



Style Guidelines for the Intermodal Ferry Transportation Center South Amboy, Middlesex County, New Jersey

Prepared for:

City of South Amboy
Middlesex County, New Jersey

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Introduction

The Style Guidelines are a collection of design concepts which offer general design recommendations for the development of the South Amboy Intermodal Ferry Transportation Center. This document is meant to highlight the significant historical elements and events of the Camden & Amboy Railroad (C&ARR) that shaped not only this site, but the history of rail transport as we know it. Design concepts have been derived from the site's rich history as a railroad, which began in 1831. These themes are incorporated into the design discussion for the site's future improvements. The Intermodal Ferry site improvements are mentioned in the context of the overall South Amboy waterfront redevelopment, a redevelopment that will highlight and rejuvenate the locality's history and water front assets.

As the first railroad in New Jersey, The C&ARR pioneered innovations in transportation, including rail structure design and steam engine operation; the railroad is listed on the National Register of Historic Places for its importance in the history of transportation. The industrial innovator, John Stevens, with the help of his sons, pioneered advances in steam transportation on water and land, beyond any of his contemporaries.

During the early nineteenth century, America was a young and growing country with demands for the development of faster means of transportation in order to secure its success at home and abroad. South Amboy was the eastern terminus of the Camden Amboy line where passengers transferred from train, to ferry, to New York City. The decline of passenger service began in the mid-nineteenth century and the site transitioned to an intense hub for the shipping of goods, largely coal. This use continued until 1962 but largely subsided after the devastating explosion of 1950, damaging most of the structures on site.

The C&ARR provided an efficient and profitable means for transporting passengers and goods between the two booming cities of Philadelphia and New York. The C&ARR laid the foundation for the remainder of the site's history at the South Amboy terminal. C&ARR is revered for its contributions to American history and is a testament to man's ingenuity. It is imperative the remaining pieces of this history are assembled and drawn from, inspirationally, to illustrate the prominence they held and story they tell. The spirit of the Camden & Amboy Railroad will live on by interpreting and implementing the design guidance outlined in this report and needs to be applied to the development of the South Amboy Intermodal Ferry Terminal.

Elements of Significance

For the purposes of this document, the significant elements of the site are broken in to three time periods: the Camden & Amboy Railroad period (1831-1871), the Coal Docks period (1871-1950) and the Pennsylvania Railroad Electrification period (1938). Each era's characteristics are defined and directly related to the use of the site during the identified period. A brief history for each category is provided for context, a more complete history of the site is has been prepared by Hunter Research in an archeological report (need exact reference). The site has gone through many changes over the past two centuries and many of the artifacts, from all three time periods, have been destroyed or removed from the site. Locating and preserving the remaining artifacts identified in this document and the Hunter Research Archeological reports is critical for their survival and reuse in the final design.

1. Camden & Amboy Railroad Period– (1831-1871)

Completed in 1831, Camden & Amboy Railroad (C&ARR) was the first railroad in New Jersey and one of the first in the United States. The line ran from Camden to South Amboy and quickly became an essential mode of transit between the major cities of Philadelphia, PA and New York, NY. Originally, stage coaches transported passengers along the route; until the John Bull, an imported steam engine from England, began steam engine service in 1833. Passengers were ferried from Philadelphia across the Delaware River to Camden, carried by train and/or stage coach to the port of South Amboy and then ferried across the Raritan Bay to New York City. The C&ARR expanded its service in the subsequent years to include numerous train lines running throughout New Jersey and New York.

The original site has been rearranged and altered many times throughout its history as a rail yard, for this reason, very few of the original site elements have remained intact.

1.1. Site Orientation

The site orientation is the one element, that has changed little over the last century and a half and is the **most significant feature remaining today**. The function of moving passengers and cargo efficiently to the water's edge, to their final destination in New York, dictated the site's configuration. The strong southwest/northeast alignment directed all traffic towards the water's edge. Furthermore, all the tracks and buildings on the site related to this axial layout and final connection with the water.

Design Guidelines:

- Retain the strong southwest to northeast axis when preparing the site plan. This shall be the primary element maintained in siting of all new buildings, parking, land forms, planting, etc. The visitor needs to be visually guided by this configuration and follow it to the water's edge.

1.2. Structures

All of the original above ground buildings and structures have been razed. Some remnants of foundations exist below grade; their extent is indicated in the archeological research report prepared by Hunter Research (list source). Their findings confirm the strong southwest northeast orientation of the buildings.

The locomotive house- A locomotive house was a significant feature of the site located in the same general area throughout its history (1831-1950). As seen on the map, the locomotive house was centrally located and respected the southwest northeast orientation of the tracks leading to the water's edge.

Design Guidelines:

- Maintain the southwest northeast orientation for all new structures.
- To signify the significance of the locomotive house, a new building should be located centrally on the site, in the general area of the original locomotive house.
- Inspiration for the building should be drawn from other locomotive houses similar in style and scale of the time period.
- The entry drive could be routed through the new building creating a portal . This

will allow visitors to enjoy the long vista to the water's edge before turning into the parking area. The building will visually give balance to the mass and scale of the new ferry terminal at the water's edge.



Hunter Research map highlighted with location and entrance road.

- From the perspective of the overall waterfront redevelopment, a new building offers an opportunity to provide retail/office space for neighboring residential development, ferry commuters and visitors.

1.3. Railroad Bed

Railroad transport in America was a burgeoning method of transportation at the time of the rail yard's inception. Numerous technologies related to rail transit were developed and evolved during this time period largely due to the efforts of John Stevens, an engineer, lawyer and inventor. Stevens engineered many solutions and standards in the 1830's that promoted railroad construction for decades and are still relevant today.

Stone Sleepers-

Large stones were the original rail supports for the Camden & Amboy Railroad. The stones were laid in place on the ground; tracks were mounted to the stone with two or more spikes driven into holes in the stones. The large granite blocks were manufactured mostly by hand by prisoners at Sing Sing Prison, NY. The stone sleepers took time to shape by hand and demand outpaced how quickly the stones could be made. Timber supports were used 'temporarily' in their place and proved to be a more suitable material for supporting the weight and speed of steam engines. Soon all of the stone sleepers were replaced with timbers.



Photo by Bosenberg & Co., June 2012

The stone sleepers found on site today, are being used as part of a makeshift retaining wall, relocated from their original location as sleepers for the tracks. These stones found in the retaining walls as well as scattered around site should be collected and safely stored until they can be repurposed in the new project. The stone sleepers are the most significant physical element which remains from the Camden & Amboy period, they need to be preserved, interpreted and reused creatively.

Tracks- John Stevens developed a new steel rail style, known as the ‘T’ rail, for the construction of the Camden & Amboy Railroad in 1831. He felt this would be superior to the wooden tracks with flat steel anchored to their top. This technological progression was critical in shaping railroad construction. At this time, the American steel industry was not equipped to manufacture the new ‘T’ rail system; Stevens traveled to England to find a manufacturer. The C&ARR was the first railroad to use this rail; this style track is still used today, with modifications.

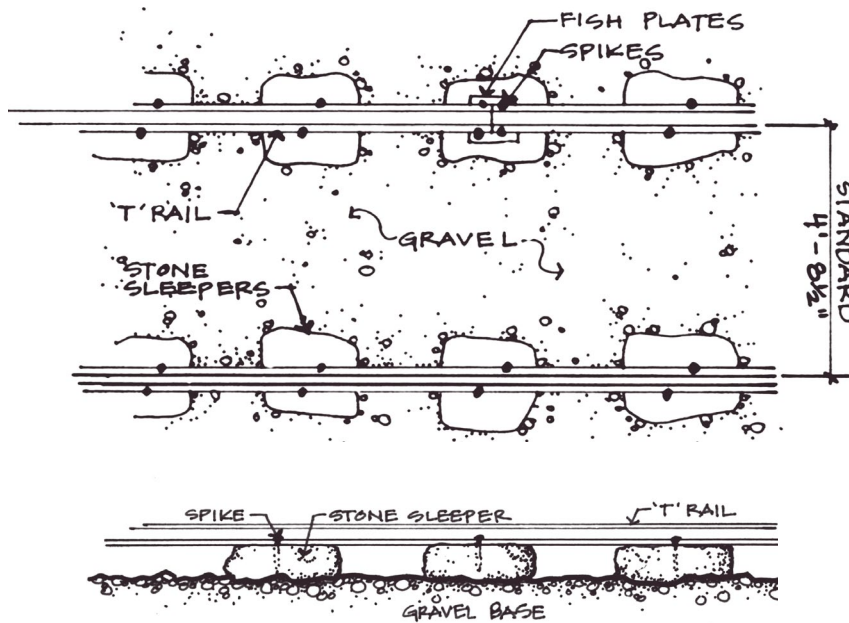
Fish Plates and Spikes- John Stevens also designed the offset spike and fish plate. These components were designed in conjunction with the new ‘T’ rail in 1830. Fish plates were used to join two tracks together and the offset spike was driven in to the stone sleepers or timber supports to anchor the rail. The offset spike and fish plate maybe seen in use, with some variation, today. There are no plates or spikes of the Camden & Amboy period known to be on site today.

Design Guidelines:

- The linear flow of the tracks through the site from the southwest to the northeast has been consistent through the history of the site. It is important to maintain this linear arrangement when considering the use of the track in the new design.
- The layout of the track also suggests that the orientation of the site, parking lots, pedestrian walks and buildings should be arranged in the same southwest - northeast orientation.
- There are no tracks from the C&A period remaining on site; with the appropriate signage the existing track could be reused to signify the original “T” rail of the C&ARR period.

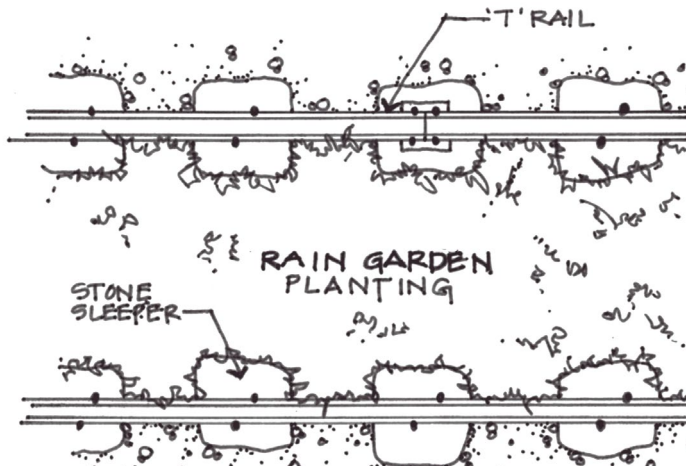
The stone sleepers should be used in a manner inspired by their original use:

- Line walkways through the parking areas on one or both sides with a re-creation of the original tracks and the stone sleepers salvaged from the site. The width of standard gauge tracks is rather narrow and the stones are raised. This configuration should only be used in a limited fashion to illustrate the original track layout and dimensions.
- Additional concepts can be explored for using the stone sleepers in high traffic areas. All concepts need to incorporate the elements in a manner that best represents their original use.



Sketch A. Stone Sleepers used to delineate walking paths.

- The track and stone sleepers could be used to create a defined edge for the center of the parking islands creating rain gardens. The drainage of the parking area should be decentralized and incorporated into the parking design infilled with the rain gardens or non-structural drainage solutions. The design of the storm water / water quality system needs to be integrated into the site to enhance the site aesthetics and promote some form of ecological restoration of the river bank.

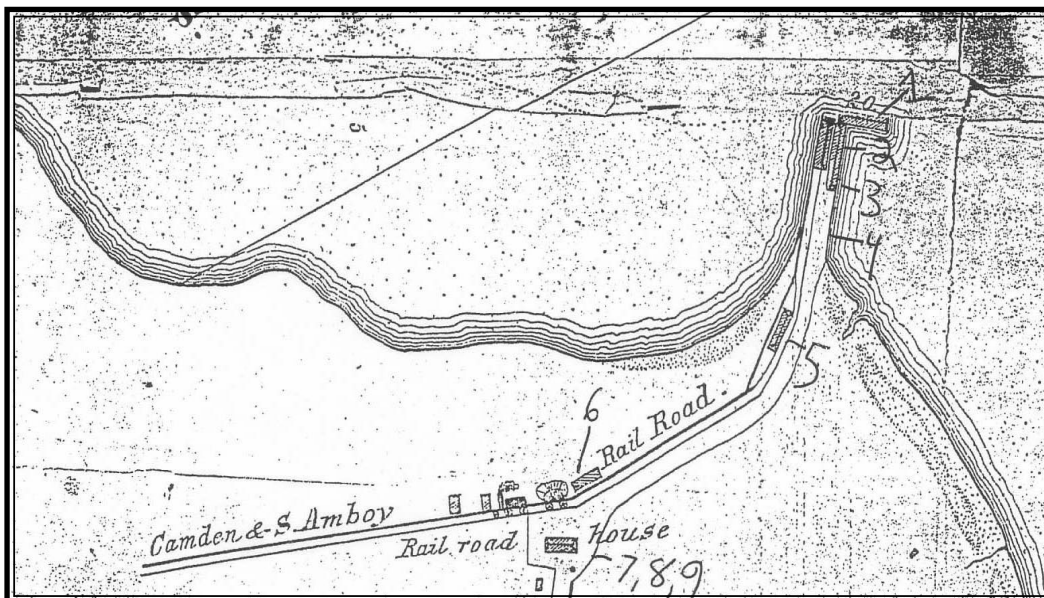


Sketch B. Sleepers and tracks used to delineate parking islands/rain gardens from parking.

- Display a story board depiction of rail evolution in railroad history, highlighting John Stevens contributions and how they changed railroad construction.

1.4. Piers/Shoreline

Below is a depiction of the original pier configuration of South Amboy shown on the 1836 F.W. Brinley map. The future Intermodal ferry pier/terminal site resides near the original Camden Amboy ferry pier.



1836 F.W. Brinley Map of Site

Design Guidelines:

- The new project will overlap the original piers and wood pilings. The location of these elements should be outlined in the parking and walking surfaces with contrasting materials or circular markers indicating the locations and orientation.
- Signage and descriptive text should accompany any identifying features.
- The shoreline of the bay has changed quite significantly as fill has been added to the shore, and piers have been built and rebuilt over time. Reconstructing the original shoreline would harm the existing ecosystems, it is recommended that the new pier utilize a design that offers minimal disturbance to the shoreline. Please refer to the Environmental Assessment and Technical Environmental Studies report prepared by the Federal Highway Administration and the City of South Amboy.

See the archeological report from Hunter Research for additional mapping of the pier locations and history of the site.

2. The Coal Docks Period- (1871-1950)

The C&ARR was taken over by the Pennsylvania Railroad in 1871. As new, more direct, train routes to NYC were becoming available, passenger service at the South Amboy port declined. In the late 19th century, the focus of the site was redirected to shipping goods. A large coal shipping facility and an explosives handling pier was constructed on the expanded southern portion of the site. The use of the coal facility began to decrease after a large explosion at the explosives pier in 1950; leaving many of the buildings in various states of repair. By 1962 all the buildings constructed prior 1950 had been removed from the proposed Intermodal Ferry site.

2.1. Piers

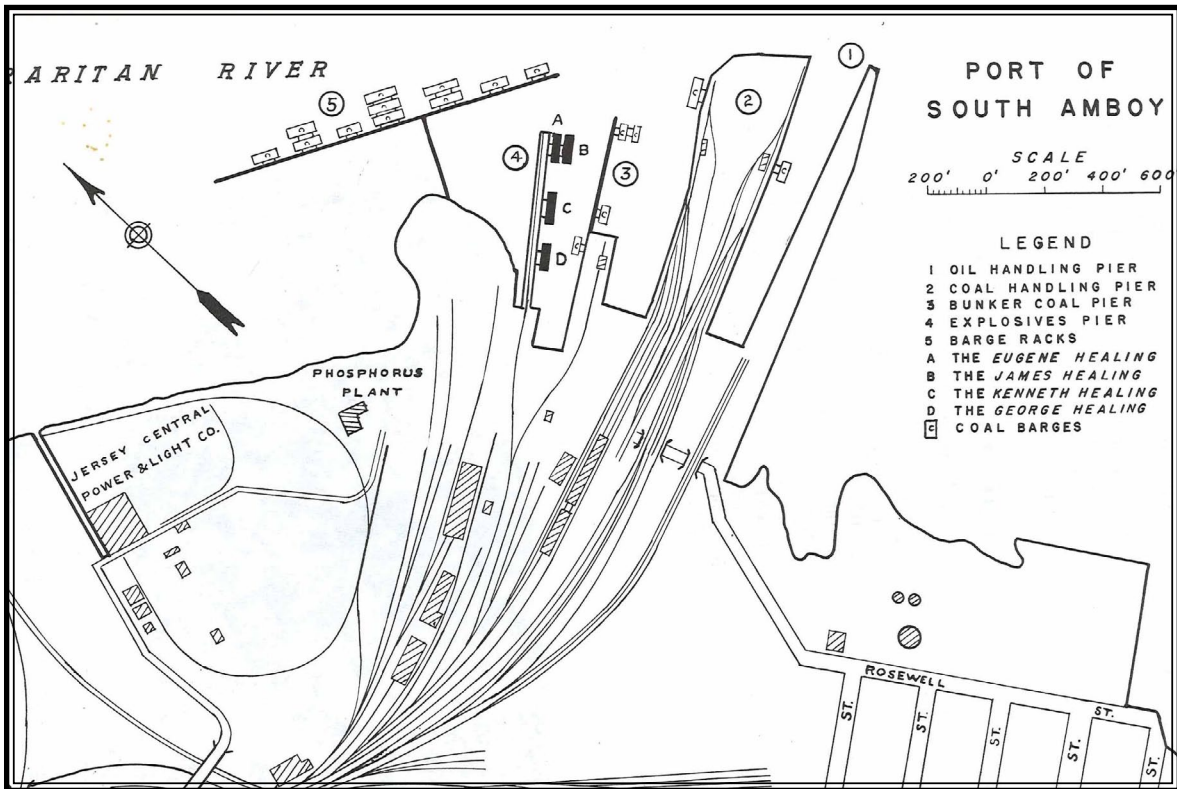
A large number of pilings remain from the 19th century, they can be found at low tide.



Photo by Bosenberg & Co., June 2012.

As indicated on the map below there were four piers in operation during the coal docks period, dramatically changing the site's configuration from the Camden & Amboy period. Beginning with the northern most portions of the site and heading south the piers are labeled: explosives, bunker coal, coal handling and oil handling. All of these locations reside outside the proposed Intermodal Ferry projects limits.

Piers 1-4 as labeled on the map reside outside the Ferry terminal project limits, but are included in the guidelines due to their historical context. The coal bunker pier and coal handling pier are still partially in use. The remaining piers can be envisioned from the pilings visible in the water at the low tide, none of these pilings are salvageable.



Map of pier and barge location before the explosion in May 1950.

Labeled as pier number 4, the explosive pier and many of the surrounding structures were destroyed in the massive explosion in 1950. The blast was so powerful that it shattered nearly all of the windows in the neighboring towns of Perth Amboy and South Amboy. The extensive destruction of the site should be represented in the new site plan and landscape design.

Design Guidelines:

- The explosives pier lies just outside the limits of the current proposed Intermodal Ferry site and should be included in the project. The pilings, from the old piers, are not salvageable and the explosives pier should be reconstructed to act as the walkway to the new ferry dock.
- The pier location offers a viewing platform and should be used to present a timeline of the history, while allowing the visitor to view the site.

2.2. Structures

Many structures were present during this time period (1871-1950). See the Hunter Research map depicting many of their locations.

MAP OF STRUCTURES

Design Guidelines:

- Like the wood pilings and piers, the original buildings should be outlined with contrasting paving materials in the parking areas. In the green spaces, hedges and variations in vegetation could be used to show the building locations.
- The design, shape, form and pattern of these structures should be incorporated into the proposed ferry terminal and be utilized as a pattern guideline and inspiration for the future development of the site south of the Intermodal Ferry terminal project. The massive coal dumpers, as well as the change in grade used to assist in the dumping process offer excellent design ideas to enhance the site plan and future landscape.

McMyler Dumpers

This coal shipping facility was one of the largest in the country. It housed two McMyler Dumpers and two large thawing sheds. The Coal dumper utilized a change in the grade to move the coal cars in and out of a dumper mechanism. The coal cars were then elevated, dumped and funneled onto a barge for transport over water to New York. The Garden State Central Railroad model in Asbury Park has a working scale model of a McMyler Coal Dumper.

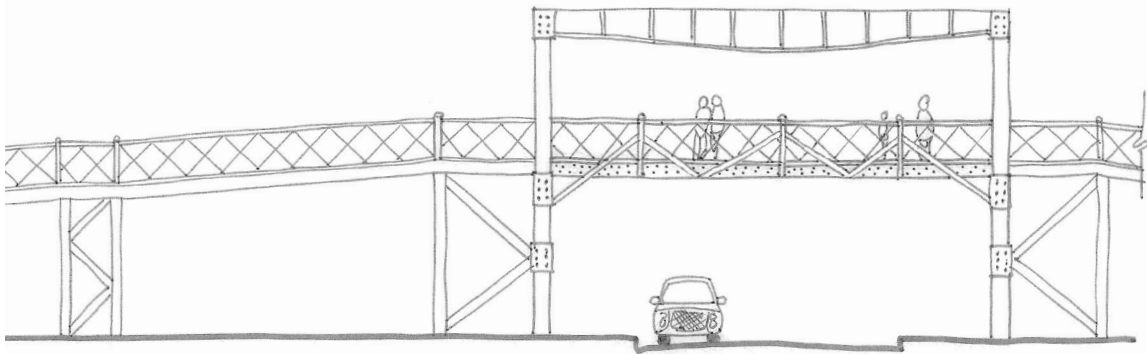


Photo from 'Images of America South Amboy' by George Francy

Both of the McMyler Coal Dumpers have been removed from the neighboring site, as they were in disrepair. Just up river from this project site, there is a McMyler coal dumper in situ at Port Reading NJ. It should be determine if the Port Reading McMyler coal dumper is available for relocation or for salvage so it can be reused in some manner in this project.

Design Guidelines:

- If the Port Reading McMyler coal dumper is available, utilize the structure as an observation point.
- An exposed metal beam structure, emulating the industrial use of the Coal Docks period, would provide a great vantage point to view the overall layout of the site. The use of interpretive signage or an interactive sign incorporating video footage of the coal dumper to be viewed by visitors should be integrated in the design.
- A pedestrian bridge could be created using the structural metal framing inspired stylistically by the coal dumper. It could connect pedestrians over the entry road from neighboring properties. This could highlight the changes in elevation that were necessary in operating the coal dumpers.



Sketch C. Coal dumper used as pedestrian bridge

The thawing sheds and coal dumpers as seen from the water's edge.

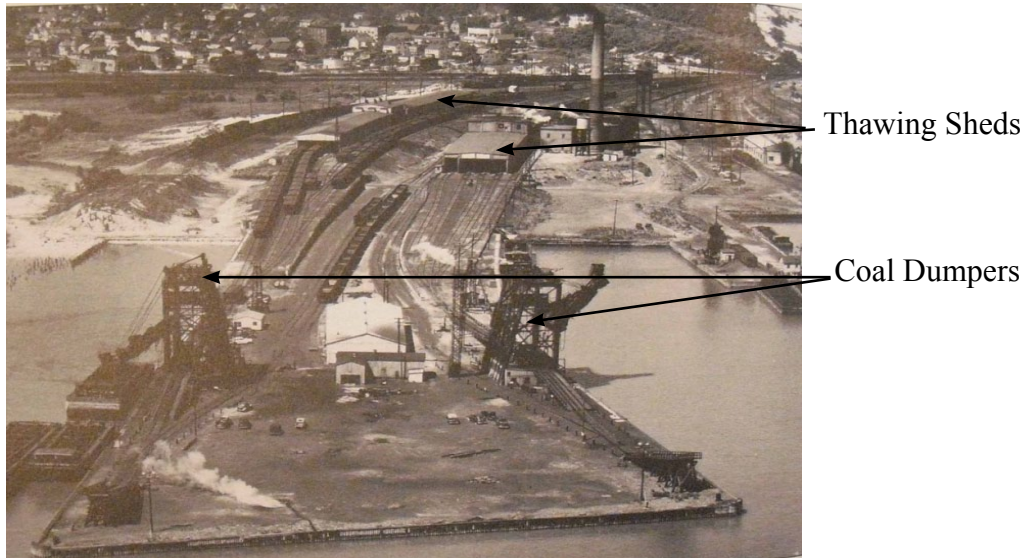


Photo from 'Images of America South Amboy' by George Francy

Thawing sheds

The thawing sheds were two of the largest structures, housing the coal cars during cold weather. The coal was heated in these structures to loosen the frozen pieces of coal, allowing them to flow out of the coal car when dumped. These structures resided outside the project limits and are discussed for historical context and inspiration.



Photo by Ian Burrows, 20??

The thawing sheds were in poor condition and were removed from the neighboring site in the

last decade.

Design Guidelines:

- Use metal, brick and wood.
- The composition of these buildings offer inspiration for new buildings with their large doors and low pitched roofs.

Unidentified building

The image below depicts a building during the coal docks period showing the early architectural style of the buildings. There are many architectural details that can be extrapolated from this photo and used in the design of ferry building.

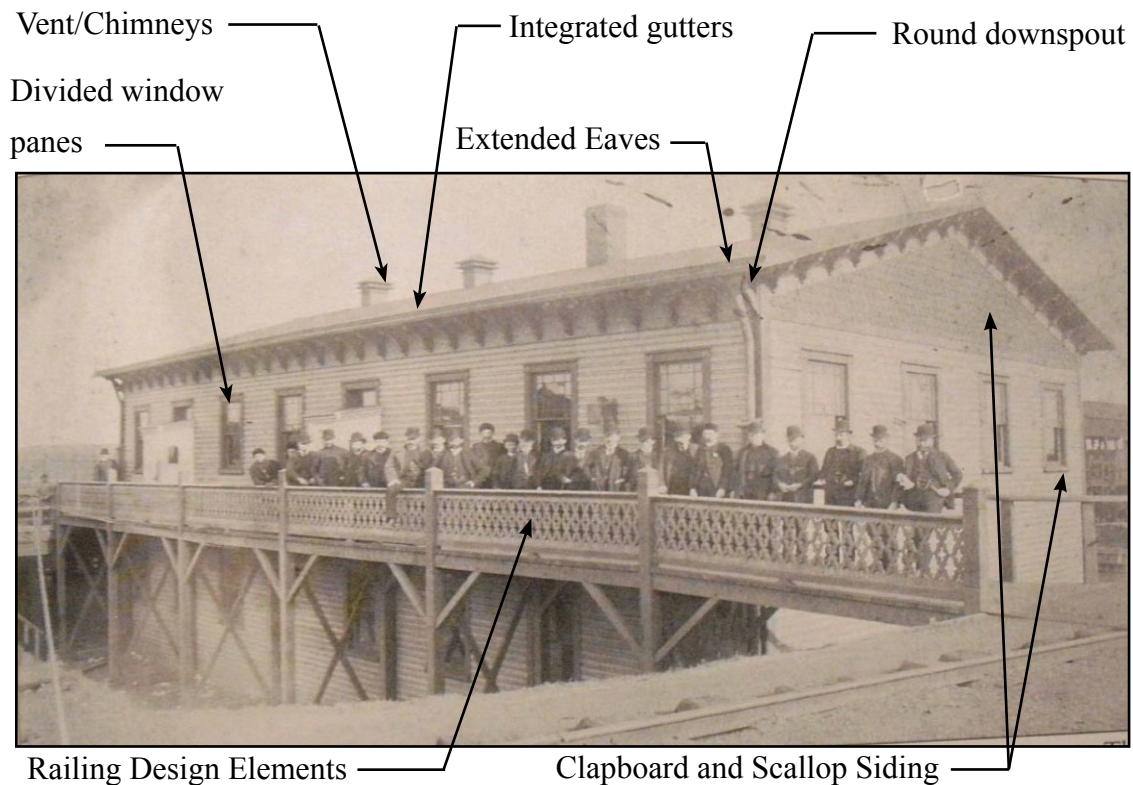


Photo from 'Images of America South Amboy' by George Francy

Design Guidelines:

- The railing shows extensive detailing and fine craftsmanship.
- The building shows other details such as trim around the windows, brackets below the roof line, color, different types of siding, etc.
- Many of the details from the building should be used to inspire a creative design of the new ferry terminal and not a recreation of the original style.

2.3. Tracks, Fish Plates and Spikes



Photos by Bosenberg & Co., June 2012

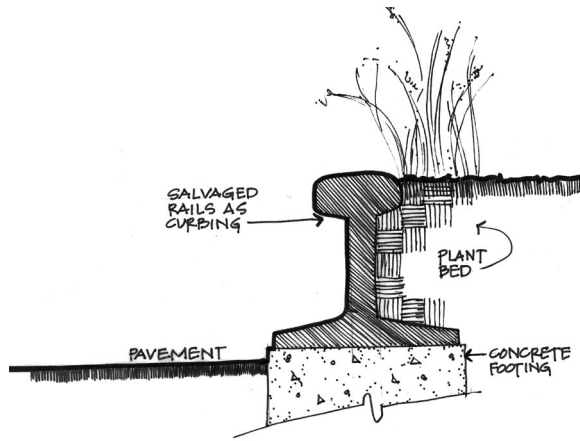


Photos by Bosenberg & Co., June 2012

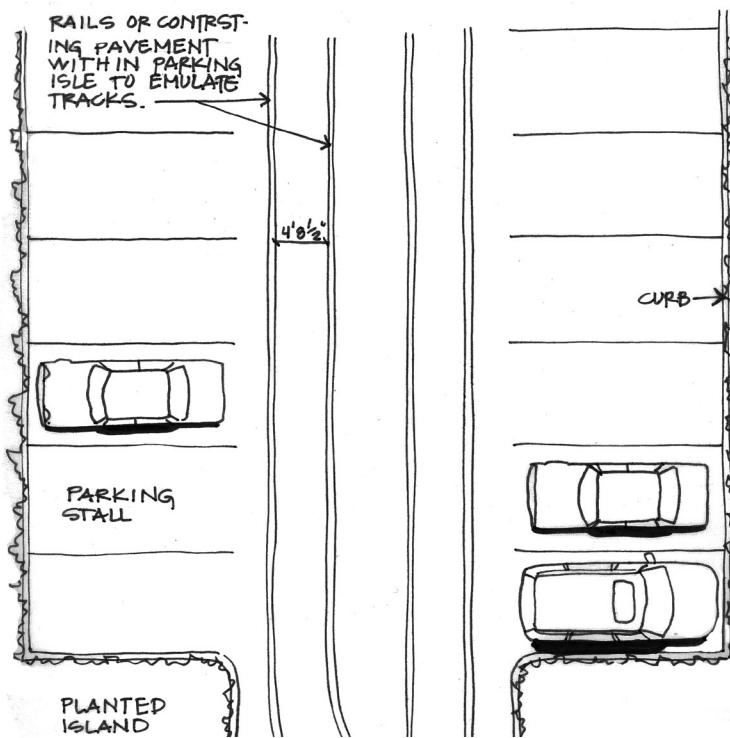
The track configurations have been altered many times. Many tracks still crisscross the site today. The tracks, fish plates and spikes should be salvaged for reuse.

Design Guidelines:

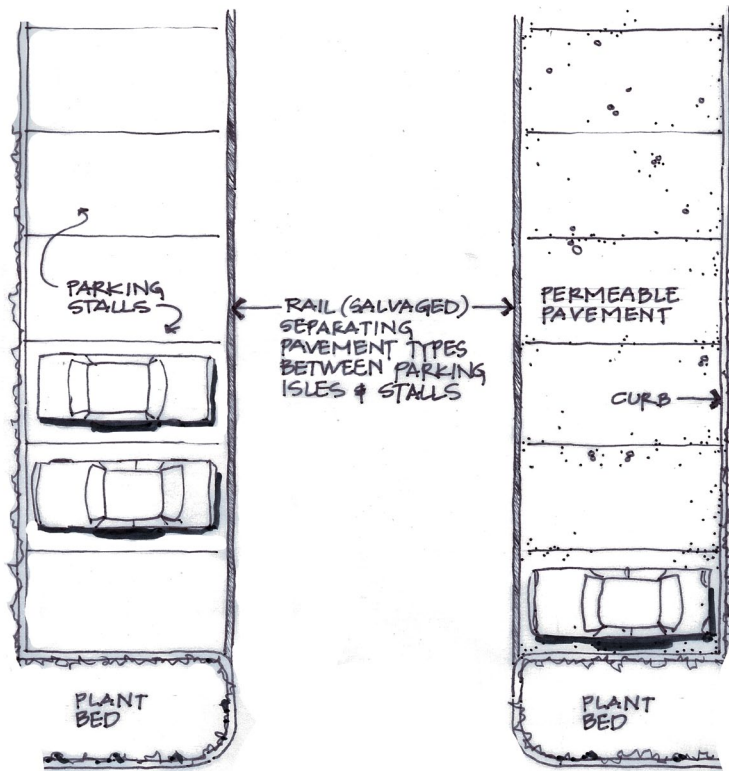
- Orientate the configuration of the cart ways or isles southwest to northeast, mimicking the orientation of the original tracks.
- Use tracks as curbing along the edges of the parking lot.
- Incorporate railroad tracks into the roadway paving at grade to signal the directional travel to the car and driver and to emphasize the original direction of the railroad tracks.
- Set tracks along the edge of the parking areas to differentiate between the parking areas, the types of pavements and the parking isles.



Sketch D. Track used as curbing



Sketch E. Tracks running through parking lot -option 1



Sketch F. Tracks running through parking option 2

3. Pennsylvania Railroad Electrification of Tracks Period- (1938)

The electrification of the PRR (Pennsylvania Railroad) track in South Amboy occurred from 1938-1939, as the last portion of the PRR electrification project. Electrification was seen as a necessary change in order to compete with the New York Central Railroad. It proved to be a more economical and cleaner form of transporting passengers and freight. This allowed trains to travel through tunnels to New York City; as steam travel was too dirty for long trips through tunnels.

The first electric tracks developed in the United States used a third rail to carry DC power. The overhead catenary systems, like those used at South Amboy, were developed to carry AC power, which could provide power over longer distances, without the many substations needed for DC electric power. The PRR began electrifying its lines in 1895, but they did not reach the freight lines of South Amboy until 1938.

3.1. Catenary Structures

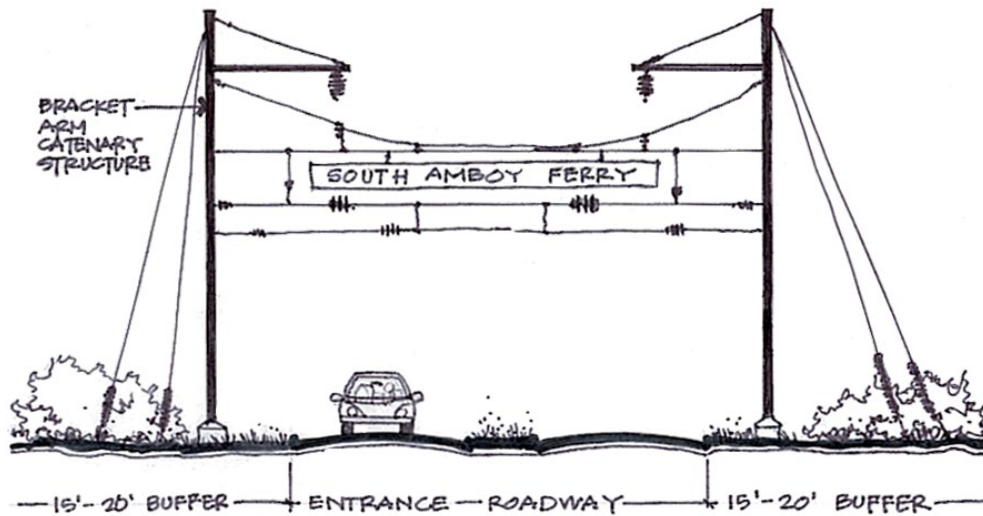
The catenary structures were designed to hold the overhead wires needed to conduct a constant AC current to the electric locomotive. The overhead wire was maintained at about 22'. There are several different styles of pole depending on specific uses: single poles, bracket arm structures, cross catenaries or body span structures and portal bridge catenary structures. The basic construction of the poles consists of a 14" square H-shaped beam installed in a concrete pedestal. It appears that electrification was never carried into the proposed ferry site.



Photo by Ian Burrow, Hunter Research, December 2002.

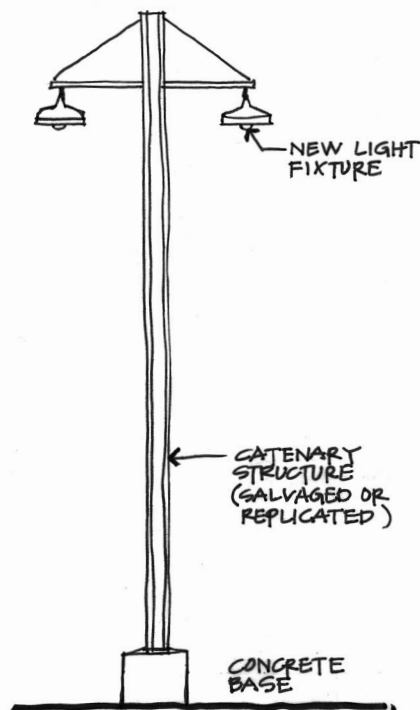
Design Guidelines:

- Re-use the catenary structures along the entry drive.
- The electrification of the tracks never carried all the way into the site, the location of the re-used catenary structures shall be the same, as indicated in the Hunter Research reports.
- Create an gateway into the site as depicted below.



Sketch G. Salvaged catenary arms used to create entryway.

- The catenaries could support other signage and lighting along the entry drive. If limited structures are recovered from the site new structures could be constructed replicating those extant.
- Entry lighting as indicated could utilize the catenary poles. Fixtures should emulate the glass insulators used on the electrical lines.



Sketch H. Salvaged catenary arm used as lighting pole along entrance drive.

3.2. Lighting Tower

A large existing Lighting Tower remains near the site in the road right-of-way, a landmark seen clearly from a distance. The tower should be salvaged for re-use on this project.



Photo by Bosenberg & Co., June 2012.

Design Guidelines:

- Salvage the lighting tower for re-use on this project as a visual marker, delineating the distance major destruction occurred during the 1950 explosion, approximately 1200 feet, keeping it in the limits of the catenary structures.

3.3. Light Poles

One visible light pole identified during a site visit in 2012. This pedestrian scale pole was one of eight indicated in earlier reports prepared by Hunter Research. Other poles may exist in the thick brush, or may have been removed over time.



Photo by Bosenberg & Co., June 2012.

Design Guidelines:

- The existing light pole should be salvaged for reference and or reuse.
- Light poles for smaller pedestrian scale use shall be replicated or inspired by the existing pole(s) found on site from the Electrification period.

The type of pedestrian light fixture used is unknown. Light fixtures selected for the project should be historically correct for the period and follow the examples shown below. All selected fixtures should be approved by the project landscape architect for appropriate historical context.



Sternberg Lighting- Flare Side, RLM Series with glass jar



Sternberg Lighting -1527F Omega Series,

3.4. Bricks and Large Stones

An assortment of bricks manufactured from various companies exist, strewn about the site. The brick are from two local manufactures; the S & F, Sayre & Fisher Brick Company in Sayreville, NJ, produced from 1850-1970 and the WGB Company in Shawmut, PA a 20th century paver brick.



Photos by Bosenberg & Co., June 2012.

Design Guidelines:

- The bricks are not significant to the rail road history of the site, but should be salvaged and reused at the designer’s discretion
- Depending on the amount of brick salvaged, the use could vary. Entire paving areas or walls could be created.

Large Rectangular Stones

There many large rectangular stones scattered along the edge of the water configured as loose retaining walls. These stones should be salvaged and stored on site for future use, though they are not historically significant.



Photo by Bosenberg & Co., June 2012.

Design Guidelines:

- These stones shall be used to line a plant bed, create a barrier between vehicular and pedestrian traffic or provide seating for visitors.

4. General Design Guidelines

This section offers conceptual ideas for how to address site elements and amenities not directly associated with the reuse of existing physical elements.

4.1. Landscape

The C&ARR yard was devoid of landscaping, the real feature of the historic site was the long open views following the railroad tracks to the edge of the water. The new site should still retail the long open views but blend in an interpretive landscape and that enhances the use, strengthens the long view, provides shade establishing a comfortable micro climate around the buildings and across the large paved areas.

Design Guidelines:

- Landscape buffers should be established to mitigate negative views.
- Long viewing corridors should be maintained thought the site to the water’s edge.
- Trees planted in the parking area, where viewing corridors are suggested, shall be limbed to a minimum of eight feet. The planting along these viewing corridors should emphasis the linear orientation of the rail yard.

- Woody and herbaceous plant material, near the viewing corridors, shall be under four feet and those in the viewing corridor shall be under two feet.
- A 15' - 20' wide buffer area along either side of the entry drive should be created to screen any of the negative views surrounding the project.

4.2. Sculpture

The Camden & Amboy Line, the first railroad in New Jersey, will inspire many inspirational elements and concepts that can be expressed through sculptural elements. Since the landscape is largely interpretive and not a reconstruction of the original rail yard, sculpture can play an important part in the design of the site. Sculptural elements of various scales and styles can depict the history of the site, including the iconic John Bull, the catenary structures and the McMyler coal dumpers. These elements should create the basis of the interpretive design experience.

4.3. Signage

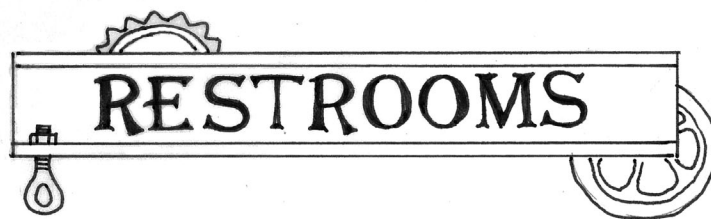
Design Guidelines:

- The Camden and Amboy logo font should be utilized in signage where appropriate:



This font can be found on myfonts.com as Algerian.

- Signs shall use various fish plates, spikes, or train parts salvages from the site or from other sources to create a sculptural representation of the site's rich railroading history.



Sketch I. Sign using railroad parts and Algerian font

- Signage should indicate the history of the solid metal 'T' rail, offset head spike and fish plates designed by Stevens and its context to the site.
- An interpretive time line should be included, designed to inform the visitor of the site's dynamic railroad history.
- Elements to include in the time line:
 - 1815- New Jersey Legislature authorizes the forming of a company "to erect a rail road from the River Delaware near Trenton to the River Raritan at or near New

Brunswick.” This is the first Railroad act of the United States.

1830- Camden & Amboy, the first railroad in New Jersey begins construction.

1830-1839- Camden Amboy RR the most direct link from Philadelphia to NYC, then replaced with faster route from Jersey City.

1833- John Bull begins service on the Camden Amboy RR.

1871- The Pennsylvania Railroad (PRR) leases the track.

1871-1950- Coal shipping is the focus of the South Amboy terminal.

1938- The PRR electrifies a portion of the tracks at South Amboy.

1950- An explosion occurs on the explosives pier during the transfer of land mines from train to barge.

1950-1965- Activities decline in use at the South Amboy terminal.

The time line should be created through consultation of Hunter Research.

4.4. Railings

Railing will be need for the project and should be inspired by the original materials Stevens used for the C&ARR and by some of the original building materials.

Design Guidelines:

- The ornate railing shown in the picture of the coal building on page 13 shows an example of a period railing used during the C&ARR. The PRR historic projects throughout other locations should be used as inspiration to for the design process. Hair pin railings from the NJT River Line are pictured below.



- Tracks salvaged on site Could be used for posts and rails.

4.5. Materials

Travel by rail on the C&ARR was seen as a luxury, however, there were no highly polished surfaces, just a sense of grittiness that comes with the history of the rail yard and the steam engine. The materials used in the construction of the new Intermodal Ferry Terminal should reflect this raw industrial character.

Design Guidelines:

- Use historic materials, such as wood, brick, steel and stone when possible.
- Use modern materials to highlight the significant historic elements and not out shine them.
- Corten steel was developed and used in the 1930's for coal cars, it had a natural resistance to corrosion and the strength need to carry the heavy loads. It should be used in a modern way in the design of the site to compliment the history of the rail yard.

Summary

Steeped in over 130 years of railroading history, the South Amboy Terminal represents many amazing strides made in American transportation. As one of the first railroads in the United States, it was a key to supporting the country's ravenous desires to grow and industrialize. The site supported those demands for decades, though over time it was steadily supplanted by new rail lines and innovation; it remained a relevant transport hub until the devastating explosion of 1950. Progressive thinking from John Stevens and his sons brought new and vital innovations in machinery, tracks, standards and protocols to the railroad industry which left an indelible mark on this site and railroad history. The John Bull locomotive carried passengers and goods to and from this terminal for decades; the locomotive now resides in the nation museum in Washington, D.C. The time has come for the revival and retelling of the story of South Amboy and the C&ARR and those who made it possible.

As visitors tread along the same routes that the John Bull carried humanity and goods, they need to be aware of all that transpired at this site. The stone sleepers, the oldest artifact on site, placed in 1830, survived the many modifications of the facility. Their presence is significant, artifacts such as these need to be incorporated and celebrated. The northeast/southwest orientation of the Camden Amboy Railroad imprinted on the land needs to be strongly represented in the redevelopment of this site. The sizable coal dumpers and coal thawing sheds that once resided here reminds us of the scale of the operations that took place on these piers. Their immense presence is a faded memory and the remaining elements remind us of the fragility of even our most ambitious fetes and best technologies.

Urgency rings along the vacant rail lines of the C&ARR, the remaining components need to be collected and cataloged, then re-purposed to assist in the creation of this space. With thoughtful and inspired design a sense of place can be created which tells its varied and vital story. The construction of the Intermodal Ferry terminal will bring this site full circle, as it returns to its original use, transporting passengers to and from destinations, creating the stories of the future. The designers will need to strike a balance between creating a culturally rich destination while fulfilling the needs required of a modern transit center.

References:

Reports:

Federal Highway Administration and City of South Amboy, *Environmental Assessment and Section 4(f) Evaluation*- volumes 1 & 2, November 2003

Burrows, Ian, Hunter Research, *The Catenary Structures at the Intermodal Ferry Transportation Center*, December 2002

The National Board of Fire Underwriters and The Fire Insurance Rating Organization of New Jersey, *The South Amboy Port Explosion*,

Books:

Francy, George, *Images of America, South Amboy*, Arcadia Publishing ,1998

Iles, George, *Leading American Inventors*, H. Holt & Company in NY, 1912.

Watkins, J. Elfreth, C.E., *The Camden Amboy Railroad- Origin and Early History*, address delivered at Boredentown, NJ on November 12, 1891.

Websites:

<http://www.delrivgreenway.org/heritagetrail/Camden-and-Amboy-Railroad.html>

<http://www.jcrhs.org/camden&amboy.html>

<http://www.trainweb.org/camdenandamboyrhistoricalgroup/>

<http://www.rrmuseumpa.org/education/historytimeline1.shtml>

<http://www.archive.org/details/leadingamericani00ilesrich>

Maps:

Brinley, F. W. , 1836, Map of the City of Perth Amboy, NJ. Baker, New York, NY