

March 28, 2024

Ms. Cathy Johnson
Chair, Planning Board
Town of Alna, Maine
1574 Alna Rd.
Alna, ME 04535

Re: Public comment for Crooker Construction, LLC application for blasting at the Alna, ME quarry

Dear Chair Johnson,

Please find public comments directed to the annual Crooker Construction application for blasting at their Alna, Maine quarry. I am a resident of Alna and live year-round on the Sheepscot River approximately 2.5 miles downriver as the crow flies from the quarry. Our family also has 140 acres of conservation land on the Sheepscot River some five miles downriver from the quarry site. For over 88 years our family has owned this property and has valued conserving the surrounding area and improving the Sheepscot River watershed and fishery from the detrimental effects of over development and industrial operations.

A number of individuals in the community have expressed concerns about the applicants' steady expansion over the past several years. Below please find my own observations about the application and questions of the applicant. I also offer several proposed permit conditions for the board to consider as the application is evaluated.

1. Significant growth in quarry operations

Per Exhibit F, the rate of growth at the quarry as measured several different ways shows a steady and significant enlargement in operations that has out-paced the current level of scrutiny and evaluation of the impacts on the surrounding environment and community. Many of the studies done on the Crooker operation were performed decades ago when operations were smaller and should be renewed before any further growth is permitted. Please note that my definition of growth is measured by increases in any of the metrics shown in Exhibit F, not a technical definition outlined in statute.

Requests by the applicant for 2024 increases in operations nearly doubling the yards of production from 55,628 yards in 2023 to 100,000 yards in 2024 (See Exhibit F) should be carefully evaluated now that a moratorium ordinance which prohibits expansion passed at the Town Meeting on 3/25/23 and was extended through August 2024.

The number of blast days in 2023 was 14 (p. 12/95) and the applicant is requesting a 36% increase to 19 in 2024 (p. 93/95) which should also be carefully evaluated now that the Town moratorium ordinance has passed. The applicant is also requesting up to 4 blast days per month in 2024 when in 2023 there was never a month of more than two blast days (p.12/95), representing a 100% requested increase. Lastly, the applicant is requesting up to 3 blasts per day in 2024 (p.86/94), when there was never a blast day of more than two blasts in 2023 (p.12/95).

Proposed condition: Cap approved 2024 levels of actual blast days, number of blasts per day, explosives used, holes per year, feet of bore hole and yards of production at 2023 actual levels or less, until further impact studies are performed (see items 2 through 6 below) and/or a local mineral extraction ordinance is approved.

Quarry Footprint Verification

It appears from p.1/95 of the application that the applicant is promising to maintain a one-acre aggregate working pit size at any one time.

Given the significant water aquifer, wetlands and Sheepscot River nearby, it is suggested that the Town consider verifying this promise with the applicant and condition the permit to limit the applicant to a one-acre aggregate working pit size at any one time.

Proposed condition: The applicant is limited to a one-acre aggregate working pit size at any one time, or the 2023 actual working size, whichever is smaller, until further studies are performed and/or a local mineral extraction ordinance is approved.

2. Ensuring Water Quality

Exhibit F shows the steady rate of growth at the quarry site measured several different ways, and the scale and quantity of deep well and water quality monitoring should keep pace with the large levels of growth seen. As one example of this growth, the use of 3,504 lbs. of explosives in 2018 vs. 70,648 lbs. of explosives in 2023 represents an exponential 20-fold level of increase. The impact of this increase to water quality is not known – are there are by-products and residues from the explosive chemicals that could impact water quality?

Per the applicant's annual summary (p. 4/95), it is stated that:

“We made a switch to bulk explosives versus the traditional stick and bag. Due to labor shortages switching to bulk explosives we were able to accomplish the same size shots with no major events with only 2-person crew versus having 8-to-10-person crew.”

Question of the applicant: Can you explain the differences between the blasting process you were performing in 2022 compared to this new process using bulk explosives? Does using bulk explosives result in using more explosive powder material?

Question of the applicant: What are the ingredients of the explosives used in your operations? What happens with the explosive chemicals after the blast? Is there any explosive material or residue remaining? What is this residue composed of, and is the applicant testing any of the wells for compounds in these residues?

If permitted to expand operations, the applicant has not demonstrated that their proposed expanded quarry operations will not lower water quality, and has not committed to a broader water quality testing program commensurate with their past and planned growth. The last pre-blast assessments on water quality were performed in 2018, and should be renewed and enlarged to scale with their past and planned expansions since then.

Indeed, one elevated level of the petroleum hydrocarbon naphthalene suggestive of a petroleum spill was detected in one deep monitoring well (see Exhibit C) in 2019.

It is unclear from the record the exact number of actively monitored wells in place, as the numbers and locations appear to have changed from 1993 to present. The applicant seems to focus on 8 wells noted on p. 35-80 of the application yet there are many more that have been monitored in the past (See Exhibit G) and it appears there is lack of consistency in monitoring data on a larger set of wells.

Proposed condition: The applicant shall expand their water quality program to test for those residues and chemical compounds produced by explosives as a by-product of their blasting program at all monitoring well sites, and report results to the Alna planning board annually.

Proposed condition: The applicant shall expand their groundwater quality and turbidity testing program on a quarterly basis to include the water source wells of all abutting properties in addition to the applicants' newly drilled monitoring wells and the 20 monitoring wells installed by SME in 2001 (or pending independent third-party hydrogeologic survey recommendation) to match the size and scale of their past and planned growth, and report results to the Alna planning board annually.

Proposed condition: The applicant shall update their 2018 preblast surveys to account for their increased operational growth and changes in the surrounding area and landownership.

3. Wildlife Habitat/Spring Brook Impacts

A 2001 stream hydrologic study indicated potential water temperature and habitat impacts to Spring Brook and its tributaries that flow into the Sheepscot River (See Exhibits A and D). This survey is now over twenty years old, and because of climate change effects in Maine that have occurred over this time and because of intensified vegetation management practices employed by CMP in the electricity transmission corridor that this brook runs through, a new hydrologic characteristics and temperature survey of this brook and related streams and brooks and all potential impacts to the habitat is warranted.

There is also an unnamed and unmapped perennial or intermittent tributary of Spring Brook that begins 750 ft. from the Crooker pit near Bailey Rd. (See Exhibit I), which leads directly into the Sheepscot River. This stream lies opposite Crooker's "pond" on the other side of Bailey Rd.

Proposed Condition: The applicant shall have an independent third party perform an updated evaluation of stream hydrologic characteristics of all nearby streams, brooks and water features as was done in 2001, and report the results to the Alna planning board.

Proposed Condition: The applicant shall perform water quality testing at this unnamed tributary quarterly and report the results to the Alna planning board annually.

4. Air Quality/Particulate Emissions Concerns

The applicant has not adequately explained the effects of their past and planned quarry expansion on air quality/particulate emissions with regard to their rock crushing or other operations on-site. There is no data reporting on volumes of rock crushing by year or air quality metrics for the applicant's operations. One way of explaining how the applicants' growth has outpaced monitoring may be shown on Exhibit F, where 3,989 yards of material was harvested in 2018 and has grown fourteen-fold to 55,628 yards in 2023. Alna has no idea what volume of rock is crushed on-site annually and how that has changed over time, or how that might impact air quality.

Concerns are amplified by the fact that the applicant had air quality violations in 2009 that resulted in a \$2,500 fine by the DEP. Therefore, some level of monitoring and reporting is appropriate given the operational growth highlighted in Exhibit F since 2009.

For news article see:

<https://lcnme.com/currentnews/crooker-fined-regarding-whitefield-pit-operation/>

Crooker Fined Regarding Whitefield Pit Operation

May 31, 2009 at 12:00 am

Violation of an air emission license condition at a Whitefield gravel pit has been resolved. A consent agreement dated March 25 between Harry C. Cooker & Sons Inc., of Topsham, the Dept. of Environmental Protection (DEP), and the state Attorney General's Office requires payment of a \$2500 penalty.

Proposed condition: The applicant shall perform air quality testing quarterly and report all data to the Alna planning board annually.

Proposed condition: The applicant shall report on rock crushing metrics (volume by month, etc.) annually to the planning board as part of the annual permit application process.

5. Road, Traffic & Safety Concerns

The applicant has not demonstrated that there will be no impact to public safety with the additional increase in traffic and wear on roads to and from the quarry resulting from their past and planned expansion. The last traffic study completed was over thirty years ago, and a new modern study should be completed by an independent third party with updated and modern data (See Exhibit B). One way of explaining how the applicants' growth has outpaced monitoring may be shown on Exhibit F where 3,989 yards of material was harvested in 2018 and has grown fourteen-fold to 55,628 yards in 2023. Assuming an average weight of 2,000 lbs. per square yard, this additional 51,639 yards of material harvested in 2023 equates to 103,278,000 additional lbs. of load on our local roads last year than were on our roads in 2018. This example doesn't even account for years prior to 2018 when the traffic study was undertaken and volumes were even lower, and does not account for population growth.

One safety concern frequently encountered as I travel Alna roads is that trucks leaving the pit have uncovered loads, and debris can exit the truck and hit trailing cars. It is challenging to take pictures while driving during these times but I was able to capture two examples of uncovered loads as I followed gravel trucks leaving the pit one day while driving South on Rt. 218 and another on the West Alna Rd. (See Exhibit H).

Please note that Crooker's 2003 Alna permit Condition 5 states "All trucks leaving the pit, both those owned by the Permittee and its affiliates and independent contractors buying from the pit, will have loads covered."

Question of the applicant: What can Crooker do to better adhere to the 2003 Alna permit condition 5 of 2003 and improve the safety of travelers on our roads as it relates to covered loads?

Lastly, as a year-round resident on Alna that travels up and down Rt. 218 (Alna Rd.) a minimum of twice per day and often several times per day, I can attest to several close call interactions with gravel trucks on Rt. 218 that are straddling or over the center line, causing me to veer toward the road edge and shoulder. Rt. 218 is historically poorly maintained and the shoulders are soft and dangerous in some areas (See Exhibit H).

Proposed condition: The applicant is required to hire an independent third party to update the 1992 Traffic and safety study to evaluate the impact of operations on road quality and safety conditions coming from and going to the site, and to provide the results of this study to the Alna planning board within 12-18 months.

Proposed condition: The applicant shall provide data to the planning board for the past 5 years and annually in the future indicating the total number of trucks entering or leaving the site each month with loads in excess of 9 yards.

Proposed condition: Reinforce the 2003 permit condition requiring the applicant to ensure all trucks leaving the applicants property are covered and consider instituting punitive measures for continued violations of this condition.

6. Noise Pollution, Vibration and lower property values

As noted in Exhibit E, the applicant exceeded the DEP decibel limit levels of 129 Db on 2 occasions in 2023 and 6 occasions in 2022 (prior years data unavailable to determine if this is a regular violation). The Town of Alna limit of 133 Db was exceeded on two occasions. The Alna limit of 133 Db should be evaluated to at least match the DEP level of 129 Db. The applicant should be more mindful of the Alna building code ordinance where excess noise is considered a nuisance which can lead to enforcement action and revocation of the business permit. It is also unclear why and when the decibel limit was increased from 100 Db to the current 129 DEP/133 Town Db levels – as noted in Exhibit E the DEP permit issued in 1988 set a limit of 100 Db at the site boundary.

In addition, as noted in Exhibit E, the “local agreement” maximum allowable peak particle velocity threshold (1.0 in/sec.) at peak frequency levels greater than 30Hz was occasionally exceeded at the Weeks location. It is unclear how and when the “local criterion” and “local agreement” for peak particle velocities at certain peak frequency levels was made, and this should be explained to the planning board (See Exhibit E).

There is a perceived reduction in property values in the area surrounding the applicants’ operations since their start in 2004, and a study should be considered on this topic before permitting additional growth in quarry activities that may have a detrimental impact (see Exhibit J).

Proposed condition: The Alna noise violation threshold is aligned to the DEP level of 129 Db, and the applicant will adjust annual reporting on this metric to the Alna planning board.

Proposed condition: The applicant will report within 24 hours to the Alna code enforcement officer and municipal town office each time a noise threshold is exceeded.

Proposed condition: The applicant shall provide documentation to the Alna Planning board indicating how and when the 100 Db town noise limit was increased, and how and when the “local agreement” on peak particle velocity at certain peak frequency levels was decided (See Exhibit E).

Thank you for the opportunity to provide public comment on this application as a concerned resident of Alna and property owner along the Sheepscot River and for carefully considering my comments and suggested permit conditions. Should you have any additional questions, please do not hesitate to contact me at philbrick7@aol.com or 207-380-6973.



Jeff Philbrick
Alna, ME

Exhibit A: Impacts to Spring Brook

p. 12/46: 2002 Town of Alna application for site plan development

VI(A)(1)(v). Wildlife Habitat/Properties of Historical Significance

WAI performed a review of significant wildlife habitat at the Site and in the surrounding area. The Maine Natural Areas Program has indicated that “their data does not show any rare exemplary botanical features mapped within the project area”. According to correspondence from the Maine Department of Inland Fisheries and Wildlife (MDIF&W), “no significant wildlife habitat has been identified on the project Site”. However, MDIF&W did indicate that “a significant fisheries resource exists within the vicinity” and questioned possible secondary impacts that could potentially result from the expansion of the gravel pit, particularly if excavation occurs below the water table. In the current proposed expansion, a separation of two feet or more must be maintained between the depth of excavation and the location of the high (i.e., wet season) groundwater table. However, in response to the MDIF&W correspondence, which was in reference to a small stream called Spring Brook (shown on Site Plan – Attachment A), SME conducted a field evaluation of the stream during August and September 2001. Based on SME’s observations and understanding of the Site, the stream temperature of Spring Brook will not be significantly affected by the proposed Whitefield Pit expansion. SME’s letter report on this issue is included as Attachment G.

In addition to reviews of wildlife habitat, the Maine Historic Preservation Commission (MHPC) was contacted regarding the proposed expansion. The MHPC has indicated “there are currently no archaeological properties listed on the National Register of Historic Places within the immediate vicinity of the proposed project location and,

Exhibit B: Outdated traffic study

p. 12/46: 2002 Town of Alna application for site plan development

VI(A)(1)(t). Vehicular Traffic

Based on Maine DEP Site Location of Development/Condition Compliance and Modification Finding of Fact Permit No. L-00758-80-H-M (Corrected Order issued November 20, 1992), vehicular traffic at the Site is limited to 250 truck trips per day between the permitted hours of operation (6:00 AM to 6:00 PM Monday through Friday, infrequently Saturday, including start-up). The proposed development will not result in increased vehicular traffic at the Site or to and from the Site.

Exhibit C: Petroleum Hydrocarbon detected at well

p. 31/483 DEP application for variance to blast below the seasonal high-water table

TABLE 2-2

SUMMARY OF BASELINE MONITORING RESULTS
FOR DEEP BEDROCK MONITORING WELLS
ALNA QUARRY AND WHITEFIELD GRAVEL PITS

Parameter	B-19-1	B-19-2	B-19-3	B-19-4
Groundwater Depth (ft-BGS)	9.65 to 18.26	17.93 to 22.45	64.55 to 66.05	0.30 to Flowing
Groundwater Elevation (ft-NAVD88)	299.88 to 308.49	266.84 to 271.36	201.27 to 202.77	234.36 to 234.36
Specific Conductance ($\mu\text{mhos/cm}$ @ 25°C) ²	117 to 120	116 to 129	551 to 592	159 to 176
pH (standard unit)	7.2 to 8.8	6.7 to 8.3	8.5 to 10.5	7.9 to 8.3
Temperature (°C) ³	9.1 to 10.6	10.1 to 12.9	10.2 to 11.6	10.3 to 11.2
Eh (mV) ⁴	149 to 293	122 to 338	-282 to 121	-71 to 322
Dissolved Oxygen (mg/L) ⁵	2.7 to 3.1	1.9 to 3.7	≤ 0.1 to 0.8	≤ 0.1 to 1.9
Turbidity (NTU) ⁶	4.6 to 19.9	≤ 0.1 to 36.2	≤ 0.1 to 13.6	4.3 to 12.5
Iron (mg/L)	3.07 to 15.8	0.264 to 12.1	1.94 to 6.82	3.21 to 12.2
Manganese (mg/L)	0.044 to 0.119	≤ 0.01 to 0.107	0.041 to 0.237	0.081 to 0.200
Nitrate (mg/L)	≤ 0.1 to 1.37	≤ 0.1	≤ 0.1	≤ 0.1
Extractable Petroleum Hydrocarbons (EPH) ($\mu\text{g/L}$) ⁷	All Non-Detect	All Non-Detect	All Non-Detect	See Note 1
Volatile Petroleum Hydrocarbons (VPH) ($\mu\text{g/L}$)	All Non-Detect	All Non-Detect	All Non-Detect	All Non-Detect

Notes:

¹ There was one detection of naphthalene at B-19-4 at a concentration of 0.59 $\mu\text{g/L}$ on October 31, 2019. Naphthalene was not detected above the laboratory detection limit of 0.4 $\mu\text{g/L}$ at B-19-4 on June 4, 2020, September 29, 2020, and May 25, 2021.

² $\mu\text{mhos/cm}$ @ 25°C – micromhos per centimeter at 25 degrees Celsius

³ °C – degrees Celsius

⁴ mV – millivolts

⁵ mg/L – milligrams per liter

⁶ NTU – Nephelometric Turbidity unit

⁷ $\mu\text{g/L}$ – micrograms per liter

The baseline groundwater quality data was compared to the Maine Center for Disease Control (MECDC) drinking water guidelines, which used the U.S. Environmental Protection Agency (U.S.EPA) drinking water standards and health advisory levels.¹ There were no health-based MECDC drinking water guidelines or U.S.EPA drinking water standard and health advisory level exceedances for the parameters analyzed.

Results that fell outside of these guidelines are limited to U.S.EPA secondary drinking water regulations, which are based only on aesthetic considerations, and are summarized below:

- pH was outside of the secondary drinking water regulation range for aesthetic considerations (6.5 to 8.5) during one or more baseline monitoring events at B-19-1 and B-19-3;
- Iron was above the secondary drinking water regulation for aesthetic considerations (0.3 mg/L) during one or more baseline monitoring events at B-19-1, B-19-2, B-19-3, and B-19-4; and

¹ United States Environmental Protection Agency, 2018. 2018 Edition of the Drinking Water Standards and Health Advisory Tables.

Exhibit D: Outdated 2001 stream hydrologic study

p. 26-30/46 2002 Town of Alna site plan development permit application

SME

Sevee & Maher Engineers, Inc.
Waste Management and Hydrogeologic Consultants

October 12, 2001

01018

streamsurvey.doc

H.C. Crooker & Sons, Inc.
Attn: Tom Sturgeon, Engineer
Route 196
P.O. Box 5001
Topsham, ME 04086-5001

Subject: Evaluation of Stream Hydrologic Characteristics
Whitefield Gravel Pit
Alna and Whitefield, Maine

Dear Mr. Sturgeon:

This letter provides a summary of our findings during a field evaluation of a stream located southeast of the existing H.C. Crooker & Sons, Inc. (Crooker) Whitefield Gravel Pit and proposed expansion area. The stream is known locally as Spring Brook. This stream was discussed in a July 17, 2001 letter from William Woodward, Fishery Biologist for the Maine Department of Inland Fisheries and Wildlife (MDIFW) to Jean Lallier of Woodlot Alternatives. In his letter, Mr. Woodward noted concerns relating to potential impacts of the proposed gravel pit expansion on the temperature of water in the stream. The stream is fed by a number of cold water springs, at least one of which originates from the sand and gravel deposit being mined at the Whitefield Pit. Figure 1 (attached) shows the headwaters of the stream in relation to the proposed gravel pit expansion. The proposed expansion will not include any physical modification of the stream or the stream valley.

Sevee & Maher Engineers, Inc. (SME) conducted a drilling program in August and September 2001 as part of a hydrogeologic investigation for the proposed expansion area. During the drilling program, SME inspected Spring Brook from where it originates near the southern boundary of the proposed expansion to the road crossing at Rt. 218, approximately 4,000 feet southeast of the site (Figure 1). On August 29, 2001, the first SME survey of Spring Brook was conducted. This survey included locating springs that feed the stream and observing the geologic characteristics of the stream valley and streambed. A second survey of the stream was conducted on September 6, 2001 and included measurements of water temperature at several locations. The results of SME's inspection of the stream are summarized below. Based on our observations and understanding of the site, the stream temperature will not be significantly affected by the proposed expansion of the Whitefield Pit.

Page 1 of 4

Exhibit D: Outdated 2001 stream hydrologic study continued

p. 26-30/46 2002 Town of Alna site plan development permit application

PHYSICAL CHARACTERISTICS OF STREAM

As shown in Figure 1, approximately 35 springs were identified in the valley of Spring Brook. The flow emanating from these springs varied from a trickle to several gallons per minute (gpm). In addition to the springs identified on Figure 1, numerous small seeps were observed on the hillsides at dozens of locations throughout the stream valley. Most of the seeps and springs appeared to originate at the contact between sand and gravel deposits and the underlying till. During the drilling program in the expansion area, it was noted that a layer of till several feet thick rests on top of bedrock at most locations. The till, being of lower hydraulic conductivity than the sand and gravel, holds up water from infiltrating into the bedrock, resulting in breakouts of water to the ground surface (i.e., springs) in the steep relief of the stream valley walls. At the time of the survey, which followed several weeks of very dry weather, several springs were observed to be dry.

The spring that originates near the Crooker site (see Figure 1) is located about 450 feet southeast of the expansion boundary and feeds a small tributary that enters Spring Brook approximately 900 feet downstream from the spring location (1350 feet from the expansion boundary). The flow of this tributary increases along its length, indicating that groundwater is discharging to the tributary between the observed spring location and the confluence with Spring Brook. It is estimated that the spring accounts for greater than 10 percent of the total flow in the stream. The main body of Spring Brook is about 3 feet wide where it crosses Rt. 218. The stream varies in width upstream of Rt. 218 and is in some locations less than 2 feet wide. Since many seeps, springs and small tributaries contribute water to Spring Brook, the flow increases along the entire length of the valley. The bottom of the stream typically consists of sand and gravel, except in the steeper sections where the bottom is mostly made up of cobbles and boulders. About halfway between the Crooker site and Rt. 218, the stream crosses a power line, where the tree cover is greatly diminished. In all other observed locations between the Crooker site and Rt. 218, the stream runs through wooded areas.

TEMPERATURE SURVEY

Mr. Woodward noted his letter that the MDIFW measured the temperature of the water in Spring Brook at the Rt. 218 crossing to be 14.5 °C on August 5, 1999. SME's temperature survey was conducted in mid-morning on September 6, 2001. The temperature of the stream water at Rt. 218 during SME's survey was 11.9 °C. The colder temperature measured during SME's survey was probably due to season, time of day and/or the weather as compared to conditions during MDIFW's measurements.

During SME's survey, several temperature measurements were made at various locations along the stream and in springs feeding the stream. The coldest temperatures measured were at the origins of springs and seeps where a significant flow was observed.

Exhibit D: Outdated 2001 stream hydrologic study continued

p. 26-30/46 2002 Town of Alna site plan development permit application

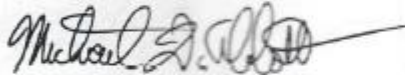
temperatures in the stream for fish habitat will be to protect or enhance the tree cover along the stream.

During the drilling program in the Whitefield Pit expansion area, a monitoring well (B-211) was installed just upgradient from the large spring. If necessary, this well can be used as a point for measuring groundwater temperature downgradient from the pit. Temperature measurements taken in the well and in the spring itself can be used to monitor the potential effects of future mining operations.

If you have any questions or comments regarding this letter, please do not hesitate to contact us.

Sincerely,

SEVEE & MAHER ENGINEERS, INC.



Michael D. Abbott, P.E., C.G.
Project Engineer/Geologist

cc: Steven Patch (SME)
Mark Christopher (Woodlot Alternatives, Inc.)

Attachments:

Figure 1 - Spring Brook Evaluation Map

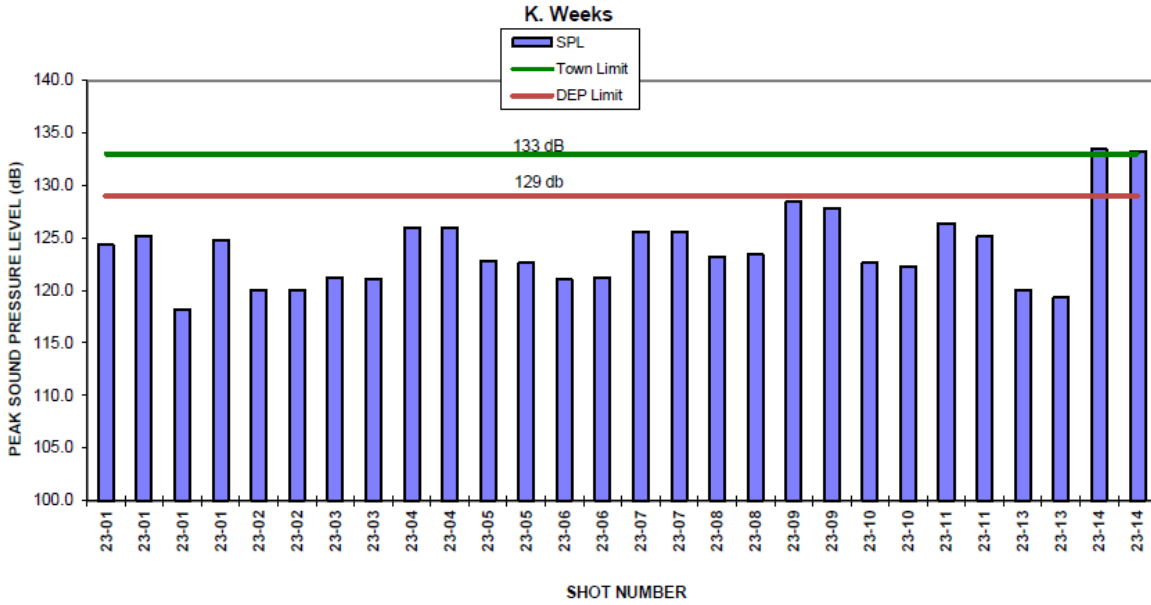


Exhibit E: Excessive noise pollution

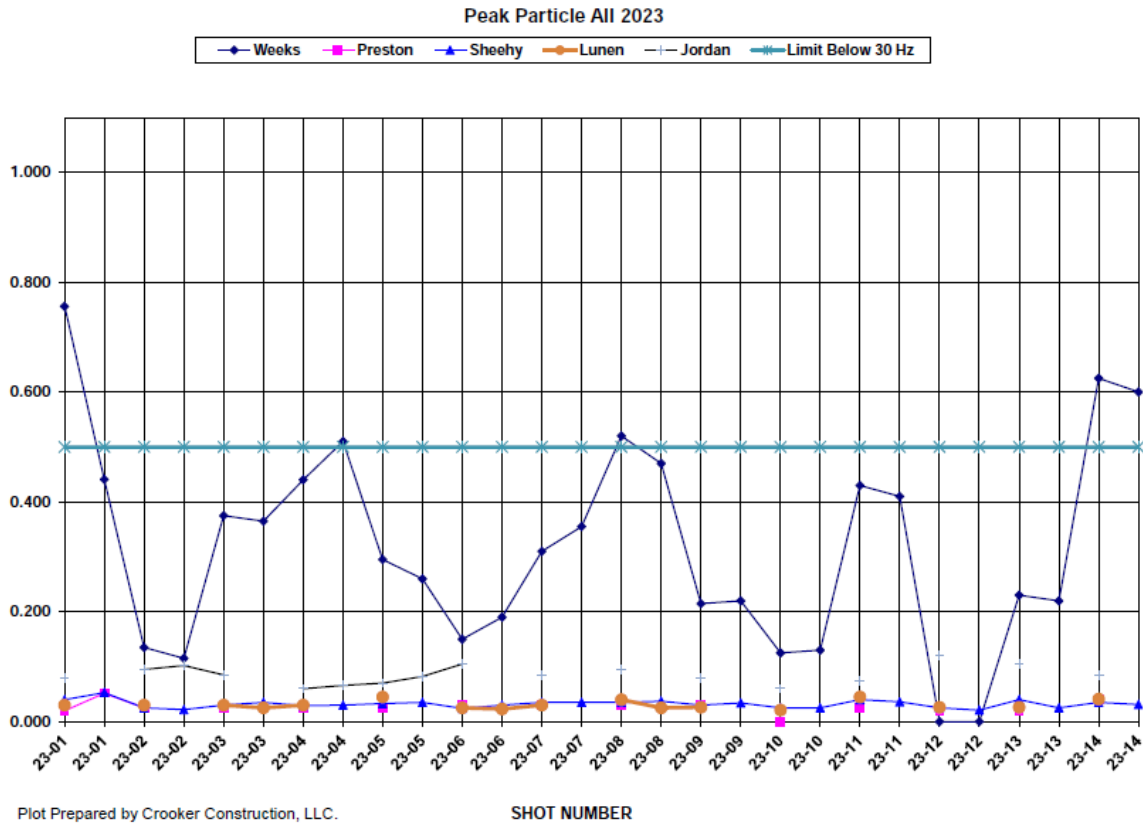
p. 34/95 of the Town of Alna 2024 Blast Permit Application

Alna Quarry
2023 Permit Season

Sound Pressure / Air Blast



P. 23/95 of the Town of Alna 2024 Blast Permit Application



Plot Prepared by Crooker Construction, LLC.

Exhibit E: Excessive noise pollution continued

p. 8/95 of the Town of Alna 2024 Blast Permit Application



604 Daniel Webster Highway
Suite 104, Merrimack, NH 03054

Office: 1.888.627.9221
Fax: 1.888.641.2674

USBM AIRBLAST CRITERIA (RI 8485)

A study by the USBM documented the effects of airblast overpressure on structures in the USBM Report RI 8485 "Structure Response Produced by Airblast from Surface Mining". The results of this report recommend a conservative and safe limit of 0.0129 psi or an equivalent sound pressure level of 133 decibels (dB). Further studies by the USBM reported that airblast overpressures more than 0.10 psi or 150 dB were necessary to cause cracking to window glass.

LOCAL CRITERION

By local agreement, the quarry has the following regulations: For peak frequency levels greater than 30 Hz maximum allowable peak particle velocity is 1.00 in/sec. For peak frequency levels less than 30 Hz, the maximum allowable peak particle velocity is 0.50 in/sec

p. 22/95 of the Town of Alna 2024 Blast Permit Application

USBM RECOMMENDATIONS (RI 8507)
DEP RECOMMENDATION
TOWN LIMIT

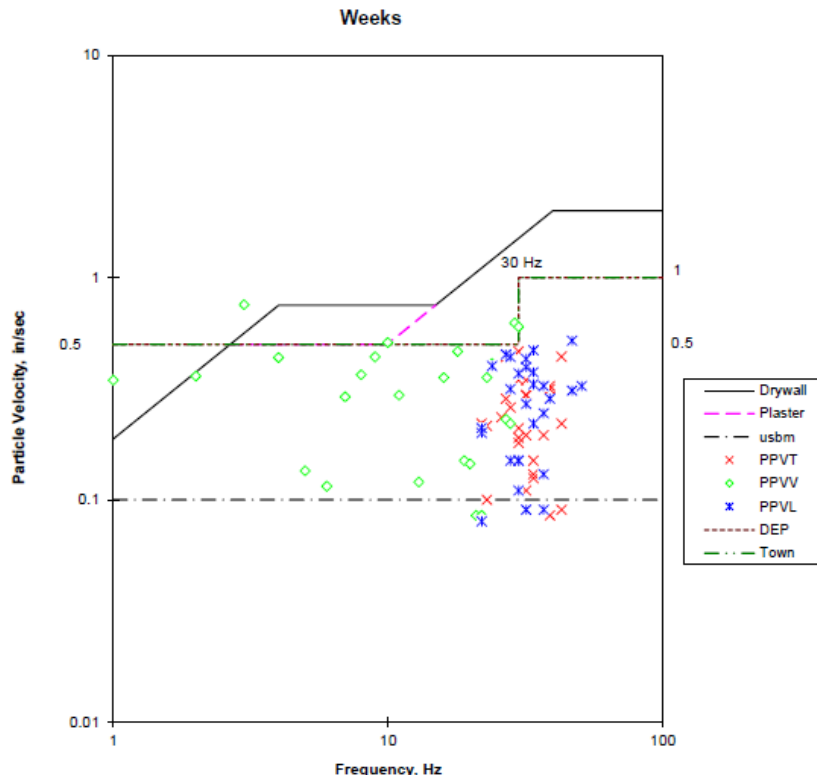


Exhibit E: Excessive noise pollution continued

p. 16/46 2002 Town of Alna Site Plan Development Application

- Maine DEP Condition of Compliance Permit No. L-000758-80-B-C issued December 13, 1988, establishing maximum noise level at property boundary. At no time during the operation of the project shall noise levels exceed 100 dBc at the project's property boundary.

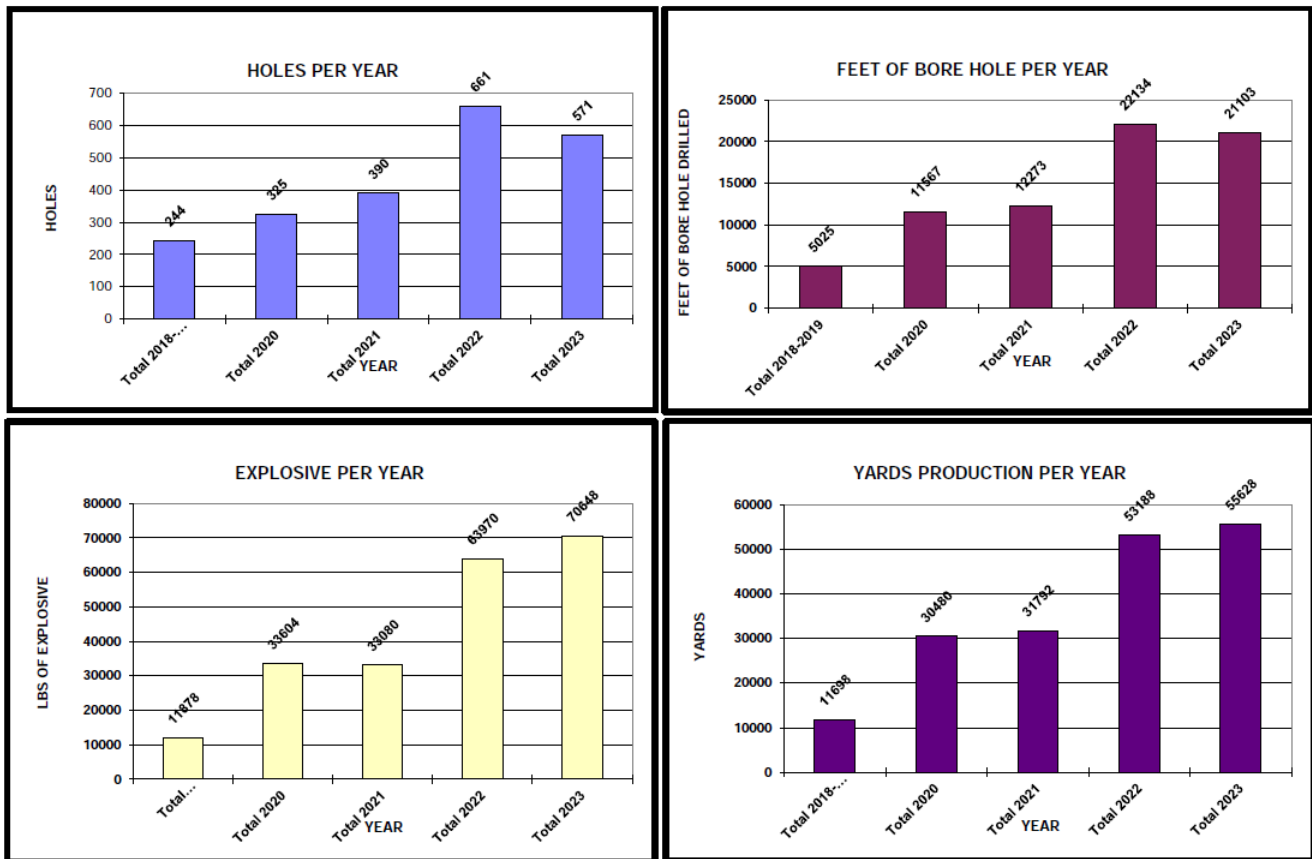
Exhibit F: Growth of Mining Operations

p. 40/95 2024 Town of Alna Blast Permit application

Alna Quarry

Alna DRL Charts

Prepared by Crooker Construction, LLC.



p. 85/95 2024 Town of Alna Blast Permit application

Significant additional rate of production growth requested for 2024:

Total number of cubic yards of material to be removed by Blasting

It is estimated a maximum of 100,000CY will be removed during the permit period.

Estimate of the number of blasts required to remove the specified amount of material

Crooker is requesting a maximum (40) blast events for the proposed permit cycle. Blasting will occur on the scheduled days shown in the application (or next available good weather day). The number of blasts will not exceed what is listed in the section "hours of blasting" shown below.

p. 86/95 2024 Town of Alna Blast Permit application

- (b) **Hours of Blasting.** We propose to limit blasting to occur between the hours of 9am and 4pm, Monday thru Friday. No blasting will occur on National or State-recognized holidays. Blasting will be limited to no more than four (4) blast days per month and three (3) blasts on a given blast day.

Exhibit G: Monitoring Wells

p. 5/46 2002 Town of Alna Site Plan Development Application

Hydrogeologic Data for Significant Sand and Gravel Aquifers in Parts of Kennebec, Lincoln and Sagadahoc Counties, Maine). SME's 1993 and 2001 field investigation included the installation of a total of 25 monitoring wells (5 wells in 1993 and 20 wells in 2001). Each monitoring well boring was advanced through sand and gravel deposits to the bedrock surface. Depths ranged from 10 feet to 105 feet. The material encountered ranged from fine sand to coarse gravel with cobbles and boulders. At most locations, a thin layer of till (2 to 7 feet) was encountered on top of the bedrock. Boring logs for monitoring wells installed on-site under SME's supervision are attached to this Application (Attachment B). The locations of monitoring well boring are shown on the facility Site Plan (Attachment A).

p. 29/483 DEP application for variance to blasting below the seasonal high-water table

TABLE 2-1

MONITORING WELL CONSTRUCTION DETAILS
ALNA QUARRY AND WHITEFIELD GRAVEL PIT

Well ID	Well Completion Date	Material Screened	Screen Interval (feet-BGS ¹)	Ground Surface Elevation (ft-NAVD88) ²	Well Riser/Screen Diameter (inches)	Well Borehole Diameter (inches)	Screen/Casing Material
B-19-1	10/1/2019	Bedrock Borehole	80-360	316.37	N/A ³	6	Open
B-19-2	10/2/2019	Bedrock Borehole	60-460	287.39	N/A	6	Open
B-19-3	9/30/2019	Bedrock Borehole	320-400	265.76	N/A	6	Open
B-19-4	9/26/2019	Bedrock Borehole	60-350	232.95	N/A	6	Open
B-201	9/4/01	Sand & Gravel	83.0-88.0	283.26	2	4	PVC
B-204	8/27/01	Sand & Gravel	5.3-10.3	294.23	2	4	PVC
B-205	8/29/01	Till	14.1-19.1	293.17	2	4	PVC
B-207	8/29/01	Sand & Gravel/Till	6.5-11.5	287.96	2	4	PVC
B-208	8/27/01	Sand & Gravel/Till	10.0-15.0	291.19	2	4	PVC
B-209R ⁴	NA ⁵	Till	NA	245.60	2	NA	PVC
B-210	9/5/01	Sand & Gravel/Till	99.0-104.0	285.14	2	4	PVC
B-211	9/6/01	Till	86.0-91.0	268.49	2	4	PVC
B-212	9/11/01	Sand & Gravel/Till	45.0-50.0	286.81	2	4	PVC
B-216	9/12/01	Till	18.5-23.5	298.64	2	4	PVC
B-217	9/12/01	Sand & Gravel/Till	52.5-57.5	245.02	2	4	PVC
B-218	8/31/01	Sand & Gravel/Till	54.5-59.5	247.95	2	4	PVC
B-219	8/31/01	Sand & Gravel	45.0-50.0	248.86	2	4	PVC
B-301	12/9/02	Sand & Gravel	53.0-58.0	249.15	2	4	PVC
B-303	12/12/02	Sand & Gravel	32.0-37.0	252.34	2	4	PVC
B-411	NA	NA	NA	273.88	NA	NA	NA

Notes:

¹ BGS – below ground surface.

² From May 9, 2022 survey.

³ N/A – not applicable

⁴ Monitoring well B-209R replaced monitoring well B-209. Well log is not available for B-209R. B-209R is assumed to be screened in till, similar to B-209.

⁵ NA – not available

Exhibit H: Uncovered Loads

5/19/23: Uncovered load & straddling centerline

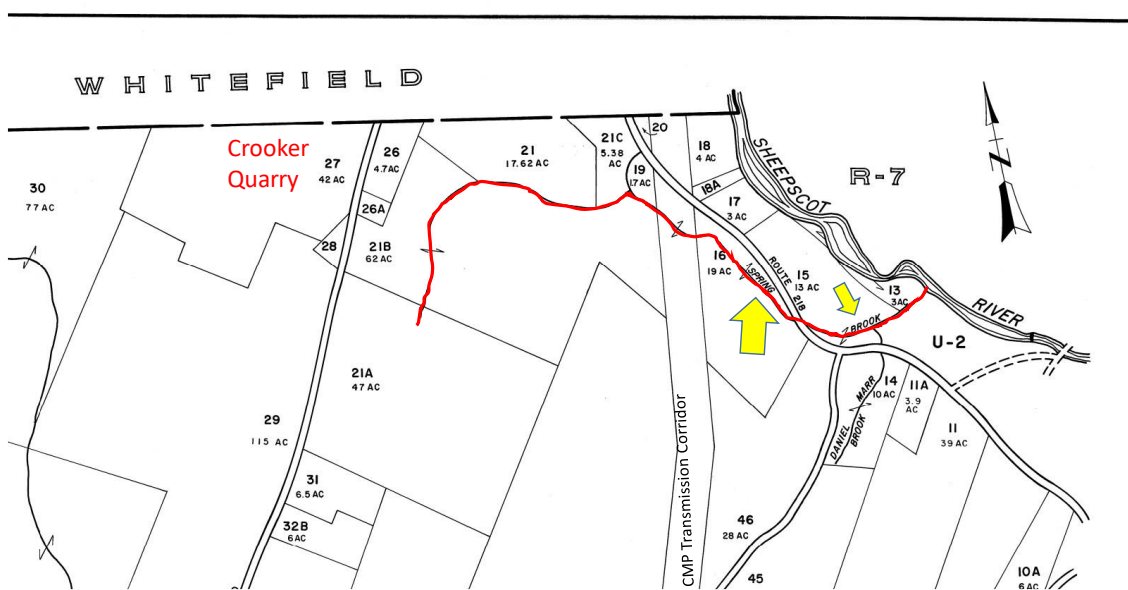


7/21/23: Uncovered load



Exhibit I: Spring Brook and tributary

Spring Brook, Alna ME
Labeled as Spring Brook on Alna Tax Map R-6



Spring Brook, Alna ME
Alna Tax Map R-6
Google Earth overlay

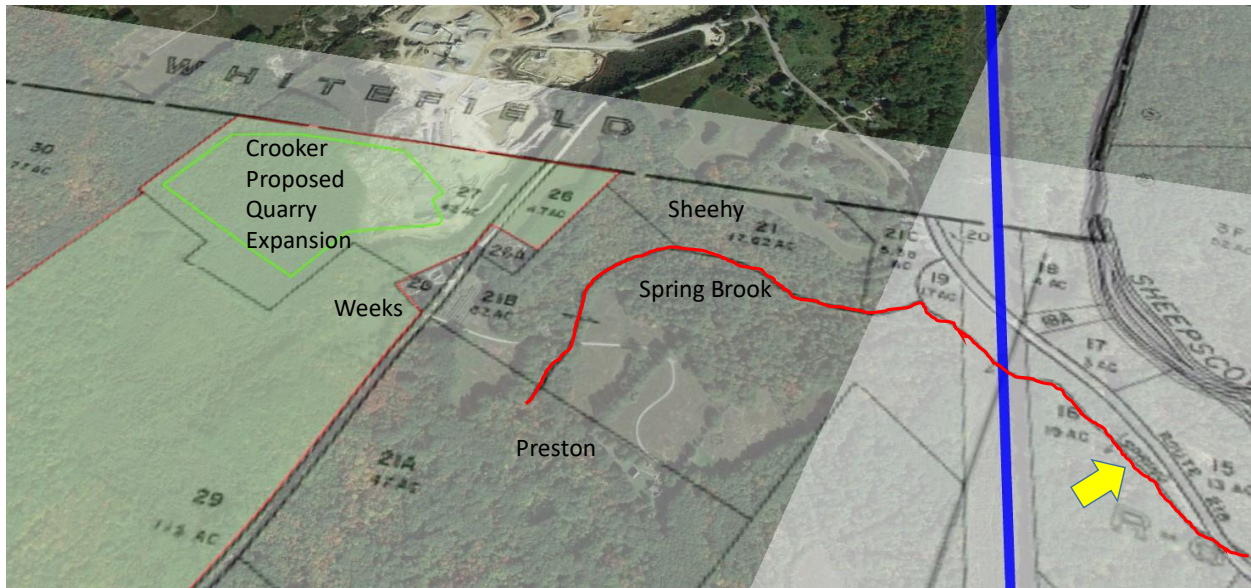


Exhibit I: Spring Brook and tributary continued

Deed references to Spring Brook at Sheehy property. Other properties may reference the same brook as well.

Lincoln County Registry

Instr#: 6677

Book/Page: 1890/273

Deed: Small to Sheehy

7/2/1993

The reference to Spring Brook on this property goes back in deeds as far back as 10/10/1883

See Book/Page: 273/303

It may continue to go back farther with more research.

006677

BK 1890Pg273

WARRANTY DEED

SHERWOOD T. SMALL and MARY H. SMALL, of New London, Merrimack County, New Hampshire (the "Grantors"), for good and sufficient consideration, the receipt of which is hereby acknowledged, grant to STEPHEN M. SHEEHY and ELLIN J. SHEEHY as tenants in common, of all that certain parcel of land, more or less, situated in the Towns of Alna and Whitefield, Lincoln County, Maine (the "Grantees"), together with all buildings, fixtures and other improvements thereon, situated in the Towns of Alna and Whitefield, Lincoln County, Maine, more particularly described as follows:

Beginning at an iron pipe located near the east side of a large cherry tree, said iron pipe being on the westerly side of Route 218 and at the northerly corner bound of land now or formerly of Alan B. Cutcliffe;

Thence South forty-five degrees, zero minutes West (S 45° 00' W) by land now or formerly of Cutcliffe one hundred fifteen and zero tenths (115.0) feet to an iron rod set on the easterly bank of an outlet brook flowing from a farm pond on the land herein conveyed;

Thence continuing South forty-five degrees, zero minutes West (S 45° 00' W) and still by land now or formerly of Cutcliffe ten (10) feet, more or less, to the center of said brook;

Thence in a general southwesterly direction by the center of said brook and land now or formerly of Cutcliffe two hundred sixty (260) feet, more or less, to an iron rod set near the intersection of the aforementioned outlet brook and Spring Brook, so-called, a straight line bearing between the last two mentioned iron rods being South thirty-nine degrees, eight minutes, ten seconds West (S 39° 08' 10" W) a distance of two hundred fifty-one and six tenths (251.6) feet;

Thence in a general northwesterly direction by the center of said Spring Brook and land now or formerly of Daniel and Helen David, one thousand five hundred forty (1,540) feet, more or less, to an iron pipe, a straight line bearing between said iron pipe and the last mentioned iron rod being North fifty-five degrees, seventeen minutes, fifty seconds West (N 55° 17' 50" W) a distance of one thousand two hundred twenty-eight and two tenths (1,228.2) feet;

Exhibit I: Spring Brook and tributary continued

Bk 3176 Ps143 #15391

EXHIBIT A

Deed references to Spring Brook at Preston property. Other properties may reference the same brook as well.

Lincoln County Registry
Instr#: 15391
Book/Page: 3176/142
Deed: Perry to Preston
10/17/2003

The reference to Spring Brook on this property goes back in deeds as far back as 10/10/1883

See Book/Page: 273/303

It may continue to go back farther with more research.

A certain lot or parcel of land situated in the Town of Alna, County of Lincoln and State of Maine, bounded and described as follows:

Beginning at an iron pipe at the intersection of the Spring Brook, the westerly bound of land of Central Maine Power Company and the southerly bound of land of Cutcliffe, Smith and Bradford described in Book 793, Page 146, in the Lincoln County Registry of Deeds;

Thence southerly by land of Central Maine Power Company a distance of nine hundred ninety-seven (997) feet, more or less, to land of Lalli, formerly of Winthrop Sargent, Jr.;

Thence North 21° 30' West by a stone wall and land of Lalli a distance of seven hundred sixty-eight (768) feet to a corner in said stone wall;

Thence South 51° West by a stone wall and land of Lalli to a corner in a stone wall at land of Hamilton Grant, said corner lying one thousand five hundred (1500) feet northerly from the northeast corner of land of Christopher Cooper;

Thence westerly by land of Grant a distance of one thousand eight hundred seventy-five (1875) feet, more or less, to an iron pipe on the easterly side of the Bog Road so-called (also known as the Bailey Road), said iron pipe lying one thousand five hundred (1500) feet northerly of Grant's southwest corner;

Thence northerly by the Bog Road to the southwest corner of land of Crooker, formerly Knowlton;

Thence easterly by land of Crooker to the southeast corner thereof;

Thence northeasterly by land of Crooker to an iron pipe at land of Sherwood Small, formerly of Davis;

Thence South 23° 21' 30" East a distance of six hundred twelve (612) feet, more or less, by land of Small to an iron pipe on the northwesterly side of Spring Brook;

Thence easterly by Spring Brook to the point of beginning.

Together with the land between the above described property and the thread of Spring Brook.

Being the same premises conveyed to Robert W. Perry and Beverly A. Perry by Warranty Deed of Dennis Davis and Helen Davis dated December 4, 1987 and recorded in the Lincoln County Registry of Deeds in Book 1441, Page 108.

Lincoln County Registry of Deeds

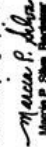

Marcia P. Shaw, Registrar

Exhibit I: Spring Brook and tributary continued

Spring Brook identified as a protected intermittent stream on Alna Shoreland Zoning Map. It appears more perennial than intermittent however.

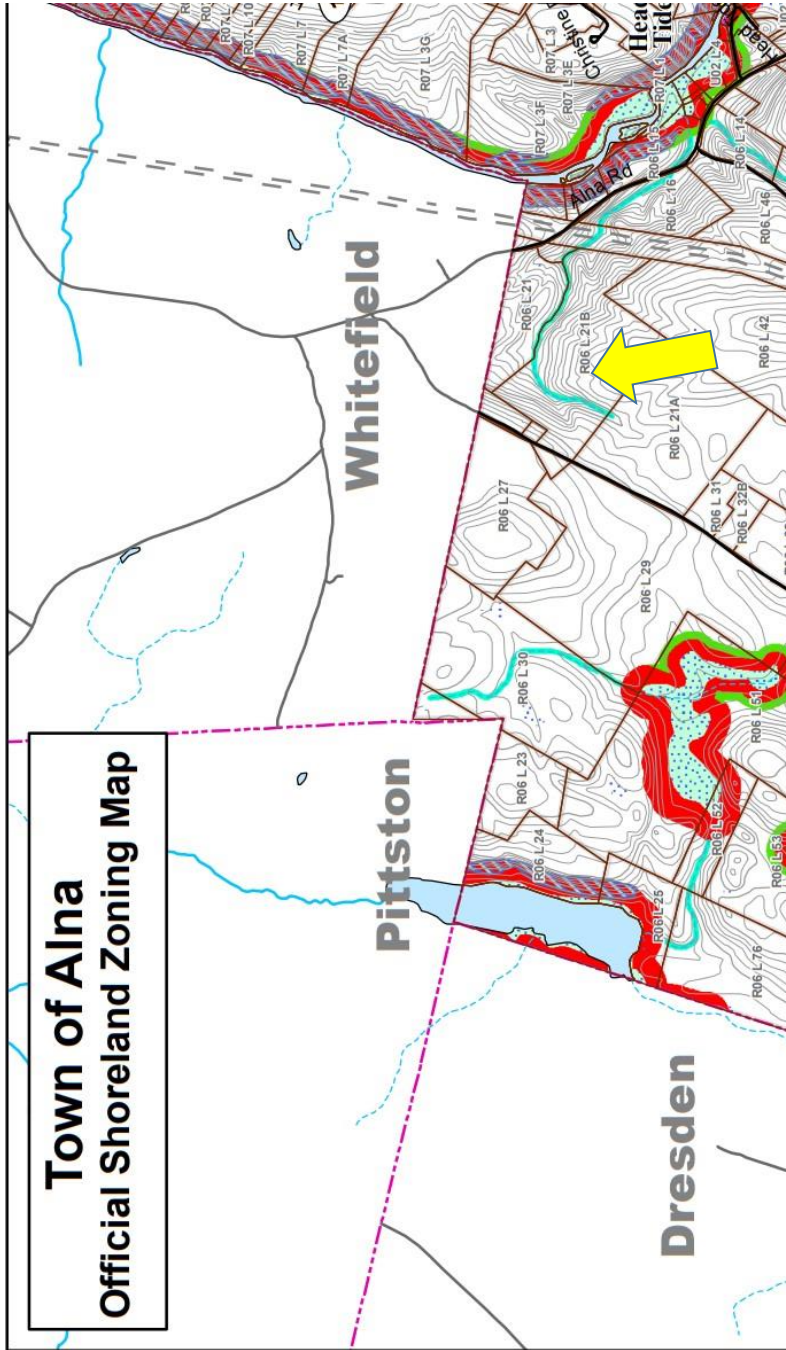
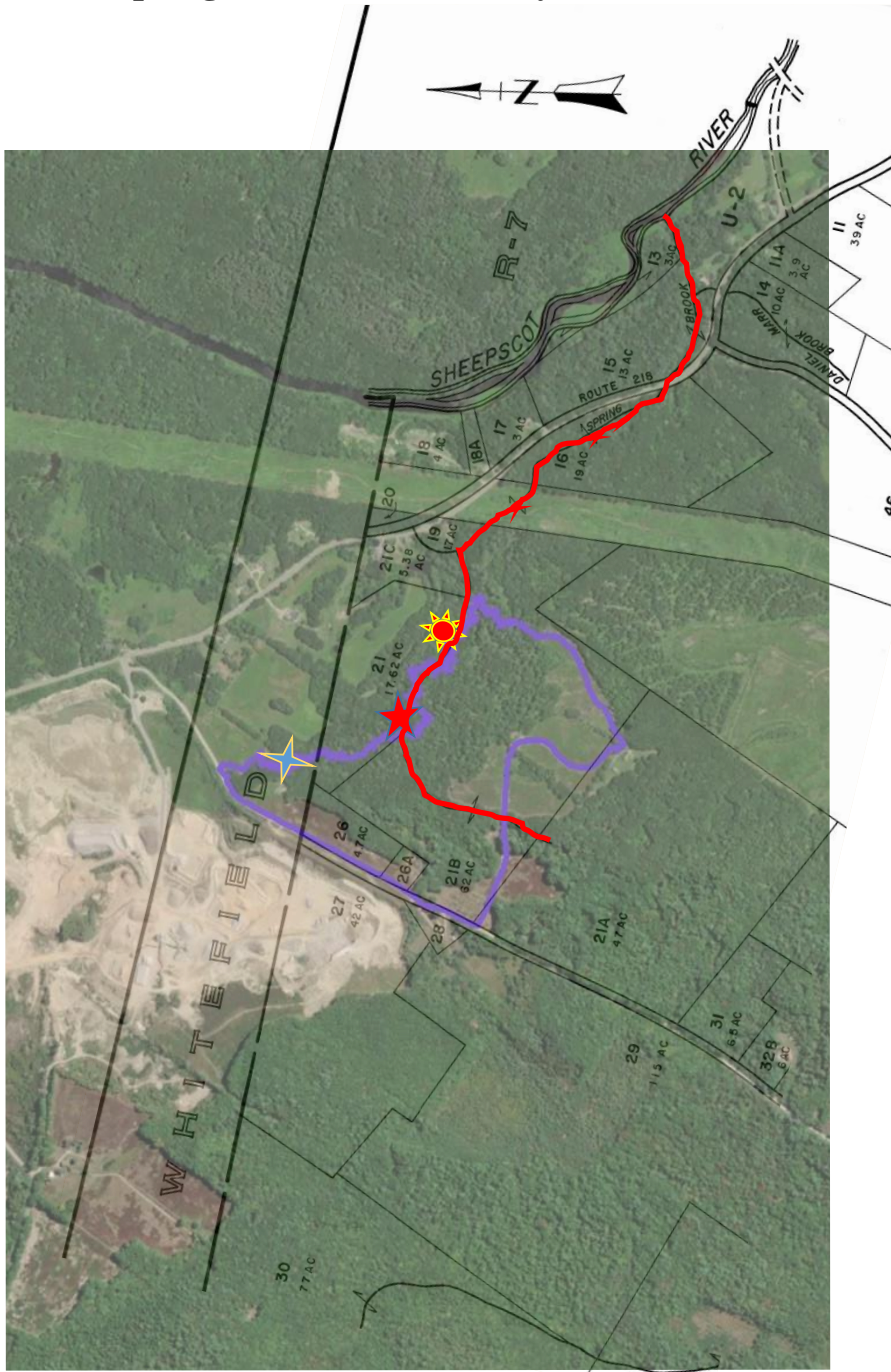




Exhibit I: Spring Brook and tributary continued



Spring Brook
Pictures from site
Walk 4/28/23.

 Spring Brook
tributary

 Spring Brook
fork

 Spring Brook
between
Sheehy/Preston
properties.

 Path of site
walk

Exhibit I: Spring Brook and tributary continued



Beginning of unnamed
and unmapped
Spring Brook tributary
by Bailey Rd.

780 ft. from Crooker
"pond"


850 ft. to merge with
Spring Brook and
boundary stake labeled 

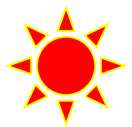
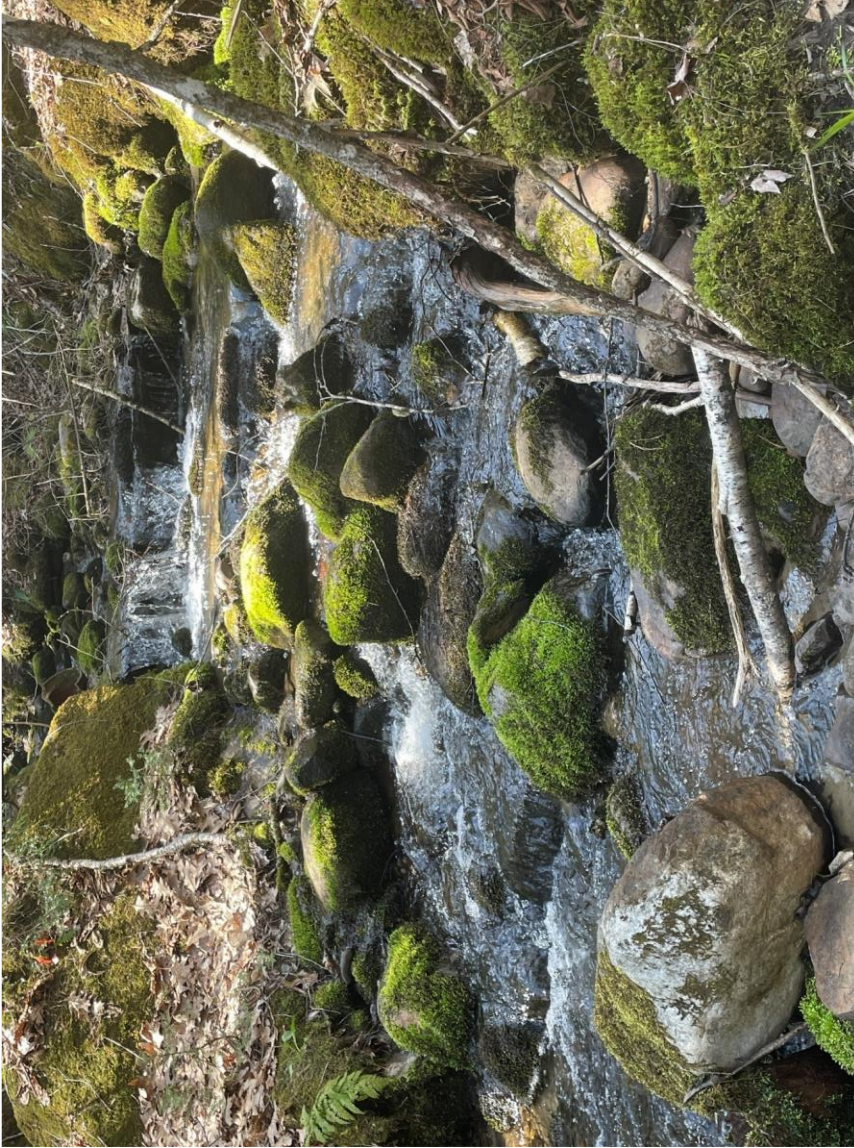
Exhibit I: Spring Brook and tributary continued



Spring Brook forks with unnamed tributary that veers northwest at Sheehy survey stake.

This tributary is not Mapped on our shoreland zoning map but is clearly there as an intermittent or perennial stream and leads up to Bailey Rd.

Exhibit I: Spring Brook and tributary continued



Spring Brook between Sheehy/Preston properties.

1,500 ft. from Crooker property and 2,000 ft. from proposed quarry expansion.

Exhibit J: Growth of Operations and Lower Property Values: 2004 to 2021



Red outline is boundary of Crooker Property. Green outline is bounds of proposed quarry expansion (2023 DEP variance application)

