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2/14/2020
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION

Lake Encroachment Permit Application

Under Chapter 11 of Title 29, § 401 *et seq.*

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION
LAKES & PONDS PROGRAM

Application Number: *For Lake Encroachment Permitting Use Only*		

Submission of this application constitutes notice that the person in Section B intends to encroach beyond the mean water level of a lake or pond, and certifies that the project will comply with Chapter 11 of Title 29, § 401 *et seq.* All information required on this form must be provided, and the requisite fees (Section J) must be submitted made payable to the State of Vermont.

A. Project Information

1. Physical Address (911 Address): Not Applicable		
2a. Town - County:		2b. Zip:
3a. SPAN (###-###-#####):	(School Parcel Account Number can be obtained from your property tax bill or from your Town Clerk)	
3b. Coordinates (decimal degrees, can be found on Google Maps):	Latitude: N44° 28' 49.1"	Longitude: W73° 14' 52.1"
4. Name of Lake/Pond: Lake Champlain (Burlington Bay)		
5a. Have you ever applied for a permit with the Agency of Natural Resources associated with this parcel? Yes (●) No		
5b. If yes, please describe (e.g., Wetlands, Act 250, Wastewater, etc):		

B. Applicant Contact Information

1. Name: Vermont Division for Historic Preservation		
2a. Mailing Address: One National Life Drive , Davis Bldg. 6th Floor		
2b. Town: Montpelier	2c. State: VT	2d. Zip: 05620
3. Phone: (802) 272-7358	4. Email:scott.dillon@vermont.gov	
5a. Have you completed the voluntary Natural Shoreland Erosion Control Certification course?	○ Yes	● No
5b. If yes, please include the location and year you attended the course: If no, a list of certified contractors is available online.		

C. Application Preparer Information (If the individual preparing the application is not the landowner)

1. Name: Jonathan Eddy		
2a. Mailing Address: 214 Battery Street		
2b. Town: Burlington	2c. State: VT	2d. Zip: 05401
3. Phone: (802) 865-2771	4. Email: jonathan@waterfrontdiving.com	
5a. Have you completed a voluntary Natural Shoreland Erosion Control Certification course?	○ Yes	● No
5b. If yes, please include the location and year you attended the course: If no, a list of certified contractors is available online.		

D. Project Description

1. Describe the proposed project including the materials and equipment that may be used during construction. Please include: **(a)** volume of fill added and/or removed; **(b)** dimensions of proposed project; **(c)** distance beyond mean water level the project will extend; and **(d)** linear feet of shoreline impacted. If this project is to remove and replace an existing encroachment, please include the dimensions of the existing structure.

   Lake Champlain Transportation Co.(LCT) is donating the ferry M/V *Adirondack* to the State of Vermont, Division for Historic Preservation for the purpose of creating the tenth Vermont Underwater Historic Preserve (UHP) site. Ownership will transfer from LCT to the State upon the sinking of the vessel at the coordinates in section 3b above. The car ferry *Adirondack* is 152' long, 42' in beam and 43' from her keel to the top of the smokestack. The plan is to sink the vessel in 68' of water which would leave her smokestack 25' below the surface at a lake elevation of 93.5 feet above sea level. Dimensions and plans of the vessel are provided in Appendix A ,B,C

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5b. If yes, please describe (e.g., Wetlands, Act 250, Wastewater, etc):		
B. Applicant Contact Information		
1. Name: Lake Champlain Transportation Company		
2a. Mailing Address: 1 King Street		
2b. Town: Burlington	2c. State: VT	2d. Zip 05401
3. Phone: (802) 578-3030	4. Email:johnp@ferries.com	
5a. Have you completed the voluntary course? ( ) Yes (●) No		
5b. If yes, please include the location and year you attended the course: If no, a is available online.		
C. Application Preparer Information (If the individual preparing the application is not the landowner)		
1. Name: Jonathan Eddy		
2a. Mailing Address: 214 Battery Street		
2b. Town: Burlington	2c. State: VT	2d. Zip: 05401
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2. Describe the purpose of the proposed project:

In broad terms the purpose of the project is to create an additional site for Vermont's UHP by sinking the Ferry *Adirondack*. This will increase recreational opportunities for both local and visiting divers, and at the same time preserve a piece of Lake Champlain maritime history.

This is not the first time that this has been done for this purpose in fresh water. There are at least 3 examples of comparable sized vessels sunk as dive sites/artificial reefs in fresh water in North America:

1) *Wolff Islander II*: Sunk 3 miles east of Kingston, Ontario on September 21,1985 by the Comet Foundation. She was a 164 ft long steel ferry that ran between Kingston and Wolf Island from 1946 to 1975. Her location is just off the North side of Wolf Island in about 80 feet of water. She is still a popular dive site 35 years later.

2) *Straits of Mackinac*: Sunk off Chicago on April 10, 2003 in Lake Michigan. She was also a steel ferry, 203 ft long that operated across the Straits of Mackinac from 1928 to 1957. Her location is about 10 miles off Chicago in 75 feet of water. This is also a popular dive site today.

3) *Buccaneer*: Sunk off of Chicago June 18, 2010 in Lake Michigan. She was originally a WWII coastal patrol boat and was converted to a tour/excursion boat that operated out of the Chicago area. She is 98 ft long and rests in 72 ft of water. As with the examples above, *Buccaneer* remains a popular dive site.

It is also believed that creating this artificial reef will provide additional fish habitat to the greater Burlington Bay area. There is certainly anecdotal evidence of this from a diving perspective on the other wrecks of the UHP. Particularly in the Fall, when great numbers of fish can be seen on the wrecks.

3. Describe what less intrusive feasible alternatives have been considered:

Given that the purpose of the project is to create an artificial reef/Underwater Preserve, to minimize intrusion we have decided to put the buoys, or descent lines, on the vessel itself rather than using mooring blocks placed on the lake bottom.

In addition, we have placed the vessel in an area that we feel will best suit our selection criteria yet will have a minimal impact on boating traffic. Please refer to section 5 of this application for a more complete analysis.

4. Describe the public benefits of the proposed project (e.g., erosion control, improvements to boating/swimming/fishing, public access, etc.):

The use of the ferry *Adirondack* as a new dive site within Vermont's UHP system will benefit the local community in a number of different ways including: the long term preservation of this historic vessel, the increased diver awareness of submerged cultural resources in Lake Champlain and their management, and creating a structure that will act as an artificial reef providing the ability to use this site to study several different aspects of this unique freshwater ecosystem.

Historic Preservation

Though it seems counter intuitive, the purposeful sinking of the Ferry *Adirondack* for inclusion within the UHP will effectively preserve the vessel for many years to come. The alternative fate of this ferry is a trip to the scrapping yard where it would be cut up for scrap and disposed of. Lake Champlain is a superb preservative environment which will keep this vessel in a condition in which it can be appreciated and interpreted for generations to come. In its new setting it can be appreciated by, and interpreted to the dive community (both local and visiting), and to non-divers through the use of Remote Operated Vehicles (ROVs). Preserving the *Adirondack* on the bottom of Lake Champlain is also much more cost effective than any of the other potential alternatives. A much more thorough analysis of this is contained in the Adirondack information sheet and Question & Answer document provided in Appendix S. . In addition, to further educate the public about the Adirondack and historic preservation, we anticipate creating signage for the project. We propose that two interpretive panels be created that share historic pictures of the vessel and give a brief overview of the ADKs history and importance as an integral part of the transportation network of the Champlain Valley. These would be designed along the same protocols provided for Lake Champlain Basin Program signage that currently exists on the Burlington waterfront One of the panels will be placed on the waterfront, either at Perkins Pier or at the King Street Ferry dock. The

other interpretive panel will be placed aboard the remaining LCT ferry that will be continuing the Burlington-Port Kent crossing so that as the ferry passes the yellow Preserve Buoys marking the Adirondack location passengers would be able to learn about the vessel sunk there and its history.

Artificial Reef

The historic wooden vessels already included in the UHP now act as artificial reefs which attract large numbers of fish and provide habitat for other organisms ranging from crayfish to freshwater sponges. The addition of *Adirondack* to the Preserve system would allow for the creation of another artificial reef on the lake bottom which would also form habitat for all manner of life on the lake bottom. As the *Adirondack* is a steel hulled vessel, it also offers an interesting opportunity to measure and study how rapidly and thoroughly this new habitat is exploited by lake organisms in comparison to the more well understood wooden vessels. Various scientific studies could incorporate the use of volunteer recreational divers to record observations and collect data. In Appendix D, Professor Ellen Marsden of the UVM Rubenstein School discusses a range of studies that could be done in this manner. This added knowledge could then be shared with other freshwater administrators and researchers who are considering adding artificial reefs of this type to their systems.

Diver Awareness

The addition of this large and impressive vessel to Vermont's UHP (and the publicity around its sinking) will provide a significant increase in the awareness of Lake Champlain as a dive destination. This fact should attract a significant number of divers from outside of the area to visit Lake Champlain and experience the new dive site, while learning about the colorful history of the Champlain region. It can be assumed that this will provide a positive economic impact. Although exact statistics are not available, it is believed that annual visitation to the UHP are approximately 1000 diver visits per year. Given the size and appeal of such a vessel we would expect a sizable increase in visitation, to perhaps 1500+ diver visits. The inclusion of the *Adirondack* in the UHP system will also give the local dive community a new site to explore. At this point there are nine sites in Vermont's UHP, and the dive community has been asking for additional sites to be added to the system for some time. The increased exposure to the preserve sites contained within Lake Champlain will also allow divers to learn more about the importance of proper management and access to these non-renewable cultural resources and instill a sense of stewardship for them within the dive community. These concepts could extend to the non-diving public as well through the use of ROV's. The Lake Champlain Maritime Museum currently uses ROV tours as a way to educate the public utilizing the Preserve site of the *Steamer Champlain II*. The *Adirondack* could provide a new and dynamic venue for this purpose.

E. Encroachment Effects

1. What measures are proposed to minimize the project's effects on water quality (e.g., use of a turbidity curtain during construction, heavy equipment will work from shore, etc.)?

The measures proposed are extensive. The guiding standards of preparing the vessel for sinking are outlined in a document found in Appendix E, "Best Management Practices for Preparing Vessels Intended to Create Artificial Reefs." These standards are being applied to the *Adirondack* project as outlined in the document found in Appendix F, "Ferry M/V *Adirondack* Reefing Project Vessel Preparation."

In support of ensuring the *Adirondack* contains minimal pollutants, even prior to environmental clean-up, LCT contracted with the environmental firm KD Associates, Inc to do chemical analyses at various locations in the vessel. These analyses found very few contaminants at levels of concern. The results of these analyses may be found in Appendices G, H & I.

The method and procedures to be used in sinking the *Adirondack* will also minimize the effects on the environment. She will be securely held in position with a six-point anchoring system eliminating the possibility of drifting and sinking in an unintended location (see Appendix J) It has been determined that the method of sinking will be the flooding method (see Appendix K) as opposed to utilizing directional explosives, which was another method considered. Flooding, as the method of sinking, will obviously have less impact on the environment.

2. How will the project minimize effects to fish and wildlife habitat (e.g., project is not to commence until July 1 of the calendar year to avoid spring fish spawning)?

The potential adverse effects of this project are being minimized by the environmental mitigation spelled out in the Vessel Preparation Documented mentioned above. The *Adirondack* will provide beneficial effects to marine life in several ways, the most notable of which, is creation of habitat. Other potential benefits involve the research opportunities created, as mentioned in Ellen Marsden's document (Appendix D)

To ensure that divers are educated about minimizing the spread of invasive species, the Underwater Historic Preserve Booklet, (see Appendix L, page 4) provided to divers and also available on-line, will be updated to reflect the current threats. Meg Modley, the Aquatic Invasive Species Management Coordinator for the Lake Champlain Basin Program, has provided us with the needed updates (see Appendix M). These changes will be incorporated into new documents/websites prior to the sinking of the vessel.

3. Does the project propose removal of aquatic or shoreline vegetation? If removing shoreline vegetation (e.g., trees, shrubs, groundcover, duff layer), a Shoreland Protection Permit may be needed.

The project does not propose the removal of any aquatic or shoreline vegetation.

4. Describe the surrounding shoreline. What measures are proposed to ensure the project is consistent with the surroundings?

Given that the vessel's proposed sinking location is far from shore there are no measures needed.

5. Will the project impact navigation, recreation, or other public uses? If so, how will these effects be minimized?

In looking at where to place the *Adirondack* we took into consideration several criteria. Chief among them were how we could minimize the impact on navigation yet maximize the recreational opportunities. Other considerations were being near a large population base with support services such as marinas, boat launches, dive shops, and hotels and restaurants for visiting divers. These considerations made the greater Burlington area a logical choice. Proximity to other wrecks of the UHP was a plus as well. This would make dive excursions to multiple sites a great draw for divers, or anticipated ROV tours for the non-diving public. The *OJ Walker* is .3 miles (540 yards) from the proposed site, the Horse Ferry is .4 miles (700 yards) and the *General Butler* is 1.2 miles (2100 yards). In considering the greater Burlington Bay area we also needed to maintain a sufficient distance from Burlington's water intake pipe. The proposed site is 670 yards from the intake. This location was discussed with Steve Roy, Senior Water Resources Engineer for the Burlington Public Works Department. (see Appendices N & O)

Other important considerations were related more to geology, geography and lake force issues. In an effort to gain more insight into these areas, from other very knowledgeable people, we contacted Tom Manley, Associate Professor of Geology at Middlebury College, Fred Fayette a boat captain and owner of the research vessel *Neptune*, Art Cohn, Director Emeritus, of the Lake Champlain Maritime Museum, dive charter boat Captain Larry Boivin, commercial diver and boat captain Pierre LaRocque, the captains of LCT's ferries and of course the U.S. Coast Guard. All have many, many years' experience on Lake Champlain in different disciplines.

Tom Manley has done extensive multi-beam and sub-bottom profile sonar surveys of the Lake. We met with Tom in his office and reviewed data on the lake bottom from the Burlington Harbor area into the broad lake. With his help we were able narrow down the search to those areas which fit our criteria. We did not want the depths greater than about 80', to stay within safe recreational diving limits. We did not want an area with a steep lake bottom slope which would potentially cause problems with the sinking and we wanted an area with some bottom sediment to stabilize the vessel. (see appendix P)

In addressing some of our other concerns we spoke with the various captains about lake force issues. We wanted to select an area that provided as much shelter from the prevailing winds as possible. For example, a suitable site above 80', out in the broad lake, frequently might not be dive-able due to rough conditions. We also sought their guidance about currents, which obviously could cause problems for some divers. Fred Fayette, who,

along with his family owns Juniper Island, shared that the reef which comes off the northeast side of Juniper can cause heavy currents during strong north or south winds.

In addressing concerns about navigational issues we spoke with not only the captains, but also the Coast Guard and LCT. Our goal in finding a site was one that did not restrict navigation in a narrow or congested area. For these reasons we discounted sites inside, or at the mouth of, Shelburne Bay. For the same reasons we discounted sites in between Rock Dunder and Shelburne Point. Due to the fact that much of the lake beyond a mile west of Burlington is well in excess of 100' deep we narrowed our site selection to the north side of Juniper Island, or to the south side of Apple Tree Bay/Lone Rock Point area.

Both of these sites had advantages and disadvantages. The north side of Juniper offered only minimal protection from a south wind and no protection at all from a north wind. An advantage was that boat traffic is somewhat less than south of Apple Tree Bay. The Apple Tree site is much more protected from both a north and south wind. It is also in closer proximity to the other Burlington Bay sites of the UHP. One concern with this location was its' proximity to the Burlington/Port Kent Ferry route. To determine if that was truly an issue LCT applied for a permit with the Coast Guard to deploy a temporary buoy to mark the location. During this deployment, from September 6 to September 15, 2019 a notice to mariners' was posted by the Coast Guard to alert boaters of the buoy location. This also gave time for LCTs' captains to provide feedback if they thought the location posed a hazard to navigation. There was no negative feedback from either the general boating public or the captains.

During this period divers conducted two exploratory dives on the site. They found that there was sediment approximately five feet deep and the bottom contour was fairly flat. Tom Manley had calculated the bottom contour in this area to be a 2% slope prior to the dives.

In evaluating the above considerations, it was decided the site annotated in section 3b of this application, south east AppleTree Shoal and south west of Lone Rock Point, was the best choice for our purposes.

F. Applicant Certification

As APPLICANT, I hereby certify that the statements presented on this application are true and accurate and recognize that by signing this application, I agree to complete all aspects of the project as authorized. I understand that failure to comply with the foregoing may result in violation of the Chapter 11 of Title 29, § 401 *et seq.*, and the Vermont Agency of Natural Resources may bring an enforcement action for violations of the Act pursuant to 10 V.S.A. chapter 201.

Applicant/Landowner Signature: E-SIGNED by Scott Dillon on 2020-02-13 14:26:44 EST **Date:**

G. Applicant Preparer Certification (if applicable)

As APPLICATION PREPARER, I hereby certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Application Preparer Signature: Jonatha Eddy **Date:** ~~11/17/19~~ 2/14/20 J.A.E.

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Applicant/Landowner Signature: John C Paul **Date:** 2-14-20

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Application Preparer Signature: Jonathan Eddy **Date:** 2-14-20

H. Adjoining Property Owner Notification (For additional information, please see the)

JP I certify, by initialing to the left, that I have notified adjoining property owners of the proposed project using the template sent by U.S. Mail.

I. Additional Required Documentation *(Please check to ensure you have completed the following)*

- ☒ All sections of the application are complete or otherwise indicate "not applicable";
- ☒ Application includes site plans with dimensions
- ☒ Project description includes distance beyond mean water level the project will extend;
- N/A ☐ Application includes photos of project area.

J. Permit Application Fees

Select the most applicable permit description and requisite fee. If the proposed project involves more than one of the project types, multiple fees may apply. For example, a project involving structural shoreline stabilization and marina improvement will require both fees (2) and (3).

1. Non-structural erosion control project (e.g., dry-laid rip rap):		
Administrative Processing Fee: $155.00		
Total:		

2. Structural erosion control project (e.g., vertical wall replacement)		
Administrative Processing Fee: $250.00		
Total:		

3. Other Projects (e.g., marina improvements, boathouse repair, dredging):		
Administrative Processing Fee: $300.00		
Application Review Fee: 1% of Total Project Cost ☐ *{$20,000 max fee, Check box if project cost is over $2,000,000}*	Enter the Total Project Cost: $ 175,000.00	$ 1750.00

Total Fee: $ 2050.00

Submit this form and appropriate fee, payable to:

State of Vermont - Vermont Department of Environmental Conservation
Watershed Management Division - Shoreland Permitting
1 National Life Drive, Main 2
Montpelier, VT 05620-3522

Refund Policy:

- If an application is modified, withdrawn or denied after technical review has commenced; all fees are retained.
- If an application is withdrawn prior to administrative review; all fees will be refunded.
- If an application is withdrawn after administrative review but prior to commencement of technical review, deemed administratively incomplete and returned to applicant, or determined that a permit is not required; administrative fees are retained and permit application review fees will be refunded.