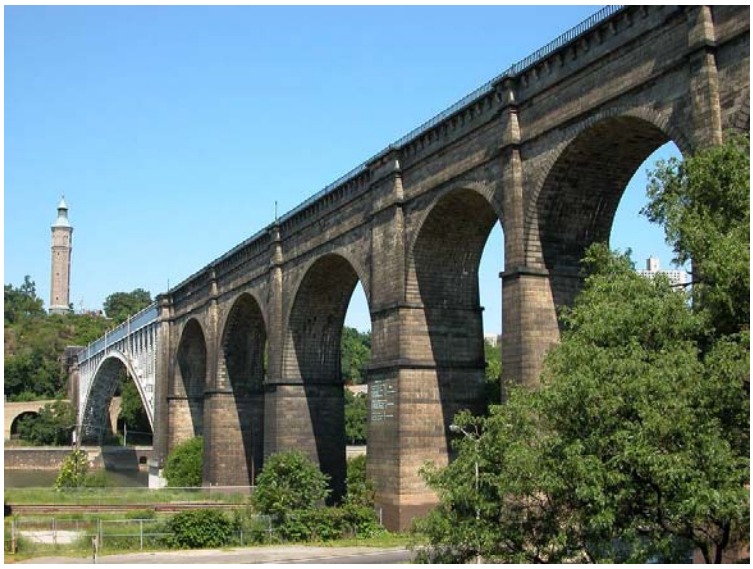
HISTORIC STRUCTURES REPORT FOR

HIGH BRIDGE

BRONX AND MANHATTAN, NEW YORK



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APRIL 25, 2012

VOLUME III
APPENDICES I-O

APPENDIX I
ENVIRONMENTAL AND HAZMAT REPORTS

1. Limited Phase Environmental Site Assessment
   Environmental Planning and Management, Inc., July, 2010, reissued August 2010 and October 2010
2. Draft Asbestos, Lead-Based Paint, Universal Wastes & Other Hazardous Materials Survey Report
   Environmental Planning and Management, Inc., July, 2010

LIMITED PHASE I ENVIRONMENTAL SITE ASSESSMENT

REHABILITATION OF THE HIGH BRIDGE OVER THE HARLEM RIVER
BOROUGHS OF MANHATTAN AND BRONX, NEW YORK
BIN 2-24658-0
DPR Contract No. M037-707MPlaNYC
EPM Project #10018

Prepared For:

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For Submittal To:

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July, 2010
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Environmental Planning and Management, Inc. (EPM) as a subconsultant to Lichtenstein Consulting Engineers, P.C. has performed a Modified Phase I Environmental Site Assessment (ESA) on behalf of the New York City Department of Parks and Recreation (NYCDPR) in connection with Contract No. M037-707M- PlaNYC -T*he Rehabilitation of the High Bridge Aqueduct.* The High Bridge Aqueduct spans the Harlem River from the Borough of Manhattan to the Borough of the Bronx, New York (the subject site/bridge). NYCDPR is planning to rehabilitate the historic landmark to prolong the existing life of the structure and reopen it to the public for use as a pedestrian thoroughfare inclusive of handicap accessible ramps. This ESA was conducted to identify potential sources of soil contamination that could impact the construction/excavation phase of the project. The site reconnaissance was conducted by EPM representative Darren Frank in March, 2010.

This assessment consisted of visual on-site inspections of the project site/bridge in March 2010; examination of historic Sanborn Maps (Sanborn fire insurance maps dating to 1891) for such uses as gasoline stations, electric substations, gasworks, chemical works, metal fabricators, and other historic activity that could have impacted underlying soil or groundwater; a review of maps and figures excerpted from a Phase IA Archaeological Documentary Study conducted by others and provided by the NYCDPR; and review of available Federal, State, and local agency environmental records. An area of environmental concern was identified based on two criteria, 1) the known or suspected presence of hazardous materials, and 2) the potential for a suspected or known hazardous material site to impact the design alternative.

The preferred design alternative has not been chosen at the time of the issuance of this report. The preliminary design includes but is not limited to the potential rehabilitation of the east and west abutments to include an access ramp by either utilizing the existing bridge elements, or constructing new access ramps along either the north or south face of the each abutment's retaining wall. Construction of the ramp outside the existing abutment would require excavation to set piers or columns. There is also a potential for erection of scaffolding requiring temporary footings. Excavation locations and depths will be determined as the design progresses.

The results of this assessment are used to determine if additional investigations may be warranted to characterize the actual sub-surface environmental conditions. Such additional investigations typically include the collection and laboratory analysis of soil and/or groundwater samples. The sample analysis results can be used to avoid contaminated areas if possible, identify appropriate soil and groundwater handling and disposal options, and identify appropriate public and worker health and safety precaution to be employed during excavation/construction activities.

Result Summary

EPM noted observations regarding the presence of aboveground and underground storage tanks (ASTs/USTs), storage of toxic or hazardous materials, illegal dumping, visual evidence of spills or mishandling of hazardous or toxic materials, and current land uses. EPM's site reconnaissance included the visual inspection of accessible exterior areas of the properties abutting and near the project site. Inspectors were alert to noxious odors; discolored soil or

water; dead, stressed, or missing vegetation; unexplained changes in topography; leaking pipes, transformers, or containers; and, other conditions which have the potential to adversely impact the environmental quality of the project site.

The western portion of the project site is abutted by Highbridge Park, which includes a large grass field, a historic water tower, two adjacent swimming pools, and the Highbridge Recreation Center. The recreation center is situated on the western portion of the park along Amsterdam Avenue, and was observed with a fill port in the ground indicative of an UST. East of Amsterdam Avenue, the area is developed with multi-story residential buildings with street level commercial retail space and eateries. The area immediately surrounding the west abutment and decommissioned gate house was observed with a steep gradient terrain of trees, brush and exposed bedrock. A small metal shed and litter was observed immediately south of the west abutment retaining wall; the north side was observed with evidence of a previous structure (concrete and stone retaining walls/foundation) and limited litter. The area immediately west of the gatehouse is a concrete paved walkway. The project bridge from the west abutment spans the Harlem River Drive and service ramps, then the Harlem River.

East of the Harlem River, the project bridge traverses a Metro-North Railroad right-of-way, the Major Deegan Expressway, Sedgwick Avenue, and then an ascending steep-gradient terrain of trees and brush up to University Avenue, where the eastern abutment is situated. A gasoline filling station is located on the east side of Sedgwick Avenue down gradient relative to the east abutment. The east abutment was observed with a small decommissioned stone building, identified as the gate house. The area immediately surrounding the east abutment was observed with vegetation; stairs were observed immediately south which descend from University Avenue to Sedgwick Avenue. The area adjacent to the abutment includes a park with asphalt or brick paved walkways, landscape grounds, benches, and recreation tables. North of the park area is a large brick structure occupied by Samaritan Village, and east across University Avenue are multi-story residential apartment buildings; some of which were observed with fill ports suggesting the presence of petroleum storage tanks.

Historic Sanborn Fire Insurance Maps from the years 1891 to 1989 were reviewed to determine past land uses of the area of the project site/bridge. The project bridge was constructed between 1839 and 1848; as such, the first available Sanborn Map (1891) is subsequent to the first known development of the project site. The project bridge's east abutment (eastern project limit- Bronx) was identified on the 1891 map with two buildings, a gate house and an office, and stairs to the south which descend from Aqueduct (University) Avenue to Sedgwick Avenue as observed today. Adjacent north of the east abutment is a large building with smaller satellite buildings constructed prior to 1891 and later identified on the 1952 as The Carmelite Sisters Monastery.

The project bridge's west abutment (western project limit- Manhattan) was constructed on the east side of Highbridge Park. A pumping station is later identified on the northern side of the abutment with two 150-horsepower pumps, chimneys, and a conveyor tunnel leading to a coal dock located beneath the project bridge on the western shore of the Harlem River. The 1913 map identifies a High Service Pumping Station located towards the northern portion of Highbridge Park between Amsterdam Avenue and the Harlem River near West 179th Street.
(Bronx) Two gasoline filling stations appear on the 1952 map along the east side of Sedgwick

Avenue, south of the project site/bridge, in the vicinity of Depot Place.
(Manhattan) Highbridge Park was developed with a reservoir, a hotel and smaller structures, and later on the 1935 map the reservoir was identified as a wading pool and a swimming pool, inclusive of an adjacent recreation center, as observed today. Based on the presence of the pumping station with coal use northwest of the project bridge's west abutment (Manhattan), and the presence of gasoline filling stations, and railroad right-of-way east of the Harlem River (Bronx), the subsurface environmental quality of the project area has the potential to have been adversely impacted.

Prior land use in the vicinity of the subject site was supplemented through a review of maps and figures excerpted from a Phase IA Archaeological Documentary Study conducted by others and provided by the New York City Department of Parks and Recreation. The maps and figures reviewed are dated 1836, 1851, 1854, 1857, 1867, and 1868. Based on the information obtained by the review of these maps/drawings, no conditions were identified that would be deemed as obvious environmental concerns to the proposed project activities.

EPM retained Toxics Targeting, Inc., a database services firm, to conduct an 1/8-mile radii search (relative to the east and west limits of the project site) of 33 environmental databases to identify properties with documented on-site use, spills, manufacturing, handling, storage, transport or disposal of hazardous materials. The environmental database report identified:

- A total of thirty-one (31) documented hazardous material spills, two (2) of which are identified with an "Active" status and located at the Metro-North High Bridge Yard, and the Getty Gas Station on Sedgwick Avenue. Nine (9) closed status spills were identified including, a manhole on the Harlem Drive below the project bridge; Samaritan Village located north of the east abutment; and several identified at the Getty gas station on Sedgwick Avenue. These hazardous material spills are not expected to have adversely impacted the subsurface conditions in vicinity of the project bridge's abutments due to elevation differences and/or NYSDEC remarks provided.
- Twenty-seven (27) Registered Petroleum Bulk Storage Facilities are identified, including the NYCDPR High Bridge Park Pool pavilion in the vicinity of the west abutment, and Samaritan Village and the residential apartment buildings in the vicinity of the east abutment;
- Ten (10) hazardous Waste Generators are identified, one of which is the High Bridge Pedestrian Bridge (project site/bridge) listed as generating 1,760 pounds of lead in 2004; one (1) Chemical Bulk Storage Facility identified as the NYCDPR Highbridge Park Recreation Center for chlorine storage; and one air discharge site.

Based on the United States Geological Survey (USGS) Topographic Map of the Central Park, NY (Quadrangle (dated 1966, photo-revised 1979), the western abutment (west project limit) terrain is situated at approximately 100 feet above mean sea level and the eastern abutment terrain is approximately 128 feet above mean sea level. Groundwater in the vicinity of the project site, ignoring any local effects from pumping and/or manmade subsurface structures is expected to flow towards the Harlem River, at approximately 100 ft below grade at the abutments, and approximately 9 to 40 feet near the railroad right-of-way and Sedgwick Avenue respectively. Perched subsurface water likely exists in the vicinity of both abutments atop of confining natural bed rock, soil, or man made retaining structures.

Conclusions and Recommendations

The results of this modified Phase I Environmental Site Assessment has identified the potential for the conditions of the project bridge's soils to have been adversely impacted as a result of, historic coal use, debris observed, and the project bridge/site listing as a lead waste generator (presumably from lead paint blasting and repainting).

To establish actual subsurface soil quality, a detailed investigation would be necessary in areas where excavation is anticipated.

If the presence of contamination is confirmed during the Phase II Investigation, appropriate handling (Health and Safety), disposal (Handling Plan), and worker/public safety specifications must be included in the project design documents and drawings for work at these locations. If future modifications to the current project design necessitate additional excavation activities in other areas, the Phase II Investigation should assess the proposed work activities to determine if additional sampling and analysis is necessary

1.0 INTRODUCTION

1.1 Purpose and Limitations

Environmental Planning and Management, Inc. (EPM) has performed a Modified Phase I Environmental Site Assessment (ESA) in connection with the New York City Department of Parks and Recreation rehabilitation activities of the High Bridge Aqueduct. This report assesses the potential for encountering contamination during construction/excavation activities within the project area by assessing possible adverse environmental conditions associated with past or current use of the project area and surrounding properties. The results of this assessment are used to determine where additional investigations may be warranted to characterize subsurface conditions. Such additional investigations typically include the collection and laboratory analysis of soil and/or groundwater samples. The sampling can be used to avoid contaminated areas if possible, identify appropriate soil and groundwater handling and disposal options, and identify appropriate public and worker health and safety precaution to be employed during demolition/construction activities.

The findings of this assessment are preliminary; actual soil and/or groundwater sample collection and analysis have not been performed. The limits of this investigation focused on the area(s) immediately surrounding the project site particularly the bridges' abutments. EPM scientists attempted to access all surrounding properties; however there were areas that could not be accessed and fully investigated such as secured areas, private residential and commercial properties. The conclusions presented in this report are based on conditions and data observed and reviewed in March 2010.

1.2 Geographic Location

The project site spans the Harlem River from the east side of northern Manhattan Island (New York County), to the west side of southwestern Bronx County (refer to Figure-1 Site Location Map).

1.3 Methodology

This modified Phase I Environmental Site Assessment consisted of 1) a visual on-site inspection; 2) examination of historic Sanborn fire insurance maps dating to 1891 for such uses gasoline filling stations, dry cleaners, auto repair, power generating plants, petroleum refiners, and other historic commercial / industrial activity that could have impacted underlying soil or groundwater; a review of maps and figures excerpted from a Phase IA Archaeological Documentary Study conducted by others and provided by the NYCDPR and 4) a review of available Federal, State, and local agency environmental records to identify areas of environmental concern.

The assessment established which properties are suspected of containing hazardous materials and have the potential to have adversely impacted the subsurface environmental quality of the project site. Properties were considered for classification as a potential environmental concern if the properties:

- have or are suspected of having underground or aboveground storage tanks (e.g. petroleum);
- are known or suspected hazardous waste generators;
- have documented hazardous material spills;
- are currently, or historically exhibit, land use activities (e.g. manufacturing, processing, etc.) that process / store / produce toxic or hazardous material, and;
- have been investigated or issued a violation by the New York State Department of Environmental Conservation (NYSDEC).

1.4 Design Alternatives

The preferred design alternative has not been chosen at the time of the issuance of this report. The preliminary design includes but is not limited to the potential rehabilitation of the east and west abutments to include an access ramp by either utilizing the existing bridge elements, or constructing new access ramps along either the north or south face of the each abutment's retaining wall. Construction of the ramp outside the existing abutment would require excavation to set piers/columns. Additionally, proposed erection of scaffolding will require temporary footings. Excavation locations and depths will be determined as the design progresses.

1.5 Asbestos and lead Containing Materials Assessment

An Asbestos and Lead Containing Materials (ACM) Assessment has been conducted by EPM. The results of this assessment are provided in a separate, stand alone report.

Name: CENTRAL PARK
Date: 3/16/2010
Scale: 1 inch equals 1333 feet
= Geodetic Monument Location

Location: 040° 50' 34.50" N 073° 55' 50.48" W
Caption: FIGURE-1 Site Location
High Bridge Aqueduct
Manhattan - Bronx, New York

2.0 HYDROGEOLOGIC SETTING

2.1 Geology and Hydrogeology of New York and Bronx Counties

The geology of New York County (Manhattan Island) consists of a consolidated bedrock base of metamorphic rocks of pre-Cambrian age overlain by an unconsolidated layer of upper Pleistocene deposits. Over three quarters of the island is made up of the Manhattan Schist, with the Inwood Limestone present in two small areas in northern Manhattan. The Fordham Gneiss is present towards the northeast.

The Manhattan Schist is a dark-grey to black micaceous rock composed of biotite, muscovite, quartz and feldspar. The formation contains some irregular fractures and joints, by which groundwater can move; however, the Manhattan Schist is considered a poor aquifer.

The Fordham Gneiss is coarsely crystalline black and white banded rock made up of biotite and quartz. The Fordham Gneiss formation is considered a poor producer of groundwater. The Inwood Limestone is thinly bedded marble and is considered a poor producer of groundwater.

The unconsolidated materials on Manhattan are almost entirely made up of upper Pleistocene deposits. The Pleistocene deposits are composed of till and stratified drift. The till is composed of boulders, cobbles, sand, silt, and clay sized materials. The till is less than 25 feet thick in most places, and is not a good aquifer. In the southern tip and northern sections of the island there are bodies of stratified drift. The stratified drift is predominantly made up of sand-sized material and gravel, but clay may also be encountered. The drift material fills in depressions in the bedrock caused by faults and weathering and may be up to 175 feet thick. The stratified drift is considered a good producer of groundwater with pumping rates of about 150 gallons per minute. Salt water intrusion is likely in the wells producing in the drift material.

Bronx County

The geology of Bronx County is comprised of Precambrian metamorphic bedrock overlain by a thin veneer of Pleistocene and Holocene deposits. The bedrock found throughout the county is metamorphic and generally of three formations: Manhattan schist, Fordham gneiss, and Inwood marble. The Manhattan schist is a dark-grey to black micaceous rock found generally in the eastern two-thirds of the Bronx. The Fordham gneiss is a coarsely crystalline black and white-banded rock found in the western third of the county. The Inwood limestone is a grey to white coarsely crystalline rock found mainly in the low-lying valleys and river channels. Overlying the bedrock is a thin veneer of unconsolidated till deposited from the last glacial advance from the Pleistocene period. Till is a soil type comprised of unsorted sediments that vary in grain size from boulders to clay. The thickness of the till deposits are thin, ranging from approximately 2 to 10.7 m. The till and bedrock found in Bronx County are generally not considered good aquifers. The gneiss and schist, being tightly foliated crystalline rock are not good sources of groundwater, and when drilled, produce small to moderate amounts. The marble, however, is a coarse-grained, weakly metamorphosed rock, which in some instances has been classified as its parent material, limestone. The water bearing qualities of limestone makes the marble Bronx County's best aquifer

2.2 Site Specific Geology and Hydrogeology

The project site spans the Harlem River and valley from the north-northeast portion of Manhattan Island to the southwestern area of the Bronx. The project site/bridge is situated upon the upper Pleistocene ground moraine deposits (till) which rest above the Fordam Gniess. Based on the United States Geological Survey (USGS) Topographic Map of the Central Park, NY (Quadrangle (dated 1966, photo-revised 1979), the western abutment (west project limit) terrain is situated at approximately 100 feet above mean sea level and the eastern abutment terrain is approximately 128 feet above mean sea level. Groundwater in the vicinity of the project site, ignoring any local effects from pumping and/or manmade subsurface structures is expected to flow towards the Harlem River, at approximately 100 ft below grade at the abutments, and approximately 9 to 40 feet near the railroad right-of-way and Sedgwick Avenue respectively. Perched subsurface water likely exists in the vicinity of both abutments atop of confining natural bed rock, soil, or man made retaining structures.

3.0 CONTAMINATED MATERIALS ASSESSMENT

3.1 Past and Current Land Use

Prior land use in the project area was established, when possible, in order to determine the potential for contamination from past industrial and commercial uses such as dry cleaning, gasoline filling and service stations, and chemical or petroleum use, etc. The project area is located in a commercial/residential urban setting. Existing operations observed within the project area include: a park, railroad right-of-way, gasoline filling station, and multi-story residential apartment buildings.

3.2 Site Inspection

EPM representatives conducted a visual reconnaissance of the project area in March 2010 and noted observations regarding the presence of aboveground and underground storage tanks (ASTs/USTs), storage of toxic or hazardous materials, illegal dumping, visual evidence of spills or mishandling of hazardous or toxic materials, and current land uses. EPM's site reconnaissance was limited to the visually accessible exterior areas of the properties abutting and near the project site. Inspectors were alert to noxious odors; discolored soil or water; dead, stressed, or missing vegetation; unexplained changes in topography; and, leaking pipes, transformers, or containers.

The western portion of the project site is abutted by Highbridge Park, which includes a large grass field, a historic water tower, two adjacent swimming pools, and the Highbridge Park Recreation Center. The Recreation Center is situated on the western portion of the park along Amsterdam (approximately 660-feet west of the west abutment), was observed with a fill port in the ground indicative of an UST. East of Amsterdam Avenue, the area is developed with multi-story residential buildings with street level commercial retail space and eateries. The area immediately surrounding the west abutment and decommissioned gate house was observed with a steep gradient terrain of trees, brush and exposed bedrock. The west abutment elevation is approximately 100 feet below the grade relative to Amsterdam Avenue, and approximately 100 feet in elevation relative to the Harlem River. A small metal shed and litter was observed immediately south of the west abutment retaining wall; the north side was observed with evidence of a previous structure (concrete and stone retaining walls/foundation) and limited litter. The area immediately west of the gatehouse is concrete paved walkway. The project bridge from the west abutment spans the Harlem River Drive and service ramps, then the Harlem River.

East of the Harlem River, the project bridge traverses Metro-north Railroad right-of-way, the Major Deegan Expressway, Sedgwick Avenue, and then an ascending steep-gradient terrain of trees and brush up to University Avenue, where the eastern abutment is situated. A gasoline filling station is located on the east side of Sedgwick Avenue approximately 220 feet south of the project site/bridge, and approximately 290 feet southwest at approximately 60 vertical feet down gradient relative to the east abutment. The east abutment was observed with a small stone building, identified as a gate house. The area immediately surrounding the east abutment was observed with vegetation; stairs are present immediately south which descend from University

Avenue to Sedgwick Avenue. The area adjacent to the abutment includes a park with concrete or brick paved walkways, landscape grounds, benches, and recreation tables. North of the park area is a large brick structure occupied by Samaritan Village, and east across University Avenue are multi-story residential apartment buildings; some of which were observed with fill ports suggesting the presence of petroleum storage tanks. Select photographs are provided as Appendix A.

3.3 Historical Map Review

3.3.1 Historic Sanborn Fire Insurance Map Review

Prior land use in the vicinity of the subject site was ascertained through a review of Historic Sanborn Fire Insurance Maps. The Sanborn Maps were available for the years 1891, 1893, 1909, 1913, 1922, 1928, 1935, 1951, 1952, 1977, and 1989. The conditions observed on the Sanborn Maps are summarized below. Copies of the maps are provided in Appendix B.

1891 Sanborn Map

The 1891 Sanborn Map includes coverage of the project site east of the Harlem River (Bronx County) and identifies the current project bridge (High Bridge Aqueduct). The project bridge is situated in an east-west orientation and traverses the Harlem River, New York Central & Hudson River Railroad, and the New York & Northern Railroad right-of-way (ROW), which run parallel and abut the Harlem River to the east. The project bridge continues over Sedgwick Avenue and ultimately terminates immediately west of Aqueduct Avenue. The eastern project area in general is minimally developed as evidenced by the unmodified properties. With exception to the following: The project bridge's east abutment (eastern project limit) is modified with two buildings, a gate house and an office, and stairs to the immediate south which descend from Aqueduct Avenue to Sedgwick Avenue as observed today. Smaller buildings are present immediately east of the office within the boundaries of Aqueduct Avenue. Adjacent north of east abutment is a large building structure with smaller satellite buildings; the occupants of this property are not identified. A hotel is depicted on Depot Place located south of the project site/bridge and west of Sedgwick Avenue. North of the project site/bridge is a park depicted with a carousel, small building structures, a pedestrian bridge traversing the railroads' ROW and leads to a pavilion located on the eastern shore of the Harlem River.

1893 Sanborn Map

The 1893 Sanborn Map includes coverage of the project site west of the Harlem River (New York County-Manhattan) and identifies the current project bridge. The project bridge terminates west of the Harlem River Drive, at the eastern portion of Highbridge Park bounded to the west by Amsterdam Avenue. The project bridge's west abutment (western project limit) is modified by an "engine house" depicted on the north side of the abutment with three black rectangles suspected to be pumps. A structure which appears to be the present day water tower is shown between the reservoir and project site/bridge. The High Bridge Park is modified with a "reservoir", a hotel and other smaller structures scattered on the northern portion of the park. The properties east of Amsterdam Avenue are predominately unmodified.

1909 Sanborn Map

The 1909 Sanborn Map includes coverage of the project site east of the Harlem River (Bronx County). Conditions observed are similar to the 1891 map with exception to the following: a

train station (High Bridge Station) appears along Depot Place over the previously mentioned railroad ROW; and the previously mentioned park north of the project site is no longer shown. The previously mentioned building immediately north of the east abutment is identified as "vacant". The area further south of High Bridge shows a Police Station located on Sedgwick Avenue as observed today, and a coal yard on the northwest corner of the intersection of West 167th Street and Sedgwick Avenue.

1913 Sanborn Map

The 1913 Sanborn Map includes coverage of the project site west of the Harlem River (New York County-Manhattan). Conditions observed are similar to the 1893 map with exception to the following: The previously identified "engine house" is now identified as a pumping station with two 150-horsepower pumps, chimneys, and a conveyor tunnel leading to a coal dock located beneath the project bridge on the western shore of the Harlem River. The previously mentioned hotel and structures in High Bridge Park are no longer depicted. North of High Bridge Park is a High Service Pumping Station located between Amsterdam Avenue and the Harlem River near West 179th Street.

1922 and 1928 Sanborn Maps

The 1922 and 1928 Sanborn Maps depict the entire project site (east and west limits) and area south. Although these maps are not as detailed or provide the exact same coverage as the previous maps; the properties shown in the immediate vicinity of the project site/bridge appear consistent with the conditions of the previous maps.

1935 Sanborn Map

The 1935 Sanborn Map includes coverage of the project site west of the Harlem River (New York County-Manhattan). Conditions observed are similar to the previous maps with exception of the previously identified reservoir in High Bridge Park is now a complex including a wading pool, a swimming pool, and a pavilion, as observed today. The previously mentioned coal dock associated to the High Service Pumping located north of High Bridge Park, is no longer depicted.

1951 Sanborn Map

The 1951 Sanborn Map includes coverage of the project site west of the Harlem River (New York County-Manhattan). Conditions observed are similar to the previous maps with exception of the previously identified High Service Pumping located north of High Bridge Park is no longer depicted.

1952 Sanborn Map

The 1952 Sanborn Map includes coverage of the project site east of the Harlem River (Bronx County). The properties east of the eastern project limit have been developed with 5 and 6-story residential apartment buildings. The previously identified Aqueduct Avenue is now identified as University Avenue, and the building(s) located immediately north of the east abutment are occupied by The Carmelite Sisters Monastery. Two gasoline filling stations appear for the first time along the east side of Sedgwick Avenue, south of the project site/bridge, in the vicinity of Depot Place. A structure identified as James R. Norton Concrete Co. is shown on the east shore of the Harlem River south of Depot Place. A number of private dwellings appear for the first time in the neighborhood. Auto garages are shown located near the Police Station.

1977 Sanborn Maps

The 1977 Sanborn Maps depict the entire project site (east and west limits) and the surrounding area. Conditions observed are similar to the 1951 and 1952 maps with exception to the following: the previously mentioned pumping house at the project bridge's west abutment and the associated coal dock are no longer present. The Major Deegan Expressway appears for the first time in a north-south direction beneath the project bridge, west of Sedgwick and parallel to the railroad ROW as it appears today. The Alexander Hamilton Bridge (AHB) and associated ramps appear for the first time, north of the project site/bridge, traversing Sedgwick Avenue, the Major Deegan Expressway, railroad ROW and the Harlem River.

1989 Sanborn Maps

The 1989 Sanborn Maps depict the entire project site (east and west limits) and the surrounding area. Conditions observed are similar to the 1977 maps with exception of the High Bridge Train Station previously identified on Depot Place is no longer present, and an elevated ramp structure was constructed at the western terminus of Depot Place providing access to Exterior Street located between the Harlem River and railroad ROW.

Based on the review of available Sanborn Fire Insurance Maps from 1891 to 1989 the project bridge was constructed prior to 1891. The project bridge is situated in an east-west orientation and traverses the Harlem River, New York Central & Hudson River Railroad, and the New York & Northern Railroad right-of-way (ROW), which run parallel and abuts the Harlem River to the east. The project bridge continues over Sedgwick Avenue and ultimately terminates immediately west of Aqueduct Avenue (present day University Avenue). The project bridge's east abutment (eastern project limit) was identified in 1891 with two buildings, a gate house and an office, and stairs to the south which descend from Aqueduct Avenue to Sedgwick Avenue as observed today. North of the east abutment is a large building with smaller satellite buildings constructed prior to 1891 and later identified in 1952 as The Carmelite Sisters Monastery. The project bridge's west abutment (western project limit) was constructed on the east side of High Bridge Park. A pumping station is later identified on the northern side of the abutment including two 150-horsepower pumps, chimneys, and a conveyor tunnel leading to a coal dock located beneath the project bridge at the western shore of the Harlem River. The 1913 map identifies a High Service Pumping Station located towards the northern portion of High Bridge Park between Amsterdam Avenue and the Harlem River near West 179th Street. Two gasoline filling stations appear on the 1952 map along the east side of Sedgwick Avenue, south of the project site/bridge, in the vicinity of Depot Place. Highbridge Park was developed with a reservoir, a hotel and smaller structures, and later on the 1935 map the reservoir was identified as wading pool and a swimming pool, inclusive of an adjacent recreation center, as observed today. Based on the presence of the pumping station with coal use northwest of the project bridge's west abutment, and the presence of gasoline filling stations, and railroad right-of-way east of the Harlem River, the subsurface environmental quality of the project area has the potential to have been adversely impacted.

3.3.2 Phase IA Archaeological Documentary Study Map Review

Prior land use in the vicinity of the subject site was supplemented through a review of maps and figures excerpted from a Phase IA Archaeological Documentary Study conducted by others and provided by the New York City Department of Parks and Recreation. The maps and figures

reviewed are dated 1836, 1851, 1854, 1857, 1867, and 1868 (provided as Appendix C); the conditions observed are summarized as follows:

1836 – *[Figure 6) Topographical Map of the City and Country of New York, and Adjacent Country (Colton 1836)*. The map includes the land in the vicinity of the current High Bridge aqueduct. The Harlem River and its banks are depicted. The surrounding land appears undeveloped with the exception of a structure identified as Fort George located towards the northern portion of today's Highbridge Park. Also shown is the Croton River Aqueduct which extends north from the future location of the High Bridge Aqueduct's (project bridge) eastern abutment and then extends south of the project bridge's future western abutment. A structure if any, which connects the two segments of the aqueduct from one side of the Harlem River to the other, is not discernable.

1851 – *[Figure 7] Map of Westchester County, New York (Sidney and Neff 1851).* The conditions observed are similar to the previous 1836 Topographical map; with the exception of the Croton Aqueduct is depicted as traversing the Harlem River. Based on the construction date of the aqueduct and project bridge (1837-1842 and 1839-1848 respectively) the structure is likely the project bridge. Near the eastern abutment a hotel is identified. Also shown east of the Harlem River are limited trails/roads and small black squares, presumably representing structures/dwellings.

1854-1855 – *[Figure 8] New York City and Manhattan Island (U.S.C.S. 1854-5).* Due to the poor reproduction of the map, the conditions/development can not be described.

1857- *[Figure 9] Map of lands in the County of Westchester Belonging to Richard F. Carman, John Lowery, and Archibald H. Lowery (Nicholson 1857).* This map appears to be a land survey map depicting meets and bounds of properties in the immediate vicinity of the High Bridge Aqueduct. The previously mentioned hotel near the eastern abutment is still identified; other additional structures are depicted south of the project bridge near the eastern banks of the Harlem River. The previously mentioned Fort George structure, appears to have a different foot print, and is no longer identified as "Fort George".

1867 – *[Figure 12] Plan of New York City, from the Battery to Spuyten Duyvil Creek (Harrison 1867).* This map/drawing encompasses the land immediately surrounding the High Bridge Aqueduct. The Manhattan side (Highbridge Park) is identified with a hotel, several smaller structures, a reservoir and water tower immediately west of the western abutment. No coverage or structures are identified east of the Harlem River (see 1868 Map observations below).

1868 - *[Figure 13] Atlas of New York and Vicinity (Beers 1868).* This map depicts development of the Bronx in the vicinity of the High Bridge Aqueduct. The conditions observed are similar to the previous maps; however many more suspect dwellings are shown. This map also shows more development of trails/roads.

Based on the information obtained by the review of the Phase IA Archaeological Documentary Study Maps, no conditions were identified that would be deemed as obvious environmental concerns to the proposed project activities.

3.4 Environmental Database Search

EPM retained Toxics Targeting, Inc., a database services firm, to conduct a database radius search of the project area and compile computerized listings of the following databases to assist in identifying sites within the vicinity of the project site with documented on-site use, manufacture, handling, storage, transport, or disposal of hazardous materials and other databases such as:

- Properties on the National Priority List (NPL) and the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) list;
- Resource Conservation and Recovery Act (RCRA) treatment, storage, and disposal facilities;
- Sites that are Inactive Hazardous Waste Disposal facilities, Hazardous Substance Waste Disposal facilities, solid waste facilities, or major oil storage facilities (sites storing more than 400,000 gallons of petroleum products);
- Hazardous waste generators and transporters;
- Toxic release inventory sites; air and toxic waste water discharges;
- Civil Enforcement Docket sites (sites involved in environmental litigation);
- Chemical and petroleum bulk storage facilities (under 400,000 gallons);
- Historic Utility Sites;
- Active or inactive NYSDEC hazardous material spills that have occurred within ½-mile (0.8 kilometer) radius of the project area; and,
- Emergency Response Notification System sites.

The above databases were reviewed and summarized by EPM. Site distances/directions relative to the project site as reported in the databases may have been adjusted based on actual field observations. The complete Toxics Targeting Database Report is provided as Appendix D. The potential for off-site contaminant sources (sites outside the limits of the project area) to impact the project area was determined through an analysis of groundwater flow direction; type and quantity of contaminants released; and the media impacted (i.e., soil or groundwater).

3.4.1 National Priorities Listing (NPL)

The National Priority List (NPL) is compiled by the United States Environmental Protection Agency (USEPA) pursuant to CERCLA (the Superfund Act), and includes properties with the highest priority for cleanup pursuant to EPA's Hazard Ranking System within a 1/8-mile radius of the project limits.

There are no NPL sites identified within a 1/8-mile radius of the project site.

3.4.2 NYSDEC List of Inactive or Registry Qualifying Hazardous Waste Sites

The New York State Department of Environmental Conservation (NYSDEC) maintains a list of inactive hazardous waste sites known to them that can pose environmental or public health hazards and may have required investigation or clean up.

No Inactive Hazardous Waste Sites was identified within a 1/8-mile radius of the project site.

3.4.3 RCRA Corrective Action Sites (CORRACTS)

This is a USEPA database of waste facilities cited for RCRA violations, and under corrective action activity.

There are no facilities identified on the RCRA CORRACTS list located within a 1/8-mile radius of the project site.

3.4.4 Comprehensive Environmental Response, Compensation, and Liability System

The USEPA CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System) database is a compilation of known or suspected, uncontrolled or abandoned, hazardous waste sites which the USEPA has investigated, or is currently investigating, pursuant to the Comprehensive Environmental Response, Compensation and Liability Information Act (CERCLA, a.k.a. Superfund).

There are no sites identified in the CERCLIS database within a 1/8-mile radius of the project site.

3.4.5 Brownfield Sites

This is a listing of sites that are abandoned, idled, or under-used industrial and commercial sites where expansion or redevelopment is complicated by real or perceived environmental contamination.

No Brownfield sites were identified within a 1/8-mile radius of the project site.

3.4.6 Solid Waste Facilities

Solid Waste facilities include active and inactive landfills, incinerators, transfer stations, or other solid waste management facilities.

No solid waste facilities are identified within a 1/8-mile radius of the project site.

3.4.7 Hazardous Waste Treatment, Storage or Disposal Facilities

The USEPA maintains a list of facilities which treat, store, and/or dispose (TSD) of hazardous waste, as defined by the Resource Conservation and Recovery Act (RCRA).

No Hazardous Substance Waste Disposal (HSWD) sites are identified within a 1/8-mile radius of the project area.

3.4.8 Identified Hazardous Material Spills

There are 31 documented hazardous material spills within 1/8-mile radius of the project site identified on the NYSDEC Hazardous Material Spills database. Of the 31 spills listed, two (2) are identified with an "Active" status indicating that they have not been resolved to the satisfaction of the NYSDEC. An assessment for the potential of these active spills to impact the project site was conducted by EPM utilizing the following criteria:

- The distance and direction of the spill source relative to the project site, and consideration of local geology and hydrogeology;
- The resource impacted (i.e. land, groundwater, public sewer);
- The type and quantity of material spilled (i.e. solvent or No. 6 fuel oil), and the physical potential for the material to migrate towards the project corridor.

The "Active" spills identified within a 1/8 –mile radius of the project site are listed in the following Table 1:

TABLE 1 - Active Hazardous Material Spills Within 1/8-Mile of the Project Site

Site Name / Location	Spill Number	Date	Cause	Material	Quantity (Gallons)	Dist. (ft) / Dir.	Resource Affected
Highbridge Yard Highbridge Yard Depot	9900836	4/22/1999	Tank failure	Petroleum	Unknown	630 / S	Soil
GETTY S/S #58505 1314 Sedgwick Ave.	9613862	2/26/1997	Unknown	Gasoline	Unknown	261 / ESE	Soil / Groundwater

The above active spill sites have the potential to have adversely impacted the subsurface conditions in the eastern area of the project site.

In the case of the "Inactive or closed" spills; although these spills apparently were resolved to the satisfaction of the NYSDEC, they are discussed if they occurred at the project site or in very close proximity. Of the twenty nine closed status spills identified within 1/8-mile of the Subject Site, the following spills in Table -2 are close in proximity, or large in quantity:

TABLE 2 – Closed Hazardous Material Spills							
Site Name / Location	**Spill Number**	**Date open/ closed**	**Cause**	**Material**	**Quantity (Gallons)**	**Dist. (ft) / Dir.**	**Resource affected**
Manhole #61741 Harlem River Dr./ Highbridge (Project Site)	9810409	11/17/1998 7/24/2003	Unknown	Petroleum	100	0	Soil
Samaritan Village 1381 University Ave.	0511330	12/29/2005 3/14/2006	Tank Test Failure	Petroleum	Unknown	219 / E	Soil
*GETTY S/S #58505 1314 Sedgwick Ave.	0512283	1/24/2006 1/26/2006	Equip. Failure	Petroleum	Unknown	260 / ESE	Soil

According to the spills database report, spill number 9810409 was an electric feeder fluid spill that was contained inside the manhole, did not enter any sewers or waterways, and was clean-up under the direction and supervision of NYSDEC. Based on the information reported this closed spill is not expected to have adversely impacted the subject site.

Spill number 0511330 is not considered a significant threat to the subsurface conditions of the subject site based on the additional NYSDEC remarks for this spill. The spill opened as a result of a tank test failure; gaskets were replaced at the vent lines and the tank passed a subsequent test.

*In addition to the above mentioned closed spills; Getty Gas Station at 1314 Sedgwick Avenue is listed with several closed spills from equipment failure to poor house keeping which resulted in impacted soil conditions. This site in conjunction with the mentioned active spill is a potential concern to the subsurface conditions of the eastern portion of the project site.

3.4.9 Oil Storage Facilities Larger than 400,000 Gallons

No oil storage facilities with capacities larger than 400,000 gallons were identified within a ⅛-mile radius of the project site.

3.4.10 Petroleum Bulk Storage Facilities (Greater Than 1,100 Gallons Capacity)

A search of the NYSDEC petroleum bulk storage (PBS) facilities database indicated that there are twenty seven (27) petroleum storage facilities within a 1/8-mile radius of the project site. According to the ASTM standard all adjacent or abutting PBS facilities are to be investigated. Although no properties are identified as abutting the project site, the five (5) nearest sites are listed in the following table.

Table 3 Petroleum Bulk Storage Sites						
Site Name / Location	**Tank**		**Contents**	***UST/ **AST**	**Install Date**	**Tank Status**
	#	**Gallons Capacity**				
Next Step Realty II Corp. 1350-52 University Ave.	1	3,000	#2 Fuel Oil	AST	Unknown	In-Service
1360 University Ave.	1	2,500	#6 Fuel Oil	AST	Unknown	In Service
B.L.S. Associates 190 W. 170th St.	1	5,000	#6 Fuel Oil	AST	Unknown	In Service
Samaritan Village, Inc. 1381 University Ave.	1 2	2,500 275	#2 Fuel Oil #4 Fuel Oil	UST UST	Unknown	In Service
Highbridge Pool W. 174th St. & Amsterdam Ave.	1	10,000	#2 Fuel Oil	UST	Unknown	In Service

*UST – Underground Storage Tank
**AST – Aboveground Storage Tank

The above listed PBS facilities are generally only an environmental concern if a spill number is associated to the facility, or if an UST is still present (in-service or closed in-place). Any spills associated with storage tanks are described in the hazardous material spills section of the database report. The only above sites listed with spill numbers (active and closed), are the Highbridge Pool, and Samaritan Village, Inc.

3.4.11 Federal and State RCRA Hazardous Waste Generators

The USEPA and the NYSDEC maintain a list of those persons or entities that generate hazardous waste as defined and regulated by RCRA (Resource Conservation and Recovery Act). The USEPA recognizes large quantity generators as facilities that generate more than 1,000 kg (2,200 lbs) of hazardous waste or 1kg (2.2 lbs) of acutely hazardous waste per calendar month. Small quantity generators are defined as facilities that generate between 100kg (220lbs) and 1,000kg per calendar month and accumulate less than 6,000 kg (13,200 lbs) of hazardous waste at any time. There are ten (10) registered facilities within a 1/8-mile radius of the project site as follows in Table 4:

TABLE 4 - Hazardous Waste Generators					
Site name /Address	**Violation/*Sqg/ **Lqg**	**Waste Generated**	**Quantity**	**Dist. (ft) / Dir.**	**Year Reported**
NYC DOT Highbridge Pedestrian Bridge over Harlem River (Project Site)	No/Sqg*	Lead	1,760 pounds	0	2004

TABLE 4 - Hazardous Waste Generators					
Site name /Address	**Violation/*Sqg/ **Lqg**	**Waste Generated**	**Quantity**	**Dist. (ft) / Dir.**	**Year Reported**
NYS DOT BIN 1066840 Depot Place over I-87	No/Lqg**	Not reported	Not reported	264 / SE	-
Getty Petroleum Corp. 1314 Sedgwick Ave.	No/Generator type not given	Benzene	110 gallons	283 / ESE	1997
NYSDOT BIN 1066909 I-87N to I-95S Interchange over Sedgwick Ave.	No/Lqg**	Not reported	Not reported	342 / ENE	-
Mobil Oil Corporation S.S. 1300 Sedgwick Ave.	No/Generator type not given	Not reported	Not reported	435 / SE	-
Consolidated Edison 1343 Ogden Ave.	No/Generator type not given	Lead	250 gallons	453 / ESE	2005
Consolidated Edison, Vault 0434 Ogden Ave. and W. 170th St.	No/Generator type not given	Liquid containing 500 ppm or greater of PCBs	1,196 kilograms	521 / E	1996
Consolidated Edison W. 176th St. & Harlem River Drive	No/Generator type not given	PCB Wastes including contaminated soil, solids, sludges, clothing, etc.	128 kilograms	555 / NNW	2001
Highbridge Yard – Metro North R.R. 100 Depot Plaza at Exterior St.	No/Generator type not given	Not reported	Not reported	649 / S	-
Service Station 7 NYC Police Dept. 1278 Sedgwick Ave.	No/Generator type not given	Not reported	Not reported	659 / SE	-

*Small Quantity Waste Generator
** Large Quantity Waste Generator

The project bridge/site is listed as generating lead waste (presumably from lead paint blasting and repainting) and as such the potential for lead contamination around the structure exist. The other identified generators are not considered a significant threat to the subsurface conditions of the project site due to the fact that no violations are reported (e.g storage and disposal), and the fact that the area utilizes a municipal sewer system thereby reducing the potential for waste disposal to the ground.

3.4.12 Chemical Bulk Storage Facilities

As per New York State 6 NYCRR Part 596, for regulated substances listed in 6 NYCRR Part 597, facilities which store regulated substances in aboveground tanks with capacities greater than 185 gallons, or underground tanks of any size, are required to register the chemical storage facility with the NYSDEC.

One chemical storage facility is identified within a ⅛-mile radius of the project site as follows:

- *Highbridge - NYC Dept. of Parks & Recreation,* located at 173rd St. & Amsterdam

Ave. approximately 587-feet west relative to the project site. This facility stores chlorine in one in-service aboveground 1,500 gallon storage tank that was installed in December 1986.

3.4.13 Historic Utility Sites

There are no Historic Utility Facilities identified within a ⅛-mile radius of the project site.

3.4.14 Hazardous Substance Waste Disposal Sites

There are no sites identified within a ⅛-mile radius of the project site that are identified as hazardous substance waste disposal sites.

3.4.15 Toxic Release Inventory Sites

There are no sites identified within a ⅛-mile radius of the project site that release toxic chemicals into air, land or water pursuant to Section 313 of the Emergency Planning and Community Right-to-Know Act.

3.4.16 Wastewater Discharges

NYSDEC maintains a list of permitted toxic wastewater discharge facilities. There are no toxic wastewater discharge facilities identified within a 1/8-mile radius of the Subject Site.

3.4.17 Air Discharge Facilities

The USEPA and the State of New York maintain lists of air pollution point sources known to them. There is one (1) air discharge facility identified within a 1/8-mile radius of the Subject Site:

- *Mobil*, located at 1300 Sedgwick Ave. approximately 432-feet south east relative to the project site, is classified as a facility with potential uncontrolled emissions for volatile organic compounds of less than 100 tons per year. The site is reportedly in compliance with procedural requirements.

Based on the nature of air discharges and the fact that the site is reportedly in compliance, the above site is not expected to adversely impact the subsurface conditions of the area as a result of being identified on this database.

3.4.18 US EPA Civil Enforcement Docket

The Civil Enforcement Docket database is a list of civil judiciary cases filed on behalf of the USEPA by the Department of Justice.

No USEPA Civil Enforcement Docket facilities were identified within a ⅛-mile radius of the project site.

3.4.19 New York City Environmental Quality Review Requirements ("E") Sites

New York City maintains a list of sites which are being rezoned from commercial to residential properties. Sites with an "E" designation must meet NYC DEP environmental requirements before they receive new permits under the CEQR protocols.

There are no "E" sites listed within 250-feet of the project site.

4.0 CONCLUSIONS AND RECCOMENDATIONS

Environmental Planning and Management, Inc. (EPM) as a subconsultant to Lichtenstein Consulting Engineers, P.C. has performed a Modified Phase I Environmental Site Assessment (ESA) on behalf of the New York City Department of Parks and Recreation (NYCDPR) as part of Contract No. M037-707M- PlaNYC in connection with the Rehabilitation of the High Bridge Aqueduct spanning the Harlem River from the Borough of Manhattan to the Borough of the Bronx, New York (the subject site/bridge). NYCDPR is planning to rehabilitate the historic landmark to prolong the existing life of the structure and reopen to the public for use as a pedestrian thoroughfare inclusive of handicap accessible ramps. This ESA was conducted to identify potential sources of soil contamination that could impact the construction/excavation phase of the project. The site reconnaissance was conducted by EPM representative Darren Frank in March, 2010.

This assessment consisted of visual on-site inspections of the project site/bridge in March 2010; examination of historic Sanborn Maps (Sanborn fire insurance maps dating to 1891) for such uses as gasoline stations, electric substations, gasworks, chemical works, metal fabricators, and other historic activity that could have impacted underlying soil or groundwater; a review of maps and figures excerpted from a Phase IA Archaeological Documentary Study conducted by others and provided by the NYCDPR; and review of available Federal, State, and local agency environmental records. An area of environmental concern was identified based on two criteria, 1) the known or suspected presence of hazardous materials, and 2) the potential for a suspected or known hazardous material site to impact the design alternative.

The results of this modified Phase I Environmental Site Assessment has identified the potential for the conditions of the project bridge's soils to have been adversely impacted as a result of, historic coal use, debris observed, and the project bridge/site listing as a lead waste generator (presumably from lead paint blasting and repainting).

To establish actual subsurface soil quality, a detailed investigation would be necessary in areas where excavation is anticipated.

If the presence of contamination is confirmed during the Phase II Investigation, appropriate handling (Health and Safety), disposal (Handling Plan), and worker/public safety specifications must be included in the project design documents and drawings for work at these locations. If future modifications to the current project design necessitate additional excavation activities in other areas, the Phase II Investigation should assess the proposed work activities to determine if additional sampling and analysis is necessary

APPENDIX A

Select photographs of the Project Site

ENVIRONMENTAL PLANNING & MANAGEMENT, INC.

Site Photographs		**LOCATION:** High Bridge Aqueduct **PROJECT No:** 10018 **DATE:** March 2010	
			
	Photo No. 1		**Photo No. 2**
Description: Picture looking west from the walkway atop of the project bridge. Picture shows terrain of west abutment, water tower, and relative distance to NYCDPR High Bridge Park Pool Pavilion.		**Description**: Picture looking east from water tower. Picture shows Harlem River, Metro-North railroad, and general topography of the area.	

ENVIRONMENTAL PLANNING & MANAGEMENT, INC.

Site Photographs		**LOCATION:** High Bridge Aqueduct **PROJECT No:** 10018 **DATE:** March 2010	
			
	Photo No. 3		**Photo No. 4**
Description: Picture looking west at the southwest wingwall of the western abutment. Picture shows general terrain, metal shanty and area of observed litter.		**Description**: Picture looking west at the northwest wingwall of the western abutment. Picture shows retaining walls/foundation of previous pumping station, and general terrain.	

ENVIRONMENTAL PLANNING & MANAGEMENT, INC.

Site Photographs		**LOCATION:** High Bridge Aqueduct **PROJECT No:** 10018 **DATE:** March 2010	
			
	Photo No. 5		**Photo No. 6**
Description: Picture looking south at the eastern Gatehouse and parkgrounds of the eastern project area. A smaller structure identified as an office is located out of view behind the gatehouse structure. Picture shows general conditions of the area; residential apartment buildings are left across University Avenue.		**Description**: Picture looking southwest at eastern abutment and beyond.	

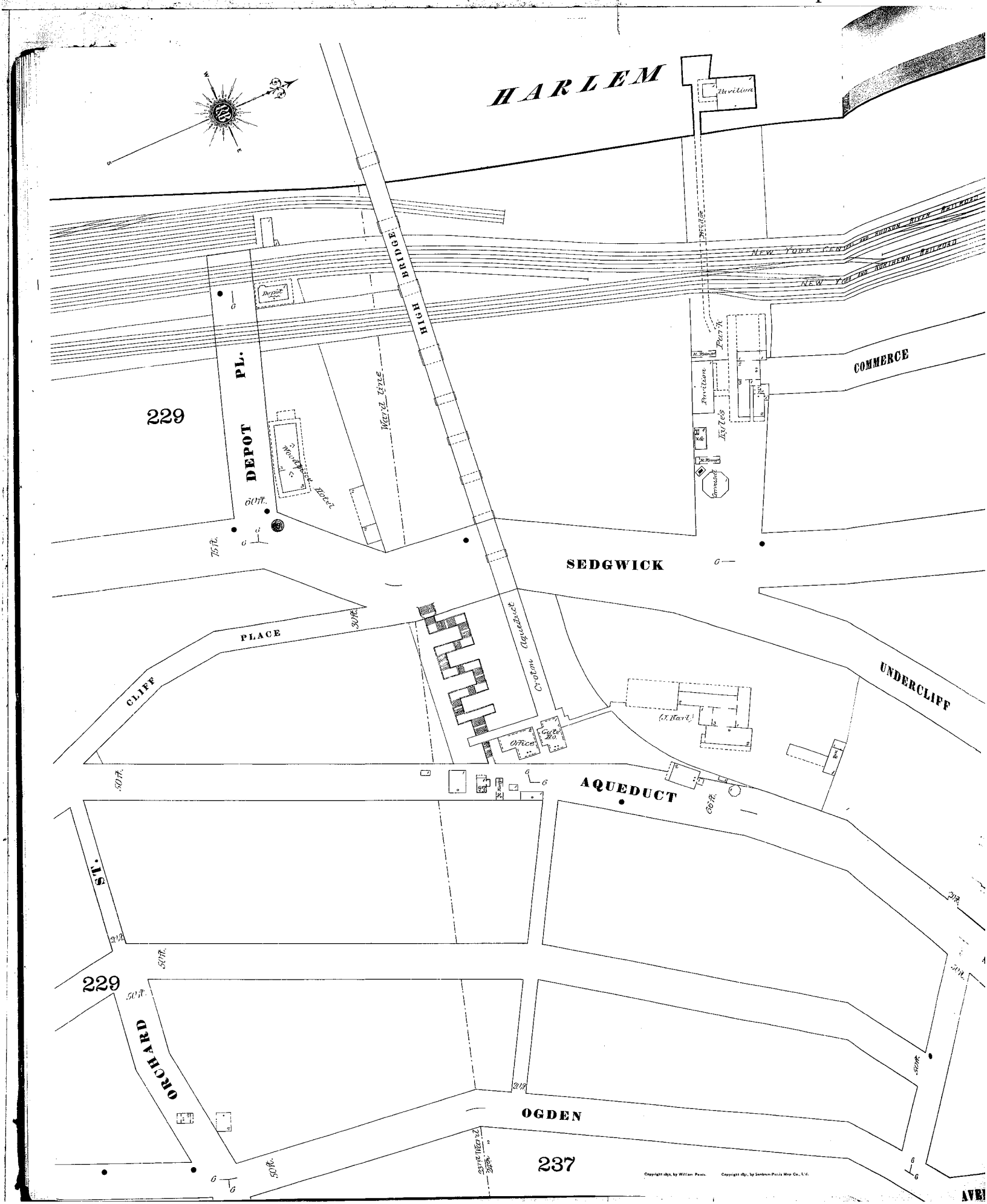
ENVIRONMENTAL PLANNING & MANAGEMENT, INC.

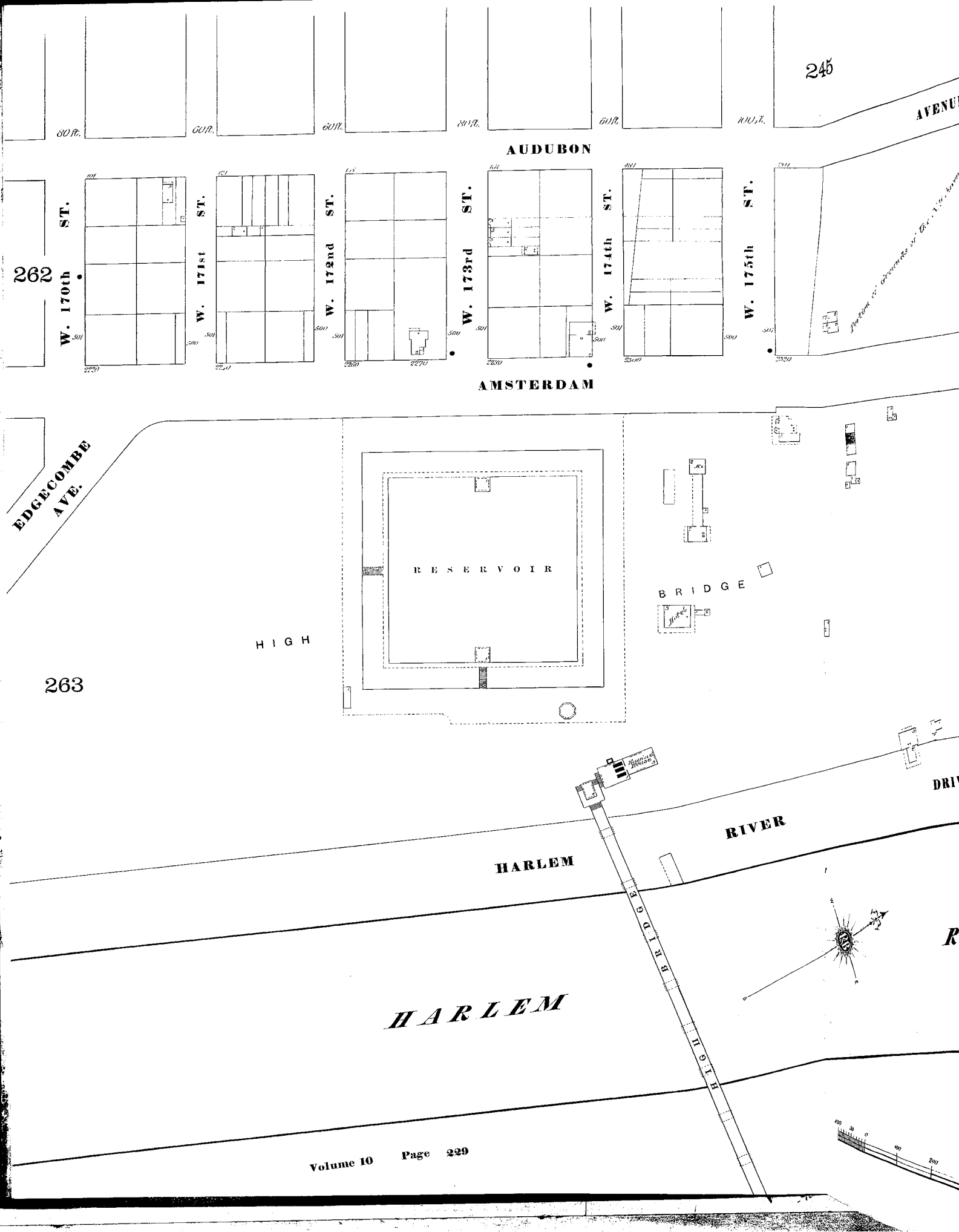
Site Photographs		**LOCATION:** High Bridge Aqueduct **PROJECT No:** 10018 **DATE:** March 2010	
			
	Photo No. 7		**Photo No. 8**
Description: Picture looking west at the southeastern wingwall of the eastern abutment. Picture shows general terrain.		**Description**: Picture looking west at northeastern wingwall of the eastern abutment. Picture shows general terrain.	

APPENDIX B

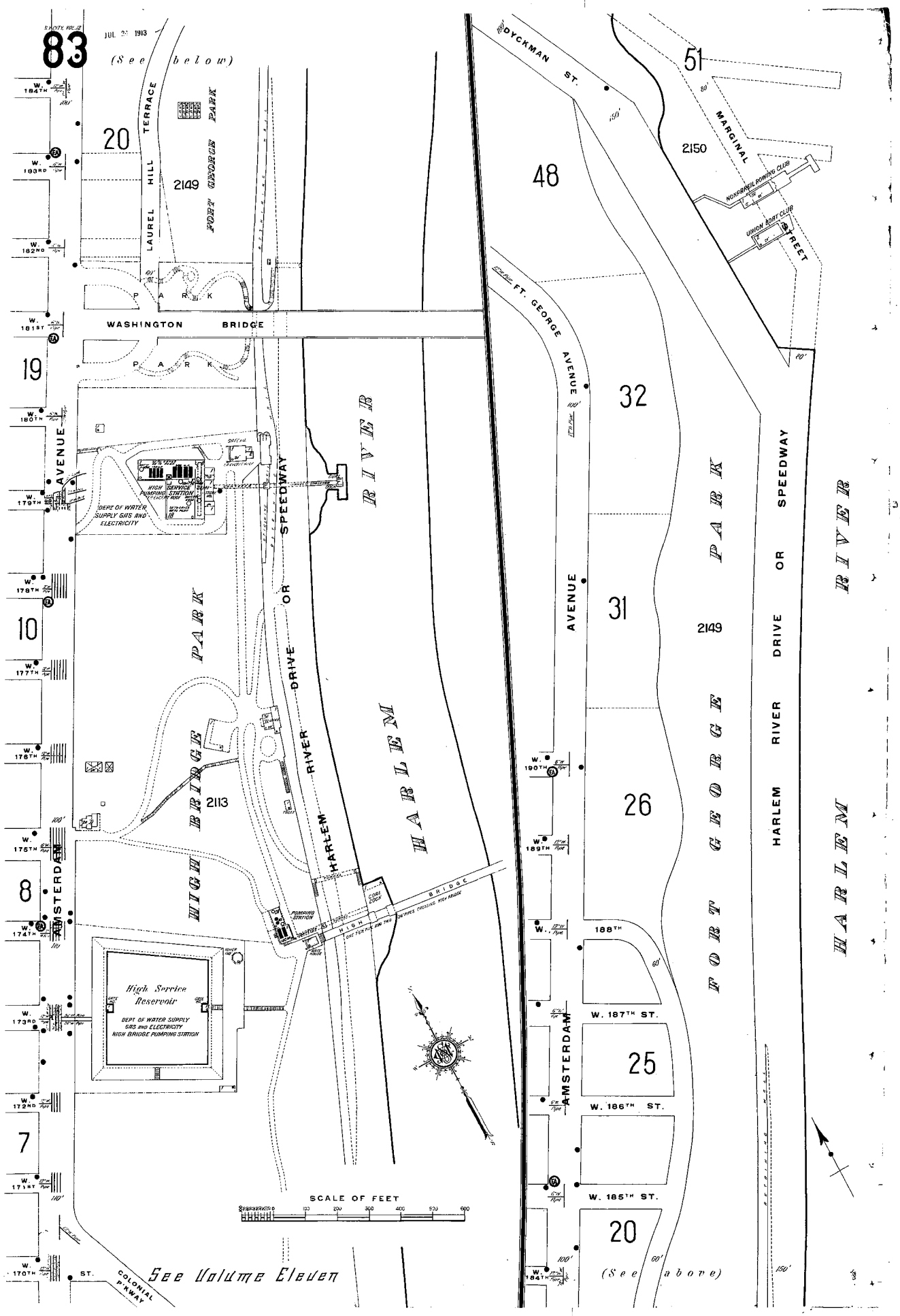
Select Sanborn Maps

1891 Sanborn Map- Bronx




245
AUDUBON
AVENUE
80 ft.
60 ft.
W. 170th ST.
W. 171st ST.
W. 172nd ST.
W. 173rd ST.
W. 174th ST.
W. 175th ST.
262
AMSTERDAM
EDGECOMBE AVE.
RESERVOIR
BRIDGE
HIGH
263
HARLEM
RIVER
HARLEM
DRIVE
HIGH BRIDGE

1913 Sanborn Map- Manhattan



1928 Sanborn Map

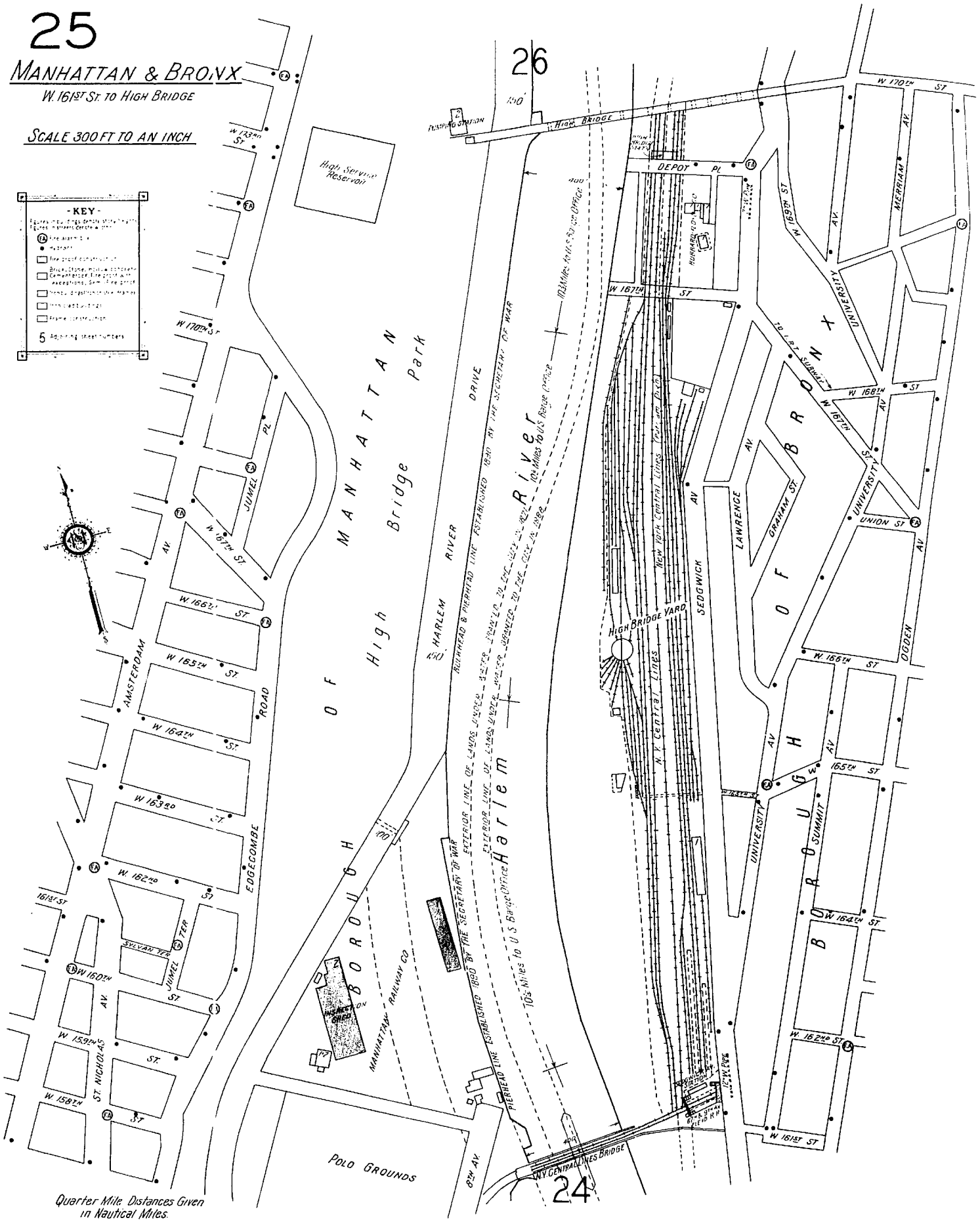
(1928)
NEW YORK HARBOR PIER MAP

25

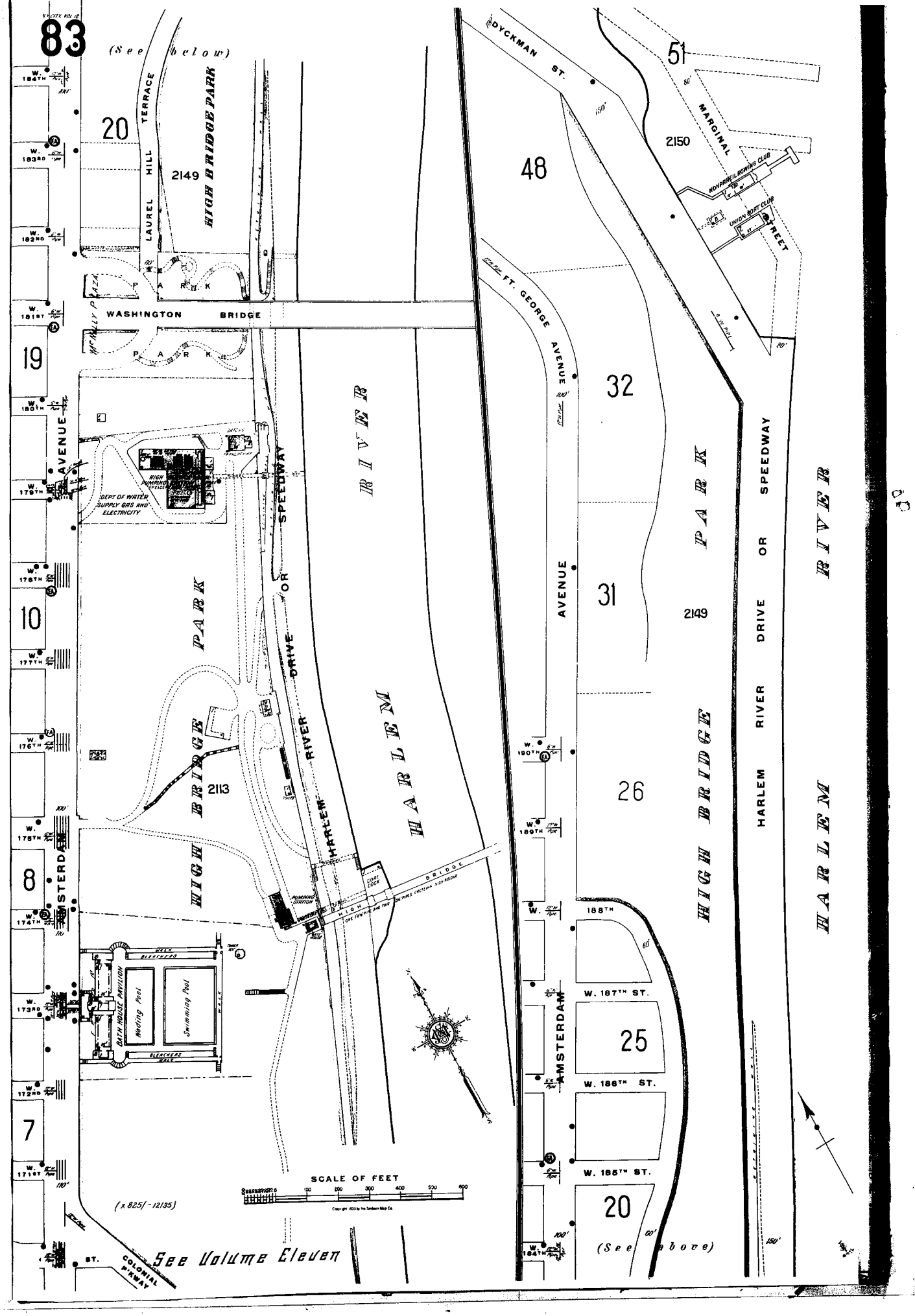
MANHATTAN & BRONX

W. 161ST ST. TO HIGH BRIDGE

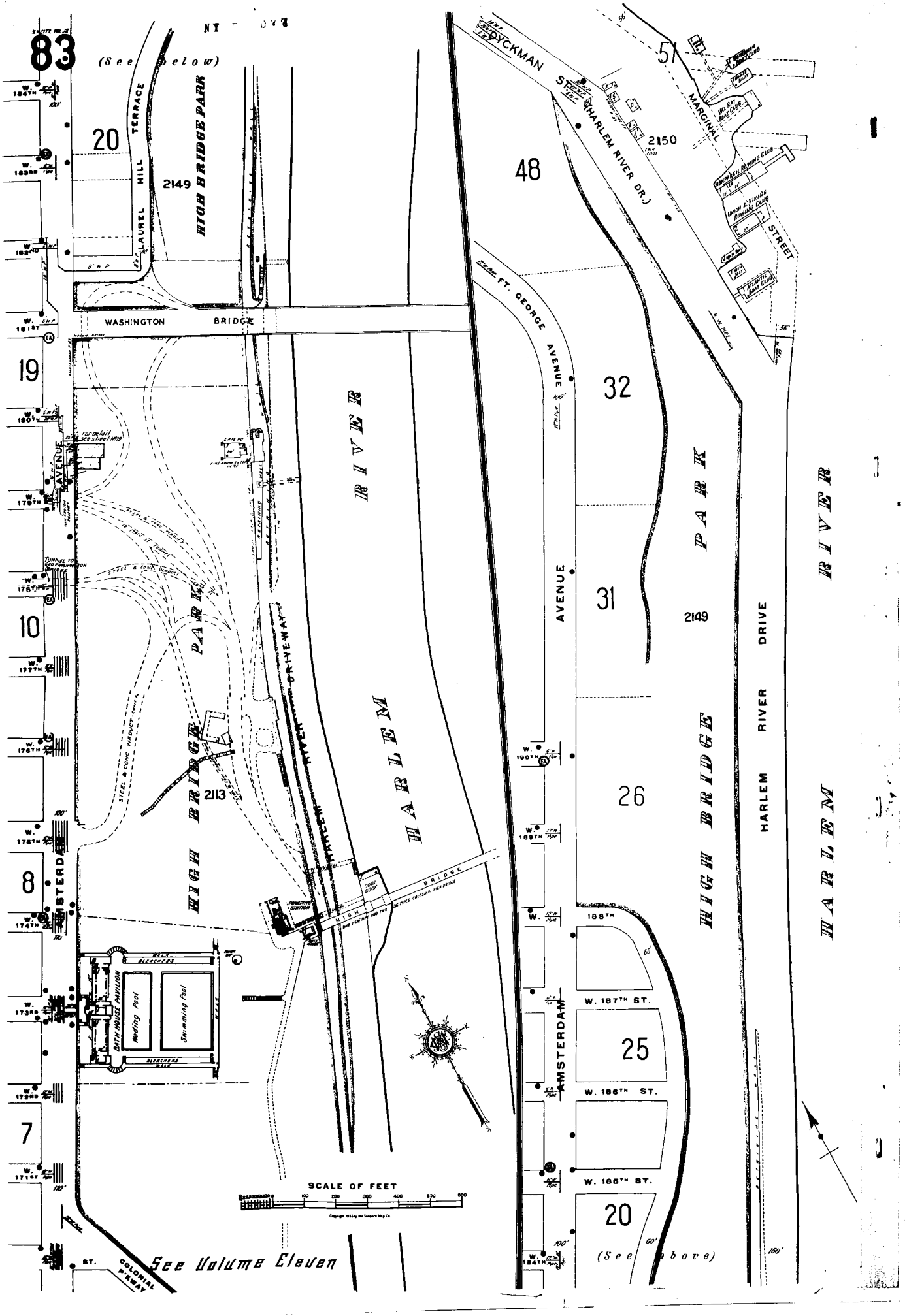
SCALE 300 FT TO AN INCH



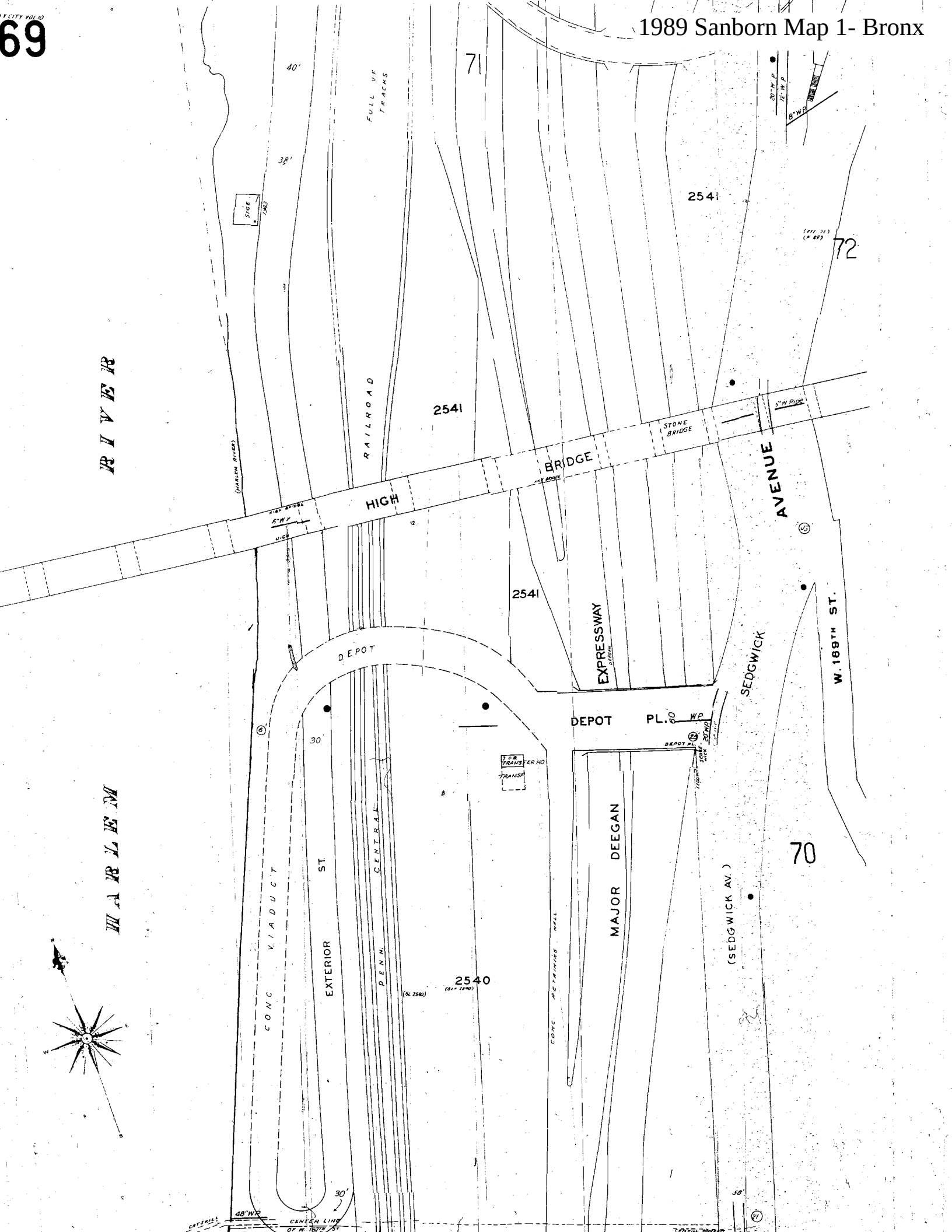
1935 Sanborn Map Manhattan



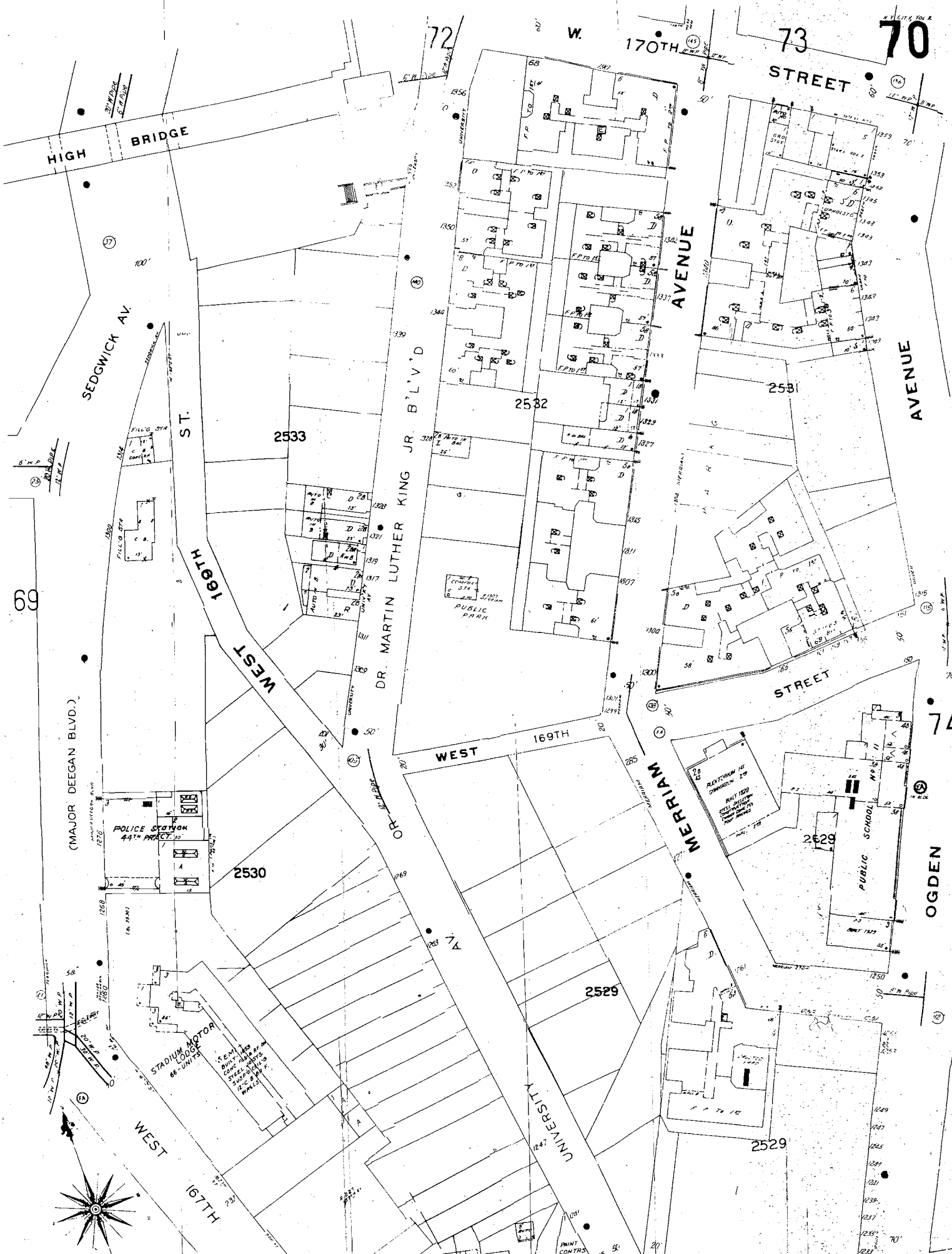
1951 Sanborn Map Manhattan



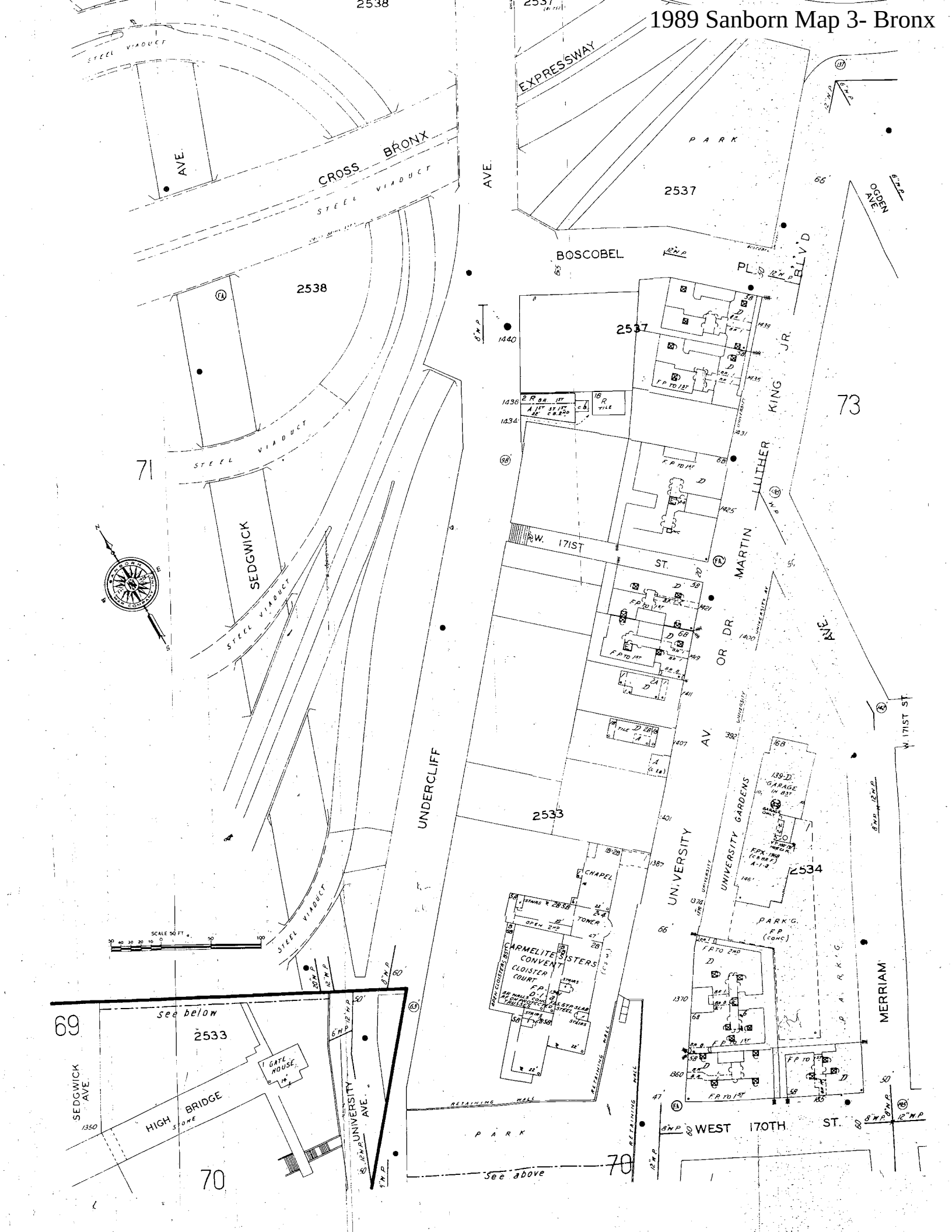
1989 Sanborn Map 1- Bronx



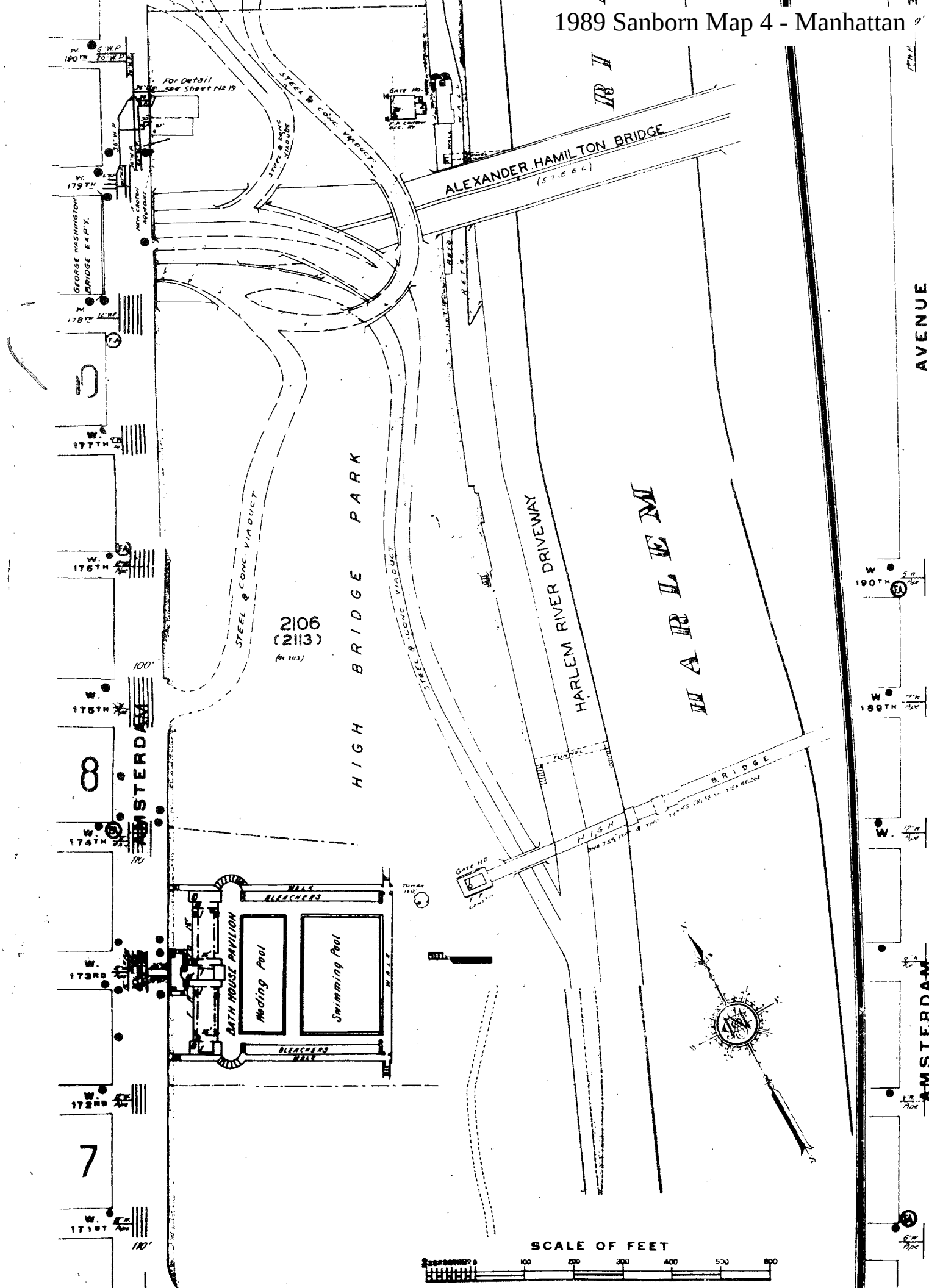
1989 Sanborn Map 2- Bronx



1989 Sanborn Map 3- Bronx

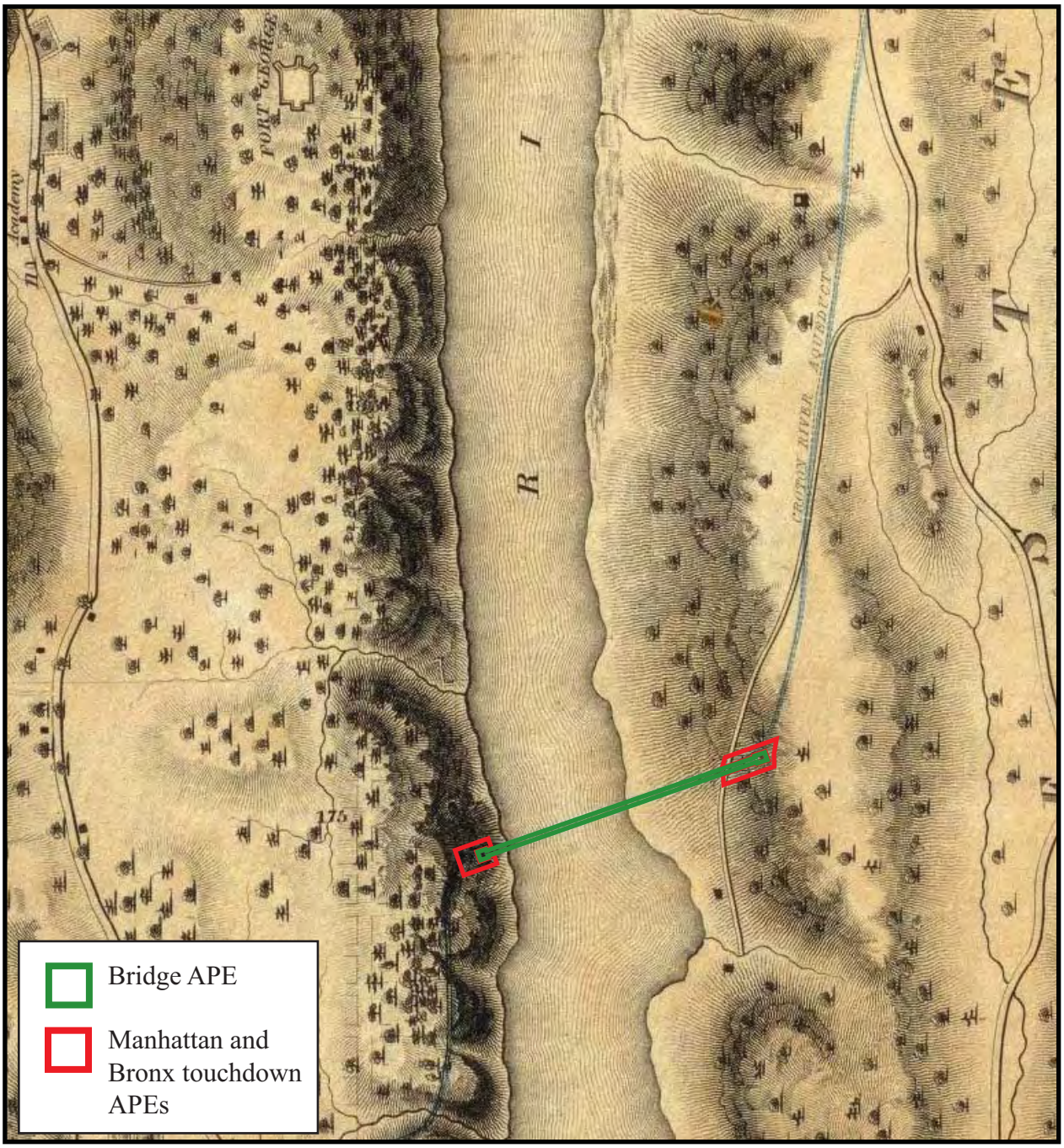


1989 Sanborn Map 4 - Manhattan



APPENDIX C

Phase IA Archaeological Documentary Study Maps

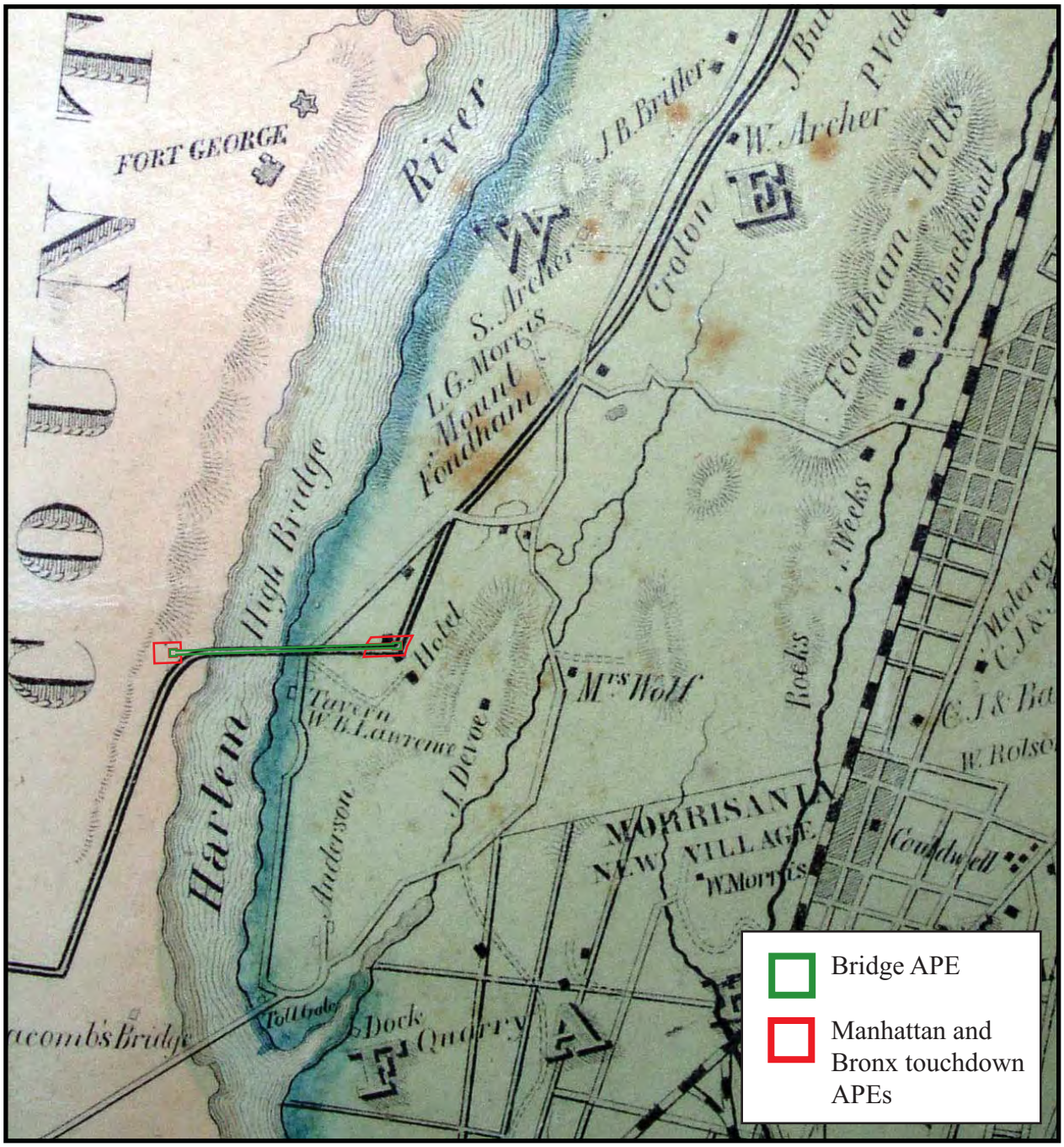


Phase IA Archaeological Documentary Study
High Bridge, Manhattan and Bronx, New York

Figure 6: ***Topographical Map of the City and Country of New York, and the Adjacent Country*** **(Colton 1836).**

N

0 400 800 1200 1600 2000 FEET

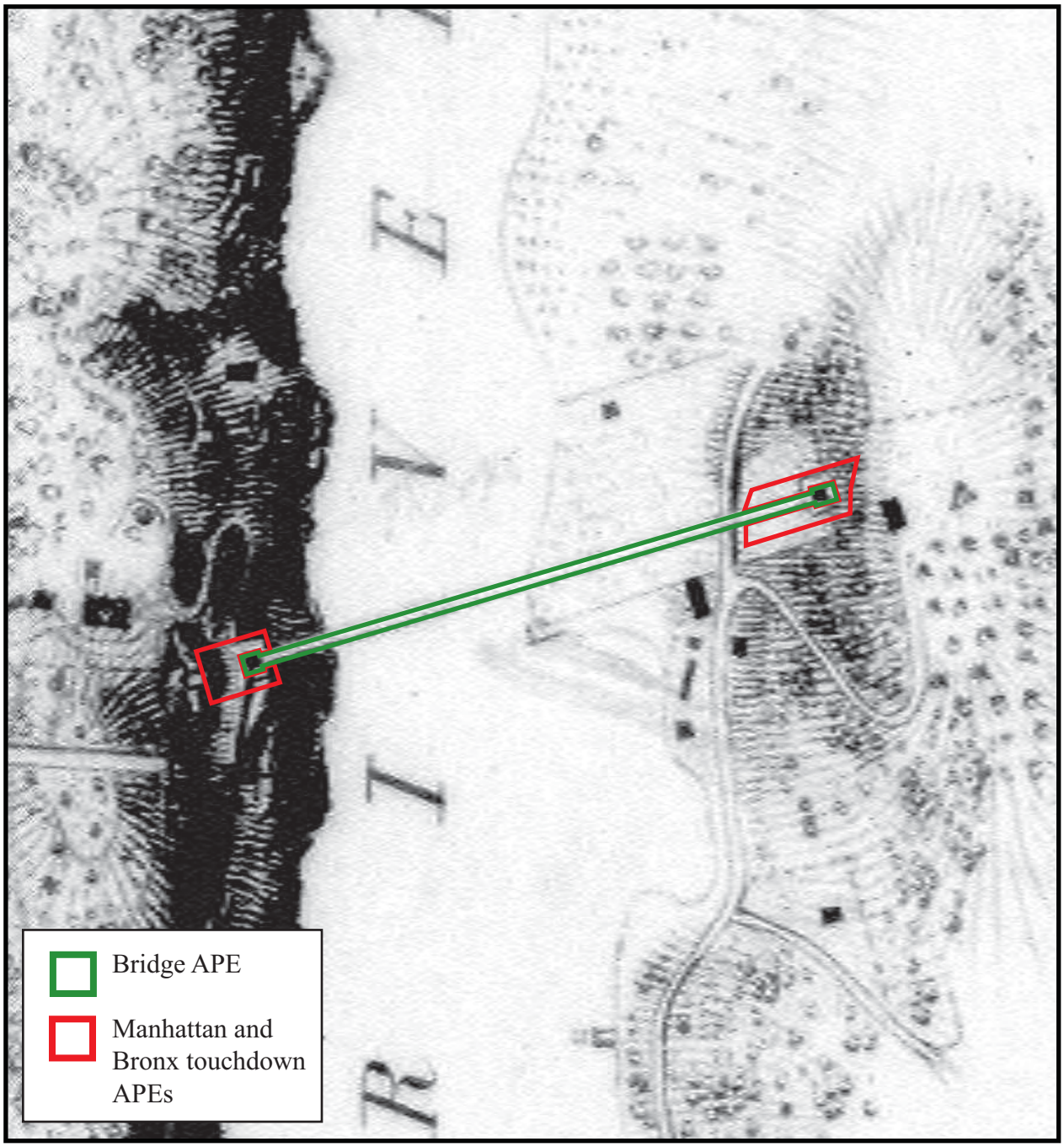


Phase IA Archaeological Documentary Study
High Bridge, Manhattan and Bronx, New York

Figure 7: ***Map of Westchester County, New York*** **(Sidney and Neff 1851).**

N

0 600 1200 1800 2400 3000 FEET



Phase IA Archaeological Documentary Study
High Bridge, Manhattan and Bronx, New York

Figure 8: ***New York City and Manhattan Island*** **(U.S.C.S. 1854-5).**

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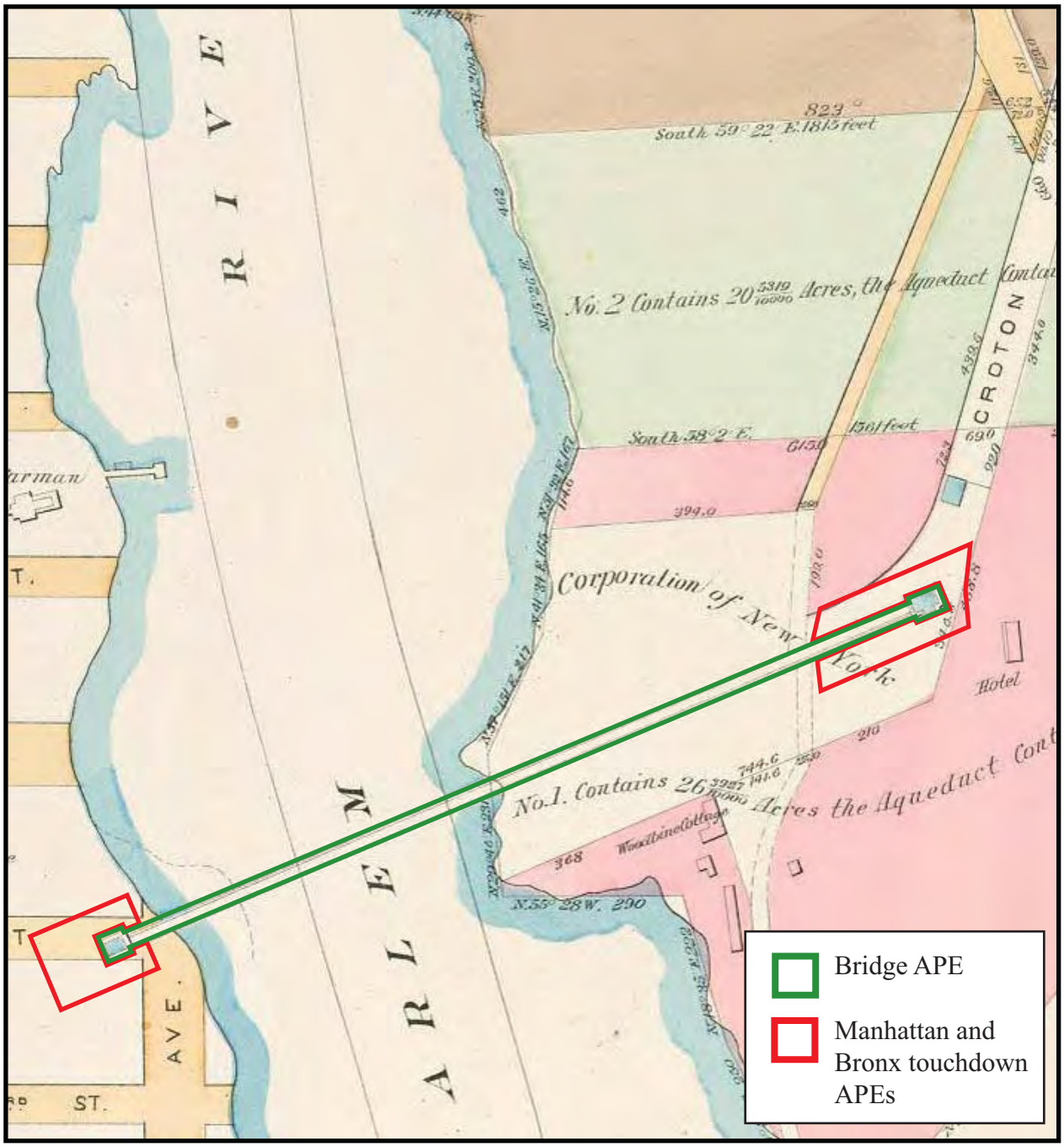
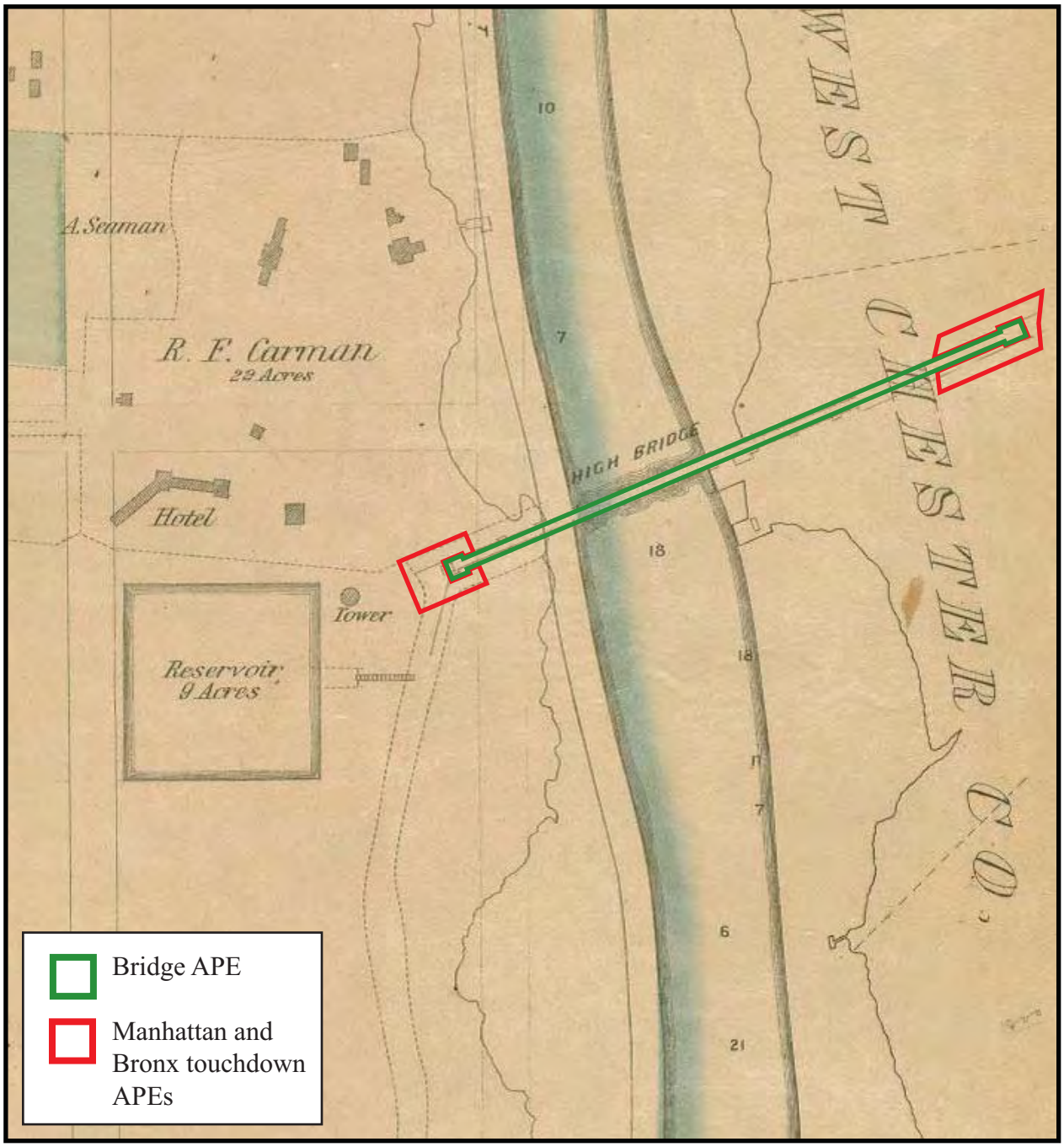


Phase IA Archaeological Documentary Study
High Bridge, Manhattan and Bronx, New York

Figure 9: ***Map of Lands in the County of Westchester Belonging to Richard F. Carman, John Lowery, and Archibald H. Lowery*** **(Nicholson 1857).**

N

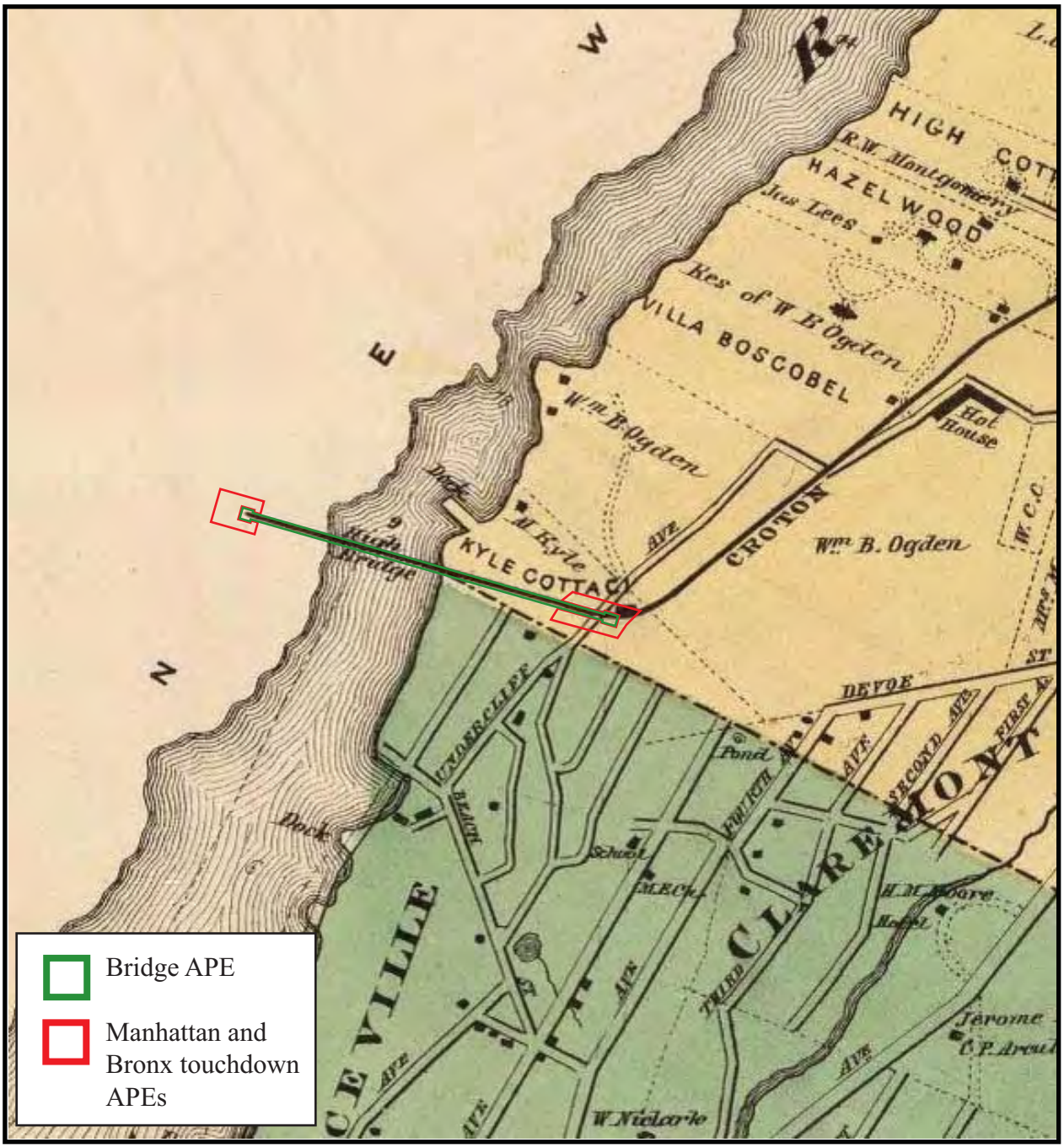
0 200 400 600 800 1000 FEET



Phase IA Archaeological Documentary Study
High Bridge, Manhattan and Bronx, New York

Figure 12: ***Plan of New York City, from the Battery to Spuyten Duyvil Creek*** **(Harrison 1867).**

0 200 400 600 800 1000 FEET



Phase IA Archaeological Documentary Study
High Bridge, Manhattan and Bronx, New York

Figure 13: ***Atlas of New York and Vicinity*** **(Beers 1868).**

APPENDIX D

Toxics Targeting Environmental Database Report

TOXICS TARGETING

1/8 Mile Search
Environmental Database Report

High Bridge Aqueduct
Bronx & Manhattan, NY

March 18, 2010

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PLEASE REFER TO PAGES ONE AND FIVE FOR A DESCRIPTION OF SOME OF THE LIMITATIONS OF THIS ENVIRONMENTAL REPORT.

Table of Contents

Introduction

Toxics Targeting has combined environmental database searches, extensive regulatory analysis and sophisticated mapping techniques to produce your customized *Environmental Report.* It checks for the presence of 25 categories of government-reported toxic sites and provides detailed, up-to-date information on each identified site. The findings of your report are presented in an easy-to-understand format that:

1. ***Maps*** the approximate locations of selected government-reported toxic sites identified on or near a specified target address.

2. ***Estimates*** the distance and direction between the target address and each identified toxic site.

3. ***Reports*** air and water permit non-compliance and other regulatory violations.

4. ***Profiles*** some aspects of the usage, manufacture, storage, handling, transport or disposal of toxic chemicals at individual sites.

5. ***Summarizes*** some potential health effect information and drinking water standards for selected chemicals reported at individual sites.

The Three Sections Of Your Report

The first section highlights your report's findings by summarizing identified sites according to: **a)** distance intervals, **b)** direction, **c)** proximity to the target address and **d)** individual site categories. In addition, the locations of all identified toxic sites are illustrated on individual maps for each radius search distance used in your report. A close-up map illustrates the locations of all identified toxic sites, at the shortest radius search distance used in your report. Finally, a map of tax parcels and a table of selected information about those parcels are included.

The second section of your report contains *Toxic Site Profiles* that provide detailed information on each identified toxic site. The information in each *Toxic Site Profile* varies according to its source. Some toxic site categories have extensive information, some have limited information. All the information is updated on a regular basis.

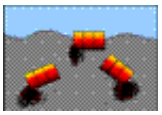
The third section of the report contains appendices that identify: **1)** on-site spills reported to the national Emergency Response Notification System (ERNS), **2)** various toxic sites that cannot be mapped due to incomplete or erroneous addresses or other mapping problems, **3)** codes that characterize hazardous wastes reported at various facilities, **4)** methods used to map toxic sites identified in your report and **5)** information sources used in your report.

How to Use Your Report

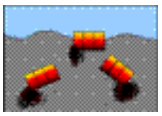
- Check Table One to see the number of identified sites by distance intervals.
- Check Table Two to see identified sites sorted by direction.
- Check Table Three to see identified sites sorted by site categories.
- Check Table Four to see identified sites ranked by proximity to the target address.
- Use Table Five to get info for the subject parcel and every parcel found on the Tax Parcel Map
- Refer to the various maps to see the locations of identified toxic sites. Refer to the *Toxic Site Profile* and *Appendix* sections for additional information.

Toxic Site Databases Analyzed In Your Report

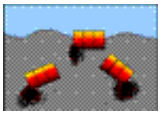
Search Radius

Eighth-Mile 

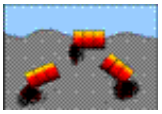
1) ***National Priority List for Federal Superfund Cleanup****:* a listing of sites known to pose environmental or health hazards that are being investigated or cleaned up under the Federal Superfund program.

Eighth-Mile 

2) ***Delisted National Priority List Sites****:* a listing of NPL sites that have been removed from the National Priority List.

Eighth-Mile 

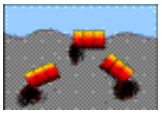
3) ***New York Inactive Hazardous Waste Disposal Site Registry****:* a state listing of sites that can pose environmental or public health hazards requiring investigation or clean up.

Eighth-Mile 

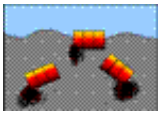
4) ***New York Inactive Hazardous Waste Disposal Site Registry Qualifying****:* a state listing of sites that qualify for possible inclusion to the NYDEC Inactive Haz. Waste Disposal Site Registry.

Eighth-Mile 

5) ***RCRA Corrective Action Activity (CORRACTS):*** waste facilities with RCRA corrective action activity reported by the USEPA.

Eighth-Mile 

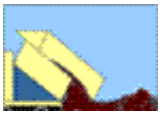
6) ***CERCLIS*** (Comprehensive Environmental Response, Compensation and Liability Information System): a federal listing of Non-NFRAP sites that can pose environmental or public health hazards requiring investigation or clean up.

Eighth-Mile 

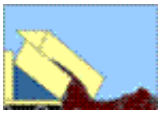
7) ***CERCLIS NFRAP:*** a federal listing of CERCLIS sites that have no further remedial action planned.

Eighth-Mile 

8) ***New York State Brownfield Cleanup Sites****:* a listing of sites that are abandoned, idled or under-used industrial and commercial sites where expansion or redevelopment is complicated by real or perceived environmental contamination.

Eighth-Mile 

9) ***New York Solid Waste Facilities Registry****:* active and inactive landfills, incinerators, transfer stations or other solid waste management facilities.

Eighth-Mile 

10) ***New York City 1934 Solid Waste Sites****:* a listing of solid waste disposal sites operated by New York City municipal authorities circa 1934.

Eighth-Mile 

11) ***New York and Federal Hazardous Waste Treatment, Storage or Disposal Facilities****:* sites reported by the NYS manifest system and the USEPA's Resource Conservation and Recovery Act Information System (RCRIS). Also includes the following database:

- ***RCRA violations:*** waste facilities with violations reported by the USEPA pursuant to the Resource Conservation and Recovery Act.

Eighth-Mile 

12) ***Toxic Spills: active and inactive or closed*** spills reported to state environmental authorities, including *remediated* and *unremediated* leaking underground storage tanks. This database includes the following categories:

- Tank Failures
- Tank Test Failures
- Unknown Spill Cause or Other Spill Causes
- Miscellaneous Spill Causes

Eighth-Mile 

13) ***New York State Major Oil Storage Facilities****:* sites with more than a 400,000 gallon capacity for storing petroleum products.

Eighth-Mile 

14) ***New York and Local Petroleum Bulk Storage Facilities****:* sites with more than an 1,100 gallon capacity for storing petroleum products.

Eighth-Mile 

15) ***New York City Fire Dept Tank Data****:* tank data from 1997.

Eighth-Mile 

16) ***New York and Federal Hazardous Waste Generators and Transporters****:* sites reported by the NYS manifest system and the USEPA's Resource Conservation and Recovery Act Information System (RCRA). Also includes the following database:

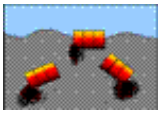
- ***RCRA violations:*** waste facilities with violations reported by the USEPA pursuant to the Resource Conservation and Recovery Act.

Eighth-Mile 

17) ***New York Chemical Bulk Storage Facilities****:* sites storing hazardous substances listed in 6 NYCRR Part 597 in aboveground tanks with capacities of 185 gallons or more and/or underground tanks of any size

Eighth-Mile 

18) ***Historic New York City Utility Sites (1890's to 1940's)****:* power generating stations, manufactured gas plants, gas storage facilities, maintenance yards and other gas and electric utility sites.

Eighth-Mile 

19) ***New York Hazardous Substance Disposal Site Draft Study****:* a state listing of sites contaminated with toxic substances that can pose environmental or public health hazards. These sites were not eligible for state clean up funding programs.

Eighth-Mile 

20) ***Federal Toxic Release Inventory Facilities****:* discharges of selected toxic chemicals to air, land, water or treatment facilities.

Eighth-Mile 

21) ***Federal Air Discharges****:* air pollution point sources monitored by U.S. EPA and/or state and local air regulatory agencies.

Eighth-Mile 

22) ***Federal Permit Compliance System Toxic Wastewater Discharges:*** permitted toxic wastewater discharges.

Eighth-Mile 

23) ***Federal Civil and Administrative Enforcement Docket****:* judiciary cases filed on behalf of the U. S. Environmental Protection Agency by the Department of Justice.

On-site only (250 ft) 

24) ***New York City Environmental Quality Review (CEQR) – E Designation Sites****:* parcels assigned a special environmental ("E") designation under the CEQR process. E designation requires specific protocols that must be followed.

Property only 

25) ***ERNS: Federal Emergency Response Notification System Spills****:* a listing of federally reported spills.

Limitations Of The Information In Your Report

The information presented in your *Environmental Report* has been obtained from various local, state and federal government agencies. Please be aware that: **1)** additional information on individual sites may be available, **2)** newly discovered sites are continually reported and **3)** all map locations are approximate. As a result, this report is intended to be the FIRST STEP in the process of identifying and evaluating possible environmental threats to specific properties and can only serve as a guide for conducting on-site visits or additional, more detailed toxic hazard research.

Toxics Targeting tries to ensure that the information in your report is presented accurately and with minimal alteration. Systematic changes are made to correct obvious address errors in order to allow sites to be mapped. Any address changes that are made are noted in the map information section at the top of each corresponding *Toxic Site Profile*. Some information that has been withheld by government authorities remains included in Toxic Site Profiles and is identified as archival information. Since the information presented in your report is not edited, please be aware that it can contain reporting errors or typographical mistakes made by the site owners/operators or government agencies that produced the information. Also please be aware of some other limitations of the information in your report:

- The digital map used by *Toxics Targeting* is the same one used by the U. S. Census or local authorities in New York City. While the map is generally accurate, no map is perfect. In addition, *Toxics Targeting's* mapping methods estimate where toxic site addresses are located if the address is not specifically designated. FOR THESE REASONS, ALL MAP LOCATIONS OF ADDRESSES AND REPORTED TOXIC SITES SHOULD BE CONSIDERED APPROXIMATE AND SHOULD BE VERIFIED BY ON-SITE VISITS;

- UNDISCOVERED, UNREPORTED OR UNMAPPABLE TOXIC SITES MIGHT NOT BE IDENTIFIED BY THIS REPORT'S CHECK OF 25 TOXIC SITE CATEGORIES. TOXIC SITES REPORTED IN OTHER GOVERNMENT DATABASES MIGHT ALSO EXIST. FOR THESE REASONS, YOUR REPORT MIGHT NOT IDENTIFY ALL THE TOXIC SITES THAT EXIST IN THE AREA IT SEARCHES;

- The appendix of your report contains a listing of sites that could not be mapped due to incomplete or erroneous address information or other mapping problems. This listing includes unmappable toxic sites in the zip codes searched for the report as well as toxic sites without zip codes reported in the same county. IF YOU WOULD LIKE INFORMATION ON ANY OF THE LISTED SITES, PLEASE CONTACT *TOXICS TARGETING AND REFER TO THE SITE ID NUMBER.*

- New York State Department of Environmental Conservation Remediation Site Borders are approximate and may not align with tax parcel boundaries mapped by local authorities or the digital map used by the US Census Bureau. As a result, Remediation Site Borders may overlap parcels that do not involve site remediation activities. Selected parcels also can involve multiple Remediation Site Borders. Refer to individual site profiles for more information. Sites without profiles include potential new sites or sites that have not yet been publicly listed by DEC.

- Some toxic sites identified in your report may be classified as **known hazards**. Most of the toxic sites identified in your report involve **potential hazards** related to the on-site use, manufacture, handling, storage, transport or disposal of toxic chemicals. Some of the toxic sites identified in your report may be the addresses of parties responsible for toxic sites located elsewhere. YOU SHOULD ONLY CONCLUDE THAT TOXIC HAZARDS ACTUALLY EXIST AT A SPECIFIC SITE WHEN GOVERNMENT AUTHORITIES MAKE THAT DETERMINATION OR WHEN THAT CONCLUSION IS FULLY DOCUMENTED BY THE FINDINGS OF AN APPROPRIATE SITE INVESTIGATION UNDERTAKEN BY LICENSED PROFESSIONALS;

- Compass directions and distances are approximate. Compass directions are calculated from the subject property address to the mapped location of each identified toxic site. The compass direction does not necessarily refer to the closest property boundary of an identified toxic site. The compass direction also can vary substantially for toxic sites that are located very close to the subject property address.

- The information presented in your report is a summary of the information that *Toxics Targeting* obtains from government agencies on reported toxic sites. YOU MAY BE ABLE TO OBTAIN ADDITIONAL INFORMATION ABOUT REPORTED SITES WITH THE FREEDOM OF INFORMATION REQUEST FORM LETTERS THAT ARE PROVIDED ON THE INSIDE OF THE BACK COVER.

Section One:

Report Summary

- *Table One: Number of Identified Toxic Sites By Distance Interval*
- *Table Two: Identified Toxic Sites By Direction*
- *Table Three: Identified Toxic Sites By Category*
- *Table Four: Identified Toxic Sites By Proximity*
- *Map One: Eighth-Mile Radius Close up Map*
- *Map Two: Tax Parcel Map*
- *Table Five: Tax Parcel Map Information Table*

NUMBER OF IDENTIFIED SITES BY DISTANCE INTERVAL

Database Searched	0 - 100 ft	100 ft - 1/8 mi	1/8 mi - 1/4 mi	1/4 mi - 1/2 mi	1/2 mi - 1 mi	Site Category Totals
ASTM-Required Databases						
National Priority List (NPL) Sites	0	0	Not searched	Not searched	Not searched	0
NYS Inactive Hazardous Waste Disposal Site Registry	0	0	Not searched	Not searched	Not searched	0
NYS Inactive Haz Waste Disposal Site Registry Qualifying	0	0	Not searched	Not searched	Not searched	0
RCRA Corrective Action (CORRACTS) Sites	0	0	Not searched	Not searched	Not searched	0
Delisted National Priority List (NPL) Sites	0	0	Not searched	Not searched	Not searched	0
CERCLIS Superfund Non-NFRAP Sites	0	0	Not searched	Not searched	Not searched	0
CERCLIS Superfund NFRAP Sites	0	0	Not searched	Not searched	Not searched	0
Brownfields Sites						
Voluntary Cleanup Program	0	0	Not searched	Not searched	Not searched	0
Environmental Restoration Program	0	0	Not searched	Not searched	Not searched	0
Brownfield Cleanup Program	0	0	Not searched	Not searched	Not searched	0
NYSDEC Solid Waste Facilities / Landfills	0	0	Not searched	Not searched	Not searched	0
RCRA Hazardous Waste Treatment, Storage, Disposal Sites	0	0	Not searched	Not searched	Not searched	0
NYS Toxic Spills						
Active Tank Failures	0	1	Not searched	Not searched	Not searched	1
Active Tank Test Failures	0	0	Not searched	Not searched	Not searched	0
Active Spills - Unknown / Other Causes	0	1	Not searched	Not searched	Not searched	1
Active Spills - Miscellaneous Causes	0	0	Not searched	Not searched	Not searched	0
Closed Tank Failures	0	1	Not searched	Not searched	Not searched	1
Closed Tank Test Failures	0	4	Not searched	Not searched	Not searched	4
Closed Spills - Unknown / Other Causes	1	9	Not searched	Not searched	Not searched	10
Closed Spills - Miscellaneous Causes	0	14	Not searched	Not searched	Not searched	14
NYS Major Oil Storage Facilities	0	0	Not searched	Not searched	Not searched	0
Local & State Petroleum Bulk Storage Sites	0	27	Not searched	Not searched	Not searched	27
RCRA Hazardous Waste Generators & Transporters	0	10	Not searched	Not searched	Not searched	10
NYS Chemical Bulk Storage Sites	0	1	Not searched	Not searched	Not searched	1
Historic Utility Facilities	0	0	Not searched	Not searched	Not searched	0
NYC Environmental Quality Review Requirements ("E") Sites*	0	0	Not searched	Not searched	Not searched	0
Emergency Response Notification System (ERNS)	0	Not searched	Not searched	Not searched	Not searched	0
Institutional Controls / Engineering Controls (IC/EC)	See databases for NPL, CERCLIS, Inactive Hazardous Waste Disposal Site Registry and Brownfield Sites.					
ASTM-Required Databases Distance Interval Totals	**1**	**68**	**0**	**0**	**0**	**69(0)**

Numbers in ( ) indicate spills not mapped and profiled in this report, and are listed at the end of the active and closed spills sections. See these lists for a description of the parameters involved with identifying these spills.

* NYC Environmental Quality Review Requirements ("E") Sites were searched at 250 feet.

NOTE: Table continues on next page.

Non-ASTM Databases 1/8 Mile Search						
1934 NYC Municipal Waste Landfills	0	0	Not searched	Not searched	Not searched	0
Hazardous Substance Waste Disposal Sites	0	0	Not searched	Not searched	Not searched	0
Toxic Release Inventory Sites (TRI)	0	0	Not searched	Not searched	Not searched	0
Permit Compliance System (PCS) Toxic Wastewater Discharges	0	0	Not searched	Not searched	Not searched	0
Air Discharges	0	1	Not searched	Not searched	Not searched	1
Civil & Administrative Enforcement Docket Facilities	0	0	Not searched	Not searched	Not searched	0
Non-ASTM Databases Distance Interval Totals	**0**	**1**	**Not Searched**	**Not Searched**	**Not Searched**	**1**
Distance Interval Totals	***1***	***69***	***0***	***0***	***0***	***70(0)***

Numbers in ( ) indicate spills not mapped and profiled in this report, and are listed at the end of the active and closed spills sections. See these lists for a description of the parameters involved with identifying these spills.

Identified Toxic Sites by Direction

High Bridge Aqueduct
Bronx & Manhattan, NY

* Compass directions can vary substantially for sites located very close to the subject property address.

Sites less than 100 feet from subject property sorted by distance

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
8	MAN HOLE # 61741	HARLEM RIVER DR/HIGHBRIDG	0 feet	Closed Status Spill (Unk/Other Cause)

Sites between 100 ft and 660 ft from the subject property sorted by direction and distance

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
62	NYSDOT BIN 1066909	I-87 N TO I-95 S INTERCHANGE	342 feet to the ENE	Hazardous Waste Generator/Transporter
49	FEIN REALTY MGT CRP	1419 UNIVERSITY AVE	557 feet to the ENE	Petroleum Bulk Storage Site
28	MANHOLE TM436	1421 UNIVERSITY AV	606 feet to the ENE	Closed Status Spill (Misc. Spill Cause)
33	1360 UNIVERSITY AVE	1360 UNIVERSITY AVENUE	202 feet to the E	Petroleum Bulk Storage Site
34	B.L.S. ASSOCIATES	190 W 170TH ST	213 feet to the E	Petroleum Bulk Storage Site
4	SAMMARITAN VILLAGE	1381 UNIVERSITY AVE	219 feet to the E	Closed Status Tank Test Failure
5	X	1381 UNIVERSITY AVE	219 feet to the E	Closed Status Tank Test Failure
18	ALCOHOLIC REHAB CTR	1381 UNIVERSITY AV	219 feet to the E	Closed Status Spill (Misc. Spill Cause)
35	SAMARITAN VILLAGE, INC	1381 UNIVERSITY AVENUE	220 feet to the E	Petroleum Bulk Storage Site
36	SAMARITAN VILLAGE, INC.	1387 UNIVERSITY AVE	220 feet to the E	Petroleum Bulk Storage Site
38	1370 UNIVERSITY AVE CORP	1370 UNIVERSITY AVE	258 feet to the E	Petroleum Bulk Storage Site
40	185 WEST 170TH STREET, H.D.F.C.	185 WEST 170TH STREET, 5D	272 feet to the E	Petroleum Bulk Storage Site
43	UNIVERSITY GARDENS	1380 UNIVERSITY AVE	431 feet to the E	Petroleum Bulk Storage Site
46	163 WEST 170TH STREET HDFC	163 WEST 170TH STREET	468 feet to the E	Petroleum Bulk Storage Site
26	INTERSECTION OGDEN AVE	OGDEN AVE & E.170TH ST	521 feet to the E	Closed Status Spill (Misc. Spill Cause)
65	CONSOLIDATED EDISON CO VAULT 0434	OGDEN AVE AND W 170TH ST	521 feet to the E	Hazardous Waste Generator/Transporter
52	PUBLIC SCHOOL 172-BRONX	1399 OGDEN AVENUE	600 feet to the E	Petroleum Bulk Storage Site
29	APARTMENTS	1360 OGDEN AVE.	628 feet to the E	Closed Status Spill (Misc. Spill Cause)
32	NEXSTP REALTY II CORP	1350-52 UNIVERSITY AVENUE	158 feet to the ESE*	Petroleum Bulk Storage Site
37	1344 UNIVERSITY AVE	1344 UNIVERSITY AVE	255 feet to the ESE	Petroleum Bulk Storage Site
2	GETTY S/S # 58505 - GETTY PROPERTIES	1314 SEDGWICK AVE	261 feet to the ESE	Active Haz Spill (Unknown/Other Cause)
9	GETTY #58505	1314 SEDGEWICK AVE	261 feet to the ESE	Closed Status Spill (Unk/Other Cause)
10	GETTY #58505	13 SEDWICK AVE	261 feet to the ESE	Closed Status Spill (Unk/Other Cause)
11	GETTY STATION	1314 SEDGEWICK AVE	261 feet to the ESE	Closed Status Spill (Unk/Other Cause)
19	GETTY # 58505	1314 SEDGWICK AVE	261 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
20	GETTY #58505	1314 SEDGWICK AVE	261 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
21	GETTY #58505	1314 SEDGWICK AVE	261 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
22	GETTY GAS #58505	1314 SEDGEWICK AVE	261 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
23	GETTY	1314 SEDGWICK AV	261 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
39	GETTY NO. 58505	1314 SEDGWICK AVENUE	261 feet to the ESE	Petroleum Bulk Storage Site
41	MERRIAM REALTY ASSOCIATES	1333-37-43 MERRIAM AVENUE	272 feet to the ESE	Petroleum Bulk Storage Site

61	GETTY PETROLEUM CORP	1314 SEDGWICK AVE	283 feet to the ESE	Hazardous Waste Generator/Transporter
24	1331 MIRIAM AVE	1331 MIRIAM AVE	343 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
12	204980; OPP 1340 MERRIAM AVE & EAST 169TH STREET	OPP 1340 MERRIAM AVE & EAST 169TH STREET	347 feet to the ESE	Closed Status Spill (Unk/Other Cause)
44	1340 MERRIAM AVENUE	1340 MERRIAM AVENUE	433 feet to the ESE	Petroleum Bulk Storage Site
45	H P D ROOM 208	1343 OGDEN AVE	433 feet to the ESE	Petroleum Bulk Storage Site
64	CONSOLIDATED EDISON	1343 OGDEN AVENUE MH18357	453 feet to the ESE	Hazardous Waste Generator/Transporter
47	1307-11-15MERRIAM REALTY L.L.C.	1307-11-15 MERRIAM AV	470 feet to the ESE	Petroleum Bulk Storage Site
48	ROSENBERG DIAMOND	1315 MERRIAM AVE	470 feet to the ESE	Petroleum Bulk Storage Site
51	1350 OGDEN AVE HDFC	1350 OGDEN AVE	599 feet to the ESE	Petroleum Bulk Storage Site
57	1324 OGDEN AVENUE	1324 OGDEN AVENUE	656 feet to the ESE	Petroleum Bulk Storage Site
58	KARDASH RLTY CORP	1324 OGDEN AVE	656 feet to the ESE	Petroleum Bulk Storage Site
60	NYSDOT BIN 1066840	DEPOT PLACE OVER I-87	264 feet to the SE	Hazardous Waste Generator/Transporter
6	MOBIL S/S	1300 SEDGWICK AVENUE	429 feet to the SE	Closed Status Tank Test Failure
7	MOBIL S/S	1300 SEDGWICK AVE	429 feet to the SE	Closed Status Tank Test Failure
42	MOBIL S/S 17-KQN 5M SERVICE ST	1300 SEDGWICK AVE (EAST 169TH ST)	429 feet to the SE	Petroleum Bulk Storage Site
70	MOBIL	1300 SEDGEWICK	432 feet to the SE	Air Discharge Site
63	MOBIL OIL CORPORATION - CLOSED	SS 1300 SEDGEWICK AVE	435 feet to the SE	Hazardous Waste Generator/Transporter
25	PRIVATE PROPERTY	1352 UNIVERSITY AVE	499 feet to the SE	Closed Status Spill (Misc. Spill Cause)
15	APT HOUSE	1304 MERRIAM AVE	622 feet to the SE	Closed Status Spill (Unk/Other Cause)
16	COMMERCIAL BLDG	1304 MERRIAM AV	622 feet to the SE	Closed Status Spill (Unk/Other Cause)
53	1304 MERRIAM AVENUE	1304 MERRIAM AVENUE	622 feet to the SE	Petroleum Bulk Storage Site
54	1304 MERRIAM CORPORATION	1304 MERRIAM AVE	622 feet to the SE	Petroleum Bulk Storage Site
31	LEAK FROM VEHICLE 41263	MARIUM AVE & WEST 169 ST	651 feet to the SE	Closed Status Spill (Misc. Spill Cause)
56	BRONX TASK FORCE	1278 SEDGWICK AVENUE	652 feet to the SE	Petroleum Bulk Storage Site
68	SVC STATION 7-NYC POLICE DEPT	1278 SEDGEWICK AVE	659 feet to the SE	Hazardous Waste Generator/Transporter
1	HIGHBRIDGE YARD	HIGHBRIDGE YD DEPOT	630 feet to the S	Active Tank Failure
17	RR YD//OLD HIGH BRIDGE/BX	RR YD/OLD HIGH BRIDGE	630 feet to the S	Closed Status Spill (Unk/Other Cause)
30	METRO NORTH RAIL YARD	SOUTH OF DEPOT PLACE	630 feet to the S	Closed Status Spill (Misc. Spill Cause)
55	HIGHBRIDGE YARD - METRO-NORTH RAILROAD	100 DEPOT PLACE	631 feet to the S	Petroleum Bulk Storage Site
67	HIGHBRIDGE YARD - METRO NORTH RR	100 DEPOT PLZA AT EXTERIOR ST	649 feet to the S	Hazardous Waste Generator/Transporter
59	NYC DOT	HGIHBRIDGE AQUEDUCT	222 feet to the WSW	Hazardous Waste Generator/Transporter
50	HIGHBRIDGE POOL	WEST 174TH ST. & AMSTERDAM AVE.	561 feet to the W	Petroleum Bulk Storage Site
3	HIGHBRIDGE POOL E. SIDE	W.173RD ST & AMSTERDAM AV	570 feet to the W	Closed Status Tank Failure
69	HIGHBRIDGE	173RD WEST STREET & AMSTERDAM AVE.	587 feet to the W	Chemical Bulk Storage Facility
13	HARLEM RIVER	HARLEM RIVER DR/176TH ST	555 feet to the NNW	Closed Status Spill (Unk/Other Cause)
14	REG 51	176TH ST/HARLEM RIVER DR	555 feet to the NNW	Closed Status Spill (Unk/Other Cause)
27	NYCDEP ITEM#912/W.176 ST.	W.176TH ST & HARLEM R. DR	555 feet to the NNW	Closed Status Spill (Misc. Spill Cause)
66	CONSOLIDATED EDISON	W176ST & HARLEM RVR DR MN61885	555 feet to the NNW	Hazardous Waste Generator/Transporter

Identified Toxic Sites by Category

High Bridge Aqueduct
Bronx & Manhattan, NY

* Compass directions can vary substantially for sites located very close to the subject property address.

Active Tank Failures -- Total Sites - 1 — **Database searched at 1/8 MILE - ASTM required search distance: 1/2 Mile**

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
1	9900836	HIGHBRIDGE YARD	HIGHBRIDGE YD DEPOT	630 feet to the S

Active Haz Spills (Unknown Causes & Other Causes) -- Total Sites - 1 — **Database searched at 1/8 MILE - ASTM required search distance: 1/2 Mile**

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
2	9613862	GETTY S/S # 58505 - GETTY PROPERTIES	1314 SEDGWICK AVE	261 feet to the ESE

Closed Status Tank Failures -- Total Sites - 1 — **Database searched at 1/8 MILE - ASTM required search distance: 1/2 Mile**

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
3	9203105	HIGHBRIDGE POOL E. SIDE	W.173RD ST & AMSTERDAM AV	570 feet to the W

Closed Status Tank Test Failures -- Total Sites - 4 — **Database searched at 1/8 MILE - ASTM required search distance: 1/2 Mile**

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
4	0511330	SAMMARITAN VILLAGE	1381 UNIVERSITY AVE	219 feet to the E
5	0204626	X	1381 UNIVERSITY AVE	219 feet to the E
6	8801702	MOBIL S/S	1300 SEDGWICK AVENUE	429 feet to the SE
7	8707606	MOBIL S/S	1300 SEDGWICK AVE	429 feet to the SE

Closed Status Spills (Unknown Causes & Other Causes) -- Total Sites - 10 — **Database searched at 1/8 MILE - ASTM required search distance: 1/2 Mile**

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
8	9810409	MAN HOLE # 61741	HARLEM RIVER DR/HIGHBRIDG	0 feet
9	0808028	GETTY #58505	1314 SEDGEWICK AVE	261 feet to the ESE
10	0512294	GETTY #58505	13 SEDWICK AVE	261 feet to the ESE
11	0401941	GETTY STATION	1314 SEDGEWICK AVE	261 feet to the ESE
12	0890016	204980; OPP 1340 MERRIAM AVE & EAST 169TH STREET	OPP 1340 MERRIAM AVE & EAST 169TH STREET	347 feet to the ESE
13	9514762	HARLEM RIVER	HARLEM RIVER DR/176TH ST	555 feet to the NNW
14	0110968	REG 51	176TH ST/HARLEM RIVER DR	555 feet to the NNW
15	0007632	APT HOUSE	1304 MERRIAM AVE	622 feet to the SE
16	0003904	COMMERCIAL BLDG	1304 MERRIAM AV	622 feet to the SE
17	9008201	RR YD//OLD HIGH BRIDGE/BX	RR YD/OLD HIGH BRIDGE	630 feet to the S

Closed Status Spills (Miscellaneous Spill Causes) -- Total Sites - 14 — **Database searched at 1/8 MILE - ASTM required search distance: 1/2 Mile**

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
18	9612209	ALCOHOLIC REHAB CTR	1381 UNIVERSITY AV	219 feet to the E
19	0512283	GETTY # 58505	1314 SEDGWICK AVE	261 feet to the ESE
20	0512259	GETTY #58505	1314 SEDGWICK AVE	261 feet to the ESE
21	0506096	GETTY #58505	1314 SEDGWICK AVE	261 feet to the ESE
22	0402968	GETTY GAS #58505	1314 SEDGEWICK AVE	261 feet to the ESE
23	0305483	GETTY	1314 SEDGWICK AV	261 feet to the ESE
24	9200717	1331 MIRIAM AVE	1331 MIRIAM AVE	343 feet to the ESE
25	0910361	PRIVATE PROPERTY	1352 UNIVERSITY AVE	499 feet to the SE
26	9809627	INTERSECTION OGDEN AVE	OGDEN AVE & E.170TH ST	521 feet to the E
27	8605470	NYCDEP ITEM#912/W.176 ST.	W.176TH ST & HARLEM R. DR	555 feet to the NNW
28	0001938	MANHOLE TM436	1421 UNIVERSITY AV	606 feet to the ENE
29	0412068	APARTMENTS	1360 OGDEN AVE.	628 feet to the E
30	9901001	METRO NORTH RAIL YARD	SOUTH OF DEPOT PLACE	630 feet to the S
31	0510554	LEAK FROM VEHICLE 41263	MARIUM AVE & WEST 169 ST	651 feet to the SE

Petroleum Bulk Storage Sites -- Total Sites - 27

Database searched at 1/8 MILE - ASTM required search distance: Property & Adjacent

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
32	2-250937	NEXSTP REALTY II CORP	1350-52 UNIVERSITY AVENUE	158 feet to the ESE*
33	2-236977	1360 UNIVERSITY AVE	1360 UNIVERSITY AVENUE	202 feet to the E
34	2-362352	B.L.S. ASSOCIATES	190 W 170TH ST	213 feet to the E
35	2-349542	SAMARITAN VILLAGE, INC	1381 UNIVERSITY AVENUE	220 feet to the E
36	NY08863	SAMARITAN VILLAGE, INC.	1387 UNIVERSITY AVE	220 feet to the E
37	2-203890	1344 UNIVERSITY AVE	1344 UNIVERSITY AVE	255 feet to the ESE
38	2-107581	1370 UNIVERSITY AVE CORP	1370 UNIVERSITY AVE	258 feet to the E
39	2-291544	GETTY NO. 58505	1314 SEDGWICK AVENUE	261 feet to the ESE
40	2-469440	185 WEST 170TH STREET, H.D.F.C.	185 WEST 170TH STREET, 5D	272 feet to the E
41	2-603660	MERRIAM REALTY ASSOCIATES	1333-37-43 MERRIAM AVENUE	272 feet to the ESE
42	2-156582	MOBIL S/S 17-KQN 5M SERVICE ST	1300 SEDGWICK AVE (EAST 169TH ST)	429 feet to the SE
43	2-404802	UNIVERSITY GARDENS	1380 UNIVERSITY AVE	431 feet to the E
44	2-509582	1340 MERRIAM AVENUE	1340 MERRIAM AVENUE	433 feet to the ESE
45	NY04536	H P D ROOM 208	1343 OGDEN AVE	433 feet to the ESE
46	2-468665	163 WEST 170TH STREET HDFC	163 WEST 170TH STREET	468 feet to the E
47	2-191876	1307-11-15MERRIAM REALTY L.L.C.	1307-11-15 MERRIAM AV	470 feet to the ESE
48	NY08652	ROSENBERG DIAMOND	1315 MERRIAM AVE	470 feet to the ESE
49	NY03860	FEIN REALTY MGT CRP	1419 UNIVERSITY AVE	557 feet to the ENE
50	2-604969	HIGHBRIDGE POOL	WEST 174TH ST. & AMSTERDAM AVE.	561 feet to the W
51	2-602768	1350 OGDEN AVE HDFC	1350 OGDEN AVE	599 feet to the ESE
52	2-606271	PUBLIC SCHOOL 172-BRONX	1399 OGDEN AVENUE	600 feet to the E
53	2-604655	1304 MERRIAM AVENUE	1304 MERRIAM AVENUE	622 feet to the SE
54	NY00132	1304 MERRIAM CORPORATION	1304 MERRIAM AVE	622 feet to the SE
55	2-609122	HIGHBRIDGE YARD - METRO-NORTH RAILROAD	100 DEPOT PLACE	631 feet to the S
56	2-342793	BRONX TASK FORCE	1278 SEDGWICK AVENUE	652 feet to the SE
57	2-603747	1324 OGDEN AVENUE	1324 OGDEN AVENUE	656 feet to the ESE
58	NY05661	KARDASH RLTY CORP	1324 OGDEN AVE	656 feet to the ESE

Hazardous Waste Generators, Transporters -- Total Sites - 10

Database searched at 1/8 MILE - ASTM required search distance: Property & Adjacent

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
59	NYR000109165	NYC DOT	HGIHBRIDGE AQUEDUCT	222 feet to the WSW
60	NYR000152744	NYSDOT BIN 1066840	DEPOT PLACE OVER I-87	264 feet to the SE
61	NYR000036962	GETTY PETROLEUM CORP	1314 SEDGWICK AVE	283 feet to the ESE
62	NYR000158386	NYSDOT BIN 1066909	I-87 N TO I-95 S INTERCHANGE	342 feet to the ENE
63	NYD982730244	MOBIL OIL CORPORATION - CLOSED	SS 1300 SEDGEWICK AVE	435 feet to the SE
64	NYP004133005	CONSOLIDATED EDISON	1343 OGDEN AVENUE MH18357	453 feet to the ESE
65	NYP004001939	CONSOLIDATED EDISON CO VAULT 0434	OGDEN AVE AND W 170TH ST	521 feet to the E
66	NYP004092912	CONSOLIDATED EDISON	W176ST & HARLEM RVR DR MN61885	555 feet to the NNW
67	NYR000119875	HIGHBRIDGE YARD - METRO NORTH RR	100 DEPOT PLZA AT EXTERIOR ST	649 feet to the S
68	NYD981871585	SVC STATION 7-NYC POLICE DEPT	1278 SEDGEWICK AVE	659 feet to the SE

Chemical Bulk Storage Facilities -- Total Sites - 1

Database searched at 1/8 MILE - ASTM required search distance: Property & Adjacent

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
69	2-000190	HIGHBRIDGE	173RD WEST STREET & AMSTERDAM AVE.	587 feet to the W

Air Discharge Sites -- Total Sites - 1

Database searched at 1/8 MILE - Non-ASTM Database

MAP ID	FACILITY ID	FACILITY NAME	FACILITY STREET	DISTANCE & DIRECTION
70	3600500295	MOBIL	1300 SEDGEWICK	432 feet to the SE

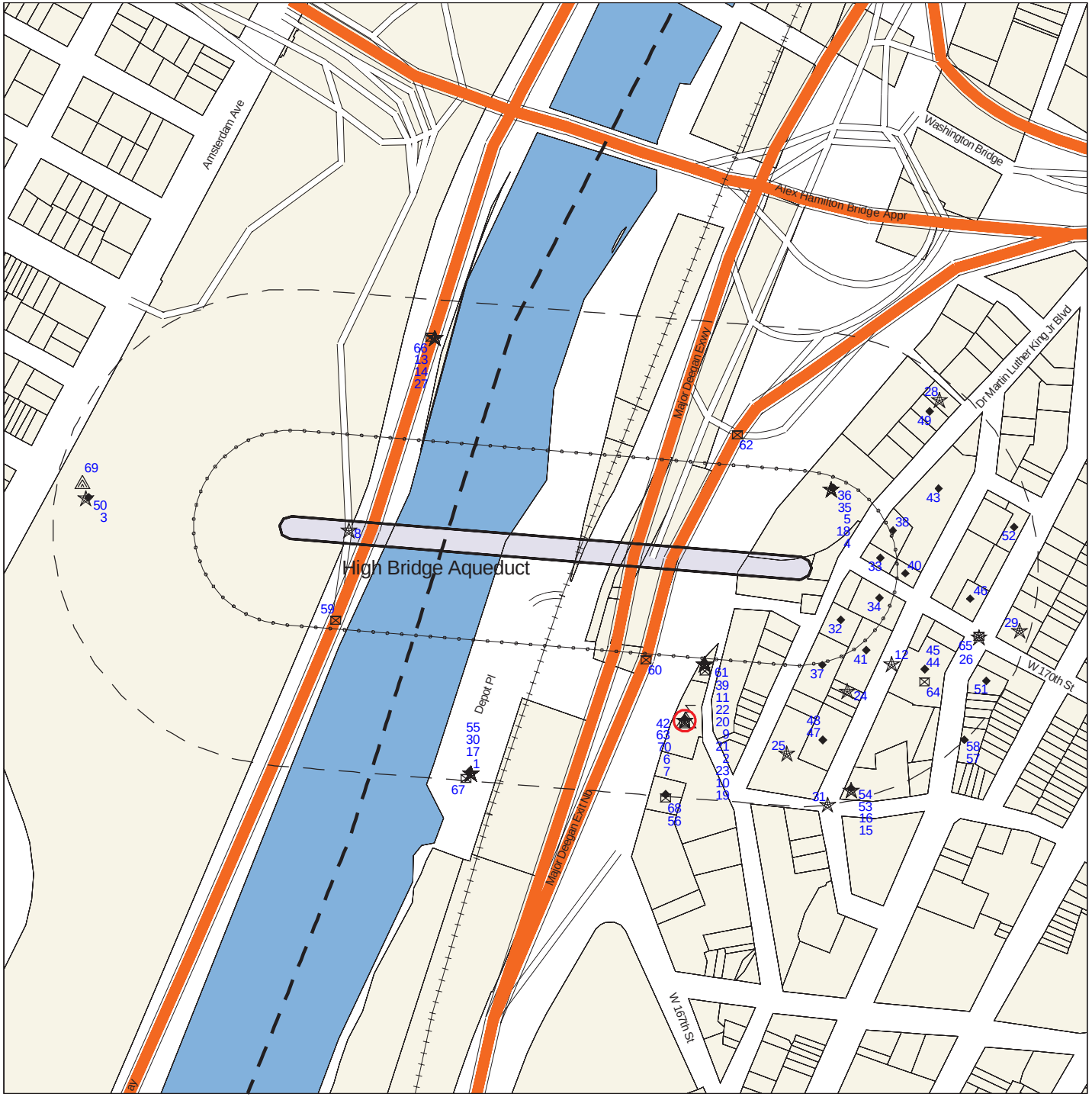
Identified Toxic Sites by Proximity

High Bridge Aqueduct, Bronx & Manhattan, NY

* Compass directions can vary substantially for sites located very close to the subject property address.

Map Id#	Site Name	Site Street	Approximate Distance & Direction From Property	Toxic Site Category
8	MAN HOLE # 61741	HARLEM RIVER DR/HIGHBRIDG	0 feet	Closed Status Spill (Unk/Other Cause)
32	NEXSTP REALTY II CORP	1350-52 UNIVERSITY AVENUE	158 feet to the ESE*	Petroleum Bulk Storage Site
33	1360 UNIVERSITY AVE	1360 UNIVERSITY AVENUE	202 feet to the E	Petroleum Bulk Storage Site
34	B.L.S. ASSOCIATES	190 W 170TH ST	213 feet to the E	Petroleum Bulk Storage Site
4	SAMMARITAN VILLAGE	1381 UNIVERSITY AVE	219 feet to the E	Closed Status Tank Test Failure
5	X	1381 UNIVERSITY AVE	219 feet to the E	Closed Status Tank Test Failure
18	ALCOHOLIC REHAB CTR	1381 UNIVERSITY AV	219 feet to the E	Closed Status Spill (Misc. Spill Cause)
35	SAMARITAN VILLAGE, INC	1381 UNIVERSITY AVENUE	220 feet to the E	Petroleum Bulk Storage Site
36	SAMARITAN VILLAGE, INC.	1387 UNIVERSITY AVE	220 feet to the E	Petroleum Bulk Storage Site
59	NYC DOT	HGIHBRIDGE AQUEDUCT	222 feet to the WSW	Hazardous Waste Generator/Transporter
37	1344 UNIVERSITY AVE	1344 UNIVERSITY AVE	255 feet to the ESE	Petroleum Bulk Storage Site
38	1370 UNIVERSITY AVE CORP	1370 UNIVERSITY AVE	258 feet to the E	Petroleum Bulk Storage Site
2	GETTY S/S # 58505 - GETTY PROPERTIES	1314 SEDGWICK AVE	261 feet to the ESE	Active Haz Spill (Unknown/Other Cause)
9	GETTY #58505	1314 SEDGEWICK AVE	261 feet to the ESE	Closed Status Spill (Unk/Other Cause)
10	GETTY #58505	13 SEDWICK AVE	261 feet to the ESE	Closed Status Spill (Unk/Other Cause)
11	GETTY STATION	1314 SEDGEWICK AVE	261 feet to the ESE	Closed Status Spill (Unk/Other Cause)
19	GETTY # 58505	1314 SEDGWICK AVE	261 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
20	GETTY #58505	1314 SEDGWICK AVE	261 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
21	GETTY #58505	1314 SEDGWICK AVE	261 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
22	GETTY GAS #58505	1314 SEDGEWICK AVE	261 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
23	GETTY	1314 SEDGWICK AV	261 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
39	GETTY NO. 58505	1314 SEDGWICK AVENUE	261 feet to the ESE	Petroleum Bulk Storage Site
60	NYSDOT BIN 1066840	DEPOT PLACE OVER I-87	264 feet to the SE	Hazardous Waste Generator/Transporter
40	185 WEST 170TH STREET, H.D.F.C.	185 WEST 170TH STREET, 5D	272 feet to the E	Petroleum Bulk Storage Site
41	MERRIAM REALTY ASSOCIATES	1333-37-43 MERRIAM AVENUE	272 feet to the ESE	Petroleum Bulk Storage Site
61	GETTY PETROLEUM CORP	1314 SEDGWICK AVE	283 feet to the ESE	Hazardous Waste Generator/Transporter
62	NYSDOT BIN 1066909	I-87 N TO I-95 S INTERCHANGE	342 feet to the ENE	Hazardous Waste Generator/Transporter
24	1331 MIRIAM AVE	1331 MIRIAM AVE	343 feet to the ESE	Closed Status Spill (Misc. Spill Cause)
12	204980; OPP 1340 MERRIAM AVE & EAST 169TH STREET	OPP 1340 MERRIAM AVE & EAST 169TH STREET	347 feet to the ESE	Closed Status Spill (Unk/Other Cause)
6	MOBIL S/S	1300 SEDGWICK AVENUE	429 feet to the SE	Closed Status Tank Test Failure
7	MOBIL S/S	1300 SEDGWICK AVE	429 feet to the SE	Closed Status Tank Test Failure
42	MOBIL S/S 17-KQN 5M SERVICE ST	1300 SEDGWICK AVE (EAST 169TH ST)	429 feet to the SE	Petroleum Bulk Storage Site
43	UNIVERSITY GARDENS	1380 UNIVERSITY AVE	431 feet to the E	Petroleum Bulk Storage Site
70	MOBIL	1300 SEDGEWICK	432 feet to the SE	Air Discharge Site
44	1340 MERRIAM AVENUE	1340 MERRIAM AVENUE	433 feet to the ESE	Petroleum Bulk Storage Site
45	H P D ROOM 208	1343 OGDEN AVE	433 feet to the ESE	Petroleum Bulk Storage Site
63	MOBIL OIL CORPORATION - CLOSED	SS 1300 SEDGEWICK AVE	435 feet to the SE	Hazardous Waste Generator/Transporter
64	CONSOLIDATED EDISON	1343 OGDEN AVENUE MH18357	453 feet to the ESE	Hazardous Waste Generator/Transporter
46	163 WEST 170TH STREET HDFC	163 WEST 170TH STREET	468 feet to the E	Petroleum Bulk Storage Site
47	1307-11-15MERRIAM REALTY L.L.C.	1307-11-15 MERRIAM AV	470 feet to the ESE	Petroleum Bulk Storage Site
48	ROSENBERG DIAMOND	1315 MERRIAM AVE	470 feet to the ESE	Petroleum Bulk Storage Site
25	PRIVATE PROPERTY	1352 UNIVERSITY AVE	499 feet to the SE	Closed Status Spill (Misc. Spill Cause)
26	INTERSECTION OGDEN AVE	OGDEN AVE & E.170TH ST	521 feet to the E	Closed Status Spill (Misc. Spill Cause)
65	CONSOLIDATED EDISON CO VAULT 0434	OGDEN AVE AND W 170TH ST	521 feet to the E	Hazardous Waste Generator/Transporter
13	HARLEM RIVER	HARLEM RIVER DR/176TH ST	555 feet to the NNW	Closed Status Spill (Unk/Other Cause)

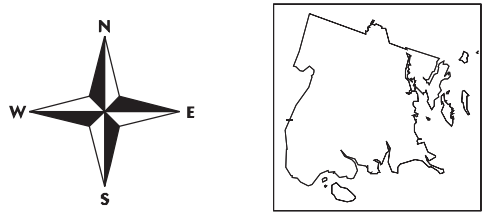
14	REG 51	176TH ST/HARLEM RIVER DR	555 feet to the NNW	Closed Status Spill (Unk/Other Cause)
27	NYCDEP ITEM#912/W.176 ST.	W.176TH ST & HARLEM R. DR	555 feet to the NNW	Closed Status Spill (Misc. Spill Cause)
66	CONSOLIDATED EDISON	W176ST & HARLEM RVR DR MN61885	555 feet to the NNW	Hazardous Waste Generator/Transporter
49	FEIN REALTY MGT CRP	1419 UNIVERSITY AVE	557 feet to the ENE	Petroleum Bulk Storage Site
50	HIGHBRIDGE POOL	WEST 174TH ST. & AMSTERDAM AVE.	561 feet to the W	Petroleum Bulk Storage Site
3	HIGHBRIDGE POOL E. SIDE	W.173RD ST & AMSTERDAM AV	570 feet to the W	Closed Status Tank Failure
69	HIGHBRIDGE	173RD WEST STREET & AMSTERDAM AVE.	587 feet to the W	Chemical Bulk Storage Facility
51	1350 OGDEN AVE HDFC	1350 OGDEN AVE	599 feet to the ESE	Petroleum Bulk Storage Site
52	PUBLIC SCHOOL 172-BRONX	1399 OGDEN AVENUE	600 feet to the E	Petroleum Bulk Storage Site
28	MANHOLE TM436	1421 UNIVERSITY AV	606 feet to the ENE	Closed Status Spill (Misc. Spill Cause)
15	APT HOUSE	1304 MERRIAM AVE	622 feet to the SE	Closed Status Spill (Unk/Other Cause)
16	COMMERCIAL BLDG	1304 MERRIAM AV	622 feet to the SE	Closed Status Spill (Unk/Other Cause)
53	1304 MERRIAM AVENUE	1304 MERRIAM AVENUE	622 feet to the SE	Petroleum Bulk Storage Site
54	1304 MERRIAM CORPORATION	1304 MERRIAM AVE	622 feet to the SE	Petroleum Bulk Storage Site
29	APARTMENTS	1360 OGDEN AVE.	628 feet to the E	Closed Status Spill (Misc. Spill Cause)
1	HIGHBRIDGE YARD	HIGHBRIDGE YD DEPOT	630 feet to the S	Active Tank Failure
17	RR YD//OLD HIGH BRIDGE/BX	RR YD/OLD HIGH BRIDGE	630 feet to the S	Closed Status Spill (Unk/Other Cause)
30	METRO NORTH RAIL YARD	SOUTH OF DEPOT PLACE	630 feet to the S	Closed Status Spill (Misc. Spill Cause)
55	HIGHBRIDGE YARD - METRO-NORTH RAILROAD	100 DEPOT PLACE	631 feet to the S	Petroleum Bulk Storage Site
67	HIGHBRIDGE YARD - METRO NORTH RR	100 DEPOT PLZA AT EXTERIOR ST	649 feet to the S	Hazardous Waste Generator/Transporter
31	LEAK FROM VEHICLE 41263	MARIUM AVE & WEST 169 ST	651 feet to the SE	Closed Status Spill (Misc. Spill Cause)
56	BRONX TASK FORCE	1278 SEDGWICK AVENUE	652 feet to the SE	Petroleum Bulk Storage Site
57	1324 OGDEN AVENUE	1324 OGDEN AVENUE	656 feet to the ESE	Petroleum Bulk Storage Site
58	KARDASH RLTY CORP	1324 OGDEN AVE	656 feet to the ESE	Petroleum Bulk Storage Site
68	SVC STATION 7-NYC POLICE DEPT	1278 SEDGEWICK AVE	659 feet to the SE	Hazardous Waste Generator/Transporter



Toxics Targeting
1/8 Mile Buffer Closeup Map

High Bridge Aqueduct

Bronx & Manhattan, NY



Bronx County

- National Priority List (NPL) *
- Delisted NPL Site *
- CERCLIS Superfund Non-NFRAP Site *
- CERCLIS Superfund NFRAP Site *
- Inactive Hazardous Waste Disposal Registry Site *
- Inact. Haz Waste Disp. Registry Qualifying *
- Hazardous Waste Treater, Storer, Disposer *
- RCRA Corrective Action Facility *
- Hazardous Substance Waste Disposal Site *
- Solid Waste Facility *
- Major Oil Storage Facility *
- Brownfields Site *
- Chemical Storage Facility *
- Hazardous Material Spill *
- Toxic Release *
- MTBE Gasoline Additive Spill *
- Wastewater Discharge *
- Petroleum Bulk Storage Facility *
- Hazardous Waste Generator, Transp. *
- Historic Utility Site *
- Enforcement Docket Facility *
- Air Release *
- Env Qual Review E Designation *****
- Remediation Site Borders

- Subject Area
- Waterbody
- County Border
- Railroad Tracks
- 1/8 Mile Radius
- 250 Foot Radius

Scale: 1 inch = 426 feet

* 1/8 Mile Search Radius

** 1/8 Mile Search Radius

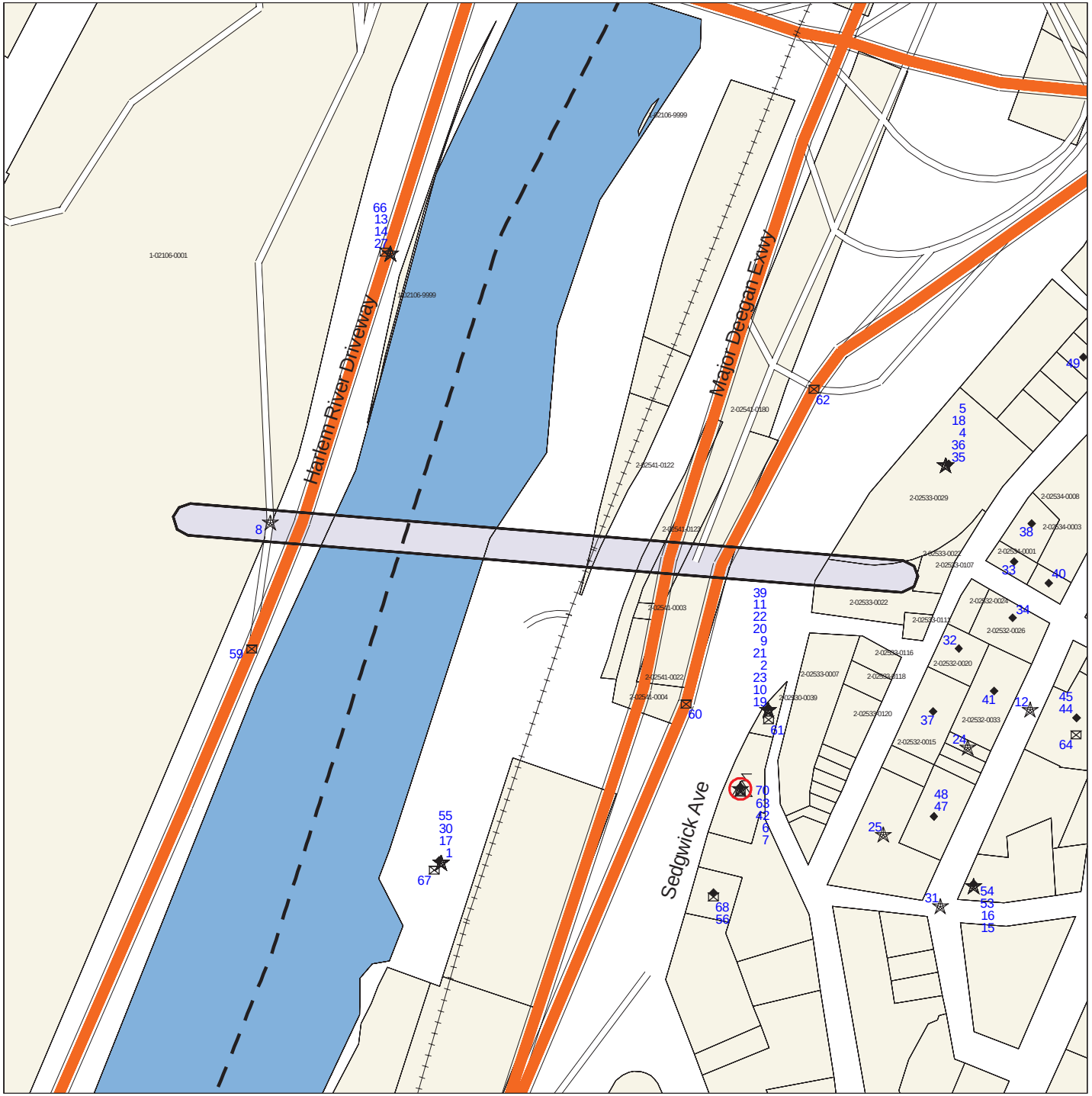
**** 1/8 Mile Search Radius

***** Onsite Search (250 Ft)

Toxics Targeting Tax Parcel Map

High Bridge Aqueduct

Bronx & Manhattan, NY



Scale: 1 inch = 305 feet

N
W
E
S

Bronx County

- National Priority List (NPL)
- Delisted NPL Site
- CERCLIS Superfund Non-NFRAP Site
- CERCLIS Superfund NFRAP Site
- Inactive Hazardous Waste Disposal Registry Site
- Inact. Haz Waste Disp. Registry Qualifying
- Hazardous Waste Treater, Storer, Disposer
- RCRA Corrective Action Facility
- Hazardous Substance Waste Disposal Site
- Solid Waste Facility
- Major Oil Storage Facility
- Brownfields Site
- Chemical Storage Facility
- Hazardous Material Spill
- Toxic Release
- MTBE Gasoline Additive Spill
- Wastewater Discharge
- Petroleum Bulk Storage Facility
- Hazardous Waste Generator, Transp.
- Historic Utility Site
- Enforcement Docket Facility
- Air Release
- Env Qual Review E Designation
- Remediation Site Borders
- Subject Area
- Waterbody
- County Border
- Railroad Tracks

Tax Parcel Information Table

High Bridge Aqueduct
Bronx & Manhattan, NY

Subject Parcel or Parcels

BBL #	Address	Owner	Zoning District(s)	Building Class	# of Buildings	Year Built	Assessment	Lot Area
2-02533-0022	1345 DR M L KING JR BLVD	PARKS AND RECREATION	PARK	Q0	0		9168	26738
2-02533-0029	1387 DR M L KING JR BLVD	H.E.L.P/PROJECT SAMAR	R7-1	I5	1	1941	882000	72500
2-02533-0107	UNIVERSITY AVENUE	PARKS AND RECREATION	PARK	Q1	0		15300	11151
2-02541-0022	DEPOT PLACE	PARKS AND RECREATION	PARK	Q1	0		67050	49454
2-02541-0122	1343 EXTERIOR STREET	NEW TABERNACLE BAPTST	M1-1	Z9	1	1930	19620	16430
2-02541-0123	DEPOT PLACE	PARKS AND RECREATION	PARK	Q1	0		26865	16800
2-02541-0180	DEPOT PLACE	MN-LTLMTA	M1-1	U6	0			
1-02106-0001	506 EDGECOMBE AVENUE	PARKS AND RECREATION	PARK	Q3	2	1949	16470000	3293950

Other Parcels Found On The Tax Parcel Map

BBL #	Address	Owner	Zoning District(s)	Building Class	# of Buildings	Year Built	Assessment	Lot Area
2-02530-0039	1314 SEDGWICK AVENUE	GETTY PETROLEUM CORP	C8-1	G4	1	1931	90675	4051
2-02532-0015	1344 DR M L KING JR BLVD	1344 UNIVERSITY LLC C	R7-1	C1	1	1926	327600	17500
2-02532-0020	1350 DR M L KING JR BLVD	NEXSTP REALTY II CORP	R7-1	C1	1	1926	263700	9500
2-02532-0024	1356 DR M L KING JR BLVD	NANA LLC	R7-1	B1	4	2004	15750	5056
2-02532-0026	190 WEST 170 STREET	190 REALTY LLC C/O NO	R7-1	D1	1	1929	544500	14469
2-02532-0033	1343 MERRIAM AVENUE	MERRIAM REALTY ASSOC.	R7-1	C1	3	1917	783000	19500
2-02533-0007	1300 WEST 169 STREET	ROBERT S OLNICK/TRUST	R7-1	V0	0		2919	30000
2-02533-0111	DR M L KING JR BLVD	PARKS AND RECREATION	PARK	Q1	1		4590	2597
2-02533-0116	UNIVERSITY AVENUE	ROBERT S OLNICK/TRUST	R7-1	V0	0		2134	4986
2-02533-0118	1339 DR M L KING JR BLVD	OLNICK ORGANIZATION	R7-1	V0	0		2037	4713
2-02533-0120	DR M L KING JR BLVD	1325 UNIVERSITY AVENU	R7-1	G7	0		36000	10891
2-02534-0001	1360 DR M L KING JR BLVD	GOLD UNIVERSITY AVE C	R7-1	C1	1	1915	160200	4872
2-02534-0003	1370 DR M L KING JR BLVD	1370 UNIVERSITY AVE C	R7-1	D1	1	1928	418050	11265
2-02534-0008	1380 DR M L KING JR BLVD	UNIVERSITY RESIDENCE	R7-1	D4	1	1967	1561500	42278
2-02534-0038	185 WEST 170 STREET	HOUSING DEVELOPMENT F	R7-1	C6	1	1926	144450	4175
2-02541-0003	MAJOR DEEGAN EXPWY	DEPT OF GENERAL SERVI	R7-1	V0	0		777	1890
2-02541-0004	DEPOT PLACE	MN-LTLMTA	M1-1 R7-1	U6	0			3949
1-02106-9999					0			

Section Two: Toxic Site Profiles

The heading of each *Toxic Site Profile* refers to the site's map location and details:

- The facility name, address, city, state, and zip code.
- Any changes that were made to a site's address in order to map its location.
- The site mapping method that was used (see ***How Sites are Located***, at the end of this section for more information).

Toxic Site Profiles summarize information provided by site owners or operators and government agencies regarding various toxic chemical activities reported at each site, such as:

- Whether chemicals were stored, produced, transported, discharged or disposed of.
- The name of chemicals and their Chemical Abstract Series (CAS) numbers.
- The amount of chemicals and the units (gallons/pounds) the chemical was measured in.
- Whether the site or storage tanks at the site are currently active or inactive.
- Special codes used by government agencies to regulate hazardous waste activities at some sites, or a complete description of the codes follows the profiles section.

For selected individual chemicals reported at various toxic sites, some potential health effect summary information appears below the site profile. Each potential health effect summary identifies chemicals by name and by Chemical Abstract Series (CAS) Number. An "x" under each potential health effect heading indicates positive toxicity testing results reported by the National Institute of Occupational Safety and Health's Registry of Toxic Effects of Chemical Substances (RTECS). Some chemicals (mostly appearing in profiles of Hazardous Waste facilities), are reported as mixtures, and RTECS health effect information is only available for individual chemicals. In addition, RTECS only provides information on approximately 100,000 common chemicals. Consequently, the absence of potential health effect summary information for a particular chemical identified in a Toxic Site Profile does not necessarily mean that the chemical does not pose potential health effects.

The Maximum Contaminant Level (MCL) in drinking water allowed for selected chemicals is also noted. In most cases, the only applicable MCL has been set by the New York State Department of Health (NYSDOH). Where NYSDOH has not set an MCL, the federal standard, if one exists, is listed and is marked by an asterisk.

Presented below are column headings that describe the health effect definitions used in RTECS and applicable New York State and federal drinking water standards. Reference sources for information presented in this section are also provided.

ACUTE TOX: **Acute Toxicity**: Short-term exposure to this chemical can cause lethal and non-lethal toxicity effects not included in the following four categories.

TUMOR TOX: **Tumorigenic Toxicity**: The chemical can cause an increase in the incidence of tumors.

MUTAG TOX: **Mutagenic Toxicity**: The chemical can cause genetic alterations that are passed from one generation to the next.

REPRO TOX: **Reproductive Toxicity**: May signify one of the following effects: maternal effects, paternal effects, effects on fertility, effects on the embryo or fetus, specific developmental abnormalities, tumorigenic effects, or effects on the newborn (only positive reproductive effects data for mammalian species are referenced).

IRRIT TOX: **Primary Irritant**: The chemical can cause eye or skin irritation.

MCL: **Drinking Water Standard - Maximum Contaminant Level** (MCL) listed under Drinking Water Supplies, 10 NYCRR Part 5, Subparts 1.51(f),(g), and (h) for NYDOH MCL's and under the Safe Drinking Water Act, 40 CFR 141, Subparts B and G, (* indicates value for total trihalomethanes) for federal MCL's.

Reference Source for Toxicity Information: Registry of Toxic Effects of Chemical Substances (RTECS), NIOSH (on-line database); For further information, contact: NIOSH, 4676 Columbia Parkway, Cincinnati, OH, 45226, 800/35-NIOSH.

Reference Source for Drinking Water Standards: New York State Department of Health, Bureau of Toxic Substances Assessment, 2 University Place, Room 240, Albany, NY 12203, 518/458-6373.

U.S. Environmental Protection Agency, Office of Drinking Water, 401 M St SW, Mailstop WH-556, Washington, DC, 20460, 202/260-5700.

Inactive Hazardous Waste Disposal Site Classifications:

1 -- Causing or presenting an imminent danger of causing irreversible or irreparable damage to the public health or the environment -- immediate action required;
2 -- Significant threat to the public health or environment -- action required;
3 -- Does not Present a significant threat to the environment or public health -- action may be deferred;
4 -- Site properly closed --requires continued management;
5 -- Site properly closed, no evidence of present or potential adverse impact -- no further action required;
2a -- This temporary classification has been assigned to sites where there is inadequate data to assign them to the five classifications specified by law;
A -- Work underway and not yet complete;
P -- Potential Site;
$D_{1, 2, 3}$ -- Delisted Site (1: hazardous waste not found; 2: remediated; 3: consolidated site or site incorrectly listed);
C -- Remediation Complete (formerly D2).

NO NATIONAL PRIORITIES LIST (NPL) SITES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

NO INACTIVE HAZ WASTE DISPOSAL REGISTRY OR REGISTRY-QUALIFYING SITES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

NO RCRA CORRECTIVE ACTION SITES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

NO CERCLIS SUPERFUND SITES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

NO BROWNFIELDS SITES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

NO SOLID WASTE FACILITIES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

NO HAZARDOUS WASTE TREATMENT/STORAGE/DISPOSERS IDENTIFIED WITHIN THE 1/8 MILE SEARCH RADIUS

HAZARDOUS MATERIAL SPILLS INTRODUCTION

The Hazardous Material Spills in this section are divided into eight spill cause groupings. These include:

Active Spills Section: Spills with incomplete paperwork that may or may not be cleaned up (See Date Cleanup Ceased)

1) Tank Failures
2) Tank Test Failures
3) Unknown Spill Cause or Other Spill Cause Hazardous Spills
4) Miscellanous Spill Causes: Equipment Failure, Human Error, Tank Overfill, Deliberate Spill, Traffic Accidents, Housekeeping, Abandoned Drum, and Vandalism.

Closed Status Spills Section: Spills with completed paperwork that may or may not be cleaned up (See Date Cleanup Ceased)

5) Tank Failures
6) Tank Test Failures
7) Unknown Spill Cause or Other Spill Cause Hazardous Spills
8) Miscellanous Spill Causes: Equipment Failure, Human Error, Tank Overfill, Deliberate Spill, Traffic Accidents, Housekeeping, Abandoned Drum, and Vandalism.

All spills within each spill cause category are presented in order of proximity to the subject site address.

Please note that spills reported within 0.25 mile (or one-eighth mile in New York City) are mapped and profiled.

Between 0.25 mile (or one-eighth mile in New York City) and 0.5 mile, only the following spills are mapped and profiled:

* Tank Failures;

* Tank Test Failures;

* Unknown Spill Cause or Other Spill Cause;

* Spills greater than 100 units of quantity; and

* Spills reported in the NYSDEC Fall 1998 MTBE Survey.

A table at the end of each section presents a listing of reported Miscellanous Spills with less than 100 units located between 0.25 mile (or one-eighth mile in Manhattan) and 0.5 mile. These spills are neither mapped nor profiled.

ACTIVE TANK FAILURES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

Please Note: * - Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 1 **HIGHBRIDGE YARD** **Spill Number: 9900836** **Close Date:**
HIGHBRIDGE YD DEPOT BRONX, NY TT-Id: 520A-0009-809

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING - LARGE SITE
Approximate distance from property: 630 feet to the S

ADDRESS CHANGE INFORMATION
Revised street: DEPOT PL
Revised zip code: 10452

Source of Spill:	COMMERCIAL/INDUSTRIAL	Spiller:	UNKNOWN	Spiller Phone:	
Notifier Type:	Other	Notifier Name:	MISSY MCGOOGAN	Notifier Phone:	(212) 340-9784
Caller Name:	MISSY MCGOOGAN	Caller Agency:	AKRF	Caller Phone:	(212) 340-9784
DEC Investigator:	MCTIBBE	Contact for more spill info:	MISSY MCGOOGAN	Contact Person Phone:	(212) 340-9784

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
04/22/1999		TANK FAILURE	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
UNKNOWN PETROLEUM	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

caller doing test bore and found soil contamination - caller states there are underground storage tanks next to bore site

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "TIPPLE"
4/22/99 AT 1:25PM, LEFT MESSAGE FOR MCGOOGAN.

4/29/05 Transit property//referred to Tibbe

NO ACTIVE TANK TEST FAILURES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

ACTIVE UNKNOWN CAUSE SPILLS AND OTHER CAUSE SPILLS IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

Please Note: * - Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 2 **GETTY S/S # 58505 - GETTY PROPERTIES** **Spill Number: 9613862** **Close Date:**
1314 SEDGWICK AVE BRONX, NY TT-Id: 520A-0008-610

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 261 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Source of Spill: GASOLINE STATION Spiller: UNKNOWN - GETTY STATION 58505 Spiller Phone:
Notifier Type: Tank Tester Notifier Name: SAME Notifier Phone:
Caller Name: JOE RENNIE Caller Agency: TYREE ENVIORNMENT Caller Phone: (516) 249-3150
DEC Investigator: rjfeng Contact for more spill info: Contact Person Phone: (718) 588-1754

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

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Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
02/26/1997	06/30/2006	UNKNOWN	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
GASOLINE	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

CALLER STATES SOIL SAPMLES CAME BACK POSITIVE

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "VOUGHT"
3/13/03 REASSGNED FROM ROMMEL TO VOUGHT.

6/30/2003-Vought-File review by Vought:

Underground Storage Tankfield Upgrade Report-July 1997-Tyree Brothers Environmental Services (Paul Hatcher 631-249-3150). Soil contamination found during installation of cathodic protection. Toprgraphy of site is steeply dipping to the south towards the Harlem River. A steeply sloped wooded tract of land borders the site to the north and east and NYPD Police Precinct is located on the south border of the site. Due to the steep sloped topography, groundwater varies from 30' to 90' below grade. Two soil endpoint samples were collected from sidewalls of tank excavation. Soil analyticals show concentrations up to 10990ppb xylene and 1960ppb MTBE. 34.89 tons of soil were removed from the site (disposal manifest provided).

NYSDEC Letter to Getty-4/1/98-Letter sent to Getty requiring on and off-site soil and groundwater delineation.

Quarterly Monitoring Reports-April 1998 thru June 1998-Tyree-One monitoring well on-Site. Remedial activities are EFR on W3 (.76' of product). No samples taken for analysis.

Inital Subsurface Investigation Report-Dec 1998-Tyree-During April 1998 three boreholes drilled to depth of 30'. Bedrock at 4-7' below grade.Two boreholes were dry and third (W3) had product (see above notes). "No more space available at site to drill additional boreholes". Depth to water is 26' below grade. Flow direction undetermined due to one monitoring well.

Quarterly MOnitoring Reports-OCt 1998 thru Dec 2000-Tyree-One monitoring well on-site. Total phase high vacuum extraction on W-3 semi-monthly. Groundwater analyticals in W3 up to 3180ppb benzene, 13290ppb xylene and 25200ppb MTBE. 25 gallons of liquid recovered during extraction event.

Status Report-January 2001 thru June 2001-Tyree-Five monitoring wells on-site. Free product (up to .58') in two monitoring wells (MW1 and MW3). Groundwater concentrations up to 6800ppb benzene(MW3), 14900ppb toluene(MW3), and 104000ppb MTBE(MW5).

Status Report-July 2001 thru Dec 2002-Tyree-Five monitoring wells on-site. Free product in MW1 and MW4 (up to .07'). Groundwater concentrations up to 3040ppb benzene(MW3), 6470 toluene(MW3) and 129000ppb MTBE(MW5). Product was sampled in MW1 for identification and was found to contain gasoline and lube oil. Total Phase High Vacuum Extraction on MW1, MW3, MW4 and MW5 bi-monthly. Groundwater flow to the northeast with approxinmate total recoveries of 17 gallons of liquid per well.

Semi-Quarterly Monitoring Report-Jan 2003 thru June 2003-Tyree- Five monitoirng wells on-site. No free product detected in wells. Groundwater concentrations up to 2420 ppb benzene(MW3), 6470ppb xylene(MW3) and 29600ppb MTBE(MW5).

7/2/2003-Vought-NYSDEC requires 1)downgradient boring or well. 2)surrounding area site plan and sensitive receptor survey

11/20/2003-Vought-See closed spill #0305483 at same location.

4/27/04-Vought-Spoke to Mike Deluca and he was closing a waste oil tank which is above grade and cannot be removed structural constraints. Borings not feasible on all sides of tank due to no rig access and thick concrete. Vought agreed to one sample next to tank below tank invert. Soil will be sampled for 8260/8270 and metals.

5/13/04-Vought-Spoke with Mike Deluca and VOC exceedences detected during excavtion of above waste oil tank. Vought stated that no additional spill reporting was necessary due to preexisting spill. Deluca will send in results to DEC.

10/14/04-Vought-Spoke to David Pachan and historically groundwater flow to the northeast. Now gradient flowing to the south. Last sampling data show no free product. Pachan can send in photos and surrounding site map. Dave will email photos and map.

10/15/04-Vought-Sent email to Delta and Tyree, "Upon speaking with Jonathon Grecco (DEC Albany working on Mobil Exxon) there used to be a mobil exxon at the two story new hotel location on your plan). There are low levels of MTBE beginning to show in the Exxon Mobil wells and they are stating it is coming from your site in accordance with the recent change in direction of groundwater flow you guys found. They have a had a long running SVE system at the site and DEC Albany feels that soil and groundwater samples are clean enough to warrant no further action (except for installation of an active ventilation system under the motel). However we still need a remedial plan regarding the dissolved contamination at 1314 Sedgewick."

11/30/2004-Vought-Received email from David Pachan(Tyree) "I reviewed this site and I do not feel remediation is necessary based on the current site conditions". No sheen in well between Getty and Mobil. "I would like to prepare a workplan for you to install some MWs downgradient from MW2 in between the Getty and the Former Mobil".

1/12/05-Vought-Reviewed Tank Closure Report (Tyree Org Mike Deluca) dated 7/9/04 and received on 8/5/04. One (550-gallon) waste oil UST abandoned in place. "One endpoint sample was collected from the bottom of the abandoned UST". Soil analyticals show 1639ppb xylene(bottom). Vought approved installation of wells and required: 1)recovery of free product via VEFR or manual bailing and Vought sent email to Tyree as such.

08/31/2005 - Feng - Project transferred from Vought to Feng.

10/24/2005 - Feng - Quarterly Monitoring Report, 7/2004 - 12/2004. Site was inactive gasonline retail/service station. 5 monitoring wells onsite, groundwater flow to north east at depth of 16.30' to 26.23' bg. Remedial activities, such as Enhanced Fluid Recovery (Quarterly) on MW-1,3,4 and 5. W-1 found free product (0.32'), W-2 showing downward trend on both BTEX (0.9ppb)and MTBE (BDL). W-3 has found 3,018ppb BTEX and 75.7ppb MTBE this quarter, historically high contamination and free product has been observed in W-3. W-4 is showing downward trend, 3.0ppb BTEX and 1.1ppb MTBE. W-5 has 7,281ppb BTEX and 54.1ppb MTBE, but BTEX is fluctuating/increasing.

11/18/2005 - Feng - STIP sent to Getty Properties and Getty Marketing (for tank test) with request of 1) installation of wells downgradient of W-1 and W-3. 2) surrounding properties sketch. 3) tank tightness and line pressure test due 12/21/2005. CC to Tyree and Delta. STIP due 12/19/2005.

2/23/2006 - Feng - Email to Shawn Healey (Tyree) and remind him of Tank Test. Deadline of early March 2006 was given. (RJF)

3/1/2006 - Feng - Reviewed the Tank Test Report, dated 6/27/2002 (2 tanks, passed), 12/2/2005 (2 tanks, passed).

5/1/2006 - Feng - Quarterly Monitoring Report, 1/2006 - 3/2006. The site is an inactive gasoline retail/service station. Groundwater flows to northeast at depth of 14.33' to 26.96' below grade. 5 monitoring wells onsite. W-1, 0.01' FP. W-2, 178 ppb BTEX, 2.49 ppb MTBE. W-3, 0.03' FP. W-4, 3,998 ppb BTEX, 41.1 ppb MTBE. W-5, 193.1 ppb BTEX, 38.1 ppb MTBE. Emailed Scott Cunningham and requested FP removal activities. And Scott Cunningham stated that they are manually bailing the product from the monitoring well directly into a drum which is stored on the site during the quarterly monitoring well sampling events. (RJF)

6/8/2006 - Feng - Stipulation Agreement sent to Getty Properties, and cc to Delta and Tyree. STIP is due 6/30/2006. (RJF)

7/5/2006 - Feng - STIP executed by DEC on 6/30/2006. Emailed a copy to Getty Properties, Delta and Tyree. (RJF)

11/15/2006 - Feng - Quarterly Monitoring Report, 7/2006 - 9/2006, 9/2006, by Tyree. Inactive gasoline retail/service station. Groundwater sampled and gauged 8/25/2006. 5 monitoring wells. DTW 14' to 27.63' bg. Flow direction north. LNAPL in MW-1 (0.02'), MW-3 (0.01') and MW-4 (0.01'). BTEX range ND to 124.8 ppb (MW-5). MTBE range ND to 38.5 ppb (MW-5). Manually bailing product into a 55 gallon drum from the monitoring wells containing product. Labeled product drum is left on site. (RJF)

1/18/2007 - Feng - Getty Properties portfolio meeting with Tyree and Delta. DEC required 1 monitoring well to be installed in between MW-3 and MW-5. SIR due 4/20/2007. (RJF)

1/22/2007 - Feng - Quarterly Monitoring Report, 9/2006 - 11/2006, 12/2006, by Tyree. Groundwater sampled 11/17/2006. 5 monitoring wells. DTW 14.26' to 27.64' bg. Flow north. LNAPL in MW-3 (0.01'). MW-1, 7,854 ppb BTEX, 739 ppb MTBE. MW-2, 2.4 ppb BTEX, MTBE BDL. MW-4, 7,964 ppb BTEX, 51.8 ppb MTBE. MW-5, 330 ppb BTEX, 36.2 ppb MTBE. Manual bailing product into a 55 gallon drum from the monitoring wells containing product. (RJF)

5/10/2007 - Feng - Spoke to D. Madigan (Tyree). A well was installed between MW-3 and MW-5. Pilot test for SVE or Dual Phase system will be performed on 5/18/2007. RAP will be submitted after the pilot test. (RJF)

5/15/2007 - Feng - Spoke to D. Madigan (Tyree). A dispenser was hit and this incident was not reported by the station operator. Talked to J. Sun and he suggested to call in for a new spill. Madigan will contact the station operator and a new spill will be called in. (RJF)

6/5/2007 - Feng - Quarterly Monitoring Report, 12/2006 - 1/2007, 2/2007. Groundwater monitored 1/31/2007. 5 monitoring wells. DTW 23.92' to 28.85' bg. Flows northern. LNAPL in MW-3 (0.02'). MW-1, 7,225 ppb BTEX, 244 ppb MTBE. MW-2, 11.6 ppb BTEX, 0.57 ppb MTBE. MW-3, 0.02' LNAPL. MW-4, 3,321 ppb BTEX, 66.5 ppb MTBE. MW-5, 92.5 ppb BTEX, 38 ppb MTBE. (RJF)

6/19/2007 - Feng - Quarterly Monitoring Report, 1/2007 - 3/2007, 3/2007. Groundwater sampled 3/9/2007. 5 monitoring wells were sampled. DTW 23.92' to 28.85' bg. Flows to north. LNAPL in MW-3 (0.01'). MW-1, 5,027 ppb BTEX, 99.3 ppb MTBE. MW-2, 54.9 ppb BTEX, 1.9 ppb MTBE. MW-3, 0.01' LNAPL. MW-4, 2,380 ppb BTEX, 43.9 ppb MTBE. MW-5, 52.4 ppb BTEX, 30.9 ppb MTBE. Manual bailing product into a 55 gallon drum from the monitoring wells containing product. Oil absorbent socks installed into MW-1 and MW-4. Drilling one well between MW-4 and MW-5 is scheduled. (RJF)

8/15/2007 - Feng - Quarterly Monitoring Report, 3/2007 - 5/2007, 6/2007. Groundwater sampled 5/31/2007. 6 monitoring wells were sampled. DTW 11.28' to 30.42' bg. Flows to north. LNAPL in MW-6 (4.77'). MW-1, 3,967 ppb BTEX, 255 ppb MTBE. MW-2, 4.7 ppb BTEX, MTBE BDL. MW-3, 4,104 ppb BTEX, 91.9 ppb MTBE. MW-4, 2,512 ppb BTEX, 46.8 ppb MTBE. MW-5, 858 ppb BTEX, 48.5 ppb MTBE. MW-6, newly constructed, 4.77' LNAPL. Manually bailing product into a 55 gallon drum from the monitoring wells containing product. Oil absorbant socks installed into MW-1 and MW-4. Labeled product drum is left on site. Pilot test data and report will be forwarded to DEC next quarter.

Attached the report of installation of monitoring well MW-6. Drilled depth 41'. Groundwater encountered at 30' bg. Soil sample collected at 15'-17'. No VOCs exceedance but some minor SVOCs exceedances. During the latest quarterly sampling event, there is 4.77 feet of free floating product in MW-6. (RJF)

11/5/2007 - Feng - Reviewed RAP SVE combined with Pump-and-treat System Design. RAP approved with some modification/conditions: 1) vent line from the oil/water separator to be connected to the vapor treatment line assocated with the vapor phase carbon vessels. 2) electrical interlock to be installed between the oil/water separator pump and the level switches. 3) liquid phase active carbon filters and sampling port should be installed before the liquid discharge into the sewer system. 4) submit OM&M plan. 5) monthly product recovery before the permanent remdial system is operational. 6) approved RAP to be implemented by 1/8/2008. Letter to Kevin Shea and cc to Tyree. (RJF)

11/7/2007 - Feng - Quarterly Monitoring Report, 6/2007 - 8/2007, 8/2007. Groundwater sampled 8/21/2007. 6 monitoring wells. DTW 23.65' to 27.27' bg. Flows to north. LNAPL in MW-6 (3'). BTEX range 120 ppb to 15,440 ppb (MW-1). MTBE range 22.6 ppb to 676 ppb (MW-1). Manually bailing product into a 55 gallon drum from monitoring wells containing product. Oil absorbent socks installed into MW-1 and MW-4. (RJF)

11/8/2007 - Feng - Portfolio meeting with Delta and Tyree. Tyree proposed to change the RAP. Biweekly product recovery for 6 months and then start system installation after 6 months. Tyree will also resurvey the area for offsite well across the Sedgewick Ave. Tyree will send DEC a letter for their new proposal. (RJF)

3/21/2008 - Feng - Quarterly Monitoring Report, 9/2007 - 11/2007, 12/2007. Active gasoline retail/service station. Groundwater was gauged and sampled 11/8/2007. 6 monitoring wells. DTW 9.97' to 33.0' bg. Flows to north. LNAPL in MW-3 (0.27') and MW-6 (5.3'). BTEX range 7.4 ppb to 11,530 ppb (MW-1). MTBE range ND to 356 ppb (MW-1). Manually bailing product into a 55 gallon drum from the monitoring wells containing product. Oil absorbent socks installed into MW-1 and MW-4. Labeled product drum is left onsite. Monthly EFR on MW-6.

Email to D. Madigan (Tyree) and P. Lindell (Delta) for biweekly EFR events on MW-6. (RJF)

5/22/2008 - Feng - Quarterly Monitoring Report, 12/2007 - 3/2008, 3/2008. Active gasoline retail service station. Groundwater was gauged and sampled 3/4/2008. 6 monitoring wells. DTW 9.94' to 32.4' bg. Flows to north. LNAPL in MW-6 (>3 feet). BTEX range 22 ppb to 5,740 ppb (MW-4). MTBE range ND to 118 ppb (MW-4). On 1/16/2008, an EVR was conducted on MW-6 and removed 180 gallons of a water/gasoline mixture. On 3/20/2008, an EVR was conducted on MW-6 and removed 189 gallons of water/gasoline mixture. Both waste manifest are attached. (RJF)

9/4/2008 - Getty Properties portfolio meeting with Delta and Tyree. The water table depth has raised 10 feet since the EFR events. Tyree will pump the well W-6 to see the racharge rate. Delineation work plan by 11/2008. (RJF)

12/31/2008 - Reviewed the Work plan, dated 10/27/2008, from Tyree proposing 1 well installation. Well location is different as agreed upon the last meeting. Email Tyree for reason.

1/6/2009 - Getty Properties portfolio meeting with Tyree and Delta. The map was corrected. The proposed well is moved to the sidewalk of Sedgwick Ave about 12-14 feet away from W-6. Work plan by 1/2009. (RJF)

2/12/2009 - Quarterly Monitoring Report, 4/2008 - 7/2008, 8/2008, by Tyree. Active gasoline retail service station. Groundwater was gauged and sampled 7/2/2008. 6 monitoring wells. NO LNAPL. DTW 9.63' to 16.64' bg. Flows to north. BTEX range ND to 1,365 ppb (W-5). MTBE range ND to 48.9 ppb (W-1). Manually bailing product into a 55 gallon drum from the monitoring wells containing product. Oil absorbent socks installed into MW-1 and MW-4. Labeled product drum is left onsite. On 4/11/2008, an EFR was conducted on MW-6 and removed 195 gallons of water gasoline mixture. On 6/6/2008, an EFR was conducted on MW-6 and

removed 240 galons of water and gasoline mixuture. Manifest are included in the report.

Quarterly Monitoring Report, 8/2008 - 10/2008, 12/2008, by Tyree. Active gasoline retail/service station. Groundwater was gauged and sampled 10/29/2008. 6 monitoring wells. DTW 10.37' to 26.71' bg. Flows to north. LNAPL in W-6 (0.08'). BTEX range 3.5 ppb to 4,177 ppb (W-3). MTBE range ND to 83.7 ppb (W-4). On 8/4/2008, EVR was conducted on W-6 and removed 161 gallons of water/gasoline mixture. On 9/2008, an EVR was conducted on W-6 and removed 268 gallons of water/gasoline mixture. Both manifests are included in the quarterly report.

Investigation Work Plan, dated 1/27/2009, by Tyree. Tyree proposes to install 1 monitoring well to the north of the property. Email to Tyree requiring 10 feet of riser and 30 feet of screen instead of the proposing 20 feet riser and 20 feet screen. (RJF)

11/13/2009 - Reviewed IWP revision, dated 11/10/2009, by Tyree. One well will be installed downgradient to MW-6. Work plan is approved. SIR due within 90 days of the approval, by 2/2010. (RJF)

NO ACTIVE HAZARDOUS SPILLS - MISC. SPILL CAUSES - EQUIPMENT FAILURE, HUMAN ERROR, TANK OVERFILL, DELIBERATE SPILL, TRAFFIC ACCIDENT, HOUSEKEEPING, ABANDONED DRUM, AND VANDALISM - IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS.
All spills mapped and profiled within 1/8 mile. Between 1/8 mile and 1/8 mile search radius, spills reported to be greater than 100 units and spills reported in the NYSDEC Fall 1998 MTBE Survey are mapped and profiled. Spills reported to be less than 100 units are listed in a table at the end of this section.

THE FOLLOWING ACTIVE SPILLS FOR THIS CATEGORY WERE REPORTED BETWEEN 1/8 MILE AND 1/8 MILE SEARCH RADIUS FROM THE SUBJECT ADDRESS. THESE SPILLS WERE REPORTED TO BE LESS THAN 100 UNITS IN QUANTITY AND CAUSED BY: EQUIPMENT FAILURE, HUMAN ERROR, TANK OVERFILL, DELIBERATE SPILL, TRAFFIC ACCIDENT, HOUSEKEEPING, ABANDONED DRUM, OR VANDALISM. THESE SPILLS ARE NEITHER MAPPED NOR PROFILED IN THIS REPORT.

FACILITY ID	FACILITY NAME	STREET	CITY

No dropped spills found for this category

CLOSED STATUS TANK FAILURES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

Please Note: * - Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 3 **HIGHBRIDGE POOL E. SIDE** **Spill Number: 9203105** **Close Date: 12/27/2002**
W.173RD ST & AMSTERDAM AV MANHATTAN, NY TT-Id: 520A-0093-681

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (2)
Approximate distance from property: 570 feet to the W

ADDRESS CHANGE INFORMATION
Revised street: AMSTERDAM AVE/W 173RD ST
Revised zip code: 10032

Source of Spill:	INSTITUTIONAL, EDUC, GOV, OTHER	Spiller:		Spiller Phone:	
Notifier Type:	Responsible Party	Notifier Name:		Notifier Phone:	
Caller Name:	H POULOS	Caller Agency:	NYC PARKS & REC	Caller Phone:	(212) 830-7961
DEC Investigator:	SJMILLER	Contact for more spill info:		Contact Person Phone:	

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
06/01/1992		TANK FAILURE	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	-1.00	POUNDS	0.00	POUNDS	SOIL

Caller Remarks:

CONTAMINATED SOIL STOCKPILED; WILL TEST & DISPOSE.

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "MILLER"

CLOSED STATUS TANK TEST FAILURES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

Please Note: * - Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 4 **SAMMARITAN VILLAGE** **Spill Number: 0511330** **Close Date: 03/14/2006**
1381 UNIVERSITY AVE BRONX, NY TT-Id: 520A-0010-638

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 219 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Source of Spill: COMMERCIAL/INDUSTRIAL
Notifier Type: Tank Tester
Caller Name: TJ OCONNOR
DEC Investigator: mxferoze

Spiller: JAMES MCGOLDWICK - SAMMARITAN VILLAGE
Notifier Name: TJ OCONNOR
Caller Agency: DRY AS A BONE
Contact for more spill info: JAMES MCGOLDWICK

Spiller Phone: (718) 206-2000
Notifier Phone: (516) 678-5115
Caller Phone: (516) 678-5115
Contact Person Phone: (718) 206-2000

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
12/29/2005		TANK TEST FAILURE	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks: NO REMARKS GIVEN FOR THIS SPILL

DEC Investigator Remarks:

12/30/05. Mr Feroze talked with James Mcgoldwick (718-206-2000 347-452-3866), he informed that the system is fine and he will send DEC the tank test result soon. TTF also sent:

Samaritan Village Inc,
138-02 queens Blvd, Briarwood, NY 11435.

01/18/06 . Feroze received a fax from Lee Selinger (631-360-8901, 516-330-8170) of WINDMILL Oil Tank service. He mentioned that he will change the fill & vent pipe. He is requested to submit manifest and tank test result to DEC.

PBS of this Spill 2-349542.

02/22/06 . Feroze received a letter from Lee Selinger (631-360-8901, 516-330-8170) of WINDMILL Oil Tank service. He mentioned that they excavated the top of the tank and replaced the vent and fill line. They will change gaskets of undisclosed manhole cover and will test the tank.
02/06/06, Feroze talked Lee Selinger (631-360-8901).They wiil submit DEC the manifest to change the fill and vent lines.
03/13/06 Feroze , Mr. James Mcgoldrick e-mailed me that they will submit tank tightness test result within a week.

03/14/06 Feroze. Received the passed tank tightness test result and manifest regarding change of fill and vent lines. The spill is closed.

Map Identification Number 5 **X** **Spill Number: 0204626** **Close Date: 12/12/2007**
1381 UNIVERSITY AVE BRONX, NY TT-Id: 520A-0012-176

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 219 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Source of Spill:	INSTITUTIONAL, EDUC, GOV, OTHER	Spiller:	DEBBIE KAPLAN	Spiller Phone: (718) 206-2000 ext. 2
Notifier Type:	Tank Tester	Notifier Name:	MR. WACHSOER	Notifier Phone: (718) 731-7011
Caller Name:	MR. WACHSOER	Caller Agency:	NYC TANK TESTING	Caller Phone: (718) 731-7011
DEC Investigator:	rmpiper	Contact for more spill info:	DEBBIE KAPLAN	Contact Person Phone: (718) 206-2000 ext. 2

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.
Class: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	PBS # Involved	Meets Cleanup Standards	Penalty Recommended
08/01/2002		TANK TEST FAILURE	2-34952	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks: NO REMARKS GIVEN FOR THIS SPILL

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "SAWYER"

1/6/04-Vought-Spill transferred from Vought to Austin
01/27/04 - Sawyer - Spill transferred from Austin to Sawyer.
12/27/05- DEC Piper sent Old TTF letter to
James McGoldrick
Samaritan Village Inc.
138-02 Queens Blvd
Briarwood, NY 11435
5/5/06- DEC Piper sent another Old TTF letter
4/30/07- DEC Piper left mesdsage for Igotr at Samaritan Village. James is no longer wiht them

12/12/07- DEC Piper, I reviewed case and pbs info. All information up to date. This spill closed.

Map Identification Number 6 **MOBIL S/S** **Spill Number: 8801702** **Close Date: 08/02/1993**
1300 SEDGWICK AVENUE BRONX, NY TT-Id: 520A-0013-111

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 429 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Source of Spill: GASOLINE STATION Spiller: MIKE MEOLA - EXXONMOBIL CORPORATION Spiller Phone: (516) 371-1395
Notifier Type: Tank Tester Notifier Name: Notifier Phone:
Caller Name: MIKE GROUT Caller Agency: GAS SERVICE Caller Phone: (212) 792-4300
DEC Investigator: SIGONA Contact for more spill info: Contact Person Phone:

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.
Class: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	PBS # Involved	Meets Cleanup Standards	Penalty Recommended
05/24/1988	08/02/1993	TANK TEST FAILURE	2-156582	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
GASOLINE	PETROLEUM	0	GALLONS	0	GALLONS	GROUNDWATER

TANK TEST INFORMATION

Tank Number	Tank Size	Tank Test Method	Leak Rate	Gross Leak or Failure
		Unknown	0.00	UNKNOWN

Caller Remarks:

4K TANK SYSTEM FAILED PETRO-TITE. L R =-0.454 GPH.

DEC Investigator Remarks: DEC INVESTIGATOR REMARKS NOT AVAILABLE FOR THIS SPILL ACCORDING TO THE LAST UPDATE.

The following DEC Investigator Remarks were available prior to 1/1/2002:

08/02/93: CROSS REFERENCE TO ACTIVE SPILL NUMBER 8707606.
reassigned from grathwol to sigona on 10/25/00

Map Identification Number 7 **MOBIL S/S** **Spill Number: 8707606** **Close Date: 12/16/2005**
1300 SEDGWICK AVE BRONX, NY TT-Id: 520A-0013-110

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 429 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Source of Spill:	GASOLINE STATION	Spiller:	MIKE MEOLA - EXXONMOBIL CORPORATION	Spiller Phone: (516) 371-0739
Notifier Type:	Tank Tester	Notifier Name:		Notifier Phone:
Caller Name:		Caller Agency:		Caller Phone:
DEC Investigator:	JXGRECO	Contact for more spill info:		Contact Person Phone:

Category: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies, or significant release to surface waters.
Class: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

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Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
12/04/1987		TANK TEST FAILURE	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
GASOLINE	PETROLEUM	0	GALLONS	0	GALLONS	GROUNDWATER
MTBE (METHYL-TERT-BUTYL ETHER)	HAZARDOUS MATERIAL	0	UNKNOWN	0	UNKNOWN	

TANK TEST INFORMATION

Tank Number	Tank Size	Tank Test Method	Leak Rate	Gross Leak or Failure
		Unknown	0.00	UNKNOWN

Caller Remarks:

FILLED TANK WITH WATER AFTER PRODUCT WAS REMOVED. CONTACT: STEVE TRIFALOLI (516) 371-0739.

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "GRECO"
reassigned from sullivan to sigona on 10/25/00

Being managed in Central Office, John Greco.

5/6/04 GSC (consultant to ExxonMobil)submitted a site history of the adjacent Getty service sttaion in an attempt to show that contamination on the 1300 Sedgwick property is coming from the adjacent Getty Service Station.

6/29/05 GSC (consultant to ExxonMobil) submitted a work plan for testing the effectiveness of a recently installed pre-emptive subslab ventilation system. That system was put in in April of 2005, after ExxonMobil demonstarted that any remaining contamination at the property was relatively low in concentration and was likely to be the result of migration from the adjacent Getty gas station, as opposed to being from the original EM release.

10/3/05 GSC (consultant to ExxonMobil)submitted a document which details the testing they performed in order to demonstrate that the pre-emptive subslab ventilation system was functioning. Since all likely human pathways have been cutoff (i.e., the site is now completely covered by a motel and parking garage and a subslab vent system is in place), contamination was last observed to be remaining in on localized areas on-site, and that contamination was relatively low, the spill was closed.

NOTE: EDOCS contains some documents, however, almost all earlier documentation is now lost (files were never returned from copying service when responding to a FOIL request. JDG 12/16/05

CLOSED STATUS UNKNOWN CAUSE SPILLS AND OTHER CAUSE SPILLS IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

Please Note: * - Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 8 **MAN HOLE # 61741** **Spill Number: 9810409** **Close Date: 07/24/2003**
HARLEM RIVER DR/HIGHBRIDG MANHATTAN, NY TT-Id: 520A-0103-054

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (5)
Approximate distance from property: 0 feet

ADDRESS CHANGE INFORMATION
Revised street: HARLEM RIVER DR / HIGHBRIDGE
Revised zip code: 10033

Source of Spill:	UNKNOWN	Spiller:	UNK	Spiller Phone:	
Notifier Type:	Affected Persons	Notifier Name:	LISA PRIMEGGIA	Notifier Phone:	(212) 580-6763
Caller Name:	LISA PRIMEGGIA	Caller Agency:	CON	Caller Phone:	(212) 580-6763
DEC Investigator:	CAENGELH	Contact for more spill info:		Contact Person Phone:	

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
11/17/1998		UNKNOWN	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
UNKNOWN PETROLEUM	PETROLEUM	100.00	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

CON ED # 121324 LEAK FOUND WHILE ATTEMPTING TO FIND LEAK ON M-51 FEEDER SPILL CONTAINED IN MANHOLE

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "ENGELHARDT"

11/19/98, 8:06 AM - e-mail from Joe Oliverto to Chris Engelhardt:

"CHRIS; PER YOUR REQUEST I HAVE FAXED YOU THE INFORMATION ON THE HARLEM RIVER DRIVE MANHOLES.

"MANHOLE #61741 WAS ORIGINALLY TAGGED AND SAMPLED IN MAY AND JUNE OF 1996. THE E2MIS RPEORTING SYSTEM DID NOT EXIST IN 1996 SO THE DATA WAS LOGGED, AND CLEANUP WAS SCHEDULED FOR THE NEXT TIME WE NEEDED TO WORK IN THE MANHOLE. IN SEPTEMBER OF 1998 A CORROSION SURVEY CREW REPORTED 50 GALLONS OF OIL ON 300 GALLONS OF WATER ON E2MIS #119936. HAVING THE PRIOR TEST RESULTS, THIS MANHOLE WAS PUT ON A LIST OF MANHOLES TO BE CLEANED A.S.A.P.

"IN LATE OCTOBER OF 1998 WE BEGAN A PROGRAM TO CLEAN THE MANHOLES ON THE LIST. OF A BACKLOG OF 80, 30 HAVE BEEN COMPLETED. THESE MANHOLES WERE ON THE LIST, BUT AS YOU KNOW THEY WERE TURNED IN AGAIN DURING THE LATEST LEAK SEARCH ON THE FEEDER. CLEANUP OF BOTH MANHOLES WAS COMPLETED LAST NIGHT, AND OUR POLICY NOW IS TO CLEAN ANY MANHOLE WITH OIL AND WATER WITHIN 30 DAYS, AND WITHIN 24 HOURS IF LAB RESULTS DICTATE.

"AS SUSPECTED, A 2' VALVE IN MANHOLE #61885 [see DEC spill # 9810408] WAS LEAKING A FEW DROPS PER MINUTE, WHICH ACCOUNTS FOR THE ADDITIONAL OIL. THE VALVE WAS TIGHTENED AND CAPPED. NO LEAK WAS FOUND IN MH #61741."

Note: neither the May/June 1996 or September 1998 incidents were reported to DEC. (CAE)

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e2mis no. 119-936:

On 9/21/98 found 50 gallons of oil on top 300 gallons of water contained inside mh 61741 for feeder 51 & 52. This mh was previously tagged and sampled 5/29/96 and resampled on 6/27/96. This manhole was turned in again by Corrosion ops on 11/18/98 and cleaned by TO. See EMIS 121324.

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e2mis no. 121-324:

On 11/17/98 on a visual inspection of manholes for potential leaks on FDR M51/M52 an discovered 150 gallons of unknown oil on top of 7000 water inside mh 61885. The Techs are standing by the mh until a UT crew relieves them They noted that the oil is contained and did not enter any sewers or waterways. No sample was taken.

UPDATE: This is old oil found in the manhole and is not the leak on Fdr 5 (121316). DEP representative Oluremi Fatimilehin on site at approx. 19:00 11/17. Commisoner's order to respond given to Con Ed crews at 20:00. Chem lab to be notified to take samples and clean manhole ASAP. Samples were previously taken for cleanup under E2MIS 108341 on 11/11/98. TO crews relieve CGO crews at approx 21:00. Sample 98-12424 <1 ppm PCB. Clean Harbors notified to clean manhole. Chris Englehardt (NYSDEC) on location at approx 13:00 to inspect clean up work. Samples 98-12470 1300 ug/l benzene.Clean Harbors on site and cleanup started at 16:00 11/18/98. Clean up completed at 21:00.

Map Identification Number 9 **GETTY #58505** **Spill Number: 0808028** **Close Date: 11/27/2009**
1314 SEDGEWICK AVE BRONX, NY TT-Id: 520A-0222-535

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 261 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: 1314 SEDGWICK AVE
Revised zip code: NO CHANGE

Source of Spill:	GASOLINE STATION	Spiller:	ASARE - GETTY #58505	Spiller Phone:	
Notifier Type:	Other	Notifier Name:		Notifier Phone:	
Caller Name:		Caller Agency:		Caller Phone:	
DEC Investigator:	smsanges	Contact for more spill info:	LARRY ANDERSON	Contact Person Phone:	(718) 652-0200

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
10/16/2008		OTHER	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
GASOLINE	PETROLEUM	0	GALLONS	0	GALLONS	

Caller Remarks:

LINE TEST FAILURE. CALLER STATES THAT HE IS CALLING REGARDING LINE TESTING COMPLIANCE, THERE IS AN ISSUE WITH THE LINE FROM DISPENSER 3-4 WHICH IS CAUSING PRODUCT TO LEAK BACK INTO THE TANK. NO PRODUCT HAS BEEN SPILLED.

DEC Investigator Remarks:

Site is NOT a Getty corp site.
Site is owned by: Montgomery Fuel.
Contact: Mr. Robert Delgadio, 90 Merrick Ave., East Meadow, New York 11554.

11/27/2009 Sangesland reviewed a submittal from the owner's rep: Christopher Thomas of "1314 Sedgwick Ave LLC" The letter stated that there was a problem with a check valve under the dispenser 3/4. There was no release of petroleum and the repairs were made. System was retested and passed. See eDocs.

Map Identification Number 10 **GETTY #58505** **Spill Number: 0512294** **Close Date: 01/26/2006**
13 SEDWICK AVE BRONX, NY TT-Id: 520A-0214-284

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 261 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: 1314 SEDGWICK AVE
Revised zip code: 10452

Source of Spill:	GASOLINE STATION	Spiller:	CUSTOMER OVERFILL	Spiller Phone:	
Notifier Type:	Other	Notifier Name:	MIKE CARR	Notifier Phone:	(518) 369-7822
Caller Name:	MIKE CARR	Caller Agency:	TYREE	Caller Phone:	(518) 369-7822
DEC Investigator:	SMSANGES	Contact for more spill info:	MIKE CARR	Contact Person Phone:	(518) 369-7822

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
01/24/2006		OTHER	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
GASOLINE	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

less then 1 gallon and all cleaned up;

DEC Investigator Remarks:

Spill appears to have been by a customer next to the fuel pump.
OK to close

Map Identification Number 11 **GETTY STATION** **Spill Number: 0401941** **Close Date: 08/16/2004**
1314 SEDGEWICK AVE BRONX, NY TT-Id: 520A-0009-488

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 261 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: 1314 SEDGWICK AV
Revised zip code: 10452

Source of Spill:	GASOLINE STATION	Spiller:	SCOTT	Spiller Phone:	(516) 542-5022
Notifier Type:	Other	Notifier Name:	MICHAEL DELUCA	Notifier Phone:	(631) 249-3150
Caller Name:	MICHAEL DELUCA	Caller Agency:	TYREE	Caller Phone:	(631) 249-3150
DEC Investigator:	JBVOUGHT	Contact for more spill info:	SCOTT	Contact Person Phone:	(516) 542-5022

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
05/21/2004		UNKNOWN	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	0	POUNDS	0	POUNDS	SOIL

Caller Remarks:

fuel oil tank been removed, no holes in tank,soil shows contamination

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "VOUGHT"
Also see 9613862.

8/16/04-Vought-This spill closed and referred to open spill #9613862 at same location.

Map Identification Number 12 **204980; OPP 1340 MERRIAM AVE & EAST 169TH STREET** **Spill Number: 0890016** **Close Date: 03/20/2007**
OPP 1340 MERRIAM AVE & EAST 169TH STREET , NY TT-Id: 520A-0218-371

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 347 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: OPP 1340 MERRIAM AVE
Revised zip code: NO CHANGE

Source of Spill:	COMMERCIAL/INDUSTRIAL	Spiller:	ERT DESK - CON EDISON	Spiller Phone:	
Notifier Type:	Responsible Party	Notifier Name:		Notifier Phone:	
Caller Name:		Caller Agency:		Caller Phone:	
DEC Investigator:	Unassigned	Contact for more spill info:	ERT DESK	Contact Person Phone:	(212) 580-8383

Category: Possible petroleum release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters, known releases with no potential for damage, or non-petroleum/non-hazardous spills.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
03/19/2007		UNKNOWN	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
UNKNOWN PETROLEUM	PETROLEUM	0.50	GALLONS	0.00	GALLONS	UTILITY

Caller Remarks:

SB 18214 - Spill of two quarts of unknown oil (possible motor or fuel oil) found on 15 gal of water
Closed: Agency Approval Not Required

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

Map Identification Number 13 **HARLEM RIVER** **Spill Number: 9514762** **Close Date: 02/21/1996**
HARLEM RIVER DR/176TH ST MANHATTAN, NY TT-Id: 520A-0101-526

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (5)
Approximate distance from property: 555 feet to the NNW

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 10033

Source of Spill: COMMERCIAL/INDUSTRIAL Spiller: CITY OF NYC Spiller Phone:
Notifier Type: Responsible Party Notifier Name: BEN BAZIL Notifier Phone:
Caller Name: CHARLES LINDBLAD Caller Agency: NYCDEP Caller Phone: (718) 372-7193
DEC Investigator: ADZHITOM Contact for more spill info: MR LINDBLAD Contact Person Phone: (718) 372-7193

Category: Possible petroleum release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters, known releases with no potential for damage, or non-petroleum/non-hazardous spills.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
02/18/1996		OTHER	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
RAW SEWAGE	OTHER	1.00	GALLONS	0.00	GALLONS	SURFACE WATER

Caller Remarks:

BLOCKAGE BETWEEN THE REGULATOR AND DIVERSION CHANNEL - REPAIRED

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "ZHITOMIRSKY"

Map Identification Number 14 **REG 51** **Spill Number: 0110968** **Close Date: 02/18/2002**
176TH ST/HARLEM RIVER DR BRONX, NY TT-Id: 520A-0229-046

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (5)
Approximate distance from property: 555 feet to the NNW

ADDRESS CHANGE INFORMATION
Revised street: W 176TH ST / HARLEM RIVER DR
Revised zip code: 10033

Source of Spill:	INSTITUTIONAL, EDUC, GOV, OTHER	Spiller:	DEP	Spiller Phone:	
Notifier Type:	Federal Government	Notifier Name:	SEE WADD	Notifier Phone:	
Caller Name:	RICHARD DESSOSSE	Caller Agency:	DEP	Caller Phone:	(718) 372-7193
DEC Investigator:	JMKRIMGO	Contact for more spill info:		Contact Person Phone:	

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
02/17/2002		OTHER	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
RAW SEWAGE	OTHER	0	GALLONS	0	GALLONS	SURFACE WATER

Caller Remarks:

TREE INSIDE THE REGULATOR CAUSED A BIPASS OF .029 MG TO BE RELEASED - STOP TIME 1050 HRS

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "KRIMGOLD"
Ref. to the Division of Water

Map Identification Number 15 **APT HOUSE** **Spill Number: 0007632** **Close Date: 11/01/2007**
1304 MERRIAM AVE BRONX, NY TT-Id: 520A-0007-286

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (3)
Approximate distance from property: 622 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Source of Spill:	PRIVATE DWELLING	Spiller:	UNKNOWN - UNKNOWN	Spiller Phone:	
Notifier Type:	Other	Notifier Name:	MR SINGER	Notifier Phone:	(718) 686-8680
Caller Name:	BOB LAMIRATA	Caller Agency:	PETROLEUM TANK CLEANERS	Caller Phone:	(718) 624-4842
DEC Investigator:	rvketani	Contact for more spill info:	MR SINGER	Contact Person Phone:	(718) 686-8680

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
09/28/2000		UNKNOWN	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#4 FUEL OIL	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

#4 OIL DISCOVERED IN SUMP-PETROLEUM TANK CLEANERS WILL RESPOND

TOMORROW AM TO INVESTIGATE.

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "SANGESLAND"
see also 0003904

Transferred to Rutland durning Spill Reduction Initiative.

9/7/06 - Austin - Assigned from Albany to Region 2 staff (Ketani) for review and closure - end

10/4/06 - Raphael Ketani. Bob Lamirata of PTC (718) 624-4842 was involved. PTC went to investigate the occurrence of #4 oil in the sump the day after it was found. Moshe Singer of MCS Equities (718) 686-8680 is a contact person. Site is 1304 Merriam Avenue, Bronx, 10452. Owners are at Merriam Realty Holdings, LLC at 2 addresses: 1930 Webster Avenue, Bronx, 10457-4249: 3810 14 Avenue, Brooklyn, NY, 11218 (from the PBS record). The PBS case is #2-604655. There's a 10,000 gal. tank that was removed and an 8,000 gal. UST that has #6 oil and is in service.

I called up MCS Equities and the person I spoke to said that they hadn't managed the property in quite a while. As Mr. Singer was listed as a contact on the PBS record at the 686 phone number, I will assume that the Brooklyn address is defunct. The Bronx address came from the NYC Taxation listings. I will assume this is the business address.

I contacted PTC. I spoke to Joe Ostrowski. He said he will look up the spill and see whether he has any documentation regarding the site.

10/16/06 - Raphael Ketani. I spoke to Mr. Ostrowski about whether he found any documentation. He said he did and he will FAX it to me. He said that 3 or 4 drums of material were removed from the site and that repairs were done.

10/27/06 - Raphael Ketani. I spoke to Mr. Ostrowski again and asked for the documentation he was going to FAX. He said what he had just said that PTC replaced the piping.

With no other recourse, I sent a CSL letter to Merriam, LLC.

11/17/06 - Raphael Ketani. Charles Abramson [owner; (917) 807-2640; (FAX (718) 537-9949)] left a message on 11/15. I called him today. He asked what DEC needed to close the case. I told him to either send me the documentation that the contamination was cleaned up, or have an investigation company do several soil borings and take soil samples for analysis. He said he will look for the documentation.

6/25/07 - Raphael Ketani. I made contact with Mr. Abramson. I asked him why he hadn't sent me any documentation. He asked "Documentation for what?" I explained that DEC needed documentation for the spill that took place on 9/28/2000. He said he will send me the documentation. I asked him for his business address. He gave me: Merriam, LLC, 1412 Avenue M, PMB-2345, Brklyn, 11230.

As he has not been forthcoming with the documentation, I sent another CSL, but this time I stated that if DEC doesn't get the papers in 3 weeks, then we will take legal action.

7/16/06 - Raphael Ketani. Today was the deadline for submission of the documentation regarding the spill. As I have not received any documentation nor any phone calls or FAXes from Mr. Abramson, I am submitting a Case Initiation Form to the Division of Legal Affairs.

The Case Initiation Form was submitted to Randall Austin, Chief Spill Prevention Region 2, for approval.

Later, Mr. Austin instructed me to make a site visit first and see what the conditions are.

I called Mr. Abramson and confirmed an appointment at his apartment building at 11:30AM on 7/17/07.

7/17/07 - Raphael Ketani. The meeting with Charles Abramson took place. Mr. Abramson is the manager of C.Y.A. Management, LLC, 1304 Merriam Avenue, Suite AA, Bronx, NY, 10452, (718) 537-9948. We were met by Francisco, the super. Mr. Abramson and Francisco showed me the oil fill pipe (this is a new spill). There had been a leak where the pipe was under the alleyway flowerbed box that runs along the side of the building. I could see that oil had leaked out from the bottom of the box and someone had dug out the contaminated soil on top of and surrounding the pipe. The pipe looked corroded. Francisco said that he believed there were many pinhole leaks in the pipe. He said that a section of the pipe closer to the front of the building has been replaced 5 years ago.

I told Francisco and Mr. Abramson not to get another oil delivery until the pipe is fixed. They agreed. Next, we went into the boiler room. The PID meter readings were about 38 ppb, but there were no odors. The floor looked stained as it was darkened everywhere. However, there were no signs of any oil spills. The oil transfer pump was leaking a bit. I told Francisco and Mr. Abramson to get the pump fixed or replaced very soon and to keep a bucket under it to catch the leaking oil. Francisco put a bucket under the pump. Next, I was shown the tank room. The PID readings were 24 ppb. The floor had a little junk on it, but I could see the concrete and it looked free of oil spills.

I discussed the occurrence of oil in the sump back in 2000. Mr. Abramson said that C.Y.A. had been manager of the building for only a little over 5 months. Francisco said he had been here for 10 years and he had no idea where the oil came from. Presently, the sump was dry. He showed me the oil pipes (fill, fuel, return) and they were all suspended just below the ceiling. I saw an old 10,000 gal. tank that had been cleaned out and disconnected in the boiler room. Francisco said that this is not the 10,000 gal. tank that was replaced. He said that the old tank was in the separate tank room and that what we see now is the replacement 8,000 gal. tank (the PBS shows the old tank and the replacement).

As a result of the inspection, I told Mr. Abramson that what the DEC needs now are two soil borings (one on either side of the sump), and the removal of all of the contaminated soil from under and around the fill pipe and replacement of the fill pipe. I added that he must send the DEC the analytical results for the soil borings adjacent to the sump and the soil in the planter box, and manifests for the removed soil. I told him not to have any oil deliveries until the pipe is fixed. He said that he will get on this immediately. Mr. Abramson made a phone call to PTC to have them come out to check the situation and give an estimate.

I sent a DEC letter to Mr. Abramson officially stating what needed to be done.

7/24/07 - Raphael Ketani. I received a FAX from Joe Ostrowski of PTC (718)624-4842 stating that soil borings will be taken at the site. I called him up and told him to send the dirtiest samples for testing and that DEC wanted 3 samples under the fill pipe and one on either side of the sump in the basement. He said he will do this.

8/20/07 - Raphael Ketani. Today, I received a FAX of the analytical results for four soil samples that were taken by PTC. Three samples were from under the fill pipe and one was from an area to the side and near the sump in the boiler room. All of the fill pipe soil samples were non-detect. The sample from the sump area had VOC and SVOC hits, but they were all well below TAGM RSCOs.

I called up Mr. Abramson (917) 807-2640 and told him the soil results were fine. He said the fill pipe had been fixed. I asked him about the leaking fuel pump and the fill pipe soil manifests. He said he will look into these matters.

10/24/07 - Raphael Ketani. I made contact with Mr. Abramson. I asked him if he had the manifests for the soil that was removed from around the fill pipe under the planting box. He said that there is one manifest. I told him to FAX it to me today so that I can close the spill case. He said he will.

11/1/07 - Raphael Ketani. I contacted Mr. Abramson, but he said that he was still looking for the manifest.

As the soil analytical results were all non-detect for the planter box and the soil analytical results for under the boiler floor were well below TAGM, I am closing the spill case.

Map Identification Number 16 **COMMERCIAL BLDG** **Spill Number: 0003904** **Close Date: 10/30/2003**
1304 MERRIAM AV BRONX, NY TT-Id: 520A-0007-264

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (3)
Approximate distance from property: 622 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Source of Spill: UNKNOWN
Notifier Type: Local Agency
Caller Name: ANTHONY LARA
DEC Investigator: JMROMMEL

Spiller: ANTHONY LARA - COMMERCIAL BLDG .
Notifier Name: ANTHONY LARA
Caller Agency: PETROLEUM TANK CLEANERS
Contact for more spill info: ANTHONY LARA

Spiller Phone: (718) 624-4842
Notifier Phone: (718) 624-6934 ext. 0
Caller Phone: (718) 624-4842
Contact Person Phone: (718) 624-4842

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
06/29/2000		UNKNOWN	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#6 FUEL OIL	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

unk why spill of product occurred - poss overfill from years ago

clean up will be done..

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "ROMMEL"
closed and referenced to spill 0007632.

Map Identification Number 17 **RR YD//OLD HIGH BRIDGE/BX** **Spill Number: 9008201** **Close Date: 10/26/1990**
RR YD/OLD HIGH BRIDGE NEW YORK CITY, NY TT-Id: 520A-0009-810

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING - LARGE SITE
Approximate distance from property: 630 feet to the S

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 10452

Source of Spill: UNKNOWN
Spiller:
Spiller Phone:
Notifier Type: Federal Government
Notifier Name:
Notifier Phone:
Caller Name: NEIL NORRELL
Caller Agency: USEPA-REGION 2
Caller Phone: (201) 321-4357
DEC Investigator: FINGER
Contact for more spill info:
Contact Person Phone:

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
10/25/1990	10/26/1990	UNKNOWN	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
UNKNOWN PETROLEUM	PETROLEUM	-1.00	UNKNOWN	0.00	UNKNOWN	SOIL

Caller Remarks:

OLD HIGH BRIDGE YD ON EAST SIDE OF TRACKS, EPA 095-91, NRC 45041, INSUFFICIENT INFORMATION.

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

CLOSED STATUS HAZARDOUS SPILLS - MISC. SPILL CAUSES - EQUIPMENT FAILURE, HUMAN ERROR, TANK OVERFILL, DELIBERATE SPILL, TRAFFIC ACCIDENT, HOUSEKEEPING, ABANDONED DRUM, AND VANDALISM - IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS.
All spills mapped and profiled within 1/8 mile. Between 1/8 mile and 1/8 mile search radius, spills reported to be greater than 100 units and spills reported in the NYSDEC Fall 1998 MTBE Survey are mapped and profiled. Spills reported to be less than 100 units are listed in a table at the end of this section.

Please Note: * - Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 18 **ALCOHOLIC REHAB CTR** **Spill Number: 9612209** **Close Date: 01/10/1997**
1381 UNIVERSITY AV BRONX, NY TT-Id: 520A-0014-054

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 219 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Source of Spill: INSTITUTIONAL, EDUC, GOV, OTHER
Notifier Type: Responsible Party
Caller Name: FRANK STALONE
DEC Investigator: KSTANG

Spiller: CALLER - EVER RIGHT FUEL COMPANY
Notifier Name: DRIVER
Caller Agency: EVER RIGHT FUEL COMPANY
Contact for more spill info:

Spiller Phone: (718) 326-3668
Notifier Phone:
Caller Phone: (718) 326-3668
Contact Person Phone:

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

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Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
01/10/1997		HUMAN ERROR	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	6.00	GALLONS	6.00	GALLONS	SOIL

Caller Remarks:

MISS CALCULATION CAUSED SPILL

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "TANG"

Map Identification Number 19 **GETTY # 58505** **Spill Number: 0512283** **Close Date: 01/26/2006**
1314 SEDGWICK AVE BRONX, NY TT-Id: 520A-0010-637

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 261 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Source of Spill:	GASOLINE STATION	Spiller:	MIKE CARR - GETTY # 58505	Spiller Phone:	(518) 369-7822
Notifier Type:	Other	Notifier Name:	MIKE CARR	Notifier Phone:	(518) 369-7822
Caller Name:	MIKE CARR	Caller Agency:	TYREE	Caller Phone:	(518) 369-7822
DEC Investigator:	SMSANGES	Contact for more spill info:	MIKE CARR	Contact Person Phone:	(518) 369-7822

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
01/24/2006		EQUIPMENT FAILURE	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
GASOLINE	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

1 cup from a leaking dispenser, is shut down pending repair and is all cleaned up:

DEC Investigator Remarks:

adequate description is provided.
OK to close

Map Identification Number 20 **GETTY #58505** **Spill Number: 0512259** **Close Date: 07/31/2006**
1314 SEDGWICK AVE BRONX, NY TT-Id: 520A-0010-636

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 261 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Source of Spill:	GASOLINE STATION	Spiller:	MIKE CARR - GETTY #58505	Spiller Phone:	(518) 369-7822
Notifier Type:	Other	Notifier Name:	MIKE CARR	Notifier Phone:	(518) 369-7822
Caller Name:	MIKE CARR	Caller Agency:	TYREE	Caller Phone:	(518) 369-7822
DEC Investigator:	SMSANGES	Contact for more spill info:	MIKE CARR	Contact Person Phone:	(518) 369-7822

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
01/23/2006		EQUIPMENT FAILURE	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
GASOLINE	PETROLEUM	1.00	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

WATER GAS MIXTURE: WILL BE VACCED OUT AND IS CONTAINED:

DEC Investigator Remarks:

Report states that spill was to soil... True?
Report states "Gas/Water Mixture - Will be vacced out" - Where? (water found inside a tank? In a spill bucket? On the surface?)

Closure document sent by Tyree June 2006 -
Spill was a sheen (less than 1 gal) on water in a dispenser pan.
Spill was contained. Dispenser sump has water w/sheen - sump was pumped out.
No active leak present.

Map Identification Number 21 **GETTY #58505** **Spill Number: 0506096** **Close Date: 08/18/2005**
1314 SEDGWICK AVE BRONX, NY TT-Id: 520A-0006-763

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 261 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Source of Spill: GASOLINE STATION
Notifier Type: Other
Caller Name: CAILYN DINAN
DEC Investigator: rvketani

Spiller: CAILYN DINAN - GETTY #58505
Notifier Name: CAILYN DINAN
Caller Agency: TYREE
Contact for more spill info: CAILYN DINAN

Spiller Phone: (518) 786-3200 ext. 2
Notifier Phone: (518) 786-3200 ext. 2
Caller Phone: (518) 786-3200 ext. 2
Contact Person Phone: (518) 786-3200 ext. 2

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
08/17/2005		HOUSEKEEPING	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
ANTIFREEZE	OTHER	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

Amount 1 quart, has been cleaned up.

DEC Investigator Remarks:

8/18/05 - Raphael Ketani. Called Cailyn Dinan 8/18/05. Spill on concrete, spill was contained (did not go down a sewer or drain), and was cleaned up with Speedy-Dri.

Map Identification Number 22 **GETTY GAS #58505** **Spill Number: 0402968** **Close Date: 08/10/2004**
1314 SEDGEWICK AVE BRONX, NY TT-Id: 520A-0009-489

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 261 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: 1314 SEDGWICK AVE
Revised zip code: NO CHANGE

Source of Spill: GASOLINE STATION
Notifier Type: Other
Caller Name: CAILYN DINAN
DEC Investigator: JBVOUGHT

Spiller: CAILYN DINAN - GETTY GAS #58505
Notifier Name: CAILYN DINAN
Caller Agency: TYREE
Contact for more spill info: CAILYN DINAN

Spiller Phone: (518) 786-3200 ext. 2
Notifier Phone: (518) 786-3200 ext. 2
Caller Phone: (518) 786-3200 ext. 2
Contact Person Phone: (518) 786-3200 ext. 2

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
06/17/2004		HUMAN ERROR	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
WASTE OIL/USED OIL	PETROLEUM	1.00	GALLONS	1.00	GALLONS	SOIL

Caller Remarks:

Spill has been cleaned up.

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "VOUGHT"
See spills # 9613862 and 0401941

8/2/04-Vought-Letter from Tyree dated 7/26/04. "These spills

were reported because of product in spill buckets, poor

housekeeping or human error. All product was properly cleaned and

disposed of shortly after these spills were reported.

Additionally, none of these releases caused products to

contaminate the subsurface, groudwater or any sensitive

receptors, such as drains or waterways. The Tyree Organization

is requesting closure.....". Spill closed by Vought. Spill filed

under #0307302.

Map Identification Number 23 **GETTY** **Spill Number: 0305483** **Close Date: 11/20/2003**
1314 SEDGWICK AV BRONX, NY TT-Id: 520A-0007-615

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 261 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Source of Spill: GASOLINE STATION
Notifier Type: Responsible Party
Caller Name: JOE RENNIE
DEC Investigator: JBVOUGHT

Spiller: VICTOR MANGO - .GETTY SERVICE STATION
Notifier Name: JOE RENNIE
Caller Agency: TYREE
Contact for more spill info: VICTOR MANGO

Spiller Phone: (718) 588-1754
Notifier Phone: (631) 249-3150
Caller Phone: (631) 249-3150
Contact Person Phone: (718) 588-1754

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	PBS # Involved	Meets Cleanup Standards	Penalty Recommended
08/22/2003		HOUSEKEEPING	2-291544	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
WASTE OIL/USED OIL	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

SOME WASTE OIL SPILL TO THE GROUND, CALLERS COMPANY CONTACTED FOR CLEAN UP

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "VOUGHT"
11/20/2003-Vought-See spill #9613862. This spill closed by Vought.

Map Identification Number 24 **1331 MIRIAM AVE** **Spill Number: 9200717** **Close Date: 04/21/1992**
1331 MIRIAM AVE BRONX, NY TT-Id: 520A-0009-557

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 343 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: 1331 MERRIAM AVE
Revised zip code: NO CHANGE

Source of Spill: COMMERCIAL/INDUSTRIAL | Spiller: NYC DEPT OF SEWERS | Spiller Phone:
Notifier Type: Affected Persons | Notifier Name: | Notifier Phone:
Caller Name: T WITTENSTEIN | Caller Agency: | Caller Phone: (212) 538-8348
DEC Investigator: TOMASELLO | Contact for more spill info: | Contact Person Phone:

Category: Possible petroleum release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters, known releases with no potential for damage, or non-petroleum/non-hazardous spills.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
04/19/1992	04/21/1992	EQUIPMENT FAILURE	UNKNOWN	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
UNKNOWN PETROLEUM	PETROLEUM	-1.00	UNKNOWN	0.00	UNKNOWN	SOIL

Caller Remarks:

200-300 GALLONS & GROWING. SEWER MAIN BACKING UP INTO CALLER'S HOME. CALLER REFERRED TO NYC DEP HAZ MAT.

DEC Investigator Remarks: NO DEC INVESTIGATOR REMARKS GIVEN FOR THIS SPILL.

Map Identification Number 25 **PRIVATE PROPERTY** **Spill Number: 0910361** **Close Date: 12/21/2009**
1352 UNIVERSITY AVE BRONX, NY TT-Id: 520A-0235-116

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (3)
Approximate distance from property: 499 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: UNKNOWN

Source of Spill: PRIVATE DWELLING | Spiller: MARCOS MARTINEZ | Spiller Phone:
Notifier Type: Local Agency | Notifier Name: | Notifier Phone:
Caller Name: | Caller Agency: | Caller Phone:
DEC Investigator: HRAHMED | Contact for more spill info: GAVIN | Contact Person Phone: (646) 584-4173

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
12/18/2009		HUMAN ERROR	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	0	UNKNOWN	0	UNKNOWN	

Caller Remarks:

1937 THE CALLER STATED THE MAIN BOILER TANK SHUT DOWN CAUSING AN ACCUMILATION OF OIL IN THE BACK UP TANK. AN UNKNOWN AMOUNT HAS SPILLED. THE SPILL IS CONTAINED AND IN THE PROCESS OF CLEAN UP.

DEC Investigator Remarks:

12/21/09-HRAHMED-Spoke to Gavin from DEP. As per him, the building is running on temp tanks which are in allyways. Spill happened due to ovefill of temp tank. No water ways affected. Oil company put some speedy dry. Building Super is Markos Martiness (718 787 8135).

This case is closed.

Map Identification Number 26 **INTERSECTION OGDEN AVE** **Spill Number: 9809627** **Close Date: 03/05/1999**
OGDEN AVE & E.170TH ST BRONX, NY TT-Id: 520A-0006-479

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 521 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: OGDEN AV / W 170TH ST
Revised zip code: 10452

Source of Spill: COMMERCIAL VEHICLE Spiller: Spiller Phone:
Notifier Type: Responsible Party Notifier Name: JEFF SMITH Notifier Phone: (718) 932-9075
Caller Name: SAL SAMMARTANO Caller Agency: MYSTIC Caller Phone: (718) 932-9075
DEC Investigator: SACCACIO Contact for more spill info: SAL SAMMARTANO Contact Person Phone: (718) 932-9075

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - DEC Field Response - Corrective Action Initiated, Taken Over, or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
10/31/1998		EQUIPMENT FAILURE	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#4 FUEL OIL	PETROLEUM	25.00	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

WHILE MAKING A TURN A HOSE BETWEEN THE TRACTOR AND TRAILER BROKE

SPILLING MATERAL TO GROUND - ALL MATERAL CONTAINED WITH SPEEDY DRY

CLEAN UP IN PROGRESS

DEC Investigator Remarks: DEC INVESTIGATOR REMARKS NOT AVAILABLE FOR THIS SPILL ACCORDING TO THE LAST UPDATE.

The following DEC Investigator Remarks were available prior to 1/1/2002:

11/13/98 - Saccacio
DEP Notified 98H002253-127
The amount spilled was just what was in the line. This was approximately 20 gallons. The spill was contained and cleaned up with speedy dry.

The DEC requested a cleanup report be sent to my attention in order for the spill to be closed out.

3/5/99 Received statement that the spill had been cleaned up and waste manifest.

Map Identification Number 27 **NYCDEP ITEM#912/W.176 ST.** W.176TH ST & HARLEM R. DR NEW YORK CITY, NY **Spill Number: 8605470** **Close Date: 12/05/1986** TT-Id: 520A-0093-690

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (5)
Approximate distance from property: 555 feet to the NNW

ADDRESS CHANGE INFORMATION
Revised street: W.176TH ST / HARLEM R. DR
Revised zip code: UNKNOWN

Source of Spill:	INSTITUTIONAL, EDUC, GOV, OTHER	Spiller:	NYCDEP	Spiller Phone:	
Notifier Type:	Responsible Party	Notifier Name:		Notifier Phone:	
Caller Name:		Caller Agency:		Caller Phone:	
DEC Investigator:	UNASSIGNED	Contact for more spill info:		Contact Person Phone:	

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
11/27/1986	12/05/1986	EQUIPMENT FAILURE	UNKNOWN	NO

NO MATERIAL INFORMATION GIVEN FOR THIS SPILL

Caller Remarks:

ITEM#912

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was " "
10/10/95: This is additional information about material spilled from the translation of the old spill file: 3.9 M

Map Identification Number 28 **MANHOLE TM436** **Spill Number: 0001938** **Close Date: 03/24/2004**
1421 UNIVERSITY AV BRONX, NY TT-Id: 520A-0009-853

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 606 feet to the ENE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Source of Spill:	COMMERCIAL/INDUSTRIAL	Spiller:	CALLER - CON ED	Spiller Phone:	(212) 580-6763
Notifier Type:	Responsible Party	Notifier Name:	MR MCCABE	Notifier Phone:	
Caller Name:	TED ROBICHAUD	Caller Agency:	CON ED	Caller Phone:	(212) 580-6763
DEC Investigator:	JHOCONNE	Contact for more spill info:	TED ROBICHAUD	Contact Person Phone:	(212) 580-6763

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

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Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
05/15/2000		EQUIPMENT FAILURE	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
DIELECTRIC FLUID	PETROLEUM	6.00	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

FAULTY PIECE OF EQUIPMENT. SPILL PARTIALLY CLEANED. HISTORICAL DATA

IS PCB18 PPM AS OF MAY 12, 2000. CON ED#131416

DEC Investigator Remarks:

Prior to Sept, 2004 data translation this spill Lead_DEC Field was "O'CONNELL"

e2mis no. 131416:

6-gallons of Dielectric Fluid from the transformer bottom leak was found. LSN 00-04722 dated 5-12-00 indicates PCB 18 PPM. Some of the dirt mixed with oil has entered the flush truck. Partial cleanup is in progress, final cleanup pending transformer removal. Tanker on location to drain unit.

Lab Sequence Number: 00-04790 PCB 2 ppm

Transportation reports 200 gallons of oil removed from tranformer on 5-15-00.

Cleanup completed on 5-16-00 at 00:23. Transformer drained TM flushed and cleaned.

Map Identification Number 29 **APARTMENTS** **Spill Number: 0412068** **Close Date: 03/15/2005**
1360 OGDEN AVE. BRONX, NY TT-Id: 520A-0007-763

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 628 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Source of Spill:	PRIVATE DWELLING	Spiller:	SUB CONTRACTOR	Spiller Phone: (718) 589-3822
Notifier Type:	Affected Persons	Notifier Name:	MILLIE LOPEZ	Notifier Phone: (718) 579-3413
Caller Name:	MILLIE LOPEZ	Caller Agency:	CASTLE OIL	Caller Phone: (718) 579-3413
DEC Investigator:	CESAWYER	Contact for more spill info:		Contact Person Phone: (718) 589-3822

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
02/10/2005		HUMAN ERROR	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
#2 FUEL OIL	PETROLEUM	20.00	GALLONS	0.00	GALLONS	SURFACE WATER

Caller Remarks:

THE VA STOPPED PUMPING AND HE BLEW THE LINE. HAS NOT BEEN CLEANED UP

DEC Investigator Remarks:

2/14/05 mt////spill occurred Thursday, oil impacted courtyard, not sure if it hit what appears to be a dry-well in the center of the courtyard, Cleanup in progress.

3/15/05 - Sawyer - According to information provided the Response Environmental company was contracted to do the cleanup for Castle Oil at the above address. The disposal manifest was included in the letter explaining the cleanup in detail. No further action necessary for this spill.

Map Identification Number 30 **METRO NORTH RAIL YARD** **Spill Number: 9901001** **Close Date: 05/04/1999**
SOUTH OF DEPOT PLACE BRONX, NY TT-Id: 520A-0009-811

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING - LARGE SITE
Approximate distance from property: 630 feet to the S

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 10452

Source of Spill:	COMMERCIAL/INDUSTRIAL	Spiller:	UNKNOWN - UNKNOWN	Spiller Phone:	
Notifier Type:	Affected Persons	Notifier Name:	MARCUS SIMONS	Notifier Phone:	(212) 340-9790
Caller Name:	MARCUS SIMONS	Caller Agency:	AKRS INC	Caller Phone:	(212) 340-9790
DEC Investigator:	SACCACIO	Contact for more spill info:	MARCUS SIMONS	Contact Person Phone:	(212) 340-9790

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
04/26/1999		ABANDONED DRUM	NO	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
UNKNOWN MATERIAL	OTHER	35.00	GALLONS	0.00	GALLONS	SOIL

Caller Remarks:

LIQUID CORROSIVE WASTE WAS SPILLED FROM AN ABANDONED DRUM-SPILL

HAS EMERGENCY RESPONSE CREW ON SITE FOR CLEANUP-SPILL CREW CALLED BY METRO NORTH RAILROAD-CONFERENCE CALL WAS MADE W/METRO NORTH REP

KEN MCHALE

DEC Investigator Remarks: DEC INVESTIGATOR REMARKS NOT AVAILABLE FOR THIS SPILL ACCORDING TO THE LAST UPDATE.

The following DEC Investigator Remarks were available prior to 1/1/2002:

5/4/99 - Saccacio - On 4/26/99, Mr. Simons (Caller) said that 40 gallons of a pH 3 substance was spilled from an abandoned drum. A Metro North contractor is conducting the cleanup. He said that the drum was over-packed and the contaminated soil was removed. He did say that one worker was exposed to the substance but he refused medical treatment. I asked Mr. Simons to forward a copy of his cleanup report to this office so the spill can be closed out.

Map Identification Number 31 **LEAK FROM VEHICLE 41263** **Spill Number: 0510554** **Close Date: 12/09/2005**
MARIUM AVE & WEST 169 ST BRONX, NY TT-Id: 520A-0012-275

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 651 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: MERRIAM AVE / W 169TH ST
Revised zip code: 10452

Source of Spill:	COMMERCIAL VEHICLE	Spiller:	ERT DESK' - LEAK FROM VEHICLE 41263	Spiller Phone:	(212) 580-8383
Notifier Type:	Responsible Party	Notifier Name:	PETE MCGUIRE	Notifier Phone:	(212) 580-6763
Caller Name:	PETE MCGUIRE	Caller Agency:	CONED	Caller Phone:	(212) 580-6763
DEC Investigator:	SMSANGES	Contact for more spill info:	ERT DESK'	Contact Person Phone:	(212) 580-8383

Category: Known petroleum or hazardous material release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or releases to surface waters.
Class: Willing RP - No DEC Field Response - Corrective Action Initiated or Completed by RP or Other Agency

Spill Date	Date Cleanup Ceased	Cause of Spill	Meets Cleanup Standards	Penalty Recommended
12/08/2005		EQUIPMENT FAILURE	YES	NO

Material Spilled	Material Class	Quantity Spilled	Units	Quantity Recovered	Units	Resource(s) Affected
HYDRAULIC OIL	PETROLEUM	0	GALLONS	0	GALLONS	SOIL

Caller Remarks:

Amount 1 pint

DEC Investigator Remarks:

minor spill - closed

162170. see eDocs.

THE FOLLOWING CLOSED SPILLS FOR THIS CATEGORY WERE REPORTED BETWEEN 1/8 MILE AND 1/8 MILE FROM THE SUBJECT ADDRESS. THESE SPILLS WERE REPORTED TO BE LESS THAN 100 UNITS IN QUANTITY AND CAUSED BY: EQUIPMENT FAILURE, HUMAN ERROR, TANK OVERFILL, DELIBERATE SPILL, TRAFFIC ACCIDENT, HOUSEKEEPING, ABANDONED DRUM, OR VANDALISM. THESE SPILLS ARE NEITHER MAPPED NOR PROFILED IN THIS REPORT.

FACILITY ID	FACILITY NAME	STREET	CITY

No dropped spills found for this category

NO OIL STORAGE FACILITIES LARGER THAN 400,000 GALLONS IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

PETROLEUM BULK STORAGE FACILITIES LESS THAN 400,000 GALLONS IDENTIFIED WITHIN THE 1/8 MILE SEARCH RADIUS

PLEASE NOTE: * Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 32 **NEXSTP REALTY II CORP** **Facility Id: 2-250937** **Source: NYS DEC**
1350-52 UNIVERSITY AVENUE BRONX, 10453 TT-Id: 640A-0003-579

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 158 feet to the ESE*

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 10452

Facility Type: Apartment Building/Office Building
Site Status: Active
Expiration Date of the facility's registration certificate: 10/05/2010
Operator Name: NICHOLAS PIGNONE
Operator Phone #: (914) 472-0460
Owner Name: NICHOLAS PIGNONE - OWNER
Owner Company: NEXSTP REALTY II CORP
Owner Type: Corporate or Commercial
Owner Address: P.O. BOX 358, HARTSDALE, NY 10530

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	#2 Fuel Oil	3000	Aboveground - in contact with soil			

TANK NUMBER: 001
TANK EXT. PROTECTION: Jacketed
PIPING EXT. PROTECTN: None
PIPING TYPE: Steel/Carbon Steel/Iron
OVERFILL PROTECTION: Product Level Gauge (A/G)
TANK TYPE: Steel/Carbon Steel/Iron
TANK LEAK DETECTN: Other
PIPING LEAK DETECTN: Exempt Suction Piping
PIPING LOCATION: Aboveground
SPILL PREVENTION:
TK INT. PROTECTION: None
TK SEC. CONTAINMNT: None
PIPE SEC. CONTAINMNT:
DISPENSER METHOD: Suction

Map Identification Number 33 **1360 UNIVERSITY AVE** **Facility Id: 2-236977** **Source: NYS DEC**
1360 UNIVERSITY AVENUE BRONX, 10452 TT-Id: 640A-0006-448

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 202 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: 1360 UNIVERSITY AVE
Revised zip code: NO CHANGE

Facility Type: Unknown
Site Status: Active
Expiration Date of the facility's registration certificate: 05/05/2008
Operator Name: JIMENEZ MARINO
Operator Phone #: (718) 561-6364

Owner Name:
Owner Company: GOLD UNIVERSITY AVENUE CORPORTION
Owner Address: 58 WEST 183RD STREET, BRONX, NY 10453
Owner Type: Corporate or Commercial

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	#6 Fuel Oil	2500	Aboveground - in contact with soil			

TANK NUMBER: 001
TANK EXT. PROTECTION: None
PIPING EXT. PROTECTN: None
PIPING TYPE: No Piping
OVERFILL PROTECTION: Product Level Gauge (A/G)
TANK TYPE: Steel/Carbon Steel/Iron
TANK LEAK DETECTN: None
PIPING LEAK DETECTN: Exempt Suction Piping
PIPING LOCATION: No Piping
SPILL PREVENTION:
TK INT. PROTECTION: None
TK SEC. CONTAINMNT: None
PIPE SEC. CONTAINMNT:
DISPENSER METHOD: Suction

Map Identification Number 34 **B.L.S. ASSOCIATES** **Facility Id: 2-362352** **Source: NYS DEC**
190 W 170TH ST BRONX, 10452 TT-Id: 640A-0002-500

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (3)
Approximate distance from property: 213 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Facility Type: Apartment Building/Office Building
Site Status: Active
Expiration Date of the facility's registration certificate: 12/17/2006
Operator Name: JUAN PIZARRO
Operator Phone #: (718) 538-4396
Owner Name:
Owner Company: B.L.S. ASSOCIATES
Owner Address: 190 W 170TH ST, BRONX, NY 10452
Owner Type: Private Resident

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	#6 Fuel Oil	5000	Aboveground - in contact with soil			

TANK NUMBER: 001
TANK EXT. PROTECTION: None
PIPING EXT. PROTECTN: None
PIPING TYPE: Steel/Carbon Steel/Iron
OVERFILL PROTECTION: Product Level Gauge (A/G)
TANK TYPE: Steel/Carbon Steel/Iron
TANK LEAK DETECTN: None
PIPING LEAK DETECTN: Exempt Suction Piping
PIPING LOCATION: No Piping
SPILL PREVENTION:
TK INT. PROTECTION: None
TK SEC. CONTAINMNT: None
PIPE SEC. CONTAINMNT:
DISPENSER METHOD: Suction

Map Identification Number 35 **SAMARITAN VILLAGE, INC** **Facility Id: 2-349542** **Source: NYS DEC**
1381 UNIVERSITY AVENUE BRONX, 10452 TT-Id: 640A-0006-455

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 220 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: 1381 UNIVERSITY AVE
Revised zip code: NO CHANGE

Facility Type: Other
Site Status: Active
Expiration Date of the facility's registration certificate: 05/19/2008
Operator Name: DELFIN CAMACHO
Operator Phone #: (718) 681-9300
Owner Name: JAMES MCGOLDRICK - MAINTENANCE COORDINATOR
Owner Company: SAMARITAN VILLAGE INCORPRATED
Owner Type: Corporate or Commercial
Owner Address: 138-02 QUEENS BOULEVARD, BRIARWOOD, NY 11435

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	#2 Fuel Oil	2500	Underground		03/10/2006	

TANK NUMBER: 001
TANK TYPE: Steel/Carbon Steel/Iron
TK INT. PROTECTION: None
TANK EXT. PROTECTION: None
TANK LEAK DETECTN: None
TK SEC. CONTAINMNT: None
PIPING EXT. PROTECTN: None
PIPING LEAK DETECTN:
PIPE SEC. CONTAINMNT: None
PIPING TYPE: Steel/Carbon Steel/Iron
PIPING LOCATION: Aboveground/Underground Combination
OVERFILL PROTECTION: Vent Whistle
SPILL PREVENTION: None
DISPENSER METHOD: Suction

Map Identification Number 36 **SAMARITAN VILLAGE, INC.** **Facility Id: NY08863** **Source: NYC FIRE DEPT**
1387 UNIVERSITY AVE BRONX, NY 10452 TT-Id: 660A-0001-624

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 220 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

NOTE: This is an archived database

Comments: 2/TANKS #4 OIL
1-275 GAL + 1-2500 GAL= 2775 TOTAL

Map Identification Number 37 **1344 UNIVERSITY AVE** **Facility Id: 2-203890** **Source: NYS DEC**
1344 UNIVERSITY AVE BRONX, 10452 TT-Id: 640A-0006-444

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 255 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Facility Type: Apartment Building/Office Building
Site Status: Active
Expiration Date of the facility's registration certificate: 07/12/2012
Operator Name: GUILLERMO REYNOLDS
Operator Phone #: (718) 231-0680
Owner Name:
Owner Company: 1344 UNIVERSITY AVE LLC
Owner Type: Corporate or Commercial
Owner Address: 111 BROOK STREET, SCARSDALE, NY 10583

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	Diesel	4000	Aboveground - in contact with soil	01/01/1926		

Map Identification Number 38 **1370 UNIVERSITY AVE CORP** **Facility Id: 2-107581** **Source: NYS DEC**
1370 UNIVERSITY AVE BRONX, 10452 TT-Id: 640A-0006-443

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 258 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Facility Type: Apartment Building/Office Building
Site Status: Active
Expiration Date of the facility's registration certificate: 03/24/2012
Operator Name: LUIS V. JACOBO
Operator Phone #: (347) 996-1477
Owner Name: ADAM STRYKER - PRESIDENT
Owner Company: 1370 UNIVERSITY AVE CORP
Owner Type: Corporate or Commercial
Owner Address: 225 WEST 34TH ST, NEW YORK, NY 10001

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	#2 Fuel Oil	5000	Aboveground - in contact with soil	07/11/1922		

Map Identification Number 39 **GETTY NO. 58505** **Facility Id: 2-291544** **Source: NYS DEC**
1314 SEDGWICK AVENUE BRONX, 10452 TT-Id: 640A-0002-205

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 261 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Facility Type: Retail Gasoline Sales
Site Status: Active
Expiration Date of the facility's registration certificate: 07/01/2009
Operator Name: ASARE BEKOE
Operator Phone #: (718) 410-7410
Owner Name:
Owner Company: 1314 SEDGWICK AVENUE LLC
Owner Type: Corporate or Commercial
Owner Address: 90 MERRICK AVE - SUITE 510, EAST MEADOW, NY 11554

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	Gasoline	4000	Underground	07/01/1984	01/16/2008	
002	In Service	Gasoline	4000	Underground	09/01/1973	01/16/2008	
003	Closed - Removed	#2 Fuel Oil	240	Aboveground on crib, rack, or cradle	03/01/1997		01/01/2002
004	Closed - Removed	Waste Oil/Used Oil	550	Underground	01/01/1975		04/01/2004

Map Identification Number 40 **185 WEST 170TH STREET, H.D.F.C.** **Facility Id: 2-469440** **Source: NYS DEC**
185 WEST 170TH STREET, 5D BRONX, 10452 TT-Id: 640A-0003-456

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 272 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: 185 W 170TH ST
Revised zip code: NO CHANGE

Facility Type: Unknown
Site Status: Active
Expiration Date of the facility's registration certificate: 04/13/2003
Operator Name: GEORGE M. SANTIAGO
Operator Phone #: (718) 538-8207
Owner Name:
Owner Company: 185 WEST 170TH STREET H.D.F.C.
Owner Type: Corporate or Commercial
Owner Address: 185 WEST 170TH STREET #5D, BRONX, NY 10452

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	#2 Fuel Oil	4000	Aboveground - in contact with soil			

Map Identification Number 41 **MERRIAM REALTY ASSOCIATES** **Facility Id: 2-603660** **Source: NYS DEC**
1333-37-43 MERRIAM AVENUE BRONX, 10452 TT-Id: 640A-0001-133

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 272 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Facility Type: Other
Site Status: Active
Expiration Date of the facility's registration certificate: 09/18/2013
Operator Name: MANUEL CANTO
Operator Phone #: (718) 538-8348
Owner Name: PIETRO RUGGIERO - MANAGING AGENT
Owner Company: MERRIAM REALTY ASSOCIATES
Owner Type: Corporate or Commercial
Owner Address: 104 SO. CENTRAL AVENUE, #10, VALLEY STREAM, NY 11580

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	#2 Fuel Oil	6000	Aboveground - in contact with soil	01/01/1992		

Map Identification Number 42 **MOBIL S/S 17-KQN 5M SERVICE ST** **Facility Id: 2-156582** **Source: NYS DEC**
1300 SEDGWICK AVE (EAST 169TH ST) BRONX, 10452 TT-Id: 640A-0006-690

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 429 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: 1300 SEDGWICK AVE
Revised zip code: NO CHANGE

Facility Type: Unknown
Site Status: Unregulated
Expiration Date of the facility's registration certificate:
Operator Name: W MURRAY
Operator Phone #: (212) 590-8278
Owner Name:
Owner Company: MOBIL OIL CORP;ATT:A.J.PRINGLE
Owner Type: Corporate or Commercial
Owner Address: 3225 GALLOWS RD.; ENV.ENGINEER, FAIRFAX, VA 22037

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	Closed - Removed	Gasoline	4000	Underground	12/01/1971		03/01/1989
002	Closed - Removed	Gasoline	550	Underground	12/01/1956		03/01/1989
003	Closed - Removed	Gasoline	550	Underground	12/01/1956		03/01/1989
004	Closed - Removed	Gasoline	550	Underground	12/01/1956		03/01/1989
005	Closed - Removed	Gasoline	550	Underground	12/01/1956		03/01/1989
006	Closed - Removed	Gasoline	550	Underground	12/01/1956		03/01/1989

**** TANK INFO CONTINUES ON NEXT PAGE ****

007	Closed - Removed	Gasoline	550	Underground	12/01/1956	03/01/1989
008	Closed - Removed	Gasoline	550	Underground	12/01/1956	03/01/1989
009	Closed - Removed	Gasoline	550	Underground	12/01/1956	03/01/1989
010	Closed - Removed	Gasoline	550	Underground	12/01/1956	03/01/1989
011	Closed - Removed	Gasoline	550	Underground	12/01/1956	03/01/1989

Map Identification Number 43 **UNIVERSITY GARDENS** **Facility Id: 2-404802** **Source: NYS DEC**
1380 UNIVERSITY AVE BRONX, 10452 TT-Id: 640A-0006-456

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 431 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Facility Type: Apartment Building/Office Building
Site Status: Active
Expiration Date of the facility's registration certificate: 10/15/2007
Operator Name: HECTOR HERNANDEZ Operator Phone #: (718) 410-7283
Owner Name:
Owner Company: UNIVERSITY RESIDENCE INC Owner Type: Corporate or Commercial
Owner Address: 888 GRAND CONCOURSE SUITE IL, BRONX, NY 10452

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	#6 Fuel Oil	10000	Aboveground - in contact with soil			

Map Identification Number 44 **1340 MERRIAM AVENUE** **Facility Id: 2-509582** **Source: NYS DEC**
1340 MERRIAM AVENUE BRONX, 10452 TT-Id: 640A-0002-760

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 433 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Facility Type: Apartment Building/Office Building
Site Status: Active
Expiration Date of the facility's registration certificate: 01/28/2011
Operator Name: CELEDONIO COLLAZA Operator Phone #: (718) 293-4106
Owner Name: DOUGLAS R. SACHS - PRESIDENT
Owner Company: 1340 MERRIAM AVENUE CORP Owner Type: Corporate or Commercial
Owner Address: 2811 ZULETTE AVENUE, BRONX, NY 10461

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	#4 Fuel Oil	5000	Aboveground on crib, rack, or cradle			

Map Identification Number 45 **H P D ROOM 208** **Facility Id: NY04536** **Source: NYC FIRE DEPT**
1343 OGDEN AVE BRONX, NY 10452 TT-Id: 660A-0000-571

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 433 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

NOTE: This is an archived database

Comments: FUEL OIL 5000G

Map Identification Number 46 **163 WEST 170TH STREET HDFC** **Facility Id: 2-468665** **Source: NYS DEC**
163 WEST 170TH STREET BRONX, 10452 TT-Id: 640A-0002-671

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 468 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Facility Type: Apartment Building/Office Building
Site Status: Active
Expiration Date of the facility's registration certificate: 08/12/2011
Operator Name: SONNY CARRERO Operator Phone #: (718) 295-2882
Owner Name: CONSOLATO CICCIU - PRESIDENT
Owner Company: 163 WEST 170TH STREET HDFC Owner Type: Corporate or Commercial
Owner Address: 660 EAST 183RD STREET, BRONX, NY 10458

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	#6 Fuel Oil	4000	Aboveground on crib, rack, or cradle			

Map Identification Number 47 **1307-11-15MERRIAM REALTY L.L.C.** **Facility Id: 2-191876** **Source: NYS DEC**
1307-11-15 MERRIAM AV BRONX, 10452 TT-Id: 640A-0006-703

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 470 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Facility Type: Apartment Building/Office Building
Site Status: Active
Expiration Date of the facility's registration certificate: 06/05/2012
Operator Name: FREDDY RIVERA
Operator Phone #: (000) 863-2300
Owner Name:
Owner Company: 1307-11-15 MERRIAM REALTY L.L.C.
Owner Type: Corporate or Commercial
Owner Address: 1919 WILLIAMSBDG RD, BRONX, NY 10461

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
017	In Service	#6 Fuel Oil	5000	Aboveground - in contact with soil	11/02/1944		

Map Identification Number 48 **ROSENBERG DIAMOND** **Facility Id: NY08652** **Source: NYC FIRE DEPT**
1315 MERRIAM AVE BRONX, NY 10452 TT-Id: 660A-0000-978

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 470 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

NOTE: This is an archived database

Comments: 4000 #4

Map Identification Number 49 **FEIN REALTY MGT CRP** **Facility Id: NY03860** **Source: NYC FIRE DEPT**
1419 UNIVERSITY AVE BRONX, NY 10452 TT-Id: 660A-0001-625

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 557 feet to the ENE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

NOTE: This is an archived database

Comments: FUEL OIL #6 2500G C OF F REQD

Map Identification Number 50 **HIGHBRIDGE POOL** **Facility Id: 2-604969** **Source: NYS DEC**
WEST 174TH ST. & AMSTERDAM AVE. NEW YORK, 10033 TT-Id: 640A-0033-059

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (2)
Approximate distance from property: 561 feet to the W

ADDRESS CHANGE INFORMATION
Revised street: WEST 174TH ST. / AMSTERDAM AVE.
Revised zip code: NO CHANGE

Facility Type: Municipality (Incl. WWTPs, Utilities, Swimming Pools)
Site Status: Active
Expiration Date of the facility's registration certificate: 01/08/2011
Operator Name: CEASAR RODRIGUEZ
Operator Phone #: (212) 927-1533
Owner Name: KEITH T. KERMAN - CHIEF OF OPERATIONS
Owner Company: CITY OF NEW YORK, PARKS & RECREATION
Owner Type: Local Government
Owner Address: 830 FIFTH AVENUE, NEW YORK, NY 10021

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	#2 Fuel Oil	10000	Underground		02/02/2006	

Map Identification Number 51 **1350 OGDEN AVE HDFC** **Facility Id: 2-602768** **Source: NYS DEC**
1350 OGDEN AVE BRONX, 10452 TT-Id: 640A-0002-920

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 599 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Facility Type: Apartment Building/Office Building
Site Status: Active
Expiration Date of the facility's registration certificate: 09/10/2011
Operator Name: ANGEL ORTIZ
Operator Phone #: (718) 538-7320
Owner Name: CONSOLATO CICCIU - PRESIDENT
Owner Company: 1350 OGDEN AVE HDFC
Owner Type: Corporate or Commercial
Owner Address: 660 EAST 183RD STREET, BRONX, NY 10458

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	#2 Fuel Oil	5000	Aboveground - in contact with soil			

Map Identification Number 52 **PUBLIC SCHOOL 172-BRONX** **Facility Id: 2-606271** **Source: NYS DEC**
1399 OGDEN AVENUE BRONX, 10452 TT-Id: 640A-0001-147

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 600 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Facility Type: School
Site Status: Active
Expiration Date of the facility's registration certificate: 07/11/2011
Operator Name: PLANT OPERATION
Operator Phone #: (718) 349-5400
Owner Name: JAMES A. MERLO - MANAGER, FUEL DIVISION
Owner Company: NYC DEPARTMENT OF EDUCATION
Owner Type: Local Government
Owner Address: 44-36 VERNON BLVD., LONG ISLAND CITY, NY 11101

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	#2 Fuel Oil	2000	Aboveground on crib, rack, or cradle	01/01/1995		
002	In Service	Diesel	275	Aboveground on crib, rack, or cradle	01/01/1995		

Map Identification Number 53 **1304 MERRIAM AVENUE** **Facility Id: 2-604655** **Source: NYS DEC**
1304 MERRIAM AVENUE BRONX, 10468 TT-Id: 640A-0006-702

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 622 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: 1304 MERRIAM AVE.
Revised zip code: 10452

Facility Type: Apartment Building/Office Building
Site Status: Active
Expiration Date of the facility's registration certificate: 08/02/2010
Operator Name: FRANSISCO SANTANO
Operator Phone #: (646) 773-0443
Owner Name: MOSHE SINGER - MANAGER
Owner Company: MERRIAM REALTY HOLDING LLC
Owner Type: Private Resident
Owner Address: 3810 14TH AVE., BROOKLYN, NY 11218

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	Closed - Removed	#2 Fuel Oil	10000	Aboveground - in contact with soil			12/01/2000
002	In Service	#6 Fuel Oil	8000	Aboveground - in contact with soil	12/01/2000		

Map Identification Number 54 **1304 MERRIAM CORPORATION** **Facility Id: NY00132** **Source: NYC FIRE DEPT**
1304 MERRIAM AVE BRONX, NY 10452 TT-Id: 660A-0000-121

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (3)
Approximate distance from property: 622 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

NOTE: This is an archived database

Comments: F O NO 4 10000G

Map Identification Number 55 **HIGHBRIDGE YARD - METRO-NORTH RAILROAD** **Facility Id: 2-609122** **Source: NYS DEC**
100 DEPOT PLACE BRONX, 10452 TT-Id: 640A-0082-293

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING - LARGE SITE
Approximate distance from property: 631 feet to the S

ADDRESS CHANGE INFORMATION
Revised street: 100 DEPOT PL
Revised zip code: NO CHANGE

Site Status: Active
Expiration Date of the facility's registration certificate: 07/21/2013

Operator Name: KEN MCHALE
Operator Phone #: (914) 686-8681
Owner Name: JOANNE REILLY - MANAGER, ENV. COMP.
Owner Company: METRO-NORTH RAILROAD
Owner Type: MTA and Its Subsidiaries
Owner Address: 347 MADISON AVE. 12TH FLOOR, NEW YORK, NY 10017

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
95A	In Service	Waste/Used Oil (Htg)	1000	Underground	06/01/2003		
95B	In Service	Waste Oil/Used Oil	1000	Aboveground - in contact with soil	06/01/2003		
95C	In Service	Diesel	120	Aboveground - in contact with soil	06/01/2003		

Map Identification Number 56 **BRONX TASK FORCE** **Facility Id: 2-342793** **Source: NYS DEC**
1278 SEDGWICK AVENUE BRONX, 10452 TT-Id: 640A-0006-689

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 652 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: 1278 SEDGWICK AVE
Revised zip code: NO CHANGE

Facility Type: Other
Site Status: Active
Expiration Date of the facility's registration certificate: 12/14/2007
Operator Name: NEW YORK CITY POLICE DEPARTMENT
Operator Phone #: (212) 590-5511

Owner Name: J. CORDES - POLICE OFFICER
Owner Company: NEW YORK CITY POLICE DEPARTMENT/ ASD
Owner Type: Local Government
Owner Address: 1 POLICE PLAZA - ROOM 800, NEW YORK, NY 10038

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	#2 Fuel Oil	2500	Aboveground - in contact with soil	04/01/1985	03/19/2001	

Map Identification Number 57 **1324 OGDEN AVENUE** **Facility Id: 2-603747** **Source: NYS DEC**
1324 OGDEN AVENUE BRONX, 10452 TT-Id: 640A-0002-974

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (3)
Approximate distance from property: 656 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

Facility Type: Apartment Building/Office Building
Site Status: Active
Expiration Date of the facility's registration certificate: 11/13/2013
Operator Name: TONY GECAJ
Operator Phone #: (347) 226-4218
Owner Name: BEATRIZ MELENDEZ - MGR
Owner Company: KARDASH REALTY CORPORATION
Owner Type: Corporate or Commercial
Owner Address: 2465 ARTHUR AVE, BRONX, NY 10458

TANK NUMBER	TANK STATUS	TANK CONTENT	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	TEST DATE	CLOSE DATE
001	In Service	#2 Fuel Oil	4000	Aboveground on crib, rack, or cradle	01/01/1986		

Map Identification Number 58 **KARDASH RLTY CORP** **Facility Id: NY05661** **Source: NYC FIRE DEPT**
1324 OGDEN AVE BRONX, NY 10452 TT-Id: 660A-0000-670

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (3)
Approximate distance from property: 656 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

NOTE: This is an archived database

Comments: FO 4000G #2
TEL

HAZARDOUS WASTE GENERATORS/TRANSPORTERS IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

PLEASE NOTE: * Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 59

NYSDEC Name:	**NYC DOT**		**Facility Id: NYR000109165**
NYSDEC Address:	HGIHBRIDGE AQUEDUCT	BRONX, NY 10032	TT-Id: 740A-0026-611
EPA (RCRA) Name:	NYCDOT BRIDGE BIN 2246580		
EPA (RCRA) Address:	HIGH BRIDGE PEDESTRIAN BRG OVER HARLEM RIVER	NEW YORK, NY 10032	

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (5)
Approximate distance from property: 222 feet to the WSW

ADDRESS CHANGE INFORMATION
Revised street: HIGH BRDG
Revised zip code: NO CHANGE

US EPA RCRA Type: CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR
Notification date: 09/12/2002
Land Disposal:
Receives offsite waste:
Incinerator:
Storer:
Treatment facility:
Transporter:

Historically listed as the following USEPA RCRA Generator Size(s) as well:
LARGE QUANTITY GENERATOR

NYS DEC Manifested Waste Summary:
Waste Codes, Waste Units, and Transaction Types are only shown for the most recently reported year.

WASTE CODE	WASTE DESCRIPTION	WASTE AMOUNT	WASTE UNITS	TRANSACTION TYPE	HISTORIC MAXIMUM YEAR	HISTORIC MAXIMUM AMOUNT	HISTORIC MAXIMUM YEAR
D008	Lead	1760	POUNDS	GENERATED	2004		

Map Identification Number 60

NYSDEC Name:	**NYSDOT BIN 1066840**		**Facility Id: NYR000152744**
NYSDEC Address:	DEPOT PLACE OVER I-87	BRONX, NY 10452	TT-Id: 740A-0063-349
EPA (RCRA) Name:	NYSDOT BIN 1066840		
EPA (RCRA) Address:	DEPOT PLACE OVER I-87	BRONX, NY 10452	

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 264 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: DEPOT PL / I-87
Revised zip code: NO CHANGE

US EPA RCRA Type: LARGE QUANTITY GENERATOR
Land Disposal: Receives offsite waste:
Storer: Treatment facility:
Notification date: 10/31/2007
Incinerator:
Transporter:

NYS DEC Manifested Waste Summary:
Waste Codes, Waste Units, and Transaction Types are only shown for the most recently reported year.

WASTE CODE	WASTE DESCRIPTION	WASTE AMOUNT	WASTE UNITS	TRANSACTION TYPE	HISTORIC MAXIMUM YEAR	HISTORIC MAXIMUM AMOUNT	HISTORIC MAXIMUM YEAR

NONE Site reported by US EPA. No hazardous waste activity reported by NYS.

Map Identification Number 61 **NYSDEC Name:** **GETTY PETROLEUM CORP** **Facility Id: NYR000036962**
NYSDEC Address: 1314 SEDGWICK AVE BRONX, NY TT-Id: 740A-0002-861
EPA (RCRA) Name: GETTY PETROLEUM CORP
EPA (RCRA) Address: 1314 SEDGWICK AVE BRONX, NY 104521417

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 283 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: 10452

US EPA RCRA Type: GENERATOR TYPE NOT GIVEN
Land Disposal: Receives offsite waste:
Storer: Treatment facility:
Notification date: 03/25/1997
Incinerator:
Transporter:

Historically listed as the following USEPA RCRA Generator Size(s) as well:
SMALL QUANTITY GENERATOR

NYS DEC Manifested Waste Summary:
Waste Codes, Waste Units, and Transaction Types are only shown for the most recently reported year.

WASTE CODE	WASTE DESCRIPTION	WASTE AMOUNT	WASTE UNITS	TRANSACTION TYPE	HISTORIC MAXIMUM YEAR	HISTORIC MAXIMUM AMOUNT	HISTORIC MAXIMUM YEAR
D018	BENZENE	110	GALLONS	GENERATED	1997		

Map Identification Number 62 **NYSDEC Name:** **NYSDOT BIN 1066909** **Facility Id: NYR000158386**

NYSDEC Address: I-87 N TO I-95 S INTERCHANGE OVER SEDGWICK AVE BRONX, NY 10452 TT-Id: 740A-0064-846

EPA (RCRA) Name: NYSDOT BIN 1066909

EPA (RCRA) Address: I-87 N TO I-95 S INTERCHANGE OVER SEDGWICK AVE BRONX, NY 10452

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 342 feet to the ENE

ADDRESS CHANGE INFORMATION
Revised street: I-87 / I-95
Revised zip code: NO CHANGE

US EPA RCRA Type: LARGE QUANTITY GENERATOR
Land Disposal: Receives offsite waste:
Storer: Treatment facility:

Notification date: 05/28/2008
Incinerator:
Transporter:

NYS DEC Manifested Waste Summary:
Waste Codes, Waste Units, and Transaction Types are only shown for the most recently reported year.

WASTE CODE	WASTE DESCRIPTION	WASTE AMOUNT	WASTE UNITS	TRANSACTION TYPE	HISTORIC MAXIMUM YEAR	HISTORIC MAXIMUM AMOUNT	HISTORIC MAXIMUM YEAR

NONE Site reported by US EPA. No hazardous waste activity reported by NYS.

Map Identification Number 63 **NYSDEC Name:** **MOBIL OIL CORPORATION - CLOSED** **Facility Id: NYD982730244**

NYSDEC Address: SS 1300 SEDGEWICK AVE BRONX, NY 10401 TT-Id: 740A-0002-702

EPA (RCRA) Name: MOBIL OIL CORPORATION - CLOSED

EPA (RCRA) Address: SS 1300 SEDGEWICK AVE BRONX, NY 10401

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 435 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: 1300 SEDGWICK AVE
Revised zip code: 10452

US EPA RCRA Type: GENERATOR TYPE NOT GIVEN
Land Disposal: Receives offsite waste:
Storer: Treatment facility:

Notification date: 04/21/1989
Incinerator:
Transporter:

NYS DEC Manifested Waste Summary:
Waste Codes, Waste Units, and Transaction Types are only shown for the most recently reported year.

WASTE CODE	WASTE DESCRIPTION	WASTE AMOUNT	WASTE UNITS	TRANSACTION TYPE	HISTORIC MAXIMUM YEAR	HISTORIC MAXIMUM AMOUNT	HISTORIC MAXIMUM YEAR

NONE Site reported by US EPA. No hazardous waste activity reported by NYS.

Map Identification Number 64 **NYSDEC Name:** **CONSOLIDATED EDISON** **Facility Id: NYP004133005**
NYSDEC Address: 1343 OGDEN AVENUE MH18357 BRONX, NY TT-Id: 740A-0003-588

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (3)
Approximate distance from property: 453 feet to the ESE

ADDRESS CHANGE INFORMATION
Revised street: 1343 OGDEN AVE
Revised zip code: 10452

US EPA RCRA (Resource Conservation and Recovery Act) information not reported; Site information reported by NYS DEC.

NYS DEC Manifested Waste Summary:
Waste Codes, Waste Units, and Transaction Types are only shown for the most recently reported year.

WASTE CODE	WASTE DESCRIPTION	WASTE AMOUNT	WASTE UNITS	TRANSACTION TYPE	HISTORIC MAXIMUM YEAR	HISTORIC MAXIMUM AMOUNT	HISTORIC MAXIMUM YEAR
D008	Lead	250	GALLONS	GENERATED	2005		

Map Identification Number 65 **NYSDEC Name:** **CONSOLIDATED EDISON CO VAULT 0434** **Facility Id: NYP004001939**
NYSDEC Address: OGDEN AVE AND W 170TH ST , NY TT-Id: 740A-0002-166

MAP LOCATION INFORMATION
Site location mapped by: ADDRESS MATCHING
Approximate distance from property: 521 feet to the E

ADDRESS CHANGE INFORMATION
Revised street: OGDEN AVE / W 170TH ST
Revised zip code: 10452

US EPA RCRA (Resource Conservation and Recovery Act) information not reported; Site information reported by NYS DEC.

NYS DEC Manifested Waste Summary:
Waste Codes, Waste Units, and Transaction Types are only shown for the most recently reported year.

WASTE CODE	WASTE DESCRIPTION	WASTE AMOUNT	WASTE UNITS	TRANSACTION TYPE	HISTORIC MAXIMUM YEAR	HISTORIC MAXIMUM AMOUNT	HISTORIC MAXIMUM YEAR
B003	Petroleum oil or other liquid containing 500 ppm or greater of PCBs.	1196	KILOGRAMS	GENERATED	1996		

Map Identification Number 66 **NYSDEC Name:** **CONSOLIDATED EDISON** **Facility Id: NYP004092912**
NYSDEC Address: W176ST & HARLEM RVR DR MN61885 NEW YORK, NY 10027 TT-Id: 740A-0031-179

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING (5)
Approximate distance from property: 555 feet to the NNW

ADDRESS CHANGE INFORMATION
Revised street: W 176TH ST / HARLEM RIVER DR
Revised zip code: 10033

US EPA RCRA (Resource Conservation and Recovery Act) information not reported; Site information reported by NYS DEC.

NYS DEC Manifested Waste Summary:
Waste Codes, Waste Units, and Transaction Types are only shown for the most recently reported year.

WASTE CODE	WASTE DESCRIPTION	WASTE AMOUNT	WASTE UNITS	TRANSACTION TYPE	HISTORIC YEAR	HISTORIC MAXIMUM AMOUNT	HISTORIC MAXIMUM YEAR
B007	Other PCB Wastes including contaminated soil, solids, sludges, clothing, etc.	128	KILOGRAMS	GENERATED	2001		

Map Identification Number 67 **NYSDEC Name:** **HIGHBRIDGE YARD - METRO NORTH RR** **Facility Id: NYR000119875**
NYSDEC Address: 100 DEPOT PLZA AT EXTERIOR ST BRONX, NY 10452 TT-Id: 740A-0065-408
EPA (RCRA) Name: HIGHBRIDGE YARD - METRO NORTH RR
EPA (RCRA) Address: 100 DEPOT PLZA AT EXTERIOR ST BRONX, NY 10452

MAP LOCATION INFORMATION
Site location mapped by: MANUAL MAPPING - LARGE SITE
Approximate distance from property: 649 feet to the S

ADDRESS CHANGE INFORMATION
Revised street: 100 DEPOT PL NEAR EXTERIOR ST
Revised zip code: NO CHANGE

US EPA RCRA Type: GENERATOR TYPE NOT GIVEN
Land Disposal: Receives offsite waste:
Storer: Treatment facility:

Notification date: 10/27/2003
Incinerator:
Transporter:

Historically listed as the following USEPA RCRA Generator Size(s) as well:
SMALL QUANTITY GENERATOR

NYS DEC Manifested Waste Summary:
Waste Codes, Waste Units, and Transaction Types are only shown for the most recently reported year.

WASTE CODE	WASTE DESCRIPTION	WASTE AMOUNT	WASTE UNITS	TRANSACTION TYPE	HISTORIC YEAR	HISTORIC MAXIMUM AMOUNT	HISTORIC MAXIMUM YEAR
NONE	Site reported by US EPA. No hazardous waste activity reported by NYS.						

Map Identification Number 68 **NYSDEC Name:** **SVC STATION 7-NYC POLICE DEPT** **Facility Id: NYD981871585**

NYSDEC Address: 1278 SEDGEWICK AVE BRONX, NY 10452 TT-Id: 740A-0002-682
EPA (RCRA) Name: SVC STATION 7-NYC POLICE DEPT
EPA (RCRA) Address: 1278 SEDGEWICK AVE BRONX, NY 10452

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 659 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: 1278 SEDGWICK AVENUE
Revised zip code: NO CHANGE

US EPA RCRA Type: GENERATOR TYPE NOT GIVEN
Land Disposal: Receives offsite waste:
Storer: Treatment facility:

Notification date: 12/12/1986
Incinerator:
Transporter:

Historically listed as the following USEPA RCRA Generator Size(s) as well:
SMALL QUANTITY GENERATOR

NYS DEC Manifested Waste Summary:
Waste Codes, Waste Units, and Transaction Types are only shown for the most recently reported year.

WASTE CODE	WASTE DESCRIPTION	WASTE AMOUNT	WASTE UNITS	TRANSACTION TYPE	YEAR	HISTORIC MAXIMUM AMOUNT	HISTORIC MAXIMUM YEAR

NONE Site reported by US EPA. No hazardous waste activity reported by NYS.

CHEMICAL STORAGE FACILITIES IDENTIFIED WITHIN THE 1/8 MILE SEARCH RADIUS

PLEASE NOTE: * Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 69 **HIGHBRIDGE** **Facility Id: 2-000190**
173RD WEST STREET & AMSTERDAM AVE. NEW YORK, NY 10032 TT-Id: 780A-0003-107

MAP LOCATION INFORMATION
Site location mapped by: MAP COORDINATE - LARGE SITE
Approximate distance from property: 587 feet to the W

ADDRESS CHANGE INFORMATION
Revised street: W 173RD STREET/AMSTERDAM AVE.
Revised zip code: NO CHANGE

Expiration Date of the facility's registration certificate:

Site Status: Unregulated

NOTE: The following detailed facility and tank information has not been made publicly available by the NYSDEC since 1/1/2002.

Owner Name: N.Y.C. DEPT. OF PARKS & RECREATION
Owner Address: 16 W 61 ST. MANHATTAN, NY 10023
Operator Name: CESAR RODRIGUEZ Facility Phone #: (212) 927-2400
Site Type: MUNICIPALITY

TANK NUMBER	TANK STATUS	CHEMICAL NAME	CAPACITY GALLONS	TANK LOCATION	INSTALL DATE	DATE CLOSED
001	IN SERVICE	CHLORINE	1500	ABOVEGROUND	12/86	

Toxicity Information Summary

CHEMICAL NAME	CAS-NO	ACUTE TOX	TUMOR TOX	MUTAG TOX	REPRO TOX	IRRIT TOX	MCL
CHLORINE	7782505	X		X	X		

NO HISTORIC UTILITY SITES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

NO HAZARDOUS SUBSTANCE WASTE DISPOSAL SITES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

NO TOXIC AIR, LAND AND WATER RELEASES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

NO WASTEWATER DISCHARGES IDENTIFIED WITHIN 1/8 MILE SEARCH RADIUS

AIR DISCHARGE FACILITIES IDENTIFIED WITHIN THE 1/8 MILE SEARCH RADIUS

PLEASE NOTE: * Compass directions can vary substantially for sites located very close to the subject property address.

Map Identification Number 70 **MOBIL** **Facility Id: 3600500295** **State-county CDS Id: 3600500295**
1300 SEDGEWICK BRONX, NY 10452 State-county NED id:
EPA (FINDS) Name: MOBIL TT-ID: 900A-0000-470
EPA (FINDS) Address: 1300 SEDGEWICK BRONX 10452

MAP LOCATION INFORMATION
Site location mapped by: PARCEL MAPPING (2)
Approximate distance from property: 432 feet to the SE

ADDRESS CHANGE INFORMATION
Revised street: NO CHANGE
Revised zip code: NO CHANGE

CDS-ID: 00295 NED-ID: None Given EPA-ID: NYD982730244 FINDS-ID: NYD982730244
Plant Phone #1: None Given Plant Phone #2: None Given
Operating Status: OPERATING
EPA Classification: POTENTIAL UNCONTROLLED EMISSIONS < 100 TONS/YEAR
State Classification: POTENTIAL UNCONTROLLED EMISSIONS < 100 TONS/YEAR
EPA Plant Compliance Status:
State Plant Compliance Status: IN COMPLIANCE - INSPECTION

AIR PROGRAM INFORMATION
Regulatory Air Program: SIP SOURCE Program Status: OPERATING

POLLUTANT INFORMATION
Pollutant: VOLATILE ORGANIC COMPOUNDS
State Pollutant Compliance for this pollutant: IN COMPLIANCE - INSPECTION

NO CIVIL & ADMINISTRATIVE ENFORCEMENT DOCKET FACILITIES IDENTIFIED WITHIN THE 1/8 MILE SEARCH RADIUS

NO NYC ENVIRONMENTAL QUALITY REVIEW REQUIREMENTS - "E" DESIGNATION SITES IDENTIFIED WITHIN 250 FT SEARCH RADIUS

U.S. EPA EMERGENCY RESPONSE NOTIFICATION SYSTEM (ERNS) SPILLS
AT THE LOCATION OR POTENTIALLY AT THE LOCATION OF
High Bridge Aqueduct
Bronx & Manhattan, NY

* Any ERNS Spills listed below are NOT mapped in this report *

ONSITE ERNS (A count of these spills can be found in the distance interval table):
THIS SITE IS NOT FOUND IN THE ERNS DATABASE

POTENTIALLY ONSITE ERNS:

****

Spill Number (ID): 184047 Spill Date: 10/25/1990

Location: OLD HIGH BRIDGE YARD EAST SIDE OF TRACKS
Spill City: NEW YORK NY

Material Spilled	Quantity Spilled	Units	Pounds	Quantity Released in Water	Units	Casno
UNKNOWN MATERIAL	0.00	UNK	0.00	0.00	NON	

Potentially Responsible Party (Discharger): METRO NORTH
Discharger Address:
NEW YORK NY
Dun and Bradstreet Number: Organization Type: PRIVATE ENTERPRISE

Medium(s) Affected:
Air: F Land: T Water: F Groundwater: F Contained within Fixed Facility: F Other: F
Waterway Affected: LAND
Damages Incurred: F Estimated Cost of Property Damage: $0.00

Cause(s):
Transportation Accident: F Equipment Failure: F
Operator Error: F Natural Phenomenon: F
Dumping: F Other Cause: F
Unknown: F
Cause of the incident: Source of Release:
Type of Transportation Involved: FIXED FACILITY

Action: NONE

Description: DUMPING MATERIAL

Miscellaneous:

****

 March 18, 2010 'High Bridge Aqueduct'

Unmappable facilities for 'Bronx' County

Solid Waste Facilities

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
03C01	BRONX FRONTIER COMPOSTING			UNKNOWN
03D05	SOUTH BRONX MARINE DEMO			UNKNOWN
03T03				UNKNOWN
03T04	REALTY TRS. STA.			UNKNOWN
03T06	LEE-BIN T.S.			UNKNOWN
03T10	A.L.A LAND DEVELOP TRS.ST			UNKNOWN
03T11	BEM CONTRACTING TRANS STA			UNKNOWN
03T35	UNIVERSAL DEMO RECYCLING			UNKNOWN
03V40	ECCO-SUBURBAN CARTING			UNKNOWN
03W78	FELIX RECYCLING FILL MATE			UNKNOWN
03W86	VINCENT RUSCIANO CONTRUCT			UNKNOWN
		BOTTNER AVE.	BRONX	UNKNOWN
		21B GARAGE	BRONX	UNKNOWN

Hazardous Spills - TANK FAILURES - Closed

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
9315220	900 SETELEY	900 SETELEY	BRONX	UNKNOWN

Hazardous Spills - TANK TEST FAILURES - Closed

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
9500889	1419 MORNS AVENUE	1419 MORNS AVENUE	BRONX	UNKNOWN
8809318	CLOSED-LACKOF RECENT INFO	(NO STREET INFO)	BRONX	UNKNOWN
0514225	NY CITY PARKS	1 BRONX RIVER PARKWAY	BRONX	UNKNOWN
0804720	CHEN HOME	29 MCGEORY AVE	BRONXVILLE	UNKNOWN
8802622	85-09 1ST AVENUE	85-09 1ST AVENUE	NEW YORK CITY	UNKNOWN

Hazardous Spills - UNKNOWN CAUSE OR OTHER CAUSES - Closed

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
8606271	RAW SEWAGE ITEM #932			UNKNOWN
9913978	BRONX EXPRESSWAY	SERVICE RD	BRONX	UNKNOWN
9913161	SERVICE BOX 7993	EAST OF 170TH ST	BRONX	UNKNOWN
9905027	MANHOLE 138 ON BAINBRIDGE	AVE 510 FT OF N CORNER	BRONX	UNKNOWN
9812912	SERVICE BOX 5550	ELMONT	BRONX	UNKNOWN
9802285	MANHOLE #26954	SERVICE RD/TREEMONT AVE	BRONX	UNKNOWN
9713244	DEPT SANITAION	NEAR PLAZA MATERIALS	BRONX	UNKNOWN
9712848	NEAR CITY BUS PARKING	I95 RAMP TO TRIBORO BRDG	BRONX	UNKNOWN
9702125	AUTO GARAGE	218 UNIVERSITY AVE	BRONX	UNKNOWN
9611109	CROTON AQUADUCT	CROTON AQUADUCT	BRONX	UNKNOWN
9515857	1227 PINTON AVE	1227 PINTON AVE	BRONX	UNKNOWN
9502018	CROSS BX EPWY & ROSA AVE	CROSS BX EPWY / ROAS AVE	BRONX	UNKNOWN
9416011	APARTMENT BLDG.	USS MORRISON AVE. B4	BRONX	UNKNOWN
9415281	UNK	UNKNOWN	BRONX	UNKNOWN
9315514	WHILE PLAINS ROAD	WHILE PLAINS ROAD	BRONX	UNKNOWN
8504703	NEW WINDSOR BRONX	NEW WINDSOR BRONX	BRONX	UNKNOWN
8503365	BRONX	BRONX	BRONX	UNKNOWN
8503141	BRONX	BRONX	BRONX	UNKNOWN
8100079			BRONX	UNKNOWN
0908499	SUNSET COVE SHEEN FROM BOAT	1490 OUTLOOK AVE	BRONX	UNKNOWN
0908432	MANHOLE 156	SOUTHBOUND MAJOR DEEGAN RDMANHOLE	BRONX	UNKNOWN
0907338	CROSS BRONX EXPRESSWAY	WESTSBOUND	BRONX	UNKNOWN
0904352	ENTRANCE TO THE LAGOON OF BRONX MARINA	ENTRANCE TO THE LAGOON OF BRONX MARINA	BRONX	UNKNOWN
0805371	LONG ISLAND SOUND	29 LONG STREET	BRONX	UNKNOWN
0803372	248TH ST PUMP STATION	248TH STREET	BRONX	UNKNOWN

0802419	PRIVATE HOME	600 WEST 196TH ST	BRONX	UNKNOWN
0708015	ON ROADWAY	NORTH ON 95	BRONX	UNKNOWN
0707726	ON HIGHWAY	MAJOR DEEGAN	BRONX	UNKNOWN
0700460	IN FRONT OF BJ‘S IN ROADW	339 GATEWAY STREET	BRONX	UNKNOWN
0613327	APARTMENT	120 ALCOTT PLACE	BRONX	UNKNOWN
0512943	CONSTRUCTION SITE	1040-1052 EDGEWATER ROAD	BRONX	UNKNOWN
0511820	MANHOLE #9818	WALNUT AVE & EAST 149 STREET	BRONX	UNKNOWN
0511299	ATAR PLACE	STADIUM AVE	BRONX	UNKNOWN
0509587	CROSS BRONX EXP	BETWEEN ROSEDALE /WEST	BRONX	UNKNOWN
0508362	BUILDING	1253 STELEY AVE	BRONX	UNKNOWN
0410879	METRO NORTH HUDSON LINE	MORRIS HGTS	BRONX	UNKNOWN
0210006	CROSS BRONX EXPRESSWAY	NB DEEGAN EXPRESSWAY	BRONX	UNKNOWN
0101498	MAN HOLE # 558	MCCLELLAN ST	BRONX	UNKNOWN
0100318	HARLEM RIVER	NEAR HAMILTON AVE BRIDGE	BRONX	UNKNOWN
0009889	I295 BETWEEN I95 TO TOLL	BOOTH	BRONX	UNKNOWN
0004934	VAULT 2052	THERIOT AVE/ASTORIA AVE	BRONX	UNKNOWN
0209904	VARIOUS DEP -BWSO SITES	MISC.	BRONX/QUEENS/MANHATTAN	UNKNOWN
8907807	UNKNOWN	GEORGE WASHINGTON BRIDGE	EDGEWATER	10033
9412487	HARLEM RIVER	HARLEM RIVER	MANHATTAN	UNKNOWN
9307242	BRIDGE TO B‘WAY.EXPRESSWA	BRIDGE TO B‘WAY.EXPRESSWA	MANHATTAN	UNKNOWN
9006769	RESTAURANT/UNK ADDRESS	UNKNOWN	MANHATTAN	UNKNOWN
8504758	MANHATTAN	MANHATTAN	MANHATTAN	UNKNOWN
8503796	MANHATTAN	MANHATTAN	MANHATTAN	UNKNOWN
8503779	MANHATTAN	MANHATTAN	MANHATTAN	UNKNOWN
8503506	MANHATTAN	MANHATTAN	MANHATTAN	UNKNOWN
8503421	MANHATTAN	MANHATTAN, EAST RIVER	MANHATTAN	WHR10
8503301	MANHATTAN	MANHATTAN	MANHATTAN	UNKNOWN
8503107	MANHATTAN	MANHATTAN	MANHATTAN	UNKNOWN
0901766	GEORGE WASHINGTON BRIDGE	GEORGE WASHINGTON BRIDGE	MANHATTAN	10033
9209502	UNK	UNK	NEW YORK	UNKNOWN
8907255	HERTZ RENT A CAR/MANH		NEW YORK	UNKNOWN
8604519	NEW YORK	NEW YORK	NEW YORK	UNKNOWN
8504836	WATER FRONT MANHATTAN	WATER FRONT MANHATTAN	NEW YORK	UNKNOWN
0605752	RESIDENTIAL PROPERTY	RIVER ROAD	NEW YORK	UNKNOWN
9806380	GEORGE WASHINGTON BRIDGE	LOWER LEVEL	NEW YORK CITY	10033
8905093	CROSS BRONX EXPWY/BX	CROSS BRONX EXPRESSWAY	NEW YORK CITY	UNKNOWN
8809696	ALBERT EINSTEIN MEDICAL	1300 MORRIS PK AVE	NEW YORK CITY	UNKNOWN
8707997	GEORGE WASHINGTON BRIDGE	GEORGE WASHINGTON BRIDGE	NEW YORK CITY	10033
8704322	1300 MORRIS PARK AVENUE/	1300 MORRIS PARK AVENUE	NEW YORK CITY	UNKNOWN
8607915	NEW YORK CITYF		NEW YORK CITY	UNKNOWN
8606984	UNKNOWN ADDRESS !	UNKNOWN	NEW YORK CITY	UNKNOWN
8603024	BRONX	BRONX	NEW YORK CITY	UNKNOWN
9207036	BUOYS 22 & 24	BUOYS 22 & 24	NY	UNKNOWN
9112696	BARGE	BARGE	NYC	UNKNOWN
8601101	OIL COMES TO HARLEM	HARLEM RIVER	NYC	UNKNOWN
8607173	UNK	UNKNOWN	UNKNOWN	UNKNOWN

Hazardous Spills - MISC. SPILL CAUSES - Closed

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
9913976	CROSS-BRONX EXPRESSWAY	SERVICE ROAD	BRONX	UNKNOWN
9900490		4375 BRONX AVE	BRONX	UNKNOWN
9900067		EDFORD BLVD?/SOUTHERN BLV	BRONX	UNKNOWN
9811600		3243 CHALL AVE	BRONX	UNKNOWN
9810375	SUNY MARITIME	HANUS STREET	BRONX	UNKNOWN
9804474	EAST BOUND LN	CROSS BRONX EXPRESSWAY	BRONX	UNKNOWN
9711348	BAYSIDE FUEL	1975 FREDERICK AVE	BRONX	UNKNOWN
9709352	METRO-NORTH RAILROAD	HUDSON LINE TR#4 MIL 7.5	BRONX	UNKNOWN
9603650	HIGHBRIDGE GARDENS -NYCHA	1105 UNIVERSITY AVE	BRONX	10452
9601288	187 NB & GEORGE WASH BRID	I87 NB & GEORGE WASH BRID	BRONX	UNKNOWN
9516267	HIGHWAY 87N/MAJOR DEACON	OFF GEORGE WASHINGTON BRI	BRONX	UNKNOWN

9512039	2934 VENTON AVE	2934 VENTON AVE	BRONX	UNKNOWN
9501561	CROSS BRONX EXPWY	CROSS BRONX EXPRESSWAY	BRONX	UNKNOWN
9416098	I-87 MAJOR DEEGAN EXPWY	1-87 MAJOR DEEGAN-BROADWA	BRONX	UNKNOWN
9414961	448 CUSLOGA AVENUE	448 CUSLOGA AVE	BRONX	UNKNOWN
9412838	34 MT MORRIS PARKWAY	34 MT MORRIS PARKWAY	BRONX	UNKNOWN
9411935	1821 FAIRVIEW AVENUE	1821 FAIRVIEW AVENUE	BRONX	UNKNOWN
9400698	1667 EAST 731 STREET	667 EAST 731 STREET	BRONX	UNKNOWN
9310391	BUTLER HOUSES	1068 WEBSTER AVENUE	BRONX	UNKNOWN
9308041	GEO.WASH BR.- 87 N.BOUND	GEO.WASH BR.- 87 N. BOUND	BRONX	UNKNOWN
9212402	I-95/M.P. 0.5ML NR RR TRK	I-95/M.P. 0.5ML NR RR TRK	BRONX	UNKNOWN
9211051	SO. BRONX EXPSWY	SO. BRONX EXPSWY	BRONX	UNKNOWN
9207432	1021 ATH STREET JOHN'S AV	1021 ATH STREET JOHN'S AV	BRONX	UNKNOWN
8100533	NONE RESPONSIBLE	PARKDALE HOSPITAL	BRONX	UNKNOWN
0909577	BASEMENT	1340 CROSE AVE	BRONX	UNKNOWN
0907208	CON EDISON	248 PUMP STATION AND 254 PUMP STREET	BRONX	UNKNOWN
0811234	MILE MARKER IS POSSIBLY 2.6 THE CALLER WAS NOT SUR	87N OFF ROUTE 100 NORTH EXIT.	BRONX	UNKNOWN
0810208	PUMP STATION	200 AND 35ST PUMP STATION	BRONX	UNKNOWN
0808012	VEHICLE 50756	' SEDGEWICK AVE & UNDERCLIFF AVE'	BRONX	UNKNOWN
0801343	TRAFFIC ACCIDENT- 30 GAL DIESEL IN MH	EXTERIOR ST / MAJOR DEEGAN XWAY	BRONX	UNKNOWN
0710690	STREET	NORTH ON ROSNECK BRIDGE	BRONX	UNKNOWN
0707044	MAJOR DEACON NB	CROSS BRONX PARKWAY	BRONX	UNKNOWN
0705868	DRUM RUN	E CROSS BRONX EXWY	BRONX	UNKNOWN
0705726	DRUM RUN	RTE 95 RAMP TO 87	BRONX	UNKNOWN
0610891	CROSS BRONX EXP	1/2 MI W OF JEROME AV	BRONX	UNKNOWN
0605553	IN ROADWAY	CROSSBRONX EXPRESSWAY	BRONX	UNKNOWN
0604533	MAJOR DEEGAN PKWY	VANCORTLAND EXIT	BRONX	UNKNOWN
0602583	APARTMENT BUILDING	5775 MARSHALL LEW AVE	BRONX	UNKNOWN
0510030	IFO TASK FORCE	STATE 87 EXIT - I 95 HWY	BRONX	UNKNOWN
0504500	100 YARDS BEFORE EXIT9	CROSS BRONX EXPRESSWAY	BRONX	UNKNOWN
0503106	I 87 SERVICE ROAD	SEDGWICK AVE	BRONX	10452
0408155	HARLEM RIVER	BRONX REST PIER, PIER 8	BRONX	UNKNOWN
0302981	NYS THRUWAY	N/B - MILE MARKER 2.0	BRONX	UNKNOWN
0210709	SOUTHBOUND	MAJOR DEEGAN EXPRESSWAY	BRONX	UNKNOWN
0111297	CROSS BRONX	CROSS BRONX/MAJOR DEEGAN	BRONX	UNKNOWN
0109044	NEW ENGLAND THRUWAY	I-95 EXPRESSWAY	BRONX	UNKNOWN
0108784	ROADWAY	MAJOR DEEGAN EXPRESSWAY	BRONX	UNKNOWN
0105418		MAJOR DEGAN/CROSS BRONX	BRONX	UNKNOWN
0105112	TRANSFORMER VAULT	BROCKNER BLVD	BRONX	UNKNOWN
0104091		MAJOR DEEGAN & CROSS BRON	BRONX	UNKNOWN
0008417	EXTERIOR ST &	MAJOR DEEGAN EXPRESSWAY	BRONX	UNKNOWN
0003868	IN ROAD	DAWSON ST & W TREMONT	BRONX	UNKNOWN
0003714	PHELAM YARD MAIN TRACK	MILE POST E-15	BRONX	UNKNOWN
0002198	VAULT 1690	256 GREEN POINT AVENUE	BRONX	UNKNOWN
9500740	GEORGE WASHINGTON EXPWY	GEORGE WASHINGTON EXPWY	FORT WASHINGTON	10033
9403464	GEORGE WASHINGTON BRIDGE	GEORGE WASHINGTON BRIDGE	FT. LEE	10033
9903314	GEORGE WASHINGTON BRIDGE	G.W.B.	MANHATTAN	10033
9713418	UNKNOWN	UNKNOWN	MANHATTAN	UNKNOWN
9609245	GEORGE WASHINTON BRIDGE	GWB	MANHATTAN	10033
9414330	5 MORGAN CT	5 MORGAN CT	MANHATTAN	UNKNOWN
9413264	NYC TRANSIT AUTHORITY	SOUTH 175TH LINE TRK A-3	MANHATTAN	UNKNOWN
9412049	84-39 153RD AVE	84-39 153RD ST	MANHATTAN	UNKNOWN
9410330	115 LAKE ROAD	115 LAKE ROAD	MANHATTAN	UNKNOWN
9409048	GEO WASH.-MANHATTAN EXPWY	GEO WASH.-MANHATTAN EXPWY	MANHATTAN	10033
9402295	LOWER LEVEL EB #12	LOWER LEVER EB #12	MANHATTAN	UNKNOWN
9312441	35 GROSS STREET	35 GROSS STREET	MANHATTAN	UNKNOWN
9304809	PLANDOMD ROAD ?	PLANDOMD ROAD?	MANHATTAN	UNKNOWN
9211572	HUDSON LIFT BRIDGE	HUDSON LIFT BRIDGE	MANHATTAN	UNKNOWN
0700398	HYBRIDGE PARK	HYBRIDGE PARK	MANHATTAN	UNKNOWN
0304357	WESTBOUND LANE	I95 & GEORGE WASHINGTON B	MANHATTAN	10033
9504644	GEORGE WASHINGTON BRIDGE	GEORGE WASHINGTON BRIDGE	NEW YORK	10033

9416641	GEORGE WASHINGTON BRIDGE	GEORGE WASHINGTON BRIDGE	NEW YORK	10033
9103269	HAYDEN & 181ST ST	HAYDEN ST / 161ST ST	NEW YORK	UNKNOWN
0707150	UPPER DECK SOUTHBOUND	GEORGE WASHINGTON BRIDGE	NEW YORK	10033
0210930	GEORGE WASHINGTON BRIDGE	GEORGE WASHINGTON BRIDGE	NEW YORK	10033
9004330	3915 OILOTT AVE/BX	3915 OILOTT AVENUE	NEW YORK CITY	UNKNOWN
9004299	137 ZEIZER PLACE/BX	137 ZEIZER PLACE	NEW YORK CITY	UNKNOWN
9004267	GEORGE WASHINGTON BR/MANH	GEORGE WASHINGTON BRIDGE	NEW YORK CITY	10033
8904199	MAJOR DEEGAN/NORTHBOUND	MAJOR DEEGAN/NORTHBOUND	NEW YORK CITY	UNKNOWN
8801952	GEORGE WASHINGTON BRIDGE	CROSS BRONX EXPRESSWAY	NEW YORK CITY	UNKNOWN
8705544	IND SUBWAY YARD/REGULATOR	IND SUBWAY YARD/REG. N-10	NEW YORK CITY	UNKNOWN
8601952	ITEM#832 NYCDEP	SOUTH OF GEORGE WASH. BR.	NEW YORK CITY	10033
0805773	METRO NORTH RAIL BED	METROL NORTH HUDSON LINE	RIVERDALE	UNKNOWN
9501840	UNKNOWN LOCATION	UNKNOWN LOCATION	WESTCHESTER	UNKNOWN

Petroleum Bulk Storage Facilities

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
2-156418	MOBIL S/S 1JARDH AAMCO TRANAS	MOBIL S/S 1JARDH AAMCO TRANAS	BRONX	10400
2-325929	C O REALTY INC	2136 CHURCH AVE	BRONX	UNKNOWN
2-605665	RIDGE HOLDING CORP.	1459 SYTHE PLACE	BRONX	10452

Hazardous Waste Generation or Transport Facilities

FACILITY ID	FACILITY NAME	STREET	CITY	ZIP
NYD004113312	CONSOLIDATED EDISON	SEDGWICK AVE MH26259	BORONX	UNKNOWN
NYD986896504	NEW YORK CITY OF WASHINGTON BRIDGE	SECOND AVE	BRONX	10452
NYD986985158	NYSDOT	DEEGAN/CROSS BRONX	BRONX	UNKNOWN
NYD987013950	NYSDOT CONTRACT D254247	CROSS BRONX EXPWY & MAJOR	BRONX	UNKNOWN
NYP004057592	CONSOLIDATED EDISON	MH26587	BRONX	UNKNOWN
NYP004087912	CONSOLIDATED EDISON	2 EIGHT AVE-WHITESTONE CINEMAS	BRONX	UNKNOWN
NYP004095899	CONSOLIDATED EDISON	MH7411-EXTERIOR ST & UNIVERSIT	BRONX	UNKNOWN
NYP004095949	CONSOLIDATED EDISON	185 W321 ST MH8989	BRONX	UNKNOWN
NYP004117354	CONSOLIDATED EDISON	UNIVERSITY AVE	BRONX	UNKNOWN
NYP004120325	CONSOLIDATED EDISON	W MAJ DEEGAN SER RD MH29085	BRONX	UNKNOWN
NYP004128936	CONSOLIDATED EDISON	GATEHOUSE EDGEWATER PK	BRONX	UNKNOWN
NYP004129938	CONSOLIDATED EDISON	GATEHOUSE EDGEWATER PK MEAGER	BRONX	UNKNOWN
NYP004136115	CONSOLIDATED EDISON	?	BRONX	UNKNOWN
NYP004144681	CONSOLIDATED EDISON	MH11838	BRONX	UNKNOWN
NYP004149837	CONSOLIDATED EDISON	CHORDCEE ROAD	BRONX	UNKNOWN
NYP004159646	CONSOLIDATED EDISON	OPPOSITE N/E/C PHELAN TERRACE	BRONX	UNKNOWN
NYP004163531	CON EDISON	1900 SCHIEFFELIN AVE	BRONX	UNKNOWN
NYP004189718	CONSOLIDATED EDISON MH156	MH156 S/B SVC ROAD MAJOR DEEGAN	BRONX	UNKNOWN
NYP004197687	CONSOLIDATED EDISON	SEDGEWICK AVE/ CELLAR ST	BRONX	UNKNOWN
NYP010000230	NYCDEP	MAJOR DEEGAN & WEST	BRONX	UNKNOWN
NYR000005645	NYC DEPT OF PARKS LEEHER MCGOVERN BOUIS	LEEHER MCGOVERN BOUIS	BRONX	UNKNOWN
NYR000115006	NYCDOT	WASHINGTON BRG & DEPOT PL	BRONX	10452
NYR000153858	NYSDOT BIN 1067452	I-87 NB 9MI S OF I-95 OVER	BRONX	10452
NYD986966695	NYSDOT	CROSS BRONX EXPRESSWAY	LONG ISLAND CITY	UNKNOWN
NYP004169538	CONSOLIDATED EDISON	5 PINELL ST	MANHATTAN	UNKNOWN
NY0000010363	NYCDOT	N/S	N/S	UNKNOWN
NYB981182280	PORT AUTHORITY OF NEW YORK & NEW JERSEY	GEORGE WASHINGTON BRIDGE	NEW YORK	10033
NYP004039327	CONSOLIDATED EDISON	N/S	NEW YORK	UNKNO
NYP004110144	CONSOLIDATED EDISON	SEGWICH AVE	NEW YORK	UNKNOWN
NYP004120366	CONSOLIDATED EDISON	MH132	NEW YORK	UNKNOWN
NYP004155339	CONSOLIDATED EDISON	HIGHBRIDGE PARK	NEW YORK	UNKNOWN
NYR000127654	L&L PAINTING OWB PROJECT NY TOWER	GWB 244.108 (NY TOWER)	NEW YORK	10033
NYD986867414	SESCO	SHIPPING WASTE PORTS IN NY NJ	NEW YORK & NEW JERSEY	UNKNOWN
NYP000930479	CONSOLIDATED EDISON CO	V6312-LENOX	QUEENS	UNKNOWN
NYP004008082	CONSOLIDATED EDISON	VS 1791 - MCCLELLAN G COVE	QUEENS	UNKNOWN
NYP004011177	CONSOLIDATED EDISON	V 0526 - OGDEN AVE	QUEENS	UNKNOWN
NYP004070231	CONSOLIDATED EDISON	RED OAK	WESTCHESTER	UNKNOWN

Hazardous Substance Waste Sites

FACILITY ID	FACILITY NAME		STREET	CITY	ZIP
NY0069	GEORGE WASHINGTON BRIDGE		178TH STREET	MANHATTAN	10033

Air Releases

FACILITY ID	FACILITY NAME		STREET	CITY	ZIP
NY005X08L	TAPOLD REALTY CORP	BRONX	NO STREET ADDRESS	NO CITY NAME	UNKNOWN
NY005X12G	J A D REALTY CORP	BRONX	NO STREET ADDRESS	NO CITY NAME	UNKNOWN
NY005X40E	ANTHONY ASSOC	BRONX	NO STREET ADDRESS	NO CITY NAME	UNKNOWN
3608100070	HAMMEL HOUSING AUTHORITY		8510 ROCKAWAY BEACH BLVD	ROCKAWAY BEACH	116910000
3606160150	NYS UDC COGENERATION		MOTT HAVEN ROF PROC	SOUTH BRONX	UNKNOWN

Hazardous waste codes presented in individual Toxic Information Profiles are defined below.

B003 Petroleum oil or other liquid containing 500 ppm or greater of PCBs.

B007 Other PCB Wastes including contaminated soil, solids, sludges, clothing, rags, and dredge material.

D008 Lead

D018 BENZENE

Source: U. S. Environmental Protection Agency

How Toxic Site Locations Are Mapped

Toxics Targeting maps toxic site locations on a digital version of the U. S. Census map or those used by local authorities using addresses and map coordinates provided by site owners/operators or government agencies. In order to allow site locations to be verified independently, the information used to map each site is presented in the first section of each Toxic Site Profile, along with a description of the mapping technique used and any address corrections that were made in order to locate toxic sites with incomplete or inadequate site location information. The mapping process is explained below.

Map Identification Number: 12 Site Name: Acme World Manufacturing, Inc.

Site Address: 55 Main Street Anytown, NY 11797

MAP LOCATION INFORMATION

Site location mapped by:

Address Matching

1) Most toxic sites are mapped by matching addresses provided by site owners/operators or government agencies with locations on a digital version of the street or parcel map. These site locations are identified with the method used to map them.

Note: Some sites have an address match location and a map coordinate location. Both locations are mapped because they can be equally correct.

or Map Coordinate

2) Some toxic sites are located using map coordinates provided by site owners/ operators or government agencies. These site locations are identified "map coordinate." Map coordinates for Toxic Wastewater Discharges, Toxic Release Inventory sites and Major Oil Storage Facilities should be considered suspect.

or Manual Mapping

or Site Visit

3) Incomplete addresses or map coordinates require some site locations to be determined by commercial street maps (manual mapping), site visits, map coordinates from other databases and address location services. Application of any of these methods is identified accordingly.

ADDRESS CHANGE INFORMATION

Revised Street: NO CHANGE

Revised zip code: NO CHANGE

4) Site addresses are sometimes corrected to eliminate obvious errors that prevent sites from being mapped. All address corrections are noted here.

Information Source Guide

Toxics Targeting's Environmental Reports contain government and other information compiled on 21 categories of reported known or potential toxic sites. Each toxic site database is described below with information detailing a) the source of the information, b) the date when each database is covered to and c) when *Toxics Targeting* obtained the information..

1) **National Priority List for Federal Superfund Cleanup:** Toxic sites nominated for cleanup under the Federal Superfund program. Annual compilation of special two-page detailed profiles of NPL sites. Also includes delisted NPL sites.
ASTM required.* Fannie Mae required.** Source: U. S. Environmental Protection Agency.[1]
Data attributes updated from: 1/5/2010. Data obtained by Toxics Targeting: 1/5/2010.
New Facilities updated through: 1/5/2010. Data obtained by Toxics Targeting: 1/5/2010.

2) **Inactive Hazardous Waste Disposal Site Registry:** New York State database that maintains information and aids decision making regarding the investigation and cleanup of toxic sites. The Registry's data includes two-page profiles noting site name, ID number, description, classification, cleanup status, types of cleanup, owner information, types and quantities of contaminants, and assessment of health and environmental problems. Also included are sites that qualify for possible inclusion on the Registry. These Registry Qualifying sites may or may not be on the Site Registry.
ASTM required.* Fannie Mae required.** Source: New York State Department of Environmental Conservation.[2]
Data attributes updated through: 8/18/2009. Data obtained by Toxics Targeting: 8/18/2009.
New Facilities updated to: 8/18/2009. Data obtained by Toxics Targeting: 8/18/2009.

3) **Corrective Action Activity (CORRACTS):** U. S. Environmental Protection Agency database of hazardous facilities regulated pursuant to the Resource Conservation and Recovery Act (RCRA).
ASTM required.* Fannie Mae required.** Source: U. S. Environmental Protection Agency[1]
Data attributes updated through: 11/17/2009. Data obtained by Toxics Targeting: 11/18/2009.
New facilities updated through: 11/10/2008. Data obtained by Toxics Targeting: 3/7/2009.

4) **CERCLIS:** Toxic sites listed in the Federal Comprehensive Environmental Response, Compensation and Liability Information System. Includes Active and No Further Remedial Action Planned (NFRAP) sites.
ASTM required.* Fannie Mae required.** Source: U. S. Environmental Protection Agency.[1]
Data attributes updated through: 1/9/2008. Data obtained by Toxics Targeting: 3/12/2008.
New Facilities updated through: 1/9/2008. Data obtained by Toxics Targeting: 3/12/2008.

5) **Brownfield Programs:** NYS programs for sites that are abandoned, idled or under-used industrial and/or commercial sites where expansion or redevelopment is complicated by real or perceived environmental contamination.
ASTM required.* Source: New York State Department of Environmental Conservation.[2]
Data attributes updated through: 8/18/2009. Data obtained by Toxics Targeting: 8/18/2009.
New Facilities updated to: 8/18/2009. Data obtained by Toxics Targeting: 8/18/2009.

(a) **Brownfield Cleanup Program (BCP)**
(b) **Voluntary Cleanup Program (VCP)**
(c) **Environmental Restoration Program (ERP)**

6) **Solid Waste Facilities:** a compilation of the following 2 databases:

(a) **NYS Solid Waste Registry:** which includes, but is not limited to, landfills, incinerators, transfer stations, recycling centers.
ASTM required.* Fannie Mae required.** Source: New York State Dept. of Environmental Conservation.[2]
Data updated to: 12/31/2001. Data obtained by Toxics Targeting: 3/16/2002.

(b) **1934 Solid Waste Disposal Site in New York City:** which includes sites operated by municipal authorities circa 1934. Source: City of New York Department of Sanitation (1984). The Waste Disposal Problem in New York City: A Proposal For Action.

7) **RCRA Hazardous Waste Treatment, Storage or Disposal Facility Databases:**

(a) **Manifest Information:** New York State database of hazardous waste facilities and shipments regulated by the DEC's Bureau of Hazardous Waste Facility Compliance pursuant to NYS Law and the Resource Conservation and Recovery Act (RCRA).
ASTM required.* Fannie Mae required.** Source: New York State Department of Environmental Conservation.[2]

New facilities updated through: 12/2/2009. New facilities obtained by Toxics Targeting: 12/4/2009.
Manifest transactions data updated to: 12/2/2009. Manifest transactions data obtained by Toxics Targeting: 12/4/2009.

(b) **RCRA Notifier & Violations Information:** U. S. Environmental Protection Agency database of hazardous facilities regulated pursuant to the Resource Conservation and Recovery Act (RCRA).
ASTM required.* Fannie Mae required.** Source: U. S. Environmental Protection Agency[1]
New facilities updated through: 11/17/2009. Data obtained by Toxics Targeting: 11/18/2009.
Data attributes updated through: 11/17/2009. Data obtained by Toxics Targeting: 11/18/2009.

8) **Spills Information Database:** Spills reported to the DEC as required by one or more of the following: Article 12 of the Navigation Law, 6 NYCRR Section 613.8 (from Petroleum Bulk Storage Regulations) or 6 NYCRR Section 595.2 (from Chemical Bulk Storage Regulations). This database includes both *active* and *closed* spills.
ASTM required.* Fannie Mae.** Source: NYS Department of Environmental Conservation.[2]

New spills through: 1/4/2010 New spills data obtained by Toxics Targeting: 1/4/2010
Spill attribute data through: 1/4/2010 Spill attribute data obtained by Toxics Targeting: 1/4/2010

Active spills: paperwork not completed. Closed spills: paperwork completed.
Both active and closed spills may or may not have been cleaned up (see Date Cleanup Ceased in spill profiles).

9) **Major Oil Storage Facilities:** NYS database of facilities licensed pursuant to Article 12 of the Navigation Law, 6NYCRR Parts 610 and 17NYCRR Part 30, such as onshore facilities or vessels, with petroleum storage capacities equal to or greater than four hundred thousand gallons. **Tank & other data withheld by NYSDEC as of 4/1/2002**.
ASTM required.* Fannie Mae required.** Source: New York State Department of Environmental Conservation.[2]

Data updated through: 9/8/2009. Data obtained by Toxics Targeting: 9/8/2009.

10) **Petroleum Bulk Storage Facilities:** a compilation of local and state databases of aboveground and underground petroleum storage tank facilities.

(a) **NYS Petroleum Bulk Storage Database:** This includes all New York State counties except Cortland, Nassau, Rockland, Suffolk, and Westchester. ASTM required.* Fannie Mae required.**
Source: NYS Department of Environmental Conservation.[2]
New facilities updated through: 2/22/2009. Data obtained by Toxics Targeting: 2/22/2009.
Tank data updated through: 2/22/2009. Data obtained by Toxics Targeting: 2/22/2009.

(b) **New York City Fire Department Tank Data:** **Data has been withheld by the NYC Fire Dept.**
Source: New York City Fire Department. Data obtained by Toxics Targeting: 2/18/1997

11) **RCRA Hazardous Waste Generators and/or Transporters Databases:**

(a) **Manifest Information:** New York State database of hazardous waste facilities and shipments regulated by the NYS Department of Environmental Conservation's Bureau of Hazardous Waste Facility Compliance pursuant to New York State Law.
ASTM required.* Fannie Mae required.** Source: New York State Department of Environmental Conservation.[2]

New facilities updated through: 12/2/2009. New facilities obtained by Toxics Targeting: 12/4/2009.
Manifest transactions data updated to: 12/2/2009. Manifest transactions data obtained by Toxics Targeting: 12/4/2009.

(b) **RCRA Notifier & Violations Information:** U. S. Environmental Protection Agency database of hazardous facilities regulated pursuant to the Resource Conservation and Recovery Act (RCRA).
ASTM required.* Fannie Mae required.** Source: U. S. Environmental Protection Agency[1]

New facilities updated through: 11/17/2009. Data obtained by Toxics Targeting: 11/18/2009.
Data attributes updated through: 11/17/2009. Data obtained by Toxics Targeting: 11/18/2009.

12) **Chemical Bulk Storage Facilities:** New York State database of facilities compiled pursuant to 6NYCRR Part 596 that store regulated substances listed in 6NYCRR Part 597 in aboveground tanks with capacities greater than 185 gallons and /or in underground tanks of any size. **Tank & other data withheld by NYSDEC as of 4/1/2002**.
ASTM required.* Fannie Mae required.** Source: New York State Department of Environmental Conservation.[2]
Data updated through: 9/8/2009. Data obtained by Toxics Targeting: 9/8/2009.

13) **Historic New York City Utility Facilities (1898 to 1950):** An inventory of selected power generating stations, manufactured gas plants, gas storage facilities, maintenance yards and other gas and electric utility sites identified in various historic documents, maps and annual reports of New York utility companies, including: Sanborn Fire Insurance Maps of NYC (1898-1950); Consolidated Edison Co. Annual Reports (1922-1939); Consolidated Edison Co. Map: "Boroughs of Manhattan and the Bronx Showing Distribution Mains of the New York Edison Co.," (1922); and Consolidated Edison document: "Generating and Annex Stations," (1911).

14) **Hazardous Substance Waste Disposal Site Study:** NYS database of waste disposal sites that may pose threats to public health or the environment, but could not be remediated using monies from the Hazardous Waste Remedial Fund.
Source: New York State Department of Environmental Conservation.[2]
Data updated to: 5/16/2000. Data obtained by Toxics Targeting: 5/16/2000.

15) **Toxic Release Inventory (TRI):** Federal database of manufacturing facilities required under Section 313 of the Federal Emergency Planning and Community Right-to-Know Act to report releases to the air, water and land of any specifically listed toxic chemical. See Fannie Mae requirement** below.
Source: U. S. Environmental Protection Agency.[1] / NYS Department of Environmental Conservation[2]
Data updated through: 3/8/2004. Data obtained by Toxics Targeting: 3/25/2004

16) **Toxic Wastewater Discharges (Permit Compliance System):** Federal database of discharges of wastewater to surface waters and groundwaters. See Fannie Mae requirement** below. Source: U. S. Environmental Protection Agency.[1]
Data updated through: 6/17/2004. Data obtained by Toxics Targeting: 7/19/2004.

17) **Air Discharge Facilities:** EPA AIRS database containing address information on each air emission facility and the type of air pollutant emission it is. Compliance information is also provided on each pollutant as well as the facility itself.
See Fannie Mae requirement** below. Source: U. S. Environmental Protection Agency[1]
Data updated through: 11/24/1999. Data obtained by Toxics Targeting: 1/6/2000

18) **Civil Enforcement & Administrative Docket:** This database is the U. S. EPA's system for tracking administrative and civil judiciary cases filed on behalf of the agency by the Department of Justice. Fannie Mae required.**
Source: U. S. Environmental Protection Agency.[1]
New Sites through: 10/14/1999.
Data updated through: 10/14/1999. Data obtained by Toxics Targeting: 11/18/1999.

19) **New York City Environmental Quality Review (CEQR) – E Designation Sites:** These sites are parcels assigned a special environmental ("E") designation under the CEQR process. E designation requires specific protocols that must be followed. Source: New York City Department of Planning[3]
Data updated through: 12/9/2009. Data obtained by Toxics Targeting: 12/14/2009

20) **Emergency Response Notification System (ERNS):** Federal database of spills compiled by the Emergency Response Notification System. On-site searches only.
ASTM required.* See Fannie Mae requirement** below. Source: U. S. Environmental Protection Agency.[1]
Data updated through: 1/31/2000. Data obtained by Toxics Targeting: 2/15/2000

21) **Remediation Site Borders:** Remediation site borders reported by NYSDEC.
Source: New York State Department of Environmental Conservation.[2]
Updated through: 4/8/2009. Data obtained by Toxics Targeting: 7/21/2009.

* American Society of Testing Materials: Standard Practice on Environmental Site Assessments: Phase I Environmental Site Assessment Process (E1527-05).

** Fannie Mae's Part X Environmental Hazards Management Procedures specify 1.0 mile searches for "any state or Federal list of hazardous waste sites (e.g. CERCLIS, HWDMS etc.)." Searches for the property and adjacent properties are specified for "chemical manufacturing plants," "obvious high risk neighbors engaging in storing or transporting hazardous waste, chemicals or substances" and "...any documented or visible evidence of dangerous waste handling... (e.g. stressed vegetation, stained soil, open or leaking containers, foul fumes or smells, oily ponds, etc." Searches for property and adjacent properties can include sites up to a quarter mile away (W. Hayward, Director, Multi-Family Business Planning and Control, Fannie Mae, personal communication, 5/94).

[1]U. S. Environmental Protection Agency, 290 Broadway, NY, NY 10007-1866.

[2]NYS Department of Environmental Conservation, 625 Broadway, Albany, NY 12233.

[3]New York City Department of City Planning, 22 Reade St, New York, NY 10007-1216

DRAFT ASBESTOS, LEAD-BASED PAINT, UNIVERSAL WASTES & OTHER HAZARDOUS MATERIALS SURVEY REPORT

The HIGH BRIDGE (Croton Aqueduct)
Manhattan, New York

PREPARED FOR:

TransSystems
Empire State Building
350 Fifth Ave., Ste 924
New York, NY 10118-0110

FOR SUBMITTAL TO:

City of New York
Department of Parks and Recreation
The Olmsted Center
Queens, New York

PREPARED BY:

ENVIRONMENTAL PLANNING & MANAGEMENT, INC.
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July 2nd, 2010

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EXECUTIVE SUMMARY

Environmental Planning & Management, Inc. (EPM), as a sub-consultant to TransSystems performed inspections for the presence of asbestos containing materials, lead containing coatings, Universal Wastes and Hazardous Miscellaneous Materials at the High Bridge, that spans the Harlem River between the boroughs of Manhattan and Bronx in New York City.

The field inspections were conducted on March 24th , 25th, June 1st and 2nd, 2010 by Environmental Planning & Management certified New York State Department of Labor (NYSDOL) asbestos inspectors Michael P. Aprahamian (AH 97-02855) and Darren Frank (AH 02-21260) under the supervision of New York City Asbestos Investigator Christina Katsifas (# 117300 & AH 96-19840). A Phase I and soils investigation report for this bridge will be provided under separate cover.

The High Bridge is mainly divided into the original brick and granite west abutment/pier 1 and east arch sections constructed in 1848 and the newer three-hinge steel arch constructed in 1927 that spans the Harlem River between the begin abutment and pier 2. The project limits as defined by TransSystems are between the east and west abutments.

The purpose of the inspection was limited to the following tasks: identify the location and quantity of asbestos containing materials (greater than 1% by weight) within the building in accordance with New York State Industrial Code Rule 56; identify the presence of lead of any concentration within the buildings' component coatings; and identify Universal Wastes and Miscellaneous Hazardous Materials collection and disposal.

EPM reviewed the following drawings provided TranSystems:

- Contract No. HBMC039, created by Baker Engineering NY, INC, dated July 2006, Bridge Condition and Assessment of High Bridge over Harlem River Drive/Harlem River Metro-North Railroad /Major Deegan Expressway, sheets 2-43 through 2-45, 2-55.

Review of the aforementioned drawings did not identify asbestos containing materials (ACMs). No original record plans were available for review. Review of the aforementioned drawings did identify the following suspect ACM:

- Asphalt waterproofing present beneath two (2) layers of brick present over west abutment and east of pier 2 over the arched sections that are part of the original construction in 1848.

Asbestos

EPM personnel collected a total of thirty-seven (37) bulk sample layers from fourteen (14) homogenous suspect asbestos-containing material (ACM) groups.

The samples were analyzed by Polarized Light Microscopy (PLM) and Transmission Electron Microscopy (TEM) where applicable (i.e., non-friable organically bound materials that tested "negative" by PLM).

The following suspect asbestos-containing materials tested positive for asbestos:

- Bituminous Joint filler present at the deck joint between the steel deck and the brick work on the north and south side of the walkway. This joint material is present the entire length of the steel span bridge between piers 1 and 2.

Please note, the transverse expansion joints in the brick work contain similar joint filler materials. The transverse joint filler material was tested separately and did not test positive for asbestos.

A summary of all asbestos containing materials with the potential to be impacted by the proposed renovations along with the description, location, and quantity can be found in Table I. A list of the sampled suspect materials, along with the associated laboratory analysis results can be found in Table IV.

All asbestos containing materials with the potential to be impacted by the renovations should be abated in accordance with all applicable federal, state and local regulations, inclusive of the NYCDEP, Title 15.

Lead-Containing Paint

A total of ten (10) bulk samples were collected from suspect lead-containing paints and or materials observed throughout the project area. **All of the suspect lead samples tested positive for detectable levels of lead.** The samples that tested positive for lead are from the following areas:

- **Gray over orange primer paint** present on the structural steel of the three-hinged steel arched bridge;
- **Dark gray coating/paint** on 90 inch water main beneath three-hinged steel arched bridge;
- **Black coating/paint** present on 90 inch water main located in the east attic, east of pier 2;
- **Silver metal (lead solder) material** present at bell fitting of abandoned 36 inch water

mains located beneath the west abutment in the west attic. This material is also present at small diameter pipes and valves in the attic beneath the west and east gate houses;

- **Light green paint** over orange primer present on seventeen (17) old abandoned light poles along the sides of the walkway;
- **Black over yellow over orange primer paint** present on railings throughout the walkway;
- **Black over silver paint** present on west abutment security gate. This paint is also present on the east abutment security gate;
- **Gray over brown paint** present on masonry tower located between the security gate and the Westgate house;
- **Black over dark green paint** present on one old light pole near the east security gate;
- **Silver metal (lead solder) material** present at railing post insets located in the vicinity of the west gate house fence (47 posts), west abutment/pier1 fence(13 posts), over pier 2 fence (10 posts) , and in the vicinity of the east gate house fence (22 posts). This includes remnant lead solder at old post holes.

The suspect lead containing coating samples were prepared and analyzed by modified EPA SW-846 Methods 3050 & 7420 using Flame Atomic Absorption Spectroscopy.

Summary of lead-based paint with the potential to be impacted by the proposed renovations throughout the project area are provided in Table II. A list of suspect lead-based paint samples along with the associated laboratory analysis results can be found in Table V. All paints contain detectable levels of lead; therefore any contractor disturbing these lead containing components must conduct their work in accordance with OSHA lead in construction standard.

Universal Wastes and Miscellaneous Hazardous Materials

The site investigation identified potentially lead and mercury containing universal waste bulbs and assumed PCB containing ballasts. Refer to Table III - Identified Universal Wastes / Potentially PCB Containing Ballasts, for a summary.

EPM identified and inventoried high intensity discharge bulbs in light fixtures location in the east and west attics. A total of eleven (11) fixtures and bulbs are present in the east and west attics.

Polychlorinated biphenyl (PCB) in Caulks

Three (3) bulk samples of gray caulk present at railing support /railing post insets was composited into one sample bulk sample for PCB analysis. **The gray caulk did not test positive for PCBs.** Sample location drawing is provided in Appendix E.

Table I – Summary of Asbestos Containing Material Quantities
The High Bridge (Croton Aqueduct), Manhattan and the Bronx, New York

Area	Location of ACM	Description of ACM	Approximate Quantity to be Impacted		Friable	Condition	Comments
			LF	SF			
Steel span bridge between piers 1 and 2	Deck joint between steel and brick work	Bituminous joint filler		479	No	Good	6” inches deep, 479 ft (each side) (Total 958 LF)
Total Quantities				**479 SF**			

Table II – Summary of Lead-Containing Paint The High Bridge (Croton Aqueduct), Manhattan and the Bronx, New York			
Sample #	**Location of Lead-containing Paint or Material**	**Description of Lead-containing Paint or Material**	**Lead Content (% Pb w/w)**
HB-L-01	Structural steel of the three-hinged steel arched bridge.	Gray over orange primer paint	1.96%
HB-L-02	90 inch diameter water main beneath three-hinged steel arched bridge.	Beige Dark gray coating/ paint	0.36%
HB-L-03	90 inch diameter water main located in the east attic, east of pier 2.	Black coating/ paint	0.73%
HB-L-04	Bell fitting of abandoned 36 inch water mains located beneath the west abutment in the west attic. This material is also present at small diameter pipes and valves in the attic beneath the west and east gate houses.	Silver metal material paint (solder)	9.01 %
HB-L-05	Seventeen (17) old abandoned light pole along the sides of the walkway.	Light green over orange primer paint	2.72%
HB-L-06	Railings throughout the walkway.	Black over yellow over orange primer paint	0.84%

Table II – Summary of Lead-Containing Paint The High Bridge (Croton Aqueduct), Manhattan and the Bronx, New York			
Sample #	**Location of Lead-containing Paint or Material**	**Description of Lead-containing Paint or Material**	**Lead Content (% Pb w/w)**
HB-L-07	West abutment security gate. This paint is also present on the east abutment security gate.	Black over silver paint	0.01%
HB-L-08	Masonry tower located between the security gate and the Westgate house.	Gray over brown paint	0.27%
HB-L-09	One old light pole, north side over east abutment.	Black over dark green paint	1.75%
HB-L10	Railing post insets located in the vicinity of the west gate house fence (47 posts), west abutment/pier1 fence (13 posts), over pier 2 fence (10 posts) , and in the vicinity of the east gate house fence (22 posts). This includes remnant lead solder at old post holes.	Silver metal material	1.63%

Table III – Summary of Identified Universal Wastes The High Bridge (Croton Aqueduct), Manhattan and the Bronx, New York		
Area / Room	**Universal Waste**	**Quantity** **Units**
Beneath bridge walkway from the west abutment ("in the Attic") through to the east abutment	High Intensity Bulb	11
	Total Bulbs	**11**
Beneath bridge walkway from the west abutment ("in the Attic") through to the east abutment	Assumed PCB Ballasts (2 Bulb Fixtures)	11
	Total Assumed PCB Ballasts	**11**

1.0 INTRODUCTION

Environmental Planning & Management, Inc. (EPM), as a sub-consultant to TranSystems performed inspections for the presence of asbestos containing materials(ACM), lead containing coatings, Universal Wastes and Miscellaneous Hazardous Materials at the High Bridge, that spans the Harlem River between the boroughs of Manhattan and Bronx in New York City.

The field inspections were conducted on March 24th and 25th, June 1st and 2nd, 2010 by Environmental Planning & Management certified New York State Department of Labor (NYSDOL) asbestos inspectors Michael P. Aprahamian (AH 97-02855) and Darren Frank (AH 02-21260) under the supervision of New York City Asbestos Investigator Christina Katsifas (# 117300 & AH 96-19840). EPM and personnel accreditations are provided in Appendix A.

EPM's scope of work consisted of the following tasks:

1. Perform a visual inspection of the structures to identify the location of suspect asbestos containing materials (ACMs) and delineate homogeneous areas of these materials;
2. Perform a visual inspection of the structures to identify the limits of suspect lead coatings and delineate homogeneous areas of these coatings;
3. Perform a visual inspection of the structures to identify and inventory Universal Wastes (such as Fluorescent and Sodium Discharge Waste Bulbs, Mercury Switch/Thermostats and Poly Chlorinated Bi-Phenyl (PCB) containing Lighting Ballasts;
4. Collect bulk samples of suspect asbestos containing materials (where possible) and lead containing coatings for laboratory analysis;
5. Quantify the suspect asbestos containing materials and assess their condition;
6. Prepare a report summarizing location and quantity of confirmed and assumed asbestos containing materials, lead containing coatings and Universal Waste Bulbs and assumed PCB containing lighting ballasts.

2.0 SURVEY

This section describes data collection activities including the site inspection and sample collection.

Environmental Planning & Management, Inc. (EPM), as a sub-consultant to TransSystems performed inspections for the presence of asbestos containing materials, lead containing coatings, Universal Wastes and Hazardous Miscellaneous Materials at the High Bridge, that spans the Harlem River between the boroughs of Manhattan and Bronx in New York City.

2.1 Scope of Overall Design/Purpose of Investigation

The scope of work as identified by TransSystems is as follows:

- Determine the existing environmental hazards that may exist for renovation of High Bridge. The project limits for the hazardous materials investigation as defined by TransSystems are between the east and west abutments.

2.2 Record Plan Review

EPM reviewed the following drawings provided TranSystems:

- Contract No. HBMC039, created by Baker Engineering NY, INC, dated July 2006, Bridge Condition and Assessment of High Bridge over Harlem River Drive/Harlem River Metro-North Railroad /Major Deegan Expressway, sheets 2-43 through 2-45, 2-55.

Review of the aforementioned drawings did not identify ACM or suspect ACM. No original record plans were available for review.

2.3 Sample Collection

A strategy for sampling suspect asbestos containing materials was developed employing the delineation and grouping of homogeneous suspect materials. The delineation of homogeneous areas at the site was based on several criteria including material type and location. Materials suspected of containing asbestos were identified for the area inspected. When suspect ACM's were found, representative bulk samples from the homogeneous material group (material which is uniform by color, texture, construction application date, and general appearance) were collected. Three (3) bulk samples were collected per homogeneous material group from miscellaneous materials such as caulking. Paint was also collected for asbestos analysis.

The following sampling strategy for suspect lead containing coatings was developed. *EPM* inspected representative areas.

Homogeneous surfaces were delineated by visual appearance or labeling. In circumstances where the inspector suspected different paint applications, different base paints (due to substrate requirements or different component manufacturers), different date of application, or for any other reason, the inspector could differentiate seemingly similar paints as non-homogeneous.

One (1) sample of suspect lead containing paint was collected from each suspect homogeneous area. In accordance with ASTM Designation: E 1729-95, "Standard Practice for Field Collection of Dried Paint Samples for Lead Determination by Atomic Spectrometry Techniques", a 2.5 x 2.5 cm sample was collected.

2.4 Field Survey / Observations

Limitations

Currently the east and west gatehouses are not part of the scope of work. Although EPM personnel were able to briefly view the interior of the east gatehouse, EPM was not able to perform a complete survey of either gatehouse. If the scope of work is changed to include these buildings, EPM would require additional time and access to the interior of the gate houses.

Since the light fixtures could not be de-energized, EPM could not inspect the interior of the fixtures for PCB containing ballast. Therefore it is assumed that the ballasts contain PCB's until documentation of safe inspect can determine otherwise.

Asbestos Survey

During the asbestos survey, our team inspected accessible all areas that could potentially be impacted by the proposed renovations. EPM coordinated our sampling effort with TransSystems. As part of our inspection, EPM personnel inspected all accessible electrical components that may be impacted by the renovations.

Special Notes:

- No suspect ACM wiring insulation was observed.

EPM personnel collected a total of thirty (37) bulk samples from twelve (12) homogenous suspect asbestos-containing material (ACM) groups. These materials are as follows:

- Gray textured paint present on structural steel throughout the steel span section of the bridge;

- Gray coating material present on 90 inch water main located beneath the walkway in the 1927 section (east and west attic)of the bridge;
- Brick mortar from the wall beneath the walkway present at the west abutment and the eastern sections of the bridge;
- Cementitious material present at the base of the steel water main supports;
- Black coating material present on the 90 inch water main located in the original 1848 section of the bridge;
- Soft black mastic sealant present at seven (7) walkway expansion joints between pier 1 and pier 2;
- Hard black mastic sealant present at three(3) armored plated expansion joints between pier 1 and 2;
- Gray caulk present at railing support and railing base post insets located sporadically in the vicinity of pier 9;
- Brick mortar from the original 1927 herringbone pattern walkway present at west abutment/ pier 1 and the eastern section beyond pier 2;
- Brick mortar from 1948 section of walkway over the steel span bridge;
- Brick mortar from the large patch repair area near pier 2;
- Black tar mastic spill present beneath the south side of the west security gate;
- Asphalt waterproofing present beneath two (2) layers of brick present over west abutment and east of pier 2 over the arched sections that are part of the original construction in 1848;
- Bituminous Joint filler present at the deck joint between the steel deck and the brick work on the north and south side of the walkway, between piers 1 and 2.

Samples in a homogeneous group are analyzed until either the entire group is analyzed (all the results are negative) or a positive result is obtained by PLM. When a positive result occurs, the remaining samples in the group are not analyzed. If negative by PLM and is non-friable organically bound, the first sample in each homogeneous group is analyzed by TEM. All Paint samples negative by PLM are analyzed by TEM.

EPM inspected and sampled materials which were observable, with the potential to be impacted by the rehabilitations. There is the possibility that additional suspect asbestos containing materials are present within concealed or inaccessible spaces that have not been identified. Should the scope of work be altered, any suspect asbestos containing materials encountered during the course of the work which have not been tested, must be assumed ACM, until laboratory analysis indicates, otherwise. A list of the sampled suspect materials, along with the associated laboratory analysis results can be found in Table IV. Asbestos sample location drawings are provided in Appendix F.

Lead-Containing Paint Survey

A total of ten (10) bulk samples were collected from suspect lead-containing paints and or materials observed throughout the project area. The samples that tested positive for lead are

from the following areas:

- Gray over orange primer paint present on the structural steel of the three-hinged steel arched bridge;
- Dark gray coating/paint on 90 inch water main beneath three-hinged steel arched bridge;
- Black coating present on 90 inch water main located in the east attic, east of pier 2;
- Silver metal (lead solder) material present at bell fitting of abandoned 36 inch water mains located beneath the west abutment in the west attic. This material is also present at small diameter pipes and valves in the attic beneath the west and east gate houses;
- Light green paint over orange primer present on seventeen (17) old abandoned light pole along the sides of the walkway;
- Black over yellow over orange primer paint present on railings throughout the walkway;
- Black over silver paint present on west abutment security gate. This paint is also present on the east abutment security gate;
- Gray over brown paint present on masonry tower located between the security gate and the Westgate house;
- Black over dark green paint present on one old light pole near the east security gate;
- Silver metal (lead solder) material present at railing post insets located in the vicinity of the west gate house fence (47 posts), west abutment/pier1 fence(13 posts), over pier 2 fence (10 posts) , and in the vicinity of the east gate house fence (22 posts). This includes remnant lead solder at old post holes.

A list of the sampled suspect lead-based paints, along with the associated laboratory analysis results can be found in Table V Lead-based paint sample location drawings is provided in Appendix F.

Universal Wastes and Miscellaneous Hazardous Materials

Universal Wastes are defined as all heavy metal containing household items such as certain light bulbs (fluorescent, sodium discharge, high intensity, halogen, etc.), mercury containing contact switches (wall thermostats -industrial on-off switches - tilt or motion disturbance switches that contain bulbs of mercury), PCB containing lighting fixture ballasts and lead-acid batteries (such as those found in automobiles and emergency exit lighting).

EPM identified and inventoried high intensity discharge bulbs in light fixtures location in the east and west attics. A total of eleven (11) fixtures and bulbs are present in the east and west attics. Photographs of Universal Wastes are provided in Appendix G.

All of these components, which may or do contain wastes categorized as a Universal Wastes and TSCA regulated, will require collection, handling, transportation, and recycling or disposal of, in accordance with 40 CFR Part 273.13 & 273.33 requirements for 'Universal Wastes' concerning 'Hazardous Waste Lamps, and PCB Ballast Wastes'.

Polychlorinated Biphenyl (PCB) in Caulks:

Three (3) bulk samples of gray caulk present at railing support /railing post insets was composited into one sample bulk sample for PCB analysis. Sample location drawing is provided in Appendix F. Laboratory analytical results for PCB analysis is provided in Appendix E.

2.5 Analytical Procedures

Asbestos Analysis

The bulk samples were analyzed by Alpha Labs, located at 43-01 21st Street, Long Island City, NY. This laboratory is accredited by the New York State Environmental Laboratory Accreditation Program (ELAP # 11833). Laboratory accreditation documentation is included as Appendix B.

The samples were analyzed by Polarized Light Microscopy (PLM). Bulk sample analysis is accomplished by using a polarized light microscope equipped with dispersion staining. This method of analysis involves the immersion of a suspect material in a solution of known refractive index and the subjection to illumination by polarized light. The resulting color display enables mineral identification.

In accordance with ELAP protocol, for samples which were determined to be non-friable organically bound (NOB) (i.e., floor tiles, mastics, caulks, etc); and negative for asbestos by PLM analysis, the first sample of each homogeneous group was reanalyzed by Transmission Electron Microscopy (TEM). If negative by PLM, all paints are analyzed by TEM.

Lead-based Paint Analysis

The suspect lead containing samples were delivered to*: Alpha Labs,* located at 43-01 21st Street, Long Island City, NY.

The suspect lead containing coating samples were prepared and analyzed by modified EPA SW-846 Methods 7420 using Flame Atomic Absorption Spectroscopy (ICP equivalent to SW-846 6010B). Sample analysis results are expressed in ppm (mg/kg).

Polychlorinated biphenyl (PCB)

The PCB analysis was performed by American Analytical Laboratories located at 56 Toledo Street, Farmingdale, NY. American Analytical Laboratories is a NY ELAP (11418) certified laboratory. The laboratory conducted the PCB analysis utilizing USEPA Method 8082.The laboratory composited the samples with in each homogenous group and reported one (1) result. Analytical results were reported in parts per billion by Aroclor. Laboratory accreditations are provided in Appendix B.

2.6 Survey Results

Asbestos laboratory analytical results from the analysis of the bulk samples are summarized in Table IV. Laboratory analytical data is included as Appendix C. Asbestos sample location drawings are included in Appendix F. Photographs of the asbestos containing materials are included in Appendix G.

Lead-based paint laboratory analytical results from the analysis of the paint samples are summarized in Table V. Laboratory analytical data is included in Appendix D. Lead sample location drawings are included in Appendix F. Photographs of the identified lead-based paints are included in Appendix G.

PCB Caulk Laboratory analytical data is included in Appendix E.

2.7 Conclusions

Asbestos

Based on the laboratory analysis results, the following materials were determined to contain asbestos:

- Bituminous Joint filler present at the deck joint between the steel deck and the brick work on the north and south side of the walkway. This joint material is present the entire length of the steel span bridge between piers 1 and 2.

Please note, the transverse expansion joints in the brick work contain similar joint filler materials. The transverse joint filler material was tested separately and did not test positive for asbestos.

All asbestos containing materials with the potential to be impacted within the project area by the renovations should be abated in accordance with all applicable federal, state and local regulations inclusive of NYS Industrial Code Rule 56 and NYC Title 15 Asbestos Regulations. Contract plans will include asbestos abatement specifications.

Lead-based Paint

Based on the laboratory analysis results and EPM's assessment, the following paints contain detectable levels of lead:

- **Gray over orange primer paint** present on the structural steel of the three-hinged steel arched bridge;
- **Dark gray coating/paint** on 90 inch water main beneath three-hinged steel arched bridge;
- **Black coating** present on 90 inch water main located in the east attic, east of pier 2;
- **Silver metal (lead solder) material** present at bell fitting of abandoned 36 inch water mains located beneath the west abutment in the west attic. This material is also present at small diameter pipes and valves in the attic beneath the west and east gate houses;
- **Light green paint** over orange primer present on seventeen (17) old abandoned light pole along the sides of the walkway;
- **Black over yellow over orange primer paint** present on railings throughout the walkway;
- **Black over silver paint** present on west abutment security gate. This paint is also present on the east abutment security gate;
- **Gray over brown paint** present on masonry tower located between the security gate and the Westgate house;
- **Black over dark green paint** present on one old light pole near the east security gate;
- **Silver metal (lead solder) material** present at railing post insets located in the vicinity of the west gate house fence (47 posts), west abutment/pier1 fence(13 posts), over pier 2 fence (10 posts) , and in the vicinity of the east gate house fence (22 posts). This includes remnant lead solder at old post holes.

Impacts to lead coated surfaces, as a result of this renovation project will need to include OSHA Lead In Construction Standard (29 CFR 1926.62) requirements, Resource Conservation and Recovery Act (RCRA) requirements, as well as general health and safety issues with regard to protection of employees and the general public. Work will have to be conducted in accordance with the requirements of section 832. Any contractor who performs future renovations would need to establish their means and methods for protecting the employees and the general public during demolition/reconstruction.

Universal Waste and Miscellaneous Hazardous Materials

Heavy metal / mercury containing light bulbs (fluorescent) and PCB lighting ballasts were identified. These components contain wastes categorized as Universal Wastes and are TSCA regulated will require collection, handling, transportation, and disposal of or recycling in

accordance with 40 CFR Part 273.13 & 273.33 requirements for 'Universal Wastes' concerning 'Hazardous Waste Lamps, and PCB Ballast Wastes'.

Polychlorinated Biphenyl (PCB) in Caulks:

Laboratory analysis has determined the gray caulk present at railing base post and railing support posts did not test positive for PCBs.

TABLES

Table IV - Asbestos Sample Laboratory Analysis Results The High Bridge (Croton Aqueduct) Manhattan and Bronx, New York				
Sample I.D.	**Sampling Location**	**Sample Description**	**Asbestos Content (%)**	
			PLM	**TEM**
HB-1A	Above pier 1, near center bearing, on the flat of I-beam	Gray textured paint	NAD Inconclusive	NAD
HB-1B	Above pier 1, north side outer girder, on the flat area	Gray textured paint	NAD Inconclusive	NAD
HB-1C	North side, center of steel bridge between panel points 12& 13, on the web beam	Gray textured paint	NAD Inconclusive	NAD
HB-1D	Above pier 2, north side outer girder, on the flat area	Gray textured paint	NAD Inconclusive	NAD
HB-2A	Newer water main section, first seam joint over pier 1, north side	Gray coating material	NAD Inconclusive	NAD
HB-2B	Water main seam in the vicinity of panel point 5, north side	Gray coating material	NAD Inconclusive	NAD
HB-2C	Water main bottom in the vicinity of panel point 25	Gray coating material	NAD Inconclusive	NAD
HB-3A	West of begin abutment: in the Attic, north wall	Brick Mortar	NAD	
HB-3B	Near pier 2, in the attic, north wall	Brick Mortar	NAD	
HB-3C	Near pier 9, in the attic, south wall	Brick Mortar	NAD	
HB-5A	66th pad from east end, beneath pedestal, near entrance manhole	Cementitious material	NAD	
HB-5B	43rd pad from east end, beneath pedestal, near 2nd access hatch	Cementitious material	NAD	
HB-5C	6th pad from east end, beneath pedestal	Cementitious material	NAD	
HB-6A	Top of walkway:1st joint over pier 1	Black coating material	NAD Inconclusive	NAD
HB-6B	Top of walkway: 2nd joint, 65 feet east of pier 1	Black coating material	NAD Inconclusive	NAD
HB-6C	Top of walkway: 4th joint, 170 feet east of pier 1	Black coating material	NAD Inconclusive	NAD
HB-7A	Top of walkway: 1st armored plated joint at pier 1	Soft black mastic sealant	NAD Inconclusive	NAD
HB-7B	Top of walkway: 2nd armored plated joint at center of arch bridge	Soft black mastic sealant	NAD Inconclusive	NAD
HB-7C	Top of walkway: 4th joint, 170 feet east of pier 1	Soft black mastic sealant	NAD Inconclusive	NAD
HB-8A	Top of walkway: 1st armored plated joint at pier 1	Hard black mastic sealant	NAD Inconclusive	Trace Anthophyllite
HB-8B	Top of walkway: 2nd armored plated joint at center of arch bridge	Hard black mastic sealant	NAD Inconclusive	Trace Anthophyllite
HB-8C	Top of walkway: 3rd armored plated joint at pier 2	Hard black mastic sealant	NAD Inconclusive	Trace Anthophyllite

Table IV - Asbestos Sample Laboratory Analysis Results The High Bridge (Croton Aqueduct) Manhattan and Bronx, New York				
Sample I.D.	**Sampling Location**	**Sample Description**	**Asbestos Content (%)**	
			PLM	**TEM**
HB-9A	Railing support post inset, 25 feet east of pier 9, north side	Gray caulk	NAD Inconclusive	NAD
HB-9B	Railing post inset, 20 feet east of pier 9, north side	Gray caulk	NAD Inconclusive	NAD
HB-9C	Railing support post inset, 20 feet east of pier 9, south side	Gray caulk	NAD Inconclusive	NAD
HB-10A	Top of walkway: original herring bow brick pattern joints, west end by gate	Brick mortar	NAD	
HB-10B	Top of walkway: original herring bow brick pattern joints, near pier 7	Brick mortar	NAD	
HB-10C	Top of walkway: original herring bow brick pattern joints, near pier 7	Brick mortar	NAD	
HB-11A	Top of walkway: new herring bow brick pattern joints near pier 2	Brick mortar	NAD	
HB-11B	Top of walkway: new herring bow brick pattern joints near pier 2	Brick mortar	NAD	
HB-11C	Top of walkway: new herring bow brick pattern joints near pier 2	Brick mortar	NAD	
HB-12A	Top of walkway: new brick pattern joints, 90 feet east of gate house	Brick mortar	NAD	
HB-12B	Top of walkway: new brick pattern joints, 110 feet west of pier 2	Brick mortar	NAD	
HB-12C	Top of walkway: new brick pattern joints, 10 feet west of pier 2	Brick mortar	NAD	
HB-13A	Top of walkway: west security gate, beneath south side	Tar mastic spill	NAD Inconclusive	NAD
HB-13B	Top of walkway: west security gate, beneath south side	Tar mastic spill	NAD Inconclusive	NAD
HB-13C	Top of walkway: west security gate, beneath south side	Tar mastic spill	NAD Inconclusive	NAD
HB-14A	Core 3: 20 ft east of pier 4, below 2 layer of brick, center of walkway	Asphalt waterproofing	NAD Inconclusive	NAD
HB-14B	Core 3: 20 ft east of pier 4, below 2 layer of brick, center of walkway	Asphalt waterproofing	NAD Inconclusive	NAD
HB-14C	Core 3: 20 ft east of pier 4, below 2 layer of brick, center of walkway	Asphalt waterproofing	NAD Inconclusive	NAD
HB-15A	**Core 1: 130 ft east of west gate, northside joint with steel deck**	**Bituminous joint filler**	**NAD Inconclusive**	
HB-15B	**Joint: 230 ft east of west gate, southside joint with steel deck**	**Bituminous joint filler**	**1.7% Chrysotile**	
HB-15C	**Joint: 520 ft east of west gate, northside joint with steel deck**	**Bituminous joint filler**	**NA/PS**	

LEGEND:
NAD = No Asbestos Detected
NA/PS = Not Analyzed / Positive Stop

TABLE V: Lead Paint Sample Laboratory Analysis Results
The HIGH BRIDGE (Croton Aqueduct)
Manhattan and Bronx, New York

Sample I.D.	Sample Location	Sample Description	Lead Content (% Pb w/w)
HB-L-01	Structural steel above pier 1	Green over orange primer paint	1.96%
HB-L-02	Water main above pier 1- heavily rusted	Dark gray coating / paint	0.36%
HB-L-03	Water main above and east of pier 2 - heavily rusted	Black coating / paint	0.73%
HB-L-04	Bell fitting joint on 36 " dia. abandoned water main - heavily rusted	Silver metal material	9.01%
HB-L-05	Top of walkway: old light pole, north side, over west abutment	Light green over orange primer paint	2.72%
HB-L-06	Railing, north side, over west abutment	Black over yellow over orange primer paint	0.84%
HB-L-07	West abutment security gate	Black over silver paint	0.01%
HB-L-08	Masonry tower between secuirty gate and westgate house	Gray over brown paint	0.27%
HB-L-09	Top of walkway: old light pole, north side, over east abutment	Black over dark green paint	1.75%
HB-L-10	Top of walkway: south side railing post inset over pier 2	Silver metal material	1.63%

APPENDIX A
Company and Personnel Licenses

NEW YORK STATE - DEPARTMENT OF LABOR
DIVISION OF SAFETY AND HEALTH
LICENSE AND CERTIFICATE UNIT
STATE CAMPUS BUILDING 12
ALBANY, NY 12240

ASBESTOS HANDLING LICENSE

Environmental Planning & Management, Inc.
Suite 109
1983 Marcus Avenue
Lake Success, NY 11042

FILE NUMBER: 99-1017
LICENSE NUMBER: 28623
LICENSE CLASS: RESTRICTED
DATE OF ISSUE: 10/20/2009
EXPIRATION DATE: 11/30/2010

Duly Authorized Representative – Aphrodite Socrates:

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.

Maureen A. Cox, Director
FOR THE COMMISSIONER OF LABOR

SH 432 (4-07)

CHRISTINA KATSIFAS

A – Asbestos Handler
B – Restricted Handler-Allied Trades
C – Air Sampling Technician
D – Inspector
E – Management Planner
F – Operations and Maintenance
G - Supervisor
H – Project Monitor
I – Project Designer

STATE OF NEW YORK - DEPARTMENT OF LABOR

ASBESTOS CERTIFICATE

CHRISTINA KATSIFAS
CLASS(EXPIRES)
D INSP(02/11)

CERT# 96-19840
DMV# 632265437

MUST BE CARRIED ON ASBESTOS PROJECTS

EYES BRO
HAIR BRO
HGT 5' 05"

IF FOUND RETURN TO:
NYSDOL - L&C UNIT
ROOM 161A BUILDING 12
STATE OFFICE CAMPUS
ALBANY NY 12240

MICHAEL APRAHAMIAN

A – Asbestos Handler
B – Restricted Handler-Allied Trades
C – Air Sampling Technician
D – Inspector
E – Management Planner
F – Operations and Maintenance
G - Supervisor
H – Project Monitor
I – Project Designer

DARREN T. FRANK

A – Asbestos Handler
B – Restricted Handler-Allied Trades
C – Air Sampling Technician
D – Inspector
E – Management Planner
F – Operations and Maintenance
G - Supervisor
H – Project Monitor
I – Project Designer

APPENDIX B
Laboratory Accreditation

NEW YORK STATE - DEPARTMENT OF LABOR
DIVISION OF SAFETY AND HEALTH
LICENSE AND CERTIFICATE UNIT
STATE CAMPUS BUILDING 12
ALBANY, NY 12240

ASBESTOS HANDLING LICENSE

Alpha Labs, LLC
Suite 225
43-01 21st Street

Long Island City, NY 11101

FILE NUMBER: 04-0427
LICENSE NUMBER: 29968
LICENSE CLASS: RESTRICTED
DATE OF ISSUE: 04/15/2010
EXPIRATION DATE: 05/31/2011

Duly Authorized Representative – Anastasia Kentrota:

This license has been issued in accordance with applicable provisions of Article 30 of the Labor Law of New York State and of the New York State Codes, Rules and Regulations (12 NYCRR Part 56). It is subject to suspension or revocation for a (1) serious violation of state, federal or local laws with regard to the conduct of an asbestos project, or (2) demonstrated lack of responsibility in the conduct of any job involving asbestos or asbestos material.

This license is valid only for the contractor named above and this license or a photocopy must be prominently displayed at the asbestos project worksite. This license verifies that all persons employed by the licensee on an asbestos project in New York State have been issued an Asbestos Certificate, appropriate for the type of work they perform, by the New York State Department of Labor.

Maureen A. Cox, Director
FOR THE COMMISSIONER OF LABOR

SH 432 (4-07)

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER
RICHARD F. DAINES, M.D.

Expires 12:01 AM April 01, 2011
Issued April 01, 2010

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. DIMITRIOS MOLOHIDES
ALPHA LABS LLC
43-01 21ST STREET SUITE 225/226/208
LONG ISLAND CITY, NY 11101

NY Lab Id No: 11833
EPA Lab Code:

is hereby APPROVED as an Environmental Laboratory for the category
ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved subcategories and/or analytes are listed below:

Miscellaneous

Asbestos in Friable Material	EPA 600/M4/82/020
	Item 198.1 of Manual
Asbestos in Non-Friable Material-PLM	Item 198.6 of Manual (NOB by PLM)
Asbestos in Non-Friable Material-TEM	ITEM 198.4 OF MANUAL
Lead in Dust Wipes	EPA 7420
Lead in Paint	ASTM D3335-85A

Sample Preparation Methods

APP. 14.2, HUD JUNE 1995

Serial No.: 42155

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER
RICHARD F. DAINES, M.D.

Expires 12:01 AM April 01, 2011
Issued April 01, 2010

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MR. DIMITRIOS MOLOHIDES
ALPHA LABS LLC
43-01 21ST STREET SUITE 225/226/208
LONG ISLAND CITY, NY 11101

NY Lab Id No: 11833
EPA Lab Code:

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards for the category ENVIRONMENTAL ANALYSES SOLID AND HAZARDOUS WASTE
All approved analytes are listed below:

Metals I

Lead, Total	EPA 7420

Sample Preparation Methods

EPA 3050B

Serial No.: 42154

NELAP Recognized

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 200691-0

Alpha Labs LLC
Long Island City, NY

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

BULK ASBESTOS FIBER ANALYSIS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2010-01-01 through 2010-12-31

Effective dates

DEPARTMENT OF COMMERCE ★ UNITED STATES OF AMERICA ★

Sally S. Bruce

For the National Institute of Standards and Technology

NVLAP-01C (REV. 2009-01-28)

NVLAP® **National Voluntary Laboratory Accreditation Program**

SCOPE OF ACCREDITATION TO ISO/IEC 17025:2005

Alpha Labs LLC
43-01 21st Street - Suite 225
Long Island City, NY 11101
Mr. Dimitrios Molohides
Phone: 718-482-7525 Fax: 718-482-7524
E-Mail: dmolohides@alphalabsllc.com
URL: http://www.alphalabsllc.com

BULK ASBESTOS FIBER ANALYSIS (PLM) NVLAP LAB CODE 200691-0

NVLAP Code	*Designation / Description*
18/A01	EPA-600/M4-82-020: Interim Method for the Determination of Asbestos in Bulk Insulation Samples

2010-01-01 through 2010-12-31
Effective dates

Sally S. Bruce
For the National Institute of Standards and Technology

NEW YORK STATE DEPARTMENT OF HEALTH
WADSWORTH CENTER
RICHARD F. DAINES, M.D.

Expires 12:01 AM April 01, 2011
Issued April 01, 2010

CERTIFICATE OF APPROVAL FOR LABORATORY SERVICE

Issued in accordance with and pursuant to section 502 Public Health Law of New York State

MS. LORI BEYER
AMERICAN ANALYTICAL LABORATORIES LLC
56 TOLEDO STREET
FARMINGDALE, NY 11735

NY Lab Id No: 11418
EPA Lab Code: NY00911

is hereby APPROVED as an Environmental Laboratory in conformance with the National Environmental Laboratory Accreditation Conference Standards for the category ENVIRONMENTAL ANALYSES NON POTABLE WATER
All approved analytes are listed below:

Polychlorinated Biphenyls	
PCB-1254	EPA 608
	EPA 8082
PCB-1260	EPA 608
	EPA 8082
PCB-1262	EPA 8082
PCB-1268	EPA 8082
Polynuclear Aromatics	
Acenaphthene	EPA 625
	EPA 8270C
Acenaphthylene	EPA 625
	EPA 8270C
Anthracene	EPA 625
	EPA 8270C
Benzo(a)anthracene	EPA 625
	EPA 8270C
Benzo(a)pyrene	EPA 625
	EPA 8270C
Benzo(b)fluoranthene	EPA 625
	EPA 8270C
Benzo(ghi)perylene	EPA 625
	EPA 8270C
Benzo(k)fluoranthene	EPA 625
	EPA 8270C
Chrysene	EPA 625
	EPA 8270C
Dibenzo(a,h)anthracene	EPA 625
	EPA 8270C
Fluoranthene	EPA 625

Polynuclear Aromatics	
Fluoranthene	EPA 8270C
Fluorene	EPA 625
	EPA 8270C
Indeno(1,2,3-cd)pyrene	EPA 625
	EPA 8270C
Naphthalene	EPA 625
	EPA 8260B
	EPA 8270C
Phenanthrene	EPA 625
	EPA 8270C
Pyrene	EPA 625
	EPA 8270C
Priority Pollutant Phenols	
2,4,5-Trichlorophenol	EPA 625
	EPA 8270C
2,4,6-Trichlorophenol	EPA 625
	EPA 8270C
2,4-Dichlorophenol	EPA 625
	EPA 8270C
2,4-Dimethylphenol	EPA 625
	EPA 8270C
2,4-Dinitrophenol	EPA 625
	EPA 8270C
2-Chlorophenol	EPA 625
	EPA 8270C
2-Methyl-4,6-dinitrophenol	EPA 625
	EPA 8270C
2-Methylphenol	EPA 8270C

Serial No.: 41829

NELAP Recognized

APPENDIX C
Asbestos Bulk Sample Laboratory Analytical Data

43-01 21st Street-Suite 225 Long Island City, NY 11101
Tel.: 718-482-7525 • Fax: 718-482-7524 www.alphalabsllc.com

BULK SAMPLE ANALYSIS REPORT

CLIENT: Environmental Planning & Management, 1983 Marcus Ave.-Suite 109, Lake Success, NY 11042
BUILDING ADDRESS: NYC Parks Dept/ Transystems- High Bridge over Harlem River (Croton Aqueduct) Manhattan & Bronx, New York
PROJECT: 10018

PROJECT: Client Sample ID# Lab Sample ID#	Sample Description	Sample Location	Appearance	GRAVIMETRIC PREPARATION			PLM			TEM
				% Ashed Organic Component	% Acid Soluble Inorganic Component	% Acid Insoluble Inorganic Component	% Fibrous	% Non-Fibrous	ASBESTOS % & Type	ASBESTOS % & Type
HB-1A 10-03-107-01	Gray textured paint	Above pier 1, near center bearing, on the flat of I-beam	Gray/Orange Homogeneous Non Fibrous	54.7	6.4	38.9	0%	100%	NAD Inconclusive	NAD
HB-1B 10-03-107-02	Gray textured paint	Above pier 1, N. side outer girder, on the flat area	Gray/Orange Homogeneous Non Fibrous	31.0	5.3	63.7	0%	100%	NAD Inconclusive	NAD
HB-1C 10-03-107-03	Gray textured paint	N. side, center of steel bridge btwn panel points 12&13, on the web beam	Gray/Orange Homogeneous Non Fibrous	32.5	8.2	59.3	0%	100%	NAD Inconclusive	NAD
HB-1D 10-03-107-04	Gray textured paint	Above pier 2, N. side outer girder, on the flat area	Gray/Orange Homogeneous Non Fibrous	28.9	9.1	62.0	0%	100%	NAD Inconclusive	NAD
HB-2A 10-03-107-05	Gray coating material	Newer water main section, first seam joint over pier 1, north side	Gray Homogeneous Non Fibrous	20.7	5.8	73.5	0%	100%	NAD Inconclusive	NAD
HB-2B 10-03-107-06	Gray coating material	Water main seam in the vicinity of panel point 5, north side	Gray Homogeneous Non Fibrous	17.2	10.3	72.5	0%	100%	NAD Inconclusive	NAD
HB-2C 10-03-107-07	Gray coating material	Water main bottom in the vicinity of panel point 25	Gray Homogeneous Non Fibrous	25.1	9.2	65.7	0%	100%	NAD Inconclusive	NAD
HB-3A 10-03-107-08	Brick mortar	West of begin abutment: in the attic, north wall	Brown Homogeneous Fibrous	Not Applicable			0%	100%	NAD	
HB-3B 10-03-107-09	Brick mortar	Near pier 2 , in the attic, north wall	Brown Homogeneous Fibrous	Not Applicable			0%	100%	NAD	
HB-3C 10-03-107-10	Brick mortar	Near pier 9, in the attic, south wall	Brown Homogeneous Fibrous	Not Applicable			0%	100%	NAD	
HB-5A 10-03-107-11	Cementitous material	66th pad from east end, beneath pedestal, near entrance manhole	Yellow Homogeneous Fibrous	Not Applicable			0%	100%	NAD	
HB-5B 10-03-107-12	Cementitous material	43rd pad from east end, beneath pedestal , near 2nd access hatch	Yellow Homogeneous Fibrous	Not Applicable			0%	100%	NAD	

43-01 21st Street-Suite 225 Long Island City, NY 11101
Tel.: 718-482-7525 • Fax: 718-482-7524 www.alphalabsllc.com

BULK SAMPLE ANALYSIS REPORT

CLIENT: Environmental Planning & Management, 1983 Marcus Ave.-Suite 109, Lake Success, NY 11042
BUILDING ADDRESS: NYC Parks Dept/ Transystems- High Bridge over Harlem River (Croton Aqueduct) Manhattan & Bronx, New York
PROJECT: 10018

PROJECT: Client Sample ID# Lab Sample ID#	Sample Description	Sample Location	Appearance	GRAVIMETRIC PREPARATION			PLM			TEM
				% Ashed Organic Component	% Acid Soluble Inorganic Component	% Acid Insoluble Inorganic Component	% Fibrous	% Non-Fibrous	ASBESTOS % & Type	ASBESTOS % & Type
HB-5C 10-03-107-13	Cementitous material	6th pad from east end, beneath pedestal	Yellow Homogeneous Fibrous	Not Applicable			0%	100%	NAD	
HB-6A 10-03-107-14	Black coating material	Water main, west end near pier 2	Dark brown Homogeneous Non Fibrous	15.1	4.3	80.6	0%	100%	NAD Inconclusive	NAD
HB-6B 10-03-107-15	Black coating material	Water main, near pier 5	Dark brown Homogeneous Non Fibrous	22.1	10.0	67.9	0%	100%	NAD Inconclusive	NAD
HB-6C 10-03-107-16	Black coating material	Water main, near pier 9	Dark brown Homogeneous Non Fibrous	36.5	5.7	57.8	0%	100%	NAD Inconclusive	NAD
HB-7A 10-03-107-17	Soft black mastic sealant	Top of walkway: 1st joint over pier 1	Black Homogeneous Non Fibrous	85.3	11.5	3.3	0%	100%	NAD Inconclusive	NAD
HB-7B 10-03-107-18	Soft black mastic sealant	Top of walkway: 2nd joint, 65 feet east of pier 1	Black Homogeneous Non Fibrous	85.5	12.0	2.5	0%	100%	NAD Inconclusive	NAD
HB-7C 10-03-107-19	Soft black mastic sealant	Top of walkway: 4th joint, 170 feet east of pier 1	Black Homogeneous Non Fibrous	84.2	13.0	2.8	0%	100%	NAD Inconclusive	NAD
HB-8A 10-03-107-20	Hard black mastic sealant	Top of walkway: 1st armored plated joint at pier 1	Black Homogeneous Non Fibrous	21.1	12.6	66.3	0%	100%	NAD Inconclusive	Trace ANTH
HB-8B 10-03-107-21	Hard black mastic sealant	Top of walkway: 2nd armored plated joint at center of arch bridge	Black Homogeneous Non Fibrous	25.4	12.4	62.1	0%	100%	NAD Inconclusive	Trace ANTH
HB-8C 10-03-107-22	Hard black mastic sealant	Top of walkway: 3rd armored plated joint at pier 2	Black Homogeneous Non Fibrous	28.3	15.9	55.7	0%	100%	NAD Inconclusive	Trace ANTH
HB-9A 10-03-107-23	Gray caulk	Railing support post inset, 25 feet east of pier 9, north side	Gray Homogeneous Non Fibrous	43.0	50.0	7.0	0%	100%	NAD Inconclusive	NAD
HB-9B 10-03-107-24	Gray caulk	Railing support post inset, 20 feet east of pier 9, north side	Gray Homogeneous Non Fibrous	40.1	45.1	14.7	0%	100%	NAD Inconclusive	NAD

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BULK SAMPLE ANALYSIS REPORT

CLIENT: Environmental Planning & Management, 1983 Marcus Ave.-Suite 109, Lake Success, NY 11042
BUILDING ADDRESS: NYC Parks Dept/ Transystems- High Bridge over Harlem River (Croton Aqueduct) Manhattan & Bronx, New York
PROJECT: 10018

PROJECT: Client Sample ID# Lab Sample ID#	Sample Description	Sample Location	Appearance	GRAVIMETRIC PREPARATION			PLM			TEM
				% Ashed Organic Component	% Acid Soluble Inorganic Component	% Acid Insoluble Inorganic Component	% Fibrous	% Non-Fibrous	ASBESTOS % & Type	ASBESTOS % & Type
HB-9C 10-03-107-25	Gray caulk	Railing support post inset, 20 feet east of pier 9, south side	Gray Homogeneous Non Fibrous	40.7	47.4	11.9	0%	100%	NAD Inconclusive	NAD
HB-10A 10-03-107-26	Brick mortar	Top of walkway: original herring bow brick pattern joints, west end by gate	Gray Homogeneous Fibrous	Not Applicable			0%	100%	NAD	
HB-10B 10-03-107-27	Brick mortar	Top of walkway: original herring bow brick pattern joints near pier 3	Gray Homogeneous Fibrous	Not Applicable			0%	100%	NAD	
HB-10C 10-03-107-28	Brick mortar	Top of walkway: original herring bow brick pattern joints, near pier 7	Gray Homogeneous Fibrous	Not Applicable			0%	100%	NAD	
HB-11A 10-03-107-29	Brick mortar	Top of walkway: new herring bow brick pattern joint near pier 2	Light gray Homogeneous Fibrous	Not Applicable			0%	100%	NAD	
HB-11B 10-03-107-30	Brick mortar	Top of walkway: new herring bow brick pattern joint near pier 2	Light gray Homogeneous Fibrous	Not Applicable			0%	100%	NAD	
HB-11C 10-03-107-31	Brick mortar	Top of walkway: new herring bow brick pattern joint near pier 2	Light gray Homogeneous Fibrous	Not Applicable			0%	100%	NAD	
HB-12A 10-03-107-32	Brick mortar	Top of walkway: new brick pattern, 90 feet east of gate house	Dark gray Homogeneous Fibrous	Not Applicable			0%	100%	NAD	
HB-12B 10-03-107-33	Brick mortar	Top of walkway: new brick pattern, 110 feet west of pier 2	Light gray Homogeneous Fibrous	Not Applicable			0%	100%	NAD	
HB-12C 10-03-107-34	Brick mortar	Top of walkway: new brick pattern, 10 feet west of pier 2	Light gray Homogeneous Fibrous	Not Applicable			0%	100%	NAD	
HB-13A 10-03-107-35	Tar mastic spill	Top of walkway: west security gate, beneath south side	Black Homogeneous Non Fibrous	71.5	2.9	25.5	0%	100%	NAD Inconclusive	NAD
HB-13B 10-03-107-36	Tar mastic spill	Top of walkway: west security gate, beneath south side	Black Homogeneous Non Fibrous	79.3	0.9	19.8	0%	100%	NAD Inconclusive	NAD
HB-13C 10-03-107-37	Tar mastic spill	Top of walkway: west security gate, beneath south side	Black Homogeneous Non Fibrous	82.2	1.7	16.1	0%	100%	NAD Inconclusive	NAD

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BULK SAMPLE ANALYSIS REPORT

CLIENT: Environmental Planning & Management, 1983 Marcus Ave.-Suite 109, Lake Success, NY 11042
BUILDING ADDRESS: NYC Parks Dept/ Transystems- High Bridge over Harlem River (Croton Aqueduct) Manhattan & Bronx, New York
PROJECT: 10018

Date Received: 3/29/10
Date of PLM Analysis: 3/31/10
Date of TEM Analysis: 3/31/10
Date of Report: 4/1/10

PLM Analyst: B. Stojanowska-Luft
TEM Analyst: A. Ansari

Analyst: B. Stojanowska-Luft
B.Stojanowska-Luft

QC Review / Date: 4/2/10
D. Molohides, Lab Director

NAD = No Asbestos Detected; NA/PS = Not Analyzed / Positive Stop; Trace = < 1%, CH = Chrysotile, AMO = Amosite, CRO = Crocidolite, ANTH = Anthophyllite, TRE = Tremolite, ACT = Actinolite, FBGL = Fiberglass, CELL = Cellulose. Polarized Light Microscopy (PLM) analysis of samples is performed by Method EPA 600/M4-82-020 and ELAP PLM Analysis Protocol 198.1 (friable sample) and protocol 198.6 (NOB samples), Transmission Electron Microscopy (TEM) analysis of samples is performed by Method ELAP TEM Analysis Protocol 198.4. Analytical equipments: Stereobinocular microscopes: NTB02B, Olympus VMT; Polarized Light Microscopes: MEIJI ML-9000 (Ser #: 902028), Olympus BH-2 (Ser #: 235532). PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos-containing. Samples will be stored for sixty (60) days and then returned to the client upon request. The results relate only to the items calibrated or tested. This report may not be reproduced, except in full, without the written approval of Alpha Labs LLC. The report must not be used by the client to claim endorsement by NVLAP or any agency of the US Government. The liability of Alpha Labs LLC with respect to the services charged shall in no event exceed the amount of the invoice.

NYS-DOH ELAP # 11833 **NVLAP Lab Code: 200691-0** **AIHA#: 174078**

10-03-107

BULK SAMPLE FORM

ALPHAT ... LLC
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2010 MAR 29 PM 1:21

ENVIRONMENTAL PLANNING & MANAGEMENT, INC.
1983 Marcus Avenue, Suite 109
Lake Success, New York 11042
(516) 328- 1194 Fax (516) 328-1381

Turn Around: 72 HRS

SEND ALL RESULTS BY PDF EMAIL TO, ATTENTION OF:
maprahamian@epmco.com

FOLLOW-UP ALL FAXES WITH HARDCOPY BY MAIL TO EPM

SHIPPED BY: Overnight

PROJECT INFORMATION

CLIENT : NYC Parks Dept/ Transystems
EPM # : 10018 DATE : 3/26/2010
Location: High Bridge over Harlem River (Croton Aqueduct)
Manhattan & Bronx, New York

Layered analysis by PLM until 1st positive and STOP! If negative by PLM and NOB analyze by TEM until 1st positive and STOP.

SAMPLE NUMBER	DATE	SAMPLE LOCATION	MATERIAL DESCRIPTION
HB- 1A	3/24/2010	Above pier 1, near center bearing, on the flat of I-beam	Gray textured paint
HB- 1B		Above pier 1, north side outer girder, on the flat area	Gray textured paint
HB- 1C		North side, center of steel bridge between panel points 12& 13, on the web beam	Gray textured paint
HB- 1D		Above pier 2, north side outer girder, on the flat area	Gray textured paint
HB- 2A		Newer water main section, first seam joint over pier 1, north side	Gray coating material
HB- 2B		Water main seam in the vicinity of panel point 5, north side	Gray coating material
HB- 2C		Water main bottom in the vicinity of panel point 25	Gray coating material
HB- 3A		West of begin abutment: in the Attic, north wall	Brick mortar
HB- 3B		Near pier 2, in the attic, north wall	Brick mortar
HB- 3C		Near pier 9, in the attic, south wall	Brick mortar
HB- 5A		66th pad from east end, beneath pedestal, near entrance manhole	Cementitious material
HB- 5B		43rd pad from east end, beneath pedestal, near 2nd access hatch	Cementitious material
HB- 5C		6th pad from east end, beneath pedestal	Cementitious material
HB- 6A		Water main, west end near pier 2	Black coating material
HB- 6B		Water main, near pier 5	Black coating material
HB- 6C		Water main, near pier 9	Black coating material

Sampler's Relinquishment Signature / Date / Time: 3-26-10 8:45 AM

Lab Receipt Signature / Date / Time: 3/29/10 1pm

10-03-07

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SEND ALL RESULTS BY PDF EMAIL TO, ATTENTION OF:
maprahamian@epmco.com

FOLLOW-UP ALL FAXES WITH HARDCOPY BY MAIL TO EPM

SHIPPED BY: Overnight

PROJECT INFORMATION

CLIENT : NYC Parks Dept/ Transystems

EPM # : 10018 DATE : 3/26/2010

Location: High Bridge over Harlem River (Croton Aqueduct)

Manhattan & Bronx, New York

Layered analysis by PLM until 1st positive and STOP! If negative by PLM and NOB analyze by TEM until 1st positive and STOP.

SAMPLE NUMBER	DATE	SAMPLE LOCATION	MATERIAL DESCRIPTION
HB- 7A	3/25/2010	Top of walkway:1st joint over pier 1	Soft black mastic sealant
HB- 7B		Top of walkway: 2nd joint, 65 feet east of pier 1	Soft black mastic sealant
HB- 7C		Top of walkway: 4th joint, 170 feet east of pier 1	Soft black mastic sealant
HB- 8A		Top of walkway: 1st armored plated joint at pier 1	Hard black mastic sealant
HB- 8B		Top of walkway: 2nd armored plated joint at center of arch bridge	Hard black mastic sealant
HB- 8C		Top of walkway: 3rd armored plated joint at pier 2	Hard black mastic sealant
HB- 9A		Railing support post inset, 25 feet east of pier 9, north side	Gray caulk
HB- 9B		Railing post inset, 20 feet east of pier 9, north side	Gray caulk
HB- 9C		Railing support post inset, 20 feet east of pier 9, south side	Gray caulk
HB- 10A		Top of walkway: original herring bow brick pattern joints, west end by gate	Brick mortar
HB- 10B		Top of walkway: original herring bow brick pattern joints, near pier 3	Brick mortar
HB- 10C		Top of walkway: original herring bow brick pattern joints, near pier 7	Brick mortar
HB- 11A		Top of walkway: new herring bow brick pattern joints near pier 2	Brick mortar
HB- 11B		Top of walkway: new herring bow brick pattern joints near pier 2	Brick mortar
HB- 11C		Top of walkway: new herring bow brick pattern joints near pier 2	Brick mortar
HB- 12A		Top of walkway: new brick pattern joints, 90 feet east of gate house	Brick mortar
HB- 12B		Top of walkway: new brick pattern joints, 110 feet west of pier 2	Brick mortar
HB- 12C		Top of walkway: new brick pattern joints, 10 feet west of pier 2	Brick mortar
HB- 13A		Top of walkway: west security gate, beneath south side	Tar mastic spill
HB- 13B		Top of walkway: west security gate, beneath south side	Tar mastic spill
HB- 13C		Top of walkway: west security gate, beneath south side	Tar mastic spill

Sampler's Relinquishment Signature / Date / Time:

3-26-10 8:45 AM

Lab Receipt Signature / Date / Time:

3/29/10 1PM

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Long Island City, NY 11101
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BULK SAMPLE ANALYSIS REPORT

CLIENT: Environmental Planning & Management, 1983 Marcus Ave.-Suite 109, Lake Success, NY 11042
BUILDING ADDRESS: NYC Parks Dept/ Transystems- High Bridge over Harlem River (Croton Aqueduct) Manhattan & Bronx, New York
PROJECT: 10018

PROJECT: Client Sample ID# / Lab Sample ID#	Sample Description	Sample Location	Appearance	GRAVIMETRIC PREPARATION			PLM			TEM
				% Ashed Organic Component	% Acid Soluble Inorganic Component	% Acid Insoluble Inorganic Component	% Fibrous	% Non-Fibrous	ASBESTOS % & Type	ASBESTOS % & Type
HB-14A 10-06-059-01	Asphalt waterproofing	Core 3: 20 ft east of pier 4, below 2 layer of brick, center of walkway	Black Homogeneous Non Fibrous	56.2	4.3	39.5	0%	100%	NAD Inconclusive	NAD
HB-14B 10-06-059-02	Asphalt waterproofing	Core 3: 20 ft east of pier 4, below 2 layer of brick, north side of walkway	Black Homogeneous Non Fibrous	72.4	1.6	26.1	0%	100%	NAD Inconclusive	NAD
HB-14C 10-06-059-03	Asphalt waterproofing	Core 3: 20 ft east of pier 4, below 2 layer of brick, north side of walkway	Black Homogeneous Non Fibrous	68.0	2.7	29.3	0%	100%	NAD Inconclusive	NAD
HB-15A 10-06-059-04	Bituminous joint filler	Core 1: 130 ft east of west gate, north side joint with steel deck	Black Homogeneous Non Fibrous	66.6	8.2	25.2	0%	100%	NAD Inconclusive	
HB-15B 10-06-059-05	Bituminous joint filler	Joint: 230 ft east of west gate, south side joint with steel deck	Black Homogeneous Non Fibrous	69.2	9.8	20.9	0%	96.3%	1.7 % CH	
HB-15C 10-06-059-06	Bituminous joint filler	Joint:520 ft east of west gate, north side joint with steel deck	Black Homogeneous Non Fibrous	80.5	2.3	17.2			NA/PS	

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BULK SAMPLE ANALYSIS REPORT

CLIENT: Environmental Planning & Management, 1983 Marcus Ave.-Suite 109, Lake Success, NY 11042
BUILDING ADDRESS: NYC Parks Dept/ Transystems- High Bridge over Harlem River (Croton Aqueduct) Manhattan & Bronx, New York
PROJECT: 10018

Date Received: 6/21/10
Date of PLM Analysis: 6/22/10
Date of TEM Analysis: 6/22/10
Date of Report: 6/22/10

PLM Analyst: B.Stojanowska-Luft
TEM Analyst: A. Ansari

Analyst: B.Stojanowska-Luft
B.Stojanowska-Luft

QC Review / Date: _____
D. Molohides, Lab Director

NAD = No Asbestos Detected; NA/PS = Not Analyzed / Positive Stop; Trace = < 1%, CH = Chrysotile, AMO = Amosite, CRO = Crocidolite, ANTH = Anthophyllite, TRE = Tremolite, ACT = Actinolite, FBGL = Fiberglass, CELL = Cellulose. Polarized Light Microscopy (PLM) analysis of samples is performed by Method EPA 600/M4-82-020 and ELAP PLM Analysis Protocol 198.1 (friable sample) and protocol 198.6 (NOB samples). Transmission Electron Microscopy (TEM) analysis of samples is performed by Method ELAP TEM Analysis Protocol 198.4. Analytical equipments: Stereobinocular microscopes: NTB02B, Olympus VMT; Polarized Light Microscopes: MEIJI ML-9000 (Ser #: 902028), Olympus BH-2 (Ser #: 235532). PLM is not consistently reliable in detecting asbestos in floor coverings and similar non-friable organically bound materials. Quantitative transmission electron microscopy is currently the only method that can be used to determine if this material can be considered or treated as non-asbestos-containing. Samples will be stored for sixty (60) days and then returned to the client upon request. The results relate only to the items calibrated or tested. This report may not be reproduced, except in full, without the written approval of Alpha Labs LLC. The report must not be used by the client to claim endorsement by NVLAP or any agency of the US Government. The liability of Alpha Labs LLC with respect to the services charged shall in no event exceed the amount of the invoice.

NYS-DOH ELAP # 11833 **NVLAP Lab Code: 200691-0** **AIHA#: 174078**

10-06-057

PAGE 03/03

BULK SAMPLE FORM

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EPM
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Lake Success, New York 11042
(516) 328- 1194 Fax (516) 328-1381

Turn Around: 72 HRS

SEND ALL RESULTS BY PDF EMAIL TO ATTENTION OF:
maprahamian@epmco.com

FOLLOW-UP ALL FAXES WITH HARDCOPY BY MAIL TO EPM

SHIPPED BY: Overnight

PROJECT INFORMATION

CLIENT : NYC Parks Dept/ Transystems

EPM # : 10018 DATE : 6/18/2010

Location: HighBridge over Harlem River (Croton Aqueduct)

Manhattan & Bronx, New York

Layered analysis by PLM until 1st positive and STOP! If negative by PLM and NOB analyze by TEM until 1st positive and STOP.

SAMPLE NUMBER	DATE	SAMPLE LOCATION	MATERIAL DESCRIPTION
HB- 14A	6/1/2010	Core 3: 20 ft east of pier 4, below 2 layer of brick, center of walkway	Asphalt waterproofing
HB- 14B		Core 3: 20 ft east of pier 4, below 2 layer of brick, northside of walkway	Asphalt waterproofing
HB- 14C		Core 3: 20 ft east of pier 4, below 2 layer of brick, northside of walkway	Asphalt waterproofing
HB- 15A		Core 1: 130 ft east of west gate, northside joint with steel deck	Bituminous joint filler
HB- 15B		Joint: 230 ft east of west gate, southside joint with steel deck	Bituminous joint filler
HB- 15C		Joint: 520 ft east of west gate, northside joint with steel deck	Bituminous joint filler

ALPHA LABS

06/22/2010 12:21 17184827524

Sampler's Relinquishment Signature / Date / Time:
6/18/10 - 11:00AM

Lab Receipt Signature / Date / Time:
6/21/10

APPENDIX D
Lead Paint Sample Laboratory Analytical Data

alpha Labs
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Tel.: (718) 482-7525 • Fax: (718) 482-7524 www.alphalabsllc.com

ANALYSIS REPORT FOR LEAD IN PAINT FILM

Client: Environmental Planning & Management,1983 Marcus Ave., Suite 109, Lake Success, NY, 11042
Building Address: High Bridge over the Harlem River (Croton Aqueduct)
Project#: 10018

Client Sample #	Location	Description GRAY	Detection Limit (% Pb w/w)	Result (% Pb w/w)	Lab Sample #
HB-L-01	Structural steel above pier 1	~~Green~~ over orange primer paint	15.64%	1.96%	LP10-03-016-01
HB-L-02	Water main above pier 1 – hevily rusted	Dark gray coating / paint	2.08%	0.36%	LP10-03-016-02
HB-L-03	Water main above and east of pier 2 – hevily rusted	Black coating / paint	6.50%	0.73%	LP10-03-016-03
HB-L-04	Bell fitting joint on 36" abandoned water main – heavily rusted	Silver metal material	68.53%	9.01%	LP10-03-016-04
HB-L-05	Top of walkway: old light pole, north side, over west abutment	Light green over orange primer paint	12.58%	2.72%	LP10-03016-05
HB-L-06	Railing, north side, over west abudment	Black over yellow over orange primer paint	2.27%	0.84%	LP10-03-016-06
HB-L-07	West abudment security gate	Black over silver paint	0.06%	0.01%	LP10-03-016-07
HB-L-08	Masonry tower between security gate and Westgate house	Gray over brown paint	0.50%	0.27%	LP10-03-016-08
HB-L-09	Top of walkway: old light pole, north side, over east abutment	Black over dark green paint	10.55%	1.75%	LP10-03-016-09
HB-L-10	Top of walkway: south side railing post inset over pier 2	Silver metal material	16.26%	1.63%	LP10-03-016-10

Analysis by: Flame AAS

Date Received: 03/29/2010
Date of Analysis: 03/31/2010
Date of Report: 03/31/2010

Analyst: B. Stójanowska-Luft
B. Stójanowska-Luft

Lab Director: D. Molohides
D. Molohides

Collection procedures, protocols and sample locations are based on information provided by the client submitting the samples; and as such, ALPHA Labs LLC disclaims any knowledge of and liability for the accuracy and completeness of this information

LP16-03-016

ENVIRONMENTAL PLANNING & MANAGEMENT, INC.
1983 Marcus Avenue, Suite C-106
Lake Success, New York 11042
(516) 328- 1194 Fax (516) 328-1381

ALPHA LABS LLC
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2010 MAR 29 PM 1:21

SAMPLE CHAIN-OF-CUSTODY

PHONE/FAX/MAIL/OVERNIGHT RESULTS TO: M. Aprahamian		TURNAROUND TIME: 72 HRS	
PROJECT NUMBER: 10018	CLIENT: NYC Parks Dept/ Transystems	SPECIAL INSTRUCTIONS TO LABORATORY: Sample 2 and 3 contain large amounts of rust please make strong effort to separate the coating prior to analysis	ANALYSIS REQUESTED: AAS
LOCATION: High bridge over the Harlem River (Croton Aqueduct)			

SAMPLE NUMBER	DATE SAMPLED	SAMPLE LOCATION	DESCRIPTION
HB-L-01	3/24/2010	Structural steel above pier 1	Gray over orange primer paint
HB-L-02		Water main above pier 1- heavily rusted	Dark Gray coating /paint
HB-L-03		Water main above and east of pier 2 - heavily rusted	Black coating /paint
HB-L-04		Bell fitting joint on 36" abandoned water main-heavily rusted	silver metal material
HB-L-05	3/25/2010	Top of walkway: old light pole, north side, over west abutment	Light Green over orange primer paint
HB-L-06		Railing, north side, over west abutment	Black over yellow over orange primer paint
HB-L-07		West abutment security gate	Black over silver paint
HB-L-08		Masonry tower between security gate and Westgate house	Gray over brown paint
HB-L-09		Top of walkway: old light pole, north side, over east abutment	Black over dark green paint
HB-L-10		Top of walkway: south side railing post inset over pier 2	Silver metal material

Collected By: Michael Aprahamian	Collector's Signature:
Relinquished By: Date/Time: 3-26-10 2:45PM	Received By: Date/Time:
Relinquished By: Date/Time:	Received By: Date/Time:
Method of shipment:	Sample Condition Upon Receipt:
Comments:	Acceptable: Other (Explain):

APPENDIX E

PCB Caulk Sample Laboratory Analytical Data

AMERICAN ANALYTICAL LABORATORIES

NYSDOH 11418
NJDEP NY050
CTDOH PH-0205
PADEP 68-00573

Tuesday, April 06, 2010

Joe Cascio
Environmental Planning & Management, Inc.
1983 Marcus Ave #109
New Hyde Park, New York 11042

TEL: (516) 328-1194
FAX (516) 328-1381

RE: High Bridge over Harlem River (Croton Aq

Order No.: 1003246

Dear Joe Cascio:

American Analytical Laboratories, LLC. received 1 sample(s) on 3/30/2010 for the analyses presented in the following report.

Samples were analyzed in accordance with the test procedures documented on the chain of custody and detailed throughout the text of this report.

The results reported herein relate only to the items tested or to the samples as received by the laboratory. This report may not be reproduced, except in full, without the approval of American Analytical Laboratories, LLC and is not considered complete without a cover page and chain of custody documentation. The limits (LOQ) provided in the data package are analytical reporting limits and not Federal or Local mandated values to which the sample results should be compared.

There were no problems with the analyses and all data for associated QC met laboratory specifications. If there are any exceptions a Case Narrative is provided in the report or the data is qualified. This package has been reviewed by American Analytical Laboratories' QA Department/Laboratory Director to comply with NELAC standards prior to report submittal. This report consists of 6 pages.

If you have any questions regarding these tests results, please do not hesitate to call (631) 454-6100 or email me directly at lbeyer@american-analytical.com.

Sincerely,

Lori Beyer
Lab Director

American Analytical Laboratories, LLC.

Date: *06-Apr-10*

CLIENT: Environmental Planning & Management, In
Project: High Bridge over Harlem River (Croton Aquedu
Lab Order: 1003246

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Date Collected	Date Received
1003246-01A	HB-PCB	3/25/2010	3/30/2010

ENVIRONMENTAL
P PLANNING &
E M MANAGEMENT, INC.

1983 Marcus Avenue, Suite 109
Lake Success, New York 11042
(516) 328- 1194 Fax (516) 328-1381

SAMPLE CHAIN-OF-CUSTODY

PHONE/FAX/MAIL/OVERNIGHT RESULTS TO: Michael Aprahamian		TURNAROUND TIME: 5 Days	
PROJECT NUMBER: 10018	CLIENT: NYC Parks Dept /Transystems	SPECIAL INSTRUCTIONS TO LABORATORY: Please composite into one sample and analyze for PCBs	ANALYSIS REQUESTED: EPA 8082
LOCATION: High Bridge over Harlem River (Croton Aqueduct)			

SAMPLE NUMBER	DATE SAMPLED	SAMPLE LOCATION	DESCRIPTION
HB-PCB-01	3/25/2010	Railing support post inset, 25 feet east of pier 9, north side	Gray caulk
HB-PCB-02		Railing post inset, 20 feet east of pier 9, north side	Gray caulk
HB-PCB-03		Railing support post inset, 20 feet east of pier 9, south side	Gray caulk

1003246-01A

Collected By: Michael Aprahamian	Collector's Signature:
Relinquished By: Date/Time: 3-29-10 7:30 AM	Received By: C. Bane Date/Time: 3/30/10 11:00
Relinquished By: Date/Time:	Received By: Date/Time:
Method of shipment:	Sample Condition Upon Receipt:
Comments:	Acceptable: ✓ Other (Explain):

American Analytical Laboratories, LLC.

Sample Receipt Checklist

Client Name **EPM** Date and Time Receive **3/30/2010 11:08:18 AM**

Work Order Numbe **1003246** RcptNo: **1** Received by **CB**

COC_ID: CoolerID:

Checklist completed by CBean 3/30/10 (Signature / Date) Reviewed by [illegible] 3/30/10 (Initials / Date)

Matrix: Carrier name FedEx

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Presen ☐
Custody seals intact on shippping container/cooler?	Yes ☐	No ☐	Not Presen ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Presen ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	
Water - VOA vials have zero headspace?	No VOA vials submitted ☑	Yes ☐	No ☐
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☐

Adjusted? Checked b

Any No and/or NA (not applicable) response must be detailed in the comments section be

Client contacted Date contacted: Person contacted

Contacted by: Regarding:

Comments: Cooler withi ce @ 2.6C

Corrective Action

American Analytical Laboratories, LLC.

Date: *06-Apr-10*

ELAP ID : 11418

CLIENT:	Environmental Planning & Management, In	**Client Sample ID:**	HB-PCB
Lab Order:	1003246	**Collection Date:**	3/25/2010
Project:	High Bridge over Harlem River (Croton Aquedu	**Matrix:**	CAULKING
Lab ID:	1003246-01A		

Certificate of Results

Analyses	Sample Result	LOD	LOQ	Qual	Units	DF	Date/Time Analyzed
PCB'S AS AROCLORS SW-846 METHOD 8082			**SW8082A**		**NA**		Analyst: **ARS**
Aroclor 1016	U	200	1000		µg/Kg	1	4/5/2010 7:34:00 PM
Aroclor 1221	U	200	1000		µg/Kg	1	4/5/2010 7:34:00 PM
Aroclor 1232	U	200	1000		µg/Kg	1	4/5/2010 7:34:00 PM
Aroclor 1242	U	200	1000		µg/Kg	1	4/5/2010 7:34:00 PM
Aroclor 1248	U	200	1000		µg/Kg	1	4/5/2010 7:34:00 PM
Aroclor 1254	U	200	1000		µg/Kg	1	4/5/2010 7:34:00 PM
Aroclor 1260	U	200	1000		µg/Kg	1	4/5/2010 7:34:00 PM
Aroclor 1262	U	200	1000		µg/Kg	1	4/5/2010 7:34:00 PM
Aroclor 1268	U	200	1000		µg/Kg	1	4/5/2010 7:34:00 PM
Surr: TCX	103	0	30-149		%REC	1	4/5/2010 7:34:00 PM
Surr: DCB	94.1	0	21-151		%REC	1	4/5/2010 7:34:00 PM

American Analytical Laboratories, LLC., 56 Toledo Street, Farmingdale, NY, Zip - 11735
Tel - 6314546100 Fax - 6314548027 www.American-Analytical.com

nelac

Qualifiers:	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	C	Calibration %RSD/%D exceeded for non-CCC analytes	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	LOD	Limit of Detection	LOQ	Limit of Quantitation
	ND	Not Detected at the Reporting Limit	S	Spike Recovery outside accepted recovery limits
	U	Indicates the compound was analyzed but not detected.		

CLIENT: Environmental Planning & Management, In
Work Order: 1003246
Project: High Bridge over Harlem River (Croton Aquedu

ANALYTICAL QC SUMMARY REPORT

TestCode: 8082_Misc

Sample ID: MB-28580	SampType: MBLK	TestCode: 8082_Misc	Units: µg/Kg	Prep Date: 4/2/2010	RunNo: 49837
Client ID: PBS	Batch ID: 28580	TestNo: SW8082A	NA	Analysis Date: 4/5/2010	SeqNo: 691999

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	U	1000									
Aroclor 1221	U	1000									
Aroclor 1232	U	1000									
Aroclor 1242	U	1000									
Aroclor 1248	U	1000									
Aroclor 1254	U	1000									
Aroclor 1260	U	1000									
Aroclor 1262	U	1000									
Aroclor 1268	U	1000									
Surr: TCX	440		500.0		87.9	30	149				
Surr: DCB	380		500.0		75.4	21	151				

Sample ID: LCS-28580	SampType: LCS	TestCode: 8082_Misc	Units: µg/Kg	Prep Date: 4/2/2010	RunNo: 49837
Client ID: LCSS	Batch ID: 28580	TestNo: SW8082A	NA	Analysis Date: 4/5/2010	SeqNo: 692000

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	5000	1000	5000	0	101	30	143				
Aroclor 1260	5100	1000	5000	0	101	32	148				
Surr: TCX	510		500.0		101	30	149				
Surr: DCB	400		500.0		80.5	21	151				

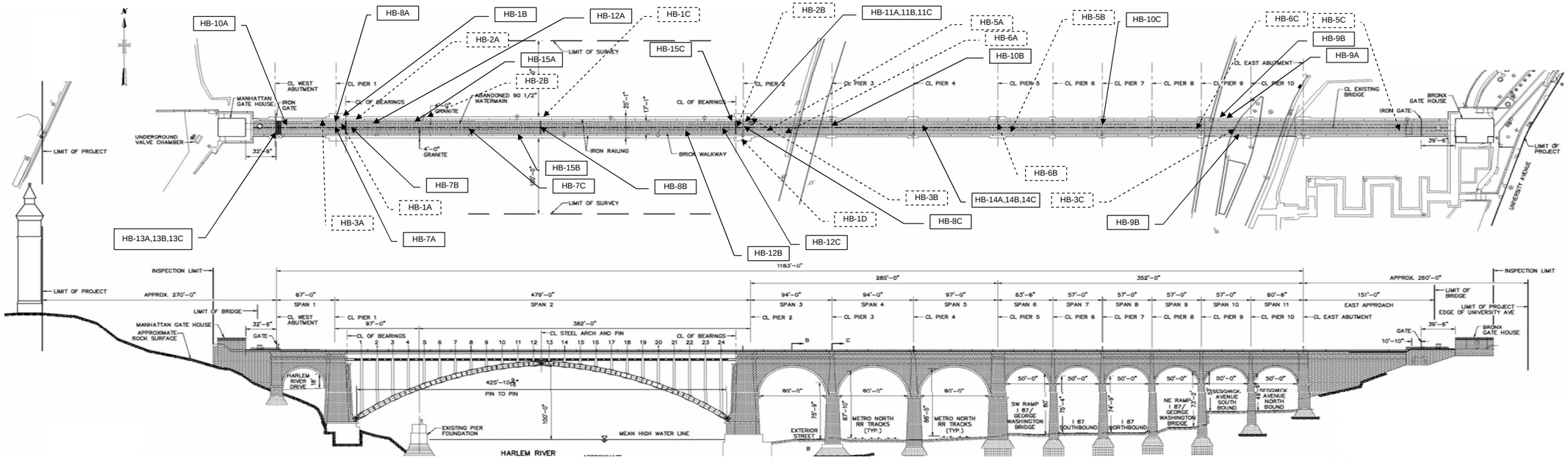
Sample ID: LCSD-28580	SampType: LCSD	TestCode: 8082_Misc	Units: µg/Kg	Prep Date: 4/2/2010	RunNo: 49837
Client ID: LCSS02	Batch ID: 28580	TestNo: SW8082A	NA	Analysis Date: 4/5/2010	SeqNo: 692001

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aroclor 1016	4900	1000	5000	0	97.0	30	143	5045	3.91	20	
Aroclor 1260	4900	1000	5000	0	97.9	32	148	5056	3.19	20	
Surr: TCX	510		500.0		101	30	149		0	0	
Surr: DCB	380		500.0		76.7	21	151		0	0	

Qualifiers:

C	Calibration %RSD/%D exceeded for non-CCC analytes	E	Value above quantitation range	H	Holding times for preparation or analy
J	Analyte detected below quantitation limits	LOD	Limit of Detection	LOQ	Limit of Quantitation
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike Recovery outside accepted reco

APPENDIX F
Asbestos Bulk Sample, Lead Paint Sample, And PCB Caulk Sample Location Drawings

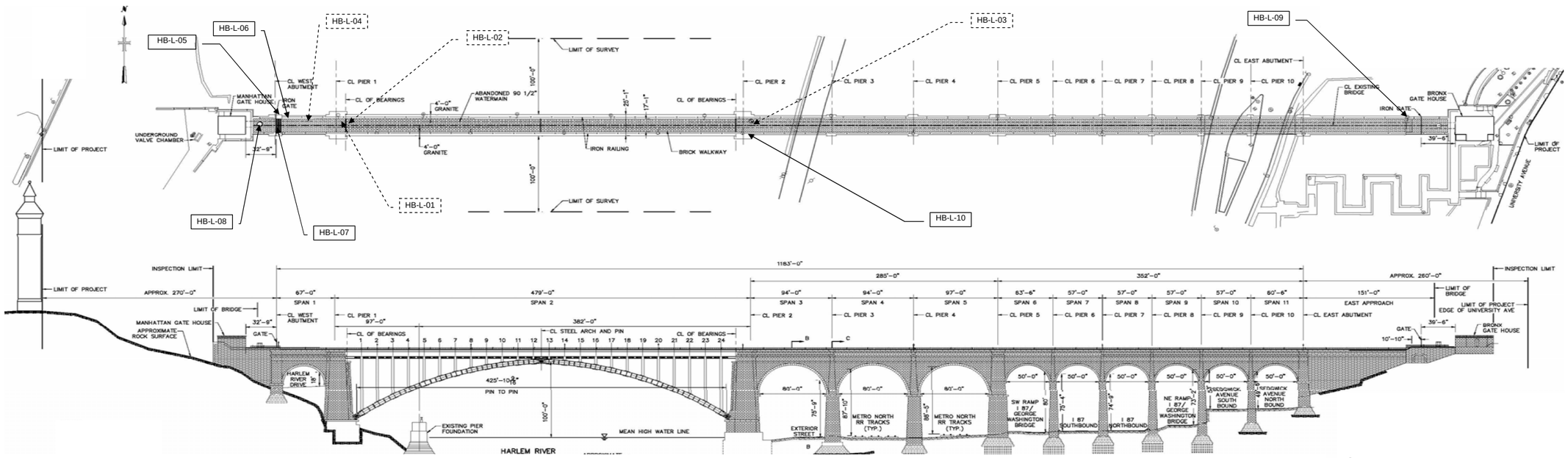


Legend:

- SUSPECT ASBESTOS BULK SAMPLE
- SUSPECT ASBESTOS BULK SAMPLE (INTERIOR OF BRIDGE)

ENVIRONMENTAL PLANNING & MANAGEMENT, INC.

NEW YORK CITY PARKS DEPARTMENT		
LOCATION		**HIGH BRIDGE OVER HARLEM RIVER**
FACILITY		**HIGH BRIDGE PARK (CROTON AQUEDUCT) MANHATTAN AND BRONX, NEW YORK**
Date:	3/29/2010	
Dwg.#	ASB-1	**ASBESTOS BULK SAMPLE LOCATION DRAWING**

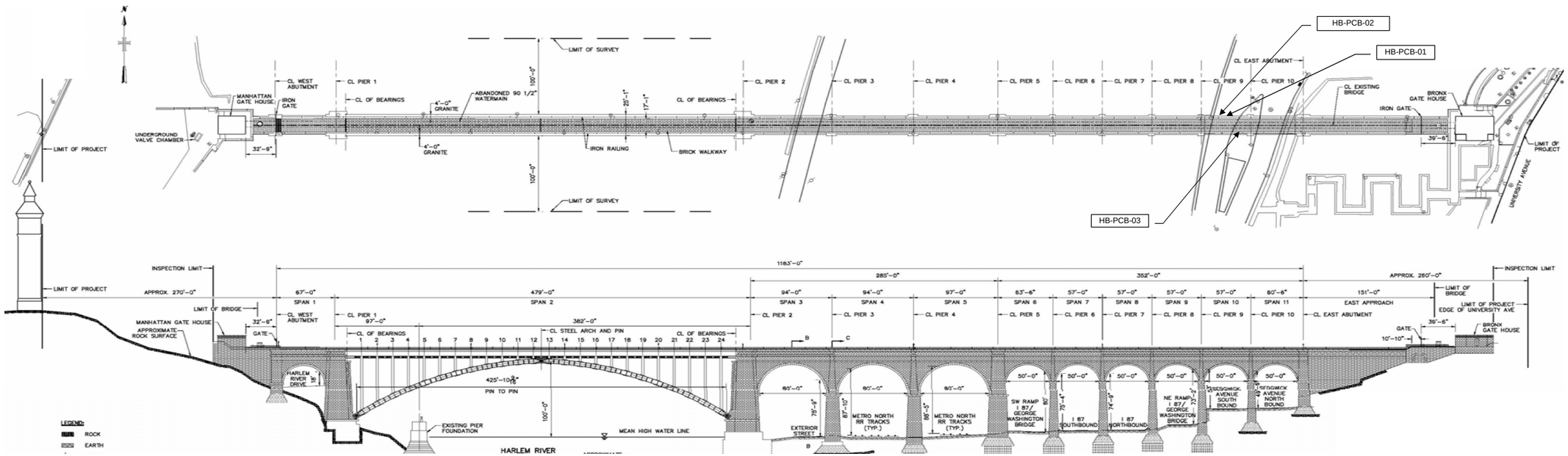


Legend:

- SUSPECT LEAD BULK SAMPLE
- SUSPECT LEAD BULK SAMPLE (INTERIOR OF BRIDGE)

ENVIRONMENTAL PLANNING & MANAGEMENT, INC.

NEW YORK CITY PARKS DEPARTMENT		
LOCATION		**HIGH BRIDGE OVER HARLEM RIVER**
FACILITY		**HIGH BRIDGE PARK (CROTON AQUEDUCT)** **MANHATTAN AND BRONX, NEW YORK**
Date:	3/29/2010	
Dwg.#	LEAD-1	**LEAD BULK SAMPLE LOCATION DRAWING**



Legend:

- SUSPECT PCB CAULK BULK SAMPLE

ENVIRONMENTAL PLANNING & MANAGEMENT, INC.

NEW YORK CITY PARKS DEPARTMENT		
LOCATION		**HIGH BRIDGE OVER HARLEM RIVER**
FACILITY		**HIGH BRIDGE PARK (CROTON AQUEDUCT) MANHATTAN AND BRONX, NEW YORK**
Date:	3/29/2010	
Dwg.#	PCB-1	**PCB CAULK BULK SAMPLE LOCATION DRAWING**

APPENDIX G

Photographs of Identified Asbestos-Containing Materials, Lead Containing Paints & Universal Wastes

Photograph of Asbestos-Containing Materials (ACM):

Photo ACM #1: Location of Asbestos-containing bituminous joint filler material present at joint between steel deck of bridge and the brick walkway. This material is present at the entire joint between piers 1 and 2. Note: the transverse expansion joints in the brick work contain similar joint filler materials. The transverse joint filler material was tested separately and did not test positive for asbestos.

Photographs of Lead-Containing Materials (LCM):

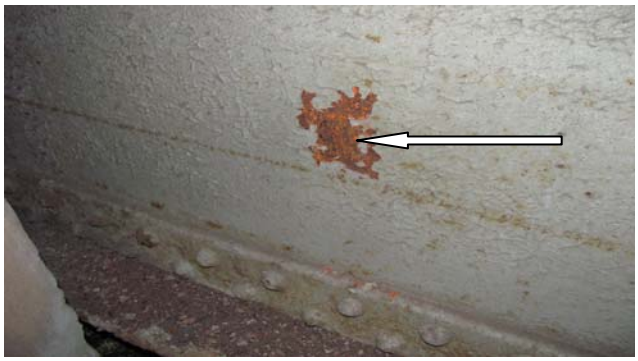


Photo LCM #1: **Gray over orange primer paint** present on the structural steel of the three-hinged steel arched bridge.

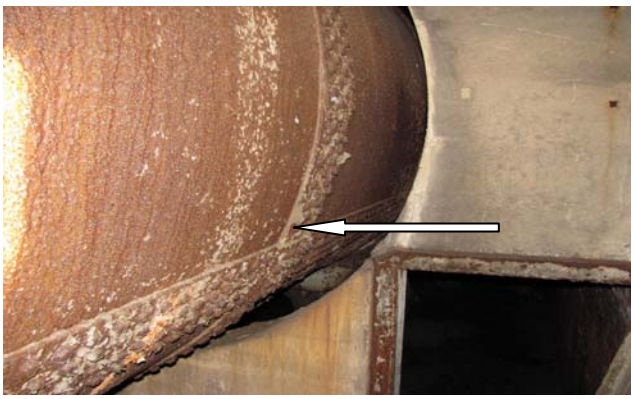


Photo LCM #2: **Dark gray coating/paint** on 90 inch water main beneath three-hinged steel arched bridge.

Photo LCM #3: **Black coating** present on 90 inch water main located in the east attic, east of pier 2.

Photo LCM #4: **Silver metal (lead solder) material** present at bell fitting of abandoned 36 inch water mains located beneath the west abutment in the west attic. This material is also present at small diameter pipes and valves in the attic beneath the west and east gate houses**.**

Photo LCM #5: **Light green paint** over orange primer present on seventeen (17) old abandoned light poles along the sides of the walkway.

Photo LCM #6: **Black over yellow over orange primer paint** present on railings throughout the walkway.

Photo LCM #7: **Black over silver paint** present on west abutment security gate. This paint is also present on the east abutment security gate.

Photo LCM #8: **Gray over brown paint** present on masonry tower located between the security gate and the Westgate house.

Photo LCM #9: **Black over dark green paint** present on one old light pole near the east security gate.

Photo LCM #10: **Silver metal (lead solder) material** present at railing post insets located in the vicinity of the west gate house fence (47 posts), west abutment/pier1 fence(13 posts), over pier 2 fence (10 posts) , and in the vicinity of the east gate house fence (22 posts). This includes remnant lead solder at old post holes.

Photograph of Universal Wastes

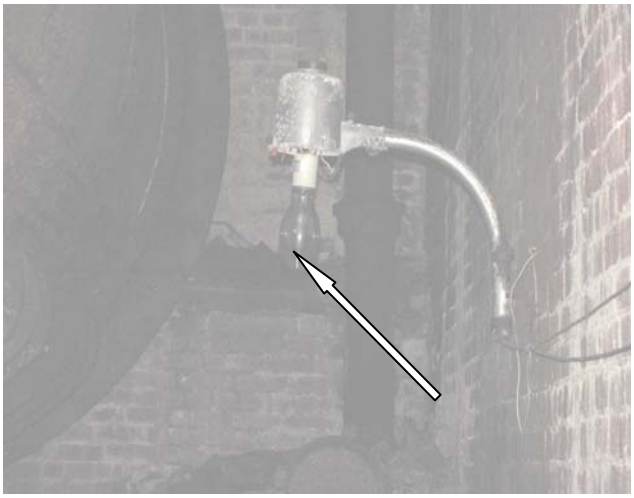
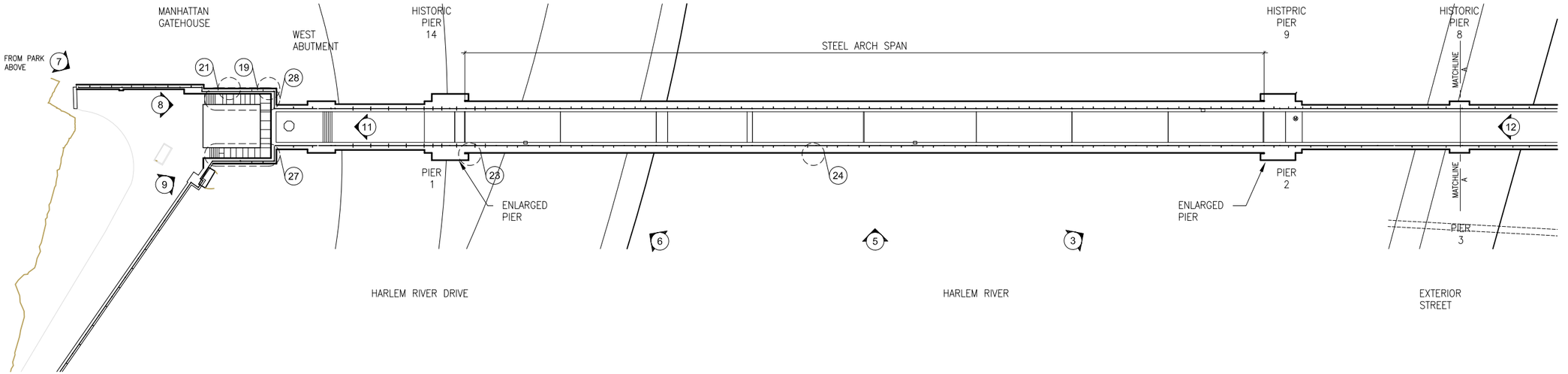


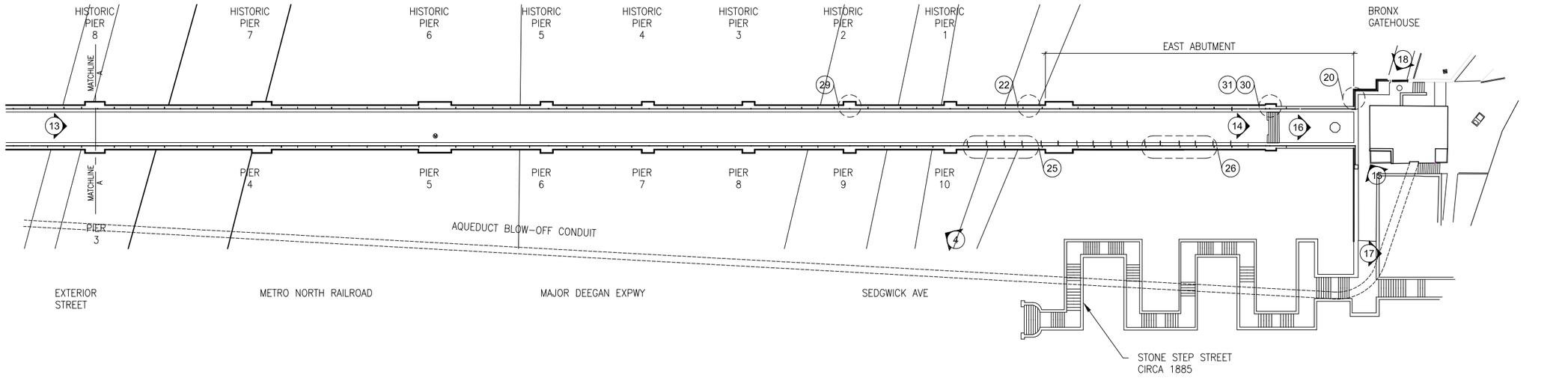
Photo UW #1: Typical high intensity bulb. There are a total of eleven (11) fixtures/bulk in the east and west attic. Each fixture is assumed to contain one PCB containing ballast.

APPENDIX J
EXISTING CONDITIONS PHOTOGRAPHS

2 AERIAL VIEW FROM NORTHWEST



4 2010 PLAN
SCALE: 1/128"=1'-0"



4 2010 PLAN
SCALE: 1/128"=1'-0"

1 AERIAL VIEW FROM SOUTHEAST

NOTE:
32 THRU 37 TYPICAL OR INTERIOR DETAILS

0 32' 64' 128'

HIGH BRIDGE RESTORATION

The Bronx, NY
New York, NY

NYC DEPARTMENT OF PARKS & RECREATION

NYC DEPARTMENT OF DESIGN + CONSTRUCTION

LI • SALTZMAN ARCHITECTS, P.C.
ARCHITECTURE AND PRESERVATION
62 WHITE STREET NY, NY 10013.3598
TEL : 212.941.1838 FAX : 212.941.1834

STRUCTURAL ENGINEER
LICHTENSTEIN CONSULTING ENGINEERS

LANDSCAPE ARCHITECT
MKW + ASSOCIATES, LLC

INTERPRETIVE CONSULTANT
ALTA PLANNING + DESIGN

No.	Date	Issue

SEAL:

DRAWING TITLE:
EXISTING CONDITIONS PHOTO KEY

SCALE: 1/64"=1'-0"
DATE: 01/10/2011

DRAWING NO:
EX-01
SHEET 01 OF 01

EXISTING CONDITIONS PHOTOS

FIGURE 1. *Aerial view of the High Bridge looking north (Manhattan on the left, The Bronx on the right)*

FIGURE 2. *Aerial view of the High Bridge looking south (The Bronx on the left, Manhattan on the right)*

FIGURE 3. *View of the south elevation of the metal arch and masonry arches looking toward The Bronx*

FIGURE 4. *View of the south elevation of the metal arch and masonry arches looking toward Manhattan*

FIGURE 5. *View of the south elevation of the metal arch*

FIGURE 6. *View of the south elevation of the masonry arch and metal arch looking toward Manhattan*

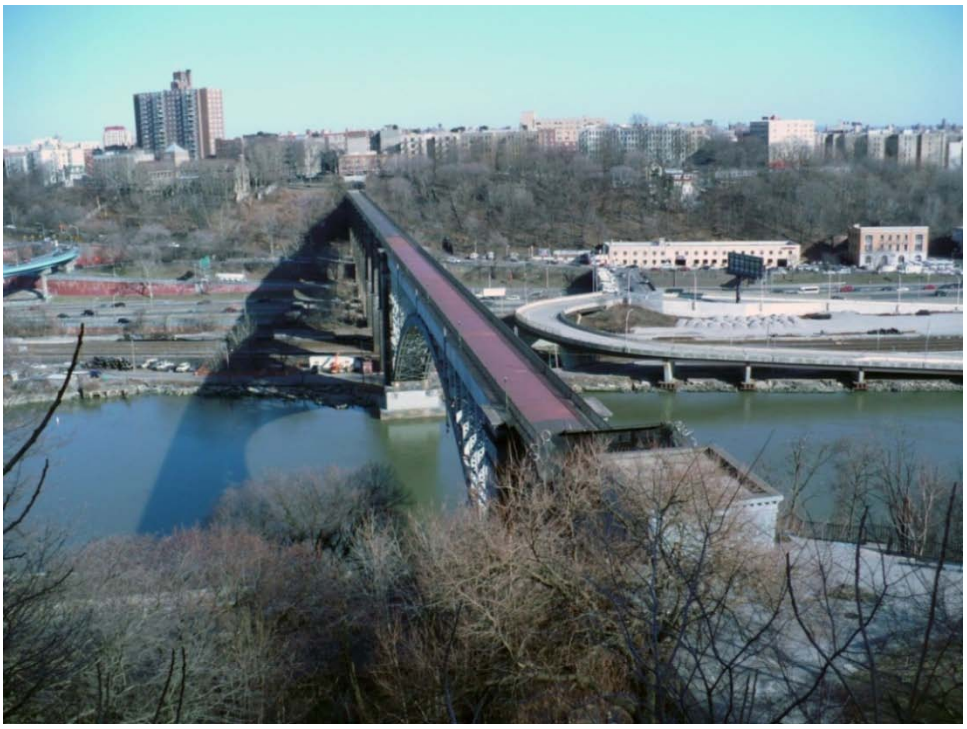


FIGURE 7. *Aerial view of the walkway looking toward The Bronx with the Manhattan gatehouse and plaza in the foreground*

FIGURE 8. *View of the north and west elevations of the Manhattan gatehouse and surrounding plaza*

FIGURE 9. *View of the west and south elevations of the Manhattan gatehouse and surrounding plaza*

FIGURE 10. *Aerial view of the Manhattan vent, vent plaza and security gate (taken from the roof of the Manhattan Gatehouse*

FIGURE 11. *View of the Manhattan side steps and security gate as seen from the walkway*

FIGURE 12. *View of the walkway looking toward Manhattan*

FIGURE 13. *View of the walkway looking toward The Bronx*

FIGURE 14. *View of the Bronx side steps and security gate as seen from the walkway*

FIGURE 15. *View of the Bronx vent, vent plaza and security gate*

FIGURE 16. *View of the Manhattan vent, vent plaza, and gatehouse*

FIGURE 17. *View of the east and north elevations of the Bronx gatehouse and surrounding plaz*

FIGURE 18. *View of the south elevation of the Bronx gatehouse and surrounding plaza, including the foundation remnants of the office building*

FIGURE 19. *Detail view of the 1850 railing (left and center) and 1864 railing (right) at the Manhattan gatehouse plaza. Note the variance in picket spacing and formation of the arches.*

FIGURE 20. *Detail view of the 1864railing (left), the non-historic in-fill railing (center), and the 1850(right) and 1864 railing (right) at the Bronx gatehouse plaza. Note the variance in picket spacing and formation of the arches.*

FIGURE 21. *Elevation view of the 1850 railing and granite copings at the Manhattan gatehouse plaza.*

FIGURE 22. *Elevation view of the 1868 railing and granite copings at masonry arches on the Bronx end of the walkway.*

FIGURE 23. *Elevation view of the transition between the 1928 railing (left) and the 1864 railing (right). Note the change between metal copings and granite copings and the metal expansion joint.*

FIGURE 24. *Elevation view of the 1928 railing and metal copings at the metal arch section of the walkway .*

FIGURE 25. *View of historic metal bracing at the 1864 railings.*

FIGURE 26. *View of non-historic metal bracing at the 1864 railings.*

FIGURE 27. *View of bluestone pavers and granite steps at south side of Manhattan gatehouse*

FIGURE 28. *View of bluestone pavers and granite steps at north side of gatehouse*

FIGURE 29. *View an historic light pole mounted to a pier of a masonry arch on the Bronx side of the walkway*

FIGURE 30. *Close up view of the identification stamp found on the existing light poles.*

FIGURE 31. *View of the 1864 railing and decorative metal scroll work with 1935 light pole at beyond at Manhattan steps.*

FIGURE 312. *Detail view of the transition between the 1864 brick paving and the 1928 Brick paving.*

FIGURE 323. *Detail view of a non-historic manhole cover has been installed at a location that previously had a vault lights. Note the surrounding non-matching brick at the area of repair.*

FIGURE34. *Detail view of an existing bridge deck opening covered with a with a non-historic patch*

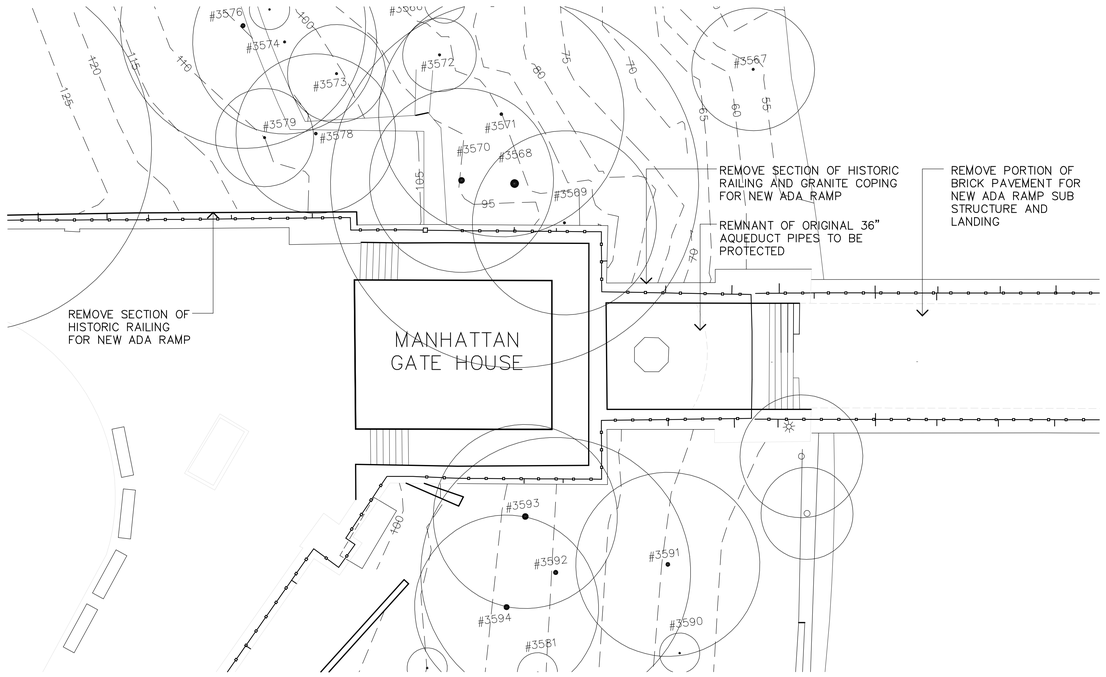
FIGURE35. *Detail view of a historic vault light as seen from below in the attic.*

FIGURE36. *Interior view of the aqueduct supported on pedestals at the masonry attic.*

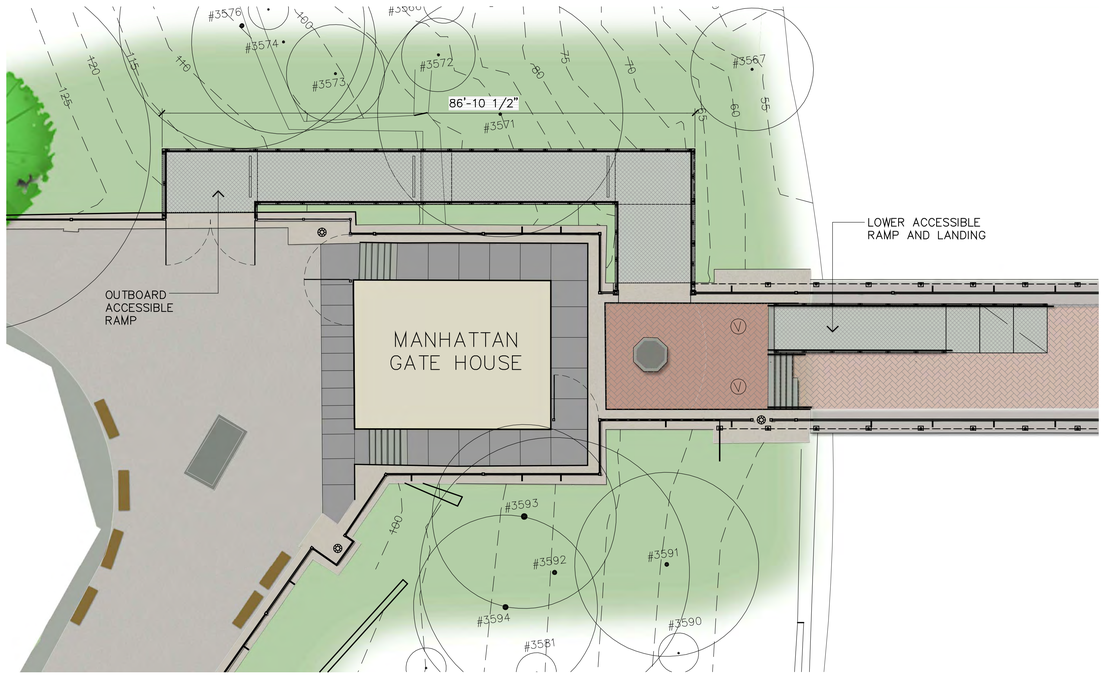
FIGURE37. *View of the aqueduct and walkway at the metal arch*

APPENDIX K

LANDMARKS PRESERVATION COMMISSION
PRESENTATION DRAWINGS



MANHATTAN - EXISTING CONDITIONS



MANHATTAN - PROPOSED PLAN

NORTH

0' 5' 10' 20'

SCALE: 1"=10'-0"

OVERALL PLAN

NORTH

0' 20' 40' 80'

SCALE: 1"=40'-0"

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

City of New York Parks & Recreation

Rehabilitation of the High Bridge

Borough of Manhattan & Bronx
03 March 2011

L-1A (Sheet 16 of 50)

Manhattan Existing & Proposed Plan

Scale: As Noted

Lichtenstein Consulting Engineers

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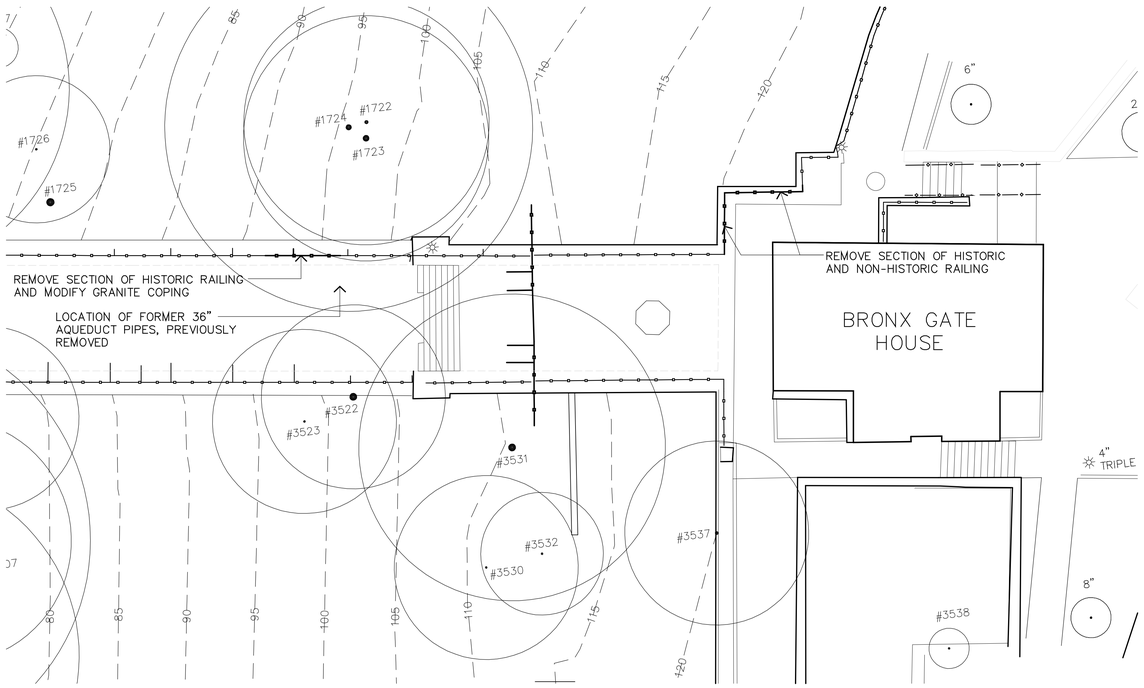
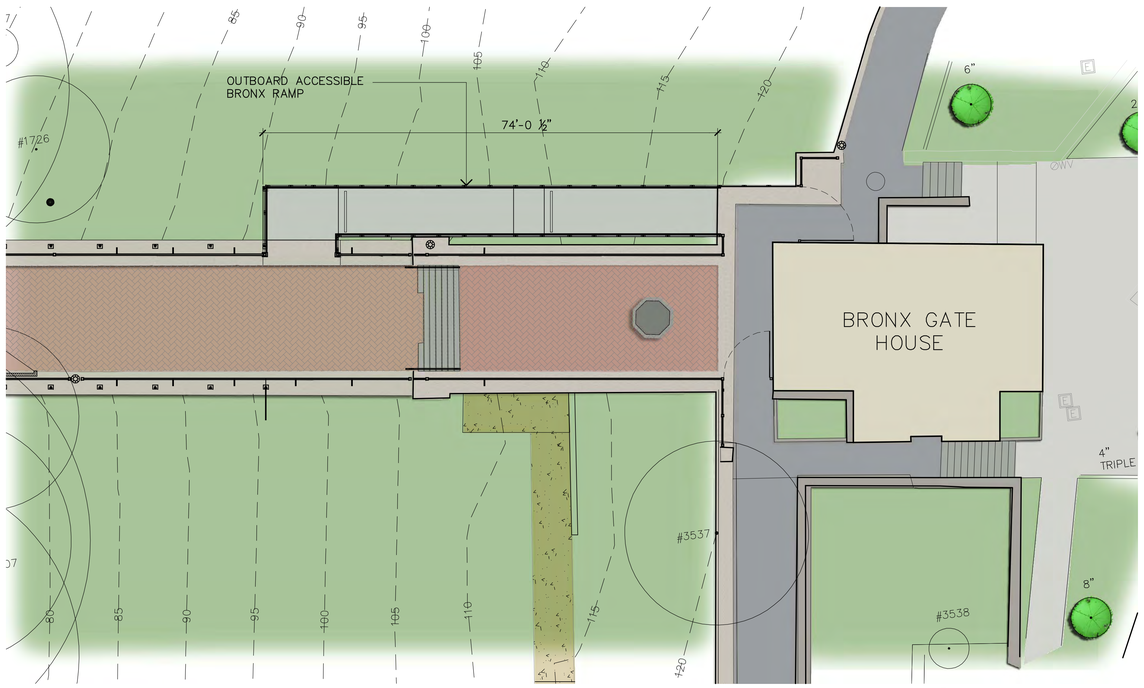


BRONX - EXISTING CONDITIONS

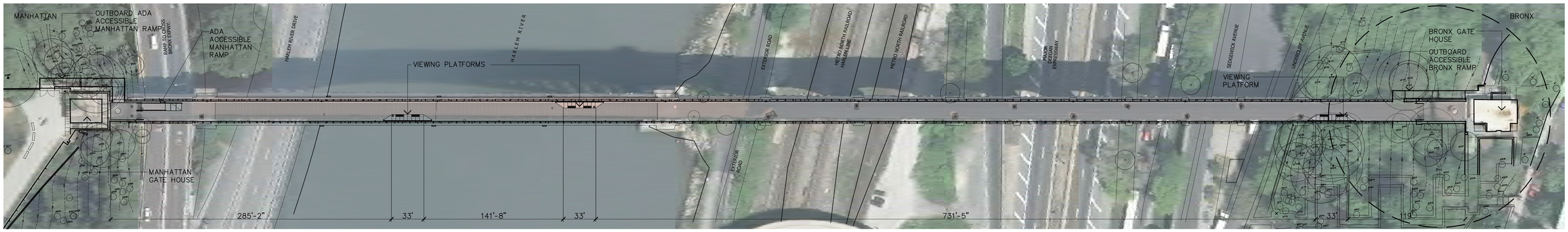


BRONX - PROPOSED PLAN

NORTH

0' 5' 10' 20'

SCALE: 1"=10'-0"



OVERALL PLAN

NORTH

0' 20' 40' 80'

SCALE: 1"=40'-0"

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

City of New York Parks & Recreation

Rehabilitation of the High Bridge

Borough of Manhattan & Bronx
03 March 2011

L-1B (Sheet 18 of 50)

Bronx Existing & Proposed Plan

Scale: As Noted

Lichtenstein Consulting Engineers

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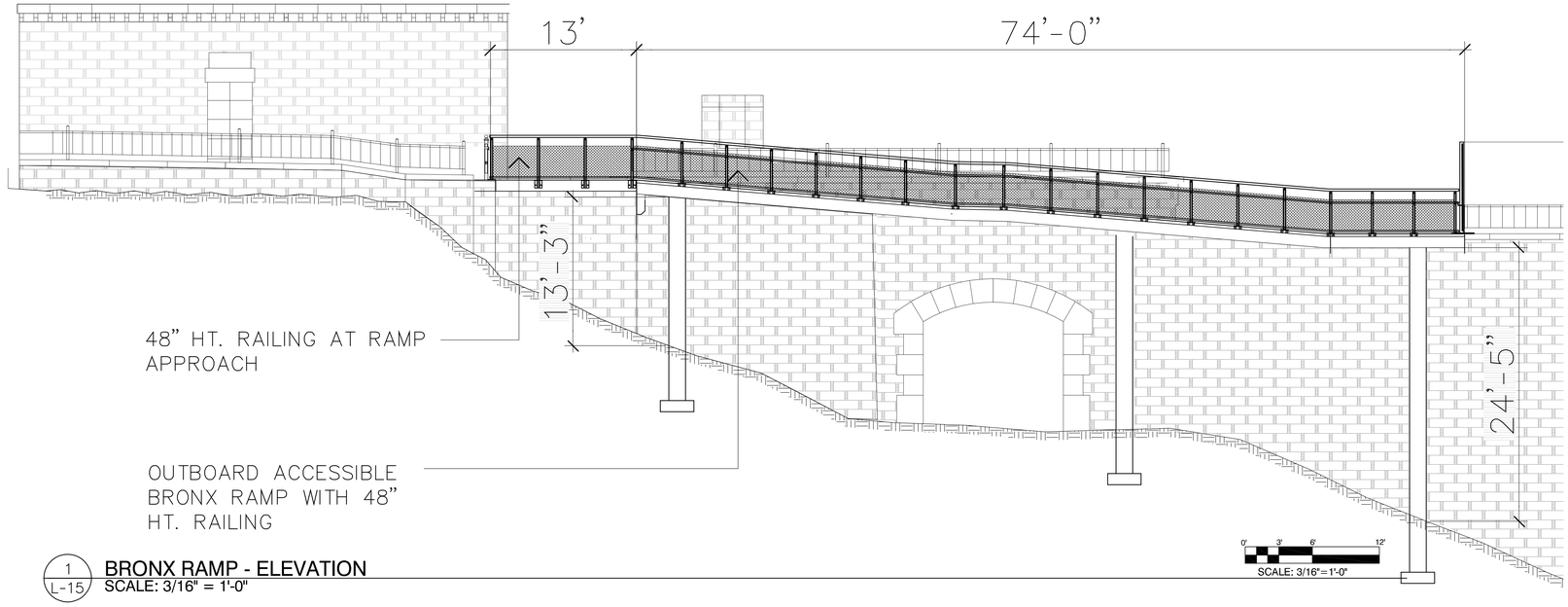
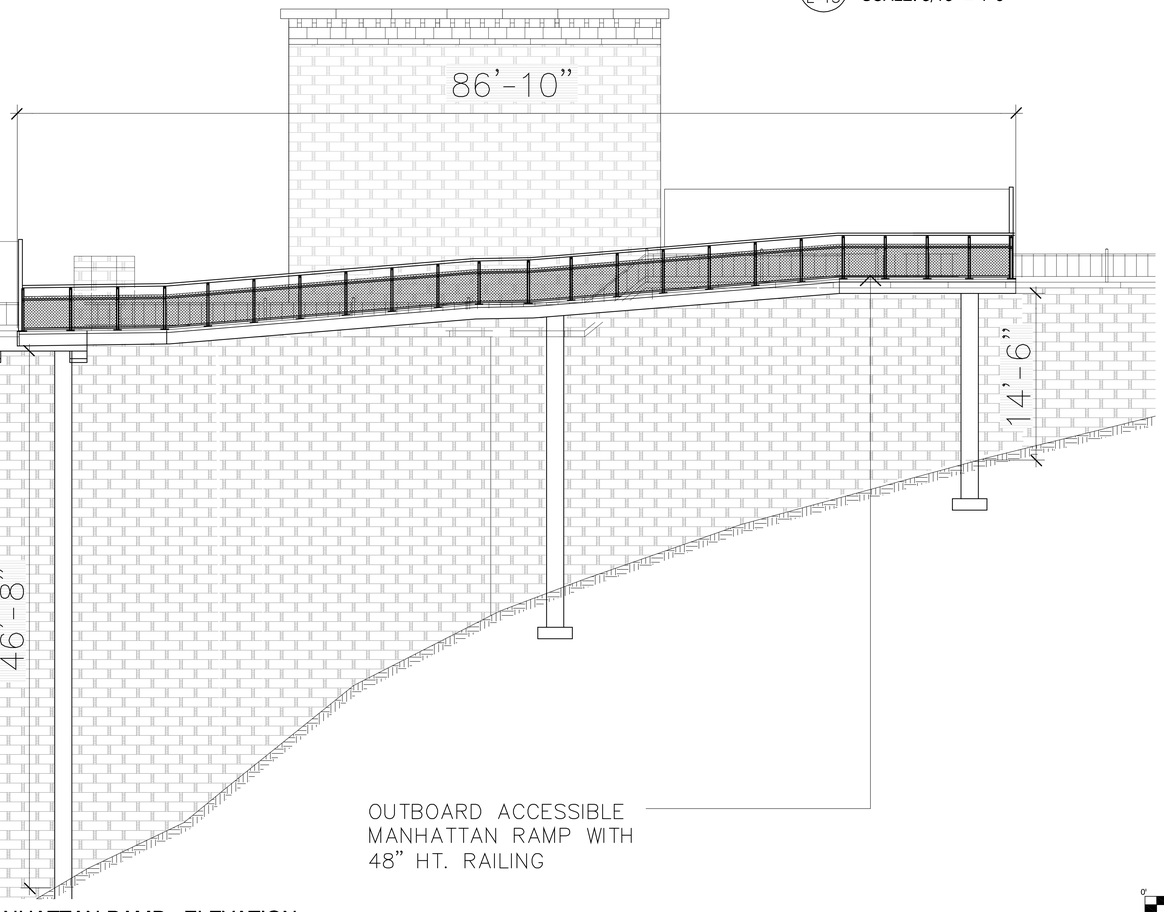


1 L-15 **BRONX RAMP - ELEVATION**
SCALE: 3/16" = 1'-0"



2 L-15 **MANHATTAN RAMP - ELEVATION**
SCALE: 3/16" = 1'-0"

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

City of New York Parks & Recreation

Rehabilitation of the High Bridge

Borough of Manhattan & Bronx
03 March 2011

L-2 (Sheet 19 of 50)

Outboard Ramp Elevations

Scale: As Noted

Lichtenstein Consulting Engineers

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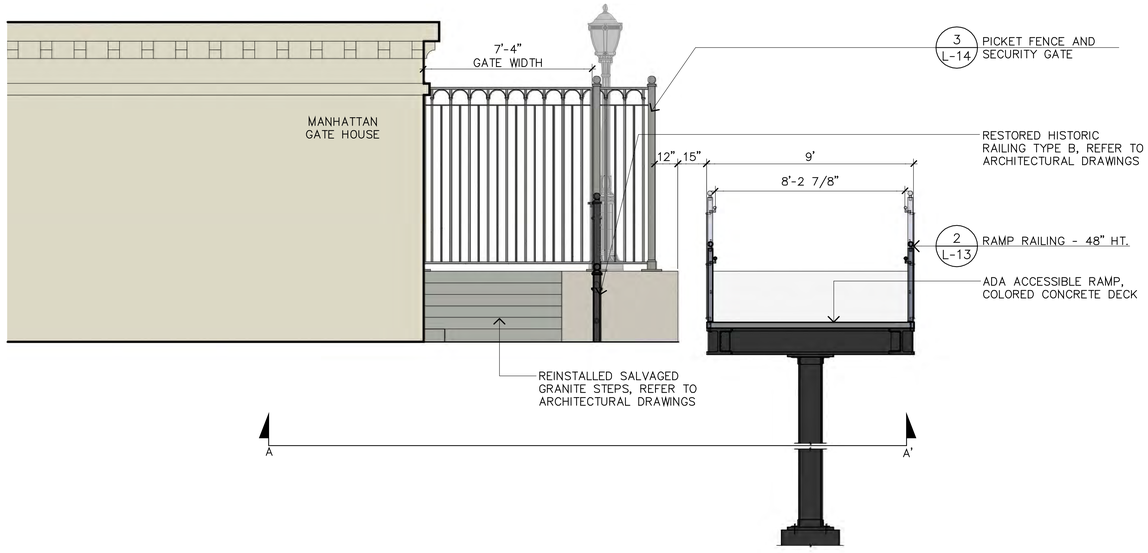
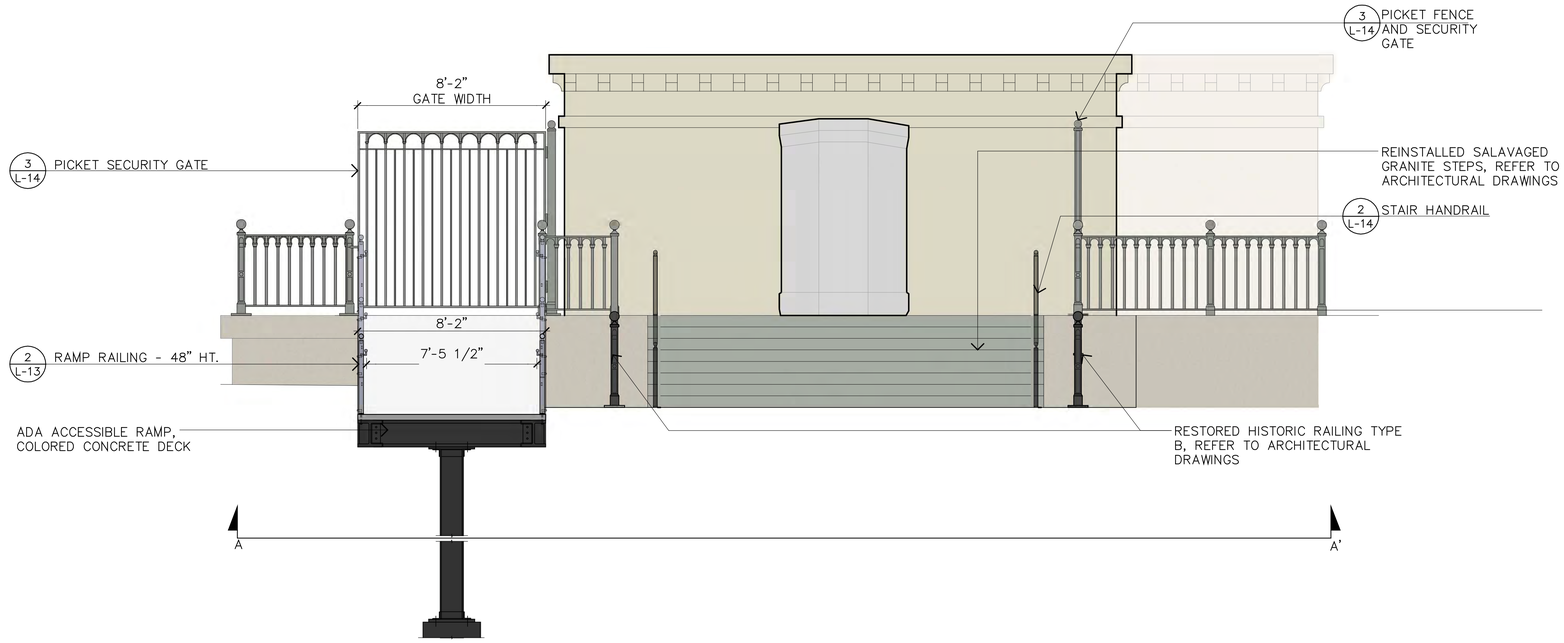
Landscape Architecture | Site Planning | Urban Design



1 L-3 MANHATTAN - OUTBOARD RAMP SECTION

0' 1' 3' 6'
SCALE: 3/8"=1'-0"



2 L-3 BRONX- OUTBOARD RAMP SECTION

0' 1' 3' 6'
SCALE: 3/8"=1'-0"

NEW YORK CITY DEPARTMENT OF DESIGN + CONSTRUCTION

City of New York
Parks & Recreation

Rehabilitation of the High Bridge

Borough of Manhattan & Bronx
03 March 2011

L-3 **(Sheet 20 of 50)**

Bronx & Manhattan Outboard Ramps

Scale: As Noted

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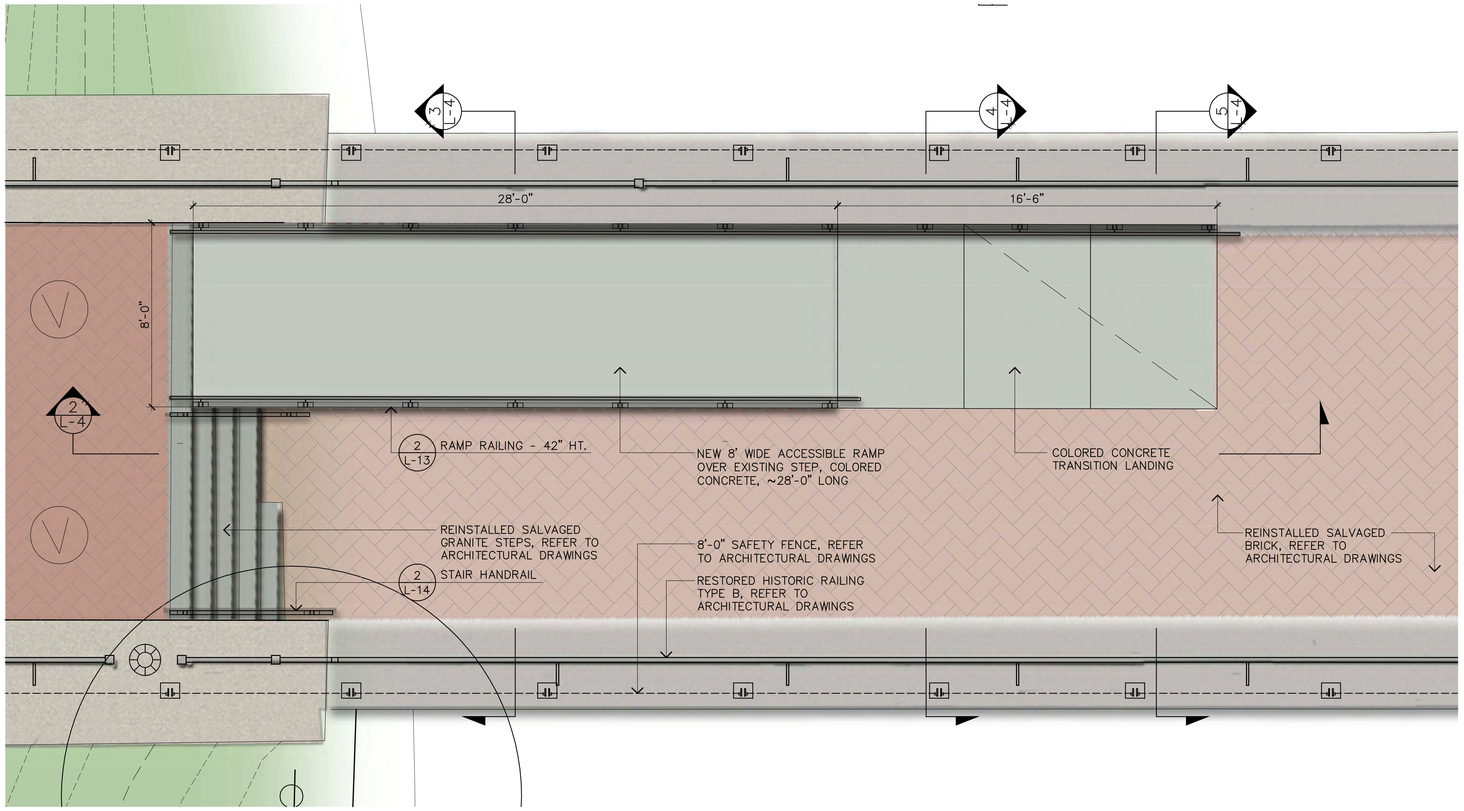
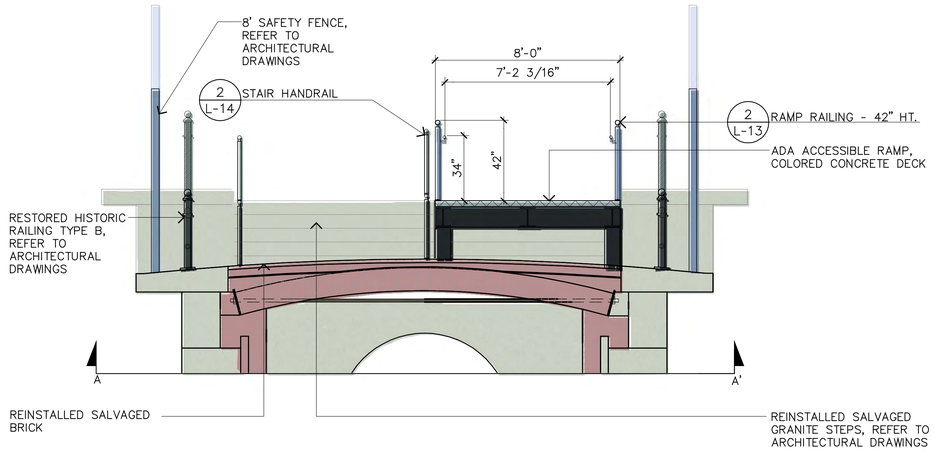


NORTH

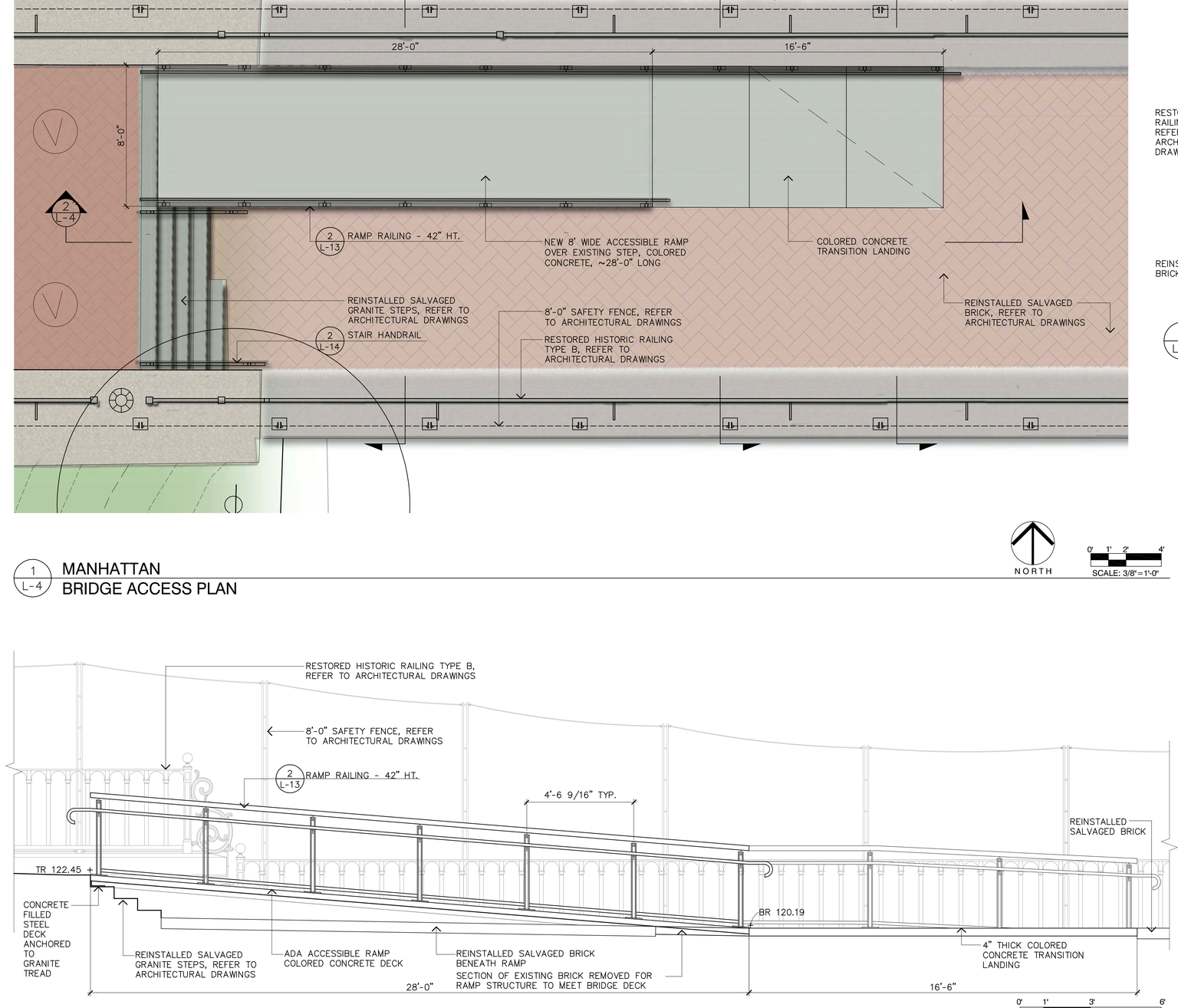
0' 1' 2' 4'
SCALE: 3/8"=1'-0"

1 L-4 MANHATTAN
BRIDGE ACCESS PLAN



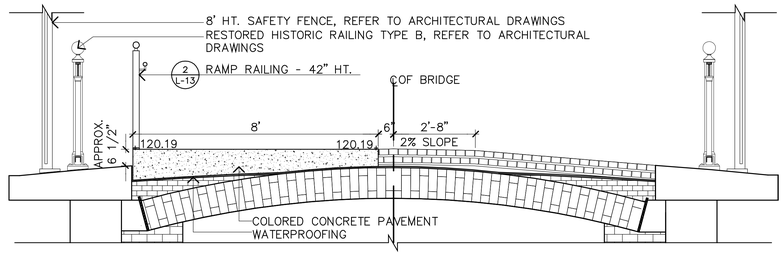
0' 1' 3' 6'
SCALE: 3/8"=1'-0"

3 L-4 MANHATTAN
BRIDGE RAMP SECTION



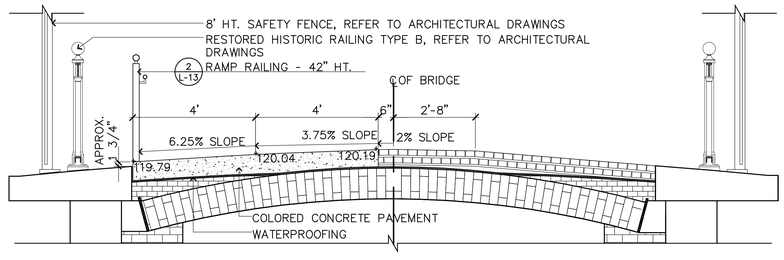
0' 1' 3' 6'
SCALE: 1/2"=1'-0"

2 L-4 MANHATTAN
SECTION THROUGH BRIDGE RAMP



0' 1' 3' 6'
SCALE: 1/2"=1'-0"

4 L-4 SECTION A THROUGH LANDING
SCALE: 1/2" = 1'-0"



0' 1' 3' 6'
SCALE: 1/2"=1'-0"

5 L-4 SECTION B THROUGH LANDING
SCALE: 1/2" = 1'-0"

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Manhattan - Access Ramp

Scale: As Noted

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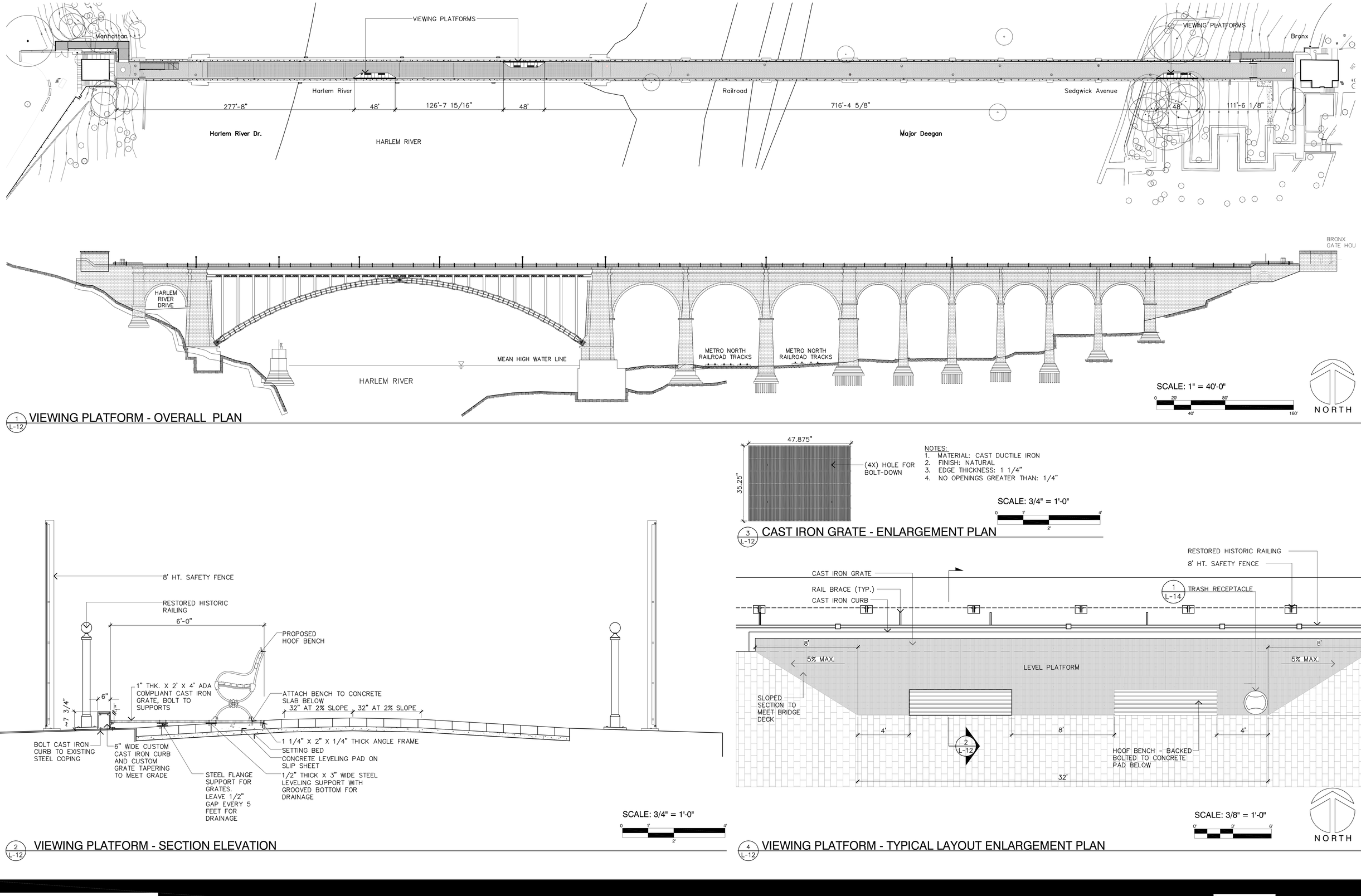

1 L-12 VIEWING PLATFORM - OVERALL PLAN

2 L-12 VIEWING PLATFORM - SECTION ELEVATION

3 L-12 CAST IRON GRATE - ENLARGEMENT PLAN

4 L-12 VIEWING PLATFORM - TYPICAL LAYOUT ENLARGEMENT PLAN

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Site Details: View Platform

Scale: As Noted

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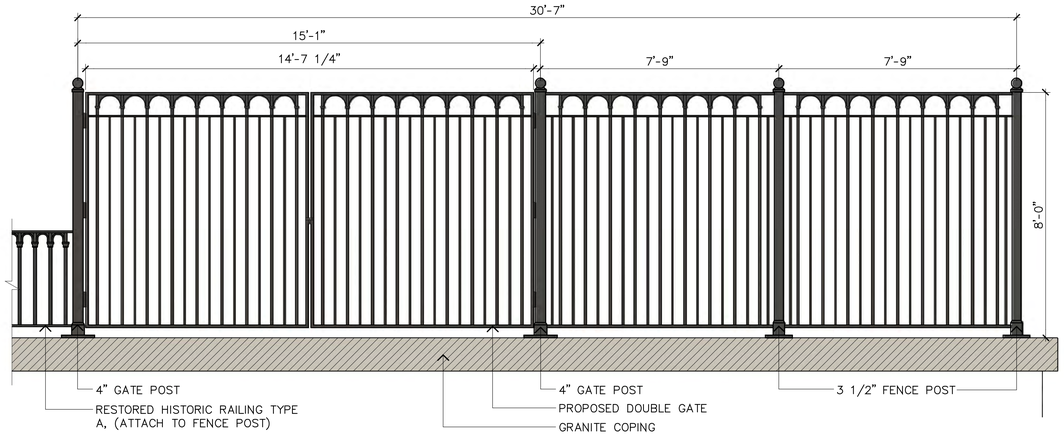
NORTH

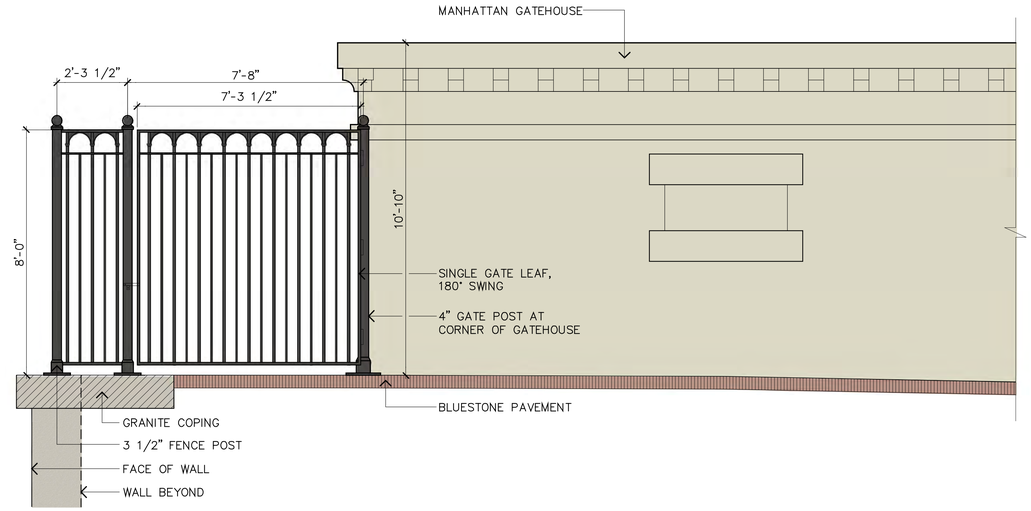
SCALE: 1/8"=1'-0"

MANHATTAN GATE PLAN



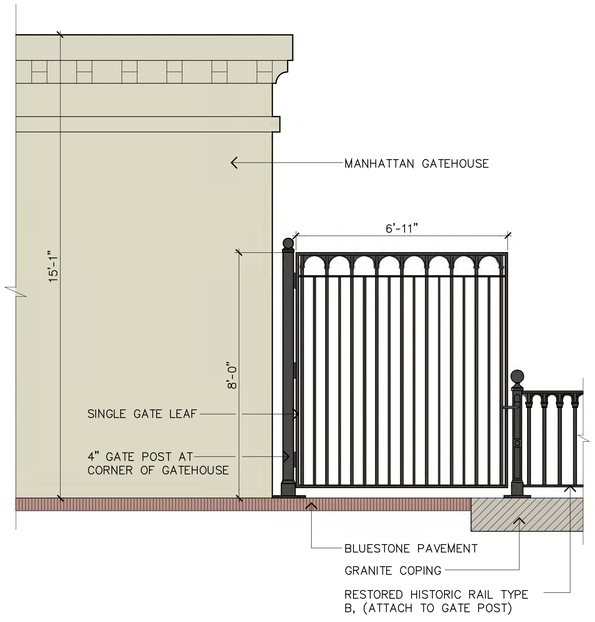
SCALE: 1/2"=1'-0"

1 L-10 MANHATTAN RAMP SECURITY GATE
SCALE: 1/2" = 1'-0"



SCALE: 1/2"=1'-0"

2 L-10 MANHATTAN GATE ELEVATION A
SCALE: 1/2" = 1'-0"



SCALE: 1/2"=1'-0"

3 L-10 MANHATTAN GATE ELEVATION B
SCALE: 1/2" = 1'-0"

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Gate Plan & Elevations - 1

Scale: As Noted

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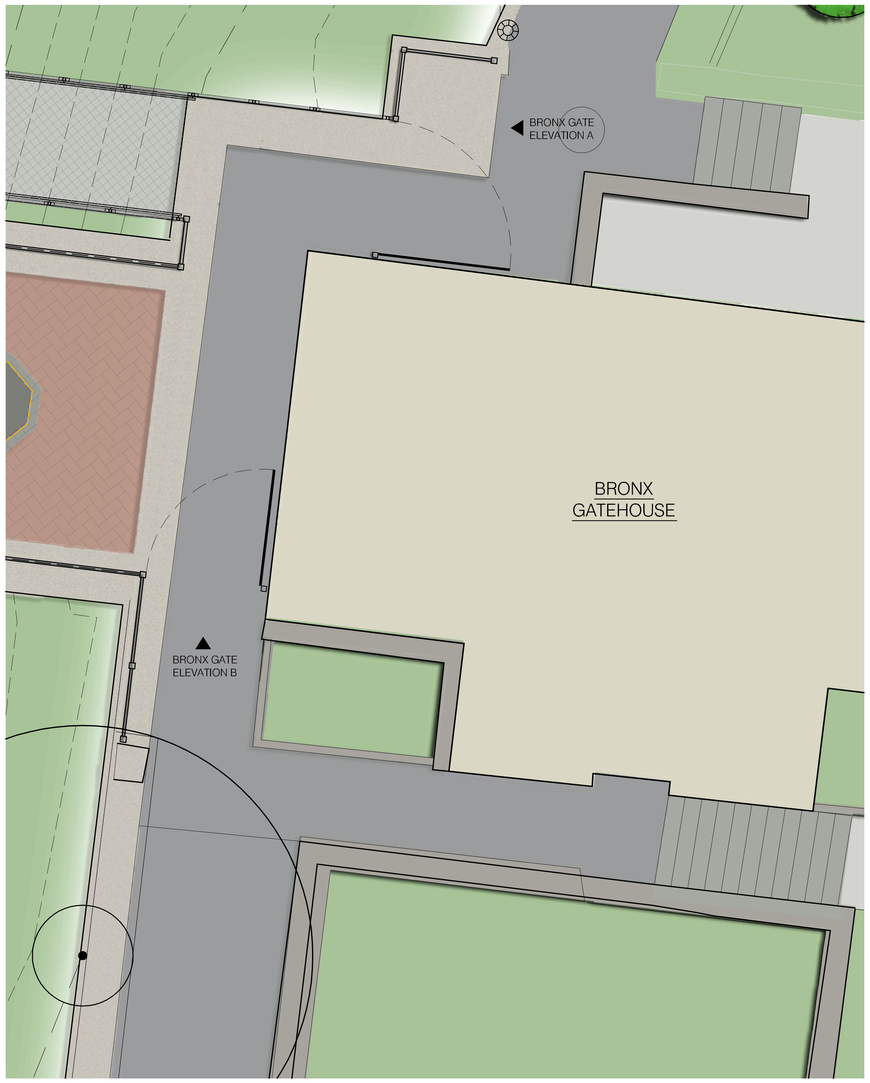
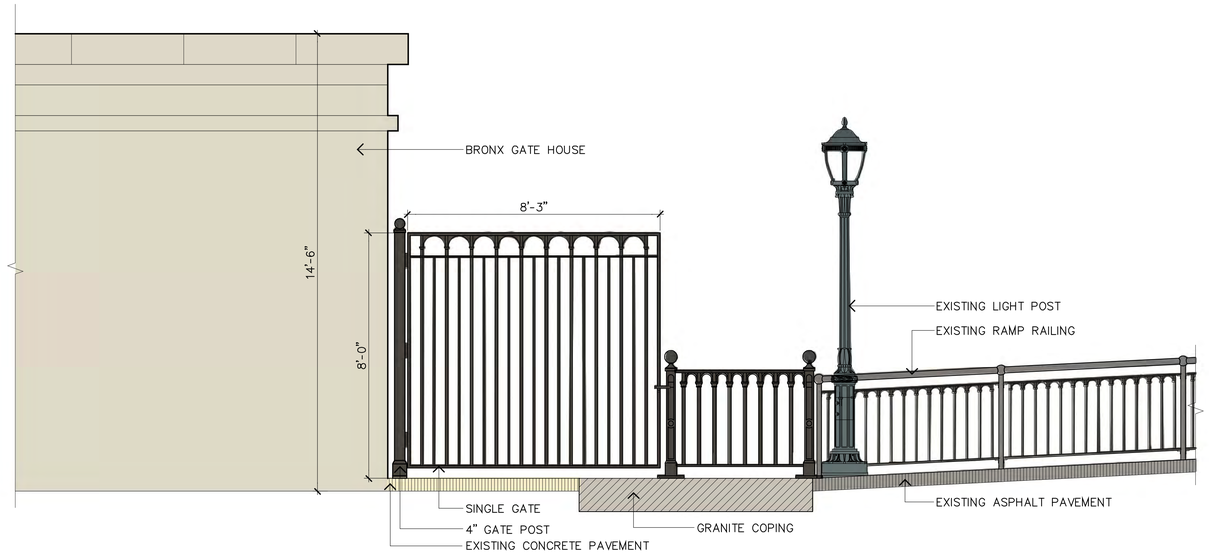


NORTH

BRONX GATE PLAN

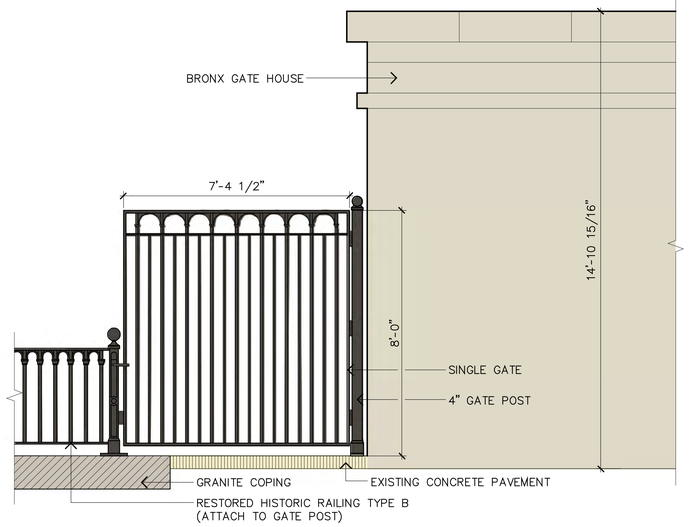
0' 1' 2' 4'
SCALE: 1/4"=1'-0"



1
L-11

BRONX GATE ELEVATION A
SCALE: 1/2" = 1'-0"

0' 1' 2' 4'
SCALE: 1/2"=1'-0"



2
L-11

BRONX GATE ELEVATION B
SCALE: 1/2" = 1'-0"

0' 1' 2' 4'
SCALE: 1/2"=1'-0"

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Gate Plan & Elevations - 2

Scale: As Noted

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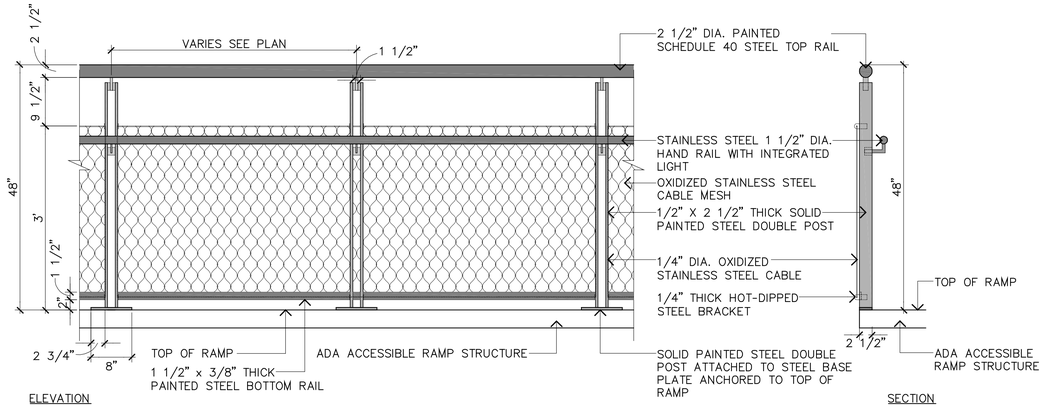
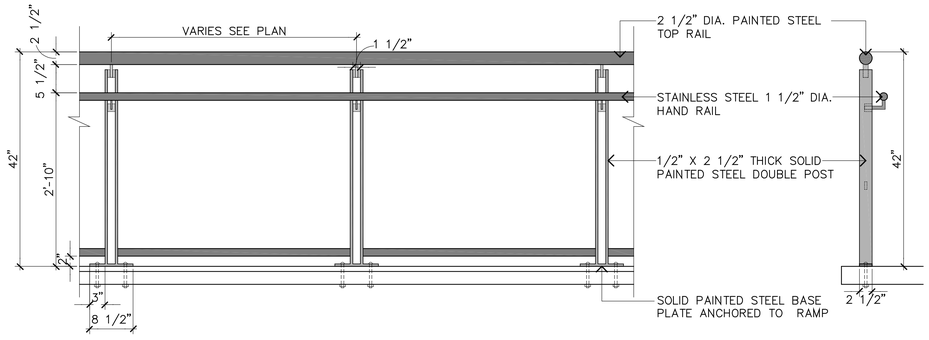


1 / L-13 RAMP RAILING - 48" HT. WITH CABLE NETTING
SCALE: 1" = 1'-0"

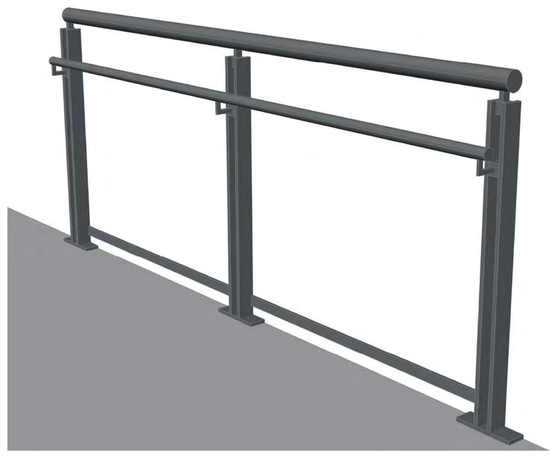
0' 1' 3'
SCALE: 1"=1'-0"

3 / L-13 RAMP RAILING - 48" HT. - 3D VIEW
SCALE: N.T.S.



2 / L-13 RAMP RAILING - 42" HT.
SCALE: 1" = 1'-0"

0' 1' 3'
SCALE: 1"=1'-0"



4 / L-13 RAMP RAILING - 42" HT. - 3D VIEW
SCALE: N.T.S.

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Site Details: Railing Details

Scale: As Noted

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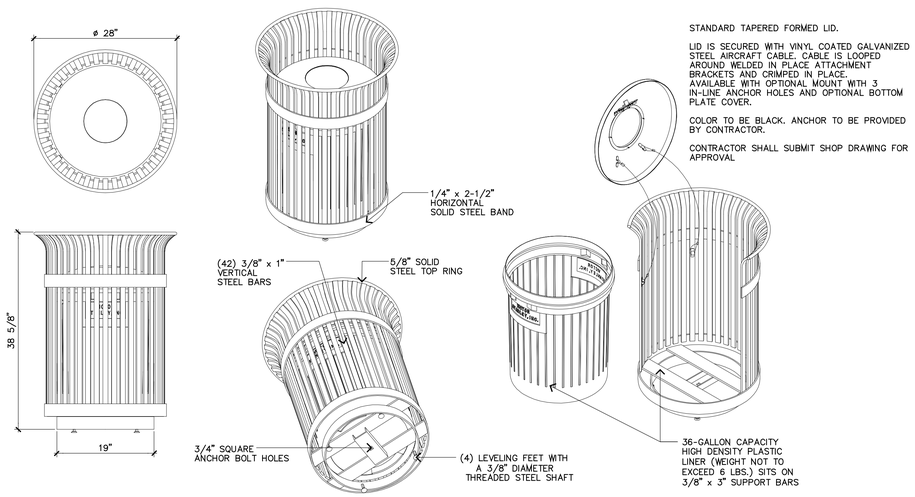
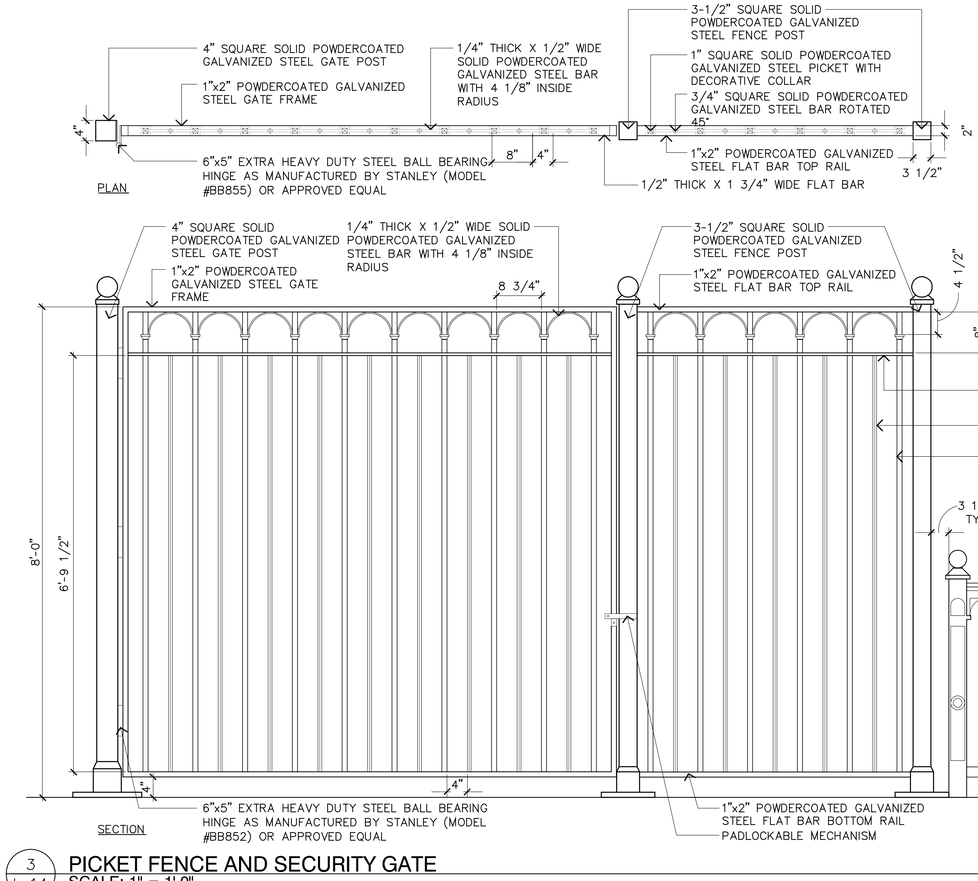
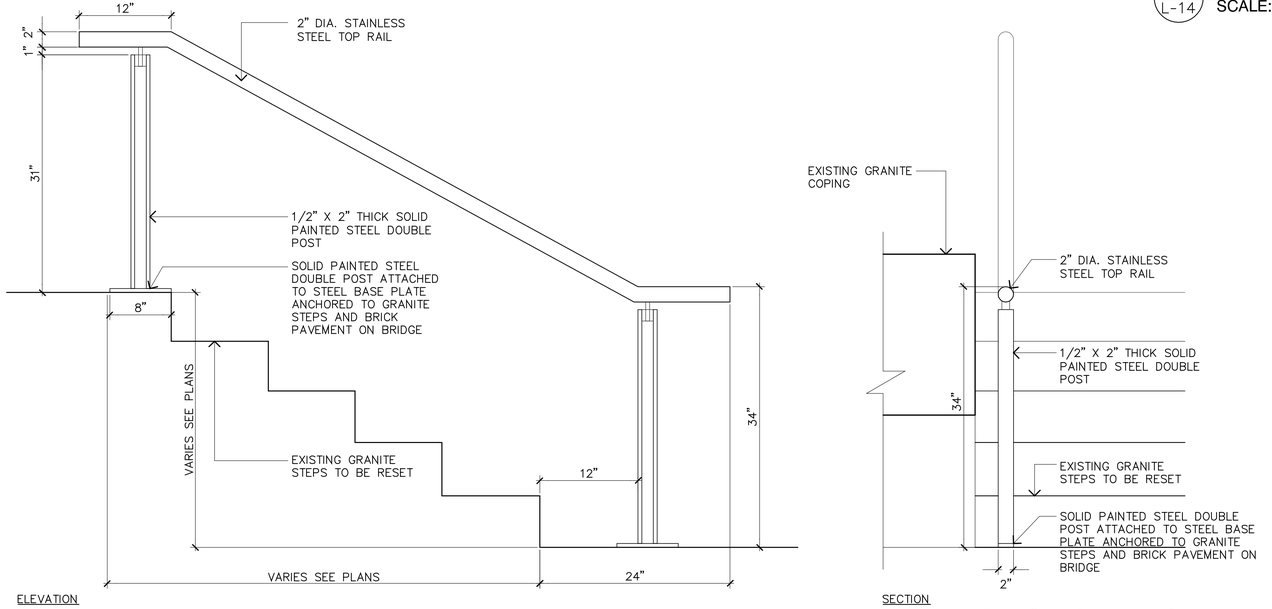


1 / L-14 **TRASH RECEPTACLE**
SCALE: NTS



3 / L-14 **PICKET FENCE AND SECURITY GATE**
SCALE: 1" = 1'-0"



2 / L-14 **STAIR HANDRAIL**
SCALE: 1 1/2" = 1'-0"

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Site Details: Site Furnishings

Scale: As Noted

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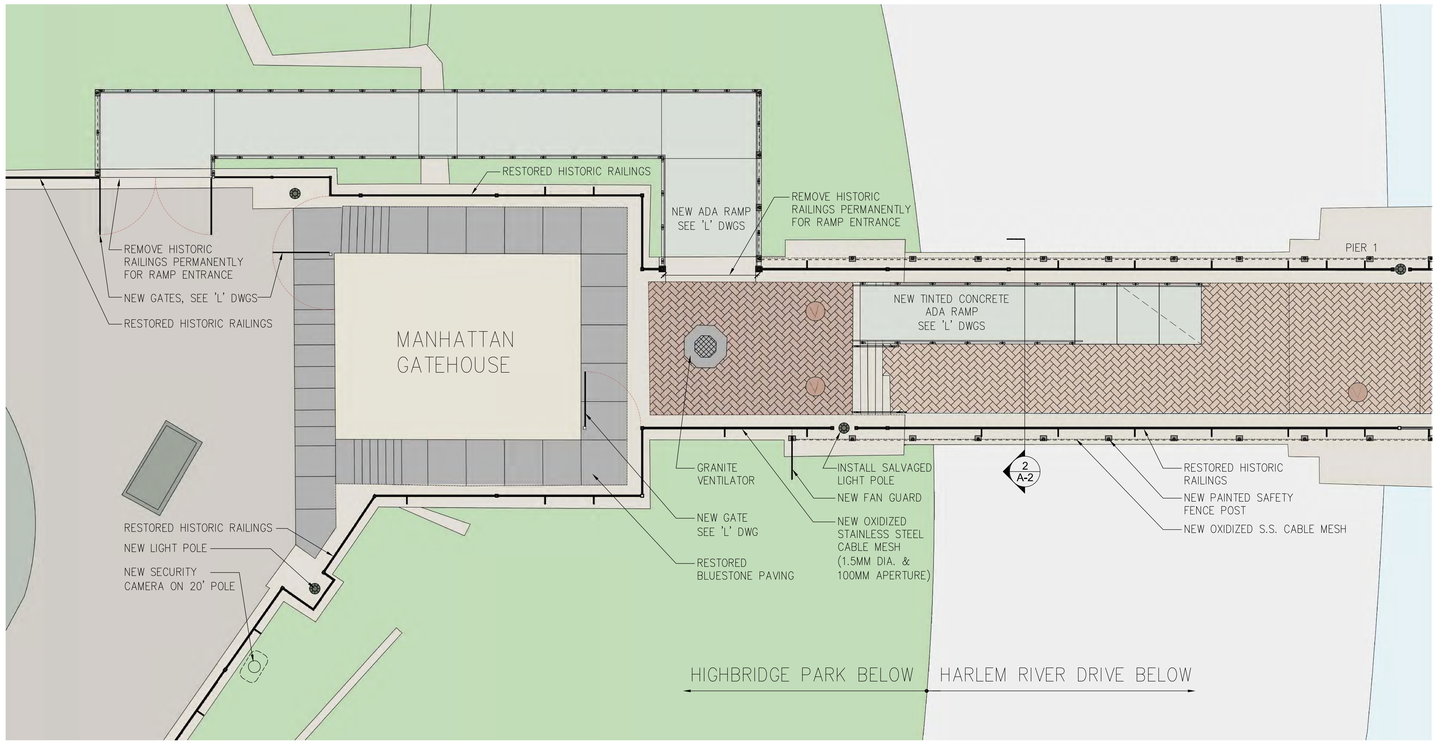
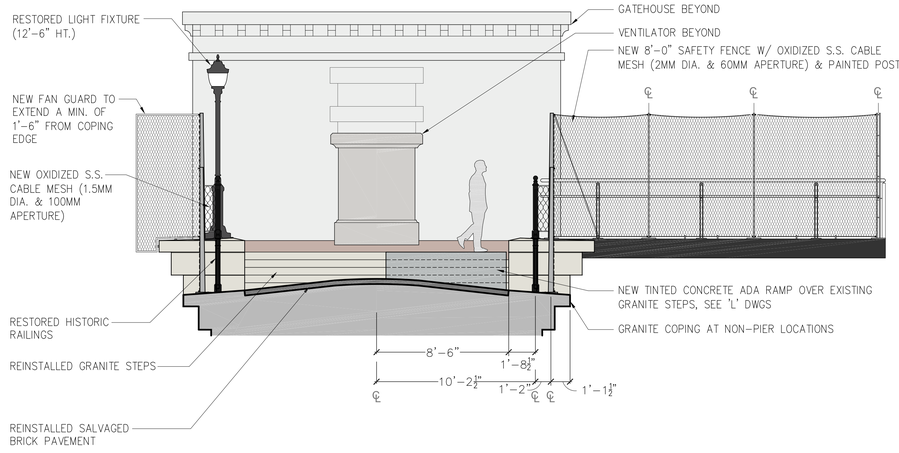


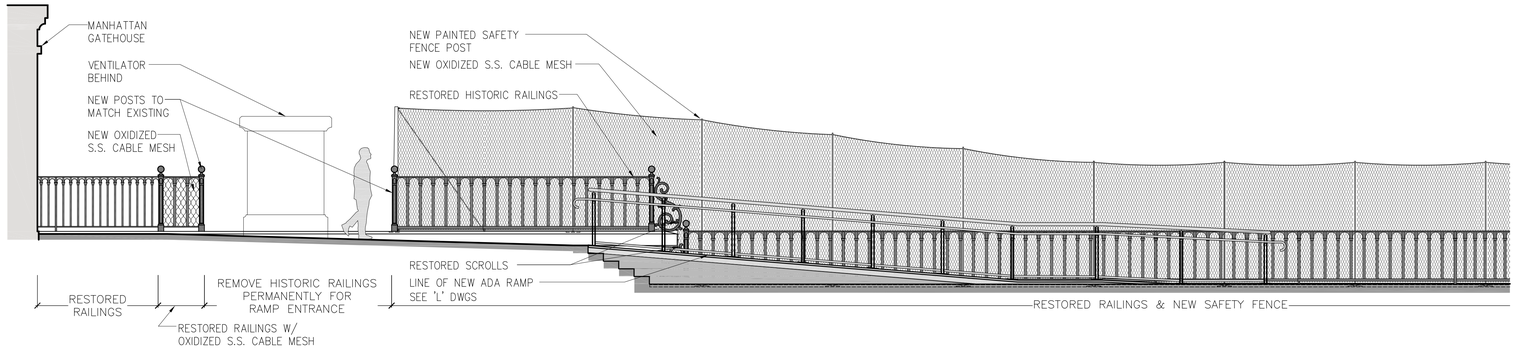
1 A-2 PARTIAL PLAN & ELEVATION OF FENCE & RAILING AT MANHATTAN

SCALE: 1/8" = 1'-0"



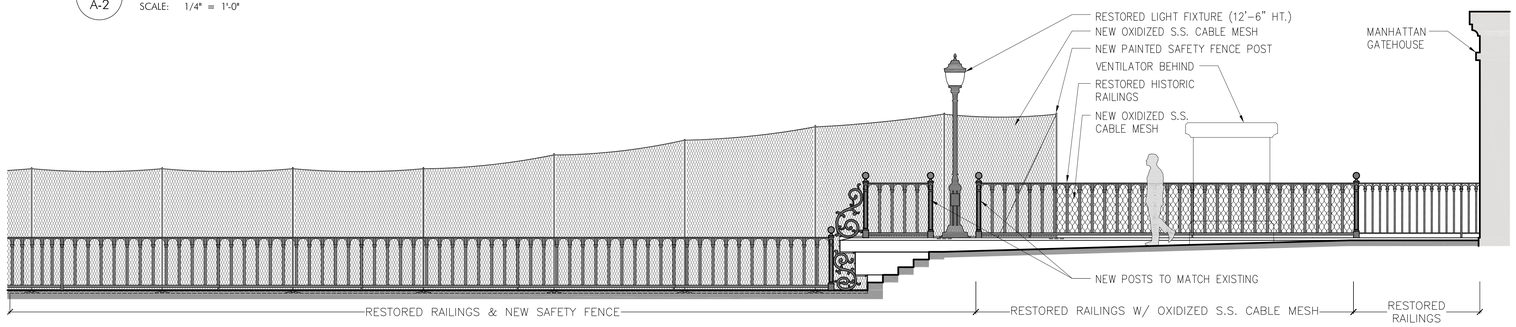
2 A-2 ELEVATION/SECTION OF FENCE & RAILING AT MANHATTAN STEPS

SCALE: 1/8" = 1'-0"



3 A-2 ELEVATION/SECTION OF FENCE & RAILING AT MANHATTAN STEPS

SCALE: 1/4" = 1'-0"



4 A-2 ELEVATION/SECTION OF FENCE & RAILING AT MANHATTAN STEPS

SCALE: 1/4" = 1'-0"

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Design: Partial Plan & Elevation of Fence & Railing at Manhattan
Scale: As Noted

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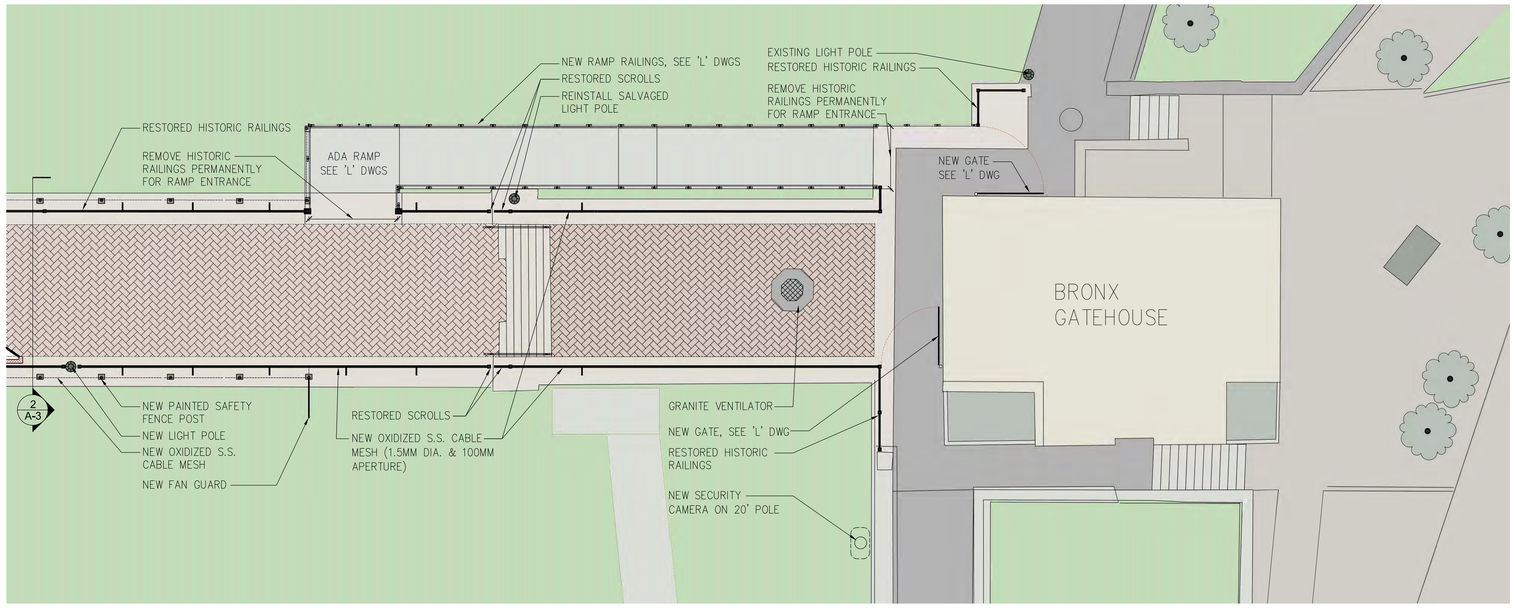
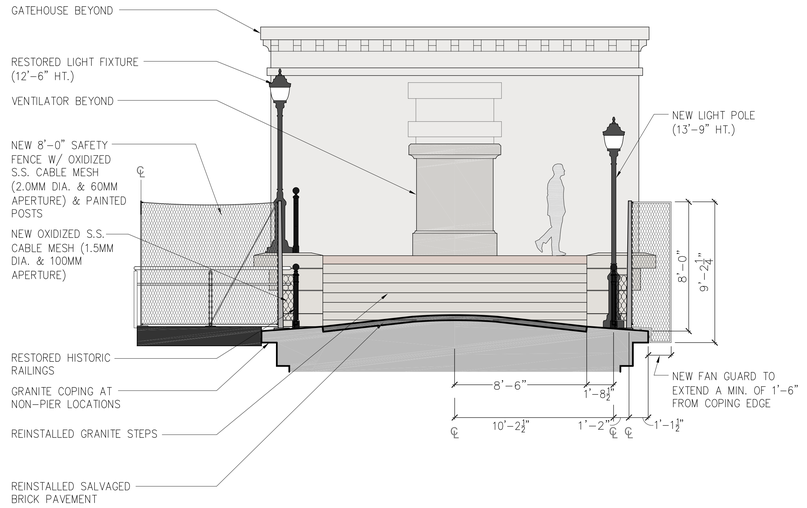
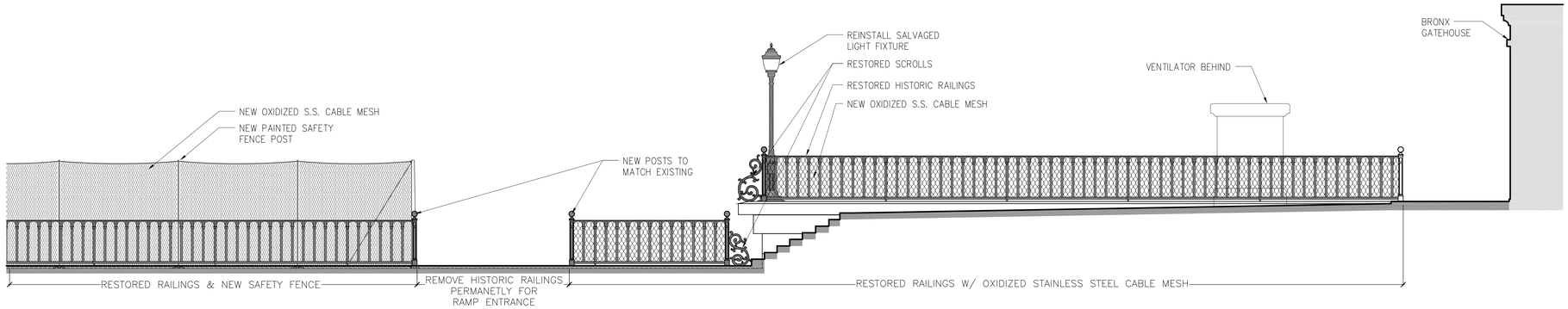


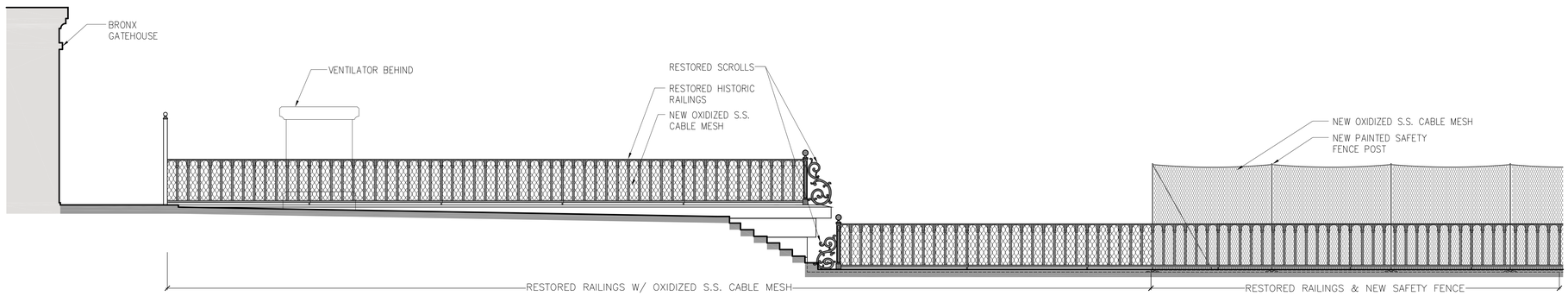
1 A-2 PARTIAL PLAN OF FENCE & RAILING AT BRONX
SCALE: 1/8" = 1'-0"



2 A-3 ELEVATION/SECTION OF FENCE & RAILING AT BRONX STEPS
SCALE: 1/8" = 1'-0"



3 A-3 ELEVATION/SECTION OF FENCE & RAILING AT BRONX STEPS
SCALE: 1/4" = 1'-0"



4 A-3 ELEVATION/SECTION OF FENCE & RAILING AT BRONX STEPS
SCALE: 1/4" = 1'-0"

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Design: Partial Plan & Elevation of Fence & Railing at Bronx
Scale: As Noted

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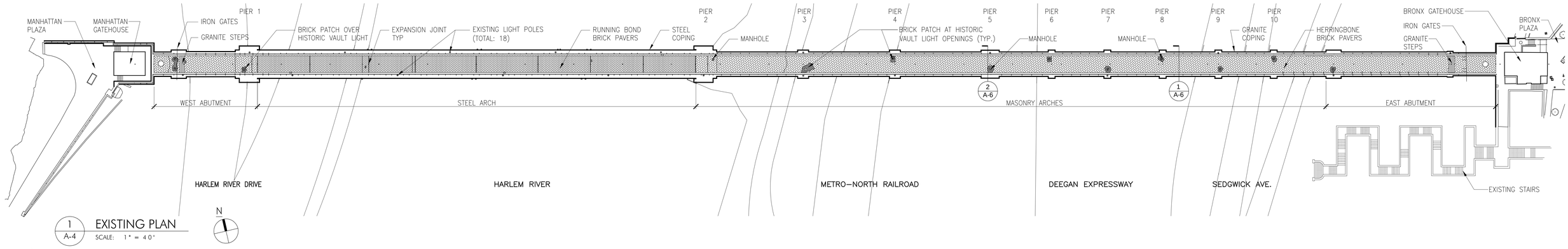
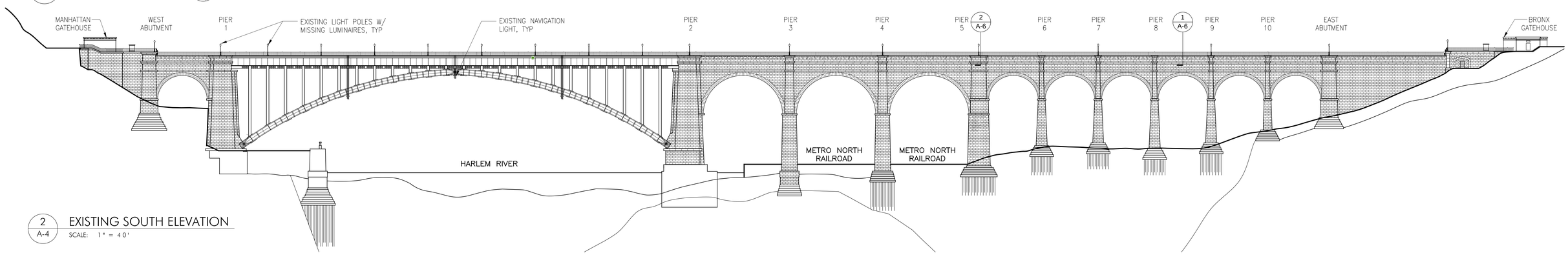
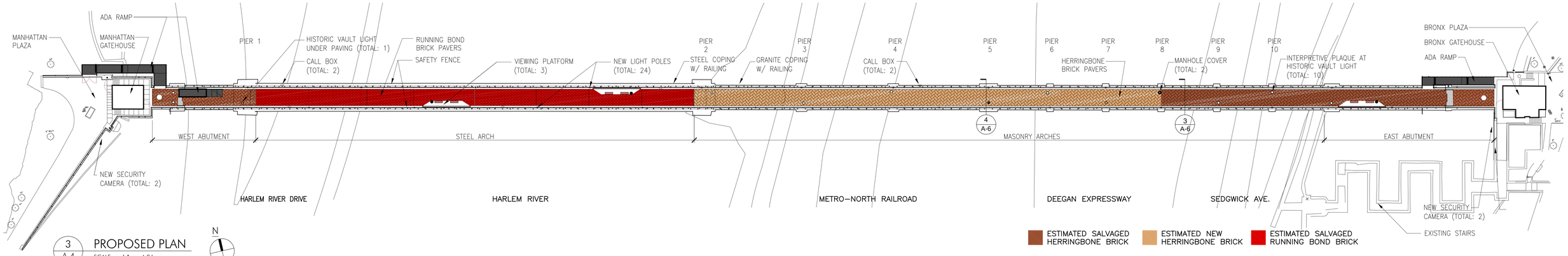


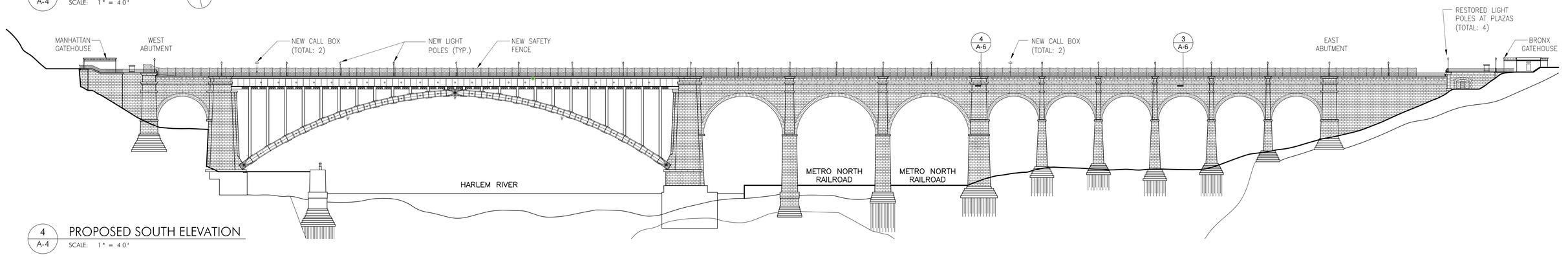
1 / A-4 EXISTING PLAN
SCALE: 1" = 40'



2 / A-4 EXISTING SOUTH ELEVATION
SCALE: 1" = 40'



3 / A-4 PROPOSED PLAN
SCALE: 1" = 40'



4 / A-4 PROPOSED SOUTH ELEVATION
SCALE: 1" = 40'

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Existing & Proposed Full Plans & Elevations

Scale: As Noted

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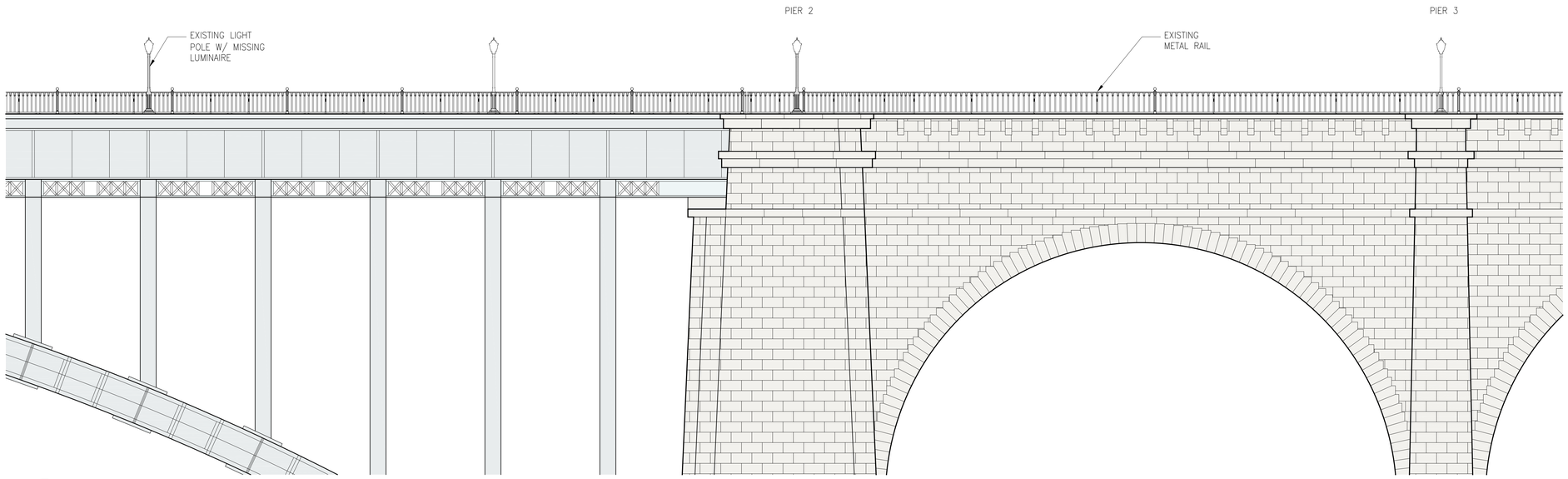
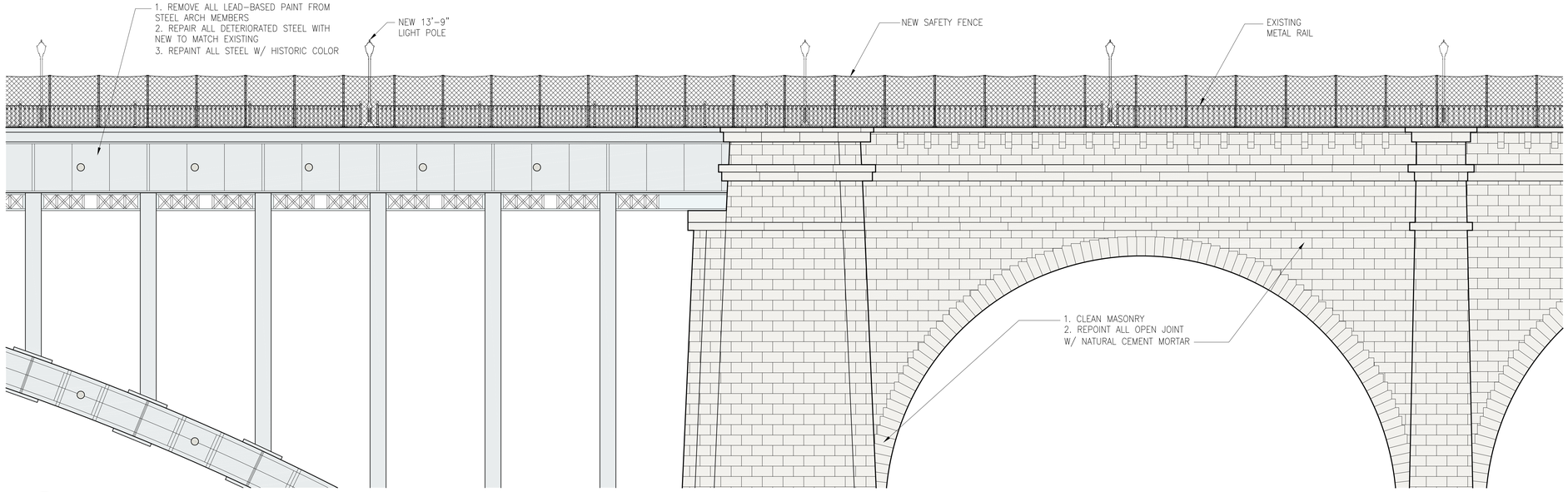


1 / A-5 SOUTH ELEVATION DETAIL - EXISTING

SCALE: 1/8" = 1'-0"



2 / A-5 SOUTH ELEVATION DETAIL - PROPOSED

SCALE: 1/8" = 1'-0"

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Existing & Proposed Enlarged Elevations

Scale: As Noted

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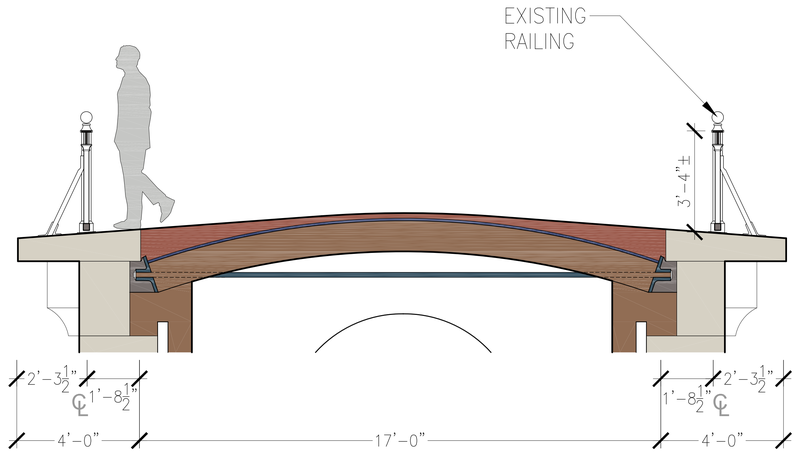
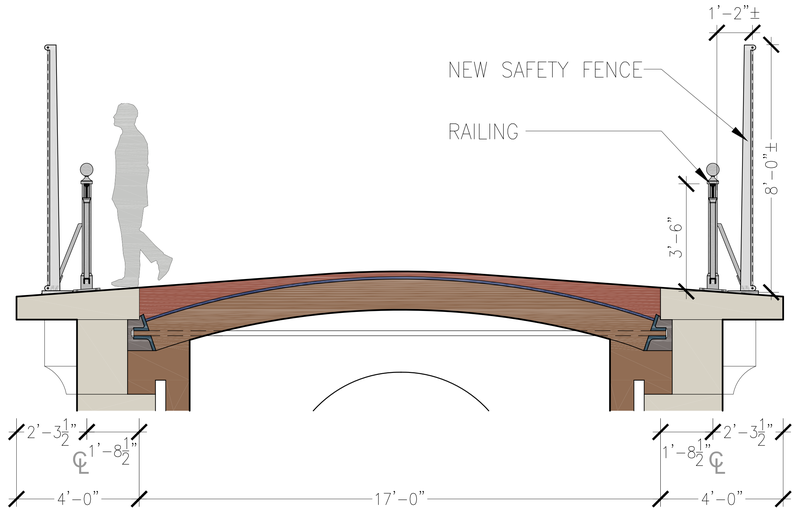
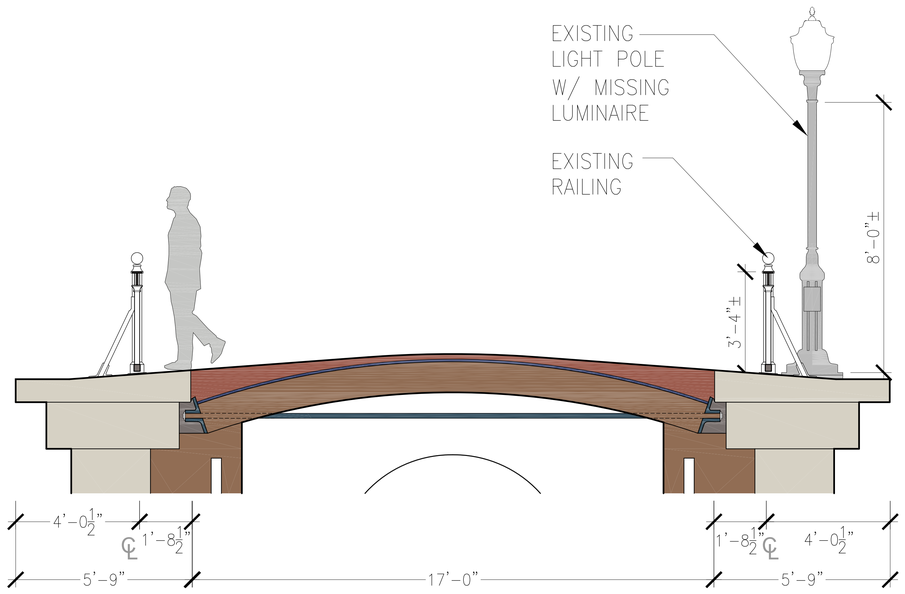


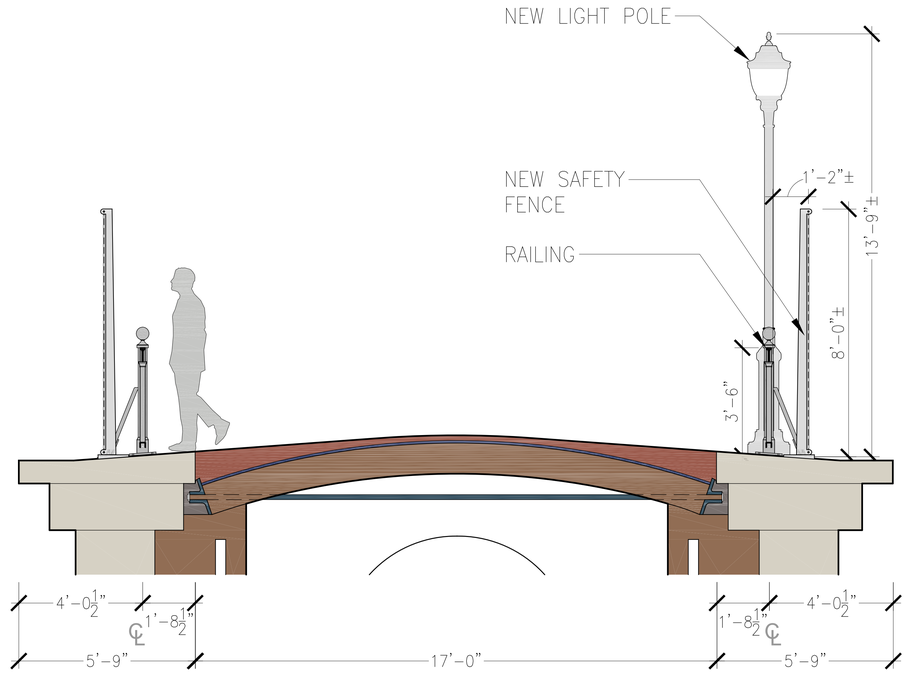
1 A-6 EXISTING SECTION AT NON-PIER
SCALE: 1/2" = 1'-0"



3 A-6 PROPOSED SECTION AT NON-PIER
SCALE: 1/2" = 1'-0"



2 A-6 EXISTING SECTION AT PIER
SCALE: 1/2" = 1'-0"



4 A-6 PROPOSED SECTION AT PIER
SCALE: 1/2" = 1'-0"

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Existing & Proposed Sections

Scale: As Noted

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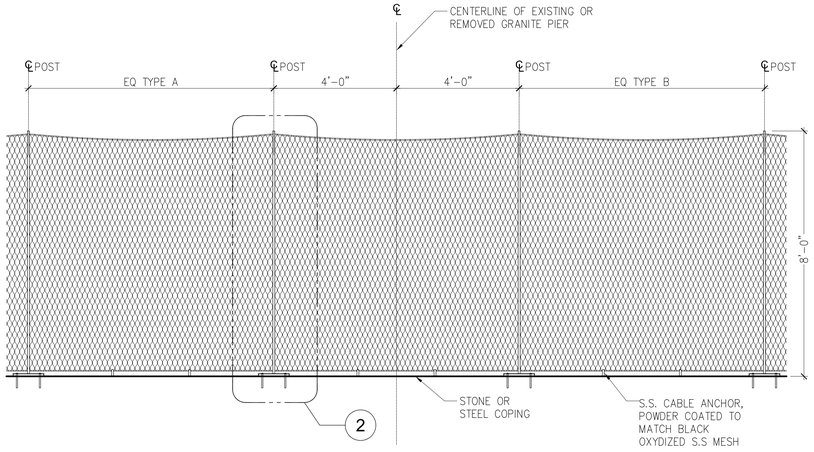
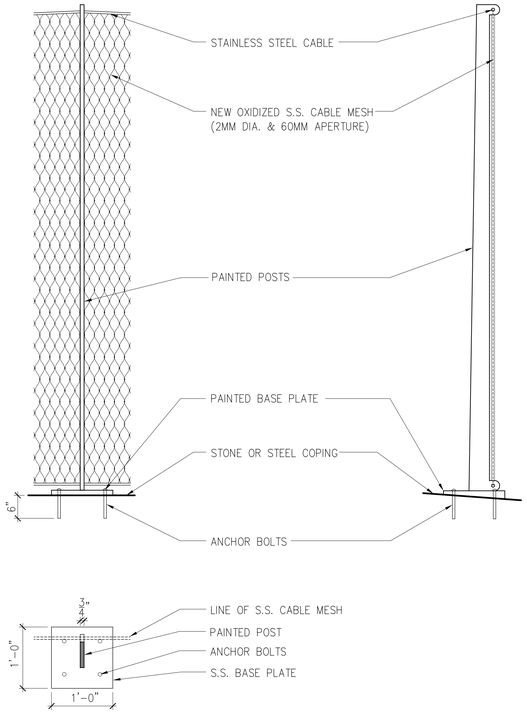
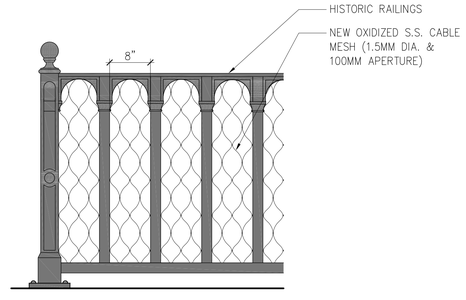


1 A-7 SAFETY FENCE - TYPICAL SPACING
SCALE: 1/2" = 1'-0"



2 A-7 SAFETY FENCE POST - PLAN, FRONT & SIDE PROFILES, TYP
SCALE: 1" = 1'-0"



3 A-7 1864 RAILINGS W/ OXIDIZED S.S. CABLE MESH
SCALE: 1" = 1'-0"

4 A-7 DESIGN PERSPECTIVE
SCALE: 1/2" = 1'-0"

5 A-7 STAINLESS STEEL CABLE MESH DETAIL VIEW
SCALE: 1/2" = 1'-0"

6 A-7 STAINLESS STEEL CABLE MESH DETAIL VIEW
SCALE: 1/2" = 1'-0"

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Fence Details

Scale: As Noted

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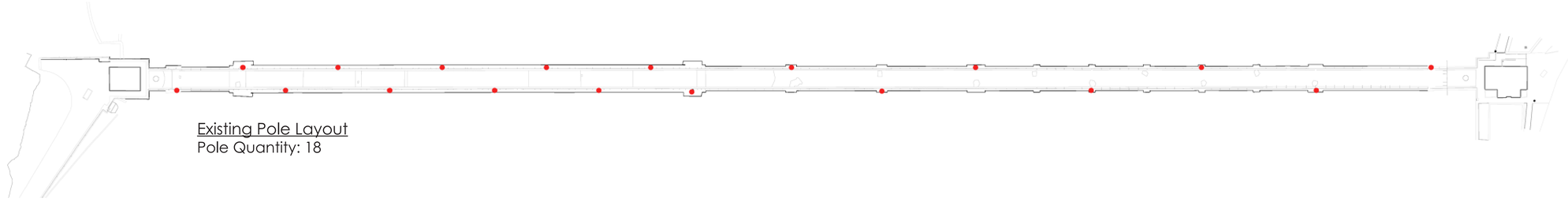
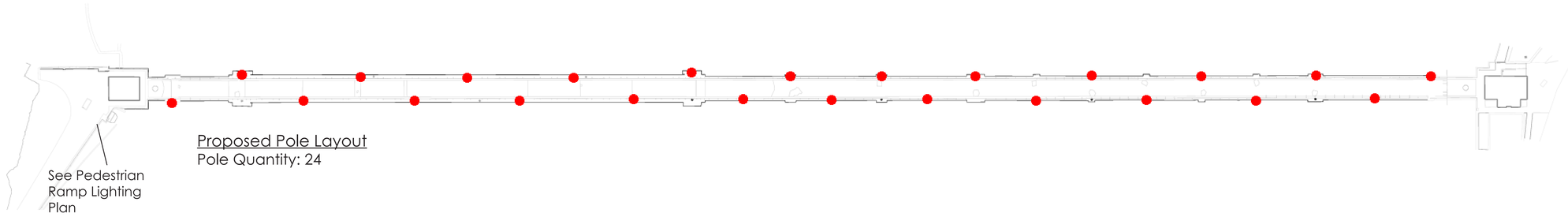
LIGHTING

BRIDGE TOP LIGHTING

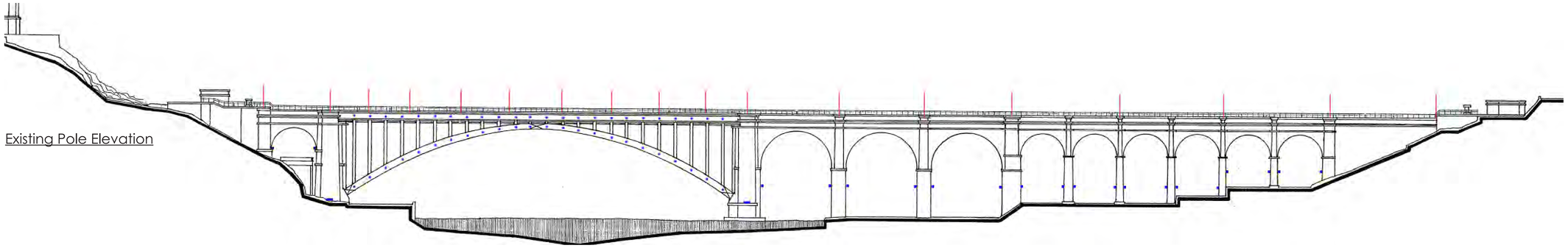


Existing Pole Layout
Pole Quantity: 18

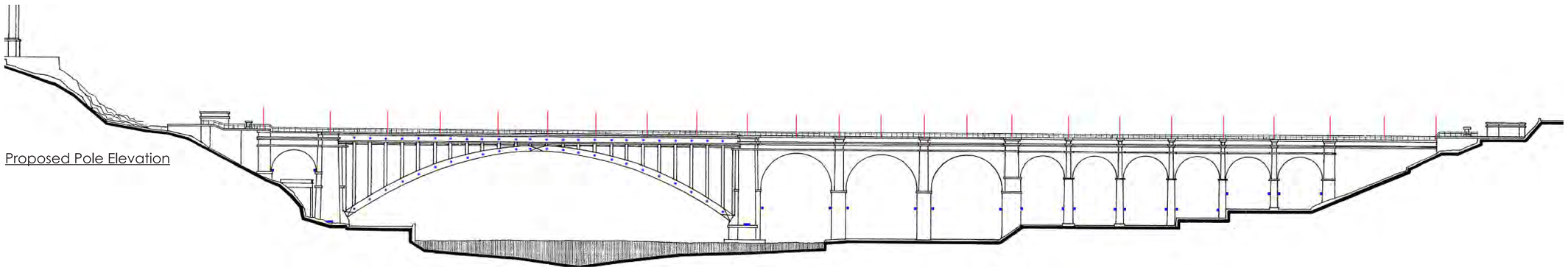


Proposed Pole Layout
Pole Quantity: 24

See Pedestrian Ramp Lighting Plan



Existing Pole Elevation



Proposed Pole Elevation

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10 February 2011

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Bridge Lighting Pole Plan & Elevation
Scale: As Noted

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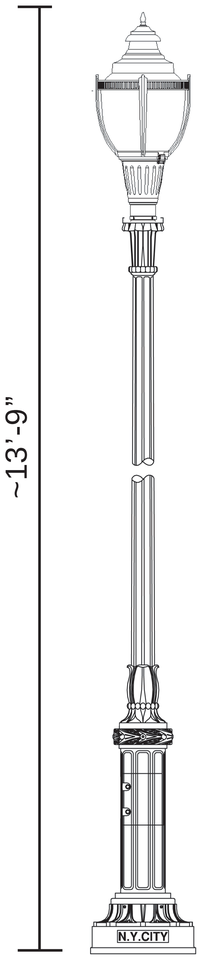
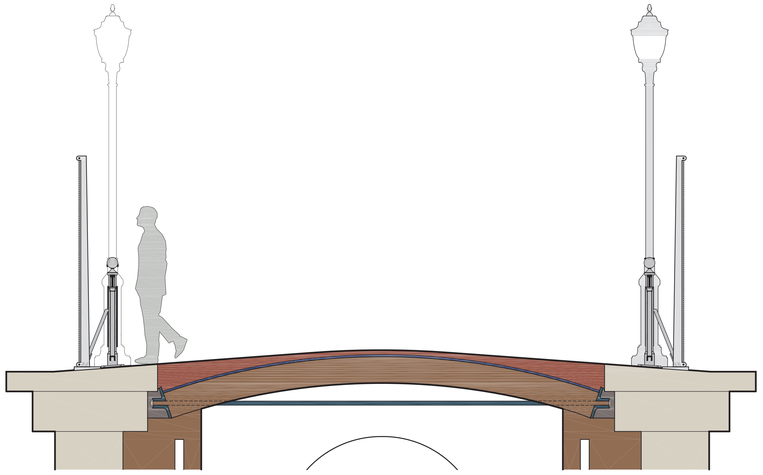
LIGHTING

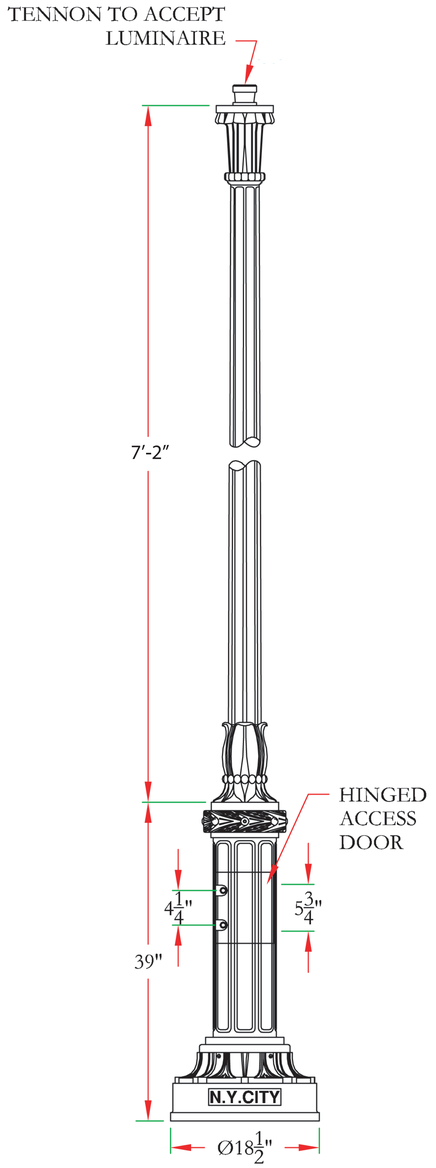
BRIDGE TOP LIGHTING



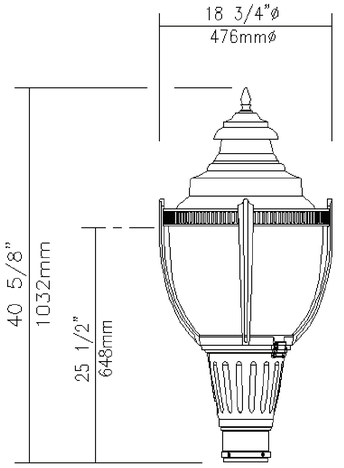


Bridge Section at Non-Pier Locations

Bridge Elevation



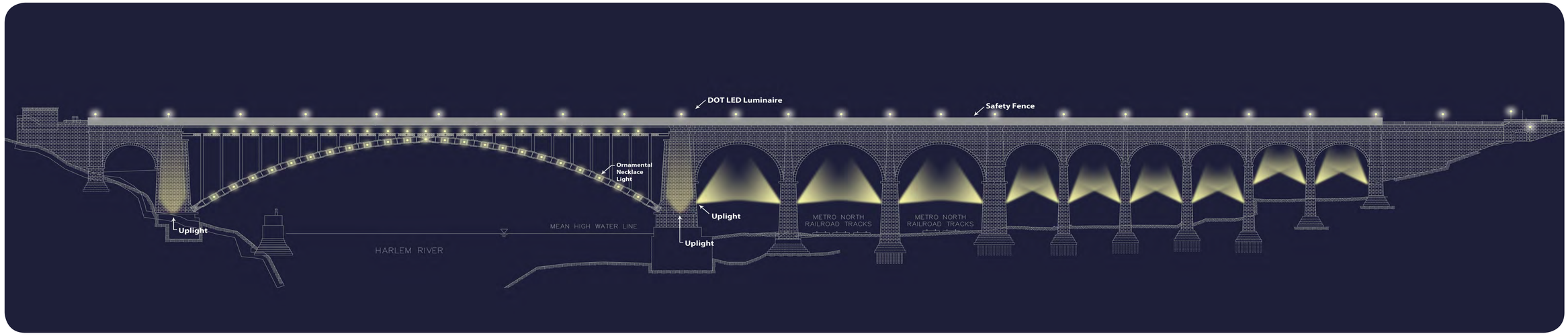
DOT Type 'B' Pole



DOT LED Post Top

LIGHTING

ARCHITECTURAL LIGHTING



NOTE:

Surface mounted conduit to be installed at following locations:

1. At north and south elevations of pier 1 for lighting power supply.

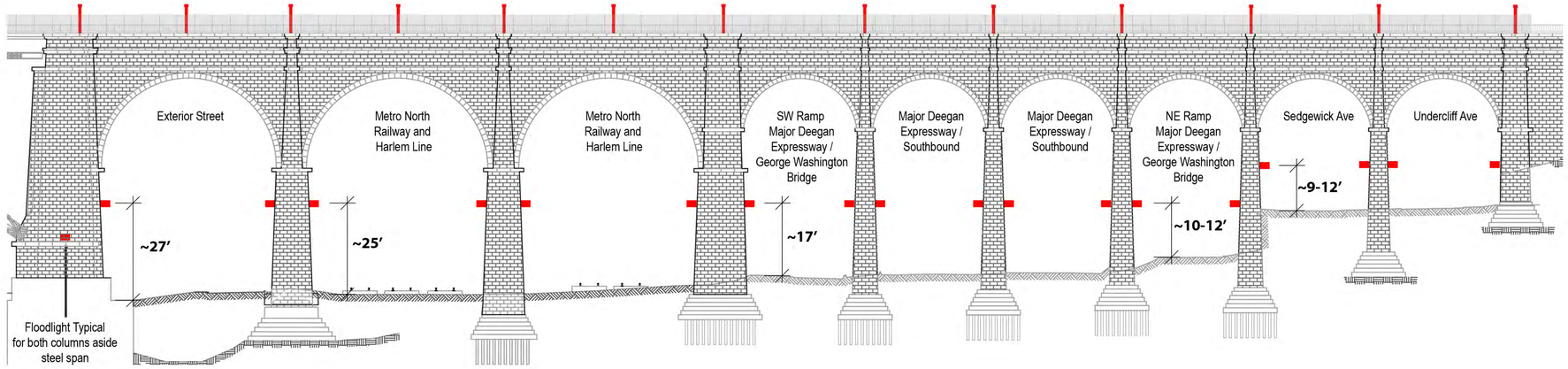
2. At steel and granite copings for bridge deck lighting.

3. At masonry piers and arches for architectural lighting.

Additional conduit for power supply and architectural lighting to be installed at the steel arch, but will be concealed within arch structure.

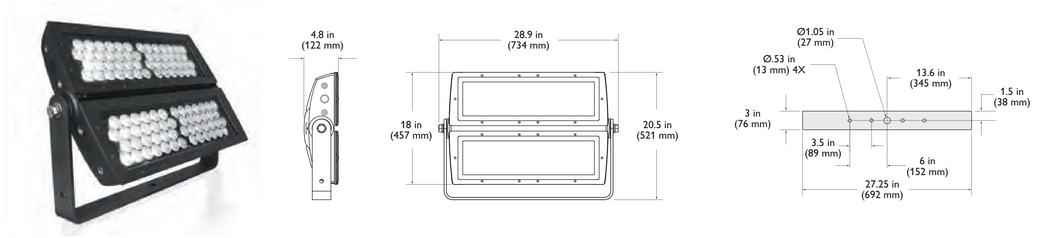
LIGHTING

MASONRY ARCH LIGHTING



Arch Lighting Floodlight Fixture

Lamp: LED
Lamp Wattage: 250W
Total System Wattage: 10.5 kW
Color: 2700K - 6500K range
Lamp Life: 50,000 hrs
Color Rendering Index: 83
Beam Angle: 23 degrees



NOTE:

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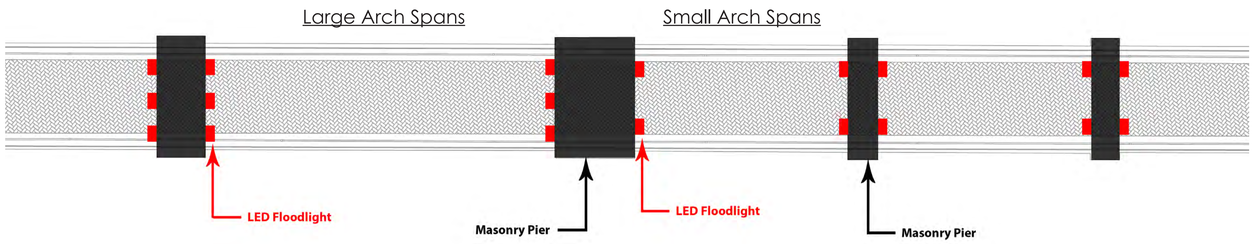
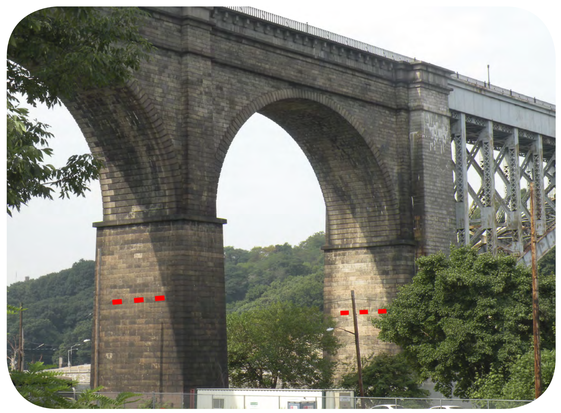


Partial Plan view of Masonry Arches with Floodlight locations

NOTE: Spacing to be determined in on-site mock-up.

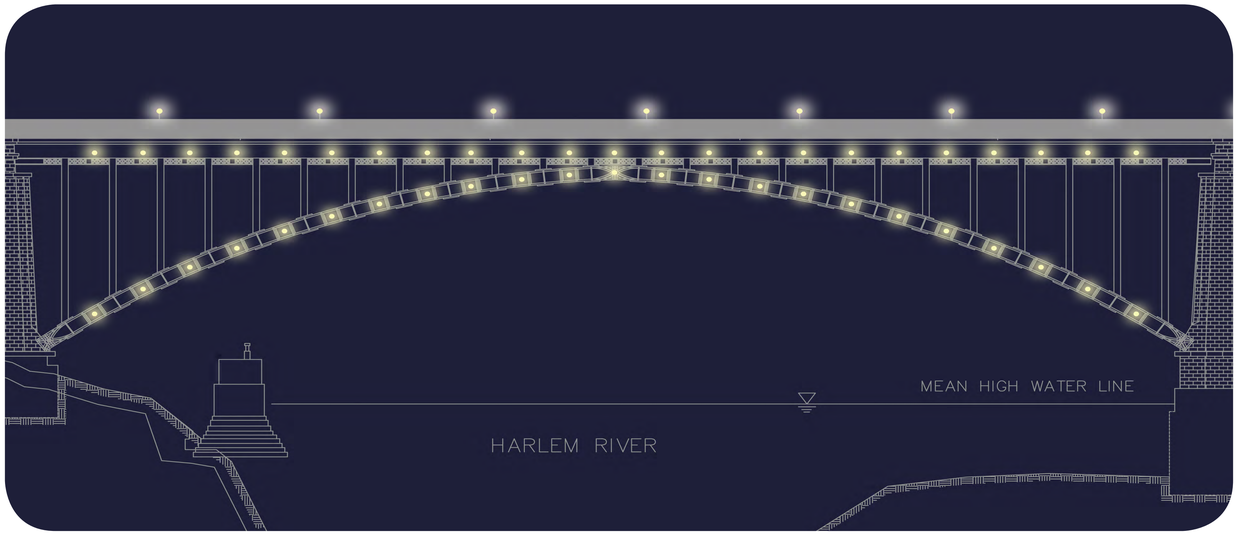


Floodlight Locations on Masonry Arches (Typ)

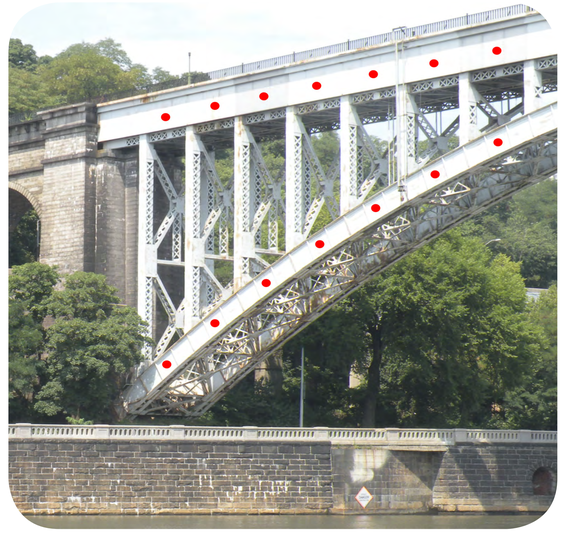
LIGHTING

STEEL SPAN 'BUTTON' LIGHTING

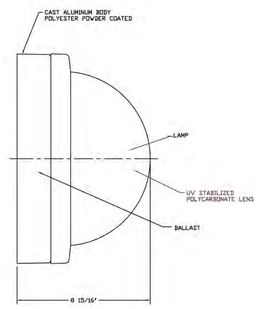
Close-Up Photo of Decorative Steel at Arch Top

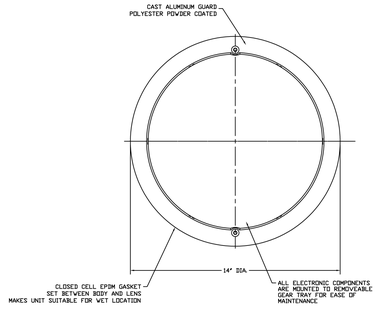


Rendering of Steel Span Lighting



Button Light Fixture Locations on Steel Bridge (Typ)





NOTE: Color temperature and mounting condition to be considered in an on-site mock-up analysis.

"Button Light" Fixture

Mounting to steel structure on top and bottom span.

Lamp: Induction
Lamp Wattage: 55W
Total System Watts: 5.28 kW
Color: 3000K - 5000K (To be coordinated with Bridge path lighting)
Lamp Life: 100,000 hrs
Color Rendering Index: 80

NOTE:

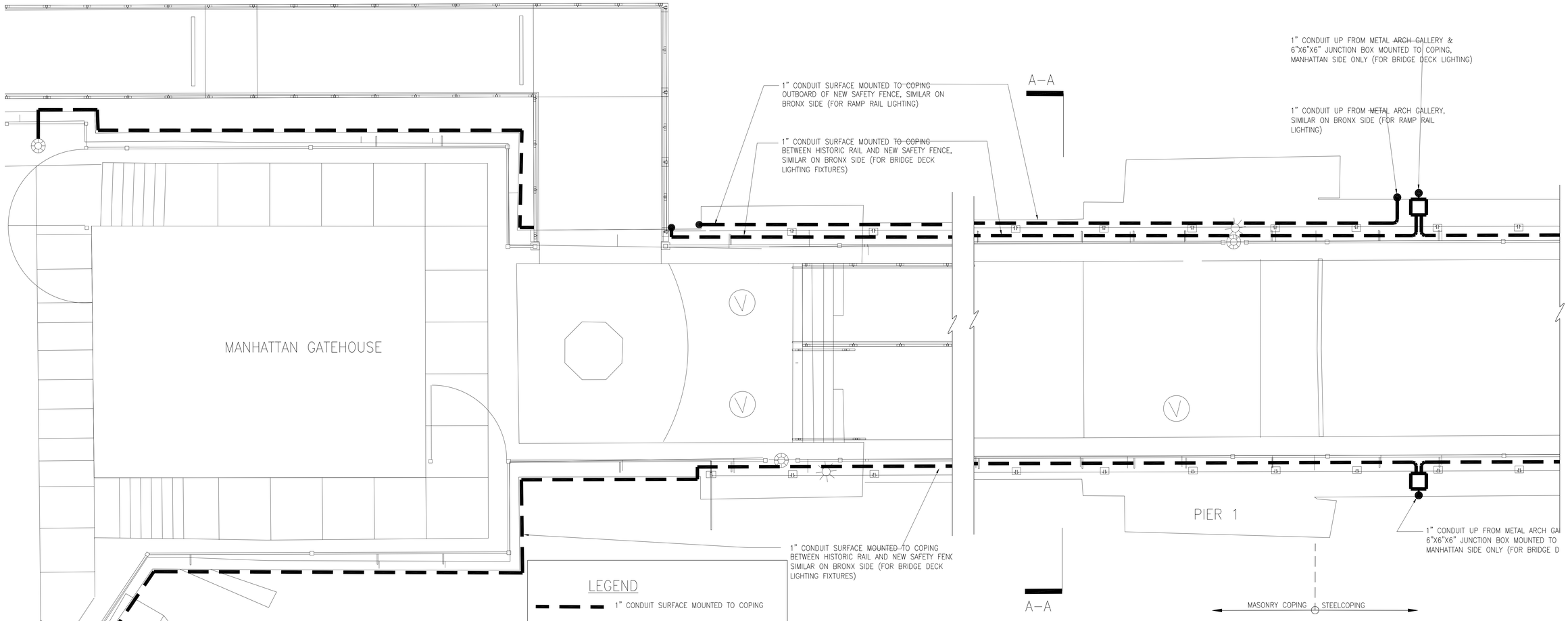
Surface mounted conduit to be installed at following locations:

1. At north and south elevations of pier 1 for lighting power supply.

2. At steel and granite copings for bridge deck lighting.

3. At masonry piers and arches for architectural lighting.

Additional conduit for power supply and architectural lighting to be installed at the steel arch, but will be concealed within arch structure.

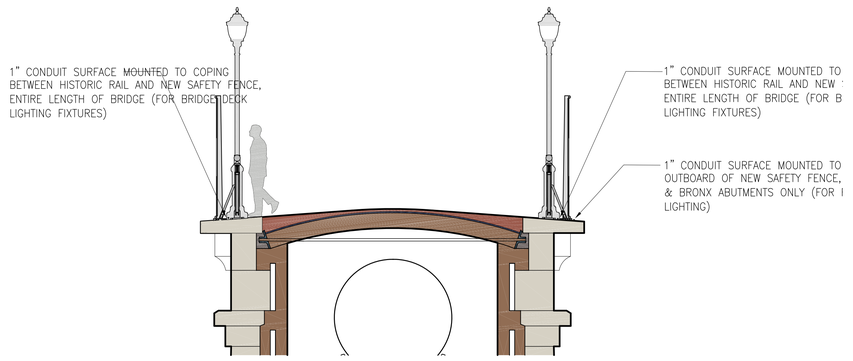


1 LT-7 DIAGRAM OF CONDUIT AT BRIDGE DECK
SCALE: 1/4" = 1'-0"

EXISTING CONDUIT AT STEEL COPING

EXISTING CONDUIT AT GRANITE COPING

BRIDGE DECK- FACING THE BRONX
Existing conduit hidden by rail



2 LT-7 SECTION A-A: CONDUIT AT BRIDGE DECK
SCALE: 1/4" = 1'-0"

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LIGHTING CONDUIT AT BRIDGE DECK

Scale: As Noted

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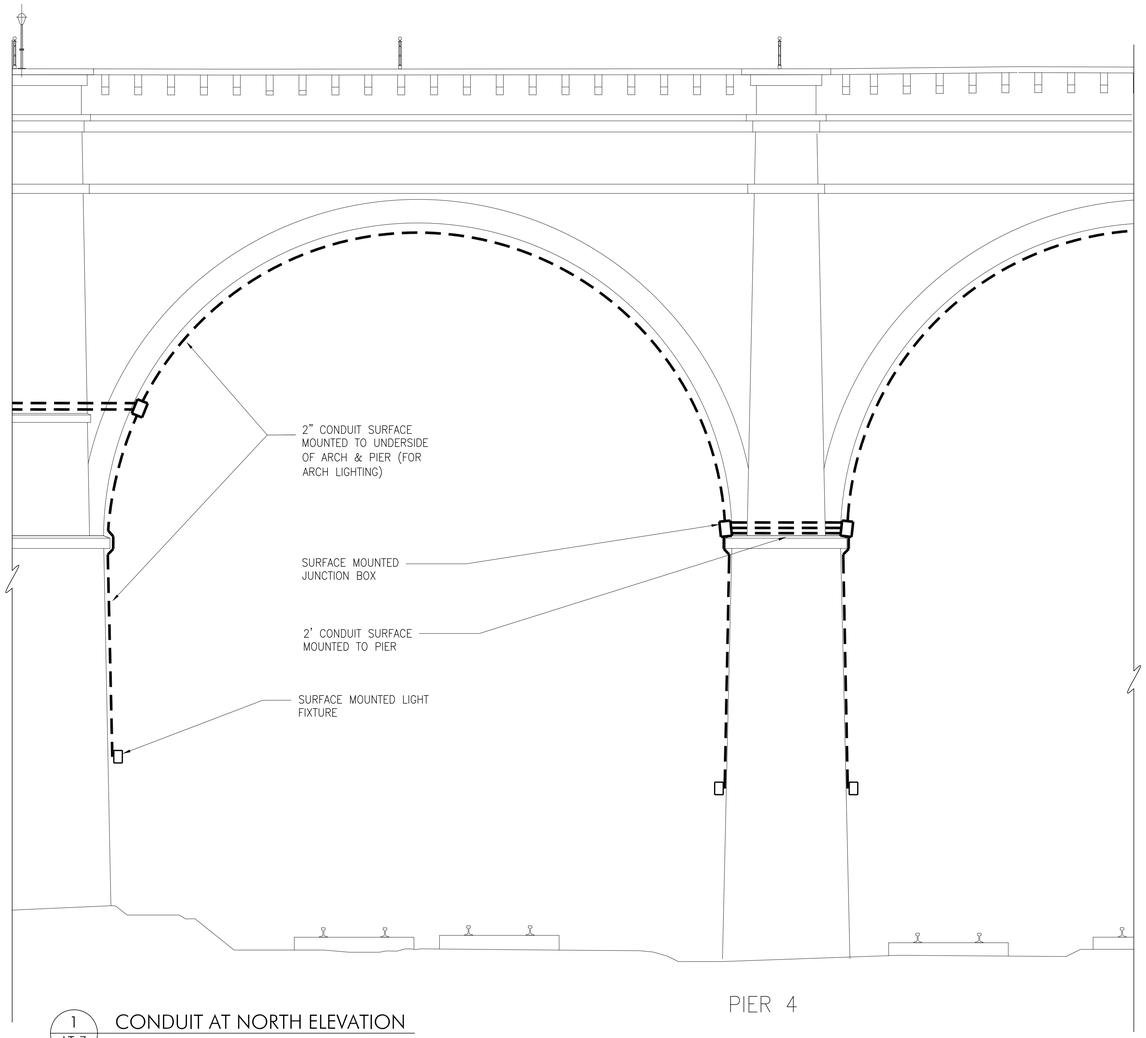
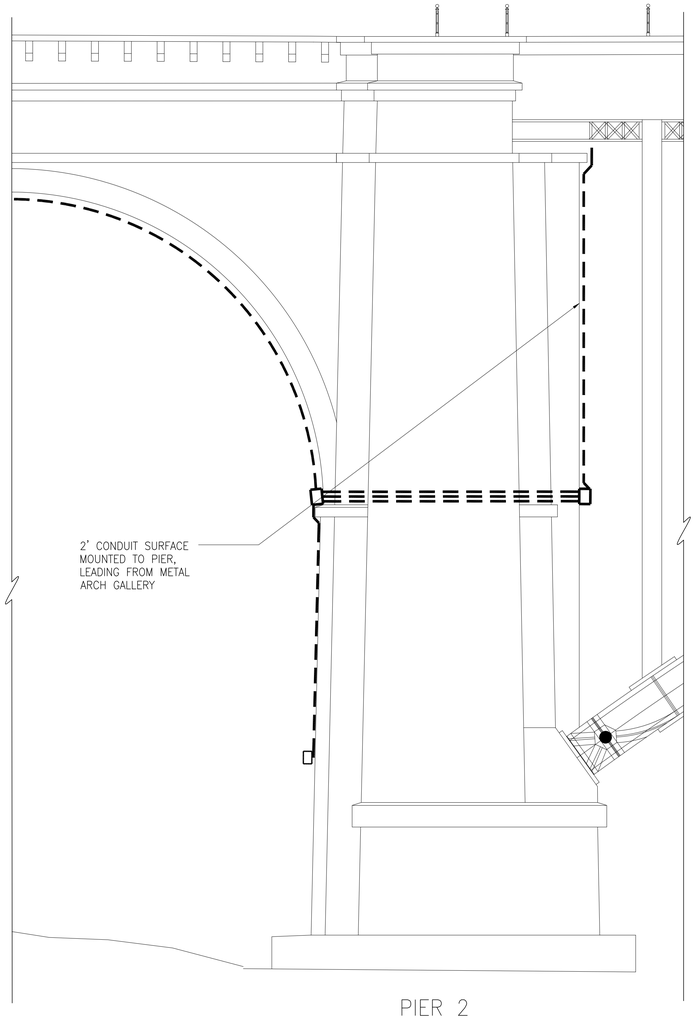
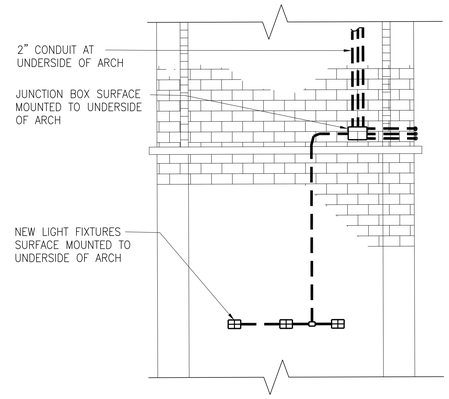


1 LT-7 CONDUIT AT NORTH ELEVATION
SCALE: 1/8" = 1'-0"



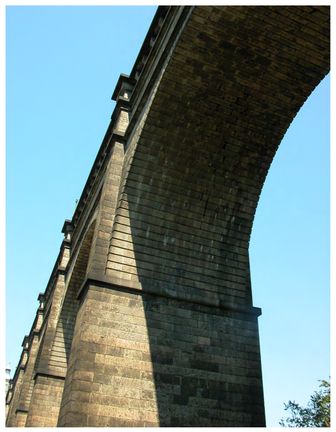
LEGEND

- 2" CONDUIT SURFACE MOUNTED TO MASONRY
- JUNCTION BOX SURFACE MOUNTED TO MASONRY
- LIGHT FIXTURE MOUNTED TO MASONRY



2 LT-7 CONDUIT AT UNDERSIDE OF ARCHES (TYP)
SCALE: 1/8" = 1'-0"

NORTH ELEVATION - BRONX



UNDERSIDE OF TYPICAL MASONRY ARCH

NORTH ELEVATON - BRONX

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Conduit at Masonry Arches

Scale: As Noted

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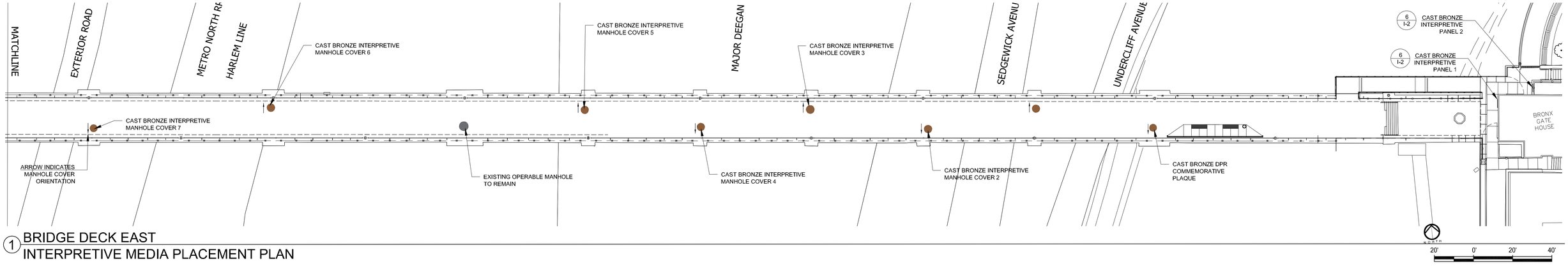
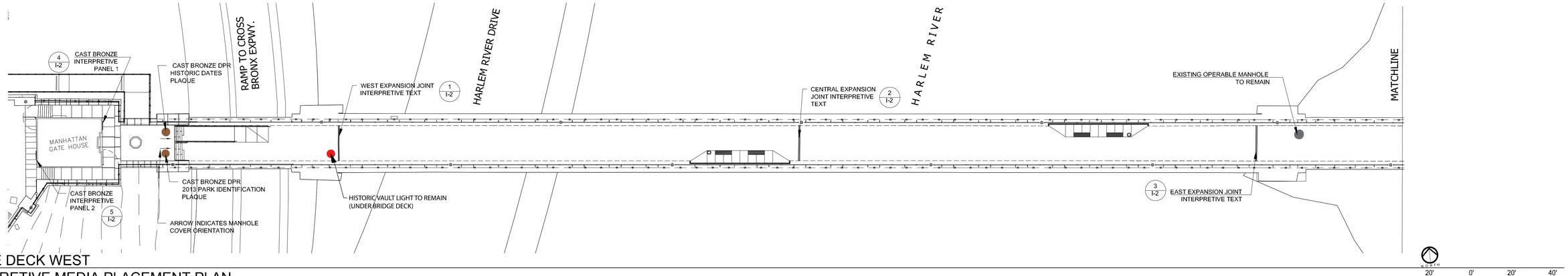
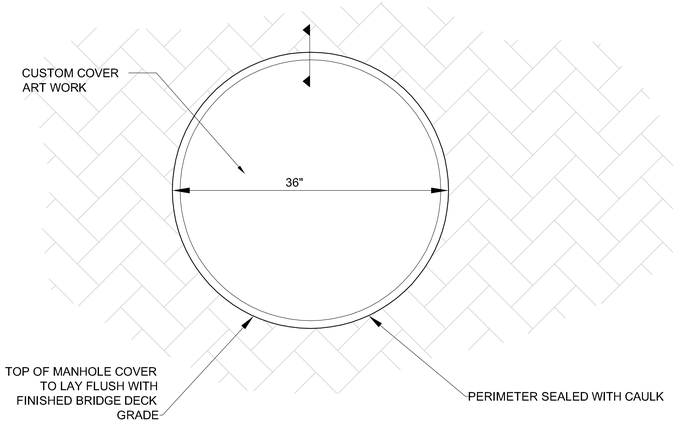


1 BRIDGE DECK EAST INTERPRETIVE MEDIA PLACEMENT PLAN



2 BRIDGE DECK WEST INTERPRETIVE MEDIA PLACEMENT PLAN

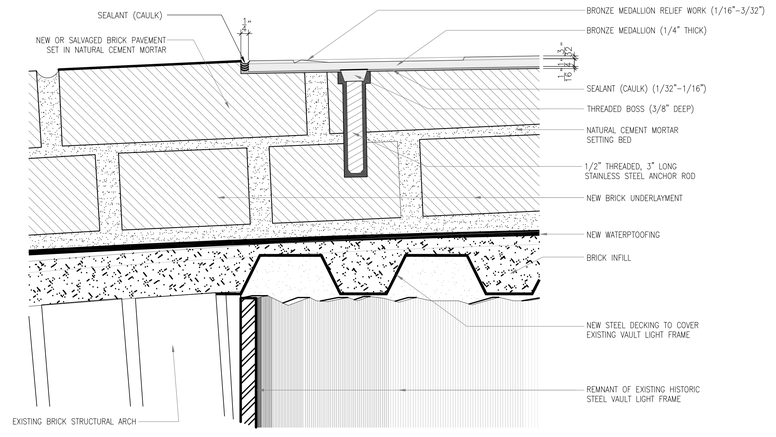


NOTES:

1. COVER MATERIAL SHALL BE CAST BRONZE
2. ALL MEASUREMENTS TO BE VERIFIED IN THE FIELD PRIOR TO METAL CASTING
3. SEE SHEET XX FOR INSTALLATION DETAILS

3 FIXED WATERTIGHT MANHOLE COVER PLAN

1' 0' 1'



4 MANHOLE COVER ANCHOR DETAIL

0 2" 4" 6"

LEGEND

- BRONZE MEDALLION PLAQUE AT HISTORIC VAULT LIGHT LOCATION
- NEW MANHOLE COVER AT EXISTING MANHOLE LOCATION
- HISTORIC VAULT LIGHT TO REMAIN (UNDER BRIDGE DECK)

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Interpretive Program: Site Plan & Details

Scale: As Noted

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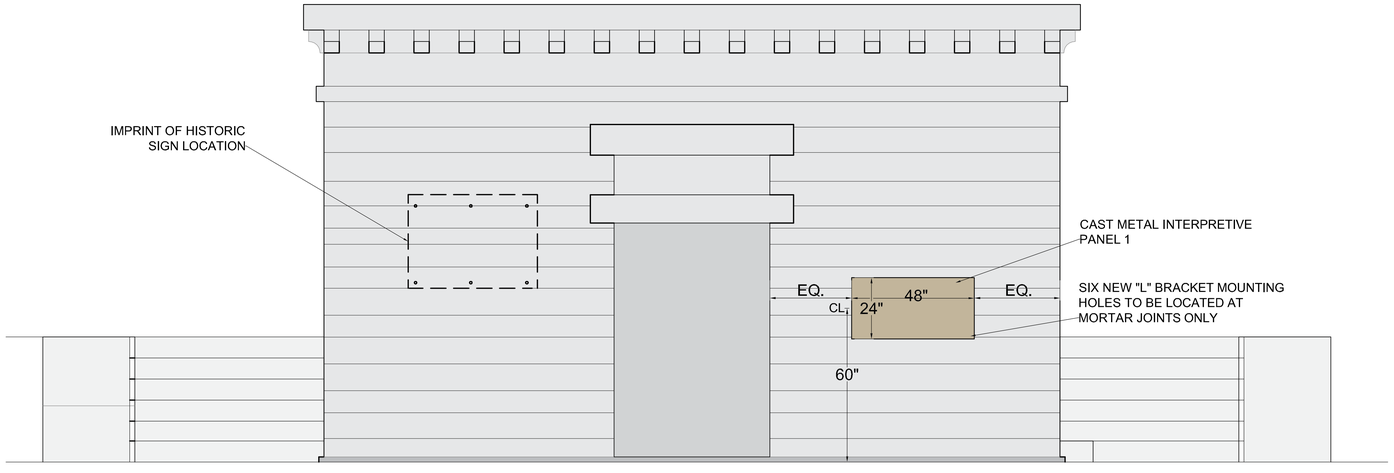
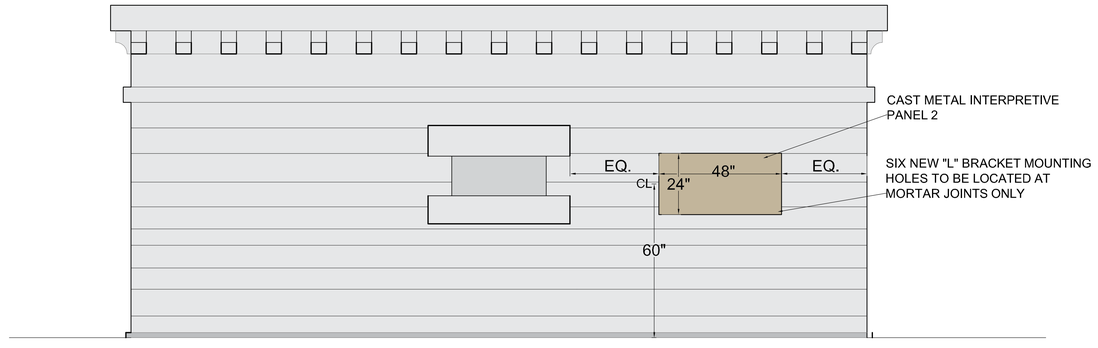
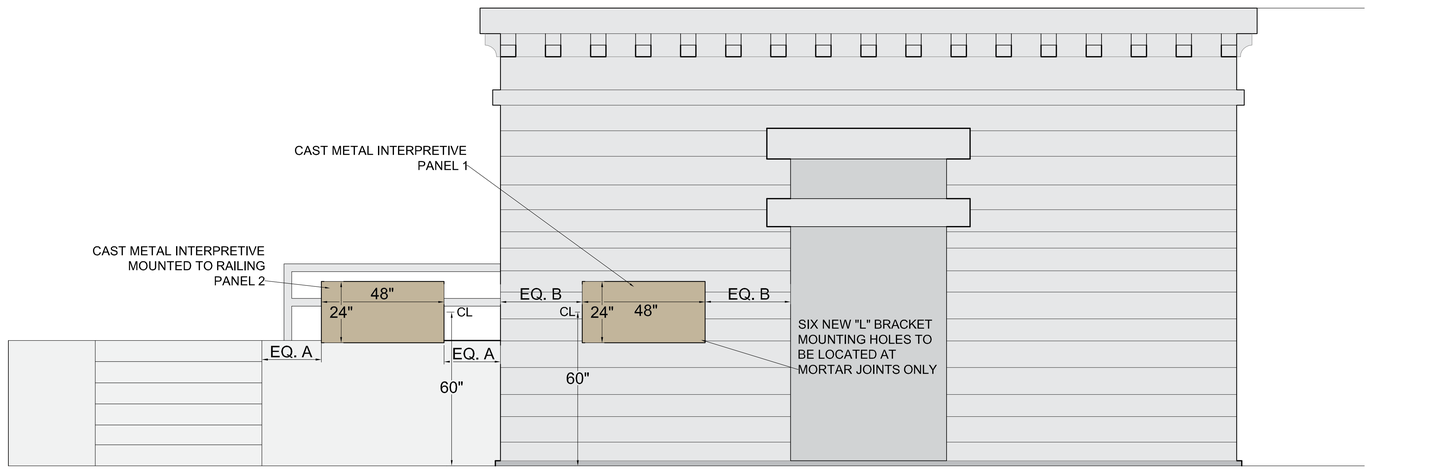


1 MANHATTAN GATEHOUSE EAST ELEVATION



2 MANHATTAN GATEHOUSE WEST ELEVATION



3 BRONX GATEHOUSE WEST ELEVATION

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Interpretive Program: Details

Scale: As Noted

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APPENDIX L

1925 AND 1926 HIGH BRIDGE RECONSTRUCTION SCOPE COMPARISON

Comparison of 1925 and 1926 Plans and Specifications

* Where the historic record is clear, "no change" is used to indicate consistency in scope as indicated in the 1925 (plans and specifications) and 1926 (plans only). Where the record is unclear or does not exist, "no change" is accompanied by a question mark. References to 1925 specifications have corresponding blank entries in 1926 column, since the 1926 record includes plans only.

Demolition and Removals

1925	1926
Removal of four piers (10, 11, 12, 13) and five arches between piers 9 and 14 (Section 3B)	No change*
Removal of two 36-inch cast iron pipe conduits and one 6-inch cast iron pipe line (Sections 1, 2, 3A, 4 and 5); pipes to be de-watered and water service to be discontinued	Croton water service across High Bridge discontinued February 25, 1927, pipes de-watered (DPS Annual Report 1927; DWSGE Annual Report cites March 1, 1927). Two 36-inch siphon conduits and a 6-inch pipe service line permanently discontinued and removed from Section 3B. (Pipe removals in sections 1, 2, 3A, 4 and 5) were not included in the contract.
Removal of obstructions in the channel of the Harlem River placed therein or caused by the construction, maintenance or reconstruction of High Bridge, and the restoration of paved and planted areas, including constructions, soil and plantations where disturbed by the contractor.	

Holding in Place

1925	1926
Existing aqueduct structure (including bridge, siphon, and appurtenances on each side of the river bridge sections 1, 2, 3A, 4 and 5 including piers 9 and 14 entire), shall be retained as a part of the reconstructed aqueduct.	Bridge sections 1,2, 3A, 4 and 5 to be retained; Aqueduct pipe dismantled/stored and reinstalled; Water service suspended during construction.
90 ½ -inch diameter wrought iron siphon conduit (Section 3B) to be retained as a part of the reconstructed aqueduct and shall be supported by a steel arch span.	90 ½ inch conduit dismantled/stored, and reinstalled.
Flow of water to be "maintained at all times except during the period or periods when the following alterations to the siphon…shall require a temporary suspension of the flow, including…removing the 36 inch pipe conduits,…raising or lowering the siphon (Section 3B).	Water delivery temporarily suspended during construction.

Construction

1925	1926
Construction and erection of a steel arch span (Section 3B).[1]	
Construction and erection of two abutment piers (9 and 14).	
Removal, reconstruction and resetting of the promenade railings (Section 3B).	
Reconstruction of the promenade and navigation lighting circuits (Sections 1, 2, 3A, 3B, 4 and 5), including lamp posts, lanterns of navigation lighting system, conduits, wiring, and controls.	

Relocation of the roadway of the Harlem River Driveway (aka Harlem River Speedway).	

Temporary Works

1925	1926
Construction, erection, maintenance and removal where directed of temporary works including lengthwise tie system (Sections 3A, 3B, and 4); centering and supports (Section 3B); preparation of masonry spans for use in swinging the steel span (Section 3B); wind anchorage and bracing and end supports for steel span (Section 3B); siphon conduit supports (Section 3B); Engineers office on the Manhattan side; traffic protection where necessary; fences and signs.	No change*

Not In Contract

1925	1926
General dredging of the Harlem River between bulkhead lines to elevation 15'-0" below mean low water; to be provided for by the U.S. Government.	Coal conveyor and tower to be removed; Coaling tunnel to be sealed at both ends; Chafing timber; Pile clusters; Dredging in Harlem River; Arch to be rebuilt and masonry course above to be re-laid at the north and south walls of the Bronx terminus of the bridge; anti-frost protection at Aqueduct pipe.

Sequencing

1925	1926
Step 1: Temporarily tie the existing masonry arch spans lengthwise of the bridge (Sections 3A, 3B, and 4); remove masonry attic roof and walls (Section 3B); remove the discontinued conduits and pipe (Sections 1, 2, 3A, 3B, 4 and 5); place temporary centering and prepare masonry spans for steel erection (Section 3B); construction section 1 of each new abutment pier.	**Stage 1:** Erect temporary wood centering at the arches between piers 9 and 14; temporarily remove aqueduct siphon and masonry attic gallery at Section 3B; erect horizontal ties (yoke and eye bars at a height not less than 60'-0" above mean high water) and vertical toggle bars (corresponding to the centerlines of the arches) to the east and west of section 3B, one group of ties and bars to connect piers 6 through 9; second group of ties and bars to connect piers 14 and 15; reinforce piers 9 thru 14 to form compound piers before arches were removed; enlarge piers 9 and 14 and provide skewbacks for the new span; install steel gantry traveler with elevated runway for removing masonry units, erecting new steel arch
Step 2: Employing the masonry spans (Section 3B) as temporary support for both the siphon and for the steel arch span, erect and swing the steel arch;	**Stage 2:** Deconstruct piers 10, 11, 12, 13.
Step 3: Transfer siphon from the masonry spans (Section 3B) to steel arch span; remove masonry spans (Section 3B).	**Stage 3:** Erect false-work between east & west abutment bases; new span to rise above partially deconstructed piers.
Step 4: Construct section 2 of each new abutment pier; complete the steel arch span.	**Stage 4:** Completely remove piers 10, 11, 12, 13 as per contract.
	Stage 5: Erect compound piers (piers 9 &14); deconstruct ties & toggle bars.
	Stage 6: Complete construction of the steel arch; reinstall aqueduct pipe as per contract.

Trades

1925	1926
Paint and Painting: dry lead mixed with raw linseed oil.[2]	No change?
Steel Arch: 3-hinge type, with horizontal attic story, including a siphon gallery, above the crown of the arch, carried directly on the arch at the crown and on columns in the spandrels.[3] 425'-0" long, 100'-0" above mhw.	
Conduit Inspection Walks to be located on each side of the siphon conduit on the steel arch span.[4]	No change*
Promenade Railings: Rails, pales, posts, ornaments, and braces of existing promenade railings carefully removed between the railing posts on the transverse center line of existing piers 9 and 14 (Section 3B), inclusive of those posts and of the railing panel landward thereof. 1925 Specifications, pages 52-53.	Reconstruction of bridge railings (Section 3B) performed under contract; Railings at sections 1, 2, 3A, 4 and 5 not included in contract (see DPS drawing 101, June 1, 1926).
Cast Iron Railings: Cast iron railing post, in type similar in all respects to the existing cast iron posts, including method of fastening to granite copings, to be installed in each railing line on the transverse center lie of each new abutment pier. [5]	No change?
Wrought iron railing posts: Wrought iron railing posts, each similar in all respects of type, materials, bracing and setting, to the existing wrought iron railing posts, to be set in each railing line (1) on the transverse center line of existing piers 9 and 14, (2) at the expansion joint near the riverward edge of the copings on those piers, and (3) between the wrought iron posts on each pier described above so as to divide the space into equal panels each not more than seven (7) feet in length, center to center of posts. 1925 Specifications, pages 52-53.	No change?
New or Altered wrought posts.	
Attic Fascias: New copings, fascias, and sheds enclosing the attic story at the sides (section 3B), constructed of steel plates, shapes and bars, and with supports, including promenade lamp and railing post supports. 1925 Specifications, page 53.	No change?
Steel Expansion Joints. 1925 Specifications, page 53.	
Promenade Pavement: Promenade on the roof of the steel arch span and of each new abutment pier shall be paved with bricks laid on a bed of Portland cement mortar. The bricks shall be laid on edge, herringbone pattern, all ranges and pavement edges true to alignment. [6]	New paving line at the western boundary to correspond with the westerly terminus of the west abutment; new paving line at the eastern boundary to correspond with the easterly terminus of the east abutment. Promenade brick paving width 17'-8"; Running bond.[7]
Erection (1925 Specifications, pages 54-58)	
Abutment Piers: new end abutment pier to be constructed on natural rock on each side of the river at and including an existing masonry pier also on rock, at (1) pier 9, now a rest pier on the Bronx side in the river, and (2) pier 14 now an intermediate abutment pier on the Manhattan side on shore.[8]	No change?
Excavation (1925 Specifications, page 60).	
Masonry: All Portland cement used in this work shall be the best quality and of a brand to be approved by the Commissioner. It shall meet the Standard Specifications for Portland cement of the American Society of Testing Materials. [9]	No change?

Dismantling: The dismantling and removal of the existing aqueduct structure (section 3B) to be carried out progressively from the top in two consecutive stages: (1a) attic story, (1b) discontinued conduits and pipe, (2a) masonry spans below the attic story. Piers 10, 11, 12 to be removed to a plane not less than (15) feet between mean low water in the Harlem River, War Department datum, and pier 13 to be removed to a place not less than (18) inches below the grade of the Harlem River Driveway.[10]	Piers 10, 11, and 12 to be removed to a plane equal to 20'-0" below mean high water; pier 13 to be removed to a plane of 1'-6" below curb grade of the adjacent Harlem River Speedway; Removal of pier 13 below that point was not included in the contract.[11]
Holding: Each of the (9) masonry arch spans of the existing bridge located between pier 6, inclusive, an d the westerly (southerly) end abutment pier of the bridge, located on the Manhattan shore, inclusive, shall temporarily be securely tied longitudinally and horizontally at or above the impost level of the river arches, as shown in the plans (1925 Specifications, pages 71-74).	No change*
Aqueduct Siphon 90 ½ inch Conduit: The Contractor shall hold the aqueduct siphon conduit on the existing masonry span until the new steel span…shall have been swung. [12]	Aqueduct pipe at Section 3B dismantled, stored and reinstalled.
Conduit Anti-Frost Protection: Remove all rust scale and thoroughly clean with wire brush the exterior surface of the 90 ½ inch conduit between the bulkheads on the new abutment piers. Cleaned surface to be painted (2) coats of red lead. Over the paint, apply an insulating covering consisting of (1) a membrane laid on the conduit, (2) two layers of one (1) inch thickness mineral wool separated by a membrane and laid on covering (1), and (3) a fire resisting and waterproof membrane over all, each membrane and layer thoroughly wired in place, materials equal to Johns-Manville. Over the insulation, apply a protective covering not less than two (2) inches in thickness of approved close fitting creosoted long leaf yellow pine staves, banded (3) feet apart with (3/8) inch thickness and (2) inches wide steel bands provided with approved lugs and tightening bolts, all metal painted (2) coats of approved paint. (1925 Specifications, page 76).	**NIC:** Anti-frost protection on outer surface of aqueduct siphon pipe; 0'-2" cement mortar on expanded metal at interior surface of aqueduct siphon pipe; "It is proposed to reinforce this pipe line by placing a cement mortar lining inside the pipe, as the pipe line metal has been substantially pitted by the corrosive action of the water during the 65 years that the line has been in service" (See DPS Drawing 13, June 1, 1926; see also note from DWSGE Annual report 1928).
Electrical	Lighting standards on the bridge deck to be situated in a staggered pattern. The 1st west-most light standard located at the north side of the deck, center-lined with the axis of the reinforced pier on the west abutment.[13]

ENDNOTES

1 A 1927 photograph illustrates a sign, mounted on the gantry used to erect the steel for the new arch, which announced "McClintic-Marshall Steel." McClintic-Marshall Steel Supply Company, of Pottstown, PA, was the supplier of steel for the new High Bridge arch and would later provide steel for the George Washington and Golden Gate bridges. Eugene de Salignac photograph, High Bridge, 1927, Municipal Archives.

2 Red lead not to contain less than ninety (90) percent of true red lead (PB2O4) and the balance shall be practically pure lead monoxide (PbO). Basic Carbonate white lead (describe). Red lead (26 pounds) mixed with raw linseed oil (one gallon), then Japan dryer (one gill). 1925 Specifications, pages 45-48.

3 Each half-span of the steel arch between end and crown pins shall have rigid connections, fully riveted at each intersection of the members of the frame. The work shall include steel pedestals, arch rib pairs, pins, arch laterals, spandrel columns, spandrel upper lateral system including end bearings and roller nests, attic transverse and longitudinal trusses, siphon floor beams, stringers, conduit supports, conduit inspection walk stringers, gratings and railings, attic roof beams, stringers, plates and stiffeners, pavement headers and copings, promenade pavement and base, attic fascias and supports, snow guards and expansion joints. Pages 48-51.

4 The walk shall be formed of gratings, two (2) inches in thickness, laid on shelf angles riveted to the walk stringers. Gratings shall be constructed of steel bars in rigid sections wherever possible weighing about two hundred (200) pounds, and in width, out to out of side bars, equal to the clear width between walk stringers, less than one-fourth (¼) inch. Pipe railings shall be located on the outer side of each inspection walk, where each railing shall have two (2) rails, each of two (2) inches diameter extra heavy iron pipe. Page 51.

5 A new cast iron railing post, in pattern and details above the base similar to the existing cast iron railing posts, and having an integral cast base one and one quarter (1 ¼) inches thickness, beveled at top and bottom, eight (8) inches square, flange, all edges and corners rounded, with four (4) seven eighths (7/8) inch diameter bolts and two (2) nuts each securely engaging the post to the metal copings, shall be furnished and installed in each railing at each panel point of the steel arch span (0 to 10, inclusive). Pages 52-53.

6 An expansion joint along each coping and pavement header shall extend from the surface of the pavement to the bottom of the pavement base and shall be filled with joint filler. The mortar base shall be laid, using a dry mixture, and compacted to a surface parallel to the finished lateral grade of the promenade, and shall include an approved wire cloth. All brick shall be first quality, vitrified, red sidewalk paving brick, tough and durable, regular in size and shape, free from winding and evenly burned. Dimensions of rectangular bricks, laid on edge: length 8 inches, width 2 ¼ inches, depth 3 ½ inches, or as approved. Bricks for finishing the pavement at headers, expansion joints and coping shall be manufactured to the required trapezoidal or triangular shape in plan. Pages 53-54.

7 DPS Drawings 102, 103 and 105, dated June 1, 1926.

8 Each of the new abutment piers shall provide (1) in place of the existing masonry arch span on the riverward side of the present pier and to be removed, end abutments for the masonry arch span or spans located on the landward side and to be retained as part of the reconstructed bridge, and (2) end abutments for the steel arch span. The new work shall be constructed in place, of concrete and steel, granite faced, using old and new granite, and shall extend from foundation beds to be made under this contract to the roof of the existing bridge. In every respect of the granite exterior, the new work shall match the granite work of the existing bridge. Pages 58-59.

9 Neat cement {mortar} and {type N} mortar (1 part cement, 3 parts sand). All non-staining cement shall be a white Portland cement of the Atlas, Medusa, Blanc or equally good make. All lime must be of the best quality, freshly burned, free of core and of Boyd's, Thomaston, Cheshire, or Rockland brands, or an equal thereto. Common sand shall be coarse, clean, sharp and silicious, and equal in quality to the best Cow Bay sand. The granite stones for facing, coping and surfacing the new work of the new abutment piers shall be dressed granite stones taken from the existing structure and selected for reuse in the piers, except the skew back bridge seats, the coping and at pier 9 the courses immediately below and riverward face and returns of the shaft to the top of the pier section 1, which shall be new granite. New granite, where used, shall match in color, grain, mixture of ingredients, compactness of texture and tone, as well as cutting, coursing, bonding, jointing and pointing the granite work of the existing structure, similarly placed. The exposed surfaces of the new work…shall be thoroughly cleaned in place by sand blasting. (Pages 61-68).

10 1925 Specifications, Pages 68-69.

11 DPS, Drawing 101, "High Bridge Reconstruction of Harlem River", June 1, 1926.

12 The conduit shall be supported on the steel span and on the abutment piers at the present points of support, approximately 12 feet apart, except at pier 14, where one support shall be relocated as indicated on the plans. The method of support shall be the same as that employed on the existing bridge, except the cast iron pedestals within the limits of the steel span which shall be removed, and on the new east abutment pier which shall have a concrete pier

casing extending from the attic floor to the bearing plate for the roller nest at the top of the pedestal. Permanent wind anchorage shall be provided. (Pages 74-77)

13 Between the abutments, the lighting standards aligned with the alternating spandrel columns in the steel arch below; Bridge Sections 1, 2, 3A: existing lamp posts, new promenade lighting circuits; Bridge Section 3B: existing lamp posts reset; 4 new posts; new promenade and navigation lighting circuits; Bridge sections 4 and 5: existing lamp posts, new promenade and navigation lighting circuits; The total number of lamp posts shown and the numbers shown on each circuit are approximate. Existing cable and conduit not underground to be removed (Department of Plant and Structures, Drawing 114, June 1, 1926).

APPENDIX M

VALUE ENGINEERING REPORT

City of New York
Office of Management and Budget
75 Park Place • New York, NY 10007
(212) 788-6170 Fax (212) 788-6200

November 19, 2010

Ellen Macnow
High Bridge Project Coordinator
City of New York Parks & Recreation
Olmsted Center
Flushing Meadows-Corona Park
Flushing, NY 11368

RE: High Bridge over the Harlem River Value Engineering Study

Dear Ms. Macnow:

A draft copy of the Value Engineering Workshop proposals is attached for DPR, DDC and the design consultant to begin formulating responses to the VE proposals. Client Agencies are requested to respond to each VE recommendation. Your response should be from one of the following categories, including an explanation of the Agencies' position on the issue:

- **ACCEPT** – This recommendation should be fully implemented and incorporated into the design.
- **PARTIALLY ACCEPT** – Part of the recommendation should be implemented and incorporated into the design, or an alternative or modified version of the idea is accepted. The accepted portion needs to be specified. If cost reductions were provided with the recommendation, the capital and O&M costs attributed to the accepted portion of the recommendation need to be included.
- **REJECT** – This recommendation should not be implemented at this time. Reasons for rejection need to be specified. In some cases one recommendation is rejected in lieu of accepting another.
- **FURTHER STUDY** – Although the recommendation has merit, the design is not sufficiently developed at this time to make a final determination. It will be investigated and implemented if found to be feasible.

After OMB receives and reviews the Agency responses, an Implementation Meeting will be scheduled to come to a consensus decision as to the final disposition of each VE recommendation.

Please forward your responses to me (smithd@omb.nyc.gov//212-788-6163 and copy Illiam Carrillo (carrilloi@omb.nyc.gov/212-788-6159) at your earliest convenience. Please feel free to contact me should you have any additional questions.

Sincerely,

Diane Smith, RA
Project Manager
Technical Services Unit – Value Engineering

Cc: DDC: A. Mallick
Lichtenstein: J. Pullaro
OMB: B. Werkstell, J. Woller, I. Carrillo

Summary of Recommendations

No.	Score	Description	Initial Cost Reduction	O&M	Total Life Cycle Cost
CH		**Celebrate History**			
CH.20	DS	Use features to support signage and displays			DS
CH.21	DS	Use metal pavement markers for information			DS
CH.31	DS	Make historic information relevant and comparative to current conditions			DS
ES		**Enhance Safety**			
ES.01	DS	Implement a bike dismount zone in the approach plazas			DS
ES.03	5	Reduce the cross slope of the bridge deck	($1,240,000)		($1,240,000)
ES.11	11	Retain historic light poles and locations and supplement with strategic pedestrian light fixtures integrated in the safety fencing	($252,000)		($252,000)
ES.12	5	Increase railing height and security lighting at the new access ramps	($153,000)		($153,000)
ES.18	6	Build the Manhattan ramp on the south side of the gate house	($467,000)		($467,000)
ES.19	9	Implement traffic calming measures for bicyclists on the bridge deck	($984,000)		($984,000)
ES.32	5	Install a wearing surface of historic herringbone brick over the existing pavers with intermittent view panels	$3,888,000		$3,888,000
ES.33	DS	Eliminate the gap between the handrail and the light poles			DS
ES.35	8	Reuse the existing light pole locations on the deck and 14 ft. poles with high pressure sodium (HPS) lamps	$241,000		$241,000
ES.41	7	Use an iron picket fence that has a safety netting on the outside and the historic rail on the inside	$40,000		$40,000
IA		**Improve Access**			
IA.18	DS	Add infrastructure to support special events in the plaza area on the Manhattan side			DS
IA.22	8	Relocate the Manhattan gatehouse to open the entry to the bridge; gatehouse becomes interpretive exhibit	($250,000)		($250,000)

Summary of Recommendations

No.	Score	Description	Initial Cost Reduction	O&M	Total Life Cycle Cost
MI		**Miscellaneous**			
MI.01	10	Floodlight the steel arch span in lieu of button lighting	$364,000	$12,000	$376,000
MI.11	DS	Integrate surface mounted conduit with other design elements to provide the maximum concealment			DS
OA		**Obtain Approvals**			
OA.02	DS	Convene a partnering session with agencies to discuss issues and elements			DS
OA.05	DS	Engage a permitting expert to consult on the approval process			DS
RA		**Rehabilitate Asset**			
RA.05	10	Reduce the scope of the bridge deck replacement	$5,011,000		$5,011,000
RA.09	10	Replace the Z-section at the edge of the deck	($233,000)		($233,000)
RA.12	5	Clean and paint pipe on the steel span only	$582,000		$582,000
RA.16	9	Use mechanical anchorage for the tie rods	$1,512,000		$1,512,000
RA.22	5	Replace exposed tie rod section with new 36ksi steel rods	$1,295,000		$1,295,000
RA.28	DS	Grease the arch pin connections and install lubrication ports at the steel arch			DS
RA.32	5	Consider installing a fan-assisted desiccant dehumidification system in the attic	$666,000	($364,000)	$302,000
RA.35	9	Remove pavement bricks and install waterproofing over the underlayment	$2,489,000		$2,489,000
RA.37	5	Eliminate interior lighting in the attic	$280,000		$280,000
RA.40	DS	Design redundant load paths at the steel arch crown			DS
RA.43	DS	Incorporate provisions for maintenance and inspection on the steel arch			DS
RA.44	5	Clean and seal the pipe	$196,000		$196,000

Summary of Recommendations

No.	Score	Description	Initial Cost Reduction	O&M	Total Life Cycle Cost
RA.48	5	Reuse brick pavers only in interpretive areas and replace the remainder	$492,000		$492,000
RA.50	DS	Have an incentive clause in the specifications related to brick salvage quantities			DS
RA.51	8	Consider alternate painting and masonry repointing delivery options	$325,000		$325,000
RA.52	5	Modify the attic lighting scheme	$175,000		$175,000

OAC

Value Engineering Proposal CH.20
High Bridge over the Harlem River
New York City, NY

AC
SC
November 2010

Description: Use features to support signage and displays

Baseline Design:

Majority of new signage utilizes new bases for display mounting.

Proposed Change:

Use existing bridge elements to mount the new signage and displays.

DESIGN SUGGESTION

Advantages:	Disadvantages:
• Fewer obstructions	• None apparent
• Structure is already in place.	•
•	•
•	•
•	•
•	•

Discussion/Justification:

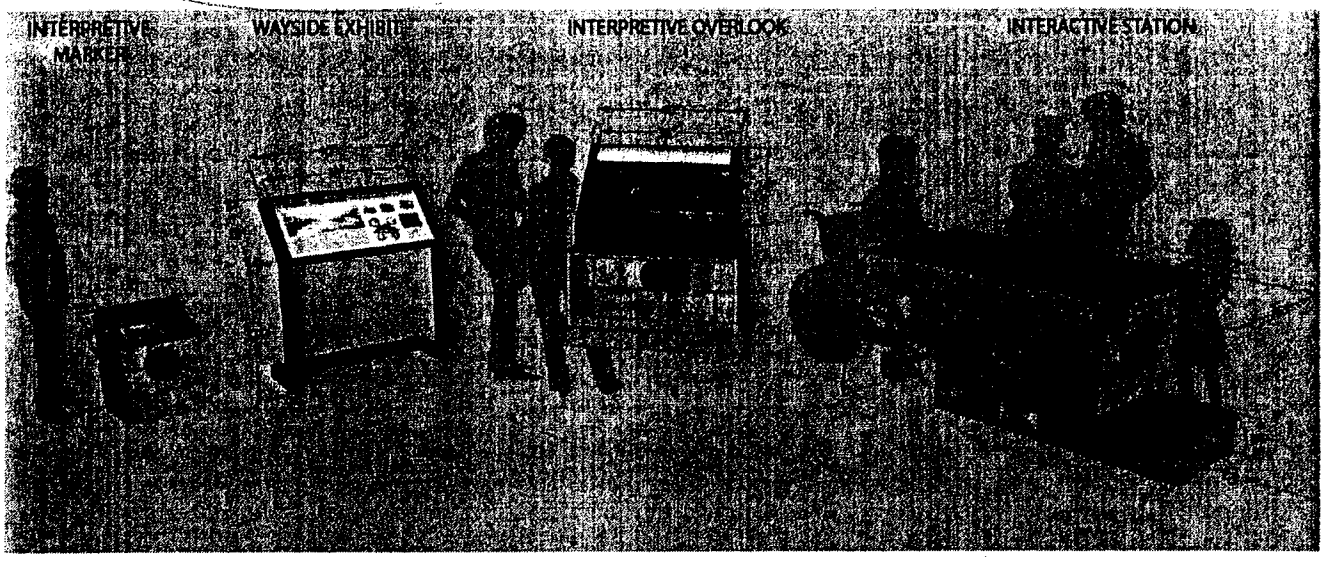
Mount the wayside exhibits to the top of the historic rail to eliminate the base.

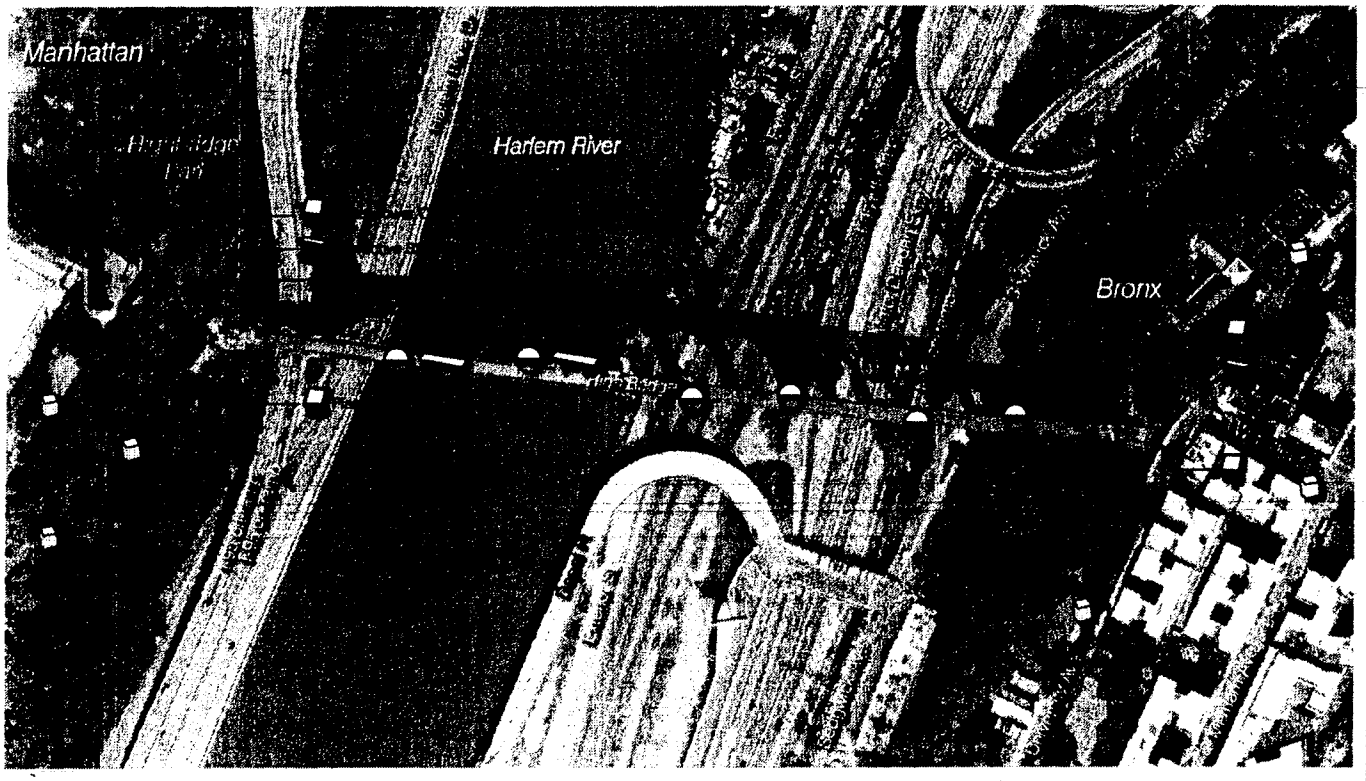
At the plaza areas markers and signs can be mounted to the existing gate hoses and security gates.

Interpretive overlook markers also should be mounted to the existing railing.

An advantage to mount the exhibits on the railing is that it eliminates introduction of elements onto the deck where trash and debris can collect as well as maintaing the view through the rail posts

Baseline Design **Signage Examples**





OAC

Value Engineering Proposal CH.21
High Bridge over the Harlem River
New York City, NY

November 2010

Description: Use metal pavement markers for information

Baseline Design:
Information displays currently under investigation.
Proposed Change:
Incorporate pavement markers for informational displays.

DESIGN SUGGESTION

Advantages:	Disadvantages:
• Provides interpretive information while minimizing use of overt vertical elements on the bridge (i.e. sign posts)	• Modification to historical character of pavement
• Novel use of existing and reopened manhole castings into bridge deck	• Potential slip hazard, depending on material chosen
• Can be an unobtrusive way to designate pedestrian or bike lane separation.	•
•	•
•	•
•	•

Discussion/Justification:
Consider using pavement inserts, or castings of existing/re-opened manholes in bridge deck, as interpretive information elements, similar to those on 7th Avenue in the Fashion District, or on lower Broadway (ticker-tape parade commemorative markers). The benefit is to minimize vertical elements on the bridge deck (i.e. sign posts). Also is a clever way to draw attention to the City's often overlooked underfoot infrastructure. If not as pavement inserts, consider potential use of manhole castings as a substrate for interpretive signs, perhaps as display elements in plaza areas, if not on bridge.

Pavement Insert Examples

Figure 1: Lower Broadway pavement insert

Figure 4: Inspiration/Reference

Pavement Insert Examples

Figure 2: 7th Ave. Fashion Walk of Fame Pavement Medallion

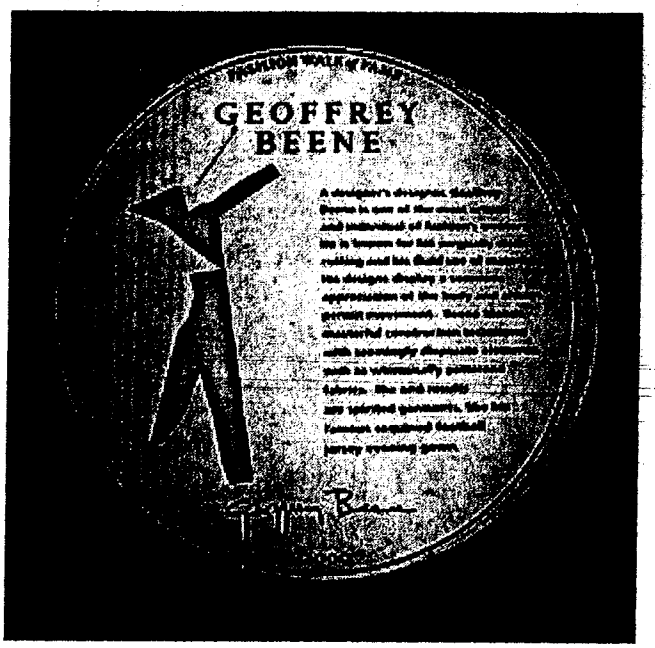


Figure 3: 7th Ave. Fashion Walk of Fame Pavement Medallion

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Value Engineering Proposal CH.31
High Bridge over the Harlem River
New York City, NY

November 2010

Description: Make historic information relevant and comparative to current conditions

Baseline Design:

Proposed interpretive/historic information currently undefined in scope.

Proposed Change:

Provide interpretive/historic information of the Croton Aqueduct, High Bridge, and surrounding views, that is comparative to modern criteria. The proposed change would reflect current thinking in interpretive planning which suggests that visitors become more engaged when information is presented within the context of their everyday lives.

DESIGN SUGGESTION

Advantages:	Disadvantages:
• Allows contemporary comparisons to facts about the historic structure being observed	• None apparent
•	•
•	•
•	•
•	•
•	•

Discussion/Justification:

Recommend interpretive/historic information includes comparisons to contemporary facts and criteria. Some examples:

- Water delivery of High Bridge/Old Croton Aqueduct upon opening vs. total NYCDEP aqueducts today in million gallons/day (mgd)
- NYC per capita water usage over time
- Type and quantity of river traffic over time (will show reason for removal of masonry arches for steel arch)
- Sanitary disease rates and fire rates (or fire damage costs) over time (before and after aqueduct)
- Water conservation methods in 1861 vs. today
- Comparison of panoramic historic photos as seen from High Bridge vs. contemporary photo
- Land use around High Bridge in 1848
- Illustrations that identify prominent landmarks in surrounding landscape, from viewer's location/point of view

OAC

Value Engineering Proposal ES.01
High Bridge over the Harlem River
New York City, NY

November 2010

Description: Implement a bike dismount zone in the approach plazas

Baseline Design:
Current layout of ramps implies that bikes can ride down from the plazas and onto the bridge.
Proposed Change:
Implement a bike dismount zone at the plazas to avoid bike/pedestrian conflicts at these locations. These dismount zones act as congregation/funneling points before traversing the bridge.

DESIGN SUGGESTION

Advantages:	Disadvantages:
• Improves safety by reducing potential bike/pedestrian conflicts on ramps	• Forces bike riders to dismount
• Potential to reduce the width of the ramps to minimum for maintenance vehicle	•
• Encourages pedestrian experience	•
•	•
•	•
•	•

Discussion/Justification:

Ramps in the baseline design facilitate continuous bicycling through the Plaza areas and onto the Bridge. This may cause potential pedestrian/bike conflicts on the ramps.

This proposal, consider instituting Bicycle Dismount Zones on all ramps to minimize potential conflicts. This can be implemented in conjunction with bicycle tire troughs to facilitate bike movement over the stairs.

It appears the 9ft width of the proposed ramps is to accommodate two-way bike/pedestrian traffic. An 8ft ramp width is required to accommodate emergency/service vehicles. Implementing a bike dismount zone would be compatible with using the narrower, 8ft width ramp.

Bicycle Stair Examples

Figure 2: Example of bicycle stair trough

Figure 1: Example of bicycle stair trough

OAC

Value Engineering Proposal ES.03
High Bridge over the Harlem River
New York City, NY

November 2010

Description: Reduce the cross slope of the bridge deck

Baseline Design:

The proposed rehabilitation provides for retaining the existing deck cross slope. This cross section transitions from a radial crown in the center of the deck to 7% (sloping down towards the edge of the bridge).

Proposed Change:

To comply with current ADA Standards for Accessible Designs, AASHTO Bicycle Design Standards, and Accessibility Guidelines for Outdoor Developed Areas (AGODA), it is proposed to reduce the maximum deck crossslope to 2%.

Proposed work includes installation of a concrete curb , and leveling material for the support of the deck surface. The distance between the rails (walkway section width) is reduced to 17 ft.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ -	$	$ -
Proposed Change:	$ 1,240,000	$	$ 1,240,000
Total (Baseline less Proposed):	$ 1,240,000	$	$ 1,240,000

COST

Advantages:	**Disadvantages:**
• Provides cross slope that meets recommended safety requirements	• Reduction of walkway section width
• Provides solution compatible with configuration of supporting superstructure	• changes profile of historic structure.
• provides better usable area on the bridge surface	•
•	•
•	•
•	•

Discussion/Justification:

The proposed change is based upon the code requirements and suggested provisions of the following publications:

ADA *Standards for Accessible Design*

Accessibility Guideline for Outdoor Developed Areas

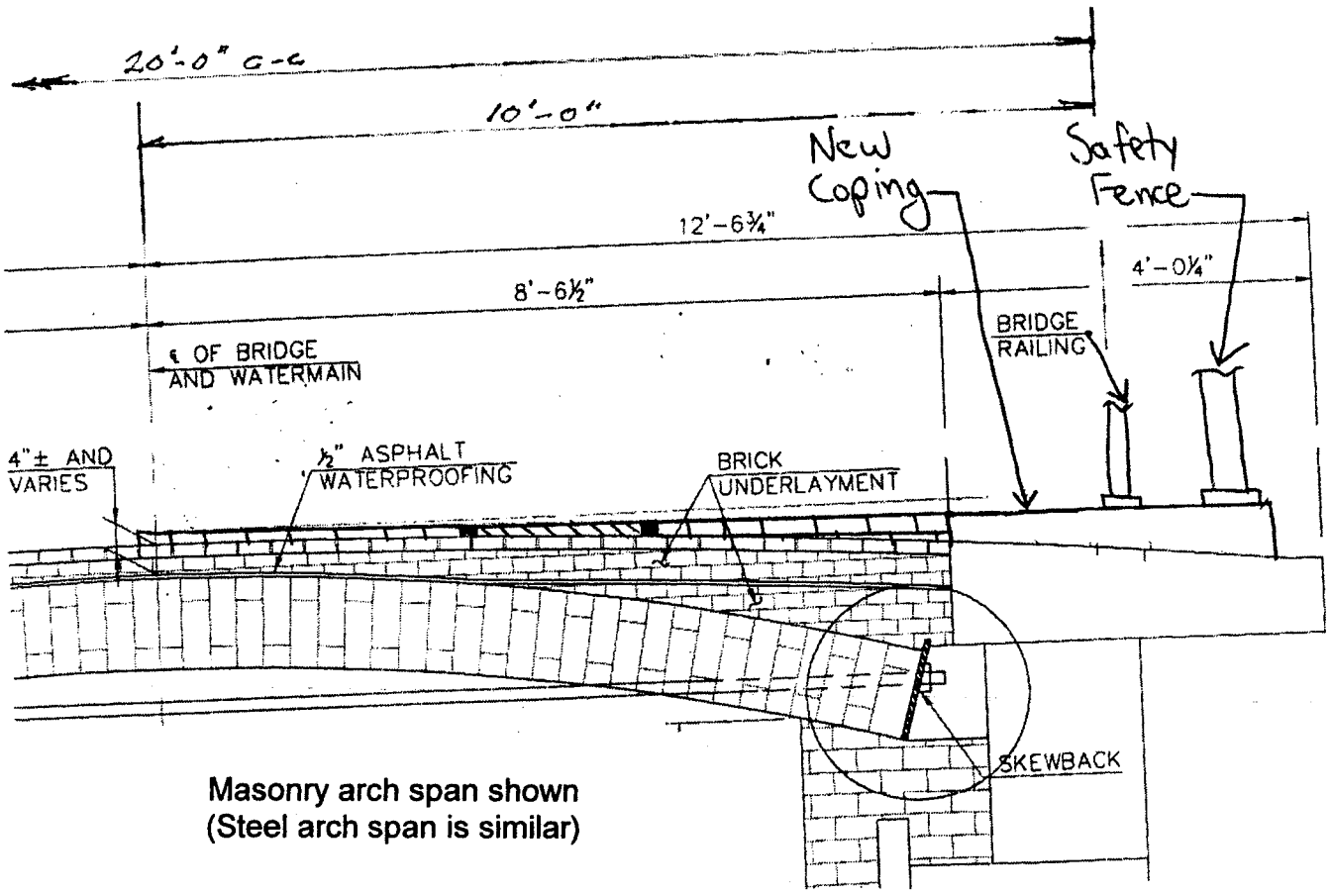
AASHTO *Guide for the Planning, Design and Operation of Bicycle Facilities*, February 2010

A 7% cross section slope is a challenging surface for pedestrians and bicyclists. A 2% cross section slope is the maximum allowable for a facility similar to the High Bridge.

This solution is developed to maintain the existing crown elevation at the center of the deck. The proposed 2% cross slope is provided with consideration of the supporting superstructure elements. The cross slope is accommodated by providing variable-depth leveling material below the brick deck surface. Concrete edge curbs, designed with weeps would be used as support elements for the bridge railing.

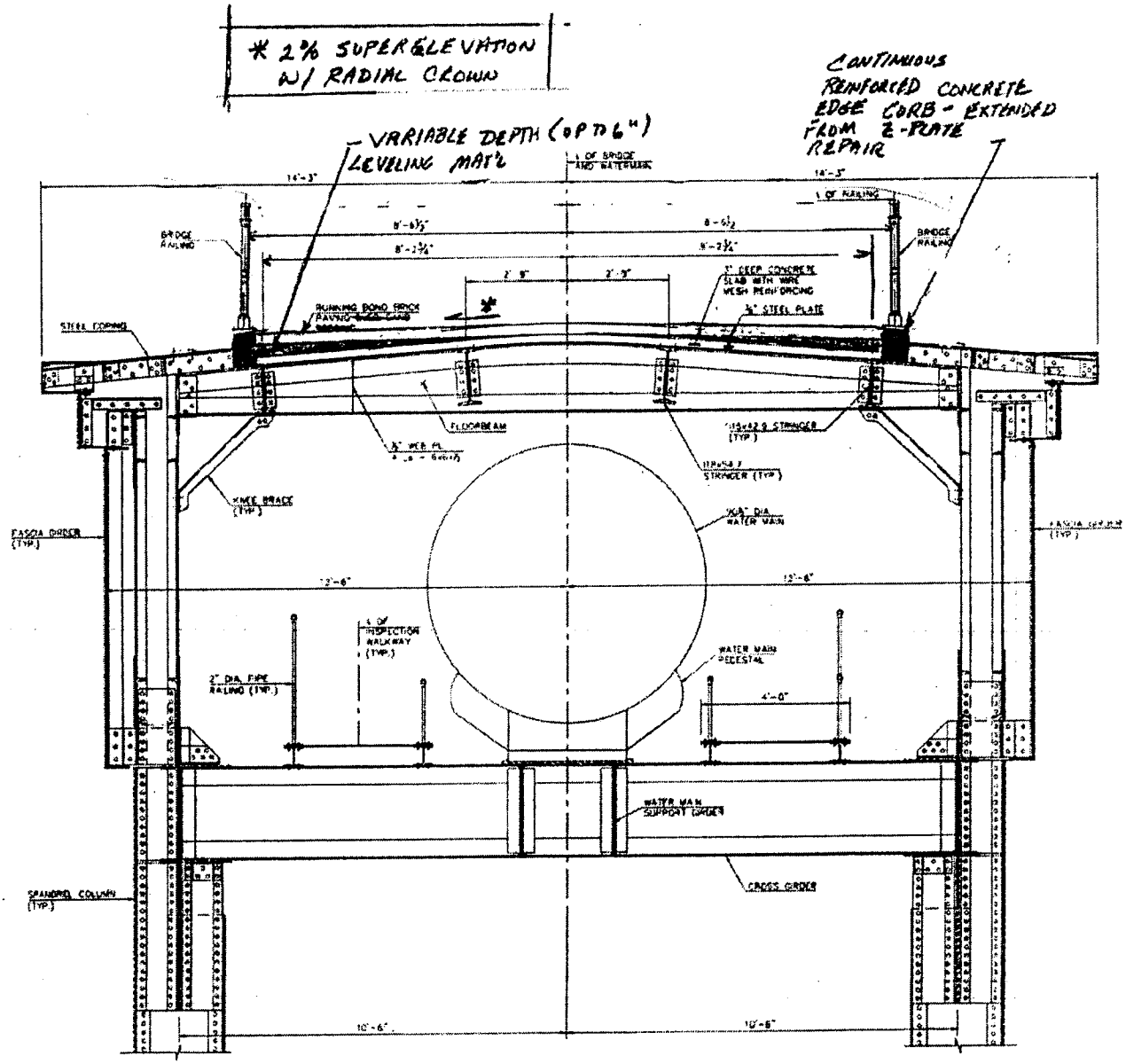
The proposed option is to leave the handrails at their existing dimension from the centerline of the bridge and introduce a precast coping. Another option is to move the handrail inboard narrowing the width of the bridge and not introduce the concrete coping. The bridge profile would not be changed. This recommendation is consistent with the Baker Report (p. 75) which recommends [illegible]

Preferred 20 ft. Walkway Section

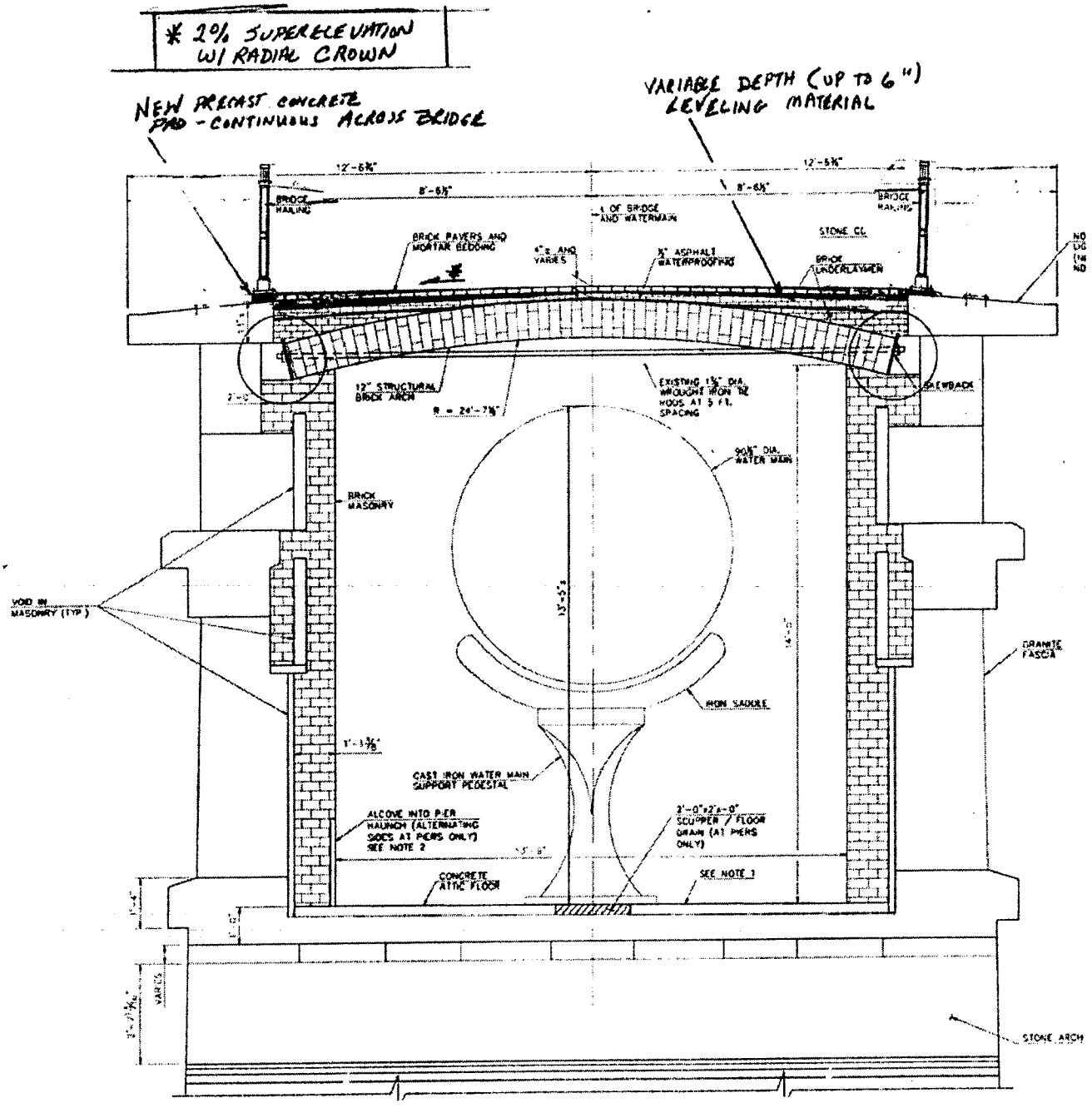


Masonry arch span shown
(Steel arch span is similar)

STEEL ARCH SPAN – 17 FT. WALKWAY SECTION



MASONRY ARCH SPAN - 17' WALKWAY SECTION



Value Engineering Proposal ES.03

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Reduce the cross slope of the bridge deck

Markup: 40.0%		**ORIGINAL DESIGN**			**PROPOSED CHANGE**		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Leveling material, average 3" thick	SF				47,600	10	666,400
Concrete curb section at steel span	LF				1,000	50	70,000
Precast edging, 42" wide, at masonry	LF				1,800	200	504,000
TOTAL COSTS*							**1,240,000**
						TOTAL (BASELINE LESS PROPOSED)	**-1,240,000**
							COST

Note: Total Costs are rounded to nearest thousand dollars

OAC

Value Engineering Proposal ES.11

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Retain historic light poles and locations and supplement with strategic pedestrian light fixtures integrated in the safety fencing

Baseline Design:

The safety fence is located approximately 12 to 14 inches outboard of the historic handrail. New light posts are located in alignment with the historic railing, which requires the handrail to be cut. The safety fencing varies between 8 and 10 feet high. Sketch A, Baseline Design, shows the current design. The fence dimensions on other sheets in the document set show an 8 feet height, and a 10 feet height across the railroad and the Harlem River.

Proposed Change:

Design the safety fence to provide light posts at an approximately 40 feet spacing. Move the safety fence closer to the historic handrail. Utilize existing historic light locations for decorative pedestrian lights that have an historic character. Make the fence a consistent 10' height across the bridge to increase safety and reduce visual clutter.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 1,313,000	$	$ 1,313,000
Proposed Change:	$ 1,565,000	$	$ 1,565,000
Total (Baseline less Proposed):	($ 252,000)	$	($ 252,000)

COST

Advantages:	Disadvantages:
• Visitors are separated from the pedestrian light poles, reducing likelihood of vandalism	• Larger, diameter safety fence posts every 40 feet and railing
• More difficult to wedge balls or other objects between the railing and safety fence	• Distance between safety fence & is reduced approximately 2 feet, resulting in a more enclosed feeling
• Prevents sitting on the handrail	• Contemporary luminaires may become a highly visible feature and compromise the historic feel of the bridge at night.
• Reduces concerns regarding anchoring coping stones to prevent overturning	•
• Light poles located in historically-accurate pattern	•
• More difficult to climb up and over safety fence	•
• Provides high lighting level across the deck span, and ability to adjust according to desired effect	•
•	•

Discussion/Justification:

The baseline design requires cutting and modifying the historic railing where the light posts occur. The location of the safety fencing also may require pinning the coping stones to prevent them from overturning when weight is applied to the top of the fence (see Baseline Design – Section). This concern is exacerbated in areas where the coping is most narrow (approximately 4' wide); where the safety fence may be within 1 foot of the edge (on the east end of the bridge over the Bronx park area). Lastly, the distance between the railing and the safety fence is great enough to start to wedge a large ball (e.g. basketball) or accommodate a human foot, which may invite people to sit on the railing. A person could also sit on the rail, with their feet hanging inboard and his or her back to the safety fence.

This proposal retains the current light post locations, and utilizes 4-inch square stainless steel post support system for the light fixtures, spaced approximately 40 feet apart and securing fence. The posts are provide potentially high lighting levels on the bridge deck (See Proposed Safety Fence Light – Section and Elevation). The light type on the decorative pedestrian light fixtures can be LED, high-pressure sodium, metal

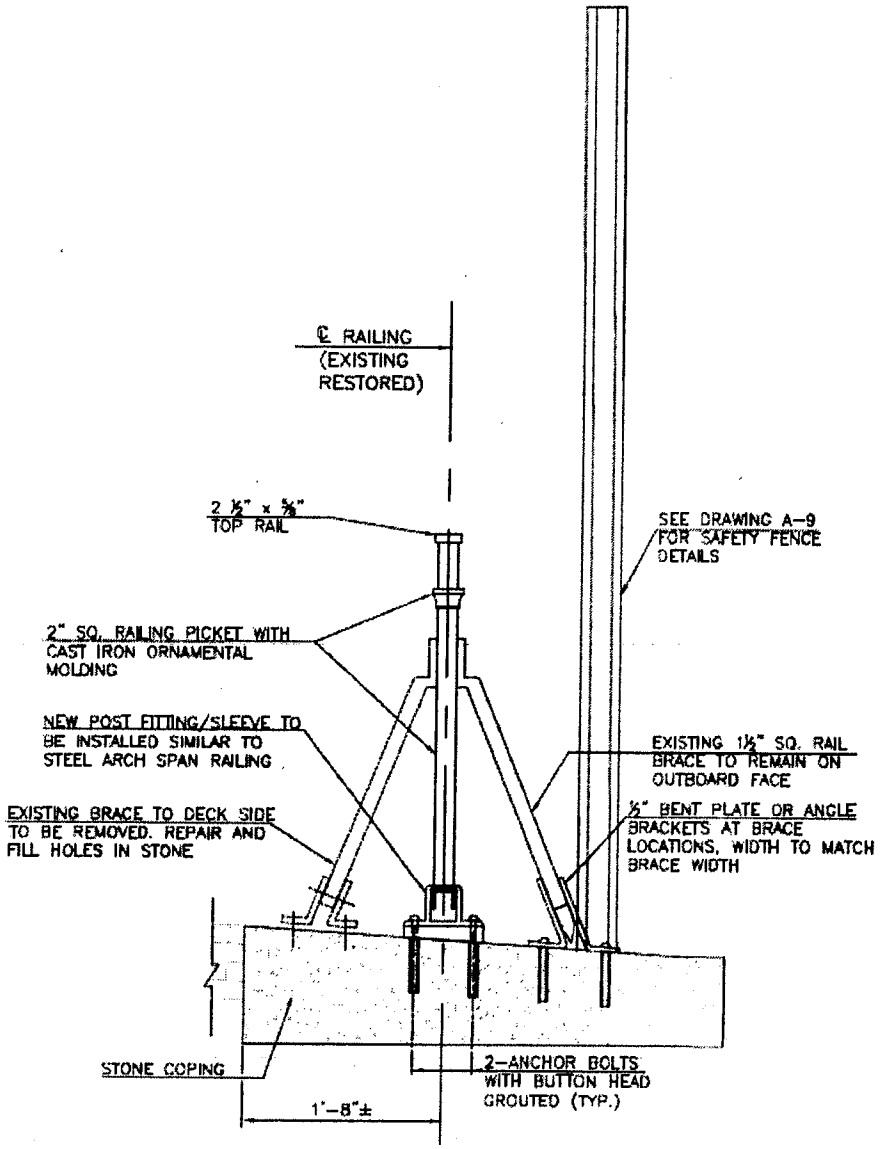
halide or other types because they are decorative only, and secondary to the light provided by the security fence lighting.

It is assumed that the handrail can be repaired, and adequate supports constructed to eliminate the need for the angled supports.

Moving the safety fencing closer to the handrail (further from the outboard edge) reduces and may eliminate the need to anchor coping stones.

Utilizing historic locations for pedestrian lighting (refer to ES.35) eliminates the need to cut and alter the historic railing design. If necessary, the decorative pedestrian light poles could be move slightly outboard to allow the safety fence mesh to pass between the pole base and the handrail.

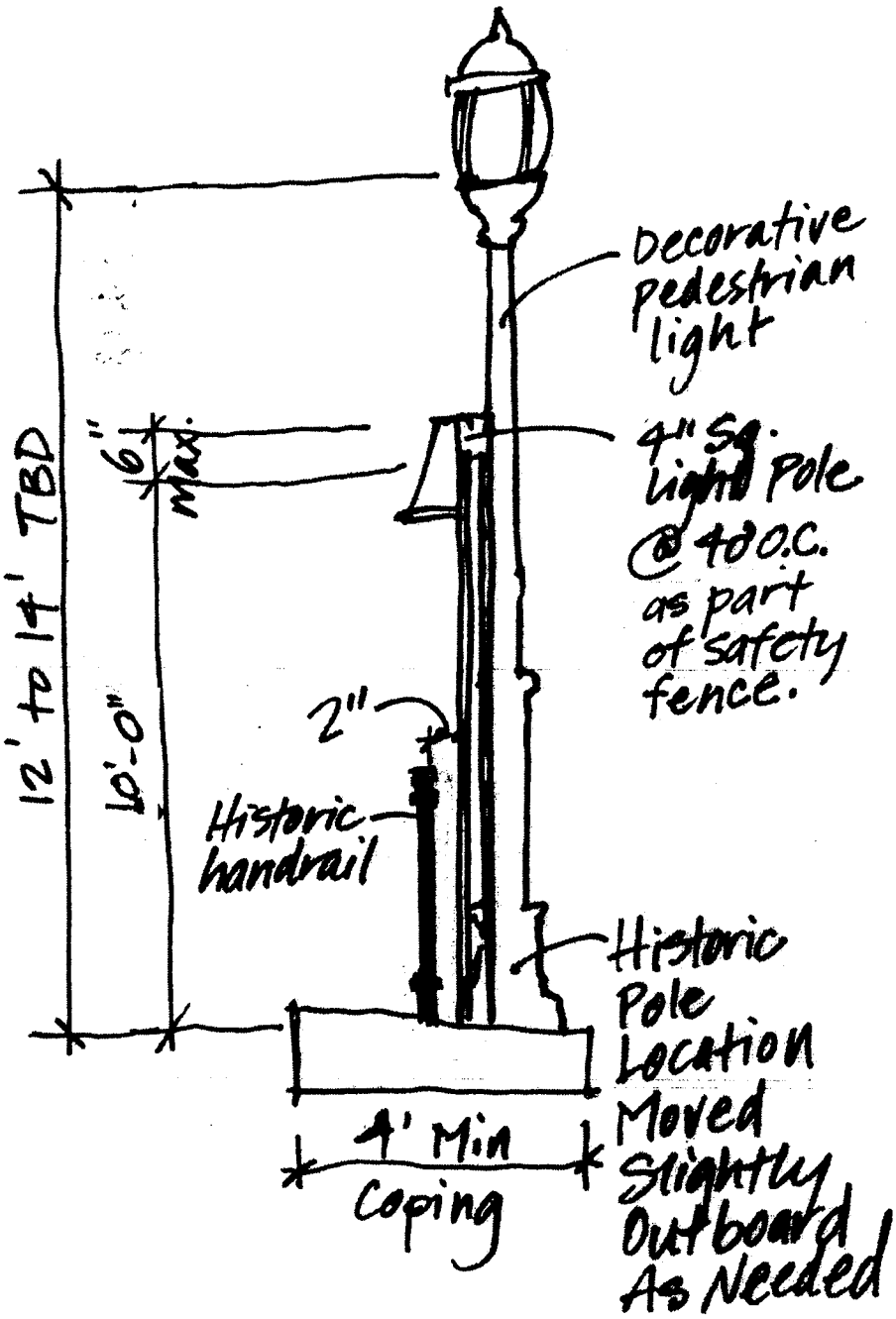
Baseline Safety Fence Design - Section



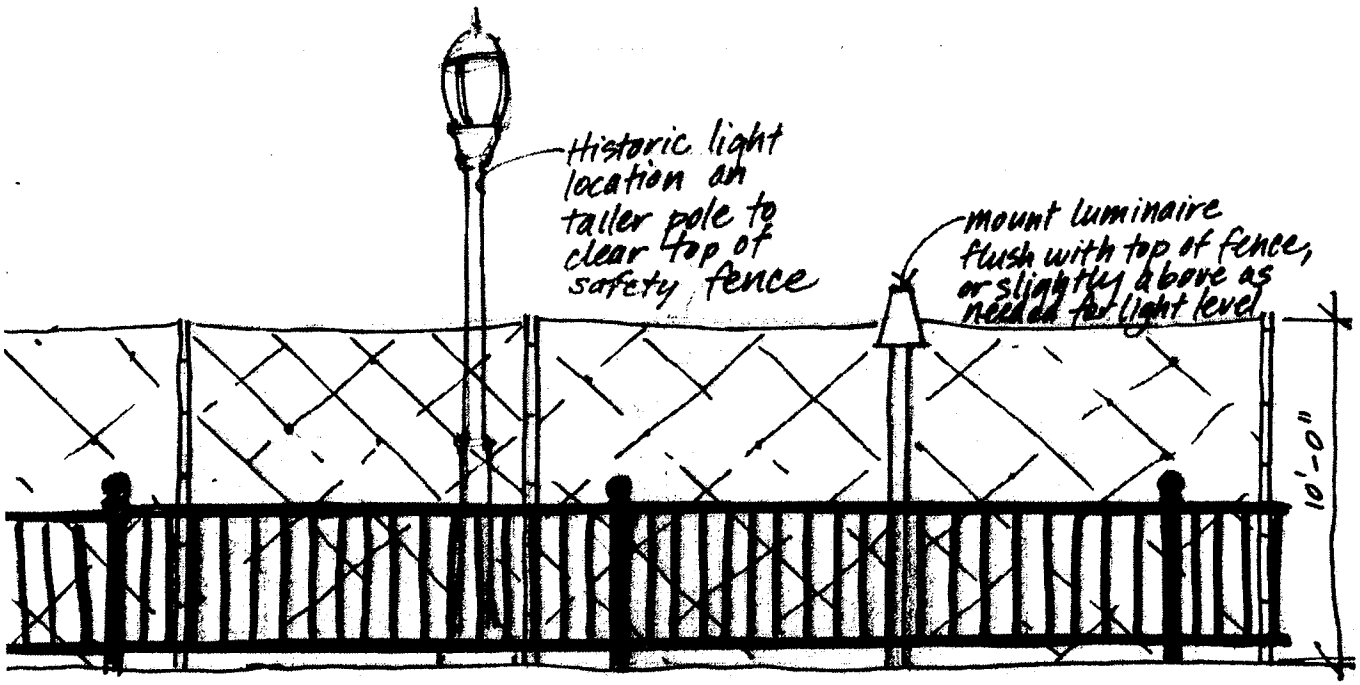
SECTION B-B
INTERMEDIATE POST AND BRACE SECTION
(MASONRY ARCH SPANS)

SCALE: 1"=1'-0"

Proposed Safety Fence Light - Section



Proposed Safety Fence Light - Elevation



Value Engineering Proposal ES.11

High Bridge over the Harlem River
New York City, NY

November 2010

Description:	Retain historic light poles and locations and supplement with strategic pedestrian light fixtures integrated in the safety fencing						
Markup: 40.0%		**ORIGINAL DESIGN**			**PROPOSED CHANGE**		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
New Standard B pole lamps 150W HPS	EA				18	11,000	277,200
Wiring assoc with light poles	LS				1	30,000	42,000
Lighting, street/security allowance	LS	1	400,000	560,000			
Delete 8' high security fencing	LF	1,416	380	753,312			
10' high security fencing	LF				1,416	425	842,520
Luminaires on fence poles	EA				72	4,000	403,200
TOTAL COSTS*				**1,313,000**			**1,565,000**
					TOTAL (BASELINE LESS PROPOSED)		**-252,000**

Note: Total Costs are rounded to nearest thousand dollars

COST

OAC

Value Engineering Proposal ES.12

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Increase railing height and security lighting at the new access ramps

Baseline Design:

The proposed construction of the new access ramp structures adjacent to the Manhattan and Bronx ~~Gatehouses~~ gate houses provides for a fall . 42 in. railing from the bridge deck. Lighting elements are , not indicated on these ramps

Proposed Change:

The proposed changes to the baseline design include (1) raising the railing height around the perimeter ~~exterior periphery~~ of the ramps to eliminate a vaulting hazard for bicyclists at the 90-degree turns at the ends of the ramps; (2) extension of the bridge deck safety fencing along the exterior face of the ramps to provide a continuous barrier throughout the bridge length to connect with the security gates; and (3) provide additional lighting at each end of the structure to illuminate the areas shaded by the ~~gatehouses~~ gate houses. to 54",

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 109,000	$	$ 109,000
Proposed Change:	$ 262,000	$	$ 262,000
Total (Baseline less Proposed):	$ 153,000	$	$ 153,000

COST

Advantages:	Disadvantages:
• Provides additional safety for bicyclists and ramp users.	• Results in additional project cost
• Provides additional illumination – safety with respect to tripping hazards and security	•
• Discourages hazardous access and egress	•
•	•
•	•
•	•

Discussion/Justification:

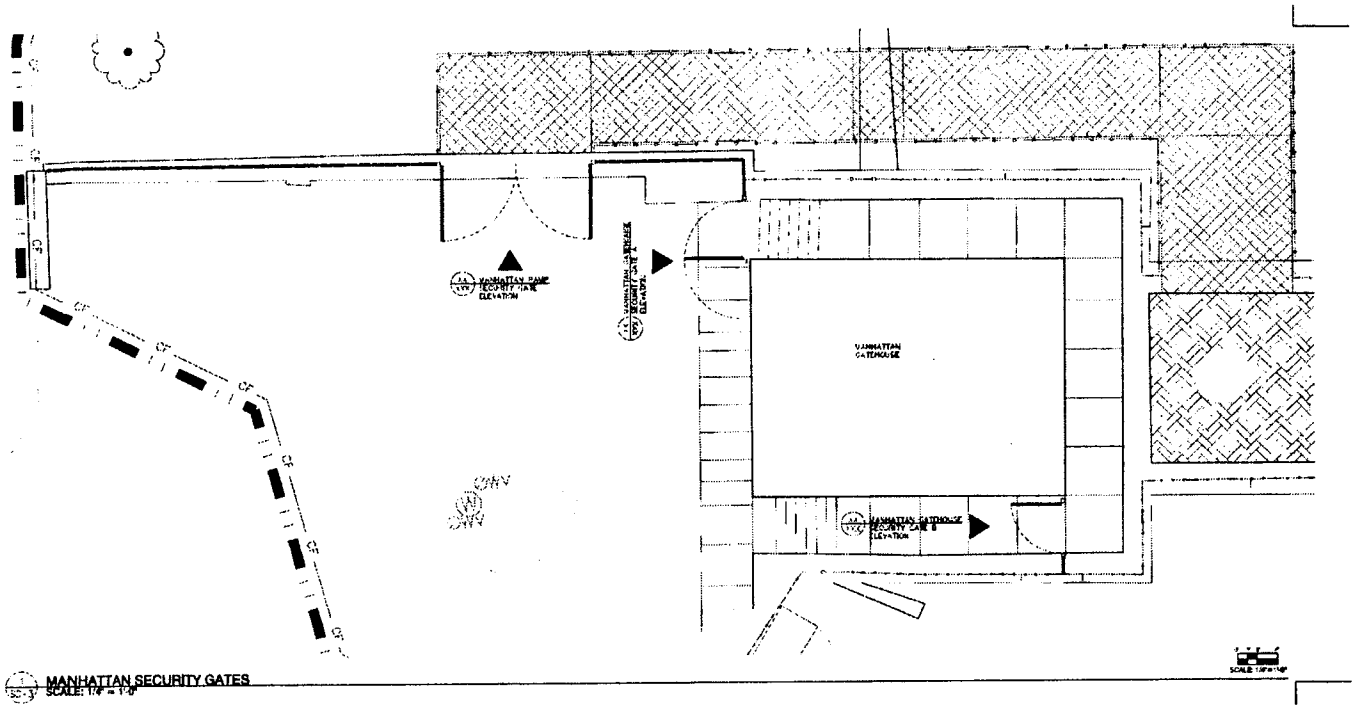
The proposed change to the bridge railing height is associated with the prevention of vaulting hazards for bicyclists at the 90-degree turns at the ramp ends. The change is justified within the context of the NCHRP Report, *Determination of Appropriate Railing Heights for Bicyclists,* which provides the following commentary …

The AASHTO "Guide Specification for Bridge Railing" also requires a height of 1.4 meters (54 inches) for bicycle railing and a height of 1.1 meters (42 inches) for pedestrian railing. Section G2.7.2.2.1 states, "The minimum height of a railing used to protect a bicyclist shall be 54 inches, measured from the top of the surface on which the bicycle rides to the top of the top rail." Additionally, Section G2.7.3.2.1 states, "The minimum height of a pedestrian railing shall be 3 feet 6 inches measured from the top of the walkway to the top of the upper rail member." The use of the word "shall" signifies that the heights represent requirements rather than design guidelines.

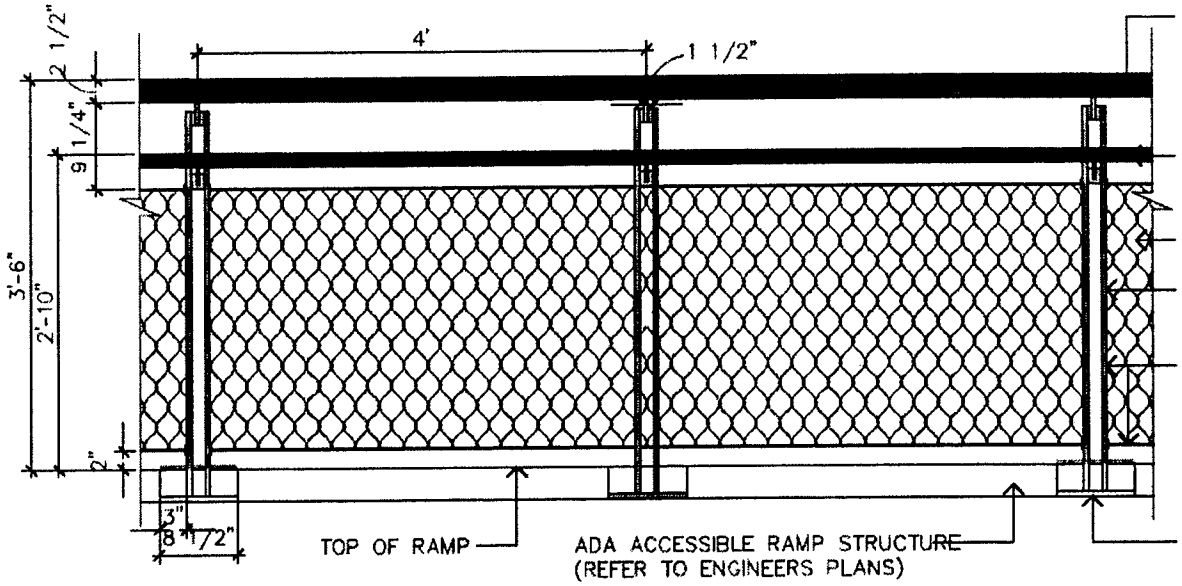
With respect to illumination, the areas in the proximity of the ~~gatehouses~~ gate houses are shaded from natural light. The bridge will be open after dusk. Therefore, to ensure safe and secure access for ramp users in the areas around the ramps and the entrance to the walkways on the Bronx approach, , additional lighting is warranted. The work will include the installation of one additional light pole / fixture at both the Manhattan and Bronx approaches.

The extension of the safety fence along the length of the entire ramps is also recommended to discourage access to the bridge in the area between the bridge deck safety fence and the safety gates at entrances to the facility.

Proposed Manhattan Access Ramp



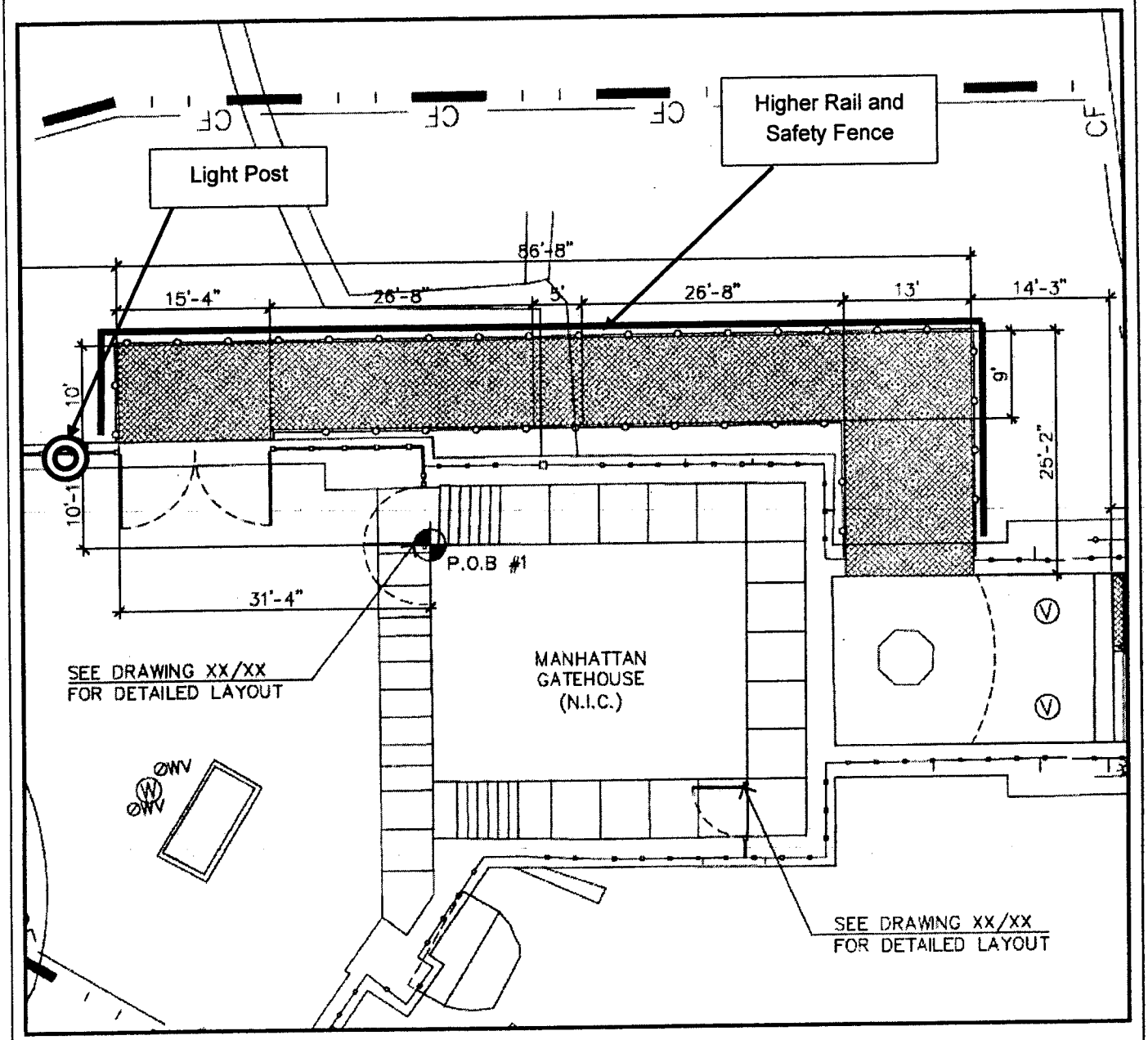
Proposed Ramp Railing



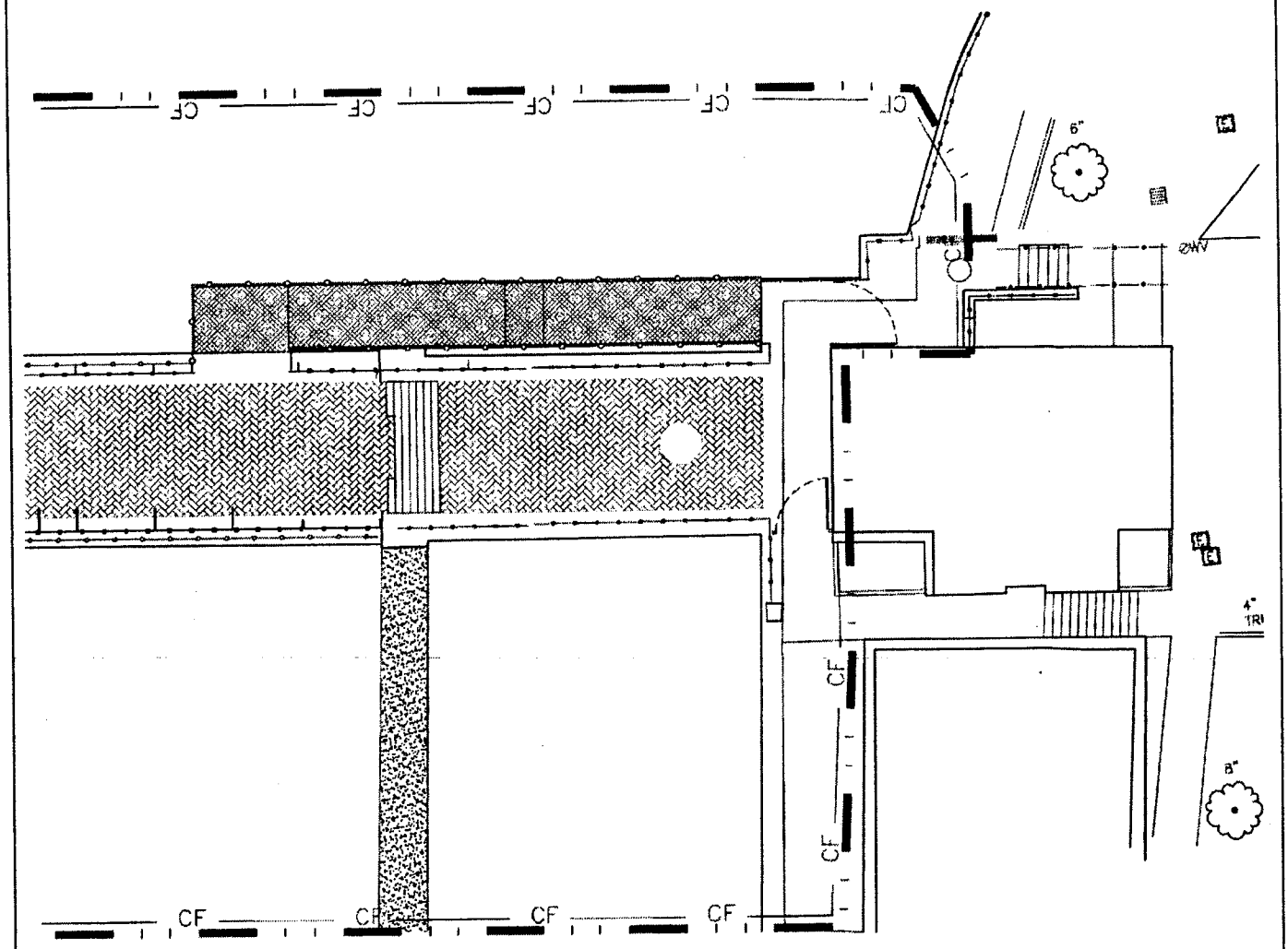
ELEVATION

1 / SD-1 **RAMP RAILING - TYPE A**
SCALE: 1" = 1'-0"

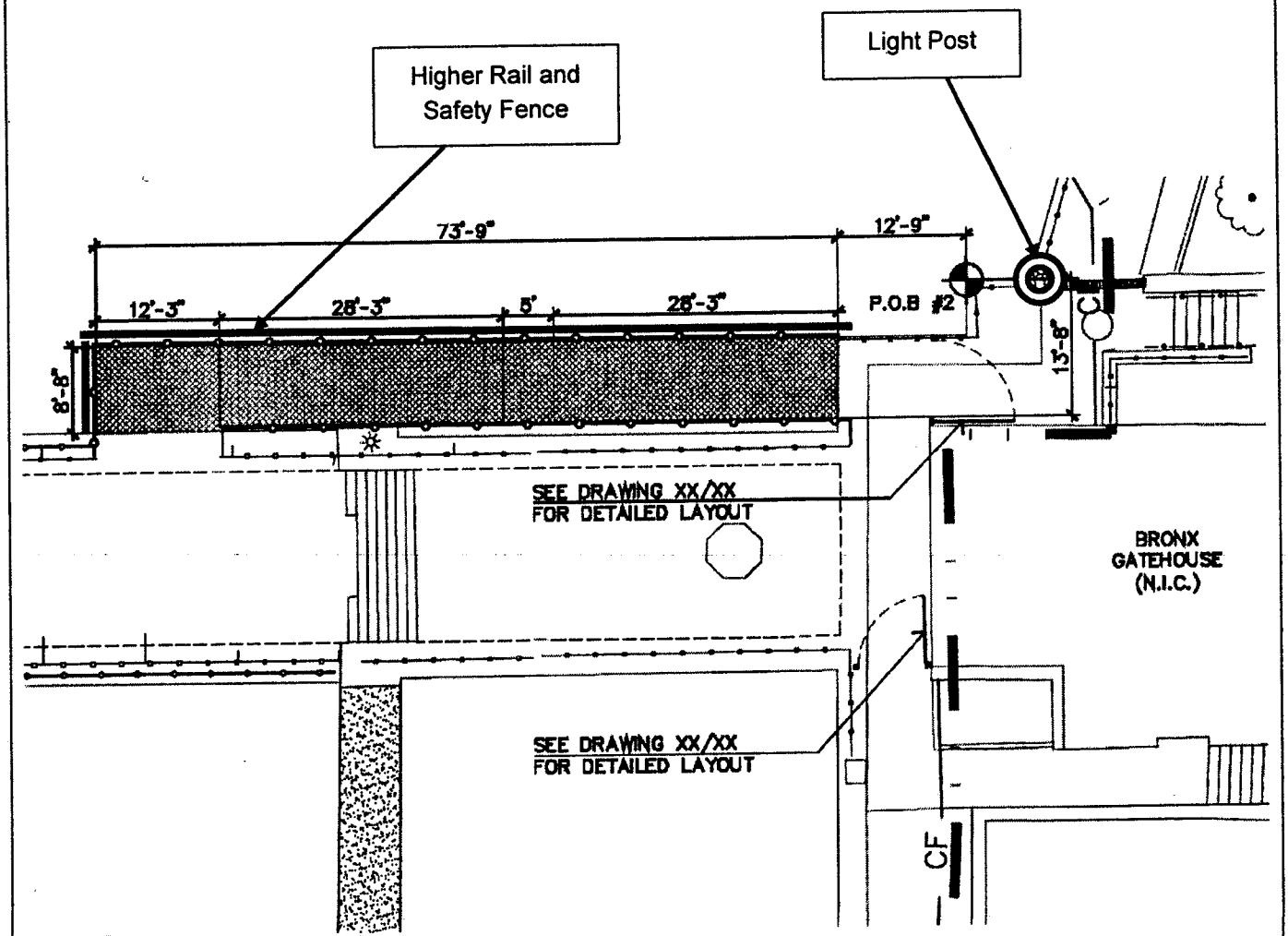
Manhattan Access Ramp with Revised Fencing



Proposed Bronx Access Ramp



Bronx Access Ramp with Revised Fencing



Value Engineering Proposal ES.12

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Increase railing height and security lighting at the new access ramps

Markup: 40.0%		**ORIGINAL DESIGN**			**PROPOSED CHANGE**		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Delete 42" high railing with SS mesh	LF	205	380	109,060			
54" high railing	LF				205	315	90,405
Safety fence	LF				205	400	114,800
Light poles with light fixtures	EA				2	10,000	28,000
Additional ramp width	SF				410	50	28,700
TOTAL COSTS*				**109,000**			**262,000**
						TOTAL (BASELINE LESS PROPOSED)	**-153,000**
							COST

Note: Total Costs are rounded to nearest thousand dollars

OAC

Value Engineering Proposal ES.18
High Bridge over the Harlem River
New York City, NY

November 2010

Description: Build the Manhattan ramp on the South side of the Gatehous

Baseline Design:
Current design requires pedestrians to navigate ramps immediately north of Manhattan gate house. Given the site's existing topography and that the only (current) approach to The High bridge from Manhattan is from the south, the ramps are concealed by the Manhattan gate house plaza.
Proposed Change:
Move the ramp to the south of the Manhattan gate house.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 742,000	$	$ 742,000
Proposed Change:	$ 1,209,000	$	$ 1,209,000
Total (Baseline less Proposed):	$ 467,000	$	$ 467,000

COST

Advantages:	Disadvantages:
• Clear line-of-sight from plaza, through ramp, to bridge	•
• Single ADA-compliant ramp instead of two ramps	• Ramp over highway increases MPT costs during construction
• Permits access by ambulance	• More visible than ramp in current design
• Adds distinct modern element to historic Bridge	•
•	•
•	•

Discussion/Justification:

to accommodate ADA and emergency vehicle access to the bridge deck from the Manhattan gate house. The design team has proposed a ramp around the north side of the gate house to the vent shaft platform with an additional ramp from the platform to the bridge deck. (See Figure 1). Given the site's existing topography and that the only (current) approach to the High bridge from Manhattan is from the south, the ramps are concealed by the Manhattan gatehouse plaza.

An alternate approach is to construct a bridge from the south side of the Manhattan plaza area to the bridge deck in order to provide clear line-of-sight. (See Figure 2) The large difference in elevation, a span over the Cross Bronx Expressway ramps and the desire to avoid any attachment to the exiting masonry spans can be accommodated by a series of drilled pier foundations (or piers on rock anchored footings) in the Park supporting a steel structure. superstructure. Plan is shown in Figure 2 a

Revising the ramp alignment and location allows access for ambulances to serve emergency purposes. This access is significantly closer to Columbia Presbyterian Hospital.

Figure 1 – Proposed Access Ramp in 50% Plans

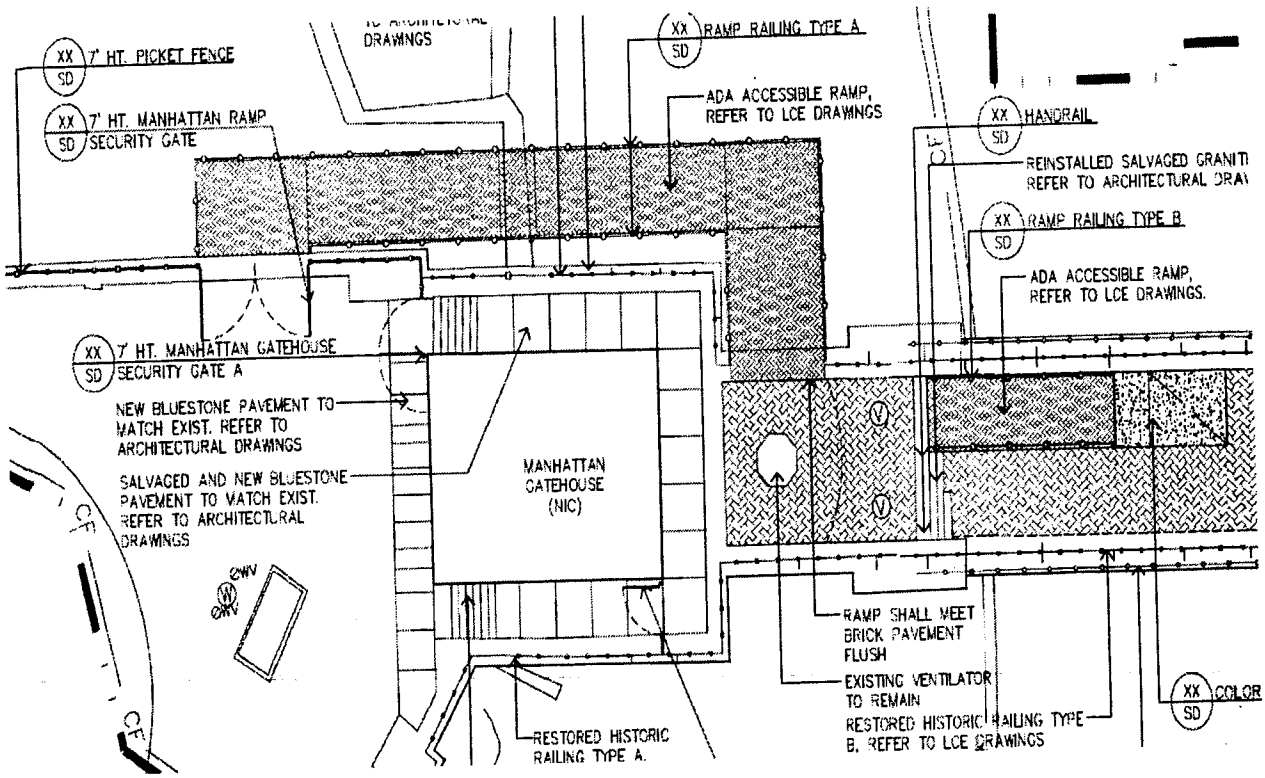
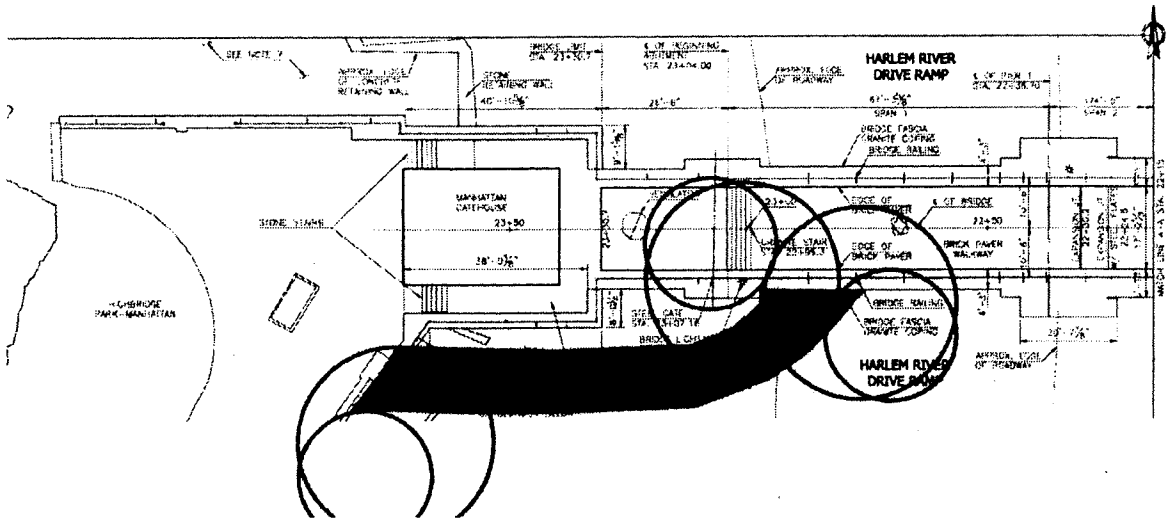
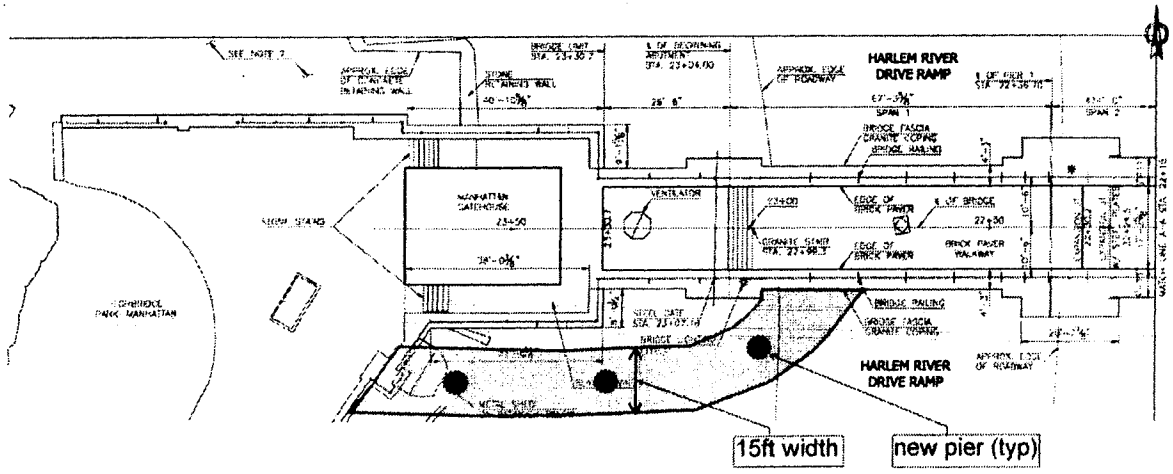


Figure 2: Proposed Ramp



Turning radius sketch using single unit truck (approx)



Ramp layout sketch

Value Engineering Proposal ES.18

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Build the Manhattan ramp on the South side of the Gatehouse

Markup: 40.0%		ORIGINAL DESIGN			PROPOSED CHANGE		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Delete Manhattan ramps	LS	1	530,000	742,000			
Redesigned ramp as follows							
Footings incl excavation & concrete	LS				1	100,000	140,000
Structural steel columns	LBS				6,500	8	72,800
Structural steel beams	LBS				60,000	8	672,000
Steel grid deck	SF				1,024	30	43,008
Railings	LF				256	380	136,192
Security fencing	LF				256	400	143,360
Expansion joints	LF				18	50	1,260
TOTAL COSTS*				**742,000**			**1,209,000**
						TOTAL (BASELINE LESS PROPOSED)	**-467,000**

Note: Total Costs are rounded to nearest thousand dollars

COST

OAC

Value Engineering Proposal ES.19

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Implement traffic calming measures for bicyclists on the bridge deck.

Baseline Design:

Eight benches, located on the steel span over the Harlem River, are placed parallel to, and approximately 3 feet away from the edge of the brick paving. The slope of the pavement is lessened in 2 areas, where 2 benches with backs face the railing. A trash receptacle is placed at the end of one of the benches on the leveled platform. The edge of the leveled platform is formed with a steel plate, placed at the edge of the brick paving, which also serves as a wheel stop. The grade on the back side of the steel plate is approximately 6 inches below the elevated platform. How the grade transitions between the historic arched deck and the ends of the leveled platform is not defined.

Interpretive signage is located in the open area between these 2 benches. Four additional backless benches) are located between the leveled platforms, and are placed on brick pavement that is the same as the historic 5 to 7 % slope.

No benches are located near the Bronx end of the bridge.

Proposed Change:

Create seating clusters that are anchored by low planters, with a total of 15 benches, 5 trash receptacles and 5 planters. Create a more gently sloping bridge deck across the length of the bridge.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 30,000	$	$ 30,000
Proposed Change:	$ 1,014,000	$	$ 1,014,000
Total (Baseline less Proposed)	$ 984,000	$	$ 984,000
			COST

Advantages:	Disadvantages:
• Slows bicyclists by introducing additional site elements	• Increased maintenance associated with planters (watering, planting, weeding, cleanup) and trash receptacles
• Allows seating direction choices for people who are uncomfortable with their backs to a path behind them	• Alters the simple, stark historic character of the bridge deck for portions of its length
• Adds seasonal color through plantings	• Requires the creation of sloped bridge deck that meets current ADA requirements, but alters historic slope
• Increases width of strolling zone in seating areas ~~from~~	•
• Protects pedestrians through addition of a barrier at ends of seating areas	•
• Eliminates potential trip hazards	•
• Increases the capacity for seating, creating more destination space, versus "pass-through" space	•
• Increases safety by lessening the cross slope	•

Discussion/Justification:

There is potential that this bridge will become a major attraction, with bicyclists using it for both commuter and recreational purposes, and pedestrians flocking to the area to walk through and linger. The only traffic calming occurs at the bridge ends where there are ramps with geometry that prevents high speed, and where eight benches, located on the steel span over the Harlem River, are placed parallel to, and approximately 3 feet away from the edge of the brick paving. The concerns are: (1) a few benches may not sufficiently deter high bicycle speeds; (2) the benches are not visible enough when unoccupied, and; (3) the legs of people sitting on benches are vulnerable to being run into by bicyclists.

Another concern is that the design of the leveled platforms presents new hazards for tripping because of the level change between the arched deck and new surface, as well as the steel plate along the front edge of the platform.

A third concern is regarding meeting the requirements of the ADA. The baseline design places benches in areas where the bridge deck slopes exceed ADA standards, and requires bicyclists and pedestrians who are walking around bench groupings to utilize a path that has extreme cross-slopes with no indication of where slopes are within acceptable slope limits. A bicyclist or pedestrian may be forced to walk or ride near the railing, where cross slopes are the greatest.

Slower speeds can be achieved through design that intuitively warns bicyclists that the area is a shared-use zone, while still allowing bicyclists to ride across the bridge deck. The proposal reduces reliance upon enforcement for speed reduction. Additional pedestrian site furnishings and planters can accomplish this objective, while increasing the comfort and safety of users. Planters that anchor the ends of bench groupings create a sense of enclosure and protection, while providing seasonal color and protecting both the bicyclist and the person on the bench.

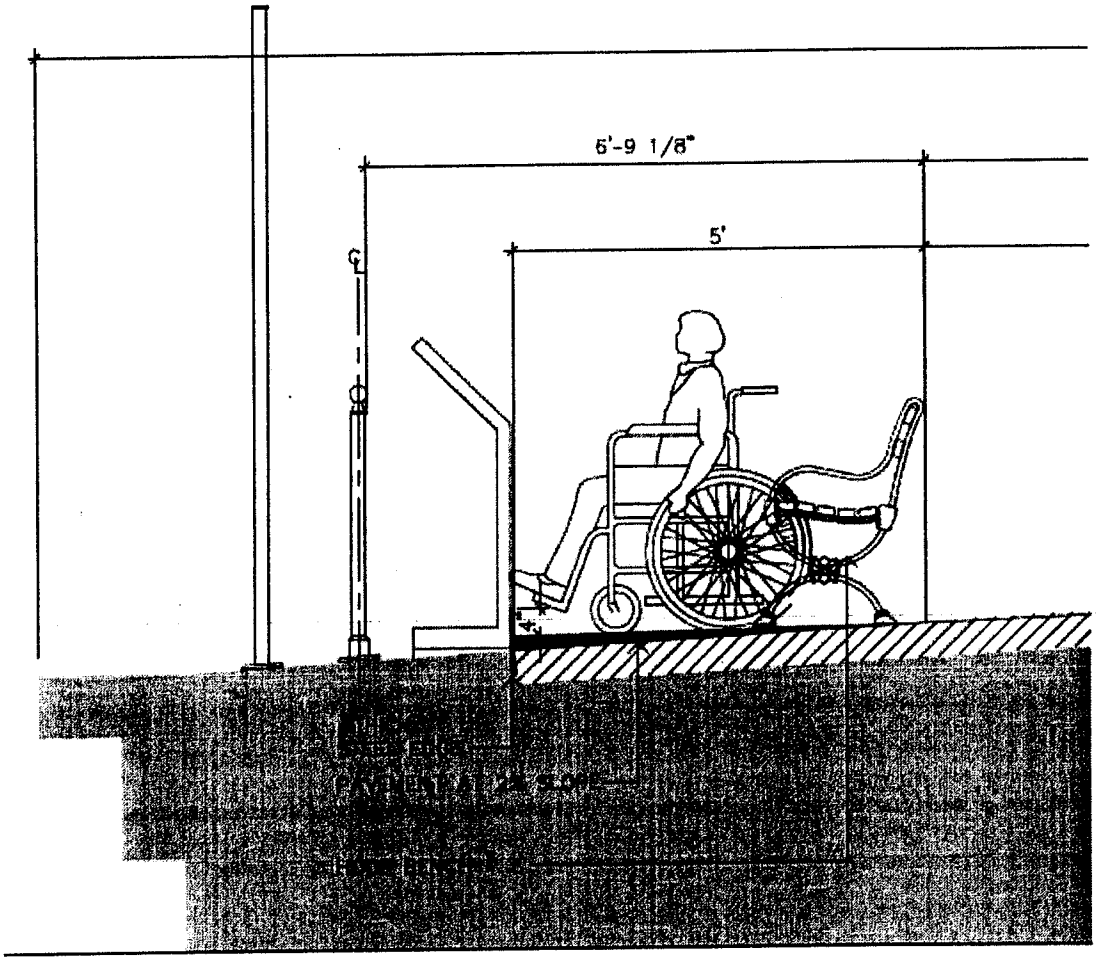
The proposal includes 4 clusters of 3 benches, 2 planters and a trash receptacle, near the Manhattan end, where the steel span is located (see Proposed Strolling / Seating Area Section and Plan Enlargement, and Proposed Seating Area Over Harlem River). A single seating cluster is located near the Bronx end, overlooking the park and historic stair (See Proposed Seating Area Near Bronx End). All benches are backless, allowing the user to choose to look out from the bridge or people-watch.

Between these two areas the bridge remains without site furnishings so people can experience its historic character.

To eliminate trip hazards and extreme cross slopes it is recommended that the edges of the bridge deck be raised with a coping and repaved to create a 2% cross slope.

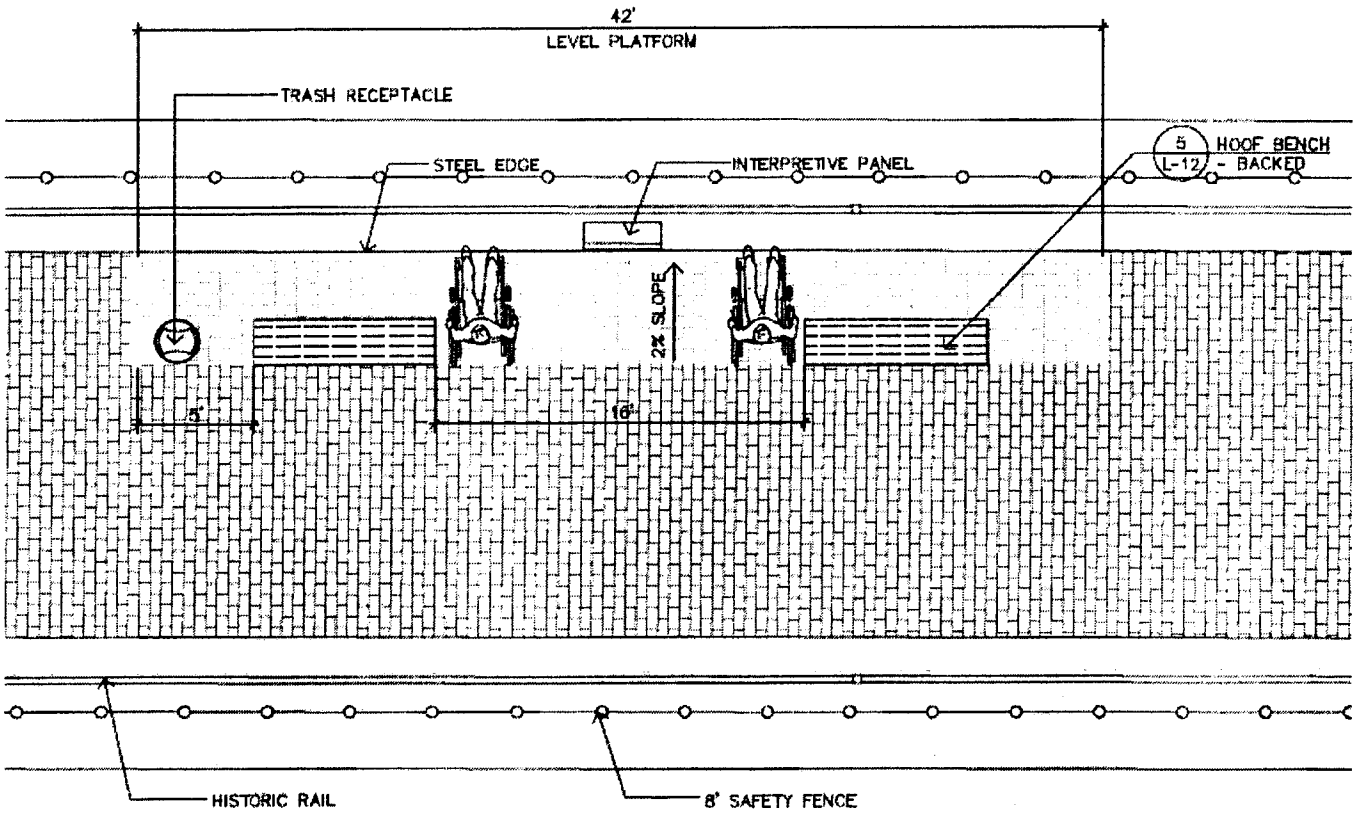
This proposal can work well with other VE proposals that address dismount zones, interpretation and special events plazas to create a wonderful destination for New York City.

Baseline Seating Area - Section

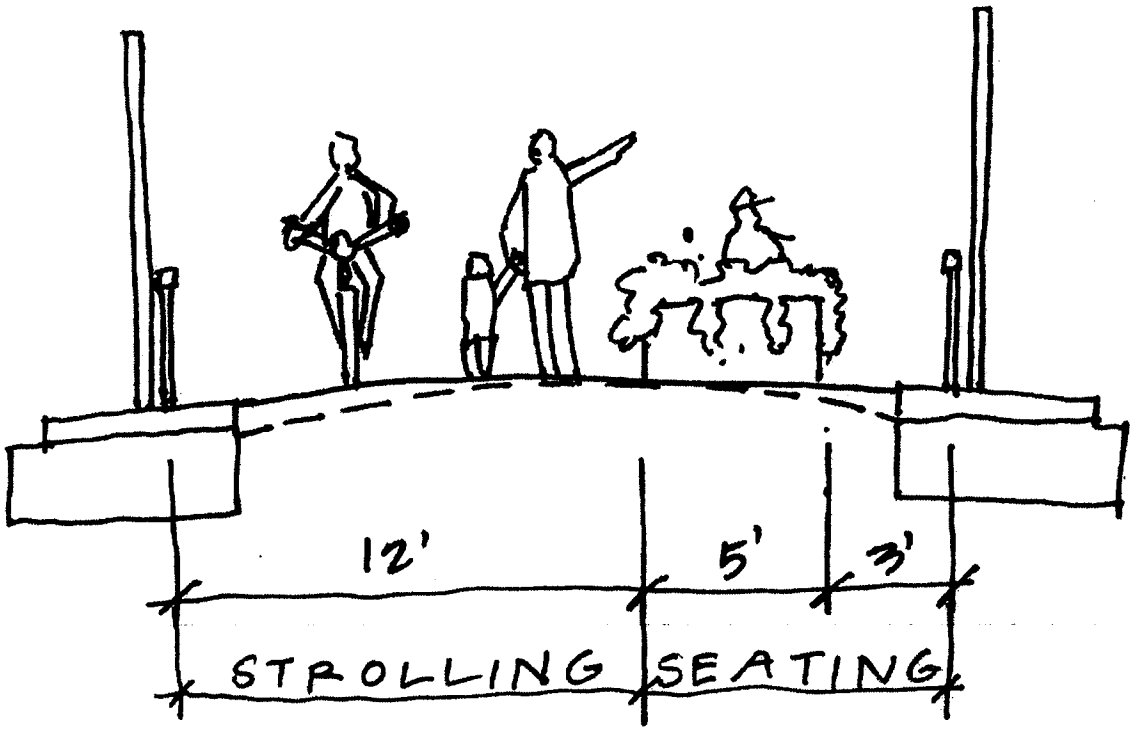


VIEWING PLATFORM - SECTION ELEVATION

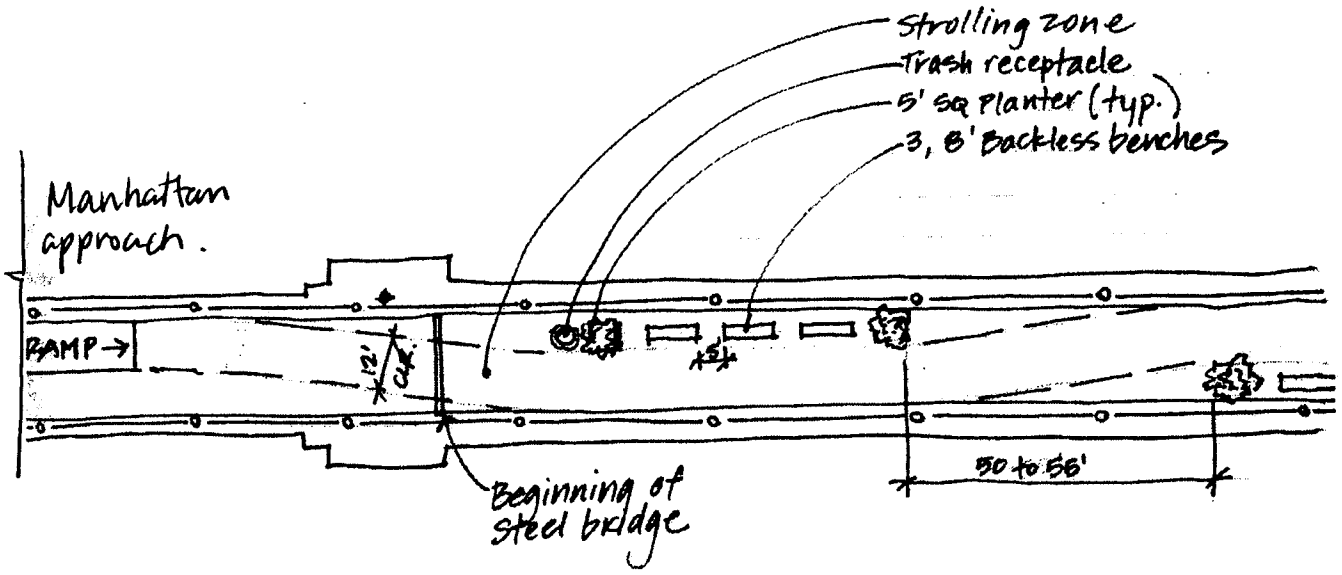
Baseline Seating Area - Plan



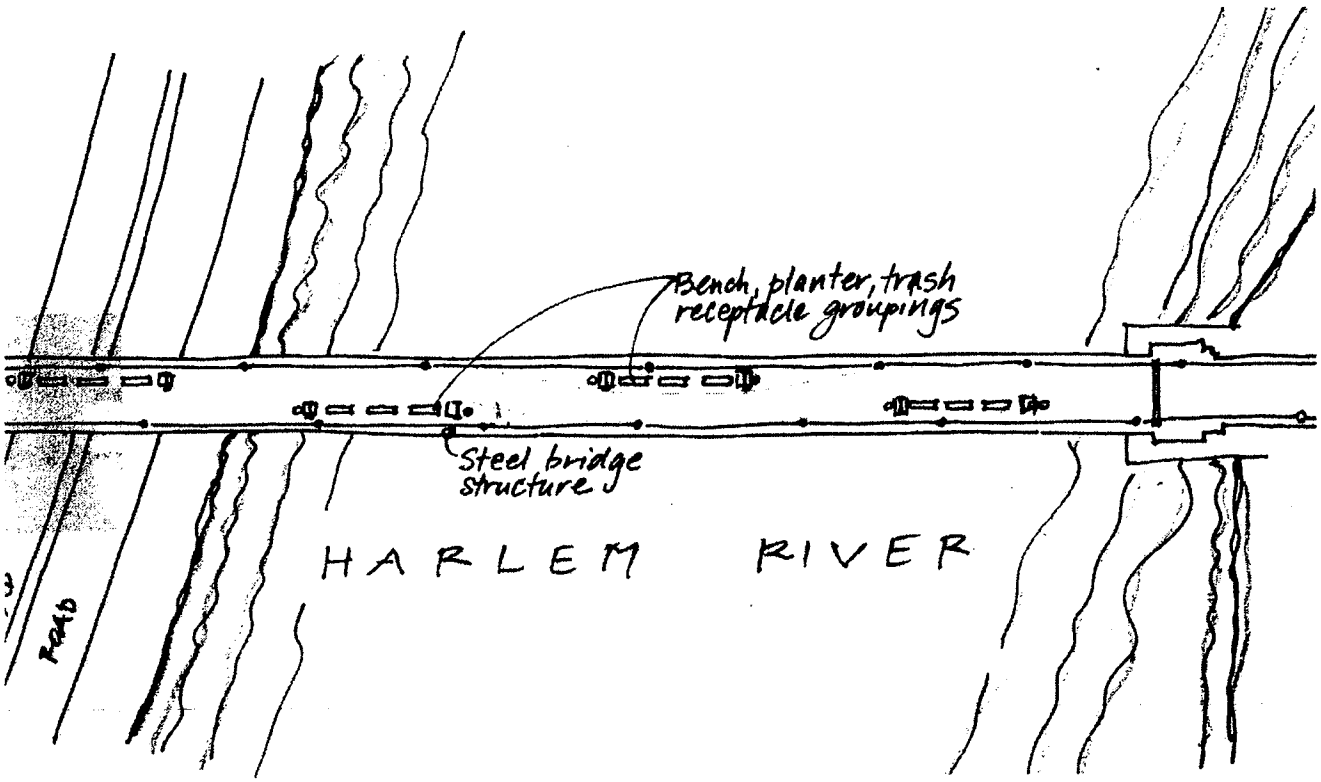
Proposed Strolling and Seating Area - Section



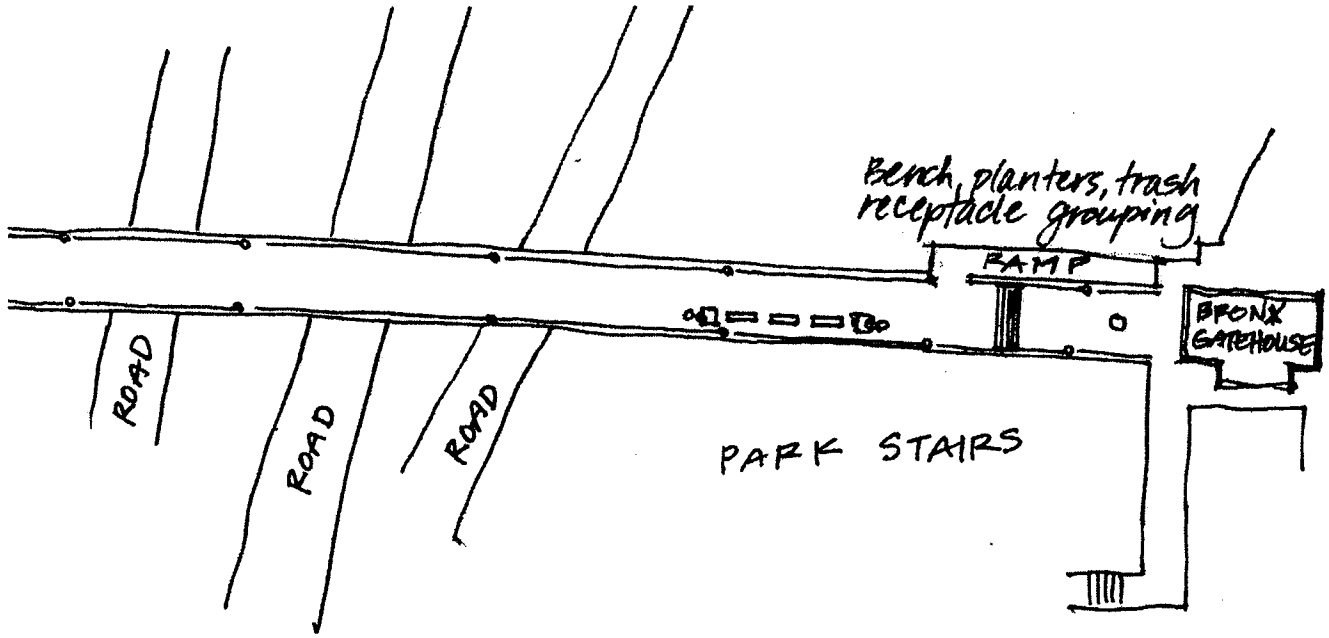
Proposed Strolling / Seating Area – Plan Enlargement



Proposed Seating Area Over Harlem River – Plan



Proposed Seating Area At Bronx End – Plan



Value Engineering Proposal ES.19

High Bridge over the Harlem River
New York City, NY **November 2010**

Description: Implement traffic calming measures for bicyclists on the bridge deck

Markup: 40.0%		**ORIGINAL DESIGN**			**PROPOSED CHANGE**		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Delete site furniture	LS	1	21,200	29,680			
Benches, backed, 8' long	EA				6	2,500	21,000
Benches, backless, 8' long	EA				15	2,000	42,000
Planters, 5' square, incl small trees	EA				10	2,500	35,000
Trash receptacles	EA				8	800	8,960
Leveling material, average 3" thick	SF				8,400	10	117,600
New Precast edging	LF				2,800	200	784,000
Steel Coping	LF				210	20	5,880
TOTAL COSTS*				**30,000**			**1,014,000**
						TOTAL (BASELINE LESS PROPOSED)	**-984,000**

Note: Total Costs are rounded to nearest thousand dollars

COST

OAC

Value Engineering Proposal ES.32
High Bridge over the Harlem River
New York City, NY

November 2010

Description: Install a wearing surface of historic herringbone brick over the existing pavers with intermittent view panels

Baseline Design:

Remove existing brick deck surface and salvage bricks. Replace steel Z section and repair damaged stringers. Replace existing salvaged bricks in the same configuration. Replace damaged bricks with new.

Proposed Change:

Remove only a width of 1 ft. of existing brick along each coping edge. Replace steel Z section and repair stringers as planned. Replace existing salvaged bricks in the same configuration. Replace damaged bricks with new. to match existing brick pattern

Overlay new brick deck surface on top of existing brick deck. Incorporate new glass viewing panels for viewing of the existing brick deck surface.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 6,283,000	$	$ 6,283,000
Proposed Change:	$ 2,395,000	$	$ 2,395,000
Total (Baseline less Proposed):	$ 3,888,000	$	$ 3,888,000
			SAVINGS

Advantages:	Disadvantages:
• Protects majority of the existing bridge deck	• Modifies cross slope from the original historical configuration of the bridge deck
• Eliminates costly removal and salvage of existing brick	• modifies historic profile of the bridge.
• Improves safety by reducing cross slope	•
•	•
•	•
•	•

Discussion/Justification:

One major element of work for the project is the removal and salvage of the existing old brick on the deck. This proposal greatly reduces the scope of this portion of the work while allowing for the necessary replacement of the steel Z channel and repair of the stringers. Approximately only 10-12 percent of the existing bricks will need to be removed and taken off site for the removal of the mortar. The deck will then be reconstructed to original configuration with some new bricks to replace the bricks damaged from removal.

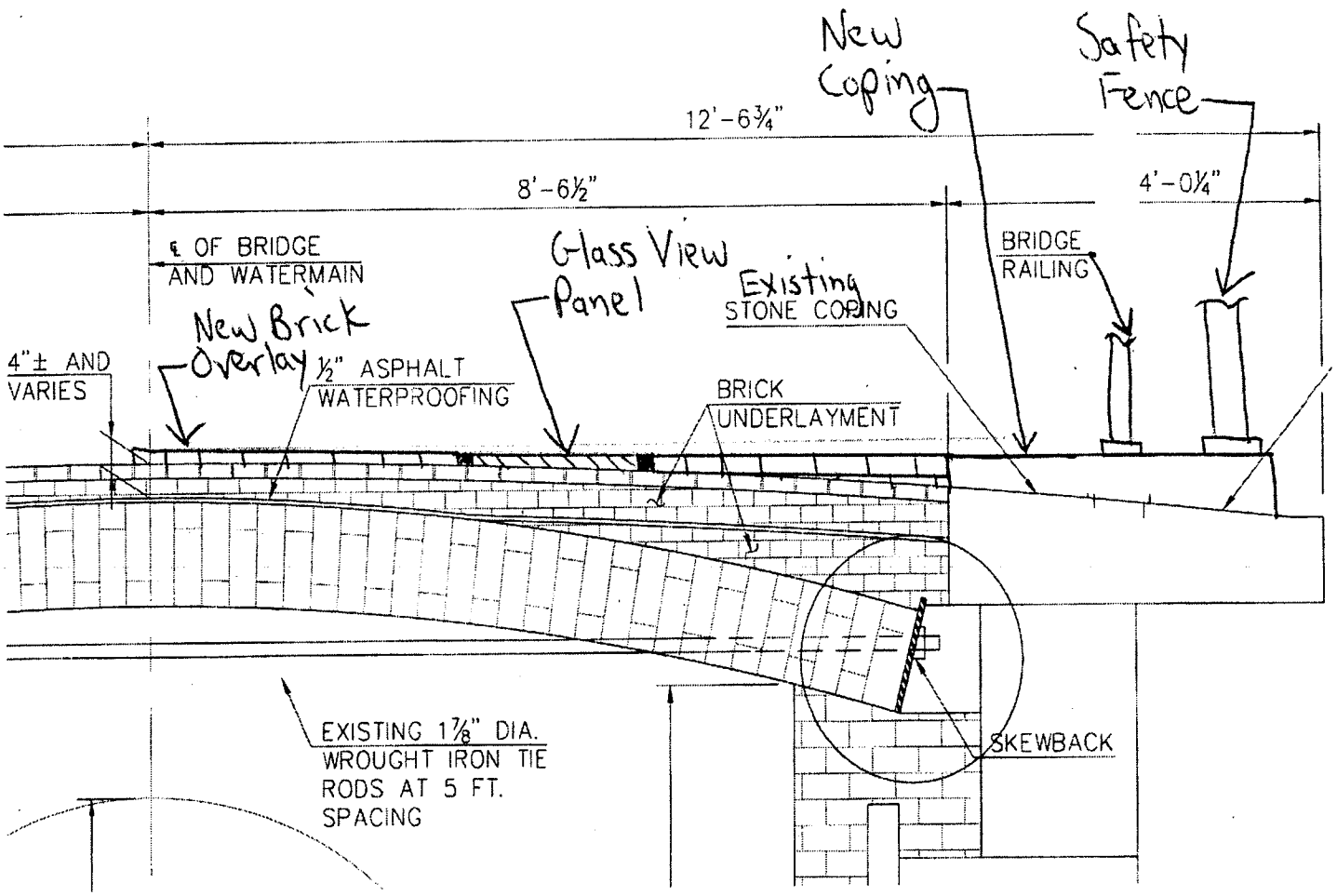
The existing waterproofing will remain and a new waterproofing system will be integrated into the addition of the new brick overlay.

The new brick surface shall be sloped at 2% from each edge to a center crown. The edges of the new surface shall end at the existing coping stone edge and terminate flush at a new pre-cast concrete curb located on top of the existing coping stone. The pre-cast curb shall accommodate the installation of the historic railing, security fence posts and light poles.

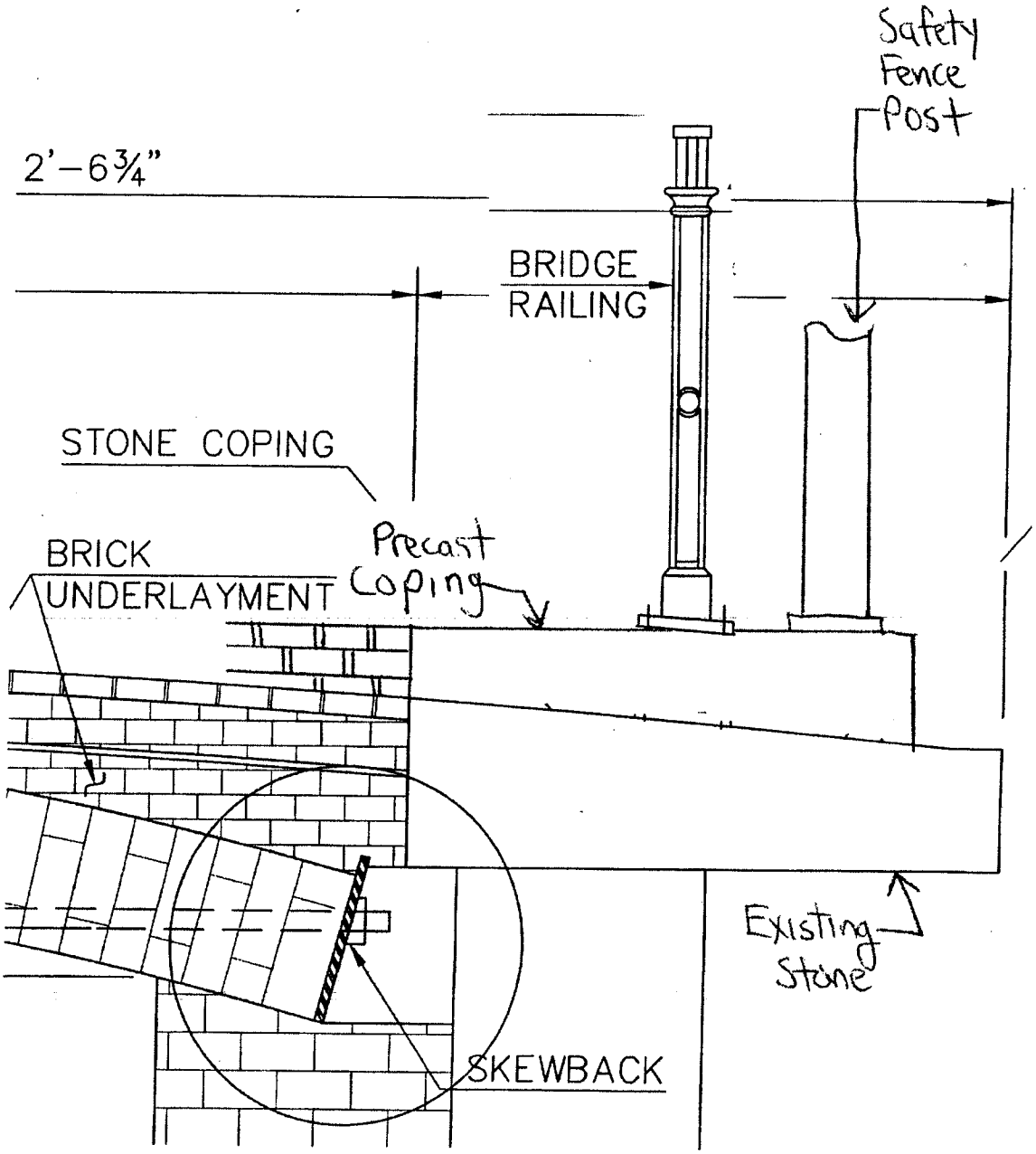
Three new 2 ft. x 2 ft. glass viewing panels shall be installed at selected locations to provide viewing of the original herringbone, running bond, and dark brick patterns on the bridge deck.

This proposal is consistent with the Baker Report's recommendation ~~to~~ regarding the cross slope (Sheet 1-5)

Brick Overlay Section Detail



Precast Coping Detail



Value Engineering Proposal ES.32

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Install a wearing surface of historic herringbone brick over the existing pavers with intermittent view panels							
Markup: 40.0%		**ORIGINAL DESIGN**			**PROPOSED CHANGE**		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Delete removal of brick pavers, underlay, w/p	LS	1	4,487,867	6,283,014			
Remove brick pavers along coping edge	SF				2,800	10	39,200
New Precast Coping	LF				2,800	200	784,000
Leveling material, average 3" thick	SF				8,400	10	117,600
New brick pavers laid over existing pavers	SF				25,857	40	1,447,992
Glass viewing panels	EA				3	1,500	6,300
TOTAL COSTS*				**6,283,000**			**2,395,000**
						TOTAL (BASELINE LESS PROPOSED)	**3,888,000**

Note: Total Costs are rounded to nearest thousand dollars

SAVINGS

OAC

Value Engineering Proposal ES.33
High Bridge over the Harlem River
New York City, NY

November 2010

Description: Eliminate the gap between the handrail and the light poles

Baseline Design:
The present design has a space between the light pole and hand rail.
Proposed Change:
The change would incorporate framework to tie the handrails together behind the light pole. Alternatively a suitable design might be developed to tie the handrails to the light pole.

DESIGN SUGGESTION

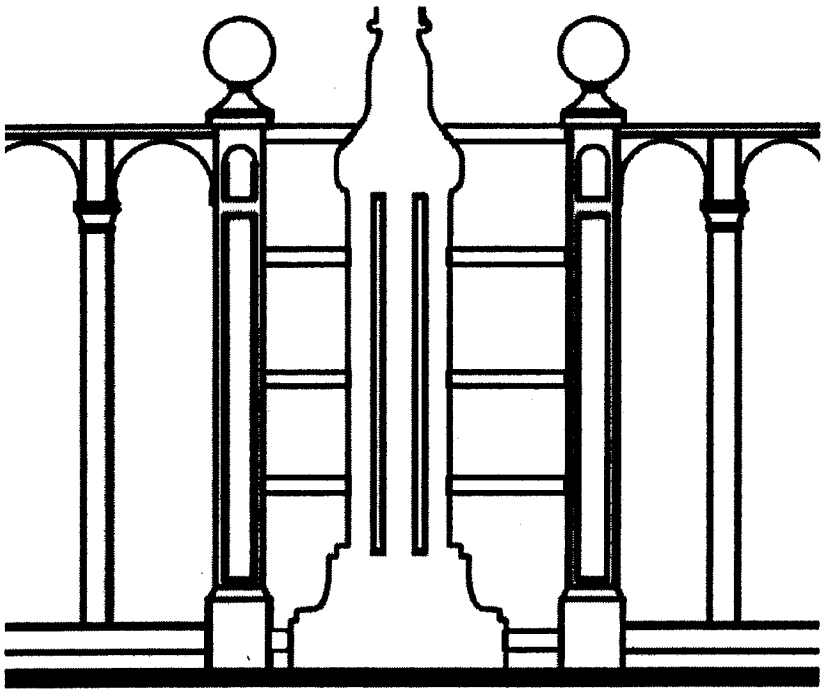
Advantages:	Disadvantages:
• Reduce attractive nuisance associated with the space between the light pole and hand railing	• May be difficult to integrate with historic design
• Add strength to the hand rail	•
•	•
•	•
•	•
•	•

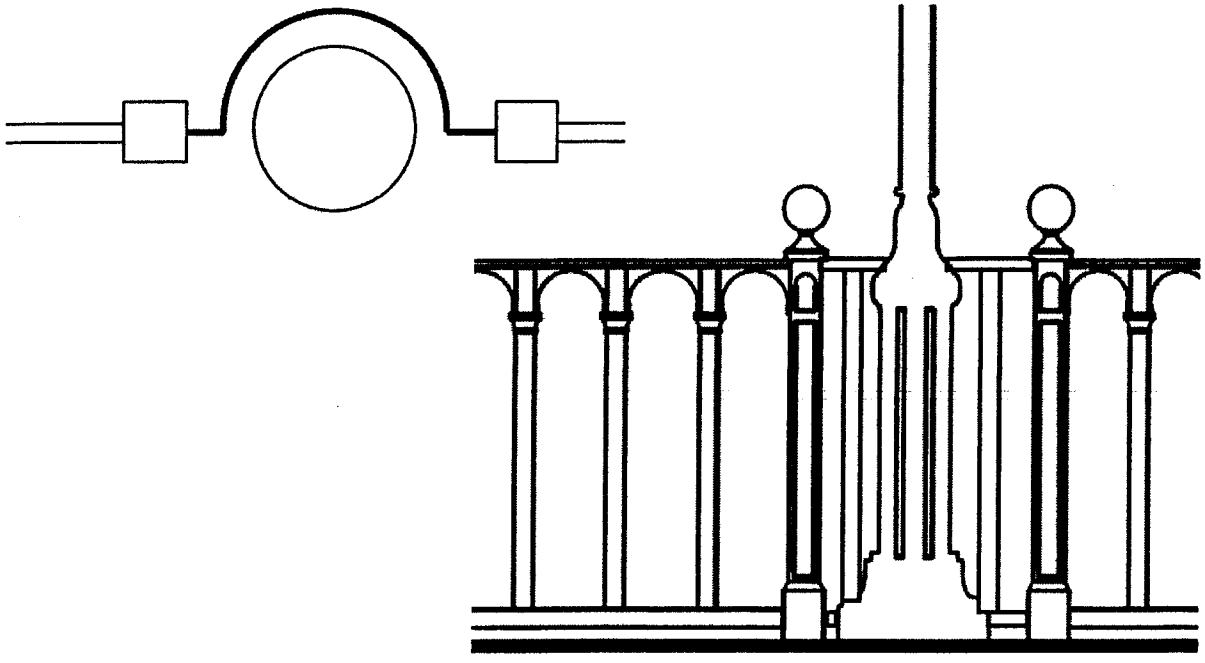
Discussion/Justification:

The proposed design suggestion will eliminate the gap between the hand rails at each of the light poles. preventing access to the area.

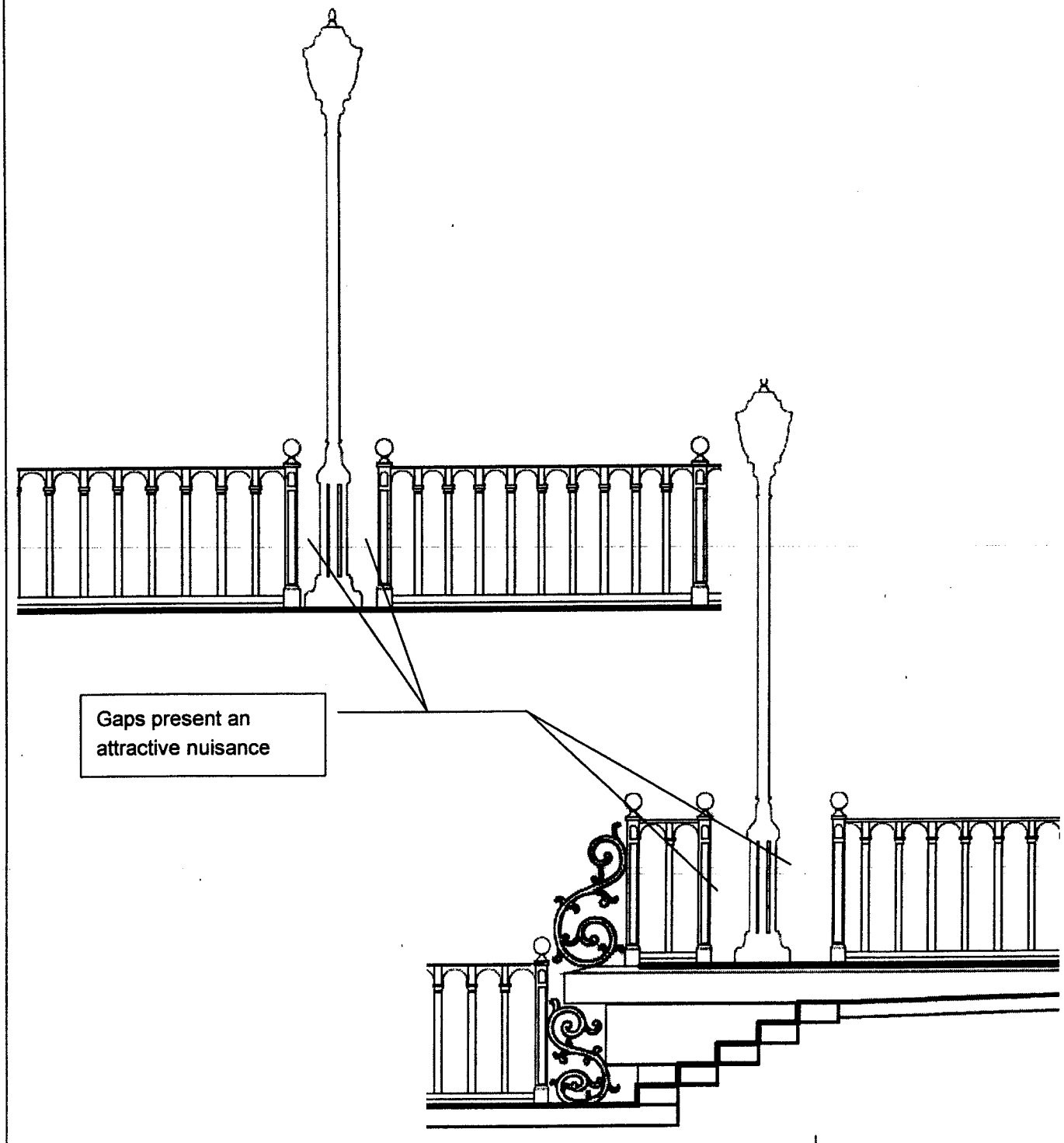
The existing design is shown in the following sketch. There are a variety of alternative approaches which could be considered including fabricating pieces which simply attach the hand rail to the light pole. One suggestion is shown in the attached sketch. The design would incorporate several longitudinal members which would contrast the historic railing. The members would continue from the railing to the light post in the plane of the existing hand rail. They would then proceed around the light pole in a semi-circular fashion. An alternative design might have a top and bottom rail with connecting balusters.

Conceptual sketches of ironwork connecting railings around light posts





Existing gaps between railings and light posts



OAC

Value Engineering Proposal ES.35
High Bridge over the Harlem River
New York City, NY

November 2010

Description: Reuse the existing light pole locations on the deck and 14 ft. poles with high pressure sodium (HPS) lamps

Baseline Design:

To comply with agreement between NYCDPR and NYCDOT to increase light level requirements and with NYCDOT requirements to use LED luminaires, design calls for 6 additional light poles beyond the existing number of (currently non-functional and non-standard) poles.

Proposed Change:

Request a waiver from NYCDOT for the illumination differential, and reuse the existing light pole locations by installing standard 14ft. high B-pole lamps and using high pressure sodium (HPS) lamps whose wattage will provide illumination in excess of ¾ foot-candle.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 560,000	$	$ 560,000
Proposed Change:	$ 319,000	$	$ 319,000
Total (Baseline less Proposed):	$ 241,000	$	$ 241,000

SAVINGS

Advantages:	Disadvantages:
• Maintains original light pole spacing, complementary to bridge arch structure	• Lower illumination than DPR preference, but exceeds NYC DOT criteria
• Does not add additional vertical elements to bridge deck	• Non-conformance with LED standard
• Maintains current bridge aesthetics	• May cause localized halo/glare effect due to increased wattage
• Provides sufficient illumination for safety	•
•	•
•	•

Discussion/Justification:

The 18 existing light pole locations, installed circa 1935, are located to complement the bridge's arch structure spacing. Using NYCDOT's current standard of LED luminaires, and the recently agreed upon preference of 1foot candle illumination, this would require 6 more light poles along the deck.

We recommend retaining the existing historic (1935) layout. New 14ft tall B-poles can be installed at the same existing locations using 150watt HPS luminaires. This would provide illumination in excess of ¾ foot candles (average) across the bridge deck. DPR would need to concur on the reduction in light levels from the agreed upon criteria.

Value Engineering Proposal ES.35

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Reuse the existing light pole location on the deck and 9 14 ft. poles with high pressure sodium (HPS) lamps

Markup: 40.0%		**ORIGINAL DESIGN**			**PROPOSED CHANGE**		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
New Standard B pole lamps 150W HPS	EA				18	11,000	277,200
Wiring assoc with light poles	LS				1	30,000	42,000
Lighting, street/security allowance	LS	1	400,000	560,000			
TOTAL COSTS*				**560,000**			**319,000**
						TOTAL (BASELINE LESS PROPOSED)	**241,000**

Note: Total Costs are rounded to nearest thousand dollars

SAVINGS

OAC

Value Engineering Proposal ES.41
High Bridge over the Harlem River
New York City, NY

R | 02
JC

November 2010

Description: Use an iron picket fence that has a safety netting on the outside and the historic rail on the inside

Baseline Design:

The security fence is located approximately 12 to 14 in. outboard of the handrail. New light posts are located to align with the historic railing, requiring it to be cut. The security fencing varies between 8 and 10 ft. high. Sketch A, Baseline Design, shows the current design. The fence dimensions on other sheets in the document set show an 8 ft. height, with a 10 ft. height across the railroad and the Harlem River.

Proposed Change:

Design the railing and safety fence to work together as a structural unit, reinforcing each other. Locate dark steel safety fence posts 2 in. outboard of the historic handrail surface and connect these two elements together at select picket locations. Enlarge the cable diameter that suspends the safety fence mesh in order to increase the distance between posts. Make the fence a consistent 10 ft. height across the bridge to increase safety and reduce visual clutter.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 793,000	$	$ 793,000
Proposed Change:	$ 753,000	$	$ 753,000
Total (Baseline less Proposed):	$ 40,000	$	$ 40,000
			SAVINGS

Advantages:	Disadvantages:
• Fewer safety fence posts	• Larger diameter safety fence posts
• Smaller base plates for safety fence posts	• Distance between fences is reduced approximately 2 ft. resulting in a more enclosed feeling
• Reduces concerns regarding anchoring coping stones to prevent overturning	•
• Allows light poles to stay in current locations	•
• More difficult to climb up and over railing	•
• More difficult to wedge balls, human feet or other objects between the railing and safety fence	•
• Visitors are separated from the pedestrian light poles, reducing likelihood of vandalism	•

Discussion/Justification:

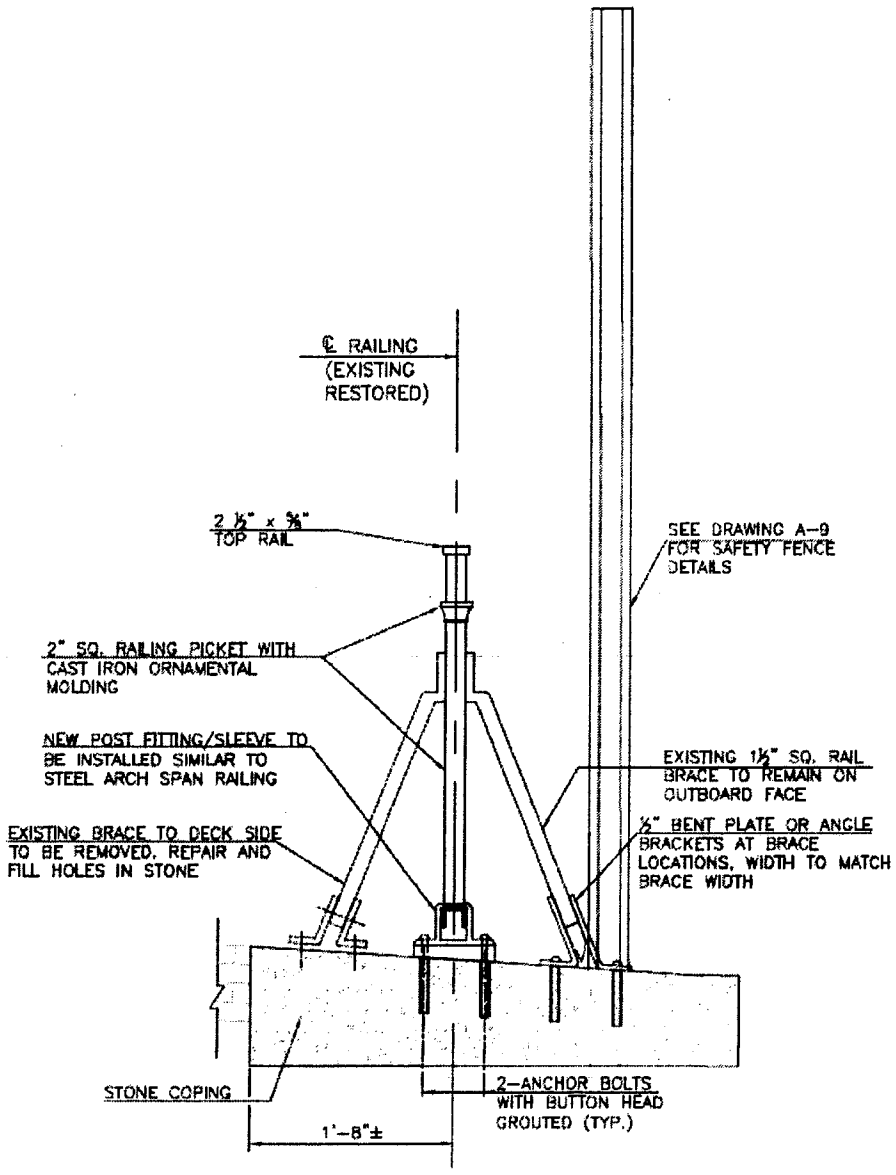
The current design requires cutting and redesign of the historic railing where light poles occur. The location of the safety fencing also may result in large mounting plates to prevent the fence from tipping over, and/or pinning the coping stones from pulling up with weight that may be applied to the top of the fence. This concern is exacerbated in areas where the coping is most narrow (approximately 4 ft. wide), where the security fence may be within 1 ft. of the edge (see Masonry Arches Typical Section, sheet 8 of 45 in 9/30/10 drawing set). Lastly, the distance between the railing and the security fence is great enough to start to wedge a large ball (e.g. basketball) or accommodate a human foot, which may invite people to sit on the railing. A person could also sit on the rail, with their feet hanging inboard and back to the security fence.

This proposal utilizes 4-in. square steel posts to support the safety fence mesh, and provides additional structural support for the fence by connecting it to the handrail with a welded or bolted steel piece (see Proposed Design - Section). Connecting the handrail to the safety fence posts will eliminate the need to retain the sporadically spaced, angled supports on the exterior of the handrail. Because both fences are connected to each other, choose safety fence posts that are visually compatible, but different than the existing historic handrail.

Utilizing historic locations for pedestrian lighting (refer to ES.35) eliminates the need to alter the historic railing design.

Moving the ~~safety~~ fencing further from the edge reduces, and may eliminate the need to anchor coping stones.

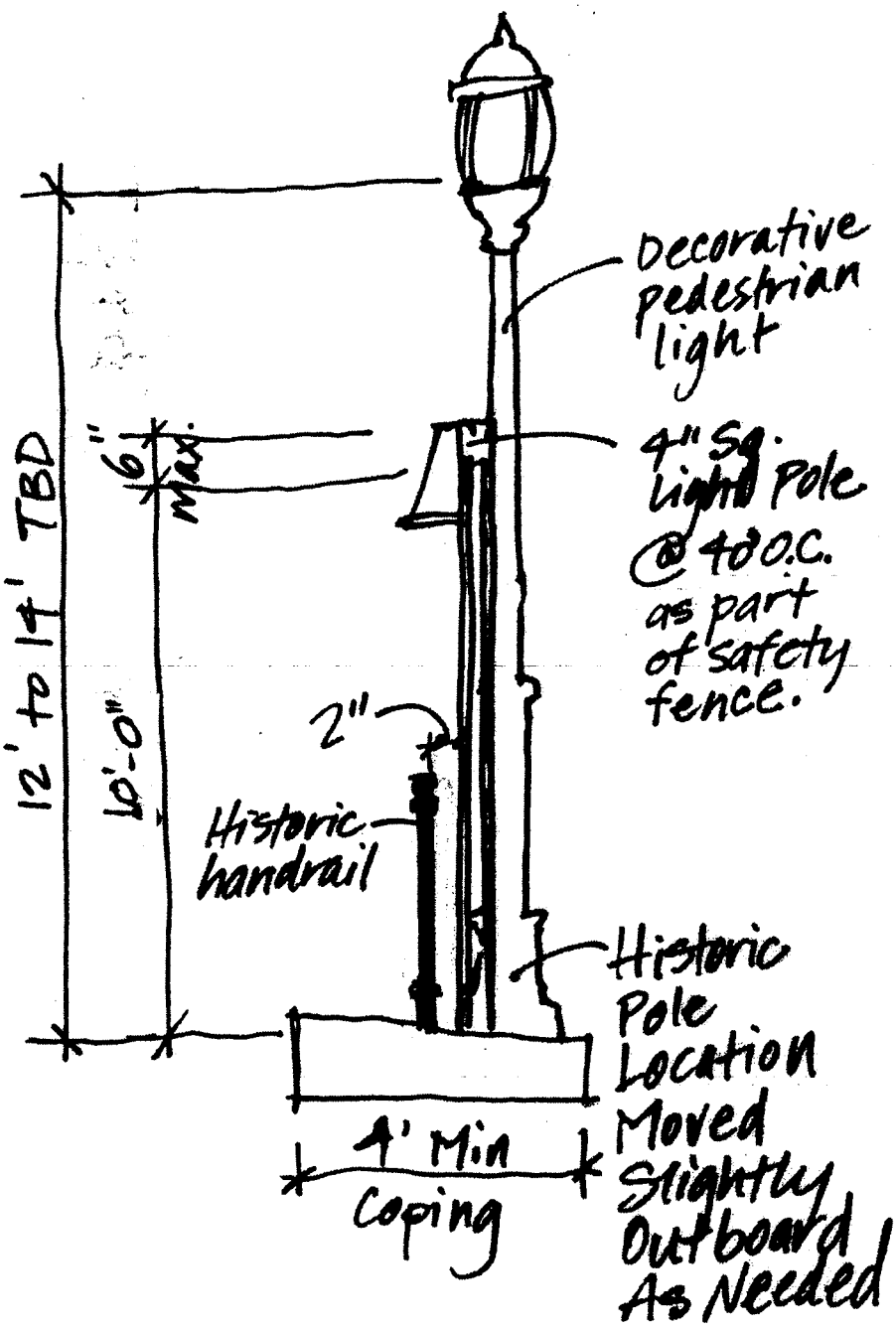
Baseline Design – Sketch A



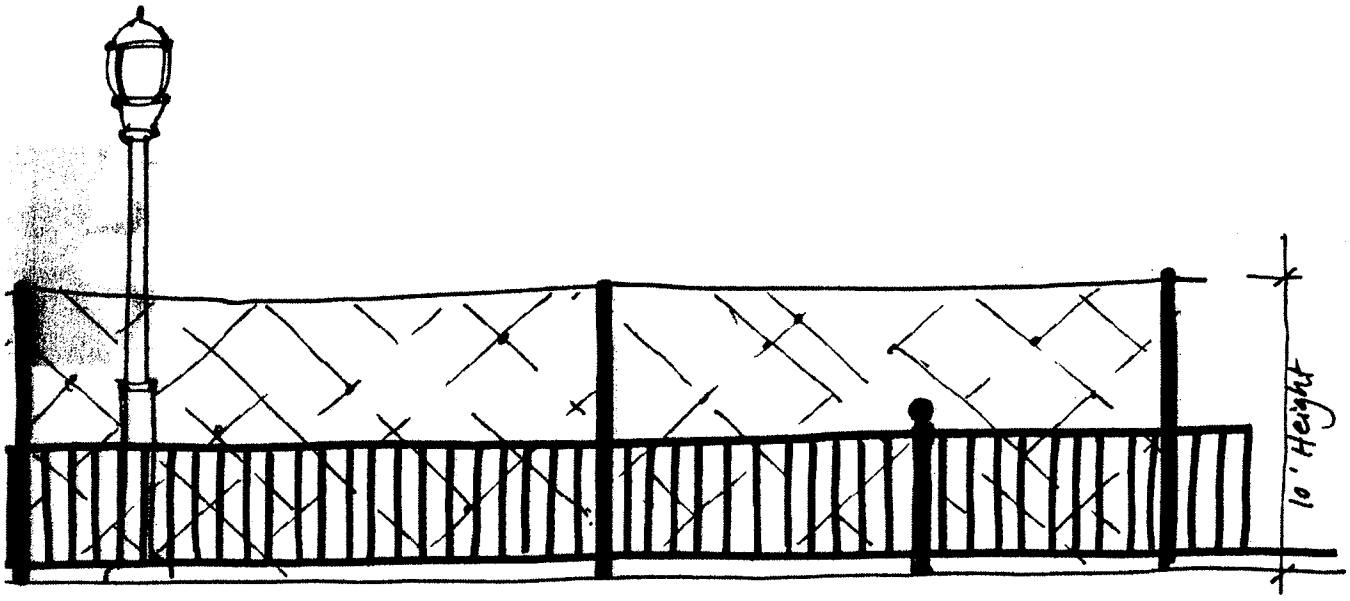
SECTION B–B
INTERMEDIATE POST AND BRACE SECTION
(MASONRY ARCH SPANS)

SCALE: 1"=1'-0"

Proposed safety fence posts and handrail - Section



Proposed safety fence posts and handrail - Elevation



Value Engineering Proposal ES.41

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Use an iron picket fence that has a safety netting on the outside and the historic rail on the inside							
Markup: 40.0%		**ORIGINAL DESIGN**			**PROPOSED CHANGE**		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Delete 8' high security fence	LF	1,416	400	792,960			
New 10' high security fence (fewer posts & larger top cable)	LF				1,416	380	753,312
TOTAL COSTS*				**793,000**			**753,000**
				TOTAL (BASELINE LESS PROPOSED)			**40,000**

Note: Total Costs are rounded to nearest thousand dollars

SAVINGS

OAC

Value Engineering Proposal IA.18

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Add infrastructure to support special events in the plaza area on the Manhattan side

Baseline Design:
Minimal landscaping and no new utilities at Manhattan gate house - plaza.
Proposed Change:
Provide water, electric and public space improvements at Manhattan gate house ; plaza to support potential for special events (vendors, stage/theatre, etc.).

DESIGN SUGGESTION

Advantages:	Disadvantages:
• Potential to facilitate public events, utilize Manhattan plaza of bridge, and encourage public use of bridge	• Small additional cost beyond power to light fixtures.
•	•
•	•
•	•
•	•
•	•

Discussion/Justification:

Consideration should be given to provide infrastructure to accommodate future public events at the Manhattan gate house plaza. This could include electric power stanchions, drinking fountain with jug filler, power for additional illumination for special events or sound systems, and landscaping to complement these features. Consider design layout schemes for vendor carts and potential for a small stage area for entertainment/speaking events. These improvements should be considered in conjunction with design for future reuse of the Manhattan gate house as a possible concession stand/base of operations for the plaza area.

OAC

Value Engineering Proposal IA.22
High Bridge over the Harlem River
New York City, NY

November 2010

Description: Relocate the Manhattan gatehouse to open the entry to the bridge; gatehouse becomes interpretive exhibit

Baseline Design:

The baseline design provides no improvements to the gate house at the Manhattan approach to the bridge. The gate houses are DEP jurisdiction.

Proposed Change:

Relocate the gate house to nearby on the plaza to open access to the bridge, and replace the stairs to the bridge deck.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 759,000	$	$ 759,000
Proposed Change:	$ 1,009,000	$	$ 1,009,000
Total (Baseline less Proposed):	($ 250,000)	$	($ 250,000)

COST

OAC

Value Engineering Proposal IA.22
High Bridge over the Harlem River
New York City, NY

November 2010

Advantages:	Disadvantages:
• Expands access to the Bridge and creates vista of Bridge from the Plaza	• Additional cost of moving the gatehouse and closing off the aqueduct at grade.
• Eliminates the Manhattan access ramp	• Gatehouse is in need of repair, but this work only stabilization is needed initially. Major rehab can be deferred.
• Enhances security and visibility.	• Add water and electric service to function as an exhibit/concession in the future
• Provides space for an exhibit/concession/ festival space	• DEP and SHPO approval would be required
• Consolidate entry gates to a single location	•
•	•

Discussion/Justification:

In the existing condition, the Manhattan gatehouse both visually and physically obstructs access to the bridge (Image 1). Access to the bridge is by 2 stairs located on either side of the gatehouse. The baseline design addresses the accessibility issue by constructing a ramp outboard of the existing structure, on the North side of the gatehouse (Manhattan Access Ramp). This actually shifts the majority of the access to the north side of the gatehouse leaving only a single stair that is viewable from the Manhattan approach (Image 2).

The proposed change to relocate the gatehouse, will allow for an open approach to the bridge. This would be a more inviting experience for the public. In this concept the gatehouse could be used as an exhibit space, ranger station, public bathroom, concession stand. It also provides the opportunity to replace the stairs down to the deck with a full width ramp.

This Concept could also eliminate the need for the Manhattan access ramp as ADA/bike access could be integrated into the gatehouse plaza design. It Could also consolidate the 3 sets of security gates into a single location. Finally it enhances security by eliminating the blind corner created by the gatehouse (Image 3), and by creating an open, gracious entrance area.

The historic gatehouse will be close by and in future can be developed with DEP participation into an exhibit or program space.

It is estimated that the proposed change would have little to no impact to the overall cost of the project. This is based on the elimination the Manhattan access ramp and associated railings/fencing/gates.

View of Bridge from Manhattan Plaza

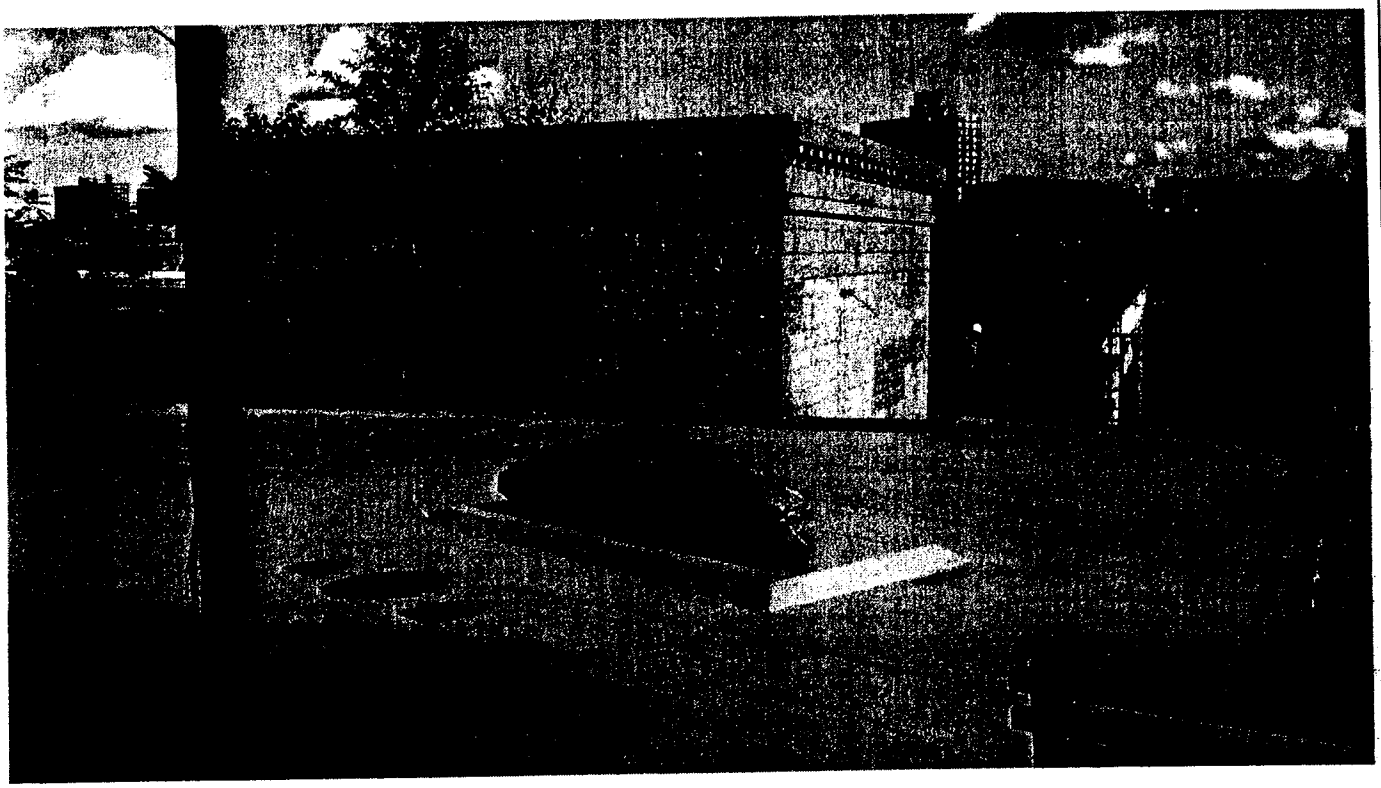


Image 1

Baseline Access Solution

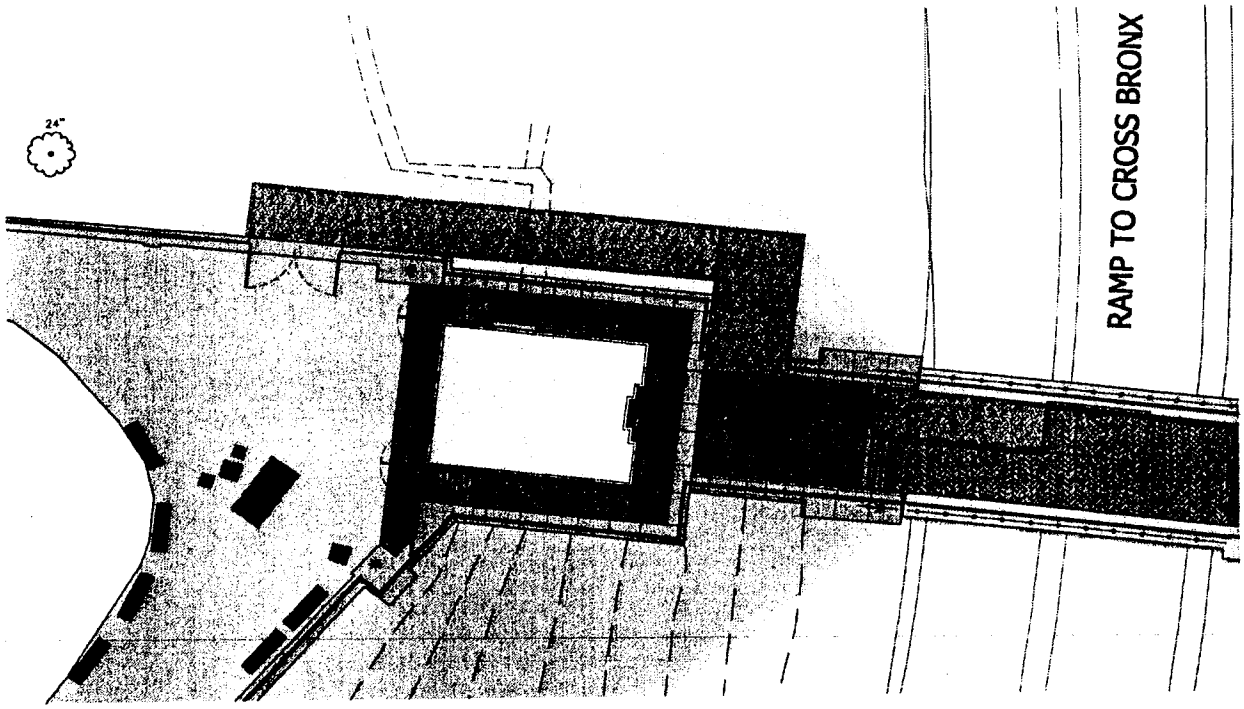


Image 2

Proposed Change Concept 1

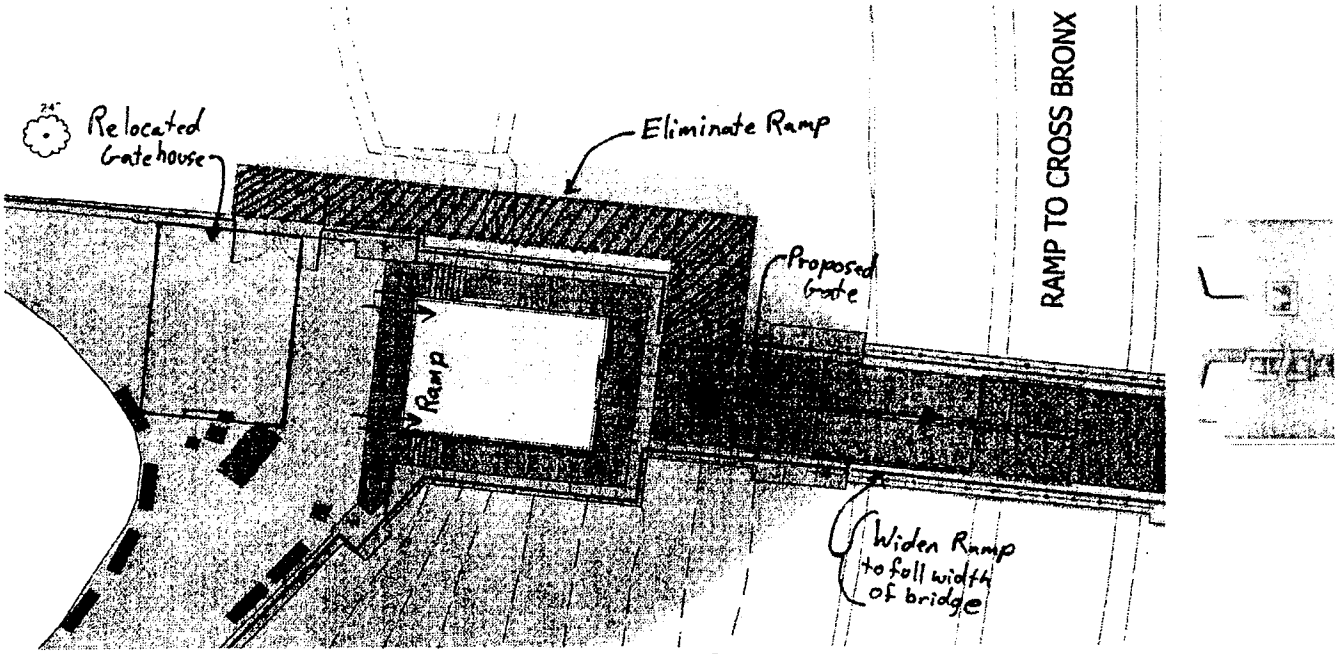


Image 3

Value Engineering Proposal IA.22

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Relocate the Manhattan gatehouse to open the entry to the bridge; gatehouse becomes interpretive exhibit							
Markup: 40.0%		**ORIGINAL DESIGN**			**PROPOSED CHANGE**		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Delete Manhattan ramp	LS	1	530,000	742,000			
Delete security gates	EA	3	4,000	16,800			
Relocate gatehouse on new footings	LS				1	250,000	350,000
Repair exterior of gatehouse	LS				1	150,000	210,000
Rework pavement, grading slopes	LS				1	150,000	210,000
Construct new wide ramp on footings	SF				1,000	100	140,000
Replace stairs with ramp onto bridge deck	LS				1	10,000	14,000
New railings	LF				120	380	63,840
New security fence and double gates	LS				1	15,000	21,000
TOTAL COSTS*				**759,000**			**1,009,000**
						TOTAL (BASELINE LESS PROPOSED)	**-250,000**

Note: Total Costs are rounded to nearest thousand dollars

COST

OAC

Value Engineering Proposal MI.01
High Bridge over the Harlem River
New York City, NY

November 2010

Description: Floodlight the steel arch span in lieu of button lighting

Baseline Design:
Provide wall mount architectural round "button" light fixtures on the face of each side of the steel span. Mount lights along the top horizontal span and along the arch span using 55 watt induction lamps with a rated life of 100,000 hours. 96 total fixtures.
Proposed Change:
Provide LED floodlights at the steel arch support piers to illuminate the exterior face and interior of the steel span. Use the same 250 watt LED color kinetics floodlight being used at the masonry arches or similar narrow beam LED floodlight. 8 total fixtures.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 700,000	$ 47,000	$ 747,000
Proposed Change:	$ 336,000	$ 36,000	$ 372,000
Total (Baseline less Proposed):	$ 364,000	$ 12,000	$ 376,000
			SAVINGS

Advantages:	Disadvantages:
• Lower installation cost	•
• Easier and less costly to maintain	• One half rated lamp life
• Color changing potential	• Eliminates direct reflection of lights on water surface
• Reduced Load	•
• Illuminates interior\exterior of steel span structure	•
•	•

Discussion/Justification:

The installation of the proposed lighting affixed to the face of the steel bridge span will require extensive climbing on to the structure. Permanent cables and rigging clamps will need to be installed along the horizontal and arch spans at each light location. It is recommended that cables and rigging locations be provided for maintenance of the channel margin and center channel navigation lights. The safety fence will preclude access over the side of the structure without rolling back the fence fabric.

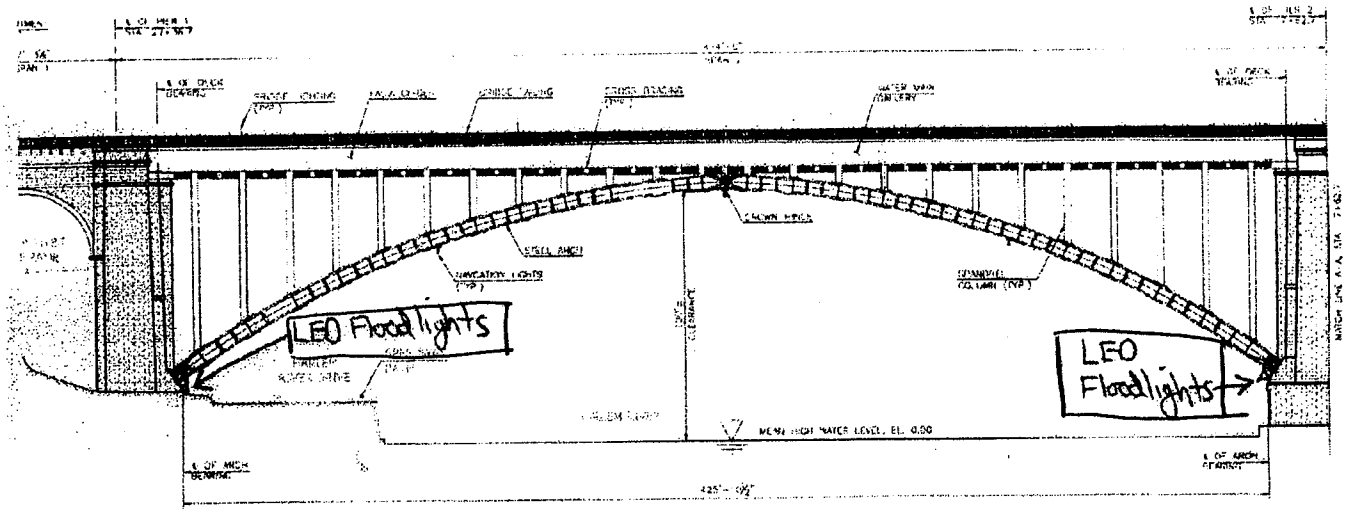
Additionally, there will be a tendency not to re-lamp the "button" light fixtures until a large number of them burn out.

There will be a significant cost savings without the need to install 96 lights on the steel span and only installing 8 floodlights at pier connection points.

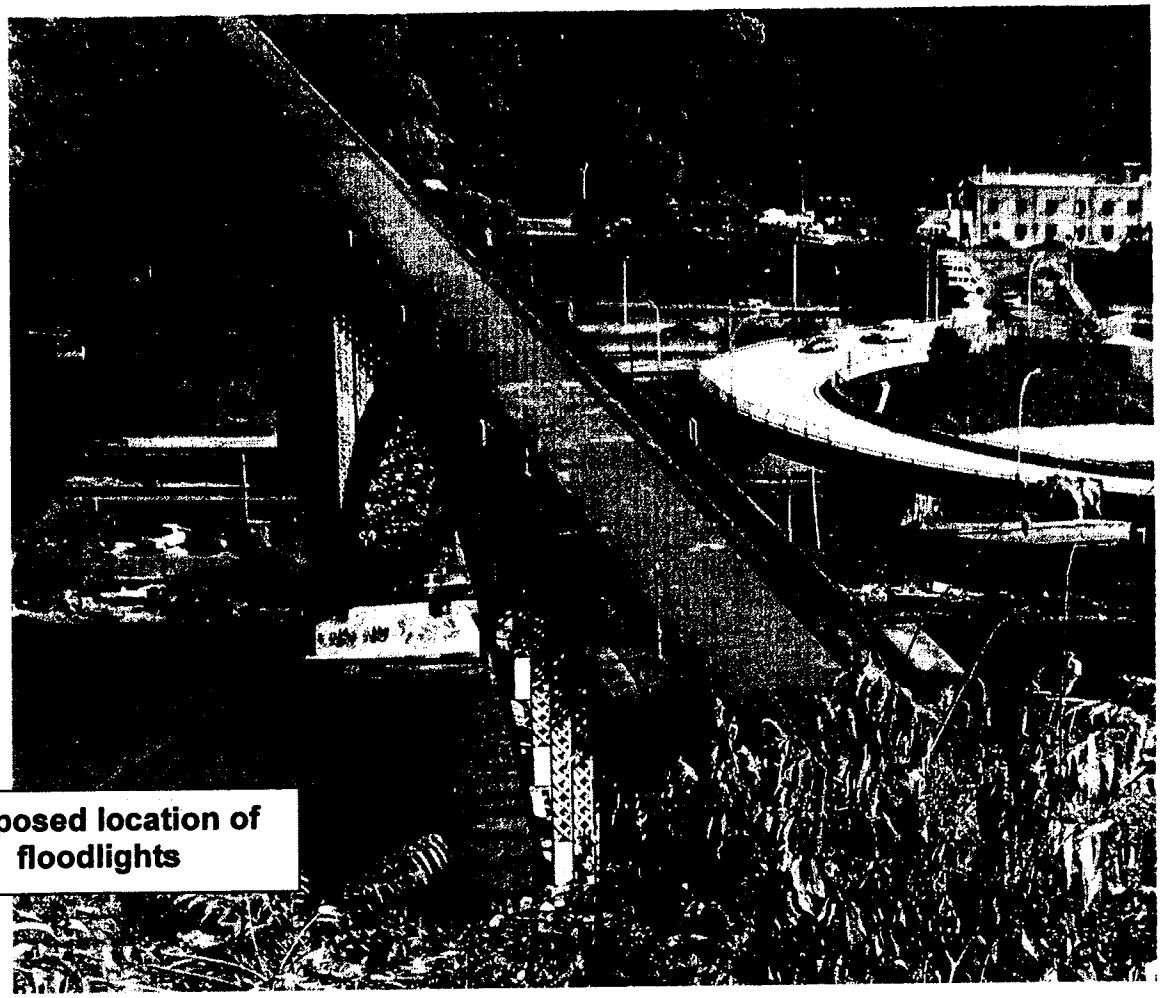
The use of the same LED floodlights used at the masonry arches will allow for continuity of color across the entire structure below the deck. It also allows for color changing of the lighting at both the masonry arches as well as the steel span.

This alternate lighting scheme will highlight the entire steel structure. The button lights will only provide light on the face of the steel structure adjacent to the respective light.

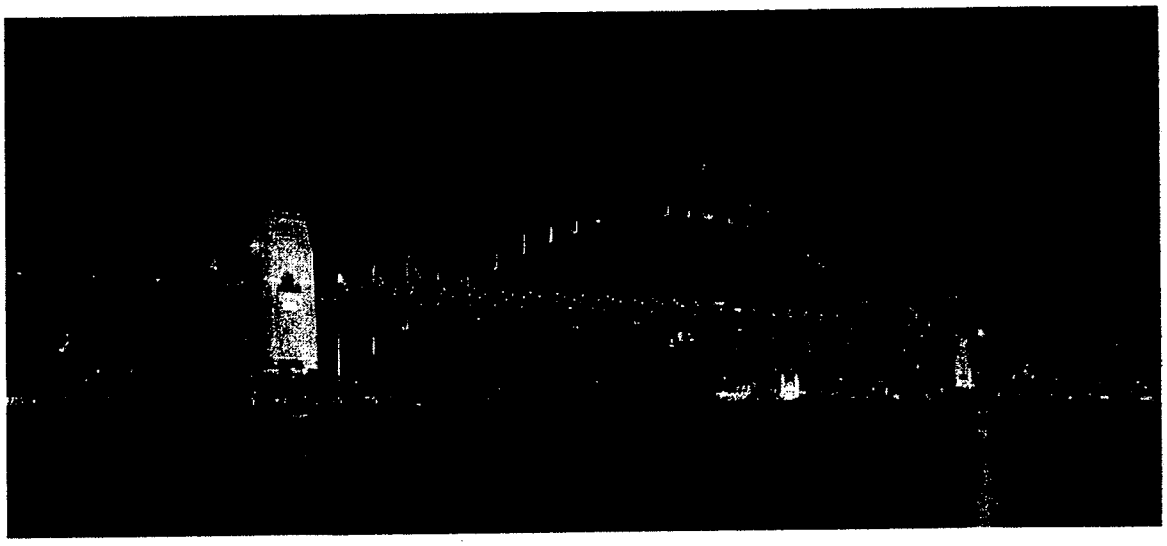
Steel Span Floodlight Location Detail



Proposed Location of Floodlights



Sydney Bridge Example



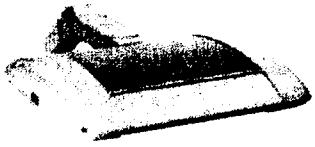
Peace Bridge Example

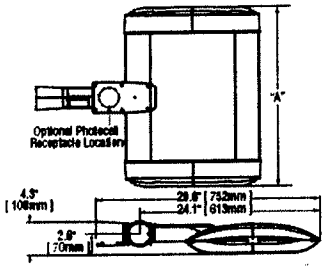
The Edge LED Floodlight Cut Sheet

FLD-EDG-10-AA THE EDGE® LED Floodlight – 10° Optic

Rev. Date: 04/15/10

BetaLED Catalog #: FLD - EDG - 10 - AA - - C - - - - -





# of LEDs	Dim. "A"
20	11.75"
40	11.75"
60	13.75"
80	15.75"
100	17.75"
120	19.75"
140	21.75"
160	23.75"
180	25.75"
200	27.75"
220	29.75"
240	31.75"

Notes:

Product	Family	Optic in Degrees	Mounting	# of LEDs (x 10)	LED Series	Voltage	Color Options
FLD	EDG	10°	AA[2]	☐ 02 ☐ 04 ☐ 06 ☐ 08 ☐ 10 ☐ 12 ☐ 14 ☐ 16 ☐ 18 ☐ 20 ☐ 22 ☐ 24	C	☐ UL Universal 120–277V ☐ UH Universal 347–480V ☐ 12 120V ☐ 24 240V ☐ 27 277V ☐ 34 347V	☐ SV Silver ☐ BK Black ☐ BZ Bronze ☐ PB Platinum Bronze ☐ WH White

Factory-Installed Options
Please type additional options in manually on the lines provided above.

- ☐ 43K 4300K Color Temperature[3]
- ☐ 525 525mA Drive Current[4,5]
- ☐ DIM5 0–10V Dimming (525mA maximum)[6,7]
- ☐ F Fuse[8,9]
- ☐ HL Hi/Low (175/350/525, dual circuit input)[10]
- ☐ P Photocell[11,12]
- ☐ R NEMA Photocell Receptacle[8,12,13]
- ☐ TL Two-Level (175/525 w/ integrated sensor control)[10]
- ☐ TL2 Two-Level (0/350 w/ integrated sensor control)[10]
- ☐ TL3 Two-Level (0/525 w/ integrated sensor control)[10]

Footnotes

1. Distribution similar to spot (10°)
2. Adjustable arm for mounting to 2" (2-3/8" [60mm] O.D.) tenon
3. Color temperature per fixture: minimum 70 CRI
4. Driver operates at 525mA instead of the standard 350mA providing a higher lumen output and a shorter life
5. Available on fixtures with 20–120 LEDs
6. Control by others
7. Refer to dimming spec sheet for availability and additional information
8. Not available when UH voltage is selected
9. When code dictates fusing see time delay fuse
10. Refer to multi-level spec sheet for availability and additional information
11. Must specify voltage other than UL or UH
12. This option not available with all multi-level options. Refer to multi-level spec sheet for more information
13. Intended for horizontal mounting

LED PERFORMANCE SPECS

# of LEDs	Initial Delivered Lumens – 10° Fixed Optic @ 5000K	Initial Delivered Lumens – 10° Fixed Optic @ 4300K	System Watts 120–277V	Total Current @ 120V	Total Current @ 240V	Total Current @ 277V	System Watts 347–480V*	Total Current @ 347V	Total Current @ 480V	L_{70} Hours** @ 25° C (77° F)
350mA (Standard) Fixture Operating at 25° C (77° F)										
20	1,956 (02)	1,717 (02)	25	0.23	0.11	0.10	30	0.09	0.08	105,000
40	3,916 (04)	3,435 (04)	49	0.41	0.23	0.20	61	0.18	0.12	105,000
60	5,874 (06)	5,152 (06)	71	0.60	0.32	0.26	74	0.22	0.17	105,000
80	7,832 (08)	6,869 (08)	93	0.78	0.41	0.35	96	0.28	0.21	105,000
100	9,789 (10)	8,587 (10)	116	0.96	0.52	0.43	119	0.35	0.26	105,000
120	11,747 (12)	10,304 (12)	139	1.17	0.61	0.52	141	0.41	0.30	105,000
140	13,705 (14)	12,021 (14)	164	1.39	0.74	0.63	170	0.49	0.35	105,000
160	15,663 (16)	13,738 (16)	186	1.58	0.83	0.71	192	0.55	0.40	106,000
180	17,621 (18)	15,456 (18)	211	1.77	0.99	0.79	215	0.62	0.45	106,000
200	19,579 (20)	17,173 (20)	233	1.97	1.09	0.87	237	0.68	0.49	105,000
220	21,537 (22)	18,890 (22)	256	2.16	1.19	0.95	259	0.75	0.54	105,000
240	23,495 (24)	20,608 (24)	279	2.35	1.23	1.03	282	0.81	0.59	106,000
525mA Fixture Operating at 25° C (77° F)										
20	2,545 (02)	2,232 (02)	37	0.31	0.18	0.17	43	0.13	0.15	61,000
40	5,091 (04)	4,465 (04)	69	0.58	0.31	0.27	75	0.22	0.19	61,000
60	7,636 (06)	6,697 (06)	110	0.92	0.49	0.41	116	0.33	0.27	61,000
80	10,181 (08)	8,930 (08)	138	1.16	0.62	0.54	145	0.42	0.32	61,000
100	12,726 (10)	11,162 (10)	177	1.49	0.79	0.68	186	0.53	0.40	61,000
120	15,272 (12)	13,395 (12)	217	1.82	0.96	0.81	226	0.65	0.48	61,000

* Utilizes magnetic step-down transformer when 525mA drive current or multi-level options are selected

** For recommended lumen depreciation data see TD-13

Value Engineering Proposal MI.01

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Floodlight the steel arch span in lieu of button lighting

Markup: 40.0%		ORIGINAL DESIGN			PROPOSED CHANGE		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Delete button lights (96 EA) on steel span	LS	1	500,000	700,000			
Floodlights to illuminate steel span	EA				8	30,000	336,000
TOTAL COSTS*				**700,000**			**336,000**
						TOTAL (BASELINE LESS PROPOSED)	**364,000**

Note: Total Costs are rounded to nearest thousand dollars

SAVINGS

Value Engineering Proposal M1.01

High Bridge over the Harlem River
New York City, NY

November 2010

Description:	Floodlight the steel arch span in lieu of button lighting

Assumptions					
Interest/Discount Rate(%):	3.5%	**A/E :**		**Energy (%/yr):**	
Economic Life (yrs):	50	**Staffing (per yr):**		**Maintenance/ Repairs (%/yr):**	

LIFE CYCLE COST ANALYSIS **Description**						
Salvage & Replacement Costs		Yr	**Est Cost**	**P/W**	**Est Cost**	**P/W**
1						
2						
3						
4						
5						
Total Salvage & Replacement Costs						

Annual Costs (P/W calculated over 50 yrs)		**Est Cost**	**P/W**	**Est Cost**	**P/W**
1	ReLamp button lighting	2,000	46,911		
2	ReLamp floodlighting			1,500	35,183
3					
4					
5					
Total Annual Costs		**2,000**	**46,911**	**1,500**	**35,183**

SUMMARY	**Baseline P/W**	**Proposed P/W**
Total P/W (salvage+annual P/W)	47,000	35,000
RESULTS (Baseline less proposed)	SAVINGS of 12,000	

Note: Total Present Worth are rounded to the nearest thousand dollars

OAC

Value Engineering Proposal MI.11
High Bridge over the Harlem River
New York City, NY

November 2010

Description: Integrate surface mounted conduit with other design elements to provide the maximum concealment

Baseline Design:
Baseline design does not address yet where the conduit will be located. These are details normally developed later in the design process.
Proposed Change:
Locate conduits and junction boxes to minimize visual impact to the structure and not to detract from the historic character of the High Bridge.

DESIGN SUGGESTION

Advantages:	Disadvantages:
•	• Does not conceal conduit
• Does not detract from the historic character of the bridge	•
• Accessible junction boxes allow for easy maintenance and repair	•
• Minimizes penetrations of the coping stone	•
•	•
•	•

Discussion/Justification:

Existing conduit is surface mounted on the deck surface on top of the coping. (see Figure 1)

Objectives of conduit layout scheme include;

- Adhere to current electrical code requirements
- Minimize visual Impact
- Facilitate installation, repair, and maintenance
- Minimize penetrations into/from the attic
- Minimize cutting of coping stone

Any solution is highly dependent on the selection and relative location of the light poles, security fence and historic rail. Three alternatives have been considered; see Figures 2, 3, and 4.

The preferred
Conduits should be surface mounted rather than run through the attic to minimize penetrations. ~~Proposed~~ solution is to mount conduit on the outside face of the bottom chord of the historic rail. Use a 0.75" conduit to reduce the size of the conduit. The conduit and junction boxes shall be painted to match the historic railing. This would help visually conceal the rail from pedestrians on the deck (except runs to light poles), accommodate drainage, and locate junction boxes at accessible locations. Figure 4 is recommended.

Using a modified base for the DOT light poles to accommodate a conduit entrance location near the bottom of the pole is preferred.

Figure 1 – Existing Conduit Mounting

Figure 3 – Longitudinal Conduit Runs Concealed Underside of Fascia

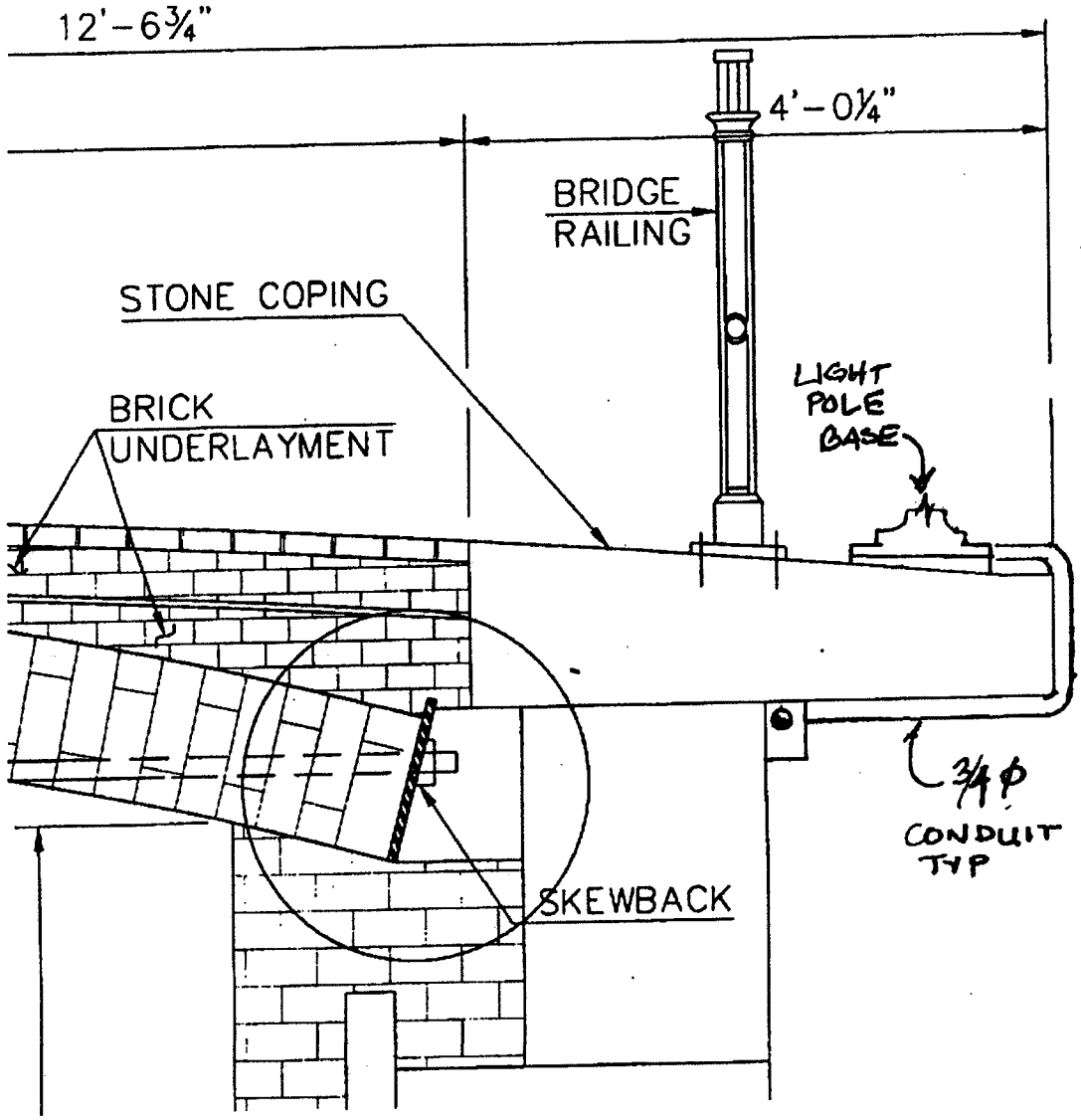
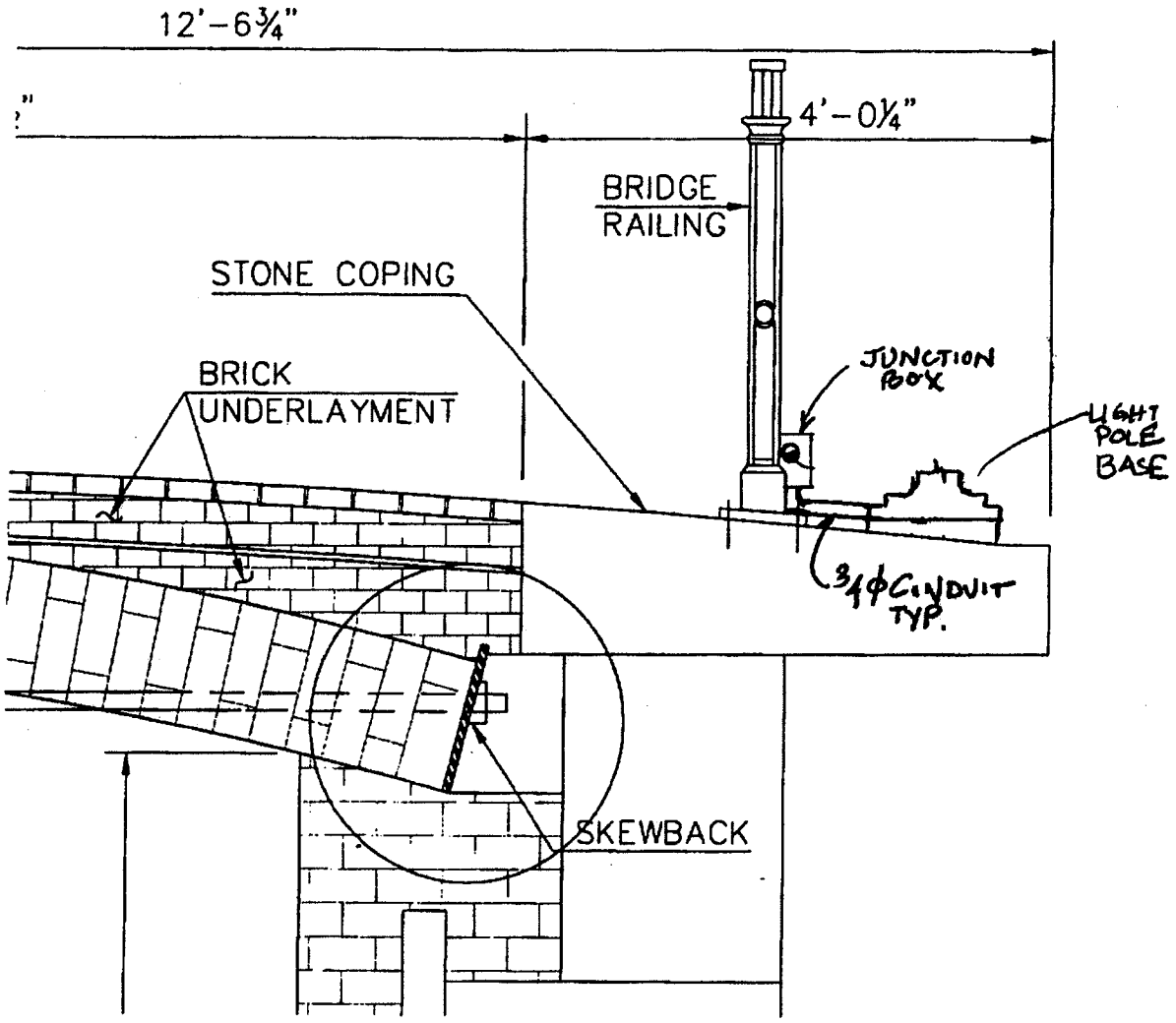


Figure 4 – Longitudinal Conduit Runs on Railing



OAC

Value Engineering Proposal OA.02
High Bridge over the Harlem River
New York City, NY

November 2010

Description: Convene a partnering session with agencies to discuss issues and elements

Baseline Design:
Approval agency concerns are addressed independently.
Proposed Change:
Convene a meeting among the approval agencies so that they all can directly understand overall project issues.

DESIGN SUGGESTION

Advantages:	Disadvantages:
• Fosters a sense of inclusion in the project development process	• None apparent
• Informs agencies of competing priorities and may encourage compromises.	•
•	•
•	•
•	•
•	•

Discussion/Justification:

The intent of the partnering session is to allow the project team to brief all the approval agencies in a uniform manner and allows the approval agencies the opportunity to express their issues/concerns/areas of focus. It is not intended that the approval agencies are being asked to comment on the design or to seek approval.

The partnering session lays the framework for detailed discussions with the individual agencies where approvals are sought.

The partnering session can be conducted under the auspices of City Hall to increase the project's awareness.

OAC

Value Engineering Proposal OA.05

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Engage a permitting expert to consult on the approval process

Baseline Design:
Securing permits is included in the design team's scope of work with assistance from the agencies
Proposed Change:
Hire a consultant who is familiar with the regulatory process for all the required permits

DESIGN SUGGESTION

Advantages:	Disadvantages:
• Firm exclusively focused on securing permits	• Minimal additional cost
• May expedite permit approval	• Needs close coordination with design team
•	•
•	•
•	•
•	•

Discussion/Justification:

Hiring a consultant who is exclusively focused on the permits needed and gaining those approvals would allow the design team to focus its efforts on design development, which Is critical to the advertisement/construction schedule.

It may also expedite gaining the required permits, since the consultant would be well versed with the requirements of the various permitting agencies.

The consultant could be hired as part of the Construction Management contract, if that procurement is accelerated, or brought on board through various on-call contracts that the agencies maintain.

OAC

Value Engineering Proposal RA.05

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Reduce the scope of the bridge deck replacement

Baseline Design:
The baseline design calls for the removal of the entire brick wearing surface.
Proposed Change:
The proposed change is to only remove localized sections of the wearing brick on an as-needed basis.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 6,283,000	$	$ 6,283,000
Proposed Change:	$ 1,272,000	$	$ 1,272,000
Total (Baseline less Proposed):	$ 5,011,000	$	$ 5,011,000
			SAVINGS

Advantages:	Disadvantages:
•	•
• Focus work on areas of water penetration	•
• Reduce construction duration	• Potential for scope creep due to unforeseen field conditions
• Less intrusive to the structure	•
• Reduces potential for damage to the brick	•
•	•

Discussion/Justification:

The brick deck does not appear to have systemically failed. The Baker Report identifies the brick as having low porosity, with water leakage appearing to be localized to specific areas of the deck and the interface between the brick and steel/stone coping. Under this proposed change, the vegetation needs to be eradicated.

For the masonry arch spans, the proposed change would be to remove and reinstall the bricks along the joint with the coping stone. The joint would be sealed with an appropriate elastomeric joint sealant. The field bricks that have buckled and the concrete bricks should be removed. The damaged brick should be replaced as called for in the base design and any bricks that are salvageable should be cleaned and reused.

The brick in the steel span appears to be in excellent condition. Moisture does not appear to be penetrating into the steel deck, except at the coping interface as is evidenced by the concentration of corrosion of the structural steel under the coping interface. The same methodology as discussed for the masonry arch spans should be applied to the wearing brick on the steel span. The steel repairs, including the replacement of the Z-channel can be performed under this concept.

We believe ~~that~~ this equates to removing approximately 20% of the total deck surface.

Once limited areas are repaired, the entire deck should be regrouted.

An alternative is to only remove the brick that is heaved and damaged. The joint between the brick and the coping should be sealed with an appropriate elastomeric joint sealant. (
The vegetation on the entire deck needs to be arrested.

We believe that this alternative equates to removing approx 20% of the total deck surface.

Overall deck condition

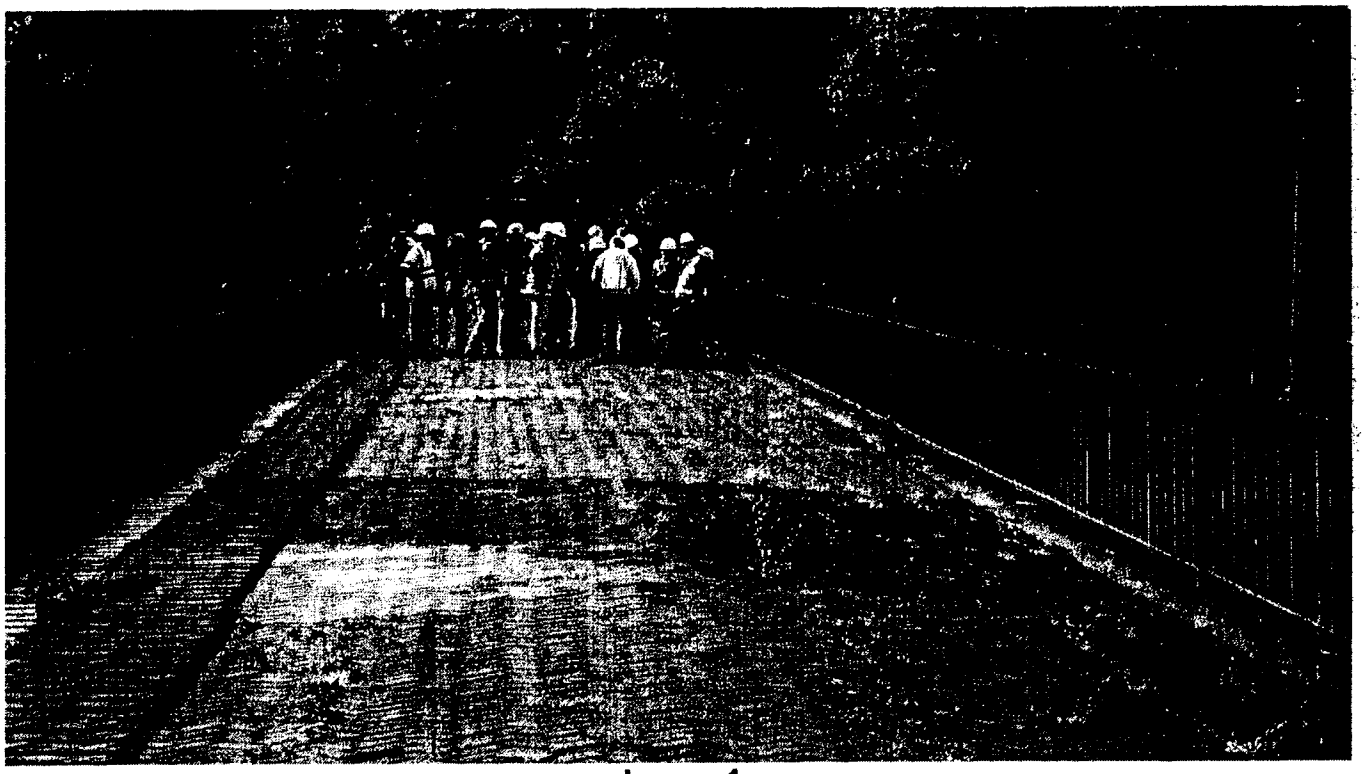
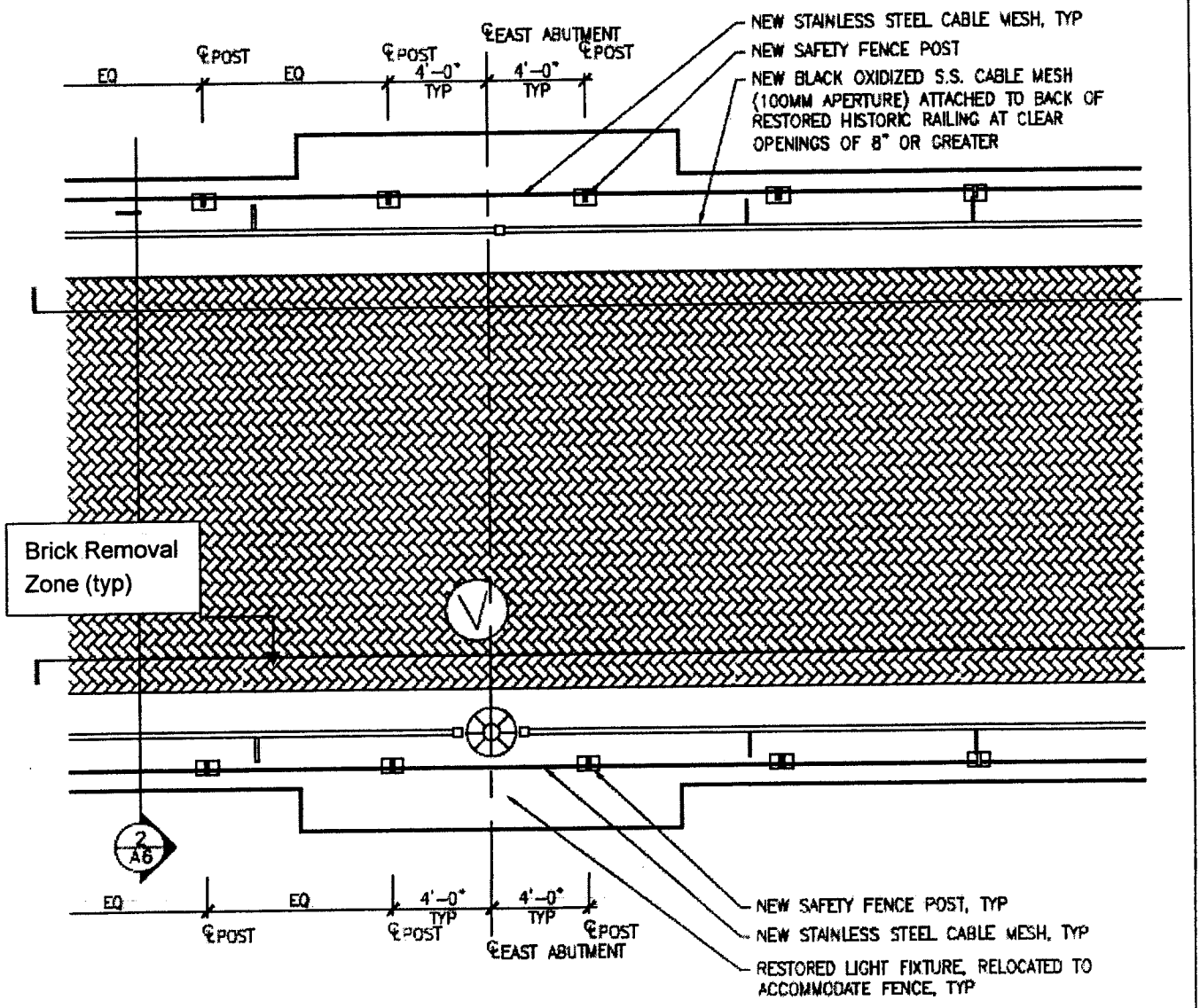
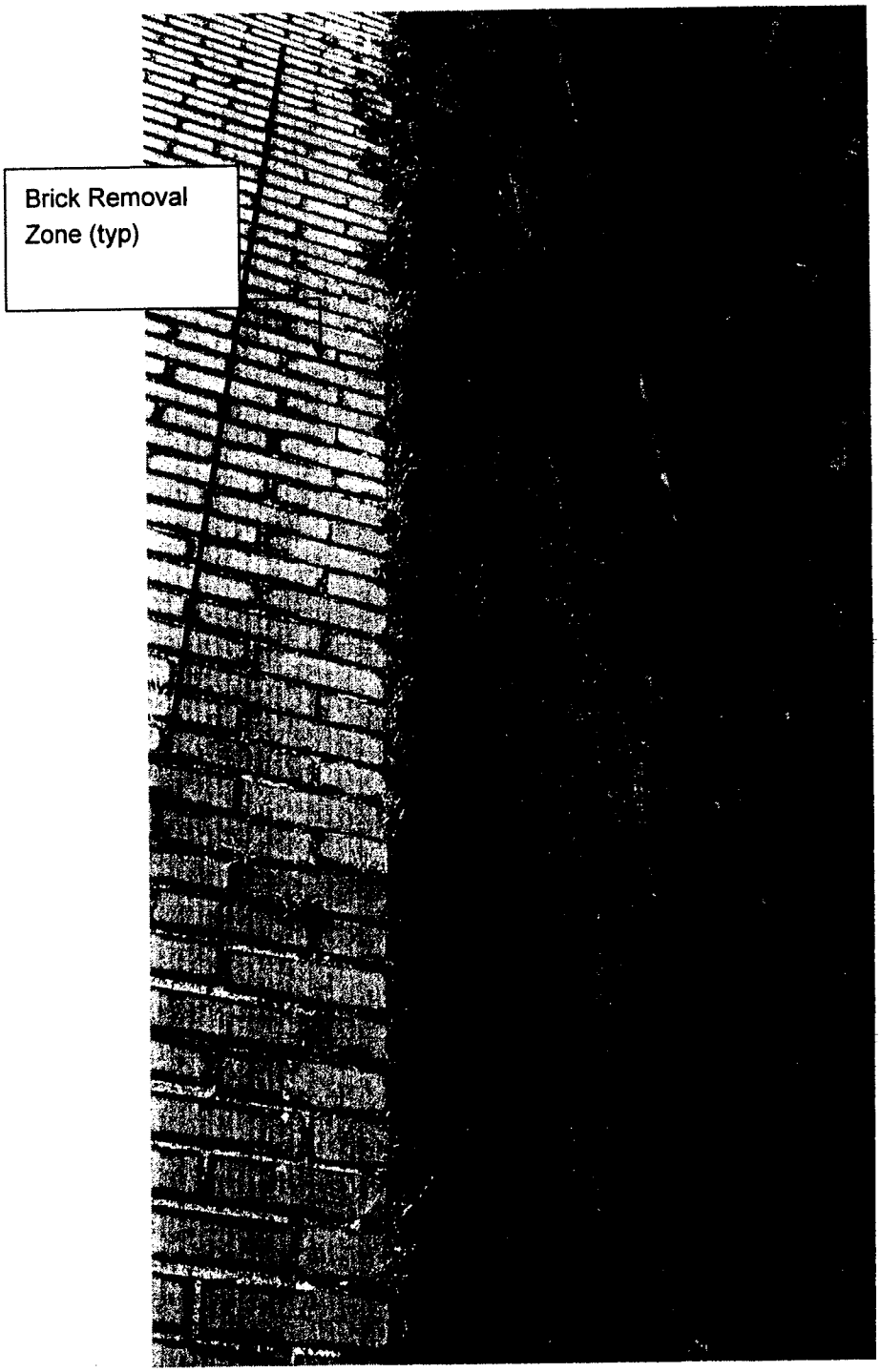


Image 1

Masonry Arch Span Brick/Stone Coping Repair



Steel Span Brick/Coping Repair



Value Engineering Proposal RA.05

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Reduce the scope of the bridge deck replacement

Markup: 40.0%		ORIGINAL DESIGN			PROPOSED CHANGE		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Delete remove brick pavers, underlayment	LS	1	4,487,867	6,283,014			
Remove brick pavers (20% of area)	SF				5,000	10	70,000
Salvage, restore & instal brick pavers	SF				3,000	70	294,000
New brick pavers	SF				2,000	40	112,000
Replace Z section	LS				1	232,750	325,850
Saw cut joint, remove veg'n, new sealant	LF				2,800	30	117,600
Remove concrete underlayment	SF				940	20	26,320
New concrete underlayment	SF				940	35	46,060
ReGrouting existing brick pavers	SF				20,000	10	280,000
TOTAL COSTS*				**6,283,000**			**1,272,000**
						TOTAL (BASELINE LESS PROPOSED)	**5,011,000**

Note: Total Costs are rounded to nearest thousand dollars

SAVINGS

OAC

Value Engineering Proposal RA.09
High Bridge over the Harlem River
New York City, NY

RA 9C

November 2010

Description: Replace the z-section at the edge of the deck

Baseline Design:

The proposed rehabilitation of the main steel-arch span does not include replacement of the steel z-sections. These members are used as retainers for the brick paving and concrete slab underlayment and provide longitudinal delineation along the coping of the deck. As well, these members are a vertical transitional element for the roof plates (bottom of the deck section), with respect to the exterior coping plates located along the edges of the top surface of the deck.

The design team is currently considering an approach to address this condition.

Proposed Change: with concrete

In addition to the work indicated in the Preliminary Engineering Drawings, replacement of the steel z-sections is recommended. T

The limit of work is for the full length of the steel arch span along both the north and south edge coping. The work includes replacement of structural steel with a reinforced concrete extension of the existing underlayment slab.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$	$	$
Proposed Change:	$ 233,000	$	$ 233,000
Total (Baseline less Proposed):	$ 233,000	$	$ 233,000

COST

ESTIMATE CORRECTION

Advantages:	Disadvantages:
• Provides an essential support element for the proposed waterproofing system	• None apparent
• Improves access for repair of edge stringers	•
•	•
•	•
•	•
•	•

Discussion/Justification:

The proposed change is based upon the findings of the Baker Engineering *Bridge Inspection Report* of October 2003, which indicates that...

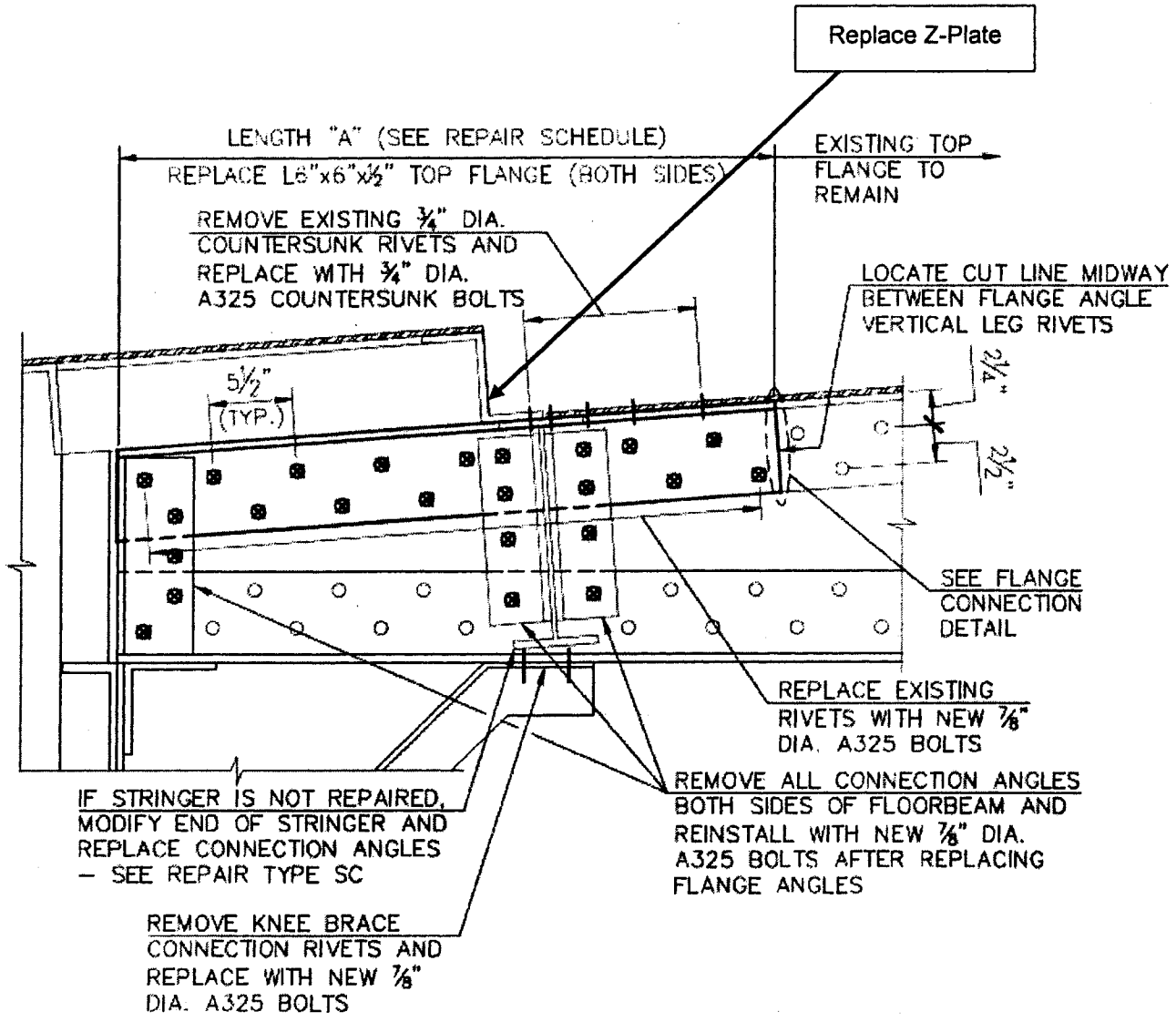
"The vertical portion of the Z-plate that bridges the height difference between the roof plate and the coping plate was found to have a hole rusted completely through it when it was exposed as part of the investigation of the roof plate condition (See Photo 17). The steel members supporting the roof at that location were found to be deteriorated due to water damage (This subject is covered in more depth in the Water Main Gallery Evaluation in Section 5.5). Based on the large number of locations where similar deteriorations in supporting members were found, it is likely that the Z-plates are deteriorated in many other locations."

Photo 17: Hole through the Z-plate at the edge of the south coping plate.

The design documents do not include the remediation of the corroded steel sections – an essential element of future bridge serviceability.

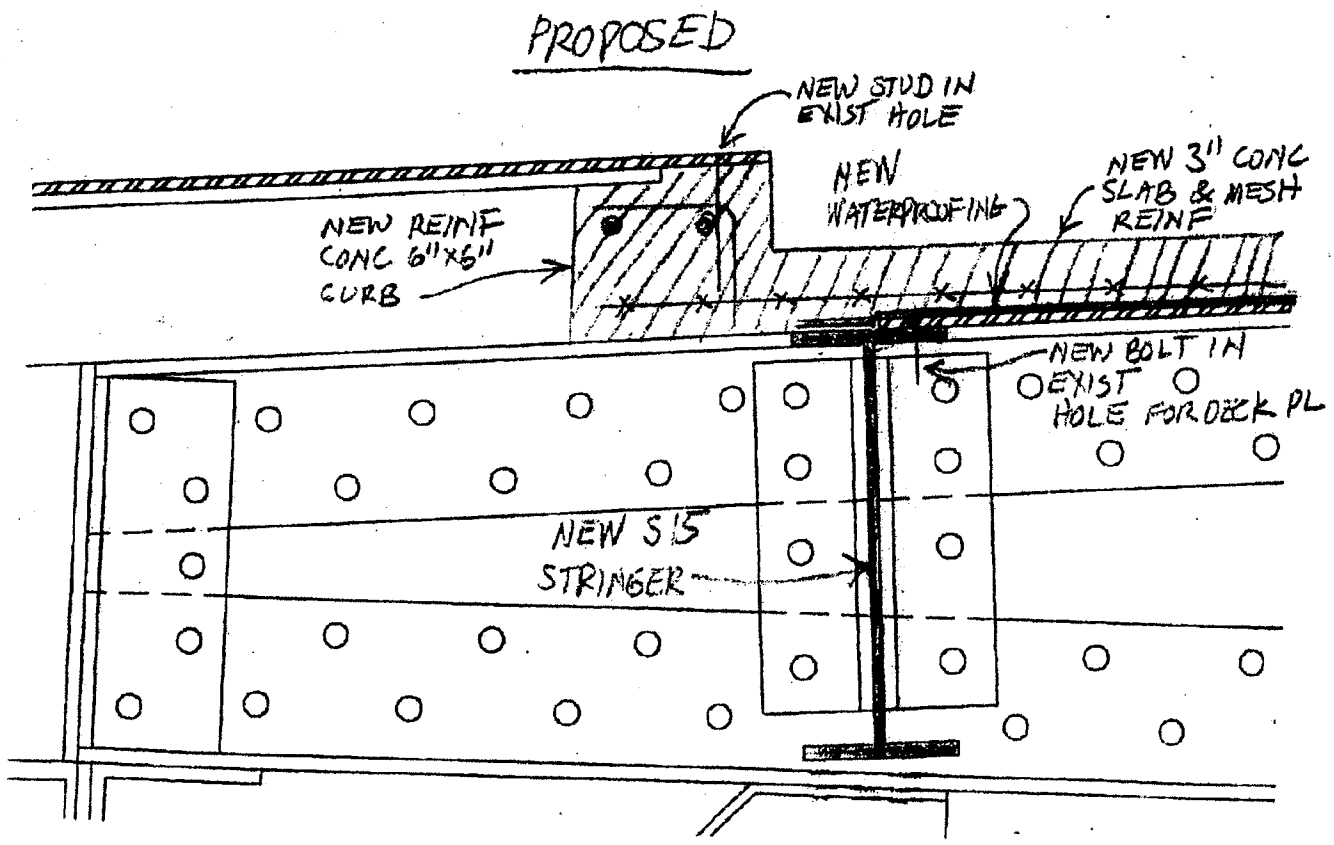
The design team has recently proposed ~~a similar approach~~ an approach to remediation using a reinforced concrete extension of the existing underlayment slab. The extension of the concrete slab has definite advantages with respect to replacing the z-section in-kind – including elimination of a connection joint between steel sections where water intrusion may occur, as well as accommodation of a continuous curb section to provide a base for the bridge rail in the event the deck cross slope is reduced.

Z-Plate Replacement Detail



FLOORBEAM TOP FLANGE REPAIR
REPAIR TYPE TF

Design Team / Concrete Slab Extension Alternative



Value Engineering Proposal RA.09

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Replace the Z-section at the edge of the deck

Markup: 40.0%		ORIGINAL DESIGN			PROPOSED CHANGE		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Remove existing steel Z section	LF				950	10	13,300
New steel Z section fixed with HS bolts	LF				950	165	219,450
TOTAL COSTS*							**233,000**
				TOTAL (BASELINE LESS PROPOSED)			**-233,000**

Note: Total Costs are rounded to nearest thousand dollars

COST

Description: Clean and paint pipe on the steel span only

Baseline Design:

The wrought iron pipe must be "stabilized and conserved" as part of this project. The baseline design envisions cleaning the entire interior of the pipe and the exterior of the portions of the pipe in the attic. Once cleaned, the majority of the pipe is assumed to be protected from corrosion because of modifications which will reduce the corrosive microenvironments on the pipe. Specifically, improved waterproofing and ventilation are expected to reduce the corrosion rate of the pipe.

The baseline design recommends treating a section no longer than 20 lineal feet of pipe with a rust converter and clear coating. This will have the effect of "stabilizing" any remaining rust (which will also turn a dark color) and sealing any porosity from the effects of moisture. The baseline design also mentions the possible use of Vapor Phase Corrosion Inhibitors.

Proposed Change:

In lieu of treating the recommended 20 lineal feet of pipe with the rust converter and clear coating, clean and paint the exterior of the pipe in the steel span with the same coating system that is being used on the steel arch structure. As containment is being built and blasting and paint equipment mobilized, it should be relatively easy for the painting contractor to abrasive blast and coat the pipe using the same system as the remainder of the bridge. In fact, to some extent the cost of painting the pipe will be offset by the costs of protecting the pipe from the painting activities. In the interest of history, it is recommended that the topcoat be of a contrasting color which is historically consistent with the "Prince's Metallic Paint."

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 1,050,000	$	$ 1,050,000
Proposed Change:	$ 468,000	$	$ 468,000
Total (Baseline less Proposed):	$ 582,000	$	$ 582,000
			SAVINGS

Advantages:	Disadvantages:
• Protects the pipe over the river from deterioration	• The pipe in the attic would be subject to corrosion which would limit its life
• Preserves a significant, visible section of pipe in a historically appropriate condition	•
• Can be accomplished within the pipe preservation budget	•
•	•
•	•
•	•

Discussion/Justification:

Design Issue

The Wrought Iron pipe must be "stabilized and conserved" as part of this project. The pipe is approximately 7 ½ foot diameter by 1300 feet long and comprises a total exterior surface area of around 30,000 square feet. The baseline design envisions cleaning the entire interior of the pipe and the exterior of the portions of the pipe in the attic. Cleaning would involve removal of loose rust, scale, dirt, oils, etc through the most efficient means. Waterjetting is mentioned as an effective approach. Once cleaned, the baseline design recommends treating a section no longer than 20 lineal feet of pipe with a rust converter and clear coating. This will have the effect of "stabilizing" any remaining rust (which will also turn a dark color) and sealing any porosity from the effects of moisture. The baseline design envisions opening up the attic space on the Bronx side to encourage ventilation which would reduce humidity and condensation which is presently affecting the pipe, tie rods and other structural elements. Finally, waterproofing improvements will reduce moisture intrusion into the attic space. The baseline design also mentions the possible use of Vapor Phase Corrosion Inhibitors.

The present pipe had some varied level of coating with a material described as "Prince's Metallic Paint." Princes Metallic Paint Company operated in Bowmanstown, PA in the early years of the structure. Paint analysis has determined that the material was an "iron oxide paint." While it is reasonable that an iron oxide pigment may have been used in the paint the life limiting component of this coating is the resin used to hold the pigment together and bond it

to the pipe. In this era, the paint was probably a drying oil material. Such materials oxidize as they age and would be expected to provide effective protection for 5-10 years. The degree to which they were maintained will dictate the protection offered by the coating. For the purposes of this discussion, we will assume that the coatings were reasonable well maintained until 1940 and have not been effective at protecting the pipe since that time.

As noted by Gordon and Thomas in their metallurgical report, comparative studies on the corrosion resistance of mild steel and wrought iron have been inconclusive as to their relative corrosion resistance. For the purposes of this discussion, we will assume that the wrought iron will be have similarly to mild steel, allowing us to use widely available mild steel corrosion data as a point of reference. Extensive studies on the corrosion of mild steel suggest an atmospheric corrosion rate of 1 mil (0.001 inches) per year is reasonable for the High Bridge location.[1] If we assume that corrosion has been occurring since 1940, it would suggest 70 mils of metal loss per side or approximately 1/8-inch reduction in cross sectional area. This is consistent with the general observed condition of the pipe. Locations of deep pitting or penetration would have experienced a corrosion rate slightly over 7 mils per year if we assume that the ½-inch cross section was penetrated from one side and the corrosion occurred between 1940 and 2010. An order of magnitude increase in corrosion rate (i.e., 10 mils per year) is reasonable in areas where dirt and other debris accumulate. Such accumulations are create a phenomena which corrosion engineers call "poultice corrosion." Poultice creates a unique highly corrosive environment that remains wet and contains dissolved contaminants.

Challenges with the Baseline Design

The condition assessment prepared by CSI states that "the variable nature of the microclimates surrounding – as well as within – the pipe have generated varying conditions on the pipe." The baseline design assumes that by cleaning the pipe, eliminating moisture intrusion into the attic and allowing natural ventilation that these varying conditions will be eliminated, thus controlling corrosion. However, microenvironments will still exist and corrosion will still occur, albeit at a somewhat slower rate.

If we assume that the effects of debris and moisture intrusion are completely controlled (which will probably not be the case in the later part of the 50-year design life), there will still be condensation on the pipe. Figure 1 shows the maximum relative humidity observed at Hunter College, Upper East Side. More than 20% of the days include an excursion above 85% RH. Perhaps more important is the difference between the ambient temperature and dew point. Figure 2 shows this difference at the same location. The CSI report indicates pipe surface temperatures that were 5 to 11 degrees F below the air temperature. When the surface is below the dew point, condensation can be expected. If we assume that the pipe is always 5 to 10 degrees cooler (a worst case assumption that is not valid throughout the year), we can

[1] *ISOCORRAG International Atmospheric Exposure Program: Summary of Results* indicates a corrosion rate of mild steel at the Newark, NJ test site is approximately 1 mpy. This is an urban location free from the influence of deicing salts. Other studies corroborate this value.

expect condensation on the pipe more than 20% of the days of the year. Obviously, as poultice builds up, the moisture will be retained and corrosion of the pipe will increase.

For the majority of the pipe which is not conserved, it is reasonable to expect a reduction in corrosion rate if the surfaces are cleaned and the attic is ventilated. However, it is still reasonable to expect a corrosion rate of perhaps 0.5 mils per year on the interior and exterior of the pipe. At that rate, the entire pipe would be gone in approximately 375 years (assuming 3/8 inch remaining cross section). Furthermore, periodic cleaning will be required to maintain the "low" corrosion rate. Poultice corrosion will occur as the corrosion product and other debris collects in the bottom of the pipe.

The CSI report discusses the use of vapor phase corrosion inhibitors (VpCI's) to control corrosion of the pipe. It is not clear if the inhibitors are intended for the short section or the entire pipe. In either case, it should be noted that VpCI's are commonly used in small, sealed spaces. Furthermore, inhibitors generally require re-application on a frequent basis (i.e., every year or two) or automated spray systems. As a point of reference, the Marine Corps applies inhibitors to vehicles on an annual basis.

The present design also envisions opening the ends of the pipe to encourage ventilation which will reduce internal corrosion of the pipe, though the impacts of rainwater have not been addressed. This scheme will also reduce the overall security of the structure.

Proposed Idea

Of particular concern to this idea is ~~that~~ the fact that continued corrosion on the exterior of the pipe in the steel arch span will be detrimental. If the exterior of the pipe on the steel arch span is allowed to rust, localized corrosion may eventually be significant enough to cause a piece of pipe to fall, creating a safety hazard. Furthermore, rust from the pipe exterior will eventually create stains on the steel arch structure.

This idea is to prevent corrosion on the exterior of the pipe by painting it using the same coating system as will be used on the steel arch structure. The baseline concept calls for the steel arch structure to be abrasive blasted and painted in accordance with NYCDOT Standard Specification Section ~~832~~ 881, Specification for Bridge Painting. While the specific coating system has not yet been selected, it is most appropriate to use a system which involves total coating replacement with sealer. These systems include System B' (Epoxy Zinc Rich Primer/Epoxy Penetrating Sealer/Epoxy Intermediate/Urethane Finish) or System C' (MCU Zinc/Sealer/MCU Intermediate/MCU Finish). Either of these systems could be applied to the exterior of the pipe.

In the baseline design, the contractor would have to provide rigging and containment to reach structural steel around the pipe. This rigging and containment would be adequate for cleaning and painting the pipe.

In the baseline design, the contractor would have to shield the pipe from abrasive material and coating overspray. These costs would obviously be eliminated if the pipe is coated.

One concern is that the wrought iron pipe will have a slightly different appearance after abrasive blasting that is described in the SP-10 surface preparation. Guidance for abrasive blasting wrought and cast iron is available and would have to be provided for clarification.

To retain the historic nature of the pipe, it is recommended that the topcoat on the pipe be a color that ~~contrasts~~ contrasts with the remainder of the arch and is consistent with the Prince's Metallic Paint used on the historic structure. The coating could be expected to protect the pipe without maintenance for the entire 50-year design life, though a topcoat touch-up may be desirable for aesthetic purposes during that service life.

If there is concern over the ability to accomplish this coating as specified, a test area could be prepared in the attic. Portable vacuum blasting equipment could be used to prepare the pipe surface and the specified coating system could be applied by brush and roller. The prepared surface condition could be documented for guidance to the contractor. The demonstration may help validate the assumption that abrasive blasting of the pipe could be accomplished for less than the cost to remove and abate lead paint from the arch.

Figure 1. Maximum Relative Humidity Observed at Hunter College, Upper East Side

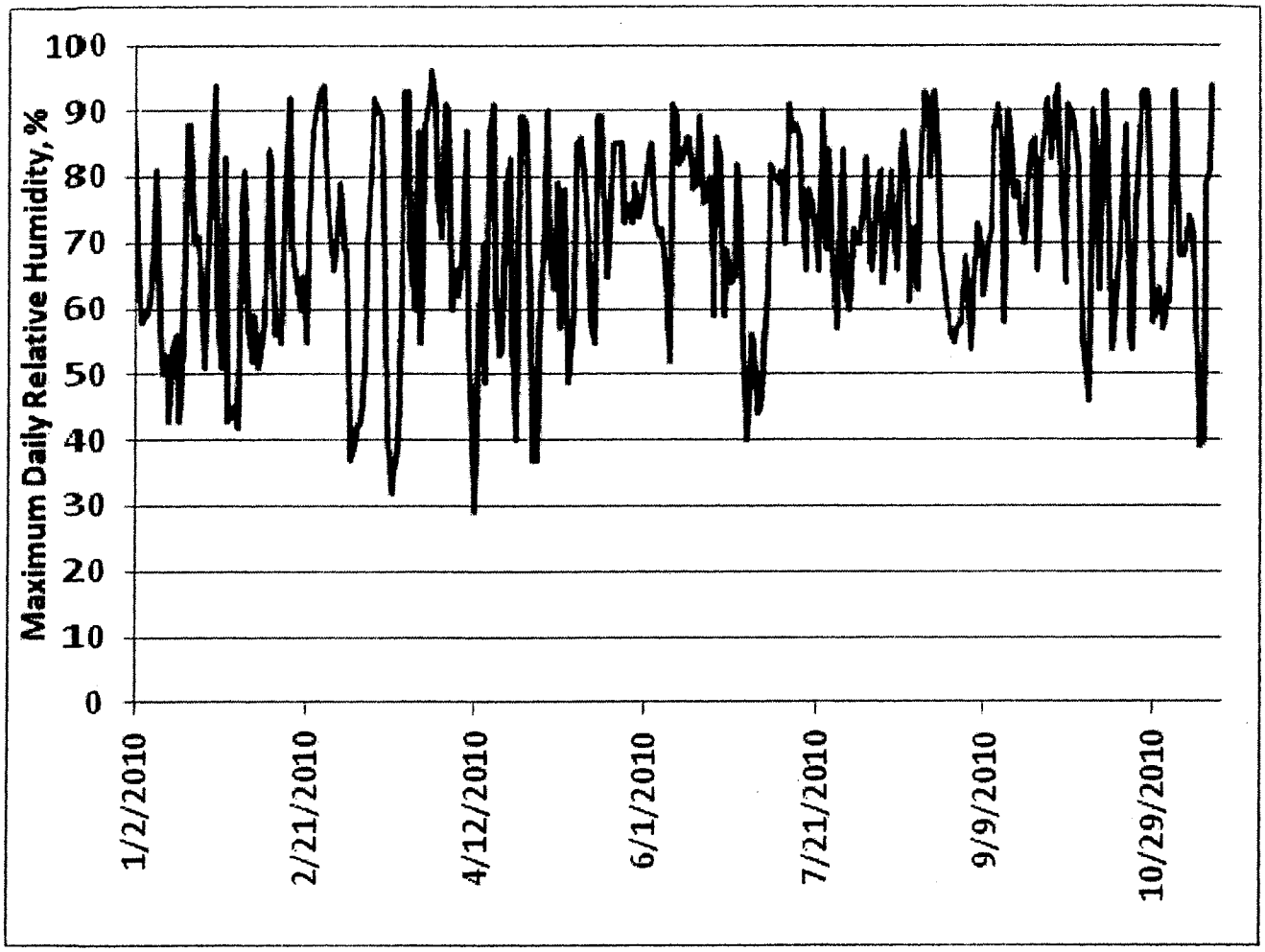
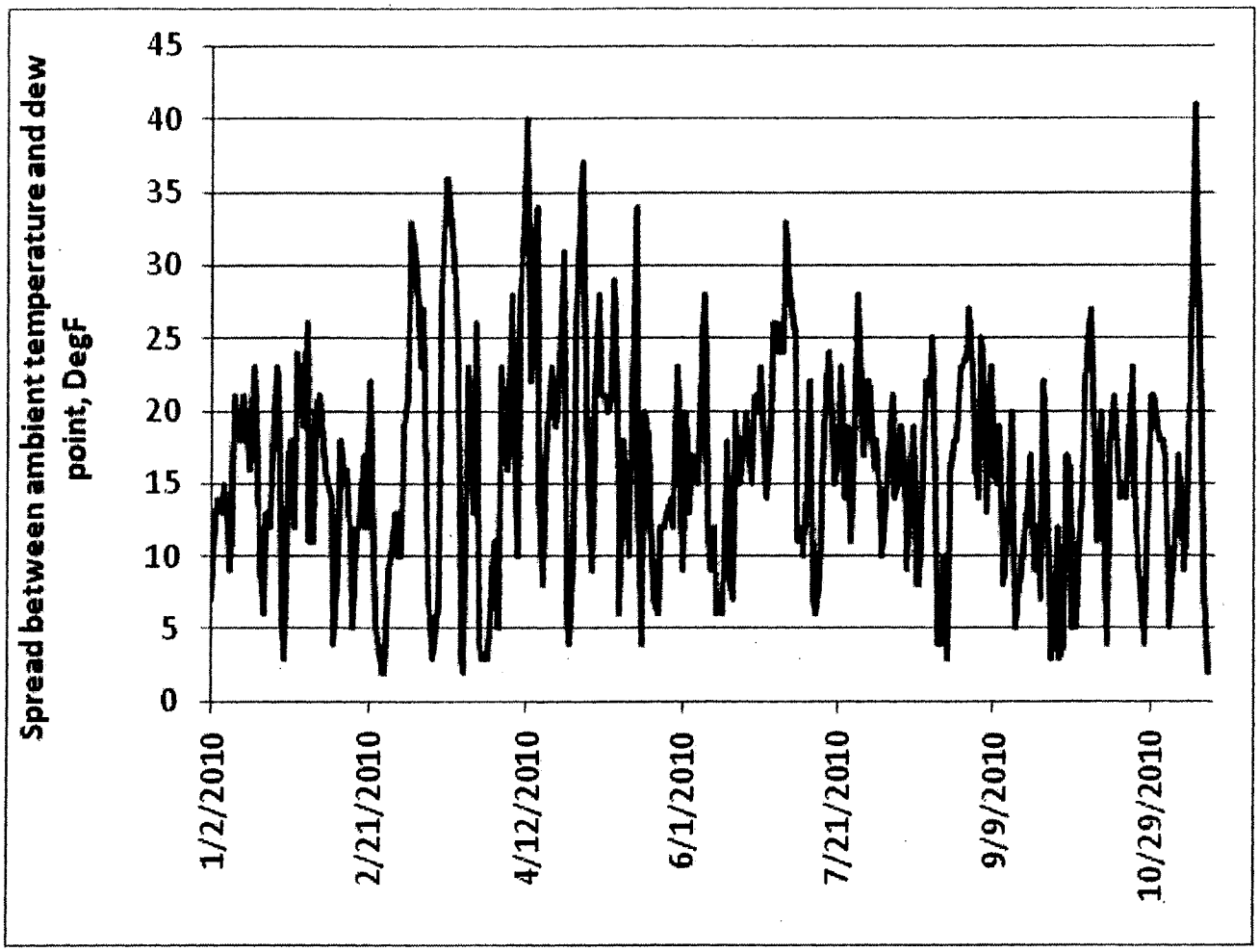


Figure 2. Dew Point Depression Observed at Hunter College, Upper East Side



Value Engineering Proposal RA.12

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Clean and paint pipe on the steel span only

Markup: 40.0%		**ORIGINAL DESIGN**			**PROPOSED CHANGE**		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Delete Stabilize / repair pipes	LS	1	750,000	1,050,000			
Access and containment of pipe	LF				1,300	100	182,000
Clean interior surfaces of entire pipe	SF				30,000	3	126,000
Clean exterior surfaces of pipe in attic	SF				18,000	3	75,600
Prepare and paint exterior surfaces of pipe	SF				12,000	5	84,000
TOTAL COSTS*				**1,050,000**			**468,000**
						TOTAL (BASELINE LESS PROPOSED)	**582,000**

Note: Total Costs are rounded to nearest thousand dollars

SAVINGS

OAC

Value Engineering Proposal RA.16

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Use mechanical anchorage for the tie rods

Baseline Design:

Baseline design proposes installing supplemental tie rods at 10 ft. on center. (see Figure 1)

Proposed Change:

Utilize a mechanical anchorage as a means to install the supplemental tie rods at the skewback that would not require access from the deck.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 2,520,000	$	$ 2,520,000
Proposed Change:	$ 1,008,000	$	$ 1,008,000
Total (Baseline less Proposed):	$ 1,512,000	$	$ 1,512,000
			SAVINGS

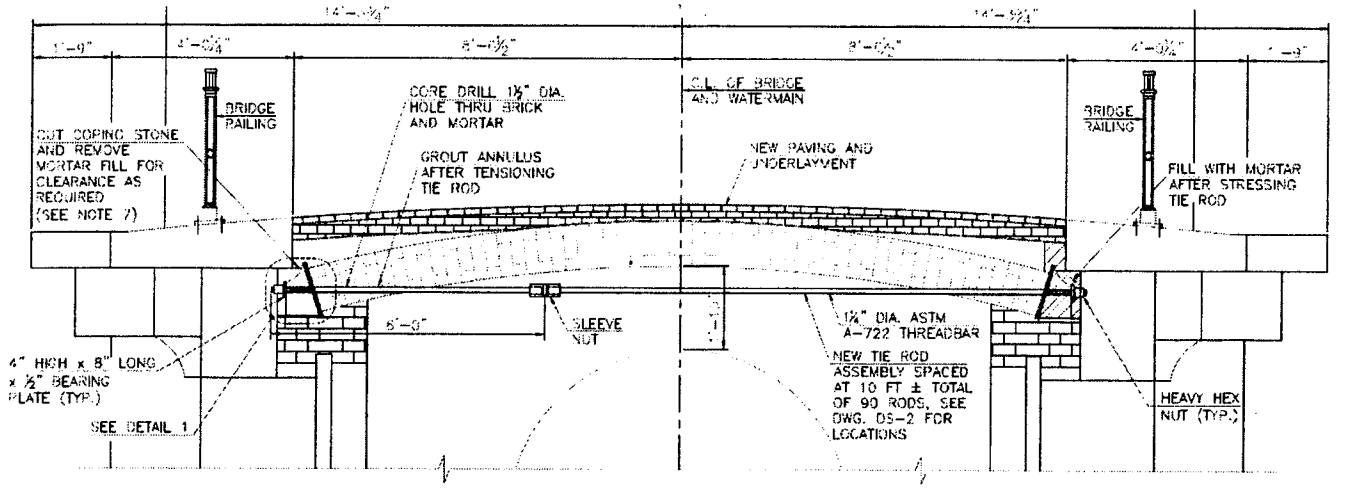
Advantages:	Disadvantages:
• Access from deck is not required	• Anchorage should be tested before widespread application to make sure the anchorage sufficiently engages skewback
• Reduced construction time and cost	•
• Minimally · invasive	•
•	•
•	•
•	•

Discussion/Justification:

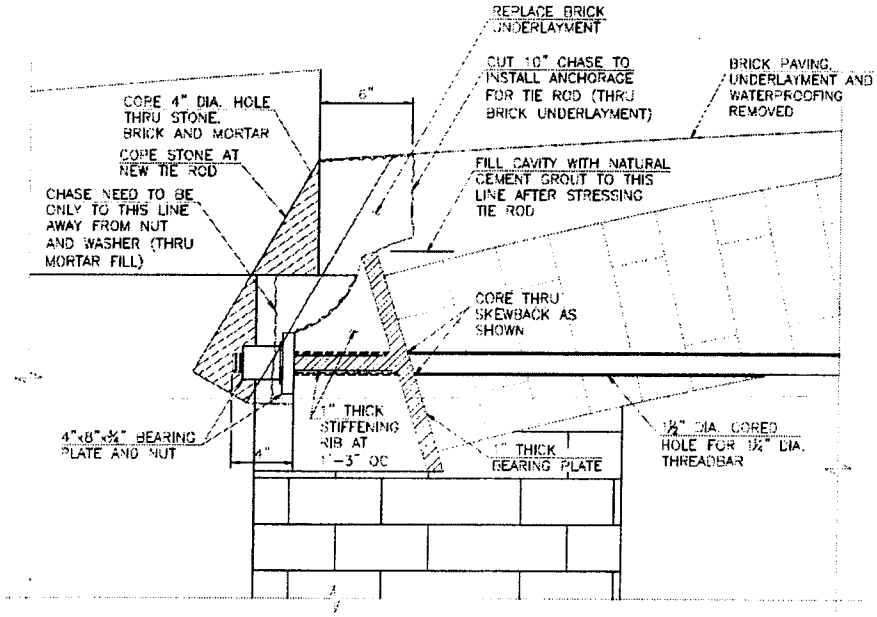
The current scheme for strengthening the brick attic roof arch proposes new supplemental tie rods at 10 ft. centers. This approach requires precise drilling through the brick arch and skewback, removing the coping stones, chipping out grout to create a pocket for a new anchor, installing new tiebacks, grouting the pocket, reattaching the coping stone, and tensioning the tie rod. (see Figure 1)

This proposal substitutes a mechanical anchor, inserted through an oversized hole drilled in the brick, skewback and grout block behind the skewback. This anchor is engaged by wedging itself in the grout block. This approach will eliminate removing the coping stones, chipping out grout to create a pocket for a new anchor, installing new tiebacks, grouting the pocket, and reattaching the coping stone. Similar to the existing approach, drilling into the granite fascinings by required. The cut sheet provided shows a system that develops the required strength. It would be prudent to do a test of these anchors to verify their application.

Figure 1 -Tie Rod Anchorage at Skewback



TYPICAL SECTION - PROPOSED
STA. 9+54 TO STA. 17+62
STA. 22+30 TO STA. 23+30



DETAIL 1 - SECTION
TIE ROD ANCHORAGE

Figure 2- Proposed Mechanical Anchor

WILLIAMS FORM ENGINEERING CORP.

Ground Anchor Systems

Concrete Anchor Systems

Post Tensioning Systems

Threaded Bars with Fasteners

Tie Rods Tie Backs

Micro Piles

Concrete Forming Hardware Systems

CONCRETE ACCESSORIES DIVISION

R7S 150 KSI Spin-Lock Concrete Anchor

Spin-Lock Information | Spin-Lock Design | Parts & Accessories | Head Assemblies

Spin-Lock Installation | Installation Equipment | Case Histories | Corrosion Protection

The R7S Spin-Lock Mechanical Concrete Anchor incorporates a high strength post-tension steel giving the designer the highest strength to anchor diameter ratio available for use with the Spin-Lock head assembly.

R7S Structural Properties

Yield Stress	Ultimate Stress	Elongation in 20 bar diameter	Reduction of Area
127.7 KSI (880 MPa)	150 KSI (1034 MPa	4%	20%

R7S 150 KSI Spin-Lock Concrete Anchor - ASTM A-722

Dia. & Threads Per In.	Recomm. Design Load at 2:1 Safety Factor	Maximum Working Load to Yield	Average Ultimate Strength	Ultimate Shear Strength	Drill Hole Dia. (1)	Type Head Ass'y	Torque ft.-lbs. To Expand Shell (2)	Torque ft.-lbs. On Nut for Tension	Min. Embed. Depth in 3000 PSI Concrete	Part Number
1" - 8 (25 mm)	45 kips (200 kN)	72 kips (320 kN)	90 kips (400 kN)	54 kips (240 kN)	1-3/4" (44 mm)	C 14	500 ft.-lbs. (650*)	680	18" (457 mm)	R7S08C14
1-1/4" - 7 (32 mm)	72.5 kips (322 kN)	116 kips (516 kN)	145 kips (649 kN)	87 kips (389 kN)	2-1/2" (65 mm)	B 20	750 ft.-lbs. (1200*)	1350	23" (584 mm)	R7S10B20
1-1/2" - 6 (38 mm)	105 kips (467 kN)	168 kips (747 kN)	210 kips (932 kN)	126 kips (559 kN)	3" (76 mm)	B 24	1000 ft.-lbs. (1700*)	Note (3)	26" (660 mm)	R7S12B24
1-7/8"-6 (48 mm)	180 kips (799 kN)	289 kips (1284 kN)	360 kips (1598 kN)	216 kips (959 kN)	3-1/2" (89 mm)	C 28	1000 ft.-lbs. (2000*)	Note (3)	36" (914 mm)	R7S15C28

NOTES:
(*) Do not exceed these numbers
(1) Care should be taken to drill a straight and properly sized hole.
(2) More torque may be required on long anchors or if the head assembly is next to rebar. Consult your Williams Representative for more specific details.
(3) Stress to desired tensile load using a hollow ram hydraulic jack. Consult your Williams Representative.
(4) Full ultimate strength of anchor can be achieved at listed embedment depth, provided there are no edge or spacing effects on the anchor.
WILLIAMS reserves the right to ship full length or coupled units as necessary.

Value Engineering Proposal RA.16

High Bridge over the Harlem River
New York City, NY **November 2010**

Description: Use mechanical anchorage for the tie rods

Markup: 40.0%		**ORIGINAL DESIGN**			**PROPOSED CHANGE**		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Delete new Tie rods as designed	EA	90	20,000	2,520,000			
Thread Rods, Couplers, anchors, grout	EA				90	8,000	1,008,000
TOTAL COSTS*				**2,520,000**			**1,008,000**
				TOTAL (BASELINE LESS PROPOSED)			**1,512,000**

Note: Total Costs are rounded to nearest thousand dollars SAVINGS

OAC

Value Engineering Proposal RA.22

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Replace exposed tie rod section with new 36ksi steel rods

Baseline Design:
Baseline design proposes supplemental tie rods at 10 ft. on center. (see Figure 1)
Proposed Change:
Utilize existing tie rods (ends) that have not lost section and replace the (exposed portions) which have a loss in section.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 2,520,000	$	$ 2,520,000
Proposed Change:	$ 1,225,000	$	$ 1,225,000
Total (Baseline less Proposed):	$ 1,295,000	$	$ 1,295,000
			SAVINGS

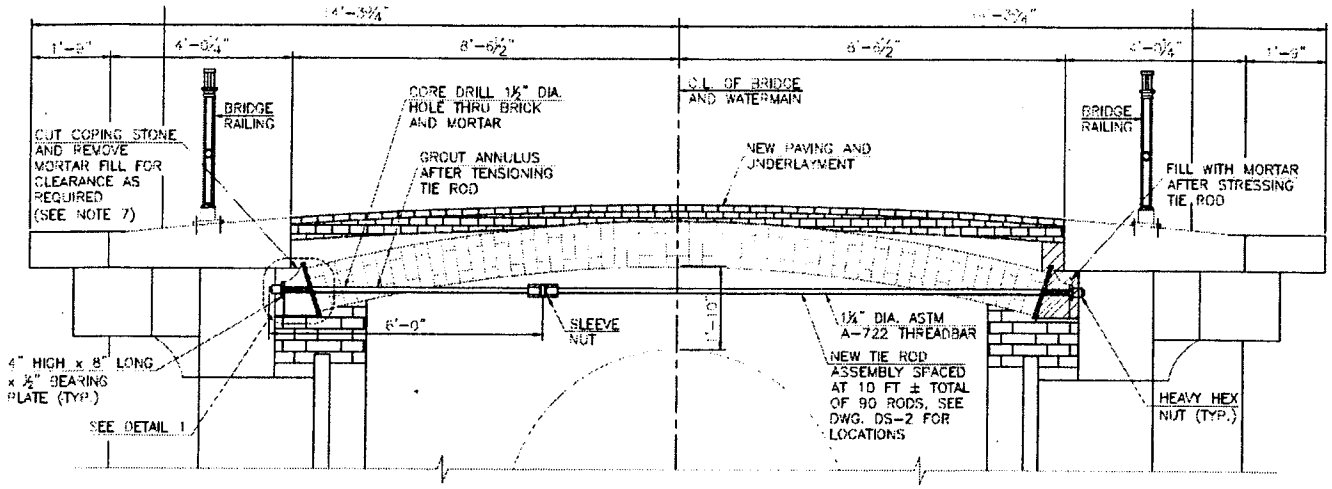
Advantages:	Disadvantages:
• Utilizes existing anchorages to skewbacks	• Cuts into part of the attic roof arch but at discrete locations
• No demolition behind skewback required, minimally invasive	•
• Significantly reduced cost	•
•	•
•	•
•	•

Discussion/Justification:

The current scheme for strengthening the brick attic roof arch proposes new supplemental tie rods at 10 ft. centers. This approach requires precise drilling through the brick arch and skewback, removing the coping stones, chipping out grout to create a pocket for a new anchor, installing new tiebacks, grouting the pocket, reattaching the coping stone, and tensioning the tie rod. (see Figure 1)

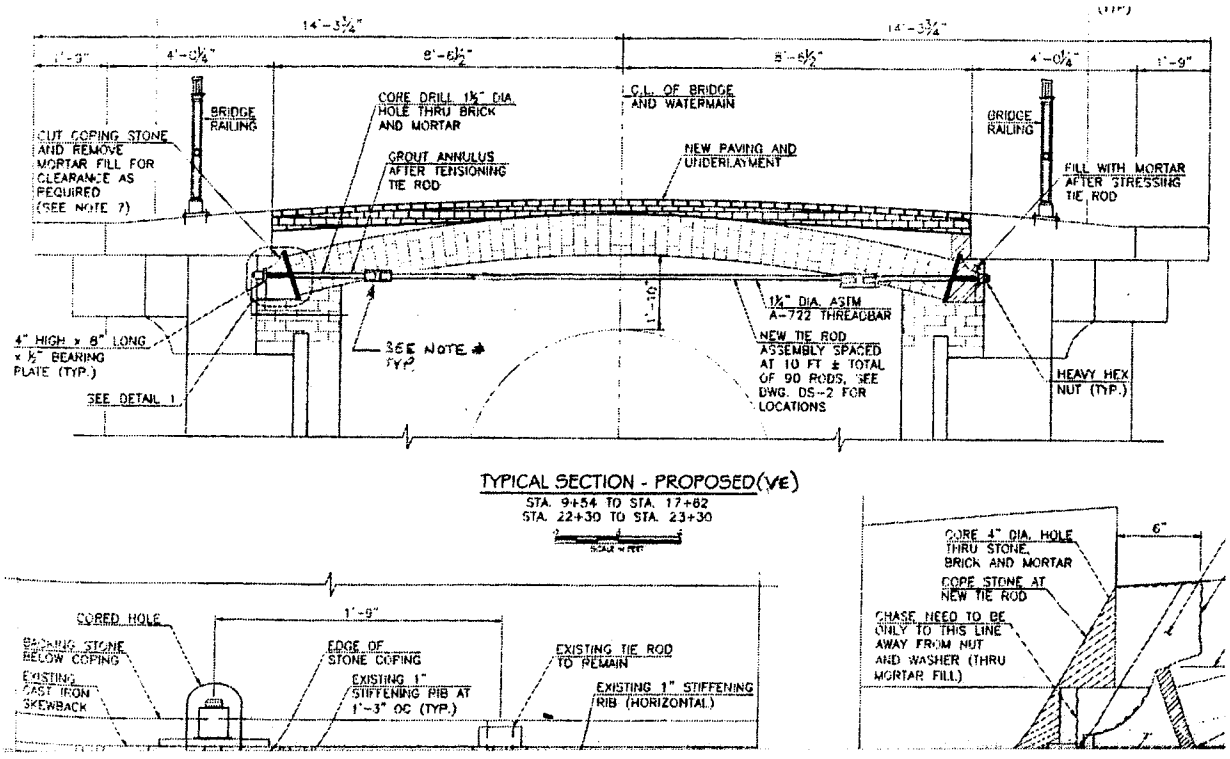
The Baker "Bridge Condition and Assessment Report" pointed out that the portion of the existing tiebacks is protected when embedded in the brick arch. They appear to have not experienced any section loss; only the exposed rod has deteriorated. Using an approach similar to the steel span, we propose to only replace the deteriorated elements of the system, the exposed tie rod. Each existing tie rod would be cut near the face of the brick arch. A limited area of the arch in the vicinity of the tie rod would be removed to facilitate threading the rod and adding a coupler. The existing rod would be threaded and a new mild steel bar with couplers at each end would be added to replace the section that was removed. The tie rod would be tensioned as proposed by the designer. (see Figure 2)

Figure 1 Proposed Tie Rod Replacement



TYPICAL SECTION - PROPOSED
STA. 9+54 TO STA. 17+62
STA. 22+30 TO STA. 23+30

Figure 2 Revised Tie Rod Repair Detail



Value Engineering Proposal RA.22

High Bridge over the Harlem River
New York City, NY

November 2010

Description: ~~Clean and reuse tie rods with more than 90% of original cross section~~ Replace exposed tie rod section with new 36ksi steel rods

Markup: 40.0%

Item Description	Unit	ORIGINAL DESIGN Qty	Unit Cost $	TOTAL $	PROPOSED CHANGE Qty	Unit Cost $	TOTAL $
Delete new Tie rods	LS	1	1,800,000	2,520,000			
Cut, thread, new galv tie rods	EA				175	5,000	1,225,000
TOTAL COSTS*				**2,520,000**			**1,225,000**
				TOTAL (BASELINE LESS PROPOSED)			**1,295,000**

Note: Total Costs are rounded to nearest thousand dollars

SAVINGS

OAC

Value Engineering Proposal RA.28

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Grease the arch pin connections and install lubrication ports at the steel arch

Baseline Design:

The design plans do not indicate the provision for standard maintenance items. A major item associated with the structural performance of the bridge, as well as future serviceability is the ongoing maintenance of the arch hinge pins.

Proposed Change:

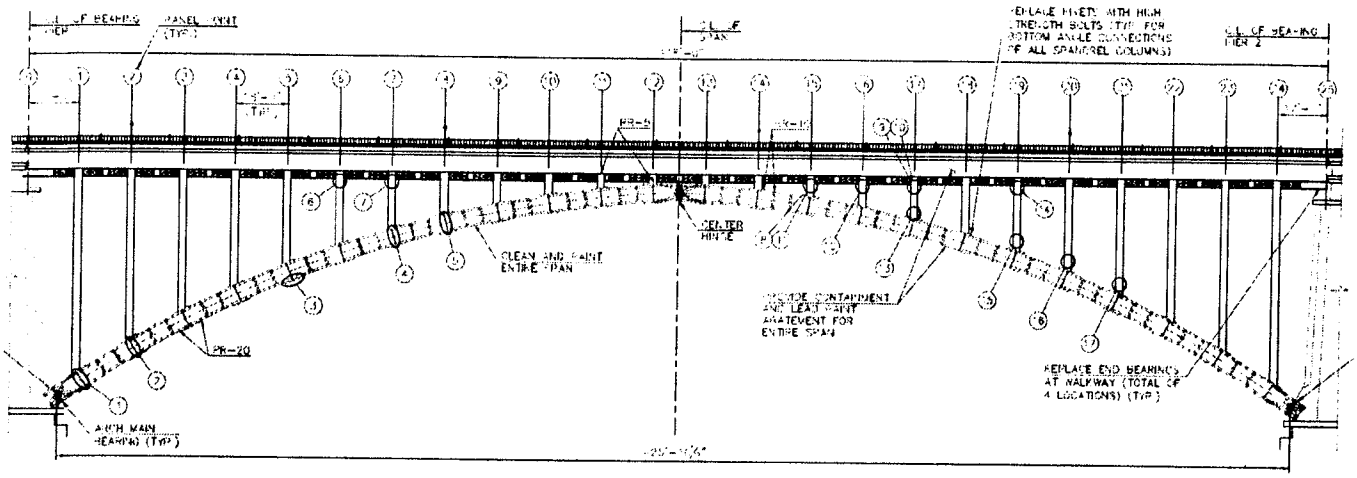
The proposed change to the baseline design includes cleaning and lubricating the bearing surfaces of the arch hinge pins, as well as installation of lubrication ports for future maintenance. The work$ includes all pinned connections at both the bearings and arch crown.

DESIGN SUGGESTION

Advantages:	Disadvantages:
• Ensures proper structural performance	• None apparent
• Provides a means of providing lubrication and simplifies cost effective future maintenance	•
•	•
•	•
•	•
•	•

Discussion/Justification:
The Baker Engineering Report indicates that the arch pins are currently functioning properly, i.e. the pins are not dirty or corroded and impeded proper movement at the supports. To ensure that the pins continue to operate properly, it is recommended that the pins be cleaned and lubricated with lubrication ports installed for future maintenance. The primary concern associated with performing this work is that if the pins are frozen, the arch (and the pins) will be subject to unintended stresses that may be significant with respect to affecting structural performance and possibly causing damage to pinned connections.

Arch Pin Locations



OAC

Value Engineering Proposal RA.32
High Bridge over the Harlem River
New York City, NY

November 2010

Description: Consider installing a fan-assisted desiccant dehumidification system in the attic

Baseline Design:

The wrought iron pipe must be "stabilized and conserved" as part of this project. The baseline design envisions cleaning the entire interior of the pipe and the exterior of the portions of the pipe in the attic. Once cleaned, the majority of the pipe is assumed to be protected from corrosion because of modifications which will reduce the corrosive microenvironments on the pipe. Specifically, improved waterproofing and ventilation are expected to reduce the corrosion rate of the pipe.

The baseline design recommends treating a section no longer than 20 ln. ft. of pipe with a rust converter and clear coating. This will have the effect of "stabilizing" any remaining rust (which will also turn a dark color) and sealing any porosity from the effects of moisture. The baseline design also mentions the possible use of Vapor Phase Corrosion Inhibitors.

Proposed Change:

The proposed change would incorporate a dehumidification system in the attic space. This system would remove moisture from the attic spaces and thus make the iron corrosion rate negligible, as well as preserve the masonry components. The system would be designed to operate on electrical power and require no more than annual maintenance. The system would allow the attic spaces and pipe vents to remain sealed. The system could be installed in lieu of preservation of the 20 ft section of pipe. Dehumidification would address all pipe surfaces except the exterior of the pipe on the steel arch span.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 1,050,000	$ 94,000	$ 1,144,000
Proposed Change:	$ 384,000	$ 458,000	$ 842,000
Total (Baseline less Proposed):	$ 666,000	$ (364,000)	$ 202,000 SAVINGS

(not just a 20-foot section)

Advantages: majority of the	**Disadvantages:**
• Preserve the ~~entire~~ pipe and other elements in the attic space	• Does not address exterior of pipe in the steel arch span
• Reduces corrosion rate to a negligible level so the pipe could be preserved indefinitely	• Requires maintenance no more than annually to ensure equipment is operational or replace units which are not
• Less expensive than the present allocation	
•	•
•	•
•	•

Discussion/Justification:

Design Issue

The Wrought Iron pipe must be "stabilized and conserved" as part of this project. The pipe is approximately 7-½ ft t diameter by 1300 feet long, and comprises a total exterior surface area of around 30,000 square feet. The baseline design envisions cleaning the entire interior of the pipe and the exterior of the portions of the pipe in the attic. Cleaning would involve removal of loose rust, scale, dirt, oils, etc through the most efficient means. Waterjetting is mentioned as an effective approach. Once cleaned, the baseline design recommends treating a section no longer than 20 ~~ft~~ In. ft of pipe with a rust converter and clear coating. This will have the effect of "stabilizing" any remaining rust (which will also ~~turn a dark color~~) and sealing any porosity from the effects of moisture. The baseline design envisions opening up the attic space on the Bronx side to encourage ventilation ~~which would~~ and reduce humidity and condensation ~~that~~ is presently affecting the pipe, ~~tie rods and~~ other structural elements. Finally, waterproofing improvements will reduce moisture intrusion into the attic space. The baseline design also mentions the possible use of Vapor Phase Corrosion Inhibitors.

The present pipe had some varied level of coating with a material described as Prince's Metallic Paint. Prince's Metallic Paint Company operated in Bowmanstown, PA in the early years of the structure. Paint analysis has determined that the material was an iron oxide paint. While it is reasonable that an iron oxide pigment may have been used in the paint, the life limiting component of this coating is the resin used to hold the pigment together and bond it

to the pipe. In this era, the paint was probably a drying oil material. Such materials oxidize as they age and would be expected to provide effective protection for 5-10 years. The degree to which they were maintained will dictate the protection offered by the coating. For the purposes of this discussion, we will assume ~~that~~ the coatings were reasonably well maintained until 1940, and have not been effective at protecting the pipe since that time.

As noted by Gordon and Thomas in their metallurgical report, comparative studies on the corrosion resistance of mild steel and wrought iron have been inconclusive as to their relative ~~corrosion~~ resistance. For the purposes of this discussion, we will assume ~~that~~ the wrought iron will be similar to mild steel, allowing us to use widely available mild steel corrosion data as a point of reference. Extensive studies on the corrosion of mild steel suggest an atmospheric corrosion rate of 1 mil (0.001 inches) per year, which is reasonable for the High Bridge location.[1] If we assume that corrosion has been occurring since 1940, it would suggest 70 mils of metal loss per side, or approximately 1/8-inch reduction in cross sectional area. This is consistent with the general observed condition of the pipe. Locations of deep pitting or penetration would have experienced a corrosion rate slightly over 7 mils per year if we assume that the ½-inch cross section was penetrated from one side and the corrosion occurred between 1940 and 2010. An order of magnitude increase in corrosion rate (i.e., 10 mils per year) is reasonable in areas where dirt and other debris accumulate. Such accumulations create a phenomena which corrosion engineers call "poultice corrosion." Poultice creates a unique, highly corrosive environment that remains wet and contains dissolved contaminants.

Challenges with the Baseline Design

The condition assessment prepared by CSI states that "the variable nature of the microclimates surrounding – as well as within – the pipe have generated varying conditions on the pipe." The baseline design assumes that by cleaning the pipe, eliminating moisture intrusion into the attic, and allowing natural ventilation, these varying conditions will be eliminated, thus controlling corrosion. However, microenvironments will still exist and corrosion will still occur, albeit at a somewhat slower rate.

If we assume ~~that~~ the effects of debris and moisture intrusion are completely controlled (which will probably not be the case in the later part of the 50-year design life), there will still be condensation on the pipe. Figure 1 shows the maximum relative humidity observed at Hunter College, Upper East Side. More than 20% of the days include an excursion above 85% RH. Perhaps more important is the difference between the ambient temperature and dew point. Figure 2 shows this difference at the same location. The CSI report indicates pipe surface temperatures that were 5 to 11 degrees F below the air temperature. When the surface is below the dew point, condensation can be expected. If we assume ~~that~~ the pipe is always 5 to 10 degrees cooler (a worst case assumption that is not valid throughout the year), we can

[1] *ISOCORRAG International Atmospheric Exposure Program: Summary of Results* indicates a corrosion rate of mild steel at the Newark, NJ test site is approximately 1 mpy. This is an urban location free from the influence of deicing salts. Other studies corroborate this value.

expect condensation on the pipe more than 20% of the days of the year. Obviously, as poultice builds up, the moisture will be retained and corrosion of the pipe will increase.

For the majority of the pipe which is not conserved, it is reasonable to expect a reduction in corrosion rate if the surfaces are cleaned and the attic is ventilated. However, it is still reasonable to expect a corrosion rate of perhaps 0.5 mils per year on the interior and exterior of the pipe. At that rate, the entire pipe would be gone in approximately 375 years (assuming 3/8 inch remaining cross section). Furthermore, periodic cleaning will be required to maintain a reduced corrosion rate. Poultice corrosion will occur as the corrosion product and other debris collects in the bottom of the pipe.

For the portion of the pipe which is preserved, it is reasonable to expect the rust converter and clear coating will extend the corrosion free life of the pipeline. Based on our experience with these materials, the effective protective life of such a system might be 20-30 years inside the attic and probably 5-10 years if applied to the pipe on the exposed steel span. At that time the section would require re-preservation to prevent it from proceeding along the above described metal loss path beginning at approximately 0.5 mils per year 20-30 years after the preservation.

The CSI report discusses the use of vapor phase corrosion inhibitors (VpCI's) to control corrosion of the pipe. It is not clear if the inhibitors are intended for the short section or the entire pipe. In either case, it should be noted that VpCI's are commonly used in small, sealed spaces. Furthermore, inhibitors generally require re-application on a frequent basis (i.e., every year or two) or automated spray systems. As a point of reference, the Marine Corps applies inhibitors to vehicles on an annual basis.

The present design also envisions opening the ends of the pipe to encourage ventilation which will reduce internal corrosion of the pipe, though the impacts of rainwater have not been addressed. This scheme will also reduce the overall security of the structure.

Dehumidification Technology

The use of dehumidification equipment is a common way to control an environment to achieve conditions that promote a more desirable end result. Dehumidification is very common to many industries.

- In the petroleum and petrochemical industries dehumidification is used as a means to control the environment inside large tanks during abrasive blasting and coating operations. Dehumidification enables large storage tanks to be coated regardless of ambient conditions, eliminating one risk to scheduled downtime.

- In the marine and ship repair industry, dehumidification can reduce the amount of time required for degassing tanks for personnel entry. It also significantly reduces the time required for drying a tank after steam cleaning, wash-downs via low pressure hydro blasting, or even after complete or spot-repair of tank coatings in a water-jetting

operation. For tank washing of cargo ships, for example, dehumidification allows for quicker drying of the tank, enabling the ship to receive cargo sooner. During blasting and coating, dehumidification is employed for elimination of rust-bloom during blasting, as well as evacuating solvents during paint cure, and acceleration of the curing process, thereby returning tanks back to service in a quicker amount of time.

- In aviation, dehumidification is used for the protection of highly sophisticated equipment during extend ground time periods, or for long-term storage.

- In building restoration, dehumidification can be employed to quickly dry out buildings and their contents after catastrophes such as floods, hurricanes, and water damage from fires. Additionally, in restoration drying times of poured concrete, joint compounds, and general painting can be expedited with dehumidification.

- Dehumidification can be used to minimize the formation of algae, mold, fungi that are found in flour and other similar product storage facilities. It can be used to facilitate the drying of grain products such as wheat, barley, and corn, as well as being used to control the environment during perishable food shipping. For example, candy and pharmaceuticals become sticky and hard to package without dehumidification.

- In order to maintain perfect skating conditions, large dehumidification units are specified for all National Hockey League venues and International Olympic figure skating competition venues. Optimum specifications for NHL hockey venues are 60oF and 40% RH. 60°F

Types of Dehumidification Equipment

The two most practical types of dehumidification technologies employed in industrial blasting and coating operations involve either refrigeration-based equipment, or desiccant-solid absorption based equipment.

Desiccant based dehumidification systems pass the moisture-laden air over a desiccant, typically lithium chloride or silica gel. When the moist air is blown over the desiccant wheel, the desiccant absorbs the moisture from the air stream. The desiccant is then heated which forces the moisture to evaporate out, thereby regenerating the desiccant for continuous use. This moisture is exhausted into a different air stream, typically the local environment outside the containment, or tank. The heat of regeneration often caused the temperature of the air ducted into the enclosed space to be substantially higher than the ambient air, typically by as much as 10 to 15°F. Due to the heat-of-regeneration requirement, there is a power requirement to operate the equipment, which can be substantial. In very hot climates, process coolers are combined to cool the air entering the space to make it more habitable for workers. Desiccant type units are used at a wide variety of climactic conditions of ambient temperatures and relative humidity.

Refrigeration-based dehumidification units operate by cooling the air below its dew point. These work by crossing incoming moisture-laden air over evaporator coils to reduce the amount of moisture in the air by condensation. This condensation is collected and removed. The air exits the cooling coil section at a lower temperature, dew point, and absolute humidity. It can be reheated even further to reduce the relative humidity. Such units are commonly used in environments of high heat and high humidity, such as a tropical location of 85% RH and 85°F. These units have relatively low power consumption requirements – approximately one-half the power consumption of a desiccant unit with similar air flow ratings.

Dehumidification for Corrosion Control

Atmospheric corrosion of steel is a complex phenomena involving multiple mechanisms. It has been discussed in great detail by a number of authors. Most people involved with corrosion are taught that at normal temperatures, corrosion of steel requires the presence of moisture. It has been empirically observed that contamination is also critical to corrosion phenomena. While engineers tend to think of salts (e.g., sulfates, chlorides, nitrates) when discussing surface contamination, there are actually a wide variety of contaminants which can pull moisture from the air and initiate the corrosion process. The amount of water sorbed on iron and steel varies markedly with the composition and morphological properties of the surface.[2] For example, α-Fe203 powder will sorb the equivalent of about two mono-layers of water at room temperature and approximately 60% RH. A detailed review of the wide variety of corrosion products, salts and other materials which may be on a steel surface is beyond the scope of this discussion, suffice it to say that a cleaner surface can tolerate higher levels of relative humidity while lower relative humidity will reduce the chances of a contaminated surface from exhibiting rustback.

Recent work has been sponsored by the Naval Surface Warfare Center – Carderock Division, on corrosion resulting from protected storage methods at various US Marine Corps facilities. In this study, warehousing or garaging showed a reduction in corrosion by a factor of 65 over uncovered storage for corrosion test coupons. Corrosion rates measured on uncontaminated (i.e., clean) mild steel samples were:

- Open lot = 1.31 mils per year
- Under cover = 0.55 mils per year
- Warehouse = 0.02 mils per year
- Dehumidified = 0.01 mils per year

[2] T.E. Graedel and R.P. Frankenthal, "Corrosion Mechanisms for Iron and Low Alloy Steels Exposed to the Atmosphere," J. Electrochem. Soc., Vol 137, No 8, August 1990

A few key points are worth observing. First, note that corrosion rates observed under cover, in the warehouse and in dehumidified storage, were considerably lower than those observed in an open lot. This data quantifies the notion that corrosion will be less likely in spaces which are enclosed (i.e., the attic space) versus open to the environment. However, as discussed above, surface contamination will tend to draw moisture from the air and increase the corrosion rate at humidity levels as low as 60%.

Implementing Dehumidification in the Attic Space

The volume of the attic space is something less than 160,000 cubic feet on the Bronx side and something less that 20,000 cubic feet on the Manhattan side. At 80°F and 90% relative humidity, there would be approximately 50 gallons of water in the air on the Manhattan side and 380 gallons of water in the air on the Bronx side. At 60°F and 60% relative humidity, there would be less than 17 gallons of water in the air on the Manhattan side and 135 gallons of water in the air on the Bronx side. Two approaches to dehumidifying the space may be considered:

A *Commercial/Industrial Desiccant Dehumidification* system, such as those manufactured by Munters, would be the most elegant solution. In this system air is dehumidified by means of a desiccant rotor that absorbs moisture and passes dehumidified air through its air channels. Desiccant dehumidification involves two air streams – reactivation air which is used to dry (reactivate) the desiccant wheel and process air which is the air supplied to the dehumidified space. The unit can be configured such that it is located inside or outside of the space being dehumidified. It can be operated as part of a ventilating or closed system (a closed system is preferred). As an example, the Munters HCD-600 can remove 11 lbs of moisture per hour. It operates on 208V power and with 50 Full Load Amps. An effective system might require three HCD-600 units on the Bronx side and one smaller unit on the Manhattan side. Ducting may be required to distribute the air, especially on the Bronx side. It might be possible to use the pipe itself as the ducting, with the advantage of preserving the interior of the pipe on the steel arch span. These systems require minor maintenance (filter cleaning, etc) every 30 to 60 days.

A less elegant but cost-effective alternative is to install a series of *consumer refrigerant dehumidification* units (e.g., LG model LHD659EBL) purchased at a home improvement supply warehouse. These units are designed to be located in the space to be dehumidified. They use a refrigerant dehumidification system that moves air over refrigerated coils to condense water vapor. The condensed water is moved to a drain / reservoir and the dehumidified air re-circulates back into the dehumidified space. If we assume that each unit is capable of controlling moisture in a 300 square foot room, it suggests the placement of 65 units in the Bronx attic and ten units in the Manhattan Attic. The units can be allowed to run with annual filter cleanings and simply replaced when they no longer operate.

Figure 1. Maximum Relative Humidity Observed at Hunter College, Upper East Side

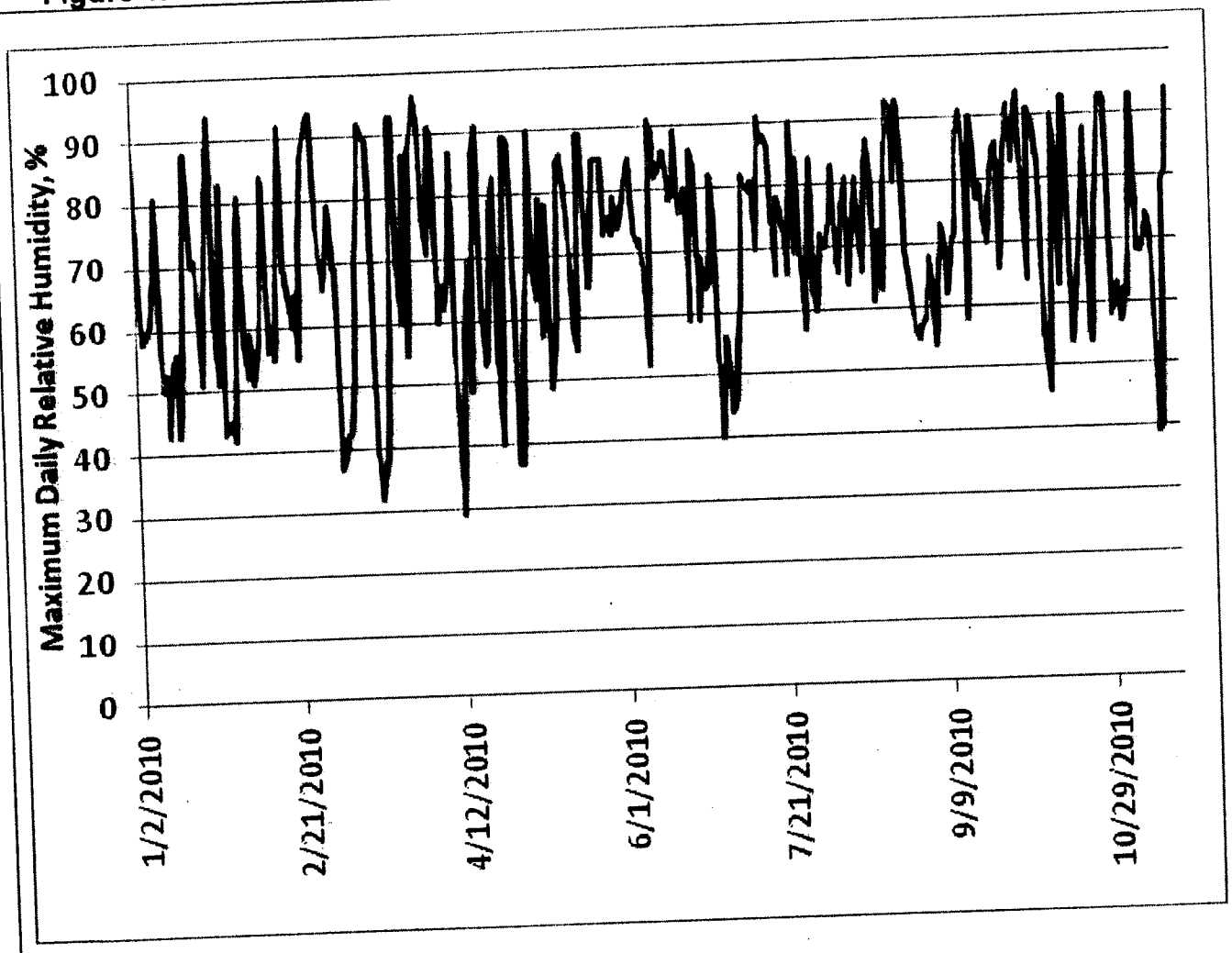
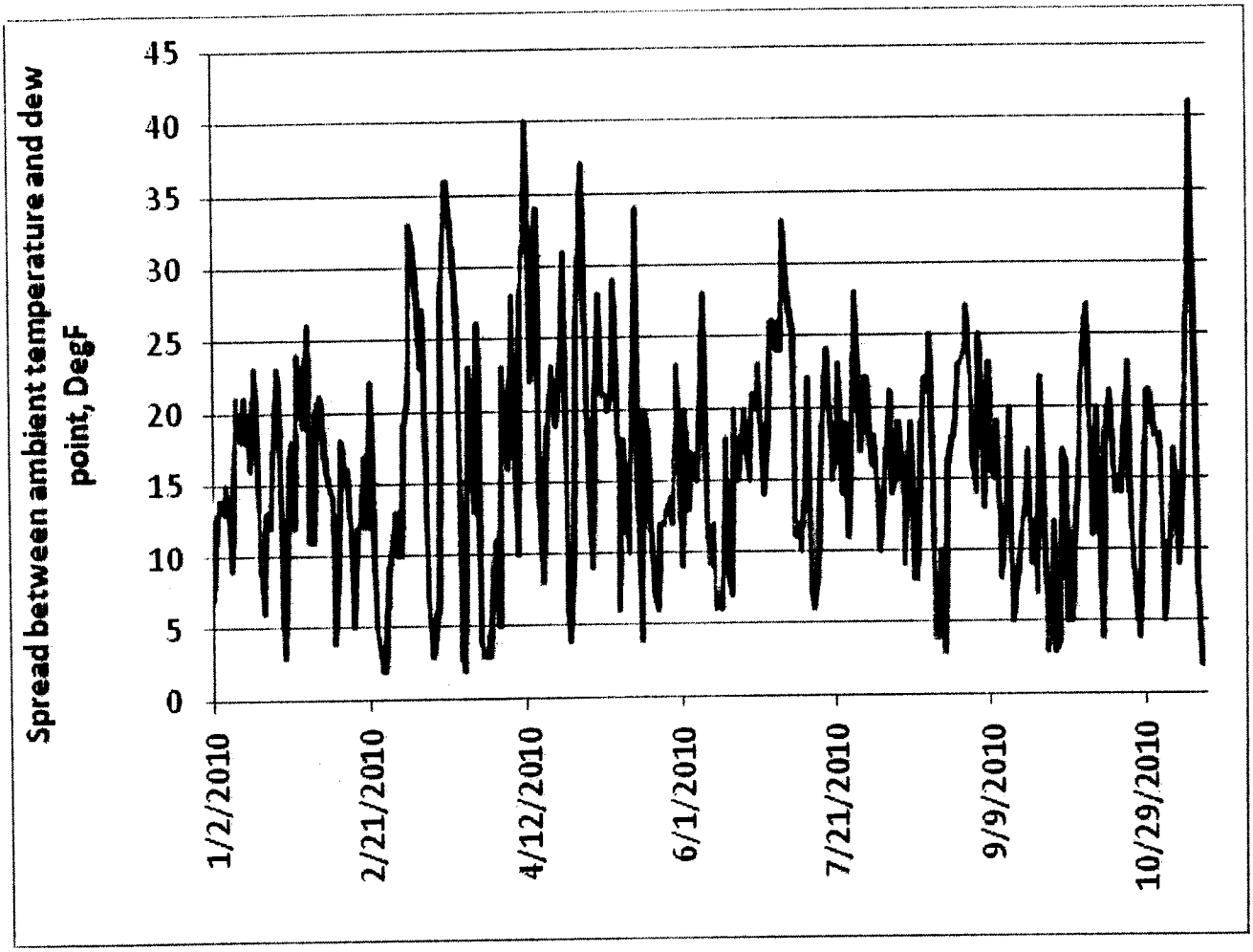


Figure 2. Dew Point Depression Observed at Hunter College, Upper East Side



Value Engineering Proposal RA.32

High Bridge over the Harlem River
New York City, NY

November 2010

Description:	Consider installing a fan-assisted desiccant dehumidification system in the attic						
Mark up: 40.0%		**ORIGINAL DESIGN**			**PROPOSED CHANGE**		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Dehumidifier units	EA				75	120	12,600
Electrical wiring, conns and outlets	LS				1	5,000	7,000
Clean / repair pipe	LF				1,300	200	364,000
Stabilize / repair pipe	LS	1	750,000	1,050,000			
TOTAL COSTS*				**1,050,000**			**384,000**
						TOTAL (BASELINE LESS PROPOSED)	**666,000**

Note: Total Costs are rounded to nearest thousand dollars

SAVINGS

Value Engineering Proposal

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Consider installing a fan assisted dessicant dehumidification system in the attic

Assumptions					
Interest/Discount Rate(%):	3.5%	**A/E :**		**Energy (%/yr):**	
Economic Life (yrs):	50	**Staffing (per yr):**		**Maintenance/ Repairs (%/yr):**	

LIFE CYCLE COST ANALYSIS

Description

Salvage & Replacement Costs		Yr	Est Cost	P/W	Est Cost	P/W
1						
2						
3						
4						
5						

Total Salvage & Replacement Costs

Annual Costs (P/W calculated over 50 yrs)		Est Cost	P/W	Est Cost	P/W
1	Maintenance costs (cleaning filters, etc)			4,000	93,822
2	Replacement cost of units			2,400	56,293
3	Electricity operating costs			13,120	307,738
4	Current annual maintenance costs of pipes (anticipated)	4,000	93,822		
5					
Total Annual Costs		**4,000**	**93,822**	**19,520**	**457,854**

SUMMARY	Baseline P/W	Proposed P/W
Total P/W (salvage+annual P/W)	94,000	458,000
RESULTS (Baseline less proposed)	COST of (364,000)	

Note: Total Present Worth are rounded to the nearest thousand dollars

OAC

Value Engineering Proposal RA.35

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Remove pavement bricks and install waterproofing over the underlayment

Baseline Design:

The baseline design calls for the removal of pavement bricks and underlayment bricks so ~~that~~ the waterproofing membrane can be replaced. Presently, water from the deck leaks into the attic causing corrosion and deterioration of the structure. Replacement of the waterproofing membrane is intended to eliminate this source of water and reduce the corrosion problems.

Proposed Change:

This proposal would leave the underlayment and original waterproofing membrane in place. A new membrane would be added above the existing underlayment and below the pavement bricks. This would eliminate the cost of removing the existing underlayment and still allow for the installation of a new waterproofing membrane.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 2,923,000	$	$ 2,923,000
Proposed Change:	$ 434,000	$	$ 434,000
Total (Baseline less Proposed):	$ 2,489,000	$	$ 2,489,000

SAVINGS

Advantages:	Disadvantages:
• Cost savings associated with leaving the underlayment and existing membrane intact	• Details for the interface between the membrane and coping stone need to be worked out
• Eliminate risk of damaging historic structure associated with removing underlayment	•
•	•
•	•
•	•
•	•

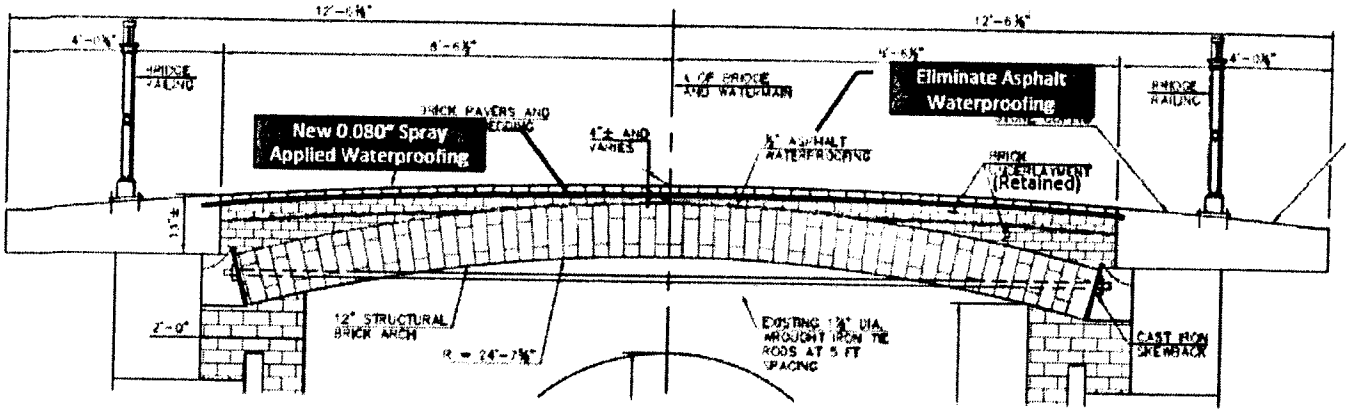
Discussion/Justification:

The proposed idea will provide an effective waterproofing membrane at a reduced cost and with less risk to the historic structure. As part of this idea, the brick underlayment and waterproofing would not be removed from the masonry arch spans. Removal and replacement of the brick underlayment is expected to be a tedious task which introduces a risk to preserving the integrity of the historic structure.

The proposed ½-inch waterproofing membrane is probably too thick to be placed on top of the existing underlayment without adversely affecting the elevation of the top brick surface. Instead of the thicker membrane, this proposal will incorporate a thinner, 80 mil (0.080-inch) Bridge Deck Membrane Waterproofing System as manufactured by Bridge Preservation L.L.C. Attached is a brochure and detail specification for the membrane.

After laying the membrane, the brick deck surface should be replaced with appropriate joint details ~~for~~ cross drainage above the coping stone detail. This would necessitate a new backer rod and sealant at the coping stone joint. It is anticipated that minimal water would get through to the spray applied membrane. However, drainage details could effectively be developed to drain water from the coping stone-membrane edge. We believe it prudent to design a means of evacuating any water that gets behind the membrane.

New Waterproofing Membrane Location



Bridge Deck Membrane™ System

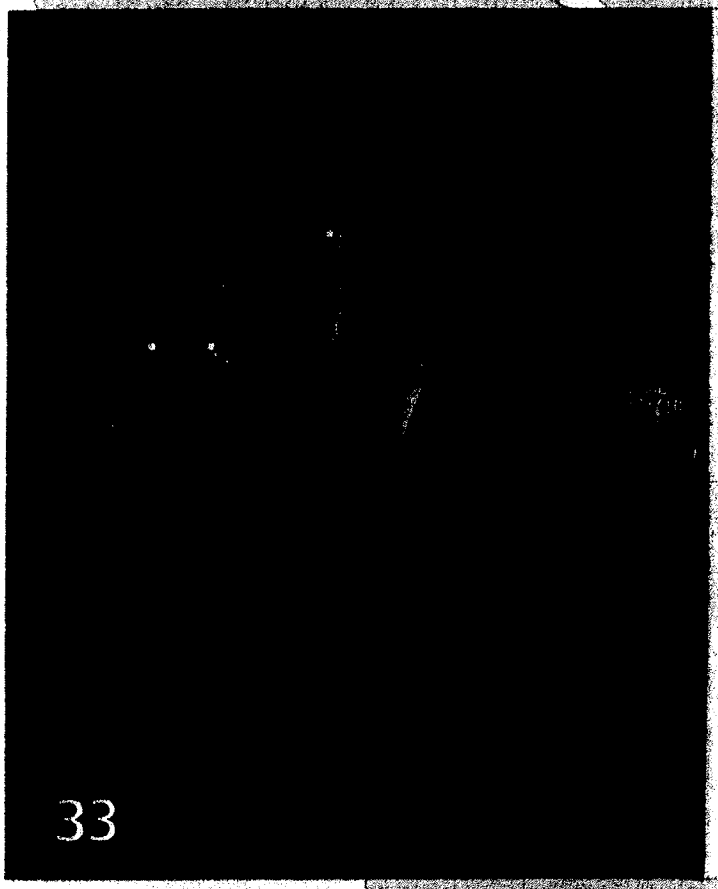
"Cold Liquid-Applied Elastomeric Membrane" Waterproofing System

Made in the U.S.A.

BRIDGE PRESERVATION

As tough as it gets!

Bridge Deck Membrane™ System



U.S. Corporate Office
87 Shawnee Ave
Kansas City, KS 66105
Tel. 913.321.9006

Technical Center
Riverside, CA
Tel. 909.781.4400

Canadian Office
382 Nelles Road North
Grimsby, ON L3M 2Z9
Tel. 905.945.3646
Fax. 905.945.1374
BridgePreserve@aol.com

BRIDGE PRESERVATION

Marketed By:

R.J.Watson Inc.
Bridge & Structural Engineered Systems
78 John Glenn Drive Amherst, NY 14228
Tel. 716.691.3301 www.rjwatson.com

Perfomance:

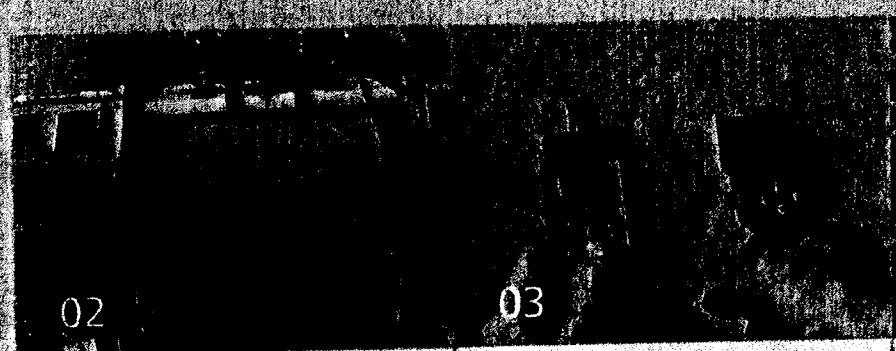
B.D.M. Physical Properties

Property	Bridge Deck Membrane System	Railroad Industry Guidelines
Water Vapor Transmission	0.0 grains / ft² / hr	≤ 0.1 grains / ft² / hr
Elongation at Break	400% +	min 80%
Minimum Tensile Strength Minimim psi	2500 psi +	930 psi
Adhesion to Steel Minimum psi	Typically 400 – 900 psi	290 psi
Adhesion to Concrete Minimum psi	Typically 250 psi +*	100 psi
Crack Bridging	Passes at 25 cycles 1/8" @ - 15° F	10 cycles 1/8" @ - 15° F

* Or failure in substrate.

Quality Assurance:

Bridge Preservation provides the most modern devices and equipment to ensure all materials are applied strictly according to specification. Pictured below are some of the methods utilized:

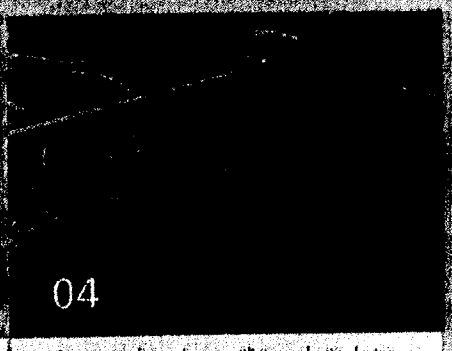


02

State of the Art Equipment carefully meters and records all mechanical functions including material temperature and pressures at 15 second intervals.

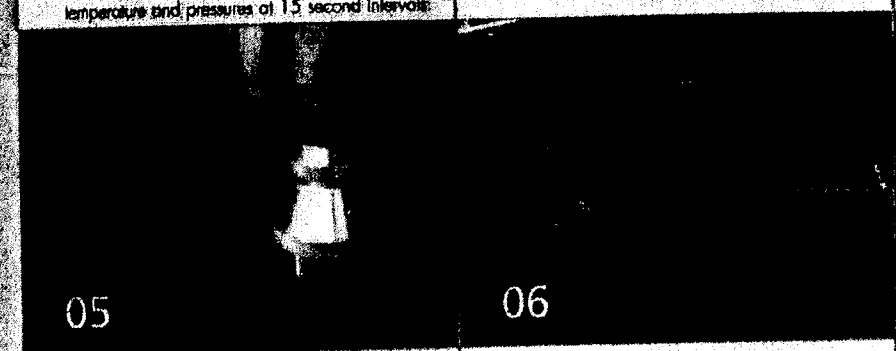
03

R.H.%, Dew Point and Deck Temperature.



04

Spraying of membrane utilizing robotic device.

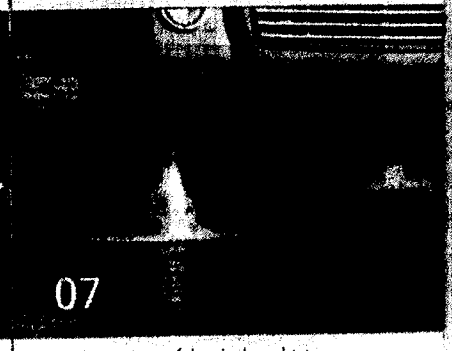


05

Elcometer testing to ensure bond strengths are achieved.

06

Electrostatic spark testing equipment used for detecting pinholes.



07

Water testing of the deck and joints.

The Products: (B.D.M.)

Bridge Preservation L.L.C. manufactures a complete line of products used for waterproofing railroad bridge decks and abutments including membranes and special primers for both steel and concrete decks.

The main component of our waterproofing system is Bridge Deck Membrane™, a highly engineered, bridge-grade, elastomeric membrane. The Bridge Deck Membrane™ or B.D.M.™ posesses many features which make it unique and very well suited to the demands of bridge deck waterproofing.

Features:	Benefits:
• Spray Applied	• Consistent thickness when applied over coarse substrate
• Seamless	• No seams to seal in order to prevent leaks as you would find with pre-formed sheet membranes
• [illegible]	• No powdered catalyst to be measure and added at the job site by workers
• [illegible]	• Can be applied Horizontally, Vertically and Overhead
• [illegible]	• Can be used in close proximity to the public and other trades without complaint
• [illegible]	• Assurance the most recent guidelines are met
• [illegible]	• Can be used in all States and Provinces
• [illegible]	• Will not allow water vapors though the membrane. These vapors can condense between membrane and substrate resulting in freeze/thaw damage to concrete or rusting of steel decking and reinforcement
• [illegible]	• Will accommodate anticipated thermal movement even when the concrete or steel bridge deck has contracted to winter extremes
• [illegible]	• Can be applied when deck temperature is between - 20° F and + 225° F
• [illegible]	• Resists tearing and eliminates need for protection board
• [illegible]	• Can accept ballast placement almost immediately, providing the industry's shortest turn around times
• [illegible]	• Provides a totally seamless waterproof deck
• [illegible]	• Warrantee provided directly to the owner by Bridge Preservation Construction Management Services L.L.C.
• [illegible]	• Electrically isolate decks from stray current

Value Engineering Proposal RA.35

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Remove pavement bricks and install waterproofing over the underlayment

Markup: 40.0%		ORIGINAL DESIGN			PROPOSED CHANGE		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Delete remove underlay & waterproofing	LS	1	2,088,194	2,923,472			
New membrane waterproof system	SF				15,512	20	434,336
TOTAL COSTS*				**2,923,000**			**434,000**
						TOTAL (BASELINE LESS PROPOSED)	**2,489,000**
							SAVINGS

Note: Total Costs are rounded to nearest thousand dollars

OAC

Value Engineering Proposal RA-37
High Bridge over the Harlem River
New York City, NY

November 2010

Description: Eliminate interior lighting in the attic

Baseline Design:
Electrical conduit and lighting fixtures are to be installed within the attic to facilitate lighting for maintenance, inspection, and infrequent special tours.
Proposed Change:
Eliminate attic lighting and its associated electrical conduit from the scope of work.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$280,000	$	$ 280,000
Proposed Change:	$ –	$	$ –
Total (Baseline less Proposed):	$ 280,000	$	$ 280,000

SAVING

Advantages:	Disadvantages:
• Saves money	• Requires bi-annual bridge inspectors to bring in lights
• True to historic condition of no electric illumination within attic.	•
• One less asset for potential vandalism	•
• May not be worth capital investment to install and maintain given its infrequent use	•
•	•
•	•

Discussion/Justification:

The capital investment required for attic interior electric illumination may not be worth the effort as it will be utilized infrequently. Furthermore, given its remote location, it would be an attractive target for vandalism. Portable lighting, ie flashlights, can be used to illuminate the space at no additional cost to the project.
Omitting lights would also keep the interior true to its historic character.

Value Engineering Proposal RA.37

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Eliminate interior lighting in the attic

Markup: 40.0%		ORIGINAL DESIGN			PROPOSED CHANGE		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Eliminate interior lighting in the attic	LS	1	200,000	280,000			
TOTAL COSTS*				**280,000**			
						TOTAL (BASELINE LESS PROPOSED)	**280,000**
							SAVINGS

Note: Total Costs are rounded to nearest thousand dollars

Description: Design redundant load paths at the steel arch crown

Baseline Design:

The design plans do not indicate the provision of redundancy elements at the arch crown. With respect to the arch ribs, these are comprised of redundant compression elements. However, while in compression and bearing, the hinge pins at the crown are subject to shear stresses. Cracking of a pin in this three-hinged configuration may cause concern with respect to the stability of the structure unless alternative load paths are present.

Proposed Change:

An investigation of the shear capacity of the pins at the arch crown (if not already performed) is suggested, and if alternative load paths are not sufficient, installation of an appropriate redundancy system is recommended.

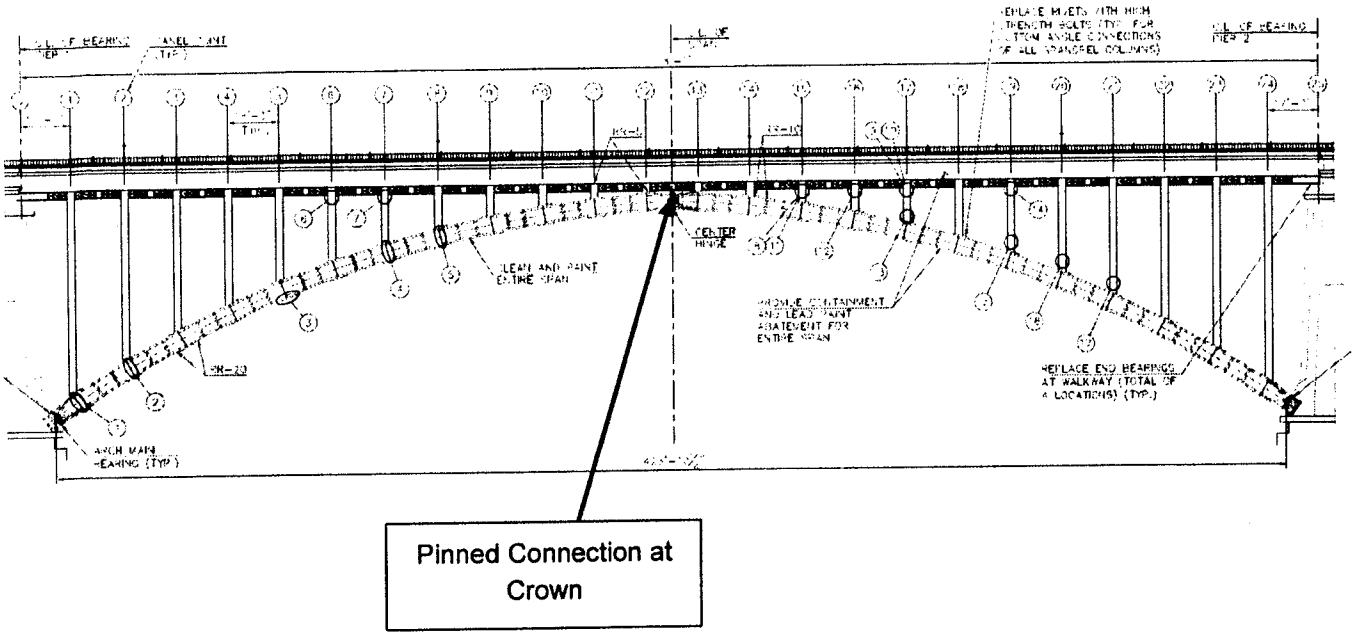
DESIGN SUGGESTION

Advantages:	Disadvantages:
• Ensures that non-redundant elements that may affect bridge safety are not present	• None apparent
•	•
•	•
•	•
•	•
•	•

Discussion/Justification:

The structural details of the arch crown pin connections indicate that the pins are subject to shear, as well as bearing. These nonlinear shear effects may compromise the redundancy of these pinned connections in certain load conditions. An analysis of these connections and load transfer mechanisms is recommended. If required, the design and installation of redundancy retrofitting is also recommended for the rehabilitation work. Should the analysis indicate additional paths required, they would be accomplished by the addition of load-bearing members. The type, size, and location would be dependent on the analysis.

Arch Pin at Crown



Description: Incorporate provisions for maintenance and inspection on the steel arch

Baseline Design:

The present design does not incorporate any additional access to the structure other than presently exists.

Proposed Change:

The proposed change is to incorporate safety cables, rigging attachments and other elements which will increase accessibility for periodic inspections of the structure.

DESIGN SUGGESTION

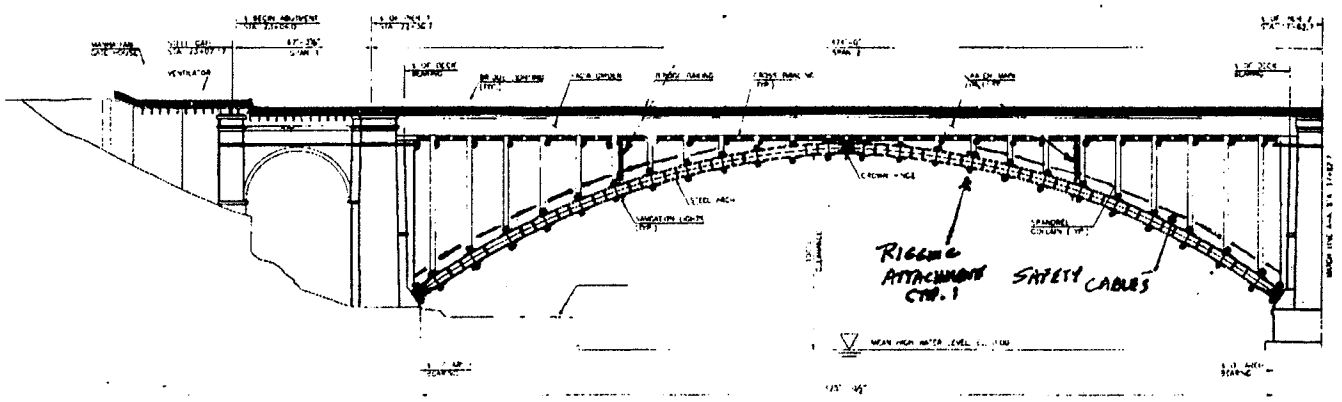
Advantages:	Disadvantages:
• Reduce cost of future inspections	• None apparent
• Reduce barriers to performing maintenance work	•
•	•
•	•
•	•
•	•

Discussion/Justification:

The design suggestion is to incorporate features which will reduce the cost of future access for inspection and maintenance. Specifically, the following features are recommended:

- Permanent safety cables should be attached along the arch between the spandrel columns. Stainless steel cable and galvanized eye bolts are recommended.
- Rigging attachment points should be installed on each spandrel column above the arch rib and on the arch rib below each spandrel column.
- Access to the attic should be provided at each end of the bridge. This may be accomplished by opening manholes and installing ladders or by making existing doors operable.
- Operable manholes with access ladders should be opened ~~and~~ at select locations within the spans

Maintenance and Inspection Access



MAINTENANCE AND INSPECTION ACCESS IMPLEMENTS

Description: Clean and seal the pipe

Baseline Design:

The wrought iron pipe must be "stabilized and conserved" as part of this project. The baseline design envisions cleaning the entire interior of the pipe and the exterior of the portions of the pipe in the attic. Once cleaned, the majority of the pipe is assumed to be protected from corrosion because of modifications which will reduce the corrosive microenvironments on the pipe. Specifically, improved waterproofing and ventilation are expected to reduce the corrosion rate of the pipe.

The baseline design recommends treating a section no longer than 20 lineal feet of pipe with a rust converter and clear coating. This will have the effect of "stabilizing" any remaining rust (which will also turn a dark color) and sealing any porosity from the effects of moisture. The baseline design also mentions the possible use of Vapor Phase Corrosion Inhibitors.

Proposed Change:

The proposed change would require application of a clear coating/sealer (only) to the entire pipe surface, inside and out. Clear penetrating sealer coatings are available which can be applied over a water jet cleaned surface. This solution would eliminate corrosion of the steel pipe for a finite period of time on the order of 5-20 years, depending on pipe location. If desired, a color coat replicating the color of the historic Princes Metallic Paint could be applied on top of the sealer to replicate the historic color and extend the service life of the coating. The color coat would increase the service life by as much as a factor of two.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 1,050,000	$	$ 1,050,000
Proposed Change:	$ 854,000	$	$ 854,000
Total (Baseline less Proposed):	$ 196,000	$	$ 196,000
			SAVINGS

Advantages:	Disadvantages:
• Will conserve entire pipe	• Will require re-application one or more times during the 50-year design life
• Extends the life of the pipe	•
• If a color topcoat is selected, will enhance the historic preservation	•
•	•
•	•
•	•

Discussion/Justification:

Design Issue

The Wrought Iron pipe must be "stabilized and conserved" as part of this project. The pipe is approximately 7 ½ foot diameter by 1300 feet long and comprises a total exterior surface area of around 30,000 square feet. The baseline design envisions cleaning the entire interior of the pipe and the exterior of the portions of the pipe in the attic. Cleaning would involve removal of loose rust, scale, dirt, oils, etc through the most efficient means. Waterjetting is mentioned as an effective approach. Once cleaned, the baseline design recommends treating a section no longer than 20 lineal feet of pipe with a rust converter and clear coating. This will have the effect of "stabilizing" any remaining rust (which will also turn a dark color) and sealing any porosity from the effects of moisture. The baseline design envisions opening up the attic space on the Bronx side to encourage ventilation ~~which would~~ and reduce humidity and condensation which is presently affecting the pipe, tie rods and other structural elements. Finally, waterproofing improvements will reduce moisture intrusion into the attic space. The baseline design also mentions the possible use of Vapor Phase Corrosion Inhibitors.

The present pipe had some varied level of coating with a material described as "Prince's Metallic Paint." Princes Metallic Paint Company operated in Bowmanstown, PA in the early years of the structure. Paint analysis has determined that the material was an "iron oxide paint." While it is reasonable that an iron oxide pigment may have been used in the paint, the life limiting component of this coating is the resin used to hold the pigment together and bond it

to the pipe. In this era, the paint was probably a drying oil material. Such materials oxidize as they age and would be expected to provide effective protection for 5-10 years. The degree to which they were maintained will dictate the protection offered by the coating. For the purposes of this discussion, we will assume that the coatings were reasonably well maintained until 1940 and have not been effective at protecting the pipe since that time.

As noted by Gordon and Thomas in their metallurgical report, comparative studies on the corrosion resistance of mild steel and wrought iron have been inconclusive as to their relative corrosion resistance. For the purposes of this discussion, we will assume that the wrought iron will behave similarly to mild steel, allowing us to use widely available mild steel corrosion data as a point of reference. Extensive studies on the corrosion of mild steel suggest an atmospheric corrosion rate of 1 mil (0.001 inches) per year is reasonable for the High Bridge location.[1] If we assume that corrosion has been occurring since 1940, it would suggest 70 mils of metal loss per side or approximately 1/8-inch reduction in cross sectional area. This is consistent with the general observed condition of the pipe. Locations of deep pitting or penetration would have experienced a corrosion rate slightly over 7 mils per year if we assume that the ½-inch cross section was penetrated from one side and the corrosion occurred between 1940 and 2010. An order of magnitude increase in corrosion rate (i.e., 10 mils per year) is reasonable in areas where dirt and other debris accumulate. Such accumulations create a phenomena which corrosion engineers call "poultice corrosion." Poultice creates a unique highly corrosive environment that remains wet and contains dissolved contaminants.

Challenges with the Baseline Design

The condition assessment prepared by CSI states that "the variable nature of the microclimates surrounding – as well as within – the pipe have generated varying conditions on the pipe." The baseline design assumes that by cleaning the pipe, eliminating moisture intrusion into the attic and allowing natural ventilation that these varying conditions will be eliminated, thus controlling corrosion. However, microenvironments will still exist and corrosion will still occur, albeit at a somewhat slower rate.

If we assume that the effects of debris and moisture intrusion are completely controlled (which will probably not be the case in the later part of the 50-year design life), there will still be condensation on the pipe. Figure 1 shows the maximum relative humidity observed at Hunter College, Upper East Side. More than 20% of the days include an excursion above 85% RH. Perhaps more important is the difference between the ambient temperature and dew point. Figure 2 shows this difference at the same location. The CSI report indicates pipe surface temperatures that were 5 to 11 degrees F below the air temperature. When the surface is below the dew point, condensation can be expected. If we assume that the pipe is always 5 to 10 degrees cooler (a worst case assumption that is not valid throughout the year), we can

[1] *ISOCORRAG International Atmospheric Exposure Program: Summary of Results* indicates a corrosion rate of mild steel at the Newark, NJ test site is approximately 1 mpy. This is an urban location free from the influence of deicing salts. Other studies corroborate this value.

expect condensation on the pipe more than 20% of the days of the year. Obviously, as poultice builds up, the moisture will be retained and corrosion of the pipe will increase.

For the majority of the pipe which is not conserved, it is reasonable to expect a reduction in corrosion rate if the surfaces are cleaned and the attic is ventilated. However, it is still reasonable to expect a corrosion rate of perhaps 0.5 mils per year on the interior and exterior of the pipe. At that rate, the entire pipe would be gone in approximately 375 years (assuming 3/8 inch remaining cross section). Furthermore, periodic cleaning will be required to maintain the "low" corrosion rate. Poultice corrosion will occur as the corrosion product and other debris collects in the bottom of the pipe.

For the portion of the pipe which is preserved, it is reasonable to expect the rust converter and clear coating will extend the corrosion-free life of the pipeline. Based on our experience with these materials, the effective protective life of such a system might be 20-30 years inside the attic and probably 5-10 years if applied to the pipe on the exposed steel span. At that time the section would require re-preservation to prevent it from proceeding along the above described metal loss path beginning at approximately 0.5 mils per year 20-30 years after the preservation.

The CSI report discusses the use of vapor phase corrosion inhibitors (VpCI's) to control corrosion of the pipe. It is not clear if the inhibitors are intended for the short section or the entire pipe. In either case, it should be noted that VpCI's are commonly used in small, sealed spaces. Furthermore, inhibitors generally require re-application on a frequent basis (i.e., every year or two) or automated spray systems. As a point of reference, the Marine Corps applies inhibitors to vehicles on an annual basis.

The present design also envisions opening the ends of the pipe to encourage ventilation which will reduce internal corrosion of the pipe, though the impacts of rainwater have not been addressed. This scheme will also reduce the overall security of the structure.

Proposed Alternative

The alternative would eliminate the rust converter and treat the entire pipe with a clear penetrating coating. There are a number of clear penetrating coatings which can be applied directly to the waterjet cleaned pipe surface. The clear coatings penetrate the porosity of the pipe and roughness of the corroded surface to provide protection from the elements. The clear coatings will provide some level of protection on their own but can be supplemented with a topcoat. The topcoat could be a urethane coating tinted to the historic color. The sealer/topcoat system would probably have a 50-year service life in the attic and interior of the pipe. It may last as long as 20 years on the exterior of the pipe over the steel arch span.

Attached is a product data sheet for Devoe Pre-prime 167 penetrating sealer. This product is representative of the type of products which would be recommended as a sealer. Rust converters would not be desirable or necessary under this product. In general, the technical literature is inconclusive regarding the benefits of rust converters (some research has reported

that they actually increase corrosion after a period of time[2]).

The recommended topcoat would be a moisture cure urethane in a historically accurate color. These products are high build, single component, easy to apply coatings. The topcoat will provide added protection and service life.

[2] Rust Converters, Report 2457, United States Army Belvoir Research. Development & Engineering Center, November 1987.

Figure 1. Maximum Relative Humidity Observed at Hunter College, Upper East Side

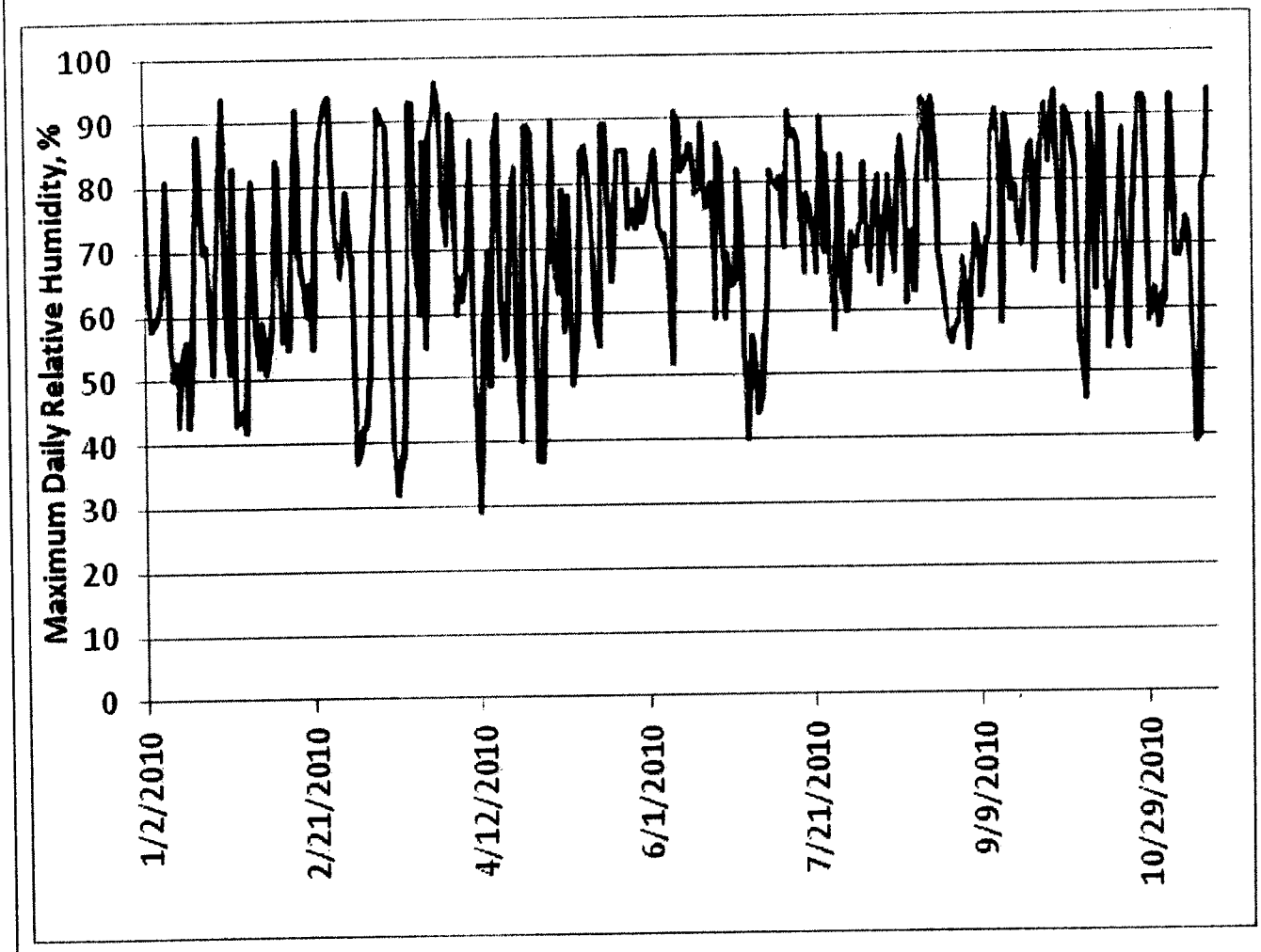
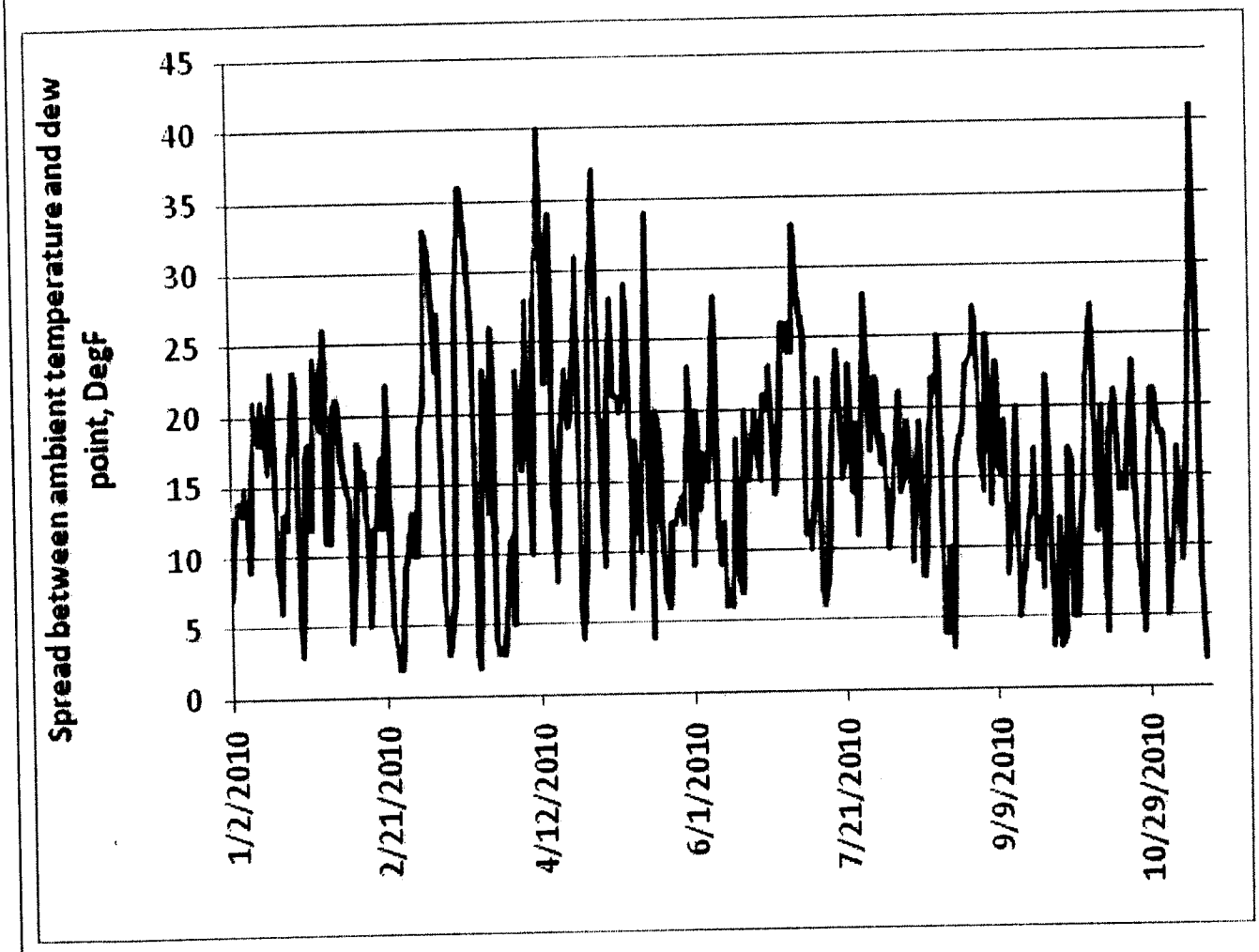


Figure 2. Dew Point Depression Observed at Hunter College, Upper East Side



Sealer Cut Sheet

DEVOE HIGH PERFORMANCE COATINGS

PRE-PRIME™ 167

Penetrating Sealer

Cat. # 167B0929/167C0920

PRODUCT DESCRIPTION

Generic: Chelated Polymeric Oxirane

General Description: A high performance, two-component chemically-cured 100% solids epoxy penetrating sealer.

Typical Uses: Recommended for rusty steel when environmental economic or safety concerns restrict abrasive blast cleaning. The extraordinary penetrating properties of PRE-PRIME 167 sealer provide a means of reinforcing rusty steel substrates, insuring adhesion of subsequent coatings. Equally effective at penetrating, reinforcing, and sealing concrete and masonry surfaces in all industrial environments.

Improves the effectiveness and efficiency of the maintenance painting process by penetrating and sealing crevices, joints, back-to-back angles of existing structures, and edges of old coatings, improving the service life of the maintenance system. Also serves to seal aged "White-Rusted" zinc surfaces for recoating.

FEATURES

Advantages:

- Low VOC
- Reinforces rusty steel, masonry, and aged "White-Rusted" zinc surfaces
- Penetrates surface rust, crevices, back-to-back angles
- Penetrates pores and tiny cracks in concrete and masonry surfaces
- Cures to a tough, water resistant coating
- 100% volume solids
- Very low viscosity
- Low film thickness required
- No shrinkage
- Applies easily by brush, roll, or spray

Limitations of Use: Not recommended for use without a topcoat. Do not puddle on horizontal surfaces.

SPECIFICATION DATA

Color: Amber Clear
Finish: Medium Sheen
Weight/Gallon: 8.5 lbs./gal.(1.02 kg/L)
VOC (EPA 24): 0.83 lbs./gal.(<100 g/L)
Solids By Volume: 100%
Theoretical Coverage at 1.0 Mil Dry: 1604 sq.ft./gal. (39.3 m²/L)
Recommended Film Thickness: 1.5 mils (37.5 microns) dry – 1.5 mils (37.5 microns) wet
Systems: Please consult the appropriate system guide, the particular job specification or your ICI Paints Representative for proper systems using this product. Systems must be selected considering the particular environment involved.
Minimum Dry Time (ASTM D 1640): At 77°F (25°C) and 50% R.H. to recoat – overnight. Ventilation, film thickness, humidity, thinning, and other factors can influence the rate of dry.

Substrate Temperature	50°F (10°C)	60°F (16°C)	80°F (27°C)
Minimum Recoat	When film sets up and becomes tacky. Usually within 24 hours.		
Maximum Recoat	From point film sets up and becomes tacky.		
Self	3 Days	3 Days	3 Days
Epoxy	3 Days	3 Days	3 Days

Ventilation, film thickness, humidity, thinning, and other factors can influence the rate of dry.
Warning: The above table provides general guidelines only. Always consult your ICI Paints Representative for appropriate recoat windows since the maximum aged recoat time of this product may be significantly shortened or lengthened by a variety of conditions, including, but not limited to humidity, surface temperature, and the use of additives or thinners. The use of accelerators or force curing may shorten the aged recoat of individual coatings. The above recoat windows may not apply if recoating with a product other than those listed above. If the maximum aged recoat window is exceeded, please consult your ICI Industrial Coatings Specialist for appropriate recommendations to enhance adhesion. Failure to observe these precautions may result in intercoat delamination.
Shelf Life: Over 12 months at 77°F (25°C) – unopened
Mix Ratio: 3 (base): 1 (converter) – see mixing instructions.
Induction: None – see mixing instructions.
Pot Life: 4 hours @ 77°F (25°C) & 50% R.H.

PERFORMANCE DATA

More than 24 years in industrial applications
PRE-PRIME 167 sealer enhances the performance of ICI Paints Devoe High Performance Coatings brand paints and systems over sound rust and masonry substrates.
Service Temperature Limits: 250°F (121°C) dry

Read Label and Material Safety Data Sheet Prior to Use. See other cautions on last page. DSF1-0690

09800

9 FINISHES SPECIAL COATINGS (9800)

DEVOE COATINGS

DEVOE HIGH PERFORMANCE COATINGS

Sealer Cut Sheet Continued

GENERAL SURFACE PREPARATION

All surfaces must be sound, dry, clean, free of oil, dirt, grease, chemicals and foreign matter.

Surfaces: Rusty Steel and Weathered Rusty Galvanized Metal – PRE-PRIME™ 167 sealer is designed for less than ideal surface preparation. However, performance will be improved as surface preparation improves. All oil/grease contaminants, loose rust, loose scale and loose paint must be removed. Best performance will be obtained by treating all surfaces with DEVPREP® 88 or other suitable cleaner, followed by a high pressure water wash before applying PRE-PRIME 167 sealer. Concrete and Masonry – Remove oil, grease, mildew, form release agents, loose laitance, and foreign matter.

Previously Painted Surfaces: Remove loose and peeling paint, loose rust and other surface contaminants. Clean with DEVPREP 88 or other suitable cleaner, followed by a high pressure water wash. Apply a test patch to confirm compatibility of PRE-PRIME 167 sealer with existing coating systems.

DIRECTIONS FOR USE

Tinting: Do not tint.

Thinning: Do not thin.

Mixing: PRE-PRIME™ 167 sealer is a two component product supplied in 4 gallon and 1 gallon kits which contain the proper ratio of ingredients. The entire contents of each container must be mixed together. Add the converter portion to the base portion slowly with continued agitation. After the converter add is complete, continue to mix slowly until homogeneous. Do not thin this material. Mixed material is usable for 4 hour @ 77°F; if it thickens, do not add thinner, but discard and mix fresh material. Avoid storing or placing containers in direct sunlight.

Application: Brush, roll or conventional spray. For airless spray apply with a .009 tip and low pressure (just enough to atomize the product). Air spray is preferred for appearance and build. To minimize overspray, use low air pressure and pot pressure – 5 to 10 psi. For roller work use a clean synthetic roller with 1/4" or 1/2" nap. New rollers should be thoroughly wet with T-10 thinner and spun vigorously to remove loose fibers. (PRE-PRIME 167 sealer is low in viscosity.) Usually one coat is sufficient, but for porous surfaces two coats may be required. It should be applied in one thin, wet coat sufficient to completely cover and penetrate to the steel surface. Do not apply heavy coats, avoid puddling.

Spreading Rate: Apply at 1089 sq. ft. per gallon (26 m²/L) depending on surface texture and porosity. Make allowances for any losses due to overspray or surface irregularities.

Topcoats: Accepts a wide variety of Devoe Coatings High Performance Coatings brand products. Commonly used with epoxy and urethane coatings.

Dry Time(ASTM D 1640): At 77°F (25°C) & 50% R.H., dries to recoat overnight. Low temperature will retard dry. Minimum recommended substrate temperature is 50°F (10°C). After overnight cure, PRE-PRIME 167 maybe overcoated if still tacky (not wet). Should be overcoated within 72 hours from point of being tack free.

Clean-up: Use T-10 thinner, except in the South Coast Air Quality Management District use acetone or other solvent in compliance with local VOC and air quality regulations.

PRECAUTIONS

DANGER! COMBUSTIBLE LIQUID AND VAPOR. CORROSIVE. CAUSES EYE AND SKIN BURNS. HARMFUL OR FATAL IF SWALLOWED. ASPIRATION HAZARD - CAN ENTER LUNGS AND CAUSE DAMAGE. HARMFUL IF INHALED. MAY CAUSE CENTRAL NERVOUS SYSTEM EFFECTS, INCLUDING DIZZINESS, HEADACHE OR NAUSEA. CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE ALLERGIC SKIN AND RESPIRATORY REACTION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN. OVEREXPOSURE MAY CAUSE BLOOD, LIVER, KIDNEY DAMAGE. USE ONLY WITH ADEQUATE VENTILATION. KEEP OUT OF THE REACH OF CHILDREN. NOTICE: Products in this series contain solvents. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. For emergency information call (800) 545-2643. Note: These warnings encompass the product series. Prior to use, read and follow product-specific MSDS and label information. Keep away from heat, sparks and flame. Do not smoke. Vapors may ignite. Extinguish all flames, burners, stoves, heaters and pilot lights and disconnect all electrical motors and appliances before use and until all vapors are gone. Prevent build-up of vapors by opening all windows and doors to achieve cross-ventilation. If sanding is done, wear a dust mask to avoid breathing of sanding dust. Do not breathe vapors or spray mist. Ensure fresh air entry during application and drying. Avoid contact with eyes and skin. If you experience eye watering, headaches, or dizziness, leave the area. If properly used, a respirator may offer additional protection. Obtain professional advice before using. Close container after each use. FIRST AID: In case of skin contact, wash thoroughly with soap and water. If any product remains, gently rub petroleum jelly, vegetable or mineral/baby oil onto skin, then wash again with soap and water. Repeated applications may be needed. Remove contaminated clothing. For eye contact, flush immediately with large amounts of water, for at least 15 minutes. Obtain emergency medical treatment. If swallowed, obtain medical treatment immediately. If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, get medical help. KEEP FROM FREEZING.

DS66-1003

SHIPPING

Flash Point:	200°F (43°C)		Shipping Weight:	4 - 1 gallon kits - 46 lbs. (20.4 kg) 4 gallon kit - 45 lbs. (20.4 kg)
Packaging:	1 gallon kit (3.785L) 0.75 gallon base 0.25 gallon converter	4 gallon kit (15.14L) 3.00 gallon base 1.00 gallon converter		

167 (25/07)
Ad Stock #69631F

Value Engineering Proposal RA.44

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Clean and seal the pipe

Markup: 40.0%		ORIGINAL DESIGN			PROPOSED CHANGE		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Delete Stabilize pipe / repair	LS	1	750,000	1,050,000			
Access and containment of pipe	LF				1,300	100	182,000
Waterjet clean pipe surfaces	SF				60,000	3	252,000
Apply penetrating primer	SF				60,000	2	168,000
Apply topcoat	SF				60,000	3	252,000
TOTAL COSTS*				**1,050,000**			**854,000**
						TOTAL (BASELINE LESS PROPOSED)	**196,000**

Note: Total Costs are rounded to nearest thousand dollars

SAVINGS

Append to RA.44

If there is concern over the materials to be used for sealing the pipe, test areas could be prepared in the attic. Alternative approaches to preserving the pipe could be evaluated. The prepared surfaces could be documented to provide a desired surface condition as guidance to the contractor. The demonstration will help validate cost assumptions and constructability of alternatives.

Insert @ the end

OAC

Value Engineering Proposal RA.48

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Reuse brick pavers only in interpretive areas and replace the remainder

Baseline Design:

Historic brick pavers will be removed and cleaned. Those that are in acceptable condition after this process will be replaced on the bridge deck, interspersed with new brick that resembles the historic brick in color, dimension and surface texture. It is estimated that an average of 60% of the brick will be available for use after cleaning (50% of the 1860's brick and 90% of the 1920's brick).

Interpretive areas are located in the approach plazas, 2 locations along the bridge where benches and leveling platforms occur, and 4 other locations along the bridge. Other interpretive markers and overlooks are located in areas beyond the bridge itself.

Proposed Change:

Use the historic 1920's brick only in the cross-sections where the 2 leveling platforms occur, which totals approximately 120 linear feet (in 2 – 60 feet segments) . Use the 1860's brick for the cross section between the stairs at the Bronx end and the first interpretive sign to the west, which is approximately 100 linear feet.

e

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 1,520,000	$	$ 1,520,000
Proposed Change:	$ 1,028,000	$	$ 1,028,000
Total (Baseline less Proposed):	$ 492,000	$	$ 492,000
			SAVINGS

Advantages:	Disadvantages:
• Amount of brick that must be carefully removed and cleaned is reduced.	• Greater amount of historic brick destroyed
• Visitors can see complete patches of the historic brick paving, rather than a blend of old and new pavement materials	• Greater potential for visible differences between historic paving and new paving, which could result in a patchwork deck appearance
• Contractor has defined quantities for purchasing specially manufactured new brick	•
•	•
•	•

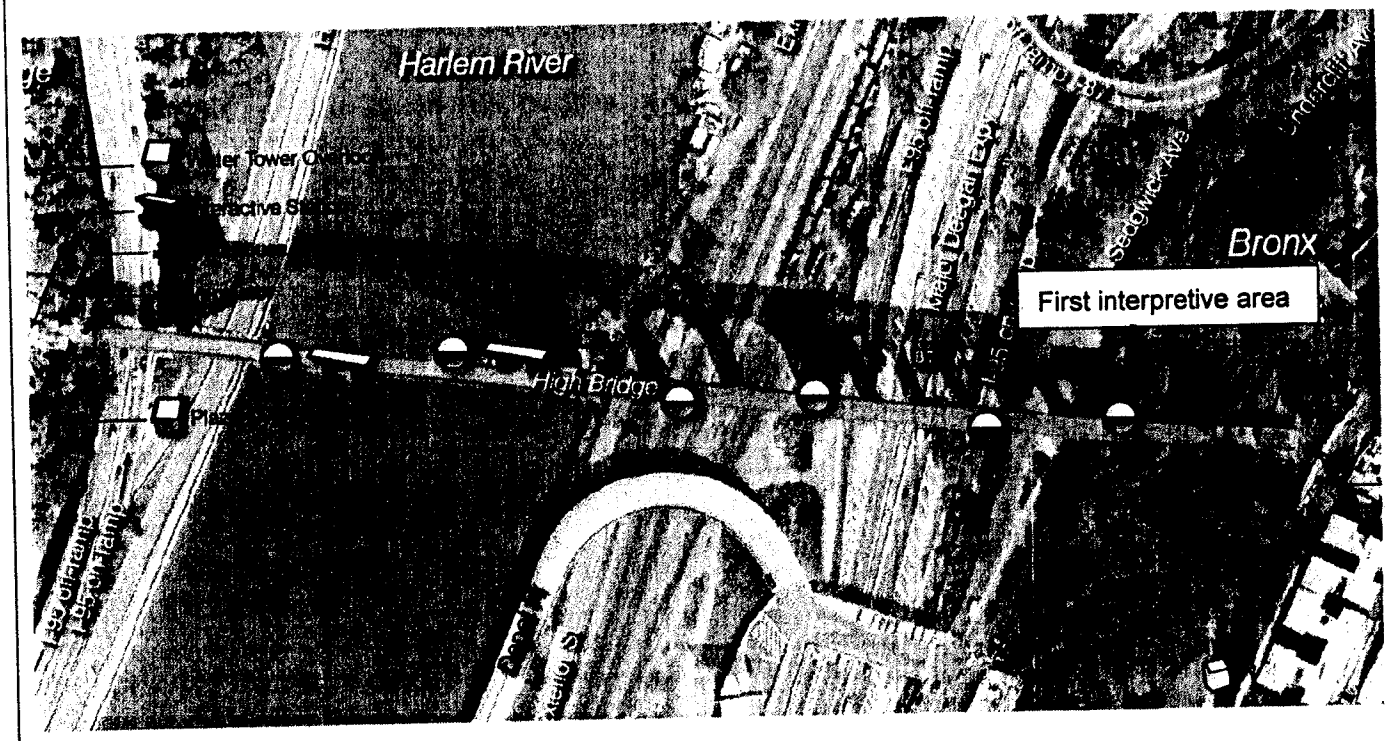
Discussion/Justification:

The design mixes historic and new brick, without providing a location where a visitor can see a complete example of the historic paving. This proposal creates areas that are completely historic in character: one associated with the 1920's era, and one associated with the 1860's era brick at the Bronx end. Use the historic 1920's brick only in the cross-sections where the 2 leveling platforms occur over the steel span, which totals approximately 120 linear feet (in 2 – 60 feet segments). See Proposed 1920's Brick Paving Area plan. Use the 1860's brick for the cross section between the stairs at the Bronx end and the first interpretive sign to the west, which is approximately 100 linear feet. See Baseline Interpretive Areas Plan.

New brick must be specially formulated, colored and manufactured. Having a defined quantity before removal of historic brick is complete may reduce cost and reduce manufacturing and delivery time. Defined quantities may improve the reliability and comparability of bids.

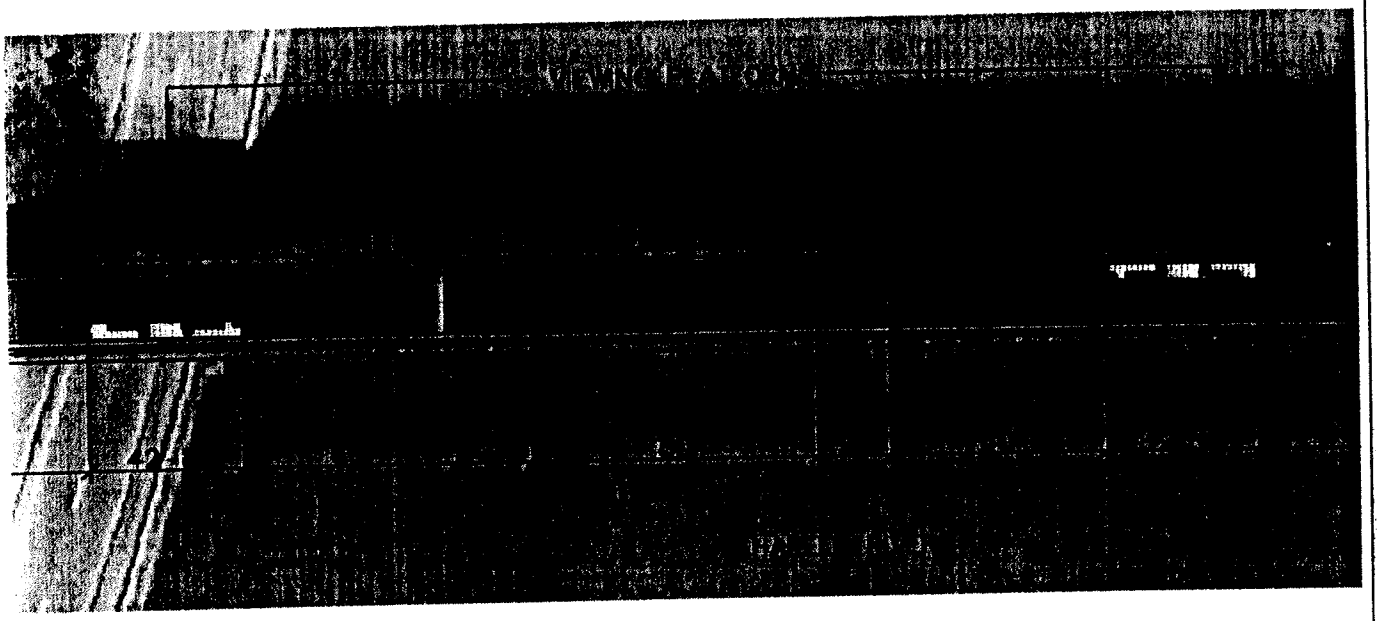
Removal and cleaning the historic brick is also expensive. Designating specific areas for reusing the historic brick types allows for removal and disposal of bricks that are no longer needed after the necessary brick quantities are confirmed.

Baseline – Interpretive Areas Plan



Proposed 1920's Brick Paving Area

(Note: more recent November 8, 2010 documents show a 60' viewing platform length, versus 42'-8" below)



OAC

Value Engineering Proposal RA.48

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Reuse brick pavers only in interpretive areas and replace the remainder

Markup: 40.0%		**ORIGINAL DESIGN**			**PROPOSED CHANGE**		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Delete salvage, reinstall brick pavers	SF	15,514	70	1,520,372			
Salvage, reinstall brick pavers	SF				3,800	70	372,400
New brick pavers	SF				11,714	40	655,984
TOTAL COSTS*				**1,520,000**			**1,028,000**
				TOTAL (BASELINE LESS PROPOSED)			**492,000**
							SAVINGS

Note: Total Costs are rounded to nearest thousand dollars

OAC

Value Engineering Proposal RA.50

High Bridge over the Harlem River
New York City, NY

November 2010

Description: Have an incentive clause in the specifications related to brick salvage quantities

Baseline Design:

Documents have not yet been developed.

to ensure that contractor performs brick removal in a manner that preserves the most number of bricks

Proposed Change:

Establish an incentive for the contractor to preserve the most number of bricks during the removal and cleaning process.

DESIGN SUGGESTION

Advantages:	Disadvantages:
• Incentivizes brick preservation	• Difficult to quantify the survivability of the brick during removal and cleaning
•	• Increases monitoring
•	• Potentially increases construction duration
•	• Incentive payment is an added cost
•	•
•	•

Discussion/Justification:

An Incentive/Disincentive (I/D) clause should be developed that would incentivize the safe removal of the brick thereby reducing the number of bricks broken during the removal and cleaning process. The incentive needs to be monetarily significant to compensate for the added work of the careful removal; otherwise it will be of no financial benefit for the contract to attempt to achieve the incentive. The incentive needs to be a realistically achievable goal, otherwise it will not be financially viable for the contractor to attempt to achieve the incentive.

The disincentive portion of the clause needs to be carefully developed to establish the minimum threshold that the contractor cannot fall below.

Description: Consider alternate painting and masonry repointing delivery options

Baseline Design:

Baseline design presumes that all activities are tied to the bridge opening and need to be completed to open the bridge.

Proposed Change:

Develop multiple completion milestones to allow the bridge to be opened while items of work that are not critical to that opening continue.

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 2,605,000	$	$ 2,605,000
Proposed Change:	$ 2,280,000	$	$ 2,280,000
Total (Baseline less Proposed):	$ 325,000	$	$ 325,000
			SAVINGS

Advantages:	Disadvantages:
• Increases probability of meeting the schedule for opening of the bridge deck	• Potentially increases the overall construction duration
• Reduces cost as contractor has more latitude in cost and schedule for the project	•
•	•
•	•
•	•
•	•

Discussion/Justification:

The current design and construction schedule allocates 2 full construction seasons to complete the scope of work. The proposed change will allow the contractor more latitude to staff/price the job to meet the schedule.

Many of the construction activities are weather dependant and adverse weather conditions could delay completion. Steel painting and masonry repointing are long duration activities that are mostly independent of the surface work. These activities can continue well after the opening of the bridge to the public. Further more since the project has federal funding, the federal funds can be applied to either activity, limiting the projects exposure to Davis-Bacon wage rates to those activities.

Alternatively, the painting could be bid separate of the main contract. This would eliminate having a general contractors mark-up on the painting. Also, if the federal funding can be dedicated to the painting it limits the exposure of the project to Davis-Bacon wage rates.

Value Engineering Proposal RA.51

High Bridge over the Harlem River
New York City, NY

November 2010

Description: ~~#N/A~~ Consider alternate painting and masonry repointing delivery options

Markup:		ORIGINAL DESIGN			PROPOSED CHANGE		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Delete Markups (40%) on painting costs	LS	1	2,605,275	2,605,275			
Markups (35%) on painting costs	LS				1	2,279,615	2,279,615
TOTAL COSTS*				**2,605,000**			**2,280,000**
				TOTAL (BASELINE LESS PROPOSED)			**325,000**
							SAVINGS

Note: Total Costs are rounded to nearest thousand dollars

OAC

Value Engineering Proposal RA.52
High Bridge over the Harlem River
New York City, NY

November 2010

Description: Modify the attic lighting scheme

Baseline Design:
Allowance of $200,000 provided in cost estimate. No design or fixture selection is provided.
Proposed Change:
Attic lighting to be designed to provide minimal illumination and visibility to safely walk the entire length of the attic

Cost Summary	Initial Cost	O&M Cost	Total Life Cycle Cost
Baseline Design Assumption:	$ 280,000	$	$ 280,000
Proposed Change:	$ 105,000	$	$ 105,000
Total (Baseline less Proposed):	($ 175,000)	$	($ 175,000) SAVINGS

Advantages:	Disadvantages:
• Eliminates need for supplemental lighting to enter space	• Very limited use
•	• Still requires supplemental lighting for inspections
•	•
•	•
•	•
•	•

Discussion/Justification:

The attic is approximately 750 ft. in length and 14 ft. in width. It is fully expected that inspections and tours of the attic space will require the use of supplemental lighting.

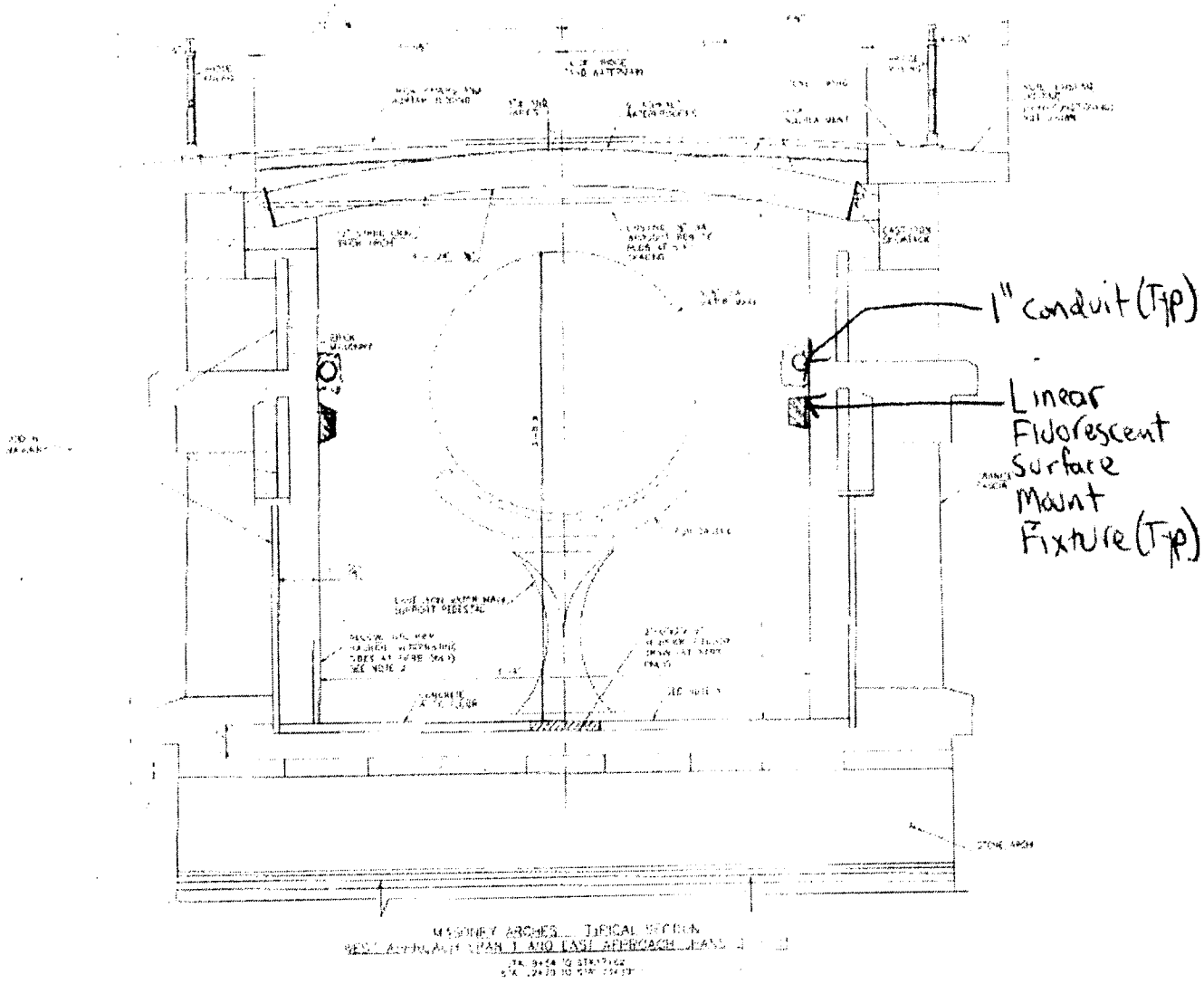
Durable, wet area, vandal resistant fixtures with cold weather ballast are recommended. Standard linear wall mount fixtures with fluorescent lamps can be used due to very limited use. A staggered spacing of 20 ft. between fixtures along the length of the attic is recommended. Lighting calculations to determine horizontal average lighting levels along floor, roof and walls. ↳ should be conducted

Provide switch in weatherproof box at manhole access and a time clock with manual HOA override switch at electrical pedestal to prevent unauthorized use of lights. ↳ Locked

Approximately 40 light fixtures total. Recommend two 480 volt circuits extended in surface mount conduit along each wall inside attic.

Fixture mounting height to be above head height.

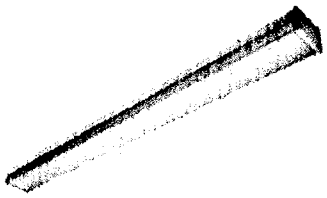
Attic Lighting Detail



Fluorescent Luminaire Cut sheet

Ranger™

R5 SERIES



CEILING/ WALL MOUNT/SURFACE
Lamps: T8, T8HO, T5, T5HO
ADA Compliant

Dimensions
Nominal 5" x 24", 36", 48", and 72"

PROJECT INFORMATION

Job Name

Fixture Type

Catalog Number

Approved by

SPECIFICATIONS

HOUSING: One-piece 20-gauge CRS baseplate and end caps. Baseplate provided with four-point (2, 3, and 6 foot) or six-point (4 foot) mounting holes and one wireway hole – see Cross Section/Details. White TGIC polyester powder coat – 5-stage pre-treatment. Salt spray test: 1,000 hours; Reflectance: 92%. Lens is positioned in baseplate channels and retained with two white nylon fasteners. Baseplate/end caps mount flush to ceiling or wall surface.

LENS: One-piece extruded clear prismatic impact blend acrylic.

SOCKETS: Shock-resistant sockets with internal locking collar to ensure positive lamp retention.

HARDWARE: Two white nylon fasteners secure lens in baseplate channel.

ELECTRICAL: Class P ballasts. Fluorescent electronic 120/277/347 and dual voltage ballasts high power factor. One-lamp 90 minute nickel-cadmium battery pack (EL) includes inverter charger, test switch and charging indicator lamp – indoor use only.

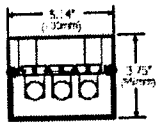
INSTALLATION: Four-point (2 foot) or six-point (4 foot) mounting required for One Year Guarantee.

LISTINGS: See WL Option for Wet Locations, covered ceilings only. UL and CUL listed for Damp Locations – wall and ceiling mount.

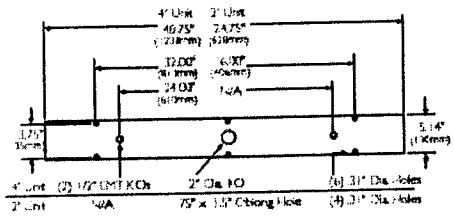
c UL us ADA

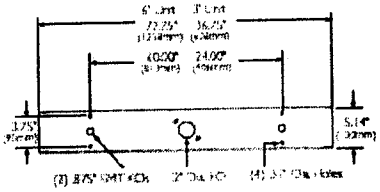
DIMENSIONAL DATA

Cross Section



Baseplate





ORDERING INFORMATION

Series	Nominal Length	Lamp Quantity	Lamp Type	Ballast Type	Ballast Quantity	Voltage	Option	Accessory
R5								

Nominal Length
24 2'
36 3'
48 4'
72 6'

Lamp Quantity
1 One Lamp
2 Two Lamps
3 Three Lamps

Lamp Type
2' Lengths
17 F17T8 (2' only)
3' Lengths
21 F21T5
25 F25T8
39* F39T5HO

4' Lengths
28 F28T5
32 F32T8
54* F54T5HO (n/a with 3 lamps)
6' Lengths
72 F72T8HO (n/a with 3 lamps)

Ballast Type
IS Instant Start Electronic <10% THD (T8, T8HO)
RS Rapid Start Electronic <10% THD (T8, T8HO, T5, T5HO)
CW Cold Weather
SB Specified Ballast

Ballast Quantity
1 One
2 Two
T Tandem Wiring (Consult Factory)

Voltage
120 120 Volt
277 277 Volt
347 347 Volt
DV 120/277 Volts (<10% THD), electronic ballasts only

Options
.156 .156" P12 Polycarbonate Lens
.187 .187" P12 Polycarbonate Lens
EL One-Lamp Indoor Battery Pack (32°F)
FS Single Fuse & Holder
KO Two 1/2" EMT Conduit Entry Knockouts (one per end cap)
IN 5 Watt Twin Tube NPF Night Light
TR POSIGRIP™ Fasteners
PM Pendant Mount
WL Wet Location Rating (covered ceiling only)

Accessory
9500 POSIGRIP™ Screwdriver

* Damp Location only

Value Engineering Proposal RA.52

High Bridge over the Harlem River
New York City, NY

November 2010

Description: #N/A

Markup: 40.0%		ORIGINAL DESIGN			PROPOSED CHANGE		
Item Description	**Unit**	**Qty**	**Unit Cost $**	**TOTAL $**	**Qty**	**Unit Cost $**	**TOTAL $**
Delete Lighting in attic	LS	1	200,000	280,000			
Fluorescent luminaires and conduit in attic	EA				75	1,000	105,000
TOTAL COSTS*				**280,000**			**105,000**
						TOTAL (BASELINE LESS PROPOSED)	**175,000**
							SAVINGS

Note: Total Costs are rounded to nearest thousand dollars

APPENDIX N
LIGHTING REPORT

High Bridge Rehabilitation

Schematic Lighting Report

horton lees brogden lighting design

10 November 2010

High Bridge Rehabilitation
Lighting Approach

The illumination of the High Bridge pedestrian/bikeway project needs to accomplish two key tasks: celebrate the artistry of its steel and stone structure, and provide pathway luminaires appropriate to the historic bridge with improved technology in order to make this a safe and fun destination.

The structure of the High Bridge consists both stone and steel. The beautiful open lace of the steel span lends itself wonderfully to a dramatic lighting scheme which highlights its form and adds interplay of sparkle to emphasize the intricate patterns while the stone section would benefit from a lighting scheme that would highlight the stone without drawing attention to the fixtures themselves.

The pathway luminaire will be evaluated to establish preservation or replacement (to determine compliance for sustainability), maintenance and security. The pathway lighting should offer an ambient level of lighting for safety both vertical and horizontal in accordance with NYCDOT requirements. Low level lighting using LED may be used in an ornamental lighting layer to supplement the existing conditions and enhance the structural features.

Our approach will attempt to capture the romance of the era with light, celebrate the history and architectural features using available technology, and to reflect the importance of the history of the Croton Hudson aqueduct bridge spanning across the Harlem River in the heart of New York City.

Bridge Bike and Pedestrian Pathway

We have analyzed several options available to us within the NYC DOT standard luminaires and prepared studies using the Type III, Historic Park World's Fair Luminaire with a 150w HPS lamp on a pole that places the center of the post top luminaire at 13'-6".

The Steel Span

There are two methodologies to light the steel structure. Accentuate the "lacey" expression of the structure with internal floodlighting similar to the GW Bridge or a more traditional way using "tracery" in keeping with the style of the era.

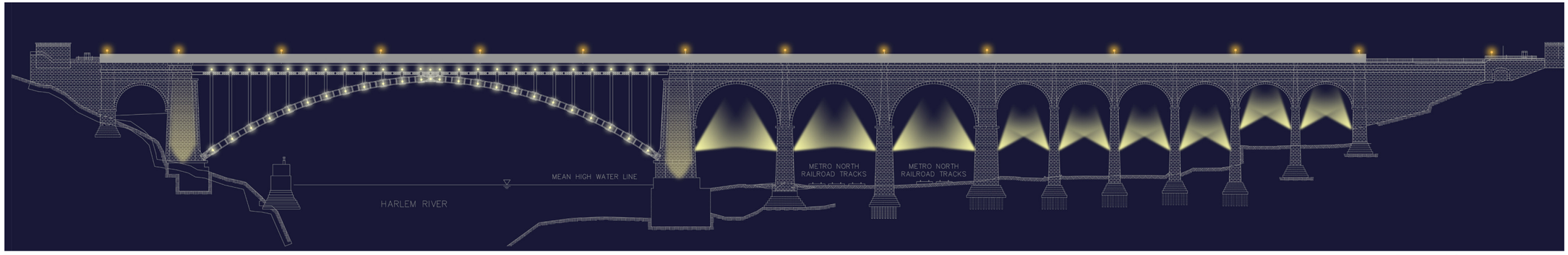
Tracery offers points of light along the high arch and horizontal bridge element which would be reflective in the water creating shimmering effect.

We would propose using long life sources (possibly CMH or Induction) in an industrial style fixture surface mounted to the spans. The center image below is an illustration of this approach. In addition, we would illuminate the vertical piers supporting the steel span of the bridge to define it's role over the water also as illustrated below.

We would propose using long life sources (possibly CMH or Induction) in an industrial style fixture surface mounted to the spans. The center image below is an illustration of this approach. In addition, we would illuminate the vertical piers supporting the steel span of the bridge to define it's role over the water also as illustrated below.

The Masonry Arches

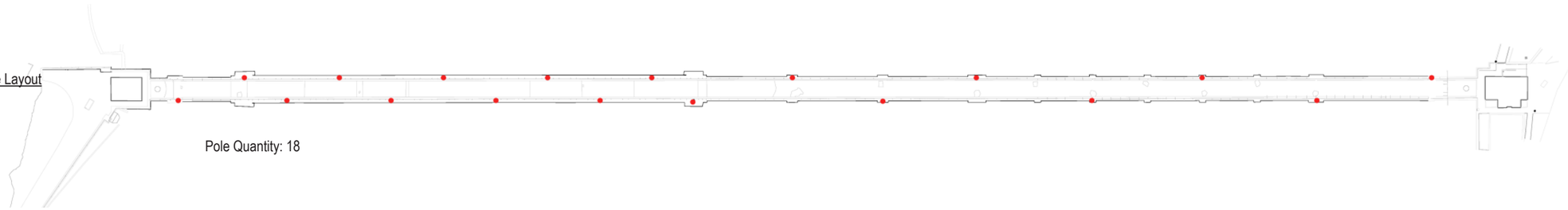
The beauty of illuminating the masonry arches is the rhythmic artistry. This approach is romantic while celebrating the architectural form. We propose using long life sources (possibly LED or ceramic metal halide) mounted fairly high on the sides of the large and small arches for uniformity and aesthetic impact. Another advantage is minimizing vandalism.



Proposed Ornamental Lighting

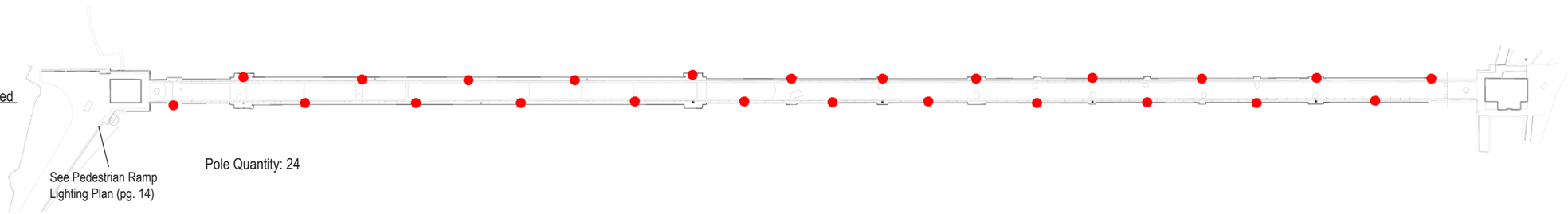
Bridge Historic Pole Layout

Existing Pole Layout



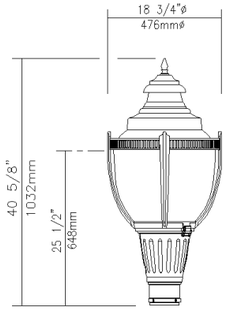
Pole Quantity: 18

Recommended Pole Layout

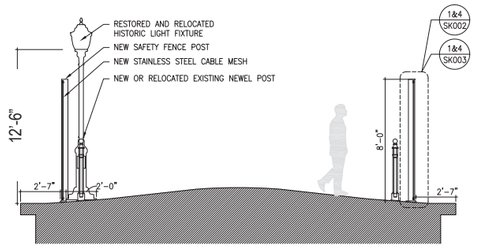


Pole Quantity: 24

See Pedestrian Ramp Lighting Plan (pg. 14)



DOT LED Luminaire



Bridge Section

Pole Description

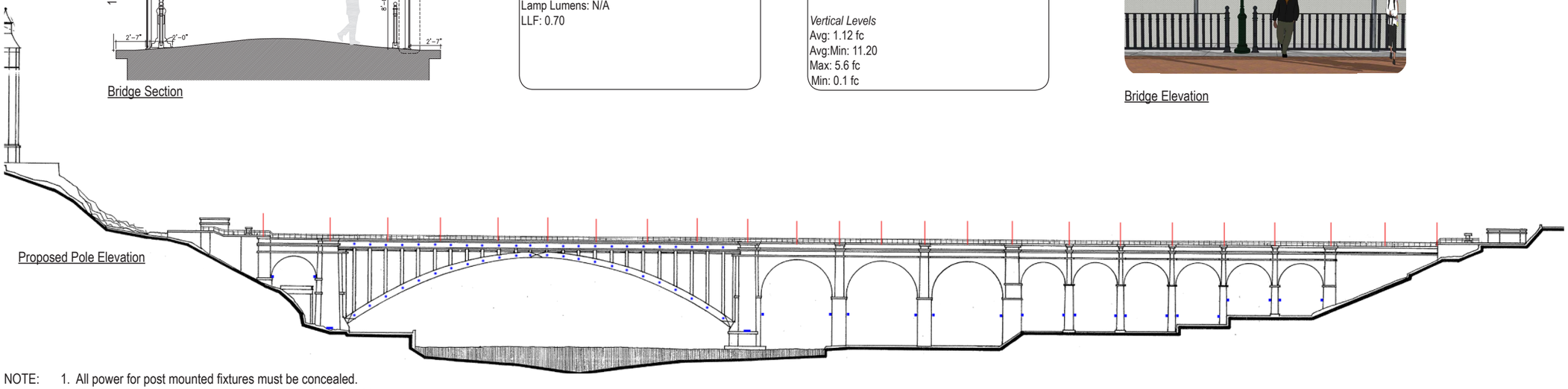
Pole Spacing: ~50 - 60' o.c. staggered
Luminaire Distribution: Type III
Lamp: 97W LED 6000K
Pole Height: 12'
Luminaire Height: approx. 13.5'
Lamp Lumens: N/A
LLF: 0.70

Calculation Results

Horizontal Levels	*DOT Recommendations*
Avg: 1.23 fc	Avg: 0.5 - 1.0 fc
Avg:Min: 3.32	Avg:Min: 4:1
Max: 2.31 fc	
Min: 0.37 fc	

Vertical Levels	
Avg: 1.12 fc	
Avg:Min: 11.20	
Max: 5.6 fc	
Min: 0.1 fc	

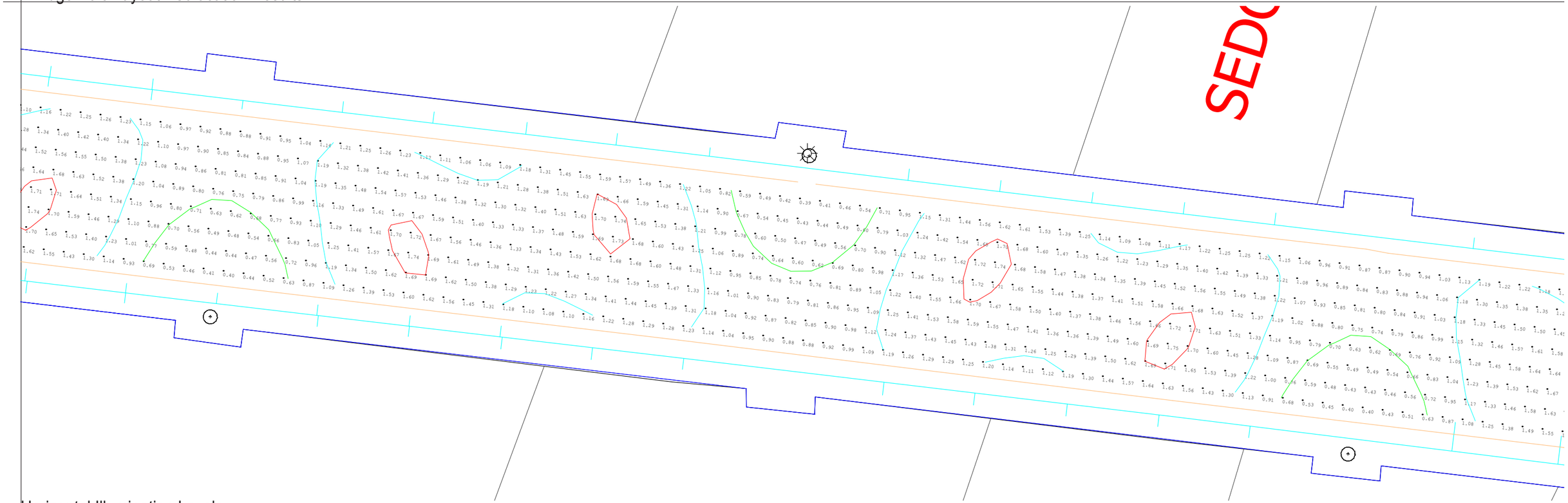
Bridge Elevation



Proposed Pole Elevation

DOT Type 'B' Pole

NOTE:
1. All power for post mounted fixtures must be concealed.
2. Finish and Paint color to be selected by Li/Saltzman Architects.
3. Access to electric hand hole in each pole will be coordinated with architect for future maintenance.
4. Post top mounted in 12'-0" type 'B' pole per DOT specifications.



Horizontal Illumination Levels

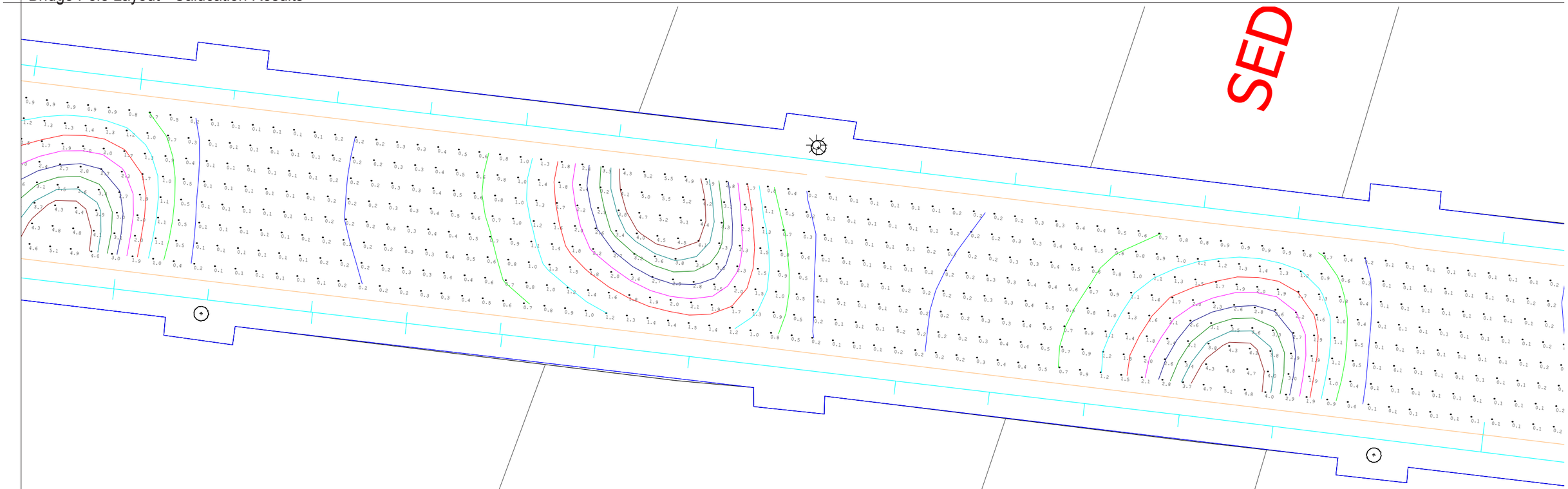
Pole Description

Pole Spacing: 50’ - 60’ o.c. staggered
Luminaire Distribution: Type III
Lamp: 97W LED 6000K
Pole Height: 12’
Luminaire Height: approx. 13.5’
Lamp Lumens: N/A
LLF: 0.70

Calculation Results

Horizontal Levels	*DOT Recommendations*
Avg: 1.23 fc	Avg: 0.5 - 1.0 fc
Avg:Min: 3.32	Avg:Min: 4:1
Max: 2.31 fc	
Min: 0.37 fc	

Vertical Levels
Avg: 1.12 fc
Avg:Min: 11.20
Max: 5.6 fc
Min: 0.1 fc



Vertical Illumination Levels

Pole Description

Pole Spacing: 50’ - 60’ o.c. staggered
Luminaire Distribution: Type III
Lamp: 97W LED 6000K
Pole Height: 12’
Luminaire Height: approx. 13.5’
Lamp Lumens: N/A
LLF: 0.70

Calculation Results

Horizontal Levels	*DOT Recommendations*
Avg: 1.23 fc	Avg: 0.5 - 1.0 fc
Avg:Min: 3.32	Avg:Min: 4:1
Max: 2.31 fc	
Min: 0.37 fc	

Vertical Levels
Avg: 1.12 fc
Avg:Min: 11.20
Max: 5.6 fc
Min: 0.1 fc

High Bridge Rehabilitation
Bridge Pole Spacing and Calculation Summary

The post top fixture for the Bridge top lighting has been studied in extensive detail to reflect the most efficient, economical solution while maintaining the architectural constraints and aesthetic properties of the historic bridge, fence, and experience.

The primary goal of the design team was to maintain the location of the poles in relation to 'piers' to have an architectural purpose for their locations. The current layout of the existing poles, as shown below, exhibits 3 typical spacings of fixtures, 55'o.c., 100' o.c., and 115' o.c. Using the DOT criteria of approved lampings, distributions, and pole heights, the various post tops were studied and analyzed using these spacings as a guideline, as shown on the following few pages. It was the original intent of the design team to use the existing poles with a designed stem extension to maintain the DOT required 12'-0" height from ground to post top for vandalism prevention. Our studies showed that the existing pole height of 9'-1" with the new post top at 10'-6" with standard DOT distributions exceeds the DOT criteria for illumination and uniformity as shown below. The result as demonstrated in our calculations is a spacing of approximately 50' - 60' o.c. which still exceeds the maximum illuminance average of 1.0 fc.

All studies were required to meet the DOT recommended illumination criteria outlined as such:

DOT Illumination Recommendations

Horizontal Avg: 0.5 - 1.0 fc
Avg:Min Ratio: 4:1

The following pages include summaries of the many iterations of pole heights, spacing, lamping, distributions, etc that were studied.

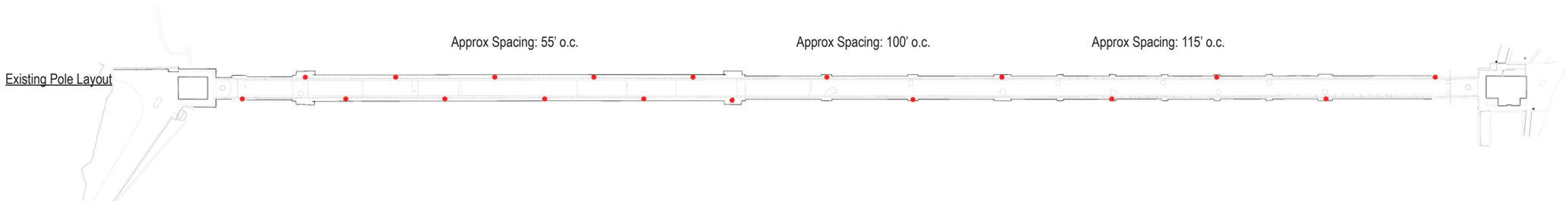
Existing 9'-1" Poles

DOT Standard Type 'B' 12'-0" height pole

Calculation Study Overview of all Iterations

9'-1"pole height		*Spacing*	*Avg*	*Avg:Min*
High Pressure Sodium				
100W Type III	DOT will not maintain Type III distribution	55' o.c.	0.74	2.18
150W Type III	Exceeds DOT Illuminance Criteria DOT will not maintain Type III distribution	55' o.c.	1.25	2.19
150W Type V	Exceeds DOT Illuminance Criteria	55' o.c.	1.54	3.42
LED				
75W Spring City Type II	Exceeds DOT Illuminance Criteria & Uniformity	50' - 60' o.c.	1.43	13.00
90W Sentry King Type V	Exceeds DOT Illuminance Criteria & Uniformity	50' - 60' o.c.	1.27	11.55
97W Lumec Type III	Alternate Scheme. Exceeds DOT Illuminance Criteria	50' - 60' o.c.	1.51	4.08
12'-0" pole height				
High Pressure Sodium				
100W Type III	Requires 55'-0" o.c. for entire length of bridge DOT will not maintain Type III distribution	55' o.c.	0.70	1.49
100W Type V	Requires 55'-0" o.c. for entire length of bridge	55' o.c.	0.79	1.84
150W Type III	Exceeds DOT Illuminance Criteria DOT will not maintain Type III distribution	55' o.c.	1.21	1.51
150W Type V	Exceeds DOT Illuminance Criteria DOT will not maintain Type III distribution	55' o.c.	1.33	1.82
LED				
75W Spring City Type II	Exceeds DOT Illuminance Criteria & Uniformity	50' - 60' o.c.	1.39	10.69
90W Sentry King Type V	Exceeds DOT Illuminance Criteria & Uniformity	50' - 60' o.c.	1.22	5.81
97W Lumec Type III	Recommended Scheme.	50' - 60' o.c.	1.23	3.32

NOTE: Type III is generally preffered in this application as the optics spread the light forward directly on the path as opposed to a type V distribution which is symmetrical around the entire fixture. Much wasted light would be spread outside the bridge area.



			High Pressure Sodium 100W Distribution: Type III Pole Height: 12'-0" Luminaire Approx. Height: 13'-6" Lamp Lumens: 9500 lumens LLF: 0.58	High Pressure Sodium 150W Distribution: Type III Pole Height: 12'-0" Luminaire Approx. Height: 13'-6" Lamp Lumens: 16000 lumens LLF: 0.58	High Pressure Sodium 100W Distribution: Type V Pole Height: 12'-0" Luminaire Approx. Height: 13'-6" Lamp Lumens: 9500 lumens LLF: 0.58	High Pressure Sodium 150W Distribution: Type V Pole Height: 12'-0" Luminaire Approx. Height: 13'-6" Lamp Lumens: 16000 lumens LLF: 0.58
55' o.c. Spacing Staggered	Horizonta	Avg	0.70	1.21	0.79	1.33
		Avg:Min	1.49	1.51	1.84	1.82
		Max	1.08	1.95	1.27	2.14
		Min	0.47	0.80	0.43	0.73
	Vertical	Avg	1.17	2.06	0.48	0.81
		Avg:Min	2.05	2.15	4.80	4.76
		Max	2.51	4.73	1.85	3.12
		Min	0.57	0.96	0.10	0.17

			High Pressure Sodium 100W Distribution: Type III Pole Height: 12'-0" Luminaire Approx. Height: 13'-6" Lamp Lumens: 9500 lumens LLF: 0.58	High Pressure Sodium 150W Distribution: Type III Pole Height: 12'-0" Luminaire Approx. Height: 13'-6" Lamp Lumens: 16000 lumens LLF: 0.58	High Pressure Sodium 100W Distribution: Type V Pole Height: 12'-0" Luminaire Approx. Height: 13'-6" Lamp Lumens: 9500 lumens LLF: 0.58	High Pressure Sodium 150W Distribution: Type V Pole Height: 12'-0" Luminaire Approx. Height: 13'-6" Lamp Lumens: 16000 lumens LLF: 0.58
100' o.c. Spacing Staggered	Horizonta	Avg	0.41	0.71	0.49	0.83
		Avg:Min	2.56	2.73	6.13	6.38
		Max	0.91	1.67	1.22	2.07
		Min	0.16	0.26	0.08	0.13
	Vertical	Avg	0.67	1.18	0.28	0.48
		Avg:Min	3.72	3.81	7.00	8.00
		Max	2.21	4.24	1.83	3.09
		Min	0.18	0.31	0.04	0.06

			High Pressure Sodium 100W Distribution: Type III Pole Height: 12'-0" Luminaire Approx. Height: 13'-6" Lamp Lumens: 9500 lumens LLF: 0.58	High Pressure Sodium 150W Distribution: Type III Pole Height: 12'-0" Luminaire Approx. Height: 13'-6" Lamp Lumens: 16000 lumens LLF: 0.58	High Pressure Sodium 100W Distribution: Type V Pole Height: 12'-0" Luminaire Approx. Height: 13'-6" Lamp Lumens: 9500 lumens LLF: 0.58	High Pressure Sodium 150W Distribution: Type V Pole Height: 12'-0" Luminaire Approx. Height: 13'-6" Lamp Lumens: 16000 lumens LLF: 0.58
115' o.c. Spacing Staggered	Horizonta	Avg	0.33	0.58	0.39	0.66
		Avg:Min	2.75	2.90	13.00	13.20
		Max	0.89	1.65	1.22	2.06
		Min	0.12	0.20	0.03	0.05
	Vertical	Avg	0.51	0.90	0.23	0.39
		Avg:Min	4.64	4.74	11.50	9.75
		Max	2.13	4.12	1.84	3.11
		Min	0.11	0.19	0.02	0.04

NOTE: 1. All values are in footcandles (fc)

Not in conformance with DOT recommended illuminance criteria

			High Pressure Sodium 150W Distribution: Type V Pole Height: 9'-1" Luminaire Approx. Height: 10'-6" Lamp Lumens: 16000 lumens LLF: 0.58	LED - Lumec 97W Distribution: Type III Pole Height: 9'-1" Luminaire Approx. Height: 10'-6" Lamp Lumens: N/A LLF: 0.70	LED - Sentry King 90W Distribution: Type V Pole Height: 9'-1" Luminaire Approx. Height: 10'-6" Lamp Lumens: N/A LLF: 0.70
55' o.c. Spacing Staggered	Horizonta	Avg	1.54	1.52	1.37
		Avg:Min	3.42	2.98	5.96
		Max	4.08	2.92	4.54
		Min	0.45	0.51	0.23
	Vertical	Avg	0.80	1.05	0.52
		Avg:Min	6.67	8.75	6.50
		Max	6.76	12.42	6.28
		Min	0.12	0.12	0.08

			High Pressure Sodium 150W Distribution: Type V Pole Height: 9'-1" Luminaire Approx. Height: 10'-6" Lamp Lumens: 16000 lumens LLF: 0.58	LED - Lumec 97W Distribution: Type III Pole Height: 9'-1" Luminaire Approx. Height: 10'-6" Lamp Lumens: N/A LLF: 0.70	LED - Sentry King 90W Distribution: Type V Pole Height: 9'-1" Luminaire Approx. Height: 10'-6" Lamp Lumens: N/A LLF: 0.70
100' o.c. Spacing Staggered	Horizonta	Avg	0.99	0.94	0.88
		Avg:Min	16.5	18.8	29.33
		Max	4.07	2.87	4.47
		Min	0.06	0.05	0.03
	Vertical	Avg	0.48	0.62	0.31
		Avg:Min	9.60	12.40	10.33
		Max	6.95	12.01	6.47
		Min	0.04	0.05	0.03

			High Pressure Sodium 150W Distribution: Type V Pole Height: 9'-1" Luminaire Approx. Height: 10'-6" Lamp Lumens: 16000 lumens LLF: 0.58	LED - Lumec 97W Distribution: Type III Pole Height: 9'-1" Luminaire Approx. Height: 10'-6" Lamp Lumens: N/A LLF: 0.70	LED - Sentry King 90W Distribution: Type V Pole Height: 9'-1" Luminaire Approx. Height: 10'-6" Lamp Lumens: N/A LLF: 0.70
115' o.c. Spacing Staggered	Horizonta	Avg	0.79	0.75	0.7
		Avg:Min	39.50	37.50	70.00
		Max	4.06	2.87	4.52
		Min	0.02	0.02	0.01
	Vertical	Avg	0.41	0.51	0.28
		Avg:Min	13.67	17.00	14.00
		Max	7.17	12.48	6.45
		Min	0.03	0.03	0.02

NOTE: 1. All values are in footcandles (fc)

Not in conformance with DOT recommended illuminance criteria

			High Pressure Sodium 150W Distribution: Type V Pole Height: 12'-0" Luminaire Approx. Height: 13'-6" Lamp Lumens: 16000 lumens LLF: 0.58	LED - Lumec 97W Distribution: Type III Pole Height: 12'-0" Luminaire Approx. Height: 13'-6" Lamp Lumens: N/A LLF: 0.70	LED - Lumec 97W Distribution: Type III Pole Height: 9'-1" Luminaire Approx. Height: 10'-6" Lamp Lumens: N/A LLF: 0.70	LED - Sentry King 90W Distribution: Type V Pole Height: 9'-1" Luminaire Approx. Height: 10'-6" Lamp Lumens: N/A LLF: 0.70	LED - Spring City 75W Distribution: Type II Pole Height: 9'-1" Luminaire Approx. Height: 10'-6" Lamp Lumens: N/A LLF: 0.70
~50' - 60' o.c. Spacing Staggered	Horizonta	Avg	1.34	1.23	1.51	1.27	1.43
		Avg:Min	3.44	3.32	4.08	11.55	13.00
		Max	2.32	2.31	2.87	4.28	4.36
		Min	0.39	0.37	0.37	0.11	0.11
	Vertical	Avg	0.91	1.12	1.13	0.61	1.28
		Avg:Min	9.10	11.20	11.30	N/A	N/A
		Max	3.70	5.60	13.10	8.40	20.90
		Min	0.10	0.10	0.10	0.00	0.00

NOTE: 1. **DDC agreed to higher illumination level (standard 1.0 fc average max) of 1.23 fc is acceptable illumination value for DOT maintenance (as per meeting at DDC on 11/03/2010).**
2. All values are in footcandles (fc)

Not in conformance with DOT recommended illuminance criteria

Recommended System that meets DOT recommended illuminance criteria

Executive Summary

The bridge pathway lighting for High Bridge is iconic and at the same time is a very important connector between two communities. This pathway is under the oversight of both DPR and DOT. We abided by the DOT illumination criteria standards for uniformity, illumination levels, to meet their safety and maintenance requirements.

Extensive lighting studies and calculations have been analyzed to verify we are using energy efficient, architecturally appropriate, and photometrically acceptable solution. In every study that was performed, we demonstrated which combinations of lamps, distribution optics and pole height would or would not meet the DOT illuminance and uniformity criteria from the DOT standards and manual as shown:

Horizontal Average Illumination range: 0.5 – 1.0 footcandles
Average/Minimum Uniformity: 4:1 maximum

We conducted studies using both the 9'-1" existing historical pole height and concluded early on that we needed to increase the base or extend the pole mounting to match the 12'-0" pole height currently used by DOT. It was the original intent of the design team to re-use the existing poles with our understanding that they would need to be modified with a custom stem and/or base to "raise" the fixture to the 12'-0" height requirement. This was noted in our presentation report dated August 2010 and in various discussions or meeting previously.

Originally we studied the high pressure sodium (HPS) source since this was the current standard at the inception of this project, as shown on page 6 of our schematic report dated November 10, 2010, it is evident that the only lamping and distribution that fits the DOT criteria is the 150W Type III HPS lamp on a 12'-0" pole. Unfortunately, the DOT no longer maintains the Type III distribution of this lamp as stated in a meeting at the DDC in August 2010. It was suggested and highly recommended by the DOT to use their new DOT approved LED post tops in lieu of the HPS source. During the meeting DOT also reiterated their requirement to for a 12'-0" pole height for vandalism reasons.

We revised our calculations to the new LED using 75 and 97 watt with the various distribution optics DOT gave us for the analysis. Calculations were performed for both pole heights. Using DOT approved lamp and photometrics, we studied alternate spacing of the poles to meet the criteria and in some studies dis-regarded the original pole locations. As a result, the only way to achieve the illumination criteria*, respect the original pier locations, is with a 12'-0" pole, a 97 watt LED, Type III optical distribution space on average between 50-60 feet – staggered.

* note: In fact the final recommendation slightly exceeds the illumination criteria by 0.23 fc – but we were told that they DOT would allow this under the restrictive circumstances of fixture placement.

Current Calculation Overview

We used the following DOT provided photometrics for their approved LED post top fixtures as follows:

1. 90W 8000K LED Sentry King - Type V distribution
2. 97W 6000K LED Lumec – Type III distribution
3. 75W 3000K LED Spring City – Type II distribution

Conclusion:

Recommended Scheme using new 12'-0" B pole (as shown previously in this report)

LED 97 watt, 6000K, Type III distribution, Lumec traditional luminaire post top
Pole Height 12'-0" (recommend new B Pole verses refurbished and modified base/stem of existing 9'1" poles)
Spacing 50 to 60 feet on center, staggered
Quantity Required for Bridge only: 24
Illumination levels: 1.23 maximum averages (exceeds DOT by 0.23fc approved at November meeting given historic spacing requirement.
Uniformity: 3.32 to 1.0 (meets DOT 4:1)

Pros:
- Meets DOT illumination standards and power consumption
- Fixtures are located on original pier locations
- Uses a new B Type DOT standard 12'-0" pole because quantity exceeds existing pole count of 18
- New pole is less costly than modifying existing and re-casting new 9'-1" poles
- Meets DOT vandalism height requirement

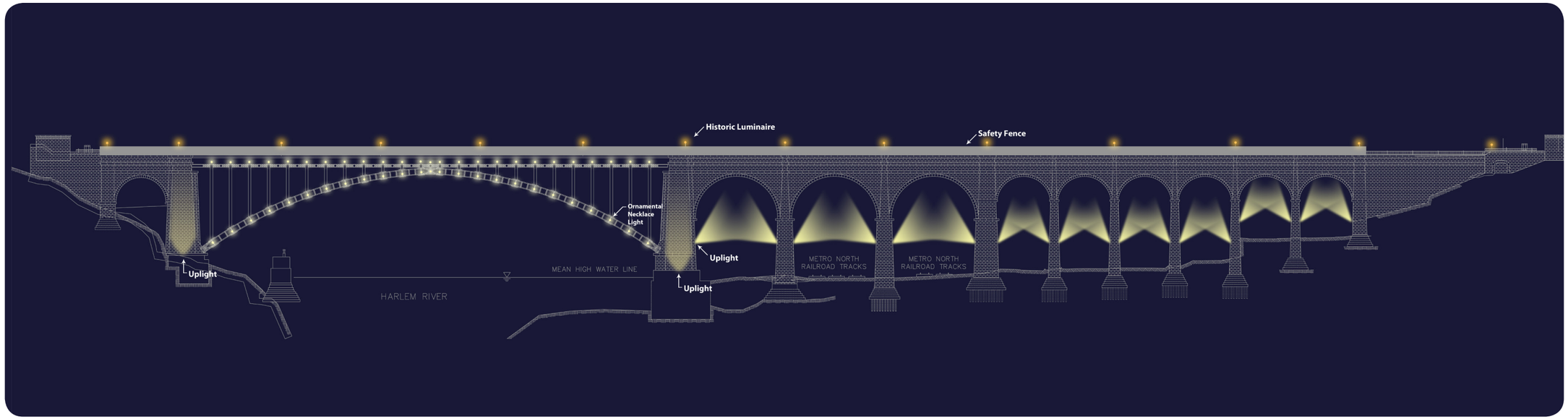
Cons: Does not reuse existing pole

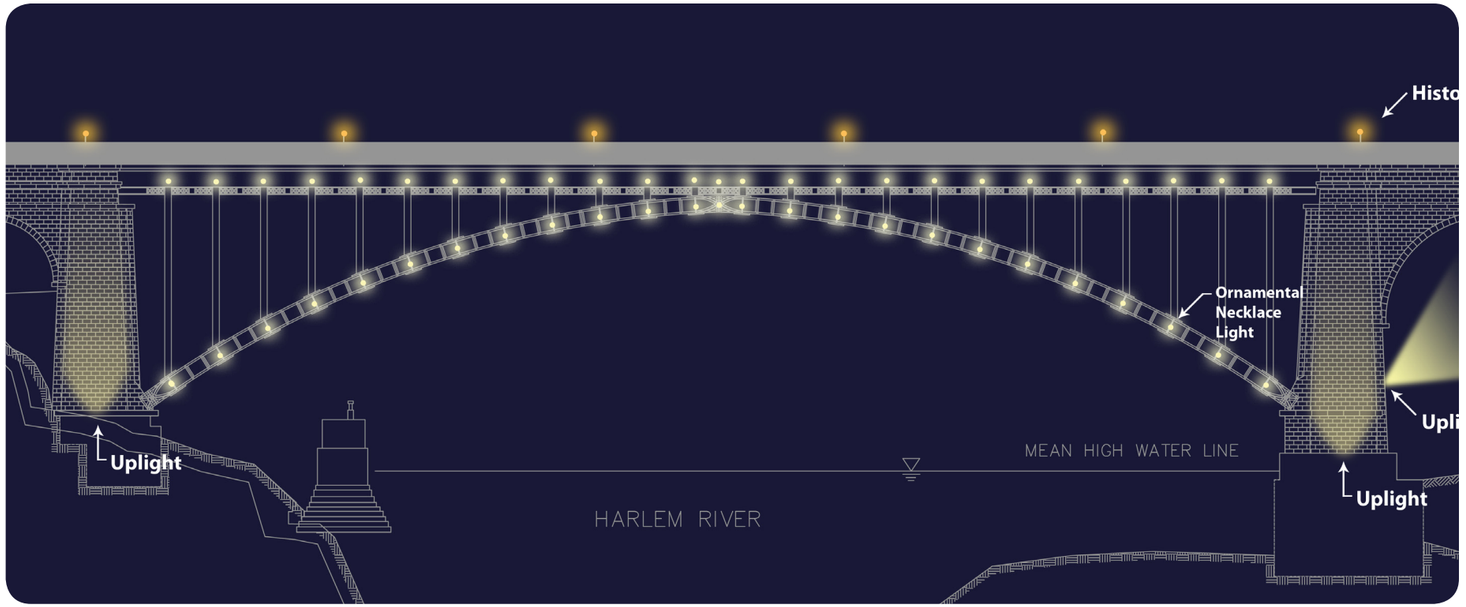
Alternate Study with unmodified historic pole height (9'-1")

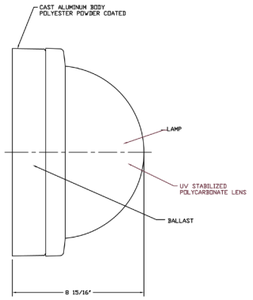
LED 97 watt, 6000K, Type III distribution, Lumec traditional luminaire post top
Pole Height 9'-1" (no modification to base or stem to meet 12'-0" height)
Spacing 50-60 feet on center, staggered
Quantity Required for Bridge only: 24
Illumination levels: 1.51(exceeds DOT by 0.51fc)
Uniformity: 4.08 to 1.0

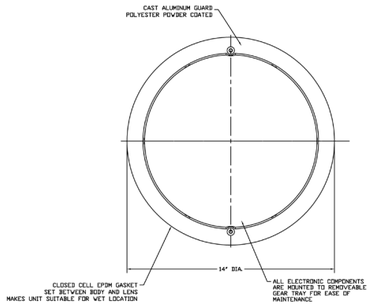
Pros:
- Uses existing pole
- Align with original pier spacing

Cons:
- Existing must be refurbished
- Additional (6) pole quantities needed to be fabricated
- Exceeds DOT illumination criteria 1.51 vs 1.0 fc
- Does not meet DOT vandalism height requirement


Historic Luminaire
Safety Fence
Ornamental Necklace Light
Uplight
Uplight
Uplight
MEAN HIGH WATER LINE
HARLEM RIVER
METRO NORTH RAILROAD TRACKS
METRO NORTH RAILROAD TRACKS





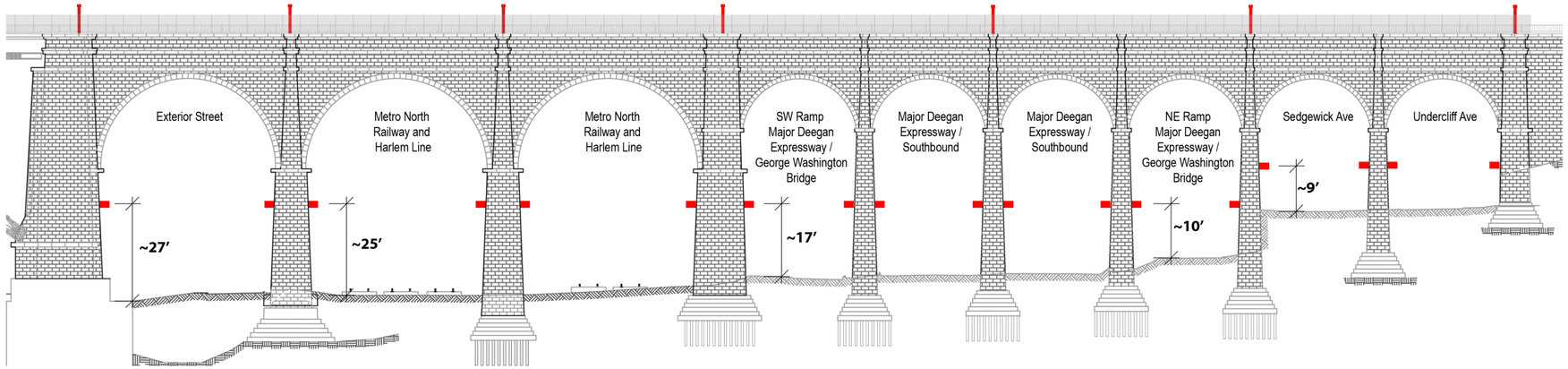


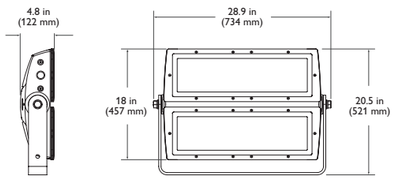
NOTE: Color temperature and mounting condition to be considered in an on-site mock-up analysis to study options.

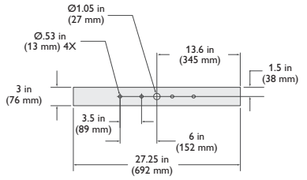
“Button Light” Fixture

Mounting to steel structure on top and bottom span.

Lamp: Induction
Lamp Wattage: 55W
Total System Watts: 5.28 kW
Color: 3000K - 5000K (To be coordinated with Bridge path lighting)
Lamp Life: 100,000 hrs
Color Rendering Index: 80

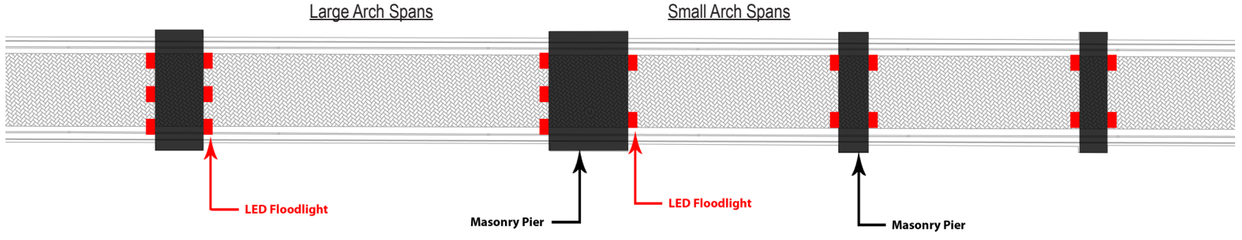




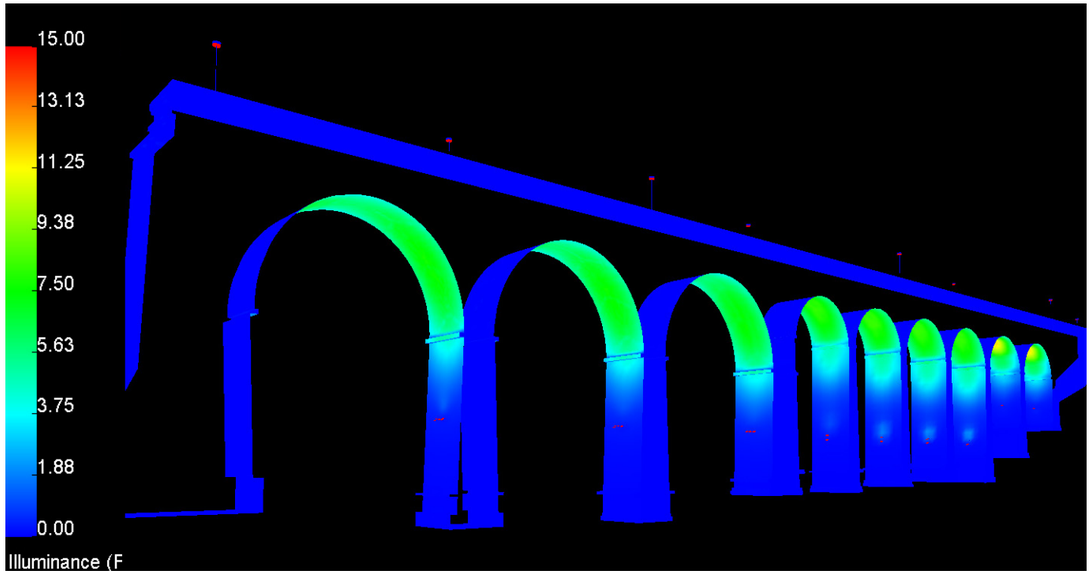


Arch Lighting Floodlight Fixture

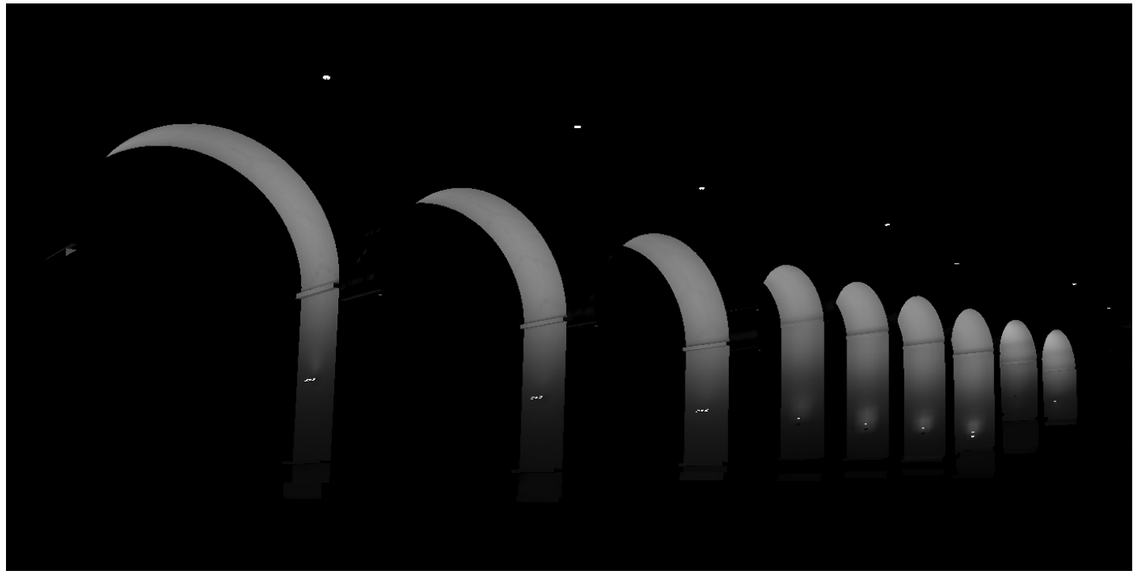
Lamp: LED
Lamp Wattage: 250W
Total System Wattage: 10.5 kW
Color: 2700K - 6500K range
Lamp Life: 50,000 hrs
Color Rendering Index: 83
Beam Angle: 23 degrees



Partial Plan view of Masonry Arches with Floodlight locations
NOTE: Spacing to be determined in Design Development Phase in on-site mock-up.

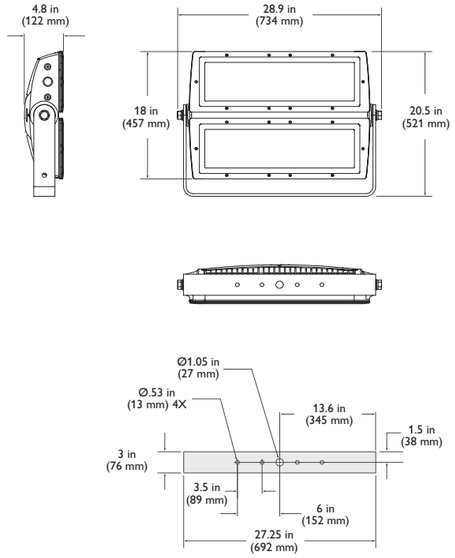


Falsecolor Rendering (10% reflectance on arches for ~10 fc illumination levels)

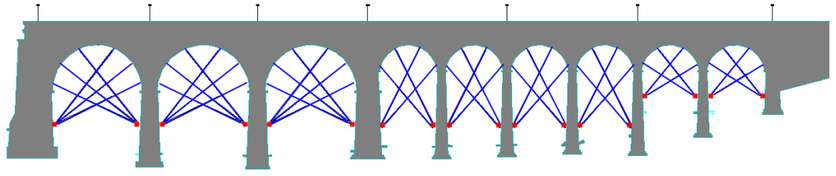


Grey-scale Rendering

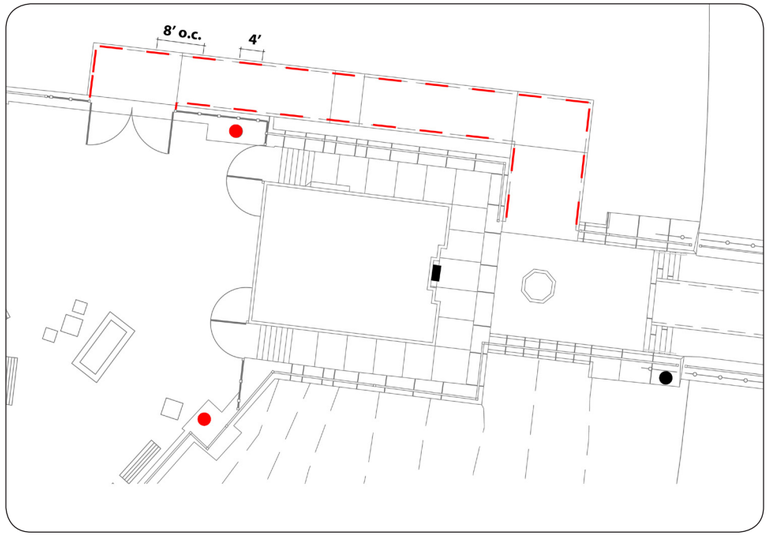
NOTE: Source selections, color temperature, mounting, beam spreads, and shielding to be considered in an on-site mock-up analysis to study options.



Lamp: LED
Lamp Wattage: 250W
Total System Wattage: 10.5 kW
Color: 2700K - 6500K range
Lamp Life: 50,000 hrs
Color Rendering Index: 83
Beam Angle: 23 degrees



Aiming Diagram



Manhattan Pedestrian Ramp

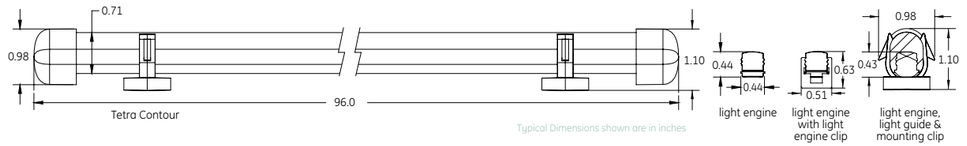
Light Fixture Description

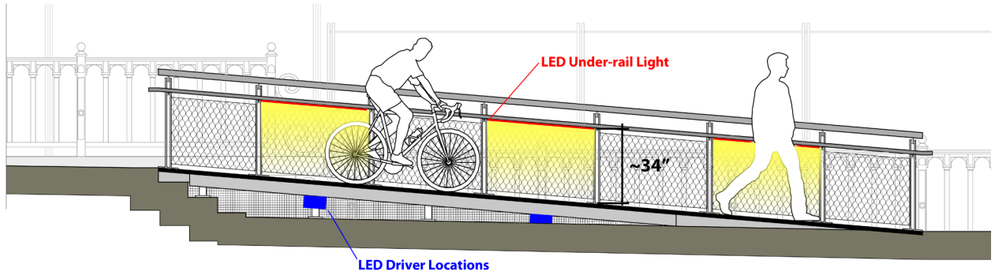
Luminaire Distribution: Symmetrical
Lamp: White LED - 3.39W per 16"
Fixture Length: 4'-0" linear runs
LED Driver: (1) Driver per (20) 4' fixtures
Luminaire Mounting Height: 34"
LLF: 0.58

New Pole Locations (or Re-use existing 9'-1" pole)

Existing Pole Locations (Refurbish and Install)

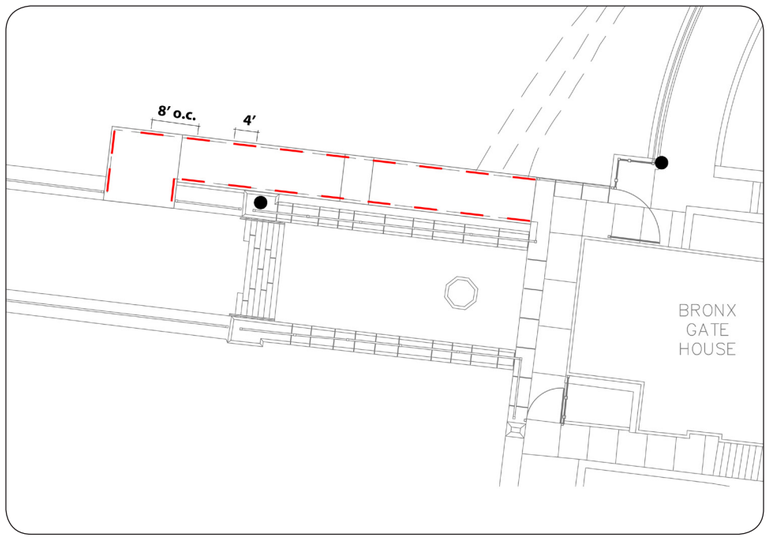
Building Mounted Floodlight





*LED drivers to be mounted in weather-proof enclosure under ramp in accessible location per manufacturer's required minimum distance from furthest fixture. (1) Driver required for every (20) 4' fixtures.

2 / L-6 MANHATTAN - OPTION 1D
SECTION THROUGH BRIDGE RAMP

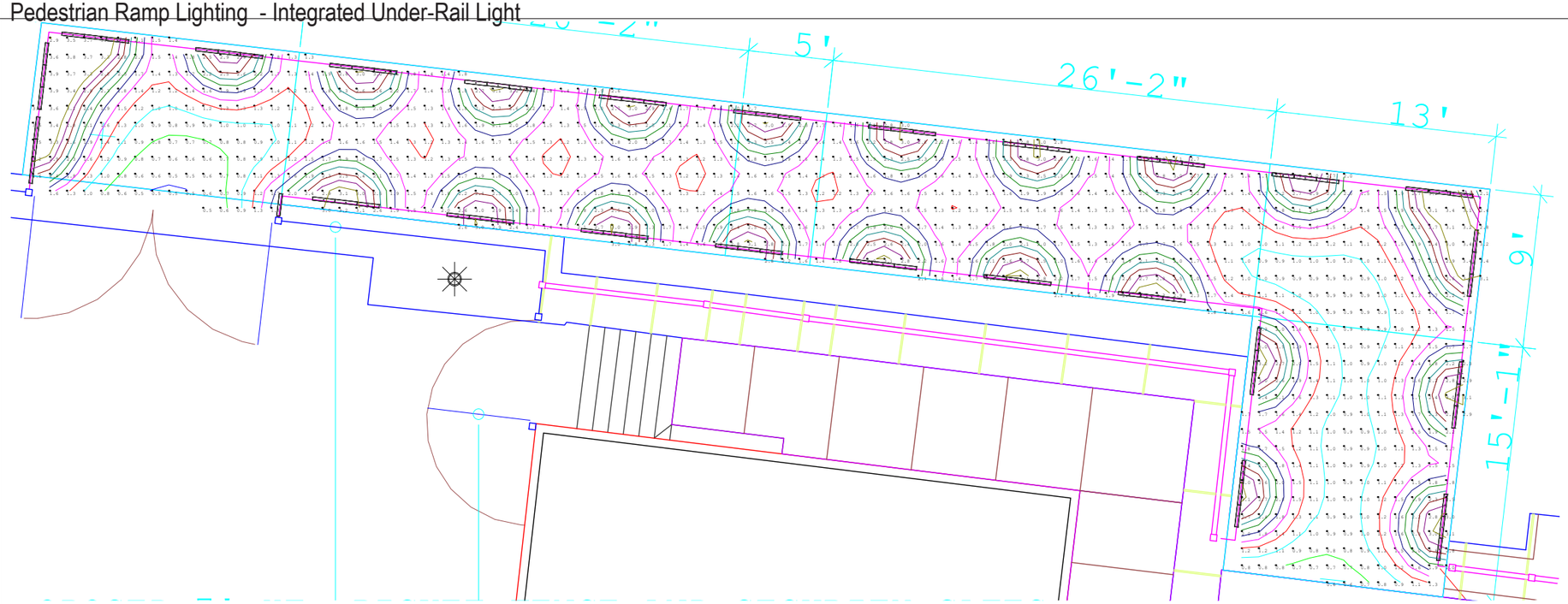


Bronx Pedestrian Ramp

Light Fixture Description

Luminaire Distribution: Symmetrical
Lamp: White LED - 3.39W per 16"
Fixture Length: 4'-0" linear runs
LED Driver: (1) Driver per (20) 4' fixtures
Luminaire Mounting Height: 34"
LLF: 0.58

Existing Pole Locations (Refurbish and Install)

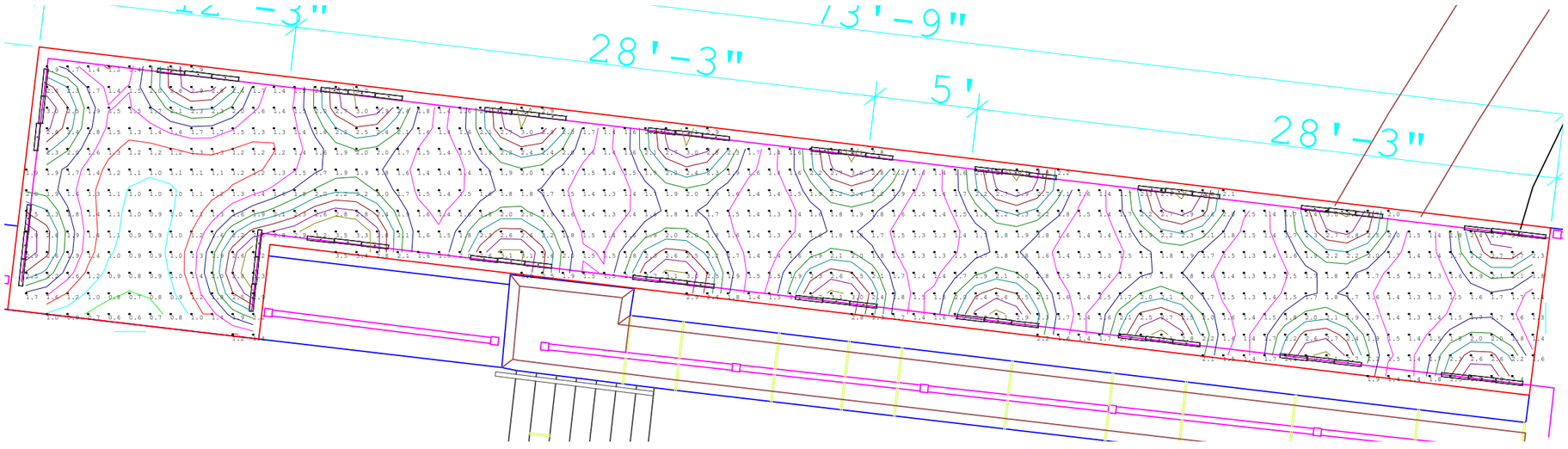


Calculation Results

Horizontal Levels
Avg: 1.74 fc
Avg:Min: 3.48
Max: 3.9 fc
Min: 0.5 fc

DOT Recommendations
Avg: 0.5 - 2.2 fc

Manhattan Pedestrian Ramp - Horinzontal Illumination Calculation Results



Calculation Results

Horizontal Levels
Avg: 1.88 fc
Avg:Min: 3.13
Max: 3.5 fc
Min: 0.6 fc

DOT Recommendations
Avg: 0.5 - 2.2 fc

Bronx Pedestrian Ramp - Horinzontal Illumination Calculation Results

Illuminance Calculations Disclaimer:

Illuminance calculations are for lighting design aid purposes only. All calculations performed by Horton Lees Brogden Lighting Design (HLB) are based on published methods and recommendations of the Illuminating Engineering Society of North America (IESNA). Field measurements may vary as much as 10% from calculation results due to the limitations associated with the calculation procedures utilized and referenced by the IESNA. Exterior lighting levels can be reduced as much as 30% below calculated levels due to excessive dirt accumulation. A Luminaire Dirt Depreciation Factor of 90% has been used for all downward aiming fixtures.

Calculation accuracy is also highly dependent upon the input data utilized in the calculation and variances greater then 10% may occur if there are errors in the input data or if equipment does not perform as published. Some input data has been provided by others (e.g. photometric reports, lamp lumen ratings, room surface materials and/or reflectances) and some of it is derived by HLB from industry standard methods (e.g. luminaire and room surface dirt depreciation factors). HLB has made every effort to ensure the reliability of all data, but is not responsible for errors in data received from others or equipment that does not perform as published.

HLB has included a listing of all input values as part of the calculation submission. Please review these figures and notify HLB immediately if any inconsistencies or inaccuracies are noted.

PRELIMINARY COST STUDY FOR MASONRY ARCHES ONLY

ORNAMENTAL ARCHITECTURAL LIGHTING	
Source & Fixture Life-time Cost Analysis	
Goal Illuminance Level on Arch Surface: 10 fc	
Source	**LED**
Lamp Wattage	250
System Wattage	250
Lamp Life	50,000
CCT	2700K - 6500K
CRI	83
Approx. Beam Angle	23 degrees
Budget Cost of Fixture (Distributor Net)	$3,600.00
Budget Cost of Lamp	N/A
Total Equipment Cost ONLY	$180,000.00
Fixture Quantity	50
Cumulative Load *	12500 W
kWh per Year (assumed 6 hrs/day)	27375 kWh
Cost per kWh (Estimated per April 2010 rates)	$0.07
Yearly Electrical Cost (6 hrs/day operation)	$1,916.25
Operating Hours per year (6 hrs/day operation)	2190 hours
Years to full group re-lamp (60% of lamp life at 6 hrs/day)	13.70 Years
Time to install each lamp (Estimated Minutes)	60 minutes
Re-Lamp labor cost (Estimated $/hr) (Does not include equipment)	$60.00
Total Cost for 1st Year (Equipment & Operating Cost)	$181,916.25

*Note: These values for cumulative load may vary if we strive for 20 footcandles on the arches. Study is for 10 footcandles only at this time. Source selections, color temperature, mounting, beam spreads, and shielding to be considered in an on-site mock-up analysis to study options.

PRELIMINARY COST STUDY FOR BUTTON LIGHTING ON STEEL STRUCTURE ONLY

ORNAMENTAL ARCHITECTURAL LIGHTING	
Source & Fixture Life-time Cost Analysis	
Source	**Induction**
Lamp Wattage	55
System Wattage	55
Lamp Life	100,000
CCT	3000K - 5000K
CRI	80
Approx. Beam Angle	N/A
Budget Cost of Fixture (Distributor Net)	$1,000.00
Budget Cost of Lamp	$225.00
Total Equipment Cost ONLY	$96,000.00
Fixture Quantity	96
Cumulative Load	5280 W
kWh per Year (assumed 6 hrs/day)	11563 kWh
Cost per kWh (Estimated per April 2010 rates)	$0.07
Yearly Electrical Cost (6 hrs/day operation)	$809.42
Operating Hours per year (6 hrs/day operation)	2190 hours
Years to full group re-lamp (60% of lamp life at 6 hrs/day)	27.40 Years
Time to install each lamp (Estimated Minutes)	30 minutes
Re-Lamp labor cost ($/hr) (Does not include equipment)	$60.00
Total Cost for 1st Year (Equipment & Operating Cost)	$96,809.42

Note: Source selections, color temperature, mounting, beam spreads, and shielding to be considered in an on-site mock-up analysis to study options.

PRELIMINARY COST STUDY FOR BRIDGE POLES ONLY

BRIDGE POLE LIGHTING ANALYSIS	
Source & Fixture Life-time Cost Analysis	
Source	**LED**
Lamp Wattage	90
System Wattage	97
Lamp Life	50,000
CCT	6000K
CRI	N/A
Budget Cost of Fixture (Distributor Net)	$3,500.00
Total Equipment Cost ONLY	$94,500.00
Fixture Quantity	27
Cumulative Load	2619 W
kWh per Year (assumed 6 hrs/day)	5736 kWh
Cost per kWh (Estimated per April 2010 rates)	$0.07
Yearly Electrical Cost (6 hrs/day operation)	$401.49
Operating Hours per year (6 hrs/day operation)	2190 hours
Years to full group re-lamp (60% of lamp life at 6 hrs/day)	13.70 Years
Time to install each lamp (Estimated Minutes)	30 minutes
Re-Lamp labor cost (Estimated $/hr) (Does not include equipment)	$60.00
Total Cost for 1st Year (Equipment & Operating Cost)	$94,901.49

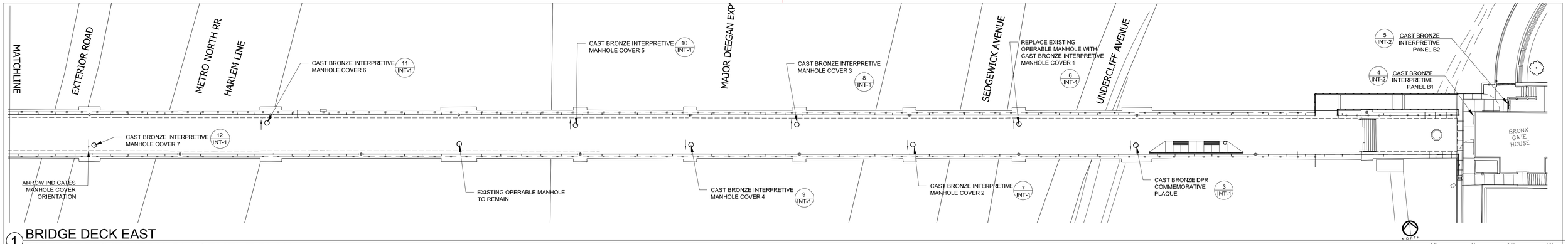
Note: Budget price for LED Post top & Pole estimated. DOT to donfirm actual budget price

PRELIMINARY TOTAL SYSTEM COST ANALYSIS

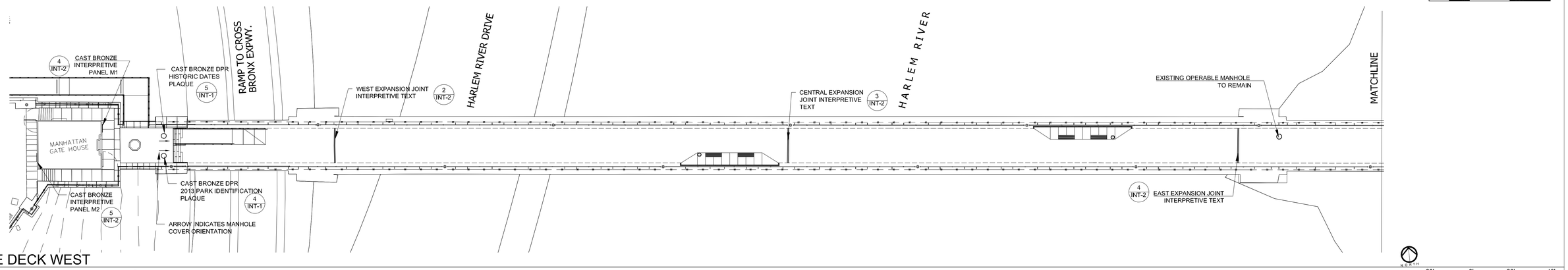
SCHEME COST ANALYSIS		
Life-time Cost Analysis for Bridge Lighting		
	Equipment ONLY (Distributor Pricing)	**Annual Operating Cost (Electrical Service Cost ONLY)**
Bridge Pole Cost	$94,500.00	$401.49
Masonry Arch Lighting Cost	$180,000.00	$1,916.25
Steel 'Button' Lighting Cost	$96,000.00	$809.42
Bike Ramp Lighting Cost (Does not include handrail cost)	$50,000.00	$150.00
Aqueduct Work Lights (assumed spacing 40' o.c.) (assumed operation per year - 20 hours)	$30,000.00	$20.00
Total Cost	$450,500.00	$3,297.16

NOTE: Source selections, color temperature, mounting, beam spreads, and shielding to be considered in an on-site mock-up analysis to study options. All Costs are assumed for 6hrs/day operation. Total Costs include estimated initial fixture cost (Distributor/Net) and electricity cost. This does NOT include installation, maintenance, electrical wiring/distribution, delivery, and cost inflation.

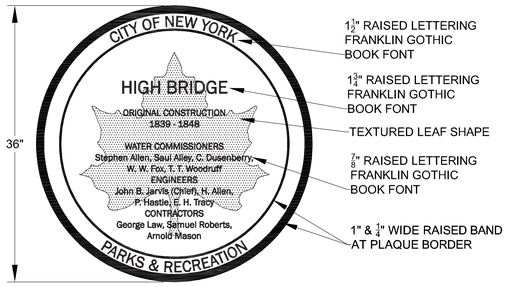
APPENDIX O
INTERPRETIVE PROGRAM



1 BRIDGE DECK EAST
INTERPRETIVE MEDIA PLACEMENT PLAN



2 BRIDGE DECK WEST
INTERPRETIVE MEDIA PLACEMENT PLAN

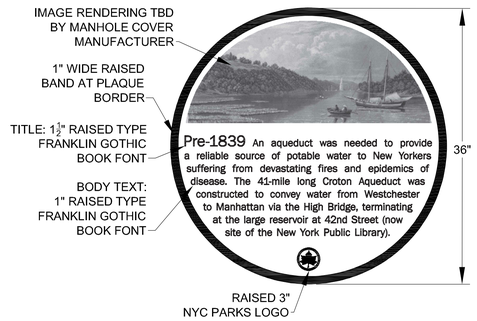


3 CAST BRONZE DPR COMMEMORATIVE PLAQUE
(ALL DIMENSIONS & NOTES ARE TYPICAL)

1' 0' 1'

4 DPR 2013 PARK IDENTIFICATION PLAQUE

5 DPR HISTORIC DATES PLAQUE



6 CAST BRONZE INTERPRETIVE MANHOLE COVER 1
(ALL DIMENSIONS & NOTES ARE TYPICAL)

7 MANHOLE COVER 2

NOTES:

1. ALL DPR PLAQUES AND INTERPRETIVE MANHOLE COVERS ARE CAST BRONZE, FIXED MANHOLE COVERS, SEE DETAIL 1 INT-2
2. MANHOLE COVERS INCLUDE DRAFT TEXT, SUBJECT TO SUBSEQUENT EDITS BY NYC DPR AND NYC DDC
3. ALL RECESSED/BACKGROUND AREAS TO RECEIVE A CHEMICAL PATINA. RAISED AREAS & LETTERING TO BE BUFFED WITH RANDOM ORBITAL SANDING.

8 MANHOLE COVER 3

9 MANHOLE COVER 4

10 MANHOLE COVER 5

11 MANHOLE COVER 6

12 MANHOLE COVER 7

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30-30 Thomson Avenue
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The Arsenal
Central Park
New York, New York 10065

ALTA PLANNING + DESIGN
Interpretive Media Designers
10 Clark St
Saratoga Springs, NY 12866
JEFF OLSON
NEW YORK REGISTERED ARCHITECT LICENSE NO. 020560
DATE

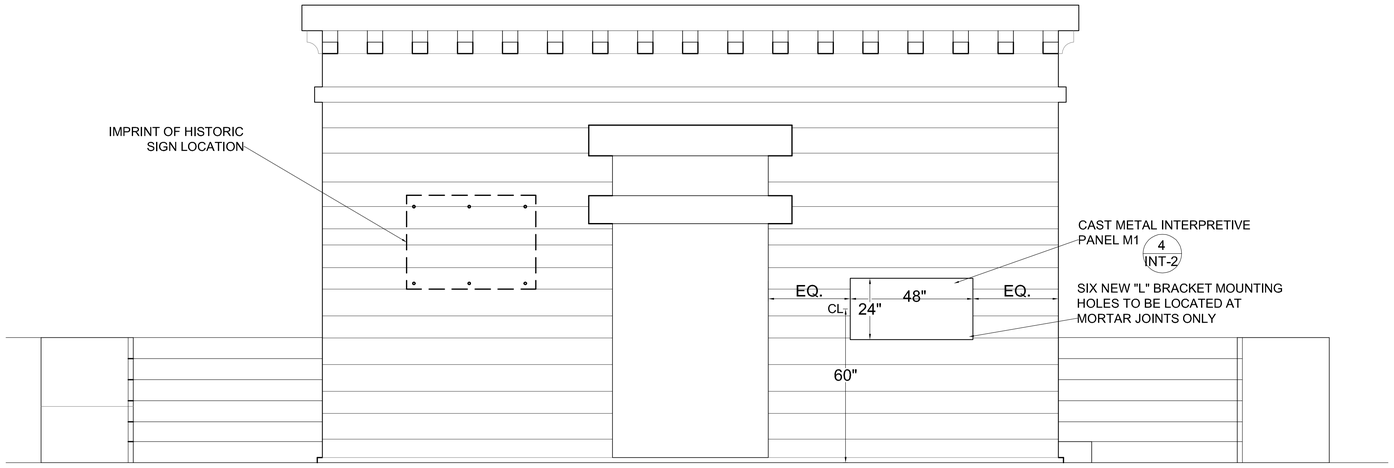
PROJECT TITLE
REHABILITATION OF THE HIGH BRIDGE LOCATED AT THE HARLEM RIVER
BOROUGHS OF MANHATTAN AND BRONX
BIN: 2-24658-0

DRAWING TITLE
CAST METAL INTERPRETIVE MANHOLE COVER PLAN & LAYOUTS

DESIGNED BY	DRAWN BY	CHECKED BY
ALTA PLANNING + DESIGN	ALTA PLANNING + DESIGN	

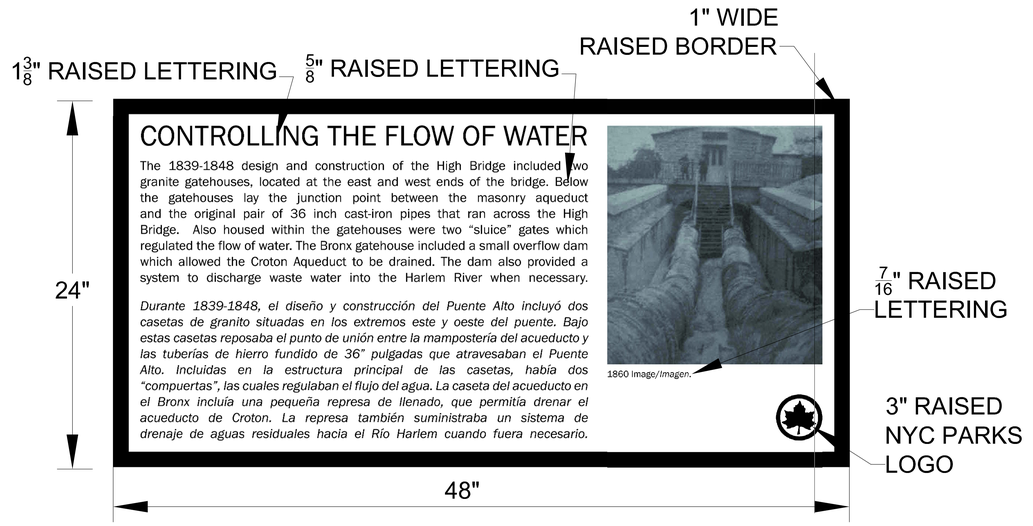
SCALE	DRAWING NO.	CONTRACT NO.
DATE 3/24/2011	INT-1	DDC: 20100020019 Parks: M037-607M PlaNYC

SHEET NO. 1 OF 6 SHEETS



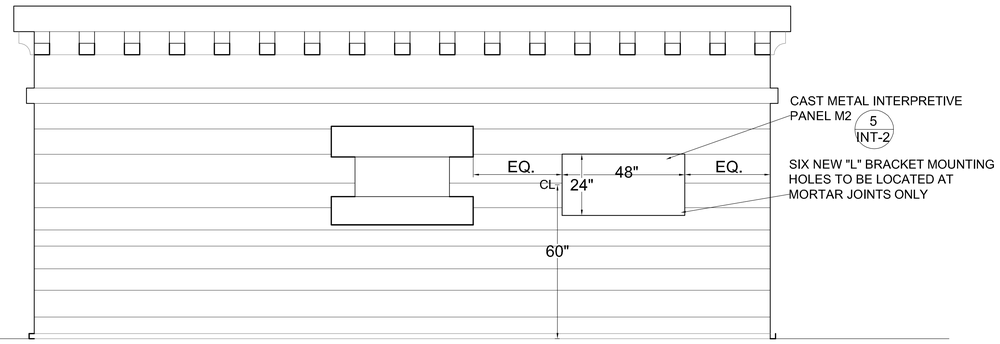
1 MANHATTAN GATEHOUSE EAST ELEVATION

1' 0' 1' 2' 3' 4' 5'



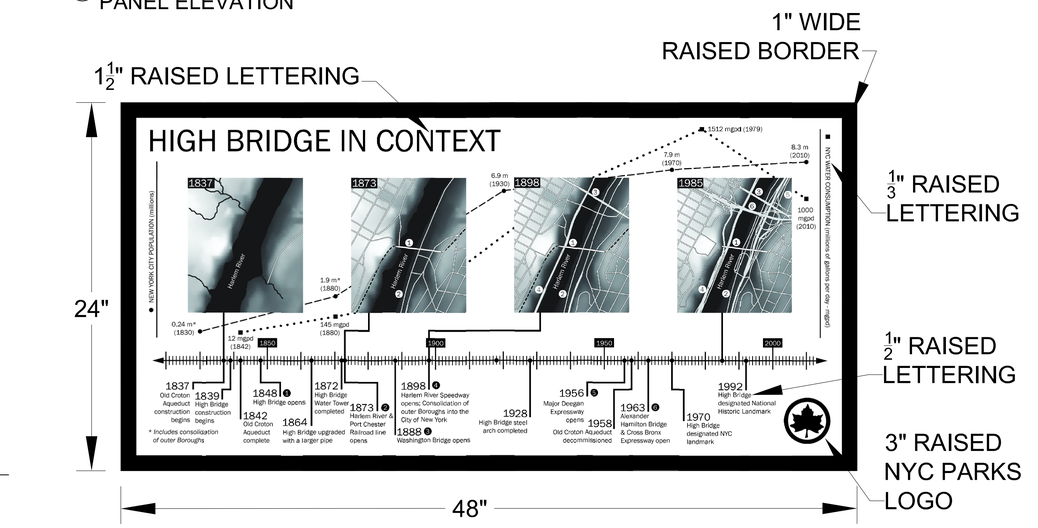
4 CAST METAL INTERPRETIVE PANEL M1 & B1 PANEL ELEVATION

1" 3" 6" 9" 12"



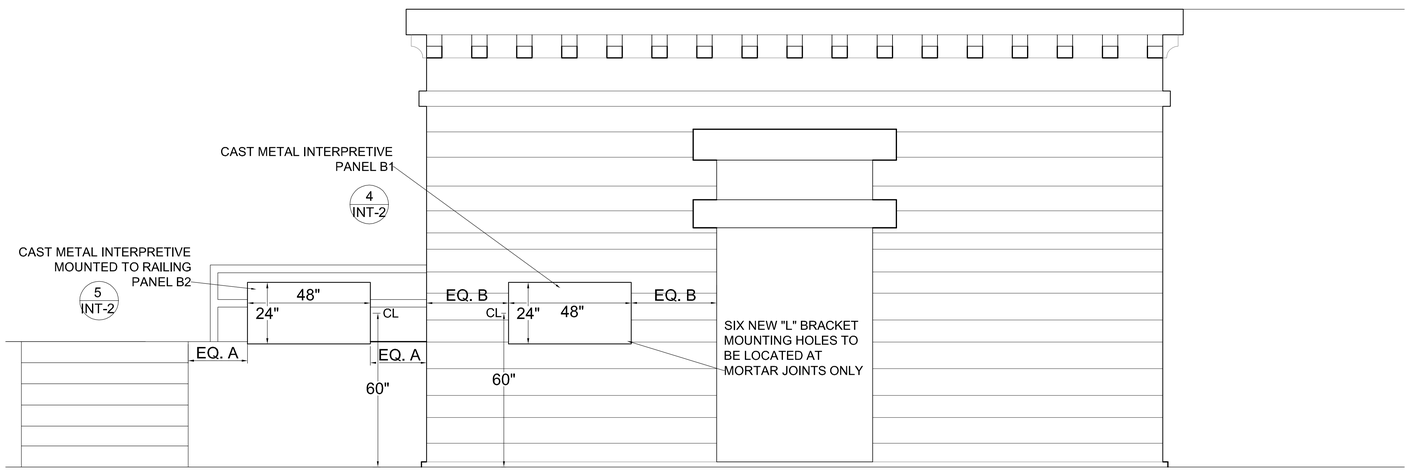
2 MANHATTAN GATEHOUSE WEST ELEVATION

1' 0' 1' 2' 3' 4' 5'



5 CAST METAL INTERPRETIVE PANEL M2 & B2 PANEL ELEVATION

1" 3" 6" 9" 12"



3 BRONX GATEHOUSE WEST ELEVATION

1' 0' 1' 2' 3' 4' 5'

NOTES:

1. ALL PANEL FONTS ARE FRANKLIN GOTHIC BOOK
2. PANELS INCLUDE DRAFT TEXT, SUBJECT TO SUBSEQUENT EDITS BY NYC DPR AND NYC DDC
3. ALL RECESSED/BACKGROUND AREAS TO RECEIVE CHEMICAL PATINA. RAISED AREAS & LETTERING TO BE BUFFED WITH RANDOM ORBITAL SANDING

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New York, New York 10065

ALTA PLANNING + DESIGN
Interpretive Media Designers
10 Clark St
Saratoga Springs, NY 12866

JEFF OLSON
NEW YORK REGISTERED ARCHITECT LICENSE NO. 020560
DATE

PROJECT TITLE
REHABILITATION OF THE HIGH BRIDGE LOCATED AT THE HARLEM RIVER
BOROUGHS OF MANHATTAN AND BRONX
BIN: 2-24658-0

DRAWING TITLE
INTERPRETIVE PANEL ELEVATIONS & DETAILS

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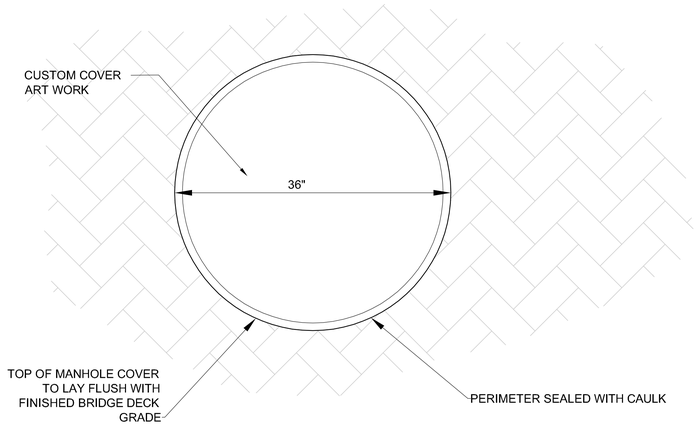
ALTA PLANNING + DESIGN	ALTA PLANNING + DESIGN	

SCALE	DRAWING NO.	CONTRACT NO.
DATE 3/24/2011	INT-2	DDC: 2010002019 Parks: M037-607M PlaNYC
		SHEET NO. 2 OF 6 SHEETS

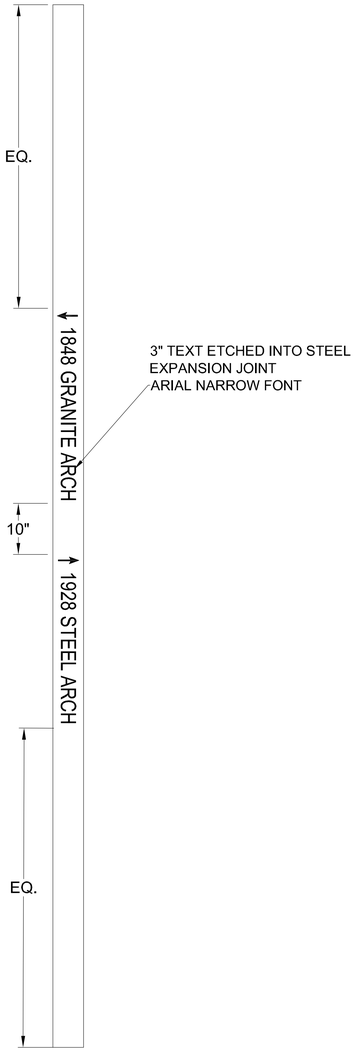


NOTES:

1. COVER MATERIAL SHALL BE CAST BRONZE
2. ALL MEASUREMENTS TO BE VERIFIED IN THE FIELD PRIOR TO METAL CASTING
3. SEE SHEET XX FOR INSTALLATION DETAILS

1 FIXED WATERTIGHT MANHOLE COVER PLAN

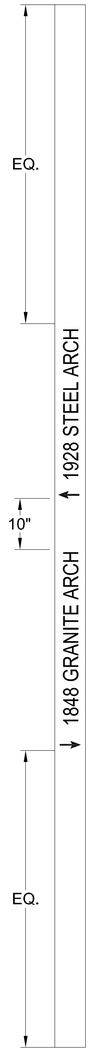
1' 0' 1'



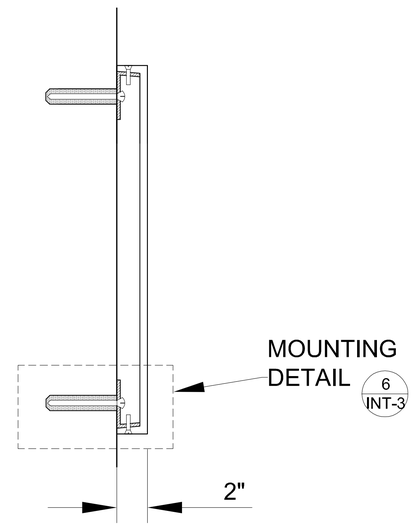
2 WEST EXPANSION JOINT COVER INTERPRETIVE TEXT

1' 0' 1' 2'

3 CENTRAL EXPANSION JOINT COVER INTERPRETIVE TEXT

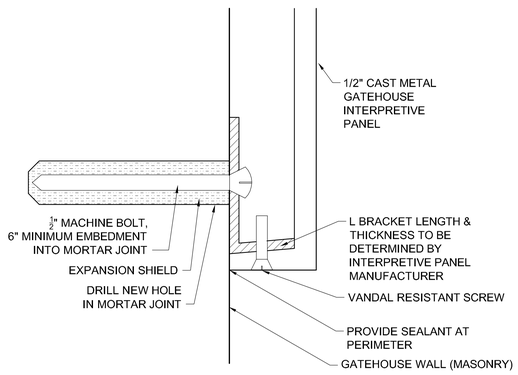


4 EAST EXPANSION JOINT COVER INTERPRETIVE TEXT



5 CAST BRONZE INTERPRETIVE PANEL PANEL SECTION

1" 3" 6" 9" 12"



6 INTERPRETIVE PANEL MOUNTING ANCHOR DETAIL AT MASONRY JOINT (NOT TO SCALE)

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BIN: 2-24658-0

DRAWING TITLE
INTERPRETIVE MEDIA ELEMENTS DETAILS

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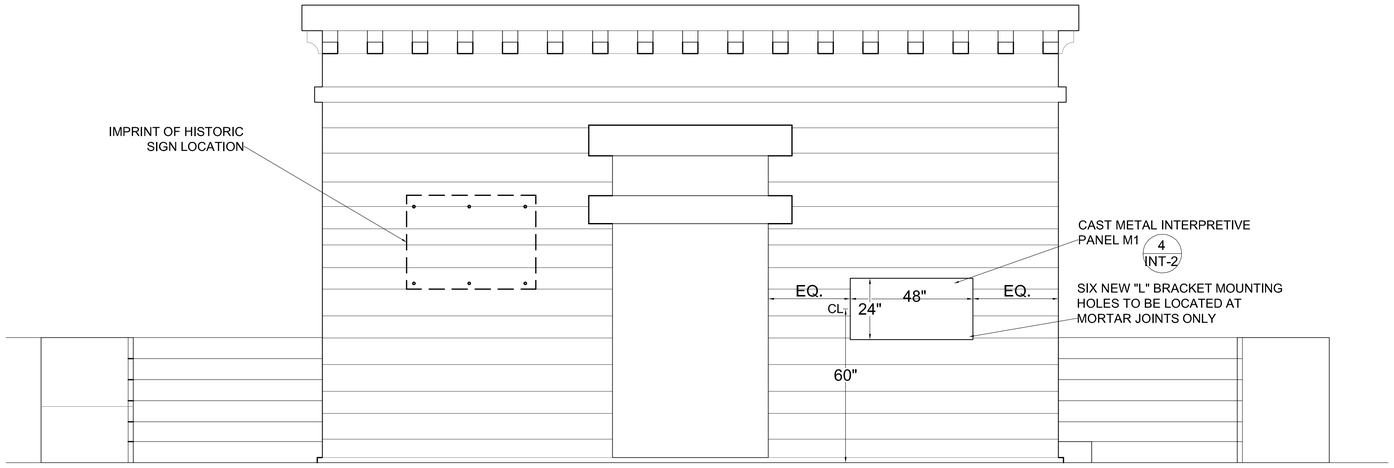
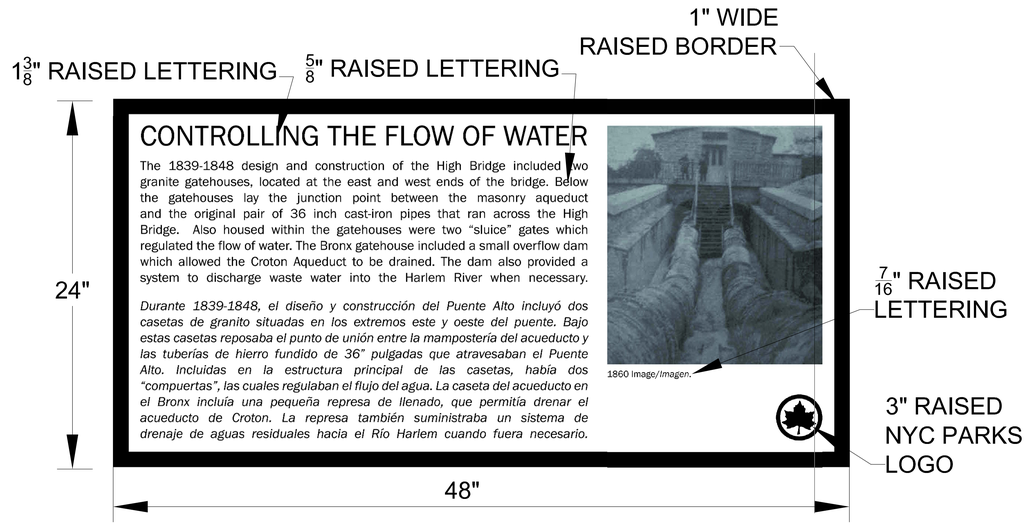
DATE 3/24/2011	INT-3	DDC: 2010002001 9 Parks: M037-607M PlaNYC

SHEET NO. 3 OF 6 SHEETS



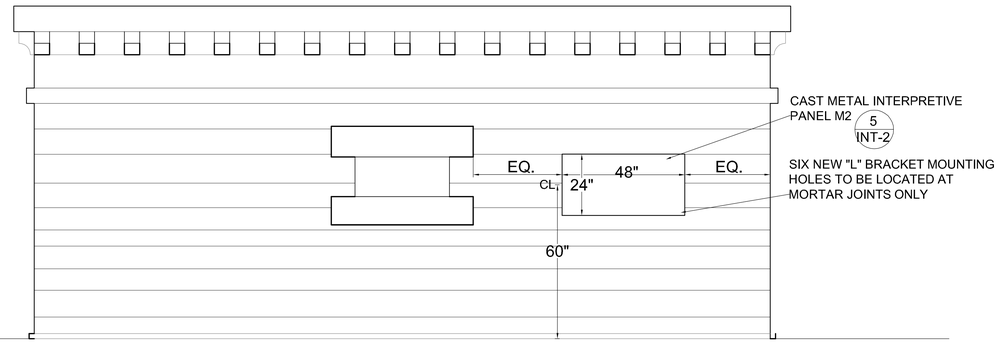
1 MANHATTAN GATEHOUSE EAST ELEVATION

1' 0' 1' 2' 3' 4' 5'



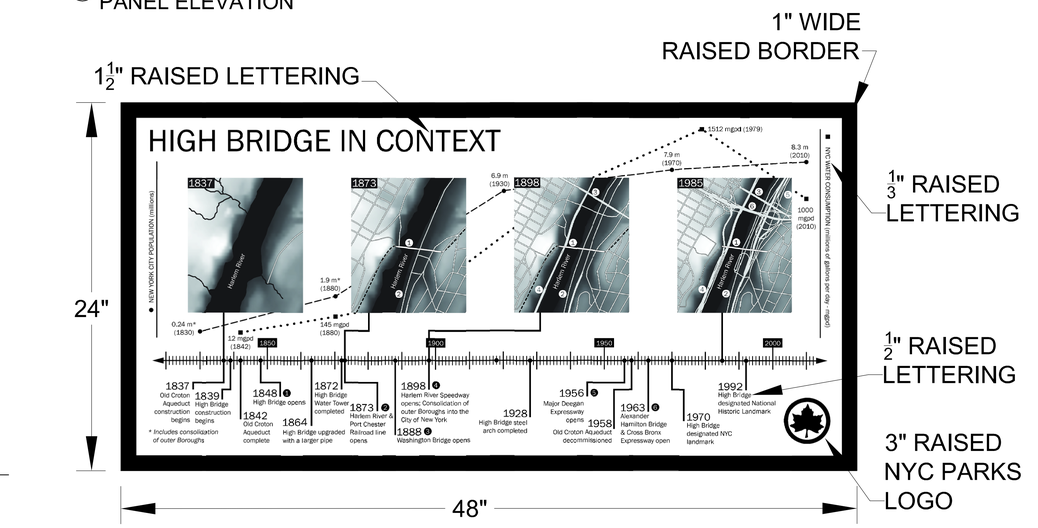
4 CAST METAL INTERPRETIVE PANEL M1 & B1 PANEL ELEVATION

1" 3" 6" 9" 12"



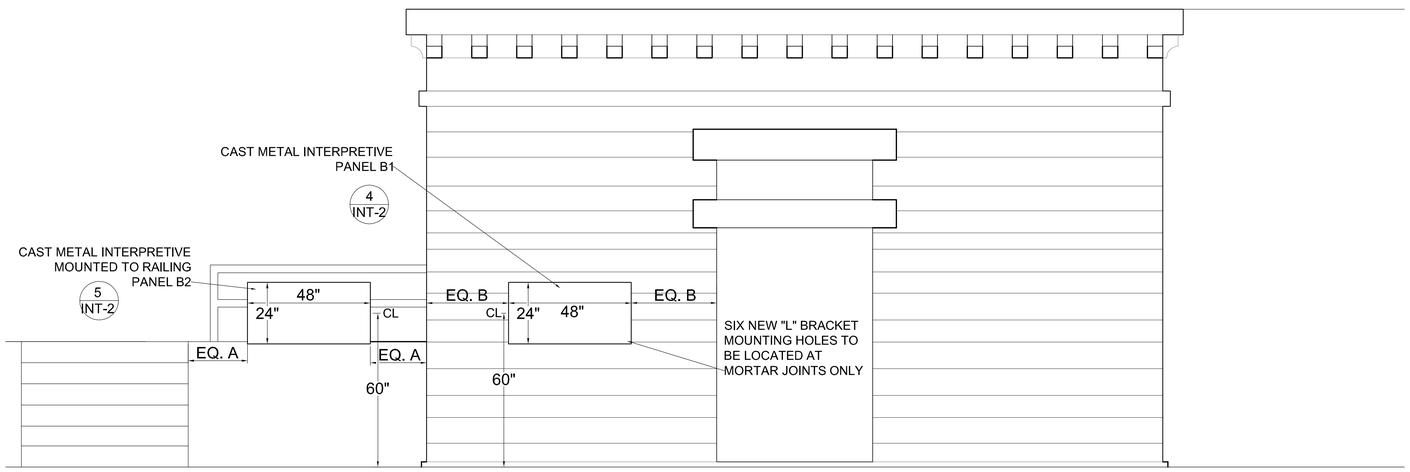
2 MANHATTAN GATEHOUSE WEST ELEVATION

1' 0' 1' 2' 3' 4' 5'



5 CAST METAL INTERPRETIVE PANEL M2 & B2 PANEL ELEVATION

1" 3" 6" 9" 12"



3 BRONX GATEHOUSE WEST ELEVATION

1' 0' 1' 2' 3' 4' 5'

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DRAWING TITLE
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DESIGNED BY	DRAWN BY	CHECKED BY
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SCALE	DRAWING NO.	CONTRACT NO.
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		SHEET NO. 2 OF 6 SHEETS