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***NHDES Wetlands Bureau Application
Jackson's Landing Erosion Control Project
Durham, New Hampshire Tax Map 11, Lots 11-4, 11-3, 9-2***

Prepared for:
NH Department of Environmental Services
Wetlands Bureau
29 Hazen Drive - PO Box 95
Concord, NH 03302-0095



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February 25, 2008

NHDES Wetlands Bureau
P.O. Box 95
6 Hazen Drive
Concord, NH 03302

**Re: Jackson's Landing Erosion Control/Improvements Project
Old Piscataqua Road
Durham, NH 03824**

Dear Wetlands Bureau,

This letter is in support of a Dredge and Fill Application to request dredging/disturbance of 12,900 square feet within the Jackson's Landing Recreational Area located off of Old Piscataqua Road in Durham, NH. The Jackson family donated Jackson's Landing to the Town of Durham in the 1960s. The Jackson's gift has enabled the town to provide multiple active and passive recreational activities at the site and public access to the Oyster River and Great Bay waters. The Town has developed a ***Master Plan** (see attached) to upgrade some of the deteriorated components and areas at Jackson's Landing. The Master Plan also improves components of the area that may or may not affect this Wetlands Application such as walking trails and parking.

***The Master Plan identifies improvements related to this wetlands application and also future plans which will/may come before the Wetlands Bureau in the future and are identified as such.**

The primary goals of this project are: *1) Significantly reduce or eliminate erosion and consequent sediment deposition into the Oyster River at Jackson's Landing. 2) Rebuild the deteriorated boat launch, which currently is in disrepair. 3) Remove the growth of Phragmites, which has taken over the eastern section of the Landing.*

The secondary goals of this project are: *1) Move primary parking away from the shoreline. 2) Upgrade or create walking trails on the property. 3) Create handicap parking along the waterfront utilizing a friendly surface suitable for folks with disabilities. 4) Create a passive park like setting for the general public to utilize and enjoy. 5) Create new parking (away from the waterfront) for the Churchill Skating Rink and the Town of Durham/UNH Boat House Facility.*

These goals will be achieved through the following objectives.

Jackson's Landing

Wetlands Bureau Application
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Durham, NH

1. *Paving the steep, 12-foot wide gravel access roadway leading down to the waterfront.*
2. *Stabilization of the steep slopes on either side of the access road with vegetation.*
3. *Paving of parking area on west side of ice skating rink.*
4. *The installation of a treatment drainage swale on east side of access road and north side of the waterfront area to carry storm water from the upper parking area (rink) and access road driveway to an existing wetland.*
5. *Removal of existing waterfront parking, and loam and seeding of the old waterfront parking area to create a turf/grass picnic area with trees and picnic tables.*
6. *Creation of a paved, turnaround area for vehicles with or without boat trailers, handicap parking and suitable access to the boat launch at the waterfront.*
7. *Reconstruction of the deteriorated asphalt boat-launch ramp with approved New Hampshire Fish & Game concrete log construction.*
8. *Creation of a new parking area on the north side of Old Piscataqua Road to replace the lost parking along the waterfront.*
9. *Removal of approximately 11,490 square feet of Phragmites and re-vegetate with a non-invasive salt marsh grass species.*
10. *Removal of an existing old culvert pipe, east of the boathouse and install a small pre-fabricated arched footbridge, which will allow tidal waters to flow in and out of the wetland.*

As stated above this application requests permission to mitigate a major erosion and sedimentation problem at Jackson's Landing along the shores of the Oyster River. The gravel access road leading down to the waterfront is steep and allows storm water to deposit gravel sediments into the river. This is especially true at the existing paved boat-launch area, which is badly deteriorated. In addition, the gravel parking area next to the river is a threat to water quality because of the possibility of an oil/gasoline spill and other chemicals from automobiles parked at the site. The Town considers these improvements to be a water quality improvement project, which will protect and preserve the water and related land resource of this sensitive and ecologically important estuarine environment.

Evidence for the deterioration of the Oyster River due to sediment input at Jackson's Landing is documented in a New Hampshire Department of Environmental Services (NHDES) funded study completed in 2004 entitled "*Feasibility Study for Re-Establishing a Navigation Channel in the Oyster River and Related Improvement of Wastewater Dilution*". The report shows that the river channel has suffered from severe sedimentation thereby severely limiting the navigable channel and causing deterioration of favorable habitat for aquatic organisms, especially oysters. Specifically, this report states that the bottom sediment shows a marked increase in the sand-size fraction to silt/clay fraction opposite the Landing attributable to the erosion and subsequent transport of sand-size sediment into the river at this location.

One new parking area will be constructed on town land along the north side of Old Piscataqua Road. The impact of the new parking area (across from the ice rink) on an upland portion of the parcel will have negligible effect on the adjacent wetlands. The

Town will build a vegetated treatment swale and rain garden around the perimeter of the new parking to treat storm water runoff and replenish groundwater.

The Town also proposes to create a natural universal access trail for people to enjoy this 28-acre parcel and erect educational signage identifying freshwater wetlands and their ecological functions at Jackson's Landing. This will compliment the educational signage that is envisioned for the salt marsh environmental area down by the Oyster River.

A small parking area will be located down Old Piscataqua Road (to the east) on the other side of the major stream and wetland that drains southward across the property. This parking area will be constructed with a pervious material and reserved as overflow parking only for vehicles with boat trailers. A new natural (stone dust) accessible path will be constructed behind the ice rink and playground to allow boaters to access the water after parking their trailers.

Professionals who are town residents and serve on the Jackson's Landing Committee (JLC) have contributed the landscape architectural and engineering planning that will be required to complete this project. It is also anticipated that volunteers from the Conservation Commission will be used to help plant the grass seed, shrubs and trees that will make the waterfront a vibrant passive recreation area for all to enjoy. The Durham community has requested these improvements, planned and contributed to the vision, which truly makes this project a community event. Members of the Jackson Landing Master Plan Committee have also met onsite with personnel from the UNH Stormwater Center to discuss specifics regarding construction of erosion and sediment-control structures. This project will also include additional officials from UNH, as campus recreation and men's and woman's varsity crew utilizes Jackson's Landing on a regular basis.

The location of Jackson's Landing is detailed in the maps provided with this proposal. The landing is located approximately 1 mile from the center of Durham, NH. This Town property consists of a forested uplands area underlain by bedrock and supporting a mixed and varied community of pine, hemlock, fir and hardwoods. Below this upland lies a relatively flat area approximately 20 feet above mean sea level. It is on this marine terrace that the Town ice rink was constructed. The terrace level then drops off to the salt marshes and the Oyster River. There is a rather limited and restricted wetland on the terrace to the north of Old Piscataqua Road opposite the ice rink. A drainage swale that drains south into the Oyster River also holds an associated well-developed wetland.

Included in this application is Phase I Archaeological Investigation completed for the NH Division of Historical Resources. A Title Opinion of the property and a NH Natural Heritage Bureau (NHB) database search for records of rare species and exemplary natural communities, have been completed. Town Officials have met on site January 25, 2008 with Cheri Patterson and Michael Dionne of New Hampshire Fish and Game Department to discuss the project and review the NHB report. Their comments will be forthcoming to the wetlands bureau under separate cover.

NHDES Wetlands Bureau Rule Wt 302.03-302.04:

The following are responses to Section 302.03-302.04 of the NH Code of Administrative Rules:

1. ***Need for the proposed impact:*** The proposed project is needed to control sediment from entering the Oyster River and to improve water quality, wildlife values and recreational, visual/aesthetic values related to the use of Jackson's Landing as a community resource.
2. ***Alternative with the least impact to wetlands:*** The only direct dredging in the Oyster River is the boat ramp replacement. With a New Hampshire Fish and Game approved concrete log boat ramp, we eliminate all impervious pavement and its associated pollutants to the river. All additional impacts are temporary in that they are where the storm water treatment swales outlet into various wetlands. This project does not impact the channel of the Oyster River and has been designed to avoid protected species and impacts to wildlife. Proper engineering and sediment and erosion controls have been incorporated into the project design to aid in minimizing impacts.
3. ***Type/classification of the wetlands involved:*** Lacustine – AB wetlands consisting mostly of Rooted Vascular are the typical type found within the freshwater areas. Riverine/Tidal – UB wetlands consisting mostly of Cobble/Gravel, Sand, and Mud are the typical type found within the saltwater areas.
4. ***Relationship of the proposed impact areas to nearby wetlands and surface waters:*** The Oyster River receives flow from the Mill Pond, College Brook, Hamel Brook, Longmarsh Brook, and Beaudette Brook and flows into Great Bay and the Piscataqua River.
5. ***Rarity of the wetland area:*** We do not believe the wetland areas at Jackson's Landing are rare in nature.
6. ***Surface area of the wetland to be impacted:*** The proposed dredge at the boat ramp involves 1080 square feet of tidal wetland disturbance (Wetland Disturbance C). Ninety (90) square feet of disturbance are proposed behind the boathouse where the proposed treatment swale needs to outlet into the fresh water wetland at grade (Disturbance A). Replacement of an existing culvert with a prefabricated wooden footbridge involves 240 square feet of fresh water wetland restoration (Disturbance B). Removal of phragmites provides 11,490 square feet of tidal wetland restoration (Disturbance D).
7. ***Impact on plants, fish and wildlife:*** Protected species have been avoided to the extent practicable through dredge design. In the past, protected species have remained viable in the Oyster River during past maintenance dredges.
8. ***Impact on public commerce, navigation and recreation:*** The Town of Durham oversees public use related to Jackson's Landing. There is not public commerce related to this project and navigation will not be impacted along the Oyster River. The proposed dredge/impact will limit recreation only at the boat launch for a period of approximately one week. This project will provide increased recreation value in several areas at Jackson's Landing when completed.
9. ***Impact to aesthetic interests of the general public:*** The proposed dredging will be in the interest of the general public. The proposed project is the result of many studies related to the health and aesthetic values of Jackson's Landing for residents of the

Town of Durham and the general public. The Oyster River has reduced water depth, and water quality due to the ongoing erosion issues and wildlife values choked by aquatic invasive vegetation (phragmites). The Oyster River/Jackson's landing area will provide increased passive and active recreational values to the general public, increased water quality and enhanced aesthetics for all who visit and enjoy this wonderful gem in the seacoast area. Impacts to aesthetic interest of the general public will be very minor during construction and will certainly be offset by increased overall aesthetic values with the completion of the project.

10. ***Interferes with or obstructs public rights of passage or access:*** This project will not significantly interfere with or obstruct public rights of passage or access. Public access to the boat ramp will be restricted for one week due to public safety concerns.
11. ***Impact on abutting owners:*** This project will not impact abutting properties. Once completed, we believe abutting property owners will benefit from increased overall property evaluations.
12. ***Benefit to public health, safety and well being of the general public:*** The Jackson's Landing/Oyster River area currently has experienced major erosion, reduced water quality, and limited recreational and aesthetic values. This project will provide a positive value for the general public in the way of increased accessibility to navigable waters and the removal of invasive species will provide a positive value to public health, safety and well being.
13. ***Impact on quantity or quality of surface and ground water:*** The proposed project will not impact the quantity or quality of surface and ground waters. Removal of invasive vegetation and sedimentation within the Oyster River will enhance the quality of surface waters. The removal of motor vehicles from the shoreline will enhance the quality of all surface and ground waters.
14. ***Potential to cause or increase flooding, erosion or sedimentation:*** The proposed permanent drainage structures such as the rain garden, treatment swales, headwalls, culverts, catch basins, rock rip rap outlet protection, and rip rap shoring and temporary erosion control structures such as silt fencing, silt soxx, basin inlet protection, stone check dams, and jute matting will provide adequate means of mitigating against any potential increase in flooding, erosion, or sedimentation.
15. ***Extent project redirects current or wave energy:*** The proposed project will not redirect or effect current or wave energy. The project is located within tidal waters and subject to tidal currents and wave energy.
16. ***Cumulative impact if all parties altered the wetland:*** The proposed impact areas occur along a previously altered boat launching area. The proposed project will increase water quality, could enhance wildlife habitat, and will enhance visual aesthetic and recreation. We do not anticipate other parties proposing similar positive restoration and improvements within these wetlands, Restoration projects such as this community project and others presented by a community could provide an overall increase in the State's ecosystems health, quality and protection.
17. ***Impact to values and functions of the total wetland:*** The proposed dredge area is approximately 1,080 square feet and thus represents a very small percentage of the total habitat associated with the Oyster River. The overall project is expected to have a positive effect on values and functions of the Oyster River and the environment as a whole. The effect of the minor dredge on wetland functions and values should be

considered minor relative to the overall benefits of the project. The functions and values of the Jackson's Landing area were assessed using the US Army Corps of Engineers' Highway Methodology Workbook Supplement (ACOE, September 1999). Eleven functions/values were assessed for this system including: groundwater recharge/discharge, flood flow alterations, fish/shellfish habitat, sediment/toxicant retention, sediment/shoreline stabilization, wildlife habitat, endangered species habitat, visual quality/aesthetics, educational/scientific value, recreation, and uniqueness/heritage. Functions are deemed "principal" if they are determined to be an important component of a wetland ecosystem; values are also "principal" if they are determined to be of special value to society from a local, regional or national perspective. The tree layer of Jackson's Landing Wetland System consists of scattered trees along the banks of the Oyster River. It is comprised of Red Maple (*Acer rubrum*), Red Oak (*Quercus rubra*), American Elm (*Ulmus americana*), Black Cherry (*Prunus serotina*), White Pine (*Pinus strobus*) and white ash (*Fraxinus americana*). The wetland system provides some flood flow alteration, sediment/toxicant retention, wildlife habitat, uniqueness/heritage, and visual quality/aesthetics as principle functions and values. Wildlife habitat is principle due to a combination of perennial streams, open water and wetland system habitats. Ground water recharge/discharge, fish and shellfish habitat, sediment/shoreline stabilization, recreation, and educational/scientific value were deemed suitable but not principle.

18. ***Impact on National Register of Natural Landmark sites:*** A Phase I Archaeological Investigation is attached and also sent to Edna Feighner, Review and Compliance Coordinator at the New Hampshire Division of Historic Resources.
19. ***Impact to nationally designated areas:*** Not applicable (non present).
20. ***Degree to which project redirects water from one watershed to another:*** This project does not redirect water from one watershed to another.

This project will not adversely affect the functions of on-site or adjacent wetlands and surface waters or wildlife and will not be detrimental to groundwater quality or quantity. Proposed impact to wetlands provide for enhancement of water quality, scenic and recreational values. Therefore, we respectfully request that a wetland permit be issued for this project. Please feel free to call with any questions or concerns regarding this project.

- **Detailed Outline of Work to be Done**

- Erosion Control

- All disturbed areas will be enclosed with silt fence and Silt Soxx.

- Tree Removal and Grubbing

- Tree removal includes Scrub White Pine trees (approximately 36) of various sizes. This removal is necessary to accommodate the new northern satellite parking lot along Old Piscataqua Rd. This removal is outside of the 150-foot buffer of the shoreline protection zone. Areas not in the tree removal zone will be protected by colored snow fence.

- Drainage

- Closed drainage system (approximately 410 Ft.) of 15" drainage pipe and 4 storm water catch basins with oil/water separators will be installed along Old Piscataqua Rd. to collect storm water from the new (north) parking area and existing Old Piscataqua Rd. A vegetated drainage swale system (approximately 120 Ft.) will be installed along the west

side roadway leading towards the landing and boat launch area. A vegetated drainage swale (approximately 100 Ft.) will be installed on the north side of the landing and terminate in the wetland behind the existing boathouse. The north parking area will have a treatment swale, level spreader and a rain garden for storm water control.

Installation of Crushed Gravel and Asphalt Paving

Approximately 700 cy of crushed gravel and 244 cy of bank run gravel will be placed, graded and compacted at the new north parking lot. Approximately 304 cy of ¾-crushed gravel will be placed, graded and compacted in the landing roadway and landing area to facilitate drainage. Approximately 800 tons of ¾" base and ⅜" wearing course hot asphalt will be placed and compacted in all parking areas.

Boat Launch Improvements

Demolition of the old asphalt boat ramp and construction of a new Fish & Game approved concrete log boat ramp will be installed in the present boat launching area.

Landscaping

We will create approximately 14,400 sf of turf, which will include picnic areas with handicapped accessible tables, and park areas with benches and shade trees. All landscaped areas will receive 4+ inches of screened topsoil, fertilizer, and grass seed, then rolled, and mulched. Seeded areas will be protected with Silt Soxx or silt fence until turf is well established. A 185-foot long by 5-foot wide stone dust footpath will be installed in the picnic/park area. 12 new 4" caliper ornamental shade trees will enhance the park area along the Oyster River shoreline.

Phragmites Removal

The project will hand cut and remove 11,490 sq ft of this invasive plant species, treat and kill the stocks/roots with an herbicide, and revegetate this area with a native salt marsh cord grass chosen by officials from the Jackson Laboratory at Adams Point.

Culvert Removal

The project will remove an old 12" diameter culvert pipe from behind the existing boathouse, which restrict tidal waters from entering the northern wetland. We will install an arch type footbridge in place of the old culvert pipe.

When completed, this project will mitigate the erosion and consequent contamination of the Oyster River at Jackson's Landing. In addition, by moving the parking which is now at the water's edge to the other side of Old Piscataqua Rd., the waterfront will become a far more vibrant recreational area with the planting of green grass, shrubs and trees and the placement of picnic tables for use by the general public. The site will also become a location where the public can learn about the economic and ecological importance of this estuarine environment both from the past and into the future.

- **Partnerships Involved in the Project**

The Town of Durham, the University of New Hampshire and a group of enthusiastic citizens have come together to develop a comprehensive plan for erosion control and recreational development of Jackson's Landing.

- **Site Plan**

A detailed site plan/master plan is submitted with this proposal.

- **Environmental Information**

All necessary environmental information regarding construction at the site is provided and included in this proposal.

- **Permits/Approvals**

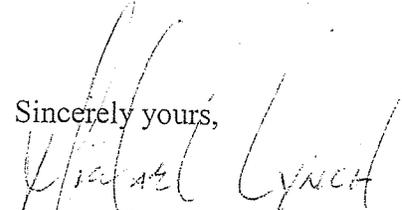
Durham Planning Board
Durham Conservation Commission
NHDES Wetlands
Army Corps of Engineers
NHDES State Shore land Permit
EPA NOI

- **Public Hearings**

A public hearing was held on January 11, 2007 at 7:00 p.m. in the Durham Council Chambers to obtain the views of citizens regarding the Jackson's Landing Master Plan. The meeting was announced in the Thursday, December 28, 2006 issue of the Fosters Daily Democrat as well as posted on the Durham Town web site and bulletin board. No one attended this meeting and thus no input was obtained. The Jackson's Landing Master Plan Committee held two other public meetings in the summer and fall of 2006 to solicit ideas from citizens on what they would like to see developed at the Landing. The first of these meetings attracted approximately 30 people while only one person attended the second meeting. Both provided valuable insights as to what might be done at the landing to make the site a more attractive and vibrant recreational resource for the Town.

The Town will provide the Wetlands Bureau with a State Shore land Permit once an application form and procedures become available.

Sincerely yours,


Michael Lynch
Public Works Director
Durham, NH

Attachments

CC: Town of Durham, NH (3 copies)
Durham Conservation Commission (1 copy)
Durham Planning Board (1 copy)

Army Corps of Engineers Packet (mailed 2/25/08)