

# Cultural Resources

## Discovering New Jersey's Transportation Past

A Publication of the New Jersey Department of Transportation

# Digest

Governor Jon S. Corzine

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### >location:

city of trenton  
mercier county

### >resource types

historic transportation canal  
historic factory buildings  
historic archaeology

### >action

archaeological monitoring  
recording  
archival research



City of Trenton  
Mercer County

The *Cultural Resources Digest*, published by the New Jersey Department of Transportation, summarizes information from professional studies in archaeology, history and historic architecture conducted during the development of transportation projects. Visit us at <http://www.state.nj.us/transportation/works/environment/>

## When Potteries Flourished in Trenton

### Transportation was Key



*The Enterprise Pottery seen from the north in 1899. The bottle kilns and most of the buildings are gone, and the canal now flows in a culvert. Part of the building at left survives [Source: Trenton Potteries Database].*

Motorists entering Trenton from the north on busy U.S. Route 1 may catch glimpses of the Delaware and Raritan Canal alongside the highway, flowing placidly and almost imperceptibly northward. Travelers in both directions may remark on the number of factory buildings visible on either side of the road, many several stories tall and brick-solid; most are silent now. There are also large gaps in this post-industrial urban roadscape where other factories once stood. Exit and entrance ramps connect the highway to the network of local streets, and a careful observer can still spot railroad sidings whose tracks cross the city streets and lead into factory yards, even if the factories are no longer there.

This is Trenton, the heart of the American pottery industry from the 1850s until the Great Depression of the 1930s. The Delaware and Raritan Canal, built in the early 1830s, was one of the transportation arteries that fed this surge of industrial expansion, and the canal boats were often loaded with incoming raw clay or finished goods on their way to market. By the time the industry had subsided and the huge bottle kilns were demolished, the ground contained artifacts of this era, both archaeological and environmental. Archaeologists worked near a surviving pottery to bring this aspect of Trenton's past to light before construction of a new exit ramp from U.S. Route 1, and their work contributed to a new database of Trenton potteries.



*An aerial view of the Enterprise Pottery site and the completed exit ramp, 2005. U.S. Route 1 is at lower right. The canal is out of sight beneath the deceleration lane leading to the ramp, and the canal basin was toward the upper right corner (beyond the school buses). The kilns stood beneath the ramp and to the left of it. Parts of the brick building, in the center, are visible in the view on page 1 [Source: Windows Live Local, 2006].*

Construction of a new exit ramp to join southbound U.S. Route 1 to Trenton's local street network was carefully designed to avoid a historic factory building, part of the 19th-century Enterprise Pottery works. Enterprise had been one of the mainstays of the city's pottery industry, taking advantage of the transportation advantages offered by the adjacent Delaware and Raritan Canal (and later a spur of the Pennsylvania Railroad) to receive fuel and raw materials and to ship finished products. After the pottery business closed some buildings had been removed from the site.

The Delaware and Raritan Canal, long a vital transportation artery across central New Jersey, survives for most of its length as a water source and a state park. For a short distance in Trenton it runs out of sight, below ground in a culvert immediately adjacent to U.S. Route 1.

Although the ramp would not affect the surviving Enterprise buildings or the canal, some ground disturbance adjacent to the building was inevitable. Map research and historic photographs showed that at least eight massive bottle kilns had occupied some of the project site (which was completely

within the former Enterprise property). Archaeological testing was warranted to determine if significant remains survived and would be affected by the ramp construction.

However, this was not to be just another archaeological dig. Testing by an environmental health and safety firm found the soil was contaminated with hydrocarbons and radioactive materials, the latter from the manufacture of pottery glazes. Archaeologists were required to work in protective clothing, and the excavations were monitored with an organic vapor monitor and a Geiger counter. As an added safety precaution, no artifacts were removed from the site.

Because of the contaminated soils and the fact that the site was already relatively well documented, a large-scale traditional archaeological data recovery project would not have been cost effective. Instead, archaeologists monitored the initial phases of ground disturbance to map and record any structural features or kiln-related artifacts encountered. Archival research was conducted to place the Enterprise Pottery within the broader context of the Trenton pottery industry and the American Industrial Revolution. As an out-

### ***Historical Archaeology***

Historical archaeology is the study of past human activity in the era of written records. While artifacts can tell the story of past cultures, historical documents (and folklore) combined with archaeological research together yield a rich, more nuanced perspective on the past.

Archaeological data and documents complement each other. For instance, a census return may supply the one-dimensional fact that a mill worker and his family lived in a row house in Paterson in the middle of the 19th century; analysis of the items they discarded in their backyard could reveal what kind of tableware they used, what kinds

and cuts of meats they ate, what patent medicines they used, and what kinds of toys their children played with.

Likewise, historical archaeology can help fill gaps in historical records. While the exploits of political and military leaders are generally well-documented, the lives of the people who raised their food, prepared their meals, and shod their horses are seldom the subjects of glowing biographies. Information recovered archaeologically from the sites of farmsteads, workers' housing, and blacksmith shops, for instance, can help to answer questions about the class, gender and ethnicity of other persons alive at same time as the "famous man."



growth of this research, a database of Trenton potteries was created to gather in one location basic reference and geographic information on the industry so that it could serve as a planning tool for future construction and development projects in Trenton. Finally, a publication, *From Teacups to Toilets: A Century of Industrial Pottery in Trenton, Circa 1850 to 1940* was produced as a guide to assist teachers in introducing students to the pottery industry.

Even though the surviving structures on the site were only minimally affected by the construction, they were recorded to the standards of the Historic American Buildings Survey to document their history and appearance at the time the ramp was constructed.

### **A New Waterway Brings Industry and Prosperity**

Before 1834, travel between Trenton and New Brunswick meant either an overland ordeal or a long boat trip around Cape May and Sandy Hook. But in that year the Delaware and Raritan Canal was completed, allowing freight and people to cross New Jersey quickly and reliably by a direct route: the trip took only two days and was not dependent on dry roads or fair winds.

During the 99 years the canal operated, the mule-drawn canal boats primarily transported coal from Pennsylvania's mines bound for New York. Because of the Civil War and the industrial expansion that followed, the 1860s and '70s were the most prosperous years for the canal; its peak year was 1871 when, even with the annual winter shut-down, 2,990,000 tons of freight were carried (80% of which was coal). It also carried bulk raw materials such as clay and iron to factories along its route and shipped finished goods to the large urban markets accessible from each end.

When the canal opened there was optimism about passenger service as well, but after two years this was discontinued due to faster, four-season competition from railroads.

After the 1871 peak canal traffic declined steadily. In 1893 the canal operated at a loss and was never profitable again. The waterway struggled on for 40 more years, but after the

#### ***New Jersey Canals***

Two major transportation canals profoundly affected New Jersey's history. Both were built in the 1830s, following the lead of New York State's Erie Canal.

The Delaware and Raritan Canal joined the two rivers for which it is named, allowing freight to travel quickly between Philadelphia and New York. Not incidentally, communities along its route gained access to raw materials and urban markets. It was partly for this reason that bulk industries such as iron and pottery manufacturing prospered in Trenton.

The Morris Canal crossed northern New Jersey from Phillipsburg on the Delaware to Newark (later extended to the Hudson River at Jersey City). Its principal freight was coal from Pennsylvania to stoke the iron forges of Morris County and furnaces in the greater New York City area. But the Morris Canal is perhaps more famous for its inclined planes, marine railways driven by turbines powered by falling canal water, that carried fully-loaded canal boats up and down the hills it traversed.

Ultimately canals were put out of business by railroads which were faster and did not freeze over in winter. The Morris Canal was drained in the early 20th century but the Delaware and Raritan Canal is largely intact. Today it is a heavily-used state park and a source of drinking water.

winter shutdown at the end of 1932 it did not reopen in the spring of 1933. In 1937 its owner, the Pennsylvania Railroad, turned it over to the state. Today it is a source of drinking water and, for most of its length, a heavily-used state park.

As built, the main canal was 44 miles long from Bordentown on the Delaware River to the Raritan River connection at New Brunswick. Water was (and is) supplied by a 22-mile-long feeder canal running from Raven Rock, on the Delaware, to the high point of the main canal at Trenton. Fourteen locks overcame the 115 feet of elevation change in the course of the 44 miles, and several of the locks survive.

The canal enabled the industrial growth of Trenton, New Brunswick, and numerous smaller communities along its course, and encouraged the spread of urban influences into rural central New Jersey. The feeder canal also played an important role, helping to supply factories on the eastern seaboard with coal from northeastern Pennsylvania.

The success of the canal stimulated rapid industrial growth in both Trenton and New Brunswick and in the hinterland through which it passed. Trenton industries—such as iron and steel and ceramics—used the canal for its intended pur-

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*Water from the Delaware River entered the Delaware and Raritan Canal Feeder at Raven Rock (upper left). It supplied the main canal at Trenton, its highest point, then flowed downstream through locks southward to Bordentown on the Delaware and northeastward to New Brunswick the Raritan River [Source: Veit, p. 59].*



pose: coal, iron, clay, feldspar, flint, building stone and other raw materials arrived in the heart of the city by canal boat, and finished metal and ceramic products were shipped out. New Brunswick industries, by contrast, additionally used the canal as a power source.

The canal also had a marked effect on the rural areas between the two terminal cities. Materials brought into the countryside by the canal included coal, lumber, fertilizers and all manner of manufactured goods, while the farmers used the canal to ship agricultural products to urban markets. Villages along the canal route, such as Rocky Hill, Griggstown, Blackwells Mills and Millstone, experienced commercial expansion and some industrial growth. A number of new industries sprang up at key locations, notably around canal basins (where boats could tie up out of the main channel for loading and unloading) and where roads crossed the canal. Among these new canal-side settlements were Bakers Basin, Port Mercer and Princeton Basin.

In Trenton, the canal contributed directly to the growth of the section of the city then known as Millham. The city began to expand northward in this area in the 1850s, as developers bought up and subdivided its large estates. The expansion was influenced not only by the canal but also by the nearby Camden and Amboy and Belvidere Delaware Railroads. Between 1850 and 1890 a series of industrial plants— notably potteries, pottery-related industries and metalworking facilities—were established along this transportation corridor, along with accompanying residential and commercial

development in adjacent areas. By 1890, the area was fully built up and physically a part of urban Trenton.

There was one major industrial pottery, the factory of William Young and Sons (also known later as the Excelsior Porcelain Works of the Willets Manufacturing Company) north of the junction of the main canal and the Feeder by the mid-1850s. The company produced Queensware, white-ware and hardware trimmings. A decade or so later, the North Trenton segment of the main canal was home to the Phillips Firebrick Works; Moore's Pottery (manufacturers of white and cream-colored wares, later the Anchor Pottery and the Stangl works); C.S. Cook's East Trenton Pottery Company (later the Imperial Porcelain Works), where white granite, cream-colored and decorated wares and stone porcelain were made; and the American Crockery Company, makers of bisque and white granite wares. Canal basins were a noticeable feature of these pottery works.

The tracks of the Camden and Amboy Railroad ran along the eastern side of the canal, through Trenton's Coalport section, so factories on that side were served by the railroad rather than the canal. However, there was no shortage of potteries on the eastern side. By the late 19th century the Etruria Pottery Works, Coxon & Company (later the Empire Pottery) and the Mercer Pottery Company were all in existence here.

Industrial pottery in Trenton reached its zenith between 1890 and the Depression years of the 1930s. This period saw, among others, the Greenwood China Company, the New

Jersey Tile Company and the Star Porcelain Company arise on the eastern side of the canal, the latter a maker of electrical porcelain. In 1892 five leading sanitary ware pottery concerns—the Crescent, Delaware, Empire, Equitable and Enterprise—formed a conglomerate known as the Trenton Potteries Company. On both sides of the canal gigantic bottle kilns spewed the black smoke of prosperity skyward.

From the 1930s to the present, industrial activity along the canal has declined considerably and the character of the neighborhood changed. The canal ceased shipments in 1933, and the railroad similarly decreased in importance. In the 1950s a section of U.S. Route 1 known locally as the Trenton Freeway was constructed alongside the canal; as part of that project the waterway was encased in a culvert for about a half-mile, essentially disappearing from the cityscape. The pottery industry became a victim of Midwestern competition, a strike in the 1920s, and the nationwide industrial Depression, all exacerbated by a decline in Americans' use of ceramic tableware. By the end of the Depression Trenton was no longer the country's foremost pottery center, and by the middle of the 20th century only the Star Porcelain Company was still in operation. The result was a somewhat desolate urban landscape of under-utilized buildings and vacant land lining the highway, with the once-aortic canal nowhere in sight.

*The Enterprise Pottery enjoyed a long and distinguished career as one of Trenton's foremost industrial concerns.*

concern, was involved in numerous real estate and industrial ventures in the city, many of them centering on the pottery industry. Brian, a native of Longton, Staffordshire, England, had been trained as an apprentice potter in England and moved to the United States in 1870. His and his sons' expertise were vital to the success of the Enterprise Pottery and other potteries with which they were involved, including the Keystone Pottery Company, the Elite Pottery Company and the Brian Pottery Company.

The Enterprise Pottery enjoyed a long and distinguished career as one of Trenton's foremost industrial concerns. It was reputedly the first pottery in the United States devoted entirely to the manufacture of sanitary earthenware, and from early on, manufactured a wide range of items, such as earthenware closets, druggists' vitrified ware, plumbers' earthenware, stationary washstand basins and decorated toilet ware.

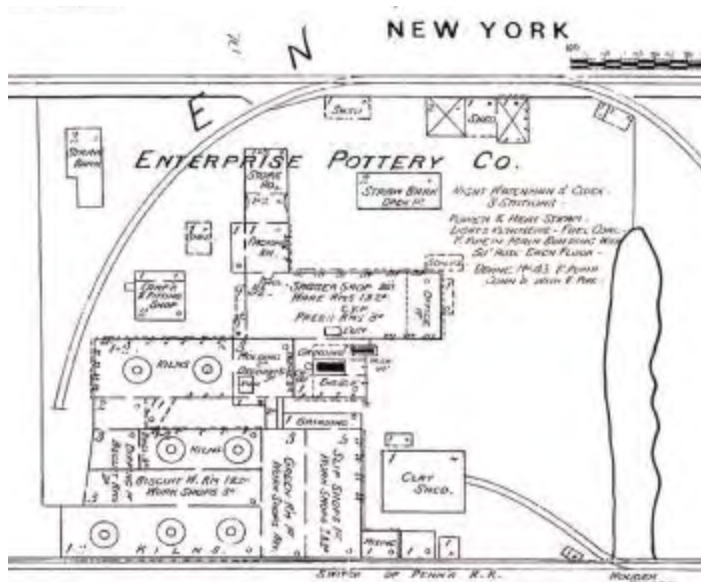
The company purchased the land for its plant on January 1, 1881. Comparison of historic maps with physical evidence suggests the site underwent a major reconstruction in the 1880s, after which the property included a three-story building (with elevator) housing a sagger shop in the basement, a first-floor office, ware rooms on the first and second floors and press rooms on the third floor. To this were attached a three-story molding and decorating building, a one-story engine house and grinding room, three-story structures con-

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The history of the Enterprise Pottery, on the property of which the exit ramp was to be constructed, begins in 1873, when the Enterprise Land Company was formed and purchased 228 acres for the purpose of subdivision and development.

Sometime between 1866 and 1873 a canal basin had been built near the site of the present Enterprise Pottery building, and the Phillips Firebrick Works was established. Firebricks were made here until 1880; the works produced 350,000 bricks in its final year (at which time it was known as the Trenton Fire Brick Company).

In 1880 the Enterprise Pottery Company was established as a partnership of Charles Skirm, Richard Brian, William Umpleby and George Knowles. Skirm, the president of the

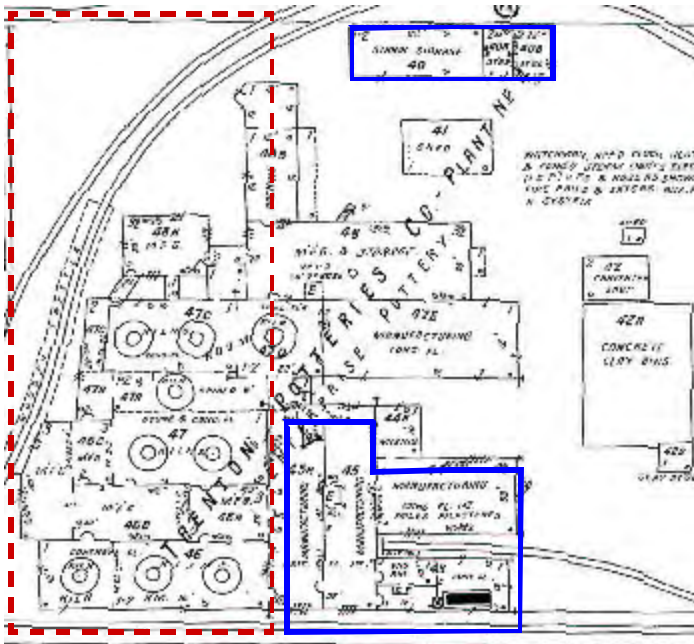


*The Enterprise Pottery in 1890. Bottle kilns are shown as circles. The Delaware and Raritan Canal is at the bottom and the factory's canal basin is at right [Source: Sanborn Map Company].*



taining slip shops, work shops, green room, and dipping and biscuit rooms. Seven bottle kilns were in three two-story wings. Two detached buildings held straw for packaging, and a one-story clay shed was served by a railroad siding. The siding crossed the mouth of the old canal basin on a wooden bridge.

In the first quarter of the 20th century the complex expanded again. By 1927 another kiln had been added, new concrete clay bins were built over the filled-in basin, and another story had been added to the principal workshop building.



By 1927 the pottery had reached its zenith. For comparison to the photo on page 2 the surviving buildings are outlined in blue. The exit ramp was built within the red dotted lines [Source: Sanborn Map Company].

The plant apparently closed in the 1930s, shortly after the demise of the canal that had brought life to the site 70 years earlier. In 1941 it was sold to a wholesale supply company and in 1971 to a moving and storage company, owner at the time of the ramp project.

## Archaeology in a Contaminated Environment

In its full extent, the proposed highway project included a 12-foot wide deceleration lane along southbound U.S. Route 1, a right-hand curve, and 300 feet of 22-foot-wide roadway terminating at New York Avenue opposite the end of Spruce Street. Because of the significant role that the Enterprise Pottery played in Trenton's rise to prominence in the

American pottery industry, and because it is the only one of the Trenton Potteries Company plants to survive in any substantive form, the ramp was designed to avoid the buildings that remain on the site. However, construction activities would necessarily disturb the ground—formerly part of the pottery complex—to a depth of approximately two feet. Further investigation within the area to be disturbed was warranted.

Comparison of the construction plans with historic maps showed that the ramp would traverse the locations of four or five kilns, workshops, a dipping room, and possibly deposits where wasters, kiln furniture and other manufacturing debris might survive. A ground-penetrating radar survey identified the locations of five of the kilns and foundation walls that approximately corresponded to structures shown on fire insurance maps. Based on this information and archival research and features visible at the surface, researchers concluded that considerable and substantial remains of the Enterprise Pottery were likely to survive, especially from the period circa 1890 through 1930 when the plant was operating at its peak. Therefore, subsurface investigations were in order.

Because of the potential presence of subsurface hazards—hydrocarbons and radioactive materials used in the manufacture of pottery glazes—contact with the soil had to be minimized. Archaeological investigation in this instance was therefore limited to monitoring the excavation of pits and trenches opened for other purposes, such as geotechnical and environmental testing. OSHA-certified archaeologists were required to use protective clothing (discarded after each continuous episode of work use) and air purifying respirators.

Ten test pits and six trenches, all excavated by backhoe, were monitored. Archaeological work consisted of recording the stratigraphy of side walls with measurements, photographs and sketches. Some excavations produced quantities of kiln debris and wasters; these were photographed but as an added precaution no artifacts were removed from the site. The cumbersome protective clothing was found to greatly complicate and slow the work, making even a simple task like focusing a camera far more difficult than usual.

Although it was now known that there were subsurface remains on the site, the contaminated soils and the challenges they presented to archaeology would seriously impede a traditional data recovery project. The archaeolog-

ical information that would be lost to construction would have to be offset by some other means, which ultimately took the form of four different but complementary mitigative approaches. First, the surviving buildings were recorded to the standards of the Historic American Buildings Survey and the resulting photographs and written information deposited in the Library of Congress. Second, archaeological monitoring was conducted during construction, much in the same fashion as in the earlier excavations. Third, a teachers' guide to the pottery industry entitled *From Teacups to Toilets: A Century of Industrial Pottery in Trenton, Circa 1850 to 1940* was produced to introduce students from the fourth through eighth grades to Trenton's industrial accomplishments and offer a link to the city's not-so-distant past. The guide contains sections on the rise and fall of the industry, the process of pottery manufacture, entrepreneurs and workers, and products. It also contains a glossary, suggested activities for students, a limited bibliography and maps illustrating pottery locations, the movement of raw materials and final products, and pottery-related places to visit. Illustrations of potteries, workers, owners and products, primarily from historic photographs and engravings, have been incorporated throughout the booklet. The guide is available to teachers free of charge from the New Jersey Department of Transportation.

Finally, a database of Trenton potteries was created to collect and organize information on the dizzying array of factories, potters, companies (and the various names by which they were known), and products that called Trenton home.

### ***HABS Documentation***

The National Park Service, through the Historic American Buildings Survey (HABS), sets standards for the recording of significant historic buildings. Documentation which meets these standards is known as "HABS documentation." Depending on the importance and complexity of the building (or group of buildings), recording may include written information based on historical research, large-format photography, sketch plans and/or measured drawings.

Buildings are documented to preserve a record of their history and appearance when demolition is likely. In other cases, recording is done to increase the scholarly value of the HABS collection (housed in the Library of Congress and available to the public).

The HABS collection and its companion archive, the Historic American Engineering Record (HAER) comprise one of the largest archives of their kind in the world.

More information on the standards and the collections is available through <http://www.cr.nps.gov/habshaer/>. The collections are accessible at <http://lcweb2.loc.gov/ammem/hhhtml/>.

Intended as both a planning tool and a research aid, and spanning the years 1850 to 1940, the database contains over 100 entries for industrial pottery manufacturing sites in Trenton. Much of the database's information was derived from primary sources available at the Trenton Public Library, where archival materials such as historic maps, photographs, industrial censuses, tax records, and city directories were consulted. Database entries contain information on pottery locations, years in operation, owners, and products. Reference information, including historic maps and city directory entries, is also included for each pottery. Scanned images of historic maps, photographs and engravings, (some of which appear in these pages), makers' marks, and advertisements have also been incorporated into the database.



*This photograph, looking across the Delaware and Raritan Canal from the Coalport rail yards, was taken about 1910 and shows the Enterprise Pottery and its environs. Enterprise is at left center, with three bottle kilns immediately adjacent to the canal [Source: Trentoniana Collection, Trenton Free Public Library].*



<b>Project:</b>	U.S. Route 1 New York Avenue Off-Ramp
<b>Location:</b>	Trenton, Mercer County
<b>Date:</b>	1995
<b>Consultants:</b>	Hunter Research, Inc.; C.W. Zink & Co.; John Milner and Associates, Inc.

### ***For More Information...***

*From Teacups to Toilets: A Century of Industrial Pottery in Trenton, Circa 1850 to 1940.*

Goldberg, David. *Potteries: The Story of Trenton's Ceramic Industry*. The Trenton Museum Society, 1998.

Historic American Engineering Record (Library of Congress), “Enterprise Pottery, 650 New York Avenue, Trenton, Mercer County, NJ” (<http://hdl.loc.gov/loc.pnp/hhh.nj1585>).

Madrigal, Patricia A. and Richard W. Hunter, “Mitigating Effects on an Industrial Pottery.” CRM vol. 21 no. 9 (<http://crm.cr.nps.gov/archive/21-9/21-9-8.pdf>)

Stern, Marc Jeffrey. *The Pottery Industry of Trenton: A Skilled Trade in Transition, 1850-1929*. Rutgers University Press, New Brunswick, New Jersey, 1994.

The Trenton Potteries Database. On file, NJDOT.

Veit, Richard F. *The Old Canals of New Jersey*. New Jersey Geographical Press, Little Falls, 1963.

*Additional information on transportation projects and historic preservation is available from the Division of Environmental Resources, New Jersey Department of Transportation (<http://www.state.nj.us/transportation/works/environment/overview.htm>), the Federal Highway Administration (<http://www.fhwa.dot.gov/environment/archaeology/index.htm>), the New Jersey Historic Preservation Office (<http://www.state.nj.us/dep/hpo/2protection/njrreview.htm>), and the Advisory Council on Historic Preservation (<http://www.achp.gov/work106.html>).*

