

Memorandum

To: Amanda Sutphin, New York City Landmarks Preservation Commission

From: Elizabeth D. Meade, PhD, RPA

Date: August 1, 2023

Re: **Archaeological Disturbance Assessment: Capital Project HWR1140A/RED366: Arthur Kill Road Drainage and Road Improvements – Brookfield Park Wetland Restoration Site**

cc: Jazmin Logan, Section Chief, Office of Environmental & Hazmat Services, Safety & Site Support (DDC); Judith Coriolan, Eralda Allajbe, Deepthi Mathew (DDC); Claudia Cooney, Robert White, Kenny Mui, and Megan Gatto (AKRF)

A. PROJECT BACKGROUND

The New York City Department of Design and Construction (DDC), on behalf of the New York City Department of Transportation (NYCDOT) and Environmental Protection (DEP) is proposing Capital Project HWR1140A/RED366, which is a street, drainage, and bikeway/walkway (shared-use path) improvement project along Arthur Kill Road in central Staten Island (see **Figure 1**). This capital project is currently undergoing environmental review for which NYCDOT is the Lead Agency under New York City Environmental Quality Review (CEQR). The Capital Project now includes a wetland restoration site, located to the north of the Arthur Kill Road project corridor and to the east of Richmond Avenue (see **Figure 1**).

CULTURAL RESOURCES ANALYSES COMPLETED TO DATE

Pursuant to the requirements of CEQR and Section 106 of the National Historic Preservation Act (“Section 106”), an assessment of archaeological resources was completed for Capital Project HWR1140A/RED366 with NYCDOT as the Lead Agency for CEQR. The U.S. Army Corps of Engineers (USACE) is serving as the Federal Lead Agency for the Section 106 review. In November 2022, the AKRF/Hazen JV prepared a Phase 1A Archaeological Documentary Study (“Phase 1A Study”)¹ of the project’s Area of Potential Effects (APE), the conclusions of which are summarized below. In comment letters issued November 17, 2022, and December 15, 2022, the New York City Landmarks Preservation Commission (LPC) and the New York State Historic Preservation Office (SHPO), respectively, concurred with the conclusions and recommendations of the Phase 1A Study. At the time the Phase 1A Study was completed, the APE did not include the Brookfield Park Restoration Site, the full footprint of a historic Trolley Barn that would be demolished as part of the project (see below) or the locations of any areas that would be used for construction staging since they were unknown.

¹ AKRF, Inc. (2022): “Arthur Kill Drainage and Road Improvements: Capital Project RED366/HWR1140A; Staten Island, Richmond County, New York: Phase 1A Archaeological Documentary Study.” Prepared for: The New York City Department of Design and Construction; Long Island City, NY.

This memorandum has therefore been prepared at the request of LPC to provide additional information regarding the proposed wetland restoration site, the site area of the former Trolley Barn north of the previous APE, any proposed construction staging areas and, where necessary, to document previous disturbance in the three areas that were not included in the previous analyses.

CONCLUSIONS AND RECOMMENDATIONS OF THE PHASE 1A STUDY

PRECONTACT ARCHAEOLOGICAL RESOURCES

Precontact archaeological sensitivity in New York City is generally evaluated by a site's proximity to level slopes, water courses, well-drained soils, and previously identified precontact archaeological sites. As stated in the Phase 1A Study, the project corridor is located in a generally level area in close proximity to both freshwater and marine resources. In addition, nearly a dozen precontact archaeological sites have been identified along or near the project corridor. Absent any other disturbances, it is expected that the project corridor would otherwise remain an area of extremely high archaeological sensitivity, recognizing that precontact archaeological sites are typically shallowly buried and within 5 feet of the ground surface.

Given the extent to which the project corridor has been disturbed as a result of landscape modification, road construction, and modern development, the Phase 1A Study determined that the majority of the corridor is expected to have no to low sensitivity for precontact archaeological resources with the exception of five locations where protective fill may have been deposited over older ground surfaces as a result of landscape modification. In these locations, precontact sensitivity was determined to be low to moderate, including:

- Streetbed of Getz Avenue between Arthur Kill Road and Gurley Avenue; and
- Streetbed of Arthur Kill Road between and including portions of Armstrong Avenue and Abingdon Avenue.

HISTORIC PERIOD ARCHAEOLOGICAL RESOURCES

As described in the Phase 1A Study, the project corridor is located along one of the oldest major thoroughfares in Staten Island and colonial settlements were located near its eastern and western ends; however, it is also expected that the historic road surface was likely disturbed partially or entirely by the construction of the current road and infrastructure. The Phase 1A Study determined that numerous residential, agricultural, and commercial properties lined the northern and southern sides of Arthur Kill Road during the historic period. However, because of the age of the road, the majority of the buildings associated with these properties were located outside of the project corridor, which for the most part passed through what were the front yards of these properties. As such, any historic period archaeological resources located within the project corridor are expected to have been related to surficial deposits/accumulations associated with the residential occupation of adjacent buildings and the construction and use of the historical and modern road surfaces. Such deposits would have been more susceptible to disturbance associated with urban development.

Finally, the Phase 1A Study identified at least four current and former cemeteries were located within and adjacent to the project corridor. The United Hebrew and Mount Richmond Cemeteries were established following the establishment of the modern route of Arthur Kill Road and its associated side streets. Burials associated with these cemeteries are not expected to extend into Arthur Kill Road or any of its associated side streets. However, now-obliterated historical cemeteries associated with the Richmond Reformed Dutch Church and the former French Church were located in the vicinity of the project corridor. The streetbed of what is now Clarke Avenue southeast of Arthur Kill Road extends directly through the former Richmond Reformed Dutch Church cemetery.

The streetbed of Ridgewood Avenue and a portion of the streetbed of Getz Avenue within the project corridor extend through a former hillside where the French Church cemetery was reported to have been located. These streetbed segments were determined to have moderate sensitivity for human remains associated with both intact graves and disarticulated human remains.

ANALYSIS OF FORMER TROLLEY BARN AND ASSOCIATED PARCEL

As stated above, the project would result in the demolition of a vacant former Trolley Barn located at 721 Arthur Kill Road, which was determined to be eligible for listing on the State and National Registers of Historic Places (“S/NR-eligible”). The APE examined in the November 2022 Phase 1A Study included an approximately 10- to 20-foot portion of the front of the approximately 150-foot-long Trolley Barn and southern portion of the enclosed area that surrounds it. The archaeological sensitivity of the remainder of the barn’s footprint was not assessed. The Trolley Barn is situated on public property under the jurisdiction of the City’s Department of Citywide Administrative Services (DCAS); however, neither the building nor the property are publicly accessible, and are enclosed by a 10-foot-tall chain-link fence with a locked gate fronting Arthur Kill Road. For the purposes of this memorandum, the enclosed area surrounding the Trolley Barn has been identified as the study area to assess potential archaeological impacts (see **Figure 1**).

DDC undertook a feasibility study to evaluate any highway design alternatives that would avoid demolishing the Trolley Barn. The Alternatives Analysis accepted by SHPO concluded that given the proposed capital project objectives of improving Arthur Kill Road and the design constraints associated with preserving the Trolley Barn, for which no reuse options were identified, there are no feasible alternatives to the proposed project. It is therefore necessary to demolish the Trolley Barn for the purposes of implementing the proposed capital project.

B. DESCRIPTION OF PROPOSED IMPACTS OUTSIDE THE APE

BROOKFIELD PARK RESTORATION SITE

The Brookfield Park Restoration Site (“the Restoration Site”) is associated with an approximately 7-acre salt marsh restoration completed by DEP in 2017 as a part of the Brookfield Avenue Landfill Remediation Project, now Brookfield Park (see **Figures 1 and 2**). Since completion of that restoration project, approximately 5-acres of the restoration area transitioned from vegetated tidal wetland to unvegetated coastal shoals, bars and mudflats due to settlement and compression of the filled soils that altered the surface elevation. DDC and NYCDOT are there currently proposing this 5-acre area be used to provide wetland mitigation for wetland impacts associated with Capital Project HWR1140A/RED366.

This Restoration Site is part of the City-owned Brookfield Park property that is under the jurisdiction of NYC Parks. It is located between two tidal tributaries to Richmond Creek, one to the north and one to the south and adjacent to an approximately 1.5-acre salt marsh, mainly composed of salt marsh cordgrass (*Spartina alterniflora*) to the west that predated the Landfill Remediation Project. Stormwater inputs from Brookfield Park and the outfalls along the Arthur Kill Road corridor flow to Richmond Creek via the marshland and tributaries in the Restoration Site and there are few if any, trees.

The restoration project design objective is to create additional vegetated tidal marsh habitat with a shallow slope towards the existing tidal channels by adding a new top layer of clean sand of 1 to 2 feet in depth to elevate the settlement area for the purposes of raising the graded and create a substrate to plant replacement intertidal marsh vegetation comprised of intertidal saltmarsh cordgrass (*Spartina alterniflora*) and high marsh species, such as coastal salt grass (*Distichlis spicata*) and salt-meadow cord grass (*Spartina patens*). Several existing tidal channels would also be preserved to maintain the existing tidal flow into and out of the restoration area.

The clean sand would either be brought to the site as a beneficial reuse from another capital project or, if possible, purchased from a local source. The grading of the sand brought to the site would be performed with tracked low ground-pressure construction equipment (e.g., long reach excavator) and timber and/or composite access mats to distribute the weight of the machinery to minimize impacts to the existing intertidal areas. After the completion of the sand placement and grading, vegetation plugs would be planted, and wildlife exclusion fencing would be installed to protect the plugs with fence posts that would extend to a depth of approximately 2 feet.

For the purposes of designing the proposed restoration work, a limited number of soil borings (up to four) are proposed within the Restoration Site. The proposed borings would be standard geotechnical borings with a diameter of 2 to 3 inches. As geotechnical borings of this size are typically not considered to be an impact on archaeological resources, further archaeological analysis of the locations of the soil borings is not warranted. In addition to the soil borings, a salinity monitoring station may also be installed in the tidal area, which would also not result in any disturbance to depths greater than that of the wetland restoration work itself (i.e., up to 2 feet below the ground surface) and as such, any subsurface impacts that could occur in association with those activities are assessed in this memorandum.

TROLLEY BARN DEMOLITION PARCEL

As stated above, the former Trolley Barn at 721 Arthur Kill Road is proposed to be demolished as part of the Capital Project. It is to be demolished to the ground surface and the area within the footprint and immediately surrounding area would be covered with sod/grass. No subsurface excavation is proposed in association with the demolition outside the APE analyzed in the Phase 1A Study, where a new bike path and other infrastructure would be installed.

CONSTRUCTION STAGING LOCATIONS

The final selection of construction staging locations would be determined by the contractor, but for the improvements proposed along Arthur Kill Road likely locations are expected to be along the Arthur Kill Road project corridor or adjacent streets.

For the Restoration Site, staging is likely to occur to the east of the site on the existing Brookfield Park perimeter road in the Park.

C. DISTURBANCE CHARACTERIZATION AND ASSESSMENT OF IMPACTS

METHODOLOGY

The proposed Restoration Site and surrounding area was included within an extensive survey of Staten Island that was completed by the Richmond County Topographical Bureau in 1912² (see **Figure 3**). For the purposes of this memorandum, the information from this map was compared with modern topographical information to document landscape modification (e.g., areas that have been graded or filled) and to assess the extent to which these areas have been disturbed. This involved the georeferencing of the 1912 survey to align with the modern street grid and the overlay of topographical information obtained from Lidar information published by the United States Geological Survey (USGS) in 2014. The 1912 map includes elevation data measured relative to the Richmond Borough Datum and the Lidar data was measured relative to the North American Vertical Datum of 1988 (NAVD88). The Richmond Borough datum is located 2.092 feet below NAVD88. Therefore, to convert Borough of Richmond datum elevations to NAVD88, 2.092 feet must be added to the elevation's height. For example, an elevation of 10 feet above the Borough of Richmond Datum is 12.092 feet above NAVD88. Therefore, the Lidar elevations presented in **Figure 3** have been converted from NAVD88 to the Richmond Borough Datum for the purposes of comparison. For the purposes of this assessment, all converted elevations have been rounded to the nearest whole number.

WETLAND RESTORATION DISTURBANCE ASSESSMENT

The 1912 topographical survey indicates that the Restoration Site was historically a tract of inundated salt meadow. Two ponds of varying size were situated near what is now the Site's southern side. A large stream surrounded by marsh was situated to the southwest of the site. The stream that continues to line the northern side of the Restoration Site is shown on the survey; however, aerial photographs taken between 1924 and

² The survey was completed between 1906 and 1913; however, the sheets depicting the proposed Restoration Site and surrounding area (Sheets 60 and 69) were issued in 1912.

the present³ indicate that its alignment was modified over time. The 1912 map indicates that while the majority of the site was a wetland at an elevation of approximately 0 feet relative to the Richmond Borough Datum (2 feet NAVD88).

An upland area with surface elevations between 2 and 4 feet relative to the Richmond Borough Datum (4 to 6 feet NAVD88) occupied what is now the southeast quadrant of the Restoration Site. Much of this area is currently situated at an elevation of 0 to 2 feet relative to the Richmond Borough Datum (2 to 4 feet NAVD88), indicating that landscape modification has occurred in the area. The 1924 aerial photograph depicts some historical developments on the Site, possibly depicting non-contiguous paved surfaces. Extensive landscape modification appears to have occurred in the portion of the site adjacent to the elevated berm that carries Richmond Avenue and the abandoned Richmond Parkway across the Fresh Kills. In the area east of the built—but abandoned—portion of Richmond Parkway, which terminates east of Richmond Avenue, the ground surface of the Restoration Site has been raised by the addition of up to 28 feet of fill material. These modifications likely occurred within the Restoration Site prior to the project's abandonment.

Subsequent aerial photographs depict some changes in the wetland areas, with the ponds being filled in over time and channels cut through the marsh to the north and west. No structures were located in this area or on the Restoration Site as seen on historical maps published in the 19th and 20th centuries.

The Restoration Site therefore appears to have been subject to landscape modification in the 20th century that is expected to have affected the area to a minimum depth of 1 to 2 feet below the current ground surface. The impacts associated with the proposed restoration work are therefore not expected to extend to a sufficient depth that undisturbed archaeological deposits may be present. The shallow excavation required for the wetland mitigation and associated work is therefore not expected to result in impacts on undisturbed soils with potential archaeological sensitivity.

TROLLEY BARN DEMOLITION PARCEL

As stated above, the majority of the footprint of the former Trolley Barn was not located within the APE analyzed in the Phase 1A Study. That portion of the Trolley Barn parcel that was included within the APE was determined to have no archaeological sensitivity due to previous disturbance and/or the presence of fill materials. The 1912 topographical survey indicates that the northern end of the Trolley Barn parcel (that portion located outside the APE) was historically inundated marshland and a small stream. The elevation of this area was raised through the addition of approximately 6 feet of fill material. The upland area south of the marsh was formerly situated at an elevation of approximately 2 feet relative to the Richmond Borough Datum (approximately 4 feet NAVD88). The ground surface of this area is currently at an elevation of approximately 6 feet relative to the Richmond Borough Datum (approximately 8 feet NAVD88). As such, any limited subsurface impacts associated with the demolition of the former Trolley Barn and the planting of stabilizing grasses would be limited to the artificial fill layers and not result in any potential impacts on archaeological resources.

CONSTRUCTION STAGING

As described above, the locations of construction staging will be selected by the contractor but are expected to be at locations along the project corridor and on the adjacent Brookfield Park access road. Construction staging is not expected to result in excavation or disturbance beyond surficial soils. As described above, extensive landscape modification has been documented across the APE and surrounding areas. As such, impacts to the immediate ground surface associated with construction staging would not be expected to impact undisturbed soils that may have potential archaeological sensitivity.

³ NYC “Now and Then”:

<https://www.arcgis.com/apps/instant/media/index.html?appid=e011fd05a86a4c09bd0b91fbc387f3eb>

D. CONCLUSIONS

Under the scenarios for proposed impacts as presented above, the additional elements of the proposed project including the Restoration Site, Trolley Barn demolition, and construction staging areas are not expected to result in any impacts on archaeologically sensitive soil deposits to a depth of 2 feet below the ground surface. No further archaeological analysis is therefore recommended in connection with the proposed activities described in this memorandum, including the wetland restoration work and any site design investigations that would result in disturbances to similar depths or that would occur in the form of 2- to 3-inch geotechnical soil borings within the same area. However, if the project is redesigned in a manner that involves subsurface impacts to depths greater than 2 feet below the existing ground surface in the Restoration Site or any subsurface disturbance (e.g., excavation or grading) in the Trolley Barn demolition area or in construction staging/site preparation areas, additional archaeological analysis may be required to determine potential impacts.

E. REFERENCES CITED

AKRF, Inc.

2022

“Arthur Kill Drainage and Road Improvements: Capital Project RED366/HWR1140A; Staten Island, Richmond County, New York: Phase 1A Archaeological Documentary Study.” Prepared for: The New York City Department of Design and Construction; Long Island City, NY.

Richmond County Topographical Bureau

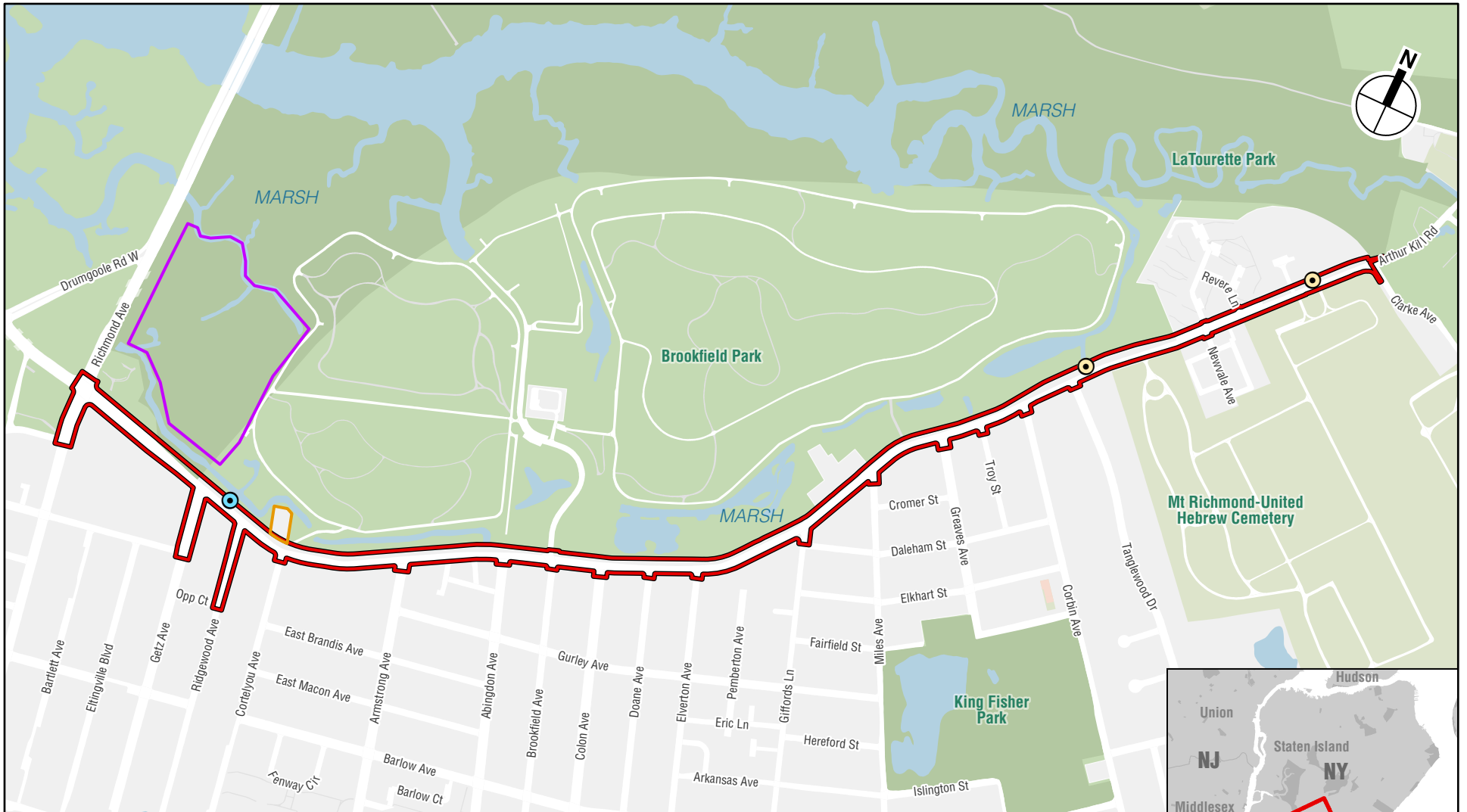
1911–1912

Borough of Richmond Topographical Survey. On file at the Richmond County Topographical Bureau.

United States Geological Survey

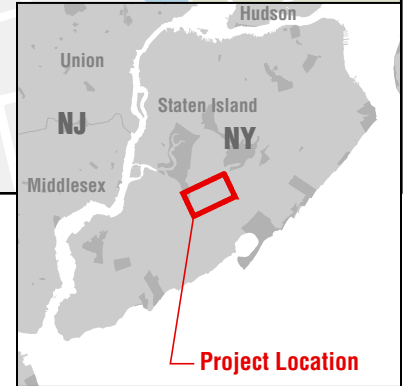
2014

“USGS New York CMGP Sandy Lidar.” Accessed through:
<https://gis.ny.gov/elevation/metadata/USGS-NY-Sandy-Recovery-Lidar-Classified-LAS.xml>



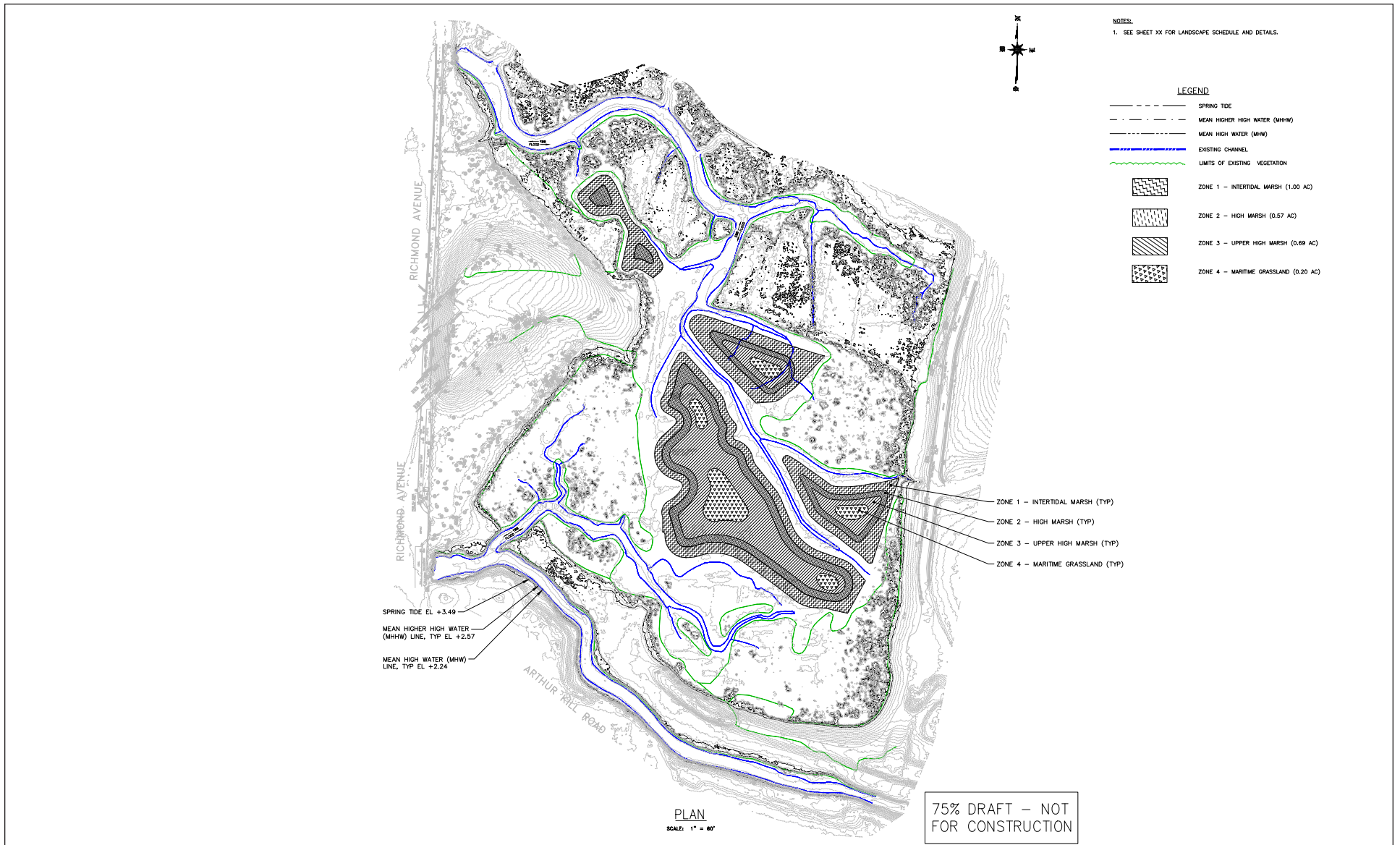
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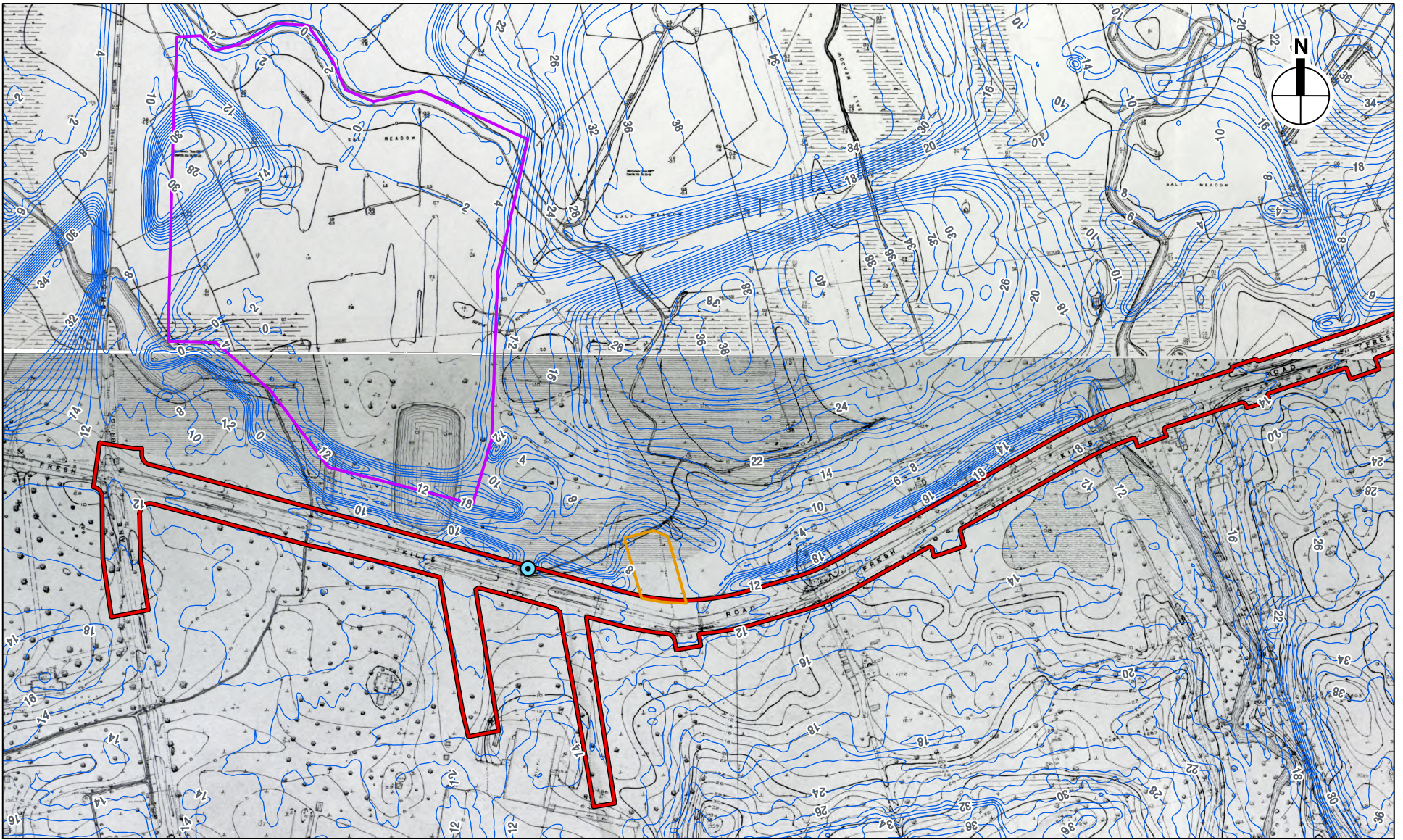
- Proposed Project Corridor
- Former Trolley Barn Demolition Area
- Study Area (400-foot boundary)
- ⊙ New Outfall
- Wetland Restoration Site
- ⊙ Outfall Extension



ARTHUR KILL ROAD DRAINAGE AND ROAD IMPROVEMENTS
NYCDDC PROJECT ID: RED366/HWR1140A

Project Location
Figure 1





- Proposed Project Corridor
- Wetland Restoration Site
- New Outfall
- 2-foot contours
- Former Trolley Barn Demolition Area
- Outfall Extension

0 500 FEET