DRAFT
ENVIRONMENTAL ASSESSMENT

Oil Bollard Removal
Burlington Harbor
City of Burlington, Chittenden County, VT

Prepared By:

US Army Corps of Engineers
New York District

Draft Environmental Assessment,
Oil Bollard Removal
Burlington Harbor
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LIST OF ACRONYMS

Acronym	Title
ASTM	American Standards of Testing and Materials
BP	Before Present
CEQ	Council of Environmental Quality
CFR	Code of Federal Regulation
Corps	United States Army Corps of Engineers
DEA	Draft Environmental Assessment
District	U.S. Army Corps of Engineers, New York District
EO	Executive Order
EPA	United States Environmental Protection Agency
FONSI	Finding of No Significant Impact
HTRW	Hazardous, Toxic and Radioactive Waste
IBA	Important Bird Area
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NGVD29	National Geodetic Vertical Datum of 1929
NRHP	National Register of Historic Places
NYS	New York State
PA	Programmatic Agreement
PM	Particulate Matter
PPM	Part per Million
RCRA	Resources Conservation and Recovery Act
U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
UVM	University of Vermont
VSA	Vermont Statutes Annotated
VTDEC	Vermont Department of Environmental Conservation
VTDEC WQD	Vermont Department of Environmental Conservation, Water Quality Division
VTDHP	Vermont Division of Historic Preservation

1.0 Purpose and Need

The U.S. Army Corps of Engineers (Corps), New York District (District), in partnership with the City of Burlington (City), is proposing to remove three of eight derelict oil bollards from the near shore area of the Burlington Harbor. The goal of removing the three bollards is to eliminate potential obstructions to navigation caused by continued deterioration of the structures. The oil dolphins were historically used to pump petroleum products from barges to tank farms along the waterfront.

The project is authorized by General Provisions, Section 108 of the 2004 Energy and Water Appropriations Act which states "The Secretary is authorized to remove and dispose of oil bollards and associated debris in Burlington Harbor, Vermont."

This Environmental Assessment is being prepared to evaluate the significance of potential environmental impacts of the proposed action and determine if the proposed project change warrants the preparation of an environmental impact statement.

1.1 Proposed Action

The project will involve removing three former oil bollards designated numbers 3, 4 and 5 (Figure 1) in conjunction with disconnecting and capping any associated pipelines running from the bollards to the shoreline.

Bollard Description

Bollard 5 is the northern most bollard and is located 185 feet southwest of Perkins Pier at the west end of Maple Street. The bollard extends 21 feet above the mudline and 4.5 feet above the lake surface level (Figure 2). The bollard is cylindrical in shape, approximately 15 feet in diameter, and is formed by steel sheet pile filled by ballast consisting of concrete, cobble and a silt/gravel mix. The concrete ballast forming the top layer is about two feet thick. The cobble layer begins about one foot down below the bottom of the concrete and is five feet thick. A silt and gravel mix forms the base of the ballast.

Two pipelines, identified as 5.1 and 5.2, are attached to Bollard 5 (Figure 3). Both pipes stand erect and come ashore at different points; 5.2 is more or less perpendicular to the shore, and 5.1 is at an angle (Figures 4 and 5). Both pipes pass under riprap, concrete and asphalt and do not daylight along the shoreline. Further investigations indicated residual hydrocarbon in both pipes and that both pipes are intact to the shoreline.

Bollard 4 is located approximately 750 feet south of Bollard 5, and lies 300 feet west of the point on the Island Line Rail Trail (Figure 6). The bollard extends 24 ft above the mudline and four feet above the lake surface level. The bollard is cylindrical in shape, approximately 15 feet in diameter and is formed by steel sheetpile with oak piles on a concrete platform. The bollard contains ballast comprising of concrete, cobble, silt and gravel. The top layer is concrete about two feet thick with cobble ballast that is 11 feet thick. Liquid oil is present in the pore space between the cobbles. Below the cobble ballast is a silt, gravel and cobble mix forming the base of the ballast.

Figure 1: Location of the Bollards to be Removed

Legend
Bollard To Be Removed

Figure 2: Bollard 5

Figure 3: Location of Pipes 5.1 and 5.2

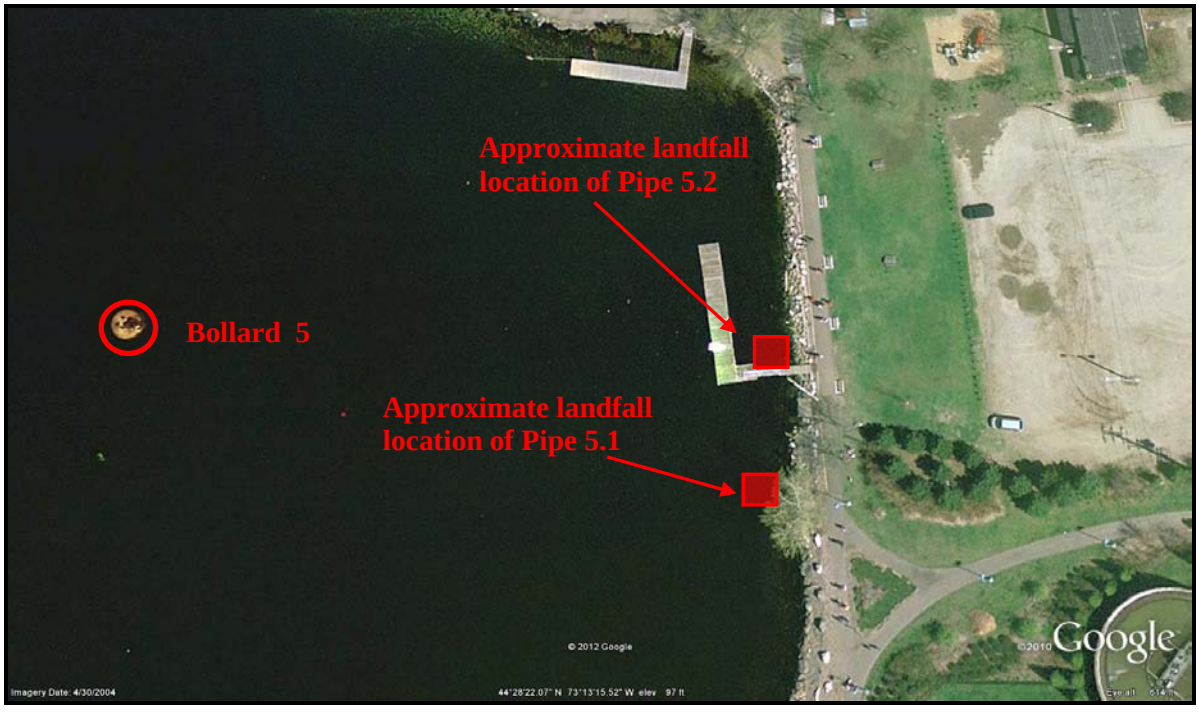


Figure 4: Pipe 5.1

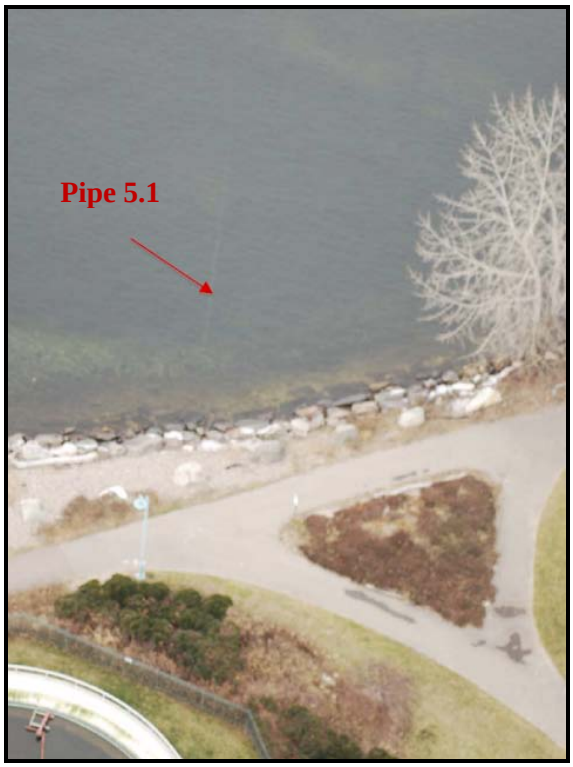


Figure 5: Pipe 5.2

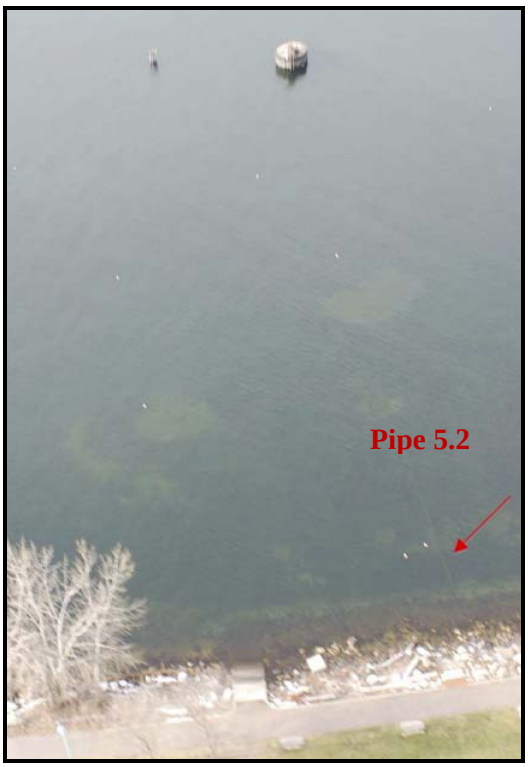


Figure 6: Bollard 4

Two pipes, identified as 4.1 and 4.2, are attached to Bollard 4 although they are not properly fastened to it (Figure 7). Pipe 4.1 is broken and segmented on the harbor floor while 4.2 is intact and may be continuously intact to the shoreline. Further investigations indicated residual hydrocarbon in each pipe. Both pipes may be cracked and opened to some extent to the lake. Both 4.1 and 4.2 are exposed at the landfall location (Figures 8 and 9).

Figure 7: Approximate Landfall Location of Pipes 4.1 and 4.2

Figure 8: Landfall location of Pipe 4.1

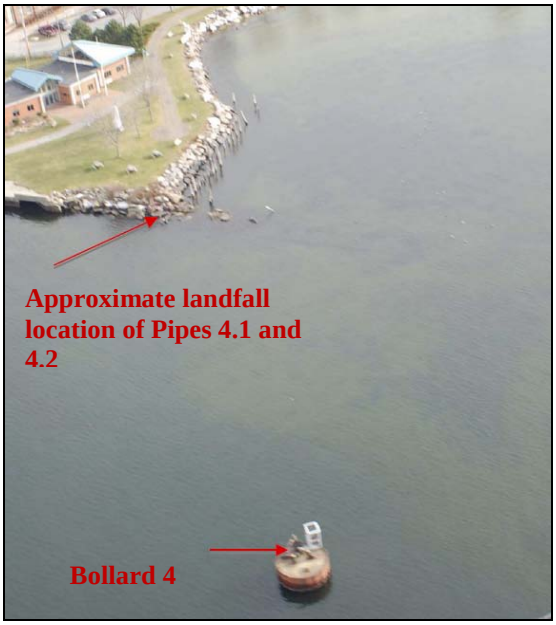


Figure 9: Landfall location of Pipe 4.2

Bollard 3 is the southernmost bollard and is located about 700 feet from a condominium complex on the point at the end of Harrison Ave (Figure 10). The bollard extends 25 feet above the mudline and seven feet above the lake surface level. The bollard is composed of a pair of cylinders roughly forming a figure eight and is approximately 22 feet long and 15 feet wide. It is bounded by steel sheet piles and filled with ballast comprised of cobble layer approximately

11 feet thick. Below the cobble is a silt and gravel mix. This bollard was capped in 1986, with a wooden faux lighthouse in an attempt to make the structure more aesthetically pleasing. During field investigations to assess the condition of the bollard, it was noted to be listing in a westerly direction.

This bollard has no pipelines connected to the shoreline. The pipe anchors are still in a line on the bottom of the lake. Confirmation was made via underwater inspection by divers that no pipes are attached to this bollard.

Figure 10: Bollard 3

2.0 Alternatives Analysis

Two alternatives considered in detail in this Environmental Assessment include No-Action and removal of the three bollards alternatives. Both were evaluated for consistency with both the Federal objective and desires of the community. The alternative that best met the economic, environmental and technical criteria for this project site was selected as the proposed action. Criteria used in selecting the preferred alternative include:

- Removal of potential navigational hazards
- Provide an environmentally beneficial solution
- Constructability

2.1 No Federal Action

Analysis of the No-Action Alternative is prescribed by the National Environmental Policy Act and serves as the baseline against which the environmental and socioeconomic effects of the Proposed Action and other reasonable alternatives can be evaluated. Under the No Action plan, the bollards would remain in place in their current condition.

The three bollards are in various states of disrepair and are not actively maintained. Therefore, under the No-Action alternative, the bollards would continue to deteriorate. Bollards 4 and 5 are located within the inlet of the Burlington Breakwater which contains an active boat marina. Although Bollard 3 is located in an open area, it is listing and could become partially or fully submerged if it were to fall over. As a result, the bollards continued state of disrepair increases the navigational hazard posed by them.

Therefore, the No-Action alternative was screened from further consideration.

2.2 Bollard Removal

Based on coordination with local officials, of the eight existing bollards within Burlington Bay, Bollards 3, 4 and 5 pose the greatest navigational hazard and the least recreational significance as it relates to SCUBA diving training.

The deconstruction of the bollards and removal of their ballast will occur in a staged sequence in order to minimize sediment re-suspension and the introduction of residual petroleum into the water column (see Appendix B for Project Plans). The concrete cap and associated external structures (e.g. sheet pile) will first be removed prior to excavating the ballast. The steel anchorage would be cut and then removed. The lighthouse on Bollard 3 will be removed intact and transported back to the Staging Area for local representatives to relocate to another location. A crane mounted on a barge will be used for the deconstruction process.

The associated pipelines within the bollards will be removed to within one foot of the lake bed and will be capped with concrete specifically manufactured for underwater placement. To reduce the potential of residual petroleum leaking out of the pipes, the demolition will attempt to maintain the water surface inside the bollard at the same level of the lake to the greatest extent feasible. Removal of any residual petroleum will be required with the exception of the ruptured pipes of Bollard 4. All debris associated with demolition activities will be disposed of at an off-site approved certified waste disposal facility.

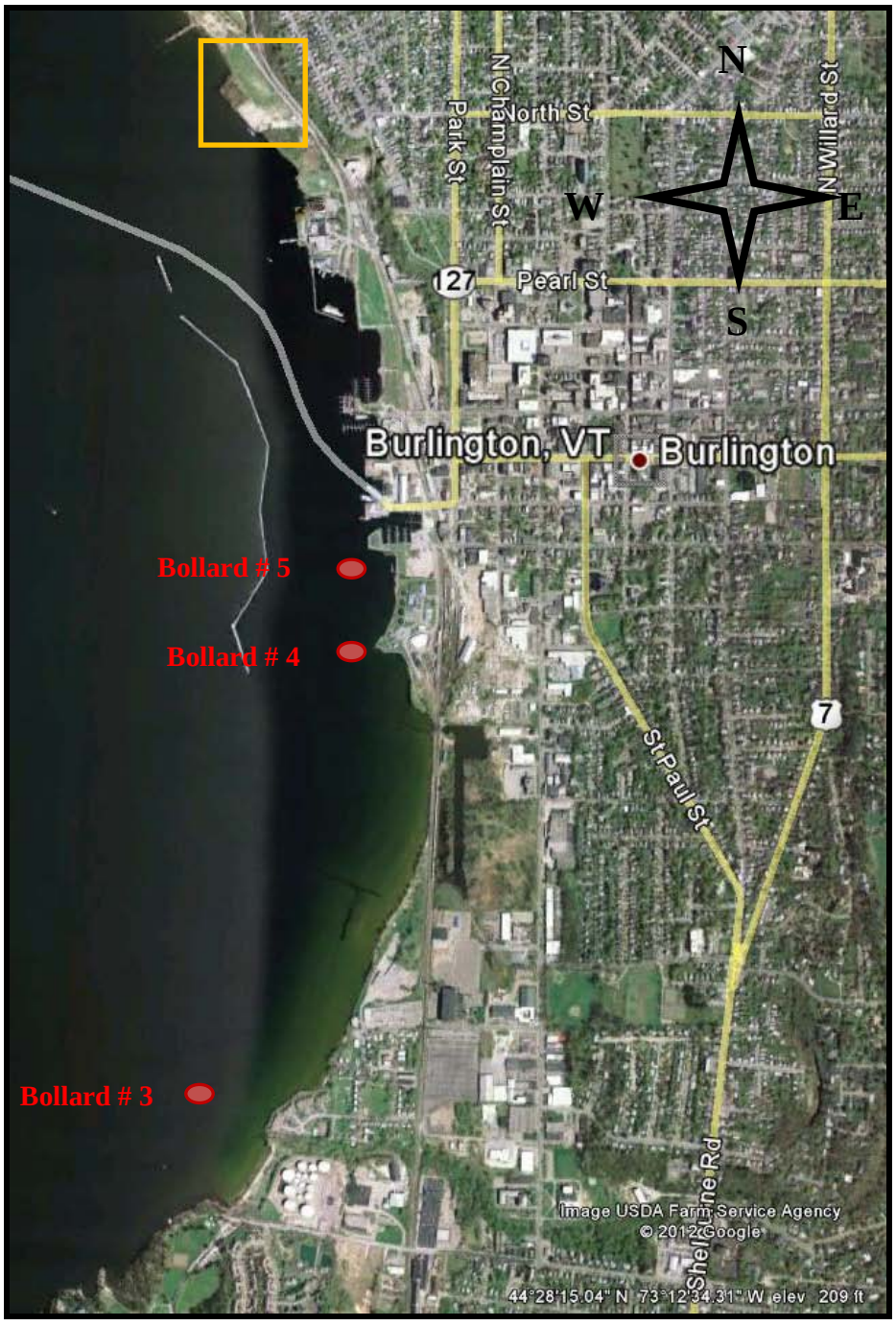
To minimize the amount of sediment re-suspension, and distribution of petroleum from the bollards and surrounding areas the following best management practices (BMPs) will be implemented:

- Enclosing the work area with a silt curtain extending from the water surface to the bay bottom ;
- Stabilizing debris piled around the base of the bollard to prevent collapsing of the bollard walls during debris removal and capping procedures;
- Monitoring turbidity levels of water on the outside of the silt curtain on an hourly basis for first 3 hours from start of demolition activities and ensuring that the water outside the perimeter of the silt curtains is clear at the end of each day's operation;
- Utilizing support crafts to perform oil skimming in the event of an oil slick outside the turbidity barrier; and

- Developing an action plan compliant with all federal, state and local environmental regulations to determine the source of and minimize any oil sheen, if observed during construction.

The Staging Area that will be used to transfer the equipment to and from the barge is located approximately 1.5 miles north of the Project Area at the former mobilization/demobilization site for the Burlington Breakwater repair project performed in 2001 by the District (Figure 11).

Figure 11: Location of Staging Area



Legend

Staging Area

Bollard To Be Removed

3.0 Affected Environment

3.1 Land Use

The Staging Area is owned by the City of Burlington and can be characterized as a vacant lot that is disturbed in nature. The Island Line bike trail is located on the eastern side of the lot and the shoreline is protected by steel sheetpile. The Staging Area was previously used as the mobilization site during the 2001 repair of the Burlington Breakwater.

According to the City of Burlington's Zoning Map, the Staging Area is designated as Urban Reserve. Urban Reserve areas are maintained by the City for passive and publicly accessible open space and are temporarily restricted from development in order to focus waterfront development activities within the City proper (City of Burlington, 2011).

Bollards 4 and 5 are both located within the City of Burlington's marina. On-shore land use closest to Bollards 4 and 5 is comprised of City owned property and includes the Island Line bike trail, Perkins Pier, a small playground and the City's wastewater treatment plant. The area is zoned as Recreational-Conservation (City of Burlington, 2011).

Land use within the proximity of Bollard 3 is comprised of a townhome complex in an area designated as Waterfront Residential-Low Density. Areas designated as Waterfront Low-Density primarily consist of low density residential development consisting of single family detached homes and duplexes and is distinguished from other Residential Low Density zoning designation for greater consideration of lake views and stormwater runoff for development planning purposes (City of Burlington, 2011). Oakledge Park, owned by the City, is located immediately south and is primarily comprised of a beach, bike path, tennis courts, and open space.

3.2 Soils and Topography

The soils within the Staging Area are characterized as Fill land. Parent material of Fill soils is typically comprised of mine spoil or earthy fill consisting of gravelly sandy loam. These soils generally have a depth to water table more than 80 inches and do not experience frequent flooding or ponding (NRCS, 2011). The topography is flat at a one percent slope.

3.3 Water Quality

Burlington Bay is located within the Main Lake segment of Lake Champlain and is approximately 2,532 acres in size (VTDEC WQD, 2003). The bay receives input from the adjacent main portion of Lake Champlain and Shelburne Bay. Mixing rates are relatively high and the water quality of Burlington Bay is closely linked to the water quality in both of these adjacent lake segments. Water circulation in the Bay generally occurs in a south to north direction. For water quality assessment purposes, Vermont State Department of Environmental Conservation Water Quality Division (VTDEC WQD) divides the state into planning basins; Burlington Bay is located in the Northern Lake Champlain Basin. Per Vermont's water quality standards, the entire Northern Lake Champlain Basin is designated as Class B. In general, Class B waters support: 1.) high quality aquatic habitat; 2.) good aesthetic value; 3.) public water supply with filtration and disinfection; 4.) irrigation of crops without treatment for human

consumption without cooking; 5.) swimming and other primary contact recreation; and 6.) boating, fishing and other recreational uses (VT WRP, 2008).

Based on a 2003 surface water quality assessment report prepared by VTDEC WQD, Burlington Bay generally meets surface water quality standards. However, the entire bay is considered impaired for fish consumption due to PCB contamination in lake trout and mercury in walleye which has resulted in fish consumption advisories for children under six and women of childbearing age. The report also notes that swimming use is impaired for approximately 9 acres of the bay in the area of Blanchard Beach due to the exceedance of E. coli standards which results in long-term closures of the beach (VTDEC WQD, 2003).

Approximately 253 acres of the bay are considered to have altered swimming, aquatic life and drinking water uses due to the zebra mussel infestation. Similarly, 253 acres are considered to have altered uses for aesthetics, aquatic life, secondary contact and swimming due to moderately dense infestations of Eurasian milfoil, an invasive aquatic plant species (VTDEC WQD, 2003).

The University of Vermont (UVM) initiated a five year study in 1999 to characterize water and habitat quality within Burlington Bay. The study found increased nutrient concentrations, although not at levels to qualify the Bay as eutrophic. Nitrogen and phosphorus levels were slightly higher in the inner harbor portion of the Bay than in the open water portion. Burlington Bay is susceptible to occasional blooms of algae and cyanobacteria (blue-green algae) which sometimes impacts use of the nearshore areas during the summer (Watzin, 2005).

3.4 Bathymetry and Substrate

Bathymetry of the Project Area was taken during the initial investigations to assess the condition of the bollards and locate the associated pipelines. The lake bed elevation is approximately 79 feet National Geodectic Vertical Datum 1929 (NGVD29) at Bollard 3, approximately 77 feet NGVD29 at Bollard 4 and ranges from 81 to 87 feet at Bollard 5. The slope around Bollards 4 and 5 are relatively flat while Bollard 4 while Bollard 3 is located near a moderately steep shelf. Water depths within Bollards 4 and 5 range from 14 to 16 feet and are approximately 20 feet at Bollard 3.

Sediment sampling to characterize the lake substrate was conducted around the bollards in October 2010 and entailed taking four core samples around each of the three bollards to depths ranging from approximately one to one and a half feet. The surficial layer of substrate surrounding Bollard 3 is mainly comprised of mussels and brown and black silt with traces of plant material. The subsurface layer of sediment was predominantly sand. The substrate surrounding Bollard 4 ranged from clay to silt with mussels and plant matter surface layer with a brown sand sublayer. The substrate surrounding Bollard 5 is predominantly comprised of mussel shells on the surface with sand as the sublayer (District, 2010).

3.5 Vegetation

Eurasian milfoil (*Myriophyllum spicatum*), an invasive aquatic plant species, was noted growing along the shoals around the landfall of the pipes associated with Bollard 4 during the geophysical investigation performed to characterize the bollards and locations of the associated pipelines.

The staging area is basically devoid of vegetation. Therefore, a comprehensive vegetation analysis was not conducted.

3.5.1 Wetlands

Federal (33 CFR 328.3(b); EO 11990) and State (Vt. Code R. 12 004 0056) definitions of wetlands are similar, identifying wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." As defined above, wetlands generally include swamps, marshes, bogs, and similar areas.

A review of Vermont Natural Resources Environmental Interest Locator website and National Wetland Inventory maps did not indicate any wetlands within or around the staging area; therefore, a formal wetland delineation was not conducted.

3.6 Fish and Wildlife

3.6.1 Fisheries Resources

Fish surveys conducted by the UVM in Burlington Bay in 1999-2000 yielded yellow perch (*Perca flavescens*), rock bass (*Ampbloplites rupestris*), lake trout (*Salvelinus namaycush*), freshwater drum (*Aplodinotus grunniens*), walleye (*Stizostedion vitreum),* bluntnose minnow (*Pimephales notatus*), smallmouth bass (*Micropterus dolomieui*), bluegill (*Lepomis macrochirus*), northern pike (*Esox lucius*), white sucker (*Catostomus commersoni*), pumpkin seed, rainbow smelt (*Osmerus mordax*). Observations during the survey period noted that cold water fish species such as lake trout migrate to shallower areas of the bay in spring and fall and that yellow perch and rock bass appeared to be the predominant species throughout the year. UVM also compared their survey data to survey data collected in the 1970's and found low populations of lake trout and the absence of freshwater drum whereas the lake trout and drum accounted for as much as 10% of the fish collected in their survey (Watzin, 2005).

3.6.2 Wildlife

Given that the bollards are located in open water, wildlife that could potentially occur in the Project Area would be limited to seabirds and waterfowl. Seabird species that may utilize the area include common tern (*Sterna hirundo*), black tern (*Chlidonias niger*), Caspian tern (*Hydroprogne caspia*), ring-billed gull (*Larus delawarensis*), herring gull (*Larus argentatus*), great black-backed gull (*Larus marinus*) and double crested cormorant (*Phalacrocorax auritus*). Waterfowl species that may utilize the area include canvasback (*Aythya valisineria*), greater scaup (*Aythya marila*), mallard duck (*Anas platyrhynchos*), Canada goose (*Branta canadensis*) and lesser scaup (*Athya affinis*) (National Audubon Society, 2011).

Due to the level of disturbance at the Staging Area and the overall lack of habitat, wildlife on the site would be limited to species acclimated to urban conditions (e.g. squirrel, raccoon) and would more than likely be using the site as a corridor to access areas with higher habitat quality.

The Staging and Project Areas are located approximately 2 and 5 miles south of Delta Park, respectively, which is designated as an Important Bird Area (IBA) by the National Audubon Society. IBA's are sites that support habitat necessary for breeding, overwintering or migration and the goal of the IBA Program is "to stop habitat loss by setting science-based priorities for habitat conservation and promoting positive action to safeguard vital bird habitats." The IBA Program was initiated in Vermont in 1997. Delta Park serves as a migratory stopover for species such as the ones listed in the previous paragraph.

3.6.3 Federal and State Endangered, Threatened and Special Concern Species

A review of the *Federally Listed Endangered and Threatened Species in Vermont* developed by the U.S. Fish and Wildlife Service (USFWS) did not indicate any federal species that could potentially inhabit the Project or Staging Areas (USFWS, 2012).

According to Vermont's Wildlife Action Plan, several state Threatened and Endangered mussel species could potentially inhabit Lake Champlain. State Endangered mussel species include pocketbook (*Lampsilis ovata*), cylindrical papershell (*Anodontoides ferussacianus*), and fragile papershell (*Leptodea fragilis*). These species would generally be found in the shallows of Lake Champlain, and/or delta areas where rivers discharge into the Lake. Giant floater (*Pyganodon grandis*), a state threatened species, is one of the more mobile mussel species whose preferred habitat consists of fine substrates such as sand and silt in lakes or large rivers (VTFWD, 2005).

Based on a review of Vermont's Environmental Interest Locator, no state endangered, threatened or special concern species occur within the Project Area. Common tern and black tern are state endangered species that could be potentially observed in the Project Area given its proximity to Delta Park which is has confirmed sightings of these species.

3.7 Environmental Contamination

To identify potential contaminated sites, other than the bollards, a review of the databases maintained by the US Environmental Protection Agency, Region I (USEPA) and the Vermont Department of Conservation, Agency of Natural Resources, (VTDEC) were consulted.

The data base maintained by the US-EPA, Region One, CERCLIS Public Access Data Base showed two RCRA (Resource Conservation, Recovery Act) sites, two National Priorities List sites and two Brownfields sites within two miles of the bollards site. All six locations will not be impacted by the proposed work and the listed facilities activities will not impact the removal of the bollards or storage yard operations. The State of Vermont Agency of Natural Resources Atlas showed 12 facilities with registered underground storage tanks, generators of hazardous waste and storage hazardous wastes. These facilities' activities will not impact removal of the bollards or storage yard functions.

A geotechnical assessment of the bollards was conducted in 2010. Oil product samples were taken from the pipes leading away from the bollards. Laboratory analysis showed the remaining product to be oil based. Any remaining petroleum product in the pipes is contained in the pipes

by water pressure. Over time it has undergone a chemical change and has become heavier than water. Residual petroleum product in the pipe lines is contained, under existing water pressure. The lines are covered with sediment and are not subject to disturbance by boat traffic on the lake.

None of the sites identified in the review of the USEPA and VTDEC databases are within or adjacent to the proposed staging area.

3.8 Cultural Resources

In accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, the Advisory Council on Historic Preservations Guidelines for the Protection of Cultural and Historic Properties (36 CFR Part 800), and 22 Vermont Statutes Annotated (VSA), Chapter 14 of the Vermont Historic Preservation Act, the District has conducted an historic assessment and archaeological investigations to identify potentially significant cultural resources within the area of the proposed Burlington Harbor Oil Bollards Removal Project.

Prehistory

Native Americans have been living in the Champlain Valley as far back as 11,500 years ago in the Paleo-Indian period. Throughout prehistory, the lake has served as a resource for food, water, tools, spiritual guidance, and transportation. Native Americans lived in small campsites and villages along the lake's shoreline, and employed specific techniques and tools to extract the lake's resources. Vestiges of their occupation sites and lakeside workshops have been discovered throughout the Champlain Valley.

An unknown number of prehistoric sites now lie submerged as a result of changing lake levels and isostatic rebound in the Champlain Valley. These sites have not been documented, and this lack of information has greatly affected modern understanding of Native Americans' utilization of the lake's resources. There is no doubt that Lake Champlain and its preceding water bodies have played a significant role in the lives of all Native Americans living in the Champlain Valley (Haviland and Powers, 1944).

Paleo-Indians were probably the first to use watercraft on Lake Champlain, then part of the Champlain Sea, while hunting and fishing along the lakeshore and presumably built small skin craft to harvest the lake's food resources. Generations of their descendents, the Archaic and subsequently the Woodland peoples, built small craft from tree bark, skins, or hollowed-out logs. Evidence of bark and skin boats has not been found in the archaeological record, since the organic materials from which they were made are not preserved well in the climate of this area. At least a dozen dugout canoes made of wood, however, have been found in lakes and ponds throughout the Champlain Valley. These simple boats probably date between the Late Woodland period (2900-400 Before Present (BP)) and the nineteenth century (Haviland and Powers, 1944; Thomas, 1995).

At the time of early European contact the St. Lawrence Iroquois, the Mohawk Iroquois, the Mahican, and the Western Abenaki occupied the Champlain Valley. In 1534, French explorer Jacques Cartier entered the Gulf of St. Lawrence while looking for the Northwest Passage.

Shortly after this the French attempted to establish a colony in the St. Lawrence Valley, however, that attempt failed, although sporadic trade for furs in exchange for metal tools did occur between the French and the St. Lawrence tribes. This trade with the St. Lawrence Iroquois continued until 1603, when they vanished from the area. The reason for their disappearance is unknown, but it appears they were devastated by warfare with neighboring tribes over the possession of metal tools and from European diseases (Haviland and Powers, 1978; Graymont 1988).

At this time the Mohawk Iroquois, who had inhabited primarily the Mohawk Valley, became the dominant tribe from Quebec to Connecticut. By 1720 the Mahican, Western Abenaki, and the Mohawk Iroquois of the region no longer existed as organized native tribes in the Champlain and Hudson Valleys. The influx of Europeans to the Northeast caused great upheaval among the region's Native American populations. Disease, confusing political and economic relations, and continuous warfare split native communities apart and forced them to join outlying groups. The area inhabited by the Western Abenaki at the northern end of Lake Champlain became a haven for Native American refugees displaced by European settlements and wars (Brasser, 1978; Calloway, 1990).

History

Since the arrival of Europeans, the Champlain Valley has consistently played an important role in North American history just as it did in prehistory. The prominence of this area is due to the north-south corridor that Lake Champlain creates between the St. Lawrence Valley and the heart of the North American continent. Although the French and Dutch did not initially settle the Champlain Valley, both had a great interest in the area's natural resources. Both colonial powers were heavily involved in the fur trade and depended upon the Native Americans of the Champlain Valley for their fur supply (Coolidge, 1989).

Between 1664 and 1763, until the Treaty of Paris and the end of the French and Indian War, the Champlain Valley witnessed a continuous struggle between the French and British Empires for control of Lake Champlain and its tributaries. All settlements in the region were short-lived, since the threat of renewed warfare always loomed in the future. However, during the years of peace following the French and Indian War, settlements started to appear throughout the Champlain Valley as the colonial governors of both New York and New Hampshire granted large tracts of land. There were very few roads, so the settlers depended heavily upon small watercraft and rafts to transport themselves and products to the Quebec market. Most settlers were involved in extracting resources from the forests of the Champlain Valley, but their daily lives were soon interrupted by the next military conflict (Coolidge, 1989).

Lake Champlain became a critical strategic arena in the American Revolution. At the beginning of the war the Americans gained control of the waterway by capturing the fort at Crown Point, Fort Ticonderoga and, at the southern end of the lake, the Loyalist settlement of Skenesborough (present-day Whitehall), New York. The Americans also captured and armed four vessels in 1775: *Liberty, Enterprise, Royal Savage,* and *Revenge.* This small fleet gave the Americans the upper hand on Lake Champlain and prevented the British army from advancing south from

Canada. However, when the British fleet arrived at the basin below Quebec in May 1776, it brought troops to reinforce Montreal and launched a British counter-thrust into the colonies. At the Battle of Valcour Island the British with their newly assembled fleet gained firm control of the waterway and they remained dominant there until the end of the war (Bellico, 1992; Hill, 1995).
On the Vermont shore the Americans carved a large-scale fortification out of a 300-acre (121.5 hectares) peninsula jutting northwards into the lake. Mount Independence, as it was called, featured a water battery, protective batteries, and a picket fort atop its highest height. This fortification and Fort Ticonderoga were lost to the British under the command of Colonel John Burgoyne in the spring of 1777. Despite the British control of the Lake the war turned in favor of the Americans after Burgoyne pursued the Americans into the Champlain Valley in the summer of 1777. After a devastating defeat at the Battle of Bennington and the subsequent defeats in the Battles of Freeman's Farm, General Burgoyne was forced to surrender at Saratoga in October of 1777. The removal of the British Army along the Hudson-Champlain waterway encouraged France to enter the war as an American ally. More than five years would pass before peace was concluded, but it was now obvious that the British would be unable to hold the interior of the American continent (Bellico, 1992; Hill, 1995).

From 1775 to 1791, Vermont operated as an independent republic on the eastern side of Lake Champlain, while the western side of the lake was under the jurisdiction of New York. The population of the Champlain Valley, only a few hundred in the years following the American Revolution, exploded to approximately 143,000 people by 1810. Towns with manufacturing centers also began to develop along the lakeshore. Commercial navigation did not begin in earnest until the 1780s, as thousands of settlers, most of them from New England and New York, moved into the Champlain Valley to exploit the region's abundant natural resources. Rafts and small vessels including canoes, barges, scows, sloops, bateaux, whaleboats, and longboats moved much of the material due to the lack of good roads. Champlain Valley products were exchanged for cash, salt, and manufactured goods at the markets in Quebec (Hill, 1995).

The first waterfront augmentation of the Burlington Harbor shoreline was the construction of a wharf at present day Maple Street in 1810, which today is Perkin's Pier. In time, wharves and docks dominated Burlington's waterfront. Around this time a small shipbuilding enterprise was established at the base of present day King St. and trading houses lined the area. The primary industry on the waterfront in the 1800s involved the shipping and processing of local timber into planks or burning it to produce potash for making soap or charcoal for smelting iron. Local lumber, produce, potash, pork, butter, cheese and grain from the Champlain Valley, among other goods, were traded for fish, salt, liquor, coffee, tea, tobacco, and manufactured goods in Canada which were imported from Europe (Blow, 1991; Crisman, 1990)

The Embargo and British control of the northern end of the lake during the War of 1812 forced commerce to the south of Burlington, while smuggling continued to the north. Burlington's industry was deeply affected by this and the residents witnessed a strong military presence at this time. The bluffs that overlooked the lake became fortified, the area around Battery Park was setup as an army camp, and wooden barracks were constructed between Pearl Street and North

Street to house soldiers. Burlington, with its established University of Vermont and hospital care, became a hub for wounded and dying soldiers. On Christmas Eve of 1814 the Treaty of Ghent was signed between the United States and Britain, and commercial shipping along Lake Champlain was reinstated (Everest, 1981).

The construction of Champlain Canal in 1823 and the Chambly Canal in 1843 improved the ability to ship lumber north and south this led to Burlington's Boom Years. Wharves, docks and filled in cribbing made marshy land available for use and provided a larger area to exploit along Burlington Bay for the increase in commercial water traffic and the need to stock pile goods, especially lumber. Increases in commercial traffic on the lake, coupled with the strong winds and currents, necessitated the construction of a breakwater to shield Burlington Harbor. The breakwater was commissioned by the United States Army Corp of Engineers in order to protect the expanding line of wharves along Burlington's waterfront and to provide shelter to boats waiting to be unloaded or to be cleared by US customs. Construction of the first section of the breakwater in Burlington began in 1836, and the rapid development of Burlington's waterfront forced additions to the breakwater for the next 60 years. Just as steam engines provided quicker, more predictable scheduling for lake travel, land travel also became more regular in 1849 with the completion of the Rutland to Burlington Rail Road, and rail quickly captured much of the transport business (Crisman, 1990).

When the Civil War began in 1861, Burlington commerce was at its height. Although the battlefields of the Civil War were distant from Burlington, many Vermonters enlisted in the military and the war brought new business ventures to the region. By 1868 Burlington had become the third largest lumber city in the United States. It was not until the Dingley Tariff of 1897 in conjunction with the new railroad service from the St. Lawrence Valley to Boston that Burlington was displaced as a key geographic center of lumber distribution, and by the mid 1890s most lumber planning mills in Burlington had shut down (Cousins, 2000; Gove, 1971).

In 1874 the Rutland Railroad converted their train engines from wood to coal burners, and the transport of coal began to dominate the Burlington market. The early 1900s witnessed Burlington's waterfront transformation from a major lumber processing center to a venue for the storage of both coal and petroleum products coming into the Champlain Valley. In 1916 the New York State (NYS) Barge Canal was completed adjacent to the Champlain Canal, allowing the passage of 300-600 ton vessels through a new lock system. Storage facilities were built in order to provide the barges with places to deliver their goods. By 1935, four oil tank farms are listed in the Burlington Directory (Blow, 1991).

The turn of the twentieth century also witnessed a major upswing of interest in Lake Champlain as a setting for recreation. Summer camps and cabins were established around Burlington and pleasure boats became much more common on the lake (Cohn 2003). Although new industries and recreation interests at the turn of the twentieth century were developed along the Burlington waterfront, the area had become a derelict landscape by the time of the Great Depression in the 1930s. By 1972 nearly forty percent of Burlington's waterfront lands were covered with approximately ninety oil storage tanks operated by nine independent tank farms: Texaco, Gulf,

Tidewater (Getty), Green Mountain Petroleum, Northern Oil Corp., Mobil, Exxon, Elias Lyman, and Shell. In addition to land spillages at the tank farms, oil facilities on the Burlington waterfront also required offshore service docks for pumping oil from transport barges to the storage tanks. These "dolphins" were constructed in relative proximity to the tank farm shorelines and had underwater pipelines that delivered the oil to the onshore storage tanks. In many ways this method of unloading the oil was inefficient, and oil spills were a common occurrence. Although many of Burlington's tank farms would be vacant by the late 1980s, the last barges to travel through the Champlain Canal did so until 1995 when the Plattsburgh Airforce Base closed its operations (Timura, 1972).

In the late 1960s many environmental organizations took root in the Champlain Basin and many focused their efforts on protecting Lake Champlain. The City of Burlington started to look toward the future with a revitalization effort along the waterfront. A Burlington city zoning ordinance passed in 1970 was the start in transforming the industrial landscape of Burlington and by the end of the 1970s most of the major oil companies had closed down or sold their storage facilities making room for light industry, parks and recreation, and cultural and municipal uses (City of Burlington, 1970).

Bollards 3, 4, and 5 are not eligible for listing on the National Register of Historic Places. Two wrecks are located within 200 feet of Bollards 3 and 4 (see Section 4.6). One of these wrecks, *Excelsior* (VT-CH-796) is eligible for the NRHP (Lake Champlain Maritime Museum 2008 and 2011). There are no known cultural resources located within the staging area.

3.9 Air Quality

In accordance with the Clean Air Act of 1977, as amended, the Environmental Protection Agency (EPA) developed National Ambient Air Quality Standards (NAAQS) to establish the maximum allowable atmospheric concentrations of pollutants that may occur while ensuring protection of public health and welfare, and with a reasonable margin of safety.

The USEPA measures community-wide air quality based on daily measured concentrations of six criteria air pollutants; carbon monoxide, sulfur dioxide, respirable particulate matter, lead, nitrogen dioxide, and ozone. Based on these measurements of air quality, the USEPA designates attainment areas and non-attainment areas nationwide. Non-attainment areas are designated in areas where air pollution levels persistently exceed the national ambient air quality standards.

Chittenden County is located in the Champlain Valley Interstate Air Quality Control Region (40 CFR Ch.1 7-1-05 edition part 81.44. Based on the NAAQS, six primary pollutants, Chittenden County is in attainment area for ozone, carbon monoxide, sulfur dioxide, respirable particulate matter (PM 1.0 & PM 2.5), lead, and nitrogen dioxide.

3.10 Socioeconomics

The City of Burlington has a population of 42,417. The population is comprised of 88.9% White, 3.9% African American; 3.6% Asian, and 2.7% Hispanic. The median age is 27 and the per capita income is $24,025. Employment sector makeup is 40.4% Management, 21.6% Service

Occupations and 25.1% Sales and Office. Approximately 24% of all people in the City live below the national poverty level (U.S. Census Bureau, 2006-2010).

Burlington Bay offers many water dependent recreational opportunities for residents and tourists in the form of swimming, boating and scuba diving. The City of Burlington operates and maintains several beaches including North Beach and Oakledge and Leddy Parks. The various shipwrecks within the bay provide SCUBA locations as well as some of the bollards which are used primarily for amateur and in-training SCUBA divers.

4.0 Environmental Impacts

4.1 Land Use

There will be no changes or adverse impacts related to land use. Rather, removal of Bollards 4 and 5 will enhance the existing land use by improving the aesthetics of Burlington Bay.

4.2 Soils and Topography

There will be no changes to soils or topography within the Staging Area.

4.3 Water Quality

The proposed action will temporarily increase turbidity to surface waters within the immediate work area during removal of the Bollards. The turbidity impacts are anticipated to be minor and will be controlled to the extent practicable through use of best management practices such as turbidity curtains and removing the Bollards in a phased approach. Throughout demolition, care will be taken to contain all hydrocarbons within the curtains. Part of requirements addressing environmental issues is submittal of a spill prevention and response plan. Oil booms will be kept on hand in the event of an accidental leakage.

4.4 Bathymetry and Substrate

The substrate and overall bathymetry of the Project Area will remain intact as no excavation is proposed as part of the removal of the bollards and the connecting pipelines will be cut within one foot of the lake bed. Capping the bollards with cement to prevent any petroleum leakage will constitute a change of substrate within the immediate footprint of the Bollards. However, this is not anticipated to be a significant impact given the size of the bollard footprints in context of the size of Burlington Bay.

4.5 Vegetation

No vegetation will be removed as a result of the project. Therefore, no adverse impacts will occur.

4.5.1 Wetlands

No wetlands will be impacted by the project.

4.6 Fish and Wildlife

4.6.1 Fisheries Resources

Deconstruction of the bollards is anticipated to occur in the mid September/early October timeframe which is outside the spawning windows of the majority of fish species that could

potentially be found within the Project Area. Although the spawning window of lake trout can range from September to December depending on the region, preferred spawning habitat is typically nearshore areas with a gravelly to rocky substrate. Based on sediment sampling around the bollards, the substrate is not conducive to lake trout spawning habitat.

The bollards themselves do not have features that would be utilized by fish for cover or foraging, therefore their removal will not constitute as a loss of fish habitat. In general, it is expected that fish will avoid the area during construction. Capping the pipelines will prevent any further potential leaching of residual petroleum into the sediment or water column thus serving as a beneficial impact. Turbidity curtains and a phased deconstruction approach will be applied to minimize sediment resuspension. Therefore, no significant adverse impacts are expected.

4.6.2 Wildlife

The demolition activities may coincide with the fall migration of certain waterfowl and seabird species. Species that could still be within the area during the fall include gulls, cormorants and certain duck and goose species.

The Project Area is not noted as an important migratory resting or foraging area and Bollards 4 and 5 are located within an active marina that already limits the use of the area for birds. Delta Park, a designated IBA, is north of both the Project and Staging Areas, so construction activities will not have any adverse impacts to the park. As with fish, it is expected that birds will avoid the area during demolition activities.

The contaminant exposure risk to wildlife resources is considered minimal given the relatively small work area in context to the size of Burlington Bay and by the implementation of best management practices and a phased deconstruction method.

4.6.3 Federal and State Endangered, Threatened and Special Concern Species

Based on the general habitat conditions around the bollards and the amount of zebra mussels observed around them, it is not expected that any state endangered or threatened mussel species inhabit the area. No federal or any other state endangered, threatened or special concern species will be adversely impacted by the removal of the bollards.

4.7 Environmental Contamination

None of the sites on the USEPA or state databases are located within or adjacent to the bollards or the proposed staging area. The removal of the bollards would not have an impact on any of these sites.

Assessments of the pipelines have determined there may be residual oil product in those pipelines that have not broken. The oil product that may remain within the pipelines is sealed off by water pressure with minimal risk of this remaining oil leaking out into the lake waters. Dredging impacts of the sediments beneath and adjacent to the bollards will be minimal as well considering the small volume of material being removed.

To minimize the potential of any residual oil product still present within the pipes from leaking, the contractor shall employ best management practices in spill containment. Removal of the pipes will be a step by step process with spill control measures in place prior to the initiation of any activity. The amount of contaminated sediment is believed to be minimal considering the length of time the bollards were active. Surface to lake-bottom silt curtains will be employed to contain any oil product within the sediments that may be released during excavation. Emergency spill kits and booms would be required on site for the duration of the removal project.

4.8 Cultural Resources

In 2005, an archaeological survey and historic assessment was performed to investigate all eight oil bollards in Burlington Harbor and a remote sensing survey of the Harbor was carried out in 2006 (LCMM, 2008). The survey concluded that none of the bollards are eligible for the National Register of Historic Places (NHRP). The survey also identified twelve anomalies lying within the Harbor that were recommended for dive verification. In 2010, after Bollards 3, 4, and 5 were selected for removal, another dive survey was performed to investigate any nearby anomalies and wrecks and to map the pipelines connecting the bollards to land and record their condition (LCMM 2011). The dive survey found no cultural resources within 100 feet of the bollards and their pipelines, however, one previously known NRHP eligible archaeological site, the schooner *Excelsior* (VT-CH-796), lies within 200 feet of Bollard 4 and a wrecked barge (VT-CH-1100) that is not eligible for the NRHP but has recreational potential lies 170 feet from Dolphin 3. The proposed removal would not have an adverse effect on the NRHP eligible site, however, the District will endeavor to avoid any disturbance in the vicinity of either wreck. The District will require a 50 foot no anchor zone will be marked with buoys in the vicinity of each to protect the Schooner *Excelsior* and the Bollard 3 Barge. Vermont Division for Historic Preservation has reviewed the project and survey reports and has concurred with these recommendations (see Appendix C).

There are no known cultural resources within the staging area. Previously this area had been used as a staging area for the construction equipment and materials needed for the repair to the Burlington Breakwater. Use of this area for the staging during the removal project would not have an adverse impact on historic properties in the vicinity of this area.

Continuing coordination is being carried out with the Vermont Division for Historic Preservation as this project moves forward. Coordination with the St. Regis Mohawk and Abenaki tribes has been initiated in accordance with Section 106 of the NHPA and the Advisory Council on Historic Preservation Guidelines (36 CFR Part 800) (See Appendix C).

4.9 Air Quality and Noise

Air Quality

The General Conformity Rule of the Clean Air Act requires federal agencies to ensure that any federal actions occurring in areas designated as nonattainment or maintenance for any of the NAAQS do not interfere with a state's plans to meet national standards for air quality.

Chittenden County is not located in a nonattainment or maintenance area for any of the NAAQS, therefore a General Conformity analysis is not required. Given the relatively small scope of the project and short construction duration (2 to 3 months), the equipment emissions are expected to be minimal and temporary in nature.

Noise

The proposed action would increase noise levels in the immediate vicinity of the due to operation of construction equipment. Bollard 3 would have the potential for creating the most adverse impacts to residents due to the fact that it is offshore from a public beach and residential area. Bollards 4 and 5 would not be expected to have as great of an impact given that they are located offshore from more commercial/industrial and open space land uses.

The impacts of noise will be mitigated to the extent possible through restriction of the work hours within normal operating hours, and by coordinating with the local communities to comply with any locally enforced noise ordinances or work periods. In addition, the demolition is anticipated to be conducted subsequent of the peak tourism season. Therefore, no significant adverse impacts area expected.

4.10 Socioeconomics

The proposed action will not adversely impact the socioeconomic environment of the area. The identification of the bollards to be removed came from coordination with local representatives who determined that their community would best be served by their removal. Construction will occur during the fall season after Labor Day in order to avoid adverse impacts to the use of the bay during the height of tourist season.

4.10.1 Environmental Justice

Executive Order 12898, Federal Actions to address Environmental Justice in Minority and Low Income Populations mandates that each federal agency will identify and address potential disproportionately high and adverse human health or environmental effects of its activities on minority populations and low income populations.

A cursory analysis was conducted to determine the potential applicability of Environmental Justice issues. The analysis took into account a comparison of the percentage of low income and minority occurring in the City and Chittenden County.

Based on a review of Census data, the combined minority (Asian, black, Hispanic) population of the City of Burlington is less than 50% and is slightly higher than Chittenden County (10.2% City, 6.7% County). However, the percentage of individuals below the poverty threshold in the City of Burlington (24%) is over twice the percentage of individuals living below the poverty line than Chittenden County (10.8%). As a result, the cursory Environmental Justice analysis reviewed the impacts the project may have on the low income population only.

Given that Bollard 3 is located near a townhome complex, a comparison of the percentage of individuals below the poverty line was made between the census tract (Chittenden County

Census Tract 10) within which the complex is located and the City and was found to be higher than the City poverty rate by approximately 4%.

Because the Staging Area and nearest land use for Bollards 4 and 5 are owned and operated by the City of Burlington and not designated for residential use, an analysis of the minority and poverty rate of the Census Tracts was not conducted.

Overall, no significant environmental impacts on the human population are anticipated as a result of the proposed action. Rather, the project aims to reduce potential environmental contamination by removing the bollards and cleaning and capping the pipelines. Therefore a disproportionate negative impact on minority or low-income groups in the community is not anticipated and a full evaluation of Environmental Justice issues is not required for this EA.

4.9 Cumulative Impacts

Cumulative impacts refer to one or more individual impacts, which when considered together, are considerable or which compound or increase the other's impacts. The cumulative impact from several projects is the change in the environment that results from the incremental impact of the selected plan when added to other closely related past, present or reasonably foreseeable future projects.

Past actions that are appropriate to be considered against the proposed action include the construction of the bollards. Although the bollards served an important purpose in the past, they now pose as navigational and environmental hazards and reduce the quality of the viewshed of Burlington Bay.

In regards to current or anticipated actions, there are no other known projects planned within the immediate Project Area that would contribute to adverse cumulative impacts. Rather, the proposed action compliments goals of the City of Burlington to redevelop the shoreline by providing an unimpeded view of Burlington Bay and contributes to improving the water quality outlined in the Lake Champlain Action Plan. Anticipated long-term beneficial impacts resulting from the proposed action:

- Reduction in navigational hazard;
- Reduction in pollution potential;
- Improved aesthetics

5.0 Public and Agency Coordination

The proposed bollard removal has been coordinated with the Vermont Department of Environmental Conservation through several meetings and pre-coordination of interim project reports. The plans were developed in coordination with the state and non-federal sponsor. A Water Quality Certification application will be submitted to the Vermont Department of Environmental Conservation. The District has coordinated with the Vermont Division for Historic Preservation (VTDHP) and informed local Native American tribes regarding the plans for the bollard removal and has received concurrence from the VTDHP on the District's

determination that the undertaking shall have no adverse effect on historic properties provided two nearby wrecks are marked with buoys as no anchor zones and are avoided during construction. The District has conducted preliminary coordination with the U.S. Fish and Wildlife Service and is using the Draft EA as the basis for formal coordination. Based on preliminary coordination with the USFWS, a regulatory letter will be issued in lieu of the typical Fish and Wildlife Coordination Act Report. The circulation of this Environmental Assessment for public comment fulfills public coordination requirements in accordance with the National Environmental Policy Act of 1970.

6.0 Conclusion

In summary, the proposed removal of Bollards 3, 4 and 5 and cutting and capping their associated pipelines is not anticipated to have significant adverse impacts on the environment, and it is therefore proposed that a Finding of No Significant Impact (FONSI) be prepared pending the public review period. A draft FONSI is located in Appendix D. The proposed project is necessary as the bollards present a navigation hazard in an area that is used for recreational boating. In order to minimize adverse impacts, the associated pipelines to the bollards will be removed to within one foot of the lake bottom capped with concrete and will utilize the following Best Management Practices:

- Surrounding the work area with silt curtains ;
- Stabilizing debris to prevent the bollard walls from collapsing during the deconstruction procedure;
- Monitoring turbidity levels of water outside of the silt curtain;
- Utilizing support crafts to perform oil skimming in the event of an oil slick outside the turbidity barrier; and
- Developing an action plan compliant with all federal, state and local environmental regulations to determine the source of and minimize any oil sheen, if observed during construction.

Table 1. Summary of Primary Federal and State Laws and Regulations Applicable to the Proposed Project

Federal		
Legislative Title U.S. Code/Other		Compliance
Clean Air Act	42 U.S.C. §§ 7401-7671g	An air quality analysis is not required because the project is located in an area that meets attainment for all NAAQS.
Clean Water Act	33 U.S.C. §§ 1251 et seq.	The District is applying for a water quality permit from VTDEC to fulfill the requirements of Section 404 of this act. A 404(b) Review is also included in this report in Appendix A.
Endangered Species Act of 1973	16 U.S.C. §§ 1531 et seq.	A review of pertinent databases indicates that no threatened or endangered species inhabit the Project Area.
Fish and Wildlife Coordination Act	16 U.S.C. § 661 et seq.	The District will be using the DEA for formal coordination with the U.S. Fish and Wildlife Service. The coordination letter is included in Appendix C. USFWS response and any follow up correspondence from the District will be included in the final NEPA document in Appendix C.
National Environmental Policy Act of 1969	42 U.S.C. §§ 4321-4347	The circulation of the Draft EA fulfills requirements of this act.
National Historic Preservation Act of 1966	16 U.S.C. §§ 470 et seq.	The Corps is in coordination with the Vermont Division for Historic Preservation to fulfill requirements of Section 106 of this act. Correspondence indicating SHPO's concurrence to the Districts determination is located in Appendix C. Coordination with the St. Regis Mohawk and the Abenaki has been initiated in accordance with Section 106 and 36 CFR Part 800, coordination letters are located in Appendix C.
Executive Order 11990, Protection of Wetlands	May 24, 1977	Circulation of this report for public and agency review fulfills the requirements of this order.
Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks	April 21, 1997	Implementation of this project will reduce environmental health risks. Circulation of this report for public and agency review fulfills the requirements of this order.
State		
Legislative Title and code/date		Compliance
Water Quality Certification	33 USC §1341; Vt Code R. 12 004 052	Water Quality Certification delegated to the State for review and approval of compliance with State water quality standards. The District will apply for WQC.

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Appendix A

Section 404 (b)(1) Evaluation

Oil Bollard Removal
Burlington Bay, City of Burlington, Chittenden County, VT
Section 404 (b)(1) Evaluation

I. PROJECT DESCRIPTION

a. Location: Burlington Harbor, City of Burlington, Chittenden County, Vermont.

b. General Description: Removal of three derelict oil bollards

c. Authority and Purpose: The project is authorized under Section 108 of the FY 2004 Energy and Water Appropriations Act which states "the Secretary is authorized to remove and dispose of oil bollards and associated debris in Burlington Harbor, VT." The purpose of the project is to remove three former oil bollards that are currently posing as a navigation hazard caused by the continuing deterioration of the structures.

d. General Description of Fill Material
1.) Characteristics of Material: The actual bollard structures were constructed of sheet metal, plexiglass, and concrete with one bollard containing a faux lighthouse constructed of wood. The interior of the bollards contain fill ranging from sand, cobble, and rip rap serving as ballast. Subsequent of the demolition, waterproof concrete will be poured into stubs of the bollards in order to seal them.
2.) Quantity of Material: Approximately 40 tons of steel, 36 cy of concrete and 610 cy of fill comprising of gravel/cobble material will be removed. Approximately 32 cy of concrete will be used to cap the stubs of the three bollards after their removal.
3.) Source of Material: The concrete to be used to cap the pipelines is specialized for underwater placement and will obtained from a reputable manufacturer.

e. Description of the Proposed Discharge Sites
1.) Location: The discharge site is located in the southern portion of Burlington Bay.
2.) Size: The total area subject to the action is approximately 0.014 acres.
3.) Type of Site: Open water
4.) Types of Habitat: The aquatic habitat is lacustrine.
5.) Time and Duration of Disposal: Removal of the bollards and appurtenant structures will be scheduled during the fall after the primary tourist season and is anticipated to take approximately one month.

f. Description of Disposal Method: Work will be performed by a crane mounted on a barge.

II. FACTUAL DETERMINATION

a. Physical Substrate Determinations

1) Substrate Elevation and Slope: The lake bed elevation ranges from 76.8-77.9 ft NGVD29 around Bollard 3, 81.6 to 87.6 NGVD29 around Bollard 4; and 81.6 to 87.6

NGVD29 around Bollard 5. The slope around Bollards 4 and 5 are relatively flat while Bollard 4 while Bollard 3 is located near a moderately steep shelf.

2) Sediment Type: Based on sediment sampling, the substrate surrounding the bollards ranges from sand, sand/mussel shell mix and silt.

3) Dredged/Fill Material Movement: Finer sediments such as silt and sand may be resuspended in the water column during demolition activities. Coarser sediments such as sand would be expected to resettle within close proximity to the Project Area while finer sediments could be transported further by the lake current. Best management practices in the form of turbidity curtains and oil booms will be employed to contain the sediment to within the Project Area to the greatest extent practicable.

4) Physical Effects on Stream Bottom: The project is not expected to change the existing substrate or bathymetric characteristics of the lakebed within the Project Area. The pipes will be cut within one foot from the lake bottom so as to minimize disturbance to the substrate.

5) Other Effects: Due to the small size of the project, no unique or other effects are anticipated from this project.

6) Actions Taken to Minimize Impacts: The pipes within the bollards will be cut within one foot above the lake bed to minimize the release of petroleum and disturbance to the substrate. Best management practices such as turbidity curtains and oil booms will be employed where necessary.

b. Water Circulation, Fluctuation and Salinity Determinations

1) Water, Consider Effects on:
   a. Salinity- No effect
   b. Water Chemistry- No effect
   c. Clarity- Water clarity may be slightly impacted during construction activities; No long-term effect is anticipated.
   d. Color- No effect
   e. Odor- No effect
   f. Taste – No effect
   g. Dissolved Gas Levels- No effect
   h. Nutrients- No effect
   i. Eutrophication- No effect
   j. Others as Appropriate- No other adverse impacts are anticipated from the project.

2) Current Patterns and Circulation:
   a. Current Patterns and Flow- The project will not impact normal current patterns or flows.
   b. Velocity- The project will have no significant impact on current velocities.
   c. Stratification- The project will not impact stratification.

d. Hydrologic Regime- No effect.

3) Normal Water Level Fluctuations: The project will not cause any change in normal water levels within the Project Area.

4) Salinity Gradients: Not applicable

5) Actions Taken to Minimize Impacts: The pipes within the bollards will be cut within one ft above the lake bed to minimize the release of petroleum and disturbance to the substrate. Best management practices such as turbidity curtains and oil booms will be employed where necessary.

c. Suspended Particulate/Turbidity Determinations.

1) Expected Changes in Suspended Particulates and Turbidity Levels in Vicinity of Disposal Sites: Effects of the proposed project on turbidity and suspended sediment concentrations will be minimal.

2) Effects on Chemical/Physical Properties of the Water Column:

a. Light Penetration- Turbidity during demolition activities may temporarily reduce light penetration through the water column within the work area.

b. Dissolved Oxygen- The project may have an insignificant and temporary impact on dissolved oxygen within the immediate work area during construction activities.

c. Toxic Metals and Organics- Sediment testing indicated some contamination of petroleum based material within the sediment near the bollards. The pipelines to the bollards will be cut within one foot of the lake bed to minimize disturbance to the contaminated sediments. Turbidity curtains will be employed during bollard removal to assist in containing any resuspended sediment to within the immediate work area. Oil booms and/or boats with oil skimming capability will be employed in the event oil contamination exceeds the work area.

d. Pathogens- The project will not cause any change in pathogen levels as no sewage or animal waste use or treatment is involved.

e. Aesthetics- The removal of the three bollards will have a positive impact on overall aesthetics. Given that they are in a dilapidated condition, the bollards, with the exception of the one with the faux lighthouse, do not hold any significant aesthetic value. The lighthouse will be removed intact and provided to local stakeholders who expressed interest in relocating it to an area of their choice.

f. Others as Appropriate- Not applicable

3) Effects on Biota:

a. Primary Production, Photosynthesis- Not applicable

b. Suspension/ Filter Feeders- Filter feeding species within the immediate work area could be adversely impacted by the increased sediment and uptake of potential oil contamination could occur.

c. Sight Feeders- Turbidity during demolition activities could negatively impact sight feeding species although it is expected that most of these species will avoid the area

during construction. The turbidity will be a temporary condition that will decrease once construction activities cease. Best management practices will be employed to reduce the area that could be impacted by turbidity.

4) Actions Taken to Minimize Impacts: Demolition activities

d. Contaminant Determinations: Sediment sampling indicated residual petroleum product within the sediment surrounding the bollard structures. No excavation of the lake bed is proposed and the work area will be surrounded by turbidity curtains to prevent the migration of sediment into the bay, therefore no adverse impacts are expected.

e. Aquatic Ecosystem and Organism Determinations.

1) Effects on Plankton: No effect.
2) Effects on Benthos: Mussels attached to the bollards will be and within the immediate Project Area may be removed during bollard removal. The majority of mussels observed around the bollards were zebra mussels, an invasive species. Therefore no adverse impacts are expected.
3) Effects on Nekton: No effect.
4) Effects on Aquatic Food Web: No effect.
5) Effects on Special Aquatic Sites:
   a. Sanctuaries and Refuges- Non applicable
   b. Wetlands- Non applicable
   c. Mudflats- Non applicable
   d. Vegetated Shallows- Not applicable
   e. Coral Reefs- Not applicable
   f. Riffle and Pool Complexes- Non applicable

6) Threatened and Endangered Species: Based on a review of applicable databases, no federal or state threatened or endangered species inhabit the Project Area.

7) Other Wildlife: The project is not expected to have significant long-term impacts on fishery resources, waterfowl, upland birds or mammals in the Project Area.

8) Actions to Minimize Impacts: Best management practices including but not limited to turbidity curtains will be utilized during construction.

f. Proposed Disposal Site Determinations

1) Mixing Zone: Not applicable

2) Determination of Compliance with Applicable Water Quality Standards: Fill will be clean construction material and will meet water quality standards.

3) Potential Effects on Human Use Characteristic:

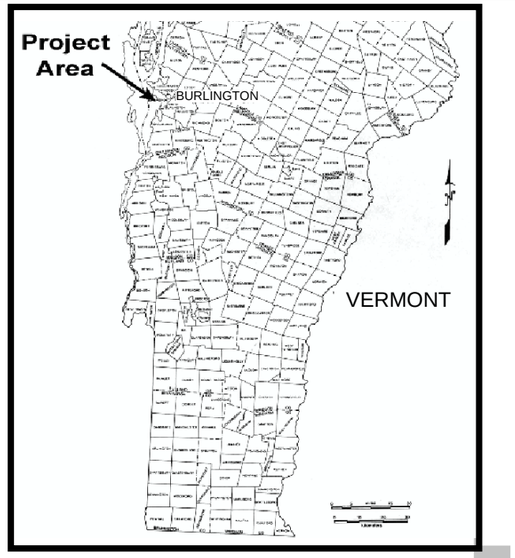
a. Municipal and Private Water Supply – Burlington Bay is used as a water supply to surrounding communities. The project is not anticipated to adversely impact the use of the lake for water supply. Rather, the project will remove a potential contamination threat.
b. Recreational and Commercial Fisheries - The project is not expected to have any adverse impacts to recreational or commercial fisheries.
c. Water Related Recreation- The project will be scheduled to take place outside the summer season to avoid impacts to recreational boating.
d. Aesthetics – With the possible exception of the faux lighthouse on bollard #4, removal of the bollards could potentially constitute as an improvement to the aesthetics of Burlington Harbor given that they are in various states of deterioration. Therefore, significant adverse impacts to aesthetics are not expected from implementation of this project.
e. Parks, National and Historical Monuments, National Seashores, Wilderness Areas, Research Sites, and Similar Preserves - Not Applicable
g. Determination of Cumulative Effects on the Aquatic Ecosystem.
The removal of the bollards and capping of pipes will reduce a navigation hazard and potential oil contamination to Burlington Bay. This in conjunction with
h. Determination of Secondary Effects on the Aquatic Ecosystem.
No secondary effects on the aquatic ecosystem are expected from this project.

III. FINDINGS OF COMPLIANCE OR NON-COMPLIANCE WITH THE RESTRICTIONS ON DISCHARGE.

a. No significant adaptation of the Section 404(b)(1) guidelines was made relative to this evaluation.
b. The objective of improving navigation and reducing potential environmental contamination necessitates the removal of the three oil bollards and capping of existing pipes.
c. The proposed activity will not violate the Toxic Effluent Standards of Section 307 of the Clean Water Act.
d. The proposed disposal operations will not harm any Federal or state endangered species or its critical habitat under the Endangered Species Act of 1973.
e. The proposed discharge of fill material will not result in significant adverse effects on human health and welfare, including municipal and private water supplies, fish, wildlife, and special aquatic sites. The life stages of aquatic life and other wildlife will not be significantly affected. Significant adverse effects on aquatic ecosystem diversity, productivity and stability, and recreational, aesthetic and economic values are not expected to occur.
f. Appropriate steps to minimize potential adverse impacts of the discharge of fill material include the implementation of an erosion and sediment control plan and judicious engineering practices.

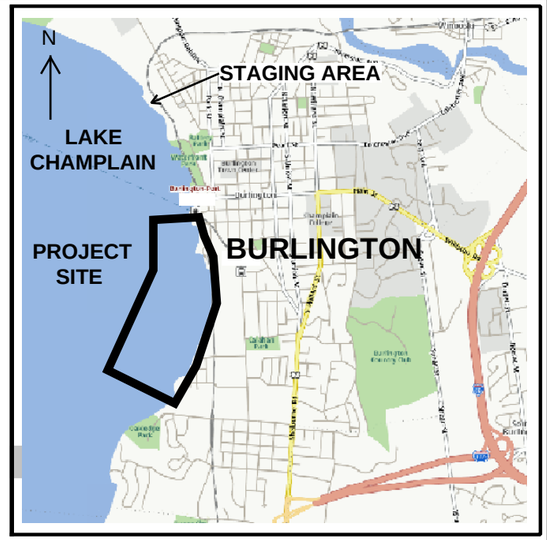
Appendix B

Project Plans



VICINITY MAP

BURLINGTON HARBOR BOLLARDS REMOVAL



LOCATION PLAN

NO SCALE

SHEET NO.	TITLE
CG-001	COVER & INDEX OF DRAWINGS
C-101	GENERAL PLAN
C-102	GENERAL NOTES
C-501	DETAILS

STAGING AREA SITE PLAN

NO SCALE

NOTES:

1. ACCESS TO THE STAGING AREA IS FROM THE NORTHERN PART OF LAKE STREET, CROSSING THE RAILROAD TO THE BIKE PATH (A.K.A ISLAND LINE TRAIL) AND NORTH ALONG THE BIKE PATH TO THE STAGING AREA.
2. A PORTION OF THE OUTLINED STAGING AREA WILL BE ALLOCATED TO THE CONTRACTOR TO PERFORM THE CONSTRUCTION/DEMOLITION ACTIVITIES.

SUBMITTED BY: USERNAME
PLOT DATE: DD-MMM-YYYY HH:MM
FILE NAME

US Army Corps of Engineers New York District

MARK	DESCRIPTION	DATE	APPR.

MARK	DESCRIPTION	DATE	APPR.

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NEW YORK
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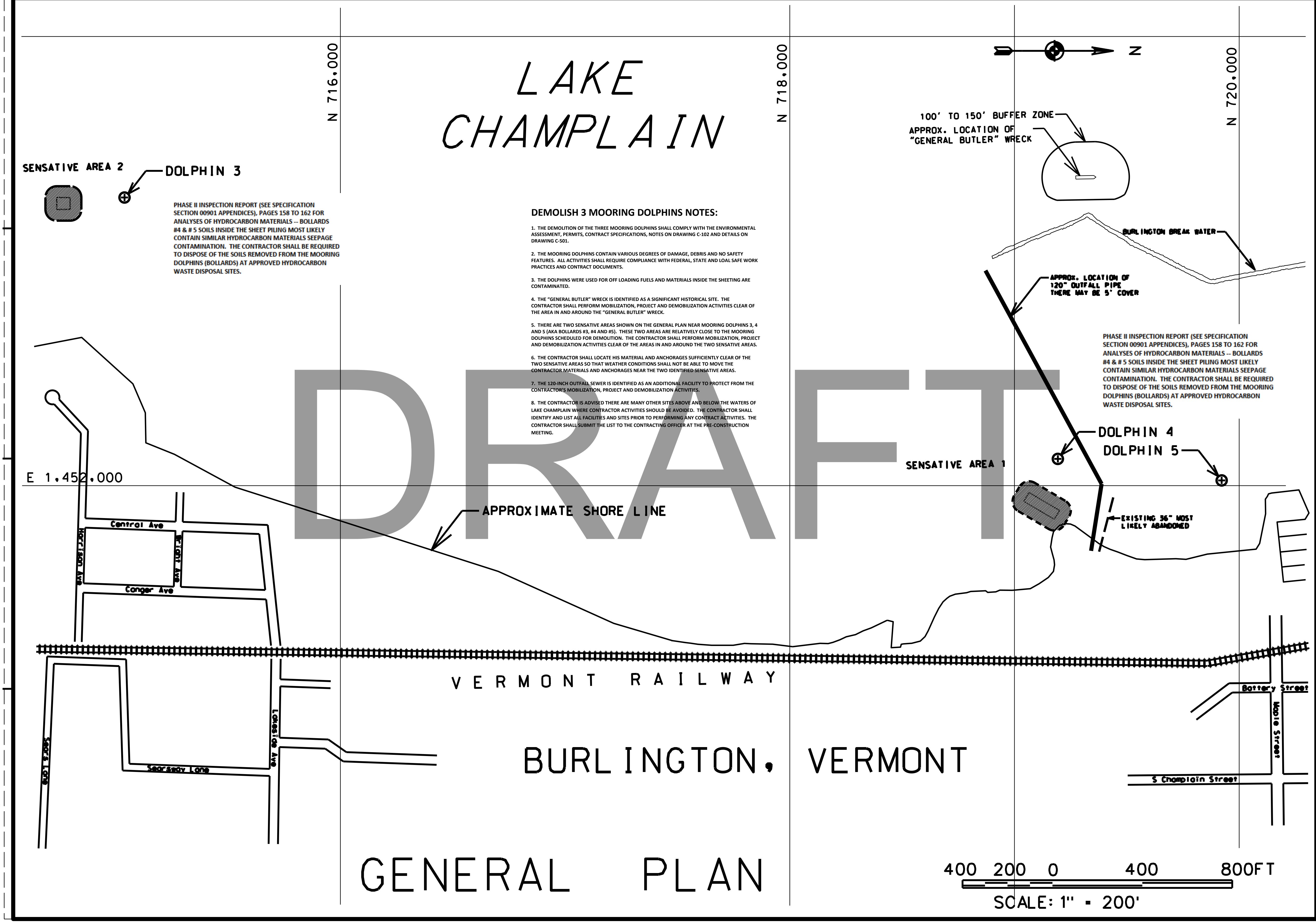
BURLINGTON HARBOR
LAKE CHAMPLAIN, VERMONT
BOLLARDS REMOVAL

COVER & INDEX OF DRAWINGS

SHEET REFERENCE NUMBER
GC-001
SHEET OF

SUBMITTED BY: USERNAME PLOT DATE: DD-MMM-YYYY HH:MM FILE NAME



PHASE II INSPECTION REPORT (SEE SPECIFICATION SECTION 00901 APPENDICES), PAGES 158 TO 162 FOR ANALYSES OF HYDROCARBON MATERIALS -- BOLLARDS #4 & # 5 SOILS INSIDE THE SHEET PILING MOST LIKELY CONTAIN SIMILAR HYDROCARBON MATERIALS SEEPAGE CONTAMINATION. THE CONTRACTOR SHALL BE REQUIRED TO DISPOSE OF THE SOILS REMOVED FROM THE MOORING DOLPHINS (BOLLARDS) AT APPROVED HYDROCARBON WASTE DISPOSAL SITES.

DEMOLISH 3 MOORING DOLPHINS NOTES:

1. THE DEMOLITION OF THE THREE MOORING DOLPHINS SHALL COMPLY WITH THE ENVIRONMENTAL ASSESSMENT, PERMITS, CONTRACT SPECIFICATIONS, NOTES ON DRAWING C-102 AND DETAILS ON DRAWING C-501.

2. THE MOORING DOLPHINS CONTAIN VARIOUS DEGREES OF DAMAGE, DEBRIS AND NO SAFETY FEATURES. ALL ACTIVITIES SHALL REQUIRE COMPLIANCE WITH FEDERAL, STATE AND LOAL SAFE WORK PRACTICES AND CONTRACT DOCUMENTS.

3. THE DOLPHINS WERE USED FOR OFF LOADING FUELS AND MATERIALS INSIDE THE SHEETING ARE CONTAMINATED.

4. THE "GENERAL BUTLER" WRECK IS IDENTIFIED AS A SIGNIFICANT HISTORICAL SITE. THE CONTRACTOR SHALL PERFORM MOBILIZATION, PROJECT AND DEMOBILIZATION ACTIVITIES CLEAR OF THE AREA IN AND AROUND THE "GENERAL BUTLER" WRECK.

5. THERE ARE TWO SENSATIVE AREAS SHOWN ON THE GENERAL PLAN NEAR MOORING DOLPHINS 3, 4 AND 5 (AKA BOLLARDS #3, #4 AND #5). THESE TWO AREAS ARE RELATIVELY CLOSE TO THE MOORING DOLPHINS SCHEDULED FOR DEMOLITION. THE CONTRACTOR SHALL PERFORM MOBILIZATION, PROJECT AND DEMOBILIZATION ACTIVITIES CLEAR OF THE AREAS IN AND AROUND THE TWO SENSATIVE AREAS.

6. THE CONTRACTOR SHALL LOCATE HIS MATERIAL AND ANCHORAGES SUFFICIENTLY CLEAR OF THE TWO SENSATIVE AREAS SO THAT WEATHER CONDITIONS SHALL NOT BE ABLE TO MOVE THE CONTRACTOR MATERIALS AND ANCHORAGES NEAR THE TWO IDENTIFIED SENSATIVE AREAS.

7. THE 120-INCH OUTFALL SEWER IS IDENTIFIED AS AN ADDITIONAL FACILITY TO PROTECT FROM THE CONTRACTOR'S MOBILIZATION, PROJECT AND DEMOBILIZATION ACTIVITIES.

8. THE CONTRACTOR IS ADVISED THERE ARE MANY OTHER SITES ABOVE AND BELOW THE WATERS OF LAKE CHAMPLAIN WHERE CONTRACTOR ACTIVITIES SHOULD BE AVOIDED. THE CONTRACTOR SHALL IDENTIFY AND LIST ALL FACILITIES AND SITES PRIOR TO PERFORMING ANY CONTRACT ACTIVITIES. THE CONTRACTOR SHALL SUBMIT THE LIST TO THE CONTRACTING OFFICER AT THE PRE-CONSTRUCTION MEETING.

PHASE II INSPECTION REPORT (SEE SPECIFICATION SECTION 00901 APPENDICES), PAGES 158 TO 162 FOR ANALYSES OF HYDROCARBON MATERIALS -- BOLLARDS #4 & # 5 SOILS INSIDE THE SHEET PILING MOST LIKELY CONTAIN SIMILAR HYDROCARBON MATERIALS SEEPAGE CONTAMINATION. THE CONTRACTOR SHALL BE REQUIRED TO DISPOSE OF THE SOILS REMOVED FROM THE MOORING DOLPHINS (BOLLARDS) AT APPROVED HYDROCARBON WASTE DISPOSAL SITES.

GENERAL PLAN

US Army Corps
of Engineers
New York District

MARK	DESCRIPTION	DATE	APPR.

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BURLINGTON HARBOR
LAKE CHAMPLAIN, VERMONT
BOLLARDS REMOVAL

GENERAL PLAN

SHEET
REFERENCE
NUMBER
C-101

EROSION AND SEDIMENT CONTROL NOTES

1. ALL SOIL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE INSTALLED IN ACCORDANCE WITH THE STANDARDS FOR TURBIDITY CONTROL, SOIL EROSION AND SEDIMENT CONTROL IN VERMONT, AND WILL BE IN PLACE PRIOR TO ANY DISTURBANCE OF EXISTING CONDITIONS, AND MAINTAINED UNTIL THE PERMANENT WORKS ARE COMPLETE AND ACCEPTED.

2. ANY DISTURBED AREA THAT WILL BE LEFT EXPOSED FOR MORE THAN THIRTY (30) DAYS AND NOT SUBJECT TO CONSTRUCTION ACTIVITY SHALL IMMEDIATELY RECEIVE TEMPORARY TURBIDITY CONTROL, SOIL EROSION AND SEDIMENT CONTROL WORKS.

3. PERMANENT TURBIDITY CONTROL, SOIL EROSION AND SEDIMENT CONTROL WORKS SHALL BE INSTALLED WITHIN TEN (10) DAYS AFTER FINAL PROJECT WORKS ARE COMPLETE.

4. FOR THE STAGING AREA ON SHORE AND IMMEDIATELY FOLLOWING INITIAL DISTURBANCE, ALL CRITICAL AREAS SUBJECT TO EROSION WILL RECEIVE A TEMPORARY SEEDING IN ACCORDANCE SOIL EROSION AND SEDIMENT CONTROL STANDARDS IN VERMONT.

5. PERMANENT SEEDING AND STABILIZATION TO BE IN ACCORDANCE WITH THE "STANDARDS FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION COVER". SPECIFIED RATES AND LOCATIONS SHALL BE ON THE APPROVED SOIL EROSION AND SEDIMENT CONTROL PLAN.

6. THE SITE SHALL AT ALL TIMES BE GRADED AND MAINTAINED SO THAT ALL STORM WATER RUNOFF IS DIVERTED TO SOIL EROSION AND SEDIMENT CONTROL FACILITIES.

7. ALL SEDIMENTATION STRUCTURES (SILT FENCE, INLET FILTERS, AND SEDIMENT BASINS) WILL BE INSPECTED AND MAINTAINED DAILY.

8. STOCKPILES SHALL NOT BE LOCATED WITHIN 50' OF A FLOODPLAIN, SLOPE, DRAINAGE FACILITY, OR ROADWAY. ALL STOCKPILE BASES SHALL HAVE A SILT FENCE PROPERLY ENTRENCHED A MINIMUM OF 12-INCHES DISTANT FROM THE TOE OF SLOPE.

9. A STABILIZED CONSTRUCTION ACCESS SURFACE WILL BE INSTALLED AND CONNECTED TO THE ACCESS LOCATION TO THE STAGING AREA.

10. BEFORE DISCHARGE POINTS BECOME OPERATIONAL, ALL STORM DRAINAGE OUTLETS WILL BE STABILIZED AS REQUIRED.

11. PAVED ROADWAYS MUST BE KEPT CLEAN AT ALL TIMES.

12. ALL DEWATERING OPERATIONS MUST BE DISCHARGED DIRECTLY INTO A SEDIMENT FILTER AREA. THE FILTER SHOULD BE COMPOSED OF A FABRIC OR APPROVED MATERIAL.

13. ALL SEDIMENT BASINS WILL BE CLEANED WHEN THE CAPACITY HAS BEEN REDUCED BY 50%. A CLEAN OUT DETAIL WILL BE PREPARED, SUBMITTED FOR APPROVAL AND A MARKER INSTALLED ON THE SITE.

14. DURING AND AFTER CONSTRUCTION, THE CONTRACTOR WILL BE RESPONSIBLE FOR THE MAINTENANCE OF TURBIDITY CONTROL, SOIL EROSION AND SEDIMENT CONTROL WORKS.

15. THE COUNTY SOIL CONSERVATION DISTRICT MAY REQUEST ADDITIONAL MEASURES TO MINIMIZE ON-SITE OR OFF-SITE TURBIDITY, SOIL EROSION AND SEDIMENT CONTROL PROBLEMS DURING CONSTRUCTION.

PRIOR TO ANY LAND DISTURBANCE, AND A PRE-CONSTRUCTION MEETING HELD.

16. THE COUNTY SOIL CONSERVATION DISTRICT MUST BE NOTIFIED, IN WRITING, AT LEAST 72 HOURS PRIOR TO ANY LAND OR WATER DISTURBANCE, AND THE SCHEDULING OF A PRE-CONSTRUCTION MEETING.

17. APPLY TEMPORARY STABILIZATION MEASURES AS REQUIRED.

18. APPLY PERMANENT STABILIZATION MEASURES AS REQUIRED.

19. SILT FENCE SHALL BE INSTALLED SO WATER CANNOT BYPASS THE FENCE AROUND THE SIDES. THE SILT FENCE SHALL BE CONSTRUCTED TO ENCLOSE ALL CONTRACTOR AREAS. SILT FENCE SHALL REMAIN IN PLACE FOR THE DURATION OF THE PROJECT UNLESS OTHERWISE INSTRUCTED BY THE COUNTY SOIL CONSERVATION DISTRICT. SILT FENCE POSTS SHALL BE 8'-0" O.C. OR CLOSER.

DEMOLISH 3 MOORING DOLPHINS NOTES

GENERAL PROVISIONS, SECTION 108 OF THE FY2004 ENERGY AND WATER APPROPRIATIONS ACT STATES "THE SECRETARY IS AUTHORIZED TO REMOVE AND DISPOSE OF OIL BOLLARDS AND ASSOCIATED DEBRIS IN BURLINGTON HARBOR, VERMONT."

WORK COVERED BY THIS PROJECT CONSISTS OF FURNISHING ALL LABOR AND EQUIPMENT, AND PERFORMING ALL WORK REQUIRED TO DEMOLISH THREE MOORING DOLPHINS, (ALSO KNOWN AS BOLLARDS #3, #4, AND #5) AND ASSOCIATED PIPELINES FROM ABOVE AND BELOW THE LAKE SURFACE TO WITHIN 1FT OF THE LAKE BOTTOM AND CAP WITH CONCRETE. THE DOLPHINS ARE LOCATED OFFSHORE OF BURLINGTON VERMONT. THE CONTRACTOR SHALL TRANSPORT TO AND DISPOSE ALL MATERIAL OFF SITE AT AN APPROVED CERTIFIED WASTE DISPOSAL FACILITY. WORK WILL INCLUDE ALL BEST MANAGEMENT PRACTICES FROM THE LOCAL REGULATORY AGENCIES, INCLUDING THE USE OF FLOATS AND SILT CURTAINS TO KEEP SEDIMENT AND PETROLEUM CONTAINED.

THE LIGHTHOUSE ASSOCIATED WITH BOLLARD #3 WILL BE REMOVED IN ONE PIECE AND PLACED AT A LOCATION TO BE SELECTED BY THE CONTRACTING OFFICER REPRESENTATIVE AT THE STAGING AREA NEAR THE SHORE LINE. THE CONTRACTING OFFICER WILL IDENTIFY THE LIMITS OF ACCESS TO THE STAGING AREA AND LIMITS OF THE STAGING AREA SUBJECT TO THE APPROVAL OF THE LOCAL REPRESENTATIVES OF BURLINGTON. PRIOR TO THE COMPLETION OF THE CONTRACT, THE LOCAL REPRESENTATIVES OF BURLINGTON WILL COORDINATE THE RELOCATION SITE OF THE LIGHTHOUSE AS NEEDED BY THE CITY OF BURLINGTON.

THE BOLLARDS ARE SIMILAR TO THE CONSTRUCTION OF CAISSONS WITH VARIOUS EXISTING PIPES AT THE "THREE WATER SITES" AS SHOWN ON THE DRAWINGS. THROUGHOUT DEMOLITION, CARE WILL BE TAKEN TO CONTAIN ALL HYDROCARBONS WITHIN THE SILT CURTAIN WORKING AREA. PART OF REQUIREMENTS ADDRESSING ENVIRONMENTAL ISSUES IS SUBMITTAL OF A SPILL PREVENTION AND RESPONSE PLAN. BEST MANAGEMENT PRACTICES ADDRESSING THE ENVIRONMENTAL ISSUES SHALL BE REQUIRED TO DEMOLISH THREE MOORING DOLPHINS, (ALSO KNOWN AS BOLLARDS #3, #4, AND #5) AND ASSOCIATED PIPELINES AND CAP WITH TREMIE CONCRETE A MINIMUM OF 6-INCHES ABOVE CUT OFF OF PIPES & SHEETING:

- A SILT CURTAIN (WATER SURFACE TO LAKE BOTTOM) WILL ENCLOSE THE WORKING AREA
- STABILIZING REMOVAL OF DEBRIS PILED AROUND THE BASE OF THE BOLLARD WILL BE DONE TO PREVENT COLLAPSING OF THE BOLLARD WALLS DURING DEBRIS REMOVAL AND CAPPING PROCEDURES.
- AT THE START OF ANY PROCEDURE, THE TURBIDITY OF WATER ESCAPING THE SILT CURTAIN SHOULD BE CHECKED HOURLY FOR FIRST 3 HOURS. CLEAR LAKE WATER OUTSIDE THE PERIMETER OF THE SILT CURTAINS THEREAFTER WILL BE REQUIRED AT THE END OF EACH DAY'S OPERATION.
- A THIRD LINE OF CONTROL WILL CONSIDER SUPPORT CRAFTS TO PERFORM OIL SKIMMING IN THE EVENT OF AN OIL SLICK OUTSIDE THE TURBIDITY BARRIER.
- THE CONTRACTOR SHALL DEVELOP A PROCEDURE TO DETERMINE THE SOURCE OF AND MINIMIZE ANY OIL SHEEN, IF OBSERVED DURING CONSTRUCTION. THIS PROCEDURE SHALL MEET FEDERAL, VERMONT, AND LOCAL ENVIRONMENTAL REGULATIONS.

THE PROJECT SHALL INCLUDE ANY ADDITIONAL NEPA WORK AND DOCUMENTATION THAT IS DETERMINED TO BE NECESSARY FOR THE DEMOLITION AND IMPLEMENTATION OF THE PROJECT.

REMOVAL OF THE EXISTING PIPE CONTENTS WILL BE REQUIRED WITH THE EXCEPTION OF THE RUPTURED PIPE(S). THE CLEANUP OF THE CONTENTS OF THE EXISTING RUPTURED PIPES WILL BE PERFORMED WITHIN A FEW FEET OF THE EXISTING BOLLARD. THE PROPOSED TREMIE CONCRETE CAP WILL BE USED TO SEAL OIL PIPES LEFT IN PLACE.

THE INTERIOR MATERIAL OF THE BOLLARD WILL BE REMOVED TO NEAR THE LEVEL OF THE EXISTING LAKE BED. ONCE ANY SUSPENDED SEDIMENT RESETTLES, THE DEMOLITION OF THE SHEET PILE/EXTERIOR OF THE BOLLARD WILL OCCUR. THE LAST OF THE DEMOLITION WORK WILL REQUIRE PLACING TREMIE CONCRETE CAP OVER THE AREA OF THE BOLLARD. NO EXCAVATION OF THE LAKE BED WILL BE PERMITTED.

THE CONTRACTOR WILL BE REQUIRED TO FULFILL ALL SPILL RESPONSE REQUIREMENTS INCLUDED UNDER SECTION 7-105 IN THE VERMONT HAZARDOUS WASTE MANAGEMENT REGULATIONS (VHWMR).

IF THE CONTRACTOR REQUIRES A SPILL CLEANUP CONTRACTOR, A LIST OF AVAILABLE CONTRACTORS CAN BE FOUND AT:

http://www.anr.state.vt.us/dec/wastediv/spills/spills_program.htm.

IF LAND DISPOSAL OF THE WASTE WITHIN THE STATE OF VERMONT IS PROPOSED BY THE CONTRACTOR, THE CONTRACTOR WILL FOLLOW ALL VERMONT HAZARDOUS WASTE MANAGEMENT REGULATIONS (VHWMR) WHICH INCORPORATE THE FEDERAL 40 CFR PART 268 LDR REQUIREMENTS BY REFERENCE THROUGH VHWMR SECTION 7-106(A). IN ADDITION TO WASTES SUBJECT TO THE FEDERAL LDR REQUIREMENTS, VHWMR SECTION 7-106(B) ALLOWS THE VERMONT AGENCY OF NATURAL RESOURCES SECRETARY TO RESTRICT THE LAND DISPOSAL OF ANY WASTE IN VERMONT IF SUCH DISPOSAL PRESENTS AN UNDUE RISK TO HUMAN HEALTH AND THE ENVIRONMENT OR IS INCOMPATIBLE WITH VERMONT'S GROUNDWATER PROTECTION RULE AND STRATEGY.

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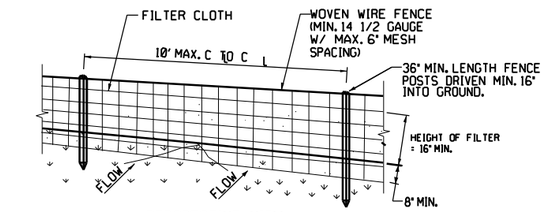
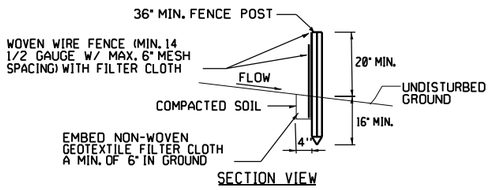
BURLINGTON HARBOR
LAKE CHAMPLAIN, VERMONT
BOLLARDS REMOVAL

GENERAL NOTES

SHEET
REFERENCE
NUMBER
C-102



PERSPECTIVE VIEW



SECTION VIEW

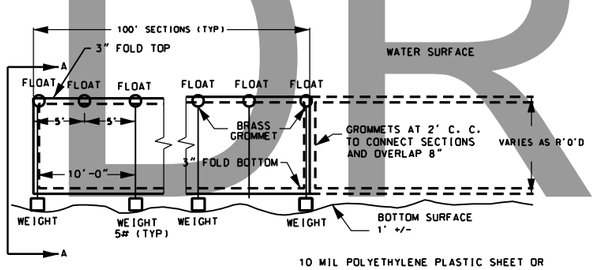
SILT FENCE DETAIL

NOT TO SCALE

SILT FENCE NOTES:

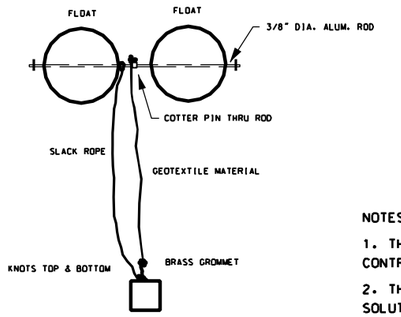
1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH WIRE TIES (METAL POSTS) OR STAPLES (WOOD POSTS). POSTS SHALL BE STEEL EITER "T" OR "U" TYPE OR MIN. 2" x 2" HARDWOOD.
2. NON-WOVEN GEOTEXTILE FILTER CLOTH TO BE TO BE FASTENED SECURELY TO WOVEN WIRE FENCE WITH TIES SPACED EVERY 24" AT TOP, BOTTOM AND MID SECTION. FENCE SHALL BE WOVEN WIRE, 14 1/2 GAUGE, 6" MAXIMUM MESH OPENING.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY SIX INCHES AND FOLDED. FILTER CLOTH SHALL BE EITHER FILTER X, MIRAFI 100X, STABILINKA T140N, OR APPROVED EQUIVALENT.
4. PREFABRICATED UNITS SHALL BE GEOFAB, ENVIROFENCE, OR APPROVED EQUIVALENT.
5. MAINTENANCE SHALL BE PERFORMED AS NEEDED AND MATERIAL REMOVED WHEN "BULGES" DEVELOP IN THE SILT FENCE OR SILT DEPTH IS MORE THAN 6-INCHES.

1/4" ROPES FORMS REINFORCEMENT AIDS IN REMOVAL OR RELOCATION OF BARRIER & SERVES AS PICK-UP LINE FOR WEIGHTS. ROPES AND WEIGHTS ARE ATTACHED TO END FLOATS AND EVERY SECOND FLOAT.

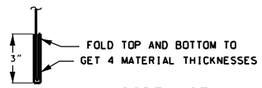


FRONT VIEW

10 MIL POLYETHYLENE PLASTIC SHEET OR ALTERNATIVE COMPLIANT WITH PERMITS AS APPROVED BY THE CONTRACTING OFFICER.



SECTION A - A



SIDE VIEW

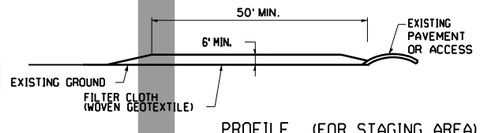
FOLDING DETAIL (TYP)

NOTES

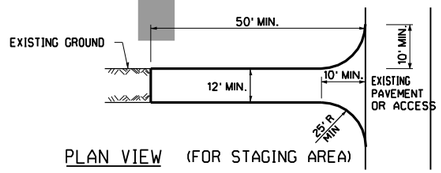
1. THE EXACT PLACEMENT OF SILT BARRIER SHALL BE LOCATED TO EFFECTIVELY CONTROL SILT DISPERSION UNDER THE CONDITIONS PRESENT ON THE PROJECT.
2. THE DETAILS SHOWN ON THIS SHEET ARE SUGGESTED METHODS. ALTERNATIVE SOLUTIONS AND USAGE OF MATERIALS MAY BE CONSIDERED FOR APPROVAL.
3. THE CONDITIONS OF PERMITS REQUIRE COMPLIANCE IN ITS ENTIRETY AND ANY DEVIATION SHALL REQUIRE APPROVAL OF GOVERNING AUTHORITIES PRIOR TO FURTHER PERFORMANCE OF THE WORKS.

FLOATING TURBIDITY BARRIER

NOT TO SCALE



PROFILE (FOR STAGING AREA)



PLAN VIEW (FOR STAGING AREA)

NOTES

1. STONE SIZE - USE CRUSHED STONE, SIZE DESIGNATION 1/4 TO 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT.
2. LENGTH - NOT LESS THAN 50 FEET
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWELVE (12) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. GEOTEXTILE - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED BENEATH THE ENTRANCE.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC PAVEMENTS. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACTED ONTO PUBLIC PAVEMENTS SHALL BE REMOVED IMMEDIATELY.
8. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON A AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE AS APPROVED.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN EVENT.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

US Army Corps
of Engineers
New York District

MARK	DESCRIPTION	DATE	APPR.

MARK	DESCRIPTION	DATE	APPR.

U. S. ARMY ENGINEER DISTRICT
NEW YORK
http://www.nan.usace.army.mil

DESIGNED BY:
DATE:
DWN BY:
CKD BY:
SOLICITATION NO.:
SUBMITTED BY:
CONTRACT NO.:
FILE NAME: IP_SHORT_DESIGN
SIZE: ANSI D
PLOTTED BY: $USERNAME$
PLOT DATE: $SYTIME$

BURLINGTON HARBOR
LAKE CHAMPLAIN, VERMONT
BOLLARDS REMOVAL

DETAILS

SHEET
REFERENCE
NUMBER
C-501
SHEET OF

Appendix C

Pertinent Correspondence

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, N.Y. 10278-0090

REPLY TO
Environmental Analysis Branch

June 20, 2012

Don Stevens
Chief
Nulhegan Abenaki Tribe
158 Whiting Lane
Brownington, VT 05860

Dear Chief Stevens,

The U.S. Army Corps of Engineers, New York District (District) in partnership with the City of Burlington is undertaking a project in the City of Burlington, Vermont in an area of interest to your Tribe. The enclosed CD contains two reports entitled *Phase I Archaeological Survey Burlington Harbor in Lake Champlain, Burlington, Chittenden County, Vermont* and *Phase IB Oil Bollard Survey at Burlington Harbor, Burlington, Chittenden County, Vermont* (Enclosure 1). The reports present the results of two archaeological investigations of the Burlington Harbor and the area surrounding three early twentieth century oil bollards in Burlington Harbor. The bollards are being removed as part of the City of Burlington's waterfront cleanup and revitalization project. The archaeological surveys were carried out in accordance with Section 106 of the National Historic Preservation Act and the Vermont Historic Preservation Act in an effort to identify and avoid potential impacts to cultural resources of significance in the project area. The Vermont Division for Historic Preservation has reviewed the reports and concurs with the Corps' findings that the project will have no adverse effect on cultural resources (Enclosure 2).

Pursuant to Section 106 of the National Historic Preservation Act, the District is transmitting these reports and the project plans (Enclosure 3) to provide your Tribe with the opportunity to review the materials and submit any comments or questions you may have regarding the project or its impacts. Should you have any questions or require additional information about this project please contact the Project Archaeologist, Carissa Scarpa, (917) 790-8612.

Sincerely,

L. Houston

Leonard Houston
Chief, Environmental Analysis Branch

Enclosures

ENCL. #2

VERMONT

State of Vermont
Department of Economic, Housing and Community Development
One National Life Drive [phone] 802-828-3211
Montpelier, VT 05620-0501
www.development.vermont.gov

Agency of Commerce and Community Development

February 4, 2011

Leonard Houston
Department of the Army
New York District, Corps of Engineers
Jacob K. Javits Federal Building
New York, NY 10278-0090

Re: Phase IB Archeological Survey of Oil Bollards, Burlington Harbor, Burlington, Vermont.

Dear Mr. Houston:

Thank you for the opportunity to comment on the above referenced project. The following comments will assist the U.S. Department of the Army Corps of Engineers (ACOE) in their review responsibilities under Section 106 of the National Historic Preservation Act.

The Division for Historic Preservation (Division) is providing the ACOE with the following comments pursuant to 36 CFR 800.4, regulations established by the Advisory Council on Historic Preservation to implement Section 106 of the National Historic Preservation Act. Project review consists of identifying the project's potential impacts to historic buildings, structures, historic districts, historic landscapes and settings, and known or potential archeological resources.

The proposed project consists of the removal of three oil bollards and associated pipelines from Burlington Harbor in Burlington, Vermont. The Division has received a copy of the September 2010 draft report entitled *Phase IB Oil Bollard Survey at Burlington Harbor, Burlington, Chittenden County, Vermont* prepared by the Lake Champlain Maritime Museum (LCCM). The remains of two vessels are located near the project's area of potential effect. However, LCCM concludes that any adverse impacts to the sites can be avoided by establishing 50 foot no anchor zones around the wrecks during the proposed removal activities. The Division concurs with this recommendation and concludes that the proposed oil bollard removal project will have **No Adverse Effect** on any historic sites provided that 50 foot buffer areas marked with buoys and identified as no anchor zones are established around the Schooner Excelsior Wreck (VT-CH-796) near Bollard 4, and around the un-identified barge located near Bollard 3 during all removal activity.

Thank you for your cooperation in protecting Vermont's irreplaceable historic and archeological heritage. R. Scott Dillon reviewed this project and prepared this letter. I concur with the findings and conclusions described above.

Sincerely:
VERMONT DIVISION FOR HISTORIC PRESERVATION

Giovanna Peebles
State Historic Preservation Officer

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, N.Y. 10278-0090

REPLY TO
Environmental Analysis Branch

June 20, 2012

Arnold Printup
Historic Preservation Officer
St. Regis Mohawk Tribe
412 State Rt. 37,
Akwesasne, NY 13655

Dear Mr. Printup,

The U.S. Army Corps of Engineers, New York District (District) in partnership with the City of Burlington is undertaking a project in the City of Burlington, Vermont in an area of interest to your Tribe. The enclosed CD contains two reports entitled *Phase I Archaeological Survey Burlington Harbor in Lake Champlain, Burlington, Chittenden County, Vermont* and *Phase IB Oil Bollard Survey at Burlington Harbor, Burlington, Chittenden County, Vermont* (Enclosure 1). The reports present the results of two archaeological investigations of the Burlington Harbor and the area surrounding three early twentieth century oil bollards in Burlington Harbor. The bollards are being removed as part of the City of Burlington's waterfront cleanup and revitalization project. The archaeological surveys were carried out in accordance with Section 106 of the National Historic Preservation Act and the Vermont Historic Preservation Act in an effort to identify and avoid potential impacts to cultural resources of significance in the project area. The Vermont Division for Historic Preservation has reviewed the reports and concurs with the Corps' findings that the project will have no adverse effect on cultural resources (Enclosure 2).

Pursuant to Section 106 of the National Historic Preservation Act, the District is transmitting these reports and the project plans (Enclosure 3) to provide your Tribe with the opportunity to review the materials and submit any comments or questions you may have regarding the project or its impacts. Should you have any questions or require additional information about this project please contact the Project Archaeologist, Carissa Scarpa, (917) 790-8612.

Sincerely,

L. Houston

Leonard Houston
Chief, Environmental Analysis Branch

Enclosures

ENCL. #2

VERMONT

State of Vermont
Department of Economic, Housing and Community Development
One National Life Drive [phone] 802-828-3211
Montpelier, VT 05620-0501
www.development.vermont.gov

Agency of Commerce and Community Development

February 4, 2011

Leonard Houston
Department of the Army
New York District, Corps of Engineers
Jacob K. Javits Federal Building
New York, NY 10278-0090

Re: Phase IB Archeological Survey of Oil Bollards, Burlington Harbor, Burlington, Vermont.

Dear Mr. Houston:

Thank you for the opportunity to comment on the above referenced project. The following comments will assist the U.S. Department of the Army Corps of Engineers (ACOE) in their review responsibilities under Section 106 of the National Historic Preservation Act.

The Division for Historic Preservation (Division) is providing the ACOE with the following comments pursuant to 36 CFR 800.4, regulations established by the Advisory Council on Historic Preservation to implement Section 106 of the National Historic Preservation Act. Project review consists of identifying the project's potential impacts to historic buildings, structures, historic districts, historic landscapes and settings, and known or potential archeological resources.

The proposed project consists of the removal of three oil bollards and associated pipelines from Burlington Harbor in Burlington, Vermont. The Division has received a copy of the September 2010 draft report entitled *Phase IB Oil Bollard Survey at Burlington Harbor, Burlington, Chittenden County, Vermont* prepared by the Lake Champlain Maritime Museum (LCCM). The remains of two vessels are located near the project's area of potential effect. However, LCCM concludes that any adverse impacts to the sites can be avoided by establishing 50 foot no anchor zones around the wrecks during the proposed removal activities. The Division concurs with this recommendation and concludes that the proposed oil bollard removal project will have **No Adverse Effect** on any historic sites provided that 50 foot buffer areas marked with buoys and identified as no anchor zones are established around the Schooner Excelsior Wreck (VT-CH-796) near Bollard 4, and around the un-identified barge located near Bollard 3 during all removal activity.

Thank you for your cooperation in protecting Vermont's irreplaceable historic and archeological heritage. R. Scott Dillon reviewed this project and prepared this letter. I concur with the findings and conclusions described above.

Sincerely:
VERMONT DIVISION FOR HISTORIC PRESERVATION

Giovanna Peebles
State Historic Preservation Officer

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, N.Y. 10278-0090

REPLY TO
Environmental Analysis Branch

June 20, 2012

Giovanna Peebles
State Historic Preservation Officer
Vermont Division for Historic Preservation
National Life Building
6th Floor
Montpelier, VT
05620-1201

Dear Ms. Peebles,

The U.S. Army Corps of Engineers, New York District (District) and the City of Burlington are moving forward with the bollard removal project in Burlington Harbor, Burlington, Vermont. The District has prepared 90% plans for removal of three oil bollards (bollards 3, 4, and 5) and the cutting and capping of pipelines at the bollard sites. Your office reviewed the draft report *Phase IB Oil Bollard Survey at Burlington Harbor, Burlington, Chittenden County, Vermont* in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended, and 22 VSA Chapter 14 of the *Vermont Historic Preservation Act* and provided the District with your comments and recommendations on February 4, 2011 (Enclosure 1). The remains of two vessels are located near Bollards 3 and 4. In accordance with the recommendations of the survey report and the February 4 consultation letter, the District has mapped 50 foot no anchor zones around the vessels (labeled "sensitive area") to ensure the project will have No Adverse Effect on these resources.

Please review the 90% plans (Enclosure 2) and note the location of the staging area. The staging area was selected due to its proximity to the project site and its former use as a permanent staging area during the Burlington Breakwater repairs and expansion which was carried out from 2001 to 2002. Should you have any questions about this project please contact the Project Archaeologist, Carissa Scarpa, (917) 790-8612.

Sincerely,

L. Houston

Leonard Houston
Chief, Environmental Analysis Branch

Enclosures

ENCL. #1

VERMONT

State of Vermont
Department of Economic, Housing and Community Development
One National Life Drive [phone] 802-828-3211
Montpelier, VT 05620-0501
www.development.vermont.gov

Agency of Commerce and Community Development

February 4, 2011

Leonard Houston
Department of the Army
New York District, Corps of Engineers
Jacob K. Javits Federal Building
New York, NY 10278-0090

Re: Phase IB Archeological Survey of Oil Bollards, Burlington Harbor, Burlington, Vermont.

Dear Mr. Houston:

Thank you for the opportunity to comment on the above referenced project. The following comments will assist the U.S. Department of the Army Corps of Engineers (ACOE) in their review responsibilities under Section 106 of the National Historic Preservation Act.

The Division for Historic Preservation (Division) is providing the ACOE with the following comments pursuant to 36 CFR 800.4, regulations established by the Advisory Council on Historic Preservation to implement Section 106 of the National Historic Preservation Act. Project review consists of identifying the project's potential impacts to historic buildings, structures, historic districts, historic landscapes and settings, and known or potential archeological resources.

The proposed project consists of the removal of three oil bollards and associated pipelines from Burlington Harbor in Burlington, Vermont. The Division has received a copy of the September 2010 draft report entitled *Phase IB Oil Bollard Survey at Burlington Harbor, Burlington, Chittenden County, Vermont* prepared by the Lake Champlain Maritime Museum (LCCM). The remains of two vessels are located near the project's area of potential effect. However, LCCM concludes that any adverse impacts to the sites can be avoided by establishing 50 foot no anchor zones around the wrecks during the proposed removal activities. The Division concurs with this recommendation and concludes that the proposed oil bollard removal project will have **No Adverse Effect** on any historic sites provided that 50 foot buffer areas marked with buoys and identified as no anchor zones are established around the Schooner Excelsior Wreck (VT-CH-796) near Bollard 4, and around the un-identified barge located near Bollard 3 during all removal activity.

Thank you for your cooperation in protecting Vermont's irreplaceable historic and archeological heritage. R. Scott Dillon reviewed this project and prepared this letter. I concur with the findings and conclusions described above.

Sincerely:
VERMONT DIVISION FOR HISTORIC PRESERVATION

Giovanna Peebles
State Historic Preservation Officer

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, N.Y. 10278-0090

REPLY TO
ATTENTION OF
Environmental Analysis Branch

June 20, 2012

Mr. Tom Chapman
Field Supervisor
U.S. Fish and Wildlife Service
New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301

Dear Mr. Chapman:

The Army Corps of Engineers, New York District (District) is proposing to remove three derelict oil bollards offshore of Burlington Harbor in Burlington Vermont. Initial coordination between our agencies occurred in 2009 when the District submitted a request for your office to prepare a cost estimate for a Fish and Wildlife Coordination Act Report (FWCAR)(Enclosure 1).

Through coordination with Ms. Maria Tur in 2010, it was agreed that your office would provide recommendations via a Regulatory Letter in lieu of a formal FWCAR due to the small scope of the project. The Draft Environmental Assessment (Enclosure 2) would serve as the basis for your office's review.

The District is anticipating awarding a construction contract in September and would appreciate receiving any comments you may have by 1 August 2012. Should any questions arise during your review, or additional information is needed, please contact Ms. Kimberly Rightler at (917) 790-8722.

Sincerely,

for Leonard Houston
Chief, Environmental Analysis Branch

Enclosures

Cc:
M. Tur

VERMONT

State of Vermont
Department of Economic, Housing and Community Development
One National Life Drive
Montpelier, VT 05620-0501
[phone] 802-828-3211
www.development.vermont.gov

Agency of Commerce and Community Development

February 4, 2011

Leonard Houston
Department of the Army
New York District, Corps of Engineers
Jacob K. Javits Federal Building
New York, NY 10278-0090

Re: Phase IB Archeological Survey of Oil Bollards, Burlington Harbor, Burlington, Vermont.

Dear Mr. Houston:

Thank you for the opportunity to comment on the above referenced project. The following comments will assist the U.S. Department of the Army Corps of Engineers (ACOE) in their review responsibilities under Section 106 of the National Historic Preservation Act.

The Division for Historic Preservation (Division) is providing the ACOE with the following comments pursuant to 36 CFR 800.4, regulations established by the Advisory Council on Historic Preservation to implement Section 106 of the National Historic Preservation Act. Project review consists of identifying the project's potential impacts to historic buildings, structures, historic districts, historic landscapes and settings, and known or potential archeological resources.

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Thank you for your cooperation in protecting Vermont's irreplaceable historic and archeological heritage. R. Scott Dillon reviewed this project and prepared this letter. I concur with the findings and conclusions described above.

Sincerely:
VERMONT DIVISION FOR HISTORIC PRESERVATION

Giovanna Peebles
State Historic Preservation Officer

DEPARTMENT OF THE ARMY
NEW YORK DISTRICT, CORPS OF ENGINEERS
JACOB K. JAVITS FEDERAL BUILDING
NEW YORK, N.Y. 10278-0090

REPLY TO
Environmental Analysis Branch

September 29, 2010

Giovanna Peebles
State Historic Preservation Officer
Vermont Division for Historic Preservation
National Life Building
6th Floor
Montpelier, VT
05620-1201

Dear Ms. Peebles,

The U.S. Army Corps of Engineers, New York District (District) is pleased to furnish you with a draft copy of the *Phase IB Oil Bollard Survey at Burlington Harbor, Burlington, Chittenden County, Vermont.* This report presents the results of an underwater investigation in waters adjacent to three early twentieth century oil bollards in Burlington Harbor. The bollards are being removed as part of the City of Burlington's waterfront cleanup and revitalization strategy. This survey followed the recommendations of the Phase IA archaeological survey report which was reviewed by your office in 2007.

The survey investigated two wrecks that were identified during the Phase IA survey, an unidentified vessel south of Bollard 3 and the remains of the Excelsior (VT-CH-796) and its debris field near Bollard 4. The pipelines leading from the bollards to the shoreline were also mapped as part of this survey to facilitate their removal and to ensure that removal will not impact cultural resources. The survey concluded that the removal of the bollards and the existing pipelines will not impact cultural resources. Placement of a 50-foot buffer around the barge wreck and the Excelsior during removal activities was recommended to ensure the project would cause no adverse impacts.

In keeping with Section 106 of the National Historic Preservation Act, of 1966 as amended, and 22 VSA Chapter 14, *Vermont Historic Preservation Act*, please provide comments on this report and its findings within 30 days of receipt of this letter. Should you have any questions about this report please contact the Project Archaeologist, Carissa Scarpa, (917) 790-8612.

Sincerely,

Leonard Houston
Chief, Environmental Analysis Branch

Appendix D

Draft Finding of No Significant Impact

Finding of No Significant Impact
Environmental Assessment for Oil Bollard Removal
City of Burlington, Chittenden County, VT

The U.S. Army Corps of Engineers, New York District (District), in partnership with the City of Burlington, is proposing to remove three of eight derelict oil bollards from the near shore area of the Burlington Bay in Burlington, Chittenden County, Vermont. Specifically, the bollards to be removed include Bollards 4 and 5, which are located within the inlet of the Burlington Breakwater, and Bollard 3, which is located approximately 700 feet from a townhome complex off of Harrison Avenue and immediately north of Oakledge Park.

The project is authorized by General Provisions, Section 108 of the 2004 Energy and Water Appropriations Act. The District has completed an Environmental Assessment (EA) according to the requirements of the National Environmental Policy Act (NEPA) in order to evaluate the potential impacts to environmental, cultural and socio-economic resources associated with the proposed action.

The bollards were historically used to pump petroleum products from barges to tank farms along the waterfront. The goal of removing the three bollards is to eliminate potential obstructions to navigation caused by continued deterioration of the structures.

The three bollards will be removed and their associated pipelines will be cut within one foot of the lake bottom and capped with concrete. The faux lighthouse sitting atop of Bollard 3 will be removed in an intact piece and provided to local parties who expressed interest in installing it at another location. Transport and disposal of all other materials and liquids shall be taken off site to an approved certified waste disposal facility.

Best Management Practices that will be implemented during demolition activities in order to minimize adverse environmental impacts include:

- Enclosing the work area with a silt curtain extending from the water surface to the bay bottom;
- Stabilizing the debris piled around the base of the bollards to prevent collapsing of the bollard walls during debris removal and capping procedures;
- Monitoring turbidity levels of water on the outside of the silt curtain on an hourly basis for first three hours from start of demolition activities and ensuring that the water outside the perimeter of the silt curtains is clear at the end of each day's operation;
- Utilizing support crafts to perform oil skimming in the event of an oil slick outside the turbidity barrier; and
- Developing an action plan compliant with all federal, state and local environmental regulations to determine the source of and minimize any oil sheen, if observed during construction.

Based on my review and evaluation of the environmental, cultural resource and socio-economic effects as presented in the Environmental Assessment, I have determined that the proposed project is not a major Federal action significantly affecting the quality of the human environment. I have reviewed the proposed action in terms of overall public interest and have found the proposed action does not warrant the preparation of an environmental impact statement.

_____ _____

Date

John R. Boulé II
Colonel, U.S. Army
District Commander