

**STATE OF NEW HAMPSHIRE**  
**INTER-DEPARTMENT COMMUNICATION**

		<b>DATE:</b>	October 16, 2013
<b>FROM:</b>	Matt Urban Wetlands Program Specialist	<b>AT (OFFICE):</b>	Department of Transportation
<b>SUBJECT</b>	Dredge & Fill Application Durham-New Market, 13080		Bureau of Environment
<b>TO</b>	Gino Infascelli, Public Works Permitting Officer New Hampshire Wetlands Bureau 29 Hazen Drive, P.O. Box 95 Concord, NH 03302-0095		

Forwarded herewith is the application package prepared by CHA NH DOT Bureau of Highway Design for the subject Major impact project. This project is classified as Major per Env-Wt 303.02(c). The proposed project begins approximately at the Lamprey River Bridge in the Town of New Market and proceeds northerly on NH Route 108 approximately 3.7 miles to the intersection of NH Route 108 with Schoolhouse Lane in the Town of Durham NH. The primary intent of the project is to improve bicycle, pedestrian, and vehicular safety along NH Route 108 in these towns. The roadway currently consists of a single 12 ft. travel lane in each direction with little to no paved shoulders. The proposed pavement layout for NH Route 108 consists of 11 ft. travel lanes and 4 ft. shoulders. There are several bus pull-off areas in each direction for Wildcat Transit along the project corridor. In these areas the shoulders will be widened up to 15ft to finalize these pulloffs. The impacts to the wetlands are predominantly a result of the associated slope widening, and other drainage improvements.

A mitigation proposal package was sent to DES on July 18<sup>th</sup>, 2013 and was reviewed at the July 17<sup>th</sup> Natural Resource Agency Meeting. The mitigation package consists of culvert upgrades, turtle and corridor sustainability improvements, and an ARM Fund payment in the amount of \$105,000.

This project was reviewed at the Natural Resource Agency meetings on the following dates: 12/18/2002, 12/17/2003, 5/18/2005, 2/20/2008, 5/21/2008, 1/20/2010, 12/19/2012, 7/17/2013. The minutes to those meetings can be accessed through the DOT Bureau of Environment website: <http://www.nh.gov/dot/org/projectdevelopment/environment/units/project-management/nracrmeetings.htm>

A payment voucher has been processed for this application (Voucher #282735) in the amount of \$10,000.

The lead people to contact for this project are Ron Grandmaison, Highway Design (271-2524 or [rgmaison@dot.state.nh.us](mailto:rgmaison@dot.state.nh.us)) for design related questions or Matt Urban, Wetlands Program Specialist, Bureau of Environment (271-3226 or [murban@dot.state.nh.us](mailto:murban@dot.state.nh.us)) for environmental related questions.

If and when this application meets with the approval of the Bureau, please send the permit directly to Matt Urban, Wetlands Program Specialist, Bureau of Environment.

MRU:mru  
Enclosures  
cc:  
BOE Original  
Town of Durham (4 Copies via certified mail)  
Town of New Market (4 Copies via certified mail)  
District Construction Engineer, NH DOT Bureau of Construction  
Darrell Elliott, Bureau of Environment  
Carol Henderson, NH Fish and Game  
Rich Roach, US Army Corp of Engineers  
Lamprey River Local Advisory Committee (via certified mail)

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**THE STATE OF NEW HAMPSHIRE**  
**DEPARTMENT OF TRANSPORTATION**



**CHRISTOPHER D. CLEMENT, SR.**  
**COMMISSIONER**

**JEFF BRILLHART, P.E.**  
**ASSISTANT COMMISSIONER**

October 16, 2013

VIA CERTIFIED MAIL

Becky I. Benvenuti  
Town Clerk of Newmarket  
186 Main St  
Newmarket, NH 03857

To Whom It May Concern:

Re: Dredge and Fill Application  
Durham-New Market, 13080

RECEIVED  
Town of Newmarket

OCT 17 2013

OFFICE OF  
Town Clerk / Tax Collector

As required by Chapter 482-A: 3, New Hampshire Revised Statutes Annotated, enclosed are four copies of the referenced Dredge and Fill Application, project location map, and detailed plans, which have been submitted today to the NH Wetlands Bureau. The application copies are provided for your use in complying with the requirement that Town and City Clerks distribute one copy, each, as appropriate to the Conservation Commission, Planning Board, and Board of Selectmen (and Mayor or City Manager). The fourth set should be retained by your office and made reasonably accessible to the public. Inasmuch as applications for public projects by agencies of the state are filed directly with the Bureau, and additional, separate notification of abutters is not required, no further action is required on your part with respect to mailing or retention of postal receipts relative to this application.

Very truly yours,

Matt Urban  
Wetlands Program Specialist  
Bureau of Environment  
Room 160-Tel. 271-3226

MRU:mru  
Enclosures  
c.c. NH Wetlands Bureau

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**DEPARTMENT OF ENVIRONMENTAL SERVICES  
WETLANDS BUREAU**

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

Phone: (603) 271-2147 Fax: (603) 271-6588

Website: <http://des.nh.gov/organization/divisions/water/wetlands/index.htm>

Email: [wetmail@des.nh.gov](mailto:wetmail@des.nh.gov)



## Standard Dredge and Fill Application Form for Department of Transportation Projects

**The Standard Dredge and Fill application package to be submitted to DES consists of:**

1. Application form (this document).
2. Checklist(s) with required information attached. ("Checklist for Submission of your Standard Dredge and Fill Application," and if appropriate, "Compensatory Mitigation Information and Checklist").

Type or print clearly -- missing information may result in your application review being delayed if it is considered administratively incomplete. If you are completing this as a Word version on your computer, use your **tab key** to move through the document to enter data in the appropriate areas.

If you have questions about any terms used, check the Definitions section of the Instructions.

<b>1.</b>	<b>Name of Landowner* (last, first, middle initial)</b>	<b>Owner daytime phone number</b>	<b>Owner fax number</b>	<b>Owner email</b>
	NH Department of Transportation	(603) 271-6198	(603) 271-7025	
	<b>Landowner (permanent) mailing address or PO Box</b>	<b>Town/City (owner mailing address)</b>		<b>State</b>
	7 Hazen Drive, PO Box 483	Concord		NH
				<b>Zip code</b>
				03302
<b>2.</b>	<b>Name of Applicant (Bureau or District)</b>	<b>Applicant phone number</b>	<b>Applicant fax number</b>	<b>Applicant email</b>
	Highway Design	(603) 271-6198	(603) 271-7025	rgrandmaison@dot.state.nh.us
	<b>Applicant street address</b>	<b>Applicant town/city</b>		<b>State</b>
	7 Hazen Drive, PO Box 483	Concord		NH
				<b>Zip code</b>
				03302
<b>3.</b>	<b>Company and Name of Agent</b>	<b>Agent phone number</b>	<b>Agent fax number</b>	<b>Agent email</b>
	CHA, Inc.	(603) 357-2445	(603) 357-8770	jparrelli@chacompanies.com
	<b>Agent Street mailing address or PO Box</b>	<b>Town/City (agent mailing address)</b>		<b>State</b>
	11 King Court	Keene		NH
				<b>Zip code</b>
				03431
<b>4.</b>	<b>Location(s) of the proposed work (fill in below)</b>			
	<b>Street address(es) or nearest intersection(s)</b>		NH Route 108, from Bay Rd in Newmarket 3.7 miles north to Schoolhouse Lane in Durham	
	<b>Town/City</b>	<b>Durham/Newmarket</b>	<b>Tax map</b>	<b>N/A</b>
			<b>N/A</b>	<b>Block</b>
			<b>N/A</b>	<b>Lot number(s)</b>
				<b>N/A</b>
<b>5.</b>	<b>For projects classified as minor or major impact, are there any vernal pools located within the existing or proposed right-of-way or easement areas within the limits of the project?</b>			<b>Circle one:</b>
	If "Yes," identify and label the location(s) of vernal pool(s) on the project plans.			Yes <input type="radio"/> No <input checked="" type="radio"/>

6.	<p>Based on information obtained from the Natural Heritage Bureau (NHB), are there any state or federal threatened or endangered species or exemplary natural communities in or near the subject project?          Provide the NHB file number: <input type="text" value="NHB13-2356"/> and attach the documentation (letter/memo &amp; map)          Natural Heritage information can be obtained at <a href="http://www.nhnaturalheritage.org">www.nhnaturalheritage.org</a>. Click on "Services" for links to: 1) the DataCheck web tool, or 2) a hard copy form to obtain the required letter and map from NHB. If you do not have Internet access, you may contact NHB directly at (603) 271-2215 x 323 for information about obtaining the required documentation.</p>	<p>Circle one:  <input checked="" type="radio"/> Yes / <input type="radio"/> No</p>					
7.	<p>If there are any state or federal threatened or endangered species or exemplary natural communities located in or near the subject project, please provide a letter from NHB stating that the applicant has consulted with NHB. The letter should indicate either there is no impact, or include NHB guidelines for preventing or mitigating impacts.</p>						
8.	<p><b>Jurisdictional areas(s) where work is proposed; check box(es) below. Check the definitions in the instructions for additional information. (If your resource type- is not listed, contact DES for guidance):</b></p>						
Nontidal wetland: swamp, wet meadow, etc.	x	Bank of surface water body	x	Intermittent (seasonal) stream	x	Name of water body from USGS topographic map: Lamprey & Oyster Rivers	
Vernal pool		Lake or pond		Perennial stream or river	x	Tributary to: Lamprey & Oyster Rivers	x
Upland tidal buffer zone		Sand dune		Tidal wetland		Prime Wetland Buffer (within 100 feet of prime wetland)	
Freshwater marsh		Bog/fen (peatland)		Atlantic Ocean		Municipally designated prime wetland	
9.	<p>Provide a brief description of all proposed work. Attach a separate page if necessary.</p> <p>The proposed project begins approximately at the Lamprey River Bridge in Newmarket and proceeds northerly on NH Route 108 approximately 3.7 miles to the intersection of NH Route 108 with Schoolhouse Lane in Durham. The primary intent of the project is to improve bicycle, pedestrian and vehicular safety along NH Route 108 in these towns. The roadway currently consists of a single 12 ft travel lane in each direction with little to no paved shoulders. The proposed pavement layout for NH Route 108 consists of 11 ft travel lanes and 4 ft shoulders. There are several bus pull-off areas in each direction for Wildcat Transit along the project corridor. In these areas the shoulders will be widened up to 15 ft to formalize these pull-offs.</p>						
10.	<p>Does the project require compensatory mitigation to offset unavoidable impacts to wetlands?          If Yes, attach a copy of the completed <b>Mitigation Checklist</b>.</p>					<p><input checked="" type="radio"/> Yes / <input type="radio"/> No</p>	
11.	<p>Have you requested a waiver of any wetland rules per Env-Wt 204?          If Yes, attach your waiver request to this application.</p>					<p>Yes / <input checked="" type="radio"/> No</p>	
12.	<p>Is there any DES emergency authorization associated with this project? Are you aware of any DES enforcement issues related to this project? If Yes, provide the file number(s): _____</p>					<p>Yes / <input checked="" type="radio"/> No</p>	
13.	<p>Explain why it is necessary to impact a wetland or other jurisdictional area to construct your project.</p> <p>The proposed project will be of benefit to the public's health and safety. The minor horizontal and vertical alignment shifts as well as the widening of the roadway will create a safer corridor for vehicles and bicyclists. Formalized bus pull-offs will provide adequate room for buses to safely pick up and drop off passengers and be out outside of the travelway. 4' shoulders will provide room for bicyclists and pedestrians to safely be outside of the travelway of NH Route 108.</p>						

<b>14.</b>	<p>Explain why your project design proposes less environmental impact on areas in DES Wetlands jurisdiction than other alternatives. What other alternatives were considered? (Attach a separate page if you are not completing this expandable box on a computer)</p> <p>This alternative utilizes minimal lane and shoulder widths to minimize the projects impacts. Slopes were steepened and slope roundings were removed to minimize impacts to wetlands where possible. Alternative profiles were considered for this project but the proposed design minimizes environmental impacts while creating a safer corridor for vehicles and bicyclists.</p>
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Jurisdictional area	Impact Type				Unit
	Temporary	Permanent	Total		
<b>Wetlands</b>	18,637	44,998	63,635		sq. ft.
Prime wetland					sq. ft.
Vernal pool					sq. ft.
<b>Prime Wetland Buffer</b> (within 100 feet of designated prime wetland)					sq. ft.
<b>Stream or River</b>					
Bank of stream or river (OHW-TOB)	35	255	290		linear feet
	338	494	832		sq. ft.
Bed of perennial stream (below OHW)	198	0	198		linear feet
	2139	0	2139		sq. ft.
Intermittent Stream (below OHW)					linear feet
					sq. ft.
<b>Bank of Lake</b> (for beach construction & replenishment, bank stabilization)					
Shoreline (see following page for how to calculate this average length)					linear feet
Dredge/fill within bank (NHW-TOB)					sq. ft.
Dredge/fill within bank (NHW-TOB)					cubic yards
<b>Lake or Pond</b> (below full lake elevation) Impacts for docks and structures listed in item 15 are entered below.					
Shoreline subject to impacts	40	30	70		linear feet
	102	68	170		sq. feet
Dredge or fill of lakebed (below NHW)	0	1	1		cubic yards
	102	68	170		sq. ft.
<b>Sand dune</b>					sq. ft.
<b>Tidal wetland</b>					sq. ft.

Upland tidal buffer zone				sq. ft.
Undeveloped?/ Developed? (choose one or both, as appropriate)				

**16. Calculate and provide length of shoreline frontage.**

**Shoreline frontage** is the average of two distances, 1) the actual natural navigable shoreline footage, and 2) a straight line drawn between property lines, both of which are measured at the normal high water line.

(a) Pin to pin distance (linear feet)	(b) Actual natural navigable shoreline (from pin to pin)	$\frac{(a) + (b)}{2} =$	Shoreline frontage (linear feet)

**17. Enter the information below if you are proposing any docking structures. Your plans must show proposed and existing docking structures.**

Docking structures (proposed)	Square Feet
Surface area of all permanent structures:	N/A
Surface area of all seasonal structures:	N/A

**18. Other DES Permitting Requirements (write in "Yes" or "No")**

**Yes** Have you addressed requirements of Comprehensive Shoreland Protection Act (CSPA), RSA 483-B?

If your property is in the "protected shoreland" -- the area that is within 250 feet of a fourth order stream, a designated river, a lake or pond 10 acres or greater in size (on the DES *Official List of Public Waters*), or tidal water, you will need to comply with the requirements of the Comprehensive Shoreland Protection Act (CSPA).

**What is considered "protected shoreland"?** To determine if your property is located in "protected shoreland," go to [www.des.nh.gov/cspa](http://www.des.nh.gov/cspa) or the following websites:

- A "fourth order" or larger stream or river ([www.des.nh.gov/cspa](http://www.des.nh.gov/cspa)).
- Any river or river segment designated as protected under the N.H. Designated Rivers Program, RSA 483 ([www.des.nh.gov/rivers/](http://www.des.nh.gov/rivers/)).
- Public waters ([www.des.nh.gov/Dam/](http://www.des.nh.gov/Dam/))
- Tidal waters.

As of July 1, 2008, projects that involve construction, excavation, or filling within the protected shoreland, require a DES Shoreland Permit, unless the work is specifically permitted under a Wetlands Permit, OR exempted under Rule Env-Wq 1406.03 or Env-Wq 1406.04 (see [des.nh.gov/rules/desadmin\\_list.htm#env-wq1400](http://des.nh.gov/rules/desadmin_list.htm#env-wq1400)), and a DES Alteration of Terrain permit 50,000 square feet if any part of disturbance is within the protected shoreland. For more information: [www.des.nh.gov/AOT/](http://www.des.nh.gov/AOT/) and RSA 485-A:17.

**N/A** Does this project require a DES Alteration of Terrain (AoT) permit? If yes, does this application and the other application reflect the same project area in its entirety? (*N/A per Memorandum of Agreement dated April 16, 2003.*)

**N/A** Does this project require a DES Subdivision or Subsurface Disposal System permit(s)? If yes, does this application and the other application reflect the same project area in its entirety?

Date of Subsurface/Subdivision application submittal to DES: \_\_\_\_\_

DES Subsurface/Subdivision File number: \_\_\_\_\_

19. In accordance with RSA 482-A:3, XIV (b), I, \_\_\_\_\_, hereby authorize DES to communicate all matters relative to this application electronically with the individual identified below at the email address identified below. I agree to send an electronic return/read receipt of all emails sent by the department and understand that the department will do the same. I also agree that DES will be notified immediately of any change in the email address identified below. Please note that DES limits the size of documents that can be received or stored electronically. Any submittals that have a file size over 5 MB must be provided in hard copy.

(Check one box only and supply email address)

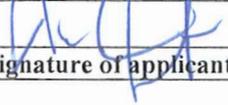
Landowner email: \_\_\_\_\_  Applicant email: rgrandmaison@dot.state.nh.us

Agent email: \_\_\_\_\_  NHDOT Bureau of Environment email: murban@dot.state.nh.us

20. **FILING FEE:** A check or money order payable to the NH DES Wetlands Bureau must accompany this application. The minimum fee is \$200. Minor and major impact projects are charged at the rate of: \$0.20 per square foot of requested impact (if less than 1,000 square feet of impact is proposed, the minimum fee of \$200 applies). All applications for shoreline structures shall include a base fee of \$200. In addition, minor and major impact shoreline projects shall include fees charged at the rate of: \$0.20 per square foot for requested dredge or fill impacts; \$1 per square foot for requested seasonal docking structure; and \$2 per square foot for requested permanent docking structure. The application will be considered administratively incomplete until the required fee is paid in full.

21. **APPLICANT SIGNATURE.** By signing this application, I am certifying that:

- 1) All abutters have been identified in accordance with the definition given in the instructions and I or my agent have/has sent notices to those abutters by Certified Mail. N/A – not required for public road projects per Env-Wt 501.01(c).
- 2) I have read and provided the required information outlined in Env-Wt 302.04 and listed on the “Checklist for Submission of Your Standard Dredge and Fill Application,” dated June 2008.
- 3) I have read and understand Env-Wt 302.03 and have chosen the least impacting alternative.
- 4) I have reviewed the information being submitted and that to my knowledge the information is true and accurate.
- 5) I have appropriately coordinated with the NH State Historic Preservation Officer.
- 6) I authorize the municipal conservation commission to inspect the site of the proposed project.
- 7) I understand that the willful submission of falsified or misrepresented information to the New Hampshire Department of Environmental Services is a criminal act, which may result in legal action.

	<u>RONALD GRANDMAISON</u>	<u>10/3/2013</u>
Signature of applicant(s)	Print applicant's name(s)	Date
Signature of authorized agent (if applicable)	Print agent name	Date

22. **TOWN CLERK SIGNATURE:** I hereby certify that the applicant has filed five sets of all materials with the town/city of N/A as required by Chapter 482-A:3, and I have received and retained certified postal receipts (or copies) for all abutters identified by the applicant. Upon signing the application below, I will forward immediately by certified mail to the DES the original application materials, including the filing fee, and distribute the three copies to each of the following: the local governing body, the municipal planning board, if any, and the municipal conservation commission, if any. Town clerk retains one copy.

<i>N/A – applications for public road projects are submitted directly to the NHDES and copies are sent to the town/city.</i>	
Signature of town/city clerk	Date

For DES Office Use Only:					
Fee received (amount): _____		DES File # _____		Name on check: _____	
date of check	date check received	check#	amount	initials	
Additional check: Date of check: _____		Date check received: _____		Check number: _____ Check amount: _____	

**New Hampshire Department of Transportation**  
**Bureau of Highway Design**  
**Project, # 13080**  
**Env-Wt 302.04 Requirements for Application Evaluation**

**1. The need for the proposed impact;**

The proposed project begins approximately at the Lamprey River Bridge in Newmarket and proceeds northerly on NH Route 108 approximately 3.7 miles to the intersection of NH Route 108 with Schoolhouse Lane in Durham. The primary intent of the project is to improve bicycle, pedestrian, and vehicular safety along NH Route 108 in these towns. The roadway currently consists of a single 12 ft travel lane in each direction with little to no paved shoulders. The proposed pavement layout for NH Route 108 consists of 11 ft travel lanes and 4 ft shoulders. There are several bus pull-off areas in each direction for Wildcat Transit along the project corridor. In these areas the shoulders will be widened up to 15 ft to formalize these pulloffs.

**2. The alternative proposed by the applicant is the one with the least impact to wetlands or surface waters on site;**

This alternative utilizes minimal lane and shoulder widths to minimize the projects impacts. Slopes were steepened and slope roundings were removed to minimize impacts to wetlands where possible.

**3. The type/classification of the wetlands involved;**

L1UB3Hh - Lacustrine, limnetic, unconsolidated bottom, mud, permanently flooded, diked/impounded

PEM1/SS/FO1B - Palustrine, emergent, persistent / scrub-shrub / forested, broad-leaved deciduous, saturated

PEM1/SS1C - Palustrine, emergent, persistent / scrub-shrub, broad leaved deciduous, seasonally flooded

PEM1/SS1E - Palustrine, emergent, persistent / scrub-shrub, broad leaved deciduous, seasonally flooded/saturated

PEM1B - Palustrine, emergent, persistent, saturated

PEM1C - Palustrine, emergent, persistent, seasonally flooded

PEM1E - Palustrine, emergent, persistent, seasonally flooded/saturated

PFO/SS1B - Palustrine, forested / scrub-shrub, broad-leaved deciduous, saturated

PFO/SS1E - Palustrine, forested / scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated

PFO1B - Palustrine, forested, broad-leaved deciduous, saturated

PSS1/EM1E - Palustrine, scrub-shrub, broad-leaved deciduous / emergent, persistent, seasonally flooded/saturated

**New Hampshire Department of Transportation**  
**Bureau of Highway Design**  
**Project, # 13080**

PSS/FO1C - Palustrine, scrub-shrub / forested, broad-leaved deciduous

PSS1B - Palustrine, scrub-shrub, broad-leaved deciduous, saturated

PSS1E - Palustrine, scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated

R2UB - Riverine, lower perennial, unconsolidated bottom

R3AB1/2 - Riverine, upper perennial, aquatic bed, algal/aquatic moss

R2UB3 - Riverine, lower perennial, unconsolidated bottom, mud

**4. The relationship of the proposed wetlands to be impacted relative to nearby wetlands and surface waters;**

Impacted wetlands consist of emergent, forested, scrub-shrub, as well as lacustrine, riverine, and bank. Similar wetlands exist throughout the area outside the limits of the project. Generally the impacts to the wetlands are just strips of along the side of the roadway. These wetlands mainly support the brooks and streams that feed into the Lamprey and Oyster Rivers.

**5. The rarity of the wetland, surface water, sand dunes, or tidal buffer zone area;**

The wetlands that will be impacted by the proposed work are not rare. There are no prime wetlands in or near the project area.

**6. The surface area of the wetlands that will be impacted;**

494 s.f. & 338 (temp) s.f. banks

45,066 s.f. wetland

20,878 s.f. temporary

**7. The impact on plants, fish, and wildlife including:**

- a. Rare, special concern species;
- b. State and federally listed threatened and endangered species;
- c. Species at the extremities of their ranges;
- d. Migratory fish and wildlife; and
- e. Exemplary natural communities identified by the New Hampshire Natural Heritage Inventory (NHI)- Department of Resources and Economic Development.

The results of the NH Natural Heritage Bureau database review are enclosed. This review determined that *rare species or exemplary natural communities are known to exist in the vicinity of the project area. If species or communities exist in the vicinity of project area, describe how impacts will be avoided or mitigated.*

Natural Communities identified in the vicinity of the project by NHHNB database search are:

- Sparsely Vegetated Intertidal and Subtidal systems. No impacts will occur to these areas as they are located outside the project limits.

**New Hampshire Department of Transportation**  
**Bureau of Highway Design**  
**Project, # 13080**

Plant Species identified in the vicinity of the project by NHHNB database search are:

- Atlantic mudwort (*Limosella australis*) -- Occurs on tidal mud flats and sandy or muddy shores. No impacts will occur to this species as they are located outside the project limits.
- Beck's water-marigold (*Bidens beckii*) – A review of the project has not identified this species within the project impact area.
- blunt-lobed cliff fern (*Woodsia obtusa*) -- This species occurs on rocky ridges, cliffs, and talus slopes, and on ledges and terraces in dry forests and thin woods. No impacts will occur to this species as they are located outside the project limits.
- great bur-reed (*Sparganium eurycarpum*) -- A review of the project has not identified this species within the project impact area.
- long-leaved pondweed (*Potamogeton nodosus*) -- No impacts will occur to this species as they are located outside the project limits.

Vertebrate species identified in the vicinity of the project by NHHNB database search are:

- American Eel (*Anguilla rostrata*) -- No impacts will occur to this species as they are located outside the project limits.
- Blanding's Turtle (*Emydoidea blandingii*) and Spotted Turtle (*Clemmys guttata*) -- Coordination with the NH Fish & Game Department and the NH Department of Environmental Services has occurred to accommodate their requests to increase wildlife crossing opportunities and enhance wildlife connectivity for these State Threatened and Endangered turtle species. A mitigation package was submitted on July 18, 2013. Mitigation will consist of 11 culvert upgrades in the “flats” area, limiting tree clearing beyond the roadside toe of slope during construction, eradication of knotweed patches located along the NH 108 corridor, and roughening 1,1000 feet of side slopes with ballast in the “flats” area to deter turtles from nesting in sandy roadway side slopes.
- Swamp Darter (*Etheostoma fusiforme*) -- No impacts will occur to this species as they are located outside the project limits.

**8. The impact of the proposed project on public commerce, navigation and recreation;**

This project shall only improve public commerce by improving the safety of NH 108. Access will be maintained to nearby businesses and residences during construction utilizing alternating one-way traffic.

**9. The extent to which a project interferes with the aesthetic interests of the general public. For example, where an applicant proposes the construction of a retaining wall on the bank of a lake the applicant would be required to indicate the type of material to be utilized and the effect of the construction of the wall on the view of other users of the lake;**

The project does not interfere with the aesthetic interests of the general public. Stone walls that are identified as impacted by the project will be reset.

**New Hampshire Department of Transportation**  
**Bureau of Highway Design**  
**Project, # 13080**

- 10. The extent to which a project interferes with or obstructs public rights of passage or access. For example, where the applicant proposes to construct a dock in a narrow channel the applicant would be required to document the extent to which the dock would block or interfere with the passage through this area;**

The proposed project will not interfere with or obstruct the public rights of passage or access. Access will be maintained to nearby businesses and residences during construction utilizing alternating one-way traffic.

- 11. The impact upon abutting owners pursuant to RSA 482-A, II. For example, if an applicant is proposing the rip-rapping of a stream the applicant would be required to document the effect of such work on upstream and downstream abutting properties;**

Impacts to abutting property owners have been minimized to the extent practicable. Stone slopes are proposed on Parcel 38 adjacent to Hamel Brook to help stabilize the slopes that have washed out in past storm events. The slopes will be cut back and steepened closer to the roadway and protected from scouring by armoring them with a 24 inch thick layer of Class B Stone Fill. The work will have no effect on upstream or downstream properties.

- 12. The benefit of a project to the health, safety, and well being of the general public;**

The proposed project will be of benefit to the public's health and safety. The minor horizontal and vertical alignment shifts as well as the widening of the roadway will create a safer corridor for vehicles and bicyclists. Formalized bus pull-offs will provide adequate room for buses to safely pick up and drop off passengers and be out outside of the travelway. 4' shoulders will provide room for bicyclists and pedestrians to safely be outside of the travelway of NH Route 108.

- 13. The impact of a proposed project on quantity or quality of surface and ground water. For example, where an applicant proposes to fill wetlands he/she would be required to document the impact of the proposed fill on the amount of drainage entering the site versus the amount of drainage exiting the site and the difference in the quality of water entering and exiting the site;**

There will only be a slight increase in impervious area due to the widening of the shoulders. Impacts to water quality will be minimized with the implementation of appropriate BMPs.

- 14. The potential of a proposed project to cause or increase flooding, erosion, or sedimentation;**

The proposed project is not expected to cause increased erosion or sedimentation. Appropriate BMPs will be kept in place throughout construction. Hydraulic studies have shown that no increase in flooding will occur.

- 15. The extent to which a project that located in surface waters reflects or redirects current or wave energy which might cause damage or hazards;**

Not applicable, the proposed project will not be reflecting or redirecting current of wave energy.

**New Hampshire Department of Transportation  
Bureau of Highway Design  
Project, # 13080**

- 16. The cumulative impact that would result if all parties owning or abutting a portion of the affected wetland or wetland complex were also permitted alterations to the wetland proportional to the extent of their property rights. For example, an applicant who owned only a portion of a wetland would document his percentage of ownership of that wetland and the percentage of that ownership that would be impacted;**

Not applicable, abutting landowners will not be proposing the same type of alterations that the Department is. Therefore, there will be no impact to the overall wetland complex.

- 17. The impact of the proposed project on the values and functions of the total wetland or wetland complex;**

Similar wetlands are found throughout this area beyond the limits of the project. There will be little impact to the overall values and function of the total wetland complex. The impacts are mostly strip impacts to the wetland system located along the edge of the roadway.

- 18. The impact upon the value of the sites included in the latest published edition of the National Register of Natural Landmarks, or sites eligible for such publication;**

This project is not located in or near any of the following Natural Landmarks listed on the National Register: Lake Umbagog East Inlet and Floating Island, Pondicherry Wildlife Refuge, Franconia Notch, Nancy Brook Scenic Area, Heath Pond Bog, Madison Boulder, White Lake Pitch Pine Forest, Mount Monadnock, Rhododendron Natural Area, and Spruce Hole Bog.

- 19. The impact upon the value of areas named in acts of congress or presidential proclamations as national rivers, national wilderness areas, national lakeshores, and such areas as may be established under federal, state, or municipal laws for similar and related purposes such as estuarine and marine sanctuaries.**

Not applicable, no such areas exist in or near the project area.

- 20. The degree to which a project redirects water from one watershed to another.**

It has been determined that the sub-water sheds within the watershed will not be redirecting water.

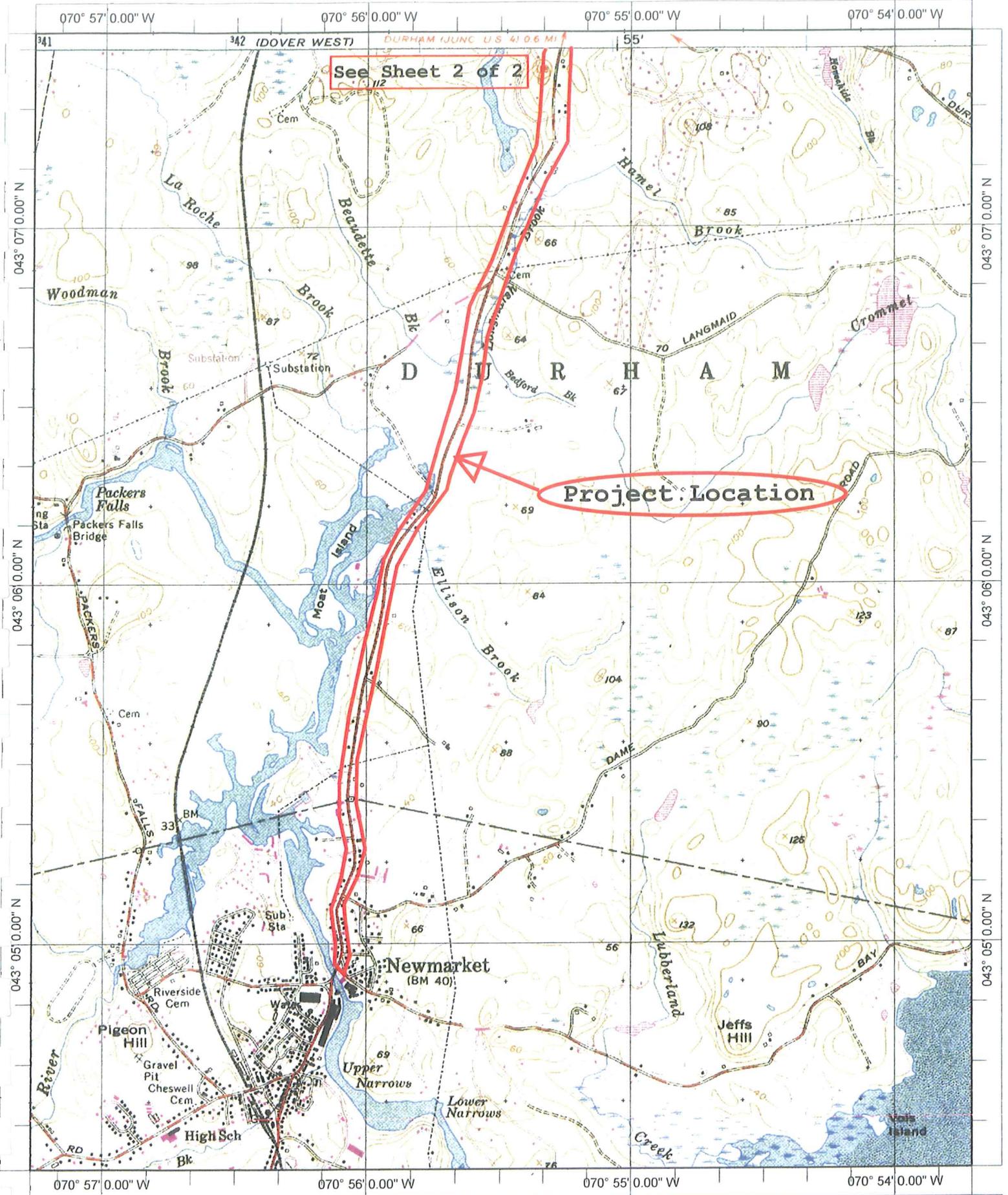
**U.S. Army Corps of Engineers  
New Hampshire Programmatic General Permit (PGP)  
Appendix B - Corps Secondary Impacts Checklist  
(for inland wetland/waterway fill projects in New Hampshire)**

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

<b>1. Impaired Waters</b>	Yes	No
1.1 Will any work occur within 1 mile upstream in the watershed of an impaired water? See <a href="http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm">http://des.nh.gov/organization/divisions/water/wmb/section401/impaired_waters.htm</a> to determine if there is an impaired water in the vicinity of your work area.*	x	
<b>2. Wetlands</b>	Yes	No
2.1 Are there are streams, brooks, rivers, ponds, or lakes within 200 feet of any proposed work?	x	
2.2 Are there proposed impacts to SAS, shellfish beds, special wetlands and vernal pools (see PGP, GC 26 and Appendix A)? Applicants may obtain information from the NH Department of Resources and Economic Development Natural Heritage Bureau (NHB) website, <a href="http://www.nhnaturalheritage.org">www.nhnaturalheritage.org</a> , specifically the book <u>Natural Community Systems of New Hampshire</u> .		x
2.3 If wetland crossings are proposed, are they adequately designed to maintain hydrology, sediment transport & wildlife passage?	x	
2.4 Would the project remove part or all of a riparian buffer? (Riparian buffers are lands adjacent to streams where vegetation is strongly influenced by the presence of water. They are often thin lines of vegetation containing native grasses, flowers, shrubs and/or trees that line the stream banks. They are also called vegetated buffer zones.)		x
2.5 The overall project site is more than 40 acres.		x
2.6 What is the size of the existing impervious surface area?	14.32 acres	
2.7 What is the size of the proposed impervious surface area?	17.34 acres	
2.8 What is the % of the impervious area (new and existing) to the overall project site?	57.0%/47.1%	
<b>3. Wildlife</b>	Yes	No
3.1 Has the NHB determined that there are known occurrences of rare species, exemplary natural communities, Federal and State threatened and endangered species and habitat, in the vicinity of the proposed project? (All projects require a NHB determination.)	x	
3.2 Would work occur in any area identified as either “Highest Ranked Habitat in N.H.” or “Highest Ranked Habitat in Ecological Region”? (These areas are colored magenta and green, respectively, on NH Fish and Game’s map, “2010 Highest Ranked Wildlife Habitat by Ecological Condition.”) Map information can be found at: <ul style="list-style-type: none"> <li>• PDF: <a href="http://www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm">www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm</a>.</li> <li>• Data Mapper: <a href="http://www.granit.unh.edu">www.granit.unh.edu</a>.</li> <li>• GIS: <a href="http://www.granit.unh.edu/data/downloadfreedata/category/databycategory.html">www.granit.unh.edu/data/downloadfreedata/category/databycategory.html</a>.</li> </ul>	x	
3.3 Would the project impact more than 20 acres of an undeveloped land block (upland, wetland/waterway) on the entire project site and/or on an adjoining property(s)?		x
3.4 Does the project propose more than a 10-lot residential subdivision, or a commercial or industrial development?		x
3.5 Are stream crossings designed in accordance with the PGP, GC 21?	x	

<b>4. Flooding/Floodplain Values</b>	Yes	No
4.1 Is the proposed project within the 100-year floodplain of an adjacent river or stream?	x	
4.2 If 4.1 is yes, will compensatory flood storage be provided if the project results in a loss of flood storage?		x
<b>5. Historic/Archaeological Resources</b>		
If a minor or major impact project, has a copy of the Request for Project Review (RPR) Form ( <a href="http://www.nh.gov/nhdhr/review">www.nh.gov/nhdhr/review</a> ) been sent to the NH Division of Historical Resources as required on Page 5 of the PGP?	x	

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



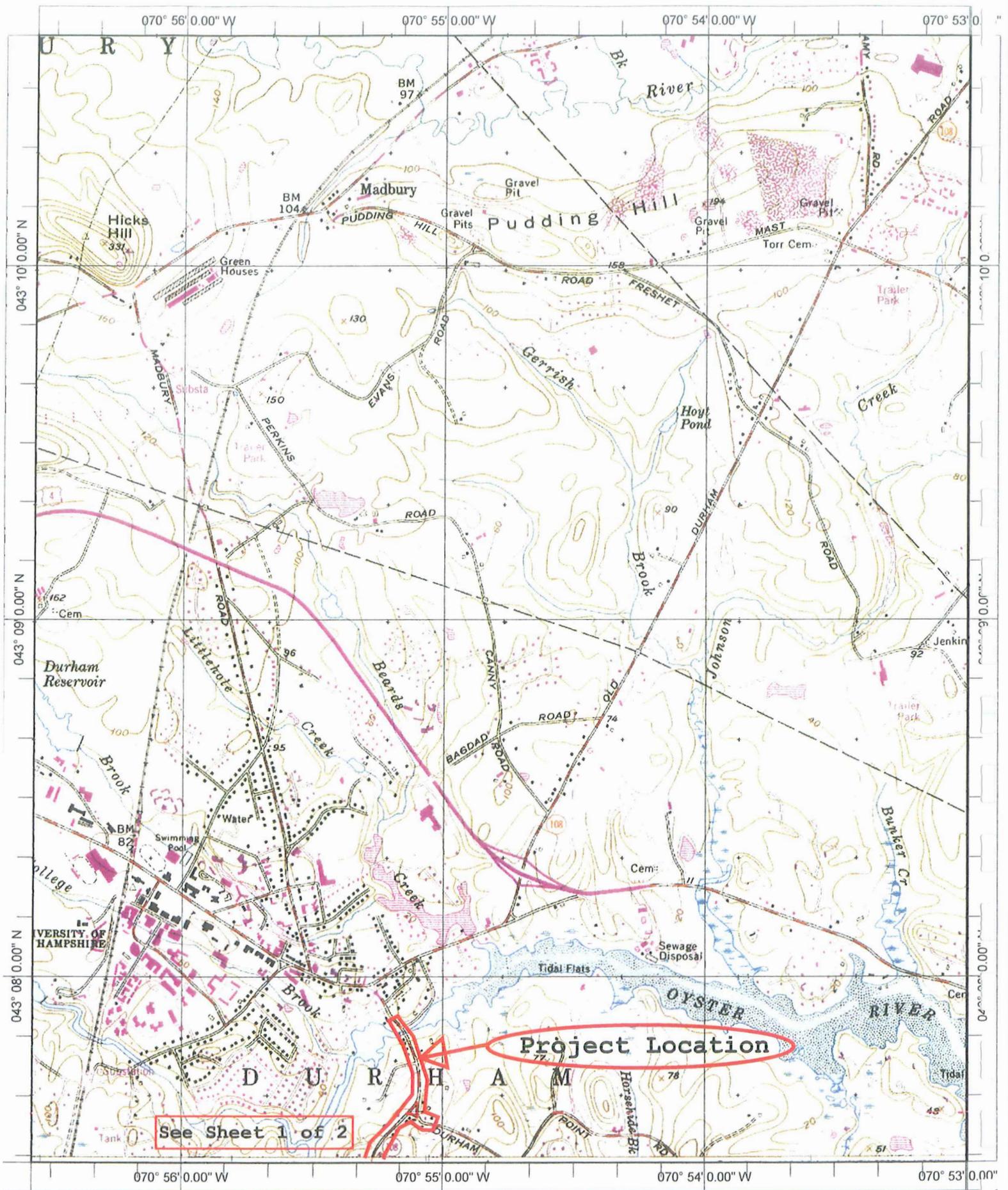
See Sheet 2 of 2

Project Location

Name: NEWMARKET  
 Date: 9/18/113  
 Scale: 1 inch equals 2000 feet

Location: 043° 05' 57.6" N 070° 55' 29.3" W

**Project 13080 Durham - Newmarket**  
**Sheet 1 of 2**



Name: DOVER WEST  
 Date: 9/18/113  
 Scale: 1 inch equals 2000 feet

Location: 043° 09' 03.9" N 070° 54' 46.9" W

**Project 13080 Durham - Newmarket**  
**Sheet 2 of 2**

# Memo



NH NATURAL HERITAGE BUREAU  
NHB DATACHECK RESULTS LETTER

**To:** Marc Laurin, NH DOT  
Hazen Drive  
Concord, NH 03301

**From:** Melissa Coppola, NH Natural Heritage Bureau

**Date:** 8/2/2013 (valid for one year from this date)

**Re:** Review by NH Natural Heritage Bureau

NHB File ID: NHB13-2356

Town: Durham and Newmarket

Location: Durham-Newmarket, 13080 -  
construction along 3.7 miles of NH  
Route 108 from the Lamprey River  
bridge in Newmarket to the NH 108  
intersection with Schoolhouse Lane in  
Durham.

Description: Improve bicycle, pedestrian and vehicular safety with the addition of a 4 foot shoulder along 3.7 miles of NH 108. Formalize the existing bus pull-off areas along the project corridor by widening the shoulders in these locations by up to 15 feet.

cc: Kim Tuttle

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

**Comments:** This site is within an area flagged for possible impacts on the state-listed *Alasmidonta varicosa* (brook floater) in the Lamprey River.

Invertebrate Species	State <sup>1</sup>	Federal	Notes
Sensitive species	E	--	Contact the NH Fish & Game Dept (see below).
Natural Community	State <sup>1</sup>	Federal	Notes
Sparsely vegetated intertidal system	--	--	Threats to these communities are primarily alterations to the hydrology of the wetland (such as alterations that might affect the sheet flow of tidal waters across the intertidal flat) and increased input of nutrients and pollutants in storm runoff.
Subtidal system	--	--	Threats to these communities are primarily alterations to the hydrology of the wetland (such as alterations that might affect the sheet flow of tidal waters across the intertidal flat) and increased input of nutrients and pollutants in storm runoff.
Plant species	State <sup>1</sup>	Federal	Notes
Atlantic mudwort ( <i>Limosella australis</i> )	E	--	Occurs on tidal mud flats and sandy or muddy shores. Sensitive to siltation and declines in water quality.

# Memo



NH NATURAL HERITAGE BUREAU  
NHB DATACHECK RESULTS LETTER

Beck's water-marigold ( <i>Bidens beckii</i> )	T	--	Threats to aquatic species include changes in water quality, e.g., due to pollution and stormwater runoff, and significant changes in water level.
blunt-lobed cliff fern ( <i>Woodsia obtusa</i> )	E	--	This species occurs on rocky ridges, cliffs, and talus slopes, and on ledges and terraces in dry forests and thin woods. Threats would include development of its habitat or recreational use that directly impacted the plants.
great bur-reed ( <i>Sparganium eurycarpum</i> )	T	--	Threats to aquatic species include changes in water quality, e.g., due to pollution and stormwater runoff, and significant changes in water level.
long-leaved pondweed ( <i>Potamogeton nodosus</i> )	T	--	Threats to aquatic species include changes in water quality, e.g., due to pollution and stormwater runoff, and significant changes in water level.
Sensitive species	E	--	Please contact NH Natural Heritage (271-2215 x 323) if project impacts could occur in the area shown on the map.

## Vertebrate species

	State <sup>1</sup>	Federal	Notes
American Eel ( <i>Anguilla rostrata</i> )	SC	--	Contact the NH Fish & Game Dept (see below).
Blanding's Turtle ( <i>Emydoidea blandingii</i> )	E	--	Contact the NH Fish & Game Dept (see below).
Spotted Turtle ( <i>Clemmys guttata</i> )	T	--	Contact the NH Fish & Game Dept (see below).
Swamp Darter ( <i>Etheostoma fusiforme</i> )	SC	--	Contact the NH Fish & Game Dept (see below).

<sup>1</sup>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.

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

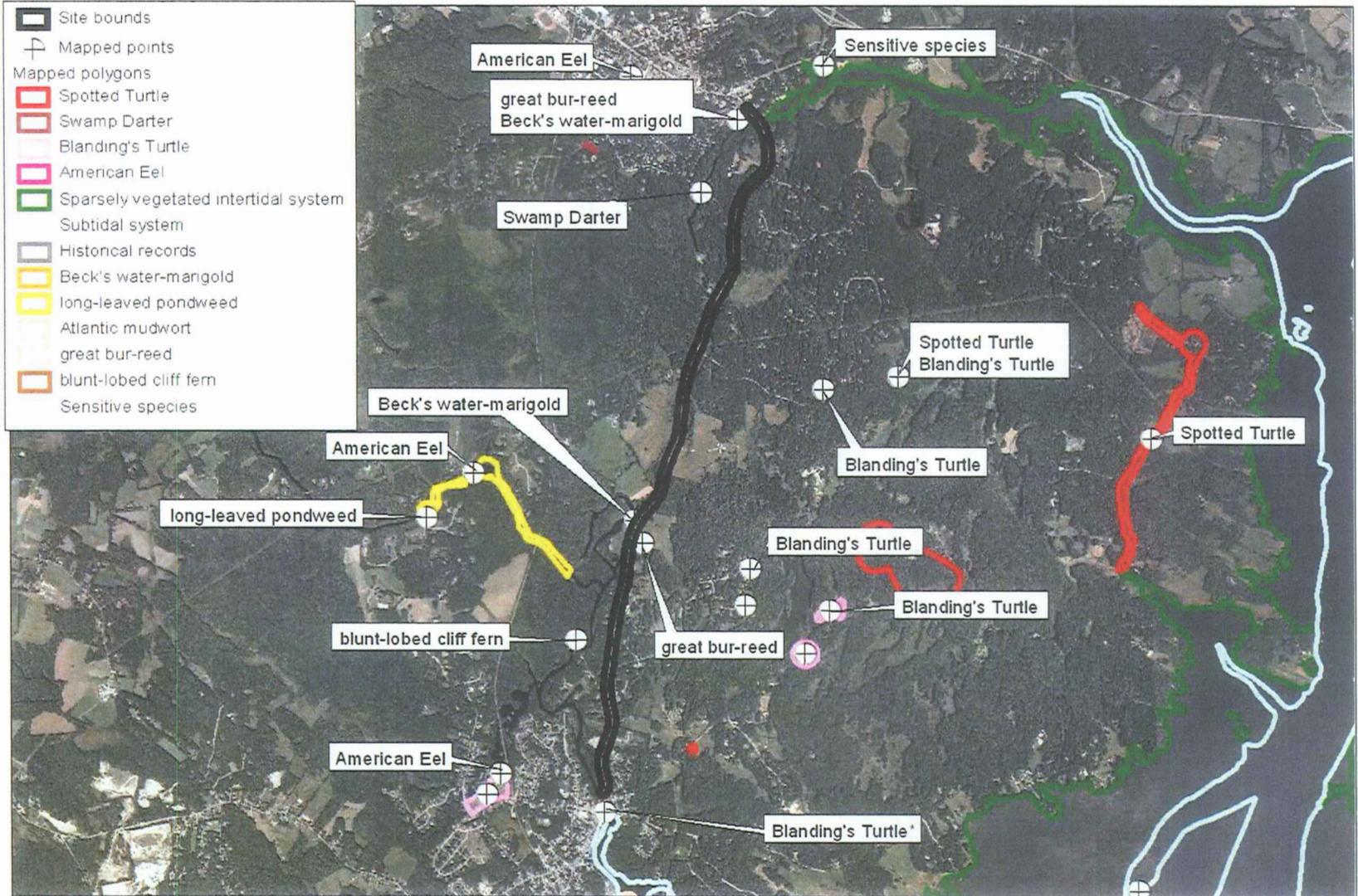
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A negative result (no record in our database) does not mean that a sensitive species is not present. Our data can only tell you of known occurrences, based on information gathered by qualified biologists and reported to our office. However, many areas 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.



Known locations of rare species and exemplary natural communities

Note: Mapped locations are not always exact. Occurrences that are not in the vicinity of the project are not shown.



\*Historical record

# New Hampshire Natural Heritage Bureau - System Record

## Sparsely vegetated intertidal system

### Legal Status

Federal: Not listed  
State: Not listed

### Conservation Status

Global: Not ranked (need more information)  
State: Rare or uncommon

### Description at this Location

Conservation Rank: Not ranked  
Comments on Rank:

Detailed Description: Extensive *intertidal flats* that are exposed daily at low tide, bordered in places by *intertidal rocky shore* and *coastal shoreline strand/swale* communities.

General Area: 2010: Borders **salt marsh system** landward and **subtidal system** seaward.

General Comments:  
Management  
Comments:

### Location

Survey Site Name: Great Bay  
Managed By: Moody Point Open Space

County: Rockingham  
Town(s): Newington  
Size: 3589.5 acres

USGS quad(s): Newmarket (4307018)  
Lat, Long: 430651N, 0705032W  
Elevation:

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

Directions: Occurs throughout Great Bay from the mouths of its tributaries, through Little Bay, to the confluence with the Piscataqua River.

### Dates documented

First reported: 1997-06-23  
Last reported: 2010-10-13

## New Hampshire Natural Heritage Bureau - System Record

### Subtidal system

#### Legal Status

Federal: Not listed  
State: Not listed

#### Conservation Status

Global: Not ranked (need more information)  
State: Rare or uncommon

#### Description at this Location

Conservation Rank: Not ranked  
Comments on Rank:

Detailed Description: Channels and bay bottoms that vary in width from a few feet to almost a mile across, covered by water even at low tide. Patches of subtidal *eelgrass bed* occur at the edge of the adjacent **sparsely vegetated intertidal system**.

General Area: 2010: Borders a **sparsely vegetated intertidal system**.

General Comments:  
Management  
Comments:

#### Location

Survey Site Name: Great Bay  
Managed By: Portsmouth Country Club

County: Rockingham  
Town(s): Newington  
Size: 3207.7 acres

USGS quad(s): Portsmouth (4307017)  
Lat, Long: 430431N, 0705256W  
Elevation:

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

Directions: Occurs throughout the Great Bay estuary, from the upper total reaches of tributary streams to the confluence of the bay with the Piscataqua River.

#### Dates documented

First reported: 1997-06-17  
Last reported: 2010-10-13

## New Hampshire Natural Heritage Bureau - Plant Record

### Atlantic mudwort (*Limosella australis*)

#### Legal Status

Federal: Not listed  
State: Listed Endangered

#### Conservation Status

Global: Apparently secure but with cause for concern  
State: Critically imperiled due to rarity or vulnerability

#### Description at this Location

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

Detailed Description: 1996: Found very few individuals (7-8 plants). Poor success in each stage of life cycle, with feeble vigor. 1989: None seen. 1984: Between 101-1000 flowering, mature plants, 10-100 square yards of population area. Abundance of flowering material. 1983: Colony observed, at flowering stage.

General Area: 1996: Lower marsh substrate is a mix of mud, cobble, and small boulders. The dominant plant is *Spartina alterniflora* (smooth cord-grass). Other associates include *Polygonum ramosissimum* (bushy knotweed), *Scirpus pungens* (three-square rush), *Scirpus maritimus* (saltmarsh bulrush), *Amaranthus cannabinus* (water hemp), and *Carex gynandra* (perfect-awned sedge). 1983: Tidal river estuary. Mudflats within river banks. Mud (ooze) underlain by peaty muck. Saturated to inundated.

General Comments: 1989: Human activity may be cause of decline. 1984: Site is planned to be a boat access ramp by the New Hampshire Fish and Game Department.

Management Comments: 1984: Recommend watching this population from year to year to ascertain its status.

#### Location

Survey Site Name: Lamprey River Narrows  
Managed By:

County: Rockingham  
Town(s): Newmarket  
Size: 2.8 acres

USGS quad(s): Newmarket (4307018)  
Lat, Long: 430429N, 0705556W  
Elevation: 25 feet

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

Directions: Southwest side of Lamprey River Narrows. From Newmarket, take Rte. 108 (Main St.) south to Exeter St. Take 3rd(?) left, heading east on New Rd. Take first left onto Young Lane. Drive down dirt road to boat ramp and park. Site is upstream from Lower narrows and near sewage treatment plant, near foot of boat ramp.

#### Dates documented

First reported: 1983-07-18

Last reported: 1996-07-10

## New Hampshire Natural Heritage Bureau - Plant Record

### Beck's water-marigold (*Bidens beckii*)

#### Legal Status

Federal: Not listed  
State: Listed Threatened

#### Conservation Status

Global: Apparently secure but with cause for concern  
State: Imperiled due to rarity or vulnerability

#### Description at this Location

Conservation Rank: Not ranked  
Comments on Rank:

Detailed Description: 1995: Extremely abundant (in an area to be impacted by vegetation removal). 3+ other populations identified upstream. 1972: Lasky specimen at FF. 1965: Gruencking specimen at UNH.

General Area: In 3 inches of water.

General Comments:

Management Comments: 1995: Mechanical removal of submerged and floating-leaved vegetation planned. Crow recommends retaining small patches of *M. beckii*. Upstream searches confirmed presence of other populations providing potential for natural revegetation.

#### Location

Survey Site Name: Mill Pond  
Managed By: Mill Pond

County: Strafford  
Town(s): Durham  
Size: 2.8 acres

USGS quad(s): Dover West (4307028)  
Lat, Long: 430752N, 0705514W  
Elevation: 20 feet

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

Directions: Oyster River, just west of Rte. 108 in Durham.

#### Dates documented

First reported: 1965  
Last reported: 1995-07-10



## New Hampshire Natural Heritage Bureau - Plant Record

**blunt-lobed cliff fern (*Woodsia obtusa*)****Legal Status**

Federal: Not listed  
 State: Listed Endangered

**Conservation Status**

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

**Description at this Location**

Conservation Rank: Not ranked  
 Comments on Rank:

Detailed Description: 1993: Specimen collected. 16 plants counted growing on the outcrop.

General Area: 1993: Secondary growth forest with the following tree species: *Carya ovata* (shagbark hickory), *Ostrya virginiana* (ironwood) *Hamamelis virginiana* (witch hazel), *Betula alleghaniensis* (yellow birch), *Quercus alba* (white oak) *Berberia vulgaris* (common barberry). Herbs: *Dryopteris carthusiana* (wood fern), *Aquilegi canadensis* (Canada Columbine), *Carex platyphylla* (flat-leaved sedge) *Hepatica americana* (bluntlobed hepatica), and *Chimaphila umbellata* (pipsissewa). 1993: Southeast facing, steep slope with filtered light. Associated species include *Aster* sp., *Aquilegia canadensis* (wild columbine), *Asplenium platyneuron* (ebony spleenwort), *Desmodium nudiflorum* (naked tick-trefoil), *Galium circaezans* (southern wild licorice), *Parthenocissus quinquefolia* (Virginia creeper), *Prunus serotina* (black cherry), and *Hepatica americana* (blunt-lobed hepatica).

General Comments: 1993: Area was probably logged within last 5-10 years but plants seemed to have recovered. Viability good if the area is not developed into a golf course.

**Management**

Comments:

**Location**

Survey Site Name: Lamprey River  
 Managed By: Packers Falls

County: Strafford  
 Town(s): Durham  
 Size: 2.8 acres

USGS quad(s): Newmarket (4307018)  
 Lat, Long: 430537N, 0705613W  
 Elevation: 40 feet

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

Directions: Off of Rte. 108 [west of river and ca. 0.3 mile] south of Moat Island. Located at a rocky knoll forming a low ledge just south of Moat Island.

**Dates documented**

First reported: 1993

Last reported: 1993

New Hampshire Natural Heritage Bureau - Plant Record  
**great bur-reed (*Sparganium eurycarpum*)**

**Legal Status**

Federal: Not listed  
 State: Listed Threatened

**Conservation Status**

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

**Description at this Location**

Conservation Rank: Not ranked  
 Comments on Rank:

Detailed Description: 1997: No details provided

General Area: 1995: Oyster River.

General Comments:

Management: Do not remove aquatic vegetation in the area between the point on the peninsula and the  
 Comments: "islands".

**Location**

Survey Site Name: Mill Pond  
 Managed By: Mill Pond

County: Strafford

USGS quad(s): Dover West (4307028)

Town(s): Durham

Lat, Long: 430752N, 0705514W

Size: 2.8 acres

Elevation: 20 feet

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

Directions: Mill Pond, Oyster River, just west of Route 108 in Durham. At the tip of the peninsula, out into the water and again along the near side of the "woody shrub islands".

**Dates documented**

First reported: 1995-07-10

Last reported: 1995-07-10

## New Hampshire Natural Heritage Bureau - Plant Record

**great bur-reed (*Sparganium eurycarpum*)****Legal Status**

Federal: Not listed  
 State: Listed Threatened

**Conservation Status**

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

**Description at this Location**

Conservation Rank: Not ranked  
 Comments on Rank:

Detailed Description: 2004: Ca. 200 plants estimated, 30% with mature fruit. Occurring in one continuous clump ca. 10 x 100 ft., potentially all one genet.

General Area: 2004: Abandoned pasture reverting to a shallow emergent marsh. Population occurs on edge of deep open water portion of inclined drainage ditch. Associated species include: *Typha* spp. (cattail), *Phalaris* sp. (reed grass), *Calla palustris* (wild calla), *Scirpus* [*Schoenoplectus*] *tabernaemontani* (softstem bulrush), *Iris versicolor* (northern blue flag), and a few stems of invasive *Lythrum salicaria* (purple loosestrife).

General Comments: 2004: Area is recovering from a long history of agricultural disturbance. Wetland restoration is planned for this area. Surrounding land to the east is protected.

Management Comments: 2004: Wetland restoration is planned for this area. NHB should work with NH Fish and Game to make sure the population is not eradicated when ditches are plugged and wetland restored.

**Location**

Survey Site Name: Ellison Brook  
 Managed By: Powers Tract

County: Strafford  
 Town(s): Durham  
 Size: 1.9 acres

USGS quad(s): Newmarket (4307018)  
 Lat, Long: 430603N, 0705549W  
 Elevation:

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

Directions: Park at gate on Rte. 108 (just north of Stage Coach Road and Country Club). Walk ENE downhill towards wetland edge. Plant is located on edge of a "deep" pool in drainage ditch near hillside.

**Dates documented**

First reported: 2004-07-01

Last reported: 2004-07-01

## New Hampshire Natural Heritage Bureau - Plant Record

long-leaved pondweed (*Potamogeton nodosus*)**Legal Status**

Federal: Not listed  
 State: Listed Threatened

**Conservation Status**

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

**Description at this Location**

Conservation Rank: Not ranked  
 Comments on Rank: Extent of subpopulation unknown.

Detailed Description: 2004: At Area 3, the size of the subpopulation is unknown. Plant vigor is normal. The subpopulation is producing mature fruit. 1994: At Area 1, no details. No Date: At Area 2, specimen collected.

General Area: 2004: At Area 3, the subpopulation occurs in moderately flowing water in the Lamprey River. Associates include *Potamogeton spirillus* (northern snailseed pondweed), *Sagittaria latifolia* (common arrowhead), *Sparganium americanum* (lesser bur-reed), *Lemna minor* (lesser duckweed), *Pontederia cordata* (pickerel-weed), *Alisma subcordatum* (small water-plantain), *Ceratophyllum demersum* (submerged hornwort), and *Podostemum ceratophyllum* (riverweed). 1994: Area 1 is in a fast-flowing river where rapids occur. Associated species include *Podostemum ceratophyllum* (riverweed), *Ranunculus trichophyllus* (hairy white water-crowfoot), *Potamogeton epihydrus* (surface pondweed), and *P. spirillus* (northern snailseed pondweed). *Toxicodendron radicans* (climbing poison ivy) nearby. No Date: Area 2 is in the river below falls.

General Comments: 1994: Excellent population. Forest and riverbanks disturbed by human visitations for swimming and fishing.

Management  
 Comments:

**Location**

Survey Site Name: Lamprey River at Packers Falls  
 Managed By: Packers Falls

County: Strafford USGS quad(s): Newmarket (4307018)  
 Town(s): Durham Lat, Long: 430609N, 0705705W  
 Size: 22.6 acres Elevation: 30 feet

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

Directions: Area 1: Just downstream (river to the right as facing downstream) of bridge over Lamprey River in Packers Falls along Packers Falls Road. Area 2: Lamprey River below Packers Falls. Area 3: From Little Hook Road, head east on Wiswell Road to the bridge over the Lamprey River. Subpopulation downstream from bridge ca. 0.1 miles on west side of river at the power line crossing.

**Dates documented**

First reported: 1984-PRE Last reported: 2004-08-04

## New Hampshire Natural Heritage Bureau - Animal Record

### American Eel (*Anguilla rostrata*)

#### Legal Status

Federal: Not listed  
State: SC

#### Conservation Status

Global: Apparently secure but with cause for concern  
State: Rare or uncommon

#### Description at this Location

Conservation Rank: Not ranked  
Comments on Rank:

Detailed Description: 2006: 1 observed.  
General Area: 2006: Area 13296: Canoeed and sampled shoreline areas.  
General Comments:  
Management  
Comments:

#### Location

Survey Site Name: Piscassic River  
Managed By:

County: Rockingham	USGS quad(s): Newmarket (4307018)
Town(s): Newmarket	Lat, Long: 430503N, 0705641W
Size: 1.9 acres	Elevation:

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

Directions: 2006: Lamprey River

#### Dates documented

First reported: 2006-07-28	Last reported: 2006-07-28
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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

**American Eel (*Anguilla rostrata*)****Legal Status**

Federal: Not listed  
 State: SC

**Conservation Status**

Global: Apparently secure but with cause for concern  
 State: Rare or uncommon

**Description at this Location**

Conservation Rank: Not ranked  
 Comments on Rank:

Detailed Description: 2003: Area 13404: Not enumerated.

General Area:

General Comments:

Management

Comments:

**Location**

Survey Site Name: Lower Lamprey River  
 Managed By:

County: Strafford

USGS quad(s): Newmarket (4307018)

Town(s): Durham

Lat, Long: 430621N, 0705649W

Size: 1.9 acres

Elevation:

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

Directions: 2003: Lamprey River

**Dates documented**

First reported: 2003

Last reported: 2003

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

### Blanding's Turtle (*Emydoidea blandingii*)

**Legal Status**

Federal: Not listed  
 State: Listed Endangered

**Conservation Status**

Global: Apparently secure but with cause for concern  
 State: Critically imperiled due to rarity or vulnerability

**Description at this Location**

Conservation Rank: Not ranked  
 Comments on Rank:

Detailed Description: Area 8862: 1 adult female (7/24), 1 two-year-old sex unknown (7/30).  
 General Area: 1997: Area 8862: *Cattail marsh* with mud-bottomed channels. Floating-leaved and floating plants. Some shrub swamp development at east and west ends of marsh.

General Comments:  
 Management  
 Comments:

**Location**

Survey Site Name: Crommet Creek  
 Managed By:

County: Strafford	USGS quad(s): Newmarket (4307018)
Town(s): Durham	Lat, Long:
Size: 2.8 acres	Elevation:

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

Directions: 1997: Area 8862: [From Newmarket take Rte 108 north.] Turn right on Langmaid (Longmarsh) Road and continue ca. 1.25 miles to a small wetland south of the road, just before road dead-ends to class 6.

**Dates documented**

First reported: 1997-07-24	Last reported: 1997-07-30
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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

### Blanding's Turtle (*Emydoidea blandingii*)

#### Legal Status

Federal: Not listed  
State: Listed Endangered

#### Conservation Status

Global: Apparently secure but with cause for concern  
State: Critically imperiled due to rarity or vulnerability

#### Description at this Location

Conservation Rank: Not ranked  
Comments on Rank:

Detailed Description: 2007: Area 11796: 1 adult, about 10" long.  
General Area: 2007: Area 11796: Residential driveway.  
General Comments: 2007: Area 11796: "It did have claws on its paws."  
Management  
Comments:

#### Location

Survey Site Name: Crommet Creek  
Managed By:

County: Strafford	USGS quad(s): Newmarket (4307018)
Town(s): Durham	Lat, Long:
Size: .4 acres	Elevation:

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

Directions: 2007: Area 11796: 48 Ross Road, Durham.

#### Dates documented

First reported: 2007-07-30	Last reported: 2007-07-30
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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

### Blanding's Turtle (*Emydoidea blandingii*)

**Legal Status**

---

Federal: Not listed  
 State: Listed Endangered

**Conservation Status**

---

Global: Apparently secure but with cause for concern  
 State: Critically imperiled due to rarity or vulnerability

**Description at this Location**

---

Conservation Rank: Not ranked  
 Comments on Rank:

Detailed Description: 2004: Area 12185: 1 observed.  
 General Area: 2004: Area 12185: Scrub/shrub wetland abutting pond and wetland complex.  
 General Comments:  
 Management  
 Comments:

**Location**

---

Survey Site Name: Crommet Creek  
 Managed By: Pazdon

County: Strafford  
 Town(s): Durham  
 Size: 7.7 acres

USGS quad(s): Newmarket (4307018)  
 Lat, Long:  
 Elevation:

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

Directions: 2004: Area 12185: Dame Road, approximately 1.3 miles east of intersection with Rte. 108.

**Dates documented**

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First reported: 2004-05-02  
 Last reported: 2004-05-02

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

### Blanding's Turtle (*Emydoidea blandingii*)

#### Legal Status

Federal: Not listed  
State: Listed Endangered

#### Conservation Status

Global: Apparently secure but with cause for concern  
State: Critically imperiled due to rarity or vulnerability

#### Description at this Location

Conservation Rank: Not ranked  
Comments on Rank:

Detailed Description: 2007: Area 11805: 1 adult observed.  
General Area: 2007: Area 11805: Cemetery near Lamprey River.  
General Comments:  
Management  
Comments:

#### Location

Survey Site Name: Folletts Brook  
Managed By:

County: Rockingham  
Town(s): Newmarket  
Size: 10.7 acres

USGS quad(s): Newmarket (4307018)  
Lat, Long:  
Elevation:

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

Directions: 2007: Area 11805: Elm Street near cemetery. Close to Lamprey River.

#### Dates documented

First reported: 2007-07-05  
Last reported: 2007-07-05

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

### Blanding's Turtle (*Emydoidea blandingii*)

**Legal Status**

Federal: Not listed  
 State: Listed Endangered

**Conservation Status**

Global: Apparently secure but with cause for concern  
 State: Critically imperiled due to rarity or vulnerability

**Description at this Location**

Conservation Rank: Not ranked  
 Comments on Rank:

Detailed Description: 2011: Area 13132: 1 adult observed.  
 General Area: 2011: Area 13132: Residential yard.  
 General Comments:  
 Management  
 Comments:

**Location**

Survey Site Name: Crommet Creek  
 Managed By:

County: Strafford	USGS quad(s): Newmarket (4307018)
Town(s): Durham	Lat, Long:
Size: 1.9 acres	Elevation:

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

Directions: 2011: Area 13132: 38 Ross Road, Durham.

**Dates documented**

First reported: 2011-06-06	Last reported: 2011-06-06
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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

### Blanding's Turtle (*Emydoidea blandingii*)

#### Legal Status

Federal: Not listed  
State: Listed Endangered

#### Conservation Status

Global: Apparently secure but with cause for concern  
State: Critically imperiled due to rarity or vulnerability

#### Description at this Location

Conservation Rank: Historical records only - current condition unknown.  
Comments on Rank:

Detailed Description: 1992: Area 11892: 2 young.

General Area: 1992: Area 11892: Lamprey River fish ladder, riverine habitat.

General Comments:

Management: 1992: Area 11892: Accidental trappings and deaths of turtles in this fish ladder indicate a  
Comments: need for a look into the matter, with the hope of eliminating the risk to turtles.

#### Location

Survey Site Name: Crommet Creek  
Managed By:

County: Rockingham

USGS quad(s): Newmarket (4307018)

Town(s): Newmarket

Lat, Long:

Size: 2.9 acres

Elevation: 20 feet

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

Directions: 1992: Area 11892: From Rte 108 in Newmarket, go just beyond Bay Road to the Lamprey River Dam with the Lamprey Fish Ladder.

#### Dates documented

First reported: 1992-10-01

Last reported: 1992-10-01

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

### Spotted Turtle (*Clemmys guttata*)

**Legal Status**

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Federal: Not listed  
 State: Listed Threatened

**Conservation Status**

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

**Description at this Location**

---

Conservation Rank: Not ranked  
 Comments on Rank:

Detailed Description: Two adults observed some time between April 1993 and September 1998.

General Area:

General Comments:

Management

Comments:

**Location**

---

Survey Site Name: Langmaid Road

Managed By:

County: Strafford

USGS quad(s): Newmarket (4307018)

Town(s): Durham

Lat, Long:

Size: 2.8 acres

Elevation: 60 feet

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

Directions: [From Newmarket take Rte 108 north. Turn right on Langmaid Road and continue ca. 1.25 miles to a small wetland south of the road.]

**Dates documented**

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First reported: 1993-1998

Last reported: 1993-1998

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.





**Legal Status**

Federal:  
State:

**Conservation Status**

Global:  
State:

**Description at this Location**

Conservation Rank:  
Comments on Rank:

Detailed Description:  
General Area:  
General Comments:  
Management  
Comments:

**Location**

Survey Site Name:  
Managed By:

County: USGS quad(s):  
Town(s): Lat, Long:  
Size: Elevation:

Precision:

Directions:

**Dates documented**

First reported: Last reported:

NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 1  
Classification: PEM1B  
Date: 7/8/2013  
Looking East



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 1B  
Classification: PSS1E  
Date: 7/8/2013  
Looking South-West



NHDOT Project: 13080 NH Route 108 Durham - Newmarket

Wetland: 1C

Classification: PEM1E

Date: 7/8/2013

Looking West



NHDOT Project: 13080 NH Route 108 Durham - Newmarket

Wetland: 2

Classification: PFO/SS1B

Date: 7/8/2013

Looking North-West



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 3  
Classification: PEM1B  
Date: 7/8/2013  
Looking West



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 4  
Classification: PSS1B  
Date: 7/8/2013  
Looking East



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 7  
Classification: PSS/FO1C  
Date: 7/8/2013  
Looking North-West



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 8  
Classification: PEM1/SS/FO1B  
Date: 7/8/2013  
Looking East



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 12  
Classification: PEM1/SS/FO1B  
Date: 7/8/2013  
Looking South-West



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 13  
Classification: PEM1C  
Date: 7/8/2013  
Looking West



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 15  
Classification: PEM1/SS1C  
Date: 7/8/2013  
Looking East



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 18  
Classification: PEM1E  
Date: 7/8/2013  
Looking North



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 19  
Classification: L1UB3Hh  
Date: 7/8/2013  
Looking North-West



\*(wetland 19 located in background)

NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 20  
Classification: R2UB3  
Date: 7/8/2013  
Looking West



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 21  
Classification: R2UB3  
Date: 7/8/2013  
Looking East



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 22  
Classification: PEM1E  
Date: 7/8/2013  
Looking North-West



\*(wetland 22 located in foreground)

NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 27  
Classification: PSS1E  
Date: 7/8/2013  
Looking South



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 28  
Classification: PSS1B  
Date: 7/8/2013  
Looking East



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 29  
Classification: PEM1E  
Date: 7/8/2013  
Looking South



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 30  
Classification: PFO/SS1E  
Date: 7/8/2013  
Looking West



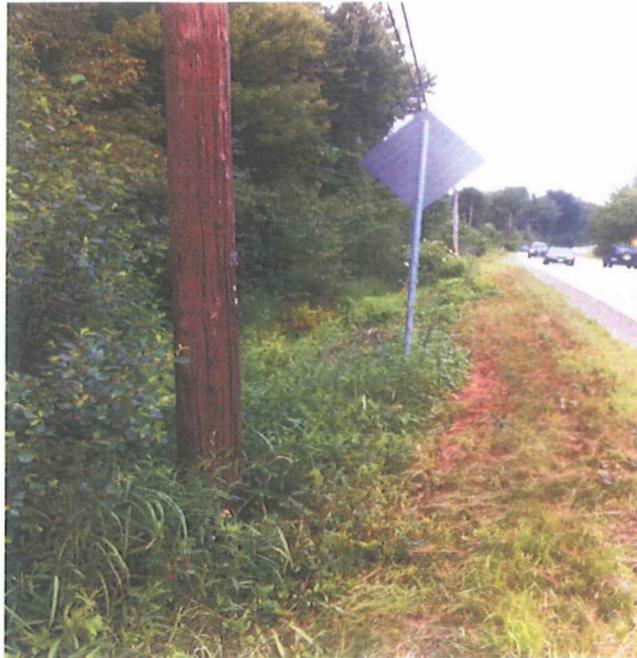
NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 31  
Classification: PEM1B  
Date: 7/8/2013  
Looking East



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 33  
Classification: PFO/SS1B  
Date: 7/8/2013  
Looking East



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 34  
Classification: PEM1E  
Date: 7/8/2013  
Looking North



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 35  
Classification: PEM1E  
Date: 7/8/2013  
Looking West



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 36  
Classification: PSS1B  
Date: 7/8/2013  
Looking East



\*(wetland 36 located on left)

NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 37  
Classification: R2UB  
Date: 7/8/2013  
Looking East



\*(wetland 37 located center and on right)

NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 38  
Classification: PEM1E  
Date: 7/8/2013  
Looking North



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 39  
Classification: PEM1C  
Date: 7/8/2013  
Looking East



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 40  
Classification: PEM1E  
Date: 7/8/2013  
Looking North



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 41  
Classification: PFO/SS1B  
Date: 7/8/2013  
Looking East



NHDOT Project: 13080 NH Route 108 Durham - Newmarket

Wetland: 46

Classification: PSS1/EM1E

Date: 7/8/2013

Looking North-East



NHDOT Project: 13080 NH Route 108 Durham - Newmarket

Wetland: 54

Classification: PSS1B

Date: 7/8/2013

Looking West



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 55  
Classification: PEM1/SS1E  
Date: 7/8/2013  
Looking East



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 58  
Classification: PSS1B/BANK  
Date: 7/8/2013  
Looking South



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 59  
Classification: BANK  
Date: 7/8/2013  
Looking North-East



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 60  
Classification: R3AB1/2  
Date: 7/8/2013  
Looking East



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 61  
Classification: PSS1B/BANK  
Date: 7/8/2013  
Looking West



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 63  
Classification: Bank  
Date: 7/8/2013  
Looking North



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 64  
Classification: PSS1B/BANK  
Date: 7/8/2013  
Looking North-West



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 65  
Classification: PSS1B  
Date: 7/8/2013  
Looking South



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 65A  
Classification: PFO1B  
Date: 7/8/2013  
Looking East



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 66  
Classification: PSS1B  
Date: 7/8/2013  
Looking South



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 67  
Classification: PSS1B  
Date: 7/8/2013  
Looking South



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 68  
Classification: PSS1B  
Date: 7/8/2013  
Looking North-West



NHDOT Project: 13080 NH Route 108 Durham - Newmarket  
Wetland: 71  
Classification: PEM1B  
Date: 7/8/2013  
Looking West

