

Shoreline Structural Classifications & Design Water Levels, Lake Ontario



Prepared for:





Prepared for:
New York State OGS
Albany, New York

Prepared by:
AECOM
Chelmsford, MA
January 4, 2013

Shoreline Structural Classifications & Design Water Levels, Lake Ontario

A handwritten signature in black ink that reads "Todd Monson". The signature is written in a cursive style.

Prepared By Todd Monson

A handwritten signature in black ink that reads "Aaron Hopkins". The signature is written in a cursive style.

Reviewed By Aaron Hopkins

Contents

| | |
|--|-----------|
| 1.0 Introduction..... | 1 |
| 2.0 Methods..... | 2 |
| 2.1 Phase I – Existing Data Review | 2 |
| 2.2 Phase II – Field Data Collection | 4 |
| 2.3 Phase III – Data Analysis | 5 |
| 3.0 Results..... | 7 |
| 3.1 Permit Review | 7 |
| 3.2 Shoreline Classification | 8 |
| 3.3 Field Investigations of Permitted Structures | 9 |
| 3.4 Design Water Levels and Parcel Review..... | 11 |
| 4.0 Conclusions..... | 13 |

List of Appendices

Appendix A: Oblique Imagery Review Standard Operating Procedure

Appendix B: Field Survey Summary Sheets

Appendix C: Parcel Summary Information

Appendix D: GIS Metadata

List of Tables

| | |
|--|----|
| Table 3-1 Summary of Permitted Structures..... | 7 |
| Table 3-2 Shoreline Geomorphology Summary..... | 8 |
| Table 3-3 Shoreline Protection Classification Summary..... | 9 |
| Table 3-4 Design Elevations for Surveyed Structures. | 11 |
| Table 3-5 Condition of Erosion Protection Structures by Parcel | 12 |

List of Figures

| | |
|---|----|
| Figure 1-1 Lake Ontario study area..... | 1 |
| Figure 2-1 Example of primary and secondary shore protection..... | 3 |
| Figure 2-2 Examples of structural condition classifications | 4 |
| Figure 2-3 Geoprocessing of tax parcels and shoreline | 6 |
| Figure 3-1 Example design plan for rip rap in Ellisburg | 8 |
| Figure 3-2 Field surveying the toe of a seawall in Yates | 9 |
| Figure 3-3 Example field survey summary sheet..... | 10 |

1.0 Introduction

The International Joint Commission (IJC) is in the process of evaluating options to develop a new water level management plan for Lake Ontario to replace the current strategy in place since 1963 (Plan 1958-D). The new approach is designed to substantially improve the wetlands and aquatic habitats of the lake while protecting the coastal property and navigation interests of lake and downstream communities. In support of this effort the New York State Office of General Services (NYSOGS) and the New York State Department of Environmental Conservation (NYSDEC) commissioned AECOM to analyze the erosion protection structures along the New York shoreline of Lake Ontario. The shorelines of five towns (Ellisburg, Huron, Greece, Yates, and Wilson) were selected by NYSDEC for a more intense evaluation in this study (Figure 1-1). Findings from this study will be used by New York State to contribute to the IJC water level discussions and to evaluate potential shoreline resiliency management actions.

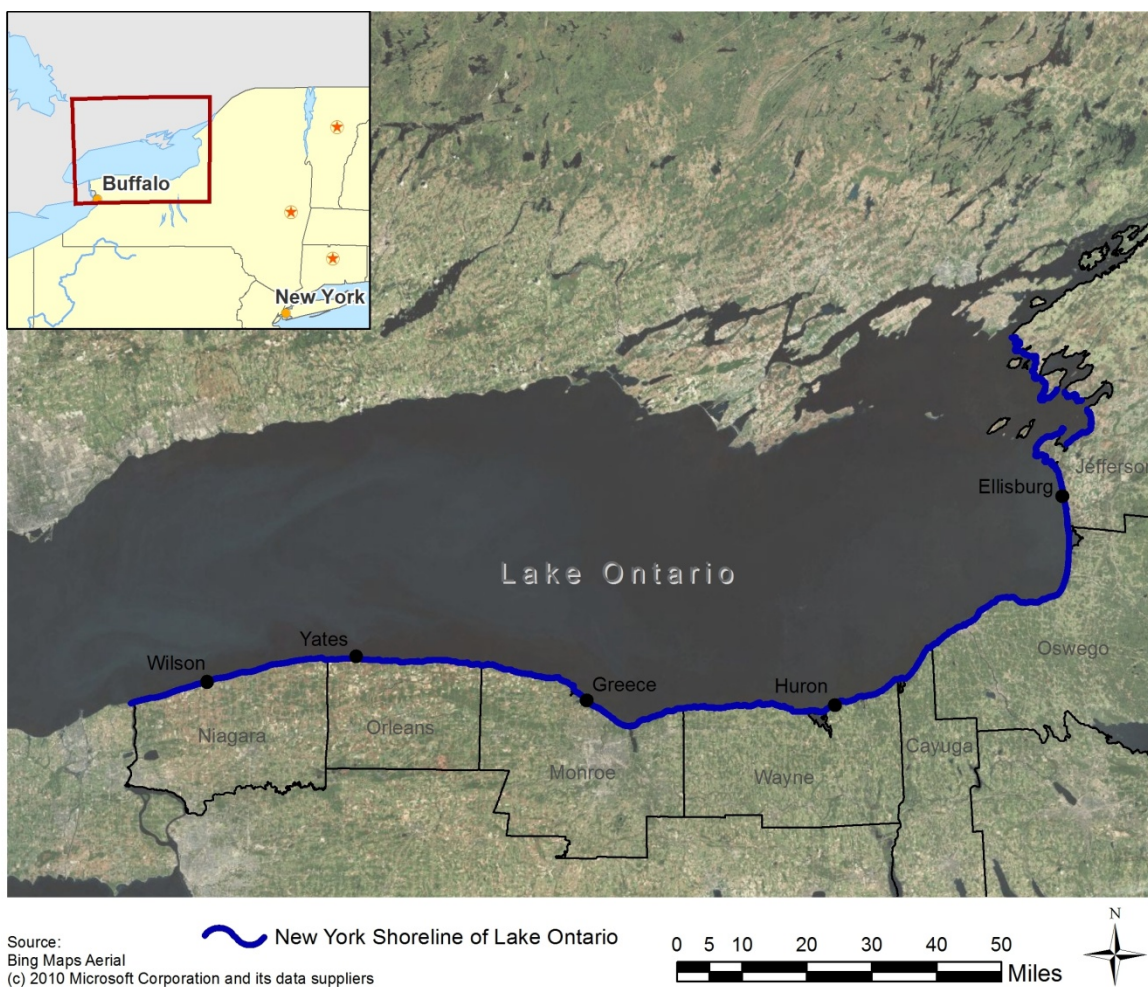


Figure 1-1 Lake Ontario study area

2.0 Methods

AECOM performed its assessment of the erosion protection structures along the New York shoreline of Lake Ontario in three phases. Phase I included a review of previously existing data and imagery, Phase II involved field data collection of selected erosion control structures, and Phase III included the analysis of data gathered in the previous phases to develop a summary of erosion protection structures and design water levels. The methods used to complete this data collection and analysis are provided below.

2.1 Phase I – Existing Data Review

AECOM completed a detailed evaluation of existing data regarding erosion control structures and shoreline protection for New York's Lake Ontario coastline excluding embayments, as coded by the 2002 Lake Ontario – St. Lawrence River Regulation Study (LOSLR Study). This evaluation included a review of available permits from NYSDEC regional offices and local municipalities as well as oblique aerial imagery from the U.S. Army Corps of Engineers (USACE).

Permit Review

To review active permits for erosion protection structures (those maintained as hard copy files by NYSDEC or municipalities) AECOM visited NYSDEC region 6, 7, 8 and 9 offices as well as municipal offices selected by NYSDEC: Ellisburg, Greece, Huron, Wilson, and Yates. During the office visits, AECOM took digital photographs of the permit and design plans and collected the following information in a Microsoft Excel® database:

- Permit ID
- Town
- Address
- Applicant
- Northing and Easting Coordinates (if provided)
- Permit Issue Date and Last Modification Date (if applicable)
- Structure Type and Material
- Design Dimensions (if provided)
- Notes

The data collected from the office visits were compiled into an ArcMap™ geodatabase as a spatially referenced point data layer based on project northing and easting coordinates. In cases where northing and easting information was not provided, coordinates were determined based on the project address using ArcMap™ geocoding tools. Digital photographs of the permit files and design plans were combined and then converted into a single PDF document for each permit. The PDFs were electronically hyperlinked to the point data layer to allow for seamless access to the permit files and design plans from within the ArcMap™ environment.

After a complete review of the active permits for erosion control structures at the NYSDEC and municipal offices, NYSDEC and AECOM agreed to expand the review to include inactive permits within the five previously selected towns. Inactive permits are those files that are no longer maintained as a hardcopy record but are logged in the NYSDEC permit database. Inactive permit records often only had partial information and, with the exception of Ellisburg permits, lacked coordinate locations. The inactive permit records were added to the geodatabase with the spatial location based on geocoding the address on file (with the exception of permits located in Ellisburg,

which were referenced based on provided coordinate information). Permits not located on Lake Ontario and non erosion control permits were not included in the final dataset.

Shoreline Classification

The New York State shoreline of Lake Ontario was classified in 2002 during the LOSLR study based on one kilometer reaches. NYSDEC desired a more precise classification of the shoreline so AECOM reviewed oblique aerial imagery collected by the USACE in the spring of 2012 to define more detailed shoreline reaches. Based on this analysis AECOM classified individual reaches of the entire New York Lake Ontario shoreline by erosion protection characteristics and not by a set unit of measure. A baseline shoreline layer was created from multiple sources including GIS shapefile layers for New York towns and Lake Ontario coastline obtained from the New York State GIS Clearinghouse website. AECOM modified the shoreline polyline to more accurately represent the current shoreline based on 2010-2012 Bing Maps aerial imagery. The resulting shapefile was split by shoreline type to reflect differing geomorphic and structural protection based on review of the USACE oblique imagery. For consistency, geomorphic classification and structural classification types from the LOSLR study were used in this analysis. A complete description of the methodology and classification types is provided in the oblique imagery review standard operating procedure (Appendix A).

Spatial and attribute information from the analysis were collected in a new polyline feature class and included:

- Shoreline Classification (Geomorphic classification)
- Primary Shore Protection Classification and Condition
- Secondary Shore Protection Classification and Condition
- Notes

In cases where a stretch of shoreline was protected by multiple structures (i.e. a revetment protected by an off-shore breakwater) the most landward structure was considered the primary protection (the revetment) and the more seaward structure was considered secondary (offshore breakwater, see Figure 2-1).



Figure 2-1 A reach of shoreline with primary revetment protection and secondary off-shore breakwater protection in Oswego (Oblique Imagery, USACE 2012)

Structural protection classification was assigned to shoreline reaches where shoreline protection was evident. The structural condition observations represent an overall assessment of the structure's ability to provide erosion protection and were classified as either poor (failed or failure likely within five years), moderate (will likely last 5-15 years), good (will likely last 15-30 years), or high (large or publicly built and maintained structures that will likely last more than 30 years, see Figure 2-2).

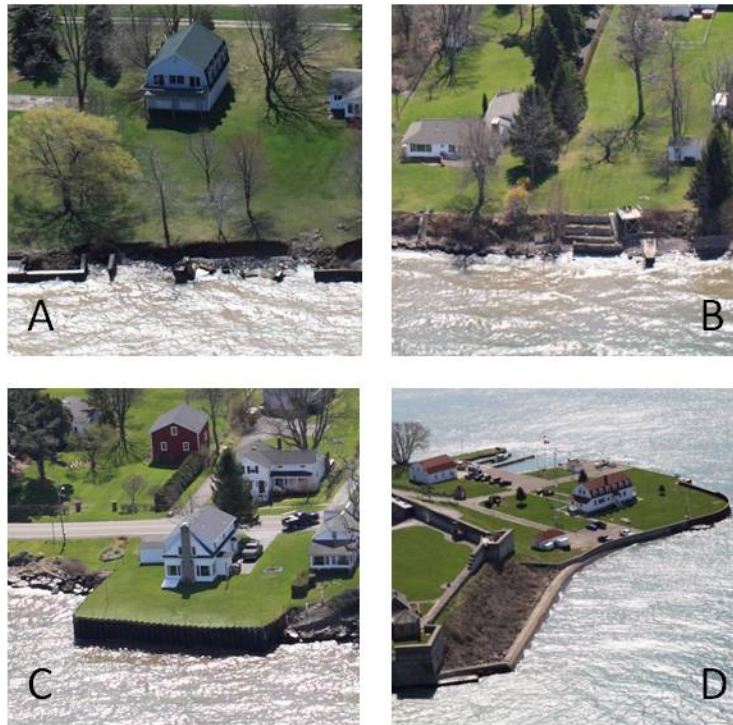


Figure 2-2 Examples of structural condition classifications: A. poor condition seawall in Yates, B. moderate condition seawall in Ontario, C. good condition in seawall in Williamson, D. high condition seawall in Porter (Oblique Imagery, USACE 2012)

Small stretches of shoreline were not able to be classified using the USACE 2012 oblique imagery due to a lack of appropriate photo coverage; either because the inclination angle was inappropriate for classifying shoreline or the image did not fully capture the coastline. For these reaches, the LOSLR 2002 oblique images were used to accurately classify the shoreline.

2.2 Phase II – Field Data Collection

In order to collect information on design water level elevations, the active and inactive permitted erosion control structures in Ellisburg, Greece, Huron, Wilson and Yates were field surveyed by technicians from AECOM and Foit-Albert Associates. Introduction letters were drafted by NYSDEC and mailed to property owners in advance of the survey work to explain the project goals and process. Once on site the field team captured northing, easting, and elevation (x, y, z) positions of key points along each structure with a Real Time Kinematic (RTK) GPS unit (Trimble™ R6) capable of highly accurate spatial data collection. At a minimum this included the top and toe of each end of the structure and any intermediate points where the structure footprint changed orientation. When conditions did not allow access to the toe of the structure, measurements were made directly with a tape measure or survey rod and the elevation offset was noted in the structure attribute notes. The

team also collected digital photographs of each structure and the surrounding area. These photographs were then stored in the geodatabase and hyperlinked to the permit data layer.

Descriptive information about the structure was recorded in an ArcPad™ based electronic data input form that could be uploaded directly to the geodatabase created during the permit review process.

The following components were recorded or updated for each structure during the field investigation:

- Permit ID
- Town
- Address
- Applicant
- Northing, Easting, and Elevation (x, y, z) Coordinates
- Permit Issue Date and Date of Last Modification (if applicable)
- Structure Type and Material
- Foundation Characteristics
- Structural Condition/Integrity
- Brief Analysis of Design
- Design Dimensions (length and height)

2.3 Phase III – Data Analysis

Upon completion of data collection activities, AECOM determined design water levels for erosion protection structures located within the five selected municipalities. A structural footprint layer was created using the collected GPS survey data with attributes including approximate length, height, design elevation, and height above mean high water (MHW). The design elevation of each structure was defined as the minimum top elevation of the structure which corresponds to the elevation at which the structure will be overtopped by wave action or storm surge. The approximate height of the structure was determined as the difference between the minimum top elevation and the associated toe elevation; the approximate length was determined using GPS survey points collected at the structure ends and additional locations along the structure where significant changes in the geometry were observed. The height above MHW was determined using the design elevation and the current MHW elevation for Lake Ontario as defined by NYSDEC Article 15 Part 608: Use and Protection of Waters which defines the mean high water elevation for Lake Ontario as 247.3 feet (IGLD85).

The IGLD85 and NAVD88 datums are similar but not the same; NAVD88 bench mark values are based on orthometric heights while IGLD85 values are expressed as dynamic heights. AECOM converted the Lake Ontario MHW elevation from IGLD85 to in the project datum (NAVD88) using the NOAA IGLD85 Height Conversion Tool located at: www.ngs.noaa.gov/TOOLS/IGLD85/igld85.shtml. The conversion of MHW elevations from IGLD85 to NAVD88 in Niagara County (the western extent of the study area) resulted in a positive 0.14 foot adjustment while conversion in Jefferson County (the eastern extent of the study area) resulted in a positive 0.05 foot adjustment; therefore, all MHW elevations within the project limits were converted to a resulting elevation of 247.4 feet (NAVD88).

AECOM then analyzed the parcels along the New York portion of the Lake Ontario shoreline and developed a summary for the level of protection in each county and town. NYSDEC provided a shapefile containing spatially located tax parcel polygons which was used to determine the total number of properties on Lake Ontario, the percentage of protected shoreline (by parcel), and the number of properties with properly constructed erosion protection structures. AECOM assigned shoreline structural protection classifications and conditions to each of the tax parcels located along

Lake Ontario based on the data compiled during the Phase I shoreline classification. Many of the tax parcel boundaries did not align with the original or revised shoreline delineation; therefore AECOM used an ET Wizards™ geoprocessing tool to extend parcel polygons to match the shoreline where parcels did not accurately map to the water's edge. ArcMap™ geoprocessing tools were used to clip the shoreline classification by tax parcel boundaries and then to assign differing shoreline classifications to appropriate property limits. Figure 2-3 provides an example stretch of shoreline where the tax parcels were geoprocessed to accurately match the shoreline.

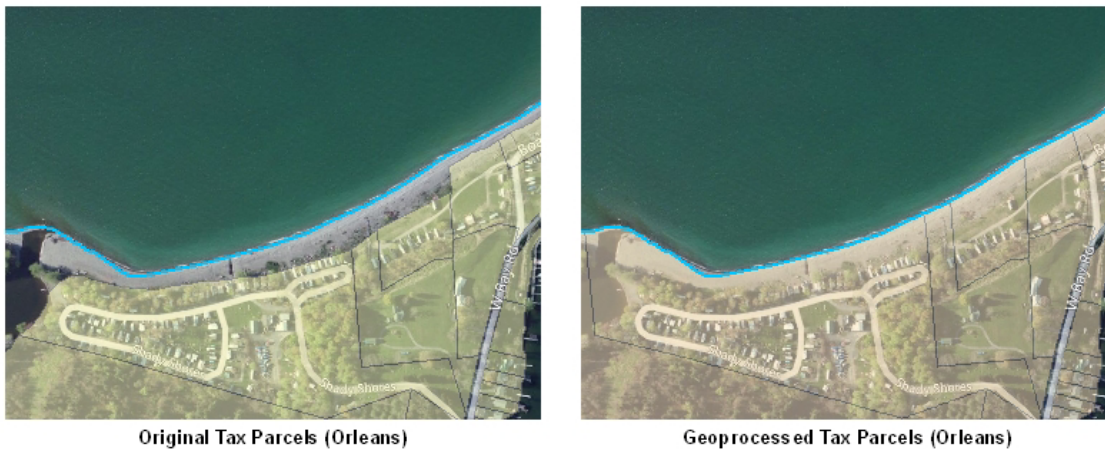


Figure 2-3 Geoprocessing of tax parcels and shoreline

When associating structural protection types to properties, multiple classifications (and structural conditions, if applicable) were sometimes associated with individual tax parcels. In these cases a property was considered to have shoreline protection if any portion of the parcel boundary contained a stretch of shoreline classified with a protection type. When assigning a structural condition to a property the lowest condition of protection was used to conservatively determine the level of protection and future design life for each property.

During site visits and data analysis, AECOM observed spatial discrepancies between the tax parcel polygons and actual property delineations. These discrepancies caused very small lengths of shoreline to be improperly associated with adjacent tax parcels. As a result of the error in spatial alignment and geoprocessing artifacts, classifications of shoreline segments less than 5 feet long were removed from the parcel analysis and were not included in any summary tables. The removal of these small lengths of shoreline did not substantially impact the tax parcel analysis and provided a more accurate representation of those properties with erosion protection structures.

3.0 Results

Results from this analysis effort generated a set of spatially referenced data layers, tables, and electronic images that represent a comprehensive inventory of erosion protection features along the New York shoreline of Lake Ontario.

3.1 Permit Review

The permit review process catalogued a total of 332 permitted erosion control structures actively held on file with NYSDEC or the towns of Ellisburg, Huron, Greece, Yates, and Wilson. Analysis of inactive permits catalogued in NYSDEC's database for the five towns of interest provided information on an additional 44 structures for a total permit database of 376 structures. While this only represents a small percentage of the erosion control structures that have been built along the lake it provides valuable information on recent development and the permit application process.

The most commonly permitted structures were rip-rap, revetments, and seawalls; representing 349 of the 376 structures (Table 3-1).

| Structure Type | Number of Permits |
|--|--------------------------|
| Rip Rap | 156 |
| Revetment | 102 |
| Seawall / Bulkhead | 91 |
| Slope Grading / Bluff Stabilization | 9 |
| Other | 7 |
| Boat Docks/Launches | 6 |
| Jetty | 3 |
| Commercial /Industrial Docks/Piers/Wharves | 1 |
| Offshore / Marine Breakwater | 1 |
| Total | 376 |

Table 3-1 Summary of Permitted Structures

AECOM found files for active permits to be generally complete with a permit history, correspondence records, and design plans. Design plans, however, were usually hand drawn and lacked accurate dimensional data or design elevations (Figure 3-1). Inactive permit records contained substantially less information, often only consisting of a permit number, address, and structure description. Some towns, like Wilson, had extensive records of erosion control permits (53 permits), while the town of Greece had only 9 permits on file.

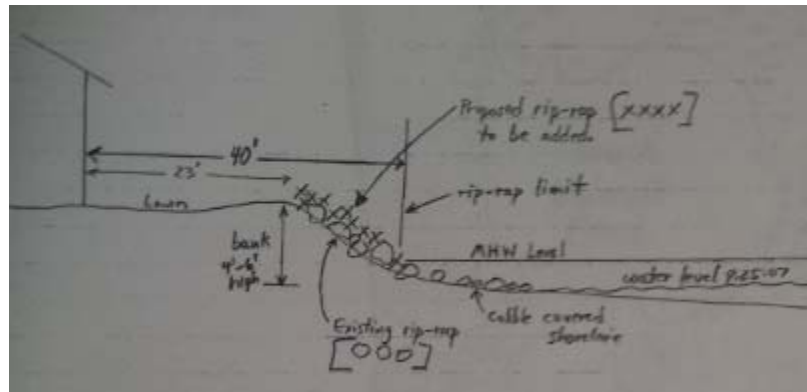


Figure 3-1 Example design plan for rip rap in Ellisburg

3.2 Shoreline Classification

AECOM classified approximately 238 miles of shoreline primarily through a review of USACE 2012 oblique aerial imagery. Of those 238 miles less than 2,000 feet were not able to be accurately classified due to a lack of imagery coverage or shadowing along the coast. This small length of shoreline was classified through the 2002 oblique images collected as part of the LOSLR study. Based on this approach the entire New York shoreline of the lake, excluding embayments, was successfully classified with no missing or unreliable data.

The shoreline geomorphology was dominated by bluffs, coarse beaches, and sandy beach/dune complexes (Table 3-2). A substantial portion of the shoreline (16%) was altered to the point where the undeveloped landform was unclear based on oblique imagery review and was given a geomorphic classification of artificial.

| Shoreline Classification | Length (miles) | Percent of Shoreline |
|----------------------------|----------------|----------------------|
| Sand or Cohesive Bluffs | 68.6 | 29% |
| Coarse beaches | 47.7 | 20% |
| Artificial | 38.0 | 16% |
| Sandy Beach / Dune Complex | 36.4 | 15% |
| Low Bank | 18.3 | 8% |
| Baymouth Barrier Complex | 11.1 | 5% |
| Bedrock (Erosive) | 10.3 | 4% |
| Bedrock (Resistant) | 3.8 | 2% |
| Creek Inlet | 2.3 | 1% |
| Open Shoreline Wetlands | 1.3 | 1% |
| Total | 237.8 | |

Table 3-2 Shoreline Geomorphology Summary

Approximately 135 miles, or 57%, of the shoreline did not have any erosion protection structures present (Table 3-3). These stretches of shoreline were often areas of low development density, parks and public land, or reaches with low apparent erosion potential. The erosion protection

structures built on the remaining 103 miles of shoreline reflected a similar distribution to the erosion control permits presented in Section 3.1 with rip rap, seawalls, and revetments covering the majority of the coast (Table 3-3).

| Protection Classification | Length (miles) | Percent of Shoreline |
|---------------------------------------|-----------------------|-----------------------------|
| No Shore Protection | 134.8 | 57% |
| Ad Hoc Concrete Rubble / Rip Rap | 42.4 | 18% |
| Seawall / Bulkhead | 34 | 14% |
| Revetment | 16.8 | 7% |
| Groin | 2.6 | 1% |
| Jetty | 1.6 | 1% |
| Boat Launch (Public or Private) | 1.6 | 1% |
| Offshore / Marine Breakwater | 1.5 | <1% |
| Ad Hoc Other Materials | 0.8 | <1% |
| Boat Docks (Private) | 0.8 | <1% |
| Slope Grading / Bluff Stabilization | 0.7 | <1% |
| Boat Docks (Marina) | 0.2 | <1% |
| Commercial / Industrial/Piers/Wharves | 0.1 | <1% |
| Total | 237.8 | |

Table 3-3 Shoreline Protection Classification Summary

Geomorphology and protection categories were based on the 2002 LOSLR study; a complete description of each category is provided in Appendix A.

3.3 Field Investigations of Permitted Structures

A total of 140 active and inactive permitted structures were identified in Ellisburg, Huron, Greece, Yates, and Wilson and were selected for field review to gather additional information and dimensions. Between August 27th and September 20th 2012, field technicians from AECOM and Foit-Albert Associates surveyed all targeted structures within the five towns.

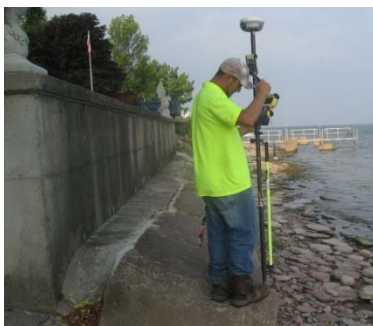


Figure 3-2 Field surveying the toe of a seawall in Yates

All surveyed structures were accessed from shore and the RTK GPS receiver used by the field crew consistently achieved a positional error of less than 0.15 feet both horizontally and vertically. During the field assessment 16 permitted structures were eliminated from the database because they were either duplicate permits, were not actually built, or had completely failed by the time of inspection. This resulted in the collection of survey data for a total of 124 structures in the five towns.

In general, property owners were found to be supportive of the project and interested in the survey techniques and approach. NYSDEC staff accompanied the field crew on several occasions and served as an interface to interested property owners. The erosion control structures were typically consistent with the listed permit conditions and changes to either the structure type or condition as determined from oblique imagery review was rarely required.

Summary sheets detailing the information collected during the field investigations are included in Appendix B. These summary sheets provide structural attribute information, an aerial view of the structure including GPS survey points, and photos of the structure (Figure 3-3).

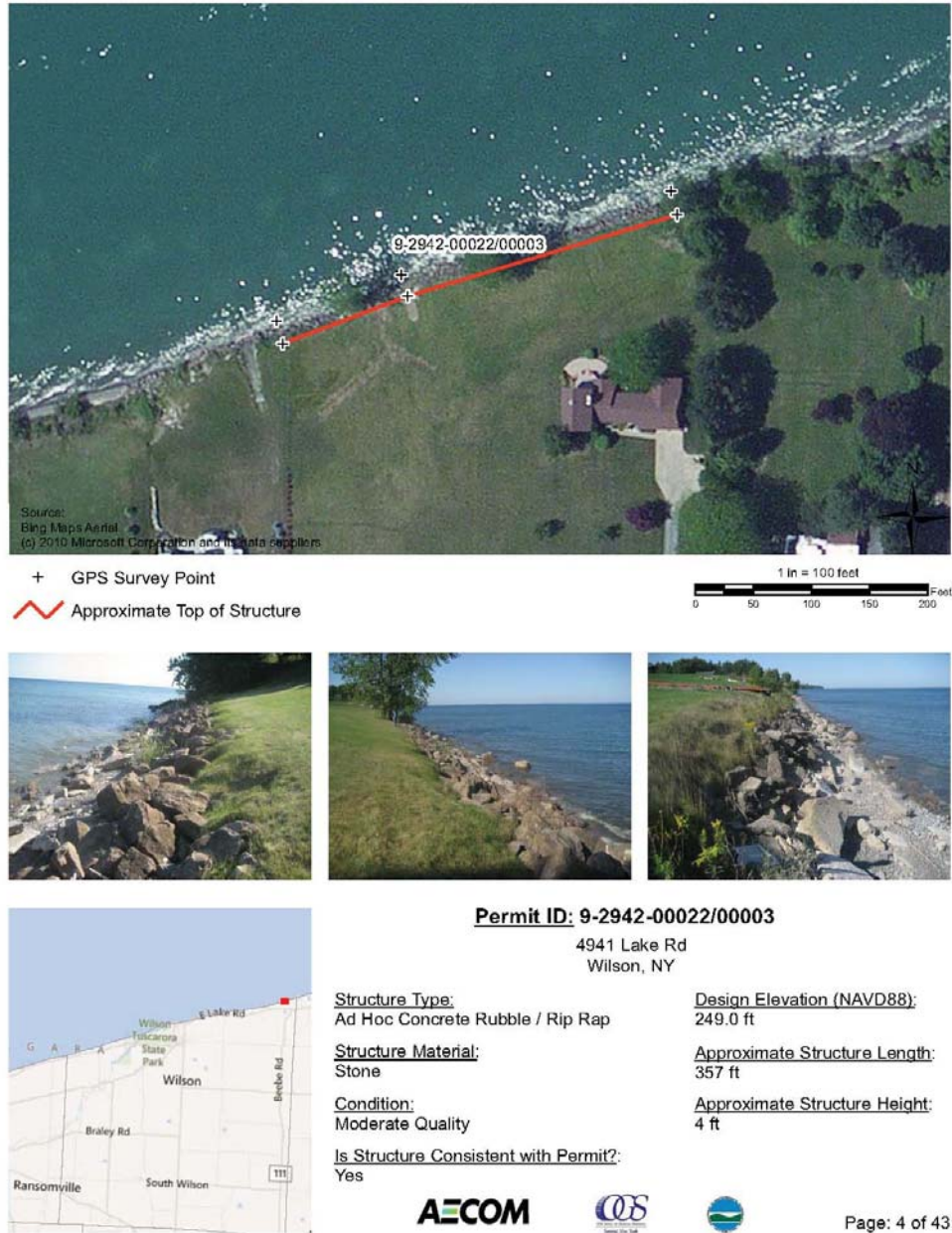


Figure 3-3 Example field survey summary sheet

3.4 Design Water Levels and Parcel Review

Design water levels were not included with any of the inactive permits for erosion control structures and were only provided on three of the active permits for erosion control structures located in towns not visited during field investigations. As a result, average design water levels could only be calculated based on data collected in the field which limited this analysis to the five towns included in the survey. The spatial limitations of the dataset prevented the calculation of accurate average design elevations for each of the counties, therefore, the average design elevation was only provided for the selected municipalities.

Based on the structural protection data collected during site investigations, minimum design elevations, maximum design elevations, average design elevations, and elevations above mean high water level were calculated for each of the five selected municipalities. AECOM visited 140 permitted structures during Phase II, and data from 124 of the visited structures were included in this analysis. Design measurements were not taken at 16 structures for the following reasons: the structure was a duplicate of another analyzed structure (6 permits), the structure was not yet built (3 permits), the structure had failed (2 permits), or the permit was for a structure not providing coastal erosion protection (5 permits). The average design elevations for the five towns were similar except for the town of Huron which was substantially higher than the other towns. This is likely due to the bluff dominated shoreline of the town driving the need for taller erosion protection structures. The minimum, maximum, and average design elevations, along with the average height above mean high water, for each town are summarized in Table 3-4.

| Town | Minimum Design Elevation | Average Design Elevation | Maximum Design Elevation | Average Height Above MHW | Number of Structures |
|--------------|--------------------------|--------------------------|--------------------------|--------------------------|----------------------|
| Ellisburg | 251.1 | 253.4 | 255.9 | 6.0 | 11 |
| Greece | 248.9 | 252.4 | 259.6 | 5.0 | 9 |
| Huron | 249.0 | 254.8 | 274.4 | 7.4 | 14 |
| Wilson | 248.1 | 252.0 | 267.3 | 4.6 | 41 |
| Yates | 246.6 | 253.2 | 258.9 | 5.8 | 49 |
| Total | 246.6 | 252.9 | 274.4 | 5.5 | 124 |

Notes
 1. Elevations are in NAVD88-feet
 2. MHW for Lake Ontario is 247.4 (NAVD88-feet)

Table 3-4 Design Elevations for Surveyed Structures

In addition to the design water level analysis for the five selected towns, AECOM analyzed all the New York properties along the Lake Ontario shoreline to calculate the total number of properties on the lake and the level of erosion protection for these properties. Approximately 7,150 coastal properties exist within the seven counties along the New York shoreline of Lake Ontario (Table 3-5). The calculated number of parcels is likely slightly lower than the actual number of parcels along the coastline as some gaps existed within the parcel shapefile where roads, right-of-ways, or other access points occurred along the lake.

Approximately 32% of the properties along the New York shoreline had no form of erosion protection. Of the properties that had erosion protection approximately 17% had poor protection that was either failed or likely to fail within five years of this survey. Another 28% of the properties had moderately engineered structures that are expected to last 5-15 years, 20% had good protection likely to last 15-

30 years, and 3% of the properties had highly engineered erosion protection structures that are likely to last more than 30 years (Table 3-5).

The percentage of properties with protection was similar between the seven counties with the exception of Cayuga County which had significantly more shoreline with no structural protection (Table 3-5). This reflects the long stretches of undeveloped shoreline within Cayuga County. The condition of protection provided to properties was also similar between counties with the exception of Monroe County which had more than double the properties classified with good quality protection (Table 3-5). This may be related to increased recent development within certain towns along that stretch of the lake, such as Greece, and the local geomorphology that promotes the construction of robust concrete and gabion seawalls. The segments of shoreline classification that were removed from analysis to eliminate improper assignment to adjacent properties were not found to be significant.

| County | Condition of Erosion Protection Structures | | | | | | | | | | Total |
|---------------|--|-----|------|-----|----------|-----|------|-----|------|-----|-------|
| | None | | Poor | | Moderate | | Good | | High | | |
| Cayuga | 82 | 88% | 3 | 3% | 5 | 5% | 0 | 0% | 3 | 3% | 93 |
| Jefferson | 761 | 45% | 357 | 21% | 503 | 30% | 66 | 4% | 1 | <1% | 1688 |
| Monroe | 347 | 22% | 75 | 5% | 322 | 21% | 675 | 44% | 129 | 8% | 1548 |
| Niagara | 264 | 25% | 401 | 37% | 218 | 20% | 175 | 16% | 19 | 2% | 1077 |
| Orleans | 248 | 23% | 244 | 23% | 380 | 36% | 186 | 18% | 3 | <1% | 1061 |
| Oswego | 303 | 34% | 94 | 11% | 286 | 32% | 183 | 20% | 29 | 3% | 895 |
| Wayne | 270 | 34% | 73 | 9% | 307 | 39% | 117 | 15% | 22 | 3% | 789 |
| NYS Shoreline | 2275 | 32% | 1247 | 17% | 2021 | 28% | 1402 | 20% | 206 | 3% | 7151 |

Table 3-5 Condition of Erosion Protection Structures by Parcel

4.0 Conclusions

The shoreline protection for the entire New York coast of Lake Ontario was successfully classified through oblique imagery review. All but 2,000 ft of the nearly 238 miles of shoreline were classified through a review of imagery collected in the spring of 2012 by the USACE, with the remaining stretches classified through 2002 imagery from the LOSLR study. More than half of the shoreline (57%) had no structural erosion protection while the remaining shoreline was mainly protected by rip rap, revetments, and seawalls. A small portion of these structures were verified through field investigations of permitted erosion control structures in the towns of Ellisburg, Huron, Greece, Yates, and Wilson. For the majority of these structures the field surveys confirmed the original classifications assigned through the aerial review process; verifying the reliability of this classification scheme for the rest of the shoreline. Occasionally minor changes to the conditional assessment were necessary, often down-grading a structure from moderate condition to poor condition due to structural deficiencies only discernible through a field inspection.

A review of permits for erosion control structures on file with NYSDEC and the five towns of interest revealed a similar distribution of structural types as determined by the aerial imagery review with the majority of permitted structures consisting of either rip rap, revetments, or seawalls. Based on an analysis of the shoreline classification and current tax parcel data the number of permitted structures on file likely represents only about 8% of the total number of structures present on the lake. While active permits were often complete files with design plans, the plans rarely contained dimension or elevation data critical to determine the structures ability to withstand potential changes in lake water levels. This elevation data was only able to be obtained through a GPS survey of targeted structures, limiting the application of design water level analysis to the five towns selected for field investigations.

Using the shoreline classification results, tax parcel maps, and GPS elevations, AECOM determined structural design elevations for each of the five selected towns and conducted property analysis of the New York shoreline of Lake Ontario. The average design elevation between the five towns was 252.9 feet (NAVD88), which was similar to the average for each of the five towns excluding Huron, which averaged almost two feet higher design elevations. This average design elevation is more than five feet higher than the current mean high water elevation (247.4 NAVD88) for Lake Ontario.

A majority (68%) of the approximately 7,150 New York properties on Lake Ontario had some type of erosion protection structure in place at the time of this survey. The information generated through this study provides important context on the type and condition of these structures and their ability to adequately protect properties under potential changes to lake level management policies.

Appendix A




Oblique Imagery Review Standard Operating Procedure

OGS Project No. S6811 Shoreline Structural Classifications & Design Water Levels
Lake Ontario (OGS Contract No. DOS5806)
Task 1. Evaluation and Acquisition of Existing Data
GIS Data Review – Standard Operating Procedure
Summer 2012

1.0 Introduction

- The 2002 Lake Ontario – St. Lawrence River Regulation Study (LOSLR Study) was used as a baseline for methodology and classification.
- Line data for Lake Ontario shoreline was compiled and split into county segments. ArcGIS map files are located in the following folder: [<J:\Water\ProjectFiles\P_Client\NYSOGS\60264400 L_Ontario_Shoreline_OGS_Project_No._S811\7_Deliverables\7.2_GIS\County_Files>](file:///J:/Water/ProjectFiles/P_Client/NYSOGS/60264400/L_Ontario_Shoreline_OGS_Project_No._S811/7_Deliverables/7.2_GIS/County_Files/).
- The preliminary breakdown of miles of shoreline by county is as follows:
 - Niagara – 32.3 miles
 - Orleans – 24.5 miles
 - Monroe – 36.4 miles
 - Wayne – 37.9 miles
 - Cayuga – 8.3 miles
 - Oswego – 35.0 miles
 - Jefferson – 61.1 miles
 - **Total – 235.5 miles**
- Shoreline classification review will occur using the following data layers:
 - AECOM_Shoreline_Classification.shp (shoreline file to be modified)
 - Oblique_Photos_USACE_2012.shp (Oblique Imagery Centroids – hyperlinked to photos)
 - Bing Maps Aerial Imagery
- The goal rate of shoreline classification is at least 1.5 miles/hour.

2.0 Procedure

- A separate mxd and geodatabase have been created for each county to be reviewed. To begin, open the mxd for the specified county.
- Activate hyperlinks using the  button on the “tools” toolbar. Hover over the  symbol and click to pull up the oblique imagery. Use the oblique imagery in conjunction with the Bing Maps ortho imagery to classify the shoreline.
 - When selected, the oblique imagery will open in a separate internet browser window. Change the oblique image by changing the picture ID in the web address or by selected a new hyperlink symbol.
- Using the ortho and oblique imagery, segment the line based on differing shoreline classifications and edit the attribute table.
 1. Clip the line segment to match the reach of shoreline type. Highlight the continuous line segment and use the “split tool”  to split the line.
 2. Select the type of shoreline from the pull down list in the “Shoreline_Code” field (See Appendix I) (Note: *Artificial* should be selected for the field, “Shoreline_Code” only when a more specific shoreline code classification is not appropriate).
 3. The “Shore_Typ” field of the LOSLR_us_shore_reaches.shp file can be used as a guide when choosing the shoreline classification. (Note that this layer was generated in 1 km segments and is only a guide.)

4. If a protection structure exists select the type of protection from the pull down list in the “Structural_Code_Primary” field (See Appendix II).
 5. In some instances a secondary protection structure must be selected (e.g. rip-rap in front of a seawall or an offshore breakwater in front of a marina. If this condition exists, select the secondary type of protection from the pull down list in the “Structural_Code_Secondary” field (See Appendix II).
 6. Determine the structural integrity of the protection using oblique imagery and select the proper condition based on estimated lifespan or quality of engineering. If it is not possible to select the condition type select *Unknown*. The structural condition/integrity observations represent an overall assessment of the structures ability to provide erosion protection and were classified as either poor (failed or failure likely within five years), moderate (will likely last 5-15 years), good (will likely last 15-30 years), and high (large or publicly built and maintained structures that will likely last more than 30 years). See Appendix III.
- If the actual shoreline shape is different than the original line file, either due to erosion or incorrect mapping, alter the line by tracing the shoreline using the Bing Maps Ortho Imagery (See below for an example of shoreline to be modified. Use your best judgment to balance editing the line shape and maintaining an efficient mapping rate.



Appendix I – Geomorphic Shoreline Classification

100 – Sand or Cohesive Bluffs. Bluffs protect shorelands and coastal development by absorbing the often destructive energy of open water. Bluffs are of greatest protective value during times of storm-induced high water. Bluffs are a source of depositional material for beaches and other unconsolidated natural protective features.



110 – Creek Inlet. Area between creek banks at creek inlets.



120 – Low Bank. Areas with low banks (not structurally reinforced). This includes creek bank where mapping extends inland. Low bank shoreline can possibly be overtopped during storm events, whereas “sand or cohesive bluffs” cannot.



130 – Baymouth Barrier Complex.

A barrier that partially encloses a bay at its entrance.



140 – Sandy/Gravel Beach / Dune Complex.

Sandy areas either naturally or artificially occurring (from jetties or groins). Beaches have a toe which provides some protection from waves. Beaches buffer shorelands from erosion by absorbing wave energy that otherwise would be expended on the toes of bluffs or dunes. Beaches that are high and wide protect shorelands from erosion more effectively than beaches that are low or narrow. Beaches also act as a reservoir of sand or other unconsolidated material for longshore littoral transport and offshore sandbar and shoal formation.



150 – Coarse Beach. Beach composed of gravel, shingle/ cobbles or boulders. Beaches have a toe which provides some protection from waves.



160 – Bedrock (Resistant). Exposed bedrock that is resistant to erosion effects.



170 – Bedrock (Erosive). Exposed bedrock that is erosive to wave action.



180 – Open Shoreline Wetlands.

Exposed wetlands that are affected by open wave action and are not protected within inlets.



190 – Artificial. Artificially constructed shoreline. This code is used to describe all shoreline structures where the undeveloped landform is unclear based on oblique imagery review as a result of the constructed structure.



999 – Unknown.

Appendix II – Structural Protection Classification

200 - Revetment. A revetment is a facing of stone, concrete units or slabs, etc., built to protect a scarp, the foot of a cliff or a dune, a dike or a seawall against erosion by wave action, storm surge and currents. A revetment has a distinct slope (e.g. 1:2 or 1:4), while a seawall is often almost vertical. Also, a revetment does not protect against flooding like a seawall does. Furthermore, a revetment is often a supplement to other types of protection such as seawalls and dikes.



210 - Seawall / Bulkhead. A seawall or bulkhead is a vertical or near vertical shore-parallel structure designed to prevent upland erosion and storm surge flooding. Seawalls are generally massive concrete structures emplaced along a considerable stretch of shoreline at urban beaches.



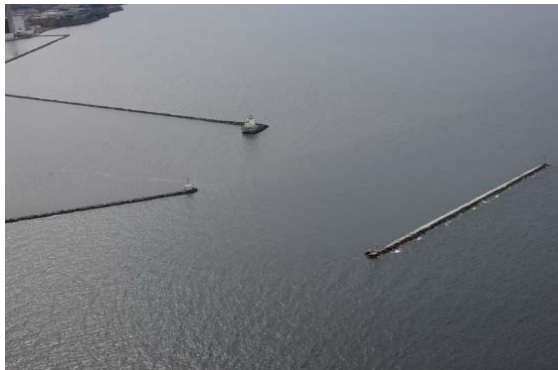
220 - Groin. Shore protection structures which extend from the beach backshore into the surf zone, perpendicular to the shoreline. A groin is intended to build up an eroded beach by trapping littoral drift or to retard the erosion of a stretch of beach.



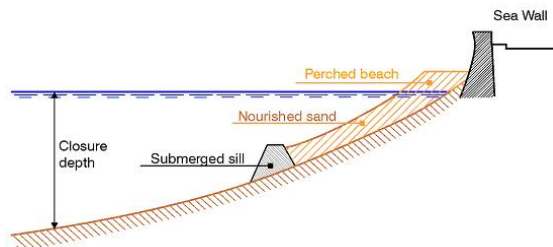
230 - Jetty. Shore-perpendicular structures built at the sides of an inlet to maintain navigable waterways. They stabilize an inlet by intercepting the longshore transport of sand that would otherwise fill it in or cause the channel to shift position. Jetties are often confused with groins, but are more substantial structures, usually built in pairs.



240 – Offshore / Marine Breakwater. Structure built parallel to the shoreline and seaward of the beach designed to protect the beach and upland areas by causing waves to break and dissipate their energy before reaching the shore. Breakwaters are constructed as both attached structures extending out from the shore and detached structures which are not attached to the shore. Likely a secondary classification.



250- Artificial / Constructed / Perched Beaches. No Photo, diagram only. A perched beach provides a wider beach at locations where the natural beach has become too narrow and low due to the erosion of the coastal profile at a location, where the coastline is fixed. A submerged sill replaces the outer part of the active equilibrium coastal profile.



260 – Beach Nourishment. Beach fill refers to the process of placing sand on a beach where it previously eroded or constructing/placing beach fence to accumulate sand where it might otherwise not accumulate.



270 – Vegetation Planting / Bioengineering. No Photo. Bioengineering involves vegetation planting and stabilization through fencing or mats to prevent bank erosion.

280 – Slope Grading / Bluff Stabilization. Areas with reduced steepness of the bank or bluff to decrease erosion caused by waves hitting the bank toe.



290 – Protected Wetlands. No Photo. Areas of shoreline protected by buffering wetlands which are not subject to direct wave action.

300 – Ad Hoc Concrete Rubble / Rip Rap. Concrete rubble or rip rap deliberately placed to prevent shoreline erosion. Ad hoc concrete rubble is less uniform than revetments.



310 – Ad Hoc Other Materials. Miscellaneous materials deliberately placed to prevent shoreline erosion.



320 – Boat Docks Private*. Likely a secondary classification.



330 – Boat Docks Marina*.



340 – Commercial / Industrial Docks/Piers/Wharves.



350 – Boat Launch (Public or Private)*.



400 – No Shore Protection. No photo.

Appendix III – Structural Condition Classification



Poorly engineered. Will last 0-5 years.



Moderately engineered. Will last 5-15 years.

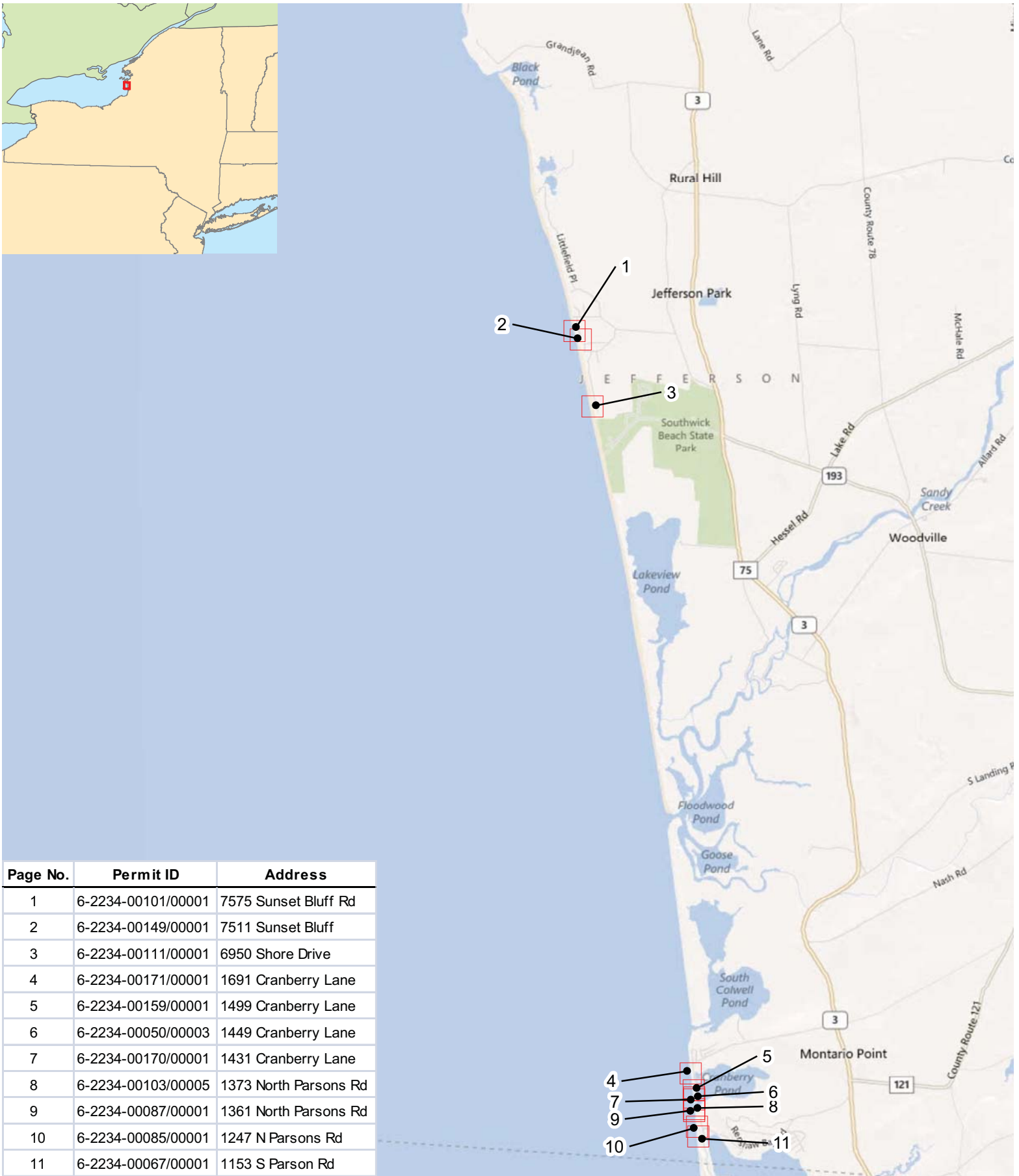
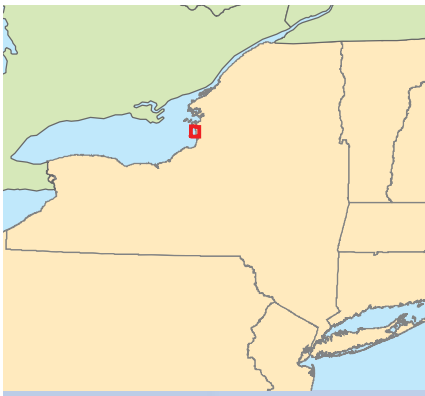


Well engineered. Will last 15-30 years.




Well engineered, publicly built. Will last over 30 years.

Appendix B
Field Survey Summary Sheets



| Page No. | Permit ID | Address |
|----------|--------------------|-----------------------|
| 1 | 6-2234-00101/00001 | 7575 Sunset Bluff Rd |
| 2 | 6-2234-00149/00001 | 7511 Sunset Bluff |
| 3 | 6-2234-00111/00001 | 6950 Shore Drive |
| 4 | 6-2234-00171/00001 | 1691 Cranberry Lane |
| 5 | 6-2234-00159/00001 | 1499 Cranberry Lane |
| 6 | 6-2234-00050/00003 | 1449 Cranberry Lane |
| 7 | 6-2234-00170/00001 | 1431 Cranberry Lane |
| 8 | 6-2234-00103/00005 | 1373 North Parsons Rd |
| 9 | 6-2234-00087/00001 | 1361 North Parsons Rd |
| 10 | 6-2234-00085/00001 | 1247 N Parsons Rd |
| 11 | 6-2234-00067/00001 | 1153 S Parson Rd |

 Permitted Structure Index

Map Index
Permitted Structures
 Lake Ontario
 Ellisburg, NY



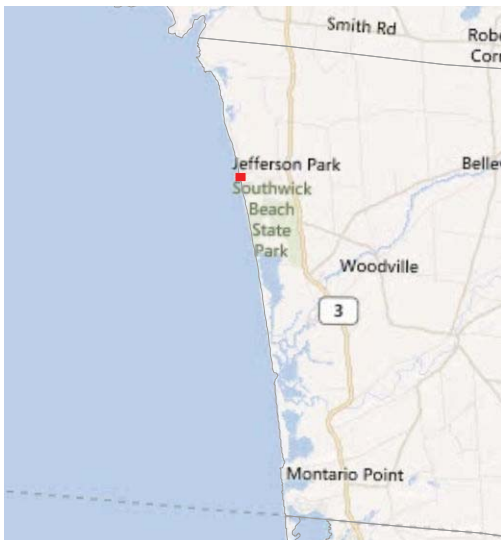


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 6-2234-00101/00001

7575 Sunset Bluff Rd
Ellisburg, NY

Structure Type:
Revetment

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
255.9 ft

Approximate Structure Length:
79 ft

Approximate Structure Height:
7 ft

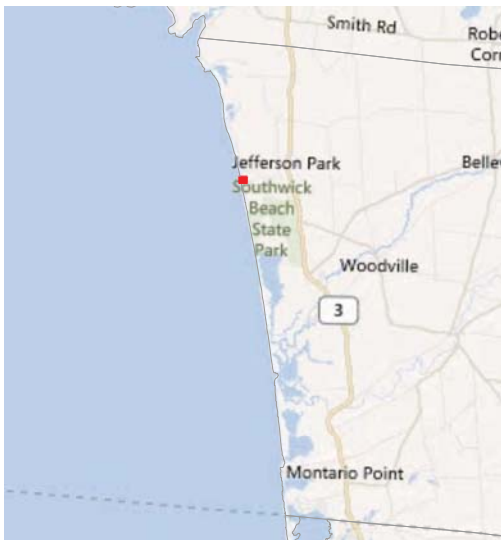
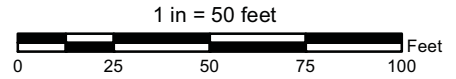




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 6-2234-00149/00001

7511 Sunset Bluff
Ellisburg, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Stone

Condition:
Good Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
251.1 ft

Approximate Structure Length:
151 ft

Approximate Structure Height:
4 ft

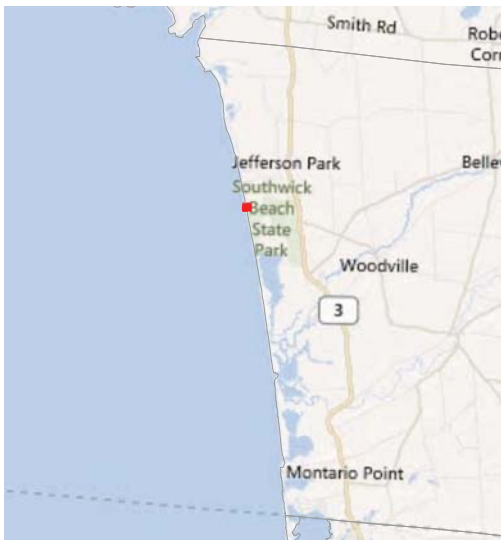
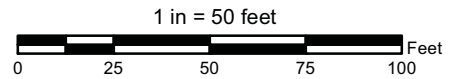




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 6-2234-00111/00001

6950 Shore Drive
Ellisburg, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
251.4 ft

Approximate Structure Length:
45 ft

Approximate Structure Height:
2 ft



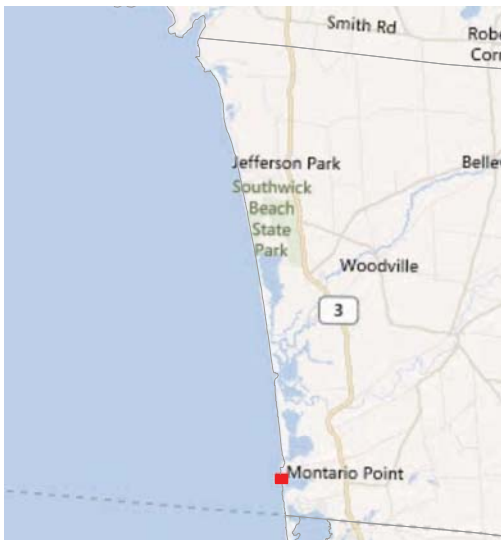
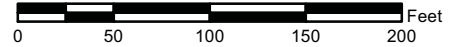


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 100 feet



Permit ID: 6-2234-00171/00001

1691 Cranberry Lane
Ellisburg, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
252.8 ft

Structure Material:
Stone

Approximate Structure Length:
235 ft

Condition:
Moderate Quality

Approximate Structure Height:
5 ft

Is Structure Consistent with Permit?:
Yes

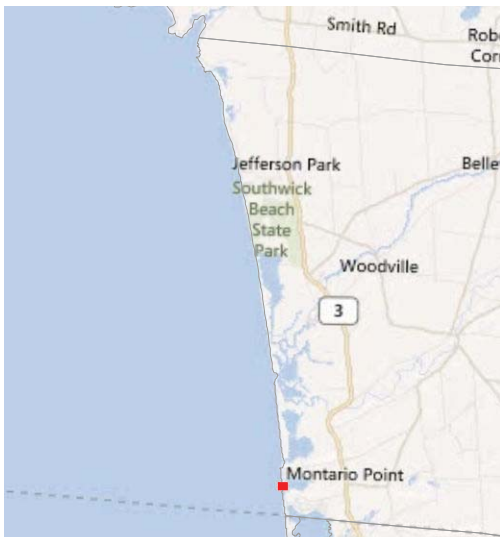
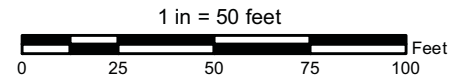




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 6-2234-00159/00001

1499 Cranberry Lane
Ellisburg, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
255.9 ft

Approximate Structure Length:
80 ft

Approximate Structure Height:
11 ft



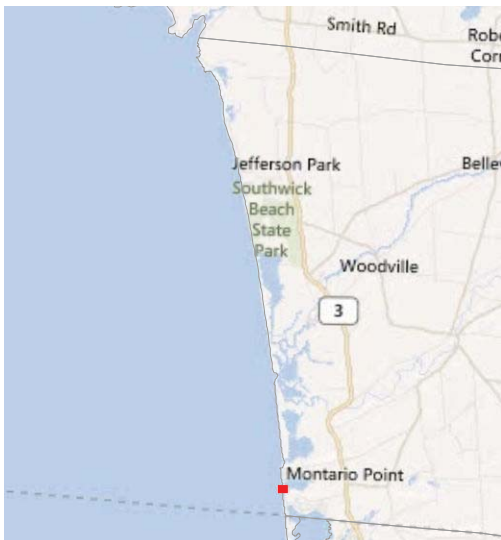


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 6-2234-00050/00003

1449 Cranberry Lane
Ellisburg, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
253.8 ft

Structure Material:
Stone

Approximate Structure Length:
97 ft

Condition:
Moderate Quality

Approximate Structure Height:
9 ft

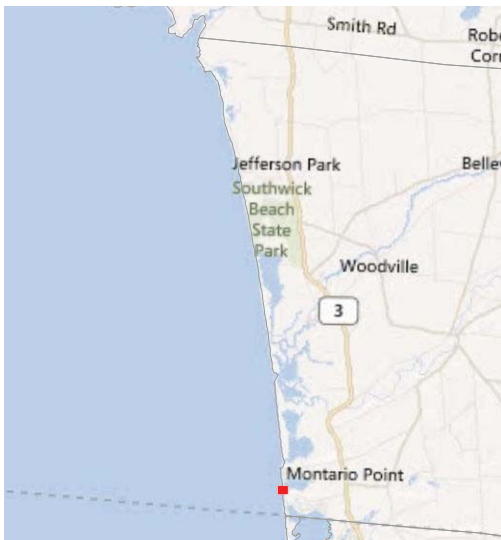
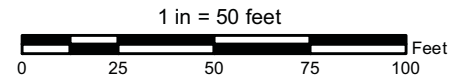
Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 6-2234-00170/00001

1431 Cranberry Lane
Ellisburg, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
252.9 ft

Structure Material:
Stone

Approximate Structure Length:
84 ft

Condition:
Moderate Quality

Approximate Structure Height:
4 ft

Is Structure Consistent with Permit?:
Yes

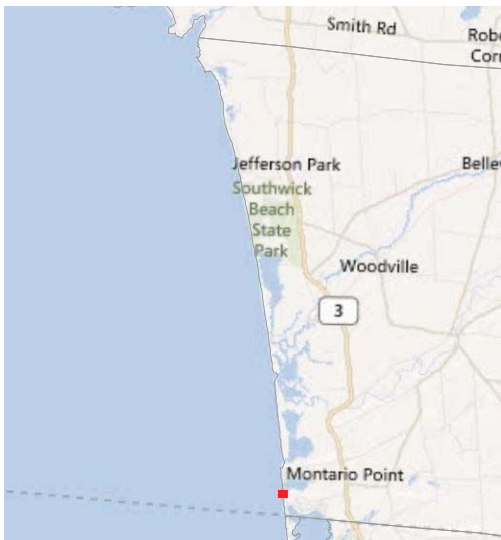
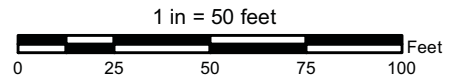




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 6-2234-00103/00005

1373 North Parsons Road
Ellisburg, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Structure Material:
Stone

Condition:
Poor Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
253.1 ft

Approximate Structure Length:
75 ft

Approximate Structure Height:
3 ft

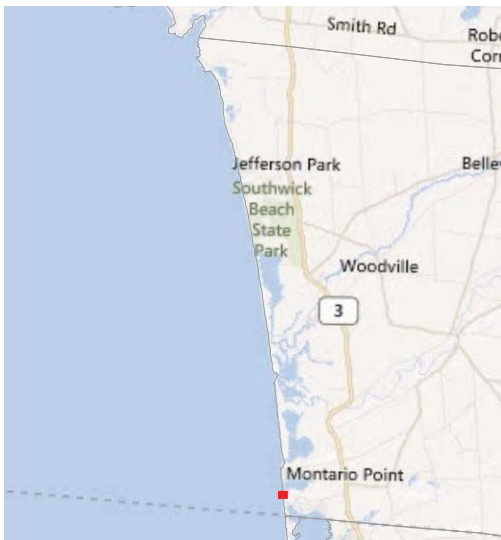
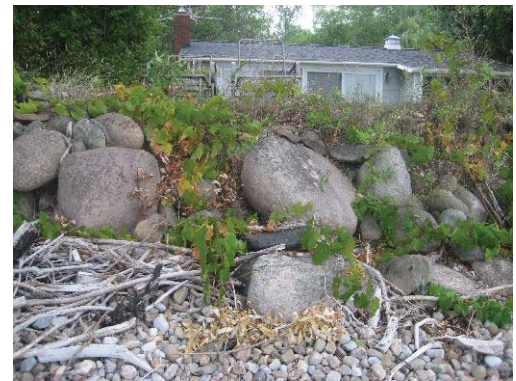
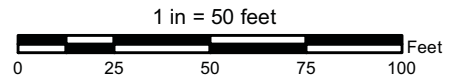




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 6-2234-00087/00001

1361 North Parsons Rd
Ellisburg, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
253.1 ft

Structure Material:
Stone

Approximate Structure Length:
90 ft

Condition:
Poor Quality

Approximate Structure Height:
3 ft

Is Structure Consistent with Permit?:
Yes

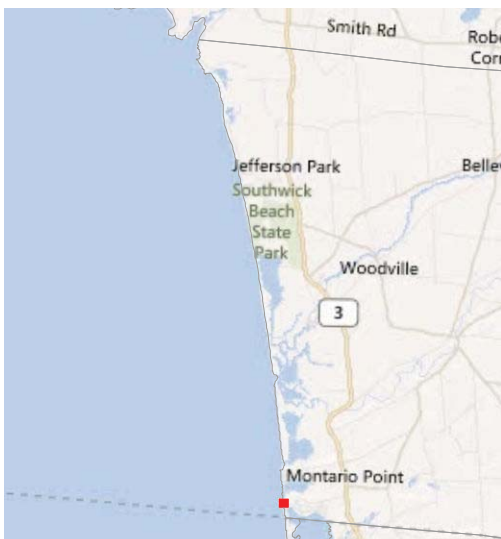
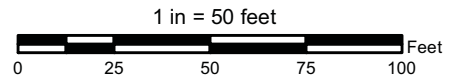




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 6-2234-00085/00001

1247 N Parsons Rd
Ellisburg, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
255.2 ft

Structure Material:
Stone

Approximate Structure Length:
61 ft

Condition:
Moderate Quality

Approximate Structure Height:
9 ft

Is Structure Consistent with Permit?:
Yes

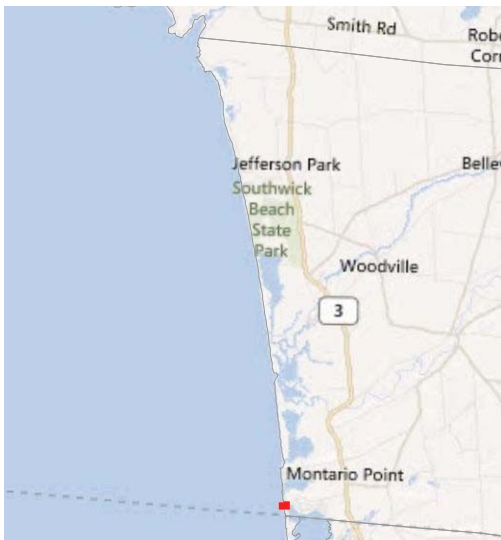
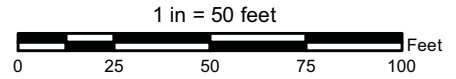




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 6-2234-00067/00001

1153 S Parson Rd
Ellisburg, NY

Structure Type:
Revetment

Structure Material:
Concrete

Condition:
Moderate Quality

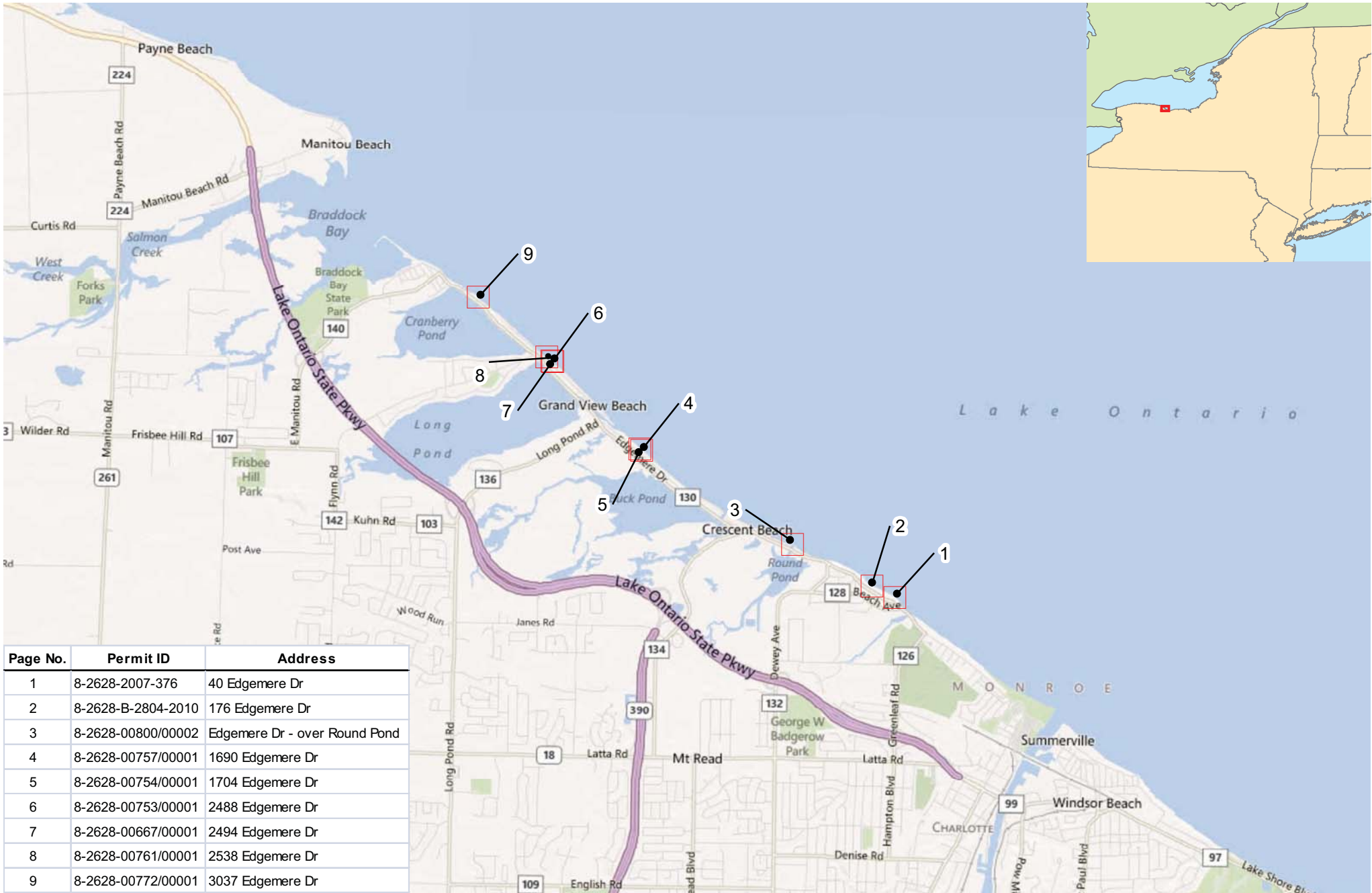
Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
251.9 ft


Approximate Structure Length:
157 ft

Approximate Structure Height:
5 ft



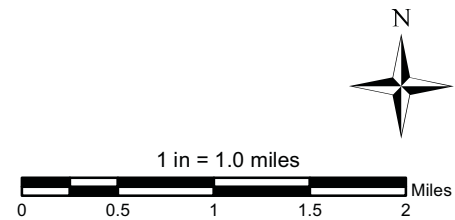


| Page No. | Permit ID | Address |
|----------|--------------------|-------------------------------|
| 1 | 8-2628-2007-376 | 40 Edgemere Dr |
| 2 | 8-2628-B-2804-2010 | 176 Edgemere Dr |
| 3 | 8-2628-00800/00002 | Edgemere Dr - over Round Pond |
| 4 | 8-2628-00757/00001 | 1690 Edgemere Dr |
| 5 | 8-2628-00754/00001 | 1704 Edgemere Dr |
| 6 | 8-2628-00753/00001 | 2488 Edgemere Dr |
| 7 | 8-2628-00667/00001 | 2494 Edgemere Dr |
| 8 | 8-2628-00761/00001 | 2538 Edgemere Dr |
| 9 | 8-2628-00772/00001 | 3037 Edgemere Dr |

 Permitted Structure Index

Map Index
Permitted Structures
 Lake Ontario
 Greece, NY

Source:
 Bing Maps Road
 (c) 2010 Microsoft Corporation and its data suppliers



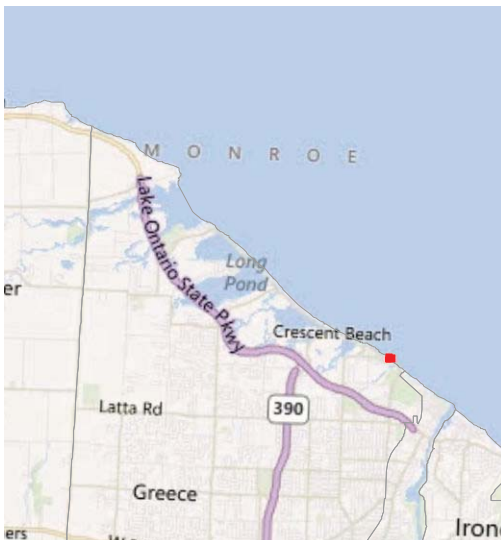


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 8-2628-2007-376

40 Edgemere Dr
Greece, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Good Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
256.4 ft

Approximate Structure Length:
109 ft

Approximate Structure Height:
9 ft

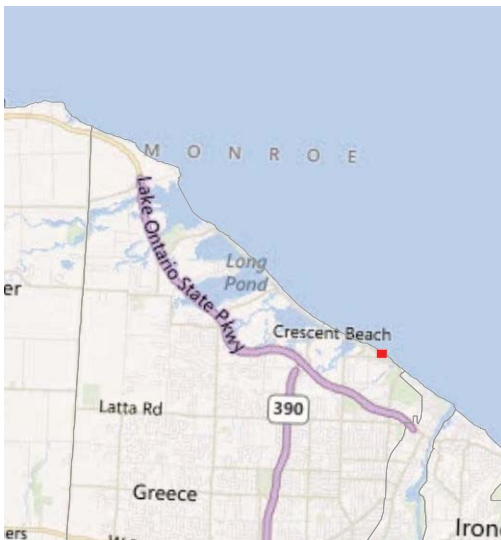
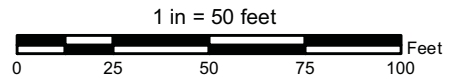




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

↗ Approximate Top of Structure



Permit ID: 8-2628-B-2804-2010

176 Edgemere Dr
Greece, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Good Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
259.6 ft

Approximate Structure Length:
74 ft

Approximate Structure Height:
15 ft



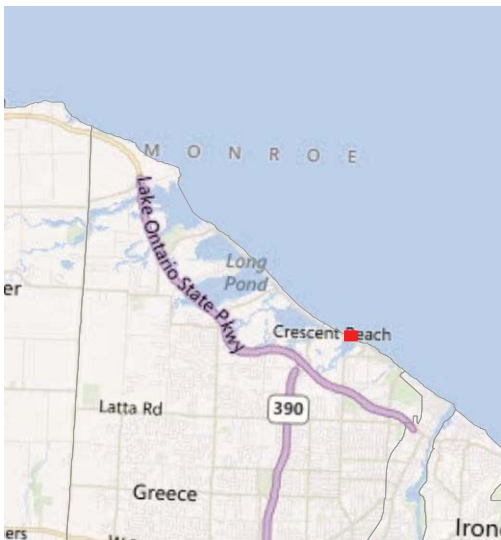
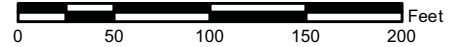


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 100 feet



Permit ID: 8-2628-00800/00002

Edgemere Dr - over Round Pond
Greece, NY

Structure Type:
Jetty

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
248.9 ft

Approximate Structure Length:
123 ft (each)

Approximate Structure Height:
4 ft



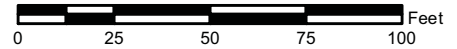


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

↗ Approximate Top of Structure

1 in = 50 feet



Permit ID: 8-2628-00757/00001

1690 Edgemere Dr
Greece, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Other

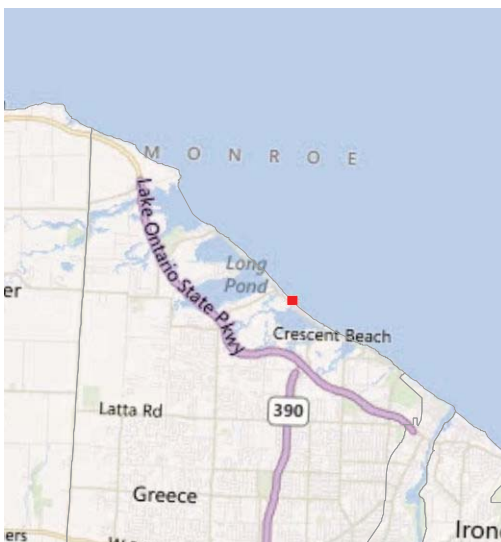
Condition:
Good Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
251.1 ft

Approximate Structure Length:
50 ft

Approximate Structure Height:
6 ft



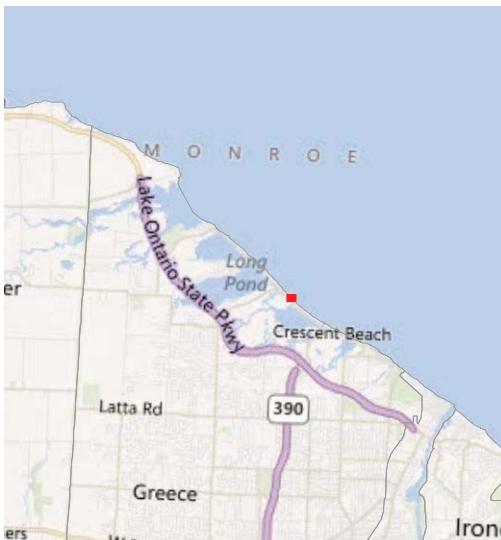


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

↗ Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 8-2628-00754/00001

1704 Edgemere Dr
Greece, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Other

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
250.8 ft

Approximate Structure Length:
45 ft

Approximate Structure Height:
6 ft



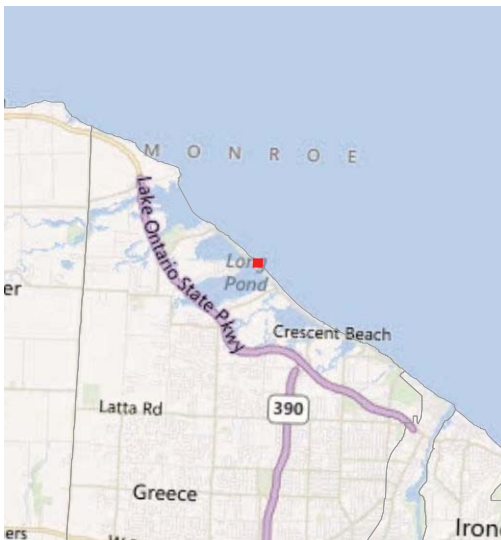


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 8-2628-00753/00001

2488 Edgemere Dr
Greece, NY

Structure Type:
Seawall / Bulkhead

Design Elevation (NAVD88):
251.4 ft

Structure Material:
Other

Approximate Structure Length:
40 ft

Condition:
Moderate Quality

Approximate Structure Height:
6 ft

Is Structure Consistent with Permit?:
Yes



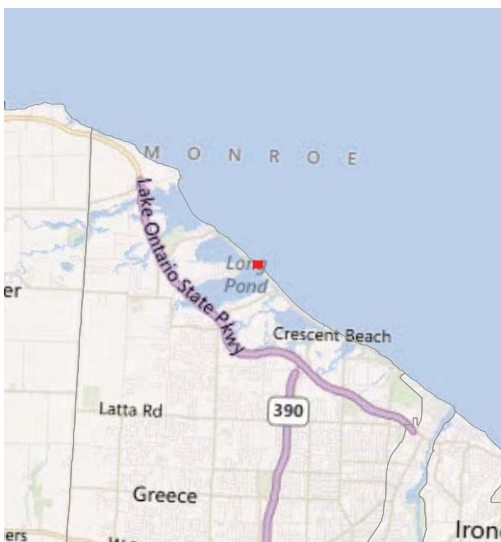


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

↗ Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 8-2628-00667/00001

2494 Edgemere Dr (Parasch Property)
Greece, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Other

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
249.7 ft

Approximate Structure Length:
42 ft

Approximate Structure Height:
6 ft

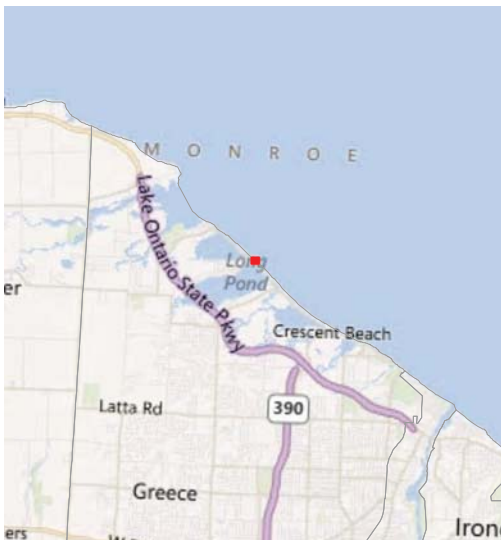
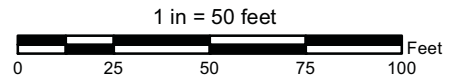




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

↗ Approximate Top of Structure



Permit ID: 8-2628-00761/00001

2538 Edgemere Dr
Greece, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Other

Condition:
Good Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
252.6 ft

Approximate Structure Length:
41 ft

Approximate Structure Height:
8 ft

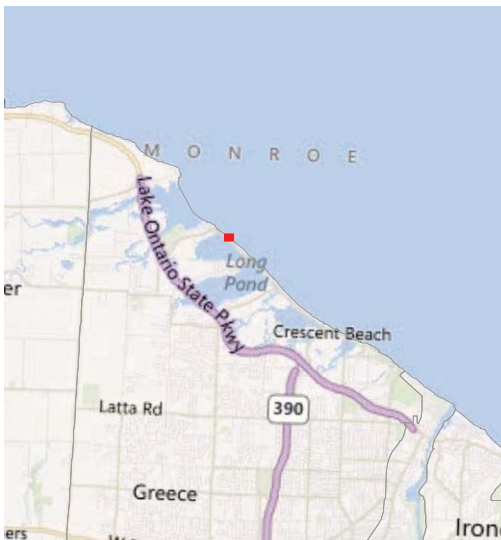
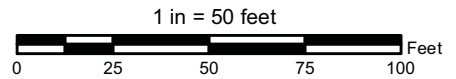




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

↗ Approximate Top of Structure



Permit ID: 8-2628-00772/00001

3037 Edgemere Dr
Greece, NY

Structure Type:
Revetment

Structure Material:
Stone

Condition:
Moderate Quality

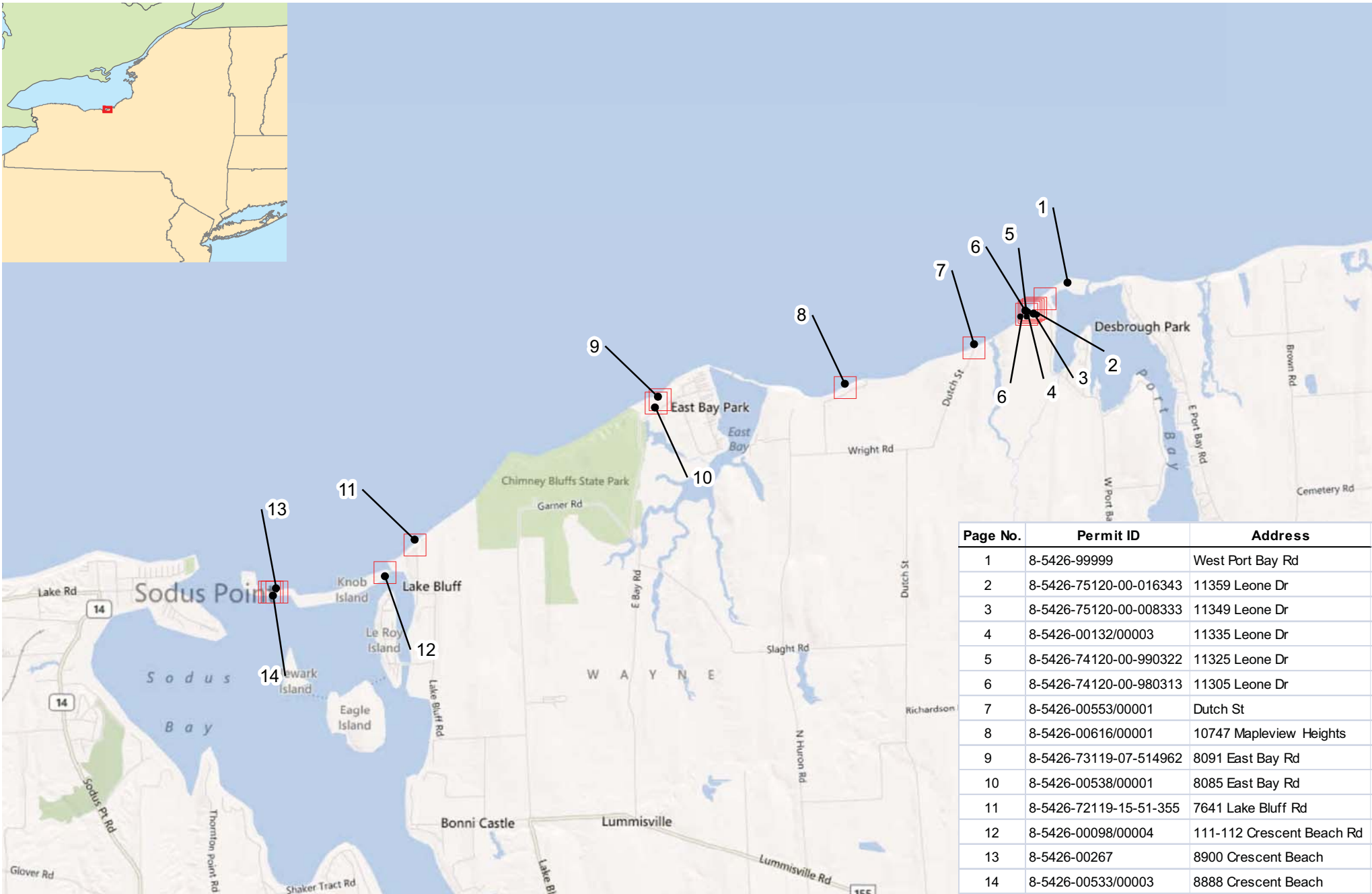
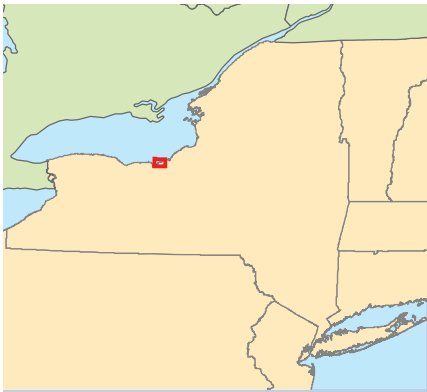
Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
251.2 ft

Approximate Structure Length:
38 ft

Approximate Structure Height:
6 ft



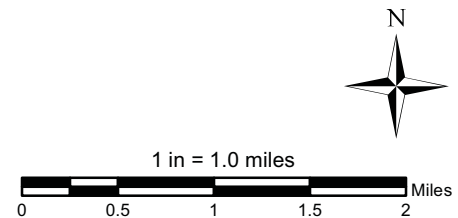


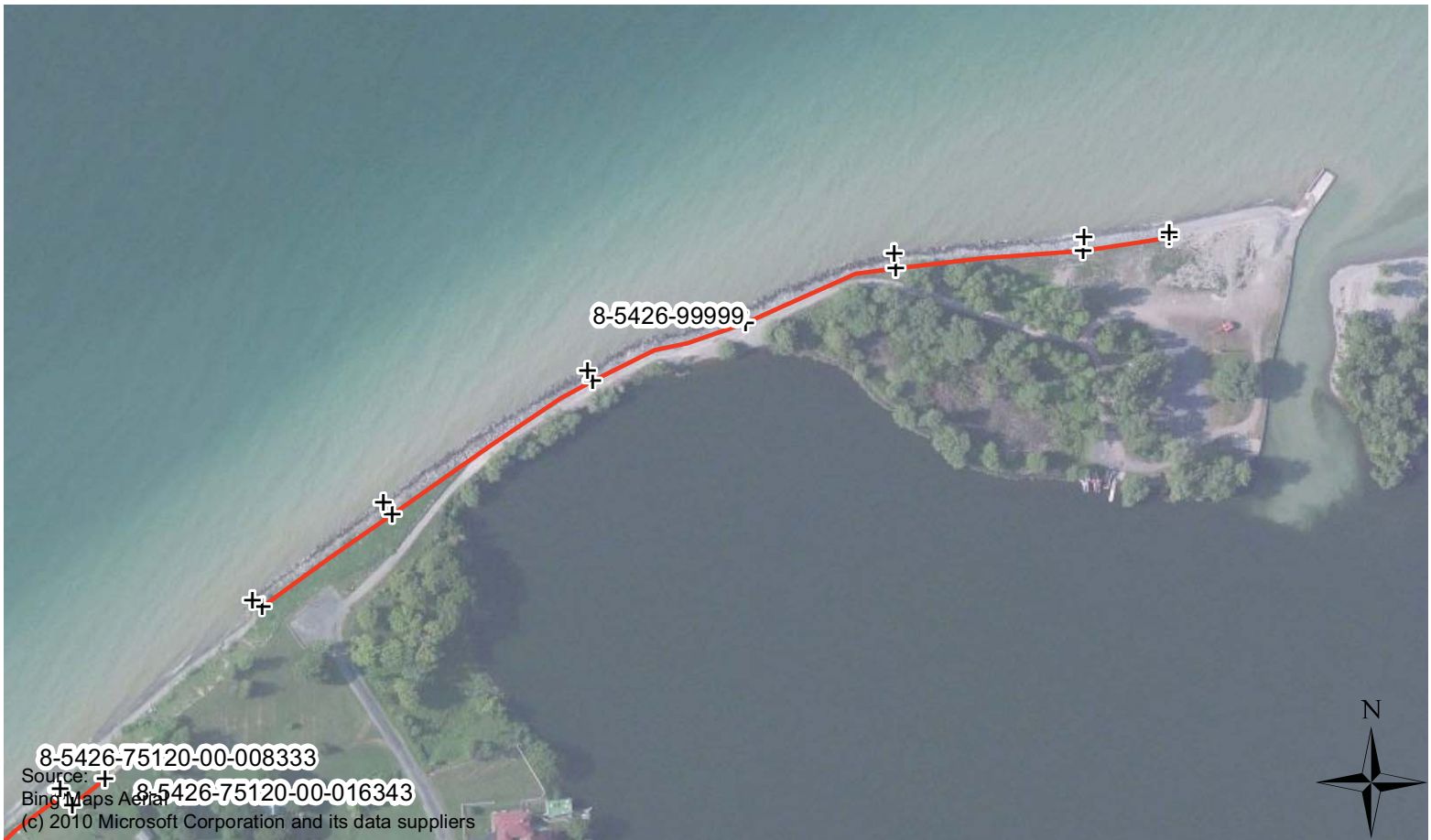
| Page No. | Permit ID | Address |
|----------|------------------------|---------------------------|
| 1 | 8-5426-99999 | West Port Bay Rd |
| 2 | 8-5426-75120-00-016343 | 11359 Leone Dr |
| 3 | 8-5426-75120-00-008333 | 11349 Leone Dr |
| 4 | 8-5426-00132/00003 | 11335 Leone Dr |
| 5 | 8-5426-74120-00-990322 | 11325 Leone Dr |
| 6 | 8-5426-74120-00-980313 | 11305 Leone Dr |
| 7 | 8-5426-00553/00001 | Dutch St |
| 8 | 8-5426-00616/00001 | 10747 Mapleview Heights |
| 9 | 8-5426-73119-07-514962 | 8091 East Bay Rd |
| 10 | 8-5426-00538/00001 | 8085 East Bay Rd |
| 11 | 8-5426-72119-15-51-355 | 7641 Lake Bluff Rd |
| 12 | 8-5426-00098/00004 | 111-112 Crescent Beach Rd |
| 13 | 8-5426-00267 | 8900 Crescent Beach |
| 14 | 8-5426-00533/00003 | 8888 Crescent Beach |

Permitted Structure Index

Map Index
Permitted Structures
 Lake Ontario
 Huron, NY

Source:
 Bing Maps Road
 (c) 2010 Microsoft Corporation and its data suppliers





8-5426-75120-00-008333

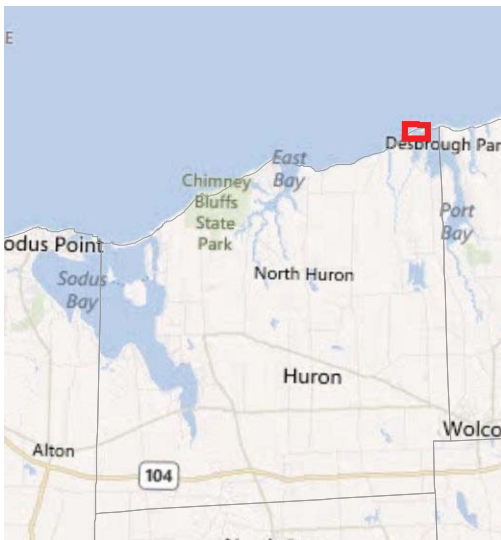
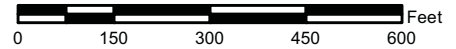
Source: + 8-5426-75120-00-016343

Bing Maps Aerial (c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 300 feet



Permit ID: 8-5426-99999

West Port Bay Rd
Huron, NY

Structure Type:
Revetment

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
251.6 ft

Approximate Structure Length:
1709 ft

Approximate Structure Height:
6 ft





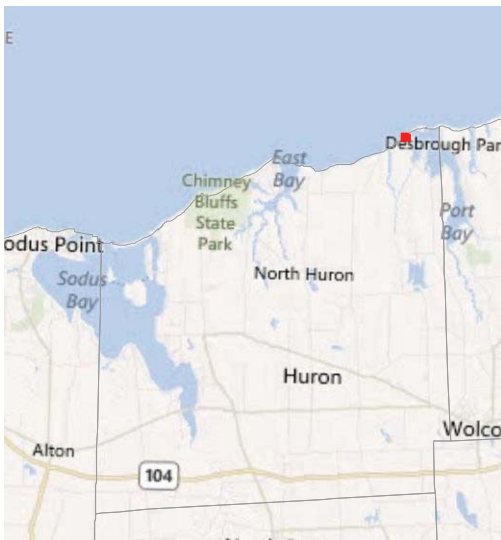
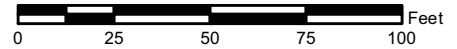
Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers



+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet



Permit ID: 8-5426-75120-00-016343

11359 Leone Dr
Huron, NY

Structure Type:
Slope Grading / Bluff Stabilization

Design Elevation (NAVD88):
274.4 ft

Structure Material:
Wood

Approximate Structure Length:
71 ft

Condition:
Moderate Quality

Approximate Structure Height:
23 ft

Is Structure Consistent with Permit?:
Yes

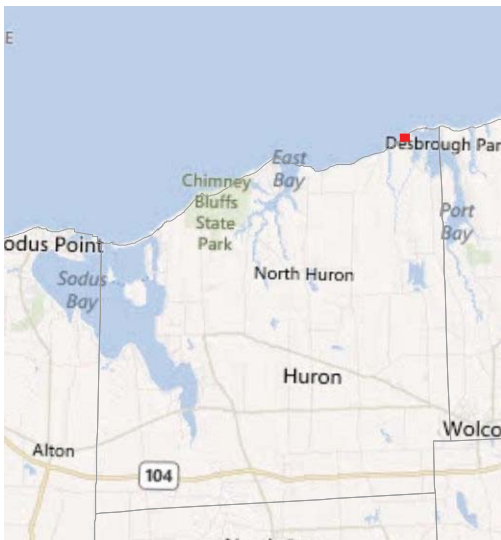
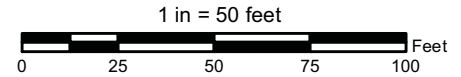




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-5426-75120-00-008333

11349 Leone Dr
Huron, NY

Structure Type:
Slope Grading / Bluff Stabilization

Design Elevation (NAVD88):
259.8 ft

Structure Material:
Wood

Approximate Structure Length:
151 ft

Condition:
Moderate Quality

Approximate Structure Height:
11 ft

Is Structure Consistent with Permit?:
Yes

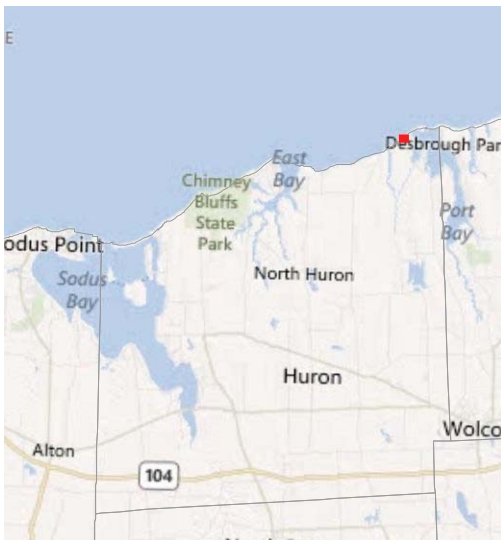
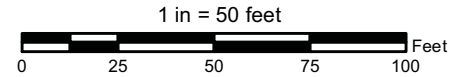




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 8-5426-00132/00003

11335 Leone Dr
Huron, NY

Structure Type:
Slope Grading / Bluff Stabilization

Structure Material:
Wood

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
258.6 ft

Approximate Structure Length:
72 ft

Approximate Structure Height:
11 ft

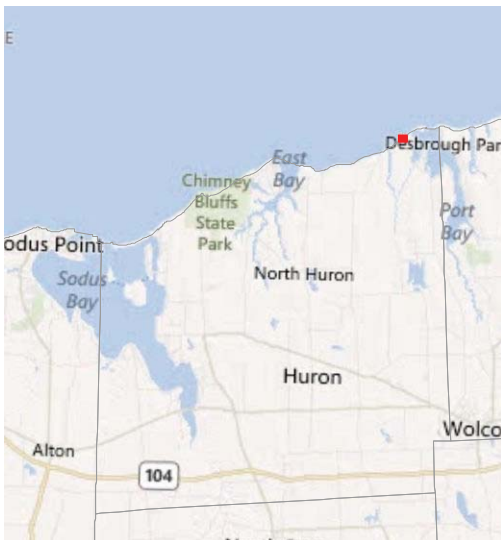
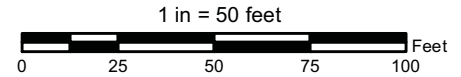




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

↗ Approximate Top of Structure



Permit ID: 8-5426-74120-00-990322

11325 Leone Dr
Huron, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Wood

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
252.2 ft

Approximate Structure Length:
72 ft

Approximate Structure Height:
4 ft

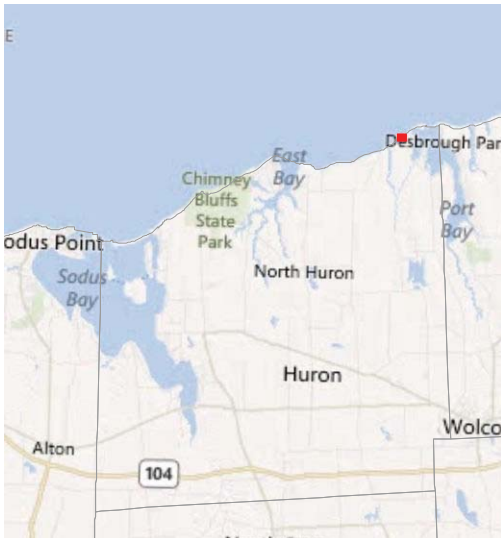
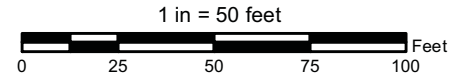




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-5426-74120-00-980313

11305 Leone Dr
Huron, NY

Structure Type:
Seawall / Bulkhead

Design Elevation (NAVD88):
253.6 ft

Structure Material:
Concrete

Approximate Structure Length:
79 ft

Condition:
Good Quality

Approximate Structure Height:
5 ft

Is Structure Consistent with Permit?:
Yes

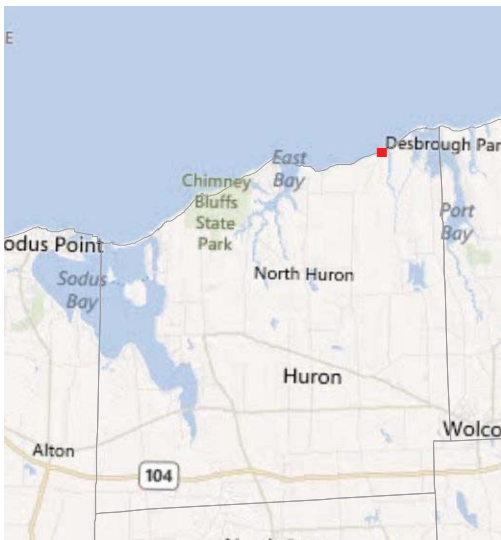
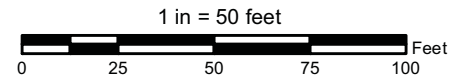




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-5426-00553/00001

Dutch St
Huron, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
253.3 ft

Structure Material:
Stone

Approximate Structure Length:
77 ft

Condition:
Moderate Quality

Approximate Structure Height:
6 ft

Is Structure Consistent with Permit?:
Yes



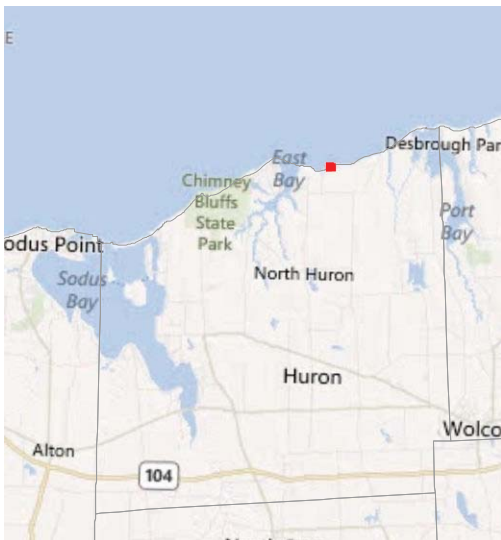


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 8-5426-00616/00001

10747 Mapleview Heights
Huron, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
250.1 ft

Structure Material:
Stone

Approximate Structure Length:
92 ft

Condition:
Poor Quality

Approximate Structure Height:
5 ft

Is Structure Consistent with Permit?:
Yes

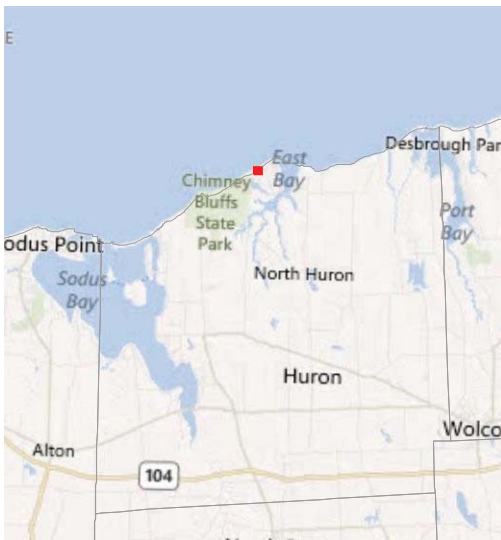
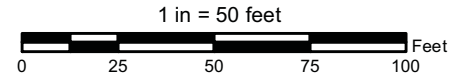




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 8-5426-73119-07-514962

8091 East Bay Rd
Huron, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
255.5 ft

Structure Material:
Stone

Approximate Structure Length:
88 ft

Condition:
Moderate Quality

Approximate Structure Height:
11 ft

Is Structure Consistent with Permit?:
Yes

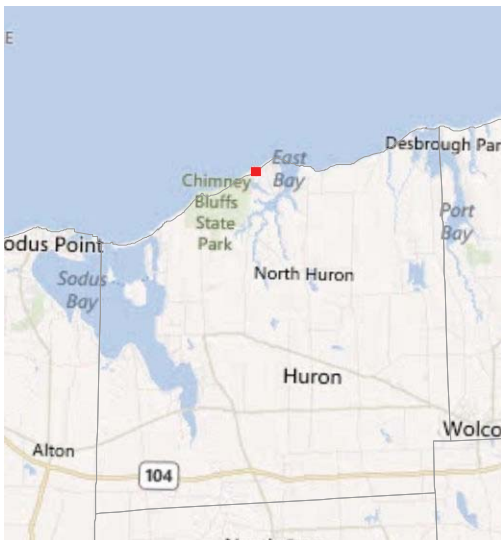
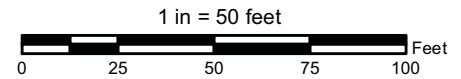




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 8-5426-00538/00001

8085 East Bay Rd
Huron, NY

Structure Type:
Revetment

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
254.5 ft

Approximate Structure Length:
277 ft

Approximate Structure Height:
8 ft

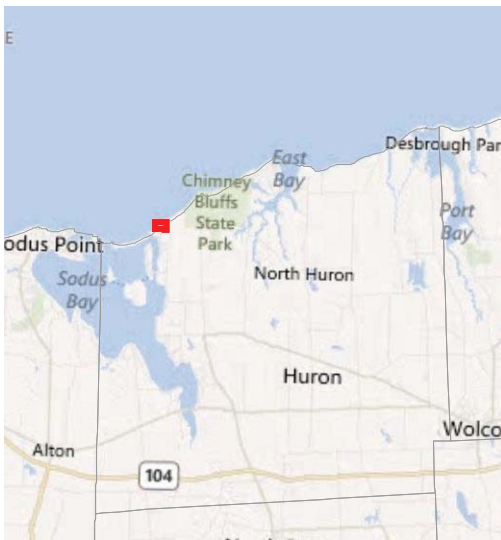
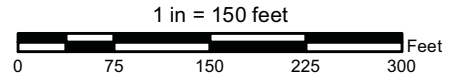




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-5426-72119-15-51-355

7641 Lake Bluff Rd
Huron, NY

Structure Type:
Revetment

Design Elevation (NAVD88):
251.8 ft

Structure Material:
Stone

Approximate Structure Length:
352 ft

Condition:
Moderate Quality

Approximate Structure Height:
6 ft

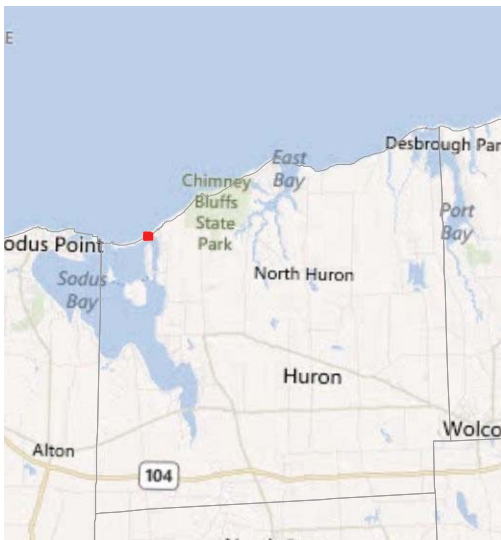
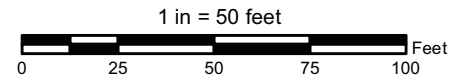
Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 8-5426-00098/00004

111-112 Crescent Beach Rd
Huron, NY

Structure Type:
Seawall / Bulkhead

Design Elevation (NAVD88):
253.1 ft

Structure Material:
Stone

Approximate Structure Length:
105 ft

Condition:
Good Quality

Approximate Structure Height:
7 ft

Is Structure Consistent with Permit?:
Yes

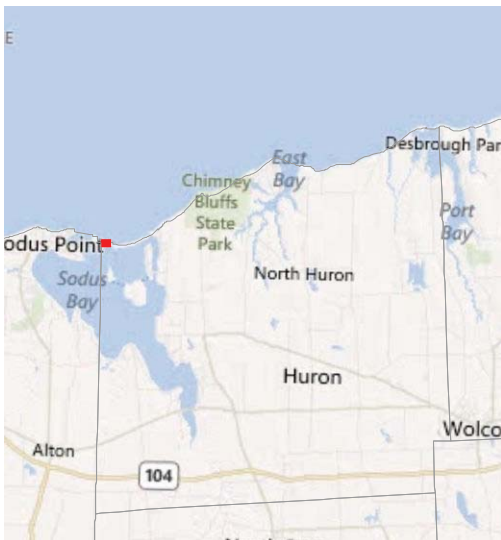
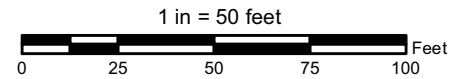




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 8-5426-00267

8900 Crescent Beach
Huron, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
249.2 ft

Structure Material:
Stone

Approximate Structure Length:
92 ft

Condition:
Moderate Quality

Approximate Structure Height:
6 ft

Is Structure Consistent with Permit?:
Yes

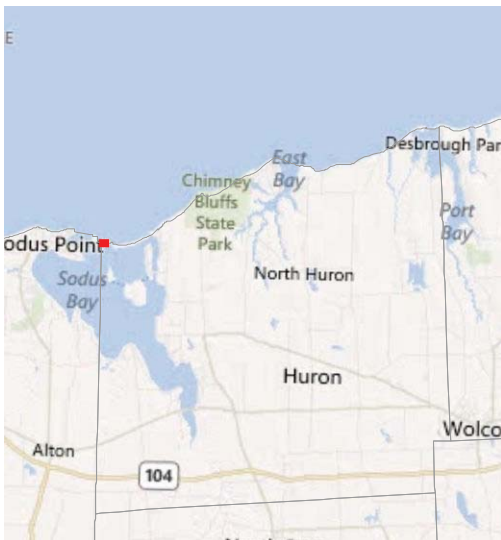
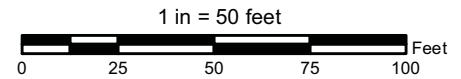




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 8-5426-00533/00003

8888 Crescent Beach
Huron, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
249.0 ft

Structure Material:
Stone

Approximate Structure Length:
63 ft

Condition:
Moderate Quality

Approximate Structure Height:
5 ft

Is Structure Consistent with Permit?:
Yes





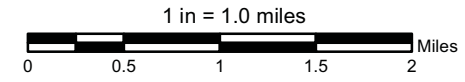
| Permit ID | Page No. | Address | Permit ID | Page No. | Address | Permit ID | Page No. | Address |
|--------------------|----------|--------------------------------|--------------------|----------|--------------------------------------|--------------------|----------|--|
| 8-3424-00295 | 1 | 12857 Carlton Beach Rd | 8-3438-00232/00001 | 17 | 11723 Munzel Ln | 8-3438-00049 | 34 | 10779 Smythe Lane, Fl 39 (Lake Shore Rd) |
| 8-3424-00277 | 2 | 12849 Carlton Beach Rd | 8-3438-00057/00003 | 18 | 11711 Munzel Ln | 8-3438-00073 | 35 | 10707 Yaxley Lane, FL 43 |
| 8-3424-00145 | 3 | 12839 Carlton Beach Rd | 8-3438-00053 | 19 | 11707 Munzel Lane, FL 12 | 8-3438-00155/00001 | 36 | 10683 Yaxley Lane, FL 43 (W Lower Lake Rd) |
| 8-3424-00092 | 4 | 12769 Roustabout Terrace | 8-3438-00051 | 20 | 11705 Munzel Lane | 8-3438-00235/00001 | 37 | 10640 W Lake Shore Rd |
| 8-3424-00316 | 5 | 12593 Green Acres Dr | 8-3438-00237/00001 | 21 | 11685 Munzel Ln | 8-3438-00240/00001 | 38 | 10575 Wolf Ln |
| 8-3424-00318 | 6 | 12577 Green Acres Dr | 8-3438-00238/00001 | 22 | 11661 Botsford Ln | 8-3438-00069/00001 | 39 | 10513 Fire Lane 57A, West Lake Rd |
| 8-3438-00059 | 7 | 12543 Bane Lane, FL 46 | 8-3438-00224/00001 | 23 | 11581 Goetze Ln | 8-3438-00242/00001 | 40 | 10511 Fanta Ln |
| 8-3438-00085 | 8 | 12511 Bane Lane, FL 46 | 8-3438-00147/00006 | 24 | 11563 Goetze Lane | 8-3438-00244/00001 | 41 | 10507 Fanta Ln |
| 8-3438-00029/00003 | 9 | 12503 Bane Lane Fl 46 | 8-3438-00089/00003 | 25 | 11359 Westcott Rd | 8-3438-00243/00001 | 42 | 10505 Fanta Ln |
| 8-3438-00249/00001 | 10 | 12389 Lake Forest Ln | 8-3438-00135 | 26 | 11159 Peters Lane | 8-3438-00252/00001 | 43 | 10501 Fanta Ln |
| 8-3438-00246/00001 | 11 | 12383 Lake Forest Ln | 8-3438-00107 | 27 | 10966 Lakeshore Rd | 8-3438-00234/00001 | 44 | 10483 Willow Ln |
| 8-3438-00248/00001 | 12 | 12379 Lake Forest Ln | 8-3438-00079 | 28 | Lower Lake Rd, Fire Lane 33 | 8-3438-00233/00001 | 45 | 10415 Brown Ln |
| 8-3438-00121 | 13 | 12321 Lake Forest Lane, Fl 42 | 8-3438-00239/00001 | 29 | 10881 Petrie Ln | 8-3438-00081 | 46 | 10387 Chaffee Lane, FL 65 |
| 8-3438-00039 | 14 | 11855 Lakeshore Rd East, FL 16 | 8-3438-00236/00001 | 30 | 10875 Petrie Ln | 8-3438-00165/00003 | 47 | 10323 Chaffee Ln |
| 8-3438-00228/00001 | 15 | 11815 Fisher Ln, FL 16 | 8-3438-00123 | 31 | 10865 Petrie Lane, Fl 33 | 8-3438-00245/00001 | 48 | 10267 Hartzfeld Ln |
| 8-3438-00250/00001 | 16 | 11737 Scharping Ln | 8-3438-00075 | 32 | 10833 Lake Shore Rd, FL 35 | 8-3438-00065 | 49 | 10201 Roberts Ln |
| 8-3438-00232/00001 | 17 | 11723 Munzel Ln | 8-3438-00063 | 33 | 10795 W Lakeshore Rd (Lower Lake Rd) | | | |

□ Permitted Structure Index

Map Index
Permitted Structures
 Lake Ontario
 Yates, NY



Source:
 Bing Maps Road
 (c) 2010 Microsoft Corporation and its data suppliers

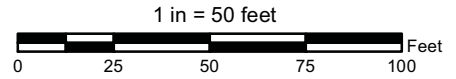




Source:
 Bing Maps Aerial
 (c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-3424-00295

12857 Carlton Beach Rd
 Lyndonville, NY

Structure Type:
 Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
 255.9 ft

Structure Material:
 Stone

Approximate Structure Length:
 87 ft

Condition:
 Good Quality

Approximate Structure Height:
 8 ft

Is Structure Consistent with Permit?:
 Yes

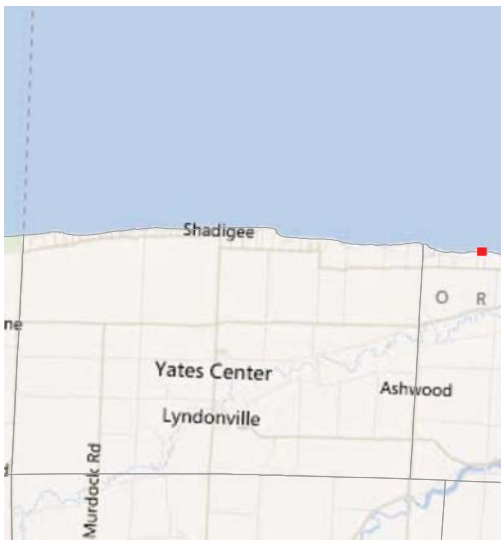
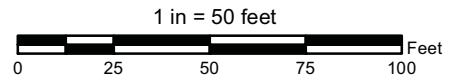




Source:
 Bing Maps Aerial
 (c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-3424-00277

12849 Carlton Beach Rd
 Lyndonville, NY

Structure Type:
 Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
 258.2 ft

Structure Material:
 Stone

Approximate Structure Length:
 155 ft

Condition:
 Moderate Quality

Approximate Structure Height:
 12 ft

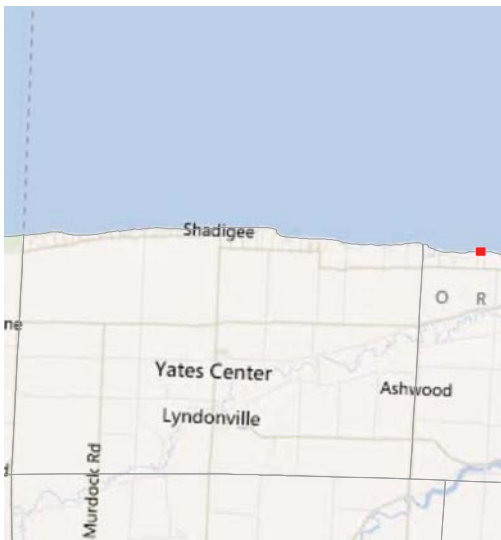
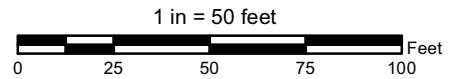
Is Structure Consistent with Permit?:
 Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 8-3424-00145

12839 Carlton Beach Rd & 1/2 Of 12849, Lot 12
Lyndonville, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
255.4 ft

Structure Material:
Stone

Approximate Structure Length:
156 ft

Condition:
Moderate Quality

Approximate Structure Height:
10 ft

Is Structure Consistent with Permit?:
Yes

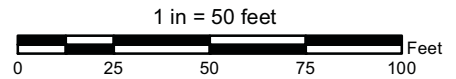




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 8-3424-00092

12769 Roustabout Terrace
Lyndonville, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
256.5 ft

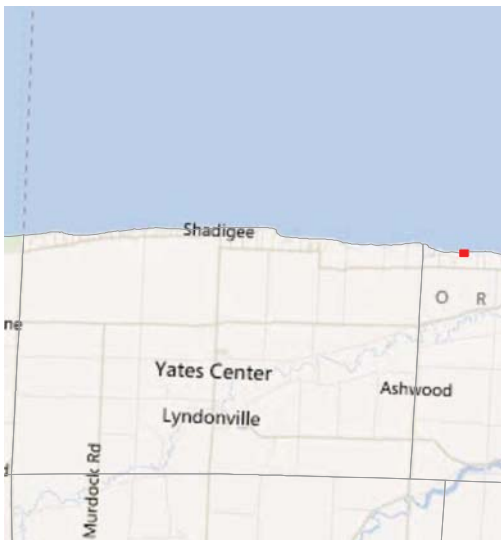
Structure Material:
Stone

Approximate Structure Length:
76 ft

Condition:
Moderate Quality

Approximate Structure Height:
11 ft

Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

↗ Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 8-3424-00316

12593 Green Acres Dr
Lyndonville, NY

Structure Type:
Revetment

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
250.8 ft

Approximate Structure Length:
53 ft

Approximate Structure Height:
6 ft



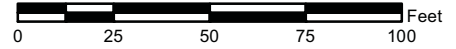


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet



Permit ID: 8-3424-00318

12577 Green Acres Dr
Lyndonville, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
252.8 ft

Structure Material:
Stone

Approximate Structure Length:
105 ft

Condition:
Moderate Quality

Approximate Structure Height:
8 ft

Is Structure Consistent with Permit?:
Yes



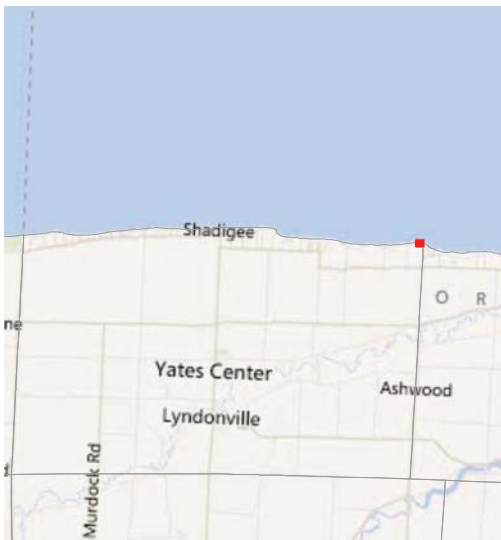
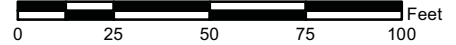


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure

1 in = 50 feet



Permit ID: 8-3438-00059

12543 Bane Lane (Fire Lane 46)
Lyndonville, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
255.0 ft

Structure Material:
Stone

Approximate Structure Length:
142 ft

Condition:
Moderate Quality

Approximate Structure Height:
9 ft

Is Structure Consistent with Permit?:
Yes

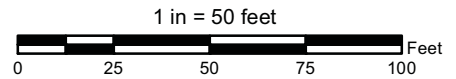




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 8-3438-00085

12511 Bane Lane, Fire Lane #46
Lyndonville, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
250.8 ft

Structure Material:
Stone

Approximate Structure Length:
44 ft

Condition:
Moderate Quality

Approximate Structure Height:
6 ft

Is Structure Consistent with Permit?:
Yes

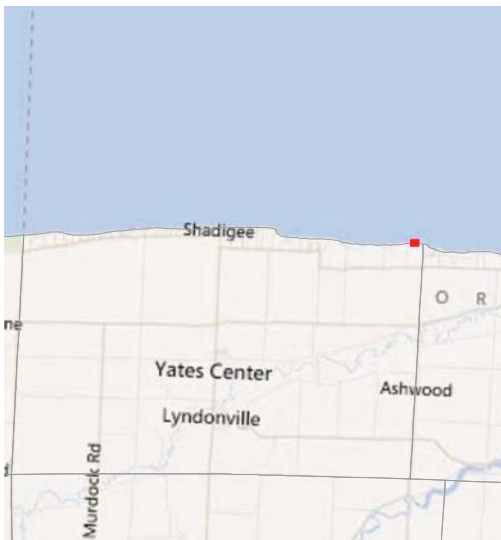
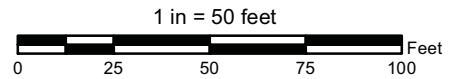




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

~ Approximate Top of Structure



Permit ID: 8-3438-00029/00003

12503 Bane Lane Fl 46
Yates, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
255.0 ft

Structure Material:
Stone

Approximate Structure Length:
139 ft

Condition:
Moderate Quality

Approximate Structure Height:
9 ft

Is Structure Consistent with Permit?:
Yes

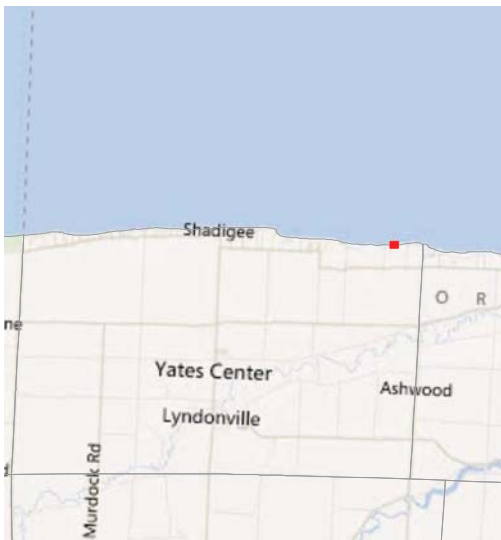
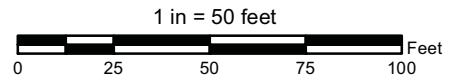




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-3438-00249/00001

12389 Lake Forest Ln
Yates, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
255.4 ft

Structure Material:
Stone

Approximate Structure Length:
81 ft

Condition:
Moderate Quality

Approximate Structure Height:
7 ft

Is Structure Consistent with Permit?:
Yes



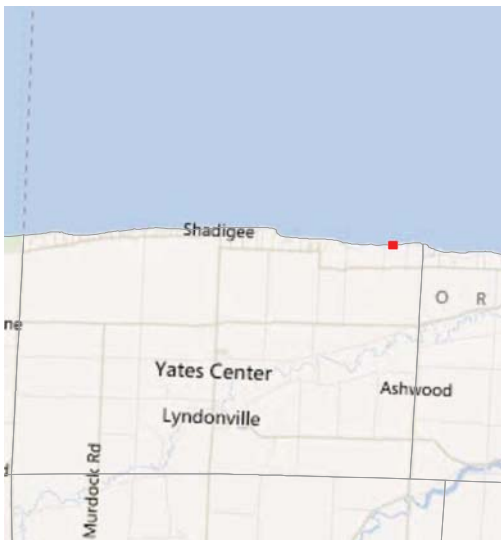


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 8-3438-00246/00001

12383 Lake Forest Ln
Yates, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
256.3 ft

Approximate Structure Length:
58 ft

Approximate Structure Height:
9 ft



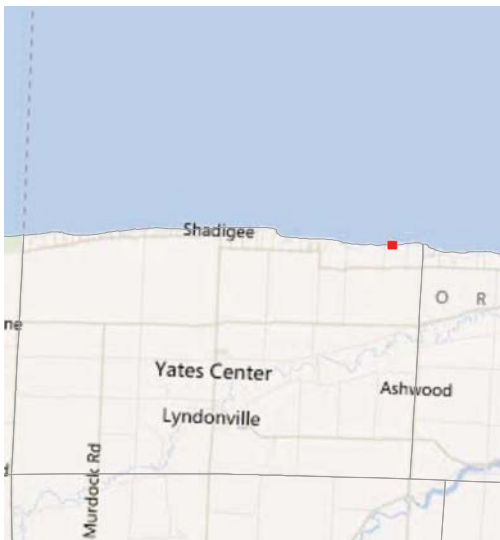
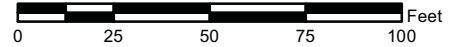


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet



Permit ID: 8-3438-00248/00001

12379 Lake Forest Ln
Yates, NY

Structure Type:
Revetment

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
256.3 ft

Approximate Structure Length:
43 ft

Approximate Structure Height:
10 ft

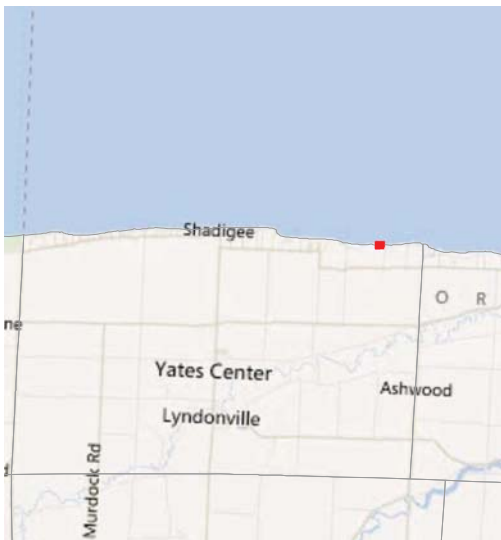
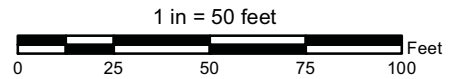




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

↗ Approximate Top of Structure



Permit ID: 8-3438-00121

12321 Lake Forest Lane Fl 42
Lyndonville, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
255.1 ft

Structure Material:
Stone

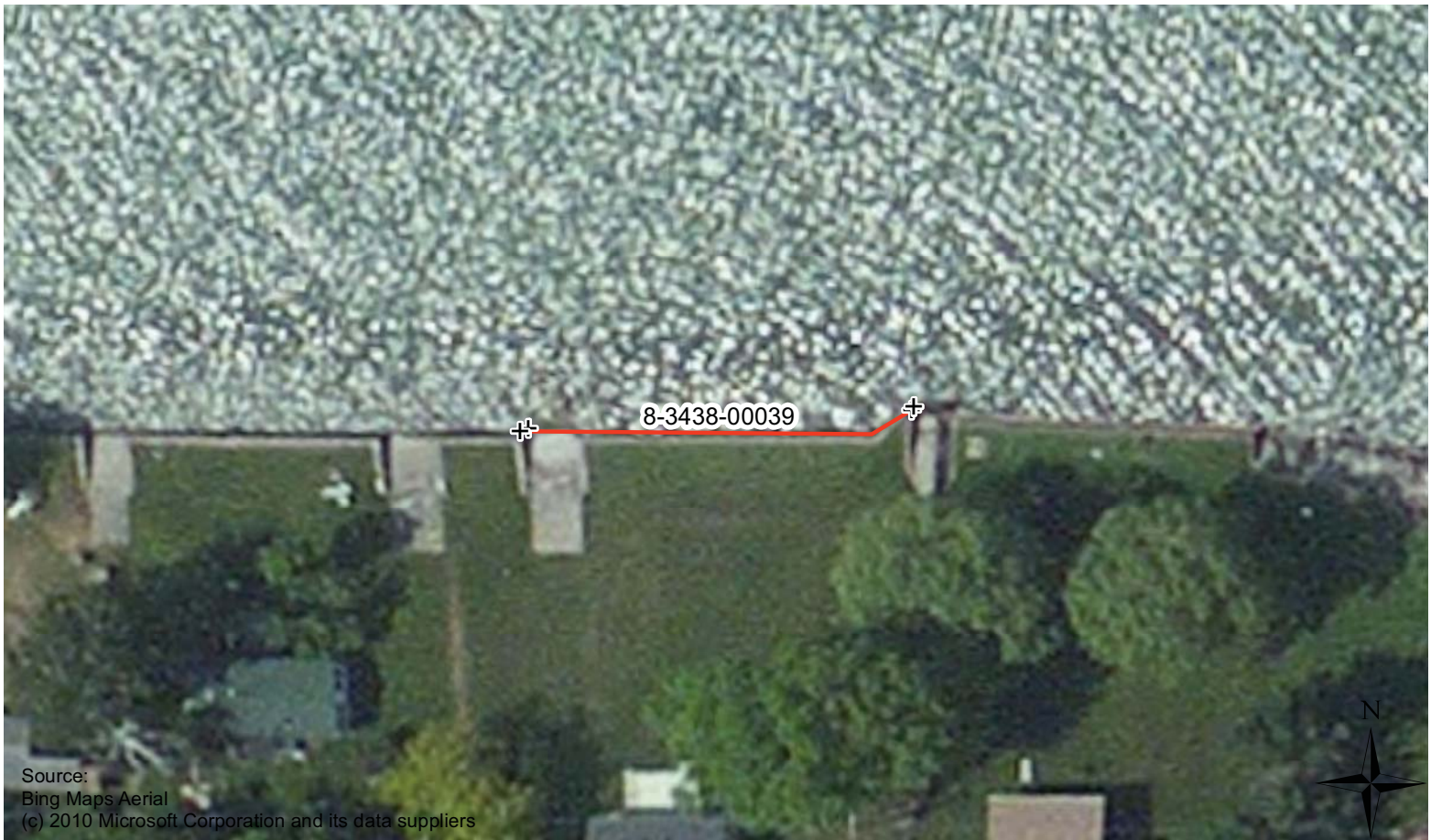
Approximate Structure Length:
60 ft

Condition:
Poor Quality

Approximate Structure Height:
8 ft

Is Structure Consistent with Permit?:
Yes

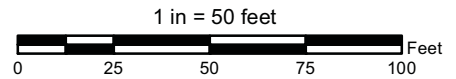




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-3438-00039

11855 Lakeshore Rd East: Fire Lane 16, Lot 10
Lyndonville, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
250.5 ft

Approximate Structure Length:
113 ft

Approximate Structure Height:
5 ft

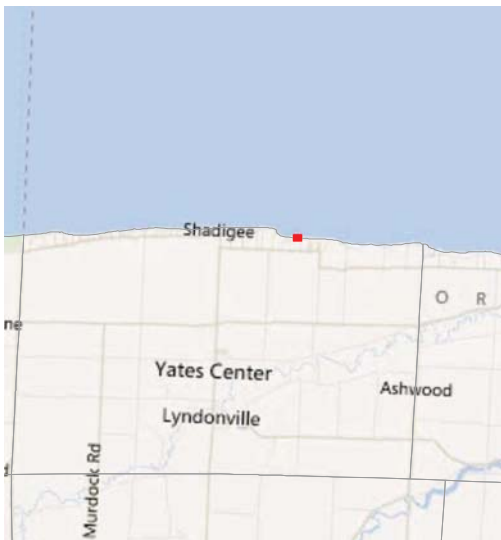
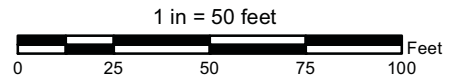




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-3438-00228/00001

11815 Fisher Ln (Fire Lane 16)
Yates, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
249.7 ft

Structure Material:
Stone

Approximate Structure Length:
81 ft

Condition:
Moderate Quality

Approximate Structure Height:
5 ft

Is Structure Consistent with Permit?:
Yes

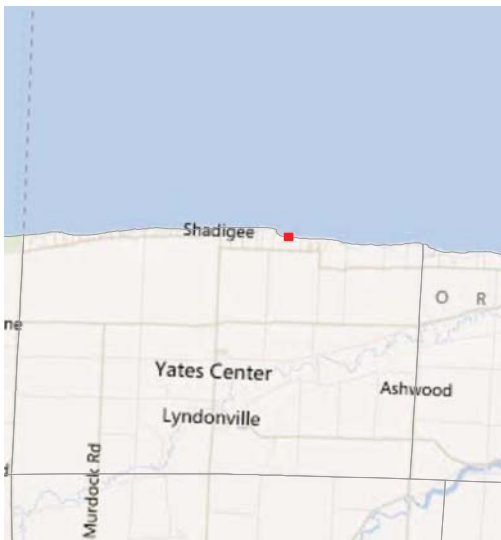
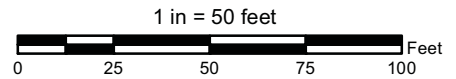




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-3438-00250/00001

11737 Scharping Ln
Yates, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Moderate Quality

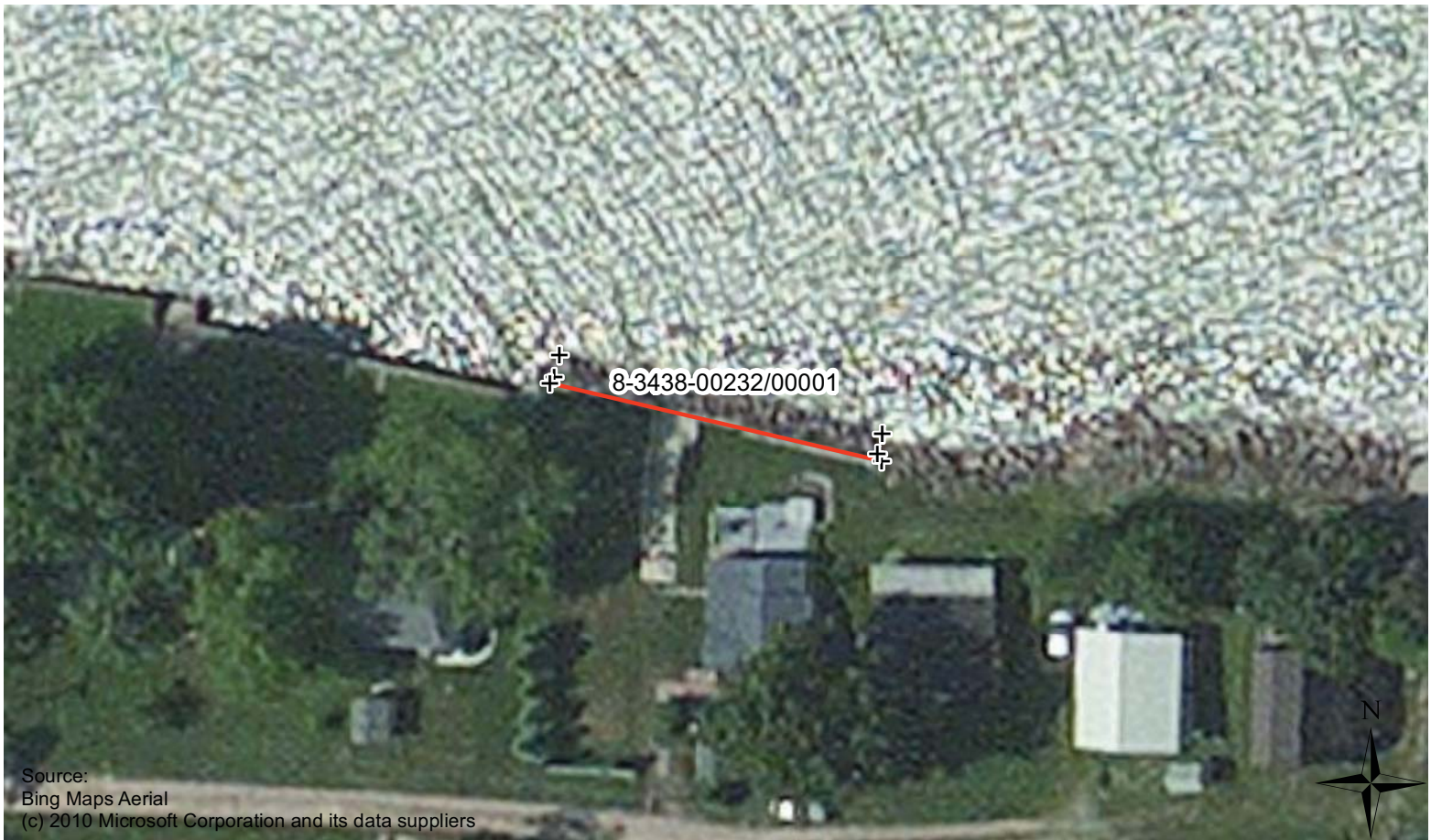
Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
254.5 ft

Approximate Structure Length:
67 ft

Approximate Structure Height:
9 ft



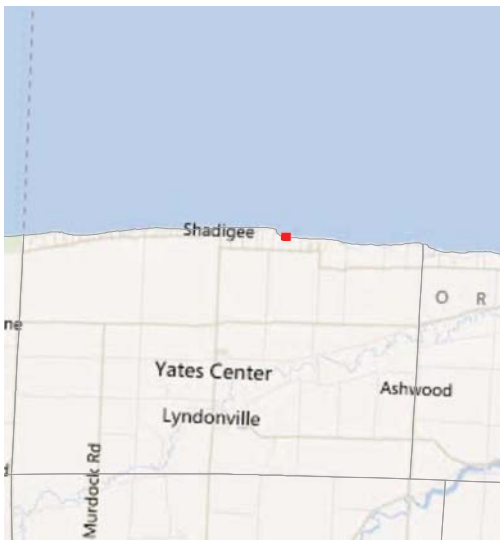
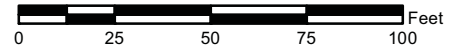


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet



Permit ID: 8-3438-00232/00001

11723 Munzel Ln
Yates, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Moderate Quality

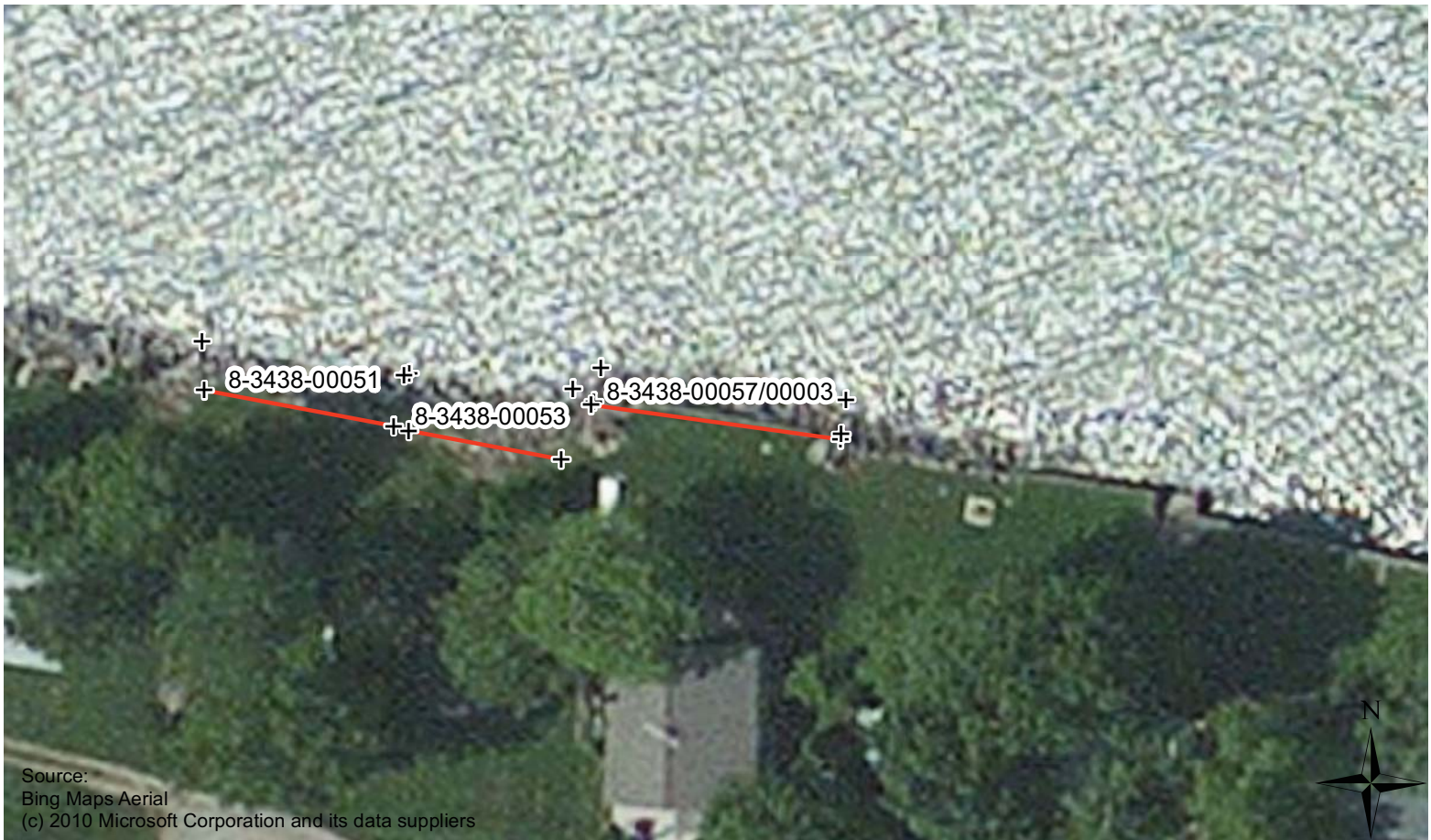
Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
252.4 ft

Approximate Structure Length:
97 ft

Approximate Structure Height:
6 ft

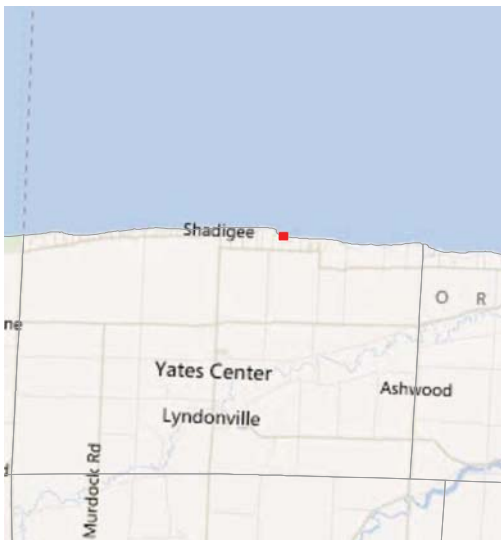
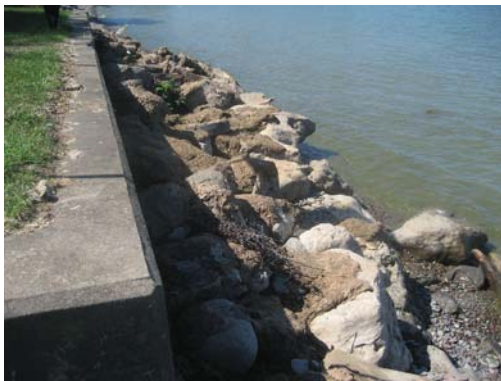
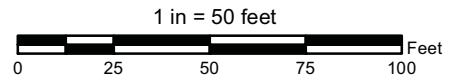




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-3438-00057/00003

11711 Munzel Ln
Yates, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Good Quality

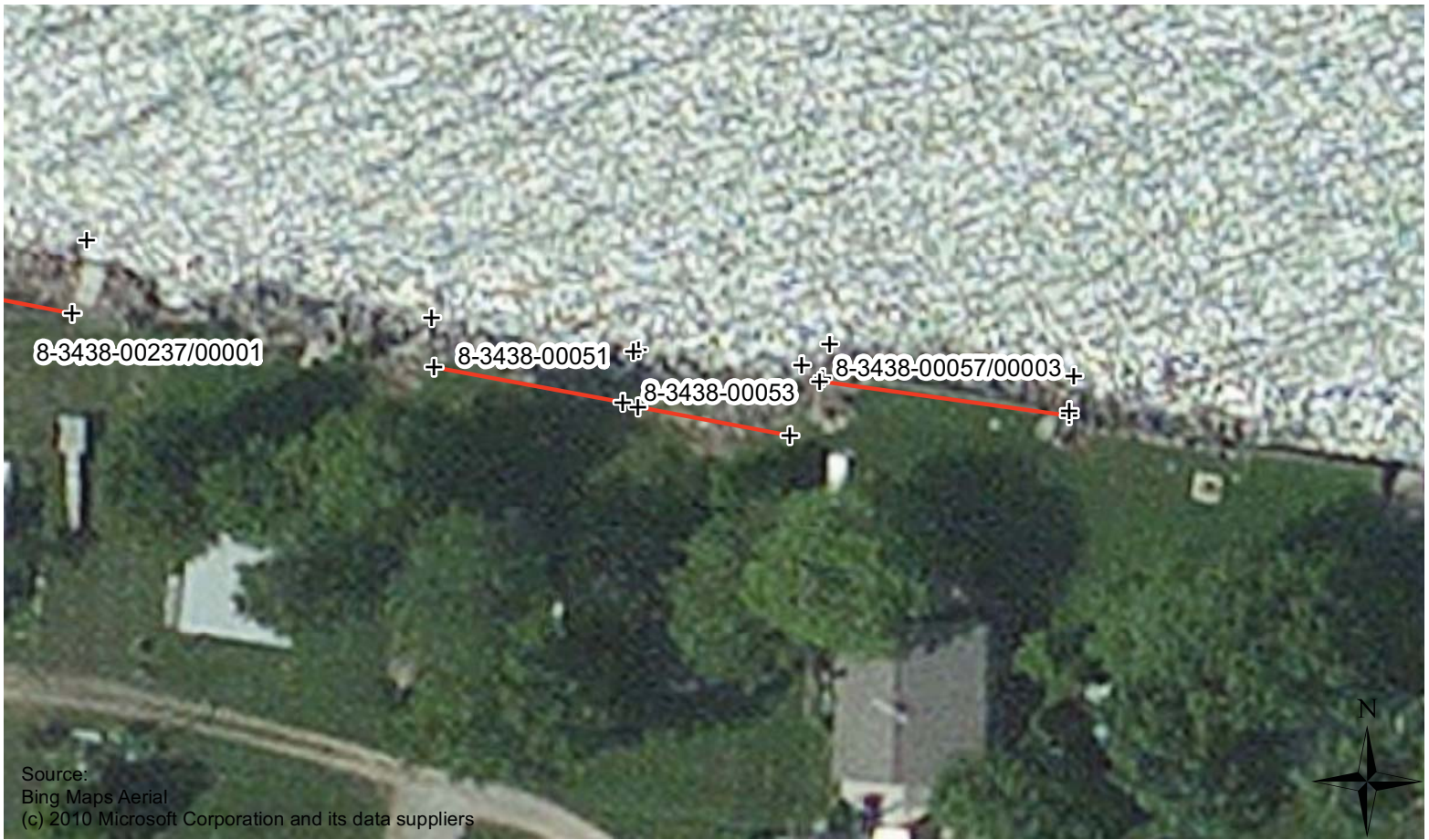
Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
252.2 ft

Approximate Structure Length:
72 ft

Approximate Structure Height:
7 ft

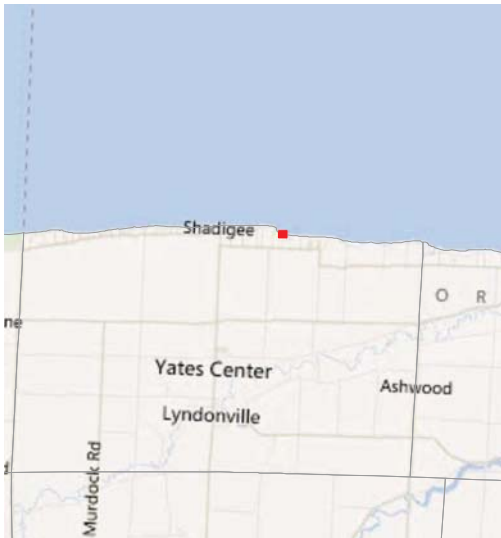
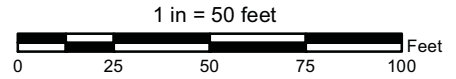




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 8-3438-00053

11707 Munzel Lane (Fire Lane 12)
Lyndonville, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
251.0 ft

Structure Material:
Stone

Approximate Structure Length:
44 ft

Condition:
Moderate Quality

Approximate Structure Height:
4 ft

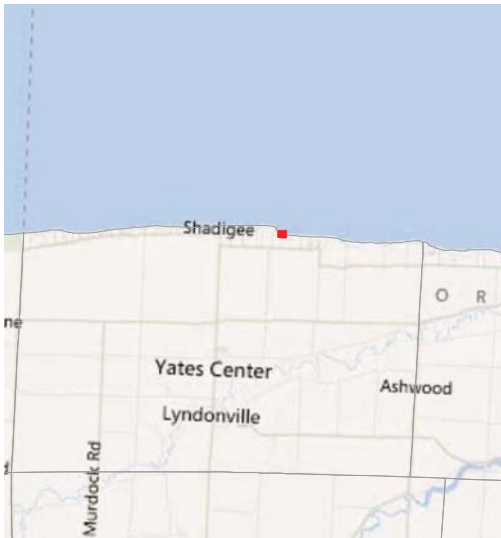
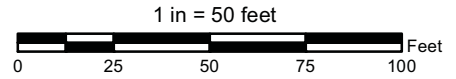
Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 8-3438-00051

11705 Munzel Lane
Lyndonville, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
250.9 ft

Structure Material:
Stone

Approximate Structure Length:
55 ft

Condition:
Moderate Quality

Approximate Structure Height:
5 ft

Is Structure Consistent with Permit?:
Yes



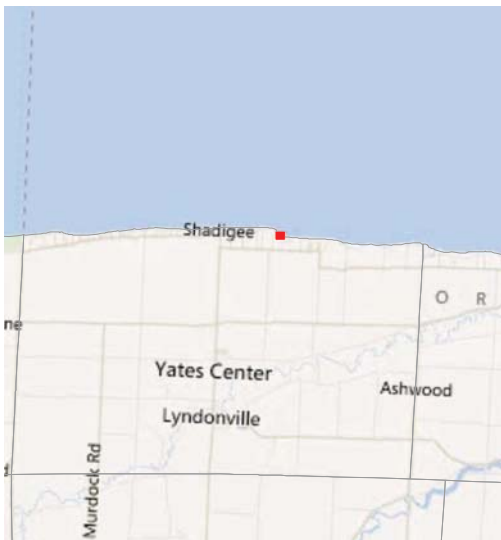


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 8-3438-00237/00001

11685 Munzel Ln
Yates, NY

Structure Type:
Revetment

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
252.2 ft

Approximate Structure Length:
95 ft

Approximate Structure Height:
6 ft





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 8-3438-00238/00001

11661 Botsford Ln
Yates, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
251.8 ft

Structure Material:
Stone

Approximate Structure Length:
93 ft

Condition:
Poor Quality

Approximate Structure Height:
5 ft

Is Structure Consistent with Permit?:
Yes





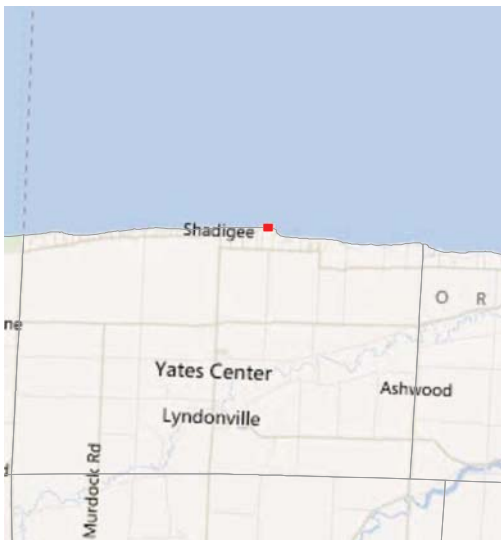
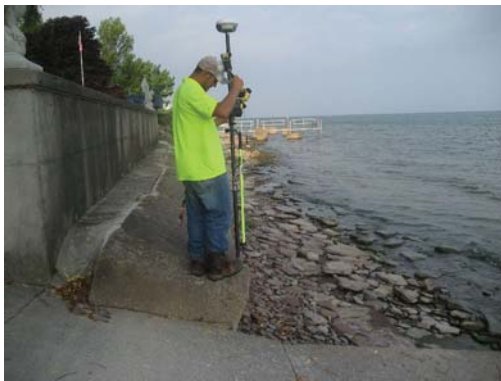
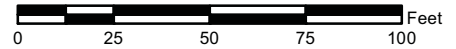
Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers



+ GPS Survey Point

↗ Approximate Top of Structure

1 in = 50 feet



Permit ID: 8-3438-00224/00001

11581 Goetze Ln
Yates, NY

Structure Type:
Seawall / Bulkhead

Design Elevation (NAVD88):
253.6 ft

Structure Material:
Concrete

Approximate Structure Length:
59 ft

Condition:
Good Quality

Approximate Structure Height:
8 ft

Is Structure Consistent with Permit?:
Yes

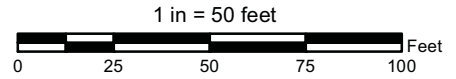




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-3438-00147/00006

11563 Goetze Lane
Yates, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
253.8 ft

Structure Material:
Stone

Approximate Structure Length:
75 ft

Condition:
Moderate Quality

Approximate Structure Height:
8 ft

Is Structure Consistent with Permit?:
Yes



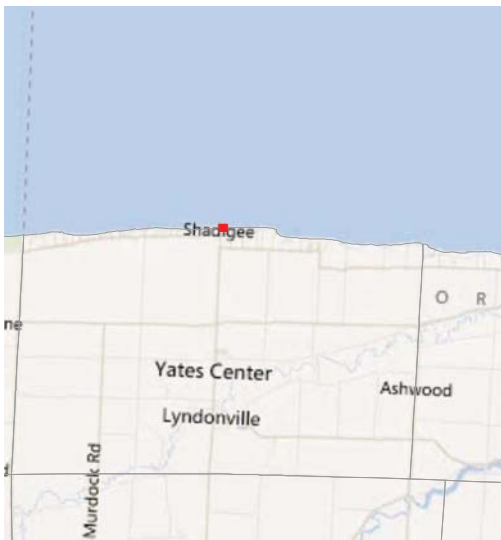
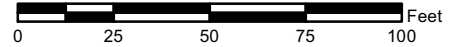


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

↗ Approximate Top of Structure

1 in = 50 feet



Permit ID: 8-3438-00089/00003

11359 Westcott Rd
Yates, NY

Structure Type:
Revetment

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
258.9 ft

Approximate Structure Length:
119 ft

Approximate Structure Height:
14 ft

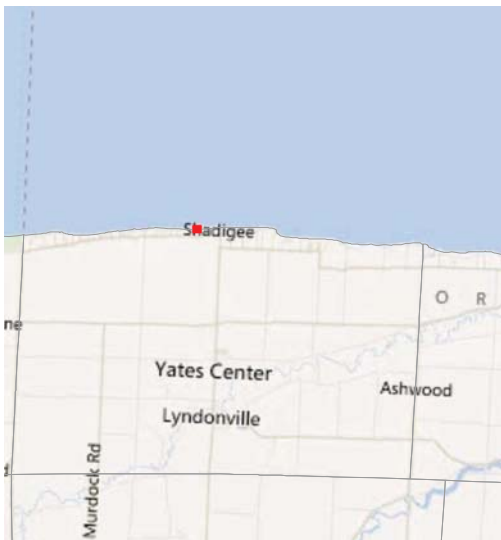
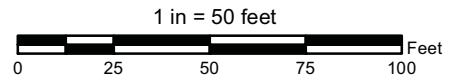




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-3438-00135

11159 Peters Lane
Lyndonville, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
251.6 ft

Structure Material:
Stone

Approximate Structure Length:
75 ft

Condition:
Moderate Quality

Approximate Structure Height:
6 ft

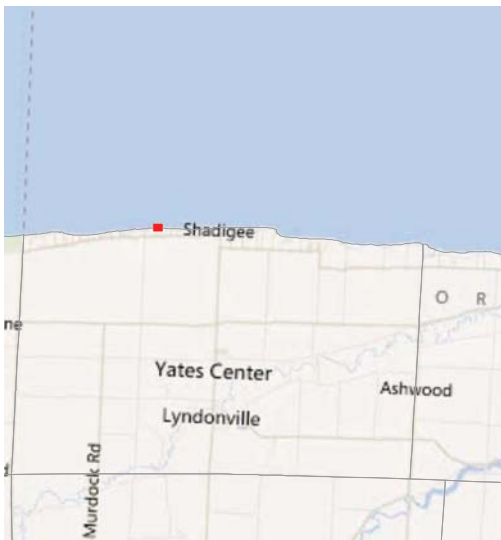
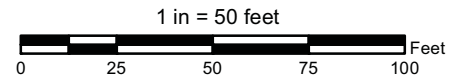
Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 8-3438-00107

10966 Lakeshore Rd
Lyndonville, NY

Structure Type:
Seawall / Bulkhead

Design Elevation (NAVD88):
249.2 ft

Structure Material:
Concrete

Approximate Structure Length:
75 ft

Condition:
Moderate Quality

Approximate Structure Height:
3 ft

Is Structure Consistent with Permit?:
Yes



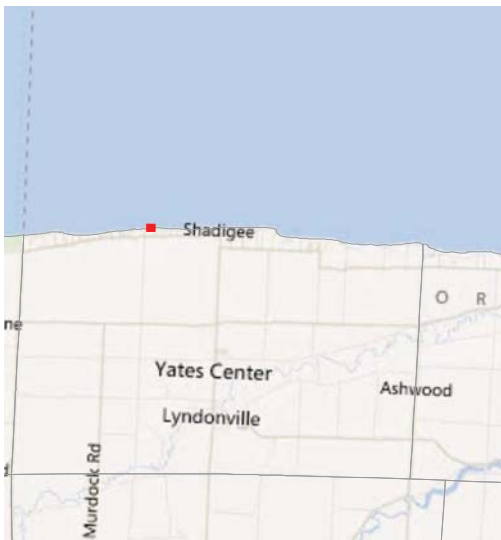


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

↗ Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 8-3438-00079

Lower Lake Rd, Fire Lane 33
Lyndonville, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
250.2 ft

Approximate Structure Length:
75 ft

Approximate Structure Height:
5 ft



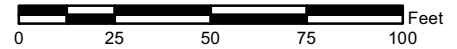


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet



Permit ID: 8-3438-00239/00001

10881 Petrie Ln
Yates, NY

Structure Type:
Revetment

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
254.3 ft

Approximate Structure Length:
44 ft

Approximate Structure Height:
10 ft



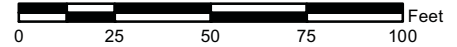


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure

1 in = 50 feet



Permit ID: 8-3438-00236/00001

10875 Petrie Ln
Yates, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Poor Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
249.3 ft

Approximate Structure Length:
66 ft

Approximate Structure Height:
3 ft



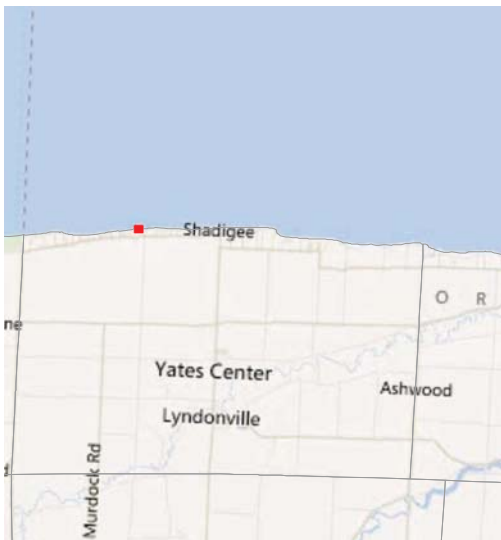


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 8-3438-00123

10865 Petrie Lane, FI 33
Lyndonville, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
255.7 ft

Structure Material:
Stone

Approximate Structure Length:
39 ft

Condition:
Poor Quality

Approximate Structure Height:
8 ft

Is Structure Consistent with Permit?:
Yes

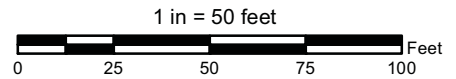




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-3438-00075

10833 Lake Shore Rd, Fire Lane 35
Lyndonville, NY

Structure Type:
Seawall / Bulkhead

Design Elevation (NAVD88):
254.4 ft

Structure Material:
Concrete

Approximate Structure Length:
83 ft

Condition:
Poor Quality

Approximate Structure Height:
9 ft

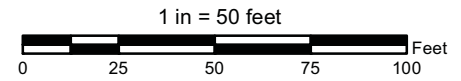
Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 8-3438-00063

10795 W Lakeshore Rd (Lower Lake Rd)
Lyndonville, NY

Structure Type:
Seawall / Bulkhead

Design Elevation (NAVD88):
256.5 ft

Structure Material:
Concrete

Approximate Structure Length:
59 ft

Condition:
Poor Quality

Approximate Structure Height:
10 ft

Is Structure Consistent with Permit?:
Yes

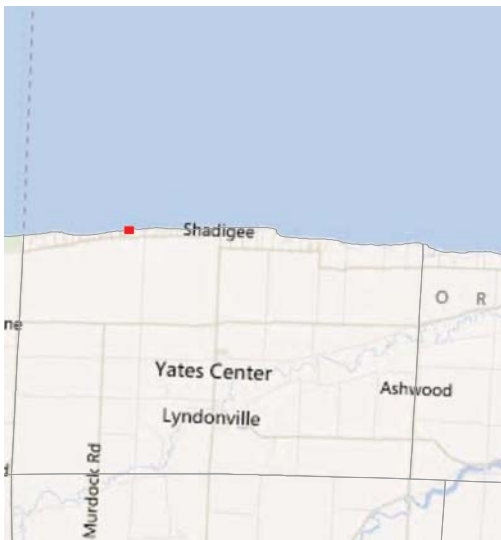
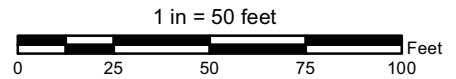




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 8-3438-00049

10779 Lake Shore Rd (10779 Smythe Lane Fl 39)
Lyndonville, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
254.0 ft

Structure Material:
Stone

Approximate Structure Length:
102 ft

Condition:
Moderate Quality

Approximate Structure Height:
8 ft

Is Structure Consistent with Permit?:
Yes





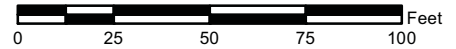
Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers



+ GPS Survey Point

↗ Approximate Top of Structure

1 in = 50 feet



Permit ID: 8-3438-00073

10707 Yaxley Lane, Fire Lane 43
Lyndonville, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
251.2 ft

Structure Material:
Stone

Approximate Structure Length:
78 ft

Condition:
Moderate Quality

Approximate Structure Height:
7 ft

Is Structure Consistent with Permit?:
Yes



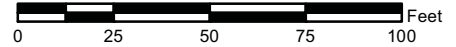


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet



Permit ID: 8-3438-00155/00001

West Lower Lake Rd, 10683 Yaxley Lane FL #43
Yates, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
255.3 ft

Structure Material:
Stone

Approximate Structure Length:
33 ft

Condition:
Moderate Quality

Approximate Structure Height:
11 ft

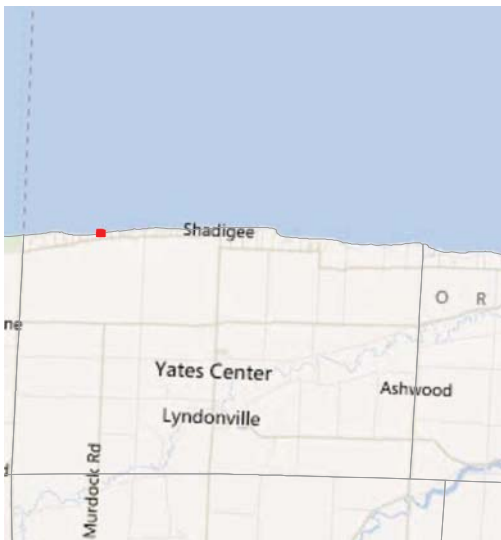
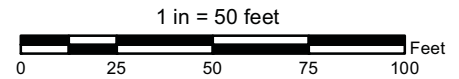
Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 8-3438-00235/00001

10640 W Lake Shore Rd
Yates, NY

Structure Type:
Revetment

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
254.8 ft

Approximate Structure Length:
77 ft

Approximate Structure Height:
10 ft

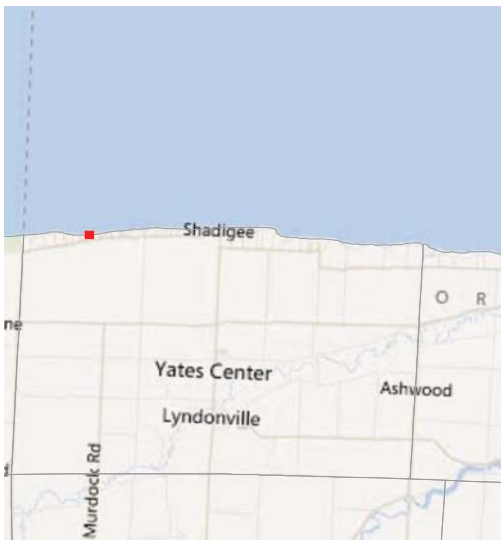
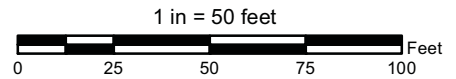




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-3438-00240/00001

10575 Wolf Ln
Yates, NY

Structure Type:
Revetment

Structure Material:
Stone

Condition:
Poor Quality

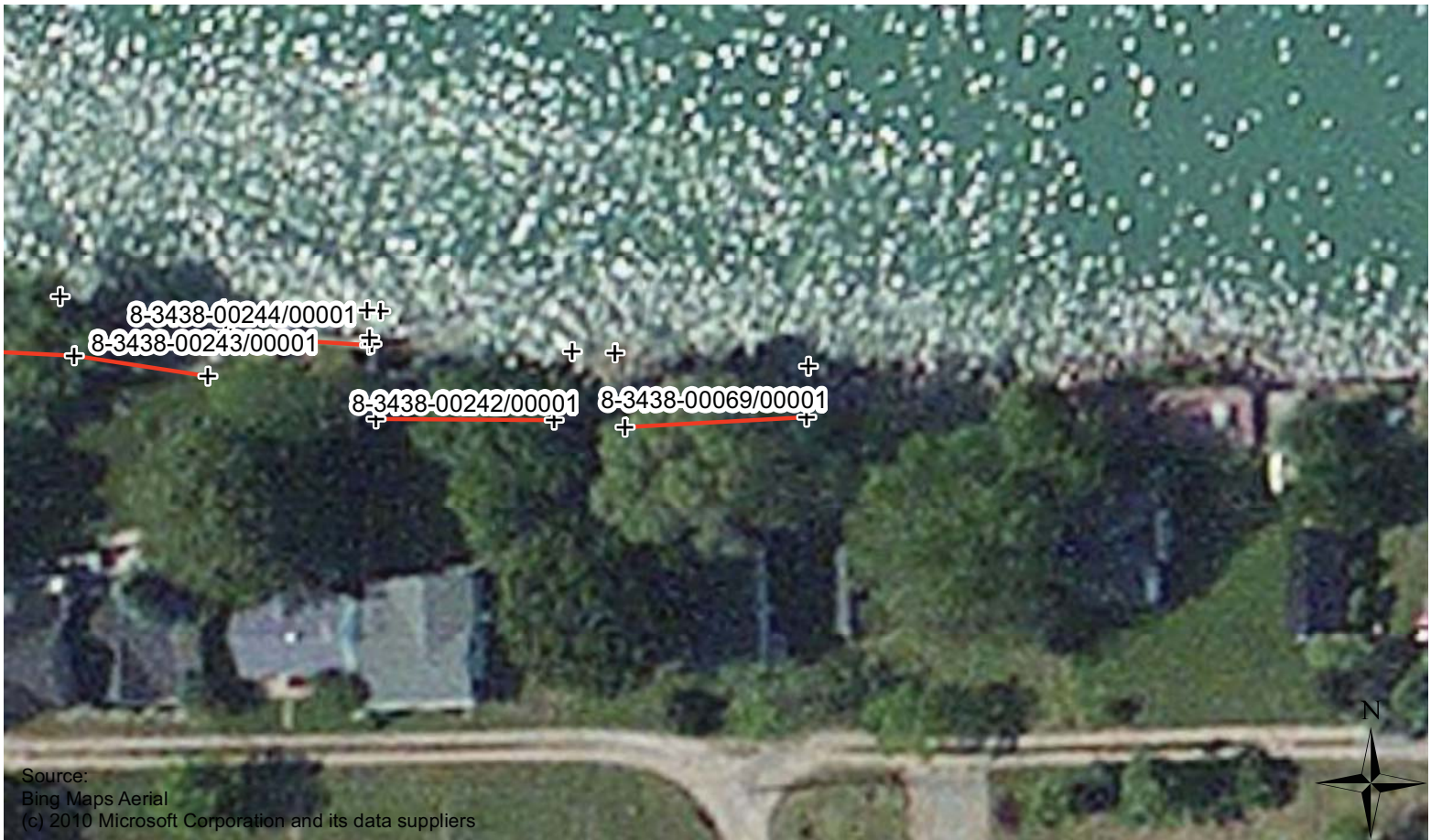
Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
251.3 ft

Approximate Structure Length:
41 ft

Approximate Structure Height:
6 ft

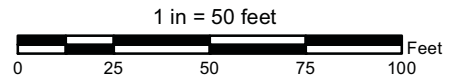




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 8-3438-00069/00001

10513 Fire Lane 57A, West Lake Rd
Yates, NY

Structure Type:
Revetment

Design Elevation (NAVD88):
253.4 ft

Structure Material:
Stone

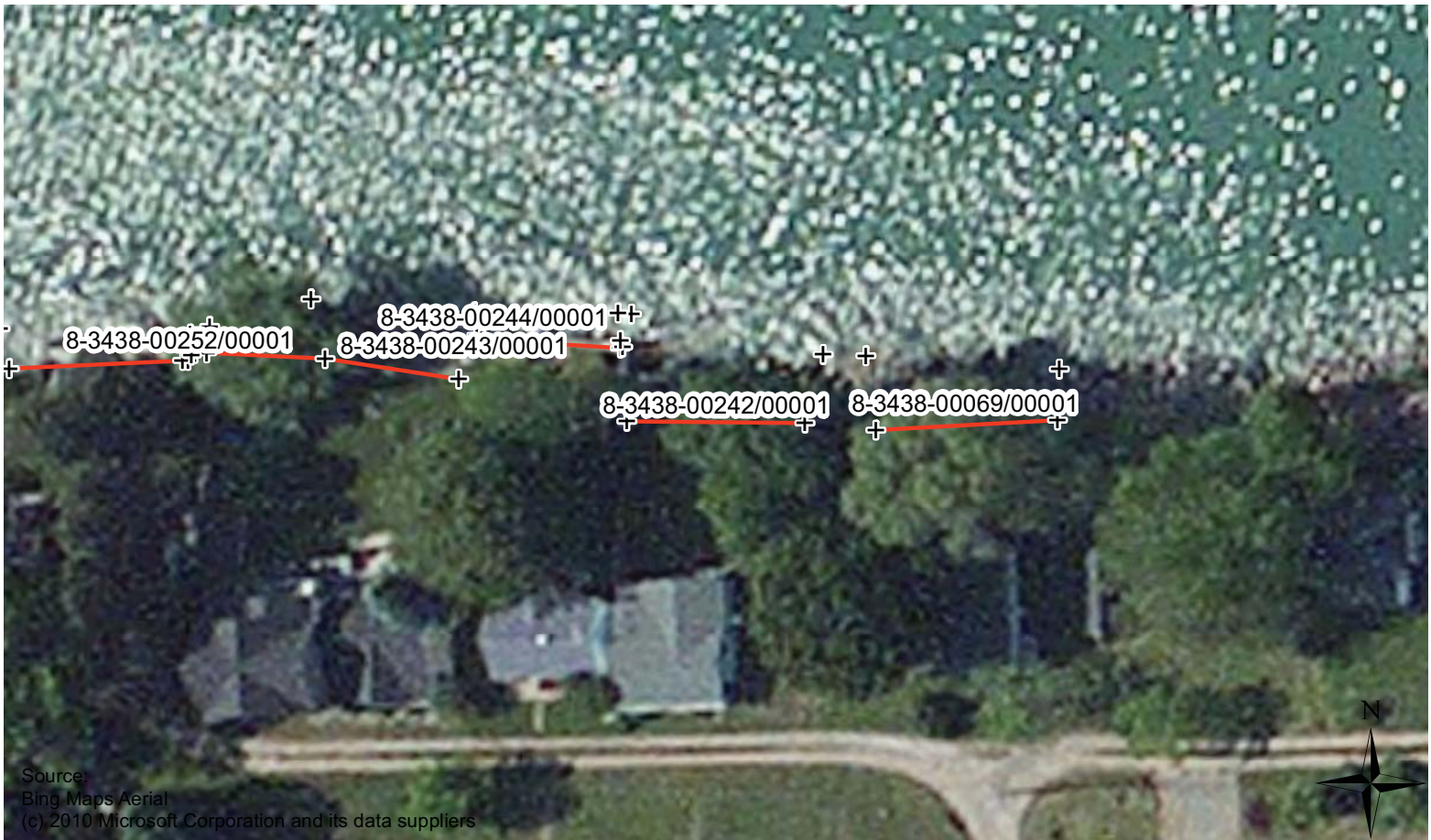
Approximate Structure Length:
52 ft

Condition:
Moderate Quality

Approximate Structure Height:
7 ft

Is Structure Consistent with Permit?:
Yes

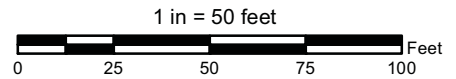




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 8-3438-00242/00001

10511 Fanta Ln
Yates, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
254.6 ft

Approximate Structure Length:
51 ft

Approximate Structure Height:
8 ft



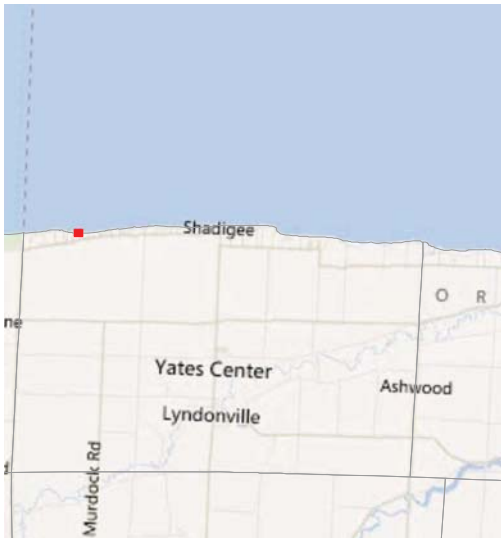


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 8-3438-00244/00001

10507 Fanta Ln
Yates, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Poor Quality

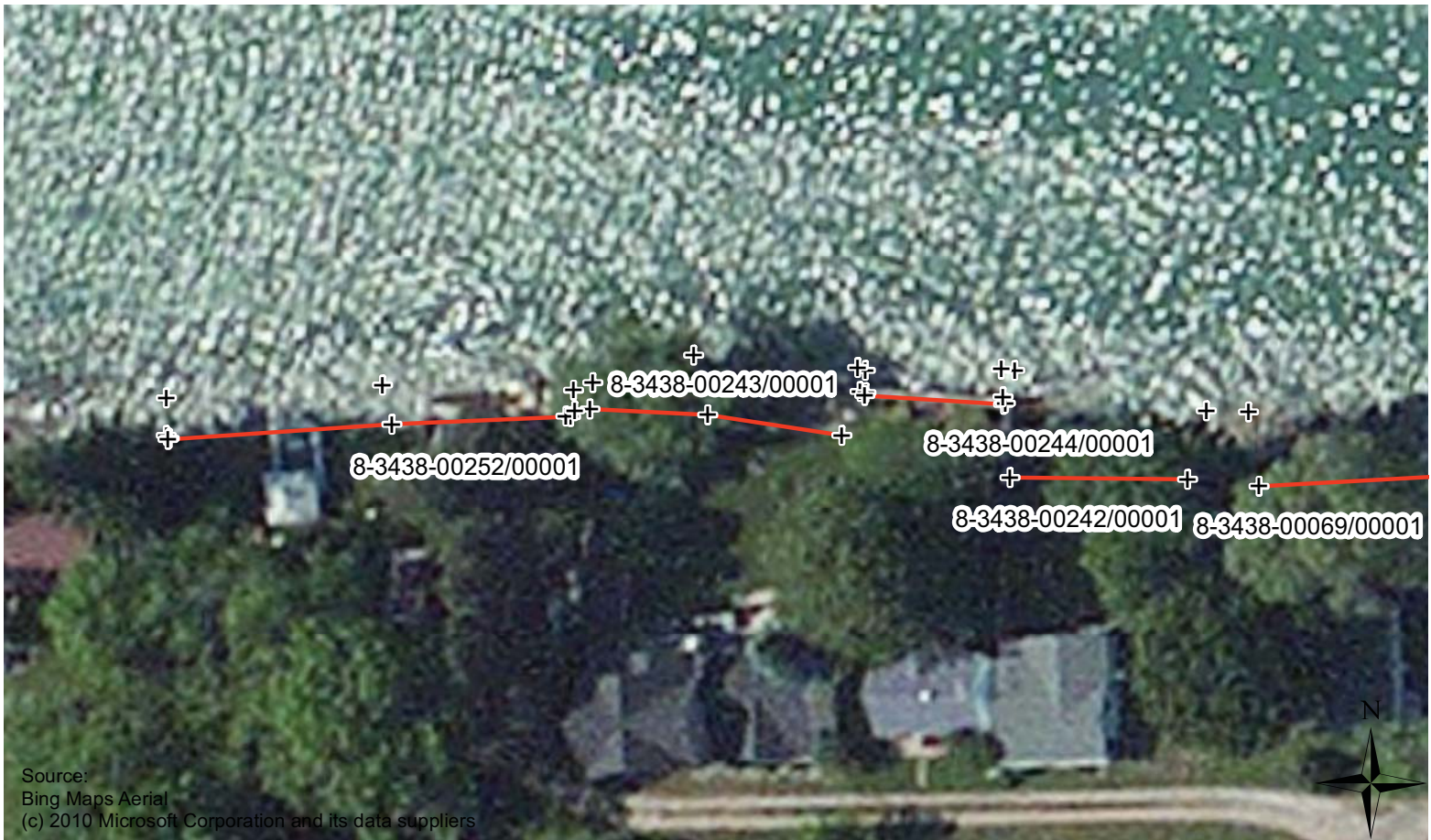
Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
253.9 ft

Approximate Structure Length:
40 ft

Approximate Structure Height:
8 ft



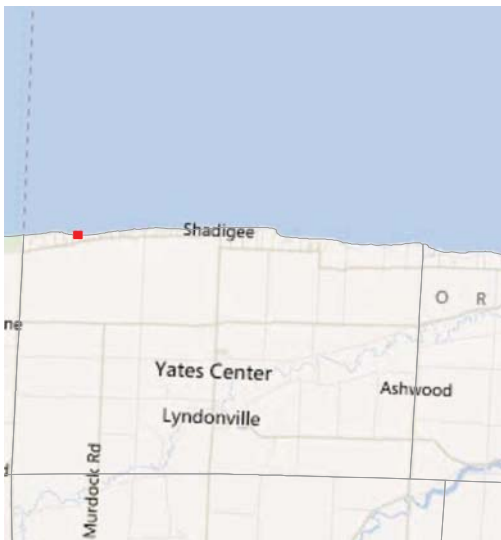


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 8-3438-00243/00001

10505 Fanta Ln
Yates, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
251.0 ft

Structure Material:
Stone

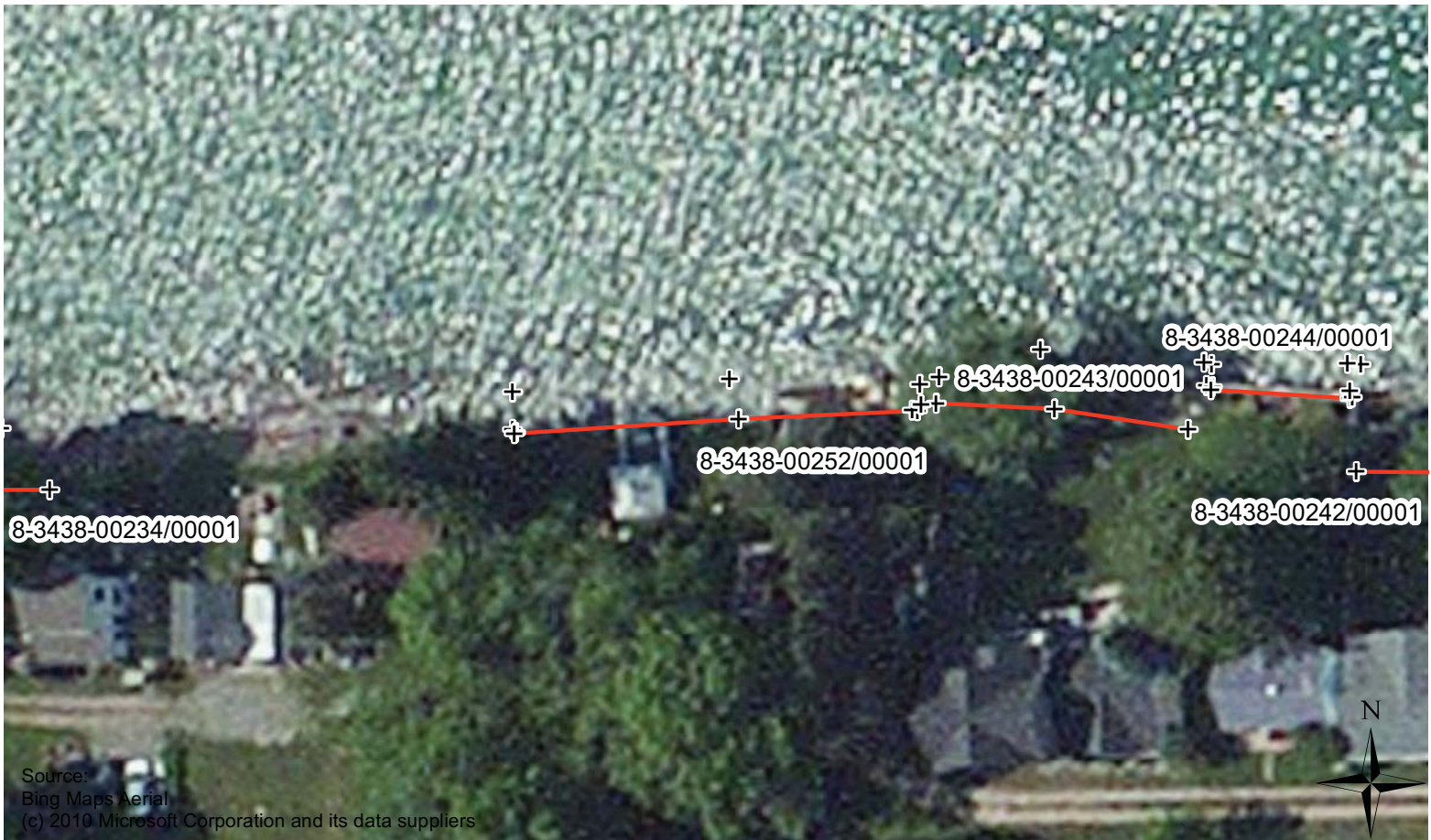
Approximate Structure Length:
72 ft

Condition:
Moderate Quality

Approximate Structure Height:
5 ft

Is Structure Consistent with Permit?:
Yes



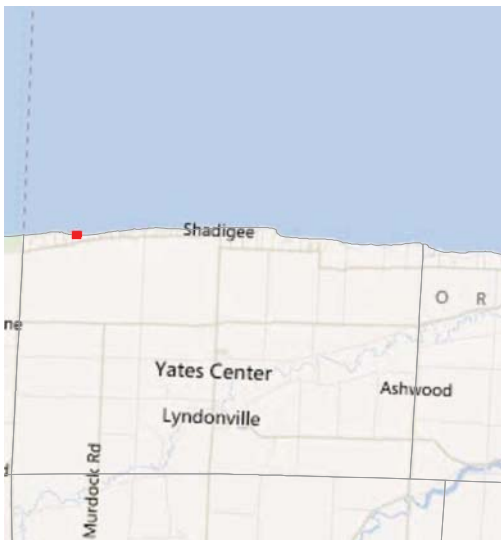
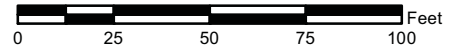


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet



Permit ID: 8-3438-00252/00001

10501 Fanta Ln
Yates, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Moderate Quality

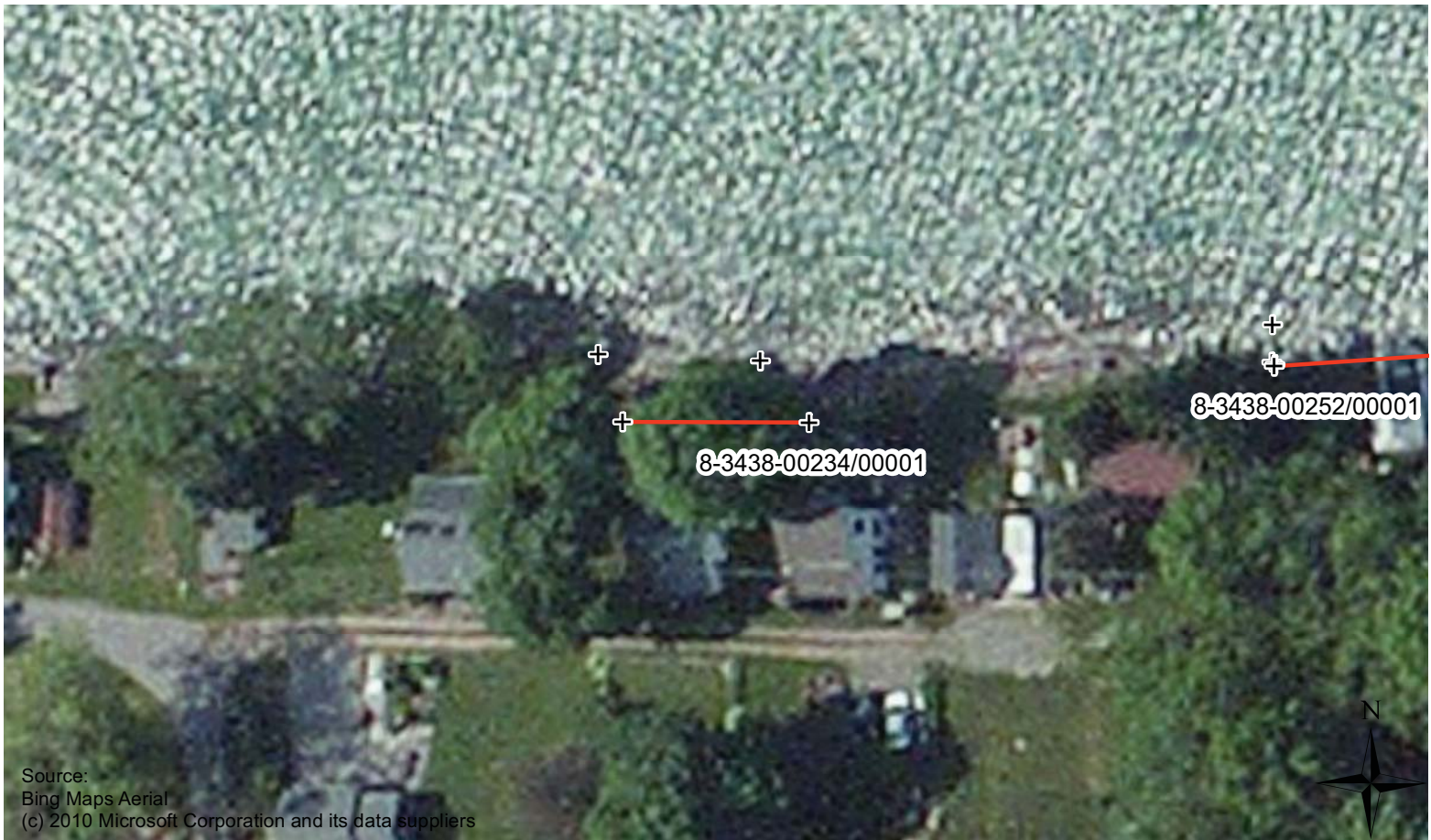
Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
250.2 ft

Approximate Structure Length:
115 ft

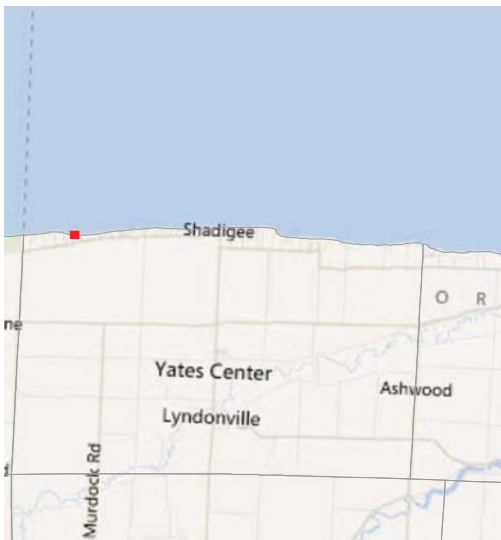
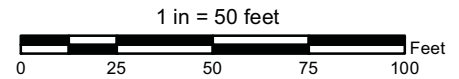
Approximate Structure Height:
5 ft





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 8-3438-00234/00001

10483 Willow Ln
Yates, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
254.4 ft

Structure Material:
Stone

Approximate Structure Length:
53 ft

Condition:
Moderate Quality

Approximate Structure Height:
8 ft

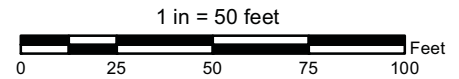
Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 8-3438-00233/00001

10415 Brown Ln
Yates, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
251.2 ft

Approximate Structure Length:
61 ft

Approximate Structure Height:
6 ft



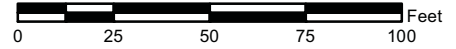


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

↗ Approximate Top of Structure

1 in = 50 feet



Permit ID: 8-3438-00081

10387 Chaffee Lane/Fire Lane 65
Lyndonville, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
251.2 ft

Approximate Structure Length:
52 ft

Approximate Structure Height:
6 ft





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 8-3438-00165/00003

10323 Chaffee Ln
Yates, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
246.6 ft

Structure Material:
Stone

Approximate Structure Length:
44 ft

Condition:
Poor Quality

Approximate Structure Height:
2 ft

Is Structure Consistent with Permit?:
Yes

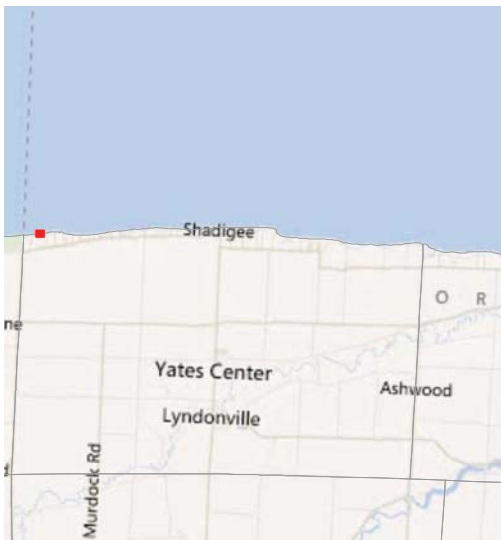
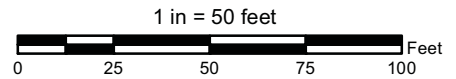




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 8-3438-00245/00001

10267 Hartzfeld Ln
Yates, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
249.8 ft

Approximate Structure Length:
24 ft

Approximate Structure Height:
5 ft



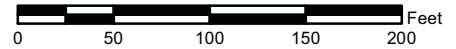


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 100 feet



Permit ID: 8-3438-00065

10201 Roberts Ln
Lyndonville, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Moderate Quality

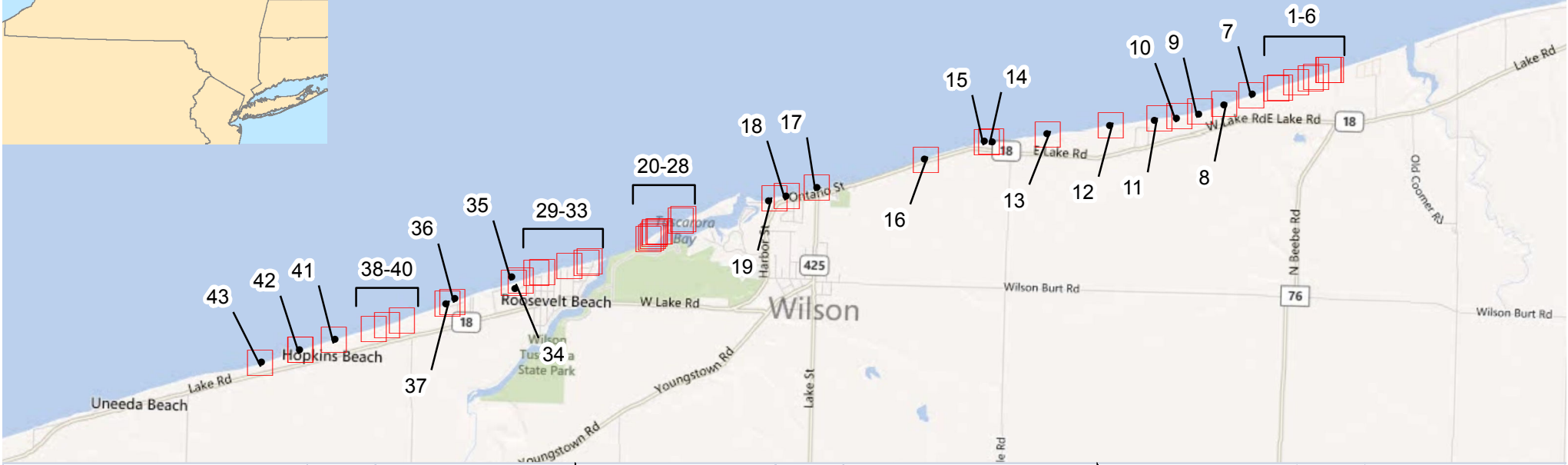
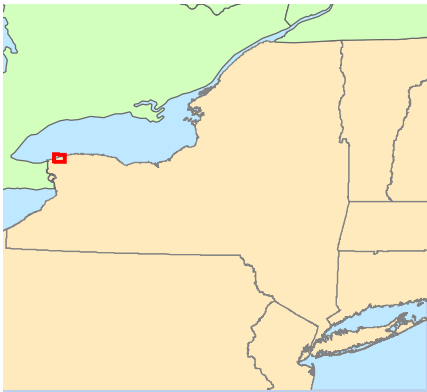
Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
255.6 ft

Approximate Structure Length:
345 ft

Approximate Structure Height:
11 ft





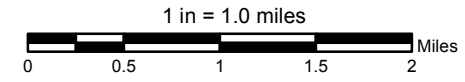
| Permit ID | Page No. | Address | Permit ID | Page No. | Address | Permit ID | Page No. | Address |
|---|----------|---------------------|--------------------|----------|--------------------------------------|--------------------|----------|---------------------|
| 9-2942-00170/00001 and 9-2942-00059/00001 | 1 | 4981 East Lake Rd | 9-2942-00069/00001 | 16 | Seaway Trail, NY State Route 18 | 9-2942-3-2009 | 31 | 2301 Coolidge Ave |
| 9-2942-3-2004 | 2 | 4961 W. Lake Rd | 9-2942-00181/00001 | 17 | End of NYS Route 425 at NYS Route 18 | 9-2942-00117/00001 | 32 | End Of Wilson Ave |
| 9-2942-1-2004 | 3 | 4953 East Lake Rd | 9-2942-00107/00001 | 18 | 213 Ontario St | 9-2942-1-2006 | 33 | 3213 Ontario St |
| 9-2942-00022/00003 | 4 | 4941 Lake Rd | 9-2942-00121/00001 | 19 | 183 Ontario St | 9-2942-00183/00003 | 34 | 3177 West Lake Rd |
| 9-2928-00151/00002 | 5 | 4913 E Lake Rd | 9-2942-00030/00012 | 20 | 19 Sunset Island | 9-2942-00197/00001 | 35 | 3171 Lake Rd |
| 9-2928-00087/00001 | 6 | 4909 E Lake Rd | 9-2942-00131/0008 | 21 | 17 Sunset Island | 9-2942-00182/00003 | 36 | 3057 Maple Ave |
| 9-2942-1-2005 | 9 | 4765-1 East Lake Rd | 9-2942-00193/00001 | 22 | 12 Sunset Island | 9-2942-00187/0001 | 37 | 3049 Maple Ave |
| 9-2942-4-2004 | 10 | 4733 E Lake Rd | 9-2942-00192/00001 | 23 | 11 Sunset Island | 9-2942-00207/00001 | 38 | 2951 West Lake Road |
| 9-2942-00115/00001 | 11 | 4695 E. Lake | 9-2942-00201/00001 | 24 | 8 Sunset Island | 9-2942-00085/00005 | 39 | 2925 W Lake Road |
| 9-2928-00155/00001 | 7 | 4863 Lake Road | 9-2942-00202/00001 | 25 | 7 Sunset Island | 9-2942-00055/00001 | 40 | 2903 West Lake Road |
| 9-2942-00172/00001 and 9-2492-00171/00001 | 8 | 4813 E Lake Rd | 9-2942-00175/00004 | 26 | 4 and 5 Sunset Island | 9-2942-4-2005 | 41 | 2829 West Lake Rd |
| 9-2942-1-2011 | 12 | 4599 East Lake Rd | 9-2942-00184/00002 | 27 | 3 Sunset Island | 9-2942-1-2010 | 42 | 2769 West Lake Rd |
| 9-2942-00091/00001 | 13 | 4489 Lake Road | 9-2942-00016/00003 | 28 | 1, 1A, 2 Sunset Island | 9-2942-3-2010 | 43 | 2699 West Lake Rd |
| 9-2942-00168/00001 | 14 | 4393 E Lake Rd | 9-2942-00205/00001 | 29 | 3305 Lakeview Pl | | | |
| 9-2942-00154/00004 | 15 | 4385 East Lake Rd | 9-2942-00167/00001 | 30 | 3301 Lakeview Pl | | | |

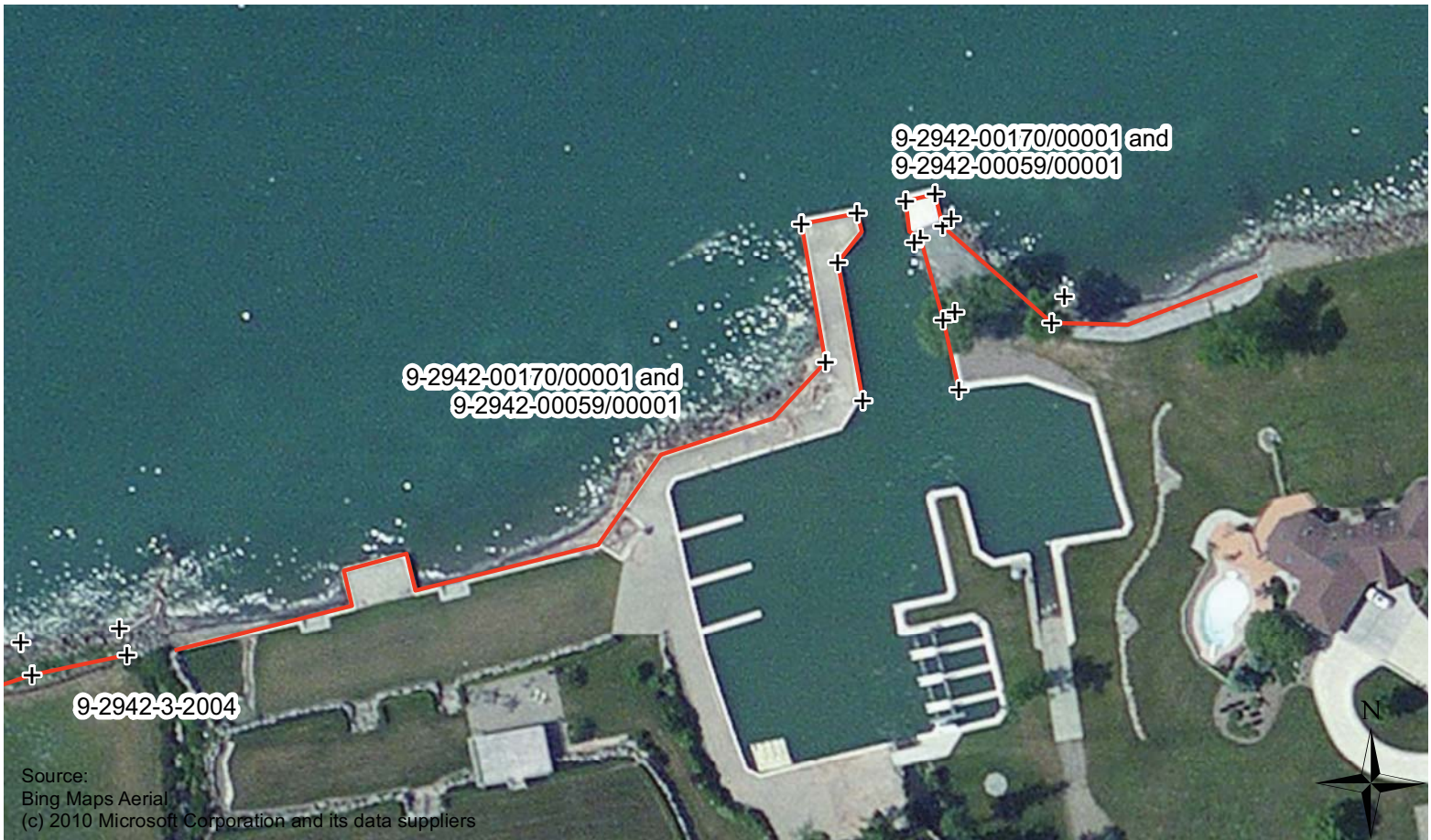
Permitted Structure Index

Map Index
Permitted Structures
 Lake Ontario
 Wilson, NY



Source:
 Bing Maps Road
 (c) 2010 Microsoft Corporation and its data suppliers



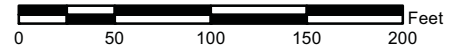


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 100 feet



Permit ID: 9-2942-00170/00001 and 9-2942-00059/00001

4981 East Lake Rd
Wilson, NY

Structure Type:
Jetty

Design Elevation (NAVD88):
249.2 ft

Structure Material:
Metal

Approximate Structure Length:
1044 ft

Condition:
High Quality

Approximate Structure Height:
10 ft

Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 9-2942-3-2004

4961 W. Lake Rd
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
253.6 ft

Structure Material:
Stone

Approximate Structure Length:
128 ft

Condition:
Moderate Quality

Approximate Structure Height:
8 ft

Is Structure Consistent with Permit?:
Yes

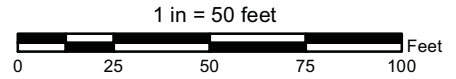




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 9-2942-1-2004

4953 East Lake Rd
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
253.0 ft

Structure Material:
Stone

Approximate Structure Length:
126 ft

Condition:
Poor Quality

Approximate Structure Height:
7 ft

Is Structure Consistent with Permit?:
Yes



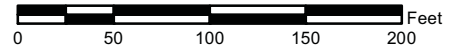


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure

1 in = 100 feet



Permit ID: 9-2942-00022/00003

4941 Lake Rd
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
249.0 ft

Structure Material:
Stone

Approximate Structure Length:
357 ft

Condition:
Moderate Quality

Approximate Structure Height:
4 ft

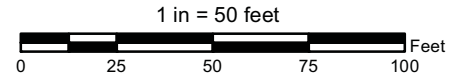
Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 9-2928-00151/00002

4913 E Lake Rd
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
249.8 ft

Structure Material:
Stone

Approximate Structure Length:
62 ft

Condition:
Moderate Quality

Approximate Structure Height:
6 ft

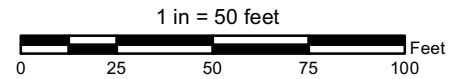
Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 9-2928-00087/00001

4909 E Lake Rd
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
249.8 ft

Approximate Structure Length:
190 ft

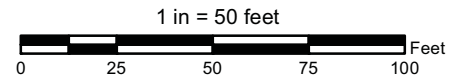
Approximate Structure Height:
6 ft





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point
Approximate Top of Structure



Permit ID: 9-2928-00155/00001

4863 Lake Road
Wilson, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Poor Quality

Is Structure Consistent with Permit?:
NA

Design Elevation (NAVD88):
NA

Approximate Structure Length:
NA

Approximate Structure Height:
NA

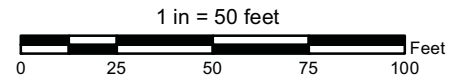
Note: Structure has failed





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point
Approximate Top of Structure



Permit ID: 9-2942-00172/00001 and 9-2492-00171/00001

4813 E Lake Rd
Wilson, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Poor Quality

Is Structure Consistent with Permit?:
NA

Design Elevation (NAVD88):
NA

Approximate Structure Length:
NA

Approximate Structure Height:
NA

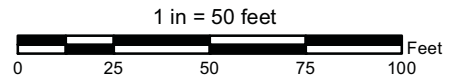
Note: Structure has failed





Source:
 Bing Maps Aerial
 (c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 9-2942-1-2005

4765-1 East Lake Rd
 Wilson, NY

Structure Type:
 Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
 250.8 ft

Structure Material:
 Stone

Approximate Structure Length:
 75 ft

Condition:
 Moderate Quality

Approximate Structure Height:
 7 ft

Is Structure Consistent with Permit?:
 Yes

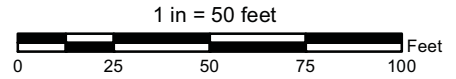




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 9-2942-4-2004

4733 E Lake Rd
Wilson, NY

Structure Type:
Revetment

Structure Material:
Stone

Condition:
Good Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
264.0 ft

Approximate Structure Length:
155 ft

Approximate Structure Height:
20 ft

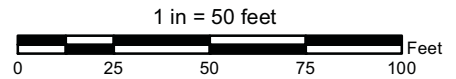




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 9-2942-00115/00001

4695 E. Lake
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
248.3 ft

Approximate Structure Length:
171 ft

Approximate Structure Height:
3 ft

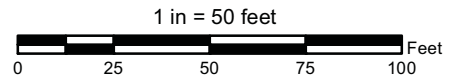




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

↗ Approximate Top of Structure



Permit ID: 9-2942-1-2011

4599 East Lake Rd
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
252.4 ft

Approximate Structure Length:
108 ft

Approximate Structure Height:
8 ft

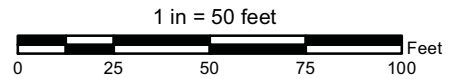




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 9-2942-00091/00001

4489 Lake Road
Wilson, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Good Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
250.9 ft

Approximate Structure Length:
101 ft

Approximate Structure Height:
7 ft



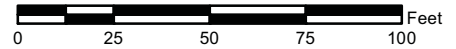


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet



Permit ID: 9-2942-00168/00001

4393 E Lake Rd
Wilson, NY

Structure Type:
Revetment

Design Elevation (NAVD88):
249.7 ft

Structure Material:
Stone

Approximate Structure Length:
167 ft

Condition:
Good Quality

Approximate Structure Height:
5 ft

Is Structure Consistent with Permit?:
Yes

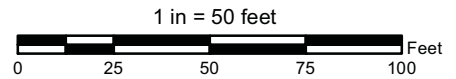




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 9-2942-00154/00004

4385 East Lake Rd
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
251.0 ft

Structure Material:
Stone

Approximate Structure Length:
126 ft

Condition:
Moderate Quality

Approximate Structure Height:
8 ft

Is Structure Consistent with Permit?:
Yes



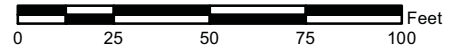


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure

1 in = 50 feet



Permit ID: 9-2942-00069/00001

Seaway Trail, NY State Route 18
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Structure Material:
Stone

Condition:
Good Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
256.8 ft

Approximate Structure Length:
223 ft

Approximate Structure Height:
12 ft



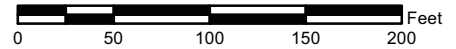


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure

1 in = 100 feet



Permit ID: 9-2942-00181/00001

End of NYS Route 425 at NYS Route 18
Wilson, NY

Structure Type:
Revetment

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
251.7 ft

Approximate Structure Length:
133 ft

Approximate Structure Height:
7 ft





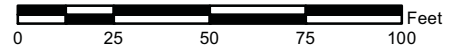
Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers



+ GPS Survey Point

↗ Approximate Top of Structure

1 in = 50 feet



Permit ID: 9-2942-00107/00001

213 Ontario St
Wilson, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Poor Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
248.1 ft

Approximate Structure Length:
100 ft

Approximate Structure Height:
5 ft



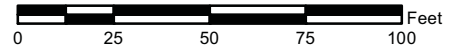


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

↗ Approximate Top of Structure

1 in = 50 feet



Permit ID: 9-2942-00121/00001

183 Ontario St
Wilson, NY

Structure Type:
Seawall / Bulkhead

Structure Material:
Concrete

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
249.1 ft

Approximate Structure Length:
54 ft

Approximate Structure Height:
5 ft



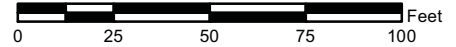


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure

1 in = 50 feet



Permit ID: 9-2942-00030/00012

19 Sunset Island
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
249.7 ft

Structure Material:
Stone

Approximate Structure Length:
54 ft

Condition:
Poor Quality

Approximate Structure Height:
5 ft

Is Structure Consistent with Permit?:
Yes



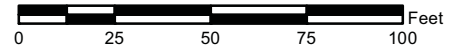


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure

1 in = 50 feet



Permit ID: 9-2942-00131/0008

17 Sunset Island
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
250.5 ft

Structure Material:
Stone

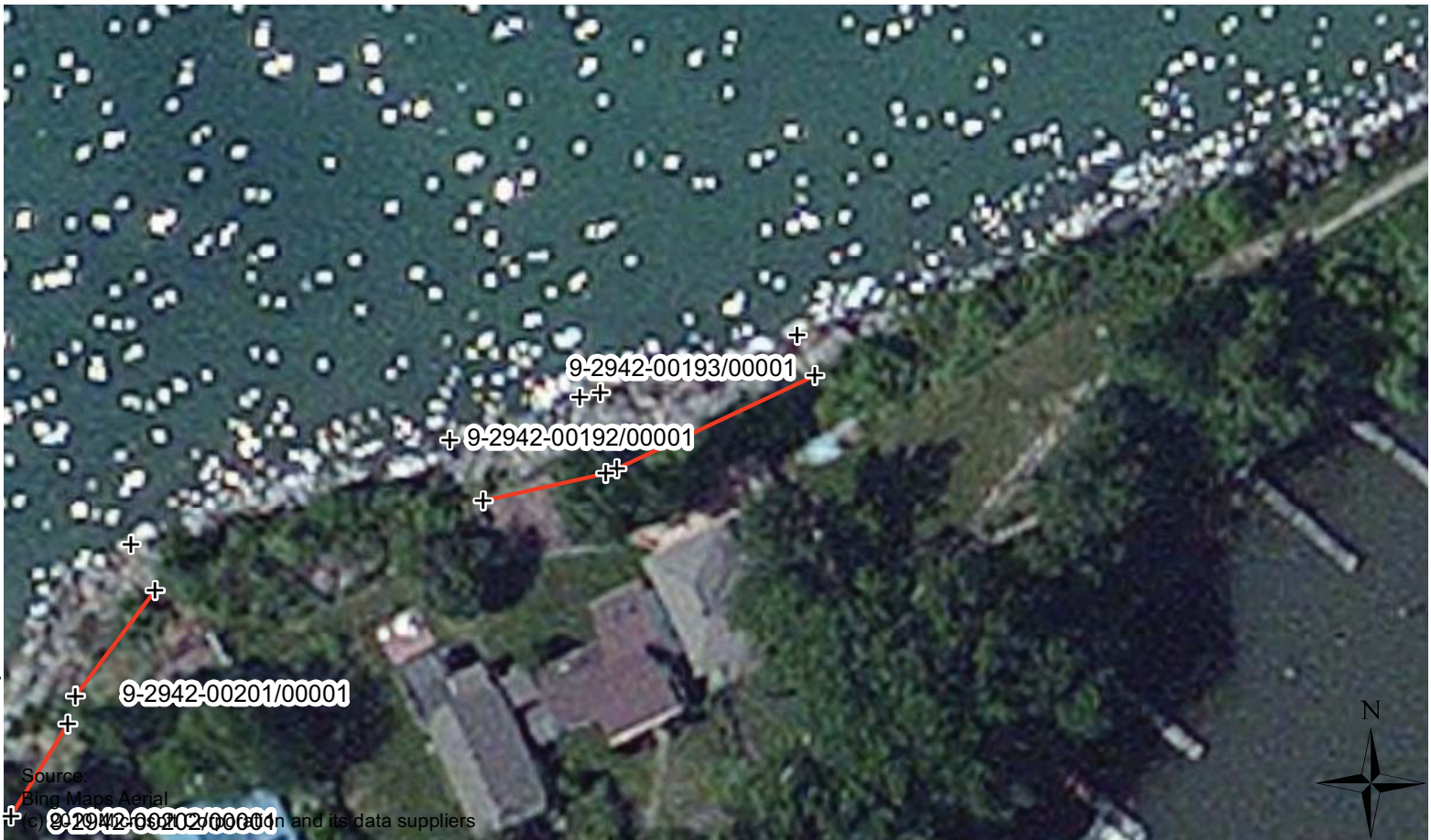
Approximate Structure Length:
158 ft

Condition:
Moderate Quality

Approximate Structure Height:
8 ft

Is Structure Consistent with Permit?:
Yes

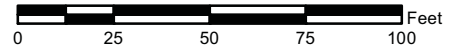




+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet



Permit ID: 9-2942-00193/00001

12 Sunset Island
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
250.9 ft

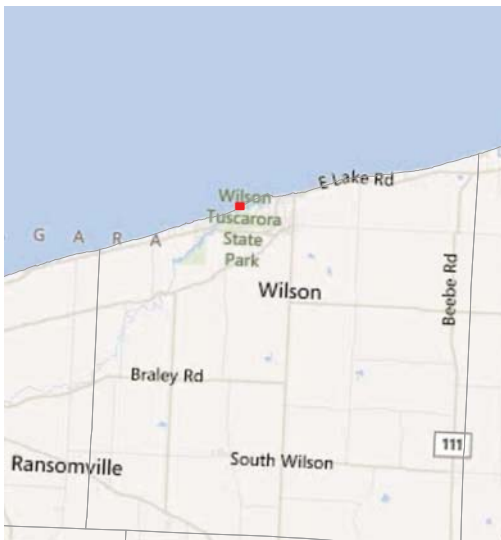
Structure Material:
Stone

Approximate Structure Length:
62 ft

Condition:
Moderate Quality

Approximate Structure Height:
7 ft

Is Structure Consistent with Permit?:
Yes



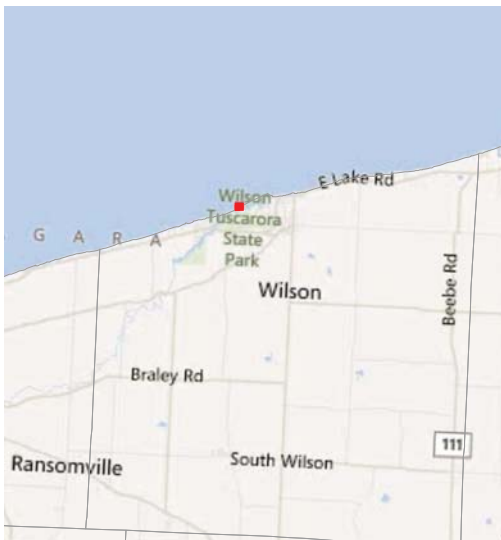


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 9-2942-00192/00001

11 Sunset Island
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
253.1 ft

Structure Material:
Stone

Approximate Structure Length:
36 ft

Condition:
Moderate Quality

Approximate Structure Height:
9 ft

Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 9-2942-00201/00001

8 Sunset Island
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
251.9 ft

Approximate Structure Length:
38 ft

Approximate Structure Height:
8 ft



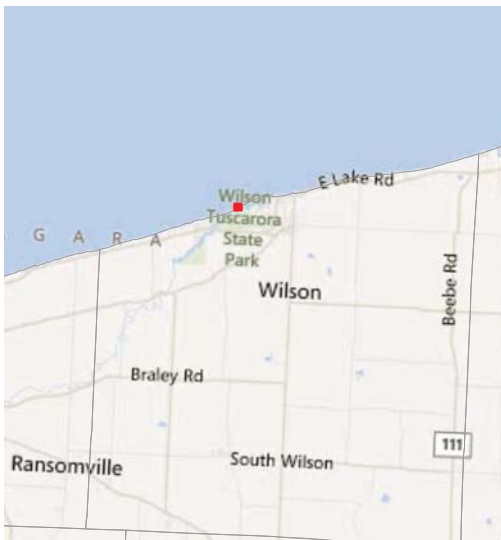


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 9-2942-00202/00001

7 Sunset Island
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Structure Material:
Stone

Condition:
Moderate Quality

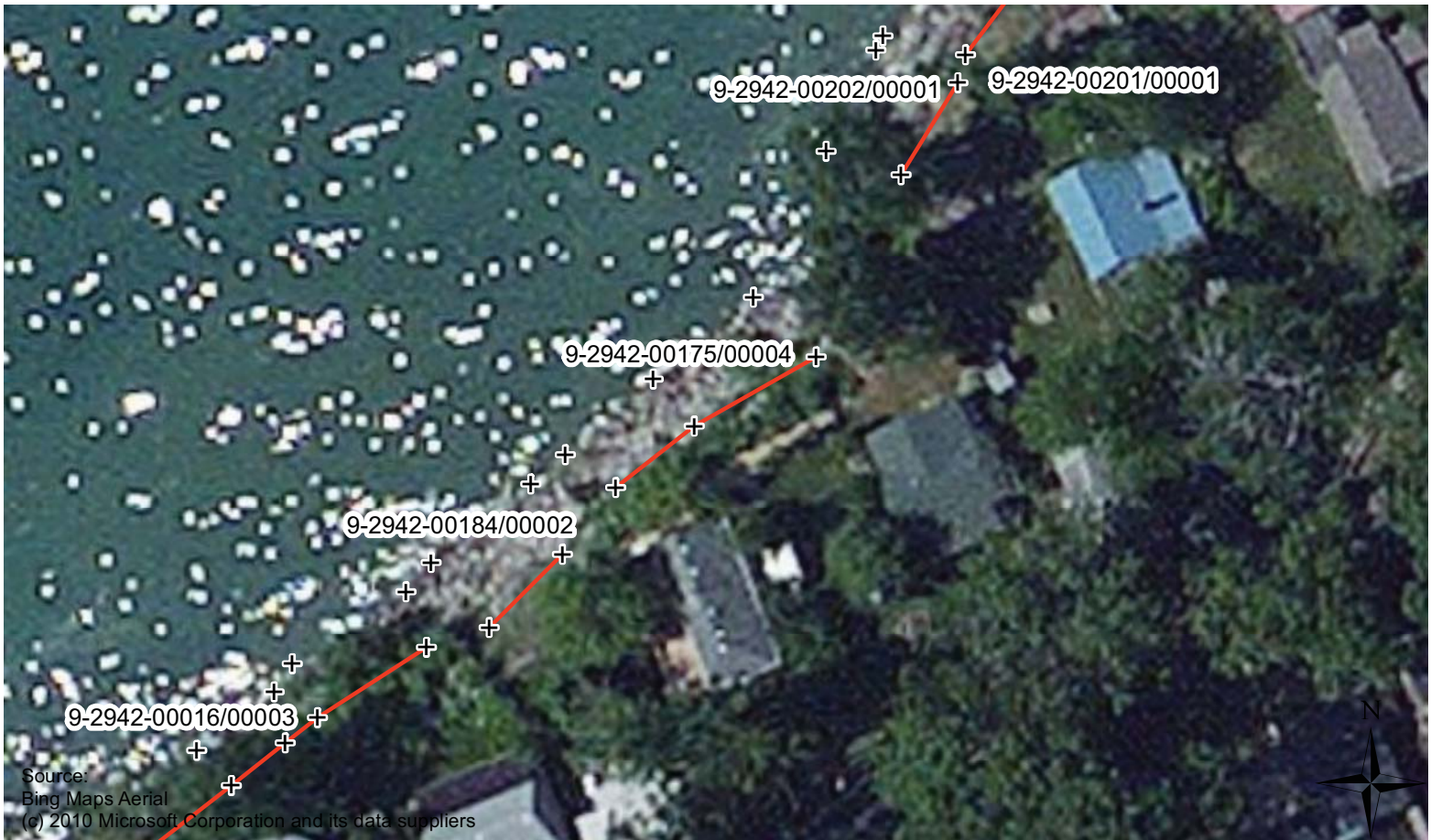
Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
252.5 ft

Approximate Structure Length:
31 ft

Approximate Structure Height:
10 ft

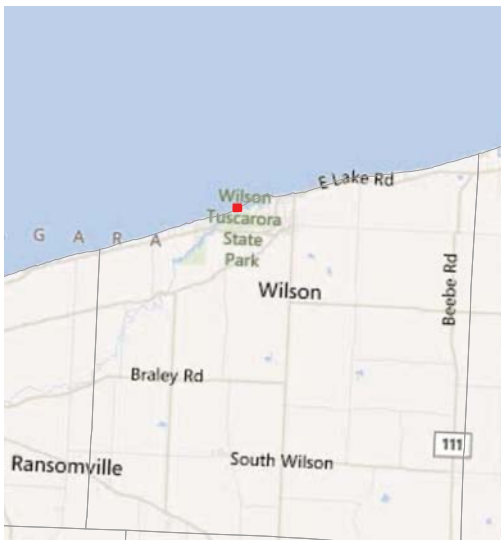
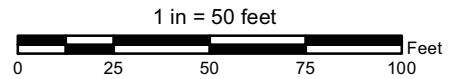




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure



Permit ID: 9-2942-00175/00004

4 and 5 Sunset Island
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
251.2 ft

Approximate Structure Length:
68 ft

Approximate Structure Height:
8 ft



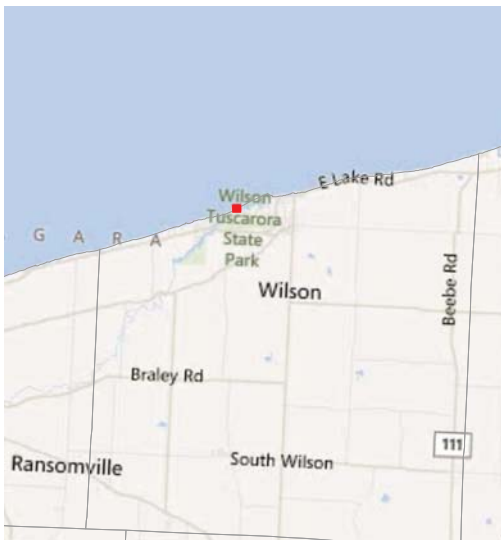


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 9-2942-00184/00002

3 Sunset Island
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
253.2 ft

Approximate Structure Length:
29 ft

Approximate Structure Height:
10 ft



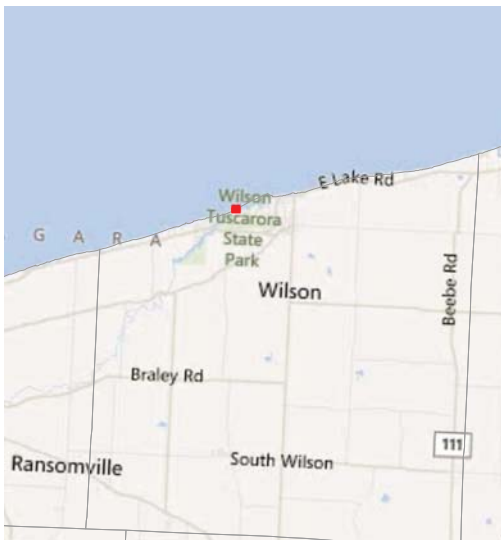


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet
0 25 50 75 100 Feet



Permit ID: 9-2942-00016/00003

1, 1A, 2 Sunset Island
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
249.9 ft

Structure Material:
Stone

Approximate Structure Length:
163 ft

Condition:
Moderate Quality

Approximate Structure Height:
5 ft

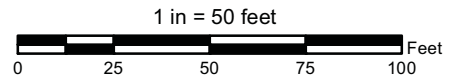
Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 9-2942-00205/00001

3305 Lakeview Pl
Wilson, NY

Structure Type:
Revetment

Structure Material:
Stone

Condition:
Moderate Quality

Is Structure Consistent with Permit?:
Yes

Design Elevation (NAVD88):
248.1 ft

Approximate Structure Length:
158 ft

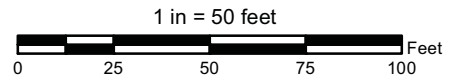
Approximate Structure Height:
4 ft





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 9-2942-00167/00001

3301 Lakeview Pl
Wilson, NY

Structure Type:
Revetment

Design Elevation (NAVD88):
254.7 ft

Structure Material:
Stone

Approximate Structure Length:
45 ft

Condition:
Moderate Quality

Approximate Structure Height:
8 ft

Is Structure Consistent with Permit?:
Yes





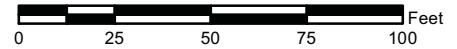
Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers



+ GPS Survey Point

— Approximate Top of Structure

1 in = 50 feet



Permit ID: 9-2942-3-2009

2301 Coolidge Ave
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
249.2 ft

Structure Material:
Stone

Approximate Structure Length:
162 ft

Condition:
Moderate Quality

Approximate Structure Height:
5 ft

Is Structure Consistent with Permit?:
Yes



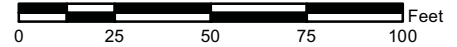


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet



Permit ID: 9-2924-00117/00001

End Of Wilson Ave
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
251.9 ft

Structure Material:
Stone

Approximate Structure Length:
59 ft

Condition:
Moderate Quality

Approximate Structure Height:
9 ft

Is Structure Consistent with Permit?:
Yes



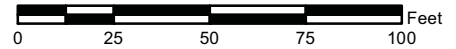


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet



Permit ID: 9-2942-1-2006

3213 Ontario St
Wilson, NY

Structure Type:
Ad Hoc Other Materials

Design Elevation (NAVD88):
267.3 ft

Structure Material:
Wood

Approximate Structure Length:
86 ft

Condition:
Moderate Quality

Approximate Structure Height:
23 ft

Is Structure Consistent with Permit?:
Yes



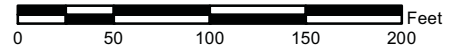


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure

1 in = 100 feet



Permit ID: 9-2942-00183/00003

3177 West Lake Rd
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
253.1 ft

Structure Material:
Stone

Approximate Structure Length:
366 ft

Condition:
Moderate Quality

Approximate Structure Height:
8 ft

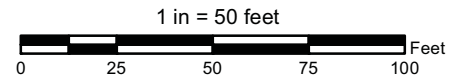
Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 9-2942-00197/00001

3171 Lake Rd
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
252.2 ft

Structure Material:
Stone

Approximate Structure Length:
117 ft

Condition:
Moderate Quality

Approximate Structure Height:
7 ft

Is Structure Consistent with Permit?:
Yes



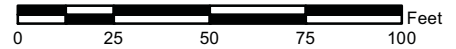


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet



Permit ID: 9-2942-00182/00003

3057 Maple Ave
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
249.6 ft

Structure Material:
Stone

Approximate Structure Length:
45 ft

Condition:
Moderate Quality

Approximate Structure Height:
4 ft

Is Structure Consistent with Permit?:
Yes



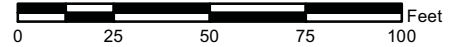


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet



Permit ID: 9-2942-00187/0001

3049 Maple Ave
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
249.1 ft

Structure Material:
Stone

Approximate Structure Length:
127 ft

Condition:
Moderate Quality

Approximate Structure Height:
5 ft

Is Structure Consistent with Permit?:
Yes

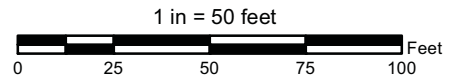




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers



- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 9-2942-00207/00001

2951 West Lake Road
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
253.2 ft

Structure Material:
Stone

Approximate Structure Length:
119 ft

Condition:
Moderate Quality

Approximate Structure Height:
9 ft

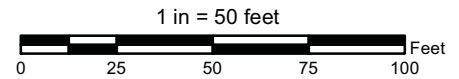
Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 9-2942-00085/00005

2925 W Lake Road
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
251.7 ft

Structure Material:
Stone

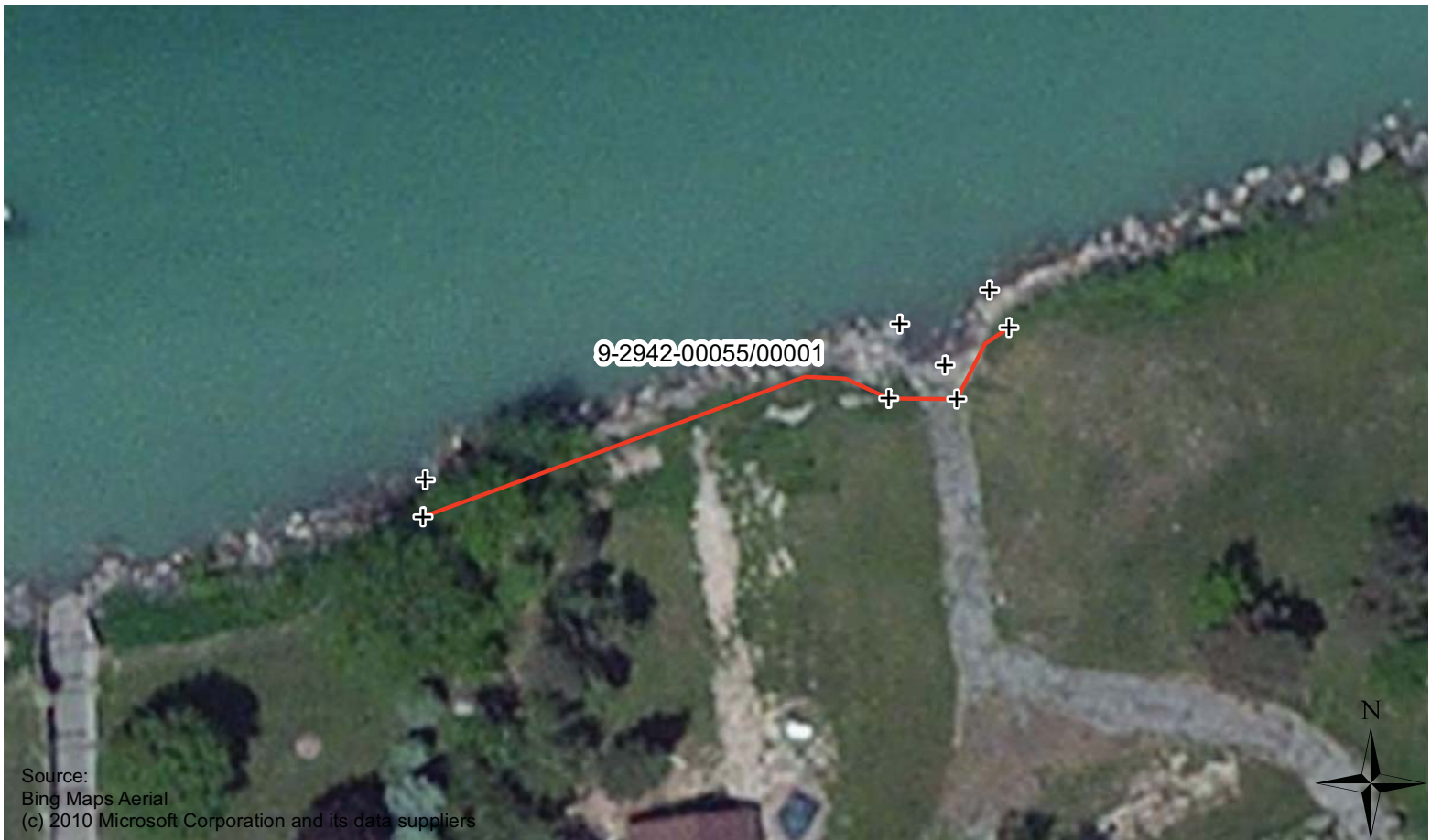
Approximate Structure Length:
121 ft

Condition:
Moderate Quality

Approximate Structure Height:
7 ft

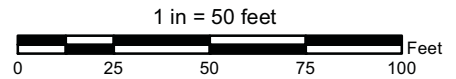
Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 9-2942-00055/00001

2903 West Lake Road
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
249.9 ft

Structure Material:
Stone

Approximate Structure Length:
186 ft

Condition:
Moderate Quality

Approximate Structure Height:
5 ft

Is Structure Consistent with Permit?:
Yes



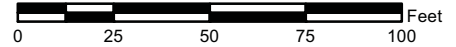


Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

Approximate Top of Structure

1 in = 50 feet



Permit ID: 9-2942-4-2005

2829 West Lake Rd
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
252.5 ft

Structure Material:
Stone

Approximate Structure Length:
139 ft

Condition:
Poor Quality

Approximate Structure Height:
3 ft

Is Structure Consistent with Permit?:
Yes

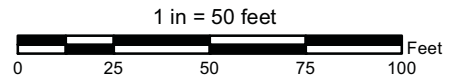




Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

+ GPS Survey Point

— Approximate Top of Structure



Permit ID: 9-2942-1-2010

2769 West Lake Rd
Wilson, NY

Structure Type:
Revetment

Design Elevation (NAVD88):
259.0 ft

Structure Material:
Stone

Approximate Structure Length:
43 ft

Condition:
Good Quality

Approximate Structure Height:
12 ft

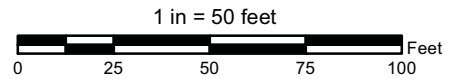
Is Structure Consistent with Permit?:
Yes





Source:
Bing Maps Aerial
(c) 2010 Microsoft Corporation and its data suppliers

- + GPS Survey Point
- Approximate Top of Structure



Permit ID: 9-2942-3-2010

2699 West Lake Rd
Wilson, NY

Structure Type:
Ad Hoc Concrete Rubble / Rip Rap

Design Elevation (NAVD88):
250.4 ft

Structure Material:
Stone

Approximate Structure Length:
96 ft

Condition:
Good Quality

Approximate Structure Height:
5 ft

Is Structure Consistent with Permit?:
Yes



Appendix C
Parcel Summary Information

Cayuga County (One Town)

| Town | Condition of Erosion Protection | | | | | | | | | | Total |
|----------|---------------------------------|-----|------|----|----------|----|------|----|------|----|-------|
| | None | | Poor | | Moderate | | Good | | High | | |
| Sterling | 82 | 88% | 3 | 3% | 5 | 5% | 0 | 0% | 3 | 3% | 93 |

Jefferson County

| Town | Condition of Erosion Protection | | | | | | | | | | Total |
|--------------|---------------------------------|-----|------|-----|----------|-----|------|-----|------|-----|-------|
| | None | | Poor | | Moderate | | Good | | High | | |
| Brownville | 85 | 38% | 60 | 27% | 73 | 33% | 4 | 2% | 1 | <1% | 223 |
| Cape Vincent | 109 | 53% | 55 | 27% | 33 | 16% | 7 | 3% | 0 | 0% | 204 |
| Ellisburg | 156 | 78% | 6 | 3% | 35 | 18% | 3 | 2% | 0 | 0% | 200 |
| Henderson | 195 | 36% | 77 | 14% | 240 | 44% | 31 | 6% | 0 | 0% | 543 |
| Hounsfield | 36 | 29% | 38 | 30% | 38 | 30% | 13 | 10% | 0 | 0% | 125 |
| Lyme | 180 | 46% | 121 | 31% | 84 | 21% | 8 | 2% | 0 | 0% | 393 |
| County Total | 761 | 45% | 357 | 21% | 503 | 30% | 66 | 4% | 1 | <1% | 1688 |

Monroe County

| Town | Condition of Erosion Protection | | | | | | | | | | Total |
|--------------|---------------------------------|-----|------|----|----------|-----|------|-----|------|-----|-------|
| | None | | Poor | | Moderate | | Good | | High | | |
| Greece | 97 | 19% | 30 | 6% | 95 | 18% | 277 | 53% | 24 | 5% | 523 |
| Hamlin | 43 | 14% | 17 | 6% | 83 | 27% | 139 | 46% | 22 | 7% | 304 |
| Irondequoit | 69 | 48% | 0 | 0% | 4 | 3% | 35 | 24% | 35 | 24% | 143 |
| Parma | 21 | 11% | 10 | 5% | 63 | 33% | 96 | 51% | 0 | 0% | 190 |
| Rochester | 46 | 43% | 3 | 3% | 6 | 6% | 29 | 27% | 24 | 22% | 108 |
| Webster | 71 | 25% | 15 | 5% | 71 | 25% | 99 | 35% | 24 | 9% | 280 |
| County Total | 347 | 22% | 75 | 5% | 322 | 21% | 675 | 44% | 129 | 8% | 1548 |

Niagara County

| Town | Condition of Erosion Protection | | | | | | | | | | Total |
|--------------|---------------------------------|-----|------|------|----------|-----|------|-----|------|----|-------|
| | None | | Poor | | Moderate | | Good | | High | | |
| Appleton | 0 | 0% | 1 | 100% | 0 | 0% | 0 | 0% | 0 | 0% | 1 |
| Barker | 3 | 50% | 1 | 17% | 2 | 33% | 0 | 0% | 0 | 0% | 6 |
| Burt | 0 | 0% | 0 | 0% | 1 | 50% | 1 | 50% | 0 | 0% | 2 |
| Newfane | 46 | 22% | 60 | 29% | 61 | 30% | 29 | 14% | 10 | 5% | 206 |
| Olcott | 1 | 50% | 0 | 0% | 0 | 0% | 1 | 50% | 0 | 0% | 2 |
| Ransomville | 74 | 33% | 76 | 34% | 24 | 11% | 51 | 23% | 0 | 0% | 225 |
| Somerset | 24 | 14% | 40 | 23% | 40 | 23% | 67 | 39% | 1 | 1% | 172 |
| Wilson | 64 | 20% | 174 | 54% | 66 | 20% | 17 | 5% | 4 | 1% | 325 |
| Youngstown | 52 | 38% | 49 | 36% | 24 | 17% | 9 | 7% | 4 | 3% | 138 |
| County Total | 264 | 25% | 401 | 37% | 218 | 20% | 175 | 16% | 19 | 2% | 1077 |

Orleans County

| Town | Condition of Erosion Protection | | | | | | | | | | Total |
|--------------|---------------------------------|-----|------|-----|----------|-----|------|-----|------|----|-------|
| | None | | Poor | | Moderate | | Good | | High | | |
| Carlton | 112 | 29% | 71 | 18% | 113 | 29% | 85 | 22% | 3 | 1% | 384 |
| Kendall | 29 | 11% | 53 | 19% | 112 | 41% | 80 | 29% | 0 | 0% | 274 |
| Yates | 107 | 27% | 120 | 30% | 155 | 38% | 21 | 5% | 0 | 0% | 403 |
| County Total | 248 | 23% | 244 | 23% | 380 | 36% | 186 | 18% | 3 | 0% | 1061 |

Oswego County

| Town | Condition of Erosion Protection | | | | | | | | | | Total |
|--------------|---------------------------------|-----|------|-----|----------|-----|------|-----|------|----|-------|
| | None | | Poor | | Moderate | | Good | | High | | |
| Mexico | 1 | 1% | 0 | 0% | 31 | 39% | 45 | 57% | 2 | 3% | 79 |
| New Haven | 49 | 25% | 15 | 8% | 89 | 46% | 38 | 20% | 2 | 1% | 193 |
| Oswego | 64 | 51% | 18 | 14% | 11 | 9% | 23 | 18% | 9 | 7% | 125 |
| Richland | 67 | 35% | 16 | 8% | 62 | 32% | 32 | 17% | 14 | 7% | 191 |
| Sandy Creek | 65 | 42% | 12 | 8% | 70 | 45% | 7 | 5% | 1 | 1% | 155 |
| Scriba | 57 | 38% | 33 | 22% | 23 | 15% | 38 | 25% | 1 | 1% | 152 |
| County Total | 303 | 34% | 94 | 11% | 286 | 32% | 183 | 20% | 29 | 3% | 895 |

Wayne County

| Town | Condition of Erosion Protection | | | | | | | | | | Total |
|--------------|---------------------------------|-----|------|-----|----------|-----|------|-----|------|----|-------|
| | None | | Poor | | Moderate | | Good | | High | | |
| Huron | 124 | 74% | 11 | 7% | 26 | 16% | 5 | 3% | 1 | 1% | 167 |
| Ontario | 15 | 9% | 9 | 6% | 96 | 60% | 37 | 23% | 3 | 2% | 160 |
| Sodus | 75 | 33% | 16 | 7% | 97 | 43% | 21 | 9% | 18 | 8% | 227 |
| Williamson | 11 | 6% | 36 | 20% | 78 | 44% | 52 | 29% | 0 | 0% | 177 |
| Wolcott | 45 | 78% | 1 | 2% | 10 | 17% | 2 | 3% | 0 | 0% | 58 |
| County Total | 270 | 34% | 73 | 9% | 307 | 39% | 117 | 15% | 22 | 3% | 789 |

Appendix D
GIS Metadata

Lake Ontario Shoreline Structural Classifications and Permitted Structure Analysis

Personal GeoDatabase

Summary

The database was prepared for New York Office of General Services (NYOGS) in association with the NYSDEC as a continuation of the International Joint Commission's Lake Ontario - St. Lawrence River (LOSLR) water level regulation study. The database contains a point data layer for Permitted Structures, a polyline data layer for the Shoreline Classification of the New York shoreline of Lake Ontario, a point layer of GPS locations of survey points of permitted structures and a polyline layer of the approximate footprint of investigated permitted structures.

Description

Creation Date: 06/13/12. Latest Modification Date: 10/19/12.

The New York State shoreline of Lake Ontario was classified in 2002 during the International Joint Commission's Lake Ontario - St. Lawrence River (LOSLR) water level regulation study based on 1 km reaches. The New York State Department of Conservation (NYSDEC) desired a more precise classification of the shoreline, and as a result AECOM reviewed 2012 oblique imagery provided by the US Army Corps of Engineers (USACE) to define detailed shoreline reaches. AECOM generated a spatially referenced feature class for shoreline classifications which represents a more precise version of the shoreline classification feature class generated during the 2002 LOSLR study. NYSDEC also desired a spatially referenced point layer of permitted erosion control structures along the New York shoreline of Lake Ontario. AECOM generated a point layer of permitted structures with attribute information for relevant permit data. This database also contains a support data layer for the structural footprint of structures visited during field investigations and a layer including GPS locations of survey points collected during field investigations.

There is an additional folder containing electronic copies (PDFs) of permits and design plans, as well as a folder containing photos from field inspections of selected structures. The files included in the additional folders are referenced by this database.

Credits

The database was prepared by AECOM in association with NYOGS and NYDEC for the Lake Ontario - St. Lawrence River water level study and contains feature data and photos.

GPS Survey Points

Personal GeoDatabase Feature Class

Summary

The New York State Department of Conservation (NYSDEC) desired spatially referenced GPS locations of survey points captured during field investigations. The survey points contain horizontal X, Y locations (UTM Zone 18 extended (NYTM New York Transverse Mercator), NAD 83 - meters) as well as vertical elevations (NAVD88 - feet) of the toe and top of coastal erosion protection structures. Survey points were collected at the ends of each structure and any additional locations along the structure where significant changes in the geometry occurred. The layer also contains any notes recorded during field investigations.

Description

Creation Date: 09/03/12. Latest Modification Date: 10/19/12.

This datalayer provides information obtained from field inspections of permitted structures located within the five selected municipalities.

The New York State Department of Conservation (NYSDEC) desired a spatially referenced GPS locations of survey points captured during field investigations. The survey points contain horizontal X, Y locations (NYTM New York Transverse Mercator), NAD 83 - meters) as well as vertical elevations (NAVD88 - feet) of the toe and top of coastal erosion protection structures. Survey points were collected at the ends of each structure and any additional locations along the structure where significant changes in the geometry occurred. The layer also contains any notes recorded during field investigations.

Attribute Fields:

Permit_Num (Permit No.): The Permit Identification Number as provided by NYSDEC or the local municipality

Location (Location): The location on the structure where the GPS point was recorded

PT_ID (PT ID): The unique identifier for the specific survey point

Y (Y): The horizontal Y coordinate provided in meters (NYTM)

X: (X) The horizontal X coordinate provided in meters (NYTM)

Z (Z): The vertical elevation provided in feet (NAVD88 - feet)

Notes (Notes): The field notes collected during inspection

Credits

The dataset was prepared by AECOM in Association with NYOGS and NYDEC for the International Joint Commission's Lake Ontario - St. Lawrence River water level study.

Oblique_Photos_USACE_2012

Personal GeoDatabase Feature Class

Summary

The file shows the point locations of oblique shoreline photos of the New York portion of Lake Ontario provided by the United States Army Corps of Engineers (USACE) from April - May, 2012. This file is a subset of the original data set which included all the great lakes. The photos were collected as part of the International Joint Commission's Lake Ontario - St. Lawrence River water level study, The file contains hyperlinks to the individual images.

Description

The perimeter of Lake Ontario was captured with digital oblique photographs from April to May of 2012. The photos were provided by the United States Army Corps of Engineers. Generally, the aircraft followed the perimeter of the Lake with embayments captured, but ponds off of the coastline not covered.

Continuous GPS coordinates were also captured during the flight and converted to an ArcGIS point file. The time stamp with the GPS coordinates was related to the time details for the digital photograph. With this information, hyperlinks were created with the photograph name to the GPS point corresponding to the location of the helicopter. There is some uncertainty in the exact locations and angles of the photographs.

The photos were collected as part of the International Joint Commission's Lake Ontario - St. Lawrence River water level study, The file contains hyperlinks to the individual images.

Credits

Photos were provided by the United States Army Corps of Engineers in 2012.

Permitted Structures

Personal GeoDatabase Feature Class

Summary

The New York State Department of Environmental Conservation (NYSDEC) desired a spatially referenced point layer of permitted erosion control structures along the New York shoreline of Lake Ontario.

Description

Creation Date: 06/13/12. Latest Modification Date: 10/19/12.

This datalayer provides information obtained from review of erosion control structure permits along the entire entire coastline (excluding embayments) of the New York State portion of Lake Ontario and field inspections of permitted structures located within the five selected municipalities.

The set of permitted structures is based on hard copy and electronic archived records maintained by offices from NYSDEC Regions 6, 7, 8 and 9 as well as municipal offices from five selected towns (Ellisburg, Greece, Huron, Wilson and Yates). AECOM generated a point layer of permitted structures with attribute information for relevant permit data. Active permits were defined as those maintained as hard copy files at the NYSDEC offices or the municipal offices. The NYSDEC general protocol is to maintain hard copy files for five years.

Datasheets included as an Appendix in the 2012 Technical Report, as well as digital photos of hard copy permit files and design plans, exist as PDFs in the Electronic_Files folder. These electronic files are hyperlinked to the Permits.shp data file to allow for seamless access to the permit files and design plans from within the ArcGIS environment. The hyperlink is determined using a relative file path. The user must activate the hyperlinks (based on the "Hyperlinks" data field) for seamless viewing. The horizontal datum for the data is (NYTM New York Transverse Mercator), NAD 83 - meters) and the vertical datum is NAVD88 - feet.

Attribute Fields:

Permit_ID (Permit ID): The Permit Identification Number as provided by NYSDEC or the local municipality

Town (Town): The town (or village) where the permitted structure exists

Address (Address): The address where the permitted structure exists

Applicant (Applicant): The name of the person who applied for permit coverage

Permit_Date (Effective Permit Date): The effective date of the permit for the permitted structure

Permit_Mod_Date (Permit Modification Date): The date of the most recent permit modification/renewal for the permitted structure

Structure (Structure Type): The type of erosion protection structure

Material (Material): The general material of the erosion protection structure

Foundation_Char (Foundation Characteristics): Notes from the field investigation describing the foundation of the structure

Notes (Notes): General notes describing the permit

Status (Permit Status): The status of the permit describing if the permit is active (physical permit on file) or inactive (only electronic archive records exist for the permitted structure)

Field_Analysis (Structural Notes): Notes for the design and description of the structure from the field investigation

Condition (Condition): The general condition rating of the structure as determined during field investigation [Poor Quality (0-5 yr life expectancy); Moderate Quality (5-15 yr life expectancy); Good Quality (15-30 yr life expectancy); High Quality (30+ yr life expectancy)]

Consistent (Permit Consistency): Describes whether the constructed structure is consistent with the permit, based on field investigation

Field_Notes (Field Notes): General notes from the field investigation

Photos (Photo No.): Photo identification numbers (the user should use the date of visit in conjunction with the photo ID to view photos of the structure taken during field investigations.

DateVisit (Date Visit): The date when the structure was visited for the field investigation

Length_ft (Length (ft)): The approximate length of the structure (in feet) determined from the GPS survey points

Height_ft (Height (ft)): The approximate height of the structure (in feet) determined as the difference between the minimum top elevation and the toe elevation.

Design_Elevation (Design Elevation): The design elevation is determined based on the lowest elevation taken of the top of the structure, which provides the elevation where the structure will overtop (NAVD88 - feet)

Hyperlink (Hyperlink): The relative path for the file location of the hyperlinked electronic files

Easting_m: The x coordinate of the point in meters (NYTM)

Northing_m: The y coordinate of the point in meters (NYTM)

Ht_Above_MHW (Ht Above MHW (ft)): The height above MHW was determined using the design elevation and the current MHW elevation for Lake Ontario as defined by NYSDEC Article 15 Part 608: Use and Protection of Waters, which defines the mean high water elevation for Lake Ontario as 247.3-ft (IGLD85) converted to 247.4-ft (NAVD88) using the online NOAA IGLD85 Datum Converter Tool

Credits

The dataset was prepared by AECOM in Association with NYOGS and NYDEC for the International Joint Commission's Lake Ontario - St. Lawrence River water level study.

Shoreline Structural Classification

Personal GeoDatabase Feature Class

Summary

The New York State shoreline of Lake Ontario was classified in 2002 during the International Joint Commission's Lake Ontario - St. Lawrence River (LOSLR) water level regulation study based on 1 km reaches. The New York State Department of Conservation (NYSDEC) desired a more precise classification of the shoreline, and as a result AECOM reviewed 2012 oblique imagery provided by the US Army Corps of Engineers (USACE) to define detailed shoreline reaches. AECOM generated a spatially referenced feature class for shoreline classifications which represents a more precise version of the shoreline classification feature class generated during the 2002 LOSLR study. The 2002 LOSLR study was used as a baseline to generate classifications. For consistency, geomorphic classification and structural classification types from the LOSLR study were used.

Description

Creation Date: 06/13/12. Latest Modification Date: 08/15/12.

This datalayer provides information obtained as a result of oblique imagery review for the entire coastline (excluding embayments) of the New York State portion of Lake Ontario.

The shoreline was divided into reaches and this dataset represents the line features for those reaches for the U.S. shoreline of Lake Ontario, not including islands and embayments as coded by the LOSLR study in 2002. Each feature within the data layer produced by AECOM represents a reach of shoreline of differing classification. Classification reaches were not defined according to a set unit of measure. In some instances a shoreline classification may span a couple thousand feet, spanning multiple tax parcels. In other instances, multiple classifications may exist for a single tax parcel.

Original shoreline boundary was taken from the CityTown.shp datafile from the NYS Civil Boundaries (database) provided by NYS Office of Cyber Security (NYSOGS) via the NYS GIS Clearinghouse website for the following counties: (Niagara, Orleans, Monroe, Wayne, Cayuga, Oswego). Original shoreline boundary was taken from the NHDFlowline.shp datafile from the National Hydrography Dataset (NHD) (database) provided by NYSDEC via the NYS GIS Clearinghouse website for the following counties: (Jefferson). The shoreline polyline was modified to most accurately represent the actual shoreline based on 2010-2012 Bing Maps aerial imagery. The shapefile was split by shoreline type based on review of 2012 oblique imagery provided by the U.S. Army Corps of Engineers via: <http://greatlakes.usace.army.mil>.

Attribute Fields:

Shoreline_Code (Shoreline Type): The shoreline geomorphic classification for the type of shoreline (even if structure exists)

Structural_Code_Primary (Structural Type (Primary)): The type of primary structural protection (closest to the shore)

Structural_Condition_Primary (Structure Condition (Primary)): The condition of the primary structural protection

Structural_Code_Secondary (Structural Type (Secondary)): The type of secondary structural protection

Structural_Condition_Secondary (Structure Condition (Secondary)): The condition of the secondary structural protection

Notes (Notes): Notes recorded during the oblique imagery review

Town: New York town where the shoreline is located

County: New York county where the shoreline is located

Credits

The dataset was prepared by AECOM in Association with NYOGS and NYDEC for the International Joint Commission's Lake Ontario - St. Lawrence River water level study.

Structure Footprint

Personal GeoDatabase Feature Class

Summary

The New York State Department of Conservation (NYSDEC) desired a spatially referenced point layer of permitted erosion control structures along the New York shoreline of Lake Ontario. This data layer provides additional structural information for the field visited structures.

Description

Creation Date: 09/03/12. Latest Modification Date: 10/19/12.

This datalayer provides information obtained from field inspections of permitted structures located within the five selected municipalities.

In addition to the Permitted_Structures data layer, AECOM created a shapefile with additional structural information including height, length and elevation information. This data layer is spatially referenced and provides the approximate footprint of each permitted structure.

Attribute Fields:

Top_EI_Min (Min Top Elevation): The design elevation is determined based on the lowest elevation taken of the top of the structure, which provides the elevation where the structure will overtop (NAVD88 - feet)

Length_ft (Length (ft)): The approximate length of the structure (in feet) determined from the GPS survey points

Permit_ID (Permit No.): The Permit Identification Number as provided by NYSDEC or the local municipality

Toe_EI_Max (Toe Structure Elevation): The elevation of the toe of the structure where the GPS location of the minimum top elevation was taken (NAVD88 - feet)

Height_ft (Height (ft)): The approximate height of the structure (in feet) determined as the difference between the minimum top elevation and the toe elevation

Ht_Above_MHW (Ht Above MHW (ft)): The height above MHW was determined using the design elevation and the current MHW elevation for Lake Ontario as defined by NYSDEC Article 15 Part 608: Use and Protection of Waters, which defines the mean high water elevation for Lake Ontario as 247.3-ft (IGLD85) converted to 247.4-ft (NAVD88) using the online NOAA IGLD85 Datum Converter Tool

Credits

The dataset was prepared by AECOM in Association with NYOGS and NYDEC for the International Joint Commission's Lake Ontario - St. Lawrence River water level study.