Cross Harbor Freight Movement Project: Phase la Archeological Assessment Overhead Rail Clearances Bay Ridge Line and Montauk Branch of the Long Island Railroad Brooklyn, Kings County, New York and Maspeth, Queens County, New York

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CROSS HARBOR FREIGHT MOVEMENT PROJECT: PHASE 1A ARCHEOLOGICAL ASSESSMENT OVERHEAD RAIL CLEARANCES BAY RIDGE LINE AND MONTAUK BRANCH OF THE LONG ISLAND RAILROAD BROOKLYN, KINGS COUNTY, NEW YORK AND MASPETH, QUEENS COUNTY, NEW YORK

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MANAGEMENT SUMMARY

John Milner Associates, Inc. (JMA) conducted a Phase 1A archeological assessment for selected components of the Cross Harbor Freight Movement Project (the Project) on behalf of AKRF, Inc. and the New York Economic Development Corporation (NYCDEC). Components of the Project discussed in this report include the reconstruction of a series of overhead clearances along the Bay Ridge Line (11.5-mile long right-of-way) and the western portion of the Montauk Branch (3-mile long right-of-way) of the Long Island Railroad (LIRR), located in Kings and Queens Counties, New York. The overhead clearance locations along the Bay Ridge Line and Montauk Branch of the LIRR are located within open railroad cuts that were depressed as a component of grade elimination work in the 1900s and 1910s. Accordingly, the majority of overhead clearance locations being considered for improvement for the Cross Harbor Freight Movement Project occur in previously disturbed areas. The extent of previous disturbance at the majority clearance locations on the Bay Ridge Line and Montauk Branch of the LIRR that are being considered by the Project precludes the possibility that undisturbed archeological deposits may be present at those locations.

JMA identified two areas on the Bay Ridge Line and Montauk Branch of the LIRR in the vicinity of proposed clearance improvement locations where the railroads run at or near original grade. These are located south of the Livonia Avenue clearance in Brownsville, Brooklyn, and at the LIRR connection with the New York & Atlantic Railroad in Maspeth, Queens. JMA examined historic maps to determine if previous structures may have been located in the vicinity of where the rail line meets original grade at these locations. No such structures were identified. In the opinion of JMA, sub-surface excavation and construction activities associated with the original construction or subsequent improvements of the LIRR rail lines in these two areas makes it unlikely that undisturbed archeological deposits may be present in these locations.

The overhead clearances in the vicinity of Maspeth, Queens are located in area of very high sensitivity for prehistoric and Contact Period Native American archeological resources. However, the Montauk Branch in this area runs within an open-cut that is depressed between 15 feet and 25 feet below grade. In the opinion of JMA, the extent of previous disturbance associated with the construction and/or depression of this open cut makes it highly unlikely that undisturbed prehistoric archeological deposits are located within the Montauk Branch right-of-way. A series of passenger stops were located on the Montauk Branch of the LIRR in the vicinity of Maspeth, Queens between the 1880s and 1924. Structures associated with these passenger stations were demolished in the 1910s and 1920s. It is possible that structural remains, foundations, or other features associated with these facilities may be located in the vicinity of the proposed clearance improvement locations in these areas. However, in the opinion of JMA such features, if extant, are unlikely to provide significant or informative historical information about the operation of the LIRR that is not available in documentary sources.

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1.0 INTRODUCTION

1.1 PURPOSE AND GOALS OF THE INVESTIGATION

John Milner Associates, Inc. (JMA) conducted a Phase 1A archeological assessment for selected components of the Cross Harbor Freight Movement Project (the Project) on behalf of AKRF, Inc. and the New York Economic Development Corporation (NYCDEC). The Project is intended to improve rail freight operations across Upper New York Harbor between New Jersey and New York. The information and conclusions contained in this report are intended to assist AKRF, Inc., NYCDEC, the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), and the New York State Office of Parks, Recreation, and Historic Preservation (OPRHP) in evaluating the Project's potential effects on archeological resources.

The purpose of the Phase 1A archeological assessment is to identify previously recorded archeological sites in the vicinity of the Project's area of potential effect. The Phase 1A assessment also evaluates the likelihood that previously unrecorded archeological resources may be located within the Project Area. All research, fieldwork, and report preparation were conducted in accordance with the New York Archaeological Council's Standards for Cultural Resources Investigations and the Curation of Archaeological Collections (NYAC 1994), recommended for use by OPRHP.

1.2 PROJECT LOCATION AND DESCRIPTION

The goal of the Cross Harbor Freight Movement Project (the Project) is to reduce traffic on a regional scale in New York by facilitating freight operations by rail and to create redundancy of the existing bridge and tunnel network. The proposed improvements could involve the implementation of an enhanced rail float system in the harbor or the construction of a freight tunnel from Staten Island or New Jersey to the Bay Ridge Line of the Long Island Railroad (LIRR) in Brooklyn.

Components of the Project discussed in this report include the reconstruction of a series of overhead clearances along the Bay Ridge Line and (a portion of the) Montauk Branch of the Long Island Railroad, located in Kings and Queens Counties, New York. These components represent only a portion of the proposed improvement alternatives that comprise the entire Project (Figure 1). Archeological sensitivity assessments concerning other components of the Project are not included in this report.

In addition to the No Action alternative, three alternatives for the Project are currently under consideration. These alternatives include proposed enhancement of transportation systems management, proposed enhanced float operations, and proposed construction of rail freight tunnels. Each of these alternatives would include rail infrastructure improvements, involving increased overhead rail clearance heights on the Bay Ridge Line of the LIRR and on a limited section of the Montauk Branch of the LIRR (Figure 1).

Historically there has been a gradual increase in railroad industry standard clearances as the size and capacity of railcars have increased in keeping with improvements in material science and locomotive power. The State of New York Rail Law (Chapter 49 of the Consolidated Laws; Section 51-a) provides for legislated horizontal and vertical clearances for railroad construction or reconstruction in the state. Provisions of the law include a minimum vertical clearance of 22' 0",

minimum horizontal clearance of 8' 6", and a minimum distance between adjacent track centers of 13' 6". Additionally, freight movement in and around New York City must maintain competitive and efficient operations by offering clearances compatible with the latest equipment and practices of rail operators in other areas of the country. A significant portion of the rail freight entering the New York City region originates in Pennsylvania. The State of Pennsylvania recently completed a railroad clearance program to increase vertical clearances for all bridges and tunnels to 22' 6", in order to accommodate double stack railcar operations (SCA 2001:3-7).

Accordingly, the Cross Harbor Freight Movement Project has adopted the goal of achieving optimal rail clearances of 22' 6" vertical clearance and 9' 0" horizontal clearances (SCA 2001:8). For clearances where environmental impacts and/or construction costs cannot accommodate these optimal designs, slightly lesser clearances will be considered:

- Vertical Clearances: Optimal Design 22' 6"; Minimum Acceptable Design 20' 6"
- Horizontal Clearances: Optimal Design 9' 0"; Minimum Acceptable Design 8' 0"
- Minimum Distance Between Adjacent Track Centers: Optimal Design 15' 0"; Minimum Acceptable Design 13' 6"

Three ways to increase the effective vertical clearance of an overhead railroad structure are lowering the track, raising the bridge, or a combination of raising the tracks and lowering the bridge. Because each of these activities has the potential to include subsurface disturbance and excavation, it is possible that construction activities associated with improving railroad clearances could affect archeological resources.

1.3 ORGANIZATION OF THE REPORT

The Bay Ridge Line of the Long Island Railroad is approximately 11.5 miles long, originating at the 65th Street Rail Yard in Bay Ridge, Brooklyn and running east and north to Fresh Pond Junction in Ridgewood, Queens (Figure 1). Proposed overhead rail clearance improvements are being considered for the Project at 43 locations along the Bay Ridge Line of the LIRR:

 JMA assigned a Map Key # to each clearance location on the Bay Ridge Line of the LIRR (Map Key #s 1-43)(Figures 2a, 2b). Existing vertical and horizontal clearance information, as well as a description of proposed improvements, for each of these locations is presented in Table 1 of this report.

The Montauk Branch of the LIRR is approximately 115 miles long, originating in Long Island City, Queens and extending east to Montauk, Long Island. The Cross Harbor Freight Movement Project is considering improvements to only a limited section of the Montauk Branch, defined as a 3-mile long segment between Maspeth and Fresh Pond in Queens (Figure 1). Proposed overhead rail clearance improvements are being considered for the Project at 9 locations along the Montauk Branch of the LIRR:

 JMA assigned a Map Key # to each clearance location on the Montauk Branch of the LIRR (Map Key #s 44-52)(Figure 2c). Existing vertical and horizontal clearance information, as well as a description of proposed improvements, for each of these locations is presented in Table 1 of this report.

Section 2 of this report provides information concerning the environmental and cultural contexts of Brooklyn and Queens that is relevant to assessing the archeological sensitivity of rail clearance locations. An overview of the paleo-environmental and geological history of Brooklyn and Queens (Section 2.1) is followed by a review of the periods of prehistoric (i.e., before approximately 1500 AD) human occupation of Brooklyn and Queens by Native American peoples (Section 2.2). A discussion of the Colonial era occupation of the region by European immigrants is followed by a brief historic period (nineteenth and twentieth centuries) context for each neighborhood in Brooklyn and Queens that contain overhead rail clearances being considered by the Project (Section 2.3).

Section 3 presents the research methods used by JMA to construct the cultural contexts, historic background information, and archeological assessments presented in the report.

The results of JMA's research are presented in Section 4. Section 4.1 provides a discussion of previously recorded archeological sites that are located within approximately two miles of the railroad clearances being considered by the Project. A historical synopsis of the construction of the Bay Ridge Line of the LIRR in the late-nineteenth-century, emphasizing the factors that could affect the archeological sensitivity of clearance locations, is presented in Section 4.2. A synopsis of the construction of the Montauk Branch of the LIRR is presented in Section 4.3. Early-twentieth-century improvements to each of these rail lines are discussed in Section 4.4. Section 4.5 presents an evaluation of the archeological sensitivity of the rail clearances being considered by the Project. The evaluations presented in Section 4.5 are grouped generally by the neighborhoods in which these clearances are located, and make reference to the Map Key #s used by JMA to identify each clearance location in Table 1 and Figures 2a, 2b, and 2c.

Conclusions regarding the prehistoric and historic archeological sensitivity of the railroad clearance locations on the Bay Ridge Line and Montauk Branch of the LIRR are presented in Section 5.

2.0 ENVIRONMENTAL AND CULTURAL CONTEXTS

2.1 Environmental Setting and History

The geology and topography of Brooklyn and Queens was largely shaped by the recession of the glaciers at the end of the Pleistocene, starting ca. 18,000 B.P. (Before Present). After 18,000 B.P. global temperatures gradually warmed and the glaciers began the slow process of melting and retreating northward. The Ronkonkoma Moraine, an enormous deposit of mixed sands, silts, clays, and boulders deposited ca. 15,300 B.P., marks the final advance of the glaciers. The Ronkonkoma Moraine forms the southern side of Long Island extending from Lake Success at the border of Queens and Nassau Counties to Montauk Point (Boesch 1997:4; Snow 1980). A few centuries later the retreating ice paused again, depositing a second band of sediments identified as the Harbor Hill Moraine. The Harbor Hill Moraine extends southwest across Queens from Little Neck Bay, across Brooklyn and Staten Island and into New Jersey. In Brooklyn, the moraine follows the course of Bushwick Avenue, Eastern Parkway, Crown Heights, Prospect Park, Park Slope, and Bay Ridge. South and east of the moraine, Brooklyn is composed of a coastal lowland outwash plain, consisting of stratified and sorted silts, sands, and gravels deposited by the rushing streams of melting ice from the retreating glacier (Wolfe 1995:460).

The moraines formed a dam for the glacial melt-water running south from the ice sheets, resulting in the formation of Glacial Lake Flushing. Lake Flushing covered most of present-day Manhattan and the Bronx, and the northwest quarter of Queens. Lacustrine and fluvial sediments associated with Lake Flushing and its drainages immediately underlay the ground surface across most of Queens (Boesch 1997:3). Lake Flushing drained at about 12,500 B.P. when the Harbor Hill Moraine was breached. After 12,500 B.P. the former lakebed would have been a marshy plain characterized by small hills and rises overlooking the ponds and marshes (Boesch 1997:3).

During the Pleistocene, vast quantities of water were trapped as ice in the glaciers. As a result, sea levels were considerably lower than at present and large tracts of the continental shelf were exposed as dry-land (Cantwell and Wall 2001:37; Snow 1980:105). At the height of the glaciation, sea levels were at least 90 meters below their present level (Funk 1991:52) and the coast was located as much as 120 miles east of its current position (Cantwell and Wall 20001:14). The retreat of the glaciers initiated a period of dramatic topographic and ecological change, including a rapid rate of sea-level rise beginning ca. 14,000 B.P. By 6,000 years ago sea levels were only about 9 meters below their current position, and continued to rise at a slower rate reaching about 2 meters below present by 2,000 B.P. (Funk 1991:52).

In the late glacial and early-post glacial period, the landscape of Brooklyn and Queens would have been characterized by tundra vegetation supporting a diversity of fauna including mammoth, mastodon, caribou, horse, giant beaver, sloth, elk, moose, and peccary (Funk 1976; Ritchie 1980; Snow 1980; Wolfe 1995:461). After 12,000 B.P., the tundra environment gradually came to include more cold-adapted evergreen species. This environment has been characterized as 'open park-like woodlands', constituted primarily of spruce, pine, and later fir with a ground cover of lichens, and small quantities of deciduous species (Snow 1980:114). Palynological evidence indicates that vegetative and corresponding faunal communities changed concurrently with the warming climate. A pine-birch-adler forest complex was established by 9,000 B.P. and was followed by generally more temperate deciduous forest complexes (Snow 1980). These forests achieved an essentially modern character, with corresponding faunal communities, by about 4,000 B.P. (Boesch 1997:11-12; Funk 1991 52).

2.2 PREHISTORIC CULTURAL CONTEXTS -

The prehistory of Eastern North America is commonly divided into three major temporal periods: Paleo-Indian, Archaic, and Woodland. These periods are each characterized by distinctive subsistence practices, social organization, settlement systems, and material culture. The definition of these cultural systems and an explanation for changes in culture through time provide a structure upon which archeological research questions can be framed. Archeologists continually debate many details regarding chronology, adaptation, and culture change but a generally accepted outline of regional prehistory is presented here.

2.2.1 THE PALEO-INDIAN PERIOD, CA. 12,500 TO 10,000 B.P.

Radiocarbon age estimates of sites associated with Paleo-Indian fluted points indicate that human beings first occupied the northeastern United States about 13,000 B.P. (Levine 1990). The distinctive lithic (stone) components of Paleo-Indian assemblages include long, fluted projectile points and a variety of end scrapers, side scrapers, knives, gravers, and perforators (Fiedel 2000; Funk 1976). Paleo-Indian peoples probably lived in small, mobile bands and their choice of settlement seems to have been conditioned by access to upland forest resources, low-lying swamp areas, medium to large sized drainages, and high-quality lithic sources (Fiedel 2000; Funk 1976).

Evidence for Paleo-Indian occupations in the New York City region comes from scattered surface finds of fluted projectile points on Staten Island and Long Island. The Port Mobil Site on Staten Island is the best known Paleo-Indian site in the New York City area. Twenty-one fluted points and more than 120 stone tools have been recovered from the vicinity of this site, now located in a extensively disturbed oil-tank farm that in the early Holocene would have been a high point of land overlooking the Arthur Kill (Cantwell and Wall 2001:41). A fluted projectile point has also been recovered from an unidentified location in the Bayswater section of Queens (Boesch 1997). Mammoth and mastodon teeth recovered from the continental shelf by fisherman indicate that the exposed portions of the continental shelf were inhabitable in the early post-glacial period (Snow 1980:105). Archeologists assume that numerous Paleo-Indian and Early Archaic period sites in the New York City area were located off of the present coastline, and were subsequently inundated by the post-glacial rise in sea levels (Funk 1991:57; Cantwell and Wall 2001:38).

2.2.2 The Archaic Period, ca. 10,000 to 2,700 B.P.

The Archaic Period subsumes a diverse group of hunting and gathering cultures that occupied North America throughout the dramatic environmental changes of the early Holocene. Archaic cultures in the Northeast are generally characterized as small, mobile social groups, and their sites are usually small and lacking permanent structures, fortifications, extensive storage pits, and elaborate mortuary remains (Ritchie 1980:32). Archaic settlement and subsistence practices in southeastern New York were organized around seasonal movements between coastal and inland areas with a reliance on both woodland and aquatic resources (Tuck 1978).

The Early Archaic Period (ca. 10,000 to 8,000 B.P.) is poorly represented in the Northeast generally (Snow 1980:157), perhaps due to relatively unfavorable or inhospitable climactic conditions during the period (Funk 1976). Early Archaic sites are identified based on the presence of diagnostic Kanawha, Le Croy, Stanly, Hardaway, and Palmer projectile points, in association with a variety of scrapers, choppers, and ground stone woodworking tools (Ritchie and Funk 1971; Snow 1980:161-163).

The Middle Archaic (ca. 8,000 to 6,000 B.P.) is often characterized as a period of adaptation to the emerging temperate climactic conditions of the Holocene, including the exploitation of a wide variety of floral and faunal species similar to those of the modern era (Snow 1980:182-183). Middle Archaic sites in the Northeast are identified by diagnostic Neville, Stark, and Merrimack projectile point types. Several new technological innovations appeared during this period including stone gouges and axes, large ground stone semi-lunar knives, notched net-sinkers and plummets, and ground stone spear-thrower (or atatl) weights (Dincauze 1971; Snow 1980:184).

The Late Archaic Period (ca. 6,000 to 3,000 B.P.) in southeastern New York is identified by the presence of distinctive narrow stemmed projectile points (Tuck 1978). Local variants of this tradition include Lamoka, Wading River, Sylvan Lake or Sylvan Stemmed, Taconic, and Bare Island projectile points (Fiedel 1986; Ritchie 1971). The foraging economy of the Late Archaic was based on the scheduled exploitation of specific seasonally available resources, including an emphasis on marine resources as evident from large shell middens on coastal and riverine sites (Funk 1991:54-55; Ritchie 1980:142).

The Terminal Archaic (or Transitional Period, ca. 3,500 to 2,700 B.P.) is characterized by technological innovations and subsistence practices that are often viewed as precursors to developments that occurred in the subsequent Woodland Period. In southeastern New York, distinctive Orient Fishtail projectile points serve as a diagnostic marker of this period, along with carved steatite (or soapstone) vessels and elaborate mortuary practices (Ritchie 1971, 1980; Snow 1980:239-244).

Archaic Period sites in New York City tend to be located along the East and Hudson Rivers, and Archaic sites have been identified in Lower Manhattan, the Bronx, and on Ellis Island. Early and Middle Archaic artifacts have been recovered in Queens at sites located on the high ground bordering Little Neck Bay. Late and Terminal Archaic sites have been identified on uplands near bays, inlets, estuaries, and interior streams along the north shore of Queens (Boesch 1997). During the Archaic Period, sea levels were lower than present and many sites are located on uplands adjacent to areas that would have been estuarine marsh but have been subsequently inundated (Lenik 1992).

2.2.3 THE WOODLAND PERIOD, CA. 3,000 B.P. TO EUROPEAN CONTACT

The Woodland Period is often distinguished from earlier prehistoric periods by significant changes in technology (notably the widespread production and use of ceramics), more intensive subsistence practices (often including the domestication of plants), increasing trends towards sedentism and larger settlements, and changes in social organization (Ritchie 1980:179-180; Versaggi 1999). Woodland sites are distinguished from earlier periods by the appearance of fired clay ceramic vessels in the archeological record.

During the Early Woodland Period (ca. 2,700 to 2,000 B.P.) Native American groups continued the hunting, gathering, and fishing practices of the Terminal Archaic, supplemented by an increase in shellfish collecting as evidenced by large shell middens located on sites near the coast or estuaries (Funk 1976; Snow 1980:283). Rossville points serve as a diagnostic artifact for Early Woodland occupations in coastal New York, and are usually recovered in association with shell middens. Vinette I pottery, a thick grit-tempered ware decorated on interior and exterior surfaces with impressed cordage or fabrics, represents one of the earliest ceramic traditions in the region (Ritchie 1980; Tuck 1978).

The Middle Woodland Period (ca. 2,000 to 1,000 B.P.) in eastern New York is characterized by changes in social and economic organization, including increasing trends towards sedentism and long-distance exchange of smoking pipes and lithic materials. Diagnostic artifacts from the Middle Woodland include Fox Creek stemmed and lanceolate projectile points, Jack's Reef points, Greene points, and a variety of decorated pottery styles (Funk 1976; Kostiw 1995; Ritchie 1971; Snow 1980:276).

In southeastern New York, the Late Woodland Period (ca. 1,000 to 400 B.P.) is divided into the Bowman's Brook and subsequent Clasons Point Phases. These cultures are known from large village sites near tidal pools and small coves, often characterized by numerous pits for cooking, storage, and the disposal of refuse (Ritchie 1980:269), as well as smaller activity sites. The Late Woodland economy in coastal New York seems to have been primarily oriented to marine resources, supplemented by horticulture and seasonal hunting and gathering (Ritchie 1980:268-270). Diagnostic artifacts for the period include Levanna and Madison style projectile points and distinctive types of pottery including Bowman's Brook Incised and Stamped, East River Cord Marked, Munsee Incised, Castle Creek Beaded, and Wickham Punctate and Incised (Ritchie 1980:270-272).

The appearance of pottery in artifact assemblages serves as the diagnostic marker of Woodland occupations, and pottery fragments recovered from sites with earlier components suggests continued use of previously utilized locales during the Woodland Period (Lenik 1992). Sites with Middle and Late Woodland components are the most numerous identified in New York City. Late Woodland settlements include both large village sites and smaller interior sites. These settlements were dispersed throughout the city, at locales such as Archery Range, Ward's Point, Washington Heights-Inwood, Clasons Point, Bowmans Brook, and Aqueduct. Many of these locations continued to be occupied throughout the early period of European Contact (Boesch 1997; Cantwell and Wall 2001:114-116).

2.2.4 CONTACT PERIOD

In the Late Woodland and Early Contact periods, the Lower Hudson Valley and coastal areas of New York were inhabited by Munsee-speaking groups of the larger Lenape (or Delaware) cultural group of Native Americans (Burrows and Wallace 1999:5; Cantwell and Wall 2001:120; Goddard 1978; Snow 1980:96). The Munsee generally lived in multi-family longhouse structures about 20 feet wide and up to 100 feet long. These houses were usually arranged as loose clusters in hamlets as opposed to nucleated villages. In addition to speaking a similar dialect of the Eastern Algonkian language, Munsee groups generally shared similar modes of subsistence, settlement, social organization, and forms of material culture (Goddard 1978; Grumet 1995:26; Snow 1980:97-99). In the early-seventeenth-century, the fur trade served as the primary motivation for Dutch colonization of the Lower Hudson Valley. Interactions with the Dutch and participation in the fur trade resulted in rapid and dramatic changes in the economy, social relations, and material culture of local Delaware groups (Burrows and Wallace 1999:11-13; Goddard 1978).

Scholars variously identify the seventeenth-century Delaware inhabitants of Brooklyn and Queens as the Canarsee, Matinecock, and Rockaway Indians. These designations are frequently mislabeled as 'tribes', but more likely represented social groups based on common identification with localities, kinship, relations, or shared totems (Boesch 1997; Goddard 1978). Contact Period settlements are recognized in the archeological record by small quantities of European manufactured goods, such as metal kettles, tools, projectile points, ornamental brass cones, glass

beads, bottles, jugs, and cloth among larger quantities of Native American material culture and refuse (Cantwell and Wall 2001:122-123).

Within New York City, close to eighty Native American habitation sites have been documented, along with the locations of agricultural fields and a network of trails that connected the individual settlements (Burrows and Wallace 1999:6). In the early-seventeenth-century, Munsee communities in Brooklyn were documented at Marechkawick (sandy place) located near Borough Hall, Nayack (point of land) and Wichquawanck (sandy bank) located near Fort Hamilton, Techkonis at Gravesend, and Canarsie (grassy place) in the Flatlands (Bolton 1934:26; Cantwell and Wall 2001:120-121; Grumet 1995:27). Munsee communities in Queens included Rockaway (sandy place), Matinecock (at the lookout point), Maspeth (bad water place), and Jamaica (beaver place) (Grumet 1995). Archeological sites with Contact Period components in Queens have been reported at the Yameco (or Jameco [Jamaica]), Little Neck Village, Maspeth, Sanford's Point, Wilkins, Duryea Farm, College Point, and Linnaen Gardens sites (Beauchamp 1900; Boesch 1997; Bolton 1934; Parker 1920).

2.3 HISTORIC PERIOD CULTURAL CONTEXTS

The government of Holland formally established the colony of New Netherlands in 1614, claiming exclusive rights to trade on all lands between the Connecticut and Delaware Rivers. The seat of government for this new colony was at New Amsterdam, a small Dutch fort located in Lower Manhattan. In 1621 the charter for the colony was transferred to the Dutch West India Company, an armed mercantile association formed to serve as the agents of Dutch colonialism in the New World (Burrows and Wallace 1999:19-21). The introduction of European diseases resulted in the decimation of Native American populations. These losses were compounded by casualties in wars both among Native groups and with the colonists (Brasser 1978; Goddard 1978). Snow (1980:34) estimates that prior to European contact, the total Munsee population in the Lower Hudson and Delaware valleys was between 24,300 and 51,300 people; he estimates the post-epidemic population for the same region to be only 4,500 people.

The Canarsee and other local Munsee groups gradually lost control of their lands throughout the seventeenth century. The Dutch began acquiring Native American lands in Brooklyn through a series of purchases in the 1630s, accompanied by small settlements of colonists in Gowanus and Red Hook. Many English colonists began settling in Queens in the 1640s. Intermittent warfare encouraged the westward migration of Munsee groups, including attacks by the Dutch in the 1640s and war with the Mohawk in the 1650s. The Dutch surrendered the New Netherlands colony to the English in 1664, and the English continued to secure land titles from Munsee groups in the region. The last tract of Native American land in Brooklyn at Canarsee (or Gravesend) was sold to English colonists in 1684 (Gumet 1995:27; Raber et al. 1985:17).

The Cross Harbor Freight Movement Project is considering improvements to overhead clearances along the Bay Ridge Line and Montauk Branch of the LIRR that are located in the neighborhoods of Nay Ridge, Borough Park, Flatbush, and Brownsville in Brooklyn, and in Maspeth, Queens. A brief historical context describing the nineteenth-century suburban settlement and subsequent twentieth-century urbanization of each of these neighborhoods is provided below.

2.3.1 BAY RIDGE

The Euro-American colonization of the Bay Ridge area formally began in 1652, with the purchase of lands by the Dutch West India Company from the Nayack Indians (Manbeck 1998:4;

Rawson 1995a:90). The area was originally part of the Town of New Utrecht, established as one of the six original towns in Brooklyn in 1657 (Latimer 1995:148; Manbeck 1998:4). In the eighteenth and early-nineteenth centuries, Bay Ridge was known as "Yellow Hook" due to the distinctive color of the clay found in the area. Yellow Hook was a small farming community of dispersed farmsteads located along the shoreline (Bangs 1912:71-72; Rawson 1995a:90). By 1790 the Town of New Utrecht had only 562 residents (Latimer 1995:149), indicating the continued rural character of the area.

Yellow Hook remained largely undeveloped and sparsely settled through the early-nineteenthcentury. The area was primarily used for farming and formed a relatively remote part of the agricultural network supplying the urban areas of Lower Manhattan. Land holdings of the earlier settlers were long, narrow tracts arranged generally perpendicular to the shore. North of Red Hook, industrial and waterfront development activities accelerated in the 1820s and 1830s on the Brooklyn shoreline. Except for occasional undocumented piers and wharves for farmers' boats, the waterfront in Yellow Hook remained virtually undeveloped until the 1840s (Raber et al. 1985:18-21).

In the 1850s, real estate speculators recognized the potential for developing Yellow Hook as a wealthy suburban residential area. The area was renamed Bay Ridge in 1853 in order to avoid any unpleasant associations with the yellow fever epidemic of 1848-1849, as well as make the area sound more appealing to developers. After the Civil War, Bay Ridge became a popular summer retreat for New York's elite and numerous mansions were built along the ridge overlooking the Narrows (Bangs 1912:72; Manbeck 1998:4; Rawson 1995a). Many parts of New Utrecht remained relatively rural areas, with small farmers growing vegetables and produce to sell to the growing urban population of Brooklyn (Weinstein 1995:822).

In the 1870s, the urban growth of Brooklyn began to reach into Bay Ridge and other areas of New Utrecht. The suburban development of the area, and industrialization of the waterfront, were accelerated by the construction of railroad lines to Coney Island. The City of Brooklyn formally annexed New Utrecht in 1894 (Latimer 1995:151; Weinstein 1995:822). Following the consolidation of New York City in 1898, the outlying areas of Brooklyn began to urbanize in the early-twentieth century. The construction of subways and other internal improvements contributed to the rapid residential and commercial development of areas such as New Utrecht (Latimer 1995:152). Throughout the twentieth century, Bay Ridge has been an ethnically diverse neighborhood, including large recent immigrant populations (Manbeck 1998:5; Rawson 1995a).

2.3.2 BOROUGH PARK

Like Bay Ridge, Borough Park was formerly part of the Town of New Utrecht. The area was originally inhabited by the Nyack Indians, and settled by Dutch colonists in the mid-to-late-seventeenth century. New Utrecht was a sparsely settled agricultural area in the eighteenth and early-nineteenth centuries, with a population of 282 in 1738, and only 1,009 in 1810 (Weinstein 1995). In the nineteenth century Dutch residents operated numerous horticultural nurseries in Borough Park (Manbeck 1998:26). The population of New Utrecht grew to over 4,700 by 1880 as developers began to acquire land for suburban houses (Weinstein 1995:822).

In the 1880s Electus B. Litchfield developed the neighborhood as a suburban housing development known as Blythebourne. The early residents of this development were upper middle-class Protestants. In the 1910s Russian Jews from the Lower East Side of Manhattan began resettling in Borough Park. A large population of Jews from Williamsburg moved into the neighborhood in the 1920s, followed by Italians from the Lower East Side. Despite the poverty

and decline of the Great Depression new residents continued to move to the neighborhood in the 1930s, including a large group of Hasidic Jews from Poland. In the 1930s approximately half of the residents of Borough Park were Jewish, while Irish and Italian immigrants comprised the remainder of the population. In the mid-to-late-twentieth century the population has continued to grow as Jews moved to the area from other parts of Brooklyn, Israel, Central Europe, and the former Soviet Union. In the 1990s approximately 80 percent of Borough Park residents were Orthodox Jews. The neighborhood is primarily residential with small commercial storefronts on the main avenues (Gallagher 1995:129; Manbeck 1998:26-27).

2.3.3 FLATBUSH

Dutch colonists purchased the Flatbush area of central Brooklyn from the Canarsie Indians in 1652. The area was formerly known as Midwout [middle woods], and derived its name from the Dutch *vlackebos* [wooded plain] (Manbeck 1998:116-117; Rawson 1995b:416). In the midnineteenth-century wealthy farmers and a small number of businessmen from Brooklyn and Manhattan settled in Flatbush, foreshadowing the neighborhood's potential as a residential suburb. Through the 1870s, Flatbush remained a relatively rural area (Linder and Zacharias 1999:127-129).

The large-scale suburban development of Flatbush was initiated with the completion of the Brooklyn, Flatbush and Coney Island Railroad in 1878. A local merchant, Henry A. Meyer, formed the Germania Land and Improvement Company in 1892 and began subdividing a 25-acre farm into a suburban development with Queen Anne Victorian cottages. Other similar housing developments in Flatbush followed soon after. The incorporation of Flatbush into the City of Brooklyn in 1894, and subsequent consolidation of the City of New York in 1898, encouraged additional development in the area. By 1910 the area was a prominent middle-class suburb with numerous housing developments (Manbeck 1998:117; Rawson 1995b:416).

The opening of the Brighton Beach subway line in 1920 resulted in a second period of housing construction and the migration of a new set of residents to the area. Large apartment complexes were constructed along Ocean Avenue in the 1920s, and soon after smaller apartment buildings filled the previously undeveloped parcels in Flatbush. Jewish immigrants from overcrowded neighborhoods such as the Lower East Side, Williamsburg, and Brownsville moved into many of the newly constructed buildings. In the 1940s, a second wave of immigrants moved to the area, largely replacing the Jewish population. The new arrivals included people from various islands in the Caribbean, as well as Pakistan, Afghanistan, Cambodia, Korea, Central America, and the former Soviet Union. The Caribbean immigrant population in Flatbush continued to grow through the 1980s (Manbeck 1998:118-119; Rawson 1995b:416).

2.3.4 BROWNSVILLE

The colonial governor of New Amsterdam granted a patent for the area that would become the Town of New Lots to Dutch settlers from Flatbush in 1677. Throughout the eighteenth and most of the nineteenth century, the Town of New Lots remained a rural agricultural area. In 1870, the population was only about 1,000 people. The City of Brooklyn annexed the Town of New Lots in 1886 (Linder and Zacharias 1999:162; Snyder-Grenier 1995:807).

Brown's Village was established in 1865 by real estate developer Charles S. Brown. By 1887, Brown's development consisted of 250 small frame-cottages and shops surrounded by meadows and a large dairy farm. In 1887 the developer Aaron Kaplan purchased land in the area and constructed tenement-style apartment buildings. Kaplan encouraged numerous garment workers

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from the Lower East Side to relocate to Brownsville (Landesman 1977:157-161; Manbeck 1998:40; Miller 2001; Rawson 1995c:163).

The Fulton Street elevated railway was completed in 1889, making Brownsville more accessible to other areas of Brooklyn. Two-family homes and tenements with street-front retail shops began to replace the earlier single-family homes. By 1910, Brownsville was an overcrowded slum characterized by sweatshops with no sewer system or paved streets. In the 1920s approximately 75 percent of Brownsville's 400,000 residents were Jewish. Living conditions gradually improved in the 1920s, and the completion of the New Lots branch of the Interborough Rapid Transit in 1922 improved transit connections to Manhattan. In the 1920s and 1930s, Brownsville was known as a center of labor radicalism and social activism. The residents of Brownsville elected members of the Socialist Party to the New York State Assembly from 1915 to 1921 and an American Labor Party Candidate in 1936. In 1916 Margaret Sanger established the first birth control clinic in the United States on Amboy Street, which was closed down nine days later by the vice squad (Landesman 1977:184-187; Manbeck 1998:41; Miller 2001; Rawson 1995c:163).

After World War II many of the Jewish residents of Brownsville migrated to other areas of Brooklyn or the suburbs, and African Americans from other parts of New York City moved to Brownsville. The new arrivals faced discrimination, reduced social services, and poor employment opportunities. Brownsville entered into a period of social and economic decline for the next 20 years that culminated in the construction of high-rise apartment public housing projects in the 1950s and 1960s. Since the 1970s the neighborhood has witnessed a coordinated revitalization effort including the construction of low-rise, single-family housing developments and the recent introduction of a large Caribbean immigrant population (Manbeck 1998:41-42; Rawson 1995c:163).

2.3.5 MASPETH

Maspeth was the site of the first English colony in Queens County, established in 1642. The colony was settled at the head of Newtown Creek, the traditional territory of the Mespat Indians. In 1643 the Mespat Indians attacked the English settlement in retribution for attacks against Mohican and Mattinecock settlements in Connecticut. The English settlement was abandoned in 1644, and nine years later the English established a new settlement further inland at what is now Elmhurst. English migrants from Brooklyn and Long Island City settled the Maspeth area in the eighteenth century (LIH 1998; Munsell 1882:329-334; Riker 1852a:13-20; Seyfried 1995:753).

Following the Revolutionary War, large areas of marshland in and around Maspeth were drained and made suitable for agriculture. Residential and industrial development of Maspeth began in earnest in the mid-nineteenth century. In 1852 real estate developers purchased two large farms and subdivided them into streets and lots, laying out a residential community from 59th Place to 69th Street, and from 55th Drive to Grand Avenue. Mount Olive cemetery was opened the same year. The principal industrial concern in Maspeth in the early-nineteenth century was an oil cloth manufactory established in 1836. In the 1850s an animal carbon factory (used for the production of black carriage paint) was established on Newtown Creek. After the Civil War industrial development continued with the construction of fertilizer works, lumber yards, linoleum factories, and rope walks, and the largely English Quaker population began to be replaced by German immigrants (LIH 1998; Munsell 1882:379; Riker 1852a:257-258; Seyfried 1995:753).

In the twentieth century Maspeth has become more ethnically diverse. The population in the 1990s was predominantly Catholic of European descent, with large numbers of Koreans, Puerto Ricans, and Dominicans. The residents of the area are predominantly working class. The suburban character of the neighborhood has been maintained by isolation afforded by the Long Island Expressway and the belt of cemeteries that form the northern border of Maspeth. Industrial operations continue to thrive in the area (Seyfried 1995:753-754).

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3.0 RESEARCH METHODS

3.1 ARCHIVAL RESEARCH

JMA conducted site files research to identify previously recorded archeological sites in the vicinity of those portions of the Bay Ridge Line and Montauk Branch of the Long Island Railroad included in the Project. The review included examination of the site files of the New York State Museum (NYSM), the Office of Parks, Recreation, and Historic Preservation (OPRHP), and the New York City Landmarks Preservation Commission (LPC; summarized in Boesch 1997). Early-twentieth-century references concerning the archeology of New York City were examined in order to identify archeological sites that previously existed in Brooklyn and Queens (e.g., Beauchamp 1900; Bolton 1934; Parker 1920). JMA examined regional syntheses of prehistory (e.g., Boesch 1997; Cantwell and Wall 2001; Funk 1976; Ritchie 1980; Snow 1980) to construct Native American cultural contexts for the Project Area.

Historic maps from the collection of the Queens Borough Public Library Long Island Division (QBPL) were examined in order to determine if historic structures or features were formerly located in the vicinity of Bay Ridge Line and Montauk Branch of the LIRR. Cartographic sources examined by JMA included the Walling (1859) *Topographical Map of the Counties of Kings and Queens*, the Dripps (1869) *Map of the City of Brooklyn*, and the Beers (1886) *New Map of Kings and Queens Counties*. Late-nineteenth and early-twentieth-century insurance atlases consulted for the Project include the Hyde (1898) and (1905 [corrected through 1913]) atlases of Brooklyn. JMA reviewed histories of the Long Island Railroad and assorted primary documents describing construction and/or improvements to the LIRR freight system (e.g. BGCC 1918; Reifschneider 1925; Seyfried 1966, 1975a, 1975b; Smith 1958). Additional regional histories and secondary sources (e.g., Burrows and Wallace 1999; Jackson 1995; Manbeck 1998; Munsell 1882; Riker 1852a) were used to construct historic contexts for the areas adjacent to the Bay Ridge Line and Montauk Branch of the LIRR.

3.2 FIELD RECONNAISSANCE

JMA personnel conducted a field reconnaissance of the overhead rail clearances on the Bay Ridge Line and Montauk Branch of the LIRR for the Project on December 17 and December 19, 2001. The purpose of the field reconnaissance was to assess the degree of previous ground disturbance and evaluate the potential for each overhead rail clearance location to contain archeological resources. For each overhead rail clearance, this evaluation included the clearance itself as well as an approximately 1,000-foot long area of the LIRR right-of-way on each side of the clearance.

Documentation included recording observations, and photographing significant or informative landscape features. Where possible, railroad clearances were photographed from the railroad tracks within the LIRR right-of-way. In areas where JMA was unable to access the railroad tracks, the clearances and LIRR right-of-way were photographed from street level.

4.0 **RESULTS**

4.1 PREVIOUSLY RECORDED ARCHEOLOGICAL SITES

In the early-twentieth-century, archeologists recorded the former locations of prehistoric and Contact Period Native American sites in New York City (e.g., Beauchamp 1900; Bolton 1934; Parker 1920). It was recognized at the time that many of these sites were being (or would be) destroyed by urban development and construction activities across the city (Bolton 1934:131). The most comprehensive early index of archeological sites in the state is Arthur C. Parker's (1920) *The Archaeological History of New York*. Parker's site locations were based on informant interviews and it was not possible for him to field check each reported site location (Parker 1920:471). Archeologists regard Parker's site location information as general, if imprecise, indications of the presence of a site (or sites) in a given area (Sullivan 1992:6). Moreover, Parker's classification of archeological sites as villages, camps, and traces were not intended as functional definitions of each site in a modern sense. These designations instead refer to the relative archeological productivity that had been reported for each site (Bender and Curtin 1990:63-64).

JMA identified eight areas containing previously recorded prehistoric archeological sites within approximately two miles of the railroad clearances along the Bay Ridge Line and Montauk Branch of the Long Island Railroad. Most of these previously recorded prehistoric sites are sites that were documented by archeologists in the early-twentieth-century:

- NYSM Site 3605 is located approximately one and one-half miles southwest of the Second Avenue through Sixth Avenue clearances (Map Key #s 1-7 on Table 1, Figure 2a). The site is described as a cache of stone and flint blades identified along the Narrows in 1837. The quantity of materials found at the site was reportedly enough to have filled a wagon (Parker 1920:582). This assemblage included a diversity of finished and unfinished projectile points of various sizes (Beauchamp 1900:79-80). Bolton (1934:147) identified this site as the location of Nayack, to which the Indians of Manhattan relocated after selling the island to the Dutch.
- NYSM Site 3611 refers to shell middens (Parker 1920:582) located approximately one and one-half miles south of the Second Avenue through Sixth Avenue clearances (Map Key #s 1-7 on Table 1, Figure 2a), within and north of the current US Military Reservation at Fort Hamilton. Bolton (1934:147) also described shell mounds, indicating a Native American occupation, at Fort Hamilton.
- NYSM site 3612 is located approximately two miles north of the East 14th Street, East 15th Street, and Ocean Avenue clearances (Map Key #s 26, 27, 28, 29 on Table 1, Figure 2a). The NYSM identifies the site as shell middens located within Prospect Park.
- NYSM site 3608 (OPRHP site A047.01.0112) is located approximately one and one-half to two miles south-southeast of the Glenwood Road viaduct clearance (#36 on Table 1, Figures 2a, 2b). The NYSM identifies the site as Woodland and/or Contact Period burials and shell middens. Parker (1920:582) describes archeological remains in the area as a "burial place in South Brooklyn found in 1897 on Avenue U and near Ryder's Pond and Sheepshead Bay" with deep beds of oyster shells, pottery, and over a dozen burials. Bolton (1934:146) identifies the area as the "native village" of Shanscomacocke.

- NYSM site 7390 is located approximately two miles east of the Glenwood Road viaduct clearance (#36 on Table 1, Figures 2a, 2b). Parker describes archeological remains in the area of these sites as "immense shell heaps at Canarsie or Flatlands" (1920:582).
- NYSM sites 3609 (OPRHP site A047.01.0113) and 3607 are located approximately one and one-half miles southeast of the Livonia Avenue clearance. The NYSM identifies site 3609 as a village, and 3607 as shell middens. Bolton describes archeological remains at Canarsie (or Canarsee) as "a village site, and extensive planting field, extended back from Canarsie Beach Park as far as Avenue J, centered on East 92nd Street" (1934:146).
- NYSM site 3610 (OPRHP site A047.01.0115) is located approximately two miles southsoutheast of the Livonia Avenue clearance. The NYSM identifies site 3610 as a camp. Bolton describes archeological remains at Bergen Beach as the site of Winnipague, with "extensive shell beds on the island, and stone implements" (1934:146).
- NYSM site 4536 is located less than one-half mile east-southeast of the Andrews Street/59th Place clearance in Maspeth (clearance #51 in Table, Figure 2c). NYSM site 9447 is located less than one-half mile northeast of the Andrews Street/59th Place clearance. The NYSM describes these sites as Contact Period (and possibly earlier) village and shell midden sites. Parker describes a "village site on the Maspeth hills at the head of Newton Creek (1920:672). Bolton (1934:150) describes archeological remains at Maspeth as "a village site near the head of Maspeth Creek, and east of Mount Zion cemetery, situated on rising ground overlooking the extensive marsh meadows bordering Newton Creek". LPC sites 13, 28, 46, and 69 (Boesch 1997) correspond to the NYSM site designations listed above. Boesch (1997:6) describes LPC site 46, located immediately west of Mount Olive cemetery, as a Contact Period habitation or campsite with a hearth dated to ca. 1650, kaolin pipe bowls, and lithic (stone) artifacts. Boesch (1997:10) identifies LPC site 69 as an Archaic and Woodland Period site, located north of the LIRR tracks along 59th Street in Maspeth. The OPRHP lists the St. Michael's site (Site # A081.01.0109) in this same vicinity (approximately one mile west of clearances #46, 47, 48, and 49; see Table 1, Figure 2c) as a prehistoric site.

JMA identified 4 areas containing previously recorded historic archeological sites within approximately two miles of the railroad clearances along the Bay Ridge Line and Montauk Branch of the Long Island Railroad:

- Two previously recorded historic archeological sites are located within the Fort Hamilton Military Reservation, approximately two miles south of the Second Avenue through Sixth Avenue clearances (Map Key #s 1-7 on Table 1, Figure 2a). OPRHP Site A04701.000423, the Building 117 Site, is a mid-nineteenth-century domestic site. Archeological testing at the Building 117 site resulted in the identification of a domestic refuse scatter containing ceramic sherds, bottle glass, architectural artifacts, a kaolin pipe fragment, coal, and ash. The Parade Ground Site, OPRHP A04701.00424, is a late-nineteenth-century to early-twentieth-century domestic site. Archeological testing at the site resulted in the identification of sub-surface foundation remains and an assemblage of domestic refuse.
- The Pieter Claesen Wyckoff House site (OPRHP Site A047.01.0023), possibly the oldest standing structure in New York, is located approximately one mile northeast of the Glenwood Road viaduct clearance (Map Key #36 on Table 1, Figures 2a, 2b). The Wyckoff House is a National Historic Landmark and a New York City Landmark. Archeological deposits are known to exist in association with the standing structure (Salwen, Bridges and Klein 1974).

- A group of seventeenth- and eighteenth-century historic archeological sites are located in the vicinity of Canarsie Beach, within the Gateway National Recreation Area, between one and one-half and two miles southeast of the Glenwood Road viaduct clearance (Map Key #36 on Table 1, Figures 2a, 2b). The Van Wicklen Cottage and Mill Site (OPRHP Site A047.01.0123) is located along Paerdegat Basin, near the foot of former Crescent Street. The site is the former location of a ca. 1763 mill and slightly later cottage. The cottage was destroyed by fire in 1924 and the mill demolished in 1934 (JMA 1978). The King's Bayview House Site (OPRHP Site A047.01.0125) is located in the vicinity of Canarsie Pier along Jamaica Bay. The site is the former location of an eighteenth-century house (JMA 1978). The Schneck House Site (OPRHP Site A047.01.0118) is located near the end of Ramsen Avenue near Canarsie Pier. The site is the former location of a house built in 1664 that was demolished in the early-twentieth century (JMA 1978).
- The Vander-Ende-Onderdonk House Site (OPRHP Site A081.01.0108) is located approximately three-quarters of a mile southwest of clearances #50, 51, and 52 (Table 1; Figure 2c) in Maspeth. The site consists of buried structural-foundation remains and archeological deposits and was listed on the National Register of Historic Places in 1979.

There are no previously recorded historic archeological sites in the immediate vicinity of any of the overhead rail clearances proposed for modification as part of the Project along the Bay Ridge Line and Montauk Branch of the LIRR.

4.2 CONSTRUCTION OF THE BAY RIDGE LINE OF THE LONG ISLAND RAILROAD, CA. 1873-1900

In 1870 the New York and Hempstead Plains Railroad Company was chartered for the purpose of constructing a railroad from Bay Ridge to Hempstead Plains in Nassau County. At the time, this line was unique among the steam railroads of Brooklyn for it was intended as a low-cost freight alternative by creating a waterfront terminal at 65th Street in order to ship barge-freight from New Jersey onto rails across Long Island (Linder and Zacharias 1999:146). Construction of this line began at both ends, and trains were running between Valley Stream and Hempstead within the next few years (Reifschneider 1925:14). At Bay Ridge, work began in April of 1873 on the construction of a large rail yard at 65th Street and excavations for a rail line through the massive ridge along the shoreline. The cut for the Bay Ridge Line was excavated through the former orchards of the Bergen farm (Seyfried 1966:4). Financial difficulties brought this construction to a temporary end in the late summer of 1873 (Seyfried 1966:5). A series of costly accidents, one fatal, forced the foreclosure of the New York and Hempstead in 1874 (Reifschneider 1925:15).

The New York, Bay Ridge, and Jamaica Railroad Company was chartered in 1875 for the purpose of constructing a railroad from Bay Ridge to Jamaica. By the end of the summer of 1876 the Bay Ridge line was completed to New Utrecht Avenue and 62^{nd} Street, where it connected to the Brooklyn, Bath and Coney Island Railroad [now the West End Subway Line, or B Train]. After taking control of the Long Island Railroad in 1881, Corbin decided to reorganize the Manhattan Beach line [yet again] as a standard gauge track so it could connect to the LIRR's Atlantic Avenue and Montauk branches (Anderson 2001).

In 1878, the line was leased to the New York and Manhattan Beach Railroad Company, owned by New York banker Austin Corbin and future owner of the Long Island Railroad. Corbin reorganized the route and purpose of the Bay Ridge line. Instead of running east-west and

operating as a freight rail, Corbin changed the route to run north-south for seasonal passenger service to the banker's beach resort on Coney Island (Anderson 2001; Linder and Zacharias 1999:148). Under new management, the Bay Ridge line was extended west to New Lots Road, where it connected to the New York and Manhattan Beach's lines that ran from Green Point to Sheepshead Bay and Manhattan Beach (Reifschnedier 1925:20).

In 1881 Austin Corbin bought the Long Island Railroad [LIRR], and two years later constructed the Long Island City and Manhattan Beach Railroad from Fresh Pond Junction to Cooper Street, where it connected with the existing Manhattan Beach lines. During this period of construction the rail lines of the entire Manhattan Beach system were also widened to standard gauge and connected to the LIRR's Atlantic Avenue and Montauk (or Long Island City) branches. The three Manhattan Beach lines were consolidated in 1885 into the New York, Brooklyn, and Manhattan Beach Railway and leased to the LIRR by Corbin, their mutual owner (Anderson 2001; Smith 1958:58; Reifschneider 1925:23).

In the late 1870s another rail line was built from the 64th Street pier to New Utrecht Avenue. The New York and Sea Beach Railroad was a competitor of Corbin's, and the two lines negotiated a series of compromises to share the maintenance of the piers and yard facilities at 65th Street. The route of the New York and Sea Beach followed the right-of-way of the Bay Ridge line. From the harbor, the New York and Sea Beach ran parallel to and north of the Bay Ridge line to Eighth Avenue, where it crossed the Bay Ridge tracks and continued running parallel and south of the Bay Ridge line to 62nd Street and New Utrecht Avenue (Figure 3, Hyde 1898; Feinman 2001:4-5). The New York and Sea Beach line went bankrupt in 1896. The line was electrified and connected to the Third Avenue El [elevated train] at Third Avenue and 65th Street. In 1900 the newly electrified line was taken over by the Brooklyn Rapid Transit Corporation [BRT] (Feinman 2001:13; Hood 1995).

4.3 CONSTRUCTION OF THE MONTAUK BRANCH OF THE LONG ISLAND RAILROAD, CA. 1868-1889

The current Montauk Branch of the Long Island Railroad began as a competitor to the growing late-nineteenth-century monopoly of the LIRR over passenger traffic from New York to Long Island. During the mid-nineteenth century, residents of towns on the South Shore of Long Island had to travel as far as three or four miles north to use Long Island Railroad stations and trains. The LIRR considered numerous plans to extend train lines to the South Shore communities, but they were never built. This situation resulted in the chartering of a new railroad company, the South Side Railroad Company of Long Island in 1860, and construction of a new line running east from Jamaica began in 1867 (Smith 1958:58; Reifschneider 1925:12-13).

The (western) areas of the current Montauk Branch being considered for improved rail clearances as part of the Cross Harbor Freight Movement Project were constructed by the South Shore Railroad Company at about the same time as the lines running east from Jamaica:

"The management of the South Side Railroad wanted the Long Island Railroad to haul its trains from Jamaica to Hunter's Point, but the [LIRR management] was obdurate as usual, and refused to listen to them... This compelled the new road to build its own line to Brooklyn through Bushwick to the Brooklyn waterfront, which it started in 1867. The line ran just south of the Long Island [Railroad] for over a mile west, then crossed and went through Richmond Hill, Glendale and Fresh Pond to Bushwick, being the present Montauk Division trackage to that place" (Reifschneider 1925:13).

The South Side Railroad organized the extension of its railroad from Bushwick to the East River in 1870. They constructed a rail line from Bushwick Junction along Newton Creek to Penny Bridge, where they connected with the former New York and Flushing Railroad line to Hunter's Point. The New York and Flushing line had been built in 1854. The first freight terminal on the South Side was constructed at Linden Hill, between Maspeth and Newton Creeks, in 1874 (Reifschneider 1925:15; Seyfried 1961: 28-29). In the 1870s the South Side Railroad experienced financial struggles and changes of ownership, and was acquired by the Brooklyn & Montauk Railroad Company, a subsidiary of the LIRR, in 1880. The Brooklyn & Montauk subsequently merged with the Long Island Railroad in 1889 (Smith 1958:58; Reifschneider 1925:15).

4.4 EARLY TWENTIETH CENTURY RAIL LINE IMPROVEMENTS

In the early 1900s the Manhattan Beach network of rails was reorganized to accommodate freight service. The City of New York, the LIRR, and the BMT formed a public/private partnership and began planning a massive series of improvements that would connect the Brooklyn network of railroads to New England (Anderson 2001; BGCC 1918). One component of these improvements was the Brooklyn Grade Crossing Elimination Project, created by an act of the New York State legislature in May of 1903 (BGCC 1918:5). This project was intended to provide fully graded and separate rights-of-way for the Brighton Beach Line of the BRT and the Bay Ridge and Manhattan Beach Lines of the LIRR (Diamond 2000). The Brooklyn Grade Crossing Commission (BGCC) provided the following justification for the necessity of eliminating grades along the Bay Ridge Line of the LIRR:

"At the time of the construction of these railroads, the territory through which they ran consisted mainly of farm land, but the rapid expansion of population into suburban districts of the Borough of Brooklyn resulted in the development of residential neighborhoods adjacent to railroads, attended with all the inconveniences and dangers pertaining to the operation of steam roads crossing highways at grade. To provide for the present and future requirements of these rapidly growing sections, and to establish all the conveniences and facilities necessary for municipal living, such as water mains, sewer systems, electric light, telegraph and telephone conduits, and to enable additional streets to be opened across the right of way of the railroad, so as to provide for the necessary foot passenger and vehicular traffic, it became necessary to make a permanent separation of the grade of the rail road from the grade of the highways by elevating or depressing the right of way of the railroad" (BGCC 1918:23-24).

Components of the Brooklyn Grade Crossing Elimination Project were worked on and completed between 1905 and 1918. Aspects of the project included improvements to rail lines, expansion of rail yards, and construction of Hell Gate Bridge (or the New York Connecting Railroad Bridge, completed in 1917) to connect trains from New England to Queens and Manhattan (Anderson 2001; BGCC 1918; Diamond 2000; Reifschneider 1925:25; Seyfried 1966:173). The largest component of the Brooklyn Grade Crossing Elimination Project was the Bay Ridge Improvement, which included work at the 65th Street Rail Yard as well as the Bay Ridge Line of the LIRR. The elimination of grade crossings along the Bay Ridge Line included approximately 10.5 miles or railroad right-of-way extending from the Brooklyn Borough Line (near Broadway Junction) to Bay Ridge. At the time of the project, this included the elimination of 41 (highway) crossings at

grade (BGCC 1918:24; Seyfried 1966:166-167). The necessary work to depress or elevate the railroad tracks frequently included the acquisition of properties adjacent to the railroad right-of-way:

"A very important feature of the Act of the Legislature was the provision for the elevation or depression of the entire width of the right of way. The Commission found this could be accomplished either by the construction of retaining walls and filling in behind the walls for the purposes of elevation, or by the construction of retaining walls to sustain the sides of the cut if the right of way was depressed by excavation, or by purchasing land adjacent to the right of way, said land to be utilized for the construction of slopes" (BGCC 1918:24-25).

The design plans for the elimination of grade crossings on the Bay Ridge Line included either the depression or elevation of the railroad tracks along various parts of the right-of-way. The overhead rail clearances being considered for further depression by the Cross Harbor Freight Movement Project correspond to areas of the railroad right-of-way that were depressed as a component of the ca. 1905-1918 Brooklyn Grade Crossing Elimination Project:

"The plans finally adopted by the Board called for the depression of the Railroad from Bay Ridge for a distance of 5.6 miles, to a point between Albany Avenue and Avenue G [Glenwood Road], and for the elevation of the road on an embankment from this point a distance of 2.8 miles, to a point about 1800 ft. north of New Lots Road; thence following a gradual descending grade to a point about 425 ft. south of Atlantic Avenue; thence requiring a tunnel to be constructed about 3500 ft. in length, coming to grade at the original surface at a point about 200 ft. south of Central Avenue; then elevated again on an embankment terminating at the Borough Line" (BGCC 1918:25).

The BGCC (1918) final report includes schematic drawings that indicate the depths of depression or elevation required along the whole route of the Bay Ridge Line to achieve the elimination of grade crossings (Figures 4a, 4b, 4c). For many of the ca. 1905-1918 clearances depicted on these plans, the depth or excavation required to depress the railroad is clearly indicated. The necessary work to achieve the elimination of grade crossings on the Bay Ridge Line was completed in 1918 (BGCC 1918: 63). Completion of this project required the removal of massive amounts of earth, and used vast quantities of construction materials, at considerable cost:

"[The Bay Ridge Improvement] used 105,000 cubic yards of masonry and 7,500 tons of steel. Over 300,000 yards of earth was excavated, 26 miles of main track laid, and over 19 miles of yard track. The cost in 1918 dollars was about \$4.5 million" (Diamond 2000).

Early-twentieth-century improvements to the western end of the Montauk Branch included the construction of a large freight yard at Hunter's Point. This yard was built in the 1900s:

"The [Hunter's Point] freight yard was an extensive tract between Borden Avenue and Newtown Creek from Vernon Avenue to Dutch Kills. This was purchased by the Long Island Rail Road in July 1901 for SS\$115,000 and gave the railroad complete control of an unbroken strip over a mile in length from the East River to Dutch Kills. On the other side of Dutch Kills was another smaller freight yard with piers into Newtown Creek. Here the railroad handled heavy freight like brick, coal, lumber and ice" (Seyfied 1975b:245-246).

4.5 ARCHEOLOGICAL SENSITIVITY OF RAILROAD CLEARANCES

JMA evaluated the potential archeological sensitivity of each of the 53 clearance locations on the Bay Ridge Line and Montauk Branch of the LIRR that are being considered for improvement by the Cross Harbor Freight Movement Project (Table 1). In the following discussion, the railroad clearances are grouped generally by the neighborhoods in which these clearances are located.

4.5.1 BAY RIDGE CLEARANCES (SECOND AVENUE THROUGH SIXTH AVENUE)

The Cross Harbor Freight Movement Project is considering improvements to seven overhead rail clearance locations in the Bay Ridge area of Brooklyn. These locations include the clearances on the Bay Ridge Line of the LIRR between Second Avenue and Sixth Avenue (JMA Map Key #s 1–7, Figure 2a, Table 1). Proposed improvements in this area include the excavation of a trench 8,000 feet long, 40 feet wide, and 3 feet deep from Second Avenue to Twelfth Avenue, and undercutting and shoring work (with excavation depths between 1.5 feet and 5 feet) at the Bay Ridge Towers Overbuild clearance (JMA Map Key # 4; Table 1). All proposed work would occur within the existing LIRR right-of-way.

The Bay Ridge Line of the LIRR was originally constructed in the 1870s in association with the construction of the 65th Street Rail Yard. The initial phases of cutting through Bay Ridge in the 1870s required the removal of massive amounts of sediment and rock from the rail line route:

"The soil through which the tunnel was being cut was a dry sandy one with here and there high boulders and beds of gravel. Most of this was carted out and used to fill up the adjacent hollows to build up the grades of 65th and 66th Streets. As of April [1873], 90 men with 40 horses and carts were at work between the shore and Fifth Avenue in the excavation through the ridge. The deepest cutting necessary at any one point was 43 feet ([at] Fifth Avenue) and the average for a mile or two was 30 feet, the width being 32 feet, although the road bed of the tunnel for a double track was fixed at only 25 feet" (Seyfried 1966:4).

Financial difficulties brought construction to a temporary halt in 1873. Work resumed on the Bay Ridge cut in January of 1876:

"By February 5th, Second and Third Avenues had been cut through despite occasional dangerous cave-ins... The great quantities of gravel excavated in the vicinity of Fourth Avenue made it easy to complete by the end of March the filling in of the dock where the ferryboats were due to land once the rail yard began running" (Seyfried 1966:9).

Additional disturbance to the route of the Bay Ridge Line in this area occurred during the Brooklyn Grade Elimination Project in the 1900s and 1910s. The LIRR took advantage of the opportunities afforded by the grade elimination and decided to expand the freight yard at 65th Street. As a component of this work, the LIRR agreed to assume all the costs of constructing the First Avenue viaduct over the railroad tracks. This required the LIRR to depress their original track facilities in the vicinity of the freight yard approximately 3.7 feet (Seyfried 1966:173). The schematic drawings included in the BGCC (1918) final report indicate the depths of additional excavation on the Bay Ridge Line (Figure 4a). From the 65th Street Rail Yard to the vicinity of Sixth Avenue, the depth of excavation gradually increased to approximately 8.8 feet (Figure 4a).

Bay Ridge Clearances, Archeological Sensitivity (JMA Map Key #s 1-7) The original (ca. 1870s) construction of the LIRR line in the Bay Ridge area required excavations to an average depth of approximately 30 feet (up to 43 feet at Fifth Avenue). The rail line in this area was depressed an additional four feet to over eight feet in the 1900s and 1910s. The LIRR tracks run through an open cut in this area that varies in its depth from approximately 20 feet to over 40 feet below current grade (Plates 1-5). In the opinion of JMA, the documented extent of disturbance during each phase of construction (ca. 1870s) or depression (ca. 1900s) of the LIRR tracks in the Bay Ridge area precludes the possibility that undisturbed archeological deposits may be present in the vicinity of railroad clearances in this area.

4.5.2 BOROUGH PARK CLEARANCES (EIGHTH AVENUE THROUGH MCDONALD AVENUE)

The Cross Harbor Freight Movement Project is considering improvements to fifteen overhead rail clearance locations in the Borough Park area of Brooklyn. These locations include the clearances on the Bay Ridge Line of the LIRR between Eighth Avenue and McDonald Avenue (JMA Map Key #s 8-22, Figure 2a, Table 1). Proposed improvements in this area include the excavation of a trench 8,000 feet long, 40 feet wide, and 3 feet deep continuing from the Bay Ridge area (starting at Second Avenue) to Twelfth Avenue. The excavation of another trench 18,500 feet long, 40 feet wide, and 5 feet deep is proposed from Fourteenth Avenue east to Albany Avenue. Undercutting and shoring work (with excavation depths between 1.5 feet and 5 feet) is proposed for the BMT Overhead, Fort Hamilton Parkway, Eleventh Avenue, Fourteenth Avenue/61st Street, New Utrecht Avenue, Fifteenth Avenue, 60th Street, Sixteenth Avenue/59th Street, Seventeenth Avenue, Eighteenth Avenue/53rd Street, 52rd Street, 50th Street, and McDonald Avenue clearances. (JMA Map Key #s 9-22; Table 1). The reconstruction of overpasses, including new abutments, demolition of existing structures, and construction of new superstructures, is proposed for the New Utrecht Avenue, Fifteenth Avenue, 60th Street, Sixteenth Avenue/59th Street, Seventeenth Avenue, Eighteenth Ave/53rd Street, and McDonald Avenue clearances (JMA Map Key #s 14-19, 22; Table 1). All proposed work would occur within the existing LIRR right-of-way.

The original construction of the Bay Ridge Line through the Borough Park area of Brooklyn required less excavation than the cut through Bay Ridge:

"[East of Fourth Avenue] the route offered few if any construction problems, for the right-of-way passed through level farms with gentle grades. On March 13, work began on the Johnson farm line of 61-62 Streets, between Fort Hamilton Avenue and New Utrecht Avenue" (Seyfried 1966:9).

In the late-nineteenth century, the Bay Ridge Line operated on tracks that ran at street grade in that portion of the right-of-way east of Fort Hamilton Avenue. The portion of the Bay Ridge Line east of Fort Hamilton Avenue was depressed during the Brooklyn Grade Elimination Project in the 1900s. Work accomplished on the project by 1908 included:

"... depressing of the main line from Seventh Avenue to Avenue G [Glenwood Road], a distance of 4.5 miles. The material excavated to make this depression being used to form an embankment from Avenue G to New Lots Road, a distance of 2.5 miles, thus eliminating all grade crossings on the main line for a distance of 7 miles... The total amount of concrete used in the bridges, abutments, and retaining walls amounts to 40,000 yards... The total amount of material excavated is 1,225,000 cubic yards, and this was placed in the embankment as

noted above... The sides of the depressed portion are retained by earth having its natural slope... The embankment section is simply the excavation reversed; that is, if the excavation were taken out in one block and turned upside down it would form the embankment" (BGCC 1918:30-33).

The depths of excavation accomplished in the Borough Park portion of the LIRR rail line during the grade elimination are depicted on the BGCC (1918) schematic drawings (Figures 4a, 4b). To achieve the elimination of grade crossings in Borough Park, the LIRR tracks were depressed at least sixteen feet at all crossing locations (Figures 4a, 4b).

Borough Park Clearances, Archeological Sensitivity (JMA Map Key #s 8-22)

The original (ca. 1870s) construction of the LIRR line in the Borough Park area required excavations to depths of up to 30 feet along that portion of the rail line between Seventh Avenue and Fort Hamilton Avenue. East of Fort Hamilton Avenue the railroad originally ran at street grade. The entire Borough Park portion of the Bay Ridge Line was depressed at least 16 feet in the 1900s. At present, the LIRR tracks run through an open cut in this area that varies in its depth from approximately 15 feet to 20 feet below current grade (Plates 6-18). In the opinion of JMA, the documented extent of disturbance associated with Brooklyn Grade Elimination along the Borough Park portion of the Bay Ridge precludes the possibility that undisturbed archeological deposits may be present in the vicinity of railroad clearances in this area.

4.5.3 FLATBUSH CLEARANCES (EAST 3RD STREET THROUGH GLENWOOD ROAD)

The Cross Harbor Freight Movement Project is considering improvements to fourteen overhead rail clearance locations in the Flatbush area of Brooklyn. These locations include the clearances on the Bay Ridge Line of the LIRR between East 3rd Street and Glenwood Road (JMA Map Key #s 23-36, Figures 2a, 2b, Table 1). Proposed improvements in this area include the excavation of a trench 18,500 feet long, 40 feet wide, and 5 feet deep continuing from the Borough Park area (starting at Fourteenth Avenue) to Albany Avenue. Undercutting and shoring work (with excavation depths between 1.5 feet and 5 feet) is proposed for all clearances in this area between East 3rd Street and Albany Avenue (JMA Map Key #s 23-35). The reconstruction of overpasses, including new abutments, demolition of existing structures, and construction of new superstructures, is proposed for the East 3rd Street, Ocean Parkway, Coney Island Avenue, East 14th Street, East 15th Street Footbridge, BMT (Brighton Beach), Flatbush Avenue, and Brooklyn Avenue clearances (JMA Map Key #s 23-29, 32, 34; Table 1). All proposed work will occur within the existing LIRR right-of-way.

The Bay Ridge Line in this area was originally constructed in 1877 and ran at street grade along its entire route through Flatbush (Smith 1958: 58; Seyfried 1966). The portion of the Bay Ridge Line east of East 3rd Street was depressed during the Brooklyn Grade Elimination Project in the 1900s. The material removed during these excavations was used to create an elevated embankment for the rail line east of Albany Avenue (see Section 4.5.2). From East 3rd Street, the depth of the cut was shallower through the Ocean Parkway crossing (Figure 4b) and then gradually deepened to approximately 16 feet at Coney Island Avenue. Between Coney Island Avenue and Albany Avenue the depth of the excavation continued at approximately 16 feet (Figure 4b). East of Albany Avenue, the excavation gradually rose to street grade (approximately 1000 feet east of Albany Avenue) and the rail line was elevated on a raised embankment as it continued east over the Glenwood Road viaduct towards New Lots (Figure 4b).

Flatbush Clearances, Archeological Sensitivity (JMA Map Key #s 23-36) The Bay Ridge Line of the LIRR in Flatbush originally ran at street grade. The Flatbush portion of the Bay Ridge Line was depressed in the 1900s to a point east of Albany Avenue, where the line rose to grade and was elevated on a raised embankment as it continued further east (Figure 4b). At present, the LIRR tracks run through an open cut in this area (west of Albany Avenue) that varies in its depth from approximately 15 feet to 20 feet below current grade (Plates 19-30). At Glenwood Road the LIRR passes over the street on a viaduct and continues east on an embankment. In the opinion of JMA, the documented extent of disturbance associated with Brooklyn Grade Elimination along the Flatbush portion of the Bay Ridge Line precludes the possibility that undisturbed archeological deposits may be present in the vicinity of railroad clearances in this area.

4.5.4 BROWNSVILLE CLEARANCES (LIVONIA AVENUE THROUGH LIBERTY AVENUE)

The Cross Harbor Freight Movement Project is considering improvements to seven overhead rail clearance locations in the Brownsville area of Brooklyn. These locations include the clearances on the Bay Ridge Line of the LIRR between Livonia Avenue and Liberty Avenue (JMA Map Key #s 37-43, Figure 2b, Table 1). Proposed improvements in this area include undercutting and shoring work at the Livonia Avenue, Blake Avenue, Sutter Avenue, Pitkin Avenue, New York City Transit Authority (NYCTA) Linden Shop, Glenmore Avenue, and Liberty Avenue clearances (JMA Map Key #s 37-43. The reconstruction of overpasses is proposed for the Blake Avenue and Sutter Avenue clearances. Proposed improvements also include the reconstruction of the East New York Tunnel, which extends from Liberty Avenue to Evergreen, Queens, to increase clearance heights. All proposed work would occur within the existing LIRR right-of-way.

The Bay Ridge Line in this area was originally constructed in 1877 and ran at street grade along its entire route through Brownsville (Smith 1958:58; Seyfried 1966). The Bay Ridge Improvement (of the Brooklyn Grade Elimination Project) included the construction or enlargement of large freight yards in East New York. Construction associated with Bay Ridge Improvement in the vicinity of the Brownsville rail clearances included the expansion and depression of freight yards, depressing the rail line, and construction of a tunnel north of Liberty Avenue. The depression of the LIRR tracks was accomplished in 1906. The rail line began their descent and entered a depressed cut just south of Livonia Avenue (Seyfried 1966:171). The rail line was depressed at least 16 feet below street grade from Livonia Avenue until it reached the tunnel near East New York Avenue (Figure 4c):

"In the fall of 1900 the Long Island Railroad purchased seven blocks of ground adjoining the Manhattan Beach Branch on the west, running from Liberty Avenue on the north to almost New Lots Road and one block deep. Almost all this extensive tract was vacant at the time and the very few properties occupied were acquired by condemnation...

Beginning in November 1905 the Long Island Railroad because of the denselysettled nature of the region in which the East New York yards were situated, undertook to depress the two Manhattan Beach tracks that passed through the yards to go under the street grade and at the same time drop the whole yard level three feet to correspond with the new street grade. Since the blocks were long ones, each either 400 or 500 feet and there were ten of them from Liberty Avenue to New Lots Road, the excavation was a considerable undertaking. When the final grade crossing elimination on the Manhattan Beach Branch was undertaken

at East New York in 1915-1916, the yards below Liberty Avenue were fully depressed and the important cross streets, Liberty, Pitkin, Belmont, Sutter, Blake, Dumont Avenue, were carried over the yards on bridges" (Seyfried 1975b:247-248).

In addition to the depression of the rail lines between Liberty Avenue and New Lots Road, the Bay Ridge Improvement also included the construction of a four-track tunnel that extends from south of East New York Avenue to north of Granite Street, a distance of approximately 3,500 feet. The tunnel was constructed by the cut-and-cover method, with maximum depth from the original ground surface to the sub-grade under the tunnel floor of 55 feet. Over 440,000 cubic yards of material were excavated in the construction of the tunnel (BGCC 1918:46, 51, 54).

Livonia Avenue Clearance, Archeological Sensitivity (JMA Map Key #37).

The Bay Ridge Line runs on an elevated embankment to a point just south of the Livonia Avenue clearance where the rail line enters an open cut descending to the tunnel at East New York Avenue (Figure 4c). JMA examined mid-nineteenth-century atlases of Brooklyn to determine if any structures were previously located in the vicinity of where the current rail line meets grade west of Livonia Avenue (Figure 5; Walling 1859). No such structures were identified.

Brownsville Clearances, Archeological Sensitivity (JMA Map Key #s 38-43)

The Bay Ridge Line of the LIRR in Brownsville originally ran at street grade. The Brownsville portion of the Bay Ridge Line was depressed in the 1900s from a point south of Livonia Avenue to the entrance of a tunnel constructed at East New York Avenue (Figure 4c). At present, the LIRR tracks run through an open cut in this area (north of Livonia Avenue) that descends to a depth of approximately 25 feet below current grade (Plates 31-36). In the opinion of JMA, the documented extent of disturbance associated with Brooklyn Grade Elimination along the Brownsville portion of the Bay Ridge Line precludes the possibility that undisturbed archeological deposits may be present in the vicinity of railroad clearances in this area.

4.5.5 MONTAUK CLEARANCES (NEW YORK & ATLANTIC CONNECTION TO ANDREWS STREET/59TH PLACE)

The Cross Harbor Freight Movement Project is considering improvements to nine overhead rail clearance locations along the west portion of the Montauk Branch of the LIRR in the Maspeth area of Queens. These locations include the clearances on the Montauk Branch of the LIRR between the connection with the New York & Atlantic Railway and Andrews Street/59th Place (JMA Map Key #s 44-52, Figure 2c, Table 1). Proposed improvements in this area include the excavation of a trench 40 feet wide and 6.5 feet deep along the existing Montauk Branch railroad tracks. Undercutting and shoring work (with excavation depths of 5 feet 4 inches to 6 feet 5 inches), and the reconstruction of the existing overpasses, is proposed for the New York Connecting Railroad and BMT Overhead (M Line Train) clearances (JMA Map Key #s 44, 45; Table 1). All proposed work would occur within the existing LIRR right-of-way.

The western end of the Montauk Branch was originally built in the 1860s (see Section 4.3). The LIRR ran passenger service on the western end from 1883 to 1924. The Penny Bridge Station at Laurel Hill Boulevard was a stop on both the Montauk Branch and the Main Line from the 1880s. The station was re-opened as a Rapid Transit stop in 1895, and operated until 1924. The Haberman Station, named for the Haberman Steel Enamel Works in Berlin village, was located on 50th Street opened in 1892 as a convenience for steelworkers. There was never a station

building at this stop, and passenger service ended in 1924. The Maspeth Station, located at 58th Avenue and Creek Street, opened as a Rapid Transit stop in 1895. Passenger service ended in 1924 and the station building was demolished in 1925. The LIRR reportedly built a wooden frame depot at Bushwick Junction, probably located at Andrews Avenue and 59th Street, in 1886. In 1895 a new railroad station was built on Metropolitan Avenue and the name of the stop changed to Fresh Pond. The new building was demolished during grade elimination work in 1915. Passenger service ended at Bushwick Junction/Fresh Pond in 1924 (Seyfried 1966:202, 1975a:265-266).

JMA was unable to locate a detailed discussion of excavations or other disturbances that occurred during the original construction of the Montauk Branch through Maspeth. Seyfried (1975a:266) makes reference to grade elimination work done on the Montauk Branch in 1915, but does not specify the depths to which the tracks were depressed. At present, the Montauk Branch enters an open-cut to the west of the New York & Atlantic Railway Connection (Map Key #44, Figure 2c, Table 1). West of the New York & Atlantic Connection, the Montauk Branch is depressed to depths of approximately 15 feet to approximately 25 feet (Plates 37-43). These current depths were likely achieved during grade elimination work of the 1910s.

New York & Atlantic Connection, Archeological Sensitivity (JMA Map Key #s 44-45) JMA examined mid-nineteenth-century atlases of Queens to determine if any structures were previously located in the vicinity of where the current rail line meets grade in the vicinity of the New York & Atlantic Connection (Figures 6, 7; Riker 1852b, Walling 1859). No structures were depicted in the vicinity of the railroad intersection location.

Maspeth Clearances, Prehistoric Archeological Sensitivity (JMA Map Key #s 46-52). The overhead clearances in the vicinity of Maspeth are located in area of very high sensitivity for prehistoric and Contact Period Native American archeological resources. Numerous previously recorded Native American sites are documented in the vicinity of the Montauk Branch in Maspeth (see Section 4.1). However, the Montauk Branch in this area runs within an open-cut that is depressed between 15 feet and 25 feet below grade. In the opinion of JMA, the extent of previous disturbance associated with the construction and/or depression of this open cut makes it highly unlikely that undisturbed archeological deposits are located within the Montauk Branch right-of-way.

Maspeth Clearances, Historic Archeological Sensitivity (JMA Map Key #s 46-52). Passenger service was available on the Montauk Branch in the late-nineteenth century and was terminated in 1924. Numerous passenger stations were previously located along the Montauk Branch in the vicinity of the Maspeth clearances (see Section 4.5.3). Seyfried (1966:202, 1975a:265-266) refers to a passenger stop at Penny Bridge (operated between the 1880s and 1924), the Haberman Station (there was never a station building at this location), the Maspeth Station (demolished 1925), and at Bushwick Junction/Fresh Pond (station structure built in 1886, rebuilt 1895, demolished in 1915). It is possible that structural remains, foundations, or other features associated with these facilities may be located in the vicinity of the proposed clearance improvement locations in these areas. However, in the opinion of JMA such features, if extant, are unlikely to provide significant or informative historical information about the operation of the LIRR that is not available in documentary sources.

5.0 CONCLUSIONS

5.1 ARCHEOLOGICAL SENSITIVITY ASSESSMENT

The overhead clearance locations along the Bay Ridge Line and Montauk Branch of the LIRR are located within open railroad cuts that were depressed as a component of grade elimination work in the 1900s and 1910s. Accordingly, the majority of overhead clearance locations being considered for improvement for the Cross Harbor Freight Movement Project occur in previously disturbed areas. For railroad clearances along the Bay Ridge Line in Brooklyn, the depths of previous disturbance are clearly indicated in schematic drawings from the final report of the Brooklyn Grade Crossing Commission (BGCC 1918; Figures 4a, 4b, 4c). Comparable schematics for the Montauk Branch could not be located. However, it seems likely that the scale and extent of construction activities for the Montauk Branch was comparable to that for the Bay Ridge line.

The Bay Ridge Line of the LIRR meets grade at south of the Livonia Avenue clearance in Brownsville (JMA Map Key #37, Figure 2b). The Montauk Branch of the LIRR runs at or near original grade in the area where it crosses the New York & Atlantic and BMT tracks east of Maspeth (JMA Map Key #s 44-45, Figure 2c). JMA examined historic maps to determine if previous structures may have been located in the vicinity of where the rail line meets original grade at these locations. No such structures were identified. In the opinion of JMA, sub-surface excavation and construction activities associated with the original construction or subsequent improvements of the LIRR rail lines in these two areas makes it unlikely that undisturbed archeological deposits may be present in these locations.

A series of passenger stops were located on the Montauk Branch of the LIRR in the vicinity of Maspeth between the 1880s and 1924. Structures associated with these passenger stations were demolished in the 1910s and 1920s. It is possible that structural remains, foundations, or other features associated with these facilities may be located in the vicinity of the proposed clearance improvement locations in these areas. However, in the opinion of JMA such features, if extant, are unlikely to provide significant or informative historical information about the operation of the LIRR that is not available in documentary sources.

The extent of previous disturbance at all other clearance locations on the Bay Ridge Line and Montauk Branch of the LIRR that are being considered by the Project precludes the possibility that undisturbed archeological deposits may be present at those locations.

5.2 RECOMMENDATIONS

In the opinion of JMA, the extent of previous disturbance along the Bay Ridge Line and Montauk Branch of the LIRR preclude the possibility that undisturbed archeological deposits are located in the vicinity of railroad clearances. No additional archeological work is recommended for the proposed improvements to overhead clearance locations along the Bay Ridge Line and Montauk Branch of the LIRR.
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TABLES

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17Plate 13Sixteenth Avenue/59th Street2243360 $17' 9 \frac{1}{2''}$ $8' 9 \frac{1}{4''}$ (construct new abutments, demolish existing structure, construct new superstructure)18Plate 14Seventeenth Avenue 2243370 $18' 3 \frac{1}{2''}$ $7' 4 \frac{1}{4''}$ demolish existing structure, construct new superstructure)19Plate 15Eighteenth Avenue/53th Street 2243380 $17' 7 \frac{1}{2''}$ $7' 8 \frac{1}{4''}$ construct new superstructure)20Plate 16 52^{nd} Street 2243390 $17' 10 \frac{1}{2''}$ $7' 6 \frac{3}{4''}$ Undercutting/shoring work21Plate 17 50^{th} Street 2243400 $19' 1''$ $7' 10 \frac{3}{4''}$ Undercutting/shoring work22Plate 18McDonald Avenue 2243410 $18' 2 \frac{1}{4''}$ $7' 11 \frac{3}{4''}$ Undercutting/shoring work23Plate 19East 3^{rd} Street 2243420 $18' \frac{1}{4''}$ $8' 2'''$ Reconstruct overpasses24Plate 20Ocean Parkway 2243439 $18' 1''$ $8' 4 \frac{1}{2''}$ Reconstruct overpasses25Plate 21Coney Island Avenue 2243440 $18' 7 \frac{1}{2''}$ $7' 11 \frac{1}{4''}$ (new abutments, demolish	16	Plate 12	60 th Street	2243350	17' 11 ½"	9' 7 ¾"	Reconstruct overpasses			
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19 Plate 15 Eighteenth Avenue/53 rd Street 2243380 17' 7 ½" 7' 8 ¼" construct new superstructure) 20 Plate 16 52 rd Street 2243390 17' 10 ½" 7' 6 ¾" Undercutting/shoring work 21 Plate 17 50 th Street 2243400 19' 1" 7' 10 ¾" (depths between 1'6" to 5'1") 22 Plate 18 McDonald Avenue 2243410 18' 2 ¼" 7' 11 ¾" Undercutting/shoring work 23 Plate 19 East 3 rd Street 2243420 18' ¼" 8' 2" (depths between 1'6" to 5'1") 24 Plate 20 Ocean Parkway 2243439 18' 1" 8' 4 ½" Reconstruct overpasses 25 Plate 21 Coney Island Avenue 2243440 18' 7 ½" 7' 11 ¾" (new abutments, demolish	18	Plate 14	Seventeenth Avenue	2243370	18' 3 1/2"	7' 4 ¾"	demolish existing structure,			
20 Plate 16 52 nd Street 2243390 17' 10 ½" 7' 6 ¼" Undercutting/shoring work 21 Plate 17 50 th Street 2243400 19' 1" 7' 10 ¼" (depths between 1'6" to 5'1") 22 Plate 18 McDonald Avenue 2243410 18' 2 ¼" 7' 11 ¼" Undercutting/shoring work 23 Plate 19 East 3 rd Street 2243420 18' ¼" 8' 2" (depths between 1'6" to 5'1") 24 Plate 20 Ocean Parkway 2243439 18' 1" 8' 4 ½" Reconstruct overpasses 25 Plate 21 Coney Island Avenue 2243440 18' 7 ½" 7' 11 ¼" (new abutments, demolish	19	Plate 15	Eighteenth Avenue/53 rd Street	2243380	17' 7 <u>½</u> "	7' 8 ¼"	construct new superstructure)			
21 Plate 17 50 th Street 2243400 19' 1" 7' 10 ¼" (depths between 1'6" to 5'1") 22 Plate 18 McDonald Avenue 2243410 18' 2 ¼" 7' 11 ¼" Undercutting/shoring work 23 Plate 19 East 3 rd Street 2243420 18' ¼" 8' 2" (depths between 1'6" to 5'1") 24 Plate 20 Ocean Parkway 2243439 18' 1" 8' 4 ½" Reconstruct overpasses 25 Plate 21 Coney Island Avenue 2243440 18' 7 ½" 7' 11 ¼" (new abutments, demolish	20	Plate 16	52 nd Street	2243390	17' 10 1/2"	7' 6 ¾"	Undercutting/shoring work			
22Plate 18McDonald Avenue224341018' 2 '4"7' 11 '4"Undercutting/shoring work23Plate 19East 3 rd Street224342018' '4"8' 2"(depths between 1'6" to 5'1")24Plate 20Ocean Parkway224343918' 1"8' 4 '2"Reconstruct overpasses25Plate 21Coney Island Avenue224344018' 7 '2"7' 11 '4"(new abutments, demolish	21	Plate 17	50 th Street	2243400	19' 1"	7' 10 ¼"	(depths between 1'6" to 5'1")			
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25 Plate 21 Coney Island Avenue 2243440 18' 7 12" 7' 11 14" (new abutments, demolish	24	Plate 20	Ocean Parkway	2243439	18' 1"	8' 4 1/2"	Reconstruct overpasses			
	25	Plate 21	Coney Island Avenue	2243440	18' 7 1/2"	7' 11 ¼"	(new abutments, demolish			
26 Plate 22 East 14 th Street 2243450 18' 2" 6' 11 ³ / ₄ " and rebuild existing structure)	26	Plate 22	East 14 th Street	2243450	18' 2"	6' 11 ¾"	and rebuild existing structure)			

Table 1. Rail clearances on the Bay Ridge Line and Montauk Branch of the LIRR.

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Table 1. (continued)

JMA				EXISTING	EXISTING			
MAP	JMA	BRIDGE NAME	BIN #	VERTICAL	SIDE	PROPOSED		
KEY	РНОТО	L	or LIRR #	CLEARANCE	CLEARANCE	IMPROVEMENTS		
Bay Ridge Line, continued								
· 27	Plate 23	East 15th Street Foot Bridge	2243460	19' 2 ¼"	7' 9 ½"	Undercutting/shoring work		
28	Plate 24	BMT – Brighton Beach	-	18' 2 1⁄2"	7' 2 ¼"	Reconstruct overpasses		
29	Plate 25	Ocean Avenue	2243480		-	Undercutting/shoring work		
30	Plate 26	Bedford Avenue	2243490	18' 2"	6' 2 ¼"	(depths between 1'6" to 5'1")		
31	Plate 27	Nostrand Avenue	2243500	18' 9 ¾"	6' 1 ½"	8 325 226		
32	Plate 28	Flatbush Avenue	2243510	17' 5 ¼"	6' 8 ¼"	Undercutting/shoring work		
33	Plate 28	Flatbush Avenue Parking Lot	-	17' 9 ½"	9' 4"	Reconstruct overpasses		
34	Plate 29	Brooklyn Avenue	2243520	18' 3 ¾"	14' 8 ½"	-		
35	Plate 30	Albany Avenue	2243530	18' ¼"	7'9¼"	Undercutting/shoring work		
36		Glenwood Road (viaduct)	7702770	.	-	None		
37	Plate 31	Livonia Avenue Foot Bridge - 1	2243910	18' 4"	19' 4 ¼"	Undercutting/shoring work		
37	Plate 31	Livonia Avenue Foot Bridge – 2	2243910	19' 8"	33' 2 ¼"	(depths between 1'6" to 5'1")		
37	Plate 31	Livonia Avenue Foot Bridge - 3	2243910	20' 1⁄4"	30' 9 ¼"			
38	Plate 32	Blake Avenue – 1	2243900	17' 11 1/2"	8' 9 ¼"	Undercutting/shoring work		
38	Plate 32	Blake Avenue – 2	2243900	18' 5 3/4"	8' 1 ½"	Reconstruct overpasses		
39	Plate 33	Sutter Avenue – 1	2243890	16' 10 1/4"	6' 3 ¼"	(new abutments, demolish		
39	Plate 33	Sutter Avenue – 2	2243890	18' 1 1/2"	10' 2 ¾"	and rebuild existing structure)		
40	Plate 34	Pitkin Avenue – 1	2243870	16' 8 ¼"	6' 9 ¼"	Undercutting/shoring work		
40	Plate 34	Pitkin Avenue – 2	2243870	18' 4 1⁄2"	10' 10"	(depths between 1'6" to 5'1")		
40	Plate 34	Pitkin Avenue – 3	2243870	15' 1"	6' 4 ¼"			
41	Plates 34,	NYCTA-1	-	22' 4"	18' 7 1⁄2"			
41	35, 36	NYCTA-2	-	22' 2 1⁄4"	9' 7 ' 4"			
42	Plate 35	Glenmore Avenue – 1	2243860	16' 11"	6'9 1/4"	Undercutting/shoring work		
42	Plate 35	Glenmore Avenue – 2	2243860	18' 7 ¼"	. 10' 5"	(to depths of 5'7")		
42	Plate 35	Glenmore Avenue – 3	2243860	18' 3"	17' 3 1/2"			

Table 1. (continued)

JMA		-		EXISTING	EXISTING			
MAP	JMA	BRIDGE NAME	BIN #	VERTICAL	SIDE	PROPOSED		
KEY	РНОТО		or LIRR #	CLEARANCE	CLEARANCE	IMPROVEMENTS		
Bay Ridge Line, continued								
43	Plate 36	Liberty Avenue – 1	2243850	19' 8 ¼"	6'9¼"	Undercutting/shoring work		
. 43	Plate 36	Liberty Avenue – 2	2243850	19' 10 ¼"	6' 8 ¼"	(depths between 1'6" to 5'1")		
43	Plate 36	Liberty Avenue – 3	2243850	20' ½"	6' 7"	•		
Montauk Branch								
44	Plate 37	New York Connecting RR	27-B-046	17' 2"	15' 8 ¼"	Undercutting/shoring work		
45	Plate 38	BMT Overhead (M Line Train)	27-B-044	16' 1 ¼"	13' 9 ¼"	(to depths of 5'4" and 6'5")		
						Reconstruct overpasses		
46	Plate 39	Fresh Pond Road Foot Bridge	7704530	19' 11"	13' 4 ¼"	None		
47	Plate 40	Fresh Pond Road	1247560	15' 6 ½"	7' 3 ¼"	Undercutting/shoring work		
48	Plate 40	Overbuild Parking Lot	27-B-037	16' 3 ¼"	7' 3 ¼"	(to depths of 7'0" and 6'3")		
• • •	, <u>,</u>	10 x x x 7 x x x x x x x x x x x x x x x			· ·	Reconstruct overpasses		
49	Plate 41	Elliot Avenue	2247550	22' 5 1⁄2"	11' 5 ¼"	None		
50	Piate 42	Collins Avenue/60 th Street	2247540	19' 11 34"	10' 4 ¼"	Undercutting/shoring work		
51	Plate 43	Andrews Street/59th Place	2247530	17' 7 ¼"	10' 2 ¼" 、	(depths between 1'6" to 5'1")		
52	Plate 43	Welbilt Stove	27-B-032	24' 3 ¼"	12' 7 ¼"	Undercutting/shoring work		
52	Plate 43	Welbilt Stove Crossing - 1	27-B-032	16' 9 ¼"	10' 11 ¼"	(to depths of 5'9")		
52	· Plate 43	Welbilt Stove Crossing - 2	27-B-032	20' 3 ¼"	16' 8"			

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FIGURES



Figure 1. Project plans of the Cross Harbor Freight Movement Project showing the location of the Bay Ridge Line and western portion of the Montauk Branch of the Long Island Railroad containing overhead rail clearances discussed in this report.



the Long Island Railroad.

Figure 2a. Detail of the Jersey City, N.J.-N.Y., Brooklyn, N.Y. Narrows N.Y.-N.J., and Coney Island, N.Y. 7.5-minute USGS (1979, 1981a, 1981b, 1995) quads showing the location of overhead rail clearances on the Bay Ridge Line of



Figure 2b. Detail of the *Brooklyn*, N.Y. 7.5-minute USGS (1995) quad showing the location of overhead rail clearances on the Bay Ridge Line of the Long Island Railroad.



Figure 2c. Detail of the *Brooklyn*, N.Y. 7.5-minute USGS (1995) quad showing the location of overhead rail clearances on the Montauk Branch of the Long Island Railroad.



Figure 3. Detail of the Hyde (1898) Atlas of the Brooklyn Borough of the City of New York showing the routes of the Manhattan Beach Railroad (now Bay Ridge Line of the LIRR) and New York & Sea Beach Railroad (now BMT) in Borough Park, Brooklyn.



(BGCC 1918).

Figure 4a. Schematic drawing documenting the depression and elevation of the Bay Ridge Line of the LIRR in Bay Ridge and Borough Park during the Brooklyn Grade Elimination Project, ca. 1905-1918



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Figure 4b. Schematic drawing documenting the depression and elevation of the Bay Ridge Line of the LIRR in Borough Park and Flatbush during the Brooklyn Grade Elimination Project, ca. 1905-1918 (BGCC 1918).



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Figure 4c. Schematic drawing documenting the depression and elevation of the Bay Ridge Line of the LIRR in Brownsville during the Brooklyn Grade Elimination Project, ca. 1905-1918 (BGCC 1918).



Figure 5. Detail of the Walling (1859) Topographical Map of the Counties of Kings and Queens, New York showing the approximate location where the LIRR tracks meet original-grade south of the Livonia Avenue clearance.



Figure 6. Detail of the 1852 Map of Newtown, Long Island (Riker 1852b) showing the approximate location of where the LIRR tracks meet original-grade in the vicinity of the New York & Atlantic Railroad connection.



Figure 7. Detail of the Walling (1859) *Topographical Map of the Counties of Kings and Queens, New York* showing the approximate location of where the LIRR tracks meet original-grade in the vicinity of the New York & Atlantic Railroad connection.

PLATES



Plate 1. The Second Avenue clearance from the 65th Street Rail Yard (view to the east).



Plate 2. The LIRR tracks run beneath the Bay Ridge Towers overbuilt parking deck between Second Avenue and Third Avenue, and between Third Avenue and Fourth Avenue (view to the north).



Plate 3. The open railroad cut immediately east of the Fourth Avenue clearance (view to the northwest).



Plate 4. The N/R tracks of the BMT run on the north-side of the LIRR tracks in the vicinity of the Fifth Avenue clearance (from Fifth Avenue, view to the west).



Plate 5. The BMT tracks (left) and LIRR tracks (right) with the Sixth Avenue clearance in the distance (from Fifth Avenue, view to the east).



Plate 6. The Eighth Avenue clearance, from the LIRR tracks east of Eighth Avenue (view to the west).



Plate 7. The Fort Hamilton Parkway and BMT Overhead clearances, from the LIRR tracks east of Eighth Avenue (view to the east).



Plate 8. The LIRR open cut west of Thirteenth Avenue with the Eleventh Avenue clearance in the distance (from Thirteenth Avenue, view to the west).



Plate 9. The LIRR open cut with the BMT tracks (right) and Thirteenth Avenue clearance (in distance; from Eleventh Avenue, view to the east).



Plate 10. The Fourteenth Avenue and New Utrecht Avenue (right) clearances (from New Utrecht Avenue, view to the south).



Plate 11. The Fifteenth Avenue clearance (from New Utrecht Avenue, view to the east).



Plate 12. The 60th Street clearance (from Fifteenth Avenue, view to the east).



Plate 13. The Sixteenth Avenue/59th Street clearance (from 60th Street, view east).



Plate 14. The LIRR open cut immediately east of the Seventeenth Avenue clearance (from Seventeenth Avenue, view to the east).



Plate 15. The Eighteenth Avenue/53rd Street clearance (from 52nd Street, view to the west).



Plate 16. The LIRR open cut immediately east of the 52nd Street clearance (from 52nd Street, view to the east).



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Plate 17. Profile of the LIRR open cut immediately west of the 50th Street clearance (view to the north).



Plate 18. The LIRR open cut east of the McDonald Avenue clearance (from East 3rd Street, view to the west).



Plate 19. The LIRR open cut east of the East 3rd Street clearance (from Ocean Parkway, view to the west).

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Plate 20. The LIRR open cut immediately west of the Ocean Parkway clearance (from Ocean Parkway; view to the southwest).



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Plate 21. The LIRR open cut immediately west of Coney Island Avenue (from Coney Island Avenue, view to the west).



Plate 22. The East 14th Street clearance (from Coney Island Avenue, view to the east).



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Plate 23. The LIRR open cut west of the East 15th Street clearance (from East 14th Street, view to the east).



Plate 24. The BMT-Brighton Beach clearance (from East 15th Street, view to the east).



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Plate 25. The LIRR open cut immediately west of the Ocean Avenue clearance (from Ocean Avenue, view to the west).



Plate 26. Profile of the LIRR open cut immediately east of Bedford Avenue clearance (from Bedford Avenue, view to the south).


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Plate 27. The Nostrand Avenue clearance (from Flatbush Avenue, view to the west).



Plate 28. The Flatbush Avenue/Flatbush Avenue Parking Lot clearance (from Brooklyn Avenue, view to the west).



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Plate 29. The Brooklyn Avenue clearance (in distance; from Flatbush Avenue Parking Lot, view to the east).



Plate 30. The Albany Avenue clearance (from west of Albany Avenue, view to the north).



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Plate 31. The Livonia Avenue Foot-Bridge clearances from the LIRR tracks south of Livonia Avenue (view to the north).



Plate 32. The Blake Avenue clearances from the LIRR tracks north of Livonia Avenue (view to the north).



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Plate 33. The Sutter Avenue clearances from the LIRR tracks north of Blake Avenue (view to the north).



Plate 34. The NYCTA tracks and Pitkin Avenue clearances from the LIRR tracks north of Sutter Avenue (view to the north).



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Plate 35. The NYCTA tracks and Glenmore Avenue clearances from the LIRR tracks north of Pitkin Avenue (view to the north).



Plate 36. The NYCTA tracks and Liberty Avenue clearances from the LIRR tracks north of Liberty Avenue (view to the south).



Plate 37. The LIRR tracks at or near original grade in the vicinity of the New York & Atlantic Railroad (left) clearance (view to the north).

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Plate 38. The BMT clearance on the Montauk Branch of the LIRR (from the LIRR tracks at the New York & Atlantic connection, view to the west).



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Plate 39. The Fresh Ponds Road Foot-Bridge clearance (from Fresh Ponds Road, view to the east).



Plate 40. The Overbuilt Parking Lot and Fresh Ponds Road clearances (from Elliot Avenue, view to the east).



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Plate 41. The Elliot Avenue clearance (from the Overbuilt Parking Lot on Fresh Ponds Road, view to the west).



Plate 42. The Collins Avenue/60th Street clearance from the LIRR tracks east of 59th Place (view to the east).



Plate 43. The 59th Place/Andrews Street and Welbilt Stove clearances from the LIRR tracks east of 59th Place (view to the northwest).