May 2011

Prepared for:

MTA/NYC Transit

Archaeological Monitoring for Yard A, Sunnyside Yard Rail Complex Queens Open-Cut Excavation Areas 1, 4, and 5 MTA/LIRR East Side Access Project Construction Contract CQ028

Queens, New York

Prepared by:

URS

Burlington, New Jersey

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Abstract

A section of the MTA/LIRR East Side Access Project requires the construction of a new cut-and-cover tunnel to be constructed from New York City Transit's existing 63rd Street Tunnel Connector Project site, north of Northern Boulevard, beneath Northern Boulevard through to Yard A of the Sunnyside rail complex in Queens, New York. The final cut-and-cover structure in Yard A will be approximately 800 feet long. A previous Stage IA archaeological assessment concluded that the proposed tunnel work would be located in three archaeologically sensitive areas (Areas 1, 4, and 5). These potential resources ranged in date from prehistoric to the seventeenth- through eighteenth-centuries. The assessment also indicated that fill in these areas was anywhere from 3 to 18 feet in depth, and had to be removed using excavation equipment. In addition, since the groundwater was contaminated with chlorinated volatile organic compounds (VOCs), the construction of a slurry wall around the excavation area was required in order to limit the infiltration of groundwater and the need for dewatering to ensure that contaminated water did not become concentrated within the excavation area. Because the feasibility of testing these three areas was complicated by the presence of deep fill, hazardous material, and the need to install a slurry wall, monitoring during construction for potential resources after the installation of the slurry walls was determined to be the only viable and practical archaeological method of investigation.

URS Corporation conducted archaeological monitoring of the three sensitive areas intermittently from May 10, 2007 to April 2010 due to the construction schedule. Although the project area was undoubtedly utilized for procurement purposes during prehistoric times, such activities usually leave behind very little archaeological evidence. In addition, subsequent historical development would have altered the landscape and impacted potential historical resources. Archaeological monitoring did not encounter any evidence of prehistoric or historic materials or features within Areas 1, 4, and 5. Therefore, planned construction activities progressed and no further archaeological investigations were recommended.

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Introduction and Project Description

The East Side Access Project will provide new LIRR service to Grand Central Terminal by connecting the Port Washington Branch and Main Line tracks adjacent to the Sunnyside Yard in Queens to the lower level of the existing 63rd Street Tunnel beneath the East River, and continuing in a new tunnel to Grand Central Terminal in Manhattan (Figure 1.1). The potential environmental effects of the proposed project were assessed in an environmental impact statement (EIS) prepared for the project, and included an evaluation of the project's potential effects on historic and archaeological resources. The final EIS (FEIS) for the project was published in March 2001.

Under Section 106, a programmatic agreement was executed for the East Side Access Project by the Federal Transit Administration, the Metropolitan Transportation Authority (MTA), and the New York State Historic Preservation Office (SHPO). The programmatic agreement and the FEIS set forth the following steps to be followed as the project design progressed:

- Review of boring logs to better delineate filling and grading, as well as refine conclusions regarding areas of potential archaeological sensitivity;
- Review of ongoing design to refine areas of impact; and
- For all areas that will be affected by project activities and that are considered to have potential archaeological sensitivity after review of available boring logs, further investigation and implementation of mitigation measures, as appropriate.

Since completion of the programmatic agreement and FEIS for East Side Access, additional borings were taken and reviewed in areas initially considered to have potential archaeological sensitivity. In addition, project designs to date were reviewed to refine areas where the project would result in disturbance of soils.

As part of the EIS process, a Stage IA archaeological assessment was completed by Historical Perspectives, Inc. (HPI) in 1999 (Mascia et al. 1999) and summarized in the FEIS. This analysis concluded that there may be archaeologically sensitive areas within Sunnyside Yard, Yard A**,** the stretch of railroad tracks in the Sunnyside area known as Harold Interlocking, and surrounding areas where construction of the project is proposed. Potential archaeological resource types identified range from prehistoric resources to seventeenth- through eighteenth-century historical resources. These potential resources would be expected to be buried in the lower levels of and beneath late-nineteenth- and early-twentieth-century fill deposited across the Sunnyside rail complex (including Yard A, Sunnyside Yard, and Harold Interlocking) when it was developed as a rail facility.

A construction protection plan (CPP) was also developed to avoid construction-related adverse impacts on historic structures and archaeological resources located within designated influence zones or within construction area boundaries (AKRF Inc. and URS Corporation 2007). The CPP was developed to protect historic resources/structures from potentially adverse ground-borne vibrations, as well as potentially adverse structure movements, settlement, and rotations from construction, excavation, and underground/tunneling activities. In addition, the CPP was

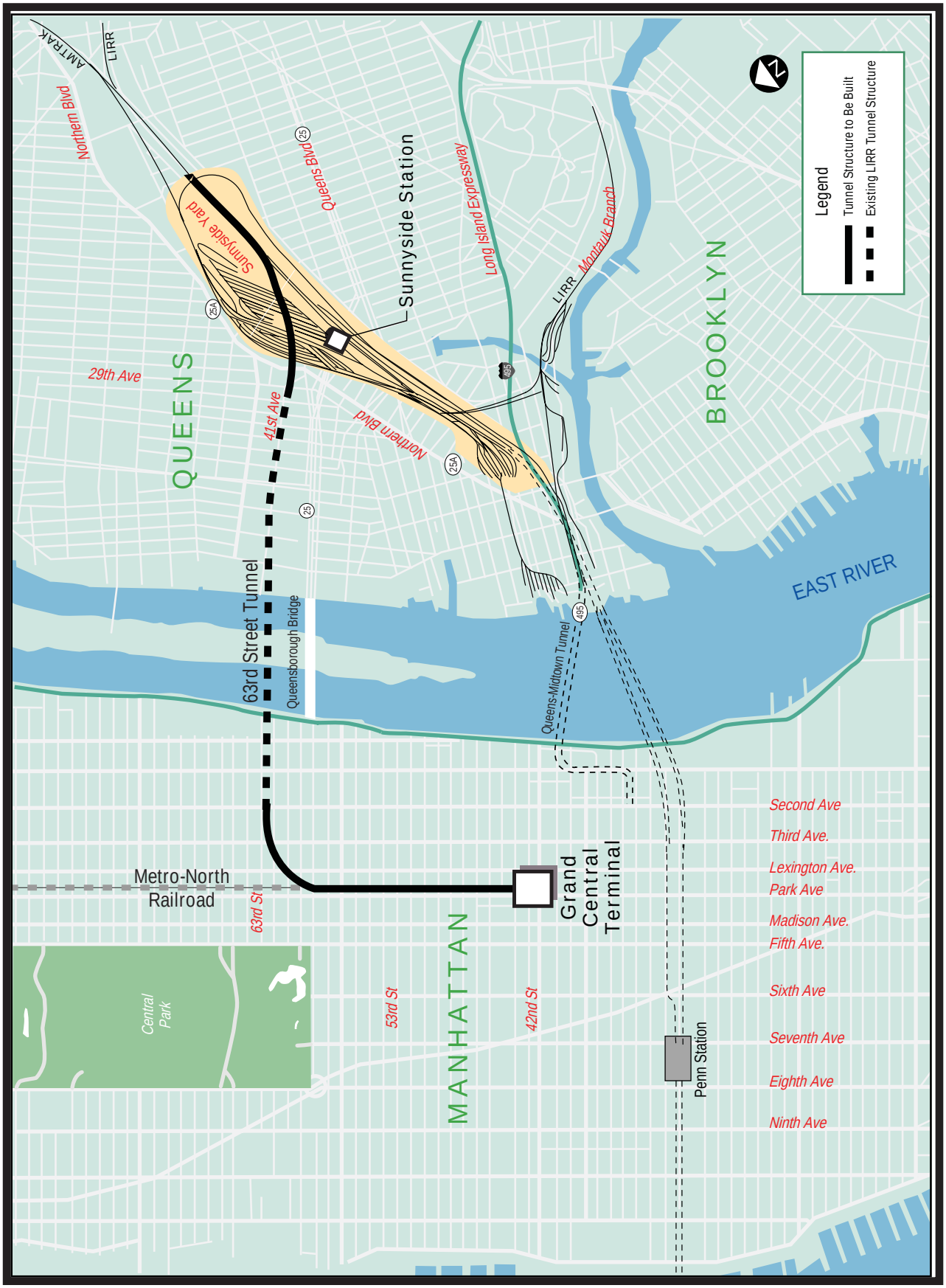

Figure 1.1 Plan of MTA/LIRR East Side Access Project area.

developed to protect archaeological resources that may be found in known sensitive areas and sites to be acquired and developed for the ESA project. The CPP detailed procedures to be adopted in testing for the presence of archaeological resources prior to or during bulk excavation, and detailed the procedures to be adopted should archaeological resources be encountered while excavation and construction for the major works contracts are in progress. Two types of Stage IB archaeological investigations were proposed for all areas determined to possess archaeological sensitivity based on the Stage IA study. These stages consisted of 1) field monitoring during construction and 2) investigation/testing in advance of construction.

A section of the project requires the construction of a new cut-and-cover tunnel to be constructed from New York City Transit's existing 63rd Street Tunnel Connector Project site north of Northern Boulevard, beneath Northern Boulevard through to Yard A of the Sunnyside rail complex (Figure 1.2). The final cut-and-cover structure in Yard A will be approximately 800 feet long (Figure 1.3). The Stage IA archaeological assessment concluded that there were archaeologically sensitive areas within Yard A and that the proposed tunnel work would be located in archaeologically sensitive Areas 1, 4, and 5 (Mascia et al. 1999). The assessment also indicated that fill in these areas was anywhere from 3 to 18 feet in depth, and must be removed using excavation equipment. In addition, since the groundwater was contaminated with chlorinated volatile organic compounds (VOCs), the construction of a slurry wall around the excavation area was required in order to limit the infiltration of groundwater and the need for dewatering to ensure that contaminated water did not become concentrated within the excavation area. Because the feasibility of testing these three areas was complicated by the presence of deep fill, hazardous material, and the need to install a slurry wall, monitoring during construction for potential resources after the installation of the slurry walls was determined to be the only viable and practical archaeological method of investigation.

Archaeological construction monitoring was conducted in accordance with the National Historic Preservation Act of 1966, as amended, and the Advisory Council on Historic Preservation's "Protection of Historic and Cultural Properties" (36 CFR 800). The investigations were also conducted pursuant to the *Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State*, prepared by the New York Archaeological Council and adopted by the New York State Office of Parks, Recreation, and Historic Preservation (NY SHPO 1994), and to the guidelines established by the New York City Landmarks Commission (NYCLPC) for Phase IB archaeological work in New York City, dated April 12, 2002. The cultural resource specialists who performed this work satisfy the qualifications specified in 36 CFR 61, Appendix A. The Principal Investigators for the archaeological monitoring are certified by the Register of Professional Archaeologists (RPA).

Edward Morin (MS, RPA) served as Project Manager. Archaeological monitoring of construction activities was conducted by Patience Freeman, Principal Investigator, for Area 1 periodically from May 2007 to September 2007. Alyssa Loorya served as the Principal Investigator for Areas 4 and 5, and conducted the monitoring intermittently from March to April 2010. Scott Hood produced the graphical images and Paul Elwork edited the report for style and consistency.

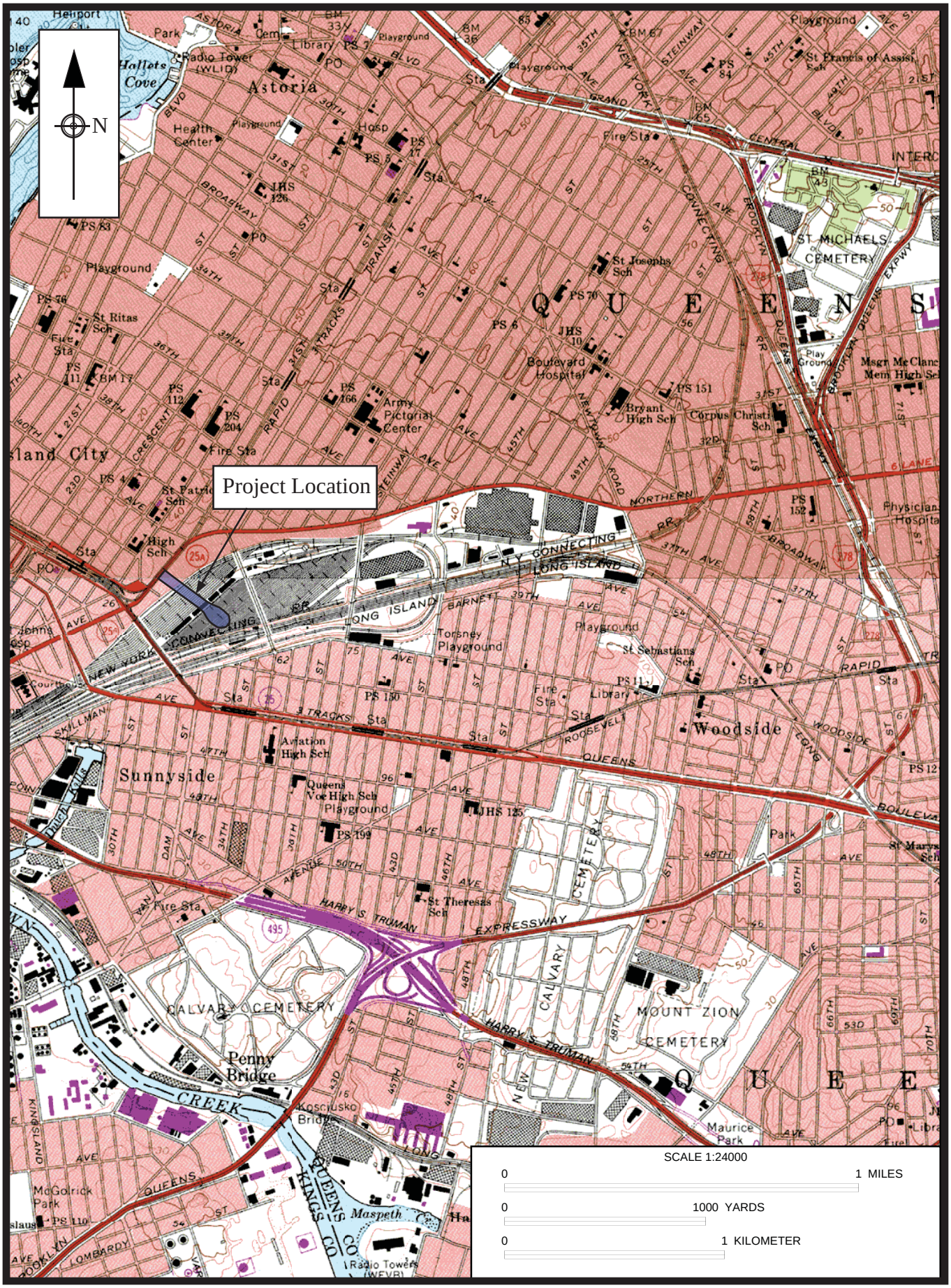

Figure 1.2 Location of open-cut tunnel project area (Central Park Quad. 2008 MyTopo).

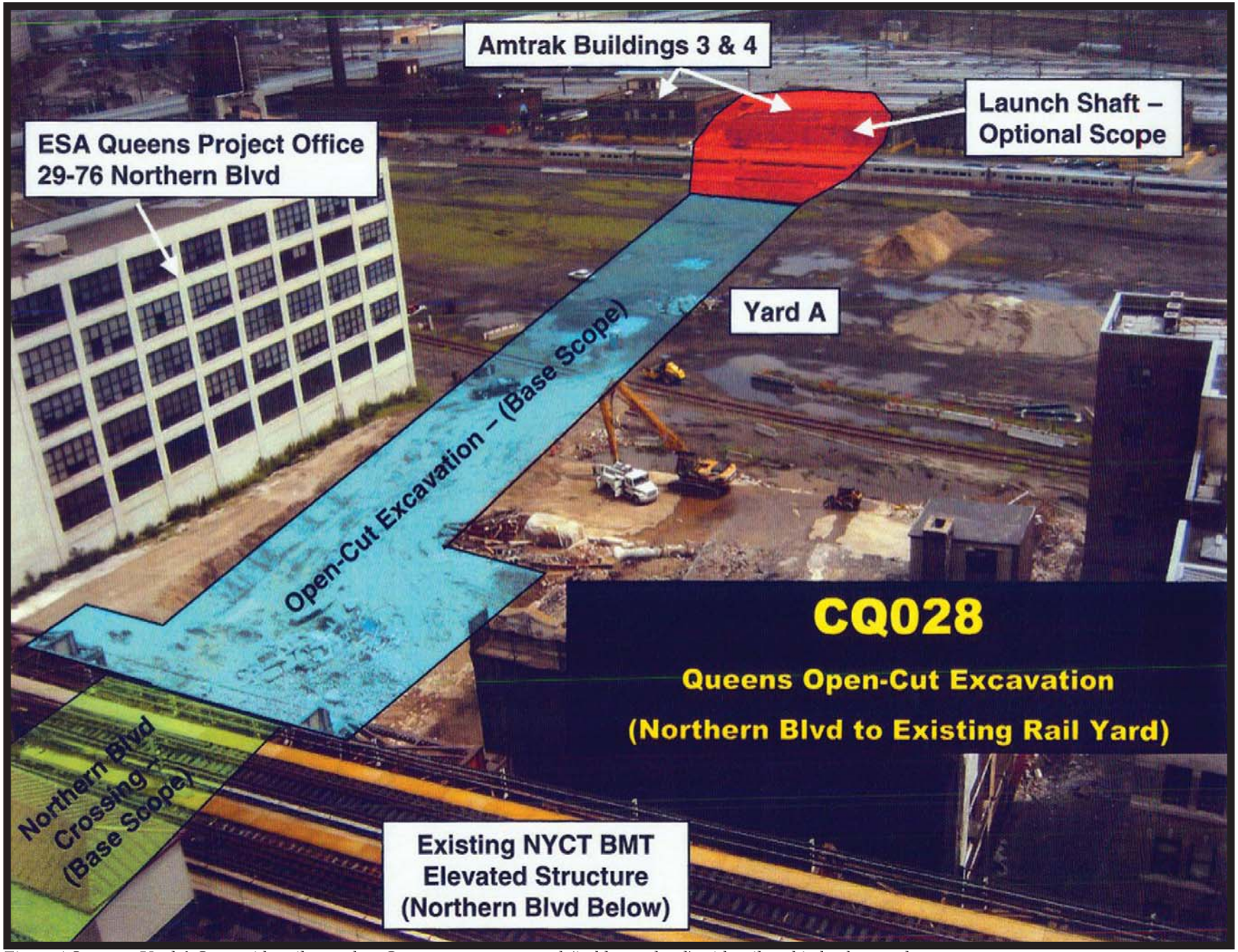

Figure 1.3 Yard A Sunnyside rail complex, Queens open-cut tunnel (in blue and red) with railroad in background.

2
Environmental and Physical Setting

PHYSIOGRAPHY AND UNDERLYING GEOLOGY

The overall project area is located on the western end of Long Island, where basal geology consists of various unconsolidated Coastal Plain deposits ranging in age from Cretaceous to Quaternary. Owing to the glacial history of the area, however, these deposits would not be reflected in the original native soils. Rather, all surficial deposits across Long Island can be attributed to the Wisconsin glaciation, the terminal advance of which in fact corresponds to the island. Glacial moraines marking former ice margins are aligned along both the northern shore and central spine of the island; extensive deposits of glacial outwash are evident to the south of the central moraine. Since the study location is near the moraine to outwash transition, several types of glacial material are possible. In close vicinity to the moraine, glacial drift of varying compositions—ranging from loamy sediments to cobbles—would be present. Where outwash is the predominant material, glaciofluvial deposits of sand and gravel would be expected. Additionally, surficial deposits of loess also occur in the Long Island area, particularly near Long Island Sound. These windblown deposits are a common byproduct in the aftermath of glacial retreat, and when present form a mostly silty mantle atop the usually coarser textures of drift and outwash (Morin and Wagner 2007).

UNDERLYING SOILS

Soils within the overall project area fall within the LaGuardia-Ebbets-Pavement and Buildings Complex (0–8% slopes). These soils occur in nearly level to gently sloping urban areas. The soils consist of a mixture of natural soil materials and construction debris capping former swamps, tidal marshes, or water. Fifteen to forty-nine percent of this complex's surface(s) is covered with impervious pavement and buildings. In general, the soils are a mixture of anthropogenic soils, which vary in their content of coarse fragment (New York City Soil Survey Staff 2005).

The LaGuardia soil series is formed in loamy fill greater than 40 inches deep and has intermixed construction debris. It is well drained and occurs on anthropogenic urban fill plains. The typical profile begins with a brown (10YR 4/3) gravelly sandy loam Ap horizon with 25% gravel-sized "artifacts" and 5% cobbles. The Ap horizon caps a brown (10YR 4/3) very gravelly coarse sandy loam Bw horizon with 40% gravel-sized "artifacts" and 5% cobbles. The Bw horizon in turn caps a brown (10YR 4/3) very gravelly coarse sandy loam C horizon with 50% gravel-sized "artifacts" and 7% cobbles (New York City Soil Survey Staff 2005).

A small note on the usage of the term "artifacts" in the above soil profile is necessary. This term refers to the non-naturally occurring items common in soil in urban settings. The New York City Soil Survey Staff (2005) describes artifacts in the soil as:

> …human created or altered materials (construction debris, coal ash, garbage, etc.) [that] can affect soil chemical and physical properties; take up rooting volume or water and nutrient storage space.

This definition is, in essence, the same as that utilized by archaeologists. The difference lies only in that the survey staff considers *all* human-created items included in the soil column to be artifacts, while archaeologists tend to reserve this term for historic- or prehistoric-aged items.

The Ebbets soil series is also formed in loamy fill greater than 40 inches deep and has intermixed construction debris. It is well drained and occurs on anthropogenic urban fill plains. The typical profile begins with a very dark grayish brown (10YR 3/2) loam A horizon with 5% gravel-sized artifacts. The A horizon caps a yellowish brown (10YR 4/4) gravelly sandy loam Bw horizon with 25% gravel-sized artifacts. Finally, a dark yellowish brown (10YR 4/4) gravelly sandy loam C horizon with 30% gravel-sized artifacts underlies the upper strata (New York City Soil Survey Staff 2005).

The Pavement and Buildings portion of the complex refers to those areas in which 80% or more of the surface is covered in asphalt, concrete, buildings, or other impervious materials (New York City Soil Survey Staff 2005).

HYDROLOGY AND ELEVATIONS

Drainage in the overall project area is provided by Dutch Kills, which lies 2,665 feet (812 meters) to the southwest. Dutch Kills is a tributary of the Newtown Creek, and the confluence of these two creeks is 5,234 feet (1.6 kilometers) southwest of the project area. The Newtown Creek flows 0.89 miles to the west, where it joins the East River. The East River eventually joins the Hudson River to form the Upper New York Bay.

Elevations in the project are approximately 11 feet above mean sea level (amsl).

CURRENT SETTING

Areas 1, 4, and 5 are within the Queens Open-Cut Excavation, which encompasses a 650-foot-long cotton-swab-shaped area (Figure 2.1). The overall project area begins at the MTA tracks/Northern Boulevard in the north and extends just beyond the AMTRAK rails to the south. Between these two extant rail lines, there presently exists a large open space that contains Areas 1, 4, and 5 (see Figure 1.2). Area 1 occupies the initial portion of the cotton swab's "shaft" and essentially consists of 250-x-75-foot rectangle with protrusions on the east and west (Figure 2.2). Area 1, which encompasses approximately 51,412.5 square feet (or 1.2 acres), begins at Northern Boulevard and terminates at the southernmost siding rail of Yard A. Although subsequently removed, this siding rail can still be seen in Figure 1.2. Area 1 currently consists of an open space between two standing structures that most recently contained a factory/warehouse. South of Area 1 lies Yard A. The southern siding rail and the AMTRAK rails form the boundaries of Yard A, which was once a large switching yard for the MTA/LIRR. The siding rail that forms the southern boundary of Area 1 is the only remaining siding rail (once multiple) in Yard A. This area has been apparently cleared and graded in preparation for construction.

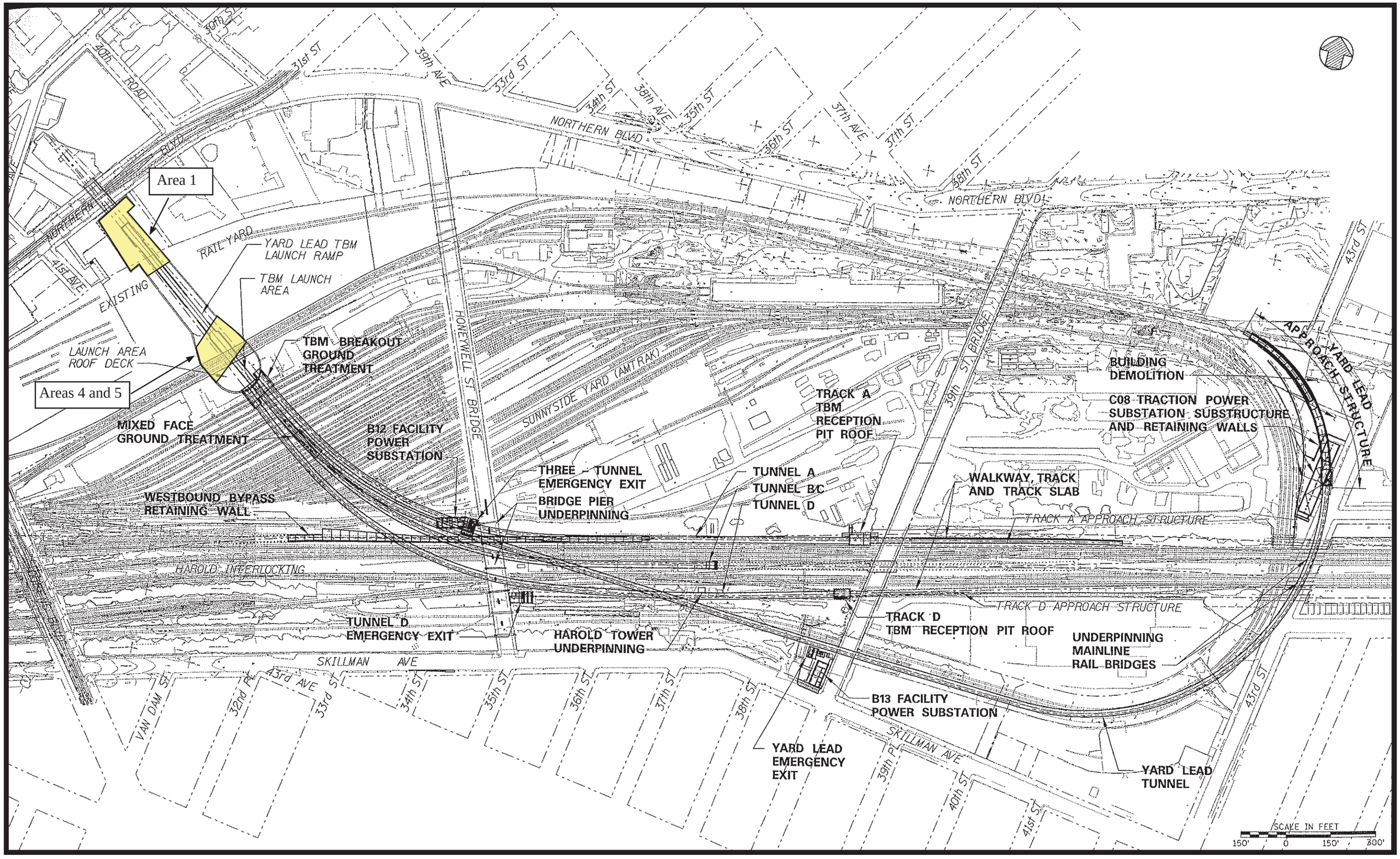

Figure 2.1 Existing conditions, Yard A, Sunnyside rail complex, Areas 1, 4, and 5.

REQUIREMENTS FOR EXCAVATION WITHIN LIMITS
OF POTENTIAL PREHISTORIC SENSITIVITY:

1. REFER TO THE LIMITS OF POTENTIAL PREHISTORIC SENSITIVTY INDICATED ON THIS DRAWING. WITHIN THESE LIMITS THE CONTRACTOR SHALL EXCAVATE TO APPROXIMATELY 5 FEET ABOVE THE ORGANIC DEPOSITS LAYER (INCLUDING PEAT), LAYER ⑧. THE REMAINING 5 FEET OF FILL MATERIAL SHALL BE EXCAVATED USING A FLAT BLADE EXCAVATOR UNDER THE OBSERVATION OF A THIRD PARTY ARCHAEOLOGIST.
2. THE ORGANIC SILT AND CLAY LAYER (AREA OF POTENTIAL PREHISTORIC SENSITIVITY) SHALL BE EXCAVATED USING A FLAT BLADE EXCAVATOR IN 1'-0" LIFTS, ALSO UNDER THE OBSERVATION OF A THIRD PARTY ARCHAEOLOGIST, IN ACCORDANCE WITH SPECIFICATION SECTION 01570, UNTIL THE EXCAVATION HAS ADVANCED TO UNDISTURBED SOIL AS DETERMINED BY THE ARCHAEOLOGIST AND RESIDENT ENGINEER.
3. REFER TO THE INTERPRETED GEOLOGICAL PROFILES FOR THE APPROXIMATE LIMITS OF THE ORGANIC DEPOSITS.
4. THE REQUIREMENTS LISTED ABOVE DO NOT APPLY TO TRENCH EXCAVATION FOR THE SLURRY WALLS.

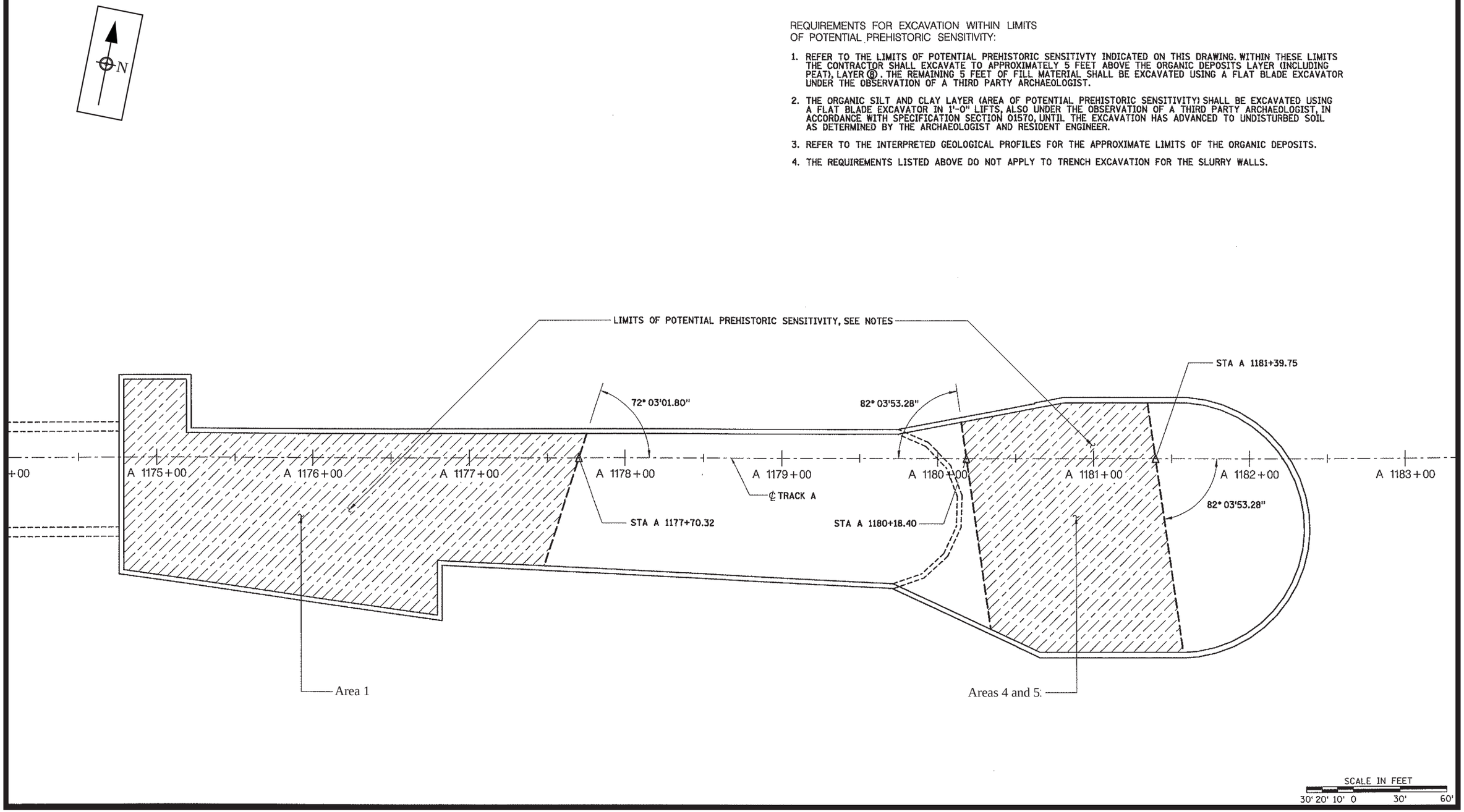

Figure 2.2 Yard A, Sunnyside rail complex, archaeologicaly sensitive Areas 1, 4, and 5.

Areas 4 and 5 are located in the "tip" portion of the cotton-swab-shaped project area (see Figure 2.2). These areas comprise a 150-x-100-foot rectangle that is canted eastward (see Figure 2.1). Although the bulk of Areas 4 and 5 reside within Yard A, smaller portions are located beneath the AMTRAK lines and just south of the AMTRAK rails. The rectangle encloses 15,000 square feet, or 0.34 acres.

3
Cultural Background and Archaeological Sensitivity

BACKGROUND RESEARCH

Prehistoric Period

Archaeological traces of settlement in the greater New York City area extend back to the Paleoindian period, circa 11,000 to 10,000 B.P. (Cantwell and Wall 2001:40ff). Settlement continued throughout the ensuing Archaic and Woodland periods, accompanied by a steady increase in population. By the time of the Middle Archaic, people systematically exploited the coastal resources of Manhattan. The Middle Archaic sites found in the lower Hudson Valley area are, for the most part, shell middens of a compact nature and waterfront location that protected many from destruction during eighteenth- and nineteenth-century development (Cantwell and Wall 2001:54). Many of the Late Archaic sites in the area are also shell middens (Cantwell and Wall 2001:57), although intact Archaic sites of any period are scarce in New York City. The available evidence suggests that people had established seasonal rounds by the Late Archaic (Cantwell and Wall 2001:59). Large groups occupied base camps during the summer; groups split up during other seasons to visit smaller hunting, fishing, or plant procurement stations. This pattern continued throughout the ensuing Transitional and Early and Middle Woodland periods.

Agriculture became established in the Northeast during the Late Woodland period (after A.D. 1000), but the timing of the subsistence switch by coastal peoples from complete dependence on hunting and gathering to mixed foraging and agriculture is a matter of debate among archaeologists. By the time of European settlement in the early seventeenth century, native people kept well-established fields in which they grew the triad of corn, beans, and squash, along with some other domesticated plants. The Munsees—part of a larger group now called the Delaware or Lenape—occupied western Long Island at the time of European contact. Small, permanent communities characterize the Munsee settlement pattern, along with temporary sites for the collection of particular resources (Cantwell and Wall 2001:114). The Munsees farmed on a small scale, but also utilized the plant and animal resources of the land. Early writers described their fields and the large palisaded settlements that accompanied them (e.g., Van der Donck 1968), but archaeologists do not agree as to the temporal depth of this village-settlement pattern. Some see the pattern as extending back for several hundred years; others see it as a response to European trade (Cantwell and Wall 2001:94–95).

Historic Period

The project area is located near the earliest recorded settlement in the vicinity. This area consisted of the mill and farm of Burger Jorissen, located near the Dutch Kills (Mascia et al. 1999). Historically, this section of Queens was associated with the scattered settlement around Dutch Kills.

The Settlement of Sunnyside. The first generation of New Amsterdam settlers to establish themselves in Queens in the 1640s chose home sites at Hunter's Point and the area around Newtown Creek and Dutch Kills. Burger Jorissen, an immigrant from Silesia, was granted property in the vicinity of the historic headwaters of Dutch Kills in 1643. By 1650, he had erected a dam and gristmill on Dutch Kills, which was near the site of present-day Bridge Plaza and eastward along Jackson Avenue (Mascia et al. 1999). Burger Jorissen also dug a long ditch, thereafter known as "Burger's Sluice," to drain his land and improve the flow of water over his dam. The sluice ran northward along what later became the alignment of 42nd Street and passed through the Bragaw/Gosman farm. The sluice then turned eastward and formed the northern border of the farm (Van Alst 1873). Burger's Sluice was reportedly filled in when the Long Island Railroad and Jackson Avenue (now Northern Boulevard) were constructed in 1861 (Seyfried 1984:76).

In 1690, Burgon Brocard (Bragaw) purchased the farm and mill from Jorissen. Bourgon Broucard, an exiled French Hugenot, arrived in New York in 1675. The family first lived on a farm in Bushwick, but in 1690 began to assemble a large tract of land in the area of Dutch Kills by originally buying the farm and a gristmill from Jorissen. Bourgon's eldest son (Isaac) and grandchildren added onto the paternal farm, expanding the family's holdings westward along Middleburg Avenue. The Jorissen lands stayed in the Bragaw family until circa 1818, when the farm/gristmill was sold to the Payntar family. Isaac's son, John Bragaw, inherited the remaining farmlands along Middleburg Avenue (Mascia et al 1999; Riker 1852:370–372).

The mill itself stayed in business for a century and a half; remains of the millpond and gristmill were still clearly visible when the Long Island Railroad built their line through the mill site in 1861. Middleburg Avenue (now 39th Avenue) was laid out in the seventeenth century and, by the time of the American Revolution, was lined with farmsteads. Middleburg Avenue, at one time known as Bragaw Avenue, crossed Dutch Kills and continued east to where it intersected with Newtown Avenue at Woodside. Many of the old farmhouses survived into the early part of the twentieth century (Seyfried 1984:77).

During the period in which the British army occupied New York (1776–1783), troops were garrisoned in the Sunnyside neighborhood. The area where today's Northern Boulevard, Woodside Avenue, and Newtown Avenue intersect was part of a narrow upland passage among the swampy tracts and meadowlands that covered the area in the eighteenth century. British officers were billeted in the ancient Dutch farmhouses and soldiers bivouacked in the outbuildings. During the occupation, all the woodland remaining in Queens was cut down to fuel the soldiers' fires. Lord Cornwallis' 33rd Regiment built 50-foot-long, three-sided log huts on the farm of John Bragaw on Middleburg Avenue. John Bragaw's Tory leanings made his farmhouse the preferred meeting place for all the British officers of the area, including Lord Cornwallis and Sir Henry Clinton. As late as the 1890s, newspapers reported on the unearthing of artifacts in Sunnyside related to the British occupation, while the outlines of the soldiers' huts were clearly visible in the fields (Riker 1852:209; Seyfried 1984:79).

The Development of Long Island City. Long Island City was created in 1870 with the unification of the neighborhoods of Hunter's Point, Astoria, Ravenswood, and Dutch Kills. The project area falls within the city's second ward. One of the new city's first public works efforts

was to fill in the swampy land that had become polluted and stagnant as industry and population increased. In 1901, the decision of the Pennsylvania Railroad to locate its rail yard in Sunnyside wiped out the original Dutch farmsteads and much of old Middleburg Road. After buying up all the property between 32nd and 43rd Streets and between Skillman Avenue and Northern Boulevard, the railroad razed all the houses, leveled a 60-foot-high hill, and filled in over 250 acres of tidal marsh, including the headwaters of Dutch Kills. Sunnyside Yards officially opened to rail traffic in 1910 (Seyfried 1984:82). It was divided into the North Yard (present-day Yard A) and the South Yard (present-day Sunnyside Yard). The opening of the Sunnyside Yards coincided with the completion of the Queensborough Bridge in 1909 and viaducts over the yards. The bridge turned the quiet residential backwater of Dutch Kills into a commercial and transportation hub. The rail yard effectively ended any remaining agrarian atmosphere in neighboring Sunnyside and boosted the commercial economy of the area. Strategically located between the Long Island Railroad and the Pennsylvania Railroad, 37th Avenue became the home of industrial plants (Mascia et al. 1999).

ARCHAEOLOGICAL SENSITIVITY

A search of the archaeological site files indicated that no known prehistoric sites have been recorded within the immediate vicinity of the project area. However, three sites have been recorded within ¾ to 1 mile of the project area. These sites consist of a village site (NYSM#4538), located in Long Island City; a burial site (NYSM#4537), identified northeast of the village; and another burial site (NYSM#5472), located within St. Michael's Cemetery, Queens. Although the project area was once located within a wooded upland setting (as depicted on a U.S. Coast Survey Map of 1844), the New York City Landmarks Preservation Commission did not identify it as being sensitive for prehistoric cultural resources (NYCLPC 1982), perhaps due to the project area's distance from a freshwater source. Historic maps indicate that the closest freshwater source was the Dutch Kills, located approximately 2,665 feet to the west. Several studies have indicated that the majority of prehistoric sites are located in elevated and well-drained areas within 150 to 200 feet of a water source (Mascia et al. 1999). This tendency drops off sharply as distances increase. In addition, subsequent industrial development would have altered the landscape and impacted any potential prehistoric cultural resources. Therefore, the potential for locating intact prehistoric cultural deposits within the project area was low.

A Stage IA investigation (Mascia et al. 1999) identified Areas 1, 4, and 5 as potentially sensitive for buried archaeological resources. Area 1 possesses potential sensitivity for prehistoric resources, as it is located upon an elevated landform in proximity to water and is in relatively close proximity to the prehistoric sites described above (Mascia et al. 1999). Area 1 also possesses a potential for buried historic resources that relate to the mid-nineteenth-century Payntar homestead. The 1844 U.S. Coast Survey map indicates the presence of a dwelling within the approximate APE near the historic headwaters of Dutch Kills. This dwelling may represent the original Jorissen gristmill that passed to the Payntar family via the Bragaw family, circa 1818. This property also appears on topographical maps of Queen's County from 1852 and 1859, with the property owned specified as William Payntar (Walling 1859). By 1891, the area surrounding the APE had seen significant development. Both the Long Island Rail Road (LIRR) and the Newark, Flushing, and Central Rail Road had rail lines to the south, Jackson Avenue (present-day Northern Boulevard) was formalized, and Skillman Avenue was present (Wolverton

1891). A two-story stone building, linked to the Payntar family, was situated between these transportation features. This dwelling was also present in 1908 and 1912 (Ullitz 1908 and Hyde 1912). By 1912, the general area greatly resembled the present-day neighborhood. The completion of Sunnyside Yards had bisected Skillman Avenue (renamed Skillman Place), effectively isolating the Payntar dwelling. Whether or not this later dwelling is that depicted in the earlier maps, or is congruent with the Jorissen gristmill, is unclear.

Areas 4 and 5 were determined to possess a potential for buried prehistoric archaeological resources. They are located upon an elevated landform in proximity to water and are in relatively close proximity to the other prehistoric site. Therefore, they possessed the potential sensitivity for prehistoric resources (Mascia et al. 1999). Based on previous historic research, Areas 4 and 5 are not likely to contain any buried historic archaeological resources (Mascia et al. 1999).

4
Methods and Procedures

GENERAL FIELD METHODS AND PROCEDURES

The new tunnel cut-and-cover excavations were located in an area containing groundwater contaminated with chlorinated volatile organic compounds (VOCs). In this area, infiltration of groundwater and the need for dewatering was limited through the construction of a slurry wall around the excavation area prior to any excavations. The slurry wall consisted of a concrete wall that extended from ground level to bedrock. ("Slurry" is a clay-water mixture pumped into a narrow excavation area to form 2- to 3-foot-wide temporary walls that keep the sides intact until the concrete is poured.) The slurry wall served as a retaining wall around the excavation area and prevented groundwater from entering into the excavation. The excavation area extended from Northern Boulevard across Yard A to the edge of Sunnyside Yard and provided a critical starting point for the project's tunnel excavation. The proposed slurry walls needed to be in place prior to conducting any archaeological investigation where contamination levels demanded their use, to ensure that contaminated water did not become concentrated in the excavation area. Fill in this area was anywhere from 3 to 20 feet in depth, and needed to be removed using excavation equipment. Because the presence of deep fill, hazardous material, and the need to install a slurry wall complicated the feasibility of testing this area, HPI recommended monitoring during construction for potential resources after the slurry walls were installed, as described below. Per the *Guidelines for the Use of Archaeological Monitoring as an Alternative to Other Field Techniques* put forth by the New York Archaeological Council (NYAC), monitoring is defined as the observation of construction excavation activities by an archaeologist in order to identify, recover, protect, and/or document archaeological information or materials (March 25, 2002: 1).

The monitoring plan for the areas of proposed work was implemented after the OPRHP's approval. The first step of the plan included cultural resource awareness training for the construction management team prior to excavations. In addition, the areas of archaeological sensitivity were clearly marked and the construction methodology explained on the pre-bid construction drawings. A specific chain of notification was established prior to the archaeological monitoring activities in the event the onsite archaeologist determined any encountered resources to be potentially significant. The archaeological monitor was given the authority to temporarily halt construction into natural soils to ensure that potential resources were not disturbed. This "work stop" authority was conveyed to all levels of contractors on the site excavation team, including equipment operators. Whenever the archaeologist halted excavations, time was then given to investigate subsurface conditions, as needed.

If resources were encountered that the onsite archaeologist determined to be potentially significant—e.g., appearing to meet eligibility criteria for listing on the National Register of Historic Places (NR eligible)—the construction team, engineering team, and the OPRHP were to be immediately notified according to the following sequence. An environmental coordinator, a member of the onsite construction team to be named, would be designated as the onsite contact person. The archaeologist would be responsible for notifying the environmental coordinator of any potentially significant finds, and they in turn would be responsible for notifying the point of

contact at the MTA. The MTA would then be responsible for notifying the OPRHP of the find. The OPRHP would be consulted regarding the potential significance of the find; i.e., whether OPRHP determined it met or did not meet NR-eligibility criteria.

Area 1

The methodology utilized for Area 1 followed the procedures outlined in East Side Access' project construction protection plan (CCP) (AKRF Inc. and URS 2007) for monitoring archaeologically sensitive areas during construction. This methodology was developed in order to ensure that construction activities would not accidentally intrude into potentially sensitive archaeological deposits. After the slurry wall was constructed, the cut-and-cover project excavations began. An archaeologist began monitoring the removal of fill from the area of potential effects (APE) commencing at the point where the borings/soil profiles indicated that the excavation would be within 5 feet of the natural ground surface, estimated at an elevation of 305 feet. The natural ground surface throughout the majority of the area consisted of organic silts and clays at elevations ranging from 300 to 288 feet. When this layer was reached, the contractor began soil removal in up to 1-foot lifts using a flat-bladed excavator under the direction of the archaeologist. As new ground was broken, the archaeological monitor examined the excavated materials, using the construction layout centerline and perimeter staking as a reference point to record the locations of findings. The archaeologist ceased monitoring activities when it was determined that glacial or sterile soils were encountered. Where there was no layer of organic silts and clays, and fill directly overlaid mixed glacial deposits, the archaeologist monitored the removal of fill commencing at 5 feet above of the mixed glacial deposits, at a point also estimated at an elevation of 305 feet. This would enable the archaeologist to determine if there may have been any historic-period shaft features that may have extended into the sterile soils.

Areas 4 and 5

There were existing utilities and drainage features within Areas 4 and 5. It was assumed that the installation of these features most likely disturbed potential resources in discrete locations. Areas 4 and 5 have had drainage tiles installed, but these are only about 4 to 5 feet below grade, and lie in fill levels that extend 8 to 13 feet below grade. Where a culvert and combined sewer were installed, deep support piles probably extended into the deeper potentially sensitive levels. A 42-inch storm sewer may have also caused disturbance along its route if it was installed more than 8 feet below grade. Unlike Area 1, Areas 4 and 5 were not originally located in a marsh, so a layer of organic silts and clays would not be present. Instead, prehistoric resources, if present, were assumed to commence immediately beneath the 8 to 13 feet of fill located in these areas, and could extend 4 feet into the next stratum, a mixed glacial deposit. Conservatively, archaeological monitoring of the removal of fill was required within a buffer zone of 5 feet from the mixed glacial deposit layer. Prior to any construction, since elevations differ throughout Areas 4 and 5—varying as much as 7 feet—the monitoring archaeologist reviewed all detailed soil profiles to determine at what elevations throughout the sensitive areas the monitoring of fill removal should commence. Once the 5 foot buffer zone was reached, the contractor would begin soil removal in up to 1-foot lifts using a flat-bladed excavator under the direction of the monitoring archaeologist. The archaeologist ceased monitoring activities once excavation had extended 4 feet into the glacial deposits.

Two memoranda were sent to the OPRHP and LPC concerning the need for changes to the original archaeological monitoring as presented in the CPP (Morin 2009a and 2009b). The memoranda stated that due to lengthy project delays, the slurry wall within Areas 4 and 5, which runs underneath the "North Runner" track—a live railroad track on a bridge—was in need of repair. The construction contractor conducted emergency stabilization repairs for supports to the slurry wall and railroad bridge within a small section of Areas 4 and 5 just southeast of the bridge without archaeological monitoring. No archaeological monitoring was conducted because the construction contractor at that time did not notify anyone of their intent; they have since been dismissed from the project (Figure 4.1). However, a large section north of the bridge remained intact and was scheduled for archaeological monitoring (as outlined in the CPP) sometime in the spring of 2010. The current contractor was notified of this requirement in order to prevent any additional inadvertent construction activities without an archaeological monitor present.

Critical supports for the railroad bridge (North Bridge Runner) had to be installed and the slurry wall beneath it repaired (shored up). According to Frank Perone, Project Engineer, support installation and slurry walls repairs needed to occur simultaneously from both sides of the bridge to ensure the integrity of the structure. Because of this, the material located directly below the structure could not be removed in 1-foot lifts, per the CPP (see Figure 4.1). In addition, the archaeologist could not be in the hole due to lack of a safe space during this work. According to Jonathan Medl, Project Safety Officer, there would be no safe observation locations below the 50-foot-wide bridge due to the congested/confined excavation area. Therefore, direct "in hole" observation would not be available to the archaeological monitor as originally anticipated in the CPP. Douglas Mackey, Archaeologist with the OPRHP, proposed that the monitor examine the soil removed from beneath the existing railroad bridge in a designated safe location before carting it offsite to determine if cultural deposits were present. If such deposits were present, then the monitor would notify construction management that excavation work needs to stop in order to evaluate the excavation area to determine if it needs to be investigated to ensure that it is properly configured and stable enough for the archaeological monitor to enter safely. The remaining deposits located adjacent to and not directly under the bridge could indeed be excavated via 1-foot horizontal lifts and monitored by an archaeologist in the hole, per the approved-CPP method (see Figure 4.1).

LABORATORY METHODS AND PROCEDURES

No archaeological material was recovered during archaeological monitoring of Areas 1, 4, and 5.

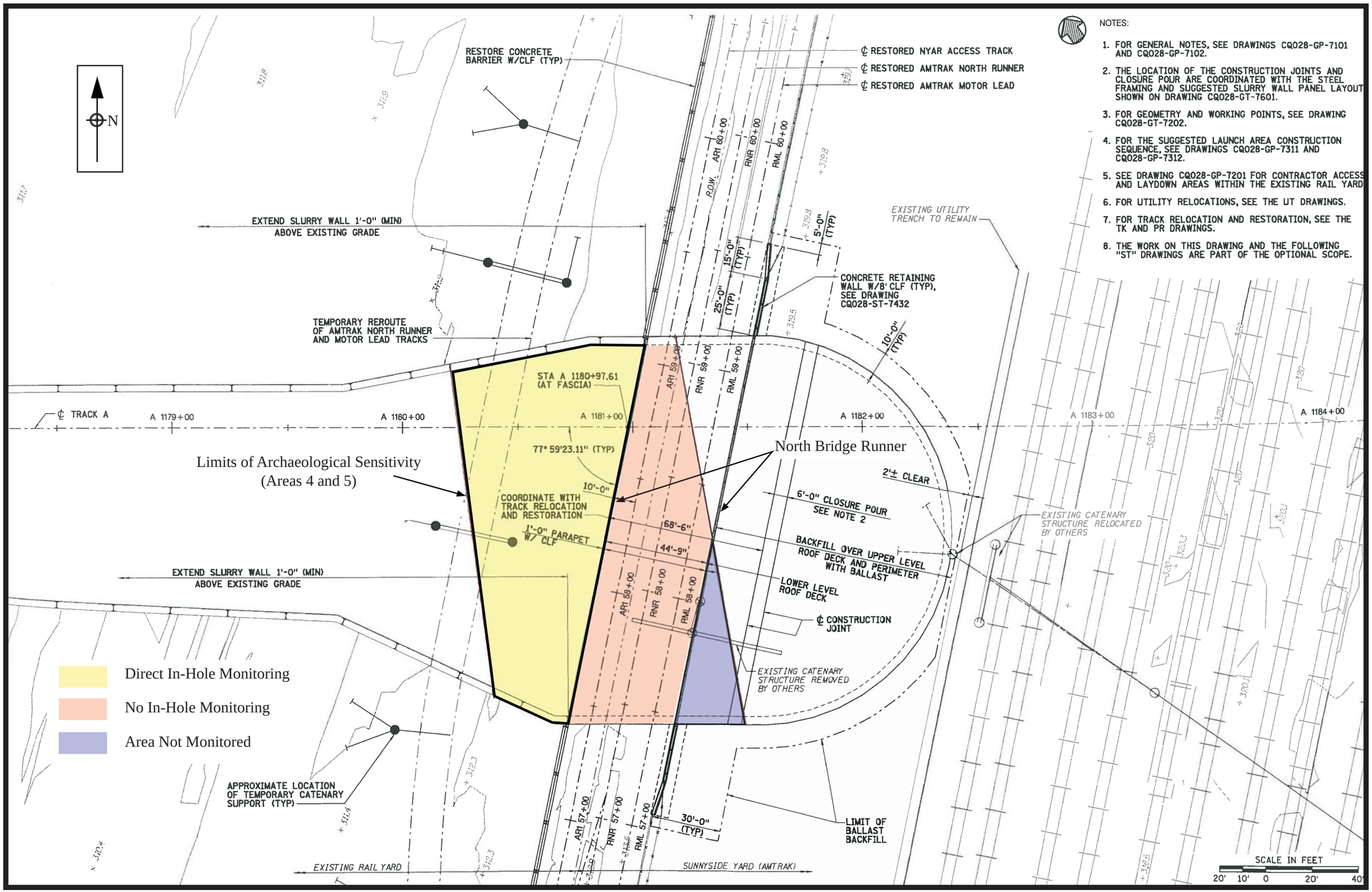

Figure 4.1 Yard A, Sunnyside rail complex, archaeologically sensitive Areas 4 and 5.

5
Results of Monitoring

URS Corporation conducted archaeological monitoring in Areas 1, 4, and 5 of the East Side Access Project (Figure 5.1). An archaeologist was on site during construction activities that occurred within the three areas due to their potential archaeological sensitivity. The archaeological monitoring of the three areas took place intermittently from May 10, 2007 to April 2010 based on the construction schedule. The results of the monitoring effort are presented below.

AREA 1

As noted above, monitoring began on May 10, 2007, and concluded on May 11 within a 40-x-120-foot area located at the western end of archaeologically sensitive Area 1 (Figure 5.2). The long axis of the area was oriented north to south, running parallel to Northern Boulevard. The area was previously excavated (within redeposited soils) to an elevation of 308 feet in order to install the first level of steel struts for structural support of the slurry wall. The struts were installed at an elevation of 310 feet and placed 17.4 feet apart. The remaining section of Area 1, measuring 80 to 120 feet wide by 250 feet long, was monitored from September 27 to 29, 2007 (Figure 5.3).

The same excavation strategy was utilized throughout Area 1. The backhoe, with a 3-foot, flat-bladed bucket, was positioned on the ground surface (elevation 318 feet) adjacent the top of the eastern side of the slurry wall in order to excavate between the struts. The backhoe reach was able to excavate approximately 29 feet from the eastern and southern edges of Area 1, leaving 11 feet unexcavated along its western and northern sides. Excavation commenced in 1-foot lifts at elevation 308 feet in the southernmost section of the 40-x-120-foot area. The backhoe operator was impeded by a very unstable yellow sandy fill, which collapsed after each pass, and by water, which began filling the excavation at elevation 304 feet and obscuring the newly exposed surface. This was not the case in the remaining section of Area 1 because the fill deposits weren't as unstable and the water infiltration was better controlled by excavating a series of sump holes outside of the archaeologically sensitive area. The remaining 11-foot-wide band of soil was excavated using a front-end loader and taking down the deposits in 1-foot lifts. Archaeological monitoring ceased within Area 1 when the sterile glacial deposit was encountered between elevations 298 and 286 feet. The only cultural materials encountered in Area 1 were some displaced 10-foot-long wood beams (n=4) located within a disturbed deposit in the northern portion of the initially monitored 40-x-120-foot area. They may have been associated with the nineteenth-century Payntar homestead once located in this general vicinity. However, due to the disturbed context in which they were recovered, and the lack of any other cultural materials, their exact function is unknown.

Stratigraphy

A series of three soil deposits were exposed during construction activities within the western 40-x-120-foot section (Table 5.1). Beginning at elevation 308 feet, the deposit (Stratum 1) consisted of very friable yellowish sandy loam approximately 4 feet thick. This deposit was followed

REQUIREMENTS FOR EXCAVATION WITHIN LIMITS
OF POTENTIAL PREHISTORIC SENSITIVITY:

1. REFER TO THE LIMITS OF POTENTIAL PREHISTORIC SENSITIVTY INDICATED ON THIS DRAWING. WITHIN THESE LIMITS THE CONTRACTOR SHALL EXCAVATE TO APPROXIMATELY 5 FEET ABOVE THE ORGANIC DEPOSITS LAYER (INCLUDING PEAT), LAYER ⑧. THE REMAINING 5 FEET OF FILL MATERIAL SHALL BE EXCAVATED USING A FLAT BLADE EXCAVATOR UNDER THE OBSERVATION OF A THIRD PARTY ARCHAEOLOGIST.
2. THE ORGANIC SILT AND CLAY LAYER (AREA OF POTENTIAL PREHISTORIC SENSITIVITY) SHALL BE EXCAVATED USING A FLAT BLADE EXCAVATOR IN 1'-0" LIFTS, ALSO UNDER THE OBSERVATION OF A THIRD PARTY ARCHAEOLOGIST, IN ACCORDANCE WITH SPECIFICATION SECTION 01570, UNTIL THE EXCAVATION HAS ADVANCED TO UNDISTURBED SOIL AS DETERMINED BY THE ARCHAEOLOGIST AND RESIDENT ENGINEER.
3. REFER TO THE INTERPRETED GEOLOGICAL PROFILES FOR THE APPROXIMATE LIMITS OF THE ORGANIC DEPOSITS.
4. THE REQUIREMENTS LISTED ABOVE DO NOT APPLY TO TRENCH EXCAVATION FOR THE SLURRY WALLS.

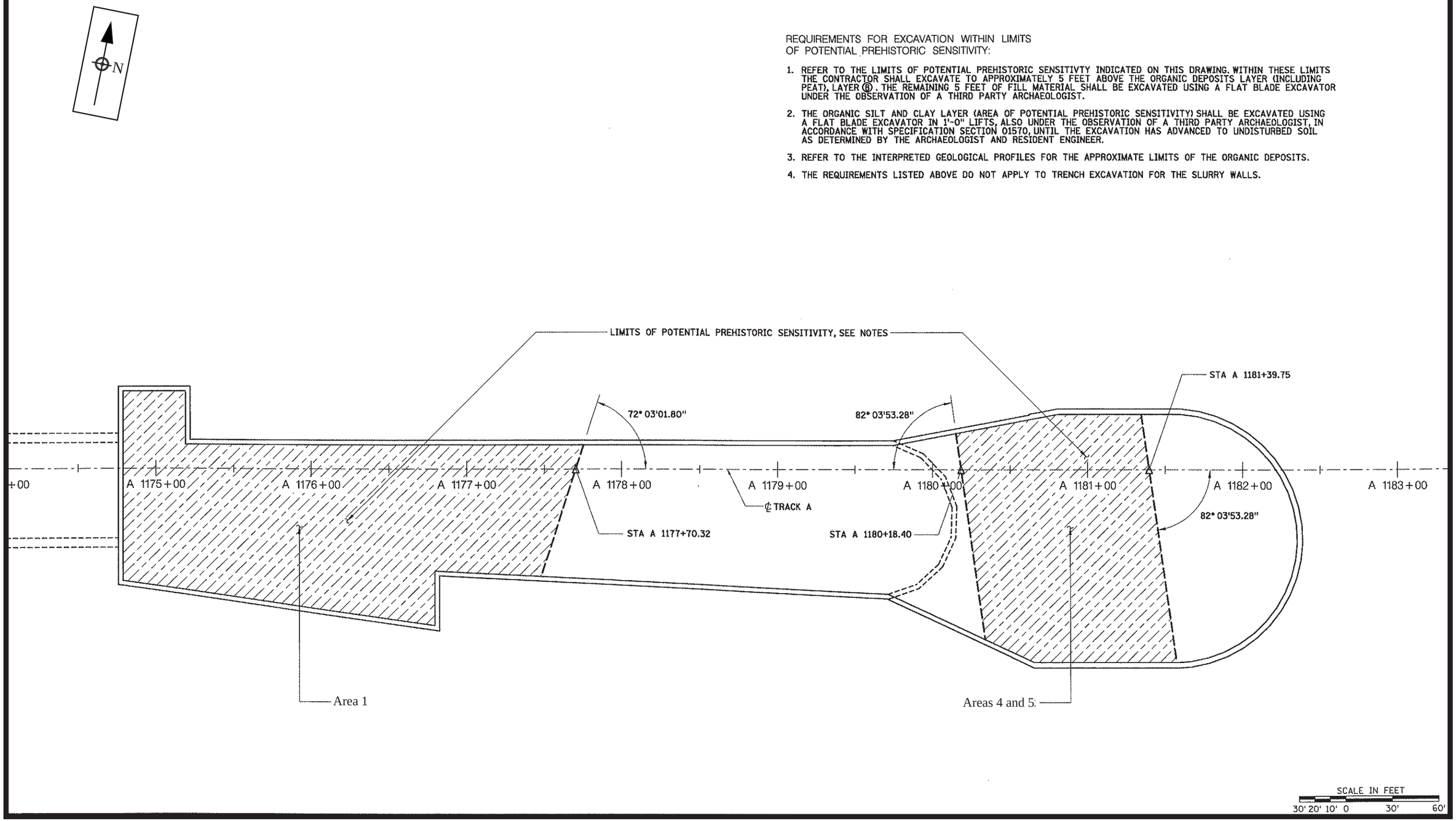

Figure 5.1 Yard A, Sunnyside rail complex, archaeologically sensitive Areas 1, 4, and 5.

Figure 5.2 Area 1, western section prior to monitoring, view looking southwest.

Figure 5.3 Area 1, eastern boundary prior to monitoring, view looking north.

by coarser grayish brown sandy loam (Stratum 2) at elevation 304 feet and extended to a depth of elevation 298 feet. As soon as this deposit was encountered, the presence of groundwater caused the sides of the excavation to collapse. However, it was still possible to examine the soil closely. At elevation 298 feet, traces could be seen of coarse gravel, mottled gray in color; this appeared to trend south. The coarse mottled gray gravel deposit (Stratum 3) encountered at elevation 298 to 295 feet is considered to be the buried glacial deposit noted in the borings data. It was apparent within approximately 8–10 feet from the eastern edge of the southern end of the sectioning. Unfortunately, the collapsing overlying deposits into the excavation area and the presence of water made any sizable exposure or exact documentation of this stratum or the recordation of any profiles impossible. No artifacts or indications of prehistoric or historic occupation were noted within any of the deposits with the exception of the four wood beams recovered from a disturbed context.

Table 5.1 Area 1, Stratigraphy of Western Section (40-x-120-foot area)

Stratum	Depth	Soil Description
1	308–304’ (48”)	Sandy loam, 10YR 6/4–light yellowish brown
2	304–298’ (72”)	Sandy loam, 10YR 5/2–grayish brown
3	298–295’ + (36”)	Sand with gravel, 10YR 3/1–very dark gray

The stratigraphic profile for the remaining section of Area 1 was somewhat similar to that present in the western section (Table 5.2). Stratum 1 consisted of a 2-foot-thick deposit of grayish brown sandy loam that began at an elevation of 308 feet. This layer was followed by a 6-foot-thick pale brown sandy loam extending to a depth of elevation 300 feet. Next a 2-foot layer of very dark gray silty loam capped a 7-foot light brown to light yellowish brown peat deposit that extended to elevation 291 (Figure 5.4). Underlying the peat layer was a 2-foot-thick light gray sandy clay. Located beneath this clay deposit was a very dark gray sand with gravel that comprised the glacial till. Any further monitoring ceased when this deposit was extended to an elevation of 286 feet. No prehistoric or historic cultural material was encountered while monitoring this section of Area 1.

Table 5.2 Area 1, Stratigraphy of Remaining Section

Stratum	Depth	Soil Description
1	308–306’ (24”)	Sandy loam, 10YR 5/2–grayish brown
2	306–300’ (72”)	Sandy loam, 10YR 6/3–pale brown
3	300–298’ (24”)	Silty loam, 10YR 3/1–very dark gray
4	298–291’ (84”)	Peat, 7.5YR 6/4–light brown and 10YR 6/4–light yellowish brown
5	291–289’ (24”)	Sandy clay, 7.5YR 7/1–light gray
6	289–286’ + (36”)	Sand with gravel, 10YR 3/1–very dark gray

AREAS 4 AND 5

Archaeological monitoring of Areas 4 and 5 was conducted between March and April 2010. The two areas consisted of a 100-x-160-foot section located under and adjacent to the North Bridge Runner of the East Side Access Project area (see Figure 4.1). The area was mechanically excavated and several feet of fill were removed to expose a substantial peat layer throughout portions of the excavation area. In several locations, the peat layer had been impacted by earlier cut-and-fill episodes. Heavy disturbances were evidenced throughout Areas 4 and 5.

Figure 5.4 Area 1, profile of eastern boundary showing peat deposit, view looking west.

Approximately 16 feet of fill was removed prior to archaeological monitoring. Monitored excavation began with a 10-x-20-foot area being excavated 6.5 feet below the starting grade at the approximate center point of the larger excavation area. This area is designated for a pump station install that will facilitate drainage for the new subway tunnel. Within this 10-x-20-foot area, an additional 4-x-4-foot section was excavated 4 feet deep for the pump mechanism and base.

Archaeological monitoring focused on observation and documentation of a peat layer identified during earlier soil probes. This layer extended between 2 and 6 feet, and was observed throughout the excavation area but not present as an intact undisturbed layer (Figure 5.5). Several large areas were heavily disturbed by earlier construction activities and contained redeposited fill material, including large concrete blocks (Figure 5.6) and modern objects. The thickness and color of the peat layer was not consistent throughout the monitored area. At the northern portion of the excavation area, the peat layer was thinnest extending approximately 2 feet. In several areas, the peat was dark brown to black in color (Figure 5.7).

The southern third of the monitored area and the area beneath the North Bridge Runner was disturbed. The area was filled with reddish brown loamy sand that extended into the natural glacial subsurface below the peat. Within this layer, modern indicators—including plastic bottles and an old construction hard hat—were uncovered (Figures 5.8).

Undisturbed portions of the monitored area contained large sections of the peat surface (Figure 5.9) and boulders approximately 5 feet wide (Figure 5.10). Throughout the area, there was evidence of earlier disturbances and the presence of the peat layer was inconsistent. Monitoring activities ceased at elevation 287.84 feet when the glacial deposit was encountered. Except for the modern disturbances, there was no evidence of human occupation or activity in either Areas 4 or 5.

Stratigraphy

Archaeological monitoring began approximately 16 feet below the modern street grade. These 16 feet were determined to be landfill from an earlier period. A general stratigraphic profile of the undisturbed portion of this area was observed in the area excavated for the pump mechanism, which extended an additional 10.5 feet below the starting point of -16 feet starting grade (Table 5.3; Figures 5.11 and 5.12).

Table 5.3 Areas 4 and 5 Stratigraphy

Stratum	Depth	Soil Description
1	300–298.75’ (15”)	Sandy loam, 10YR 5/2–grayish brown
2	298.75–296.17’ (10”)	Sandy loam, 10YR 6/3–pale brown
3	296.17–295.92’(3”)	Silty loam, 10YR 3/1–very dark gray
4	295.92–290.84’ (61”)	Peat, 7.5YR 6/4–light brown and 10YR 6/4–light yellowish brown
5	290.84–289.67’ (14”)	Peat, 7.5YR 4/1–dark gray and 7.5YR 3/1–very dark gray
6	289.67–288.34’ (16”)	Sandy clay, 7.5YR 7/1–light gray
7	288.34–287.84’ + (6”+)	Sand, 10YR 7/3–very pale brown (Glacial deposit)

Figure 5.5 Areas 4 and 5, inconsistent peat deposit throughout both areas, view looking west.

Figure 5.6 Areas 4 and 5, evidence of previous construction disturbances (concrete chunks), view looking southeast.

Figure 5.7 Areas 4 and 5, example of peat deposit exposed in middle section of monitored areas.

Figure 5.8 Areas 4 and 5, several locations exhibited evidence of previous construction disturbances. Note hard hat toward the center.

Figure 5.9 Areas 4 and 5, large section of recovered peat deposit.

Figure 5.10 Areas 4 and 5, several large boulders encountered during monitoring, view looking southeast.

Figure 5.11 Areas 4 and 5, undisturbed stratigraphic profile of Strata 1 through 4.

Figure 5.12 Areas 4 and 5, undisturbed stratigraphic profile of Strata 5 through 7.

6
Conclusions and Recommendations

URS Corporation conducted archaeological monitoring within Sunnyside Yard, Yard A**,** the stretch of railroad tracks in the Sunnyside area known as Harold Interlocking of the East Side Access Project. A previous Stage IA archaeological assessment indicated a potential for archaeological resources within three areas (Areas 1, 4, and 5) associated with the construction of a new cut-and-cover tunnel (Mascia et al. 1999). These resources ranged from prehistoric to the seventeenth- through eighteenth-centuries. The assessment also indicated that fill in these areas was anywhere from 3 to 18 feet in depth, and had to be removed using excavation equipment. Because the feasibility of testing these three areas was complicated by the presence of deep fill, hazardous material, and the need to install a slurry wall, monitoring during construction for potential resources after the installation of the slurry walls was determined to be the only viable and practical archaeological method of investigation.

Although the once marshy nature of the project area was undoubtedly utilized for procurement purposes during prehistoric times, such activities usually leave behind very little archaeological evidence. In addition, subsequent historical development would have altered the landscape and impacted potential historical resources. Archaeological monitoring did not encounter any evidence of prehistoric or historic materials or features within Areas 1, 4, and 5. Therefore, planned construction activities progressed and no further archaeological investigations were recommended.

References

AKRF Inc. and URS Corporation
2007 *MTA/ESA Construction Protection Plan and Advance Field Testing Plan.* Prepared for the MTA/NYC Transit Authority, New York.

Cantwell, Anne-Marie, and Diana diZerega Wall
2001 *Unearthing Gotham: The Archaeology of New York City*. Yale University Press, New Haven.

Hyde, E. B.
1912 *Atlas of the Boroughs of Queens, Long Island City, and Newton.* E. Belcher Hyde Map Company, Brooklyn New York.

Mascia, Sara, Richard Schaefer, and Faline Schneiderman-Fox
1999 *Stage IA Archaeological Assessment for the MTA/LIRR East Side Access Project*. Prepared for AKRF, Inc., New York by Historical Perspectives, Inc., Westport, Connecticut.

Morin, Edward M.
2009a East Side Access Construction Contract CQ028, Areas 4 and 5, Archaeological Monitoring Memorandum dated November 18, 2009 to Douglas Mackey, New York Office of Parks, Recreation and Historic Preservation and Amanda Sutphin, New York City Landmarks Preservation Commission.

2009b Update, East Side Access Construction Contract CQ028, Areas 4 and 5, Archaeological Monitoring Memorandum dated December 16, 2009 to Douglas Mackey, New York Office of Parks, Recreation and Historic Preservation and Amanda Sutphin, New York City Landmarks Preservation Commission.

Morin, Edward, and Daniel Wagner
2007 *Geoarchaeological Assessment for Sunnyside, Queens Rail Complex (Queens Area 12), MTA/LIRR East Side Access Project, Construction Contract CH053, Queens, New York*. Prepared for MTA/NYC Transit 2 Broadway New York, New York.

New York Archaeological Council
2002 *Guidelines for the Use of Archaeological Monitoring as an Alternative to Other Field Techniques*. Prepared by the New York Archaeological Council and Professional Archaeologists of New York City.

New York City Landmarks Preservation Commission
1982 *Towards an Archaeological Predictive Model for Manhattan: A Pilot Study*. Manuscript on file at the New York City Landmarks Preservation Commission.

New York City Soil Survey Staff
2005 *New York City Reconnaissance Soil Survey*. United States Department of Agriculture, Natural Resources Conservation Service, Staten Island, NY.

Riker, James, Jr.
1852 *The Annals of Newtown, in Queens County, New York*. D. Fanshaw, New York. Reprinted by Hunterdon House, Lambertville, New Jersey, 1982. Available at the New York Public Library.

Seyfried, Vincent F.
1984 *300 Years of Long Island City, 1630–1930*. V. F. Seyfried, Garden City, New York. Available at the New York Public Library.

Ullitz, Hugo
1908 *Atlas of the Borough of Queen's, Volume 2.* E. Belcher Hyde Map Company, Brooklyn New York.

United States Coast Survey
1844 *Map of New York Bay and Harbor* and *the environs.* The Survey, [Washington, DC]. Available at the New York Public Library, Map Div. 00-470.

Van Alst, Peter G.
1873 *Map of Property in the second Ward of Long Island City, Queens County, New York called "The Gosman Farm" made by Peter G. Van Alst, City Surveyor, for J. P. Giraud Foster and James Thomson, Esq's of the City of New York. Dated February 1st, 1873.* Map No. 412. Filed at the Queens County Register's Office on March 8, 1873.

Van der Donck, Adrienne
1968 *Description of the New Netherlands*. Syracuse University Press.

Walling, H. F.
1859 *Topographical Map of the Counties of Kings and Queens, New York*

Wolverton, Charles
1891 *Atlas of Queen's County, Long Island, New York.* Chester Wolverton, New York.

Resumes of Key Personnel