

Archaeological Assessment

**Sybil's Cave
Frank Sinatra Drive
Hoboken, Hudson County, New Jersey**

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Introduction

Lauren J. Cook, Registered Professional Archaeologist is pleased to present the results of the Phase IA archaeological assessment for the project referenced above. The assessment was requested by the Hoboken Historical Museum to assess whether intact archaeological resources might exist within the area of potential effects for the project. This Phase IA archaeological assessment was conducted by Lauren J. Cook, Registered Professional Archaeologist in accordance with state guidelines (New Jersey State Historic Preservation Office 2002). It is intended to provide information that will Allow the Hoboken Historical Museum to incorporate archaeological research in their planning for the development and interpretation of Sybil's Cave. Background research was conducted at the NJ SHPO, the New Jersey State Museum, the New Jersey State Library in Trenton, NJ, and the Free Library of Philadelphia.

The Area of Potential Effects

The area of potential effects (APE) for the project consists of an artificial grotto excavated into the hillside located on the west side of Frank Sinatra Drive in Hoboken, Hudson County, New Jersey (Figures 1 and 2; Plate 1). The adjacent park area has been graded and planted with shrubs, and is surrounded by a decorative fence (Plate 2). A decorative entrance, similar in scale and style to the historical entrance to the cave, has been built in the park (Plate 3). The area on the hill side above and around the cave consists of exposed bedrock. Several retaining walls above the cave entrance support a portion of the campus of Stevens Institute of Technology (see Plate 1; Plate 4)

A field visit to the cave was conducted on March 12, 2010. The entrance to the cave is 8.83 feet wide at the floor, and 5.5 feet high. Traces of brickwork, probably associated with the entrance arch, were noted at the eastern end of the entrance. The cave itself measures approximately 20 feet by 17 feet (Figure 3). The ceiling arches to a height of 4.6-5.6 feet. Four columns are present near the center of the cave. These appear to be a mix of bedrock that was not excavated when the cave was built, and rough masonry that was cemented or mortared in place (Figure 4). Indistinct graffiti, probably left by cave visitors, is present on the southwest column. There is a carved reservoir, or cistern, approximately 2.4 x 2.6 feet, in the floor between the four columns. This reservoir was reportedly designed to collect groundwater that filters into the cave through cracks in the bedrock, and appears to be permanently filled with water. An arch has been carved into the bedrock above and between the two columns closest to the entrance (Plate 5). This decorative detail echoes the entrance arch that formerly stood outside the cave's entrance. Tool marks are visible there and in other locations within

the cave (Plate 6) The floor of the interior of the cave, to the left and right of the entrance, has up to several feet of soil and rocks piled up (Plates 7 and 8). This material appears to have entered the cave when the entrance was filled.

A geophysical report produced by Black and Veatch indicated that the cave may not be suitable to be opened to the public. The possibility exists that there is ongoing spalling of the cave's ceiling. Further engineering studies were recommended (Cheema and Pehrman 2011). An analysis of the water within the cistern revealed the presence of coliform bacteria in amounts that render it unsafe for drinking, but there is no indication that contact with it constitutes a health risk (Miller 2011; Cheema and Pehrman 2011).

Environmental Setting

The APE stands at an elevation of approximately 10 feet above sea level and is located in the Palisades Sill region of the Piedmont Lowlands Physiographic Province (Figure 5). The Piedmont Lowlands in this area are dominated by the Palisades, a high ridge of north-south trending traprock that forms the western edge of the Hudson River valley. Areas east of the Palisades, such as the present APE, are characterized by Precambrian and Paleozoic metamorphic rocks, principally softer gneiss, schist and limestone that have eroded preferentially, leaving the harder trap-rock as the uplands (Wolfe 1977:252). The APE is located at the foot of the eastern slope of Castle Point, a hill on the campus of Stevens Institute of Technology in Hoboken, and drains to the Hudson River, which is approximately 100 feet east of the APE.

Bedrock in the vicinity of the APE consists of serpentinite of the Manhattan Prong group (**€Zs**). These rocks originated during the Late Proterozoic (Precambrian) and Cambrian eras, approximately 660-550 million years ago (Drake et al 1996). Bedrock in the area is discussed in more detail below. Bedrock is overlain within the APE by late Wisconsinian Rahway Till (**Qr**). Till consists of poorly sorted or unsorted material deposited by glaciers as they receded. In areas underlain by serpentinite, as is the present APE, Rahway till appears as a silty sand to sandy silt till with 5-35 percent pebbles, cobbles, and boulders. Color ranges from reddish yellow to brown to grayish brown to gray. Areas at the foot of the hill are characterized as Holocene tidal marsh and estuarine deposits (**Qm**), but it appears that any such deposits in the area were reworked and subject to extensive historic filling (Stone et al 2002:15-16, 26)

After the retreat of the glaciers, life returned slowly to the denuded landscape (Pielou 1998). Over the 13,000 or so years since the glaciers receded from northern New Jersey, as the environment became warmer and wetter, the predominant vegetation underwent a succession from tundra to pine-spruce forest, to pine forest, and then oak-hemlock, oak-hickory, and finally oak-chestnut-birch-pine (Heusser 1979:220). There is little or no intact forest in Hudson County, but elsewhere in northern New Jersey, similar environments, exhibiting shallow soils over bedrock, are characterized by chestnut oak vegetation communities (Collins and Anderson 1994:94-98).

No detailed soil information is available for locations within Hudson County, New Jersey (Web Soil Survey 2010). A generalized soil map for Essex and Hudson Counties shows the area as wetland soils (Figure 6; USGS 1993), however it is safe to say, that soils within the park adjacent to the APE consist of urban urthodents, composed of fill and made land, as well as deposits that have been reworked and redeposited in the course of landscaping activities on the property. Most deposits within the cave itself appear to have been deposited during filling in the mid-20th century. They clearly qualify as urthodents, on which no natural soil formation has occurred.

Bedrock Geological History

As Sybil's Cave is carved into bedrock, a more detailed discussion of the development of the bedrock geology of the area may be useful in interpreting the cave and its history. Sybil's cave is carved into serpentinite (€Zs), a member of the Manhattan Prong geological series of formations. Understanding its origin requires taking a long view of history to look at events that occurred over more than 600 million years of the Earth's history.

Geologists have determined that the crust of the Earth floats on molten rock, or magma, and that the continents compose thicker accumulations of crust than the oceanic crust that forms the sea floor. Further, it is now understood that the continents are continually but slowly moving in relation to one another. When continents separate and break apart, new oceanic crust is formed in the center of the ocean. This is presently occurring at the *divergent plate margin* in the center of the Atlantic Ocean. When continents collide with one another, the oceanic crust is generally *subducted*, pushed under one continent or another, deep beneath the surface, where it is melted back into

magma and recycled. Subduction usually results in the formation of a deep ocean trench, and a bulge in the adjacent continental crust that forms a mountain range. The process usually ends with the collision of continents, which can form very large mountain ranges indeed, and with the nearly total disappearance of the oceanic crust. In fact this recycling is so complete that, although the continental crust contains rocks that are in some cases well over a billion years old, no present oceanic crust is older than about 180 million years (Maley 2005 37, 40).

Oceanic crust is made up of rapidly cooled fine-grained igneous rocks. Most commonly these are basalt, formed from a type of magma known as *peridotite*, which is rich in silica, magnesium and iron. Under the right conditions, serpentine $[(\text{Mg,Fe})_3\text{Si}_2\text{O}_5(\text{OH})_4]$ forms from the combination of the basaltic minerals olivine and pyroxene, with seawater and extreme temperatures, as part of the oceanic crust at the juncture of separating geological plates. Most serpentinite is recycled as continents collide (American Geological Institute 1976:322; Maley 2005:61-63).

In the late Precambrian Era all of the continental crust on earth was combined into a single large land mass known as the Grenville supercontinent. About 660 million years ago, the Grenville supercontinent began to break up. Rifts opened in the continent, and as the pieces drifted apart, oceans began to form in the spaces between them. One of the edges of continental crust was in the approximate location of the present East Coast of North America. The ocean that formed adjacent to it, in the approximate relative position of the present Atlantic Ocean, is known to geologists as the Iapetus Ocean.

The serpentinite within the APE was formed during the opening of the Iapetus Ocean, which began about 660 million years ago and ended when the continents began to drift back together again, about 550 million years ago. When that occurred, the oceanic crust ruptured in the middle of the Iapetus Ocean. The process of subduction resulted in the formation of a large arc of volcanic islands that separated the Iapetus Ocean into two parts—referred to as the Western Iapetus Ocean and the Eastern Iapetus Ocean. This island arc began to accumulate mass—volcanic flows and pieces of plowed up oceanic crust. The Western Iapetus Ocean continued to close, until about 460 million years ago, during the Ordovician Period, when the island arc collided with North America. The collision created an enormous mountain range the size of the Himalayas

that reached from Newfoundland to Alabama. The event is known as the Taconic Orogeny; the Taconic Mountains in eastern New York are a pale remnant of the range that was formed by the collision. Other remnants are the Green Mountains of Vermont, the Berkshires in Massachusetts, the New Jersey Highlands, and the Manhattan Prong. And also among those remnants are fragments of the Iapetus Ocean floor, the best example of which is the serpentinite that underlies Hudson County, New Jersey, and nearby Staten Island. This serpentinite is naturally exposed on the surface in a few locations, including along the Hoboken waterfront and Staten Island, but occurs in road cuts and excavations on the Cross-Westchester Expressway, near New Rochelle, and on Manhattan Island along 11th Avenue in the West 50s (Isachsen et al 2000:16-18; Schuberth 1968:98-99).

Known Archaeological Sites

A review of published references (Skinner and Schrabisch 1913; Cross 1941) indicated that there are no archaeological sites listed in those sources within a one-mile radius of the APE. A review of files at the New Jersey State Museum (NJSM) indicated that there are no archaeological sites recorded in the site files within one mile of the APE.

Prior Cultural Resource Surveys

Examination of the records of the New Jersey State Historic Preservation Office (NJSHPO) in Trenton indicates that twelve cultural resources surveys have been conducted for projects within 0.5 miles of the APE.

Waterfront-related projects have produced the largest number of projects, beginning with the U.S Army Corps of Engineers drift survey in the early 1980s, which inventoried waterfront resources in the vicinity of the APE (Marshall 1981). A survey conducted in support of planning for New Jersey Transit's ferry operations identified Castle Point as the location of an aboriginal settlement (Hobokan, or Hobokan-hackinge), and indicated that the bluffs along the water front on the point are sensitive for the presence of prehistoric resources, although the area has been much altered in the 19th and 20th centuries (Hunter Research 1992). Waterfront Development Permit activity at the Maxwell House site, north of the APE, led to the identification of a variety of potential resources on that site (Cook and Modica 2003). Archaeological monitoring of demolition and construction on the site recorded a variety of waterfront and railroad-

related resources (Cook 2006). Reports for several Waterfront Development Permit projects are present in the NJSHPO files (Rothe Partnership 1988; Potomac-Hudson Environmental 2007), but it does not appear that these projects considered archaeological resources.

Sewer projects have also resulted in a substantial body of work in the vicinity of the APE. Early district survey work led Herbert Kraft (1979:10) to observe that the Palisades area of the state was virtually devoid of known prehistoric sites. A Phase IB sewer survey did not encounter archaeological resources in the vicinity of the APE (Rutsch and Leo 1979). A Phase IA survey for a combined sewer outfall project on the Hoboken waterfront (Pennington 1996) identified shoreline areas along Castle Point as having potential to contain prehistoric resources. Subsequent monitoring of construction at the H3 and H4 sewer outfalls, south of the APE, determined that the area had been subject to considerable filling, reworking, and disturbance as a result of 19th and 20th century development (Cook 2004).

Two telecommunications projects have been conducted in the vicinity of the APE (Zerbe et al 2002; Carmelich et al 2003). One of these projects is on the property of Stevens Institute of technology (Carmelich et al 2003), but as neither project addressed archaeological resources, it does not add to our understanding of the APE.

National/State Register Files

According to the site files at the NJSHPO no archaeological properties listed on or determined eligible for listing on the National Register of Historic Places (NR) lie within the project area, or within one half mile of the APE. The APE for the project appears to be within the Stevens NR District (NJSHPO opinion 2/28/91). The Hoboken Historical Museum filed a Preliminary Application for Certification of Eligibility with NJSHPO (Foster 2009). Consequently, NJSHPO has rendered an opinion (5/13/09) that Sybil's Cave is eligible for listing on the State and National Registers, as a site important to the history of recreation (Saunders 2009).

Brief Historical Review

It is not clear exactly when Sybil's cave was constructed. Various sources give dates in the early to mid 1830s (Eckler 1976:46). The consensus seems to be that the cave was originally excavated as a component of "Elysian Fields," a private park developed by W.

L. Stevens, who owned the land in the area of the cave. The cave is sometimes held to be an artificial enlargement of a previously existing spring.

There is a possibility that Sybil's cave originated as an industrial operation. One source (Eckler 1976:46) gives the "Castle Point Mine" as an alternate name for the cave. Geological information on the serpentinite of Castle Point describes it as "containing locally abundant magnetite where fresh" (Drake et al 1996). Magnetite is an iron ore, and the Stevens family is known to have had interests in iron mining elsewhere in New Jersey. It would hardly be surprising if they at least prospected the ore on their own property. If the cave were a repurposed mining feature, it might account for the confusion about its original construction date.

In any event, if there was iron ore in the Castle Point mine it was not sufficient to warrant an expansion of the excavation, and the cave became a part of Elysian Fields. In Classical mythology, the Elysian Fields, located at the western ends of the earth, were the part of the underworld reserved for the souls of the virtuous and heroic. While there were at least ten Sybils (or "Sibyls"), the one most closely associated with a cave is likely the Cumaean Sybil, a prophetess who operated the Cumaean Oracle in an artificial cave near Naples, described in Book 6 of the Aeneid:

*A spacious cave, within its farthest part,
Was hew'd and fashion'd by laborious art
Thro' the hill's hollow sides...* (Vergil, Aeneid VI:60-63)

By selecting classical names for his park and attractions, Stevens was utilizing a common vocabulary that would emphasize the pastoral nature of the surroundings and evoke a sense of past that would distinguish Elysian Fields from the city visible across the river.

Elysian Fields was designed as a rural recreation ground, accessible by ferry from Manhattan. The ferry was operated by the Stevens family (Lane 1939:197n). Writer Lydia Maria Child described the area in 1841 as "a nook of Paradise, before Satan entered." At "the beautiful promontory near Sybil's cave...the steep, well wooded bank descended to the broad bright Hudson...the sparkling water peeps between the twining boughs, like light through the rich tracery of Gothic windows; and the cheerful twittering

of birds alone mingles with the measured cadence of the plashing waves" (Child 1845:32, quoted in Srebnick 1995:3-4).

Child reflected on the pastoral qualities of Elysian Fields precisely because the contrast between rural Hoboken and urban New York was brought into focus by the unsolved death of Mary Cecilia Rogers, a young employee of a cigar shop in Manhattan. Rogers left her home on July 25, 1841. On July 28, her body was found floating in the Hudson off of Elysian Fields, north of Sybil's Cave. It appeared that she was the victim of either homicide or a botched abortion, which later evidence indicated may have occurred at "the Nick Moore House," a tavern kept by a Mrs. Frederick Loss, north of Elysian Fields (Srebnick 1995: 15-19, 29-32). The events were the subject of intense speculation in the press for some time. Edgar Allan Poe would take the facts of the story and transfer them to Paris as the subject of his serialized novel, *The Mystery of Marie Roget*, one of the earliest works of detective fiction. Though there was never any evidence that Rogers met her end at, or even near Sybil's cave, the tragedy has since been indelibly associated in the popular mind with the cave.

In addition to Sybil's Cave, or "grotto," the park boasted walking paths along the river and on the highlands of Castle Point (Figure 7), as well as a "pavilion" with a nearby pier (Figure 8). Elysian fields played an important role in the history of American sports. The first baseball game played under organized rules, between the Knickerbocker Baseball Club and the New York Nine, took place there on June 19, 1846. The New York Yacht Club, located near the northern end of Elysian Fields, hosted the America's Cup Race, the first international yachting competition.

There are a number of graphic sources showing Sybil's Cave. The problem is that many of them are not well dated, and many are also derivative, which is to say copied from other sources. Because photographs exist showing the original stone arch that adorned the mouth of the cave, it may be assumed that engravings that show the same configuration are based on sketches that were actually done on site.

An undated representation of the cave and its arch is believed by the Hoboken Historical Museum to date to the period 1842-1850 (Foster 2009). This illustration (Figure 9) shows the bluff of Castle Point, a path along the shore, the cave entrance, and uprights that resemble those that were part of the entrance. The view is to the north. No other structures or evidence of development are shown, with the exception of

the remains of a wharf or breakwater along the shoreline, which is probably intended to emphasize the picturesque qualities of the landscape; such elements are commonly found in European shoreline scenes and seascapes. A second engraving (Figure 10) shows the cave from a similar location. In this view, the entrance arch is complete. To the right (east) of the cave is a two-story building, three bays wide. There are scattered trees in the open area in front of the cave. Three of these support tables, at which patrons sit. The picturesque quality of the landscape is imparted by the ruins of wharves, a fortuitous shipwreck, and the looming Palisades in the distance. According to the Hoboken Historical Museum, this view was published in the magazine *Ladies' Wreath* in 1848. In that case, it is unclear why the title and print information would be in German.

An engraving from *Gleason's Pictorial Magazine*, published on June 19, 1852, is the earliest reliably dated image of the cave and its facilities. The image (Figure 11) shows the cave and its entrance arch, the refreshment building, and tables both built around trees and freestanding. The refreshment concession apparently offered both table service and service inside the building—patrons may be seen through the windows. A stand within the cave was probably where glasses of water from the spring were sold. Several patrons may be seen there. Many of the people in view are strolling along the paths. One notable inaccuracy is the path shown leading northwards up to the top of Castle Point—in reality this path led to the south, beginning at a point behind the viewer.

As the century progressed, increasing development along the Hoboken waterfront whittled away at Elysian Fields. By 1884, an historian could look back on the days when the Elysian Fields and River Walk were “visited by thousands, especially on Sundays,” and note that “now, all is changed. The great increase of population has encroached on the Fields until they have almost disappeared” (Shaw 1884:1207). Most of that development appears to have occurred north of the APE, where areas adjacent to the water were flatter. Castle point remained focused on recreation. Several photographs of the cave and its environs in the 1880s were located. The first photograph--a post-card produced by E.F. Walter, a Hoboken photographer--dated 1880 (Figure 12), shows a number of patrons seated at tables facing the harbor. The refreshment building can barely be seen through the trees and awnings; a sign advertises “Lager Beer.” The cave entrance is not visible at all. There is a series of open frame structures and awnings to the west of the path. There is a row of tables along the water side of the path, with a lamp on a post. The water's edge appears to be

composed of artificial rip-rap, indicating that the surface had been filled out. The view is to the northwest, taken from a pier. The second photograph, also by E.F. Walter, shows the area in 1885 (Figure 13). The layout of tables, and their orientation to the harbor is clear. The view was taken in winter; there is no foliage, and no patrons. The lanterns have been taken in for the season, and their bare poles may be seen along the water's edge. There are no awnings, so the refreshment building and an open frame structure to the northeast of it may be clearly seen. The arch at the entrance of the cave can be barely seen to the left of the refreshment building. The corner of another building may be seen at the far left edge of the view.

In 1897, the Hoboken Manufacturers' Railroad, also known as the Hoboken Shore Road was built along the axis of River Road (now Frank Sinatra Drive). The railroad ran down the center of the street, on street rail, flush with the pavement, and was in use until 1977 (Flagg 2000:126-127). The railroad operated about a mile and a half of track from a junction with the Erie Railroad in Weehawken, south to the Port of New York Authority Pier at First Street in Hoboken, with a yard at Sixth Street, and a car float bridge and associated yard at Eleventh Street, next to the Maxwell House plant. By the 1950s, the railroad operated on two tracks adjacent to the APE (Corps of Engineers 1954:12).

By 1909, even the waterfront at the foot of the point had been wharfed out (Figure 14). Despite that development, and the passage of trains by the cave, the refreshment building still stood, with another frame structure to the south of it. At this point, the views and walks that had attracted earlier patrons cannot have drawn many to the cave. By some point in the 1920s, the cave closed as a commercial enterprise, and the entrance was subsequently filled and the refreshment building and other structures demolished. The entrance arch suffered some damage.

The cave entrance was reopened several times. One such occasion was captured in an undated photograph in the collections of the Hoboken Historical Museum. The photograph (Figure 15), which is probably from the 1920s or 1930s, based on the dress of its subjects, shows the mouth of the cave and the entrance arch. Two men stand in under the arch. The western (left) upright of the arch is relatively intact, while the right upright has been damaged, and its carved facings are gone. The greater part of the roof of the arch is present, though the central finial shown in the engravings is missing. The roof of the arch was clearly anchored to the rock, and did not depend exclusively on the uprights for support. Similar photographs in the Hoboken Historical Museum

collections (not shown here) are dated 1937, and Figure 15 may date to that year. The cave had apparently been "rediscovered" in that year, according to an item in the *Union City Dispatch*, dated December 14, 1937 (Figure 16). Nearly everything stated in the photo caption is incorrect, but the photo shows a group of boys exploring the cave. It is notable that in this photo, the floor of the cave is clear of debris.

Sybil's Cave was open in the early 1940s, when a visitor described it as "a small tunnel littered with serpentine fragments, cans, bottles, and other trash." In 1952, the cave was visited and mapped by John Fisher, a local spelunker who noted that the entrance to the cave was partially blocked by a rockfall (Eckler 1976:46). In the mid 1950s, additional development was noted on the water side of river Road, but no structures were present to the west of the road (Figure 15).

In 1976, the cave was apparently accessible to anyone who took the effort to search for it. "Anyone who is interested in visiting this historical relic can easily find it at the base of the Serpentine outcrop on which Stevens Institute is now located. It is located at the level of a railroad siding between Eighth and Ninth streets" (Eckler 1976:46). The cave was the property of Stevens Institute, and its dimensions were given as 20 feet by 17 feet (Dalton 1976:15). An undated photograph in the collections of the Hoboken Historical Museum shows the cave entrance in its latter days, as simply a hole in the ground (Figure 18). It is evident that considerable fill had been deposited around and over the cave's mouth, some of which is still present on the floor of the cave near its mouth.

Sybil's cave was relocated by Daniel Gans and Robert Foster in 2004--it was briefly opened and then covered again. In 2007, a major exploration and clearing took place (Figure 19). In the course of these explorations, several items, including a 20th-century bottle and a no parking sign were recovered from within the cave. The most significant of these items were several carved pieces of serpentine that were part of the original fabric of the entrance arch. Figure 20 shows the largest of the recovered fragments, and its position in the entrance arch. Note, however that that the fragment is just as likely to be from the right side of the arch, which is missing in the historical photograph.

Archaeological Sensitivity of the APE

The park containing the APE has been subjected to considerable disturbance over its history. Buildings have been constructed and demolished, and the area has been filled

and stripped several times. Most recently, limited excavations took place in order to open the cave in 2007. These excavations were monitored by personnel from RGA, Inc., but there was no evidence in the area monitored, of any intact remains relating to the historic use of the property as a recreational facility. Several fragments of the original entrance arch to the cave were recovered. Since that time, the area has been graded and turned into a park. That construction was not monitored by archaeologists. Although the area is close to the waterfront in an area of documented sensitivity for prehistoric archaeological resources, it is highly unlikely that any intact prehistoric archaeological resources have survived development. It is possible that historic resources such as foundations associated with the refreshment building may exist outside the envelope of recent disturbance, and future subsurface disturbance should entail, at a minimum, archaeological monitoring.

The APE, as defined in this report, consists of the fabric of Sybil's Cave itself, and any associated deposits within the cave. The cave itself is a National Register and State Register eligible historic resource associated with recreational development and tourism in the early 19th century. The cave may also have been associated with early industrial enterprise, iron mining, in the area. The cave shows evidence of construction techniques, including mining and stone-working, and also contains potentially significant graffiti carved into its walls.

There is no potential for prehistoric resources within the cave, as it was constructed during the 19th century. Photographs from 1937 clearly show that there was no significant deposit of soil on the floor of the cave near the mouth. Therefore, the deposits presently on the floor in that area, which may approach several feet in thickness, clearly postdate the 1930s, and are not in themselves considered significant. It is possible, however, that these deposits may contain additional fragments of the entrance arch. Removal of these deposits should entail examination of any sizable fragments of serpentine for any evidence of carving or working, tool-marks, etc. In addition, and deposits directly on the stone floor of the cave should be examined closely to see if there is any material there that lay on the floor and was subsequently buried as the cave mouth was filled.

The cistern or reservoir in the center of the cave appears to be permanently filled with water. There is high potential for resources within the cistern dating from the entire period of the cave's use. Preservation of organic materials, such as bone and wood in

such an environment is expected to be excellent. The Hoboken Historical Museum has been very careful not to disturb any deposits that might exist at the bottom of the cistern. Dewatering and excavation of the cistern should not occur until the Hoboken Museum has engaged the services of a qualified conservator to preserve any material that might be present.

Analysis and Recommendations

A preliminary determination of the likelihood that significant cultural resources occur within any given area is based upon a review of environmental and historical data and a close visual inspection of the subject parcel. In light of available information, it is the professional opinion of Lauren J. Cook, Registered Professional Archaeologist, that portions of the APE for the present project are sensitive for the presence of significant historic archaeological resources. Accordingly, I recommend that further archaeological work be conducted in conjunction with the present project, as detailed below.

It appears that there is potential for significant archaeological resources and deposits in the cistern in the center of the cave. Other deposits within the cave, except for those that may be present directly on the stone floor of the cave, do not appear to be significant. That said, fragments of the stone entrance arch of the cave, constructed during the 1830s, have been recovered from fill elsewhere on the site, and any removal of substantial fill deposits should entail examination of sizable stone fragments to determine whether they show evidence of carving or stone working. These, and any bricks in the fill, should be saved, along with any other artifacts that are present (such as the bucket seen in Figure 4 and Plate 7, above) should be should be saved. Removal of deposits within the cistern should be conducted by qualified archaeological professionals in consultation with qualified archaeological conservators with experience in conservation of waterlogged items. Removal of deposits elsewhere within the cave should be monitored or supervised by a qualified archaeological professional.

Graffiti are evident in places on the walls of the cave. Some of these may date to later periods in the history of the cave, but all of them should be recorded to the extent possible.

A detailed map of the cave should be prepared prior to any additional work. This would be difficult using ordinary cartographic techniques. However, 3D Laser Scanning Technology, which is capable of rapidly processing millions of data points, should

provide a cost-effective and accurate means of mapping the complex interior of the APE, and the Hoboken Historical museum may wish to investigate its use for that purpose. Data gathered from such a survey could be used to generate a 3-dimensional model of the cave, using 3-D printers, that would prove useful in interpreting the site to museum visitors.

Areas in the park area adjacent to the cave entrance are not strictly speaking within the APE for the present project. However, considerable information on the development of the area was gathered during the research and is discussed above. Although considerable development has taken place, and although monitoring of the area conducted by RGA, Inc., did not encounter significant intact archaeological features, it is possible that such features may exist outside the envelope of the work monitored by RGA. Accordingly, the Hoboken Historical Museum and the City of Hoboken may wish to incorporate archaeology in plans for any future work in the vicinity, including work beneath adjacent streets.

Finally, it is recommended that Sybil's Cave be nominated to the National and State Registers of Historic Places (NR and SR). The cave has been determined eligible to the NR as an individual resource, and it is almost certainly eligible as a contributing property to the Stevens Historic District. In addition to the cave's status as an historic site, based on the information above, the nomination should also address Sybil's Cave as an archaeological site, with the potential to contain resources (deposits, graffiti, evidence of stone working and mining methods) informative on the state's recreational history, as well as other aspects of its past. Archaeological resources at the site would be eligible under NR Criterion D, as they "may be likely to yield information important in history or prehistory."

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Annotated Bibliography

Author:	Lauren J. Cook, RPA
Title:	Archaeological Assessment, Sybil's Cave, Frank Sinatra Drive, Hoboken, New Jersey.
Location:	Frank Sinatra Drive, Hoboken, Hudson County, New Jersey
Drainage Basin:	Hudson River, New York Bay, Atlantic Ocean
U.S.G.S. Quadrangle	Weehawken, NJ
Project:	Archaeological assessment of historic cave
Level of Survey:	Phase IA archeological investigation
Cultural Resources:	Archaeological potential identified within Sybil's Cave

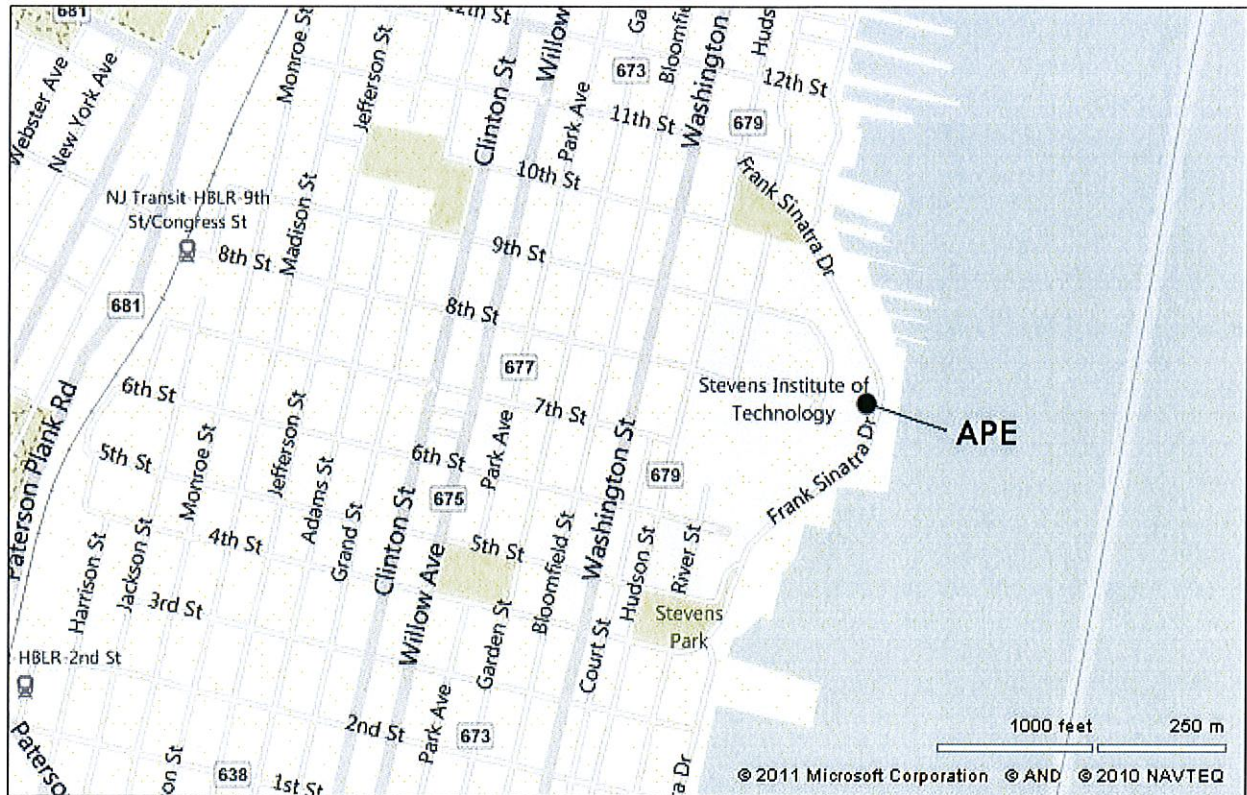


Figure 1: Location of APE (Bing.com)

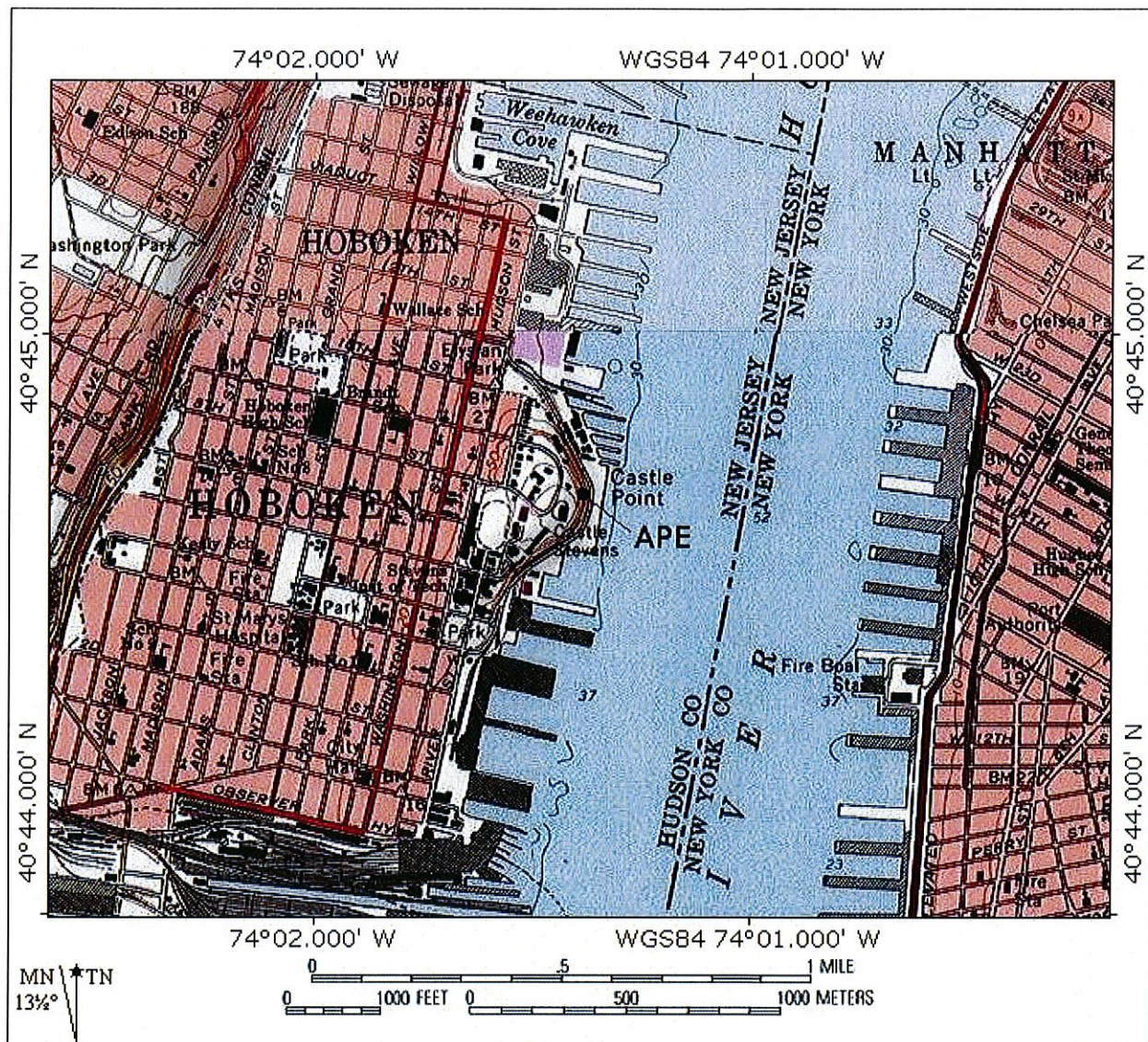


Figure 2: Location of APE (USGS 1981, 1995)

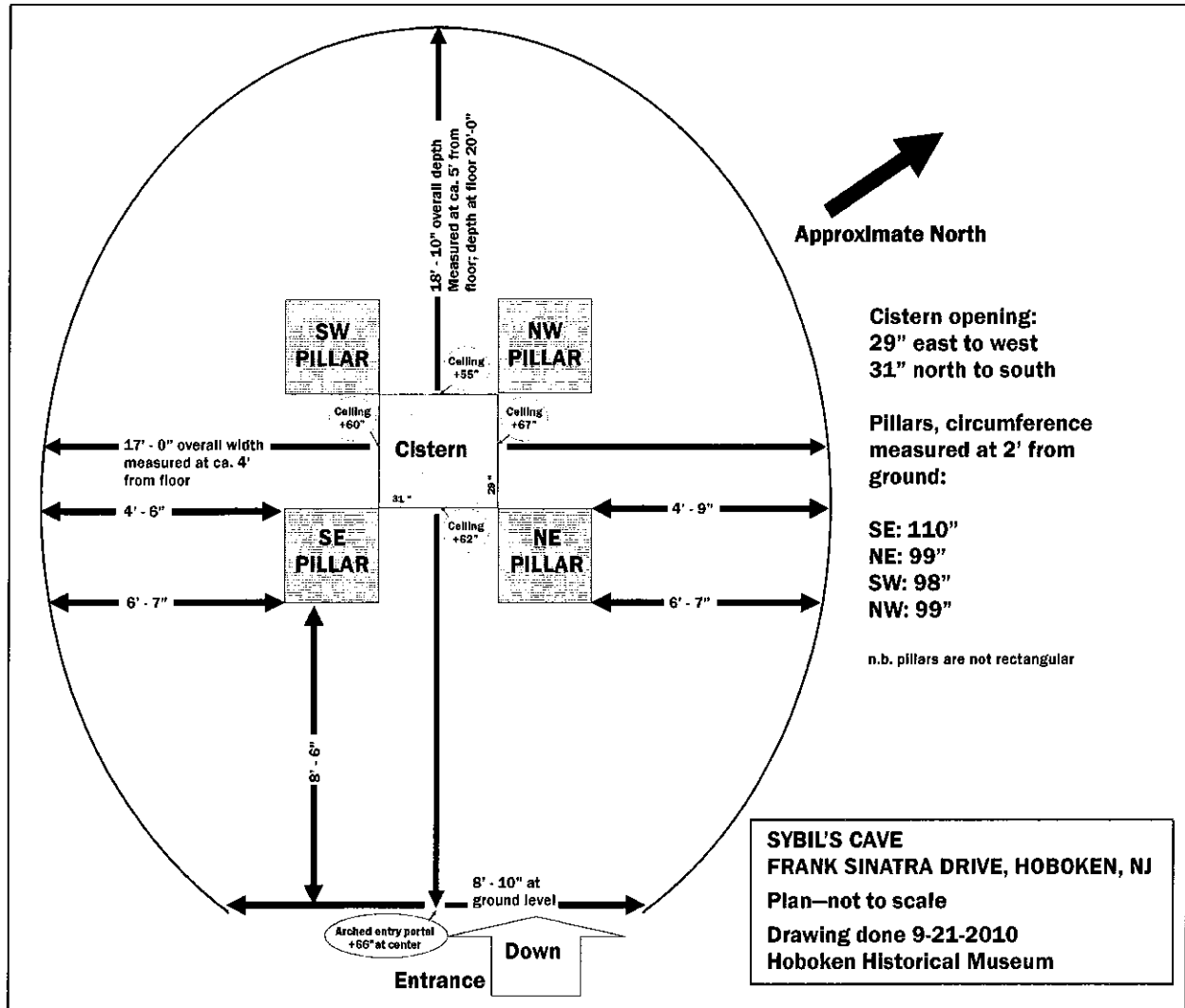


Figure 3: Measured Sketch Map of the Interior of Sybil's Cave
 (Hoboken Historical Museum)



Figure 4: Interior of Sybil's Cave, Looking Northwest (Photo G. Paul Burnett, *New York Times*, June 27, 2007).

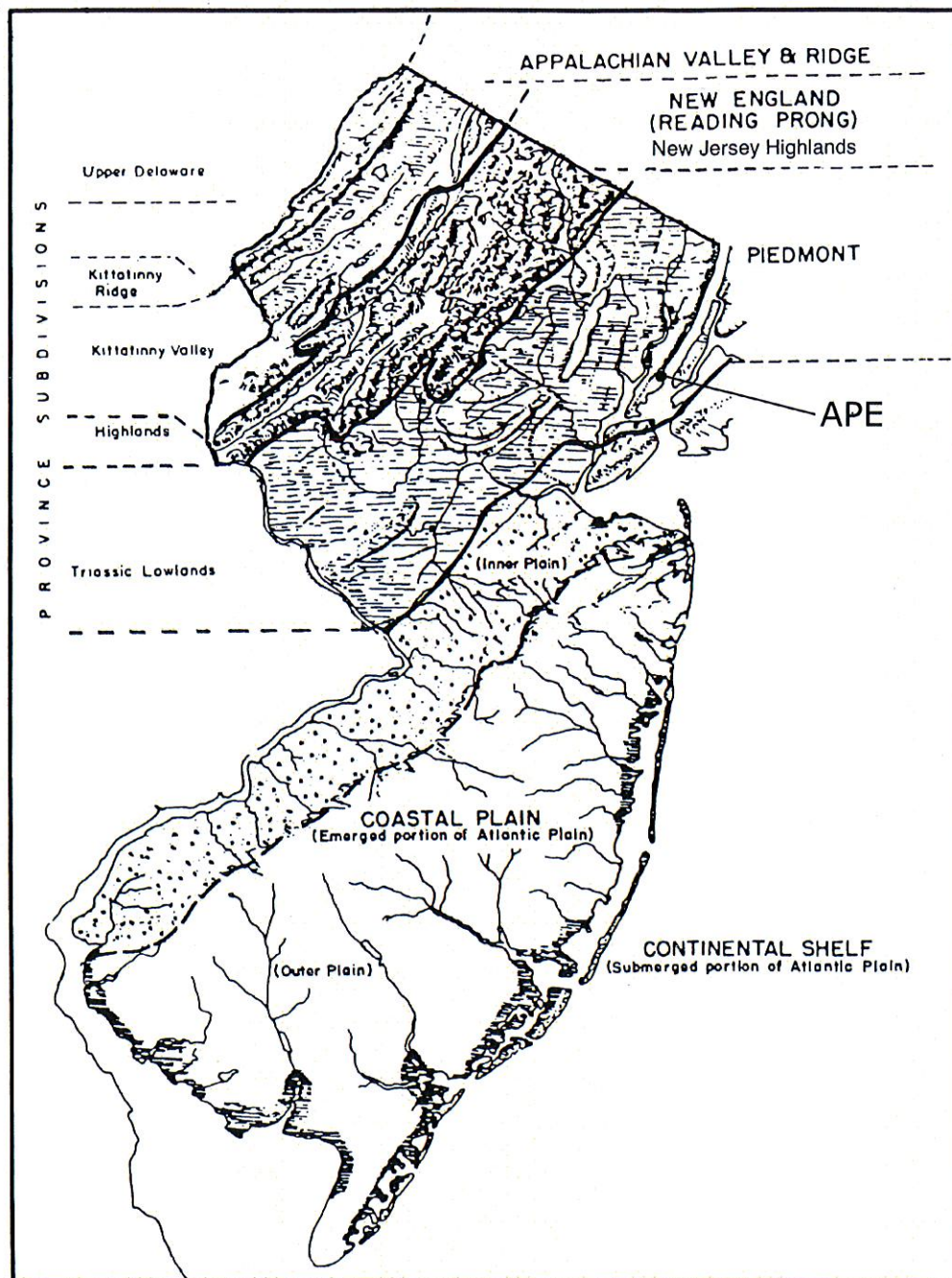


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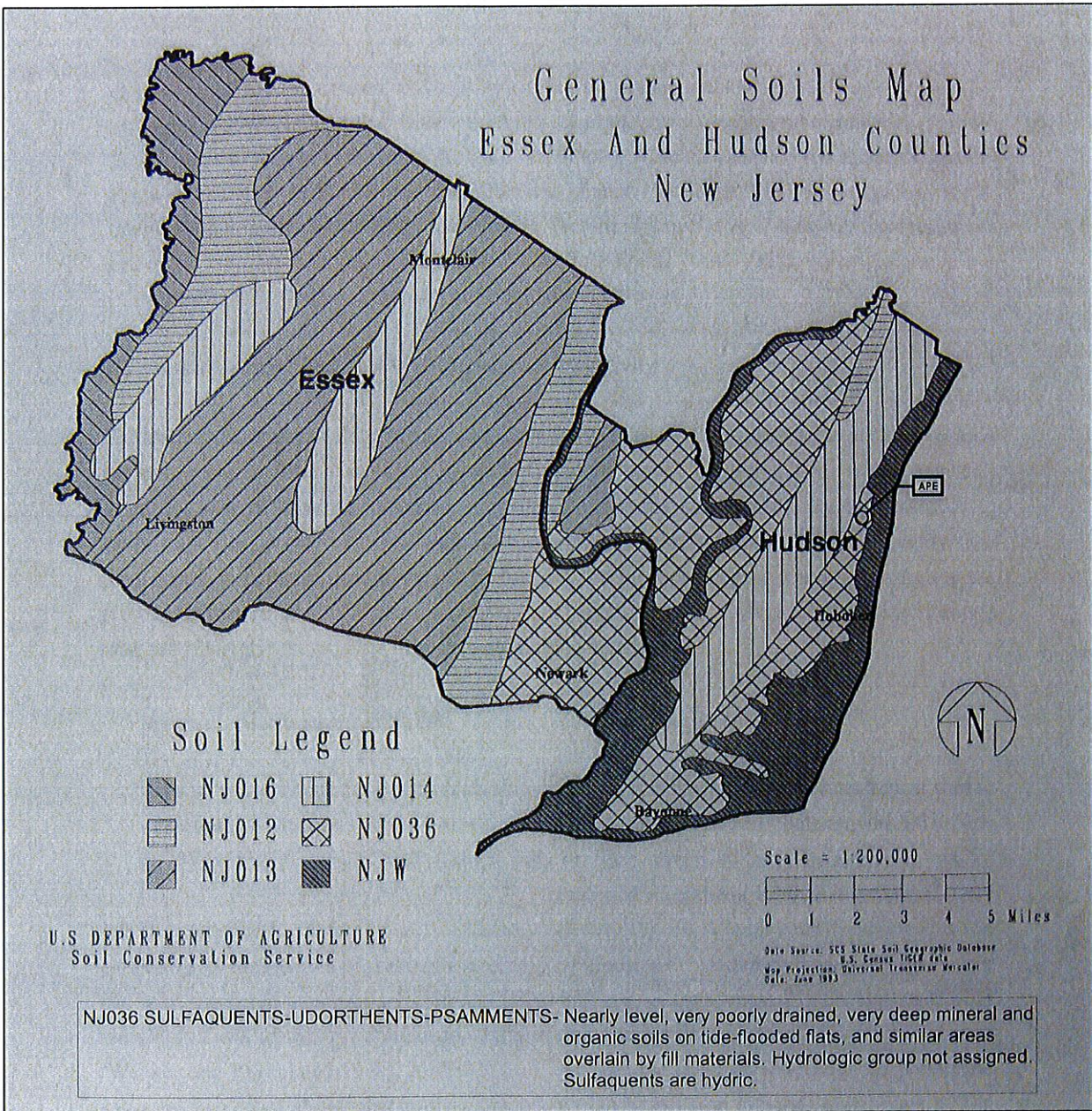
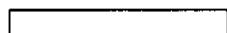
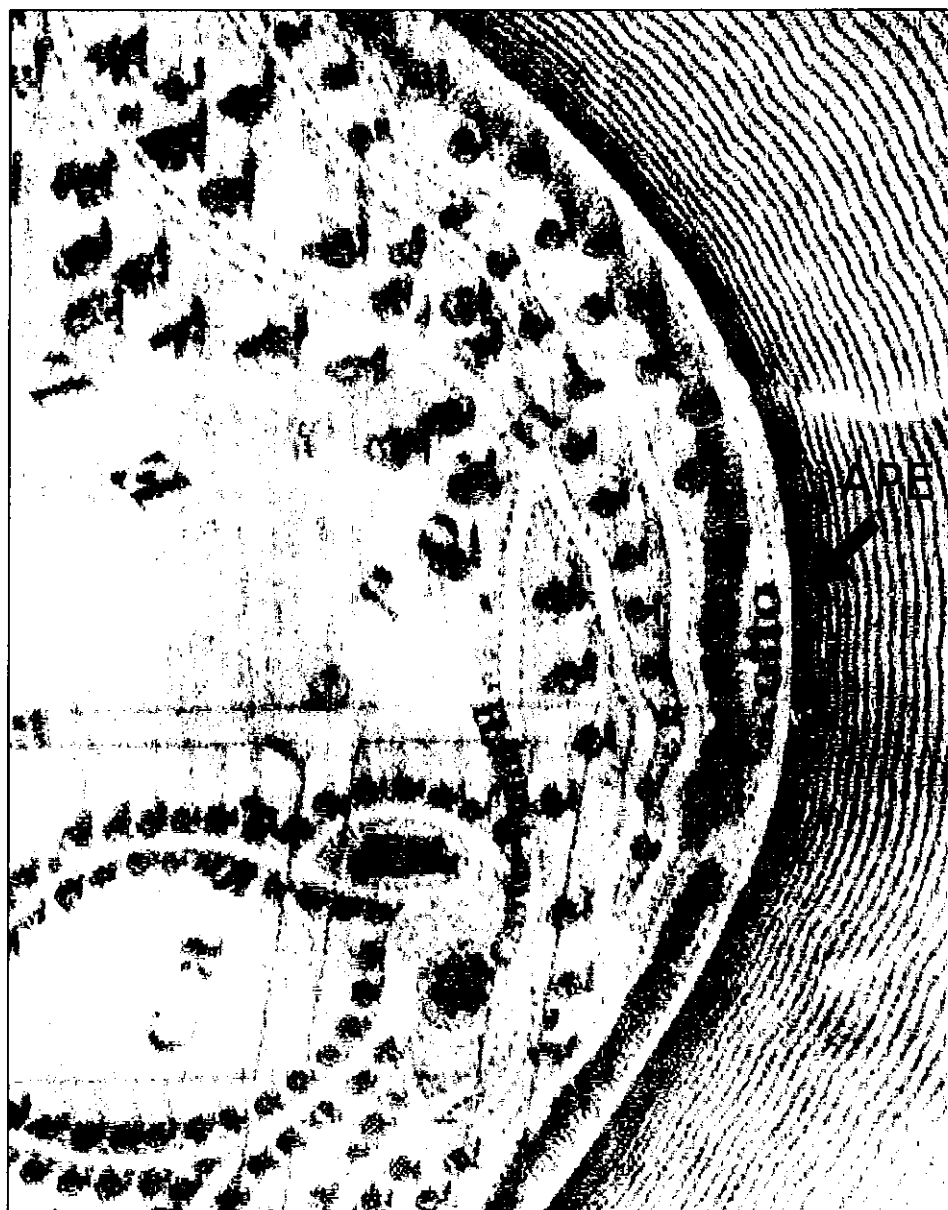


Figure 6: Generalized Soil Map of Hudson County, Showing Location of APE
(USGS 1993)



0.5 Miles



Figure 7: Map showing APE in 1841 (Douglas 1841)

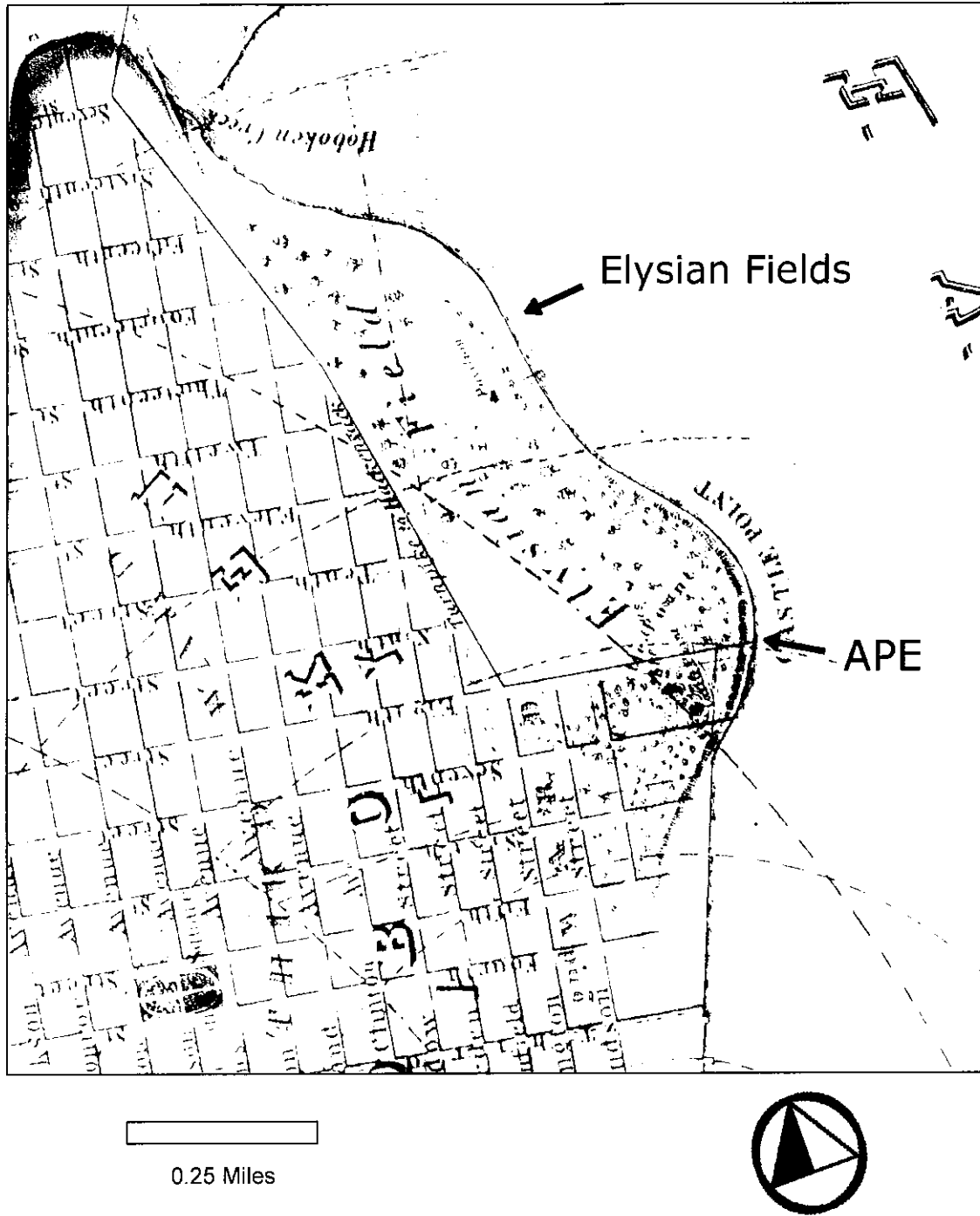


Figure 8: Map showing APE in 1855 (Wood 1855)



Figure 9: Engraving of APE, 1842-1850 (Foster 2009)

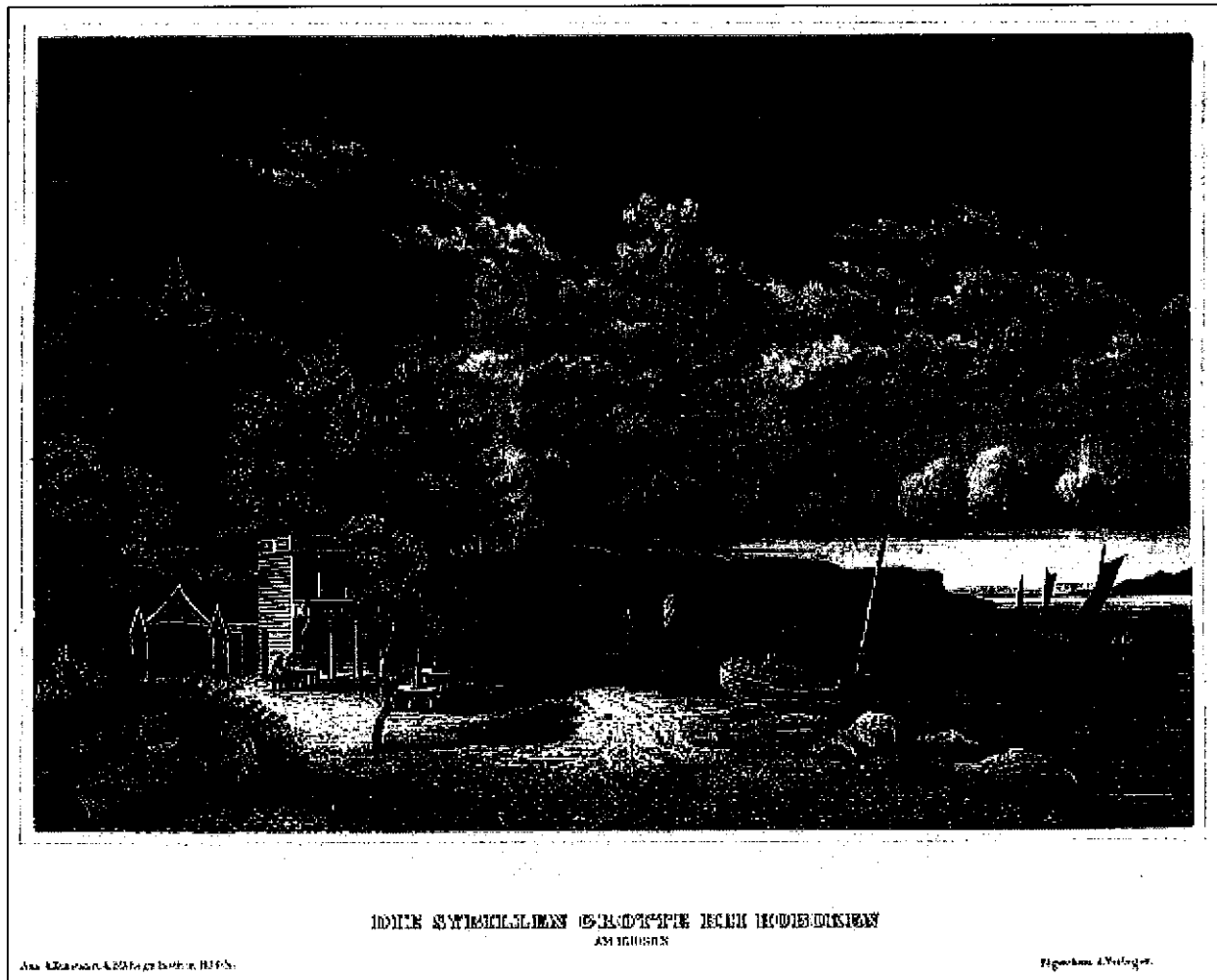


Figure 10: Engraving of APE in 1848 (Foster 2009)



SYBIL'S CAVE, AT HOBOKEN, N. J.

SYBIL'S CAVE, HOBOKEN, N. J.

Hoboken is beautifully situated in New Jersey, on the Hudson River, directly opposite the south end of New York City, and is, together with Staten Island, the quickest resort of the New Yorkers. You take the ferry at the foot of Barclay Street, Canal Street, or Christopher Street, and in five minutes you are in the country. Thousands visit this "paradise of Gotham," daily. The shore is wild and rocky; it is beautifully laid out into walks, promenades and parks, overshadowed by the richest foliage. It has one or two churches, several first-rate hotels, and contains a thousand or more regular inhabitants; it also possesses a very large ship yard. The whole is owned by W. L. Stevens, Esq., to whom belongs the immortality of not only making, but keeping the finest spot adjacent to any city in the world. Sybil's Cave, Hoboken, is one of the principal attractions of the place. No one visits Hoboken without seeing it. It is hewn out and excavated from a solid rock to the depth of thirty feet. In the middle is a spring of pure and sparkling water, thousands of glasses of which are sold daily in the summer, for a penny per glass. The cave was designed by the owner, W. L. Stevens, Esq. In the engraving, Hudson River and Weehawken are seen in the distance. The small building adjoining is a place for refreshments.

Figure 11: Engraving of Sybil's Cave, *Gleason's Pictorial Drawing Room Companion*, June 19, 1852, page 400

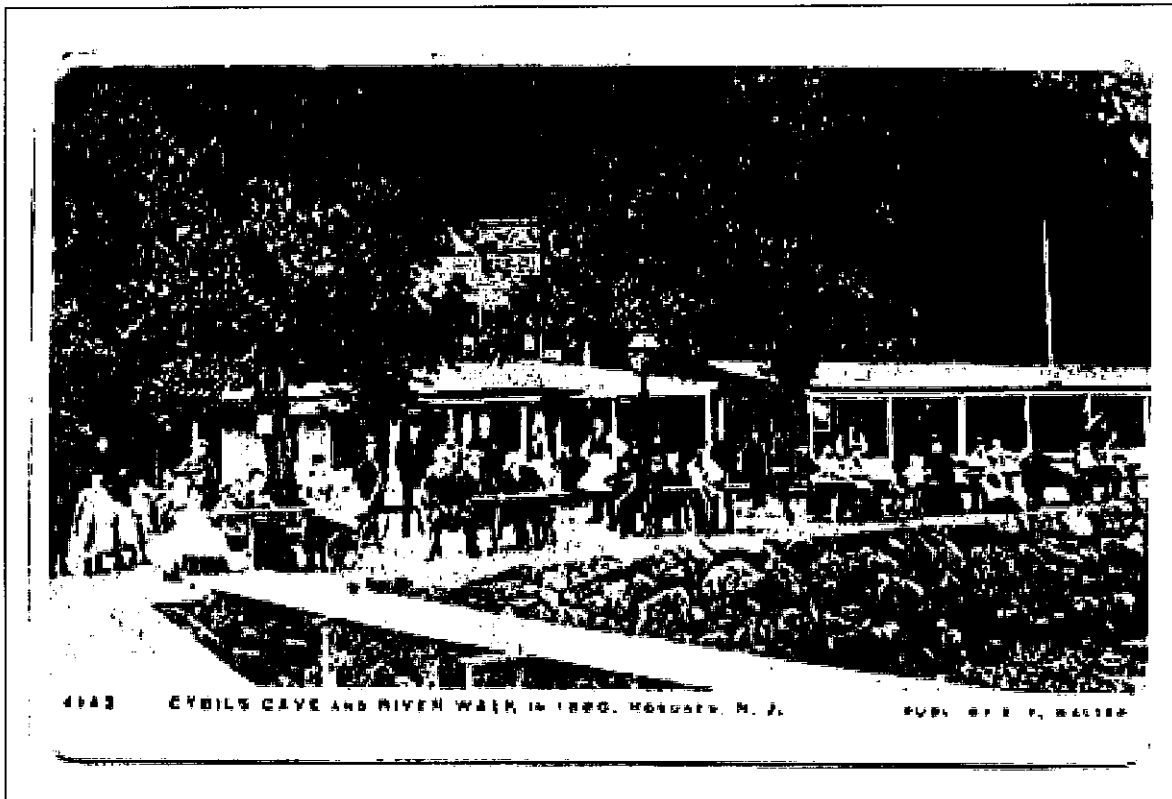
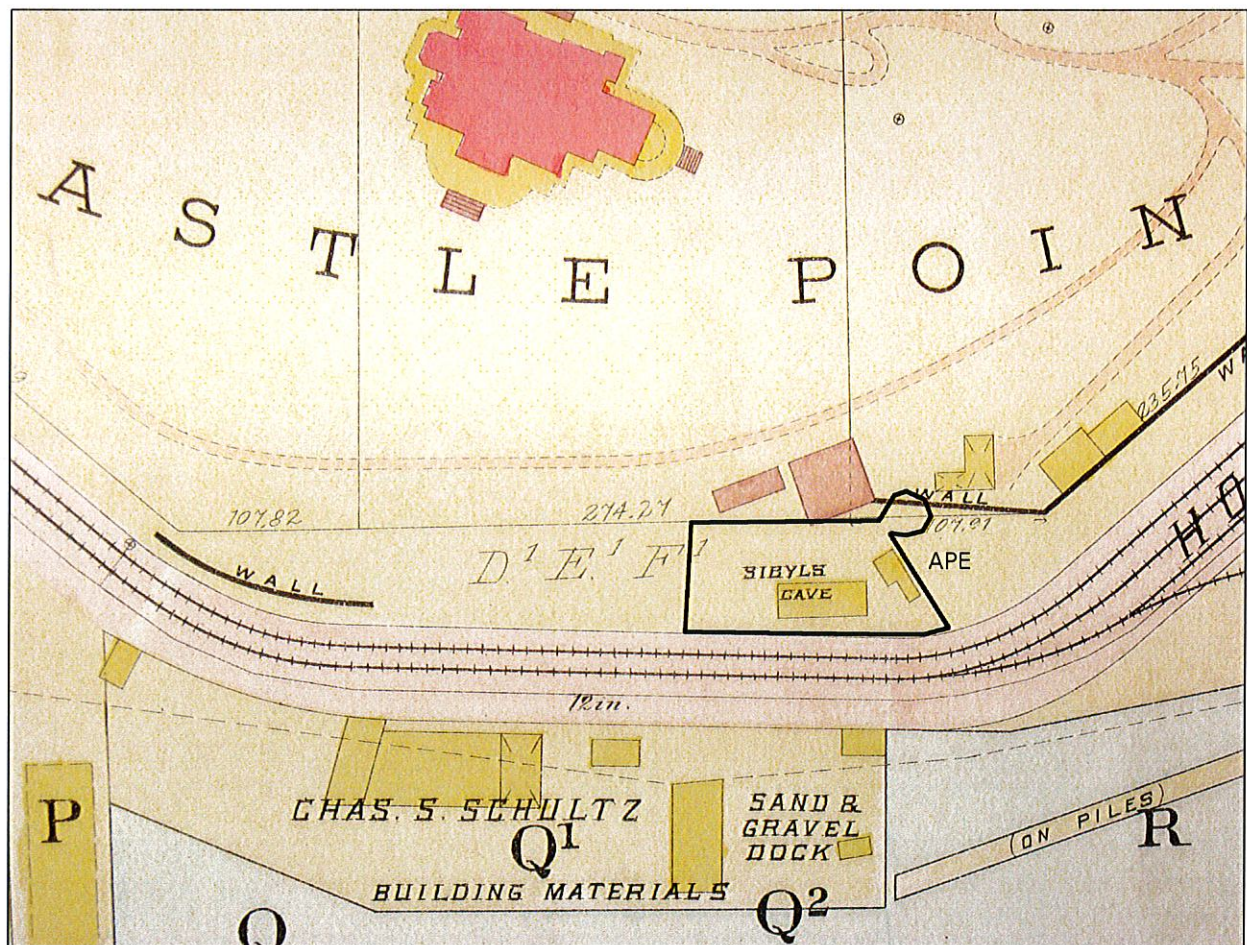


Figure 12: Cybil's Cave and River Walk in 1880, Hoboken, N.J. (Walter 1880)



Figure 13: Photograph of APE in 1885 (Walter 1885)



100 Feet



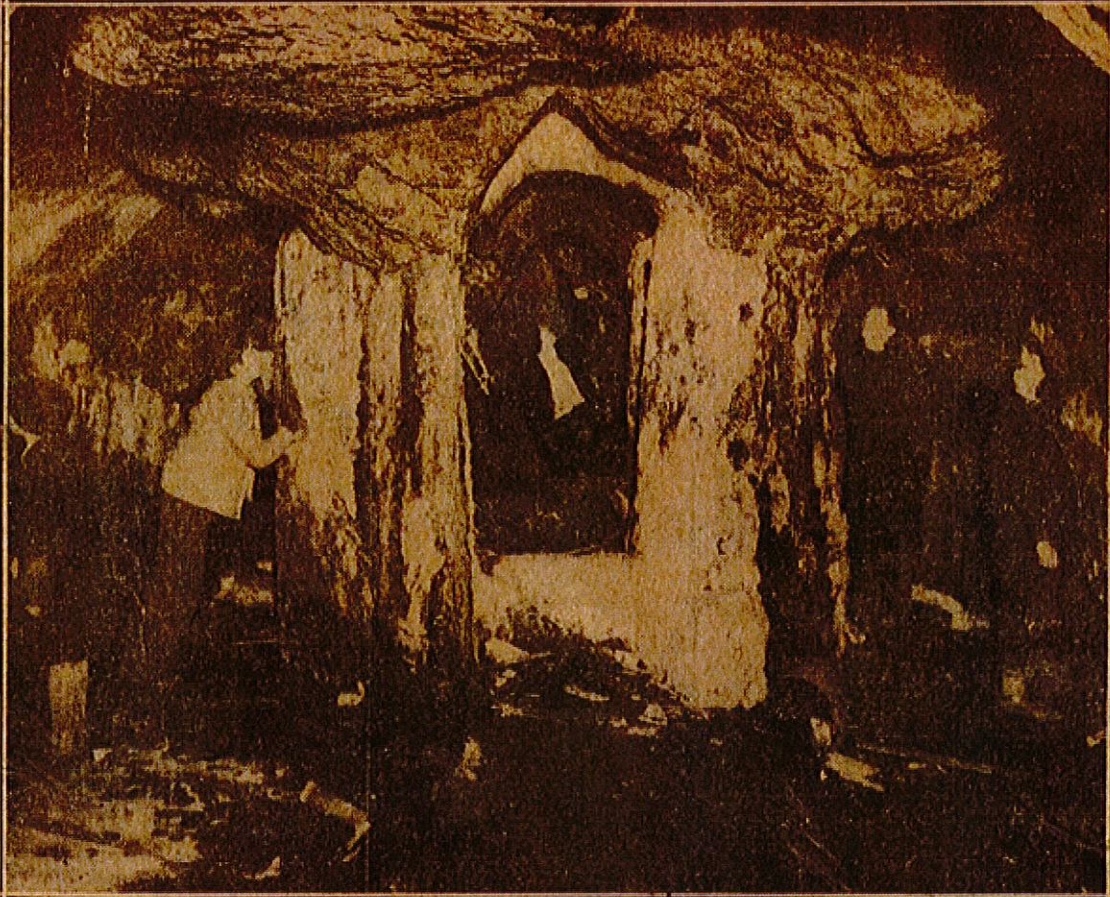
Figure 14: Map of APE in 1909 (Hopkins 1909)



Figure 15: Undated Photograph of Sybil's Cave in the 1920s or 1930s (Foster 2009)

DISPATCH, UNION CITY, N. J., TUESDAY, DECEMBER 14, 1937

Young Explorers 'Rediscover' Sybil's Cave

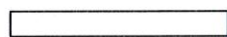
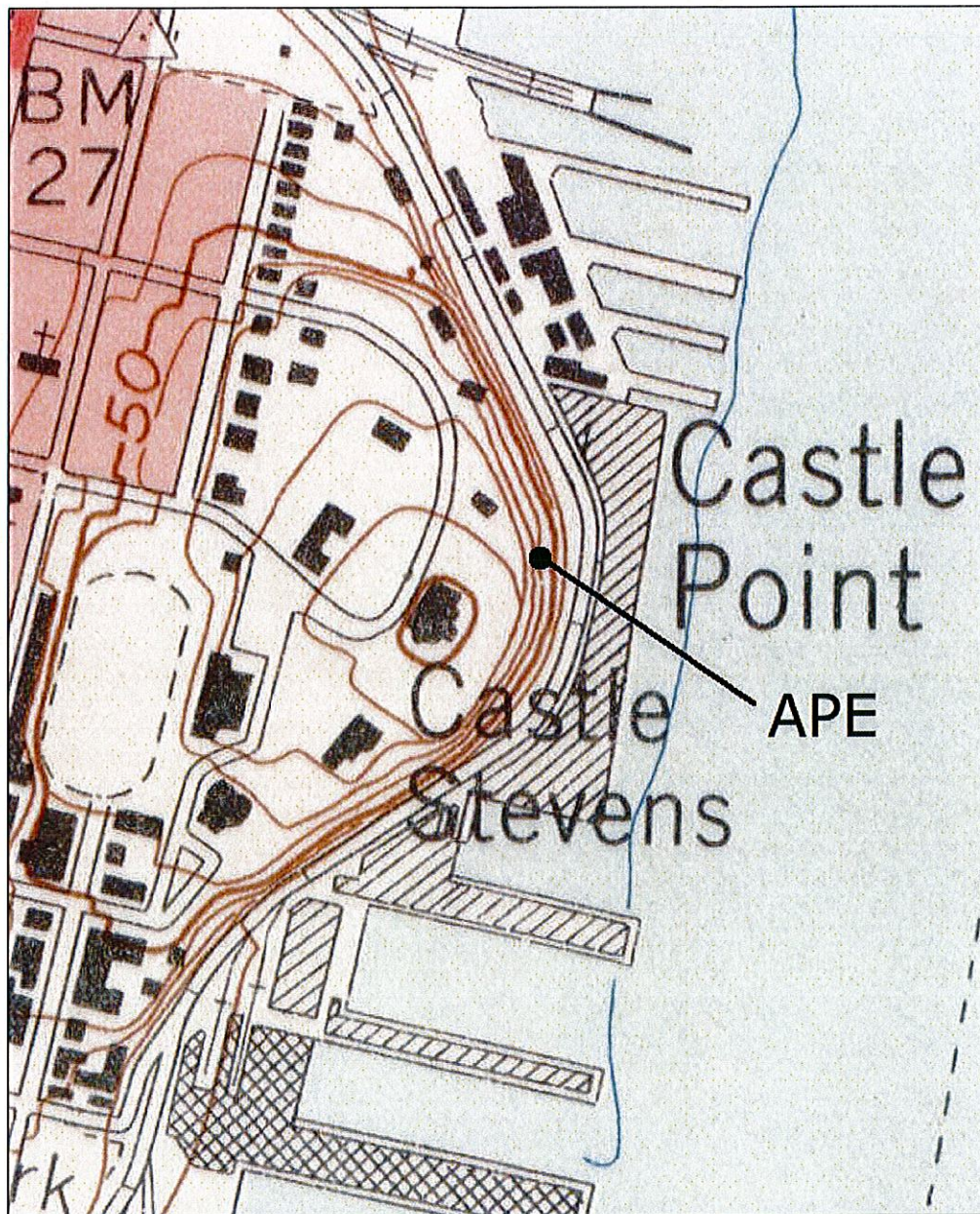


They're flocking to see Sybil's Cave in Hoboken, at foot of Castle Point along River rd., again, just as crowds came to inspect it in the old days. Historically famous as the place where Hendrik Hudson landed when he sailed up the river he discovered 387 years ago, and as the locale of Edgar Allen Poe's poem, "Marie Roget"—based on the finding of the body of Mary Rogers, slain sweetheart of a sailor, in the vicinity—it is again open to public view.

This photo shows boys "exploring" the cave's dark recesses. Many flocked there yesterday after reading of the "reopening" in Hudson Dispatch.

For more than 50 years it was a "private" cave, but the building over its entrance has been demolished. Once it was a popular restaurant and resort, but changing times caused its abandonment.

Figure 16: Photograph of Sybil's Cave in 1937 (*Union City Dispatch*, December 14, 1937)



500 feet



Figure 17: Map showing APE in 1955 (USGS 1955)



Figure 18: Undated Photograph of Sybil's Cave (Hoboken Historical Museum)



Figure 19: Photograph of Sybil's Cave in 2007 (Foster 2009)

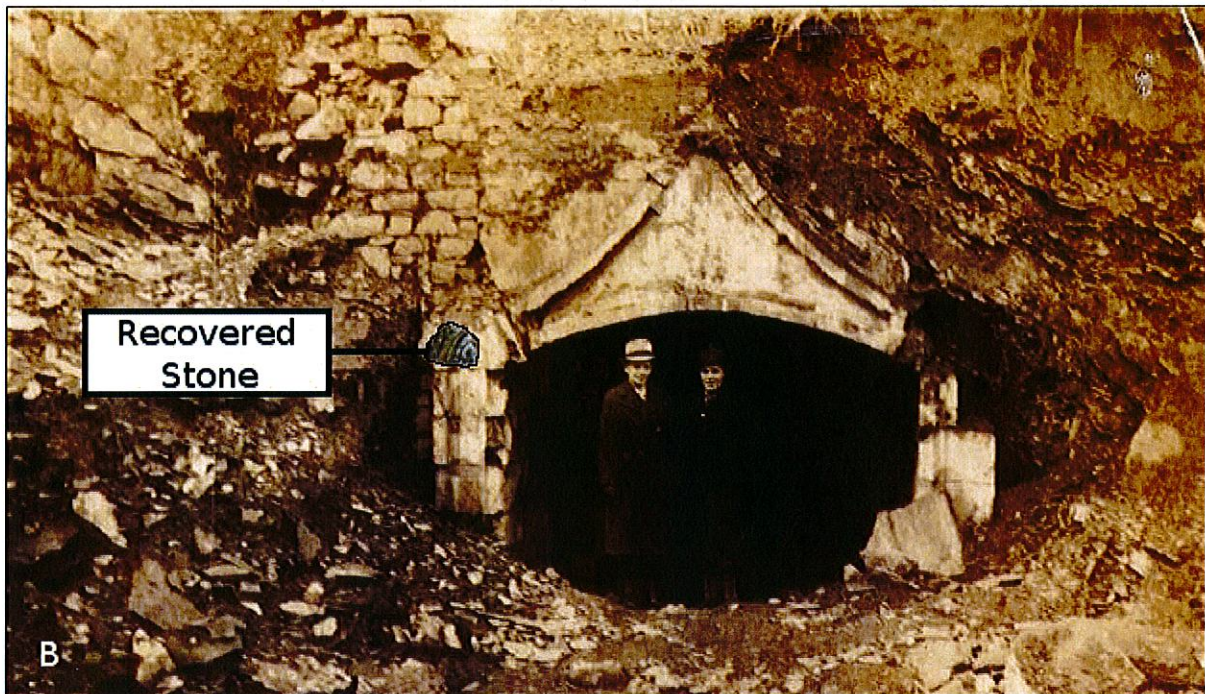


Figure 20: A, Carved Serpentine Fragment Recovered in 2007;
B, Original Location of Recovered Fragment



Plate 1: Overall View of Sybil's Cave, Looking Northwest.
Photo: Lauren J Cook, March 12, 2010



Plate 2: Sybil's Cave, Looking North.
Photo: Lauren J Cook, March 12, 2010



Plate 3: Sybil's Cave Entrance, Looking Northwest.
Photo: Lauren J Cook, March 12, 2010



Plate 4: Wall Above Sybil's Cave, Looking Northwest.
Photo: Lauren J Cook, March 12, 2010



Plate 5: Carved Arch within Cave, Looking Northwest.

Photo: Lauren J Cook, March 12, 2010



Plate 6: Sybil's Cave Looking Southwest from Cistern. Note Tool Marks. Photo: Lauren J Cook, March 12, 2010



Plate 7: Fill within Cave, Looking West from Entrance.
Photo: Lauren J Cook, March 12, 2010



Plate 8: Fill within Cave, Looking North from Entrance.
Photo: Lauren J Cook, March 12, 2010