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ASFE PEER REVIEWED 2007

NHDES WETLANDS BUREAU
STANDARD DREDGE AND FILL
WETLANDS PERMIT APPLICATION
WISWALL DAM AND DENIL FISHWAY
DURHAM, NEW HAMPSHIRE
SA Project No. 075-05-001
December 23, 2010

Prepared for:

DEPARTMENT OF PUBLIC WORKS
TOWN OF DURHAM
100 Stone Quarry Drive
Durham, NH 03824

Prepared by:

Stephens Associates Consulting Engineers, LLC

Nathaniel A. Olson, Ph.D, E.I.T.
Staff Engineer

James E. Turner
Project Manager

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ASFE PEER REVIEWED 2007

December 23, 2010

New Hampshire Department of Environmental Services
Wetlands Bureau
29 Hazen Drive
Concord, New Hampshire 03302-0095
Attention: Mr. Collis G. Adams, Administrator

Via: Town Clerk's Office, Durham, NH

Re: Wiswall Dam Upgrades and Repairs
Durham, New Hampshire
SA Project No. 075-05-001

Ladies and gentlemen:

Enclosed is a NHDES Wetlands Bureau Standard Dredge and Fill Application and supporting materials ("Application") prepared by Stephens Associates Consulting Engineers, LLC (SA) for the Town of Durham, New Hampshire (Town) for upgrades and repairs to Wiswall Dam (Dam), located in Durham, New Hampshire. Five copies of the Application have been submitted to the Town Clerk's Office, Durham, New Hampshire.

We request that NHDES expedite review of this Standard Dredge and Fill Application. The Town of Durham has partnered with the United States Department of Agriculture, Natural Resources Conservation Service (NRCS) as lead federal agency to modify and improve Wiswall Dam for fish passage on the Lamprey River in Durham, New Hampshire, which will open on the order of 40 miles of the Lamprey River Watershed to anadromous fish habitat formerly blocked by the Dam. The Project is largely supported by federal funds and construction must be completed by September 2011. Further, New Hampshire Department of Fish & Game has recommended construction of portions of the project that require river drawdown between April and June of 2011 (as described in the permit application). We request NHDES' expedited review since the Project will provide significant environmental benefit and because of the rapid construction schedule required by NHF&G drawdown recommendations and federal funding limitations. NHDES Staff indicated to SA via telephone on December 23, 2010 that the application can likely be expedited following NHDES Standard Operating Policy No. 201 (provided to SA electronically).

The Dam is an active; grandfathered (to the Wetland Regulations) structure, constructed circa 1911, and impounds a reservoir of Town water supply. The Project involves repairing/renovating the Dam to maintain the impoundment for Town water supply, to provide fish passage by Denil fishway, and to address structural and hydraulic deficiencies of the Dam cited by NHDES Dams Bureau and Stephens Associates Consulting Engineers, LLC (SA). The Town is under Administrative Orders from the NHDES Dams Bureau to implement repairs to the Dam.

Figure 1 - Site Topographic Map, and Figures 2 to 7 – Photograph Location Plan and Photographs, show the Site. Appendix A – Wetland Impact and Engineering Plans show the proposed modifications and upgrades. The Project is at once a fish passage project, a dam safety project and a water supply project. The Denil fishway, repairs to the spillway and abutments, and hydraulic control of water releases through the Dam and fishway are therefore integral to each other in design. To limit impact to the historic Wiswall Falls Mills Site near the Dam, the Town plans to integrate construction of the fishway with modifications and repairs to the Dam necessary to pass the design flood and low-flow operation of the reservoir as a Town water supply. SA has designed the repairs, renovations, and fishway in cooperation with the Town and NRCS. Construction and repairs at the Dam include:

- Construct Denil fishway and downstream migration notch/plunge pool to allow fish passage;
- Reconstruct and repair Dam, abutments, and downstream training walls, raise dikes to meet NHDES Dams Bureau regulatory requirements;
- Construction staging, in areas defined in attached design drawings.

The Town, NRCS and SA have met, communicated, and reviewed design plans with numerous local, state and federal agencies, including US Fish and Wildlife Service, National Park Service, NHDES Wetlands Bureau, NHDES Dams Bureau, Natural Heritage Bureau, NH Department of Fish and Game, NH Department of Historic Resources, Lamprey River Advisory Committee, Durham Historical Association, and Wiswall Historic Interpretation and Park Planning Committee, among others to consider their interests in the design. NRCS has led coordination of the historic review process with NHDHR/SHPO and interested consulting parties and are finalizing a Memorandum of Agreement. NHDHR indicated that submission of a full copy of the Standard Dredge and Fill Permit Application to NHDHR/SHPO by SA/the Town/NRCS was unnecessary.

The Project will provide fish access to on the order of 40 miles of river habitat on the Lamprey River watershed upstream of Wiswall Dam that was formerly blocked by the Dam. According to the New Hampshire Code of Administrative Rules Env-Wt 100-800 ("Regulations"), we anticipate that the project is considered Minor impact and does not require compensatory mitigation. Nonetheless, in our opinion, the benefit provided by the Fishway far outweighs impacts to the permanent wetland and provides alternative mitigation through its environmental benefit.

We have sent notifications to abutters and the Lamprey River Advisory Committee. Refer to Appendix C for copies of the letters and certified mail receipts. Appendix D contains information required for the USACE Programmatic General Permit.

We hope that the attached Application can be quickly reviewed and approved. Please contact us with any questions regarding this Application or the Project.

Stephens Associates Consulting Engineers, LLC

Nathaniel A. Olson, Ph.D, E.I.T.
Staff Engineer

James E. Turner
Project Manager

Attachments

cc w/ Attachments: David Cedarholm, Town of Durham, NH

CONTENTS

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: www.des.nh.gov/wetlands Email: wetmail@des.nh.gov

Standard Dredge and Fill Application Form

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.

1.	Name of Landowner* (last, first, middle initial)	Owner daytime phone number	Owner fax number	Owner email
	Town of Durham, New Hampshire	(603) 868-5578	(603) 868-8063	dcedarholm@ci.durham.nh.us
NOTE: Town of Durham represented by: David Cedarholm, P.E., Town Engineer, Department of Public Works, Durham, New Hampshire				
Landowner (permanent) mailing address or PO Box		**Town/City (owner mailing address)**	**State**	**Zip code**
100 Stone Quarry Drive		Durham	NH	03824-3308

2.	Name of Applicant, if not the landowner	Applicant phone number	Applicant fax number	Applicant email
		( )	( )	
	Applicant street address	**Applicant town/city**	**State**	**Zip code**

3.	Company and Name of Agent	Agent phone number	Agent fax number	Agent email
		( )	( )	
Agent Street mailing address or PO Box		**Town/City (agent mailing address)**	**State**	**Zip code**

4.	Location(s) of the proposed work						
Street address(es) or nearest intersection(s)			On Lamprey River about 300 ft. downstream of Wiswall Road (between Packers Falls Road and Little Hook Road)				
Town/City	Durham	**Tax map**	17	**Block**		**Lot number(s)**	7

5.	For projects classified as minor or major impact, are there any vernal pools located on the subject property? If "**Yes**," identify and label the location(s) of vernal pool(s) on the project plans.	Circle one: **No**

6.	Based on information obtained from the Natural Heritage Bureau (NHB), are there any state or federal threatened or endangered species or exemplary natural communities on the subject property? Provide the NHB file number: NHB10-0921 and attach the documentation (letter/memo & map) Natural Heritage information can be obtained at www.nhnaturalheritage.org. 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.	**Circle one:** **Yes**
7.	If there are any state or federal threatened or endangered species or exemplary natural communities located on the subject property, 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.	

8. **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):***

Nontidal wetland: swamp, wet meadow, etc.	X	Bank of surface water body	X	Intermittent (seasonal) stream		Name of water body from USGS topographic map: Lamprey River	
Vernal pool		Lake or pond		Perennial stream or river	X	Tributary to:	
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. **Provide a brief description** of all proposed work including: 1) the **size of the impact area** (square feet) in the resource, 2) the size (in acres) of the entire parcel(s), and 3) the compensatory mitigation proposed, if applicable, per Env-Wt 302.03(c). Attach a separate page if you are not completing this using a computer.

The proposed project involves Dam repairs to meet NHDES Dam Bureau requirements, and construction of fish passage by Denil fishway. The Dam is active, impounding a reservoir of Town of Durham water supply.
(1) The proposed Denil fishway will permanently impact about 1,116 square feet of NHDES jurisdiction wetlands. Proposed repairs and construction will temporarily impact up to 15,908 square feet of NHDES jurisdiction wetlands.
(2) The parcel, owned by the Town of Durham, is about 5.0 acres (about 218,000 square feet).
(3) Compensatory mitigation is not required per Env-Wt 302.03(c). Nonetheless, the Denil fishway will benefit fisheries on the Lamprey River by allowing anadromous fish to access on the order of an additional 40 miles of river habitat on the Lamprey River watershed upstream of Wiswall Dam.

10.	Does the project require compensatory mitigation to offset unavoidable impacts to wetlands? If **Yes**, attach a copy of the completed **Mitigation Checklist**.	**No**
11.	Have you requested a waiver of any wetland rules per Env-Wt 204? If **Yes**, attach your waiver request to this application.	**No**
12.	Is there any DES emergency authorization associated with this property? Are you aware of any DES enforcement issues related to this property? If **Yes**, provide the file number(s): ____WD 05-01_____	**Yes**
13.	Explain why it is necessary to impact a wetland or other jurisdictional area to construct your project.	

Repairs and modification to Wiswall Dam require temporary wetland impacts to access portions of the Dam in the River on the downstream side, and to construct a temporary cofferdam upstream of the east abutment. Construction of the Denil fishway for upstream migration and a notch/plunge pool for downstream migration (and associated rock excavation/boulder removal) will permanently impact wetlands by the presence of these structures in the River/wetland. The Denil Fishway and notch/plunge pool will benefit fisheries on the Lamprey River, providing access to on the order of 40 miles of River habitat upstream of Wiswall Dam.

14. 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)

The location of the Denil Fishway was selected based on the necessary locations of the fish entrance and fish exit to the Fishway to increase effectiveness of fish passage and on the Town's need to reconstruct the Dam gate structure/east abutment. The fish entrance/exit locations were selected by SA and the Town in consultation with US Fish and Wildlife Service. The optimum location for the fish entrance was selected to be downstream of the Dam gate structure/east abutment such that fish holding in the deeper pool at the spillway toe could access the entrance yet the flow from the Fishway (attraction flow) would be distinctly different from the spillway flow to facilitate fish passage. The fish exit was incorporated into the Dam east gate structure to be rebuilt. The axis of the fishladder was aligned with the east downstream training wall of the Dam in an area primarily composed of bedrock outcrop where wetlands impacts would be minimized.

Other alternatives considered included locating the Fishway in the ground of the east abutment and various alternatives located further into the river. The alternative of locating the Fishway in the ground of the east abutment was discarded because of the adjacent Wiswall Mills Historic Site and the need to minimize disturbance of this resource, and because fish access to the Fishway would be more difficult, potentially reducing fish passage effectiveness. Alternatives of locating the Fishway further in the river were discarded because of more difficult access to the Fishway by the fish and by the Town for operation and maintenance, and because of potential for greater wetland impacts. Further, since the Dam east abutment/gate structure needed reconstruction, locating the Fishway in-line with the abutment/gate structure was considered less wetlands impact than other potential Fishway locations.

The plunge pool of the downstream migration notch will be constructed at the toe of the spillway where the stream bottom consists primarily of bedrock. Avoidance of this impact was not possible and the footprint of the plunge pool was limited to reduce wetland impacts. NHF&G requested removal of selected boulders downstream of the notch to reduce debris buildup to facilitate downstream fish passage.

15.	**Amount of Impact Proposed By Jurisdictional Area** Indicate whether **permanent** or **temporary** impacts. This information is necessary to calculate the fee and classify your project. Leave box blank if not applicable to your proposed project.

TOTAL TEMPORARY IMPACT	15,908 SQUARE FEET; 405 LINEAR FEET
TOTAL PERMANENT IMPACT	1,116 SQUARE FEET, 194 LINEAR FEET

Jurisdictional area	**Impact Type (indicate whether temporary or permanent)**			
	Dredge	**Fill**	**Structure**	**Total**
Wetlands – Temporary (for construction access)				641 sq. ft.
Wetlands – Permanent				sq. ft.
Impacts to very poorly drained soils (only required for pond construction)				sq. ft.
Prime wetland				sq. ft.
Vernal pool				sq. ft.
Prime Wetland Buffer (within 100 feet of designated prime wetland)				sq. ft.
Stream or River – Temporary				
Bank of stream or river – Temporary (for construction access)				251 linear feet
				1,363 sq. ft.
Bed of perennial stream – Temporary (for construction access)				154 linear feet
				13,904 sq. ft.
Stream or River – Permanent				
Bank of stream or river – Permanent			66	66 linear feet
			214	214 sq. ft.
Bed of perennial stream – Permanent	55		73	128 linear feet
	531		371	902 sq. ft.
Thread of Intermittent Stream				linear feet
Bank of Lake (for beach construction & replenishment, bank stabilization)				
Shoreline (see following page for how to calculate this average length)				linear feet
Dredge/fill within bank				sq. ft.
Dredge/fill within bank				cubic yards
Lake or Pond (below full lake elevation) Impacts for docks and structures listed in item 15 are entered below.				
Shoreline subject to impacts				linear feet
				sq. feet
Dredge or fill of lakebed				cubic yards
				sq. ft.
Sand dune				sq. ft.
Tidal wetland				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)	(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:	
Surface area of all **seasonal** structures:	

18. Other DES Permitting Requirements

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 or the following websites:

- A "fourth order" or larger stream or river (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/).
- Public waters (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), 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/ and RSA 485-A:17.

NO **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?
Date of submittal to DES: _____
DES AoT File number: _____

_NO_ **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, _David Cedarholm_____, 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: _____ X Applicant email: __dcedarholm@ci.durham.nh.us__

☐ Agent email: _____

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. **Attach the appropriate fee calculation worksheet(s).**

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.
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 submitted a copy of the application materials to the NH State Historic Preservation Officer~~.
   Per phone conversation between Stephens Associates Consulting Engineers, LLC and Ms. Edna Feighner 12/22/2010, submittal of applications materials to SHPO is unnecessary. Coordination and consultation with SHPO and NHDHR is ongoing.
6) 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.

David Cedarholm	DAVID CEDARHOLM	1/6/11
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 Durham 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.

	1/7/11
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:_____

The U.S. Army Corps of Engineers has reissued its New Hampshire Programmatic General Permit (PGP) effective June 28, 2007. The Corps is requiring the submission of a new Corps Secondary Impacts Checklist to be submitted with the DES wetland application. The Corps will review this information to assess direct, indirect (secondary impacts) and cumulative impacts. The Corps **Secondary Impacts Checklist,** Appendix B to the New Hampshire PGP, is attached to this DES wetland application. The PGP does not impose any obligation on DES to assess secondary impacts that does not already exist in state law.