice system improvements.

Waterhead Mill

Lowell, MA | $13.5M | CM at-Risk

This project consisted of the complete re-purposing of an existing 78,000-square-foot mill building into 71 apartment units consisting of studios and one-bedrooms. Additional amenity space includes bike storage, site office and dog-grooming in the first-floor space. The site includes a paved parking area and access to a to-be-constructed pedestrian path and bridge by the City of Lowell.

Mill240 Apartments

Lawrence, MA | $39.9M | CM at-Risk

This rehabilitated mill apartment community includes renovation of a seven-story 344,000-square-foot building to house 198 one- and two-bedroom apartments, a self-storage facility and a 42,000-square-foot ground-level parking garage to accommodate 100 vehicles and renovation of a 29,000-square-foot, single-story building to house 19 studio units. Community amenities features a roof deck, cyber café, fitness center, yoga studio, community room and a riverfront park. Scope of work required extensive demolition and structural work associated with rehabilitating buildings that have remained unoccupied for several decades.

Education

BS, Civil Engineering, The University of Maine

Industry Training

Dale Carnegie Course

Dale Carnegie Breakthrough Communications

First Aid, CPR & AED Certified

Lean Construction Training

OSHA 10-hour

PC Advanced Leadership Program

PC Field Safety Training

PC Leadership Development Program

Community Involvement

American Heart Association, Heart Walk Captain

Habitat for Humanity, Volunteer

Ocean Avenue Elementary School, Grounds Committee Member

Town of Lovell Recreation, Board of Trustee

"Dan Noblet is fantastic! We love him. He understands us completely. He is a great listener and allows others to participate and do their job. He is a great communicator, respectful, team oriented, knowledgeable, organized and coordinates well. It is good to have Dan on this project because we have worked successfully with him in the past."

Doug Bencks, University Architect and Director of Campus Planning University of New Hampshire

Dan Noblet, Construction Executive

University of New Hampshire Wildcat Stadium
Durham, NH | $24.9M | Design-Build
The new UNH Wildcat Stadium is a state-of-the-art NCAA Division I stadium for the UNH Wildcats Athletics program. Project features include a new, four-story stadium with tiered seating and total seating capacity to 11,500 seats; a gateway entry with ticket sales, pedestrian concourse, lobby and mechanical spaces at field level; concessions and rest rooms with access to both lower-level and upper-level seating on the concourse level, the president's suite and club boxes with common multi-purpose rooms at the club level; and the press level houses coaches and press boxes with modern broadcast and recording capabilities. The project was designed and built to LEED Silver standards.

IDEXX Laboratories Synergy Center
Westbrook, ME | $28M | CM at-Risk | LEED Gold
Construction of this three-story 105,000-square-foot headquarters at IDEXX's World Campus houses a first floor visitors welcome center, food and dining services, cafeteria, conference rooms, training rooms, 9,000-square-foot fitness center, an employee health clinic and a connector to the existing building. Open-concept office areas on the second and third floors house the corporate offices and feature a pressurized raised-floor system supplying air through floor diffusers while concealing power and data circuits to individual work stations.

Colby College Roberts Union Hall Renovations
Waterville, ME | $6.9M | CM at-Risk | LEED Gold
This renovation project converted this campus building from academic and administrative office space into student residences for 80 students. A transformation of four stories and approximately 25,000 square feet into single, double and suite-style student residences required close coordination due to ongoing occupancy on multiple floors throughout the project duration. Scope of work also included significant improvements to the historic building's mechanical, electrical and plumbing systems.

Oxford Networks Data Center Expansion
Brunswick, ME | $4.9M | CM at-Risk
This 7,500-square-foot building renovation included Liebert DSE EconoPhase Computer Room Air Conditioning (CRAC), complete 2N electrical service from utility to racks and dual-interlock fire-protection system with clean agent. Construction was completed without disruption to the adjacent operating data center.

Bayside Village Student Housing
Portland, ME | $20M | Design-Build
Located in Portland's Bayside district, this development included a five-story student housing complex and construction of the City's largest office building in two decades. Scope of work includes construction of a five-story building featuring 100, four-bedroom wood-framed student apartments designed in a V-shape format creating an 11,000-square-foot elevated courtyard between building wings and a ground-level parking garage below. Each apartment contains a kitchen/dining area, living room, four bedrooms with closets and two bathrooms.

Falmouth Public Safety Buildings
Falmouth, ME | $3.1M | CM at-Risk | LEED Silver
Construction of the new police station as well as renovations and an addition to the existing fire station. A new, 10,000-square-foot, single-story, wood-framed municipal police station with dispatch area, offices, vehicle maintenance garage, locker rooms, a full gym and a conference room equipped with telecommunications equipment to serve as a crisis command center. In addition a 5,000-square-foot, single-story addition to the municipal fire station and renovations to the existing space to include sleeping quarters, kitchen and dining space, a training room and administrative offices was added.

Central Maine Community College New Residence Hall
Auburn, ME | $5.4M | Design-Build
Designed and constructed for durability and flexibility, this four story, 27,000-square-foot, 148 bed dormitory consists of semi-suites featuring two bedrooms with a common bath, a lobby, study room, meeting space, kitchen and laundry. Construction of the residence hall included a cast-in-place concrete foundation, unit masonry, a structural steel framing system and a thermoplastic membrane roofing system.

Scarborough High School Additions and Renovations
Scarborough, ME | $22.7M | CM at-Risk
This project was the largest locally funded high school construction management project in the state of Maine's history. 135,000 square feet of renovations were done to the existing structure, and an 160,000-square-foot addition was added. A two-story classroom and lobby entrance, administration wing, new cafeteria, music room, library and a gymnasium which included a locker room and weight room were part of the added structure.

ALEITA “LEE” BURMAN

Senior Wetland Scientist, Certified Soil Scientist

Address: Burman Land & Tree Company, LLC, 16 Steep Hill Road, Orrington, Maine 04474
Phone: (207) 825-4050 home, (207) 385-6056 cell
E-Mail: blburman@gmail.com

Services Summary

I am a natural resources and soil science consultant. My services include protected natural resource delineation and mapping, soil science and mapping, vernal pool documentation, stream identification, wetland functional assessments and mitigation plans, invasive species management, baseline ecological documentation, and natural resource alteration permitting assistance with the Corps, EPA, DEP, LUPC and municipalities. I give presentations to interested groups on ecology and natural resources topics and on State and Federal permitting standards.

Senior Wetland Scientist

- New Hampshire Certified Wetland Scientist #178
- Protected Natural Resources identification, delineation, and classification
- Wetland Data Forms, Wetland Functional Assessments, Wetland Mitigation Plans
- State and Federal natural resources alteration permitting: preparation and submission of permit applications, alternatives analyses, liaison between client and regulatory agencies, project presentations
- Presentations and Training

Certified Soil Scientist

- Maine Certified Soil Scientist #SS430
- Soil Surveys for Maine Site Location of Development Applications
- Soil Documentation for stormwater system design and waste facility licensing

Licensed Site Evaluator

- Maine Licensed Soil Site Evaluator #SE344
- Soil Site Evaluation and Septic Design

Education

- B.S. High Distinction, Natural Resources, Soil and Water Conservation. University of Maine, Orono, Maine. 1992
- A.A.S. Ecology and Environmental Technology. Paul Smiths College, Paul Smiths, N.Y. 1988

Professional Associations

- Maine Association of Wetland Scientists, Member;
  President-Elect (present); Treasurer (2014 to 2019), Technical Committee (2015 to present) Legislative Committee (2011 to present); Ethics Chair (2013 to 2014)
- Maine Association of Professional Soil Scientists, Member;
  Vice President (1999-2000); Membership Chair (2000-2002)
- Maine Association of Soil Site Evaluators, Member

Experience

2015 – present	Burman Land & Tree Company, LLC, Orrington, ME. Independent Environmental Consultant. Wetland, vernal pool and stream delineation. Corps, MDEP, LUPC and municipal resource alteration permitting assistance. Soil surveys. Work with regulatory agencies, clients and team members/stakeholders to facilitate project success.
1997 – 2015	S.W. Cole Engineering, Inc., Bangor, ME. Ecological Services Team Leader. Project Manager of Protected Natural Resources and Soils services. Senior Scientist. Team Leader of 4 to 5 person soil/wetland scientist team. Responsible for client projects from beginning to end including initial client contact, scoping, writing contracts, budgeting, fieldwork, writing reports, MDEP NRPA, Corps, Maine LURC, and NHDES permitting, presentations, and meetings. Required to represent work at regulatory meetings, planning board meetings, and client and team meetings. Responsible for mentoring, training and supervising junior scientists. Presentations at technical seminars and workshops.
1993 to 1997	Allan Ott, C.S.S., L.S.E., Bar Harbor, ME. Conducted soil site evaluation and septic designs, and soil surveys. Apprentice to 1995, then licensed.
Summer 1992	University of Maine, Research Assistant, Orono, ME. Supported graduate students in natural resources research.
Summers 1990/91	Southwestern Environmental Consulting, Sedona, AZ. Timber Cruiser/Wildlife Research Technician. Conducted timber inventory in the Bitterroot National Forest in Montana, and Santa Fe and Cibeola National Forests in New Mexico. Conducted spotted owl research in the Kaibob National Forest in Arizona.
1989 – 1990	Clean Air Corp., Service Engineering, Champion Intl Paper Mill, Bucksport, ME. Branch Manager, Site Supervisor. Coordinated and supervised long-term asbestos abatement project in industrial environment. Indoor Air Quality Testing certification.
Summer 1988	Dartmouth College, Hanover, NH. Field technician – red spruce decline study. Sampled forestry plots at over 4,000 ft. on mountains in NY, VT, NH, and ME.

Volunteer Activities/Interests:

- Orrington Boy Scouts. Committee Member, Merit Badge Councilor (2011 to 2018)
- Orrington Cub Scouts. Chair (2009/11), Co-Chair (2008/09)
- Envirothon Volunteer, 2011, 2012, 2013, 2018
- Orrington Planning Board, 1998 to 2000
- Professional Vocalist, 1988 to 2000

TERRENCE J. DEWAN FASLA

PRINCIPAL

Terry DeWan has over 45 years of professional experience in landscape architecture, visual resource assessment, site planning, design guidelines and community development. His experience includes work with communities, state agencies, private developers, utility companies, and the forest products industry in New England. He has written numerous studies on visual impacts, community planning, recreation planning, water access and highway corridor redevelopment.

PROFESSIONAL LICENSURE

Maine Licensed Landscape Architect #6

EDUCATION

BSLA State University of New York
Environmental Sciences and Forestry
Cum Laude

PROFESSIONAL EMPLOYMENT

1988 - present	Terrence J DeWan & Associates Landscape Architects & Planners Yarmouth, ME
1977 - 1988	Mitchell-DeWan Associates Landscape Architects & Planners Portland, ME
1976 - 1977	Center for Natural Areas South Gardiner, Maine
1973 - 1976	Moriece and Gary of Maine Portland, ME
1971 - 1973	The Architects Workshop Philadelphia, PA
1970 - 1971	Peter G. Rolland and Associates Rye, NY

PROFESSIONAL AFFILIATIONS

Maine State Board for Licensure of Architects, Landscape Architects and Interior Designers

American Society of Landscape Architects

Boston Society of Landscape Architects

American Planning Association

Maine Association of Planners

Council of Landscape Architects Registration Boards

Royal River Conservation Trust, Board of Directors

SELECTED PROJECT EXPERIENCE

Open Space Planning

"FROM THE RIVER TO THE BAY" BRUNSWICK PARKS, RECREATION, AND OPEN SPACE PLAN, *Brunswick, ME.* A comprehensive vision and action plan for parks, recreation and open spaces in Brunswick, Maine. This work received a 2003 Boston Society of Landscape Architecture Merritt Award for Planning.

FALMOUTH OPEN SPACE PLAN, *Falmouth, ME.* An assessment of the cultural, visual, and natural resources in Falmouth. Includes policy recommendations to protect natural resources, preserve community character, and provide recreational opportunities, greenbelts, and a town-wide trail system.

SCARBOROUGH OPEN SPACE PLAN, *Scarborough, ME.* Identified significant recreation, open space, and scenic areas through an extensive inventory process. Determined community priorities and suggested methods for plan implementation.

SOUTH PORTLAND RECREATION AREA & LINKAGE PLAN, *South Portland, ME.* Recommended a linkage system to interconnect all open spaces within the community and conducted an assessment of recreational needs and opportunities by neighborhood.

LEWISTON COMPREHENSIVE PLAN FOR PARKS AND RECREATION, *Lewiston, ME.* A vision for new recreational facilities, parks, greenways, trails, and links in recreation and natural resource systems. Developed a method for prioritizing improvements and investments in the city's existing facilities.

Trail Planning

BETHEL PATHWAY, *Bethel, ME.* A multi-use pathway along the Androscoggin River.

BETH CONDON MEMORIAL PATHWAY, *Yarmouth, ME.* A multi-use pathway parallel to Route One, part of the East Coast Greenway.

SPRING POINT SHOREWAY, *South Portland, ME.* A mile-long oceanfront park and trail provides public waterfront access to the community.

EASTERN PROMENADE TRAIL, *Portland, ME.* Trail designed to encourage safe travel between Portland's historic waterfront and the residential communities to the north.

SHOREWAY ACCESS PLAN, *Portland, ME.* Acomprehensive plan for a public access trail system throughout Portland, expanding upon the vision first proposed by the Olmsted Brothers in the early 1900's.

tjd&a

AWARDS AND EXHIBITIONS

Fellow, American Society of Landscape Architects

Council of Landscape Architects Registration Boards. Presidents Awards.

Boston Society of Landscape Architects Excellence Award for Outstanding Professional Practitioner.

Boston Society of Landscape Architects Merit Award for Planning: From the River to the Bay: a Parks, Recreation and Open Space Plan for Brunswick, Maine.

American Society of Landscape Architects Merit Awards for Communications:
Los Angeles River Greenway.
Chattahoochee River Greenway, Atlanta GA

Maine Association of Planners
Scenic Assessment Handbook
Scenic Inventory of Penobscot Bay
A Guide to Livable Design
Portland Shoreway Access Plan

SELECTED PUBLICATIONS

Design Guidelines, Salem, NH. Adopted by Planning Board March 2010.

Scenic Assessment Handbook. Maine State Planning Office. 2008.

Royal River Corridor Study. Town of Yarmouth, Maine. With Stantec. 2008.

A Vision for the Moosehead Lake Region. Natural Resources Council of Maine. 2006.

Kittery Design Handbook. Kittery Planning Board. 2004

The Great American Neighborhood, A Guide to Livable Design. ME SPO. 2004.

Scenic Inventory, Mainland Sites of Penobscot Bay. Maine State Planning Office. 1990.

Scenic Assessment, Lincolnville, Maine.

Interpretive Planning and Design

PRELIMINARY FACILITIES AND INTERPRETIVE MEDIA PLAN, KANCAMAGUS SCENIC BYWAY, *White Mountain National Forest, New Hampshire.* Demonstration forest, hiking trails, interpretive exhibits, overlooks, outdoor amphitheater.

KENNEBEC-CHAUDIÈRE HERITAGE CORRIDOR. Interpretative and facilities master plan for a heritage trail between Popham Beach and Solon, ME. MaineDOT.

SCENIC BYWAYS INTERPRETIVE SIGN PARAMETERS. A design manual for producing high quality interpretive signs for Maine's Scenic Byways.

Scenic Inventories

LINCOLNVILLE SCENIC ASSESSMENT, *Lincolnville, ME.* A study of the community's publicly accessible scenic features following the State Planning Office methodology identified in teh Scenic Assessment Handbook.

SCENIC INVENTORIES: MAINLAND SITES OF PENOBSCOT BAY, ISLESBORO, VINALHAVEN, NORTH HAVEN, *Maine State Planning Office.* An inventory of mainland scenic areas from Owls Head to Deer Isle on Penobscot Bay for the Critical Areas Program of the Maine State Planning Office.

ROUTE 27 SCENIC INVENTORY AND SCENIC BYWAY CORRIDOR MANAGEMENT PLAN. A long-term plan for Route 27 between Kingfield and Canada. Maine Department of Transportation.

Conservation Plans

FISH RIVER LAKES CONCEPT PLAN, *Northern Arrostook County, ME.* A long-range conservation and limited development plan for 50,000 Ac of woodlands in Northern Maine. Irving Woodlands.

A VISION PLAN FOR THE MOOSEHEAD LAKE REGION. The vision used a conservation strategy to protect the region's wild and scenic character while planning for measured development adjacent to surrounding communities. The Natural Resources Council of Maine.

Visual Impact Assessments

NEW ENGLAND AQUA VENTUS, *Off Monhegan Island, ME.* Visual Impact Assessment (VIA) for a 12 MW floating wind pilot project to produce renewable energy off Maine's shore. The project will deploy two 6 MW turbines on semi-submersible hulls designed by the University of Maine and partners.

NORTHERN PASS TRANSMISSION PROJECT, *Northern and Central NH.* VIA for a 192-mile transmission line that will bring 1,090 MW of energy from Hydro-Quebec to NH and the rest of New England. Eversource.

BULL HILL AND HANCOCK WIND PROJECTS, *Hancock County, ME.* VIA for adjacent wind projects with a total of 37 turbines with a capacity of 89 MW. Blue Sky East LLC

MAINE POWER RELIABILITY PROGRAM. VIA for 352 miles of new 115 kV and 345 kV transmission line corridor system upgrades in 82 Maine towns. Central Maine Power.

SPRUCE MOUNTAIN WIND PROJECT, *Woodstock, ME.* VIA for a 10-turbine wind project with a capacity of 20 MW. Patriot Renewables.

SELECTED PRESENTATIONS

The Maine Wind Energy Act in a Time of Change. Visual Resource Stewardship Conference, Argonne National Laboratory, Lemont IL November 2017

The Maine Wind Energy Act, Visual Assessment Procedures for Grid Scale Wind Projects, National Association of Environmental Professional Meeting, Portland, OR 2012

Social Acceptance of Wind Energy- Addressing Visual Impact in Skeptical Communities. ASLA Annual Meeting San Diego, CA. 2011.

Scenic Inventory Training. Washington and Hancock Counties, Maine State Planning Office. 2009.

SADDLEBACK MOUNTAIN WIND PROJECT, ***Carthage, ME.*** VIA for a 12-turbine wind project with a capacity of 34 MW. Patriot Renewables.

STETSON I & II WIND PROJECT, ***Washington County, ME.*** VIAs for two adjacent projects with a total of 55 turbines with a capacity of 82 MW. Evergreen Wind V, LLC.

PINNACLE WIND FARM AT NEWPAGE, ***Keyser, West Virginia.*** VIA in support of state permitting applications for a 23-turbine wind project with a capacity of 55 MW. US Wind Force / Edison Mission Energy.

MAINE GOVERNOR'S TASK FORCE ON WIND POWER DEVELOPMENT. Consultant on aesthetics and visual resources to the Governor's Task Force.

MAINE DEP / VISUAL ASSESSMENT RULES. Consultant to DEP in the formulation of Chapter 315 Regulations: Assessing and Mitigating Impacts to Existing Scenic and Aesthetic Uses. Served on DEP Task Force for the development of the rules.

HUDSON LANDING, ***Kingston, NY.*** A review of the VIA and Development Guidelines for a 1,750-unit community on the Hudson River. Redesign of the site to incorporate sustainable development principles in recognition of its proximity to Scenic Areas of Statewide Significance. Hudson River Heritage.

Peer Reviews

MUNICIPAL PEER REVIEW. ***Salem, NH.*** Review of development projects before the Salem Planning Board. Includes review of master planning work and construction documentation.

ARGONNE NATIONAL LABORATORY. Review of Best Management Practices for Reducing Visual Impacts of Renewable Energy Facilities on BLM-Administered Lands.

NATIONAL PARK SERVICE. Review of National Park Service Visual Impact Assessment Guidance Document.

CAPE WIND ENERGY PROJECT, ***Nantucket Sound, MA.*** Review of DEIS prepared by Minerals Management Service.

Exhibit 6 – Notice of Filing

The following notice was published in the *Bangor Daily News* on March 24, 2021 and *Piscataquis Observer* on March 26, 2021, as well as sent to property owners within 1,000 feet of the parcel, Greenville Select Board, Senator Paul Davis, Representative Paul Stearns and the County Commissioners. See the attached list of abutters, a copy of the notice and proof of mailing.

NOTICE OF FILING OF APPLICATION
WITH THE MAINE LAND USE PLANNING COMMISSION

This is to notify you that Big Lake Development Co, LLC has filed an application for a development permit with the Maine Land Use Planning Commission, pursuant to provisions of 12 M.R.S. Section 685-B and the Commission's rule Chapter 10, Land Use Districts and Standards, to redevelop the Big Squaw Mountain Ski Area. The new resort will consist of a new hotel, lodge, brew pub, event center and chairlifts. The total development area will be approx. 17 acres. The project is located in Big Moose Township, Piscataquis County.

The application will be filed for public inspection at the Maine Land Use Planning Commission office in Greenville on March 22, 2021.

GREENVILLE OFFICE
43 Lakeview Street
P.O. Box 1107
Greenville, ME 04441
Tel. (207) 695-2466
FAX (207) 695-2380

Written comments and requests for a public hearing should be sent to the Maine Land Use Planning Commission at the address above and **must be submitted in a timely manner**. The Commission prefers that all written comments and requests for a public hearing be submitted within 20 days of the date an application is accepted for processing. Requests for a public hearing must clearly state the reason(s) a public hearing is warranted on this project.

For questions about submitting written comments, requesting a public hearing, or for any additional information, contact Commission staff at the office above.

LIST OF ABUTTERS MOOSEHEAD LAKE SKI RESORT

Name	Address1	Address2	City	State	Zip	Map	Plan	Lot
1000' radius of Resort Parcel								
The Mountain Inc.	C/O James Confalone	PO Box 415	Rye Beach	NH	03871	PI009	01	2.2
State of Maine	Dept. of Cons. - Parks & Lands	22 State House Square	Augusta	ME	04333	PI009	01	1.4
State of Maine	Dept. of Cons. - Parks & Lands	23 State House Square	Augusta	ME	04334	PI010	01	2.4
OFLC Inc.		PO Box 415	Rye Beach	NH	03871	PI009	01	2.1
Northern Woodlands		PO Box 377	Greenville Jct.	ME	04442	PI009	01	2.5
Weyerhaeuser Company		PO Box 89	Fairfield	ME	04937	PI009	01	1
Piscataquis County Commisioner-District 3	Wayne Erkkinen	PO Box 436	Greenville Jct	ME	04442			
Moosehead Region Futures Committee	Chris King, Secretary	PO Box 164	Greenville Jct	ME	04442-0164			
Greenville Select board	Bonita DuBien, Chair	PO Box 1109	Greenville Jct	ME	04441			
Senator Paul Davis	Senate Distric 4	36 Townhouse Road	Sangerville	ME	04479			
Representative Paul Stearns	House District 119	33 Applebee Hill Road	Guilford	ME	04443			

Legal Notices

NOTICE OF FILING OF APPLICATION WITH THE MAINE LAND USE PLANNING COMMISSION

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For questions about submitting written comments, requesting a public hearing, or for any additional information, contact Commission staff at the office above.

March 24, 2021

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Sent To
Street and Apt. No.
City, State, ZIP+4
Representative Paul Stearns
House District 119
33 Applebee Hill Road
Guilford, ME 04443

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Senator Paul Davis
Senate District 4
36 Townhouse Road
Sangerville, ME 04479

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Greenville Select board
Bonita DuBien, Chair
PO Box 1109
Greenville Jct, ME 04441

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Moosehead Region Futures Committee
Chris King, Secretary
PO Box 164
Greenville Jct, ME 04442-0164

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Street and Apt. No.
City, State, ZIP+4
Piscataquis County Commisioner- District 3
Wayne Erkkinen
PO Box 436
Greenville Jct, ME 04442

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Sent To Weyerhaeuser Company
Street and Apt. No., or PO Box No. PO Box 89
City, State, ZIP+4® Fairfield, ME 04937

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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Northern Woodlands
PO Box 377
Greenville Jct., ME 04442

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OFLC Inc.
PO Box 415
Rye Beach, NH 03871

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State of Maine
Dept. of Cons. - Parks & Lands
23 State House Square
Augusta, ME 04334

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☐ Adult Signature Required $
☐ Adult Signature Restricted Delivery $
Postage $
Total Postage and Fees $ 6.96

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OLD TOWN POST OFFICE MAR 19 2021 04468

Sent To
The Mountain Inc.
C/O James Confalone
PO Box 415
Rye Beach, NH 03871

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

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☐ Adult Signature Restricted Delivery $
Postage $
Total Postage and Fees $ 6.96

Postmark Here
OLD TOWN POST OFFICE MAR 19 2021 04468

Sent To
State of Maine
Dept. of Cons. - Parks & Lands
22 State House Square
Augusta, ME 04333

PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions

Exhibit 7 – Land Division History

The land to be conveyed to Big Lake Development comprises two parcels. One of the parcels has been owned continuously by the current owner, The Mountain Inc, owned and managed by Mr. James Confalone, since 1995. It is shown as three different parcels on the current tax maps.

The other parcel has been owned by the same owner, Mr. James Confalone, under the entity OFLC Inc. since 2005. This parcel was previously owned by Mr. Louis Oakes or his heirs since prior to 1963.

See the attached Land Division History exhibit.

Exhibit #: 8   Land Division History

Use this table to present the ownership and land division history of your parcel. Be sure to start the history 20 years ago and to include a drawing. *See further instructions and an example in the Land Division History exhibit of your application.*

Drawing (does not have to be to scale)	Transaction Details, Including Names of Seller/Grantor and Buyer/Grantee	Book/Page, and Date of Transaction	Lot Size *(in acres)*
	Big Squaw Mountain Realty Trust ----> The Mountain Inc.	999/232 8/25/1995	824.3
	Big Squaw Mountain Realty Trust ----> The Mountain Inc.	999/232 8/25/1995	367.3
	Big Squaw Mountain Realty Trust ----> The Mountain Inc.	999/232 8/25/1995	13.3
	Bank of America (Trust of Louis Oakes) ----> OFLC INC.	1678/144 2005	500+/-
	Hollingsworth & Whitney ----> Louis Oakes (Source of Title for Louis Oakes quoted in will filed on December 1, 1963)	260/13 & 263/233	

Note: *If you own or are under contract to buy the property to be developed, your county registry of deeds office or the previous owner of the property may provide helpful information. If you lease your property, contact your lessor for information on the history of your lot.*

Exhibit 8 – Structures, Features and Uses

The Big Moose resort occupies a piece of land that rises from the valley floor up the shoulder of Big Moose Mountain. As an existing ski resort, it relies upon the elevation difference between the base and top of the upper lift to provide the necessary slope for ski trails of varied ability levels. As such it provides challenges for development that are unlike other areas. A portion of the property (remote from the bulk of the property) lies on the shore of Moosehead Lake with direct frontage.

Ski Resort Parcel

This portion of the property is generally wooded with a mix of hardwood and softwoods, with a distinct difference in species as elevation changes. The majority of the land considered for development is of mixed hardwoods. The property is drained by a number of streams that typically run south to north towards Mountain View Pond. These drainage features are a mix of both perennial and intermittent streams. Within the area of proposed development there are two existing ponds that are both man made. One is an impoundment near the upper base area and the other is a treatment lagoon that is a vestige of an abandoned wastewater treatment system. There are a number of small wetland areas that have been delineated.

The lower portion of this parcel has gentle slopes, typically far less than 10%. The upper portion of the property which is generally not considered for development, other than for ski trails, becomes quite steep in several areas. The lower portion of the property has been harvested in the past. The dates are unknown, but evidence of cutting and the remains of access roadways for this purpose are visible.

The site is accessed by a county maintained, paved road that intersects with Route 15. Additionally, there is a gravel loop road that provides access to the upper base area, along with three gravel parking areas that have not been properly maintained.
As an active resort, there are a number of trails that are present on the property that are used for hiking, cross-country skiing and snowshoeing. There are not any known cultural or historical features on the site.

Marina Parcel

The Marina parcel has frontage on Moosehead Lake. This parcel contains a gravel loop road that provides access to an existing boat launch. There is visible evidence that there were boat slips installed at the site. The parcel has gentle slopes from Route 15 down to the shoreline. This area is wooded with predominantly soft wood species. There are no existing structures on the Marina Parcel.

Existing Structures

Hotel

There is abandoned 56-room hotel located at the upper base village. The hotel was constructed in late 1969 and opened in 1970. The four-story building consists of a lobby, restaurant, pool and guestrooms. The dimensions are included in Exhibit 8 – Existing Structures. The building is constructed with a walkout concrete lower level. As a ski resort hotel, it is located slopeside to provide direct access. It is located adjacent to an existing stream the man made pond/impoundment. See Exhibit 8 – Existing Structures for distances to these resources. The property has not been used for some time as the nearby lift failed in 2004 and was not replaced. It is unclear when operations ceased, but it has been in excess of 10 years since guests stayed at the facility. The building has not been maintained and its condition has deteriorated substantially. The facility is not easily repairable and is a non-conforming structure per LUPC standards as it is within the 100' buffer of the existing stream. The building will be demolished.

Base Lodge

The existing Base Lodge is adjacent to the hotel and in similar condition. It was also constructed in the late 1960s and consists of two floors with a concrete, walkout basement. It provided food service, storage and skier services for guests. The building is in a similar state of disrepair as it has not been used in over 10 years. This building is also a non-conforming structure and will be removed. A new base lodge will be constructed in a similar location that will conform with LUPC setbacks.

Upper Ski Lift

This lift is a double seat, fixed grip chair. It was installed in 1967 as part of an upgrade to the mountain. Due to an accident in 2004 the lift has not been maintained since. The chairs have been removed and are stored on site. The upper and lower terminals are still in place but in a deteriorated condition. Due to changes in technology and the lack of maintenance, the lift will require replacement with a modern version. The towers and the wire rope all remain and will be removed prior to replacement. The new lift will be located in a similar location. The upper terminal will remain in the same location. The lower terminal will be relocated slightly to the west to ensure that it is conforming with LUPC buffer standards. Additionally, the towers along the line will be spaced to avoid placing any tower foundations in wetlands that were identified along the current lift routing. The new lift will be a six-person, high speed detachable chair that will dramatically reduce trip duration.

Lower Ski Lift

This lift is a triple chair that was installed in 1986 as a replacement for the original lift in that location. The lift has been operational since installation an it is planned to remain in operation as part of Big Moose Resort

Surface Lift

The Friends of Squaw recently installed a magic carpet surface lift to serve beginner skiers. This lift will remain in operation.

T-Bar
An original T-Bar was the first lift installed at Squaw in 1964. This lift has since been abandoned at an unknown date. The concrete foundations remain in place. As part of the improved resort circulation, this T-Bar will be replaced, utilizing a nearly identical alignment. The base terminal will be located slightly uphill from the original location. The original foundations will be removed as part of this replacement.

Maintenance Facility
The existing building is a 40'x 55' structure with a slab on grade. The facility is used for maintenance of ski area equipment, including the existing groomer. The facility lacks water and sewer, but does have power and provides diesel fuel for the groomer. It recently suffered some damage to its exterior. The building currently does not meet existing LUPC setback standards and is within the buffer of two streams. This structure will be repaired and used for storage of resort equipment.

Lower Base Lodge
The existing Base Lodge currently provides a center of activity for all skier services, including food service, restrooms, ski patrol, lessons, rentals and areas for guests. The building, of unknown age is in good condition. It has a concrete walkout basement. The building will remain in operation for resort services.

Wastewater Treatment Building
Located along east side of the access road to the upper base area, this structure was used for treatment of wastewater for the hotel and upper base lodge. It has not been used in the previous 10+ years. This building is currently non-conforming with LUPC standards as it is within the stream buffer. The building is in deteriorated condition and will be removed.

Snow Making Intake/Pumphouse
The original pumphouse is located adjacent to the shore of Mountain View Pond and has an 8" intake in the pond. The pumphouse was used to withdraw water from the pond and pump it up the hill where was used for snow making. Presumably this structure was constructed in 1967 when major upgrades to the snow making system were implemented. The building is constructed on a post and slab foundation. The building is within the 100' buffer of the pond. Due to the need for substantial water flow for revitalized snow making, this building requires reconstruction with a wetwell and appropriately sized pumps. The existing intake structure will be reused, with an identical sized building within the same footprint.

Snow Making Pumphouse
An interim pumphouse is located on the west edge of the property, along a stream impoundment. This structure, of unknown age, will be abandoned as this water source will no longer be used for snow making purposes.

Proposed Structures

Base Lodge

A new 28,400 SF, two level, Base lodge to replace the existing base lodge. The location of the lodge has been moved slightly to the west to remain outside of stream buffers and has been oriented to capture both downhill views to the south of Moosehead Lake and uphill views of the ski trails and the new lift. On the upper floor that exits to the adjacent plaza, there will be a restaurant and bar that faces the northern view and a day lodge/cafeteria that provides views in both directions. The lower floor, that will be accessible from the vehicle drop off area, will contain skier services (day care, ski school, rentals, tickets, etc.). The Base Lodge will double as a conference center/event center in the spring, summer and fall, with the ability to host groups of up to 200 guests. It's proximity to the event lawn will allow for common use for events. See Exhibit 8 for a Base Lodge conceptual plan and massing diagrams.

Hotel

The existing hotel will be replaced with a new hotel that is located slightly to the west of the current base lodge. The 60 room boutique hotel has been positioned such that it is located outside of the required LUPC stream buffers, yet is directly adjacent to the ski trails and the upper lift. It's orientation has been situated such that the resort rooms on the north side of the structure will capture the stunning views of Moosehead Lake and Mount Katahdin in the distance. The rooms on the southern side will look uphill at the ski trails and Big Moose Mountain. The restaurant will front the Base Lodge and adjacent plaza to overlook the vibrant energy of the base village and capture the dramatic viewshed. Arrival at the hotel will be via a dedicated drive that will separate guests from the rest of the resort traffic. See Exhibit 8 for a conceptual rendering and dimensional diagrams.

Taphouse

A new Taphouse structure with inside climbing wall will be located between the base lodge and hotel. The Taphouse will be accessible at the lower level for automobile drop off and at the middle level to the adjacent plaza. The lower level will contain a movie theater and a teen center. The middle level will contain the Taphouse, which will be a bar with bar food, providing a variety of locally sourced brews. The upper level will be a roof deck that will provide unfettered access to the outstanding views in all directions. An indoor climbing wall will extend across all three floors, providing indoor recreational opportunities and entertainment for patrons of the taphouse. Se Exhibit 8 for a conceptual rendering.

Outdoor Center

An new building will be constructed on the north side of the access road to provide a gateway to non-skiing recreation. This new facility will be located adjacent to the repurposed and expanded pond to allow for direct access to ice skating. Additionally, this facility will be the departure point for cross-country skiing and snowshoeing with direct access to the network of trails. The structure will have a daylight basement that will be accessible on the downhill side (north) and will be used for storage. The main level will provide rentals, warming areas, and bathrooms. An upper level will house resort offices for management and sales.

Event Pavilion/Pool/Event Lawn

An event pavilion will provide a venue for small groups, changing rooms and restrooms for the pool and will overlook the event lawn. The pavilion will be located where the existing pool for the hotel is situated. Immediately adjacent to the north of the pavilion will be a heated pool. Both facilities will provide unobstructed views of Moosehead Lake and Mount Katahdin. This facility will be directly above the Event Lawn that will be used for group events, weddings, and concerts. A ski trail that connects the upper base village to the lower lifts will skirt the facility to the west. Additionally, the existing ski trail will be located to the west and will look down on the amenities. See Exhibit 8 for a conceptual sketch.

New Maintenance Facility

A new maintenance facility will be constructed adjacent to the access road, just to the east of the lower base area. This facility will have a full basement that will house resort laundry and other maintenance functions. The first floor will be an open space, capable of accommodating modern groomers and snow making equipment that may require repair. Above the upper floor will be offices for resort operations (grooming, snow making, lift operations, etc.). The location of this facility needs to be conveniently located so that groomers and snow mobiles do not need to cross roadways and will have direct access to the trail system. This structure will be a functional space, but will be clad with an exterior that is consistent with other resort architecture.

Zipline

A top to bottom dual line Zip Rider system with departure and arrival platforms and training areas will be constructed that will take adventurous guests from the top of the new 6-person chair lift, down to the lower resort area. The first dual lines will whisk riders from the top to a location near the top of the existing triple chair. Riders will then climb down from the platform, climb an adjacent platform and continue their ride to the bottom. Each segment consists of a tower and platform at both top and bottom. Additionally there will be a training platform that will be located near the base terminal of the new 6-person lift.

Infrastructure

Snow Making Lines

Currently snow making lines are buried beneath an access road to the intake/pump station located at Mountain View Pond. These lines were most likely installed in the 1960s and need to be replaced. The new lines will be replaced in the same location, buried beneath this access road. On mountain lines have been upgraded over time, with many of the lines dating to the 1980s. However, the condition of these lines has not been established and it is suspected that since the majority of them have not been used since the upper lift was closed, that they are in deteriorated condition and will need to be replaced. The lines on the mountain are a combination of above ground and buried lines, depending on the location of the lines.

Mid-Mountain Pump Station and Compressors

To facilitate modern snow making technology and provide top to bottom coverage to ensure early season operation, upgrades to the snow making system are required. In addition to the replacement of the water lines, a new pump station will be constructed near the top of the existing triple chair. This location will allow for boosting pressure to provide coverage to the upper part of the mountain. It will also house new compressors that are required for air/water snow making.

Sanity Sewer Line

A new sanitary sewer line will be constructed from the base village down to the Greenville Junction to connect to the Moosehead Sanitary District system. The District currently has sufficient capacity to accept the waste stream associated with the Big Moose Resort redevelopment. The system has been designed to meet all standards of the Moosehead Sanitary District and will be operated by the district.

Potable Water System

A new potable water system, with a preferred source of a series of shallow gravel wells, will be constructed. As an alternative, rock wells could also provide the required capacity, but often water quality associated with rock wells may require additional treatment that adds operational cost. A new 6-inch water main will be run from the source along the access road to the resort village with a booster pump station and potential chlorination point

located near the wellhead. A below grade, 32,000 gallon cistern will be located on the hillside to provide sufficient pressure and quantity for both potable water needs and reliable fire protection. A booster pump station will be constructed along the access road as a single pump would not provide sufficient head to move water to the cistern.
An existing potable well is located between the existing hotel and base lodge. Due to its location within the base village, this well will be properly abandoned to meet all state standards.

Electrical Lines

Three phase electrical power is currently available at the resort to power the lower lift, snow making pumps and fan gun snow making. This power arrives at the resort via overhead power lines along the Access Road, up the Base Area Access Road and down to the Snow Making Pump Station. A portion of this line is planned to be buried within the core resort area to eliminate unsightly above ground lines and remove a potential safety conflict with the Zipline. Upgraded power will be required to manage the additional load associated with the new structures, upgraded snow making system and improved lift capacity.

Parking

Several gravel parking areas currently exist at the resort. At the lower base area, there is an existing lot that provides sufficient parking to meet current needs. This parking will remain as a secondary source for the redeveloped resort. There are also three lots that are located near the upper base area. These lots have not been used since the upper lift ceased operation. The lots need to have small regrowth and associated root masses removed.   A stream crossed these lots via existing culverts. It is likely, based upon their age and condition, that these culverts will need to be replace as a part of the parking lot reclamation process. These reclaimed lots will become the primary parking for guests at the resort, both for day skiers and overnight hotel guests. The upper parking lot, or Lot #1, currently doubles as a gravel roadway that provides access to the upper base area and the snow making pump stations.

Existing parking at the hotel and base lodge locations will be rehabilitated/repaved in its current location to provide service to the Event Pavilion/Pool/Event Lawn and required parking for the relocated Base Lodge. These parking locations are within the LUPC required buffers from streams.

Roadways

Access Road

The Access road intersects Route 15 and connects with the lower base area that is currently the center of resort activity. The road is a two lane, paved road that is maintained by Piscataquis County. The road requires some repair and the County has budgeted for improvements that were scheduled to occur in the summer of 2021. However, based upon the work that is contemplated at Big Moose Resort, this work has been delayed until after construction of the work proposed in this application.

Base Area Access Road

This road is a two lane, gravel road that leaves from the paved Access Road and head north to south up to the upper base area. The majority of the road lies outside of the LUPC required buffer, but in several locations encroaches on the buffer. It is planned to upgrade this existing road to a paved surface and to bury utilities beneath it prior to paving. At the southern end of this approach, a roundabout has been proposed that would help direct and manage traffic in the base village area. This road will be the primary approach to the resort village and associated parking.

Parking Loop Road

A two-lane gravel road connects the intersection of the Access Road and the Base Area Access Road with the upper base area and western side of the Parking Lots #1, #2 and #3. Due to an insufficient turning radius as it approaches the west end of the parking lots, this roadway will be slightly realigned. It will be upgraded to a paved surface. This relocation will help the roadway become less non-conforming that moving a portion of the roadway out of the LUPC required buffer. There will still be a portion of the road where it intersects the parking lots that is within the buffer area.

A new section of roadway will be constructed that will provide access to the redeveloped base village. This portion will be located up gradient of the existing Parking Lot #1 that currently serves as part of this loop road. This new road is required due to the elevations associated with the base village and to provide a secondary means of access/egress for safety reasons.

Parks

A number of parks have been created to encourage guest to experience the outdoors and enjoy the seemingly endless views at Big Moose Resort. These park locations have been selected based upon their ability to provide a special experience unique to the location. The parks will be destinations that will attract visitors with centers of activity and/or spectacular views. Each park will have a theme that will encourage guest to interact with nature in a sensitive, non-intrusive manner. Potential themes include: Dog Park, Hammock Haven, Million Mile View, Exercise Stations. A conceptual exhibit is attached for reference in Exhibit 8. These are intended to provide a concept, not indicated exactly what will be constructed. In order to achieve these objectives, selective clearing, particularly of smaller understory growth will be required.

Stormwater Management Structures

In order to meet current standards associated with stormwater associated with the existing infrastructure and proposed buildings, a number of structures have been designed to treat the flow in a manner consistent with best practices. These constructed features are shown on the plans in Exhibit 9.

Tennis & Basketball Courts

Located just to the northeast of the existing hotel, a small basketball court and a fenced tennis court will be removed.

Signage

Existing Signage

A single resort sign is located at the intersection of the access road with Route 15. The sign is approximately 18 feet tall by 8 feet wide and is installed on wooden posts. As the resort is not currently open in the evening, the sign does not have any illumination. As the resort will no longer be referred to as Big Squaw, new signage will be required. This sign will be replaced with an upgraded, illuminated sign, approximately 7' wide by 20' tall. Materials will include muted, natural colors that will be consistent with overall resort branding and building material selections. A concept of the vision for all resort signage is attached as part of Exhibit 8. This sign will be the indication of arrival for those approaching from the South.

Proposed Signage

- Entrance/Arrival sign along northern approach on Route 15 within existing easement. The sign will be approximately 7'wide x 20' tall and will be illuminated. This sign will indicate arrival for those arriving from the north.
- New Resort sign along access road, 7' wide x 20' tall, illuminated. Sign will be located off the roadway on the north side and will not create any visual impairment.
- Arrival sign to be located within the round about to signal arrival at the destination. The sign will be tucked inside the round about and will not impede vision to traveled

areas. Sign will be approximately 12’ wide by 10’ high. Sign will be illuminated.

- Directional/way finding sign to be located on the north side of the road prior to arrival at the Outdoor Center. This sign will provide wayfinding assistance to direct guest to the appropriate location (i.e. Outdoor Center on the right, Base Village, Skier Services, Hotel, parking to the left). Sign will be approximately 5’ wide x 4’ high. The sign will be located off the roadway and will not impede vision. The sign will not be illuminated.

A conceptual vision of the signage is attached in Exhibit 8. These are provided not as final signage, but to show the general intent, sizing and use of materials that will fit in with surrounding environment.

Type of structure (dwelling, garage, office building, rental cabin, deck, porch, shed, etc.)	Year built	Exterior dimensions (LxWxH)	Number of:		Type of Foundation (full basement, slab, post, etc.)	Distance (in feet) of structure from nearest:				
			Bedrooms	Plumbing or water fixtures		Road	Property line	Lake or pond	River or stream	Wetland
Base maintenance garage (to be repaired/renovated)	1986	55'x40'x14	N/A	0	Slab	225	1100	3410	28 (mapped)	24 (mapped)
Lower ski lift base maintenance shed (to remain)	1986	16'x10'x8	N/A	0	Slab	415	1255	3640	63 (mapped)	57 (mapped)
Lower ski lift base operator shack (to remain)	1986	14'x12'x12	N/A	0	Slab	440	1292	3670	23 (mapped)	18 (mapped)
Lower ski lift base bullwheel & foudation (to remain)	1986	12'x12'x20	N/A	0	Reinf. concrete	445	1288	3675	35 (mapped)	28 (mapped)
Lower ski lift top operator shack (to remain)	1986	12'x10'x12	N/A	0	Post	3080	2307	3220	1110 (NWI)	1830 (mapped)
Lower ski lift top bullwheel & foundation (to remain)	1986	12'x12'x20	N/A	0	Reinf. concrete	3107	2324	3200	1095 (NWI)	1834 (mapped)
Lower base lodge (to remain)	1967	44'x42'x20'; 56'x24'x20	N/A	12	Walkout basement	620	1262	3765	120 (mapped)	113 (mapped)
Locker shed near lower base lodge (to remain)		16'x13'x8'	N/A	0	Slab	692	1260	3826	185 (mapped)	185 (mapped)
Yurt near lower base lodge (to remain)	2016	20' ffx12'	N/A	0	Post	712	1256	3832	216 (mapped)	216 (mapped)
Magic carpet lift operator shack (to remain)	2014	8'x8'x8'	N/A	0	Slab	906	1298	3947	203 (mapped)	169 (mapped)
Tin-roofed shed below upper lodge (to remain)		40'x25'x15'	N/A	0	Slab	1680	1623	4592	21 (mapped)	10 (mapped)
Upper lift base bullwheel, maint. & op. garage (to be relocated/replaced)	1967	60'x42'x15'	N/A	0	Slab	2383	1779	5470	190 (mapped)	144 (mapped)
Upper base lodge (abandoned - to be removed)	1970	106'x44'x25'; 36'x22'x25'; 74'x36'x25'	N/A	16	Walkout basement	2290	1902	5112	86 (mapped)	44 (mapped)
Hotel (abandoned - to be removed)	1970	88'x50'x40; 68'x50'x40'; 78'x66'x40'; 92'x50'x40	56	???	Walkout basement	2023	2054	5005	29 (mapped)	15 (mapped)
Upper lift top bullwheel, foundation, & shack (to be replaced)	1967	35'x20'x20'; 10'x10'x8'	N/A	0	Reinf. concrete	7581	847	2312	2641 (NWI)	2312 (NWI)
Pumphouse (to remain)	1967	8'x6'x8'; 13'x8'x8'	N/A	0	Slab	3113	83	4850	66 (NWI)	831 (mapped)
Snow Making Intake (to be replaced)	1967	15'x36'x12'	N/A	0	Post	1900	3616	50	100 mapped	(sets in a wetland)
Resort Entrance Sign (to be replaced)			N/A	0	Post	43	31	2386	140 mapped	756 mapped

Type of structure (dwelling, garage, office building, rental cabin, deck, porch, shed, etc.)	Year built	Exterior dimensions (LxWxH)	Number of:		Type of Foundation (full basement, slab, post, etc.)	Distance (in feet) of structure from nearest:				
			Bedrooms	Plumbing or water fixtures		Road	Property line	Lake or pond	River or stream	Wetland
New Maintenance Garage		55'x80'x34'	N/A	10	Full basement	40	915	3400	28 (mapped)	24 (mapped)
Outdoor Center		32'x60'x22'	N/A	10	Walkout basement	100	1025	4017	63 (mapped)	57 (mapped)
Tbar lift base operator shack		14'x12'x12'	N/A	0	Slab	150	1840	5600	23 (mapped)	18 (mapped)
Tbar lift base bullwheel & foudation		14'x10'x20'	N/A	0	Reinf. concrete	150	1840	5600	35 (mapped)	28 (mapped)
Tbar lift top operator shack		12'x10'x12'	N/A	0	Post	5820	840	2350	1110 (NWI)	1830 (mapped)
Tbar lift top bullwheel & foundation		16'x7'x20'	N/A	0	Reinf. concrete	5870	838	2348	1095 (NWI)	1834 (mapped)
Mid Mountain pump station & compressor building		30'x70'x14'	N/A	0	Slab	2973	2210	3287	120 (mapped)	113 (mapped)
Zipline Upper Station Foundation		21'x21'x20'	N/A	0	Reinf. concrete	5583	1170	2080	185 (mapped)	185 (mapped)
Zipline Upper Station Platform		20'x20'x8'	N/A	0	Post	5570	1180	2075		
Zipline Mid Station 1 Foundation		21'x21'x20'	N/A	0	Reinf. concrete	1922	1156	3739	216 (mapped)	216 (mapped)
Zipline Mid Station 1 Platform		20'x20'x8'	N/A	0	Post	1930	1160	3729		
Zipline Mid Station 2 Foundation		21'x21'x20'	N/A	0	Reinf. concrete	1860	1271	3345	203 (mapped)	169 (mapped)
Zipline Mid Station 2 Platform		20'x20'x8'	N/A	0	Post	1870	1275	3355		
Zipline Base Station Foundation		21'x21'x20'	N/A	0	Reinf. concrete	220	740	3354	21 (mapped)	10 (mapped)
Zipline Base Station Platform		20'x20'x8'	N/A	0	Post	210	750	3365		
Zipline Practice Upper		10'x20'	N/A	0	Reinf. concrete	344	2045	5085	190 (mapped)	144 (mapped)
Zipline Practice Lower		10'x20'	N/A	16	Reinf. concrete	255	2006	5137	86 (mapped)	44 (mapped)
Hotel		166'x55'x65'	63	152	Walkout basement	240	1680	5355	29 (mapped)	15 (mapped)
Upper lift top terminal		20'x48'x16'	N/A	0	Reinf. concrete	5805	835	2308	2641 (NWI)	2312 (NWI)
Upper lift Top Operator Shack		12'x10'x12'	N/A	0	Slab	5853	825	2318	66 (NWI)	831 (mapped)
Upper Lift bottom terminal		22'x66'x16'	N/A	0	Reinf. concrete	164	1847	5112		
Upper Lift bottom Operator Shack		12'x10'x12'	N/A	0	Slab	164	1867	5100		
Taphouse		70'x60'x45'	N/A	16	Walkout basement	125	1602	5398	225 mapped	860 mapped
Base Lodge		210'x62'x42'	N/A	30	Walkout basement	55	1810	5395	200 mapped	663 mapped
Event Center Pavilion		50'x50'x16'	N/A	10	Slab	45	1010	5170	160 mapped	300 mapped
Swimming Pool		30'x 50'	N/A	0	Reinf. concrete	40	990	5200	182 mapped	264 mapped
Snow Making Intake Pump		36'x15x'16'	N/A	0	Reinf. concrete	1000	15	15		
Potable Water Well Field Pumphouse		12'x10'x12'	N/A	0	Slab	50	110	2402		
Potable Water Booster Pump Station		30'x30'x12'	N/A	0	Reinf. concrete	9	1744	4723	113	
Resort Entrance Sign - South		7'x2'x20'	N/A	0						
Resort Entrance Sign - North		7'x2'x20'	N/A	0						
Resort Sign - Access Road		7'x2'x20'	N/A	0						
Resort Sign - Round about		20'x2'x10'	N/A	0						
Wayfinding Sign - Outdoor Center		5'x.5'x4'	N/A	0						

Exhibit #: 8 **Infrastructure Table (for example: road, driveway, parking area, trail, path)**

Refer to the Structures, Features, and Uses exhibit of your application for instructions. Name infrastructure consistent with the labeling used on the Site Plans exhibit.

Infrastructure Type and Use (specify if temporary)	Proposed alterations (check all that apply)							Dimensions (LxW) in ft	Year Built or Duration (if temporary)	Average Slope (%)	Max. Sustain. Slope (%)	Distance (in feet) of infrastructure from nearest:					
	Change in Use	New Construction	Change Dimensions	Reconstruct or Replace	Relocate	Change Setbacks	Other					Road	Property line	Lake or pond	River or stream	Wetland	Ocean/Coastal Wetland
<u>Existing Infrastructure</u>																	
Access Road	☐	☐	☐	☑	☐	☐	☐	9875 x 24	1963			0	0	2014	0		
Parking Loop Road	☐	☑	☐	☑	☐	☐	☐	2480 x 18	1967			0	652	4381	0		
Base Lodge Access Roa	☐	☐	☑	☑	☐	☐	☐	1052 x 24	1967			0	1254	4381	89		
Resort Parking Lot 3	☐	☐	☑	☑	☐	☐	☐	870 x 45	1967			0	885	5057	0		
Resort Parking Lot 2	☐	☐	☑	☑	☐	☐	☐	770 x 40	1967			0	926	5188	0		
<u>Proposed Infrastructure</u>																	
Potable Well Field	☐	☑	☐	☐	☐	☐	☐					50	150				
6" Waterline	☐	☑	☐	☐	☐	☐	☐					0	10	2014	0		
Sanitary Sewer Line	☐	☑	☐	☐	☐	☐	☐					0	10	2364	0		
	☐	☐	☐	☐	☐	☐	☐										
	☐	☐	☐	☐	☐	☐	☐										

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Infrastructure Type and Use (specify if temporary)	Proposed alterations (check all that apply)							Dimensions (LxW) in ft	Year Built or Duration (if temporary)	Average Slope (%)	Max. Sustain. Slope (%)	Distance (in feet) of infrastructure from nearest:					
	Change in Use	New Construction	Change Dimensions	Reconstruct or Replace	Relocate	Change Setbacks	Other					Road	Property line	Lake or pond	River or stream	Wetland	Ocean/Coastal Wetland
Existing Infrastructure																	
Access Road	☐	☐	☐	☑	☐	☐	☐	9875 x 24	1963			0	0	2014	0		
Parking Loop Road	☐	☑	☐	☑	☐	☐	☐	2480 x 18	1967			0	652	4381	0		
Base Lodge Access Roa	☐	☐	☑	☑	☐	☐	☐	1052 x 24	1967			0	1254	4381	89		
Resort Parking Lot 3	☐	☐	☑	☑	☐	☐	☐	870 x 45	1967			0	885	5057	0		
Resort Parking Lot 2	☐	☐	☑	☑	☐	☐	☐	770 x 40	1967			0	926	5188	0		
Proposed Infrastructure																	
Potable Well Field	☐	☑	☐	☐	☐	☐	☐					50	150				
6" Waterline	☐	☑	☐	☐	☐	☐	☐					0	10	2014	0		
Sanitary Sewer Line	☐	☑	☐	☐	☐	☐	☐					0	10	2364	0		
	☐	☐	☐	☐	☐	☐	☐										
	☐	☐	☐	☐	☐	☐	☐										

Dog adventure park loops: leashed loop, freedom loop, freesbie freeplay playfield [fenced] is the loops destination, wash up at the coin-op shower station the cool down in the wade pool, fluff upin the dryer. Nap. Repeat.

BARK PARK
a dog adventure experience that millennial's love and share

frontier pass

iconic.
natural.
authentic.
revenue generation.

book on oliver

No plastic, all naturally made agility challenges for dogs including teeter-totter ramps, log hurdles, balance beams flank the steep loop

an dog
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wipe for
wade
gate

Ground cover designed for leaf blower sweeps in the free run area

Coin-op pet bath stations

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Make dog waste easy

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untains
ature

Dog adventure park loops: leashed loop, freedom loop, freesbie freeplay playfield [fenced] is the loops destination, wash up at the coin-op shower station the cool down in the wade pool, fluff upin the dryer. Nap. Repeat.

BARK PARK
a dog adventure experience that millennial's love and share

frontier pass

iconic.
natural.
authentic.
revenue generation.

book on oliver

No plastic, all naturally made agility challenges for dogs including teeter-totter ramps, log hurdles, balance beams flank the steep loop

book an dog walker or spa day on Oliver, and swipe for dog wade pool gate

Ground cover designed for leaf blower sweeps in the free run area

Coin-op pet bath stations

Authentic iconic benches along loop trails complimented by Frontier wildlife educational wayfinding

Make dog waste easy

dog splash feature

arching water fountains feature

A village culture nurturing gaming experiences that connect families, lovers, friends and strangers ironically excited and socially shared.

CONNECT FAMILIES NOT NETWORKS

frontier pass

iconic.
connection.
experiences.

book on oliver

Oliver Cup tournament sign-up:

family
teen
singles
locals
gaming
tournaments

gamers park

courts
bocce
corn hole
horseshoes
beach sand volley ball
disc golf
broomball
curling
paddleball

public tournament standings board

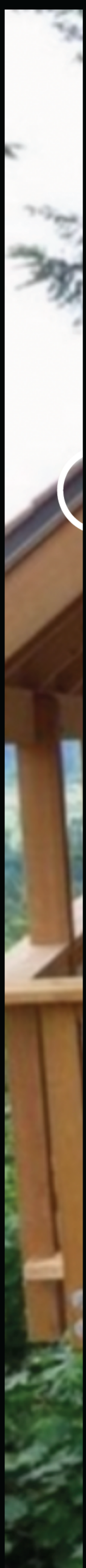
Way finding design integrated

HAMMOCK
HAVEN

frontier pass

iconic.
natural.
authentic.
revenue generation.

book on oliver



Oliver; it's included for frontier pass holders.

"wow" is the goal. people share wow.

frontier
pass cash
enabled

hammock haven park |experience | big moose village

Click up a picnic basket on Oliver, charcuterie board, and vino provisioned for two to twenty-two and settle into the community table and ponder the Frontier.

PICNIC PARK

a quintessential New England experience

frontier pass

iconic.
simple.
authentic.
revenue generation.

book on oliver

Drop & landscape lighting, flame tower, and heat pillars create outdoor room intimacy

Iconic community tables people Instagram

Designed to support our rental tent

Ground cover designed for leaf blower sweeps

Outdoor grilling station for easy catering rehearsal dinners, horseshoes & hotdogs Tuesdays for locals & staff nights, Provision a basket on Mondays for extended stay guests, etc.

lease out or operate resort owned picnic basket food truck

biggest view.
biggest view chairs.
boom goes instagram

NEW SIGNAGE | PROPOSED STATURE

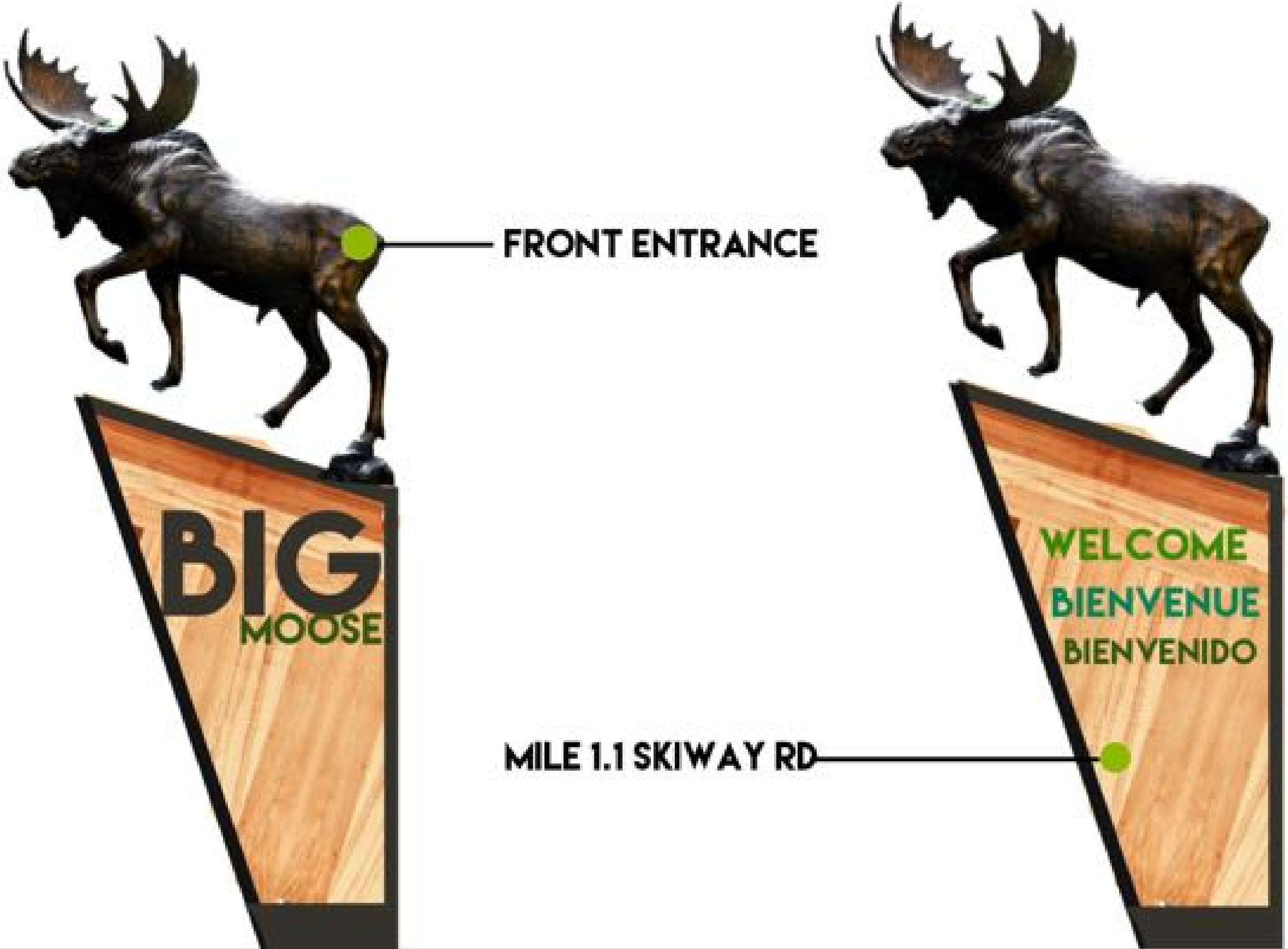

BIG
SQUAW
MOUNTAIN
SKI AREA
TODAY
ENTRANCE SIGN
| RT 15 | SKIWAY
RD | NORTH SIDE
45.50075, -69.67183

NOW

WE PROPOSE A MORE APPROPRIATE STATURE WITHIN NATURAL SURROUNDINGS WHILE REMAINING A SMALL IMPERMEABLE FOOTPRINT USING ORGANIC MATERIALS.

FOR EXAMPLE; IKE ANY GOOD ECO-FRIENDLY INTERIOR DESIGN MATERIAL, BRONZE IS ALSO LONG-LASTING, FOREVER STRUCTURALLY SOUND AND VISUALLY PLEASANT TO THE SURROUNDING ENVIRONMENT AND 100% RECYCLABLE.


LOCATION 2
45.50485, -69.68268
MOUNTAIN
INC
WELCOME
BIENVENUE
BIENVENIDO


BIG
MOOSE
FRONT ENTRANCE
WELCOME
BIENVENUE
BIENVENIDO
MILE 1.1 SKIWAY RD


79" @ GREATEST SPREAD
7'
12'
9' NOSE TO TAIL
WELCOME
BIENVENUE
BIENVENIDO
3:1 RATIO | BASE TO TOP | 2.33' BASE | 7' TOP

BASE MATERIAL IDEAS

CLT INSPIRED END CUTS

RED-BROWN PATINA RUST STEEL

CHISEL CUT GRANITE

CLT TO MATCH SCOTT SIMONS
ALSO MATCH ANY USE OF STEEL

HOTEL | FIRST IMPRESSION | ROTARY CIRCLE

CENTER OF ROTARY CIRCLE

RELATIVE PROPORTION TO DOMINATING ROOFLINE IN LINE OF SIGHT MATTERS

BASE MUST BE LIGHTER COLOR HUE THAN MOOSE BASE & NO GREATER THAN 20% OF SIZE OF MOOSE + MOOSE BASE.

IRRITATED TRI-TIERED SEA GRASS

SWITCH GRASS
PURPLE MOUNTAIN
BLUE FESCUE

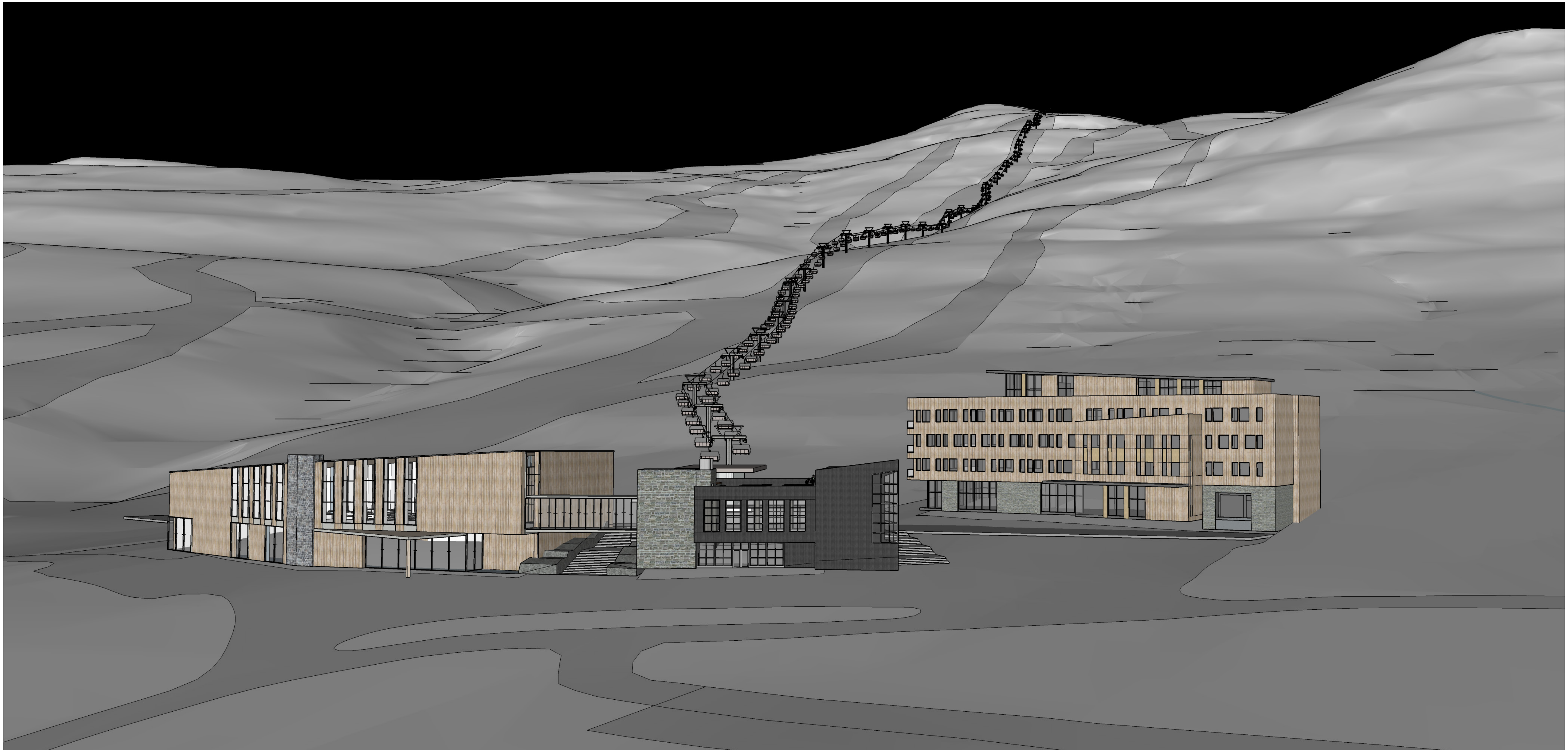
LIGHTING

UP LIGHT MOOSE FROM BASE IN 6 LOCATIONS

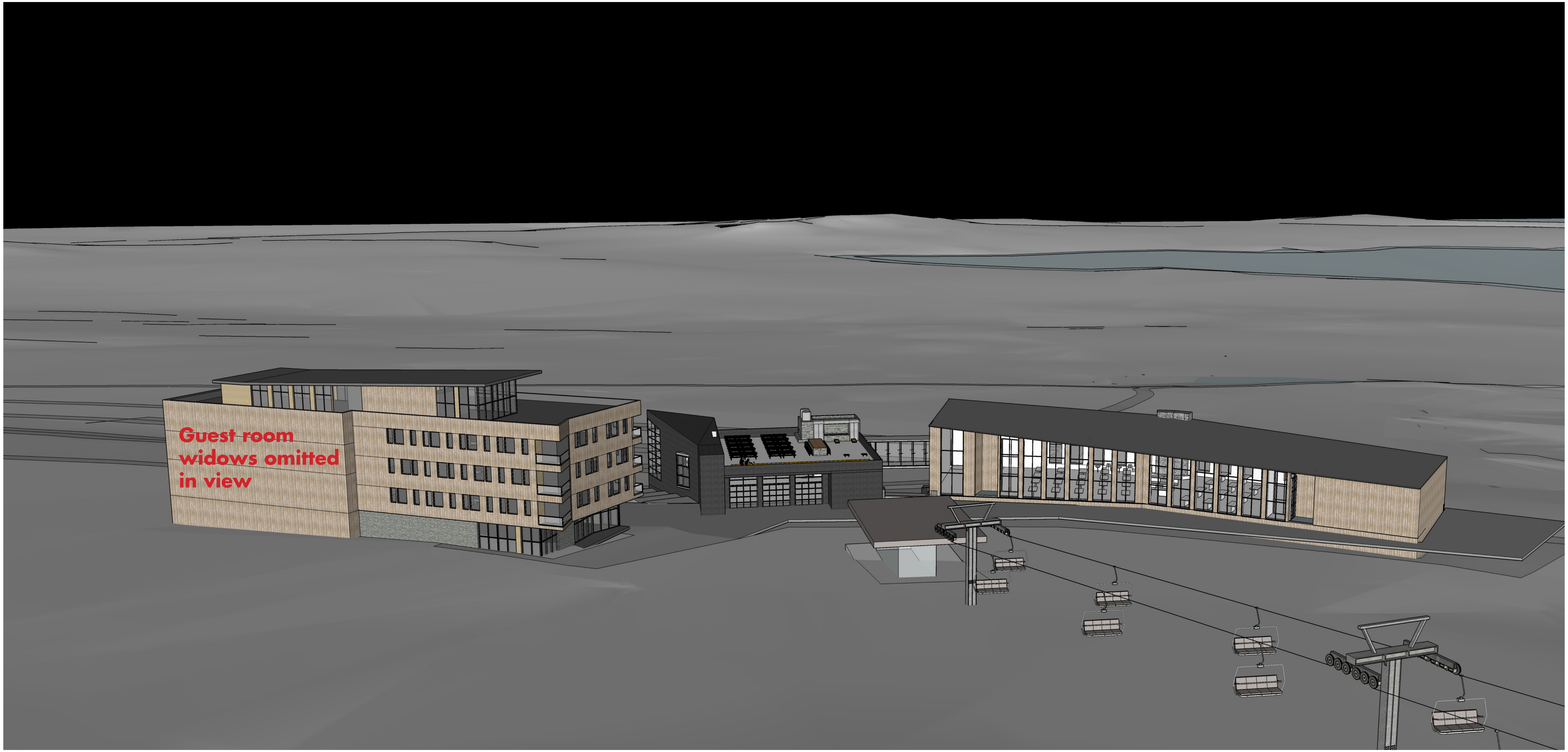
LIGHT BAR

2.75" DEEP LIGHT CHANNEL LETTERS

UP LIGHT LANDSCAPING

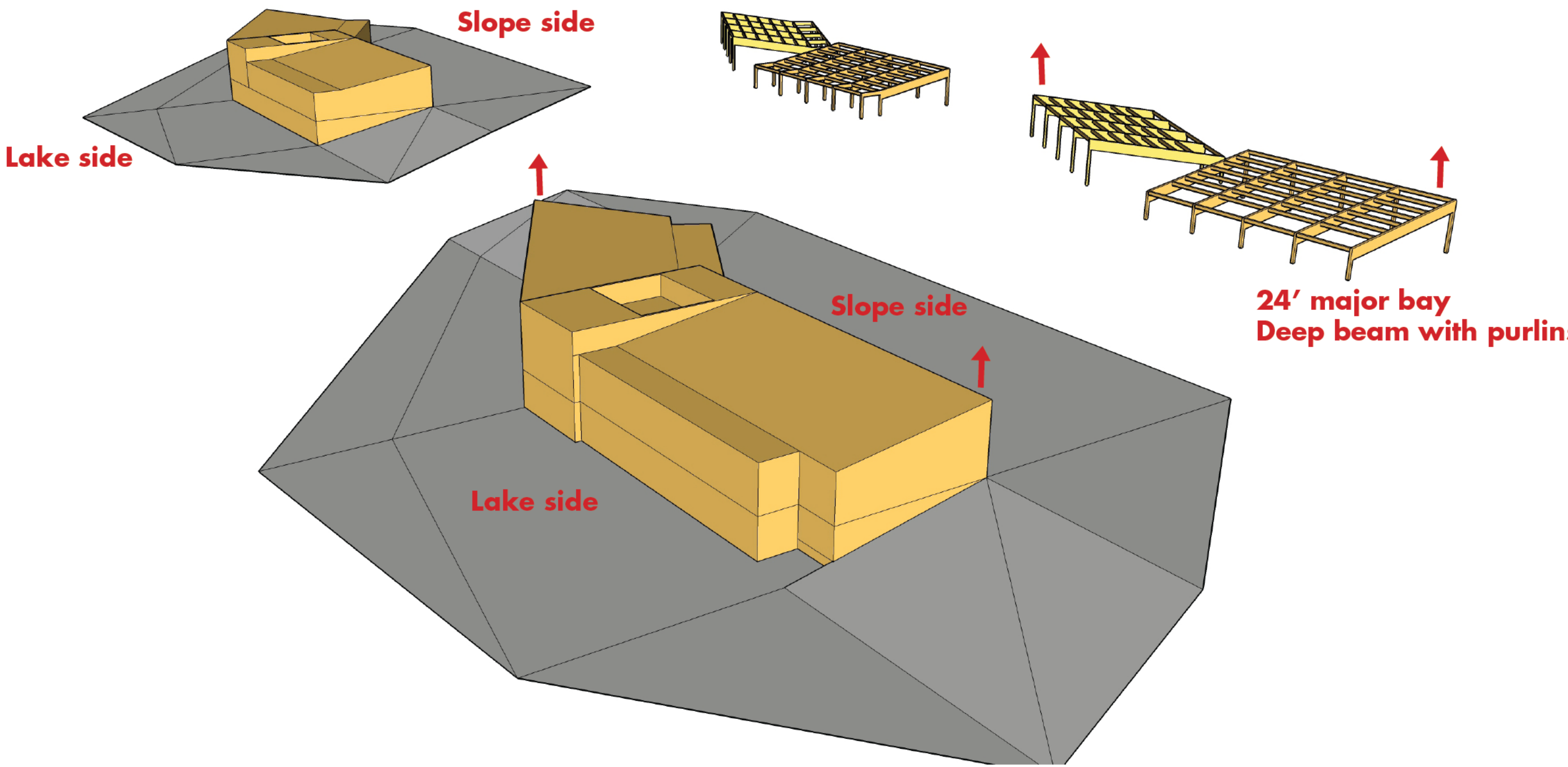


View Lodge, Taproom, and Hotel from lake side

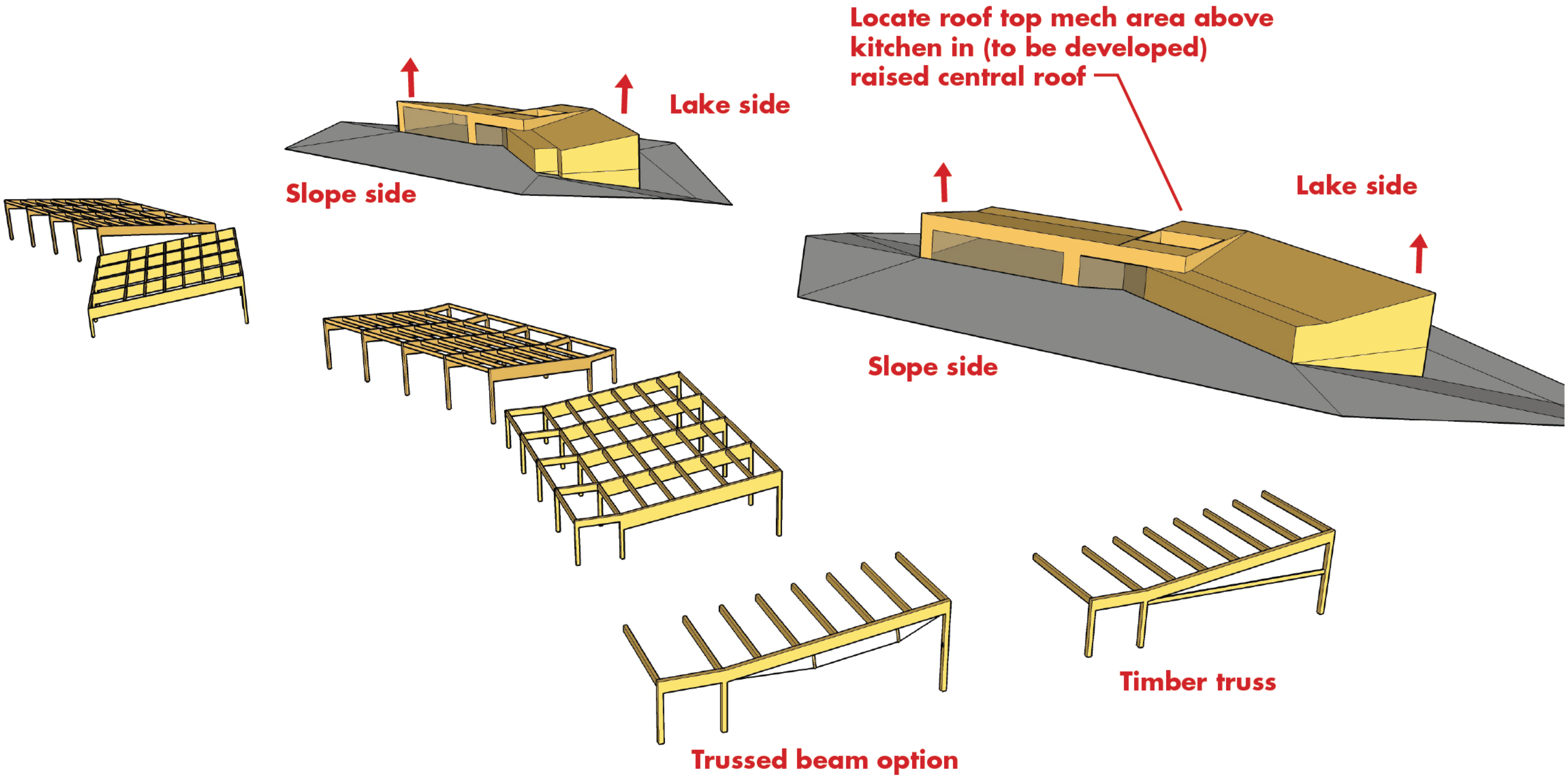


View Lodge, Taproom, and Hotel from slope side

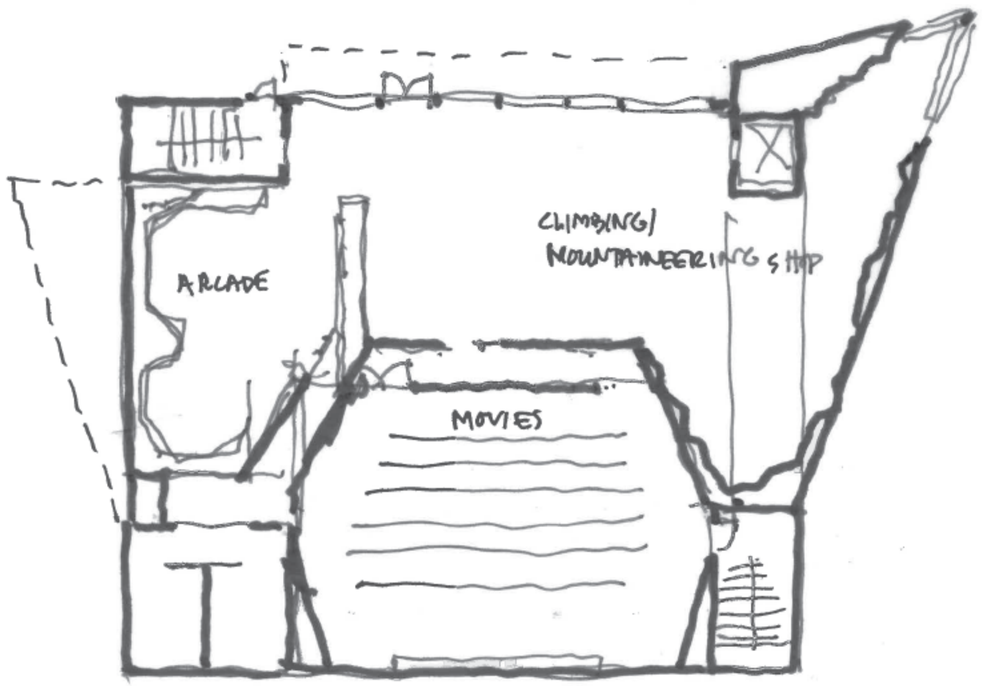
Lodge - Main Level Plan - NTS



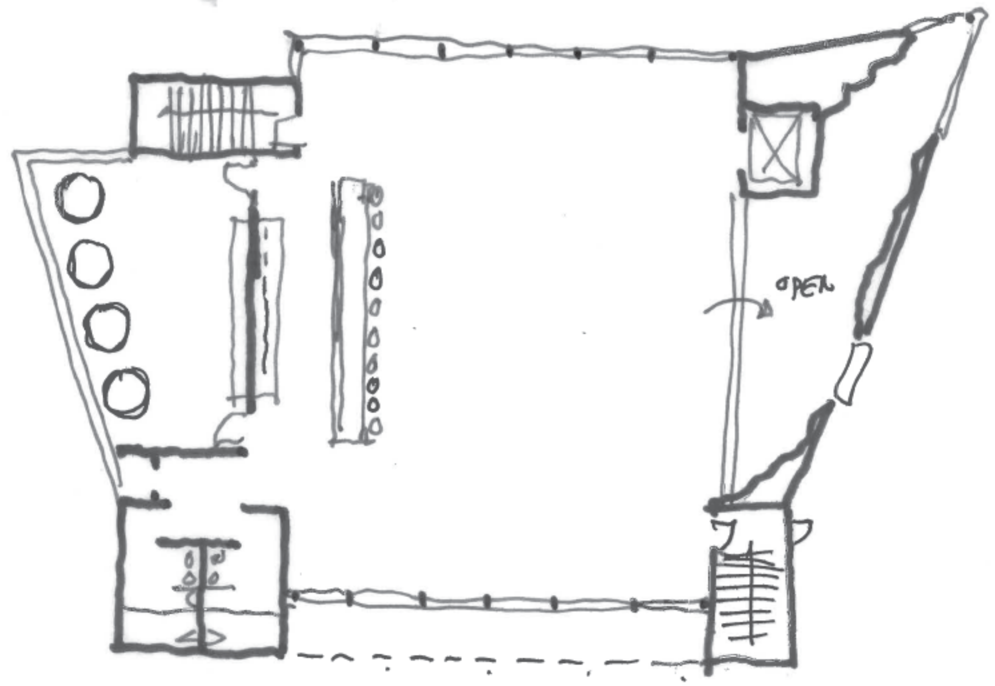
Lodge Roof - Mass Timber Structural Diagrams - NTS



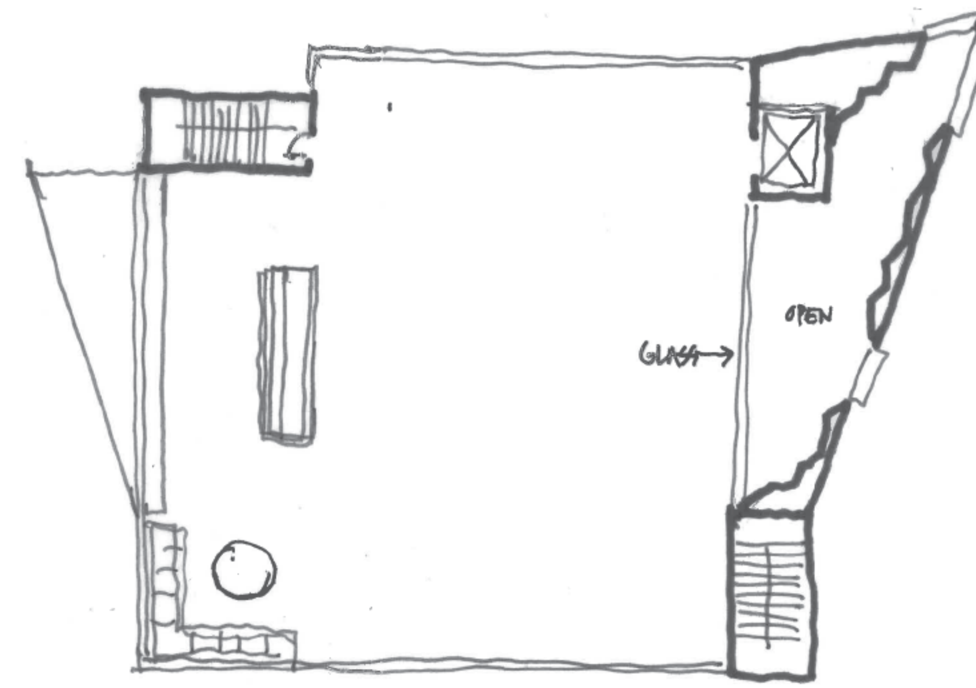
Lodge Roof - Mass Timber Structural Diagrams - NTS



TEEN CTR/MTNEERING SHOP

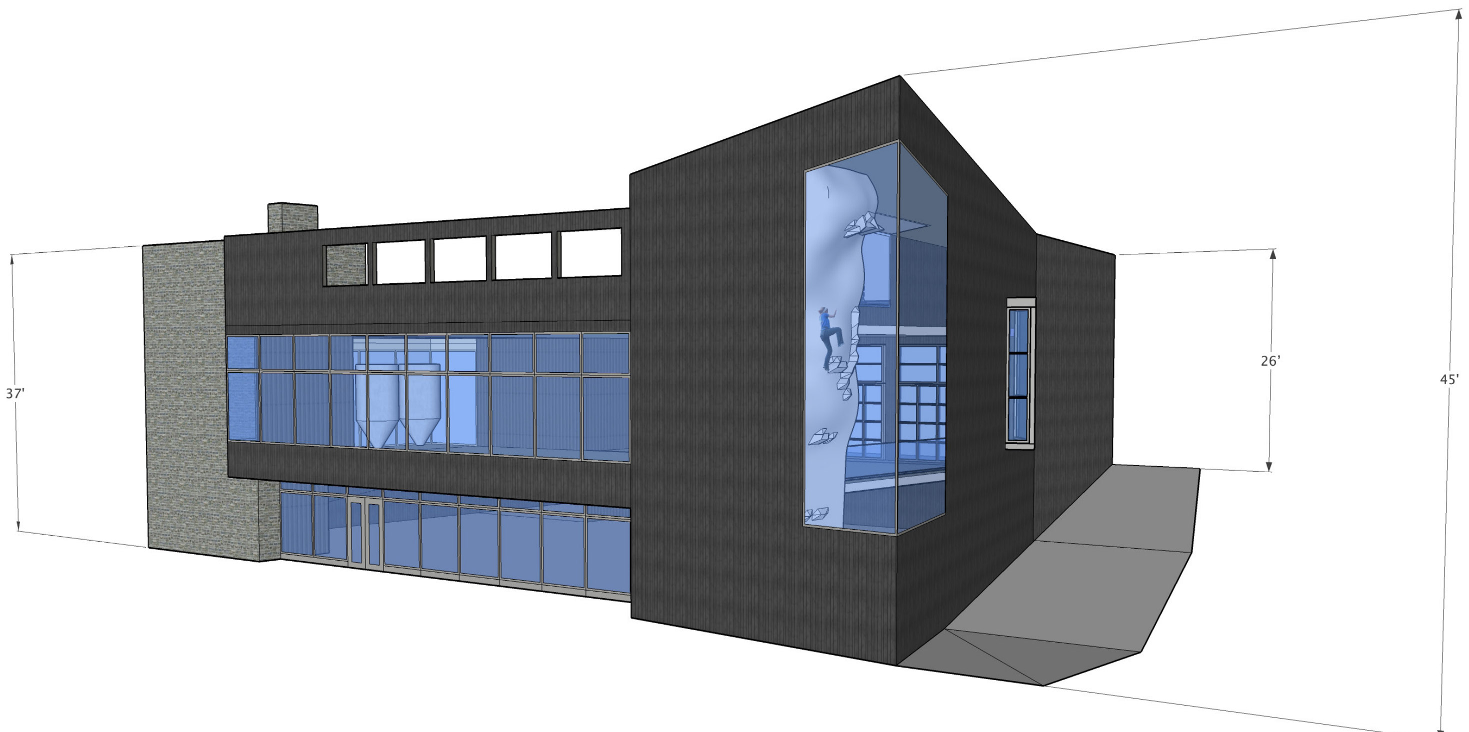


BREW PUB 70'W x 60'D

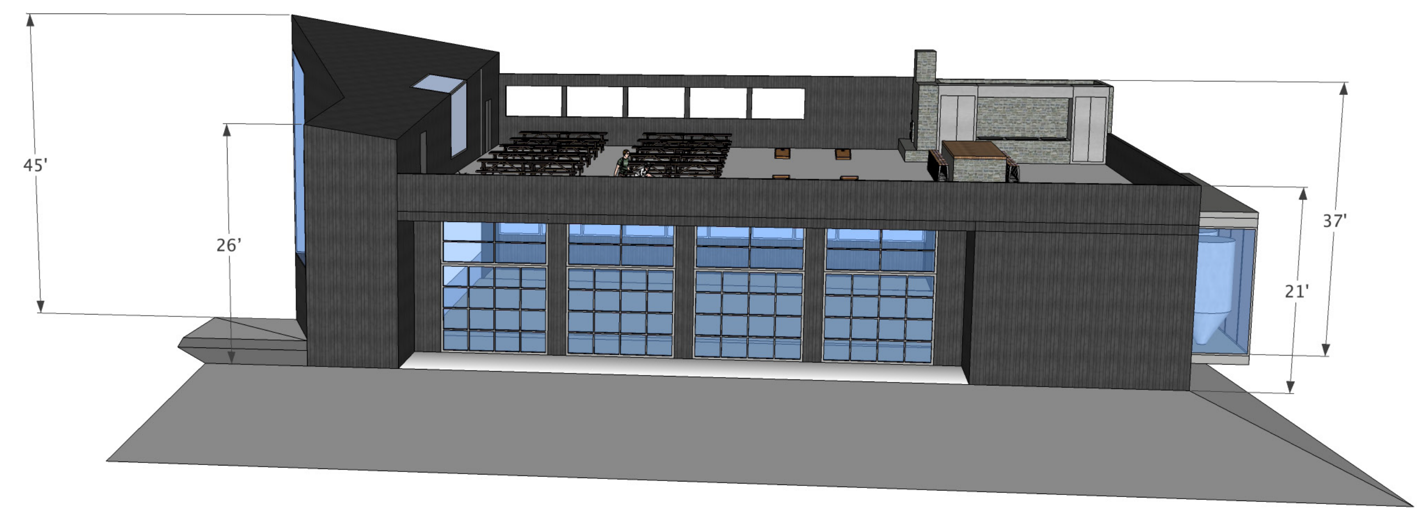


ROOFTOP DECK

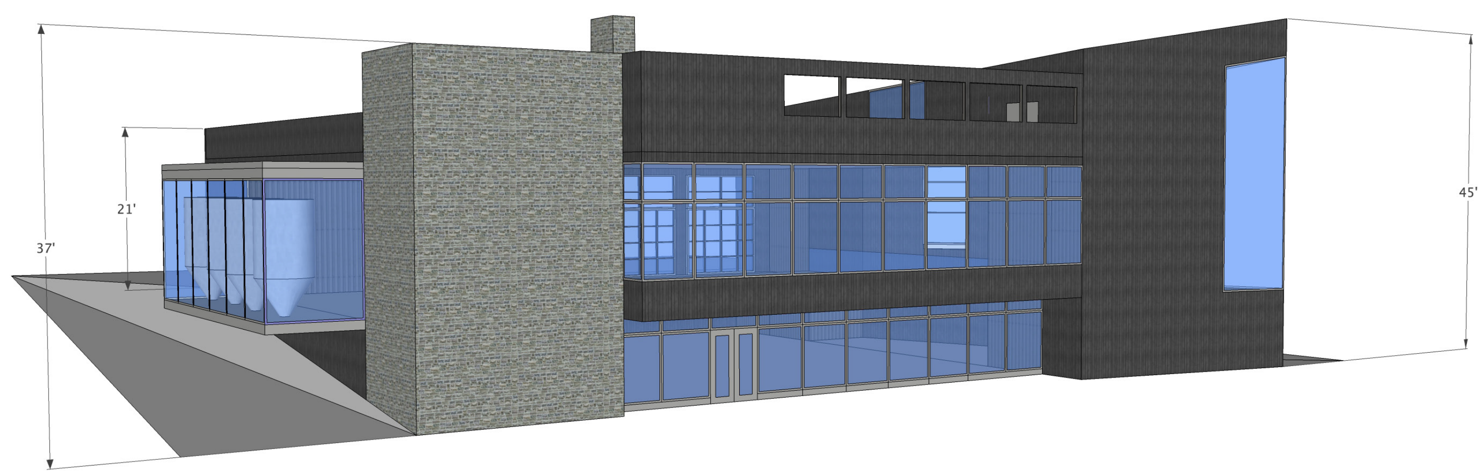
Taproom - Plans - NTS



View from Northwest

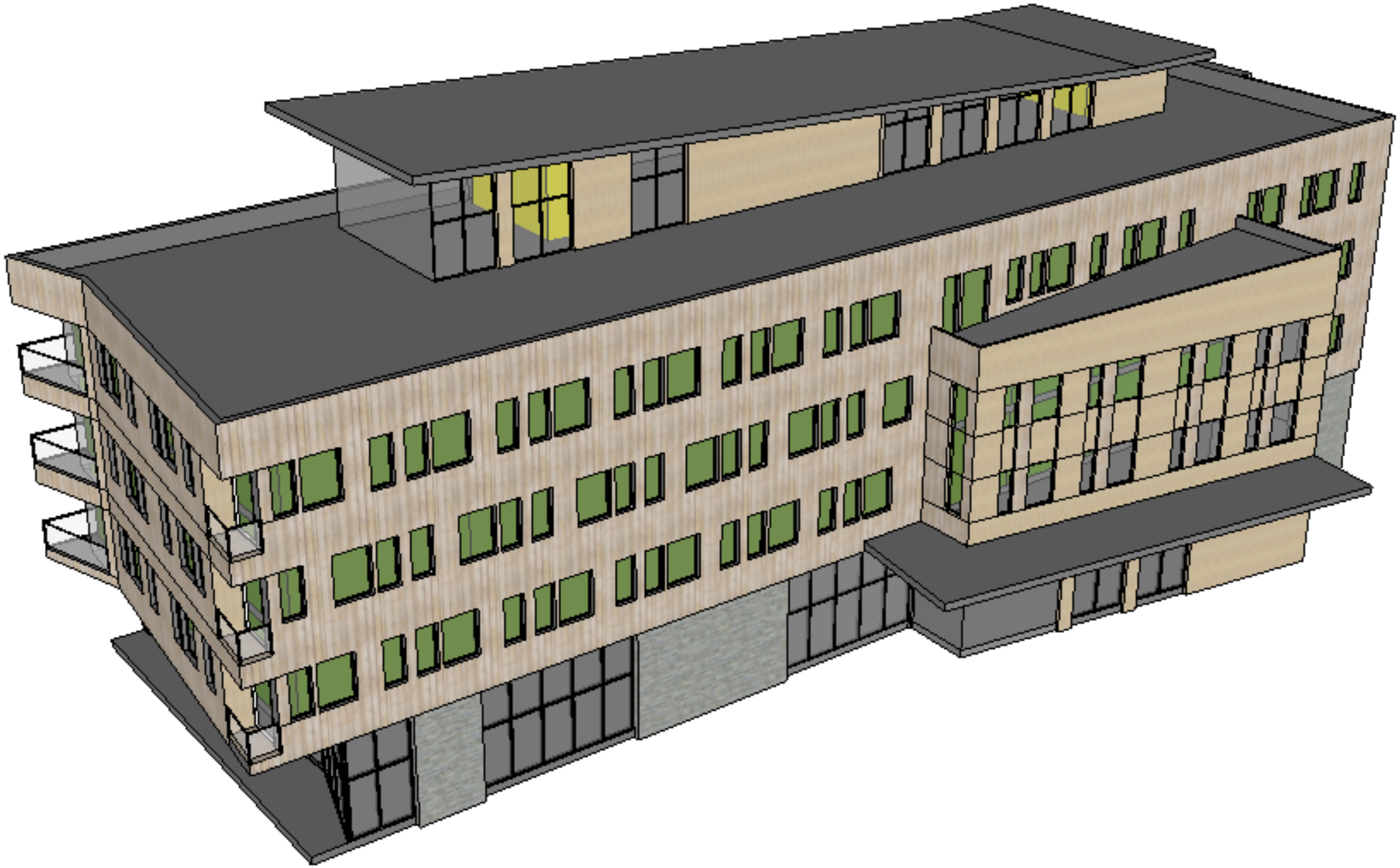


View from South

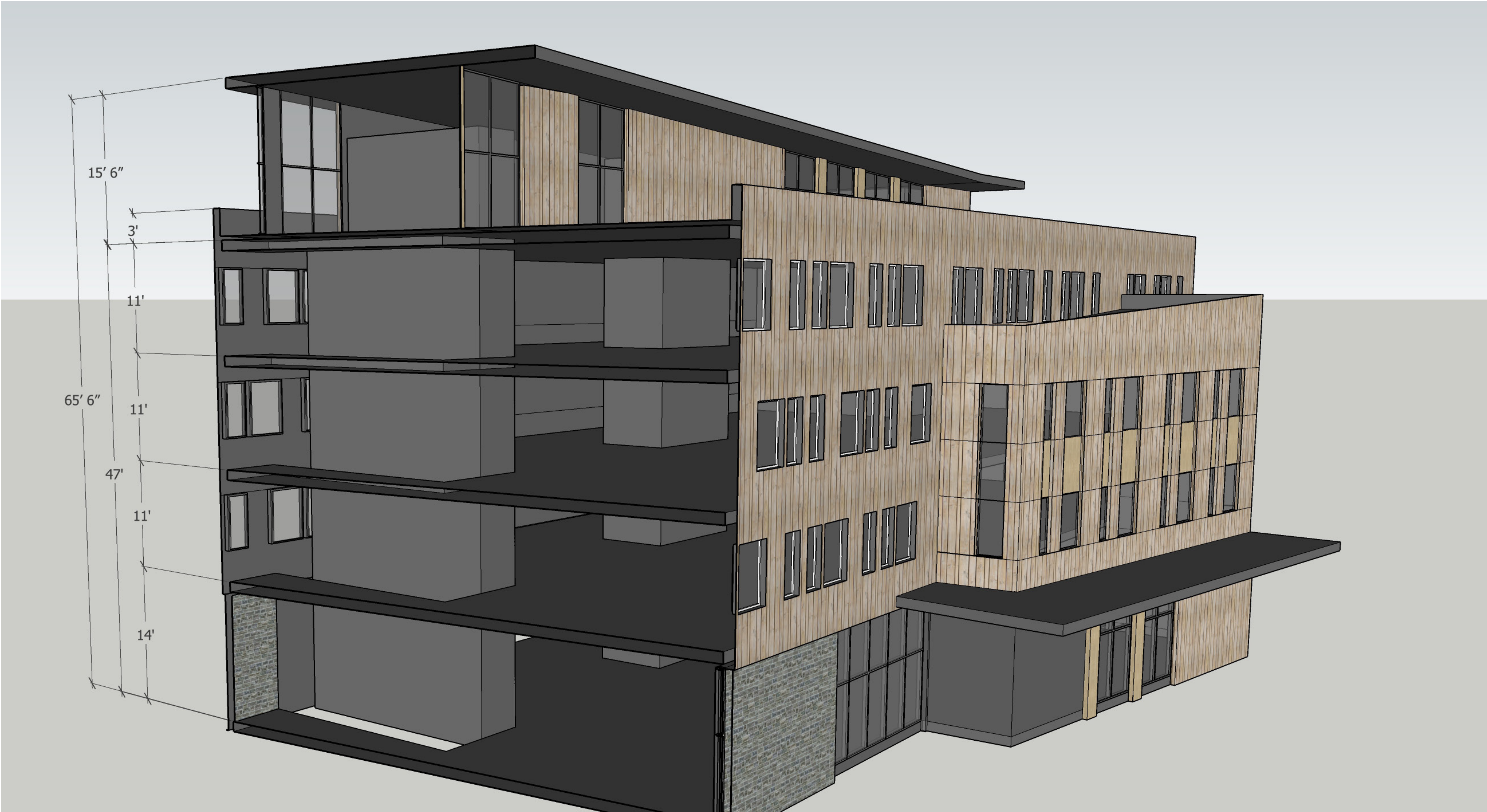


View from Northeast

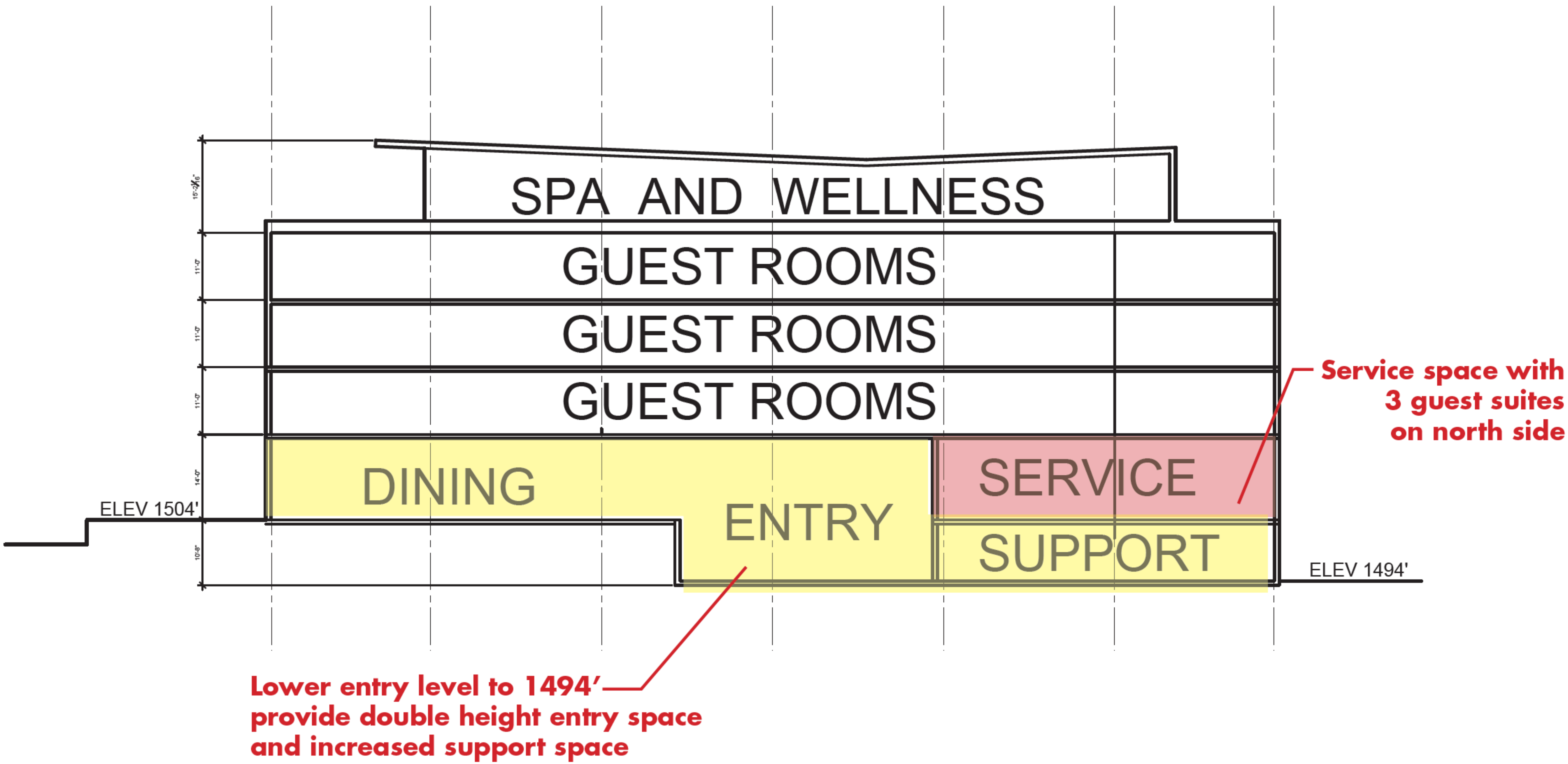
Taproom - Exterior Views - NTS



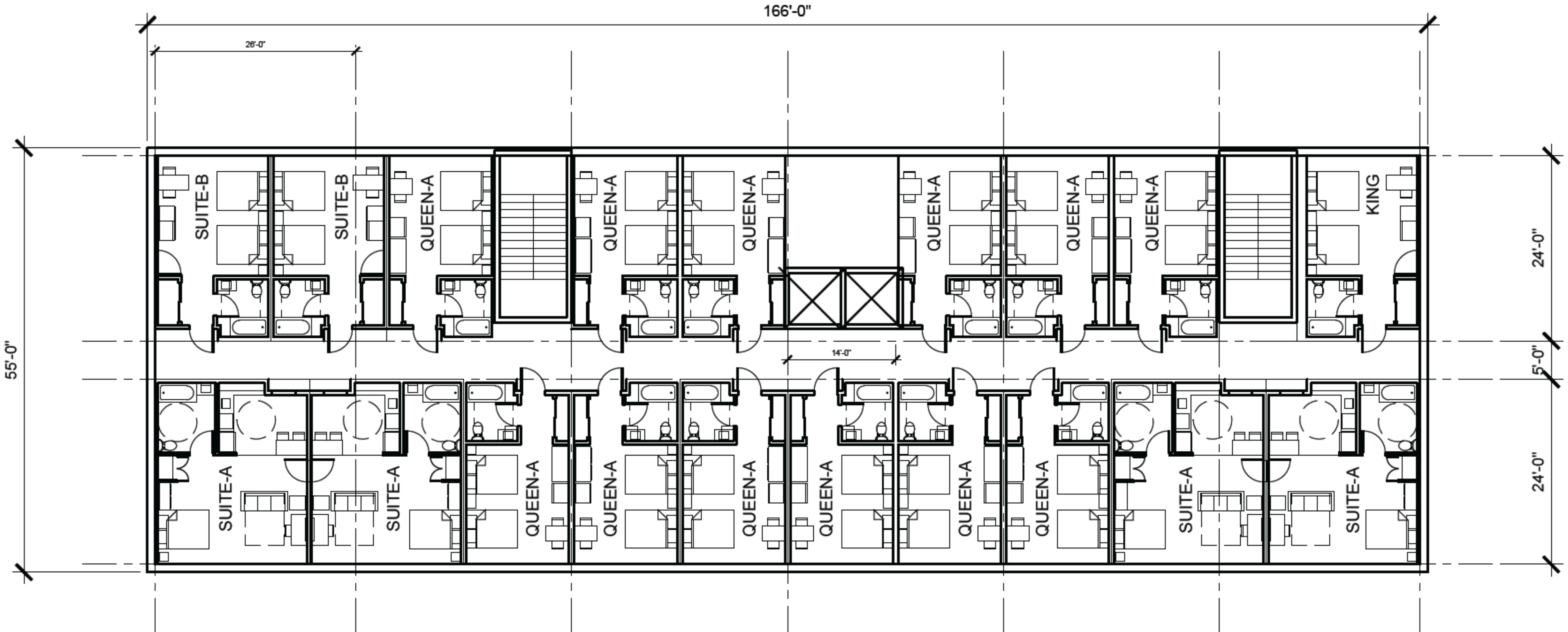
Hotel 60 guest rooms - Exterior Views - NTS



Hotel 60 guest rooms - Preliminary Section - NTS



Hotel 60 guest rooms - Updated Section - NTS



2 TYP. GUEST FLOOR PLAN
SCALE: 1/16" = 1'-0"

avg guest room to increase to +/- 450 sf

340 SQFT	KINGS
300 SQFT	QUEENS
450 SQFT	SUITE-A
325 SQFT	SUITE-B

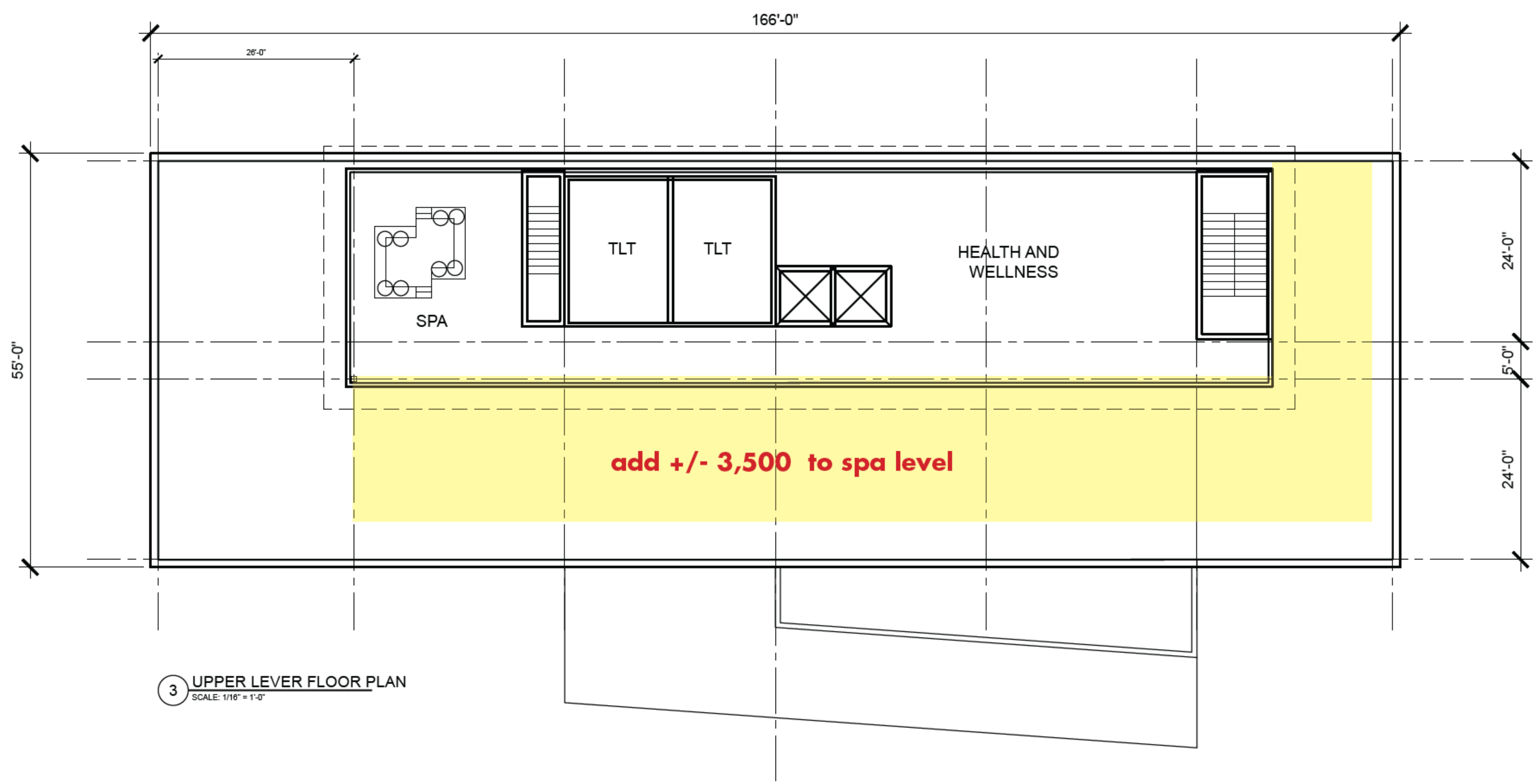
5 STORIES 41,000

5 3600 SQFT +/-
4 9350 SQFT
3 9350 SQFT
2 9350 SQFT
1 9350 SQFT

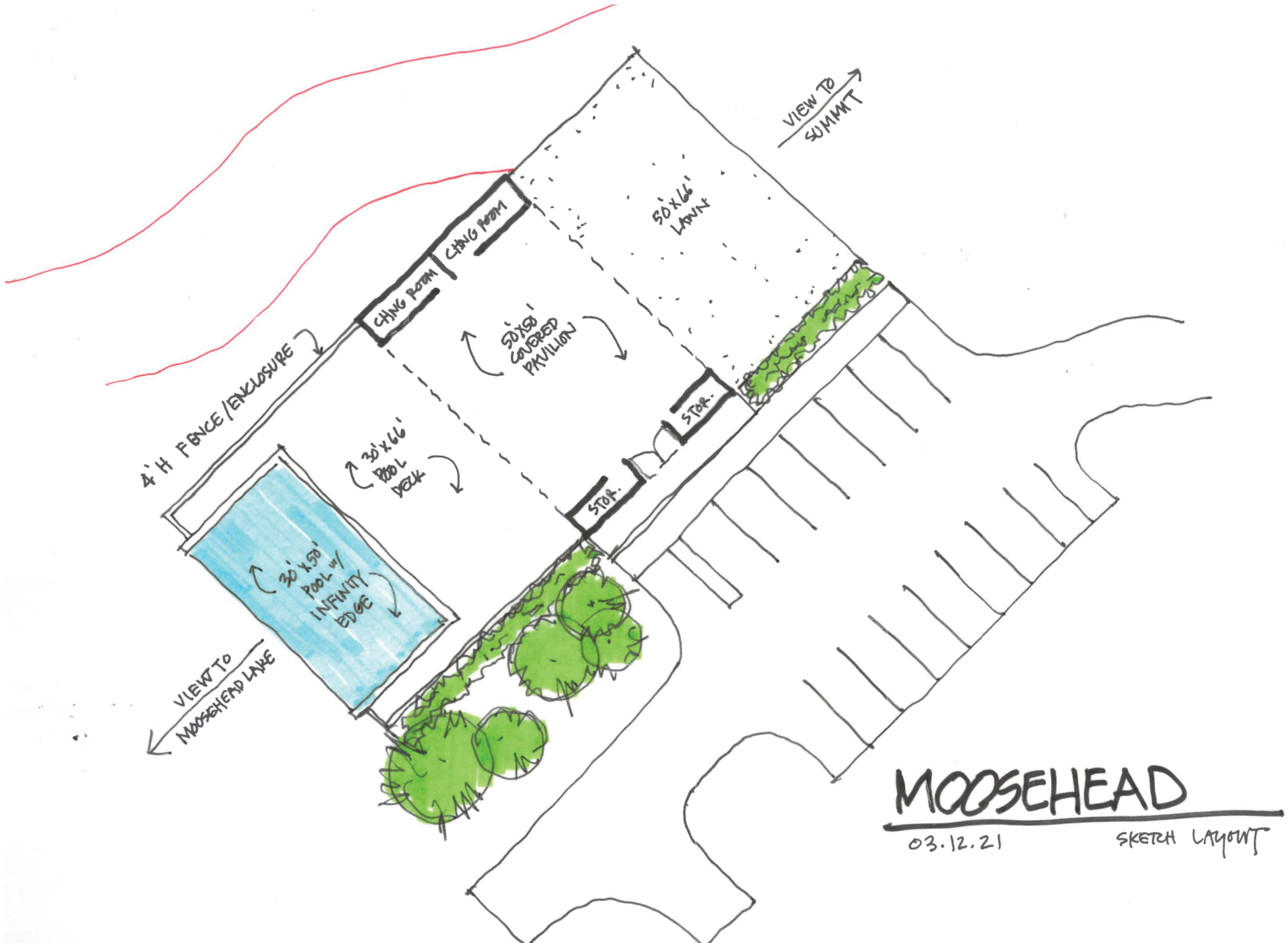
add +/- 3,300 sf to second level
add +/- 3,500 to spa level

719.3 SQFT PER GUEST ROOM

Hotel 60 guest rooms - Typical Floor Plan - NTS



Hotel 60 guest rooms - Upper Floor Plan - NTS



Event Center - Floor Plan - NTS

Siding Types

Siding 1	Wood Cladding (Hemlock or Larch)	Basis of Design – Local 1” x Hemlock
Siding 2	Metal Cladding	Basis of Design – Corten or Blacked Steel
Siding 3	Cementitious panel	Basis of Design – Cembrit Patina Rough
Siding 4	Stone Veneer Masonry	Basis of Design - Assume 4” granite, bond TBD

Breakdown by Building

Please note these approximate take off values are offered only to identify comparative percentages of materials and should be confirmed against current drawings

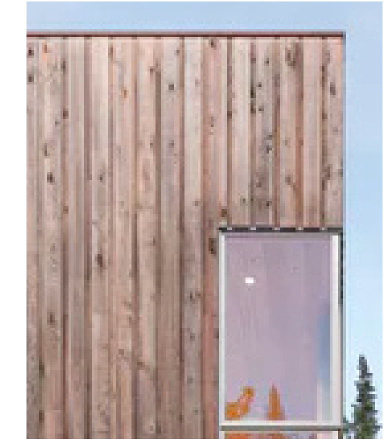
Lodge
7,000 sf - Siding 1
1,200 sf - Siding 3
1,000 sf - Siding 4

Pub (Option 1)
8,000 sf - Siding 1
1,500 sf - Siding 4

Pub (Option 2)
8,000 sf Siding 2
1,500 sf Siding 4

Hotel
16,000 sf Siding 1
3,000 sf Siding 3
1,000 sf Siding 4

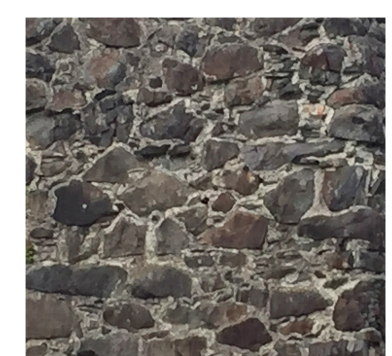
Siding 1 - Wood Cladding

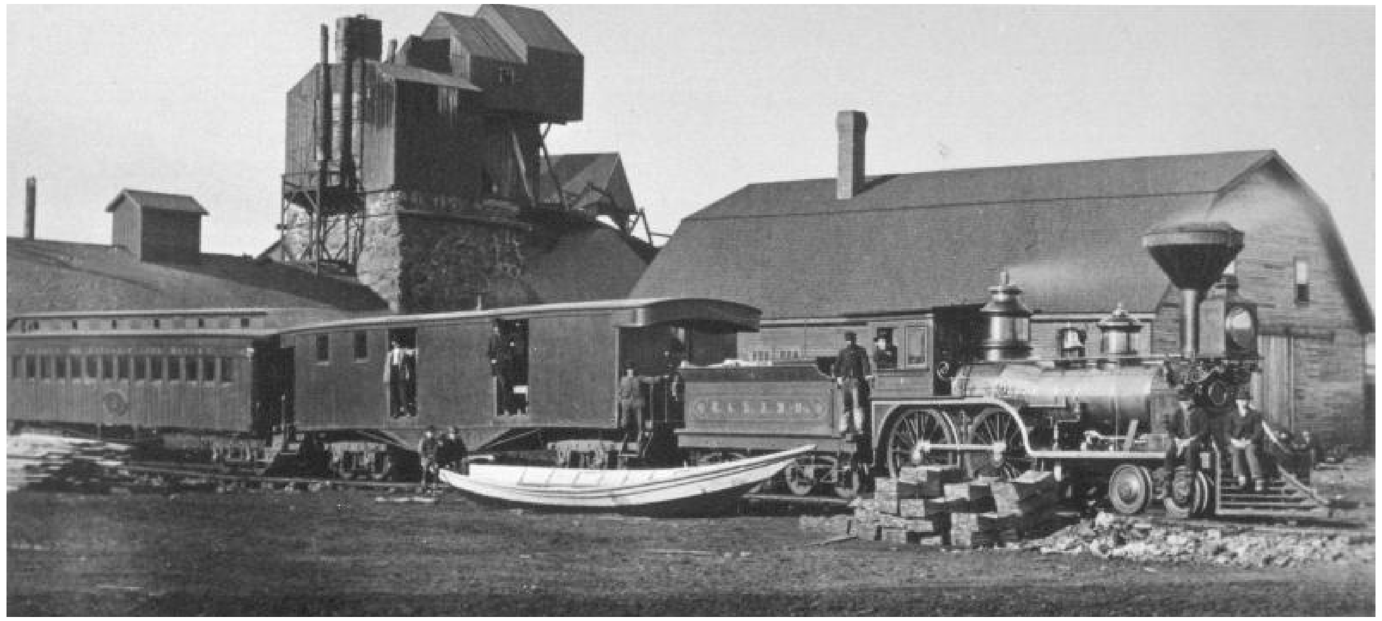



Siding 2 - Metal Cladding


Siding 3 - Cementitious Panel


Siding 4 - Stone Masonry





Katahdin Iron Works

Burke Museum -Seattle, WA
Olson Kundig

Redfox Building - Portland, OR
Lever architects

Powder Mountain - Utah
McKay-Lyons

Material Reference Projects

Exhibit 9 – Site Plans

See the attached plan set at the end of this application showing the following:

- Property boundary lines and dimensions.
- Contour lines.
- Setbacks of existing and proposed development from roads, property lines, waterbodies, and wetlands.
- A north arrow and scale.
- Wooded areas, open fields, rivers, perennial and intermittent streams, ponds and wetlands.
- Existing and proposed structures with dimensions.
- Existing and proposed infrastructure.
- Existing or proposed areas that have been, or will be, stripped, graded, grubbed, filled, or otherwise have exposed soil.
- Existing or proposed erosion, sedimentation and drainage control measures.
- Existing or proposed areas of cleared vegetation.
- Existing or proposed development and uses that are potential sources of water pollution.
- Soils mapping.

Exhibit 10 – Site Photographs

See the attached site photographs.

Big Moose Redevelopment – LUPC Application Exhibit 10

View of Resort from Mt. View Pond 9/23/20

Existing Lower Base Lodge (to remain) 2/3/20

Existing Yurt at Lower Base (to remain)   2/3/20

Existing Maintenance (to remain) 3/16/21

Marina Access to Boat Launch (to remain) 4/5/20

Marina Boat Launch (to be remain) 4/5/20

Upper Lift Terminal (to be replaced) 4/5/20

Upper Lift Terminal (to be replaced) 4/5/20

Lower Lift Terminal & Base Lodge (to be replaced) 4/5/20

Lift towers (to be replaced) 4/5/20

Lower Base Existing Storage to remain 2/3/20

Upper Base Area – Pond (to remain) 4/5/20

Man made Pond Overflow (to be replaced) 4/5/20

Upper Base area pond overflow (to be repaired) 4/5/20

Upper Base Area – Base Lodge & Hotel   4/5/20

Base Lodge from north (to be replaced) 4/5/20

Base Lodge & hotel from west 3/2/20

Hotel from north (to be removed 4/5/20

Hotel from west (to be removed) 4/5/20

Hotel from south east   2/17/2019

Existing wastewater fac. (to be removed) 3/16/21

Existing pumphouse (to be abandoned) 4/5/20

Existing Entry Sign (to be replaced) 3/17/21

Exhibit 11 – Fire, Police, and Ambulance Protection

See the letters from Greenville Fire Department and Piscataquis Sheriff's office stating that they have the capacity to serve the redevelopment project. A capacity letter was sent to CA Dean Hospital to verify that the facility is willing and capable to serve the redevelopment project. Once we receive their response, we will forward it to LUPC. See the attached letter that was sent to CA Dean Hospital.

TOWN of Greenville MAINE

FIRE DEPARTMENT

Matthew St. Laurent
Chief of Department

Bethany Young
Administrative Assistant

March 15, 2021

James W. Sewall Company
Attn: Jodi O'Neal
136 Center Street
PO Box 433
Old Town, ME 04468

Dear Jodi,

The Greenville Fire Department has received your letter regarding the Big Moose Redevelopment in Big Moose Township. As I am sure you are aware the Town of Greenville is contracted with Piscataquis County to provide fire protection services for that area.

The Greenville Fire Department is willing to provide fire protection services for the project.

There are questions that arise when considering "is the fire department able to provide the required services". Two major concerns are the height of the proposed structures and water supply.

Currently the Greenville Fire Department operates a piece of apparatus with a 75' aerial ladder. When considering access and reach anything over four stories will limit our capabilities. Water supply will be a key factor in our ability to protect the proposed structures. A source of water will be required for firefighting; whether it is a pump house, cisterns, storage tanks, etc. We do not have the ability to shuttle the necessary amount of water.

We are also aware that there are future phases of development which will raise the same concerns.

Lastly we would like to have further information on the timing of construction. We may need to work with the county on budgeting and cost sharing for equipment purchases in order to provide you with the level of service that you will require.

The Town of Greenville does not provide Police services nor Frist Responder services to that area. Police protection is handled by the Piscataquis County Sheriff's office and First Responder services are provided by C.A. Dean Hospital.

Phone: 207-695-2421 ~ Fax: 207-695-4611
PO Box 1109 ~ 10 Minden St. Greenville, ME 04441 ~ www.Greenvilleme.com/fire-department/

We would like to schedule a meeting to discuss this project and the concerns that have come to light.

Please feel free to contact us to arrange a time that we can meet.

Best regards,

Michael Roy

Greenville Town Manager

Matthew E. St.Laurent

Greenville Fire Chief

Sewall
The evolution of expertise

March 10, 2021

Sheriff Robert Young
Piscataquis County Sheriff's Office
52 Court Street
Dover-Foxcroft, ME 04426

RE: BIG MOOSE REDEVELOPMENT, BIG MOOSE TWP., ME

Dear Sheriff Young:

I am writing to you regarding a proposed Big Moose Redevelopment in Big Moose Township. This project will require a Land use Planning Commission (LUPC) Development Permit. For this application, it is necessary to establish that emergency police services can and will be provided, and that the provider is capable and willing to provide service for the project.

The proposed development will be located on an 824.3± ac. parcel that is the site of the old Big Squaw Mountain Ski Area. The proposed development will include a hotel, base lodge, brew pub, event center, new chairlift and T-bar. There will be improvements to the access road and parking areas. The site is located approximately 6.5 miles north of Greenville Junction on Big Moose Mountain. See the attached plans and location maps.

For the application, it is necessary to ensure that in the case of an emergency or incident, police and first responder services are available. The proposed facility would offer its users recreational opportunities including skiing, biking, hiking, and snowmobiling. The proposed site would have capacity for approximately 60-70,000 skiers per year and will be utilized more often in the winter months. I am requesting a confirmation that the Piscataquis County Sheriff's Office is willing and able to provide police and first responder services in the event of an incident or emergency at this facility.

We have included a location plan and proposed site plan of the project for your review. Please review the plans and our estimates of use. Should you have any questions concerning the project, do not hesitate to contact me by phone at 207-817-5561 or by email at jodi.oneal@sewall.com. If the Office is able to provide police and first responder services, please sign in the space provided on the back of this letter and return to me. Thank you for your attention to this matter.

Sincerely,
JAMES W. SEWALL COMPANY

Jodi O'Neal

Jodi O'Neal
Project Manager

Enclosures: Location Map, Site Plan

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The Piscataquis County Sheriff's Office is willing and able to provide police and first responder services for the proposed recreational development.

Robert Young, Sheriff
Signature

March 11, 2021
Date

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March 10, 2021

Kevin Springer
Supervisor of Ambulance Services
Northern Light CA Dean Hospital
364 Pritham Ave.
Greenville, ME 04441

RE: BIG MOOSE REDEVELOPMENT, BIG MOOSE TWP., ME

Dear Mr. Springer:

I am writing to you regarding a proposed Big Moose Redevelopment in Big Moose Township. This project will require a Land use Planning Commission (LUPC) Development Permit. For this application, it is necessary to establish that emergency medical services can and will be provided, and that the provider is capable and willing to provide service for the project.

The proposed development will be located on an 824.3± ac. parcel that is the site of the old Big Squaw Mountain Ski Area. The proposed development will include a hotel, base lodge, brew pub, event center, new chairlift and T-bar. There will be improvements to the access road and parking areas. The site is located approximately 6.5 miles north of Greenville Junction on Big Moose Mountain. See the attached plans and location maps.

For the application, it is necessary to ensure that in the case of a medical emergency, ambulance and first responder services are available. The proposed facility would offer its users recreational opportunities including skiing, biking, hiking, and snowmobiling. The proposed site would have capacity for approximately 60-70,000 skiers per year and will be utilized more often in the winter months. I am requesting a confirmation that Northern Light CA Dean Hospital is willing and able to provide ambulance and first responder services in the event of a medical emergency at this facility.

We have included a location plan and proposed site plan of the project for your review. Please review the plans and our estimates of use. Should you have any questions concerning the project, do not hesitate to contact me by phone at 207-817-5561 or by email at jodi.oneal@sewall.com. If the Hospital is able to provide ambulance and first responder services, please sign in the space provided on the back of this letter and return to me. Thank you for your attention to this matter.

Sincerely,
JAMES W. SEWALL COMPANY

Jodi O'Neal

Jodi O'Neal
Project Manager

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Enclosures: Location Map, Site Plan

Northern Light CA Dean Hospital is willing and able to provide ambulance and first responder services for the proposed recreational development. ____ Signature ____________________ Date

Exhibit 12 – Solid Waste Disposal

The proposed development is located in an area that is mostly developed. The existing lodge and hotel will be demolished along with the existing chairlift. Minimal land clearing will be needed for the chairlift and the village area. Land clearing debris will be used on-site. Woody debris with commercial value will be harvested and sold (if any). Stumps and small woody vegetation will be ground or chipped and used to create erosion control mix or used for soil augmentation.

The demolition of the existing structures and the construction of village area will create approximately 7,770 cubic yards of construction debris. Included with this section is the response from the Town of Greenville. No construction waste will be disposed of on site. The contractor will dispose of the debris in roll off dumpsters to be hauled to either the Greenville Transfer Station or to the Pinetree Landfill in Hermon by a private waste removal service.

Once the village area is completed, municipal solid waste (MSW) will be collected weekly by a private waste removal service. An estimated 154 tons/year of domestic waste will be disposed of at the Greenville Transfer Station.

Included with this section are correspondence with the Greenville Transfer Station indicating that the facility is capable and willing to accept MSW generated.

Jodi ONeal

From: Michael Roy <townmanager@greenvilleme.com>
Sent: Wednesday, March 17, 2021 1:48 PM
To: Jodi ONeal
Subject: RE: Waste Facility Capacity

Hi Jodi,

The Greenville Transfer Station has not experienced that amount of demo in a short period of time.

If the demo were to come to our Transfer Station; it may need to be reloaded into one our containers and then taken to Bangor. Greenville charges by the pound for construction demo.

Thank you for clearing up the day/year item.

Mike

Cnɒ▒ Jodi ONeal [mailto:Jodi.ONeal@sewall.com]
{ś■₵ Wednesday, March 17, 2021 8:53 AM
Ҫɑ Michael Roy <townmanager@greenvilleme.com>
{ĵ Lˈ╩ślˈ₵ RE: Waste Facility Capacity

Is that what typically happens in your area, the contractor takes the C&D to the final location? If so, where is the facility?
It is supposed to be 308,575 lb/yr. Sorry for the confusion.
Thanks, Jodi

Cnɒ▒ Michael Roy <townmanager@greenvilleme.com>
{ś■₵ Tuesday, March 16, 2021 3:32 PM
Ҫɑ Jodi ONeal <Jodi.ONeal@sewall.com>
{ĵ Lˈ╩ślˈ₵ RE: Waste Facility Capacity

Good afternoon Jodi,

I have a question and I need some clarity before responding to your request.

On the attached letter where I placed #1 – Why wouldn't the contractor take the demolition debris straight to its final destination?

#2 –Could you please look at the 308,575 lb./day sentence? That is a lot of trash; should it say lb./yr.?

Thanks-

Mike

Cro▓ Jodi ONeal [mailto:Jodi.ONeal@sewall.com]
{ś■Ꞓ Friday, March 12, 2021 1:39 PM
Ꞔoɨ townmanager@greenvilleme.com
{ĵ L'ʲšľ'Ꞓ Waste Facility Capacity

Mr. Roy,
We are working on a redevelopment project on Big Moose Mountain in Big moose Township. As part of our application process we need to contact local utilities and first responders to ensure that they have the capacity and willingness to serve the development. Please see the attached letter and plans. Please let me know if you have any questions.
Thanks,
Jodi

Jodi O'Neal, PE, CPESC
Project Manager
T: +1. 207.817.5561 | **F:** +1. 207.827.3641 | **E:** jodi.oneal@sewall.com
136 Center Street | PO Box 433 | Old Town, Maine 04468 | www.sewall.com

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Exhibit 13 – Electricity and Telephone Service

The electricity will be provided to the site using the existing Central Maine Power Company's overhead lines. See the attached letter that was sent to them to verify they are willing and capable to serve the redevelopment project. Once we receive their response, we will forward it to LUPC. See the utility plan for the location of the existing poles and the proposed new electrical services.

Telephone service will be provided by Consolidated Communications. See the attached letter that was sent to them to verify they are willing and capable to serve the redevelopment project. Once we receive their response, we will forward it to LUPC.

Sewall
The evolution of expertise

March 19, 2021

Central Maine Power
83 Edison Dr.
Augusta, ME 04336

RE: BIG MOOSE REDEVELOPMENT, BIG MOOSE TWP., ME

To Whom it May Concern:

I am writing to you regarding a proposed Big Moose Redevelopment in Big Moose Township. This project will require a Land use Planning Commission (LUPC) Development Permit. For this application, it is necessary to establish that electric service can and will be provided, and that the provider is capable and willing to provide service for the project.

The proposed development will be located on an 824.3± ac. parcel that is the site of the old Big Squaw Mountain Ski Area. The proposed development will include a hotel, base lodge, brew pub, event center, new chairlift and T-bar. There will be improvements to the access road and parking areas. The site is located approximately 6.5 miles north of Greenville Junction on Big Moose Mountain. See the attached plans and location maps.

For the application, it is necessary to establish that this site can be serviced with electric utilities. The estimated power use is not anticipated to be in excess of 50,600 kWh/Day. I am requesting a confirmation that CMP has the capacity to provide electrical utilities to the proposed site. **Note that this is not a request for service, but merely a request for confirmation that CMP has the means to provide said service if need arises.**

We have included a location plan and proposed site plan of the project for your review. Please review the plans and our estimates of use. Should you have any questions concerning the project, do not hesitate to contact me by phone at 207-817-5561 or by email at jodi.oneal@sewall.com. If CMP is willing and able to provide electric service to this proposed facility, please sign in the space provided at the end of this letter and return to me. Thank you for your attention to this matter.

Sincerely,
JAMES W. SEWALL COMPANY

Jodi O'Neal

Jodi O'Neal
Project Manager

Enclosures: Location Map, Site Plan

Central Maine Power is willing and able to provide electric utility services for the proposed development.

____

Signature

____

Date

136 Center Street · PO Box 433 · Old Town, Maine 04468 · +1.207.827.4456 · sewall.com · info@sewall.com

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March 10, 2021

Construction Coordinator
Consolidated Communications
645 Odlin Rd.
Bangor, ME 04401

RE: BIG MOOSE REDEVELOPMENT, BIG MOOSE TWP., ME

To Whom it May Concern:

I am writing to you regarding a proposed Big Moose Redevelopment in Big Moose Township. This project will require a Land use Planning Commission (LUPC) Development Permit. For this application, it is necessary to establish that telephone service can and will be provided, and that the provider is capable and willing to provide service for the project.

The proposed development will be located on an 824.3± ac. parcel that is the site of the old Big Squaw Mountain Ski Area. The proposed development will include a hotel, base lodge, brew pub, event center, new chairlift and T-bar. There will be improvements to the access road and parking areas. The site is located approximately 6.5 miles north of Greenville Junction on Big Moose Mountain. See the attached plans and location maps.

For the application, it is necessary to establish that this site can be serviced with telephone utilities. I am requesting a confirmation that Consolidated Communications has the capacity to provide telephone utilities to the proposed site. **Note that this is not a request for service, but merely a request for confirmation that Consolidated has the means to provide said service if need arises.**

We have included a location plan and proposed site plan of the project for your review. Please review the plans and our estimates of use. Should you have any questions concerning the project, do not hesitate to contact me by phone at 207-817-5561 or by email at jodi.oneal@sewall.com. If Consolidated is willing and able to provide telephone service to this proposed facility, please sign in the space provided at the end of this letter and return to me. Thank you for your attention to this matter.

Sincerely,
JAMES W. SEWALL COMPANY

Jodi O'Neal

Jodi O'Neal
Project Manager

Enclosures: Location Map, Site Plan

Consolidated Communications is willing and able to provide telephone utility services for the proposed recreational development.

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Signature

____

Date

Exhibit 14 – Water Supply

A Hydrogeology study has been conducted to provide evidence of likelihood of adequate supply and quality for a potable water system. Additionally, a study has been performed to understand the impact of withdrawal from Mountain View Pond for snow making purposes at the proposed flow associated with the upgraded system. See the attached report in the Exhibit 14.

<u>General Description</u>

As part of the development a water system will be built. The system will consist of a minimum of two shallow gravel wells, a booster station, four 32,000 gallon cisterns, and the necessary interconnecting pipe. The booster station will be located at a low elevation and near a road, so that it can be easily access by a water transport truck if emergency water transport is every necessary. The cistern will be located on the mountain at an elevation which will provide gravity flow to all buildings. This cistern and the piping system will also be available for fire protection should it ever be needed.

<u>Sizing</u>

To determine the daily volume of water needed to service the Resort at full build-out an analysis of the anticipated units and the number of bedrooms within those units was conducted. A water usage of 90 gallon/day/bedroom was used base on the Maine subsurface disposal rules. For day skiers a usage of 2 gallons/day was used based on historical data. The total daily volume was then calculated and used to determine a cistern size that would contain a one day supply of potable water. This analysis will be revisited when local historical data can be collected. To refill the cistern wells will be drilled such that a yield of 88 gpm can be achieved at build-out. However, for phase I Table A shows that the necessary refill volume will only be 14 gpm.

<u>Table A</u>

Buildings	**Units**	**Bedrooms**	GPD/Bedroom	**GPD**	Comment
Base Buildings	1	4000	2	8000	
Hotel	60	2	90	10800	
Shops	25	50	12	600	
Total				19400	
Well Supply needed				14	GPM

<u>Cistern</u>

To provide a volume equivalent of a day's water usage at build out an estimated 128,000 gallon or 17112 cubic foot underground precast concrete cistern or cisterns will be built. For phase I a 32,000 gallon tank will be built. This cistern will be place at an elevation that will provide gravity flow to buildings at a minimum of 30 psi. The cistern will also act as a fire storage reservoir providing the sprinkler systems with a volume of water.

<u>Supply</u>

To resupply the cistern with water a series of shallow gravel wells will be constructed near the Resort entrance, elevation 1110. These wells will be piped to an atmospheric booster tank, located below the base area, elevation 1450. Well pumps will be located near the source as will be a chlorination system if required. This tank will collect the well water, treat it if necessary, and boost it up to the cistern, elevation 1821, through the distribution network.

Distribution Network

To distribute the water to individual buildings an interconnected network will be established. Piping in this network will primarily be 6" pipe to allow adequate water flow during a fire event. Each building will contain a water meter to monitor the buildings for usage and potential leaks. A wireless network will be established to monitor these meters and control the pumps to supply water.

System Maintenance

The water supply system will be maintained by the Special Purpose Entity (SPE) created to manage the commercial activities of the resort. Annual funding will be provided through this entity to ensure appropriate state required licensing, maintain the physical assets and provide all materials and manpower required to keep the system operational as required.

Existing Water Supply Well

There is an existing well that was used historically for supply for the hotel and base lodge. The well is located between the two structures. Due to its proximity to the proposed new base village, this existing well will be abandoned. The well will be tremie grouted and abandoned in a manner to meet DEP and state standards for well abandonment.

100 International Drive, Suite 152, Portsmouth, NH 03801
Tel: 603.431.3937

March 19, 2021

Mr. Matthew Dieterich
Executive Vice President
Treadwell Franklin Infrastructure
40 Forest Falls Drive, Suite 2
Yarmouth, Maine 04096

Re: **Preliminary Water Resource Availability and Groundwater Supply Development Feasibility Assessment - Moosehead Mountain Resort, Big Moose Township, Maine**

Dear Mr. Dieterich:

As per your request, Weston & Sampson has prepared on behalf of Big Lake Development (BLD) this summary of our preliminary assessment of the groundwater resources and viability of developing a potable groundwater supply for the proposed Moosehead Lake Resort (the Project) in Big Moose Township, Maine (the Site). The purpose of the completed work was to use currently available information to assess the potential of the of the local water resources to support the anticipated snow-making and drinking water-supply needs of the proposed Project. To this end Weston & Sampson reviewed available soil, geologic, and water-resource information, including available well information, for the area surrounding the Site to characterize the yield/capacity potential of the local water resources (surface water and groundwater) relative the anticipated water demands of the Project. In addition, to reviewing available information, the Weston & Sampson project hydrogeologist conducted a preliminary reconnoiter of the Site and surrounding area on March 9, 2021.

Background

The majority of the approximately 880-acre Site is located on the western side of Route 6, and south of the approximately 550-acre Mountain View (aka Fitzgerald) Pond. The Site is currently occupied by the former Big Squaw Mountain (aka Big Moose Mountain) ski area, which BLD is considering updating and expanding as part of the proposed Moosehead Mountain Resort project. As part of its proposed efforts, BLD is currently planning to develop approximately 400 to 500 residential units, a new base lodge, a 60-room hotel, and a marina on the western shore of nearby Moosehead Lake (Figure 1). Assuming year-round use of the proposed development, BLD has determined that initially a drinking water supply of 15 gallons per minute (gpm) or 21,600 gallons per day (gpd) will be needed. Snow making for the Project will be consistent with past practices by way of pumping as needed from Mountain View Pond (the Pond), via an easement, between Thanksgiving and the end of February for a total volume of about 50 million gallons (or a daily average of about 480,000 gpd over the ski season, which is equivalent to an annual daily average of about 140,000 gpd). Since the entirety of the Site is within the drainage basin for the Pond (about 6 square miles or about 3,840 acres in area), all of the meltwater runoff from the ski area will be naturally routed to the pond, minimizing any impact on its natural recharge characteristics.

The land uses in the areas surrounding the proposed Project property mainly consist of a mixture of: undeveloped; resource extraction (sand and gravel pits, and limited timber harvesting); recreational (downhill and cross-country skiing); and rural/seasonal residential properties. The undeveloped areas are primarily wooded, with remnant landscapes reflective in part of past lumbering activities. Based on available information and observations made during the recent reconnoiter of the Site area, the developed properties located closest to the property appear to generally be served by individual, on-site wells. As such, the local groundwater resources are most likely the primary source of supply for local drinking water.

Local Water Resources and Project Supply Considerations

The Project Site and immediately surrounding area occupy a topographic high that slopes downward to the north and east where small stream valleys, wetlands, and the southern shorelands of the Pond and the western shoreland of Moosehead Lake occur (Figure 1). These waterbodies are replenished in part by precipitation and snowmelt runoff originating from the slopes of Big Moose Mountain. Based on the reported annual average precipitation amount for the Greenville area, of about 45 inches per year, and an assumed typical percentage of about 50 percent of this amount being available as a combination of surface runoff and infiltration (the remaining 50 percent being lost to evaporation and evapotranspiration), the annual amount of recharge contributed by the 880-acre Site property to the Pond drainage basin is about 1,400,000 gpd. This amount is well over 10 times that anticipated for the annual snowmaking and drinking water needs (at full buildout) of the Project. It should be noted that the Site comprises about 23 percent of the overall Pond drainage basin (about 3,840 acres), and so therefore the overall amount of water available from the corresponding watershed and typical Pond storage volume (about 1,900 million gallons based on the hydrographic survey available from the Maine Department of Inland Fisheries and Game) is well in excess of the Project demands. In addition, these projections do not consider the return of water to the Pond in the form of snowmelt, which will significantly reduce the overall amount of impact.

The existing topography and drainage pattens generally reflect past geologic processes associated with bedrock formation and uplift, and subsequent glacial erosional and depositional activity which occurred in the area about 12,000 years ago. Based on our familiarity with local geologic conditions and preliminary observations made during the recent site reconnoiter, the Project property is generally underlain by a relative thin (less than 15 feet thick) and varying veneer of overburden (soil, naturally deposited unconsolidated clay through boulder size material, and weathered bedrock), underlain by fractured and faulted igneous and meta-sedimentary bedrock (sandstone and slate) of Devonian age (the Seboomook Formation). The overburden occurring in the Site area primarily consists of a dense to loose mixture of clay through cobble size material that was deposited by melting glacial ice (“till”). Localized occurrences of glacial meltwater deposited sand and gravel (“esker”) occupy the eastern boundary of the Site, though currently available information and observations made during the recent site reconnoiter suggests the vertical and lateral extent of these materials is limited. Based on the local topography and local stream occurrences, groundwater is expected to generally occur within the upper fifteen feet of the overburden and/or grade (whichever is initially encountered). Observations made in connection with the five (5) test pits advanced at several locations in the northern and eastern parts of the Site, during our recent reconnoiter activities confirm that locally, groundwater occurs within five to fifteen feet of grade.

The unconsolidated depots observed during the reconnoiter test-pit activities suggest that the development of a groundwater supply from the overburden is potentially limited. Specifically, highly permeable sand and gravel deposits only appear to occur in the vicinity of the eastern edge of the Site, in the area corresponding to the reported occurrence of an esker. These deposits may provide localized recharge areas for the underlying bedrock formations at the Site. Our preliminary observations regarding this material suggest that they may be of limited yield potential and should be evaluated via test borings as part of future groundwater supply exploration efforts at the Site, if warranted.

Based on the currently available information and recently made observations in the Project area, the bedrock formations underlying the Site and surrounding area exhibit numerous fractures (joints and faults) that are oriented primarily to the north and northeast. The observed fracture surfaces tend to slope vertically to sub-vertically and extend laterally for tens to hundreds of feet. Given these features along with the anticipated relatively shallow depth of groundwater in the Site area, the fractured bedrock formations underlying the area are anticipated to have the greatest potential for serving as a drinking water supply source for the Project. Because of the hydrogeologic conditions typically associated with these formations, the corresponding yield potential for any individual location will be contingent on the number, orientation, and extent of fractures penetrated by future wells.

Information available from the Maine Geological Survey (MGS) for local wells in the vicinity of the Site, indicate that the local fractured bedrock formation in the Site area is typically capable of supporting groundwater yields consistent with the demands of the Project (Figure 1). A summary of the available information regarding nearby wells is as follows:

Well ID(1)	Installation Date	Depth to Bedrock (ft bg)(2)	Well Depth (ft bg)	Well Yield (gpm)(3)
22280	1/1/1974	L.T. 12.00(4)	160.00	10.00
22281	10/1/1968	L.T. 11.00	225.00	N.R.(5)
22282	1/1/1967	L.T. 41.00	128.00	5.00
22289	1/1/1972	L.T. 10.00	160.00	6.00
22299	1/1/1970	L.T. 10.00	125.00	2.00
112153	6/3/2012	4.00	400.00	1.00
125685	7/8/2017	12.00	320.00	12.00
127128	7/7/2019	3.00	420.00	10.00
127129	7/5/2019	6.00	400.00	15.00

Notes: (1) See Figure 1. ID number and information provided by the Maine Geological Survey.
(2) Feet below grade.
(3) Gallons per minute.
(4) Less than value indicated.
(5) No value is reported.

Given the range of reported yields for the nearby wells (1 to 15 gpm), the anticipated initial phase demand for the Project should be able to be met by one or two appropriately located and constructed wells (see Figure 1 for several possible locations). However, in the event that significant fracture zones are penetrated by a well, it is possible that fewer wells may need to be installed. However, determining the occurrence of such conditions should be based on the completion of a thorough exploration and testing program, followed by necessary permitting from the Maine Division of Environmental Health, Drinking Water Program.

Summary

In closing, Weston & Sampson has utilized currently available information to assess the potential for meeting proposed snow making and drinking water supplies from the surface-water and groundwater resources of the Moose Mountain Resort Site. The results of this assessment indicate that the local water resources can support the proposed demands without adversely impacting the on-site and surrounding off-site water resources. In addition, the local groundwater resources can support the prosed drinking water demands, but further exploration and testing (primarily focused on the bedrock, though overburden may be locally possible) will be necessary to confirm the number and locations of such wells.

If you have any questions, or need additional information, please feel free to contact me at (603) 431-3937 or (201) 741-1960.

Sincerely,
WESTON & SAMPSON

Frank Getchell

Frank Getchell, Maine PG GE474
Senior Technical Lead – Hydrogeology
getchell.frank@wseinc.com

Encl.

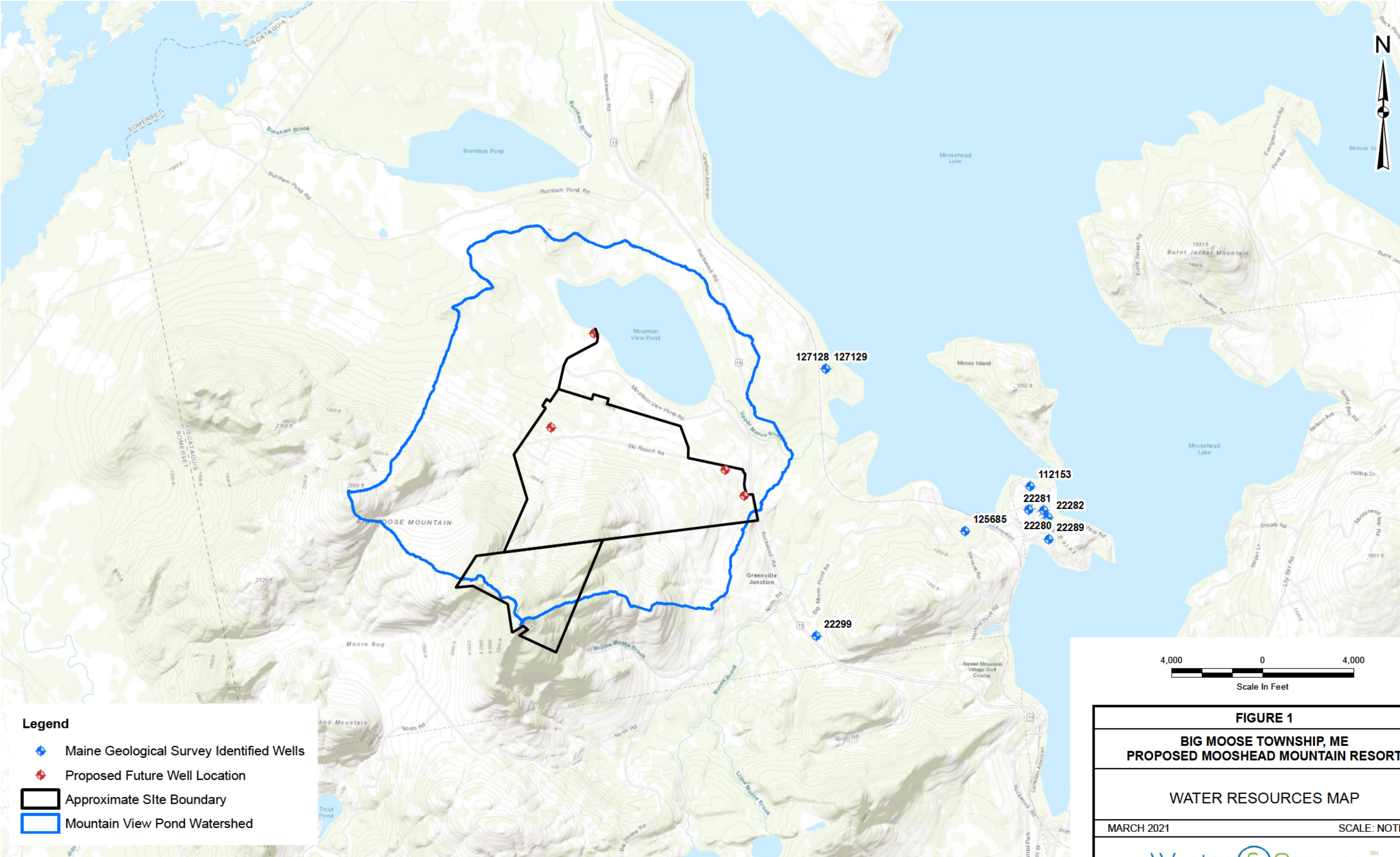

FIGURE 1

BIG MOOSE TOWNSHIP, ME
PROPOSED MOOSHEAD MOUNTAIN RESORT

WATER RESOURCES MAP

MARCH 2021 | SCALE: NOTED

Weston & Sampson

Exhibit 15 – Wastewater Disposal

The wastewater from the development will be disposed of at the Greenville Sanitary District. Approximately 6 miles of new sanitary sewer lines will be installed as part of the utility improvements for the project. The new lines will start at the village area and follow the Ski Resort Road to Route 6/15 and continue into Greenville. The new sewer line will connect into the Greenville system. The sewer upgrades will include both gravity and force mains to get the wastewater to Greenville. See the attached letter that was sent to them to verify they are willing and capable to serve the redevelopment project. Once we receive their response, we will forward it to LUPC. See the utility plans at the end of the application for the proposed sewer location, tie in location to the Greenville system and typical details.

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March 17, 2021

Mr. Dan Daigle
Moosehead Sanitary District
101 Spruce Street
Greenville, ME 04441

RE: BIG MOOSE REDEVELOPMENT, BIG MOOSE TWP., ME

Dear Mr. Daigle:

I am writing to you regarding a proposed Big Moose Redevelopment in Big Moose Township. This project will require a Land use Planning Commission (LUPC) Development Permit. For this application, it is necessary to establish that Moosehead Sanitary District is capable and willing to provide wastewater disposal service for the project.

The proposed development will be located on an 824.3± ac. parcel that is the site of the old Big Squaw Mountain Ski Area. The proposed development will include a hotel, base lodge, brew pub, event center, new chairlift and T-bar. There will be improvements to the access road and parking areas. The site is located approximately 6.5 miles north of Greenville Junction on Big Moose Mountain. See the attached plans and location maps.

For the application, it is necessary to establish that this site will have adequate wastewater disposal capabilities. The estimated average daily wastewater generation is approximately 22,950 gallons/day. This estimate is based on the proposed uses for the redevelopment project. I am requesting a confirmation that the Moosehead Sanitary District has the capacity to provide wastewater service to the proposed site. **Note that this is not a request for service, but merely a request for confirmation that the Moosehead Sanitary District has the means to provide said service if need arises.**

We have included a location plan and proposed site plan of the project for your review. Please review the plans and our estimates of generation. Should you have any questions concerning the project, do not hesitate to contact me by phone at 207-817-5561 or by email at jodi.oneal@sewall.com. If the District is able to provide wastewater services, please sign in the space provided on the back of this letter and return to me. Thank you for your attention to this matter.

Sincerely,
JAMES W. SEWALL COMPANY

Jodi O'Neal

Jodi O'Neal
Project Manager

Enclosures: Location Map, Site Plan

The Moosehead Sanitary District is willing and able to provide wastewater services for the proposed development.

____

Signature

____

Date

Exhibit 16 – Vehicle Access, Circulation, and Parking

Given the proposed uses the heaviest traffic volumes are expected to be generated in the winter months when the ski area is operating, as opposed to during the summer. The project will generate more than 100 new one-way trips in peak hours in the winter months. Hence, a traffic movement permit (TMP) is required from the Maine Department of Transportation (MaineDOT). That application is expected to be filed with MaineDOT the week of March 22, 2021. Trip generation analysis from that application is detailed as follows:

The number of trips to be generated by the expanded ski area was estimated utilizing the most recent Institute of Transportation Engineers (ITE) "Trip Generation" 10th edition report. Additionally, since trip generation data for land use code (LUC) 466 - Snow Ski Area was limited, Sewall performed trip generation counts at two other similarly sized Maine ski areas. These counts were conducted at Mt. Abram and Saddleback. The counts were conducted on Friday afternoon/evenings and Saturday mornings. The count periods were selected in consultation with MaineDOT. The count records are included in this application and are summarized below:

Ski Area	Count Period	Count Date	Peak Hour	Peak Hour Trips
Mt. Abram	Saturday AM	2/6/2021	9:15 – 10:15	157; 121 in, 36 out
Mt. Abram	Friday PM	2/26/21	4:00 – 5:00	61; 19 in, 42 out
Saddleback	Friday PM	3/5/21	3:30 – 4:30	118; 26 in, 92 out
Saddleback	Saturday AM	3/6/21	8:00 – 9:00	157; 139 in, 18 out

According to the ITE manual, the best indicator of trip generation for ski areas is the number of lifts. The ITE data was developed from a ski resort trip generation study in Montana. The study was based upon counts conducted over multiple days at a single ski resort. It found a peak hour rate of 50.25 trips per lift for the AM peak hour and 49.92 for the PM peak hour. Mt. Abram had two operating lifts within the area counted resulting in an AM rate of 78.50 and a PM rate of 30.50. Saddleback has 3 lifts resulting in a trip rate of 52.33 AM trips per lift and 39.33 PM. The average of all three ski areas, which will be utilized as the basis of this study, is:

Saturday AM peak hour – 60.36 trips per lift

Friday PM peak hour - 39.92 trips per lift

In terms of entering and exiting distributions, the Montana study recorded an average of 94 % entering the AM peak hour with 94 % exiting during the PM peak hour. These were averaged with the Maine data to determine:

AM Peak Hour – 87 % entering, 13 % exiting
PM Peak Hour – 20 % entering, 80 % exiting

The redeveloped ski area has two existing lifts, which have been operating within the past ten years. The trips generated by those lifts are hence grandfathered in terms of state traffic permitting. The redevelopment effort will increase the number of lifts to four. This increase in lifts is expected to generate 121 new AM peak hour trips and 80 new PM peak hour trips.

There is no data published in the most recent ITE 10th edition specific to a brew pub. However, this LUC code will be added to the 11th ITE edition and Sewall was able to obtain the advance brew pub data, which was utilized for this analysis.

The ITE land use code 310 - Hotel was utilized on the basis of 60 rooms. LUC 444 was utilized for the 45 movie theater seats. There will be an outdoor pavilion and pool utilized as an event venue. This outdoor event space is expected to be primarily utilized in the summer months for events such as weddings, often associated with the hotel. This outdoor venue is not expected to generate any significant traffic in the winter months when the ski area is operating, which is when overall trip generation for the development will be highest. Based upon this, the overall trip generation results for the Friday PM and Saturday AM analysis periods are summarized below:

TRIP GENERATION (One-Way Trip Ends)

Time Period	Hotel	Brew Pub	Cinema	Ski Area	Total
Weekday	502	410	80	---	---
PM Peak Hour – Adjacent Street		36	77	4	80
197					
Entering	18	45	2	16	81
Exiting	18	32	2	64	116
PM Peak Hour – Generator	37	97	16	80	---
Entering	21	53	9	16	---
Exiting	16	44	7	64	---
Saturday AM Peak Hour	43	8	---	121	172
Entering	24	5	---	105	134
Exiting	19	3	---	16	38

As shown in the preceding table, based upon the ITE data, the overall ski area redevelopment effort is expected to generate 197 one-way trips during the Friday PM peak hour and 172 during the Saturday morning peak hour. Since peak hour trip generation exceeds 100, as previously noted, a TMP is required from MaineDOT.

Not all trips generated by the redevelopment effort will be new trips to Route 6/15. Some of the brew pub trips would be expected to be pass-by trips. However, to be conservative, it was assumed all trips were primary (or new) trips since only one component of the redevelopment would have any measurable pass-by trips.

Lastly, one would expect some of the trips to be internal capture trips. These are trips that visit more than one component of the overall site, such as the ski area and then the brew pub or the ski area and hotel. The NCHRP 8-51 capture tool resulted in an internal overall capture rate of 8 %, reducing PM peak hour trips to 181 with 73 entering and 108 exiting.

No internal capture trips were estimated by the NCHRP capture tool for the Saturday AM peak hour, as one might expect.

Construction Traffic
Throughout the course of a construction project the volume of manpower and material that is running through the project will vary depending on the stage of the project. Typically, the site and foundation crews will have a larger presence initially and reduce their overall presence as foundations finish and the actual structure of the building begins. As the structure of the building progresses with construction and more areas become available for the subsequent trades the volume of workers on site will increase as well. As various areas/trades approach completion of their scopes of work typically the volume of workers will subsequently decrease. Essentially it is a large bell curve of manpower throughout the project.

A project this size may see an average of somewhere between 50-70 workers on site on any given day with that volume being smaller initially and near the end of the project, but most likely larger at the height of the project.

With regards to deliveries, it should be anticipated that the delivery volume would most likely be heavier at the early stages of the project between the site and foundation activities, and the initial material needed to supply the crews with what they need to get started. At this point of the project a delivery volume of 4-5 deliveries a week and tapering down from there. Note there may be some days that have multiple deliveries such as concrete placements requiring multiple trucks etc.

Entering and Exiting of Vehicles
• One existing access point (Ski Resort Road) to Route 6/15 to serve the redeveloped commercial ski area.

• Ski Resort Road is a primary access road so no backing is required onto Route 6/15.

• Ski Resort Road intersects Route 6/15 at an approximately 90-degree angle.

• Existing sight distance from Ski Resort Road exceeds 800’ in both directions, far surpassing MaineDOT requirements.
• Redevelopment is using existing access road. Given size of parcel and location of developed area a shared drive is not possible.

• Existing access road provides great sight lines and a review of MaineDOT accident data shows that no accidents occurred at the intersection of Ski Resort Road in the most recent 3-year period (2017- 2019). Additionally, there are no high crash locations within an extended study area of over 10 miles.

Safe movement of vehicles within the development
• the sizes and locations of turnouts and turnarounds, if applicable; N/A

• Ski Resort Road is a paved two-lane roadway providing for emergency site access and vehicles. This roadway is maintained by Piscataquis County. It was currently planned for repaving in the summer of 2021. The development team has been in contact with the county and the repaving will be delayed for a couple of years such that construction traffic will not damage the new surface.

- explanation of design and safety accommodations if roadways will be used for forest management or other purposes involving large vehicles; N/A

Traffic Impact Study - A Traffic Impact Study will be conducted as part of the MaineDOT TMP process.

Exhibit 17 – Exterior Lighting

All lighting for the Project will comply with the applicable standards of Section 10.25.F. The intent of the lighting plan is to create a living/working/recreating environment that is well lit, but not over-lit, in keeping with a Dark Skies ethic.

- All exterior lights will be full cut-off, as defined in 10.25.F.2.a.
- In general, lighting will utilize LED fixtures, sized for the individual situation once the final locations and requirements have been identified in the development of the architectural plans.
- Lighting will be designed primarily for safety, emphasizing walkways, entranceways, and outdoor use areas.
- Outdoor use areas at the base village will be concentrated on the south (uphill) side of the base lodge (in an area designated as the Beachfront). This arrangement will utilize the base lodge as a shield, preventing light from spilling down the hill toward Moosehead Lake.
- Individual buildings will not be washed in up-lights.
- Non-essential lighting will be on a timer that will shut them off after certain hours (e.g., 10 PM).
- The ski runs and associated infrastructure will not be lit.

Exhibit 18 – Noise

This project is expected to produce only minimal noise impact. The applicant is proposing to redevelop the Big Squaw Mountain Ski resort. The site is currently open for business and the noise impacts are minimal. The proposed development will be the same use but on a larger scale. There will be a larger hotel, lodge and brew pub. The additional development will create additional noise but it will not create a negative impact on the environment and it will be within the acceptable noise levels. During construction, however, there may be intermittent noise associated with construction of the structures, roads, parking lots, stormwater features and utilities.

All construction activities will be conducted during hours and within the permissible sound pressures allowed by LUPC.

Exhibit 19 – Harmonious Fit and Natural Character

The project is anticipated to have minimal impact as majority of the new development replaces existing structures, clustered in the same vicinity of the current development. Additionally, the building designs include carefully selected exterior materials that will generally blend in with the surrounding environment.

See the attached visual assessment prepared specifically to address impacts from applicable cultural resources.

EXHIBIT 19. HARMONIOUS FIT AND NATURAL CHARACTER
MOOSEHEAD LAKE RESORT

The LUPC Development Permit Application, Exhibit 19. Harmonious Fit and Natural Character, requires the following for all Development Permit Applications:

Describe the visibility of the proposed development from roadways, scenic byways, major waterbodies, coastal wetlands, permanent trails, or public property within three miles. If the development will not be visible, explain why not.

Describe how the proposed development will affect the character of the area, and describe the plan to fit the development into the existing surroundings. Approaches for fitting development into the surroundings may involve siting, design, size, coloring and construction materials, vegetation and landscaping, driveway and roadway locations, lot sizes, or other factors that lessen the impact of the project on its surroundings.

The following information, plus the accompanying photographs, viewshed map, and computer-generated models, is provided to address the requirements for Exhibit 19.

A. OVERVIEW

The proposed Big Moose Resort (Project) will consist of the following: construction of a hotel, base lodge, and taphouse/brew pub, and event center pavilion in the vicinity of the existing hotel on the mountain. Construction of an outdoor center with parking on the north side of the access road adjacent to the existing pond at the base of the mountain. Construction of a new maintenance garage near the same location as the existing garage and repair of the existing maintenance garage in the same location. Construction of two T-bar operator shacks, two upper lift operator shacks, two potable water pumphouses, a snowmaking pumphouse/ compressor building on the mountain, and a snowmaking pumphouse at Mountain View Pond. Additional work will include a new 18'-wide access road; resurfacing existing access roads and parking lots; installation of a new T-bar, chair lift, and zip line; preserving stream buffers in certain areas; establishing a variety of passive recreation parks throughout the property; expanding and repurposing an existing treatment lagoon to create a year-round water feature; and a sanitary sewer to connect to the Moosehead Sanitary District facility.

See Exhibit 2 Project Description; Exhibit 8 Structures, Features, and Uses; Exhibit 9 Site Plans; and Exhibit 10 Site Photographs for additional information and details about the project development proposal.

B. SCENIC RESOURCES: IDENTIFICATION AND VISUAL EFFECT

While Chapter 10 (10.25.E.1. Scenic Character) does not define 'scenic resources' per se, it does call out the concern for potential visual effects to *designated scenic byways, major water bodies, coastal wetlands, permanent trails, or public property within three miles.* The following inventory of scenic resources is a composite of scenic resources that have been identified in the Maine DEP Chapter 315 Section 10[1] and the Maine Atlas and Gazetteer.

NATIONAL PARKS
There are no National Parks within three miles.

STATE PARKS
There are no State Parks within 3 miles. The nearest ones are Lily Bay State Park on the eastern shore of Moosehead Lake, approximately 9 miles northeast of the Project, and Mount Kineo State Park at the northern end of Moosehead Lake in Rockwood, approximately 13 miles from the Project. There will be no views of the Project from Lily Bay State Park. From the top of Mount Kineo it may be theoretically possible to see the Project, but with the distance involved it will be very difficult to detect individual buildings.

NATIONAL NATURAL LANDMARKS
There are no National Natural Landmarks (NNL) within 3 miles of Big Moose Mountain. The nearest NNL is Gulf Hagas, 17 miles to the east.

PROPERTIES LISTED ON THE NATIONAL REGISTER OF HISTORIC PLACES
There are no properties on the National Register of Historic Places within 3 miles of Big Moose Mountain. The closest properties on the Register include:

- **Canadian Pacific Railway Depot** in Greenville Junction, located approximately 5 miles from the Project. There will be no views of the Project from the Depot.

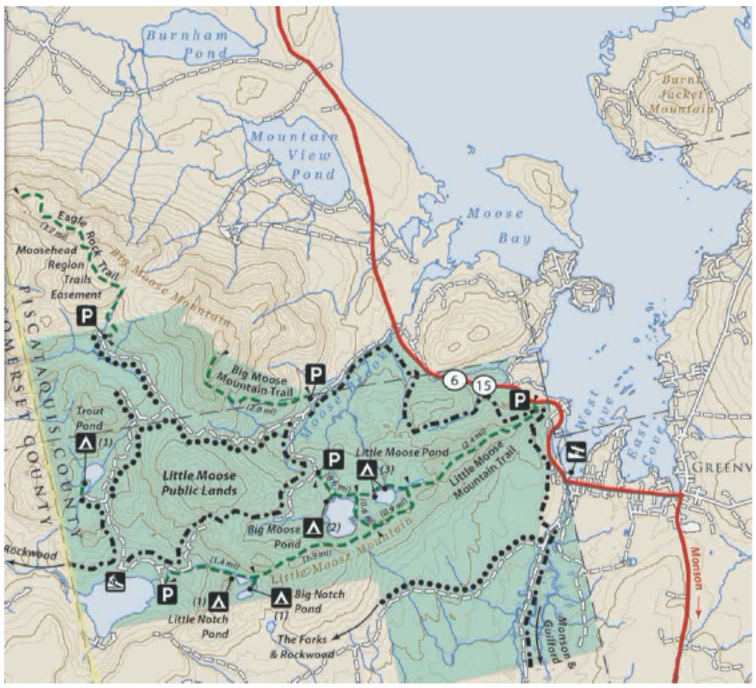
[1] Scenic resources as defined in the Maine DEP's Natural Resource Protection Act (NRPA) Chapter 315 Regulations are "Public natural resource(s) or public land(s) visited by the general public, in part for the use, observation, enjoyment, and appreciation of natural or cultural visual qualities. The attributes, characteristics, and features of the landscape of a scenic resource provide varying responses from and varying degrees of benefits to, humans."

- **William Shaw House** in Greenville, now the Greenville Inn, located approximately 6 miles from the project. There will be no views of the Project from the Inn.

- The ***Katahdin* lake boat**, anchored along the eastern shore of Moosehead Lake in Greenville. The *Katahdin* offers a variety of daily tours of the lake during the summer months, affording passengers with panoramic views of Big Moose Mountain and the surrounding landscape. The route taken by the cruises is typically through the center of the lake, well outside the 3-mile radius. While the Project elements – especially those structures that comprise the base village – might be visible, their dark color and horizontal forms will help them blend into their wooded context.

TRAILS AND PUBLIC PROPERTY

Little Moose Public Reserve Land. The Little Moose Management Unit covers more than 15,000 acres in Moosehead Junction and Big Moose townships. Although the forested land is flat to gently rolling in the southeastern quarter, the unit also includes most of the Little Moose Mountain Range with its steep slopes, rocky streams, and remote ponds, as well as most of Big Moose Mountain. Visitors enjoy hiking, snowmobiling, fishing, hunting, and camping in this remote setting. The accompanying map of the Little Moose unit shows the network of trails that make this area a popular destination for hikers.



Big Moose Mountain Trail. The trail on Big Moose Mountain is listed on the state's website as a Natural Heritage Hike, with the following description:

> *It's impossible to describe Big Moose Mountain without superlatives. With one of the loftiest summits in the Moosehead Lake region, Big Moose's ridgeline offers expansive views of New England's largest lake and the surrounding mountains including Maine's highest peak, Mt. Katahdin. But that's not all; a hike up Big Moose Mountain is a walk in the footsteps of Big Moose's fire watchmen on their journey to the nation's first fire tower.* [2]

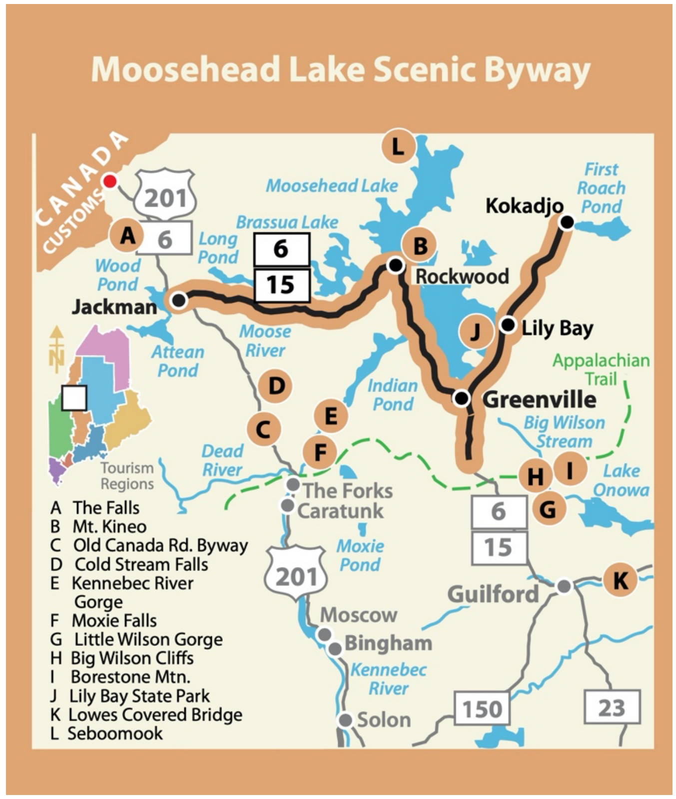
Eagle Mountain Trail is a primitive footpath originating on the Little Moose Public Lands leading to Eagle Rock, a remarkable rock outcropping on the far western tip of Big Moose Mountain. Most of the trail is on Weyerhaeuser property where the trail is protected in perpetuity by a trails easement that was part of the 363,000-acre conservation easement resulting from the Moosehead Lake Region Concept Plan. The trail was one of the first developed through a grant process funded by Weyerhaeuser as part of the Plan. Dozens of miles of other trail projects are under development as part of this opportunity, likely including linkages at the Little Moose Public Lands tying together existing day hikes including Big and Little Moose Mountains, a number of scenic ponds, and other features.[3]

Due to the intervening topography and forest cover, the Project will not be visible from the Big Moose Mountain Trail, the Eagle Mountain Trail, or the other hiking trails within the Little Moose Unit.

[2] https://www.maine.gov/dacf/mnap/assistance/hikes/big_moose_mountain.pdf. Accessed March 19, 2021.
[3] https://www.mainetrailfinder.com/trails/trail/eagle-rock-trail. Accessed March 19, 2021.

SCENIC BYWAYS

Route 6, which parallels the western shoreline of Moosehead Lake, is a segment of the Moosehead Lake Scenic Byway (formerly known as the Seboomook Scenic Byway). This 59-mile route connects Kokadjo, Lily Bay, Greenville, Rockwood, and Jackman, offering views of the Kennebec and Mooser River Valleys, the Maine Highlands, and Moosehead Lake. Approximately 5.3 miles of the Byway are within 3 miles of the Project; the viewshed map indicates that approximately 3 miles of the road may have views, based upon topography-only data. However, as indicated by GoogleEarth Streetview imagery, views of the Project and Big Moose Mountain are very limited to non-existent, due to the dense woodland vegetation on the west side of the roadway.



MAJOR WATERBODIES

This part of Maine in known for its waterbodies, with a focus on Moosehead Lake. The ponds and lakes within 3 miles of the Project include: Moosehead Lake, 74,890 ac.; Mountain View Pond (formerly Fitzgerald Pond), 550 ac.; Burnham Pond, 426 ac.; Big Moose Pond; Little Moose Pond; and Trout Pond. The viewshed map (p. 15) indicates that the Project will be seen from most of Mountain View Pond and Burnham Pond. A small portion of Moosehead Lake will have views of the Project.

Moosehead Lake is the largest lake in Maine, covering 117 square miles. The lake is a popular destination for fishing, ice fishing, snowmobiling, boating, sightseeing, wildlife observation, photography, and night sky observation. The Maine Wildlands Lake Assessment rates the scenic value of the lake as outstanding (all six other resources are also rated outstanding: fisheries, wildlife, shore character, botanic, cultural, and physical). Approximately 1,300 acres of the lake are within 3 miles of the Project. However, as seen in the viewshed map, low hill between Route 6 and the lake will block most views of the Project from this portion of the lake. At greater distances (i.e., beyond 3 miles) the larger Project elements (i.e., base lodge, brew pub, and hotel) will appear very small relative to the surrounding mountains. While the proposed structures will be slightly larger than the hotel and other buildings that they are replacing, their façade materials and siting should minimize visibility at the far midground and background viewing distances. The presence of the new buildings and other components of the plan should have minimal effect on the continued use and enjoyment of Moosehead Lake.

View of Big Moose Mountain from Moosehead Lake at a distance of 5 miles. Project will be in center of photograph below the notch. TJD&A photo.

Mountain View Pond is a relatively shallow waterbody north of Big Moose Mountain on the west side of Route 6. Public access is provided by an IF&W boat launch on the eastern shoreline off Route 6. The 1961 IF&W survey of Fitzgerald Pond (as it was known then) notes '*A large number of persons use the beautiful beach area for bathing and picnicking.*' While there are roads that roughly parallel most of the shoreline, there only appears to be one camp on the pond. The main access off Route 6 is gated. The Maine Wildlands Lake Assessment does not rate the scenic value of the pond. According to the viewshed map, the Project will be visible throughout most of Mountain View Pond at distances of 1.0 to 1.9 miles. Trees along the southwestern shoreline will prevent views along the near shore part of the pond. The presence of the new buildings and other components of the plan should have minimal effect on the continued use and enjoyment of Mountain View Pond.

View of Big Moose Mountain from Mountain View Pond at a distance of 1.75± miles. Existing base lodge is visible below the center of Big Moose Mountain. Sewall photo.

Burnham Pond is a very shallow waterbody northwest of Mountain View Pond and approximately 0.5 mile west of Route 6. The 1961 IF&W survey of Burnham Pond notes '*The bottom of the pond has several feet of very soft mud that swirls around when a canoe paddle is moved near it. Wind action keeps the mud stirred up most of the time…Practically all of the pond is less than three feet deep.*' While there is an access road that parallels the southern shore, there does not appear to be any year-round or seasonal camps on the pond. The DeLorme Atlas identifies a hand-carry boat launch on the southern shore. The Maine Wildlands Lake Assessment does not rate the scenic value of the pond. According to the viewshed map, the Project will be somewhat visible throughout the northern half of Burnham Pond at distances of 2.4 to 3.0 miles. Trees along the southern shoreline will prevent views along the near shore part of the pond. The presence of the new buildings and other components of the plan should have minimal effect on the continued use and enjoyment of Burnham Pond.

Google Earth image of Burnham Pond looking south to Big Moose Mountain. Red dot is approximate location of proposed hotel.

C. COMPLIANCE WITH LUPC STANDARDS

The Project has been sited and designed to comply with LUPC's Section 10.25.E Natural Character and Cultural Resources. The following section presents the applicable language from 10.25.E *(in italics)* followed by a description of how the project meets the standards.

10.25.E.1. Scenic Character

a. The design of proposed development shall take into account the scenic character of the surrounding area. Structures shall be located, designed and landscaped to reasonably minimize their visual impact on the surrounding area, particularly when viewed from existing roadways, with attention to designated scenic byways; major water bodies; coastal wetlands; permanent trails; or public property.

There is no doubt that Big Moose Mountain is one of the most scenic locations in the State of Maine, featuring expansive views of Moosehead Lake – the largest in the state – that extend as far northeast to Mount Katahdin.

View from below existing chair lift above future base village. Mountain View Pond and Moosehead Lake are visible in the midground. Mount Kineo is visible at far left.

The design of the Big Moose Resort has been guided by a desire to respect this incredible setting while providing visitors with an opportunity to enjoy the panoramic beauty of the Moosehead Lake region. The following is a summary of the actions that the resort is taking to minimize visual impacts of any new construction.

- Removing existing buildings where the design is not in keeping with the vision of a contemporary Maine mountain resort.
- Constructing new buildings in the same general location as the existing structures to minimize tree clearing and amount of site disturbance on the mountain.
- Designing the hotel, base lodge, and brew pub as a coordinated base village, with materials inspired by those used in historic industrial buildings in the Moosehead area, such as those that were found at the Katahdin Iron Works.
- Selecting materials with dark colors to minimize color contrast with the surrounding landscape.
- Preserving stream buffers and wetlands wherever possible, following LUPC standards.
- Relocating certain electrical lines underground to minimize the presence of utility infrastructure on the mountain.
- Siting individual structures to maintain existing vegetation to visually break of the mass of the building while framing views to the lakes and mountains.
- Minimizing the number of light fixtures to be used on the mountain and following LUPC standards.

As noted in Exhibit 8 Structures, the preliminary architectural plans call for a variety of materials and forms to achieve a high degree of landscape compatibility: stone bases and walls derived from the

b. To the extent practicable, proposed structures and other visually intrusive development shall be placed in locations least likely to block or interrupt scenic views as seen from existing roadways, with attention to designated scenic byways, major water bodies, coastal wetlands, permanent trails, or public property.

One of the advantages of redeveloping an existing mountainside resort is the ability to maintain the same relative position of major buildings and site infrastructure, thus avoiding locations that may block or interfere with views. As noted below, the Project will be minimally visible from existing roadways, designated scenic byways (Route 6: Moosehead Lake Scenic Byway), Moosehead Lake, major hiking trails, public properties (primarily the Little Moose Public Reserve Land), and other scenic resources within three miles.

Three-mile area of potential effect (APE).

10.25.E.2. Scenic Character. Hillside Resources
The standards for hillside resources must be met for all subdivision, residential, commercial, industrial, and other non-residential development, if any portion of the project area is located on a hillside, except as provided in Section 10.25,E,2,a below.

***a. Exceptions**. The hillside resources standards in Sections 10.25,E,2,c through f do not apply to:*

*(1) Features of structures within non-residential developments that contain no floor area such as chimneys, **towers**, ventilators, and spires**;** or to freestanding towers and turbines*. (Emphasis added.)

The Exceptions provisions of 10.25.E.2.a.(1) apply to the towers used in the installation of the T-bar, chair lift, and zip line; therefore, the standards for c. Ridgeline Protection, d. Vegetative Clearing, e. Structural Development, and f. Construction Materials do not apply to these towers.

*(2) A development or **portions of a development that will not be visible** from existing roadways, major water bodies, coastal wetlands, permanent trails, or public property located within three miles of the project boundary. Where views of the development are blocked by natural conditions or features such as existing vegetation, to qualify for this exception, the applicant shall demonstrate that these obstructing features or conditions will not be materially altered in the future by any uses allowed with or without a permit.*

The Exceptions provisions of 10.25.E.2.a.(2) apply to several of the associated activities and facilities that are screened by existing trees or are located in areas not visible from the general *public. These include the new access road, improvement to parking lots, the pumphouses, and* the new maintenance garage. Therefore, the standards for c. Ridgeline Protection, d. Vegetative Clearing, e. Structural Development, and f. Construction Materials do not apply to these facilities.

***b. Stormwater Management**. The proposal must include plans for the construction and maintenance of stormwater best management practices designed to slow down and spread runoff from developed areas and ensure that increased runoff does not cause downgradient soil erosion.*

See response to Exhibit 24, Erosion, Sedimentation, and Drainage.

c. ***Ridgeline Protection**. The development must be designed to ensure buildings, structures, and other improvements will not extend above the existing ridgeline or otherwise alter the ridge profile significantly when viewed from existing roadways, major water bodies, coastal wetlands, permanent trails, or public property.*

The existing buildings as well as all proposed structures will be built at a mid-point on Big Moose Mountain. There are no locations where any portion of the project will be seen rising above the existing ridgeline, when viewed from existing roadways, major waterbodies, trails, or public property.

d. ***Vegetative Clearing****. The proposal must include a vegetation management plan that establishes and provides for long-term maintenance of clearing limits that will minimize potential impacts to views from existing roadways, major water bodies, coastal wetlands, permanent trails, and public property. The vegetation management plan must ensure:*

(1) There will be a sufficient area of clearing allowed around buildings to maintain the minimum extent needed for ***defensible space*** *for fire safety, generally 30 feet in width;*

A minimum of 30 feet will be cleared around all proposed buildings to provide defensible space for fire safety.

(2) There will be sufficient vegetation maintained on steep slopes to protect ***long-term slope stability****;*

In general, steep slopes are being avoided for new construction. In situations where steep slopes are encountered, vegetation will be maintained to protect long-term slope stability. See Exhibit 24, Erosion, Sedimentation, and Drainage Control Measures.

(3) ***Existing forest cover*** *will be maintained to interrupt the view of the façade of buildings, provide a forested backdrop to buildings, and reduce or eliminate the visual impact of new development;*

The new base lodge village will be constructed in the approximate location of the existing base lodge. Planning for this facility has taken into consideration existing vegetation that can be preserved between the structures and the public viewpoints to break up the mass and facades of the buildings and minimize visual impacts.

(4) ***Clearing for views*** *will be limited, with narrow view openings between trees and beneath tree canopies being a desirable alternative to clearing large openings adjacent to building facades; and*

Any additional clearing in the vicinity of the base lodge building will be limited to minimize exposing large portions of the façade to public view. View corridors will be established from the passive recreation parks to the distant mountains and lakes in keeping with the intent of providing tangible connections with the greater landscape. (See schematic diagram on following page.) View corridors will be accomplished by selective wedge-shaped clearings, with the narrow ends closest to the viewing locations (benches, tree houses, or community gathering areas). The intent is to treat these areas as outdoor rooms with venetian blind-like screening. Trees would be preserved between the viewer and the distant landscape to allow filtered or framed views out while maintaining enough vegetation to minimize views of the treehouse or other similar construction from the distant landscape. Tree removal to create view corridors would be limited to selective harvesting only.

*(5) If **cleared openings** are allowed outside the building envelope, such as clearing for views, the plan shall include a quantifiable standard for limiting that clearing. For example, an applicant may propose that any trees removed for views will not exceed a 25-foot width of clearcutting and extend, outward at an angle of 45 degrees or less on both sides, beyond a point down-slope where the tops of the trees are at the same elevation as the lowest*

adjacent grade for the principal building. The 25-foot opening may be located at any point along the down-slope boundary of the building envelope.

See response to (4) above.

(6) The Commission may require ***additional vegetative clearing limitations*** *or standards in cases where the proposed development could be visible from a scenic resource that has a unique or special value relative to other scenic resources in the area.*

e. Structural Development. *The development must provide for building designs that will complement the site and topography (e.g., avoiding long unbroken roof lines; orienting buildings such that the greatest horizontal dimension of the structure is parallel with, and not perpendicular to, the natural contour of the land; stepping the building down the slope rather than creating building pads that require extensive excavation and filling, and sloping roofs in the direction and general angle of the natural slope on the project site).*

The proposed buildings at the base village, designed by Simons Architects, are being designed to meet these objectives. The village is comprised of three separate structures to break up the mass of the whole. Each building is designed as a unique piece of architecture, providing variety of design within a palette of materials that are indigenous to the Moosehead Lake area. The roof of the hotel, the tallest of the structures, contains a sloping element to echo the surrounding hills and mountains. The buildings are stepped in response to site conditions to minimize earthwork and provide functional spaces at the lower elevations. The building run parallel to the contours, following the general flow of the landscape.

f. Construction Materials. *The development must be designed to ensure that:*

(1) The exterior colors of structures, including but not limited to siding, roofing, retaining structures, foundations, trim, gutters, vents and chimneys, will be a muted tone naturally found at the specific site or in the surrounding landscape.

As noted earlier and seen in the architectural elevations, the exterior colors of the buildings will be a mixture of mostly dark hues that will complement the surrounding wooded hillside in color, line, and texture.

(2) Structures use only low or non-reflective exterior building materials, including but not limited to windows, roofing, gutters, vents, and chimneys. If a highly reflective material, such as aluminum or other smooth metal, is used for an essential component of the structure because no other material is reasonably available for that component, reduced reflectivity must be incorporated and maintained to the greatest extent practicable by, for example, painting the component with a muted color naturally found at the site, boxing in the component with non-reflective material, or using a textured or pre-weathered version of the component.

With the exception of glass used for windows, the materials being considered are non-reflective and/or textured to minimize the amount of color contrast from the buildings. Since the buildings generally face in a northerly direction, they will most often be backlit, with little glare off the glass surfaces.

*g. **Linear Infrastructure**. Roads, driveways, utility corridors, and other similar linear infrastructure must be located and constructed so as to minimize the visibility of corridor openings to the extent practicable (by, for example, following topographic contours and retaining existing vegetation).*

The linear infrastructure that will be installed as part of the Project has been designed to be located and constructed in a manner that will minimize its visibility and potential impact on natural resources.

- **Roadways**. Wherever possible, existing roadways will be used as part of the internal circulation system to avoid new clearing and take advantage of established patterns. New roads have been designed to respond to topography to minimize cuts and fills. Roadway widths will be minimized (18' typical) to reduce runoff and discourage excessive speed.
- **Sewer Line** to Moosehead Sanitary District facility. Wherever possible, the proposed sanitary sewer line to the Moosehead Sanitary District will be installed in the shoulder of the access road and Route 6 to maintain the existing woods edge and minimize the need for additional tree clearing.
- **Snowmaking lines**. Existing snowmaking main lines will be replaced in their current location to minimize tree clearing and maintain established edge conditions.
- **T-Bar and Chair Lift**. Existing alignments will be used to the greatest extent possible for the installation of the new T-bar and chair lift. Some adjustments will be made in specific locations to remove support structures from wetlands.
- **Zip Line**. For the most part, the proposed zip line will be above the treetops, minimizing the need for clearing or opening addition linear pathways in the forest cover.

***h. Lighting**. All lighting for the development must comply with the standards of Section 10.25,F.*

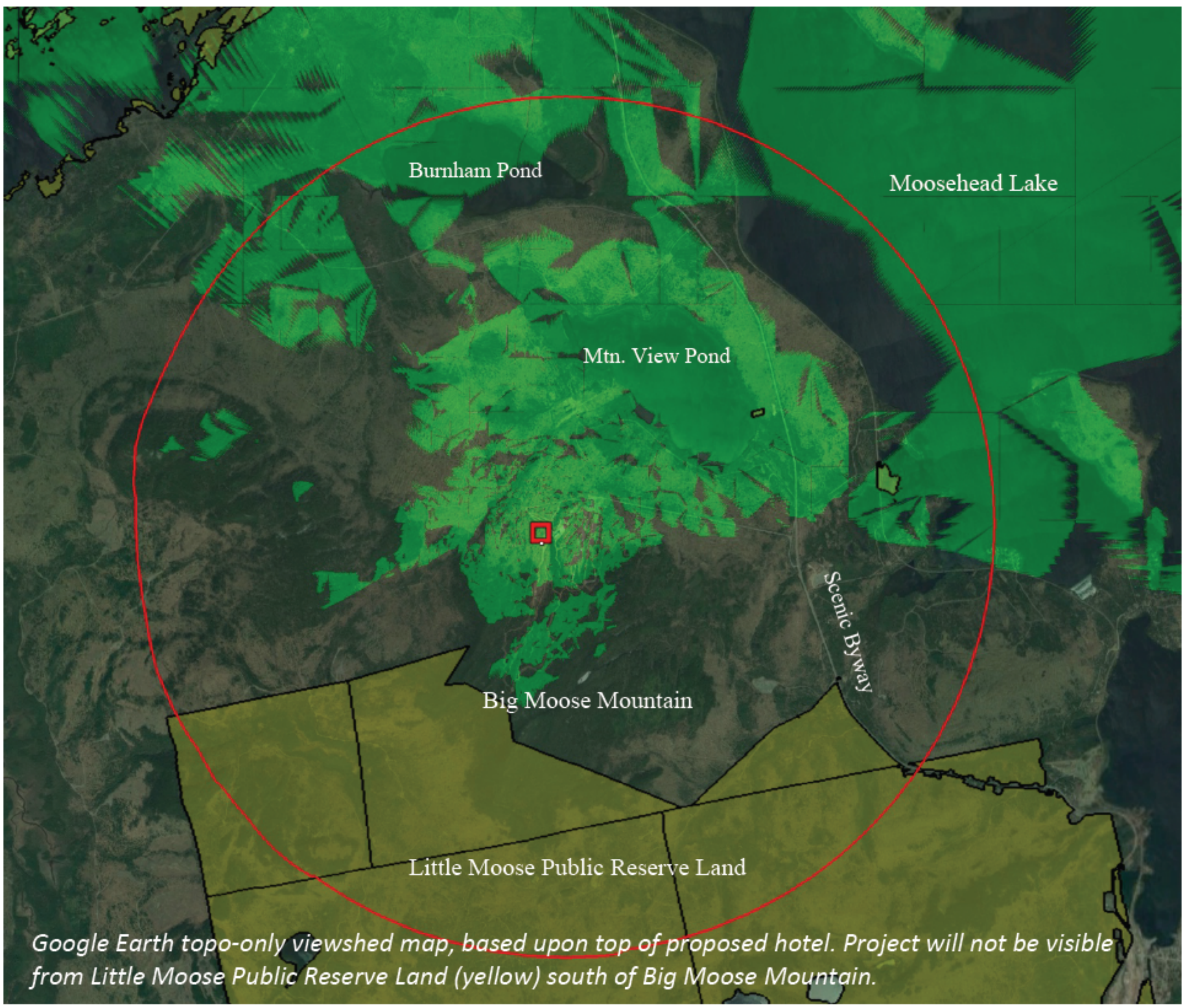
All lighting for the Project will comply with the applicable standards of Section 10.25.F. The intent of the lighting plan is to create a living/working/recreating environment that is well lit, but not over-lit, in keeping with a Dark Skies ethic.

- All exterior lights will be full cut-off, as defined in 10.25.F.2.a.
- In general, lighting will utilize LED fixtures, sized for the individual situation once the final locations and requirements have been identified in the development of the architectural plans.
- Lighting will be designed primarily for safety, emphasizing walkways, entranceways, and outdoor use areas.
- Outdoor use areas at the base village will be concentrated on the south (uphill) side of the base lodge (in an area designated as the Beachfront). This arrangement will utilize the base lodge as a shield, preventing light from spilling down the hill toward Moosehead Lake.
- Individual buildings will not be washed in up-lights.

- Non-essential lighting will be on a timer that will shut them off after certain hours (e.g., 10 PM).
- The ski runs and associated infrastructure will not be lit.

D. VIEWSHED MAPPING

TJD&A created the viewshed map in GoogleEarth Pro to help determine the limits of Project visibility within three miles. The viewshed map illustrates where a point 62 feet above ground level (equivalent to the top of the proposed hotel) may potentially be visible from anywhere in the surrounding landscape. The resulting map is used to determine where the point would not be visible due to intervening topography. The viewshed map is based on topography only, i.e., it does not take into account the existing trees that line the ski runs, lakes and ponds, and most of the roadways where the public might have a view. Thus, it is a very conservative estimate of potential visibility. Field checking and review of Google Earth StreetView imagery have been used to provide a more accurate understanding of the degree of visual exposure that may be expected following construction.



Google Earth topo-only viewshed map, based upon top of proposed hotel. Project will not be visible from Little Moose Public Reserve Land (yellow) south of Big Moose Mountain.

Exhibit 20 – Archaeological and Historical Resources

See the attached letter that was sent to the Maine Historic Preservation Commission to verify the project will have no potential impact to historic sites in the area. Once we receive their response, we will forward it to LUPC.

March 10, 2021

Kirk Mohney, Director
Maine Historic Preservation Commission
65 State House Station
Augusta, ME 04333-0065

RE: BIG MOOSE REDEVELOPMENT, BIG MOOSE TWP., ME

Dear Mr. Mohney:

I am writing to you regarding a proposed Big Moose Redevelopment in Big Moose Township. This project will require a Land use Planning Commission (LUPC) Development Permit.

The proposed development will be located on an 824.3± ac. parcel that is the site of the old Big Squaw Mountain Ski Area. The proposed development will include a hotel, base lodge, brew pub, event center, new chairlift and T-bar. There will be improvements to the access road and parking areas. The site is located approximately 6.5 miles north of Greenville Junction on Big Moose Mountain. See the attached plans and location maps.

Enclosed is a map indicating the location of the proposed redevelopment. Please comment, in writing, on any possible historical or archeological concerns on this site, so that we may address any issues as soon as possible. Should you have any questions concerning the project, do not hesitate to contact me by phone at 207-817-5561 or by email at jodi.oneal@sewall.com.

Sincerely,
JAMES W. SEWALL COMPANY

Jodi O'Neal

Jodi O'Neal
Project Manager

Enclosures: Location Map, Site Plan

Exhibit 21 – Rare or Special Plant Communities & Wildlife Habitat

The Maine Natural Areas Program and the Maine Department of Inland Fisheries & Wildlife were contacted regarding existing natural features and wildlife habitats at this site. See the attached letters that were sent to the Maine Natural Areas Program and Maine Department of Inland Fisheries & Wildlife to verify the project will have no negative impacts to plant and wildlife communities in the area. A response was received from Maine Department of Inland Fisheries & Wildlife that is attached as Exhibit 21. Once we receive the response from the Maine Natural Areas Program, we will forward it to LUPC.

Sewall
The evolution of expertise

March 10, 2021

Ms. Lisa St. Hilaire, Information Manager
Maine Natural Areas Program
93 State House Station
Augusta, ME 04333-0093

RE: BIG MOOSE REDEVELOPMENT, BIG MOOSE TWP., ME

Dear Ms. Hilaire:

I am writing to you regarding a proposed Big Moose Redevelopment in Big Moose Township. This project will require a Land use Planning Commission (LUPC) Development Permit.

The proposed development will be located on an 824.3± ac. parcel that is the site of the old Big Squaw Mountain Ski Area. The proposed development will include a hotel, base lodge, brew pub, event center, new chairlift and T-bar. There will be improvements to the access road and parking areas. The site is located approximately 6.5 miles north of Greenville Junction on Big Moose Mountain. See the attached plans and location maps.

Enclosed is a map indicating the location of the proposed redevelopment. Please comment, in writing, on any possible significant vegetation concerns on this site, so that we may address any issues as soon as possible. Should you have any questions concerning the project, do not hesitate to contact me by phone at 207-817-5561 or by email at jodi.oneal@sewall.com.

Please send the invoice for the MNAP research services to my attention with a reference number of 85716E.

Sincerely,
JAMES W. SEWALL COMPANY

Jodi O'Neal

Jodi O'Neal
Project Manager

Enclosures: Location Map, Site Plan

JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO
COMMISSIONER

January 27, 2020

Jodi O'Neal
James W. Sewall
P.O. Box 433
Old Town, ME 04468

RE: Information Request – Big Squaw Ski Mountain Expansion Project, Big Moose Township

Dear Jodi:

Per your request received on January 17, 2020, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *Big Squaw Ski Mountain Expansion* project in Big Moose Township. Note that as project details are lacking, and due to the general nature and scale of the map that was provided, our comments are non-specific and should be considered preliminary.

Our Department has not mapped any Essential Habitats that would be directly affected by your project.

Endangered, Threatened, and Special Concern Species

Bats - Of the eight species of bats that occur in Maine, the three *Myotis* species are afforded special protection under Maine's Endangered Species Act (MESA, 12 M.R.S §12801 et. seq.): little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are designated as Species of Special Concern: big brown bat, red bat, hoary bat, silver-haired bat, and tri-colored bat. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence, it is likely that several of these species occur within the project area during the fall/spring migration, the summer breeding season, and/or for overwintering. If the proposed project has a Federal nexus, either via funding or permitting, or if the project is not consistent with the USFWS "4(d) Rule", we recommend that you contact the U.S. Fish and Wildlife Service--Maine Fish and Wildlife Complex (Wende Mahaney, Wende_Mahaney@fws.gov, 207-902-1569) for further guidance on their perspective, as the northern long-eared bat is also listed as a Threatened Species under the Federal Endangered Species Act. The USFWS "4(d) Rule" provides guidance for protection of bat winter hibernacula and maternity roost trees for northern long-eared bats (see https://www.fws.gov/midwest/endangered/mammals/nleb/4drule.html). MDIFW Endangered Species Rules for bats (Chapter 8.06; see link at http://www.maine.gov/sos/cec/rules/09/137/137c008.docx) provide equivalent seasonal protection of maternity roost trees for any of the three state-listed bats, seasonally prohibits entry into subsurface winter hibernacula, and has additional protections for tree removal within ¼ mile of subsurface winter hibernacula. At present, no maternity roost trees have been designated for protection.

In addition to traditional hibernacula like caves and old mines, recent findings indicate that *Myotis* and big brown bats may also overwinter in exposed rocky features. To date, Maine talus and rocky outcrop studies have focused on relatively exposed slopes with minimal canopy cover, although ongoing research has shown that bats use rocky areas under the forest canopy. Occupied talus slopes in Maine have consisted of variable rock sizes, ranging in size from softball-sized to car-sized boulders. Rock piles, rock ledges, and small vertical cracks in rocks (>1/2-inch-wide) create crevices that allow bats to access deeper cavities that provide protection for predators and suitable temperature and humidity conditions. Some species of bat, like the eastern small-footed bat, use rocky features year-round. A desktop GIS analysis does not indicate the presence of these features in your project area; however, not all talus and rocky features have been mapped statewide. Therefore, we advise that all areas of talus and rocky features of approximately 1,000 square feet or greater in size be documented on and within 250 feet of your project area, including smaller areas of rock piles and tailings (i.e., quarry spoils). See attached photographs for representative features—<u>these photographs are not all-inclusive and should be used for guidance purposes only</u>. Detailed photographs and coordinates should be submitted to MDIFW for review, and acoustic monitoring may be recommended to document occupancy. Alternatively, these features should be appropriately buffered commensurate with the size and layout of the project. If these features are not present in the project area, our Agency does not anticipate significant impacts to any of the bat species as a result of this project based on currently best available science.

<u>Northern Bog Lemming</u> - Northern bog lemming, a State Threatened species, can occur in specific habitats in western mountain and northern areas of Maine including alpine sedge meadows, krummholz, spruce-fir forest with dense herbaceous and mossy understories, wet meadows, and mossy stream-sides, that are > 1,000 feet MSL (above Mean Sea Level). Northern bog lemmings are presumed to be present in these habitats and, to protect this species, MDIFW recommends that these areas be avoided and adequately buffered if located in your project area.

<u>Roaring Brook Mayfly</u> - Roaring Brook mayfly, a State Threatened Species, may occur in the project area. They can occur in high elevation, perennial headwater streams draining off forested (hardwood or mixed) slopes at or above 1,000 feet (including unmapped streams) within or adjacent to the currently documented range (northern Appalachian Mountain Range, stretching from Mt. Katahdin to western border with New Hampshire and Quebec). All known occurrences of this species are in streams with coarse substrates (rocks, cobble, boulders) and bordered by relatively undisturbed mixed or hardwood forest. Any adjacent or instream work in unmapped perennial or intermittent streams has the potential to impact this species. To protect this species, MDIFW recommends a 250-foot riparian management zone for streams meeting these location preferences, extending from each bank.

<u>Northern Spring Salamander</u> - Northern spring salamanders, a State-listed Species of Special Concern, may occur in the project area. Any instream work in unmapped perennial or intermittent streams has the potential to impact this species (i.e., high elevation headwater streams) but they are also found in larger third order streams and rivers with suitable substrate (large cobble and/or gravel bars) within the documented range of primarily the western Maine mountains north and east into mountains of central Penobscot County. To protect this species, MDIFW recommends a 250-foot riparian management zone for streams meeting these location preferences, extending from each bank.

<u>Bicknell's Thrush</u> - Bicknell's Thrush, a Species of Special Concern, occur in the vicinity of the project area. Bicknell's thrush can be found in sub-alpine forests usually dominated by balsam fir and red spruce at elevations >2,700 feet, that typically have a history of disturbance resulting in a stunted dense understory. These areas should be avoided. If an applicant wishes to verify presence, a series of surveys should be conducted to assess the abundance and distribution of the population at that site. Surveys are to be conducted pursuant to the Mountain Birdwatch Program methodologies as outlined in the Program

manual (http://vtecostudies.org/wpcontent/ uploads/2017/03/MBW-Volunteer-Manual_2017.pdf). For further guidance, please contact MDIFW Avian Biologist Adrienne Leppold (adrienne.j.leppold@maine.gov; 207-941-4482).

Significant Wildlife Habitat

Significant Vernal Pools - At this time MDIFW Significant Wildlife Habitat (SWH) maps indicate no known presence of SWHs subject to protection under the Natural Resources Protection Act (NRPA) within the project area, which include Waterfowl and Wading Bird Habitats, Seabird Nesting Islands, Shorebird Areas, and Significant Vernal Pools. However, a comprehensive statewide inventory for Significant Vernal Pools has not been completed. Therefore, we recommend that surveys for vernal pools be conducted within the project boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. These surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant. Once surveys are completed, survey forms should be submitted to our Agency for review well before the submission of any necessary permits. Our Department will need to review and verify any vernal pool data prior to final determination of significance.

Fisheries Habitat

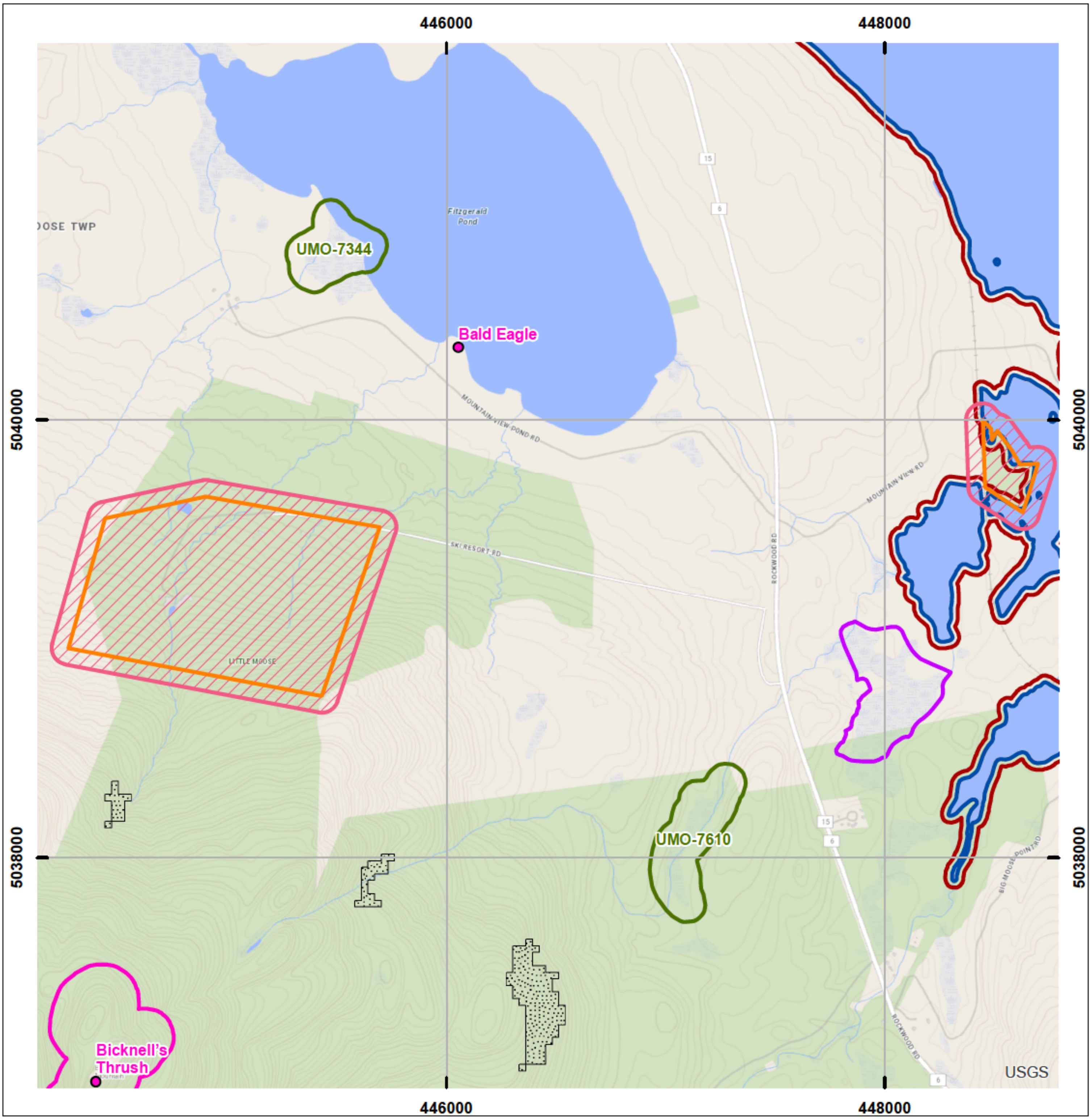
We recommend that 100-foot undisturbed vegetated buffers be maintained along streams. Buffers should be measured from the edge of stream or associated fringe and floodplain wetlands. Maintaining and enhancing buffers along streams that support coldwater fisheries is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support conditions required by many fish species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide full fish passage. Small streams, including intermittent streams, can provide crucial rearing habitat, cold water for thermal refugia, and abundant food for juvenile salmonids on a seasonal basis and undersized crossings may inhibit these functions. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, we generally recommend that stream crossings be open bottomed (i.e. natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in not only providing habitat connectivity for fish but also for other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils from construction activities can travel significant distances as well as transport other pollutants resulting in direct impacts to fisheries and aquatic habitat. In addition, we recommend that any necessary instream work occur between July 15 and October 1.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program, Maine Department of Marine Resources, and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

Becca Settele
Wildlife Biologist



Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Biq Squaw Ski Mountain Expansion, Big Moose Twp

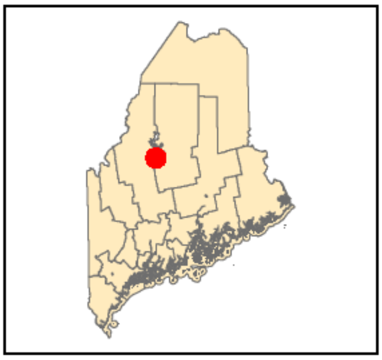
Maine Department of Inland Fisheries and Wildlife

Miles: 0 0.1250.25 0.5 0.75 1

Projection: UTM, NAD83, Zone 19N

Date: 1/27/2020

- ProjectPoints
- ProjectLines
- ProjectPolys
- ProjectSearchAreas
- Maine Cliff and Talus Areas
- Deer Winter Area
- LUPC p-fw
- Cooperative DWAs
- Seabird Nesting Islands
- Shorebird Areas
- Inland Waterfowl and Wading Bird
- 2008 Iwwh - Shoreland Zoning
- Tidal Waterfowl and Wading Bird
- Significant Vernal Pools
- Environmental Review Polygons
- Roseate Tern
- Piping Plover and Least Tern
- Aquatic ETSc - 2.5 mi review
- Rare Mussels - 5 mi review
- Maine Heritage Fish Waters
- Arctic Charr Habitat
- Redfin Pickerel and Swamp Darter Habitats - buffer100ft
- Special Concern occupied habitats - 100ft buffer
- Wild Lake Trout Habitats



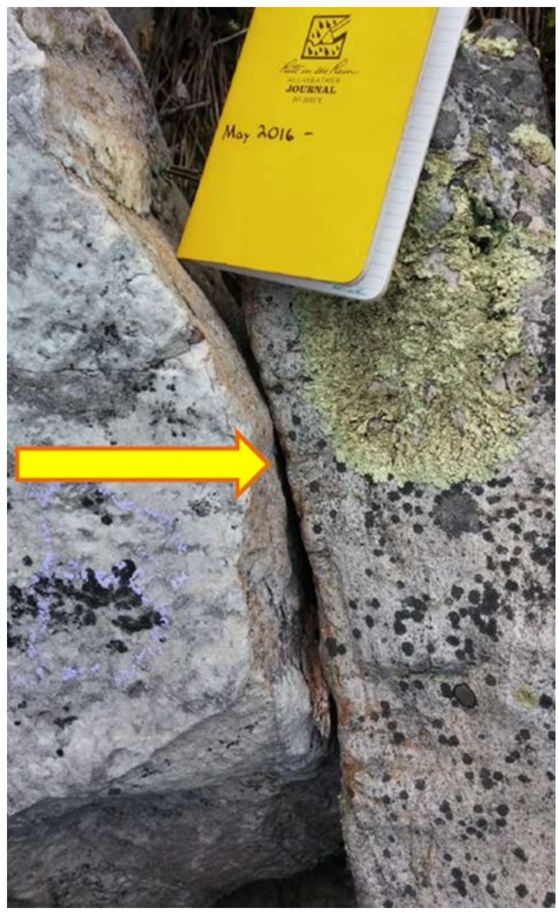
<u>Representative Photographs of Suitable Bat Rock-Roosting Sites</u>

Prepared by the Maine Department of Inland Fisheries and Wildlife

Photographs are for guidance only and should not be considered all-inclusive.

Arrows indicate sites of rock-roosting bats.

Photographs used by permission: Paul R. Moosman, Jr., Department of Biology, Virginia Military Institute



MAINE
DEPT. OF INLAND FISHERIES AND WILDLIFE







MOOSMAN

Exhibit 22 – Soil Suitability and Mapping

The soil suitability and mapping was conducted by Boyle Associates. See the attached soils report.

BOYLE ASSOCIATES

Big Moose Mountain Redevelopment Project Greenville, ME

Class B Soil Survey

March 17, 2021

BOYLE ASSOCIATES

BURMAN
LAND & TREE COMPANY, LLC.

STATE OF MAINE
DALE F. KNAPP
LIC. #386
LICENSED SITE EVALUATOR

3/17/21

STATE OF MAINE
DALE F. KNAPP
LIC. #SS479
SOIL SCIENTIST

3/17/21

STATE OF MAINE
ALEITA M. BURMAN
NO. SS430
CERTIFIED SOIL SCIENTIST

Mathew Dieterich
James W. Sewall Company
136 Center St
Old Town, Maine 04468

Dear Matt,

Aleita Burman of Burman Land & Tree Company (Burman), LLC and Dale Knapp of Boyle Associates (Boyle), performed a site visit to describe soil profiles at the test pit locations identified in the field. The review was performed at the location of the proposed Big Moose Mountain Ski Resort Redevelopment Project, located north, south, and west of Ski Resort Road in Greenville, Maine (Site), see Exhibit 1. This Class B Soil Survey includes the results of the soil profile descriptions and confirms hydrologic soil groups and soil conditions within the identified survey area. The results of this soil report are preliminary. The soil survey meets the Maine Association of Professional Soil Scientists (MAPSS) Class B- High Intensity Soil Survey standards with the following exceptions; a lack of the required 5' contours, refinement of "D" and above slopes along the ravines, presence of winter conditions limited the assessment of surface stoniness, and mapping needed for hydric soils.

INTRODUCTION

The following memorandum outlines the results of the January 13, 14, 18 and 25, 2021, field visits to the Site for the purpose of collecting descriptions of soil conditions present within the identified survey area. The purpose of our soil investigation was to provide taxonomic classification for soils identified within the buffer areas so that soil physical properties could be accounted for in stormwater planning and post-construction activities.

SITE DESCRIPTION

The Site mostly consists of forested areas, previously cleared woodlands, and ATV/Snowmobile trails. Ski Resort Road bisects the eastern portion of the Site. Several unimproved roads and ATV trails are located in the western portion of the Site. A few maintained ski trails cross through the southern Site boundary. A review of historical photos shows an access road in the eastern portion of the parcel leading to a hotel outside of the Site. The Site is accessible with the current access road.

EXISTING SOIL MAPPING

The Site is generally characterized by nearly level to steep sloping terrain, with soils formed in glacial till. Soils range from moderately well drained to poorly drained. Predominant surface textures of mapped soils are gravelly silt loams. Most of the soils mapped have a restrictive layer below the soil surface.

A soils map generated from the Natural Resource Conservation Service (NRCS) Web Soil Survey indicates two soil map units present within the Site. The source of the data is the Piscataquis County, Maine, Southern Part soil survey, and the Site was mapped at Order 2 (intensive, Class D). The NRCS Web Soil Survey is included in Exhibit 3.

The soil map units and corresponding acreages within the Site are presented in the table below:

Map Unit Symbol	Map Unit Name	Acres in Site	Drainage Class
THC	Telos-Chesuncook association, 3-15% slopes, very stony	241.0	Somewhat poorly drained/moderately well drained
TMB	Monarda-Telos complex, 0-8% slopes, very stony	6.6	Poorly drained/ somewhat poorly drained
	Totals for Site	247.6	

Three soil map units comprise approximately 100 percent of the Site. The following are brief descriptions of these soil map units:

1. **THC** – Telos-Chesuncook association, 3-15% slopes, very stony. This soil association is not prime farmland. This map unit is mapped in approximately 97.3% of the Site.

a. The Telos series consists of somewhat poorly drained soils on till plains, hills, and ridges. They are shallow to dense lodgement till and very deep to bedrock. These soils formed in till. Saturated hydraulic conductivity is moderately high or high in the solum and low to moderately high in the substratum.

b. The Chesuncook series consists of very deep, moderately well drained soils on till plains, hills, ridges, and mountains. These soils formed in dense glacial till. Saturated hydraulic conductivity is moderately high or high in the solum, and low to moderately high in the dense substratum.

2. **TMB** –Monarda-Telos complex, 0-8% slopes, very stony. These soils are not prime farmland. This map unit is mapped in approximately 2.7% of the Site.

a. The Monarda series consists of poorly drained soils formed in dense till on lower slopes or in slight depressions on till planes. They are very deep to bedrock and shallow to dense till. Estimated saturated hydraulic conductivity is moderately high to high in the subsurface and upper part of the subsoil and low to moderately high in the lower part of the subsoil and in the substratum.

b. The Telos series consists of somewhat poorly drained soils on till plains, hills, and ridges. They are shallow to dense lodgment till and very deep to bedrock. These soils formed in till. Saturated hydraulic conductivity is moderately high or high in the solum and low to moderately high in the substratum.

These soil descriptions are based on information available online from the NRCS Web Soil Survey.

The soils present onsite are generally all suitable for the proposed use. Properly installed and maintained Best Management Practices and Erosion Control Measures will address any necessary soil stabilization and restoration efforts. For additional information about the soils present on site, refer to the Soil Physical Properties Table in Exhibit 6

METHODOLOGY

The Maine Association of Professional Soil Scientists Guidelines provide standards for soil survey classes based on the level of detail required by the Maine Department of Environmental Protection (MDEP) or the Land Use Planning Commission (LUPC).

Class B, High Intensity soil surveys provide the most detail on soils for the purposes of siting structures and performing stormwater design and engineering. Burman and Boyle conducted a detailed survey of the proposed development area, the work performed included the use of an excavator to dig test pits to a minimum of four feet. Test pits were described and recorded into logbooks and a GPS point was taken at each location provided on the map in Exhibit 1. The Class B standard for map units states that dissimilar limiting inclusions must be less than one acre in size. Dissimilar limiting inclusions may total more than one acre per map unit delineation, in the aggregate, if not contiguous.

The Preliminary Test Pit and Soil Classification Map created from the data collected in the soil survey is included in Exhibit 2.

FIELD OBSERVATIONS & TEST PITS

Field test pit data was collected in thirty-three (33) locations to verify presence of soils mapped remotely (see Exhibit 1). In Tables 1 through 33 below, test pit soil profile descriptions and photographs are provided.

BOYLE ASSOCIATES

Table 1: Test Pit 1 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
0"E	0-4	Very Stony Silt Loam	10yr 5/1	Friable	None
4" Bs	5-9	Very Stony Silt Loam	10yr 3/3	Friable	None
9" B	10-16	Very Stony Silt Loam	2.5yr 4/3	Friable	None
17" BC	17-27	Cobbly Silt Loam	5yr 5/3	Very Firm	10YR 4/6 5Y 5/1
28" CD	28-84	Cobbly Silt Loam	2.5 yr 4/4	Very Firm	CM 5Y 4/2 FEW 10YR 3/6

Photo 1: Test Pit 1 – Greenville, Maine (Burman Land & Tree, LLC, January 13, 2021).

Table 2: Test Pit 2 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
10" Bs	10-13	Silt Loam	10yr 3/6	Friable	None
14" BC	14-15	Silt Loam	2.5yr 4/3	Friable	MM 5Y 4/2 CM 10YR 4/6
Cd1	16-63	Silt Loam	5yr 4/2	Very Firm	CF 10YR 4/6 MM 5Y 4/2
Cd2	64-90	Cobbly Silt Loam	5yr 4/2	Very Firm	MM 10YR 4/6 MM 5Y 4/2

Photo 2: Test Pit 2 – Greenville, Maine (Burman Land & Tree, LLC, January 13, 2021).

Table 3: Test Pit 3 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
0"E	0-1	Loam	10yr 5/2	Friable	None
1" BS 1	2-4	Loam	10yr 3/3	Friable	None
5" BS 2	5-18	Loam	10yr 4/6	Friable	None
19" BC	19-43	Loam	2.5yr 4/3	Firm	CF 10YR 3/6 Seep at 40"
44" Cd	44-81	Cobbly Silt Loam	5yr 4/2	Very Firm	MM CF 10YR 4/6 MM 5Y 5/2 Seep at 40"

Photo 3: Test Pit 3 – Greenville, Maine (Burman Land & Tree, LLC, January 13, 2021).

Table 4: Test Pit 4 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
0" Ap	0-6	Loam	10yr 3/2	Friable	None
7" BC	7-28	Loam	2.5yr 4/3	Very Firm	MM 10 YR 3/6 MM 10YR 5/3
29" CD1	29-39	Extremely Cobbly Fine Sandy Loam	2.5 4/3	Firm	None
40" CD2	40-74	Gravely Silt Loam	5 yr 4/2	Firm	CF 10YR 46 5Y 5/2 Seep at 40

Photo 4: Site Area – Greenville, Maine (Burman Land & Tree, LLC, January 13, 2021).

Table 5: Test Pit 5 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
0" Bs	0-11	Very Stony Silt Loam	10yr 4/4	Friable	None
12" BC	12-33	Very Stony Silt Loam	2.5yr 4/3	Firm	CM 5Y 5/2
34" Cd1	34-39	Very Stony Silt Loam	2.5yr 4/2	Firm	CM 5Y 5/2 CM 10YR 4/6
40" Cd2	40-88	Extremely Cobbly Fine Sandy Loam	2.5 yr 4/3	Firm	None Seep at 42"

Photo 5: Test Pit 5 – Greenville, Maine (Burman Land & Tree, LLC, January 13, 2021).

Table 6: Test Pit 6 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
0" Bs	0-8	Loam	10yr 4/4	Friable	None
9" B	9-15	Gravelly Loam	2.5yr 4/3	Friable	None
16" BC	16-24	Gravelly Loam	2.5yr 4/3	Friable	CM 10YR 3/6
25" BC	25-31	Gravelly Loam	2.5yr 5/3	Firm	F/M 10YR 3/6
32" Cd	32-80	Gravelly Loam	2.5y 4/3	Very Firm	CC 5Y 4/2 CC 10YR 3/6

Photo 6: Test Pit 6 – Greenville, Maine (Burman Land & Tree, LLC, January 13, 2021).

Table 7: Test Pit 7 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
0" Bs	0-9	Silt Loam	10yr 3/6	Friable	None
10" E	10-12	Silt Loam	10yr 6/1	Friable	None
13" B	13-21	Silt Loam	2.5yr 4/3	Friable	None
22" BC	22-33	Very Gravelly Silt Loam	2.5yr 4/3	Firm	5Y 4/2
34" Cd1	34-66	Very Gravelly Loam	2.5yr 4/3	Firm	CM 10YR 3/6 Seep at 52"
67" Cd2	67-76	Gravely Loam	2.5yr 4/3	Very Firm	5Y 4/2 10YR 3/6

Photo 7: Test Pit 7 – Greenville, Maine (Burman Land & Tree, LLC, January 13 & 18, 2021).

Table 8: Test Pit 8 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
O	4	Ø	Ø	Ø	Ø
Ap	0-7	Silt Loam	10yr 3/2	Friable	Ø
Bw1	7-17	Silt Loam	10yr 6/3	Friable	Ø
Bw2	17-29	Silt Loam	10 yr 4/3	Friable	Ø
C/B	29-40	Gravelly Silt Loam	10yr 5/2	Firm	C/D
C	40+	Gravelly Silt Loam	10yr 5/2	Very Firm	C/D

Photo 8: Test Pit 8 – Greenville, Maine (Boyle Associates, January 14, 2021).

Table 9: Test Pit 9 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
O	5	Fine Sandy Loam	yr /	Ø	Ø
A	0-7	Fine Sandy Loam	10yr 3/2	Friable	Ø
B	7-10	Fine Sandy Loam	10yr 4/6	Friable	Ø
Bw	10-17	Fine Sandy Loam	10yr 6/3	Friable	Ø
B/C	17-25	Grv. Fine Sandy Loam	10yr 5/1	Firm	Ø
C/B	25-48	Grv. Fine Sandy Loam	10yr 5/2	Firm	C/D
Cd	48+	Grv. Fine Sandy Loam	10yr 5/1	Very Firm	C/D

Photo 9: Test Pit 9 – Greenville, Maine (Boyle Associates, January 14, 2021).

Table 10: Test Pit 10 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
O	7	Ø	Ø	Ø	Ø
E	0-2	Very Fine Sandy Loam	10yr 5/1	Friable	Ø
Bw1	2-13	Very Fine Sandy Loam	7.5yr 4/2	Friable	Ø
Bw2	13-36	Fine Sandy Loam	7.5yr 4/2	Friable	Ø
B/C	36+	Grv. Fine Sandy Loam	2.5yr 3/2	Firm	F/F

Photo 10: Test Pit 10 – Greenville, Maine (Boyle Associates, January 14, 2021).

Table 11: Test Pit 11 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
O	4	Ø	Ø	Ø	Ø
A	0-4	Silt Loam	10yr 4/3	Friable	Ø
Bw1	4-13	Silt Loam	10yr 5/4	Friable	F/F
Bw2	13-23	Stony Silt Loam	10yr 5/2	Very Firm	C/D
C/B	23-40+	Stony Silt Loam	10yr 5/3	Very Firm	C/D

Photo 11: Test Pit 11 – Greenville, Maine (Boyle Associates, January 14, 2021).

Table 12: Test Pit 12 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
O	4	Ø	Ø	Ø	Ø
E	0-4	Fine Sandy Loam	10yr 6/1	Friable	Ø
Bs	4-8	Sandy Loam	5yr 3/4	Friable	Ø
Bw	8-20	Coarse Sandy Loam	10yr 5/3	Firm	Ø
B/C	24-36	Coarse Sandy Loam	10yr 4/3	Firm	Ø
Cd	36+	Coarse Sandy Loam	10yr 5/4	Firm	Ø

Photo 12: Test Pit 12 – Greenville, Maine (Boyle Associates, January 14, 2021).

Table 13: Test Pit 13 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
A	0-5	Very Fine Sandy Loam	7.5yr 4/4	Friable	Ø
Bw1	5-16	Very Fine Sandy Loam	10yr 5/4	Friable	Ø
Bw2	16-22	Very Fine Sandy Loam	10yr 5/3	Firm	F/F
B/C	22-36	Very Fine Sandy Loam	10yr 5/2	Firm	C/D
C/B	36+	Grv. Very Fine Sandy Loam	10yr 6/4	Firm	C/D

Photo 13: Test Pit 13 – Greenville, Maine (Boyle Associates, January 14, 2021).

Table 14: Test Pit 14 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
O	4	Ø	Ø	Ø	Ø
A	0-5	Fine Sandy Loam	7.5yr 2.5/2	Friable	Ø
Bw1	5-10	Fine Sandy Loam	7.5yr 4/4	Friable	Ø
Bw2	10-22	Fine Sandy Loam	10yr 5/4	Friable	Ø
B/C	22-44	Fine Sandy Loam	10yr 4/6	Firm	Ø
Cd	44+	Fine Sandy Loam	10yr 6/4	Firm	F/F

Photo 14: Test Pit 14 – Greenville, Maine (Boyle Associates, January 14, 2021).

Table 15: Test Pit 15 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
A	0-4	Silt Loam	7.5yr 3/3	Friable	Ø
Bw1	4-13	Silt Loam	7.5yr 4/3	Friable	Ø
Bw2	13-24	Silt Loam	10yr 5/3	Friable	F/F
B/C	24-36	Silt Loam	10yr 6/3	Firm	F/F
C/B	36+	Silt Loam	10yr 6/4	Firm	C/D

Photo 15: Test Pit 15 – Greenville, Maine (Boyle Associates, January 14, 2021).

Table 16: Test Pit 16 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
A	0-6	Very Fine Sandy Loam	7.5yr 2/1	Friable	Ø
Bw1	6-19	Very Fine Sandy Loam	7.5yr 2.5/3	Friable	Ø
Bw2	19-26	Very Fine Sandy Loam	10yr 4/3	Friable	Ø
B/C	26-40	Sandy Loam	10yr 4/6	Friable	Ø
Cd	40+	Coarse Sandy Loam	10yr 6/3	Friable	Ø

Photo 16: Test Pit 16 – Greenville, Maine (Boyle Associates, January 14, 2021).

Table 17: Test Pit 17 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
A	0-4	Very Fine Sandy Loam	7.5yr 2.5/1	Friable	Ø
Bw1	4-10	Very Fine Sandy Loam	10yr 4/4	Friable	Ø
Bw2	10-22	Sandy Loam	10yr 6/3	Friable	Ø
C/B	22-36	Sandy Loam	10yr 4/3	Firm	Ø
XXXXX	REFUSAL BEDROCK @ 36 Inches				XXXXX

Photo 17: Test Pit 17 – Greenville, Maine (Boyle Associates, January 14, 2021).

Table 18: Test Pit 18 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
O	4	Ø	Ø	Ø	Ø
E	0-2	Very Fine Sandy Loam	10yr 7/1	Friable	Ø
Bhs	2-10	Very Fine Sandy Loam	2.5yr 3/4	Friable	Ø
Bw	10-22	Very Fine Sandy Loam	10yr 4/4	Friable	Ø
B/C	22-38	Very Fine Sandy Loam	10yr 4/6	Firm	Ø
C/B	38+	Very Fine Sandy Loam	10yr 6/4	Firm	F/F

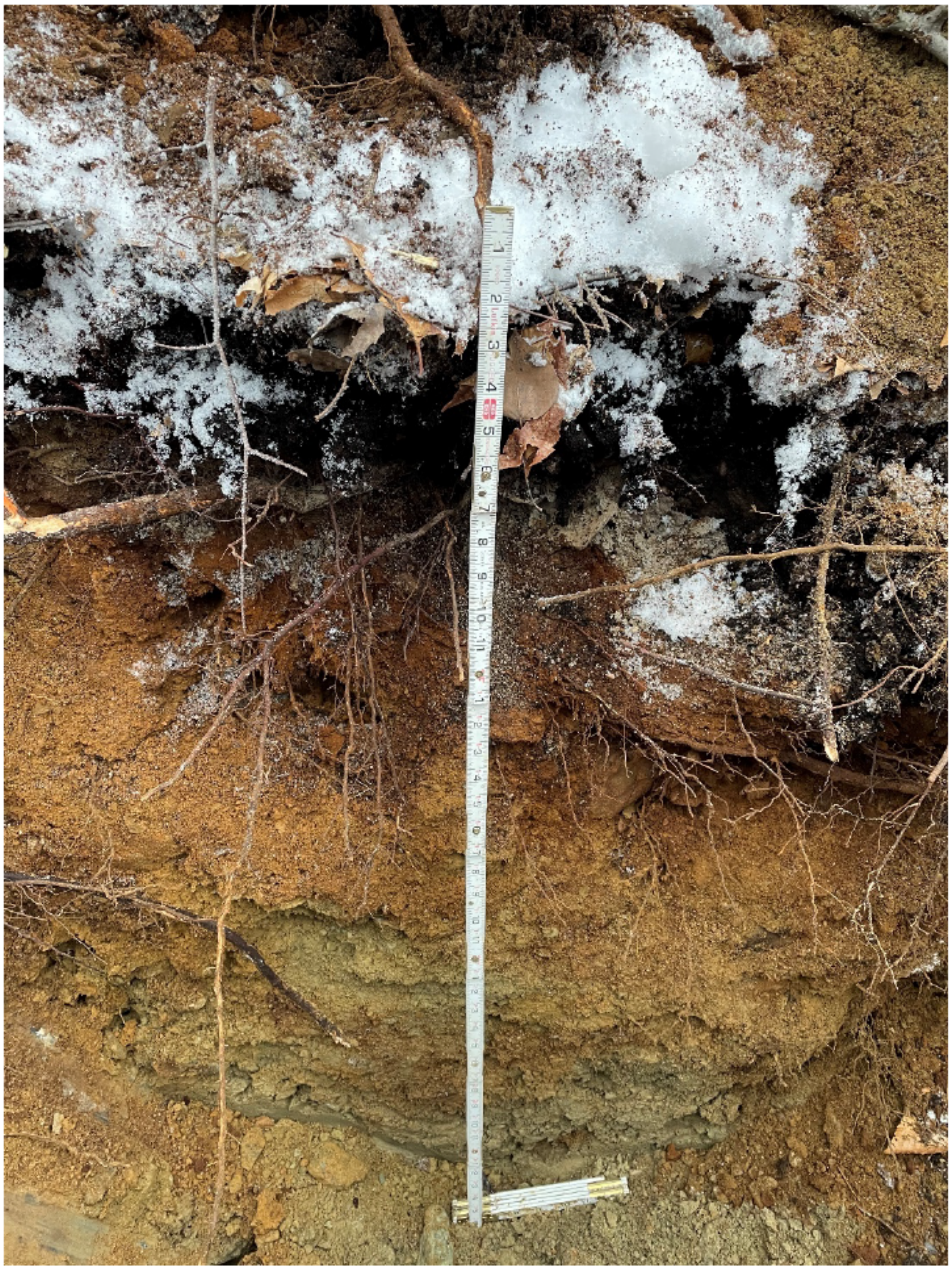


Photo 18: Test Pit 18 – Greenville, Maine (Boyle Associates, January 14, 2021).

Table 19: Test Pit 19 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
0" E	0-.9	Loam	10yr 5/2	Friable	None
1" Bs1	1-6	Loam	10yr 3/4	Friable	None
7" Bs2	7-19	Loam	10yr 3/6	Friable	None
20" BC	20-44	Loam	2.5yr 4/3	Firm	CM 10yr 3/6 CM 5yr 5/2
45" Cd	45-72	Cobbly Silt Loam	2.5yr 4/3	Very Firm	CM 5yr 5/1 CM 10yr 3/6

Photo 19: Test Pit 19 – Greenville, Maine (Burman Land & Tree, LLC, January 13 & 18, 2021).

Table 20: Test Pit 20 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
0" E	0-1	Very Fine Sandy Loam	10yr 4/1	Friable	None
2" Bs 1	2-5	Very Fine Sandy Loam	7.5yr 4/4	Friable	None
6" Bs2	6-13	Very Fine Sandy Loam	7.5yr 4/6	Friable	None
14" BC	14-21	Gravelly Very Fine Sandy Loam	2.5yr 5/4	Friable	None
22" Cd 1	22-47	Gravelly Loam	2.5yr 4/3	Very Firm	CF 10 yr 4/6
48" Cd2	48-60	Cobbly Silt Loam	2.5yr 4/3	Very Firm	CM 5yr 5/1 CM 10yr 3/6
R	Likely Bedrock at 60"				

Photo 20: Test Pit 20– Greenville, Maine (Burman Land & Tree, LLC, January 18, 2021).

Table 21: Test Pit 21 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
0" E	1-2	Very Cobbly Fine Sandy Loam	10yr 5/2	Friable	None
3" B	3-31	Very Cobbly Loam	10yr 4/4	Friable	None
R	Likely Bedrock at 31"				

Photo 21: Test Pit 21 – Greenville, Maine (Burman Land & Tree, January 18, 2021).

Table 22: Test Pit 22 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
Bs	1-3	Gravelly Loam	10yr 3/6	Friable	None
4" B	4-39	Very Cobbly Loam	10yr 4/4	Friable	None
40" Cd	40-66	Extremely Channery Loam	2.5 yr 4/4	Friable	CM 10yr 3/6 MD 5yr 4/3

Photo 22: Test Pit 22 – Greenville, Maine (Burman Land & Tree, LLC, January 18, 2021).

Table 23: Test Pit 23 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
E	1-3	Loam	10yr 5/2	Friable	None
4" Bs	4-9	Loam	10yr 3/6	Friable	None
10" BC	10-22	Silt Loam	2.5yr 5/4	Firm	None
23" Cd	23-44	Silt Loam	2.5yr 5/3	Firm	CM 10yr 3/6
45" Cd2	45-72	Cobbly Silt Loam	2.5yr 4/3	Very Firm	CM 5yr 5/1 CM 10yr 3/6

Photo 23: Test Pit 23 – Greenville, Maine (Burman Land & Tree, LLC, January 18, 2021).

Table 24: Test Pit 24 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
E	1-3	Gravely Loam	10yr 5/1	Friable	None
4" Bs	4-13	Gravely Silt Loam	10yr 4/6	Friable	None
14" BC	14-23	Cobbly Silt Loam	2.5yr 4/3	Friable	None
24" Cd	24-75+	Cobbly Silt Loam	2.5yr 4/3	Firm	CM 10yr 3/6 CM 5yr 5/1

Photo 24: Photo of Site – Greenville, Maine (Burman Land & Tree, LLC, January 18, 2021).

Table 25: Test Pit 25 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
Bg	0-19	Mucky Loam	5yr 3/1	Friable	None
20" BCgA	20--41	Silt Loam	GL 1 4/10y	Very Firm	MC 5Y 5/1 MC 10yr 5/8
42" Cdg	42-70+	Very Cobbly Silt Loam	5yr 4/2	Very Firm	MM GL1 4/10Y CM 10yr 3/6 Seep at 42"

Photo 25: Test Pit 25 – Greenville, Maine (Burman Land & Tree, LLC, January 18, 2021).

Table 26: Test Pit 26 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
E	1	Loam	10yr 5/2	Friable	None
2" Bs1	2-7	Loam	10yr 4/4	Friable	None
8" Bs2	8-19	Loam	2.5yr 4/3	Friable	None
20" BC	20-53	Silt Loam	2.5yr 4/3	Friable	CM 10yr 3/6 CM 5Y 5/2
Cd	54-75+	Silt Loam	10yr 4/3	Firm	CM 5Y 4/2

Photo 26: Photo of Site – Greenville, Maine (Burman Land & Tree, LLC, January 18, 2021).

Table 27: Test Pit 27 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
Bs1	1-5	Loam	10yr 4/4	Friable	None
6" Bs2	6-15	Loam	2.5yr 4/3	Friable	None
16" BC	16-34	Silt Loam	2.5yr 4/3	Friable	CM 5Y 5/2 CM 10YR 3/6
Cd	35-64	Cobbly Silt Loam	2.5yr 4/3	Firm	F/M 10YR 3/6

Photo 27: Photo of Site – Greenville, Maine (Burman Land & Tree, LLC, January 18, 2021).

Table 28: Test Pit 28 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
Bs	1-25	Gravelly Loam	10yr 4/4	Friable	None
26" BC	26-28	Cobbly Loam	10yr 4/4	Firm In Place	None
29" Cd	29--48	Cobbly Silt Loam	10yr 4/3	Firm	C/M 10YR 3/6
R	Likely Bedrock at 48"				

Photo 28: Photo of Site – Greenville, Maine (Burman Land & Tree, LLC, January 18, 2021).

Table 29: Test Pit 29 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
A	0-8	Silt Loam	7.5yr 4/2	Friable	Ø
Bw1	8-20	Silt Loam	7.5yr 4/3	Friable	Ø
B/C	20-40	Silt Loam	7.5yr 4/2	Firm	F/F
Cd	40+	Silt Loam	7.5yr 5/3	Firm	C/D

Photo 29: Test Pit 29 – Greenville, Maine (Boyle Associates, January 25,2021).

Table 30: Test Pit 30 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
A	0-9	Silt Loam	7.5yr 4/3	Friable	Ø
Bw1	9-21	Silt Loam	7.5yr 3/4	Firm	F/F
B/C	21-36	Silt Loam	7.5yr 4/4	Firm	C/D
C/B	36+	Silt Loam	10yr 5/3	Firm	C/D

Photo 30: Test Pit 30 – Greenville, Maine (Boyle Associates, January 25, 2021).

Table 31: Test Pit 31 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
A	0-9	Silt Loam	7.5yr 4/3	Friable	Ø
Bw	9-23	Silt Loam	7.5yr 4/4	Firm	F/F
B/C	23-36	Silt Loam	10yr 5/3	Firm	C/D
C/B	36+	Silt Loam	10yr 6/3	Firm	C/D

Photo 31: Test Pit 31 – Greenville, Maine (Boyle Associates, January 25, 2021).

Table 32: Test Pit 32 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
A	0-4	Gravelly Silt Loam	10yr 2/1	Friable	Ø
Bw1	4-12	Gravelly Silt Loam	10yr 4/3	Friable	Ø
Bw2	12-23	Gravelly Silt Loam	7.5yr 5/3	Friable	Ø
B/C	23-36	Channery Silt Loam	10yr 4/3	Very Firm	F/F
C/B	36+	Channery Silt Loam	10yr 5/2	Very Firm	C/D

Photo 32: Test Pit 32 – Greenville, Maine (Boyle Associates, January 25, 2021).

Table 33: Test Pit 33 – Greenville, Maine

Horizon	Depth (inches)	Texture	Color	Consistency	Redox
A	0-8	Silt Loam	10yr 3/2	Friable	Ø
Bw1	8-16	Silt Loam	10yr 4/4	Friable	Ø
Bw2	16-27	Channery Silt Loam	10yr 5/3	Somewhat Firm	Ø
B/C	27-40	Channery Silt Loam	10yr 5/2	Firm	C/D
C/B	40+	Channery Silt Loam	10yr 5/4	Very Firm	C/D

Photo 33: Test Pit 33 – Greenville, Maine (Boyle Associates, January 25, 2021).

RESULTS

Test pit results showcase soil texture classes that fall within the expected range for soils identified by the NRCS as present onsite. The purpose of the site specific soil survey was to collect more detailed data suitable for permitting and design purposes within the area proposed for more intensive development and for use in the stormwater design. Limitations to development identified include wetlands, some bedrock, stony/cobbly soils, free water, and dense lodgement till. Proposed roads should be designed and built to allow cross slope drainage to reduce groundwater coming to the surface and flowing downslope in concentrated flows. Dwellings with basements should have drainage installed to move ground water moving downslope around the building without intercepting/altering the natural flow substantially.

If you have questions or comments regarding the content contained please contact me at 207-631-9134 or via e-mail dknapp@boyleassociates.net.

Sincerely,

Dale F. Knapp
CSS, LSE, CEP, PWS
Principal
Boyle Associates, a Subsidiary of CEA

Aleita "Lee" Burman
Maine Certified Soil Scientist
Burman Land & Tree Company, LLC

EXHIBIT 1 – PROJECT LOCATION MAP

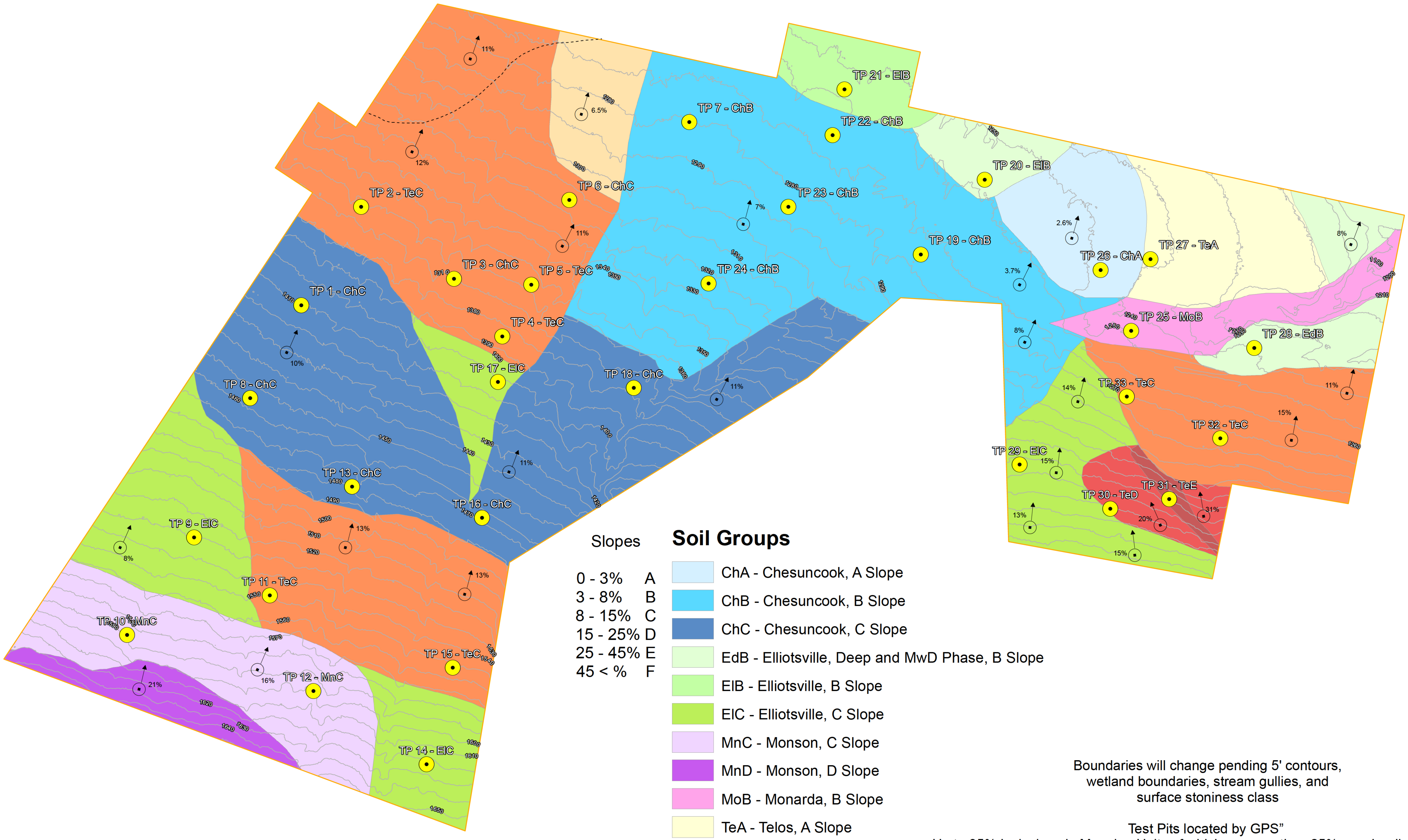
BOYLE ASSOCIATES

Sewall
The evolution of expertise
Since 1880

SOIL SURVEY PROJECT LOCATION MAP
BIG MOOSE MOUNTAIN REDEVELOPMENT PROJECT
GREENVILLE, MAINE

PROJECT # 600	MARCH 17, 2021

EXHIBIT 2 – SOIL MAP



Slopes

0 - 3%	A
3 - 8%	B
8 - 15%	C
15 - 25%	D
25 - 45%	E
45 < %	F

Soil Groups

- ChA - Chesuncook, A Slope
- ChB - Chesuncook, B Slope
- ChC - Chesuncook, C Slope
- EdB - Elliotsville, Deep and MwD Phase, B Slope
- ElB - Elliotsville, B Slope
- ElC - Elliotsville, C Slope
- MnC - Monson, C Slope
- MnD - Monson, D Slope
- MoB - Monarda, B Slope
- TeA - Telos, A Slope
- TeB - Telos B, Slope
- TeC - Telos, C Slope
- TeD - Telos, D Slope
- TeE - Telos, E Slope

Boundaries will change pending 5' contours, wetland boundaries, stream gullies, and surface stoniness class

Test Pits located by GPS"
Up to 35% Inclusions in Mapping Units of which no more than 25% may be dissimilar soils.
Mapping Units of 1 acre or greater

NW corner not mapped due to property blazes found didn't go past blazes

Date of Report: 3/17/2021
Date of soil profile observations: 1/13/2021, 1/14/2021, 1/18/2021, 1/25/2021

Legend

- Test Pit Locations
- Soil Survey Boundary
- 10ft Contour Intervals

Scale
0 400 Feet
1 inch = 200 feet

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PRELIMINARY CLASS B SOIL SURVEY
BIG MOOSE MOUNTAIN REDEVELOPMENT PROJECT
GREENVILLE, MAINE

PROJECT # 600 | MARCH 17, 2021

EXHIBIT 3 – NRCS WEB SOIL SURVEY

United States Department of Agriculture

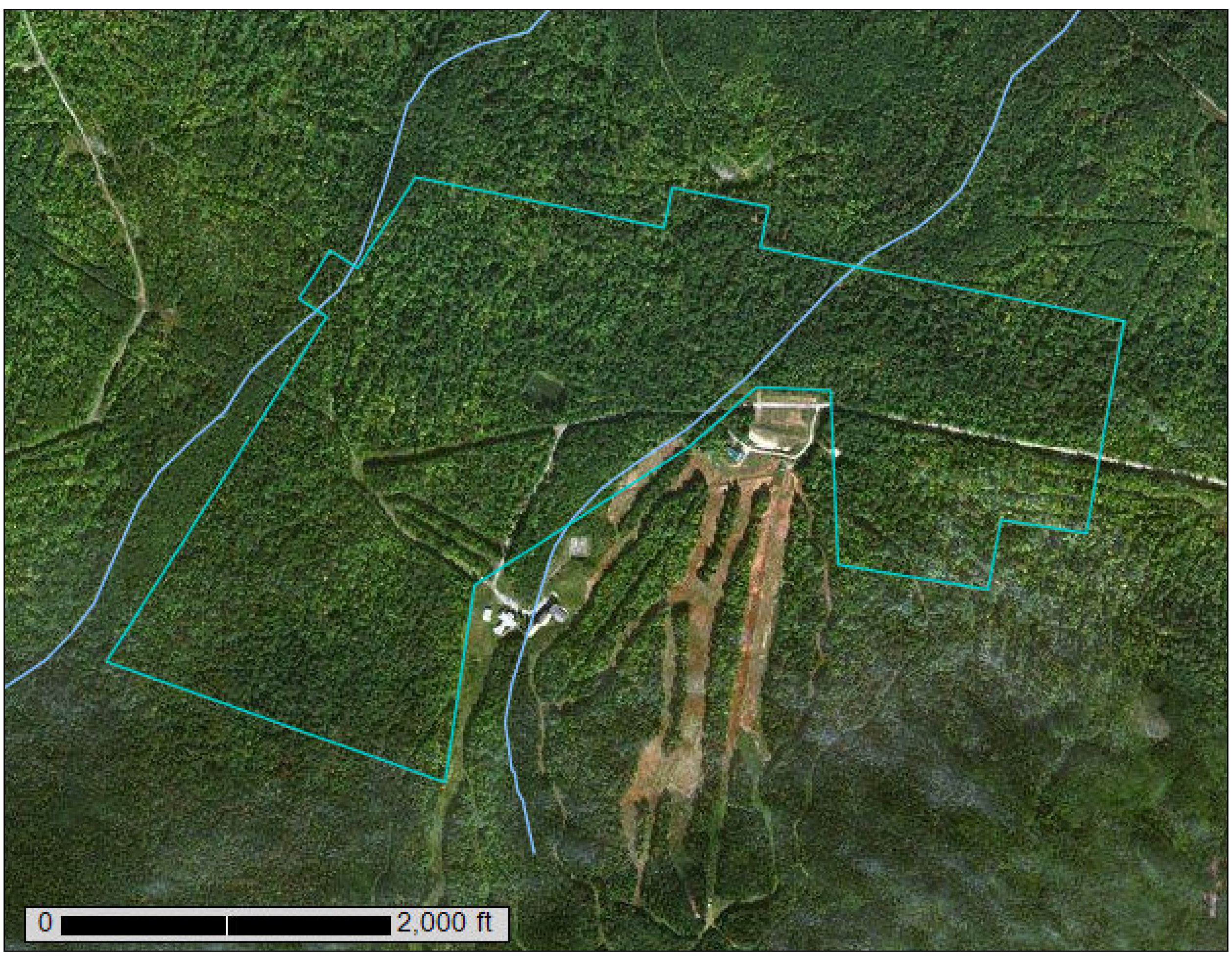
NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for

Piscataquis County, Maine, Southern Part



March 12, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Soil Map

Map Scale: 1:10,400 if printed on A landscape (11" x 8.5") sheet.

Meters: 0, 150, 300, 600, 900

Feet: 0, 500, 1000, 2000, 3000

N

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Piscataquis County, Maine, Southern Part
Survey Area Data: Version 23, Jun 3, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 24, 2014—Sep 21, 2016

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
THC	Telos-Chesuncook association, 3 to 15 percent slopes, very stony	241.0	97.3%
TMB	Monarda-Telos complex, 0 to 8 percent slopes, very stony	6.6	2.7%
Totals for Area of Interest		**247.6**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Piscataquis County, Maine, Southern Part

THC—Telos-Chesuncook association, 3 to 15 percent slopes, very stony

Map Unit Setting

National map unit symbol: 2t0jz
Elevation: 120 to 2,500 feet
Mean annual precipitation: 35 to 52 inches
Mean annual air temperature: 37 to 44 degrees F
Frost-free period: 80 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition

Telos and similar soils: 50 percent
Chesuncook and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Telos

Setting

Landform: Drumlinoid ridges
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Loamy lodgment till

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
E - 3 to 5 inches: silt loam
Bs - 5 to 13 inches: loam
BC - 13 to 19 inches: loam
Cd - 19 to 65 inches: loam

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 15 to 23 inches to densic material
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 6 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Hydric soil rating: No

Description of Chesuncook

Setting

Landform: Drumlinoid ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy lodgment till

Typical profile

Oa - 0 to 2 inches: highly decomposed plant material
E - 2 to 4 inches: silt loam
Bs - 4 to 20 inches: gravelly silt loam
BC - 20 to 24 inches: gravelly loam
Cd - 24 to 65 inches: gravelly loam

Properties and qualities

Slope: 3 to 15 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 21 to 31 inches to densic material
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 16 to 28 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C/D
Hydric soil rating: No

Minor Components

Monarda

Percent of map unit: 6 percent
Landform: Drumlinoid ridges
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Concave
Hydric soil rating: Yes

Ragmuff

Percent of map unit: 4 percent
Landform: Drumlinoid ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Elliottsville

Percent of map unit: 4 percent

Landform: Drumlinoid ridges
Landform position (two-dimensional): Shoulder, summit, backslope
Landform position (three-dimensional): Side slope, nose slope
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Monson
Percent of map unit: 1 percent
Landform: Drumlinoid ridges
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

TMB—Monarda-Telos complex, 0 to 8 percent slopes, very stony

Map Unit Setting
National map unit symbol: 2slvg
Elevation: 120 to 2,500 feet
Mean annual precipitation: 34 to 52 inches
Mean annual air temperature: 37 to 44 degrees F
Frost-free period: 80 to 145 days
Farmland classification: Not prime farmland

Map Unit Composition
Monarda and similar soils: 45 percent
Telos and similar soils: 40 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Monarda

Setting
Landform: Ground moraines
Landform position (two-dimensional): Toeslope, footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy lodgment till

Typical profile
Oe - 0 to 3 inches: mucky peat
Eg - 3 to 6 inches: silt loam
Bg - 6 to 20 inches: silt loam
Cd - 20 to 65 inches: gravelly silt loam

Properties and qualities
Slope: 0 to 5 percent

Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 12 to 27 inches to densic material
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Hydric soil rating: Yes

Description of Telos

Setting

Landform: Ground moraines
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy lodgment till

Typical profile

Oe - 0 to 3 inches: moderately decomposed plant material
E - 3 to 5 inches: silt loam
Bs - 5 to 13 inches: loam
BC - 13 to 19 inches: loam
Cd - 19 to 65 inches: loam

Properties and qualities

Slope: 3 to 8 percent
Surface area covered with cobbles, stones or boulders: 1.5 percent
Depth to restrictive feature: 15 to 23 inches to densic material
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low (0.01 to 0.14 in/hr)
Depth to water table: About 6 to 20 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Burnham

Percent of map unit: 7 percent
Landform: Ground moraines
Landform position (two-dimensional): Toeslope

Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Chesuncook

Percent of map unit: 4 percent
Landform: Drumlinoid ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ragmuff

Percent of map unit: 3 percent
Landform: Ground moraines
Landform position (two-dimensional): Footslope
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Wonsqueak

Percent of map unit: 1 percent
Landform: Ground moraines
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, talf
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: Yes

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BOYLE ASSOCIATES

EXHIBIT 4 – TITLE SUMMARY

Title Summary

1. Big Moose Mountain Redevelopment Project
2. Town of Greenville, Piscataquis County, Maine
3. Report Date: 3/17/2021
4. Dates of soil profile observations: 1/13/2021, 1/14/2021, 1/18/2021, 1/25/2021,
5. Base Map Information
    a. 10’ contour intervals
    b. Scale 1”=200’
    c. Contour data from 2016 USGS Lidar
6. Test Pits Located by GPS
7. Class B – Soil Survey Map
    a. Mapping units of one acre or greater.
    b. Scale of 1”=200’ or larger
    c. Up to 35% inclusions in mapping units of which no more than 25% may be dissimilar soils.
    d. Test pits located by GPS
    e. Base map with 5’ contour lines. Base map will be updated with 5’ contour lines when data is sufficient.

EXHIBIT 5 – MAP UNIT DESCRIPTIONS

MAP UNIT DESCRIPTION: TELOS SERIES

The Telos series consists of somewhat poorly drained soils on till plains, hills, and ridges. They are shallow to dense lodgement till and very deep to bedrock. These soils formed in till. Saturated hydraulic conductivity is moderately high or high in the solum and low to moderately high in the substratum. Slope ranges from 0 to 25 percent. Mean annual temperature is about 4.4 degrees C, and mean annual precipitation is about 97 centimeters at the type location.

TAXONOMIC CLASS: Loamy, isotic, frigid, shallow Aquic Haplorthods

TYPICAL PEDON: Telos silt loam, on a 3 percent slope in a very stony forested area, at an elevation of about 500 meters. (Colors are for moist soil.)

Oi -- 0 to 5 centimeters; dark brown (7.5YR 3/4) slightly decomposed plant material; weak medium granular structure; very friable; common very fine and fine roots throughout; extremely acid; abrupt wavy boundary.

Oe -- 5 to 8 centimeters; black (10YR 2/1) moderately decomposed plant material; weak medium granular structure; very friable; few very fine roots throughout; extremely acid; abrupt wavy boundary. (Combined thickness of the O horizons is 5 to 18 centimeters.)

E -- 8 to 13 centimeters; light brownish gray (10YR 6/2) silt loam; weak medium subangular blocky structure; friable, common fine roots throughout; 5 percent gravel; extremely acid; abrupt wavy boundary. (0 to 15 centimeters thick.)

Bs -- 13 to 33 centimeters; brown (7.5YR 5/4) loam; weak medium subangular blocky structure; friable; common very fine to medium roots throughout; 5 percent gravels and 5 percent channers; very strongly acid; clear wavy boundary. (10 to 30 centimeters thick.)

BC -- 33 to 48 centimeters; light olive brown (2.5Y 5/4) loam; weak fine subangular blocky structure; friable; few very fine and fine roots throughout; 1 percent fine faint light yellowish brown (2.5Y 6/3), moist, areas of iron depletion throughout and 10 percent fine prominent strong brown (7.5YR 5/6), moist, masses of oxidized iron throughout; 5 percent gravels; strongly acid; clear wavy boundary. (0 to 18 centimeters thick.)

Cd -- 48 to 152 centimeters; olive (5Y 5/3) loam; structureless massive; firm; 1 percent fine prominent brownish yellow (10YR 6/8), moist, masses of oxidized iron throughout and 10 percent fine distinct light brownish gray (10YR 6/2), moist, areas of iron depletion throughout; 5 percent gravels and 5 percent channers; strongly acid.

TYPE LOCATION: Somerset County, Maine; Township 5, Range 15; 6.0 miles east of Ragmuff Road on the Bean Pot Road; USGS Bean Pot Pond, ME topographic quadrangle; Latitude 46 degrees, 5 minutes, 37.2 seconds N. and Longitude 69 degrees, 39 minutes, 30.9 seconds W., NAD 1927.

RANGE IN CHARACTERISTICS: Thickness of the solum ranges from 33 to 50 centimeters. Thickness of the mineral soil over the dense till ranges from 25 to 50 centimeters. Depth to bedrock is more than 152 centimeters. Texture of the fine-earth fraction in the solum is silt loam, loam, very fine sandy loam, and fine sandy loam. The weighted average of clay in the particle-size control section is 10 to 18 percent. Texture in the Cd layer is silt loam and loam in the fine-earth fraction. Rock fragment content ranges from 5 to 35 percent in the E or A horizons where present, and from 5 to 25 percent in the underlying material. Rock fragments are mainly channers and pebbles, but in the A and E horizons of some pedons they are mainly cobbles. Stones and boulders cover from 0 to 25 percent of the surface. Reaction ranges from extremely acid to moderately acid in the solum, and from strongly acid to slightly acid in the substratum.

The O horizon has a hue of 2.5YR to 10YR, value of 2 to 3, and chroma of 1 or 4.

Some areas have an Ap horizon with hue of 10YR and value and chroma of 3 or 4.

The E horizon has hue of 5YR to 10YR, value of 5 to 7, and chroma of 1 or 2. Consistence is very friable or friable.

The Bhs horizon has hue of 2.5YR or 5YR, with value and chroma of 2.5 or 3. The Bh horizon, where present, has hue of 7.5YR to 10YR, value of 2 to 3, and chroma of 2 or 3.

The Bs horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 4 to 8. Consistence is very friable or friable.

The BC horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 3 or 4. Consistence is friable or firm.

Some pedons ahave an E' horizon with hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 2. Consistence is friable or firm.

The Cd layer has hue of 2.5Y or 5Y, value of 3 to 5, and chroma of 1 to 4. It is massive or it has strong very coarse prisms which may part to weak to strong, thin to very thick plates, or moderate or strong, fine to coarse angular blocks. Arrangement of soil particles into structural aggregates is considered to be inherited from the parent material. Consistence is firm or very firm.

COMPETING SERIES: Colonel is the only other series in the same family. Colonel soils have less than 10 percent clay content in the particle-size control section.

Chesuncook, Daigle, Dixfield, Dixmont, Howland, Peru, Skerry, and Sunapee series are in related families. Chesuncook soils are moderately deep to dense till, moderately well drained, and do not have redox depletions within 16 inches from the mineral soil surface. Daigle soils from 18 to 27 percent clay content in the particle-size control section. Dixfield, Dixmont, Howland, Peru, Skerry, and Sunapee soils have less than 10 percent clay in the particle-size control section.

GEOGRAPHIC SETTING: Telos soils are on upland till plains, hills, and ridges. Slope ranges from 0 to 25 percent. The soils formed in dense glacial till derived mainly from slate and other dark colored sedimentary and metamorphic rocks. The climate is humid and cool temperate. The mean annual temperature ranges from 2 to 7 degrees C and mean annual precipitation ranges from 86 to 117 centimeters. The frost-free season ranges from 80 to 130 days. Elevation ranges from 100 to 840 meters above mean sea level.

GEOGRAPHICALLY ASSOCIATED SOILS: These are
the Burnham, Chesuncook, Elliottsville, Monarda, Monson, Ragmuff, and Thorndike soils. The Burnham and Monarda soils occur in lower positions on the landscape and are wetter. Chesuncook soils are better drained and are in higher positions on the landscape. Elliottsville, Monson, Ragmuff, and Thorndike soils are shallower to bedrock and occur in higher positions on the landscape.

DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY: Somewhat poorly drained. Saturated hydraulic conductivity is moderately high or high in the mineral solum and low to moderately high in the substratum.

USE AND VEGETATION: Mostly forest. Common tree species include red spruce, white spruce, balsam fir, yellow birch, paper birch, and red maple.

DISTRIBUTION AND EXTENT: Maine. MLRA 143, 144B, and 146. The series is of moderate extent.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Amherst, Massachusetts.

SERIES ESTABLISHED: Soil survey of Franklin County Area and Part of Somerset County, Maine, 1992.

REMARKS: Series classification was revised 11/05 from Coarse-loamy, isotic, frigid, shallow Aquic Haplorthods to Loamy, isotic, frigid, shallow Aquic Haplorthods to reflect shallow characteristic. Competing series section revised 5/06 to reflect classification.

Diagnostic horizons and features recognized in this pedon include:

a. Albic horizon - the zone from 8 to 13 centimeters (E horizon).
b. Spodic horizon - the zone from 13 to 33 centimeters (Bhs and Bs1 horizons).
c. Cambic horizon - the zone from 33 to 48 centimeters (BC horizon).
c. Densic materials - firm, dense lodgement till at a depth of 48 centimeters.
d. Aquic conditions - redoximorphic features at 25 centimeters below the mineral soil surface.

MAP UNIT DESCRICPTION: CHESUNCOOK SERIES

The Chesuncook series consists of very deep, moderately well drained soils on till plains, hills, ridges, and mountains. These soils formed in dense glacial till. Saturated hydraulic conductivity is moderately high or high in the solum, and low to moderately high in the dense substratum. Slope ranges from 3 to 45 percent. Mean annual temperature is about 4 degrees C, and mean annual precipitation is about 1092 mm at the type location.

TAXONOMIC CLASS: Coarse-loamy, isotic, frigid Aquic Haplorthods

TYPICAL PEDON: Chesuncook silt loam, on a 9 percent northeast-facing slope in a very stony forested area. (Colors are for moist soil.)

Oa--0 to 3 centimeters; black (5YR 2/1) highly decomposed plant material; weak fine granular structure; many very fine and few medium and coarse roots; extremely acid; abrupt wavy boundary. (0 to 10 centimeters thick.)

E--3 to 10 centimeters; pinkish gray (7.5YR 6/2) silt loam; weak very fine granular structure; very friable; many very fine and few fine, medium and coarse roots; 10 percent gravel and channers, 2 percent cobbles and 1 percent stones; extremely acid; abrupt broken boundary. (0 to 10 centimeters thick.)

Bhs--10 to 13 centimeters; dark reddish brown (5YR 3/3) silt loam; moderate very fine granular structure; very friable; many very fine and fine, and few medium and coarse roots; 10 percent gravel and channers, 3 percent cobbles and 1 percent stones; very strongly acid; abrupt broken boundary. (0 to 10 centimeters thick.)

Bs1--13 to 27 centimeters; reddish brown (5YR 4/4) silt loam; moderate very fine granular structure; very friable; many very fine and fine, and few medium and coarse roots; 10 percent gravel and channers, 3 percent cobbles and 1 percent stones; very strongly acid; clear wavy boundary.

Bs2--27 to 45 centimeters; dark yellowish brown (10YR 4/4) gravelly silt loam; weak fine granular structure; very friable; common very fine and fine, and few medium roots; 15 percent gravel and channers, 3 percent cobbles and 1 percent stones; strongly acid; clear wavy boundary. (Combined thickness of the Bs horizon is 10 to 45 centimeters.)

BC--45 to 53 centimeters; light olive brown (2.5Y 5/4) gravelly loam; weak medium platy structure; friable; few very fine and fine roots; common medium distinct dark yellowish brown (10YR 4/6) masses of iron accumulation and few medium distinct grayish brown (2.5Y 5/2) iron depletions; 20 percent gravel and channers, 3 percent cobbles and 1 percent stones; strongly acid; clear wavy boundary. (0 to 20 centimeters thick.)

Cd--53 to 165 centimeters; light olive brown (2.5Y 5/3) gravelly loam; strong very coarse prisms parting to weak very thick plates; very firm; light brownish gray (2.5Y 6/2) faces of prisms which are separated by a thin layer of strong brown (7.5YR 5/6); common medium prominent strong brown (7.5YR 4/6) masses of iron accumulation and common coarse faint light olive gray (5Y 6/2) iron depletions; 25 percent gravel and channers, 3 percent cobbles and 1 percent stones; moderately acid.

TYPE LOCATION: Piscataquis County, Maine; Township of Shirley; 2.1 miles northwest of West Shirley Bog outlet; USGS Bald Mtn Pond, ME topographic quadrangle; Latitude 45 degrees, 22 minutes, 27 seconds N. and Longitude 69 degrees, 43 minutes, 16 seconds W., NAD 1927.

RANGE IN CHARACTERISTICS: Thickness of the mineral solum ranges from 50 to 70 centimeters. Depth to bedrock is more than 165 centimeters. The weighted average of clay in the particle-size control section is 10 to 18 percent. Rock fragment content ranges from 5 to 25 percent in the A, E and B horizons, from 10 to 35 percent in the BC horizon, and from 10 to 35 percent in the Cd layer. Rock fragments are mainly gravel, with stones and cobbles ranging from 0 to 20 percent throughout the mineral soil. Stones and boulders cover from 0 to 15 percent of the surface. Reaction ranges from extremely acid to moderately acid in the solum and from very strongly acid to neutral in the substratum. Redoximorphic features are deeper than 41 centimeters from the mineral soil surface.

The Oa horizon has hue of 10YR to 5YR, value of 2 to 3, and chroma of 1 or 2. Some pedons have Oi and/or Oe horizons.

Some pedons have an Ap or A horizon with hue of 10YR, and value and chroma of 3 or 4. Texture of the fine-earth fraction is silt loam, loam, very fine sandy loam, or fine sandy loam. Consistence is very friable or friable.

The E horizon has hue of 5YR to 10YR, value of 6 or 7, and chroma of 1 or 2. Texture of the fine-earth fraction is silt loam, loam, very fine sandy loam, or fine sandy loam. Consistence is very friable or friable.

The Bh horizon, where present, has hue of 2.5YR to 7.5YR, value of 2 to 3, and chroma of 1 to 3. The Bhs horizon has hue of 2.5YR or 5YR, with value and chroma of 2 to 3. The Bs horizon has hue of 5YR to 10YR, value of 3 to 5, and chroma of 4 to 8. Texture in the fine-earth fraction of the B horizons is silt loam, loam, very fine sandy loam, or fine sandy loam. Consistence is very friable or friable.

The BC horizon has hue of 2.5Y or 5Y, value of 4 to 6, and chroma of 2 to 4. Texture in the fine-earth fraction is silt loam, loam, very fine sandy loam, or fine sandy loam. Consistence is friable or firm.

The E' horizon, where present, has hue of 2.5Y or 5Y, value of 5 or 6, and chroma of 2. Texture in the fine-earth fraction is silt loam, loam, very fine sandy loam, or fine sandy loam. Consistence is friable or firm.

The Cd layer has hue of 2.5Y or 5Y, value of 3 to 5, and chroma of 2 to 6. It is massive or has platy or prismatic geogenic structural units. Texture in the fine earth fraction is silt loam or loam. Any soil structural units in the Cd horizon are considered to be geogenic. Consistence is firm or very firm.

COMPETING SERIES: These are the Crary, Dixfield, Dixmont, Howland, Peru, Skerry, Sunapee, and Worden series. Crary soils have a thin aeolian or water deposited mantle. Dixfield, Howland, Peru, and Skerry soils have less than 10 percent clay in the particle-size control section. Dixmont and Sunapee soils lack densic contact. Worden soils have less than 10 percent clay in the particle-size control section and have a Bh horizon more than 4 inches thick.

GEOGRAPHIC SETTING: Chesuncook soils are on upland till plains, hills, ridges and mountains. Slope ranges from 3 to 45 percent. The soils formed in dense glacial till derived mainly from slates and other dark colored sedimentary and metamorphic rocks. The climate is humid and cool temperate. The mean annual temperature ranges from 3 to 7 degrees C, and mean annual precipitation ranges from 864 to 1168 mm. The frost-free season ranges from 80 to 130 days. Elevation ranges from 91 to 762 m above mean sea level.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Burnham, Elliottsville, Monarda, Monson, and Telos soils. Burnham, Monarda and Telos are wetter soils that formed in similar material but are in lower positions on the landscape or are less sloping. Elliottsville soils are moderately deep to bedrock and are in higher positions on the landscape. Monson soils are shallow to bedrock and are on higher knolls on the landscape.

DRAINAGE AND SATURATED HYDRAULIC CONDUCTIVITY: Moderately well drained. Saturated hydraulic conductivity is moderately high or high in the solum, and low to moderately high in the dense substratum.

USE AND VEGETATION: Mostly forest. Common tree species include red maple, sugar maple, American beech, paper birch, yellow birch, red and white spruce, and balsam fir.

DISTRIBUTION AND EXTENT: Maine and Vermont. MLRA's 143, 144B, and 146. The series is of large extent.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Amherst, Massachusetts

SERIES ESTABLISHED: Franklin County Area and Part of Somerset County soil survey, 1992.

REMARKS: Mineral solum thickness was narrowed with revision, 10/08, to ensure single family placement. The competing series section was revised accordingly. It is recognized that in historic correlation, some pedons now have a shallow depth class. This could done through MLRA update.

Diagnostic horizons and features recognized in this pedon include:
1. Ochric epipedon - 0 to 3 centimeters (Oa horizon).
2. Albic horizon - the zone from 3 to 10 centimeters (E horizon).
3. Spodic horizon - the zone from 10 to 27 centimeters (Bhs and Bs1 horizons).
4. Cambic horizon - the zone from 27 to 53 centimeters (Bs and BC horizons).
5. Densic contact - very firm, dense till at a depth of 21 inches.
6. Aquic Conditions - redoximorphic features at 42 centimeters below the mineral soil surface.

MAP UNIT DESCRIPTION: MONARDA SERIES

The Monarda series consists of poorly drained soils formed in dense till on lower slopes or in slight depressions on till plains. They are very deep to bedrock and shallow to dense till. Estimated saturated hydraulic conductivity is moderately high to high in the subsurface and upper part of the subsoil and low to moderately high in the lower part of the subsoil and in the substratum. Slope ranges from 0 to 15 percent. Mean annual temperature is about 4 degrees C and mean annual precipitation is about 940 mm at the type location.

TAXONOMIC CLASS: Loamy, mixed, active, acid, frigid, shallow Aeric Endoaquepts

TYPICAL PEDON: Monarda silt loam on a 2 percent north-facing slope in a very stony forested area. (Colors are for moist soil.)

Oe--0 to 8 cm; black (5YR 2/1) mucky peat (hemic material); weak medium granular structure; very friable; many very fine, fine, medium and coarse roots; extremely acid; abrupt wavy boundary. (0 to 15 cm thick)

Eg--8 to 15 cm; light gray (10YR 7/2) silt loam; weak thin platy structure; friable; many fine, medium and coarse roots; 5 percent gravel; extremely acid; clear wavy boundary. (0 to 25 cm thick)

Bg1--15 to 28 cm; light brownish gray (2.5Y 6/2) silt loam; weak thin platy structure; friable; common fine and medium roots; many medium faint pale olive (5Y 6/3) masses of iron accumulation; 10 percent gravel; very strongly acid; clear wavy boundary.

Bg2--28 to 41 cm; light olive gray (5Y 6/2) silt loam; weak thin platy structure; firm, few fine and medium roots; many medium distinct light olive brown (2.5Y 5/4) masses of iron accumulation; 10 percent gravel; strongly acid; clear wavy boundary. (The combined thickness of the Bg horizon is 5 to 41 cm)

BC--41 to 51 cm; olive (5Y 5/4) silt loam; massive; firm; few fine roots; many medium faint light olive brown (2.5Y 5/4) masses of iron accumulation and common fine distinct gray (5Y 6/1) iron depletions; 10 percent gravel; moderately acid; abrupt smooth boundary. (0 to 38 cm thick)

Cd--51 to 165 cm; olive (5Y 4/3) gravelly silt loam; strong very coarse prisms; firm, olive gray (5Y 5/2) faces of prisms which are separated from interiors of prisms by a thin layer of brown (7.5YR 4/4); common fine distinct gray (5Y 6/1) iron depletions and common medium faint light olive brown (2.5Y 5/4) masses of iron accumulation; 15 percent gravel; slightly acid.

TYPE LOCATION: Somerset County, Maine, Brassua Township (T2R2); 7.5 miles north on the Demo Road from Maine Routes 6 and 15 to a gravel pit on the east side of the road, through the pit and 2.5 miles east-southeast on a logging road, the site is 200 feet west of the road; USGS Brassua Lake West topographic quadrangle; lat. 45 degrees 40 minutes 30 seconds N. and long. 69 degrees 55 minutes 35 seconds W., NAD27.

RANGE IN CHARACTERISTICS: Thickness of the mineral solum ranges from 30 to 50 cm. Depth to bedrock is more than 152 cm. The weighted average of clay in the particle-size control section is 10 to 18 percent. Rock fragment content ranges from 5 to 70 percent in the Eg and A horizons, where present, and are mainly pebble and cobble size. Throughout the remainder of the mineral soil profile, rock fragments are mainly pebble size, the weighted average ranging from 5 to 35 percent. Some pedons have channers. Stones and boulders cover 0 to 35 percent of the surface.

The Oe horizon, and Oa horizon, where present, have hue of 2.5YR to 10YR, value of 2 to 3, and chroma of 1 or 2. They have weak or moderate, very fine to medium granular structure. Consistence is very friable or friable.

The A and Ap horizons, where present, have hues of 10YR or 2.5Y, value of 3 or 4, and chroma of 1 to 3. They are silt loam, loam, very fine sandy loam, or fine sandy loam in the fine-earth fraction. They have weak to strong, fine or medium granular structure and are very friable or friable. Reaction is extremely acid to moderately acid unless limed.

The Eg horizon, where present, has hue of 7.5YR to 5Y, value of 5 to 7, and chroma of 1 or 2. It is silt loam, loam, very fine sandy loam, or fine sandy loam in the fine-earth fraction. It has weak thin or medium platy, weak fine subangular blocky, weak very fine or fine granular or weak very coarse prismatic structure or the horizon is massive. Consistence is very friable to firm. Reaction is extremely acid to moderately acid.

The B horizon has hue of 10YR to 5Y, value of 4 to 6, and chroma of 1 to 4. It is silt loam, loam or very fine sandy loam in the fine-earth fraction. It has weak or moderate, thin to very thick platy structure or very fine to medium subangular blocky, or weak very fine to medium granular or weak coarse prismatic parting to moderate medium platy. Consistence is friable or firm, nonsticky or slightly sticky and nonplastic or slightly plastic. Reaction is extremely acid to moderately acid.

The BC horizon has hue of 2.5Y or 5Y, value of 4 or 5, and chroma of 2 to 4. It is silt loam, loam, or very fine sandy loam in the fine-earth fraction. It has weak or moderate, medium to very thick platy structure, or weak or moderate subangular blocky, or weak to strong, coarse or very coarse prismatic parting to weak or moderate, medium to very thick platy or it is massive. Consistence is firm or very firm, nonsticky or slightly sticky and nonplastic or slightly plastic. Some pedons have an E' horizon that has characteristics similar to those of the BC horizon. Reaction is very strongly acid to moderately acid.

The Cd layer has hue of 2.5Y, 5Y, or 5GY, value of 4 to 6, and chroma of 1 to 4. It is silt loam, loam or very fine sandy loam in the fine-earth fraction. It has weak or moderate, thin to very thick plates or weak to strong, coarse or very coarse prisms that may part to plates, all of which is interpreted as inherited from the parent material, or the horizon is massive. Consistence is firm or very firm, slightly sticky and slightly plastic or plastic. Reaction is strongly acid to neutral.

COMPETING SERIES: There are currently no other series in the same family Pillsbury soils are in a related family. They have less than 10 percent clay in the particle-size control section.

GEOGRAPHIC SETTING: Monarda soils are on lower slopes or in slight depressions on till plains. Slopes range from 0 to 15 percent. The soils formed in dense glacial till derived mainly from slate, metasandstone, phyllite and shale with small amounts of granite, fine grained quartzite and sandstone. The climate is humid and cool temperate. The mean annual temperature ranges from 3 to 7 degrees C, and mean annual precipitation ranges from 864 to 1168 mm. The frost-free season ranges from 80 to 130 days. Elevation ranges from 36 to 762 m above mean sea level.

GEOGRAPHICALLY ASSOCIATED SOILS: These are
the Bangor, Burnham, Chesuncook, Dixmont, Elliottsville, Howland, Monson, Penquis, Plaisted, Telos, Thorndike and Winnecook soils. The Bangor, Chesuncook, Dixmont, Howland, Plaisted, and Telos soils are better drained and are in higher positions on the landscape. Burnham soils are wetter soils in depressions. Elliottsville, Monson, Penquis, Thorndike and Winnecook soils are better drained, shallower to bedrock and are in higher positions on the landscapes.

DRAINAGE AND PERMEABILITY: Poorly drained. Estimated saturated hydraulic conductivity is moderately high to high in the subsurface and upper part of the subsoil and low to moderately high in the lower part of the subsoil and in the substratum.Permeability is moderate to moderately rapid in the subsurface, moderate to moderately slow in the upper part of the subsoil and slow or very slow in the lower part of the subsoil and in the substratum.

USE AND VEGETATION: Mostly forest. Common tree species include red spruce, balsam fir, black spruce, northern white cedar, red maple, eastern white pine, eastern hemlock, and paper birch. A few areas are in hay or pastures.

DISTRIBUTION AND EXTENT: Maine, New Hampshire, and New York. The series is of large extent.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Amherst, Massachusetts

SERIES ESTABLISHED: Penobscot County, Maine, 1947.

REMARKS: Mineral solum thickness range narrowed to insure single family placement (rev. 2/2007). It is recognized that historically the series concept included deeper members. Family changed from coarse-loamy to loamy and great group from Epiaquepts to Endoaquepts with revision, 1/2005. The Monarda soils are borderline between acid and nonacid with the majority of pedons tested being acid. The current classification reflects this.

Note the series Typical Pedon needs evaluation as it is not shallow. See historical notes.

Diagnostic horizons and features recognized in this pedon include:

1. Ochric epipedon - the zone from 0 to 15 cm (Oe and Eg horizons).
2. Cambic horizon - the zone from 15 to 51 cm (Bg1, Bg2 and BC horizons).
3. Aquic conditions - redoximorphic features 8 cm below the mineral surface.
4 Endosaturation - classification defaults to Endoaquepts as the densic contact is not applicable to

diagnostic horizons and properties.
5 Aeric feature - chroma of 4 in the BC horizon
6 Densic contact - Cd layer at a depth of 51 cm.

MAP UNIT DESCRIPTION: MONSON SERIES

The Monson series consists of shallow, somewhat excessively drained soils formed in glacial till on knolls of till plains, and on hills, ridges and mountains. Estimated saturated hydraulic conductivity is moderate or high. Slope ranges from 3 to 60 percent. Mean annual temperature is about 3 degrees C, and mean annual precipitation is about 965 mm at the type location.

TAXONOMIC CLASS: Loamy, isotic, frigid Lithic Haplorthods

TYPICAL PEDON: Monson silt loam, on a 15 percent west-facing slope in a very stony, wooded area. (Colors are for moist soil.)

Oa--0 to 10 cm; dark reddish brown (5YR 2/2) sapric material; moderate fine granular structure; very friable; many very fine, fine, medium and coarse roots; extremely acid; abrupt wavy boundary. (0 to 15 cm thick)

E--10 to 13 cm; light gray (10YR 7/1) channery silt loam; weak fine granular structure; very friable; common very fine, fine, medium and coarse roots; 15 percent channers; extremely acid; abrupt broken boundary. (0 to 13 cm thick)

Bh--13 to 15 cm; dark reddish brown (2.5YR 2/4) silt loam; moderate very fine and fine granular structure; very friable; common very fine, fine, medium and coarse roots; 5 percent channers; extremely acid; abrupt broken boundary. (0 to 10 cm thick)

Bs1--15 to 23 cm; brown (7.5YR 4/4) silt loam; weak very fine granular structure; very friable; common very fine, fine, medium and coarse roots; 5 percent channers; extremely acid; clear smooth boundary.

Bs2--23 to 28 cm; yellowish brown (10YR 5/8) silt loam; weak fine granular structure; very friable; few very fine, fine and medium roots; 10 percent channers; very strongly acid; clear smooth boundary. (The combined thickness of the Bs horizon is 13 to 33 cm.)

BC--28 to 48 cm; light olive brown (2.5Y 5/4) channery silt loam; weak very fine and fine granular structure; friable; few very fine, fine and medium roots; 20 percent channers and 10 percent flagstones; very strongly acid; abrupt irregular boundary. (0 to 20 cm thick)

R--48 cm; slate.

TYPE LOCATION: Somerset County, Maine; Elm Stream Township (T4 R16); 1.7 miles south on #7 road from Great Northern Paper Company's camps in T4 R16, and 150 feet into the woods on the east side of the logging road; USGS Seboomook Lake East topographic quadrangle; lat. 45 degrees 58 minutes 40 seconds N. and long. 69 degrees 45 minutes 02 seconds W.,NAD 27.

RANGE IN CHARACTERISTICS: Depth of mineral soil over bedrock ranges from 25 to 50 cm. Texture is silt loam, loam and very fine sandy loam in the fine-earth fraction. Rock fragment content ranges from 5 to

35 percent by volume. Stones and boulders cover from 0 to 15 percent of the surface. Consistence is very friable or friable. Reaction ranges from extremely acid to moderately acid.

The Oa horizon has hue of 2.5YR to 10YR, value of 2 to 3 and chroma of 1 or 2. It has weak or moderate, very fine to medium granular structure. Some pedons have an Oe horizon.

Some areas have an Ap horizon with hue of 10YR and with value and chroma of 3 or 4. The A horizon, where present, has hue of 5YR to 10YR, value of 2 or 3 and chroma of 1 to 3. They have weak or moderate, very fine or fine granular structure.

The E horizon is neutral or has hue of 5YR to 10YR, value of 5 to 7 and chroma of 0 to 2. It has weak very fine to medium granular or weak very thin platy structure.

The Bh horizon has hue of 2.5YR to 7.5YR, with value and chroma of 2 to 4. The Bhs horizon, where present, has hue of 2.5YR to 10YR, with value and chroma of 2 or 3.

The Bs horizon has hue of 5YR to 10YR, value of 4 to 6 and chroma of 4 to 8. The value ranges to 3 in some near surface subhorizons in some pedons. The B horizon has weak or moderate, very fine to medium granular, or very fine or fine subangular blocky structure.

The BC horizon has hue of 2.5Y or 5Y, value of 4 to 6 and chroma of 3 to 6. It has weak very fine or fine granular or subangular blocky structure.

The bedrock is typically slate, metasandstone, phyllite or schist.

COMPETING SERIES: These are the Amadon, Creasey, and Lyman series. Amadon soils have more than 50 percent fine sand or coarser throughout the series control section and developed over limestone. Creasey soils have less than 10 percent clay in the particle-size control section and developed over reddish sandstone and conglomerate. Lyman soils have less than 10 percent clay in the particle-size control section.

GEOGRAPHIC SETTING: Monson soils are on knolls of till plains and on hills, ridges and mountains. Slope ranges from 3 to 60 percent. The soils formed in a shallow mantle of glacial till derived principally from slate, metasandstone, phyllite or schist. The climate is humid and cool temperate. The mean annual temperature ranges from 3 to 7 degrees C, and mean annual precipitation ranges from 864 to 1168 mm. The frost-free season ranges from 80 to 135 days. Elevation ranges from 91 to 762 m above mean sea level.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the Chesuncook, Elliottsville, Monarda and Telos soils. The moderately well drained Chesuncook, poorly drained Monarda, and somewhat poorly drained Telos soils are all very deep to bedrock soils at lower elevations on the landscape. Elliottsville soils are well drained and moderately deep to bedrock.

DRAINAGE AND PERMEABILITY: Somewhat excessively drained. Estimated saturated hydraulic conductivity is moderate or high.

USE AND VEGETATION: Mainly forest. Common tree species include red spruce, white spruce, balsam fir, sugar maple, paper birch, yellow birch and eastern white pine with some northern white cedar.

DISTRIBUTION AND EXTENT: Maine; MLRAs 143 and 144B. The series is of moderate extent.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Amherst, Massachusetts

SERIES ESTABLISHED: Franklin County Area and Part of Somerset County, Maine Soil Survey, 1992.

REMARKS: Diagnostic horizons and features recognized in this pedon include:

1. Albic horizon - the zone from 10 to 13 cm (E horizon).
2. Spodic horizon - the zone from 13 to 23 cm (Bh and Bs1 horizons).
3. Lithic Haplorthods - lithic contact within 50 cm of the mineral soil surface.

MAP UNIT DESCRIPTION: ELLIOTTSVILLE SERIES

The Elliottsville series consists of moderately deep, well drained soils formed in glacial till on till plains, hills, ridges and mountains. Permeability is moderate. Slope ranges from 3 to 65 percent. Mean annual temperature is about 3 degrees C, and mean annual precipitation is about 970 mm at the type location.

TAXONOMIC CLASS: Coarse-loamy, isotic, frigid Typic Haplorthods

TYPICAL PEDON: Elliottsville silt loam, on a 10 percent south-facing slope in a very stony wooded area. (Colors are for moist soil.)

Oa--0 to 3 cm; dark reddish brown (5YR 2.5/2) sapric material; moderate fine granular structure; very friable; many very fine and fine, common medium and few coarse roots; extremely acid; abrupt wavy boundary. (0 to 10 cm thick)

E--3 to 5 cm; pinkish gray (7.5YR 7/2) silt loam; weak fine granular structure; friable; common very fine and fine and few medium and coarse roots; 10 percent channers; extremely acid; abrupt wavy boundary. (0 to 8 cm thick)

Bh--5 to 10 cm; dark reddish brown (5YR 3/4) silt loam; weak very fine and fine granular structure; very friable; common very fine, fine and medium and few coarse roots; 10 percent channers; extremely acid; abrupt wavy boundary. (0 to 15 cm thick)

Bs--10 to 28 cm; strong brown (7.5YR 5/6) flaggy loam; weak fine granular structure; very friable; common very fine and fine and few medium and coarse roots; 15 percent channers and 10 percent flagstones; very strongly acid; clear wavy boundary. (10 to 41 cm thick)

BC--28 to 43 cm; light olive brown (2.5Y 5/6) channery loam; weak fine and medium granular structure; friable; few very fine, fine, medium and coarse roots; 10 percent channers and 5 percent flagstones; strongly acid; gradual wavy boundary. (0 to 36 cm thick)

C--43 to 66 cm; olive (5Y 5/4) channery loam; weak medium platy structure; friable; few very fine roots; 10 percent channers and 5 percent flagstones; moderately acid; abrupt irregular boundary.

R--66 cm; slate.

TYPE LOCATION: Somerset County, Maine; Sandwich Academy Grant (T2 R1); 1.1 miles west of the Misery Stream bridge on Maine Route 15, 0.8 mile southwest of Maine Route 15 on a logging road, about 100 feet north of the Misery Gore township line; USGS Misery Knob topographic quadrangle; lat. 45 degrees 35 minutes 37 seconds N. and long. 69 degrees 55 minutes 12 seconds W.,NAD 27.

RANGE IN CHARACTERISTICS: Thickness of the solum ranges from 36 to 74 cm. Depth to bedrock ranges from 50 to 100 cm. Texture is silt loam, very fine sandy loam or loam in the fine-earth fraction. The weighted average of clay in the particle-size control section is 10 to 18 percent. Rock fragment content ranges from 5 to 35 percent by volume. Stones and boulders cover from 0 to 15 percent of the surface. Consistence is very friable or friable but ranges to firm in the C horizon. Reaction ranges from extremely acid to strongly acid in the solum and from very strongly acid to moderately acid in the substratum.

The Oa horizon, or the Oe horizon, where present, has hue of 5YR to 10YR, value of 2.5 or 3 and chroma of 1 or 2. It has weak or moderate, very fine to medium granular structure.

Some areas have an Ap horizon with hue of 10YR, and with value and chroma of 3 or 4. The A horizon, where present, has hue of 5YR to 10YR, value of 2 or 3 and chroma of 1 to 3. It has weak or moderate, very fine or fine granular structure.

The E horizon has hue of 5YR to 10YR, value of 4 to 7 and chroma of 1 to 3. It has weak very fine or fine granular or weak very thin platy structure.

The Bh horizon has hue of 2.5YR to 5YR, value of 2 to 5 and chroma of 2 to 6. The Bhs horizon, where present, has hue of 2.5YR to 10YR, with value and chroma of 2 or 3. The Bs horizon has hue of 5YR to 10YR, value of 4 or 5 and chroma of 4 to 8. They have weak or moderate very fine to medium granular or subangular blocky structure.

Some pedons have a BC horizon with hue of 2.5Y or 5Y, with value and chroma of 4 to 6. It has weak or moderate fine and medium granular, thin or medium platy or very fine to medium subangular blocky structure.

The C horizon has hue of 2.5Y or 5Y, value of 4 to 6 and chroma of 2 to 4. It has weak or moderate, thin to thick platy structure or the horizon is massive. Soil structure in the horizon is considered to be inherited from the parent material.

The bedrock is generally slate, metasandstone, phyllite or schist.

COMPETING SERIES: These are the Bangor, Berkshire, Dekapen, Groveton, Houghtonville, Penquis, Potsdam, Revel, Tunbridge and Welcome series. The Bangor, Berkshire, Groveton, Houghtonville and Potsdam soils are greater than 100 cm to bedrock. Dekapen, Revel, and Welcome soils are influenced by volcanic ash. Penquis soils have crushable rock fragments throughout. Tunbridge soils have less than 10 percent clay in the particle-size control section.

GEOGRAPHIC SETTING: Elliottsville soils are on till plains, hills, ridges and mountains. Slope is dominantly 8 to 15 percent but ranges from 3 to 65 percent. The soils formed in a moderately deep mantle of glacial till derived mainly from slate, metasandstone, phyllite or schist. The climate is humid and cool temperate. The mean annual temperature ranges from about 3 to 7 degrees C, and mean annual precipitation ranges from 860 to 1170 mm. The frost-free season ranges from 80 to 130 days. Elevation ranges from 91 to 762 m above mean sea level.

GEOGRAPHICALLY ASSOCIATED SOILS: These are the very deep Chesuncook, Monarda and Telos soils, and the shallow Monson soils. Chesuncook, Monarda and Telos soils are wetter soils in lower positions on the landscape. Monson soils are on higher knolls above the Elliottsville soils.

DRAINAGE AND PERMEABILITY: Well drained. Permeability is moderate.

USE AND VEGETATION: Mainly forest. Common tree species include American beech, yellow birch, red spruce, white spruce, balsam fir, red maple and sugar maple.

DISTRIBUTION AND EXTENT: Maine. The series is of large extent.

MLRA SOIL SURVEY REGIONAL OFFICE (MO) RESPONSIBLE: Amherst, Massachusetts

SERIES ESTABLISHED: Franklin County Area and Part of Somerset County, Maine Soil Survey, 1992.

REMARKS: Diagnostic horizons and features recognized in this pedon include:

1. Albic horizon- the zone from 3 to 5 cm (E horizon).
2. Spodic horizon - the zone from 5 to 28 cm (Bh and Bs horizons).
3. Lithic contact - hard bedrock at 66 cm. (R horizon).
3. Other features - frigid temperature regime and udic moisture regime.

EXHIBIT 6 - SOIL PHYSICAL PROPERTIES TABLE

Map symbol and soil name & Depth in Inches	Hydrologic Soil Group	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Organic matter	Erosion factors		
						Kw	Kf	T
	(A,B,C,D)	*g/cc*	*micro m/sec*	*In/In*	*Pct*			
Telos (TeB, TeA, Tec, TeD, TeE)	D	0.18-0.20-0.22	10.00-35.00-100.00	0.15-0.25-0.40	35.0-53.0-91.0			2
3-5		0.85-1.10-1.35	1.00-6.00-10.00	0.15-0.20-0.25	1.3- 2.8-5.2	.43	.43	
5-13		0.80-1.05-1.30	1.00-6.00-10.00	0.24-0.32-0.40	3.5- 5.2-9.5	.37	.37	
13-19		1.35-1.50-1.65	1.00-4.00-10.00	0.18-0.24-0.30	0.5- 1.3-2.3	.43	.43	
19-65		1.60-1.75-1.90	0.10-0.71-1.00	0.12-0.18-0.21	0.1- 0.3-0.5	.49	.49	
Chesuncook (ChA, ChB,ChC)	C/D	0.18-0.20-0.22	10.00-35.00-100.00	0.15-0.25-0.40	35.0-53.0-91.0			3
2-4		0.70-1.10-1.35	1.00-6.00-10.00	0.14-0.18-0.22	1.0- 2.8-5.0	.37	.37	
4-20		0.70-1.00-1.30	1.00-6.00-10.00	0.18-0.23-0.30	3.0- 5.5-10.5	.20	.32	
20-24		1.30-1.45-1.60	1.00-4.00-10.00	0.18-0.22-0.30	0.1- 1.0-2.0	.28	.49	
24-65		1.60-1.80-1.90	0.10-0.71-1.00	0.10-0.14-0.20	0.1- 0.3-0.5	.28	.49	
Monarda (MoB)	D	0.18-0.20-0.22	10.00-35.00-100.00	0.15-0.25-0.40	25.0-53.0-91.0			3
3-6		1.00-1.10-1.30	1.00-6.00-10.00	0.15-0.30-0.30	2.0- 5.0-8.0	.37	.37	

Map symbol and soil name & Depth in Inches	Hydrologic Soil Group	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Organic matter	Erosion factors		
						Kw	Kf	T
6-20		1.30-1.50-1.70	1.00-4.00-10.00	0.15-0.20-0.25	0.5- 1.8-4.0	.43	.43	
20-65		1.70-1.83-1.95	0.10-0.71-1.00	0.05-0.08-0.10	0.2- 0.3-0.5	.32	.49	
Elliottsville (EdB, ElB,ElC)	C	0.18-0.20-0.22	10.00-35.00-100.00	0.15-0.25-0.40	35.0-53.0-91.0			2
2-3		0.70-1.00-1.30	1.00-9.00-10.00	0.15-0.20-0.26	0.5- 1.8-3.0	.32	.32	
3-21		0.70-1.00-1.30	1.00-9.00-10.00	0.18-0.23-0.30	3.0- 5.0-10.0	.17	.28	
21-30		1.00-1.10-1.50	1.00-5.30-10.00	0.18-0.23-0.30	0.1- 1.8-2.5	.32	.43	
30-79		—	0.01-0.05-0.10	—	—			
Monson (MnC, MnD)	B	0.18-0.20-0.22	10.00-35.00-100.00	0.15-0.25-0.40	35.0-53.0-91.0			1
4-5		1.10-1.20-1.40	1.00-9.00-10.00	0.15-0.23-0.25	0.5- 1.8-3.0	.37	.55	
5-11		1.05-1.15-1.35	1.00-9.00-10.00	0.15-0.20-0.25	3.0- 5.6-10.0	.32	.32	
11-19		1.00-1.10-1.30	1.00-9.00-10.00	0.10-0.15-0.20	0.5- 1.8-2.0	.24	.43	
19-79		0.18-0.20-0.22	10.00-35.00-100.00	0.15-0.25-0.40	35.0-53.0-91.0			

Exhibit 23 – Water and Air Quality

The development will not create any adverse impacts to the water quality in the area. The resources will be protected through permanent and temporary erosion & sedimentation control measures and through the phosphorous management plan. See the project plans at the end of the application along with the narrative and support calculations in Exhibit 30. The project will not generate any adverse impacts on the water quality.

The development will not create any adverse impacts to the air quality. The project will not generate any significant amounts air pollution or odors.

Exhibit 24 – Erosion, Sedimentation & Drainage Control Measures

Erosion and sedimentation at the site will be primarily from and associated with the construction of the road, structures, stormwater structures and the grubbing and clearing of the land to be developed.

Erosion will be managed through the use of silt fencing, bark mulch berms, stone check dams and revegetation. Silt fencing or mulch berms will be installed prior to any other construction activities and will be maintained in working condition by the contractor until final soil stabilization is achieved. This will be inspected frequently as well.

Refer to the soils report in Section 22 for the soils data and discussion.

There are no known areas with existing erosion problems at the site.

The critical areas for this site during construction are the steep slopes and any disturbance near the wetlands and streams.

Construction activities associated with the proposed project will avoid mapped wetland areas.

Erosion control measures include the following:

- All disturbed areas are to be loamed, seeded and stabilized with mulch or geotextile fabric.
- Silt fencing or bark mulch berms will be installed down gradient of all grubbing and earth moving activities.
- Temporary grass or legume cover will be installed on dormant stockpiles and construction during the non-growing season.
- Water will be utilized to control dust if necessary.
- Construction entrances will be installed to minimize materials being carried off site by construction vehicles

Items listed in Erosion Control Measures will be incorporated before and during construction for site stabilization.

Sedimentation and Erosion Control Plan

Refer to the attached plan entitled "Erosion and Sedimentation Control Plan", which includes the following:

- Contours
- Erosion and Sediment Control Plan Elements
- Land cover types and boundaries
- Protected natural resources

- Locations (general)
- Disturbed areas
- Stabilization Construction Entrance

Details and Specifications

Refer to the attached plan entitled "Details", which includes details of erosion control measures and a description of the sizing, spacing and stabilization of each erosion control measure.

Design Calculations

The drainage structures were designed using the Hydrocad program for the 25-year storm event for the post development conditions. See the attached supporting calculations at the end of this exhibit for further modeling assumptions.

Stabilization Plan

Temporary Seeding. Temporary Seeding of Disturbed Areas - Growing Season, April 15th – September 15th

Limestone and Fertilizer - Application rates shall be according to soil test recommendations. If soil tests are not feasible or timing is critical then fertilizer may be applied at a rate of 13.8 lbs/1000 SF of 10-10-10 (N-P205-K20) or equivalent. Limestone (equivalent to 50 percent calcium plus magnesium oxide) may be applied at a rate of 138 lbs/1000 SF.

Seed - Between August 15th and October 1st, Winter Rye may be applied at a rate of 112 lbs/1 acre and to a depth of 1.0-1.5 inches. Between April 1st and July 1st, Annual Rye may be applied at a rate of 40 lb/1 acre and to a depth of .25 inches. Between May 15th and August 15th, Sudangrass may be applied at a rate of 40 lb/1 acre and to a depth of 0.5-1.0 inches.

Mulch - Hay or straw mulch at a rate of 70-90 lbs./1000 SF or equivalent mulch.

Matting - Will be applied to disturbed areas, such as the base of grassed waterways, steep slopes (>15%) and any disturbed soil within 100 feet of lakes, streams and wetlands. Installation shall as per manufacturer directions.

Permanent Seeding. Growing season of April 15th to August 15th.

Seedbed Preparation - Topsoil shall be applied to a level of 4". Limestone and Fertilizer should be worked into the soil to a depth of 4 inches, when practical. All debris, stones 2 inches or larger in diameter, and other unsuitable material should be removed from the surface, when practical.

Seed –MDOT Park Mixture shall be used for loamed areas which are expected to be maintained by frequent mowing: i.e. private lawns. MDOT roadside mixture #2 shall be used on loamed or existing soil areas which are expected to be maintained by infrequent mowing: i.e. inslopes, ditches, and rural lawns. MDOT Roadside Mixture #3 inoculants and lime the existing soils, erosion control mix or rip rap areas which are not expected to be moving: i.e. backslopes, guardrail areas.

Lime - application rates will be determined by soil tests. If soil tests are not feasible or where time is insufficient for soil tests, ground limestone (equivalent to 50 percent calcium plus magnesium oxide) may be applied at a minimum rate of 138 lbs./1000 SF.

Fertilizer - application rates will be determined by soil test results. If soil tests are not feasible or there is insufficient time for soil tests, fertilizer may be applied at a rate of 18.4 lbs. (of 10:20:20(N-P205-K20) per 1000 SF.

Mulch - hay or straw bales will be applied at a rate of 70-90 lbs./1000 SF, 1/2"-1" thick.

Erosion Control Mat - As per manufacturer directions.

Hydroseeding - Hydraulic application is a suitable method for the application of seed, fertilizer, limestone, and mulch. The seedbed is prepared by raking the soil to loosen and smooth the soil and to remove surface stones exceeding 6 inches in diameter and other unsuitable organic and inorganic materials. Slopes must be no steeper the 2 to 1 (horizontal to vertical). Limestone and fertilizer may be applied simultaneously with the seed. Straw mulch may be used with adhesive materials or 500 pounds per acre of wood fiber mulch. Seeding application rates shall be increased 10 percent when hydroseeding.

Final Acceptance: Final acceptance will be granted only when seeding is done in season and there is an even stand of grass, 2" tall with 85% germination.

Sodding. Not applicable.

Temporary Mulching.

Purpose – For a limited amount of time, temporary mulch prevents erosion by protecting the exposed soil surfaces and to aid in the growth of vegetation by conserving available moisture, controlling weeds, and providing protection against extreme heat and cold.

Function – Temporary mulch is the most effective and quickest means of controlling runoff and erosion on disturbed land when permanent erosion control is not possible.

Application – Apply to exposed soil surfaces prior to any storm event and within 7 days of soil exposure.

Product – Organic mulches: Hay or straw mulch free of weed seeds; bark or shavings free of objectionable coarse materials; and wood fiber cellulose made from natural wood usually with green dye and dispersing agent added with a moisture content not to exceed 15%.

Construction Specifications:

- Hay or Straw Mulch: 70-90 lbs. (2 bales) per 1,000 SF or 90-100 bales per acre. Lightly cover 75-90% of the surface.

- Bark or Shavings: 460-920 lbs. per 1,000 SF or 10-20 tons per acre applied at a depth of 2-6 inches.
- Wood Fiber Cellulose: 50 lbs. Per 1,000 SF or 2,000 lbs. per acre.

All mulches shall be inspected weekly or after every storm event to check for rill erosion. Remulching shall be required if less than 90% of soil surface is covered. Temporary mulch shall be removed once vegetative cover has been established, regrading is to be done, or a permanent erosion control measure is installed.

Permanent Mulching. Not applicable.

Winter Stabilization Plan.

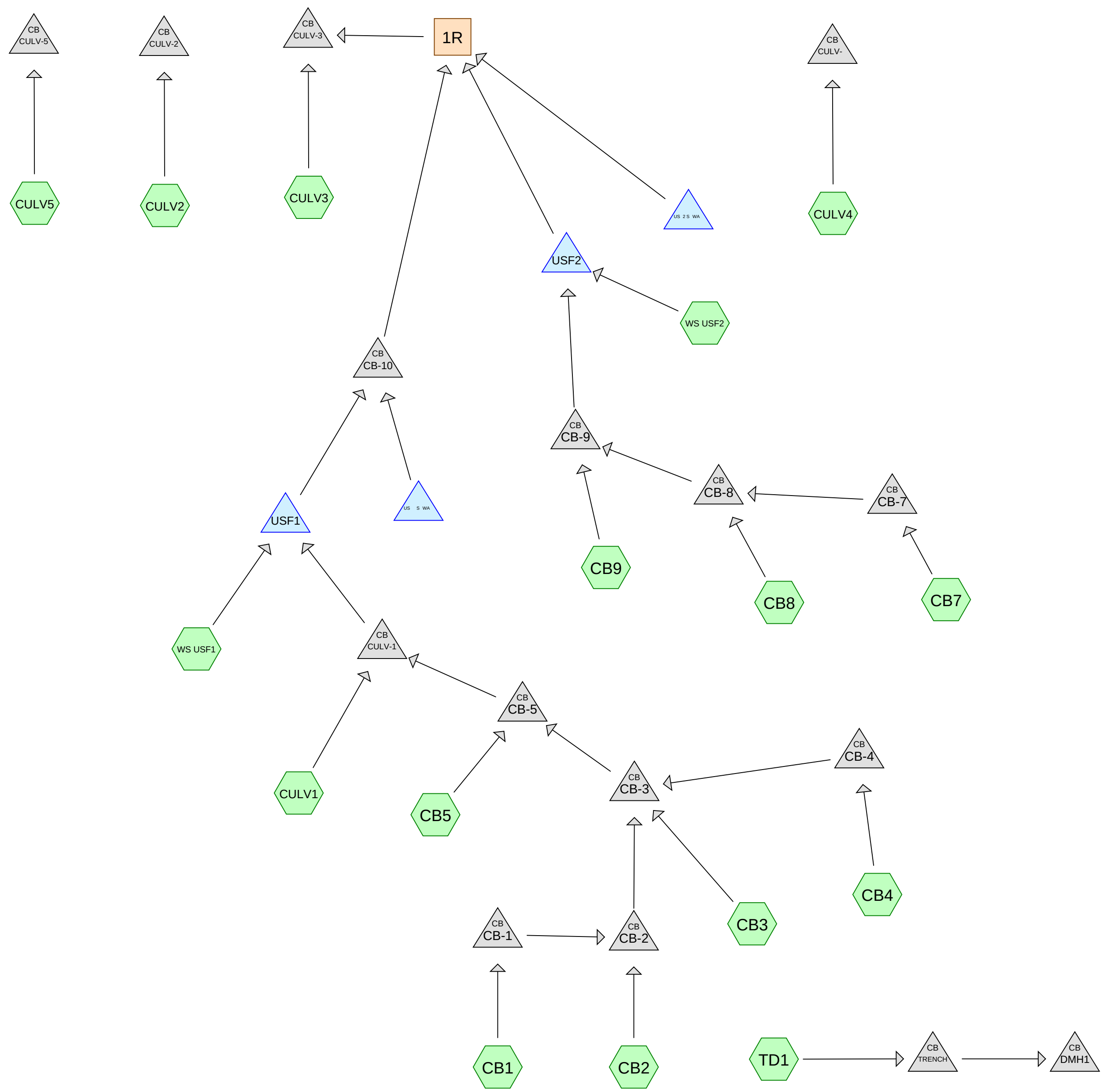
Dormant Seeding. Winter Construction, November 1st – April 15th.

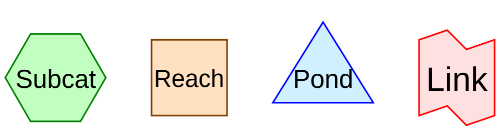
Fertilizer & Seed – October 15th to April 1st - Prepare seedbed, add required amounts of lime and fertilizer then mulch and anchor. After November 1st or the first killing frost, broadcast or hydroseed the selected seed mixture at triple the rate required for permanent seeding. Seeding requires inspection and reseeding where necessary in the spring.

Mulch - Hay or straw mulch at a rate of 150 pounds/1000 square feet. Mulch shall be anchored with lightweight paper, jute, wood fiber, or plastic netting to soil's surface. With the use of peg and twine, the mulch shall be divided into 1 foot square grids: drive 4-6 pegs per grid to within 2-3 inches of the soil surface; and secure mulch to soil's surface by stretching twine between pegs in a crisscross pattern on each grid.

Mats – September 15th to April 15th - Use heavy grade mats on the base of grassed waterways, steep slopes (>15%). Use light grade mats (or mulch and netting) on side slopes of grassed waterways and on moderate slopes (> 8%).

Winter mulching. Hay or straw mulch at a rate of 150 pounds/1000 square feet at a depth of four inches. All open areas which are not permanently stabilized will be heavily mulched when work is completed on the site and not anticipated to begin again within one day. All open areas will be heavily mulched every night in the case of a stormy forecast within the next 12 hours.





Routing Diagram for 2021-03-16 CB Sizing
Prepared by HP Inc., Printed 3/21/2021
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Summary for Subcatchment CB1:

Runoff = 3.33 cfs @ 12.15 hrs, Volume= 0.241 af, Depth> 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
47,898	77	Woods, Good, HSG D
4,649	80	>75% Grass cover, Good, HSG D
3,349	78	Meadow, non-grazed, HSG D
55,896	77	Weighted Average
55,896		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.8	150	0.1300	0.17		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
6.8	788	0.1500	1.94		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
21.6	938	Total			

Summary for Subcatchment CB2:

Runoff = 4.04 cfs @ 12.13 hrs, Volume= 0.281 af, Depth> 2.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
56,404	77	Woods, Good, HSG D
1,029	98	Paved parking, HSG D
3,180	80	>75% Grass cover, Good, HSG D
2,373	78	Meadow, non-grazed, HSG D
62,986	78	Weighted Average
61,957		98.37% Pervious Area
1,029		1.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
14.0	150	0.1470	0.18		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
6.2	733	0.1570	1.98		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.2	883	Total			

Summary for Subcatchment CB3:

Runoff = 1.71 cfs @ 11.95 hrs, Volume= 0.086 af, Depth> 4.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
10,772	98	Paved parking, HSG D
10,772		100.00% Impervious Area

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

Summary for Subcatchment CB4:

Runoff = 0.83 cfs @ 11.95 hrs, Volume= 0.042 af, Depth> 4.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
5,221	98	Paved parking, HSG D
5,221		100.00% Impervious Area

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

Summary for Subcatchment CB5:

Runoff = 1.91 cfs @ 11.95 hrs, Volume= 0.097 af, Depth> 4.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
11,994	98	Paved parking, HSG D
52	80	>75% Grass cover, Good, HSG D
12,046	98	Weighted Average
52		0.43% Pervious Area
11,994		99.57% Impervious Area

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

Summary for Subcatchment CB7:

Runoff = 0.95 cfs @ 12.01 hrs, Volume= 0.049 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
2,145	98	Paved parking, HSG D
6,858	80	>75% Grass cover, Good, HSG D
9,003	84	Weighted Average
6,858		76.17% Pervious Area
2,145		23.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	130	0.0380	0.22		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.90"
0.4	60	0.1300	2.52		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
10.2	190	Total			

Summary for Subcatchment CB8:

Runoff = 2.46 cfs @ 11.95 hrs, Volume= 0.120 af, Depth> 3.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
13,402	98	Paved parking, HSG D
2,531	80	>75% Grass cover, Good, HSG D
15,933	95	Weighted Average
2,531		15.89% Pervious Area
13,402		84.11% Impervious Area

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

Summary for Subcatchment CB9:

Runoff = 1.88 cfs @ 12.00 hrs, Volume= 0.105 af, Depth> 4.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
11,937	98	Paved parking, HSG D
1,727	80	>75% Grass cover, Good, HSG D
13,664	96	Weighted Average
1,727		12.64% Pervious Area
11,937		87.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	140	0.0500	0.25		**Sheet Flow,** Grass: Short n= 0.150 P2= 2.90"

Summary for Subcatchment CULV1:

Runoff = 1.12 cfs @ 11.96 hrs, Volume= 0.048 af, Depth> 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
4,732	80	>75% Grass cover, Good, HSG D
5,951	77	Woods, Good, HSG D
10,683	78	Weighted Average
10,683		100.00% Pervious Area

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

Summary for Subcatchment CULV2:

Runoff = 6.49 cfs @ 12.14 hrs, Volume= 0.457 af, Depth> 2.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
3,622	96	Gravel surface, HSG D
5,881	98	Paved parking, HSG D
89,326	77	Woods, Good, HSG D
98,829	79	Weighted Average
92,948		94.05% Pervious Area
5,881		5.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.1	150	0.1050	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
4.5	446	0.1100	1.66		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
20.6	596	Total			

Summary for Subcatchment CULV3:

Runoff = 13.44 cfs @ 12.20 hrs, Volume= 1.085 af, Depth> 2.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
788	96	Gravel surface, HSG D
14,932	98	Paved parking, HSG D
227,684	77	Woods, Good, HSG D
243,404	78	Weighted Average
228,472		93.87% Pervious Area
14,932		6.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.4	150	0.1000	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
9.6	911	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
26.0	1,061	Total			

Summary for Subcatchment CULV4:

Runoff = 5.70 cfs @ 12.13 hrs, Volume= 0.400 af, Depth> 2.59"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
12,472	98	Paved parking, HSG D
47,161	77	Woods, Good, HSG D
5,550	78	Meadow, non-grazed, HSG D
15,465	80	>75% Grass cover, Good, HSG D
80,648	81	Weighted Average
68,176		84.54% Pervious Area
12,472		15.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.8	150	0.1100	0.16		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
4.2	400	0.1000	1.58		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
0.3	260	0.0600	14.06	168.69	**Trap/Vee/Rect Channel Flow,** Bot.W=0.00' D=2.00' Z= 3.0 '/' Top.W=12.00' n= 0.025 Earth, clean & winding
20.3	810	Total			

Summary for Subcatchment CULV5:

Runoff = 10.42 cfs @ 12.17 hrs, Volume= 0.801 af, Depth> 2.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
8,464	98	Paved parking, HSG D
171,013	77	Woods, Good, HSG D
179,477	78	Weighted Average
171,013		95.28% Pervious Area
8,464		4.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	150	0.1530	0.18		**Sheet Flow,**
					Woods: Light underbrush n= 0.400 P2= 2.90"
9.7	1,046	0.1280	1.79		**Shallow Concentrated Flow,**
					Woodland Kv= 5.0 fps
0.5	530	0.1100	18.30	146.41	**Trap/Vee/Rect Channel Flow,**
					Bot.W=0.00' D=2.00' Z= 2.0 '/' Top.W=8.00'
					n= 0.025 Earth, clean & winding
24.0	1,726	Total			

Summary for Subcatchment TD1:

Runoff = 15.88 cfs @ 12.30 hrs, Volume= 1.525 af, Depth> 2.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

Area (sf)	CN	Description
22,172	80	>75% Grass cover, Good, HSG D
63,717	78	Meadow, non-grazed, HSG D
269,857	77	Woods, Good, HSG D
355,746	77	Weighted Average
355,746		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
17.1	150	0.0900	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 2.90"
12.4	1,782	0.2300	2.40		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
4.6	725	0.1400	2.62		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
34.1	2,657	Total			

Summary for Subcatchment WS USF1:

Runoff = 1.04 cfs @ 11.96 hrs, Volume= 0.044 af, Depth> 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

	Area (sf)	CN	Description
	3,914	98	Paved parking, HSG D
	240	80	>75% Grass cover, Good, HSG D
*	7,194	61	Underdrain Soil Filter
	11,348	74	Weighted Average
	7,434		65.51% Pervious Area
	3,914		34.49% Impervious Area

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

Summary for Subcatchment WS USF2:

Runoff = 2.69 cfs @ 11.95 hrs, Volume= 0.119 af, Depth> 2.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-yr Rainfall=4.80"

	Area (sf)	CN	Description
	2,683	96	Gravel surface, HSG D
	4,662	98	Paved parking, HSG D
	11,665	80	>75% Grass cover, Good, HSG D
*	2,611	61	Uderdrain Soil Filter
	21,621	84	Weighted Average
	16,959		78.44% Pervious Area
	4,662		21.56% Impervious Area

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

Summary for Reach 1R:

Inflow Area = 5.261 ac, 28.40% Impervious, Inflow Depth > 2.59" for 25-yr event
Inflow = 5.39 cfs @ 12.33 hrs, Volume= 1.135 af
Outflow = 5.28 cfs @ 12.57 hrs, Volume= 1.116 af, Atten= 2%, Lag= 14.2 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.13 fps, Min. Travel Time= 7.6 min
Avg. Velocity = 0.99 fps, Avg. Travel Time= 16.3 min

Peak Storage= 2,403 cf @ 12.44 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 0.50' Flow Area= 27.5 sf, Capacity= 261.50 cfs

50.00' x 0.50' deep channel, n= 0.030 Earth, grassed & winding
Side Slope Z-value= 10.0 '/' Top Width= 60.00'
Length= 970.0' Slope= 0.1044 '/'
Inlet Invert= 1,460.27', Outlet Invert= 1,359.00'

‡ 

Summary for Pond CB-1:

Inflow Area =	1.283 ac,	0.00% Impervious,	Inflow Depth > 2.25"	for 25-yr event	
Inflow =	3.33 cfs @	12.15 hrs, Volume=	0.241 af		
Outflow =	3.33 cfs @	12.15 hrs, Volume=	0.241 af,	Atten= 0%,	Lag= 0.0 min
Primary =	3.33 cfs @	12.15 hrs, Volume=	0.241 af		

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,500.70' @ 12.15 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,499.75'	**15.0" Round Culvert** L= 90.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,499.75' / 1,498.85' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=3.33 cfs @ 12.15 hrs HW=1,500.70' (Free Discharge)
└─**1=Culvert** (Inlet Controls 3.33 cfs @ 3.32 fps)

Summary for Pond CB-10:

Inflow Area =	3.879 ac,	19.49% Impervious,	Inflow Depth > 2.32"	for 25-yr event
Inflow =	3.89 cfs @	12.39 hrs, Volume=	0.750 af	
Outflow =	3.89 cfs @	12.39 hrs, Volume=	0.750 af,	Atten= 0%, Lag= 0.0 min
Primary =	3.89 cfs @	12.39 hrs, Volume=	0.750 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,466.06' @ 12.39 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,465.00'	**15.0" Round Culvert** L= 100.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,465.00' / 1,460.00' S= 0.0500 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=3.89 cfs @ 12.39 hrs HW=1,466.06' (Free Discharge)
└─**1=Culvert** (Inlet Controls 3.89 cfs @ 3.51 fps)

Summary for Pond CB-2:

Inflow Area = 2.729 ac, 0.87% Impervious, Inflow Depth > 2.30" for 25-yr event
Inflow = 7.36 cfs @ 12.14 hrs, Volume= 0.522 af
Outflow = 7.36 cfs @ 12.14 hrs, Volume= 0.522 af, Atten= 0%, Lag= 0.0 min
Primary = 7.36 cfs @ 12.14 hrs, Volume= 0.522 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,500.00' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,498.50'	**18.0" Round Culvert** L= 82.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,498.50' / 1,494.00' S= 0.0549 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=7.31 cfs @ 12.14 hrs HW=1,499.98' (Free Discharge)
1=Culvert (Inlet Controls 7.31 cfs @ 4.14 fps)

Summary for Pond CB-3:

Inflow Area =	3.096 ac, 12.62% Impervious, Inflow Depth > 2.52" for 25-yr event			
Inflow =	7.77 cfs @	12.13 hrs, Volume=	0.650 af	
Outflow =	7.77 cfs @	12.13 hrs, Volume=	0.650 af,	Atten= 0%, Lag= 0.0 min
Primary =	7.77 cfs @	12.13 hrs, Volume=	0.650 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,492.84' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,491.25'	**18.0" Round Culvert** L= 52.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,491.25' / 1,485.75' S= 0.1058 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=7.70 cfs @ 12.13 hrs HW=1,492.82' (Free Discharge)
└**1=Culvert** (Inlet Controls 7.70 cfs @ 4.36 fps)

Summary for Pond CB-4:

Inflow Area =	0.120 ac,100.00% Impervious,	Inflow Depth > 4.19"	for 25-yr event	
Inflow =	0.83 cfs @	11.95 hrs, Volume=	0.042 af	
Outflow =	0.83 cfs @	11.95 hrs, Volume=	0.042 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.83 cfs @	11.95 hrs, Volume=	0.042 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,494.46' @ 11.95 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,494.00'	**12.0" Round Culvert** L= 214.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,494.00' / 1,491.86' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.83 cfs @ 11.95 hrs HW=1,494.46' (Free Discharge)
└**1=Culvert** (Inlet Controls 0.83 cfs @ 2.32 fps)

Summary for Pond CB-5:

Inflow Area =	3.373 ac,	19.75% Impervious, Inflow Depth > 2.66"	for 25-yr event	
Inflow =	8.48 cfs @	12.01 hrs, Volume=	0.747 af	
Outflow =	8.48 cfs @	12.01 hrs, Volume=	0.747 af,	Atten= 0%, Lag= 0.0 min
Primary =	8.48 cfs @	12.01 hrs, Volume=	0.747 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,487.39' @ 12.01 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,485.65'	**18.0" Round Culvert** L= 77.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,485.65' / 1,484.00' S= 0.0214 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=8.43 cfs @ 12.01 hrs HW=1,487.38' (Free Discharge)
└─**1=Culvert** (Inlet Controls 8.43 cfs @ 4.77 fps)

Summary for Pond CB-7:

Inflow Area =	0.207 ac, 23.83% Impervious, Inflow Depth > 2.87" for 25-yr event			
Inflow =	0.95 cfs @	12.01 hrs, Volume=	0.049 af	
Outflow =	0.95 cfs @	12.01 hrs, Volume=	0.049 af,	Atten= 0%, Lag= 0.0 min
Primary =	0.95 cfs @	12.01 hrs, Volume=	0.049 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,486.00' @ 12.02 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,485.50'	**12.0" Round Culvert** L= 58.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,485.50' / 1,484.25' S= 0.0216 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=0.92 cfs @ 12.01 hrs HW=1,485.99' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 0.92 cfs @ 2.39 fps)

Summary for Pond CB-8:

Inflow Area = 0.572 ac, 62.35% Impervious, Inflow Depth > 3.55" for 25-yr event
Inflow = 3.25 cfs @ 11.96 hrs, Volume= 0.170 af
Outflow = 3.25 cfs @ 11.96 hrs, Volume= 0.170 af, Atten= 0%, Lag= 0.0 min
Primary = 3.25 cfs @ 11.96 hrs, Volume= 0.170 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,485.39' @ 11.96 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,484.15'	**12.0" Round Culvert** L= 146.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,484.15' / 1,470.75' S= 0.0918 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf

Primary OutFlow Max=3.18 cfs @ 11.96 hrs HW=1,485.36' (Free Discharge)
└─**1=Culvert** (Inlet Controls 3.18 cfs @ 4.04 fps)

Summary for Pond CB-9:

Inflow Area =	0.886 ac,	71.20% Impervious,	Inflow Depth > 3.72"	for 25-yr event
Inflow =	5.00 cfs @	11.97 hrs, Volume=	0.275 af	
Outflow =	5.00 cfs @	11.97 hrs, Volume=	0.275 af,	Atten= 0%, Lag= 0.0 min
Primary =	5.00 cfs @	11.97 hrs, Volume=	0.275 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,471.74' @ 11.97 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,470.40'	**15.0" Round Culvert** L= 120.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,470.40' / 1,466.75' S= 0.0304 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf

Primary OutFlow Max=4.87 cfs @ 11.97 hrs HW=1,471.70' (Free Discharge)
└─**1=Culvert** (Inlet Controls 4.87 cfs @ 3.97 fps)

Summary for Pond CULV-1:

Inflow Area =	3.618 ac,	18.41% Impervious,	Inflow Depth > 2.64"	for 25-yr event
Inflow =	9.46 cfs @	11.99 hrs, Volume=	0.795 af	
Outflow =	9.46 cfs @	11.99 hrs, Volume=	0.795 af,	Atten= 0%, Lag= 0.0 min
Primary =	9.46 cfs @	11.99 hrs, Volume=	0.795 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,484.47' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,483.00'	**24.0" Round Culvert** L= 40.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,483.00' / 1,482.50' S= 0.0125 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=9.38 cfs @ 11.99 hrs HW=1,484.46' (Free Discharge)
1=Culvert (Barrel Controls 9.38 cfs @ 5.33 fps)

Summary for Pond CULV-2:

Inflow Area =	2.269 ac,	5.95% Impervious,	Inflow Depth > 2.42"	for 25-yr event	
Inflow =	6.49 cfs @	12.14 hrs,	Volume=	0.457 af	
Outflow =	6.49 cfs @	12.14 hrs,	Volume=	0.457 af,	Atten= 0%, Lag= 0.0 min
Primary =	6.49 cfs @	12.14 hrs,	Volume=	0.457 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,409.42' @ 12.14 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,408.00'	**18.0" Round Culvert** L= 40.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,408.00' / 1,407.60' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=6.42 cfs @ 12.14 hrs HW=1,409.41' (Free Discharge)
└─**1=Culvert** (Barrel Controls 6.42 cfs @ 4.82 fps)

Summary for Pond CULV-3:

Inflow Area =	10.849 ac,	16.93% Impervious,	Inflow Depth > 2.43"	for 25-yr event
Inflow =	15.95 cfs @	12.25 hrs, Volume=	2.201 af	
Outflow =	15.95 cfs @	12.25 hrs, Volume=	2.201 af,	Atten= 0%, Lag= 0.0 min
Primary =	15.95 cfs @	12.25 hrs, Volume=	2.201 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,361.22' @ 12.25 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,359.00'	**24.0" Round Culvert** L= 40.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,359.00' / 1,358.60' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=15.93 cfs @ 12.25 hrs HW=1,361.21' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 15.93 cfs @ 5.71 fps)

Summary for Pond CULV-4:

Inflow Area =	1.851 ac,	15.46% Impervious, Inflow Depth > 2.59"	for 25-yr event	
Inflow =	5.70 cfs @	12.13 hrs, Volume=	0.400 af	
Outflow =	5.70 cfs @	12.13 hrs, Volume=	0.400 af,	Atten= 0%, Lag= 0.0 min
Primary =	5.70 cfs @	12.13 hrs, Volume=	0.400 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,334.81' @ 12.13 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,333.50'	**18.0" Round Culvert** L= 35.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,333.50' / 1,333.15' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=5.63 cfs @ 12.13 hrs HW=1,334.80' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 5.63 cfs @ 4.63 fps)

Summary for Pond CULV-5:

Inflow Area = 4.120 ac, 4.72% Impervious, Inflow Depth > 2.33" for 25-yr event
Inflow = 10.42 cfs @ 12.17 hrs, Volume= 0.801 af
Outflow = 10.42 cfs @ 12.17 hrs, Volume= 0.801 af, Atten= 0%, Lag= 0.0 min
Primary = 10.42 cfs @ 12.17 hrs, Volume= 0.801 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,421.17' @ 12.17 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,419.50'	**24.0" Round Culvert** L= 30.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,419.50' / 1,419.20' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=10.30 cfs @ 12.17 hrs HW=1,421.16' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 10.30 cfs @ 5.03 fps)

Summary for Pond DMH1:

Inflow Area =	8.167 ac,	0.00% Impervious,	Inflow Depth > 2.24"	for 25-yr event	
Inflow =	15.88 cfs @	12.30 hrs,	Volume=	1.525 af	
Outflow =	15.88 cfs @	12.30 hrs,	Volume=	1.525 af,	Atten= 0%, Lag= 0.0 min
Primary =	15.88 cfs @	12.30 hrs,	Volume=	1.525 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,497.64' @ 12.30 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,495.50'	**24.0" Round Culvert** L= 112.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,495.50' / 1,494.66' S= 0.0075 '/' Cc= 0.900 n= 0.013, Flow Area= 3.14 sf

Primary OutFlow Max=15.86 cfs @ 12.30 hrs HW=1,497.64' (Free Discharge)
└─**1=Culvert** (Barrel Controls 15.86 cfs @ 5.87 fps)

Summary for Pond TRENCH:

Inflow Area =	8.167 ac,	0.00% Impervious, Inflow Depth >	2.24"	for 25-yr event	
Inflow =	15.88 cfs @	12.30 hrs, Volume=	1.525 af		
Outflow =	15.88 cfs @	12.30 hrs, Volume=	1.525 af,	Atten= 0%,	Lag= 0.0 min
Primary =	15.88 cfs @	12.30 hrs, Volume=	1.525 af		

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,500.05' @ 12.30 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	1,500.00'	**4.0" x 720.0" Horiz. Orifice/Grate X 4.00** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=15.80 cfs @ 12.30 hrs HW=1,500.05' (Free Discharge)
↑—**1=Orifice/Grate** (Weir Controls 15.80 cfs @ 0.70 fps)

Summary for Pond USF1:

Inflow Area = 3.879 ac, 19.49% Impervious, Inflow Depth > 2.59" for 25-yr event
Inflow = 10.42 cfs @ 11.99 hrs, Volume= 0.839 af
Outflow = 3.89 cfs @ 12.39 hrs, Volume= 0.750 af, Atten= 63%, Lag= 24.5 min
Primary = 3.89 cfs @ 12.39 hrs, Volume= 0.750 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,480.51' @ 12.39 hrs Surf.Area= 4,449 sf Storage= 13,878 cf

Plug-Flow detention time= 95.7 min calculated for 0.749 af (89% of inflow)
Center-of-Mass det. time= 59.7 min (837.7 - 777.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,474.32'	21,121 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,474.32	2,067	0.0	0	0
1,474.33	2,067	40.0	8	8
1,476.99	2,067	40.0	2,199	2,208
1,477.00	2,067	100.0	21	2,228
1,477.50	2,395	100.0	1,116	3,344
1,478.00	2,745	100.0	1,285	4,629
1,478.50	3,117	100.0	1,466	6,094
1,479.00	3,624	100.0	1,685	7,779
1,480.00	4,156	100.0	3,890	11,669
1,482.00	5,296	100.0	9,452	21,121

Device	Routing	Invert	Outlet Devices
#1	Primary	1,474.67'	**4.0" Round Culvert** L= 55.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,474.67' / 1,474.00' S= 0.0122 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf
#2	Primary	1,478.50'	**10.0" Round Culvert** L= 25.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,478.50' / 1,478.25' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.55 sf

Primary OutFlow Max=3.89 cfs @ 12.39 hrs HW=1,480.51' (Free Discharge)
1=Culvert (Barrel Controls 0.58 cfs @ 6.66 fps)
2=Culvert (Barrel Controls 3.31 cfs @ 6.07 fps)

Summary for Pond USF1 SPWAY:

Volume	Invert	Avail.Storage	Storage Description
#1	1,474.32'	21,121 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,474.32	2,067	0.0	0	0
1,474.33	2,067	40.0	8	8
1,476.99	2,067	40.0	2,199	2,208
1,477.00	2,067	100.0	21	2,228
1,477.50	2,395	100.0	1,116	3,344
1,478.00	2,745	100.0	1,285	4,629
1,478.50	3,117	100.0	1,466	6,094
1,479.00	3,624	100.0	1,685	7,779
1,480.00	4,156	100.0	3,890	11,669
1,482.00	5,296	100.0	9,452	21,121

Device	Routing	Invert	Outlet Devices
#1	Primary	1,480.50'	**25.0' long x 6.0' 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 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond USF2:

Inflow Area = 1.382 ac, 53.38% Impervious, Inflow Depth > 3.42" for 25-yr event
Inflow = 7.65 cfs @ 11.97 hrs, Volume= 0.394 af
Outflow = 1.63 cfs @ 12.18 hrs, Volume= 0.386 af, Atten= 79%, Lag= 12.8 min
Primary = 1.63 cfs @ 12.18 hrs, Volume= 0.386 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 1,465.25' @ 12.18 hrs Surf.Area= 3,532 sf Storage= 7,365 cf

Plug-Flow detention time= 95.7 min calculated for 0.384 af (98% of inflow)
Center-of-Mass det. time= 86.7 min (839.7 - 752.9)

Volume	Invert	Avail.Storage	Storage Description
#1	1,460.32'	15,004 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,460.32	1,560	0.0	0	0
1,460.33	1,560	40.0	6	6
1,462.99	1,560	40.0	1,660	1,666
1,463.00	1,560	100.0	16	1,682
1,463.50	1,971	100.0	883	2,564
1,464.00	2,397	100.0	1,092	3,656
1,464.50	2,836	100.0	1,308	4,965
1,465.00	3,290	100.0	1,532	6,496
1,466.00	4,240	100.0	3,765	10,261
1,467.00	5,246	100.0	4,743	15,004

Device	Routing	Invert	Outlet Devices
#1	Primary	1,460.67'	**4.0" Round Culvert** L= 40.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,460.67' / 1,460.27' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.09 sf
#2	Primary	1,464.50'	**8.0" Round Culvert** L= 25.0' CPP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 1,464.50' / 1,464.25' S= 0.0100 '/' Cc= 0.900 n= 0.013, Flow Area= 0.35 sf

Primary OutFlow Max=1.62 cfs @ 12.18 hrs HW=1,465.25' (Free Discharge)
├─**1=Culvert** (Barrel Controls 0.57 cfs @ 6.57 fps)
└─**2=Culvert** (Barrel Controls 1.05 cfs @ 3.33 fps)

Summary for Pond USF2 SPWAY:

Volume	Invert	Avail.Storage	Storage Description
#1	1,460.32'	15,243 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,460.32	1,069	0.0	0	0
1,460.33	1,069	40.0	4	4
1,462.99	1,069	40.0	1,137	1,142
1,463.00	1,069	100.0	11	1,152
1,463.50	1,429	100.0	625	1,777
1,464.00	1,808	100.0	809	2,586
1,464.50	2,204	100.0	1,003	3,589
1,465.00	2,611	100.0	1,204	4,793
1,466.00	3,176	100.0	2,894	7,686
1,468.00	4,381	100.0	7,557	15,243

Device	Routing	Invert	Outlet Devices
#1	Primary	1,465.25'	**20.0' long x 6.0' 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 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=0.00' (Free Discharge)
1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Exhibit 25 – Wildlife Passage

Not Applicable.

Exhibit 26 – Site Access

The site will be accessed from Ski Resort Road, which is a two-laned paved road. Most of the road is owned and maintained by Piscataquis County. Once Ski Resort Road reaches the lower base lodge, the road turns into a private way. The private road section is owned by the applicant. The paved road is approx. 20 feet wide. Approx. 900 feet from the lower base lodge the paved road ends and the gravel road begins. The gravel road narrows to 14 feet wide. The private portion of ski Resort Road will be improved as part of the redevelopment project. The applicant will be responsible of maintaining the private section of the access road. There are no limitations on the access or egress for the Ski Resort Road. See the project plans for more detailed information on the existing access road and the proposed improvements.

Exhibit 27 – Parking Landscape Plan

This section is not applicable. The redevelopment project is not proposing a parking area that is over one acre in size. The project will be reusing the existing parking areas and will only add two new ADA parking spaces near the proposed hotel.

Exhibit 28 – Roadway Construction and Upgrades

Ski Resort Road will be improved as part of the redevelopment project. See Moosehead Loop Drive plan and profile sheet C-2.02 through C-2.5. Approx. 1,150 feet (existing paved section) will be reclaimed and paved. The travel surface will be 18 feet wide. The existing gravel section will be reconstructed, approx. 1,000 feet. The road reconstruction includes widening the road to 18 feet, new road base and a new paved surface. The road grade varies from 4.15% to 6.3% with a max road grade of 6.3%. the Moosehead Loop Drive continues beyond the existing road and loops up to the proposed village area. Like the reconstructed gravel section, this 18-foot-wide road will have a new road base and paved travel way. The road grades vary on the new road from -7.19% to 12.20% with a max grade of 12.20%.

The existing paved road from the Ski Resort Road up to the old hotel will also be improved. See Moosehead Existing Access Improvements plan and profile sheet C-2.06. This road is approx. 1,150 feet long and is 18 ft wide. This portion of the project will be reclaimed and paved. The road grade varies from 8% to 12% with a max road grade of 12%. As part of the reconstruction of this road, attempts will be made to reduce the existing grades to be more in line with the LUPC road standards for grades exceeding 10%. This section of the road has no culverts. This road has 5 proposed culverts, 1 bridge and 2 existing culverts to be replaced.

The existing paved road that loops from the existing base lodge to the old hotel will also be improved. See Moosehead Loop Drive II plan and profile sheet C-2.05. This road is approx. 550 feet long and is 18 ft wide with existing parking areas. This portion of the project will be reclaimed and paved. The road grade varies from -1.5% to 10.9% with a max road grade of 10.9%. These grades will not change from the existing to proposed conditions. This section of the road has 1 existing culvert to be replaced.

See the details, plan and profile sheets in the plan set for the proposed typical road cross sections and profiles.

DRAFT BLASTING PLAN

During construction, blasting may be required in some locations to break up bedrock ledge. This will enable road construction and the installation of underground utilities and foundations. This blasting and other areas of excavation cuts will provide fill that can be used elsewhere on site for road, riprap protection and berm locations. Any excess material will likely be utilized on-site.

BLASTING PLAN

General

Blasting operations shall follow all local, state and federal regulations related to transportation and use of explosives.

Pre-Blast Surveys/Notifications

Pre-blast surveys will be offered to all property owners within 2,000 foot radius of the blast site. Appropriate notices will be given and appointments arranged for those owners who desire a survey. Results of those surveys will be documented through video or still photographs and appropriate narration or written reports.

Property owners within 2,000 feet of the blast area will be provided a blasting schedule. The blasting schedule shall contain, at a minimum – (1) Name, address, and a telephone number of the operator, (2) Identification of the specific areas in which blasting will take place, (3) Dates and time periods when explosives are to be detonated, (4) Methods to be used to control access to the blasting areas, and (5) Type and patterns of audible warning and all-clear signals to be used before and after blasting.

Blast Monitoring

All blasts will be monitored by a representative who has been properly trained in the setup and use of seismic monitoring equipment. At least one seismograph will be in use at all times. Placement of monitoring equipment will be at the nearest structure to the blast site.

Sequence of Blasting

All blasting operations will be strictly coordinated with all appropriate parties including the Fire Department. Emphasis will be on the safe and efficient removal of the rock existing on this project without impact to surrounding structures. Blasts will be developed so as to create adequate relief which will minimize ground vibrations and offer the greatest protection possible to the surrounding structures.

Blasting Procedures

1. Blasting operations shall commence after 6:00 AM and cease before 6:00 PM, Monday through Friday.

2. Blasting cannot be conducted at times different from those announced in the blasting schedule except in emergency situations, such as electrical storms or public safety required unscheduled detonation.

3. Warning and all-clear signals of different character that are audible within a range of one-half mile from the point of the blast shall be given. All persons within the permit area

shall be notified of the meaning of the signals through appropriate instructions and signs posted.

4. Access to blasting area shall be regulated to protect the public from the effects of blasting. Access to the blasting area shall be controlled to prevent unauthorized entry before each blast and until the perimeter's authorized representative has determined that no unusual circumstances exist after the blast. Access to and travel in or through the area can then safely resume.

5. Areas in which charged holes are awaiting firing shall be guarded, barricaded and posted or flagged against unauthorized entry.

6. All blasts shall be made in the direction of the stress relieved face.

7. All stemming shall be minimum as specified using clean, dry 3/8" crushed stone.

8. Blasting mats shall be used as necessary to cover blasts.

Blasting Mats
Blasting mats and backfill will be used to control excessive amounts of rock movement and flyrock when blasting in close proximity to structures. Mats will be placed so as to protect all people, structures, and prevent flyrock from entering a protected natural resource on, or surrounding the blast site and property.

Blast Security and Warning Whistles
Each blast will be preceded by a security check of the affected area and then a series of warning whistles. Communications will be made with job site supervisors and local officials as required to ensure the safest possible operation. All personnel in the vicinity closest to the blast area will be warned. The warning whistles will follow the following sequence:

3 Whistles – 5 Minutes to Blast

2 Whistles – 1 Minute to Blast

1 Whistle – All Clear

The blast site will be examined by the blaster prior to the all clear signal to determine that it is safe to resume work. No blast will be fired until the area has been secured and determined safe.

Explosives
All explosives will be delivered to the job site on a daily basis. There will be no overnight storage. Only the amount of explosives required to perform the day's work will be brought to the site. All explosives will be stored in approved magazines when not in use.

Blasting Personnel
All blasting operations shall be conducted by experienced, trained and competent persons who understand the hazards involved. Persons working with explosive materials shall:

1. Have demonstrated knowledge of, and willingness to comply with, safety and security requirements.

2. Be capable of using mature judgment in all situations.

3. Be of good physical condition and not addicted to intoxicants, narcotics, or other similar type of drugs.

4. The person(s) responsible for the explosives shall possess current knowledge of the local, State and Federal laws and regulations applicable to his work.

5. The person(s) responsible for the explosives shall have obtained a Certificate of Competency or a license as required by State law.

Licenses and Permits
Blasting operations to be performed by a blaster who is fully licensed and insured for the transportation, use, and handling of explosives. Blasting permits will be applied for as required from local authorities.

Blast Vibration
Blast vibration will be monitored at the blast site, typically at the structure(s) closest to the blast site. Vibration limits will closely follow limits described in the State Regulations. Blast designs will be modified as required to stay within the guidelines. Blasting operations will be modified accordingly when approaching buildings and utilities.

The standards found at 38 MRSA §490-Z)(14)(H) concerning airblast levels will be applied for this project.

Records of individual blasts will generally include the information listed at 38 MRSA §490-Z)(14)(L).

Exhibit 29 – Roadway Maintenance

The applicant will be responsible for maintaining the roads on site and the private portion of the Ski Resort Road. A list of tasks include but are not limited to the following:

1. Inspect and maintain ditches
   - ♦ Remove sediment buildup, leaves, litter or other debris from the bottom and side slopes.
   - ♦ Reposition stones to restore channel to original dimensions.
   - ♦ Inspect the ditch lining for slumping of the lining, downcutting of the ditches base, or undercutting of the banks.
   - ♦ Mow or brush-cut annually to prevent the establishment of woody vegetation
2. Inspect and maintain culverts and catchbasins
   - ♦ Flush pipes and remove sediment at which time the depth of sediment at any location in the pipe exceeds 1/3 of the pipe diameter.
   - ♦ Remove sediment from catchbasin sumps once the sumps are 50% filled.
3. Inspect Rip-Rap Aprons and Level Spreaders
   - ♦ Reposition stones to restore the aprons or level spreaders original dimensions and a uniform surface.
   - ♦ Clean any accumulated sediments and debris from the apron or level spreader.
   - ♦ Cut and remove any woody vegetation growing within the apron or level spreader.
   - ♦ Inspect and verify that top of stone is level (+/-1").

4. Inspect Vegetation
   - ♦ Re-seed and mulch areas where cover is less than 90%.
   - ♦ Rework, seed and mulch areas that have spotty plant germination and are sparsely vegetated, or where soil erosion is evident.
   - ♦ Inspect slopes for rill erosion due to concentrated flows. Replace topsoil and reseed eroded slopes as needed.
5. Inspect Roadway
   - ♦ The roads shall be swept as needed to maintain. In particular, sweeping will occur in late winter or early spring to remove the winter's accumulation of sand and abrasives.

Exhibit 30 – Phosphorus Control

The Moosehead redevelopment project drains directly to a lake watershed, Mountain View Pond. The following describes the pre and post development phosphorus loading for this lake watershed. See the attached calculations following this Exhibit.

The phosphorus analysis is based on several assumptions listed in this narrative, the support calculations, and the specific analytical methods described in *Phosphorus Control in Lake Watersheds: A Technical Guide to Evaluating New Development* (MDEP, March 2016). Data on current water quality and allowable loading for Mountain View Pond was obtained from MDEP. See the attached phosphorous calculations for the phosphorous allocations, small watershed thresholds, and the phosphorous budget for the lake watershed.

The phosphorous budget for Mountain View Pond watershed within Big Moose Township was calculated using the MDEP provided P value and by selecting a development area of 58 acres within the watershed. Based on this, a Project Phosphorus Budget (PPB) of 1.8568 pounds/year was calculated. The post-development calculation on the attached spreadsheet was prepared using a new permanent impervious area of 2.71 acres and new landscaped area of 1 acre. The calculations reflect 1.8491 pounds/year of phosphorous export for this new developed area. The calculations also reflect treatment of existing impervious areas. This results in a phosphorous mitigation credit of 0.2739 pounds/year. Therefore further reducing the post development phosphorous export to 1.5751 pounds/year, which is below the allowable phosphorous budget of 1.8568 pounds/year.

Phosphorus treatment will be accomplished by forested and meadow roadside buffering. The road surface runoff will be treated either by sheet-flow roadside buffers or by buffers with stone bermed level spreaders. Typically, forested or meadow roadside buffers will be established wherever grading will permit sheet flow runoff from the roads. Where sheet flow is not possible, stormwater running off the roads will be collected in ditches on the downhill side of the roads. These ditches will then be periodically discharged downhill via buffers with stone bermed level spreaders. The village area will have a catch basin system that will collect the runoff from the village area and outlet to one of the two underdrain soil filters being proposed on the project.

Stormwater buffers will be protected through the execution and recording of a deed restriction. Declaration of Restrictions for both meadow and forested buffers are included in this exhibit.

In addition to stormwater buffer restrictions, future development will be prohibited in the phosphorous development area as depicted on the civil design plans unless the developments has prior approval from LUPC or the Maine Department of Environmental Protection.

Project Name	**Moosehead Redevelopment**	BA=Buffer Adjacent to Small Imp	RB=Roadside buffer
Project Number	**85761**	BL=Buffer w/level spreader	DB=Detention basin
Date	3/15/2021	DT=Buffer w/ditch turnout	WP=Wet pond
Done by	JAO	USF=Underdrain Soil Filter	NF=Infiltration

BRS=Roadside Buffer with Rock Sandwich

QUALITY CALCULATIONS FOR LINEAR PORTION

Mountain View Pond

Phosphorous Requirement

Watershed per acre phosphorus budget (Appendix C):	P	0.032	# P/acre/year
Small Watershed Threshold (Appendix C)	SWT	189	acres
Allowable increase in Town's share of annual phos (App C)	FC	24.42	lbs P/year
Area avail. For development (App C)	AAD	3029	acres
Project acreage: $A = TA - (WA + SA + EIA_B + EIA_A)$	A	58.03	acres
A/AAD	R	0.019	

Total ac of devel. parcel:	TA	58.03	acres
NWI wetland acreage:	WA		acres
Steep slope acreage:	SA		acres
Existing imp area (Pre 1980)	EIA_B		acres
Existing imp area (post 1980)	EIA_A		acres
Project Phos Budget: PPB = P x A	**PPB**	**1.8568**	**lbs P/year**
Project Phos Budget with small watershed adjustment:	**PPB**	**N/A**	**lbs P/year**

Total Post Development Phos Export with STC (lbs P/yr)=	**1.6132**	<=	**1.8568**
Total Post Development Phos Export (lbs P/yr)=	**1.8871**	without STC credit	
Total source treatment mitigation credit (STC) (lbs/yr)=	**0.2739**		
Total Impervious Area=	2.75	Acres	

Watershed D	Total Area for Watershed (SF)	NEW Impervious Area (SF)	EXISTING Impervious Area (SF)	TOTAL Impervious Area to be Tx (SF)	Roof and Walkway Impervious Area (SF)	NEW Landscaped Area (SF)	BMP No. (or none)	Side of road being Tx right, left, both	BMP cover Forest Meadow	Treatment Factor	Export Coefficient Imp	Export Coefficient Land	Pre-Treatment lbs P/Year	Post Treatment lbs P/year
Q1	15191	10066	0	10066		5125	USF1	Both		0.25	1.75	0.6	0.4750	0.1187
Q1	28357	28357	0	28357	28357	0	USF1			0.25	0.5	0.6	0.3255	0.0814
Q2	831	831	0	831		0	RB1	Both	Forest	0.4	1.75	0.6	0.0334	0.0134
Q3	1314	1314	0	1314		0	None			1	1.75	0.6	0.0528	0.0528
Q4	4803	4803	0	4803		0	RB2	Both	Forest	0.4	1.75	0.6	0.1930	0.0772
Q5	3283	3064	219	3283		0	None			1	1.75	0.6	0.1231	0.1231
Q6	2298	2079	219	2298		0	BL1	Right	Meadow	0.4	1.75	0.6	0.0835	0.0334
Q7	3217	2828	389	3217		0	None			1	1.75	0.6	0.1136	0.1136
Q8	4731	2254	2477	4731		0	BL2	Both	Meadow	0.4	1.75	0.6	0.0906	0.0362
Q9	7256	4893	2363	7256		0	RB3	Both	Meadow	0.4	1.75	0.6	0.1966	0.0786
Q10	3154	3154	0	3154		0	None			1	1.75	0.6	0.1267	0.1267
Q11	6671	755	5916	6671		0	RB4	Both	Meadow	0.4	1.75	0.6	0.0303	0.0121
Q12	3285	-972	4257	3285		0	None	Both		1	1.75	0.6	-0.0390	-0.0390
Q13	6553	4752	1801	6553		0	BL3	Both	Forest	0.4	1.75	0.6	0.1909	0.0764
Q14	3386	3386	0	3386		0	None			1	1.75	0.6	0.1360	0.1360
Q15	13283	-3275	16558	13283		0	None	Both		1	1.75	0.6	-0.1316	-0.1316
Q16	3774	-334	4108	3774		0	None	Right	Forest	1	1.75	0.6	-0.0134	-0.0134
Q17	3825	-954	4779	3825		0	BL3	Left	Forest	0.4	1.75	0.6	-0.0383	-0.0153
Q18	4826	-347	5173	4826		0	BL4	Left	Meadow	0.4	1.75	0.6	-0.0139	-0.0056
Q19	66871	6920	30158	37078		29793	None			1	1.75	0.6	0.6884	0.6884
Q20	16933	8418	1025	9443		7490	USF2			0.25	1.75	0.6	0.4414	0.1103
Q20	21075	21075	0	21075	21075		USF2			0.25	0.5	0.6	0.2419	0.0605
Q21	5530	5530	0	5530		0	RB5	Both	Meadow	0.4	0.5	0.6	0.0635	0.0254
Q22	11137	11137	0	11137		0	None			1	0.5	0.6	0.1278	0.1278

Total New Impervious **2.75** acres Total Pre Tx Phos **3.4976** lbs P/year Total Post Tx Phos **1.8871** lbs P/year

Mitigation credit when a pre-existing source is treated by a new BMP

Watershed	Existing Road Area to be Tx (SF)	Existing Road Area to be Tx (acres)	Export Coefficient (lbs P/acre/year)	Modifier	Pre-treatment Historical P Export (lbs P/year)	Treatment Factor for Historical BMP(s) (1.0 if no BMPs)	Historical P Export (lbs P/year)		Treatment Factor for New BMP(s) Chapter 6	Mitigation Credit (lbs P/year)		Comments
Q6	219	0.0050	1.75	0.5	0.0044	1	0.0044	1 -	0.4	0.0026		
Q8	2477	0.0569	1.75	0.5	0.0498	1	0.0498	1 -	0.4	0.0299		
Q9	2363	0.0542	1.75	0.5	0.0475	1	0.0475	1 -	0.4	0.0285		
Q11	5916	0.1358	1.75	0.5	0.1188	1	0.1188	1 -	0.4	0.0713		
Q13	1801	0.0413	1.75	0.5	0.0362	1	0.0362	1 -	0.4	0.0217		
Q16	4108	0.0943	1.75	0.5	0.0825	1	0.0825	1 -	1	0.0000		
Q17	4779	0.1097	1.75	0.5	0.0960	1	0.0960	1 -	0.4	0.0576		
Q18	5173	0.1188	1.75	0.5	0.1039	1	0.1039	1 -	0.4	0.0623		
					Total source treatment mitiagion credit (STC)					**0.2739**		**lbs P/year**

Project Name	**Moosehead Redevelopment**	RB=Roadside Buffer	
Project Number	**85761**	Imp=Impervious area	W=Width
Date	3/16/2021	Land=Landscaped Area	B=Buffer
Done by	JAO		

REQUIRED BUFFER FLOW PATH LENGTHS
~BUFFER ADJACENT TO DOWN HILL SIDE OF ROAD~

# of Travel Ways to Buffer	Length of Flow Forest	Length of Flow Meadow
1	35	50
2	55	80

* Buffer slopes may not exceed 20%
** Buffers may not be located in a wetland
*** Roadside slopes may be included in a meadow buffer **if** the slope is less than 4:1 **and** if the soils allow infiltration

Mountain View Pond

BMP Type & #	Watershed ID	# of Travelways (Right, Left or Both)	Buffer Type (Forest or Meadow)	Treatment Factor	Standard Buffer Length (ft)	Adjusted Buffer Length (ft)
RB1	Q2	Both	Forest	0.40	55	55
RB2	Q4	Both	Forest	0.40	55	55
RB3	Q9	Both	Meadow	0.40	80	80
RB4	Q11	Both	Meadow	0.40	80	80
RB5	Q21	Both	Meadow	0.40	80	80

Project Name	**Moosehead Redevelopment**	BL=Buffer with a Level Lip Spreader	L=Length
Project Number	**85761**	Imp=Impervious area	W=Width
Date	3/16/2021	Land=Landscaped Area	B=Buffer
Done by	JAO	C1=Loamy Sand or Sandy Loam	C2=Silt Loam, Clay Loam or Silty Clay Loam

REQUIRED BUFFER FLOW PATH LENGTHS
~BUFFERS WITH LEVEL LIP SPREADERS~

0-8% Buffer Slope

Soils	Length of Flow Thru Buffer (ft)	Berm L for Forested Buffer(ft)		Berm L for Meadow Buffer(ft)	
		Per acre Imp	Per acre Land	Per acre Imp	Per acre Land
A	75	75	25	125	35
	100	65	20	75	25
	150	50	15	60	20
B	75	100	30	150	45
	100	80	25	100	30
	150	65	20	75	25
C1	75	125	35	150	45
	100	100	30	125	35
	150	75	25	100	30
C2	100	150	45	200	60
	150	100	30	150	45
D	150	150	45	200	60

9-15% Buffer Slope

Length of Flow Thru Buffer (ft)	Berm L for Forested Buffer(ft)		Berm L for Meadow Buffer(ft)	
	Per acre Imp	Per acre Land	Per acre Imp	Per acre Land
75	90	30	150	42
100	78	24	90	30
150	60	18	72	24
75	120	36	180	54
100	96	30	120	36
150	78	24	90	30
75	150	42	180	54
100	120	36	150	42
150	90	30	120	36
100	180	54	240	72
150	120	36	180	54
150	180	54	240	72

Mountain View Pond

BMP Type & #	Watershed ID	Imp (sf)	Imp (acres)	Buffer Type (forest/meadow)	Treatment Factor	Soil Type	Buffer Slope	from table Standard Buffer Length (ft)	from table L of Berm per ac. imp	Standard Berm Length (ft)	Adjusted Buffer Length (ft)
BL1	Q6	2298	0.0528	Meadow	0.40	D	8%	150	200	11	150
BL2	Q8	4731	0.1086	Meadow	0.40	D	10%	150	240	26	150
BL3	Q13	10378	0.2382	Forest	0.40	D	10%	150	180	43	150
BL4	Q18	4826	0.1108	Meadow	0.40	D	10%	150	240	27	150

Project Name	**Moosehead Redevelopment**
Project Number	**85761**
Date	3/16/2021
Done by	JAO

BIORETENTION CELL OR UNDERDRAIN SOIL FILTER CALCULATIONS

USF1

Subcatchment #	BMP Type & #	Imp (sf)	Land (sf)
Q1	USF1	10066	5125
		28356	
	TOTAL	38422	5125

Volume req'd (cubic feet)	Pretreated (yes or no)	Vol req'd, 25% Red. For pretreat	Sediment Pre-Treat V(cft)	L of Pre Treat A*	Depth of Cell (in)
3372.67	no	N/A	N/A	N/A	18

SOIL FILTER ELEVATIONS

1479	*Top of Berm*
6	Spillway Height (6in min)
1478.50	Top of Spillway/Storage
1477.00	Top of Soil Filter Media
1475.50	Bottom Soil Filter Media
14	Depth of Gravel (in)
1474.33	Bottom of Gravel/USF
1474.67	*Underdrain Elevation*
4	Underdrain Diameter (in)
6	Underdrain Cover **(Min 4")**

STORAGE CALCULATIONS

Elevation	Area	Volume	
1477.00	2067	0	
1477.5	2395	1115.50	
1478	2745	1285.00	
1478.5	3117	1465.50	
			must be > or =
Cumm. Storage		**3866.00**	**3373**

USF2

Subcatchment #	BMP Type & #	Imp (sf)	Land (sf)
Q20	USF2	9443	7490
		21075	
	TOTAL	30518	7490

Volume req'd (cubic feet)	Pretreated (yes or no)	Vol req'd, 25% Red. For pretreat	Sediment Pre-Treat V(cft)	L of Pre Treat A*	Depth of Cell (in)
2792.83	no	N/A	N/A	N/A	18

SOIL FILTER ELEVATIONS

1465	*Top of Berm*
6	Spillway Height (6in min)
1464.50	Top of Spillway/Storage
1463.00	Top of Soil Filter Media
1461.50	Bottom Soil Filter Media
14	Depth of Gravel (in)
1460.33	Bottom of Gravel/USF
1460.67	*Underdrain Elevation*
4	Underdrain Diameter (in)
6	Underdrain Cover **(Min 4")**

STORAGE CALCULATIONS

Elevation	Area	Volume	
1463.00	1560	0	
1463.5	1971	882.75	
1464	2397	1092.00	
1464.5	2836	1308.25	
			must be > or =
Cumm. Storage		**3283.00**	**2793**

Draft Deed Restrictions and Conservation Easements
Meadow Buffers

DECLARATION OF RESTRICTIONS (Non-Wooded Meadow Buffer)

THIS DECLARATION OF RESTRICTIONS is made this ________day of ____________, 20___, by
_____________________________________, ____
(name) (street address)
___________________, ________________County, Maine,________, (herein referred to as the
(city or town) (county) (zip code)
"Declarant"), pursuant to a permit received from the Land Use Planning Commission, to preserve a buffer area on a parcel of land near ___________________________,
____ .
(road name) (known feature and/or town)

WHEREAS, the Declarant holds title to certain real property situated in _________________, Maine
(town)
described in a deed from _________________________ to ____________________________, dated
(name) (name of Declarant)
_______________, 20____, and recorded in Book ____ Page ____ at the _______________County Registry of Deeds, herein referred to as the "property"; and

WHEREAS, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows: (Note: Insert description of restricted buffer location here)

Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Land Use Planning Commission or any successor (hereinafter the "LUPC"),

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall forever be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. **Restrictions on Restricted Buffer Area**. Unless the owner of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the LUPC, the Restricted Buffer Area must remain undeveloped in perpetuity. To maintain the ability of the Restricted Buffer Area to filter and absorb stormwater, and to maintain compliance with the Stormwater Management Law and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows.

a. No soil, loam, peat, sand, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants or other fill material will be placed, stored or dumped on the Restricted Buffer Area, nor may the topography or the natural mineral soil of the area be altered or manipulated in any way;

b. A dense cover of grassy vegetation must be maintained over the Restricted Buffer Area, except that shrubs, trees and other woody vegetation may also be planted or allowed to grow in the area. The Restricted Buffer Area may not be maintained as a lawn or used as a pasture. If vegetation in the Restricted Buffer Area is mowed, it may be mown no more than two times per year.

c. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole or fence (whether constructed of wood, steel or other materials) and appurtenant equipment such as guys and guy anchors;

d. No trucks, cars, dirt bikes, ATVs, bulldozers, backhoes, or other motorized vehicles or mechanical equipment may be permitted on the Restricted Buffer Area, except for vehicles used in mowing;

e. Any level lip spreader directing flow to the Restricted Buffer Area must be regularly inspected and adequately maintained to preserve the function of the level spreader.

Any activity on or use of the Restricted Buffer Area inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area must receive prior approval in writing from the LUPC. The LUPC may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

2. **Enforcement**. The LUPC may enforce any of the Restrictions set forth in Section 1 above.

3. **Binding Effect**. The restrictions set forth herein shall be binding on any present or future owner of the Restricted Buffer Area. If the Restricted Buffer Area is at any time owned by more than one owner, each owner shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner's property.

4. **Amendment**. Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owners of the Restricted Buffer Area and by the LUPC.

5. **Effective Provisions of Declaration**. Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area.

6. **Severability**. Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.

7. **Governing Law**. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

(NAME)

STATE OF MAINE, ____________________, County, dated ____________________, 20__ .
(County)

Personally appeared before me the above named _________________________, who swore to the truth of the foregoing to the best of (his/her) knowledge, information and belief and acknowledged the foregoing instrument to be (his/her) free act and deed.

____
Notary Public

____

DRAFT Deed Restrictions and Conservation Easements
Forested Buffer with Limited Disturbance

DECLARATION OF RESTRICTIONS (Forested Buffer, Limited Disturbance)

THIS DECLARATION OF RESTRICTIONS is made this _______________day of ___________, 20___, by _________________________ , ____,
(name) (street address)
____________________, ________________County, Maine, ________, (herein referred to as the
(city or town) (county) (zip code)
"Declarant"), pursuant to a permit received from the Land Use Planning Commission, to preserve a buffer area on a parcel of land near __________________________,____ .
(road name) (known feature and/or town)

WHEREAS, the Declarant holds title to certain real property situated in ___________________, Maine
(town)
described in a deed from__________________________ to ____________________________dated
(name) (name of Declarant)
_______________, 20____, and recorded in Book ____ Page ____ at the _______________County Registry of Deeds, herein referred to as the "property"; and

WHEREAS, Declarant desires to place certain restrictions, under the terms and conditions herein, over a portion of said real property (hereinafter referred to as the "Restricted Buffer") described as follows: (Note: Insert description of restricted buffer area location here)

Declarant has agreed to impose certain restrictions on the Restricted Buffer Area as more particularly set forth herein and has agreed that these restrictions may be enforced by the Land Use Planning Commission or any successor (hereinafter the "LUPC"),

NOW, THEREFORE, the Declarant hereby declares that the Restricted Buffer Area is and shall forever be held, transferred, sold, conveyed, occupied and maintained subject to the conditions and restrictions set forth herein. The Restrictions shall run with the Restricted Buffer Area and shall be binding on all parties having any right, title or interest in and to the Restricted Buffer Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Restricted Buffer Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Restricted Buffer Area subject to the Restrictions and shall agree to be bound by, to comply with and to be subject to each and every one of the Restrictions hereinafter set forth.

1. **Restrictions on Restricted Buffer Area**. Unless the owner of the Restricted Buffer Area, or any successors or assigns, obtains the prior written approval of the LUPC, the Restricted Buffer Area must remain undeveloped in perpetuity. To maintain the ability of the Restricted Buffer Area to filter and absorb stormwater, and to maintain compliance with the Stormwater Management Law and the permit issued thereunder to the Declarant, the use of the Restricted Buffer Area is hereinafter limited as follows.

a. No soil, loam, peat, sand, gravel, concrete, rock or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants or other fill material may be placed, stored or dumped on the Restricted Buffer Area, nor may the topography of the area be altered or manipulated in any way;

b. Any removal of trees or other vegetation within the Restricted Buffer Area must be limited to the following:

   (i) No purposefully cleared openings may be created and an evenly distributed stand of trees and other vegetation must be maintained. An "evenly distributed stand of trees" is defined as maintaining a minimum rating score of 24 points in any 25 foot by 50 foot rectangle (1,250 square feet) area, as determined by the rating scheme in Table 11:

Table 11.
Point System for Determining an Evenly Distributed Stand of Trees

Diameter of tree at 4½ feet above ground level	Points
2 - 4 inches	1
4 - 8 inches	2
8 - 12 inches	4
>12 inches	8

   Where existing trees and other vegetation result in a rating score less than 24 points, no trees may be cut or sprayed with biocides except for the normal maintenance of dead, windblown or damaged trees and for pruning of tree branches below a height of 12 feet provided two thirds of the tree's canopy is maintained;

   (ii) No undergrowth, ground cover vegetation, leaf litter, organic duff layer or mineral soil may be disturbed except that one winding path, that is no wider than six feet and that does not provide a downhill channel for runoff, is allowed through the area;

c. No building or other temporary or permanent structure may be constructed, placed or permitted to remain on the Restricted Buffer Area, except for a sign, utility pole (whether constructed of wood, steel or other materials) and appurtenant equipment such as guys and guy anchors, or fence;

d. No trucks, cars, dirt bikes, ATVs, bulldozers, backhoes, or other motorized vehicles or mechanical equipment may be permitted on the Restricted Buffer Area;

e. Any level lip spreader directing flow to the Restricted Buffer Area must be regularly inspected and adequately maintained to preserve the function of the level spreader.

Any activity on or use of the Restricted Buffer Area inconsistent with the purpose of these Restrictions is prohibited. Any future alterations or changes in use of the Restricted Buffer Area must receive prior approval in writing from the LUPC. The LUPC may approve such alterations and changes in use if such alterations and uses do not impede the stormwater control and treatment capability of the Restricted Buffer Area or if adequate and appropriate alternative means of stormwater control and treatment are provided.

2. **Enforcement**. The LUPC may enforce any of the Restrictions set forth in Section 1 above.

3. **Binding Effect**. The restrictions set forth herein shall be binding on any present or future owner of the Restricted Buffer Area. If the Restricted Buffer Area is at any time owned by more than one owner, each owner shall be bound by the foregoing restrictions to the extent that any of the Restricted Buffer Area is included within such owner's property.

4. **Amendment**. Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owners of the Restricted Buffer Area and by the LUPC.

5. **Effective Provisions of Declaration**. Each provision of this Declaration, and any agreement, promise, covenant and undertaking to comply with each provision of this Declaration, shall be deemed a land use restriction running with the land as a burden and upon the title to the Restricted Buffer Area.

6. **Severability**. Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity or enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.

7. **Governing Law**. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

____
(NAME)

STATE OF MAINE__________________ County, ____________________, 20__.
(County) (date)

Personally appeared before me the above named ____________________________, who swore to the truth of the foregoing to the best of (his/her) knowledge, information and belief and acknowledged the foregoing instrument to be (his/her) free act and deed.

____
Notary Public

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