HISTORICAL PERSPECTIVES INC.

Phase IA Archaeological Documentary Study

Tibbetts Brook Daylighting and
Van Cortlandt Lake Improvements Project

Block 3238, Lots 50, 52 and 126; Block 3245, Lot 12; Block 3264, Lot 20; Block 3266, Lot 11; Block 3267, Lot 72; Block 3268, Lot 30; Block 3269, Lot 118; Block 3270, Lot 75; Block 3271, Lot 100; and Block 5900, Parts of Lots 1, 100, and 150

Bronx County, New York

CEQR # 21DEP049X
NYSOPRHP #21PR03895
NYCDEP Contract # BEPA-WQDC-DCM

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Prepared For:

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EXECUTIVE SUMMARY

The New York City Department of Environmental Protection (NYCDEP), in partnership with the New York City Department of Parks & Recreation (NYC Parks), is proposing the Tibbetts Brook Daylighting and Van Cortlandt Lake[1] Improvements project (proposed project) to reduce the frequency and volume of combined sewer overflows (CSO) within the Wards Island Wastewater Resource Recovery Facility (WRRF) collection system (Figure 1 and Appendix A). The proposed project, located in the Bronx, is part of the Baseline Conditions included in the Citywide/Open Waters Long Term Control Plan (LTCP), which has been developed as part of a CSO Consent Order between DEP and the New York State Department of Environmental Conservation (NYSDEC). The proposed project would reduce annual CSO volume by up to 216 million gallons per year (MGY) and would hydraulically connect Tibbetts Brook and the Harlem River. The proposed project would also create additional open space and recreational opportunities in the surrounding area. As the proposed project focuses on the need to achieve CSO reductions, DEP is responsible for the design of project components related to hydraulics and water conveyance. NYC Parks would be providing design-related input related to landscaping, aesthetics, and surface features.

As part of the proposed project, DEP would construct stormwater management improvements in Van Cortlandt Lake/Hester and Piero's Mill Pond located in Van Cortlandt Park in the Kingsbridge neighborhood of the Bronx, New York. Van Cortlandt Park is a 1,146-acre park located in the Bronx. The proposed project would also include reestablishing a hydraulic connection along the Tibbetts Brook flow corridor with a combination of open and closed conveyance conduits to reconnect Van Cortlandt Lake/Hester and Piero's Mill Pond to the Harlem River. This new conveyance system, along with increased storage capacity in Van Cortlandt Lake/Hester and Piero's Mill Pond, would allow a portion of flow from the lake to bypass the combined sewer collection system, reducing background flows in the combined sewers and thereby reducing CSO flow to the Harlem River during wet weather. The flow from Van Cortlandt Lake/Hester and Piero's Mill Pond would be joined by flow from nearby Jerome Park Reservoir, part of the City's water supply system. Jerome Park Reservoir is currently connected to the Broadway sewer via a discharge pipe, which is used during dry weather to drain Jerome Park Reservoir basins to support DEP's water supply system. As part of the proposed project, an additional interconnection to the daylighted portion of the new conveyance channel within Van Cortlandt Park/Hester and Piero's Mill Pond would be installed, allowing some flow from Jerome Park Reservoir to flow directly to the Harlem River instead of to Wards Island WRRF, which is the WRRF serving the project area. In addition to the anticipated reductions in CSO volume, the proposed project would reduce energy consumption at the Wards Island WRRF by reducing dry-weather pumping and treatment requirements due to the diversion of dry-weather Tibbetts Brook flow to the Harlem River.

Along with creation of the new conveyance channel, the proposed project would include modifications to the existing weir structure at Van Cortlandt Lake/Hester and Piero's Mill Pond, the addition of a new side weir, ecological improvements to the lake's edge, and extension of the Putnam Greenway through construction of a new multi-user greenway in coordination with NYC Parks alongside the western bank of the open channel portion of the proposed conveyance infrastructure, from Van Cortlandt Park South to West 230th Street. From West 230th Street, the conveyance infrastructure would become a closed conduit, routing alongside then under Metropolitan Transportation Authority (MTA) Metro-North Railroad (MTA Metro-North) tracks and bypassing an existing flow regulation structure (Regulator WI-67 to Ward's Island WRRF) to direct flow to an existing outfall (WI-056) on the Harlem River.

The Area of Potential Effects (APE) for the proposed project is where ground impacts are slated to occur. The APE is divided into three main sections (Appendix A).

1. The northern section is within Van Cortlandt Park (Figures 2a and 2b), and includes the southern end of Van Cortlandt Lake/Hester and Piero's Mill Pond where the proposed new weir will be located, and an irregularly-shaped area south of the lake including portions of walking paths and the Old Putnam Trail where a new open channel of Tibbetts Brook, wetlands, and pathways are proposed. This section is all within portions of Block 5900.
2. The central section is the CSX-owned corridor that is no longer used for railroad traffic (Figures 2c, 2d, 2e, 2f and 2g). It stretches from Van Cortlandt Park South to West 230th Street. The corridor, the majority of

[1] In 2021 Van Cortlandt Lake was renamed Hester and Piero's Mill Pond. For this report, Van Cortlandt Lake is used when referring to the historic past, and both terms are used when referring to present conditions.

which is approximately 40 feet wide, is bounded by the Major Deegan Expressway (Interstate 87) on the east and private properties on the west. From north to south, it includes lots within Blocks 3271, 3270, 3269, 3268, 3267, and 3266. This section is proposed for the new Putnam Greenway and an open channel of Tibbetts Brook.

3. The southern section is the MTA Metro-North-owned corridor and rail yard that contains active rail tracks (Figures 2g, 2h, and 2i). It extends from West 230th Street to the Harlem River outfall just south of West 193rd Street. From north to south, it includes lots within Blocks 3264, 3245, and 3238. This section is proposed to contain an enclosed conduit that carries Tibbetts Brook from the open channel within the CSX parcels south to the existing WI-056 outfall on the Harlem River.

Each of the three project sections has specific subsurface impacts associated with proposed project elements. A detailed description of each section and the proposed cutting and filling activities has been prepared by Hazen & Sawyer and is included, with relevant plan and cross section images, in Appendices B, C, and D.

As part of the environmental review process, project materials were submitted to the New York State Preservation Office (SHPO) and the New York City Landmarks Preservation Commission (LPC). The SHPO responded:

> Thank you for requesting the comments of the New York State Historic Preservation Office (SHPO). We have reviewed the provided documentation in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources.
>
> We note that the project area is partially located within the State and National Register listed Frederick Van Cortlandt House property, and that State and National Register-eligible Major Deegan Expressway and the S/NR-eligible Church of the Visitation of the Blessed Virgin Mary Church complex are located within a 400-foot radius of the project area. We have reviewed the project description and supporting documentation that were provided to our office on June 11th, 2021. Based upon our review, it is SHPO's opinion that the proposed work will have No Adverse Effect on historic resources (Brazee 7/7/2021).

The LPC responded:

> LPC review of archaeological sensitivity models and historic maps indicates that there is potential for the recovery of remains from colonial, 19th Century and Native American occupation on the project site. Accordingly, the Commission recommends that an archaeological documentary study be performed for this site to clarify these initial findings and provide the threshold for the next level of review, if such review is necessary (see CEQR Technical Manual 2020) (Santucci 6/30/2021).

The LPC identified the following locations as properties "with archaeological but no architectural significance":

1) WEST 192 STREET, BBL: 2032380050
2) WEST 192 STREET, BBL: 2032380052
3) WEST KINGSBRIDGE RD, BBL: 2032380126
4) WEST 192 STREET, BBL: 2032450012
5) 2845 WEST KINGSBRIDGE RD, BBL: 2032640020
6) WEST 230 STREET, BBL: 2032660011
7) 181 WEST 231 STREET, BBL: 2032670072
8) 115 WEST 233 STREET, BBL: 2032680030
9) 177 WEST 236 STREET, BBL: 2032690118
10) WEST 236 STREET, BBL: 2032700075
11) WEST 238 STREET, BBL: 2032710100
12) 3545 JEROME AVENUE, BBL: 205900000
13) JEROME AVENUE, BBL: 2059000100
14) 6200 BROADWAY, BBL: 2059000150

Following LPC's recommendation that an archaeological documentary study be performed for this site, Hazen & Sawyer, working under contract to NYCDEP, retained Historical Perspectives, Inc. (HPI) to conduct the work, which is summarized in this report. This Phase IA Archaeological Documentary Study has been prepared to satisfy the requirements of the City Environmental Quality Review (CEQR), and to comply with the standards of the LPC (LPC 2018; CEQR 2020).

Results of the Phase IA Archaeological Documentary Study indicated that overwhelming evidence exists that Native Americans exploited the natural resources surrounding Tibbetts Brook and its tributaries for thousands of years before the arrival of Europeans. Dozens of precontact sites have been recorded within a one-mile radius of the project site. A number of these precontact sites were recorded within the present Van Cortlandt Park, in close proximity to the project site. Other previously recorded precontact sites along the former Tibbetts Brook corridor in Kingsbridge were located in close proximity to CSX and Metro-North sections of the project site. The LPC indicates that the entire project site is within an area of high precontact archaeological sensitivity, based on its proximity to Tibbetts Brook, the Harlem River and the known precontact sites in this vicinity (Boesch 1996).

Prior to historic period development in the project site, all level areas on firm ground and in proximity to Tibbetts Brook would have been sensitive for precontact occupation and use. This would include most areas within Van Cortlandt Park, and some discrete portions of the CSX and Metro-North corridor that were not within natural marshlands. It is less likely that naturally marshy areas would have had precontact occupation that would have resulted in identifiable archaeological resources. That said, the marshes themselves would have been a precontact resource for their aquatic life, wild game, and vegetation. As well, wetlands provided peat that could be used for fuel and a number of plants that served as materials for clothing, basketry and weaving. As importantly, the use of certain aquatic plants for medicinal purposes is ethnographically documented (Herrick 1995).

Additionally, prior to the creation of the marshlands after the last Ice Age, those wet areas may have been dry land. Although there is a slim possibility that precontact period archaeological sites from this period, dating from the Paleo Indian period through parts of the Archaic period, could remain capped by later marshland soils that accrued after the sea level rise, ca. 2000-4000 B.P, to date there has been no evidence in the Bronx to suggest that these types of sites have survived. In proximity to the project site corridor the earliest precontact period sites, from the Middle Archaic period, only have been recorded at higher elevations along the ridgeline overlooking the Hudson River. The vast majority of all precontact period archaeological sites recorded in proximity to the project site corridor have dated to the Woodland Period, a time after the marshlands were formed.

Determining potential precontact archaeological sensitivity within the project site involves assessing the likelihood that such resources may once have existed, coupled with the likelihood that these resources may have survived any subsequent disturbance to the soil column. As described above, much of the project site may once have been sensitive for precontact archaeological resources. However, there has been very substantial disturbance to the original landform from grading and filling associated with hundreds of years of historic use of the area.

Within the northern portion of the Van Cortlandt Park section of the APE, construction of the mills, the mill dam, and mill races, and demolition of the mills, infilling of the mill races, and reconstruction of the mill dam in 1904 has vastly altered the original topography. As well, construction of the original railroad tracks and station, and later raising the railroad tracks above the parkland and constructing a new station further disturbed the original landform. Finally, grading and filling within the park, and construction of walking paths and bridges has affected the original landscape. HPI concludes that there is only one location within Van Cortlandt Park that could still potentially contain relatively undisturbed soils, to the west of the former railroad tracks and south of the 1904 railroad bridge. This location is shown on Figure 12a.

Within the CSX and Metro-North portions of the APE, there has been significant disturbance from grading and filling associated with the 1870s railroad construction and subsequent upgrades to the tracks, as well as from construction of the roadway bridges crossing the tracks, the retaining walls separating the corridor from abutting buildings to the west, and construction of the Major Deegan Expressway immediately to the east of the APE. There are no longer railroad tracks within the CSX portion of the project site. The majority of the CSX and Metro-North portions of the APE also will not experience significant impacts from the proposed project, since much of the area will be raised in elevation rather than graded.

One exception is the stretch between West 238th Street to West 239th Street, where several feet of existing soil will need to be removed to connect two lower lying areas to the north and south, as shown in Appendix D. This naturally higher landform once overlooked wetlands surrounding Tibbetts Brook, and if not disturbed or if capped by fill, could contain precontact potential. This location is shown on Figure 12b. HPI concludes that there is a much lower possibility for precontact archaeological resources to remain buried within the remainder of the CSX and Metro-North portions of the APE, as grading and disturbance likely have substantially affected the original landforms. Proposed geotechnical and environmental soil borings planned for these areas could confirm the degree of disturbance along the railroad corridor.

Historic use of the project site was concentrated in two general locations.

One was at the northernmost end of the project corridor in Van Cortlandt Park, where Tibbetts Brook was dammed to form a mill pond, and a saw mill and a grist mill were constructed. This location is shown on Figure 12a. The first mill dam was constructed by 1700, likely to the south of the current dam, although the precise location of the first mill dam is unknown. The first grist mill was constructed near this dam. The second mill dam was constructed in 1823, in the approximate location of the present dam. The grist mill was moved from its original location when the second mill dam was built, and a second story was added. A saw mill was constructed directly across from the grist mill along the same mill race, also in about 1823. Both mills, which were located just south of the current dam, were taken out of service in the late 1880s when the area became parkland, but remained standing for a number of years afterwards. The grist mill was destroyed by lightning in 1900 and the saw mill was razed in 1903. The dam was reconstructed in 1904 in the same location as the nineteenth-century dam, although it is unclear whether the 1904 dam completely replaced the earlier dam or incorporated any of the earlier dam elements into the new dam. To the southeast of the mill dam and on the west side of the railroad tracks, were two Van Cortlandt Park railroad stations, the first constructed in the 1870s and the second replacing the earlier one after 1904, when the tracks were elevated above the existing grade, necessitating a higher building to meet the level of the tracks. Neither station building is extant.

The second locus of historic period occupation within the project site was the Kingsbridge neighborhood, from approximately West 230th Street to West 232nd Street, as shown on Figure 12c. Prior to creation of the current city street grid, the Road to Albany was one of the main thoroughfares through this area. Today, the route of this historic roadway follows the approximate line of Albany Crescent, which is cantilevered out over the Major Deegan Expressway. During the eighteenth, nineteenth, and through the mid-twentieth centuries, this roadway was at the same elevation as the project site, and there were buildings located along its western side from south of what is now West 231st Street to north of West 232nd Street. The buildings were demolished to make way for the Major Deegan Expressway in the 1950s. Originally the rear yards of these building lots extended west into the project site. When the railroad was constructed in the 1870s, these yards were truncated. In conjunction with the railroad construction, the Kingsbridge railroad station was erected at the southeast corner of what is now the West 230th Street crossing. This railroad station is no longer extant, as its former location also falls within the Major Deegan Expressway footprint.

As with the precontact archaeology conclusions, above, determining potential historic period archaeological sensitivity within the project site involves assessing the likelihood that such resources may once have existed, coupled with the likelihood that these resources could still survive despite the same subsequent disturbances discussed above. Within Van Cortlandt Park, there is a moderate potential for the recovery of the former grist and saw mill foundations, if they were not removed when the 1904 dam was constructed. It is also possible that the former stone-lined mill races could be buried in this area. As well, there is a possibility that some portions of the 1823 mill dam could exist beneath the present 1904 dam. There are also several concrete remnants on the west side of the former railroad tracks that represent remains of subsequent, ancillary structures associated with the railroad, just outside the APE.

Within the Kingsbridge portion of the APE, there is a moderate potential for the recovery of truncated, buried shaft features, such as privies, wells, and cisterns, associated with the former buildings on the west side of the Road to Albany (now Albany Crescent). These buildings predated the introduction of municipal water and sewer service to this area by many decades, leaving the residents to rely on private wells, cisterns, and privies for their needs. Masonry and wooden portions of these abandoned and truncated shaft features are often encountered because their deeper and therefore earlier layers remain undisturbed by subsequent construction, and in fact, construction often

preserves the lower sections of the features by sealing them beneath fill layers. Privies were located furthest from the buildings, often along the rear lot lines, while wells and cisterns frequently (but not always) were located closer to the rear walls of street-fronting buildings or outbuildings. Privies and cisterns could be excavated up to 10-15 feet below grade, while wells would need to be excavated as deep as the water table.

Identifying and examining buried features associated with the eighteenth and nineteenth century occupation of the project site may reflect the daily activities of the residents and provide insight into cultural behavior of the local residents. If undisturbed deposits of cultural material do still exist on the project site, they may have the potential to provide meaningful information regarding the lives of the people who lived there. When recovered from their original context and in association with a specific historical occupation, historical deposits can provide a wealth of information about consumption patterns, consumer choice, gender relations, ethnicity, economic status, and other important issues.

Although there has been disturbance in this area associated with the railroad and later with construction of the Major Deegan Expressway, there is still the potential that these shaft features could be at least partially preserved, particularly if the lower reaches were stone or wood lined and/or parged with cement, which would have been less likely to have been destroyed during later grading and filling activities.

HPI concludes that outside of these two loci, the remainder of the project site has a low sensitivity for historic period archaeological resources.

Based on the results of the Phase IA Archaeological Documentary Study research, HPI recommends that planned geotechnical and environmental soil borings for the project site be reviewed by an archaeologist when they are completed to see whether intact strata that could have supported precontact occupation (such as a buried A or B soil horizon) survive beneath the disturbed soils that are expected to be found, particularly along the CSX and Metro-North portions of the corridor. Within former marshland areas, soil boring evidence also includes the presence/absence of a thick peat lens, organic or silty deposits, a shell midden, or other precontact period cultural remains.

At this time, only one area within Van Cortlandt Park and one section of the CSX corridor, between West 238th Street and West 239th Street, have been identified as potentially sensitive for precontact period archaeological resources, as shown on Figures 12a and 12b. Review of the planned soil boring results could both further refine whether these areas may or may not be archaeologically sensitive, as well as possibly identify other locations along the project site corridor that could have precontact period archaeological potential. It is expected, however, that the majority of the project site corridor will exhibit disturbed soils in the upper soil column, which would be confirmed by the soil boring results.

Review of the soil boring results should also include a discussion of final proposed project impacts in any locations that may have precontact archaeological sensitivity, to determine whether the project could affect these resources, or if they would not be impacted. If the soil boring review concludes that there are areas of the project corridor that are both sensitive for precontact archaeological resources and that will be disturbed by project activities, then professional archaeologists should develop an archaeological Work Plan, in consultation with the LPC, that would describe the proposed archaeological field testing methods associated with such work.

HPI also has identified two discrete areas of potential historic period archaeological sensitivity within the project site. The first is the location of the former mill dam and mills at the northern end of the project site corridor in Van Cortlandt Park, as shown on Figure 12a. Although geotechnical and environmental soil borings are proposed for this area, the results would not necessarily identify whether remains of these structures and mill races are still extant in this location. HPI therefore recommends that archaeological testing or monitoring be conducted in the APE along the southern side of the existing dam to determine the presence or absence of any mill complex remains. The precise archaeological investigation methods should be described in an archaeological Work Plan that considers the proposed project work (including removal of trees and stumps in this area and subsequent grading and filling) and the most efficient way to determine the presence or absence of mill resources. In addition, HPI recommends that any subsurface exposure of the existing dam, in conjunction with installation of the new side weir north of the dam and the 42-inch pipe to be bored through the dam, be monitored and photodocumented as necessary. This

photodocumentation would serve to both confirm the construction of the existing 1904 dam and to ascertain whether any remnants of the earlier 1823 mill dam are in association with the 1904 dam in the APE.

The second area of potential historic period archaeological sensitivity is between West 230th Street to West 232nd Street, where it is possible that truncated eighteenth and nineteenth-century shaft features, such as privies, wells, and cisterns, could be extant in the former rear yards of lots fronting the Road to Albany, as shown on Figure 12c. Proposed project plans indicate that the majority of this area will be filled rather than graded. The exception is the proposed retaining wall that will be installed along the existing barrier of the Major Deegan Expressway. This wall is proposed to extend seven feet below grade. It is possible that installation of this wall could reveal remains of shaft features that were once located in the rear yards of these lots. The proposed soil borings along this stretch of the project site corridor would not necessarily detect the potential shaft features, unless there was a coincidental placement of a boring in the precise feature location. HPI therefore recommends that archaeological monitoring be conducted along the proposed retaining wall, at locations to be determined in an archaeological Work Plan.

As this project moves forward and plans are finalized, the team should continue to consult with the LPC, the NYCDEC, and NYCDPR as to the timing of the soil boring programs, review of these programs by a qualified professional archaeologist, the creation of an Archaeological Work Plan, and any archaeological field testing and/or monitoring. All archaeological testing and/or monitoring should be conducted according to OSHA regulations and applicable archaeological standards (LPC 2018; CEQR 2020). Professional archaeologists, with an understanding of and experience in urban archaeological excavation techniques, would be required to be part of the archaeological team.

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Photograph 20. The CSX-owned portion of the APE, looking northeast from West 233rd Street.

Photograph 21. The CSX-owned portion of the APE, looking southwest from West 233rd Street.

I. INTRODUCTION[2]

The New York City Department of Environmental Protection (NYCDEP), in partnership with the New York City Department of Parks & Recreation (NYC Parks), is proposing the Tibbetts Brook Daylighting and Van Cortlandt Lake[3] Improvements project (proposed project) to reduce the frequency and volume of combined sewer overflows (CSO) within the Wards Island Wastewater Resource Recovery Facility (WRRF) collection system (Figure 1 and Appendix A). The proposed project, located in the Bronx, is part of the Baseline Conditions included in the Citywide/Open Waters Long Term Control Plan (LTCP), which has been developed as part of a CSO Consent Order between DEP and the New York State Department of Environmental Conservation (NYSDEC). The proposed project would reduce annual CSO volume by up to 216 million gallons per year (MGY) and would hydraulically connect Tibbetts Brook and the Harlem River. The proposed project would also create additional open space and recreational opportunities in the surrounding area. As the proposed project focuses on the need to achieve CSO reductions, DEP is responsible for the design of project components related to hydraulics and water conveyance. NYC Parks would be providing design-related input related to landscaping, aesthetics, and surface features.

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Along with creation of the new conveyance channel, the proposed project would include modifications to the existing weir structure at Van Cortlandt Lake/Hester and Piero's Mill Pond, the addition of a new side weir, ecological improvements to the lake's edge, and extension of the Putnam Greenway through construction of a new multi-user greenway in coordination with NYC Parks alongside the western bank of the open channel portion of the proposed conveyance infrastructure, from Van Cortlandt Park South to West 230th Street. From West 230th Street, the conveyance infrastructure would become a closed conduit, routing alongside then under Metropolitan Transportation Authority (MTA) Metro-North Railroad (MTA Metro-North) tracks and bypassing an existing flow regulation structure (Regulator WI-67 to Ward's Island WRRF) to direct flow to an existing outfall (WI-056) on the Harlem River.

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[2] Portions of this section are excerpted and adapted from the project's Draft Environmental Assessment (NYCDEP 2021).

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5. The central section is the CSX-owned corridor that is no longer used for railroad traffic (Figures 2c, 2d, 2e, 2f and 2g). It stretches from Van Cortlandt Park South to West 230th Street. The corridor, the majority of which is approximately 40 feet wide, is bounded by the Major Deegan Expressway (Interstate 87) on the east and private properties on the west. From north to south, it includes lots within Blocks 3271, 3270, 3269, 3268, 3267, and 3266. This section is proposed for the new Putnam Greenway and an open channel of Tibbetts Brook.
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> Thank you for requesting the comments of the New York State Historic Preservation Office (SHPO). We have reviewed the provided documentation in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources.
>
> We note that the project area is partially located within the State and National Register listed Frederick Van Cortlandt House property, and that State and National Register-eligible Major Deegan Expressway and the S/NR-eligible Church of the Visitation of the Blessed Virgin Mary Church complex are located within a 400-foot radius of the project area. We have reviewed the project description and supporting documentation that were provided to our office on June 11th, 2021. Based upon our review, it is SHPO's opinion that the proposed work will have No Adverse Effect on historic resources (Brazee 7/7/2021).

The LPC responded:

> LPC review of archaeological sensitivity models and historic maps indicates that there is potential for the recovery of remains from colonial, 19th Century and Native American occupation on the project site. Accordingly, the Commission recommends that an archaeological documentary study be performed for this site to clarify these initial findings and provide the threshold for the next level of review, if such review is necessary (see CEQR Technical Manual 2020) (Santucci 6/30/2021).

The LPC identified the following locations as properties "with archaeological but no architectural significance":

1) WEST 192 STREET, BBL: 2032380050
2) WEST 192 STREET, BBL: 2032380052
3) WEST KINGSBRIDGE RD, BBL: 2032380126
4) WEST 192 STREET, BBL: 2032450012
5) 2845 WEST KINGSBRIDGE RD, BBL: 2032640020
6) WEST 230 STREET, BBL: 2032660011
7) 181 WEST 231 STREET, BBL: 2032670072
8) 115 WEST 233 STREET, BBL: 2032680030
9) 177 WEST 236 STREET, BBL: 2032690118
10) WEST 236 STREET, BBL: 2032700075
11) WEST 238 STREET, BBL: 2032710100
12) 3545 JEROME AVENUE, BBL: 205900000
13) JEROME AVENUE, BBL: 2059000100

14) 6200 BROADWAY, BBL: 2059000150

Following LPC's recommendation that an archaeological documentary study be performed for this site, Hazen & Sawyer, working under contract to NYCDEP, retained Historical Perspectives, Inc. (HPI) to conduct the work, which is summarized in this report. This Phase IA Archaeological Documentary Study has been prepared to satisfy the requirements of the City Environmental Quality Review (CEQR), and to comply with the standards of the LPC (LPC 2018; CEQR 2020).

II. RESEARCH DESIGN AND METHODOLOGY

The goals of the research design for the present study were twofold. The archival component of the research design was formulated to provide both a general and site-specific history of the project site and immediate vicinity, from the precontact, colonial, and nineteenth-century periods, and to determine the potential significance of any possible archaeological resources from these periods. At the same time, the data gathering component was intended to determine the degree of disturbance across the project site from subsequent earthmoving activities, which could have destroyed potential archaeological resources. Present project plans then were consulted to determine where new subsurface work could affect any areas that may not have been extensively disturbed.

The research methodology for the present study entailed review of various resources.

- Primary and secondary sources concerning the general precontact period and history of the Kingsbridge area and specific events associated with the project site and vicinity were reviewed using materials available at the New York Public Library, the Bronx Historical Society, the Kingsbridge Historical Society, the library of HPI, and using online resources.
- Historic maps and photographs were searched using materials available at the New York Public Library, the NYC Parks Olmsted Center Archives, the Bronx Historical Society, the Kingsbridge Historical Society, the New-York Historical Society, the New York City Municipal Archives, the library of HPI, and using various online websites. These maps provided an overview of the topography and a chronology of land usage for the project site. A selection of these maps has been reproduced for this report. Appendix E includes a number of historic photographs of the project site.
- The project sponsors provided As-Built, reconstruction, utilities, and existing conditions drawings for the project site, the abutting Major Deegan Expressway (Interstate 87), many of the roadways crossing over the project site, and the Harlem River outfall.
- Limited deed research was undertaken using materials from the Westchester County Clerk's office.
- Because the project site is vacant, Department of Building records are not relevant for this study.
- Information about previously recorded archaeological sites and surveys in the area was compiled from data available at the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP), the LPC, and the library of HPI. Selected pages from a cultural landscape survey of Van Cortlandt Park are included as Appendix F (Wilde 2003).

Last, a site visit was conducted by Julie Abell Horn of HPI on January 28, 2022 to assess any obvious or unrecorded subsurface disturbance (Photographs 1-29; Figures 2a-i). Nick Dembowski, who serves dual roles as the President of the Kingsbridge Historical Society and Director of the Van Cortlandt Park Museum, participated in the site visit within Van Cortlandt Park and provided expert guidance about the park's history.

III. CURRENT CONDITIONS AND ENVIRONMENTAL SETTING

A. Current Conditions

As noted in the Introduction, the APE contains three sections. Existing conditions for each of these sections are described, below. The sections are described from north to south. Photograph locations are shown on Figures 2a-2i.

Van Cortlandt Park (Figures 2a-2b; Photographs 1-12)

The northernmost portion of the APE is within Van Cortlandt Park, a New York City-owned property. This section of the APE extends from the southern end of Van Cortlandt Lake/Hester and Piero's Mill Pond to the roadway at Van Cortlandt Park South. The APE is irregularly-shaped, and includes portions of the Old Putnam Trail, which formerly was part of the New York and Putnam Railroad, as well as low-lying areas adjacent to the trail and south of the lake.

The southern end of Van Cortlandt Lake/Hester and Piero's Mill Pond contains a dam and causeway that holds back the water of Tibbetts Brook and Van Cortlandt Lake/Hester and Piero's Mill Pond, which was constructed and/or reconstructed in 1903, replacing an earlier dam (Photographs 1, 2, and 3). There is a spillway at the southwestern edge of the lake, outside of the APE, that channels the lake water into the existing CSO sewer. Previously, the area just south of the existing causeway and overlapping the APE contained a saw mill and a grist mill, which are no longer extant. The grist mill was destroyed by lightning in 1900 and the saw mill was demolished in 1903. Although there is no visible trace of the superstructures of these former mills, it is possible that there could be remains of their foundations below grade. One location near the former mills has a pile of cut stones eroding out of the soil (Photographs 4 and 5). Appendix F provides a brief history of the lake and mills, from a 2003 cultural landscape survey report for Van Cortlandt Park (Wilde 2003). An additional historic photograph of the mills is included in Appendix E.

The portion of the APE just south of the causeway also once contained a mill race and a sluiceway. The mill race channeled water from the lake in between the two mills. The sluiceway, located east of the mills, ran from the lake around the southern side of the mills. According to mid-1930s topographical surveys (Figure 11), the mill race and the sluiceway, which merged together just south of the mills, were lined with stones. The combined drainage then flowed southwest, passing under two wooden bridges, before turning west and eventually entering into an enclosed pipe that linked with the main sewer under Broadway. There is no visible evidence of the former mill race and sluiceway on the ground surface of the APE today, although again it is possible that remains of the stone-lined channels could be present below the current grade of the area.

The area of the APE immediately south of the causeway is covered with a scatter of small diameter trees, low vegetation (including invasive wetland species such as phragmites), and leaf litter (Photograph 6). There are areas, particularly just south of the causeway which also serves as a walking path, where parks personnel and visitors have deposited landscaping debris and trash. The ground surface is uneven and appears to include quantities of fill or redeposited soils.

The eastern side of the APE in this area consists of the former New York Central Railroad's Putnam Division corridor, now containing parts of the Old Putnam Trail near the lake. The portion of the former railroad corridor immediately south of Van Cortlandt Lake/Hester and Piero's Mill Pond is atop a raised berm that is approximately 10 feet higher than the surrounding landform, at approximately elevation 20. The remains of a platform waiting area with a steel canopy are located here (Photograph 7). There is a railroad bridge, constructed in 1904, which carries the Old Putnam Trail over an intersection of other unnamed walking paths, which connect to Van Cortlandt Park Avenue West along the eastern side of the APE (Photograph 8). There were two former railroad stations located near this bridge. One station was constructed at the same approximate time as the bridge, and an earlier station was situated in the same general area prior to 1904. Images of both stations are included in Appendix F, and a brief history of some of the railroad features is included in Appendix E. No station remains are evident today. The Old Putnam Trail terminates to the south of the 1904 railroad bridge. The former railroad corridor landform then slopes down as it continues to the south, eventually becoming a depressed channel that is lower in elevation than the surrounding terrain (Photograph 9). All portions of the former railroad corridor, where tracks and stations were located, appear heavily disturbed.

To the west of the Old Putnam Trail and south of the former mill locations, the area becomes wetter, with a preponderance of invasive marshland vegetation. This area once contained the channel of Tibbetts Brook. A wooden walkway, part of the John Kiernan Nature Trail, provides pedestrian access through a portion of the marshlands (Photograph10). This walkway loosely mirrors the former route of the Albany Post Road that once ran through this area. South of the marshlands and continuing west of the Old Putnam Trail, there is an area of

woodland with light understory, which does not appear to be heavily disturbed from prior earthmoving (Photograph 11).

The Van Cortlandt Park section of the APE terminates at Van Cortlandt Park South. Here, the former railroad corridor passes under the elevated bridge carrying Van Cortlandt Park South over the APE, and continues south to the CSX-owned property, described below (Photograph 12).

CSX-owned corridor (Figures 2c-2g; Photographs 13-24)

The APE within the CSX-owned corridor runs from Van Cortlandt Park South on the north to West 230th Street on the south. It is crossed by overpasses at West 238th Street, West 234th Street, West 233rd Street, and West 231st Street. The corridor, the majority of which is approximately 40 feet wide, is bounded by the Major Deegan Expressway (Interstate 87) on the east and private properties on the west. The APE is separated from the Major Deegan by concrete retaining walls along the entire length of the CSX corridor. Other types of retaining walls or building walls mark the western edge of the APE. The exception is the stretch between Van Cortlandt Park South and West 239th Street, where the APE is approximately 65 feet wide, and is bounded by Putnam Avenue on the west (Photographs 13 and 14). Along this block, the surrounding roadways are 10-15 feet higher in elevation than the APE, and are supported by massive concrete retaining walls. Moving south, the parallel Major Deegan Expressway dips lower, and runs at approximately the same elevation as the APE for much of the remaining route. The CSX-owned corridor no longer contains any railroad tracks and is undeveloped. Ground cover includes areas of phragmites, short scrub and grass, and some trees (Photographs 15-24).

MTA Metro-North-owned corridor and rail yard (Figures 2g-2i; Photographs 25-29)

The APE within the MTA Metro-North-owned corridor runs from West 230th Street to the Harlem River outfall and southern terminus of the project, just south of West 193rd Street. It is crossed by overpasses at West 230th Street and West 225th Street. The APE corridor is approximately 45 feet wide, and comprises the eastern two sets of railroad tracks within the wider rail yard. These railroad tracks were once used by the New York Central Railroad's Putnam Division; the western set of two railroad tracks, which abut the APE south of West 225th Street, were used by the Port Morris and Spuyten Duyvil Branch. The APE crosses the western set of tracks at the southern terminus of the APE, where it meets the Harlem River outfall. This section of the APE is lower in elevation than the Major Deegan Expressway, which is separated by a series of concrete retaining walls. The MTA Metro-North portion of the APE contains active railroad tracks and gravel bedding (Photographs 25-29). Project elements in this section of the APE will be completely below grade and will not be publicly accessible.

B. Topography and Hydrology

The project site is situated along the eastern side of the original Tibbetts Brook drainage area. Prior to landfilling and the creation of Van Cortlandt Lake, Tibbetts Brook flowed south-southwest through what is now Van Cortlandt Park, crossing under Broadway at approximately West 242nd Street. It then coursed in a serpentine pattern south-southwest through the Kingsbridge neighborhood west of Broadway, eventually emptying into the original alignment of Spuyten Duyvil Creek, which prior to landfilling was located north of today's Marble Hill neighborhood. Several tributaries of Tibbetts Brook flowed roughly east-west and crossed the project site corridor to join the main channel of Tibbetts Brook. These tributaries were located just north of what is now Van Cortlandt Park South, between West 233rd and West 234th Streets, and near West 225th Street (Grant 1873, Figures 8a and 8b; Viele 1874).

Due to its location along the Tibbetts Brook drainage, in its predevelopment condition the project site corridor contained a mixture of marshlands surrounding the brook and its tributaries and firm ground along the edges of the streams. The marshlands were at approximately sea level, or zero elevation. The portions of the project site on firm ground generally were low-lying landforms ranging from zero to less than ten feet above sea level or mean high water, depending on location (Grant 1873, Figures 8a and 8b). In areas of the project site where railroad lines were constructed on top of the natural landform, grading and filling occurred to create the level surface for the tracks. Generally, at least several feet of fill were added to the original topography, and those areas that traversed marshlands were infilled. Today, elevations along the project site corridor range from approximately 4-20 feet (NAVD 88), depending on location (Figures 2a-2i). The lowest portions mostly are in areas that were once

marshlands and have been filled, while the highest areas are within Van Cortlandt Park, along the current Old Putnam Trail, which was further raised in 1904 to eliminate grade crossings within the park. Most portions of the project site along current or former railroad tracks have been raised at least several feet above the original low-lying landforms through filling.

C. Soils

According to the soil survey for New York City, the project site falls within several different soil mapping units, as shown on Figure 3. From north to south, these are:

Unit 12. Greenbelt-Pavement & buildings, 0 to 8 percent slopes, described as:

> Nearly level to gently sloping areas that have been filled with natural soil materials for athletic fields or roadways; anthropogenic soils with more than 15 percent impervious pavement and buildings covering the surface; located in Van Cortland Park in the Bronx (U.S.D.A. 2005:11).

Unit 128. Pavement & buildings-Laguardia-Ebbets complex, 0 to 8 percent slopes, described as:

> Nearly level to gently sloping urbanized areas filled with a mixture of natural soil materials and construction debris; a mixture of anthropogenic soils which vary in coarse fragment content, with up to 80 percent impervious pavement and buildings covering the surface (U.S.D.A. 2005:12).

Unit 101. Pavement & buildings, wet substratum-Laguardia-Ebbets complex, 0 to 8 percent slopes, described as:

> Nearly level to gently sloping urbanized areas filled with a mixture of natural soil materials and construction debris over swamp, tidal marsh, or water; a mixture of anthropogenic soils which vary in coarse fragment content, with up to 80 percent impervious pavement and buildings covering the surface (U.S.D.A. 2005:12).

Unit 206. Pavement & buildings-Chatfield-Greenbelt complex, 15 to 50 percent slopes, described as:

> Moderately steep to very steep urbanized areas of bedrock controlled hills and ridges modified by glacial action, that have been substantially cut and filled, mostly for residential use; a mixture of moderately deep gneissic till soils and anthropogenic soils, with up to 80 percent impervious pavement and buildings covering the surface; located in Manhattan and the Bronx (U.S.D.A. 2005:13).

Unit 7. Laguardia-Ebbets-Pavement & buildings, wet substratum complex, 0 to 8 percent slopes, described as:

> Nearly level to gently sloping areas filled with a mixture of natural soil materials and construction debris over swamp, tidal marsh, or water; a mixture of anthropogenic soils which vary in coarse fragment content, with more than 15 percent impervious pavement and buildings covering the surface (U.S.D.A. 2005:11).

The LaGuardia, Ebbets, Chatfield and Greenbelt soil series are further described in Table 1, below.

Table 1. Project Site Soil Series Characteristics

Name	Soil Horizon Depth	Color	Texture, Inclusions	Slope %	Drainage	Landform
LaGuardia series	Ap: 0-8 in Bw: 8-26 in C: 26-79 in	10 YR 4/3 10 YR 4/3 10 YR 4/3	GrlSaLo VGrlCoSaLo VGrlCoSaLo	0-8	Well	Anthropogenic urban fill plains
Ebbets series	A: 0-4 in Bw: 4-8 in C: 8-60 in	10 YR 3/2 10 YR 4/4 10 YR 4/4	Lo GrlSaLo GrlSaLo	0-8	Well	Anthropogenic urban fill plains

Name	Soil Horizon Depth	Color	Texture, Inclusions	Slope %	Drainage	Landform
Chatfield series	A: 0-2 in AB: 2-8 in Bw: 8-25 in 2R: 25 in	10YR 3/2 10YR 3/3 7.5YR 4/4	Lo Lo GrlSiLo Bedrock	0-50	Well	Bedrock controlled hills and ridges
Greenbelt series	A: 0-3 in Bw: 3-13 in C: 13-57 in Ab: 57-58 in BwB: 58-65 in	7.5YR 4/4 5YR 4/6 2.5YR 4/4 7.5YR 3/2 5YR 4/6	Lo Lo GrlLo Lo Lo	0-50	Well	Anthropogenic urban fill plains

Key: Soils: Si-Silt, Lo-Loam, Sa-Sand
Other: V-Very, Grl-Gravelly, Co-Coarse

No prior soil borings were provided for the project site locations. In conjunction with the present project, both environmental and geotechnical soil borings are planned for selected locations along the length of the project corridor. These soil borings are scheduled to be completed in late 2022 and as such the data from these future borings are not included in this report.

IV. BACKGROUND RESEARCH/HISTORICAL OVERVIEW

A. Precontact Summary

For this report, the word precontact is used to describe the period prior to the use of formal written records. In the western hemisphere, the precontact period also refers to the time before European exploration and settlement of the New World. Archaeologists and historians gain their knowledge and understanding of precontact Native Americans in the metropolitan New York area from three sources: ethnographic reports, Native American artifact collections, and archaeological investigations.

Based on data from these sources, a precontact cultural chronology has been devised for the New York City area. Scholars generally divide the precontact era into four main periods, the PaleoIndian (ca. 14,000-10,000 years ago), the Archaic (ca. 10,000-2,700 years ago), the Woodland (ca. 2,700-400 years ago), and the Contact Period (ca.400-300 years ago). The Archaic and Woodland periods are further divided into Early, Middle, and Late substages. Artifacts, settlement, subsistence, and cultural systems changed through time with each of these stages.

PaleoIndian Period (ca. 14,000 years ago - 10,000 years ago)

The PaleoIndian Period represents the earliest known human occupation of the New York City area. Approximately 14,000 years ago, the Wisconsin Glacier retreated from the area leading to the emergence of a cold dry tundra environment. Sea levels were considerably lower than modern levels during this period (they did not reach current levels until ca. 7000 years ago, in the Early to Middle Archaic Period). The material remains of the Paleo Indians include lithic tools such as Clovis-type fluted projectile points, bifacial knives, drills, gravers burins, scrapers, flake cores, and flake tools, although sites generally are represented by limited small surface finds. The highly mobile nomadic bands of this period specialized in hunting large game animals such as mammoth, moose-elk, bison, and caribou and gathering plant foods.

From the locations of recorded sites in the Northeast, PaleoIndians exhibited a marked preference for well-elevated situations. However, 30 percent of sites were found on or near the margins of swampy ground. Sites have also been found near lithic sources, rock shelters and lower river terraces. Environmental characteristics that appear to have been attractive to Paleo-Indians include the proximity of major waterways, large fertile valleys and the coastal plain, where the densest population of desired food animals was supported (Ritchie 1980:7). However, since 10,000 years ago the rise in sea level, estimated to be from 75 to 80 feet, has submerged large numbers of these sites.

The retreat of ice from Long Island approximately 18,000 years ago and a global warming trend circa 14,000 years ago encouraged Paleo-Indian settlement in the Northeast. The post-glacial environment of spruce and pine

underwent a gradual modification in favor of deciduous hardwoods such as oak and hickory, which have greater importance in terms of nutritional value to both animals and humans than do conifers. By 10,000 years ago, these deciduous species dominated forests along the eastern seaboard. In general, settlement patterns suggest small mobile nomadic groups that utilized a wide range of seasonally available resources. The PaleoIndian Period is theorized to have ended because of "overspecialized subsistence strategies emphasizing big-game hunting" (Snow 1980).

A typical artifact assemblage from PaleoIndian sites in the Northeast include diagnostic Clovis type fluted projectile points and processing tools such as scrapers, gravers, and drills indicative of processing faunal material. Stone tools were most often made from chert native to eastern New York and jasper from Pennsylvania and New Jersey. To some archaeologists, lithics recovered far from their sources suggest well-defined or extensive travel or trade networks in operation at that time.

Although no PaleoIndian sites have been recorded in the project site vicinity, materials have been recovered at several sites on Staten Island including Port Mobil, the Cutting site, Smoking Point, and along the beach in the Kreischerville area. Additionally, there are reports of sporadic finds of fluted points in the Croton Point area to the north in Westchester County (Crichton 1986). Boesch (1996) noted the presence of PaleoIndian surface finds of Clovis points in White Plains and Pound Ridge in Westchester County.

Archaic Period (ca. 10,000 years ago - 2,700 years ago)

During the ensuing Archaic Period a major shift occurred in the subsistence and settlement patterns of Native Americans. Archaic period peoples still relied on hunting and gathering for subsistence, but the emphasis shifted from hunting large animal species, which were becoming unavailable, to smaller game and collecting plants in a deciduous forest. The settlement pattern of the Archaic people consisted of small bands that occupied larger and relatively more permanent habitations sites. Typically, such sites were located on high ground overlooking water courses. The Archaic has been subdivided into four smaller periods, the Early, Middle, Late, and Terminal Archaic.

The environment during the Early Archaic (ca. 10,000 – 8,000 years ago) displayed a trend toward a milder climate and the gradual emergence of a deciduous-coniferous forest with a smaller carrying capacity for the large game animals of the previous period (Ritchie and Funk 1971). The large Pleistocene fauna of the previous period were gradually replaced by modern species such as elk, moose, bear, beaver, and deer. New species of plant material suitable for human consumption also became abundant. The increasing diversification of utilized food sources is further demonstrated by a more complex tool kit. The tool kit of the Early Archaic people included bifurcated or basally notched projectile points generally made of high-quality stone. Tool kits were more generalized than during the Paleo Indian period, showing a wider array of plant processing equipment such as grinding stones, and mortars and pestles. Early Archaic sites are nearly as rare as Paleo-Indian sites; none are known to have been recorded in the Bronx (Boesch 1996).

The archaeological record suggests that a population increase took place during the Middle Archaic Period (ca. 8,000 – 6,000 years ago). This period is characterized by a moister and warmer climate and the emergence of an oak-hickory forest. The settlement pattern during this period displays specialized sites and increasing cultural complexity. The exploitation of the diverse range of animal and plant resources continued with an increasing importance of aquatic resources such as mollusks and fish (Snow 1980). In addition to projectile points, the tool kits of Middle Archaic peoples included grinding stones, mortars, and pestles. Boesch (1996) noted that components dating to the Middle Archaic period in the Bronx were recorded at the Mount Saint Vincent site and in the shell middens in Riverdale Park overlooking the Hudson River. Further from the project site but still in the Bronx, there have been Middle Archaic artifacts recovered at various locations in Pelham Bay Park (Kaeser n.d.).

Late Archaic people (ca. 6,000 – 3,700 years ago) were specialized hunter-gatherers who exploited a variety of upland and lowland settings in a well-defined and scheduled seasonal round. The period reflects an increasingly expanded economic base, in which groups exploited the richness of the now established oak-dominant forests of the region. It is characterized by a series of adaptations to the newly emerged, full Holocene environments. As the period progressed, the dwindling melt waters from disappearing glaciers and the reduced flow of streams and rivers promoted the formation of swamps and mudflats, congenial environments for migratory waterfowl, edible plants, and shellfish. The new mixed hardwood forests of oak, hickory, chestnut, beech, and elm attracted white-tailed deer, wild turkey,

moose and beaver. The large herbivores of the Pleistocene were rapidly becoming extinct and the Archaic Indians depended increasingly on smaller game and the plants of the deciduous forest. The projectile point types attributed to this period include the Lamoka, Brewerton, Normanskill, Lackawaxen, Bare Island, and Poplar Island. The tool kit of these peoples also included milling equipment, stone axes, and adzes. Coastal sites showed a principal reliance upon shellfish, especially oysters, hard and soft shell clams, and bay scallops, which were readily available in the waters around the Bronx. In contrast to conditions during the Paleo-Indian, Early and Middle Archaic, "by Late Archaic times sea level was so close to present levels that its subsequent small rise has failed to obliterate much of what remains on Long Island from that period" (Gwynne 1982:192).

The Native American population had increased significantly in the Hudson River Valley region by the Late Archaic period. The variety of recovered sites from this period include rockshelters, open woodland camps, and secondary processing locations overlooking the various water sources. Boesch (1996) noted that Late Archaic sites have been recorded in low lying areas in close proximity to area estuaries such as at Hunts Point and in Riverdale Park as well as along major interior streams such as the Bronx River.

During the Terminal Archaic Period (ca. 3,700 – 2,700 years ago), also known as the Transitional Period, native peoples developed new and radically different broad bladed projectile points, including Susquehanna, Perkiomen and Orient Fishtail types. The use of steatite or stone bowls is a hallmark of the Terminal Archaic Period. In the Bronx, Boesch (1996) noted that components from this period have been found at a number of locations throughout the Borough.

Woodland Period (ca. 2,700 years ago - 300 years ago)

The Woodland Period is generally divided into Early, Middle, and Late Woodland on the basis of cultural materials and settlement-subsistence patterns. Settlement pattern information suggests that the broad-based strategies of earlier periods continued with a possibly more extensive use of coastal resources. The Early Woodland was essentially a continuation of the tool design traditions of the Late Archaic. However, several important changes took place. Clay pottery vessels gradually replaced the soapstone bowls during the Early Woodland Period (ca. 2,700 to 2,000 years ago). An early ceramic type is called Vinette 1, an interior-exterior cordmarked, sand tempered vessel. The Meadowood-type projectile point is a chronological indicator of the Early Woodland Period.

Cord marked vessels became common during the Middle Woodland Period (ca. 2,000-1,000 years ago). Jacks Reef and Fox Creek-type projectile points are diagnostic of the Middle Woodland. Another characteristic projectile point of the early to Middle Woodland Period is the Rossville type, named for the site at Rossville where it predominated. It is believed to have originated in the Chesapeake Bay area and is found in New Jersey, southeastern New York, and southern New England (Lenik 1989:29). The Early and Middle Woodland periods displayed significant evidence for a change in settlement patterns toward a more sedentary lifestyle. The discovery of large storage pits and larger sites in general has fueled this theory. Some horticulture may have been utilized at this point but not to the extent that it was in the Late Woodland period.

In the Late Woodland period (ca. 1,000 – 400 years ago), triangular projectile points such as the Levanna and Madison types, were common throughout the Northeast (Lenik 1989:27). Made both of local and non-local stones brought from as far afield as the northern Hudson and Delaware River Valleys, these artifacts bear witness to the broad sphere of interaction between groups of native peoples in the Northeast. Additionally, during this period collared ceramic vessels, many with decorations, made their appearance.

Woodland Period Native Americans in the New York City area and surrounding regions shared common attributes. The period saw the advent of horticulture and with it, the appearance of large, permanent or semi-permanent villages. Plant and processing tools became increasingly common, suggesting an extensive harvesting of wild plant foods. Maize cultivation may have begun as early as 800 years ago. The bow and arrow, replacing the spear and javelin, pottery vessels instead of soapstone ones, and pipe smoking, were all introduced at this time. A semi-sedentary culture, the Woodland Indians moved seasonally between villages within palisaded enclosures and campsites, hunting deer, turkey, raccoon, muskrat, ducks and other game and fishing with dug-out boats, bone hooks, harpoons and nets with pebble sinkers. Their shellfish refuse heaps, called "middens," sometimes reached immense proportions of as much as three acres (Ritchie 1980:80, 267). Habitation sites of the Woodland Period Indians increased in size and permanence.

The archaeological evidence from Woodland Period sites indicates a strong preference for large-scale habitation sites in close proximity to a major fresh water source, e.g., a river, a lake, or an extensive wetland; and smaller scale sites for extractive operations, e.g., butchering stations, shellfish processing sites, and quarrying sites, to be situated at other resource locales. Late Woodland Stage sites of the East River Tradition in southern New York have been noted on the "second rise of ground above high water level on tidal inlets," and situated on "tidal streams or coves" and "well-drained sites" (Ritchie 1980:16). Carlyle S. Smith, who studied and analyzed the distribution of prehistoric ceramics in coastal New York, stated that "village sites" are found on the margins of bays and tidal streams" (Smith 1950:130).

The majority of the archaeological sites recorded in proximity to the project site (and in the Bronx in general) were from the Woodland Period, including those within Van Cortlandt Park, the Kingsbridge neighborhood, and along the shores of the former locations of Tibbetts Brook and Spuyten Duyvil Creek.

Contact Period (ca. 400 - 300 years ago)

Historical narratives written by European travelers and settlers provide us with our only first-hand descriptions of Native American daily life and customs during the seventeenth century. Johannes de Laet, in his *New World, or Description of West India*, published in Holland in 1625, wrote that the Native Americans:

> are divided into many nations and languages, but differ little in manners. They dress in the skins of animals. Their food is maize, crushed fine and baked in cakes, with fish, birds and wild game. Their weapons are bows and arrows, their boats are made from the trunks of trees hollowed out by fire.
>
> Some lead a wandering life, others live in bark houses, their furniture mainly mats and wooden dishes, stone hatchets, and stone pipes for smoking tobacco (Bolton 1972:16).

Anthropologists and linguists agree that when Europeans arrived in the project area vicinity, the Native Americans were Munsee-speaking Upper Delaware Indians, a group known as the Wiechquaesgeck. At the time of European contact, circa 1600, an estimated 900 Wiechquaesgeck occupied the Bronx, northern Manhattan Island and Westchester County. Henry Hudson's first meetings in 1609 with the Indians along the Hudson River shores of Westchester and the Bronx were not propitious. A mate rashly killed an Indian caught burgling one of the ship's cabins, and hostilities broke out which ended with the crew firing muskets on canoes crowded with hostile warriors, killing nine Indians (Brodhead 1853:33; Grumet 1981:25-26,60).

With the advent of Dutch settlement during the seventeenth century, the constant contact between peoples of two alien cultures, along with their competition for land and other natural resources was a source of frequent friction. Since the Wiechquaesgeck had few furs to trade with the Dutch, there was little motivation on either side for good relations. Several brutal wars with the Dutch and hostilities with other Indian groups during the 1640s and 1650s, coupled with the introduction of European diseases against which Native American populations had no natural protection, decimated Indian populations in the New York City area. Many groups were forced to migrate and merge in order to maintain viable communities. Historic documents indicate that many of the surviving native peoples eventually sold their land or moved to the north (Grumet 1981:60-62; Ruttenber 1982).

B. Previously Recorded Archaeological Sites

Research conducted using materials from the NYSOPRHP, the LPC, and the library of HPI indicated that a large number of archaeological sites have been recorded within a one-mile radius of the project site in both the Bronx and Manhattan. Table 2, below, is a summary of all of the archaeological sites within one mile. Those sites inventoried by the NYSOPRHP are listed first, and generally are the most precisely located. Sites inventoried by the New York State Museum (NYSM) are listed next. During the early twentieth century, Arthur C. Parker investigated many precontact sites in the Bronx and Manhattan; he is cited as the reporter for many of the NYSM sites (Parker 1920). Site documentation from this early exploration period by Parker provides minimal detailed information. Many of Parker's listed sites were neither professionally excavated, nor were their exact locations detailed in the state inventory. Mapping of the NYSM sites on CRIS generally includes a buffer zone around the original site location, which itself often was vaguely noted, resulting in site areas that are usually much larger than the actual reported locus.

Last, Boesch's 1996 archaeological sensitivity study for the Bronx includes a number of precontact period archaeological site locations that were reported by additional early twentieth century researchers, but were not always formally recorded with the NYSM or the NYSOPRHP. A number of the Boesch sites appear to be similar or duplicate entries for locations inventoried with the state agencies. Where there is a clear correlation, the Boesch site numbers are listed with the state agency site numbers. Where the correlation is not obvious, they are listed separately, although the locations suggest there may be some redundancy in the listings.

Several of the NYSM sites and their mapped buffers overlap with the project site, in Van Cortlandt Park and along the former Tibbetts Brook corridor southwest of Van Cortlandt Park. Additional archaeological sites were recorded within close proximity to the project site. Those previously recorded sites overlapping and in close proximity to the project site are shown in **boldface** type in Table 2 and are described further, below. The sites are listed in roughly north-south order.

Table 2. Archaeological Sites within a One-Mile Radius of the Project Site

Site Number/Name	Location	Time Period	Site Type
NYSOPRHP 00501.00053 King's Redoubt	W. 195th St. and Kingsbridge Rd.	Revolutionary War	Revolutionary War structure
NYSOPRHP 00501.00054 Fort #6	Kingsbridge Rd. and Sedgwick Ave.	Revolutionary War	Revolutionary War fort
NYSOPRHP 00501.000055 Fort #8	Bronx Community College campus	Revolutionary War	Revolutionary War fort
NYSOPRHP 00501.00056 Fort #4	Southwest corner of Jerome Reservoir at Sedgwick Ave.	Revolutionary War	Revolutionary War fort
NYSOPRHP 00501.000791 Chapel Farm II Archaeological Site NYSM 7729	W. 253rd St. and Grosvenor Ave.	Unknown precontact	Quartzite quarry and workshop
NYSOPRHP 00501.000322 Wading Place Boesch 61	W. 230th St., slightly west of Broadway at the foot of Godwin Terr.	Late Woodland, Contact	Camp
NYSOPRHP 06101.000113 Harlem Ship Canal Prehistoric Site Boesch 78	W. 220th St. and Broadway, destroyed by Harlem Ship Canal	Woodland	Shell midden
NYSOPRHP 06101.000114 Harlem River Shellheaps	W. 209th /W. 210th St. and east of 10th Ave.; ceramic from W. 214th St. and 10th Ave.	Late Woodland	Ceramic pot and dog burial
NYSOPRHP 06101.000115 "Negro Burial Ground"	W. 212th St. and 10th Ave. [Note: CRIS location is inaccurate.]	Possible late 17th, 18th, and early 19th centuries	Cemetery for enslaved Africans, possibly related to Nagle and Dyckman owners.
NYSOPRHP 06101.000119 Seaman Avenue Indian Burial Ground	Seaman Ave. and vicinity north of Dyckman St.	Precontact	Middens, ceremonial pits, and human burial.
NYSOPRHP 06101.000121 Inwood Park Rockshelters	Inwood Hill Park	Unknown precontact	Rockshelters
NYSOPRHP 06101.000127 Nagle (Century House) 1640-1903	W. 213th St. and Harlem River	Unknown precontact	Shell midden
NYSOPRHP 06101.000532 *Shorakapkok* / Cold Spring	W. 207th St. and north of Broadway	Unknown precontact	Cave occupation and shell midden
NYSOPRHP 06101.000533 ACP NYRK 5	W. 213th St.	Woodland	Village

Site Number/Name	Location	Time Period	Site Type
NYSOPRHP 06101.000534 Isham's Garden	Isham St. and Seamans Ave.	Late Woodland	Shell midden. Reported as Parker #4.
NYSOPRHP 06101.000535 Boesch 79	Island within Harlem River, now destroyed	Woodland?	Shell midden
NYSM 709 Kappock Boesch 75	Kappock St. and W. 227th St.	Unknown precontact	Unknown
NYSM 711 West 218th Street	W. 218th St. and Cooper St., Inwood	Unknown precontact	Unknown
NYSM 2823 **ACP BRNX 1A**	**Van Cortlandt Park west side of lake, near NYSM 7727**	**Woodland**	**Village**
NYSM 2837 ACP BRNX 15	Woodlawn neighborhood	Unknown precontact	Camp
NYSM 2838 ACP BRNX 16	Mouth of Tibbett's Brook	Unknown precontact	Village
NYSM 2839 ACP BRNX 17 Boesch 69	East side of Sedgwick Ave. along Jerome Reservoir	Late Woodland	Village
NYSM 4052 ACP NYRK 2	W. 220th St. and Kingsbridge Rd., destroyed when ship canal was created	Unknown precontact	Shell midden
NYSM 4053 ACP NYRK 3 Harlem River Shell Heap	Dyckman Hill along Harlem River, W. 209th to W. 211th Sts.	Woodland, historic?	Village and shell midden with dog burials
NYSM 4054 ACP NYRK 4	Inwood Hill Park area, Seaman Ave.	Unknown precontact	Village
NYSM 4055 ACP NYRK 5A	W. 214th St. and 10th Ave.	Late Woodland	Large, complete pot
NYSM 4056 **ACP NYRK 6A**	**Manhattan and the Bronx**	**Unknown precontact**	**Precontact trail**
NYSM 4057 Boesch 7	East of Fieldston Rd., north of W. 247th St.	Woodland	Camp and shell midden
NYSM 4058 ACP NYRK 8 ACP BRNX No. #	North of W. 247th St., west of Pascal Ave.	Unknown precontact	Shell middens
NYSM 4069 ACP NYRK No. #	West bank of Harlem River from W. 201st to W. 206th Sts.	Unknown precontact	Traces of occupation
NYSM 5320 ACP BRNX No. #	Spuyten Duyvil locations	Unknown precontact	Traces of occupation
NYSM 5321 **ACP BRNX No. #**	**General area along former Tibbetts Brook corridor**	**Unknown precontact**	**Traces of occupation**
NYSM 5322 ACP BRNX No. #	Jerome Park Reservoir vicinity	Unknown precontact	Traces of occupation
NYSM 7727 **ACP BRNX 1B**	**Van Cortlandt Park**	**Unknown precontact**	**Camp**
NYSM 8368 ACP NYRK 6B	Ridge overlooking Hudson River in Inwood	Unknown precontact	Rockshelters
NYSM 8369 ACP NYRK No. #	West bank of Harlem River from W. 215th to W. 219th Sts.	Unknown precontact	Shell middens
NYSM 8371 ACP NYRK No. #	W. 207th St. and Harlem River	Unknown precontact	Camp

Site Number/Name	Location	Time Period	Site Type
NYSM 8375 Nipnichsen ACP NYRK No. # ACP BRNX No. #	Top of Spuyten Duyvil Hill	Late Woodland?	Village
Boesch 3	**Van Cortlandt Park, north of the mansion**	**Woodland, Contact**	**14-acre village site**
Boesch 5	**Van Cortlandt Park**	**Woodland, Contact**	**Indian Field**
Boesch 6	**Van Cortlandt Park, near the mansion**	**Woodland?**	**Pit features**
Boesch 44	Intersection of Sedgwick and Giles Aves.	Late Woodland?	Camp
Boesch 48	Vicinity of the Kingsbridge Road Station of the Hudson Division of the Metro North Railroad	Late Woodland?	Camp
Boesch 60 Dodge Pond	W. 247th St. and Arlington Ave.	Unknown precontact	Camp
Boesch 62 Spuyten Duyvil	W. 231st St. and Arlington Ave.	Late Woodland	Camp and shell midden
Boesch 63	Ewen Park, W. 231st St.	Unknown precontact	Shell and ash
Boesch 64 Henry Hudson Monument	Vicinity of Independence Ave. and W. 227th St.	Unknown precontact	Storage pit
Boesch 65 Paparinemem	200 feet west of Broadway in vicinity of W. 231st St.	Late Woodland, Contact	Village
Boesch 66 Tibbetts Brook I	Tibbetts Brook east shore, W. 230th to W. 236th Sts. near Corlear and Irwin Aves.	Unknown precontact	Traces of occupation
Boesch 67 Tibbetts Brook II	Corlear Ave. and W. 230th St., Mouth of Tibbetts Brook	Unknown precontact	Habitation site
Boesch 68	South of Johnson and Palisade Aves. along the north shoreline of the Harlem River	Unknown precontact	Camp
Boesch 69	East of Sedgwick Ave. in the vicinity of W. 231st St. at Jerome Park Reservoir	Late Woodland	Village
Boesch 70	Southern end of Jerome Park Reservoir	Unknown precontact	Traces of occupation
Boesch 71	W. 238th St. and Riverdale Ave.	Woodland?	Camp
Boesch 72 Spuyten Duyvil Railroad Station	South and southeast of Edsall Ave.	Woodland?	Shell deposit
Boesch 73 Albany Avenue	East of Albany Ave. at W. 234th St.	Woodland?	Camp
Boesch 74 Kappock Street I	Kappock St. near P.S. 24	Woodland	Shell deposit with pottery
Boesch 76	Vicinity of W. 231st St. and Palisade Ave.	Woodland?	Shell midden
Boesch 77	200 feet west of Broadway and north of W. 230th St.	Woodland?	Camp
Boesch 80 Kingsbridge Post Office	5517 Broadway	Woodland?	Artifacts and burial

Site Number/Name	Location	Time Period	Site Type
Boesch 95	Edgehill Ave. between W. 230th and W. 227th Sts.	Unknown precontact	Village
Boesch 110	Vicinity of Edsall Ave., Johnson Ave., and the Harlem River	Unknown precontact	Unknown site
Boesch 112 Wave Hill Park	Wave Hill Park	Woodland?	Camp and shell deposit
Boesch 125	Kappock St. and Henry Hudson Parkway	Woodland	Isolated finds
Boesch 126	Hudson River shoreline near W. 232nd St.	Unknown precontact	Isolated find
Boesch 127	W. 235th St. near St. Giles Church	Unknown precontact	Isolated projectile point find
Boesch 128	W. 230th St. near Broadway	Unknown precontact	Projectile point and preform
Boesch 129	Broadway and the Harlem River	Woodland	Pottery fragments

The land that is now known as Van Cortlandt Park was once the location of extensive precontact period occupations, and has been documented in several archaeological site designations, as noted in Table 2, above. The largest of the precontact occupations was a village site situated west of the current Van Cortlandt Lake/Hester and Piero's Mill Pond and north of the mansion house, in the area now covered largely by the Parade Ground. Designated NYSM Site 2823, it first was excavated by avocational archaeologist John Bradley James, Jr. of Riverdale in 1889-1890 (Anderson 1991: 4; Bolton 1972: 141; Storch Associates 1986: 36; HPI 2004a:14; JMA 2007:3-4). At that time, the site, which included planting fields, was said to extend over approximately 14 acres. Excavated materials, which are now deposited at the American Museum of Natural History in Manhattan, included thirteen human burials, as well as numerous artifacts. A full accounting of the James excavations and further documentation by later archaeologists is provided by JMA in their 2007 Phase IA Archaeological Investigation of the Parade Ground locale. Additional precontact sites in proximity to the village site included NYSM 7727, described as a camp with fire pits located immediately northeast of the village area, and a precontact trail (NYSM 4056), which stretched from upper Manhattan to the Van Cortlandt Park area (Bolton 1972: 136; Grumet 1981: 69). The trail likely gave access to the many primary and secondary sites located throughout the park.

Additionally, while not formally recorded as an archaeological site, Van Cortlandt Park also contains the Van Cortlandt House, which is listed on the State and National Registers of Historic Places. The house (also known as the mansion house) is located approximately 500 feet northwest of the project site. Archaeological investigations associated with the house have revealed historic period deposits from the eighteenth, nineteenth, and twentieth centuries (Bankoff and Winter 1991, Bankoff et al. 1992).

Two known cemeteries also are located in proximity to the mansion house. One, known as Vault Hill, was the burying ground for the Van Cortlandt family, located on the west side of Van Cortlandt Lake/Hester and Piero's Mill Pond. The other, now known as the Kingsbridge Burial Grounds and the African Burial Site and located south of Vault Hill, contained burials from the Colonial and Early American era Tippett and Betts families, among others, as well as unknown enslaved African and African Americans. A ground penetrating radar survey confirmed the presence of burials at this location despite the lack of visible gravestones (U.S.D.A. 2019). Neither of these cemeteries is in close proximity to the project site, nor have they been formally recorded as archaeological sites.

In addition to Van Cortlandt Park, a number of precontact period archaeological sites have been documented along the shores of the former alignment of Tibbetts Brook, more often on the west side of the brook, which had more elevated ground. Prior to landfilling, Tibbetts Brook ran in a meandering alignment from the southwest corner of Van Cortlandt Park southwest through Kingsbridge and emptied into Spuyten Duyvil Creek. Portions of the project site along the current CSX and Metro-North sections are located only a few hundred feet from the former channel of Tibbetts Brook.

C. Previously Recorded Archaeological Surveys

The specific project site has never been subjected to any archaeological surveys. However, there have been a number of archaeological surveys completed within one mile of the project site, as noted in Table 3, below. Several of the archaeological surveys within Van Cortlandt Park have been completed within several hundred feet of the project site. The sites are listed in roughly north-south order.

Table 3. Archaeological Surveys within a One-Mile Radius of the Project Site

Archaeological Surveys	Location	Authors
Van Cortlandt Park	Various locations within Van Cortlandt Park, including the Mansion, the Parade Ground, and areas surrounding the lake	LBA 1985, 1987; Storch Associates 1986; Bankoff and Winter 1991, Bankoff et al. 1992; Rothschild and Matthews 1993; Ricciardi 1997; JMA 2007, 2009; Chrysalis 2015; U.S.D.A. 2019
Croton Water Treatment Plant	Mosholu Golf Course, Van Cortlandt Park	HPI 1998, 2004a, 2004b, 2014
Jerome Park Reservoir	Jerome Park Reservoir	HPI 1994, 2010
Tibbett Gardens Project Site, Bronx	Tibbett Avenue	HPI 1987; HPI and Dennis Weiss 1987
Archaeological Assessment for the Reconstruction of Fort Washington Park	Hudson River shoreline from 145th Street to Dyckman St., Manhattan	Hunter Research, Inc. 2008
Phase IA Cultural Resources Investigation of the Hudson–Raritan Estuary Ecosystem Restoration Project, Sherman Cr Manhattan	Harlem River shoreline at Sherman Creek	Panamerican 2003
NYC P.S. 226 Annex Site Preliminary Archaeological Review	Bronx Community College vicinity	HPI 1990, 1992
Phase IA Cultural Resources Survey for the Proposed M29 Transmission Line Project, ConEd	Corridor within Yonkers, the Bronx, and Manhattan	TRC 2006, JMA 2008
Phase 1A Archaeological Assessment, Bronx Community College, North Instructional Building	Bronx Community College	HPI 2007
Phase 1A Literature Review; Phase IB VAMC Spinal Cord Injury/Disorder Center and Parking Structure	Veterans Affairs Hospital, Kingsbridge	Hartgen 2012, 2015

Archaeological Surveys	Location	Authors
Second Avenue Subway Train Storage Yards	Jerome Avenue	HPI 2002
Inwood Rezoning, Phase IA Archaeological Assessment	Inwood, Manhattan	Bergoffen 2017
P.S. M98 Improvements, Manhattan	530 W. 212th St., Block 2229, Lot 12	HPI 2021

D. Historic Period Summary

The initial European settlement of the New York City area was marked by misunderstandings and hostilities between the native groups and the Dutch colonists. Following a short but bloody 'war,' which ended in 1645, Adriaen van der Donck purchased 24,000 acres of land from the Wiechquaesgeek Indians along the Hudson River. This 16-mile tract of land, which was bounded by the Hudson River on the west, the Bronx River on the east, the Saw Mill River on the north, and Spuyten Duyvil Creek on the south, included all of what is now Kingsbridge, Riverdale, and southern Yonkers. It was known by several names, including Colen Donck, Donck's Colony, and Jonkeer's Landt, which later was changed to become "Yonkers." This tract was granted to van der Donck by the Dutch prior to his purchasing it from the sachem Tacharew (Bolton 1922:257; Anderson 1991:12; Pons 1994:2).

Much like the earlier Dutch settlers, van der Donck took advantage of the areas already cleared by the Wiechquaesgeek and established a farm that included large corn fields in the locale of what is now the Van Cortlandt Mansion. He built a house just south of the location of the current mansion; remains of the house foundation were unearthed in 1910 during sewer construction (Tieck 1968:4). Van der Donck maintained a good relationship with the native inhabitants until his death in 1655. Over ten years later, his widow and her second husband sold a large portion of land (most of the south half of present day Van Cortlandt Park including parts of the project site) to her brother, Elias Doughty, who in turn sold the land to William Betts and his son-in-law George Tippett in 1668. Members of the Tippett and Betts families, along with unknown enslaved African and African Americans are interred in the Kingsbridge Burial Grounds and the African Burial Site on the west side of Van Cortlandt Lake/Hester and Piero's Mill Pond near the Parade Ground, to the northwest of the project site (NYC Parks 2022).

The water source that flowed through Van Cortlandt Park property eventually became known as Tibbetts Brook, an alteration of the Tippet family name. As noted above, Tibbetts Brook flowed south-southwest through what is now Van Cortlandt Park. The southern extent of the brook was surrounded by marshy areas, including portions of the project site. Tibbetts Brook then ran in a serpentine fashion through the Kingsbridge neighborhood west of what is now Broadway, and emptied into Spuyten Duyvil Creek at approximately West 230th Street. The areas around Tibbetts Brook within and south of Van Cortlandt Park were low lying and often marshy. The CSX and Metro-North portions of the project site south of Van Cortlandt Park were located within these low-lying and marshy areas on the east side of Tibbetts Brook during the Colonial era and likely remained undeveloped with any structures.

In 1670, the portions of the project site including Van Cortlandt Park were sold to Frederick Philipse, who had amassed a large estate extending from the north Bronx up through much of Westchester County. Large sections of the Manor of Philipsburgh, located in what was then Westchester County, were leased to tenants. At least by 1684, there were already several residences shown within what is now Van Cortlandt Park, along the east-west trending ridgeline that presently contains the Van Cortlandt Manor house, occupied by several families (Anonymous 1684). Jacobus Van Cortlandt purchased fifty acres of land from his father-in-law Frederick Philipse in 1699. The property then became known as Van Cortlandt Manor.

In the 1690s, the Van Cortlandt family dammed Tibbetts Brook to create Van Cortlandt Lake. At the foot of the lake, along the dam, the family constructed a grist mill. The mill was later moved, and a saw mill was constructed in this same area during the early nineteenth century. These mills and their mill races were in close proximity to and/or overlapping the northern end of the project site (Appendix F). The Van Cortlandt manor house, which is still standing and now a museum, was constructed to the northwest of the project site along the east-west trending ridgeline of higher ground in 1748 by Frederick Van Cortlandt (Jenkins 1911: 352). After Frederick's death, the

property passed to his son Jacobus, and then a cousin, Augustus (NYC Parks 2022). Vault Hill, located in the northwestern portion of the park along a high ridgeline, is the burial ground for the Van Cortlandt family.

During the American Revolution, Van Cortlandt Manor became the center of action on several occasions. In fact, the municipal records of the City of New York were hidden by Augustus Van Cortlandt inside the family vault on Vault Hill in 1776. In an effort to recapture Fort Independence, American soldiers marched south from Yonkers to the high ground above the Van Cortlandt house on January 18, 1777. Although this attempt failed, George Washington used the main house for his headquarters and ordered his troops to cut down much of the forage in the fields surrounding the manor in order to prevent surprise attacks by British soldiers. After Washington's departure, the house was used by the British forces (NYC Parks 2022).

A major battle took place within the confines of the park during the following year. A small group of American soldiers accompanied by several Stockbridge Indians sympathetic to the American cause attacked a battalion of British troops on August 20, 1778. After forcing a retreat, they were ambushed by British, Tory and Hessian troops. The small band was driven across Van Cortlandt's woods to what is now the eastern portion of the park. Thirty-seven of the Indians, including their leader Ninham, were slaughtered near what was thereafter called Indian Field (Jenkins 1912: 162-164; Storch Associates 1986: 44). The site of the ambush is said to be near the corner of East 233rd Street and Van Cortlandt Park East (Pons 1994: 13). The remains of these peoples were buried a few days later near the site of the ambush, well east of the present project site.

Because New York City and Westchester County were heavily affected by Revolutionary War troop movements, a number of historic maps were made during this era that depicted conditions in and around the project site. A map attributed to the general Revolutionary War period clearly showed the location of several structures, including the Van Cortlandt Manor house, along the east-west trending ridgeline in what is now Van Cortlandt Park (Clinton 1775-1783, Figure 4). Tibbetts Brook was labeled as "Spiten Devil Creek," although the mill pond was not depicted. The present CSX and Metro-North portions of the project site were shown as situated between the creek on the west and the Road to Albany (portions of which survive today as part of Albany Crescent) on the east. This road formerly passed south of the Van Cortlandt Manor house. The Kings Bridge was located at the approximate crossing of today's West 230th Street and the Farmer's Bridge, connecting to the Road to Westchester, which was at approximately West 225th Street. Another historic map, by Montresor in 1778 (Figure 5) illustrated fewer details, but was drawn with greater accuracy. Here, the mill pond at "Col. Cortlandt's" was clearly depicted. Additional historic maps from this period illustrated the southern portion of the project site corridor, and confirmed that the present CSX and Metro-North portions of the project site ran along the low-lying and often marshy land at the base of the north-south trending ridgeline on the east side of the Harlem River and Tibbetts Brook (Anonymous 1781; Skinner and Taylor 1781; British Headquarters 1782/Stevens 1900).

Following the Revolutionary War and into the nineteenth century, the Van Cortlandt estate continued to be a working farm and mill site. Augustus Van Cortlandt was the owner until his death in 1823, and after that time the property passed to other family members. The farm and mills were operated by a number of laborers, including slaves and other African Americans (NYC Parks 2022). After Augustus' death, the mills were reconfigured, placing the saw mill and grist mill on either side of a mill race south of the mill dam (Appendix F). Writing about these mills in 1937, local resident J.B. James wrote:

> The grist mill was built in pre-revolutionary days, but the exact date is unknown. It took the place of an older mill which was located some distance farther to the south on the present raceway, probably near the road leading from the railroad station to the old mansion. The saw mill was erected at a much later date, and is not pre-revolutionary, but comparatively modern. I have not been able to ascertain its age.
>
> The grist mill was an interesting structure. Its power was derived from a huge overshot wheel, the water falling on it from a gateway which is still to be seen in the present overflow outlet, and contained a complete set of flouring machinery, two sets of mill stones, hoppers, storage bins, and a bolting-cloth covered flour screen, operated and revolved by wooden cogs. Although it had ceased grinding flour for many years previous to my knowledge of it, I can recall seeing farmers who came a considerable distance with wagon loads of corn to be ground into feed; this, of course, before the Van Cortlandt estate was taken by the city as a public park.

> A short distance to the east, and very near the tracks of the New York and Putnam Railroad, there was an overflow sluiceway controlled by wooden gates which were lifted during heavy rains or when Spring freshets threatened to overflow the dam. It has been filled in and obliterated (James 1937).

The project site overlaps and/or abuts this mill complex and mill race location.

Nineteenth-century maps illustrated the changes in and around the project site during this period. The portion of the project site within Van Cortlandt Park continued to be shown on maps as belonging to the Van Cortlandt family and containing the mill pond and one or more mills. Several roadways, including a section of the Albany Post Road, traversed the area and crossed through the project site (Sidney and Neff 1851; Dripps 1853, Figure 6; Merry 1858, Beers 1868). The portion of the project site along the CSX and Metro-North tracks was consistently depicted as within low-lying or marshy land, and/or largely undeveloped (U.S.C.S. 1837; Sidney and Neff 1851; Dripps 1853, Figure 6; Merry 1858, U.S.C.S. 1859, Figure 7; Beers 1868). The one area that did indicate development was near the intersection of what is now West 231st Street and Albany Crescent, where there were several structures depicted on the west side of Albany Crescent and the north side of West 231st Street by the late 1850s (U.S.C.S. 1859, Figure 7; Beers 1868). The rear yards associated with these buildings extended west into the project site corridor. A number of these buildings and/or their successors survived into the mid-twentieth century, before they were demolished for construction of the Major Deegan Expressway (Interstate 87) (see Appendix E for a mid-twentieth-century photograph of this area).

Perhaps the most significant change to the project site came in the 1870s, when the New York and Boston Railroad Company began purchasing land for what was to become a new railroad line from High Bridge, north along the east bank of the Harlem River and through Kingsbridge, Yonkers, and points north, ultimately intending to connect to Boston. Land records note that a number of Kingsbridge owners, as well as the Van Cortlandt family, sold narrow strips of land to the railroad company in 1872 for this new service (e.g. Liber 802:278; Liber 812:64; *Yonkers Statesman* 4/4/1872). A detailed series of topographical maps made in 1873 illustrated the new route of the railroad, which had yet to open (Grant 1873, Figures 8a and 8b). The railroad property passed through areas overlapping and immediately adjacent to marshy locations surrounding Tibbetts Brook and its tributaries. After a number of company consolidations and name changes, and stops and starts in construction, the railroad at last opened in 1880 (Gallo and Kramer 1981:12). Within and adjacent to the project site, stations were constructed in Kingsbridge near West 231st Street and within Van Cortlandt Park, south of the mill dam. The railroad corridor was shown on all historic maps beginning in the mid-1870s (e.g. Viele 1874; Bromley 1879; Robinson 1885). Historic photographs including the railroad corridor and the Van Cortlandt station are included in Appendix E.

Creation of the original railroad line, which eventually became known as the Putnam Division of the New York Central Railroad and which constitutes the majority of the project corridor, necessitated both grading and filling of the natural landform. Those areas that were marshy and/or low lying were filled and raised in elevation to create a stable surface. Any areas that were higher in elevation needed to be graded to match the filled elevations. Historic photographs in Appendix E show the degree to which the natural shoreline along the Harlem River was raised to create the level track bed for the railroad tracks. However, creation of the railroad bed within these areas resulted in changes to the natural drainage surrounding the tracks, particularly in Van Cortlandt Park, where the construction contributed to the creation of a series of marshy areas in locations that had once been dry.

By 1888, the last member of the Van Cortlandt family had moved out of the mansion house. One year later, a large section of land, including the former Van Cortlandt Manor and the area encompassing the project site, was acquired for public parkland in the northwestern section of the Bronx. At the time of acquisition, half of the acreage within the park was meadowland and the other half woodland. Approximately 40 acres were identified as vegetable gardens. That same year the mills, located within the park, ceased operation and the Parade Ground near the mansion house was opened to the public. During the late nineteenth and twentieth centuries most of the physical changes made to the park were near the locale of the Van Cortlandt house and lake. The southern and central areas of the park were used for picnics, outdoor games, and the 1895 creation of the first municipal golf course to the east of the project site, the 55-acre Van Cortlandt Links Golf Course (Storch Associates 1986: 73). As the popularity of the sport increased, the original nine-hole course was replaced by a larger 18-hole course in 1899 (Ibid). By that date the Van Cortlandt Links covered 120 acres.

Historic maps from the 1890s and the 1900s continued to show similar conditions throughout the project site as those from the 1880s. A series of 1895 Final Profile and topographic maps (Figures 9a and 9b) as well as a 1905 topographic map (Anonymous 1905) indicated similar elevations as the earlier 1873 topographic maps, suggesting little change in the corridor characteristics through the end of the nineteenth century. More detailed maps, including the 1900 Sanborn maps and the 1901 Hyde maps, confirmed little change along the project site corridor. Two historic photographs of the mill buildings in Van Cortlandt Park are included in Appendix E. Additional images are included in Appendix F.

Within the Van Cortlandt Park portion of the project site, significant changes occurred just after the turn of the twentieth century. As noted above, in July 1900 the grist mill was struck by lightning and burned to the ground. The saw mill, which had been used only for storage since being taken out of service, was demolished in 1903 due to its dilapidated condition (Appendix F). That same year, substantial work was completed at Van Cortlandt Lake, including rebuilding the mill dam, while a new roadway was constructed from the train station to the Parade Ground. In 1904, the railroad was raised to its present height and the railroad bridge was constructed to allow a new pathway to run under the alignment. A new station at Van Cortlandt was constructed in tandem with the raised railroad grade (Appendix E). The Parks Department's annual report for 1904 described the extensive work that occurred in 1903-1904 within and adjacent to the project site:

> A driveway 4,615 feet long and 30 feet wide has been laid out and constructed from Van Cortlandt Station along the easterly boundary of the Parade Ground, and through that portion of the Park known as Vault Hill and the Deer Paddock, up to Mosholu avenue, at the junction where the Rockwood drive begins (Parks 1904:71)
>
> Van Cortlandt lake, which has been a matter of great thought in the past, in regard to its unsanitary condition during the summer season, was tackled, the dam torn away, and the water drawn out, and a large part of the semi-bog known as Van Cortlandt lake has been thoroughly renovated and cleaned. This lake has not been cleaned, probably, before since the dam was built, 150 years ago. There was about on an average of 2 or 3 feet of ooze and slime on the bottom, on a clay foundation. About 30,000 cubic yards of this deposit, which in the summer was filled with vegetation, has been removed. A substantial stone retaining wall has been built from the railroad bridge, along the easterly shore to a point near the upper end of the lake, a distance of 2,270 feet, requiring for its construction about 1,000 cubic yards of dry masonry.
>
> The low, marshy shores of the lake, from the Skate House along the golf links to the northerly end of the lake, have been filled in and reclaimed, and now it is good park land to the water's edge. The cleaning of the lake necessitated the removal of the old dam. A new dam and spillway has been built, with a 24-inch cast-iron discharge pipe with valve, so that hereafter when it is necessary to make future cleaning or repairs to this lake the water can be drawn off without interfering in any way with the dam.
>
> In the construction of the shore wall around the lake a large quantity of old and unsightly stone walls have been removed from the park, improving greatly the appearance of park land in other sections (Parks 1904:72).
>
> We have succeeded during the year in getting the New York Central and Hudson River Railroad Company to prepare plans for building a new station at Van Cortlandt Park, farther north than the present station, and providing for an undergrade crossing on Van Cortlandt avenue. They have also prepared plans for the undergrade crossing on the new road at the east side of the Parade Ground. Before these improvements can be made additional legislation is necessary (Parks 1904:73).

During the first and second decades of the twentieth century, the city streets crossing the railroad tracks south of Van Cortlandt Park began to be raised to eliminate the grade crossings. One photograph of this work on West 231st Street, from 1909, shows the degree to which these city streets had to be elevated in order to build these overpass bridges (Appendix E). Over time, these overpasses were constructed crossing the project site at (from north to

south) Van Cortlandt Park South, West 238th Street (f.k.a. Fort Independence Street) West 234th Street (f.k.a. Varian Street), West 233rd Street (f.k.a. Parsons Street), West 231st Street (f.k.a. Macomb Street), West 230th Street (f.k.a. Riverdale Avenue), and West 225th Street (f.k.a. Kingsbridge Road). As the streets were raised surrounding the railroad corridor, in some places the project site was bounded by retaining walls that supported the adjacent elevated streets. Historic maps from the 1910s and 1920s illustrated the pace of the bridges construction and the changes to the areas surrounding the railroad corridor as new development increased (Bromley 1911, Sanborn 1914, Bromley 1921). The crossing at Van Cortlandt Park South was among the last to be constructed. Although drawings for this intersection were created in 1919, an aerial photograph from 1924 showed that the roadway had yet to be completed (Bureau of Engineering 1924, Figure 10).

One of the most detailed maps of the Van Cortlandt Park portion of the project site was completed by the Parks Department in the mid-1930s (Figure 11). These topographical surveys illustrated that while by this time Van Cortlandt Lake had a spillway at its southwest corner that channeled water to the Broadway sewer (it had been constructed in the 1910s), the mill race and sluiceway from the former mills were still present south of the reconstructed mill dam, within and overlapping the project site. These water channels were infilled not long after the publication of this map. The map also clearly showed the location of the second Van Cortlandt Park railroad station, on the northwest side of the 1904 railroad bridge.

The last major change to the project site vicinity was the construction of the Major Deegan Expressway (now Interstate 87), which opened in 1956. As-built plans for the Major Deegan by the State of New York in 1949 indicated the massive disturbance necessary to construct the highway corridor, including the abutting railroad corridor portion of the project site, where substantial retaining walls were placed below grade. Additionally, passenger railroad service ceased along the Putnam line in 1958, although freight traffic continued until 1981 (Appendix F). Eventually the passenger station within Van Cortlandt Park, as well as several adjacent structures, fell into disrepair and were at least partially removed. Railroad tracks were removed along the present CSX portion of the project site and within Van Cortlandt Park following the discontinuation of rail service. A series of 1980s topographical maps made by NYC Parks for Van Cortlandt Park indicates conditions that are largely similar to the present.

V. CONCLUSIONS

A. Precontact Archaeological Sensitivity and Disturbance Record

Overwhelming evidence exists that Native Americans exploited the natural resources surrounding Tibbetts Brook and its tributaries for thousands of years before the arrival of Europeans. Dozens of precontact sites have been recorded within a one-mile radius of the project site. A number of these precontact sites were recorded within the present Van Cortlandt Park, in close proximity to the project site. Other previously recorded precontact sites along the former Tibbetts Brook corridor in Kingsbridge were located in close proximity to CSX and Metro-North sections of the project site. The LPC indicates that the entire project site is within an area of high precontact archaeological sensitivity, based on its proximity to Tibbetts Brook, the Harlem River and the known precontact sites in this vicinity (Boesch 1996).

Prior to historic period development in the project site, all level areas on firm ground and in proximity to Tibbetts Brook would have been sensitive for precontact occupation and use. This would include most areas within Van Cortlandt Park, and some discrete portions of the CSX and Metro-North corridor that were not within natural marshlands. It is less likely that naturally marshy areas would have had precontact occupation that would have resulted in identifiable archaeological resources. That said, the marshes themselves would have been a precontact resource for their aquatic life, wild game, and vegetation. As well, wetlands provided peat that could be used for fuel and a number of plants that served as materials for clothing, basketry and weaving. As importantly, the use of certain aquatic plants for medicinal purposes is ethnographically documented (Herrick 1995).

Additionally, prior to the creation of the marshlands after the last Ice Age, those wet areas may have been dry land. Although there is a slim possibility that precontact period archaeological sites from this period, dating from the Paleo Indian period through parts of the Archaic period, could remain capped by later marshland soils that accrued after the sea level rise, ca. 2000-4000 B.P, to date there has been no evidence in the Bronx to suggest that these types of sites have survived. In proximity to the project site corridor the earliest precontact period sites, from the

Middle Archaic period, only have been recorded at higher elevations along the ridgeline overlooking the Hudson River. The vast majority of all precontact period archaeological sites recorded in proximity to the project site corridor have dated to the Woodland Period, a time after the marshlands were formed.

Determining potential precontact archaeological sensitivity within the project site involves assessing the likelihood that such resources may once have existed, coupled with the likelihood that these resources may have survived any subsequent disturbance to the soil column. As described above, much of the project site may once have been sensitive for precontact archaeological resources. However, there has been very substantial disturbance to the original landform from grading and filling associated with hundreds of years of historic use of the area.

Within the northern portion of the Van Cortlandt Park section of the APE, construction of the mills, the mill dam, and mill races, and demolition of the mills, infilling of the mill races, and reconstruction of the mill dam in 1904 has vastly altered the original topography. As well, construction of the original railroad tracks and station, and later raising the railroad tracks above the parkland and constructing a new station further disturbed the original landform. Finally, grading and filling within the park, and construction of walking paths and bridges has affected the original landscape. HPI concludes that there is only one location within Van Cortlandt Park that could still potentially contain relatively undisturbed soils, to the west of the former railroad tracks and south of the 1904 railroad bridge. This location is shown on Figure 12a.

Within the CSX and Metro-North portions of the APE, there has been significant disturbance from grading and filling associated with the 1870s railroad construction and subsequent upgrades to the tracks, as well as from construction of the roadway bridges crossing the tracks, the retaining walls separating the corridor from abutting buildings to the west, and construction of the Major Deegan Expressway immediately to the east of the APE. There are no longer railroad tracks within the CSX portion of the project site. The majority of the CSX and Metro-North portions of the APE also will not experience significant impacts from the proposed project, since much of the area will be raised in elevation rather than graded.

One exception is the stretch between West 238th Street to West 239th Street, where several feet of existing soil will need to be removed to connect two lower lying areas to the north and south, as shown in Appendix D. This naturally higher landform once overlooked wetlands surrounding Tibbetts Brook, and if not disturbed or if capped by fill, could contain precontact potential. This location is shown on Figure 12b. HPI concludes that there is a much lower possibility for precontact archaeological resources to remain buried within the remainder of the CSX and Metro-North portions of the APE, as grading and disturbance likely have substantially affected the original landforms. Proposed geotechnical and environmental soil borings planned for these areas could confirm the degree of disturbance along the railroad corridor.

B. Historic Period Archaeological Sensitivity and Disturbance Record

Historic use of the project site was concentrated in two general locations.

One was at the northernmost end of the project corridor in Van Cortlandt Park, where Tibbetts Brook was dammed to form a mill pond, and a saw mill and a grist mill were constructed. This location is shown on Figure 12a. The first mill dam was constructed by 1700, likely to the south of the current dam, although the precise location of the first mill dam is unknown. The first grist mill was constructed near this dam. The second mill dam was constructed in 1823, in the approximate location of the present dam. The grist mill was moved from its original location when the second mill dam was built, and a second story was added. A saw mill was constructed directly across from the grist mill along the same mill race, also in about 1823. Both mills, which were located just south of the current dam, were taken out of service in the late 1880s when the area became parkland, but remained standing for a number of years afterwards. The grist mill was destroyed by lightning in 1900 and the saw mill was razed in 1903. The dam was reconstructed in 1904 in the same location as the nineteenth-century dam, although it is unclear whether the 1904 dam completely replaced the earlier dam or incorporated any of the earlier dam elements into the new dam. To the southeast of the mill dam and on the west side of the railroad tracks, were two Van Cortlandt Park railroad stations, the first constructed in the 1870s and the second replacing the earlier one after 1904, when the tracks were elevated above the existing grade, necessitating a higher building to meet the level of the tracks. Neither station building is extant.

The second locus of historic period occupation within the project site was the Kingsbridge neighborhood, from approximately West 230th Street to West 232nd Street, as shown on Figure 12c. Prior to creation of the current city street grid, the Road to Albany was one of the main thoroughfares through this area. Today, the route of this historic roadway follows the approximate line of Albany Crescent, which is cantilevered out over the Major Deegan Expressway. During the eighteenth, nineteenth, and through the mid-twentieth centuries, this roadway was at the same elevation as the project site, and there were buildings located along its western side from south of what is now West 231st Street to north of West 232nd Street. The buildings were demolished to make way for the Major Deegan Expressway in the 1950s. Originally the rear yards of these building lots extended west into the project site. When the railroad was constructed in the 1870s, these yards were truncated. In conjunction with the railroad construction, the Kingsbridge railroad station was erected at the southeast corner of what is now the West 230th Street crossing. This railroad station is no longer extant, as its former location also falls within the Major Deegan Expressway footprint.

As with the precontact archaeology conclusions, above, determining potential historic period archaeological sensitivity within the project site involves assessing the likelihood that such resources may once have existed, coupled with the likelihood that these resources could still survive despite the same subsequent disturbances discussed above. Within Van Cortlandt Park, there is a moderate potential for the recovery of the former grist and saw mill foundations, if they were not removed when the 1904 dam was constructed. It is also possible that the former stone-lined mill races could be buried in this area. As well, there is a possibility that some portions of the 1823 mill dam could exist beneath the present 1904 dam. There are also several concrete remnants on the west side of the former railroad tracks that represent remains of subsequent, ancillary structures associated with the railroad, just outside the APE.

Within the Kingsbridge portion of the APE, there is a moderate potential for the recovery of truncated, buried shaft features, such as privies, wells, and cisterns, associated with the former buildings on the west side of the Road to Albany (now Albany Crescent). These buildings predated the introduction of municipal water and sewer service to this area by many decades, leaving the residents to rely on private wells, cisterns, and privies for their needs. Masonry and wooden portions of these abandoned and truncated shaft features are often encountered because their deeper and therefore earlier layers remain undisturbed by subsequent construction, and in fact, construction often preserves the lower sections of the features by sealing them beneath fill layers. Privies were located furthest from the buildings, often along the rear lot lines, while wells and cisterns frequently (but not always) were located closer to the rear walls of street-fronting buildings or outbuildings. Privies and cisterns could be excavated up to 10-15 feet below grade, while wells would need to be excavated as deep as the water table.

Identifying and examining buried features associated with the eighteenth and nineteenth century occupation of the project site may reflect the daily activities of the residents and provide insight into cultural behavior of the local residents. If undisturbed deposits of cultural material do still exist on the project site, they may have the potential to provide meaningful information regarding the lives of the people who lived there. When recovered from their original context and in association with a specific historical occupation, historical deposits can provide a wealth of information about consumption patterns, consumer choice, gender relations, ethnicity, economic status, and other important issues.

Although there has been disturbance in this area associated with the railroad and later with construction of the Major Deegan Expressway, there is still the potential that these shaft features could be at least partially preserved, particularly if the lower reaches were stone or wood lined and/or parged with cement, which would have been less likely to have been destroyed during later grading and filling activities.

HPI concludes that outside of these two loci, the remainder of the project site has a low sensitivity for historic period archaeological resources.

VI. RECOMMENDATIONS

Based on the results of the Phase IA Archaeological Documentary Study research, HPI recommends that planned geotechnical and environmental soil borings for the project site be reviewed by an archaeologist when they are completed to see whether intact strata that could have supported precontact occupation (such as a buried A or B soil horizon) survive beneath the disturbed soils that are expected to be found, particularly along the CSX and Metro-

North portions of the corridor. Within former marshland areas, soil boring evidence also includes the presence/absence of a thick peat lens, organic or silty deposits, a shell midden, or other precontact period cultural remains.

At this time, only one area within Van Cortlandt Park and one section of the CSX corridor, between West 238th Street and West 239th Street, have been identified as potentially sensitive for precontact period archaeological resources, as shown on Figures 12a and 12b. Review of the planned soil boring results could both further refine whether these areas may or may not be archaeologically sensitive, as well as possibly identify other locations along the project site corridor that could have precontact period archaeological potential. It is expected, however, that the majority of the project site corridor will exhibit disturbed soils in the upper soil column, which would be confirmed by the soil boring results.

Review of the soil boring results should also include a discussion of final proposed project impacts in any locations that may have precontact archaeological sensitivity, to determine whether the project could affect these resources, or if they would not be impacted. If the soil boring review concludes that there are areas of the project corridor that are both sensitive for precontact archaeological resources and that will be disturbed by project activities, then professional archaeologists should develop an archaeological Work Plan, in consultation with the LPC, that would describe the proposed archaeological field testing methods associated with such work.

HPI also has identified two discrete areas of potential historic period archaeological sensitivity within the project site. The first is the location of the former mill dam and mills at the northern end of the project site corridor in Van Cortlandt Park, as shown on Figure 12a. Although geotechnical and environmental soil borings are proposed for this area, the results would not necessarily identify whether remains of these structures and mill races are still extant in this location. HPI therefore recommends that archaeological testing or monitoring be conducted in the APE along the southern side of the existing dam to determine the presence or absence of any mill complex remains. The precise archaeological investigation methods should be described in an archaeological Work Plan that considers the proposed project work (including removal of trees and stumps in this area and subsequent grading and filling) and the most efficient way to determine the presence or absence of mill resources. In addition, HPI recommends that any subsurface exposure of the existing dam, in conjunction with installation of the new side weir north of the dam and the 42-inch pipe to be bored through the dam, be monitored and photodocumented as necessary. This photodocumentation would serve to both confirm the construction of the existing 1904 dam and to ascertain whether any remnants of the earlier 1823 mill dam are in association with the 1904 dam in the APE.

The second area of potential historic period archaeological sensitivity is between West 230th Street to West 232nd Street, where it is possible that truncated eighteenth and nineteenth-century shaft features, such as privies, wells, and cisterns, could be extant in the former rear yards of lots fronting the Road to Albany, as shown on Figure 12c. Proposed project plans indicate that the majority of this area will be filled rather than graded. The exception is the proposed retaining wall that will be installed along the existing barrier of the Major Deegan Expressway. This wall is proposed to extend seven feet below grade. It is possible that installation of this wall could reveal remains of shaft features that were once located in the rear yards of these lots. The proposed soil borings along this stretch of the project site corridor would not necessarily detect the potential shaft features, unless there was a coincidental placement of a boring in the precise feature location. HPI therefore recommends that archaeological monitoring be conducted along the proposed retaining wall, at locations to be determined in an archaeological Work Plan.

As this project moves forward and plans are finalized, the team should continue to consult with the LPC, the NYCDEC, and NYCDPR as to the timing of the soil boring programs, review of these programs by a qualified professional archaeologist, the creation of an Archaeological Work Plan, and any archaeological field testing and/or monitoring. All archaeological testing and/or monitoring should be conducted according to OSHA regulations and applicable archaeological standards (LPC 2018; CEQR 2020). Professional archaeologists, with an understanding of and experience in urban archaeological excavation techniques, would be required to be part of the archaeological team.

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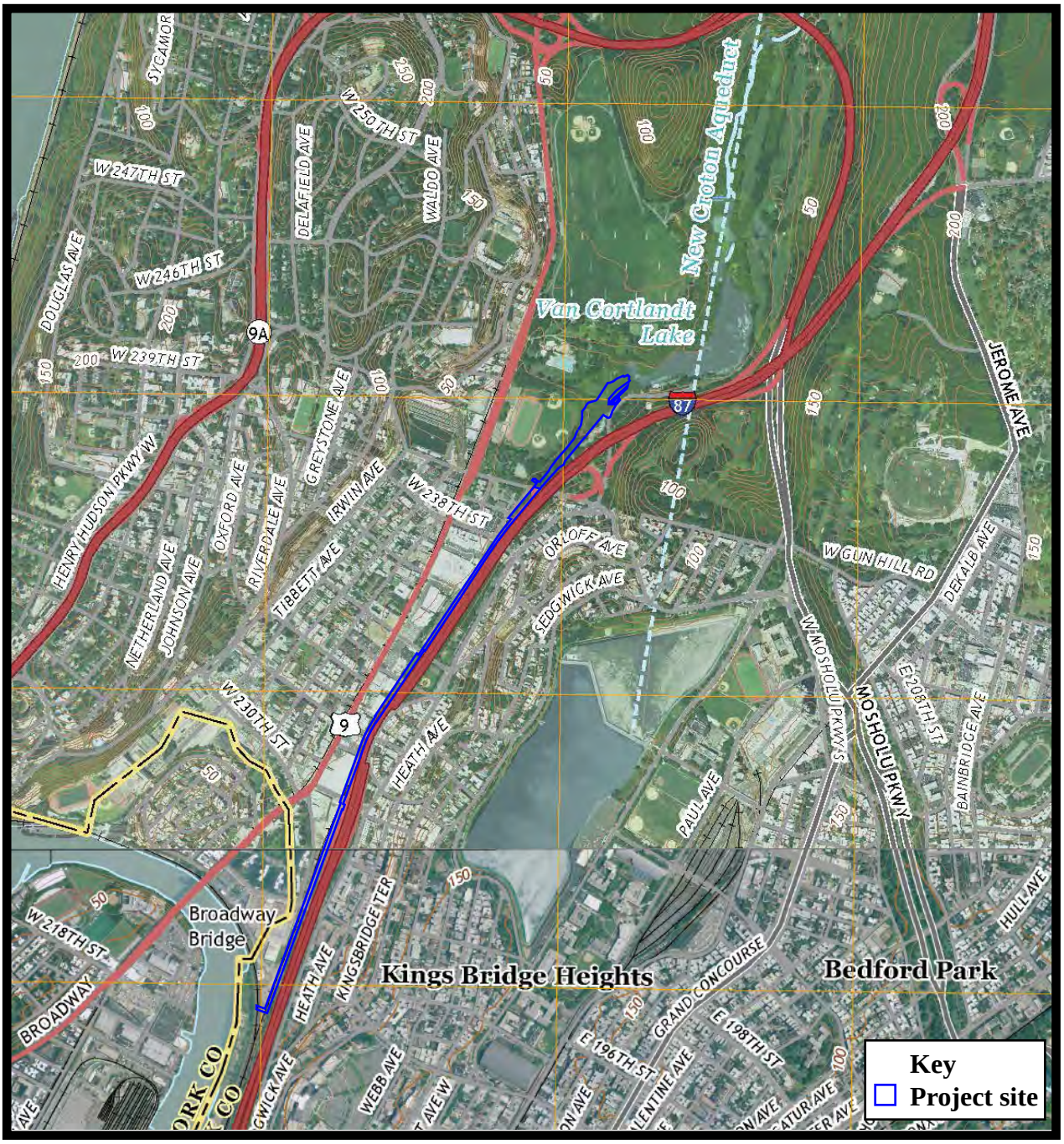
FIGURES



Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and
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Bronx, New York

Figure 1: Project site on *Yonkers, NY, NJ and Central Park, NY, NJ* 7.5 Minute Topographic Quadrangles (U.S.G.S. 2019 and 2016).

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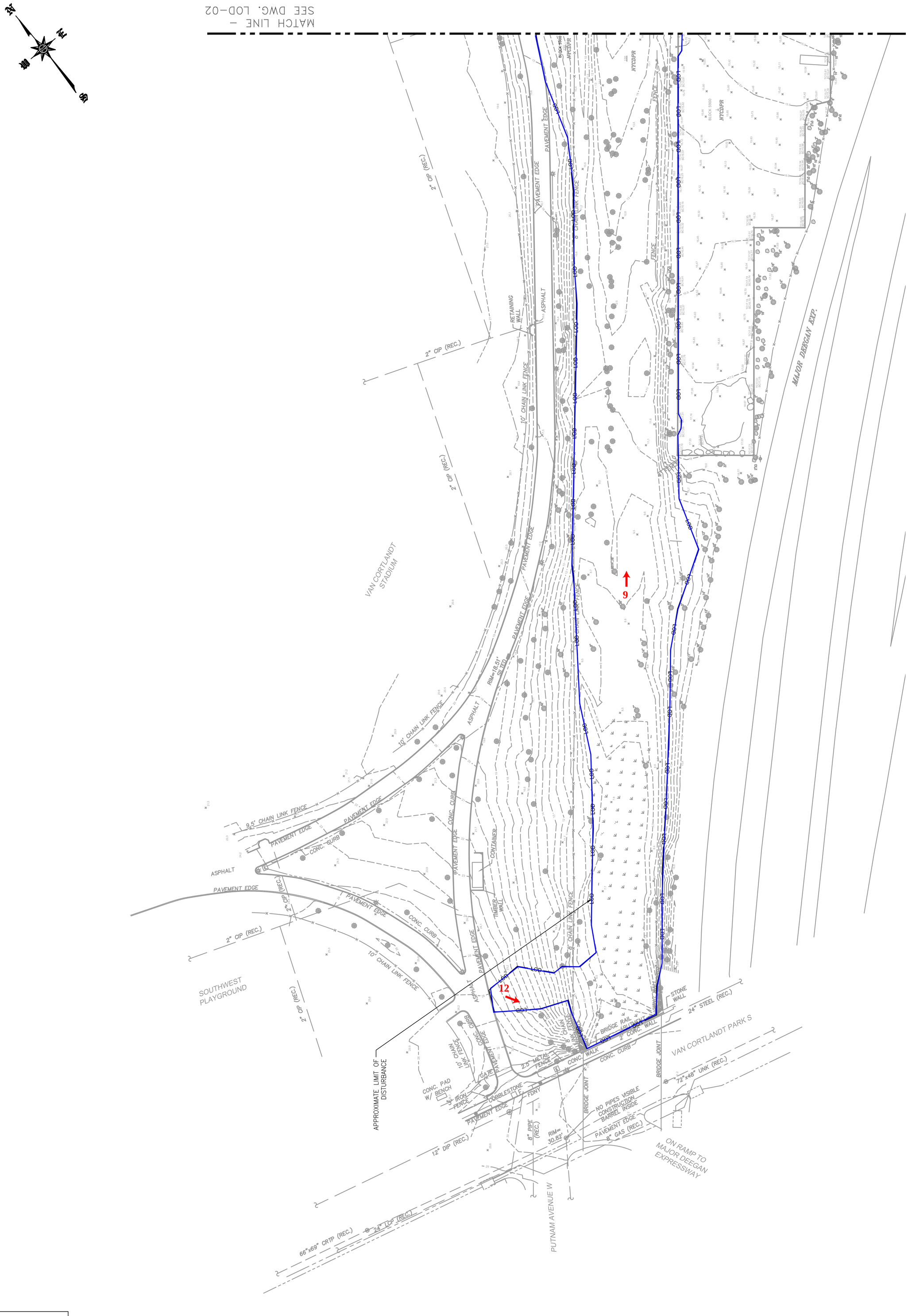
Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 2a: Van Cortlandt Park portion of project site and photograph locations on modern topographical survey (NYCDEP 2022).



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PHASE I
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VAN CORTLANDT PARK
APPROXIMATE LIMIT OF DISTURBANCE- 1 OF 2

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CAPITAL PROJECT BEPA-WQDC-DCM
TIBBETTS BROOK DAYLIGHTING AND
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THE BRONX, NEW YORK

NYC Environmental Protection

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Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 2b: Van Cortlandt Park portion of project site and photograph locations on modern topographical survey (NYCDEP 2022).

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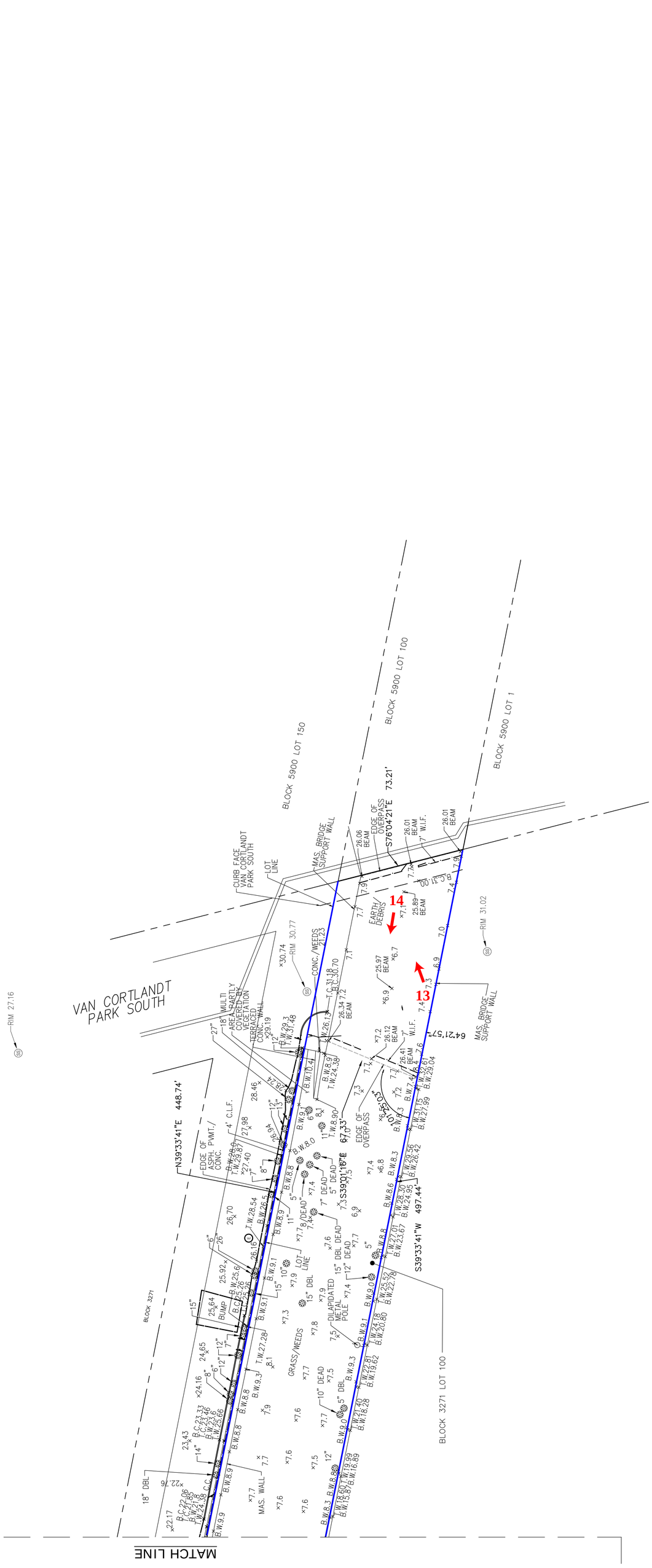

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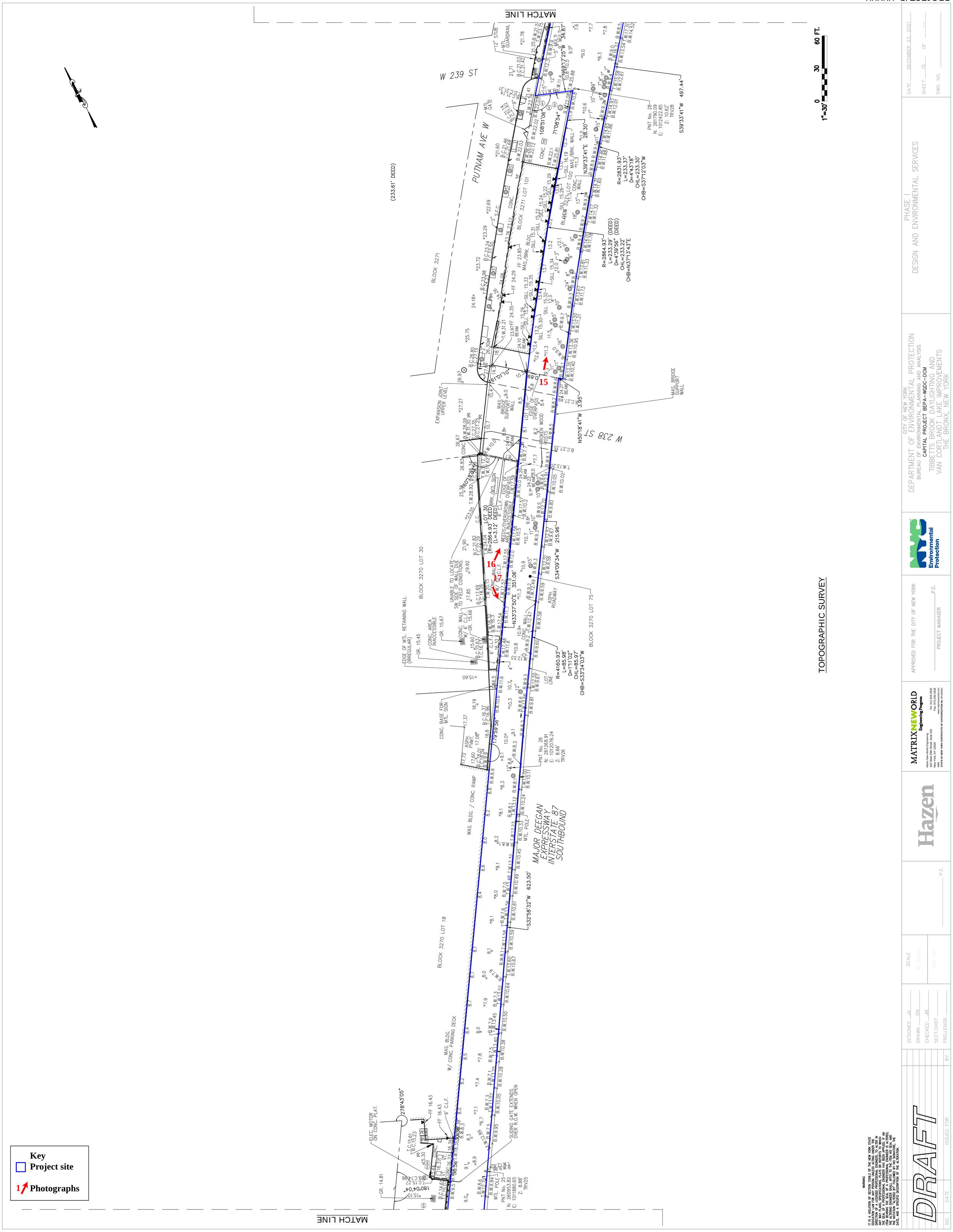
Tibbetts Brook Daylighting and Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 2c: CSX portion of project site and photograph locations on modern topographical survey (NYCDEP 2022).



TOPOGRAPHIC SURVEY

Key
Project site
1 Photographs

Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 2d: CSX portion of project site and photograph locations on modern topographical survey (NYCDEP 2022).

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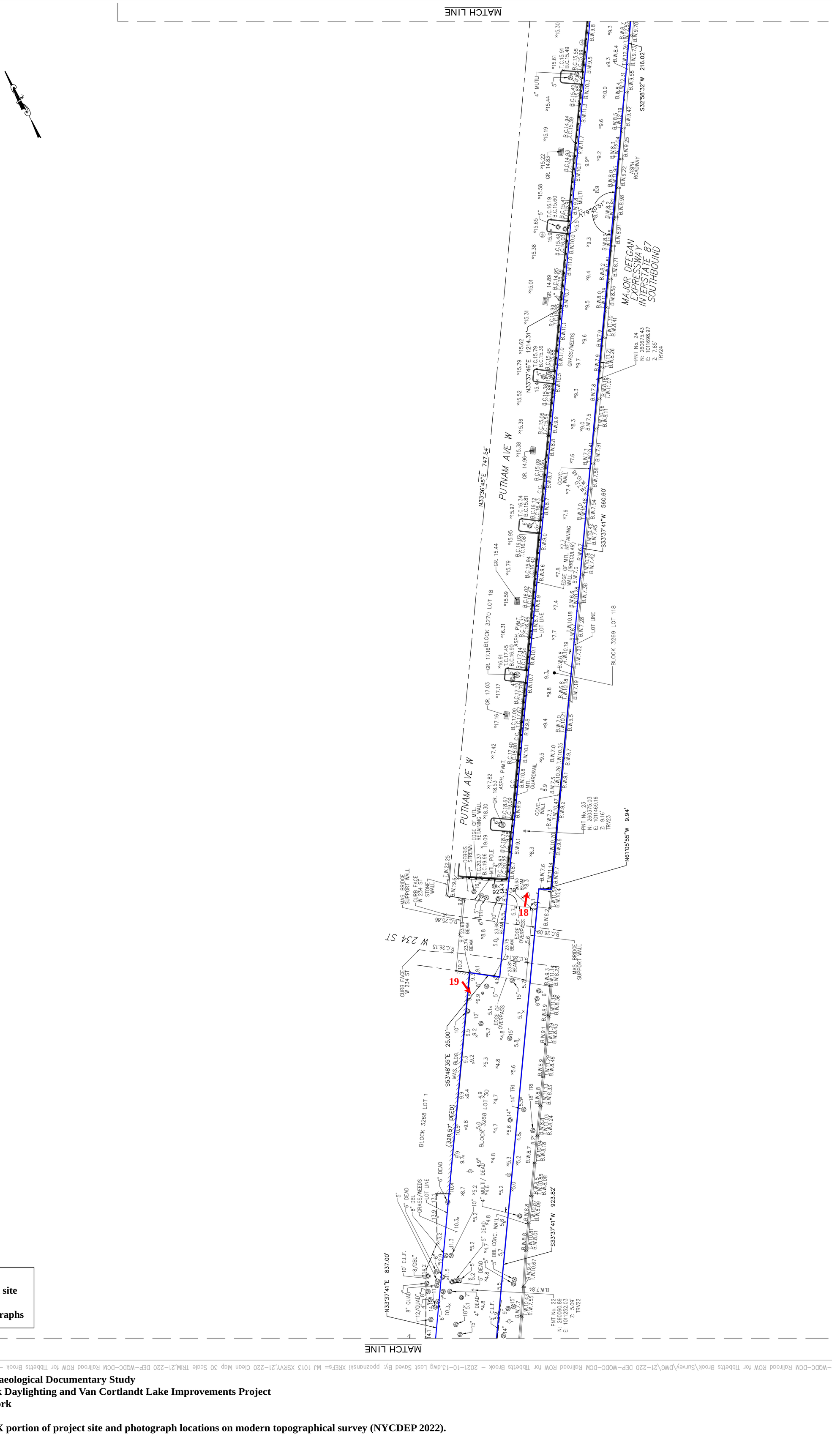

TOPOGRAPHIC SURVEY

Key
Project site
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Tibbetts Brook Daylighting and Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 2e: CSX portion of project site and photograph locations on modern topographical survey (NYCDEP 2022).

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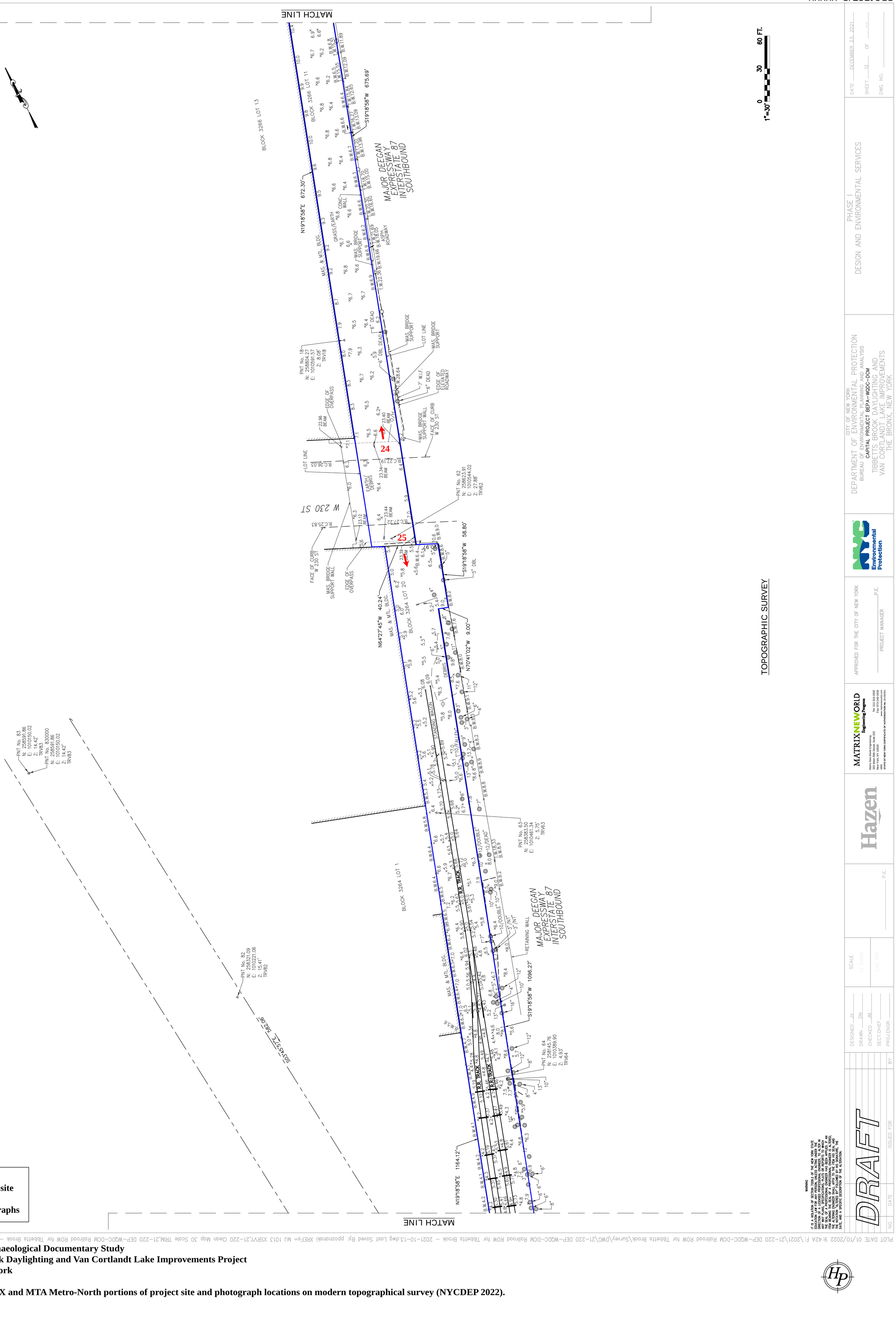
Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 2f: CSX portion of project site and photograph locations on modern topographical survey (NYCDEP 2022).



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Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 2g: CSX and MTA Metro-North portions of project site and photograph locations on modern topographical survey (NYCDEP 2022).

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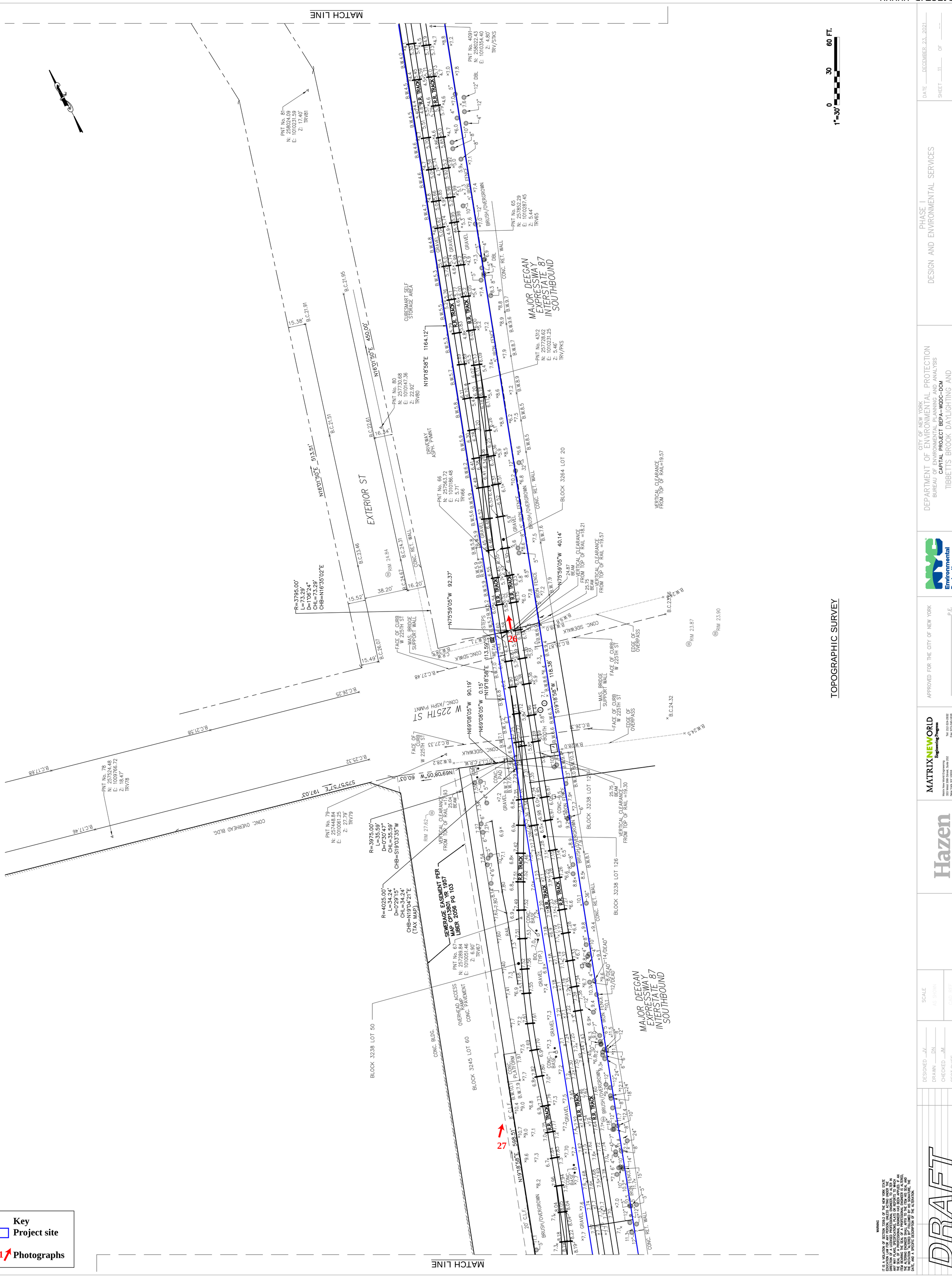

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Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 2h: MTA Metro-North portion of project site and photograph locations on modern topographical survey (NYCDEP 2022).

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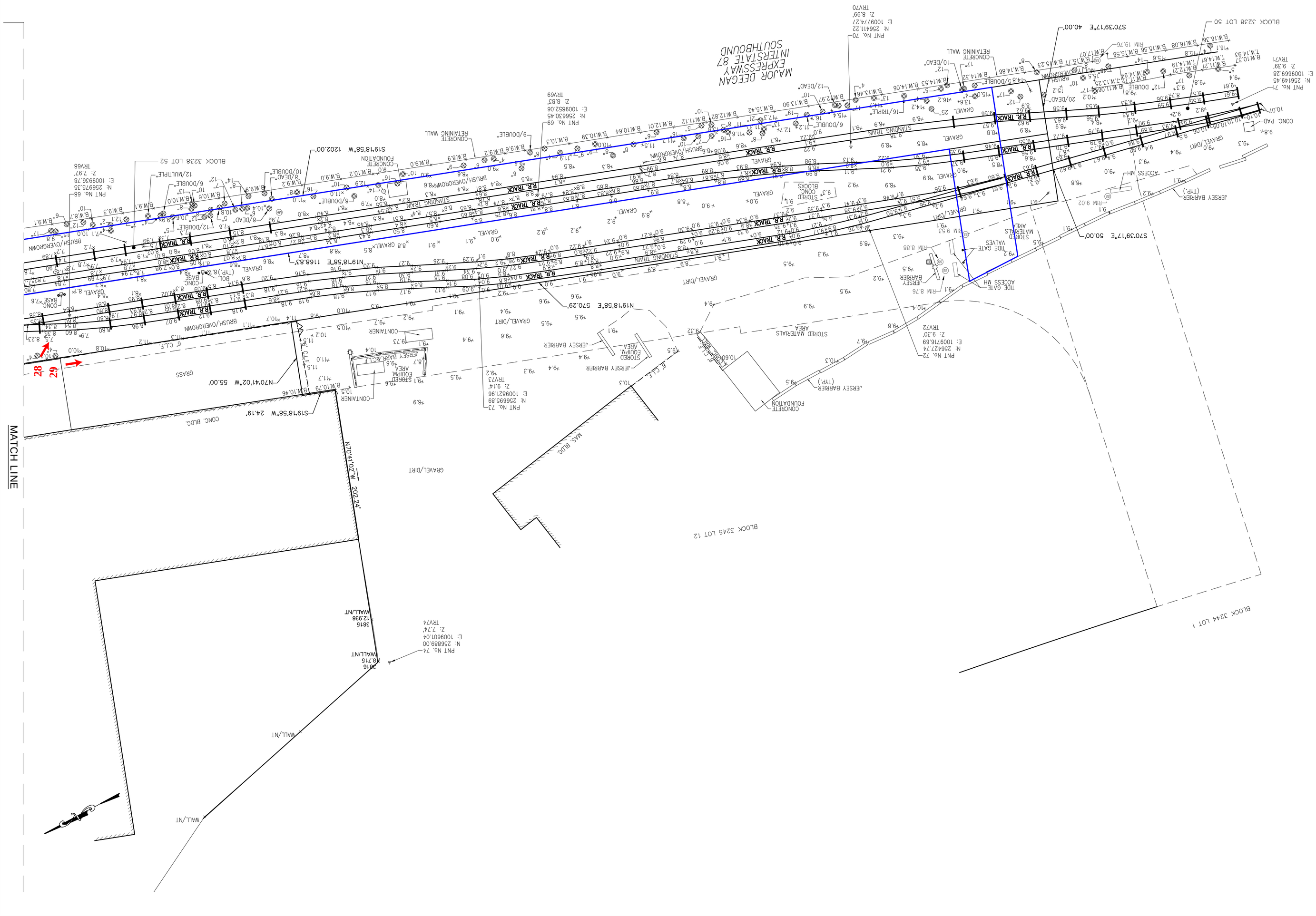

Key
Project site
1 Photographs

Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 2i: MTA Metro-North portion of project site and photograph locations on modern topographical survey (NYCDEP 2022).

Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and
Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 3: Project site on *New York City Reconnaissance Soil Survey* (U.S.D.A. 2005).

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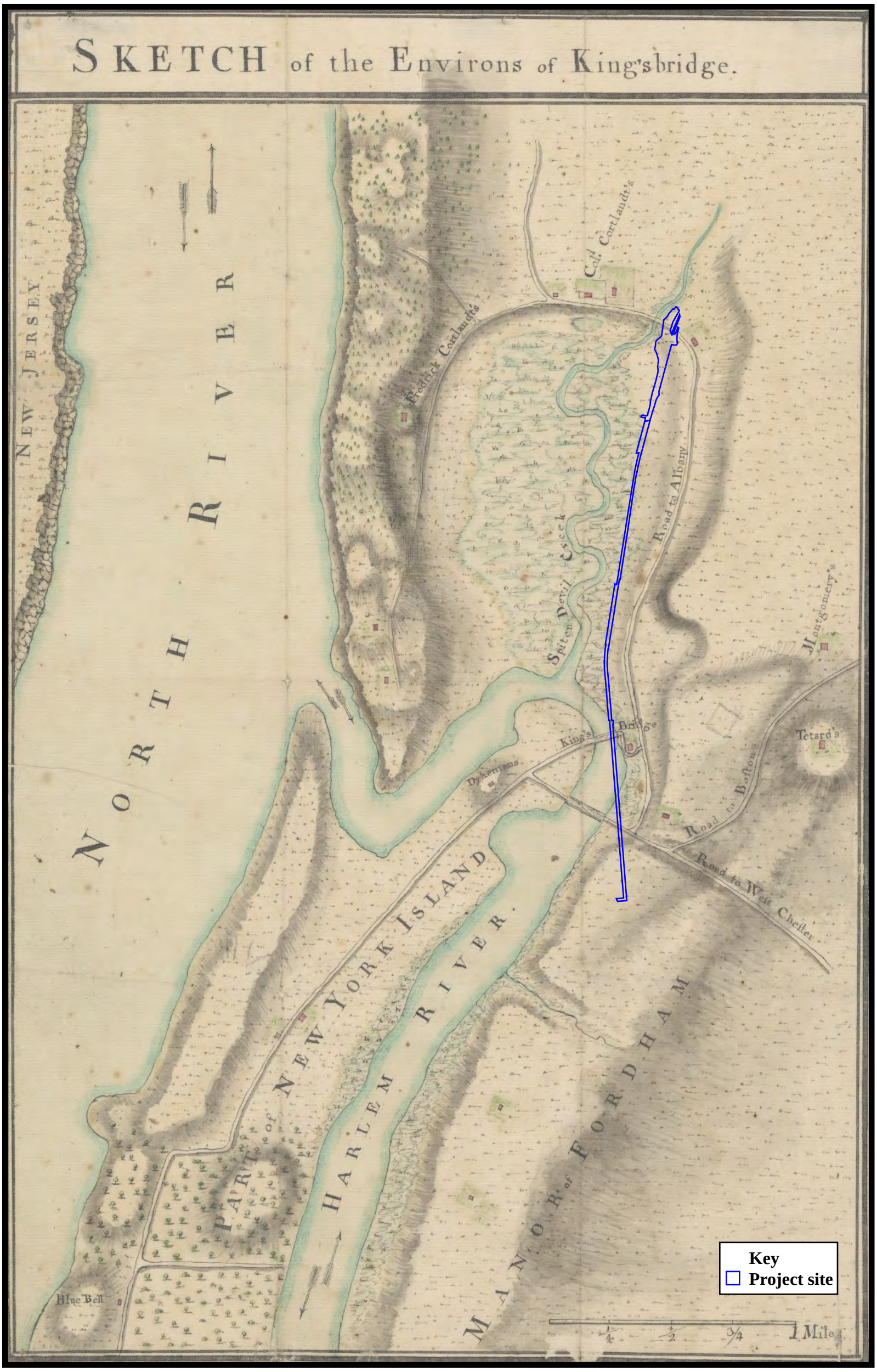

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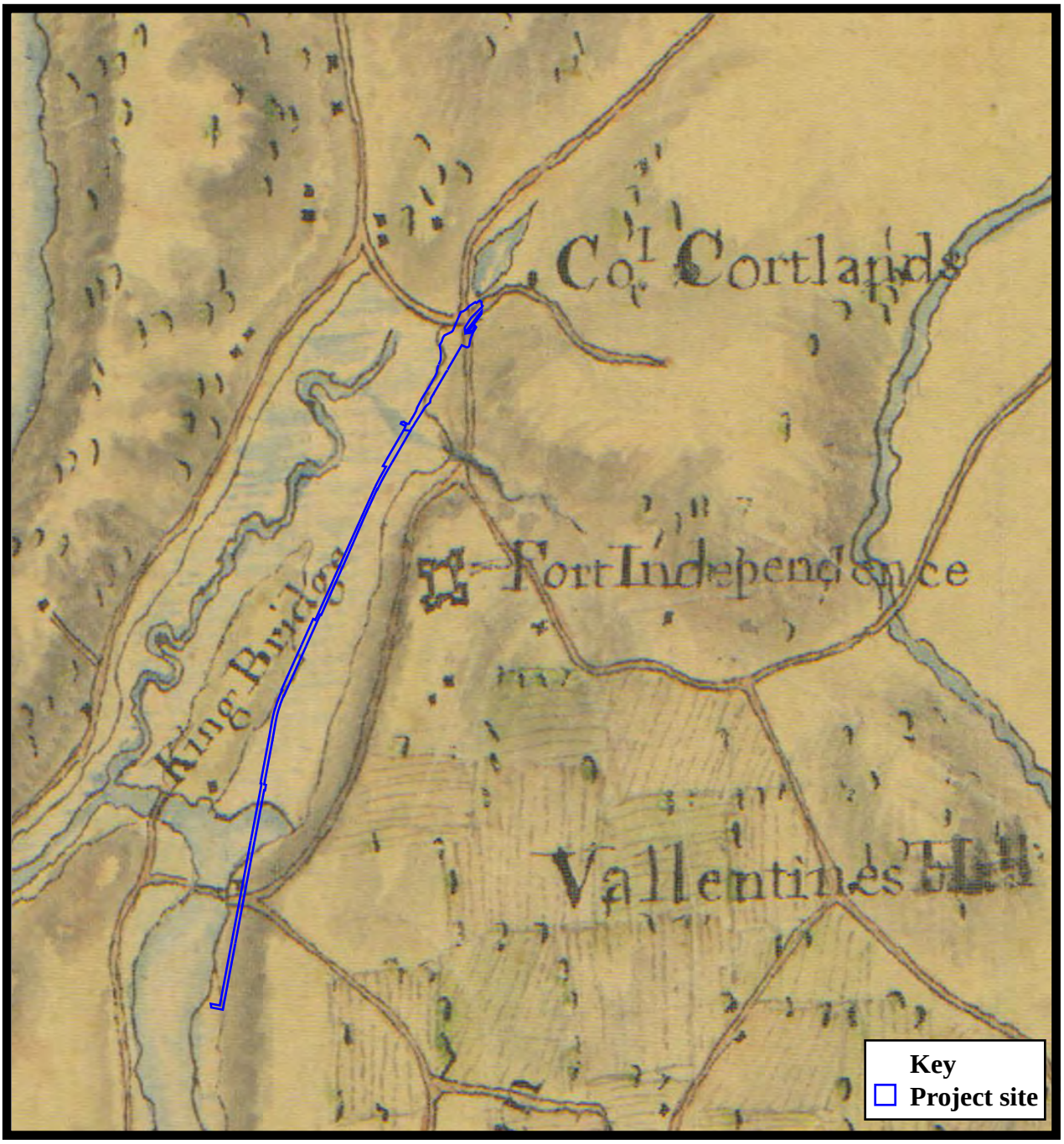
Tibbetts Brook Daylighting and
Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 4: Project site (approximate) on *Sketch of the Environs of King's bridge* (Clinton ca. 1775-1783). Not to scale.



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Tibbetts Brook Daylighting and
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Figure 5: Project site (approximate) on *A Plan of New York Island...* (Montresor 1778).

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Tibbetts Brook Daylighting and
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Bronx, New York

Figure 6: Project site on *Map of the Southern Part of Westchester County, New York* (Dripps 1853).

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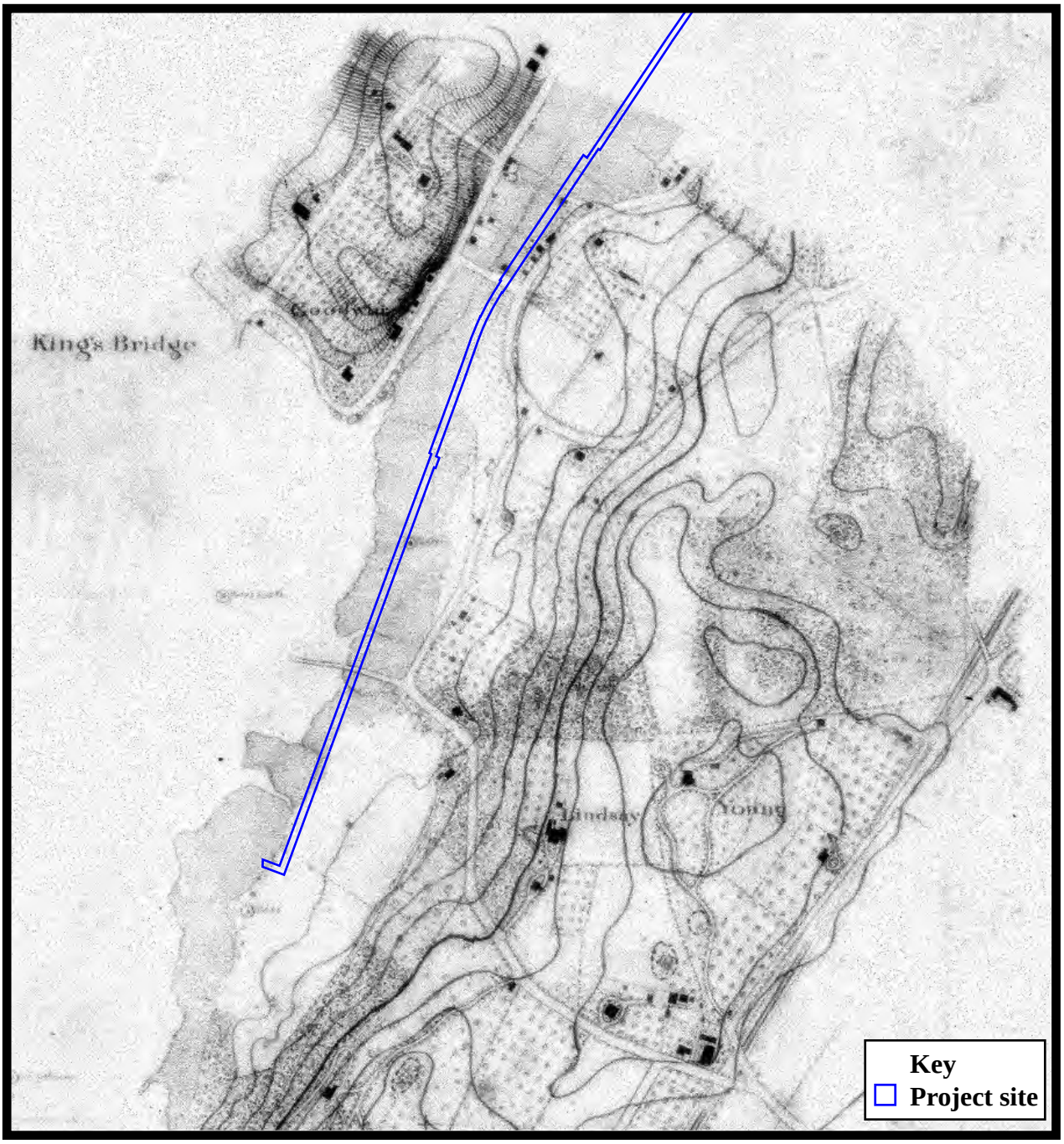

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Tibbetts Brook Daylighting and
Van Cortlandt Lake Improvements Project
Bronx, New York

Figure x: Southern portion of the project site on *East Side of Harlem River from High Bridge to Kingsbridge* (U.S.C.S. 1859).

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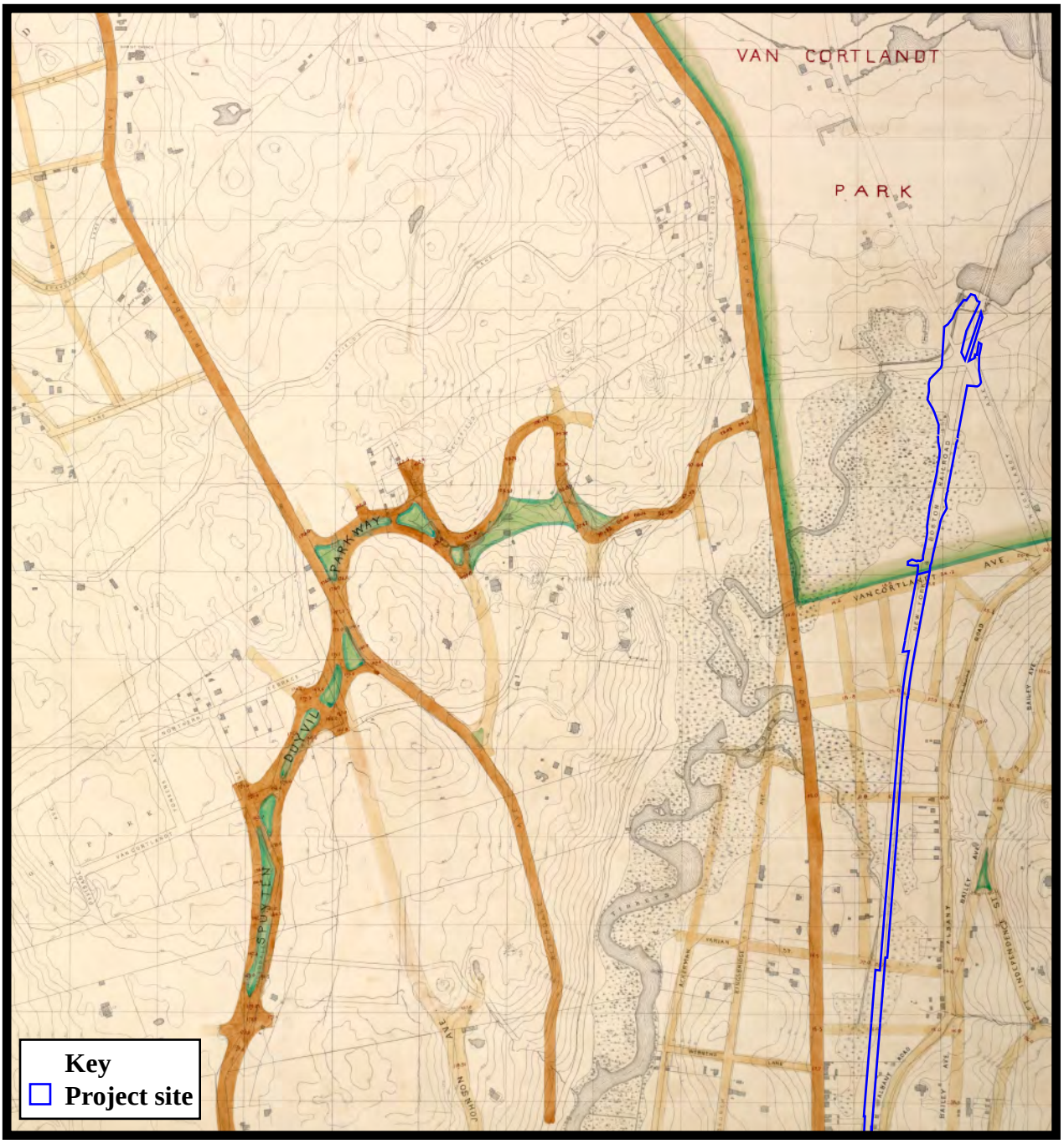

Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and
Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 8a: Northern portion of the project site on *Topographical map made from surveys by the Commissioners of the Department of Public Parks of the City of New York...* (Grant 1873).

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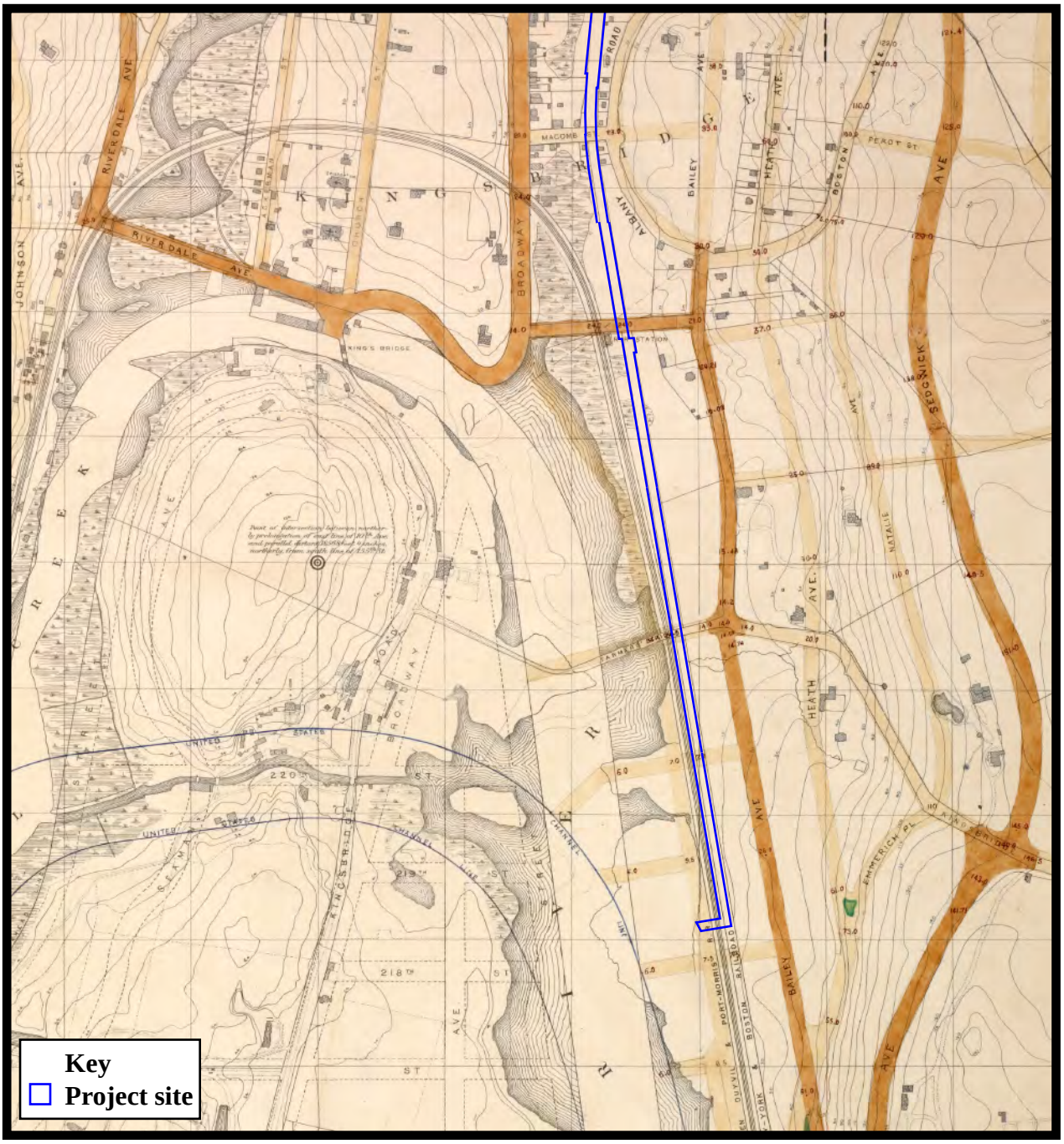

Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and
Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 8b: Southern portion of the project site on *Topographical map made from surveys by the Commissioners of the Department of Public Parks of the City of New York...* (Grant 1873).

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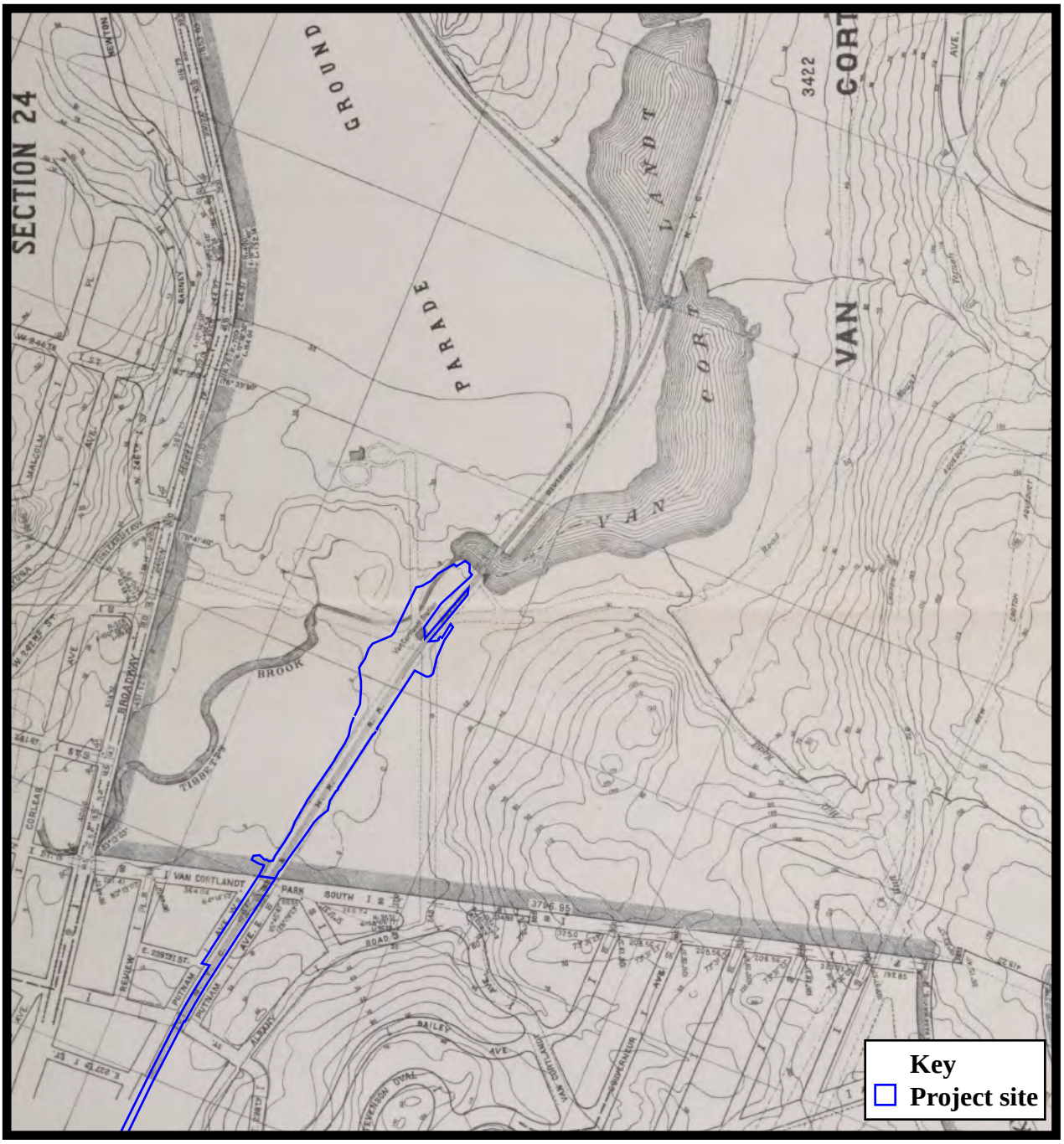

Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and
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Bronx, New York

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Figure 9a: Northern portion of the project site on *Section 27 of Final Maps and Profiles of the 23rd and 24th Wards...* (Risse 1895).

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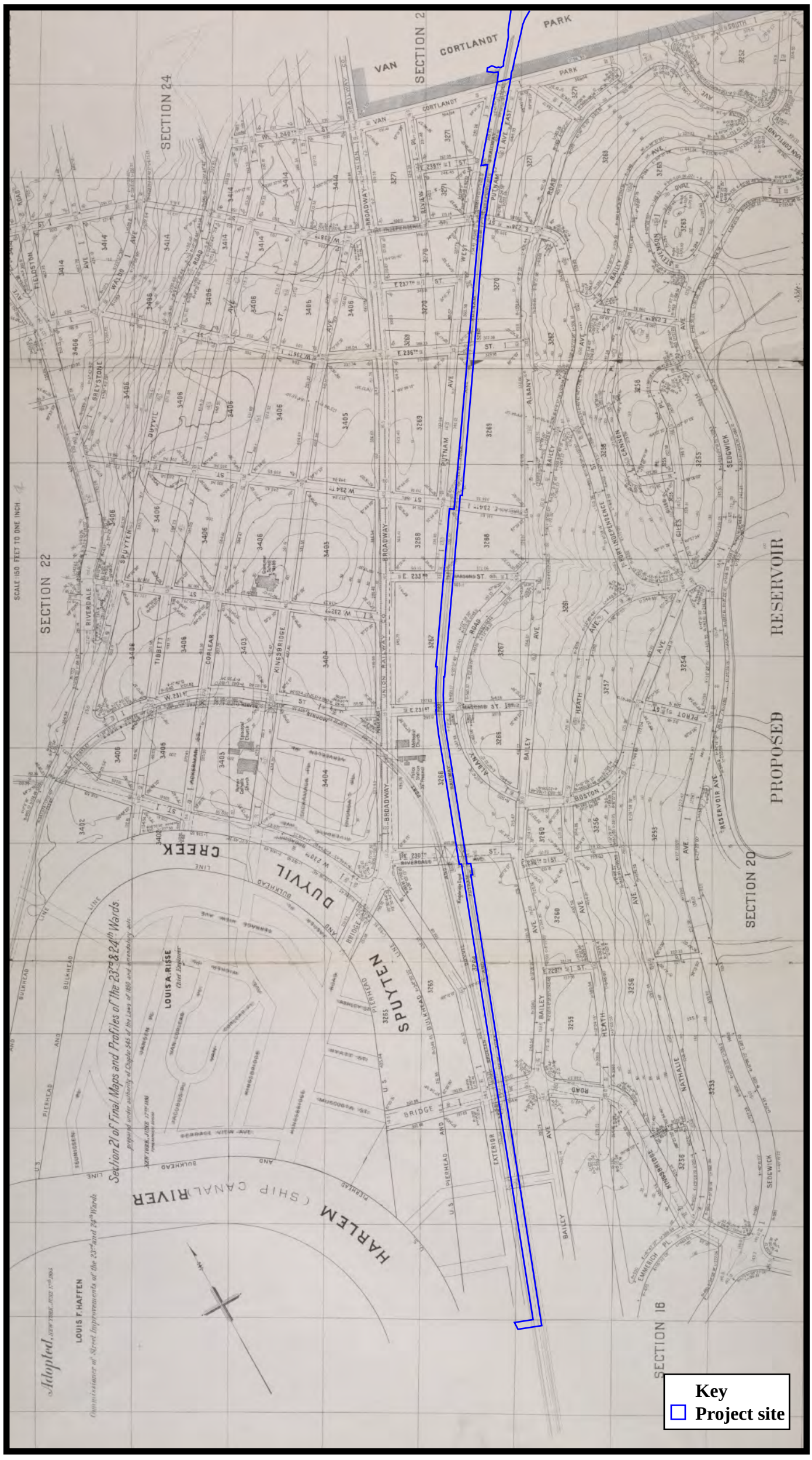

Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and
Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 9b: Southern portion of the project site on *Section 21 of Final Maps and Profiles of the 23rd and 24th Wards...* (Risse 1895).

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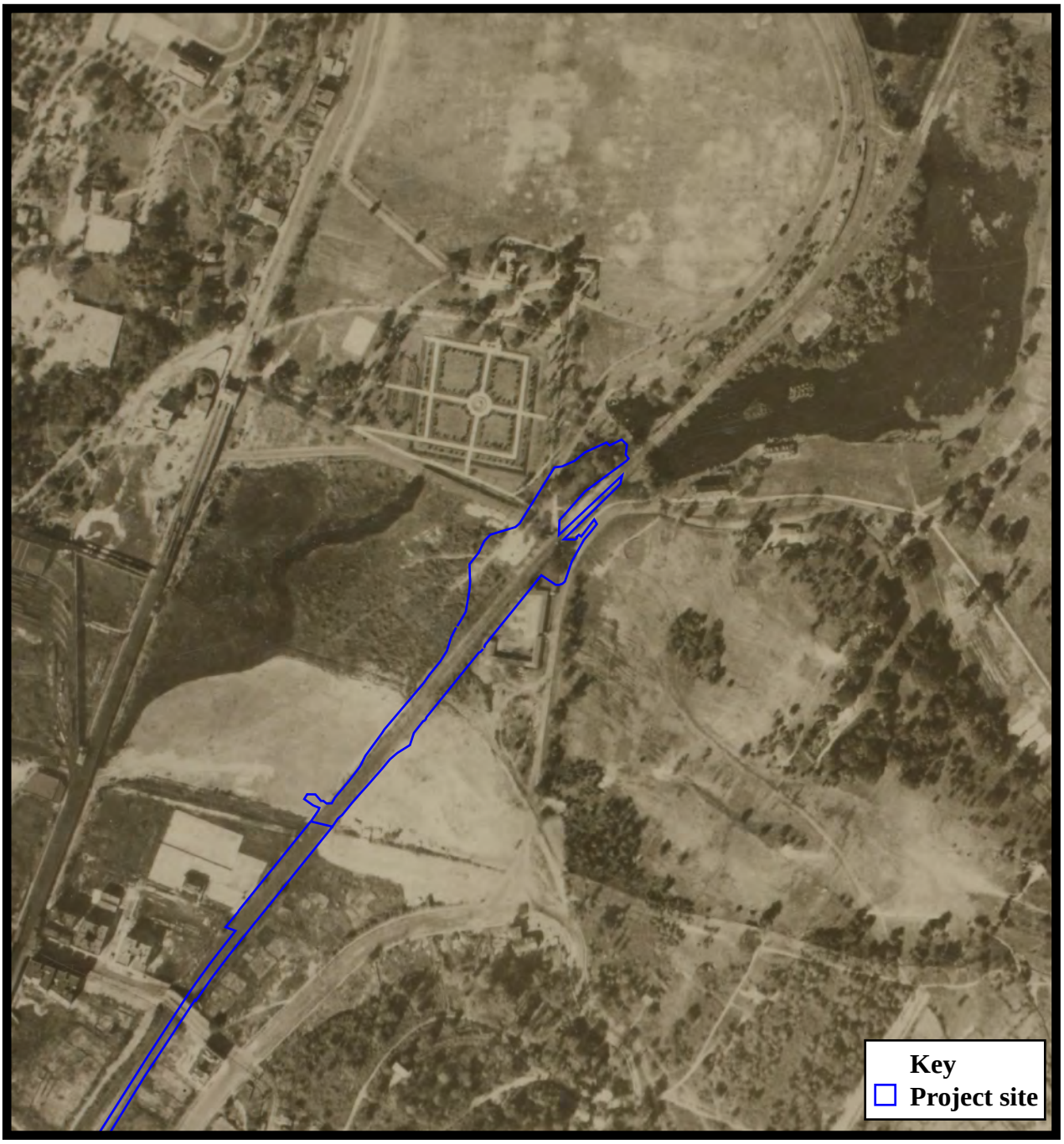

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Tibbetts Brook Daylighting and
Van Cortlandt Lake Improvements Project
Bronx, New York

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Figure 10: Northern portion of the project site on *Sectional Aerial Maps of the City of New York* (Bureau of Engineering 1924).

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Tibbetts Brook Daylighting and
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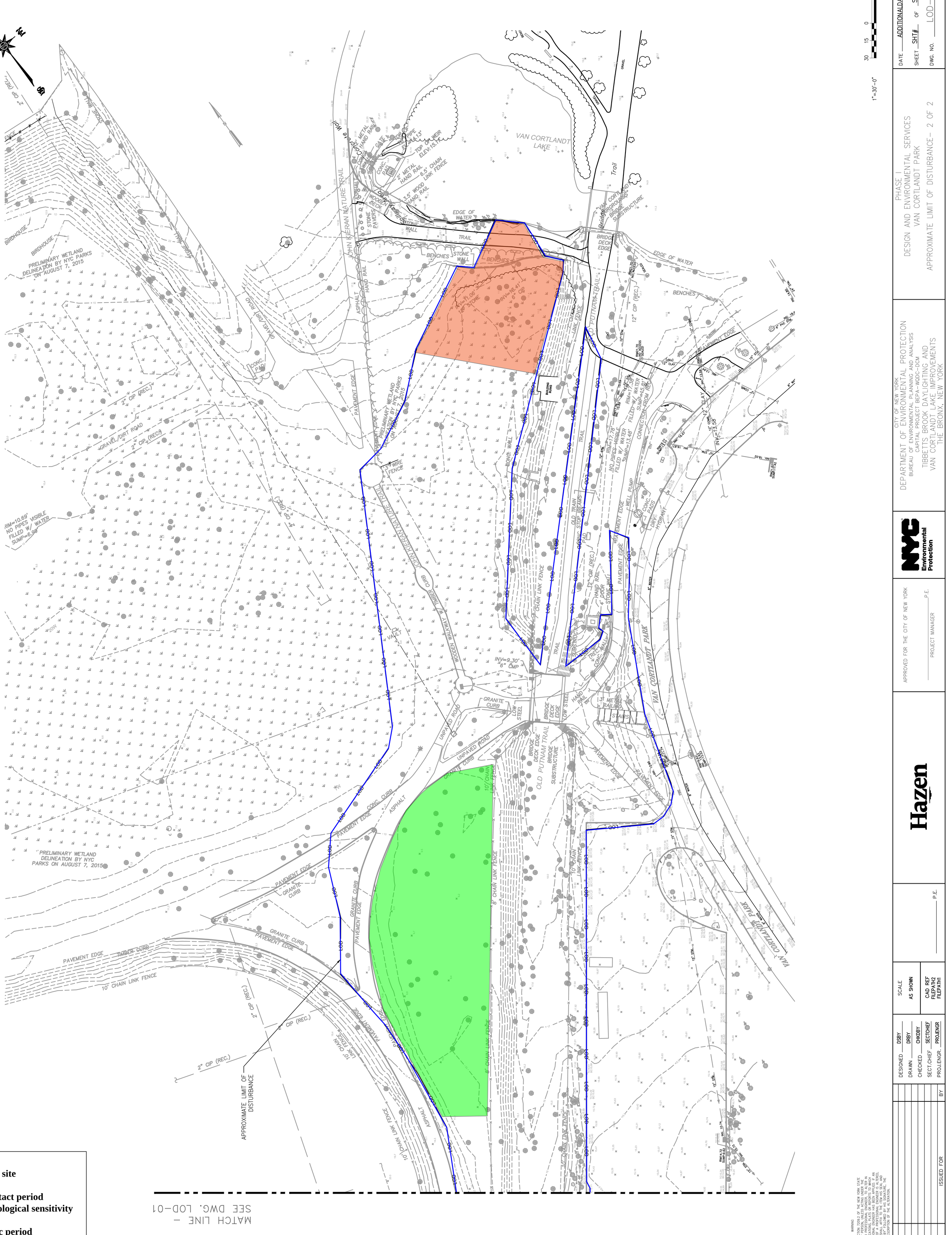
Bronx, New York

Figure 11: Northern portion of the project site on *Topographical Survey for a Portion of Van Cortlandt Park* (City of New York Department of Parks 1934, 1936).



PROJECT ID. XXXXX

DATE ADDITIONALDATE
SHEET SHT# OF SHTOF#
DWG. NO. LOD-2

PHASE I
DESIGN AND ENVIRONMENTAL SERVICES
VAN CORTLANDT PARK
APPROXIMATE LIMIT OF DISTURBANCE- 2 OF 2

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS
CAPITAL PROJECT BEPA-WQDC-DCM
TIBBETTS BROOK DAYLIGHTING AND
VAN CORTLANDT LAKE IMPROVEMENTS
THE BRONX, NEW YORK

NYC Environmental Protection

APPROVED FOR THE CITY OF NEW YORK
PROJECT MANAGER P.E.

Hazen

P.E.

SCALE AS SHOWN
CAD REF
FILEPATH2
FILEPATH1

DESIGNED DSBY
DRAWN DRBY
CHECKED CHKDBY
SECT.CHIEF SECTCHIEF
PROJ.ENGR. PROJENGR

NO.	DATE	ISSUED FOR	BY

WARNING
IT IS A VIOLATION OF SECTION 7209.2 OF THE NEW YORK STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER IN ANY WAY PLANS, SPECIFICATIONS, PLATS OR REPORTS TO WHICH THE SEAL OF A PROFESSIONAL ENGINEER HAS BEEN APPLIED. IF AN ENGINEER ALTERS SUCH A DOCUMENT, HE/SHE SHALL STAMP IT WITH THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS SIGNATURE, THE DATE, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

PLOT DATE 01/04/2022 3:15P O:\90286-NYC\90286-017\CAD_BIM\CIVIL\LOD over Survey.dwg Last Saved By: RDillon XREFs= 90286-017_TB_HAZEN,CX-SP-ST,CX-SP-TP

Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 12a: Van Cortlandt Park portion of project site showing archaeological sensitivity on modern topographical survey (HPI 2022 and NYCDEP 2022).

TOPOGRAPHIC SURVEY

PHASE I
DESIGN AND ENVIRONMENTAL SERVICES

DATE DECEMBER 23, 2021
SHEET 15 OF --
DWG. NO. --

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS
CAPITAL PROJECT BEPA-WQDC-DCM
TIBBETTS BROOK DAYLIGHTING AND
VAN CORTLANDT LAKE IMPROVEMENTS
THE BRONX, NEW YORK

APPROVED FOR THE CITY OF NEW YORK
P.E.
PROJECT MANAGER

NYC Environmental Protection

MATRIXNEWORLD
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www.matrixnewworld.com
STATE OF NEW YORK CERTIFICATE OF AUTHORIZATION No. 17-025061

Hazen

P.E.

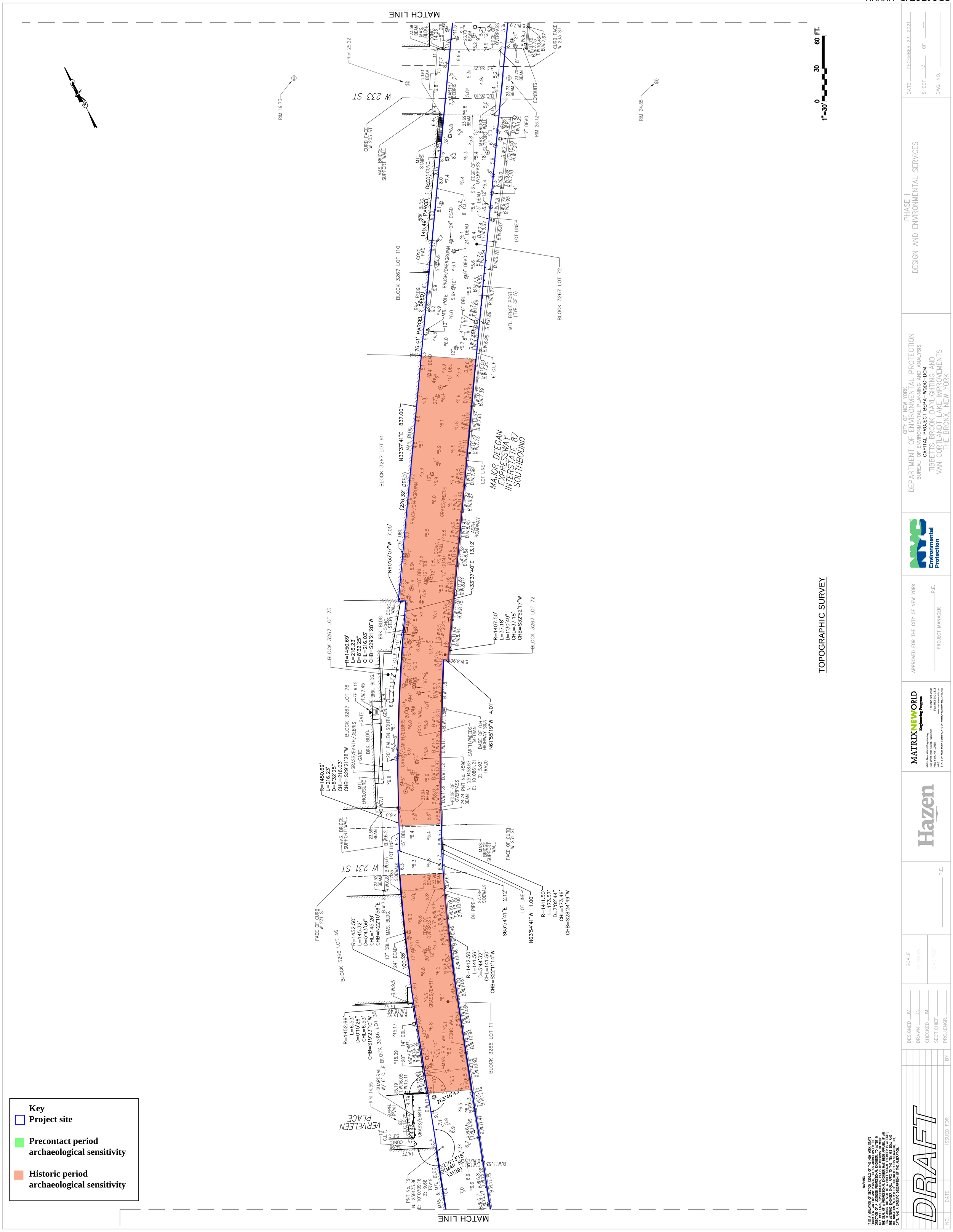
DESIGNED JV
DRAWN DN
CHECKED JM
SECT.CHIEF
PROJ.ENGR.

NO.	DATE	ISSUED FOR	BY
		DRAFT	

SCALE AS SHOWN
CAD. REF.

Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 12b: CSX portion of project site showing archaeological sensitivity on modern topographical survey (HPI 2022 and NYCDEP 2022).



TOPOGRAPHIC SURVEY

Key
- Project site
- Precontact period archaeological sensitivity
- Historic period archaeological sensitivity

PROJECT ID. XXXXX

PHASE I
DESIGN AND ENVIRONMENTAL SERVICES

DATE DECEMBER 23, 2021
SHEET 13 OF --
DWG. NO.

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS
CAPITAL PROJECT BEPA–WQDC–DCM
TIBBETTS BROOK DAYLIGHTING AND
VAN CORTLANDT LAKE IMPROVEMENTS
THE BRONX, NEW YORK

NYC Environmental Protection

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STATE OF NEW YORK CERTIFICATE OF AUTHORIZATION No. 21-082061

Hazen

SCALE AS SHOWN
CAD. REF.
P.E.

DESIGNED JV
DRAWN DN
CHECKED JM
SECT.CHIEF
PROJ.ENGR.

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PLOT DATE 01/10/2022 9:42A F:\2021\21-220 DEP-WQDC-DCM Railroad ROW for Tibbetts Brook\Survey\DWG\21-220 DEP-WQDC-DCM Railroad ROW for Tibbetts Brook – 2021-10-13.dwg Last Saved By: ppoznanski XREFs= MJ 1013 XSRVY,21-220 Clean Map 30 Scale TRIM,21-220 DEP-WQDC-DCM Railroad ROW for Tibbetts Brook – 2021-10-13

Phase IA Archaeological Documentary Study
Tibbetts Brook Daylighting and Van Cortlandt Lake Improvements Project
Bronx, New York

Figure 12c: CSX portion of project site and archaeological sensitivity on modern topographical survey (HPI 2022 and NYCDEP 2022).

PHOTOGRAPHS

Photograph 1. The southern end of Van Cortlandt Lake/Hester and Piero's Mill Pond, at the northern terminus of the APE. View looking northeast.

Photograph 2. The stone causeway and walking trail at the southern end of Van Cortlandt Lake/Hester and Piero's Mill Pond, marking the northern end of the APE. View looking northwest.

Photograph 3. The stone causeway and walking trail at the southern end of Van Cortlandt Lake/Hester and Piero's Mill Pond, and the lower lying area adjoining it, where the mills and mill races formerly were located. View looking southeast.

Photograph 4. The location of the former mills, near the stone causeway. Note the pile of stones next to the causeway wall. View looking north.

Photograph 5. Detail of the stone pile in the area once containing the historic mills. View looking north.

Photograph 6. The APE immediately south of Van Cortlandt Lake/Hester and Piero's Mill Pond, with the Old Putnam Trail in the far background. View looking south.

Photograph 7. On top of the Old Putnam Trail, with a former railroad shelter on the left, and the 1904 bridge crossing over park walkways in the background. View looking southwest.

Photograph 8. The APE showing the 1904 railroad bridge carrying the Old Putnam Trail. View looking southeast.

Photograph 9. The APE near the southern end of Van Cortlandt Park. View looking northeast.

Photograph 10. The APE showing a portion of the John Kiernan Nature Trail wooden walkway, traversing wetlands. View looking north.

Photograph 11. The APE showing a wooded area south of the marshlands, with the elevated berm supporting the former railroad corridor in the background. View looking east.

Photograph 12. The APE showing the Van Cortlandt Park South overpass. View looking southeast.

Photograph 13. The CSX-owned portion of the APE, looking north toward the Van Cortlandt Park South overpass.

Photograph 14. The CSX-owned portion of the APE, looking southwest from Van Cortlandt Park South.

Photograph 15. The CSX-owned portion of the APE, looking northeast from West 238th Street.

Photograph 16. The CSX-owned portion of the APE, looking northeast toward the West 238th Street overpass.


Photograph 17. The CSX-owned portion of the APE, looking south from West 238th Street.


Photograph 18. The CSX-owned portion of the APE, looking northeast from West 234th Street.

Photograph 19. The CSX-owned portion of the APE, looking south from West 234th Street.

Photograph 20. The CSX-owned portion of the APE, looking northeast from West 233rd Street.

Photograph 21. The CSX-owned portion of the APE, looking southwest from West 233rd Street.

Photograph 22. The CSX-owned portion of the APE, looking northeast from West 231st Street.


Photograph 23. The CSX-owned portion of the APE, looking southwest from West 231st Street.

Photograph 24. The CSX-owned portion of the APE, looking northeast from West 230th Street.

Photograph 25. The MTA Metro-North-owned portion of the APE, looking southwest from West 230th Street. The proposed underground conduit would be located nearest the Interstate 87 overpass on the left.

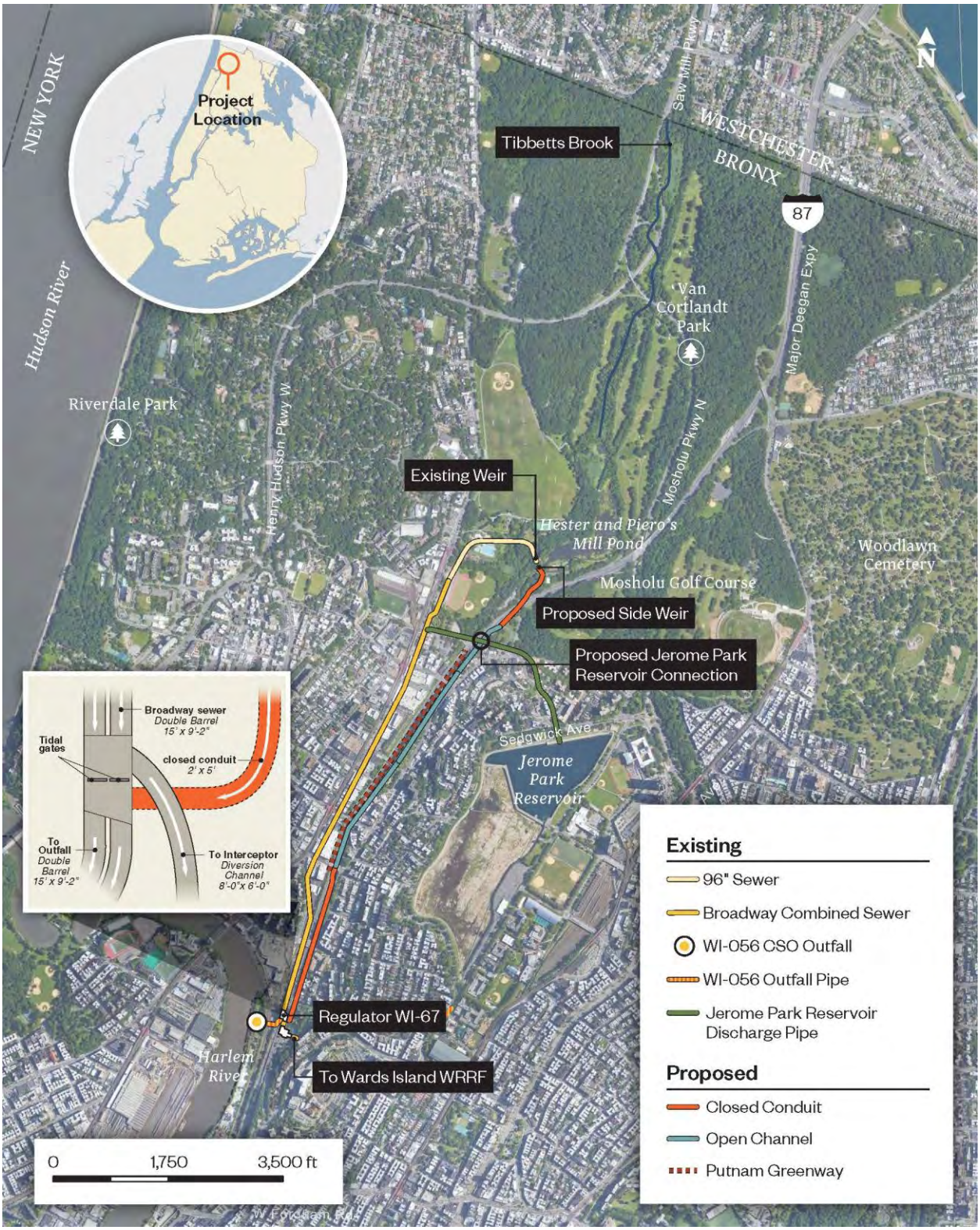
Photograph 26. The MTA Metro-North-owned portion of the APE, looking northeast from West 225th Street. The proposed underground conduit would be located to the right of the railroad tracks.

Photograph 27. The MTA Metro-North-owned portion of the APE, looking northeast towards West 225th Street overpass. The proposed underground conduit would be located between the railroad tracks and Interstate 87.

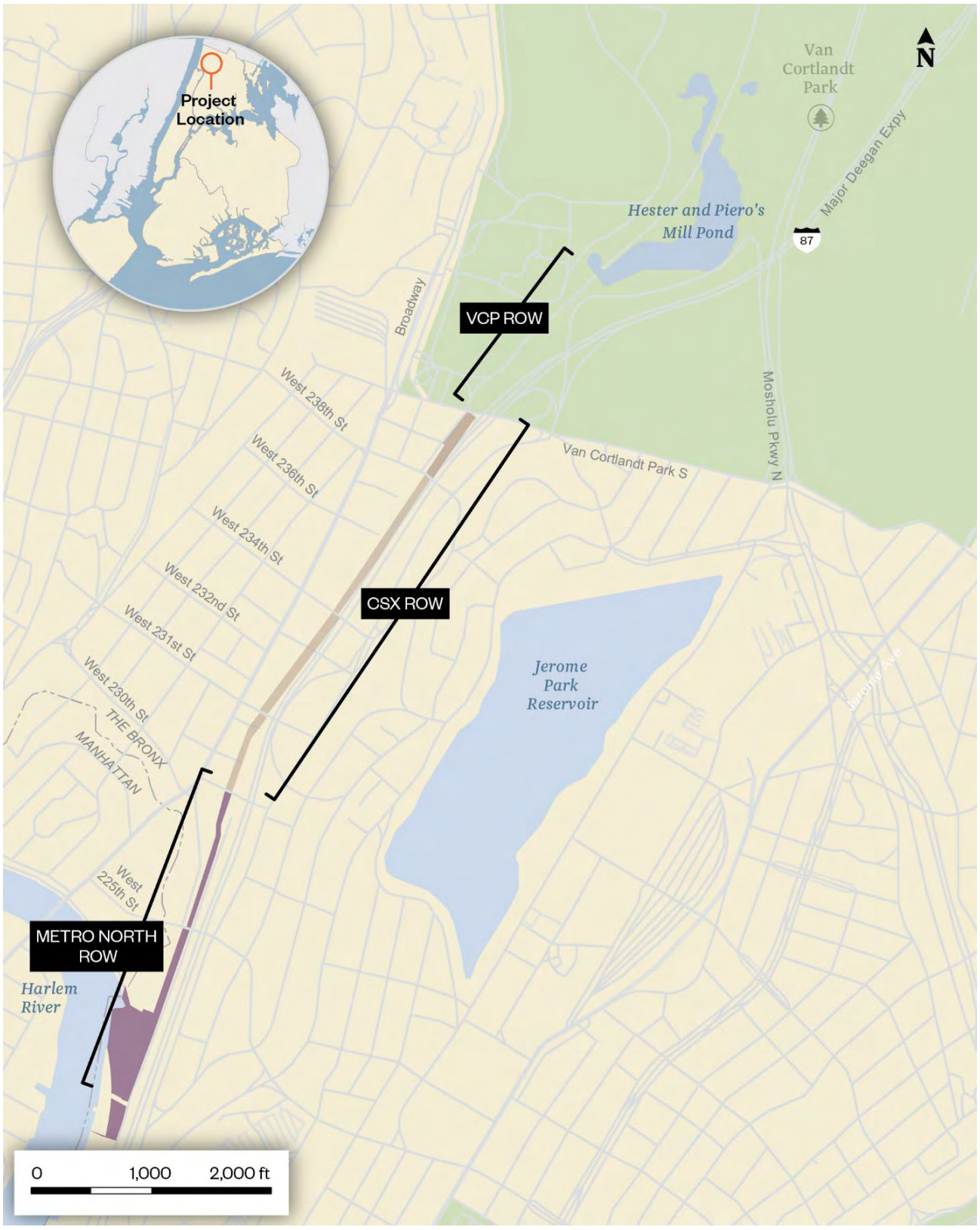
Photograph 28. The MTA Metro-North-owned portion of the APE, looking south from south of West 225th Street. The proposed underground conduit would be located between the railroad tracks and Interstate 87.

Photograph 29. The MTA Metro-North-owned portion of the APE, looking southeast towards the Harlem River outfall location. The proposed underground conduit would be located between the railroad tracks and Interstate 87 on the left, and the cross under the tracks toward the Harlem River in the far background.

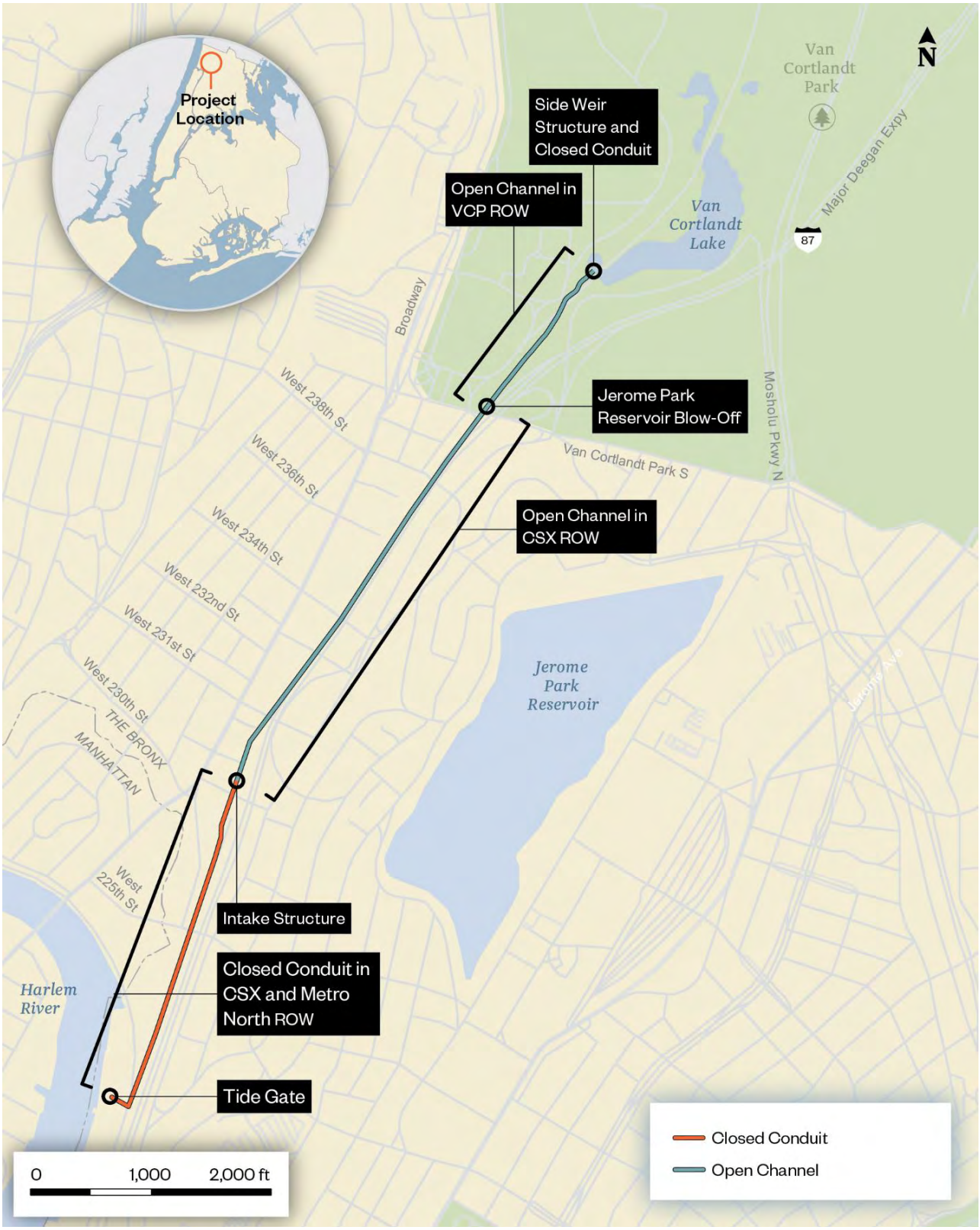
APPENDIX A: OVERALL PROJECT PLANS (HAZEN & SAWYER 2022)



Project Location Map



Location Map of the Tibbetts Brook Complex, the CSX ROW and MTA Metro-North ROW



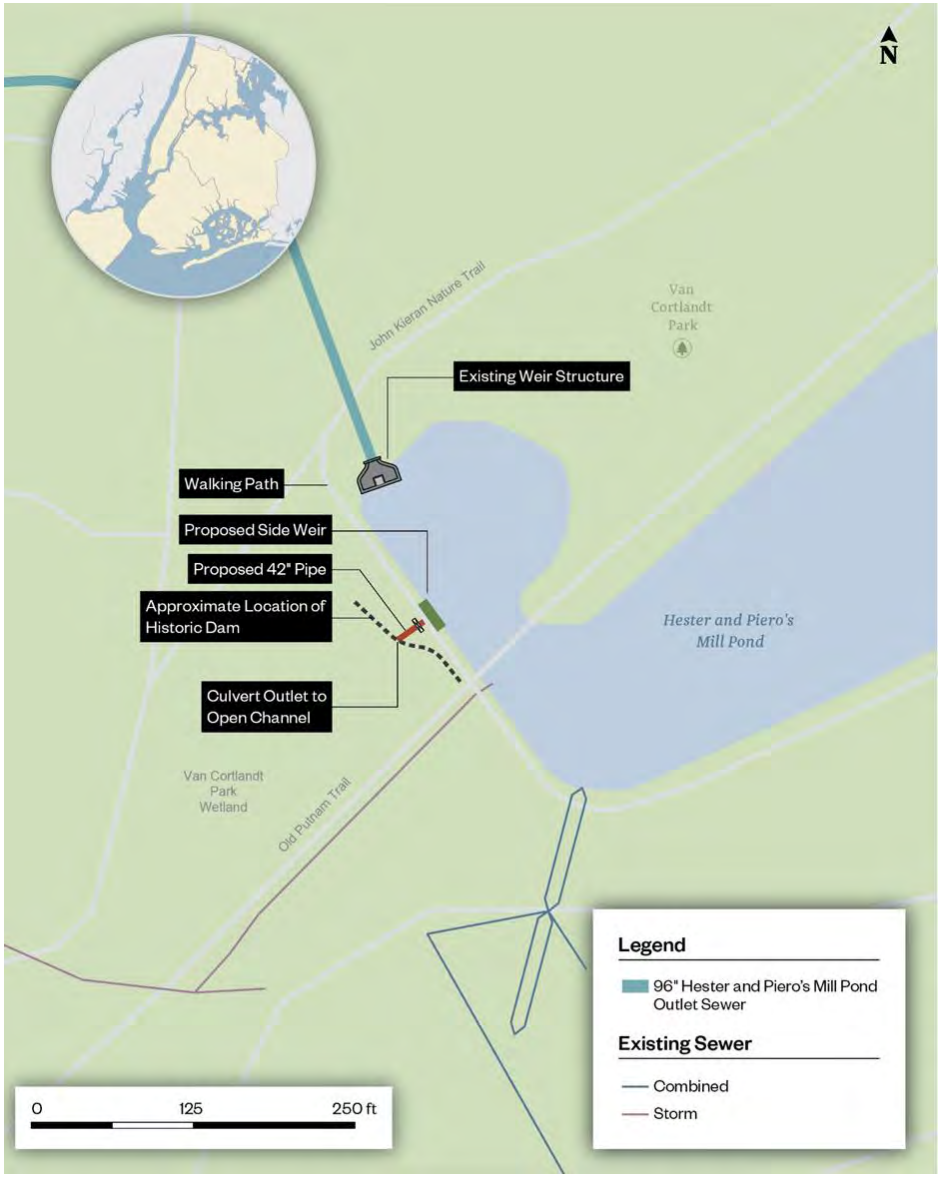
Key Hydraulic Elements of the Project

APPENDIX B: TIBBETTS BROOK DAYLIGHTING PROJECT, CUT AND FILL DISCUSSION (HAZEN & SAWYER 2022)

Tibbetts Brook Daylighting Project - Cut and Fill Discussion

Van Cortlandt Park

Within Van Cortlandt Park, subsurface disturbance would occur in the vicinity of Hester and Piero's Mill Pond. A new side weir structure would be installed west of the Old Putnam Trail footbridge, adjacent to the walking path that connects the Old Putnam Trail to the John Kiernan Nature Trail, as shown below.



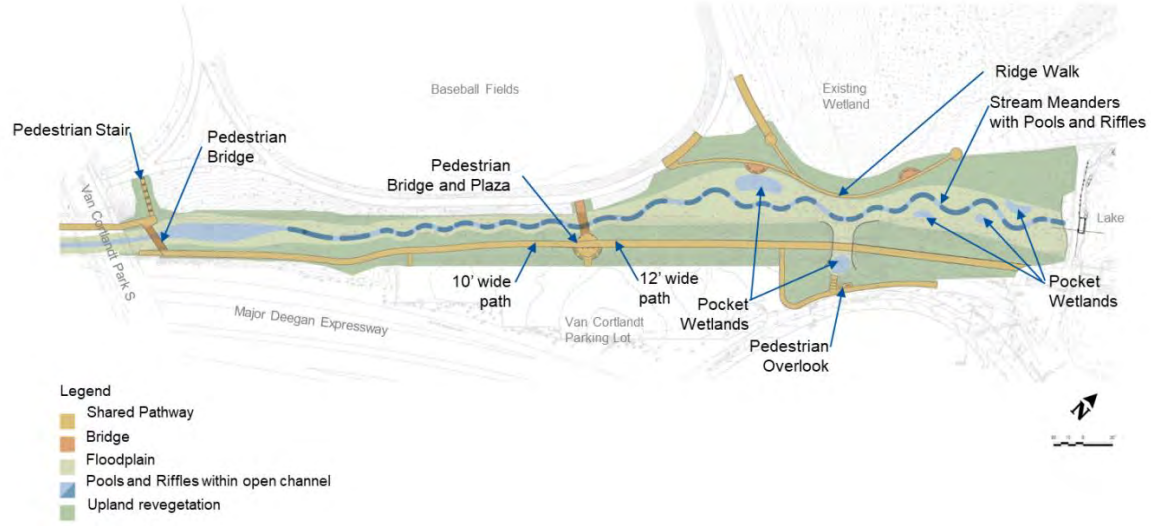
Construction of the side weir structure would require subsurface disturbance of approximately 10 feet in depth to the north of the walking path, between the path and the water's edge. To convey flow from the side weir to the proposed open channel conveyance, a 42-inch pipe would be installed in the back of the weir structure and would cross under the gravel path south of the lake. It should be noted that the southern

edge of the gravel path is within the footprint of a historic dam. The pipe will need to be bored through the stonework of the dam to convey the flow to the proposed open channel conveyance. Additional design details will be developed to protect this structure from impacts. A culvert outlet will be installed at the edge of the historic dam to deliver flow from the pipe to the open channel conveyance.

Additional subsurface disturbance would occur in order to construct the open channel conveyance within Van Cortlandt Park. This disturbance would be related clearing and grading activities that would be required in order to create a meandering stream channel with pool and riffles as well as offline pocket wetlands. In general, the maximum excavation anticipated in association with construction of the open channel conveyance within Van Cortlandt Park is approximately 5 feet. However, the majority of the work within this area would consist of surface grading (with minimal excavation of less than 1 foot) and fill activities.

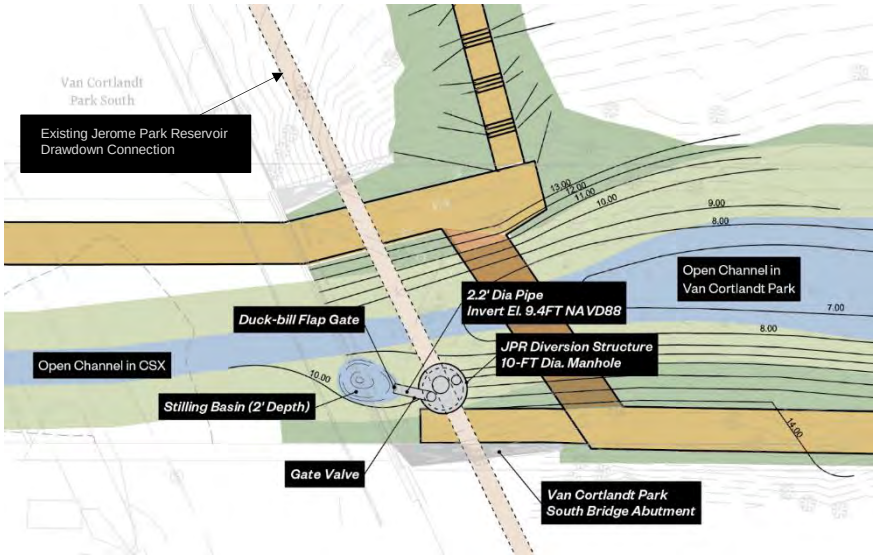
Subsurface disturbance would also be required to install features associated with the extension of the Putnam Greenway within Van Cortlandt Park, including pedestrian overlooks, a pedestrian plaza, and two pedestrian bridges. The maximum depth of excavation associated with the construction of the overlook structures is approximately 2 to 4 feet, and the maximum depth of excavation anticipated in association with the construction of the plaza and pedestrian bridges is approximately 5 to 7 feet. Piles may potentially need to be installed to support the pedestrian bridges and overlooks. The need for piles would be determined pending findings from geotechnical investigations that are currently underway. If determined to be necessary, these piles would be approximately 12 inches in diameter and could potentially be installed to a depth of approximately 40 to 60 feet.

An overview of the open channel conveyance and Putnam Greenway extension within Van Cortlandt Park is provided below.



Finally, a connection to an existing below-grade pipe would be installed within the proposed open channel conveyance that would allow for flow releases to the open channel from Jerome Park Reservoir. An excavation depth of approximately 16 to 20 feet is anticipated in order to install this structure. This excavation would take place in the vicinity of the Old Putnam Trail, an area previously disturbed in association with the Putnam Railroad and the installation of other water infrastructure. The location of the

proposed connection in relation to the pedestrian bridge to the north of Van Cortlandt Park South is shown below.



CSX ROW

Within the CSX ROW, the open channel conveyance and the extension of the Putnam Greenway would continue. Cut and fill activities would be required for installation of these features; the main excavation activities are described in more detail below. It is anticipated that excavation activities associated with the features described below would take place in areas that have been previously disturbed by activities including the construction of the Major Deegan Expressway, the construction of the Putnam Railroad, and various below-grade infrastructure in the area.

A new approximately 2-ft-wide by 8-ft-tall retaining wall would be constructed between the proposed concrete conveyance channel and the Major Deegan Expressway from Van Cortlandt Park South to 230th Street, to provide hydraulic separation between the proposed channel and the existing retaining walls and jersey barriers. A maximum anticipated excavation of 7 feet is anticipated for the installation of the retaining wall. This depth would correspond to the depth of the existing concrete wall along the Major Deegan Expressway, indicating that this area was previously disturbed in association with the construction of the highway.

Portions of the Putnam Greenway between 239th Street and 234th Street within the CSX ROW are anticipated to be cantilevered over the open conveyance channel. A maximum anticipated excavation of approximately 7 feet is anticipated to install the concrete supports for this cantilevered section of the greenway. However, most of the area within the CSX ROW would be filled over existing grade so the foundations would be shallower throughout the corridor.

Excavation would also be required for certain public access points along the CSX ROW, all of which would be located along the western side of the conveyance route and greenway:

- Construction of the proposed access ramp at 239th Street would require excavation with a maximum anticipated depth of approximately 7 feet.
- An access ramp is being considered at 234th Street and would require excavation with a maximum anticipated depth of approximately 7 feet.

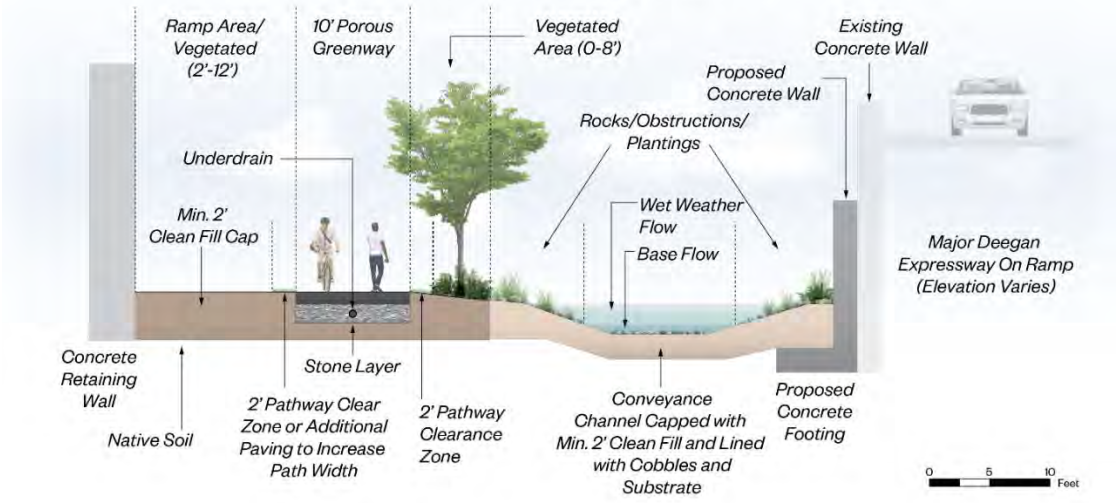
Starting at Verveelen Place, the conveyance structure would transition to a closed conduit. The intake to the at-grade piped section of the conveyance would require excavation with a maximum anticipated depth of 3 to 5 feet. The at-grade closed conduit extending to the south from this conduit along the CSX ROW would require excavation with a maximum anticipated depth of 1 to 2 feet.

The proposed open channel will be constructed through a combination of cut and fill activities along the length of the CSX ROW within areas that were previously disturbed during construction of the Putnam Railroad. No major excavation activities are anticipated for the installation of the open channel conveyance.

Cross-section views of typical open channel conveyance and greenway alignments within the CSX ROW are provided below.

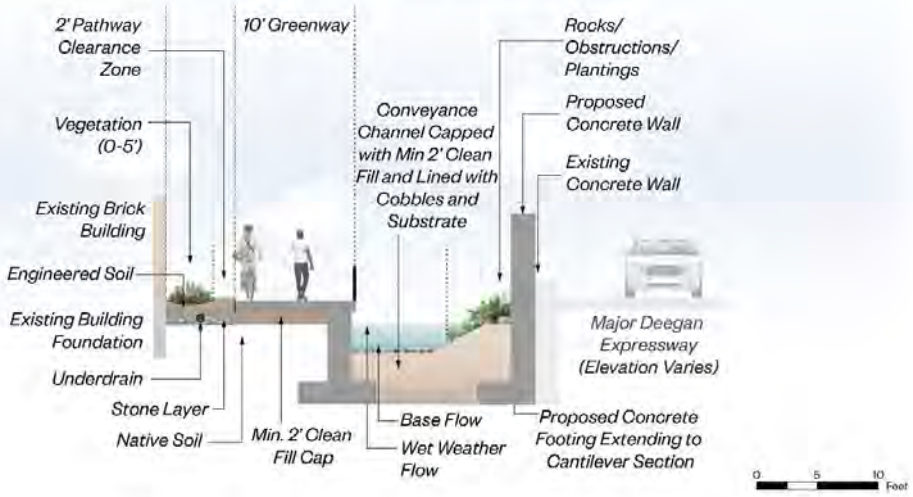
Section 1: Wide Cross-Section with Porous Greenway

VCP South to Building Pinch Point



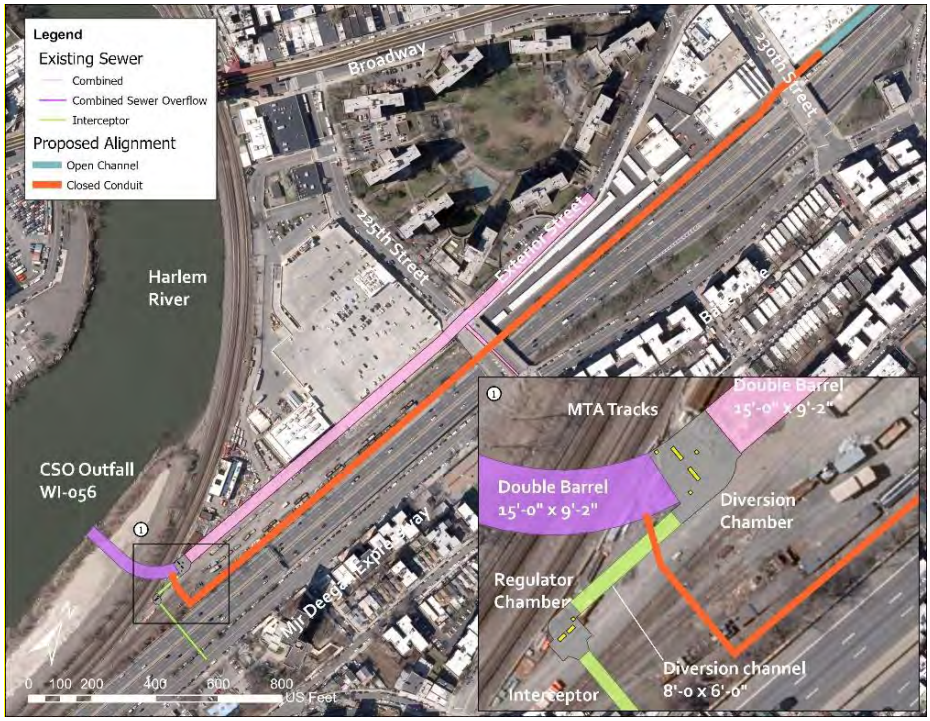
Section 2: Typical Narrow Cross-Section

Building Pinch Point to 238 St

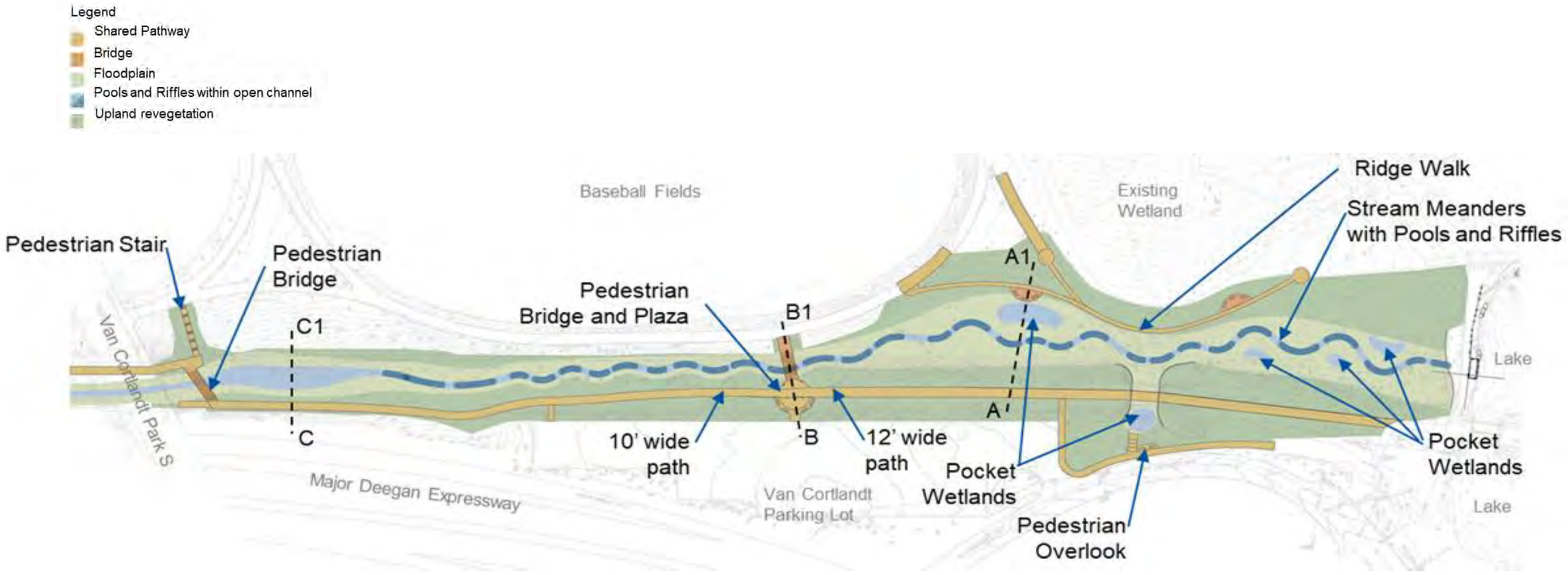


MTA Metro-North ROW

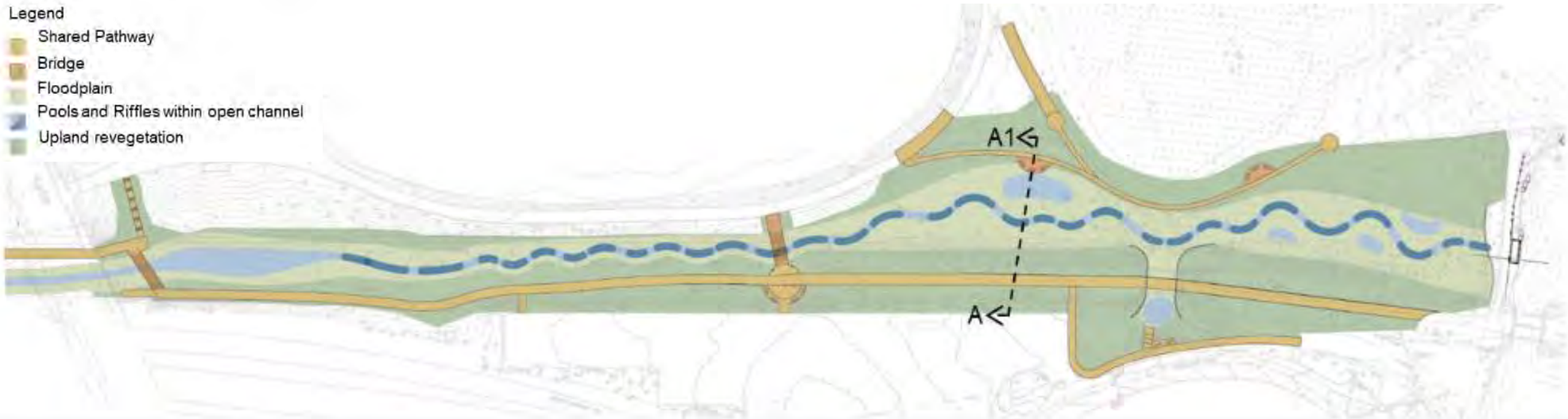
The proposed closed conduit conveyance structure within the MTA Metro-North ROW will be partially buried and would transition to a completely buried structure that will be constructed adjacent to existing rail ties. The structure will be installed with open-cut methodologies within an area that has been previously disturbed by the installation of MTA Metro-North railroad ties and tracks, the Major Deegan Expressway and other roadways in the area, numerous buildings, and various below-grade infrastructure in the area as shown below.



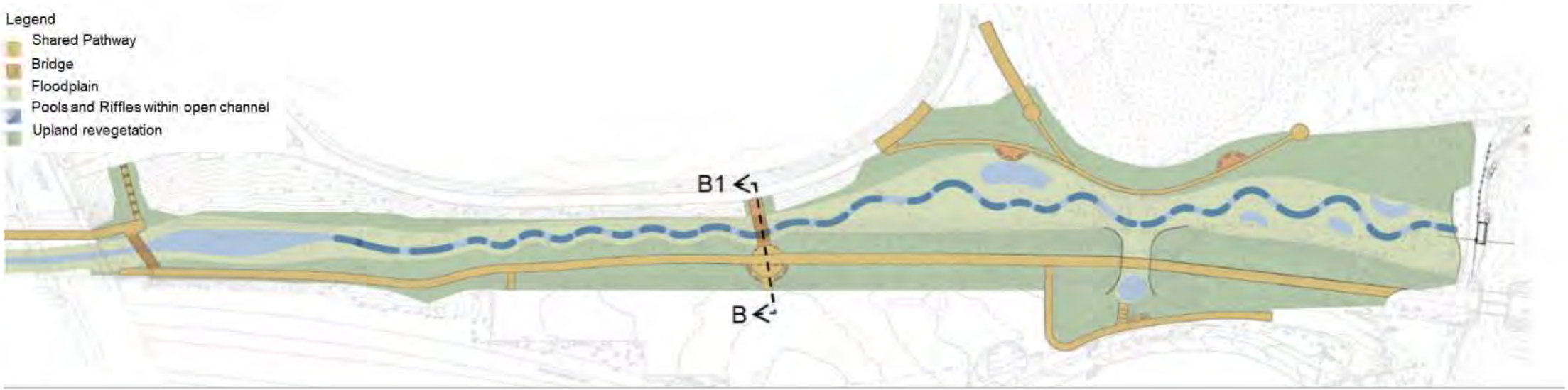
APPENDIX C: VAN CORTLANDT PARK PROJECT PLANS (HAZEN & SAWYER 2022)

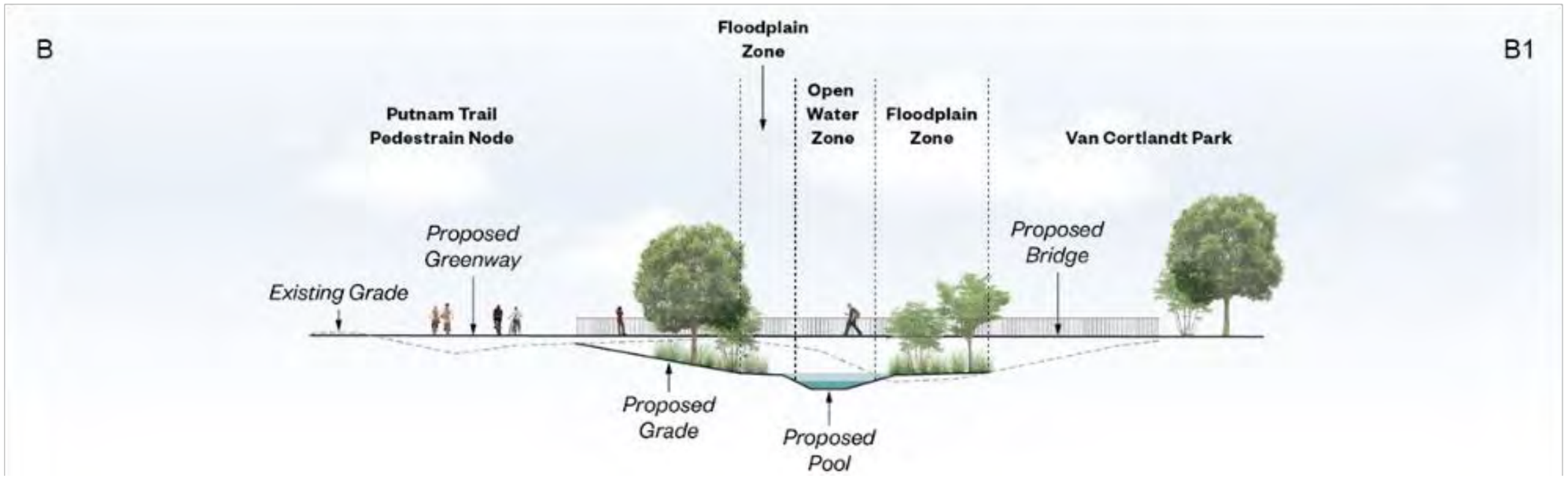


Proposed Open Channel in Van Cortlandt Park



Cross-Section of a Riffle and Offline Pocket Wetland

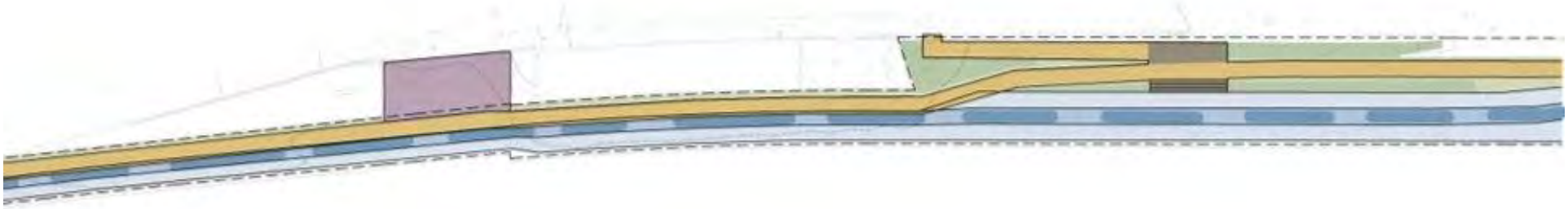


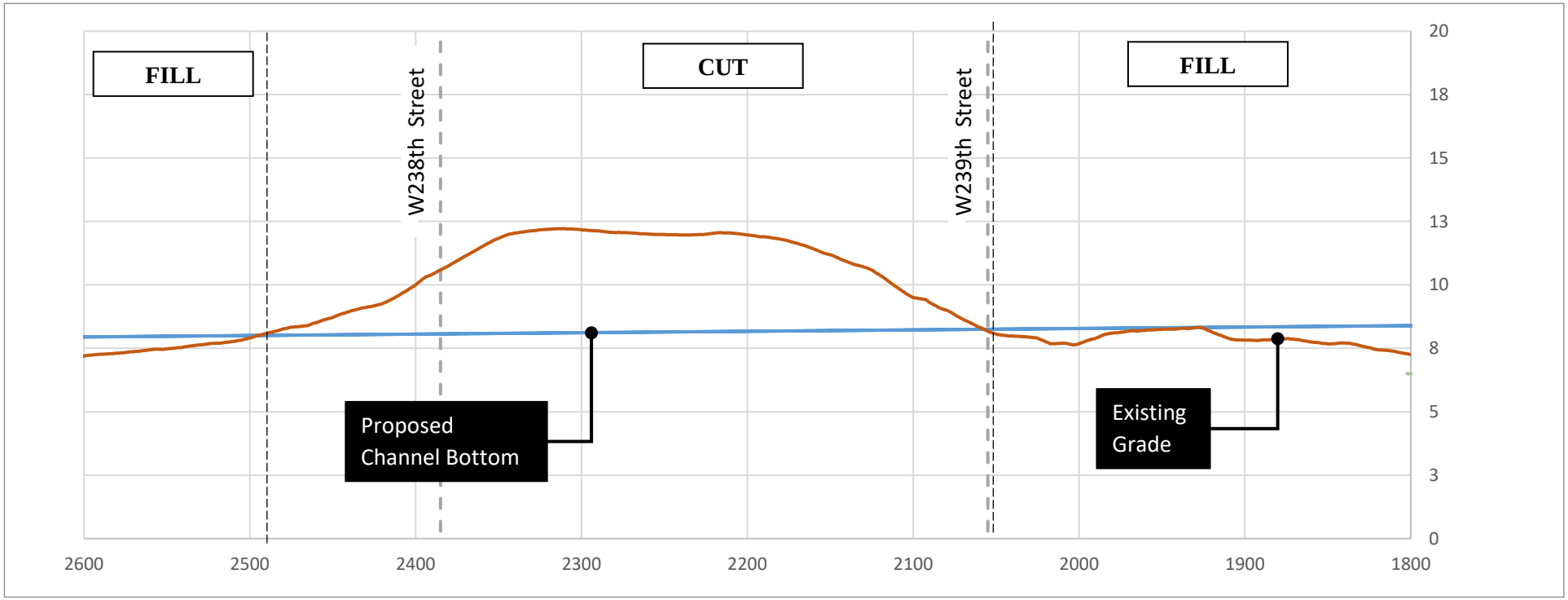


Cross-Section of a Pool and a Proposed Pedestrian Plaza and Bridge

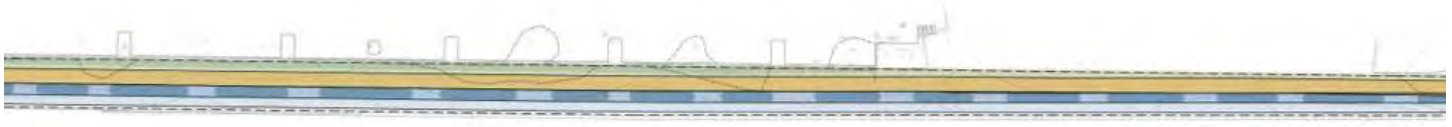
Cross-Section of Constructed Wetland near Van Cortlandt Park South

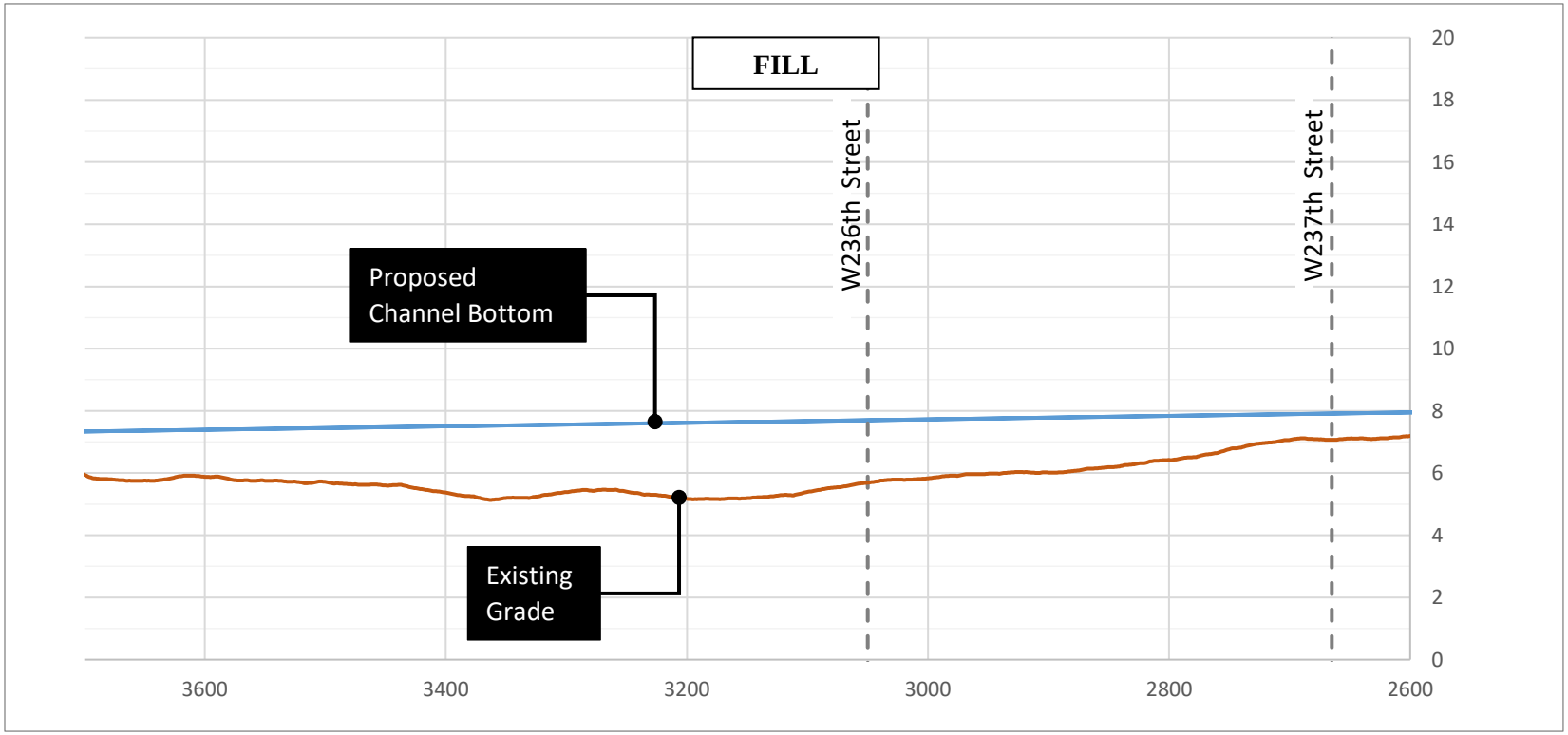
APPENDIX D: CSX AND METRO-NORTH CORRIDOR PROJECT PLANS (HAZEN & SAWYER 2022)





Profile of lowest finished grade along corridor




FILL
W236th Street
W237th Street
Proposed
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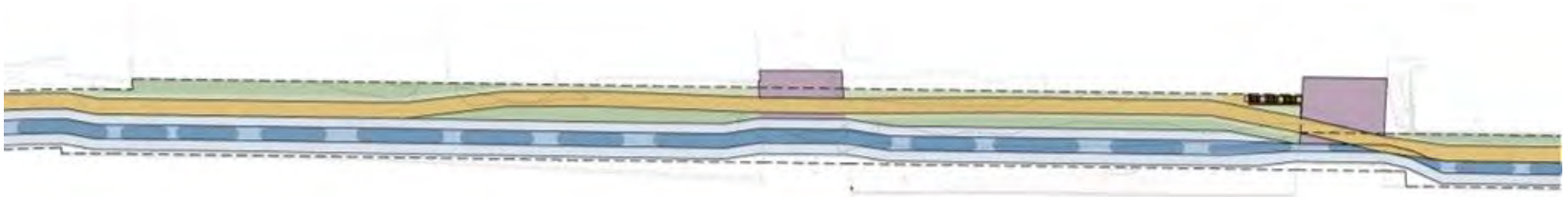

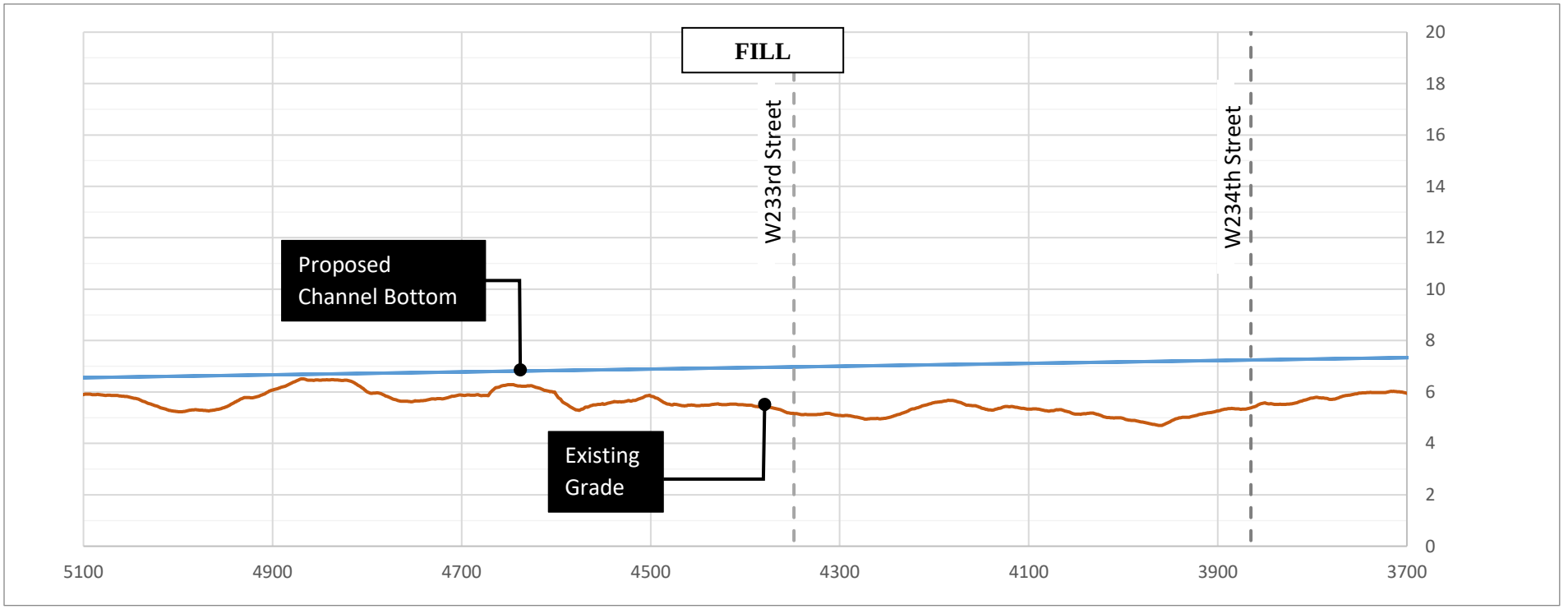
FILL
W233rd Street
W234th Street
Proposed
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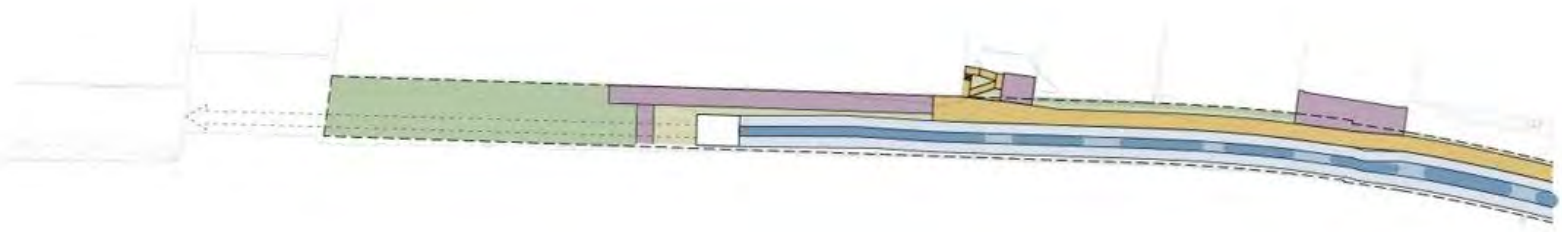

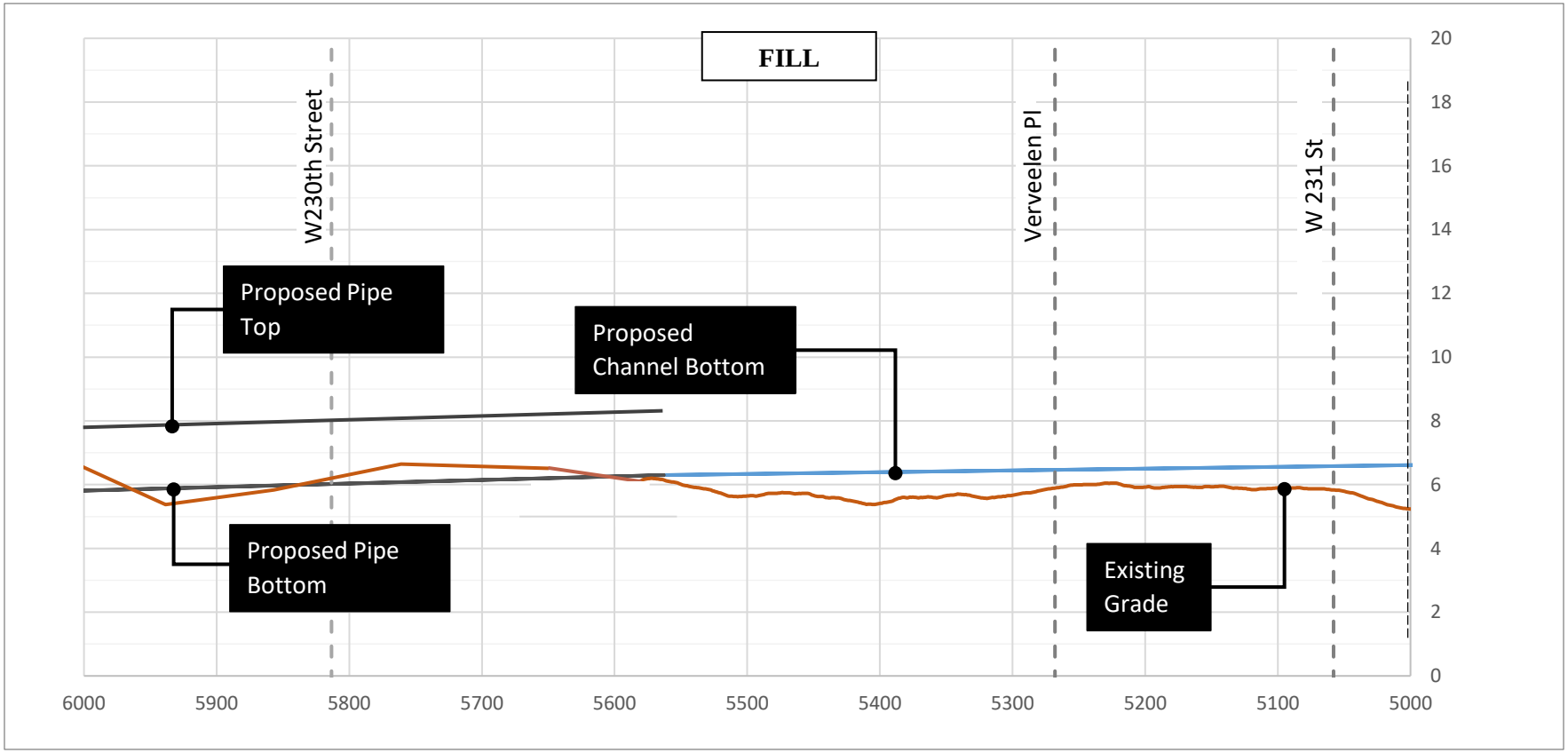
FILL
W230th Street
Verveelen Pl
W 231 St
Proposed Pipe Top
Proposed Channel Bottom
Proposed Pipe Bottom
Existing Grade
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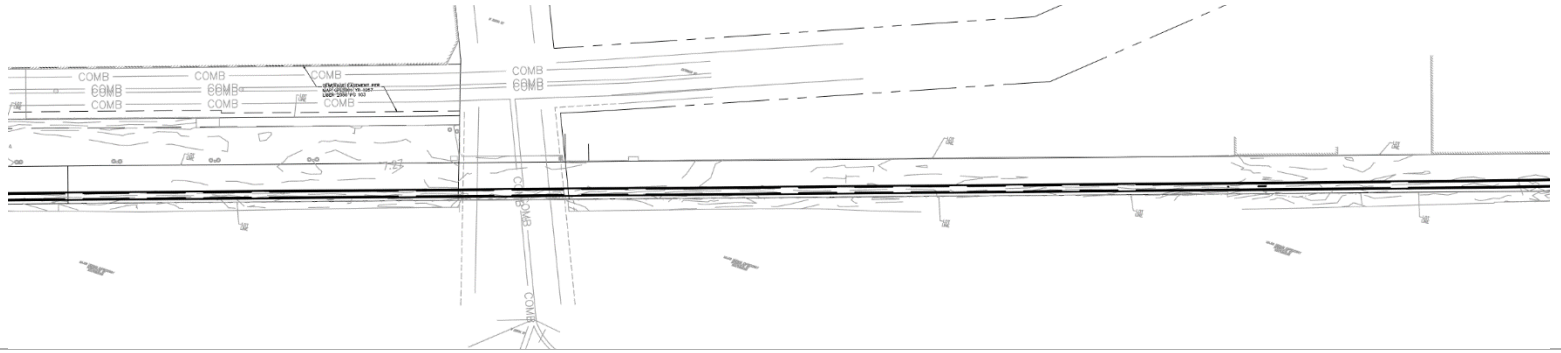
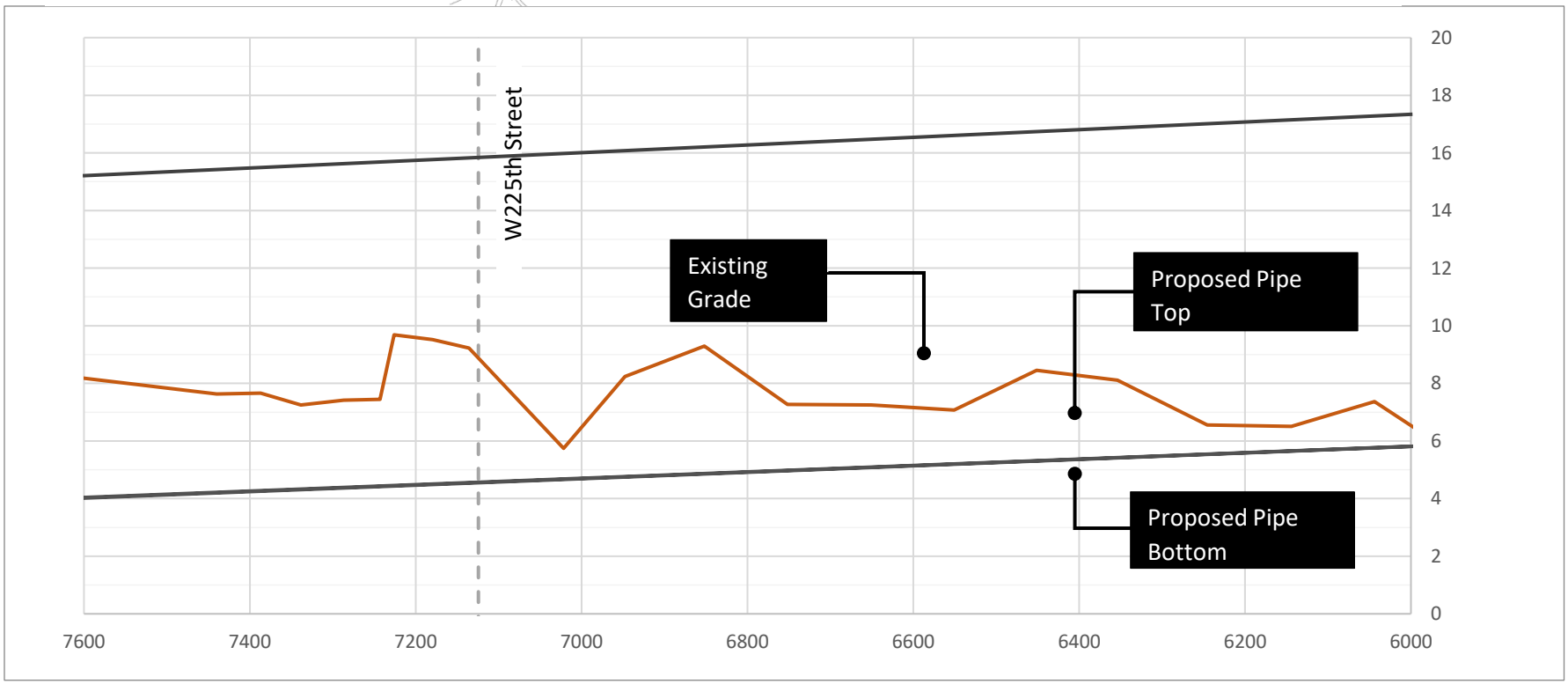

COMB
W225th Street


W225th Street
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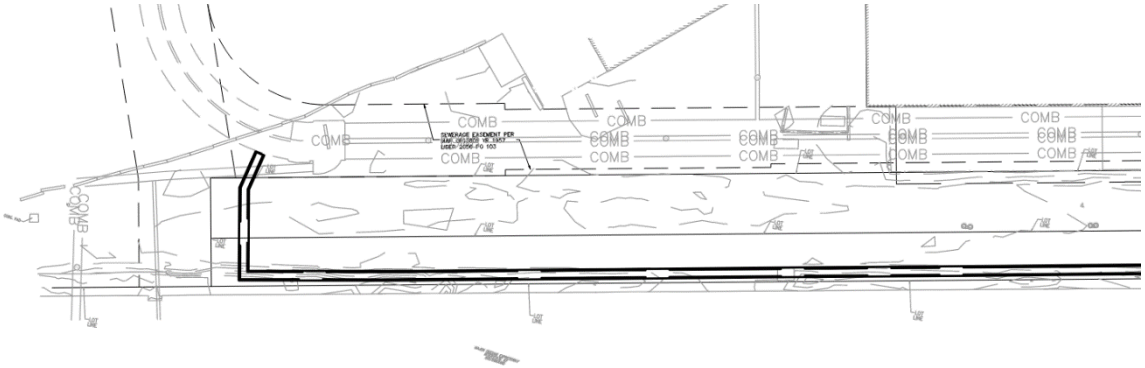
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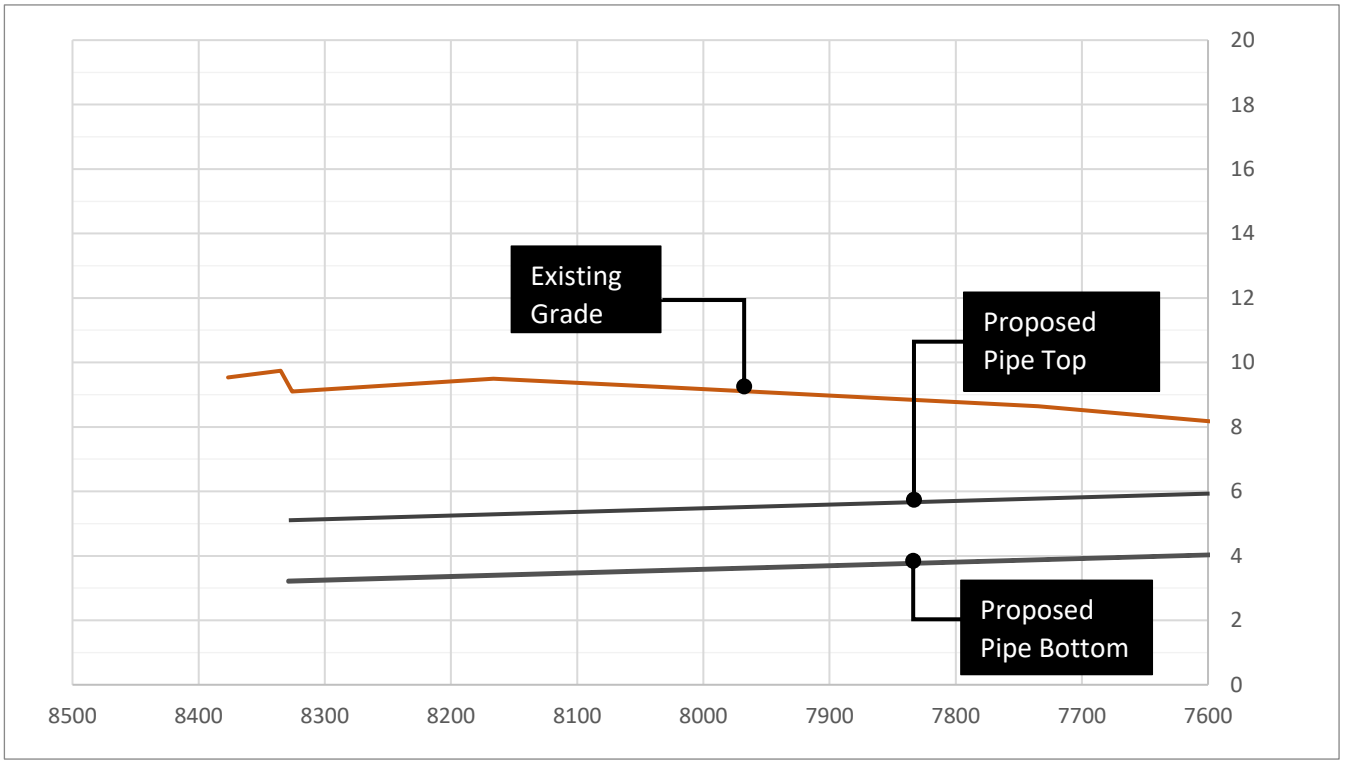
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Proposed Pipe Top
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APPENDIX E: SELECTED HISTORIC PHOTOGRAPHS INCLUDING THE PROJECT SITE, FROM NORTH TO SOUTH

Circa 1895. The former mill dam and the former mills. The project site is on the left. Courtesy https://hiddenwatersblog.wordpress.com/2016/11/17/vancortlake/.

Circa. 1900. Former mills and mill race on the southern side of the Van Cortlandt Lake dam. The railroad tracks are on the far right. Courtesy New-York Historical Society.

1904 Van Cortlandt Park station, before the overgrade bridge was constructed. Courtesy Museum of the City of New York.

1951. Van Cortlandt Park station with the project site in the foreground. Courtesy Kingsbridge Historical Society Archives.

1951. Van Cortlandt Park station with the project site in the foreground. Courtesy Kingsbridge Historical Society Archives.

1955 aerial. Project site is on the far left, to left of I-87 highway and below the lake. Courtesy NYC Parks Photo Archives.

1968 aerial. Project site is on the right, to the left of I-87 highway and below the lake. Courtesy NYC Parks Photo Archives.

1968 aerial. Project site is on the far right, to the right of the lake and between the I-87 highway. Courtesy NYC Parks Photo Archives.

Circa 1949. Looking northeast from West 231st Street. The buildings were located on the west side of Albany Crescent and subsequently were demolished to construct the Major Deegan Highway (I-87). Courtesy Kingsbridge Historical Society Archives.

1909 view of the project site in the right background at West 231st Street as the road was being prepared to be raised. The manhole columns indicate the roadway's present height. Courtesy Kingsbridge Historical Society Archives.

West 228th Street crossing the project site after the grade separation but before I-87 was constructed. Courtesy Kingsbridge Historical Society Archives.

1893 view of the ship canal with the project site in the vicinity of present West 225th Street in the background. Courtesy New-York Historical Society Archives.

1902 view of the Broadway sewer under construction. The project site is on the far right. Courtesy City of New York Department of Sewers.

1905 view of the Broadway sewer outlet. The project site is in the far background. Courtesy City of New York Department of Sewers.

1914 view of the project site along the shore of the Harlem River. Courtesy New-York Historical Society.

APPENDIX F: SUMMARIES OF VAN CORTLANDT LAKE, VAN CORTLANDT MILLS, AND PUTNAM TRAIL RESOURCES FROM VAN CORTLANDT CULTURAL LANDSCAPE SURVEY (WILDE 2003)

Survey #: 025
Feature: Van Cortlandt Lake
Location: South-central portion of park, south of Tibbetts Brook
Date Constructed (source): c.1690 (City of New York Parks & Recreation)
Extant (Y/N): Y
Architect/Designer: n/a (Jacobus Van Cortlandt)
Alterations (date): railroad bridges built (1903/04); lake dredged (1903); retaining wall/new dam constructed (1903); perimeter wall built (1904); rehabilitation work (2003)
Condition: fair

Van Cortlandt Lake, looking north

Description

Van Cortlandt Lake is a body of water that was formed by the damming of Tibbetts Brook, creating the largest freshwater lake in the Bronx. A small millpond sits to the southwest of the lake, separated from it by Railroad Bridge #2 (see survey #028); Railroad Bridge #3 (see survey #029) crosses the lake further to the north. A concrete spillway is located at the western edge of the millpond. On the south side of the millpond is a large stone retaining wall. The border of the lake is surrounded by a perimeter wall.

Historical Narrative

Van Cortlandt Lake was formed c.1690 when Jacobus Van Cortlandt dammed Tibbetts Brook to form a millpond to power his sawmill and gristmill operations. The shape of the lake changed gradually over time, but underwent a radical transformation when the Putnam Railroad was built in 1881, dividing the lake into two sections. As a result of the railroad construction, infilling began and the wetlands started to expand.[158] As early as the 1890s, pollution was causing problems at the lake due to refuse and cesspool dumping.[159] In 1903, the Park Commissioners approved dredging of the lake and a new dam and retaining wall were built at the millpond.[160] In 1904, a wall was built along the perimeter of the lake.[161] Flooding problems at the new Colonial Garden led to plans to build a brick drain which would drain the lake into twin sewers on Broadway.[162]

The 1934 topographical survey reveals that two streams of water were draining south from the millpond, where the retaining wall currently stands and almost certainly the site of the Van Cortlandt Mills. The two streams then merged to form a single stream which ran parallel to the Putnam Railroad tracks, then continued southwest where it ran along the southern end of the Colonial Garden before draining into underground pipes, possible the brick drain mentioned in the 1909 Annual Report. To the east of the Colonial

[158] Ultan, Lloyd. A History of Van Cortlandt Park, Borough of the Bronx, 31.
[159] MDPP, 26 April 1893.
[160] MDPP, 17 September 1903.
[161] Parks Annual Report, 1904. This wall is not apparent from the surface, aside from the stones placed around the lake.
[162] Parks Annual Report, 1909.

Garden, just north of the Van Cortlandt Station, the stream ran between two stone retaining walls before dipping below a wooden bridge that carried the south driveway leading from the station to Van Cortlandt House (x-t-92-110). This drainage system disappeared sometime before 1982.

By the 1960s, pollution in the lake had become an enormous problem, and fish were recorded dying in large numbers in 1961. Highway construction and other park projects led to more lake infill and deterioration, and by 1976, boating on the lake ceased because the water had become too shallow.

In 2001, a project was undertaken to rehabilitate Van Cortlandt Lake by dredging 50,000 cubic yards of infill, treating water runoff from nearby highways, and creating better erosion control. This project was completed in 2003.

1853 map showing the Van Cortlandt Lake (left) and perimeter wall, looking north (right)

Survey #: 066
Feature: Van Cortlandt Mills
Location: Van Cortlandt Lake
Date Constructed (source): gristmill: c.1700 (Ferris, Jenkins); sawmill: c.1823 (Ferris)
Extant (Y/N): N
Architect/Designer: unknown
Alterations (date): gristmill moved (c.1823); gristmill destroyed by fire (1900); sawmill demolished (1903)

Van Cortlandt Mills, from Beekman, 1917.

Description

The Van Cortlandt Mills were located on Van Cortlandt Lake on the south side of the millpond. Although their exact location is debated—partly because Van Cortlandt Lake has changed shape, making it difficult to compare maps over time—historic maps and photographs seem to place the mills on the south side of the road that runs perpendicular to Putnam Trail, on the south side of the millpond. The mills faced north towards the Kingsbridge Burial Grounds. Currently, a stone retaining wall—constructed in 1903 after the mills were destroyed—sits at this location (see survey #025).

There were two mills on the Van Cortlandt estate: a gristmill, constructed c. 1700, and a sawmill, constructed c. 1823. Several photographs and at least one engraving of the mills exist. Both buildings were post-and-beam structures on stone foundations clad in wood shingles with wood-shingled gable roofs. The gristmill was a two-story structure built on a hillside so that the main entrance was on the second floor; the mill was turned by a large wooden wheel. The sawmill was a one-story structure and had walls supported by trusses. A millrace sat between the two buildings, draining the water from the millpond to run south through stone retaining walls to form the southern end of Tibbetts Brook.

Mill engraving, c.1898.
New York Public Library
Digital Picture Collection.

Historical Narrative

Jacobus Van Cortlandt damned Tibbetts Brook to create a millpond c. 1699 and constructed a 1-story gristmill shortly thereafter on a site directly south of Van Cortlandt House.[211] Around 1823, the gristmill was moved and became a 2-story building, and the sawmill was built next to it.[212] The mills formed part of the thriving Van Cortlandt farm

[211] 1785 map.
[212] Ferris, xx. Some sources state that both mills were built c. 1700. See Jenkins.

estate, grinding corn and providing lumber for the neighboring community. The miller may have lived on Old Albany Post Road in the Miller's House (see survey #072). During the Revolutionary War, both British and Continental soldiers requisitioned the mills for their own use. The gristmill was in continuous use until 1889, when the estate was turned into a park.[213]

Interestingly, the Parks Commissioners approved the restoration of the sawmill and gristmill in 1894 at an estimated cost of $900. No report was made to establish if the work was ever completed, but it seems unlikely considering what followed.[214] In 1895, the Commissioners ordered the sale of buildings in Van Cortlandt Park, namely, the ruins of the old sawmill and adjoining gristmill.[215] For whatever reason, this order was never followed through, and in 1897, the NSCD in NY requested that they be given custody of the mills; two months later the Dames asked that the mills be repaired, suggesting they were not given care of the buildings.[216]

In July 1900, the gristmill was struck by lightning and burned to the ground.[217] The sawmill was used as a storehouse for tools and in winter, to house the curlers' stanes, until the spring of 1903, when the Parks department demolished the building because of its dilapidated condition. [218] A millstone, reportedly from one of the mills, now sits at the bottom of the Colonial Garden Staircase (see survey #013).

[213] Van Cortlandt, viii.
[214] MDPP, 12 December 1894.
[215] MDPP, 7 November 1895.
[216] MDPP, 27 September 1897; 15 November 1897.
[217] "The 'Old Grist Mill' Burned Down," New York Times, 16 July 1900, 2.
[218] "City's Last Colonial Estate to be Sold," New York Times, 21 September 1919, 105.

Survey #: 026
Feature: Putnam Trail
Location: Runs from the southwest corner of the park to the central part of the northern border
Date Constructed (source): 1881 (railroad construction: New York and Putnam Railroad); 1990s (trail: City of New York Parks and Recreation)
Extant (Y/N): Y
Architect/Designer: New York and Putnam Railroad; City of New York Parks and Recreation
Alterations (date): rails removed (1980s); trail construction (1990s)
Condition: fair

Putnam Trail, looking south

Description

The Putnam Trail runs along the former tracks of the New York Central Railroad's Putnam Division, nicknamed the "Put," which remained in service within the park as a freight carrier until 1981. The trail is a dirt path with wood railroad ties embedded throughout its length. Many remnants of the railroad remain including wood electric poles on stone bases, railroad bridges (surveys #027, #028, #029), and the railroad shelter (survey #030)

Along the southern part of the trail, between Van Cortlandt Park South and Van Cortlandt Lake, are three railroad related remnants. The first is located on the western part of the trail near Van Cortlandt Stadium: it is a square, concrete base with metal, strap hinges attached to the sides, suggesting it once was fastened to another piece; the 1982 survey lists this as a concrete storage vault (x-t-92-1-004).

Putnam Trail, pump house foundation, looking northwest

The second remnant appears to the northeast of Railroad Bridge #2 and was formerly a pump house: it is a stone, square structure placed to the east of the tracks on a lower grade so that the flat roof of the structure is level with the tracks. A square, wood door reinforced by metal bars is located on the east side of this structure. In front of the door is an open space enclosed by stone retaining walls on the north, east, and south sides.

The third remnant is a concrete foundation, located on the western side of the trail just south of the millpond. Its location suggests that it acted as a base for the water tower or signal house that appeared in the 1934 topographical survey (x-t-92-116).

Historical Narrative[163]

Putnam Trail, wood electric pole, looking northwest

The New York and Putnam Railroad began passenger service to Van Cortlandt Park in 1881. In 1888, a second branch of the railroad was constructed to provide service to Yonkers. The Yonkers line split from the Putnam line just before Railroad Bridge #3 and ran along the east side of the Parade Ground, stopping at the Mosholu Station—located near the present-day riding stables—before continuing north to Yonkers. A portion of one of the Yonkers line railroad bridges still survives in the Northwest Forest (see survey #004). Van Cortlandt Station was built by 1884 and Mosholu Station was built by 1894.

A 1919 birdseye photograph of the southern part of Van Cortlandt Park shows the railroad tracks crossing Railroad Bridge #1 and Railroad Bridge #2. The Van Cortlandt Station sits to the northwest of Railroad Bridge #1. A small building with a hipped roof—possible the water tower or signal house—and a metal silo structure sit on the west side of the tracks between the station and the millpond. The pump house does not appear in this photograph. Various other buildings associated with the railroad, like tool sheds and switch houses, appear along the railroad tracks in historic maps and in the 1930s survey of the park.

The Yonkers Railroad branch was abandoned in 1943, and the tracks were torn up in 1944. Service on the Putnam Line switched from steam to electrical power but shortly after, in 1958, passenger service was discontinued. The tracks continued to be used sporadically for freight trains until 1981 under the ownership of Con-Rail. Con-Rail transferred ownership of the railroad land to the City of New York Parks & Recreation department in the 1990s, when the Putnam Trail became an official park trail.

[163] For a more detailed discussion of railroad history in the park, please refer to the history section of this report.