

I-75 Modernization Design Guide



DRAFT

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Table of Contents

1.0 Executive Summary 1-1

2.0 Introduction 2-1

3.0 Bridges 3-1

 3.1 Pedestrian Bridges 3-1

 3.1.1 ADA Configuration..... 3-1

 3.1.2 Finishes 3-1

 3.2 Cross Street Bridges 3-3

 3.3 Main Line Bridges..... 3-10

 3.3.1 Bridge Railing 3-13

 3.4 Flyover Bridges..... 3-14

 3.5 Wingwalls 3-16

4.0 Walls 4-1

 4.1 Noise Walls..... 4-1

 4.2 Retaining Walls..... 4-4

5.0 Pedestrian Pavement..... 5-1

 5.1 Pedestrian Bridge Landing 5-1

 5.2 Crosswalk Pavement 5-1

6.0 Underpass Slope Paving..... 6-1

7.0 Fencing 7-1

 7.1 Right-of-Way Fencing..... 7-1

 7.2 Pedestrian Bridge Fencing 7-2

8.0 Signage 8-5

 8.1 HOV and ITS Information System Support Tower..... 8-5

 8.2 Cross Street and Carpool Lot Identification..... 8-5

 8.3 Community Identification 8-6

9.0 Carpool Lots..... 9-1

10.0 Corridor Landscaping..... 10-5

 10.1 Rural Section Landscaping – (Landscape Areas Between Interchanges North of 12 Mile Road)..... 10-6

 10.2 Major Interchanges..... 10-8

 10.3 Urban Section South of 12 Mile Road 10-9

 10.4 Carpool Lots 10-11

 10.5 Vines..... 10-12

11.0 Color Palette 11-1

Table of Figures

Figure 1-1 Construction Segments 1-1

Figure 1-2 Perspective View of Prototypical Cross Street Overpass with Mid Century Style Components..... 1-2

Figure 1-3 Perspective View of Main Line Overpass with Mid Century Style Components 1-2

Figure 2-1 Corridor Community Images..... 2-1

Figure 3-1 Pedestrian Bridge View A..... 3-1

Figure 3-2 Pedestrian Bridge View B..... 3-1

Figure 3-3 Pedestrian Bridge Column – Perspective View 3-2

Figure 3-4 Pedestrian Bridge Column – Partial Elevation View 3-2

Figure 3-5 Pedestrian Bridge Column – Partial Selection View A-A..... 3-2

Figure 3-6 Perspective View of Prototypical Cross Street Overpass with Mid Century Style Components..... 3-3

Figure 3-7 Elevation View - Multi Column Pier with Crash Wall at Base 3-4

Figure 3-8 End View Multi-Column Pier..... 3-4

Figure 3-9 Wingwall with Framed Diamond Ornamentation 3-5

Figure 3-10 MDOT Modified B-25-Series Bridge Railing Used Where No Pedestrian Sidewalk Exists - Interior View 3-6

Figure 3-11 MDOT Modified B-25-Series Bridge Railing Used Where No Pedestrian Sidewalk Exists - Exterior View 3-6

Figure 3-12 General Aesthetic Dimensions MDOT Modified B-25-Series Bridge Railing..... 3-7

Figure 3-13 General Aesthetic Dimensions MDOT Modified B-17 or B-20 Bridge Railing 3-7

Figure 3-14 Bridge Pilaster, Ornamental Fence, and Railing - Bridge View 3-8

Figure 3-15 Exterior View of Bridge Railing, Pilasters and Fence 3-8

Figure 3-16 Bridge Pilaster 3-9

Figure 3-17 Perspective View of Main Line Overpass with Mid Century Style Components..... 3-10

Figure 3-18 Partial Elevation View Main Line Multi-Column Pier and Outside Column with Optional Diamond Ornament..... 3-11

Figure 3-19 Partial Elevation View Main Line Multi-Column Pier with Crash Wall..... 3-11

Figure 3-20 Diamond Ornament 3-12

Figure 3-21 Bridge Railing 3-13

Figure 3-22 Square Lake Road Flyover Bridges..... 3-14

Figure 3-23 Elevation View of Second Level Column 3-15

Figure 3-24 Second and Third Level Flyover Barrier Railing Treatments 3-15

Figure 3-25 Perspective View – Partial Section View Through Main Line Overpass Bridge 3-16

Figure 3-26 Partial Elevation View – Monumental Wingwall and Abutment Face 3-16

Figure 3-27 Partial Elevation View – Monumental Wingwall with Accent Brick Band..... 3-17

Figure 3-28 Partial Elevation View – Alternative Triple Diamond and Accent Brick..... 3-17

Figure 4-1 Noise Wall - Rectangular Pattern 4-2

Figure 4-2 Noise Wall - Running Bond Brick Pattern 4-2

Figure 4-3 Noise Wall - Double Diamond Pattern 4-2

Figure 4-4 Noise Wall Detail – Rectangular Pattern 4-3

Figure 4-5 Noise Wall Detail – Double Diamond Pattern 4-3

Figure 4-6 Elevation View and Plan Layout of Terminal/End and Line Posts..... 4-3

Figure 4-7 Elevation of Retaining Wall at Cross Street Overpass 4-4

Figure 5-1 Pedestrian Bridge Landing and Pavement 5-1

Figure 6-1 Underpass Slope Concept..... 6-1

Figure 7-1 Decorative Right-of-Way Fencing..... 7-1

Figure 7-2 Bridge Pilaster with Pedestrian Fence for use on Cross Street Overpasses.....7-2

Figure 7-3 Elevation View of Pedestrian Fence when used on a Pedestrian-Only Bridge7-3

Figure 7-4 End View of Pedestrian Fence with Arched Enclosure.....7-3

Figure 7-5 Elevation View of Carpool Lot Perimeter Fencing7-4

Figure 8-1 Partial Elevation View of Bridge with Street Name Cast into Railing Surface8-5

Figure 8-2 Detail of Cross Street Identifier with Alternative Font Options.....8-5

Figure 9-1 Carpool Lot Walls with Brick Veneer, Smooth Concrete Caps, and Stainless Steel or Aluminum Sculpture with Brushed Finish9-1

Figure 9-2 Carpool Lot Walls with Natural Stone Cladding, Smooth Concrete Caps, and Stainless Steel or Aluminum Sculpture with Brushed Finish.....9-1

Figure 9-3 Carpool Lot Walls with Brick Veneer, Smooth Concrete Caps, and Steel Sculpture Painted with Accent Color9-2

Figure 9-4 Carpool Lot Walls with Stone Veneer, Smooth Concrete Caps, and Steel Sculpture Painted with Accent Color9-2

Figure 9-5 Carpool Lot Wall Elevation Views.....9-3

Figure 9-6 Carpool Lot Monument - Plan View9-4

Figure 9-7 Carpool Lot Sculpture – Perspective with Stainless Steel Mesh9-4

Figure 9-8 Carpool Lot Entry-Elevation View9-4

Figure 10-1 Landscaping Plan View10-6

Figure 10-2 Landscaping Section View A-A10-7

Figure 10-3 Interchange Landscaping10-8

Figure 10-4 South of 12 Mile Rd Landscaping Elevation View top, Plan View below.....10-9

Figure 10-5 Planting Concept at Main Line.....10-10

Figure 10-6 Carpool Lot Landscaping Plan View.....10-11

Figure 10-7 Landscape Vine Benefits.....10-12

Figure 11-1 Typical Cross Street Overpass with Light Brown Color Palette.....11-1

Figure 11-2 Typical Main Line Overpass with Light Brown Color Palette11-1

Figure 11-3 Typical Cross Street Overpass with Gray/Red-Brown Color Palette.....11-2

Figure 11-4 Typical Main Line Overpass with Gray/Red-Brown Color Palette11-2

The use of the terms “brick veneer” or “veneer”, “brick unit inserts” and “brick texture” unless otherwise defined in this document, refers to the use of fired clay surface materials of brick dimensions engineered to be inserted within the concrete formwork making them composite with and integral to the cast concrete structures. The use of traditional masonry brick veneer over cast concrete or masonry core is not recommended in this document. Precast concrete can be utilized for capitols and other smaller ornamental elements. Textured form liners may be used to achieve a simulated stone texture and pattern. These suggested materials and technologies will be evaluated during the final design phase of each segment of the corridor. The goal is to establish a consistent visual appearance and provide quality to all the improvements constructed within the corridor.

Figure 1-2 Perspective View of Prototypical Cross Street Overpass with Mid Century Style Components



Figure 1-3 Perspective View of Main Line Overpass with Mid Century Style Components



Purpose

The purpose for the design guide is to summarize aesthetic preferences of the impacted communities and provide the designers guidance for the construction of the aesthetic treatments.

The design guide is a working document and that over the course of the project, is likely that refinements will be made to take advantage of the changing technologies and lessons learned from previous projects, in the pursuit of delivering the desired aesthetic character to the project corridor.

Design Guide Organization

The design guide is organized by section, each containing a brief description and illustrations of the Mid Century Style and elements. The design guide strives to illustrate examples of major elements in sufficient detail so that a design solution may be developed for all future improvements. The sections are:

2. Introduction
3. Bridges
4. Walls
5. Pedestrian Pavement
6. Underpass Slope Pavement
7. Fencing
8. Signage
9. Carpool Lots
10. Corridor Landscaping
11. Color Palette

It should be noted that all of the aesthetic improvements proposed here require minimal or comparable maintenance as other standard MDOT infrastructure elements. It is not anticipated that any of the proposed improvements will require local maintenance agreements.

2.0 Introduction

The I-75 Modernization Project includes the modernization and reconstruction of approximately 18 miles of pavement with drainage, operations, and safety improvements, and the replacement of 51 bridges (47 reconstructed and four new). This capacity improvement adds a High-Occupancy Vehicle (HOV) lane to the corridor. The modernization allows for redefinition of the visual character incorporating these new elements into a context appropriate for the community.

The development of the corridor style was completed through a collaborative effort between stakeholders through a series of technical steering committee meetings and interactive public workshops. Style options were presented that were appropriate for the corridor through a review of the current context and settings, possible options and preferences. Participants ranked preferences for style and treatments. Selections were used to create the final style for the corridor.

Mid Century Style

While the term Mid Century is used to define a specific architectural design style, the term has been borrowed and redefined for this project as a way to describe the materials and forms that are illustrated in this design guide. Mid Century Style is an eclectic style of architectural elements which derive their inspiration from the traditional commercial building construction of the older more established communities of Hazel Park, Madison Heights, and Royal Oak blended with the slightly more modern expressions of architecture found in the newer suburban communities of Troy, Bloomfield Township, and Auburn Hills (see Figure 2-1). It is comprised of primary materials of clay brick and smooth concrete surfaces assembled in traditional manner with traditional forms. These materials and forms are accented with natural stone textures used on larger retaining walls, simple vertical metal picket and post fence elements on bridges, and along the limits of the right-of-way. This simpler eclectic style has been preferred by the public for use on improvements for the corridor.

Figure 2-1 Corridor Community Images



The corridor communities of Hazel Park, Madison Heights, Royal Oak, Troy, Bloomfield Township, and Auburn Hills reflect simple forms, brick stone, and metal materials providing inspiration for the Mid Century Style.

3.0 Bridges

Figure 3-1 Pedestrian Bridge View A



Figure 3-2 Pedestrian Bridge View B



3.1 Pedestrian Bridges

The I-75 Modernization Project includes the replacement of six pedestrian bridges. These bridges will provide updated safe and convenient non-motorized east/west connections over the freeway. They will also be constructed in conformance with the Americans with Disabilities Act (ADA) accessibility requirements.

3.1.1 ADA Configuration

The bridge landing areas are limited in space due to the adjacent built up urban environment. Ramping structures are expected to be configured using a switch-back configuration. The ramp base of the structure arrangement rests on grade, supporting the first and part of the second ramp segments. The remaining ramp segments are supported on columns (See Figures 3-1 and 3-2).

3.1.2 Finishes

- Exterior of the ramp base will be clad in brick from the finished grade line to the underside of the ramp slab. A portion of the ramping structures, which are aerial (separated from the ground), will be supported on rectangular columns (see Figure 3-3).
- Column base consists of a smooth concrete surface with a common height, with brick veneer covering the remainder of the column shaft. The top of the column ends in a terminal cornice block which transitions to the cap supporting the aerial ramp slab and girders (see Figures 3-4 and 3-5).
- All non-walking surface concrete will be a smooth finish and coated with base color.
- Pedestrian fencing will meet all MDOT safety standards and handrails will satisfy ADA requirements.
- Provide a high overall quality appearance and minimize long term maintenance. Smaller fabricated metal items such as fence panels, post, and hand railings are to be shop coated with highly durable powder coat paint (accent color) and clear overcoat finish too. Bridge girders regardless of material (concrete or steel) are to be painted per standard MDOT specifications with the project accent color.
- All ramp and bridge walking surfaces will be cast in place concrete and meet MDOT and ADA requirements for slope, resting areas, surface texture, and curb requirements.

Figure 3-3 Pedestrian Bridge Column – Perspective View

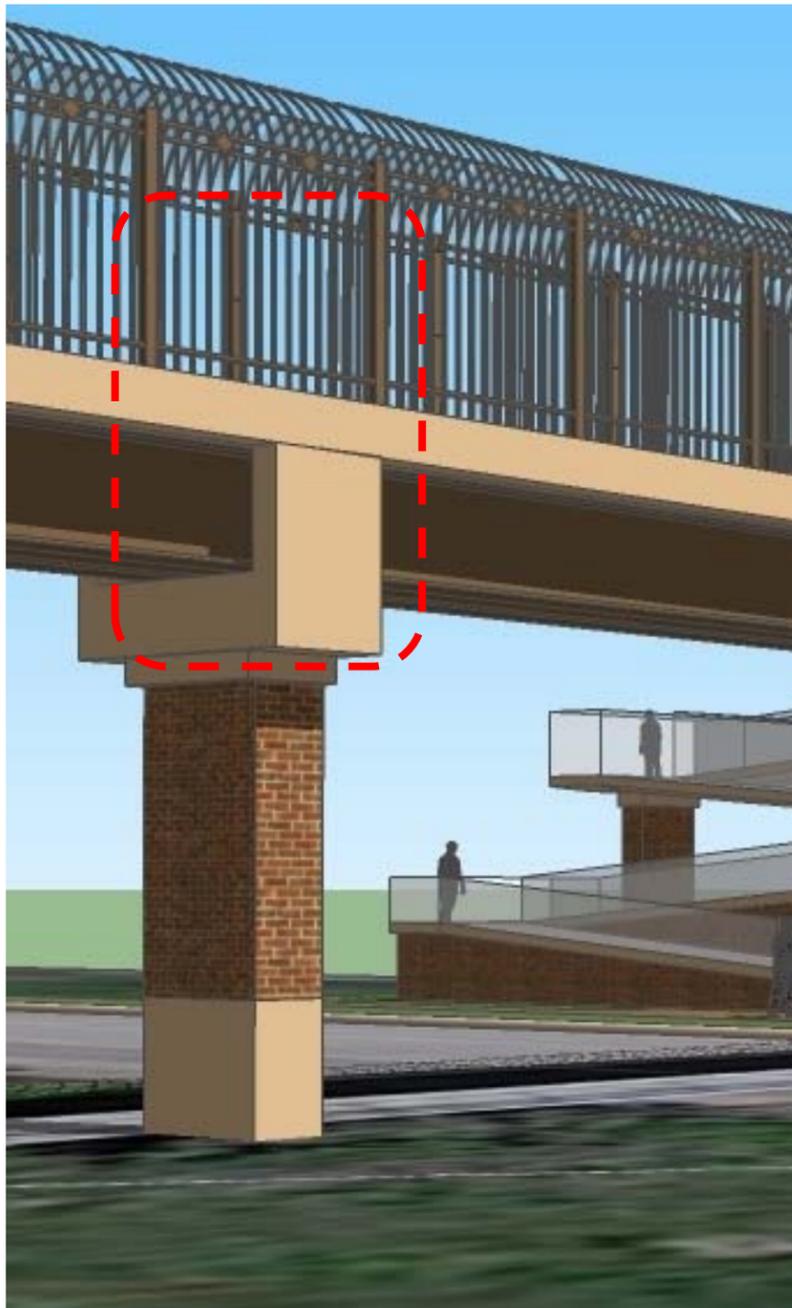


Figure 3-4 Pedestrian Bridge Column – Partial Elevation View

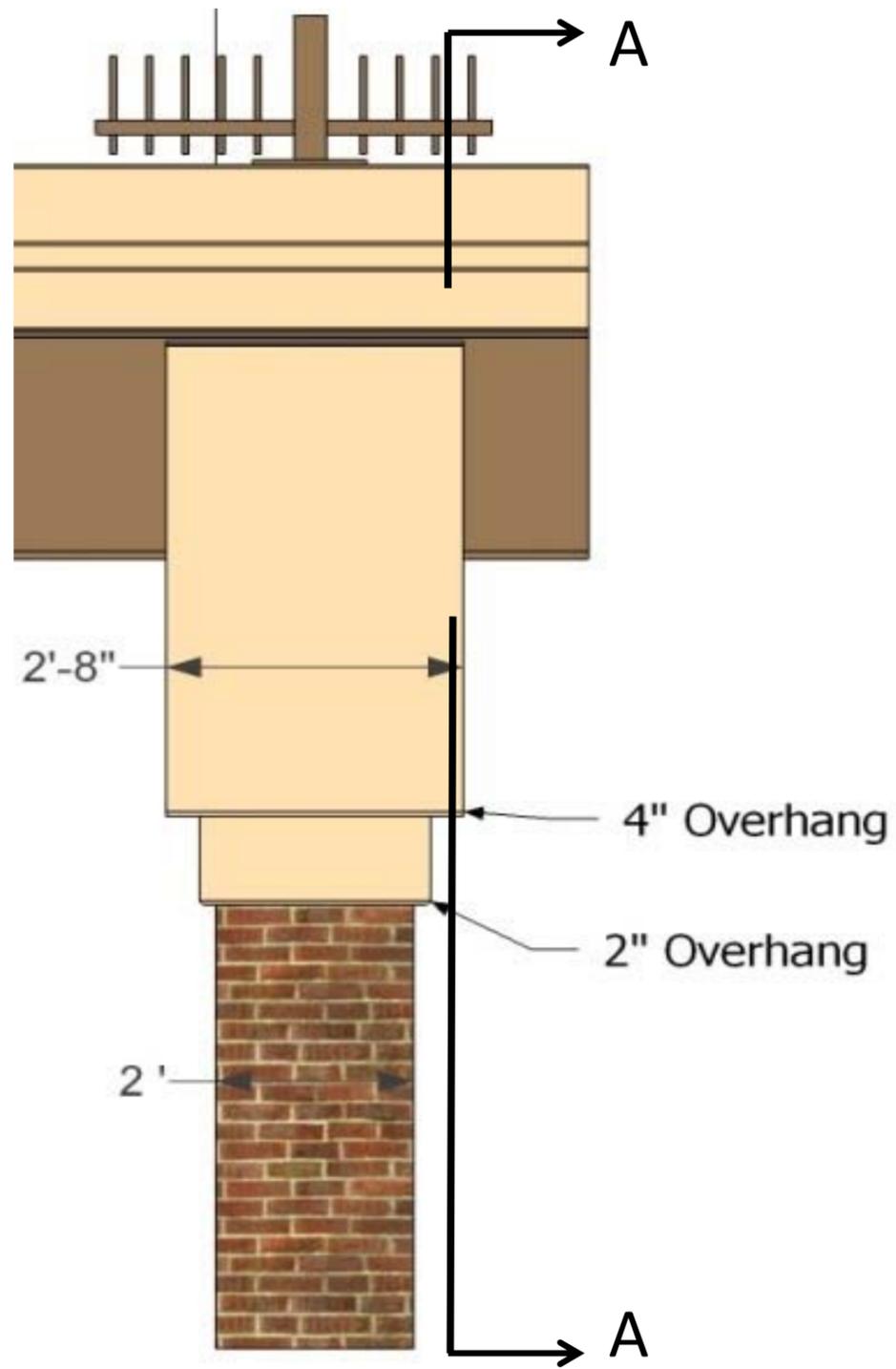
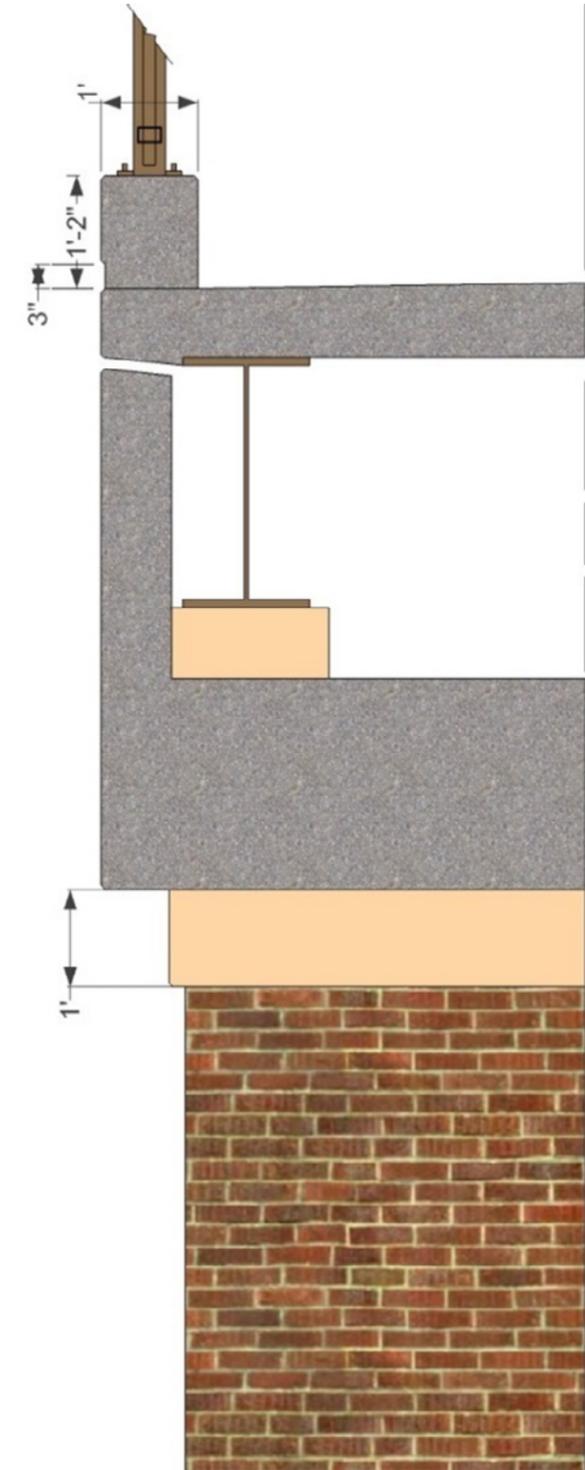


Figure 3-5 Pedestrian Bridge Column – Partial Section View A-A



3.2 Cross Street Bridges

The existing profile grade conditions of the I-75 corridor (main line lower than the cross streets between M-102 and 12 Mile Road) will remain. The reconstruction of the affected cross-street overpass bridges provides an opportunity to establish a consistent corridor aesthetic. They are highly visible to freeway motorists and contribute to the overall visual character of the communities. The aesthetic treatment of these bridges is intended to address both the view from the main line freeway and the streetscape of the neighboring community. The Mid Century Style is articulated on the overpass bridges through simple eclectic forms and surface ornamentation (see Figure 3-6). The style is achieved through the use of smooth concrete surfaces with integral clay brick veneer. The supporting structure beneath the bridge consists of brick wrapped rectangular columns which support a smooth concrete cap. As an option, an extended mask wall may be included atop the center bridge pier which is intended to enhance the support for the center pilaster. In situations where the pilasters do not line up with the center pier the mask wall may be omitted (see Figures 3-7 and 3-8). Typical MDOT standards will be followed for deck thickness, overhangs, girder depths, and spacing for all the bridges. If conditions allow, efforts should be made to make girder depths consistent among overpass bridges.

At the ends of the bridge an enhanced wingwall is proposed (see Figure 3-9). The wingwall may also be designed to provide vertical support for pedestrian fencing. The front exterior face of the wingwall will include the option for a framed diamond ornament.

Figure 3-6 Perspective View of Prototypical Cross Street Overpass with Mid Century Style Components



All exposed smooth concrete surfaces on the barrier, pilaster, deck edges, pier cap, and wingwall will be coated in the base color.

Each of the cross street overpass bridges will include pedestrian accommodations with raised sidewalks. It is anticipated that the bridge parapet for these conditions will be designed to the MDOT B-25-series style barrier. The barrier will be standard height with smooth concrete top and brick cladding on both interior and exterior faces. The standard concrete parapet will be designed to accommodate the standard metal vehicle protection railing and a pedestrian protection fence. In addition, intermediate pilasters are to be placed along the barrier. The pilasters are principle design elements in the Mid Century Style and function by providing vertical support for the pedestrian protection fencing. The exterior face of the pilasters, (as viewed from the freeway) will include the option for a rectangular ornament. See Figures 3-10 through 3-16. For pedestrian protection fencing and additional pilaster details refer to Section 7.0 Fencing. In the event a different barrier type is chosen, the intent is for both barrier front and back faces to include brick textures where pedestrian sidewalks are provided over the bridge. In instances where no pedestrian accommodation is provided, only the exterior face of the barrier needs to include the brick texture.

To reduce long term maintenance and provide a high overall quality appearance, it is recommended that smaller fabricated metal items such as fence panels, posts, and vehicle crash railings are to be shop coated with highly durable powder coat paint (accent color) and clear overcoat finish. Bridge girders regardless of material (concrete or steel) are to be painted per standard MDOT specifications with the project accent color.

Figure 3-7 Elevation View - Multi Column Pier with Crash Wall at Base

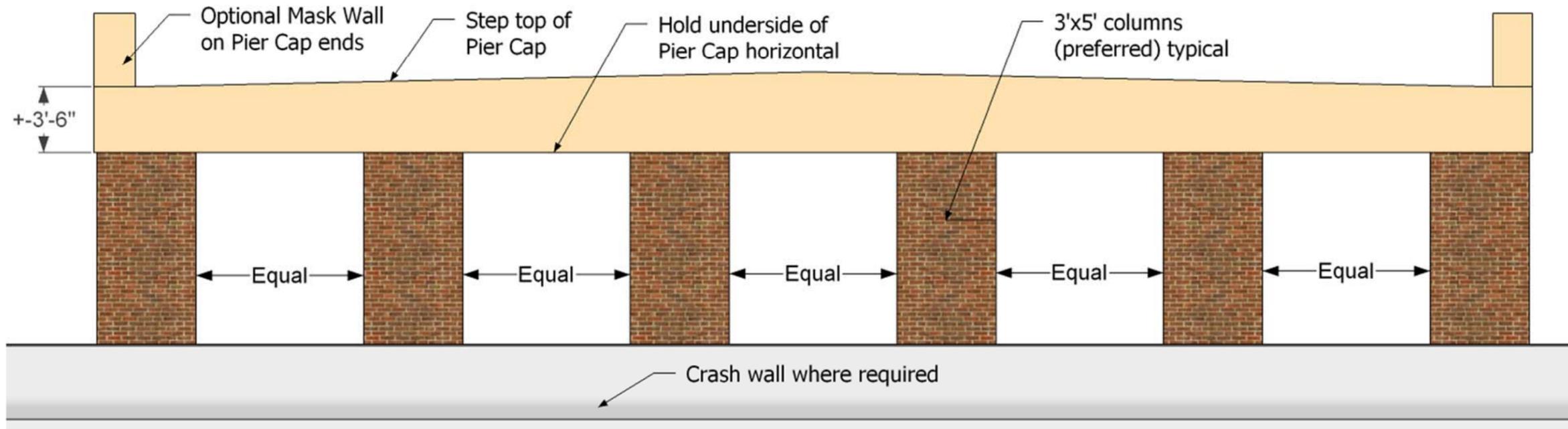


Figure 3-8 End View Multi-Column Pier

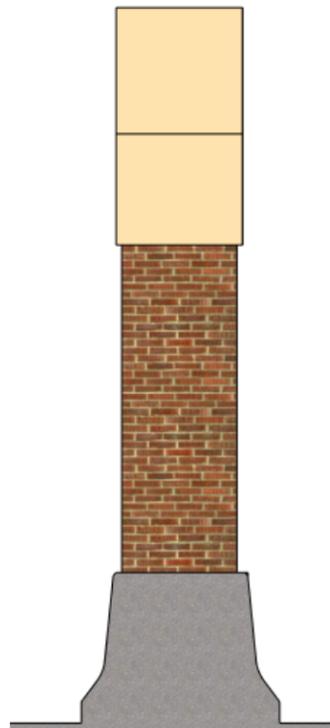


Figure 3-9 Wingwall with Framed Diamond Ornamentation

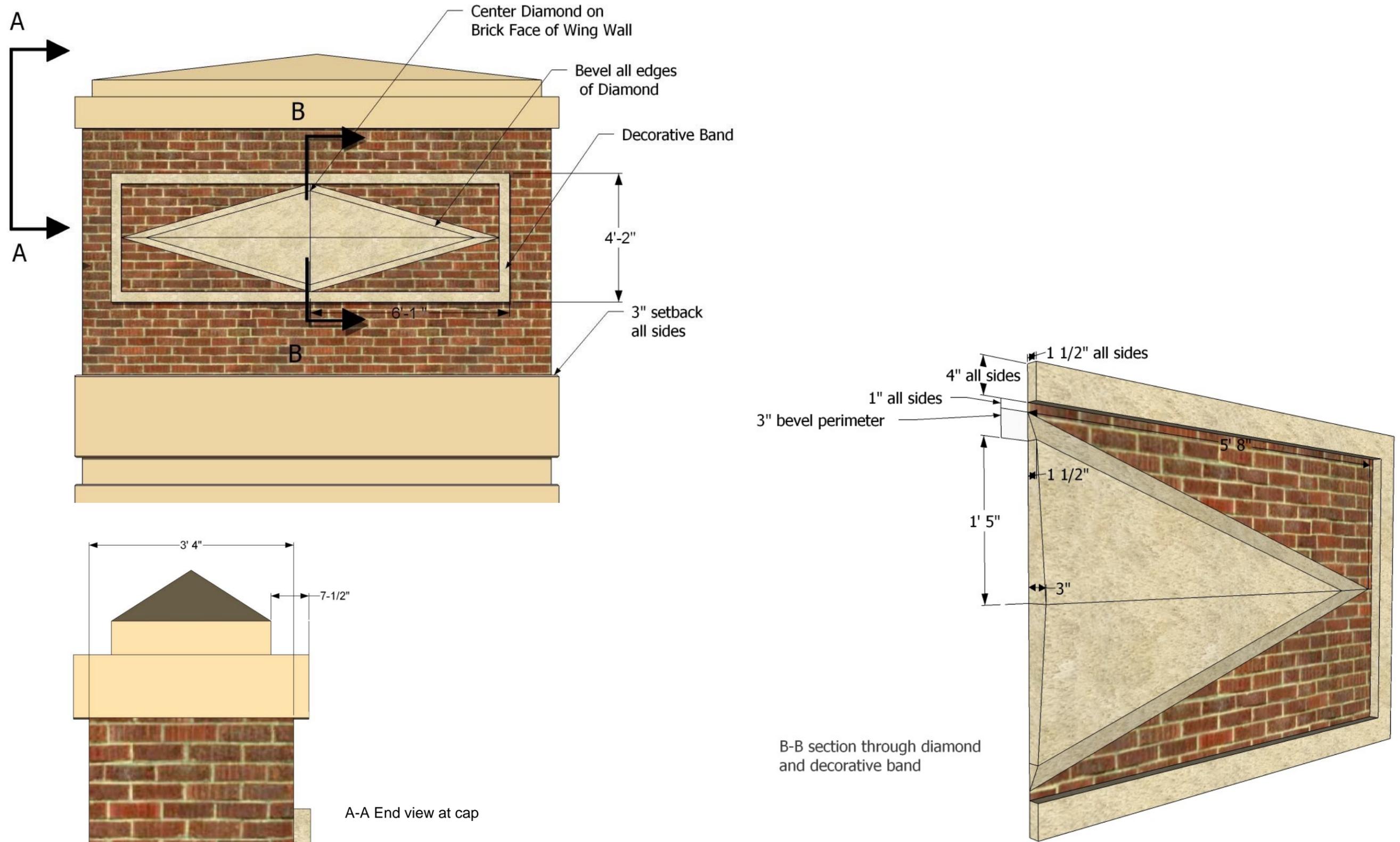


Figure 3-10 MDOT Modified B-25-Series Bridge Railing Used Where No Pedestrian Sidewalk Exists - Interior View



Figure 3-11 MDOT Modified B-25-Series Bridge Railing Used Where No Pedestrian Sidewalk Exists - Exterior View

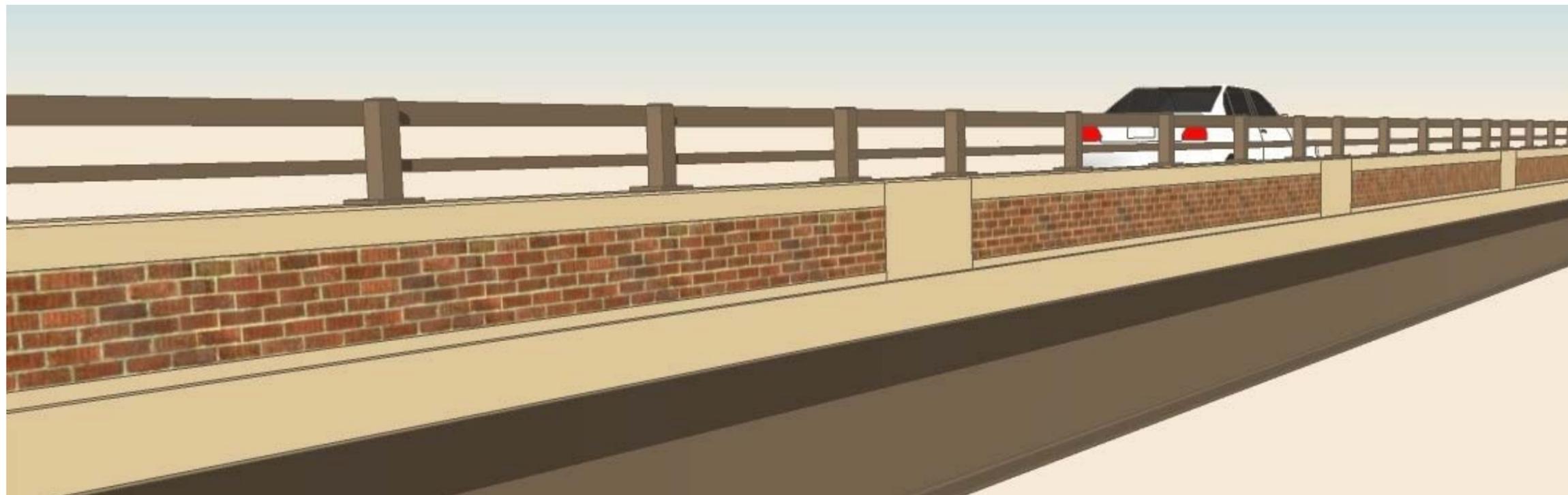


Figure 3-12 General Aesthetic Dimensions MDOT Modified B-25-Series Bridge Railing

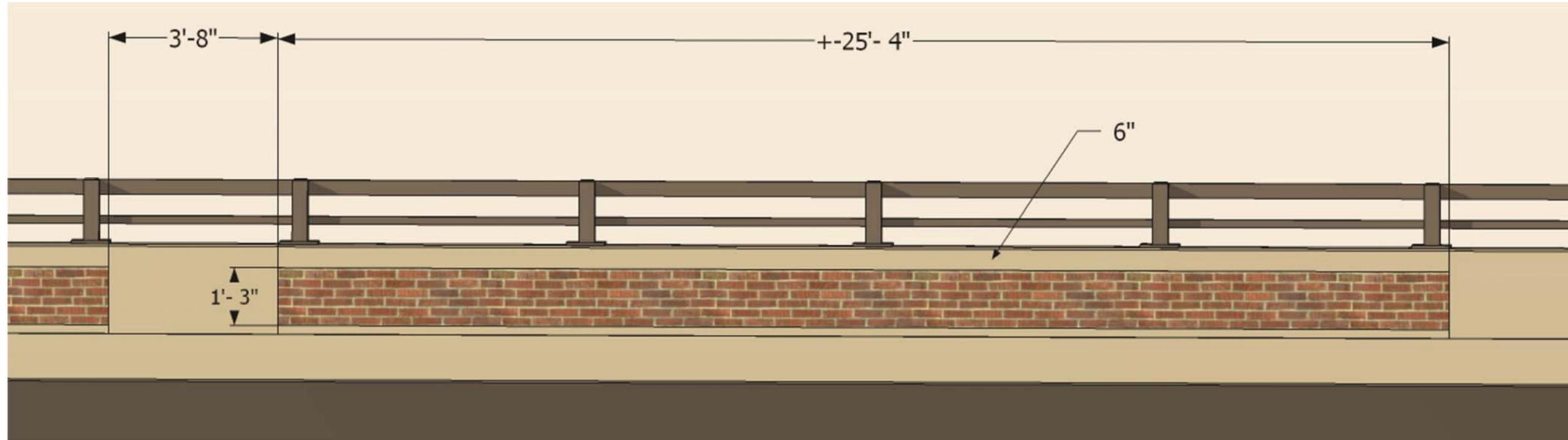


Figure 3-13 General Aesthetic Dimensions MDOT Modified B-17 or B-20 Bridge Railing

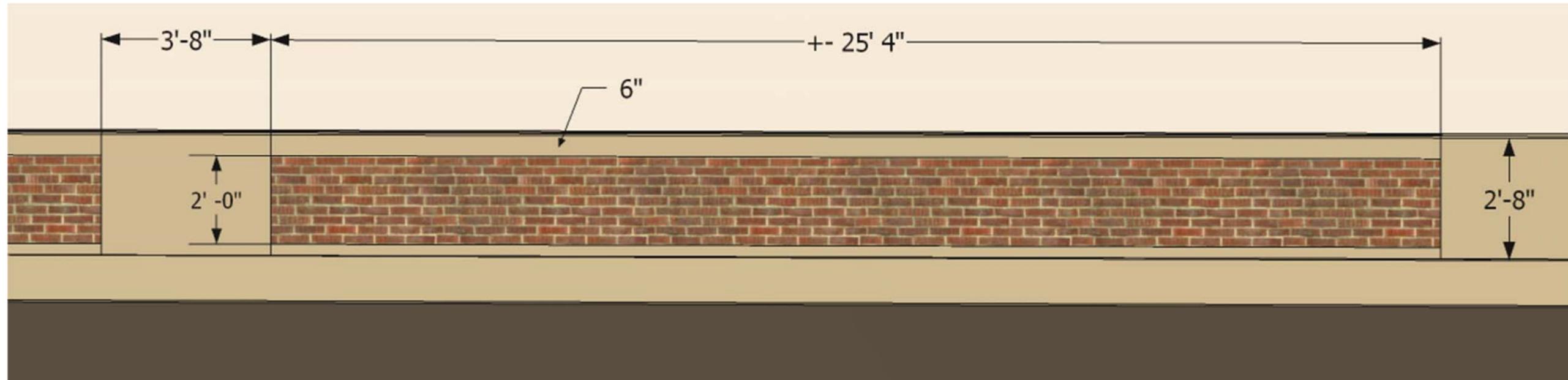
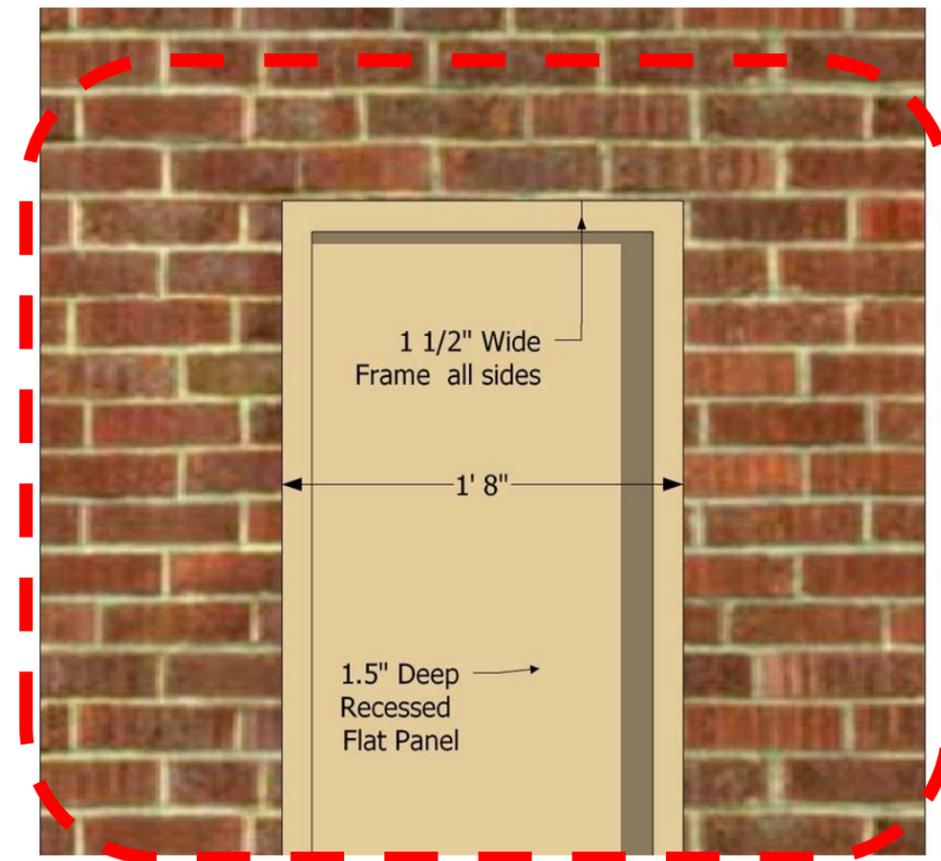
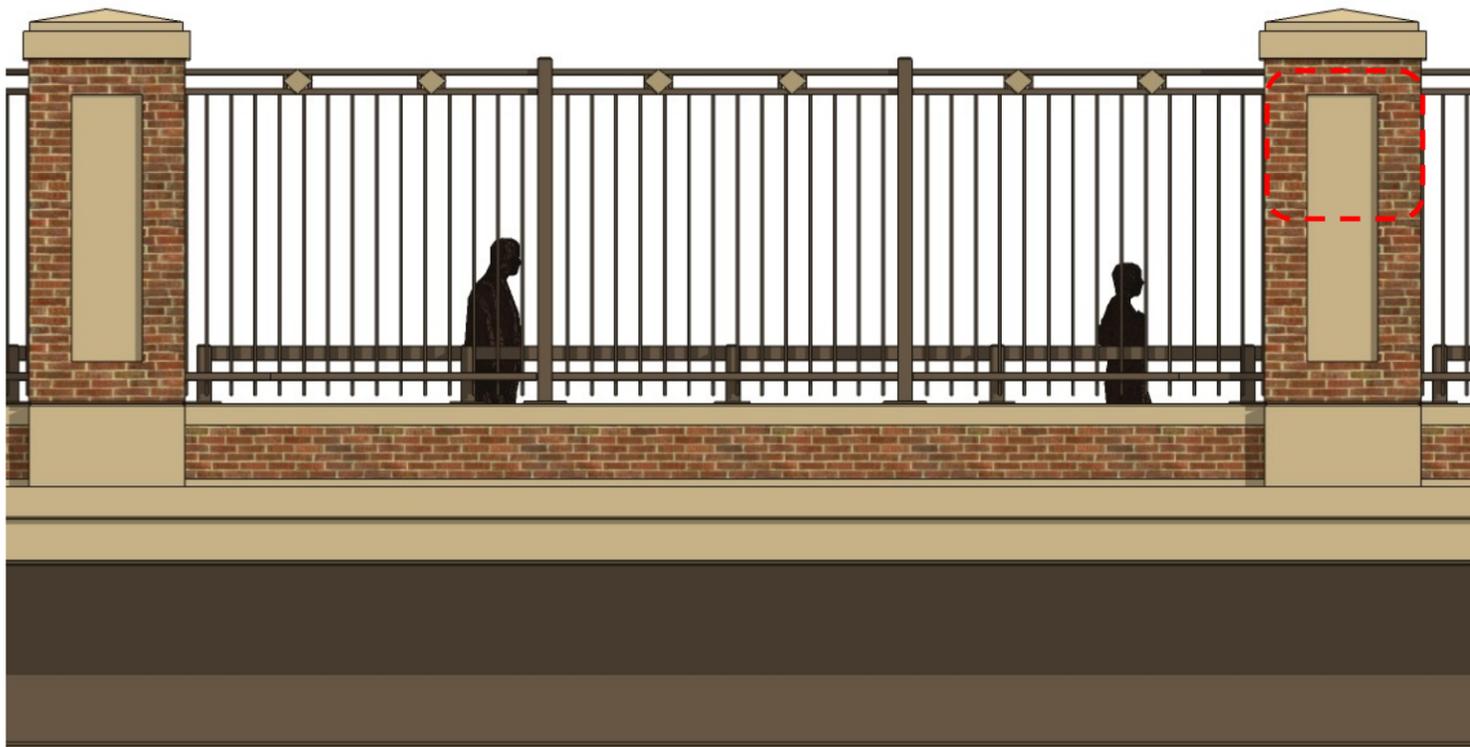


Figure 3-14 Bridge Pilaster, Ornamental Fence, and Railing - Bridge View

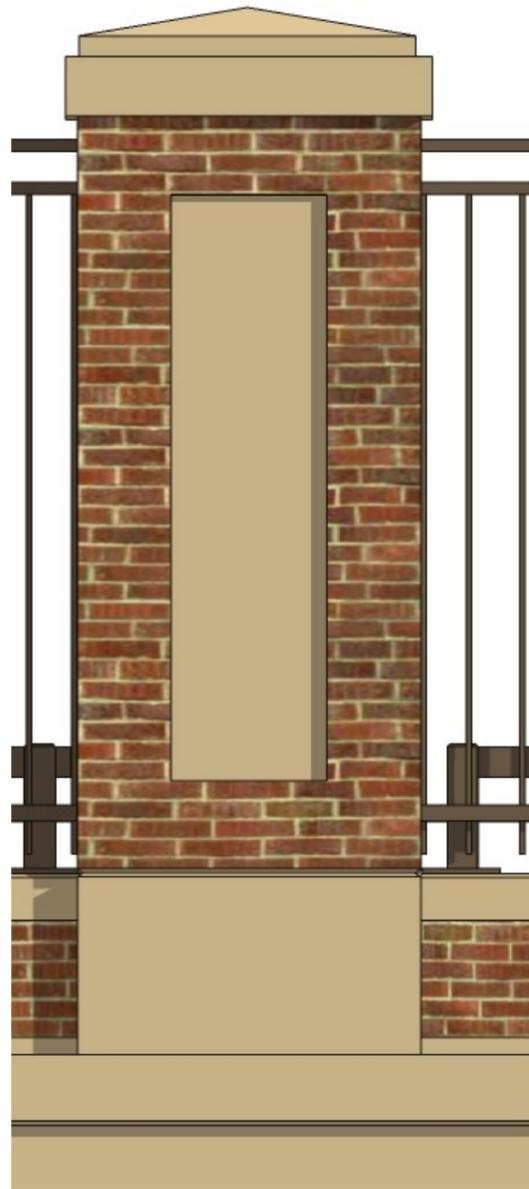


Figure 3-15 Exterior View of Bridge Railing, Pilasters and Fence

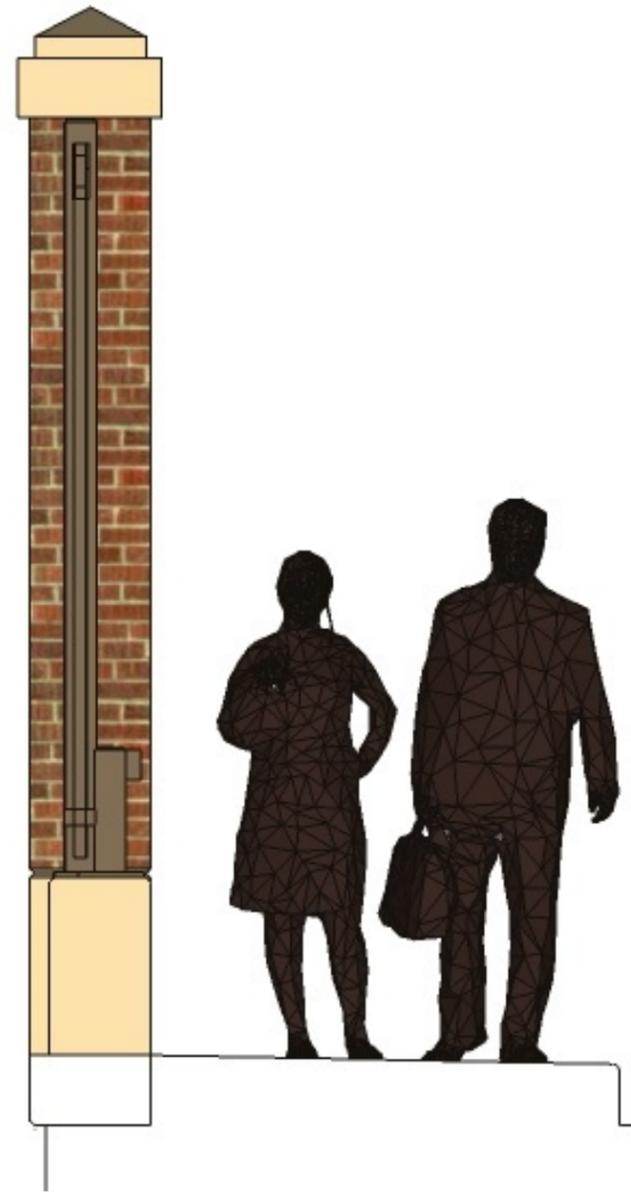


Enlargement of recessed panel on bridge pilaster

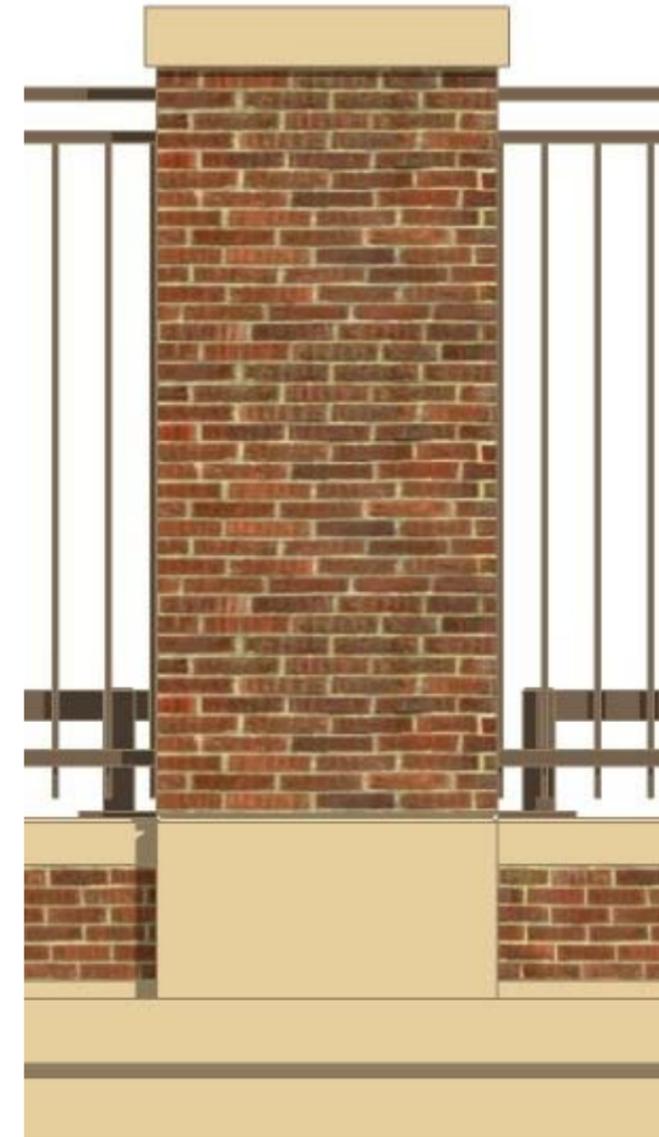
Figure 3-16 Bridge Pilaster



Exterior Elevation View of bridge pilaster



End View of Pilaster and bridge railing



Elevation View- Alternative pilaster with horizontal top and rectangle ornamentation omitted

3.3 Main Line Bridges

Main line overpass bridges are the dominant structure and visual feature of the corridor starting from 12 Mile Road and extending to the northern project limits north of South Boulevard (see Figure 3-17). The Mid Century Style includes specific treatments to exterior barrier railings, columns (see Figure 3-18 and Figure 3-19), ornamentation (see Figure 3-20), monumental wingwalls, decorative abutment faces, and decorative slope paving.

Figure 3-17 Perspective View of Main Line Overpass with Mid Century Style Components



Figure 3-18 Partial Elevation View Main Line Multi-Column Pier and Outside Column with Optional Diamond Ornament

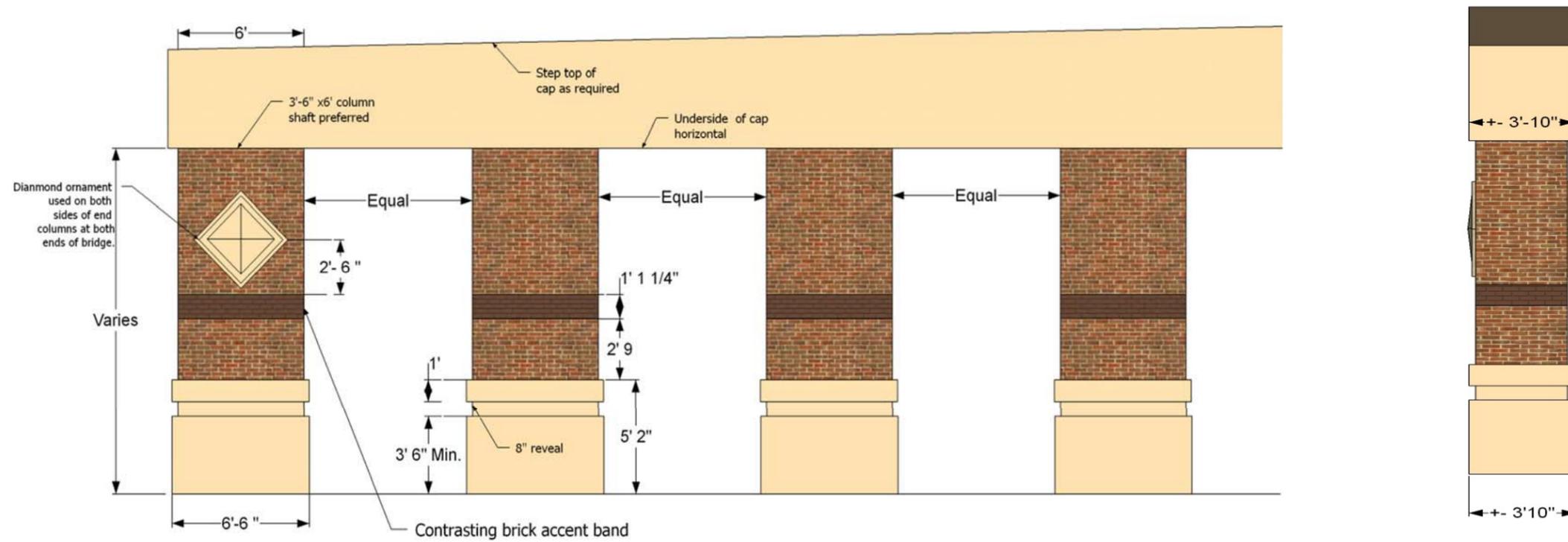


Figure 3-19 Partial Elevation View Main Line Multi-Column Pier with Crash Wall

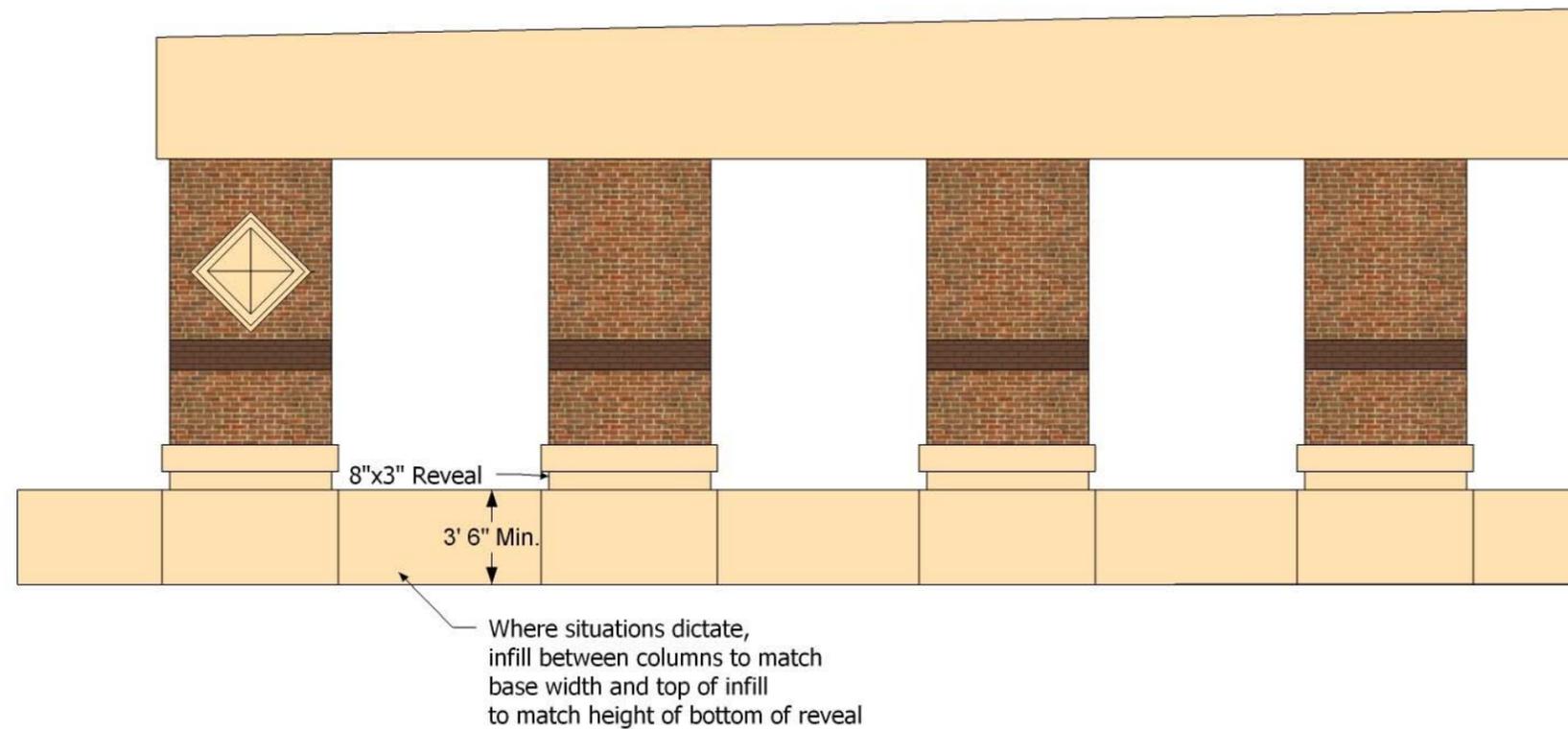
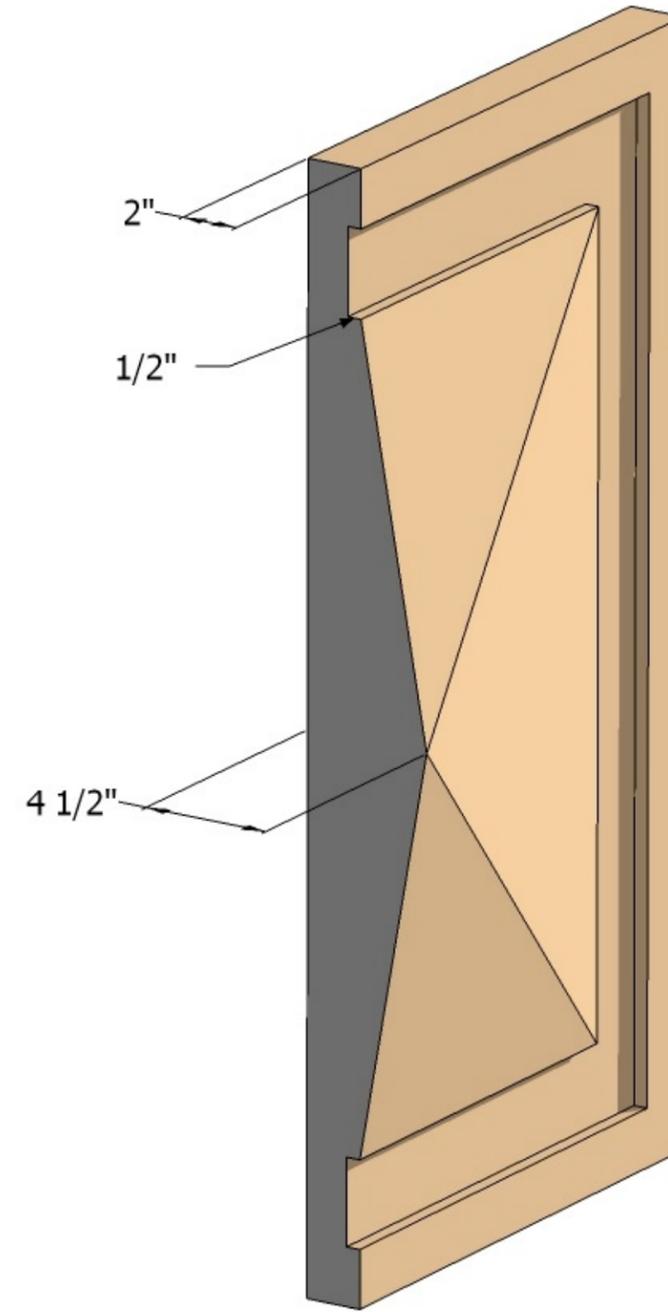
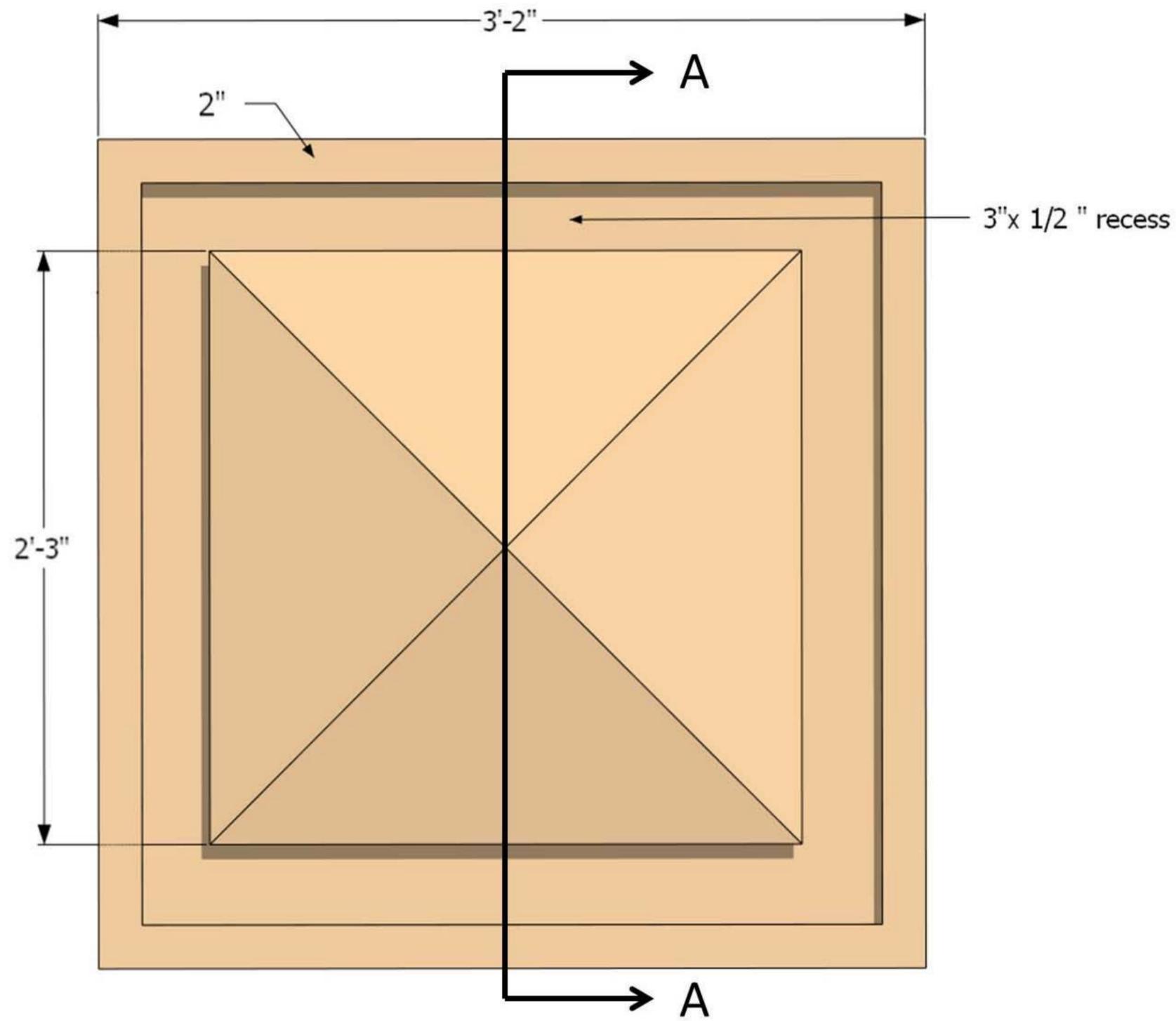


Figure 3-20 Diamond Ornament



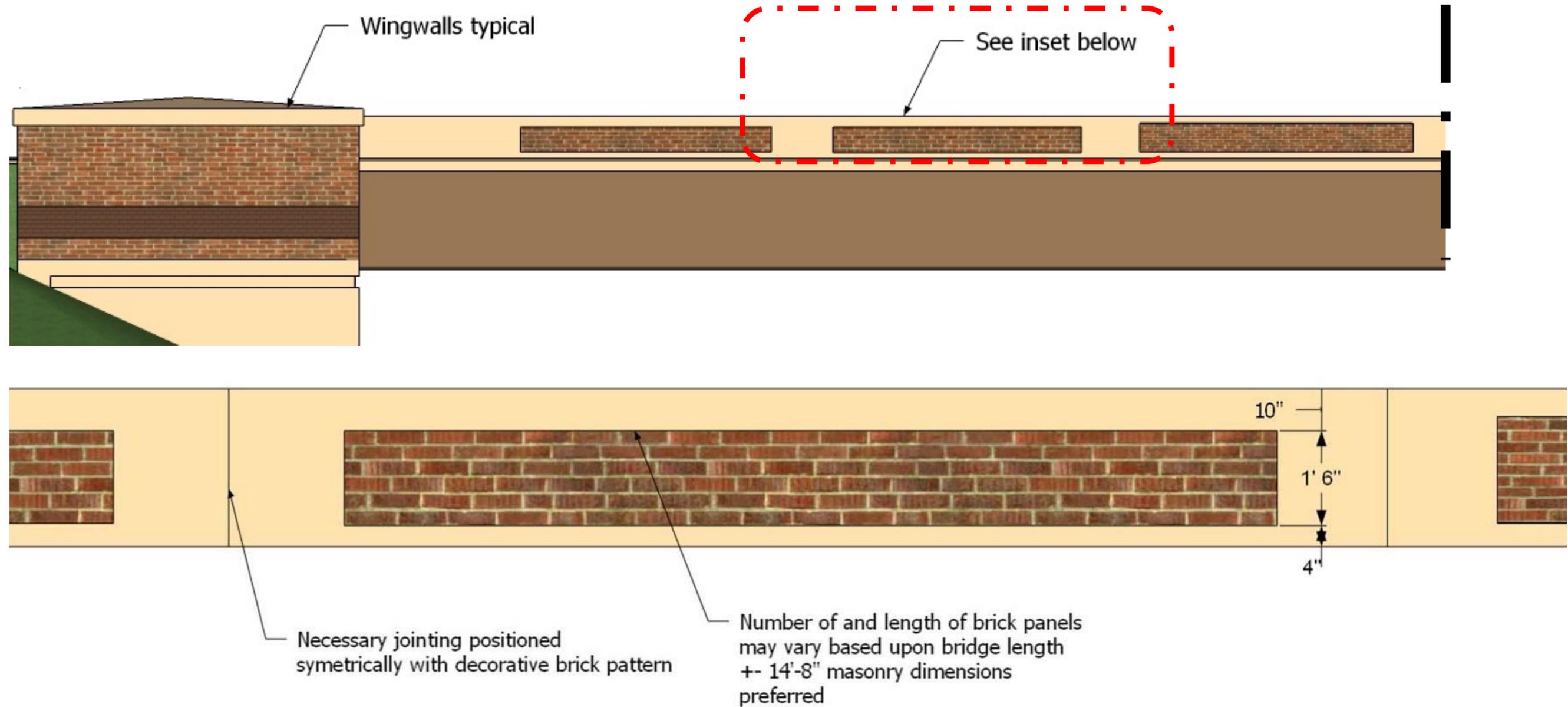
A-A View through Diamond Ornament

Elevation View - Diamond Ornament

3.3.1 Bridge Railing

The exterior surface of the bridge railing will be constructed using a smooth concrete surface with brick unit inserts. Brick insert panels will be placed symmetrically near the center of the bridge between the wingwalls at each end. Only the exposed exterior bridge railings will receive brick insets (see Figure 3-21). When bridge pairs exist with separate railings that face one another with less than 10-feet of separation, they will receive a smooth concrete finish.

Figure 3-21 Bridge Railing

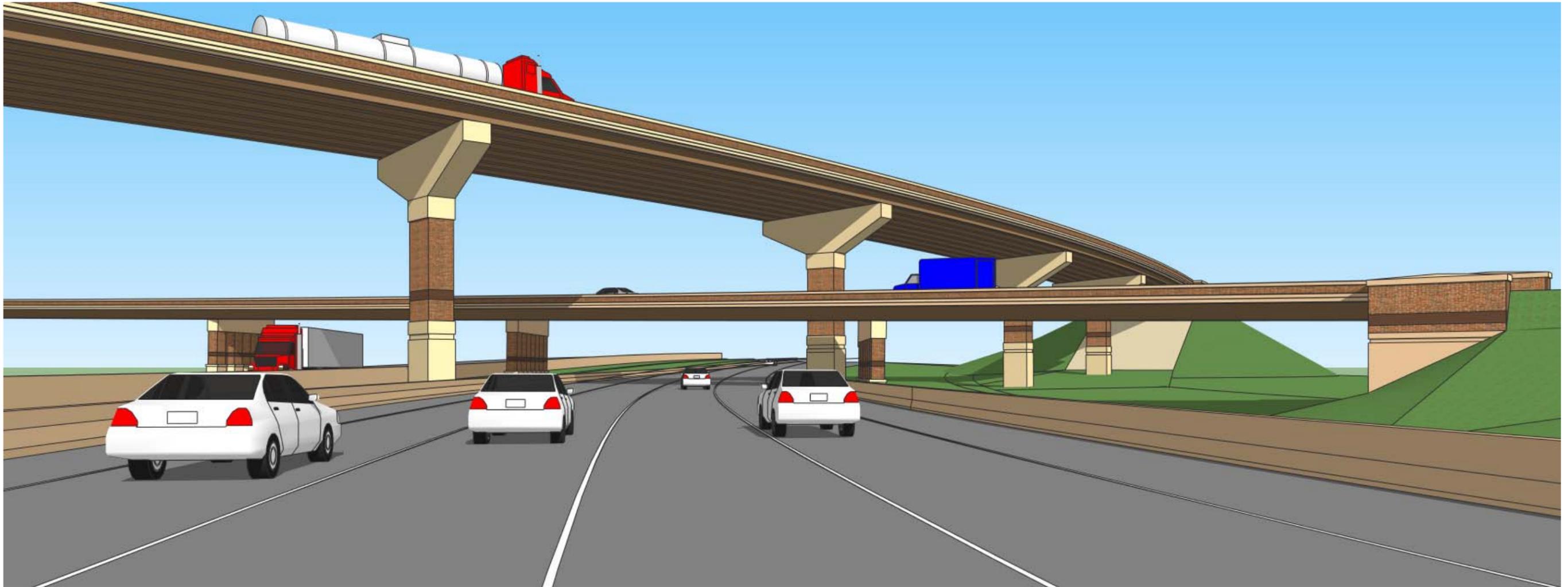


3.4 Flyover Bridges

Major interchanges with multiple high speed movements may necessitate the use of second and third level structures. Second level substructures may be constructed similar to a main line overpass. Third level ramps or flyover ramps may utilize a hammer head style pier to simplify the substructure and improve the visual appearance and overall character. The treatment for these single column structures is similar to that of the main line overpass bridges without the decorative diamond. The base of the column consists of a smooth concrete pedestal which supports the brick shaft with a contrasting accent brick band. The top of the column is finished with a cornice which provides a transition from the column into the tapered cap. The flyover abutment may utilize a similar decorative wingwall to that of the main line overpass bridges.

The complex geometry of the curved and sloping bridge barrier along the exterior of the flyover bridges may create some difficulty with incorporating a brick veneer surface in the rail exterior. Alternative design treatments include the use of a brick textured form liner with paint finish or recessed band with paint matching brick color on columns and pilasters. See Figures 3-22 through 3-24.

Figure 3-22 Square Lake Road Flyover Bridges



Perspective View - Northbound I-75 (grade level) at Square Lake Road Interchange; Northbound I-75 exit ramp to Square Lake Road (second level); and Eastbound Square Lake Road flyover on-ramp to northbound I-75 (top level).

Figure 3-23 Elevation View of Second Level Column

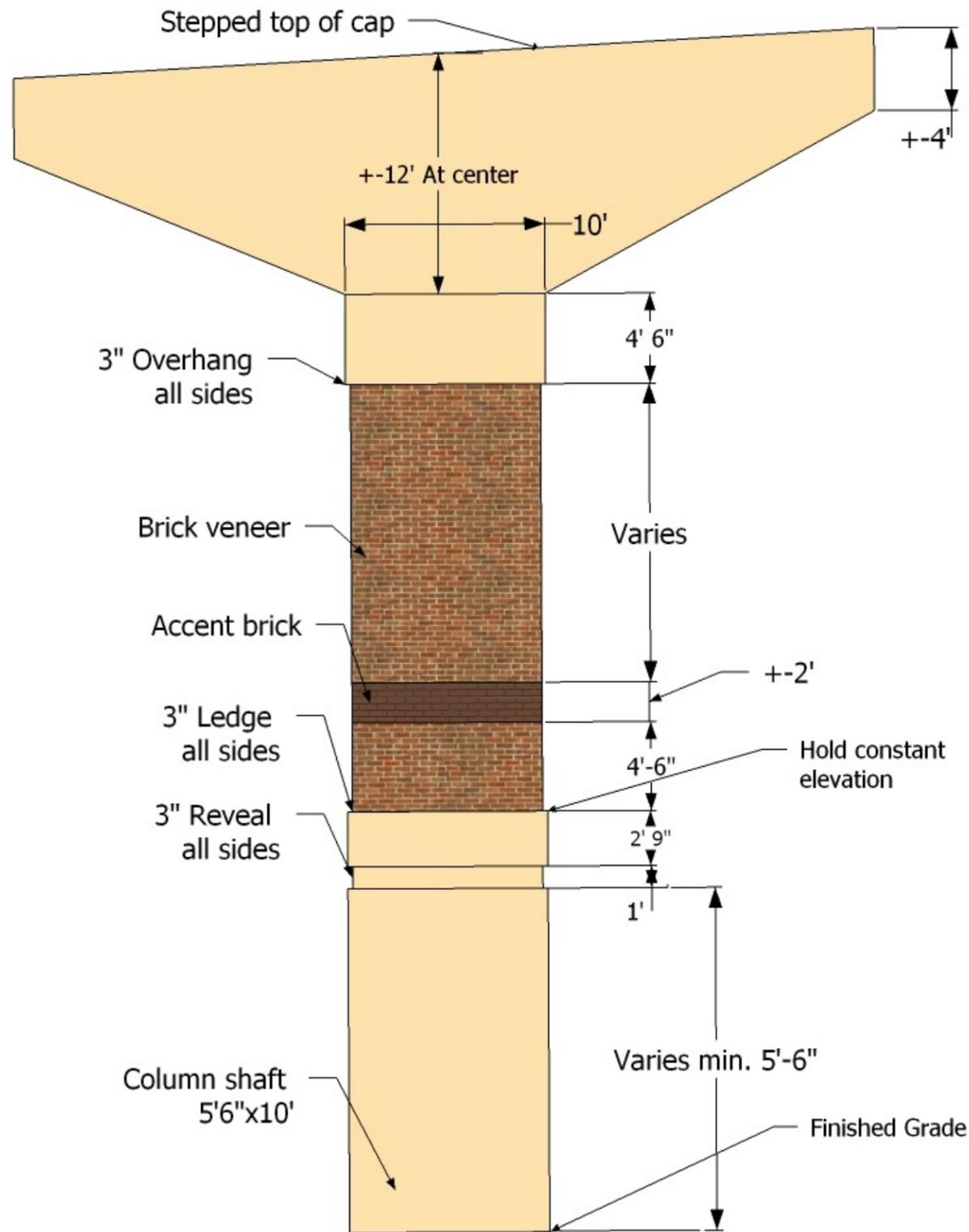
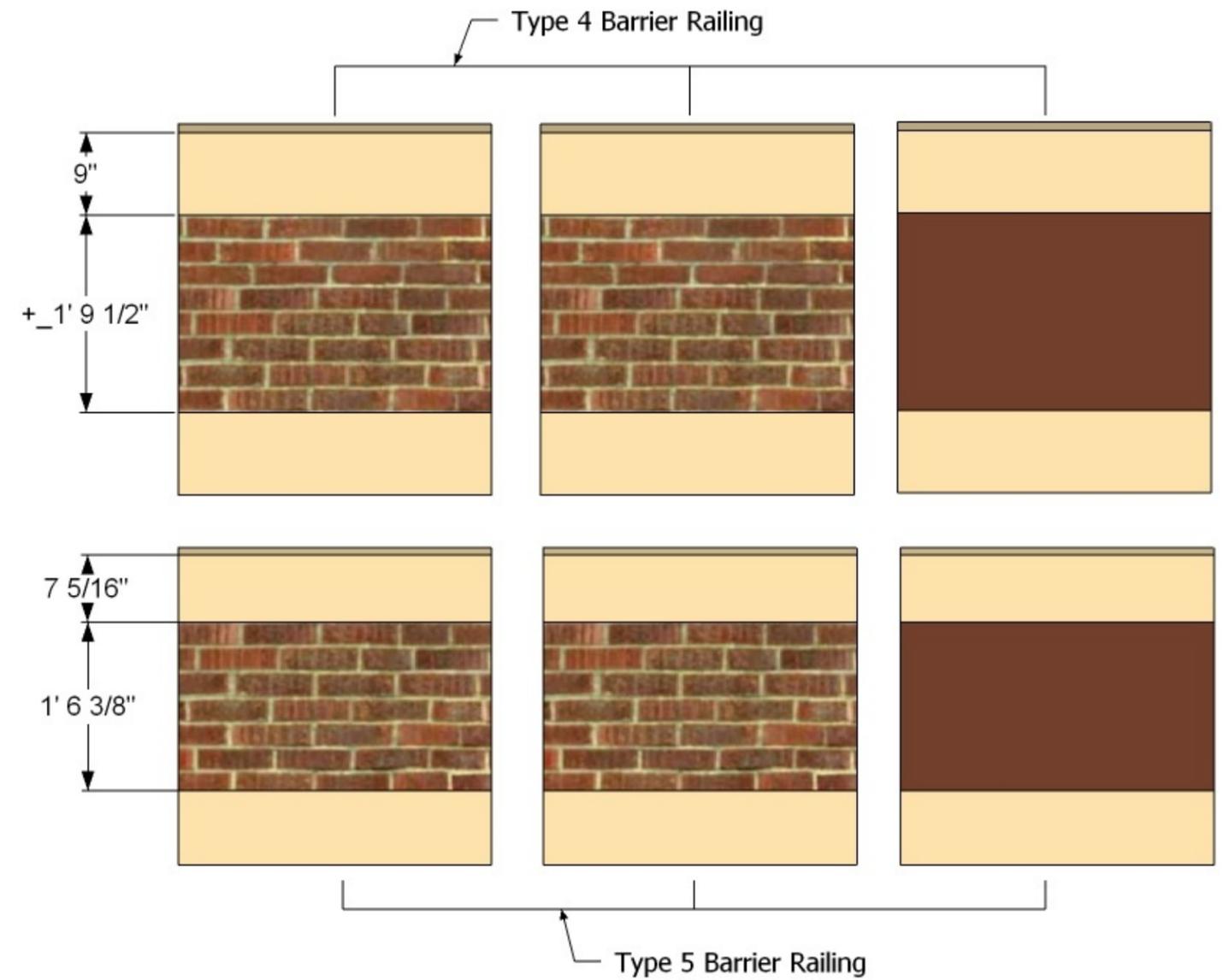


Figure 3-24 Second and Third Level Flyover Barrier Railing Treatments



Elevation view of bridge railing with three treatments, (left to right) preferred brick veneer, form liner brick texture with multicolor paint, and recessed panel with painted surface.

3.5 Wingwalls

Decorative wingwalls are used on the outside face of bridges only. Standard MDOT wingwall design will be used where bridges are parallel one another and only separated by a vehicle railing. Wingwall dimensions may be adjusted to fit specific site conditions however it is intended that dimensions would be consistent on typical bridge faces. Wingwalls are intended to conceal the girder seat and the connection of the metal guardrail to the concrete barrier from the cross street motorists view (Figure 3-25).

The abutment face will receive the same brick texture material and color as used on wingwalls and column accent bands (see Figures 3-25 through 3-28). See Section 6 for details on decorative slope paving.

All of the exposed concrete surfaces, with the exception of the roadway driving surface and underside of deck (inside first girder line), will be coated with the base color.

Bridge girders regardless of material (concrete or steel) are to be painted per standard MDOT specifications with the project accent color. The bridge deck, girders, and the traffic face of the bridge rail will be per MDOT standard specifications.

Figure 3-25 Perspective View – Partial Section View Through Main Line Overpass Bridge



Figure 3-26 Partial Elevation View – Monumental Wingwall and Abutment Face

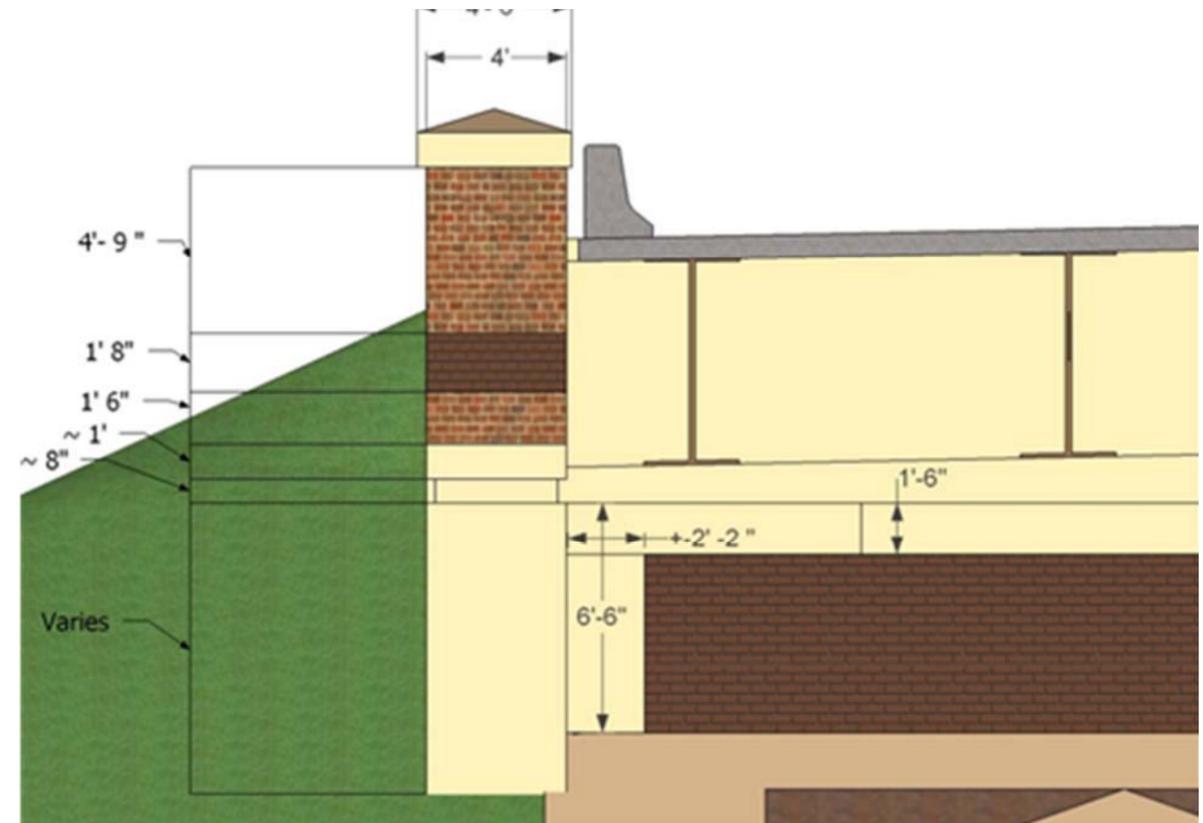


Figure 3-27 Partial Elevation View – Monumental Wingwall with Accent Brick Band

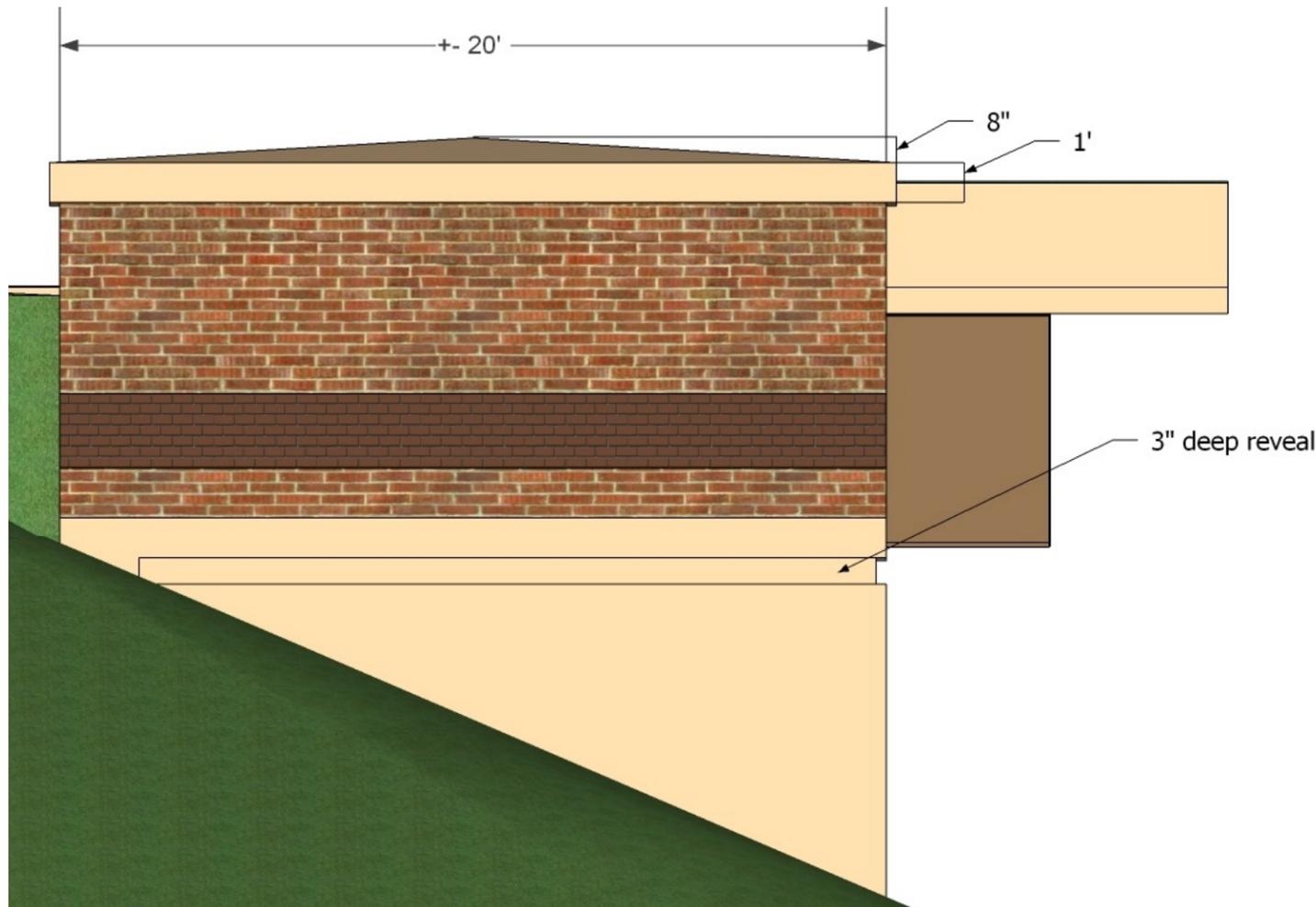
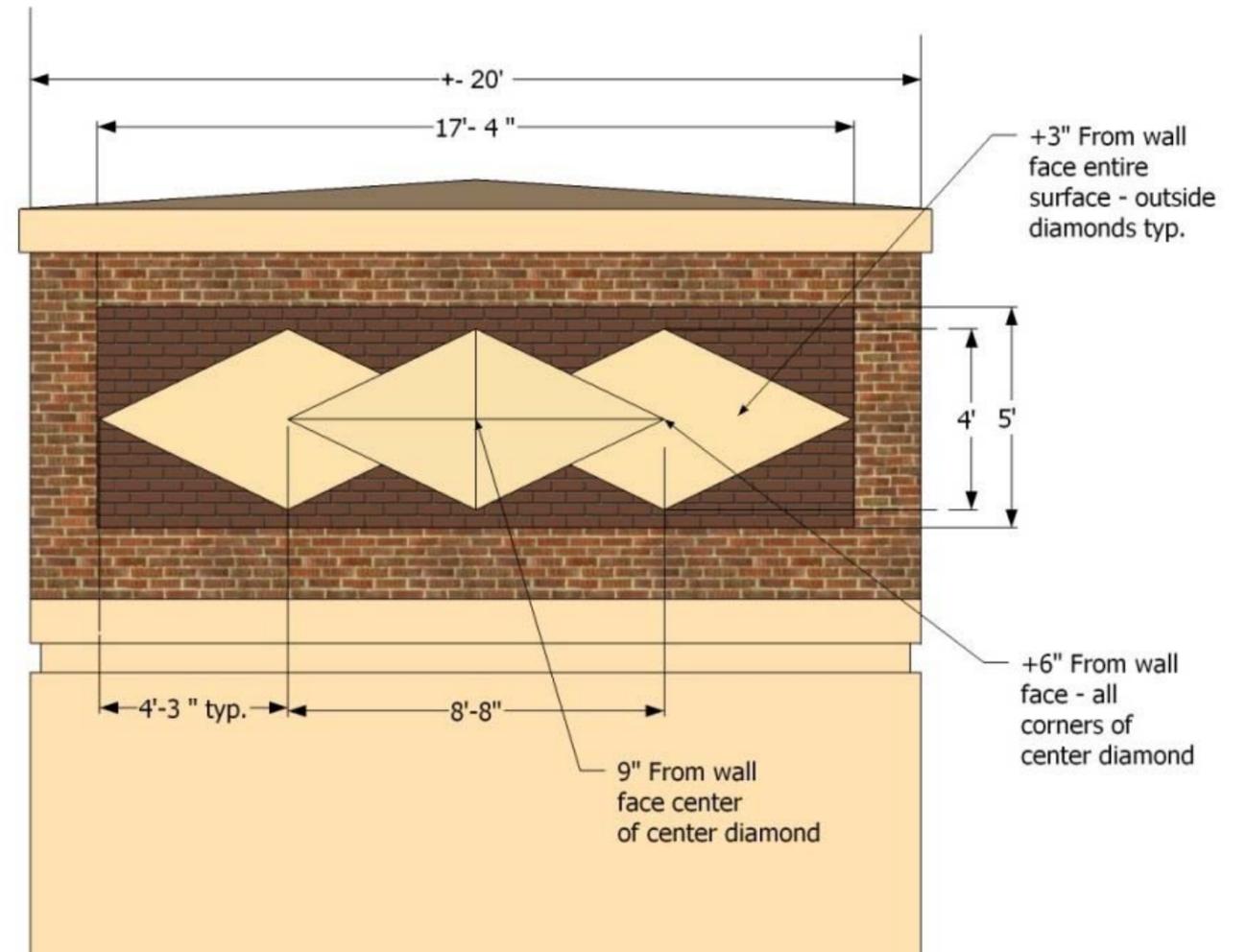


Figure 3-28 Partial Elevation View – Alternative Triple Diamond and Accent Brick



4.0 Walls

There are two types of walls being constructed in the corridor: noise walls and retaining walls.

4.1 Noise Walls

The I-75 Modernization Project includes the replacement and construction of noise walls, where justified through technical analysis. Noise wall locations, length, and height, are determined by the formal, technical noise analysis being conducted per the Federal Highway Administration (FHWA) guidelines and standards.

South of 12 Mile Road, due to the dense land uses and the close proximity to the freeway, noise walls are a common feature. The lower roadway profile grade in this area makes the noise walls readily apparent to main line motorists. The proximity of noise walls to the service drives, cross street overpasses, and interchanges make them a dominant feature in the landscape viewed by motorists and residents.

North of 12 Mile Road, the occurrence of noise walls is less and they are located further away from the travel lanes, and do not impact the cross street intersections. They have less visual impact to the main line and local street motorists and residents.

The Mid Century Design Style uses brick as the primary design material with a smooth concrete support column and cap, wall base and coping elements.

Three wall patterns were developed based on community and stakeholder preferences (see Figures 4-1 through 4-3). They include rectangular, running bond brick, and double diamond patterns.

It is recommended that the decorative patterns be used at wall termini particularly where noise walls approach cross street intersections. It is intended that both sides (freeway side and community side) of the noise wall will be finished with a brick veneer surface (see Figures 4-4 to 4-5). Individual design styles will be coordinated with the affected communities in a separate series of meetings, when it is determined that a wall will be constructed in their area. Patterns and design will then be refined and finalized.

The patterns allow the use of one of several wall construction methods including cast in place, precast panel, or precast plank to achieve the desired aesthetic.

Smooth horizontal concrete surfaces at the base and coping are to be coated with the base color. Vertical concrete post surfaces are to be coated with the secondary accent color.

In addition to the surface treatment of wall surfaces it is intended that the planting of vines will also be a desired treatment for specific noise wall locations (see section 10.5 Vines).

Figure 4-1 Noise Wall - Rectangular Pattern

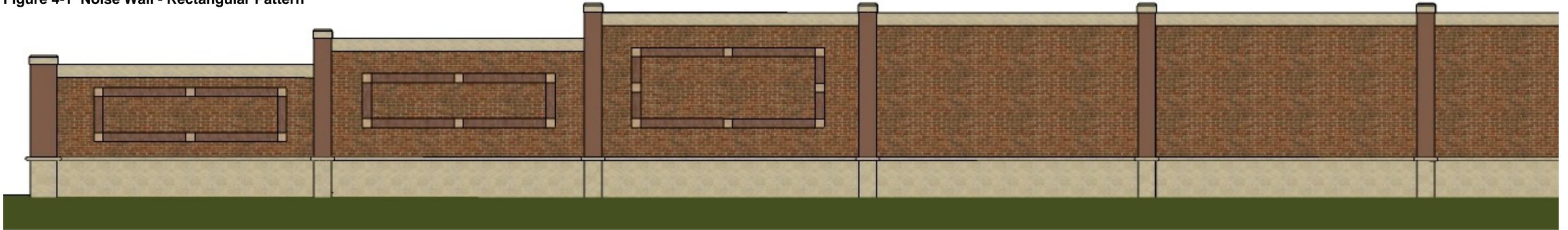


Figure 4-2 Noise Wall - Running Bond Brick Pattern

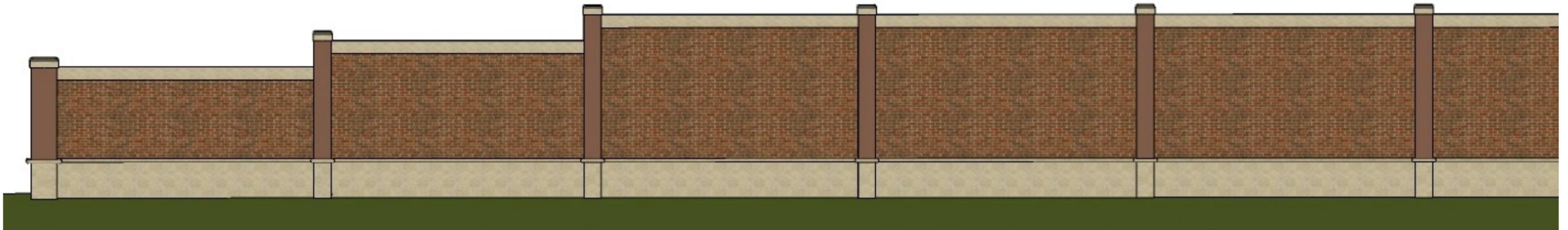


Figure 4-3 Noise Wall - Double Diamond Pattern



Figure 4-4 Noise Wall Detail – Rectangular Pattern

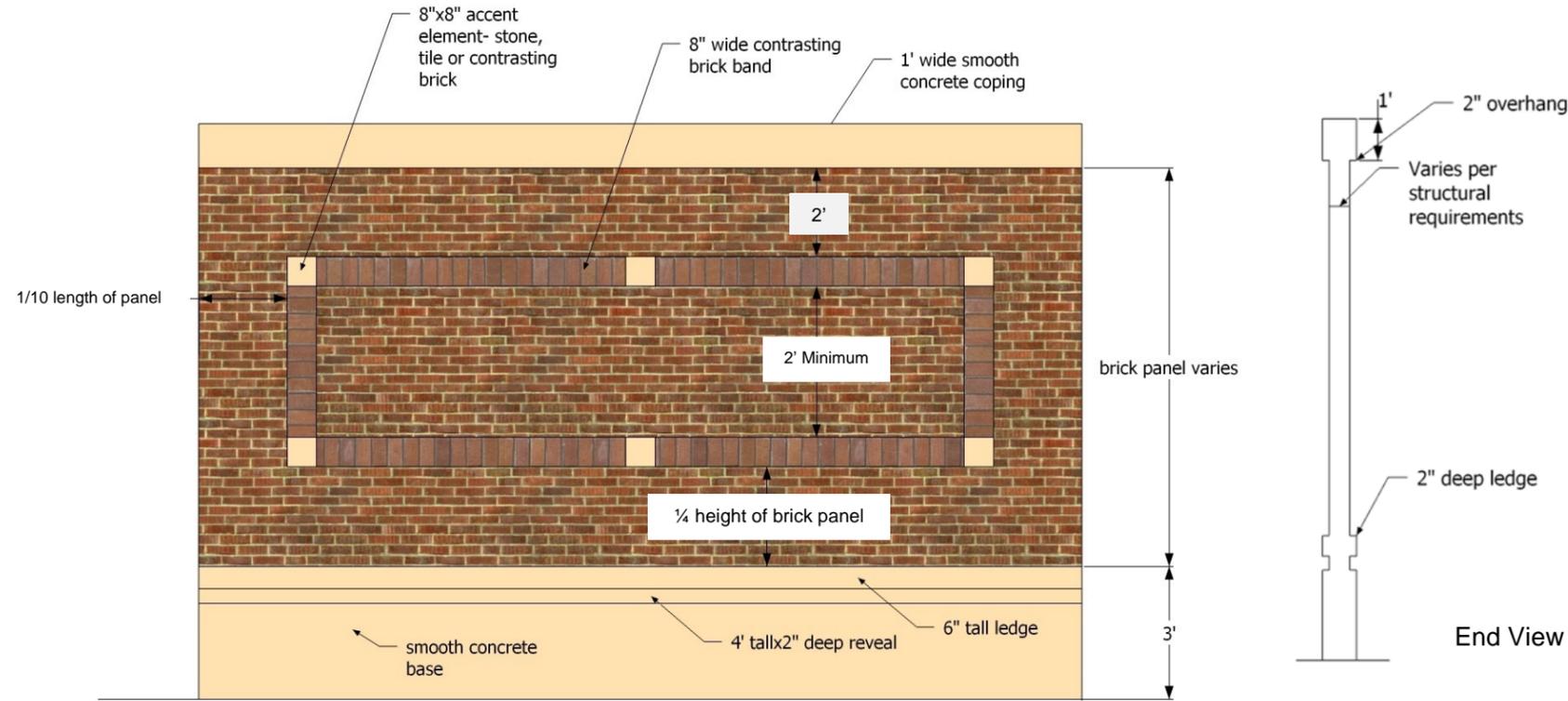
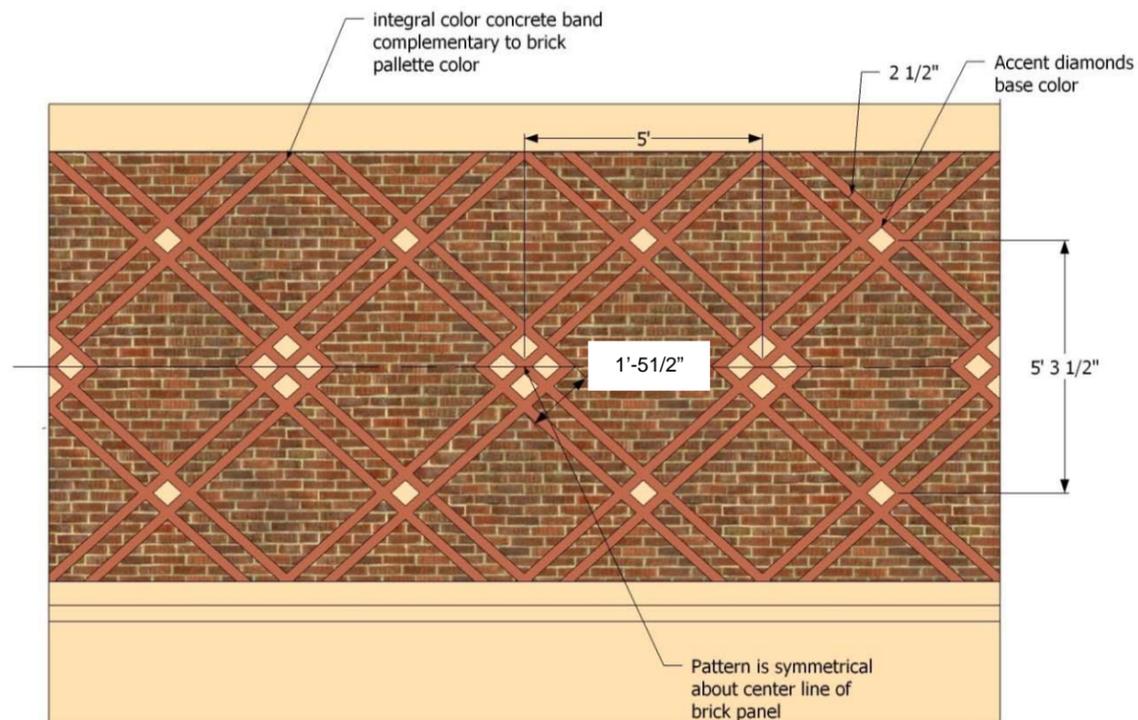


Figure 4-5 Noise Wall Detail – Double Diamond Pattern



Noise Wall Details

Noise wall detailing for the base and coping are identical for all wall panel pattern options.

End post and line posts are identical for all wall panel pattern options (see Figure 4-6). The base on posts has an identical reveal to the base of wall panel. See details below for dimensions of end and line posts at base.

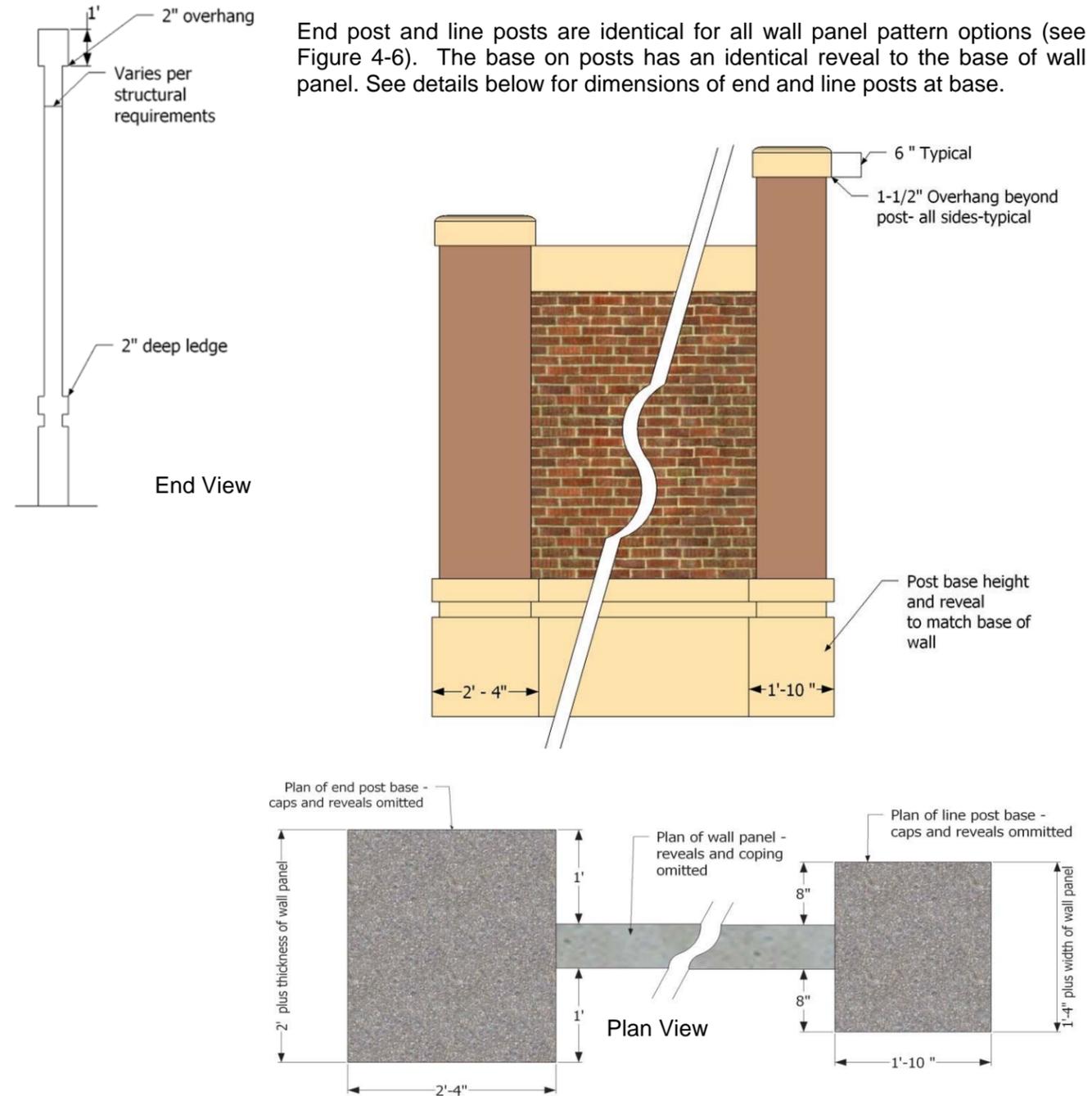


Figure 4-6 Elevation View and Plan Layout of Terminal/End and Line Posts

4.2 Retaining Walls

South of 12 Mile Road, the limited right-of-way available requires the use of retaining walls to accommodate the new HOV lane. Retaining walls will be a common feature generally constructed parallel to the main line and parallel to the on and off ramps. The retaining walls are a prominent feature visible to main line motorists and to those entering or exiting the freeway.

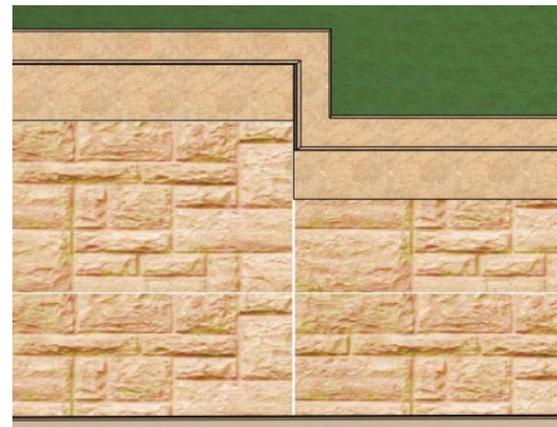
North of 12 Mile Road, improvements will be accommodated primarily within the existing right-of-way between the northbound and southbound travel lanes in the ditch drainage area. Therefore the need for and use of retaining walls will be limited.

The preferred Mid Century Style uses a simulated stone texture in an ashlar pattern for the walls (see Figure 4-7). It will be used for all exposed areas.

At cross street bridge locations, additional surface detailing may be used to accentuate the interaction of the retaining wall and the overpass.

All exposed retaining wall surfaces will be coated with the base color.

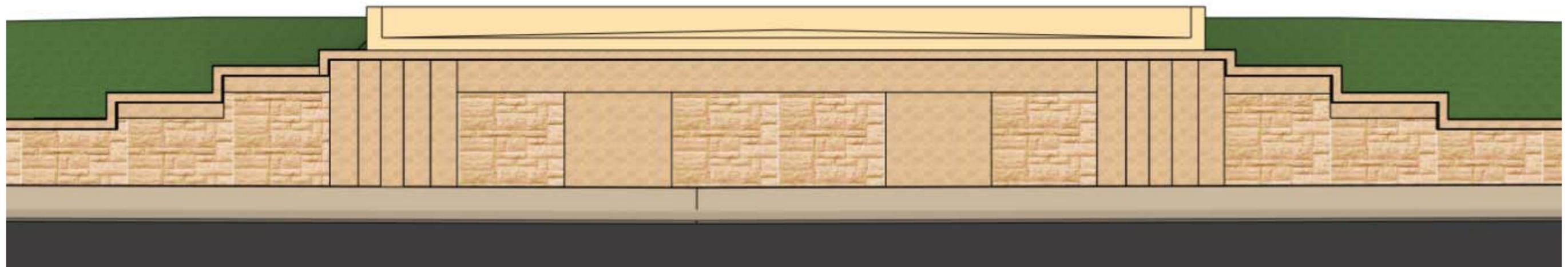
Figure 4-7 Elevation of Retaining Wall at Cross Street Overpass



Preferred ashlar stone pattern, texture relief, and stone sizes.

Specifications:

Maximum relief	2"
Average relief	1 ⁵ / ₈ "
Liner thickness <small>Includes internal plywood backing</small>	3"
Stone size	12" - 60"



5.0 Pedestrian Pavement

5.1 Pedestrian Bridge Landing

Pavement at the base of pedestrian bridge ramp structures should be minimal while providing safe and convenient access to the adjacent sidewalk system. Small areas of space exist between the sidewalk and the pedestrian ramp structure, where decorative pavement may be used (see Figure 5-1).

Landing pavement should be colored and stamped concrete. The pavement on ramp surfaces leading to the pedestrian bridge will be a natural concrete surface and be constructed in accordance with MDOT and ADA standards.

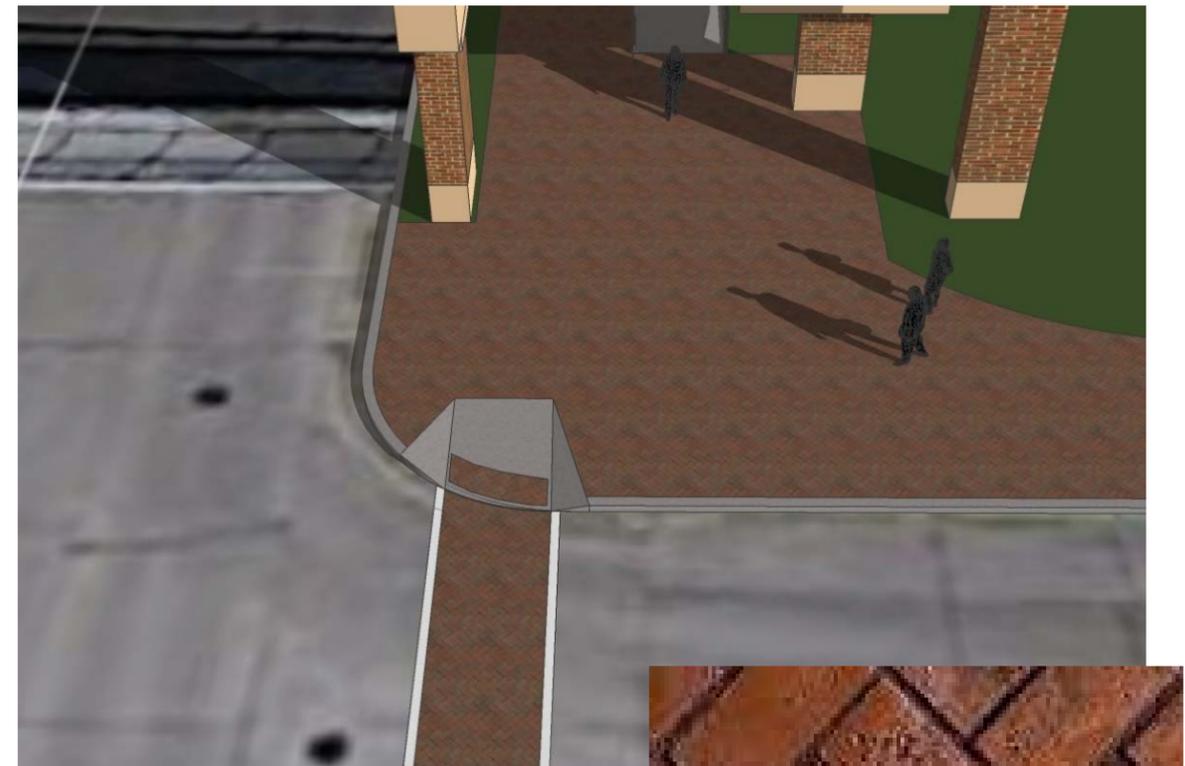
5.2 Crosswalk Pavement

Figure 5-1 Pedestrian Bridge Landing and Pavement



Crosswalks may also be paved using a similar colored and textured pavement as the pedestrian ramp landings.

Curb ramps will be constructed following MDOT or community standards. Crosswalk pavement treatments will be used across intersection and on/off ramp locations along the corridor for higher visibility.



Pedestrian Pavement - Stamped Concrete with Herringbone pattern and Dark Redwood Color Stain



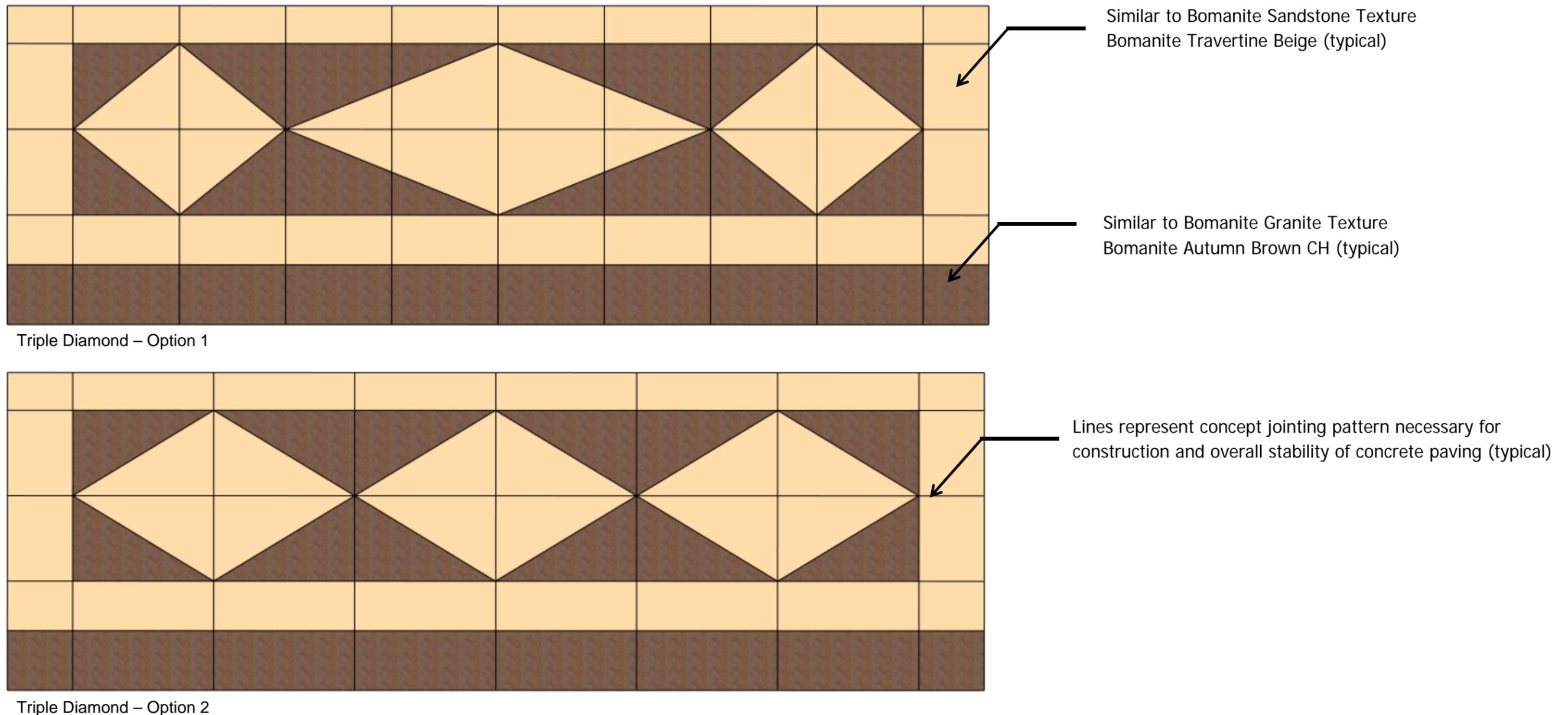
6.0 Underpass Slope Paving

For locations where pedestrians and/or cross street motorists have a clear view of the slope beneath the main line bridges, decorative paving will be considered.

The following two diamond patterns may be used to provide visual interest to the slope paving beneath the main line bridges (see Figure 6-1). Only one pattern will be used per interchange. One complete pattern as illustrated will be used for each abutment slope per bridge. Diamond patterns and surrounding panels may be adjusted to fit specific locations however a consistent design should be developed for all four slope areas for each interchange. Particular attention should be given to the jointing of the pattern to work with the design. (See jointing in illustrations below)

Slope paving will be installed using cast in place concrete with color and stamping textures as indicated. Final surface texture will be smooth enough to allow for ease in sweeping of debris with hand held and walk behind equipment. Types of joints and locations to be determined during final design.

Figure 6-1 Underpass Slope Concept



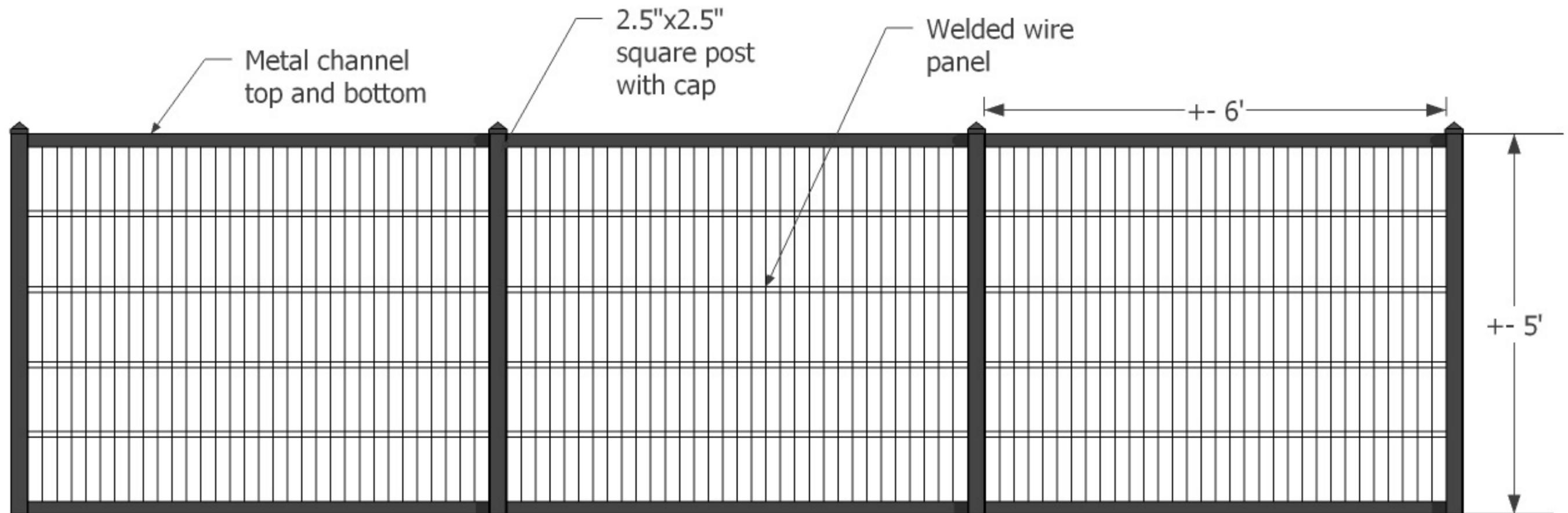
7.0 Fencing

Fencing is used for right-of-way delineation and pedestrian safety.

7.1 Right-of-Way Fencing

Decorative right-of-way fencing should be considered for use in locations where the fence is highly visible to main line travelers and the adjacent community i.e. interchanges, dense urban areas with retail, corporate, and/or residential land use areas. At rural or industrial areas, where it is not readily visible and it does not need to be replaced, the standard MDOT chain link right-of-way fence will be used. It is anticipated that the specific location of fencing types will be determined as a part of the final design phase of each project. See Figure 7-1 for decorative right-of-way fencing. This represents the general design concept for the pedestrian protection fencing for use on bridges, pedestrian bridges, and surrounding carpool lots. Post sizes may be modified as needed to allow for the incorporation of cable railing where site locations and engineering design require it.

Figure 7-1 Decorative Right-of-Way Fencing



7.2 Pedestrian Bridge Fencing

Fencing used on pedestrian bridges will utilize the identical metal members as detailed on the cross street overpass and the pedestrian crossing structures to provide consistency (see Figure 7-2). For an elevation view of a pedestrian fence on a pedestrian bridge see Figure 7-3 Elevation View of Pedestrian Fence when used on a Pedestrian-Only Bridge

. For locations where a greater enclosure is required the vertical members may be extended and arched inward (see Figure 7-4).

Where conditions are required to provide added protection for vehicles below pedestrian walkways, wire mesh will be attached to the fence panel. Square welded wire grid mesh is preferred. The fence should be designed to accommodate the addition of wire mesh. Wire mesh will receive similar color coating as fencing.

Figure 7-5 provides an elevation view of carpool lot perimeter fencing.

Figure 7-2 Bridge Pilaster with Pedestrian Fence for use on Cross Street Overpasses

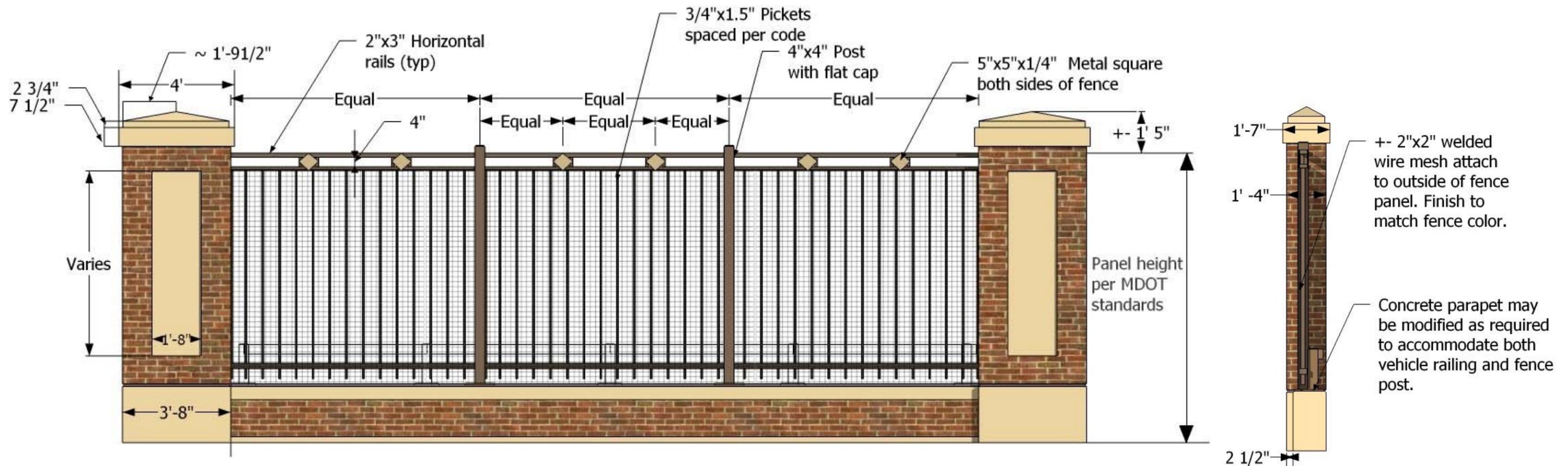


Figure 7-3 Elevation View of Pedestrian Fence when used on a Pedestrian-Only Bridge

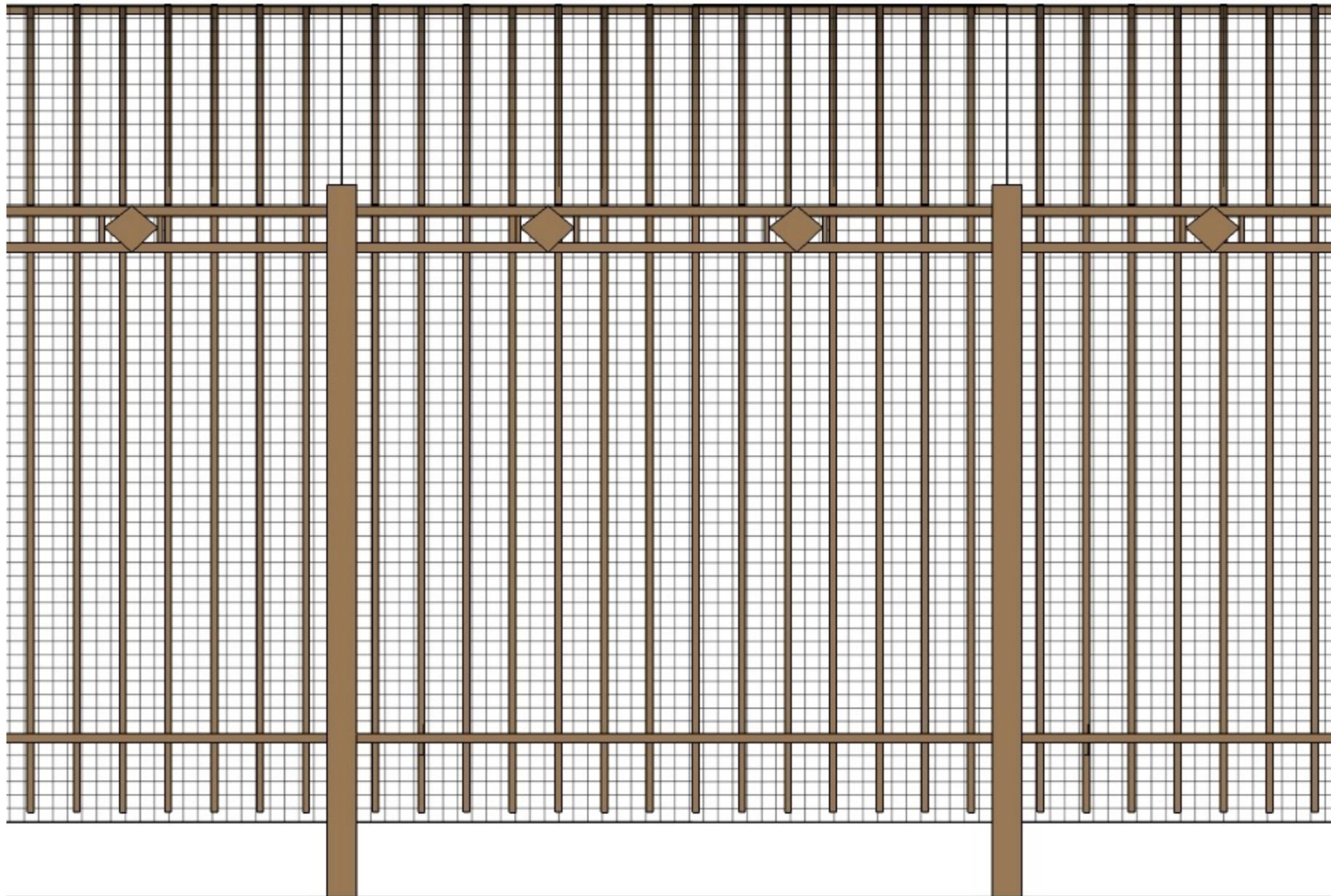
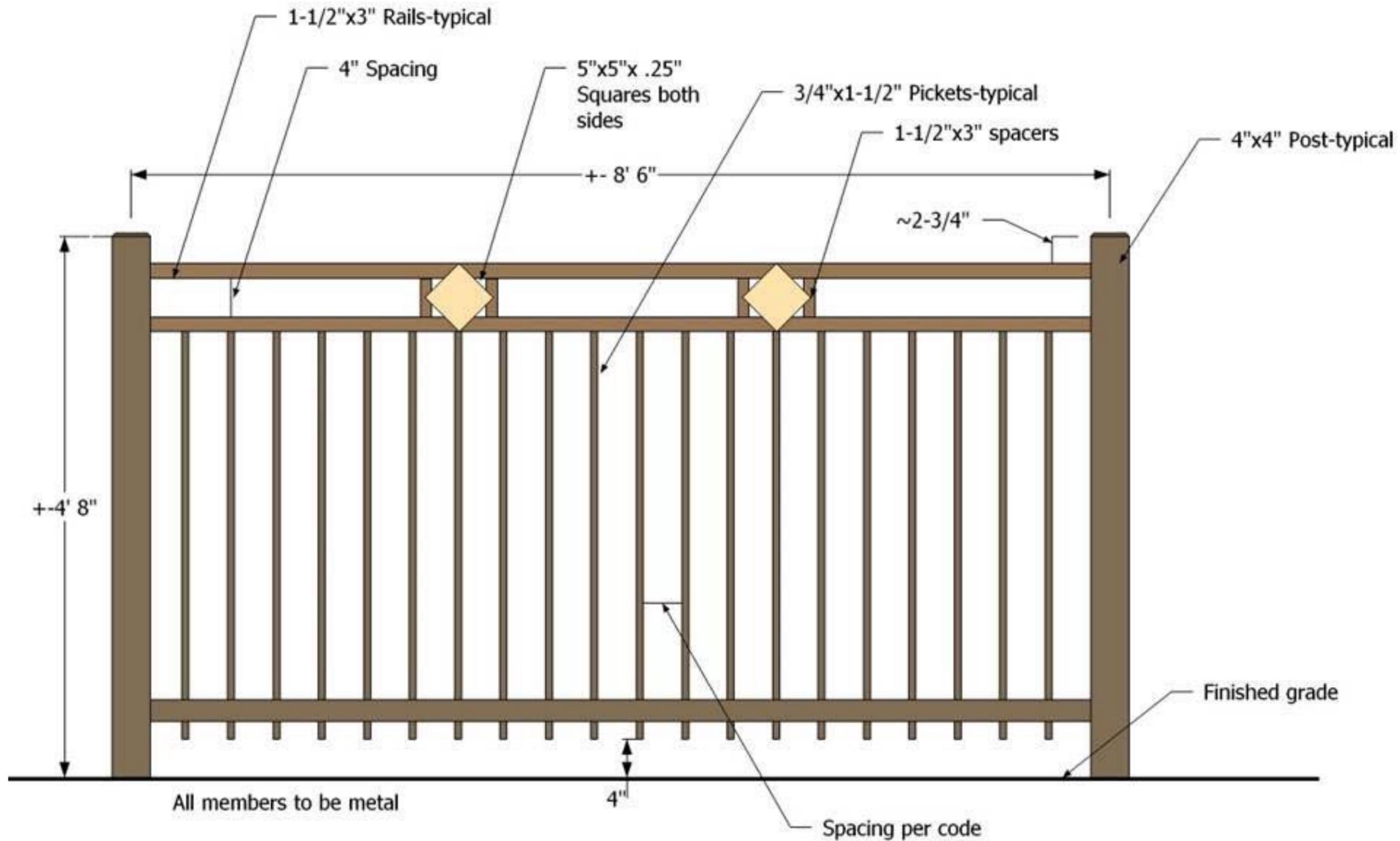


Figure 7-4 End View of Pedestrian Fence with Arched Enclosure



Figure 7-5 Elevation View of Carpool Lot Perimeter Fencing



8.0 Signage

8.1 HOV and ITS Information System Support Tower

A key part of operations and traffic control of a HOV lane is providing overhead lane control and a messaging/information system.

Sign support towers provide an option in place of the standard metal pole or truss tower support structures. This design will be reserved for use at the beginning and end of the HOV lane. The proposed towers support a standard MDOT metal truss sign bridge which in turn supports an electronic message board system. The truss structure nests between the two towers so attachments are not readily visible on the exterior. Final design of the optional sign support towers will incorporate access for inspection of the truss structure and the towers themselves. The towers consist of a smooth concrete base, cap, and rectangular ornament with a brick veneer on the remainder of the column shaft. All concrete elements will be coated with the base color. Metal truss bridges will be painted the accent color.

8.2 Cross Street and Carpool Lot Identification

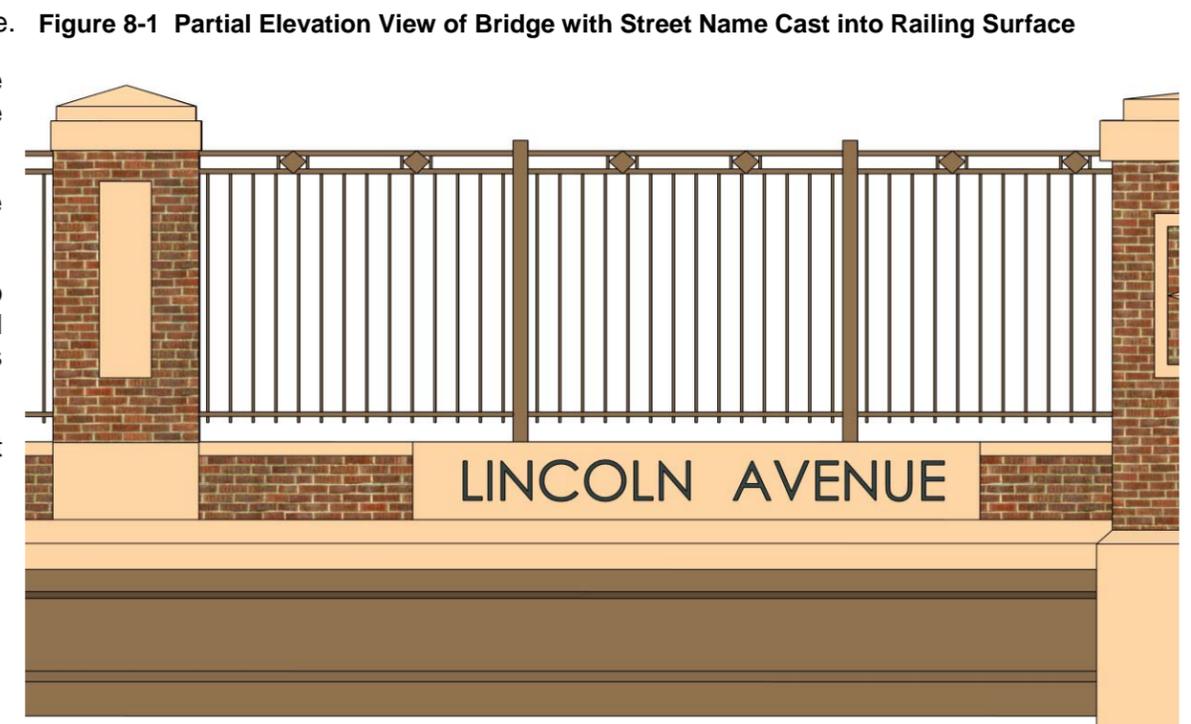
As a part of overall way finding and orientation, it is recommended that all cross streets be identified on the bridge structure. **Figure 8-1 Partial Elevation View of Bridge with Street Name Cast into Railing Surface**

This will be accomplished by casting the street name into the exterior face of the concrete bridge railing. Street names will be included between the last bridge pilaster and the wingwall on the right side of the bridge, as viewed from the main line (see Figures 8-1 and 8-2).

At carpool lots, a similar approach to identify the lot from the adjacent on/off ramp and cross street locations should be included on the perimeter site walls.

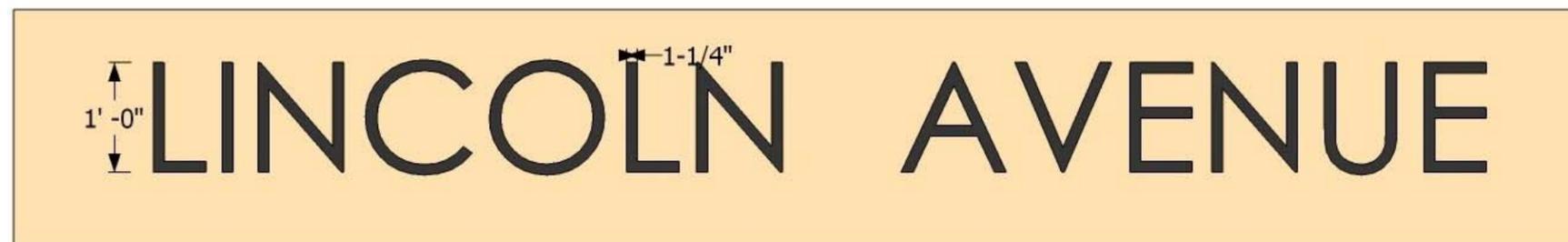
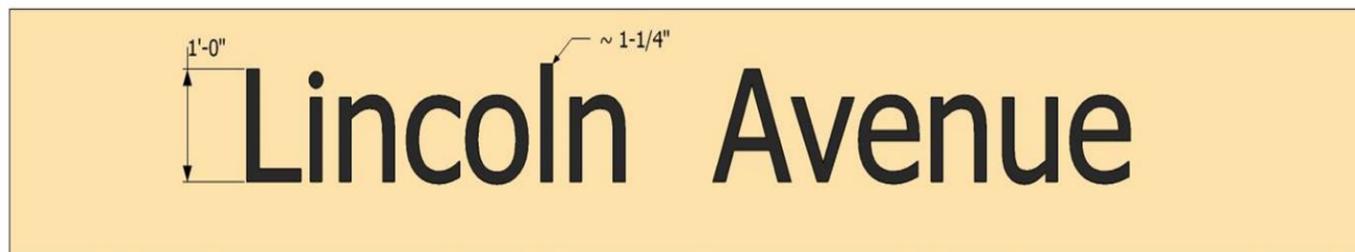
Identifying signage lettering should be sized for clear visibility from a minimum distance of 500-feet (500') which equates to lettering that is approximately 1-foot 0-inches (1'-0") tall. Font style should be simple and free of elaborate decoration and serifs. Lettering is to be recessed and cast into the surfaces of wall and concrete bridge railing. Recessed letter surfaces should be painted flat black to develop a high contrast against the base color applied to the surrounding surface.

The size of lettering on carpool lot walls may be adjusted upward to fit proportions of the panel. Lettering will be maintained at the minimum of 12-inches (12") in height similar to the cross street signage.



1'-0" tall x 1-1/4" wide letter in TAHOMA Font recessed 3/4" into face of bridge barrier.

Figure 8-2 Detail of Cross Street Identifier with Alternative Font Options



8.3 Community Identification

Providing opportunities for community identity is important to inform motorists when they have reached a specific community. Although some discussion has occurred with the communities to place identifiers, the details and options still need to be developed as each community has individual needs. Additionally, issues of cost and maintenance needs to be addressed. Issues such as these are expected to be discussed with community leaders when construction occurs in the area.

It is anticipated that a community identity feature will be used throughout the corridor and be of a consistent design utilizing a brick stem with concrete base and cap.

9.0 Carpool Lots

Carpool lots are an integral part of the function of the freeway improvements in support of the HOV lane. As a notable site feature they also can contribute to and reinforce the overall aesthetic character of the corridor, especially within the communities. The placement and final design treatments of the carpool lot elements will be coordinated with the affected community as part of the final design process.

The carpool lot treatment includes the identity concept and defining elements developed with the community. These improvements will assist the motoring public in identifying the carpool lots associated with the HOV lane.

The identity concept is composed of perimeter walls and decorative metal fencing which define the edges of the carpool lot. These features will be erected parallel to the ramps and/or adjacent to the cross street right-of-way limits.

The perimeter walls consist of two optional surface treatments (see Figures 9-1 and 9-2):

- Brick walls accented with smooth concrete sign panels and caps; or
- Natural stone clad walls with smooth concrete sign panels and caps

The carpool perimeter fencing (Section 7) will be used to further define the limits of the carpool lots.

The geometry of the walls is identical and provides a supporting platform for the HOV sculpture located at a corner of the site with the greatest visibility to the motoring public.

The HOV sculpture will be fabricated of metal tubing and be free standing from the pedestal formed at the intersection of the site walls (see Figures 9-3 and 9-4). The elevation views are shown on Figure 9-5. The plan view, elevation view at the entry point, and the perspective view of the sculpture are provided on Figures 9-6 through 9-8. The final design of the sculpture must address the structural issues of wind loading and the attachment of stainless steel mesh to the inner edges of the sculpture frame to prevent entry by persons or animals. The mesh shall be as thin as possible to preserve the prominence of the sculptural form.

The metal choices may include:

- Stainless steel or aluminum (both intended to be brushed and left unpainted); or
- Plain Steel to be shop primed and coated with highly durable powder coat paint and clear overcoat finish using the accent color. Finish shall be resistant to and allow for ease of graffiti removal

The perimeter walls, fencing, and sculpture may be targets for graffiti. The following treatments may be helpful in reducing graffiti and ease in its removal:

- Routine local patrol surveillance monitoring
- High quality gloss finishes on metals.
- Anti-graffiti coatings on concrete and brick surfaces. (These coatings must be replaced if during the graffiti removal process they have been damaged or reduced.)

The carpool lots within the corridor will be reviewed for state of the art technologies during design. Amenities such as solar lighting, vehicle charging stations and other technologies will be considered for carpool lots.

Figure 9-1 Carpool Lot Walls with Brick Veneer, Smooth Concrete Caps, and Stainless Steel or Aluminum Sculpture with Brushed Finish



Figure 9-2 Carpool Lot Walls with Natural Stone Cladding, Smooth Concrete Caps, and Stainless Steel or Aluminum Sculpture with Brushed Finish



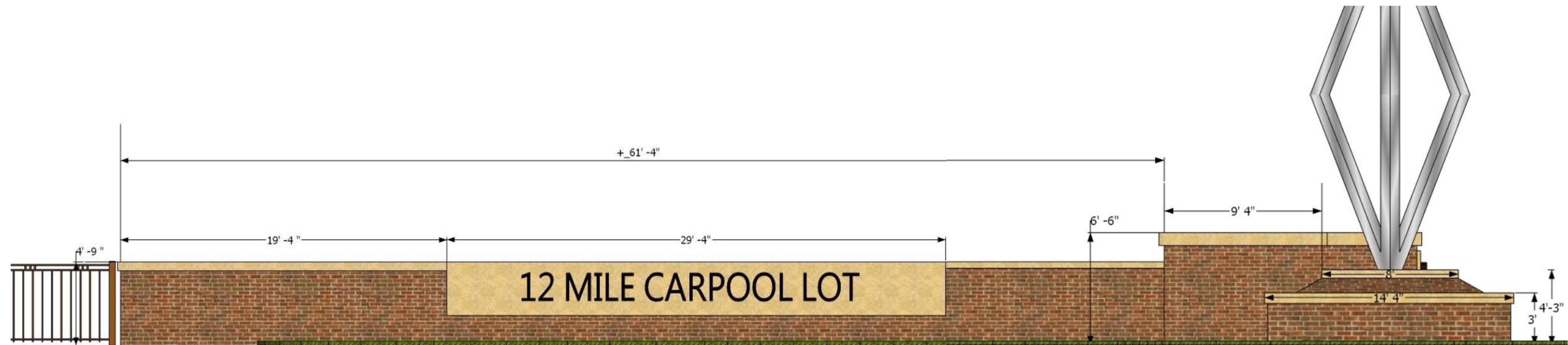
Figure 9-3 Carpool Lot Walls with Brick Veneer, Smooth Concrete Caps, and Steel Sculpture Painted with Accent Color



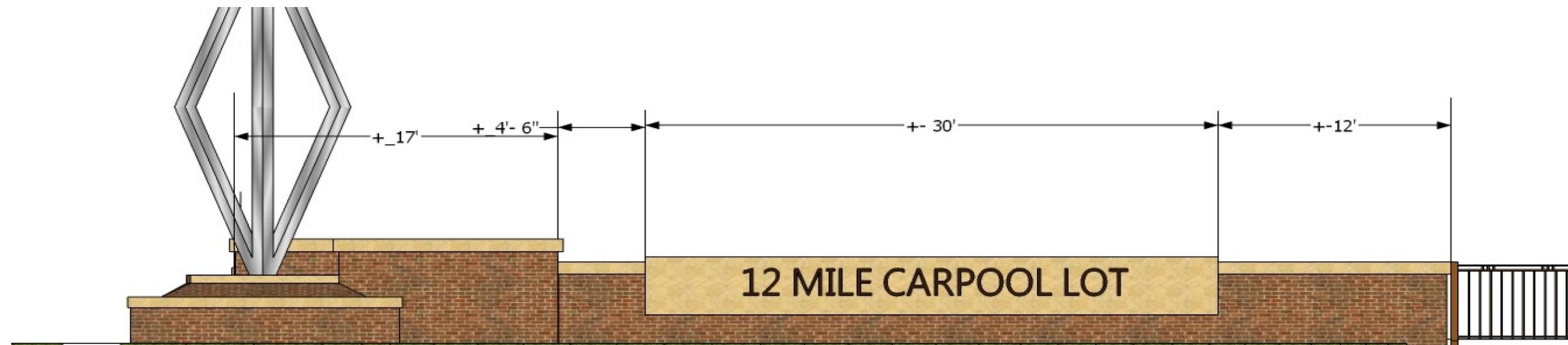
Figure 9-4 Carpool Lot Walls with Stone Veneer, Smooth Concrete Caps, and Steel Sculpture Painted with Accent Color



Figure 9-5 Carpool Lot Wall Elevation Views

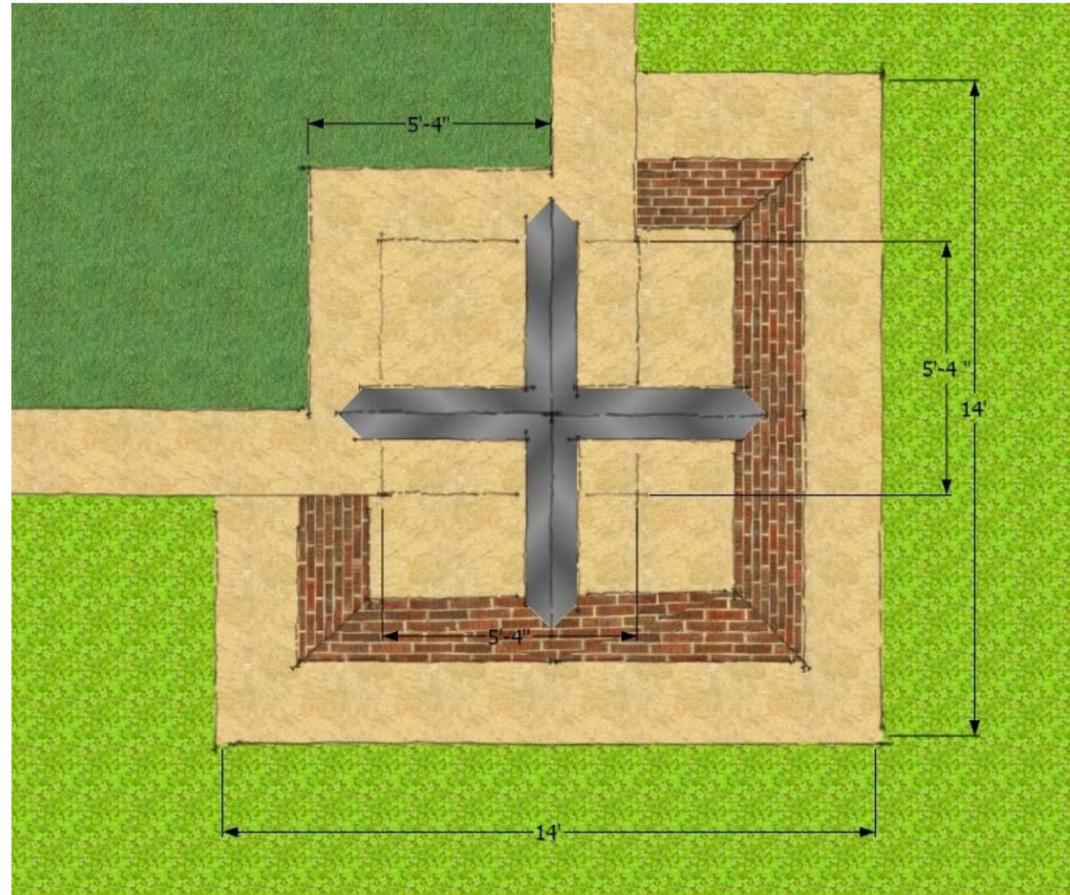


View A - Carpool Lot walls with brick veneer, smooth concrete caps, and stainless steel or aluminum sculpture with brushed finish. The layout is identical when using natural stone cladding and the painted HOV Sculpture. (See Section 8.2 for discussion on lettering) (See Section 7 on Fencing for details on metal perimeter fencing).



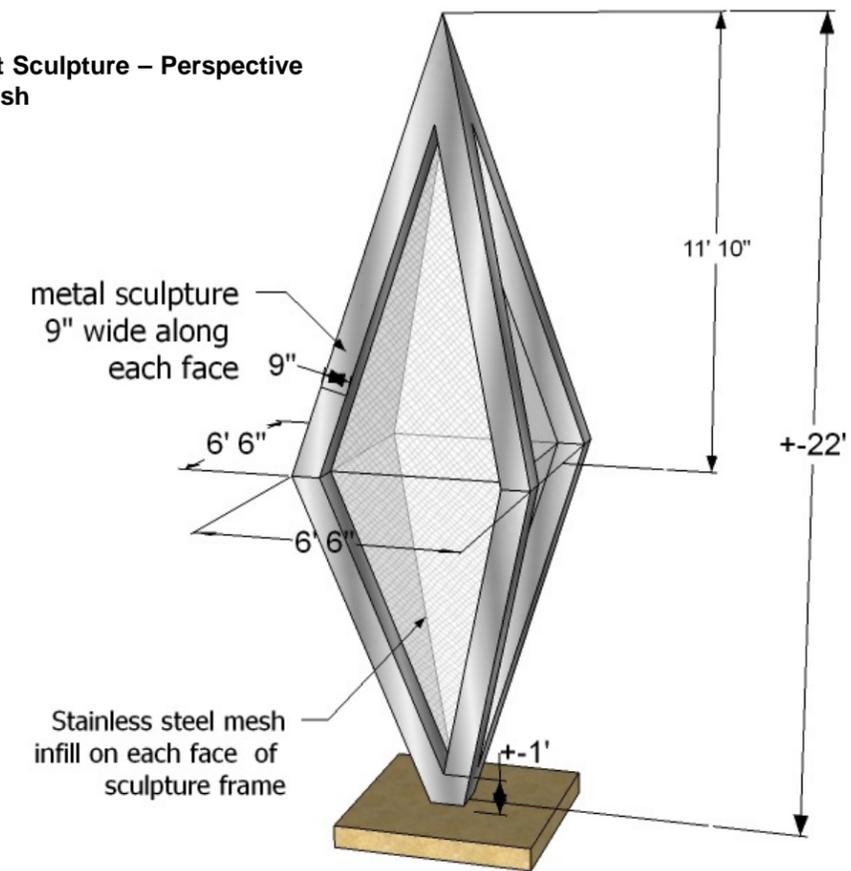
View B - Carpool Lot walls with brick veneer, smooth concrete caps, and stainless steel or aluminum sculpture with a brushed finish.

Figure 9-6 Carpool Lot Monument - Plan View



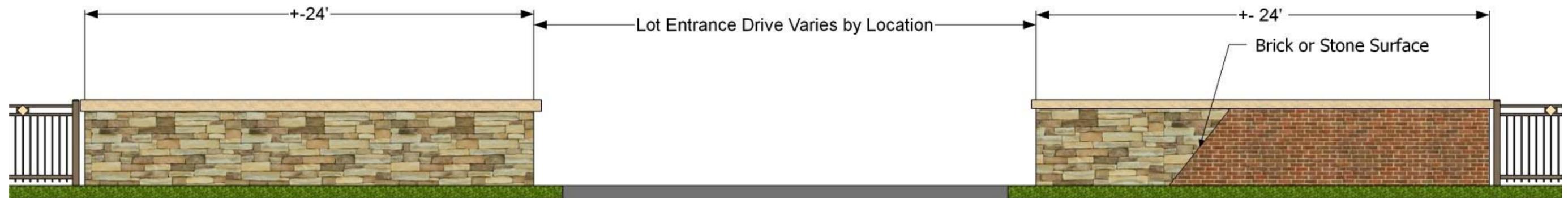
Plan of HOV sculpture on pedestal positioned at perimeter wall intersection.

Figure 9-7 Carpool Lot Sculpture – Perspective with Stainless Steel Mesh



The inspiration for the HOV sculpture is found in the standard HOV lane symbol. The sculpture is twice the size of a standard pavement symbol except the width of the members is held at 9-inches. The HOV sculpture is symmetrical about its center line on all axes. The bottom vertex is truncated with a +/- 1-foot square mounting base and the inner vertex at the base is positioned +/- 1-foot above the pedestal. The sculpture is to appear free standing with its foundation and attachments located below the pedestal and not visible. Stainless steel mesh shall be added to the inner edges of the sculpture frame to prevent entry by persons or animals. The mesh shall be as thin as possible to preserve the prominence of the sculptural form.

Figure 9-8 Carpool Lot Entry-Elevation View



Carpool Lot walls with metal fencing defines the vehicle entry. The wall layout is identical when using brick or stone surface.

10.0 Corridor Landscaping

In addition to the style developed for the corridor, the following concept landscape plans have been prepared for landscaping within the freeway right-of-way. These plantings supplement what may be required by standard MDOT erosion control practices or obligations. It should be noted that the final planting design may include plants which are functional and those desired for aesthetic enhancement.

Plantings within a highway corridor can make a significant positive improvement to overall visual quality and character of a corridor. However, maintenance is the primary consideration when undertaking a design and plant selection.

Selection of plants species for use in the corridor should meet the following objectives:

- Native and/or naturalized to the corridor
- Resistance to storm damage, disease, insect pests, and salt
- Require no pruning, supplemental watering, or fertilization
- Available in the commercial market place
- Easily transplanted and established
- Have demonstrated survivability in the highway environment
- Have seasonal interest in bloom color, foliage, or branching character

The landscape concept developed consists of four basic prototypical locations:

- Rural section north of 12 Mile Road to north of South Boulevard
- Major interchanges with significant green space within the right-of-way
- Urban section between M-102 and 12 Mile Road
- Carpool lots

It should be noted that it is the intent of the team to meet with commercial property owners along the rural section of the freeway at the time of the specific construction segment, to understand their preferences regarding their desire for exposure or screening.

10.1 Rural Section Landscaping – (Landscape Areas Between Interchanges North of 12 Mile Road)

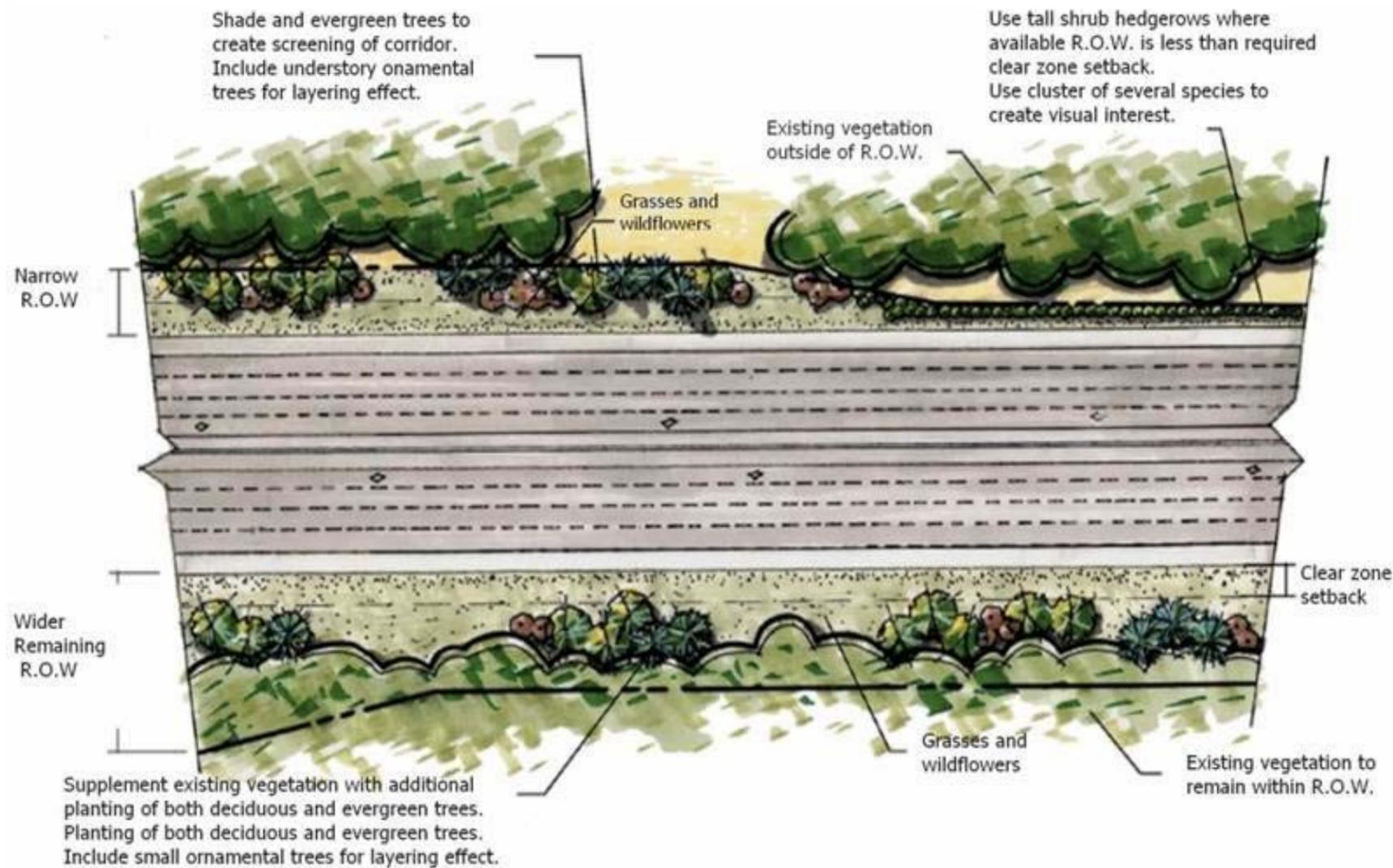
The primary goals for planting within this portion of the corridor are to restore vegetation and to reinforce existing planting buffers adjacent to residential land uses. The new planting should appear natural in character and allow them to blend in with the existing vegetation. Naturalistic and informal plant arrangement is preferred. Similarly plant species that have a less formal shape should be used for these locations to further blend in with the natural appearance. Figure 10-1 provides a plan view of the rural section landscaping and Figure 10-2 provides a section view.

Plantings proposed for these locations will vary depending upon the width of right-of-way available and the quality of the existing vegetation in place.

In areas where a dense stand of planting exists, the addition of new plantings should focus on adding plants with seasonal interest such as spring or summer flowers and/or brilliant fall color.

In areas where the plantings have diminished, a complete planting screen should be implemented which includes shrubs and tree species. In locations where new noise sound walls are added, plantings should be designed to provide visual softening and screen the view of the walls from the travel lanes. Planting density and composition will need to be adjusted to fit the available right-of-way by considering the mature size of the plantings to ensure the safety clear zone is maintained at all times. It is anticipated that few areas will be constrained in this way, however, should limited right-of-way be a factor, the use of climbing vines on the walls may be used.

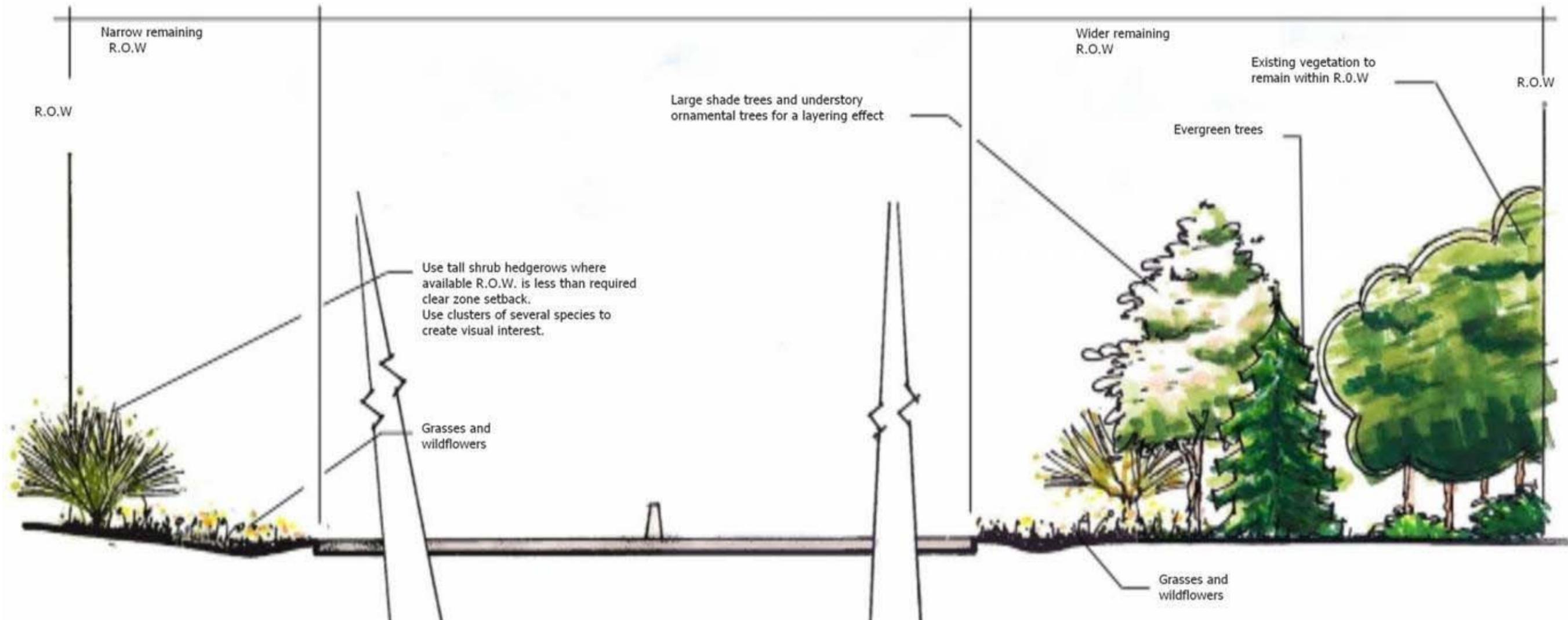
Figure 10-1 Landscaping Plan View



Desired dense natural appearing plant right-of-way buffer

Illustration of planting concept adjacent to main line travel lanes. Note differing application of planting depending upon width of available right-of-way.

Figure 10-2 Landscaping Section View A-A



10.2 Major Interchanges

In a number of locations along the corridor there are opportunities within the interchange infields to add landscape plantings. Plantings in these areas may provide a number of functional benefits to the corridor including:

- Reduction of solar glare bouncing off vehicles and control headlight glare between the corridor and adjacent properties
- Definition of interchange ramp corridors
- Opportunities for filtering, absorption, and infiltration of storm water from ramps and bridges
- Reduction of air borne particulates
- Enhancement of visual character of the space and the addition of visual interest/diversity to the corridor planting
- Use special planting to identify an interchange as a principal community gateway or entrance

Planting design may be formal or semi-formal depending upon the location and context of the area being planted. Local communities will be coordinated with and use of suggested plantings from local plans will be considered to help determine the final arrangement of planting at each interchange. Figure 10-3 provides examples of interchange landscaping.

Figure 10-3 Interchange Landscaping



Examples of right-of-way planting at major interchange

10.3 Urban Section South of 12 Mile Road

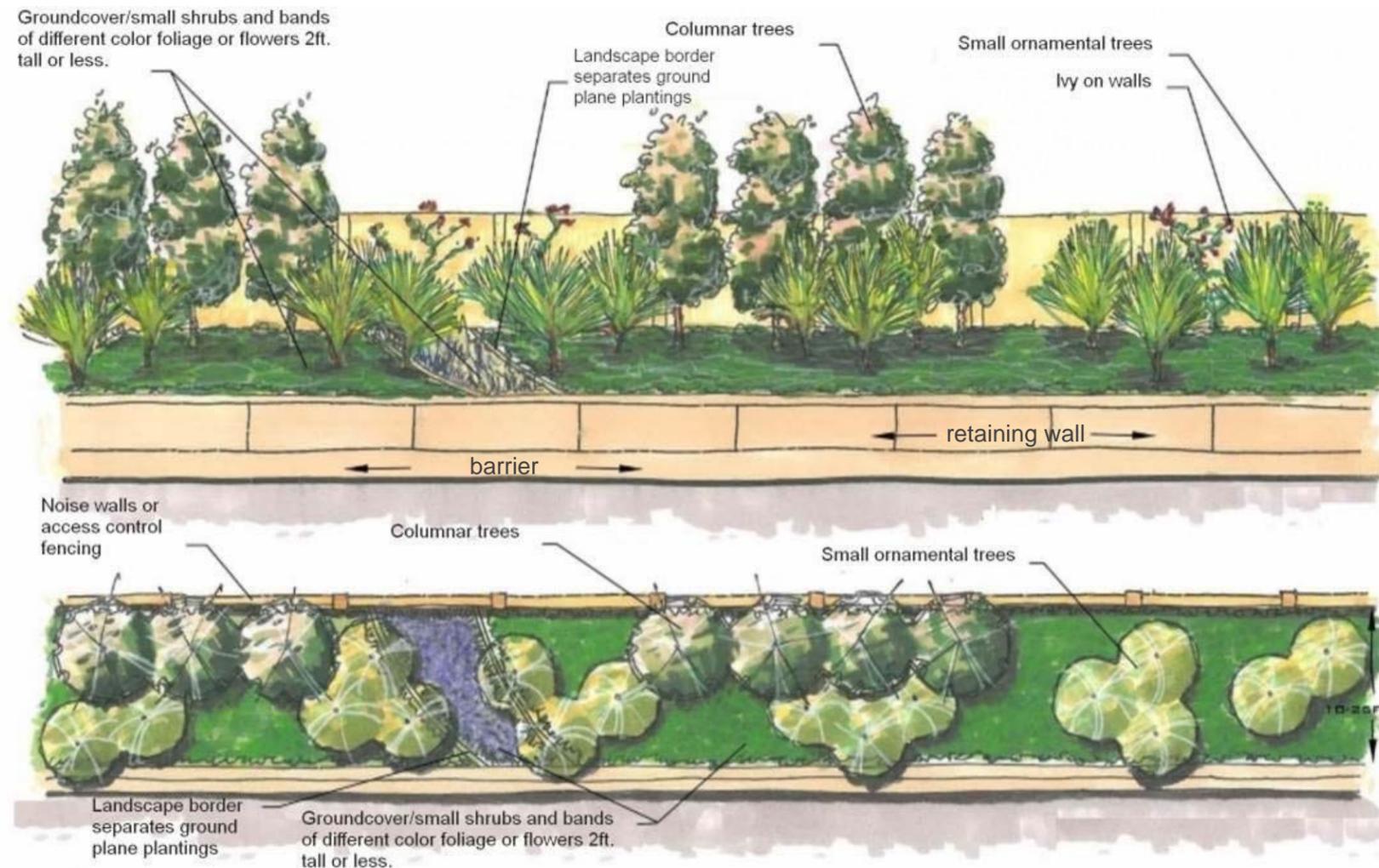
The addition of the proposed HOV lane will further reduce the available landscape area in narrow right-of-way areas between M-102 and 12 Mile Road in this more urbanized area (see Figures 10-4 and 10-5). In this part of the corridor (excluding the I-696 Interchange) the additional landscaping will need to address these issues by:

- Eliminating the need for mowing turf in the right-of-way where a noise wall or retaining wall is located
- Increasing use of native plant species with proven survivability in highway corridors
- Reducing or eliminating opportunities for animals to nest in and vagrants to trespass in these locations
- Reducing the tendency for plantings to collect and hold windblown trash

The landscape concept proposed for these areas consists of the following:

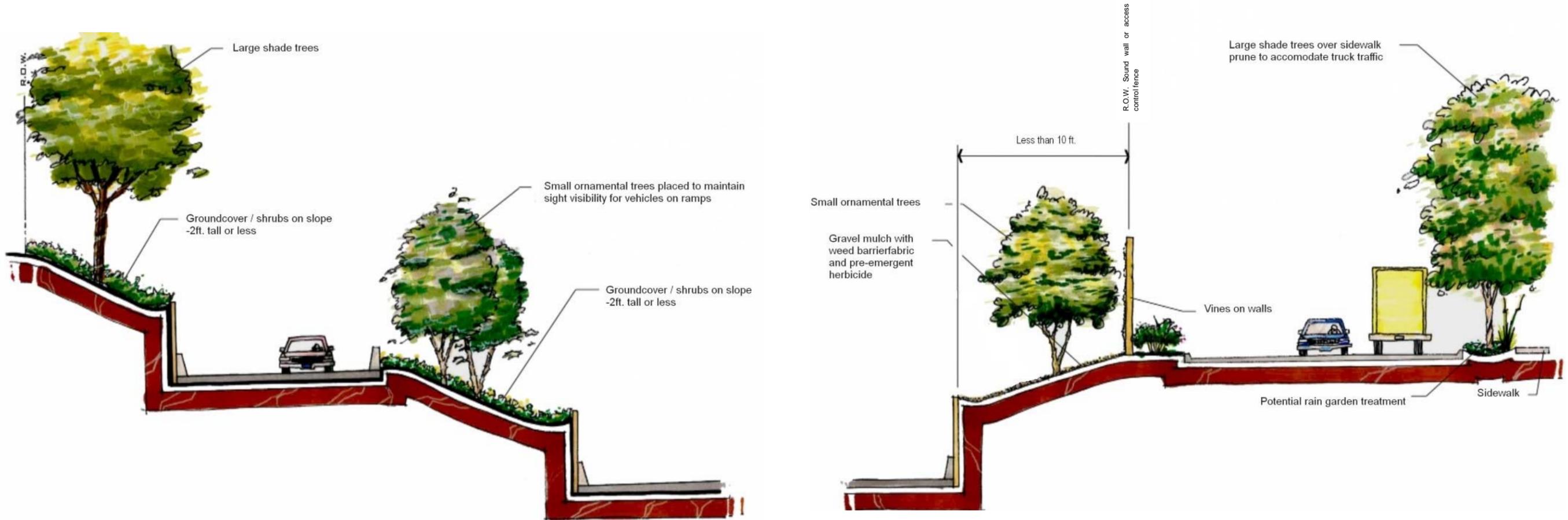
- Low growing ground plant species (12"-24" in height maximum)
- Flowering and shade tree species placed within the ground plane, planting with minimum clear height to first branch of 5-feet
- In areas where available space is extremely limited, use permeable granular mulch to cover the ground plane and protect soil from erosion
- Use of climbing vines to provide erosion control, reduce weed growth, and to visually soften hard surfaces

Figure 10-4 South of 12 Mile Rd Landscaping Elevation View top, Plan View below



Granular mulch used in right-of way planting

Figure 10-5 Planting Concept at Main Line



Section View

Illustration of planting concept at ramp location adjacent to main line travel lanes.

Section View

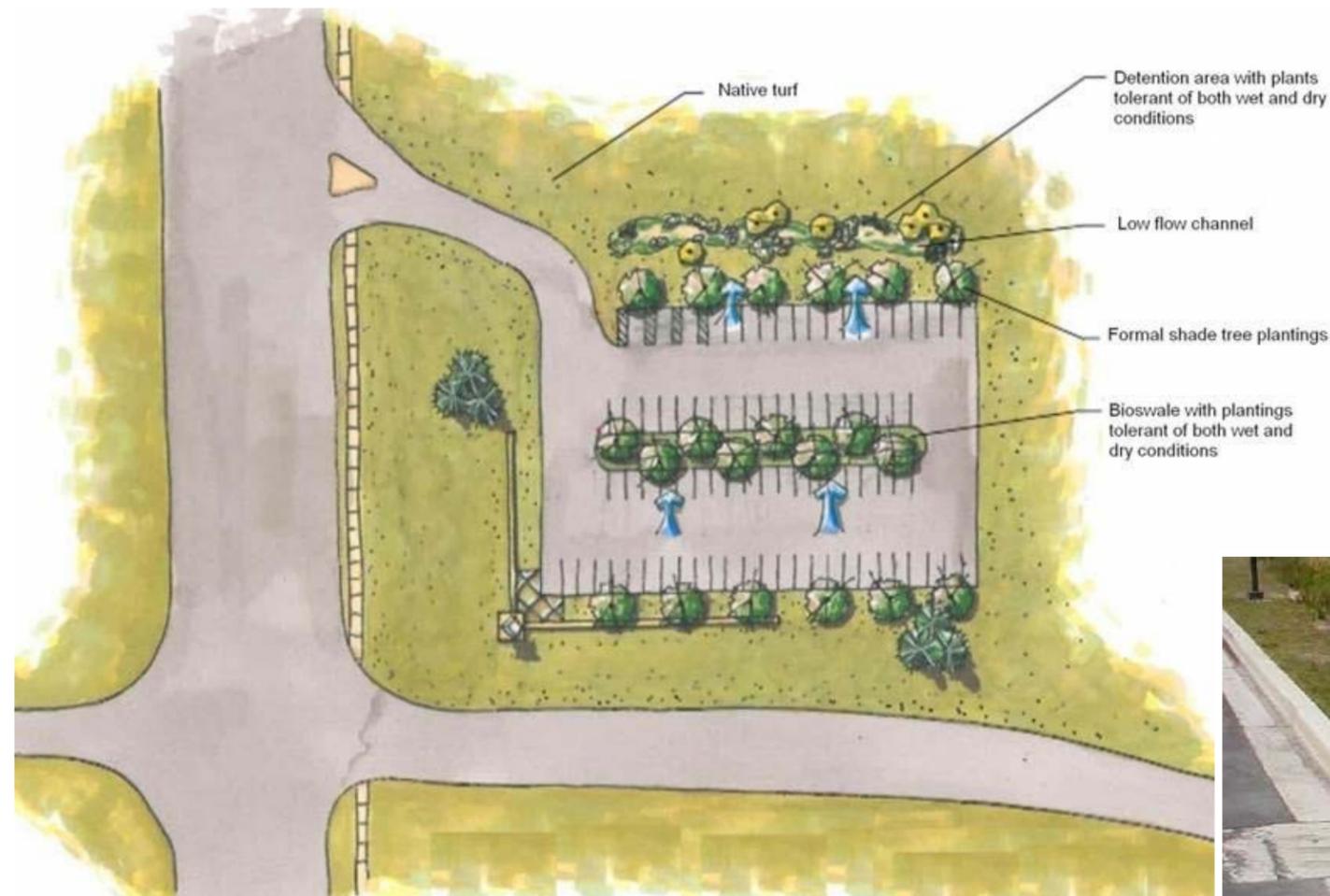
Illustration of planting concept between service drive and adjacent main line travel lanes. Planting opportunities may exist adjacent to the service drive within the right-of-way.

10.4 Carpool Lots

The planting design for carpool lots will be developed to be compatible with the local context of the community (see Figure 10-6). Plans and selection will include:

- Species which have demonstrated low maintenance characteristics
- Hardy disease and storm resistant canopy trees
- Vegetated rain gardens and swales to promote storm water filtration, absorption, and infiltration, as appropriate
- Durable native grass species for erosion control, which require less mowing and no supplemental watering
- Perimeter plantings to outside of the fence line only to maintain open views to the lot from the adjacent streets to enhance security

Figure 10-6 Carpool Lot Landscaping Plan View



Prototypical plan view illustrating limited planting on the exterior lot with interior bioswales and storm water absorption areas.



Planted island provides shade for parked vehicles.



Planted bioswales add color and provide filtration, absorption, and infiltration of parking lot storm water runoff.

10.5 Vines

The placement and density of vine coverage on noise walls will be determined on a case by case basis and in conjunction with other plantings proposed in the vicinity. Figure 10-7 provides examples of vines.

Vines add a dynamic seasonal element to the corridor. Other potential benefits for using vines include:

- Bare vines scaffold and add winter interest to simple brick walls
- Fall leaf color adds interest and contrast to brick walls
- Lush green leaves soften the appearance and reduce heat absorption of walls making space visually and physically cooler
- Vine roots help to stabilize soil and reduce erosion
- Surfaces with mature vine coverage are more difficult to spray paint or vandalize

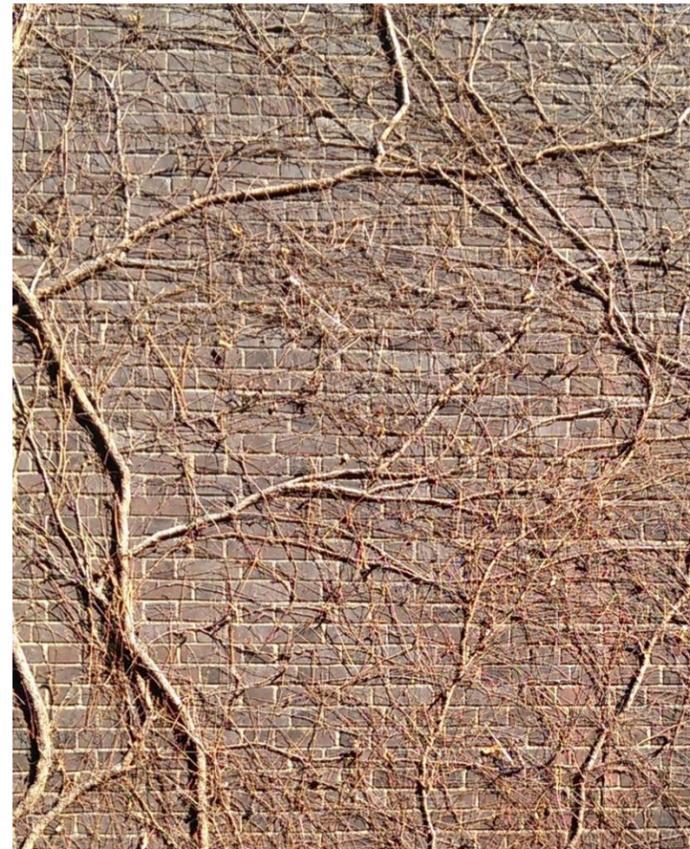
The following three vine native species have been selected for use in the I-75 corridor based upon their hardiness, durability, draught tolerance, foliage density, fall color, wall attachment method, growth rate and appropriateness for use on noise walls.

- Woodbine (*Parthenocissus inserta*)
- Virginia Creeper (*Parthenocissus quinquefolia*)
- Boston Ivy (*Parthenocissus tricuspidata*)

Figure 10-7 Landscape Vine Benefits



Vine foliage softens wall surfaces



Vine scaffolding provides interesting patterns on the walls when dormant



Vine foliage provides brilliant fall color

11.0 Color Palette

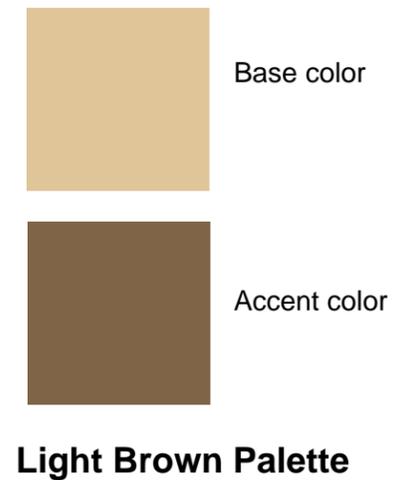
A number of color combinations were developed, reviewed, and voted on by stakeholders. The color palettes most preferred were the light brown and the gray/red-brown.

It is anticipated that in the final design process, the final brick and stone form liner surface texture selections will be compared with the color palettes to select an appropriate color palette. Figures 11-1 and 11-2 provide the typical cross street overpass and main line overpass with the light brown color palette. Figures 11-3 and 11-4 provide the typical cross street overpass and main line overpass with the gray/red-brown color palette.

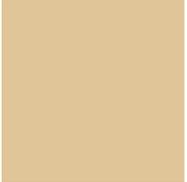
Figure 11-1 Typical Cross Street Overpass with Light Brown Color Palette



Figure 11-2 Typical Main Line Overpass with Light Brown Color Palette



Base color



Accent color



Light Brown Palette

Figure 11-3 Typical Cross Street Overpass with Gray/Red-Brown Color Palette



Figure 11-4 Typical Main Line Overpass with Gray/Red-Brown Color Palette



Base color



Accent color

Gray/Red-Brown Palette