Investigation of Cultural and Environmental History on the Hudson River Superfund Site, NY

February 2011
Summary

• Waterline Design / Pre-construction
  – Phase I – Archeological Survey
  – Phase II – Archaeological Evaluation
  – Phase III – Archaeological Mitigation

• Waterline Construction Monitoring

• Hudson River Dredging, Fort Edward (Impact Mitigation)
Construction of Troy - Halfmoon Waterline

• There was a public concern in the downstream communities that dredging could resuspend PCBs in bottom sediments and affect the potable water. In response, the EPA constructed a new waterline from Troy on the east side of the Hudson River to Waterford and Halfmoon on the west side.

• The Waterline project traversed both banks of the Hudson River and associated riverine terraces and took place in an area of great archaeological sensitivity, thus requiring extensive archaeological efforts.
Construction of Troy - Halfmoon Waterline

- Waterford and Halfmoon use the river for drinking water. EPA built new water line from Troy for alternate water supply.

- Village of Stillwater has well field next to river. EPA built and operated GAC treatment for Village.
Construction of Troy - Halfmoon Waterline: Route of Waterline
Construction of Troy - Halfmoon Waterline:
Phase IA Documentary Research

The proposed waterline route was mapped on historical maps in order to evaluate archaeological sensitivity of various segments.

Source: Beers 1866
Construction of Troy - Halfmoon Waterline: Phase IB Survey

Archaeological survey along the proposed waterline utilized various investigative procedures, including shovel testing at 50-foot intervals.
In urban areas, archaeologists had to test between road beds and sidewalks.
Dickerson Street Site

- A prehistoric stone quarry was located on the east side of the Hudson River, at a location of bedrock outcrops and rock drumlins.

- Detailed archaeological investigations were conducted at the site and investigations discovered the presence of a 5,000-year-old alluvium approximately 20 feet above the current river level.
Dickerson Street Site looking west toward the river.
Dickerson Street Site: Artifacts

Chert fragments (byproducts of ancient stone tool manufacturing) observed on the ground surface on the floodplain within the Dickerson Street Site
Dickerson Street Site:
Test Pits (Phase II/III)

- Phase II evaluation and Phase III mitigation were conducted concurrently due to time critical nature of the project.

- Systematic testing at 15-foot intervals allowed the development of a site density map.
Dickerson Street Site:
Phase II/III

Trenching through prehistoric chert mine tailings.
Dickerson Street Site:
Artifact Density Map

Artifact Density Map Revealed Distinct Activity Areas
Dickerson Street Site Artifact

Mining wedge
The Water Works Prehistoric Archaeological Site is located on the west side of the Hudson River. It lies on an alluvial terrace with a complex depositional history. Phase IA indicated that this site was historically an industrial site.
Water Works Site: Phase IB

- Phase IB investigation encountered significant amounts of fill on the site.
- Phase IB was expanded to include an effort to better understand the geomorphological history of the area.
A prehistoric occupational site was discovered 4 to 7 feet bgs, below the layer of fill.
Water Works Site:
Prehistoric Hearth
Water Works Site:
Artifacts

Bifaces and scrapers
Water Works Site:
Artifacts

Flakes

Hammerstone
Archaeological Monitoring

• Additional archaeological recording can be conducted during construction
• Where access to the site is restricted until removal action is initiated
• When predictable archaeological resources are likely to be discovered during construction but are not likely to require full scale mitigation
The proposed waterline traversed sections of the Old Champlain Canal (shown on historical maps).
Archaeological Monitoring

Excavation was monitored by archaeologists when it crossed the canal.
Archaeological Monitoring

Exposed section of the canal wall was mapped and photographed.
Investigation of Fort Edward

Dredging near Roger’s Island (2009)
Investigation of Fort Edward

Section of shoreline at historical timbers recovery area (2009)
Investigation of Fort Edward

Exposed Timber
Investigation of Fort Edward

Underwater Investigation
Investigation of Fort Edward

Excavation above timbers
Investigation of Fort Edward

Timber Excavation
Investigation of Fort Edward

Dewatering
Investigation of Fort Edward

Clean gravel fill delivered by barge and clam dredge
Investigation of Fort Edward

Timbers removed during dredging
Investigation of Fort Edward

Timber PCB Sampling
Investigation of Fort Edward

Interpretation of Finds: 1757 map

Historical research shows configuration of SW bastion and associated dock feature
Timber Curation

Timber curation at LCMM
Dendrochronology

Extracting samples