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**To:** Starr Whitehouse and the City of Hoboken

**From:** Michael Audin, RPA and Katherine French, PhD

**Info:** Sony David

**Date:** 8/14/17

**Re:** Archaeological Monitoring – Removal of Cobblestone Drive  
Hoboken Southwest Park  
Hoboken, Hudson County, New Jersey  
Langan Project No.: 100497601

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This memorandum presents the results of additional archaeological monitoring of removal of a Belgian Block ('Cobblestone') drive conducted in association with the Southwest Park project in Hoboken, NJ. The Southwest Park project consists of the development of a new municipal park with buried stormwater retention basins located on Block 12, Lots 1-7, 9, and 12-18 in the City of Hoboken, Hudson County, New Jersey (Project Site). Archaeological monitoring for the project is required by the Municipal Finance and Construction Element (MFCE) of the New Jersey Department of Environmental Protection (NJDEP) as part of the New Jersey's State Revolving Fund (SRF). This memorandum has been revised to reflect review comments from NJDEP on August 11, 2017 via email. The original version was dated 6/19/17.

Based on the previous investigations, entitled *Phase IB Archaeological Survey for Proposed Stormwater Retention Park, Block 12; Lots 1-7, 8, 12-18, 57 Harrison Street, Hoboken, Hudson County, New Jersey* (Audin and French 2015) an archaeological monitoring plan was developed for the project site and submitted to MFCE and the New Jersey State Historic Preservation Office (NJHPO) for review and approval, which was granted in an email dated January 27, 2016. Prior archaeological monitoring documented the excavation of resources in the main portion of the new Southwest Park area (Audin 2016). This memorandum documents the removal of the cobblestone drive located to the north of the Southwest Park at Block 12, Lot 9. The cobblestone drive is the final area requiring archaeological monitoring for the Southwest Park project.

## PROJECT DESCRIPTION

The cobblestone drive is located at the north end of Block 12 in Hoboken, NJ in Lot 9 (Figure 1). The short drive connects Paterson Avenue to Harrison Street (Photo 1-3). The drive is approximately 75 feet east to west and a maximum of 30 feet north to south. The entire cobbled area is approximately 125 square feet. A small, triangular grass island is located to the north of the drive and extends to the Harrison/Paterson intersection. The cobblestone drive is separated from the new stormwater storage city park by a row of structures. These include a

# MEMO

Archaeological Monitoring – Removal of Cobblestone Drive  
 Hoboken Southwest Park  
 Hoboken, Hudson County, New Jersey  
 Langan Project No.: 100497601  
 8/14/17- Page 2 of 13



Map Reference: 2015 aerial photograph provided by ArcGIS Online.

 300 Kimball Drive Parsippany, NJ 07054 T: 973.360.4900 F: 973.360.4901 www.langan.com Langan Engineering & Environmental Services, Inc. Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C. Langan International LLC Collectively known as Langan NJ CERTIFICATE OF AUTHORIZATION No. 24CA2799403	Project <b>SOUTHWEST PARK                  BLOCK 12, LOT 9</b>  CITY OF HOBOKEN  HUDSON COUNTY NEW JERSEY	Drawing Title <b>2015 AERIAL                  PHOTOGRAPH</b>	Project No. 100497601 Date 06/5/2017 Scale SEE ABOVE Drawn By KMF	Figure 1
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# MEMO

Archaeological Monitoring – Removal of Cobblestone Drive  
Hoboken Southwest Park  
Hoboken, Hudson County, New Jersey  
Langan Project No.: 100497601  
8/14/17- Page 3 of 13



Photograph 1 – View of cobblestone drive, taken from the west side of Harrison Street looking east.



Photograph 2 – View of cobblestone drive, taken in front of MOLA Iron Works looking northwest towards grass triangle area.

# MEMO



**Photograph 3** – View of cobblestone area taken in front of 63 Paterson Avenue, facing east towards MOLA Iron Works and Paterson Avenue.

three-story residential building (Lot 8), a two-story commercial garage identified as “MOLA Iron Works” (Lot 10) and a two-story residential building (Lot 11). These structures are located on the south side of the cobblestone drive and to the north of the new city park. The project involved the removal of the currently exposed cobblestone driveway. A new 15-foot wide concrete sidewalk is planned paralleling Paterson Avenue. The remainder of the area will retain the Belgian Block cobbles, although they will be removed and reorganized before replacement. The remaining cobblestones removed for the sidewalk expansion are being stored on the main Southwest Park development site and will be repurposed as part of the stormwater retention park’s design.

## PRIOR ARCHAEOLOGICAL SURVEY

Prior archaeological surveys have been conducted at the Project Site, including a Phase IB survey and prior archaeological monitoring in the main area of the Southwest Park development (Audin and French 2015). The Phase IB Survey identified several potential historic resources associated with the nineteenth-century occupation of the site and elevated railroad. This includes a footing associated with the former North Hudson County Elevated Railway, two intact building foundations, and a Belgian block (“cobblestone”) road segment dating to the early-twentieth-

# MEMO

century, all of which will be removed and/or altered during construction for the project. Surface anomalies observed in the paved portion of the south side of the site, within the right-of-way, suggested that a total of 12 footings are present within the project area.

The MFCE determined the historic resources are potentially eligible for listing on the New Jersey (NJRHP) and National Registers of Historic Places (NRHP), and that the proposed project would result in an adverse effect on these resources. Therefore, a monitoring program was designed to further investigate the potential historic resources identified or previously unidentified resources and assess their eligibility for the NJRHP and NRHP or document the remains if not eligible. The Archaeological Monitoring Plan dated December 22, 2015 was submitted to the New Jersey Department of Environmental Protection (NJDEP), Municipal Finance and Construction Element (MFCE) which provided comments in an email dated January 19, 2016 and approved the revised plan in an email dated January 27, 2016.

A team of Langan archaeologists monitored machine excavation to reveal buried archaeological features between June and August 2016. The primary focus of the archaeological monitoring was to record the condition and position of buried remnant brick footings of the late nineteenth-century elevated rail road connecting Jersey City Heights to the ferry terminal on the bank of the Hudson River and to explore potentially sensitive due to their locations in the former back yard areas of late-nineteenth/early-twentieth-century residential structures, including a buried foundation and rainwater cistern

During the archaeological monitoring, a total of 10 brick footings were exposed that can be associated with North Hudson County Elevated Railway, the first elevated railway in the United States. Based on their integrity and being the first elevated railway in the United States, the brick footings were recommended as eligible for inclusion on the National Register of Historic Places as a structure under Criteria A and C. However, the exposed brick footings and the area immediately around them did not possess a significant data potential to provide further information about construction or operation of the elevated railroad and were, therefore, not recommended as eligible under Criterion D. In contrast, the authors did not recommend the building foundations or the cistern for the National Register of Historic Places. The building foundation seems to be common for the buildings built throughout the Tristate area and the excavations did not identify any associated significant artifact deposits or features.

Langan completed an archaeological site form (28-Hd-54) for the brick footings in the event additional footings are encountered during future excavation along the railway footprint. These brick footings have been documented as per the monitoring plan to mitigate the adverse effect. Langan further concludes, that the remainder of the archaeological-APE does not have any artifact concentrations, features or sites that will be adversely effected by the project. Therefore, Langan recommended no further archaeological testing in the main Southwest Park project (Block 12; Lots 1-7, 9).

## METHODOLOGY

The procedure for archaeological monitoring of the excavation of the cobblestone roadway includes close observations of the excavation procedures by experienced archaeologists. Archaeologist Katherine French worked with the sole machine operator during excavation work. The excavator was fit with a bucket with teeth to pull up asphalt, cobblestone and the concrete blocks also identified underlying the cobblestones. This bucket was also used for digging through fill soils.

A specialized excavation strategy is required to maximize visualization of the ground surface during excavation and thereby maximize archaeological recovery. In order to expose buried archaeological features in a systematic fashion, the machine operator is directed to take long, level draws with the bucket, rather than digging down deep in a single location with each pull of the bucket. In locations and depths where a high sensitivity for archaeological materials has been determined, excavation proceeded in 6-inch to 1-foot lifts. The allowable depth of excavation increments was at the discretion of the Langan archaeologist.

Archaeological monitors record the stratigraphy and soils encountered both photographically and through profile sketches. Any artifacts identified are photographed and described in detail. Diagnostic artifacts are bagged and retained for further analysis. The excavation is also fully documented through photographic evidence and notes recorded in a field notebook.

## RESULTS

A Langan archaeologist monitored Belgian Block removal on May 23, 2017. The excavation was conducted by a crew from Flanagan's Construction under the direction of Suburban Consulting Engineers, Inc. Langan monitored cobblestone removal in a 15-foot wide strip that is parallel and adjacent to Paterson Avenue (Figure 2). Belgian Blocks were removed here in order to place two new curbs and to extend a wide concrete sidewalk. The excavator began by stripping off the Belgian Block and piling them for future use. The excavator continued to work, stripping one level at a time loading all other types of material (asphalt, fill soils, concrete) into a truck for off-site deposition. The excavation was the deepest along Paterson Avenue for the placement of a deep concrete curve (from 18 inches to 2 feet below grade). The remainder of the excavation was only 12 to 18 inches below grade.

The trench's stratigraphic profile was recorded at its deepest point (down to 2 feet below current grade) in the northernmost corner of the Paterson Avenue driveway entrance adjacent to the grass triangle area (Figure 3, Photo 4).

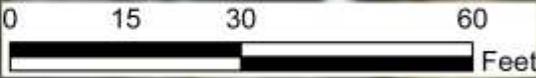
# MEMO

Archaeological Monitoring – Removal of Cobblestone Drive  
 Hoboken Southwest Park  
 Hoboken, Hudson County, New Jersey  
 Langan Project No.: 100497601  
 8/14/17- Page 7 of 13



**Legend**

- Cobblestone Area
- Monitored Excavation for New Sidewalk



Map Reference: 2015 aerial photograph provided by ArcGIS Online

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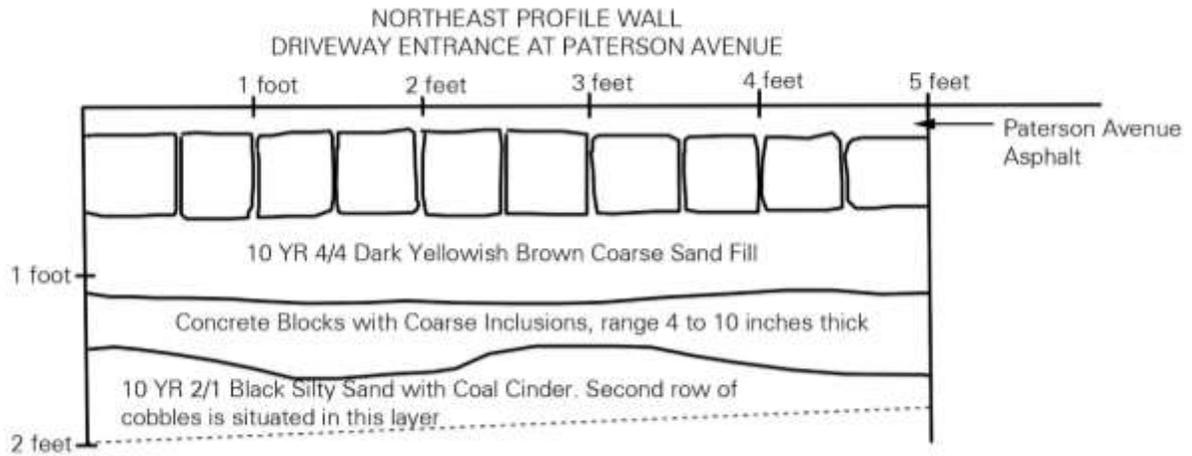


Figure 3 – Northeastern stratigraphic profile of trench located at the driveway entrance underlying Paterson Avenue.



Photograph 4 – View of the trench’s stratigraphic profile adjacent to Paterson Avenue, facing northeast. This profile is drawn schematically in Figure 3.

# MEMO

Along Paterson Avenue, the Belgian Blocks were covered by 2 inches of asphalt. The Belgian Blocks continue under Paterson Avenue, which suggests that the current Paterson Avenue asphalt surface was laid directly over the Belgian Block cobbled surface (Photo 5). The Belgian Blocks measure 6 inches wide by 6 inches deep with lengths of individual blocks ranging from 4 inches to 12 inches (Photo 6). The Belgian Blocks were laid into an approximately 6-inch thick layer of dark yellowish brown (10 YR 4/4) coarse sand fill. The sand fill was placed over a level of poured concrete that ranged from 4 to 10 inches thick. The concrete was lifted up in large blocks during the excavation (Photo 7). The concrete surface overlies a level of black (10 YR 2/1) silty sand fill with high levels of coal and coal cinder. This type of fill was identified in the previous archaeological studies of the main Southwest Park area (Audin and French 2015; Audin 2016).

In the deepest part of the excavation along Paterson Avenue near the grass triangle area, approximately 2 feet below grade, a second level of Belgian Blocks was identified that was laid into the coal cinder fill (Figure 2 and 3). There was no difference between the type of Belgian Block used in this lower layer compared to the upper level of Belgian Block. This second layer was only identified in this very small (approximately 2 feet by 3 feet) area in the trench excavated for the deep concrete curb along Patterson Avenue. This deeper level of Belgian Block was not clearly identifiable in the trench cross-section, and therefore it is unknown whether the lower level of Belgian Blocks continue horizontally either underlying Paterson Avenue or underlying the existing cobbled drive. Due to the limited exposure of this second level of Belgian Block, there are no clear photographic images of this Belgian Block level. Proper photographic documentation would have required excavation beyond what was required for the project at this location and was therefore not advised. This is the deepest planned excavation for the whole area. The remainder of the excavation would only extend to 12 inches below grade, and therefore would not reach the depth of this second level of Belgian Block.

No diagnostic artifacts, artifact concentrations or other archaeological features were identified during the course of archaeological monitoring.

The monitoring identified multiple phases of driveway and road construction and repair. The lowest and earlier level of Belgian Block was only identified in a very limited section (approximately 2 feet by 3 feet) in the northern corner of the Paterson Avenue driveway entrance where the excavation was at its deepest for curb installation. As no diagnostic artifacts were identified associated with these lower Belgian Blocks, it is not possible at this time to date this earlier phase of construction. In addition, the project only included excavation to the 2-foot depth in this one limited area. Langan cannot confirm at this time that this level of Belgian Blocks continues either under Paterson Avenue or under the current cobbled area.

# MEMO



Photograph 5 – Overhead, or plan, view of the eastern edge of the trench showing the Belgian Block cobbles continuing under the asphalt pavement surfacing Paterson Avenue.



Photograph 6 – Overhead view of a single Belgian Block used for the cobbled surface.

# MEMO



Photograph 7 – View of excavator lifting 6-inch concrete level underlying Belgian Block cobbles, taken facing northwest.



Photograph 8 – View of the completed excavation for the 15-foot wide sidewalk with two curbs paralleling Paterson Avenue, facing northwest.

# MEMO

The lower level of Belgian Blocks was both lain into and overlaid by black, coal-cinder rich silty sand fill. These layers were covered by a concrete level that ranged from 4 to 10 inches thick. The concrete was covered by a 6-inch level of dark yellowish brown coarse sand fill. Into the fill was placed the upper, more recent level of Belgian Block that was observable as the exposed cobbled surface. Finally, the pavement of Paterson Avenue included 2 inches of asphalt directly overlying the upper level of Belgian Block cobbles. The upper level of cobbles appears to continue under the Paterson Avenue paved surface.

## CONCLUSIONS AND RECOMMENDATIONS

A Langan archaeologist monitored a 15-foot wide strip of excavation for the removal and replacement of a Belgian Block cobblestone drive with a concrete sidewalk. This included deeper (up to 2 feet below grade) excavation along Paterson Avenue for the installation of a new concrete curb. Excavated Belgian Block cobbles were retained and will be reincorporated into the Southwest Park project and a portion of the original cobbled surface will be replaced with these same Belgian Blocks in a reorganized pattern.

While monitoring the cobblestone driveway excavation, Langan identified multiple phases of road and driveway construction and repair, but did not identify any diagnostic artifacts, artifact concentrations, or non-driveway or roadway related archaeological features. Monitoring confirmed that the extant cobblestone surface is not the earliest phase of driveway construction. There was a level of concrete slab and an earlier level of Belgian Blocks approximately 1 foot and 2 feet, respectively, below grade that predated the currently exposed cobbled surface. Langan confirmed that the level of concrete extended throughout the 15-foot wide area monitored, but could not determine the entire extent of the earlier cobble layer because the necessary excavation for the project only extended to the depth of this level (2 feet below grade) in one very limited area.

Langan does not recommend any further archaeological work for the project as designed. Future development at the site should require archaeological testing or monitoring to further characterize the earlier phase of Belgian Block cobbles that will underlie the new concrete sidewalk and reorganized cobbled surface completed as part of the Southwest Park development project.

## REFERENCES

- Audin, Michael and Katherine French  
2015 *Phase IB Archaeological Survey for Proposed Stormwater Retention Park, Block 12; Lots 1-7, 9, 12-18, Harrison Street, Hoboken, Hudson County, New Jersey*. Report on file with NJ HPO, Trenton, NJ

# MEMO

Archaeological Monitoring – Removal of Cobblestone Drive  
Hoboken Southwest Park  
Hoboken, Hudson County, New Jersey  
Langan Project No.: 100497601  
8/14/17- Page 13 of 13

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2016 *Archaeological Monitoring Report During Excavation for Proposed Stormwater Retention Park, Block 12; Lots 107, 9, 12-18, 57 Harrison Street, Hoboken, Hudson County, New Jersey.* Report on file with NJ HPO, Trenton, NJ.