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KENNEDY HEIGHTS
Kennedy Avenue Bridge Replacement Project

Kennedy Heights Community Council Meeting
Meeting Notes - Preliminary Bridge Railing Design Concepts

Department of Transportation & Engineering

April 17, 2018

Review – Existing Kennedy Avenue Bridge:

Meeting Notes:

Staff reviewed the design of the existing bridge railing with the community by referencing the following Existing Kennedy Avenue Bridge railing photograph sheet from the December 5, 2017 Bridge Project meeting presentation.

Constructed in 1932, the existing bridge is framed by a classic Art Deco railing system. And typical of that era's art deco design style, the railing exhibits a strong repetition of geometric forms that emphasizes both substance and verticality. The forms also work together to create interest through the interplay of light and shadow.

Existing Kennedy Avenue Bridge

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Review – Federally Approved Crash Tested Railing Designs:

Staff reminded the community that this project must comply with federally mandated safety and funding requirements to construct a vehicular guardrail that complies with federally recognized and approved railing designs that meet adopted crash test standards. And that all potential design elements beyond the standard railing design, such as pylons, lighting, surface finishes, etc., are subject to funding availability and approval. Staff then referenced the following Bridge Railing Systems photograph sheet from the December 5, 2017 Bridge Project meeting presentation to describe examples of several types of compliant railing systems that DOTE has recently employed on area roadway and bridge improvement projects.

The Kennedy Avenue – Duck Creek Bridge Railing System:
This example of an updated art deco design railing system with solid window panels and wing walls containing streamlined accents was utilized to help provide a gateway portal and to help hide a large, above-ground water main located immediately adjacent to the bridge.

The Marburg Avenue – Wasson Way Bridge Railing System:
Staff explained that we initially wanted to install a guardrail wall with a natural stone veneer but that proposal was rejected by ODOT for not complying fully with the approved crash test design standards. As a secondary alternative we constructed a concrete wall using concrete form-liners with a cut, ashlar blend stone pattern. We then had the stones individually stained, and the piers and railing cap painted with a complimentary colored fine textured coating.

The Hamilton Avenue – Hillside Railing System:
This is an open galvanized steel railing system similar to the railings installed along both Dixmyth Avenue and the Clifton Avenue Bridge that crosses over the Mill Creek. It was suggested that this type of railing creates a less obtrusive presence that creates a more direct and seamless connection between the roadway and the adjacent wooded hillside environment .

The Waldvogel Gateway Ramp Railing System:
This type of railing system was included to show how concrete and steel can be used in combination.

Staff noted that all of our concrete walls and railings are protected with both a clear or lightly colored and textured water-repellant sealer and a clear anti-graffiti coating that allows for easier removal of painted vandalism.

Bridge Railing Systems

Kennedy Avenue – Duck Creek Bridge Railing

Hamilton Avenue – Hillside Railing

Marburg Avenue – Wasson Way Bridge Railing

Waldvogel Gateway Ramp System Railing

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Review – Bridge Railing Pylon Designs:

Staff referenced the following Bridge Terminus Pylons photograph sheet from the December 5, 2017 Bridge Project meeting presentation for examples of bridge railing pylons that DOTE has recently employed on local bridge improvement projects to describe the purpose and benefits of these design elements.

Historically, pylons are monumental gateways that mark a ceremonial entrance or announce a transition to a different place. Bridge pylons were then developed to not only mark the limits of the bridge, but to announce the crossing, to hold and enclose the bridge's structural and architectural elements, and to properly frame vistas.

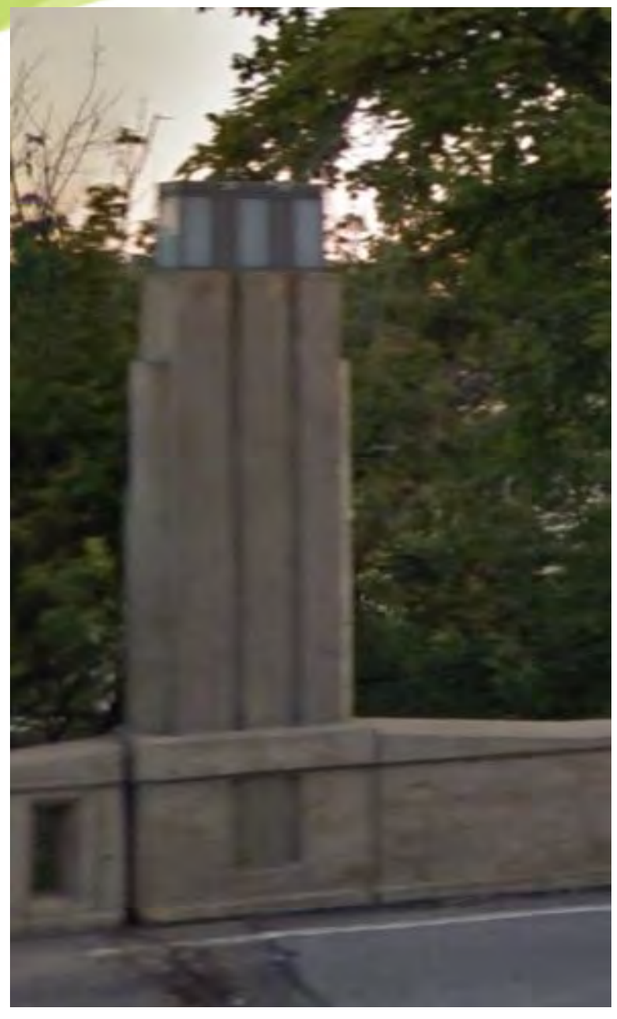
The Columbia Parkway Bridge Pylons:
As Columbia Parkway was constructed in the late 1930's, DOTE felt it appropriate to employ an art deco design aesthetic for the improvements made to the Parkway in the late 1990's. Vertical concrete pylons were constructed with those improvement projects to identify the limits of bridges and to inform parkway travelers that they were in fact crossing over a bridge as this was not previously readily apparent. Custom lighting fixtures were incorporated into the pylons to provide an additional presence at night. The pylons also serve to tie together and complete the enhancement design package of this scenic byway

The Mt. Airy West Fork Creek Bridge Pylons:
Located within the Park, these pylons were designed and constructed in a more rustic style that compliments the architectural aesthetic of Park's shelters and for this location, softens the geometric severity of the railing in this woodland setting.

The Kenton Street Bridge Pylons:
Again, an art deco aesthetic was employed to construct this bridge including the custom pylons that nicely compliment the standard railing design.

The Clifton Avenue Mill Creek Bridge Pylons:
DOTE staff designed these custom fabricated pylons to compliment the open galvanized steel railing system, frame the limits of the creek below, and to help celebrate the continuing return of nature to this industrialized waterway.

Bridge Terminus Pylons



Columbia Parkway Bridges

Mt. Airy – West Fork Creek Bridges

Kenton Street Bridge

Clifton Avenue – Mill Creek Bridge

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Review – Bridge Identification Pylon Designs:

Staff referenced the following Bridge Terminus Pylons photograph sheet from the December 5, 2017 Bridge Project meeting presentation for examples of bridge railing pylons that DOTE typically utilizes to identify the bridge with the street name and year of construction.

The Clifton Avenue Mill Creek Bridge Pylons:
For this bridge, DOTE staff designed a custom metal fabrication art piece and had it inset into the concrete pylons of the open galvanized steel railing system to help commemorate the revitalization of the Mill Creek.

The Beekman Street West Fork Creek Channel Bridge Pylons:
This bridge railing pylon example shows how a construction date can be integrated into the pylon design. This photo also shows a standard, plain concrete finish protected by a clear sealer and clear anti-graffiti protection coating.

The Marburg Avenue – Wasson Way Bridge Pylons:
These railing pylons contain both the bridge name and the year of construction sandblasted into the concrete pylon. The pylon was finished with a colored sealer containing a fine sand texture, and the numbers, scrollwork, and lettering were then painted.

The Kennedy Avenue Duck Creek Bridge Pylons:
Again, these railing pylons contain both the bridge name and the year of construction. For this bridge, the date, scrollwork, and lettering were formed into the concrete. The entire railing system, including the pylons, was finished with a colored sealer containing a fine sand texture, and the date, scrollwork, and lettering were then painted.

Staff noted that our bridge replacement project team will work with the Kennedy Heights community to determine the bridge identification pylon design.

Bridge Identification Pylons

Clifton Avenue – Mill Creek Bridge

Beekman Street – West Fork Creek Bridge

Marburg Avenue – Wasson Way Bridge

Kennedy Avenue – Duck Creek Bridge

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Review – Bridge Vandal Protection Fencing Systems, (VPF):

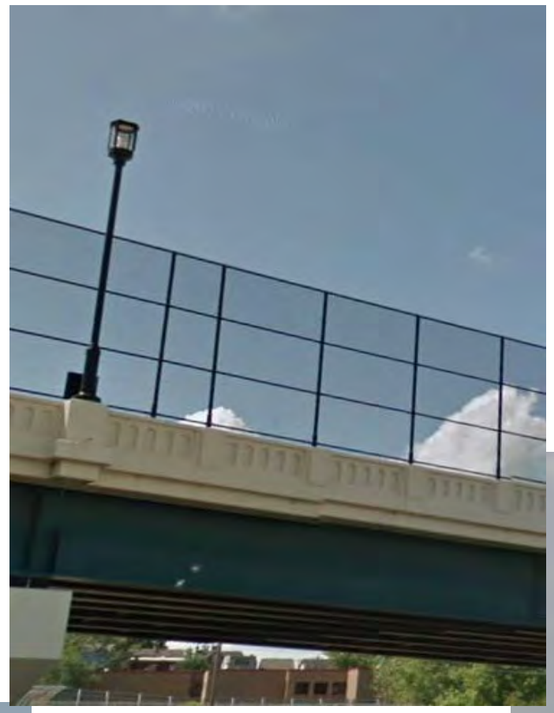
Staff referenced the following Bridge Vandal Protection Fencing Systems, (VPF), photograph sheet from the December 5, 2017 Bridge Project meeting presentation for examples of bridge VPF systems installed on local bridges.

Staff reminded the group that the installation of VPF is being required by the railroad as part of their agreement to allow the City to construct the new bridge over their right-of-way.

Staff also noted that while the railroad requests that the City install a VPF system with an inward curving top, DOTE will work diligently in requesting that a vertically straight VPF system can be installed.

Staff assured the group that regardless of the community's direction for designing the bridge railing, the project team will design the least obtrusive, most visually appealing VPF system possible.

Bridge Vandal Protection Fencing Systems (VPF)



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Proposed Preliminary Design – Art Deco Railing Design Concept:

Staff Notes:

This design aesthetic was chosen as an option for the new replacement bridge railing in an attempt to continue the historic art deco language used for constructing the existing bridge while updating it to meet today's codified engineering standards. Architecturally, a bridge railing of this type will create the most complete, contained, and identifiable sense of place.

For this concept, the bridge railing would be constructed utilizing a federally approved reinforced concrete railing design and may contain the following:

1. Concrete Stepped Pylons framing the bridge span and VPF system.
2. Concrete Pylons located above and in-line with the supporting bridge piers below and utilized to divide the VPF system into segments.
3. Concrete Bridge Identification Pylons containing the bridge name and year of construction.
4. Concrete Intermediate Railing Piers employed to separate the railing into segments and to support VPF framing posts above.
5. Custom Steel VPF Framing Posts containing sidewalk / pedestrian oriented Light Sconces.
6. A custom VPF panel system.
7. Balustrade railing segments with solid panel windows.

Proposed Preliminary Design – Art Deco Railing Design Concept:

Staff Notes – Preliminary Bridge Lighting:

The installation of any lighting that is supplemental to required roadway lighting is subject to funding availability and approval. Additionally, all lighting must meet DOTE standards for use in the public right-of-way. All light poles and luminaires must also meet Department of Public Services availability, stocking, and maintenance standards.

It may be possible to refurbish the existing, historic post top light poles and luminaires and then reincorporate them into the new railing design. Another option may be to install new post top light poles and luminaires that more closely match the overall design. Or as shown in the Proposed Preliminary Drawings, the Art Deco Railing Design Concept allows for the possibility of installing light sconces onto the intermediate steel tube posts that frame the individual VPF panels. Following are a few examples of possible stock sconces that are complimentary with the Art Deco design aesthetic.

Proposed Preliminary Design – Metal Railing Design Concept:

Staff Notes:

This design aesthetic will produce the least obtrusive and most open railing solution for the purpose of creating and maintaining an unobstructed spatial connection between the bridge interior and the surrounding environment.

For this concept, the bridge railing would be constructed utilizing a federally approved galvanized steel railing design and may contain the following:

1. Concrete Pylons located at each railing terminus, located to frame the bridge span, and located above and in-line with the supporting bridge piers below. These pylons provide opportunities for including the bridge name, year of construction, supports for new post top lighting solutions, and possibly additional artwork panels as permitted. If directed to proceed with this option, staff will design integral vertical solutions for visually framing the VPF system.
2. A Galvanized Steel Railing system possibly including modifications to the top rail for deterring sitting, loitering, and the potential for vagrancy. The steel railing finish can be left galvanized which some see as a more organic natural state or it can be painted.
3. A custom VPF panel system located behind the open railing system and connected to the exterior of the bridge concrete structural deck.
4. The installation of any lighting that is supplemental to required roadway lighting is subject to funding availability and approval. Additionally, all lighting must meet DOTE standards for use in the public right-of-way. All light poles and luminaires must also meet Department of Public Services availability, stocking, and maintenance standards. It may be possible to refurbish the existing, historic post top light poles and luminaires and then reincorporate them into the new railing design. Another option may be to install new post top light poles and luminaires that more closely match the overall design.

Proposed Preliminary Design – Stone Railing Design Concept:

Staff Notes:

This design aesthetic would be created through the use of stone pattern form-liners to form the concrete into place. Unlike the Marburg Avenue Bridge that utilized a cut stone form-liner pattern, staff recommends a more rustic stone pattern such as a stacked ledge stone pattern for this bridge location in order to better fit into its surrounding environmental context. The individual stone shapes within the pattern can be stained to create a more natural and realistic effect. Overall, the more solid, continuous, and homogenous stone facing wall pattern will create a more relaxed atmosphere and produce a less formal object than the art deco design concept but will be more enclosing than the metal railing design concept.

For this concept, the bridge railing would be constructed utilizing a federally approved galvanized concrete railing design and may contain the following:

1. A continuous railing with integrated pylons will terminate and frame the bridge span and VPF panels.
2. Pylons located above and in-line with the supporting bridge piers below will provide opportunities for including the bridge name and year of construction as well as act as plinths for supporting new post top lighting.
3. A custom VPF panel system will be anchored onto the top of the railing so as to allow for room to install the post lighting system.
4. The installation of any lighting that is supplemental to required roadway lighting is subject to funding availability and approval. Additionally, all lighting must meet DOTE standards for use in the public right-of-way. All light poles and luminaires must also meet Department of Public Services availability, stocking, and maintenance standards. It may be possible to refurbish the existing, historic post top light poles and luminaires and then reincorporate them into the new railing design. Another option may be to install new post top light poles and luminaires that more closely match the overall design.

Proposed Preliminary Design – Metal Railing Design Concept:

Following are supplemental photographic images of the Clifton Avenue Bridge spanning the Mill Creek which are being included to provide some additional visual description of this design aesthetic proposal.

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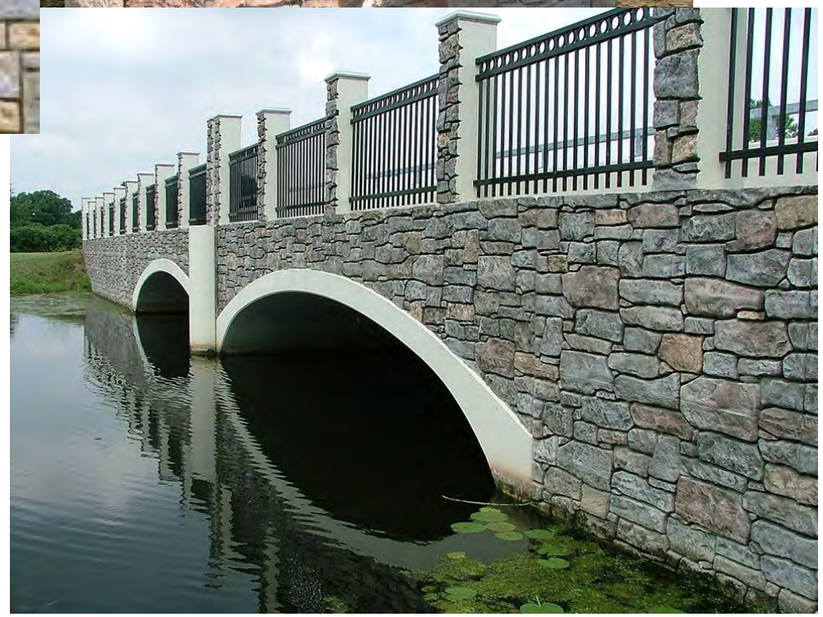
Proposed Preliminary Design – Stone Railing Design Concept:

Staff Notes – As previously noted, the individual stone shapes within the pattern can be stained to create a more natural and realistic effect. Following a few examples of concrete walls constructed using stone pattern form liners and subsequently stained. Please note however that obtaining these types of specific and intricate architectural finishes is subject to funding availability and approval.



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Proposed Preliminary Design – Welded Wire Mesh Fencing:

Following are supplemental photographic images of welded wire mesh fencing panels that may be included for access control at each end of the bridge. Welded wire mesh may also be utilized to fabricate the VPF panels contingent upon cost, available funding, and future maintenance considerations. Welded wire mesh is being proposed as a potential option as it typically presents a thinner profile in comparison to chain-link fencing, making it less visually obtrusive.

Proposed Preliminary Design – Art Deco Railing Design Concept:

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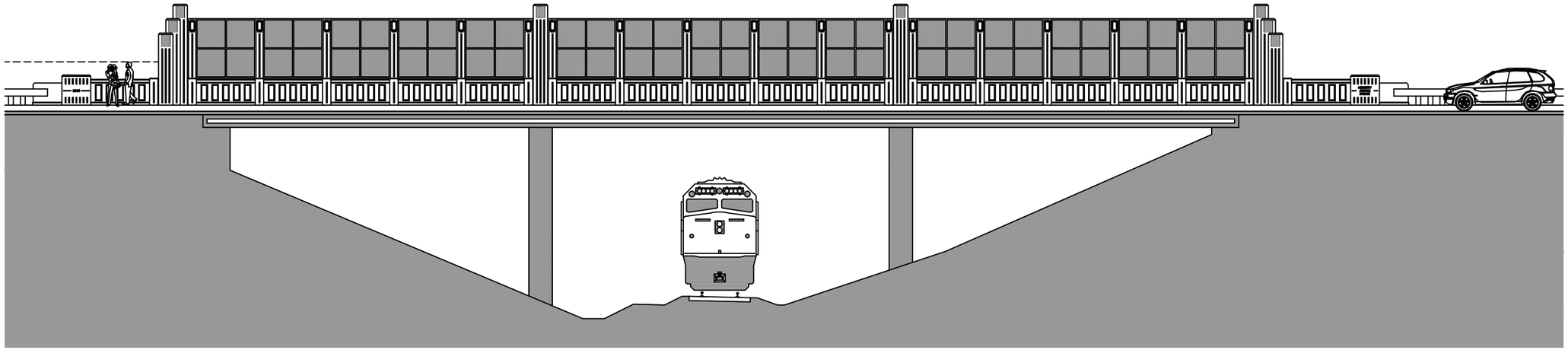
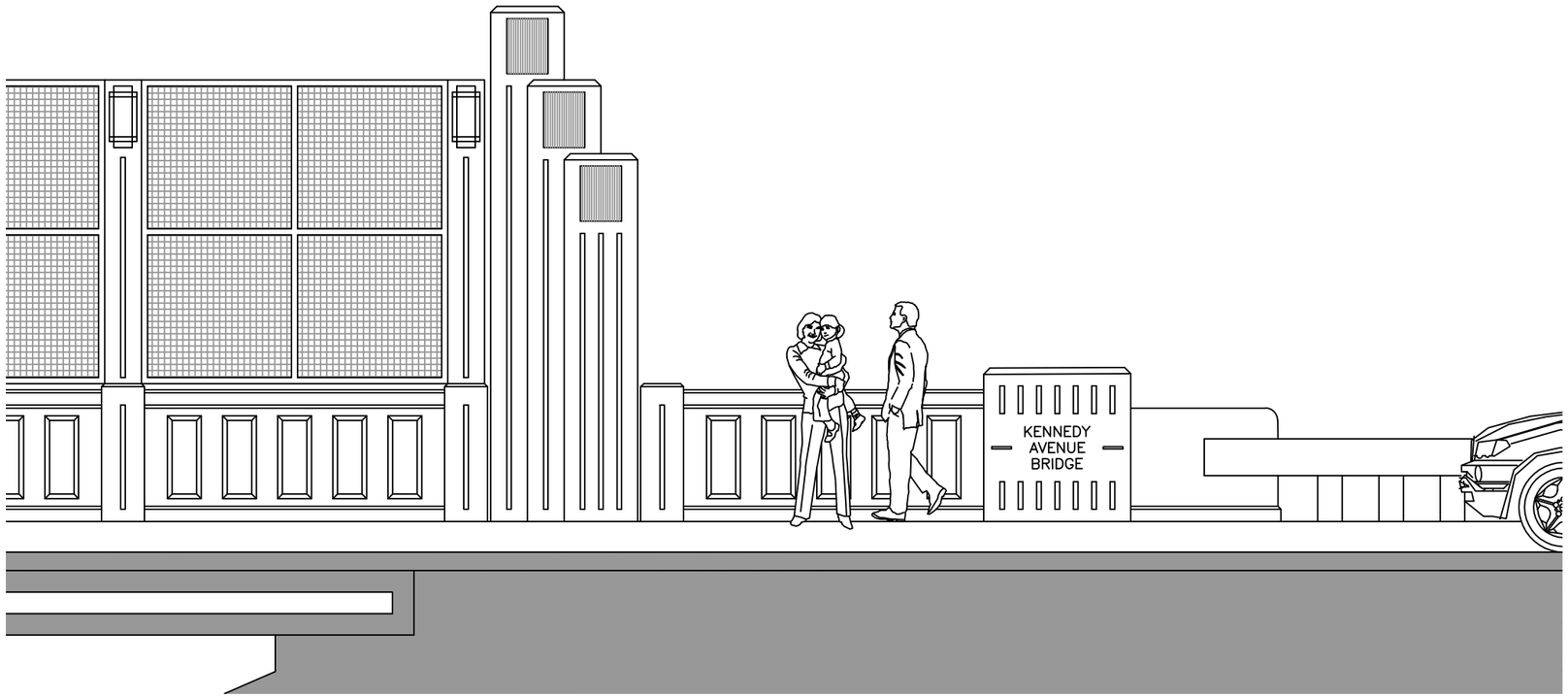
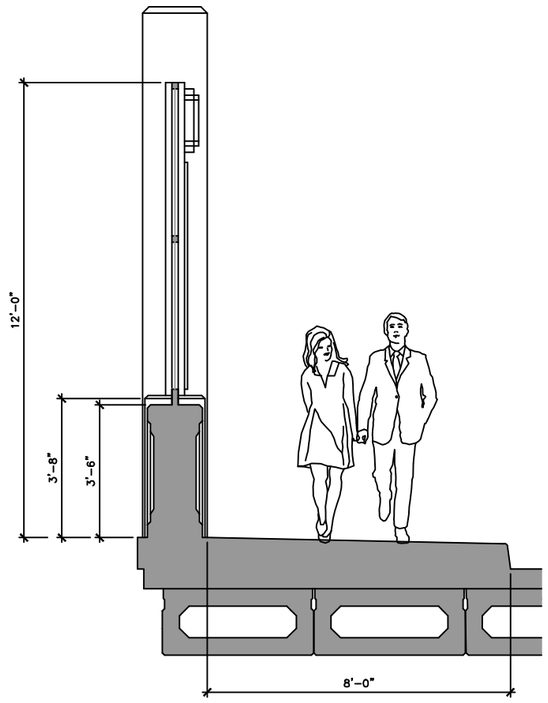


NORTH / SOUTH BRIDGE SECTION with PROPOSED PRELIMINARY ART DECO RAILING & VPF SCREENING
(NOTE - ROADWAY SECTION DRAWN AS HORIZONTAL FOR PRELIMINARY RAILING DESIGN PURPOSES ONLY)



DETAIL - PROPOSED PRELIMINARY ART DECO RAILING & VPF SCREENING



DETAIL - PROPOSED SIDEWALK SECTION

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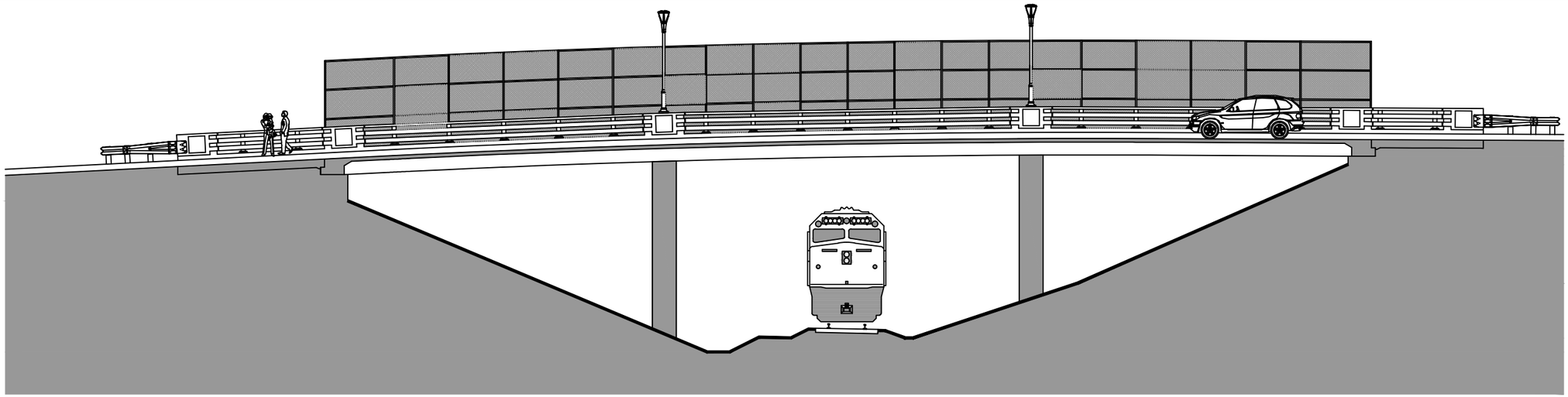
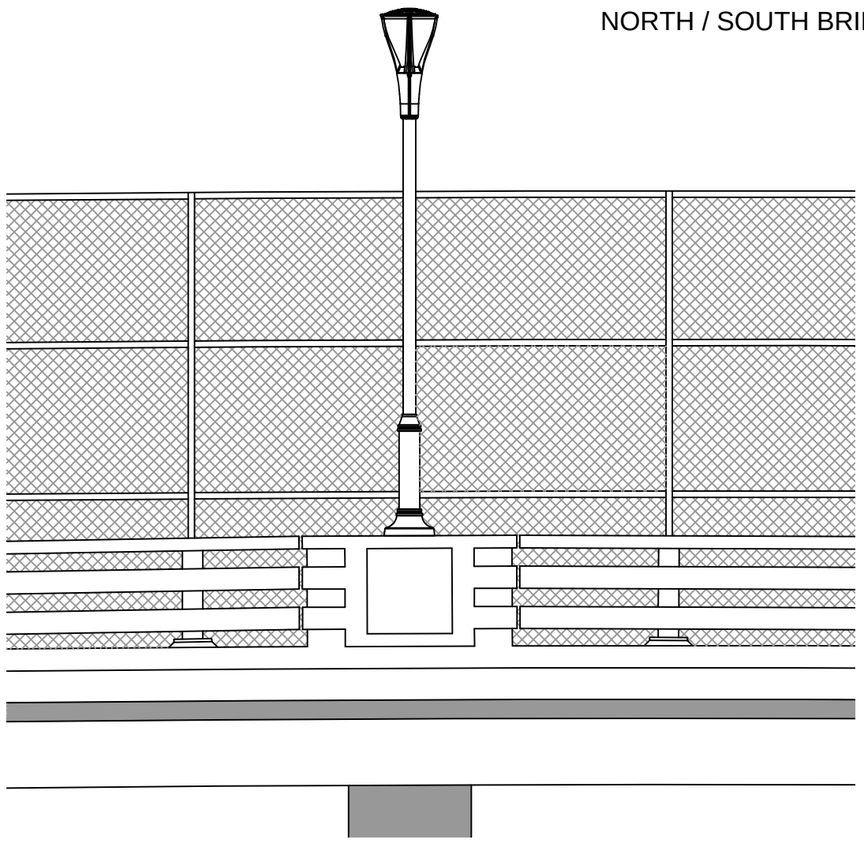
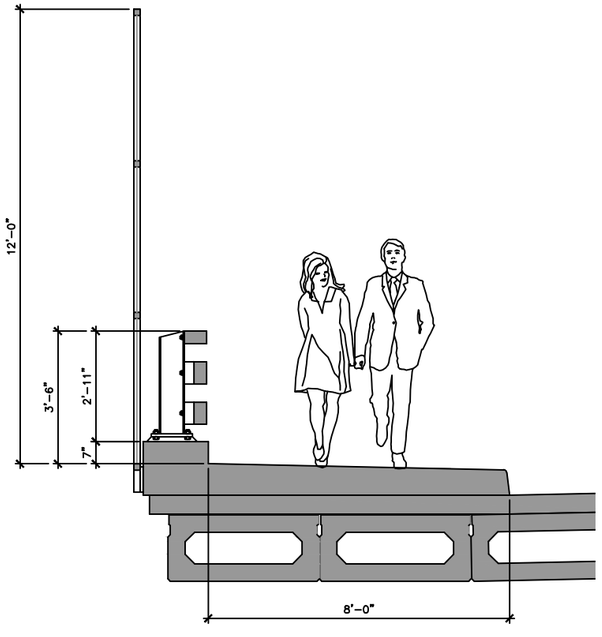
Proposed Preliminary Design – Metal Railing Design Concept:



NORTH / SOUTH BRIDGE SECTION with PROPOSED PRELIMINARY METAL RAILING & VPF SCREENING



DETAIL - PROPOSED PRELIMINARY METAL RAILING & VPF SCREENING



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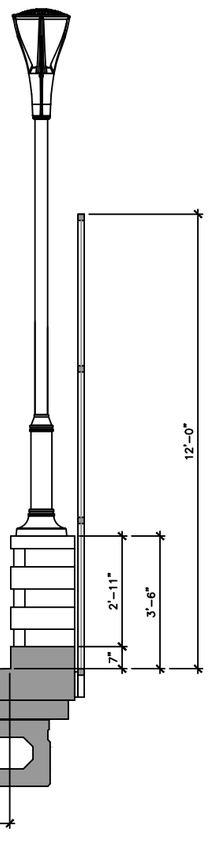

DETAIL - PROPOSED SIDEWALK SECTION

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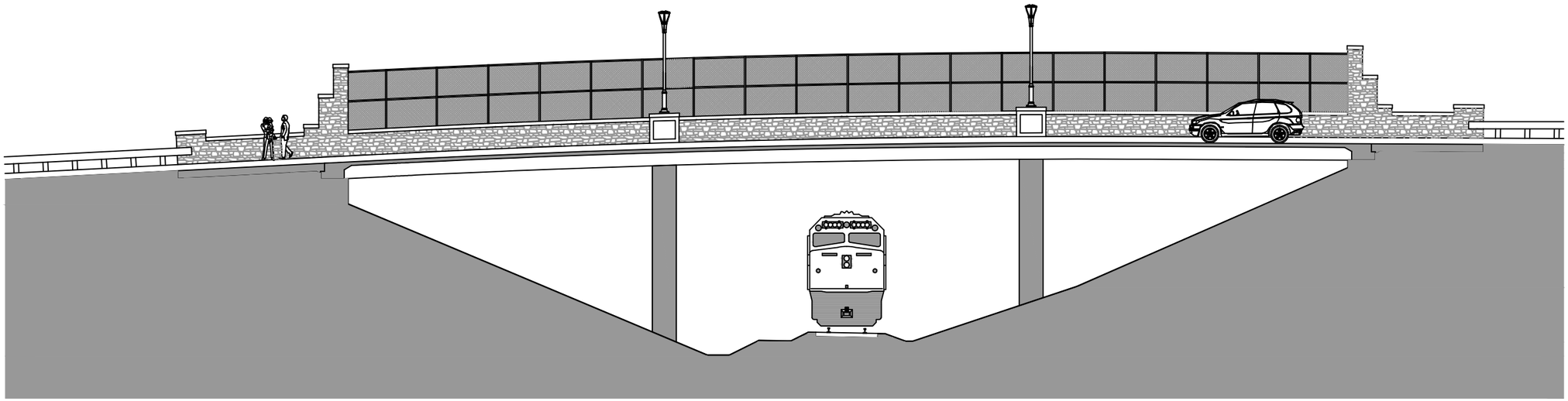
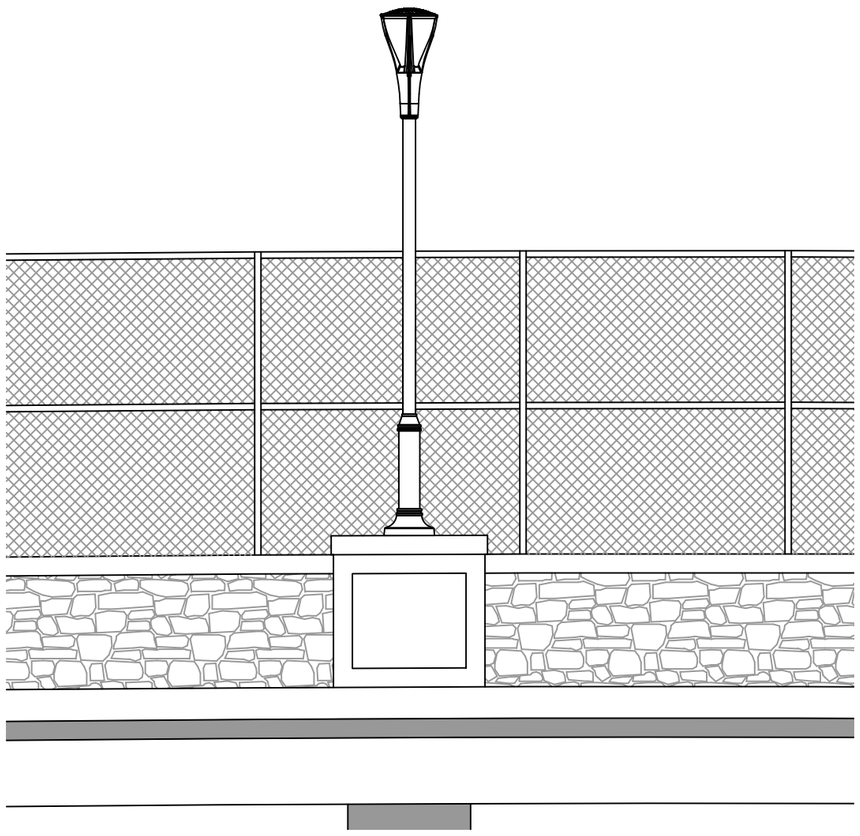
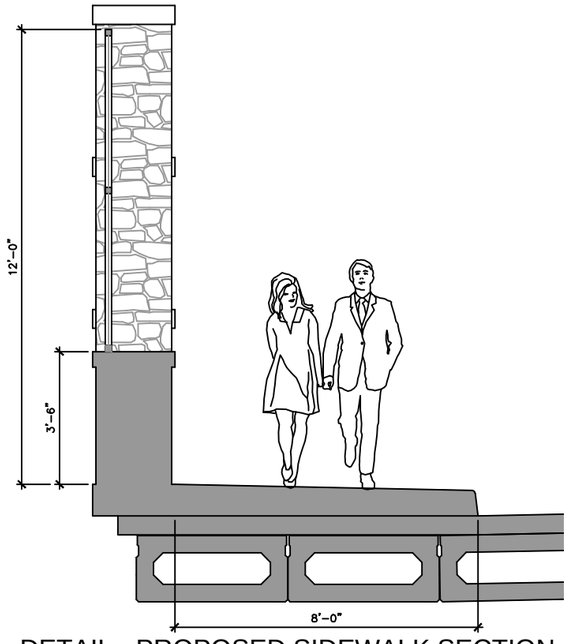
Proposed Preliminary Design – Stone Railing Design Concept:



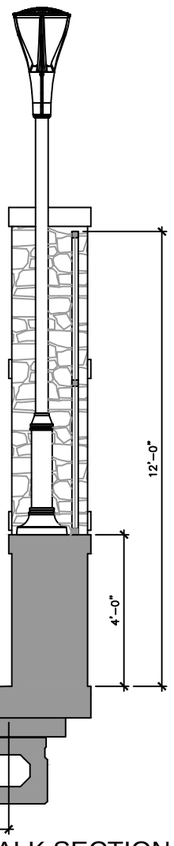
NORTH / SOUTH BRIDGE SECTION with PROPOSED PRELIMINARY LEDGE STONE CONCRETE FORMLINER RAILING & VPF SCREENING



DETAIL - PROPOSED PRELIMINARY "STONE" RAILING & VPF SCREENING



DETAIL - PROPOSED SIDEWALK SECTION



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