



LEBANON CONSERVATION COMMISSION
NOVEMBER 18, 2021 - 6:30 PM
COUNCIL CHAMBERS, CITY HALL OR
REMOTE VIA VIRTUAL PLATFORM
LEBANONNH.GOV/LIVE
REVISED 11-10-2021

1. Call to Order

2. Approval of Minutes

- A. October 14, 2021
- B. September 9, 2021

3. Permit Review

- A. Review and Comment on NHDES Wetland Standard Dredge and Fill Application (Major Impact) associated with the long term mining of the Lebanon Crushed Stone Quarry, operated by Pike Industries at 335 Plainfield Road in West Lebanon. The existing active quarry, totaling approximately 57 acres, will expand to an overall total size of approximately 250 acres (the continued mining area) as currently approved by AOT Permit AOT-0709B. A total of 110,413 SF (2.53 ac) of wetland located in the continued mining area will be permanently impacted, including 3 vernal pools. (30 minutes)

4. Study Items

- A. Lebanon Open Space Plan – Review and Adoption (30 minutes)
- B. Zeev Darer Conservation Property – Property Overview & Discussion (30 minutes)
- C. LOST Fund – Balance Update and pending CU penalties (30 minutes)
- D. Goodwin Conservation Property - Bridge Project Update (10 minutes)
- E. Proposed Zoning Amendments - Review and Comment (20 minutes)

5. Committee Reports

- A. Reports from other committees:
 - Conservation Lands Monitors (Various Members) (10 Minutes)
 - Lebanon Biodiversity Group (D. Lacey) (10 Minutes)
 - Workshops & Educational Opportunities (Various Members) (10

Minutes)

- 6. Other Business**
 - A. Review of 2022 Meeting Calendar
- 7. Future Agenda Items**
- 8. Open to the Public**
- 9. Adjournment**

The order of agenda items is subject to change.

Meetings are open for in-person and remote attendance. Members of the public that wish to attend remotely may do so by going to [LebanonNH.gov/Live](https://lebanonnh.gov/Live) where you will find instructions on how to enter the meeting. Members of the public will be able to participate and ask questions through the City's virtual platform or by phone. Please note: Should technical difficulties occur during the meeting that disrupts virtual or phone connection(s), the meeting will continue without remote access capabilities.

**Agenda
Conservation Commission
November 18, 2021**

**Agenda Item #2A
Approval of Minutes**

October 14, 2021

DRAFT

**CONSERVATION COMMISSION
REGULAR MEETING MINUTES
Remote Via Microsoft Teams
LebanonNH.gov/Live
October 14, 2021
6:30 PM**

MEMBERS PRESENT: Ernst Oidtmann (Chair), Sarah Riley (Vice Chair), Erling Heistad, Donald Lacey, Darla Bruno (Alt.), Barbara Hirai (Alt., remote), Bruce James, Megan Smith (Alt.), Susan Almy

MEMBERS ABSENT: Chris Johnson, Suellen Balestra (Alt.)

STAFF PRESENT: Mark Goodwin (GIS Coordinator)

1. CALL TO ORDER – Chair Oidtmann called the meeting to order at 6:30 PM

- Chair Oidtmann appointed Barbara Hirai as a regular voting member in place of Susan Almy and Megan Smith for Chris Johnson.

2. APPROVAL OF MINUTES: September 23, 2021 – Site Walk

Mr. Heistad MOVED to approve the September 23, 2021 Site Walk Minutes as presented in the October 14, 2021 agenda packet.

Seconded by Ms. Riley.

**** The Vote on the MOTION was approved (6-0-2) (E.Oidtmann & M. Smith abstaining).***

Susan Almy entered the meeting.

The Commission discussed the process for reviewing their minutes. Mr. Goodwin noted that the current review process places a burden on deadlines. He suggested substantive changes be discussed during the meeting, but that typos/punctuation edits be sent to the Recording Secretary for inclusion separately.

Vice Chair Riley stated that she conducted a pre-edit of the previous minutes, which contained both small and substantive changes.

Mr. Goodwin stated that the group could try this process again. He noted that he had some concerns with one Commissioner editing the minutes outside of a public meeting in a pre-edit. Chair Oidtmann stated that these changes are then reviewed by the whole group in a public meeting. This is being done to try to save time during meetings.

Ms. Almy stated that the newly created State Housing Appeals Board has said that it has made rulings specifically based on meeting minutes. Meeting minutes are important and can be very valuable.

1 It was agreed that a pre-edit of the meeting minutes will be completed by Vice Chair Riley.

2 **3. PERMIT REVIEW**

3 **A. None**

4
5 **4. STUDY ITEMS**

6 **A. Goodwin Conservation Property – property overview discussion & bridge update**

7 Mr. James made a presentation on the Goodwin Conservation property. He explained that the
8 property was acquired by the City in 1974. It was deeded as 120 acres for recreational purposes.
9 The property originally had four conservation restrictions on it: 1) no commercial buildings, 2)
10 only for recreation, 3) no tree cutting except for hiking, skiing, or snowmobile trails, 4) no
11 removal of gravel or minerals. One early project on the property was the exercise trail,
12 completed in 1979. A number of groups in Lebanon both sponsored and supported the trail.
13 There may be similar support now for this trail to be brought back to life, if that was something
14 the Commission was interested in.

15
16 Vice Chair Riley noted that the property is currently 108 acres.

17
18 Mr. James stated that the property has 3 ecological zones with different human uses in each.
19 There is a ‘no trails zone’ consisting of mixed hardwoods, a ‘trails zone’ on steep and gradual
20 grades with mixed hardwood-hemlock forest, and the ‘Great Brook area’ with a riparian forest
21 zone.

22
23 Mr. James stated that a new bridge is needed on the property, located a short distance from
24 Meriden Road. Some questions to consider for the new bridge include safety, sustainability,
25 aesthetics, and costs. He asked if the new bridge could be considered a central feature of
26 “nature's gateway to Lebanon” from Meriden Road to Storrs Hill Ski Area and downtown
27 Lebanon.

28
29 Mr. James gave a review of bridges across brooks on hiking trails in the Lebanon region. The
30 first bridge discussed was in Hanover across Slade Brook. This bridge is 42’ long and,
31 unfortunately, impassable for wheelchairs due to a large pole located in the center of the bridge
32 at the beginning of the trail. The second bridge is 36’ long and is approximately 5 years old. This
33 bridge looks sturdy and reassuring and has a ramp leading up to it. The third bridge discussed is
34 33’ long with a railing on only one side. All three bridges are different and have different
35 purposes.

36
37 The Commission discussed the portion of the Goodwin Conservation property that is listed as a
38 ‘trail free zone’ and if trails still remain or could be created there. Mr. Heistad stated that there
39 are stone walls in this area running vertically and horizontally. The challenging area to put a trail
40 on is the steep area by the Brook. The land levels off as you get further south. Mr. Heistad
41 discussed the possibility of installing a cross country ski trail that could even connect to the
42 Ticknor property if that was something the Commission wanted.

43
44 Vice Chair Riley also gave a presentation on the Goodwin Conservation property. She explained
45 that it was the first piece of conservation land in the City. An easement was given by the City to

1 the Society for Protection of New Hampshire Forests in 2003. This property is approximately
2 108 acres. The purpose of the easement was to preserve the land for outdoor recreation and
3 public education, preservation and conservation of open space, conservation of forest and
4 wildlife habitat including New Hampshire native flora and fauna and wintering deer yards,
5 protection of approximately 2,380' of undeveloped water frontage along Great Brook, scenic
6 enjoyment for the public, and preservation of water quality of surface waters that flow into Great
7 Brook. She explained that the limitations included in the deed and easement are that the property
8 remain only as open space, no commercial activity, recreation only, no dumping of man-made
9 items, no postings to prohibit low-impact, non-motorized, non-wheeled, non-commercial outdoor
10 recreational purposes, no timber harvesting, no minerals extracted, no removal, filling, or
11 disturbance of soil surface or changes in topography, water systems, wetlands or natural habitat
12 (unless required for conservation, habitat management, or non-commercial recreational uses of
13 the property and that does not harm threaten or endangered species), trails are okay for hiking,
14 skiing, and snowmobiling as long as they are not wider than 10'.

15
16 Vice Chair Riley stated that a survey completed in 2000 showed stone walls making up the
17 westerly, southern, and easterly bounds south of the Brook, with short breaks in them. The
18 survey map shows a right of way to a telephone company through the property. It is unclear if
19 this right of way still exists and/or if the telephone company even still exists. There is also a right
20 of way through Lot 107-10 from School Street to Great Brook. A project completed by
21 Dartmouth students (led by then Vice-Chair Earl Jette) in 1975 presented a plan for Goodwin to
22 be an actively managed conservation area, including putting a roof over the bridge, and paving
23 the access road from School Street. They included parcel 107-10 on the School Street side of the
24 Brook, and part of that property was noted as being one of the nicest spots for a picnic area. This
25 area has never been included as part of the Conservation area, to her knowledge. The report also
26 stated how polluted the Brook was, due to flowage from nearby houses.

27
28 Vice Chair Riley noted that, although the property is approximately 108 acres, if combined with
29 other nearby easements, it is part of almost 500+ acres of continuous open space. She would like
30 for the Commission to think of the property as part of a larger landscape. She explained that the
31 wildlife mentioned in the easement baseline report include white-tailed deer, porcupine, black
32 bear, eastern coyote, red fox, grey fox, mink, barred owl, broad-winged hawk, brook trout, and
33 turkey. There were also various waterfowl and amphibians, and dense stands of hemlock which
34 would be good winter cover for deer. Vice Chair Riley stated that Great Brook features fast-
35 flowing, cool water species such as brook trout, and reported anecdotally on crayfish, small
36 unidentified fish, and leeches she observed in the Brook. The property supports spring
37 ephemerals and other native plant species, including at least two State-listed forbs.

38
39 Vice Chair Riley showed a picture of an area on the property where hemlocks have been cleared
40 between two trails. There is also a fire ring, bench, and hole in the ground. She questioned what
41 this area may be used for. She stated that there are also signage issues, in terms of having
42 consistent styles and blazing types, on the property. There are invasive plants located on the
43 property, most of which are included in the easement baseline report. There is some debris
44 located on the property, including remnants of the old bridge along the Brook. There are also
45 trail erosion and drainage problems that need to be addressed. She questioned where vernal pools
46 may be located on the property. She expressed concern that there appear to be cuts that have

1 been made on the property and would like to remind the public that neither trails nor trees should
2 be cut without first talking to the Commission.

3
4 Chair Oidtmann noted that there was a member of the public in the meeting room and asked if he
5 would like to address the Commission.

6
7 Nick Mouzourakis, 26 Bassy Street, explained that he has been speaking to Mr. Goodwin and the
8 Deputy City Manager regarding a tree on the Zeev Darer Memorial Natural area that abuts his
9 property. He would like a better view of the adjacent natural area and has suggested putting a
10 platform on the tree. In his discussions there was also conversation about possibly purchasing a
11 small piece of the natural area that contains the tree to add to his lot. He noted that there are no
12 easements on the land, but that it must be kept as open space for perpetuity. He also believes that
13 there may be the potential to create a rope walk for the public to enjoy the wetlands in the natural
14 area. He would consider creating a tree platform viewing station approximately 40' up the tree
15 but would like to have control over it for a liability's sake.

16
17 Chair Oidtmann stated that he would like to see this in a written proposal to the Commission and
18 as a future agenda item.

19
20 Mr. Mouzourakis suggested that he would help to create two platforms with a ropewalk in
21 between them, if possible.

22
23 Mr. Goodwin stated that the adjacent property, Zeev Darer, was donated to the City for
24 conservation. There was no easement on it at that time so the only intentions for the land were
25 listed within the deed. This included mention of a footbridge with elevated planks through the
26 wetland for a public viewing area.

27
28 Mr. Mouzourakis stated that his proposal is to find compromise for both parties. He suggested
29 that the public could use a viewing platform that he would create, possibly by appointment only.
30 It would not be open to the public directly, unless located on city land with city permission. He
31 would lock up access to the platform on off-hours if it was located on his property.

32
33 The Commission stated that it would like to see a formal presentation of this idea at a future
34 meeting. The Commission then continued its discussion of the Goodwin Conservation property.

35
36 Vice Chair Riley asked the Commission to consider what to do with the fire ring area, having
37 some invasive pulling days, and changes to usage restrictions on the property. Also discussed
38 was whether it makes sense to consider adding new trails before existing trails are in good shape.
39 Ms. Bruno stated that she believes the rule for all properties should be that existing trails are kept
40 in good shape before a new ones are made. The Commission discussed discontinuing the Hill
41 Trail, scattering the existing fire ring and removing or reusing the remaining wood, and using
42 signs to explain when areas are closed for habitat restoration or that fires are not permitted.

43
44 Clayton Morlock, City Conservation Ranger, presented his proposal for a new bridge on the
45 Goodwin Conservation property. He explained that the proposed new bridge is 4' higher than the
46 old one. He believes this bridge can be built without heavy equipment and will use far less

1 material by including trusses. The footings will be treated 8x8's. The proposed bridge will be
2 able to hold approximately 6 people and could possibly be wheelchair accessible. The proposed
3 bridge will last at least 10 years, can be built by volunteers, and will have little to no
4 maintenance associated with it.

5
6 Mr. James stated that he has concern that this proposed bridge will only last for approximately
7 10 years. Mr. Morlock stated that the bridge is proposed to last for at least 10 years.

8
9 Ms. Almy asked about erosion in this area. Mr. Morlock stated that water will need to be
10 diverted away from the old snowmobile trail. There will also need to be a water bar or something
11 similar installed at the nearby original trail, but this will be needed regardless of the proposed
12 bridge design.

13
14 Mr. James asked about lateral sway of the bridge. Mr. Morlock stated that his design will address
15 this issue. The 56' span proposed could need additional supports depending on the design.

16
17 Vice Chair Riley asked that local volunteers be involved in the potential project. She reiterated
18 the importance of taking care of the drainage issues, as she does not want runoff from the old
19 road to wash out footings on the south side of the bridge. She stated that invasive management
20 will be needed, especially on the north side of this area and wants to make sure the project does
21 not further spread them.

22
23 Mr. Heistad asked where people will continue onto when they cross the proposed bridge. Mr.
24 Morlock stated that there are trails located on both sides of the bridge. Mr. Heistad suggested
25 there could be more accessible trails leading to the upper level of the property. Mr. Morlock
26 stated that he would make the approaches to the bridge flush if the Commission was expecting
27 wheelchair access.

28
29 Mr. James asked what this proposed bridge will represent for Lebanon's future. He stated that
30 the approach presented seems minimal. He would prefer for this bridge to allow for wider access
31 into the future. He would like for the bridge to be bigger and more substantial. He noted that he
32 would like to see the Commission take a stand for having a bigger picture than simply having a
33 bridge that can be completed before Christmas. He asked who gave Mr. Morlock the go ahead to
34 move forward with this project, as it does not appear the Commission is ready to do so.

35
36 Mr. Goodwin stated that the Commission gave him marching orders nine years ago to replace
37 this bridge. Funding more expensive bridge proposals has been an issue. Then he was
38 approached by Mr. Morlock to advance the project more cost-effectively. Mr. Goodwin agreed
39 that he does not want to see a bridge built that will eventually have maintenance issues, but the
40 Commission has been against spending a lot of money on this bridge project in the past.

41
42 Vice Chair Riley stated that a bridge in this location would provide access to the conservation
43 area for the public. She is in favor of moving forward with this proposal and the possibility to
44 include volunteer participation from the community.

45
46 Ms. Almy noted that there is only parking for three cars on 120 South.

Mr. Heistad stated that promoting use of the conservation lands in Lebanon is a good thing and this bridge would help people access Goodwin Conservation property.

Ms. Hirai stated that she is in favor of this bridge. She also believes the Commission needs to continue to look at maintaining the trails on the south side of it, especially if there will be increased usage.

Ms. Smith agreed that the bridge will allow for increased access and will allow for volunteer efforts in the community.

Ms. Bruno agreed with the proposal for the simple bridge.

Mr. Morlock stated that Simbex, a local engineering firm, is willing to help build the bridge, and that other community volunteers are also welcome.

The Commission agreed to continue to pursue the proposed bridge.

***Ms. Almy MOVED to extend the meeting for 15 minutes.
Seconded by Ms. Riley.***

**** The Vote on the MOTION was unanimously approved (8-0).***

***Ms. Almy MOVED to approve the bridge proposal before the Commission for Goodwin Conservation property at an estimated cost of \$2,200.
Seconded by Mr. Heistad.***

**** The Vote on the MOTION was approved (7-1), (B. James – against).***

Mr. James noted that Vice Chair Riley's and Mr. Morlock's presentations were not provided to the Commission or listed on the website ahead of time. He asked about this procedure moving forward. Mr. Goodwin agreed that any materials to be presented should be distributed ahead of time. The Commission is not out of order though if someone brings in materials to present at the time of the meeting. Vice Chair Riley stated that she stepped up to make the presentation at the end of the last meeting. It was discussed how presentation materials make it into the agenda packet.

The Commission discussed the possible inclusion of time limits for agenda items.

5. COMMITTEE REPORTS

A. None

6. OTHER BUSINESS – none.

7. FUTURE AGENDA ITEMS

1 The Commission agreed to discuss the Zeev Darer property as a future agenda item, with Mr.
2 Goodwin serving as the lead presenter. The Commission also would like to continue the
3 conversation regarding additional items for the Goodwin Conservation property.

4
5 Ms. Hirai noted that she has not heard back regarding the geocache on the Cole property but that
6 she has blocked off the unauthorized trail. She also stated that the wastewater treatment facility
7 boat launch has spray paint down to show where some kinds of barriers will be placed. She
8 explained that a project idea is needed for the Taking Action for Wildlife project. There is also
9 an upcoming annual meeting for NHACC and she encouraged members to attend.

10
11 **8. OPEN TO THE PUBLIC**

12 This occurred earlier in the meeting.

13
14 **9. ADJOURNMENT:**

15
16 **The meeting was adjourned at 9:15 PM.**

17
18
19 Respectfully submitted,
20 Kristan Patenaude
21 Recording Secretary

**Agenda
Conservation Commission
November 18, 2021**

**Agenda Item #2B
Approval of Minutes**

September 9, 2021

DRAFT

**LEBANON CONSERVATION COMMISSION
REGULAR MEETING MINUTES
Remote Via Microsoft Teams
LebanonNH.gov/Live
Thursday, September 9th, 2021
6:30 PM**

MEMBERS PRESENT: Ernst Oidtmann (Chair), Sarah Riley (Vice Chair), Erling Heistad, Donald Lacey (remote – do we need to keep track of this fact?), Susan Almy, Chris Johnson, Bruce James, Barbara Hirai (Alt.)

MEMBERS ABSENT: Darla Bruno (Alt), Suellen Balestra (Alt.)

STAFF PRESENT: Mark Goodwin (GIS Coordinator)

1 **1. CALL TO ORDER – Chair Oidtmann called the meeting to order at 6:32 PM**

2
3 **2. APPROVAL OF MINUTES: August 12th, 2021**

4
5 *Mr. Heistad MOVED to approve the August 12th, 2021 Minutes as presented in the September 9th,*
6 *2021 agenda packet and amended.*

7 *Seconded by Ms. Almy.*

8
9 Amendments:

10
11 Page 2, Line 17, 19, and 20 Change “LaHaye” to “Lahaye”

12 Page 2, Line 22 Add “and” after “area,”

13 Page 2, Line 33 Move the word “plant” in front of “species”

14 Page 2, Line 40, Remove “piece of property” and replace it with “project”

15 Page 2, Line 44 Remove “of” after “in-lieu”

16 Page 3, Line 25 Add “Section 5A of” after “read”

17 Page 3, Line 25 Remove “Planning Board” and replace with “Manager”

18 Page 3, Line 28 Change “Preserve” to “Reserve”

19 Page 3, Line 29 Change “Preserve” to “Reserve”

20 Page 3, Line 36 Change “tress” to “trees”

21 ~~Page 3, Line 46 Remove the apostrophe after “places”~~

22 Page 4, Line 3 Remove “was” and add “trail were”

23
24 ** The Vote on the MOTION was unanimously approved (7-0).*

25
26 **3. PERMIT REVIEW:** None

27
28 **4. STUDY ITEMS:**

29 Item 4B was taken out of order from what listed on the agenda. Items below are listed in the order they
30 were discussed.

B. Linking Lands Alliance: Organization's web site for additional information-

<https://www.linkinglandsalliance.org>: Mr. Lacey spoke to Karen Dauville who is a longtime, former member of the Hartford Conservation Commission. She had always been interested in the concept of connecting large areas of habitat and creating the next generation of folks interested in natural history. She left the Conservation Commission and helped to start Linking Lands Alliance. They have done mapping of habitat blocks and they also have developed materials for schools. They have all been vetted and approved for VT educational standards and NH accepts those standards as well.

She was contacting NH Conservation Commissions to support the endeavor to get the educational material into the local schools. Mr. Lacey thought Ms. Hirai could pass the information on to some teachers in Lebanon.

Discussion was had among the Conservation Commission members about how to get these educational materials into the local schools. Co-Chair Riley said she would pass it on to the 4th grade teachers and Ms. Hirai said she could pass the information on to the Lebanon High School. Mr. Lacey will give Mr. Goodwin the contact information for Karen Dauville to pass on to the Commission members.

A. Goodwin Conservation Property Bridge Update-Mr. Goodwin talked about the bridge that was constructed by the snowmobile club in the late 1970's or early 1980's. It washed out in 2012. There had been talk about replacing it for about a decade. He spoke to the conservation ranger who has experience with bridges on trails and a design was discussed that was closer to \$2,000.00 to build the bridge. The design exists on the Colette Trail in Enfield, NH. That money was still more than what was in the maintenance conservation budget. He reached out to Paul Coats and David Brooks and asked if they might have some money in their budget to help with the bridge and they indicated it could be a possibility. Mr. Goodwin was asking for the Conservation Commission's input on the idea. He also explained that he was an advocate for the project because the purpose of the Goodwin Conservation area, per the deed, was for the land to be actively used.

Mr. Lacey left the meeting at 7:00PM.

The Conservation Commission discussed the bridge project among themselves. Ms. Hirai suggested that they look at the Goodwin Conservation area in more detail at the next Conservation Commission meeting. She was very concerned about bicycles having increased access from the Route 120 side of the Conservation Area because the trails on the far side of the brook are subject to erosion. She asked if the bridge would allow bicycle traffic across it or not?

Mr. Johnson pointed out that perfect is the enemy of good enough and if it is an ordeal to get the funding for the simpler bridge, estimated at \$2,000.00 he thought that was something to think about. Commission members asked questions and Mr. Goodwin answered them. The bridge width was 55 feet from abutment to abutment.

Mr. Goodwin stressed to the Commission that if a decision took too long to be made the opportunity may pass them by. Mr. Johnson said he thought that they should not let this opportunity go by, especially if it meant it could be years before the opportunity came again. Ms. Hirai wanted it to be a pedestrian bridge only. Mr. Heistad suggested signs could be posted not allowing bicycles on the trail.

Discussion continued among the members about building the bridge and what kind of bridge they were interested in. Co-Chair Riley confirmed that the Conservation Commission would discuss the Goodwin Conservation Area in more depth at the October meeting.

1 **D. ADA Discussion-** Ms. Almy discussed an article about another Conservation Commission in NH
2 making some paths ADA compliant. It was suggested that maybe the loop at Cole and Two Rivers could
3 be made ADA compliant. She asked the Commission members to think about the different Reserves that
4 could have some ADA compliant trails.

5
6 **C. Cole Property Overview Discussion-**Ms. Hirai stated that in 2017 the Conservation Commission
7 changed the names of several properties to reflect that they are conservation areas, not parks. One of these
8 name changes was from the Alana Cole Park to the Alana Cole Conservation Area.. She went on to give
9 an overview of the Cole property. It was purchased on December 15th, 1989. The Connecticut River
10 Watershed Council was instrumental in the project. The purchase was funded by City appropriations,
11 private donations, Federal funding, the Conservation Commission's Boston Lot timber harvest funds, the
12 Land Conservation Investment Program, and an owner donation. The purchase was of 16 acres of land
13 for \$305,764.00.

14
15 The purpose of the purchase was to conserve the land and the water body of the Connecticut River, the
16 protection of habitat for the ram's head lady's slipper, woodland's hound tongue, Canadian germander,
17 as well as the wildlife habitat.

18
19 The features of the land were an esker and a high-yield aquifer. There was a shoreline habitat, a
20 riverbank floodplain forest, and a Hemlock-hardwood-pine forest on the property.

21
22 There was an old horse road on the property as well as a rope swing into the Connecticut River, and a
23 firepit. There were also a set of illegal stairs that had been built onto the property and a geocache found
24 on the property.

25
26 Discussion was had among the Commission members about what to do with the geocache that was on the
27 property, the log staircase going up the steep bank, making a new trail, and a new trail that has been
28 created on the property.

29
30 **Mr. Don Lacey rejoined the meeting at approximately 8:20PM.**

31
32 The Connecticut River Horse Road, on the property, received historic landmark designation in 2009. The
33 2009 management plan listed that there was danger of parking along Wildwood Dr to access the Horse
34 Road, erosion along the bank of the Connecticut River, inadequate parking by the kiosk due to drainage
35 issues, and excessive trash in the parking area. There was also an establishment of, and spread of,
36 invasive species. There was talk of possibly extending a trail north of the property along the river to
37 connect to Chambers Memorial Reserve.

38
39 Recommendations that were made in the 2009 Management Plan were: doing a biological inventory and
40 monitoring, bank stabilization, restoration along the steep bank and narrow ridge, along with invasive
41 species removal and revegetation. It was not recommended to continue a trail from Alana Cole to
42 Chambers Memorial Reserve due to potential erosion issues.

43
44 Issues that were considered and discussed were the parking area and condition of the road, stairs on the
45 north slope, trail from the loop to the stairs, trail connecting to Chambers on steep slope, whether the rope
46 swing was a liability to the City of Lebanon or not, the Horse Road, bank erosion, invasives, and
47 renaming the East Wilder Boat Launch.

48
49 The Commission agreed to rename the East Wilder Boat Launch property to the East Wilder
50 Conservation Area. Mr. Goodwin suggested this would be a good winter activity because it could involve
51 updating Chapter 52.

1
2 After discussion of the stairs that were illegally built on the property, it was decided that a letter needed to
3 be sent to the abutting property owners who might have built the staircase. Commissioners also agreed
4 that the stairs would need to be left in place, to prevent erosion of the slope, and a sign should go up
5 telling people the trail up the stairs was closed. The trail would also be closed at the loop.
6
7
8

9 ***Ms. Riley MOVED to extend the meeting by 15 minutes.***

10 ***Seconded by Mr. Heistad.***

11 **** The Vote on the MOTION was unanimously approved (7-0).***
12

13 The Commission agreed that the geocache should be moved, and Ms. Hirai would work on that. They
14 agreed that there would not be a trail created to connect to Chambers Memorial and any perceived trail
15 there would be closed off and signs put up.
16

17 The Conservation members were concerned that the rope swing on the property could be considered a
18 liability to the City. Mr. Goodwin informed the Commission that owners of land could not be held liable
19 for things such as the rope swing on the property unless they had created it.
20

21 The Commission members discussed the Horse Road and what they would like to do with it.
22

23 ***Ms. Riley MOVED to extend the meeting by 10 minutes.***

24 ***Seconded by Mr. Heistad.***

25 **** The Vote on the MOTION was unanimously approved (7-0).***
26

27 They discussed whether to create trail access to the Horse Road or just use it as a historic area to teach
28 about the history of Lebanon.
29

30 **5. COMMITTEE REPORTS:**

31

32 **A. Conservation Lands Monitors:** Chair Oidtmann discussed the Mascoma River Clean-up that was
33 coming up on September 25th from 9:30AM to 12:00PM. The people who want to participate in the
34 clean-up will meet at the CCBA pavilion. There will be dumpsters, pizza, donuts, and coffee provided.
35 People can bring their canoes and kayaks.
36

37 Co-Chair Riley explained the NH Bio-blitz was where people could get outside and document all living
38 things on public lands through the month of September.
39

40 **B. Lebanon Biodiversity Group:** None
41

42 **C. Workshops & Educational Opportunities:** None
43

44 **6. OTHER BUSINESS:** Chair Oidtmann asked about the current use report. Mr. Goodwin said that
45 would be on next month's agenda.
46

47 **7. FUTURE AGENDA ITEMS:** None
48

49 **8. OPEN TO THE PUBLIC:** None
50

1 **9. ADJOURNMENT:**

2

3 **The meeting automatically adjourned at 9:30 PM.**

4

5 Respectfully submitted,

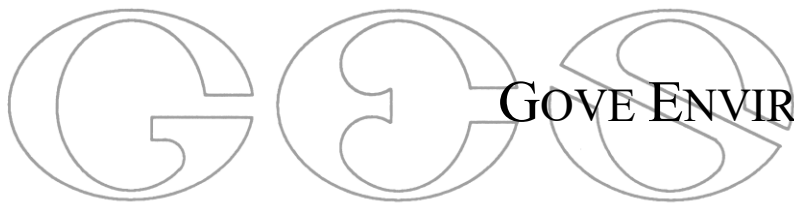
6 Barbara R. Higgins

7 Recording Secretary

**Agenda
Conservation Commission
November 18, 2021**

**Agenda Item #3A
Permit Review**

**Pike Industries, Inc.
NH DES Wetland Standard
Dredge and Fill Application
335 Plainfield Rd,
Tax Map 157, Lot 5**



GOVE ENVIRONMENTAL SERVICES, INC.

NH DES WETLANDS BUREAU
MAJOR IMPACT
DREDGE & FILL APPLICATION
For
PIKE INDUSTRIES, INC.
LEBANON CRUSHED STONE QUARRY
EXPANSION
335 Plainfield Road
West Lebanon, NH
November 3, 2021

Prepared By

Gove Environmental Services, Inc.
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NH DES Dredge & Fill Application Forms





**STANDARD DREDGE AND FILL
WETLANDS PERMIT APPLICATION**
Water Division/Land Resources Management
Wetlands Bureau
[Check the Status of your Application](#)



RSA/Rule: RSA 482-A/Env-Wt 100-900

APPLICANT'S NAME: PIKE Industires

TOWN NAME: West Lebanon

Administrative Use Only	Administrative Use Only	Administrative Use Only	File No.:
			Check No.:
			Amount:
			Initials:

A person may request a waiver of the requirements in Rules Env-Wt 100-900 to accommodate situations where strict adherence to the requirements would not be in the best interest of the public or the environment but is still in compliance with RSA 482-A. A person may also request a waiver of the standards for existing dwellings over water pursuant to RSA 482-A:26, III(b). For more information, please consult the [Waiver Request Form](#).

SECTION 1 - REQUIRED PLANNING FOR ALL PROJECTS (Env-Wt 306.05; RSA 482-A:3, I(d)(2))

Please use the [Wetland Permit Planning Tool \(WPPT\)](#), the Natural Heritage Bureau (NHB) [DataCheck Tool](#), the [Aquatic Restoration Mapper](#), or other sources to assist in identifying key features such as: [priority resource areas \(PRAs\)](#), [protected species or habitats](#), coastal areas, designated rivers, or designated prime wetlands.

Has the required planning been completed?	☒ Yes ☐ No
Does the property contain a PRA? If yes, provide the following information:	☐ Yes ☒ No
Does the project qualify for an Impact Classification Adjustment (e.g. NH Fish and Game Department (NHF&G) and NHB agreement for a classification downgrade) or a Project-Type Exception (e.g. Maintenance or Statutory Permit-by-Notification (SPN) project)? See Env-Wt 407.02 and Env-Wt 407.04.	☐ Yes ☐ No
- Protected species or habitat? - If yes, species or habitat name(s): - NHB Project ID #:	☐ Yes ☐ No
Bog?	☐ Yes ☐ No
Floodplain wetland contiguous to a tier 3 or higher watercourse?	☐ Yes ☐ No
Designated prime wetland or duly-established 100-foot buffer?	☐ Yes ☐ No
Sand dune, tidal wetland, tidal water, or undeveloped tidal buffer zone?	☐ Yes ☐ No
Is the property within a Designated River corridor? If yes, provide the following information:	☒ Yes ☐ No
- Name of Local River Management Advisory Committee (LAC): Connecticut River Upper Valley - A copy of the application was sent to the LAC on Month: 11 Day: 4 Year: 2021	

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For dredging projects, is the subject property contaminated? • If yes, list contaminant:	☐ Yes ☒ No
Is there potential to impact impaired waters, class A waters, or outstanding resource waters?	☐ Yes ☒ No
For stream crossing projects, provide watershed size (see WPPT or Stream Stats): n/a	
SECTION 2 - PROJECT DESCRIPTION (Env-Wt 311.04(i))	
Provide a brief description of the project and the purpose of the project, outlining the scope of work to be performed and whether impacts are temporary or permanent. DO NOT reply "See attached"; please use the space provided below.	
The project involves the long term continued mining of the Lebanon Crushed Stone Quarry, operated by PIKE Industries at 335 Plainfield Road in West Lebanon, NH. The existing active quarry, totaling approximately 57 acres will expand to an overall total size of approximately 250 acres (the continued mining area) as currently approved by AOT Permit AOT-0709B. A total of 110,413 SF (2.53 ac) of wetland located in the continued mining area will be permanently impacted, including 3 vernal pools as shown on the proposed impact plan. The mining, and proposed wetland impacts, will occur incrementally, as needed, over the coming decades. A one-time contribution to the Aquatic Resources Mitigation Fund is proposed to compensate for the impacts to wetlands and vernal pools as a result of this project. Additional detail on the project, proposed impacts, alternatives and mitigation is provided in the attached narrative.	
SECTION 3 - PROJECT LOCATION	
Separate wetland permit applications must be submitted for each municipality within which wetland impacts occur.	
ADDRESS: 335 Plainfield Road (NH Route 12A)	
TOWN/CITY: West Lebanon	
TAX MAP/BLOCK/LOT/UNIT: Map 157 Lot 7	
US GEOLOGICAL SURVEY (USGS) TOPO MAP WATERBODY NAME:	
☒ N/A	
(Optional) LATITUDE/LONGITUDE in decimal degrees (to five decimal places):	
	43.61422° North
	72.31807° West

SECTION 4 - APPLICANT (DESIRED PERMIT HOLDER) INFORMATION (Env-Wt 311.04(a))

If the applicant is a trust or a company, then complete with the trust or company information.

NAME: PIKE Industries, Inc c/o John Naessens

MAILING ADDRESS: 3 Eastgate Park Road

TOWN/CITY: Belmont

STATE: NH

ZIP CODE: 03220

EMAIL ADDRESS: jnaessens@pikeindustries.com

FAX:

PHONE: 603-293-5981

ELECTRONIC COMMUNICATION: By initialing here: , I hereby authorize NHDES to communicate all matters relative to this application electronically.

SECTION 5 - AUTHORIZED AGENT INFORMATION (Env-Wt 311.04(c))

☐ N/A

LAST NAME, FIRST NAME, M.I.: Quigley, Brendan

COMPANY NAME: Gove Environmental Services, Inc

MAILING ADDRESS: 8 Continental Drive, Bldg 2 Unit H

TOWN/CITY: Exeter

STATE: NH

ZIP CODE: 03833

EMAIL ADDRESS: bquigley@gesinc.biz

FAX:

PHONE: 603-778-0644

ELECTRONIC COMMUNICATION: By initialing here , I hereby authorize NHDES to communicate all matters relative to this application electronically.

SECTION 6 - PROPERTY OWNER INFORMATION (IF DIFFERENT THAN APPLICANT) (Env-Wt 311.04(b))

If the owner is a trust or a company, then complete with the trust or company information.

☒ Same as applicant

NAME:

MAILING ADDRESS:

TOWN/CITY:

STATE:

ZIP CODE:

EMAIL ADDRESS:

FAX:

PHONE:

ELECTRONIC COMMUNICATION: By initialing here , I hereby authorize NHDES to communicate all matters relative to this application electronically.

SECTION 7 - RESOURCE-SPECIFIC CRITERIA ESTABLISHED IN Env-Wt 400, Env-Wt 500, Env-Wt 600, Env-Wt 700, OR Env-Wt 900 HAVE BEEN MET (Env-Wt 313.01(a)(3))

Describe how the resource-specific criteria have been met for each chapter listed above (please attach information about stream crossings, coastal resources, prime wetlands, or non-tidal wetlands and surface waters):

Wetland boundaries were delineated and vernal pools were identified and characterized by Gove Environmental Services utilizing the criteria specified in Env-Wt 406.01 and Env-Wt 406.06. The project meets project specific design requirements for industrial development in Env-Wt 524.04:

- a.No stream crossings are proposed
- b.The project does not use wetlands or surface waters to serve as stormwater treatment
- c.The site is located downstream of the City of Lebanon Water supply. Impact to approximately 29 acres in the southern portion of the site which lies over the aquifer, is being avoided. Water will continue to flow toward the aquifer following mining via the internally drained quarry and settling ponds. The project will adhere to all water quality best management practices required by the quarry's AOT and NPDES permits.
- d. The proposed impacts involve the total removal of the subject wetland within the continued mining area. The proposed impacts will not segment wetlands or disrupt or hydraulic connectivity. Monitoring of wetlands immediately outside the project limits will be monitored following mining to ensure their continued viability
- e.No impacts are proposed to waterways or wetlands associated with fish habitat
- f.Wildlife connectivity is being maintained in the wetlands on the eastern and southern sides of the project. The unavoidable loss of vernal pool habitat within the continued mining area is being compensated for through mitigation. There are no Priority Resource Areas, coastal resources, prime wetlands, streams, or other sensitive resources associated with the project site. No other resource specific or project specific criteria apply

SECTION 8 - AVOIDANCE AND MINIMIZATION

Impacts within wetland jurisdiction must be avoided to the maximum extent practicable (Env-Wt 313.03(a)).* Any project with unavoidable jurisdictional impacts must then be minimized as described in the [Wetlands Best Management Practice Techniques For Avoidance and Minimization](#) and the [Wetlands Permitting: Avoidance, Minimization and Mitigation Fact Sheet](#). For minor or major projects, a functional assessment of all wetlands on the project site is required (Env-Wt 311.03(b)(10)).*

Please refer to the application checklist to ensure you have attached all documents related to avoidance and minimization, as well as functional assessment (where applicable). Use the [Avoidance and Minimization Checklist](#), the [Avoidance and Minimization Narrative](#), or your own avoidance and minimization narrative.

**See Env-Wt 311.03(b)(6) and Env-Wt 311.03(b)(10) for shoreline structure exemptions.*

SECTION 9 - MITIGATION REQUIREMENT (Env-Wt 311.02)

If unavoidable jurisdictional impacts require mitigation, a mitigation [pre-application meeting](#) must occur at least 30 days but not more than 90 days prior to submitting this Standard Dredge and Fill Permit Application.

Mitigation Pre-Application Meeting Date: Month: **7** Day: **12** Year: **2021**

☐ N/A - Mitigation is not required

SECTION 10 - THE PROJECT MEETS COMPENSATORY MITIGATION REQUIREMENTS (Env-Wt 313.01(a)(1)c)

Confirm that you have submitted a compensatory mitigation proposal that meets the requirements of Env-Wt 800 for all permanent unavoidable impacts that will remain after avoidance and minimization techniques have been exercised to the maximum extent practicable: ☒ I confirm submittal.

☐ N/A – Compensatory mitigation is not required

SECTION 11 - IMPACT AREA (Env-Wt 311.04(g))

For each jurisdictional area that will be/has been impacted, provide square feet (SF) and, if applicable, linear feet (LF) of impact, and note whether the impact is after-the-fact (ATF; i.e., work was started or completed without a permit).

For intermittent and ephemeral streams, the linear footage of impact is measured along the thread of the channel. *Please note, installation of a stream crossing in an ephemeral stream may be undertaken without a permit per Rule Env-Wt 309.02(d), however other dredge or fill impacts should be included below.*

For perennial streams/ivers, the linear footage of impact is calculated by summing the lengths of disturbances to the channel and banks.

Permanent impacts are impacts that will remain after the project is complete (e.g., changes in grade or surface materials).

Temporary impacts are impacts not intended to remain (and will be restored to pre-construction conditions) after the project is completed.

JURISDICTIONAL AREA		PERMANENT			TEMPORARY		
		SF	LF	ATF	SF	LF	ATF
Wetlands	Forested Wetland	109,902		☐			☐
	Scrub-shrub Wetland			☐			☐
	Emergent Wetland	511		☐			☐
	Wet Meadow			☐			☐
	Vernal Pool			☐			☐
	Designated Prime Wetland			☐			☐
	Duly-established 100-foot Prime Wetland Buffer			☐			☐
Surface Water	Intermittent / Ephemeral Stream			☐			☐
	Perennial Stream or River			☐			☐
	Lake / Pond			☐			☐
	Docking - Lake / Pond			☐			☐
	Docking - River			☐			☐
Banks	Bank - Intermittent Stream			☐			☐
	Bank - Perennial Stream / River			☐			☐
	Bank / Shoreline - Lake / Pond			☐			☐
Tidal	Tidal Waters			☐			☐
	Tidal Marsh			☐			☐
	Sand Dune			☐			☐
	Undeveloped Tidal Buffer Zone (TBZ)			☐			☐
	Previously-developed TBZ			☐			☐
	Docking - Tidal Water			☐			☐
TOTAL		110,413					

SECTION 12 - APPLICATION FEE (RSA 482-A:3, I)

☐ **MINIMUM IMPACT FEE:** Flat fee of \$400.

☐ **NON-ENFORCEMENT RELATED, PUBLICLY-FUNDED AND SUPERVISED RESTORATION PROJECTS, REGARDLESS OF IMPACT CLASSIFICATION:** Flat fee of \$400 (refer to RSA 482-A:3, 1(c) for restrictions).

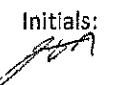
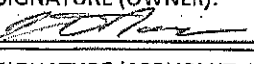
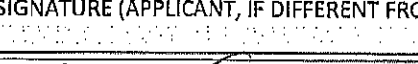
☒ **MINOR OR MAJOR IMPACT FEE:** Calculate using the table below:

Permanent and temporary (non-docking):		110,413 SF	×	\$0.40 =	\$ 44,165.20
Seasonal docking structure:		SF	×	\$2.00 =	\$
Permanent docking structure:		SF	×	\$4.00 =	\$
Projects proposing shoreline structures (including docks) add \$400 =					\$

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	\$	
Total =	44,165. 20	
The application fee for minor or major impact is the above calculated total or \$400, whichever is greater =	\$ 44,165. 20	
SECTION 13 - PROJECT CLASSIFICATION (Env-Wt 306.05)		
Indicate the project classification.		
☐ Minimum Impact Project	☐ Minor Project	
☒ Major Project		
SECTION 14 - REQUIRED CERTIFICATIONS (Env-Wt 311.11)		
Initial each box below to certify:		
Initials: 	To the best of the signer's knowledge and belief, all required notifications have been provided.	
Initials: 	The information submitted on or with the application is true, complete, and not misleading to the best of the signer's knowledge and belief.	
Initials: 	The signer understands that: - The submission of false, incomplete, or misleading information constitutes grounds for NHDES to: - Deny the application. - Revoke any approval that is granted based on the information. - If the signer is a certified wetland scientist, licensed surveyor, or professional engineer licensed to practice in New Hampshire, refer the matter to the joint board of licensure and certification established by RSA 310-A:1. - The signer is subject to the penalties specified in New Hampshire law for falsification in official matters, currently RSA 641. - The signature shall constitute authorization for the municipal conservation commission and the Department to inspect the site of the proposed project, except for minimum impact forestry SPN projects and minimum impact trail projects, where the signature shall authorize only the Department to inspect the site pursuant to RSA 482-A:6, II.	
Initials: 	If the applicant is not the owner of the property, each property owner signature shall constitute certification by the signer that he or she is aware of the application being filed and does not object to the filing.	
SECTION 15 - REQUIRED SIGNATURES (Env-Wt 311.04(d); Env-Wt 311.11)		
SIGNATURE (OWNER): 	PRINT NAME LEGIBLY: John T. Naessens, NH/VT Agg. Manager 9638	DATE: 11/1/21
SIGNATURE (APPLICANT, IF DIFFERENT FROM OWNER): 	PRINT NAME LEGIBLY:	DATE:
SIGNATURE (AGENT, IF APPLICABLE): 	PRINT NAME LEGIBLY: Brendan Arigley, Gove Env. Svcs.	DATE: 11/2/21
SECTION 16 - TOWN / CITY CLERK SIGNATURE (Env-Wt 311.04(f))		

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As required by RSA 482-A:3, I(a)(1), I hereby certify that the applicant has filed four application forms, four detailed plans, and four USGS location maps with the town/city indicated below.

TOWN/CITY CLERK SIGNATURE:

PRINT NAME LEGIBLY:

TOWN/CITY:

DATE:

DIRECTIONS FOR TOWN/CITY CLERK:

Per RSA 482-A:3, I(a)(1)

1. IMMEDIATELY sign the original application form and four copies in the signature space provided above.
2. Return the signed original application form and attachments to the applicant so that the applicant may submit the application form and attachments to NHDES by mail or hand delivery.
3. IMMEDIATELY distribute a copy of the application with one complete set of attachments to each of the following bodies: the municipal Conservation Commission, the local governing body (Board of Selectmen or Town/City Council), and the Planning Board.
4. Retain one copy of the application form and one complete set of attachments and make them reasonably accessible for public review.

DIRECTIONS FOR APPLICANT:

Submit the original permit application form bearing the signature of the Town/City Clerk, additional materials, and the application fee to NHDES by mail or hand delivery at the address at the bottom of this page. Make check or money order payable to "Treasurer – State of NH".



STANDARD DREDGE AND FILL WETLANDS PERMIT APPLICATION ATTACHMENT A: MINOR AND MAJOR PROJECTS



Water Division/Land Resources Management
Wetlands Bureau

[Check the Status of your Application](#)

RSA/ Rule: RSA 482-A/ Env-Wt 311.10; Env-Wt 313.01(a)(1); Env-Wt 313.03

APPLICANT'S NAME: PIKE Industries

TOWN NAME: West Lebanon

Attachment A is required for *all minor and major projects*, and must be completed *in addition* to the [Avoidance and Minimization Narrative](#) or [Checklist](#) that is required by Env-Wt 307.11.

For projects involving construction or modification of non-tidal shoreline structures over areas of surface waters having an absence of wetland vegetation, only Sections I.X through I.XV are required to be completed.

PART I: AVOIDANCE AND MINIMIZATION

In accordance with Env-Wt 313.03(a), the Department shall not approve any alteration of any jurisdictional area unless the applicant demonstrates that the potential impacts to jurisdictional areas have been avoided to the maximum extent practicable and that any unavoidable impacts have been minimized, as described in the [Wetlands Best Management Practice Techniques For Avoidance and Minimization](#).

SECTION I.I - ALTERNATIVES (Env-Wt 313.03(b)(1))

Describe how there is no practicable alternative that would have a less adverse impact on the area and environments under the Department's jurisdiction.

NEARLY 2 ACRES OF WETLAND IMPACT WAS AVOIDED BY ADJUSTING THE LIMITS OF PROPOSED CONTINUED MINING AREA EAST AND SOUTH OF THE SECOND HILL. ADDITIONAL MINIMIZATION OF WETLAND IMPACTS WILL BE ACHIEVED BY CARRYING OUT WETLAND IMPACTS ON AN AS-NEEDED BASIS. THIS WILL ALLOW WETLANDS (PARTICULARLY WETLAND A) TO REMAIN INTACT FAR INTO THE FUTURE, PRESERVING WETLAND FUNCTION AND VALUE FOR AS LONG AS POSSIBLE.

THE NATURE OF THE ACTIVITY IMPOSES UNIQUE LIMITATIONS THAT MAKE FURTHER AVOIDANCE AND MINIMIZATION UNFEASIBLE. THE QUARRY MUST ADVANCE FROM THE EXISTING FACE INTO FINISH MOUNTAIN IN A BENCHED MANNER, COVERING GRADE CHANGES OF MORE THAN 200 VERTICAL FEET. AVOIDING WETLAND WITHIN THE CONTINUED MINING AREA THEREFORE RESULTS IN A MUCH LARGER LOSS OF POTENTIAL PRODUCT EXTENDING Laterally and Vertically from Avoided Wetlands, Especially when Located Centrally in the Mining Area such as Impact Area J. This not only reduces the overall reserve for the quarry but introduces operational difficulties in movement and storage of overburden (the soil that must be removed before mining). Even if it were feasible to proceed in this manner, it would not make sense from a standpoint of preserving wetland function and value, since these wetlands would be left largely isolated, and surrounded by an active quarry. Impacts have therefor been avoided and minimized to the maximum extent practicable given the limitations imposed by the nature of the activity. More detail is provided in the application narrative.

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SECTION I.II - MARSHES (Env-Wt 313.03(b)(2))

Describe how the project avoids and minimizes impacts to tidal marshes and non-tidal marshes where documented to provide sources of nutrients for finfish, crustacean, shellfish, and wildlife of significant value.

Although there is a proposed impact to a wetland area that has been classified as emergent under the Cowardin classification system, this area is not a “marsh”. It is a very small (511 SF) area adjacent to a communications tower access road with adequate wetland hydrology that is dominated by herbaceous vegetation. This area can more accurately be described as a wet meadow. There is no freshwater marsh on the site nor is there any tidal marsh in this area. More detail is provided in the application narrative.

SECTION I.III - HYDROLOGIC CONNECTION (Env-Wt 313.03(b)(3))

Describe how the project maintains hydrologic connections between adjacent wetland or stream systems.

The proposed impacts will result in the total removal of the subject wetland within the continued mining area. No wetland will therefore be segmented. Post impact monitoring of the wetlands that lie adjacent to the continued mining area is proposed to ensure a functional resource area remains following mining. This includes wetland A, which will be “truncated” and the two off-site wetlands to the east and south which will be completely avoided. More detail is provided in the application narrative.

SECTION I.IV - JURISDICTIONAL IMPACTS (Env-Wt 313.03(b)(4))

Describe how the project avoids and minimizes impacts to wetlands and other areas of jurisdiction under RSA 482-A, especially those in which there are exemplary natural communities, vernal pools, protected species and habitat, documented fisheries, and habitat and reproduction areas for species of concern, or any combination thereof.

There are no Priority Resource Areas, exemplary natural communities, documented fisheries or wetlands known to support rare threatened or endangered species on the site. There are 3 vernal pools in the proposed expansion area which cannot be avoided due to their location and the nature of the mining activity as explained elsewhere in the application. Significant additional mitigation is proposed to specifically to compensate for the loss of these pools.

Approximately 2 acres of east and south of the project has been avoided by reducing the size of the expansion area. Impacts to wetland function and values have also been minimized through timing of vernal pool impacts by the overall delay of impacts to Wetland A, preserving overall function for as long as possible.

SECTION I.V - PUBLIC COMMERCE, NAVIGATION, OR RECREATION (Env-Wt 313.03(b)(5))

Describe how the project avoids and minimizes impacts that eliminate, depreciate or obstruct public commerce, navigation, or recreation.

The project does not involve navigable waters, nor does it directly involve elements of public commerce or recreation as they relate to wetland resource areas. However, the long term continued operation of this quarry should have a positive effect on public commerce in several ways. The quarry provides raw material for a variety of construction projects many of which relate directly to public commerce such as the building of infrastructure or retail facilities. Maintaining an adequate regional supply of these materials brings down the cost of construction, promotes construction, and supports job creation through the construction phase and operation phase.

SECTION I.VI - FLOODPLAIN WETLANDS (Env-Wt 313.03(b)(6))

Describe how the project avoids and minimizes impacts to floodplain wetlands that provide flood storage.

No floodplain wetlands are present on the site.

SECTION I.VII - RIVERINE FORESTED WETLAND SYSTEMS AND SCRUB-SHRUB – MARSH COMPLEXES (Env-Wt 313.03(b)(7))

Describe how the project avoids and minimizes impacts to natural riverine forested wetland systems and scrub-shrub – marsh complexes of high ecological integrity.

No such resource areas are present on the property.

SECTION I.VIII - DRINKING WATER SUPPLY AND GROUNDWATER AQUIFER LEVELS (Env-Wt 313.03(b)(8))

Describe how the project avoids and minimizes impacts to wetlands that would be detrimental to adjacent drinking water supply and groundwater aquifer levels.

The site is located downstream of the City of Lebanon Water supply, which will therefore not be affected. Stratified drift aquifer of low transmissivity (<2000 ft/day) exists south and east of the proposed impacts. Two of the proposed impact areas (J & 1) are isolated and perched at higher elevations on Mt Finish. Impacting these wetlands will have no effect on the aquifer. Impact areas I and A drain east and south, respectively, toward the aquifer. Water will continue to flow toward the aquifer via the internally drained quarry and settling ponds following the impact to these wetlands. Considering this, and adherence to water quality best management practices required by the quarry's AOT and NPDES permits. Additionally, approximately 29 acres along Trues Brook Road in the southern portion of the site, which lies entirely within the aquifer, will not be disturbed. No impact to the aquifer is therefore anticipated.

SECTION I.IX - STREAM CHANNELS (Env-Wt 313.03(b)(9))

Describe how the project avoids and minimizes adverse impacts to stream channels and the ability of such channels to handle runoff of waters.

The project will not install any stream crossings or otherwise impact any stream channels directly. No impervious surfaces are proposed and runoff will be managed within the quarry in accordance with the AOT permit. The ability of streams outside the continued mining area to handle runoff will therefore not be affected.

SECTION I.X - SHORELINE STRUCTURES - CONSTRUCTION SURFACE AREA (Env-Wt 313.03(c)(1))

Describe how the project has been designed to use the minimum construction surface area over surface waters necessary to meet the stated purpose of the structures.

N/A, the project does not involve surface water or shoreline structures

SECTION I.XI - SHORELINE STRUCTURES - LEAST INTRUSIVE UPON PUBLIC TRUST (Env-Wt 313.03(c)(2))

Describe how the type of construction proposed is the least intrusive upon the public trust that will ensure safe docking on the frontage.

N/A, the project does not involve surface water or shoreline structures

SECTION I.XII - SHORELINE STRUCTURES – ABUTTING PROPERTIES (Env-Wt 313.03(c)(3))

Describe how the structures have been designed to avoid and minimize impacts on ability of abutting owners to use and enjoy their properties.

N/A, the project does not involve surface water or shoreline structures

SECTION I.XIII - SHORELINE STRUCTURES – COMMERCE AND RECREATION (Env-Wt 313.03(c)(4))

Describe how the structures have been designed to avoid and minimize impacts to the public's right to navigation, passage, and use of the resource for commerce and recreation.

N/A, the project does not involve surface water or shoreline structures

SECTION I.XIV - SHORELINE STRUCTURES – WATER QUALITY, AQUATIC VEGETATION, WILDLIFE AND FINFISH HABITAT (Env-Wt 313.03(c)(5))

Describe how the structures have been designed, located, and configured to avoid impacts to water quality, aquatic vegetation, and wildlife and finfish habitat.

N/A, the project does not involve surface water or shoreline structures

SECTION I.XV - SHORELINE STRUCTURES – VEGETATION REMOVAL, ACCESS POINTS, AND SHORELINE STABILITY (Env-Wt 313.03(c)(6))

Describe how the structures have been designed to avoid and minimize the removal of vegetation, the number of access points through wetlands or over the bank, and activities that may have an adverse effect on shoreline stability.

N/A, the project does not involve surface water or shoreline structures

PART II: FUNCTIONAL ASSESSMENT**REQUIREMENTS**

Ensure that project meets the requirements of Env-Wt 311.10 regarding functional assessment (Env-Wt 311.04(j); Env-Wt 311.10).

FUNCTIONAL ASSESSMENT METHOD USED:

ACOE Highway Methodology

NAME OF CERTIFIED WETLAND SCIENTIST (FOR NON-TIDAL PROJECTS) OR QUALIFIED COASTAL PROFESSIONAL (FOR TIDAL PROJECTS) WHO COMPLETED THE ASSESSMENT: BRENDAN QUIGLEY

DATE OF ASSESSMENT: 10/19/21

Check this box to confirm that the application includes a NARRATIVE ON FUNCTIONAL ASSESSMENT:



For minor or major projects requiring a standard permit without mitigation, the applicant shall submit a wetland evaluation report that includes completed checklists and information demonstrating the RELATIVE FUNCTIONS AND VALUES OF EACH WETLAND EVALUATED. Check this box to confirm that the application includes this information, if applicable:



Note: The Wetlands Functional Assessment worksheet can be used to compile the information needed to meet functional assessment requirements.



**AVOIDANCE AND MINIMIZATION
WRITTEN NARRATIVE**
Water Division/Land Resources Management
Wetlands Bureau
[Check the Status of your Application](#)



RSA/ Rule: RSA 482-A/ Env-Wt 311.04(j); Env-Wt 311.07; Env-Wt 313.01(a)(1)b; Env-Wt 313.01(c)

APPLICANT'S NAME: Pike Industries, Inc

TOWN NAME: West Lebanon

An applicant for a standard permit shall submit with the permit application a written narrative that explains how all impacts to functions and values of all jurisdictional areas have been avoided and minimized to the maximum extent practicable. This attachment can be used to guide the narrative (attach additional pages if needed). Alternatively, the applicant may attach a completed [Avoidance and Minimization Checklist \(NHDES-W-06-050\)](#) to the permit application.

SECTION 1 - WATER ACCESS STRUCTURES (Env-Wt 311.07(b)(1))

Is the primary purpose of the proposed project to construct a water access structure?

No

SECTION 2 - BUILDABLE LOT (Env-Wt 311.07(b)(1))

Does the proposed project require access through wetlands to reach a buildable lot or portion thereof?

No

SECTION 3 - AVAILABLE PROPERTY (Env-Wt 311.07(b)(2))*

For any project that proposes permanent impacts of more than one acre, or that proposes permanent impacts to a PRA, or both, are any other properties reasonably available to the applicant, whether already owned or controlled by the applicant or not, that could be used to achieve the project's purpose without altering the functions and values of any jurisdictional area, in particular wetlands, streams, and PRAs?

**Except as provided in any project-specific criteria and except for NH Department of Transportation projects that qualify for a categorical exclusion under the National Environmental Policy Act.*

Consideration of the existing operation is a major determining factor in evaluating the feasibility of off-site alternatives. The continued mining area is a proven reserve next to an active quarry rock crushing and processing operation, settling ponds, administration buildings, and other related infrastructure, some of which is located on separate adjacent lots also owned by PIKE. All together the operation encompasses over 400 acres of land and represents a very significant capital investment.

The costs associated with abandoning the current operation, obtaining land, equipping, and developing a new quarry elsewhere at this scale would be prohibitive. Considering that it must also be in the same service area and that that siting such an operation would also be subject to a number of other restrictions, establishing a new quarry is not a viable alternative.

Evaluation of off-site alternatives is therefore limited to other existing operations owned by PIKE that might be able to expand and serve the same purpose. PIKE operates two other facilities in the same service area. One of these is located in Harland Vermont approximately 12 miles south of the Lebanon Crushed Stone site. This facility is only a sand pit which does not produce rock. The other facility is an asphalt plant located in Newport, NH approximately 30

lrn@des.nh.gov or (603) 271-2147

NHDES Wetlands Bureau, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095

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miles south of the site. Pike leases a small portion of Newport Sand & Gravel to operate the asphalt plant but the site is owned and operated by Carrol Concrete.

None of these facilities can therefore be expanded or altered to serve the same need currently fulfilled by the Lebanon Crushed Stone quarry. There are therefore no practicable off-site alternatives to the proposed project. More detail is provided in the Alternatives section of the attached narrative.

SECTION 4 - ALTERNATIVES (Env-Wt 311.07(b)(3))

Could alternative designs or techniques, such as different layouts, different construction sequencing, or alternative technologies be used to avoid impacts to jurisdictional areas or their functions and values as described in the [Wetlands Best Management Practice Techniques For Avoidance and Minimization?](#)

Adjustments to the boundary of the continued mining area were made to avoid nearly 2 acres of wetland. Impacts to wetland function and value will also be minimized by the timing of work. First, wetland impacts will only be carried out as necessary, potentially many decades in the future, therefore preserving function and values supported in the wetlands for that additional time. Impacts to wetland containing vernal pools will also be timed to occur outside the vernal pool breeding and development season to minimize impact to obligate vernal pool species. To minimize potential impacts resulting from runoff or erosion, the quarry will progress to achieve an internal drainage condition whereby runoff is collected in the quarry itself and its existing settling ponds as specified in the AOT permit. All relevant best management practices for erosion and sedimentation control will also be followed.

Quarrying rock from below the surface requires the total alteration of the land by necessity. It also does not involve the construction of permanent structures or facilities which can be relocated, reconfigured, or make use of alternate technologies to minimize impacts. Impacts have therefor been avoided and minimized to the maximum extent practicable given the limitations imposed by the nature of the activity. More detail is provided in the attached narrative.

SECTION 5 - CONFORMANCE WITH Env-Wt 311.10(c) (Env-Wt 311.07(b)(4))**

How does the project conform to Env-Wt 311.10(c)?

***Except for projects solely limited to construction or modification of non-tidal shoreline structures only need to complete relevant sections of Attachment A.*

Based on the vernal pool habitat supported in Wetlands A, I, and J, these three wetlands were determined to support comparatively greater wetland function than the other wetlands on the property. As explained in sections 1 and 4 of this form and in the attached narrative, the ability to avoid impacts to these wetlands is limited by the unique nature of the activity and their location on the hill which is the very subject of the mining operation. Relocating impacts to less valuable wetland on the property as suggested by the rule is not feasible as these areas generally lay near the base of the hill and therefore beyond the limit of the material that is mined at the quarry.

The function and value assessment was, however, used to identify important functions that are being preserved by avoiding certain wetlands, namely groundwater discharge and aesthetics. The function and value assessment was also used to inform proposed minimization measures such as timing of impacts to minimize impact to vernal pool species and preserving overall function in wetland A for as long as possible. More detail is provided in the attached narrative.

1.0 Introduction

This Major Impact Dredge and Fill Application is being submitted by Gove Environmental Services, Inc. on behalf of PIKE Industries for the expansion of the Lebanon Crushed Stone Quarry, operated by PIKE Industries at 335 Plainfield Road in West Lebanon, NH. The project will allow the long term continuation of mining at the quarry to the limits approved by Alteration of Terrain Permit AOT-0709B, an area encompassing approximately 250 acres inclusive of the existing quarry (the continued mining area). A total of 2.53 acres of wetland impact is proposed, including three vernal pools. A one-time contribution to the Aquatic Resources Mitigation Fund is proposed to compensate for the impacts to wetlands and vernal pools as a result of this project.

This will be a long term project, the mining and proposed wetland impacts will take place incrementally, and as needed in the coming decades. The proposed mining activity is consistent with RSA 482-A:3(XIV-b) and therefore request that a Life of Project (LOP) permit be considered for this project pursuant to the statute. The wetlands, proposed impacts, and project are discussed in more detail in the following sections.

2.0 Wetland Resources

2.1 Wetland Delineation

Wetlands were delineated by Brendan Quigley of Gove Environmental Services, Inc. in July of 2021 utilizing the following standards:

1. *US Army Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1 (Jan 1987) **AND** *Regional Supplement to Corps of Engineers Wetland Delineation Manual; Northcentral and Northeast Region*, Version 2.0, January 2012.
2. *Field Indicators for Identifying Hydric Soils in New England*, Version 4, April 2019, New England Interstate Water Pollution Control Commission, Lowell, MA.
3. *US Army Corps of Engineers National Wetland Plant List*, 2018

Flagging in the project area was surveyed by Pathways Consulting, LLC and are depicted on the project plans as well as the Wetland Overview Figure before the Appendices. Wetland areas shown in the southern most portion of the property bordering Trues Brook Road were delineated and surveyed by others during previous permitting and planning phases. These areas were reviewed for context and assessment purposes of this application but were not flagged as part of the 2021 delineation effort.

2.2 Wetlands in the Continued Mining Area (Impact Areas)

There are four areas of wetland within the limits of the continued mining area, labeled A, I, J, and 1 on the project plans and enclosed Wetland Overview figure. The smallest area (Impact Area 1) consists of an isolated, roughly 500 square foot wetland adjacent to the communications tower access road on the minor hill of Mount Finish (second hill). The wetland is dominated by herbaceous species such as Wool grass, Reed Canary Grass, Soft Rush and Purple Loosestrife. The wetland has been classified as emergent (PEM1b) but does not have a particularly wet hydrology and can be more accurately described as a wet meadow.

The rest of the wetlands within the continued mining area (A, I, and J) are forested wetlands dominated by Eastern Hemlock and Yellow Birch. Hydrology within these wetlands is saturated and seasonally flooded (PFO1/4E). In the spring months water generally ponds within the low areas of the hummocky micro-topography, the deeper of which support vernal pool breeding habitat as described in the next section.

Wetland J is located in an isolated depression with no apparent outflow or other connectivity. Wetland A is situated in the minor valley between the two hills that comprise Mount Finish and drains off-site to the south and into other wetlands associated with Stockwell Brook. Despite its narrow shape, this wetland is not a stream but rather a long seep which only develops channelized flow near the limit of the project.

Wetland Area I drains south and west via a scoured channel beginning south of the project boundary, with flow apparently being limited to the wettest seasonal conditions. The scoured channel is not well defined and ends prior to reaching any other resource areas.

2.3 Wetlands Outside the Continued Mining Area

Three main areas of wetland exist within the property limits but outside the proposed continued mining area. They are located to the west and south of the second hill, and in the southernmost portion of the property adjacent to Trues Brook Road. All these wetlands lay near or at the base of the hill and are supported primarily by groundwater seep hydrology. With the exception of a limited area near Trues Brook Road consisting which is early successional field, these wetlands are forested and dominated by Red Maple, Gray Birch, and several fern species.

Both wetland areas near the second hill drain off-site to the east or south toward Stockwell Brook. The wetland on the southernmost portion of the property drain toward Bloods Brook (Trues Brook).

2.4 Vernal Pools

Wetlands were surveyed for vernal pool activity on 4/25/19 and this spring on 4/13/21. Wetland areas A, I, and J were all found to support breeding by obligate vernal pool indicator species. All three pools consist of interconnected pools within the hummocky micro-topography of the larger forested wetland and are of natural origin. These are relatively shallow pools with maximum water depths of around 12-inches, though observed less than that during the relatively dry spring of 2021. Due to their location in a Hemlock dominated forest, the effective spring canopy cover in these areas is high and they are well shaded. Since the pools are close to existing mining activity and much of the land in the continued mining area has been cleared of trees, none of them has completely intact forested buffer.

This information and other characteristics of the pools was recorded on ACOE Vernal Pool Characterization forms and assigned a relative value for the purpose of determining appropriate mitigation per the ACOE requirements. The pools “value” is based primarily on the condition of the habitat surrounding the pool up to 750-feet away. How this relates to the proposed mitigation is explained further in the Mitigation Section. The table below provides a summary of total egg mass counts over the two years and ACOE value of the pool. Photos of the pools and the Vernal Pool Characterization forms have been included in Appendix C.

	Wood Frog		Yellow Spotted Salamander		ACOE Valuation Assessment
	2019	2021	2019	2021	
VP-A	0	19	11	2	MODERATE
VP-I	4	0	19	0	HIGH
VP-J	72+	80	8	0	MODERATE

2.5 Wetland Function and Value Assessment

A wetland function and value assessment was conducted using the US Army Corps Highway Methodology guidelines and the Ecological Integrity portion of the NH Method. Wetlands I and J were evaluated together since they share nearly all the same characteristics and as vernal pools, likely complement each other. Similarly, the two off-site wetlands on the eastern and southern slopes of second hill were evaluated together because these are also very similar wetlands with same groundwater seep hydrology. The remaining to wetlands (A & 1) were evaluated separately. The assessment of each wetland area is described below and the assessment forms are included in the Appendix C.

Wetlands I & J

The primary function of these two small wetlands is related to their status as vernal pools. They support very specific habitat directly for obligate vernal pool species but also more generally for other species that utilize vernal pools for movement or food. Production for wildlife food sources has also therefore been identified as principle function. The location of these wetlands high up on the rocky landscape with little or no connectivity to downstream makes them unsuitable for water quality function. Their small size and location on a controlled private facility precludes any sort of public educational or recreation value. These wetlands score slightly above a middle value on the Ecological Integrity index (6.3) indicating they are compromised but still somewhat intact. They are compromised primarily by proximity to the existing quarry operation.

Wetland A

Wetland A also contains a vernal pool so wildlife habitat and production export have been identified as principle functions. Unlike wetlands I and J, however, Wetland A also exhibits strong signs of groundwater discharge and is hydrologically connected to other resource areas south of the site. Groundwater discharge has been considered a third principle function of the wetland. Given the downstream connectivity, the wetland may also support some water quality function but generally only in the context of the current quarry operation since there are no other potential sources of pollutants in its small watershed. The Ecological Integrity of this wetland is only slightly better (6.7) than I and J by virtue of the slightly better separation from quarry haul roads and less impervious surface in the area.

Wetland 1

This very small wet meadow type wetland supports very limited wetland function due to its size, isolated status, and location nearly at the top of the hill. The principle function was determined to be production as a source of food for wildlife. Its dense flowering meadow vegetation would support pollinators directly and other insects that provide a source of food for other species such as birds. Both of these functions are limited by the small size of the area and generally not wetland specific. This wetland received the lowest ecological integrity score, largely due to its setting and likely origin as a result of logging on top of the hill.

Off-site Wetlands

These two wetlands are located outside but in close proximity to the continued mining area on the southern and eastern slopes of the second hill. They are located low on the slope of the hill and appear to be predominantly supported by groundwater seep. Groundwater discharge has been identified as their principle function. General wildlife habitat is also supported in these wetlands, mostly due to the relatively undisturbed forest

in which they exist. There is no persistent surface water in these wetlands and therefore little wetland specific habitat. The wetlands were also determined to be important for aesthetic value. This is normally attributed to wetlands with more traditional aesthetic characteristics, such as tidal marshes, meadows, or wetlands associated with lakes or rivers. Aesthetics are important here, however, since they provide screening between adjacent uses and the quarry. These two wetlands received the highest ecological integrity score (7.6) due to less encroachment within their buffer.

3.0 Proposed Project

3.1 Project Purpose & Need

The basic project purpose is mining of bedrock to create construction aggregate used in a wide variety of construction projects. More specifically, the purpose of the project is to secure the necessary reserves at this location to ensure the operation of the Lebanon Crushed Stone facility many decades into the future. This type of long term planning is critical given the very significant investment necessary to operate the quarry and even greater cost (if even feasible) that would be associated with developing a new quarry within the same service area.

Aside from the business considerations of PIKE Industries, continued operation of the Lebanon Crushed Stone quarry can also be viewed as supporting important public interests. This is due to the fact that crushed stone produced by the quarry is required for a wide variety of private and public construction projects, including infrastructure, which bears directly on a number of other public interests. The cost of hauling construction aggregate also limits the effective service area of the quarry, highlighting the importance of maintaining a supply in a particular location. The Lebanon Crushed Stone Quarry has a maximum service area encompassing Grafton County New Hampshire and Windsor County Vermont. Its effective service area is more limited however, by the cost of trucking material.

3.2 Project Description

The project involves expansion of the existing active quarry, totaling approximately 57 acres, into the continued mining area reaching an overall total size of approximately 250 acres as currently approved by AOT Permit AOT-0709B. No mining operations are planned for the approximately 36-acre portion of the site along Plainfield Road which is occupied by the processing plant and administration facilities, or the 29-acre southern portion extending to Trues Brook Road. A total of 110,413 SF (2.53 ac) of wetland located in the continued mining area will be permanently impacted, including 3 vernal pools as shown on the proposed impact plan. The mining, and proposed wetland impacts,

will occur incrementally, as needed, over the coming decades, dictated by factors such as demand, market pricing, rock quality, and product design standards.

The fundamental development sequence to extract construction aggregates from bedrock resources includes: land clearing, overburden removal and stockpiling, blast hole drilling, blasting, and muck pile removal. Typically, a bench is cut into an easily accessible point and expands to open additional benches and access to different zones of rock. There are no specific rules on how a quarry advances within its permitted limits. Generally, the primary guidelines are to advance in a way that preserves a safe working environment, minimizes impacts to water quality, and maintains a high quality product.

The following description summarizes the expected development of the Lebanon Crushed Stone quarry

After permit approval, overburden storage will advance west towards Wetland I. Expanding the overburden storage allows ledge to be exposed in the existing mining area. The overburden storage may be relocated towards the end of the mine life to excavate ledge underneath. Simultaneously, or soon after Wetland I impact, Wetland J will be removed to expand the excavation areas west and east of Wetland J. Bedrock nearby/under Wetland J is excavated in conjunction with rock from the existing hill/mining area to fully utilize reserves within the existing permit limits. Stormwater from the hill and overburden storage area is directed through the Wetland J area to contain the stormwater on site.

Wetlands A and 1 will not be impacted until necessary. The existing hill/mining area will be brought down in elevation leaving a flat quarry floor approximately 200' above final permit elevation. The eastern haul road that accesses the four main production benches will progress down the hill side and impact Wetland A. Pushing the road east towards Wetland A allows the stone reserves along the entire height of the hill to be excavated, as opposed to leaving a ~150' ledge highwall behind. Eventually the Wetland A area and the access road will be removed entirely to combine the two hills into one excavation area. Wetland 1 will not be impacted until new production faces are developed on the eastern hill.

4.0 Avoidance & Minimization

Nearly 2 acres of wetland impact was avoided by adjusting the limits of proposed continued mining area east and south of the second hill. Additional minimization of wetland impacts will be achieved by carrying out wetland impacts on an as-needed basis. This will allow wetlands (particularly Wetlands 1 and A) to remain intact far into the future, preserving wetland function and value for as long as possible. Impacts to species that depend on the 3 vernal pools within the continued mining area will be minimized by scheduling impacts outside the breeding and dispersal season or relocating egg masses to other viable vernal pools in the area. To minimize potential impacts resulting from

runoff or erosion, the quarry will progress to achieve an internal drainage condition whereby runoff is collected in the quarry itself and its existing settling ponds as specified in the AOT permit. All relevant best management practices for erosion and sedimentation control and use of hazardous materials will also be followed throughout the operation of the quarry.

Wetland impacts have been avoided and minimized to the maximum extent *practicable* considering overall project purposes, cost, existing technology, and logistics¹. Bedrock mining presents a number of constraints unique to the activity and distinctly different from site development. The following sections discuss these constraints in the context of off-site alternatives, on-site avoidance and minimization, and specific requirements of Env-Wt 311.10(c).

4.1 Off-Site Alternatives

On a basic level, a suitable site for a quarry must have a sufficient amount of quality rock to sustain the operation and warrant investment. The rock must also be reasonably accessible (depth, presence of resources areas, infrastructure, etc.) to make extraction economically and logistically feasible. The continued mining area at the Lebanon Crushed Stone site totals approximately 250 acres and contains Mt. Finish which rises approximately 400 vertical feet from Plainfield Road. The mountain is being actively mined by the existing quarry and is a proven reserve. In addition to the active quarry the site is also developed with a rock crushing and processing operation, settling ponds, administration buildings, and other related infrastructure, some of which is located on separate adjacent lots also owned by PIKE. All together the operation encompasses over 400 acres of land and represents a very significant capital investment.

Consideration of the existing operation is a major determining factor in evaluating the feasibility of off-site alternatives. The costs associated with abandoning the current operation, obtaining land, equipping, and developing a new quarry elsewhere at this scale would be prohibitive. Considering that it must also be in the same service area and that that siting such an operation would also be subject to a number of other restrictions, establishing a new quarry is not a viable alternative.

Evaluation of off-site alternatives is therefore limited to other existing operations owned by PIKE that might be able to expand and serve the same purpose. PIKE operates two other facilities in the same service area. One of these is located in Harland Vermont approximately 12 miles south of the Lebanon Crushed Stone site. This facility is only a sand pit which does not produce rock. The other facility is an asphalt plant located in Newport, NH approximately 30 miles south of the site. Pike leases a small portion of

¹ 40 CFR §230.3 Definitions. (I) The term practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Newport Sand & Gravel to operate the asphalt plant but the site is owned and operated by Carrol Concrete.

None of these facilities can therefore be expanded or altered to serve the same need currently fulfilled by the Lebanon Crushed Stone quarry. There are therefore no practicable off-site alternatives to the proposed project.

4.2 On-site Avoidance & Minimization

4.2.1 Alternative Configurations/Logistics

Changing the configuration or limits of the continued mining area to further avoid wetland impacts is not practicable due to the unique logistical constraints associated with mining. The quarry must advance from the existing face into Mt. Finish in a benched manner, covering grade changes of more than 200 vertical feet. Avoiding wetland within the continued mining area therefore results in a much larger loss of reserve rock extending laterally and vertically from the avoided wetlands. The effect would be particularly severe at Impact Areas J and #1 which are located centrally in the continued mining area and would involve large losses of reserve on all sides if avoided. Further avoidance would also introduce operational difficulties in movement through the quarry and storage of overburden (the soil that must be removed before mining). Avoiding impacts to wetlands I and A would not only result in losses of reserve but would also result in the loss of overburden storage area, preventing continued mining in other areas. This problem already exists in the vicinity of Wetland I and J which will need to be impacted in the very near future for overburden storage in support of ongoing operations. Further avoidance of the proposed impacts would therefore violate the purpose of the project by reducing the total long term reserve and impacting near term operations.

By contrast, avoidance of the two wetland areas east and south of second hill was feasible because they were located on the edge of continued mining area *and* in an area that is not expected to be utilized in the near term.

4.2.2 Alternate Technologies

Although the mining industry makes use of continually advancing technology in many aspects of its operations, the basic activity still requires the extensive alteration of the land by necessity. It also does not involve the construction of permanent structures or facilities which may employ technologies such as porous pavement, advanced stormwater treatment, or wildlife friendly lighting or crossing structures.

4.2.3 Monitoring

Monitoring is proposed to minimize the potential impacts to the portion of Wetland A that will remain following the proposed impacts as well as the two wetland areas to the east that are being avoided. The purpose of the monitoring will be to verify that a functional resource remains and to characterize any affects if observed. Since impacts to these wetland may not occur for many years, a monitoring plan will be submitted to NHDES prior to but close to the anticipated impacts as part of the 5 year updates required under the LOP permit. The monitoring plan is expected to include a baseline assessment of the downstream resource area including data on vegetation and hydrology, and annual monitoring for 5 years following the impact.

4.2.4 Env-Wt 311.10(c)—Wetland Functions & Values

Based on the vernal pool habitat supported in Wetlands A, I, and J, these three wetlands were determined to support comparatively greater wetland function than the other wetlands on the property. As explained elsewhere in this section, the ability to avoid impacts to these wetlands is limited by the unique nature of the activity and their location on the hill which is the very subject of the mining operation. Even if it were feasible to avoid these three wetlands from a logistical perspective, doing so would clearly not preserve their function, especially as vernal pools. The wetlands would be left largely isolated, and surrounded by an active quarry, likely resulting in a loss of wetland function that is equivalent to directly impacting them. Relocating impacts to less valuable wetland on the property as suggested by the rule is simply not feasible since these areas generally lay near the base of the hill and therefore beyond the limit of the material that is mined at the quarry.

The function and value assessment was, however, used to inform measures intended to minimize impacts to wetland function and value. This includes timing impacts to vernal pools to minimize impact to the species utilizing the pools. Timing will also play a role by way of the overall delay of impacts to Wetland A, preserving overall function for as long as possible. Also, though the wetlands south and east of the project may be comparatively less valuable than the vernal pools, the function and value assessment was important in identifying functions that are being preserved by avoiding impacts to these areas. These wetlands were found to support groundwater discharge and aspects of water quality protection as well as general wildlife habitat. Since these areas also lay at the limits of the continued mining area and adjacent to other land uses, their aesthetic value may be greater than would normally be attributed to forested wetland.

Lastly, the value of wetlands A, I, and J as vernal pools was also used to assess the necessary additional mitigation for the unavoidable impacts to these 3 areas as explained in the mitigation section. For all these reasons, we believe that the functional assessment

of wetlands on the property was utilized to the greatest extent practicable to avoid and minimize impacts from the project.

5.0 Mitigation

Mitigation for the impacts associated with the project began at the initial pre-application meeting for the project held in May of 2019. The initial proposal involved a combination of wetland creation and preservation in the southernmost 20 acres of the property bordering Trues Brook Road. This proposal was not well received and its viability, even as a component of a mitigation package, was complicated by the need for specific vernal pool mitigation as indicated by the EPA (Mark Kern) at the initial pre-application meeting.

Following the initial meeting several preservation options were pursued. Two large tracts and one small parcel of potential preservation land in the area were investigated in coordination with the City of Lebanon planner Mark Goodwin. While all three held potential value, none of them contained vernal pools, meaning that PIKE would still have to bear the costs and complications of preserving vernal pools elsewhere in addition to preserving one or more of these properties. Preservation was therefore not an economically viable option.

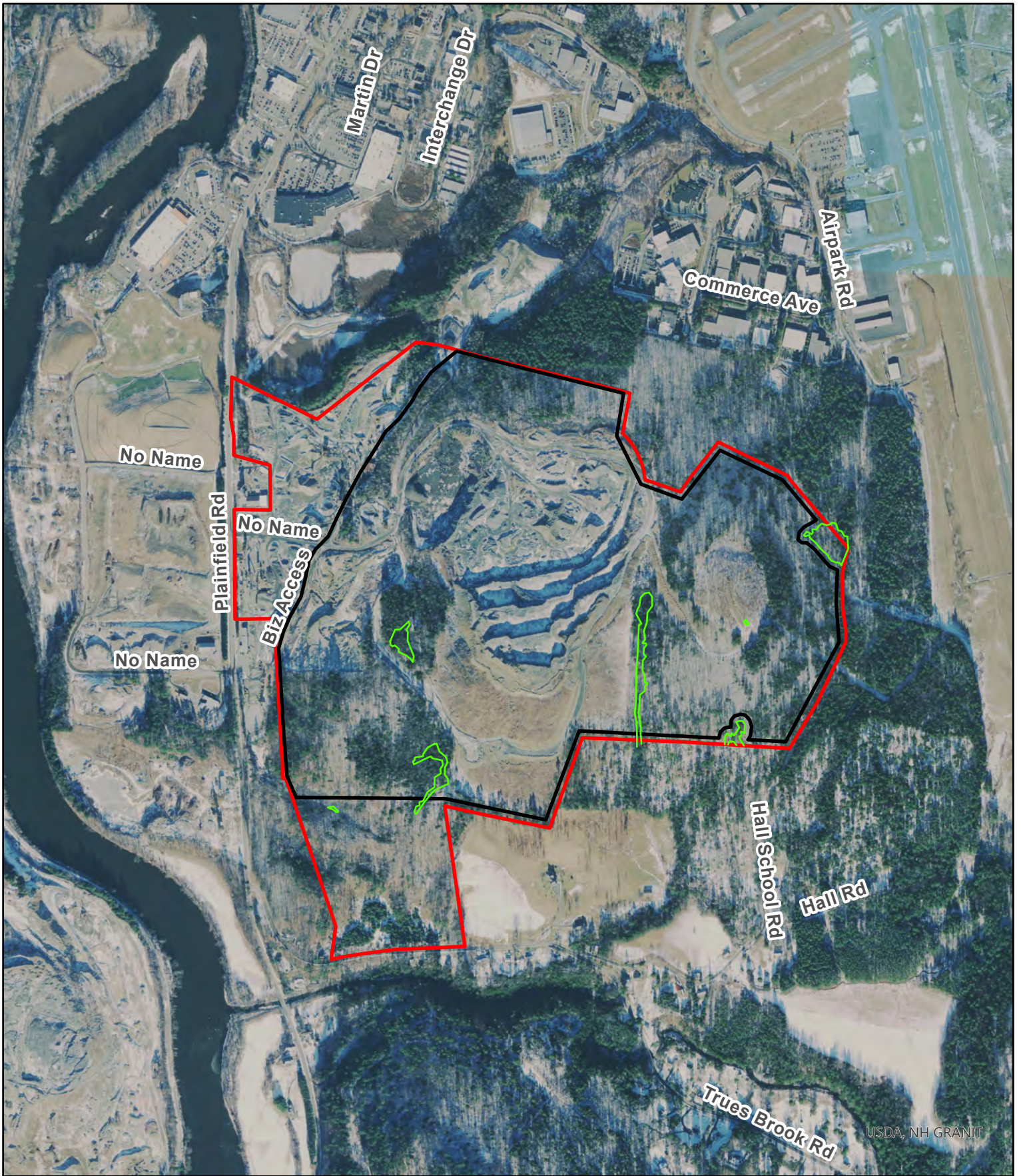
The possibility of creating vernal pools in the southern 20 acre portion of the property along Trues Brook Road was also investigated as a way to compliment a standard preservation effort or ILF mitigation. This area was evaluated with Jim Kennedy, who recently completed a vernal pool restoration/creation project in at Ticknor Woodlands in collaboration with the Upper Valley Land Trust and the City of Lebanon. Potential issues were identified in this area which would likely make the creation of viable vernal pool habitat unsuccessful. The area is comprised of steep slopes leading down to field and early successional vegetation. Neither of these regions appeared to have adequate hydrology to support pools, nor were any existing pools identified. With no existing vernal pool activity, created pools would likely rely entirely on introduced species. It was also not clear that adequate supporting terrestrial habitat exists in this area for the same reasons that the land was initially regarded as inadequate for preservation and wetland creation. The overall conservation value of this area is challenged by the proximity to existing residential property, ATV use, and Trues Brook road which separates it from Trues Brook to the south. Considering these factors, and the fact that as many as 11 vernal pools would need to be created in this area in accordance with the ACOE mitigation requirements, vernal pool creation in this area is not a viable option.

For these reasons and since the current progression of the quarry necessitates at least a portion of the impacts in the near future, the current mitigation proposal is a payment to the ARM fund to compensate for both direct wetland impacts and vernal pool impacts. The fee for compensating direct wetland impacts was calculated in the normal fashion using the 2021 ARM calculator. The additional fee for secondary impacts to vernal pools

was calculated in accordance with the *ACOE Compensatory Mitigation Standard Operating Procedures* (12/29/20) and additional guidance from ACOE and NHDES at the second pre application meeting on 7/12/21. The calculation involves using the assessed value of the pool (see Section 2.4) corresponding to a value in square feet that is then used in the ARM calculation. A value of 13,000 SF is assigned for low value pool, 39,000 SF for a medium value pool, and 65,000 SF for a high value pool. One high and two medium value pools will be impacted by the project so an additional 143,000 SF ($39,000 + 39,000 + 65,000$) of impact has been added to the ARM calculation which equates to \$742,184. The ARM contribution for combined direct wetland impacts and vernal pool impacts comes out to \$1,315,228. Copies of the ARM calculator sheets, pre-app meeting notes, and relevant corresponded are included in Appendix F.

Figures





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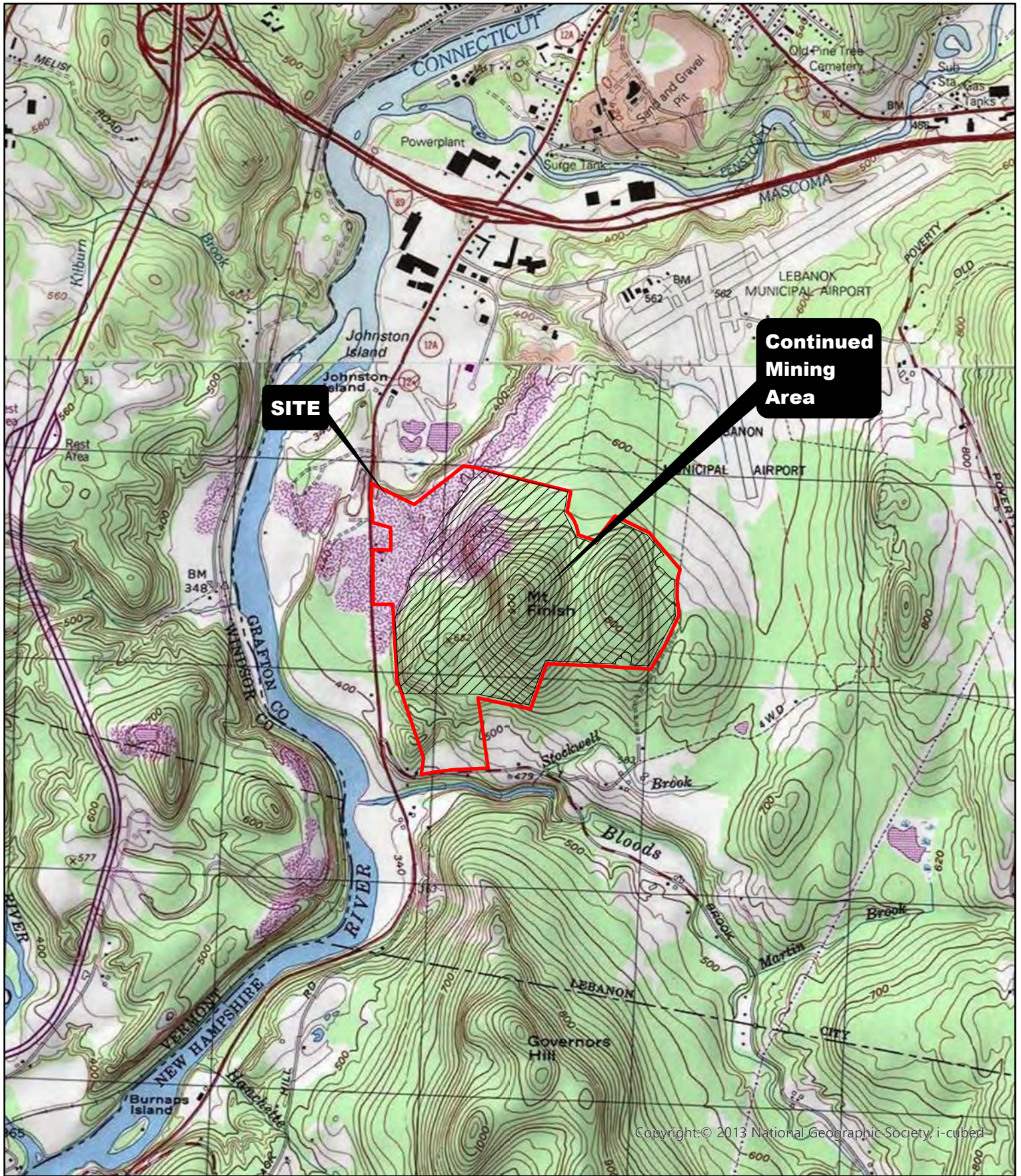


Gove Environmental Services, Inc.
8 Continental Drive, Bldg 2 Unit H, Exeter NH 03833 603.778.0644

Photo: 2018, NAIP

Aerial Photo

Lebanon Crushed Stone
335 Plainfield Road
West Lebanon, NH



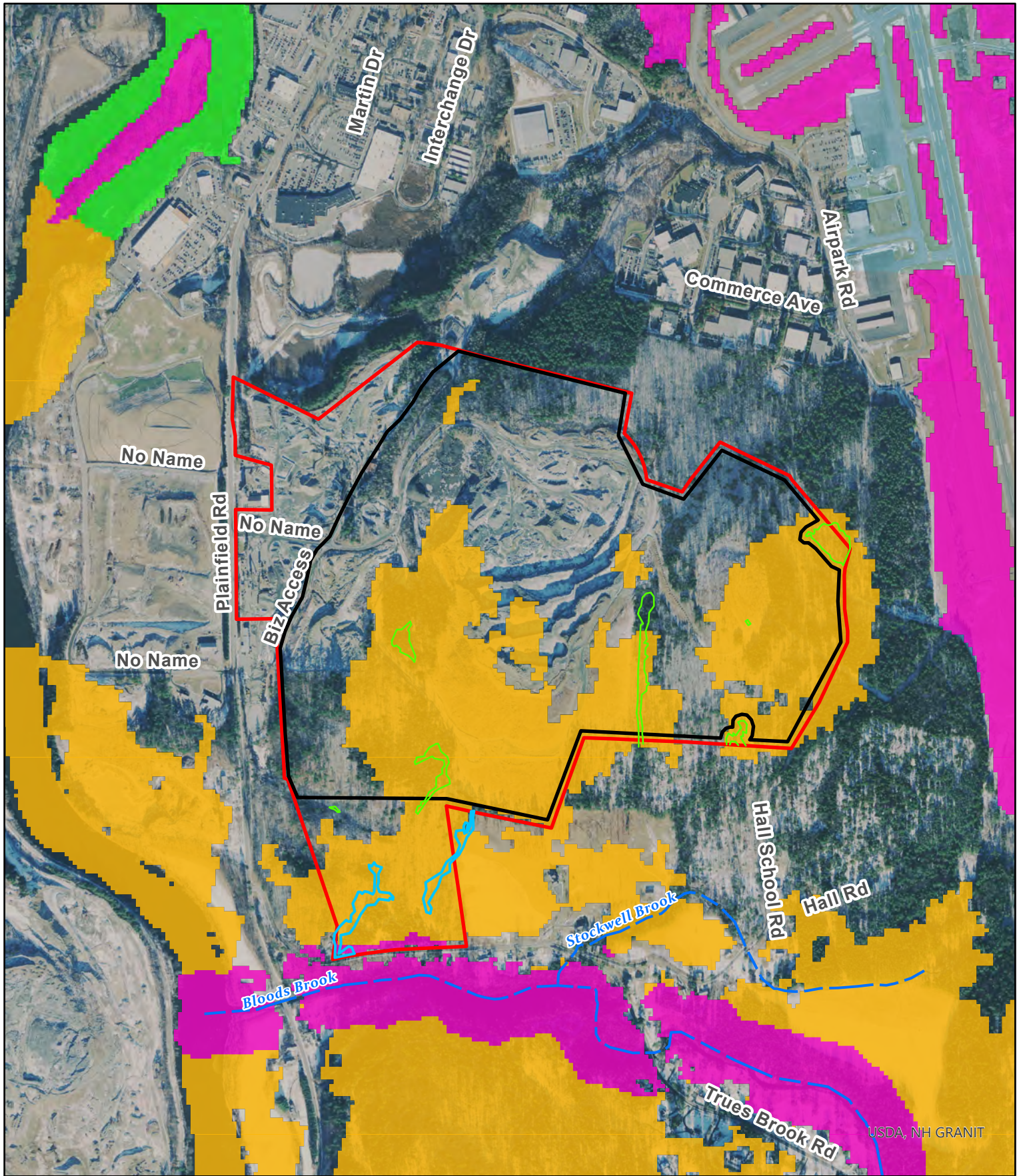
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Gove Environmental Services, Inc.
8 Continental Drive, Bldg 2 Unit H, Exeter NH 03833 603.778.0644

Locus Map

Lebanon Crushed Stone
335 Plainfield Road
West Lebanon, NH



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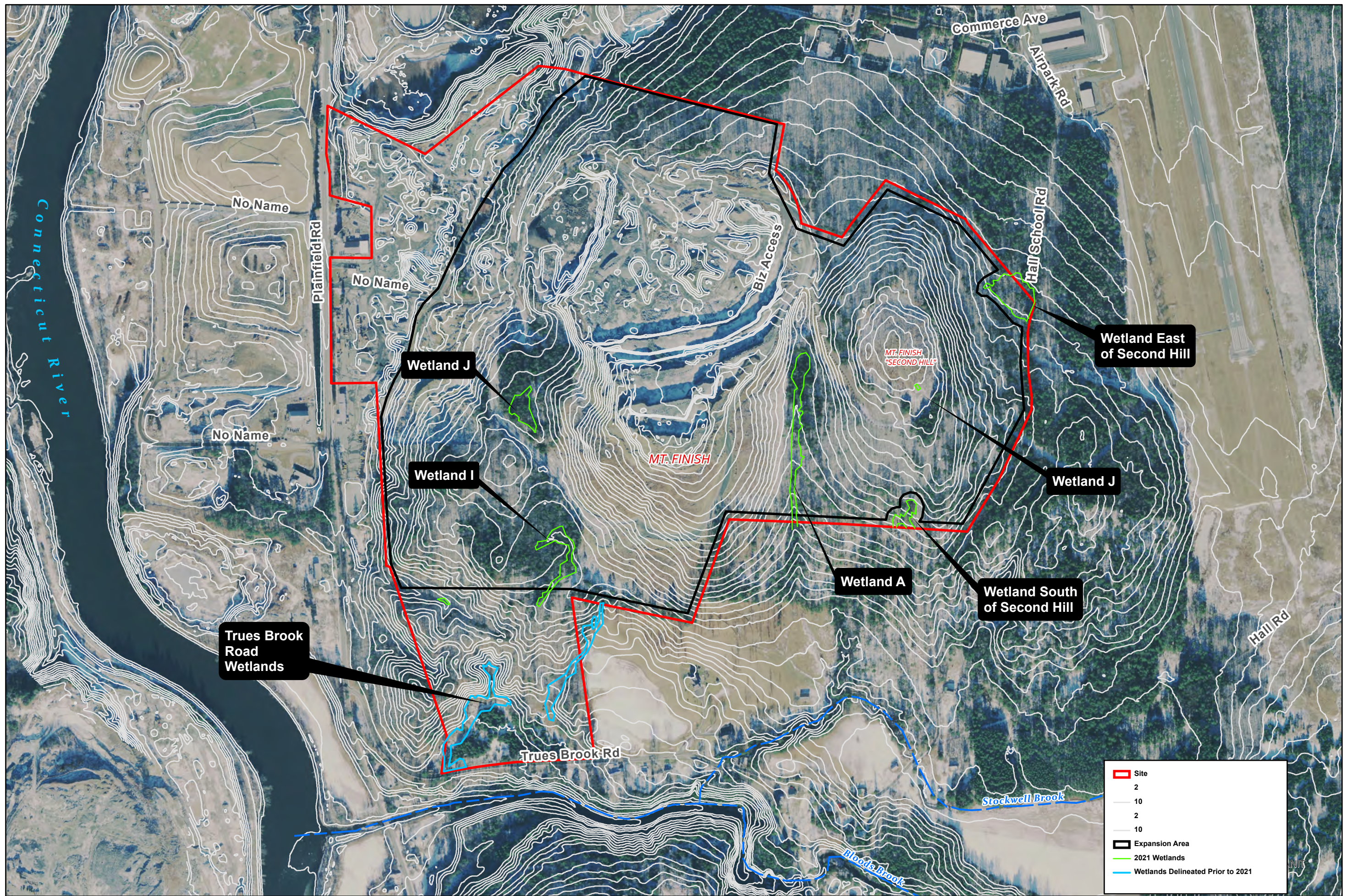
Highest Ranked Wildlife Habitat

- 0
- 1 Highest Ranked Habitat in NH
- 2 Highest Ranked Habitat in Region
- 3 Supporting Landscape

Photo: 2018, NAIP

Wildlife Action Plan

Lebanon Crushed Stone
335 Plainfield Road
West Lebanon, NH



Appendix A

Impact Area Photos

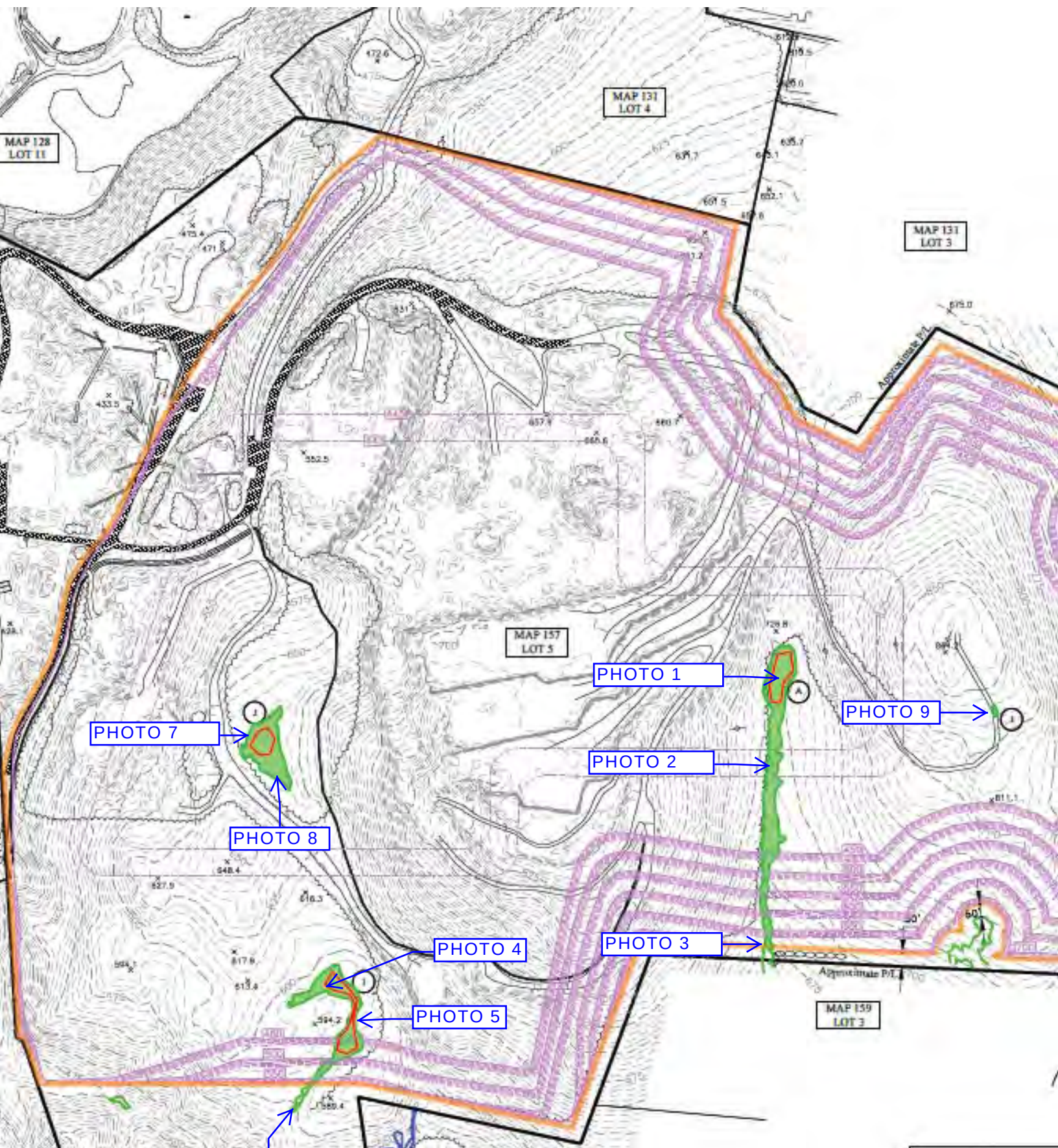




Photo 1: Impact Area A/Veral Pool A--northern end



Photo 2: Impact Area A—Typical narrow portion of the wetland



Photo 3: Impact Area A-- scoured channel develops approximately 800' from the northern end of wetland



Photo 4: Impact Area I upper portion/ Vernal Pool I



Photo 5: Impact Area I—lower portion, wetland drains to scoured channel outside the project limit



Photo 6: Scoured channel below Impact Area I, just outside the project limits



Photo 7: Impact Area J



Photo 8: Impact Area Impact Area J



Photo 9: Impact Area 1

Appendix B

Abutter Information



Abutter Map



Property Information

Property ID 157-5
 Location 335 PLAINFIELD RD
 Owner PIKE INDUSTRIES, INC



**MAP FOR REFERENCE ONLY
 NOT A LEGAL DOCUMENT**

City of Lebanon, NH makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated 10/23/2018
 Data updated 11/18/2018

Print map scale is approximate.
 Critical layout or measurement activities should not be done using this resource.

Abutters List

Subject Property:

157-1
PIKE INDUSTRIES, INC
3 EASTGATE PARK RD
BELMONT, NH 03220

Direct Abutters:

128-11
PIKE INDUSTRIES, INC
3 EASTGATE PARK RD
BELMONT, NH 03220

159-1
GUARALDI, SANDRA J TTEE
53 TRUES BROOK RD
WEST LEBANON, NH 03784

131-4
PIKE INDUSTRIES, INC
3 EASTGATE PARK RD
BELMONT, NH 03220

159-4
CITY OF LEBANON
51 NORTH PARK ST
LEBANON, NH 03766

131-3
UPPER VALLEY TECH PARK LLC
277 BLAIR PARK RD, STE 130
WILLISTON, VT 05495

157-4
CARROLL CONCRETE CO INC
PO BOX 1000
NEWPORT, NH 03773

157-6
PIKE INDUSTRIES, INC
3 EASTGATE PARK RD
BELMONT, NH 03220

157-9
HEBERT, JOHN D
66 HARDY HILL RD
LEBANON, NH 03766

ABUTTER NOTIFICATION
OF
WETLANDS PERMIT APPLICATION

November 2, 2021

«Name»
«Street»
«TownStateZip»

Re: Lebanon Crushed Stone
335 Plainfield Road (NH Route 12A)
West Lebanon, NH

Dear Sir or Madam:

This letter is to inform you that a Wetlands Permit Application will be submitted to the NH Department of Environmental Services (NHDES) Wetland Bureau on behalf of Pike Industries for 2.5 acres of wetland impact associated with continued quarrying at the Lebanon Crushed Stone Facility.

Under state law RSA 482-A:3 I (d)(1), I am required to notify you via certified mail, about this wetland permit application since your property directly abuts the project site. Once the permit application is submitted to NHDES, a copy of the permit application, including plans for the project proposal, will be available for public review at the City of Lebanon Clerk's Office and at the NHDES headquarters in Concord. A file review must be scheduled to view documents at the NHDES offices by calling (603) 271-8808 or visiting online at: filereview@des.nh.gov.

If you have any questions that we might be able to answer, please feel free to contact our office.

Sincerely,



Brendan Quigley, CWS
Gove Environmental Services, Inc.

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Sent \$

Street \$

City, State, ZIP+4®

157-9
 HEBERT, JOHN D
 66 HARDY HILL RD
 LEBANON, NH 03766

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 BELMONT, NH 03220

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 PO BOX 1000
 NEWPORT, NH 03773

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Total \$

Sent \$

Street \$

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159-1
 GUARALDI, SANDRA J TTEE
 53 TRUES BROOK RD
 WEST LEBANON, NH 03784

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131-4
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 3 EASTGATE PARK RD
 BELMONT, NH 03220

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159-4
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51 NORTH PARK ST
LEBANON, NH 03766

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Street	
City, State, ZIP+4®	
PS Form 3800, April 2015 PSN 7530-02-000-9047 See Reverse for Instructions	

128-11
PIKE INDUSTRIES, INC
3 EASTGATE PARK RD
BELMONT, NH 03220

Postmark Here
NOV 2021

Appendix C
Vernal Pool Information
&
Function and Value Assessment Worksheets

A

X. VERNAL POOL CHARACTERIZATION FORM

Project File # Pending Project Name Lebanon Crushed Stone Quarry Expansion Pool ID
Observer Brandon Quigley, Gove Env. Svcs. Phone or Email bquigley@govinc.biz
Landowner/Applicant PIKE Industries Phone or Email JCloutier@pikeindustries.com
Address
Location of vernal pool: See Plans
Survey date(s) 4-25-19 and 4-13-21
Longitude/Latitude (in decimal degrees) 72.3146134°W 43.6149865°N

A. VERNAL POOL CHARACTERISTICS

1. Landscape setting (check all that apply)

- ☒ Upland depression
☐ Pool part of wildlife corridor
☐ Pool part of a pool complex (within 1000 feet of one or more other vernal pools)

2. Vernal pool condition

Describe any recent modification to the pool: adj. quarry roads to N, E, + W and cleared forest

3. Describe the aquatic resource type(s) in pool (e.g., forested, scrub-shrub, etc.) -

Forested wetland

4. Pool canopy cover (%): 70% Hemlock/Yellow Birch

5. Predominant substrate (e.g., mineral soil, organic matter):

6. Pool size

a. Approximate dimensions at maximum capacity (include units):

Length 1180' Width: 180' Area: 12,304 SF

b. Maximum depth at deepest point (include units): 12"

7. Hydrology

a. Estimated month pool dries, or if never: Most Pool by June, Sunlit and likely perm. but only inches deep

b. Inlet/outlet (none, temporary, permanent): temp, southern end

8. Water quality (clear, high turbidity, high algal content, tannic): high algal

OTHER COMMENTS:

Append photos, sketch of pool and surrounding landscape.

22.8 combined = Moderate rating

[A]

B. VERNAL POOL ENVELOPE (100 ft) AND CRITICAL TERRESTRIAL HABITAT (100-750 ft)

a. Landuse type and approximate percentage within 100 ft VP envelope (total equals 100%)

- ☒ Forested 88% % (15 pts) → 13.2
☒ Shrub 12% % (10 pts) → 1.2
☐ Open (e.g., meadow, agriculture, golf course) % (5 pts)
☐ Developed (includes area beyond barriers) % (0 pts)

b. TOTAL for VP envelope (maximum of 15):

c. Landuse type and approximate percentage within 100-750 ft VP critical terrestrial habitat (total equals 100%)

- ☒ Forested 34% % (15 pts) → 5.1
☒ Shrub 31% % (10 pts) → 3.1
☐ Open (e.g., meadow, agriculture, golf course) % (5 pts)
☒ Developed (includes area beyond barriers) 35% % (0 pts) → 0

d. TOTAL for VP CTH (maximum of 15): 8.4

e. How above determined (field estimate, GIS, air photo interpretation):

C. SPECIES PRESENT IN VERNAL POOL

4-25-19/4-13-21

INDICATOR SPECIES	DATE	EGG MASSES (#)	TADPOLES/LARVAE
Wood Frog (<i>Lithobates sylvaticus</i>)		0/19	
Spotted Salamander (<i>Ambystoma maculatum</i>)		11/2	
Blue-spotted Salamander (<i>Ambystoma laterale</i>)			
Jefferson's Salamander (<i>Ambystoma jeffersonianum</i>)			
Marbled Salamander (<i>Ambystoma opacum</i>)			
Fairy shrimp (<i>Eubrachipus</i> spp.)		Present/absent	Abundance:
OTHER SPECIES	DATE	PRESENCE/ABSENCE	FEW/COMMON/MANY
Rare species (list):			
Facultative species: (e.g., Spring Peeper (<i>Pseudacris crucifer</i>), Gray Tree Frog (<i>Hyla versicolor</i>), Caddisflies (Limnephilidae, Phryganeidae), American Toad (<i>Anaxyrus americanus</i>), Eastern Spadefoot Toad (<i>Scaphiopus holbrookii</i>), Fowler's Toad (<i>Anaxyrus fowleri</i>), Fingernail Clams (Sphaeriidae, Pisidiidae)). List:	4/25/19	Caddisfly	many
Predator Species (e.g., Bullfrog/Greenfrog tadpoles, Fish): List:			
Other species (e.g., ducks, turtles, etc.): List:			



X. VERNAL POOL CHARACTERIZATION FORM

Project File # Pending Project Name Lebanon Crushed Stone Quarry Expansion Pool ID
Observer Brandon Quigley, Gove Env. Svcs. Phone or Email bquigley@govinc.biz
Landowner/Applicant PIKE Industries Phone or Email JCloutier@pikeindustries.com
Address
Location of vernal pool: See Plans
Survey date(s) 4-25-19 and 4-13-21
Longitude/Latitude (in decimal degrees) 72.326068°W 43.6112831°N

A. VERNAL POOL CHARACTERISTICS

1. Landscape setting (check all that apply)

- ☒ Upland depression
☐ Pool part of wildlife corridor
☒ Pool part of a pool complete (within 1000 feet of one or more other vernal pools)

2. Vernal pool condition

Describe any recent modification to the pool: Sediment deposition and restoration in lower part of Pool, active mining, cleared forest to west

3. Describe the aquatic resource type(s) in pool (e.g., forested, scrub-shrub, etc.) -

Forested wetland, Hemlock, Red Maple, Yellow Birch

4. Pool canopy cover (%): 70%

5. Predominant substrate (e.g., mineral soil, organic matter): Organic Soil

6. Pool size

a. Approximate dimensions at maximum capacity (include units):

Length N/69' Width: N/60' Area: 17,934 SF

b. Maximum depth at deepest point (include units): 12" in 2019 6" in 2021

7. Hydrology

a. Estimated month pool dries, or if never: most by June small area likely permanent (inches deep)

b. Inlet/outlet (none, temporary, permanent): Temp outlet at southern end

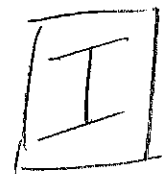
8. Water quality (clear, high turbidity, high algal content, tannic): high algal content

OTHER COMMENTS: Very shallow, limited pool in 2021

Append photos, sketch of pool and surrounding landscape.

H-17

26.1 Combined = High rating



B. VERNAL POOL ENVELOPE (100 ft) AND CRITICAL TERRESTRIAL HABITAT (100-750 ft)

a. Landuse type and approximate percentage within 100 ft VP envelope (total equals 100%)

☒ Forested 88 % (15 pts) → 13.2
☒ Shrub 12 % (10 pts) → 1.2
☐ Open (e.g., meadow, agriculture, golf course) % (5 pts)
☐ Developed (includes area beyond barriers) % (0 pts)

b. TOTAL for VP envelope (maximum of 15): 14.4

c. Landuse type and approximate percentage within 100-750 ft VP critical terrestrial habitat (total equals 100%)

☒ Forested 59 % (15 pts) → 8.8
☒ Shrub 24 % (10 pts) → 2.4
☒ Open (e.g., meadow, agriculture, golf course) 10 % (5 pts) → 0.5
☐ Developed (includes area beyond barriers) % (0 pts)

d. TOTAL for VP CTH (maximum of 15): 11.7

e. How above determined (field estimate, GIS, air photo interpretation):

C. SPECIES PRESENT IN VERNAL POOL

4-25-19 / 4-13-21

INDICATOR SPECIES	DATE	EGG MASSES (#)	TADPOLES/LARVAE
Wood Frog (<i>Lithobates sylvaticus</i>)		4/0	
Spotted Salamander (<i>Ambystoma maculatum</i>)		19/0	
Blue-spotted Salamander (<i>Ambystoma laterale</i>)			
Jefferson's Salamander (<i>Ambystoma jeffersonianum</i>)			
Marbled Salamander (<i>Ambystoma opacum</i>)			
Fairy shrimp (<i>Eubranchipus</i> spp.)		Present/absent	Abundance:
OTHER SPECIES	DATE	PRESENCE/ABSENCE	FEW/COMMON/MANY
Rare species (list):			
Facultative species: (e.g., Spring Peeper (<i>Pseudacris crucifer</i>), Gray Tree Frog (<i>Hyla versicolor</i>), Caddisflies (Limnephilidae, Phryganeidae), American Toad (<i>Anaxyrus americanus</i>), Eastern Spadefoot Toad (<i>Scaphiopus holbrookii</i>), Fowler's Toad (<i>Anaxyrus fowleri</i>), Fingernail Clams (Sphaeriidae, Pisidiidae)). List:			
Predator Species (e.g., Bullfrog/Green frog tadpoles, Fish): List:			
Other species (e.g, ducks, turtles, etc.): List:			

X. VERNAL POOL CHARACTERIZATION FORM

Project File # Pending Project Name Lebanon Crushed Stone Quarry Expansion Pool ID 5
Observer Brandon Quigley, Gove Env. Svcs. Phone or Email bquigley@govinc.biz
Landowner/Applicant PIKE Industries Phone or Email sclozier@pikeindustries.com
Address _____
Location of vernal pool: See Plans
Survey date(s) 4-25-19 and 4-13-21
Longitude/Latitude (in decimal degrees) 72.3218731°W 43.6143154°N

A. VERNAL POOL CHARACTERISTICS

1. Landscape setting (check all that apply)

- ☒ Upland depression
☐ Pool part of wildlife corridor
☒ Pool part of a pool complete (within 1000 feet of one or more other vernal pools)

2. Vernal pool condition

Describe any recent modification to the pool: directly adj. quarry road, active mining and cleared forest currently early successional

3. Describe the aquatic resource type(s) in pool (e.g., forested, scrub-shrub, etc.) -

Forested Wetland, Hemlock + Red Maple

4. Pool canopy cover (%): ~70%

5. Predominant substrate (e.g., mineral soil, organic matter): Organic

6. Pool size

a. Approximate dimensions at maximum capacity (include units):

Length ~100 Width: ~100 Area: 11,547 SF

b. Maximum depth at deepest point (include units): 12" in 2019 6-8" in 2021

7. Hydrology

a. Estimated month pool dries, or if never: May/June, Carex sp., Cinnamon fern

b. Inlet/outlet (none, temporary, permanent): none

8. Water quality (clear, high turbidity, high algal content, tannic): Clear

OTHER COMMENTS:

Append photos, sketch of pool and surrounding landscape.

H-17

19.7 Combined = Moderate rating

J

B. VERNAL POOL ENVELOPE (100 ft) AND CRITICAL TERRESTRIAL HABITAT (100-750 ft)

a. Landuse type and approximate percentage within 100 ft VP envelope (total equals 100%)

☒ Forested 89 % (15 pts) → 13.35
☐ Shrub % (10 pts)
☐ Open (e.g., meadow, agriculture, golf course) % (5 pts)
☒ Developed (includes area beyond barriers) 11% % (0 pts) → 0

b. TOTAL for VP envelope (maximum of 15): 13.35

c. Landuse type and approximate percentage within 100-750 ft VP critical terrestrial habitat (total equals 100%)

☒ Forested 35 % (15 pts) → 5.25
☒ Shrub 11 % (10 pts) → 1.1
☐ Open (e.g., meadow, agriculture, golf course) % (5 pts)
☒ Developed (includes area beyond barriers) 54 % (0 pts) → 0

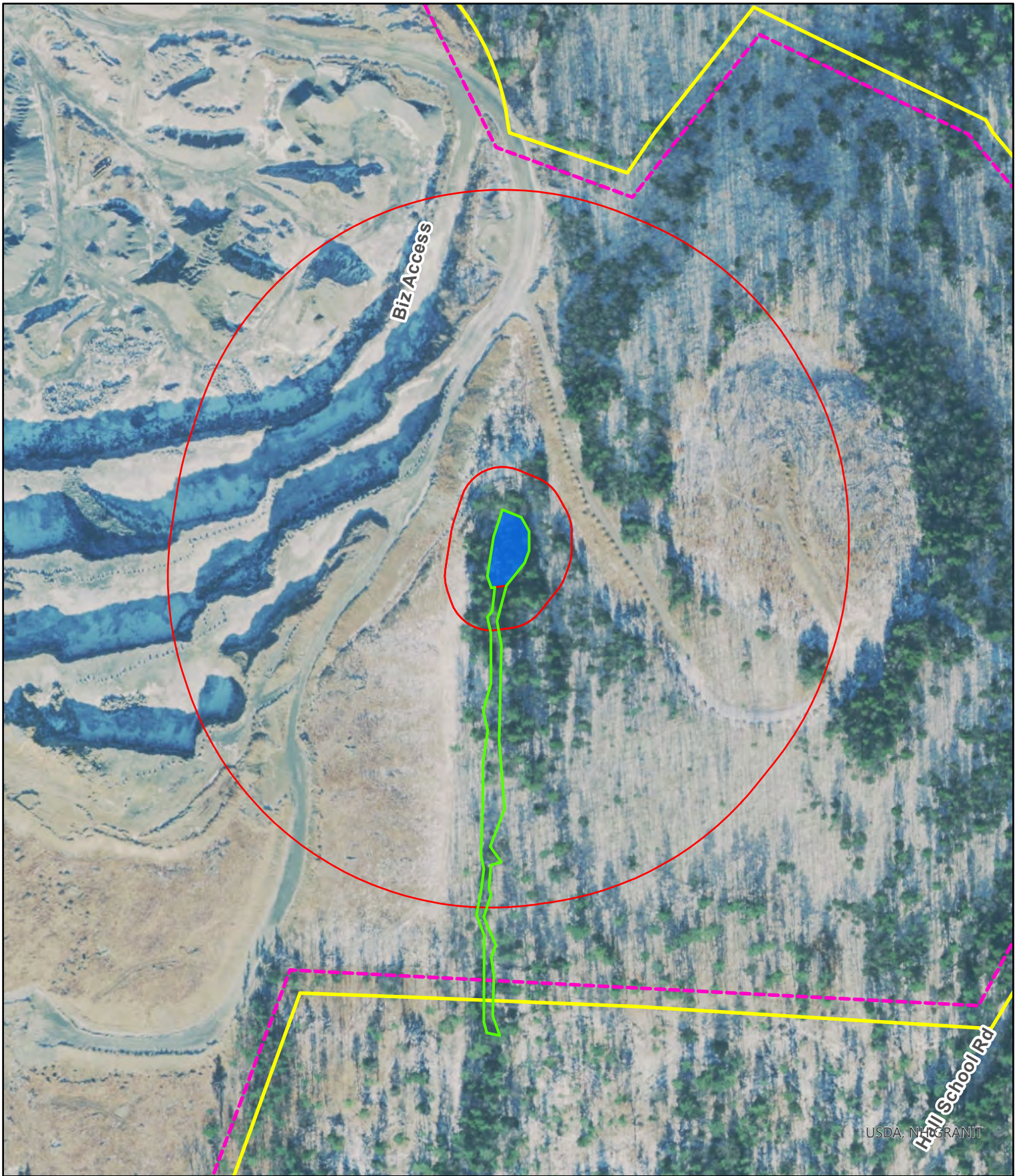
d. TOTAL for VP CTH (maximum of 15): 6.35

e. How above determined (field estimate, GIS, air photo interpretation): Aerial Photo/GIS

C. SPECIES PRESENT IN VERNAL POOL

4-25-19/4-13-21

INDICATOR SPECIES	DATE	EGG MASSES (#)	TADPOLES/LARVAE
Wood Frog (<i>Lithobates sylvaticus</i>)		72/80	
Spotted Salamander (<i>Ambystoma maculatum</i>)		8/0	
Blue-spotted Salamander (<i>Ambystoma laterale</i>)			
Jefferson's Salamander (<i>Ambystoma jeffersonianum</i>)			
Marbled Salamander (<i>Ambystoma opacum</i>)			
Fairy shrimp (<i>Eubranchipus</i> spp.)		Present/absent	Abundance:
OTHER SPECIES	DATE	PRESENCE/ABSENCE	FEW/COMMON/MANY
Rare species (list):			
Facultative species: (e.g., Spring Peeper (<i>Pseudacris crucifer</i>), Gray Tree Frog (<i>Hyla versicolor</i>), Caddisflies (Limnephilidae, Phryganeidae), American Toad (<i>Anaxyrus americanus</i>), Eastern Spadefoot Toad (<i>Scaphiopus holbrookii</i>), Fowler's Toad (<i>Anaxyrus fowleri</i>), Fingernail Clams (Sphaerilidae, Pisidiidae)). List:			
Predator Species (e.g., Bullfrog/Green frog tadpoles, Fish): List:			
Other species (e.g., ducks, turtles, etc.): List:			

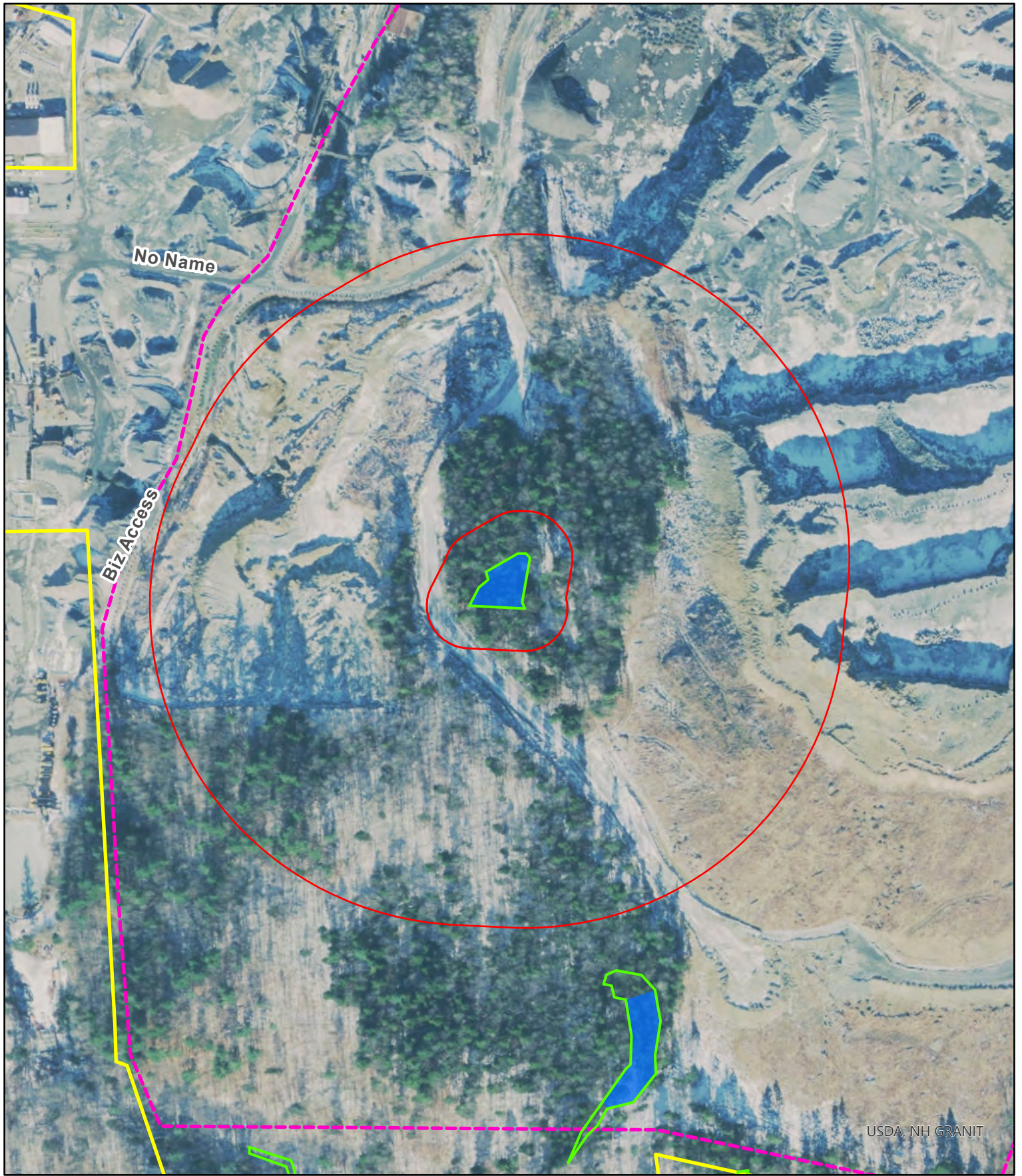


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100' & 750' Buffers Vernal Pool A



Gove Environmental Services, Inc.
8 Continental Drive, Bldg 2 Unit H, Exeter NH 03833 603.778.0644

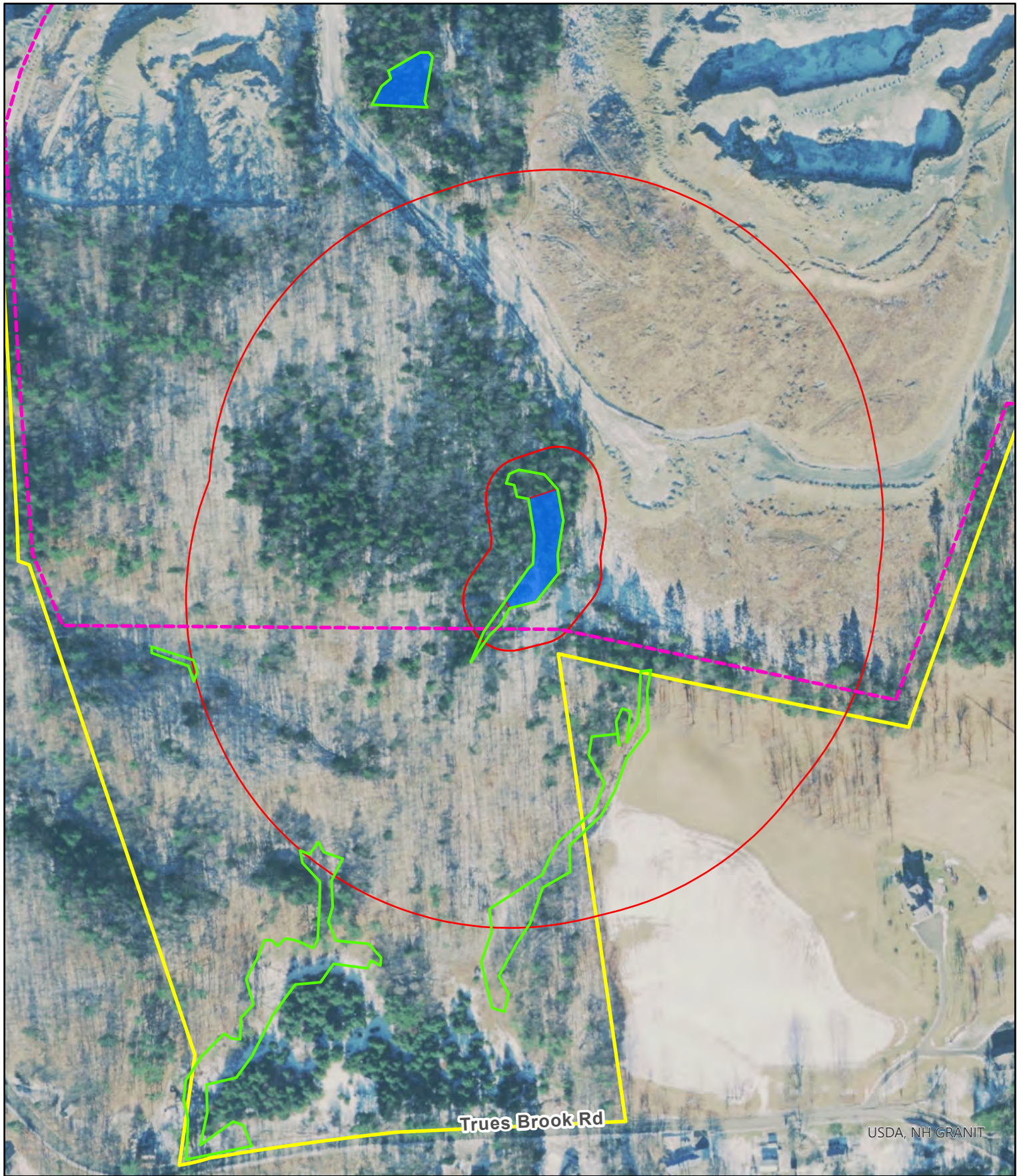


1:3,600

100' & 750' Buffers Vernal Pool J



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8 Continental Drive, Bldg 2 Unit H, Exeter NH 03833 603.778.0644



1:3,600

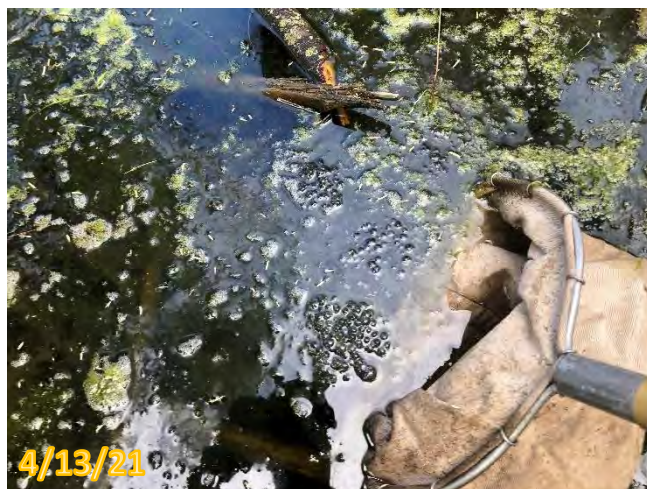


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8 Continental Drive, Bldg 2 Unit H, Exeter NH 03833 603.778.0644

100' & 750' Buffers Vernal Pool I



Main portion of VP-A with diminished water level in 2021



Yellow Spotted Salamander and Wood Frog egg masses



Vernal Pool I in 2021 ans 2019





Main portion of VP-J



One of two rafts of Wood frog eggs in the pool

Wetland Function-Value Evaluation Form

Total area of wetland 29,896 & 25,998 Human made? NO Is wetland part of a wildlife corridor? NO or a "habitat island"? NO

Adjacent land use active quarry Distance to nearest roadway or other development 20-75 feet

Dominant wetland systems present PFO1/4E Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? YES If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetlands I & J

Latitude _____ Longitude _____

Prepared by: BJQ Date 10/19/21

Wetland Impact:
Type fill Area 29,896 & 25,998

Evaluation based on:

Office X Field X

Corps manual wetland delineation
completed? Y^x N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	N	6		signs of bedrock and low permeability soils
 Floodflow Alteration	N			small, largely isolated, high in watershed
 Fish and Shellfish Habitat	N			no surface water
 Sediment/Toxicant Retention	N			isolated, minimal watershed, limited sources
 Nutrient Removal	N			isolated, minimal watershed, limited sources
 Production Export	Y	1,4,5,	X	vernal pool reproduction and related wildlife usage/consumption
 Sediment/Shoreline Stabilization	N			not associated with surface water
 Wildlife Habitat	Y	7,8,18,20	X	vernal pool habitat
 Recreation	N			very small, no surface water controlled private
 Educational/Scientific Value	Y	5		Vernal pool but disturbed setting and haz. controlled area controlled facility
 Uniqueness/Heritage	N			disturbed, adj developed areas, forested wetland only
 Visual Quality/Aesthetics	N			disturbed, adj developed areas, forested wetland only
ES Endangered Species Habitat	N			none identified
Other				

Notes:

* Refer to backup list of numbered considerations.

NH METHOD FOR THE EVALUATION OF FRESHWATER WETLANDS (revised December, 2015)

Wetland Name/Code: I + 5 Evaluation Date: 10-19-21 Evaluator: BQ

1 – ECOLOGICAL INTEGRITY

Evaluation Questions	Observations & Notes	Answers	Score
1. Are there land uses in the wetland's watershed that could degrade water quality in the wetland?	Active quarry operations	a. Less than 5% of the watershed has land uses that could degrade water quality. b. 5-10% of the watershed has land uses that could degrade water quality. c. > 10% of the watershed has land uses that could degrade water quality.	10 5 1
2. Is there evidence of fill in the wetland?		a. Less than 1 % b. From 1-3 % c. More than 3 %	10 5 1
3. What percentage of the wetland has been altered by agricultural activities?		a. Less than 5 % b. From 5 to 25 % c. More than 25 %	10 5 1
4. What percentage of the wetland has been adversely impacted by logging activity within the last 10 years?		a. Less than 1% b. From 1 to 10 % c. More than 10 %	10 5 1
5. How much human activity is taking place in the wetland (e.g. ATV use, trails, cars, dumping of brush and garbage, etc.)?		a. Low: Few trails in use, little or no traffic, and little or no litter. b. Moderate: Some used trails, roads, litter c. High: Many trails, roads, and/or litter	10 5 1
6. What percentage of the wetland is occupied by invasive plant species?		a. None b. 1-5% of the wetland has invasive species c. > 5% of the wetland has invasive species	10 5 1
7. Are there roads, driveways and/or railroads crossing or adjacent to the wetland or come within 500 ft. of the wetland?	quarry haul roads	a. No roads, driveways or railroads. within 500 ft. of, or in the wetland b. Roads, driveways, railroads are within 500 ft of the wetland c. Roads, driveways, railroads cross, or are adjacent to, the wetland	10 5 1
8. How much human activity is taking place in the upland within 500 feet of the wetland edge?		a. Less than 5% or no activity b. Human activity evident in up to 25% of the 500 ft zone c. Human activity evident in more than 25% of the 500 ft zone	10 5 1
9. What is the percent of impervious surface within 500 feet of the wetland edge?		a. Less than 3% impervious area within 500 ft of the wetland edge b. 3-10% impervious area within 500 ft of the wetland edge c. Greater than 10% impervious area within 500 ft of the wetland edge	10 5 1
10. Is there a human-made structure that regulates the flow of water through the wetland?		a. No human made structures present upstream of, or in the wetland. b. One or more human made structures present upstream of, or in the wetland but hydrologic modification is slight c. One or more human made structures present upstream of, or in the wetland that severely block or alter surface water hydrology	10 5 1

AVERAGE SCORE FOR ECOLOGICAL INTEGRITY

(Add scores for each question and divide by 10)

$$63/10 = 6.3$$

Wetland Function-Value Evaluation Form

Total area of wetland >5ac Human made? NO Is wetland part of a wildlife corridor? NO or a "habitat island"? NO
 Adjacent land use Active quarry/Forest Distance to nearest roadway or other development ~100'
 Dominant wetland systems present PFO1/4E Contiguous undeveloped buffer zone present NO
 Is the wetland a separate hydraulic system? YES If not, where does the wetland lie in the drainage basin? HIGH
 How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland A
 Latitude _____ Longitude _____
 Prepared by: BJQ Date 10/19/21
 Wetland Impact:
 Type III Area 54,008
 Evaluation based on:
 Office X Field X
 Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	Y	2,10,13	X	indications of GW discharge
 Floodflow Alteration	N			small, largely isolated, high in watershed
 Fish and Shellfish Habitat	N			no surface water
 Sediment/Toxicant Retention	Y	1,2,10,14		mostly in context of quarry, otherwise small watershed with few sources
 Nutrient Removal	Y	4,7,13		mostly in context of quarry, otherwise small watershed with few sources
 Production Export	Y	1,4,5,	X	vernal pool reproduction and related wildlife usage/consumption
 Sediment/Shoreline Stabilization	N			not associated with surface water
 Wildlife Habitat	Y	7,8,18,20	X	vernal pool habitat
 Recreation	N			no surface water, Haz. controlled facility
 Educational/Scientific Value	Y	5		Vernal pool but disturbed setting and haz. controlled facility
 Uniqueness/Heritage	N			adj. active quarry, forested wetland only
 Visual Quality/Aesthetics	N			adj. active quarry forested wetland only
ES Endangered Species Habitat	N			none identified
Other				

Notes:

* Refer to backup list of numbered considerations.

NH METHOD FOR THE EVALUATION OF FRESHWATER WETLANDS (revised December, 2015)

Wetland Name/Code: A Evaluation Date: 10-19-21 Evaluator: BQ

1 – ECOLOGICAL INTEGRITY

Evaluation Questions	Observations & Notes	Answers	Score
1. Are there land uses in the wetland's watershed that could degrade water quality in the wetland?	Active quarry	a. Less than 5% of the watershed has land uses that could degrade water quality. b. 5-10% of the watershed has land uses that could degrade water quality. c. > 10% of the watershed has land uses that could degrade water quality.	10 5 1
2. Is there evidence of fill in the wetland?		a. Less than 1 % b. From 1-3 % c. More than 3 %	10 5 1
3. What percentage of the wetland has been altered by agricultural activities?		a. Less than 5 % b. From 5 to 25 % c. More than 25 %	10 5 1
4. What percentage of the wetland has been adversely impacted by logging activity within the last 10 years?	From clearing for quarry	a. Less than 1% b. From 1 to 10 % c. More than 10 %	10 5 1
5. How much human activity is taking place in the wetland (e.g. ATV use, trails, cars, dumping of brush and garbage, etc.)?		a. Low: Few trails in use, little or no traffic, and little or no litter. b. Moderate: Some used trails, roads, litter c. High: Many trails, roads, and/or litter	10 5 1
6. What percentage of the wetland is occupied by invasive plant species?		a. None b. 1-5% of the wetland has invasive species c. > 5% of the wetland has invasive species	10 5 1
7. Are there roads, driveways and/or railroads crossing or adjacent to the wetland or come within 500 ft. of the wetland?	- Quarry Rd. Comm. tower access Rd.	a. No roads, driveways or railroads. within 500 ft. of, or in the wetland b. Roads, driveways, railroads are within 500 ft of the wetland c. Roads, driveways, railroads cross, or are adjacent to, the wetland	10 5 1
8. How much human activity is taking place in the upland within 500 feet of the wetland edge?		a. Less than 5% or no activity b. Human activity evident in up to 25% of the 500 ft zone c. Human activity evident in more than 25% of the 500 ft zone	10 5 1
9. What is the percent of impervious surface within 500 feet of the wetland edge?		a. Less than 3% impervious area within 500 ft of the wetland edge b. 3-10% impervious area within 500 ft of the wetland edge c. Greater than 10% impervious area within 500 ft of the wetland edge	10 5 1
10. Is there a human-made structure that regulates the flow of water through the wetland?		a. No human made structures present upstream of, or in the wetland. b. One or more human made structures present upstream of, or in the wetland but hydrologic modification is slight c. One or more human made structures present upstream of, or in the wetland that severely block or alter surface water hydrology	10 5 1

AVERAGE SCORE FOR ECOLOGICAL INTEGRITY

(Add scores for each question and divide by 10)

$$67/10 = 6.7$$

Wetland Function-Value Evaluation Form

Total area of wetland 550 Human made? likely Is wetland part of a wildlife corridor? NO or a "habitat island"? NO

Adjacent land use comm. tower access rd/forsted Distance to nearest roadway or other development 20-75 feet

Dominant wetland systems present PEM1b Contiguous undeveloped buffer zone present NO

Is the wetland a separate hydraulic system? YES If not, where does the wetland lie in the drainage basin? HIGH

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Wetland 1

Latitude _____ Longitude _____

Prepared by: BJQ Date 10/19/21

Wetland Impact:
Type III Area 550

Evaluation based on:
Office X Field X

Corps manual wetland delineation
completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	N	6		signs of bedrock and low permeability soils
 Floodflow Alteration	N			very small, no storage
 Fish and Shellfish Habitat	N			no surface water
 Sediment/Toxicant Retention	N			isolated, minimal watershed, limited sources
 Nutrient Removal	N			isolated, minimal watershed, limited sources
 Production Export	Y	1,7,12	X	wildlife food sources for pollinators and other assoc with flowering meadow veg.
 Sediment/Shoreline Stabilization	N			not associated with surface water
 Wildlife Habitat	Y	5,13,19		meadow type habitat but very limited
 Recreation	N			very small, no surface water controlled private
 Educational/Scientific Value	N			disturbed, private controlled property
 Uniqueness/Heritage	N			disturbed, private controlled property
 Visual Quality/Aesthetics	N			disturbed, private controlled property
ES Endangered Species Habitat	N			none identified
Other				

Notes:

* Refer to backup list of numbered considerations.

NH METHOD FOR THE EVALUATION OF FRESHWATER WETLANDS (revised December, 2015)

Wetland Name/Code: #1 Evaluation Date: 10-19-21 Evaluator: BC

1 – ECOLOGICAL INTEGRITY

Evaluation Questions	Observations & Notes	Answers	Score
1. Are there land uses in the wetland's watershed that could degrade water quality in the wetland?	Cleary for comm. tower	a. Less than 5% of the watershed has land uses that could degrade water quality. b. 5-10% of the watershed has land uses that could degrade water quality. c. > 10% of the watershed has land uses that could degrade water quality.	10 5 1 =
2. Is there evidence of fill in the wetland?	No fill but likely created by equip rot	a. Less than 1 % b. From 1-3 % c. More than 3 %	10 = 5 1
3. What percentage of the wetland has been altered by agricultural activities?		a. Less than 5 % b. From 5 to 25 % c. More than 25 %	10 = 5 1
4. What percentage of the wetland has been adversely impacted by logging activity within the last 10 years?		a. Less than 1% b. From 1 to 10 % c. More than 10 %	10 5 1 =
5. How much human activity is taking place in the wetland (e.g. ATV use, trails, cars, dumping of brush and garbage, etc.)?		a. Low: Few trails in use, little or no traffic, and little or no litter. b. Moderate: Some used trails, roads, litter c. High: Many trails, roads, and/or litter	10 5 = 1
6. What percentage of the wetland is occupied by invasive plant species?	- Purple loosestrife - Reed-canary grass	a. None b. 1-5% of the wetland has invasive species c. > 5% of the wetland has invasive species	10 5 1 =
7. Are there roads, driveways and/or railroads crossing or adjacent to the wetland or come within 500 ft. of the wetland?	Comm. access RD	a. No roads, driveways or railroads. within 500 ft. of, or in the wetland b. Roads, driveways, railroads are within 500 ft of the wetland c. Roads, driveways, railroads cross, or are adjacent to, the wetland	10 5 1 =
8. How much human activity is taking place in the upland within 500 feet of the wetland edge?		a. Less than 5% or no activity b. Human activity evident in up to 25% of the 500 ft zone c. Human activity evident in more than 25% of the 500 ft zone	10 5 = 1
9. What is the percent of impervious surface within 500 feet of the wetland edge?		a. Less than 3% impervious area within 500 ft of the wetland edge b. 3-10% impervious area within 500 ft of the wetland edge c. Greater than 10% impervious area within 500 ft of the wetland edge	10 = 5 1
10. Is there a human-made structure that regulates the flow of water through the wetland?		a. No human made structures present upstream of, or in the wetland. b. One or more human made structures present upstream of, or in the wetland but hydrologic modification is slight c. One or more human made structures present upstream of, or in the wetland that severely block or alter surface water hydrology	10 = 5 1

AVERAGE SCORE FOR ECOLOGICAL INTEGRITY

(Add scores for each question and divide by 10)

$$54 / 10 = 5.4$$

Wetland Function-Value Evaluation Form

Total area of wetland >5ac Human made? NO Is wetland part of a wildlife corridor? YES or a "habitat island"? NO

Adjacent land use Forest/Airfield Distance to nearest roadway or other development ~100'

Dominant wetland systems present PFO1B Contiguous undeveloped buffer zone present YES

Is the wetland a separate hydraulic system? YES If not, where does the wetland lie in the drainage basin? _____

How many tributaries contribute to the wetland? 0 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Off Site wetlanbds

Latitude _____ Longitude _____

Prepared by: BJQ Date 10/19/21

Wetland Impact:
Type NONE Area _____

Evaluation based on:
Office X Field X

Corps manual wetland delineation completed? Y X N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
 Groundwater Recharge/Discharge	Y	2,10,13	X	indications of GW discharge
 Floodflow Alteration	N			on slope, no storage potential
 Fish and Shellfish Habitat	N			no surface water
 Sediment/Toxicant Retention	N			GW origin, little overland input
 Nutrient Removal	N			GW origin, little overland input
 Production Export	Y	1,2		average wildlife food sources assoc. with forested habitat
 Sediment/Shoreline Stabilization	N			not associated with surface water
 Wildlife Habitat	Y	4,5,7,8,		general forest habitat, not wetland specific
 Recreation	N			no surface water, private, common forested wetland
 Educational/Scientific Value	N			private, common forested wetland, low diversity
 Uniqueness/Heritage	N			private, common forested wetland, low diversity
 Visual Quality/Aesthetics	Y	5, 6,	X	important screening between quarry and adj uses
ES Endangered Species Habitat	N			none identified
Other				

Notes:

* Refer to backup list of numbered considerations.

NH METHOD FOR THE EVALUATION OF FRESHWATER WETLANDS (revised December, 2015)

Wetland Name/Code: Off Site E+W Evaluation Date: 10-19-21 Evaluator: BCQ

1 – ECOLOGICAL INTEGRITY

Evaluation Questions	Observations & Notes	Answers	Score
1. Are there land uses in the wetland's watershed that could degrade water quality in the wetland?		a. Less than 5% of the watershed has land uses that could degrade water quality. b. 5-10% of the watershed has land uses that could degrade water quality. c. > 10% of the watershed has land uses that could degrade water quality.	10 5 1
2. Is there evidence of fill in the wetland?	historic, logging/woods Rd.	a. Less than 1% b. From 1-3% c. More than 3%	10 5 1
3. What percentage of the wetland has been altered by agricultural activities?		a. Less than 5% b. From 5 to 25% c. More than 25%	10 5 1
4. What percentage of the wetland has been adversely impacted by logging activity within the last 10 years?		a. Less than 1% b. From 1 to 10% c. More than 10%	10 5 1
5. How much human activity is taking place in the wetland (e.g. ATV use, trails, cars, dumping of brush and garbage, etc.)?		a. Low: Few trails in use, little or no traffic, and little or no litter. b. Moderate: Some used trails, roads, litter c. High: Many trails, roads, and/or litter	10 5 1
6. What percentage of the wetland is occupied by invasive plant species?		a. None b. 1-5% of the wetland has invasive species c. > 5% of the wetland has invasive species	10 5 1
7. Are there roads, driveways and/or railroads crossing or adjacent to the wetland or come within 500 ft. of the wetland?		a. No roads, driveways or railroads. within 500 ft. of, or in the wetland b. Roads, driveways, railroads are within 500 ft of the wetland c. Roads, driveways, railroads cross, or are adjacent to, the wetland	10 5 1
8. How much human activity is taking place in the upland within 500 feet of the wetland edge?		a. Less than 5% or no activity b. Human activity evident in up to 25% of the 500 ft zone c. Human activity evident in more than 25% of the 500 ft zone	10 5 1
9. What is the percent of impervious surface within 500 feet of the wetland edge?		a. Less than 3% impervious area within 500 ft of the wetland edge b. 3-10% impervious area within 500 ft of the wetland edge c. Greater than 10% impervious area within 500 ft of the wetland edge	10 5 1
10. Is there a human-made structure that regulates the flow of water through the wetland?		a. No human made structures present upstream of, or in the wetland. b. One or more human made structures present upstream of, or in the wetland but hydrologic modification is slight c. One or more human made structures present upstream of, or in the wetland that severely block or alter surface water hydrology	10 5 1

AVERAGE SCORE FOR ECOLOGICAL INTEGRITY

(Add scores for each question and divide by 10)

$$76/10 = 7.6$$

Appendix D

ACOE Supplemental Information

(Secondary Impacts Checklist, SHPO Inquiry, IPaC Report)





**US Army Corps
of Engineers**®
New England District

**New Hampshire General Permits (GPs)
Appendix B - Corps Secondary Impacts Checklist
(for inland wetland/waterway fill projects in New Hampshire)**

1. Attach any explanations to this checklist. Lack of information could delay a Corps permit determination.
2. All references to “work” include all work associated with the project construction and operation. Work includes filling, clearing, flooding, draining, excavation, dozing, stumping, etc.
3. See GC 5, regarding single and complete projects.
4. Contact the Corps at (978) 318-8832 with any questions.

1. Impaired Waters	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm to determine if there is an impaired water in the vicinity of your work area.*	X	
2. Wetlands	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	X	
2.2 Are there proposed impacts to SAS, special wetlands . Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) DataCheck Tool for information about resources located on the property at https://www2.des.state.nh.us/nhb_datacheck/ . The book Natural Community Systems of New Hampshire also contains specific information about the natural communities found in NH.	X (VP's)	
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	NA, no crossings	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)		X
2.5 The overall project site is more than 40 acres?	X	
2.6 What is the area of the previously filled wetlands?	0	
2.7 What is the area of the proposed fill in wetlands?	2.53 ac.	
2.8 What is the % of previously and proposed fill in wetlands to the overall project site?	0.78%	
3. Wildlife	Yes	No
3.1 Has the NHB & USFWS determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require an NHB ID number & a USFWS IPAC determination.) NHB DataCheck Tool: https://www2.des.state.nh.us/nhb_datacheck/ USFWS IPAC website: https://ecos.fws.gov/ipac/location/index	X	

3.2 Would work occur in any area identified as either “Highest Ranked Habitat in N.H.” or “Highest Ranked Habitat in Ecological Region”? (These areas are colored magenta and green, respectively, on NH Fish and Game’s map, “2010 Highest Ranked Wildlife Habitat by Ecological Condition.”) Map information can be found at: • PDF: https://wildlife.state.nh.us/wildlife/wap-high-rank.html. • Data Mapper: www.granit.unh.edu. • GIS: www.granit.unh.edu/data/downloadfreedata/category/databycategory.html.		X
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?	X	
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?	X	
3.5 Are stream crossings designed in accordance with the GC 21?	N/A	
4. Flooding/Floodplain Values	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?		X
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?	N/A	
5. Historic/Archaeological Resources		
For a minimum, minor or major impact project - a copy of the Request for Project Review (RPR) Form (www.nh.gov/nhdhr/review) with your DES file number shall be sent to the NH Division of Historical Resources as required on Page 11 GC 8(d) of the GP document**	X	

*Although this checklist utilizes state information, its submittal to the Corps is a Federal requirement.

** If your project is not within Federal jurisdiction, coordination with NH DHR is not required under Federal law.



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104
<http://www.fws.gov/newengland>

In Reply Refer To:

October 14, 2021

Consultation Code: 05E1NE00-2022-SLI-0169

Event Code: 05E1NE00-2022-E-00517

Project Name: Lebanaon Crushed Stone Quarry Expansion

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at:

<http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>;

<http://www.towerkill.com>; and

[http://](http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html)

www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

Project Summary

Consultation Code: 05E1NE00-2022-SLI-0169

Event Code: Some(05E1NE00-2022-E-00517)

Project Name: Lebanon Crushed Stone Quarry Expansion

Project Type: ** OTHER **

Project Description: The project involves the long term expansion of the existing Lebanon Crushed Stone Quarry located at 335 Plainfield Road (NH Route 12A) in Lebanon, New Hampshire. The approximately 250 acre expansion area will mined over the next 30-50 years, impacting a total of 2.53 acres of wetland at its full extent.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@43.6153927,-72.31683128228494,14z>



Counties: Grafton County, New Hampshire

Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Clams

NAME	STATUS
Dwarf Wedgemussel <i>Alasmidonta heterodon</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/784	Endangered

Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Please mail the completed form and required material to:

New Hampshire Division of Historical Resources
State Historic Preservation Office
Attention: Review & Compliance
19 Pillsbury Street, Concord, NH 03301-3570

RECEIVED
OCT 18 2021

DHR Use Only	
R&C #	13150
Log In Date	10/18/21
Response Date	10/26/21
Sent Date	10/28/21

**Request for Project Review by the
New Hampshire Division of Historical Resources**

RECEIVED
OCT 18 2021

- ☒ This is a new submittal
☐ This is additional information relating to DHR Review & Compliance (R&C) #:

GENERAL PROJECT INFORMATION

Project Title PIKE Quarry Expansion

Project Location 335 Plainfield Rd

City/Town West Lebanon Tax Map 157 Lot # 7

NH State Plane - Feet Geographic Coordinates: Easting 811825 Northing 407231
(See RPR Instructions and R&C FAQs for guidance.)

Lead Federal Agency and Contact (if applicable) ACOE
(Agency providing funds, licenses, or permits)
Permit Type and Permit or Job Reference # GP

State Agency and Contact (if applicable) NHDES

Permit Type and Permit or Job Reference # Standard Dredge&Fill

APPLICANT INFORMATION

Applicant Name Pike Industries, Inc C/O Jeff Cloutier

Mailing Address 3 Eastgate Park Rd Phone Number 603-273-2199

City Belmont State NH Zip 03220 Email jcloutier@pikeindustries.com

CONTACT PERSON TO RECEIVE RESPONSE

Name/Company Brendan Quigley

Mailing Address 8 Continental Drive Bldg 2 Unit H Phone Number 6036860086

City Exeter State NH Zip 03833 Email bquigley@gesinc.biz

This form is updated periodically. Please download the current form at www.nh.gov/nhdhr/review. Please refer to the Request for Project Review Instructions for direction on completing this form. Submit one copy of this project review form for each project for which review is requested. Include a self-addressed stamped envelope to expedite review response. Project submissions will not be accepted via facsimile or e-mail. This form is required. Review request form must be complete for review to begin. Incomplete forms will be sent back to the applicant without comment. Please be aware that this form may only initiate consultation. For some projects, additional information will be needed to complete the Section 106 review. All items and supporting documentation submitted with a review request, including photographs and publications, will be retained by the DHR as part of its review records. Items to be kept confidential should be clearly identified. For questions regarding the DHR review process and the DHR's role in it, please visit our website at: www.nh.gov/nhdhr/review or contact the R&C Specialist at marika.labash@dncr.nh.gov or 603.271.3558.

PROJECTS CANNOT BE PROCESSED WITHOUT THIS INFORMATION

Project Boundaries and Description

- ☒ Attach the Project Mapping **using EMMIT or relevant portion of a 7.5' USGS Map.** (See RPR Instructions and R&C FAQs for guidance.)
- ☒ Attach a detailed narrative description of the proposed project.
- ☒ Attach a site plan. The site plan should include the project boundaries and areas of proposed excavation.
- ☒ Attach photos of the project area (overview of project location and area adjacent to project location, and specific areas of proposed impacts and disturbances.) (Informative photo captions are requested.)
- ☒ A DHR records search must be conducted to identify properties within or adjacent to the project area. Provide records search results via EMMIT or in **Table 1.** (Blank table forms are available on the DHR website.)
EMMIT or in-house records search conducted on 10/4/21.

Architecture

Are there any buildings, structures (bridges, walls, culverts, etc.) objects, districts or landscapes within the project area? ☐ Yes ☒ No
If no, skip to Archaeology section. If yes, submit all of the following information:

Approximate age(s):

- ☐ Photographs of **each** resource or streetscape located within the project area, with captions, along with a mapped photo key. (Digital photographs are accepted. All photographs must be clear, crisp and focused.)
- ☐ If the project involves rehabilitation, demolition, additions, or alterations to existing buildings or structures, provide additional photographs showing detailed project work locations. (i.e. Detail photo of windows if window replacement is proposed.)

Archaeology

Does the proposed undertaking involve ground-disturbing activity? ☒ Yes ☐ No
If yes, submit all of the following information:

- ☒ Description of current and previous land use and disturbances.
- ☒ Available information concerning known or suspected archaeological resources within the project area (such as cellar holes, wells, foundations, dams, etc.)

Please note that for many projects an architectural and/or archaeological survey or other additional information may be needed to complete the Section 106 process.

DHR Comment/Finding Recommendation This Space for Division of Historical Resources Use Only

- ☐ Insufficient information to initiate review. ☐ Additional information is needed in order to complete review.
- ☐ No Potential to cause Effects ☒ No Historic Properties Affected ☐ No Adverse Effect ☐ Adverse Effect

Comments: _____

If plans change or resources are discovered in the course of this project, you must contact the Division of Historical Resources as required by federal law and regulation.

Authorized Signature: Nicki Miller, DSHO

Date: 10/26/21

Appendix E
New Hampshire Natural Heritage Inquiry
and Correspondence



Memo

NH Natural Heritage Bureau NHB DataCheck Results Letter

Please note: portions of this document are confidential.

Maps and NHB record pages are confidential and should be redacted from public documents.

To: Luke Hurley, Gove Environmental Services, Inc.
8 Continental Drive
Exeter, NH 03833

From: Jessica Bouchard, NH Natural Heritage Bureau

Date: 6/29/2021 (valid until 06/29/2022)

Re: Review by NH Natural Heritage Bureau

Permits: NHDES - Wetland Standard Dredge & Fill - Major, USACE - General Permit

NHB ID: NHB21-2106

Town: West Lebanon

Location: 335 Plainfield Road (NH Route 12A)

Description: The project involves the expansion of the Lebanon Crushed Stone quarry operated by PIKE Industries. The quarry is currently operating under an AOT approval for this expansion of the existing quarry to roughly 250 acres in size over the next 20-30 years. A wetland permit is being sought for approximately 1.55 acres of impact in the expansion area.

cc: Kim Tuttle

As requested, I have searched our database for records of rare species and exemplary natural communities, with the following results.

Comments **NHB:** The 2019 DataCheck Letter comments indicated that greater fringed-gentian could occur in potential habitat areas within the proposed mitigation area, which lies south of the project area. Please provide NHB with additional information about the mitigation area so that we may determine the potential for both of these species to occur (wetland types/hydrology of the area, proposed impacts, current vegetation maintenance regime, canopy cover, etc.).

F&G: Please send description and photos of wetland impact area. Also send an aerial showing limits of disturbance.

Plant species	State ¹	Federal	Notes
greater fringed-gentian (<i>Gentianopsis crinita</i>)	T	--	Vulnerable to shading by invading trees and to disturbances that destroy plants or impede their ability to reproduce (such as mowing in the mid-summer while the plants are in bloom).
Vertebrate species	State ¹	Federal	Notes
Least Bittern (<i>Ixobrychus exilis</i>)	SC	--	Contact the NH Fish & Game Dept (see below).
Marsh Wren (<i>Cistothorus palustris</i>)	--	--	Contact the NH Fish & Game Dept (see below).
Sora (<i>Porzana carolina</i>)	SC	--	Contact the NH Fish & Game Dept (see below).

Memo

NH Natural Heritage Bureau NHB DataCheck Results Letter

Please note: portions of this document are confidential.

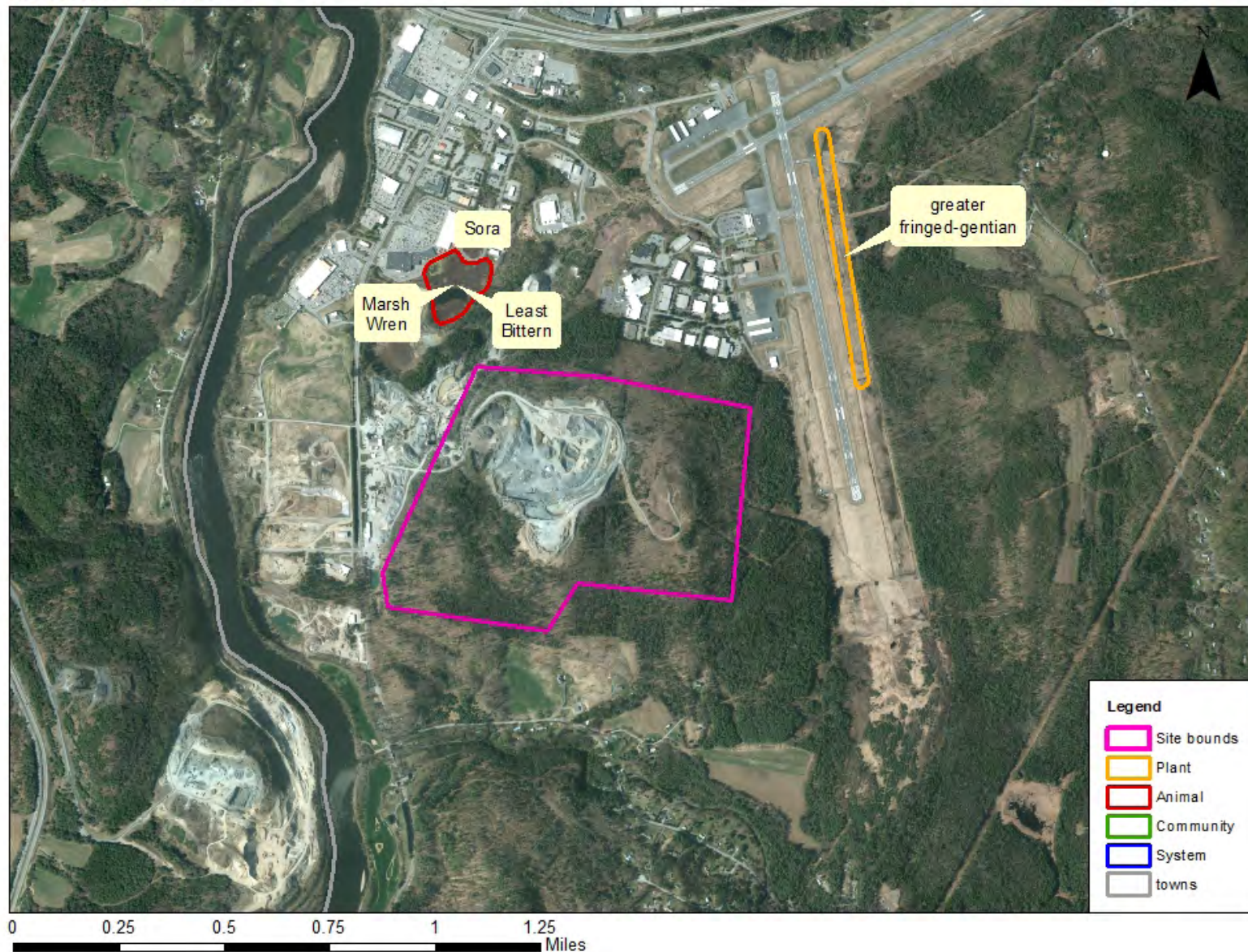
Maps and NHB record pages are confidential and should be redacted from public documents.

¹Codes: "E" = Endangered, "T" = Threatened, "SC" = Special Concern, "--" = an exemplary natural community, or a rare species tracked by NH Natural Heritage that has not yet been added to the official state list. An asterisk (*) indicates that the most recent report for that occurrence was more than 20 years ago.

Contact for all animal reviews: Kim Tuttle, NHF&G, (603) 271-6544.

A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas have never been surveyed, or have only been surveyed for certain species. An on-site survey would provide better information on what species and communities are indeed present.

NHB21-2106



New Hampshire Natural Heritage Bureau - Plant Record

greater fringed-gentian (*Gentianopsis crinita*)

Legal Status

Federal: Not listed
State: Listed Threatened

Conservation Status

Global: Demonstrably widespread, abundant, and secure
State: Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 2009: 50-100 plants estimated, scattered through ca. 1 mile linear area.

General Area: 2009: Mowed access next to airport security fence in both wet meadow and upland.
Associated species include: nodding ladies' tresses (*Spiranthes cernua*), soft rush (*Juncus effusus*), *Phalaris arundinacea* (reed canary grass), purple loosestrife (*Lythrum salicaria*), and various sedges and grasses.

General Comments: 2009: We did not conduct a comprehensive survey for fringed gentian but noted, anecdotally, where it was occurring. It may be in other locations besides those noted on the plan.

Management Comments: 2010: Environmental Assessment in progress for improvements to runways. Potential impacts to this population will be evaluated.

Location

Survey Site Name: Lebanon Airport
Managed By:

County: Grafton

Town(s): Lebanon

Size: 12.2 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2009: Lebanon Airport. Plants found near fence parallel and north of Runway 36.

Dates documented

First reported: 2009-09-14

Last reported: 2009-09-14

New Hampshire Natural Heritage Bureau - Animal Record

Least Bittern (*Ixobrychus exilis*)

Legal Status

Federal: Not listed
State: Special Concern

Conservation Status

Global: Apparently secure but with cause for concern
State: Not ranked (need more information)

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 2020: 4 individuals observed between 6/8 and 8/11, including juveniles. 2019: 4 individuals observed between 6/15 and 8/11. 2 adults and 2 juveniles seen on 7/12. 2018: 2 individuals observed between 5/25 and 8/31. 2017: 2 individuals observed between 6/22 and 8/22, including juvenile, suggesting breeding.

General Area: 2017: Wetlands around pond behind shopping center.

General Comments: --

Management: --

Comments:

Location

Survey Site Name: Cranberry Pond

Managed By:

County: Grafton

Town(s): Lebanon

Size: 11.2 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2017: Wetlands around Cranberry Pond behind Price Chopper grocery store on Route 12A, Lebanon.

Dates documented

First reported: 2017-06-22

Last reported: 2020-08-11

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - Animal Record

Marsh Wren (*Cistothorus palustris*)**Legal Status**

Federal: Not listed
State: Not listed

Conservation Status

Global: Demonstrably widespread, abundant, and secure
State: Not ranked (need more information)

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 2020: 1 observed between 6/28 and 7/6.
General Area: --
General Comments: --
Management: --
Comments:

Location

Survey Site Name: Cranberry Pond
Managed By:

County: Grafton
Town(s): Lebanon
Size: 11.2 acres Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2020: Wetland behind Price Chopper grocery store, Lebanon.

Dates documented

First reported: 2020-06-28 Last reported: 2020-07-06

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

New Hampshire Natural Heritage Bureau - Animal Record

Sora (*Porzana carolina*)**Legal Status**

Federal: Not listed
State: Special Concern

Conservation Status

Global: Demonstrably widespread, abundant, and secure
State: Not ranked (need more information)

Description at this Location

Conservation Rank: Not ranked
Comments on Rank: --

Detailed Description: 2020: 3 observed between 6/12 and 8/11. Calling chick on 6/24.

General Area: --

General Comments: --

Management: --

Comments:

Location

Survey Site Name: Cranberry Pond
Managed By:

County: Grafton

Town(s): Lebanon

Size: 11.2 acres

Elevation:

Precision: Within (but not necessarily restricted to) the area indicated on the map.

Directions: 2020: Wetland behind Price Chopper grocery store.

Dates documented

First reported: 2020-06-21

Last reported: 2020-08-11

The New Hampshire Fish & Game Department has jurisdiction over rare wildlife in New Hampshire. Please contact them at 11 Hazen Drive, Concord, NH 03301 or at (603) 271-2461.

Brendan Quigley

From: Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>
Sent: Monday, October 18, 2021 12:27 PM
To: Brendan Quigley
Cc: Sommer, Lori; Lamb, Amy; Davidson, Tyler
Subject: RE: PIKE Industries West Lebanon Quarry Expansion

Hi Brendan,

Thank you for the confirmation. No additional concerns from NHB.

Jessica Bouchard
Environmental Reviewer / Ecological Information Specialist
New Hampshire Natural Heritage Bureau (NHB)
Division of Forests & Lands
NH Dept. of Natural & Cultural Resources
172 Pembroke Rd
Concord, NH 03301
(603) 271-2834 (office)

[NHB DataCheck Tool](#)

From: Brendan Quigley <bquigley@gesinc.biz>
Sent: Thursday, October 14, 2021 3:14 PM
To: Bouchard, Jessica <Jessica.R.Bouchard@dncr.nh.gov>
Cc: Sommer, Lori <LORI.L.SOMMER@des.nh.gov>; Lamb, Amy <Amy.E.Lamb@dncr.nh.gov>; Davidson, Tyler <Tyler.J.Davidson@des.nh.gov>
Subject: RE: PIKE Industries West Lebanon Quarry Expansion

EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.

Jessica,

As we are now close to submitting the application for this project I would like to circle back and confirm the following, as requested in your email below. The project no longer involves use of the southernmost portion of the property for mitigation which you note is the only suitable area on the property for greater fringed-gentian (I'll add that I agree). There is no disturbance proposed in this area. As discussed at the meeting and in follow up emails with Lori, the proposed form of mitigation will be a contribution to the ARM Fund. If you have any more questions please don't hesitate to contact me.

Thank You,

Brendan Quigley
Wetland Scientist/GIS Specialist

GOVE ENVIRONMENTAL SERVICES, INC.

8 Continental Dr, Bldg 2, Unit H,
Exeter, NH 03833-7507
Ph (603) 778-0644 / Cell (603) 686-0086 / Fax (603) 778-0654

From: Bouchard, Jessica [<mailto:Jessica.R.Bouchard@dn-cr.nh.gov>]
Sent: Monday, July 12, 2021 9:58 AM
To: Brendan Quigley <bquigley@gesinc.biz>; Guerdet, Carolyn <CAROLYN.C.GUERDET@des.nh.gov>; Sommer, Lori <LORI.L.SOMMER@des.nh.gov>; Benedict, Karl <Karl.D.Benedict@des.nh.gov>; Davidson, Tyler <Tyler.J.Davidson@des.nh.gov>; Tilton, Mary Ann <mary.a.tilton@des.nh.gov>; Doperalski, Melissa <Melissa.J.Doperalski@wildlife.nh.gov>; Lamb, Amy <Amy.E.Lamb@dn-cr.nh.gov>; lindsey.e.lefebvre@usace.army.mil
Cc: jcloutier@pikeindustries.com; Jeff.Goodrich@pathwaysconsult.com
Subject: RE: PIKE Industries West Lebanon Quarry Expansion

Hi Brendan,

I was out of the office last week and have been able to quickly review the updated PIKE Industries mitigation pre-app package. As indicated in the 2019 and 2021 NHB DataCheck Letter comments, the only areas of suitable habitat for greater fringed-gentian (*Gentianopsis crinita*) associated with the proposed expansion were within the proposed mitigation area. Based on the updated materials provided, if mitigation will occur in the form of an ARM Fund payment, then NHB does not expect impacts to greater fringed-gentian and has no additional comments. Once the mitigation type is finalized, please update NHB.

Thank you,

Jessica Bouchard
Environmental Reviewer / Ecological Information Specialist
New Hampshire Natural Heritage Bureau (NHB)
Division of Forests & Lands
NH Dept. of Natural & Cultural Resources
172 Pembroke Rd
Concord, NH 03301
(603) 271-2834 (office)

[NHB DataCheck Tool](#)

From: Brendan Quigley <bquigley@gesinc.biz>
Sent: Friday, July 9, 2021 5:25 PM
To: Guerdet, Carolyn <CAROLYN.C.GUERDET@des.nh.gov>; Sommer, Lori <LORI.L.SOMMER@des.nh.gov>; Benedict, Karl <Karl.D.Benedict@des.nh.gov>; Davidson, Tyler <Tyler.J.Davidson@des.nh.gov>; Tilton, Mary Ann <mary.a.tilton@des.nh.gov>; Doperalski, Melissa <Melissa.J.Doperalski@wildlife.nh.gov>; Lamb, Amy <Amy.E.Lamb@dn-cr.nh.gov>; lindsey.e.lefebvre@usace.army.mil; Bouchard, Jessica <Jessica.R.Bouchard@dn-cr.nh.gov>
Cc: jcloutier@pikeindustries.com; Jeff.Goodrich@pathwaysconsult.com
Subject: RE: PIKE Industries West Lebanon Quarry Expansion
Importance: High

EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.

The attached includes a revised NHB report per Amy Lamb. That's the only difference. Please refer to this document for the meeting.

Thank You,

Brendan Quigley

Brendan Quigley

From: Tuttle, Kim <Kim.A.Tuttle@wildlife.nh.gov>
Sent: Tuesday, November 2, 2021 11:32 AM
To: Brendan Quigley; Doperalski, Melissa
Subject: RE: PIKE Industries West Lebanon Quarry Expansion (NHB21-2106)

Brendan,

I have no further comments as the vernal pool mitigation has been approved by the agencies.

Thanks,

Kim Tuttle
Wildlife Biologist
NH Fish and Game
11 Hazen Drive
Concord, NH 03301
603-271-6544

From: Brendan Quigley <bquigley@gesinc.biz>
Sent: Tuesday, November 2, 2021 11:28 AM
To: Tuttle, Kim <Kim.A.Tuttle@wildlife.nh.gov>; Doperalski, Melissa <Melissa.J.Doperalski@wildlife.nh.gov>
Subject: RE: PIKE Industries West Lebanon Quarry Expansion (NHB21-2106)

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Kim,

This application will be submitted tomorrow, just checking on whether Fish and Game has any comments on the project at this point that I could include.

Thank You,

Brendan Quigley
Wetland Scientist/GIS Specialist

GOVE ENVIRONMENTAL SERVICES, INC.
8 Continental Dr, Bldg 2, Unit H,
Exeter, NH 03833-7507
Ph (603) 778-0644 / Cell (603) 686-0086 / Fax (603) 778-0654
bquigley@gesinc.biz

From: Tuttle, Kim [<mailto:Kim.A.Tuttle@wildlife.nh.gov>]
Sent: Friday, October 15, 2021 9:37 AM
To: Brendan Quigley <bquigley@gesinc.biz>; Doperalski, Melissa <Melissa.J.Doperalski@wildlife.nh.gov>
Subject: RE: PIKE Industries West Lebanon Quarry Expansion (NHB21-2106)

Thank you. Melissa and I will take a look at this in the next few days. Please send a reminder email if you don't hear from us by next Weds.

From: Brendan Quigley <bquigley@gesinc.biz>

Sent: Friday, October 15, 2021 9:27 AM

To: Tuttle, Kim <Kim.A.Tuttle@wildlife.nh.gov>; Doperalski, Melissa <Melissa.J.Doperalski@wildlife.nh.gov>

Subject: RE: PIKE Industries West Lebanon Quarry Expansion (NHB21-2106)

EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.

Kim,

Mitigation for vernal pool impacts will be ARM fund calculated using the ACOE guidance. This involves an assessment of the pool as either High, Medium or Low, and a corresponding impact in square feet being added to the ARM calculation (13,000 SF for a low value pool, 39,000 SF for a medium value pool, and 65,000 SF for a high value pool). There is one high and two medium value pools on the site so an additional 143,000 SF (39,000+39,000+65,000) of impact will be added to the ARM calculation which equates to \$742,184. The ARM contribution for combined direct wetland impacts and vernal pool impacts comes out to \$1,315,228. The vernal pool info is in the pre app package that I attached. Mark Kern originally suggested this method but Lindsey Lefebvre confirmed that this method is still used and Lori Followed up with the attached email following the meeting. Let me know if you have any further questions.

Brendan Quigley
Wetland Scientist/GIS Specialist

GOVE ENVIRONMENTAL SERVICES, INC.

8 Continental Dr, Bldg 2, Unit H,

Exeter, NH 03833-7507

Ph (603) 778-0644 / Cell (603) 686-0086 / Fax (603) 778-0654

bquigley@gesinc.biz

From: Tuttle, Kim [<mailto:Kim.A.Tuttle@wildlife.nh.gov>]

Sent: Friday, October 15, 2021 8:26 AM

To: Brendan Quigley <bquigley@gesinc.biz>; Doperalski, Melissa <Melissa.J.Doperalski@wildlife.nh.gov>

Subject: RE: PIKE Industries West Lebanon Quarry Expansion

Brendan,

What did NHDES and EPA say about the impacts to and mitigation for the loss of the vernal pools? Please put the NHB number in the subject line of all emails related to this job.

Thanks,

Kim Tuttle
Wildlife Biologist
NH Fish and Game
11 Hazen Drive
Concord, NH 03301
603-271-6544

From: Brendan Quigley <bquigley@gesinc.biz>
Sent: Thursday, October 14, 2021 3:56 PM
To: Tuttle, Kim <Kim.A.Tuttle@wildlife.nh.gov>; Doperalski, Melissa <Melissa.J.Doperalski@wildlife.nh.gov>
Subject: PIKE Industries West Lebanon Quarry Expansion

EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.

Kim,

A pre-application meeting was held for this project back in June. It's an expansion of the PIKE quarry in West Lebanon. I've attached the pre-application package which includes the NHB report and other information. One difference is that after re-delineating and surveying the wetlands this summer the total impacts have gone up by about 1 acre (2.53 acres total). Proposed impacts include 3 vernal pools. There are several bird species listed as being observed in the ponds and wetland behind the adjacent shopping center. There is nothing like this sort of habitat in the project area which is forested (mostly hemlock) or recently cleared and partially already mined (see aerial photos in package). One important note is that this project has already received and is operating under an AOT permit but will need F&G comments for the wetland application which is being prepared for submittal now. The project is pretty straight forward. The existing quarry will be expanded over the next 30-50 years. Impacts to two of the wetlands (I and J on the plan) will be impacted in the near term. Wetland A will be impacted sometime far in the future. Please take a look at the attached materials and let me know if you need any more info or have any comments.

Thank You,

Brendan Quigley
Wetland Scientist/GIS Specialist

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8 Continental Dr, Bldg 2, Unit H,
Exeter, NH 03833-7507
Ph (603) 778-0644 / Cell (603) 686-0086 / Fax (603) 778-0654
bquigley@gesinc.biz

Appendix F
Regulatory & Mitigation Coordination
Documentation



PIKE Industries West Lebanon Quarry Expansion Pre-App Meeting

5/30/19

ATTENDING: Lori Sommer, Mark Kern, Seta Detzel, Melissa Doperalski, Amy Lamb, Chris Marron (ACOE for Lindsey), Ridge Mauck

Brendan Quigley (GES). Jeff Goodrich (Pathways), Scott Williams (Pathways), Jeff Cloutier (PIKE)

Ridge/Lori: Phasing and Timing?

Response: Wetlands I and J first, A may be years away

Mark: A is the most valuable (I may have recorded this incorrectly as J had the greatest number of egg masses and Mark refers to A as low or med later on)

Ridge: AOT does not require internal drainage

Lori: Justification for impacts will be important

Mark: explanation of the ACOE vernal pool mitigation guidance, Preservation of 1 pool for Low Value, 3 for Medium Value, and 5 for High value

Lori: Impacts in A should be counted as either stream or wetland for mitigation

Mark: creation or preservation in area proposed is not acceptable

Lori: Talk to Con-Com

Jeff G: Mark Goodwin (CC staff) and Jim Kennedy (involved in VP restoration in Lebanon) have expressed interest in Trues Brook Rd preservation.

Mark: Maybe preservation in this area could be part of a mitigation package

Lori: talk with upper valley land trust and LRAC

Chris: project cannot be segmented

Response: It won't be, will be one permit with renewal and updates like was done in Hooksett quarry

Lori: explanation of Interim drainage should be in App, monitoring of [downstream] Trues Brook wetlands will be required.

Group: interest in site visit

Brendan Quigley

From: Kern, Mark <kern.mark@epa.gov>
Sent: Tuesday, May 28, 2019 2:19 PM
To: Brendan Quigley; RES: DES - HZN - Room 214; Sommer, Lori; Detzel, Seta; Lindsey Lefebvre; Doperalski, Melissa; Lamb, Amy; Mauck, Ridge; Tilton, Mary Ann; jeff.goodrich@pathwaysconsult.com; scott.williams@pathwaysconsult.com; rod.finley@pathwaysconsult.com; sarah.finley@pathwaysconsult.com; jcloutier@pikeindustries.com
Subject: RE: Pike Industries Expansion

Hi Brendan and others,

Thanks for the information.

I would encourage you and others to come to the meeting with plan B and C for mitigation as well. The current proposed mitigation plan in my judgment is really poor and it would not come close to complying with the Mitigation Rule.

The 29-acre site is adjacent to the quarry site on one side and a road on the other side, plus other nearby development. Thus, it is small, isolated, and not a sustainable mitigation site long-term. Further, the creation effort makes little ecological sense. Any preservation should be larger, more valuable, protect vernal pools, and be adjacent to other protected lands.

It appears that you are filling 3 vernal pools (VPs). One of the VPs would be a high value VP, while the other two would be medium value pools. So, if you were finding VPs to preserve, you would need to protect 11 VPs in a large and sustainable location on the landscape. If you were paying into the ILF program, you would need to add 143,000 s.f. to your other totals (67,774 sf), or about 210,000 sf. of wetland impact.

I hope that these comments are helpful and save us time and effort at the pre-application meeting.

Thanks, Mark

From: Brendan Quigley <bquigley@gesinc.biz>
Sent: Thursday, May 23, 2019 1:21 PM
To: RES: DES - HZN - Room 214 <Room214@des.nh.gov>; Sommer, Lori <Lori.Sommer@des.nh.gov>; Detzel, Seta <Seta.Detzel@des.nh.gov>; Kern, Mark <kern.mark@epa.gov>; Lindsey Lefebvre <Lindsey.E.Lefebvre@usace.army.mil>; Doperalski, Melissa <Melissa.Doperalski@wildlife.nh.gov>; Lamb, Amy <Amy.Lamb@dncr.nh.gov>; Mauck, Ridge <Ridgely.Mauck@des.nh.gov>; Tilton, Mary Ann <MaryAnn.Tilton@des.nh.gov>; jeff.goodrich@pathwaysconsult.com; scott.williams@pathwaysconsult.com; rod.finley@pathwaysconsult.com; sarah.finley@pathwaysconsult.com; jcloutier@pikeindustries.com
Subject: RE: Pike Industries Expansion

Hello All,

I have attached the required materials for this pre-app meeting next week. Please let me know if you have trouble getting the information or have any other questions. We will be bringing full size plans for the discussion.

Thank You,

PIKE Industries West Lebanon Quarry Expansion Pre-App Meeting #2

7/12/21

Meeting Notes

ATTENDING:

Lori Sommer (LS), NHDES; Karl Benedict (KB), NHDES; Tyler Davidson (TD), NHDES; Lindsey Lefebvre (LL), USACOE

Jeff Cloutier (JC), PIKE Industries; Jeff Goodrich (JG), Pathways Consulting. Cory Gucwa (CG), Pike Industries

The following Notes were compiled from Brendan Quigley's and Jeff Goodrich's notes from the meeting held on 7/12/21. Several follow up items are included at the end.

BQ: Project update

- project has remained the same approx. 1.55 ac wetland impact including 3 verbal pools
- impacts may change because wetlands are being reflagged this year
- wetland and VP Creation on site by Trues Brook Road not well received during first pre-app meeting
- Mark Kern presented guidelines from Corps for preservation = 11 VP for preservation
- 2 years...looked at number of properties
 - Nothing included VP to preserve
 - Exceedingly difficult to do preservation with VPs
- wetland and VP creation is no longer proposed for mitigation
- ARM is proposed mitigation for VP's and direct impacts
 - Question for LL about calculating ARM mitigation for VP impacts, does not appear in most recent ACOE mitigation SOP
 - Per Mark Kern in 2019, extra theoretical direct impact depending on pool value (13,000-39,000-65,000 SF?)
 - We are looking to confirm this
- New NHB report was issued
 - Issued 6/29/21 revised by NHB immediately after to remove one plant species
 - New NHB report lists 1 plant by airport and 3 bird species ponds near shopping center
- Package includes figures showing 100' and 750' VP buffers

LL: Values on VPs?

- BQ: ACOE VP evaluation was done and indicates 2 *moderate* and 1 *high*,
- based on character of buffers, not a lot of activity, the "High" value has low egg mass counts
- LL: # egg masses not relevant because it could change next year or in 5 years.

LS: Phasing?

- BQ: 30 years...but short term 5 years, wetlands need to be impacted for storage of overburden
- BQ: Will clarify in application

JC: Wetlands I and J are smaller and require near term impact. The one w/tail (A) is out quite a ways

TD: Delineation in June?

- BQ: Yes, need to survey

TD: spell out temporary impacts, CWS stamp

TD: Coordination with F&G as needed

KB: Timing...10 years, simple extension? Trying to see how to write permit with conditions and updates

- BQ: Law allows indefinite with 3 or 5 year updates based on expansion at Hooksett, to mirror AoT
- BQ: use hookset as template for permit with conditions and updates
- BQ: Includes monitoring for wetlands outside limits.
- LS: Put XIV-b.A [ongoing mining permit allowance] language in chat.

LS: Conservation Commission?

- BQ: JG coordinated through planning Mark Goodwin
- JG: Spoke about liaising through Mark Goodwin at planning department and Jim Kennedy
- BQ: VPs presented real challenge
- BQ: At point where Pike needs to move dirt and necessitate first impacts

BQ: alternatives analysis

- BQ: will include something on off site, but overwhelmingly a facility of this type not going to be moved, so off site alternatives not viable
- BQ: application will review AoT grading and internally drained with excavation per active permit, not a lot of detail for phasing or alternatives pretty straight forward.
- TD: makes sense
- KB: use as finding, describe what you said
- BQ: Will include Justification for expansion knowing that material is there geologically (Hooksett example)

BQ: Question for LL: calculation for VP mitigation same as 2016?

- LL: Yes, even though not in new guidance.

BQ: Question for LS: Wetland A does not discharge as a stream. Has scour in areas, may be an intermittent stream where it crosses the property. Count as wetland?

- LS: Think that makes sense.

BQ: Public hearing?

- TD: Significant environmental impact, but need to confirm

LS: Timing?

- BQ: Survey wetlands soon, full steam ahead, submitting application in August

TD: Contact me with questions

VIA EMAIL CORRESPONDENCE ON 7/14/21

- Lori Sommer confirmed that the ARM mitigation for vernal pools would be calculated by adding an additional 143,000 SF towards the impact (39,000+39,000+65,000)
- Tyler Davidson confirmed that expect that a public hearing would likely be held for this project, and the coordination/scheduling would commence once the application is received

Brendan Quigley

From: Sommer, Lori <LORI.L.SOMMER@des.nh.gov>
Sent: Wednesday, July 14, 2021 8:46 AM
To: Brendan Quigley
Cc: Davidson, Tyler; Benedict, Karl
Subject: RE: PIKE Industries West Lebanon Quarry Expansion

Brendan,
For these 3 pools we would be adding an additional 143,000 sqft towards the impact (39,000+39,000+65,000). If you want to include that in the meeting minutes that would be great. Thanks,

Lori

From: Brendan Quigley <bquigley@gesinc.biz>
Sent: Friday, July 9, 2021 5:25 PM
To: Guerdet, Carolyn <CAROLYN.C.GUERDET@des.nh.gov>; Sommer, Lori <LORI.L.SOMMER@des.nh.gov>; Benedict, Karl <Karl.D.Benedict@des.nh.gov>; Davidson, Tyler <Tyler.J.Davidson@des.nh.gov>; Tilton, Mary Ann <mary.a.tilton@des.nh.gov>; Doperalski, Melissa <Melissa.J.Doperalski@wildlife.nh.gov>; Lamb, Amy <Amy.E.Lamb@dn-cr.nh.gov>; lindsey.e.lefebvre@usace.army.mil; Bouchard, Jessica <Jessica.R.Bouchard@dn-cr.nh.gov>
Cc: jcloutier@pikeindustries.com; Jeff.Goodrich@pathwaysconsult.com
Subject: RE: PIKE Industries West Lebanon Quarry Expansion
Importance: High

EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.

The attached includes a revised NHB report per Amy Lamb. That's the only difference. Please refer to this document for the meeting.

Thank You,

Brendan Quigley
Wetland Scientist/GIS Specialist

GOVE ENVIRONMENTAL SERVICES, INC.

8 Continental Dr, Bldg 2, Unit H,
Exeter, NH 03833-7507
Ph (603) 778-0644 / Cell (603) 686-0086 / Fax (603) 778-0654
bquigley@gesinc.biz

From: Brendan Quigley
Sent: Friday, July 9, 2021 3:28 PM
To: Guerdet, Carolyn <CAROLYN.C.GUERDET@des.nh.gov>; Sommer, Lori <LORI.L.SOMMER@des.nh.gov>; Benedict, Karl <Karl.D.Benedict@des.nh.gov>; Davidson, Tyler <Tyler.J.Davidson@des.nh.gov>; Tilton, Mary Ann <mary.a.tilton@des.nh.gov>; Doperalski, Melissa <Melissa.J.Doperalski@wildlife.nh.gov>; Lamb, Amy <Amy.E.Lamb@dn-cr.nh.gov>; lindsey.e.lefebvre@usace.army.mil; Bouchard, Jessica <Jessica.R.Bouchard@dn-cr.nh.gov>

2021 VALUES

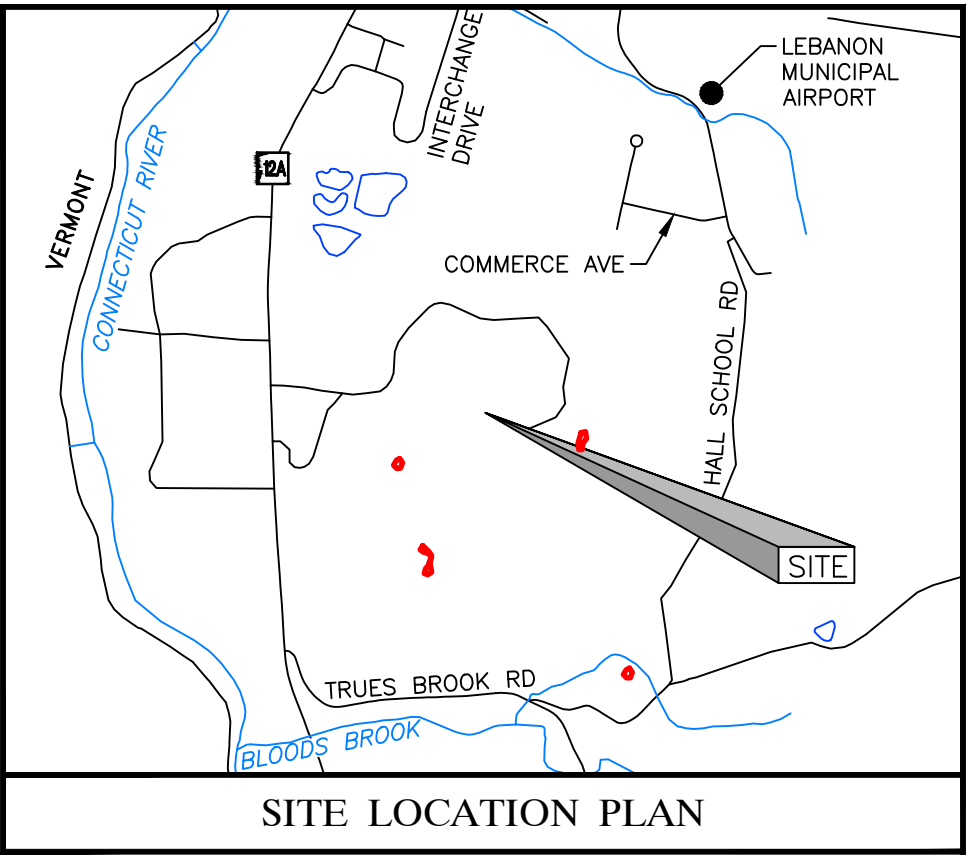
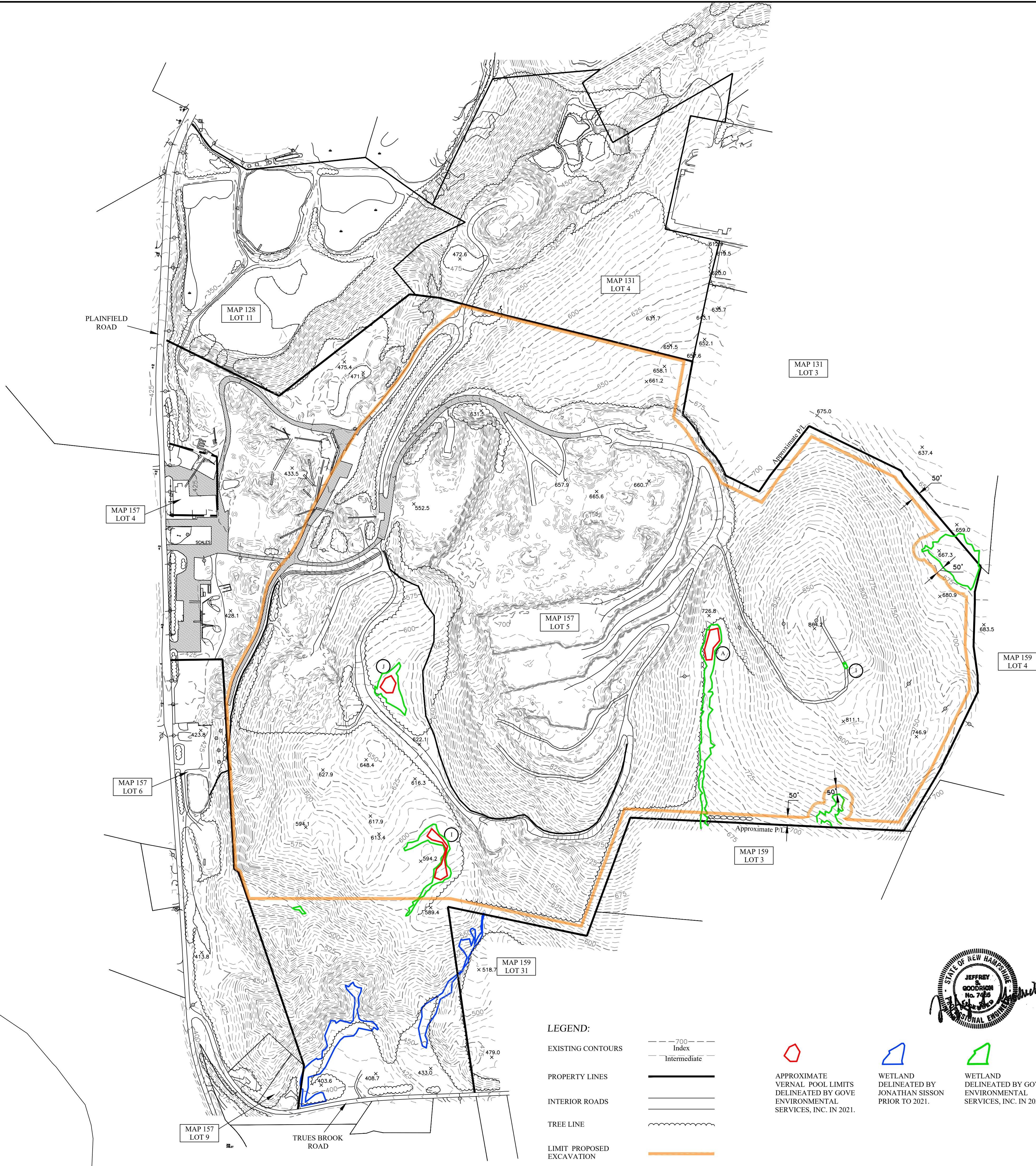
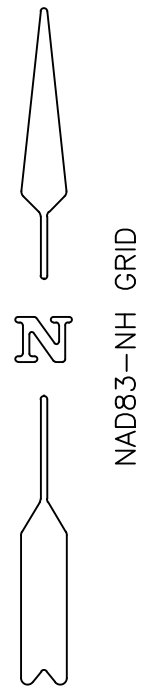
TOWN	Equalized Value per Acre B=437 T=43,532	NHDES AQUATIC RESOURCE MITIGATION WETLAND PAYMENT CALCULATION ***INSERT AMOUNTS IN YELLOW CELLS		
Acworth	1507	Direct Wetland Impacts		
Albany	916			
Alexandria	2808			
Allenstown	9380			
Alstead	2805	INSERT SQ FT OF IMPACT	Square feet of impact =	110411.00
Alton	22495			43560.00
Amherst	31637		Acres of impact =	2.5347
Andover	4451			
Antrim	4259			
Ashland	14043		2 Determine acreage of wetland const	
Atkinson	43532		Forested wetlands:	3.8020
Auburn	21507		Tidal wetlands:	7.6041
Barnstead	8766		All other areas:	3.8020
Barrington	12457			
Bartlett	8797			
Bath	1723		3 Wetland construction cost:	
Bean's Grant	437		Forested wetlands:	\$381,897.09
Bean's Purchase	437		Tidal Wetlands:	\$763,794.17
Bedford	43532		All other areas:	\$381,897.09
Belmont	13067			
Bennington	4901			
Benton	437		4 Land acquisition cost (See land valu	
Berlin	1572	INSERT LAND VALUE FROM TABLE WHICH APPEARS TO THE LEFT. (Insert the amount do not copy and paste.)	Town land value:	25155
Bethlehem	1050		Forested wetlands:	\$95,640.11
Boscawen	7298		Tidal wetlands:	\$191,280.21
Bow	19830		All other areas:	\$95,640.11
Bradford	4530			
Brentwood	20958		5 Construction + land costs:	
Bridgewater	16357		Forested wetland:	\$477,537.19
Bristol	14453		Tidal wetlands:	\$955,074.39
Brookfield	2748		All other areas:	\$477,537.19
Brookline	20745			
Cambridge	437		6 DES Administrative cost:	
Campton	4509		Forested wetlands:	\$95,507.44
Canaan	4705		Tidal wetlands:	\$191,014.88
Candia	11533		All other areas:	\$95,507.44
Canterbury	3903			
Carroll	2798	*****	TOTAL ARM PAYMENT*****	
Center Harbor	34922		Forested wetlands:	\$573,044.63

2021 VALUES

TOWN	Equalized Value per Acre B=437 T=43,532	NHDES AQUATIC RESOURCE MITIGATION WETLAND PAYMENT CALCULATION ***INSERT AMOUNTS IN YELLOW CELLS	
Acworth	1507	Vernal Pool Impacts	
Albany	916		
Alexandria	2808		
Allenstown	9380		
Alstead	2805	1	Convert square feet of impact to acres
Alton	22495	INSERT SQ FT OF IMPACT	Square feet of impact = 143000.00
Amherst	31637		43560.00
Andover	4451		Acres of impact = 3.2828
Antrim	4259		
Ashland	14043	2	Determine acreage of wetland construction
Atkinson	43532		Forested wetlands: 4.9242
Auburn	21507		Tidal wetlands: 9.8485
Barnstead	8766		All other areas: 4.9242
Barrington	12457		
Bartlett	8797		
Bath	1723	3	Wetland construction cost:
Bean's Grant	437		Forested wetlands: \$494,618.14
Bean's Purchase	437		Tidal Wetlands: \$989,236.28
Bedford	43532		All other areas: \$494,618.14
Belmont	13067		
Bennington	4901		
Benton	437	4	Land acquisition cost (See land value)
Berlin	1572	INSERT LAND VALUE FROM TABLE WHICH APPEARS TO THE LEFT. (Insert the amount do not copy and paste.)	Town land value: 25155
Bethlehem	1050		Forested wetlands: \$123,869.32
Boscawen	7298		Tidal wetlands: \$247,738.64
Bow	19830		All other areas: \$123,869.32
Bradford	4530		
Brentwood	20958	5	Construction + land costs:
Bridgewater	16357		Forested wetland: \$618,487.46
Bristol	14453		Tidal wetlands: \$1,236,974.92
Brookfield	2748		All other areas: \$618,487.46
Brookline	20745		
Cambridge	437	6	DES Administrative cost:
Campton	4509		Forested wetlands: \$123,697.49
Canaan	4705		Tidal wetlands: \$247,394.98
Candia	11533		All other areas: \$123,697.49
Canterbury	3903		
Carroll	2798	*****	TOTAL ARM PAYMENT*****
Center Harbor	34922		Forested wetlands: \$742,184.95

Appendix G
Plans (under separate cover)





- GENERAL NOTES:
- TOPOGRAPHIC AND BASE PLAN INFORMATION WAS DERIVED FROM PLANS PREPARED BY ONE SOURCE PROPERTIES & PERMITTING, LLC (ONE SOURCE), OCTOBER 2019 FOR ALTERATION OF TERRAIN (AOT) PERMIT #0709A.
 - ONE SOURCE PROPERTY LINES WERE TAKEN FROM THE CITY OF LEBANON GIS DATABASE AND DO NOT CONSTITUTE A BOUNDARY SURVEY.
 - WE UNDERSTAND THAT ONE SOURCE TOPOGRAPHY WAS DEVELOPED IN 2018 USING DRONE TECHNOLOGY TO DEVELOP FIVE FOOT CONTOURS.
 - THESE PLANS ARE NOT INTENDED TO SUPERCEDE OR MODIFY THE AOT PERMIT OR PLANS EXCEPT TO ALTER GRADING TO AVOID WETLAND IMPACTS.
 - JONATHAN SISSON, CWS #235, PROVIDED WETLAND DELINEATIONS FOR ONE SOURCE PLANS PRIOR TO 2021.
 - GOVE ENVIRONMENTAL SERVICES, INC. DELINEATED WETLANDS AS SHOWN ON THESE PLANS IN JULY AND AUGUST 2021 UTILIZING THE FOLLOWING STANDARDS:
 - REGIONAL SUPPLEMENT OF THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGIONAL, (VERSION 2.0) JANUARY 2021, U.S. ARMY CORPS OF ENGINEERS.
 - NEW ENGLAND HYDRIC SOILS TECHNICAL COMMITTEE. 2019 VERSION 4, FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND. NEW ENGLAND INTERSTATE WATER POLLUTION CONTROL COMMISSION, LOWELL, MA.
 - U.S. ARMY CORPS OF ENGINEERS 2018 NATIONAL WETLAND PLANT LIST, VERSION 3.4.
 - CLASSIFICATION OF WETLANDS AND DEEPWATER HABITATS OF THE UNITED STATES. USFW MANUAL FWS/OBS-79/31 (1979).
 - PATHWAYS CONSULTING, LLC LOCATED WETLAND FLAGS PLACED BY GOVE ENVIRONMENTAL SERVICES, INC. IN SEPTEMBER 2021 BASED ON THE NEW HAMPSHIRE STATE PLANE GRID NAD83 (SURVEY FEET) BY GPS OBSERVATION AND THE NORTH AMERICAN VERTICAL DATUM 1988 (NAV88) FROM GPS OBSERVATION.



LEGEND:

EXISTING CONTOURS
—700—
Index
Intermediate

PROPERTY LINES
—

INTERIOR ROADS
—

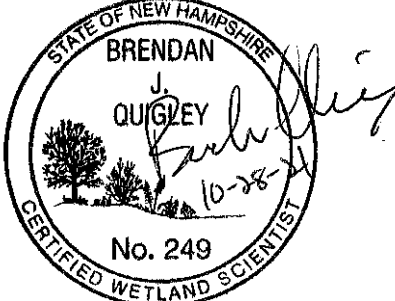
TREE LINE
~

LIMIT PROPOSED EXCAVATION
—

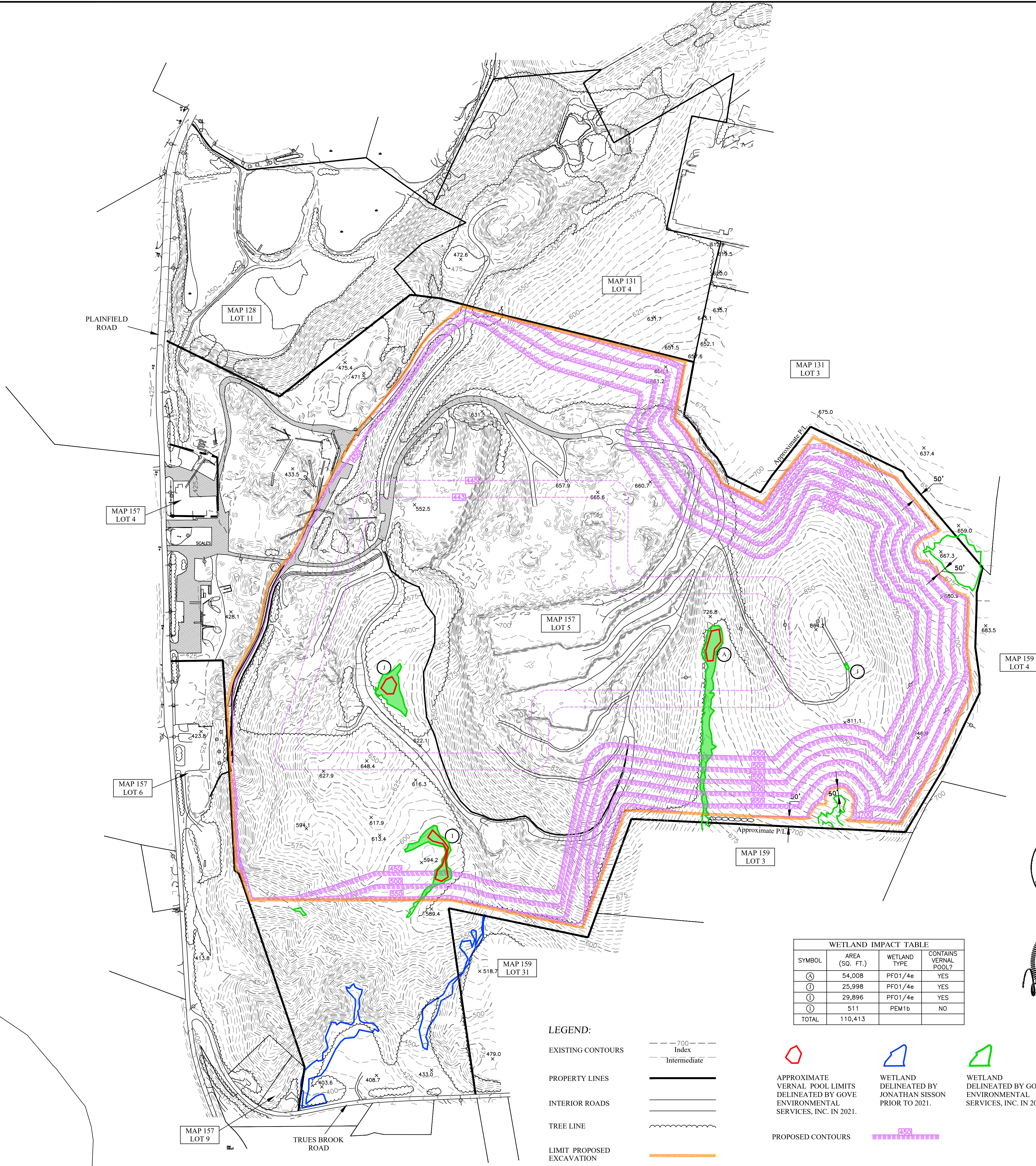
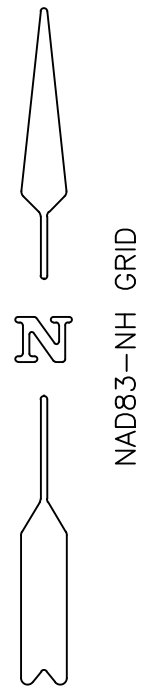
APPROXIMATE VERNAL POOL LIMITS
DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. IN 2021.

WETLAND DELINEATED BY JONATHAN SISSON PRIOR TO 2021.

WETLAND DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. IN 2021.



REV. NO.	DATE	DESCRIPTION	MADE BY	CHKD BY	APP'D BY
EXISTING CONDITIONS PLAN PIKE INDUSTRIES, INC. LEBANON CRUSHED STONE QUARRY NH ROUTE 12A, WEST LEBANON, NEW HAMPSHIRE					
PATHWAYS CONSULTING, LLC					
240 MECHANIC STREET, SUITE 100 LEBANON, NEW HAMPSHIRE 03766 (603) 448-2200					
SHEET: 1 OF 2 SCALE: AS SHOWN DES. BY: DRAWN BY: DPM CHKD. BY: JSG DATE: 10/28/21 PROJ.NO. 11806					

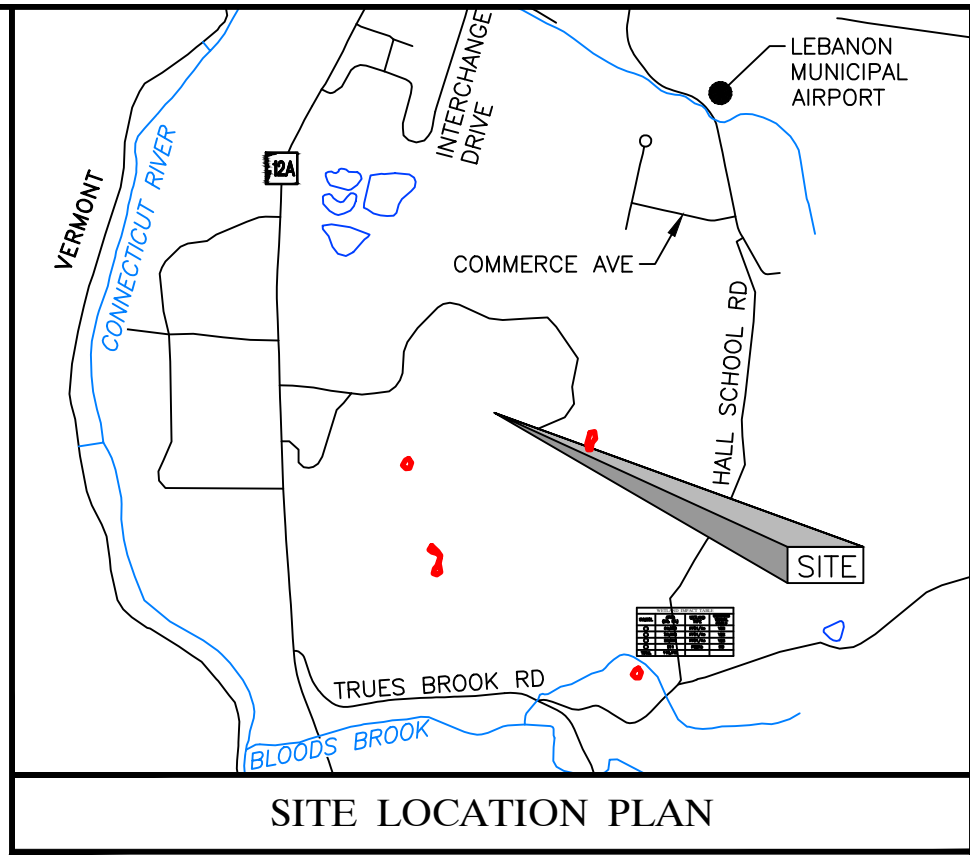
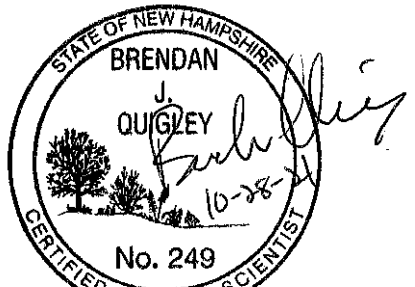


LEGEND:

- EXISTING CONTOURS
PROPERTY LINES
INTERIOR ROADS
TREE LINE
LIMIT PROPOSED EXCAVATION

WETLAND IMPACT TABLE			
SYMBOL	AREA (SQ. FT.)	WETLAND TYPE	CONTAINS VERNAL POOL?
Ⓐ	54,008	PFO1/4e	YES
Ⓐ	25,998	PFO1/4e	YES
Ⓐ	29,896	PFO1/4e	YES
Ⓐ	511	PEM1b	NO
TOTAL	110,413		

- APPROXIMATE VERNAL POOL LIMITS DELINEATED BY JONATHAN SISON SERVICES, INC. IN 2021.
- WETLAND DELINEATED BY JONATHAN SISON PRIOR TO 2021.
- WETLAND DELINEATED BY GOVE ENVIRONMENTAL SERVICES, INC. IN 2021.
- PROPOSED WETLAND IMPACT



GENERAL NOTES:

- THE FINAL GRADING/RECLAMATION PLAN SHALL BE PERFORMED IN ACCORDANCE WITH PLANS PREPARED BY ONE SOURCE PROPERTIES & PERMITTING, LLC, DATED OCTOBER 25, 2019 FOR ALTERATION OF TERRAIN (AOT) PERMIT #0709A WITH THE EXCEPTION OF REVISED GRADING SHOWN ON THIS SHEET TO AVOID WETLAND IMPACTS.
- GRADING MODIFICATIONS SINCE THE AOT PERMIT ON THE EASTERN AND SOUTHEASTERN PORTION OF THE SITE ARE INTENDED TO MAINTAIN A MINIMUM SETBACK OF 50 FEET FROM WETLANDS.
- ALL SITE MODIFICATIONS SHALL COMPLY WITH AOT PERMIT REQUIREMENTS AND THE PROVISIONS OF OTHER PERMITS THAT MAY EXIST.

CONSTRUCTION SEQUENCE FROM AOT #0709A:

- CUT AND CLEAR TREES AS NECESSARY TO EXPAND THE EXISTING QUARRY. EXISTING VEGETATION WILL BE MAINTAINED UNTIL SUCH TIME THAT EXPANSION IS REQUIRED.
- INSTALL OTHER TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES AS NECESSARY PRIOR TO FURTHER EARTH MOVING OPERATIONS.
- MAINTAIN EXISTING BMPs RELATED TO THE EXISTING QUARRY SITE. AS NECESSARY, CONSTRUCT RETENTION/INFILTRATION BASIN(S) OR OTHER DEVICES PRIOR TO OTHER EARTH MOVING ACTIVITIES. DITCHES AND SWALES SHALL BE STABILIZED PRIOR TO DIRECTING RUNOFF TO THEM. STABILIZED MEANS THAT A MINIMUM 85 PERCENT VEGETATED GROWTH HAS BEEN ESTABLISHED, A MINIMUM OF 3 INCHES OF NON-EROSIVE MATERIAL SUCH AS STONE OR RIPRAP HAS BEEN INSTALLED, OR EROSION CONTROL BLANKETS HAVE BEEN PROPERLY INSTALLED.
- GRUB SITE AS NEEDED.
- STOCKPILE TOPSOIL AND STUMPS AND INSTALL ASSOCIATED EROSION AND SEDIMENT CONTROL DEVICES AS NECESSARY.
- EXCAVATE TO PLAN GRADE TO INSURE THAT RUNOFF IS DIRECTED AS INDICATED ON THE INTERIM DRAINAGE PLAN SHEET (AOT PLAN SHEET 2), AND BY LONG-TERM MANAGED QUARRY OPERATIONS, TRANSITIONED TO BEING CONFINED TO THE EXCAVATION SITE PLAN (AOT PLAN SHEET 3 WITH GRADING MODIFICATIONS AS SHOWN ON THIS PLAN). THIS INCLUDES SITE DEVELOPMENT, EXCAVATION, AND FINAL GRADING. THE LATTER WILL PROVIDE A MEANS BY WHICH RUNOFF WILL INFILTRATE WITHIN THE SUBGRILLED FLOOR SURFACE, AND OTHERWISE COLLECT AND BE CONFINED TO THE QUARRY SITE.
- INSPECT AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES DURING THE LIFE OF THE PROJECT. REMOVE TRAPPED SEDIMENT FROM COLLECTOR DEVICES AS NEEDED.
- QUARRY FACES WILL BE ROUGHLY 12 VERTICAL TO 1 HORIZONTAL. FINISHED QUARRY AREAS WILL BE BENCHES OR SCALED.
- STABILIZE SLOPES ALONG THE PERIMETER OF THE QUARRY SITE, AS NEEDED. LEDGE CUTS WHICH ARE VOID OF EARTH MATERIALS ARE CONSIDERED STABILIZED SURFACES SINCE THEY HAVE NEGLIGIBLE EROSION POTENTIAL. STABILIZE ALL PERIPHERAL AREAS USING RECLAMATION GUIDELINES FOUND ON AOT PLAN SHEET 4 OF 4.
- REMOVE TEMPORARY EROSION CONTROL DEVICES AS PERMANENT SITE STABILIZATION MEASURES BECOME ESTABLISHED.
- INSURE EXISTING, PAVED HAUL ROAD AND ENTRANCE TO THE SITE ARE PROPERLY MAINTAINED AND SWEPT TO PREVENT OFF-SITE TRACKING BY VEHICLES AND EQUIPMENT.

EROSION CONTROL SPECIFICATIONS FROM AOT #0709A:

- "NEW HAMPSHIRE STORMWATER MANUAL," VOLUMES 1, 2, AND 3 (DECEMBER 2008), PUBLISHED BY THE NH DEPARTMENT OF ENVIRONMENTAL SERVICES, WILL BE USED TO PROVIDE TECHNICAL GUIDELINES FOR PLANNING AND DESIGNING SOIL EROSION AND SEDIMENT CONTROL MEASURES.



REV. NO.	DATE	DESCRIPTION	MADE BY	CHKD BY	APP'D BY
PROPOSED IMPACT PLAN PIKE INDUSTRIES, INC. LEBANON CRUSHED STONE QUARRY NH ROUTE 12A, WEST LEBANON, NEW HAMPSHIRE					
PATHWAYS CONSULTING, LLC					
240 MECHANIC STREET, SUITE 100 LEBANON, NEW HAMPSHIRE 03766 (603) 448-2200					
SHEET: 2 OF 2 SCALE: AS SHOWN DES. BY: DRAWN BY: DPM CHKD. BY: JSG DATE: 10/28/21 PROJ. NO. 11806					

**Agenda
Conservation Commission
November 18, 2021**

**Agenda Item #4A
Study Items**

Lebanon Open Space Plan – Review and Adoption



LEBANON OPEN SPACE PLAN

a strategy for integrating and advancing efforts to conserve the city's ecological integrity



December 2021

CREDITS

This Open Space Plan is dedicated to the network of individuals, groups, and organizations that were inspired by their natural surroundings to engage in efforts to support and maintain the natural systems that are the lifeline for the ecological integrity of the natural landscape of Lebanon – an extensive list that includes:

- 🔄 Residents and private landowners who share, protect and maintain properties and trails;
- 🔄 Volunteers serving on various boards and committees;
- 🔄 Decision-makers who provide support;
- 🔄 Public and private organizations and entities whose primary mission is to support the stewardship of natural resources and conservation lands; and
- 🔄 Natural resource professionals.

Collectively, they provide **an impressive stewardship network that Lebanon is extremely fortunate to have.**



Photo: J Halstead
Cover Photo: Keith Garland

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OPEN SPACE is undeveloped land containing natural resource features that collectively interact to provide healthy and vibrant ecological systems that are worthy of conservation.



In every walk with Nature one receives far more than he seeks.

~John Muir

LEBANON OPEN SPACE PLAN

a strategy for integrating and advancing efforts to conserve the city’s ecological integrity

EXECUTIVE SUMMARY

Lebanon is – and has long been – engaging in actions to manage, conserve and preserve open space. These efforts include policy adoption, regulatory implementation, land acquisition and protection, and conservation property stewardship. Those efforts, combined with our goals and objectives for future actions, including implementation tools and resources, constitute the Lebanon Conservation Program (LCP). The LCP interacts with both the Lebanon Master Plan and the Lebanon Natural Resource Inventory.

The **purpose** of this Open Space Plan is to:

- ↻ Increase the visibility of the Lebanon Conservation Program;
- ↻ Articulate the city’s long-term vision for land conservation;
- ↻ Attract additional support for conservation efforts;
- ↻ Set open space benchmarks that can be used to measure progress; and
- ↻ Provide useful information on desirable open space characteristics, and on the tools and process for managing the ecological integrity of open space.

This Open Space Plan begins with a description of the community setting, a reference to the public support for open space, and the statement of purpose, goals, and a vision of this plan. Within Section Two, it further articulates the importance of open space, the value open space provides, and concerns regarding the loss of open space. Section Three proposes an open space prioritization methodology, with Section Four proposing strategies for future conservation efforts. The addendum includes maps and descriptive information for many of the existing conservation properties in Lebanon.

The City of Lebanon continues to benefit from a network of individuals, groups, and organizations who, inspired by their natural surroundings, engage in and support open space conservation efforts that help maintain the ecological integrity of the city’s natural landscape. These partners and supporters of open space protection include:

- ↻ Private landowners who are willing to share and often protect properties;
- ↻ Policy decision makers that provide support;
- ↻ Volunteers who collectively make up the various boards and committees tasked with policy development, oversight and management decisions;
- ↻ Private and public organizations and entities whose primary mission is to support the stewardship of natural resources and conservation lands;
- ↻ Professionals (foresters, ecologists, wetland scientists, botanists, biologists and others) who offer a wealth of knowledge; and
- ↻ Lebanon’s residents who serve in many roles (volunteering on boards, engaging in trail maintenance, supporting policy decisions, and more).

Collectively these partners and supporters provide a powerful stewardship network that Lebanon is extremely fortunate to have. This Open Space Plan prepared by the Lebanon City Planning and Development Office with assistance from PlaceSense was built upon that network’s local knowledge, professional expertise and commitment to conserving the city’s open space for future generations.



Photo: Deborah Baker

It is our task in our time and in our generation to hand down undiminished to those who come after us, as was handed down to us by those who went before, the natural wealth and beauty which is ours.

~John F. Kennedy, March 1961

1. INTRODUCTION

Community Setting

The City of Lebanon, New Hampshire is one of the core Upper Valley communities. It is located on the Mascoma and Connecticut Rivers, surrounded by traditional villages, beautiful rural areas and expanses of farmland and forests. The abundance and quality of natural resources in and around the city – clean air and water, open space, wildlife habitat, undeveloped natural vistas, and working farm and forest land – is one of its greatest assets. Much of Lebanon is characterized by scenic views and vistas of the rivers, unspoiled ridges and valleys, and woods interspersed with open fields. More than 80% of land in Lebanon remains undeveloped, with a significant portion enrolled in the New Hampshire Current Use Program. There are still two working farms in the city. From almost everywhere in Lebanon, one can still see and access considerable expanses of open land.

The City of Lebanon is a growing community. It is a regional hub and the principal employment and shopping destination for a federally-designated “micropolis” consisting of 25 towns stretching across two states. Because of its distinct role as the heart of the region’s economy, Lebanon has faced considerable development pressure for many years. New industries, offices and services have provided Lebanon residents with high-quality jobs and a wide variety of choices for shopping, dining, and other services. At the same time, these enterprises have attracted more people and traffic to the area, straining the city’s infrastructure and stimulating demand for still more development.

That demand has led to once open land, including some of the richest agricultural soils in the state, being converted to shopping centers, subdivisions and other types of development. Significant floodplains and wetlands were drained or filled before the advent of protective regulations, and development pressure continues to affect these resources. In the uplands, wooded ridges and hillsides are being fragmented by roads and rural residential development. Increasing vehicle emissions, road salt and other pollutants threaten air and water quality.

The City of Lebanon has reached a crossroads at which it must make significant decisions about the future of land development and conservation. How land is used shapes a community’s character and vitality for generations into the future. As Lebanon continues to grow and develop as a dynamic economic center, the city should take proactive measures through thoughtful planning and responsible environmental protection to ensure that important natural resources are conserved. Growth and change are inevitable and welcome, but it is imperative that Lebanon guide development in order to preserve open land and scenic resources. Without adequate forethought, future development could fray the fabric of the community by diminishing the natural resources that make Lebanon an attractive and healthy place to live and do business.

Public Support for Open Space

There is widespread public support for open space preservation in Lebanon. Residents have consistently identified preserving rural character – whether in terms of open space, regional traditions, smaller-scale and independently-owned businesses, etc. – as a critical factor in maintaining Lebanon’s quality of life and sense of place for more than 30 years. A common viewpoint is that the natural environment and open space – forests, agricultural land, water bodies, viewsheds, wildlife habitat, and ridgelines – must be protected to prevent irreversible damage that would change the community’s character. The open space preservation policies in the current plan have developed in response to such public comments and suggestions over the decades.

The 2012 City Master Plan repeatedly references the need for an open space plan to identify key open space resources, as well as strategies and techniques to maintain open space for future generations (page 5-6). It recommends that Lebanon develop an open space plan that:

“Sets priorities for acquiring or otherwise protecting privately-held land from willing sellers/owners, establishes incentives for landowners to voluntarily place conservation easements on their land, and includes recommendations on the use of City-owned parcels.
[Land Use Chapter Outcome 4, Action 1, page 2-25]

Will inventory natural and cultural features, and recommend green space corridors for continued wildlife habitat and for the benefit of residents.
[Natural Resources Chapter Outcome 1, Action 1, page 5-12]

Statement of Purpose

The overarching purpose of this Open Space Plan is to increase the visibility of the Lebanon Conservation Program (LCP), to attract additional support and to clearly articulate the city’s long term vision for open space protection. From an action or engagement perspective, this plan will help guide and inform the actions of local officials, boards and committees, and the general public. It provides a framework within which the community can focus its efforts and resources toward preserving important natural resources and open spaces.

This Lebanon Open Space Plan charts a course that will enable all interested parties to make the most of conservation opportunities as they arise. In particular, it:

- Identifies the value of preserving open space and natural resources.
- Identifies types of open spaces that are important to conserve.
- Prioritizes and optimizes open space conservation opportunities.
- Informs and advises anyone who might wish to conserve open space.



General Goals of the Open Space Plan

This plan establishes the following goals for open space conservation in Lebanon:

- 🕒 Protect the quality of surface and underground drinking water supplies;
- 🕒 Protect the quality of lakes, streams, and wetlands needed to sustain aquatic ecosystems and water-based recreation;
- 🕒 Preserve open space, particularly forest lands, to protect and enhance air quality, to absorb and store carbon, and to provide critical buffering against climatic extremes;
- 🕒 Protect habitat for the diversity of plant and animal species to ensure the protection of healthy, viable, and sustainable ecosystems, as well as the conservation and preservation of biological diversity within the city;
- 🕒 Protect habitats that sustain the traditional pastimes of hunting, fishing, and viewing fish and wildlife;
- 🕒 Maintain and encourage the important natural resource-based industries of farming, wood products, and tourism;
- 🕒 Protect and enhance those scenic, historic and cultural resources that are recognized as valued parts of the common heritage of Lebanon’s citizens;
- 🕒 Protect in-city open spaces for residents of more densely developed areas;
- 🕒 Provide places for education and research on ecological, environmental, and appropriate cultural resources to provide a better understanding of the systems from which they derive; and
- 🕒 Provide high quality outdoor recreation opportunities, on both land and water, accessible to all Lebanon’s citizens, regardless of where they live, their financial status, or their physical abilities.

Vision Statement

It is the community’s vision that:

“ *The natural resources and open spaces that make the City of Lebanon a desirable place to live shall be conserved for future generations to enjoy and appreciate. This conservation shall occur in the context of a community that is also growing and changing.*

Those areas with high natural resource value and that are important to Lebanon, the State of New Hampshire, and to the nation will be subject to careful stewardship. These areas include places deemed of local importance as well as those of regional or statewide significance. Particular importance will be placed on lands whose development would have an undue, adverse effect on water quality, wildlife habitat, agricultural lands, and scenic areas.

Lebanon will protect and conserve working farm and forests, core habitat areas important to flora and fauna, and the corridors that link those core areas. Because personal connections with nature are important to maintaining Lebanon’s heritage and sense of community, low-impact recreational opportunities that do not alter natural areas will be encouraged. The city will strive to be a place of natural beauty and uninterrupted views.

Elements of the Open Space Plan

This Open Space Plan consists of four elements:

- 🕒 **Section 2** discusses the importance of open space within the community. It provides some historical context for open space preservation in Lebanon, as well as a summary of recent land use development and conservation trends in the city.
- 🕒 **Section 3** proposes a prioritization framework that establishes how much open space is needed and identifies lands that should be protected based on a 78:22 ratio of open space to developed land in the city.
- 🕒 **Section 4** provides a summary of key tools and techniques available for preserving the city’s natural resources and open space areas.
- 🕒 **Appendix A** inventories many of the existing city-owned conservation lands.

It is typical for an open space plan to include extensive description of the flora, fauna and general landscape characteristics of the community. This plan does not do that and instead cross-references the existing natural resource content included within the city’s 2010 Natural Resource Inventory and 2016 Wildlife Corridor Assessment. Collectively those documents and this Open Space Plan are intended to serve as the blueprint for the Lebanon Conservation Program.

Photo: Keith Garland

2. IMPORTANCE OF OPEN SPACE

This section of the Open Space Plan attempts to answer the following questions:

- What is open space?
- What value does open space have?
- Why should people be concerned about the loss of open space?
- How much open space does a community need?

The answers to these questions shape this plan and the implementing public policies. They provide a clear understanding of the public interest and benefit in policies such as land regulation or acquisition for open space protection.

What is open space?

Many people think of open space as land in its natural state, while acknowledging that natural forces and organisms – as dramatic as glaciers or as subtle as moss – continually shape the landscape. Others expand that to encompass land modified by human activity. Open space also includes water bodies such as lakes and rivers.

What is considered open space depends, in part, on its surroundings. A vacant lot or community garden may be considered open space in a developed neighborhood. A narrow corridor or pathway for walking or bicycling may be open space even though it is surrounded by development.

In the Lebanon Open Space Plan, open space is defined as undeveloped land areas containing natural resource features that collectively interact to provide healthy and vibrant ecological systems that are worthy of the following conservation measures:

- A municipal planning process with foundation principles grounded in natural resource oversight;
- Regulatory oversight and innovative land use planning techniques;
- Land protection measures such as conservation easements and open space requirements; and
- Simple sound property stewardship.

This definition of open space for conservation purposes acknowledges the symbiotic relationship with other forms of open space. This includes active open space like the town common (Colburn Park), recreation fields, and recreation paths. It also includes open space elements that are integrated into the built environment such as vegetated parking lot islands, rain gardens, and greenways. The Lebanon Open Space Plan focuses primarily on the open space resources outside of the built environment, while strongly endorsing the sound management of other forms of open space in accordance with the recommendations of various studies, reports, and planning documents such as the recreation master plan, development regulations and zoning ordinance.

What value does open space have?

Open space is an integral part of any healthy city. It is not just the leftover areas or land that is not yet economical to develop. Open space is as essential to a thriving community as neighborhoods, public utilities and transportation systems. Open space provides a combination of environmental, social and economic benefits that would be costly, if not impossible, to replicate by other means.

This Lebanon Open Space Plan focuses primarily on the ecological value of open space. Other benefits, including aesthetics and recreation, are considered secondary to the primary goals. However as articulated in the 2010 Wildlands and Woodlands—A Vision for the New England Landscape report (Harvard Forest, 2010):

“A well designed open space program will include a balance of lands that are protected from development and managed for forest products, water supply, wildlife habitat, recreation, aesthetics, and other objectives, as well as lands that are established as reserves subject to minimal human impact and shaped by natural processes.

Environmental Benefits

Open space helps provide the ability for natural processes to function and thrive, supporting the intricate natural resource web of flora and fauna, preserving biodiversity, and maintaining healthy natural systems. It acts as a circulatory system for natural processes such as wildlife movement and hydrological flows. Open space provides general environmental services such as erosion control, flood water retention, groundwater recharge, watershed protection, etc.

Open space also has ecological functions providing habitat for plant and animal life, and supporting biodiversity. The undeveloped landscape provides for important wildlife habitat and helps to maintain a diverse and healthy environment. There are approximately 1,900 species of plants and 17,000 species of animals in New Hampshire. While many of these species are considered common, it is estimated that 75% of the habitat for rare, threatened or endangered species remain unprotected and vulnerable to development.

Forested open space also provides an important source of renewable energy and carbon storage – key factors in slowing the rate of climate change. Open space is critical for supporting the adaptation that many species will face as habitats are impacted by climate change.

Social Benefits

Patches and corridors of open space interspersed throughout the built environment weave the fabric of the city together. Together they add natural beauty, character and uniqueness to the landscape. The larger open space patches typically found on the edge or beyond the built environment provide residents and visitors with places for outdoor recreation, including hunting, fishing and other traditional uses.

Open space offers opportunity for many different types of active and passive recreation, which has positive benefits for the health and well-being of residents.

It provides places for people to interact socially. Open space also allows people to increase their awareness of the natural environment through outdoor education and field research programs.

Open space offers scenic and aesthetic enjoyment. It also preserves the community's heritage by protecting historic and archaeological resources. These benefits help maintain the community's character, support tourism and enhance quality of life.

Economic Benefits

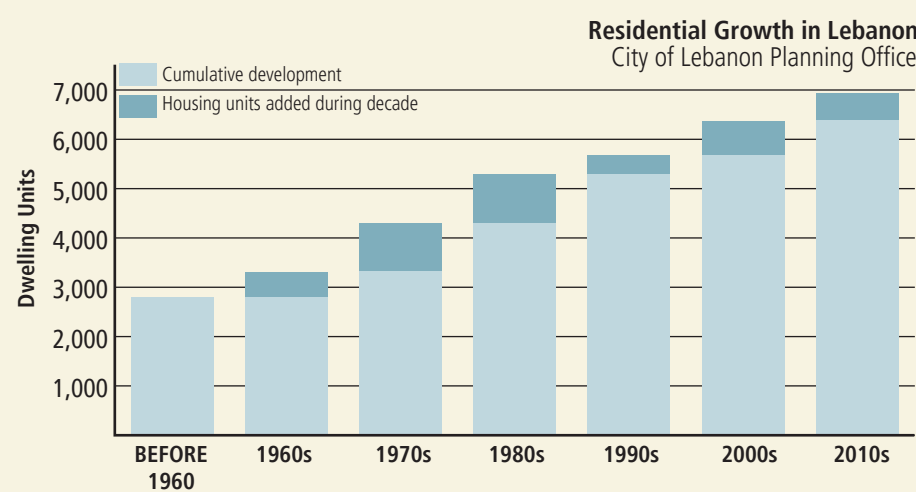
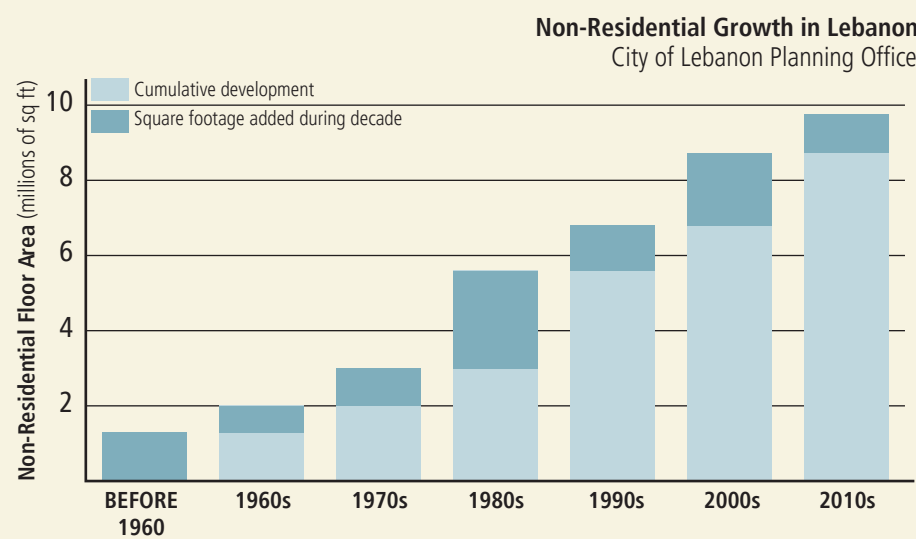
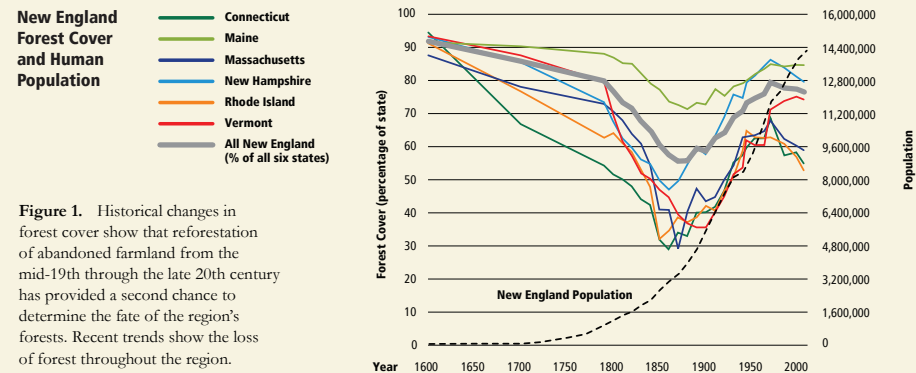
It is difficult to quantify many of the public benefits that open space provides in monetary terms. In some instances, it is possible to express the natural process values of open space in the dollar terms of traditional economic analysis. For example, there is the income derived from sustainable timber harvesting and local agricultural production on open space lands. An analysis completed for the Society for the Protection of New Hampshire Forests in the late 1990s found that more than \$3.6 billion dollars of income and more than 60,000 jobs were directly attributable to open space-based economic activities in New Hampshire at that time.

Another direct benefit are the avoided costs as a result of open space protection. An example of this would be the avoided cost of flood damage when open space land provides flood storage and reduces the extent of downstream damage. Or the avoided cost of replacing a public water supply when open space provides protection from contamination and groundwater recharge around a wellhead.

Open space also offers indirect economic benefits. It can positively impact surrounding property values and benefit local businesses by spurring economic activity within the surrounding area. According to the National Association of Home Builders (in the Business NH Magazine, October 1998), it is not uncommon for the value of building sites to be enhanced by 15 to 20% in the vicinity of park and recreation areas. The increased value to the landowner is also shared by the municipality, because as relative property values are higher, then assessed valuations and tax revenues will also be higher.

Communities increasingly consider the opportunity cost of losing open space to development, especially residential development. As detailed in the University of New Hampshire Cooperative Extension report “Does Open Space Pay?” (Auger 1996), open space land uses are often a net asset to communities, typically generating much more revenue than they cost in terms of services provided. Residential development, on the other hand, generally costs a community more in the way of services than it generates in tax revenues. While commercial and industrial land uses tend to result in a net gain in tax revenues, such development may provoke a need for more housing and increased loss of open space unless satisfied with infill and redevelopment.

Traditional arguments on the behalf of open space planning have not rested upon economic considerations. Rather, they have been founded upon the need for protecting environmentally sensitive lands, the need for public recreation facilities, and the attractiveness and ecological importance of green spaces.



Why be concerned about the loss of open space?

Undeveloped land in Lebanon will continue to be lost given the trends in population, housing and economic growth in the city and region. Now is the time for Lebanon to decide what open space is important to conserve and how best to achieve those goals.

Population and Housing Growth

The number of people living in Lebanon increases each year although the rate of population growth has slowed markedly over the past several decades. The city has been adding about 60 new residents annually this decade (2010s) – a population growth rate of less than 0.5% a year.

Lebanon has been adding housing units at a faster rate than residents in recent years as the average household size has been falling. On average, 70 housing units were created in the city annually during 2010s. Given the recognized shortage of housing in the region, it is anticipated that the demand for housing will remain strong in this decade. That demand is being driven by growth in the regional economy with much of the associated job creation occurring in Lebanon as described below.

The location of new residential development is the most important factor as it relates to impacts on open space. Compact housing development that occurs as infill or redevelopment within the urban core has far less impact than low-density suburban or rural residential development.

The statewide trend of increased footprint and land consumption for single-family homes does appear to be occurring for new homes located outside the urban boundary in Lebanon. However, that trend is being offset by the shift from single-family home development in rural areas to multi-family development within the city's urban core – serving as yet another compelling benefit of directing the housing growth to within the urban areas. With appropriate design measures such as provision of green infrastructure, the city can benefit from the vibrancy that new housing brings to existing neighborhoods and can avoid impacts to open space areas. For this reason, the city's Master Plan identifies compact and infill residential development in the urban core as the desired vision for the future.

Economic Growth

The city added 2.9 million square feet of non-residential space between 2000 and 2018. The city has approved more than 2 million square feet of non-residential development that has yet to be constructed. This suggests that the rate of non-residential development will remain strong for the foreseeable future.

Lebanon's topography, combined with the proximity to transportation, sewer and water infrastructure, has directed most non-residential growth to land within or in close proximity to the urban core – thus avoiding the adverse impacts of rural sprawl and fragmentation. However, the majority of recent non-residential development has occurred on previously undeveloped land (greenfield development), as opposed to redevelopment (brownfield development). The cumulative impacts of this pattern of development can degrade the quality of surrounding natural areas. The Centerra Business Park, Airport Business Park, DHMC campus, Etna Road light industrial uses, and commercial development along Route 12A are all located on former natural open space or agricultural land.

How much open space does a community need?

There are a number of factors to consider when determining the quantity, type and location of open space land appropriate for a community. A more diverse portfolio of protected lands (high elevation, forests, floodplains, wetlands, shorelines, agricultural lands, etc.) enhances the environmental, ecological and climate benefits of open space. Protecting land dispersed around the community will ensure that more residents have access to open space near their homes. Where there is a denser pattern of development, public open space becomes critical for quality of life – providing urban residents with places for outdoor recreation and enjoyment of nature. Further, there may be specific resources within the community of scenic, cultural or historic value that merit protection through open space conservation.

Historic Open Space Protection

Fortunately for Lebanon, there has been a pattern and trend of land conservation efforts occurring simultaneous with development over the past several decades. In 1980, there was about 100 acres of city-owned, permanently protected open space in Lebanon – 40 years later, there are nearly 2,000 acres.

Private land has also been protected by property owners either voluntarily placing conservation easements on their land or permanently setting aside land as conserved open space as part of a residential development. Approximately 1,200 acres of privately-owned open space was protected as of 2019.

The 3,221 acres of public and private open space protected from future development represents approximately 12% of Lebanon's total area. Geographically dispersed around the city, these open space lands include a variety of landforms and natural communities.

Future Open Space Protection

While Lebanon's open space protection efforts have been effective to-date, there remain significant resources vulnerable to future development. The 2010 Natural Resource Inventory and 2016 Wildlife Corridor Assessment include specific recommendations for further open space protection and other measures to retain or enhance the function and values of the city's diverse ecosystems.

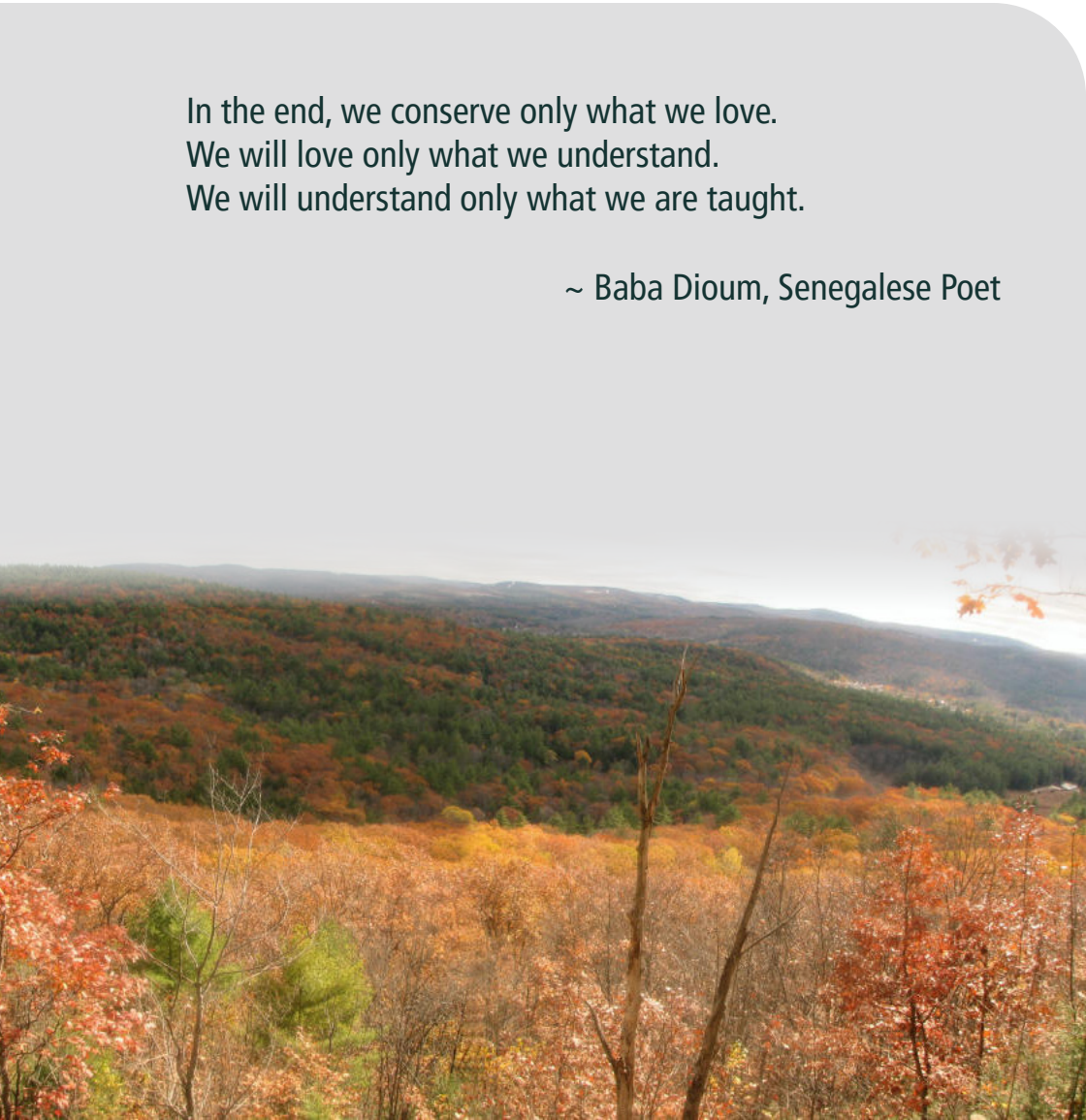
- The 2010 Natural Resource Inventory identifies 73 significant ecological areas (SEAs) that, due to their sensitive nature and unique set of natural resource characteristics, require special consideration. The SEAs represent less than 10% of the city. Nearly all the city's rare and endangered plant species are contained within these lands, and virtually all of the rare wildlife species depend upon them. The Inventory recommends that the SEAs be priorities for conservation due to their ecological integrity and ecosystem services. Currently, 28% of the SEAs are within protected open space areas.
- The 2016 Wildlife Corridor Assessment focused on 17 priority wildlife crossing areas. It found that recent development has reduced potential crossing areas. Unfragmented blocks of habitat are becoming isolated as development along the road networks have built up physical barriers to wildlife. To preserve

ecological values and functions, the Assessment recommends that protected open space areas be linked by greenbelts that allow for the movement of wildlife. Only two of the priority crossing areas currently connect through protected open space lands.

The guidance that follows in Section Three for establishing goals, benchmarks and a methodology for prioritizing the city’s open space protection efforts builds upon the recommendations from the Natural Resource Inventory and the Wildlife Corridor Assessment. It is also consistent with the land use goals of city’s Master Plan, which call for most future growth to occur in the urban core.

In the end, we conserve only what we love.
We will love only what we understand.
We will understand only what we are taught.

~ Baba Dioum, Senegalese Poet



3. OPEN SPACE PRIORITIZATION

The Conservation Commission has recommended that the City identify, prioritize, and actively work to conserve land with high-value natural resources that are currently unprotected. This section briefly describes previous efforts to prioritize open space for conservation. It then proposes a new prioritization framework that is grounded in the concept of **how much** open space is needed, and **where** are the currently undeveloped lands located that should be prioritized for conservation.

Historic Open Space Prioritization

The historic open space prioritization efforts described below are testament to the desire of Lebanon residents to maintain the special open space and conservation qualities that are part of the fabric of this community. The information and recommendations they contain continue to guide present day conservation endeavors. Grounded in a fundamental bio-diversity conservation planning framework, Lebanon is positioned to use this information to engage in a very progressive, forward thinking approach to preserving the functions and values of its existing open space lands, and maintaining the desired community character.

1996 Conservation Commission Approach

In 1996, the Conservation Commission developed an approach in which they identified generic land types that were desirable locations for open space preservation. These were not parcel-specific recommendations, but rather a listing of generic attributes that were recommended for preservation. The list included:

- ↻ Mascoma Lake Shore Lands
- ↻ Connecticut River Shore Lands
- ↻ Mascoma River Shore Lands
- ↻ Flood Plain Wetlands
- ↻ Prime Wetlands
- ↻ Other Wetlands
- ↻ Unique Geologic Features
- ↻ Mountain Tops & Ridgelines
- ↻ Old Farms and Fields
- ↻ Wildlife Habitat and Corridors
- ↻ Aquifer Areas
- ↻ Mixed and Old Growth Forest
- ↻ Land Contiguous to Existing Conservation Land
- ↻ Rare and Endangered Flora Habitat

Around the same time, students from the Lebanon High School Environmental Science class and Students for a Sustainable Future (SFF) teamed up with the Lebanon Conservation Commission to conduct a poster ballot project. The project sought input from the community about open spaces in Lebanon. The vote from participating residents included the following results, listed from most popular to least:

1. The Mascoma River Shorelands
2. The Connecticut River Shorelands
3. Mascoma Lake shorelands
4. The Landmark Lands
5. Farms
6. Mt. Support and Rix Ledges
7. Blueberry Hill and Hardy Hill areas
8. Daisy Hill area
9. Quarry Hill
10. Class VI Roads
11. Corridors in the City of Lebanon
12. Route 4/Eastman Hill intersection

One of the mutual highlights between these two efforts was that undeveloped shoreline is both valued, as well as in need of protection as it is often equally prized for its development potential.

Conservation Commission Periodic Review

The Conservation Commission undertakes a periodic review of City of Lebanon owned parcels. This exercise occurred in 1993, 2006, 2011, and most recently in 2017. The list of City owned properties changes over time as privately owned parcels transfer to City ownership, the result of a failure to pay taxes, gifting to the City, etc.

The results of the 2017 analysis revealed that there are very few, if any, additional protection opportunities for City owned properties, as many of the properties with valuable natural resource characteristics are already under some form of protection or are simply undevelopable. Or the properties are currently developed, typically providing some sort of infrastructure support to the City, such as the City Landfill, the Wastewater Treatment Plant, recreation fields, etc.

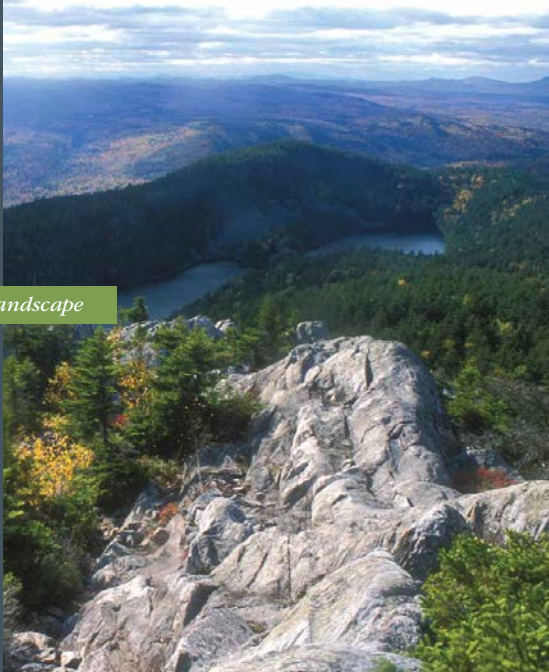
2010 Natural Lebanon

The 2010 Natural Lebanon – Natural Resource Inventory (NRI) report was completed to serve as a “framework” planning document, providing extensive descriptive information associated with the undeveloped natural open space areas within Lebanon. It is impressively robust as to the level of detail contained within the report, including the following: a wetland assessment and prioritization; identification of existing and potential vernal pools; species and habitat types occurring within Lebanon including rare plants, rare animals, and target species of special concern. It provides valuable prioritization input, including highlighting priority conservation sites, priority wetland complexes, and highlighting areas deemed as “Significant Ecological Areas” (SEAs), as well as Co-Occurrence areas. The proposed prioritization methodology detailed later within this section includes this information as the core component.



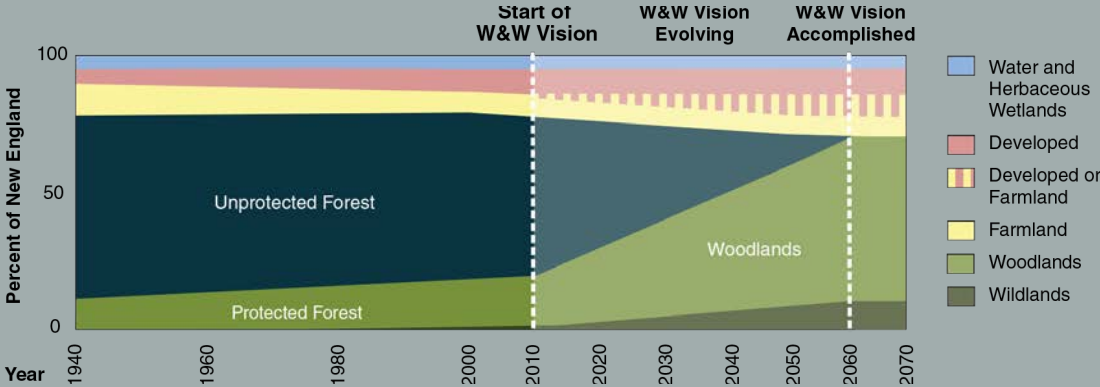
Wildlands and Woodlands

A Vision for the New England Landscape



New England Land Cover: Past, Present, and Future

Figure 3. Projections for the implementation of Wildlands and Woodlands demonstrate that roughly a doubling in the rate of forest conservation over current levels is needed to achieve the vision within 50 years.



Lebanon Master Plan

The Lebanon Master Plan – “Lebanon 2030” provides guidance as to recognizing the role of open space within the community, including highlighting a desirable future development pattern that emphasizes development within the existing urban cores, particularly infill development, and avoiding urban sprawl into the rural undeveloped areas of Lebanon. Chapter 5 (Natural Resources) includes the following key points:

- Recognize that conservation of the natural environment is essential to maintaining the City’s quality of life and economic vitality
- Conserve open space and maintain the functions of natural systems while respecting the rights of property owners
- Establish a connected network of open spaces, conservation lands, greenbelts, and working farm and forest land that is accessible to City residents

How Much Open Space Should Be Preserved?

When considering an Open Space plan and conservation recommendations, one question that inevitably arises is: How much land is enough? Answering the question of “how much” can be challenging to provide in the form of a finite figure, as open space and conservation planning is often as much an art as it is science. However, there is significant value in setting benchmark for conservation goals as a means to both evaluate progress and celebrate successes.

- The Society for the Protection of New Hampshire Forests challenged municipalities to conserve “at least 25% of its lands for a network of trails, parks, farms, and forests where people can connect with the natural world.”
- Keene, NH set a goal within their master plan of 50% protected land.
- Burlington, Vermont has established a goal of retaining a 20% ratio of developed land-to-protected natural areas in an effort to ensure that natural areas are preserved as other land is developed. Their policy states that “for each four acres of new development, one acre should be set aside by the developer as a natural area.”

- The EPA encourages an approach that includes targeted percentages of developed to undeveloped land that is grounded in scientific rationale associated with water quality protection.

Prioritization Methodology – The Proposal for Lebanon

The prioritization methodology proposed for Lebanon is framed by the “how much” open space and the “location” of currently undeveloped lands. This plan recommends a metric that is a ratio of developed to undeveloped land. Additionally, it is intended that within this undeveloped, open space mosaic will be a portfolio of natural resource characteristics that collectively represent and support biodiversity at both a local and regional scale.

The proposed “how much” is informed by benchmarks proposed within the Wildlands and Woodlands – A Vision for the New England Landscape report (Harvard Forest, 2010), including differentiating between working woodlands and preserved wildlands. The proposed identification as to the “location” of such lands is shaped by historic prioritization efforts, the 2010 Natural Resource Inventory, the 2016 Wildlife Corridor Assessment, the Lebanon 2030 Master Plan, and enhanced by the integration of, “The Spatial Solution Methodology” (Forman, Richard, 1996), to create a proposed blueprint for open space conservation grounded in science and embracing the concept of biodiversity protection.

The “How Much”

The Wildlands and Woodlands report articulates a vision for the New England Landscape, including establishing measurable benchmark associated with the overall goals. It was authored by more than 20 natural resource professionals, including foresters, forestry professors, natural resource scientist, etc. A review of this document highlights the similarities between the existing forest to developed area ratio within the New England landscape and that of Lebanon. The report’s objectives additionally align with the vision expressed within the Lebanon Master Plan, including: avoiding sprawl, encouraging infill, and preserving the natural landscape. And perhaps most

encouraging, the reports vision and goals appear to align with an opportunity that still exists within the Lebanon community.

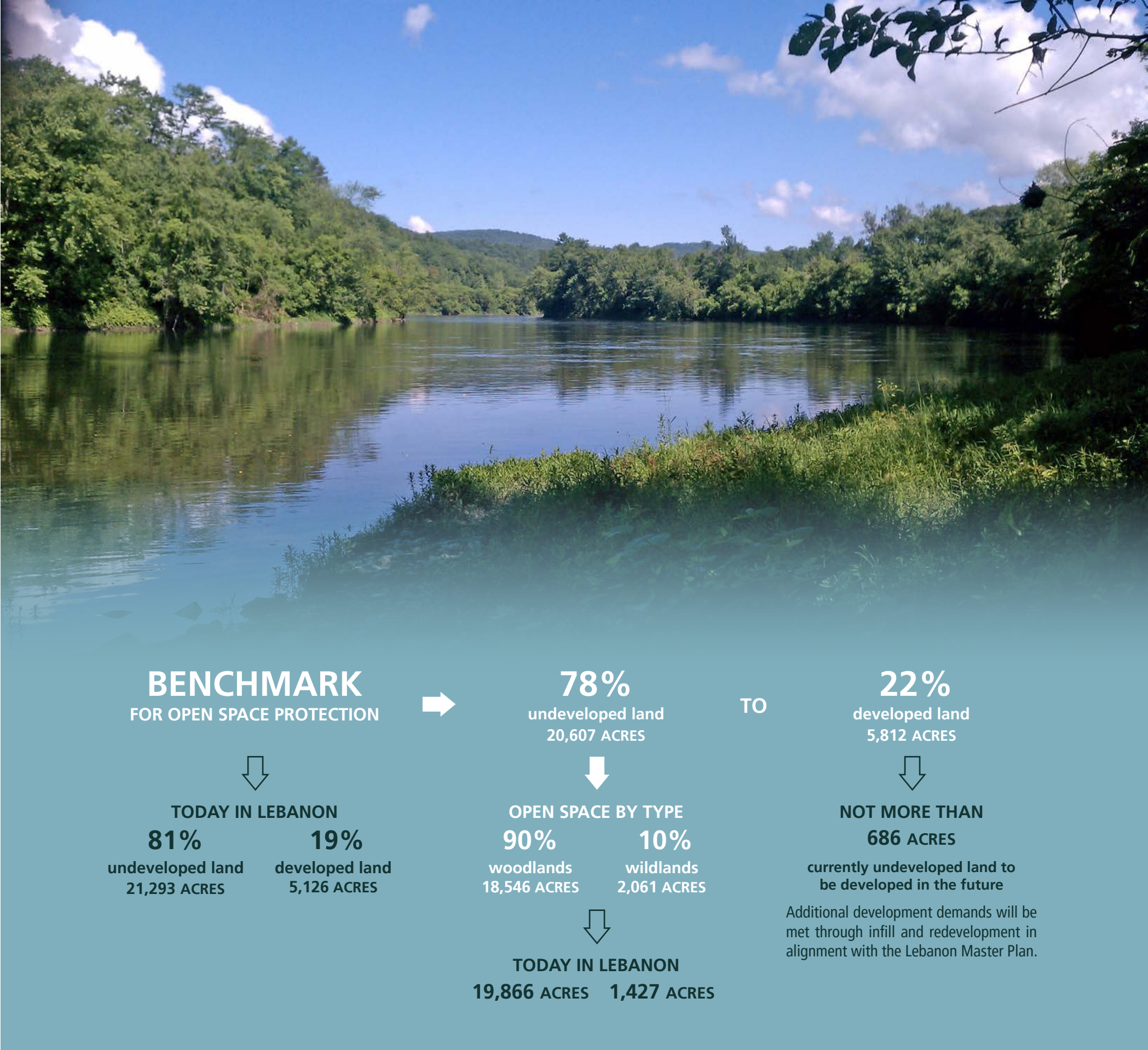
The Wildlands and Woodlands vision builds on decades of planning and leaves room for continued growth and development. It:

- ◡ Calls for a long-term conservation effort to retain at least 70% of the region in forestland, permanently free from development. This would be achieved through easements from willing private land owners guided with strategic conservation acquisitions and enhanced economic incentives to retain forestland. This forested land would be punctuated only by waters, wetlands, and farmland.
- ◡ Strikes a balance between active, long-term forest management and preservation. Ninety percent of forestland would be expansive “Woodlands” that are voluntarily protected from development and managed for forest products, water supply, wildlife habitat, recreation, aesthetics, and other objectives. Ten percent of forestland (or 7% of the community) would be “Wildlands” that are established as large landscape preserves subject to minimal human impact and shaped by natural processes.

Applying the Wildlands and Woodlands vision to Lebanon that aligns with desires expressed by the community, it would propose that the amount of undeveloped to developed land within the community not exceed a 78:22 ratio. Furthermore, of the 78% of undeveloped land (20,607 acres), a minimum of 10% (2,061 acres) would be protected open space managed as “wildlands.” Lebanon’s Farnum Hill property currently provides 820 acres that would qualify as “wildlands” where logging is prohibited, mountain bikes and other uses are excluded, and the existing foot trail network will not expand. Rix Ledges is another 250-acre natural area that could be managed as “wildlands.” Together these two existing city-owned properties account for 41% of the fully realized “wildlands” aspired to within the plan.

Lebanon is currently at a 81% undeveloped to 19% developed land ratio. The 78:22 ratio benchmark could accommodate existing development projects currently underway, as well as provide an opportunity for a small amount of continued development in the more rural undeveloped areas into the foreseeable future. However, it would require the vast majority of future development projects to be urban core infill and redevelopment, which is the form and pattern of development called for in the city’s Master Plan.

The proposed approach for categorizing the Lebanon landscape (e.g. developed, undeveloped open space, and wildlands) and setting benchmarks for each, serves to create a portfolio of the various land categories, as well as desired units of measurement or “metrics” for each. It aligns a local vision with a broader regional vision that is espoused by forest professionals and grounded in science. It is in concert with the Lebanon Master Plan’s Future Land Use map, adopted by both the Lebanon Planning Board and Lebanon City Council. This vision focuses on the preference for “brownfield” development and establishing a benchmark limit on “greenfield” development. This vision does not attempt to address the desired or optimal level of growth within the existing developed areas, opting to simply encourage the Planning



LEBANON OPEN SPACE PLAN

a strategy for integrating and advancing efforts to conserve the city’s ecological integrity

Board and City Council to periodically engage in that assessment, as informed by the residents of Lebanon and the capacity of existing infrastructure.

This approach represents an achievable, realistic scenario for Lebanon, supported by continued conservation efforts, and a continued trajectory of redirecting growth to the urban cores. It mimics the desires repeatedly expressed by Lebanon residents of promoting vibrant development centers while keeping the surrounding natural lands in their existing state.

The Where or What Open Space Lands

If the 78:22 ratio benchmark is to be realized, it would be logical to engage in an assessment of the natural resource value and ecological richness of existing undeveloped lands to identify the lands best suited to being designated, and potentially protected as, woodlands or wildlands. The descriptive information contained within the Lebanon NRI and Wildlife Corridor reports can inform this assessment and provide a decision-making model that is grounded in ecological principles.

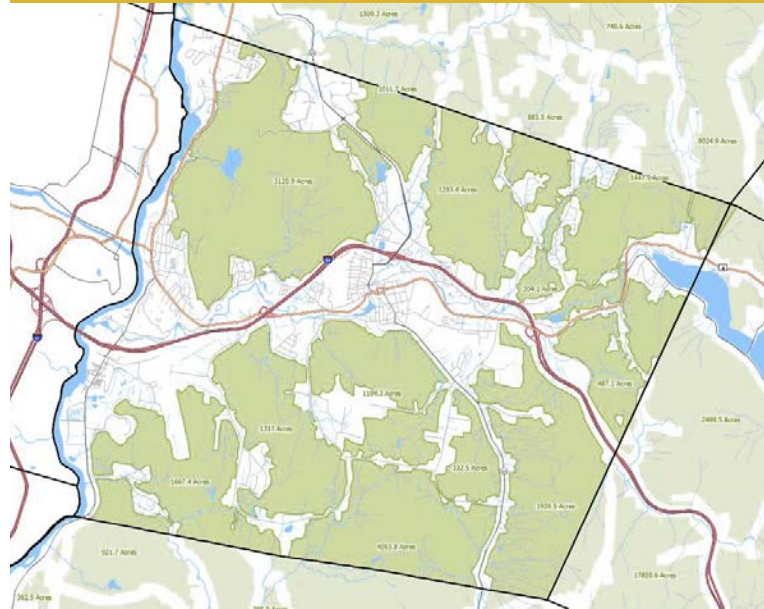
The Spatial Solution Methodology. To describe the prioritization methodology in a “science based” narrative, one could simply state the goal is to preserve the existing biodiversity of the community. To apply the concept of biodiversity in a conservation planning context, Landscape Ecologist, Richard Forman of Harvard University has shown that “there are spatial land-use patterns that make good ecological sense and that will conserve the bulk of nature and natural processes in any landscape or major portion thereof. These patterns will not protect every species, every soil particle, every nutrient concentration or every portion of water bodies, but the spatial pattern will conserve the bulk of the attributes, as well as the most important ones.”

Forman's Spatial Solution to Conservation Biodiversity describes both indispensable patterns that occur within a landscape, as well as strategic points. The following section will provide a description of the indispensable patterns and strategic points, as well as provide the specific examples of such occurring within the Lebanon landscape, as gleaned from the NRI report. The intent is to utilize this framework, in addition to the information contained within the NRI and Wildlife Corridor report to guide conservation planning efforts.

Methodology Summary

To summarize, the proposed approach for maintaining the existing, vibrant, undeveloped open space landscape within Lebanon, includes achieving a desired ratio between developed and undeveloped lands, as well as utilizing a landscape scale framework approach for general guidance, and existing detailed natural resource information for more direct action as part of the general planning process. For the proposed approach to work, it is essential that the Lebanon community embrace the overall value of achieving the stated conservation vision and engage in a “planning” process that is far more inclusive and innovative than simply relying on the traditional techniques of deploying regulation or purchasing properties as a means to preserve open space. [continued on page 11]

LARGE PATCHES



The large patches of natural areas in Lebanon are bounded by roadways or other forms of development. The quality of the natural habitat provided increases with distance from the edge effects of traffic and other human impacts. The interior or core areas of the large patches are particularly noteworthy, as documented in the NRI report. Fragmentation of large patches is considered a serious threat to regional biodiversity and a leading cause of species extinction.

An assessment of Lebanon's large patches has included an edge to perimeter ratio, as well as core area assessment. The concept being that a large patch providing significant core area with low edge to perimeter ratio is one that offers more "buffering" from edge disturbance. For example, the scarlet tanager is an interior nesting bird and as such, seeks habitat within the interior core area of a forest. Predation is an edge effect that is decreased as the distance is increased from the edge. "Umbrella species" such as bobcat, bear, or moose, require large patch habitats, and by maintaining these species habitat requirements, habitat is provided to multitudes of species with smaller habitat requirements, hence the concept of an umbrella species.

The Landmark Lands, Rix Ledges, Greater Bass Hill, Mt. Tug, and Hibbard Brook Headwaters provide some of the most notable large natural area patches within Lebanon. It is important to note that many of these extend into the neighboring communities, highlighting their role and value at a landscape scale.

The interior portions of large patches are logically good candidates for the wildland category of natural open space, in which human disturbance is avoided to the greatest extent possible.

VEGETATED CORRIDORS



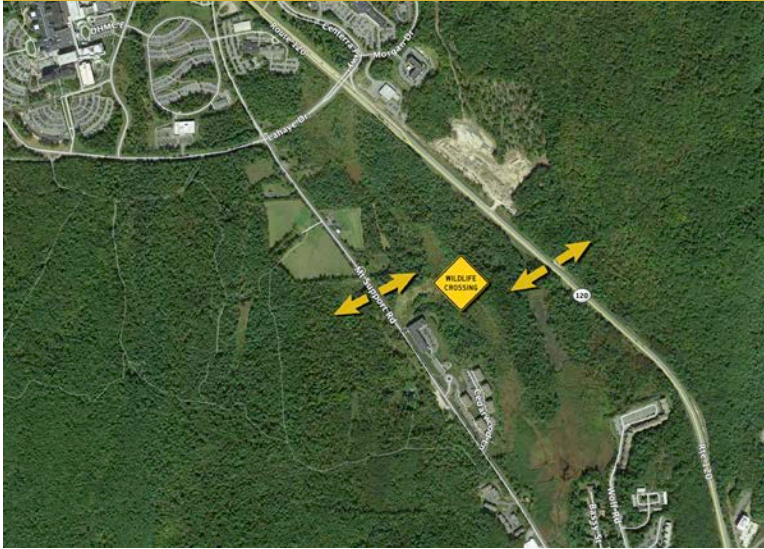
Vegetated corridors occur along major streams and rivers (e.g. riparian corridors), providing hydrologic and ecologic benefits such as:

- 🔄 Controlling streambank erosion;
- 🔄 Reducing mineral nutrient and other substance inputs to streams;
- 🔄 Providing shade and fallen branches for fish habitat;
- 🔄 Providing leaves and branches as the base of aquatic food chains; and
- 🔄 Protecting conduits for species moving along the dendritic system (Binford and Buchenau, 1993; Malanson, 1993).

Both width and connectivity appear to be key variables determining the effectiveness of stream corridors.

Lebanon's undeveloped riparian corridors are identified as a top priority within the NRI, due to the functions and values they provide and the development pressure or general disturbance they experience. Lebanon has adopted a local riverbank protection district as a regulatory approach to conserving the integrity of these features, but additional conservation measures are likely needed to maintain the full spectrum of habitat functionality provided.

CONNECTIVITY BETWEEN LARGE PATCHES



Wide connected corridors or, in some locations, a scatter of small patches are keys to effective movement of species between large natural-vegetation patches (Harris and Gallagher, 1989; Saunders and Hobbs, 1991; Noss, 1993a; Forman, 1995). The movement of species among large patches enhances recolonization following local extinction, reduces the probability of inbreeding depression and decreased genetic variability, and spreads risk in case of severe disturbance to a patch.

The NRI report identifies 65 wildlife crossing sites occurring within Lebanon. Of these, 17 were selected for additional habitat availability assessment as they had one or more of the following attributes:

- They were identified as a wildlife crossing area in the 2008-2010 NRI
- They had a high spatial or temporal species crossing frequency as determined in the field during the wildlife assessment portion of the NRI
- They abutted at least one unfragmented area of at least 500 acres
- They included 'pinch points' along roadways subject to potential development

The 2016 Wildlife Corridor Report details the descriptive assessment of the seventeen, including: the general direction of travel for the crossing animals, the width and type of crossing, the traffic volume of the roadway, the primary species using the crossing site, and the unfragmented landscapes they are moving between. Detailed recommendations for improving each crossing area are provided, as well as the additional prioritization that includes categorization as either "major" or "best."

The Mt. Support wildlife corridor highlights the challenges to preserving the viability of these features. The area is appropriately zoned as a high-density residential district due to its close proximity to a major employment center and it is experiencing significant development pressure that has the potential to adversely affect wildlife movement. The opportunity does exist to combine a coordinated development review process, with desired site design, to provide an opportunity for both needed housing and the continued viability of this existing wildlife crossing.

BITS OF NATURE ACROSS THE MATRIX



Where the surrounding matrix is ecologically unsuitable or less suitable than the large patches, small patches and/or corridors scattered over the area provide several key ecological benefits. These include:

- Protecting rare habitats and species outside the large patches;
- Providing stepping stones for species movement in all directions;
- Breaking up extensive stretches of matrix to reduce wind or water erosion; and
- Providing heterogeneous conditions throughout the landscape as a hedge against disturbance.

These features likely require the greatest oversight and active management as they won't have the recognition to generate the level of awareness and response the more easily identified large patches or prominent vegetated riparian corridors experience. Lebanon's requirement that large subdivisions provide 50% open space area, as is generally described as a conservation development design approach, is one planning tool that could be utilized to conserve the "bits of nature." Transitioning from large subdivisions occurring within existing natural open space areas, to infill or redevelopment would be even more effective.

STRATEGIC POINTS IN A LANDSCAPE



Strategic points in a landscape are those locations whose ecological importance is exceptional and long term. Examples include:

- Content of location, including the only vegetated patch, or perhaps the only high elevation undeveloped ridgeline point within a urban setting.
- Flux centers where movements or flows are concentrated, such as a migration route, or intersection of a network
- An especially sensitive habitat or location that if altered, has a long recovery time

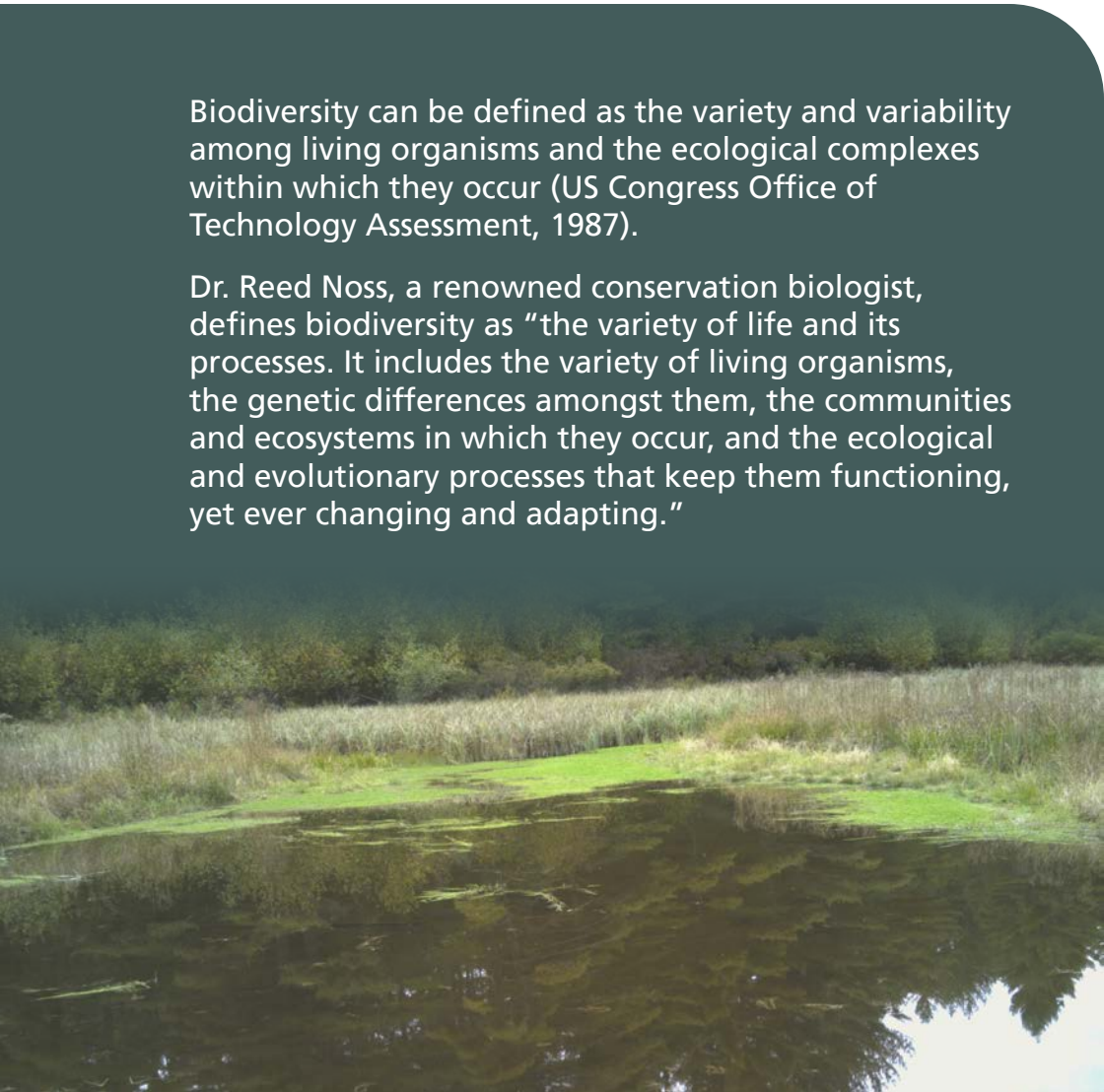
Examples of Lebanon's strategic points, as highlighted in the NRI report, would include rare, threatened, and endangered species; critical or "best" wildlife crossings; high value wetlands and vernal pools; exemplary natural communities; prime farmland soils and soils of importance; surface and ground water; flood plain forest and other high value natural community types; and Significant Ecological Areas (SEAs). SEAs are "those sites that, because of their sensitive nature and unique resource characteristics, require special treatment in terms of long-term conservation and/or protection from human impacts." SEA's are significant because they represent land that contains the highest value natural resource aspect of a given area. Within the boundary of an SEA is one or more valuable elements that exist only by virtue of a unique combination of environmental conditions.

The co-occurrence layer generated for the NRI combines important species, habitats, and natural resources together, yielding a "snapshot view" of locations where these attributes overlap. This information presents an additional opportunity for the identification of strategic points.

The traditional planning process reacting to demands of growth and resultant adverse impacts on open space are evident up and down the East Coast, from New Jersey, to the communities in Southeastern New Hampshire. Sprawling subdivisions, filled wetlands, forest fragmentation, increased impervious pavement, and roadway construction, has devastating impacts on the natural systems within communities. With the wealth of knowledge existing within the current day planning profession, and the conservation/planning tools that are available, there is a real opportunity for Lebanon to secure a different outcome. Directing future growth to within the urban core areas and the redevelopment of existing properties, combined with and a continued recognition of the value provided by maintaining the natural open space areas, including sound management decisions, affords the ability to achieve a healthy balance between development and conservation. The following section provides strategies to be utilized to achieve such.

Biodiversity can be defined as the variety and variability among living organisms and the ecological complexes within which they occur (US Congress Office of Technology Assessment, 1987).

Dr. Reed Noss, a renowned conservation biologist, defines biodiversity as “the variety of life and its processes. It includes the variety of living organisms, the genetic differences amongst them, the communities and ecosystems in which they occur, and the ecological and evolutionary processes that keep them functioning, yet ever changing and adapting.”



Land Use / Land Cover Type Map
LebanonGIS

Areas colored yellow to green are undeveloped forestland, protected open space, and working lands. Areas colored orange, brown and gray are developed. Blue areas are rivers, streams, ponds and wetlands.



4. OPEN SPACE MANAGEMENT STRATEGIES

Meeting Lebanon’s benchmark of 78% open space to 22% developed area will require the continued use of standard conservation measures and implementation of the planning practices espoused in the Lebanon Master Plan. If the community is to continue to grow, it is imperative that infill and redevelopment be the guiding principles for future development. The 78-22 benchmark accommodates a limited amount of residential development outside Lebanon’s core areas. The remainder of the development, including non-residential growth, should occur within the core areas. That is sensible not only to meet the objectives of this plan, but for prudent fiscal reasons such as limiting the cost of municipal operations and infrastructure construction.

Businesses initially locate, expand, and thrive in Lebanon for the community’s quality of life, which includes the natural landscape surrounding the existing built environment. That growth drives demand for more housing and services. Paradoxically if that growth continues to convert undeveloped land to developed land, it can undermine the quality of life that made the community attractive to employers and residents in the first place. Lebanon can have both a vibrant economy and open space preservation if the city’s planning and development process is successful in directing growth to appropriate locations within the community.

Beyond promoting infill and redevelopment over sprawl or greenfield development, Section 3 detailed a methodology for identifying and prioritizing undeveloped land in the city for protection based on its ecological functions and values. It recommends that the city’s open space include both working woodlands and wildlands – areas established as landscape preserves subject to minimal impact and shaped by natural processes. Further, Lebanon will consider worthy land conservation efforts in all its sections and neighborhoods. Widely-dispersed conservation lands will help maintain wildlife corridors and will provide immediate access to open space for city residents.

This plan recommends the following general strategies to achieve Lebanon’s open space objectives.

Public Education and Outreach

Educating residents about the value of Lebanon’s open space resources and how those resources improve the quality of life in the community is essential to build and sustain support for land conservation efforts. City residents must have opportunities to become better aware of and informed about the beautiful places and important resources found in Lebanon, and how those resources contribute to quality of life, environment, and the economy. With this knowledge and insight, residents will better appreciate the diversity of the city’s landscape and understand the importance of long-term protection.

Partnerships

Public education is partly the responsibility of the Lebanon Conservation Commission. However, every effort must be made to work in partnership with the Lebanon

Planning Board and City Council, as well as the many state and local agencies, non-governmental and education organizations that share an interest in land conservation and stewardship. Partnerships help to spread the workload, cost, and message to a broader constituent base. The Conservation Commission may also be able to draw upon citizens with specific interests, talents and skills, who are willing to volunteer their time to broaden the Commission’s capability and capacity in this regard.

Programs

The Conservation Commission has a solid history of organizing on-going education programs concerning the City’s natural areas. The “Wild About Lebanon” guided walks and hikes provide people with an opportunity to experience first-hand the rich diversity of scenic and rare resources available in the City. The Conservation Commission is interested in developing additional programs, such as an annual amphibian crossing project, a volunteer trail stewardship program, and a range of workshops and educational events designed to engage the public and improve the stewardship of both public and private open space properties. Other potential opportunities to educate the public include creating education programs through the local schools and developing or expanding collaborative working relationships with other organizations dedicated to conservation education.

Mapping and Signage

While the city already provides trail maps for the public open space properties, the information about those properties on the City web page could be expanded and enhanced. Continuing to install kiosks at trailheads and trail markers/signage can enhance the experience of exploring these properties, as well as attracting additional users.

Property Owner Outreach and Recognition

Land conservation is often a reactive process; individuals and institutions marshal effort and money to protect property when it is placed on the open market for sale or development appears imminent. A more effective and coordinated approach would be for the Conservation Commission to proactively reach out to landowners whose properties fall within the City’s natural resource priorities before they decide to sell or develop their land.

This outreach can take the form of both education to encourage private conservation efforts and information about sound land-management practices. Information about the many conservation strategies currently available and the organizations that practice them can help large landowners plan for a future that will both meet their own economic needs and protect the City’s natural heritage. If landowners have this information in advance, they are more likely to practice responsible land management and to be receptive to conservation-minded alternatives to conventional development options.

As part of the City’s outreach activities, the owners of properties that possess important conservation value should be identified and informed about the important



resources on their property, the benefit those resources provide to the community, and things they can do as stewards of these resources to maintain or enhance these assets. These options could range from limiting development on the property (conservation easements, transfer of development rights) to preserving a buffer space around sensitive areas or educating landowners about land use impacts, such as mowing or “brush-hogging”, on particular species. These owners could also be made aware of the opportunities provided by Lebanon’s Open Space Trust Fund. The Conservation Commission should build funding for these activities into their annual budget.

There are numerous property owners in Lebanon who have been responsible stewards of important resources – some for multiple generations – and can serve as examples. To the extent possible, the City should seek ways to recognize these private stewards for the service they are providing the community.



Regulatory Protection

Regulatory measures are a cost-efficient means of land preservation, and can be extremely effective in curbing sprawl and protecting land if implemented in accordance with the City’s open space priorities. Lebanon’s Zoning Ordinance, Site Plan Review and Subdivision Regulations, and the Capital Improvements Program can all be utilized to influence the location and intensity of development within the City.

Planned Unit Development

The current Zoning Ordinance already contains provisions for Planned Unit Developments or Cluster Subdivisions that are intended to preserve significant natural land features and/or open space by providing greater development flexibility. In return for setting aside a percentage of the land as permanent open space, the landowner can still receive the allowed density for the entire parcel and may also benefit from reduced development costs. The City requires such conservation developments under certain circumstances to ensure that open space is preserved at the same time as development is approved.

Dimensional Standards and Parking

The current Zoning Ordinance also provides for dimensional requirements, including minimum lot size, minimum yard requirements, maximum building coverage limitations, and even minimum parking requirements. The City should consider developing and incorporating a Maximum Lot Coverage limitation to ensure that a portion of all lots remains as greenspace. In addition, because a significant amount of lot coverage is typically associated with parking, the City should develop Maximum Parking Requirements and allow for reductions in parking provided on site. Encouraging adjoining properties to share parking may also help reduce impervious surface in the City.

Increasing the maximum height of buildings should be evaluated and incorporated within appropriate zoning districts as that measure could support reducing the overall footprint of development projects. The high density Residential One (R-1) district, as well as the CBD, LDD, and Industrial districts are likely the most logical places to increase building height.

Innovative Land Use Planning Techniques

Incorporating additional innovative land use planning techniques, such as those promoted by the New Hampshire Department of Environmental Services, the NH Association of Regional Planning Commissions, NH Office of Strategic Initiatives, and the NH Local Government Center should be assessed and adopted as deemed appropriate. Examples would include lot size averaging, density transfer credit, urban service districts, etc.

Overlay Districts

The current Zoning Ordinance contains several Overlay Districts, which are intended to provide an additional layer of review and protection for certain natural or cultural resources, including wetlands and flood plain areas. The City should review the advisability of incorporating additional Overlay Districts, where warranted, to protect

additional resources deemed important by the community. Examples include a steep slope, a source water, aquifer, and ridgeline overlay protection district.

Road and Driveway Standards

Regulating the length as well as the design of private roads or driveways would significantly reduce the fragmentation effects on open space areas. For generations, interior forest areas as well as ridgeline areas remained in a natural state as it was simply cost prohibitive to construct roadways to access these areas. In recent years, there has been an emerging trend to locate homes in such locations for the privacy and views they may afford throughout the Upper Valley. The edge effects of development in interior forest areas will contribute to the degradation of some of the highest value open space areas in the city and region.

Acquisition of Property or Property Rights

Some undeveloped lands that offer high-quality natural resources must be permanently protected. Without such protection, there is no guarantee that existing open spaces will remain in their current state. Indeed, there is much evidence indicating that unprotected lands will ultimately be converted into residential and commercial development. The acquisition of easements, which are legal rights in land that may restrict development, preserve a view, etc., can be used to protect natural resources. Easements are attractive when the owner of a property wishes to continue some level of activity or use of that property, such as when a farmer continues to grow crops on farmland. Easements also allow property to remain in private ownership and, therefore, they allow families to transfer conserved property from generation to generation. Alternatively, conservation can be achieved by “fee simple” purchase, which transfers ownership of the entire parcel to a municipality or land trust with the placement of an easement occurring subsequently.

When high-value open space lands are available for purchase from a willing seller, the City and its partners should make a reasonable effort to conserve these lands through direct acquisition, easement, or another established protection mechanism. Undeveloped parcels containing high-value resources should be a conservation priority for the City. This policy will simultaneously maximize conservation funds and natural-resource benefits.

However, it is important to reiterate that the focus on high-value lands does not preclude conservation of lesser-value properties. For example, the prioritization of large, contiguous parcels does not mean that small properties should be eliminated from consideration. Some flexibility can be maintained by introducing weighting factors into the resource analysis where the community feels that certain natural features or functions are particularly sensitive and significant. With this flexibility, parcels containing an especially rare or valuable resource, but which lack the co-occurrence of other resources, can still receive a relatively high priority ranking by the City.

The legal cost associated with creating an easement, as well as associated endowment fees, could be a barrier to a willing landowner. The City or other partners may be able to provide financial assistance as needed to cover the cost incurred by a property owner when placing an easement on their property. The Conservation Commission

has recently initiated a campaign to inform landowners of this proposed partnership concept.

To facilitate the acquisition of properties, as well as the partnership funding concept for the placement of easements on private property when deemed appropriate, the City should continue to support the funding of Lebanon Open Space Trust (L.O.S.T.) fund. These funds should be used to leverage other sources of funding, including state and federal grants and appropriations, and private donations. In addition, the City should develop and maintain a reference list of private, state, and federal funding sources to support acquisition, planning, and management activities.

The City should continue and enhance its marketing and outreach strategy to connect with interested landowners. These outreach strategies should encourage the voluntary donation of land or easements. The City should develop informational and educational materials concerning the potential benefits of donations and work closely with other existing entities engaged in land preservation.

Summary

Areas of open space are an essential element of every successful community. As noted in the previous sections, open and green spaces offer a host of environmental, social, and financial benefits. Protection of open space has been an interest and objective of the City for many years. Pressure to develop existing open space and sensitive areas will continue to mount as Lebanon becomes built-out and development seeks out increasingly sensitive and marginal sites.

While Lebanon welcomes new development, it must be guided into areas that are best suited and desirable – not just those sites that remain undeveloped. For this to be effective, the City should approach this challenge from two fronts:

- Identifying those areas where new and more intensive development is welcome and encouraged; and
- Identifying those areas that should be protected over the long term - the purpose of this plan.

Open space protection in Lebanon embraces the reality that not all lands can or even should be protected from development. As a regional growth center, Lebanon must find a balance between conservation and continued development that addresses the needs of the City’s diverse population – present and future.

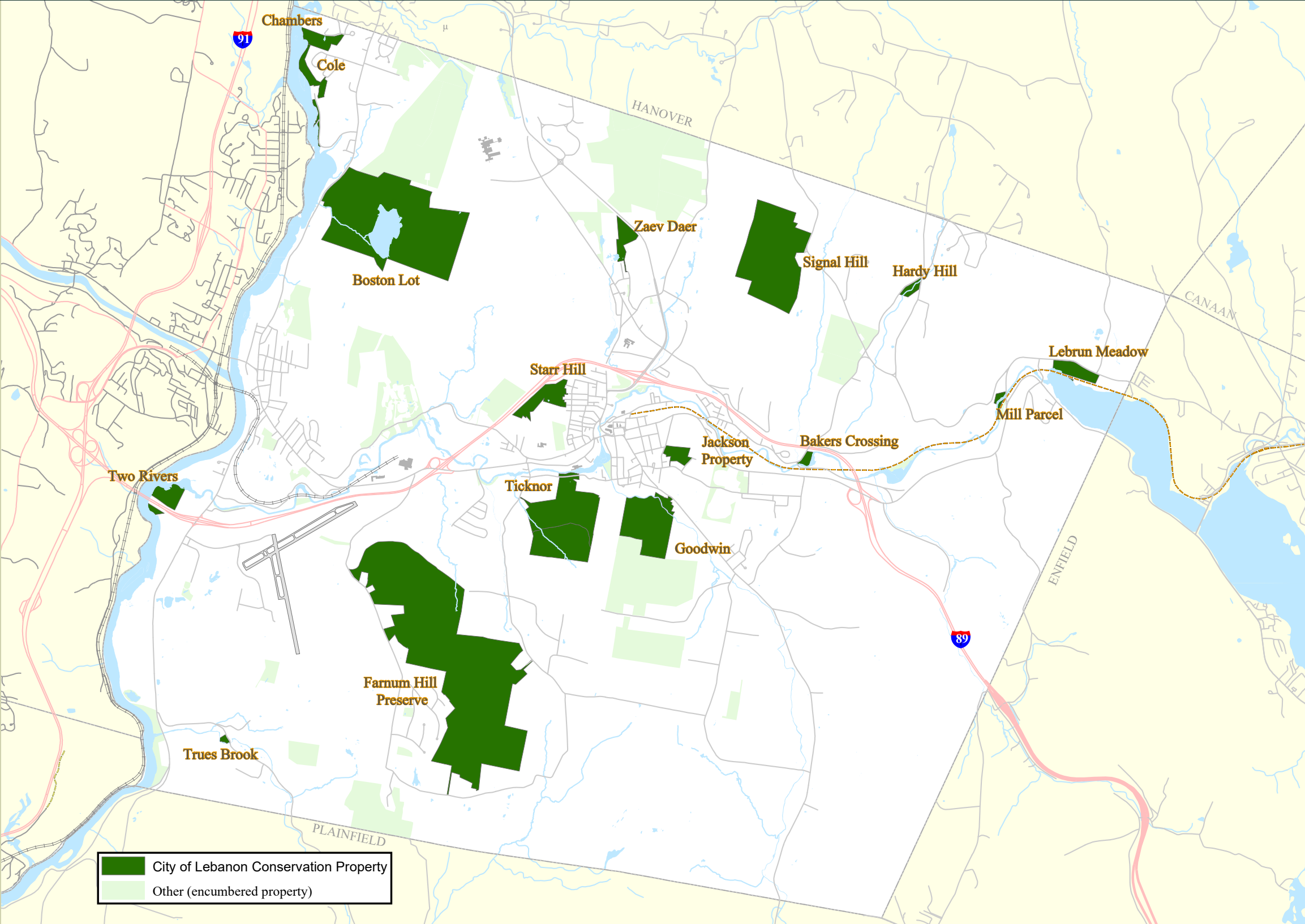
Lebanon’s plans for the future must encourage the continued revitalization of areas within the built-up core areas of Lebanon and West Lebanon. Furthermore, by encouraging and accommodating more development, and at higher densities than in surrounding communities, Lebanon will also play a very important role in protecting open space and working lands throughout the region.



Photo: Keith Garland

ADDENDUM: CITY OF LEBANON CONSERVATION PROPERTIES

More information about the city’s conservation properties, including trail maps, is available on the [city website](#).



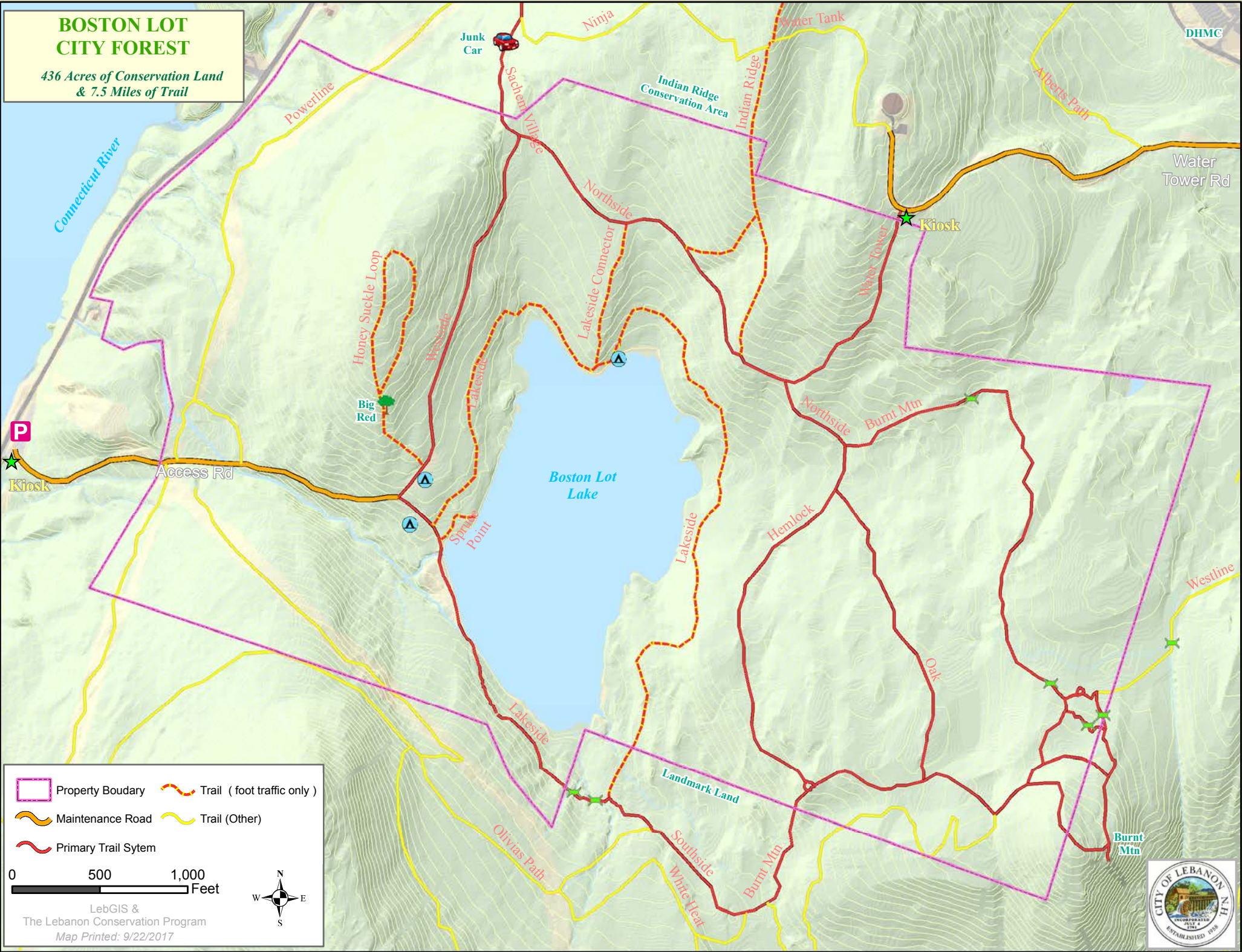
BOSTON LOT CITY FOREST

436 acres | 7.5 miles of trails

Boston Lot Lake, the centerpiece of this property, was formed in the early 20th century when a dam was built to create a 45-acre reservoir that served as the water supply for West Lebanon until the early 1960s. The lake sits at the bottom of a bowl ringed by forested ridges, which lends the site a ‘back country’ feeling despite its proximity to the Route 10 corridor and Dartmouth Hitchcock Medical Center (DHMC). Several small streams flow into the lake and it discharges from the dam spillway through a stream to the Connecticut River. Outcrops of bedrock (primarily Lebanon granite), large glacial boulders and steep ledges are common.

The property’s original 330 acres were permanently protected in 1996 through a conservation easement held by the Society for Protection of New Hampshire Forests. Dartmouth College gifted the city an additional 108 acres in 2009 that expanded the property to the west towards Route 10. The property and its network of trails is accessible from the parking area adjacent to the Wilder Dam on the east side of Route 10, the water tower access road west of DHMC, the Indian Ridge trail, the Sachem Village trail, Dartmouth College’s Landmark property trails, and several other trails on private property.

The Boston Lot is forested with sugar maple, beech, red oak, hemlock and white pine predominating. Several large ‘specimen’ trees that have survived past logging remain. Wildflowers and ferns abound. The woods are abundant with wildlife including migrating and resident birds, and the lake contains a variety of fish species including perch and bass. More detailed information about the natural resources found on the property is available in [Natural Lebanon](#).



FARNUM HILL RESERVE

820 acres

This upland forestland on Farnum Hill, historically part of a large farm, was preserved as a natural reserve largely through the efforts of the Dr. W. Myric Wood, Jr. family. The land was transferred to the city in 1982 with support from multiple funding sources.

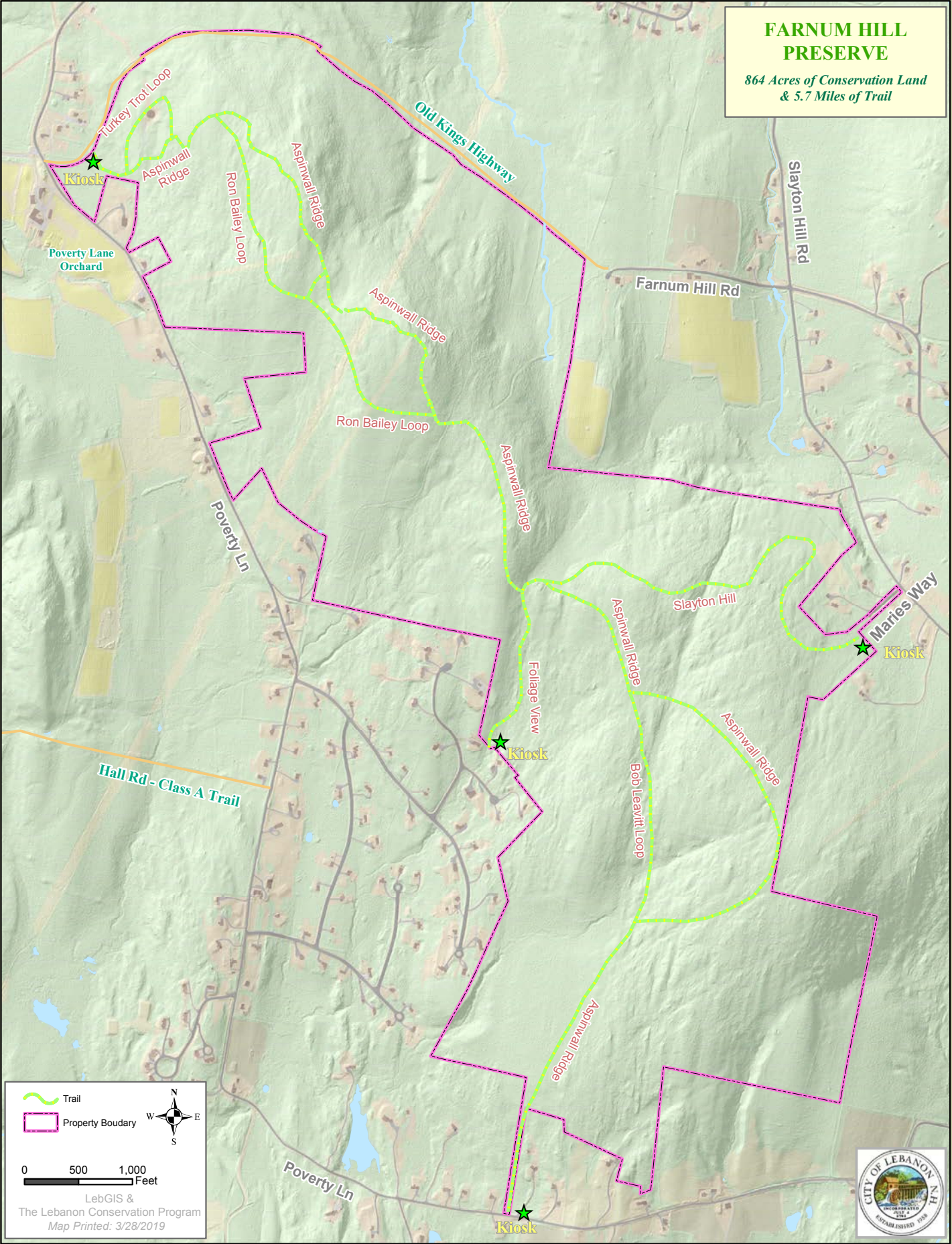
Farnum Hill is a north-south ridge with three distinct summits – South Peak being the highest point at 1,336 feet. Trails climb steep terrain and run along the rocky ridge. There are magnificent views in all directions from numerous points along the ridge. The terrain varies from gentle slopes to steep ledges. Several small streams flow intermittently from the ridge to lower elevations. Boulders carried by glaciers from the Quarry Hill – Boston Lot area, mainly granite and some the size of cars, are found throughout the reserve.

The area around Farnum Hill is rich in early Lebanon History. King’s Highway, the first planned colonial road in Lebanon, is now a class A trail running along the north boundary of the reserve. During the 1800s and the early part of the 1900s, most of this area was pasture. Old fence lines and stone walls abound. Some old fence boundaries represent abrupt changes in the stages of forest regrowth. Recent tree harvesting has also altered uniform growth patterns.

Most of the reserve is forested by typical upland forest stands of mixed hardwoods and hemlock. There are pure stands of white pine, red oak and hemlock. The hemlock stands provide deer with winter yarding areas. Native wildflowers such as trout lily, bunchberry, wintergreen, pyrola, Pointed-leaved tick-trefoil, yellow violets and Canadian mayflowers may be found in the reserve. Wildlife species are diverse and abundant. These include white-tailed deer, bobcat, rabbit, fisher cat, red fox, raccoon, ruffed grouse, woodcock, several kinds of woodpeckers, hawks, barred owls, and many songbird species.



Photo: Michael Tsai



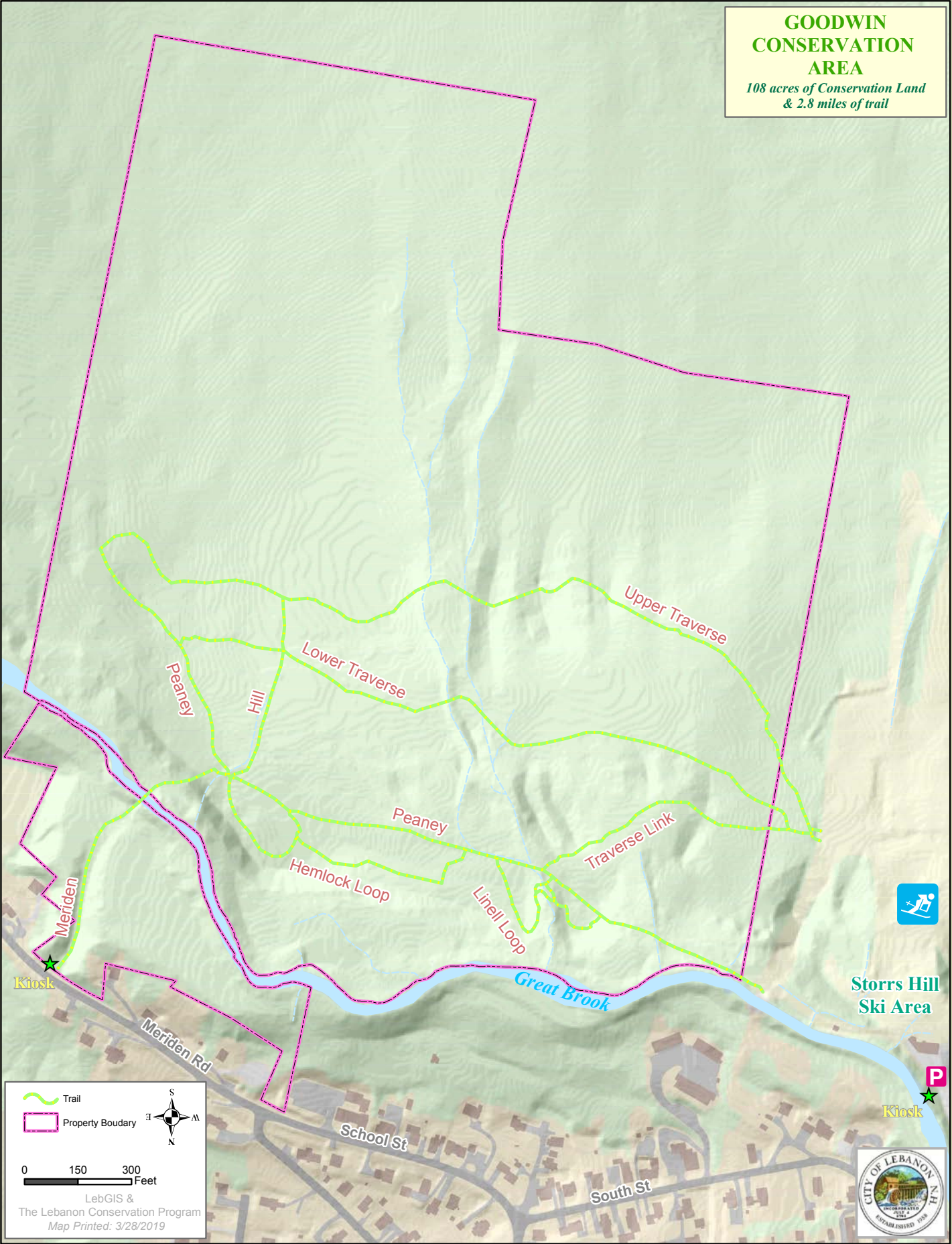
GOODWIN CONSERVATION AREA

108 acres

Goodwin Conservation Area abuts Storr’s Hill Ski Area and offers recreational opportunities year-round. The popular Exercise Trail with 17 exercise stations follows Great Brook and opened in 1980. In the winter months, cross-country ski trails loop along the hillside. Edmund and Dorothy Goodwin donated the 108-acre property to the City of Lebanon in 1974 to be used solely for recreation purposes.

The park is located on the north slope of Storr’s Hill, extending from Great Brook to the Townsend property. Many small boulders accent the hillside; most soils are well drained. Small springs and several intermittent streams are located on the hillside. Running along the base of the hill, Great Brook has several erosional features. Small waterfalls and many potholes - some the size of bathtubs – are located near the bridge at the school street access. Potholes are formed in the rock streambed by the abrasive action of rocks, pebbles and sand in the swirling water. Several good – sized wading pools are located along the stream with “Scrape Bottom” being one of the most popular on hot summer days. Stream flow is usually sufficient to maintain pool levels throughout the summer.

The forested slope is dominated by young to medium aged northern hardwoods and hemlock with areas of thick vegetation and slash, the result of recent logging. The hardwood vegetation is particularly well-developed upslope. Hemlock becomes especially prominent down along the brook at the base of the hill. Wintergreen, trailing arbutus, and pipsissewa are also found near the brook. By contrast, many of the interesting spring herbs are best developed under hardwoods: trout lily, red trillium, wild leek, blue cohosh, wild ginger, toothwort, avens, jack-in-the-pulpit, wood anemone, liverwort, pink ladyslippers and sharp-leaved hepatica. Storr’s Hill is also of botanical interest and harbors a number of rare plants and several concentrations of spring wildflowers.



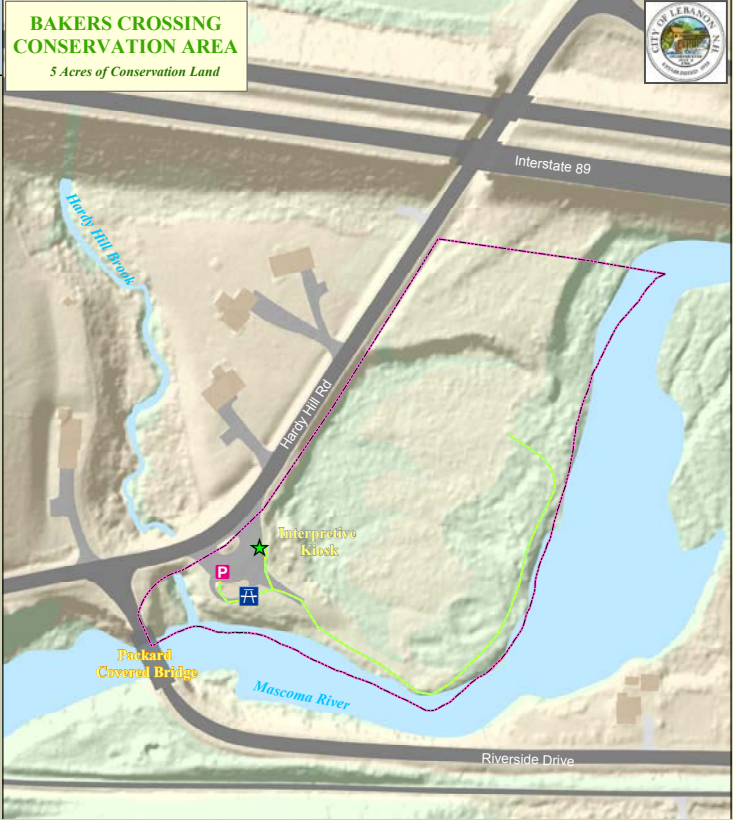
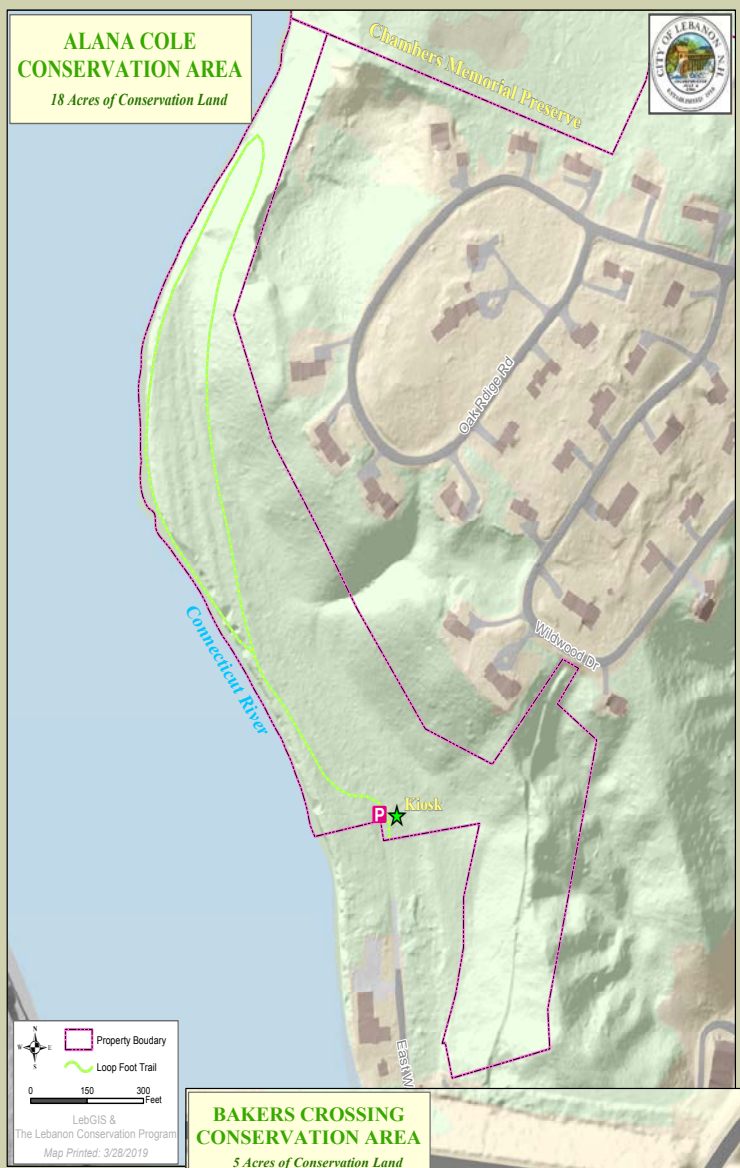
ALANA COLE CONSERVATION AREA

16 acres | 0.5 miles of trails

This unmanaged forestland property is located along the Connecticut River adjoining the Chambers Memorial Preserve property (together they protect nearly one mile of river frontage). Access is from East Wilder Road from a small parking area with a kiosk just north of the road terminus. The trail along the river is relatively flat, providing an easy stroll for viewing the river. A visible segment of the historic "Old Horse Trail" is located near the eastern boundary of the property, connecting with present day Wildwood Road.

The property features a variety of geomorphic features of glacial origin. The wooded ridge along the Connecticut River is an esker, formed by glacial debris, after the last glacier receded. The property is comprised of three distinct wildlife habitats: shoreline habitat; riverbank floodplain forest consisting of white and red oak species; and hemlock-hardwood-pine forest along the eastern edge of the property where the topography slopes on the esker. Dogwoods are found in the moist soils near the river and the woods are home to numerous wildflowers including fringed polygala, wild sarsaparilla and pink ladyslippers. The property also overlays a high-yield aquifer and its conservation has protected the quality of the groundwater.

The city bought the property in 1989 from Alana Cole with multiple public and private funding sources including the proceeds from the sale of timber off the Boston Lot. A conservation easement held by the Society for Protection of New Hampshire Forests permanently protects the property.



BAKERS CROSSING CONSERVATION AREA

5 acres

The property is located along the Mascoma River near the intersection of Hardy Hill Road and Riverside Drive. The small parking area provides access to the riverwalk trail head as well as a scenic view of the Packard Covered Bridge and Mascoma River. The Lebanon Rotary club has been actively managing the parking area for several years, including the maintenance of planters as well as general clean-up tasks.

The scrub/shrub field as well as the floodplain forest along the river's edge provide valuable habitat for migratory birds, butterflies, and other small animal species. The property offers access for fly-fishing and is a favorite location for bird-watchers.

The property was transferred to the city by Harold and Lorraine Slack in 1992 as part of a subdivision open space agreement.



Photos: Shadab Khan



Photo: James Walsh

LEBANON OPEN SPACE PLAN

a strategy for integrating and advancing efforts to conserve the city's ecological integrity

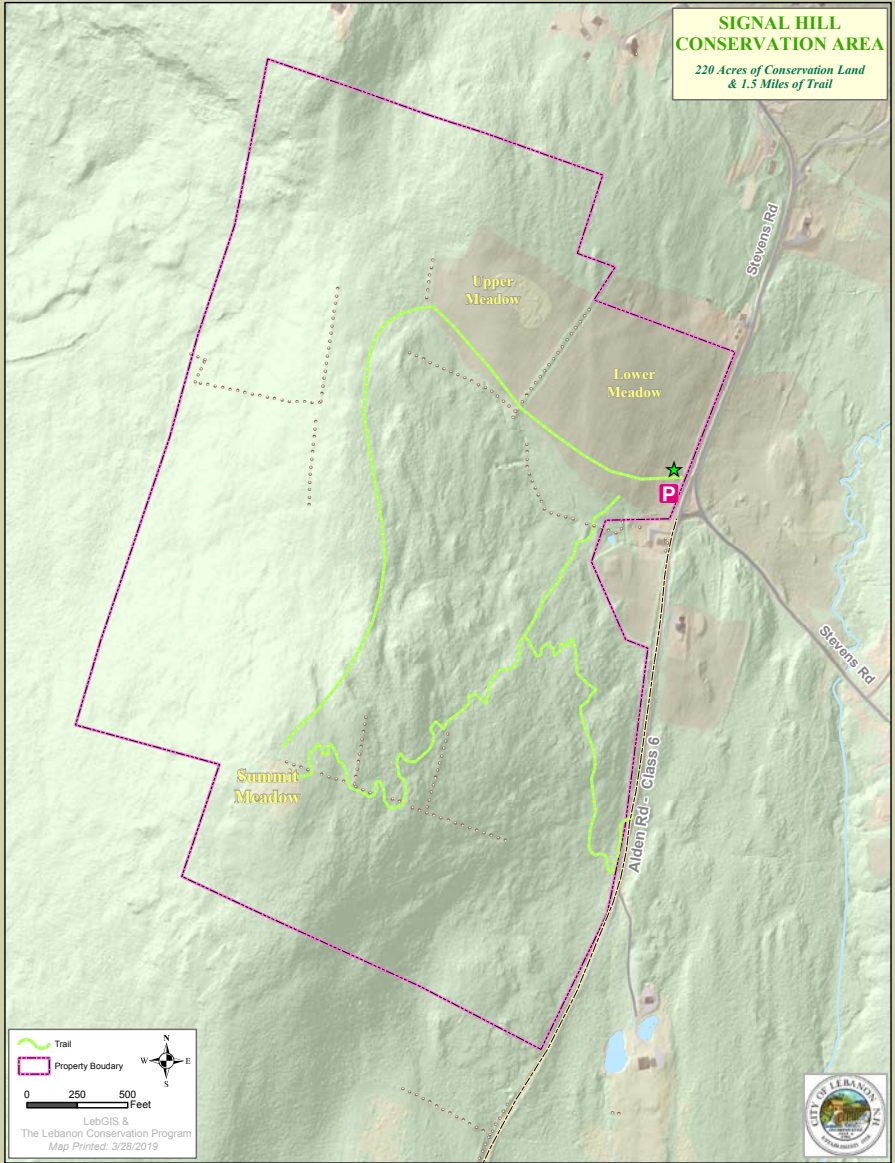
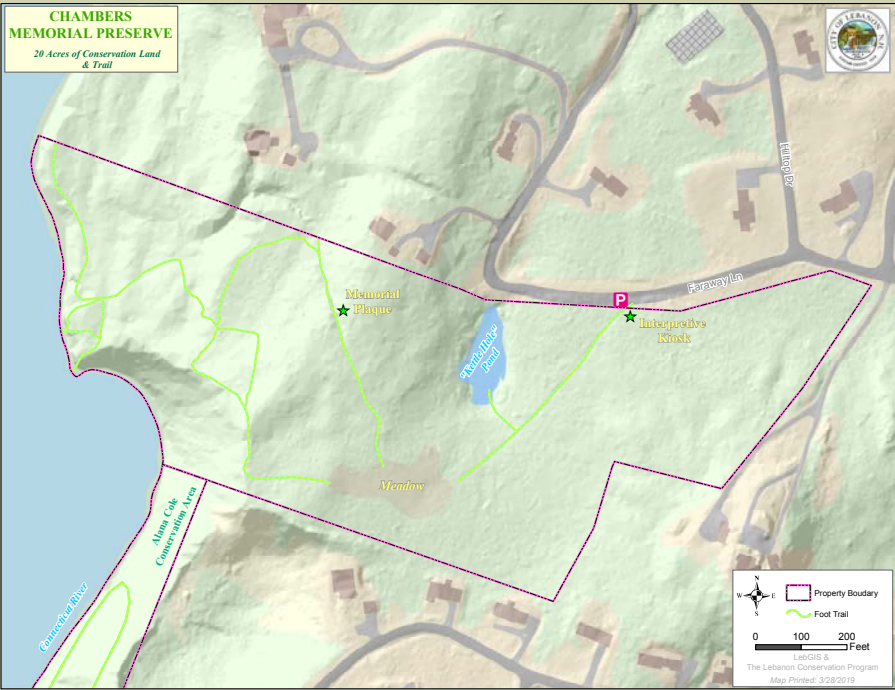
CHAMBERS MEMORIAL PRESERVE

19 acres

Chambers Memorial Preserve is a 19-acre park accessed via Wyeth Road to Faraway Lane. Trails pass by a kettle pond, through a wildflower meadow, and go down to the Connecticut River. The park was dedicated in 1973 to the memory of William Chambers, MD, a respected physician and naturalist. The Connecticut River Watershed Council transferred ownership of the property to the City of Lebanon and gave a conservation easement to the Society for the Protection of New Hampshire Forests in 1997.

The property features a variety of geomorphic features of glacial origin. The wooded ridge along the Connecticut River is an esker, formed by glacial debris, after the last glacier receded. The small pond near the entrance to the park is an example of a glacial feature common throughout New England – a kettle hole pond – which was created when a block of ice surrounded by debris melted away, leaving a depression that filled with water.

Varied habitats support a wide array of plants and animals. The park is home to chipmunks, foxes, frogs, waterfowl and songbirds. White pine, hemlock and white oak dominate the forest, while dogwoods are found in the moist soils around the pond. The meadow and woods are home to numerous wildflowers including fringed polygala, white and purple violets, wild strawberries, hawkweed, pinks, yellow rattle and pink ladyslippers.



SIGNAL HILL

220 acres

Signal Hill is so named because it was part of a chain of hills and mountains where colonists would signal using semaphore arms in daylight and fires at night during the Revolutionary War period to warn residents of approaching British forces. The property was later home to several small-scale kyanite and copper mines, and then was farmed.

Old logging trails travel uphill with beautiful overlooks through two large fields and dense pine woods to a small clearing affording views of Croydon Mountain, Mount Ascutney and Blueberry Hill.

The large amount of edge habitat supports a variety of plant and animal life. Plants include Bird's eye speedwell, blue-eyed grasses, blackberry and blueberry bushes, goldenrod, Canada mayflowers, clintonia, wild strawberries, purple violets, and wild sarsaparilla. The park is also home to deer, bear, red-tailed hawks, chipmunks, squirrels, foxes, woodcock, and songbirds.

The park was acquired by the City of Lebanon Conservation Commission in cooperation with the Upper Valley Land Trust.

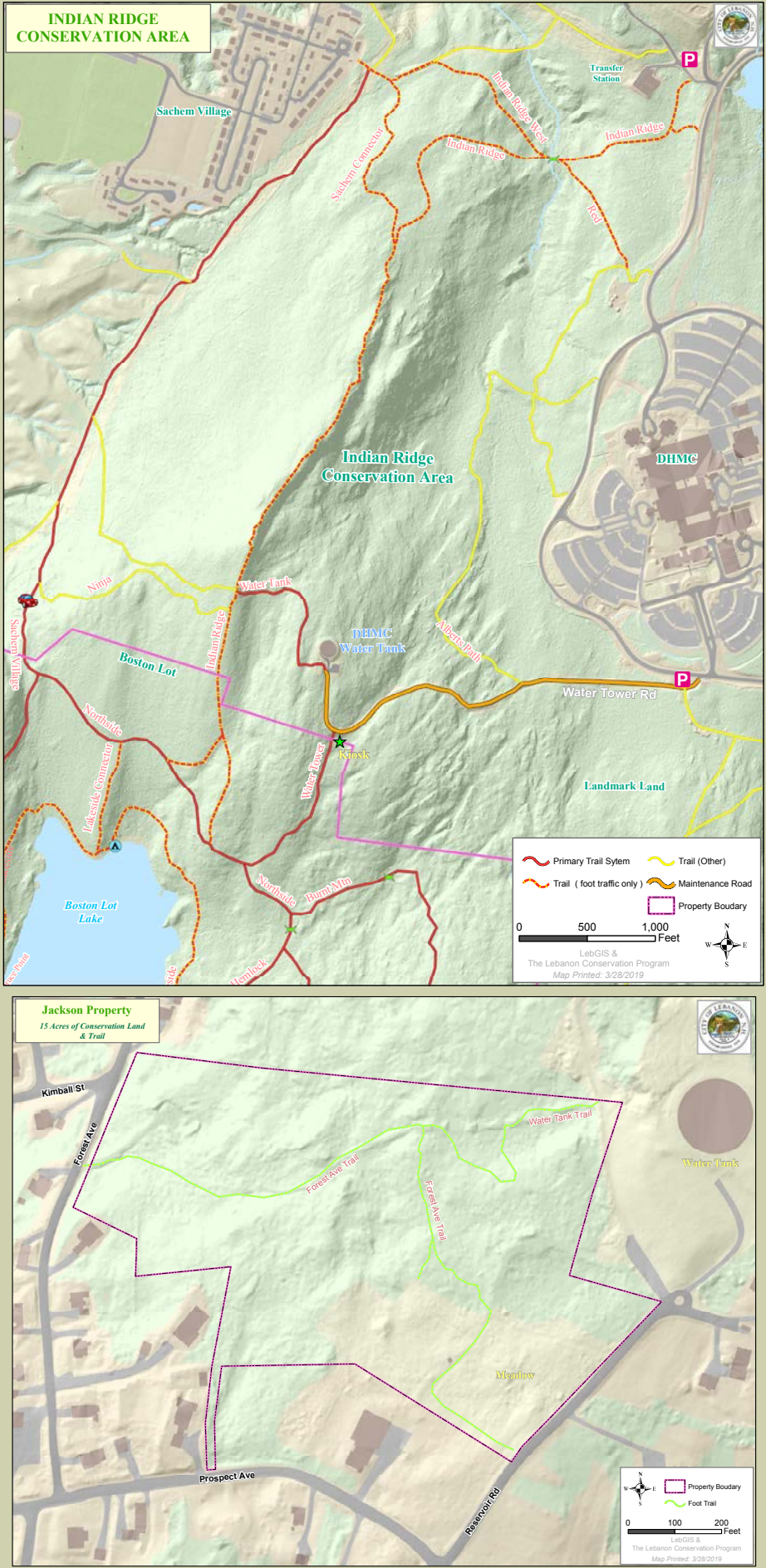


Photo: David Jorgensen

INDIAN RIDGE

237 acres

The approximately 237 acres of conserved land are part of a larger parcel owned by Dartmouth College. The existing property easement was generated as part of an agreement between Dartmouth College and the Town of Hanover. The trails on this property connect to the DHMC trail system, the Boston Lot trail system, as well as to the Sachem Village neighborhood. The views from the ridge include various Vermont peaks, as well as Dartmouth’s Baker Tower.



JACKSON PROPERTY

15 acres

The property is located along the eastern edge of the Central Lebanon city limits. The original property was subdivided to allow the City of Lebanon to purchase and conserve the undeveloped portion of the land as a natural area. The 15+ acres was purchased and protected using the Lebanon Open Space Trust fund.

The property is primarily forested, with species including red oak, white pine, eastern hemlock, red maple, and to a lesser extent, sugar maple, white ash, yellow birch and hop hornbeam. A small red pine plantation exists near the end of Reservoir Road. The eastern hemlock along the northern boundary offer great wintering area for deer. There are also approximately 3 acres of open fields.



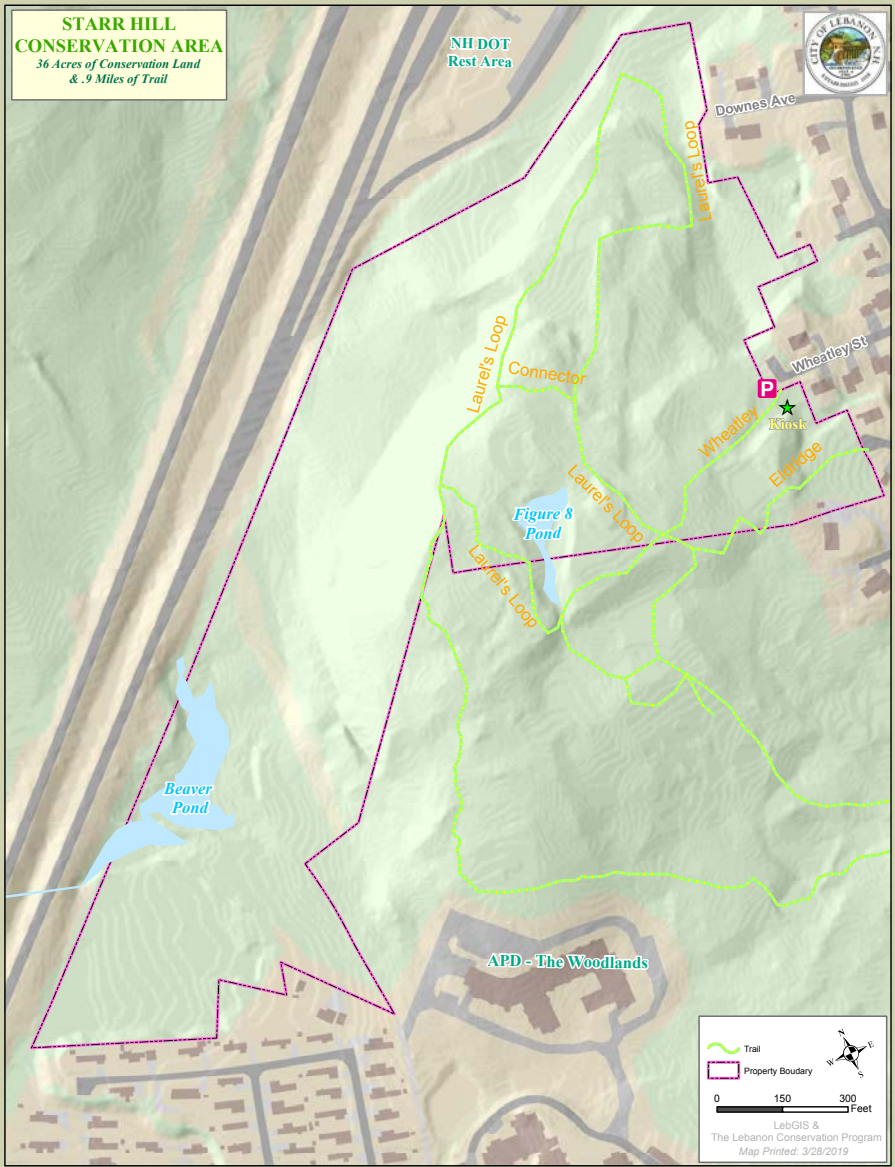
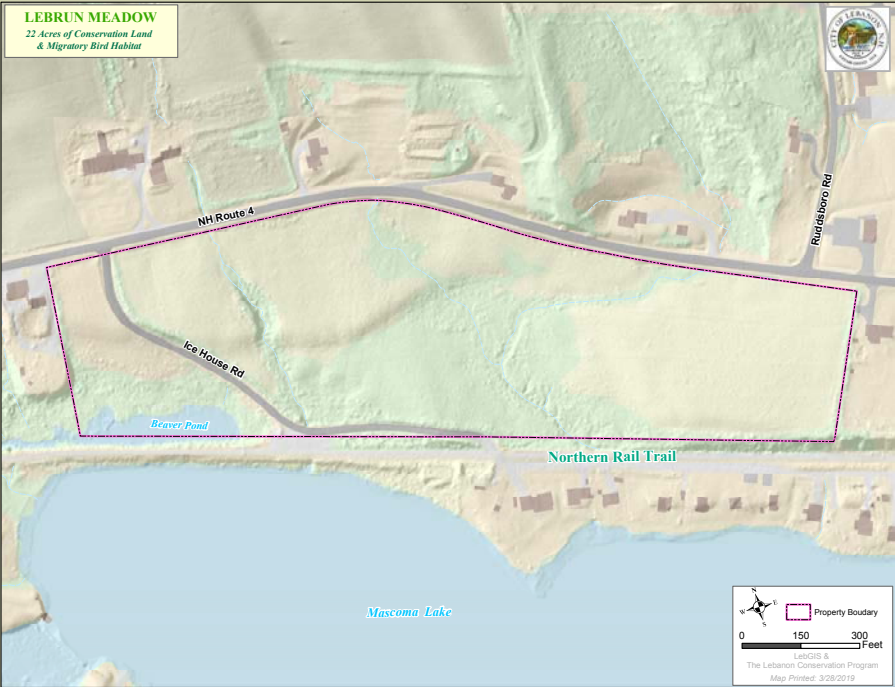
STARR HILL CONSERVATION AREA

36 acres

Starr Hill, named for the family that farmed this land, is located centrally in the city of Lebanon, southerly of the Interstate 89 corridor, and northerly of the Alice Peck Day Hospital. The history of the protection effort for this property extends back to 1991 when the first two parcels(15.2± acres in total) were conserved as part of a neighborhood initiative, led primarily by Laurel and Sid Letter. Present day protected acreage includes 36 acres.

The forested hill top property includes many interesting ecological and geological features, including vernal pools, small palustrine wetlands, large boulders, forest seeps, and a diverse mixed forest of both coniferous and hardwood species including some incredible hemlock, red oak and sugar maple legacy trees.

Trail access is found at the ends of Wheatley Street (a parking area and kiosk is located here) and Eldridge Street The Laurel Letter Loop Trail provides access to most of the property, including a section along the top of the ledges. Along the western edge of the property is an access point to the extensive trail system on the APD/Woodlands property.



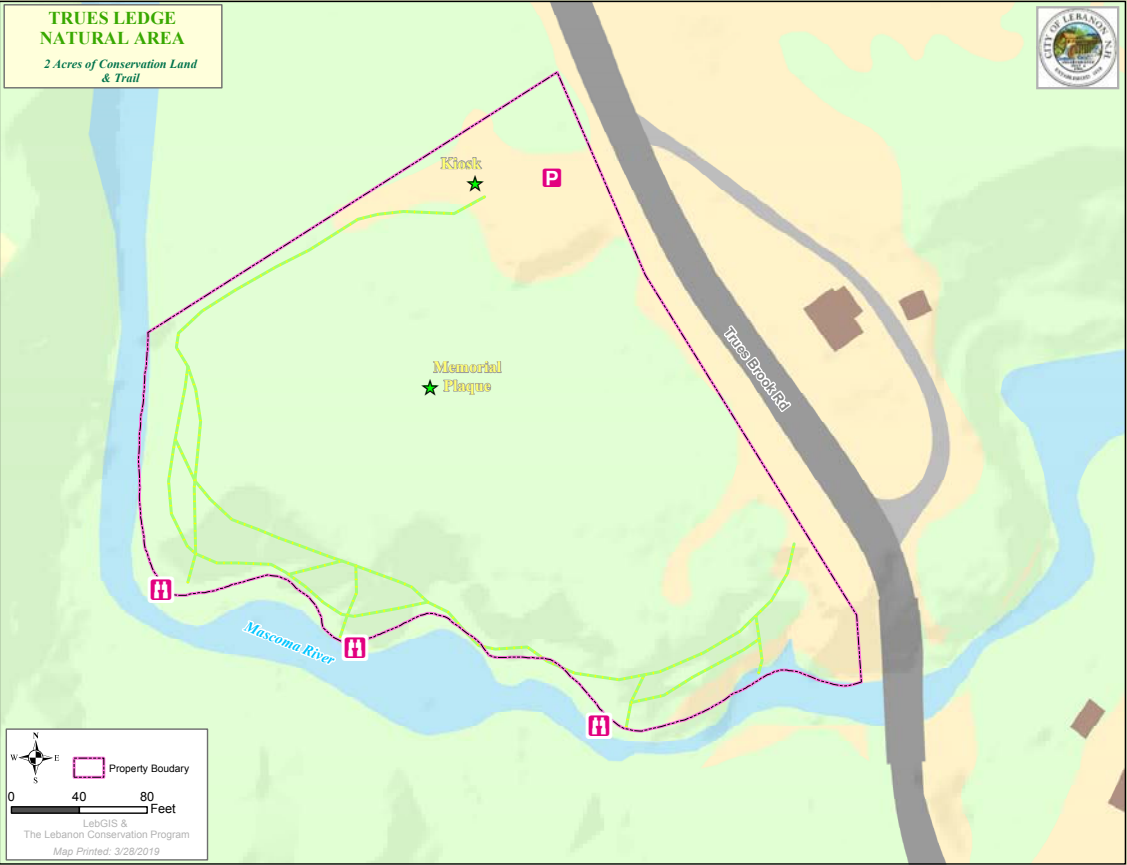
LEBRUN MEADOW

22 acres

The Lebrun Meadow property was purchased by the City of Lebanon from the Eugene D. and Valma M. Lebrun Trusts using the City's conservation funds (Lebanon Open Space Trust). The City was awarded a grant from the State of New Hampshire's Water Supply Land Grant Program to offset the purchase and conservation of the property. The parcel extends in an east-westerly direction between Dartmouth College Highway / NH Route 4 and the northwestern edge of Mascoma Lake.

The open fields on the property were historically hayed by a local farmer but are now on a four year brush-hog rotation so as to maximize the wildlife habitat diversity. Recreational users of the adjacent Northern Rail Trail can enjoy the sounds of birds as the property provides a buffer from the noise from traffic on Rte. 4. The protection of this property provides valuable water quality protection to Mascoma Lake.





TRUES BROOK
2 acres

In 1998, local efforts succeeded in the City’s acquisition of this parcel, and in turn being permanently conserved via an easement with the Upper Valley Land Trust. The property contains a nondescript trail that descends through the woods to the dramatic True’s Brook, which drains much of southwest Lebanon.

The True’s Brook gorge drops some 50 feet in elevation along 700 linear feet of shoreline, including three dramatic overlooks, and a long popular local swimming hole. There is a variety of aquatic, riparian, and upland species sharing this relatively small area.



TWO RIVERS
24 acres

This parcel’s earlier use as sand/gravel pit and construction dump belies natural community on the rebound. It was acquired by Upper Valley Land Trust in 1989 and transferred to city of Lebanon in 1990. Trails provide access to both the Connecticut and Mascoma River, including their confluence. The functioning floodplain forest contains species such as basswood, aspen, and white oak, as well as the recent plantings of elm trees with assistance by the Nature Conservancy. Wildlife on this property include mink, fox, beaver, and deer.



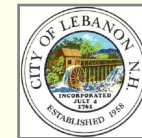
**Agenda
Conservation Commission
November 18, 2021**

**Agenda Item #4B
Study Items**

Zeev Darer Conservation Property – Property Overview & Discussion



CITY of LEBANON, NH



LEBANON
CONSERVATION
PROPERTY

ZEEV DARER

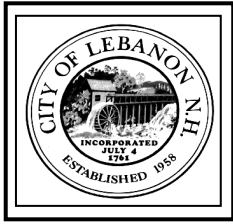
Map created by LebGIS
Map printed on 10/18/21

DRAFT

**Agenda
Conservation Commission
November 18, 2021**

**Agenda Item #4E
Study Items**

Proposed Zoning Amendments – Review and Comment



CITY OF LEBANON ~ PLANNING & DEVELOPMENT

MEMORANDUM

TO: Zoning Board of Adjustment

FROM: Planning and Development Department Staff

RE: 2021-2022 Proposed Zoning Amendments

DATE: November 9, 2021

On October 6, 2021, Planning and Development Department staff presented to the City Council a set of proposed Zoning Ordinance amendments for initial consideration. Following the presentation, the City Council agreed to move the proposed amendments forward for further review. Pursuant to the amendment process outlined in Section 1000 of the Zoning Ordinance, the City's land use boards will be reviewing the proposed amendments at the following meetings:

- Zoning Board of Adjustment – November 1, 2021
- Conservation Commission – November 18, 2021
- Planning Board - November 22, 2021

Section 1000.3 ("Amendment Procedures"), subsection C requires review and comment by the Planning Board and the Conservation Commission of any proposed zoning amendment:

All proposed [zoning] amendments shall be forwarded to the Planning Board and Conservation Commission. Planning Board and Conservation Commission shall place the proposed amendment on their agenda for discussion and comment at least thirty (30) days prior to the City Council public hearing. The Planning Board and Conservation Commission shall forward their comments and recommendations to the City Council at least seven (7) days prior to City Council public hearing.

For the Board's reference and review, please find attached the following:

- A legal opinion from Christine Fillmore, Esq., dated November 4, 2021.
- A staff memo to the City Council, dated September 28, 2021, providing a description of the proposed amendments.
- A redline of the current Zoning Ordinance (redline last revised November 2, 2021).

Since the initial presentation to the Council on October 6th, the redline has been updated to incorporate minor suggestions and recommendations from the City's legal counsel. Consequently, the page references in the attached staff memo may no longer match the updated redline that is attached to this memo.

Once review has been completed by the land use boards, the City Council will hold a public hearing followed by a vote on whether to adopt the amendments and/or to place them on the March 2021 ballot for voter approval.

DRAFT AMENDMENTS TO THE CITY OF LEBANON ZONING ORDINANCE

ARTICLE I INTRODUCTION [...]

SECTION 105 COMPLIANCE WITH SITE PLAN REVIEW REGULATIONS AND SUBDIVISION REGULATIONS.

The regulations set forth in this Ordinance are not intended to and shall not be construed to relieve a proposed land development from compliance with any applicable requirement set forth in the Lebanon Site Plan Review Regulations or to relieve a proposed subdivision from compliance with any applicable requirement of the Lebanon Subdivision Regulations.

Whenever the regulations set forth in this Ordinance conflict with any applicable requirements set forth in the Lebanon Site Plan Review Regulations or the Lebanon Subdivision Regulations, the provision which imposes the greater restriction or the higher standard shall apply; provided, however, that neither set of Regulations shall be construed as permitting anything prohibited by this Ordinance.

ARTICLE II GENERAL PROVISIONS [...]

SECTION 201 YARD REQUIREMENTS. [...]

201.7 Driveways and Parking Areas.

Driveways may occupy required **yard** areas. **Parking areas** may occupy required **yard** areas provided they maintain at least a 5 ft. **setback** from all lot lines, except that (i) **parking areas** in the **front yard** are prohibited in the ~~LD-DT~~ District per Section 307.9.B, and (ii) for all uses other than one- and two-family dwellings, **parking areas** in the **front yard** in the **residential districts**, the R-O District, and the R-O-1 District, shall be set back no less than the lesser of the minimum **front yard** requirement or the **building line**, but in no case less than five (5) feet. [...]

SECTION 204 LOTS IN TWO ZONING DISTRICTS.

Where a district boundary line divides a **lot of record** at the time such district boundary line is established, the regulations for either district of such **lot** may extend up to thirty feet (one hundred feet in rural lands districts) into the other district, provided the **lot** has **frontage** on a street in the district which is being extended, and provided that the **lot** has not been altered by subdivision, merger, or lot line adjustment subsequent to the establishment of the district boundary.

If such **lot** is located in a single zoning district along the entire length of its **frontage** and the size of the overall **lot** meets or exceeds the minimum required **lot area** for that zoning district, the entirety of the property may be used for any use allowed in that zoning district provided that that zoning district is more restrictive than the other zoning district(s) in which the property is located.

[...]

SECTION 213 IMPACT FEES. [...]

213.3 Definitions.

The following definitions shall be considered to pertain to this Section (213) only: [...]

E. New development means an activity that results in: [...]

- (4) The conversion of a lawful existing use to another use if such change would result in a net increase in the demand on public capital facilities that are the subject of impact fee assessment; ~~however, [.]~~

~~(5)~~ Notwithstanding the above, new development shall not include:

a. The creation of any **accessory dwelling unit** with a **gross living area** of 500 sq. ft. or less.

b. ~~The~~ replacement of an existing manufactured housing unit or any dwelling unit; or

~~a.c.~~ The reconstruction of a structure that has been destroyed by fire or natural disaster where there is no change in size, density, or type of use that would increase the demand on capital facilities for which impact fees are assessed. [...]

213.6 Review and Change in Assessment Schedules.

The impact fee assessment schedules shall be reviewed ~~annually~~ periodically by the Planning Board, along with the foundation documents that provide the basis for the assessment schedules. [...]

213.8 Waivers.

The Planning Board may grant full or partial waivers of impact fees to an assessed property where the Board finds that one or more of the following criteria are met with respect to the particular public capital facilities for which impact fees are normally assessed: [...]

B. An assessed property may apply for a full or partial waiver of public school impact fees for those residential units that have a **gross living area** of 500 sq. ft. or less.

SECTION 215 LOCATION OF ACCESSORY USE.

An **accessory use** shall be permitted only upon the same **lot** where its respective primary use lawfully exists, except that (i) a **driveway** may cross over an adjacent **lot** provided that the use the **driveway** serves is a permitted use on the **lot** over which the **driveway** crosses, and (ii) a common **driveway** serving not more than two adjacent lots is also permissible provided that the use(s) the common **driveway** serves is (are) permitted use(s) on the **lot(s)** over which the common **driveway** crosses. In the case of lots in two or more zoning districts, an **accessory use** shall be permitted only on that portion of the **lot** where its respective primary use is permitted.

ARTICLE III USE DISTRICTS

SECTION 300 ESTABLISHMENT OF USE DISTRICTS.

The City of Lebanon is hereby divided into the following use districts: [...]

~~CB~~ ~~Central Business~~
~~LDI~~ ~~Lebanon~~ Downtown [...]

SECTION 302 USES. [...]

302.4 Enhanced Performance Standards. [...]

H. Expiration.

1. For projects that require site plan review from the Planning Board, a **conditional use** permit shall expire:
 - a. If a site plan review application is not submitted to the Planning and Development Department and accepted as complete by the Planning Board within two (2) years of the date of the **conditional use** permit approval;
 - b. If and when the site plan approval expires or is deemed void; or
 - c. If the use is discontinued for any reason for more than two (2) years following the issuance of a certificate of occupancy, or is discontinued for more than two (2) years following the completion of all required site improvements where no certificate of occupancy is required.
2. For projects not requiring site plan approval, a **conditional use permit** shall expire:
 - a. If the **conditional use** is not exercised within two years of the date of **conditional use** permit approval by the Planning Board; or
 - b. If the use is discontinued for any reason for more than two (2) years following the initial commencement of the use.

302.5 Off-Lot Parking. **Parking areas** to serve off-site uses are allowed by **conditional use** permit in accordance with the requirements of Section 607.5 ("Off-Lot Parking"). [...]

SECTION 306 — CENTRAL BUSINESS DISTRICT (CB):

306.1 — Purpose:

The purpose of the CB District is to provide in-town areas for retail and service businesses, banks, offices and government facilities in West Lebanon. Other related commercial activities and higher density residential uses should be encouraged.

306.2 — Table of Uses:

<u>Permitted Uses</u>	<u>Special Exception Uses</u> (see Section 801.3)
<u>Residential</u> 1. Dwelling unit(s) above first floor 2. Multi-family dwelling (see Section 306.5) 3. Senior housing complex <u>Commercial/Non-Residential</u> 4. Amusements (indoor) 5. Community center 6. Drycleaning pick-up station 7. Financial institution 8. Funeral home 9. Health club 10. Hotel 11. House of worship 12. Laundromat 13. Library 14. Local government use 15. Membership club 16. Motel 17. Museum 18. Office 19. Personal service 20. Radio or TV studio 21. Renewable energy system per Section 612 22. Restaurant , sandwich shop 23. Retail store 24. Social service center	<u>Commercial/Non-Residential</u> 1. Craftsman's shop 2. Drive-through facility 3. Educational facility, college/university 4. Group day care facility per Section 604 <u>Uses by Conditional Use Permit</u> (see Section 302.4) <u>Commercial/Non-Residential</u> 1. Essential service 2. Other uses per Section 306.4 3. Parking facility 4. Publishing/printing 5. Recreational facility, indoor 6. Recreational facility, outdoor

<u>Permitted Uses</u>	<u>Special Exception Uses</u> (see Section 801.3)
25. Theater, concert hall, movie theater <u>Planned Developments</u> 26. Commercial PUD per Section 501	

306.3 Table of Area, Dimensions and Coverage:

Minimum Lot Requirements					Maximum Limitations	
Area	Frontage	Front Yard	Side Yard	Rear Yard	Building Coverage	Height
3,000 square feet	50'	NONE	NONE	10' (*)	NONE	45'

*May be reduced or eliminated by **conditional use** permit.

306.4 Other Uses:

Other uses include any use not identified in Section 306.2 that will contribute positively to the vibrancy of the Central Business District. Such other uses shall be permitted by **conditional use** permit from the Planning Board pursuant to Section 302.4 provided the applicant demonstrates that the proposed use:

- ~~1. Will encourage the presence of the public in the Central Business District and/or create regular and sustained opportunities for members of the public to utilize the Central Business District. Examples include, but are not limited to, providing a retail, **personal service**, and/or **restaurant** component which is accessory to the primary use.~~
- ~~2. Will not be incompatible with abutting properties and uses. An example of incompatibility includes, but is not limited to, credible evidence that the proposed use will negatively impact the value of any abutting property and/or the viability of any existing abutting use.~~
- ~~3. Meets the standards set forth in Section 302.4.~~

306.5 Dwelling Unit Density:

Density determinations for **multi-family dwellings** and **mixed use buildings** shall be made by the Planning Board during the course of site review based on site specific conditions and factors such as the availability of parking and/or the ability to provide required parking, the availability of adequate water and sewer, and the ability to provide required site improvements and to meet all other requirements of the Site Plan Review Regulations and all other applicable City regulations.

SECTION 307 ~~LEBANON~~ DOWNTOWN DISTRICT (~~LDDT~~).

307.1 Purpose. The purpose of the ~~Lebanon~~ Downtown District is to provide in-town areas for retail and service businesses, banks, offices, and government facilities in downtown Lebanon and downtown West Lebanon, and to encourage other related commercial activities and higher density residential uses. The district regulations are intended to promote an active pedestrian environment consistent with the mixed-use character of the district by providing for continuity of building setbacks and limiting parking in front yards to promote an environment that is safe for walking and biking.

307.2 Table of Uses.

<u>Permitted Uses</u>	<u>Uses by Conditional Use Permit (see Section 302.4)</u>
<u>Residential</u> Multi-family dwelling (see Section 307.5) Dwelling unit(s) above or below the street level story	<u>Commercial/Non-Residential</u> Craftsman's shop, art studio - Dry cleaning pick up station Educational facility, college/university Essential service Group day care facility per Section 604 - Laundromat - Other uses per Section 307.4 Parking facility - Publishing/printing Recreational facility, indoor Recreational facility, outdoor
<u>Commercial/Non-Residential</u> Amusements (indoor) Community center Financial institution Health club Hotel - House of worship - Library or museum Local government use Membership club <u>12. Museum</u> 12.13. <u>Office</u> 13.14. <u>Personal service</u> 14.15. <u>Radio or TV studio</u> 15.16. <u>Renewable energy system</u> per Section 612 16.17. <u>Restaurant</u>, sandwich shop 17.18. <u>Retail store</u> 18.19. <u>Senior housing complex</u> 19.20. <u>Social service center</u> 20.21. <u>Theater, concert hall, movie theater</u>	

307.3 Table of Dimensional Requirements.

Minimum Lot Requirements					Maximum Limitations	
Lot Area	Frontage	Front Yard	Side Yard	Rear Yard	Building Coverage	Building Height
3,000 square feet	40' (*)	NONE, except as may be required per Section 307.7	NONE, except as may be required per Section 307.7	10' (*), except as may be required per Section 307.7	NONE	55', except as may be permitted by conditional use permit per Section 307.8

*May be reduced by **conditional use** permit per Section 302.4.

307.4 Other Uses.

Other uses include any use not identified in Section 307.2 that will contribute positively to the vibrancy of the ~~Lebanon~~ Downtown District. Such other uses shall be permitted by **conditional use** permit from the Planning Board pursuant to Section 302.4 provided the applicant demonstrates that the proposed use:

1. Will encourage the presence of the public in the ~~Lebanon~~ Downtown District and/or create regular and sustained opportunities for members of the public to utilize the ~~Lebanon~~ Downtown District. Examples include, but are not limited to, providing a retail, **personal service**, and/or **restaurant** component which is accessory to the primary use.
2. Will not be incompatible with abutting properties and uses. An example of incompatibility includes, but is not limited to, credible evidence that the proposed use will negatively impact the value of any abutting property and/or the viability of any existing abutting use.
3. Meets the standards set forth in Section 302.4.

[...]

307.6 Non-Residential Uses.

A. Buildings with Frontage on Primary Streets.

1. If a **building** is located on a **lot** with **principal frontage** on a primary **street**, a minimum of 1,000 square feet or 1/3 of the **gross floor area**, whichever is less, of the **street level story** of the **building**, shall be reserved for a non-residential use or uses, and such combined uses shall have both a depth and width of not less than 20 feet along the primary **street**.

[...]

B. Buildings with Frontage on Secondary Streets.

1. If a **building** equal to or greater in size than 20,000 gross square feet is located on a **lot** with **principal frontage** on a secondary **street**, a minimum of 1,000 square feet or 1/3 of the **gross floor area**, whichever is less, of the **street level story** of the **building**, shall be reserved for a non-residential use or uses, and such combined uses shall have both a depth and width of not less than 20 feet along the secondary **street**. In the case

of multiple **buildings** on a **lot** with **principal frontage** on a secondary **street**, the non-residential use shall be located in the **building** closest to the secondary **street**.

[...]

C. Definitions. For purposes of this subsection, primary and secondary **streets** are defined as follows:

1. Primary Streets. The Downtown Mall, Taylor Street within 500 feet of the Downtown Mall, Hanover Street from Hough Street to Church Street, Mascoma Street, Court Street, West Park Street, ~~and North Park Street,~~ Main Street, Bridge Street, and Railroad Avenue.
2. Secondary Streets. Hanover Street from NH Route 120 to Hough Street, Foundry Street, Church Street, High Street, Mechanic Street, Water Street, East Park Street, Bank Street, Taylor Street more than 500 feet from the Downtown Mall, Campbell Street, and Spencer Street.
3. For any street that is located in more than one zoning district, the above designation as a primary or secondary street shall only apply to the segment of the street located within the ~~LD-DT~~ District.

[...]

307.10 Site Plan Review Regulations.

Development proposals and projects located in whole or in part within the ~~Lebanon~~ Downtown District are also subject to additional guidelines regarding building design and site design as established by the Planning Board in its Site Plan Review Regulations.

[...]

SECTION 310 RESIDENTIAL THREE DISTRICT (R-3). [...]

310.2 Table of Uses.

<u>Permitted Uses</u>	<u>Special Exception Uses</u> (see Section 801.3)
[...]	[...] 6. Home-based agricultural business per Section 600B.2 (lots less than 5 acres) and per Section 600B.3 (5–10 acre lots) <u>7. Home-based agricultural business per Section 600B.3.A (5–10 acre lots)</u> <u>8. Home-based agricultural business per Section 600B.3.B (10+ acre lots)</u> 7.9. <u>Nursing home</u>

[...]

SECTION 311 RESIDENTIAL-OFFICE DISTRICT (R-O).[...]

311.2 Table of Uses.

<u>Permitted Uses</u>	<u>Special Exception Uses</u> (see Section 801.3)
<u>Residential</u> 1. One-family dwelling 2. Two-family dwelling 3. Multi-family dwelling conversion (4 dwelling units or less) per Section 601 [...]	<u>Residential</u> 1. Multi-family dwelling conversion (5 dwelling units or more) per Section 601 [...]

[...]

ARTICLE V SUBDIVISIONS AND PLANNED DEVELOPMENTS [...]

SECTION 500 GENERAL. [...]

Planned developments shall be permitted in accordance with the following table:

District	PURD per Section 501.2	PRec per Section 501.3	Industrial PUD per Section 501.4	Commercial PUD per Section 501.4	Manufactured Home Park per Section 503 and Manufactured Home Subdivision per Section 504	Recreational Camping Parks per Section 505	Medical Center Complexes per Section 506	Planned Business Park per Section 508
[...]								
CB				P				
LBDT								

SECTION 501 PLANNED UNIT DEVELOPMENT (PUD).

501.1 General Requirements. [...]

E. Application Requirements. An application for a CUP shall include:

1. Subdivision and/or Site Plan. A subdivision and/or site plan, as applicable depending on the nature of the proposed PUD, prepared in accordance with all applicable standards contained within the Subdivision Regulations and/or Site Plan Review Regulations. In addition, the plan shall be prepared in accordance with the following four steps and shall document each step: [...]

c. Alignment of Roads, Driveways and Trails:

~~A road and driveway plan~~ The plans shall be designed to provide vehicular access to each building, complying with the applicable

standards in the Site Plan Review Regulations and/or the Subdivision Regulations, as applicable, and bearing a logical relationship to topographic conditions. Impacts of the ~~road plan~~vehicular access design on proposed Open Space areas and the Site Resources shall be minimized, particularly with respect to crossing environmentally sensitive areas such as wetlands and traversing slopes exceeding 15%. Road connections shall be required to the maximum extent practicable in order to minimize the number of new cul-de-sacs and to facilitate access to and from homes in different parts of the tract and adjoining lots.

d. **Drawing in the Lot Lines:**

When Steps ~~1-a~~ through ~~3-c~~ are completed, lines shall be drawn to delineate the lots for development ~~and the Open Space lot(s).~~if individual lots are proposed.

2. Impact Statement. An impact statement which clearly sets forth the impact of the proposal. The impact statement shall include:

- a. [...]
- b. [...]
- c. [...]
- d. Statement of ~~impact on~~adequacy of streets and/or sidewalks in the general area of the development including major intersections providing access, and such other areas as requested by the Board~~roads, streets and highways and on pedestrian and vehicular traffic.~~
- e. Statement of sufficiency, availability and capacity of utility services to provide water, fire protection, and sewer, and storm drainage, and further, the impact of the development on the municipal solid waste disposal facilities~~of utility systems for the provisions of water service, fire protection, sewer service, and storm drainage.~~
- f. (If applicable) Statement of impact of on-site subsurface sewage disposal systems as to adjacent wells, water supply systems, and any known aquifers so designated by the United States Geological Survey.
- ~~f.g.~~ Statement of impact of storm drainage from the development on abutting properties and potential storm drainage problems both on the site of the development and downstream from the development~~Statement of suitability of the proposed drainage system and effect on abutters.~~
- ~~g.h.~~ Statement of noise control methods and procedures.
- ~~h.i.~~ Statement on the capacity of the school system; effect on school bus transportation and distance of the proposed subdivision from the nearest elementary school~~Statement of effect on the public school system.~~
- ~~i.~~ Statement of effect on the municipal solid waste disposal facility.
- j. Fiscal impact statement analyzing the impact of the development on municipal, school and county revenues and expenditures, including estimated potential tax revenue and estimated number of school children~~Fiscal impact statement which categorizes and analyzes the impact of the PUD on municipal, school and county~~

~~revenues and expenditures.~~

- k. Statement on any special fire, police and public safety problems due to location and/or special conditions related to the site's proposed type of use~~Statement of impact on police and fire protection and public safety.~~ [...]

501.2 Planned Unit Residential Development (PURD). [...]

B. Applicability.

1. Required. In the R-3, RL-1, RL-2, and RL-3 Districts, PURDs shall be required for any major subdivision, as defined in the Subdivision Regulations, and for any other development that would constitute a major subdivision but for the exception set forth in Section 6.2 of the Subdivision Regulations~~in the R-3, RL-1, RL-2, and RL-3 Districts,~~ where the property to be subdivided equals or exceeds the following sizes:

<u>District</u>	<u>Property Size</u>
R-3	10 acres
RL-1, RL-2	20 acres
RL-3	40 acres [...]

2. Permitted. In the R-1, R-2, R-3, R-O, and R-O-1 Districts where the property to be subdivided is 5 acres or more, and in the RL-1 and RL-2 Districts where the property to be subdivided is 10 acres or more, PURDs are permitted for any major subdivision, as defined in the Subdivision Regulations, and for any other development that would constitute a major subdivision but for the exception set forth in Section 6.2 of the Subdivision Regulations.~~in the R-1, R-2, R-3, R-O, and R-O-1 Districts where the property to be subdivided is 5 acres or more, and in the RL-1 and RL-2 Districts where the property to be subdivided is 10 acres or more.~~ [...]

D. Density. [...]

2. Gross Density. In determining the number of **dwelling units** allowed by the applicable zoning district, an applicant for a PURD may use either of the following two methods:

- a. Formula Method. Subtract some of the area covered by **wetlands** and/or slopes in excess of 25 percent from the total area of the property, pursuant to the following table: [...]

Reduce the result by ten percent for the area that would be allocated to roads and streets. Apply the density of the applicable zoning district to the area resulting from the foregoing calculations to determine the number of **dwelling units** allowed. A fractional number of permitted dwelling units of .5 or greater shall be rounded up to the next whole number. [...]

- c. Density Bonus. For a PURD, the number of **dwelling units** resulting from the above calculations may be increased by up to 12 percent at the discretion of the Planning Board, per Section 507. In determining

the maximum number of additional dwelling units that the Board may permit, a fractional number of bonus dwelling units of .5 or greater shall be rounded up to the next whole number. [...]

501.3 Planned Unit Recreational Developments. [...]

- F. Minimum Open Space Preservation. In a PRec a minimum of 50 percent of the tract shall be allocated to outdoor recreation use and/or common open space. None of the area used to meet the 50 percent criteria shall be located within 50 feet of a **building**, or structure ~~or parking lot~~ that is part of the PRec. [...]

501.4 Commercial or Industrial Planned Unit Developments. [...]

- B. Location. Commercial or Industrial Planned Unit Developments are permitted uses in the Industrial, ~~GB~~, GC, and GC-1 Districts, in accordance with the provisions of this section.
- C. Tract Size. All Commercial and Industrial PUDs shall have a minimum tract size as follows:

<u>District</u>	<u>Minimum Tract Size</u>
Industrial	10 acres
GB	10 acres
GC	10 acres
GC-1	10 acres [...]

- D. Uses Allowed in a Commercial or Industrial PUD. Any non-residential use permitted or allowed by special exception or conditional use in the ~~Industrial~~ IND-L, IND-RA, ~~GB~~, GC, or GC-1 Districts ~~may be~~ is allowed in a Commercial PUD. Such uses allowed by special exception or conditional use shall be considered permitted uses when included as part of a proposed Commercial PUD and shall not require separate special exception or conditional use approval.

Any non-residential use permitted or allowed by **special exception** or **conditional use** permit in the IND-L and IND-RA Districts ~~may be~~ is allowed in an Industrial PUD. Such uses allowed by special exception or conditional use shall be considered permitted uses when included as part of a proposed Industrial PUD and shall not require separate special exception or conditional use approval. Additionally, no more than 25 percent of the **gross floor area** in an Industrial PUD may be allocated to **hotels, restaurants, personal services** and retail sales necessary to serve the needs of the other businesses in the PUD (or of their employees). [...]

SECTION 506 MEDICAL CENTER COMPLEXES. [...]

506.3 Allowed Uses

In addition to a hospital, the following uses are allowed within the Medical Center Complex: [...]

3. ~~Congregate Living Facilities/Medical Center~~ Dormitory - A ~~congregate living facility/medical center~~ or dormitory is a housing facility provided by the Medical Center Complex which provides housing for ten or more of their adult health care students and/or staff in single or double living quarters.
4. Sanatorium, *nursing home*, congregate living facility, or convalescent home.
[...]

ARTICLE VI ADDITIONAL STANDARDS FOR SPECIFIC USES

SECTION 600 HOME BUSINESSES.

600.1 Performance Criteria.

A home business shall not materially disturb the total residential environment and shall comply with the criteria listed herein. [...]

- F. The business shall not detract from the residential character of the neighborhood. It shall not: [...]

~~3. Require the use of on-street parking. [...]~~

SECTION 601 SPECIAL DESIGN STANDARDS.

The remodeling of a residential structure and other **buildings** existent as of the 2013 amendment to this section for certain uses identified in the R-2, R-O, and R-O-1 District Tables of Uses, and the construction of new **buildings** for certain uses identified in the R-O-1 District Table of Uses, shall comply with the following provisions: [...]

601.2 Parking & Access.

Adequate off-street parking shall be provided on the lot, unless off-premise parking is approved pursuant to Section 607.4. Such parking:

~~A. Shall not occupy the front yard except within **parking areas** existent as of the 2013 amendment to this section; and~~

~~B. Shall be screened from abutting properties. [...]~~

~~601.9 Site Plan Review.~~

~~All such remodelings and changes or expansions of use shall be required to have Site Plan Review by the Planning Board. [...]~~

SECTION 607 PARKING.

607.1 Table of Minimum Off-Street Parking Requirements~~General.~~

1. Except as otherwise provided below, a lot shall provide ~~M~~the minimum number of off-street parking spaces shall be provided as set forth in the following "Table of Minimum Off-Street Parking Requirements." For uses not listed in the table, the minimum requirement shall be that of the closest similar use as determined by the

Zoning Administrator. ~~The Planning Board, during site plan review of new uses or expansions of use, may allow a reduction of up to 30% in the number of required built parking spaces, provided an area is reserved on the approved site plan to accommodate the minimum number of required off-street parking spaces should they become necessary in the future. The construction of any unbuilt parking spaces shall be reviewed and approved by the Planning Board as a modification of the approved site plan.~~

2. The minimum number of required off street parking spaces for lots with more than one principal use ~~For developments having , for mixed use buildings, and for any development approved under Section 501.4 ("Commercial or Industrial Planned Unit Developments") or Section 508 ("Planned Business Parks"), the total minimum parking requirement shall be determined as per Section 607.6 ("Shared Parking").~~

~~For uses not listed in the table, the minimum requirement shall be that of the closest similar use as determined by the administrative official (or board) who is applying this section.~~

- ~~2-3.~~ The minimum number of required off-street parking spaces for **accessory uses** shall be calculated separately from the principal use where the minimum parking requirement for the accessory use is less than that required for the principal use.

(*TABLE OF MINIMUM OFF-STREET PARKING REQUIREMENTS TO BE INSERTED HERE*)

607.2 REDUCTION OF MINIMUM REQUIRED PARKING SPACES

The Planning Board may allow by **conditional use** permit a reduction of up to 30% in the number of off street parking spaces required to be built, provided an area is reserved on the approved site plan to accommodate the minimum number of required off-street parking spaces should they become necessary in the future. The construction of any unbuilt parking spaces shall be reviewed and approved by the Planning Board as a modification of the approved site plan.

~~Table of Minimum Off-Street Parking Requirements.~~

- A. ~~For developments having multiple separate business uses, for mixed use buildings, and for any development approved under Section 501.4 ("Commercial or Industrial Planned Unit Developments") or Section 508 ("Planned Business Parks"), the total minimum parking requirement shall be determined as per Section 607.6 ("Shared Parking").~~
- B. ~~For uses not listed in the table, the minimum requirement shall be that of the closest similar use as determined by the administrative official (or board) who is applying this section. [...]~~

607.4 ~~CB, LD-DT~~ and PB Parking.

Uses in the ~~CB-District, LD-DT District,~~ and the PB District are subject to the maximum off-street parking requirements of Section 607.3, but are exempt from ~~these~~ the minimum off-street parking requirements of Section 607.1 because of the availability of public parking. However, parking requirements in these districts shall be as required by the Planning Board through its Site Plan Review of new uses or changes or expansion of use.

607.5 Location and Layout of Required Off-Lot Parking.

~~Required parking~~Parking shall be provided on the same **lot** as the use for which the parking is ~~required~~accessory, except as follows:

- A. In the IND-L, IND-H, IND-RA, GC, GC-1, ~~CBD~~, LD, RO, RO-1, PB, and MC Districts, the Planning Board may approve private off-lot parking as a **conditional use permit**. Instead of the findings required by Section 302.4, the Board shall determine that: ~~during the Site Plan Review process, provided that:~~
1. The minimum number of required off-street parking spaces as calculated pursuant to Section 607.1, and per Section 607.4 for developments in the CB, LD, and PB Districts, cannot feasibly be accommodated on-site.
 2. The off-site use to be served is an allowed use in the zoning district in which the off-lot parking area will be located.
 3. The ~~Such~~ off-street lot parking area is in an appropriate location for the use served by the parking and will not be detrimental to abutting properties.
 42. Such parking arrangements are either permanently deeded and recorded or conveyed by an irrevocable 99-year lease or some other legal instrument, acceptable to an attorney representing the City, that will ensure that such parking arrangement will remain as long as the need exists.
 35. The off-lot parking will ~~Such shared parking arrangements do~~ not constitute a hazard to traffic or pedestrians.
- B. For conversions of one or two-family dwellings~~residences~~ to **multi-family dwellings** or where adding additional dwelling units to an existing multi-family dwelling, the Planning Board may approve private off-lot parking, as a **conditional use permit**. Instead of the findings required by Section 302.4, the Board shall determine that:
1. The minimum number of required off-street parking spaces cannot feasibly be accommodated on-site.
 2. The off-lot parking area is on a lot that is (i) adjacent to the dwelling involved, and (ii) located in a zoning district that allows multi-family dwellings to the same extent as allowed in the zoning district where the multi-family dwelling is located; ~~and,~~
 23. The off-lot parking area is appropriately screened from abutting properties; ~~and,~~
 34. The off-lot parking will not be detrimental to abutting properties.
 45. Such parking arrangements are permanently and irrevocably deeded and recorded or conveyed by an irrevocable 99-year lease or some other legal instrument, acceptable to an attorney representing the City, that will ensure that such parking arrangement will remain as long as the need exists~~by easement and recorded.~~

~~56.~~ The off-lot parking will not constitute a hazard to traffic or pedestrians.

~~6. The adjacent lot shall not be in the same ownership. [...]~~

TABLE OF MINIMUM OFF-STREET PARKING REQUIREMENTS
(Rounded ~~up~~ down to the nearest whole - See Section 607.2)

<u>TYPE OF USE</u>	<u>UNITS OF MEASUREMENT</u>	<u>PARKING SPACES PER UNIT (I.E. RATIO)</u>
RESIDENTIAL		
[...]	[...]	[...]
Dormitory	Beds	1.0
[...]	[...]	[...]
COMMERCIAL		
[...]	[...]	[...]
Office, to include medical	Gross floor area	1.0/250 sq. ft.
[...]	[...]	[...]

SECTION 608 SIGNS. [...]

608.3 Prohibited Signs.

The following are prohibited:

- A. **Off-premise signs**, except as may be permitted per Sections 608.6.A.1 and 2. A sign advertising an on-site use that has ceased operation or vacated the lot shall be considered an off-premise sign after a period of 180 consecutive days following the discontinuance of the use.
- B. **Signs** located within ~~public streets and public sidewalks~~, except as set forth in Section 608.4.A.5.b (projecting signs in the ~~CB and LD-DT~~ Districts) and Section 608.6.A.6 (**sandwich board sign** regulations) and as may otherwise be allowed pursuant to Chapter 152 ("Streets and Sidewalks") of the Code of the City of Lebanon. [...]

608.4 Non-Residential Uses.

- A. Non-Residential Uses in Commercial and Industrial Districts. Signage for non-residential uses in the **commercial** and **industrial districts** shall be subject to the following requirements:
 1. Maximum Permitted Sign Area. [...]
 - f. Multiple Principal Facades. Where a building has multiple **principal facades**, the facades may be combined for purposes of calculating the maximum permitted sign area per Section 608.4.A.1.a. [...]
 4. Freestanding Signs. A **lot** in the **commercial** and **industrial districts** may display one **freestanding sign** subject to the following regulations:

a. Sign Area and Height Regulations.

- i. **Freestanding signs** must comply with the dimensions set forth in the following table:

	Zoning District					
Maximum	GC & GC-1	CB	LD-DT	IND-L	IND-RA	IND-H
height	25 ft.	12 ft.	12 ft.	12 ft.	12 ft.	12 ft.
sign area	64 sq. ft.	32 sq. ft.	24 sq. ft.	64 sq. ft.	64 sq. ft.	64 sq. ft.

- ii. Strip Plazas and Multi-Tenant Buildings. ~~A~~ **Freestanding signs** for a property improved with a strip plaza or multi-tenant building may exceed the maximum **sign area** set forth in Section 608.4.A.4.a.i by up to 50 percent, except in the ~~CB and LD-DT~~ Districts. Such additional **sign area** shall not be deducted from the maximum **sign area** permitted on a **lot** under Section 608.4.A.1.a (“Maximum Sign Area”).

iii. Height. [...]

- ~~iii.~~iv. The size of a freestanding sign may exceed the maximum sign area set forth in Section 608.4.A.4.a.i by up to 15 percent in order to accommodate numerals identifying the property address or building address, or for a freestanding sign on a property improved with a strip plaza or multi-tenant building, by up to 15 percent in addition to the increase in sign area allowed per Section 608.4.A.a.ii. [...]

5. Projecting Signs. [...]

- a. ~~CB and LD-DT~~ Districts. Because of **building coverage** and development density in the ~~CB and LD-DT~~ Districts, businesses located therein may not be able to erect **freestanding signs** or **projecting signs** which do not hang over a public sidewalk. Thus, within the ~~CB and LD-DT~~ Districts **projecting signs** may hang over a public sidewalk, subject to the following limitations: [...]

6. Illumination. **Signs** may have either **external illumination** or **internal illumination**, subject to the following:

- a. Lighting Plan. An applicant for a permit to illuminate a **sign** must submit a plan to the Planning Department showing the illumination plan including the effect of the illumination on any other property that might be affected by the light.

~~a.~~b. External Illumination. [...]

- ~~b.~~c. Internal Illumination. **Internal illumination** of **signs** shall be designed with an opaque background so that only the lettering, symbols (i.e. logos), or design shall appear to be lighted. ~~An applicant for a permit to illuminate a sign must submit a plan to the Planning Department showing the illumination plan including the effect of the illumination on~~

~~any other property that might be affected by the light.~~

(editing note: continue renumbering subsections 608.4.A.6.c-f)

B. Non-Residential Uses in Residential and Mixed Use Districts. [...]

1. Freestanding Signs. **Freestanding signs** shall:

- a. Comply with the landscaping requirements set forth in Section 608.4.A.4.c.i (“Landscaping”).
- b. Have a height of no greater than eight (8) feet for signs located in the mixed use districts, and no greater than four (4) feet for signs located in the residential districts. [...]

608.5 Residential Uses.

For residential development projects including a PURD, PRec, or a **multi-family** development with greater than five (5) **dwelling units**, the development as a whole may have one **sign**, not to exceed sixteen (16) square feet in **sign area** and eight (8) feet in height, in addition to any other **signs** permitted by this Section.

608.6 Temporary signs.

A. Permitted Temporary Signs. The following **temporary signs** are permitted in addition to any other signs permitted under this Ordinance: [...]

5. **Sandwich board signs** are permitted in the **commercial** and **industrial districts**, subject to the following limitations: [...]

- c. In the ~~CB and LDDT~~ Districts, sandwich board signs may be placed on a public sidewalk provided that a minimum of five (5) feet of clearance is maintained. [...]

SECTION 609 SEXUALLY ORIENTED BUSINESS. [...]

609.3 Operational Standards.

- A. No Operator or Employee of any Sexually Oriented Business shall allow or permit any Employee or Patron to engage in any Specified Sexual Activity on the premises of the business, including **parking** ~~lots~~ areas or streets adjacent to the business which are used by Patrons of the business. [...]

SECTION 610 ACCESSORY DWELLING UNIT (ADU). [...]

An **accessory dwelling unit** shall comply with the following criteria: [...]

- D. The **ADU** must be located in the same **building** as the principal **dwelling unit** unless the **lot** meets or exceeds the minimum required lot size for the respective zoning district. If the **lot** meets or exceeds the required minimum lot size, the **ADU** may be located in a separate detached accessory structure such as a garage or barn, provided the existing accessory structure conforms with the minimum required **yard** requirements for the respective zoning district. An **ADU** may also be

in a new **structure**. By **special exception**, the Zoning Board of Adjustment may allow an **ADU** to be located in a detached **structure** on a **lot** that is non-conforming to the minimum lot size and/or to be allowed in an existing accessory structure that is legally non-conforming to the applicable minimum yard requirements. [...]

~~F. If the **ADU** is located within or by an addition to the existing **one-family dwelling**, the **ADU** must be connected to the same utilities (except telephone and television) as the principal **dwelling unit**.~~ [...]

~~H. A detached **ADU**, if permitted under paragraph B above, shall maintain a proportional mass, size, and height to ensure it is not taller than the **principal building** on the lot. An **ADU** may be permitted to be taller than the principal building by **special exception**. ~~Detached **ADU** height shall not exceed the height of the **principal building** as measured to the eave line, with a maximum eave height of ten (10) feet for single-story and sixteen (16) feet for two-story detached **ADUs**.~~~~

~~I. Any necessary additional entrances or exits to the **principal building**, to serve the **ADU**, shall be located to the side or rear of the **building**. All new or altered **structures**, intended to be used as an **ADU**, must be located behind the **front building line** of the existing **principal building** except by **special exception** if the Zoning Board finds that the placement of the **ADU** on the **lot** will not adversely affect the character of the neighborhood; traffic on roads and highways; safety of pedestrians, and will not create a hazard or nuisance to abutting property owners.~~

~~J. In addition to the two (2) **on-site parking spaces** required for the principal residence, one (1) additional **on-site parking space** for the **ADU** must be provided.~~

K. An **ADU** located within the **principal building** shall have ~~an~~ interconnected **smoke and carbon monoxide alarms**~~fire alarm system~~. [...]

SECTION 612 RENEWABLE ENERGY SYSTEMS. [...]

612.3 Non-Accessory Renewable Energy Systems. [...]

C. Conditional Use Permits. If required per Table 612.3, a renewable energy system shall obtain a **conditional use** permit (CUP) prior to construction and installation. [...]

3. The Planning Board may require a reasonable **setback** from the side and front lot lines for a renewable energy system located in the ~~CB and LDDT~~ Districts.

ARTICLE VIII BOARD OF ADJUSTMENT [...]

SECTION 801 POWERS AND DUTIES. [...]

801.2 Variances. [...]

C. Expiration.

1. For projects that require site plan review from the Planning Board, a **variance** shall expire:
 - a. If a site plan review application is not submitted to the Planning and Development Department and accepted as complete by the Planning Board within two (2) years of the date of the **variance** approval;
 - b. If and when the site plan approval expires or is deemed void; or
 - c. If the **variance** is abandoned.
2. For projects not requiring site plan approval, a **variance** shall expire:
 - a. If the **variance** has not been exercised within two (2) years of the date of **variance** approval by the Planning Board; or
 - b. If the **variance** is abandoned.

~~A variance shall expire if: (1) the use is not in place within two years of the date of issuance of a zoning permit or approval by the Zoning Board of Adjustment for a variance; or, (2) if the use is discontinued for any reason for more than two (2) years. In such cases, a new application for a variance must be completed.~~

801.3 Special Exceptions.

A. To hear and decide **special exceptions** to the terms of this Ordinance upon matters which the Board is required to pass under this Ordinance. In passing upon any application for a **special exception**, the Board shall make each of the following findings:

- A1. That the **special exception** is specifically authorized by a provision of this Ordinance.

(editing note: continue renumbering subsections 801.3.B-801.3.I)

B. ~~A **special exception** shall expire if: (1) the use is not in place within two years of the date of issuance of a zoning permit or approval by the Zoning Board of Adjustment for a **special exception** or, (2) if the use is discontinued for any reason for more than two (2) years. In such cases, a new application for a **special exception** must be completed.~~

Expiration.

1. For projects that require site plan review from the Planning Board, a **special exception** shall expire:
 - a. If a site plan review application is not submitted to the Planning and Development Department and accepted as complete by the Planning Board within two (2) years of the date of the **special exception** approval;
 - b. If and when the site plan approval expires or is deemed void; or
 - c. If the **special exception** is abandoned.
2. For projects not requiring site plan approval, a **special exception** shall expire:

- a. If the **special exception** has not been exercised within two years of the date of **special exception** approval by the Planning Board; or
- b. If the **special exception** is abandoned.

~~A special exception shall expire if: (1) the use is not in place within two years of the date of issuance of a zoning permit or approval by the Zoning Board of Adjustment for a special exception or, (2) if the use is discontinued for any reason for more than two (2) years. In such cases, a new application for a special exception must be completed.~~

ARTICLE IX ADMINISTRATION AND ENFORCEMENT [...]

SECTION 901 ZONING PERMITS. [...]

901.6 — Time Limit of Permit.

~~A zoning permit shall become void if construction is not begun thereunder within 2 years from the date of issuance of the permit or grant of a special exception or variance.~~

901.7 — Date of Issuance of Zoning Permit.

~~On approval by the Board of Adjustment of an administrative appeal, variance or special exception, the Zoning Administrator shall issue a zoning permit as of the date of approval of the Board of Adjustment. Zoning permits shall be conditioned upon receipt of Site Plan Review approval from the Planning Board, when such approval is required. When Site Plan Review is required, the date of the zoning permit for the purposes of SECTION 901.6 shall be the date of receipt of Site Plan Review approval.~~

901.8 — Revocation.

~~If any use or **structure** is begun or erected which does not conform to this Ordinance, or to the provisions of any permit, decision, **special exception**, or **variance** issued under this Ordinance, the Zoning Administrator, in addition to other types of enforcement authorized by law, may revoke the zoning permit. Such a revocation may be appealed to the Zoning Board of Adjustment as an Administrative Appeal pursuant to Section 801.1; however the permit shall remain revoked pending the outcome of such appeal.~~

APPENDIX A DEFINITIONS [...]

FRONT BUILDING LINE: A line parallel to a lot line transecting that point in the building facade which is closest to the front lot line, except for minor projections as provided in Article II. [...]

DISTRICTS, COMMERCIAL: The GC, GC-1, CB, LDDT, and MC Districts. [...]

DRIVEWAY: A private off-street travelway used to provide vehicular access to lots, buildings, structures and/or **parking areas**. A-Except for one- and two-family dwellings, a driveway shall not be used for parking more than two vehicles unless it contains enough area to allow any vehicle to be parked without moving another. See also definitions of "pParking aArea" and "off-street pParking sSpaces." [...]

FAÇADE, PRINCIPAL: The **façade** of a **building** which is adjacent to or fronts on a **public street**. Interstate 89 shall not be considered a **public street** for purposes of identifying the principal

façade. If a **lot** does not have **frontage** on a **public street**, then the private road, **driveway**, or right-of-way that provides vehicular access to the **lot** shall be considered a **public street** for purposes of applying Section 608 ("Signs") to the **lot**. Except as provided in Section 608.4.A.1.f. For **buildings** with more than one **façade** adjacent to or fronting on a **public street**, the largest of such **façades** shall be considered the **principal façade**. [...]

IMPERMEABLE COVERAGE: All that horizontal area of a **lot**, **parcel** or tract which cannot be penetrated by rainwater because of manmade alterations to the natural surface of the land, including building, parking ~~lot~~, and **driveway** areas. [...]

NURSING HOME: This term shall have the same meaning as "nursing facility" as set forth in RSA 151-E:2, as amended. ~~As defined by RSA 151-C:2, a place providing, for two (2) or more persons, basic domiciliary services (room, board and laundry), continuing health supervision under competent professional medical and nursing direction and continuous nursing care as may be individually required. The except that the~~ term "nursing home" includes a "skilled nursing facility," as defined by RSA 151-C:2, but it does not include a "rehabilitation services for the rehabilitation of injured chronically disabled or sick" ~~rehabilitation facility~~" as defined by RSA 151-C:2. [...]

PARKING LOT: ~~Any parking area (as defined above) other than a parking area that is part of a driveway.~~ [...]

WAY: Any public highway, street, avenue, road, alley, park or parkway, or any private way laid out under authority of statute, and ways provided and maintained by public institutions to which state funds are appropriated for public use, to any public or private **parking lot** facility which is maintained primarily for the benefit of paying customers. [...]

YARD, FRONT (OR SETBACK): Yard between the front lot line and the front of a building extended to the side lot lines of the lot. The depth of the front yard shall be measured from the street line to the front line of the building. ~~Notwithstanding provisions for front yards elsewhere in these regulations, on streets with less than 50 foot right of way, the front yard requirement shall be measured from the center line of the existing right of way and 25 feet shall be added to the front yard requirement.~~ [...]

**Agenda
Conservation Commission
November 18, 2021**

**Agenda Item #6A
Other Business**

Review of 2022 Meeting Calendar

Meeting Schedule (Draft)
Lebanon Conservation Commission
2022

Meeting Date	Cutoff
January 13, 2022	December 30, 2021
February 10, 2022	January 27, 2022
March 10, 2022	February 24, 2022
April 14, 2022	March 31, 2022
May 12, 2022	April 28, 2022
June 9, 2022	May 26, 2022
July 14, 2022	June 30, 2022
August 11, 2022	July 28, 2022
September 8, 2022	August 25, 2022
October 13, 2022	September 29, 2022
November 10, 2022	October 27, 2022
December 8, 2022	* November 23, 2022 note this is a Wednesday, Thanksgiving falls on the normal cut off day

All meetings begin at 6:30 pm unless otherwise noted on the meeting agenda.
All Conservation Commission meetings are the 2nd Thursday of the month, and the cutoff date is 2 weeks prior, unless otherwise (indicated by an *)