Rose Farm Planning Department Materials

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November 11, 2018

Mr. Dave Sharples, Exeter Town Planner
Exeter Planning Board
10 Front Street
Exeter, NH 03833

RE: Peer Review Report of Wetland Functional Evaluation and Roadway Crossing Alternatives, Exeter Rose Farm, LLC Exeter, NH

Dear Mr. Sharples and Members of the Planning Board:

Seekamp Environmental Consulting, Inc. (SEC) is pleased to submit this Peer Review Report for the Wetland Functional Evaluation and roadway crossing alternatives for the potential roadway crossing areas on the "Exeter Rose Farm" subdivision (Rose Farm) located on Oak Street extension in Exeter, NH.

The main focus of our review includes the Wetland Functional Evaluation prepared by Marc E. Jacobs, Certified Wetland and Soil Scientist, and a field review of the roadway crossing areas, both proposed and existing as shown on the provided materials, including "Subdivision Plans , Exeter Rose Farm" prepared by TFM, MSC, revision date 10/1/18, for the Exeter Rose Farm, LLC submittal to the Exeter Planning Board. In addition, we have reviewed several documents and communication from the Planning Office file for our information and background understanding of the issues surrounding the proposed and alternative roadway crossing areas. Our recent analysis has included a field review of the wetland areas, the various potential crossing locations and layout of each crossing area. We have provided a list of materials given to us for our review from the Exeter Planning Office attached to this report. (See).

Discussion of Wetland Functional Evaluation

We have reviewed the functional evaluation prepared by Marc Jacobs and substantially agree with the findings regarding the functional scoring of both of the primary study areas. We understand the need to compartmentalize these areas into two distinct study areas for the purpose of this analysis in the Wetland Functional Evaluation. In our opinion, however these two areas, which are very close in proximity to each other, are both part of the same riverine and wetland complex associated with Norris Brook, and have similar characteristics with respect to their overall wetland characteristics. As wetland areas with such similar functions and values, we find that they are substantially

deserving of equal merit. Of recent note, there is now a beaver dam constructed just upstream of the 36 inch culvert inlet on Norris Brook at the existing crossing. This has now caused an impoundment to form upstream of this dam, and while not confirmed we expect there to likely also to be a beaver lodge associated within this impoundment. There is evidence of past beaver activity throughout the Norris Brook complex above and below each potential crossing. We think these wetlands associated with Norris Brook are likely beaver meadows. In our opinion, based on existing forest cover and habitat conditions we observed at both crossing locations, the cycle of damming and impounding by beavers, as well as dam breaching and then reforestation by preferred browse has been historically continuous at both crossing locations.

In reviewing the background information it is our understanding that there is an observation of American eel somewhere within the Norris Brook riverine complex. The exact location is unknown to us, but we feel it is likely credible that the American Eel is found in Norris Brook and associated tributaries, and may be present at both potential crossing locations at various times during migrations and movements throughout the system. Of note: the breaching of a portion of the existing concrete dam at the outlet of the "Retention Pond" may have opened up the upper reaches of Norris Brook to the Eels previously not able to negotiate the vertical walls of the dam when it was historically fully functional and wholly intact.

Discussion of Alternative Oak Street Extension Crossing

This alternative includes re-aligning the proposed Rose Farm Lane subdivision roadway to meet with the current location of Oak Street Extension prior to the existing crossing at the 36 inch concrete culvert. This design would require an additional new crossing of the "un named perennial stream" upstream from where this waterway joins Norris Brook just below the existing stone dam. The wetland areas generally parallel Oak Street Extension for a distance within the potential alternative routing. Because of this, according to the preliminary information presented, constructing the roadway here would likely require more wetland and buffer area impacts, longer retaining walls, and a widening and reconstruction of the existing Oak Street Extension. It is unclear based on the information provided what type and where the stormwater management systems would be placed, but would likely require even more impacts to the buffer area and possibly more wetland filling to be located here. In similar fashion to the other crossing design on lower on Norris Brook, widening the Oak Street Extension roadway in this location would also require an upgraded culvert design that meets stream crossing standards. The following provides a summation of issues the Planning Board should consider here:

1. The widening and upgrading of Oak Street Extension will result in greater overall wetland and buffer area impacts, and will result in a longer "contact face" of the roadway and walls with existing wetlands that currently parallel Oak Street Extension,

2. Additional impacts may be required for stormwater and drainage structures not currently accounted for here,

3. Upland forest cutting will be necessary to construct this roadway as designed and is likely unavoidable.

4. The existing 36 inch culvert will likely have to be upgraded and brought up to stream crossing standards if Oak Street Extension is reconstructed to Town Roadway standards here. Crossing design criteria should accommodate both fish passage and use, and wetland wildlife concerns here, and should be done to current stream crossing standards,

5. Continued beaver activity and occupation may cause flooding on existing paved Oak Street Extension and any design should consider future possible continued beaver usage of this stretch of Norris Brook.

6. Additional slope cutting and grading in upland forest area located to the east of the unnamed perennial stream will need to be done in order to stay under the 8% roadway grade requirement where this alternative layout meets existing Oak Street Extension. Roadway grading and improvements will likely be significant here in order to bring Oak Street Extension up to current Town Roadway standards.

Discussion of Current Rose Farm Lane Crossing Alternative

This crossing is located just downstream of the confluence of the un named perennial stream with Norris Brook where it spills over the existing partially breached concrete dam. There is a small eroded channel on the side of the dam which allows some flow to end run the vertical spillway of the dam. This crossing design is required to meet Stream crossing standards, and we find the design of the expanded box culvert as presented/ explained to us of approximately 16 feet in width to be adequate to meet the standard. We base this on our field observation of Norris Brook here at bank full conditions (11/5/18, following approximately 3 inches of rain on 11/3/18). This crossing also utilizes wall construction to minimize wetland filling. Because of this crossings more direct, perpendicular alignment, there will be less wetland filling and buffer impact, and less wall construction length to build. The "contact face" of the roadway to wetland and buffer areas will likely be less overall than with the upstream location at existing Oak Street Extension

In our opinion, this scrub shrub wetland at and below this crossing also has likely been historically utilized by beaver in the past as part of the larger Norris Brook wetland habitat. Stormwater management systems are designed here and are shown in relative close proximity to this crossing in adjacent buffer areas. The following provides a summation of issues the Planning Board should consider here:

1. The use of vertical retaining walls serves to minimize the wetland impacts at the proposed roadway crossing here. The "contact face" of the roadway will be less because this layout has a more perpendicular approach to the crossing,

2. The open box culvert design appears to meet the stream crossing standard here and will provide both fish and terrestrial passage here. Because of likely future beaver occupation in the scrub shrub "meadow" below, if possible given existing grades, the applicant should consider designing a second box passage within the proposed wall span at a higher elevation to allow for a second dry passage for small wetland wildlife utilizing this corridor,

3. Upland forest cutting will be necessary to construct this roadway as designed and is likely unavoidable.

4. Given the potential presence of American Eel in the Norris Brook complex, the Applicant should discuss crossing design considerations with New Hampshire Fish and Game. In our opinion, there should be some consideration to designing a more permanent "rock fish ramp" alongside the existing concrete dam to allow for eel passage around the dam and on upstream into the upper reaches Norris Brook.

5. There is a small intermittent stream located along the approach to the Rose Farm Lane crossing that a portion of will be piped under the roadway. This impact should be accounted for if not already in the impacts tally.

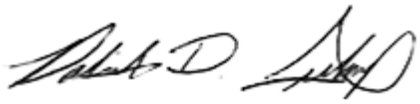
Erosion Control and Construction Considerations

Given the fine textured silt loams and marine sediments present on this site we highly recommend that the Planning Board require the Applicant provide oversight for this site during construction by an environmental monitor experienced in erosion control and slope stabilization, with particular emphasis when there are active construction activities in and around wetland and buffer areas. We find the prescribed silt sock erosion control to be inadequate when used alone along the base of the proposed walls at the wetland crossing locations. Additional erosion controls will likely be necessary here, and contingencies should be in place for high runoff periods and dewatering footing trenches. Exposed soils should be limited through phasing of construction, with runoff controls, surface stabilization, sediment traps, filter strips and dewatering devises should be employed during construction.

We trust this report is sufficient for the Planning Boards needs at this time. If you have any questions or need additional information, please do not hesitate to call.

Sincerely,

Seekamp Environmental Consulting, Inc.



Patrick D. Seekamp, CWS
Principal/Senior Wetland Scientist

Attachment: List of Review Materials Provided to SEC

List of Review Materials Provided to SEC from Exeter Planning Office

1. Site Plan entitled "Subdivision Plans, An Open Space Development, Exeter Rose Farm" revised dated 10/1/18

2. Wetland Functional Evaluation of Exeter Rose Farm, LLC, prepared by Marc E. Jacobs, Certified Wetland and Soil Scientist, dated April 3, 2018

3.Natural Resources Plan of Exeter Rose Farm, LLC, Prepared by Marc E, Jacobs, revised dated May 31, 2018

4. "Alternate Access" sketch (non - dated)

5. Letter to Dave Sharples, Exeter Town Planner, from Gwen English, Planning Board member, dated 10/19/18

6. Marc Jacobs response letter dated 9/29/2018 to the letter with attachments from Jason Reimers, BCM Environmental and Land Law, PLLC to Exeter Planning Board, dated 7/31/18

7. Memorandum to Dave Sharples, and Kristen Murphy from Marc. E. Jacobs, dated 6/29/18

8. Letter with attachments from Jason Reimers, BCM Environmental and Land Law, PLLC to Exeter Planning Board, dated 7/31/18

9. Technical Memorandum to Exeter Planning Board and Dave Sharples, from Robert Rosen, P.E. Waterstone Engineering, dated 10/15/18

10. Letter to Langdon Plumer, Chair, Exeter Planning Board from Mark West, West Environmental, Inc., dated 9/20/18

11. Photographs (author unknown) submitted to Exeter Planning Board at Planning Board Meeting by EAC (received 9/20/18

Wetland Functional Evaluation

Of

Exeter Rose Farm, LLC
Assessors Tax Map 54 / Lots 5-7 and Tax Map 63 / Lot 205
Oak Street Extension
Exeter, NH

Prepared for

Exeter Rose Farm, LLC
953 Islington Street, Suite 23D
Portsmouth, NH 03801

By

Marc E. Jacobs
Certified Wetland & Soil Scientist
P.O. Box 417
Greenland, NH 03840-0417

April 3, 2018

Exeter Rose Farm, LLC
Exeter, NH
April 3, 2018

EXETER ROSE FARM, LLC

Wetland Functional Evaluation

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- Photographs and Descriptions
- Exhibit 1- USGS Topographic Map/Locus
- Exhibit 2 – Map of Wetland Study Areas
- Natural Heritage Bureau Report
- Completed Wetland Function/Value Evaluation Forms
- Highway Methodology Workbook Supplement - Appendix A

Wetland Functional Evaluation
Exeter Rose Farm, LLC
Oak Street Extension
Exeter, NH

1.0 Introduction

Pursuant to the request by the Exeter Rose Farm, LLC to the Town of Exeter, New Hampshire for subdivision approval involving work within wetlands and, more specifically, the Wetland Conservation District (Zoning Article 9 - §9.1.6.C) at the above-referenced location off of Oak Street Extension in Exeter, NH, specifically Assessors Map 54 – Lots 5-7 and Map 63 – Lot 205, we herewith submit this Wetland Functional Evaluation to supplement the application as required under Town of Exeter, New Hampshire – Site & Subdivision Regulations – Section 9.9.3.2.

This report provides an assessment of the existing wetland functions and values at this location according to the United States Army Corps of Engineers - New England District, Highway Methodology Workbook *Supplement* – September 1999 Edition (updated in 2015). This study does not attempt to evaluate the potential effects of global climate change and associated sea level rise or tidal surge on the functions and values of wetlands at the subject properties. This evaluation may use the terms subject properties and subject property interchangeably.

This evaluation assesses the functions and values listed below for primary wetland areas based upon the current condition, noting that the site is partially developed. The functions and values of a wetland or adjacent wetlands may be altered, or more specifically, the effectiveness of a wetland or adjacent wetlands to provide a particular function may be altered (increased or decreased) as a result of modifications to adjacent uplands, impacts to wetlands elsewhere on site or other development in the watershed.

Attached is a copy of a composite 7.5 X 15 Minute United States Geological Survey Quadrangle(s) on which is depicted the approximate location of the subject property. Digital images and associated descriptions are also attached to this report. Refer to Exhibit 1.

2.0 Existing Conditions

2.1 General Property Description

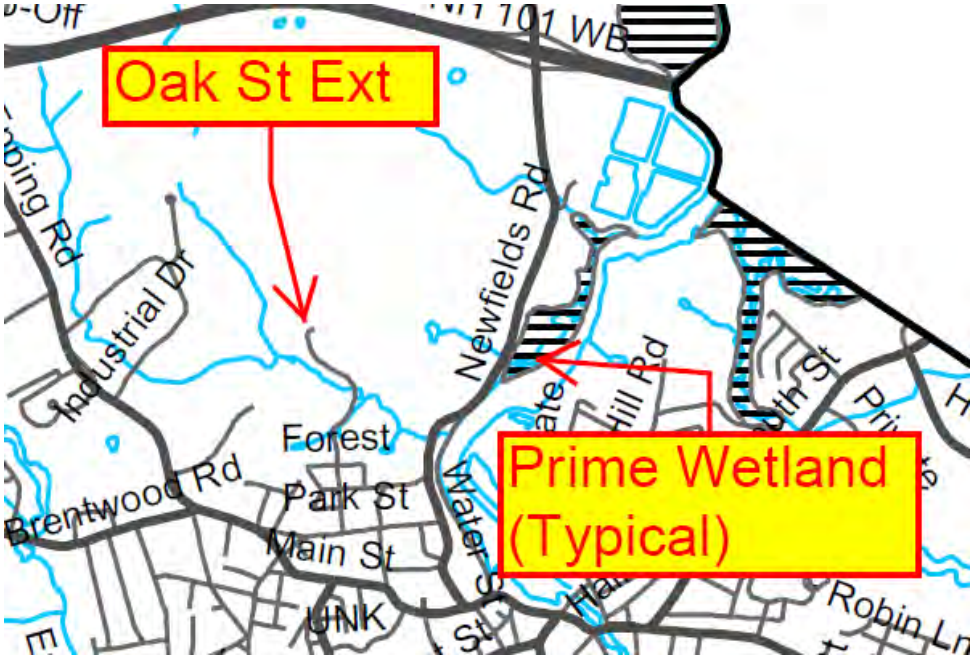
The site is bounded to the east by active railroad tracks, to the north by the Henderson-Swasey Town Forest belonging to the Town of Exeter, to the west by developed industrial lands (Industrial Drive and Commerce Way) as well as Norris Brook Condominiums and to the south by densely developed residential neighborhoods of single-family homes. A large gas main bisects the western tip of the property.

Historic land uses at this location included a brick yard and later, rose growing greenhouses and packing facilities as well as residential housing. Significant portions of the site, including wetlands, have been altered and some areas are contaminated with lead, coal ash and solid waste associated with the prior land uses. Numerous man-made wetlands and retention ponds exist as a result of excavation and other earth moving activities. The man-made retention pond located east of and adjacent to Oak Street Extension, between the spring house and the pump house described below, was created by excavation and impoundment. The impoundment consists of a poured concrete structure installed across Norris Brook. The concrete structure has been partially breached due to erosion at the south end. The dredge spoils from pond excavation are stockpiled on the south side of the pond in what were likely wetlands before they were filled. The retention pond contains a large plume of sediment from upstream. It does not appear that this pond was used for irrigation. The man-made retention ponds located north of Oak Street Extension captured runoff from the greenhouses. The runoff collected in the largest retention pond was then reused for irrigation. The hydrant along Oak Street Extension indicates that this retention pond also serves as fire protection.

The property is partially developed with 9 existing residential dwellings (5 of which are currently occupied) and several garages / outbuildings that are accessed by Oak Street Extension, which is in significant disrepair. The concrete structure that formerly housed the rose packing operation and possibly the heating system also remains. Areas of the property that formerly housed the greenhouse operations are now generally vegetated with fields that have a shrub / sapling component dominated by black locust (*Robinia pseudoacacia*). When the greenhouses were dismantled the concrete slabs were bulldozed and partially buried / exposed remnants of the concrete slabs as well as piping and other materials can be seen throughout the area and remain a significant hazard to pedestrians, especially when occasional subsurface cavities are encountered. Remaining areas of the property are generally forested with a mix of softwood and hardwood tree species dominated by oak, pine and maple. Norris Brook, a perennial stream, runs along and through portions of the property. Another unnamed perennial stream (according to some sources) and two unnamed intermittent streams as well as numerous groundwater seeps (owing to surficial geology and site soils) also drain the property and all are tributary to Norris Brook within the confines of the site. Norris Brook eventually drains to the Squamscott River, which is tidally influenced at this juncture. The influence of the normal tidal cycle does not extend to the subject properties. Most streams within the property sustain associated wetlands. There are numerous mountain bicycle trails throughout the property. A gas line/easement, 35-feet in width, traverses the western tip of the property along Norris Brook. There is a spring house on the property, along Oak Street Extension, near Forest Street, which is visited frequently by residents of the town. Water is provided to the existing homes on the subject property from the spring via a pump house (which is located adjacent to Oak Street Extension, between Oak Street Extension and aforementioned impoundment / pond). The existing homes are served by individual sewage disposal systems of unknown origin and status.

There are no prime wetlands on or immediately adjacent to the subject property. Prime wetlands are those wetlands with higher functions and values and receive additional protection under state law. Exeter has municipally designated prime wetlands recognized by NHDES. Refer to Figure 1 below.

Figure 1. Prime Wetlands (NHDES Web Site)



2.2 General Project Description

The project proposes an open space development with construction of 3,788± linear feet of new roadway, servicing approximately 37 new single-family homes. The proposed project will be serviced by municipal water and sewer utilities. Portions of the site which are contaminated with lead, coal ash and solid waste are proposed to be remediated during development. The project proposes to relocate the existing trail that traverses the western end of the property. The project is also proposing 23± acres of open space (approximately 46 percent of the property) as well as a neighborhood recreation area. The project will be covered by a Home Owners Association (HOA), which will be responsible for management of the open space and spring in perpetuity.

2.3 Study Area Determination

Determination of suitable study areas can be somewhat subjective depending upon what criteria are used to define the study area, especially since wetlands are natural systems and do not recognize political boundaries such as property lines and because all wetland systems have variations in physical attributes within a seemingly discreet wetland area.

For this study we distinguished four study areas with an emphasis on hydrology and, to a lesser degree, flooding. Highway Methodology Wetland Function-Value Forms were completed for each of the four study areas and copies of the completed forms are attached. Refer to the attached map (Exhibit 2) for a graphic representation of the lateral extent of the four study areas.

Wetlands associated with Norris Brook upstream and downstream of Oak Street Extension were separated. They were apparently part of the same wetland system prior to the construction of Oak Street Extension. The fill placed to construct Oak Street Extension, especially when considered

with the culvert at Oak Street Extension, create a logical break. Norris Brook is a perennial stream which flows west to east. Wetlands associated with Norris Brook located upstream (west) of Oak Street Extension are shaded in blue while wetlands adjacent to Norris Brook located downstream (east) of Oak Street Extension are shaded in green on Exhibit 2. Wetlands associated with the unnamed perennial stream were combined with the downstream section of wetlands associated with Norris Brook and are also shaded in green. The two primary intermittent streams that drain to Norris Brook were also evaluated separately. Wetlands associated with the western intermittent stream, which is proposed to be crossed by a cul-de-sac, are shaded in yellow while wetlands associated with the eastern intermittent stream are shaded in red on Exhibit 1.

Wetlands adjacent to Norris Brook are sustained by periodic overbank flooding supplemented by significant groundwater inputs, with lesser inputs from sheet / overland flow and finally direct precipitation. Numerous groundwater seeps can be observed around the Norris Brook drainage area and we have noted two of the more significant seeps on Exhibit 2.

The subject property includes numerous isolated wetlands that were not included in the evaluation. These isolated wetlands are man-made, both intentionally for purposes such as irrigation and incidentally during removal of the greenhouse facilities. Several of the isolated wetlands are contaminated with hazardous materials, as are adjacent uplands, and as such are proposed to be altered or eliminated during remediation of these contaminated areas.

2.4 Wetland Study Area Descriptions

Western Intermittent Stream (Yellow) Study Area

Wetlands associated with the western intermittent stream are depicted in yellow shading on Exhibit 2. The stream has origins in largely forested areas located north of the subject property and the gas pipeline. The gas pipeline includes a gravel access road which concentrates and conveys the stream through a high-density polyethylene (HDPE) corrugated plastic culvert at the property line with the subject. The culvert is perched at this location. The stream flows through a forested area with a dense canopy dominated by coniferous trees (White pine) and poorly drained hydric soils which are dominated by marine sediments having silt and clay textures. The stream and wetlands are the same in many locations although there are patches of adjacent wetlands, especially where supplemental hydrology provided by groundwater exists. The groundwater inputs are not as strong as those along Norris Brook due to the adjacent upland soil types which are dominated by loamy glacial till parent materials. There are patches of scrub-shrub wetlands associated with the groundwater influenced areas, otherwise the dominant wetland classification according to the National Wetland Inventory (NWI) and Cowardin system is Riverine, Intermittent, Unconsolidated Bottom, Intermittently Flooded (R4UBJ). The NWI has identified this stream as perennial however we have observed the stream in a no-flow condition during non-drought conditions. The relatively small watershed for this stream also contradicts a conclusion that the flow is perennial.

Norris Brook – Upstream (Blue) Study Area

Wetlands associated with Norris Brook located upstream (west) of Oak Street Extension are depicted in blue shading on Exhibit 2 and generally involve palustrine forested and scrub-shrub vegetation cover types. Watson Brook is tributary to Norris Brook at the west end of this study area as is the western intermittent stream described above.

The wetlands and Norris Brook are confined by steep slopes in this area. The steep slopes on the north (south facing) side are adjacent to Oak Street Extension and the former greenhouse packing and heating facilities. Much of the length of the north slope starting near the man-made retention basin at the base of the slope behind the former packing house and Oak Street Extension has been filled and the fill often includes solid waste such as white goods and automobile tires as well as coal ash. Groundwater seeps can be observed emanating from these waste materials in some locations. The fill appears to have been pushed over an existing bank in many places and is nestled amongst large trees in numerous locations. Indeed, the largest tree observed on site is a 32.5-inch diameter White oak located on the north slope below the former packing house. The north slope is currently forested however as numerous trees have grown back since this fill was placed.

The south slope is forested with a mix of soft and hardwood species that include a significant number of conifers such as hemlock. One groundwater seep on the south slope may be receiving stormwater from adjacent development and appears to be experiencing minor erosion with subsequent sedimentation of the wetland at the toe-of-slope and Norris Brook.

Norris Brook is moderately sinuous in this study area and drains to a 36-inch diameter reinforced concrete pipe (RCP) at Oak Street Extension. The culvert is partially plugged by debris and acts as a constriction to flow. The remains of an earthen berm were observed adjacent to the culvert. The berm resembles an old beaver dam but no associated remains of a beaver lodge have been observed. The berm has been breached. The dominant substrate in the study area involves poorly drained soils derived from marine sediments having silt and clay textures. There are pockets of very poorly drained soils confined within the poorly drained soils and we speculate that their existence and development may be associated with the flooding or impoundment caused by the aforementioned berm or beavers but this is not clear. (Some of the various resource maps we have examined over the last 2 years indicate flooding or ponding in this area.) Braided channels can be observed and indicate occasional overbank flooding.

Water quality of Norris Brook appears to be good. Turbidity is low overall but the intermittent stream and Watson Brook contribute sediment and the stream bottom is unconsolidated and also likely contributes sediment during larger storms. It is not known if the pollutants associated with the portion of the site which is contaminated exist in the stream. Lead is relatively immobile and the solid waste is not likely an issue.

The relatively large lobe of the wetland area shaded in blue that extends north-south and parallel to Oak Street Extension is sustained largely by groundwater with occasional intermittent flow from impervious and slowly pervious surfaces associated with Oak Street Extension and is eventually tributary to Norris Brook. The area is predominantly vegetated with shrubs and saplings and was likely contiguous with wetlands adjacent to the unnamed perennial brook before the construction of Oak Street Extension. The dominant substrate in this area involves poorly drained soils derived from marine sediment parent materials dominated by silt and clay textures. This area does not generally support standing water although it is conceivable that standing water backed up into this area if the berm identified above was ever functional.

Norris Brook – Downstream (Green) Study Area

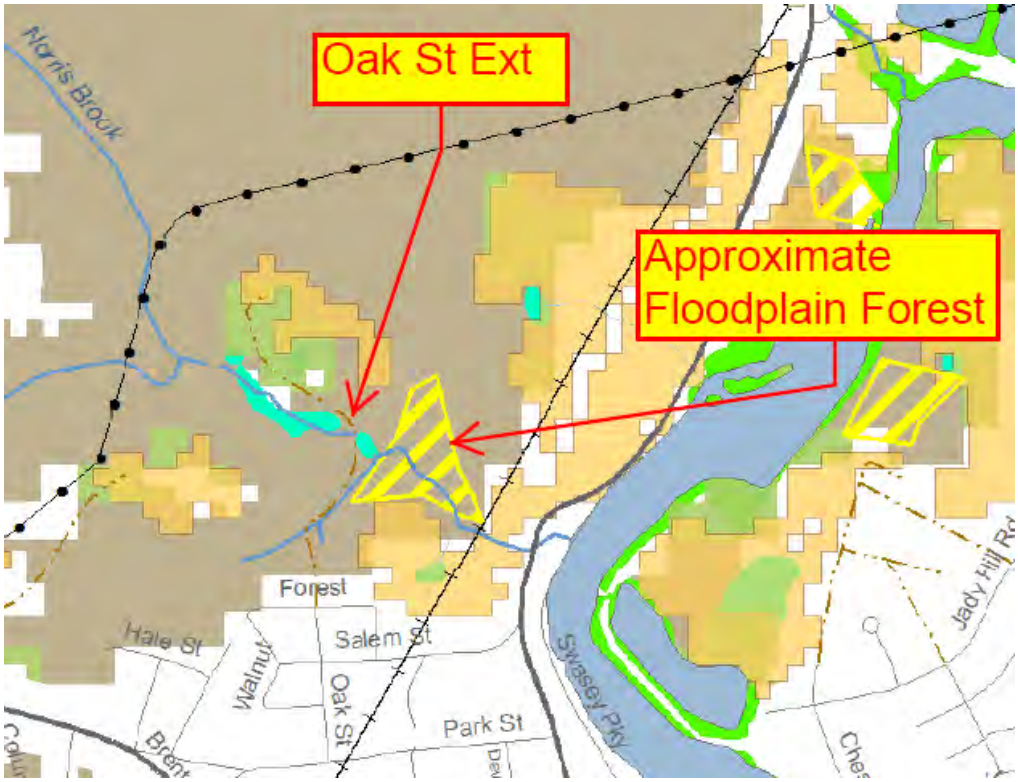
Wetlands located downstream (east) of Oak Street Extension are depicted in green shading on Exhibit 2 and generally involve palustrine forested and scrub-shrub vegetation cover types that are moderately dense to dense in most locations. There is a pond immediately downstream (east) of Oak Street Extension. The pond was created via a combination of excavation and impoundment. The excavation / dredge spoils were stockpiled to the south of the pond in what were likely wetlands. The impoundment is created by a concrete structure which has been partially breached by erosion at the south end. There is a large plume of sediment in the pond, attesting to the significant erosion and sediment transport taking place from Norris Brook, Watson Brook and the intermittent stream located upstream (west) of Oak Street Extension.

The wetlands associated with Norris Brook are confined by steep slopes in this study area, especially toward the east and railroad tracks. The slopes are generally forested with mature mixed hardwood trees with lesser amounts of coniferous softwoods.

Groundwater seeps are apparent and the most significant is located on the slope near the old jailhouse on Forest Street which drains to the unnamed perennial stream that is also tributary to Norris Brook. The slope along the east side of Oak Street Extension, between Oak Street Extension and the unnamed perennial stream, is generally comprised of fill materials and supports a large colony of Japanese knotweed, an invasive species. The channel which confines the unnamed perennial stream, or significant portions thereof, continues to develop in response to the filling of Oak Street Extension and excavation of the pond and deposition of the dredge spoils. The unnamed perennial stream is experiencing erosion in various locations with subsequent turbidity into Norris Brook just below the dam where the unnamed stream enters. Numerous bricks and brick pieces can be observed in the unnamed perennial stream channel near the juncture with Norris Brook. Refer to Images 1 and 2.

Norris Brook is moderately sinuous in this study area and drains to a 56-inch wide by 66-inch tall box culvert comprised by granite blocks/slabs at the downstream (east) property line and railroad tracks. The culvert is partially plugged by debris and may act as a minor constriction to flow based upon observations of obscure staining or siltation on the granite blocks. The dominant substrate in the study area involves poorly drained soils derived from marine sediments having silt and clay textures although significant sandy areas can be found. Braided channels can be observed and indicate occasional overbank flooding. Refer to Figure 2 below from the Natural Resources Inventory prepared for the town in 2011/2012 which indicates the approximate floodplain forest. Keeping the scale of Figure 2 in mind, the floodplain forest coincides reasonably well with the Norris Brook study area shaded in green on Exhibit 1.

FIGURE 2 Floodplain Forest (Exeter Natural Resource Inventory – Map 2)



Water quality of Norris Brook appears to be good. Turbidity is low overall but the unnamed perennial stream contributes sediment and the bottom of Norris Brook is unconsolidated and also likely contributes sediment to the stream flow during larger storms.

Eastern Intermittent Stream (Red) Study Area

The wetlands associated with the eastern intermittent stream are shaded in red on Exhibit 2. The stream has origins in largely forested areas located on private property north of the subject property as well as the Henderson-Swasey Town Forest. The watershed (19 Ac) that contributes to this wetland is insufficient to support perennial flow. The wetland has two distinct lobes. The western lobe extends off site and conveys intermittent stream flow. The eastern lobe stays on site and provides sheet flow and groundwater discharge that, due to the small subwatershed, never quite develops channel flow.

The dominant vegetation cover types include forest and scrub-shrub. The dominant substrate involves poorly drained hydric soils derived from marine sediment parent materials having silt and clay textures. Adjacent uplands are generally forested but the forest was previously altered and is regenerating however the area is generally well shaded from thermal impacts, with the possible exception of the shrubby area near the outlet which lacks a dense tree canopy. This study area is generally free from obvious dumping and other similar activities that are common to the upper reaches of the Norris Brook watershed on this property.

The intermittent stream passes through a constriction at its outlet from this study area, where it meets the green study area, owing to a combination of natural and man-made influences. The constriction coincides with an old access road which took advantage of a narrow reach on the wetland created by natural topography. The access road wetland crossing does not appear to have altered the topography substantially although there are a significant number of bricks in the area which would suggest a structure of some sort was installed here previously. Regardless, the stream flow is restricted here, resulting in a small area of shallow ponding immediately upstream and minor moderation of stream flows. However, just below the outlet the constriction results in an increase in flow velocity and turbulence downstream. The increased turbulence has resulted in some scouring and erosion as well as corresponding sedimentation of downstream wetlands in the green study area.

3.0 Wetland Functions and Values

Wetland functions are self-sustaining properties and physical attributes of wetlands that exist without regard to subjective human values. Wetland values are benefits derived from these functions and physical attributes. The functions assessed by the US Army Corps of Engineers Highway Methodology are identified below with a brief explanation of what each function and value considers.

3.1 Functions

Groundwater Recharge/Discharge – The potential for a wetland to recharge water to an aquifer or discharge groundwater to the surface.

Floodflow Alteration (Storage & Desynchronization) – The potential for a wetland to reduce flood damage by attenuating floodwaters through storage and desynchronization.

Fish/Shellfish Habitat – The potential for waterbodies associated with wetlands to provide suitable habitat for fish or shellfish.

Sediment/Toxicant/Pathogen Retention – The potential for the wetland to protect water quality by trapping sediments, toxicants and pathogens.

Nutrient Removal/Retention/Transformation – The effectiveness of wetlands to protect water quality and prevent adverse effects associated with excess nutrients in a watershed.

Production Export – The ability of the wetland to produce food for humans or other organisms.

Sediment/Shoreline Stabilization – The ability of a wetland to stabilize stream banks or shorelines against erosion.

Wildlife Habitat – The effectiveness of the wetland to provide suitable habitat for wildlife.

3.2 Values

Recreation – The ability of the wetland and any associated waterbodies to provide consumptive (e.g. hunting) and non-consumptive (e.g. hiking) recreational opportunities.

Educational/Scientific Value – The value of the wetland as an outdoor classroom.

Uniqueness/Heritage – The value relating to the effectiveness of the wetland to provide special values such as unique geologic features.

Visual/Aesthetics – The visual or aesthetic qualities of a wetland.

Threatened/Endangered Species Habitat – The effectiveness of the wetland to support threatened or endangered species.

4.0 Assumptions

The assessment of wetland functions and values can be an inherently subjective process. The Highway Methodology strives to eliminate potential bias through implementation of a qualitative and descriptive approach to functional assessment by requiring the evaluator to review a list of considerations and qualifiers for each function or value. The list of considerations/qualifiers is attached to this report as Appendix A.

The Highway Methodology lacks definitions or guidelines for certain abstruse terms associated with the considerations and qualifiers discussed, therefore, unless stated otherwise in this document, the evaluation has made the following assumptions and/or interpretations as identified below by function/value and consideration/qualifier. The considerations/qualifiers and associated assumptions are numbered to correspond to numbering identified in the Appendix A of the Highway Methodology Workbook Supplement.

<u>Groundwater Recharge Function</u>

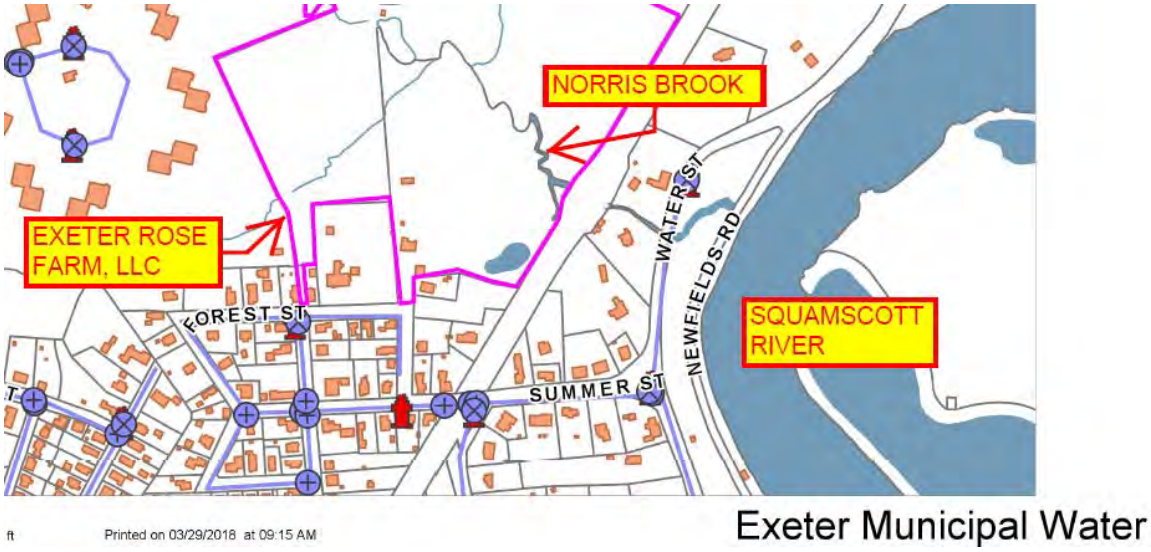
Consideration/Qualifiers 1 and 2

Public or private wells occur downstream of wetland. Potential exists for public or private wells downstream of the wetland.

Assumption

Downstream is interpreted to involve the entire watershed, even where it extends off-site, ending at the juncture with the Squamscott River for our purposes. The Highway Method does not distinguish between dug and drilled wells although their source water is frequently different. Predominant soils conditions in the area do not lend themselves to productive dug wells. The above notwithstanding, the area downstream of the subject site is served by municipal water. Refer to Figure 3 below from Exeter GIS depicting the extent of municipal water service. The bounds of Exeter Rose Farm are indicated in pink. This assumption also applies to Consideration/Qualifier 6 – Sediment/Toxicant/Pathogen Retention Function.

Figure 3 Exeter Municipal Water (Exeter GIS)



Consideration/Qualifiers 3 and 11

Wetland is underlain by stratified drift. Groundwater quality of the stratified drift aquifer within or downstream of the wetland meets drinking water standards.

Assumption

Water quality is based on visual observation only. No samples were collected or tested. This assumption notwithstanding, there are no stratified draft deposits within the area. The area is also not considered a drinking water focus area according to the Natural Resource Inventory. Refer to Figure 4 below.

Consideration/Qualifier 12

Quality of water associated with the wetland is high.

Assumption

Water quality is based on visual observation only. No samples were collected or tested. (Applies to Number 18 under Uniqueness/Heritage also.)

<u>Floodflow Alteration Function</u>

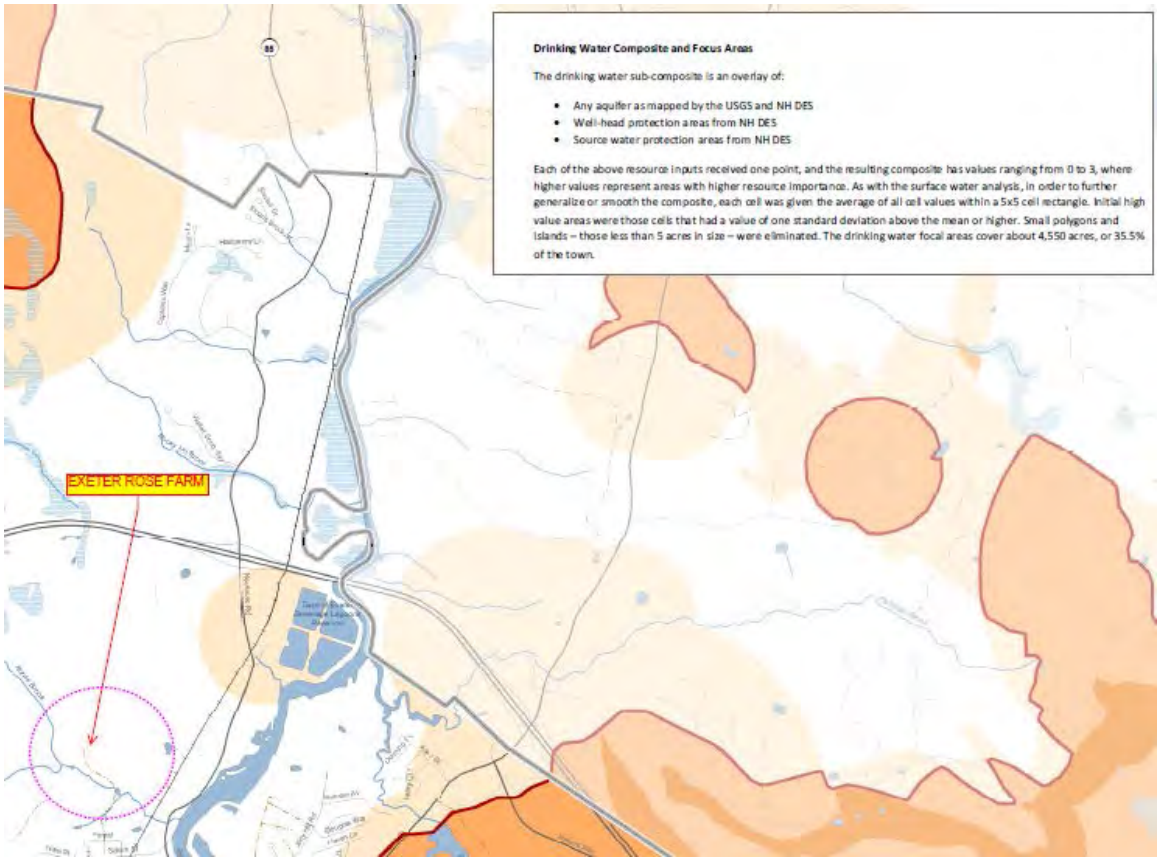
Consideration/Qualifier 1

Area of this wetland is large relative to its watershed.

Assumption

For the purposes of this evaluation, a wetland is considered to be large relative to its contributing watershed if it represents approximately 25 percent or more of the watershed area.

Figure 4 Drinking Water Focus Area (Exeter Natural Resource Inventory – Map 7)



Consideration/Qualifier 11

Valuable properties, structures or resources are located in or near the floodplain downstream from this wetland.

Assumption

Downstream is interpreted to involve the entire watershed, even where it extends off-site. Therefore, it is assumed that valuable properties generally lie in or near the floodplain downstream from the wetland at some point in the watershed. It is noteworthy that Norris Brook, which drains the subject property, travels a short distance before discharging to the Squamscott River, at which point any flood affects are neutralized.

<u>Fish/Shellfish Habitat Function</u>

Consideration/Qualifier 3

Size of this wetland is able to support large fish/shellfish populations.

Assumption

Evidence of any fish/shellfish population was interpreted to constitute a large population.

Sediment/Toxicant/Pathogen Retention Function

Consideration/Qualifier 5

Long duration water retention time is present in this wetland.

Assumption

Long duration water retention time is interpreted as any time period of sufficient duration that will result in settling of suspended solids constituted by sand and silt size soil particles; excluding clay size soil particles (for which settling times are often calculated in days or even weeks, not hours).

Consideration/Qualifier 8

The wetland is known to have existed for more than 50 years.

Assumption

Best professional judgment was used to estimate the relative age of wetlands. Multiple versions of county soil surveys, aerial photographs and/or topographic quadrangles were not consulted. Natural wetlands are generally assumed to be more than 50 years old.

Sediment/Shoreline Stabilization Function

Consideration/Qualifier 4

Potential sediment sources are present upstream.

Assumption

Upstream is interpreted to terminate at the property line.

Wildlife Habitat Function

Consideration/Qualifier 2

Water quality of the watercourse, pond, or lake associated with this wetland meets or exceeds Class A or B standards.

Assumption

Water quality is based on visual observation only and is assumed to meet Class A or B standards where no obvious signs of excessive turbidity or other pollution were observed.

Consideration/Qualifier 14

Wetland exhibits a high degree of plant species diversity.

Assumption

A high degree of plant species diversity was generally assumed to be present where a preliminary inventory of plants at a representative observation location within the subject area revealed a significant number of species relative to other sites in the subject area.

Consideration/Qualifier 15

Wetland exhibits a high degree of diversity in plant community structure (e.g., tree/shrub/vine/grasses/mosses)

Assumption

The presence of representatives of the tree, sapling, shrub, vine, herb/grass, & moss strata was interpreted to represent a high degree of diversity in plant community structure.

Recreation Value

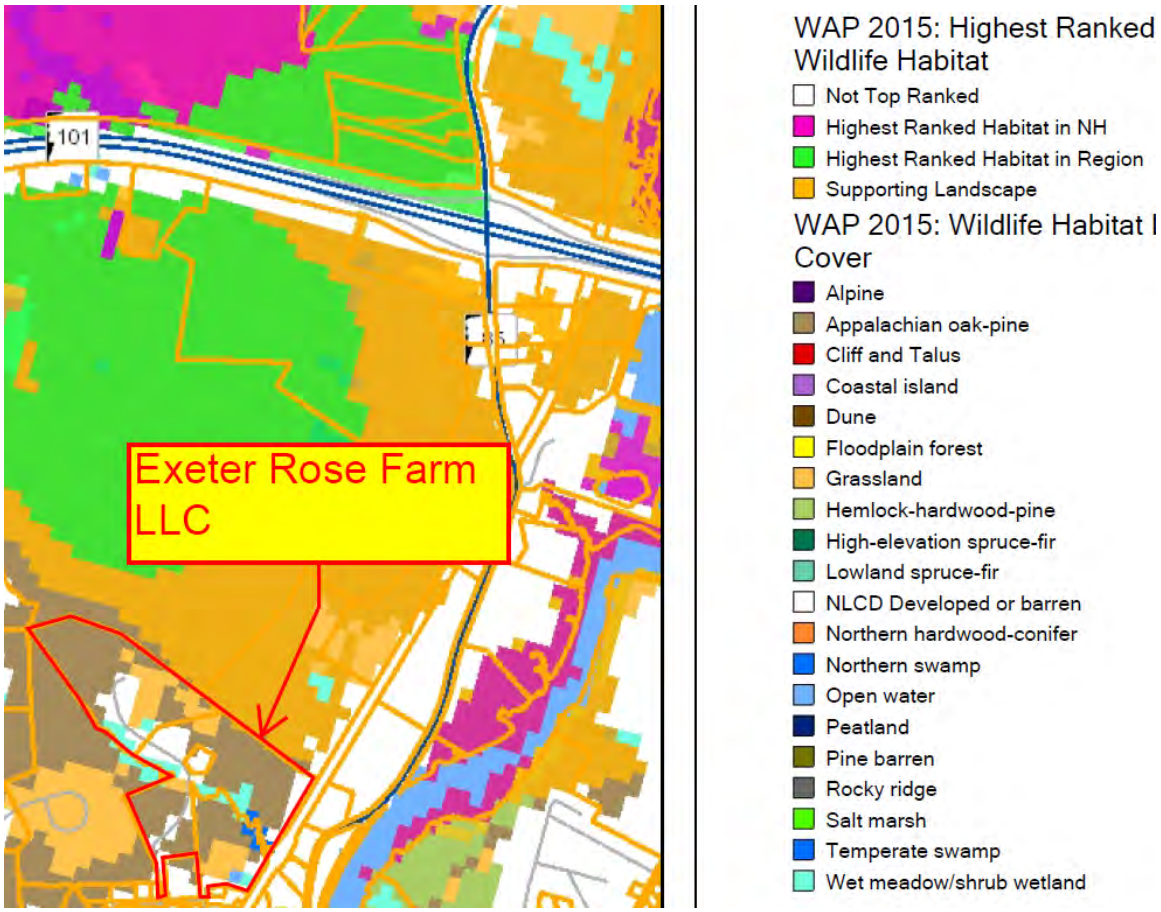
Consideration/Qualifier 5

Wetland is a valuable wildlife habitat.

Assumption

All wetlands provide habitat of one degree or another. It is our interpretation that valuable wildlife habitat refers to wetland wildlife habitat and furthermore that valuable wetland wildlife habitat possesses the physical attributes such that it can reasonably be anticipated to provide habitat for important wildlife species; those species which owe all or a significant part of their life cycle to wetlands. We note that the subject property is not identified on NH Fish and Game Wildlife Action Plan maps as providing Highest Ranked Habitat in NH or Highest Ranked Habitat in the Region. These habitat areas are shown in Figure 5 below in magenta and green respectively.

Figure 5 Wildlife Action Plan (NH Granit)



In addition to notations of physical attributes made during our numerous site visits dating back to 2015, more recently we placed game trail cameras in two strategic locations within wetlands adjacent to Norris Brook, one upstream of Oak Street Extension and one downstream, to inform our evaluation of wildlife utilization in these areas. These cameras possess a detection range of 60-feet and 70-foot nighttime infrared illumination range. We have monitored the devices periodically and attached images (numbers 3 and 4) of wildlife captured by these cameras to this document.

Consideration/Qualifier 7

High visual/aesthetic quality of this potential recreation site.

Assumption

The presence of three or more wetland classes was interpreted to represent high visual and aesthetic quality. (This is consistent with Educational/Scientific Value consideration/qualifier #3, Uniqueness/Heritage Value consideration/qualifier #4 and Visual/Aesthetics Value consideration/qualifier #1.)

Educational/Scientific Value

Consideration/Qualifier 9

Potential educational site is within safe walking distance or short drive to schools.

Assumption

"Safe walking distance" is interpreted to be less than ¼ mile from an educational facility. (Distance is not the sole measure of a safe walk however. "Short drive" is interpreted to be less than 3 miles form an educational facility. Note that Main Street School (grades K-2) is the closest school to the site at roughly 3,500 feet.) (This interpretation also applies to Recreation above and Uniqueness/Heritage.)

Consideration/Qualifier 13

No known safety hazards exist within the potential educational site.

Assumption

"Safety hazards" exist everywhere and no activity is without risk. Safety hazards in the outdoors generally involve physical trip and fall hazards like roots, rocks and holes as well as environmental hazards such as poison ivy and bee stings; and both types are known to occur commonly on virtually every natural site. However, for the purpose of this evaluation, known safety hazard is interpreted to involve unusual hazards that a reasonable person would not expect to commonly find in the forest such as explosives, shooting ranges or hazardous waste. (This assumption/interpretation also applies to #10 Uniqueness/Heritage.)

Uniqueness/Heritage Value

Consideration/Qualifier 19

Opportunities for wildlife observation are available.

Assumption

Most wildlife observations are chance encounters but it is assumed that "opportunities for wildlife observations" are available in one form or another at virtually any wetland or location if the observer is quiet and spends enough time. (Most wildlife studies and their conclusions about anticipated use by wildlife are based upon an evaluation of a particular locations physical attributes and any signs of wildlife and generally not on observations of actual wildlife.)

Endangered Species Habitat

Consideration/Qualifier 1/2

Wetland contains or is known to contain threatened or endangered species.

Assumption

The project has contacted the Natural Heritage Bureau (NHB) for information on rare, threatened or endangered species and a copy of NHB report is attached to this document. The project continues to work with the NHB and New Hampshire Fish and Game Department to respond to their concerns so we have not addressed this value individually for each study area.

5.0 List of Plants and Animals

5.1 List of Wildlife Observed

Birds

Pileated woodpecker	(*Dryocopus pileatus*) (audio confirmation)
Black-capped chickadee	(*Poecile atricapillus*)
American robin	(*Turdus migratorius*)
Blue jay	(*Cyanocitta cristata*)
Northern cardinal	(*Cardinalis cardinalis*) (audio confirmation)
American goldfinch	(*Carduelis tristis*)
Eastern blue bird	(*Sialia sialis*)
Dark-eyed junco	(*Junco hyemalis*)
Wild turkey	(*Melleagris gallopavo*) (tracks)
Red-tailed hawk (overhead)	(*Buteo jamaicensis*) (audio and visual confirmation)
Turkey vulture (overhead)	(*Cathartes aura*)
Mallard	(*Anas platyrhynchos*)

Mammals

Gray squirrel	(*Sciurus carolinensis*)
Raccoon	(*Procyon lotor*) (tracks)
White-tail deer	(*Odocoileus virginianus*) (tracks, scat, images)

Reptiles

Turtle	(No positive identification)

5.2 List of Common Vegetation (without regard to location)

The following is a list of vegetation which was commonly observed during numerous trips to the site to identify and delineate wetlands and during other site investigations, including the site visit to make observations for the wetland functional evaluation. This is not intended to represent an exhaustive list of vegetation which can be found at the site. The site is not known to possess habitat for threatened or endangered plant (or animal) species although no exhaustive surveys for sensitive species have been undertaken. Some plant species were identified by persistent remains.

Trees

White pine	*Pinus strobus*
Red Maple	*Acer rubrum*
American beech	*Fagus grandifolia*
Poplar	*Populus* sp.
American elm	*Ulmus americana*
White ash	*Fraxinus americana*
Gray birch	*Betula populifolia*
Black birch	*Betula lenta*
Yellow birch	*Betula alleghaniensis*
Black cherry	*Prunus serotina*
Eastern hemlock	*Tsuga canadensis*
Shagbark hickory	*Carya ovata*
Black locust	*Robinia pseudoacacia*
Box elder	*Acer negundo*
Northern Red oak	*Quercus rubra*
Black oak	*Quercus velutina*
White oak	*Quercus alba*
Hophornbeam	*Ostrya virginiana*

Some tree species can be found growing as shrubs or saplings as well.

Shrubs / Saplings

Apple	*Malus* sp.
Red-osier dogwood	*Cornus sericea*
Red-panicled dogwood	*Cornus racemosa*
Silky dogwood	*Cornus amomum*
Bunchberry	*Cornus canadensis*
Elderberry	*Sambucus canadensis*
Honeysuckle	*Lonicera* sp.*
Ironwood	*Carpinus caroliniana*
Speckled alder	*Alnus rugosa*
Staghorn sumac	*Rhus typhina*
Wild raisin	*Viburnum cassanoides*
Arrowwood	*Viburnum dentatum*
Autumn olive	*Elaeagnus umbellata**
Glossy buckthorn	*Frangula alnus**

Common buckthorn	*Rhamnus cathartica**
Meadowsweet	*Spiraea latifolia*
Willow	*Salix* sp.
Burning bush	*Euonymus alatus**
Winterberry	*Ilex verticillata*
Japanese barberry	*Berberis thunbergii**
Highbush blueberry	*Vaccinium corymbosum*
Witch hazel	*Hamamelis virginiana*
Multi-flora rose	*Rosa multi-flora**
Maleberry	*Lyonia ligustrina*

Herbaceous

Burdock	*Arctium minus*
Wood fern	*Dryopteris cristata*
Curley dock	*Rumex crispus*
Soft rush	*Juncus effusus*
Orchardgrass	*Dactylis glomerata*
Reed canary grass	*Phalaris arundinacea*
Tall fescue	*Festuca arundinacea*
Fine fescue	*Festuca* spp.
Ryegrass	*Lolium perenne*
Garlic mustard	*Alliaria petiolata**
Goldenrods	*Solidago* spp.
Queen Anne's lace	*Daucus carota*
Broad-leaved cat-tail	*Typha latifolia*
Sensitive fern	*Onoclea sensibilis*
Cinnamon fern	*Osmunda cinnamomea*
Royal fern	*Osmunda regalis*
Purple loosestrife	*Lythrum salicaria**
Jewelweed	*Impatiens capensis*
Japanese knotweed	*Polygonum cuspidatum**

Vines

Grape	*Vitis* sp.
Poison ivy	*Toxicodendron radicans* (Also observed growing as a ground cover.)
Virginia creeper	*Parthenocissus quinquefolia*

Aquatic

Duckweed	*Lemna minor*

*These species are thought to be invasive.

6.0 FUNCTIONS & VALUES BY STUDY AREA

The following section discusses and describes the functions and values of each wetland study area. The physical attributes and characteristics of each wetland study area are generally listed on the attached Wetland Function-Value Evaluation Forms or earlier in this report; therefore we have

limited the discussions below. An individual form has been completed for each wetland study area in order to appropriately manage data collection efforts and provide consistency. Similarly, it is difficult to precisely implement many of the considerations/qualifiers since most wetlands are part of larger contiguous wetland systems, only a portion of which may fall within the wetland study area. It is accepted however that conclusions about the effectiveness of a wetland study area to provide a particular function can change depending upon a host of factors which include the assessment area involved and the relative juxtaposition with other wetland resources. Conclusions regarding the functions and values associated with these wetland study areas are summarized below by area.

6.1 Western Intermittent Stream (Yellow) Study Area

Groundwater Recharge/Discharge

Due to the surrounding surficial geology and soils this area does provide limited recharge to groundwater but groundwater discharge is apparent although limited as compared to other areas on site. Groundwater Recharge/Discharge is a principal function of this wetland area.

Floodflow Alteration

At 18,554± square feet (SF) or 0.42 acres, the portion of this wetland that falls on the subject property represents 2% of its watershed. The watershed was calculated at approximately 19± acres as measured starting at the juncture of the intermittent stream and Norris Brook. Our investigations suggest that the inclusion of offsite wetlands will not substantially change this percentage. The stream also has significant topographic relief. Therefore, this wetland has little opportunity to alter flood flows due to landscape position. Floodflow alteration is not a principal function of this wetland area.

Fish and Shellfish Habitat (Freshwater)

Forest land is dominant in the watershed that feeds to wetland. There is a dearth of cover objects present and the stream is intermittent. The wetland is of insufficient size and depth so as not to freeze in the winter. Fish and Shellfish Habitat is not a principal function of this wetland study area.

Sediment/Toxicant/Pathogen Retention

The wetland study area is likely a net supplier of sediment. There are no known toxicant sources in the watershed above the wetland and the wetland lies upstream of known contaminants at this site. Fine grained soils are present but retention times are very short due to topographic relief. Sediment/Toxicant/Pathogen Retention is not a principal function of this wetland area.

Nutrient Removal

This wetland is small compared to its watershed. Deep water and seasonal open water habitat are absent but slowly draining fine textured soils are present. The dense vegetation community needed to utilize any nutrients is generally lacking and potential sources of excess nutrients are generally

absent in the small watershed therefore the opportunity for nutrient attenuation does not exist. Nutrient Removal is not a principal function of this wetland area.

Production (Nutrient) Export

The wetland area is sparsely vegetated and wildlife food sources are generally limited. Nutrient export is not a principal function of this wetland area.

Sediment/Shoreline Stabilization

Minor indications of erosion and siltation can be observed in this wetland. The small size, landscape position, physical attributes and lack of a permanent watercourse deny this area an opportunity to perform this function. Sediment/Shoreline Stabilization is not a principal function of this wetland area.

Wildlife Habitat

By our estimation, less than 40% of this wetland edge is bordered by upland wildlife habitat (brushland, woodland, active farmland, or idle land) at least 500 feet in width. Abandoned residences at the end of Oak Street Extension to the north and development / activity in the industrial park to the south are located within 500 feet. The gas main right-of-way (ROW) represents idle land and creates edge which invites both desirable and less-desirable edge species. Overland access for wildlife to other wetlands is present and the stream and adjacent upland could provide a corridor for more tolerant wildlife species. Wildlife food sources are limited. The wetland does not exhibit a high degree of interspersion of wetland classes and/or open water nor are inclusions of upland present within the wetland. The density of wetland vegetation and degree of diversity is low as is diversity of plant community structure. The wetland study area may provide some suitability for wildlife that is not utterly dependent upon wetlands or for species that can readily adapt to life in other wetlands however, it is not thought that wildlife habitat is a principal function of this wetland area.

Recreation

The wetland is not part of an official recreation area, park, or refuge although it extends into land that comprises the Henderson-Swasey Town Forest which is approximately 250 acres in size and prohibits hunting. Hunting opportunities are very limited, due to proximity to residential dwellings and other development, as are fishing opportunities, due to the intermittent flow. The potential for hiking in the classic sense is low but adjacent uplands provide a suitable connection to the town forest and an existing trail crosses the wetland study area. The wetland does not possess a high visual or aesthetic quality nor is it suitable for boating or canoeing. Most wetlands have some suitability for recreation and this wetland is no exception, but recreation is not a principal value of this wetland area.

Educational/Scientific Value

The potential educational site is relatively undisturbed (the culvert in the gas ROW near the property line notwithstanding) and does not contain a diversity of wetland classes. The wetland is

not considered important wildlife habitat and is not located in or adjacent to a nature preserve or wildlife management area. No signs of wildlife enhancement, such as bird houses and nesting boxes, exist on site. The wetland is not permanently flooded and the stream is intermittent. Potential off-road parking is currently available for a small bus and the wetland is a short drive but not a safe walk to or from local schools. All wetlands have some suitability for educational purposes and this wetland is no exception, however educational/scientific values are not principal values of this wetland area.

Uniqueness/Heritage

Urbanization to the south increases the importance of this wetland. The wetland lacks permanent open water, a high degree of interspersion of wetland classes and open water, three or more wetland classes and a suitable viewing area. The wetland is not known to be a site for research and is not a natural landmark or an exemplary natural community. The wetland is not an important archaeological site nor does it possess natural geologic or biological features which are locally rare. The wetland is not connected to a state or federally designated scenic river. Potential off-road parking is available for a smaller bus, accessibility is reasonably good and the wetland is a short drive (but not a safe walk) to or from schools. Uniqueness / Heritage is not a principal value of this wetland area.

Visual Quality/Aesthetics

The wetland is not dominated by flowering plants or plants that turn vibrant colors in the fall or other seasons. Wetland views are generally absent of trash, debris and other signs of disturbance although adjacent uplands are not. Residential development can be seen from the wetland, especially outside the growing season. The wetland is not considered to be important wildlife habitat. Activity associated with the industrial park can be heard from this wetland. Unpleasant odors were not detected at this wetland. Visual Quality/Aesthetics is not a principal value of this wetland area.

6.2 Norris Brook – Upstream (Blue) Study Area

Groundwater Recharge/Discharge

Due to the surficial geology and soils of surrounding upland areas this wetland provides significant groundwater discharge, which helps to provide base flow and sustain perennial flow for Norris Brook during periods of low precipitation. Groundwater Discharge is a principal function of this wetland area.

Floodflow Alteration

At approximately 82,830 SF or 1.9± acres in size, the portion of this wetland that falls within the confines of the site represents 0.42% of its watershed, which is almost 0.7± square miles (as measured starting where Norris Brook intersects Oak Street Extension. One square mile is roughly 640 acres.).

It should be noted that the figure above includes 668 SF of wetlands (associated with a groundwater seep) which are contiguous to other wetlands associated with Norris Brook but are separated by the property line. Inclusion of the off-site wetlands located between the seep and Norris Brook does not change our conclusions regarding floodflow alteration as this land is steep and does not play a significant role in this function.

The man-made retention pond at the west end of this study area is hydrologically connected to the wetland but it is our observation that the area primarily contains groundwater. Also, its location in the wetland system appears to provide very little additional floodflow alteration benefit.

Norris Brook is moderately sinuous in this area and the vegetation is relatively dense. The 36-inch diameter culvert at Oak Street Extension may be undersized and is also significantly plugged with debris, which acts as a constriction to flow. The Squamscott River is located downstream approximately 1,375 feet distant and there are a limited number of valuable properties downstream which argues against this wetland study area being considered important to flood alteration. It is our feeling however that meaningful alteration of floodflows is being provided (albeit artificially due to the plugged culvert) and thus represents a principal function of this wetland area.

Fish and Shellfish Habitat (Freshwater)

Forest is the dominant cover type in the watershed above this wetland and an abundance of cover objects are present. The culvert discussed above provides a significant impediment to aquatic organism passage due to the fact that the culvert is significantly plugged with debris. Also, the slope of the pipe presents an impediment to aquatic organism passage, especially at low flow. Fish and Shellfish Habitat is therefore not a principal function of this wetland area.

Sediment/Toxicant/Pathogen Retention

Norris brook is a potential source of sediment as is the aforementioned western intermittent stream as well as Watson Brook which is experiencing apparent channel and bank erosion. The wetland has demonstrable floodflow desynchronization characteristics and there are known toxicants in the watershed. We believe that Sediment/Toxicant/Pathogen Retention is a principal function of this wetland study area.

Nutrient Removal

The wetland is small relative to its contributory watershed and open water and deep water habitat are absent most of the time (with the possible exception of during large storm events due to the culvert being plugged). The wetland is saturated for most of the season and deep fine grained sediments are present. Dense woody vegetation is generally present and the opportunity, albeit limited, for nutrient attenuation exists. Nutrient Removal is a principal function of this wetland area.

Production (Nutrient) Export

The wetland area is densely vegetated but wildlife food sources are limited and commercial sources are absent. The fertile frond of sensitive fern can provide food for birds such as American woodcock (*Philohela minor*) and wild turkey (*Meleagris gallopavo*). Flowering plants exist,

including purple loosestrife, and can be used by nectar-gathering insects. Fish and shellfish are not found in this wetland. Most wetlands provide some suitability for nutrient production and export but Nutrient Export is not a principal function of this wetland area.

Sediment/Shoreline Stabilization

Minor indications of erosion and siltation can be observed in this wetland and the Norris Brook channel is a net sediment producer but the stream channel is largely at equilibrium with the exception of the juncture with Watson Brook which is actively eroding. However, landscape position, the lack of open water and lack of suitability for boating generally deny this area an opportunity to perform this function. Sediment/Shoreline Stabilization is not a principal function of this wetland area.

Wildlife Habitat

The wetland area has been altered by human/development activity and is fragmented by development (Oak Street Extension – however, since Oak Street Extension was used as the basis to define this study area fragmentation may not apply). The upland surrounding this wetland is partially developed therefore less than 40 percent of the wetland edge is bordered by upland wildlife habitat at least 500-feet in width. The north slope overlooking this wetland was filled with solid waste and other debris and much of the vegetation in the adjacent upland habitat closest to the wetland involves what has grown since the area was last altered. The wetland is directly contiguous with other wetland ecosystems via an intermittent watercourse. Overland access to other wetlands is present. The presence of speckled alder in certain locations is conducive to woodcock populations. Significant avian activity has been observed during site visits. The wetland does not exhibit a high degree of interspersion of wetland classes and/or open water nor are inclusions of upland within the wetland present. The density of wetland vegetation and degree of diversity is moderate to high. In our opinion the wetland study area is providing significant local habitat therefore Wildlife habitat is a principal function of this wetland area. It is worth noting that the New Hampshire Fish and Game – Wildlife Action Plan did not indicate this area as Highest Ranked Habitat in NH (depicted in magenta on Figure 5) or Highest Ranked Habitat in the Region (depicted in green on Figure 5). The area depicted in green in Figure 5 on page 15 appears to coincide with the Henderson-Swasey Town Forest.

Recreation

The wetland is not part of an official recreation area, park, or refuge. The wetland could be considered valuable wildlife habitat but hunting opportunities are very limited, if not prohibited, due to proximity to residential dwellings and other development, as are fishing opportunities due to the culvert discussed previously. The potential for hiking is unlikely but adjacent uplands (at the top-of-slope) may provide a more suitable potential connection to the town forest upon further investigation. The wetland does not possess a high visual or aesthetic quality nor is it suitable for kayaking, boating or canoeing. Norris Brook is perennial but the stream is less than 10–feet wide on average and the navigable distance is too short to be attractive. Most wetlands have some suitability for recreation and this wetland is no exception, but recreation is not a principal value of this wetland area.

Educational/Scientific Value

The wetland could be considered valuable wildlife habitat but is not located in a nature preserve or wildlife management area. Signs of wildlife habitat enhancement are absent. The potential educational site is disturbed by filling and solid waste disposal and does not contain a diversity of wetland classes. No signs of wildlife enhancement, such as bird houses and nest boxes, exist on site. The wetland is not permanently flooded but Norris Brook is perennial. Potential off-road parking is currently available for a small bus and the wetland is a short drive but not a safe walk to or from local schools. All wetlands have some suitability for educational purposes and this wetland is no exception, however educational/scientific values are not principal values of this wetland area.

Uniqueness/Heritage

The wetland lacks permanent open water, a high degree of interspersion of wetland classes and open water and three or more wetland classes. There is no apparent location within the wetland that represents a primary viewing location. The best overall view is from Oak Street Extension or the top-of-slope from adjacent uplands due to the steep slopes but these views are generally only available during the winter when the leaves are off the trees. These primary viewing locations will also include views of adjacent single-family or multifamily residential development. The wetland is not known to be a site for research and is not a natural landmark or an exemplary natural community. The wetland is not an important archaeological site nor does it possess natural geologic or biological features which are locally rare. The wetland is not connected to a state or federally designated scenic river. Potential off-road parking is available for a small bus. The wetland is a short drive (but not a safe walk) to or from schools but accessibility can be challenging due to steep slopes. Solid waste may pose a safety hazard. Urbanization to the south increases the importance of this wetland but Uniqueness/Heritage is not a principal value of this wetland area.

Visual Quality/Aesthetics

The wetland is not dominated by flowering plants but has a significant population of red maple trees and saplings that turn vibrant colors in the fall or other seasons. Residential or other development cannot be seen from the wetland due to adjacent steep slopes but can be viewed while gaining access. The wetland could be considered valuable wildlife habitat. The wetland lacks a good primary viewing location and multiple wetland classes are absent. While, unpleasant odors were not detected at this wetland, Visual Quality/Aesthetics is not a principal value of this wetland area.

6.3 Norris Brook – Downstream (Green) Study Area

Groundwater Recharge/Discharge

Due to the surficial geology and soils of surrounding upland areas, which sometimes involve a sandy cap over silt and clay sediments, this wetland provides significant groundwater discharge, which helps to provide base flow and sustain perennial flow for Norris Brook and the unnamed perennial stream during periods of low precipitation. Groundwater Discharge is a principal function of this wetland area.

Floodflow Alteration

At approximately 145,448 SF or 3.34± acres in size, (including the pond – which is approximately 0.2± acres) this wetland represents 0.5% of its watershed, which is 1.06 square miles (as measured starting at the intersection of Norris Brook and the railroad tracks and includes the watershed for the unnamed intermittent stream which was measured at 0.16 square miles). Norris Brook is moderately sinuous in this area and vegetation is relatively dense. The granite block box culvert at the railroad tracks may be slightly undersized for larger storms, which acts as a minor constriction to flow. The Squamscott River is located downstream approximately 600 feet distant (from where this study area meets the railroad tracks and property line) and there are a limited number of valuable properties downstream, which argues against this wetland study area being considered important to flood alteration. It is our feeling however that, when considered with the pond and concrete structure, and due to other the characteristics of the larger drainage basin, meaningful alteration of floodflows is being provided. The floodflow alteration may not be as significant as the desynchronization provided by the segment of Norris Brook upstream (west) of Oak Street Extension but still represents a principal function of this wetland area.

Fish and Shellfish Habitat (Freshwater)

Forest is the dominant cover type in the watershed above this wetland and an abundance of cover objects are present. The granite block box culvert beneath the railroad provides better than average aquatic organism passage during higher flows but the bottom of the culvert is plugged with debris, up against which sediment has accumulated to a depth of approximately 18 inches. We can confirm that we have never observed Norris Brook not to be flowing but we have also never observed fish in Norris Brook during numerous visits to the site. Fish and Shellfish Habitat is therefore not a principal function of this wetland area.

Sediment/Toxicant/Pathogen Retention

Norris brook is a potential source of sediment as is the unnamed perennial stream described earlier which is experiencing apparent channel and bank erosion. The wetland appears to have demonstrable floodflow desynchronization characteristics and there are known toxicants in the watershed. We therefore believe that Sediment/Toxicant/Pathogen Retention is a principal function of this wetland study area.

Nutrient Removal

The wetland is small relative to its contributory watershed and open water and/or deep water habitat are absent most of the time (with the possible exception of during large storm events). The wetland is saturated for most of the season and deep fine grained sediments are present. Dense woody vegetation is generally present and limited opportunity for nutrient attenuation exists. Nutrient Removal is a principal function of this wetland area.

Production Export

The wetland area is densely vegetated but wildlife food sources are limited and commercial sources are absent. Flowering plants exist, including purple loosestrife, and can be used by nectar-gathering insects. Fish and shellfish are not found in this wetland. Most wetlands provide some

suitability for nutrient production and export but Nutrient Export is not a principal function of this wetland area.

Sediment/Shoreline Stabilization

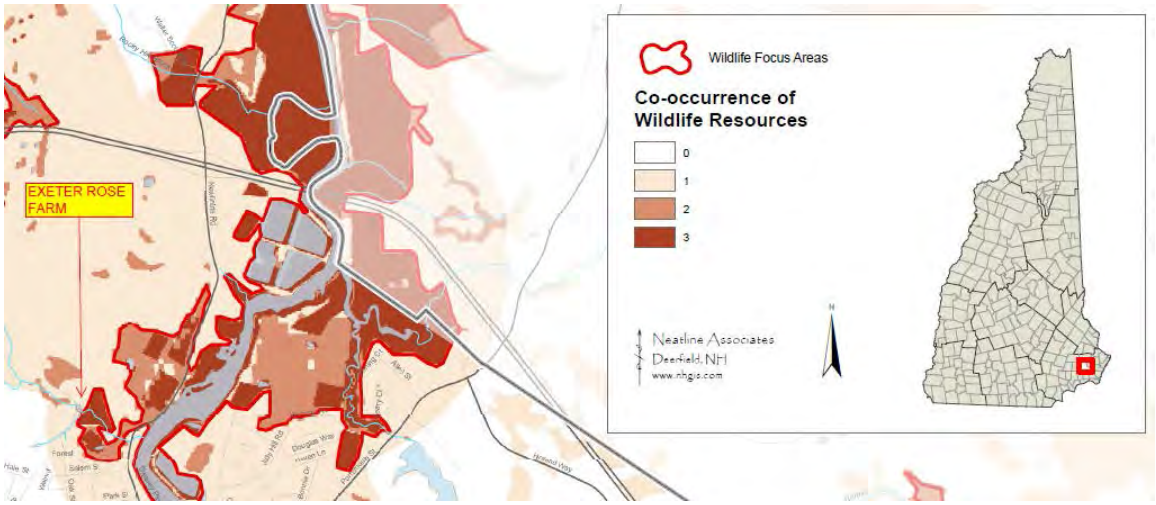
Indications of erosion and siltation can be observed in this wetland and the Norris Brook channel is a net sediment producer but the stream channel is largely at equilibrium. The unnamed perennial stream is actually less stable than Norris Brook and is also a net supplier of sediment. However, landscape position, the lack of open water and fetch as well as lack of suitability for boating generally signify that this wetland area has no opportunity to provide this function. Sediment / Shoreline Stabilization is therefore not a principal function of this wetland area.

Wildlife Habitat

The wetland area has been altered by human/development activity and the larger wetland system has been fragmented by development (the railroad and Oak Street Extension – Oak Street Extension was used as the basis to define this study area so fragmentation may not apply). The upland surrounding this wetland is partially developed but more than 40 percent of the wetland edge is bordered by upland wildlife habitat at least 500-feet in width by our estimation. The 500-foot buffer is largely forested on the north side and is comprised of forest and grassland on the south side. The wetland is directly contiguous with other wetland ecosystems via an intermittent watercourse (the eastern intermittent stream study area). Overland access to other wetlands is present. Significant avian activity has been observed during site visits. The wetland exhibits a higher degree of interspersion of wetland classes than the Norris Brook – Upstream (Blue) Study Area.

With the exception of the pond impounded by the concrete structure, open water is generally absent and there are no inclusions of upland present within the wetland study area. The pond provides habitat for wading and aquatic birds species. The density of wetland vegetation and degree of diversity is moderate to high. Wildlife signs such as tracks and scat as well as cameras that were installed indicate species such as deer and turkey are utilizing the area. Wildlife and turkey are species that have a higher than average tolerance for human disturbance and activity. The physical attributes of the wetland and wildlife sign observed generally indicate that Wildlife Habitat is a principal function of this wetland area and provides valuable local habitat. It is noteworthy that the New Hampshire Fish and Game – Wildlife Action Plan (WAP) did not indicate this area or any part of the subject property as Highest Ranked Habitat in NH (depicted in magenta on Figure 5) or Highest Ranked Habitat in the Region (depicted in green on Figure 5). Conversely, the Wildlife Composite Map found in the Natural Resource Inventory identifies this wetland study area as a wildlife focus area having a co-occurrence of three major characteristics that include highest ranked habitat in NH from the WAP and rare species/communities from the Natural Heritage Bureau among numerous other criteria. Refer to Figure 5 on page 15 and Figure 6 below.

Figure 6 Wildlife Composite Map (Exeter Natural Resource Inventory – Map 8)



Recreation

The wetland is not part of an official recreation area, park, or refuge. The wetland appears to have significant avian activity and therefore presents some birdwatching opportunities, especially for those willing to venture off the beaten path. The wetland could be considered valuable wildlife habitat but hunting opportunities are very limited, if not prohibited, due to proximity to residential dwellings and other development, as are fishing opportunities. The potential for hiking is unlikely but adjacent uplands (at the top-of-slope) may provide a suitable connection to the town forest. The wetland does not possess a high visual or aesthetic quality nor is it suitable for kayaking, boating or canoeing. Norris Brook is perennial but the stream is less than 10–feet wide and the navigable distance is too short to be attractive to canoers or kayakers. Most wetlands have some suitability for recreation and this wetland is no exception, but overall recreation is not a principal value of this wetland area.

Educational/Scientific Value

The wetland could be considered valuable wildlife habitat but is not located in a nature preserve or wildlife management area. Signs of wildlife habitat enhancement are absent. The potential educational site is relatively undisturbed but does contain some diversity of wetland classes. No signs of wildlife enhancement, such as bird houses and nest boxes, exist on site. The wetland is not permanently flooded (with the exception of the pond) but Norris Brook is perennial. Potential off-road parking is currently available for a small bus and the wetland is a short drive but not a safe walk to or from local schools. Access could be challenging due to the steep slopes adjacent to the wetland study area. All wetlands have some suitability for educational purposes and this wetland is no exception, however Educational / Scientific values are not principal values of this wetland area.

Uniqueness/Heritage

The wetland lacks permanent open water, a high degree of interspersion of wetland classes or open water and three or more wetland classes. The wetland is not known to be a site for research and is not a natural landmark or an exemplary natural community. The wetland is not known to be an important archaeological site nor does it possess biological features which are locally rare. The wetland includes a productive spring referred to by some as the Jailhouse Spring which is visited frequently. Urbanization to the south increases the importance of this wetland. The site also has history as a brickyard. The wetland is not connected to a state or federally designated scenic river. Potential off-road parking is available, but not for a full size bus. Accessibility can be challenging due to the steep slopes and the wetland is a short drive to or from schools but walking to the site for school aged children is not realistic. Uniqueness/Heritage could be considered a principal value of this wetland study area.

Visual Quality/Aesthetics

The wetland is not dominated by flowering plants but has a meaningful population of red maple trees and saplings that likely turn vibrant colors in the fall. Residential or other development cannot be seen from the wetland (except when the leaves are off) due to adjacent steep slopes but can be viewed while gaining access. The wetland could be considered valuable wildlife habitat. With the possible exception of the granite block box culvert at the railroad, the wetland lacks a good primary viewing location and multiple wetland classes are absent. The noise level at this wetland study area can be intermittently high or distracting due to passing trains. Unpleasant odors were not detected at this wetland, but Visual Quality/Aesthetics is not a principal value of this wetland area.

6.4 Eastern Intermittent Stream (Red) Study Area

Groundwater Recharge/Discharge

The drainage basin that contributes to this wetland has similar surficial geology and soils as other areas in this evaluation and provides limited groundwater discharge as compared to wetlands associated with Norris Brook and the unnamed perennial stream. Groundwater Recharge / Discharge is a principal function of this wetland area however.

Floodflow Alteration

At 38,448± SF or 0.88 acres, the portion of this wetland that falls on the subject property represents <1% of its watershed. The watershed was calculated at approximately 122± acres as measured beginning at the juncture of the intermittent stream and Norris Brook. Our investigations suggest that the inclusion of offsite wetlands will not result in the wetland constituting a large percentage of the watershed. The stream associated with these wetlands is intermittent and also has significant topographic relief. However, the topography of the basin and other attributes suggest that this wetland can play a minor role in floodflow alteration in this subwatershed. Floodflow Alteration is a principal function of this wetland area.

Fish and Shellfish Habitat (Freshwater)

Forest land is dominant in the contributory watershed. The stream channel is poorly defined in most locations. Cover objects are generally absent and the stream is intermittent. The wetland is of insufficient size and depth and does not possess the physical attributes to prevent it from freezing or icing over in the winter. Fish and Shellfish Habitat is not a principal function of this wetland study area.

Sediment/Toxicant/Pathogen Retention

The wetland study area is likely a net supplier of sediment. There are no known toxicant sources in the watershed above the wetland. Fine grained soils are present but retention times are very short due to topographic relief and basin topography. Sediment/Toxicant/Pathogen Retention is not a principal function of this wetland area.

Nutrient Removal

This wetland is small compared to its watershed. Deep water and seasonal open water habitat are absent but slowly draining fine textured soils are present. A locally dense vegetation community exists and potential sources of excess nutrients are generally absent in the watershed therefore the opportunity for nutrient attenuation does not exist. Nutrient Removal is not a principal function of this wetland area.

Production (Nutrient) Export

The wetland area is sporadically vegetated and wildlife food sources are generally limited. Nutrient Export is not a principal function of this wetland area.

Sediment/Shoreline Stabilization

Minor indications of erosion and siltation can be observed in this wetland. The small size, landscape position, physical attributes and lack of open water or a permanent watercourse deny this area an opportunity to perform this function. Sediment/Shoreline Stabilization is not a principal function of this wetland area.

Wildlife Habitat

By our estimation, less than 40% of this wetland edge is bordered by upland wildlife habitat (brushland, woodland, active farmland, or idle land) at least 500 feet in width although 300 feet is plausible on site. Residences along Oak Street Extension and the railroad are located within 500 feet. Overland access for wildlife to other wetlands is present and the stream and adjacent upland could provide a corridor for wildlife. Wildlife food sources are limited. The wetland does not exhibit a high degree of interspersion of wetland classes and/or open water nor are inclusions of upland present within the wetland. The density of wetland vegetation is high in places and degree of diversity is low as is diversity of plant community structure. The wetland study area may provide some suitability for common wildlife and those species which are not critically dependent upon wetlands however it is our opinion that Wildlife Habitat is not a principal function of this wetland area.

Recreation

The wetland is not part of an official recreation area, park, or refuge. Hunting opportunities are very limited, due to proximity to residential dwellings and other development, as well as the railroad. Fishing opportunities are absent due to the intermittent flow. The potential for hiking in the adjacent uplands exists and one walking/biking trail that crosses the wetland was observed. The wetland does not possess a high visual or aesthetic quality nor is it suitable for boating, canoeing or kayaking. Most wetlands have some suitability for recreation and this wetland is no exception, but Recreation is not a principal value of this wetland area.

Educational/Scientific Value

The potential educational site is relatively undisturbed (the nearby railroad, bike path and old access road notwithstanding) but does not contain a diversity of wetland classes. The wetland is not considered important wildlife habitat and is not located in or adjacent to a nature preserve or wildlife management area, although the town forest is not far away. No signs of wildlife enhancement, such as bird houses and nesting boxes, exist on site. The wetland is not permanently flooded and the stream is intermittent. Potential off-road parking is currently available for a small bus approximately 1,000 feet away on Oak Street Extension but there is no path between the apparent parking location and the wetland. A foot path along the railroad tracks exists but is not considered safe and may not be legal. The wetland is a short drive but not a safe walk to or from local schools. Educational/Scientific Values are not principal values of this wetland area.

Uniqueness/Heritage

Urbanization to the south increases the importance of this wetland. The wetland lacks permanent open water, a high degree of interspersion of wetland classes and open water, three or more wetland classes and a suitable viewing area. The wetland is not known to be a site for research and is not a natural landmark or an exemplary natural community. The wetland is not an important archaeological site nor does it possess natural geologic or biological features which are locally rare. The wetland is not connected to a state or federally designated scenic river. Potential off-road parking is available for a smaller bus, accessibility is questionable and the wetland is a short drive (but not a safe walk) to or from schools. Uniqueness / Heritage is not a principal value of this wetland area.

Visual Quality/Aesthetics

The wetland is not dominated by flowering plants or plants that turn vibrant colors in the fall or other seasons. Wetland views are generally absent of trash, debris and other signs of disturbance. Limited residential development along Oak Street Extension can be seen from the wetland, especially outside the growing season. The wetland is not considered to be important wildlife habitat. The railroad can easily be heard from this wetland. Unpleasant odors were not detected at this wetland. Visual Quality/Aesthetics is not a principal value of this wetland area.

7.0 SUMMARY AND DISCUSSION

The Highway Methodology identifies 13 primary functions and values which can potentially be ascribed to wetlands. The presence of these functions and values provide benefits for society and the environment.

Our findings resulted in a conclusion that the **Western Intermittent Stream (Yellow) Study Area** possesses one (1) principal function – Groundwater Discharge. The observations made of wetland attributes resulted in a conclusion that the **Norris Brook – Upstream (Blue) Study Area** possesses or provides five (5) principal functions: Groundwater Discharge, Floodflow Alteration, Sediment / Toxicant Retention, Nutrient Removal and Wildlife Habitat. The findings resulted in a conclusion that **Norris Brook – Downstream (Green) Study Area** possesses or provides six (6) principal functions: Groundwater Discharge, Floodflow Alteration, Sediment / Toxicant Retention, Nutrient Removal, Wildlife Habitat and Uniqueness/Heritage. The **Eastern Intermittent Stream (Red) Study Area** findings indicate a total of two (2) principal functions: Groundwater Discharge and Floodflow Alteration. Refer to Table 1 below.

TABLE 1 TALLY OF PRINCIPAL FUNCTIONS / VALUES BY STUDY AREA

	STUDY AREA			
Function/Value	**Yellow**	**Red**	**Green**	**Blue**
Groundwater	**Y**	**Y**	**Y**	**Y**
Floodflow Alteration	N	**Y**	**Y**	**Y**
Fish / Shellfish	N	N	N	N
Sediment/Toxicant	N	N	**Y**	**Y**
Nutrient Removal	N	N	**Y**	**Y**
Production Export	N	N	N	N
Shoreline Stabilization	N	N	N	N
Wildlife Habitat	N	N	**Y**	**Y**
Recreation	N	N	N	N
Educational Value	N	N	N	N
Uniqueness / Heritage	N	N	**Y**	N
Visual Quality	N	N	N	N
TOTAL	**1**	**2**	**6**	**5**

The Norris Brook – Downstream (Green) Study Area has the largest number of principal functions and generally speaking represents the most valuable wetland on this site although the Norris Brook – Upstream (Blue) Study area is very similar in function and value. This is not surprising since they have many similar physical attributes and are essentially the same wetland which was bisected by the construction of Oak Street Extension. Assessing overall wetland value simply based upon the number of principal functions provided may not be appropriate however.

We note that all four wetland study areas support groundwater discharge as a principal function. Groundwater discharge is a function of the dominant upland soil conditions in the area which generally involve sandy textures of varying thickness over deep, slowly permeable silt and clay textures. This corroborates our investigations which confirm that there are no stratified drift deposits and thus no suitable aquifers in the area and therefore groundwater recharge is not a principal function of any of the wetlands on this site. These findings demonstrate however that meaningful infiltration of precipitation is taking place in uplands adjacent to site wetlands and this infiltration is contributing to base flow in Norris Brook and other streams.

We have indicated floodflow alteration as a principal function of the Norris Brook – Upstream (Blue) Study Area on the attached data form. The presence of floodflow alteration function within a wetland system and the indication that it is a principal function implies that the wetland system has the ability to prevent property damage by storing flood waters and desynchronizing peak flows associated with a storm or flood event. It should be noted that a significant part of the function in this case is a result of the construction of Oak Street Extension as well as the partially plugged culvert, both of which are providing a constriction of stream flow. If the culvert is cleaned or replaced and enlarged this floodflow alteration function will likely be reduced. This is unlikely to have a significant impact on downstream properties however, of which there are few.

Due to the topography in the general area of this wetland, the plugged culvert and any associated flooding has little effect on surrounding upstream properties. Oak Street itself actually represents the lowest elevation in the area at this point in the subwatershed and is at greatest risk for damage should the pipe become completely plugged or plugged sufficiently that a particular storm causes water to back up and overtop the road. If this were to happen the resulting erosion and sedimentation could have negative ramifications for downstream wetlands. Also, were Oak Street Extension to overtop and fail, downstream properties could be affected although the granite block box culvert at the railroad would significantly mitigate the effects. A cleaning of the pipe and installation of a trash rack of some sort may be warranted. Any trash rack should not be installed at the mouth of the pipe however. A trash rack is not a panacea however as it also requires maintenance.

The conclusions above are not to suggest that the various wetland study areas do not perform or provide any function or value or that they cannot provide or perform any function that is not identified as a principal function; however the data and our observations and subsequent conclusions confirm that the wetlands do not perform or provide those functions at an elevated or significant level. For those interpreting this report, caution needs to be applied when deriving conclusions about impact assessment when using the findings within. Additionally, do not be easily tempted to rank or compare the wetlands described within this report against one another and certainly against other off-site wetlands. Ranking wetlands numerically or rating wetlands low, medium or high is tempting but is inappropriate and implies a level of accuracy or understanding of the wetlands and functional evaluation methodologies which may not exist.

EXETER ROSE FARM, LLC

FUNCTIONAL WETLAND EVALUATION

PHOTOGRAPHS & DESCRIPTIONS

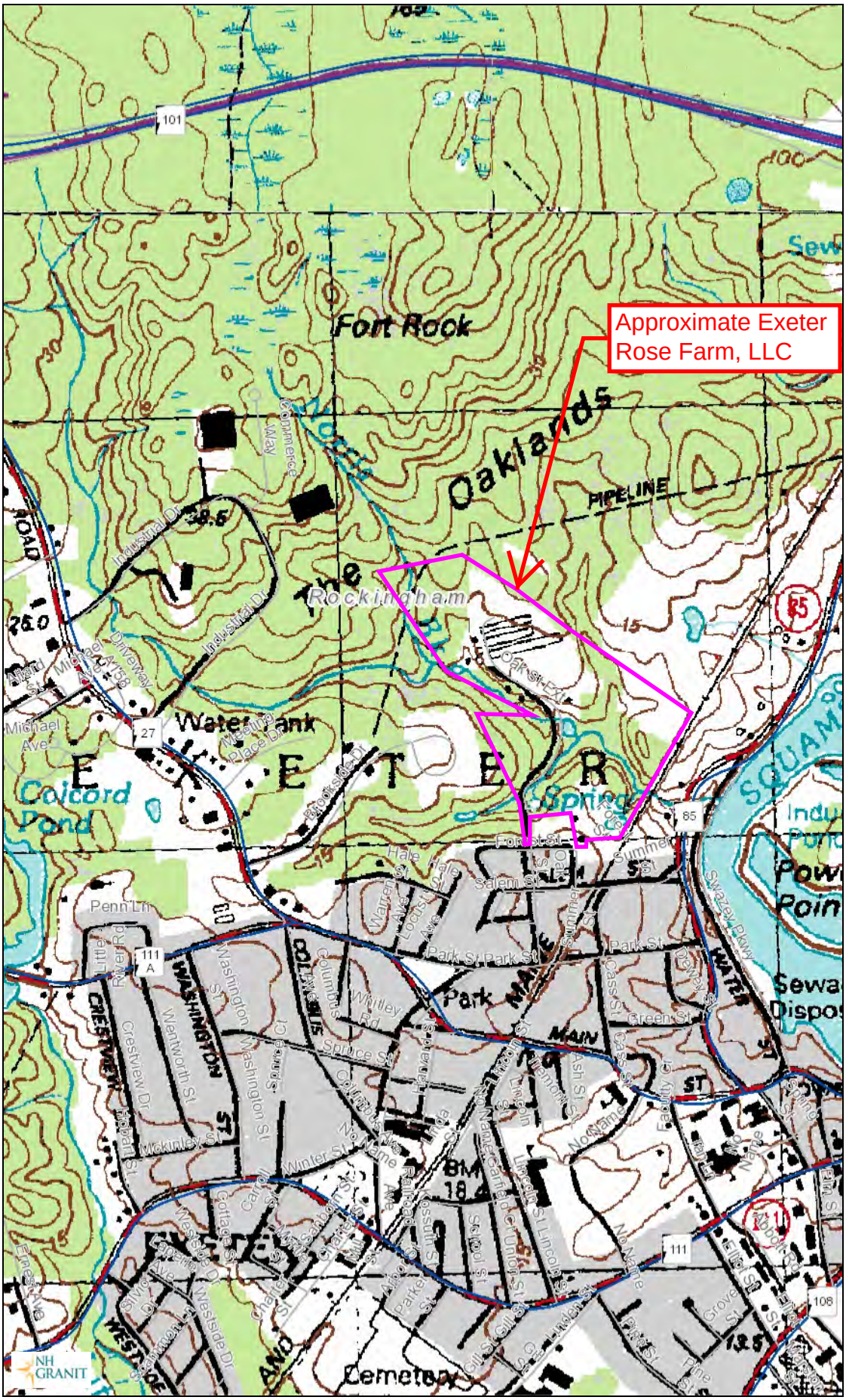
Image 1 – Unnamed perennial stream. Note bricks and turbidity. *(©Jacobs2018)*

Image 2 – Juncture of unnamed perennial stream and Norris Brook (background). Note plume of slightly turbid water in foreground and on right side of Norris Brook. *(©Jacobs2018)*

Image 3 – Wildlife camera image in the Green Wetland Study Area looking upstream (west) along Norris Brook. Note existing home in on left in center background and deer on right in foreground *(©Jacobs2018)*

Image 4 – Wildlife camera image in the Green Wetland Study Area looking upstream (west) along Norris Brook. Note existing home on left in center background and deer on right in foreground *(©Jacobs2018)*

Map by NH GRANIT



Legend

- State
- County
- City/Town
- Interstates
- Turnpikes
- US Routes
- State Routes
- Local Roads

EXHIBIT 1

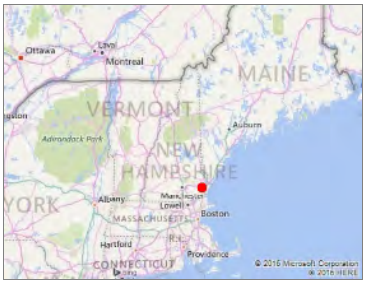
Map Scale

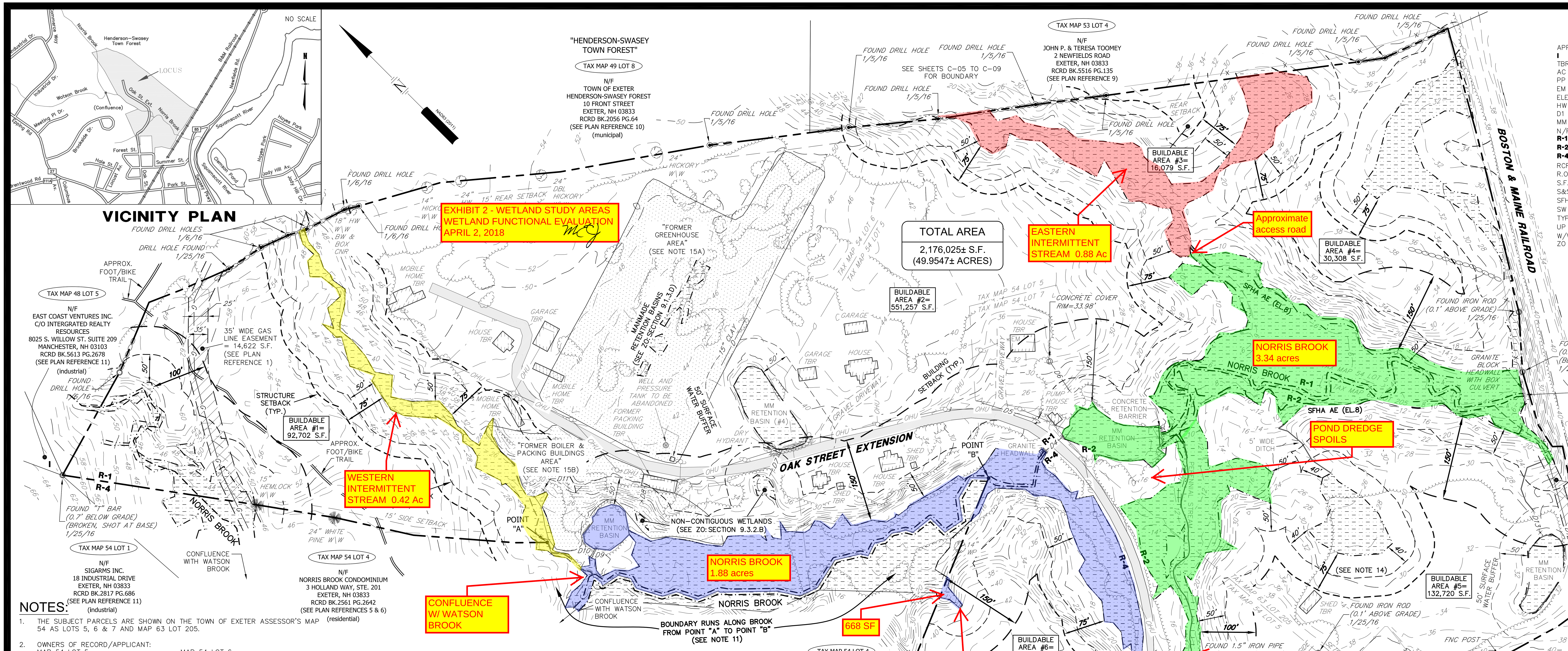
1: 12,988

Map Generated: 8/18/2016

Notes

Rose Farm
Oak Street Extension
Exeter, NH





NOTES:

1. THE SUBJECT PARCELS ARE SHOWN ON THE TOWN OF EXETER ASSESSOR'S MAP 54 AS LOTS 5, 6 & 7 AND MAP 63 LOT 205.

2. OWNERS OF RECORD/APPLICANT:

MAP 54 LOT 5	MAP 54 LOT 6
EXETER ROSE FARM, LLC 24 OAK STREET EXTENSION EXETER, NH 03833 RCRD BK.5840 PG.2102 (603) 425–8598	EXETER ROSE FARM, LLC 24 OAK STREET EXTENSION EXETER, NH 03833 RCRD BK.5840 PG.2102 (603) 425–8598
MAP 54 LOT 7	**MAP 63 LOT 205**
EXETER ROSE FARM, LLC 24 OAK STREET EXTENSION EXETER, NH 03833 RCRD BK.5840 PG.2104 (603) 425–8598	BENJAMIN & JOAN DAGOSTINO REVOCABLE TRUSTS 1 FOREST STREET EXETER, NH 03833 RCRD BK.#4574 PG.#2843 (603) 502–7175

3. TOTAL AREA:
   2,176,025± S.F.
   (49.9547± ACRES)

4. THE SUBJECT PARCELS ARE LOCATED IN THE R–1 LOW DENSITY SINGLE FAMILY, R–2 SINGLE FAMILY, AND R–4 MULTI–FAMILY ZONING DISTRICTS AND PARTIALLY LOCATED IN THE TOWN OF EXETER SHORELAND PROTECTION DISTRICT AND THE WETLANDS CONSERVATION AND FLOOD HAZARD OVERLAY DISTRICTS.

5. DENSITY AND DIMENSIONAL REGULATIONS:

	R–1	R–2	R–4 (DETACHED SINGLE FAMILY)
MINIMUM LOT AREA:			
(NO MUNICIPAL WATER & SEWER)	2 ACRES	1 ACRES	NA
(MUNICIPAL WATER & SEWER)	40,000 S.F.	15,000 S.F.	12,000 S.F.
(DWELLING UNIT)	40,000 S.F.	15,000 S.F.	12,000 S.F.
MINIMUM LOT WIDTH:	150'	100'	100'
MINIMUM LOT DEPTH:	150'	100'	100'
MAXIMUM HEIGHT:	35'/3 STORIES	35'/3 STORIES	35'/3 STORIES
MINIMUM YARD SETBACKS:			
FRONT YARD:	25'	25'	25'
SIDE YARD:	15'/30'	15'/30'	15'/30'
REAR YARD:	25'	25'	25'
MAXIMUM BUILDING COVERAGE:	15%*	25%*	25%*
MINIMUM OPEN SPACE:	80%**/70%	60%**/40%	30%

*FOR AREAS WITHIN THE TOWN OF EXETER SHORELAND PROTECTION DISTRICT THE MAXIMUM LOT COVERAGE IS 10% (SEE SECTION 9.3.4.B)
**FOR LOTS USING SEPTIC SYSTEMS
PER THE TOWN OF EXETER, N.H. ZONING ORDINANCE, SECTION 4.3.

6. THE HORIZONTAL DATUM IS REFERENCED TO NORTH AMERICAN DATUM OF 1983 [NAD 83 (2011)] PER STATIC GPS OBSERVATIONS. THE VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), GEOID 12A PER STATIC GPS OBSERVATIONS. THE CONTOUR INTERVAL IS 2 FEET.
7. THE SUBJECT PARCELS ARE PARTIALLY LOCATED IN SPECIAL FLOOD HAZARD AREA (SFHA) ZONE AE (EL.8) & ZONE X AS SHOWN ON NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOOD INSURANCE RATE MAP (FIRM) ROCKINGHAM COUNTY, NEW HAMPSHIRE, MAP NUMBER 33015C0402E WITH AN EFFECTIVE DATE OF MAY 17, 2005.
8. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH THE CURRENT LEGAL DESCRIPTIONS. IT IS NOT AN ATTEMPT TO DEFINE THE EXTENT OF OWNERSHIP OR DEFINE THE LIMITS OF TITLE.
9. THE PURPOSE OF THIS PLAN IS TO SHOW THE CURRENT EXISTING FEATURES AND TOPOGRAPHY OF TAX MAP 54 LOTS 5, 6 & 7, AND TAX MAP 63 LOT 205. SEE SHEET C–02 FOR CULVERT TABLE AND PLAN REFERENCES, SHEETS C–05 TO C–09 FOR BOUNDARY BEARINGS AND DISTANCES, SHEET C–03 FOR SITE–SPECIFIC SOILS MAP, SHEET C–10 FOR WETLAND AREAS AND SHEET C–11 FOR OFFSITE UTILITY INFORMATION.
10. FIELD SURVEY COMPLETED BY TODD C. EMERSON AND NICK J. MORTON IN JANUARY 2016 AND JULY 2017 USING A TOPCON DS103 AND TOPCON TESLA DATA COLLECTOR, A TOPCON MG–A5 BACKPACK GPS UNIT AND A TOPCON HYPER SR STATIC GPS UNIT. AERIAL TOPOGRAPHY WAS PROVIDED BY WSP, PARSONS BRINKERHOFF OF CHARLTON, MA IN MAY 2016.
11. THE BOUNDARY RUNS ALONG THE BROOK FROM POINT "A" TO POINT "B". THE TOTAL AREA WAS DETERMINED USING THE CENTERLINE OF THE BROOK AS LOCATED BY MSC IN JANUARY 2016.
12. UTILITY LINES SHOWN HEREON ARE A COMPILATION OF FIELD LOCATIONS, RECORD PLANS AND DIGITIZED PER THE TOWN OF EXETER GIS WEB SITE AND ARE APPROXIMATE ONLY. CONTACT DIGSAFE @ 1–888–DIG–SAFE AND THE TOWN OF EXETER DEPARTMENT OF PUBLIC WORKS TO VERIFY UTILITIES.
13. MANMADE AND NATURAL JURISDICTIONAL WETLAND BOUNDARIES WERE DELINEATED BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST NUMBER 090, AND JON BALANOFF IN DECEMBER 2015 ACCORDING TO THE STANDARDS OF THE US ARMY CORPS OF ENGINEERS – WETLANDS DELINEATION MANUAL; THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION; THE CODE OF ADMINISTRATIVE RULES, NH DEPARTMENT OF ENVIRONMENTAL SERVICES – WETLANDS BUREAU – ENV WT 100–900 AND THE TOWN OF EXETER ZONING. PREDOMINANT HYDRIC SOILS WERE IDENTIFIED UTILIZING THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 3, APRIL 2004 AND THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 7, 2010. THE INDICATOR STATUS OF HYDROPHYTIC VEGETATION WAS DETERMINED ACCORDING TO THE U.S. ARMY CORPS OF ENGINEERS – NORTHCENTRAL AND NORTHEAST 2014 REGIONAL WETLAND PLANT LIST. COPIES OF SITE PLANS DEPICTING THE WETLAND DELINEATION WHICH HAVE BEEN REVIEWED BY THE WETLAND SCIENTIST ARE INDIVIDUALLY STAMPED, SIGNED AND DATED. THIS NOTE HAS BEEN CUSTOMIZED FOR THIS LOCATION.
14. WETLANDS CONTAINING POORLY DRAINED SOILS ARE SUBJECT TO A 40' NO CUT/NO DISTURBANCE SETBACK. WETLANDS CONTAINING VERY POORLY DRAINED (VPD) SOILS ARE SUBJECT TO A 50' NO CUT/NO DISTURBANCE SETBACK. IN AN EFFORT TO SIMPLIFY SETBACKS ON THIS PLAN, A 50' NO CUT/NO DISTURBANCE SETBACK HAS BEEN APPLIED TO ALL WETLANDS REGARDLESS OF SOIL TYPE, EXCEPT FOR WETLAND AREA M (SEE SHEET C10), A WETLAND CONTAINING POORLY DRAINED SOILS. THE APPLICATION OF THE 50' NO CUT/NO DISTURBANCE SETBACK ON THIS PLAN SHOULD NOT BE CONSIDERED A DETERMINATION OF VERY POORLY DRAINED (VPD) VERSUS POORLY DRAINED SOILS.
15. THE FORMER GREENHOUSE AREA AND THE FORMER BOILER & PACKING BUILDINGS AREA ARE THE SUBJECT OF NHDES SITE #201203003. SEE REMEDIAL ACTION PLAN (RAP) PREPARED BY STONEHILL ENVIRONMENTAL, INC. (CURRENTLY UNDER REVIEW BY NHDES) FOR DETAILS.
    CONCEPTUAL REMEDIATION PLAN:
    A: FORMER GREENHOUSE AREA – SHALLOW SOIL CONTAINING LEAD CONCENTRATIONS EXCEEDING THE NHDES STANDARD APPLICABLE TO RESIDENTIAL PROPERTIES WILL BE REMOVED AND PROPERLY DISPOSED OF AT AN OFF–SITE FACILITY.
    B: FORMER BOILER & PACKING BUILDINGS AREA – SOLID WASTES WILL BE IDENTIFIED, REMOVED AND PROPERLY DISPOSED OF. CONCRETE AND BRICK REMOVED FROM THE SOLID WASTE AREA MAY BE CRUSHED AND USED AS ROAD BASE. COAL ASH/CLINKER WILL BE CONSOLIDATED IN THE FORMER PACKING BUILDING AREA, CAPPED AND COVERED.
    C. MANMADE RETENTION BASIN #4 – SHALLOW SOIL CONTAINING LEAD CONCENTRATIONS EXCEEDING THE NHDES STANDARD APPLICABLE TO RESIDENTIAL PROPERTIES WILL BE REMOVED AND PROPERLY DISPOSED AT AN OFF–SITE DISPOSAL FACILITY.
16. FULL AND/OR PARTIAL WAIVERS PERTINENT TO THE EXISTING SITE CONDITIONS PLAN ARE REQUESTED FROM SITE PLAN REVIEW AND SUBDIVISION REGULATIONS FOR THE TOWN OF EXETER SECTIONS:
    (1) 7.4.7 (PARTIAL WAIVER)–REGARDING THE LOCATION OF SIGNIFICANT TREES.
    (2) 7.4.10–REGARDING A HIGH INTENSITY SOIL SURVEY (HISS) OF ENTIRE SITE (REQUEST FOR A SITE SPECIFIC SOILS MAP TO BE USED INSTEAD).
    (3) 7.4.15 (PARTIAL WAIVER)–REGARDING HEIGHTS OF ALL EXISTING STRUCTURES.

LEGEND:

UTILITY POLE
HYDRANT
WELL
GAS VALVE
WATER VALVE
WATER SHUT OFF
CATCH BASIN
SEWER MANHOLE
DRAIN MANHOLE
DECIDUOUS TREE
CONIFEROUS TREE
STONE WALL
DRAIN LINE
SEWER LINE
WATER LINE
GAS LINE
OVERHEAD UTILITIES
BOUNDARY LINE
BROOK
EDGE OF WETLANDS
PERENNIAL STREAM
INTERMITTENT STREAM
40/50' NO CUT/NO DISTURBANCE SETBACK (S&SR: SECTION 9.9.2)
75' STRUCTURE SETBACK (S&SR: SECTION 9.9.2)
100'/150' BUILDING SETBACK (ZO: SECTION 9.3.4.C)
YARD SETBACK (ZO: SECTION 4.3)
50' SURFACE WATER BUFFER (S&SR: SECTION 9.6.1.1)
SPECIAL FLOOD HAZARD AREA BOUNDARY ZONE AE
BOX WIRE FENCE
TREE LINE
WETLANDS AND SURFACE WATER
EASEMENT
EXISTING PAVEMENT
FORMER GREENHOUSE, BOILER & PACKING BUILDINGS AREA

LEGEND:

APPROX	APPROXIMATE
I	INDUSTRIAL
TBR	TO BE REMOVED
AC	ASBESTOS CONCRETE
PP	PLASTIC PIPE
EM	ELECTRIC METER
ELEV.	ELEVATION
HW	HARD WOOD
D1	DRAINAGE LABEL
MM	MANMADE
N/F	NOW OR FORMERLY
R-1	LOW DENSITY RESIDENTIAL ZONING DISTRICT
R-2	SINGLE FAMILY RESIDENTIAL ZONING DISTRICT
R-4	MULTI–FAMILY RESIDENTIAL ZONING DISTRICT
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
R.O.W.	RIGHT OF WAY
S.F.	SQUARE FEET
S&SR	SITE PLAN REVIEW AND SUBDIVISION REGULATIONS
SFHA	SPECIAL FLOOD HAZARD AREA
SW	SURFACE WATER
TYP.	TYPICAL
UP	UTILITY POLE
W/W	WITH WIRE
ZO	ZONING ORDINANCE

STATE OF NEW HAMPSHIRE LICENSED LAND SURVEYOR No. 844 J. COREY COLWELL

REV.	DATE	DESCRIPTION	DR	CK
1	9/26/17	REVISED PER TRC COMMENTS	NJM	BMK
2	10/31/17	UPDATED BOILER & PACKING BUILDINGS AREA	BMK	JCC

100 50 25 0 100
Graphic Scale

TFM — MSC — A division of TFMoran, Inc.
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431–2222
Fax (603) 431–0910
www.mscengineers.com

FILE	47175.00	DR BMK		531 & 539	C–01
		CK JCC	CADFILE	47175.00_EC	

TAX MAP 54 LOTS 5, 6 & 7 AND MAP 63 LOT 205

EXISTING SITE CONDITIONS PLAN

OAK STREET EXTENSION & FOREST STREET
EXETER, NEW HAMPSHIRE, COUNTY OF ROCKINGHAM
OWNED BY
EXETER ROSE FARM, LLC & THE BENJAMIN & JOAN DAGOSTINO REVOCABLE TRUSTS
PREPARED FOR
EXETER ROSE FARM, LLC

SCALE: 1"=100' **AUGUST 15, 2017**

Oct 30, 2017 - 5:55pm
F:\MSC Projects\47175 - Oak Street Extension - Exeter\47175.00 - Baker Properties\47175.00 C3D\Survey\Drawings\47175-00_C01-C02_Existing Conditions.dwg

Memo

NH Natural Heritage Bureau
NHB Datacheck Results Letter

To: Marc Jacobs, Consulting Natural Scientist
P.O. Box 417
Greenland, NH, NH 03840-0417

From: Amy Lamb, NH Natural Heritage Bureau
Date: 10/31/2016 (valid for one year from this date)
Re: Review by NH Natural Heritage Bureau
NHB File ID: NHB16-3245 Town: Exeter Location: Tax Maps: Map 54 Lots 5, 6 & 7; Map 63 Lot 205
Description: Properties being considered for future multi-unit residential development. Project currently in conceptual design phase.
cc: Kim Tuttle

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

Comments: Please contact NHB if the proposed project includes impacts to tidal streams/wetlands, or to emergent/scrub-shrub wetlands. Contact NH Fish & Game regarding wildlife concerns.

Plant species	**State[1]**	**Federal**	**Notes**
little-headed spikesedge (*Eleocharis parvula*)	T	--	Threats are primarily alterations to the hydrology of the wetland, such as ditching or tidal restrictions that might affect the sheet flow of tidal waters across the intertidal flat, activities that eliminate plants, and increased input of nutrients and pollutants in storm runoff.
sharp-flowered manna grass (*Glyceria acutiflora*)	E	--	Primarily vulnerable to changes to the hydrology of its habitat, especially alterations that change water levels. It may also be susceptible to increased pollutants and nutrients carried in stormwater runoff.
Spongy-leaved Arrowhead (*Sagittaria montevidensis ssp. spongiosa*)	E	--	Primarily vulnerable to changes to the hydrology of its habitat, especially alterations that change water levels. It may also be susceptible to increased pollutants and nutrients carried in stormwater runoff.

Vertebrate species	**State[1]**	**Federal**	**Notes**
American Eel (*Anguilla rostrata*)	SC	--	Contact the NH Fish & Game Dept (see below).
Northern Black Racer (*Coluber constrictor constrictor*)	T	--	Contact the NH Fish & Game Dept (see below).

[1]Codes: "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.

Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Rd.
Concord, NH 03301

Memo

NH Natural Heritage Bureau
NHB Datacheck Results Letter

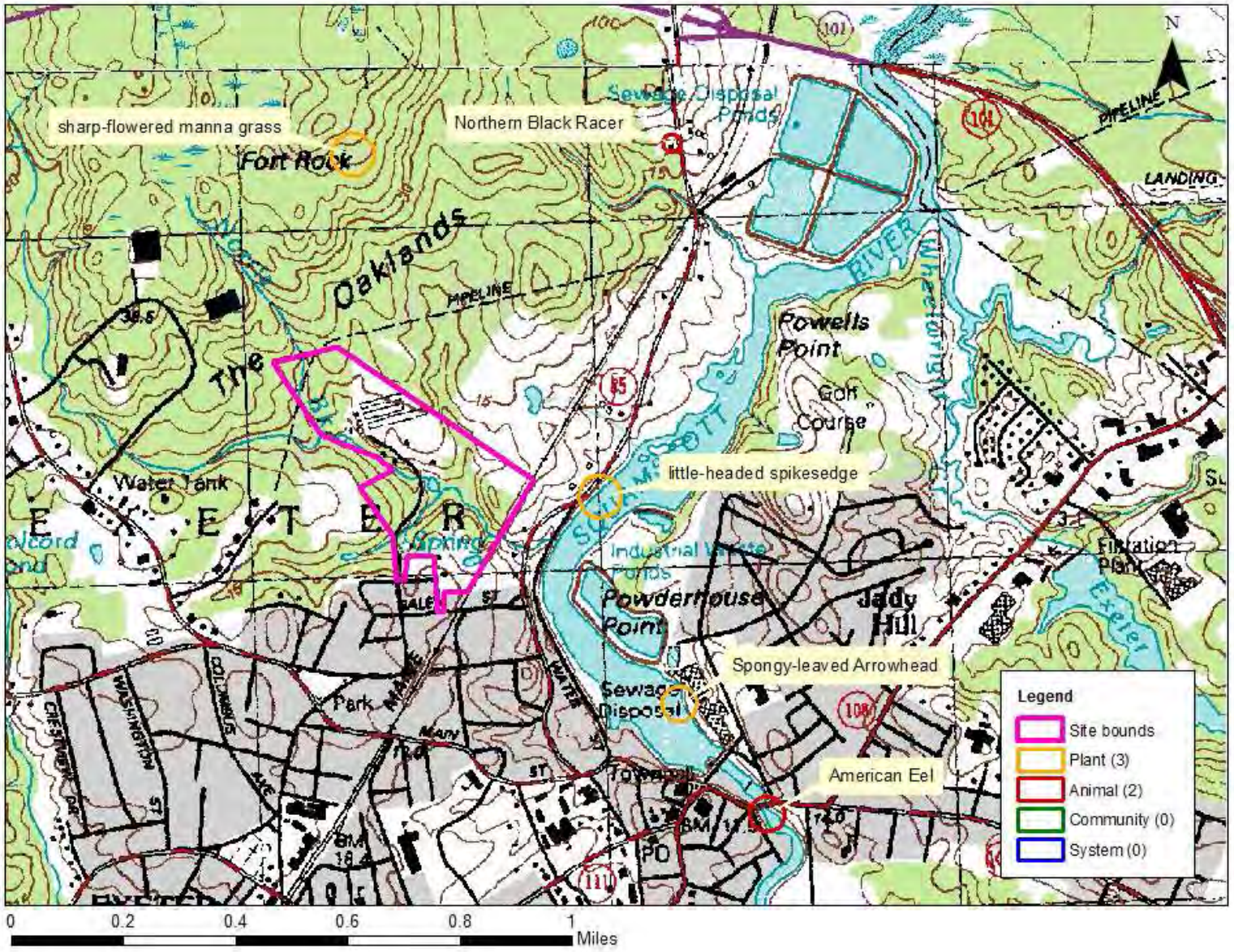
Contact for all animal reviews: Kim Tuttle, NH F&G, (603) 271-6544.

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.

Department of Resources and Economic Development
Division of Forests and Lands
(603) 271-2214 fax: 271-6488

DRED/NHB
172 Pembroke Rd.
Concord, NH 03301

NHB16-3245


sharp-flowered manna grass
Northern Black Racer
little-headed spikesedge
Spongy-leaved Arrowhead
American Eel
Fort Rock
Oaklands
The
Powells Point
Golf Course
Water Tank
Powderhouse Point
Jady Hill
Sewage Disposal Ponds
Industrial Waste Ponds
Filtration Plant
Park
PIPELINE
LANDING
RIVER
Exeter
N
Legend
Site bounds
Plant (3)
Animal (2)
Community (0)
System (0)
0
0.2
0.4
0.6
0.8
1
Miles

New Hampshire Natural Heritage Bureau - Plant Record

little-headed spikesedge (*Eleocharis parvula*)

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Listed Threatened	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Fair quality, condition and/or landscape context ('C' on a scale of A-D).
Comments on Rank: Small population

Detailed Description: 1996: Small population.
General Area: 1996: In low brackish tidal marsh. Associated with Spartina alterniflora (smooth cord-grass), Typha angustifolia (narrow-leaved cat-tail), Scirpus robustus (stout bulrush), Atriplex hastata (halberd-leaved orach), and Amaranthus cannabinus (water hemp).
General Comments:
Management Comments:

Location

Survey Site Name: The Great Roundabout and the Squamscott River
Managed By:

County: Rockingham
Town(s): Exeter
Size: 2.8 acres Elevation: 30 feet

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

Directions: Along the Squamscott River adjacent to pull-off on east side of Rte. 85 south of Rte. 101.

Dates documented

First reported: 1996-09-04 Last reported: 1996-09-04

New Hampshire Natural Heritage Bureau - Plant Record

sharp-flowered manna grass (*Glyceria acutiflora*)

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Listed Endangered	State:	Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Good quality, condition and landscape context ('B' on a scale of A-D).
Comments on Rank:

Detailed Description: 1996: 200 to 300 culms in several patches, covering a total of 160 square feet.
General Area: 1996: Small (0.5 acre) Acer rubrum (red maple)/Vaccinium corymbosum (highbush blueberry) basin swamp on mucky soils. Several windthrows, root mounds and hollows in the woodland swamp provided marked relief. Shrub and herb development was patchy but moderate and included highbush blueberry, Ilex verticillata var. padifolia (swamp winterberry), Cephalanthus occidentalis (buttonbush), Lysimachia terrestris (swamp candles), Sphagnum spp. (sphagnum moss) and other bryophytes, Sparganium americanum (lesser bur reed), Bidens frondosa (common bur-marigold), and several other less abundant species. Only a few small pools of water were remaining by early September in this seasonally flooded basin. Glyceria acutiflora was associated with Sparganium americanum (lesser bur reed) in the wetter depressions.
General Comments: 1996: Fort Rock town conservation land supports a variety of good quality upland and wetland communities.
Management Comments:

Location

Survey Site Name: Fort Rock
Managed By: Henderson-Swasey Town Forest

County: Rockingham
Town(s): Exeter
Size: 2.8 acres Elevation: 40 feet

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

Directions: At the Rte. 101/Rte. 85 junction north of Exeter head south on Rte. 85 ca. 0.3 miles. At the railroad crossing park on the northwest side of the track at the Henderson-Swasey Town Forest. Go west ca. 0.75 miles to site.

Dates documented

First reported: 1996-09-04 Last reported: 1996-09-04

New Hampshire Natural Heritage Bureau - Plant Record

Spongy-leaved Arrowhead (*Sagittaria montevidensis ssp. spongiosa*)

Legal Status		**Conservation Status**	
Federal:	Not listed	Global:	Apparently secure but with cause for concern
State:	Listed Endangered	State:	Critically imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Good quality, condition and landscape context ('B' on a scale of A-D).
Comments on Rank:

Detailed Description: 2003: Very common (hundreds of plants) in several areas.
General Area: 2003: Tidal brackish marsh with smooth cordgrass (Spartina alterniflora), softstem bulrush (Schoenoplectus tabernaemontani), and three-square rush (Schoenoplectus pungens). In alluvium, with fresh-water cordgrass (Spartina pectinata), common arrowhead (Sagittaria latifolia), and mild water pepper (Persicaria hydropiperoides).
General Comments:
Management Comments:

Location

Survey Site Name: Squamscott River at Exeter
Managed By:

County: Rockingham
Town(s): Exeter
Size: 1.9 acres Elevation:

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

Directions: 2003: 250 m south of Jady Hill Ave. along the east shore of the Squamscott River in Exeter.

Dates documented

First reported: 2003-07-25 Last reported: 2003-07-25

New Hampshire Natural Heritage Bureau - Animal Record

American Eel (*Anguilla rostrata*)

Legal Status		Conservation Status	
Federal:	Not listed	Global:	Apparently secure but with cause for concern
State:	Special Concern	State:	Rare or uncommon

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2008: Area 13324: 15 observed.
General Area:
General Comments:
Management Comments:

Location

Survey Site Name: Great Brook-Exeter River
Managed By:

County: Rockingham
Town(s): Exeter
Size: 1.9 acres Elevation:

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

Directions: 2008: Exeter River

Dates documented

First reported: 2008-08-29 Last reported: 2008-08-29

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

Northern Black Racer (*Coluber constrictor constrictor*)

Legal Status		**Conservation Status**	
Federal:	Not listed	Global:	Demonstrably widespread, abundant, and secure
State:	Listed Threatened	State:	Imperiled due to rarity or vulnerability

Description at this Location

Conservation Rank: Not ranked
Comments on Rank:

Detailed Description: 2012: Area 13078: 1 adult observed.
General Area: 2012: Area 13078: Residential yard.
General Comments:
Management Comments:

Location

Survey Site Name: The Oaklands
Managed By:

County: Rockingham
Town(s): Exeter
Size: .4 acres Elevation:

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

Directions: 2012: Area 13078: 20 Newfields Road, Exeter.

Dates documented

First reported: 2012-06-23 Last reported: 2012-06-23

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.

Norris Brook - upstream (West) of Oak St Ext (BLUE)

Wetland Function-Value Evaluation Form

Total area of wetland 1.9+/- Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Apartments-south, SF Residential-north Distance to nearest roadway or other development 0'+/- OakStX

Dominant wetland systems present PSS / PFO Contiguous undeveloped buffer zone present No

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Lower

How many tributaries contribute to the wetland? 2 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Exeter Rose Farm, LLC

Latitude N42 59.395' Longitude W70 57.443'

Prepared by: MEJ Date 032718

Wetland Impact:
Type Buffer-Indirect Area NA

Evaluation based on:
Office Yes Field Yes

Corps manual wetland delineation completed? Y MEJ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	6, 7, 12, 13, 14	Y	6 Slowly permeable marine sediments dominant, 7 Norris Bk perennial, 13/14 observed seeps and snow melt
Floodflow Alteration	Y	5,6,9,10,13,14,15,18	Y	15 Culvert at Oak Street Extension partially plugged
Fish and Shellfish Habitat	Y	1,2,4,7,8,10,14,17	N	7 Based upon direct observation only, no testing of water, pollution sources exist on-site
Sediment/Toxicant Retention	Y	1,2,4,6,7,8,10,14,16	Y	2, Site is contaminated, 10 Norris Brook is perennial at this location
Nutrient Removal	Y	3,4,6,7,8,9,10,12,13	Y	4 Former greenhouses,10 limited
Production Export	Y	1,4,5,7,10,12	N	
Sediment/Shoreline Stabilization	Y	1,2,6,7,8,9,12,13,14	N	
Wildlife Habitat	Y	2,6,7,8,11,13,16,17,19,21	Y	2 Assumed-pollution sources exist,11 Swamp, 17 deer tracks, south aspect on Oak St Ext side
Recreation	Y	4,5,6,10,12	N	4 Neighborhood children possibly (if not on their phones) 6 Water quality looks good, No testing done, Pollution sources exist 10 Potential parking near spring
Educational/Scientific Value	Y	5,8,9,14	N	8 Short/small bus/van only, 9 Short drive-Main St School (K-2) closest
Uniqueness/Heritage	N	5,7,8,12,15,17,19,22,27	N	5 Swamp, 12 PSS/PFO, 15 P.Loosestrife, 17 from Oak St.X,
Visual Quality/Aesthetics	N	4,6,8,10,11	N	4 P. Loosestrife-Dominant?
ES Endangered Species Habitat				See attached Natural Heritage Report
Other				

Notes:

* Refer to backup list of numbered considerations.

Western Intermittent Stream (YELLOW)

Wetland Function-Value Evaluation Form

Total area of wetland 0.42+/- Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use SF Res-north, Forested and Industrial-South Distance to nearest roadway or other development 0 feet (Gas)

Dominant wetland systems present R5UBH 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? Upper-headwater

How many tributaries contribute to the wetland? None Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Exeter Rose Farm, LLC

Latitude _____ Longitude _____

Prepared by: MEJ Date 032718

Wetland Impact:
Type DIRECT Area 975+/- SF Perm

Evaluation based on:
Office Yes Field Yes

Corps manual wetland delineation completed? Y MEJ N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	6,7,12,13,14	Y	6 Slowly permeable soils, Stream IS the wetland, 12 Appears high by direct obs.-no testing-pollutants nearby 13/14 Obs. seeps and melted snow
Floodflow Alteration	N	5,13	N	5 Slowly permeable marine sediments, 13 intermittent stream
Fish and Shellfish Habitat	N	1,2,4,7,8,14,17	N	2, Locally, 8 Dense canopy,14 Persistent but intermittent
Sediment/Toxicant Retention	N	1,4,7,8,10	N	1 Stream IS the source periodically, 10 Intermittent
Nutrient Removal	N	7	N	7 marine mineral sediments
Production Export	N	10	N	
Sediment/Shoreline Stabilization	N	1,2,4,5,8,9	N	4 Unconsolidated stream bottom a source of sediment
Wildlife Habitat	Y	2,3,5,6,7,8	N	2 Direct observation only - no testing 3 Part of larger wetland bisected by gas main access road at property line, 8 Nearby
Recreation	Y	4,6,11	N	4 existing unauthorized trails,6 Assumed-no testing, 11 Especially from gas main ROW
Educational/Scientific Value	Y	2,4,10	N	Boulders pose safety hazard?
Uniqueness/Heritage	N	7,16,18,19	N	7-upland corridor, 18 Appears so-no testing
Visual Quality/Aesthetics	Y	6,7,10,11,12	N	7 Upper portion, 10 Low/steady noise from industrial park
ES Endangered Species Habitat				See Natural Heritage Bureau report
Other				

Notes:

* Refer to backup list of numbered considerations.

Norris Brook - downstream (East) of Oak St Ext - to Railroad (GREEN)

Wetland Function-Value Evaluation Form

Total area of wetland 3.34+/- Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use North-Forest, South-Forest/Grassland/Residential Distance to nearest roadway or other development 0'+/- OakStX

Dominant wetland systems present PSS & PFO dominant Contiguous undeveloped buffer zone present Predominantly

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Lower

How many tributaries contribute to the wetland? 5 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Exeter Rose Farm, LLC

Latitude N42 59.328' Longitude W70 57.268'

Prepared by: MEJ Date 032718

Wetland Impact:
Type DIRECT / CROSSING Area 3,163+/- SF Perm

Evaluation based on:
Office Yes Field Yes

Corps manual wetland delineation completed? Y MEJ N

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	6,7,12,13,14	Y	6 Slowly permeable soils, 7 Norris Bk is perennial, 13/14 Obs. seeps & snow melt
Floodflow Alteration	Y	5,6,9,10,13,14,15,18	Y	15 Less constricted than OakStExt culvert
Fish and Shellfish Habitat	Y	1,2,7,8,10,14,16,17	N	7, Direct obs. only-no testing-pollutants on site
Sediment/Toxicant Retention	Y	1,2,4,6,7,8,10,11,14,16	Y	1 Stream can be sediment source, 2 Site is contaminated, 10 Norris Brook is perennial
Nutrient Removal	Y	3,4,6,7,8,9,10,12,13	Y	4 Former greenhouses, 8 Dense patches
Production Export	Y	1,4,7,10,12	N	7, Large dense patches, 12 P.Loosestrife
Sediment/Shoreline Stabilization	Y	1,2,6,7,8,9,12,13	N	
Wildlife Habitat	Y	2,4,7,8,11,13,14,16,19,21	Y	2 assumed-pollution sources exist, 4 Partially developed, 11 Swamp,
Recreation	Y	4,5,6,10,12	N	4 Neighborhood possibly-no real sign 6 Assumed-pollution sources exist 10 Small bus
Educational/Scientific Value	Y	2,3,5,8,9,11,12,14	N	3 three potential classes, 8 small bus, 9 Short drive, 12 impoundment
Uniqueness/Heritage	Y	4,5,7,8,11,13,19,21,22	Y	5 PSS dominant, 8 Short drive
Visual Quality/Aesthetics	N	2,6,8,11	N	daily passenger trains
ES Endangered Species Habitat				See Natural Heritage Bureau Report
Other				

Notes:

* Refer to backup list of numbered considerations.

Eastern Intermittent Stream (RED)

Wetland Function-Value Evaluation Form

Total area of wetland 0.88+/- Ac Human made? No Is wetland part of a wildlife corridor? Yes or a "habitat island"? No

Adjacent land use Forested (Mature and Regrowth) Distance to nearest roadway or other development 450' OakStX

Dominant wetland systems present PFO & PSS Contiguous undeveloped buffer zone present YES

Is the wetland a separate hydraulic system? No If not, where does the wetland lie in the drainage basin? Mid

How many tributaries contribute to the wetland? 1 Wildlife & vegetation diversity/abundance (see attached list)

Wetland I.D. Exeter Rose Farm, LLC

Latitude _____ Longitude _____

Prepared by: MEJ Date 032718

Wetland Impact:
Type None Area NA

Evaluation based on:
Office Yes Field Yes

Corps manual wetland delineation completed? Y MEJ N _____

Function/Value	Suitability Y / N	Rationale (Reference #)*	Principal Function(s)/Value(s)	Comments
Groundwater Recharge/Discharge	Y	6,7,9,12,13,14	Y	6 slowly permeable sediments, 7 Intermittent, 9 Constricted outlet, 13/14 observed seeps
Floodflow Alteration	Y	5,6,7,9,13,15-18	Y	7 Intermittent outlet, 13 Intermittent
Fish and Shellfish Habitat	N	1,7,8,16,17	N	17 Intermittently defined
Sediment/Toxicant Retention	Y	3,4,6,7,8,10,13,16	N	3 Limited opportunity, 10 Intermittent,
Nutrient Removal	N	7,8,9,13	N	9 Woody stems
Production Export	N	1,7,12	N	7 Patchy, 12 Dogwood
Sediment/Shoreline Stabilization	N	1,2,9,13	N	1 Especially below constriction, 13 shrubs
Wildlife Habitat	Y	1,2,4,7,8,13,21	N	1 old woods road, 2 assumed, 21 Potential
Recreation	Y	4,6,11	N	4 Neighborhood mostly-bike trails, 6 Assumed-no testing
Educational/Scientific Value	Y	2,4,5,10,11-13	N	4 mostly natural 13 Railroad?
Uniqueness/Heritage	N	7,10,16,18,19,22	N	10 Railroad? 18 Assumed
Visual Quality/Aesthetics	N	7,10,11	N	10 Railroad?
ES Endangered Species Habitat				Refer to attached report from Natural Heritage Bureau
Other				

Notes:

* Refer to backup list of numbered considerations.

Appendix A

Wetland evaluation supporting documentation; Reproducible forms.

Below is an example list of considerations that was used for a New Hampshire highway project. Considerations are flexible, based on best professional judgment and interdisciplinary team consensus. This example provides a comprehensive base, however, and may only need slight modifications for use in other projects.

GROUNDWATER RECHARGE/DISCHARGE— This function considers the potential for a wetland to serve as a groundwater recharge and/or discharge area. It refers to the fundamental interaction between wetlands and aquifers, regardless of the size or importance of either.

CONSIDERATIONS/QUALIFIERS

1. Public or private wells occur downstream of the wetland.
2. Potential exists for public or private wells downstream of the wetland.
3. Wetland is underlain by stratified drift.
4. Gravel or sandy soils present in or adjacent to the wetland.
5. Fragipan does not occur in the wetland.
6. Fragipan, impervious soils, or bedrock does occur in the wetland.
7. Wetland is associated with a perennial or intermittent watercourse.
8. Signs of groundwater recharge are present or piezometer data demonstrates recharge.
9. Wetland is associated with a watercourse but lacks a defined outlet or contains a constricted outlet.
10. Wetland contains only an outlet, no inlet.
11. Groundwater quality of stratified drift aquifer within or downstream of wetland meets drinking water standards.
12. Quality of water associated with the wetland is high.
13. Signs of groundwater discharge are present (e.g., springs).
14. Water temperature suggests it is a discharge site.
15. Wetland shows signs of variable water levels.
16. Piezometer data demonstrates discharge.
17. Other

FLOODFLOW ALTERATION (Storage & Desynchronization) — This function considers the effectiveness of the wetland in reducing flood damage by water retention for prolonged periods following precipitation events and the gradual release of floodwaters. It adds to the stability of the wetland ecological system or its buffering characteristics and provides social or economic value relative to erosion and/or flood prone areas.

CONSIDERATIONS/QUALIFIERS

1. Area of this wetland is large relative to its watershed.
2. Wetland occurs in the upper portions of its watershed.
3. Effective flood storage is small or non-existent upslope of or above the wetland.
4. Wetland watershed contains a high percent of impervious surfaces.
5. Wetland contains hydric soils which are able to absorb and detain water.
6. Wetland exists in a relatively flat area that has flood storage potential.
7. Wetland has an intermittent outlet, ponded water, or signs are present of variable water level.
8. During flood events, this wetland can retain higher volumes of water than under normal or average rainfall conditions.
9. Wetland receives and retains overland or sheet flow runoff from surrounding uplands.
10. In the event of a large storm, this wetland may receive and detain excessive flood water from a nearby watercourse.
11. Valuable properties, structures, or resources are located in or near the floodplain downstream from the wetland.
12. The watershed has a history of economic loss due to flooding.
13. This wetland is associated with one or more watercourses.
14. This wetland watercourse is sinuous or diffuse.
15. This wetland outlet is constricted.
16. Channel flow velocity is affected by this wetland.
17. Land uses downstream are protected by this wetland.
18. This wetland contains a high density of vegetation.
19. Other

FISH AND SHELLFISH HABITAT (FRESHWATER) — This function considers the effectiveness of seasonal or permanent watercourses associated with the wetland in question for fish and shellfish habitat.

CONSIDERATIONS/QUALIFIERS

1. Forest land dominant in the watershed above this wetland.
2. Abundance of cover objects present.

STOP HERE IF THIS WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE

3. Size of this wetland is able to support large fish/shellfish populations.
4. Wetland is part of a larger, contiguous watercourse.
5. Wetland has sufficient size and depth in open water areas so as not to freeze solid and retain some open water during winter.
6. Stream width (bank to bank) is more than 50 feet.
7. Quality of the watercourse associated with this wetland is able to support healthy fish/shellfish populations.
8. Streamside vegetation provides shade for the watercourse.
9. Spawning areas are present (submerged vegetation or gravel beds).
10. Food is available to fish/shellfish populations within this wetland.
11. Barrier(s) to anadromous fish (such as dams, including beaver dams, waterfalls, road crossing) are absent from the stream reach associated with this wetland.
12. Evidence of fish is present.
13. Wetland is stocked with fish.
14. The watercourse is persistent.
15. Man-made streams are absent.
16. Water velocities are not too excessive for fish usage.
17. Defined stream channel is present.
18. Other

Although the above example refers to freshwater wetlands, it can also be adapted for marine ecosystems. The following is an example provided by the National Marine Fisheries Service (NMFS) of an adaptation for the fish and shellfish function.

FISH AND SHELLFISH HABITAT (MARINE) — This function considers the effectiveness of wetlands, embayments, tidal flats, vegetated shallows, and other environments in supporting marine resources such as fish, shellfish, marine mammals, and sea turtles.

CONSIDERATIONS/QUALIFIERS

1. Special aquatic sites (tidal marsh, mud flats, eelgrass beds) are present.
2. Suitable spawning habitat is present at the site or in the area.
3. Commercially or recreationally important species are present or suitable habitat exists.
4. The wetland/waterway supports prey for higher trophic level marine organisms.
5. The waterway provides migratory habitat for anadromous fish.
6. Essential fish habitat, as defined by the 1996 amendments to the Magnuson-Stevens Fishery & Conservation Act, is present (consultation with NMFS may be necessary).
7. Other

SEDIMENT/TOXICANT/PATHOGEN RETENTION — This function reduces or prevents degradation of water quality. It relates to the effectiveness of the wetland as a trap for sediments, toxicants, or pathogens in runoff water from surrounding uplands or upstream eroding wetland areas.

CONSIDERATIONS/QUALIFIERS

1. Potential sources of excess sediment are in the watershed above the wetland.
2. Potential or known sources of toxicants are in the watershed above the wetland.
3. Opportunity for sediment trapping by slow moving water or deepwater habitat are present in this wetland.
4. Fine grained mineral or organic soils are present.
5. Long duration water retention time is present in this wetland.
6. Public or private water sources occur downstream.
7. The wetland edge is broad and intermittently aerobic.
8. The wetland is known to have existed for more than 50 years.
9. Drainage ditches have not been constructed in the wetland.

STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE.

10. Wetland is associated with an intermittent or perennial stream or a lake.
11. Channelized flows have visible velocity decreases in the wetland.
12. Effective floodwater storage in wetland is occurring. Areas of impounded open water are present.
13. No indicators of erosive forces are present. No high water velocities are present.
14. Diffuse water flows are present in the wetland.
15. Wetland has a high degree of water and vegetation interspersion.
16. Dense vegetation provides opportunity for sediment trapping and/or signs of sediment accumulation by dense vegetation is present.
17. Other

NUTRIENT REMOVAL/RETENTION/TRANSFORMATION — This function considers the effectiveness of the wetland as a trap for nutrients in runoff water from surrounding uplands or contiguous wetlands and the ability of the wetland to process these nutrients into other forms or trophic levels. One aspect of this function is to prevent ill effects of nutrients entering aquifers or surface waters such as ponds, lakes, streams, rivers, or estuaries.

CONSIDERATIONS/QUALIFIERS

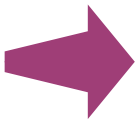
1. Wetland is large relative to the size of its watershed.
2. Deep water or open water habitat exists.
3. Overall potential for sediment trapping exists in the wetland.

4. Potential sources of excess nutrients are present in the watershed above the wetland.
5. Wetland saturated for most of the season. Ponded water is present in the wetland.
6. Deep organic/sediment deposits are present.
7. Slowly drained fine grained mineral or organic soils are present.
8. Dense vegetation is present.
9. Emergent vegetation and/or dense woody stems are dominant.
10. Opportunity for nutrient attenuation exists.
11. Vegetation diversity/abundance sufficient to utilize nutrients.

STOP HERE IF WETLAND IS NOT ASSOCIATED WITH A WATERCOURSE.

12. Waterflow through this wetland is diffuse.
13. Water retention/detention time in this wetland is increased by constricted outlet or thick vegetation.
14. Water moves slowly through this wetland.
15. Other

PRODUCTION EXPORT (Nutrient) — This function evaluates the effectiveness of the wetland to produce food or usable products for humans or other living organisms.



CONSIDERATIONS/QUALIFIERS

1. Wildlife food sources grow within this wetland.
2. Detritus development is present within this wetland
3. Economically or commercially used products found in this wetland.
4. Evidence of wildlife use found within this wetland.
5. Higher trophic level consumers are utilizing this wetland.
6. Fish or shellfish develop or occur in this wetland.
7. High vegetation density is present.
8. Wetland exhibits high degree of plant community structure/species diversity.
9. High aquatic vegetative diversity/abundance is present.
10. Nutrients exported in wetland watercourses (permanent outlet present).
11. “Flushing” of relatively large amounts of organic plant material occurs from this wetland.
12. Wetland contains flowering plants that are used by nectar-gathering insects.
13. Indications of export are present.
14. High production levels occurring, however, no visible signs of export (assumes export is attenuated).
15. Other

SEDIMENT/SHORELINE STABILIZATION — This function considers the effectiveness of a wetland to stabilize streambanks and shorelines against erosion.

CONSIDERATIONS/QUALIFIERS

1. Indications of erosion or siltation are present.
2. Topographical gradient is present in wetland.
3. Potential sediment sources are present up-slope.
4. Potential sediment sources are present upstream.
5. No distinct shoreline or bank is evident between the waterbody and the wetland or upland.
6. A distinct step between the open waterbody or stream and the adjacent land exists (i.e., sharp bank) with dense roots throughout.
7. Wide wetland (>10’) borders watercourse, lake, or pond.
8. High flow velocities in the wetland.
9. The watershed is of sufficient size to produce channelized flow.
10. Open water fetch is present.
11. Boating activity is present.
12. Dense vegetation is bordering watercourse, lake, or pond.
13. High percentage of energy-absorbing emergents and/or shrubs border a watercourse, lake, or pond.
14. Vegetation is comprised of large trees and shrubs that withstand major flood events or erosive incidents and stabilize the shoreline on a large scale (feet).
15. Vegetation is comprised of a dense resilient herbaceous layer that stabilizes sediments and the shoreline on a small scale (inches) during minor flood events or potentially erosive events.
16. Other

WILDLIFE HABITAT — This function considers the effectiveness of the wetland to provide habitat for various types and populations of animals typically associated with wetlands and the wetland edge. Both resident and/or migrating species must be considered. Species lists of observed and potential animals should be included in the wetland assessment report.[1]

CONSIDERATIONS/QUALIFIERS

1. Wetland is not degraded by human activity.
2. Water quality of the watercourse, pond, or lake associated with this wetland meets or exceeds Class A or B standards.
3. Wetland is not fragmented by development.
4. Upland surrounding this wetland is undeveloped.
5. More than 40% of this wetland edge is bordered by upland wildlife habitat (e.g., brushland, woodland, active farmland, or idle land) at least 500 feet in width.
6. Wetland is contiguous with other wetland systems connected by a watercourse or lake.
7. Wildlife overland access to other wetlands is present.
8. Wildlife food sources are within this wetland or are nearby.
9. Wetland exhibits a high degree of interspersion of vegetation classes and/or open water.
10. Two or more islands or inclusions of upland within the wetland are present.
11. Dominant wetland class includes deep or shallow marsh or wooded swamp.
12. More than three acres of shallow permanent open water (less than 6.6 feet deep), including streams in or adjacent to wetland, are present.
13. Density of the wetland vegetation is high.
14. Wetland exhibits a high degree of plant species diversity.
15. Wetland exhibits a high degree of diversity in plant community structure (e.g., tree/shrub/vine/grasses/mosses)
16. Plant/animal indicator species are present. (List species for project)
17. Animal signs observed (tracks, scats, nesting areas, etc.)
18. Seasonal uses vary for wildlife and wetland appears to support varied population diversity/abundance during different seasons.
19. Wetland contains or has potential to contain a high population of insects.
20. Wetland contains or has potential to contain large amphibian populations.
21. Wetland has a high avian utilization or its potential.
22. Indications of less disturbance-tolerant species are present.
23. Signs of wildlife habitat enhancement are present (birdhouses, nesting boxes, food sources, etc.).
24. Other

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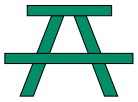
[1]In March 1995, a rapid wildlife habitat assessment method was completed by a University of Massachusetts research team with funding and oversight provided by the New England Transportation Consortium. The method is called WEThings (wetland habitat indicators for non-game species). It produces a list of potential wetland-dependent mammal, reptile, and amphibian species that may be present in the wetland. The output is based on observable habitat characteristics documented on the field data form. This method may be used to generate the wildlife species list recommended as backup information to the wetland evaluation form and to augment the considerations. Use of this method should first be coordinated with the Corps project manager. A computer program is also available to expedite this process.

RECREATION (Consumptive and Non-Consumptive) — This value considers the suitability of the wetland and associated watercourses to provide recreational opportunities such as hiking, canoeing, boating, fishing, hunting, and other active or passive recreational activities. Consumptive opportunities consume or diminish the plants, animals, or other resources that are intrinsic to the wetland. Non-consumptive opportunities do not consume or diminish these resources of the wetland.



CONSIDERATIONS/QUALIFIERS

1. Wetland is part of a recreation area, park, forest, or refuge.
2. Fishing is available within or from the wetland.
3. Hunting is permitted in the wetland.
4. Hiking occurs or has potential to occur within the wetland.
5. Wetland is a valuable wildlife habitat.
6. The watercourse, pond, or lake associated with the wetland is unpolluted.
7. High visual/aesthetic quality of this potential recreation site.
8. Access to water is available at this potential recreation site for boating, canoeing, or fishing.
9. The watercourse associated with this wetland is wide and deep enough to accommodate canoeing and/or non-powered boating.
10. Off-road public parking available at the potential recreation site.
11. Accessibility and travel ease is present at this site.
12. The wetland is within a short drive or safe walk from highly populated public and private areas.
13. Other

EDUCATIONAL/SCIENTIFIC VALUE — This value considers the suitability of the wetland as a site for an "outdoor classroom" or as a location for scientific study or research.

CONSIDERATIONS/QUALIFIERS

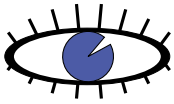
1. Wetland contains or is known to contain threatened, rare, or endangered species.
2. Little or no disturbance is occurring in this wetland.
3. Potential educational site contains a diversity of wetland classes which are accessible or potentially accessible.
4. Potential educational site is undisturbed and natural.
5. Wetland is considered to be a valuable wildlife habitat.
6. Wetland is located within a nature preserve or wildlife management area.
7. Signs of wildlife habitat enhancement present (bird houses, nesting boxes, food sources, etc.).
8. Off-road parking at potential educational site suitable for school bus access in or near wetland.
9. Potential educational site is within safe walking distance or a short drive to schools.
10. Potential educational site is within safe walking distance to other plant communities.
11. Direct access to perennial stream at potential educational site is available.
12. Direct access to pond or lake at potential educational site is available.
13. No known safety hazards exist within the potential educational site.
14. Public access to the potential educational site is controlled.
15. Handicap accessibility is available.
16. Site is currently used for educational or scientific purposes.
17. Other

UNIQUENESS/HERITAGE — This value considers the effectiveness of the wetland or its associated waterbodies to provide certain special values. These may include archaeological sites, critical habitat for endangered species, its overall health and appearance, its role in the ecological system of the area, its relative importance as a typical wetland class for this geographic location. These functions are clearly valuable wetland attributes relative to aspects of public health, recreation, and habitat diversity.

CONSIDERATIONS/QUALIFIERS

1. Upland surrounding wetland is primarily urban.
2. Upland surrounding wetland is developing rapidly.
3. More than 3 acres of shallow permanent open water (less than 6.6 feet deep), including streams, occur in wetlands.
4. Three or more wetland classes are present.
5. Deep and/or shallow marsh or wooded swamp dominate.
6. High degree of interspersion of vegetation and/or open water occur in this wetland.
7. Well-vegetated stream corridor (15 feet on each side of the stream) occurs in this wetland.
8. Potential educational site is within a short drive or a safe walk from schools.
9. Off-road parking at potential educational site is suitable for school buses.
10. No known safety hazards exist within this potential educational site.
11. Direct access to perennial stream or lake exists at potential educational site.
12. Two or more wetland classes are visible from primary viewing locations.
13. Low-growing wetlands (marshes, scrub-shrub, bogs, open water) are visible from primary viewing locations.
14. Half an acre of open water or 200 feet of stream is visible from the primary viewing locations.
15. Large area of wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.
16. General appearance of the wetland visible from primary viewing locations is unpolluted and/or undisturbed.
17. Overall view of the wetland is available from the surrounding upland.
18. Quality of the water associated with the wetland is high.
19. Opportunities for wildlife observations are available.
20. Historical buildings are found within the wetland.
21. Presence of pond or pond site and remains of a dam occur within the wetland.
22. Wetland is within 50 yards of the nearest perennial watercourse.
23. Visible stone or earthen foundations, berms, dams, standing structures, or associated features occur within the wetland.
24. Wetland contains critical habitat for a state- or federally-listed threatened or endangered species.
25. Wetland is known to be a study site for scientific research.
26. Wetland is a natural landmark or recognized by the state natural heritage inventory authority as an exemplary natural community.
27. Wetland has local significance because it serves several functional values.
28. Wetland has local significance because it has biological, geological, or other features that are locally rare or unique.
29. Wetland is known to contain an important archaeological site.
30. Wetland is hydrologically connected to a state or federally designated scenic river.
31. Wetland is located in an area experiencing a high wetland loss rate.
32. Other

VISUAL QUALITY/AESTHETICS — This value considers the visual and aesthetic quality or usefulness of the wetland.



CONSIDERATIONS/QUALIFIERS

1. Multiple wetland classes are visible from primary viewing locations.
2. Emergent marsh and/or open water are visible from primary viewing locations.
3. A diversity of vegetative species is visible from primary viewing locations.
4. Wetland is dominated by flowering plants or plants that turn vibrant colors in different seasons.
5. Land use surrounding the wetland is undeveloped as seen from primary viewing locations.
6. Visible surrounding land use form contrasts with wetland.
7. Wetland views absent of trash, debris, and signs of disturbance.
8. Wetland is considered to be a valuable wildlife habitat.
9. Wetland is easily accessed.
10. Low noise level at primary viewing locations.
11. Unpleasant odors absent at primary viewing locations.
12. Relatively unobstructed sight line exists through wetland.
13. Other

ENDANGERED SPECIES HABITAT — This value considers the suitability of the wetland to support threatened or endangered species.

ES

CONSIDERATIONS/QUALIFIERS

1. Wetland contains or is known to contain threatened or endangered species.
2. Wetland contains critical habitat for a state or federally listed threatened or endangered species.

Natural Resources Plan

Of

Exeter Rose Farm, LLC
Assessors Tax Map 54 / Lots 5-7 and Tax Map 63 / Lot 205
Oak Street Extension
Exeter, NH

Prepared for

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By

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P.O. Box 417
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Revised May 31, 2018

Natural Resources Plan
Exeter Rose Farm, LLC
Oak Street Extension
Exeter, NH

1.0 Introduction

Pursuant to the request by the Exeter Rose Farm, LLC to the Town of Exeter, New Hampshire for subdivision approval involving work within wetlands and, more specifically, the Wetland Conservation District (Zoning Article 9 - §9.1.6.C) at the above-referenced location off of Oak Street Extension in Exeter, NH, specifically Assessors Map 54 – Lots 5-7 and Map 63 – Lot 205, we herewith submit this Natural Resources Plan to supplement the application as required under Town of Exeter, New Hampshire – Site & Subdivision Regulations – Section 9.8 – Natural Resources. This plan also references the following sections of the regulations:

8.4 General Standards – Character of Land
8.6 General Standards – Protection of Environmental Quality
8.8 General Standards – Preservation of Natural Features
8.9 General Standards – Landscaping and Tree Planting
9.6.2 Green Space: Natural Features

This report provides an inventory of natural resources at this location and an analysis of impacts that can be anticipated from the proposed subdivision according to the regulations above. We note that there is considerable duplication between the various sections referenced above and have attempted to consolidate where possible. Also, the regulations mix site characterization and inventory with impact analysis so we have addressed these issues together where they appear in the regulations together.

Attached is a copy of a composite 7.5 X 15 Minute United States Geological Survey Quadrangle(s) on which is depicted the approximate location of the subject property. Digital images and associated descriptions are also attached to this report. Refer to Exhibit 1.

2.0 Existing Conditions

The site is 49.95 acres in size and bounded to the east by active railroad tracks, to the north by the Henderson-Swasey Town Forest belonging to the Town of Exeter, to the west by developed industrial lands (Industrial Drive and Commerce Way) as well as Norris Brook Condominiums and to the south by densely developed residential neighborhoods of single-family homes. A large gas main bisects the western tip of the property.

Historic land uses at this location included a brick yard and later, rose growing greenhouses and packing facilities as well as residential housing. Significant portions of the site, including wetlands, have been altered and some areas are contaminated with lead, coal ash and solid waste associated with the prior land uses. Numerous man-made wetlands and retention ponds exist as a result of excavation and other earth moving activities. The man-made retention pond located east of and adjacent to Oak Street Extension, between the spring house and the pump house described below, was created by excavation and impoundment. The impoundment consists of a poured

concrete weir structure installed across Norris Brook. The concrete structure has been partially breached due to erosion at the south end. The dredge spoils from pond excavation are stockpiled on the south side of the pond in what were likely wetlands before they were filled. The retention pond contains a large plume of sediment from upstream. It does not appear that this pond was used for irrigation. The man-made retention ponds located north of Oak Street Extension captured runoff from the greenhouses. The runoff collected in the largest retention pond was then reused for irrigation. The hydrant along Oak Street Extension indicates that this retention pond also serves as fire protection.

The property is partially developed with 9 existing residential dwellings (5 of which are currently occupied) and several garages / outbuildings that are accessed by Oak Street Extension, which is in significant disrepair. The concrete structure that formerly housed the rose packing operation and possibly the heating system also remains. Areas of the property that formerly housed the greenhouse operations are now generally vegetated with fields that have a shrub / sapling component dominated by black locust (*Robinia pseudoacacia*). When the greenhouses were dismantled the concrete slabs were bulldozed and partially buried / exposed remnants of the concrete slabs as well as piping and other materials can be seen throughout the area and remain a significant hazard to pedestrians, especially when occasional subsurface cavities are encountered. Remaining areas of the property are generally forested with a mix of softwood and hardwood tree species dominated by oak, pine and maple. Norris Brook, a perennial stream, runs along and through portions of the property. Another unnamed perennial stream (according to some sources) and two unnamed intermittent streams as well as numerous groundwater seeps (owing to surficial geology and site soils) also drain the property and all are tributary to Norris Brook within the confines of the site. Norris Brook eventually drains to the Squamscott River, which is tidally influenced at this juncture. The influence of the normal tidal cycle does not extend to the subject properties. Most streams within the property sustain associated wetlands. There are numerous mountain bicycle trails throughout the property. A gas line/easement, 35-feet in width, traverses the western tip of the property along Norris Brook. There is a spring house on the property, along Oak Street Extension, near Forest Street, which is visited frequently by residents of the town. Water is provided to the existing homes on the subject property from the spring via a pump house (which is located adjacent to Oak Street Extension, between Oak Street Extension and aforementioned impoundment / pond). The existing homes are served by individual sewage disposal systems of unknown origin and status.

There are no prime wetlands on or immediately adjacent to the subject property. Prime wetlands are those wetlands with higher functions and values and receive additional protection under state law. Exeter has municipally designated prime wetlands recognized by NHDES.

3.0 Proposed Conditions

The project proposes an open space development with construction of 2,917± linear feet (LF) of new roadway, servicing approximately thirty-seven (37) new single-family homes as well as seven (7) other dwelling units. (The project has received constructive input from the Planning Board since the April version of this document was released so this figure represents a decrease in impervious surface of 871 LF or approximately 30 percent from the previous plan submission.) The proposed project will be serviced by municipal water and sewer utilities. Portions of the site which are contaminated with lead, coal ash and solid waste are proposed to be remediated during development. The project proposes to relocate the existing trail that traverses the western end of

the property. The project is also proposing 26± acres of open space (approximately 52 percent of the total property area) not including neighborhood recreation areas. The project will be covered by a Home Owners Association (HOA), which will be responsible for management of the open space and spring in perpetuity.

4.0 Inventory

We provide the following inventory of natural resources as per Section 9.8.1.1

Air quality

Air quality is generally good. There are no known air pollution sources on the site. Passing trains create significant diesel emissions which can adversely impact air quality. The industrial park is located just west of the site but we are not aware of any unique or unusual emissions that pose any problems for the subject property.

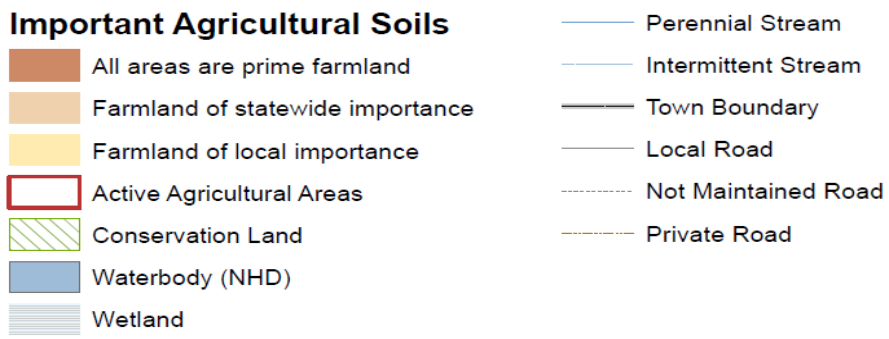
Soils

The soils have been surveyed using intensive on-the-ground investigations conducted by this office as per town regulations and a soil survey map has been prepared, a copy of which is attached as Exhibit 2. The highest elevations at the subject property generally involve a mantle of sandy soils which are underlain by dense marine sediments, dominated by silt and clay textures, which are slowly permeable. Intermediate elevations generally possess moderately well drained soils dominated by marine sediments. Low lying areas and wetlands generally possess poorly drained hydric mineral soils and correspond closely to jurisdictional wetland areas, which have been identified, delineated and surveyed previously according to town, state and federal regulations and are depicted on site plans prepared on behalf of the project by the surveyor of record.

According to the Natural Resource Inventory prepared on behalf of the town, the subject property contains prime agricultural farmland, farmland of statewide importance and active agricultural areas. See Figure 1 below as well as the associated legend on page 5.

Figure 1

MAP 3. AGRICULTURAL RESOURCES



North of Norris Brook those resources largely coincide with the portion of the site where the greenhouse operations formerly existed. This area is contaminated with lead and is the subject of a Remedial Action Plan which is currently under review by the state. The greenhouses were apparently bulldozed in the 1970's and the area is pervaded with the remains of concrete slabs and other debris which would make tillage of these soils for agricultural purposes impossible without prior removal of the slabs. South of Norris Brook, the active agricultural area depicted is a fallow field. Horses, sheep, goats and cows were grazed in this area but it has been approximately 30+ years since this activity ceased.

Vegetation

The following is a list of commonly observed vegetation. Some tree species can be found growing as shrubs or saplings as well.

Trees

White pine	*Pinus strobus*
Red Maple	*Acer rubrum*
American beech	*Fagus grandifolia*
Poplar	*Populus* sp.
American elm	*Ulmus americana*
White ash	*Fraxinus americana*
Gray birch	*Betula populifolia*
Black birch	*Betula lenta*
Yellow birch	*Betula alleghaniensis*
Black cherry	*Prunus serotina*
Eastern hemlock	*Tsuga canadensis*
Shagbark hickory	*Carya ovata*
Black locust	*Robinia pseudoacacia*
Box elder	*Acer negundo*
Northern Red oak	*Quercus rubra*
Black oak	*Quercus velutina*
White oak	*Quercus alba*
Hophornbeam	*Ostrya virginiana*

Shrubs / Saplings

Apple	*Malus* sp.
Red-osier dogwood	*Cornus sericea*
Red-panicled dogwood	*Cornus racemosa*
Silky dogwood	*Cornus amomum*
Bunchberry	*Cornus canadensis*
Elderberry	*Sambucus canadensis*
Honeysuckle	*Lonicera* sp.*
Ironwood	*Carpinus caroliniana*
Speckled alder	*Alnus rugosa*
Staghorn sumac	*Rhus typhina*
Wild raisin	*Viburnum cassanoides*
Arrowwood	*Viburnum dentatum*
Autumn olive	*Elaeagnus umbellata**
Glossy buckthorn	*Frangula alnus**
Common buckthorn	*Rhamnus cathartica**
Meadowsweet	*Spiraea latifolia*
Willow	*Salix* sp.
Burning bush	*Euonymus alatus**
Winterberry	*Ilex verticillata*
Japanese barberry	*Berberis thunbergii**
Highbush blueberry	*Vaccinium corymbosum*
Witch hazel	*Hamamelis virginiana*
Multi-flora rose	*Rosa multi-flora**
Maleberry	*Lyonia ligustrina*

Herbs

Burdock	*Arctium minus*
Wood fern	*Dryopteris cristata*
Curley dock	*Rumex crispus*
Soft rush	*Juncus effusus*
Orchardgrass	*Dactylis glomerata*
Reed canary grass	*Phalaris arundinacea*
Tall fescue	*Festuca arundinacea*
Fine fescue	*Festuca* spp.
Ryegrass	*Lolium perenne*
Garlic mustard	*Alliaria petiolata**
Goldenrods	*Solidago* spp.
Queen Anne’s lace	*Daucus carota*
Broad-leaved cat-tail	*Typha latifolia*
Sensitive fern	*Onoclea sensibilis*
Cinnamon fern	*Osmunda cinnamomea*
Royal fern	*Osmunda regalis*
Purple loosestrife	*Lythrum salicaria**
Jewelweed	*Impatiens capensis*
Japanese knotweed	*Polygonum cuspidatum**

Vines

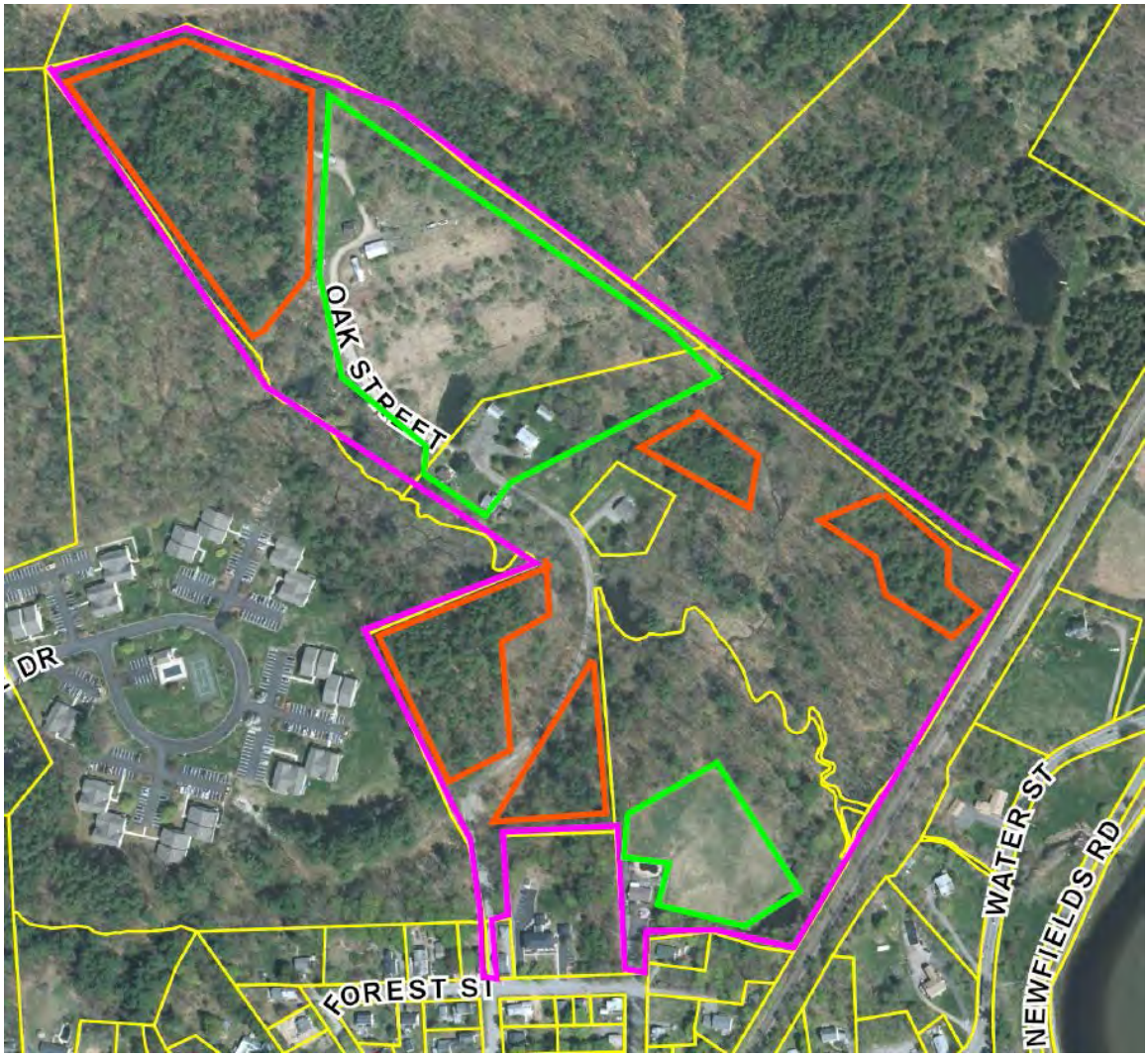
Grape	*Vitis* sp.
Poison ivy	*Toxicodendron radicans* (Also observed growing as a ground cover.)
Virginia creeper	*Parthenocissus quinquefolia*

Aquatic

Duckweed	*Lemna minor*

Additionally, we offer the 2015 aerial image from the town's GIS below. The approximate property line is identified in pink. In the image the former greenhouse locations are easily seen as are the areas of significant coniferous tree growth in dark green which we have outlined in orange. The approximate extent of areas that are open such as grassland and scrub-shrub growth are outlined in light green. The remainder is best characterized as forest dominated by hardwood or deciduous tree species. Refer to Figure 2 below as well as Exhibit 3 – Forested Areas Plan.

Figure 2



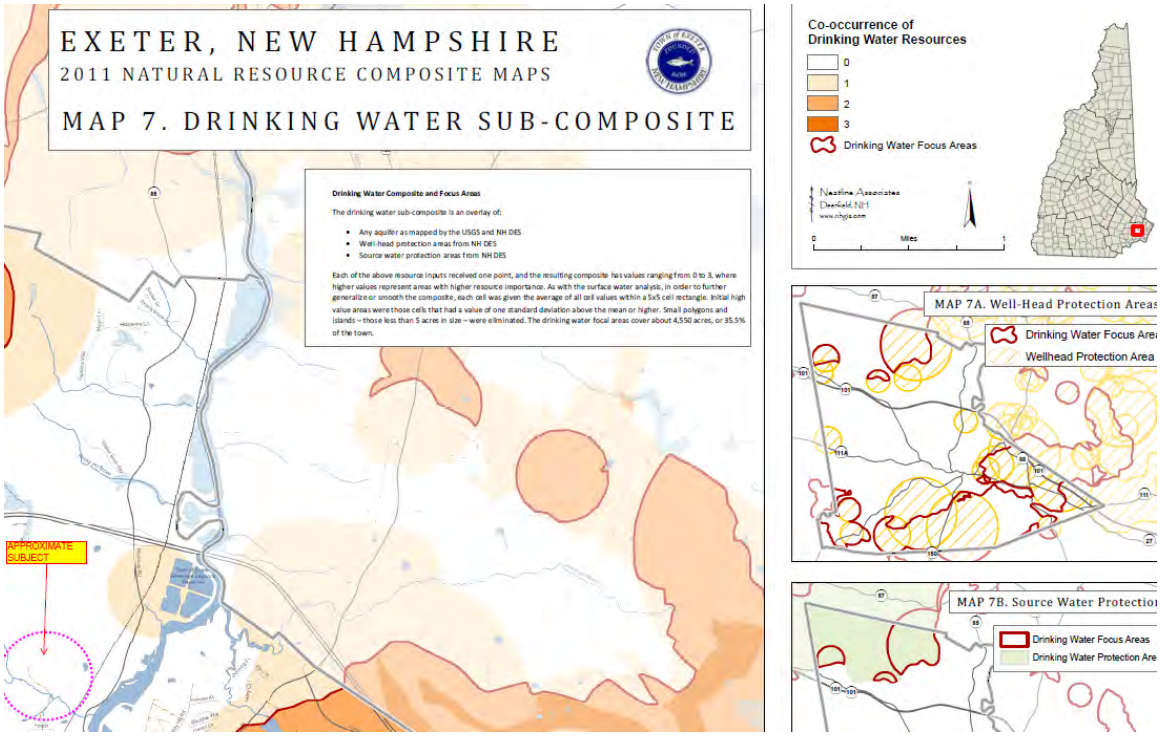
Mineral deposits

We interpret mineral deposit to be any deposits having significant economic value such as gem stones like tourmaline. We are unaware of any mineral deposits having significant economic value.

Water

We interpret water resources to refer to drinking water. Regarding surface water resources, the site is drained by Norris Brook, a perennial stream, and two intermittent streams. Regarding groundwater sources, the site is not underlain by any known stratified drift deposits and as such does not provide any groundwater aquifers. The site does not contain any drinking water focus areas according to the Natural Resources Inventory. Refer to Figure 3 below. The site soils result in the frequent occurrence of groundwater seeps and a widely known and frequently sourced spring exists adjacent to Oak Street Extension in the southern part of the site near Forest Street.

Figure 3



Wildlife

The following is a list of wildlife we have observed directly, or inferred from tracks, scat or other sign or whose images were captured using motion sensing wildlife cameras which were periodically monitored.

Birds

Pileated woodpecker	(*Dryocopus pileatus*) (audio confirmation)
Black-capped chickadee	(*Poecile atricapillus*)
American robin	(*Turdus migratorius*)

Blue jay	(*Cyanocitta cristata*)
Northern cardinal	(*Cardinalis cardinalis*) (audio confirmation)
American goldfinch	(*Carduelis tristis*)
Eastern blue bird	(*Sialia sialis*)
Dark-eyed junco	(*Junco hyemalis*)
Wild turkey	(*Melleagris gallopavo*) (tracks)
Red-tailed hawk (overhead)	(*Buteo jamaicensis*) (audio and visual confirmation)
Turkey vulture (overhead)	(*Cathartes aura*)
Mallard	(*Anas platyrhynchos*)
Owl (Barred most likely)	(*Strix varia*) (images)

Mammals

Gray squirrel	(*Sciurus carolinensis*)
Raccoon	(*Procyon lotor*) (tracks)
White-tail deer	(*Odocoileus virginianus*) (tracks, scat, images)
Eastern coyote	(*Canis latrans*)
Woodchuck	(*Marmota monax*)

Reptiles

Turtle	(No positive identification)

Wildlife Habitat

According to the Natural Resources Inventory – Map 2, the site contains several wildlife habitats including grassland, floodplain forest and Appalachian oak-pine forest. Refer to Figures 4 and 5 below. The grassland appears to be slightly under represented on Figure 4 while the oak-pine forest appears to be over represented. It is important to keep the small scale of the Natural Resources Inventory maps in mind when evaluating this information. The floodplain forest depicted in Figure 4 corresponds reasonably well with field conditions we have observed including the wetlands between the impoundment east of Oak Street Extension and the railroad tracks (Refer to the 'green' study area in the Functional Wetland Evaluation.)

Figure 4 Floodplain Forest (Exeter Natural Resource Inventory – Map 2)

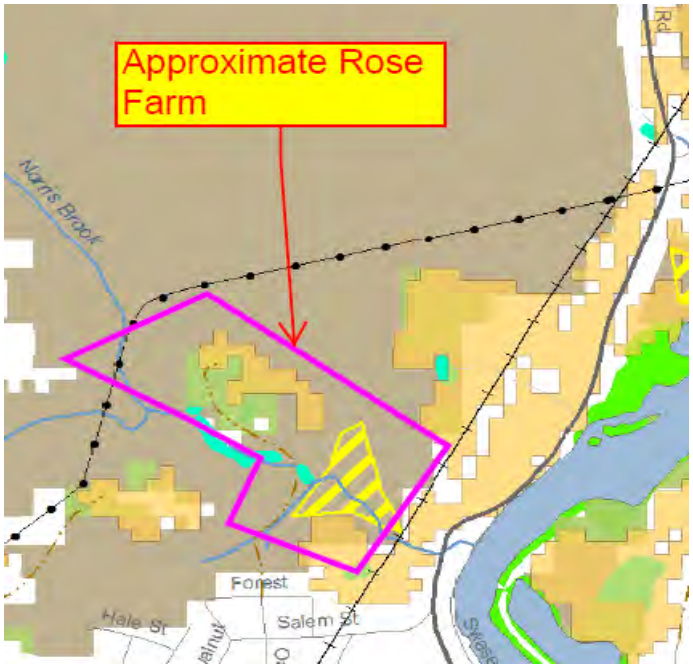
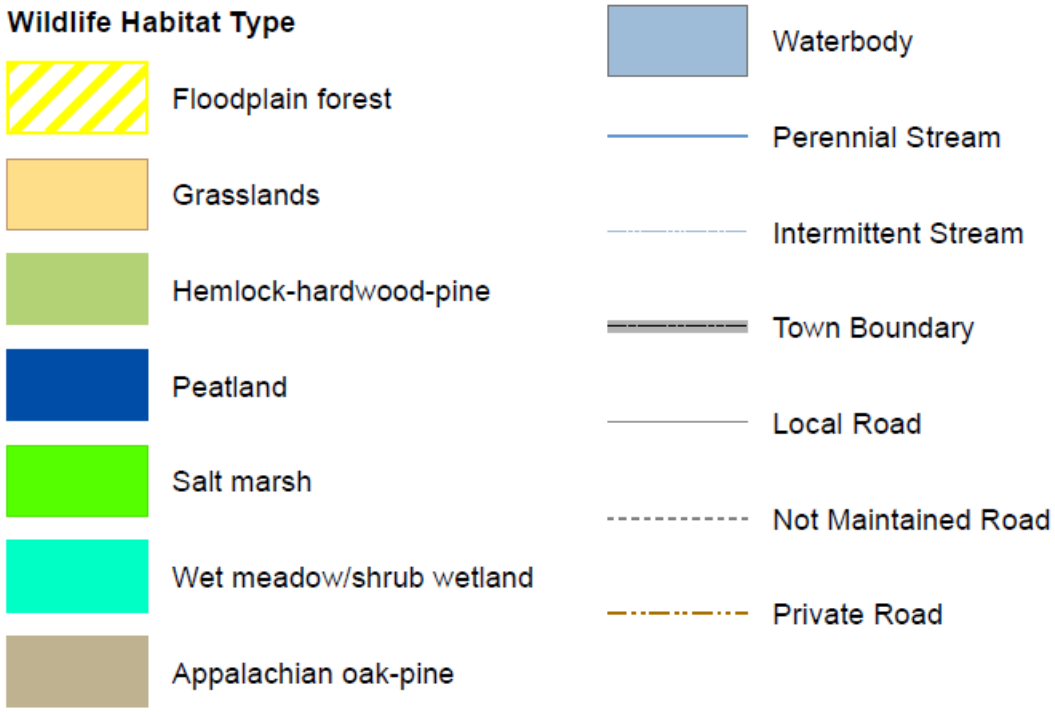
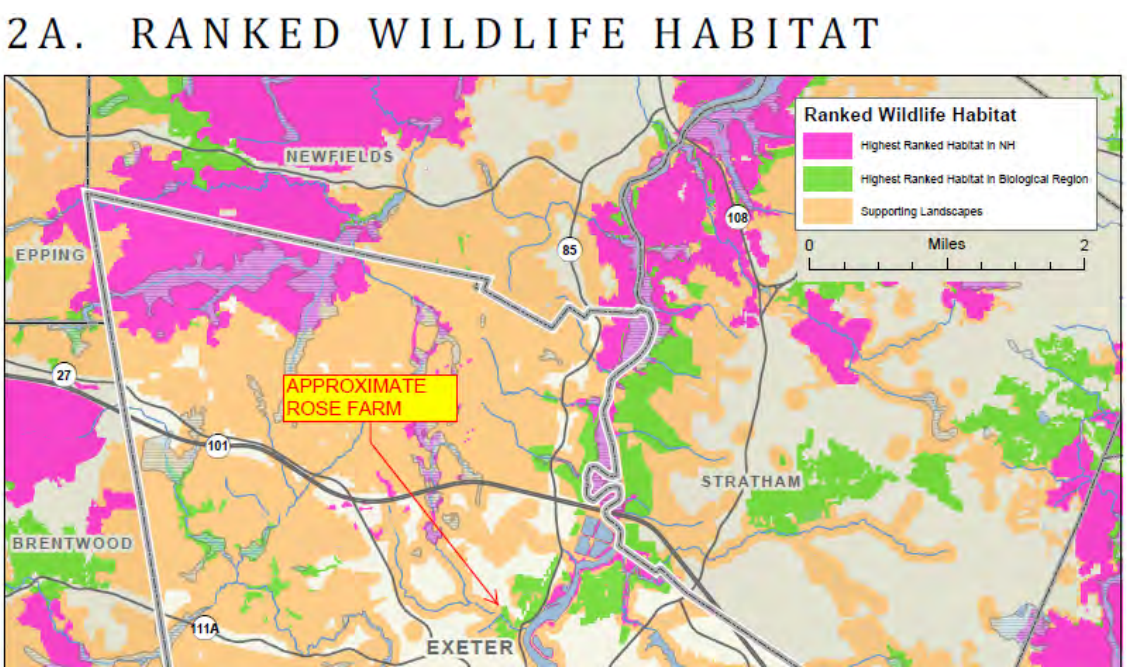


Figure 5



We note that the Ranked Wildlife Habitat map from the Natural Resources Inventory identifies Highest Ranked Habitat in the Biological Region that appears to correspond to the floodplain forest adjacent to Norris Brook between Oak Street Extension and the railroad tracks. Refer to Figure 6 below.

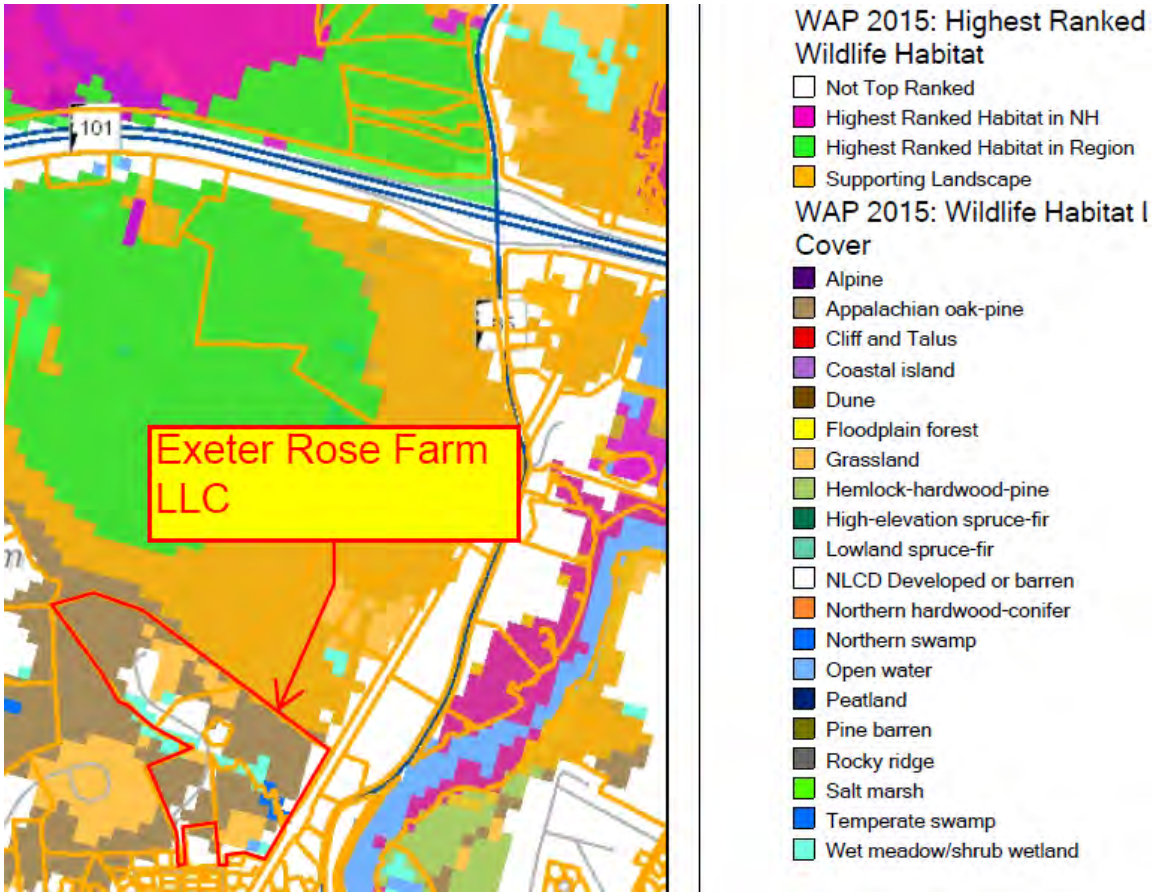
Figure 6



This conflicts with the ranked wildlife habitat depicted on the Wildlife Action Plan map as prepared using NH Granit, which does not identify any Highest Ranked Habitat in the Biological Region. See Figure 7 below.

Our observations confirm the presence of grassland at the site. As described earlier, the grassland generally coincides with areas of the site which are contaminated with lead and are pervaded by large slabs of concrete and other debris (such as piping) from the former greenhouse operations.

Figure 7



8.4. Character of Land

Land unsuitable for development due to the presence of poorly drained soils, flood hazard, steep slopes, or other conditions constituting a danger to health, safety, or the environment shall not be approved for development unless the applicant can present satisfactory evidence or data to the Board establishing the methods which will be used to overcome such conditions and the adequacy of the method. Land with inadequate capacity for sanitary sewage disposal shall not be developed unless connected to the municipal sewage system or a publicly approved private sewage disposal system.

We offer the following regarding the character of this land for development.

Poorly Drained Soils

Poorly drained soils coincide with jurisdictional wetlands which have been identified and delineated on-the-ground. The flags placed in the field to identify the wetland-upland boundary were surveyed and have been plotted on the site plans prepared to accompany the subdivision application.

Flood Hazard

The flood plain is generally confined to the wetland areas on this site due to the steep slopes that are adjacent to flood prone wetlands on this site. Where the flood plain is being crossed to provide access to the site the flood plain has been taken into account in the crossing design.

Steep Slopes

The regulations do not define what constitutes a steep slope. We have prepared maps that identify all slopes including in excess of 15%. Steep slopes have been accounted for and are being avoided except as necessary to provide access to the site. Future access to the site has been chosen to minimize impacts to steep slopes and wetlands. Fortunately, minimization of impacts to steep slopes also minimizes impacts to wetlands on this site. Refer to Exhibits 4 and 5 which are appended to the back of this document.

Sanitary Sewage Disposal

The site is proposing to connect to the municipal sewer system so the character of the land for sewage disposal is not germane.

8.6. Protection of Environmental Quality

All development plans shall be reviewed to ensure that:

8.6.1. All walls, fences, hedges, and plantings shall be located and designed to ensure harmony with adjacent developments, screen parking and loading areas, and conceal storage areas, utility installations and other such features.

The natural features of the land, especially the wetlands associated with Norris Brook, provide a natural screen between the largest part of the project and the existing neighborhoods to the south. The project proponents look forward to discussing fencing and screening needs for the portions of the project proposed for the parts of the site located between the established neighborhoods and Norris Brook with the Exeter Planning Board.

8.6.2. Dust and erosion shall be prevented through the planting of ground cover or installation of other surfaces.

All exposed soils will be stabilized with vegetation during (as appropriate) and after construction. A landscape plan will be developed for the project.

8.6.3. Natural attributes and major features of the site such as wetlands, highly erodible areas, historic structures, major trees, and scenic views (both from the site and onto or over the site) shall be retained to the extent feasible.

Wetlands

Wetlands have been identified and are being avoided to the extent feasible except as needed for access and as associated with site remediation activities.

Highly Erodible Soils

The site possesses some highly erodible soils such as Boxford silt loam series soils. (Symbol 32 on the soil survey map attached as Figure 2.) The project is aware of these soils and has proposed appropriate perimeter erosion and siltation controls. The project will be submitting an application for an Alteration of Terrain Permit from the State of New Hampshire. Additionally, the project will prepare a Storm Water Pollution Prevention Plan and submit a Notice of Intent to the United States Environmental Protection agency as required to obtain coverage under the National Pollution Discharge Elimination System – Construction General Permit. This permit requires routine inspections and preparation of status reports to document compliance.

Historic Structures

The project will notify the New Hampshire Division of Historic Resources as required during the wetland permitting process and will follow up regarding any historic resources as needed.

Major Trees

The largest tree on the property to our knowledge is a 32.5 inch diameter White oak (*Quercus alba*) which is located on the south facing slope behind the former rose packing house. (There is also an 18-inch diameter tree nearby that appears to be a black oak (*Quercus velutina*) although positive identification has not been made as yet.) These trees could be impacted during proposed hazardous waste remediation activities. There may be a way to avoid the trees but this needs to be discussed and coordinated with the environmental consultant. The coniferous forest at the west end of the property contains a significant number of white pine with an average diameter at breast height of approximately 15-18 inches.

Scenic views

We are not aware of any scenic views in the current condition. It is conceivable that construction of the project will create or "open up" some scenic views, especially on the access road's approach from Forest Street to Norris Brook.

8.6.4. Provisions shall be made for adequate storm and surface water drainage facilities in order to properly drain the site while minimizing downstream flooding. Site development shall also consider potential water quality impacts. A Stormwater Pollution Prevention Plan (SWPPP) shall be developed using a combination of structural, non-structural, and vegetative Best Management Practices (BMPs) as outlined in the Stormwater Management And Erosion And Sediment Control Handbook prepared by Rockingham County Conservation District.

The project will be applying for an Alteration of Terrain Permit from the State of New Hampshire. Additionally, the project will prepare a Storm Water Pollution Prevention Plan and submit a Notice of Intent to the United States Environmental Protection agency as required to obtain coverage under the National Pollution Discharge Elimination System – Construction General Permit. This permit requires routine inspections and preparation of status reports to document compliance.

> 8.6.5. All site development must comply with the performance standards outlined in Article 5.10 Performance Standards of the Zoning Ordinance. These standards addresses issues such as sound, vibration, radioactivity, odor, hazardous waste, glare, heat, dust & fly ash, and smoke.

Section 8.6.5 of the Site & Subdivision Regulations references Article 5.10 in the zoning. We are unable to find Article 5.10 in the zoning and instead reference Zoning Section 5.9 below.

> **5.9 PERFORMANCE STANDARDS**
>
> All uses shall comply with the following:
>
> **5.9.1 Sound:** The volume of sound inherently and recurrently generated shall be controlled so as not to become a nuisance to adjacent uses.

Sound generated during construction will be confined to normal hours of operation. Sound generated post-construction by residents will be controlled by the Homeowners Association in conjunction with town authorities as necessary and consistent with other neighborhoods in town.

> **5.9.2 Vibration:** An operation that creates intense earthshaking vibration, e.g., heavy drop forges, heavy hydraulic surges, shall not be discernible beyond the property lines of the industry.

The site currently experiences vibration associated with the railroad. Construction practices like vibratory rollers as may be needed during road construction will be controlled so as to minimize their ability to be discerned at the property line. Drop forges and similar activities are not proposed.

> **5.9.3 Radioactivity:** No operation shall be permitted which causes radioactivity in violation of Title 10, Chapter 1, Part 20, Code of Federal Regulations, "Standards for Protection Against Radiation," dated June 16, 1957, or any subsequent revision or amendments.

With the exception of smoke detectors which will be installed in the proposed dwellings to comply with the required building codes and which contain trace amounts of radioactive materials, the project is not proposing any activity that causes radioactivity.

5.9.4 Odor: No emission of odorous gas or other odorous matter in such quantity as to be readily detectable at any point along lot lines without use of instruments shall be permitted.

The project will not produce odorous gas in such quantities as to be detectible over the lot line without the use of instruments.

5.9.5 Hazardous Waste:

A. Hazardous waste shall be those substances as defined by the Environmental Protection Agency in its proposed Regulations under Section 3001, 3002 of the Solid Waste Disposal Act of 1976, and as said proposed Regulations (including definitions) are more fully set forth in the Federal Register, Monday, December 18, 1978, Part IV, and as said proposed regulations (including definitions) may from time to time be amended and finally adopted. Hazardous Waste shall also be further defined as provided for in "An Act Establishing a Hazardous Waste Management Program," NH RSA §147-A:2, effective July 1, 1979, hereinafter referred to as the "Act", and as same may be amended or enlarged upon by the Rules and Regulations of the Bureau of Solid Waste Management, as is more specifically provided for in the Act.

Portions of the site are currently contaminated with Hazardous materials, which the project proposes to remediate as part of the site development. The project does not intend to generate any additional hazardous materials and the project will not include the disposal, treatment, bulking or handling of hazardous waste.

5.9.6 Glare: No direct or reflected glare shall be detectable from any R-District boundaries.

No direct or reflected glare will be detectable.

5.9.7 Heat: No direct or reflected heat shall be detectable from any R or C-District boundaries.

No direct or reflected heat will be detectable.

5.9.8 Dust and Fly Ash: No solid or liquid particles shall be emitted in such quantity as to be readily detectable at any point along lot lines or as to produce a public nuisance or hazard beyond lot lines.

It is conceivable that dust may be generated during construction. Dust which becomes a nuisance will be controlled using best management practices which include, sweeping, spraying water, landscaping where appropriate and other stabilization of exposed soils with vegetation.

5.9.9 Smoke: No smoke shall be emitted in such quantity as to become a nuisance.

Smoke will not be emitted in quantities sufficient to become a nuisance. Waste construction materials are sometimes burned. However, waste construction materials generated by this project will not be burned and instead will be disposed of in dumpsters and hauled to secure landfills.

8.8. Preservation of Natural Features

Insofar as possible, the development plan shall preserve such natural features as wetlands, watercourses, water bodies, floodplains, steep slopes, aquifer recharge areas, large or unique trees, wildlife habitats, and scenic views. The street and lot layout shall bear a logical relationship and be adapted to the topography of the site. Extensive grading and filling is discouraged and shall be avoided to the greatest extent possible.

9.6.2. Natural Features: The subdivision and development shall, whenever possible, preserve in their natural condition important natural features. The Board may request an advisory opinion from the Conservation Commission in the determination of the value of natural features and the boundaries of such natural systems. Such areas include watercourses, water bodies, floodplains, wetland areas, steep slopes, aquifer recharge areas, wildlife habitats, large or unique trees, and scenic views. Natural features that provide buffers between lots, or sections, of a subdivision should be preserved to enhance privacy and aesthetic value.

Wetlands / Watercourses / Water Bodies

Wetlands, water courses and waterbodies have been identified and are being avoided insofar as possible except as needed for access and as associated with site remediation activities. Unavoidable impacts as needed to access buildable areas are being minimized using retaining walls to avoid extensive grading and filling. The proposed street layout reflects avoidance and minimization of wetland impacts and is adapted to the topography of the site.

Flood Plains

The flood plain is generally confined to the wetland areas on this site due to the steep slopes that are adjacent to flood prone wetlands on this site. The floodplain is boing avoided insofar as possible. Unavoidable impacts to flood plain as needed to access buildable areas are being minimized using retaining walls. Where the flood plain is being crossed to provide access to the site the flood plain has been taken into account in the crossing design.

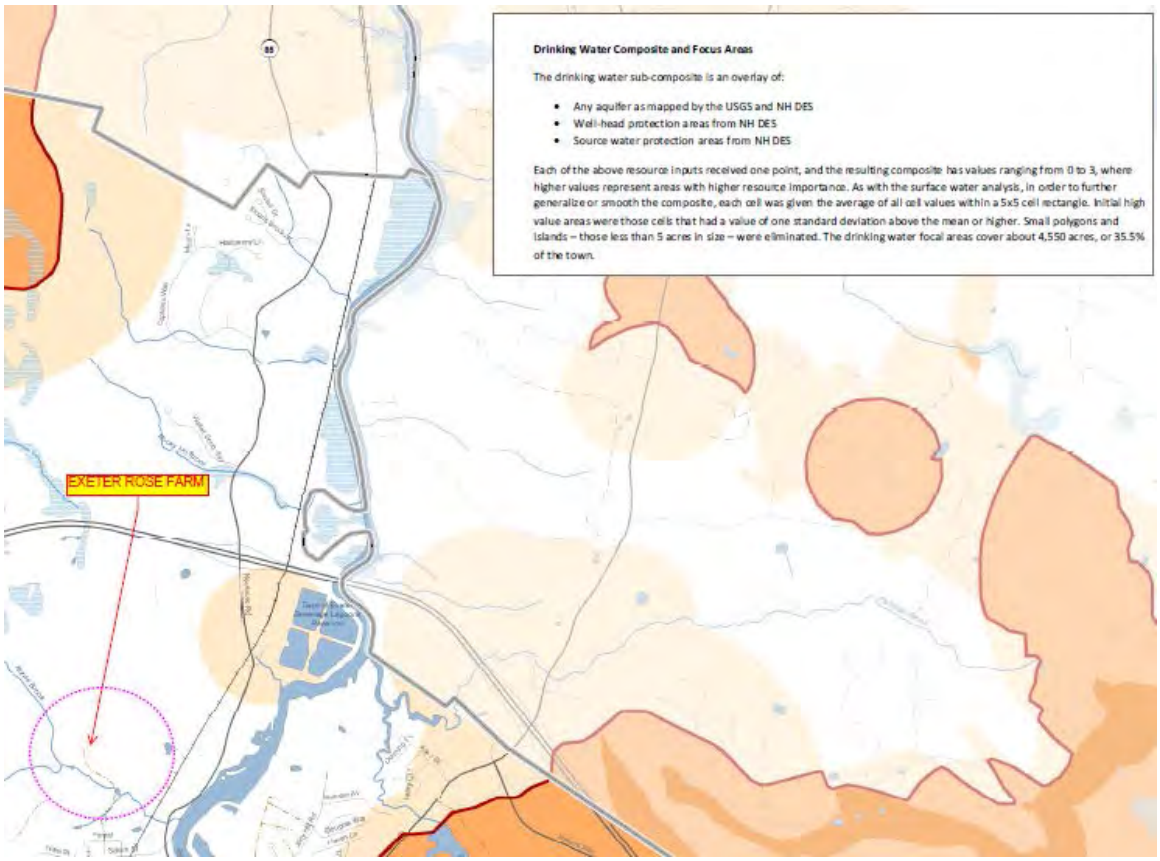
Steep Slopes

The regulations do not define what constitutes a steep slope. We have prepared a map that identifies all slopes including and in excess of 15%. Refer to Exhibits 4 and 5 which are appended to the back of this document.

Aquifer Recharge Areas

The site soils are dominated by dense marine sediments that possess a relatively thin mantle of sandy textured overburden that promotes groundwater discharge but are not conducive to groundwater recharge. There are no stratified draft deposits within the area. As a result the subject property is not considered a drinking water focus area according to the Natural Resource Inventory. Refer to Figure 8 below.

Figure 8 Drinking Water Focus Area (Exeter Natural Resource Inventory – Map 7)



Large or Unique Trees

The largest living trees on site are believed to be a 51 inch diameter oak and a 35 inch diameter white pine. The diameter of these trees was measured at breast height (dbh), which is 4.5 feet from the ground. The oak tree is alive but showing signs of decline. Both trees are located within the proposed road alignment that provides primary access to the portion of the property located north of Norris Brook.

Two other large trees on the property involve a 32.5 inch diameter White oak (*Quercus alba*), which is located on the south facing slope behind the former rose packing house and an 18-inch diameter tree that appears to be a black oak (*Quercus velutina*) although positive identification has not been made as yet.

Wildlife Habitats

According to Figure 4, the Natural Resources Inventory – Map 2 on page 10, the site contains several wildlife habitats including grassland, floodplain forest and Appalachian oak-pine forest. Refer to Figures 4 and 5 below. The grassland appears to be slightly under represented on Figure 4 while the oak-pine forest appears to be grossly over represented. It is important to keep the small scale of the Natural Resources Inventory maps in mind when evaluating this information. The floodplain forest depicted in Figure 4 corresponds reasonably well with field conditions we have observed including the wetlands between the impoundment east of Oak Street Extension and the railroad tracks (Refer to the 'green' study area in the Functional Wetland Evaluation.)

Whereas the delineation of jurisdictional wetlands and resource areas was conducted in December, several man-made isolated wetland areas that were thought to have the potential to provide habitat for species customarily associated with vernal pools have been monitored during the spring of 2018 and no primary vernal pool indicators species such as wood frogs or mole salamanders were observed during inspections conducted on April 17 and May 12, 2018.

Scenic Views

We are not aware of any scenic views in the current condition. It is conceivable that construction of the project will create or "open up" some scenic views, especially on the access road's approach from Forest Street to Norris Brook.

8.9. Landscaping and Tree Planting

Insofar as possible, the development plan shall preserve existing woodlands and suitable individual trees. If not possible to retain such, additional suitable plantings shall be included on the development plan. In accordance with the NH Department of Agriculture, Markets and Food regulation Agr-3800, plantings may not contain any prohibited species, including their cultivars and varieties. For redevelopment, salvage of existing landscaping and replanting prohibited species are also prohibited. In addition, the Board may require buffer strips between developments and adjacent land uses as deemed necessary.

The project takes advantage of a significant area of grassland, which includes the former greenhouse area, in order to minimize tree cutting. The project will be developing a landscaping plan that preserves existing trees insofar as possible and will not propose species prohibited by the NH Department of Agriculture, Markets and Foods as listed below. While this project could be considered redevelopment, salvage of existing landscaping plants or harvesting of native plants will not be proposed.

Scientific Name	Common Name	Growth Form
Acer platanoides	Norway maple	tree
Ailanthus altissima	tree of heaven	tree
Alliaria petiolata	garlic mustard	annual herb
Berberis thunbergii	Japanese barberry	shrub
Berberis vulgaris	European barberry	shrub
Celastrus orbiculatus	Oriental bittersweet	woody vine
Cynanchum nigrum	black swallow-wort	vine
Cynanchum rossicum	pale swallow-wort	vine
Elaeagnus umbellata	autumn olive	shrub
Euonymus alatus	burning bush	shrub
Heracleum mantegazzianum	giant hogweed	perennial herb
Iris pseudacorus	water-flag	aquatic emergent
Ligustrum obtusifolium	blunt-leaved privet	shrub
Lonicera bella	showy bush honeysuckle	shrub
Lonicera japonica	Japanese honeysuckle	woody vine
Lonicera morrowii	Morrow's honeysuckle	shrub
Lonicera tatarica	Tatarian honeysuckle	shrub
Polygonum cuspidatum	Japanese knotweed	perennial herb
Rhamnus cathartica	common buckthorn	shrub
Rhamnus frangula	glossy buckthorn	shrub
Rosa multiflora	multiflora rose	shrub
Centaurea biebersteinii	spotted knapweed	perennial herb
Hesperis matronalis	dame's rocket	perennial herb
Lepidium latifolium	perennial pepperweed	perennial herb
Microstegium vimineum	Japanese stilt grass	grass
Polygonum perfoliatum	mile-a-minute vine	vine
Reynoutria x *bohemica*	Bohemian knotweed	perennial herb

5.0 Impact Analysis

The analysis of direct impacts to site resources as per §9.8.1.2 of the Exeter Site and Subdivision Regulations has been partially addressed above but will be elaborated on in this section and will include wetland resources as assessed in the Wetland Functional Evaluation previously prepared for the project.

Numerous references are made in this Natural Resources Plan to "otherwise buildable land". Otherwise buildable land generally refers to land that has been evaluated through on-the-ground investigations for sensitive natural resources such as wetlands and soils and, after applying various zoning restrictions such as buffers, remains available and viable for construction and development. Map 13 – Development Potential – found in the Natural Resources Inventory (NRI), further identifies the Rose Farm parcel as available and suitable land for development.

The Exeter Zoning Ordinance defines the Shoreland Protection Overlay District as identified in Section 9.3.3.C. below.

9.3.3 District Boundaries: The Exeter Shoreland Protection District is defined to include the following:

C. Squamscott River (salt):

1. The area of land within 300 feet horizontal distance of the shoreline of the salt water Squamscott River, and the seasonal high water level of its fresh water major tributaries. Major tributaries of the Squamscott River within the Town of Exeter are defined to be the following: Norris Brook to its confluence with Watson Brook

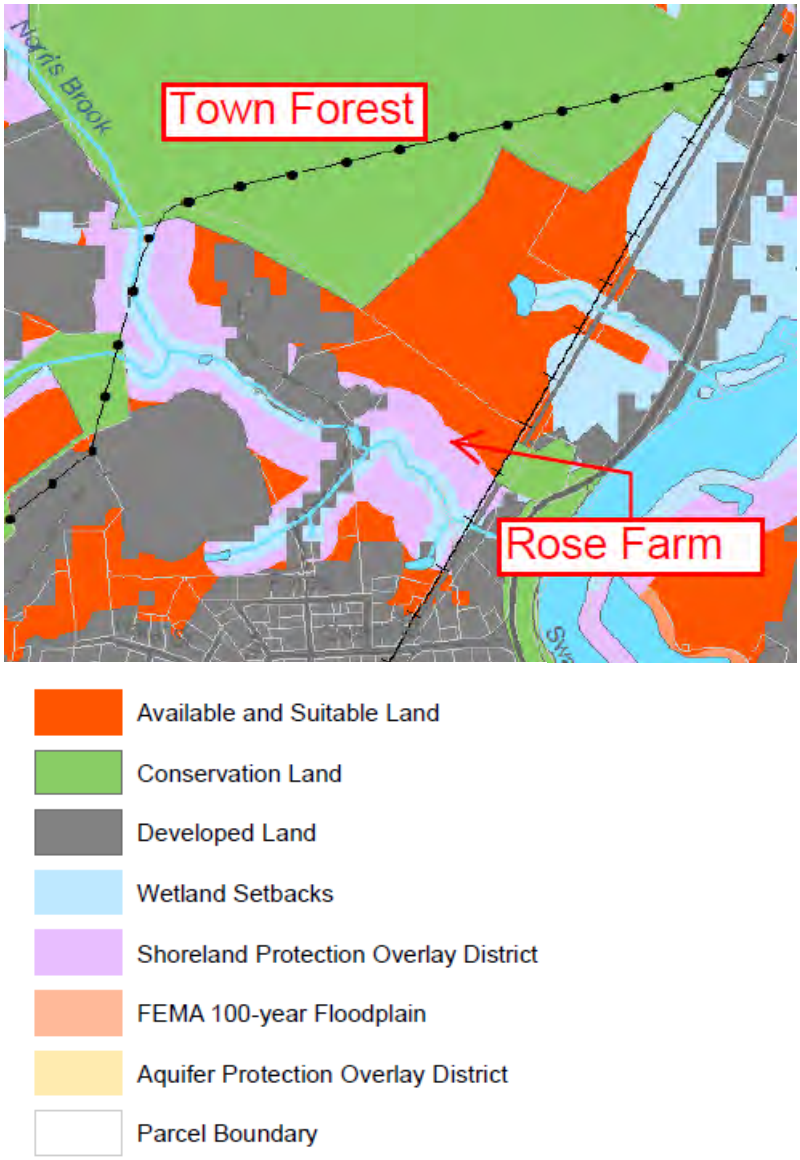
The Shoreland Protection Overlay District imposes the following restriction on the placement of structures.

9.3.4 Use Regulations:

C. Building Setbacks: No building (except a structure permitted as a Conditional Use, under Article 9.3.4.G. Exeter Shoreland Protection District Ordinance – Conditional Use or a permitted use under Article9.3.4.I Permitted Uses) septic system or septic system leaching field, (except a repair or reconstruction) shall be constructed on or moved to a site within 300 feet from the shoreline of the Squamscott River, Dearborn Brook, Waterworks Pond, and Fresh River; within 150 feet from the shoreline of the Exeter River or the major tributaries of the Squamscott River and Exeter River as herein defined,

The regulations create a 300 foot district and govern the usage of land within that district through use regulations. Use regulation 9.3.4.C. allows development and construction within the 300 foot district boundary. Map 13 depicts the Shoreland Protection Overlay District (in pink) as a three hundred (300) foot buffer. Map 13 also continues the 300 foot Shoreland Protection District designation beyond the confluence of Norris and Watson Brooks. Map 13 therefore significantly underrepresents the actual land area available and suitable for development at the Exeter Rose Farm. Refer to Figure 9 below.

Figure 9 – Map 13 – Developable Land



Prime Agricultural Soils

The Exeter NRI identifies two areas of important agricultural soils on the site, one on each side of Norris Brook. It is important to remember the scale of NRI maps and that maps prepared for NRI's are based upon analysis of aerial imagery and typically involve minimal ground truthing. This is not necessarily a flaw of this NRI, or NRI's in general, merely a limitation on the use, application and interpretation of NRI's.

North Side

The area of important agricultural soils identified on the north side of Norris Brook represents the area formerly occupied by several very large greenhouses which supported the commercial rose growing operations. This area is contaminated with lead as well as large slabs of partially buried / exposed concrete, pipes and other debris which render it unsuitable for tilling or agriculture and it is therefore misidentified as important agricultural farmland.

Furthermore, this area will be significantly altered to implement the Remedial Action Plan (RAP) which was developed to remediate the lead contaminants. The RAP will result in the remediation of lead to an acceptable level and will remove the concrete slabs and other debris; this area will not be ideally suited to agriculture after remediation.

The area is not being impacted solely for the construction of residential living space, which will help to satisfy a demand for such housing. Whereas the area will be graded during remediation activities, it makes sense to direct proposed development activities toward this location. The proposed residential subdivision project should therefore be considered redevelopment of previously developed lands or should be considered brownfields development.

South Side

The area of important agricultural soils identified by the NRI which is located on the south side of Norris Brook involves poorly drained Scitico series hydric soils, which are also jurisdictional wetlands, and moderately well drained Boxford series soils. Both soils are derived from dense, fine textured marine sediments (silts and clays) which are slowly permeable and subject to suspension and associated degradation of water quality in adjacent streams and water bodies. The potential for erosion and siltation are increased when the soils are exposed for agriculture or construction. Annual tilling associated with agriculture promotes greater exposure and increased erosion and siltation potential than either the undeveloped or post-construction conditions. This is especially true when the local topography, which focuses runoff directly toward Norris Brook, is considered.

Whereas Scitico and Boxford series soils are slowly permeable, conversion of these soils to impervious surfaces associated with construction is not a dramatic change from the preexisting condition and long-term adverse consequences to surface water resources can be minimized through proper design of a storm water management system.

Finally, Scitico series soils at this location are also considered jurisdictional wetlands. The Natural Resources Conservation Service has historically made no distinction between important agricultural soils that were jurisdictional wetlands and those that were not and has promoted farming (including ditching and draining) of wetlands. Farming of wetlands would be inconsistent with most of the purposes advocated by the Exeter zoning and subdivision regulations and would result in significant impacts to water quality in Norris Brook and the Squamscott River. The residential development being proposed is avoiding impact to the area of Scitico series soils.

Large Trees and Forest Lands

As identified earlier, two of the largest trees on the site are located within the proposed road alignment that provides primary access to the portion of the property located north of Norris Brook and will therefore be removed. Their removal is necessitated by the requirement to minimize unavoidable impacts to Norris Brook and adjacent wetlands. There is no alternative access to the northern buildable portion of the subject property that does not involve crossing Norris Brook. The primary road access location was chosen to minimize those unavoidable wetland impacts. The road crossing of Norris Brook could presumably be relocated to avoid the large trees but this would result in greater wetland and stream impacts which are not allowable under state regulations.

The large trees located near the former packing house could be impacted during proposed hazardous waste remediation activities. There may be a way to avoid impacting the trees but this remains to be determined based upon the exact extent of the area needing remediation which is subject to change predicated upon actual field observations once remediation work gets underway. The potential to save these trees will be assessed in the field in coordination with the environmental consultant.

The project is proposing to avoid the two largest areas of undisturbed forest on the property and protect these areas by designating them as open space and/or recreation area to be controlled by the town or HOA. The forest at the west end of the project is populated by large white pine. The forest at the east end of the property is populated by more hard wood species. Together these areas compensate for the loss of the two large trees to be removed during road during road construction.

Wildlife

The project will undoubtedly have some impact on wildlife habitat. Grasslands and forests cannot be replaced with homes for humans and other impervious infrastructure without some displacement of wildlife. Most of the species we have observed, identified from their sign or captured on motion sensing wildlife cameras, are very tolerant or reasonably tolerant of interaction with humans and will adapt to the development of the subject property. Eastern blue birds, which prefer larger areas of field, will undoubtedly suffer from the loss of the grassland associated with the development, especially since no new large grassy areas that are infrequently mowed will be created (which would require the conversion of additional forestland). (Note that the grassland on the north side of Norris Brook generally corresponds to the important agricultural soils identified by the NRI and which is contaminated with lead and concrete as discussed above.) Some species which are tolerant of human interaction such as deer, woodchuck and coyote may be able to leverage the development to a degree. For example, some of the future homeowners in the development will undoubtedly keep domestic cats for pets. Many of these cats will unquestionably be allowed to go out of doors. Coyote often predate outdoor house cats as a reliable source of food. (House cats that are allowed to go out of doors are significant predators of song birds and lead shorter lives than their indoor counterparts.) Refer to the two images appended to the back of this report.

The project is focusing the density on the previously developed portions of the site and as such should be considered a redevelopment of a previously developed area. The project is protecting the relatively natural forests to the east and west. These forests represent the most valuable and natural upland habitat on the property. The western forest is dominated by large white pine trees

and is likely providing habitat for roosting wild turkeys. The project is skirting the edge of the floodplain forest along Norris Brook identified in the NRI, although there may be some proximity effects associated with vehicular traffic and the ongoing use of the road. However, many wildlife species are reasonably tolerant of traffic and since many species of wildlife are nocturnal, and will therefore be active at night when traffic is minimal, the effects should not be pronounced.

The road crossing is being designed to provide an open bottom culvert with stream simulation and a migration corridor along the stream banks to encourage and permit migration by wildlife along the Norris Brook corridor. The Wildlife Connectivity map (Number 9) from the NRI identifies a separate potential wildlife corridor that runs through the Henderson-Swasey town forest along the northern boundary with the project site. The 100 foot vegetative buffer along the common property line with the Henderson-Swasey town forest will ensure that the project does not interfere with this potential wildlife corridor and the western forest that will remain as dedicated open space after the project is constructed will allow these migration corridors to merge. Refer to Figure 10 below.

Figure 10 Wildlife Connectivity

Wetlands

It should be noted that the primary access to the proposed project is unavoidable as there is no access to the buildable land located north of Norris Brook without crossing the brook. The applicant has implemented measures to minimize the unavoidable impact. Those measures include selecting the road alignment that crosses the brook and associated wetlands in the narrowest location. Additionally, block retaining walls are being proposed to minimize side slope grading at the crossing location. Finally, a box culvert is proposed at Norris Brook. The box culvert will be large enough to accommodate existing drainage without resulting in upstream flooding. The stream crossing will also utilize stream simulation and is sized to permit wildlife and aquatic organism passage.

The primary wetland crossing at Norris Brook is proposed to impact wetlands providing the following functions as determined by the Wetland Functional Evaluation:

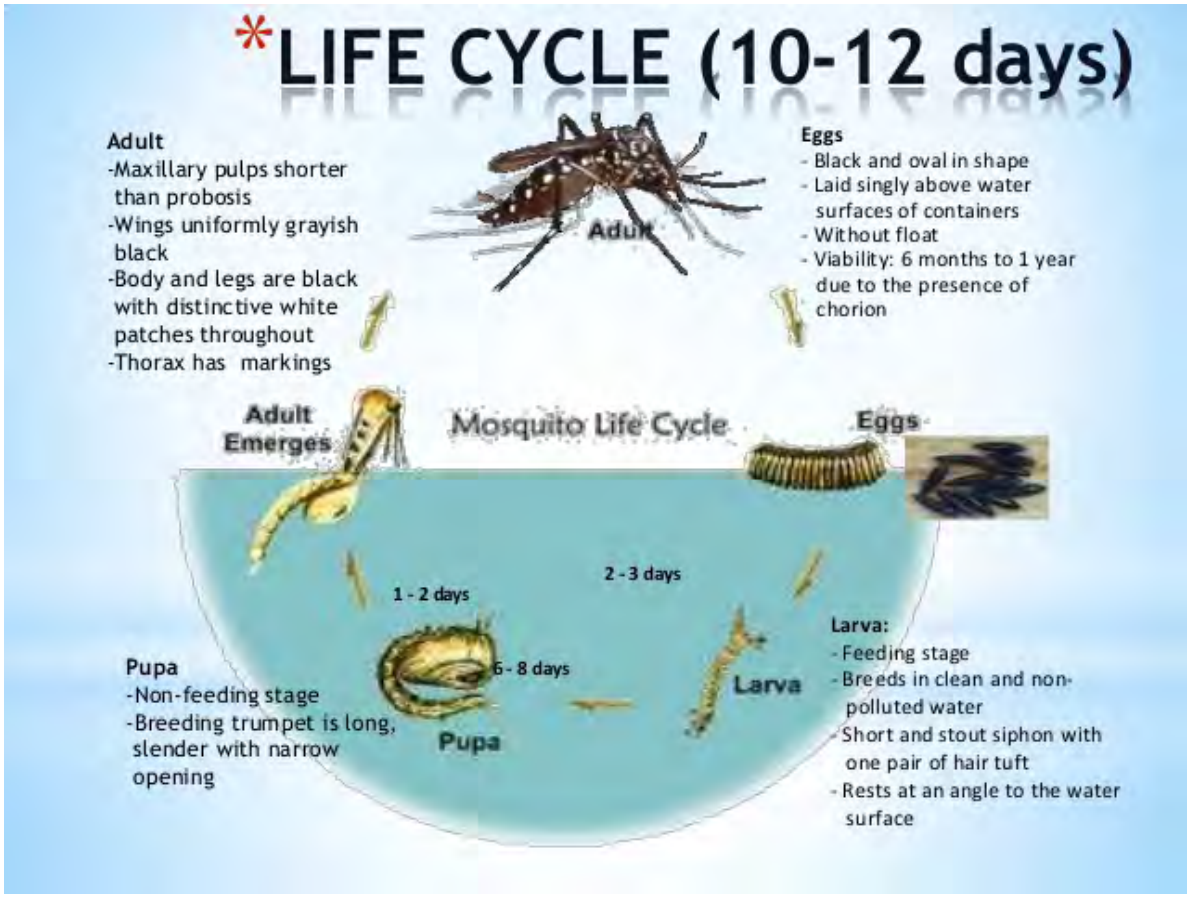
- Groundwater Discharge
- Floodflow Alteration
- Sediment / Toxicant Removal
- Nutrient Retention
- Wildlife Habitat

While groundwater discharge is a principal function of the overall wetland, it is performed minimally at the actual crossing location and will not be impacted by the wetland crossing. With the exception of the wetlands within the direct footprint of the crossing, the proposed crossing, and more specifically the proposed box culvert, will not change the ability of the wetland to provide Floodflow Alteration, Sediment / Toxicant Removal and Nutrient Retention functions. The proposed road will have proximity effects on adjacent wetland wildlife habitat as described above although the proposed box culvert will encourage wildlife passage along the Norris Brook corridor.

Other isolated man-made wetlands are proposed for impact during remediation activities intended to remove lead contaminated soils and coal ash as well as solid waste from the site. It is proposed that these areas will be eliminated during remediation and will not be restored. None of these areas is functioning at a moderate or high level based upon our observations made during numerous trips to the site to conduct various investigations of natural resources.

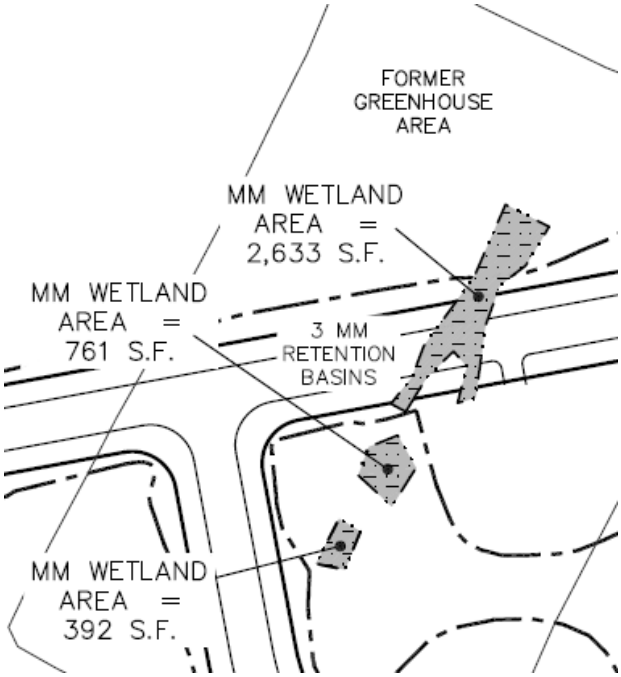
These isolated wetland areas have been inspected on numerous occasions since the original delineation of wetlands (which took place in the month of December) for activity by species customarily associated with vernal pool habitat but no species have been observed. (These inspections took place on March 17, April 17 and May 12, 2018.) This is likely due to the short hydroperiod. However, this hydroperiod may be sufficient to promote mosquito breeding as most species of mosquitos only require 7-14 days to complete their life cycle so these areas can conceivably pond water after larger storms during warmer weather and promote mosquito proliferation. Refer to Figure 11.

Figure 11 Mosquito Life Cycle



Alteration of these areas during site remediation has the unintended consequence of freeing up buildable land, thus allowing concentration of proposed dwelling units in the previously developed portion of the site. This, along with other relief, will allow the project to eliminate two cul-de-sacs and associated stream crossings with wetland impacts. Refer to Figure 12 below.

Figure 12 Man-made Isolated Basins

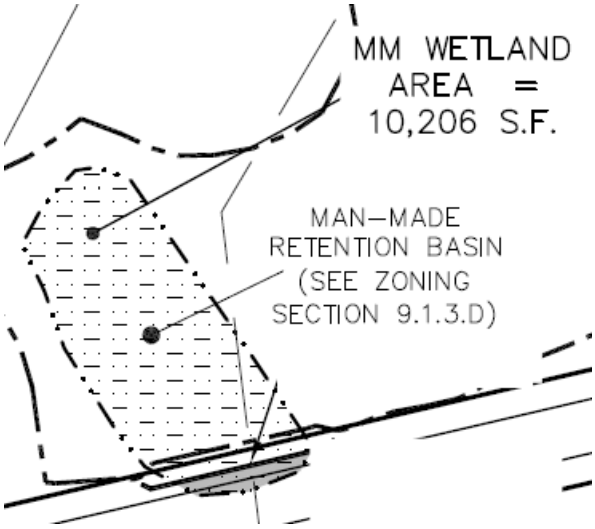


The man-made retention basin shown below in Figure 13 will also be altered during remediation activities. It will be dredged to remove lead but will otherwise remain upon completion of both site remediation and construction activities.

The basin is man-made by excavation and the land adjacent to the basin slopes precipitously into the basin. The area has been observed to be choked with aquatic vegetation during the warmer months. The steep sides pose a drowning hazard for anyone who may fall into the basin or who should enter voluntarily out of curiosity. As part of site remediation activities, it is proposed that the basin side slopes will be regraded to decrease the slopes and make egress easier for anyone who may venture into the pond.

We have observed use of the basin by a turtle during site investigations. (It is thought that this specimen was a painted turtle (*Chrysemys picta*) but we were unable to make a definitive positive identification. Painted turtles are common to the region.) Regrading the slopes will also make the basin more suitable for wildlife including turtles. The basin may also be fenced but this would adversely affect its potential use by wildlife. The development will likely result in decreased use of the basin by some forms of wildlife during and post-construction, with or without a fence.

Figure 13 Isolated Man-made Basin



5.0 Compensatory Mitigation

Wetland mitigation is intended to replace wetland and aquatic resource functions and values impacted by or lost to construction and development. Mitigation involves a sequence that includes avoidance of impacts, minimization of unavoidable impacts and finally compensation. Compensatory mitigation is sometimes supplied for impacts to important wetlands that provide a significant level of function and value. Broadly stated, compensatory mitigation can involve the creation of new wetlands, the rehabilitation of degraded wetlands or the preservation of land involving various proportions of wetlands and uplands.

State regulations require compensatory mitigation for wetland impacts exceeding 10,000 square feet, irrespective of functions and values. The 10,000 SF threshold is implicit acknowledgement that projects should generally not be required to provide mitigation for minor impacts and unavoidable impacts associated with access to otherwise buildable land where avoidance and minimization have been implemented.

While the grading associated with final project design is still underway, thus impacts cannot be definitively quantified, preliminary versions of the design have previously indicated that the project impacts will be below 10,000 SF of direct impact and will therefore not exceed the threshold that triggers the need for compensatory mitigation under the state regulations.

Section 9.8.1.3 of the Exeter Site and Subdivision Regulations speaks to mitigation as follows:

> 3. Mitigation: Where natural resources will be significantly affected or eliminated by the development, applicants may propose a mitigation plan to restore or replace the natural resource. If the Board feels a significant impact exists, the Board may require a mitigation plan.

Wetland Creation

Stated simply, wetland creation involves grading of uplands in a manner which results in the formation of wetlands. This method of mitigation is very energy and resource intensive. This method has a significant rate of failure in terms of replacing lost surface area and especially in terms of replacing lost functions and values. This method also results in the long-term temporary loss of wetland buffer, often involving the loss of existing productive forest lands. This method of compensatory mitigation is the least favorite option among regulatory officials for these reasons.

Wetland Rehabilitation

Wetland rehabilitation, broadly stated, involves the restoration and/or enhancement of existing degraded wetlands.

Preservation

Compensatory mitigation which takes the form of preservation involves the protection of wetlands and uplands in perpetuity using conservation easements or outright purchase. Preservation does not replace lost acreage of wetlands or aquatic resources but it may reduce the threat of future impacts or reduce future degradation of wetlands. Preservation is generally preferred by regulators.

With the exception of the unavoidable impact associated with crossing Norris Brook for access, the project has been designed to meet or exceed the various local buffers and setbacks to wetlands and water resources and as such could be considered a form of preservation. (Wetland and Shoreland buffers and setbacks are more restrictive in Exeter than many other communities in New Hampshire.) The preservation of 26± acres of open space also represents compensatory preservation. (Development projects in excess of 20 acres in Exeter are required to provide open space.) Preservation can also include elements of avoidance and minimization.

Avoidance

Those measures include selecting the road alignment that crosses Norris Brook and associated wetlands in the narrowest location while providing access to otherwise buildable land. Additionally, the project has incorporated input received from the public, town planning staff, planning board and conservation commission and has redesigned the project to eliminate two cul-de-sacs and associated stream crossings while concentrating development on previously developed portions of the site. Elimination of the two-cul-de-sacs permits the preservation of the two significant forested areas located in the east and

west ends of the site which remain after previous site development activities. These two forested areas total approximately 26 acres, which represents more than half of the total parcel proposed for development.

Minimization

Additionally, block retaining walls are being proposed to minimize side slope grading at the Norris Brook crossing location. Finally, a box culvert is proposed at Norris Brook. The box culvert will be large enough to accommodate existing drainage without resulting in upstream flooding. The stream crossing will also utilize stream simulation and is sized to encourage wildlife passage.

Other Mitigation Opportunities

In addition to the preservation of open space and other measures described above which are intended to minimize or mitigate the effects of the development, this section discusses several potential mitigation opportunities as well as preliminary considerations regarding advantages and disadvantages of each. Potential additional mitigation opportunities may include the following:

- Replacement of the existing culvert at Oak Street Extension
- Measures to mitigate erosion of the municipal storm drain near the railroad tracks
- Removal or repair of the concrete outlet/weir structure on the man-made retention basin adjacent to Oak Street Extension
- Wildlife Habitat Enhancements
  - Nest Boxes
  - Brush piles
  - Wildlife Enhancement Plantings
  - Aeration of man-made basins

Culvert Replacement

There are two existing culverts on Oak Street Extension. The culverts may by undersized, especially the culvert on Norris Brook, and are not conducive to wildlife passage. The culvert at Norris Brook could be replaced with one that provides a larger opening which may be more suitable for wildlife or aquatic organism passage. Alternatively, replacement of the culvert will likely diminish or eliminate flood attenuation and sediment / toxicant removal functions provided by wetlands upstream of the culvert (blue study area as identified in the wetland functional evaluation).

Municipal Storm Drain Repair

There is a municipal storm drain that discharges on the site along the railroad tracks. The discharge has scoured a channel into the slope that overlooks the wetlands adjacent to Norris Brook at the toe-of-slope. (It does not appear that this channel existed prior to the installation of the storm drain.) The flared-end-section at the discharge point is perched several feet as a result. The erosion continues to cause the sedimentation of wetlands and a diminution of water quality in Norris Brook with likely downstream effects on the Squamscott River.

Measures could be employed to stabilize the slope and minimize or eliminate the erosion. The measures will likely result in impacts to wetland and shoreland buffers associated with the temporary loss of tree canopy as needed to provide construction access and to implement any proposed stabilization measures.

Concrete Weir Repair or Removal

The man-made retention basin on Norris Brook immediately downstream of Oak Street Extension was created many years ago by excavation and impoundment. The dredge spoils are located adjacent and south of the basin. The impoundment is sustained by a weir consisting of concrete which was likely poured in place. The concrete structure has been partially breached by erosion at the south end but still impounds Norris Brook. The brook flows through the weir during high flows such as after major storms and during spring runoff and but flows through the breach during periods of low flow.

Removal of the concrete weir would restore the channel of Norris Brook in this area and may encourage aquatic organism and wildlife passage. Removal of the weir would also eliminate the minor ongoing erosion of the earthen berm at the south end of the basin. (Whereas Norris Brook is a perennial stream, removal of the weir may create other long-term stabilization challenges.) Alternatively, removal of the weir will eliminate an area of local open water habitat, thus eliminating or significantly altering the existing wildlife habitat. Removal of the weir may also result in a decrease in wetlands adjacent to the basin. Rose Farm Lane is proposed to provide access to the development will pass adjacent to (downstream and east of) the concrete weir and can provide access for removal. Finally, removal of the weir and subsequent draining of the pond will significantly lower the ability of the area to trap sediment and thus will transfer sediment removal functions currently being provided by the basin to downstream wetlands. Alternatively, the concrete weir could be repaired to increase or enhance the wildlife habitat and storage capacity during low flow conditions.

Wildlife Enhancement – Nest Boxes

Nest boxes are one of the easiest, most popular and successful ways to improve habitat for wildlife. Nest boxes, platforms or other types of nesting structures provide nest sites for birds and other wildlife in areas where natural nest sites, especially cavities, are absent or available in low numbers. They can also be used to attract wildlife to specific areas even when nest sites are not limited. There are generally no disadvantages to the installation of nest boxes. Nest boxes may be advisable for bluebirds but without significant expanses of open grassland their impact may be limited.

Wildlife Enhancement – Brush Piles

Brush piles are piles of brush that are assembled to provide resting or escape cover and den sites for wildlife. Brush piles can be used by rabbits and other small mammals. Songbirds may use brush piles for perch sites, especially if the piles are located near feeding or nesting sites. If brush piles are adjacent to a water source, amphibians and reptiles may use them for breeding, feeding or resting.

The best brush piles for wildlife start with the largest materials, typically pole-sized logs, at the bottom and end with the smallest materials (limbs or shrubs) at the top of the pile. The materials are arranged so that the brush pile is raised slightly above the ground surface. This makes it easier for animals to get under the brush pile and into cover. Placing the largest materials on the bottom of the pile also slows the brush pile's rate of decay.

Wildlife Enhancement – Forest Edge Improvement

Many species of wildlife use edge habitat for nesting, feeding or traveling. The main goal of forest edge improvement is to increase available food and cover along the forest edge by providing a variety of vegetation types and layers. Forest edges are used by both forest and field species. Black-capped chickadee, a forest species, may nest along forest edges with field sparrow (*Spizella pucilla*), a common species which is in decline and is more suited to open fields. Species like wild turkey, eastern cottontail (*Sylvilagus floridanus*) and deer typically feed along the forest edge because they are able to quickly retreat into the forest for safety. (Eastern cottontail competes for the same habitat with native New England cottontail (*Sylvilagus transitionalis)*, which is in decline.) Predators like red fox (*Vulpes vulpes*) are attracted to forest edges because an abundance of prey can often be found there. Forest edge improvement at this location could entail the installation of fruit-bearing and flowering shrubs intended to provide food and cover for wildlife, including birds and butterflies depending upon the species chosen. Edge improvement could be coordinated with other landscaping for the project.

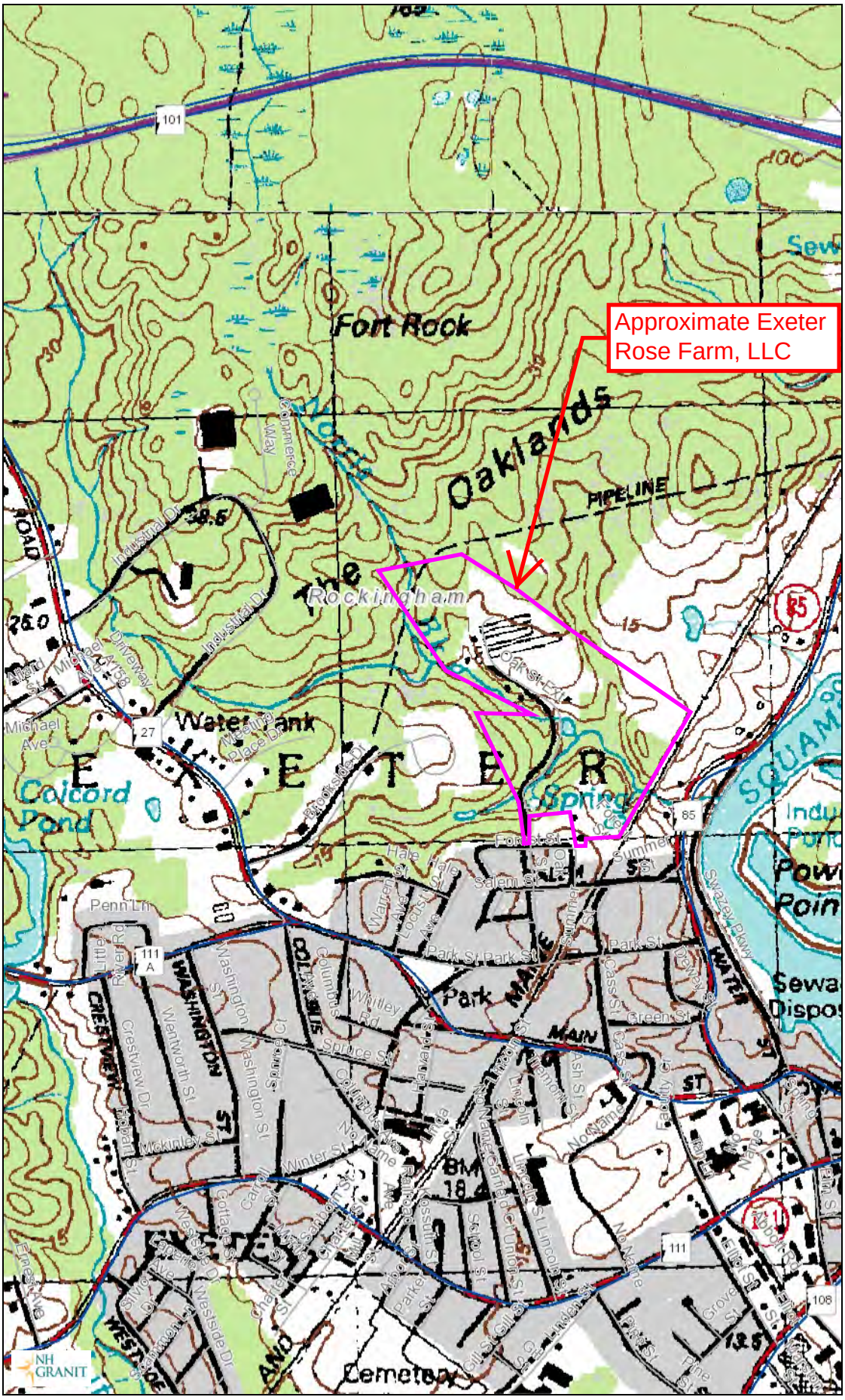
Wildlife Enhancement – Aeration

Introducing an artificial system of aeration or circulation to the basin which is proposed to remain after remediation will reduce the excessive growth of aquatic vegetation. Introduction of aeration as well as the loss of some low-functioning man-made isolated wetland basins during remediation will eliminate mosquito breeding areas. This could have positive ramifications for the proliferation of mosquito borne diseases such as West Nile Virus but may have adverse consequences for species such as bats, many species of which are in decline due to white-nose syndrome and habitat loss.

Note the coyote on the right in the foreground adjacent to Norris Brook and the existing home along Oak Street Extension in the background.

Note the owl on the stump left of center and the exterior light from the existing home on Oak Street Extension.

Map by NH GRANIT



Legend

- State
- County
- City/Town
- Interstates
- Turnpikes
- US Routes
- State Routes
- Local Roads

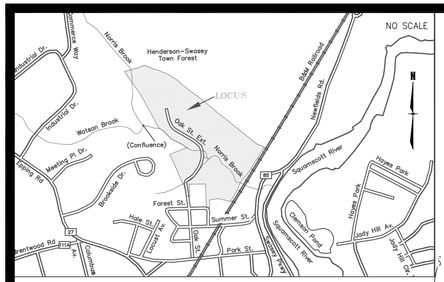
EXHIBIT 1
Natural Resources Plan
May 31, 2018

Map Scale
1: 12,988

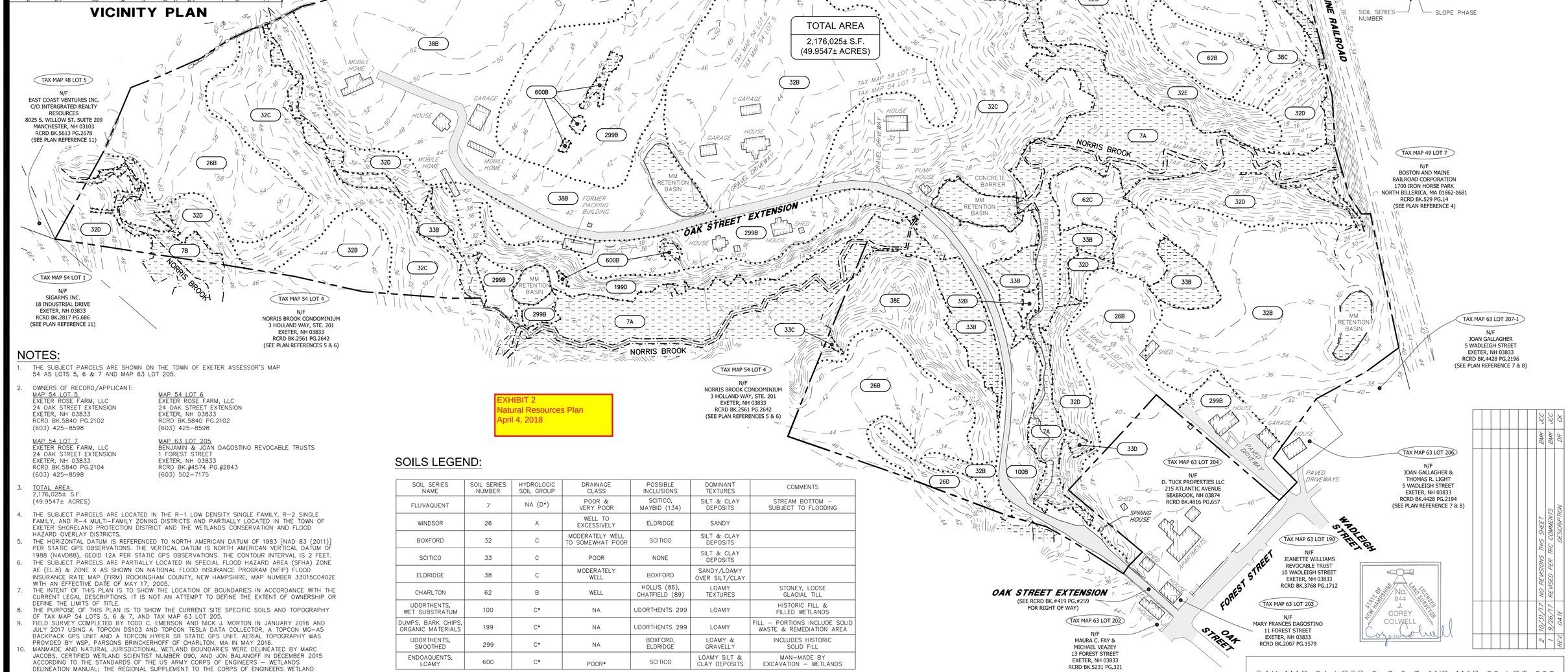
Map Generated: 8/18/2016

Notes

Rose Farm
Oak Street Extension
Exeter, NH



VICINITY PLAN



LEGEND:

N/F	NOW OR FORMERLY
RCRD	ROCKINGHAM COUNTY REGISTRY OF DEEDS
S.F.	SQUARE FEET
	STONE WALL
	BOUNDARY LINE
	SOILS LINE
	BROOK
	EDGE OF WETLANDS
	PERENNIAL STREAM
	INTERMITTENT STREAM
	WETLANDS AND SURFACE WATER
	EXISTING PAVEMENT
62B	SOIL TYPE
	SOIL SERIES NUMBER
	SLOPE PHASE

NOTES:

1. THE SUBJECT PARCELS ARE SHOWN ON THE TOWN OF EXETER ASSESSOR'S MAP 54 AS LOTS 5, 6 & 7 AND MAP 63 LOT 205.
2. OWNERS OF RECORD/APPLICANT:

MAP 54 LOT 5	MAP 54 LOT 6
EXETER ROSE FARM, LLC	EXETER ROSE FARM, LLC
24 OAK STREET EXTENSION	24 OAK STREET EXTENSION
EXETER, NH 03833	EXETER, NH 03833
RCRD BK.5840 PG.2102	RCRD BK.5840 PG.2102
(603) 425–8598	(603) 425–8598
MAP 54 LOT 7	**MAP 63 LOT 205**
EXETER ROSE FARM, LLC	BENJAMIN & JOAN DAGOSTINO REVOCABLE TRUSTS
24 OAK STREET EXTENSION	1 FOREST STREET
EXETER, NH 03833	EXETER, NH 03833
RCRD BK.5840 PG.2104	RCRD BK.#4574 PG.#2843
(603) 425–8598	(603) 502–7175

3. TOTAL AREA:
   2,176,025± S.F.
   (49.9547± ACRES)
4. THE SUBJECT PARCELS ARE LOCATED IN THE R–1 LOW DENSITY SINGLE FAMILY, R–2 SINGLE FAMILY, AND R–4 MULTI–FAMILY ZONING DISTRICTS AND PARTIALLY LOCATED IN THE TOWN OF EXETER SHORELAND PROTECTION DISTRICT AND THE WETLANDS CONSERVATION AND FLOOD HAZARD OVERLAY DISTRICTS.
5. THE HORIZONTAL DATUM IS REFERENCED TO NORTH AMERICAN DATUM OF 1983 [NAD 83 (2011)] PER STATIC GPS OBSERVATIONS. THE VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), GEOID 12A PER STATIC GPS OBSERVATIONS. THE CONTOUR INTERVAL IS 2 FEET.
6. THE SUBJECT PARCELS ARE PARTIALLY LOCATED IN SPECIAL FLOOD HAZARD AREA (SFHA) ZONE AE (EL.8) & ZONE X AS SHOWN ON NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOOD INSURANCE RATE MAP (FIRM) ROCKINGHAM COUNTY, NEW HAMPSHIRE, MAP NUMBER 33015C0402E WITH AN EFFECTIVE DATE OF MAY 17, 2005.
7. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH THE CURRENT LEGAL DESCRIPTIONS. IT IS NOT AN ATTEMPT TO DEFINE THE EXTENT OF OWNERSHIP OR DEFINE THE LIMITS OF TITLE.
8. THE PURPOSE OF THIS PLAN IS TO SHOW THE CURRENT SITE SPECIFIC SOILS AND TOPOGRAPHY OF TAX MAP 54 LOTS 5, 6 & 7, AND TAX MAP 63 LOT 205.
9. FIELD SURVEY COMPLETED BY TODD C. EMERSON AND NICK J. MORTON IN JANUARY 2016 AND JULY 2017 USING A TOPCON DS103 AND TOPCON TESLA DATA COLLECTOR, A TOPCON MG–A5 BACKPACK GPS UNIT AND A TOPCON HYPER SR STATIC GPS UNIT. AERIAL TOPOGRAPHY WAS PROVIDED BY WSP, PARSONS BRINCKERHOFF OF CHARLTON, MA IN MAY 2016.
10. MANMADE AND NATURAL JURISDICTIONAL WETLAND BOUNDARIES WERE DELINEATED BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST NUMBER 090, AND JON BALANOFF IN DECEMBER 2015 ACCORDING TO THE STANDARDS OF THE US ARMY CORPS OF ENGINEERS – WETLANDS DELINEATION MANUAL; THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION; THE CODE OF ADMINISTRATIVE RULES, NH DEPARTMENT OF ENVIRONMENTAL SERVICES – WETLANDS BUREAU – ENV WT 100–900 AND THE TOWN OF EXETER ZONING. PREDOMINANT HYDRIC SOILS WERE IDENTIFIED UTILIZING THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 3, APRIL 2004 AND THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 7, 2010. THE INDICATOR STATUS OF HYDROPHYTIC VEGETATION WAS DETERMINED ACCORDING TO THE U.S. ARMY CORPS OF ENGINEERS – NORTHCENTRAL AND NORTHEAST 2014 REGIONAL WETLAND PLANT LIST. COPIES OF SITE PLANS DEPICTING THE WETLAND DELINEATION WHICH HAVE BEEN REVIEWED BY THE WETLAND SCIENTIST ARE INDIVIDUALLY STAMPED, SIGNED AND DATED. THIS NOTE HAS BEEN CUSTOMIZED FOR THIS LOCATION.
11. THIS SOIL MAP IS WITHIN THE TECHNICAL STANDARDS OF THE NATIONAL COOPERATIVE SOIL SURVEY. IT IS A SPECIAL PURPOSE PRODUCT INTENDED FOR USE IN COMPLYING WITH THE NH ALTERATION OF TERRAIN (AoT) REGULATIONS (ENV–WQ 1500). IT WAS PRODUCED BY JON BALANOFF AND MARC JACOBS, CERTIFIED SOIL SCIENTIST #038, BASED UPON FIELD INVESTIGATIONS CONDUCTED IN JULY 2017 AND IS NOT A PRODUCT OF THE USDA NATURAL RESOURCES CONSERVATION SERVICE. THE SITE–SPECIFIC SOIL SURVEY WAS CONDUCTED ACCORDING TO SITE–SPECIFIC SOIL MAPPING STANDARDS FOR NEW HAMPSHIRE AND VERMONT, VERSION 3.0, DATED FEBRUARY 2011 (SPECIAL PUBLICATION NO. 3) AS PUBLISHED, MAINTAINED AND AMENDED BY THE SOCIETY OF SOIL SCIENTISTS OF NORTHERN NEW ENGLAND (SSSNNE). COPIES OF THE SOIL SURVEY MAP THAT HAVE BEEN REVIEWED BY THE SCIENTIST(S) ARE INDIVIDUALLY STAMPED, SIGNED AND DATED.
12. SEE SHEET C–01 FOR EXISTING SITE CONDITIONS PLAN. SEE SHEET C–02 FOR PLAN REFERENCES.

EXHIBIT 2
Natural Resources Plan
April 4, 2018

SOILS LEGEND:

SOIL SERIES NAME	SOIL SERIES NUMBER	HYDROLOGIC SOIL GROUP	DRAINAGE CLASS	POSSIBLE INCLUSIONS	DOMINANT TEXTURES	COMMENTS
FLUVAQUENT	7	NA (D*)	POOR & VERY POOR	SCITICO, MAYBID (134)	SILT & CLAY DEPOSITS	STREAM BOTTOM – SUBJECT TO FLOODING
WINDSOR	26	A	WELL TO EXCESSIVELY	ELDRIDGE	SANDY	
BOXFORD	32	C	MODERATELY WELL TO SOMEWHAT POOR	SCITICO	SILT & CLAY DEPOSITS	
SCITICO	33	C	POOR	NONE	SILT & CLAY DEPOSITS	
ELDRIDGE	38	C	MODERATELY WELL	BOXFORD	SANDY/LOAMY OVER SILT/CLAY	
CHARLTON	62	B	WELL	HOLLIS (86), CHATFIELD (89)	LOAMY TEXTURES	STONEY, LOOSE GLACIAL TILL
UDORTHENTS, WET SUBSTRATUM	100	C*	NA	UDORTHENTS 299	LOAMY	HISTORIC FILL & FILLED WETLANDS
DUMPS, BARK CHIPS, ORGANIC MATERIALS	199	C*	NA	UDORTHENTS 299	LOAMY	FILL – PORTIONS INCLUDE SOLID WASTE & REMEDIATION AREA
UDORTHENTS, SMOOTHED	299	C*	NA	BOXFORD, ELDRIDGE	LOAMY & GRAVELLY	INCLUDES HISTORIC SOLID FILL
ENDOAQUENTS, LOAMY	600	C*	POOR*	SCITICO	LOAMY SILT & CLAY DEPOSITS	MAN–MADE BY EXCAVATION – WETLANDS

*ESTIMATED BASED UPON SOIL PROPERTIES OBSERVED IN THE FIELD

SLOPE PHASE LEGEND (PERCENT)

A	B	C	D	E	F
0–3	3–8	8–15	15–25	25–50	50+

100 50 25 0 100
Graphic Scale

NO.	REVISIONS THIS SHEET	DATE	BMK	JCC
1.	REVISED PER TRC COMMENTS	9/26/17	BMK	DR
2.		10/31/17	BMK	JCC

TAX MAP 54 LOTS 5, 6 & 7 AND MAP 63 LOT 205

SITE-SPECIFIC SOILS MAP & TOPOGRAPHIC PLAN

OAK STREET EXTENSION & FOREST STREET
EXETER, NEW HAMPSHIRE, COUNTY OF ROCKINGHAM
OWNED BY
EXETER ROSE FARM, LLC & THE
BENJAMIN & JOAN DAGOSTINO REVOCABLE TRUSTS
PREPARED FOR
EXETER ROSE FARM, LLC

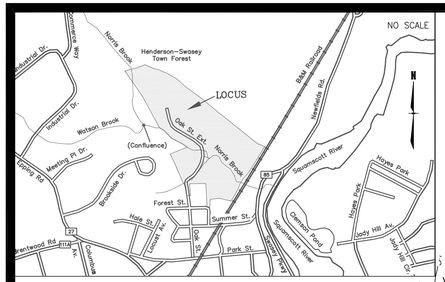
SCALE: 1"=100' **AUGUST 15, 2017**

TFM MSC
A division of TFMoran, Inc.
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431–2222
Fax (603) 431–0910
www.mscengineers.com

FILE	47175.00	DR	NJM	FB	531 & 539	C–03
		CK	BMK	CADFILE	47175.00–SOILS	

STATE OF NEW HAMPSHIRE No. 844 J. COREY COLWELL LICENSED LAND SURVEYOR

Oct 30, 2017 - 6:01pm
F:\MSC Projects\47175 - Oak Street Extension - Exeter\47175.00 - Baker Properties\47175.00 C3D\Survey\Drawings\47175-00_C03_Soils.dwg



VICINITY PLAN

NOTES:

1. THE SUBJECT PARCELS ARE SHOWN ON THE TOWN OF EXETER ASSESSOR'S MAP 54 AS LOTS 5, 6 & 7 AND MAP 63 LOT 205.
2. OWNERS OF RECORD/APPLICANT:
   MAP 54 LOT 5: EXETER ROSE FARM, LLC, 24 OAK STREET EXTENSION, EXETER, NH 03833, RCRD BK.5840 PG.2102, (603) 425-8598
   MAP 54 LOT 6: EXETER ROSE FARM, LLC, 24 OAK STREET EXTENSION, EXETER, NH 03833, RCRD BK.5840 PG.2102, (603) 425-8598
   MAP 54 LOT 7: EXETER ROSE FARM, LLC, 24 OAK STREET EXTENSION, EXETER, NH 03833, RCRD BK.5840 PG.2104, (603) 425-8598
   MAP 63 LOT 205: BENJAMIN & JOAN DAGOSTINO REVOCABLE TRUSTS, 1 FOREST STREET, EXETER, NH 03833, RCRD BK.#4574 PG.#2843, (603) 502-7175
3. TOTAL AREA: 2,176,025± S.F. (49.9547± ACRES)
4. THE SUBJECT PARCELS ARE LOCATED IN THE R-1 LOW DENSITY SINGLE FAMILY, R-2 SINGLE FAMILY, AND R-4 MULTI-FAMILY ZONING DISTRICTS AND PARTIALLY LOCATED IN THE TOWN OF EXETER SHORELAND PROTECTION DISTRICT AND THE WETLANDS CONSERVATION AND FLOOD HAZARD OVERLAY DISTRICTS.
5. DENSITY AND DIMENSIONAL REGULATIONS:

	R-1	R-2	R-4 (DETACHED SINGLE FAMILY)
MINIMUM LOT AREA:			
(NO MUNICIPAL WATER & SEWER)	2 ACRES	1 ACRES	NA
(MUNICIPAL WATER & SEWER)	40,000 S.F.	15,000 S.F.	12,000 S.F.
(DWELLING UNIT)	40,000 S.F.	15,000 S.F.	12,000 S.F.
MINIMUM LOT WIDTH:	150'	100'	100'
MINIMUM LOT DEPTH:	150'	100'	100'
MAXIMUM HEIGHT:	35'/3 STORIES	35'/3 STORIES	35'/3 STORIES
MINIMUM YARD SETBACKS:			
FRONT YARD:	25'	25'	25'
SIDE YARD:	15'/30'	15'/30'	15'/30'
REAR YARD:	25'	25'	25'
MAXIMUM BUILDING COVERAGE:	15%*	25%*	25%*
MINIMUM OPEN SPACE:	80%**/70%	60%**/40%	30%

*FOR AREAS WITHIN THE TOWN OF EXETER SHORELAND PROTECTION DISTRICT THE MAXIMUM LOT COVERAGE IS 10% (SEE SECTION 9.3.4.B)
**FOR LOTS USING SEPTIC SYSTEMS PER THE TOWN OF EXETER, N.H. ZONING ORDINANCE, SECTION 4.3.

6. THE HORIZONTAL DATUM IS REFERENCED TO NORTH AMERICAN DATUM OF 1983 [NAD 83 (2011)] PER STATIC GPS OBSERVATIONS. THE VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), GEOID 12A PER STATIC GPS OBSERVATIONS. THE CONTOUR INTERVAL IS 2 FEET.
7. THE SUBJECT PARCELS ARE PARTIALLY LOCATED IN SPECIAL FLOOD HAZARD AREA (SFHA) ZONE AE (EL.8) & ZONE X AS SHOWN ON NATIONAL FLOOD INSURANCE PROGRAM (NFIP) FLOOD INSURANCE RATE MAP (FIRM) ROCKINGHAM COUNTY, NEW HAMPSHIRE, MAP NUMBER 33015C0402E WITH AN EFFECTIVE DATE OF MAY 17, 2005.
8. THE INTENT OF THIS PLAN IS TO SHOW THE LOCATION OF BOUNDARIES IN ACCORDANCE WITH THE CURRENT LEGAL DESCRIPTIONS. IT IS NOT AN ATTEMPT TO DEFINE THE EXTENT OF OWNERSHIP OR DEFINE THE LIMITS OF TITLE.
9. THE PURPOSE OF THIS PLAN IS TO SHOW THE CURRENT EXISTING FEATURES AND TOPOGRAPHY OF TAX MAP 54 LOTS 5, 6 & 7, AND TAX MAP 63 LOT 205. SEE SHEET C-02 FOR CULVERT TABLE AND PLAN REFERENCES, SHEETS C-05 TO C-09 FOR BOUNDARY BEARINGS AND DISTANCES, SHEET C-03 FOR SITE-SPECIFIC SOILS MAP, SHEET C-10A FOR WETLAND AREAS AND SHEET C-11 FOR OFFSITE UTILITY INFORMATION.
10. FIELD SURVEY COMPLETED BY TODD C. EMERSON AND NICK J. MORTON IN JANUARY 2016 AND JULY 2017 USING A TOPCON DS103 AND TOPCON TESLA DATA COLLECTOR, A TOPCON MG-A5 BACKPACK GPS UNIT AND A TOPCON HYPER SR STATIC GPS UNIT. AERIAL TOPOGRAPHY WAS PROVIDED BY WSP, PARSONS BRINKERHOFF OF CHARLTON, MA IN MAY 2016.
11. THE BOUNDARY RUNS ALONG THE BROOK FROM POINT "A" TO POINT "B". THE TOTAL AREA WAS DETERMINED USING THE CENTERLINE OF THE BROOK AS LOCATED BY MSC IN JANUARY 2016.
12. UTILITY LINES SHOWN HEREON ARE A COMPILATION OF FIELD LOCATIONS, RECORD PLANS AND DIGITIZED PER THE TOWN OF EXETER GIS WEB SITE AND ARE APPROXIMATE ONLY. CONTACT DIGSAFE @ 1-888-DIG-SAFE AND THE TOWN OF EXETER DEPARTMENT OF PUBLIC WORKS TO VERIFY UTILITIES.
13. MANMADE AND NATURAL JURISDICTIONAL WETLAND BOUNDARIES WERE DELINEATED BY MARC JACOBS, CERTIFIED WETLAND SCIENTIST NUMBER 090, AND JON BALANOFF IN DECEMBER 2015 ACCORDING TO THE STANDARDS OF THE US ARMY CORPS OF ENGINEERS – WETLANDS DELINEATION MANUAL; THE REGIONAL SUPPLEMENT TO THE CORPS OF ENGINEERS WETLAND DELINEATION MANUAL: NORTHCENTRAL AND NORTHEAST REGION; THE CODE OF ADMINISTRATIVE RULES, NH DEPARTMENT OF ENVIRONMENTAL SERVICES – WETLANDS BUREAU – ENV WT 100-900 AND THE TOWN OF EXETER ZONING. PREDOMINANT HYDRIC SOILS WERE IDENTIFIED UTILIZING THE FIELD INDICATORS FOR IDENTIFYING HYDRIC SOILS IN NEW ENGLAND, VERSION 3, APRIL 2004 AND THE FIELD INDICATORS OF HYDRIC SOILS IN THE UNITED STATES, VERSION 7, 2010. THE INDICATOR STATUS OF HYDROPHYTIC VEGETATION WAS DETERMINED ACCORDING TO THE U.S. ARMY CORPS OF ENGINEERS – NORTHCENTRAL AND NORTHEAST 2014 REGIONAL WETLAND PLANT LIST. COPIES OF SITE PLANS DEPICTING THE WETLAND DELINEATION WHICH HAVE BEEN REVIEWED BY THE WETLAND SCIENTIST ARE INDIVIDUALLY STAMPED, SIGNED AND DATED. THIS NOTE HAS BEEN CUSTOMIZED FOR THIS LOCATION.
14. WETLANDS CONTAINING POORLY DRAINED SOILS ARE SUBJECT TO A 40' NO CUT/NO DISTURBANCE SETBACK. WETLANDS CONTAINING VERY POORLY DRAINED (VPD) SOILS ARE SUBJECT TO A 50' NO CUT/NO DISTURBANCE SETBACK.

TFM MSC A division of TFMoran, Inc.
Civil Engineers, Structural Engineers, Traffic Engineers, Land Surveyors, Landscape Architects, Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431-2222
Fax (603) 431-0910
www.mscengineers.com

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		CK	JCC	CADFILE	

NO.	DESCRIPTION	DATE	BY
			CK
			DP

TAX MAP 54 LOTS 5, 6 & 7 AND MAP 63 LOT 205

FORESTED AREAS PLAN

OAK STREET EXTENSION & FOREST STREET
EXETER, NEW HAMPSHIRE, COUNTY OF ROCKINGHAM

OWNED BY

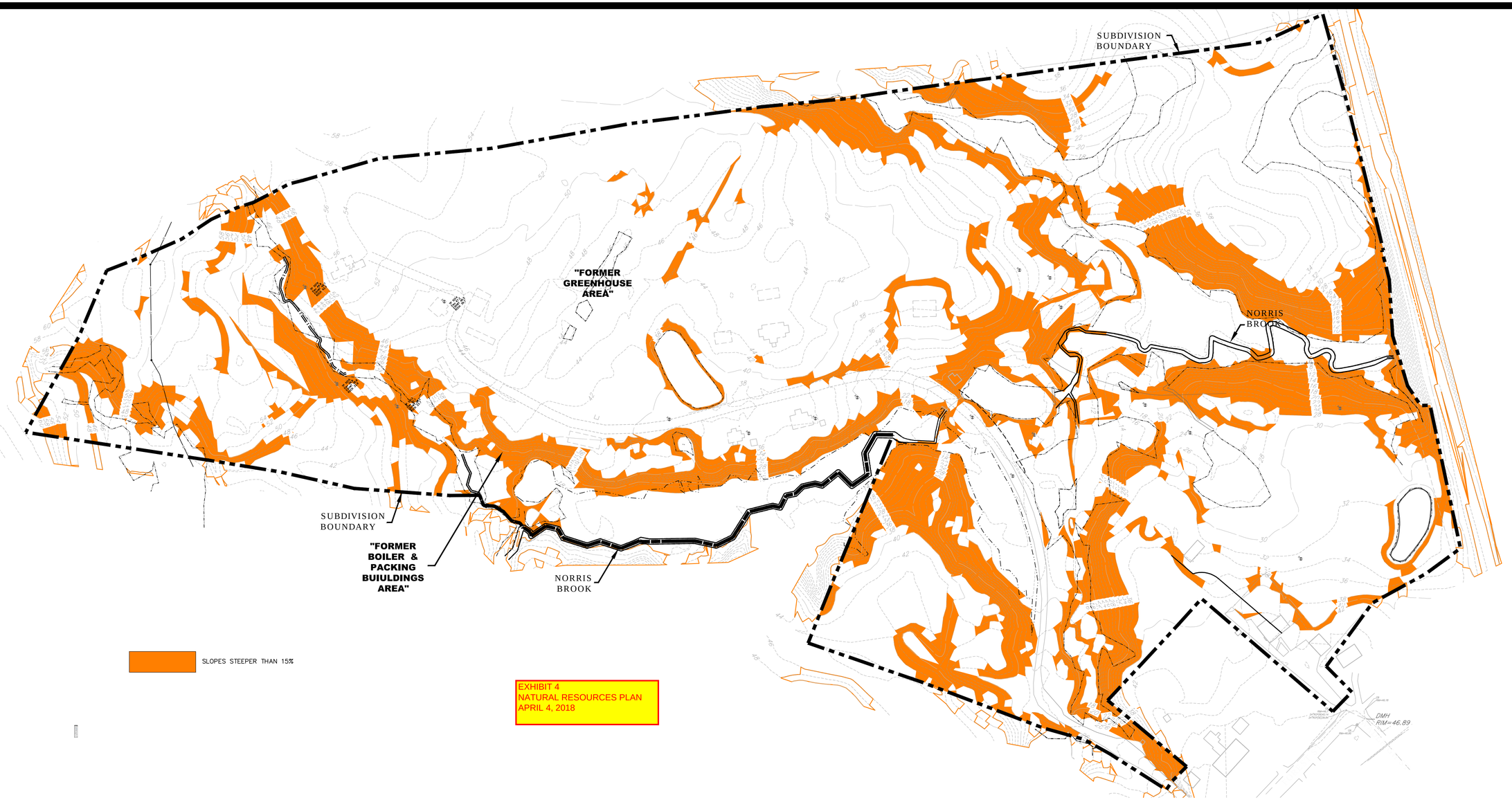
EXETER ROSE FARM, LLC & THE BENJAMIN & JOAN DAGOSTINO REVOCABLE TRUSTS

PREPARED FOR

EXETER ROSE FARM, LLC

SCALE: 1"=100' **MARCH 29, 2018**

Mar 29, 2018 - 4:01pm
P:\MSC Projects\47175 - Oak Street Extension - Exeter\47175.00 - Baker Properties\47175.00 C3D\Survey\Drawings\47175-00_C01-C02_ForestedAreas.dwg



SLOPES STEEPER THAN 15%

EXHIBIT 4
NATURAL RESOURCES PLAN
APRIL 4, 2018

NOTES:

1. FORMER GREENHOUSE AREA – SHALLOW SOIL CONTAINING LEAD CONCENTRATIONS EXCEEDING THE NHDES STANDARD APPLICABLE TO RESIDENTIAL PROPERTIES WILL BE REMOVED AND PROPERLY DISPOSED AT AN OFF-SITE DISPOSAL FACILITY.
2. FORMER BOILER & PACKING BUILDINGS AREA – SOLID WASTES WILL BE IDENTIFIED, REMOVED AND PROPERTY DISPOSED OF AT AN OFF-SITE FACILITY. COAL ASH/CLINKER WILL BE CONSOLIDATED IN THE FORMER PACKING BUILDING AREA, CAPPED AND COVERED OR USED AS ROAD BASE.

100 50 0 100
Graphic Scale in Feet

REV.	DATE	DESCRIPTION	DR	CK

TAX MAP 54 LOTS 5, 6 & 7 TAX MAP 63 LOT 205

STEEP SLOPES

EXETER ROSE FARM

FOREST STREET & OAK STREET EXTENSION
EXETER, NEW HAMPSHIRE, COUNTY OF ROCKINGHAM
BENJAMIN & JOAN DAGOSTINO REVOCABLE TRUST
OWNED BY
EXETER ROSE FARM, LLC &
BENJAMIN & JOAN DAGOSTINO REVOCABLE TRUSTS

SCALE: 1"=100'(22X34)
1"=200'(11X17)
MARCH 27, 2018

PLANNING BOARD FILE #

APPROVED BY THE EXETER PLANNING BOARD

ON _____

CHAIRMAN: _____ *AND*

SECRETARY: _____

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MA ME NH RI VT
UTILITIES UNDER GROUND PLANT DAMAGE PREVENTION SYSTEM
CALL 811 TOLL FREE
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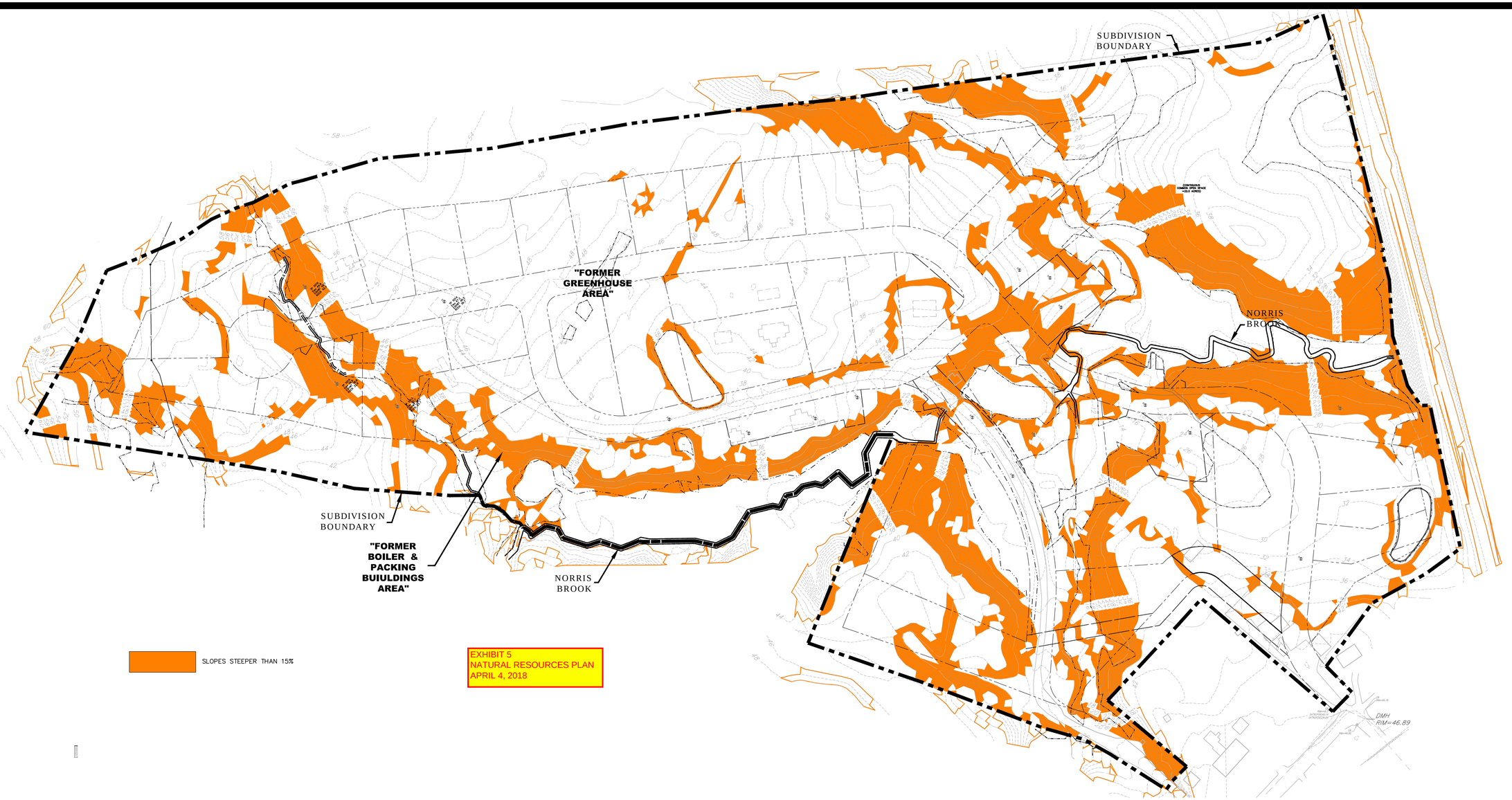

SLOPES STEEPER THAN 15%

EXHIBIT 5
NATURAL RESOURCES PLAN
APRIL 4, 2018

NOTES:

1. FORMER GREENHOUSE AREA – SHALLOW SOIL CONTAINING LEAD CONCENTRATIONS EXCEEDING THE NHDES STANDARD APPLICABLE TO RESIDENTIAL PROPERTIES WILL BE REMOVED AND PROPERLY DISPOSED AT AN OFF-SITE DISPOSAL FACILITY.
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100 50 0 100
Graphic Scale in Feet

TAX MAP 54 LOTS 5, 6 & 7 TAX MAP 63 LOT 205

STEEP SLOPES

EXETER ROSE FARM

FOREST STREET & OAK STREET EXTENSION
EXETER, NEW HAMPSHIRE, COUNTY OF ROCKINGHAM
BENJAMIN & JOAN DAGOSTINO REVOCABLE TRUST
OWNED BY
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SCALE: 1"=100'(22X34)
1"=200'(11X17)
MARCH 27, 2018

PLANNING BOARD FILE #

APPROVED BY THE EXETER PLANNING BOARD

ON _____
CHAIRMAN: _____ *AND*
SECRETARY: _____

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REV.	DATE	DESCRIPTION	DR	CK

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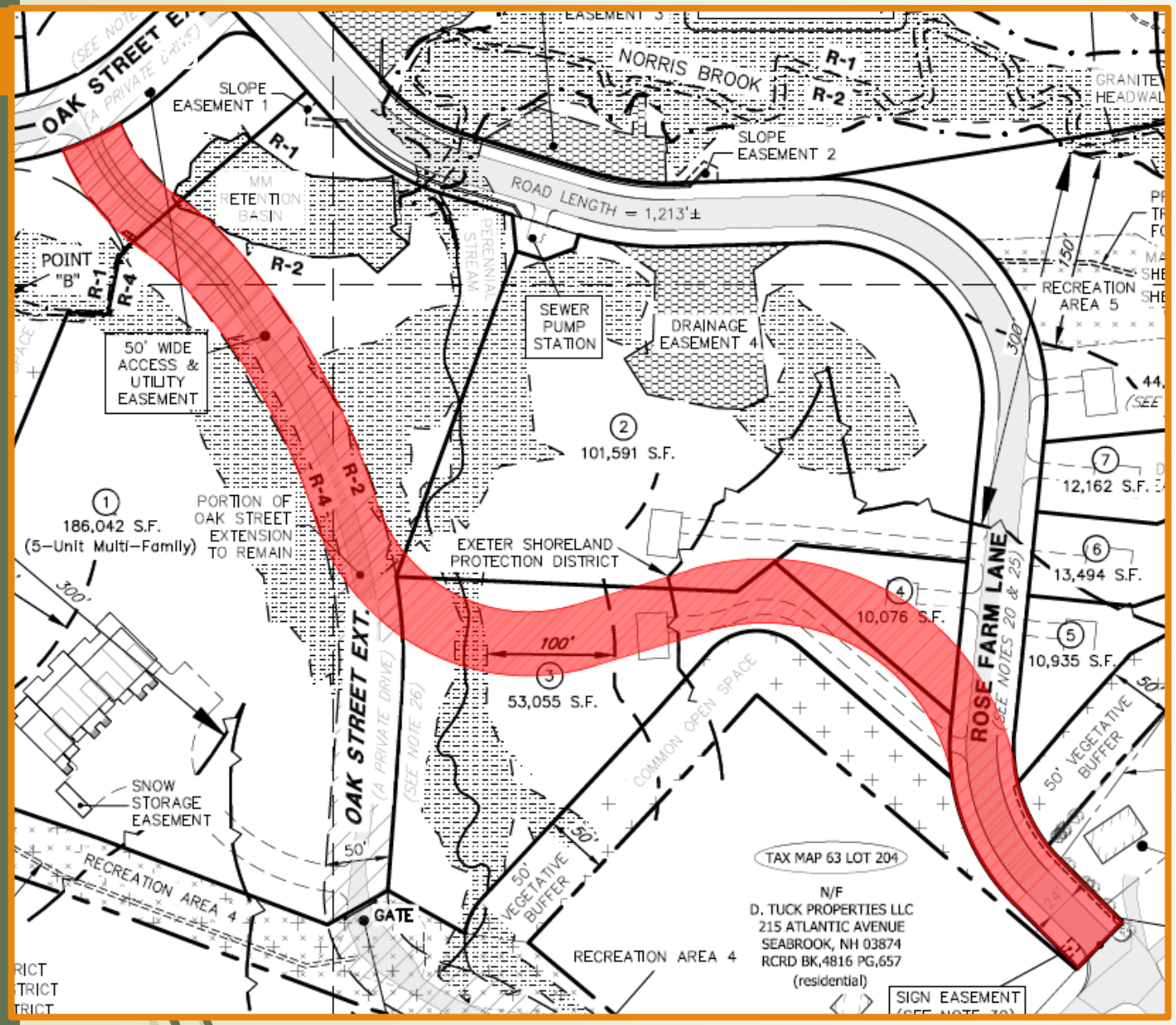
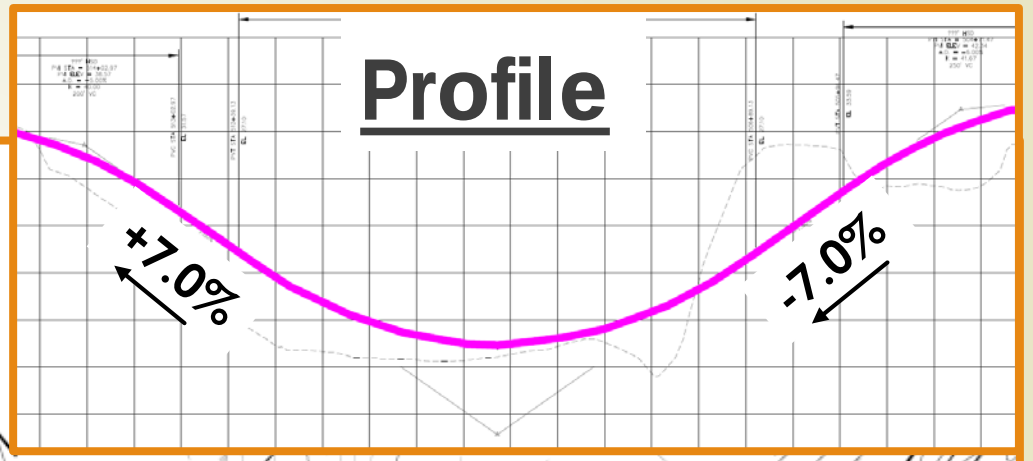


Alternate Access

- **Wetland Waiver *Guidelines* and Shoreland CUP *Conditions for Approval* do not require demonstration of hardship**
- **Crossing chosen to minimize grading and associated wetland impacts**
- **Conceptual design for alternate access**
  - **Utilizes 1,000± LF of retaining wall**
  - **Results in 7,900± SF of wetland impact**

Alternate Access



- Increased Wetland Impacts
- Longer Retaining Walls
- Steeper Grades

Oct. 19, 2018

Dear Dave,

My request for a 3rd party peer review was driven by my concern that the proposed crossing of Norris Brook might have a greater impact on the highest value resource(s) of Norris Brook and it's associated wetlands than the alternative route.

In Marc Jacobs's Wetland Functional Evaluation report (dated 4/3/18) the proposed and the alternative route are both assessed in one study area: the "Norris Brook-Downstream (Green) Study Area". By doing so, it becomes difficult to determine exactly what the functions and values are of the areas impacted by the proposed and alternative routes, and whether the creation of a new crossing over Norris Brook could potentially be more detrimental than creating a crossing over the unnamed perennial stream and taking advantage of an existing roadway (Oak Street Extension).

I understand the many ramifications of this, and that the use of Oak Street Extension would result in additional upgrades to that road and an increase in wetland impacts, but after re-reading Marc's report, following the site walk of the area (and seeing for the first time what would become Rose Farm Lane), I am left with greater concerns about the proposed route, not only because of the lowland areas, but also because of what would be impacted in the upland area of that new roadway.
Is it better to improve an already disturbed area, or create a new route through a lovely, sensitive, and un-fragmented portion of the property?
(I will add, that we did see one or two areas that were questioned as being wetlands that were not noted on the plans)

With the discovery of the American Eel subsequent to the completion of the Natural Resource and the Wetland Functional Evaluation plans, is the applicant able to demonstrate that this development will not have a negative impact on them, or other aquatic species? Although we don't have corroborating evidence, I was told that there are Tommy Cod in Norris Brook, leaving me to wonder what other species exist, but have not been detected.

Mr. Jacobs did write about, and show photographs as examples of turbidity in the streams (The unnamed perennial stream, and Norris Brook, for example). With the development of this property, are there methods being implemented, or assurances being made, that there won't be an increase in turbidity? I am concerned about impacts to the stream beds including sediments, salts, and increased water flow due to impervious surfaces.

I'm not sure how my concerns about the 36" culvert can be addressed. Will the replacement of this culvert create disturbances upstream or downstream that could be detrimental, or will the replacement of this culvert with a larger one (that can

handle storms greater than a "2-year storm") result in more natural and environmentally friendly conditions?

The weir is also of concern to me, and although my instinct is to encourage the removal of this structure, I acknowledge the fact that it will alter the condition of the wetlands above it, and will impact the flow of water below it should it be removed. Mr. Jacobs suggested the installation of a pipe or some kind of a structure to allow for the passage of aquatic creatures (eel etc.). This is a compelling idea, but brings with it a concern about maintenance! I could imagine this getting clogged quickly and easily!

I will likely review Marc's reports again to see if I've overlooked some points of concern, and if I find anything that relates to a review, I'll forward that to you.

Thank you so much for your time spent on this huge, complicated project!

Best,
Gwen English

In the recent issue that I received of *Great Bay Matters* (Fall, 2018) the feature story was titled "It takes a village to Manage Stormwater". The article detailed Stratham's Rollins Hill development, and highlighted the use of permeable pavements, rain gardens, rooftop infiltration and groundwater recharge. I asked around about this, and got the name of Cindy Balcius from Stoney Ridge Environmental LLC who apparently was the wetland and soil scientist for the project. I mention this in the event that you are still in search of a scientist to do a 3rd party review of the Rose Farm.

Marc E. Jacobs, *CSS, CWS, PWS, CPESC*
Professional Wetland / Soil Scientist
jacobs2wetsoil2004@yahoo.com

M E M O R A N D U M

VIA: First class mail/Certified/Facsimile/**Hand Delivery**/Overnight/E-mail

TO: Mr. David Sharples, Town Planner
Ms. Kristen Murphy, Conservation Agent

FROM: Marc Jacobs, CWS, PWS, CSS, CPESC

DATE: June 29, 2018

SUBJECT: Exeter Rose Farm, LLC

RE: Wetlands Conservation Overlay District Waiver

The following information is intended to support the request for waivers of aspects of the Wetland Conservation Overlay District regulations in specific locations of the proposed project according to Section 9.9.3 of the Exeter Site and Subdivision Regulations. Refer to the Town of Exeter Wetland Conservation District Area & Impacts Plan dated February 20, 2018 with revision dated June 29, 2018 for a graphic depiction of proposed impacts. The plan is included herein by reference and as attached. Where proposed, restoration of temporary wetland buffer impacts is described below for each wetland.

There are 355,638 square feet (SF) or 8.16 acres of local and state jurisdictional wetlands on the subject property, some of which are geographically isolated and some of which are contiguous to other wetlands located off site. The redevelopment of the site will directly and permanently impact 3,606 SF (0.08 acres) of locally jurisdictional wetland, which represents 1 percent of the total wetland acreage on site. (Of that total, 3,163 SF or 86 percent represents the unavoidable impact associated with construction of Rose Farm Lane as needed to provide access to buildable areas outside the various buffer zones.) Wetland impacts are described in greater detail below by impact area.

SUMMARY OF REQUIRED BUFFERS

Table 1 below from Exeter's Site Plan and Subdivision Regulations (§ 9.9.2) summarizes the required buffers to wetlands. Note that there are no prime or exemplary wetlands on site. The project is proposing to permanently alter 51,998 SF and temporarily alter 29,713 SF of wetland buffer. Tabulation of the total wetland buffer area on site not been calculated but if it were it is expected that the resulting ratio of total buffer on site to permanent buffer impacts would yield a similar ratio (1%) as total wetlands on site versus proposed direct wetland impacts. Wetland buffer impacts are described in greater detail below by impact area.

609 Portsmouth Avenue
PO Box 417
Greenland, NH 03840-0417

***Phone* (603) 686-5097**
***Fax* (603) 686-5142**
***Mobile* (603) 534-SOIL (7645)**

TABLE 1

Wetlands categories and setbacks:

Wetland Category	No cut / No Disturbance Setback (1)	Parking Setback (2) Waste Water Systems Structural Setback
Prime Wetland	100' no cut/no disturb	125'
Exemplary Wetlands	50' no cut/no disturb buffer	75'
Vernal Pool (V.P. >/= 200 sf)	75' no cut/ no disturb buffer	100'
Wetlands with Very Poorly Drained (VPD) Soils	50' no cut/ no disturb buffer	75'
Wetlands with Poorly Drained	40' no cut/ no disturb buffer	75'
Inland Streams (incl. intermittent)	25' no cut/ no disturb buffer	75' (1)

IMPACT AREA DESCRIPTIONS

Wetland areas are labeled alphabetically A – N on the attached plans. Impacts are proposed to Wetland and Buffer Areas B, J, K, and M and are described below in alphabetical order as are impacts to the inland stream (IS). No direct or indirect / wetland buffer impacts are proposed to wetland areas A, I, L or N. Impacts are proposed to man-made geographically isolated Wetland Areas C – H, however these wetlands are not locally jurisdictional under zoning section 9.1.3.D. Wetland Areas C – H are jurisdictional under state regulations (as we have assumed they were not legally created or permitted as required or were created out of uplands and have become jurisdictional) and impacts to these areas will therefore be included in the state wetland permit application. Impacts are also summarized in Table 2 below.

<u>Impact Area B</u>

There are three temporary but no permanent impact areas proposed in Wetland Area B. The three temporary areas are associated with the remediation of coal ash / clinker and solid waste on the slopes overlooking and adjacent to the intermittent stream upstream (north) of Norris Brook and west of Oak Street Extension. Temporary Impact Area B1 (TIA B1) is 338 SF in size. Temporary Impact Area B2 (TIA B2) is 11 SF. Temporary Impact Area B3 (TIA B3) is 731 SF for a total of 1,080 SF. These areas will be restored post-remediation. The areas will loamed, sown with typical conservation seed mix and mulched. These areas will not be mowed or maintained, unless otherwise directed by NH Department of Environmental Services (NHDES) and required by the remedial action plan approval.

There will be four (4) areas of associated buffer impact totaling 26,150± SF. Three of the temporary wetland buffer impact areas, totaling 22,216± SF, are associated with the remediation of the coal ash / clinker and solid waste. The fourth area, 3,061± SF, is permanent and associated with the realignment

and improvement of a section of existing Oak Street Extension near where it will tie into Rose Farm Lane. There is also a small portion of permanent buffer impact (473 SF) associated with the construction of Gravel Wetland 1. The temporary buffer impacts outside of the gravel wetland are proposed to be restored post-construction.

Impact Area J

Impact Area J involves 531 SF of permanent impact to the buffer associated with regrading for the improvement of existing parking and turn-around area providing continued access to the spring. This wetland buffer impact is necessitated to a degree by the need to install a gate as required by the planning board to prohibit through-traffic from using Oak Street Extension.

Impact Area K

Wetland Area K is proposed for a total of five (5) direct impact areas, three of which are permanent and two of which are temporary, totaling 4,933 SF. The primary wetland and stream crossing at Norris Brook, Permanent Impact Area K (PIA K), associated with the proposed construction of Rose Fam Lane, which provides the sole access to otherwise buildable areas of the property under the zoning and subdivision regulations, will directly impact approximately 4,627 square feet (SF) of wetlands. PIA K results in approximately 3,163 SF of the impact. There are two associated Temporary Impact Areas (TIA K1 and TIA K2) totaling approximately 1,464 SF at this crossing. TIA K1 results in 749 SF of impact and TIA K2 results in 715 SF of impact as needed to provide temporary access for construction of the proposed retaining walls. TIA K1 and K2 will be restored in place post-construction). Restoration will involve seeding with a typical wetland seed mix.

Permanent Impact Area K1 (PIA K1) involves 286 SF of direct permanent impact associated with construction of the sewer pump station. Permanent Impact Area K2 (PIA K2) involves 20 SF of direct permanent impact associated with construction of the gravel wetland 4. (There are a total of four (4) gravel wetlands being proposed for management and treatment of stormwater.)

There will be five (5) areas of associated wetland buffer impact in Wetland K totaling 45,616± SF. Approximately 41,829± SF will be permanent and 3,787± SF will be temporary. The largest area of wetland buffer impact is associated with the crossing of Norris Brook as well as the construction of Gravel Wetlands 2, 3 and 4 on either side of Norris Brook. The permanent impact areas need to be maintained (including mowing) in perpetuity, so no restoration of the proposed wetland buffer is proposed beyond stabilizing the area with dense grassy vegetation to minimize erosion. The temporary buffer impact areas, outside of the right-of-way and easements, are to be restored post-construction. Restoration will involve loam, seeding with conservation seed mix according to the manufacturer's recommended rate and mulching. These areas will not be mowed or maintained otherwise.

Other areas of permanent buffer impact, 3,568± SF in size, are associated with the reconstruction, (slight) realignment and improvement of a section of existing Oak Street Extension near where it will tie into Rose Farm Lane. As this access will need to be maintained no wetland buffer restoration is proposed. (The remainder of Oak Street Extension will also be improved and resurfaced but it is our understanding that this work does not constitute buffer impact because the work is confined to the existing footprint.)

Finally, two small areas of wetland buffer impact, 633± SF and 1,019± SF in size, are associated with regrading for the improvement of the existing parking and turn-around areas providing continued access to the spring. No wetland buffer restoration is therefore proposed.

Impact Area M

Impact Area M involves one area of direct impact. Permanent Impact Area M (PIA M) involves 137± SF of impact to Wetland Area M for grading associated with construction of Gravel Wetland 4. There will be three (3) areas of associated wetland buffer impact totaling 8,700± SF. The largest area of wetland buffer impact (7,959 SF) is associated with the construction of Gravel Wetland 4. Approximately 5,390± SF will be permanent and 2,569± SF will be temporary. Drainage facilities within the permanent impact areas will need to be maintained (including mowing) in perpetuity, no restoration of the proposed wetland buffer is proposed beyond stabilizing the area with dense grassy vegetation to minimize erosion. The temporary buffer impact areas, outside of the right-of-way and easements, are to be restored post-construction. Restoration will involve loam, seeding with conservation seed mix according to the manufacturer's recommended rate and mulching. These areas will not be mowed or maintained.

There will be 466± SF of temporary wetland buffer impact associated with grading for the construction of Rose Farm Lane. There will be 275± SF of temporary wetland buffer impact associated with grading for the construction of the driveway as needed for access to the dwelling on Lot 2. Both temporary buffer impact areas are to be restored post-construction. Restoration will involve loam, seeding with conservation seed mix according to the manufacturer's recommended rate and mulching. These areas will not be mowed or maintained otherwise.

Inland Stream (IS) Impact Area

There is 373 linear feet (LF) of channel that confines an intermittent stream which discharges from Wetland Area M. Approximately 100 LF of that channel will be permanently impacted for construction of Rose Farm Lane. This section of the inland stream will be captured by the drainage system and piped beneath the road, discharging to a riprap apron below the road. There is 714 SF of associated buffer that will be permanently impacted by the construction of Rose Farm Lane. We have included the inland stream and buffer impacts in our application but this stream is not depicted on the USGS map as required by Exeter Zoning so it is technically not locally jurisdictional.

TABLE 2

TOWN OF EXETER WETLAND CONSERVATION DISTRICT WETLAND & 40'/50' NO CUT/NO DISTURBANCE BUFFER AREAS & IMPACTS TABLE

WETLAND	WETLAND AREA	TEMPORARY IMPACT	PERMANENT IMPACT	TEMPORARY BUFFER IMPACT	PERMANENT BUFFER IMPACT
A	11,857 S.F.	0 S.F.	0 S.F.	0 S.F.	0 S.F.
B	100,049 S.F.	1,080 S.F.	0 S.F.	22,616 S.F.	3,534 S.F.
I	668 S.F.	0 S.F.	0 S.F.	0 S.F.	0 S.F.
J	15 S.F.	0 S.F.	0 S.F.	0 S.F.	531 S.F.
K	185,163 S.F.	1,464 S.F.	3,469 S.F.	3,787 S.F.	41,829 S.F.
L	23,073 S.F.	0 S.F.	0 S.F.	0 S.F.	0 S.F.
M	12,359 S.F.	0 S.F.	137 S.F.	3,310 S.F.	5,390 S.F.
IS	(373 L.F.)	0 S.F.	(100 L.F.)	0 S.F.	714 S.F.
TOTAL:	333,184 S.F.	2,544 S.F.	3,606 S.F.	29,713 S.F.	51,998 S.F.

WETLAND WAIVER GUIDELINES

As per Exeter Site and Subdivision Regulations (§9.3.3) the following guidelines should be considered by the Planning Board if relief is requested. (It should be noted that the applicants were directed to apply for the wetland waiver; not applying for the waiver was not an option.)

1. The relative "value" of the wetland, including its ecological sensitivity, as well as its function within the greater hydrologic landscape shall be compared to the proposed impact.

A Wetland Functional Evaluation of the Exeter Rose Farm, LLC property was previously conducted by this office and a revised copy, one that elaborates on impact analysis and compensatory mitigation, is included with this filing. As compared to other wetlands on the site, the Rose Farm Lane wetland crossing will impact wetlands of relatively high value. This value is derived from groundwater discharge, floodflow alteration, sediment removal, wildlife habitat and uniqueness functions. The construction of Rose Farm Lane will likely impact the periphery of a floodplain forest as identified in the Exeter Natural Resources Inventory.

Several man-made isolated wetlands will also be altered during construction of the project, especially to remove hazardous materials and solid waste. These wetlands are not locally jurisdictional and are functioning at a very low level and therefore provide significantly less value as compared to other wetlands on site.

The construction of Rose Farm Lane will result in impacts to an inland channel that conveys a stream which flows intermittently from Wetland M. The channel is man-made by erosion that resulted from the clearing of trees as needed to create the field on Assessors Lot 205 off Forest Street which was used to stable horses for a period of time. The change in vegetative cover from forest to field resulted in an increase in the rate of runoff which scoured the current channel. The stream flows in direct response to storm events owing to the slowly permeable soils found in the field. The value of the stream is low as compared to other natural intermittent and perennial streams at this location.

2. A wetland scientist has conducted a "function and values" study of the wetlands and deemed that the wetlands under consideration will not be negatively impacted by the development.

The aforementioned Wetland Functional Analysis was used, in part, to prepare the Impact Analysis section of the Natural Resources Plan for the Exeter Rose Farm, LLC project. The wetlands beneath the proposed crossing of Norris Brook will be permanently impacted. While the wetlands complex along Norris Brook functions at a relatively high value overall, especially as compared to other wetlands on this site, it is noteworthy that groundwater discharge functions are performed minimally at the actual crossing location due to adjacent topography. Additionally, floodflow alteration and sediment removal functions will be maintained by the proposed box culvert as will wildlife migration capacity for smaller mammals and other wildlife by incorporating upland banks within the box culvert. Uniqueness functions are generally associated with the presence of the Jailhouse Spring, which is considered part of this wetland complex but will not actually be directly involved or impacted by the wetland crossing construction at Norris Brook. For these reasons adverse negative impacts are not expected. The

incidental wetland impacts associated with construction of the sewer pump station and gravel wetland 4 are outweighed by the overall benefits which will be provided by these improvements.

The isolated man-made wetland areas described above have been inspected and observed in a flooded condition on numerous occasions during the appropriate season to ascertain if they are providing habitat for species customarily associated with vernal pools and no evidence of use by breeding populations of reptiles or amphibians has been observed. Since these areas are not providing important wildlife habitat and are functioning at a very low level otherwise, negative impacts are not expected.

3. The Applicant has demonstrated that the use cannot be reasonably carried out on a portion or portions of the lot which are outside of the buffer.

The property is zoned for the proposed use. Norris Brook and associated wetlands bisect the Rose Farm property. As a result, there is no other access to the large area of otherwise buildable uplands on the north side of Norris Brook without a wetland crossing. Wetlands that are contaminated by hazardous materials which are proposed for remediation cannot or should not be avoided during cleanup.

4. The applicant has made a substantial effort to minimize the impacts to the buffer.

The applicant has designed the stream crossing to meet the current standards and regulations regarding stream crossings. The project will provide a box culvert that is 1.2 times bank full width with stream simulation. The project design minimizes unavoidable impacts by crossing Norris Brook and adjacent wetlands where topography is most suitable and at the narrowest location. The design also utilizes retaining walls to minimize side slope grading and the footprint that results, thus further minimizing wetland impacts. Finally, the project proposes no home construction or associated grading in the wetland buffer. Alterations to the wetland buffer are associated with other unavoidable work which includes remediation of hazardous wastes, construction of facilities to manage stormwater, construction of sewer infrastructure, construction of road access that meets town road design standards and improvement of existing road access.

5. Consideration of waivers requested for constructed drainage facilities within the no-disturbance buffer should be determined by all of the following:
   a) Assurance that the drainage facility has the most current water quality features that would provide measured reductions in potential pollutants typical to the proposed development,

The project is proposing stormwater drainage facilities as influenced by the results of on-site soil testing conducted by a Certified Soil Scientist. Based upon the result of those soil tests, proposed drainage facilities include gravel wetlands which are accepted by the NH Department of Environmental Services for their ability to properly treat stormwater prior to release and in so doing protect the quality of downstream water resources.

   b) That a reasonable effort has been made to keep the disturbance to a minimum,

c) Not more than 50% of the drainage structures are within the required buffer.

Regarding b) and c) above, stormwater drainage facilities are located adjacent to existing waterways to which treated stormwater is proposed to be released. This minimizes opportunities for erosion and sedimentation caused by long travel distances for stormwater discharge and is important on this site due to the typical slopes overlooking to Norris Brook as well as dominant soil types and textures. The project has been designed so that no more than 50% of drainage facilities are located within the required wetland buffer. Naturally occurring streams, channels, and wetlands are being used for the conveyance of runoff leaving the site as per §9.5.1.7 of Exeter's Site and Subdivision Regulations.

6. Recommendations from Exeter's Conservation Commission should be reviewed and considered.

The applicants intend to meet with the Exeter Conservation Commission (ECC) on July 10 for their input regarding this request for a waiver and we expect that the ECC will communicate their findings to the Exeter Planning Board.

7. The applicant has prepared a mitigation proposal, including revegetating any disturbed area within the buffer to mimic preconstruction conditions or better. The applicant may also propose an increase in wetland buffers elsewhere on the site that surround a wetland of equal or greater size, and of equal or greater functional value than the impacted wetland.

Temporary impact to the buffer will be restored as appropriate and as described above. Buffer zones to be restored generally involve the remediation area such as the former boiler and packing building area and areas graded outside of the right-of-way and easements for the construction of the road and drainage features. These areas will be sown with a conservation seed mix (at the manufacturer's recommended rate) and allowed to grow naturally with no mowing. The absence of mowing will permit the areas to quickly develop a shrub community and eventually a dense tree canopy. The applicants look forward to discussing other compensatory mitigation opportunities, as appropriate, with the Exeter Conservation Commission.

Marc E. Jacobs, *CSS, CWS, PWS, CPESC*
Professional Wetland / Soil Scientist
jacobs2wetsoil2004@yahoo.com

M E M O R A N D U M

VIA: First class mail/Certified/Facsimile/**Hand Delivery**/Overnight/E-mail

TO: Mr. Langdon Plumer, Chair
Exeter Planning Board

Mr. David Sharples, Town Planner
Town of Exeter, NH

Ms. Kristen Murphy
Natural Resource Planner
Town of Exeter, NH

FROM: Marc Jacobs, CWS, PWS, CSS, CPESC

STATE OF NEW HAMPSHIRE MARC E. JACOBS No. 090 CERTIFIED WETLAND SCIENTIST

DATE: September 29, 2018

SUBJECT: Exeter Rose Farm

RE: Rebuttal of letter(s) from BCM Environmental & Land Law dated July 31, 2018

The purpose of this memorandum is to address technical and non-technical comments contained in a series of letters and memoranda prepared by abutters to the above-referenced project and submitted under the cover letter prepared by BCM Environmental & Land Law dated July 31, 2018. This response is organized by author and any numbering used in their respective documents and is also intended to respond to comment number 96 in design review letter number 4 from Underwood Engineers, Inc., dated September 20, 2018.

Roseen Memorandum

1. Alteration of Terrain Permit

a.
Mr. Roseen acknowledges that the site soils are not conducive to re-infiltration but then asserts that infiltration must be provided in order to obtain an Alteration of Terrain (AOT) permit.

609 Portsmouth Avenue
PO Box 417
Greenland, NH 03840-0417

***Phone* (603) 686-5097**
***Fax* (603) 686-5142**
***Mobile* (603) 534-SOIL (7645)**

Numerous soil test pits excavated by heavy machinery were examined and described to guide the design of the stormwater management system for the Rose Farm project. The soils encountered generally involved Boxford and Eldridge series soils. Boxford series soils are derived from marine sediment parent materials which are dominated by silt and clay textures that are slowly permeable and are also shallow to seasonal high water table, rendering them unsuitable for re-infiltration of stormwater runoff. Eldridge series soils are similar but involve a veneer of sandy textures. Other soil observations involved fill materials of questionable suitability. The project design team has communicated these findings to the AOT Bureau staff who have indicated that a waiver of the requirement to re-infiltrate stormwater is warranted. The stormwater management design has been reviewed by the Exeter Department of Public Works and the peer review engineer working on behalf of the town and neither has indicated any issues with the design.

b.
The letter asserts that the Norris Brook crossing does not meet stream crossing requirements.

Since the Roseen letter was prepared the crossing has been redesigned to utilize a 16' open bottom culvert (versus an 11.5' opening) which exceeds 1.2 times bank full width and is therefore compliant with the stream crossing rules. The average bank full width at the proposed crossing is 7' 10".

c.
The letter indicates the need for a Construction Phasing Plan.

A Construction Phasing Plan has been prepared and was included in the revised site plans. A highlight of the plan includes a provision that the Norris Brook crossing will be constructed from uplands on either side of Norris Brook, thus negating the need to temporarily cross Norris Brook during construction. A copy of the construction phasing plan is appended as Attachment 1.

2. Wetland Waiver and Shoreland Conditional Use Permit (CUP)

a. The letter is advocating for third party review for pollutant load analysis and functions and values.

Since the project is being designed to comply with AOT regulations and is using gravel wetlands for stormwater treatment, which provide the highest removal rate for total suspended solids (95%) and nitrogen removal (85%), a pollutant load analysis or a review of wetland functions and values is not warranted. Refer to the attached documentation from NHDES which is appended as Attachment 2.

b. The waiver request has not adequately demonstrated hardship.

The wetland waiver guidelines found in the Exeter Site and Subdivision Regulations (§9.3.3) do not require the applicant to demonstrate hardship. That notwithstanding, we offer the following information. The property is bounded to the north by the Henderson-Swasey Town Forest and other private property. The property is bounded to the east by active railroad tracks. The property is bounded to the south and west by a deep ravine that conveys Norris Brook. On the other side of the ravine from the project lie several developed properties in private ownership which include the Norris Brook Condominium complex as well as industrial

properties. The property was originally bounded to the south and east by the ravine that conveys Norris Brook. On the other side of the ravine from the project was other privately held land (Map 63, Lot 205). Anticipating that Oak Street Extension would not provide access to the property which would be deemed acceptable to the town, Exeter Rose Farm, LLC contacted the owner of Map 63, Lot 205 and subsequently negotiated to purchase the property so as to provide a more suitable access from Forest Street to the largest area of buildable land that exists on the north side of Norris Brook.

More recently, an alternative access that originates at Forest Street but utilizes more of Oak Street Extension has been advocated by the abutters. A conceptual design was prepared which demonstrates that this alternative will require access across a 48% slope and a perennial stream and will result in 55% more wetland impact (7,900 SF versus 5,070 SF – temporary and permanent) even when retaining walls are utilized to limit side slope grading. The access alternative will also require 1,020 linear feet of retaining walls versus 410 feet for Rose Farm Lane as currently designed. (Previously the abutters had expressed concern over impacts to steep slopes and the length of retaining walls being proposed.) Finally, the alternative access cannot be reasonably carried out on a portion or portions of the lot which are outside the buffer as per Exeter Site and Subdivision Regulations §9.3.3.3, which is consistent with the current design as either option crosses both wetlands and the wetland buffer. Any hardship argument has thus been overcome.

c. Hydrologic Continuity Exists

While the project has applied the language found in §9.1.3.D of the zoning to the isolated man-made wetland areas that exist on the site, the Norris Brook wetlands, including the man-made retention basin created by the concrete retention structure on Norris Brook (just downstream /east of Oak Street Extension) have always been considered jurisdictional by the project for both municipal and state permitting applications. Our Wetland Delineation Report for this project dated June 25, 2018 acknowledges the hydraulic connectivity and associated jurisdiction of Norris Brook and this fact is actually confirmed by the Roseen letter.

d. The Roseen letter states that the CUP is not supported by the Conservation Commission because of a lack of recharge and infiltration.

The July 12, 2018 memorandum prepared by the Exeter Conservation Commission (ECC) and submitted to the Exeter Planning Board does not state that the CUP is not supported by the ECC due to a lack of recharge or infiltration. As stated in our response to 1. a. above, site soils are not conducive to recharge and infiltration and therefore recharge and infiltration are not being proposed. The July 12, 2018 ECC memo is appended as Attachment 3.

The July 12, 2018 ECC memo listed the following concerns, identified below in *italics,* followed by our response:

Locate snow storage in areas that receive pre-treatment.

Snow storage areas are now depicted on the site plans and it has been confirmed that runoff from all snow storage areas will receive pre-treatment prior to discharge.

Prioritize the use of an open bottom culvert

The crossing of Norris Brook has been redesigned to utilize an open bottom culvert (and the culvert opening has been increased from 11' 9' to 16 feet).

Require construction activities be undertaken to prevent the spread on invasive species

Existing infestations of Japanese knotweed (*Polygonum cuspidatum*) have been identified in the field, surveyed and plotted on a map appended to this memorandum as Attachment 4. The project has committed to managing knotweed during construction where encountered according to NH Department of Transportation Best Management Practices for Roadside Invasive Plants 2008 and Methods for Disposing Non-native Invasive Plants – University of New Hampshire Cooperative Extension 2010.

Ensure the Home Owners Association (HOA) documents include a prohibition of the use of fertilizer and regular maintenance of stormwater infrastructure

These recommendations have been added to the HOA documents.

Investigate the connection between the spring and this development to ensure there will not be undue impacts to the spring

The potential connection between the proposed development and the spring has been investigated by Tim Stone of StoneHill Environmental who has determined that the primary source of the water for the spring is located to the south of the proposed project beneath the neighborhood along Wadleigh, Forest, Oak and Salem streets. Refer to the map appended to this memorandum as Attachment 5.

Stormwater infrastructure be designed to reduce the potential for nitrogen loading to the surface waters

The project is being designed to comply with AOT regulations using gravel wetlands for stormwater treatment, which provide the highest removal rate for total suspended solids (95%) and nitrogen removal (85%). Refer to Attachment 2.

3. Pollutant Load Analysis and Annual Nitrogen Control Plan Report

a. Exeter's administrative order on consent requires tracking of activities affecting total nitrogen load.

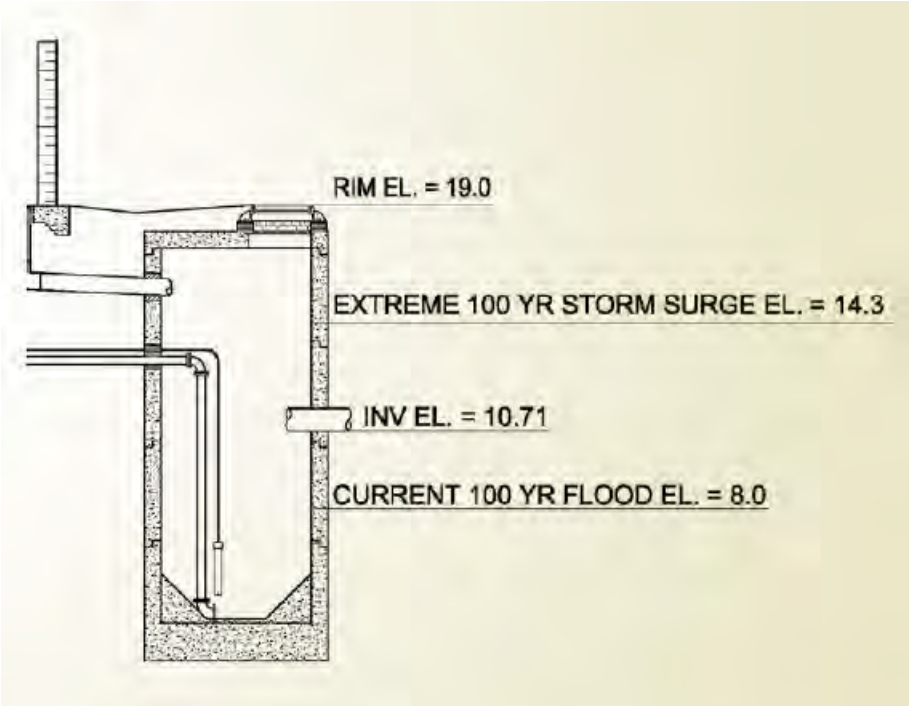
The applicant has submitted Pollutant Tracking and Accounting Pilot Program (PTAPP) data to the town.

4. Sewer Pump Station and Climate Vulnerability in Norris Brook

The current project places the sewer pump station within areas projected to be impacted by both sea level rise and storm surge.

Projected seal level rise and storm surge have been accounted for in the sewer pump station design. The project engineer has previously demonstrated that the sewer pump station is a sealed unit and furthermore that the rim will not be submerged during a 100-year flood with *predicted* storm surge in the year 2100. The rim will have 4.7 feet of freeboard during the predicted event. Refer to Figure 1 below.

FIGURE 1



Additionally, we have identified and included at least two areas of the existing sewer infrastructure layer from the town Geographic Information System, which identifies considerable existing sewer infrastructure within existing 100-year flood plain and extending through or beneath existing waterways and wetlands, including the Squamscott River. Indeed, flood plains are often targeted for construction of sewer infrastructure by municipalities due to the soil types which are frequently easier to excavate due to the general lack of boulders and bedrock as well as the advantageous topography. Refer to Figures 2 and 3 below.

FIGURE 2

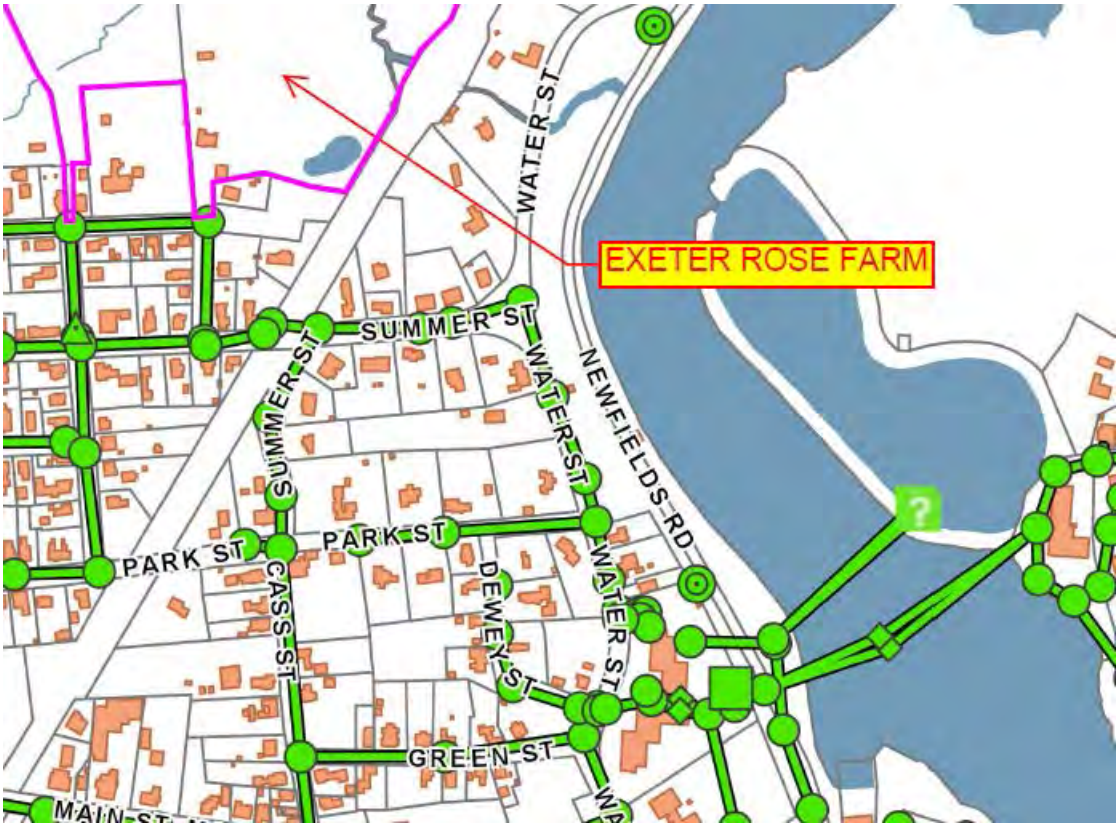
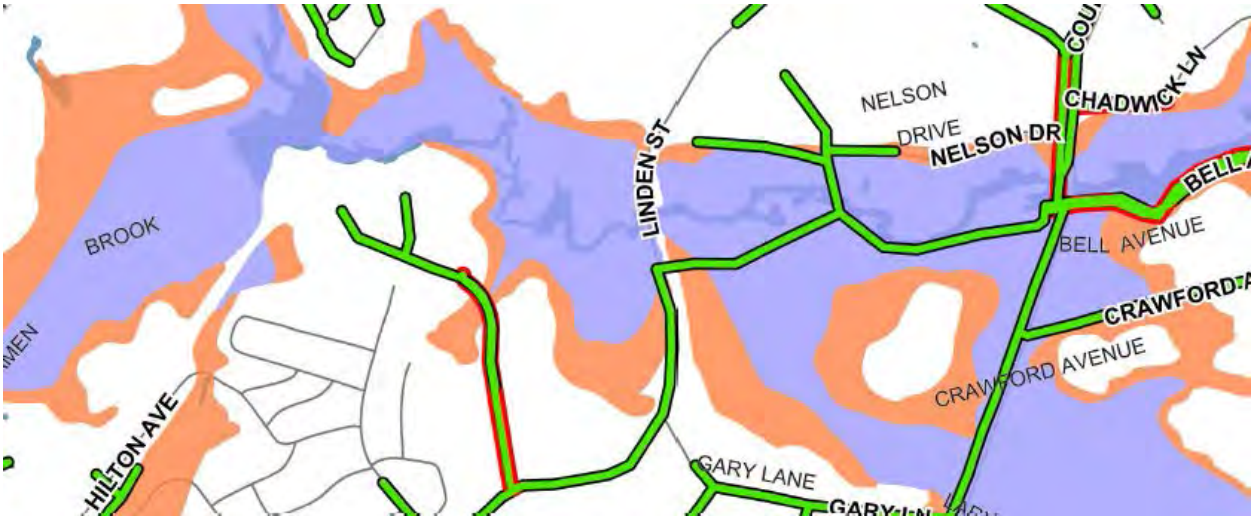


FIGURE 3



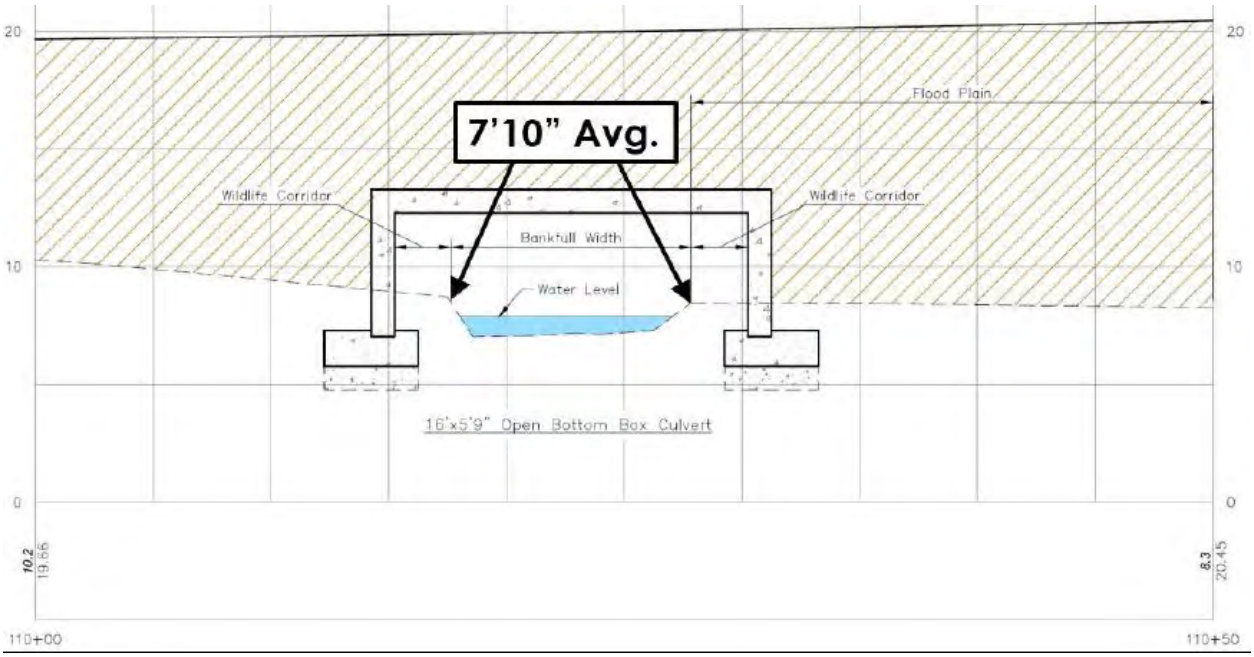
Halloran Memorandum

The Halloran memo asserts that the clear opening width of the box culvert proposed for the crossing at Norris Brook is undersized and does not meet the NH Stream Crossing Guidelines which require a structure equal to 1.2 times bank full width plus 2-feet.

Unfortunately, the abutter has misinterpreted the definition of bank full width. **Bank full width is defined as the incipient elevation on the bank where flooding begins. Bank full is associated with the flow that just fills the channel to its banks at a point where the water begins to overflow onto a floodplain** [and is generally associated with a 1.5 year return event] (Rosgen 1996).

Bank full width is properly identified on the cross section drawing below. Refer to Figure 4. The project engineer has identified the bank full width at this location as 7' 10" based upon the average of 9 measurements obtained during intensive topographic survey of this area conducted specifically for the purpose of designing this crossing. Refer to the Response to Site Plan Review TRC Comments prepared by MSC a Division of TF Moran, Inc. dated August 23, 2018 for more information.

FIGURE 4



The above notwithstanding, the applicant has redesigned the crossing to utilize an open bottom box culvert with a 16' foot clear opening width since the BCM Law package of letters was submitted.

Steckler Letter

The abutter recommends that the planning board deny the Shoreland CUP application because he feels that the application does not meet the conditions required for approval. The author expresses no concerns regarding the wetland waiver request.

Condition 9.3.4.G.2.a.

The proposed use will not detrimentally affect the surface water quality of the adjacent river or tributary, or otherwise result in unhealthful conditions.

The abutter claims that we are asking to violate the protections afforded to rivers and streams simply by virtue of requesting a CUP as necessary to provide access to otherwise buildable land. The CUP process is not intended to deny access to otherwise buildable land; it is intended to ensure that access takes place in a sensitive manner and meets certain conditions. It is important to note that access ways, including driveways or roadways, are allowed as a Conditional Use under §9.3.4.G.2.

Regarding water quality, runoff from Rose Farm Lane will be collected by the proposed stormwater management system and will be treated by gravel wetlands prior to release into adjacent waterways. Gravel wetlands provide a higher removal rate for total suspended solids (95%) and nitrogen (85%) than any other best management practice approved for use by the Alteration of Terrain Bureau.

Condition 9.3.4.G.2.d.

The proposed use will not result in undue damage to spawning grounds or other wildlife habitat.

The abutter has cited the wrong condition; however he is on the public record as expressing concerns regarding potential spawning grounds. The abutter identifies synonyms for undue as excessive and unnecessary. Other synonyms for undue include unwarranted, unjustified and gratuitous. Whereas there is no other access to the largest portion of otherwise buildable area located to the north of Norris Brook without crossing Norris Brook it is not unwarranted, unjustified or gratuitous for the applicant to seek and expect approval of a CUP in order to gain access to the buildable or productive land, which is zoned for the proposed use, especially when the crossing design has been reviewed (four times) and approved by the Exeter Technical Review Committee, Exeter Department of Public Works, and the town's peer review engineer. The project will also be reviewed by the NH Alteration of Terrain Bureau and the NH Wetlands Bureau as well.

Mr. Steckler has identified a potential alternative site access that originates at Forest Street but utilizes more of Oak Street Extension. A conceptual design was prepared which demonstrates that this alternative will require access across a 48% slope and a perennial stream and will result in 55% more wetland impact (7,900 SF versus 5,070 SF – temporary and permanent) even when retaining walls are utilized to limit side slope grading. The access alternative now favored by Mr. Steckler will also require 1,020 linear feet of retaining walls versus 410 feet for Rose Farm Lane as currently designed. (Previously the abutters had expressed concern over impacts to steep slopes and the length of retaining walls being proposed.) Finally, the alternative access now being advocated by the abutters cannot be reasonably carried out on a portion or portions of the lot which are outside the buffer as per Exeter Site and

Subdivision Regulations §9.3.3.3. which is the same scenario that results from the current design and which necessitates the need for the Shoreland CUP and wetland waiver requests as either option crosses wetlands and the wetland buffer.

Regarding fish and shellfish habitat and indirect impacts, runoff from Rose Farm Lane will be collected by the proposed stormwater management system and will be treated by gravel wetlands prior to release into adjacent waterways. Gravel wetlands provide a higher removal rate for total suspended solids (95%) and nitrogen removal (85%) than all other best management practices approved for use by the Alteration of Terrain Bureau. Trash management will be provided for during construction using dumpsters which will be emptied as needed. Flood flows are being accommodated by the open bottom box culvert. Thermal impacts will be minimized by limiting the loss of the riparian buffer which will be accomplished through the use of retaining walls to limit side slope grading. The project is committed to managing invasive species during construction and will follow guidance identified in Best Management Practices For Roadside Invasive Plants – NHDOT 2008 and Methods for Disposing of Non-native Invasive Plants – UNH Cooperative Extension 2010.

Finally, impacts to wildlife, the wildlife corridor and flood flows will be minimized by the use of an open bottom culvert with a clear opening width of 16 feet which will accommodate 1.2 times bank full width and provide an upland shelf on both sides of the stream channel for migrating wildlife. The open bottom culvert will completely span the stream channel.

The abutter submitted images of an American eel (*Anguilla rostrata*) at the public hearing on September 20, 2018 which were purportedly taken of Norris Brook upstream of Oak Street Extension. If the veracity of these images can be ascertained, they confirm that eels are successfully migrating up Norris Brook by passing through the existing 36 inch reinforced concrete pipe (RCP) which is occasionally plugged with debris. The project will be crossing Norris Brook using an open bottom culvert with a clear opening of 16 feet; therefore the crossing will pose no permanent obstruction for the continued passage of eels. Since the crossing will be constructed from uplands on either side of Norris Brook, the construction of the crossing will not pose a temporary obstruction to the passage of eels or other aquatic species.

Piskovitz letter

The abutter has concerns about the proposed sewer pump station.

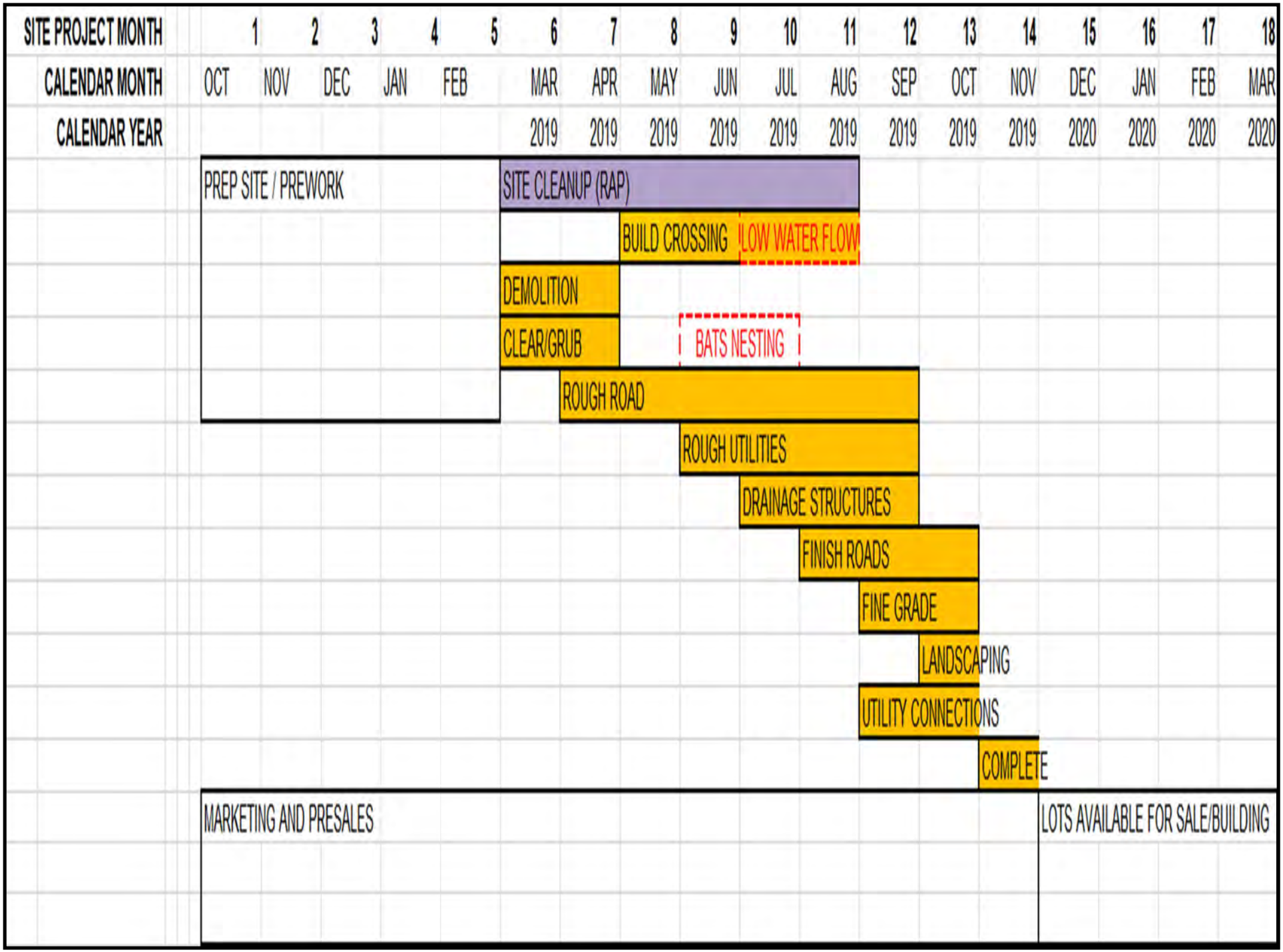
The TRC review requested design details for the sewer pump station, including process diagram, electrical, instrumentation, and plumbing design which were all provided in the last submittal which has been reviewed by the town's peer review engineer.

Regarding the potential vulnerability of the sewer pump station to *projected* seal level rise and storm surge, please refer to the discussion and Figures 1-3 on pages 5 and 6 of this memorandum.

The abutter correctly states that the Natural Resource Planner asked during TRC if "there is an ability to make the sewer pump station smaller and move the generator closer to reduce impact to the wetland". She also correctly states that the DPW stated that "the sewer pump station will need a driveway, transformer, generator, access around the entire building and a fence". The abutter then implies that

the design has been revised to enlarge the footprint of the sewer pump station to accommodate these accoutrements. It should be noted that the size of the footprint and grading associated with the sewer pump station has not changed, the DPW was merely stating why the pump station footprint was the size it is. Additionally, it should be noted that the Natural Resource Planner asked if the swale or slopes adjacent to the sewer pump station could be reduced. The project engineer reviewed the proposed grading and was able to revise the proposed grading to further reduce the direct wetland impact.

ATTACMENT 1


SITE PROJECT MONTH
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
CALENDAR MONTH
OCT NOV DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC JAN FEB MAR
CALENDAR YEAR
2019 2019 2019 2019 2019 2019 2019 2019 2019 2020 2020 2020 2020
PREP SITE / PREWORK
SITE CLEANUP (RAP)
BUILD CROSSING
LOW WATER FLOW
DEMOLITION
CLEAR/GRUB
BATS NESTING
ROUGH ROAD
ROUGH UTILITIES
DRAINAGE STRUCTURES
FINISH ROADS
FINE GRADE
LANDSCAPING
UTILITY CONNECTIONS
COMPLETE
MARKETING AND PRESALES
LOTS AVAILABLE FOR SALE/BUILDING

ATTACHMENT 2

Pollutant Removal Efficiencies for Best Management Practices for Use in Pollutant Loading Analysis				Values Accepted for Loading Analyses		
BMP Type	**BMP**	**Notes**	**Lit. Ref.**	**TSS**	**TN**	**TP**
Stormwater Ponds	Wet Pond		B, F	70%	35%	45%
	Wet Extended Detention Pond		A, B	80%	55%	68%
	Micropool Extended Detention Pond	TBA				
	Multiple Pond System	TBA				
	Pocket Pond	TBA				
Stormwater Wetlands	Shallow Wetland		A, B, F, I	80%	55%	45%
	Extended Detention Wetland		A, B, F, I	80%	55%	45%
	Pond/Wetland System	TBA				
	Gravel Wetland		H	95%	85%	64%
Infiltration Practices	Infiltration Trench (≥75 ft from surface water)		B, D, I	90%	55%	60%
	Infiltration Trench (<75 ft from surface water)		B, D, I	90%	10%	60%
	Infiltration Basin (≥75 ft from surface water)		A, F, B, D, I	90%	60%	65%
	Infiltration Basin (<75 ft from surface water)		A, F, B, D, I	90%	10%	65%
	Dry Wells			90%	55%	60%
	Drip Edges			90%	55%	60%
Filtering Practices	Aboveground or Underground Sand Filter that infiltrates WQV (≥75 ft from surface water)		A, F, B, D, I	90%	60%	65%
	Aboveground or Underground Sand Filter that infiltrates WQV (<75 ft from surface water)		A, F, B, D, I	90%	10%	65%
	Aboveground or Underground Sand Filter with underdrain		A, I, F, G, H	85%	10%	45%
	Tree Box Filter	TBA				
	Bioretention System		I, G, H	90%	65%	65%
	Permeable Pavement that infiltrates WQV (≥75 ft from surface water)		A, F, B, D, I	90%	60%	65%
	Permeable Pavement that infiltrates WQV (<75 ft from surface water)		A, F, B, D, I	90%	10%	65%
	Permeable Pavement with underdrain		Use TN and TP values for sand filter w/ underdrain and outlet pipe	90%	10%	45%

Pollutant Removal Efficiencies for Best Management Practices for Use in Pollutant Loading Analysis				Values Accepted for Loading Analyses		
BMP Type	**BMP**	**Notes**	**Lit. Ref.**	**TSS**	**TN**	**TP**
Treatment Swales	Flow Through Treatment Swale	TBA				
Vegetated Buffers	Vegetated Buffers		A, B, I	73%	40%	45%
Pre-Treatment Practices	Sediment Forebay	TBA				
	Vegetated Filter Strip		A, B, I	73%	40%	45%
	Vegetated Swale		A, B, C, F, H, I	65%	20%	25%
	Flow-Through Device - Hydrodynamic Separator		A, B, G, H	35%	10%	5%
	Flow-Through Device - ADS Underground Multichamber Water Quality Unit (WQU)		G, H	72%	10%	9%
	Other Flow-Through Devices	TBA				
	Off-line Deep Sump Catch Basin		J, K, L, M	15%	5%	5%

ATTACHMENT 3

TOWN OF EXETER
CONSERVATION COMMISSION MEMORANDUM

Date: July 12, 2018
To: Planning Board
From: Conservation Commission
Subject: Rose Farm Open Space Development Conservation Land, Shoreland CUP and Wetland Waiver Recommendations

Project Info:
Exeter Rose Farm Open Space Subdivision
Tax Map 54, Lot 5, 6, 7 and Tax Map 63, Lot 20
PB CASE: 21603

Proposed Conservation Land:
The Conservation Commission voted unanimously during their July 10th meeting that they would be supportive of the Town accepting fee ownership of the 6.31 acres presented in the June 29th submission with the following conditions:

- Hunting would not be permitted on the property
- Prior to Town acceptance, the applicant will provide: a draft deed to the Commission for review and approval, a surveyed plan, a baseline documentation report, and on-site boundary marker placement will be confirmed on the ground by the Commission or their representative, and the Grantor.
- The applicant is responsible for construction of the trail connection to the existing trail network, any required crossings along that connection, and installation of a trailhead sign at the trail entrance.
- The applicant will install conservation boundary discs along the conservation boundary adjacent to house lots

Shoreland Conditional Use Permit:

The Conservation Commission reviewed the materials provided and do not recommend approval of the Shoreland Conditional Use Permit as proposed because they do not have enough information to verify the project will not detrimentally impact surface water quality and will not cause undue damage to wildlife habitat.

The Commission provides the following additional recommendations to help ensure these requirements are met:

- Locate snow storage in areas that receive pre-treatment before reaching surface water.
- Prioritize the use of an open bottom culvert over a box culvert with stream simulation
- Require construction activities be undertaken to prevent the spread of invasive plants from the heavily infested areas on site
- Ensure the HOA documents include a prohibition of the use of fertilizer and regular inspection and maintenance of stormwater infrastructure
- Investigate the connection between the spring and this development to ensure there will not be undue impacts to the spring

- Stormwater infrastructure be designed to reduce potential for nitrogen loading to the surface waters

Wetland Waiver Request:

The Conservation Commission reviewed the materials provided do not feel comfortable recommending approval of the waiver request at this time because they need more information to understand the impact of the proposed project on the wetland functions and values of water quality and fish habitat given the information provided.

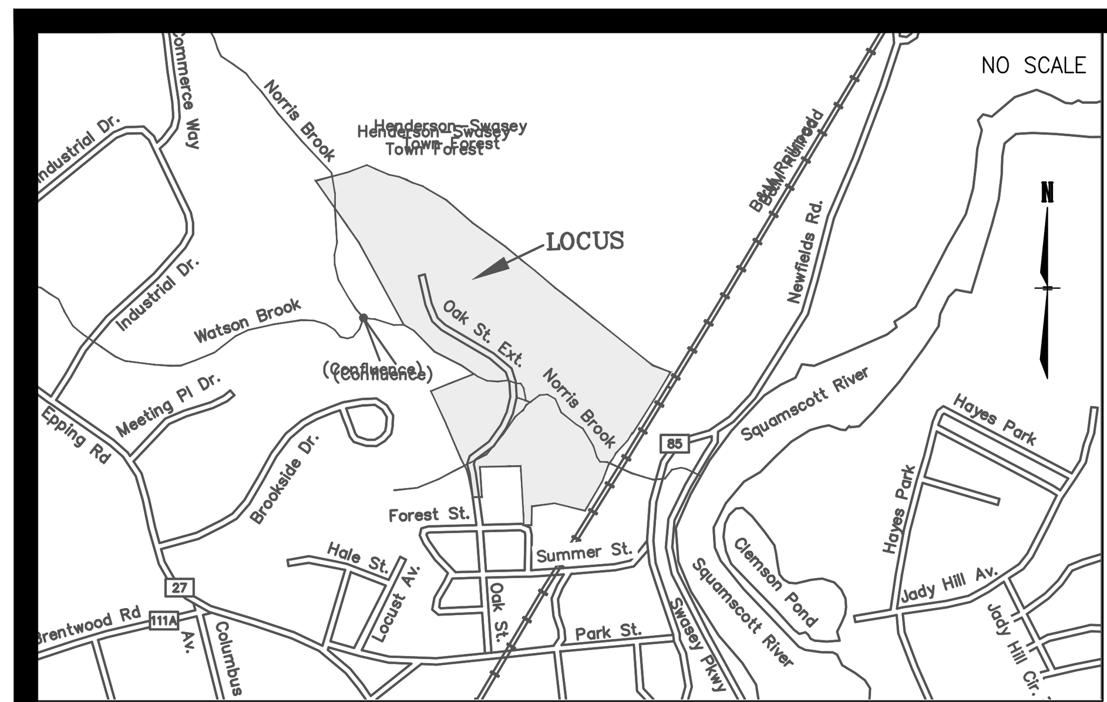
The Commission would also like the comments they provided for the Shoreland Conditional Use Permit to be considered for the waiver request.

William E Campbell

Bill Campbell
Chair, Exeter Conservation Commission

cc: Todd Baker, Baker Properties - by email

ATTACHMENT 4



VICINITY PLAN

NOTES:

1. THE SUBJECT PARCELS ARE SHOWN ON THE TOWN OF EXETER ASSESSOR'S MAP 54 AS LOTS 5, 6 & 7 AND MAP 63 LOT 205.

2. OWNERS OF RECORD/APPLICANT:

   MAP 54 LOT 5
   EXETER ROSE FARM, LLC
   24 OAK STREET EXTENSION
   EXETER, NH 03833
   RCRD BK.5840 PG.2102
   (603) 425–8598

   MAP 54 LOT 6
   EXETER ROSE FARM, LLC
   24 OAK STREET EXTENSION
   EXETER, NH 03833
   RCRD BK.5840 PG.2102
   (603) 425–8598

   MAP 54 LOT 7
   EXETER ROSE FARM, LLC
   24 OAK STREET EXTENSION
   EXETER, NH 03833
   RCRD BK.5840 PG.2104
   (603) 425–8598

   MAP 63 LOT 205
   BENJAMIN & JOAN DAGOSTINO REVOCABLE TRUSTS
   1 FOREST STREET
   EXETER, NH 03833
   RCRD BK.#4574 PG.#2843
   (603) 502–7175

3. TOTAL AREA:
   2,176,025± S.F.
   (49.9547± ACRES)

4. THE SUBJECT PARCELS ARE LOCATED IN THE R–1 LOW DENSITY SINGLE FAMILY, R–2 SINGLE FAMILY, AND R–4 MULTI–FAMILY ZONING DISTRICTS AND PARTIALLY LOCATED IN THE TOWN OF EXETER SHORELAND PROTECTION DISTRICT AND THE WETLANDS CONSERVATION AND FLOOD HAZARD OVERLAY DISTRICTS.

5. THE PURPOSE OF THIS PLAN IS TO SHOW THE EXTENT OF JAPANESE KNOTWEED, AN INVASIVE SPECIES, IN THE AREAS WHERE CONSTRUCTION ACTIVITIES MAY TAKE PLACE. THE APPROXIMATE EXTENT OF THE JAPANESE KNOTWEED (POLYGOMUM CUSPIDATUM) WAS IDENTIFIED IN THE FIELD BY MARC JACOBS, CWS 090 AND SURVEY LOCATED BY MSC/TFM IN JULY 2018. WHERE PROPOSED FOR ALTERATION DURING CONSTRUCTION, AREAS IDENTIFIED IN BLUE AS BEING INFESTED WITH KNOTWEED WILL UTILIZE DISPOSAL PRACTICES IDENTIFIED IN NHDOT – BEST MANAGEMENT PRACTICES FOR ROADSIDE INVASIVE PLANTS 2008 AND METHODS FOR DISPOSING NON–NATIVE INVASIVE PLANTS – UNH COOPERATIVE EXTENSION 2010.

REV.	DATE	DESCRIPTION	DR.	CK.

TFM
MSC
A division of TFMoran, Inc.
Civil Engineers
Structural Engineers
Traffic Engineers
Land Surveyors
Landscape Architects
Scientists
170 Commerce Way, Suite 102
Portsmouth, NH 03801
Phone (603) 431–2222
Fax (603) 431–0910
www.mscengineers.com

FILE 47175.00 DR BMK CK JCC CADFILE

TAX MAP 54 LOTS 5, 6 & 7 AND MAP 63 LOT 205

LIMITED INVASIVE SPECIES PLAN

OAK STREET EXTENSION & FOREST STREET
EXETER, NEW HAMPSHIRE, COUNTY OF ROCKINGHAM

OWNED BY

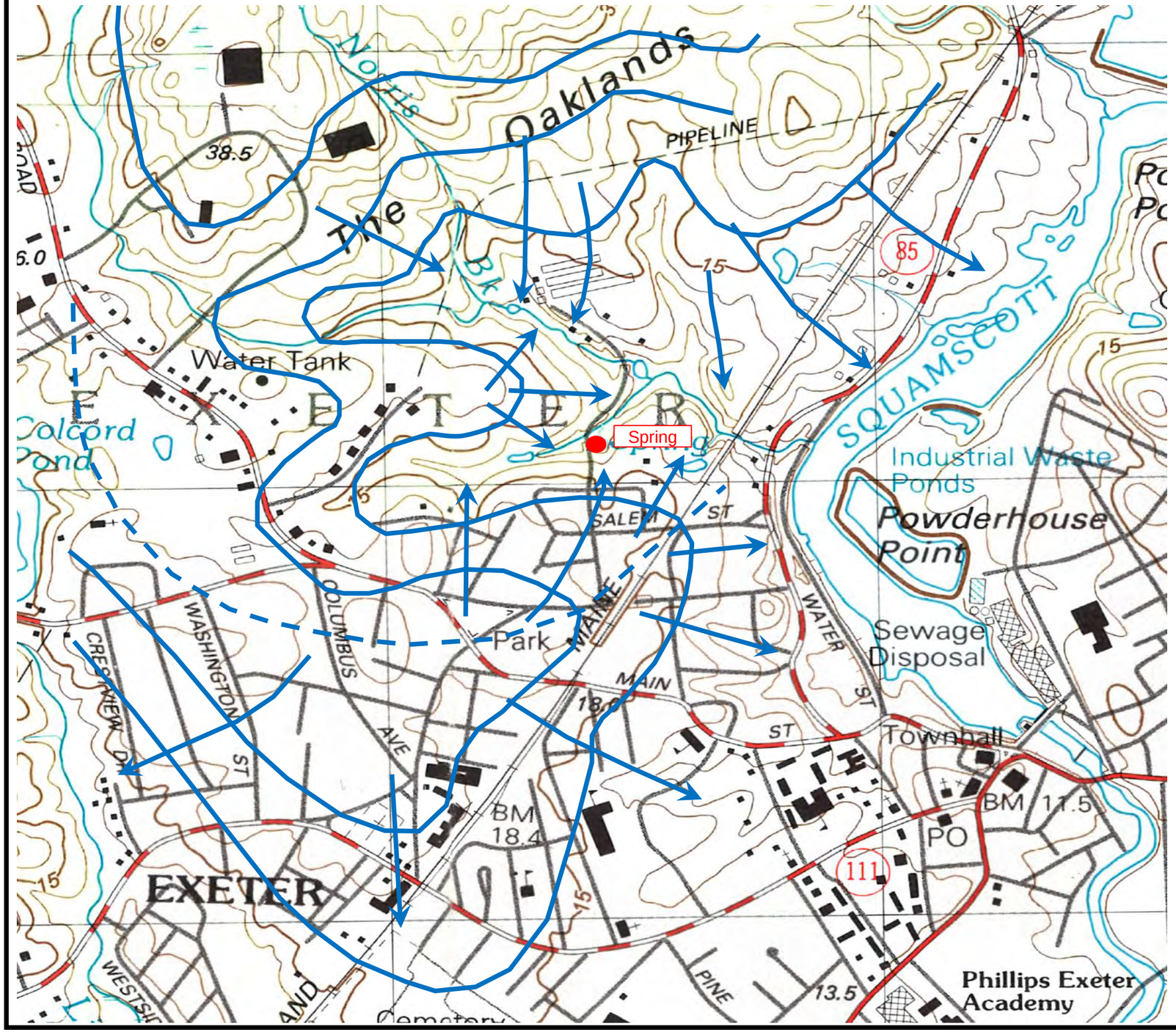
EXETER ROSE FARM, LLC & THE
BENJAMIN & JOAN DAGOSTINO REVOCABLE TRUSTS

PREPARED FOR

EXETER ROSE FARM, LLC

SCALE: 1"=100' **AUGUST 9, 2018**

ATTACHMENT 5



Legend:

- Local Drainage Divides
- Interpreted Groundwater Contour
- Interpreted Groundwater Flow Direction
- Jailhouse Spring

Map Source:

USGS 7.5 x 15 Minute Topographic Quadrangle, Exeter, NH, 1989.

0 735 1,470

approximate scale in feet

N

INTERPRETED REGIONAL GROUNDWATER FLOW MAP

Dagostino Rose Farm
Oak Street Extension
Exeter, NH

Prepared by:
StoneHill Environmental, Inc.
Project No. 15046

WATERSTONE ENGINEERING

TECHNICAL MEMORANDUM

TO:	Planning Board, David Sharples, Town Planner, Town of Exeter
FROM:	Robert Roseen, PHD, PE, DWRE, Waterstone Engineering
DATE:	October 15, 2018
RE:	PB Case #17-27, 3rd Party Wetlands Review, and the Wetland Waiver and Conditional Use Permit for 10/1/2018 Rose Farm Submission by TFM
CC:	Exeter Area Conservancy

Dear Chairman Plumer, Members of the Planning Board, and Mr. Sharples:

Thank you for the opportunity to submit this review of the 10/1/18 submission and associated materials for the Exeter Rose Farm by TFM for the Dagostino Trust. This brief review specifically addresses issues related to the wetland waiver and conditional use permit and the recent planning board request for third party wetlands review. This review is being conducted on behalf of the Exeter Area Conservancy. This memo details specific issues regarding unavoidable impacts to wetland habitat that we believe are grounds for rejection of the waiver and permit applications, consistent with the conservation commission recommendation, and includes items that should be included within the third-party wetlands review.

The conservation commission is not recommending approval in part for the absence of a study of water quality impacts for function and values. We would like to request that the 3rd party review include considerations for wetland functions and values, and impacts to water quality and aquatic habitat as detailed in the wetland waiver and conditional use permit.

We feel that the wetland impact waiver and conditional use permit should not be granted on the undisputed basis that the project does not provide for any infiltration and recharge of stormwater runoff (at the applicant's own admission) which results in undisputed increases in runoff volume (7%), providing no channel protection, which will cause unavoidable impacts to wetland habitat.

This is clearly demonstrated in the applicant's drainage report (which is incomplete) and glaringly provides no runoff volume summary in the body of the report, instead this information is deep in the hydrocad reports. The runoff volume calculations for pre and post development show no channel protection will occur and instead will result in a 7% increase in runoff volume. The 2-year storm, aka channel protection event (is nearly the same as the channel forming discharge or bankfull discharge and thus the closest comparison we can make from this application) is an exceptionally important metric for aquatic habitat impacts as it relates to frequent channel forming discharges. Increases in the bankfull discharge storm volume and duration will result in unquestionable channel erosion. This is clearly detailed in the AOT channel protection requirements which specifically mention protection of wetlands from erosion.

> *Env-Wq 1507.05 Channel Protection Requirements.*
> *(a) The purpose of this section is to protect channels, downstream receiving waters, and wetlands from erosion and associated sedimentation resulting from urbanization within a watershed*

While AOT is responsible for implementing the state requirements, the mere fact that the application provides for no channel protection unquestionably will result in wetland erosion and subsequent impacts to aquatic habitat. We believe for this reason the conditional use permit and wetlands waiver fails the test of

no impacts to aquatic habitat .The table below lists the runoff volumes at POI5 listed in the drainage report appendices.

Development	2YR (cubic feet)
PRE	173,046
POST	185,072
	7%

The applicants focus on water quality as it relates to nitrogen pollution, while significant and important for the Great Bay, does not address the local wetland impacts from runoff volume increase and lack of channel protection. Increases in runoff volume are well established and indisputable to have negative impacts to aquatic habitat and for that reason AOT requires no increase in bankfull discharge. The increases in runoff volume will contribute to reduced climate resiliency and make this area more prone to flooding.

I would be happy to discuss these items in more detail. Thank you for your consideration.

Regards,

Robert M. Roseen, Ph.D., P.E., D.WRE.

9 Gretas Way | Stratham, NH 03885

(603)686-2488(c) | rroseen@waterstone-eng.com

Town of Exeter

Barbara Mcevoy <bmcevoy@exeternh.gov>

PB Case #17-27, 3rd Party Wetlands Review, and the Wetland Waiver and Conditional Use Permit for 10/1/2018 Rose Farm Submission by TFM

1 message

Robert Roseen <rroseen@waterstone-eng.com> Tue, Oct 16, 2018 at 1:12 PM
To: "langplumer@gmail.com" <langplumer@gmail.com>, "dsharples@exeternh.gov" <dsharples@exeternh.gov>
Cc: Jenn Brackett <jennbrackett@comcast.net>, "bmcevoy@exeternh.gov" <bmcevoy@exeternh.gov>, "kcroteau@exeternh.gov" <kcroteau@exeternh.gov>, Kristen Murphy <kmurphy@exeternh.gov>

Good Afternoon Chairman Plumer and Mr. Sharples,

Attached please find a very brief review of the 10/1/18 submission and associated materials for the Exeter Rose Farm by TFM for the Dagostino Trust. This brief review on behalf of the Exeter Area Conservancy specifically addresses issues related to the wetland waiver and conditional use permit and the recent planning board request for third party wetlands review. This memo details specific issues regarding unavoidable impacts to wetland habitat that we believe are grounds for rejection of the waiver and permit applications, consistent with the conservation commission recommendation, and includes items that should be included within the third-party wetlands review.

Please let me know if you have any questions or would like to discuss.

RECEIVED

OCT 16 2018

EXETER PLANNING OFFICE

Thank you,

Rob

Robert M. Roseen, Ph.D., P.E., D.WRE., Principal

WATERSTONE ENGINEERING

9 Gretas Way | Stratham, NH 03885

(603)686-2488(c) | rroseen@waterstone-eng.com

181015 Rose Farm Memo Roseen.pdf
161K

WEST ENVIRONMENTAL INC
48 Stevens Hill Road, Nottingham, NH 03290
603-734-4298 ♦ mark@westenv.net

Langdon Plumer, Chair
10 Front Street
Exeter, NH 03833

September 20, 2018

RE: Rose Farm Subdivision
SUBJ: Wetland Delineation, Impacts and Alternatives

Dear Chairman Plumer:
West Environmental, Inc. (WEI) has been assisting a group of neighbors concerned about this project and recently received a link to twenty four (24) new documents in the most recent submittal. We have not had time to review all of these documents but would like to provide the following comments.

1. Due to the complexity of this site and the significant amount of Wetlands Conservation District and Shoreland Protection District Impacts WEI recommends that the board consider requesting a peer review of the wetland and soils mapping, and the Wetland Conservation District and Shoreland Protection District Impacts by the Rockingham County Conservation District. The potential long term impact of this project on Norris Brook justifies this step.

2. I was made aware of an alternative road design which was evaluated as part of the Conditional Use Permit application and briefly presented at the last meeting. No plan was submitted but this route was shared with me by those in attendance. The route would totally avoid the proposed new Norris Brook crossing largest impact to wetland and their buffer zones on the project and would utilize the existing Oak Street Extension crossing while also crossing the perennial stream. Even if this alternative has more square feet of impact it is in a location where Norris Brook is already altered and would avoid impacts to the highest functioning wetland on the site. The least impacting alternative is based on wetland functions including wildlife and fisheries habitat. This alternative cannot be evaluated with out a plan detailing both direct and indirect wetland impacts. Why has it not been submitted with the 24 documents?

3. It does not appear that a NHDES Wetlands Application has been filed for this project and this review may require changes, wetland mitigation and certainly an alternative analysis.

This completes our report and I thank you for your consideration.

Sincerely,
West Environmental, Inc.

Mark C. West,
NH Certified Wetland Scientist #10

(submitted @ PB meeting by EAC)

BCM Environmental & Land Law, PLLC
Solutions for Northern New England

July 31, 2018

HAND DELIVERY

Exeter Planning Board
10 Front Street
Exeter, NH 03833

Re: August 9, 2018 Hearing on Open Space Development Plan of Exeter Rose Farm, LLC

Dear Planning Board Members:

As you will recall, I represent the Exeter Area Conservancy (EAC) and the West Side Neighborhood Coalition, which include abutters and near neighbors of the Rose Farm property. The latest version of Exeter Rose Farm, LLC's open space development plans will be before the Planning Board for the first time on August 9, 2018, as well as an application for a conditional use permit.

During hearings on the yield plan last December and January, several members of the Board warned the Applicant that they would not approve any open space plan that resembled the yield plan and that they would subject the open space plans to close scrutiny. Several Board members, including those who were more in favor of accepting the yield plan than other members, reminded the audience that the time would come for lengthier discussions and scrutiny of the details of the open space plan. That time has come.

The Board must dig deeper into the details of what the Applicant proposes, which looks much like the yield plan. As recently noted by the TRC and in the enclosed technical memoranda, the Applicant still has not submitted complete plans for various elements of the proposed project, such as the sewer pump station, even after years of activity. In many respects, such as also with its proposed treatment of storm water, the Applicant has done the bare minimum. Attached please find the following memoranda:

- Robert Roseen, P.E., Waterstone Engineering
  Re: Concerns related to Stormwater Management, Alternative Access, and Alteration of Terrain

- Steve Halloran, P.E.
  Re: Norris Brook Crossing Structure on Rose Farm Lane

- Peter Steckler, NH Certified Wetland Scientist
  Re: Conditional Use Permit: Shoreland Protection District

- Jenn Brackett, Exeter resident and EAC Board member
  Re: Sewer Pumping Station Design and Location

Now that the Board is set to embark on its close scrutiny of the open space plan and conditional use permit applications, we look forward to a thoughtful and deliberate process in which the Board seriously considers whether the proposed development is appropriate for this unique property. The ultimate approval of an open space development plan should not be a foregone conclusion, especially when the Board is only beginning its consideration of the version of the plan that the Applicant has finally decided upon. We expect that the Board will demand completeness and enforce Exeter's ordinances to the letter.

In reading the enclosed technical memoranda and the TRC's July 24, 2018 memorandum, you will see that the TRC has begun to identify many of the same shortcomings and issues that my clients brought to your attention during the December hearing on the yield plan. We do remain concerned, though, that the July 2018 TRC process was rushed, resulting in a review that may not have given the plan the level of scrutiny that is requires. As you will be doing on August 9, the TRC was looking at the latest plan—and voluminous supporting materials—for the first time and without much preparation time. It may be warranted to have the TRC do a second round of review.

We look forward to continuing to work with the Board to assist in your review of this proposed development.

Sincerely,

Jason Reimers

cc: Dave Sharples, Town Planner

WATERSTONE ENGINEERING

TECHNICAL MEMORANDUM

TO:	Planning Board, David Sharples, Town Planner, Town of Exeter
FROM:	Robert Roseen, PHD, PE, DWRE, Waterstone Engineering
DATE:	July 31, 2018
RE:	PB Case #17-27, Review of July 8, 2018 Rose Farm TRC Submission by TFM
CC:	Exeter Area Conservancy

Dear Chairman Plumer, Members of the Planning Board, and Mr. Sharples:

Thank you for the opportunity to submit this review of the July 8, 2018 TRC submission and associated materials for the Exeter Rose Farm by TFM for the Dagostino Trust. This review is being conducted on behalf of the Exeter Area Conservancy. This memo details specific issues and concerns identified in the submission package that we believe should prevent the planning board from granting approval. In particular there are important issues regarding 1) non-compliance with state requirements for alteration of terrain, non-state compliant stream crossing for Norris Brook that will necessitate changes in design for state permitting that will have to re-reviewed by the town, 2) an inadequate basis for water quality and habitat protection for the wetland waiver and shoreland conditional use permit, 3) a lack of nutrient tracking and accounting for Exeter's Annual Nitrogen Control Plan Report to EPA, and 4) the future climate vulnerability of the sewer pump station.

The review included the following items:

- Subdivision Plans
- Drainage Report
- Wetlands Waiver
- Shoreland Conditional Use Permit
- Exeter Subdivision Regulations
- NHDES Alteration of Terrain Rules

The review identified substantive concerns in the design and application.

1. **Alteration of Terrain Permit and Disparate Approvals with Town Permits**
   Given the size of this project it will be required to obtain an Alteration of Terrain Permit and there are numerous elements that currently do not comply with AOT requirements. As such, any items that do not meet AOT requirements will require redesign prior to AOT approval which, if substantive in nature, may require a new application for town approval. While it is not the job of the planning board to review for AOT requirements, the impact of these deficiencies will change the designs that the board is reviewing for approval. The following substantive items have been identified:
   a. ***Infiltration is required*** for sites with soils of hydrologic soil group A, B, C (Env-Wq 1504.12 Calculation of Groundwater Recharge Volume (GRV)) and is based on "….a weighted recharge depth shall be computed based on the area of each soil group present".
      i. The applicant's drainage report states
      The soils of the lot limit the potential for infiltration and therefore ground water recharge, that can be accomplished. The small amount of Hydrologic Soil Group (HSG) Type A and

Type B soils available are in the uplands, making it infeasible to use these for stormwater treatment. The majority of the soil, 88% by the HISS mapping, are classified as HSG type C and HSG type D which are not conductive to infiltration. The infiltration rates are low and the test pits performed show the Estimated Seasonal High Water Table (ESHWT) to be close to the ground surface. No infiltration was proposed for this site.

ii. The current proposed design will not be permitted by the state and will require substantive changes for stormwater management.

b. ***The Norris Brook stream crossings do not follow the state stream crossing requirements*** and will have to be redesigned (see Figure 1). As per Env-Wt 901.02 "All crossings of perennial streams and intermittent streams shall be subject to Env-Wt 903 and Env-Wt 904 unless the work on the crossing is: (1) Exempted under Env-Wt 901.03;

c. ***Construction Phasing Plan has not been detailed*** as per Env-Wq 1504.06 and will impact how the project is built. This should be a consideration that the planning board will want to review. (l) Construction phasing and sequencing that shows the maximum area that can be disturbed at one time in compliance with Env-Wq 1505.03, including but not limited to methods for limiting the length of time that soils remain unstabilized;

2. **Wetland Waiver and Shoreland Conditional Use Permit**

a. The **conservation commission is not recommending approval** in part for the absence of a study of water quality impacts for function and values. We would like to request that the planning board require a 3rd party review for pollutant load analysis and functions and values. See also section on Pollutant Load Analysis below.

b. **The waiver request has not adequately demonstrated hardship.** We don't believe the hardship standard has been demonstrated in relation to alternate access possibilities. The requirement that "*the applicant has demonstrated that the use cannot be reasonably carried out on a portion or portions of the lot what are outside the buffer*". The applicant demonstrates activities taken to minimize impacts at this location (ie., retaining walls, box culvert) however alternate access has not been presented.

c. **Hydrologic Continuity Exists:** These wetland areas should be considered jurisdictional because hydrologic continuity exists. The applicant's wetland report, page 6, states that "a lack of hydrologic continuity" is required to demonstrate discontinuity for wetlands to be non-jurisdictional man-made wetlands. However, it goes on to state that "the concrete barrier is breached", and as such hydrologic continuity exists because aquatic organism could be expected to migrate up and down the channel with the continuity.

d. The **CUP is not supported by the conservation commission** and we too are concerned that impacts to water quality and habitat have not adequately been considered. In particular, the lack of design for recharge and infiltration should be a concern for impacts to the existing spring.

3. **Pollutant Load Analysis, and Annual Nitrogen Control Plan Report to EPA**

a. Exeter's administrative order on consent requires the tracking of activities affecting the total nitrogen load to Great Bay as part of Exeter's Annual Nitrogen Control Plan Report to EPA. The following items are requirements of the AOC:

i. Description and accounting of activities conducted by Exeter as part of its Nitrogen Control Plan, and

ii. Description of Exeter activities affecting the total nitrogen load to Great Bay during previous year.

To accomplish this Exeter is participating in PTAPP (Pollutant Tracking and Accounting Pilot Program) for which a pollutant load analyses is required and submission of "activities affecting the total nitrogen load" to the online portal. If the applicant is not required to submit this information the town will need to develop it on their own. PTAPP is intended to make tracking and accounting easier for the towns by requiring applicants to submit the information.

4. **Sewer Pump Station and Climate Vulnerability in Norris Brook:** The current project places the sewer pump station within projected areas that are impacted both by sea level rise and storm surge. This is detailed in the C-Rise study for Exeter and excerpted below:

   Several freshwater systems – Wheelwright Creek, Rocky Hill Brook, Sloans Brook and Norris Brook - are impacted by both sea-level rise and storm surge flooding. Any culverts on these systems would be unable to function properly under tidal conditions. The freshwater ecosystem might also see transitions to brackish water flora and fauna as salt water flooding became persistent or permanent

   The C-Rise vulnerability maps[1] identify this specific location as an area subject to projected future flooding (see Figure 2 below). The purpose of the vulnerability assessment is to be used as a planning tool to aid in design to avoid future risk to safety of people and property.

I would be happy to discuss these items in more detail. Thank you for your consideration.

Regards,

Robert M. Roseen, Ph.D., P.E., D.WRE.

9 Gretas Way | Stratham, NH 03885

(603)686-2488(c) | rroseen@waterstone-eng.com

[1] Climate Risk in the Seacoast (C-RiSe) (2017): Assessing Vulnerability of Municipal Assets and Resources to Climate Change, Sea-Level Rise+Storm Surge Map for Exeter

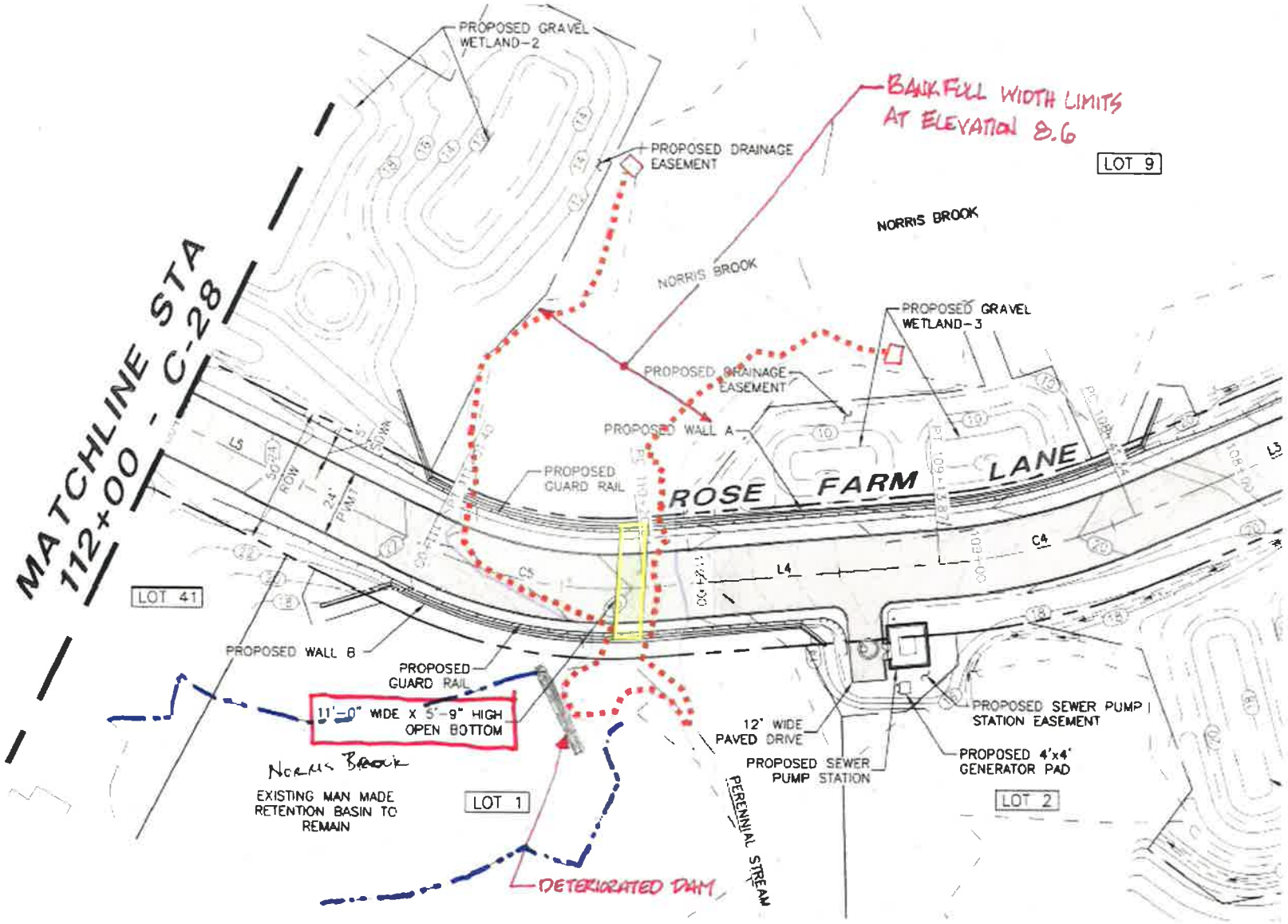


Figure 1: Rose Farm Proposed Stream Crossing and NHDES Requirements

Figure 2: Sea-Level Rise + Storm Surge Map for Norris Brook Showing Location of Proposed Rose Farm Pump Station

STEVEN B. HALLORAN, P.E. 4 Salem Street, Exeter NH 03833

TECHNICAL MEMORANDUM

Date:	July 31, 2018
To:	Town of Exeter Planning Board. Langdon Plumer, Chairman
From	Steven Halloran, P.E.,
Subject:	PB Case #17-27, Norris Brook Crossing Structure on Rose Farm Lane

Dear Chairman Plumer and Members of the Planning Board;

I offer my thanks and appreciation for the opportunity to submit this information relative to the Norris Brook Crossing Structure on Rose Farm Lane based on my review of the recent project data as proposed in the applicant's July 10, 2018 drawings.

I am a resident of the Town of Exeter and a professional Engineer licensed in NH, practicing in the discipline of bridge engineering. I write this memo to reiterate to the Board that the "culvert" structure carrying Norris Brook under Rose Farm Lane as presented in the drawings and discussed at several planning board meetings, appears to be a misrepresentation of the scope for the type of structure that would be required for a waterway crossing at this location. I presented this information to the Board during a December 2017 Planning Board meeting, and the crossing structure currently proposed has not effectively changed since then.

The main focus of this memorandum is the clear opening width of the structure as proposed on the drawings. This issue was also noted by the Town of Exeter Natural Resource Planner, Kristen Murphy, in comments from the July 19 TRC meeting as noted on page 4 (comment #21) in the July 24 letter from the Town Planner to Exeter Rose Farm, LLC.

Background and Summary of Issue:

- Design for stream crossing structures in NH are based on requirements specified in the NH Stream Crossing Guidelines (NHSCG).
- NHSCG identifies a numeric standard for an appropriate width of streambed inside of a proposed crossing structure equal to 1.2 times the bankfull width plus 2 feet.
- Bankfull width can be based on several criteria, although width of 2-year storm water surface elevation limits is a reasonable approximation, and appears to be presented here.
- The proposed culvert detail on drawing C-50 identifies a bankfull width of 7'-10" at an elevation of 8.6.
- Using the surveyed ground topography contour lines and profile information presented on the applicant's Open Space Plan and Profile on drawing C-27, the bankfull width at Elevation 8.6 varies from approximately 30 feet at the inlet side of the roadway to approximately 80 feet at the outlet side, with a width along the roadway baseline (shown on the profile) as approximately 75 feet.
- Using the NHSCG width criteria, the above information translates to a minimum required bridge opening of approximately 38 feet, and more likely, 98 feet, set at the outlet side of the roadway. The "culvert" opening proposed is a fraction of this width.
- See Figures 1 & 2 below, taken from the applicant's current open space plans.

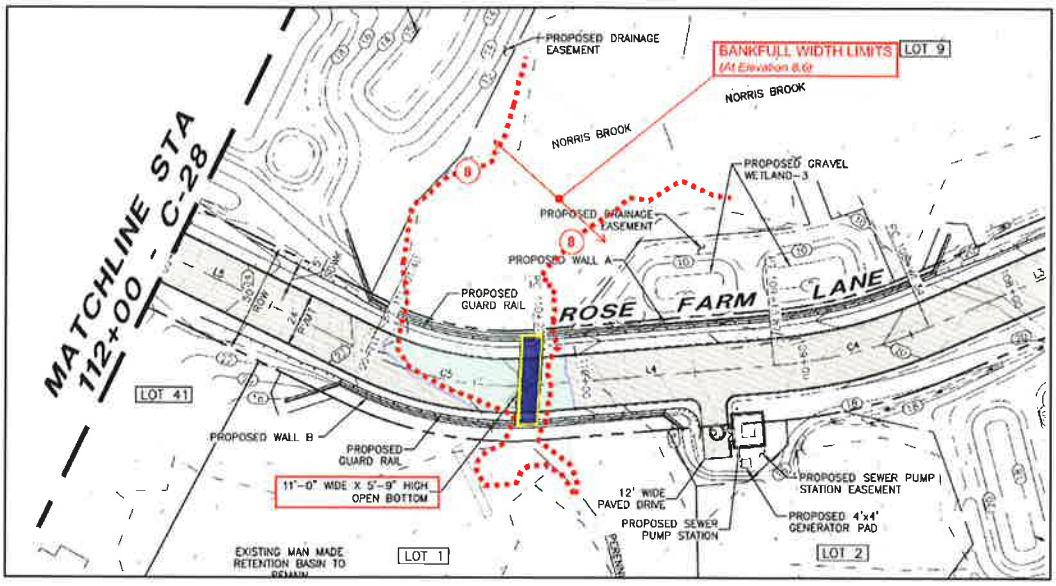


Figure 1 – Bankfull Width at Norris Brook Crossing (from Drawing C-27 Plan)

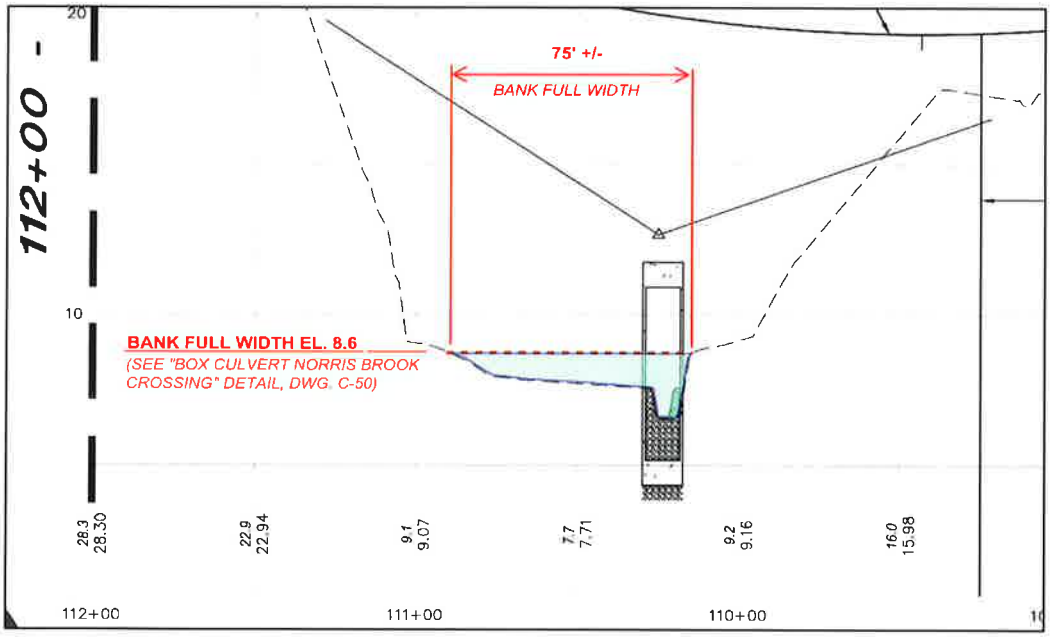


Figure 2 – Bankfull Width at Norris Brook Crossing (from Drawing C-27 Profile)

Summary:

The Norris Brook crossing as presented on the plans is a misrepresentation of the scope and size of structure required at this location. I wanted to reinforce the Natural Resource Planner's TRC review comment, and bring it to the Board's attention again for consideration, and to provide the Board with a more accurate representation of project infrastructure requirements to properly review and evaluate the proposal.

Regards,

Steven B. Halloran, P.E.

Peter Steckler

4 Locust Ave, Exeter NH 03833

7/30/2018

To: Town of Exeter Planning Board. Langdon Plumer, Chairman

From: Peter Steckler, NH Certified Wetland Scientist

Subject: PB Case #17-27, Conditional Use Permit: Shoreland Protection District

Dear Chairman Plumer,

Thank you for the opportunity to submit comments on the above referenced project. I am writing to recommend the planning board denies the conditional use permit as presented to the Conservation Commission at their July meeting because, based on the information presented, it does not meet the conditions as required for the following reasons:

Condition 9.3.4.G.2.a.

> *The proposed use will not detrimentally affect the surface water quality of the adjacent river or tributary, or otherwise result in unhealthful conditions.*

The applicant fails to conclusively answer this question, and furthermore, does not even address the project's impact on water quality. It is a fact that land conversion, development, and impervious surfaces have detrimental effects on surface water quality, as clearly and conclusively demonstrated by the Piscataqua Region Estuaries Partnership's (PREP) State of the Estuaries Report and an abundance of scientific research. To state that "considerable protection is afforded surfaced waters in Exeter by virtue of local zoning" is enough to ensure the protection of our surface waters, when the applicant is requesting a conditional use permit to violate those very protections, is a counterintuitive argument. Furthermore, to argue that wetlands will continue to function to protect our water quality when continuously degraded by pollutant inputs, as the applicant suggests, is also an unreasonable approach to the long-term protection and management of our collective water resources.

Condition 9.3.4.G.2.d.

> *The proposed use will not result in undue damage to spawning grounds and other wildlife habitat*

For multiple reasons, the applicant has not demonstrated undue (e.g. excessive, unnecessary) damage to spawning grounds and other wildlife habitat, including the following:

1. The applicant has not provided an alternatives analysis that demonstrates minimization of impacts to spawning grounds and other wildlife habitat through a completely new crossing of Norris Brook. Has the applicant considered alternatives to utilize the existing crossing of Norris Brook so as to not impact the high value wetland system for wildlife habitat as identified by their wetland functional evaluation?

2. The applicant does not even recognize the "Fish and Shellfish Habitat" value of the Norris Brook wetland complex that will be impacted by a completely new stream crossing via the proposed Rose Farm Lane. Fish habitat was not identified as a value of this wetland complex because no observations of fish were made. By suggesting that no fish habitat is present in this wetland complex, the applicant asserts that "no excessive or adverse damage will be realized". However, the applicant answered in the affirmative for the following considerations and qualifiers for fish and shellfish habitat in their wetland functional evaluation, which does not suggest the absence of such habitat:
    - Forest land dominant in the watershed above this wetland.
    - Abundance of cover objects present.
    - Quality of the watercourse associated with this wetland is able to support healthy fish/shellfish populations.
    - Streamside vegetation provides shade for the watercourse.
    - Food is available to fish/shellfish populations within this wetland.
    - The watercourse is persistent.
    - Water velocities are not too excessive for fish passage.
    - Defined stream channel is present.

    To assert that fish habitat is not present in the lower Norris Brook wetland system (the one proposed to be crossed by Rose Farm Lane) because fish were not observed is an untenable conclusion. And to use that conclusion to deny any adverse impacts by the proposed conditional is furthermore indefensible.

3. The applicant asserts that there will be no direct impacts on the stream bed but does not address indirect impacts to the stream system and wetland complex. The applicant needs to address indirect impacts, such as sediment inputs, road salt, trash, flood flows, scour, water temperature, nutrients, and invasive species.

4. The proposed Rose Farm Lane is a completely new riparian corridor crossing of the Norris Brook system. Wildlife corridors often follow riparian corridors. There are inevitable impacts of a completely new transportation corridor crossing of a riparian system, not solely limited to the physical fragmentation of habitat. Wildlife are sensitive to both physical and perceived barriers associated with roads, from noise, scents, and artificial lighting to steep fill slopes and curbs, not to mention wildlife-vehicle collisions.

5. The finding that there is no adverse or excessive damage to wildlife habitat is in direct conflict with the applicant's own wetland functional evaluation, which identifies wildlife habitat as a principal function of the wetland to be impacted by the proposed Rose Farm Lane.

In conclusion, the application clearly does not meet the conditions identified above to grant a conditional use permit. I hope that the planning board considers these critical deficiencies in the conditional use permit application when evaluating the impacts of the Rose Farm development on our community's natural resources.

Sincerely,

Peter Steckler

July 31, 2018

Town of Exeter Planning Board
Langdon Plumer, Chairman
10 Front Street
Exeter, NH 03833
Hand delivered to Planning Department

Re: Concerns about sewer pump station being proposed by Exeter Rose Farm LLC

Dear Chairman Plumer and Members of the Planning Board:

Thank you kindly for the opportunity to submit information in response to comments highlighted in the July 25, 2018 Technical Review Committee memorandum (TRC memo). As a Board member of the Exeter Area Conservancy (EAC), I have specific concerns related to the sewer pump station.

I am concerned because our Planning Board is being asked to approve a proposal for development that includes a critical piece of infrastructure that the town will own, without knowing the full impact the sewer pump station will have on the surrounding environment.

DPW comment #56 on page 9 of the TRC memo requires the applicant to "provide the design details, including process diagram, electrical, instrumentation, and plumbing design." Furthermore, The DPW repeated comments by Paul Vlasich, P.E. from their October 5, 2017 memo stating that the sewer pump station design was incomplete.

I personally had questioned the location of the sewer pump station during public comment at the December 28, 2017 and May 10, 2018 Planning Board meetings, as well as the June 12, 2018 Conservation Commission meeting. EAC Board member Maura Fay also brought it to the Conservation Commission's attention at their July 10, 2018 meeting.

As of the July 19th Technical Review Committee meeting, the applicant still had not provided detailed plans that multiple parties have been asking for since last fall. Detailed plans are critical at this point in the process because the applicant has stated to both the Planning Board and the Conservation Commission that there will be no impacts from the pump station because it will be completely sealed. How can the DPW engineers, the Planning Board, and the Conservation Commission evaluate the potential for impacts without being given adequate time to thoroughly review the design plans? And if the extent of impacts is unknown, how can the Planning Board even begin to consider approving the location of the pump station and the overall plan?

If the town of Exeter is going to own the sewer pump station, I would expect that detailed design plans would be fully vetted because of it's location in a highly sensitive area within

the wetland buffer and adjacent to the perennial stream. Furthermore, the location has been identified as being of high safety concern and vulnerable to inundation according
the Exeter Vulnerability Assessment report (part of the 2017 C-RISE project that is included in the Master Plan).

The sewer pump station was discussed as part of the wetland waiver and shore land conditional use permit (CUP) requests at the July 10, 2018 Conservation Commission meeting. Our Town Natural Resources Planner's comment #16 on page 4 of the TRC memo asks "is there an ability to make the sewer pump station area smaller and move the generator closer to reduce impact to wetland?" However, DPW comment #20 on page 10 of the TRC memo states that "the sewer pump station will need a driveway, transformer, generator, access around the entire building, and a fence. The grading and drainage will need to be revised to accommodate this. This should be a separate parcel to deed to the Town when the project is complete."

Based on the DPW requirements, it appears that the wetland buffer impact will be greater not smaller, and therefore the wetland waiver and shoreland CUP requests will need to be expanded for this area. I hope that the Planning Board will consider this and send the requests back to the Conservation Commission only after the full sewer pump station design plans are provided by the applicant, addressing those items in DPW comment #20, and after they have been reviewed by the DPW and the Town engineers.

Thank you for your attention with regard to this critical infrastructure issue.

Sincerely,

Jennifer Brackett Piskovitz
Secretary, Exter Area Conservancy

Exeter Area Conservancy
PO Box 144
Exeter, NH 03833

https://exeterareaconservancy.weebly.com/

The mission of the Exeter Area Conservancy is to advocate for the protection of key pieces of open space in and around the town of Exeter, New Hampshire.

The Exeter Area Conservancy is a registered 501c3 nonprofit organization and is governed by a volunteer board of directors.

The West Side Neighborhood Coalition, a group of small business owners, government employees, teachers, nurses, retirees and families opposing the controversial proposed residential development on the former Exeter Rose Farm operates under the umbrella of the Exeter Area Conservancy.