

# GREAT RIVERS GREENWAY EXTERIOR SIGN DESIGN STANDARDS

Updated February 2022



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## Project Background

Hello! Thanks for taking a look at our Wayfinding & Signage Design Standards.

We think it's important to share this with vendors and partners so everyone can understand our project goals and standards.

If you'd like to read the document to understand best practices, please do - *what's ours is yours in terms of knowledge and industry standards.*

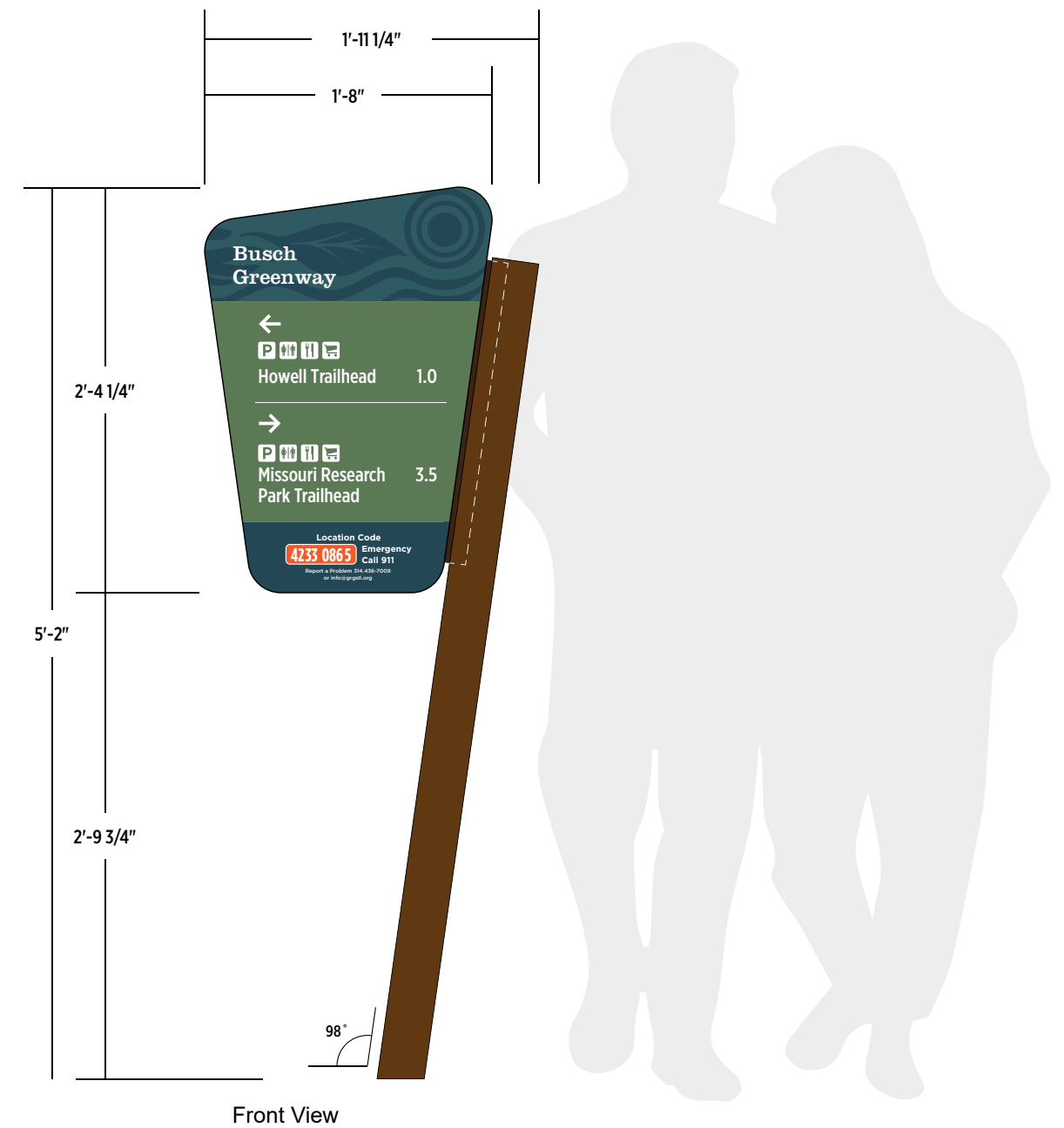
**Please note that the following guidelines should be used only for signs that appear on greenways within Great Rivers Greenway's River Ring network.**

While we are certainly flattered if people wish to use the information in this document to guide their efforts, we respectfully request that they not emulate the same colors, fonts, shapes and logos. These elements are the proprietary brand for Great Rivers Greenway, designed to help people identify that they are on a greenway and part of the network.

If you have any questions about this document or the usage of the recommendations, please contact me. Thanks for your collaboration in making the St. Louis region a vibrant place to live, work and play!

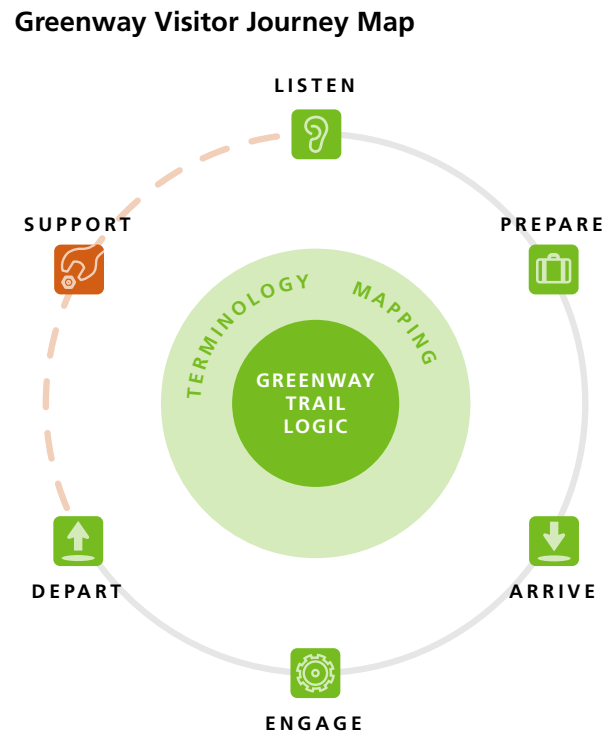
### Seth Treptow

Communications Manager  
(314) 932-4910  
streptow@grgstl.org



**Q: What is [green]wayfinding?**

**A: Direction for People in Motion**



Wayfinding is:

- Visual & informational consistency
- Consistent brand presence

Answers to visitor questions:

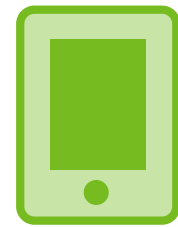
Listen | Prepare

- What is a Greenway?
- Why should I go?
- What can I expect when I get there?
- How do I get there?

Arrive | Engage | Depart

- Where am I?
- Where can I find \_\_\_\_\_?
- Does this trail connect?
- Something's wrong. Who do I call?

**Great Rivers Greenway Responsibilities**



DIGITAL



PRINT



SIGNAGE



VERBAL

Wayfinding includes:

- Simplified logic & terminology
- Standards for wayfinding tools

Anticipating user informational needs:

Listen | Prepare

- Website | Mobile
- Printed Materials
- Verbal Directions

Arrive | Engage | Depart

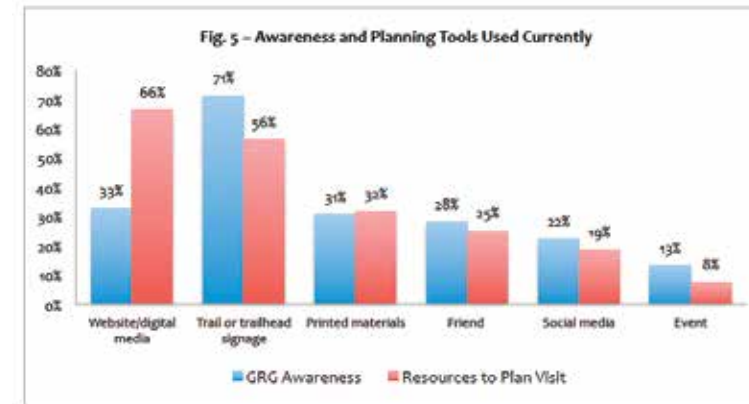
- Wayfinding Signage
- Printed Materials
- Mobile

Support

- Planning Guidelines
- Signage System Planning & Procurement
- Maintenance

**Q: Why develop a wayfinding program now?**

**A: Navigation Survey Results**



**Navigation while visiting a trail**

- Only 12% report using a printed map
- 80% rely on trail signage, including distance markers, wayfinding signs
- 52% report using maps on trailhead kiosks
- 41% use a smartphone or other GPS device

Analysis observations:

**Greenway system growth =**

- Need for standardization

**Connectivity:** Can I get there from here?

- Indicate connections to transit
- Add trailblazer signs to Greenway trails
- Identify on-street routes where GRG trails end

**Experience:** How do I know ...?

- Use international symbols to describe conditions: Trail grade/hazards, amenities, features.
- Place distance markers on all maps

**Location:** Where am I?

- Use GRG naming hierarchy as basis for locating
- Provide a Locator Code for first responders
- GRG phone number for operations concerns

**Respondents report usage**

- Most respondents use multiple greenways
- Multiple uses in a given month
- Primarily for cycling, recreation

**Trail markers, signs help people:**

- Become aware of the GRG system
- Learn about greenways
- Navigate trails

**Digital media**

- Currently used mostly for planning a visit
- Most would use a mobile site to navigate
- Some currently use smartphone features to navigate trails
- New GRG Website is "mobile-first," providing orientation, information

**Existing Signage**

- Undertake comprehensive audit using GIS
- Create database: sign type, location, center
- Retrofit existing signage as updates require
- Apply new design to new trail segments
- Add sign types to vocabulary to meet previously unmet informational needs
- Increase cost savings, functionality

**Mapping**

- Develop one consistent map in all media

**Separate interpretive**

- Understand the difference between wayfinding, promotion and interpretive
- Place interpretive on separate sign types

## Great Rivers Greenway Location Code

A critical safety issue for users of the Greenways is that they be able to identify their location if an emergency occurs. Additionally, GRG Operations staff identified the need to be able to pinpoint locations of maintenance issues on the trails: downed trees, broken pavement, graffiti, trash, etc. The previous design standard did not include this feature.

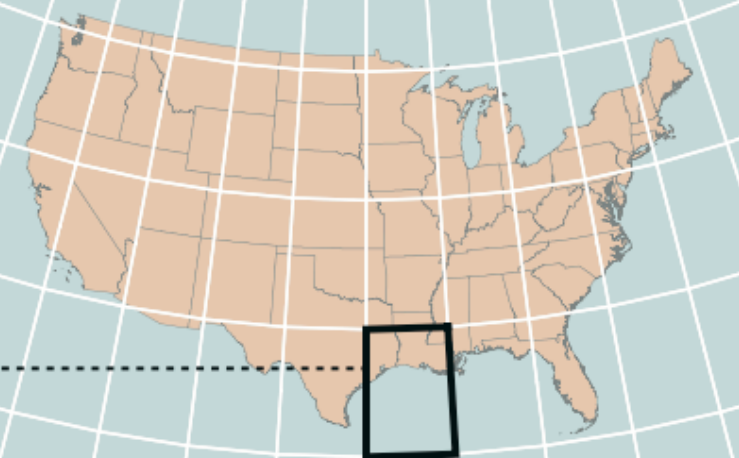
We've designed the **United States National Grid (USNG)** into the signage standard to manage both of these issues, for the following reasons:

1. GRG trail segments are not contiguous and rapidly expanding. This eliminates our ability to identify a location based on a given starting or ending point. The USNG identifies a unique geographic point that does not depend on linear continuity.
2. Location points for future trail segments already exist; they just need to be identified and applied as needed.
3. The sign standard is designed to accommodate the Location Code as needed. Not all signs will require the code; use of the system relies on the discretion of the GRG planner/project manager for each sign location. We've also designed a sign type to place only the location code where no other information is needed.
4. This code can be applied to existing signage as needed.
5. The system was developed by the Federal Geographic Data Committee to supplement other unique locators (e.g. street address, GPS coordinates), cross jurisdictional lines, and is supported across digital platforms.
6. In some cases, it may be the only way to pinpoint a location in an area with no established road network, or an area affected by a natural disaster where other locators are unavailable.
7. Anyone tasked with identifying locations can use it: private citizens, commercial entities, first responders, the National Guard. It allows both state and federal agencies to integrate response in the event of an emergency. It can be integrated with local 911 systems.
8. It's a grid-based alpha-numeric point reference system that scales from 100,000 square meters at its largest segmentation to 10 square meters at its most precise. Depending on the sign location, we can use either six digits (rural setting) or eight digits (dense urban setting) to indicate a trail user's location.
9. The unique combination in the code is never duplicated within a given region.

## Finding a location using the USNG

The National Grid uses a string of 15 characters to designate a specific location. Older systems used latitude and longitude measurements, which can be misread in several ways. Global Positioning System satellites can generate either type of data.

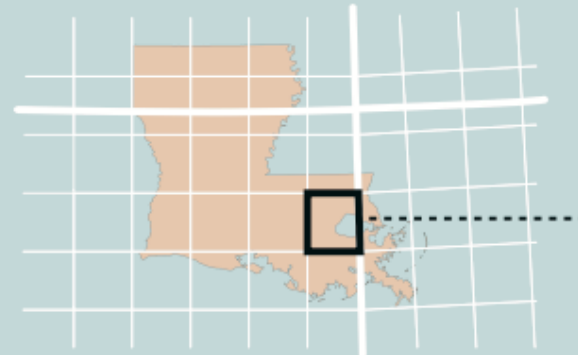
### U.S. Grid Zone Designations



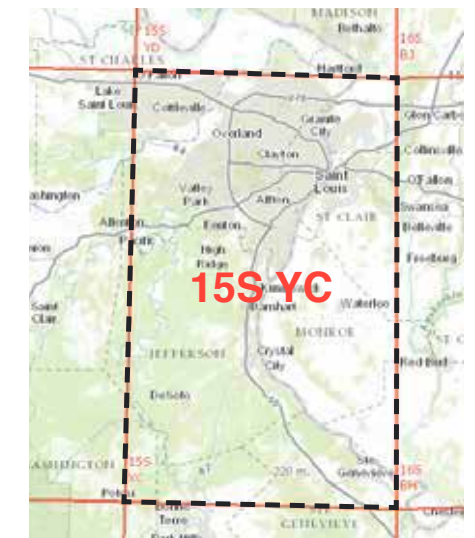
First three characters correspond to grid zone designation

**15R YP 81660 16816**

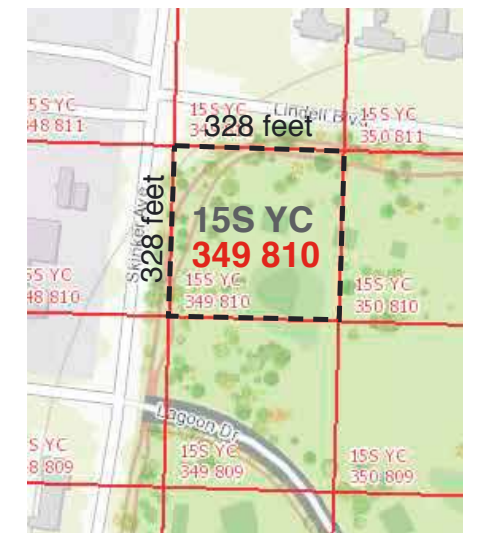
Next two letters indicate 100,000-meter-square identification



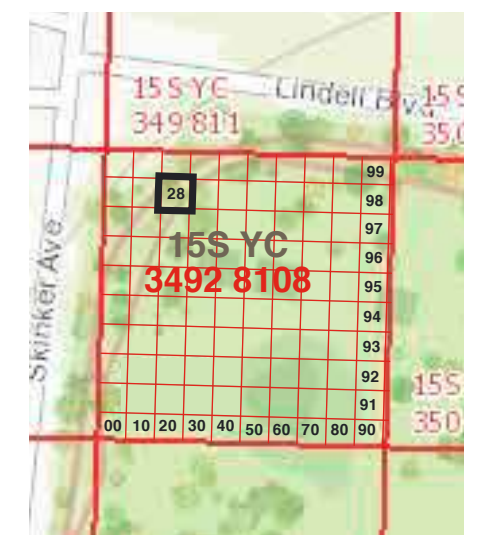
Remaining numbers represent a location east and north of perpendicular grid lines. Ten digits can locate a point within 1 square meter.



Regional location code (does not appear on signs)



Six digit location code 100 meter / 328 ft square



Eight digit location code 10 meter / 32.8 ft square

For more information visit: [usngcenter.org](http://usngcenter.org)

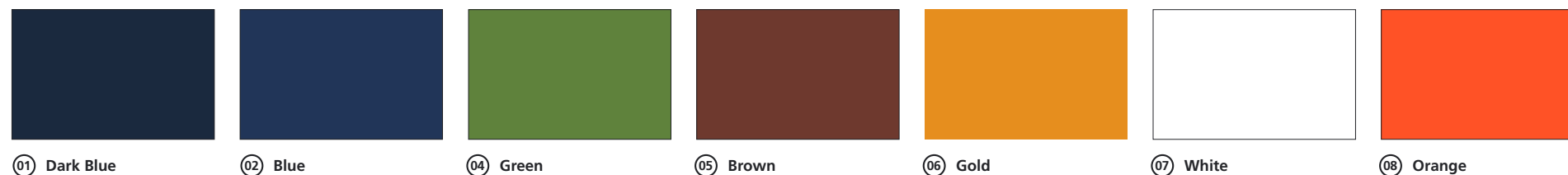
## USNG Location Code

**15S YC 3450 8233**

**Emergency  
Call 911**

Report a Problem 314.436.7009  
or [info@grgstl.org](mailto:info@grgstl.org)

Color Palette



Pantone®: 7546 C	7477 C	5763 C	7596 C	7563 C	White	7579 C
Matthews Paint: MP 8973 Tintoretto Blue	MP 11183 Franco Blue	MP 479 Extra Virgin	MP 4418 Doric Brown	MP 29187 Jack O'Lantern	N202SP Satin White	MP01049
Powder-Coating Finish: ---	---	---	Cardinal P004-BR23 Polyurethane Powder Coating Bronze (40% gloss)	---	---	---
CMYK Equivalent: C91 M78 Y54 K50	C94 M82 Y44 K31	C57 M35 Y91 K17	C55 M83 Y89 K32	C16 M52 Y97 K2	C0 M0 Y0 K0	C4 M84 Y96 K0
RGB Equivalent: R44 G50 B66	R51 G58 B87	R113 G128 B73	R90 G62 B54	R191 G140 B57	R255 G255 B255	R198 G83 B51
Clear Coat: Satin Clear Coat finish, MP 50A4158SP						
Digital Print: Sherine Industries Ltd. 113 – 19433 96 Ave Surrey BC V4N 4C4 604.513.1887 1.800.665.0566 sherineindustries.com						

**REFLECTIVE MATERIAL**

**Diamond Grade:** ASTM D 4956 Type XI (Signs IX-1, IX-2, IX-3, GX-1, GX-2, GX-3, GX-4 and GX-9.)

**Engineered Grade:** 3M IJ680CR-10 Reflective with 3M 8518 Exterior Gloss laminate. (Signs GX-5, GX-6, GX-7, GX-8, KX-1, KX-2, KX-3, RX-1, RX-2, RX-3 and TC-1.)

Typography

**Gotham Bold**

**Aa Bb Cc Dd Ee Ff Gg Hh Ii Jj Kk Ll Mm Nn Oo  
Pp Qq Rr Ss Tt Uu Vv Ww Xx Yy Zz 1234567890**

**Gotham Bold Italic**

***Aa Bb Cc Dd Ee Ff Gg Hh Ii Jj Kk Ll Mm Nn Oo  
Pp Qq Rr Ss Tt Uu Vv Ww Xx Yy Zz 1234567890***

**Gotham Medium**

**Aa Bb Cc Dd Ee Ff Gg Hh Ii Jj Kk Ll Mm Nn Oo  
Pp Qq Rr Ss Tt Uu Vv Ww Xx Yy Zz 1234567890**

**Gotham Medium Italic**

***Aa Bb Cc Dd Ee Ff Gg Hh Ii Jj Kk Ll Mm Nn Oo  
Pp Qq Rr Ss Tt Uu Vv Ww Xx Yy Zz 1234567890***

**Clarendon Roman**

**Aa Bb Cc Dd Ee Ff Gg Hh Ii Jj Kk Ll Mm Nn Oo  
Pp Qq Rr Ss Tt Uu Vv Ww Xx Yy Zz 1234567890**

**Gotham XNarrow Medium**

**Aa Bb Cc Dd Ee Ff Gg Hh Ii Jj Kk Ll Mm Nn Oo  
Pp Qq Rr Ss Tt Uu Vv Ww Xx Yy Zz 1234567890**

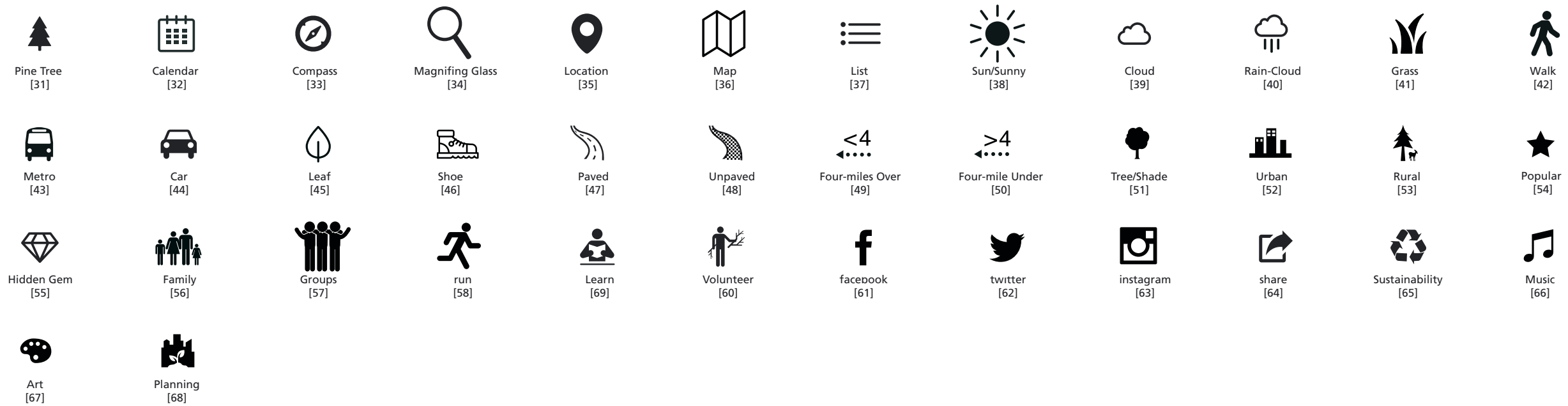
**Gotham XNarrow Light**

**Aa Bb Cc Dd Ee Ff Gg Hh Ii Jj Kk Ll Mm Nn Oo  
Pp Qq Rr Ss Tt Uu Vv Ww Xx Yy Zz 1234567890**

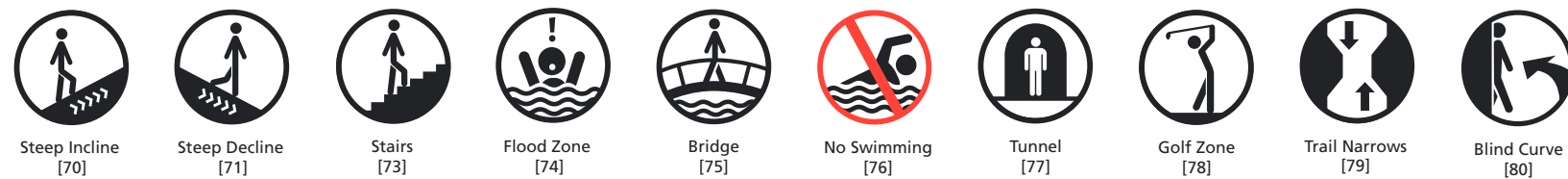
## Trail Activity and Amenity Symbols



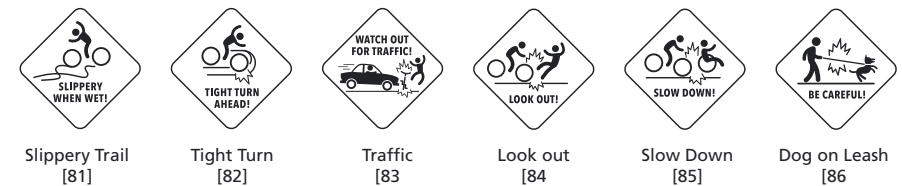
## Trail Conditions/Map Symbols



## Trail Regulatory



## Trail Safety Symbols



## Standard Symbols



## Logos

Great Rivers Greenway



# Great Rivers Greenway Sign Array



Ix-1 Main Identification  
Freestanding  
NO BREAKAWAY OPTIONS  
Ix-1w - Wall Mounted  
Ix-1f - Fence Mounted

Ix-2 Secondary Identification  
Freestanding  
NO BREAKAWAY OPTIONS  
Ix-2w - Wall Mounted  
Ix-2f - Fence Mounted

Ix-3 Vehicular Greenway Identification  
New Post Mounted  
BREAKAWAY POST OPTIONS  
Ix-3w - Wall Mounted  
Ix-3f - Fence Mounted  
Ix-3e - Existing Pole Mounted

Gx-1 Vehicular Trailblazer  
6" post mounted  
BREAKAWAY POST OPTIONS  
Gx-1w - Wall Mounted  
Gx-1f - Fence Mounted

Gx-2 Vehicular Trailblazer  
4" post mounted  
BREAKAWAY POST OPTIONS  
Gx-2w - Wall Mounted  
Gx-2f - Fence Mounted  
Gx-2e - Existing Pole Mounted

Gx-3 Vehicular Guide  
Freestanding  
NO BREAKAWAY OPTIONS

Gx-4 Pedestrian Trailblazer  
Post mounted  
BREAKAWAY POST OPTIONS  
Gx-4w - Wall Mounted  
Gx-4f - Fence Mounted  
Gx-4e - Existing Pole Mounted

Gx-5 Multi-directional  
Large Guide  
NO BREAKAWAY OPTIONS  
Gx-5w - Wall Mounted  
Gx-5f - Fence Mounted  
Gx-5e - Existing Pole Mounted



Gx-6 Multi-directional  
Medium Guide  
NO BREAKAWAY OPTIONS  
Gx-6w - Wall Mounted  
Gx-6f - Fence Mounted

Gx-7 Single-directional  
Medium Guide  
NO BREAKAWAY OPTIONS  
Gx-7w - Wall Mounted  
Gx-7f - Fence Mounted

Gx-8 Amenity Guide  
NO BREAKAWAY OPTIONS  
Gx-8w - Wall Mounted  
Gx-8f - Fence Mounted

Gx-9 and Gx-99 Trailblazer Guides  
BREAKAWAY POST OPTIONS  
Gx-9w - Wall Mounted  
Gx-9f - Fence Mounted

Kx-1 Main Trailhead Kiosk  
NO BREAKAWAY OPTIONS  
Kx-1p - Posting Board on Back

Kx-2 Secondary Trailhead Kiosk  
NO BREAKAWAY OPTIONS  
Kx-2w - Wall Mounted  
Kx-2f - Fence Mounted  
Kx-2e - Existing Pole Mounted

Kx-3 Trail Information  
NO BREAKAWAY OPTIONS  
Kx-3w - Wall Mounted  
Kx-3f - Fence Mounted  
Kx-3e - Existing Pole Mounted

Rx-1 Regulatory/Safety  
NO BREAKAWAY OPTIONS  
Rx-1w - Wall Mounted  
Rx-1f - Fence Mounted  
Rx-1e - Existing Pole Mounted

Rx-2  
Mile Marker  
NO BREAKAWAY OPTIONS

Rx-3  
Mile Marker  
NO BREAKAWAY OPTIONS

TC-1 Trail Counter  
(custom)  
NO BREAKAWAY OPTIONS

IN-1 Interpretive  
NO BREAKAWAY OPTIONS



## Great Rivers Greenway Sign Array: Sign Descriptions and Functions

Sign Type	Description	Function
IX-1	<b>Vehicular Main Identification</b>	<i>Destination or Greenway Identification Sign Type scaled for viewing by vehicular traffic on roads with a 35mph and above speed limit. Carries a 4 1/4" cap height. Locate perpendicular to traffic where possible.</i>
IX-2	<b>Vehicular Secondary Identification</b>	<i>Destination or Greenway Identification Sign Type scaled for viewing by vehicular traffic on roads with a speed limit below 35mph speed. Carries a 3 1/4" cap height. Locate perpendicular to traffic where possible.</i>
IX-3	<b>Vehicular Greenway Identification</b>	<i>Greenway identification Sign scaled for viewing by vehicular traffic. Carries a 2 5/8" cap height. Locate perpendicular to traffic where possible.</i>
GX-1	<b>Vehicular Trailblazer 6"</b>	<i>Guide Sign to Greenway scaled for viewing by vehicular traffic on higher speed road. Locate perpendicular to traffic where possible.</i>
GX-2	<b>Vehicular Trailblazer 4"</b>	<i>Guide Sign to Greenway scaled for viewing by vehicular traffic on roads with speed limit below 35mph. Locate perpendicular to traffic where possible.</i>
GX-3	<b>Vehicular Guide</b>	<i>Guide Sign scaled for viewing by vehicular traffic. 3- destination capacity. Destinations grouped alphabetically by arrow direction. Left arrow, then right arrow, then straight ahead arrow.</i>
GX-4	<b>Pedestrian Trailblazer</b>	<i>Guide Sign to Greenway scaled for viewing by pedestrians. Locate perpendicular to traffic where possible.</i>
GX-5	<b>Pedestrian Large Multi-Directional Guide</b>	<i>Multi-Directional Trail Guide with Amenities, Distances and Locator Panel. Locate perpendicular to trail.</i>
GX-6	<b>Pedestrian Medium Multi-Directional Guide</b>	<i>Multi-Directional Trail Guide with Amenities, Distances and Locator Panel. Locate perpendicular to trail.</i>
GX-7	<b>Pedestrian Medium Single-Directional Guide</b>	<i>Single-Directional Trail Guide with Amenities, Distance and Locator Panel. Locate perpendicular to trail.</i>
GX-8	<b>Amenity Guide</b>	<i>Trail Guide to Amenities, Distance and Locator Panel. Locate perpendicular to Trail.</i>
GX-9	<b>Trailblazer Guide</b>	<i>Guide Sign mounted to tall pole, Distances, and Locator Panel. 2-destination capacity. Locate perpendicular to trail.</i>

Sign Type	Description	Function
GX-99	<b>Trailblazer Guide - 2 flag</b>	<i>Guide Sign mounted to tall pole, Distances, and Locator Panel. 2-destination capacity per panel face. Locate perpendicular to trail.</i>
KX-1	<b>Main Trailhead Kiosk - with alternate backs</b>	<i>Trailhead Kiosk contains trail map and information. Alternate back panels with graphic panels or posting boards. Locate perpendicular to trail.</i>
KX-2	<b>Secondary Trailhead Kiosk</b>	<i>Trailhead Kiosk contains trail map and information, double-sided with information same on both sides. Locate perpendicular to trail.</i>
KX-3	<b>Trail Information</b>	<i>Trail etiquette information only, no map. Locate perpendicular to trail where possible.</i>
RX-1	<b>Regulatory/Safety</b>	<i>Sign carries cautionary or safety information along with locator panel. Locate perpendicular to road where possible.</i>
RX-2	<b>Mile Marker</b>	<i>Sign carries mileage information. Should be located at least 1 mile increments. Locate perpendicular to trail.</i>
RX-3	<b>Mile Marker w/Trail Info and Rescue Locator</b>	<i>Sign carries mileage information, with locator panel and trail name. Should be located at least 1 mile increments. Locate perpendicular to trail.</i>
TC-1	<b>Trail Counter-Sign Panel</b>	<i>Trail Counter by others. Sign Panel carries Greenway name, symbols describing trail information, and trail etiquette. Locate perpendicular to trail.</i>
IN-1	<b>Interpretive</b>	<i>Interpretive sign has high pressure laminate panel containing historical, biographical or nature- themed content. Sign to be located parallel to trail. See locating diagrams in this Manual for ADA- compliant concrete pads.</i>

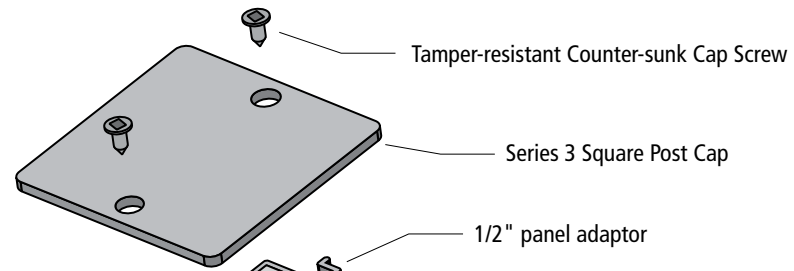
Great Rivers Greenway Sign Array: Post and Panel Assembly



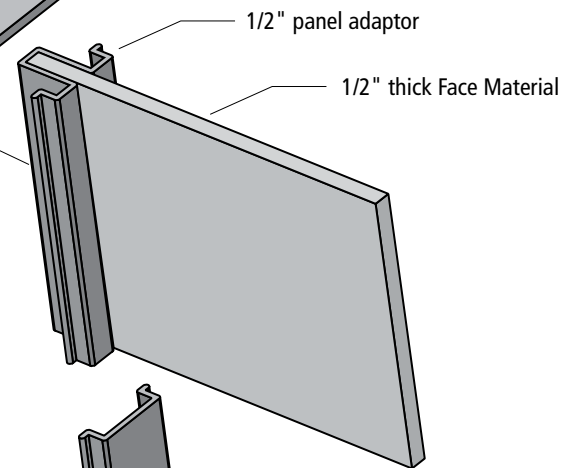
SignComp Architectural Extrusions  
3032 Walker Ridge Drive NW  
Grand Rapids, MI 49544

Toll Free 877.784.0405  
Fax 616.784.0411

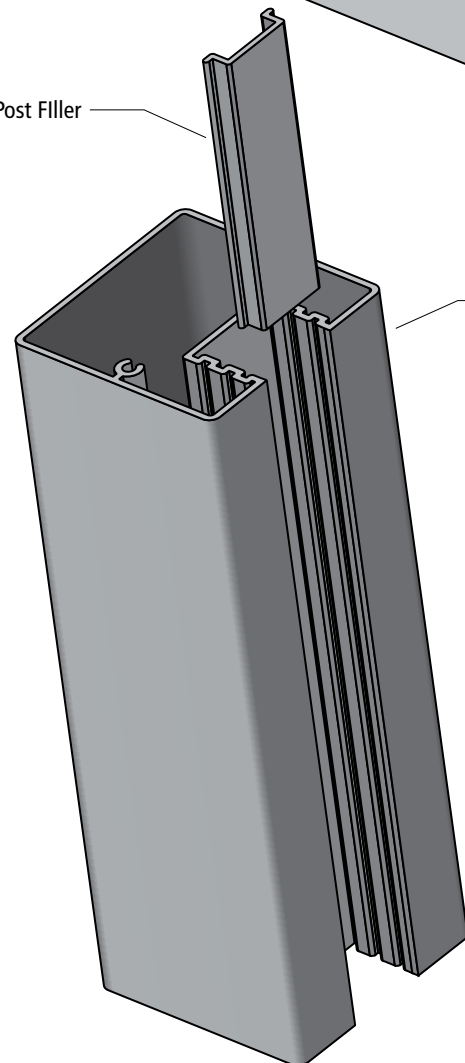
Email: signcomp@signcomp.com



Install three 1/4" bolts through the top, middle and bottom of the Sign Comp and sign panel to reinforce attachment between them.



Post Filler

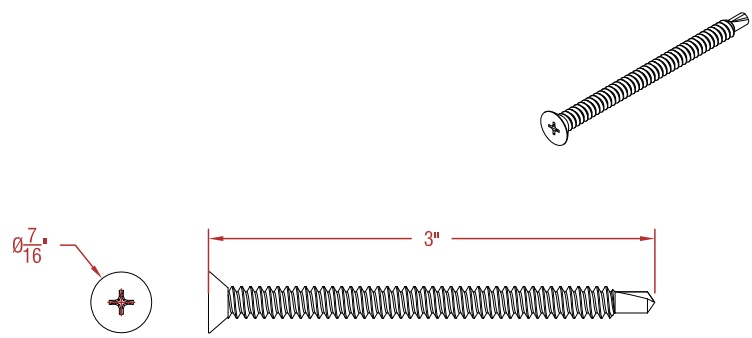
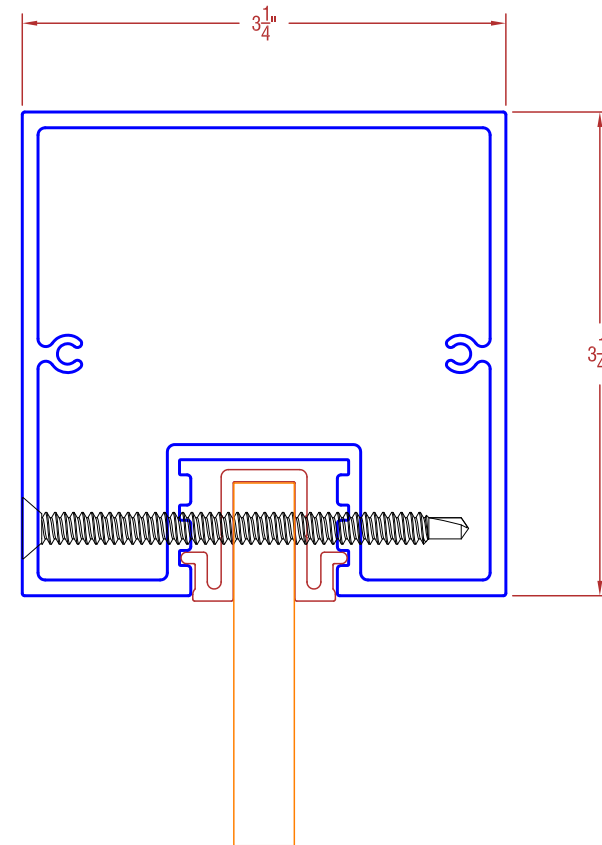
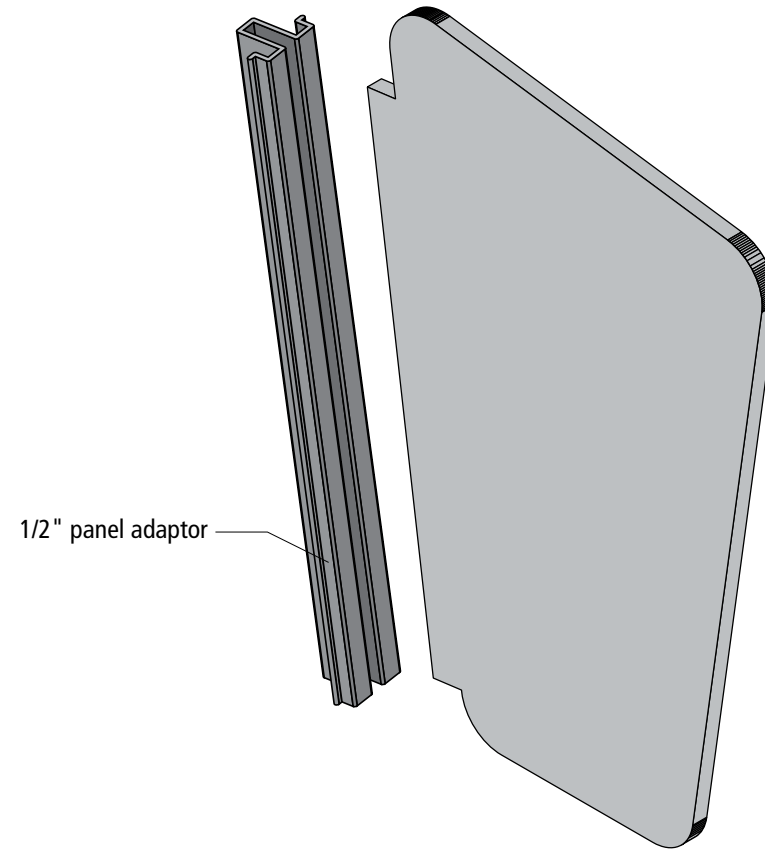


Series 3 Square Post

**ALTERNATE POST CONSTRUCTION**

Custom slotted posts made from steel or aluminum may be acceptable if they match the functionality of the SignComp series 3 post and panel system.

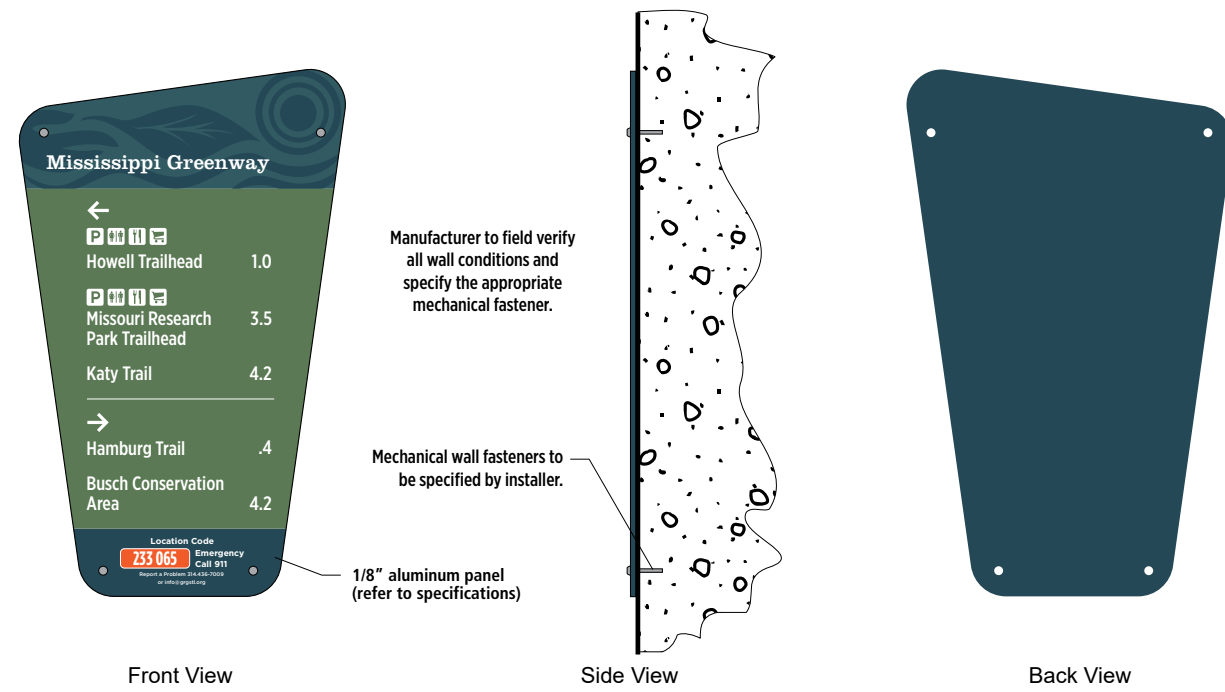
Any custom system is subject to review and approval by owner.



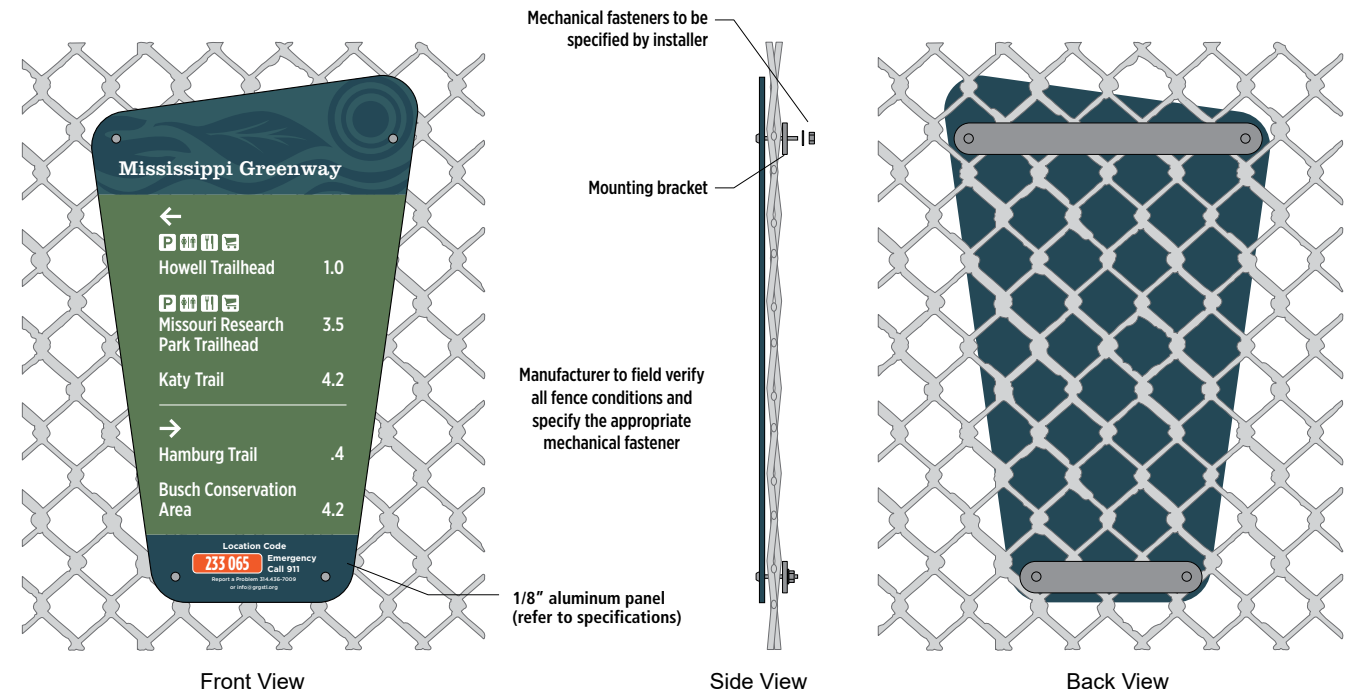
**1/4" STAINLESS STEEL FLAT HEAD DRILLING SCREW**

Install 1 screw from each side of the post (2 total screws)

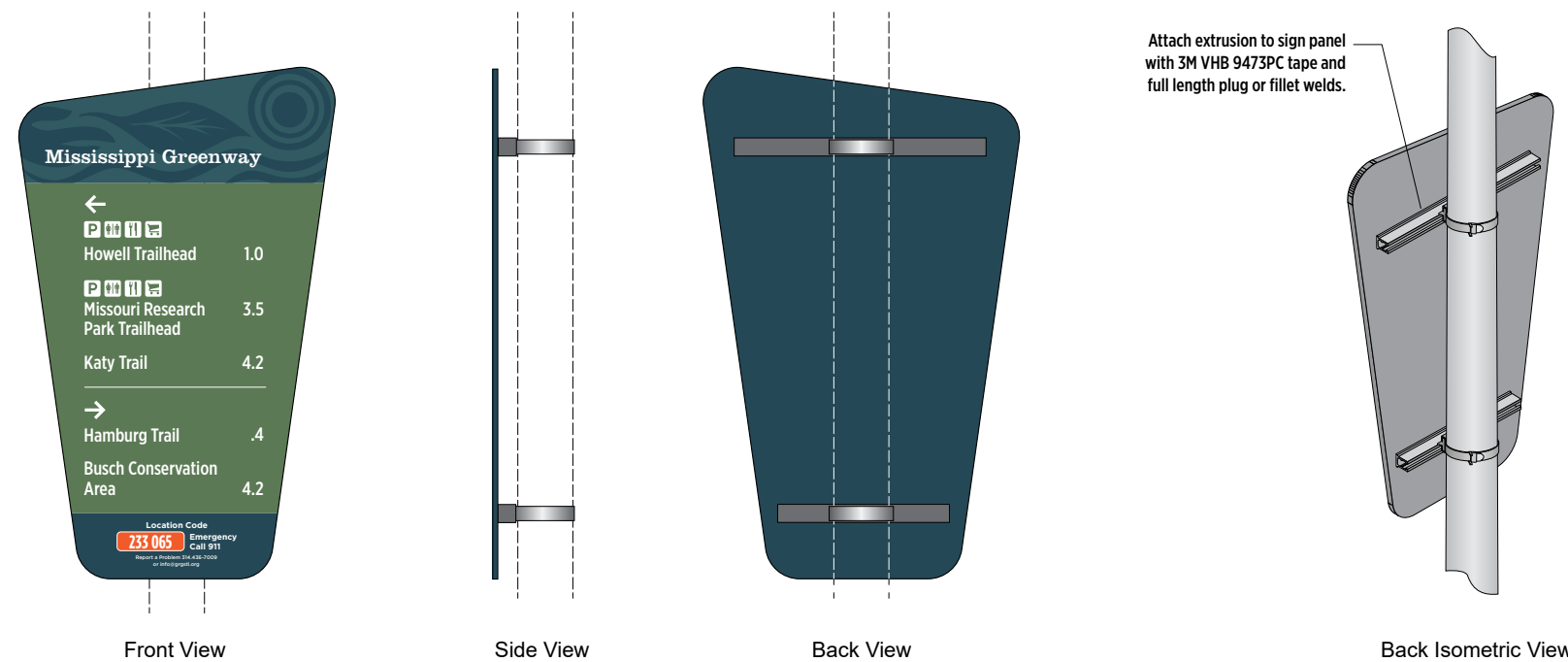
WALL - Example Sign Type Gx-5w


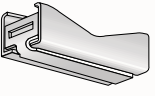



FENCE - Example Sign Type Gx-5f

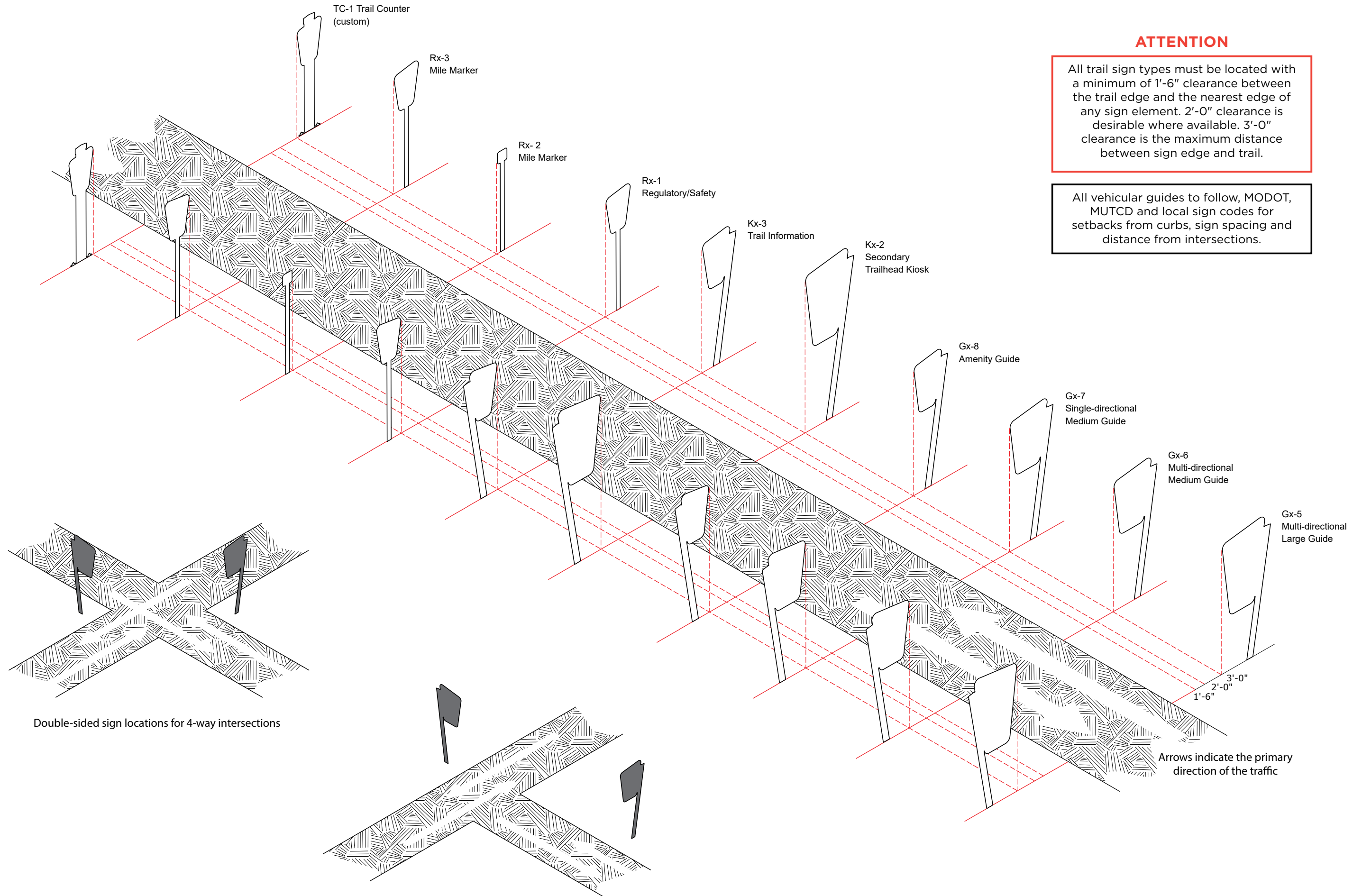


EXISTING POLE - Example Sign Type Gx-5e



 <p><b>Extrusion</b></p>	 <p><b>Universal Channel Clamp</b></p>	 <p><b>Bucklestrap</b></p>
<p>Size, length, quantity and positioning to be determined by Fabricator.</p>	<p>Standard stainless steel mounting bracket compatible with any Signfix support extrusion.</p>	<p>Stainless steel band. Use to attach Universal Channel Clamp to round posts.</p>
<p>Attachment Product available from: <a href="http://www.band-it-idex.com">www.band-it-idex.com</a></p>	<p>WORLD HEADQUARTERS &amp; WESTERN U.S. CUSTOMER SALES &amp; SERVICE CENTER BAND-IT - IDEX, INC. A Unit of IDEX Corporation 4799 Dahlia St. P.O. Box 16307 Denver, Colorado 80216-0307 Ph: 303-320-4555 FAX 303-333-6549</p>	<p>EASTERN U.S. CUSTOMER SALES &amp; SERVICE CENTER BAND-IT - IDEX, INC. A Unit of IDEX Corporation 3520 Progress Drive Bensalem, Pennsylvania 19020 Ph: 215-245-7290 FAX 215-245-7291</p>

# Great Rivers Greenway Sign Array: Setback Distances



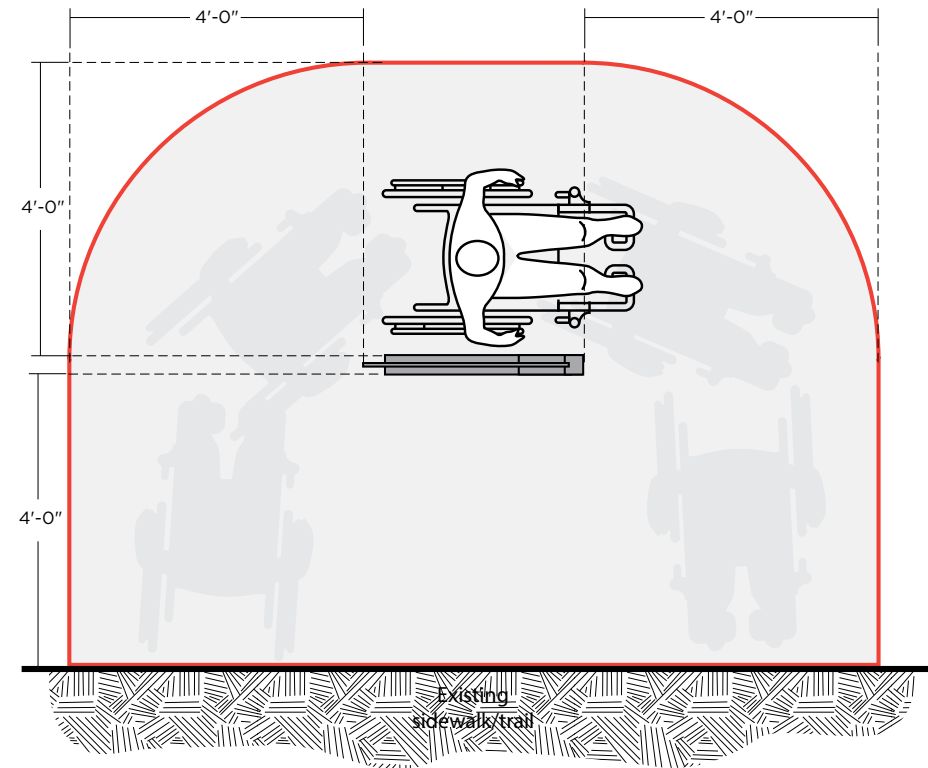
**ATTENTION**

All trail sign types must be located with a minimum of 1'-6" clearance between the trail edge and the nearest edge of any sign element. 2'-0" clearance is desirable where available. 3'-0" clearance is the maximum distance between sign edge and trail.

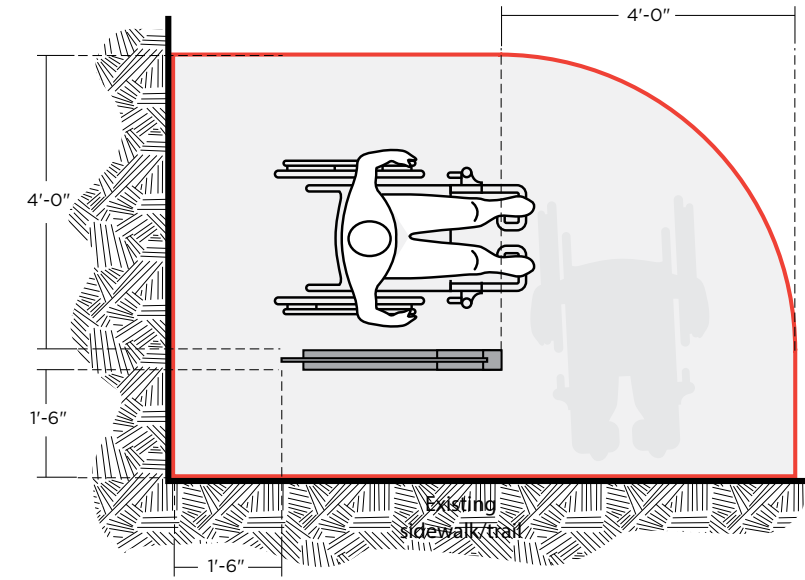
All vehicular guides to follow, MODOT, MUTCD and local sign codes for setbacks from curbs, sign spacing and distance from intersections.

Note:

These details apply only to sign types KX-1, KX-2, and IN-1.



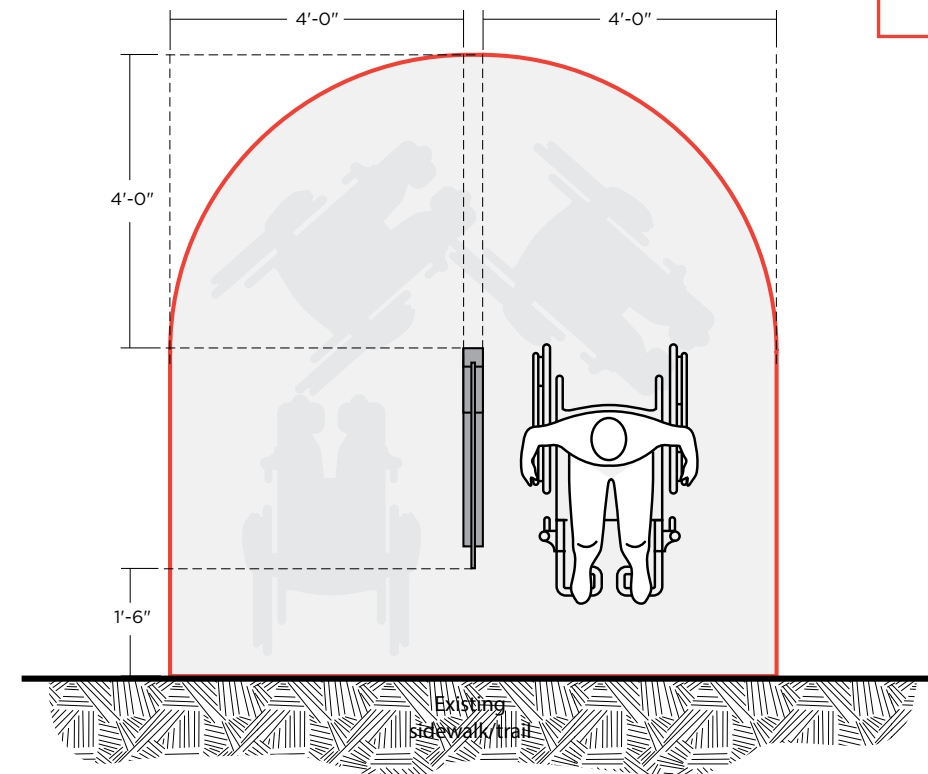
**Condition 1**  
Kiosk parallel to sidewalk/trail



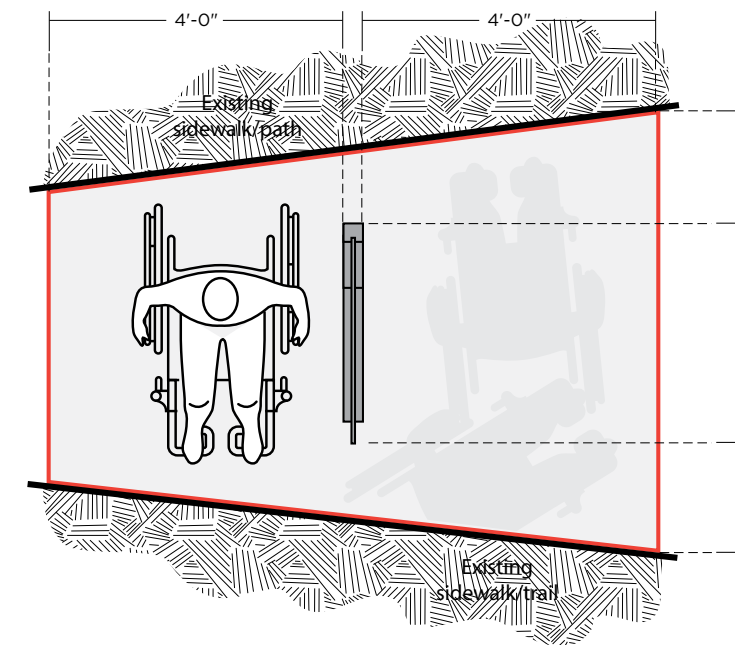
**Condition 3**  
Kiosk in corner of sidewalk/trail

**ATTENTION**

Concrete pad to meet City of St. Louis sidewalk standards. Transition between surfaces to follow Section 303 of the 2010 ADA Standards for Accessible Design.



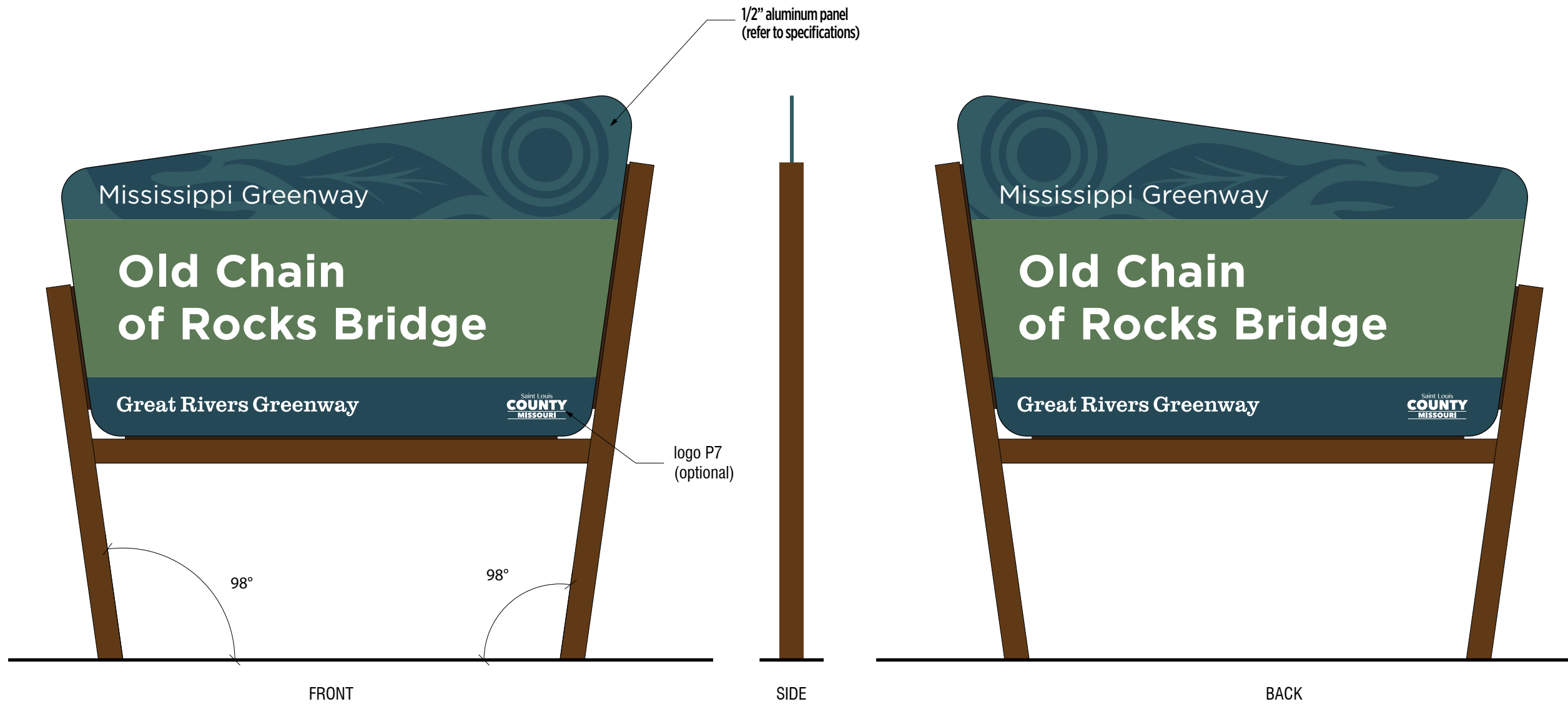
**Condition 2**  
Kiosk perpendicular to sidewalk/trail



**Condition 4**  
Kiosk in gore of sidewalk/trail

REFER TO PAGES 16 & 17 FOR  
STRUCTURAL SIGNAGE DETAILS

2 PLAN VIEW  
3/4" = 1'-0"



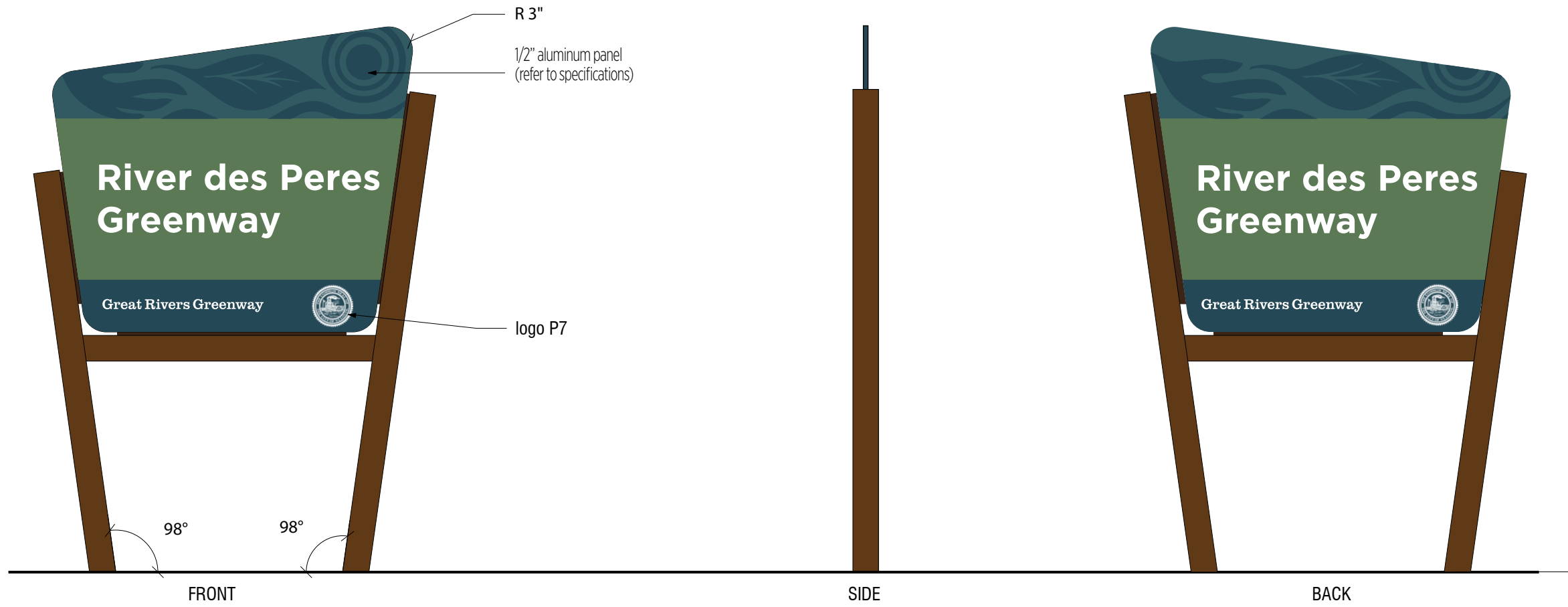
1 FRONT ELEVATION  
3/4" = 1'-0"

Download the art template for this sign at: <https://greatriversgreenway.sharefile.com/d-sebdacc0aad4fa39>

REFER TO PAGES 16 & 17 FOR  
STRUCTURAL SIGNAGE DETAILS



2 PLAN VIEW  
3/4" = 1'-0"



1 FRONT ELEVATION  
3/4" = 1'-0"

T:\Working\15080 - Widened - Streeter Road Bridge Drawings\Bridge\006 - Bridge template.dwg

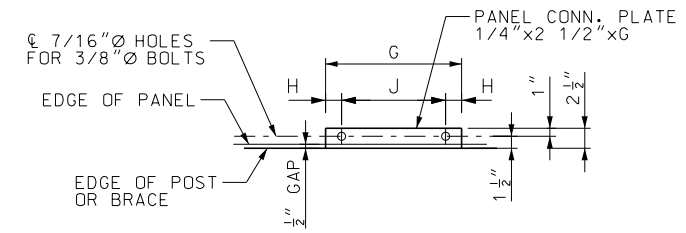
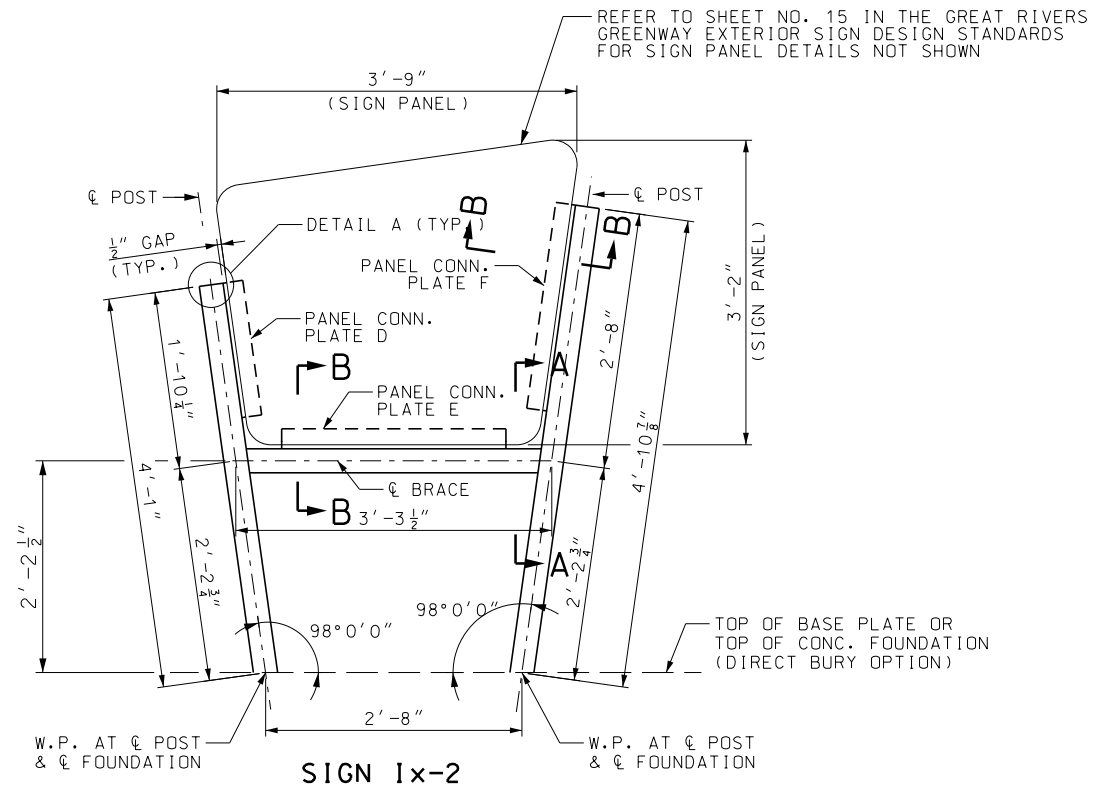
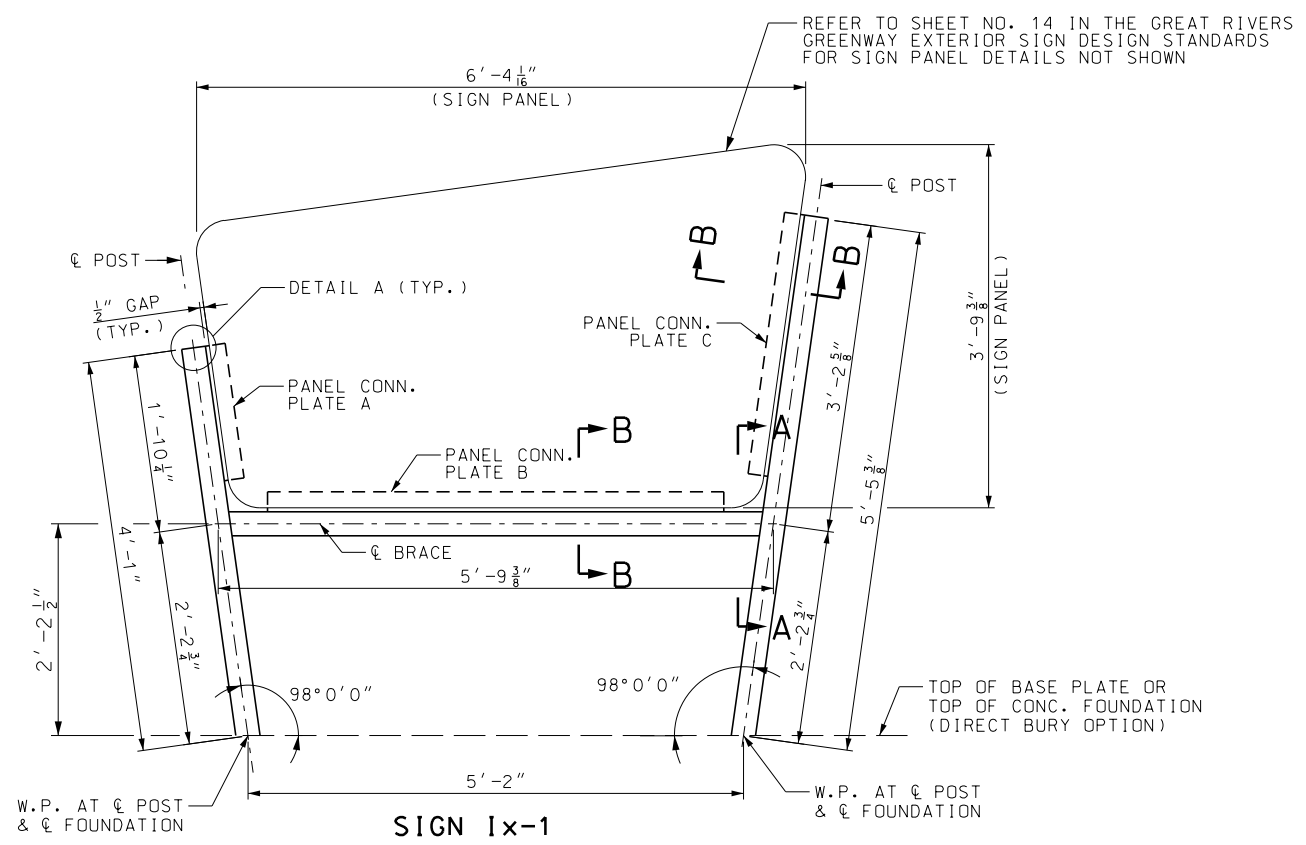


TABLE OF PLATE DIMENSIONS			
PLATE	G	H	J
A	1' - 5"	2"	13"
B	4' - 9"	6"	3 SPA. @ 15"
C	2' - 9"	1 1/2"	2 SPA. @ 15"
D	1' - 5"	2"	13"
E	2' - 4"	2"	2' - 0"
F	2' - 2"	2"	1' - 10"

PANEL CONNECTION PLATE DETAIL

NOTES:

FOR SECTION A-A & B-B AND DETAIL A, SEE SHEET NO. 2 OF 2.

FOR SIGN STRUCTURE DETAILS NOT SHOWN AND NOTES, SEE SHEET NO. 2 OF 2.

SIGN STRUCTURES 1x-1 AND 1x-2 AS SHOWN ARE NOT INTENDED FOR INSTALLATION WITHIN THE ROADWAY CLEAR ZONE OR IN OTHER AREAS WHERE THEY MAY BE SUSCEPTIBLE TO VEHICULAR COLLISION OR ARE OTHERWISE UNPROTECTED.

SIGN STRUCTURE PLACEMENT MAY BE SUBJECT TO OTHER REQUIREMENTS OR RESTRICTIONS ON A CASE-BY-CASE BASIS.

INDIVIDUAL SIGN STRUCTURE LOCATION AND PLACEMENT SHALL BE THE RESPONSIBILITY OF THE ENGINEER OF RECORD FOR EACH SIGN STRUCTURE INSTALLATION.

Note: This drawing is not to scale. Follow dimensions.

REV.	DATE	DESCRIPTION	APPROVED

CDG ENGINEERS  
 One Campbell Plaza  
 St. Louis, Missouri 63139  
 T. 314.784.7770  
 F. 314.784.9075  
 Missouri State Certificate of Authority # 1721



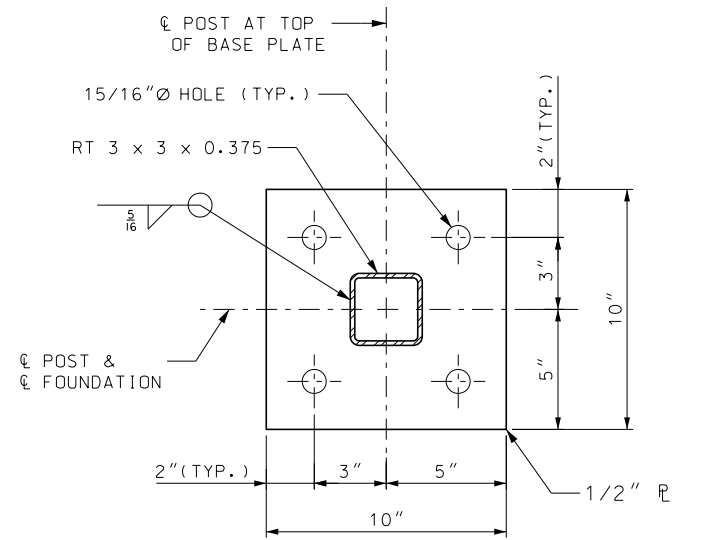
David Burdick, P.E.  
 MO# PE-024015

DRAWN BY DB
CHECKED BY TRN
DATE February 3, 2020

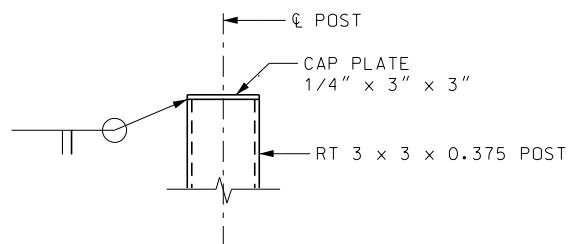
GREAT RIVERS GREENWAY  
 SIGN STRUCTURE STANDARDS  
 DETAILS OF SIGN STRUCTURE 1x-1 AND 1x-2

STD NO <b>1x-1201</b>
SHEET NO. <b>1 OF 2</b>
SHEET NO. <b>16</b>



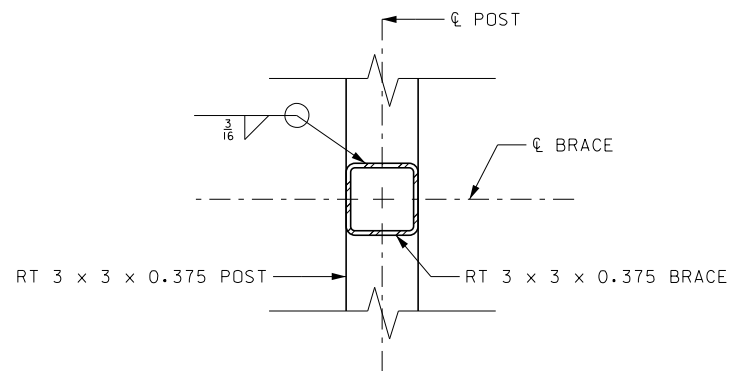


PLAN-BASE PLATE & ANCHOR BOLTS



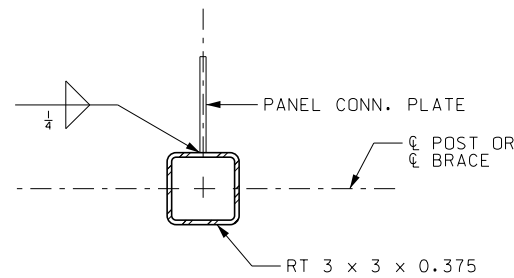
DETAIL A

FOR LOCATION, SEE SHEET NO. 1 OF 2.



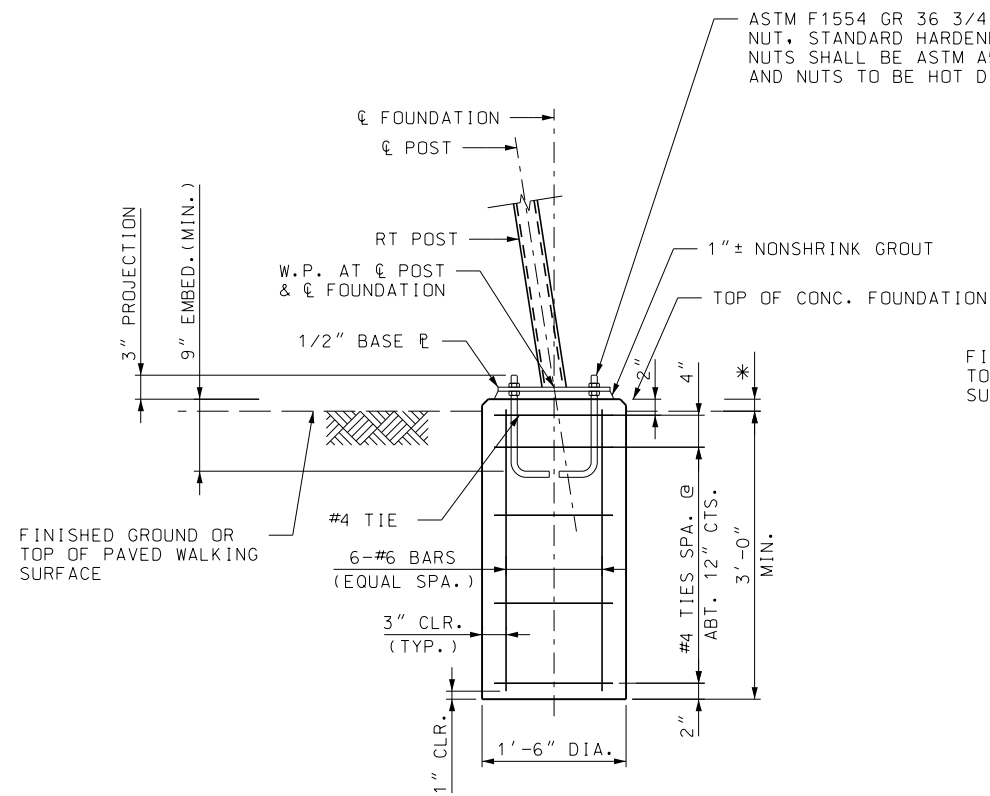
SECTION A-A

FOR LOCATION, SEE SHEET NO. 1 OF 2.



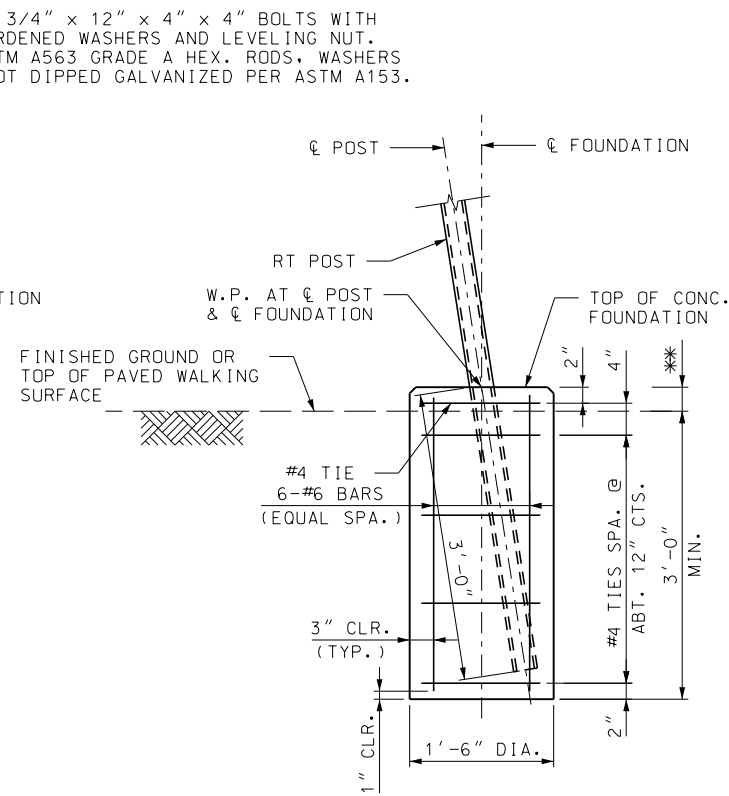
SECTION B-B

FOR LOCATION, SEE SHEET NO. 1 OF 2.



SECTION THRU CONCRETE FOUNDATION

BASE PLATE OPTION



SECTION THRU CONCRETE FOUNDATION

DIRECT BURY OPTION

Note: This drawing is not to scale. Follow dimensions.

GENERAL NOTES:

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS - 2013 (6TH EDITION) AND ALUMINUM ASSOCIATION 2015 ALUMINUM DESIGN MANUAL.

CONCRETE FOR FOUNDATIONS SHALL BE CLASS B CONCRETE, IN ACCORDANCE WITH THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, WITH A COMPRESSIVE STRENGTH OF  $f'c = 4,000$  PSI @ 28 DAYS.

ALL EXPOSED EDGES OF THE CONCRETE SHALL HAVE A 3/4" CHAMFER.

ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615 GRADE 60,  $F_y=60,000$  PSI.

ALL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A775/A775M.

MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1 1/2", UNLESS NOTED OTHERWISE.

ALL CAST-IN-PLACE ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 36 BOLTS WITH 90° BEND UNLESS NOTED OTHERWISE.

ALL CAST-IN-PLACE CONCRETE ANCHORS ARE TO BE TIGHTENED TO A "SNUG-TIGHT" CONDITION.

ALL ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED BY THE HOT-DIP PROCESS IN ACCORDANCE WITH ASTM A153.

NON-SHRINK GROUT SHALL BE NON-METALLIC, PRE-PACKAGED GROUT CONFORMING TO CORPS OF ENGINEERS SPECIFICATION CRD C621, WITH A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS WHEN TESTED ACCORDING TO ASTM C109.

THE STRUCTURAL TUBING MATERIAL SHALL BE ALUMINUM, 6063-T6 IN ACCORDANCE WITH ASTM B429.

THE BASE PLATES AND CAP MATERIAL SHALL BE ALUMINUM, 6061-T6 IN ACCORDANCE WITH ASTM B209.

WELD FILLER MATERIAL SHALL BE ALUMINUM, 5356 AND COMPLY WITH AWS A5.10.

ALL WELDING SHALL COMPLY WITH AWS D1.2 "STRUCTURAL WELDING CODE-ALUMINUM".

ALL EXPOSED WELDED JOINTS SHALL BE FILLED AND GROUND SMOOTH SO THAT NO SEAM IS VISIBLE WHEN PAINTED.

BOLTS, NUTS AND WASHERS SHALL BE 300 SERIES STAINLESS STEEL. WASHERS SHALL BE USED UNDER BOLT HEADS.

ALL HARDWARE AND FASTENERS WITHIN REACH SHALL BE VANDAL RESISTANT.

THE SURFACES OF ALUMINUM MEMBERS IN CONTACT WITH CONCRETE SHALL BE BACK PAINTED WITH BITUMINOUS PAINT OF THE CUT-BACK TYPE CONFORMING TO SPECIFICATION MIL-C-450 B (1) OR TT-C-494 OR METHACRYLATE TYPE LACQUERS CONFORMING TO MIL-L-19537C (2).

PROVIDE DRAIN HOLES IN RT TUBES IN LOCATIONS AS NEEDED TO PREVENT THE ACCUMULATION OF MOISTURE IN THE MEMBERS.

HOLES SHALL BE LOCATED TO BE INCONSPICUOUS AND SUCH THAT DRAINAGE DOES NOT OCCUR ONTO SIGNS OR OTHER SURFACES SUBJECT TO STAINING.

PROVIDE COLOR-COORDINATED STAINLESS STEEL BUG MESH OVER DRAIN HOLES.

FOUNDATIONS SHOWN IN THE PLANS HAVE BEEN DESIGNED BASED ON THE PRESUMPTIVE VALUES FOUND IN IBC-2009, TABLE 1806.2, FOR CLASS 5 SOIL MATERIALS. THE FOUNDATIONS SHOWN ARE SUITABLE FOR CONSTRUCTION IN ANY CLASS 5 SOIL OR BETTER. CONSTRUCTION OF THE FOUNDATIONS IN LESSER SOILS SUCH AS MUD, ORGANIC SOILS OR UNPREPARED SOILS IS NOT COVERED BY THIS STANDARD DESIGN AND WILL REQUIRE FURTHER EVALUATION.

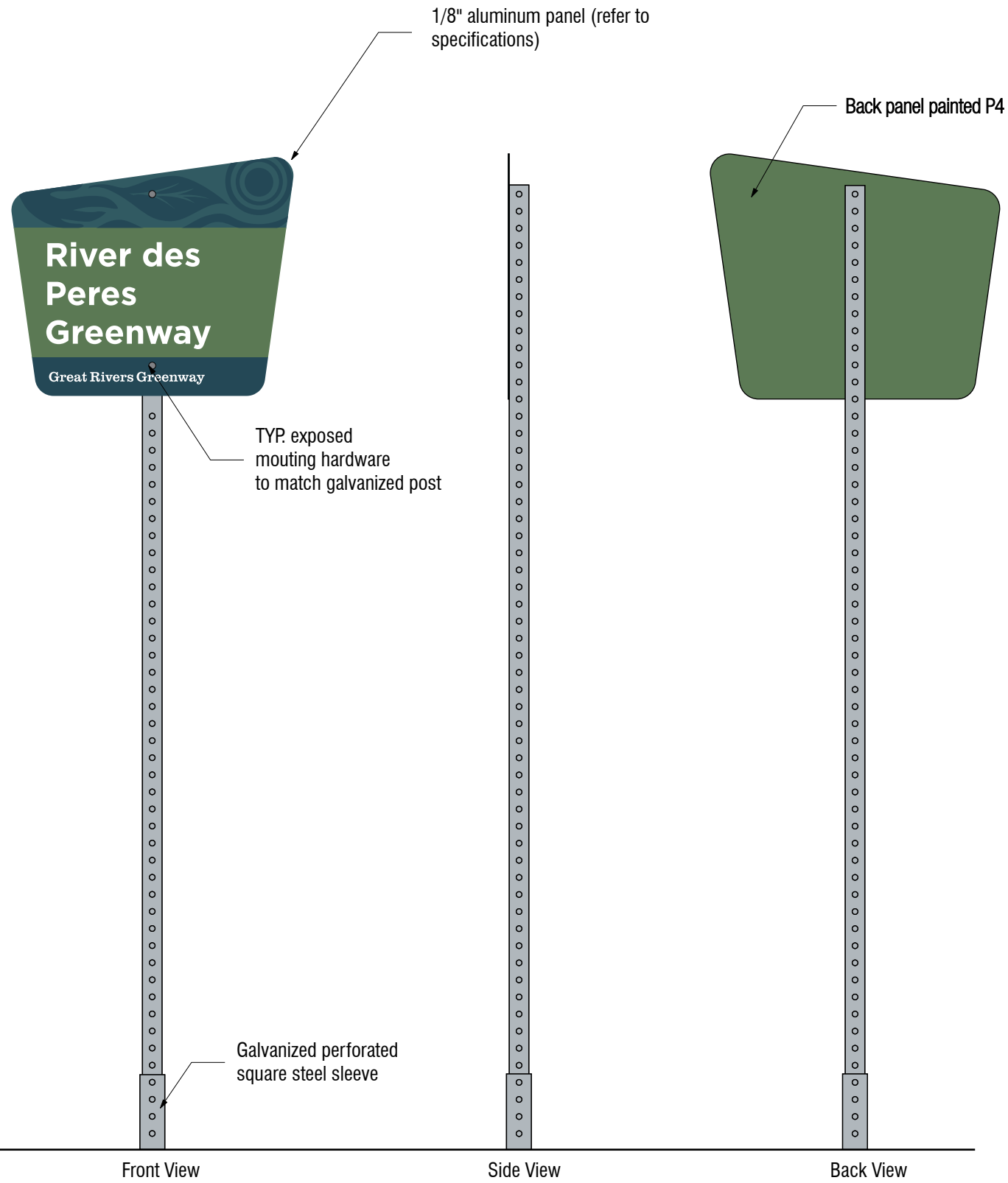
THE FINISH ON THE SIGN STRUCTURE (POSTS, BRACES AND PLATES) SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GREAT RIVERS GREENWAYS EXTERIOR SIGN DESIGN STANDARDS AND SPECIFICATIONS.

PROVIDE 1/2" JOINT FILLER AROUND FOUNDATION AT PAVED WALKING SURFACE LOCATIONS.

TABLE OF DIMENSIONS		
SURFACE TYPE	*	**
FINISHED GROUND	1 1/2"	3"
PAVED WALKING SURFACE	3/4"	2 1/4"

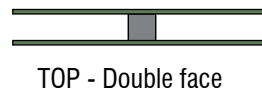
REV.	DATE	DESCRIPTION	APPROVED

REFER TO PAGES 20 & 21 FOR  
STRUCTURAL SIGNAGE DETAILS

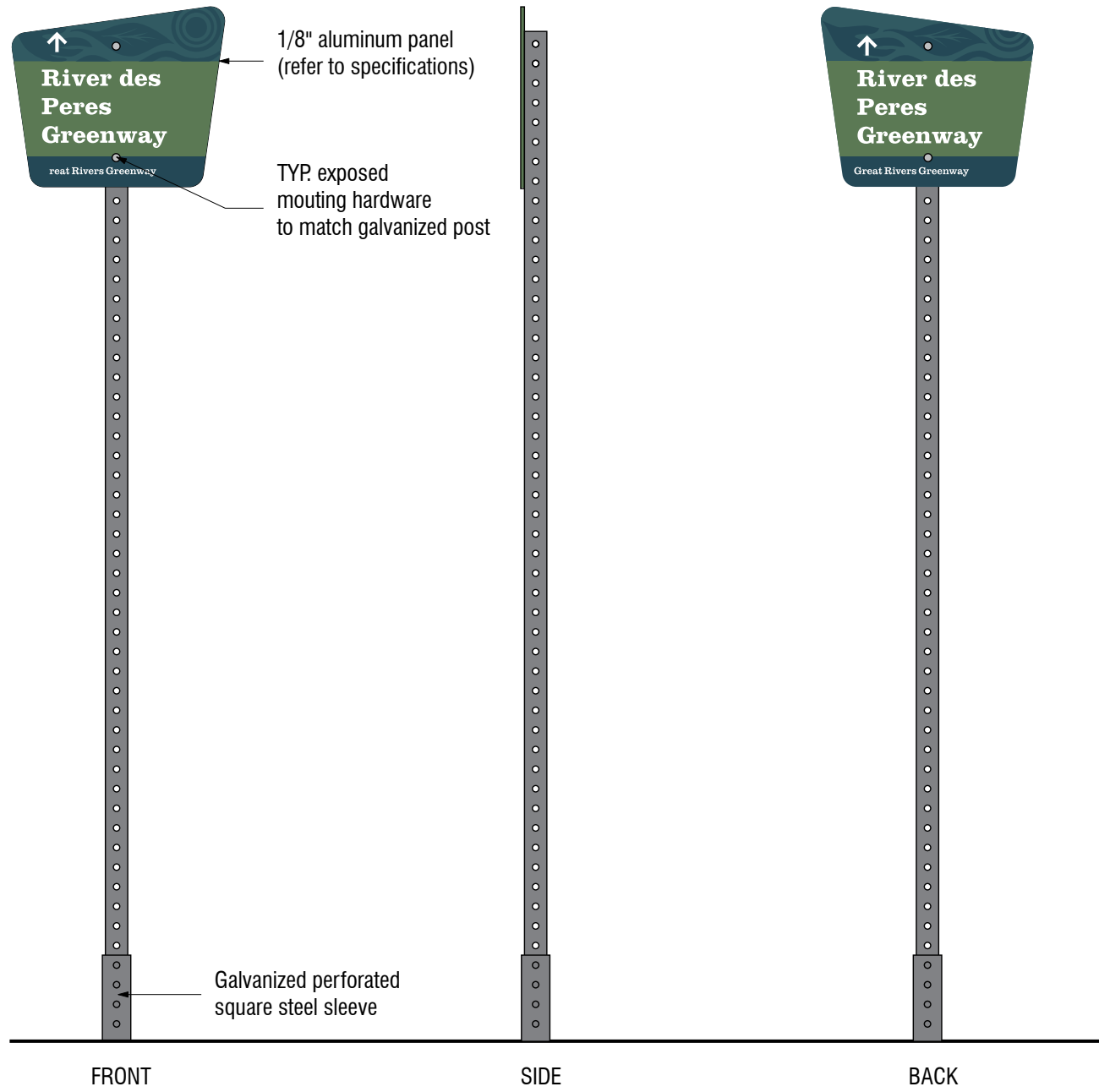


Download the art template for this sign at: <https://greatriversgreenway.sharefile.com/d-s12cfcbf82dd40d78>

Great Rivers Greenway Sign Array: GX-4 Pedestrian Trailblazer

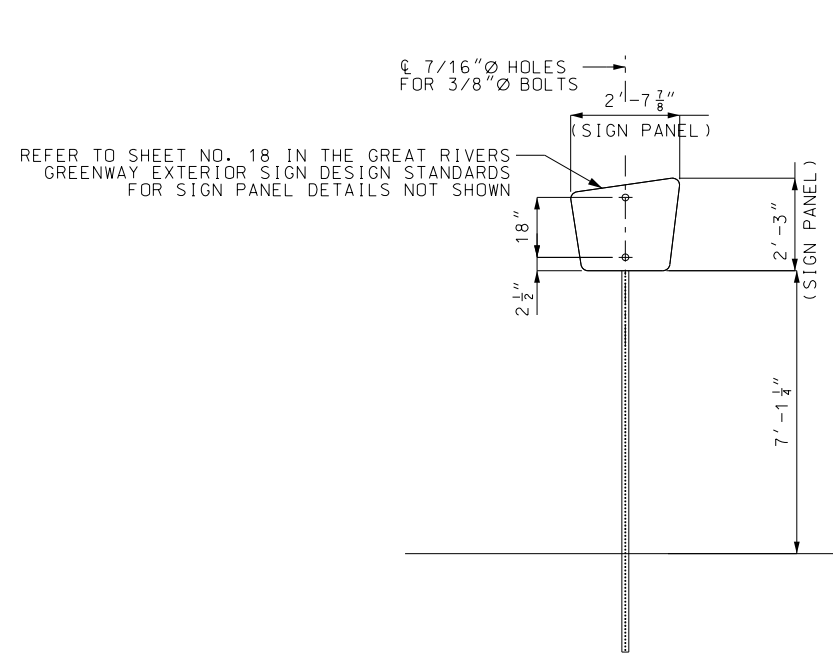


REFER TO PAGES 20 & 21 FOR STRUCTURAL SIGNAGE DETAILS

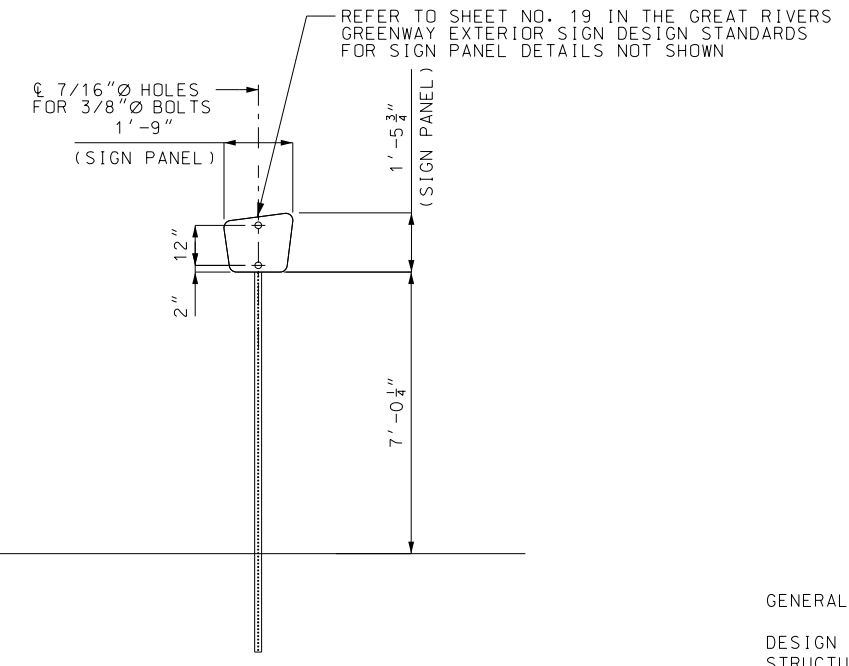


1 FRONT ELEVATION - SIGN FACE LAYOUT  
3/4" = 1'-0"

Download the art template for this sign at: <https://greatriversgreenway.sharefile.com/d-sb7255b9acde46799>



**SIGN Ix-3**



**SIGN Gx-4**

**GENERAL NOTES:**

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS - 1985 (EXCEPT 2001 AND LATEST INTERIMS FOR STRUCTURAL STEEL POSTS).

POSTS AND ANCHOR SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION PER SECTION 1080 OF THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

METAL PROJECTING BEYOND THE PLANE OF THE PLATE FACE WILL NOT BE ALLOWED.

REMOVE ALL GALVANIZING RUNS OR BEADS IN THE WASHER AREA.

INSTALLATION OF THE BREAKAWAY ASSEMBLY SYSTEM INCLUDING HARDWARE, BOLTS, NUTS, WASHERS AND ALL OTHER APPURTENANCES NECESSARY FOR THE COMPLETE INSTALLATION SHALL BE PER THE MANUFACTURERS REQUIREMENTS.

THE THREADS SHALL BE BURRED AT THE NUT USING A CENTER PUNCH TO PREVENT NUT FROM LOOSENING.

ALL BREAKAWAY DEVICES USED ON AN INSTALLATION SHALL BE CERTIFIED NCHRP 350 COMPLIANT.

THE FINISH ON THE POSTS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF GREAT RIVERS GREENWAYS EXTERIOR SIGN DESIGN STANDARDS AND SPECIFICATIONS.

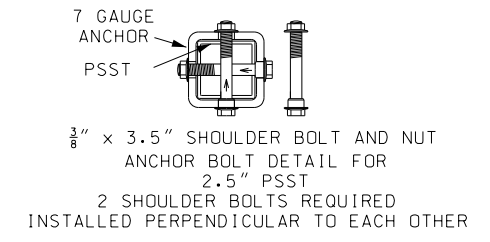
THIS SHEET IS BASED ON MISSOURI STANDARD PLANS DRAWING 903.03 WITH AN EFFECTIVE DATE 01/01/2020. THE LATEST EDITION OF THIS DRAWING SHALL BE USED IF DIFFERENT THAN THE DETAILS SHOWN.

SIGN STRUCTURES Ix-3 AND Gx-4 AS SHOWN MAY BE INSTALLED WITHIN THE ROADWAY CLEAR ZONE OR IN OTHER AREAS WHERE THEY MAY BE SUSCEPTIBLE TO VEHICULAR COLLISION OR ARE OTHERWISE UNPROTECTED.

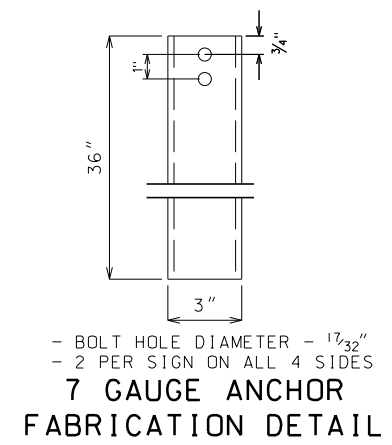
SIGN STRUCTURE PLACEMENT MAY BE SUBJECT TO OTHER REQUIREMENTS OR RESTRICTIONS ON A CASE-BY-CASE BASIS.

INDIVIDUAL SIGN STRUCTURE LOCATION AND PLACEMENT SHALL BE THE RESPONSIBILITY OF THE ENGINEER OF RECORD FOR EACH SIGN STRUCTURE INSTALLATION.

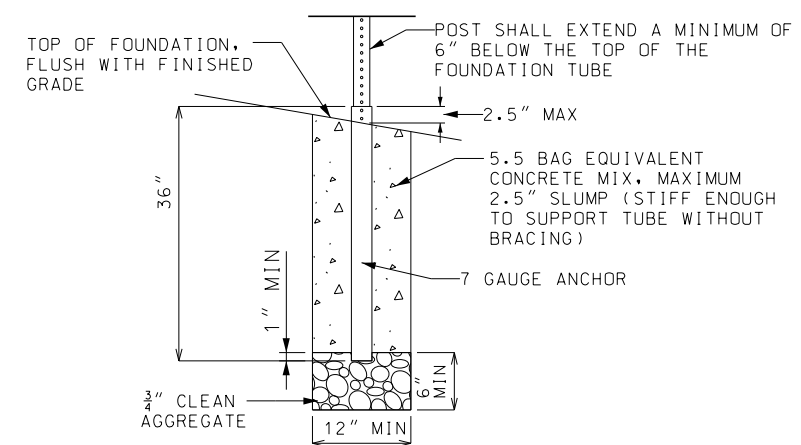
POST AND ANCHOR DATA TABLE					
POST		ANCHOR NORMAL OR OMNI-DIRECTIONAL		BREAKAWAY NEEDED	
GAUGE	SIZE	GAUGE	SIZE	1	2
12	2.5"x2.5"	7	3" X 3" X 36" OD	NO	YES



**ANCHOR BOLT DETAIL**



**7 GAUGE ANCHOR FABRICATION DETAIL**

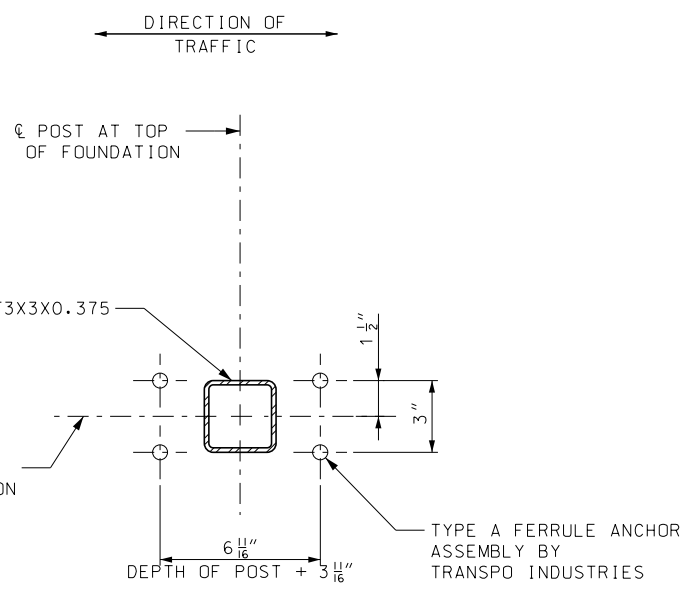
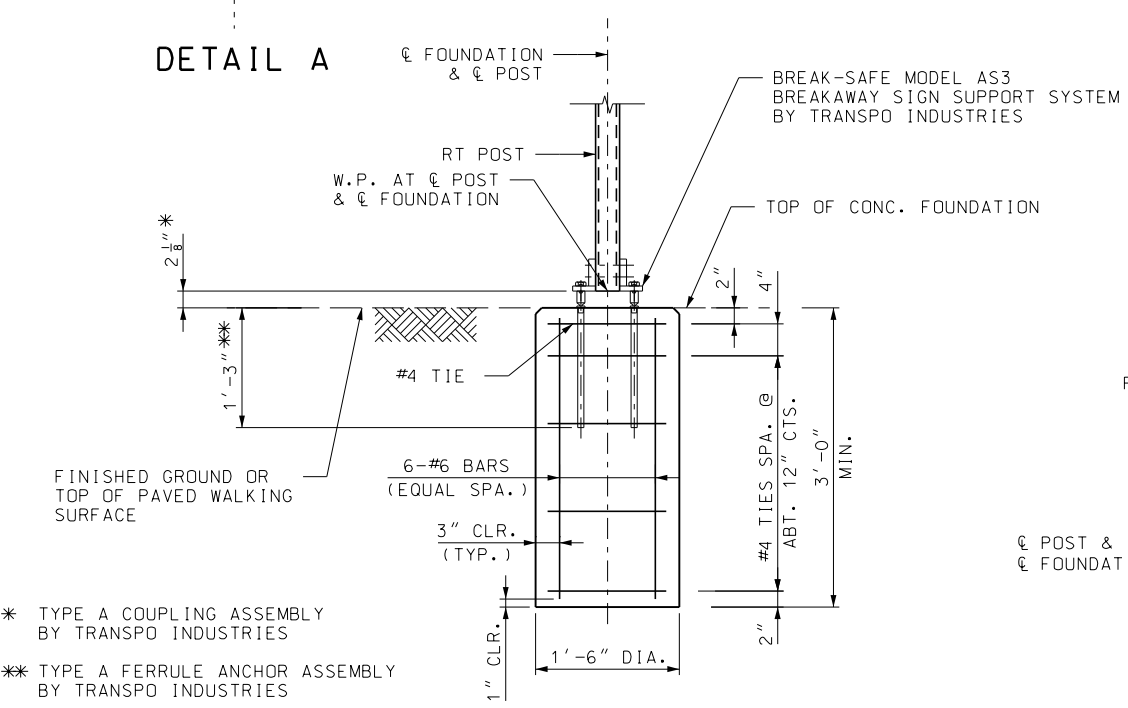
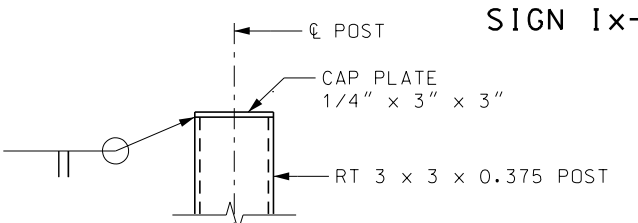
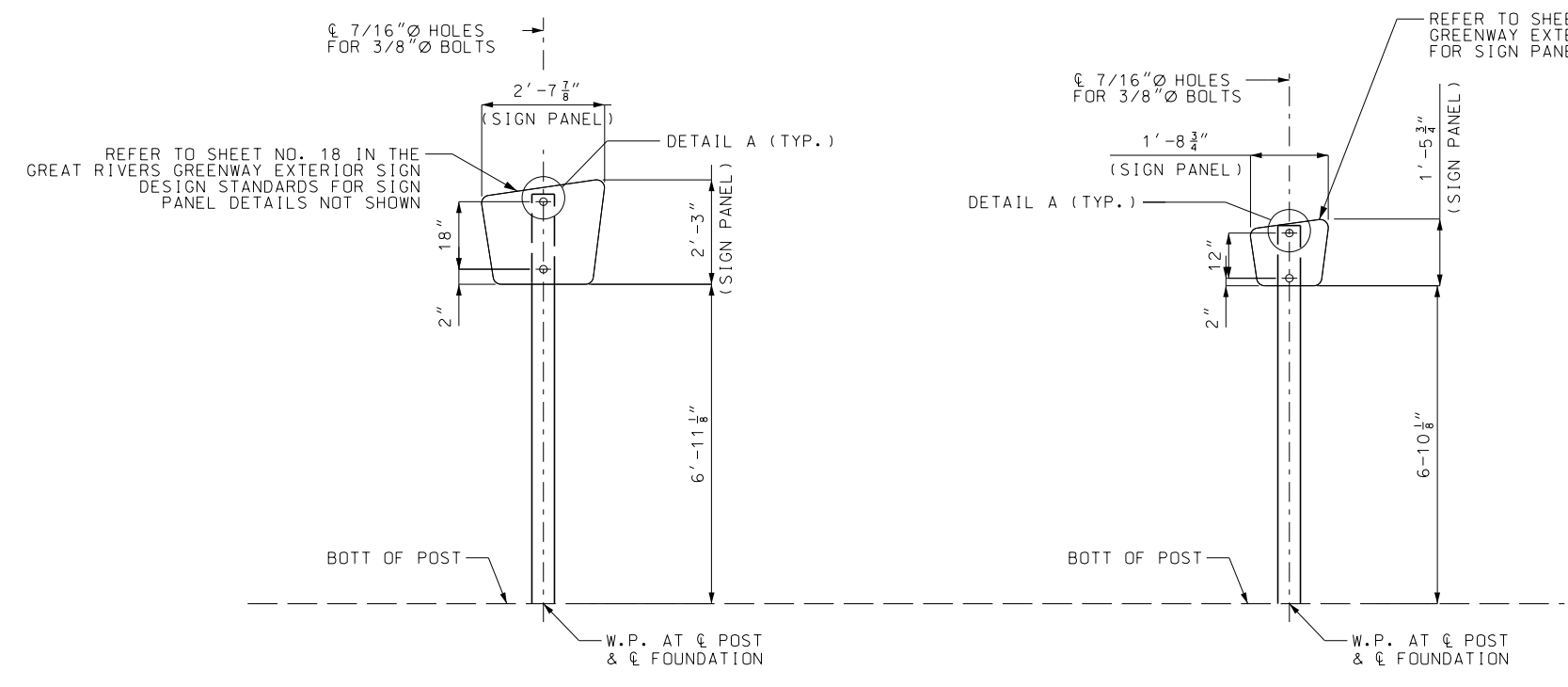


**CONCRETE FOUNDATION DETAIL**

**PERFORATED SQUARE STEEL TUBE (PSST) SIGN POST OPTION**

Note: This drawing is not to scale. Follow dimensions.

REV.	DATE	DESCRIPTION	APPROVED



**GENERAL NOTES:**

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS - 2013 (6TH EDITION) AND ALUMINUM ASSOCIATION 2015 ALUMINUM DESIGN MANUAL.

CONCRETE FOR FOUNDATIONS SHALL BE CLASS B CONCRETE, IN ACCORDANCE WITH THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, WITH A COMPRESSIVE STRENGTH OF  $f'c = 4,000$  PSI @ 28 DAYS.

ALL EXPOSED EDGES OF THE CONCRETE SHALL HAVE A 3/4" CHAMFER.

ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615 GRADE 60,  $Fy=60,000$  PSI.

ALL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A775/A775M.

MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1 1/2", UNLESS NOTED OTHERWISE.

THE BREAKAWAY SUPPORT SYSTEM BY TRANSPD INDUSTRIES SHALL INCLUDE THE BREAK-SAFE MODEL AS3 BRACKETS, HARDWARE, COUPLINGS, ANCHORS AND ALL OTHER APPURTENANCES NECESSARY FOR THE COMPLETE INSTALLATION PER THE MANUFACTURER.

ALL BRACKETS, HARDWARE, COUPLINGS, ANCHORS, BOLTS, NUTS AND WASHERS FOR THE BREAKAWAY SUPPORT SYSTEM SHALL BE GALVANIZED BY THE HOT-DIP PROCESS IN ACCORDANCE WITH ASTM A153.

THE BREAKAWAY SUPPORT SYSTEM BY TRANSPD INDUSTRIES IS BASED ON DETAILS WITH AN EFFECTIVE DATE JANUARY 2015. THE LATEST EDITION OF THESE DETAILS SHALL BE USED IF DIFFERENT THAN THE DETAILS SHOWN.

THE STRUCTURAL TUBING MATERIAL SHALL BE ALUMINUM, 6063-T6 IN ACCORDANCE WITH ASTM B429.

THE CAP MATERIAL SHALL BE ALUMINUM, 6061-T6 IN ACCORDANCE WITH ASTM B209.

WELD FILLER MATERIAL SHALL BE ALUMINUM, 5356 AND COMPLY WITH AWS A5.10.

ALL WELDING SHALL COMPLY WITH AWS D1.2 "STRUCTURAL WELDING CODE-ALUMINUM".

ALL EXPOSED WELDED JOINTS SHALL BE FILLED AND GROUND SMOOTH SO THAT NO SEAM IS VISIBLE WHEN PAINTED.

BOLTS, NUTS AND WASHERS SHALL BE 300 SERIES STAINLESS STEEL. WASHERS SHALL BE USED UNDER BOLT HEADS.

ALL HARDWARE AND FASTENERS WITHIN REACH SHALL BE VANDAL RESISTANT.

PROVIDE DRAIN HOLES IN RT TUBES IN LOCATIONS AS NEEDED TO PREVENT THE ACCUMULATION OF MOISTURE IN THE MEMBERS.

HOLES SHALL BE LOCATED TO BE INCONSPICUOUS AND SUCH THAT DRAINAGE DOES NOT OCCUR ONTO SIGNS OR OTHER SURFACES SUBJECT TO STAINING.

PROVIDE COLOR-COORDINATED STAINLESS STEEL BUG MESH OVER DRAIN HOLES.

FOUNDATIONS SHOWN IN THE PLANS HAVE BEEN DESIGNED BASED ON THE PRESUMPTIVE VALUES FOUND IN IBC-2009, TABLE 1806.2, FOR CLASS 5 SOIL MATERIALS. THE FOUNDATIONS SHOWN ARE SUITABLE FOR CONSTRUCTION IN ANY CLASS 5 SOIL OR BETTER. CONSTRUCTION OF THE FOUNDATIONS IN LESSER SOILS SUCH AS MUD, ORGANIC SOILS OR UNPREPARED SOILS IS NOT COVERED BY THIS STANDARD DESIGN AND WILL REQUIRE FURTHER EVALUATION.

THE FINISH ON THE SIGN STRUCTURE (POSTS AND PLATES) SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GREAT RIVERS GREENWAYS EXTERIOR SIGN DESIGN STANDARDS AND SPECIFICATIONS.

PROVIDE 1/2" JOINT FILLER AROUND FOUNDATION AT PAVED WALKING SURFACE LOCATIONS.

SIGN STRUCTURES Ix-3 AND Gx-4 AS SHOWN MAY BE INSTALLED WITHIN THE ROADWAY CLEAR ZONE OR IN OTHER AREAS WHERE THEY MAY BE SUSCEPTIBLE TO VEHICULAR COLLISION OR ARE OTHERWISE UNPROTECTED.

SIGN STRUCTURE PLACEMENT MAY BE SUBJECT TO OTHER REQUIREMENTS OR RESTRICTIONS ON A CASE-BY-CASE BASIS.

INDIVIDUAL SIGN STRUCTURE LOCATION AND PLACEMENT SHALL BE THE RESPONSIBILITY OF THE ENGINEER OF RECORD FOR EACH SIGN STRUCTURE INSTALLATION.

**SECTION THRU CONCRETE FOUNDATION**

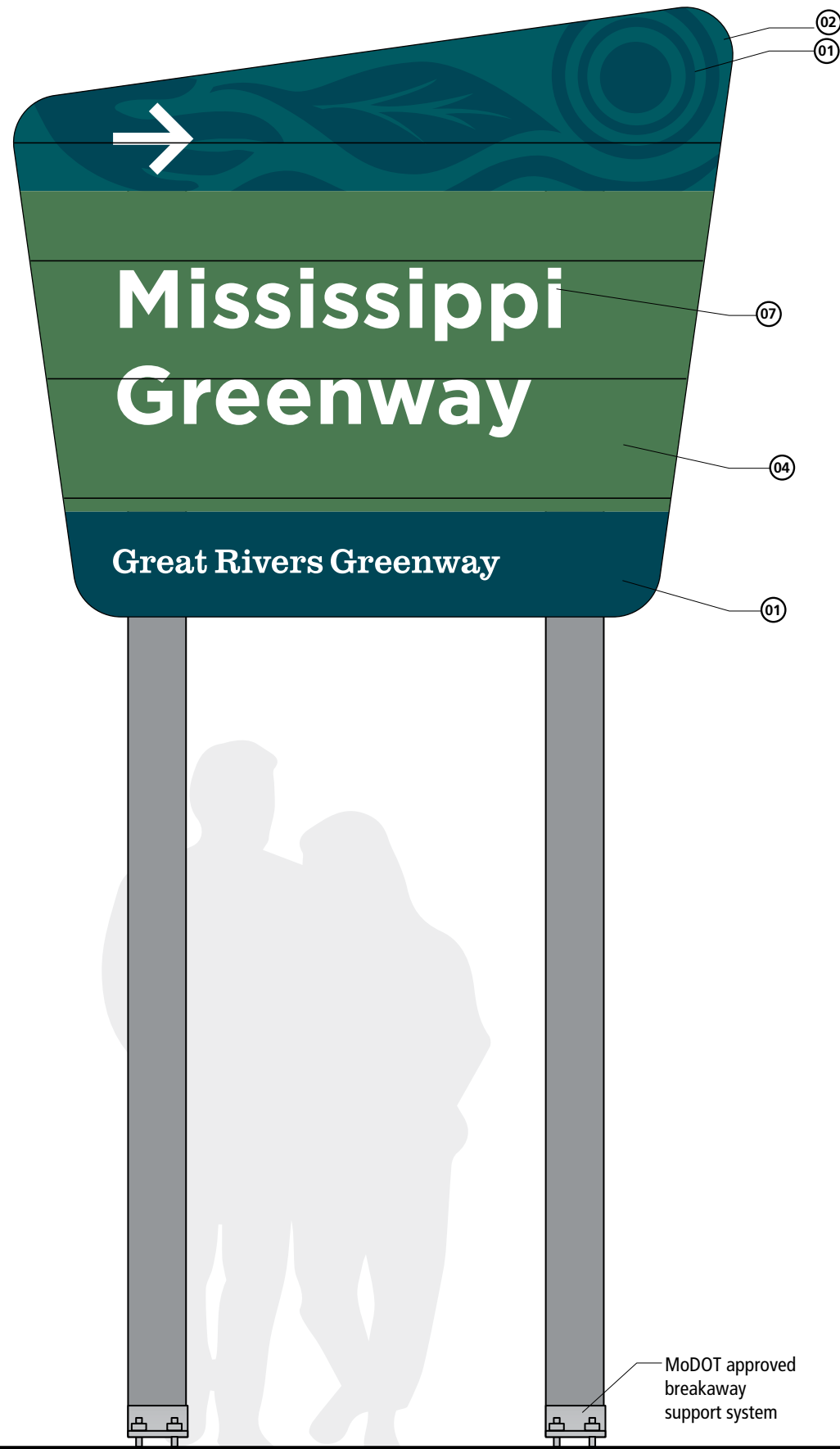
**PLAN-ANCHOR ASSEMBLY**  
 BRACKETS NOT SHOWN FOR CLARITY

**ALUMINUM TUBE WITH BREAKAWAY SUPPORT SYSTEM OPTION**

Note: This drawing is not to scale. Follow dimensions.

REV.	DATE	DESCRIPTION	APPROVED

REFER TO PAGES 23-26 FOR  
STRUCTURAL SIGNAGE DETAILS



Front View

Download the art template for this sign at: <https://greatriversgreenway.sharefile.com/d-s9c2891a9cc443f09>

STRUCTURAL STEEL POST FOR GROUND MOUNTED SIGNS																
DES. NO.	POST		BOLT		WASHER		BASE CONNECTION DATA TABLE (IN.)									
	NOM SIZE (IN. X LBS)	DIA IN.	LENGTH IN.	TORQUE IN. / LB.	OD IN.	ID IN.	THICK IN.	A	B	C	D	E	F	G	W	R
1	W6x15	$\frac{5}{8}$	$2\frac{3}{4}$	345	$1\frac{5}{16}$	$\frac{11}{16}$	$\frac{1}{8}$	5	2	$1\frac{1}{4}$	$2\frac{3}{4}$	$1\frac{1}{8}$	$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{11}{32}$

POST AND FOUNDATION DATA TABLE													
POST DES. NO.	NOM. SIZE	WEIGHT		STUB LENGTH	DIA.	FOUNDATION							
		LBS/FT	LBS/IN			LEVEL GROUND DEPTH C.Y.	6:1 GRADE DEPTH C.Y.	4:1 GRADE DEPTH C.Y.	3:1 OR 2:1 GRADE DEPTH C.Y.				
1	W6	15.0	1.25	4'-0"	24"	4'-0"	0.47	4'-2"	0.50	4'-3"	0.51	4'-6"	0.54

**GENERAL NOTES:**

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS - 1985 (EXCEPT 2001 AND LATEST INTERIMS FOR STRUCTURAL STEEL POSTS).

POSTS, PERFORATED FUSE PLATE AND SPLICE PLATE TO BE GALVANIZED AFTER FABRICATION.

METAL PROJECTING BEYOND THE PLANE OF THE PLATE FACE WILL NOT BE ALLOWED.

REMOVE ALL GALVANIZING RUNS OR BEADS IN THE WASHER AREA.

ALL STRUCTURAL STEEL STIFFENER PLATES AND BASE PLATES, FOR GROUND MOUNTED SIGNS SHALL MEET THE REQUIREMENTS OF ASTM A 36 OR AASHTO M 270 GRADE 50, MINIMUM YIELD 50,000 PSI.

NUTS ON HINGE PLATE BOLTS SHALL BE TIGHTENED TO THE REQUIRED MINIMUM BOLT TENSION VALUES SHOWN IN TABLE 1 SEC. 1080 OF THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

THE NUT SHALL BE FREE RUNNING. IF THE NUT WILL NOT SPIN ON THE BOLT BECAUSE OF GALVANIZING IRREGULARITIES, A LUBRICANT SHALL BE APPLIED.

ALL BREAKAWAY ASSEMBLY BOLTS SHALL BE TIGHTENED IN A SYSTEMATIC MANNER TO THE PRESCRIBED TORQUE SHOWN ON THIS DRAWING.

EACH BREAKAWAY ASSEMBLY BOLT SHALL BE LOOSENED AND RE-TIGHTENED TO THE REQUIRED TORQUE IN THE SAME ORDER AS THE INITIAL TIGHTENING.

THE THREADS SHALL BE BURRED AT THE NUT USING A CENTER PUNCH TO PREVENT NUT FROM LOOSENING.

POST LENGTH QUANTITY SHOWN ON PLANS INCLUDES STUB.

ALL H.S. BOLTS SHALL BE OF THE DESIGNATION AASHTO M 164.

FURNISH TWO .012"± AND TWO .0032"± THICK SHIMS PER POST FROM BRASS SHIM STOCK OR STRIP, DESIGNATION ASTM B 36. SHIM AS REQUIRED TO PLUMB POST.

HIGH STRENGTH BOLTS WITH HEX NUT AND THREE WASHERS WITH EACH BOLT ARE TO BE GALVANIZED.

OPTIONAL HOLES (13/16" ROUND FOR "I" SHAPE POSTS AS SHOWN IN "ELEVATION" ARE TO BE USED AS AID FOR GALVANIZING ONLY.

CONCRETE FOR FOUNDATIONS SHALL BE CLASS B OR B1 CONCRETE, IN ACCORDANCE WITH THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION WITH A COMPRESSIVE STRENGTH OF f'c = 4,000 PSI @ 28 DAYS.

THE FINISH ON THE POSTS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF GREAT RIVERS GREENWAYS EXTERIOR SIGN DESIGN STANDARDS AND SPECIFICATIONS.

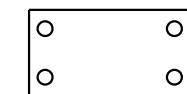
THIS SHEET IS BASED ON MISSOURI STANDARD PLANS DRAWING 903.03 WITH AN EFFECTIVE DATE 10/01/2019. THE LATEST EDITION OF THIS DRAWING SHALL BE USED IF DIFFERENT THAN THE DETAILS SHOWN.

SIGN STRUCTURES Gx-1 AS SHOWN MAY BE INSTALLED WITHIN THE ROADWAY CLEAR ZONE OR IN OTHER AREAS WHERE THEY MAY BE SUSCEPTIBLE TO VEHICULAR COLLISION OR ARE OTHERWISE UNPROTECTED.

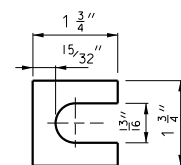
SIGN STRUCTURE PLACEMENT MAY BE SUBJECT TO OTHER REQUIREMENTS OR RESTRICTIONS ON A CASE-BY-CASE BASIS.

INDIVIDUAL SIGN STRUCTURE LOCATION AND PLACEMENT SHALL BE THE RESPONSIBILITY OF THE ENGINEER OF RECORD FOR EACH SIGN STRUCTURE INSTALLATION.

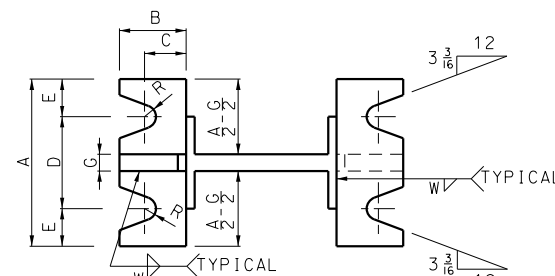
SHEET METAL BOLT RETAINER CUT FROM 30 GAGE GALVANIZED SHEET METAL. PLACE BETWEEN BASE PLATES. SIZE VARIES TO FIT PLATE. BOLT HOLES TO BE  $\frac{1}{16}$ " LARGER THAN REQUIRED BOLT SIZE.



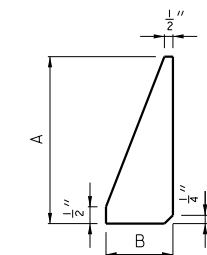
**BOLT RETAINER**



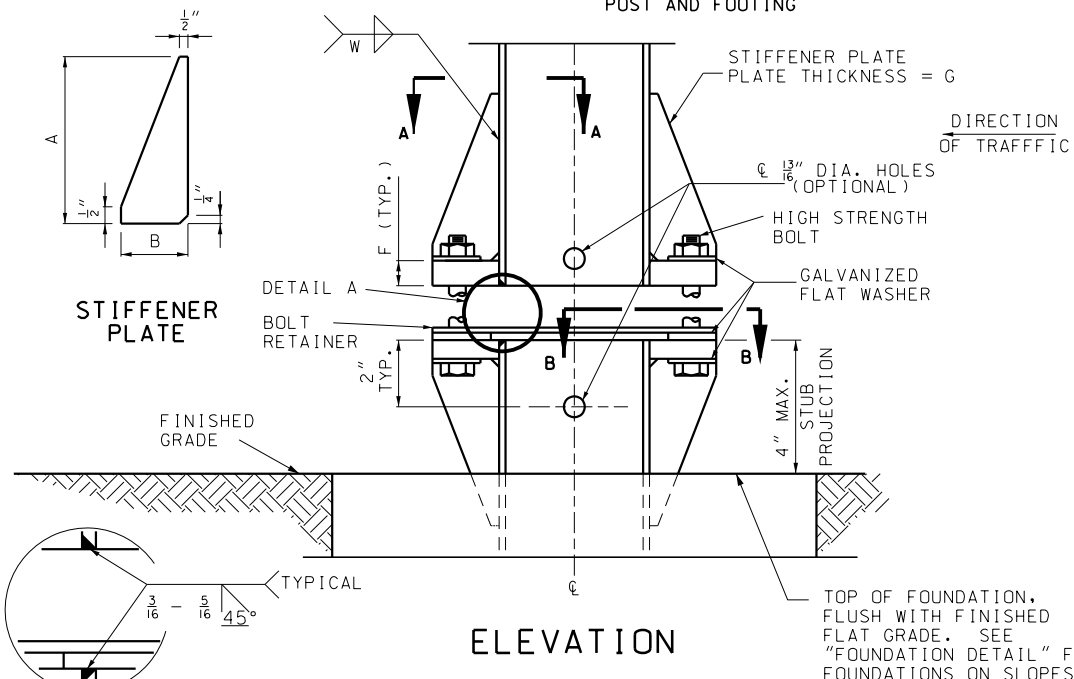
**SHIM**



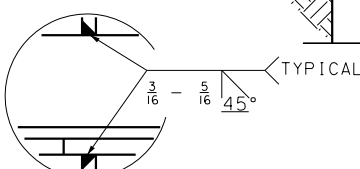
**SECTION A-A SECTION B-B POST AND FOOTING**



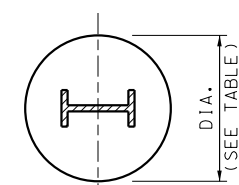
**STIFFENER PLATE**



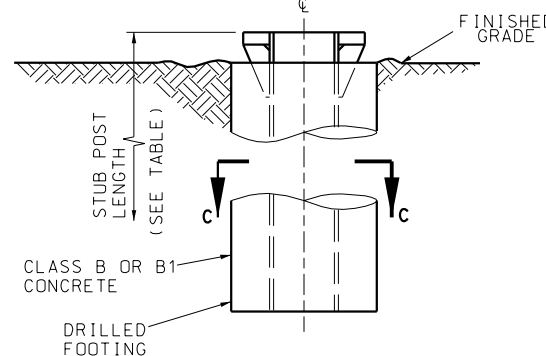
**ELEVATION**



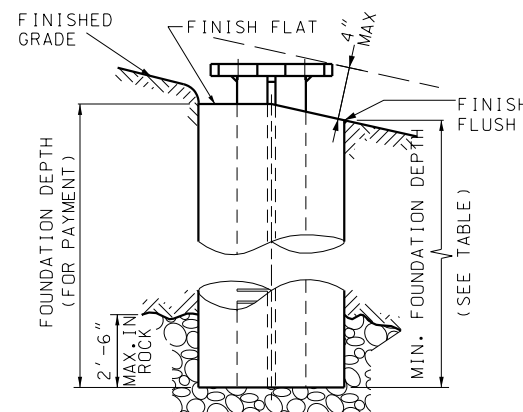
**DETAIL A**



**SECTION C-C**



**STUB DETAIL**



**FOUNDATION DETAIL**

Note: This drawing is not to scale. Follow dimensions.

REV.	DATE	DESCRIPTION	APPROVED

**WIDE FLANGE STRUCTURAL STEEL POSTS DESIGN DATA**

POST DES. NO.	NOM. SIZE (IN.)	WEIGHT		DEPTH (IN.)	FLANGE		WEB THICK (IN.)
		LB/FT	LB/IN		WIDTH (IN.)	THICK (IN.)	
1	W6	15	1.25	6	6	1/4	1/4

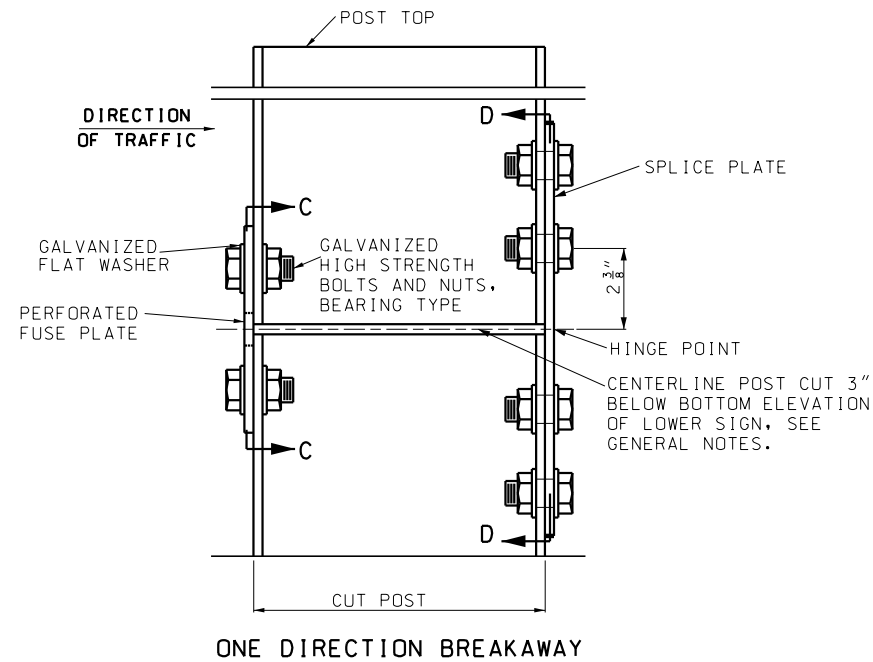
**PERFORATED FUSE PLATE DATA TABLE**

POST DESIGN NO.	F (IN.)	G (IN.)	H (IN.)	J (IN.)	K (IN.)	L (IN.)	M (IN.)	N (IN.)	d1 (IN.)	d2 (IN.)	P (IN.)	BOLT DIA. (IN.)	WT. (E.A.) (LBS.)
1	5	1 1/4	1 1/4	6	3 1/2	1 1/4	1 1/2	3/4	11/16	1 1/4	1/4	5/8	1.67

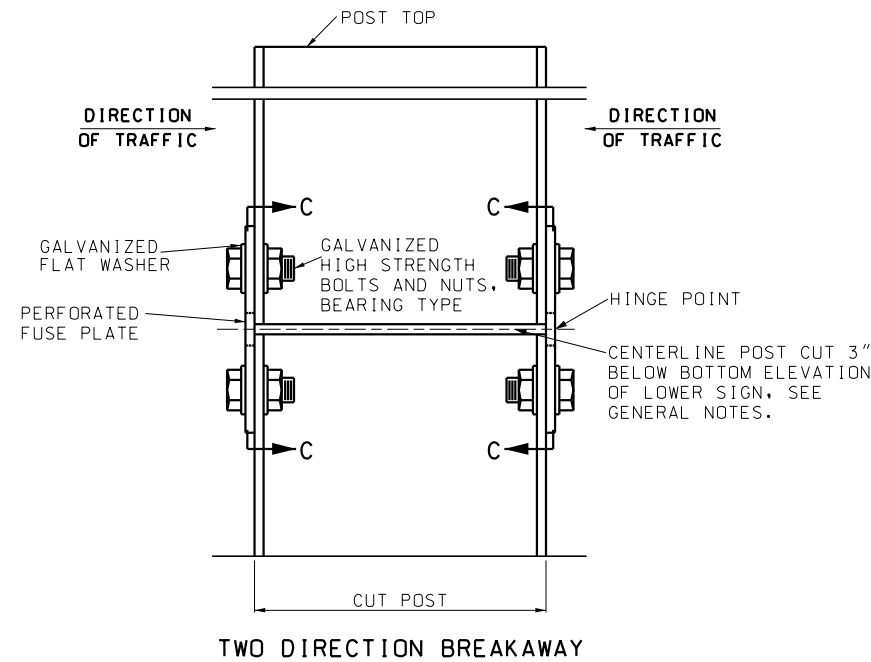
**SPLICE PLATE DATA TABLE**

POST DESIGN NO.	J (IN.)	K (IN.)	L (IN.)	U (IN.)	d1 (IN.)	BOLT DIA. (IN.)	WT. (E.A.) (LBS.)	WASHER		
								OD IN.	ID IN.	THICK IN.
1	6	3 1/2	1 1/4	1/4	11/16	5/8	4.89	1 5/16	1 1/16	1/8

THE WEIGHT OF STRUCTURAL STEEL POSTS SHOWN IN THE CONTRACT HAS BEEN COMPUTED USING THE WEIGHTS SHOWN.

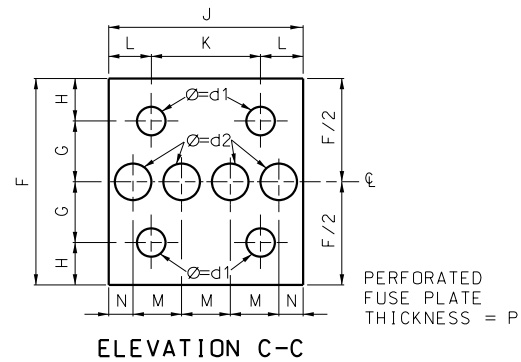


ONE DIRECTION BREAKAWAY



TWO DIRECTION BREAKAWAY

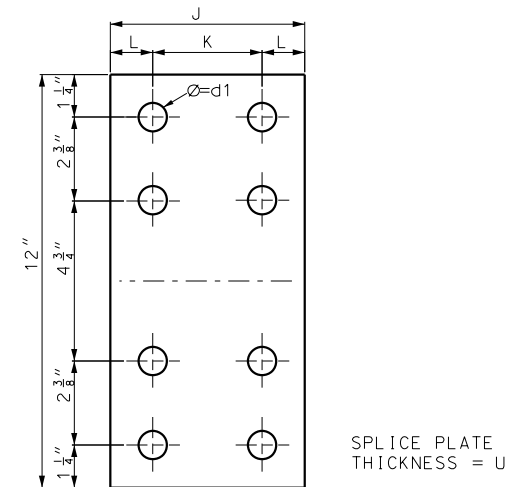
**PERFORATED FUSE PLATE AND SPLICE PLATE DETAIL**



ELEVATION C-C

ALL HOLES SHALL BE DRILLED. ALL PLATE CUTS SHALL PREFERABLY BE SAW CUTS. HOWEVER: FLAME CUTTING WILL BE PERMITTED PROVIDED ALL EDGES ARE GROUND.

PERFORATED FUSE PLATE AND SPLICE PLATE SHALL BE FABRICATED FROM ASTM A 36 STRUCTURAL STEEL.



ELEVATION D-D

NOTES:

FOR GENERAL NOTES, SEE SHEET 1 OF 4.

FOR ROADWAYS WHERE TRAFFIC MAY STRIKE THE BACKSIDE OF THE POST, PERFORATED FUSE PLATES SHALL BE INSTALLED ON BOTH SIDES OF THE POST.

THIS SHEET IS BASED ON MISSOURI STANDARD PLANS DRAWING 903.03 WITH AN EFFECTIVE DATE 10/01/2019. THE LATEST EDITION OF THIS DRAWING SHALL BE USED IF DIFFERENT THAN THE DETAILS SHOWN.

Note: This drawing is not to scale. Follow dimensions.

REV.	DATE	DESCRIPTION	APPROVED

T:\Working\15680 - Widwood - Streeter Road Bridge\Drawings\Bridge\G06 - Bridge Template.dgn



David Burdick, P.E.  
MO# PE-024015

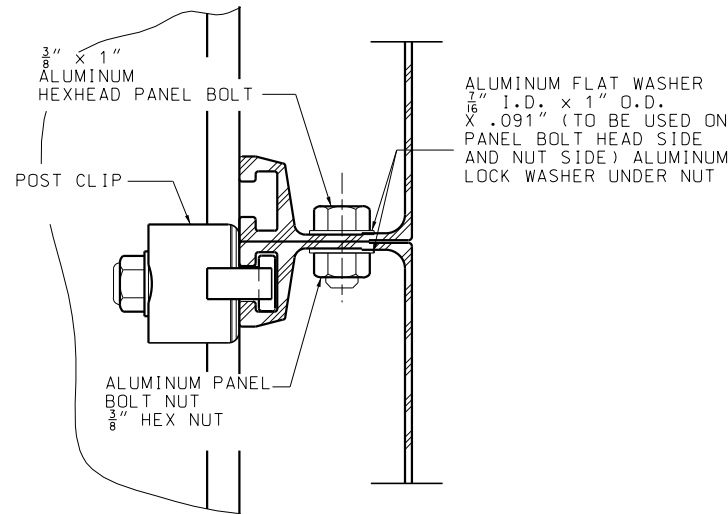
DRAWN BY  
DB  
CHECKED BY  
TRN  
DATE  
February 3, 2020

**GREAT RIVERS GREENWAY  
SIGN STRUCTURE STANDARDS  
DETAILS OF SIGN STRUCTURE Gx-1**

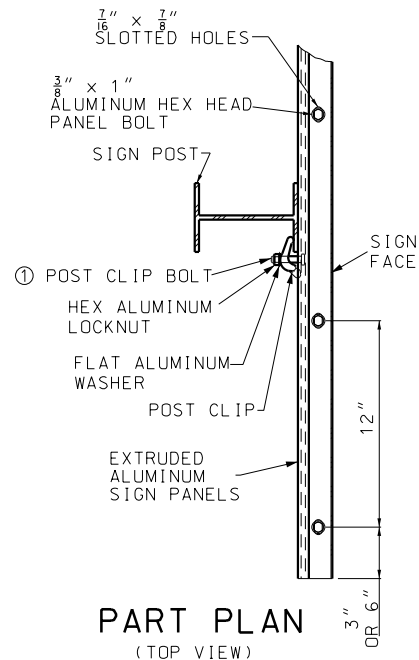
STD NO  
**Gx-102**  
SHEET NO.  
**2 OF 4**

SHEET NO.  
**24**

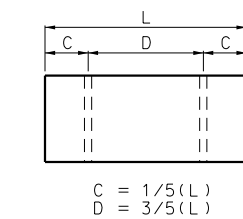
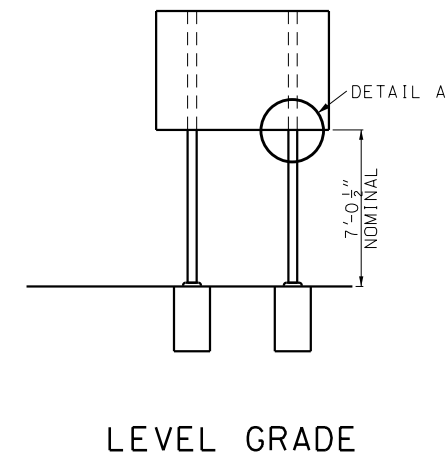
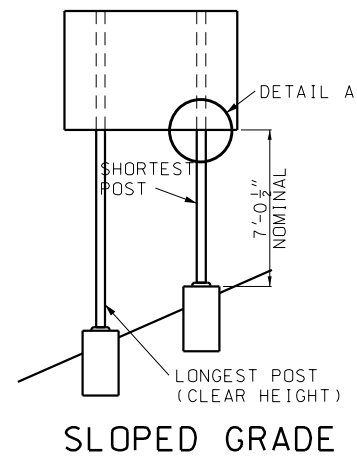




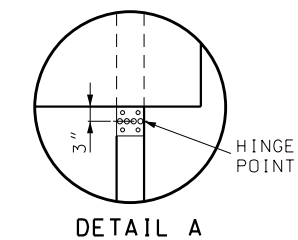
ALUMINUM FLAT WASHER  
 $\frac{7}{16}$ " I.D. x 1" O.D.  
 X .091" (TO BE USED ON  
 PANEL BOLT HEAD SIDE  
 AND NUT SIDE) ALUMINUM  
 LOCK WASHER UNDER NUT



① SIGNS SHALL BE FIELD ATTACHED TO POSTS WITH  
 POST CLIPS AND BOLTS. SEE POST CLIP DETAIL. THE  
 SHANK OF THE POST CLIP BOLT SHALL FIT TIGHTLY  
 AGAINST THE POST FLANGE AFTER THE LOCKNUTS  
 ARE TORQUED. LOCKNUTS ON THE POST CLIP BOLTS  
 SHALL BE TORQUED TO 225 INCH-POUNDS WHEN USING  
 DRY, CLEAN, UNLUBRICATED THREADS.



POST SPACING



NOTE: SEE SHEET 2 FOR  
 FUSE PLATE DETAILS.

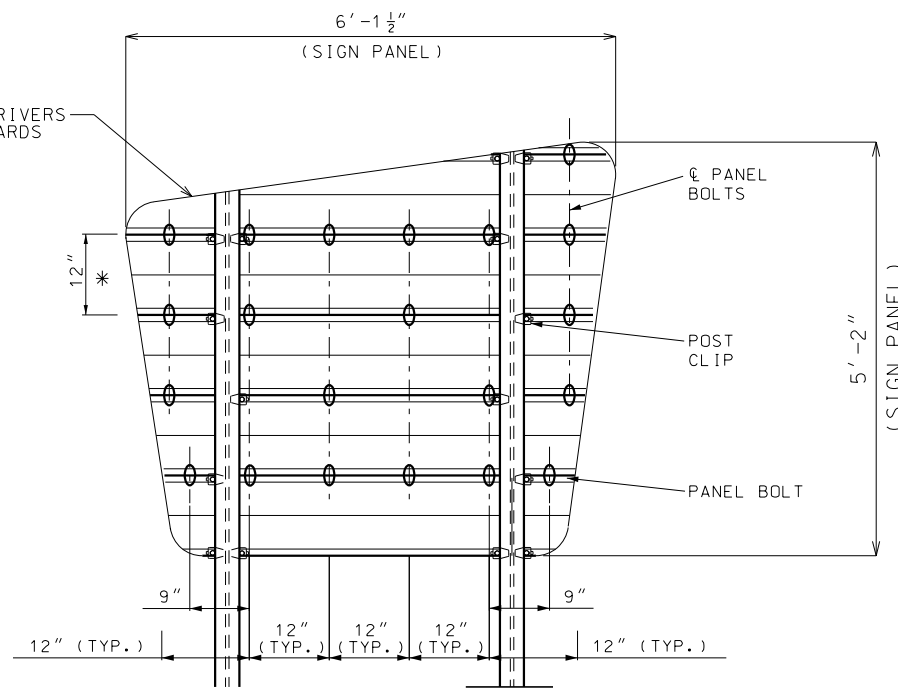
NOTES:

FOR GENERAL NOTES, SEE SHEET 1 OF 4.

FOR EXTRUDED ALUMINUM PANEL AND POST CLIP DETAILS,  
 SEE SHEET 4 OF 4.

THIS SHEET IS BASED ON MISSOURI STANDARD PLANS DRAWING  
 903.03 WITH AN EFFECTIVE DATE 10/01/2019. THE LATEST  
 EDITION OF THIS DRAWING SHALL BE USED IF DIFFERENT  
 THAN THE DETAILS SHOWN.

REFER TO SHEET NO. 22 IN THE GREAT RIVERS  
 GREENWAY EXTERIOR SIGN DESIGN STANDARDS  
 FOR SIGN PANEL DETAILS NOT SHOWN

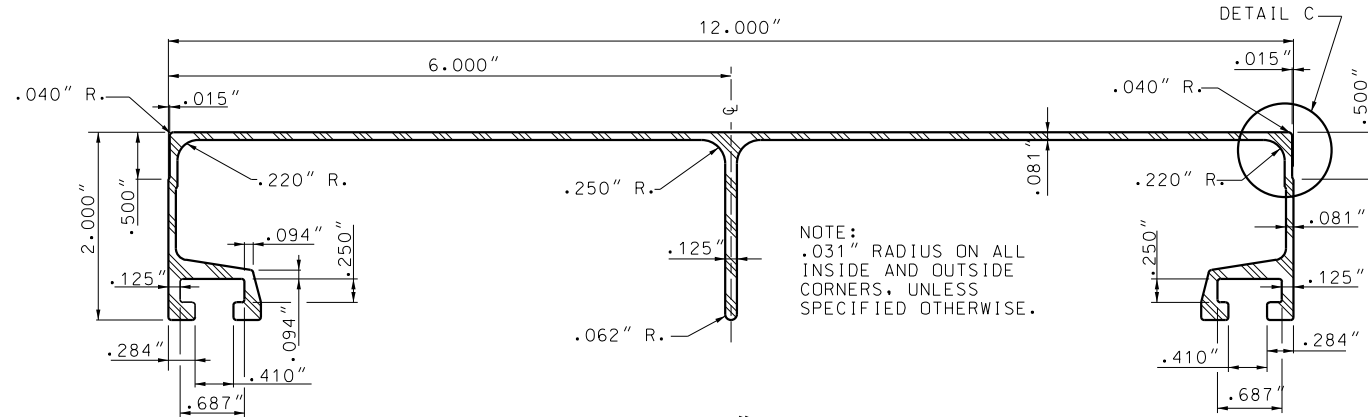


\* EXTRUDED ALUMINUM PANEL.

PANEL BOLT LOCATION

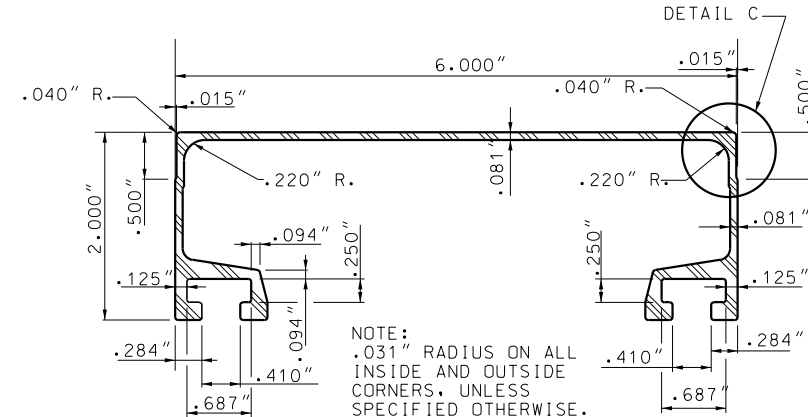
Note: This drawing is not to scale. Follow dimensions.

REV.	DATE	DESCRIPTION	APPROVED

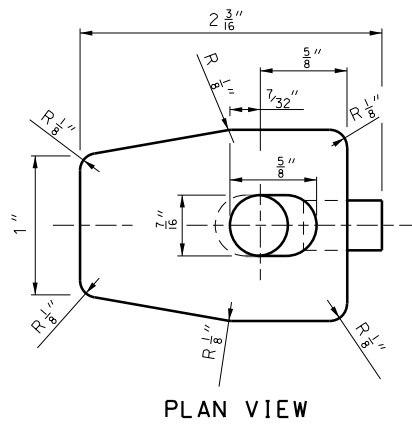


**SECTION THRU 12" EXTRUDED ALUMINUM PANEL**  
MINIMUM WT. = 2.40 LBS./FT.

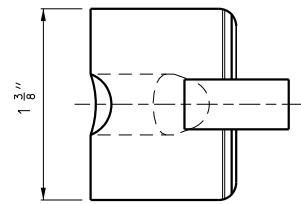
NOTE:  
MINIMUM WEIGHT AND THICKNESS DIMENSIONS SHOWN.  
HEAVIER PANELS MAY BE USED.



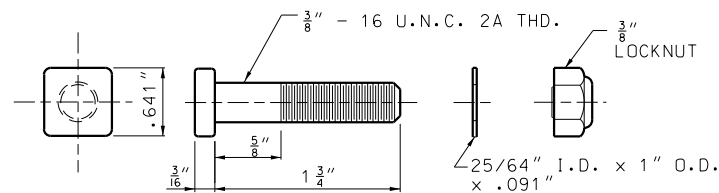
**SECTION THRU 6" EXTRUDED ALUMINUM PANEL**  
MINIMUM WT. = 2.40 LBS./FT.



PLAN VIEW



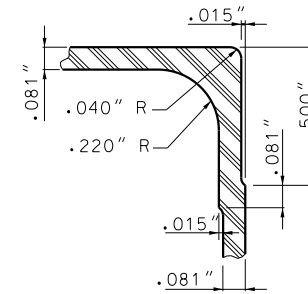
END VIEW



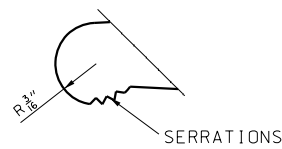
**POST CLIP BOLT WITH FLAT WASHER AND LOCKNUT**

NOTE:  
SQUARE BOLT HEAD SHOWN.  
RECTANGULAR BOLT HEAD WITH  
LEAST DIMENSION OF .641" MAY  
BE USED.

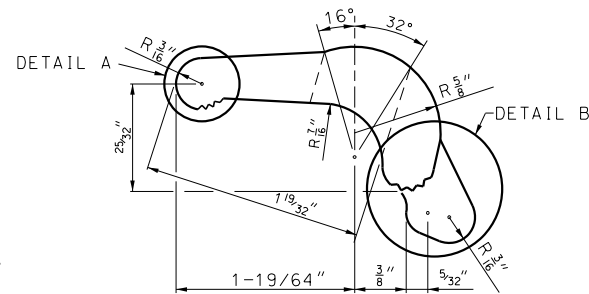
BOLT - 1 3/4" x 1/8" ALUMINUM  
HEX LOCKNUT - 1/8" ALUMINUM  
WASHER - ALUMINUM



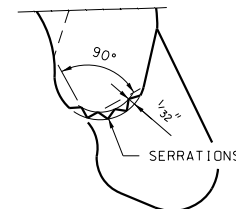
DETAIL C



**DETAIL A**  
ENLARGED VIEW OF  
SERRATIONS



ELEVATION VIEW



**DETAIL B**  
ENLARGED DETAIL OF SERRATIONS

**POST CLIP**  
POST CLIPS SHALL BE ASTM B 108, 356-T6 ALUMINUM ALLOY.

SAW GATING AS SHOWN  
(APPROXIMATELY FLAT PERMISSABLE)

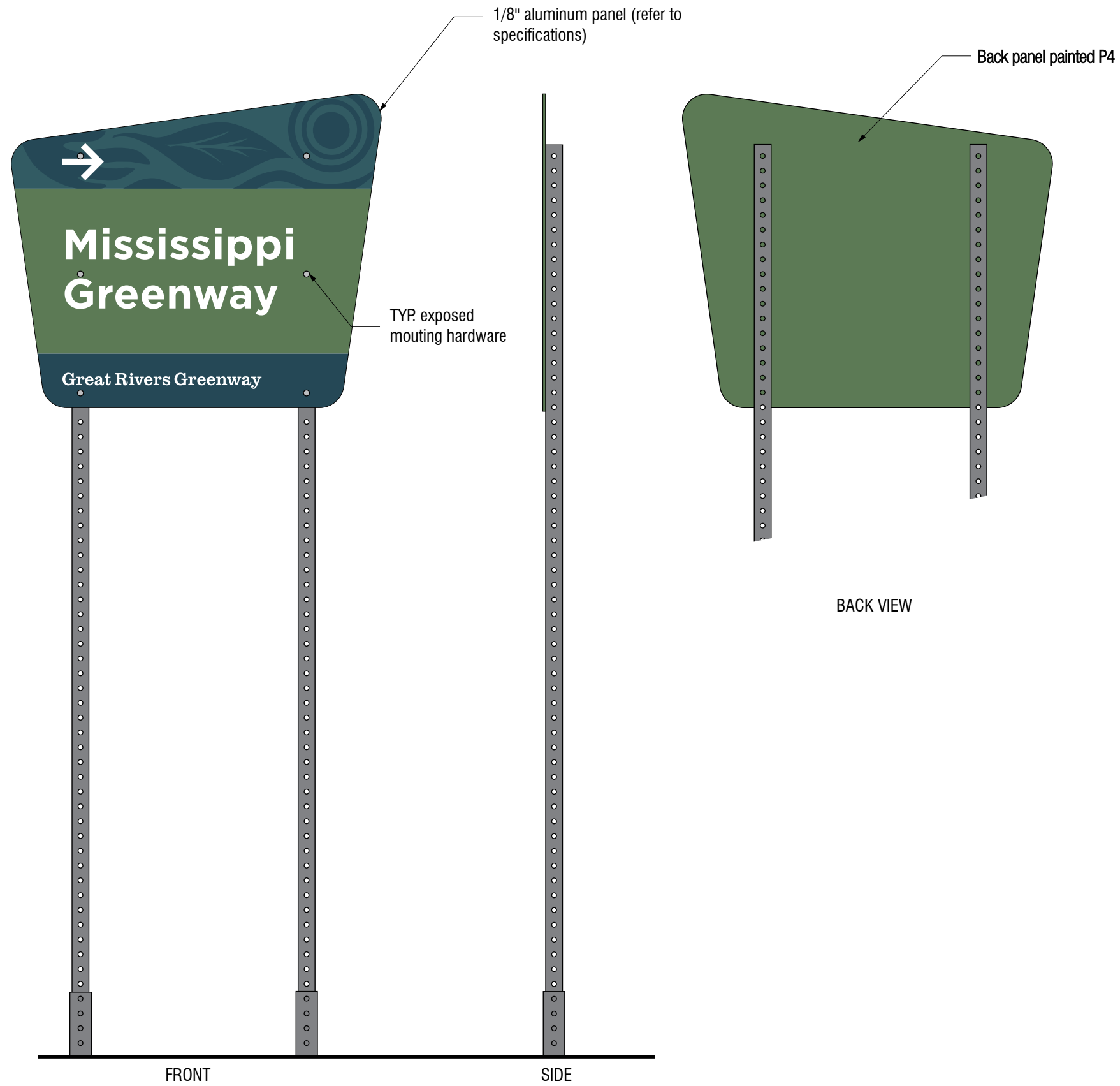
NOTE:

THIS SHEET IS BASED ON MISSOURI STANDARD PLANS DRAWING  
903.02 WITH AN EFFECTIVE DATE 10/01/2019. THE LATEST  
EDITION OF THIS DRAWING SHALL BE USED IF DIFFERENT  
THAN THE DETAILS SHOWN.

Note: This drawing is not to scale. Follow dimensions.

REV.	DATE	DESCRIPTION	APPROVED

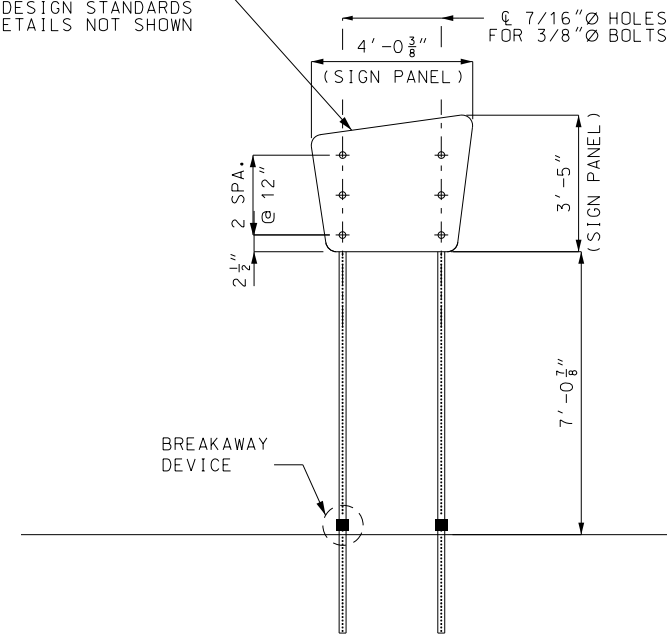
REFER TO PAGES 28 & 29 FOR STRUCTURAL SIGNAGE DETAILS



1 FRONT ELEVATION - SIGN FACE LAYOUT  
3/4" = 1'-0"

Download the art template for this sign at: <https://greatrivergreenway.sharefile.com/d-s5bbc97d803346128>

REFER TO SHEET NO. 27 IN THE GREAT RIVERS GREENWAY EXTERIOR SIGN DESIGN STANDARDS FOR SIGN PANEL DETAILS NOT SHOWN



SIGN Gx-2

GENERAL NOTES:

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS - 1985 (EXCEPT 2001 AND LATEST INTERIMS FOR STRUCTURAL STEEL POSTS).

POSTS AND ANCHOR SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION PER SECTION 1080 OF THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

METAL PROJECTING BEYOND THE PLANE OF THE PLATE FACE WILL NOT BE ALLOWED.

REMOVE ALL GALVANIZING RUNS OR BEADS IN THE WASHER AREA.

INSTALLATION OF THE BREAKAWAY ASSEMBLY SYSTEM INCLUDING HARDWARE, BOLTS, NUTS, WASHERS AND ALL OTHER APPURTENANCES NECESSARY FOR THE COMPLETE INSTALLATION SHALL BE PER THE MANUFACTURERS REQUIREMENTS.

THE THREADS SHALL BE BURRED AT THE NUT USING A CENTER PUNCH TO PREVENT NUT FROM LOOSENING.

ALL BREAKAWAY DEVICES USED ON AN INSTALLATION SHALL BE CERTIFIED NCHRP 350 COMPLIANT.

THE FINISH ON THE POSTS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF GREAT RIVERS GREENWAYS EXTERIOR SIGN DESIGN STANDARDS AND SPECIFICATIONS.

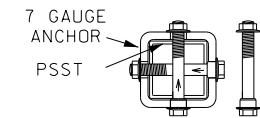
THIS SHEET IS BASED ON MISSOURI STANDARD PLANS DRAWING 903.03 WITH AN EFFECTIVE DATE 01/01/2020. THE LATEST EDITION OF THIS DRAWING SHALL BE USED IF DIFFERENT THAN THE DETAILS SHOWN.

SIGN STRUCTURES Gx-2 AS SHOWN MAY BE INSTALLED WITHIN THE ROADWAY CLEAR ZONE OR IN OTHER AREAS WHERE THEY MAY BE SUSCEPTIBLE TO VEHICULAR COLLISION OR ARE OTHERWISE UNPROTECTED.

SIGN STRUCTURE PLACEMENT MAY BE SUBJECT TO OTHER REQUIREMENTS OR RESTRICTIONS ON A CASE-BY-CASE BASIS.

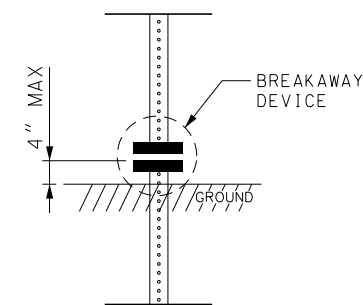
INDIVIDUAL SIGN STRUCTURE LOCATION AND PLACEMENT SHALL BE THE RESPONSIBILITY OF THE ENGINEER OF RECORD FOR EACH SIGN STRUCTURE INSTALLATION.

POST AND ANCHOR DATA TABLE					
POST		ANCHOR NORMAL OR OMNI-DIRECTIONAL		BREAKAWAY NEEDED	
GAUGE	SIZE	GAUGE	SIZE	1	2
12	2.5" x 2.5"	7	3" X 3" X 36" OD	NO	YES



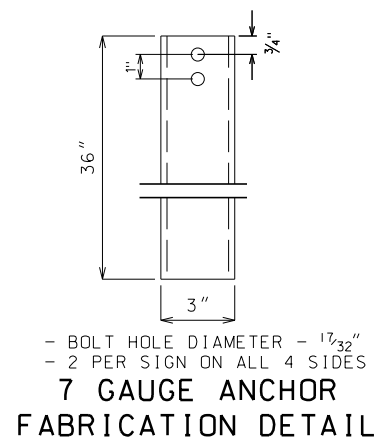
3/8" x 3.5" SHOULDER BOLT AND NUT ANCHOR BOLT DETAIL FOR 2.5" PSST  
2 SHOULDER BOLTS REQUIRED INSTALLED PERPENDICULAR TO EACH OTHER

ANCHOR BOLT DETAIL

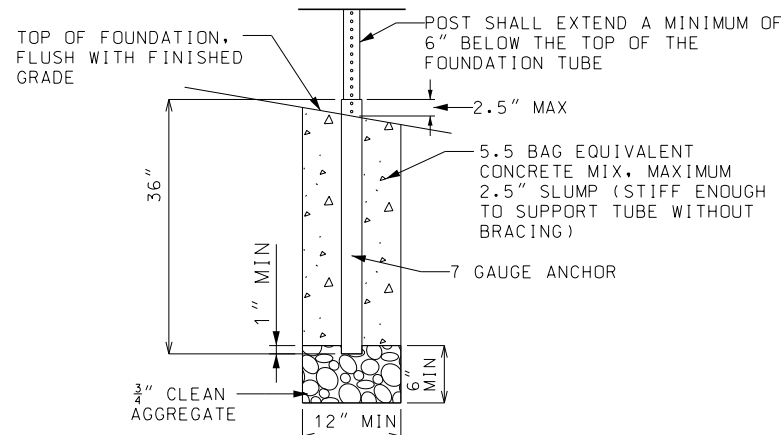


WHEN BREAKAWAY DEVICES ARE REQUIRED THE PORTION FIXED TO THE GROUND ANCHOR SHALL BE NO HIGHER THAN 4" ABOVE THE FINISHED GRADE.

BREAKAWAY DETAILS



- BOLT HOLE DIAMETER - 1/32"  
- 2 PER SIGN ON ALL 4 SIDES  
7 GAUGE ANCHOR FABRICATION DETAIL



CONCRETE FOUNDATION DETAIL

PERFORATED SQUARE STEEL TUBE (PSST) SIGN POST OPTION

Note: This drawing is not to scale. Follow dimensions.

REV.	DATE	DESCRIPTION	APPROVED

David Burdick, P.E.  
 MO# PE-024015

DRAWN BY  
 DB

CHECKED BY  
 TRN

DATE  
 February 3, 2020

GREAT RIVERS GREENWAY  
 SIGN STRUCTURE STANDARDS  
 DETAILS OF SIGN STRUC. Gx-2

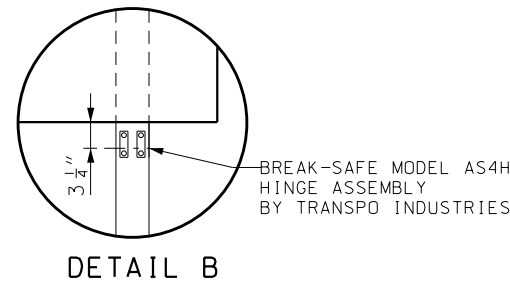
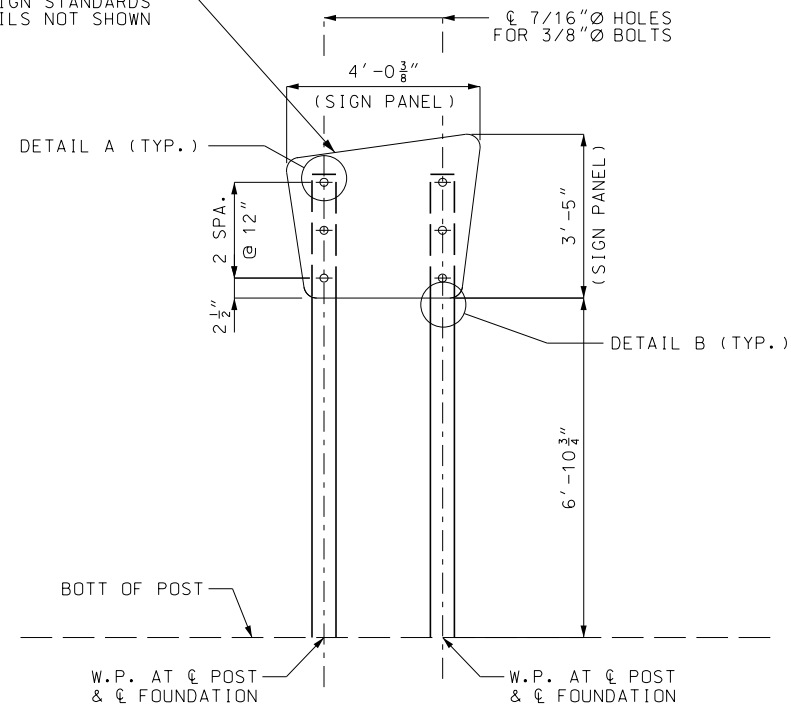
STD NO  
**Gx-201**

SHEET NO.  
**1 OF 2**

SHEET NO.  
**28**

T:\Work\15080 - Wildwood - Streeter Road Bridge\Drawings\Bridge\_CDG\_Template.dwg

REFER TO SHEET NO. 27 IN THE GREAT RIVERS GREENWAY EXTERIOR SIGN DESIGN STANDARDS FOR SIGN PANEL DETAILS NOT SHOWN



**GENERAL NOTES:**

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS - 2013 (6TH EDITION) AND ALUMINUM ASSOCIATION 2015 ALUMINUM DESIGN MANUAL.

CONCRETE FOR FOUNDATIONS SHALL BE CLASS B CONCRETE, IN ACCORDANCE WITH THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, WITH A COMPRESSIVE STRENGTH OF  $f'c = 4,000$  PSI @ 28 DAYS.

ALL EXPOSED EDGES OF THE CONCRETE SHALL HAVE A 3/4" CHAMFER.

ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615 GRADE 60,  $Fy=60,000$  PSI.

ALL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A775/A775M.

MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1 1/2", UNLESS NOTED OTHERWISE.

THE BREAKAWAY SUPPORT SYSTEM BY TRANSPD INDUSTRIES SHALL INCLUDE THE BREAK-SAFE MODEL AS4H BRACKETS, HARDWARE, COUPLINGS, ANCHORS, HINGES AND ALL OTHER APPURTENANCES NECESSARY FOR THE COMPLETE INSTALLATION PER THE MANUFACTURER.

ALL BRACKETS, HARDWARE, COUPLINGS, ANCHORS, HINGES, BOLTS, NUTS AND WASHERS FOR THE BREAKAWAY SUPPORT SYSTEM SHALL BE GALVANIZED BY THE HOT-DIP PROCESS IN ACCORDANCE WITH ASTM A153.

THE BREAKAWAY SUPPORT SYSTEM BY TRANSPD INDUSTRIES IS BASED ON DETAILS WITH AN EFFECTIVE DATE JANUARY 2015. THE LATEST EDITION OF THESE DETAILS SHALL BE USED IF DIFFERENT THAN THE DETAILS SHOWN.

THE STRUCTURAL TUBING MATERIAL SHALL BE ALUMINUM, 6063-T6 IN ACCORDANCE WITH ASTM B429.

THE CAP MATERIAL SHALL BE ALUMINUM, 6061-T6 IN ACCORDANCE WITH ASTM B209.

WELD FILLER MATERIAL SHALL BE ALUMINUM, 5356 AND COMPLY WITH AWS A5.10.

ALL WELDING SHALL COMPLY WITH AWS D1.2 "STRUCTURAL WELDING CODE-ALUMINUM".

ALL EXPOSED WELDED JOINTS SHALL BE FILLED AND GROUND SMOOTH SO THAT NO SEAM IS VISIBLE WHEN PAINTED.

BOLTS, NUTS AND WASHERS SHALL BE 300 SERIES STAINLESS STEEL. WASHERS SHALL BE USED UNDER BOLT HEADS.

ALL HARDWARE AND FASTENERS WITHIN REACH SHALL BE VANDAL RESISTANT.

PROVIDE DRAIN HOLES IN RT TUBES IN LOCATIONS AS NEEDED TO PREVENT THE ACCUMULATION OF MOISTURE IN THE MEMBERS.

HOLES SHALL BE LOCATED TO BE INCONSPICUOUS AND SUCH THAT DRAINAGE DOES NOT OCCUR ONTO SIGNS OR OTHER SURFACES SUBJECT TO STAINING.

PROVIDE COLOR-COORDINATED STAINLESS STEEL BUG MESH OVER DRAIN HOLES.

FOUNDATIONS SHOWN IN THE PLANS HAVE BEEN DESIGNED BASED ON THE PRESUMPTIVE VALUES FOUND IN IBC-2009, TABLE 1806.2, FOR CLASS 5 SOIL MATERIALS. THE FOUNDATIONS SHOWN ARE SUITABLE FOR CONSTRUCTION IN ANY CLASS 5 SOIL OR BETTER. CONSTRUCTION OF THE FOUNDATIONS IN LESSER SOILS SUCH AS MUD, ORGANIC SOILS OR UNPREPARED SOILS IS NOT COVERED BY THIS STANDARD DESIGN AND WILL REQUIRE FURTHER EVALUATION.

THE FINISH ON THE SIGN STRUCTURE (POSTS AND PLATES) SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GREAT RIVERS GREENWAYS EXTERIOR SIGN DESIGN STANDARDS AND SPECIFICATIONS.

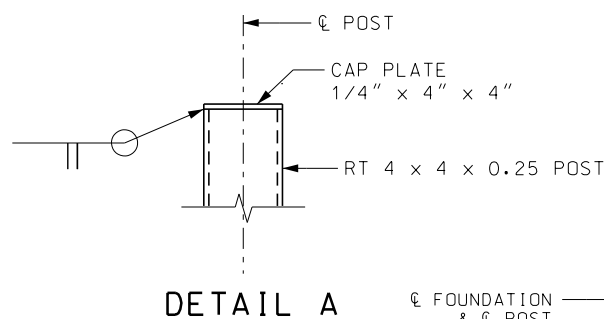
PROVIDE 1/2" JOINT FILLER AROUND FOUNDATION AT PAVED WALKING SURFACE LOCATIONS.

SIGN STRUCTURE Gx-2 AS SHOWN MAY BE INSTALLED WITHIN THE ROADWAY CLEAR ZONE OR IN OTHER AREAS WHERE THEY MAY BE SUSCEPTIBLE TO VEHICULAR COLLISION OR ARE OTHERWISE UNPROTECTED.

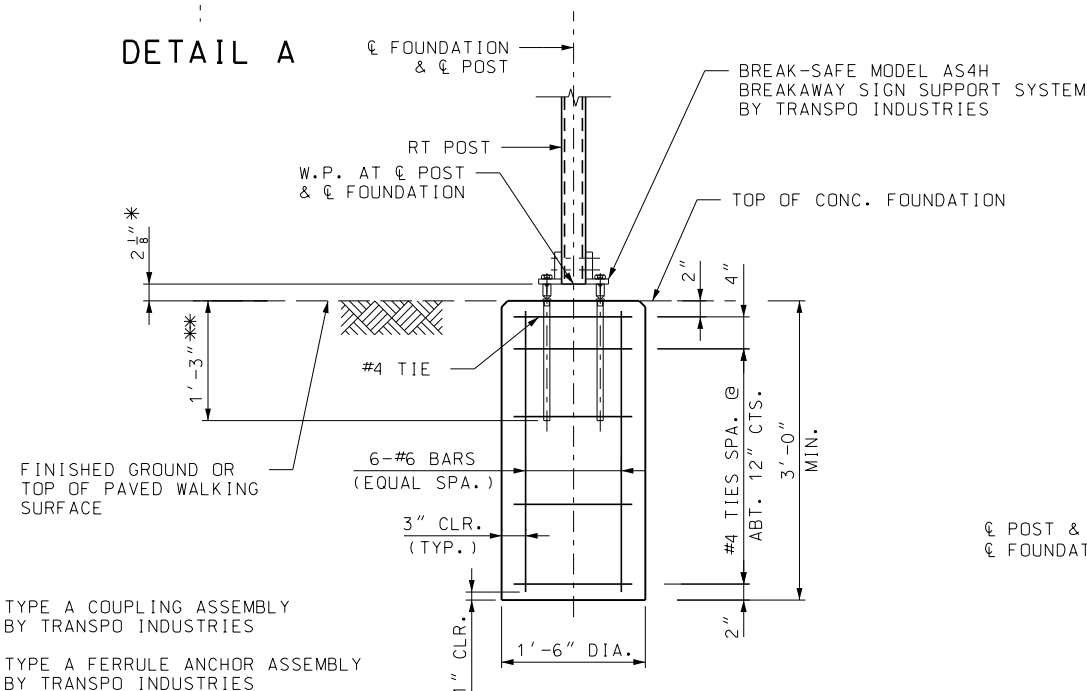
SIGN STRUCTURE PLACEMENT MAY BE SUBJECT TO OTHER REQUIREMENTS OR RESTRICTIONS ON A CASE-BY-CASE BASIS.

INDIVIDUAL SIGN STRUCTURE LOCATION AND PLACEMENT SHALL BE THE RESPONSIBILITY OF THE ENGINEER OF RECORD FOR EACH SIGN STRUCTURE INSTALLATION.

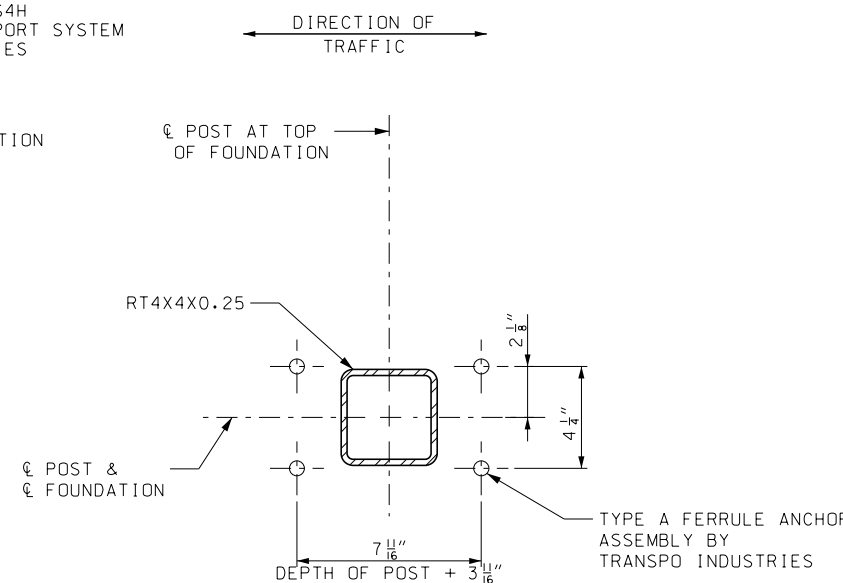
**SIGN Gx-2**



**DETAIL A**



**SECTION THRU CONCRETE FOUNDATION**



**PLAN-ANCHOR ASSEMBLY**  
BRACKETS NOT SHOWN FOR CLARITY

**ALUMINUM TUBE WITH BREAKAWAY SUPPORT SYSTEM OPTION**

Note: This drawing is not to scale. Follow dimensions.

David Burdick, P.E.  
MO# PE-024015

DRAWN BY  
DB  
CHECKED BY  
TRN  
DATE  
February 3, 2020

**GREAT RIVERS GREENWAY  
SIGN STRUCTURE STANDARDS  
DETAILS OF SIGN STRUC. Gx-2**

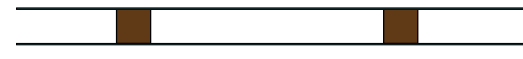
STD NO  
**Gx-202**  
SHEET NO.  
**2 OF 2**

SHEET NO.  
**29**

REV.	DATE	DESCRIPTION	APPROVED

T:\Work\15080 - Wildwood - Streeter Road Bridge\Drawings\Bridges\CDG\_Bridge\_Template.dwg

Great Rivers Greenway Sign Array: GX-3 Vehicular Guide

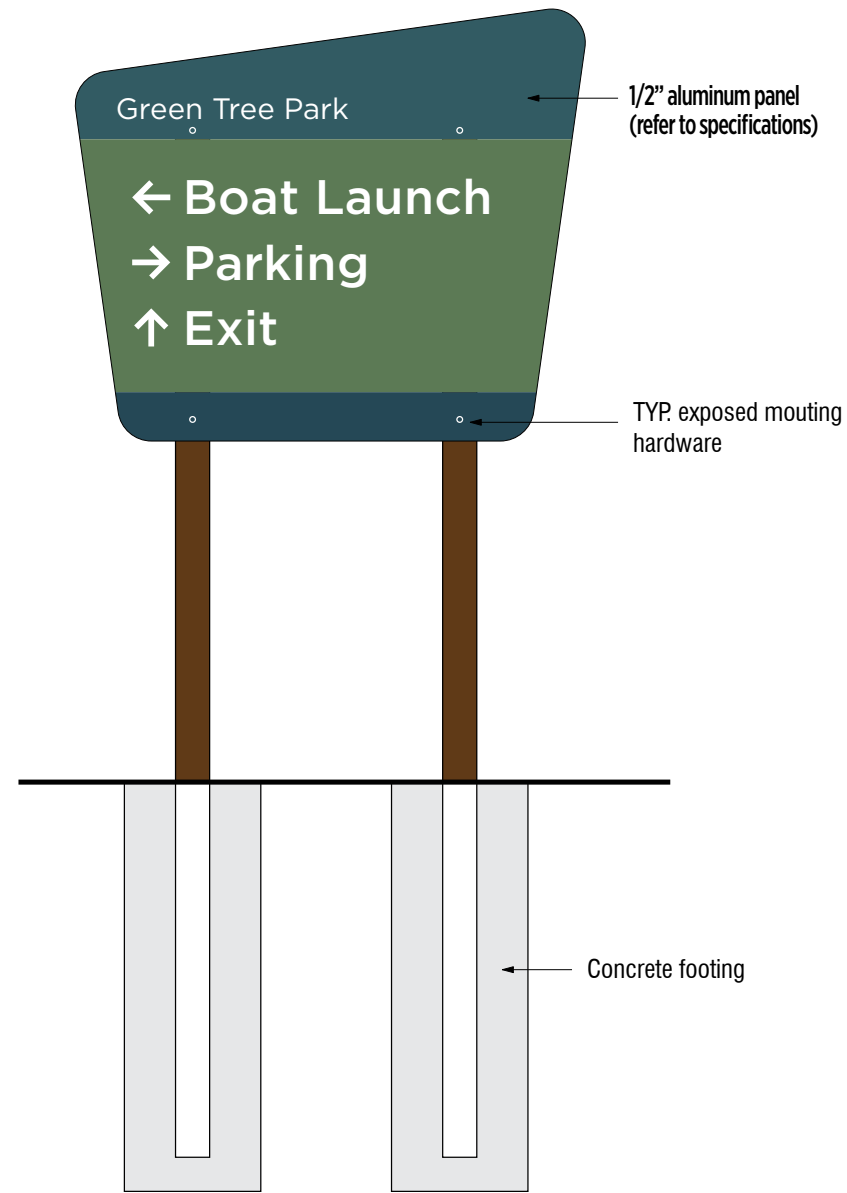


PLAN VIEW - DOUBLE SIDED  
3/4" = 1'-0"

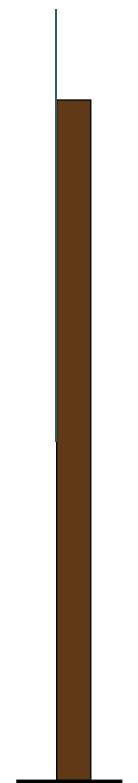


PLAN VIEW  
3/4" = 1'-0"

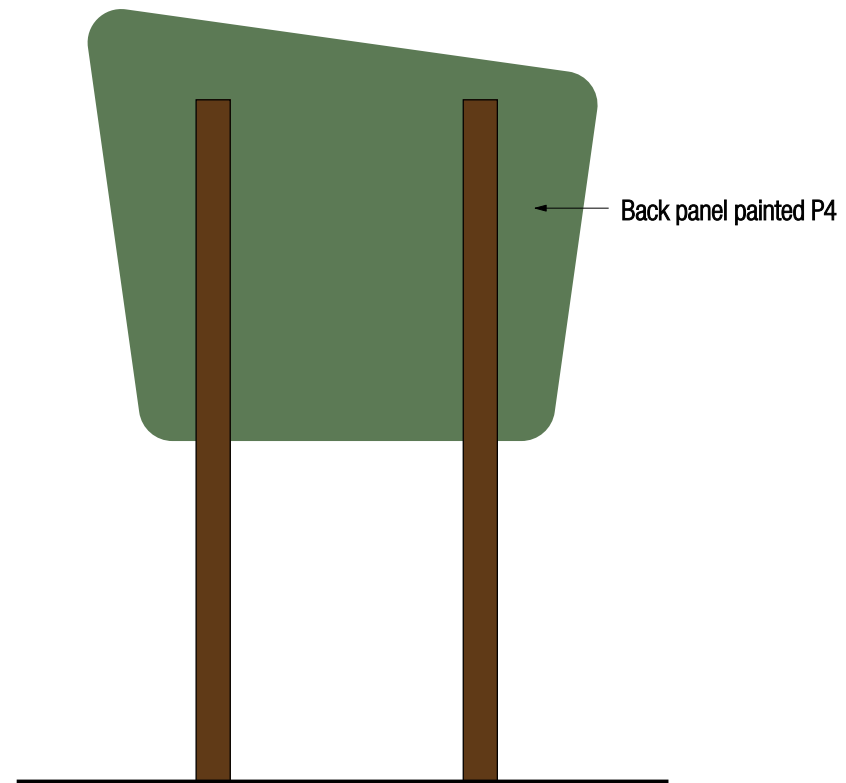
REFER TO PAGE 31 FOR  
STRUCTURAL SIGNAGE DETAILS



1 FRONT ELEVATION  
3/4" = 1'-0"

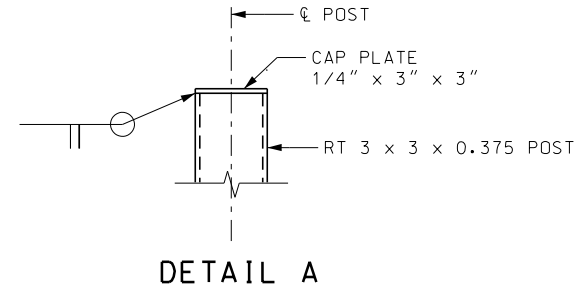


SIDE VIEW  
3/4" = 1'-0"



2 BACK VIEW  
3/4" = 1'-0"

Download the art template for this sign at: <https://greatriversgreenway.sharefile.com/d-sa644bf86be840ada>



**GENERAL NOTES:**

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS - 2013 (6TH EDITION) AND ALUMINUM ASSOCIATION 2015 ALUMINUM DESIGN MANUAL.

CONCRETE FOR FOUNDATIONS SHALL BE CLASS B CONCRETE, IN ACCORDANCE WITH THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, WITH A COMPRESSIVE STRENGTH OF  $f'c = 4,000$  PSI @ 28 DAYS.

ALL EXPOSED EDGES OF THE CONCRETE SHALL HAVE A 3/4" CHAMFER.

ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615 GRADE 60,  $Fy=60,000$  PSI.

ALL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A775/A775M.

MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1 1/2", UNLESS NOTED OTHERWISE.

ALL CAST-IN-PLACE ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 36 BOLTS WITH 90° BEND UNLESS NOTED OTHERWISE.

ALL CAST-IN-PLACE CONCRETE ANCHORS ARE TO BE TIGHTENED TO A "SNUG-TIGHT" CONDITION.

ALL ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED BY THE HOT-DIP PROCESS IN ACCORDANCE WITH ASTM A153.

NON-SHRINK GROUT SHALL BE NON-METALLIC, PRE-PACKAGED GROUT CONFORMING TO CORPS OF ENGINEERS SPECIFICATION CRD C621, WITH A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS WHEN TESTED ACCORDING TO ASTM C109.

THE STRUCTURAL TUBING MATERIAL SHALL BE ALUMINUM, 6063-T6 IN ACCORDANCE WITH ASTM B429.

THE BASE PLATES AND CAP MATERIAL SHALL BE ALUMINUM, 6061-T6 IN ACCORDANCE WITH ASTM B209.

WELD FILLER MATERIAL SHALL BE ALUMINUM, 5356 AND COMPLY WITH AWS A5.10.

ALL WELDING SHALL COMPLY WITH AWS D1.2 "STRUCTURAL WELDING CODE-ALUMINUM".

ALL EXPOSED WELDED JOINTS SHALL BE FILLED AND GROUND SMOOTH SO THAT NO SEAM IS VISIBLE WHEN PAINTED.

BOLTS, NUTS AND WASHERS SHALL BE 300 SERIES STAINLESS STEEL. WASHERS SHALL BE USED UNDER BOLT HEADS.

ALL HARDWARE AND FASTENERS WITHIN REACH SHALL BE VANDAL RESISTANT.

THE SURFACES OF ALUMINUM MEMBERS IN CONTACT WITH CONCRETE SHALL BE BACK PAINTED WITH BITUMINOUS PAINT OF THE CUT-BACK TYPE CONFORMING TO SPECIFICATION MIL-C-450 B (1) OR TT-C-494 OR METHACRYLATE TYPE LACQUERS CONFORMING TO MIL-L-19537C (2).

PROVIDE DRAIN HOLES IN RT TUBES IN LOCATIONS AS NEEDED TO PREVENT THE ACCUMULATION OF MOISTURE IN THE MEMBERS.

HOLES SHALL BE LOCATED TO BE INCONSPICUOUS AND SUCH THAT DRAINAGE DOES NOT OCCUR ONTO SIGNS OR OTHER SURFACES SUBJECT TO STAINING.

PROVIDE COLOR-COORDINATED STAINLESS STEEL BUG MESH OVER DRAIN HOLES.

FOUNDATIONS SHOWN IN THE PLANS HAVE BEEN DESIGNED BASED ON THE PRESUMPTIVE VALUES FOUND IN IBC-2009, TABLE 1806.2, FOR CLASS 5 SOIL MATERIALS. THE FOUNDATIONS SHOWN ARE SUITABLE FOR CONSTRUCTION IN ANY CLASS 5 SOIL OR BETTER. CONSTRUCTION OF THE FOUNDATIONS IN LESSER SOILS SUCH AS MUD, ORGANIC SOILS OR UNPREPARED SOILS IS NOT COVERED BY THIS STANDARD DESIGN AND WILL REQUIRE FURTHER EVALUATION.

THE FINISH ON THE SIGN STRUCTURE (POSTS AND PLATES) SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GREAT RIVERS GREENWAYS EXTERIOR SIGN DESIGN STANDARDS AND SPECIFICATIONS.

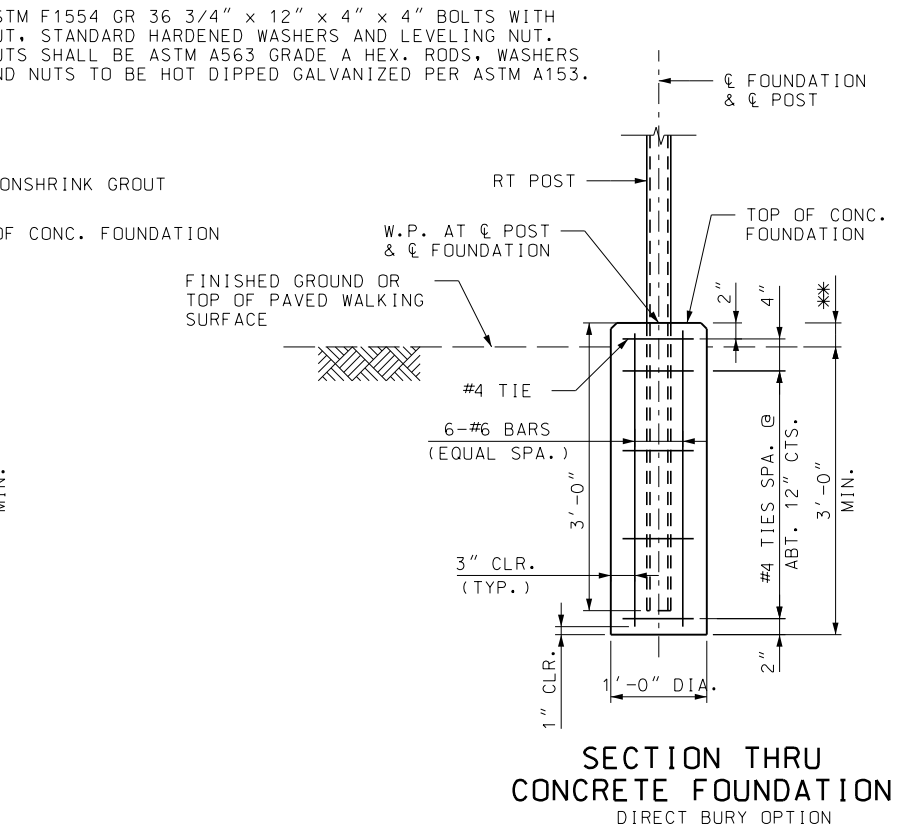
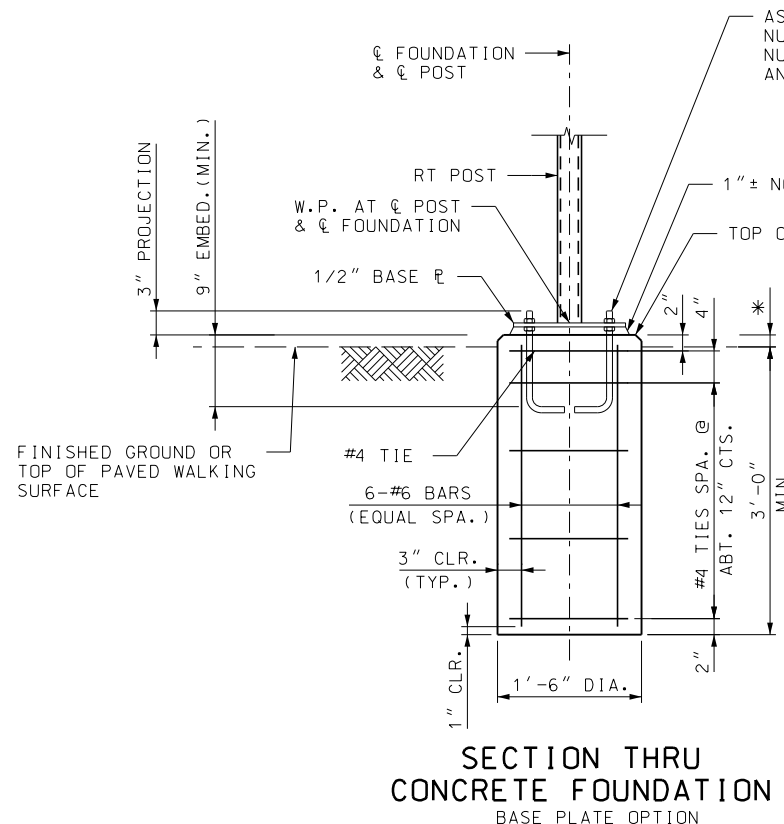
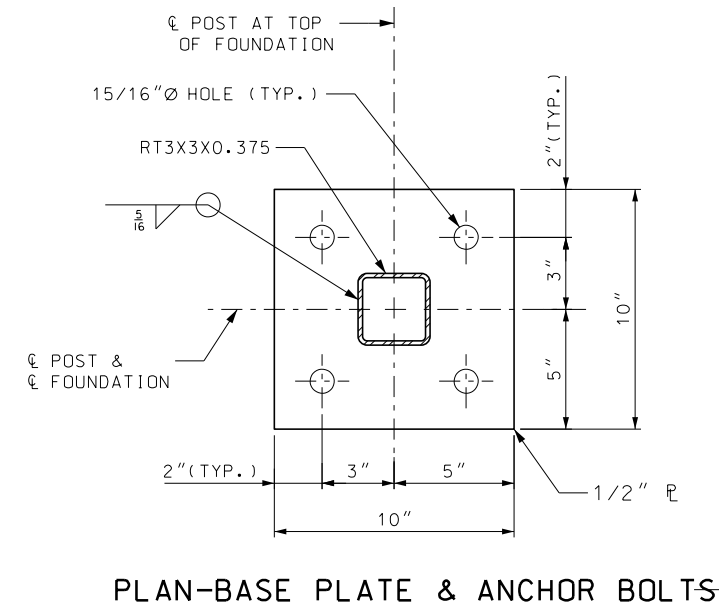
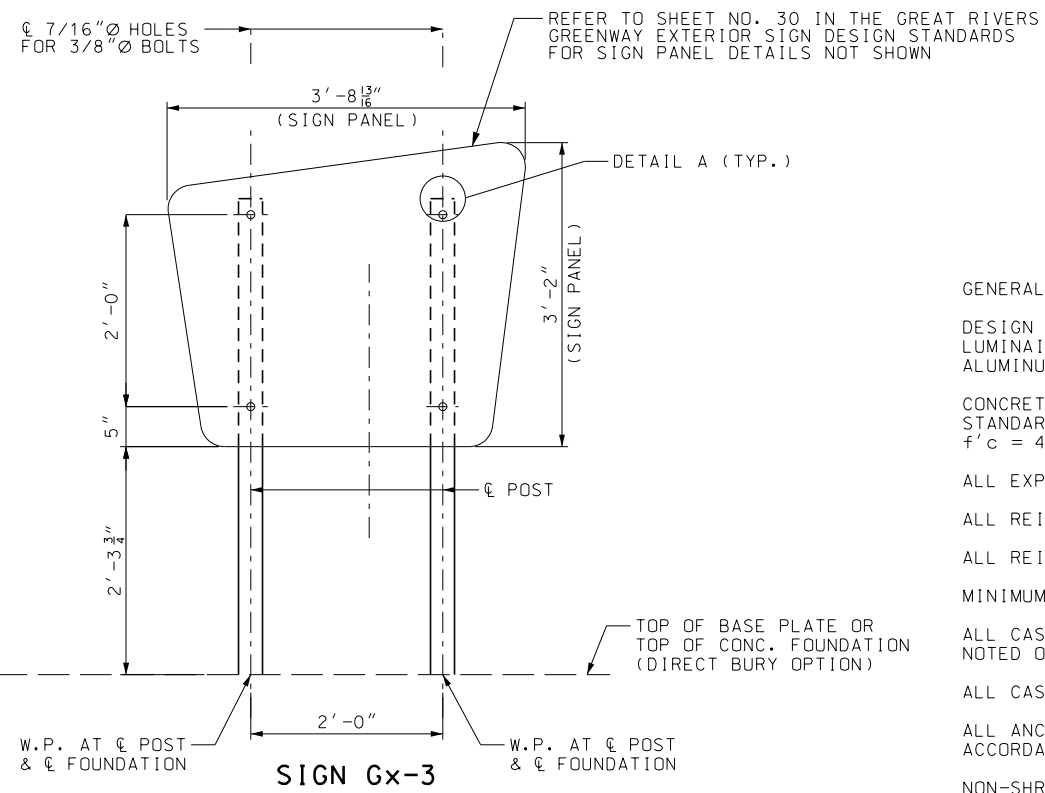
PROVIDE 1/2" JOINT FILLER AROUND FOUNDATION AT PAVED WALKING SURFACE LOCATIONS.

SIGN STRUCTURE Gx-3 AS SHOWN IS NOT INTENDED FOR INSTALLATION WITHIN THE ROADWAY CLEAR ZONE OR IN OTHER AREAS WHERE THEY MAY BE SUSCEPTIBLE TO VEHICULAR COLLISION OR ARE OTHERWISE UNPROTECTED.

SIGN STRUCTURE PLACEMENT MAY BE SUBJECT TO OTHER REQUIREMENTS OR RESTRICTIONS ON A CASE-BY-CASE BASIS.

INDIVIDUAL SIGN STRUCTURE LOCATION AND PLACEMENT SHALL BE THE RESPONSIBILITY OF THE ENGINEER OF RECORD FOR EACH SIGN STRUCTURE INSTALLATION.

REV.	DATE	DESCRIPTION	APPROVED



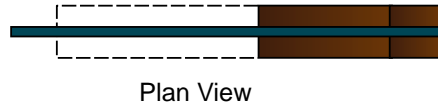
SURFACE TYPE	*	**
FINISHED GROUND	1 1/2"	3"
PAVED WALKING SURFACE	3/4"	2 1/4"

Note: This drawing is not to scale. Follow dimensions.

T:\Working\15580 - Wildwood - Streeter Road Bridge Drawings\Bridge\006 - Bridge template.dwg

Great Rivers Greenway Sign Array: GX-5 Pedestrian Large Multi-Directional Guide

REFER TO PAGES 36 & 37 FOR STRUCTURAL SIGNAGE DETAILS



OPTIONAL cross member. Fabricator to determine if cross member is required to sufficiently support message panel.

98°

Direct bury post in concrete footing.

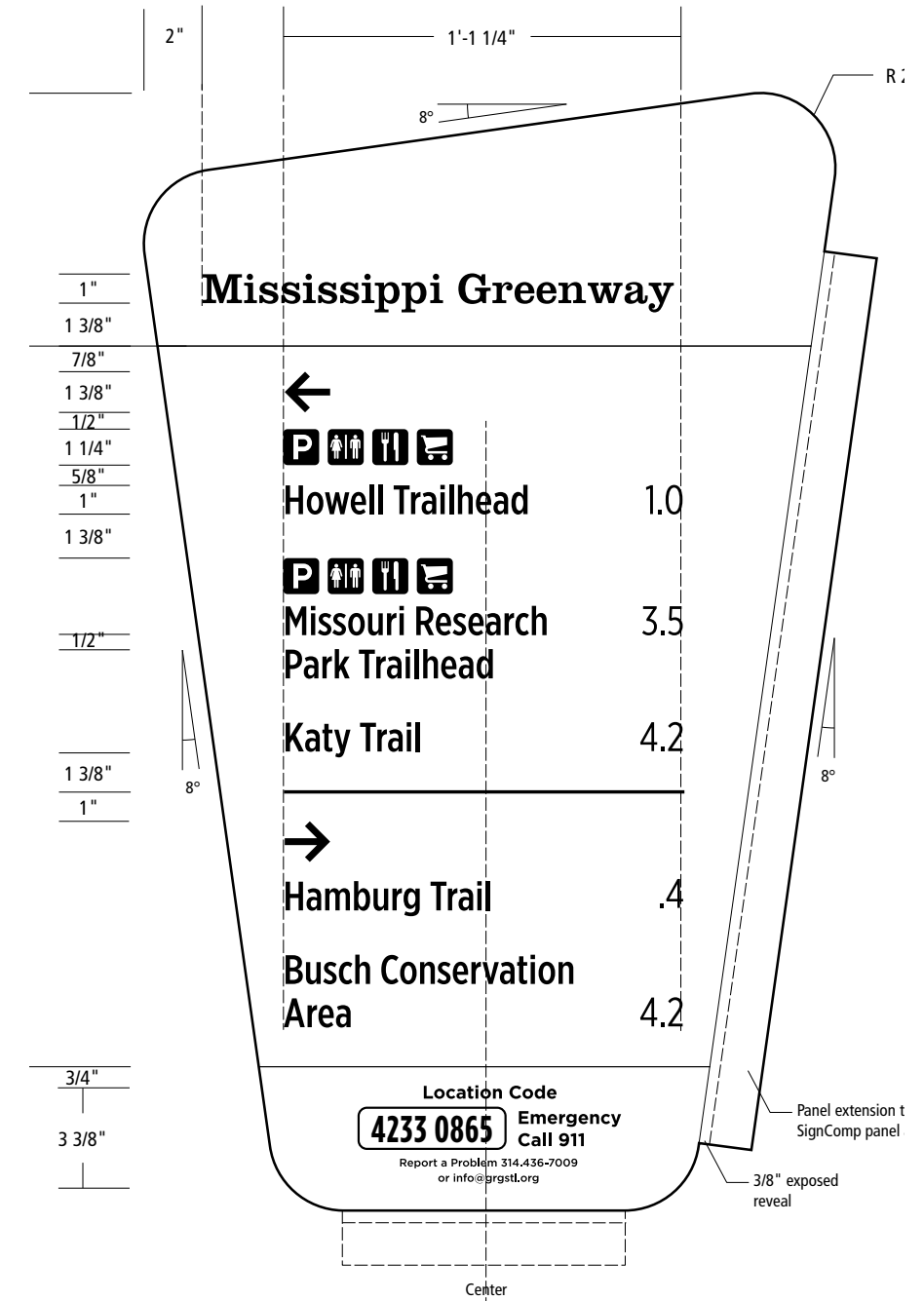
Front View



OPTIONAL cross member. Fabricator to determine if cross member is required to sufficiently support message panel.

Side View

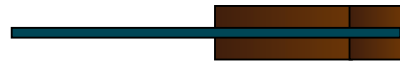
Back View



Download the art template for this sign at: <https://greatriversgreenway.sharefile.com/d-sd8515152b054b0b8>

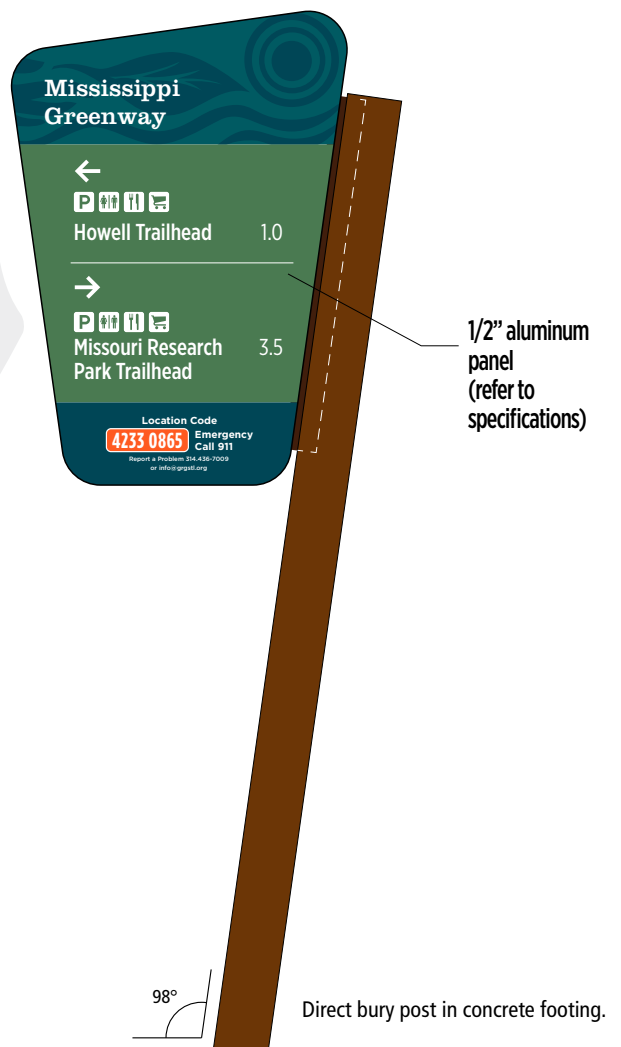


Great Rivers Greenway Sign Array: GX-6 Pedestrian Medium Multi-Directional Guide

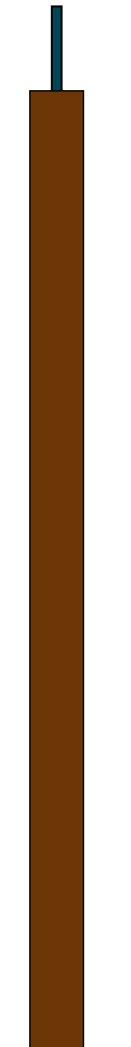


Plan View

REFER TO PAGES 36 & 37 FOR STRUCTURAL SIGNAGE DETAILS



Front View



Side View

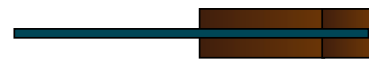


Back View



Download the art template for this sign at: <https://greatriversgreenway.sharefile.com/d-sacf5ead56884c1d9>

Great Rivers Greenway Sign Array: GX-7 Pedestrian Medium Single-Directional Guide



Plan View



Front View

1/2" aluminum panel (refer to specifications)



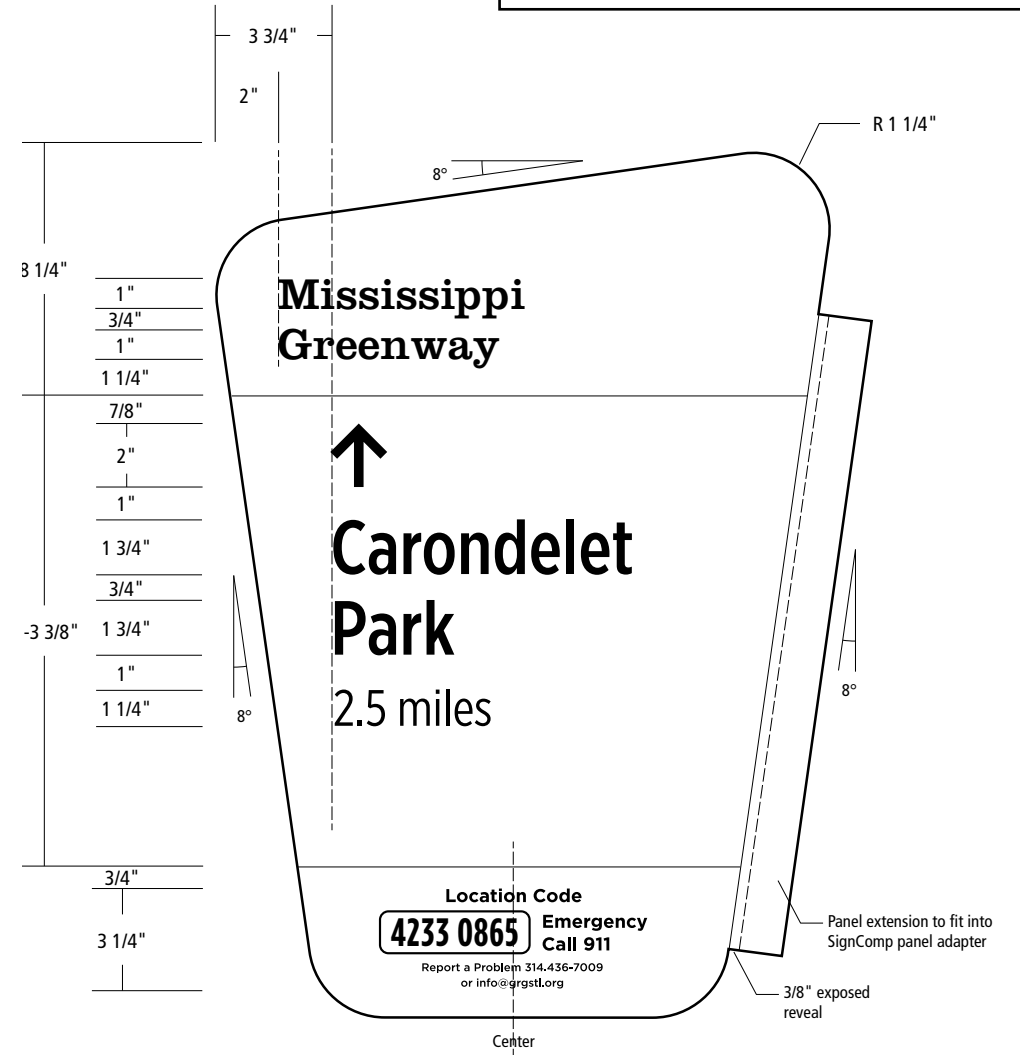
Side View



Back View

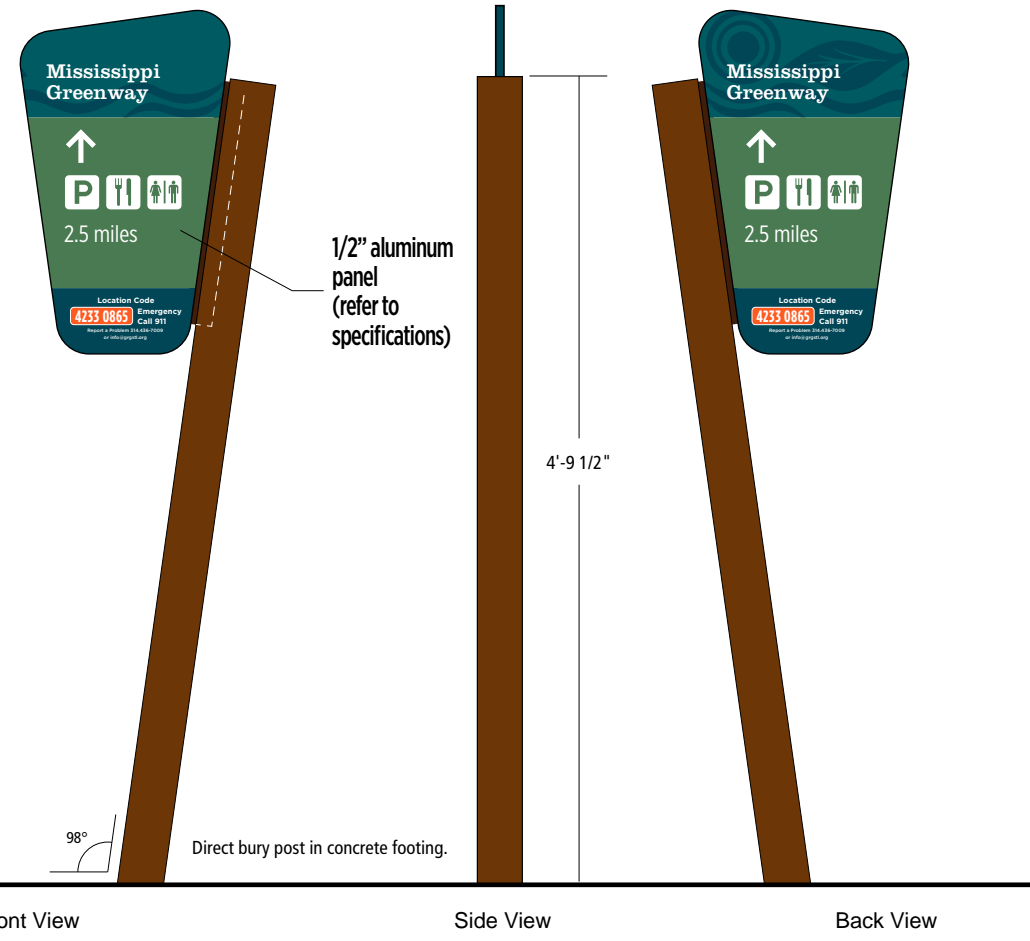
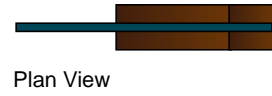
98°  
Direct bury post in concrete footing.

REFER TO PAGES 36 & 37 FOR STRUCTURAL SIGNAGE DETAILS

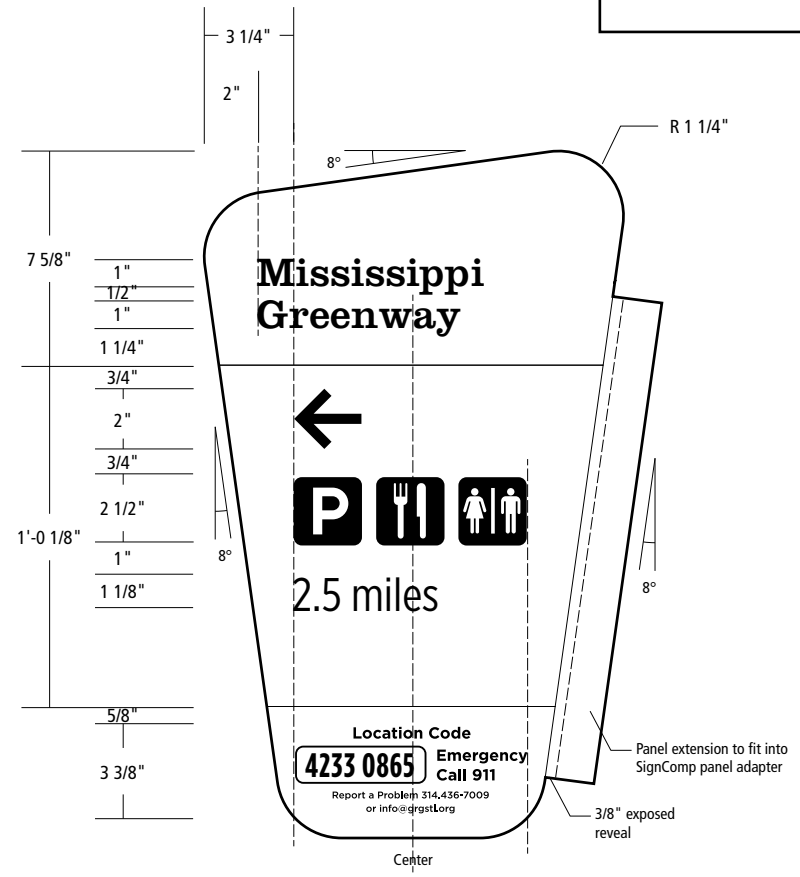


Download the art template for this sign at: <https://greatriversgreenway.sharefile.com/d-s33535accf1c4b038>

Great Rivers Greenway Sign Array: GX-8 Amenity Guide

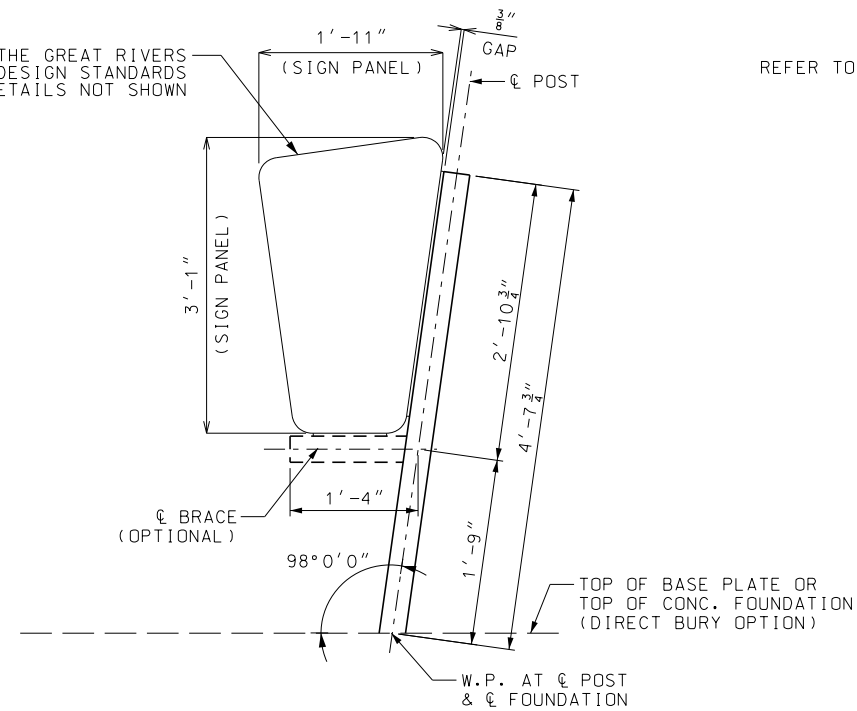


REFER TO PAGES 36 & 37 FOR STRUCTURAL SIGNAGE DETAILS



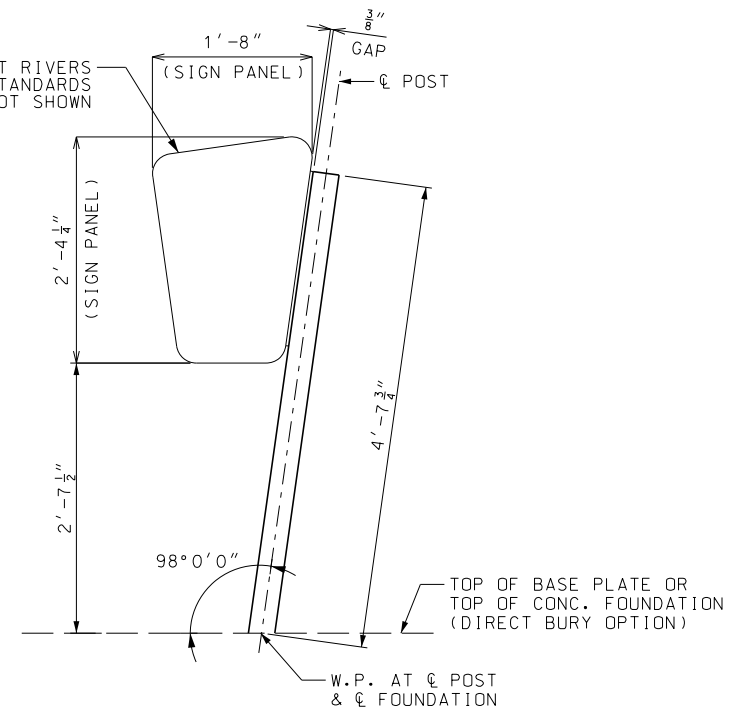
Download the art template for this sign at: <https://greatriversgreenway.sharefile.com/d-sdfe5350c12a4083a>

REFER TO SHEET NO. 32 IN THE GREAT RIVERS GREENWAY EXTERIOR SIGN DESIGN STANDARDS FOR SIGN PANEL DETAILS NOT SHOWN



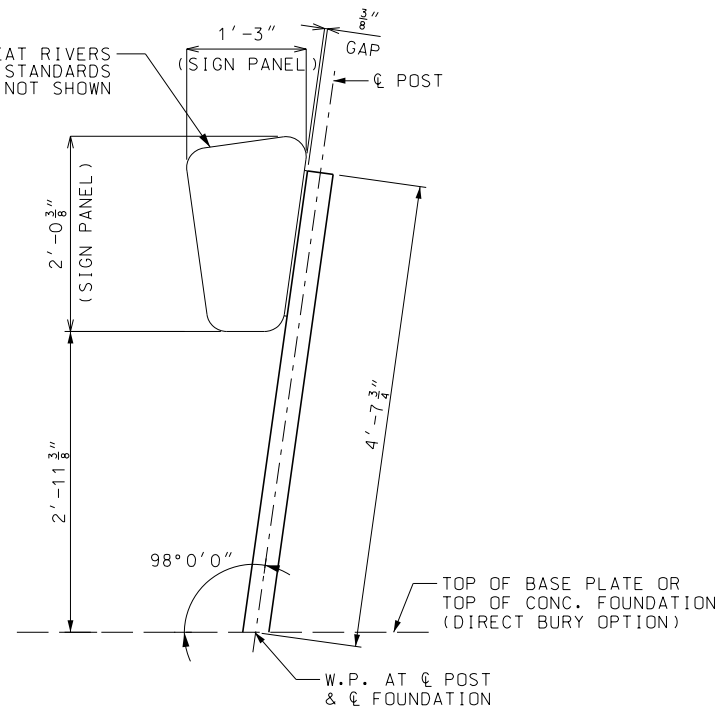
SIGN Gx-5

REFER TO SHEETS NO. 33 & 34 IN THE GREAT RIVERS GREENWAY EXTERIOR SIGN DESIGN STANDARDS FOR SIGN PANEL DETAILS NOT SHOWN



SIGN Gx-6 & Gx-7

REFER TO SHEET NO. 35 IN THE GREAT RIVERS GREENWAY EXTERIOR SIGN DESIGN STANDARDS FOR SIGN PANEL DETAILS NOT SHOWN



SIGN Gx-8

NOTES:

FOR SIGN STRUCTURE DETAILS NOT SHOWN AND NOTES, SEE SHEET NO. 2 OF 2.

SIGN STRUCTURES Gx-5, Gx-6, Gx-7 & Gx-8 AS SHOWN ARE NOT INTENDED FOR INSTALLATION WITHIN THE ROADWAY CLEAR ZONE OR IN OTHER AREAS WHERE THEY MAY BE SUSCEPTIBLE TO VEHICULAR COLLISION OR ARE OTHERWISE UNPROTECTED.

SIGN STRUCTURE PLACEMENT MAY BE SUBJECT TO OTHER REQUIREMENTS OR RESTRICTIONS ON A CASE-BY-CASE BASIS.

INDIVIDUAL SIGN STRUCTURE LOCATION AND PLACEMENT SHALL BE THE RESPONSIBILITY OF THE ENGINEER OF RECORD FOR EACH SIGN STRUCTURE INSTALLATION.

Note: This drawing is not to scale. Follow dimensions.

REV.	DATE	DESCRIPTION	APPROVED

T:\Working\15680 - Widwood - Streeter\_Road\_Bridge\Drawings\Bridge\CDC - Bridge\_Template.dwg

**GENERAL NOTES:**

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS - 2013 (6TH EDITION) AND ALUMINUM ASSOCIATION 2015 ALUMINUM DESIGN MANUAL.

CONCRETE FOR FOUNDATIONS SHALL BE CLASS B CONCRETE, IN ACCORDANCE WITH THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, WITH A COMPRESSIVE STRENGTH OF  $f'c = 4,000$  PSI @ 28 DAYS.

ALL EXPOSED EDGES OF THE CONCRETE SHALL HAVE A 3/4" CHAMFER.

ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615 GRADE 60,  $Fy=60,000$  PSI.

ALL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A775/A775M. MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1 1/2", UNLESS NOTED OTHERWISE.

ALL CAST-IN-PLACE ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 36 BOLTS WITH 90° BEND UNLESS NOTED OTHERWISE.

ALL CAST-IN-PLACE CONCRETE ANCHORS ARE TO BE TIGHTENED TO A "SNUG-TIGHT" CONDITION.

ALL ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED BY THE HOT-DIP PROCESS IN ACCORDANCE WITH ASTM A153.

NON-SHRINK GROUT SHALL BE NON-METALLIC, PRE-PACKAGED GROUT CONFORMING TO CORPS OF ENGINEERS SPECIFICATION CRD C621, WITH A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS WHEN TESTED ACCORDING TO ASTM C109.

THE SIGN STRUCTURE SHALL BE THE SERIES 3 POST AND PANEL SYSTEM BY SIGNCOMP AND SHALL INCLUDE THE SERIES 3-3 1/4" SQ. POST, PANEL ADAPTOR, REVEAL, CAP AND ALL OTHER APPURTENANCES NECESSARY FOR THE COMPLETE INSTALLATION PER THE MANUFACTURER.

THE BASE PLATE MATERIAL SHALL BE ALUMINUM, 6061-T6 IN ACCORDANCE WITH ASTM B209.

WELD FILLER MATERIAL SHALL BE ALUMINUM, 5356 AND COMPLY WITH AWS A5.10.

ALL WELDING SHALL COMPLY WITH AWS D1.2 "STRUCTURAL WELDING CODE-ALUMINUM".

ALL EXPOSED WELDED JOINTS SHALL BE FILLED AND GROUND SMOOTH SO THAT NO SEAM IS VISIBLE WHEN PAINTED.

BOLTS, NUTS AND WASHERS SHALL BE 300 SERIES STAINLESS STEEL. WASHERS SHALL BE USED UNDER BOLT HEADS.

ALL HARDWARE AND FASTENERS WITHIN REACH SHALL BE VANDAL RESISTANT.

THE SURFACES OF ALUMINUM MEMBERS IN CONTACT WITH CONCRETE SHALL BE BACK PAINTED WITH BITUMINOUS PAINT OF THE CUT-BACK TYPE CONFORMING TO SPECIFICATION MIL-C-450 B (1) OR TT-C-494 OR METHACRYLATE TYPE LACQUERS CONFORMING TO MIL-L-19537C (2).

PROVIDE DRAIN HOLES IN SIGNCOMP MEMBERS IN LOCATIONS AS NEEDED TO PREVENT THE ACCUMULATION OF MOISTURE IN THE MEMBERS.

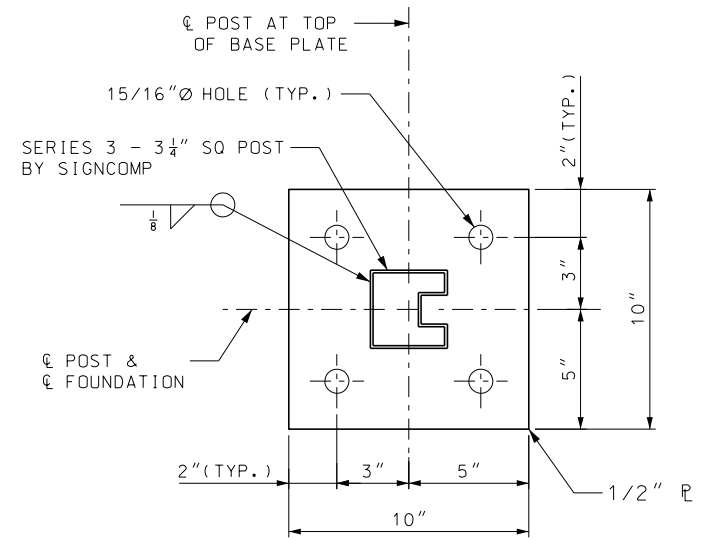
HOLES SHALL BE LOCATED TO BE INCONSPICUOUS AND SUCH THAT DRAINAGE DOES NOT OCCUR ONTO SIGNS OR OTHER SURFACES SUBJECT TO STAINING.

PROVIDE COLOR-COORDINATED STAINLESS STEEL BUG MESH OVER DRAIN HOLES.

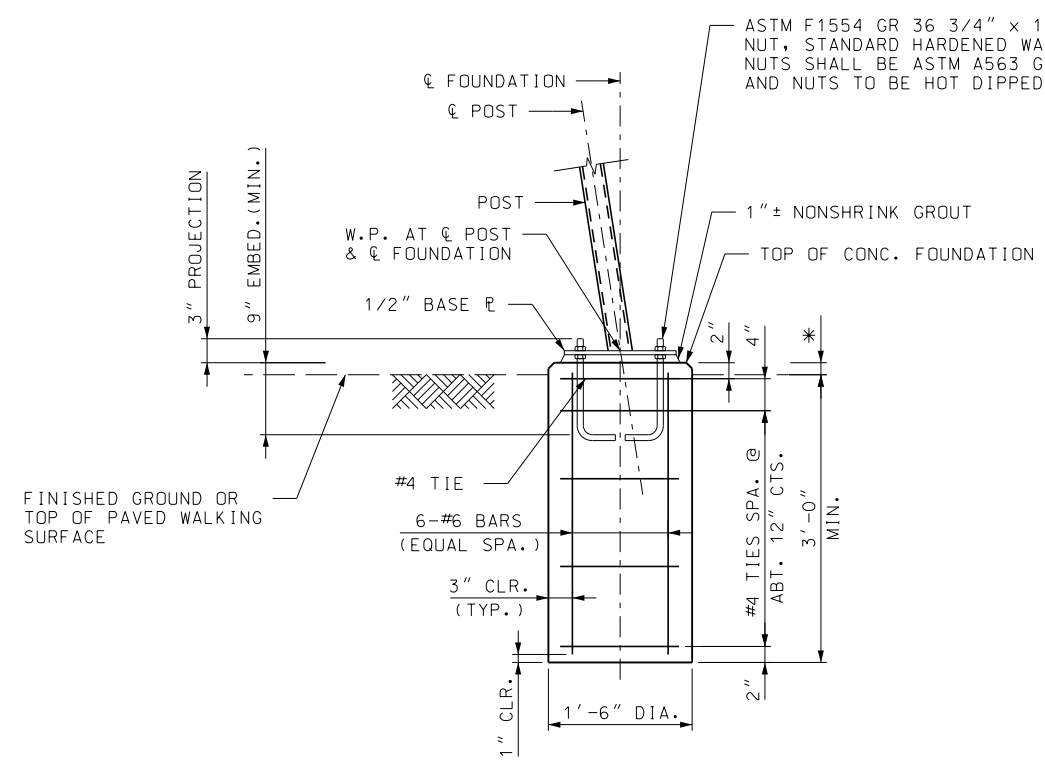
FOUNDATIONS SHOWN IN THE PLANS HAVE BEEN DESIGNED BASED ON THE PRESUMPTIVE VALUES FOUND IN IBC-2009, TABLE 1806.2, FOR CLASS 5 SOIL MATERIALS. THE FOUNDATIONS SHOWN ARE SUITABLE FOR CONSTRUCTION IN ANY CLASS 5 SOIL OR BETTER. CONSTRUCTION OF THE FOUNDATIONS IN LESSER SOILS SUCH AS MUD, ORGANIC SOILS OR UNPREPARED SOILS IS NOT COVERED BY THIS STANDARD DESIGN AND WILL REQUIRE FURTHER EVALUATION.

THE FINISH ON THE SIGN STRUCTURE (POSTS, BRACES AND PLATES) SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GREAT RIVERS GREENWAYS EXTERIOR SIGN DESIGN STANDARDS AND SPECIFICATIONS.

PROVIDE 1/2" JOINT FILLER AROUND FOUNDATION AT PAVED WALKING SURFACE LOCATIONS.

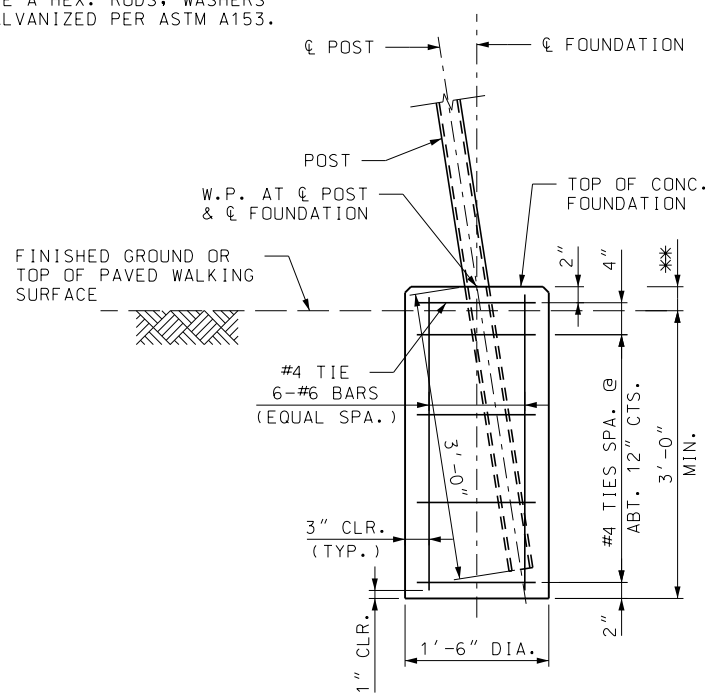


**PLAN-BASE PLATE & ANCHOR BOLTS**



**SECTION THRU CONCRETE FOUNDATION**

BASE PLATE OPTION



**SECTION THRU CONCRETE FOUNDATION**

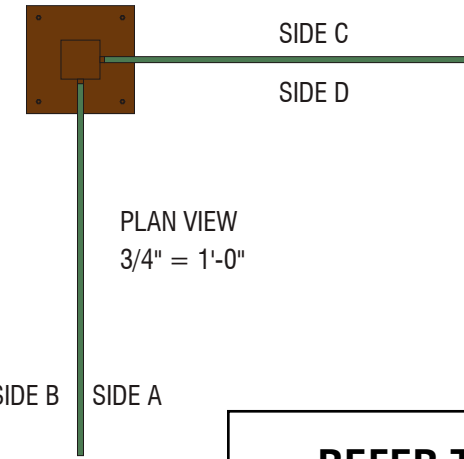
DIRECT BURY OPTION

TABLE OF DIMENSIONS		
SURFACE TYPE	*	**
FINISHED GROUND	1 1/2"	3"
PAVED WALKING SURFACE	3/4"	2 1/4"

REV.	DATE	DESCRIPTION	APPROVED

Note: This drawing is not to scale. Follow dimensions.

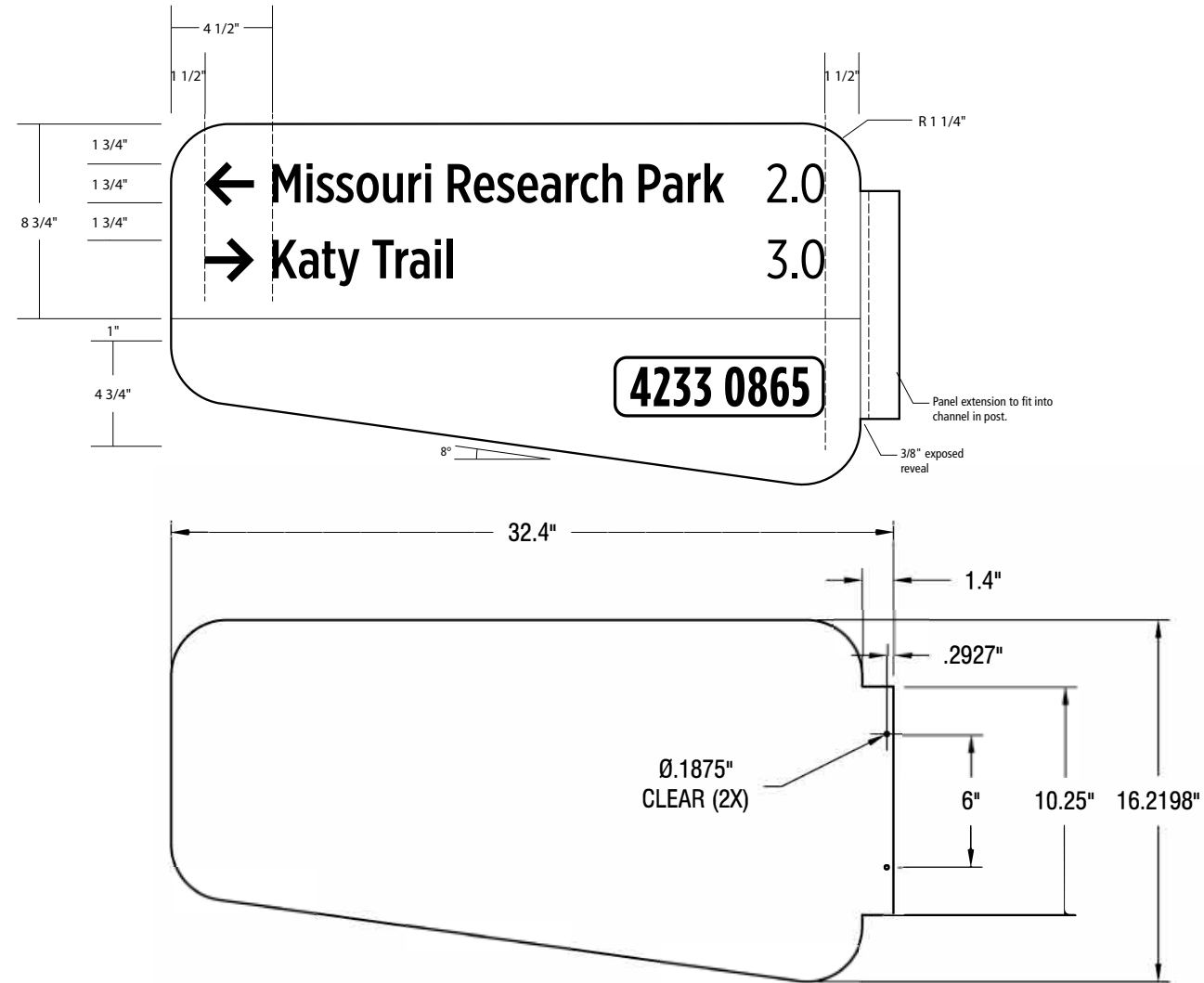
GX-99 2 Flag Option



**REFER TO PAGES 39-41 FOR STRUCTURAL SIGNAGE DETAILS**



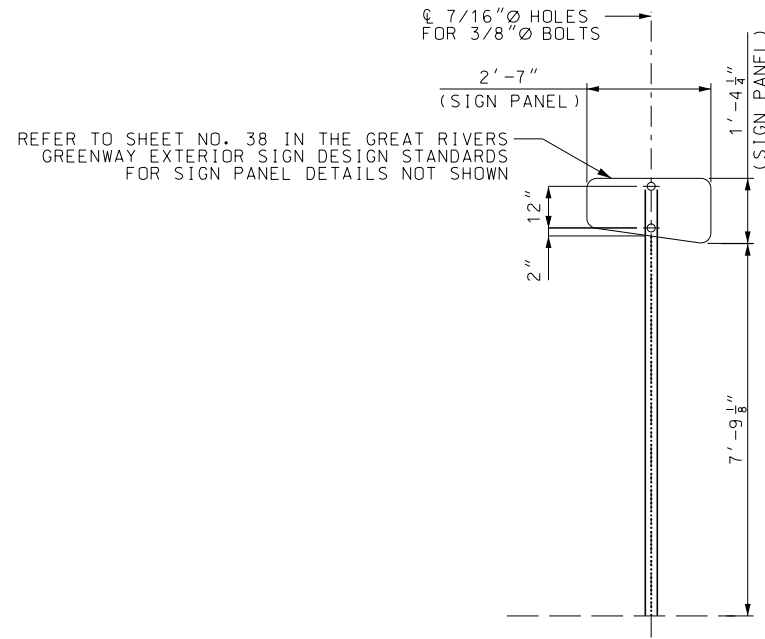
1/2" aluminum panel (refer to specifications)



Front View

Side View

Back View



**SIGN Gx-9**

**GENERAL NOTES:**

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS. LUMINAIRES AND TRAFFIC SIGNALS - 1985 (EXCEPT 2001 AND LATEST INTERIMS FOR STRUCTURAL STEEL POSTS).

POSTS AND ANCHOR SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION PER SECTION 1080 OF THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

METAL PROJECTING BEYOND THE PLANE OF THE PLATE FACE WILL NOT BE ALLOWED.

REMOVE ALL GALVANIZING RUNS OR BEADS IN THE WASHER AREA.

INSTALLATION OF THE BREAKAWAY ASSEMBLY SYSTEM INCLUDING HARDWARE, BOLTS, NUTS, WASHERS AND ALL OTHER APPURTENANCES NECESSARY FOR THE COMPLETE INSTALLATION SHALL BE PER THE MANUFACTURERS REQUIREMENTS.

THE THREADS SHALL BE BURRED AT THE NUT USING A CENTER PUNCH TO PREVENT NUT FROM LOOSENING.

ALL BREAKAWAY DEVICES USED ON AN INSTALLATION SHALL BE CERTIFIED NCHRP 350 COMPLIANT.

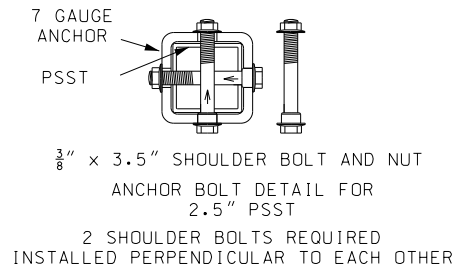
THE FINISH ON THE POSTS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF GREAT RIVERS GREENWAYS EXTERIOR SIGN DESIGN STANDARDS AND SPECIFICATIONS.

THIS SHEET IS BASED ON MISSOURI STANDARD PLANS DRAWING 903.03 WITH AN EFFECTIVE DATE 01/01/2020. THE LATEST EDITION OF THIS DRAWING SHALL BE USED IF DIFFERENT THAN THE DETAILS SHOWN.

SIGN STRUCTURE Gx-9 AS SHOWN MAY BE INSTALLED WITHIN THE ROADWAY CLEAR ZONE OR IN OTHER AREAS WHERE THEY MAY BE SUSCEPTIBLE TO VEHICULAR COLLISION OR ARE OTHERWISE UNPROTECTED.

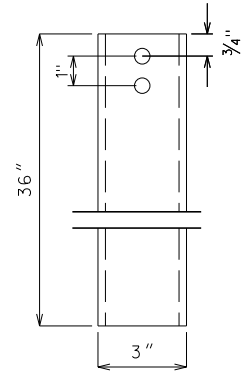
SIGN STRUCTURE PLACEMENT MAY BE SUBJECT TO OTHER REQUIREMENTS OR RESTRICTIONS ON A CASE-BY-CASE BASIS.

INDIVIDUAL SIGN STRUCTURE LOCATION AND PLACEMENT SHALL BE THE RESPONSIBILITY OF THE ENGINEER OF RECORD FOR EACH SIGN STRUCTURE INSTALLATION.

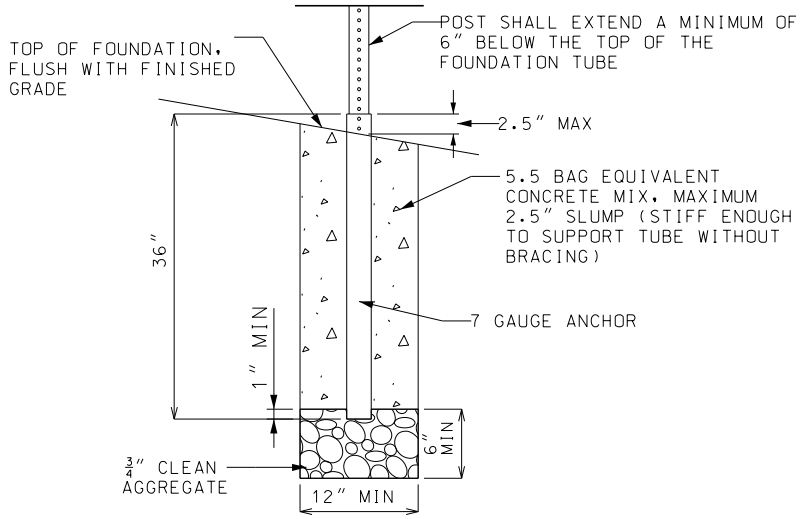


**ANCHOR BOLT DETAIL**

POST AND ANCHOR DATA TABLE					
POST		ANCHOR NORMAL OR OMNI-DIRECTIONAL		BREAKAWAY NEEDED	
GAUGE	SIZE	GAUGE	SIZE	1	2
12	2.5" x 2.5"	7	3" X 3" X 36" OD	NO	YES



**7 GAUGE ANCHOR FABRICATION DETAIL**

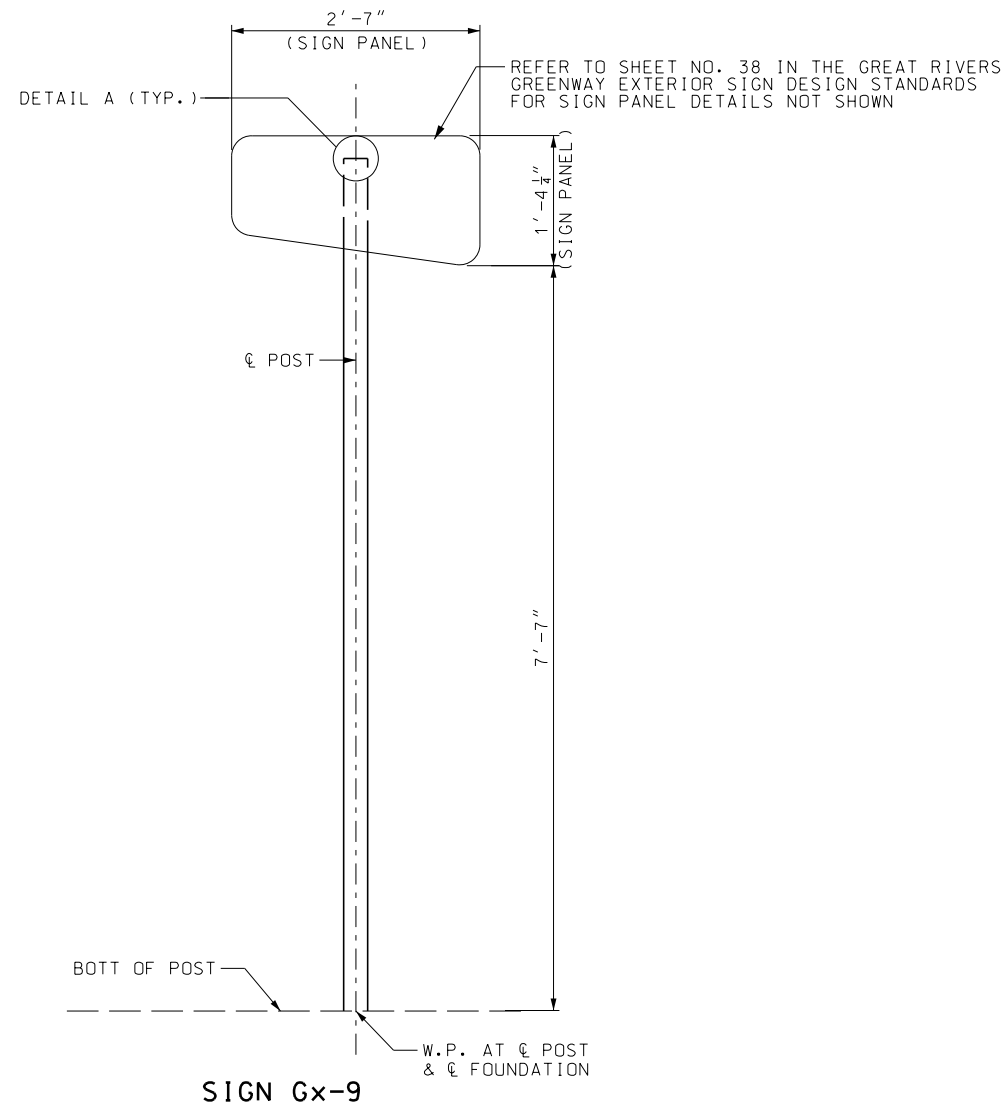


**CONCRETE FOUNDATION DETAIL  
 PERFORATED SQUARE STEEL TUBE (PSST) SIGN POST OPTION**

Note: This drawing is not to scale. Follow dimensions.

REV.	DATE	DESCRIPTION	APPROVED

T:\Working\15080 - Widened - Strecker Road Bridge\Drawings\Bridges\CDG - Bridge - template.dwg



**NOTES:**

FOR DETAIL A, SEE SHEET NO. 3 OF 3.

FOR SIGN STRUCTURE DETAILS FOR THIS OPTION NOT SHOWN, SEE SHEET NO. 3 OF 3.

**ALUMINUM TUBE WITH BREAKAWAY SUPPORT SYSTEM OPTION**

Note: This drawing is not to scale. Follow dimensions.

**GENERAL NOTES:**

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS - 2013 (6TH EDITION) AND ALUMINUM ASSOCIATION 2015 ALUMINUM DESIGN MANUAL.

CONCRETE FOR FOUNDATIONS SHALL BE CLASS B CONCRETE, IN ACCORDANCE WITH THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, WITH A COMPRESSIVE STRENGTH OF  $f'c = 4,000$  PSI @ 28 DAYS.

ALL EXPOSED EDGES OF THE CONCRETE SHALL HAVE A 3/4" CHAMFER.

ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615 GRADE 60,  $Fy=60,000$  PSI.

ALL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A775/A775M.

MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1 1/2", UNLESS NOTED OTHERWISE.

THE BREAKAWAY SUPPORT SYSTEM BY TRANSPD INDUSTRIES SHALL INCLUDE THE BREAK-SAFE MODEL AS3 BRACKETS, HARDWARE, COUPLINGS, ANCHORS AND ALL OTHER APPURTENANCES NECESSARY FOR THE COMPLETE INSTALLATION PER THE MANUFACTURER.

ALL BRACKETS, HARDWARE, COUPLINGS, ANCHORS, BOLTS, NUTS AND WASHERS FOR THE BREAKAWAY SUPPORT SYSTEM SHALL BE GALVANIZED BY THE HOT-DIP PROCESS IN ACCORDANCE WITH ASTM A153.

THE BREAKAWAY SUPPORT SYSTEM BY TRANSPD INDUSTRIES IS BASED ON DETAILS WITH AN EFFECTIVE DATE JANUARY 2015. THE LATEST EDITION OF THESE DETAILS SHALL BE USED IF DIFFERENT THAN THE DETAILS SHOWN.

THE STRUCTURAL TUBING MATERIAL SHALL BE ALUMINUM, 6063-T6 IN ACCORDANCE WITH ASTM B429.

THE CAP MATERIAL SHALL BE ALUMINUM, 6061-T6 IN ACCORDANCE WITH ASTM B209.

WELD FILLER MATERIAL SHALL BE ALUMINUM, 5356 AND COMPLY WITH AWS A5.10.

ALL WELDING SHALL COMPLY WITH AWS D1.2 "STRUCTURAL WELDING CODE-ALUMINUM".

ALL EXPOSED WELDED JOINTS SHALL BE FILLED AND GROUND SMOOTH SO THAT NO SEAM IS VISIBLE WHEN PAINTED.

BOLTS, NUTS AND WASHERS SHALL BE 300 SERIES STAINLESS STEEL. WASHERS SHALL BE USED UNDER BOLT HEADS.

ALL HARDWARE AND FASTENERS WITHIN REACH SHALL BE VANDAL RESISTANT.

PROVIDE DRAIN HOLES IN RT TUBES IN LOCATIONS AS NEEDED TO PREVENT THE ACCUMULATION OF MOISTURE IN THE MEMBERS.

HOLES SHALL BE LOCATED TO BE INCONSPICUOUS AND SUCH THAT DRAINAGE DOES NOT OCCUR ONTO SIGNS OR OTHER SURFACES SUBJECT TO STAINING.

PROVIDE COLOR-COORDINATED STAINLESS STEEL BUG MESH OVER DRAIN HOLES.

FOUNDATIONS SHOWN IN THE PLANS HAVE BEEN DESIGNED BASED ON THE PRESUMPTIVE VALUES FOUND IN IBC-2009, TABLE 1806.2, FOR CLASS 5 SOIL MATERIALS. THE FOUNDATIONS SHOWN ARE SUITABLE FOR CONSTRUCTION IN ANY CLASS 5 SOIL OR BETTER. CONSTRUCTION OF THE FOUNDATIONS IN LESSER SOILS SUCH AS MUD, ORGANIC SOILS OR UNPREPARED SOILS IS NOT COVERED BY THIS STANDARD DESIGN AND WILL REQUIRE FURTHER EVALUATION.

THE FINISH ON THE SIGN STRUCTURE (POSTS AND PLATES) SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GREAT RIVERS GREENWAYS EXTERIOR SIGN DESIGN STANDARDS AND SPECIFICATIONS.

PROVIDE 1/2" JOINT FILLER AROUND FOUNDATION AT PAVED WALKING SURFACE LOCATIONS.

SIGN STRUCTURE Gx-9 AS SHOWN MAY BE INSTALLED WITHIN THE ROADWAY CLEAR ZONE OR IN OTHER AREAS WHERE THEY MAY BE SUSCEPTIBLE TO VEHICULAR COLLISION OR ARE OTHERWISE UNPROTECTED.

SIGN STRUCTURE PLACEMENT MAY BE SUBJECT TO OTHER REQUIREMENTS OR RESTRICTIONS ON A CASE-BY-CASE BASIS.

INDIVIDUAL SIGN STRUCTURE LOCATION AND PLACEMENT SHALL BE THE RESPONSIBILITY OF THE ENGINEER OF RECORD FOR EACH SIGN STRUCTURE INSTALLATION.



David Burdick, P.E.  
MO# PE-024015

DRAWN BY  
DB

CHECKED BY  
TRN

DATE  
February 3, 2020

**GREAT RIVERS GREENWAY  
SIGN STRUCTURE STANDARDS  
DETAILS OF SIGN STRUCTURE Gx-9**

STD NO  
**Gx-902**

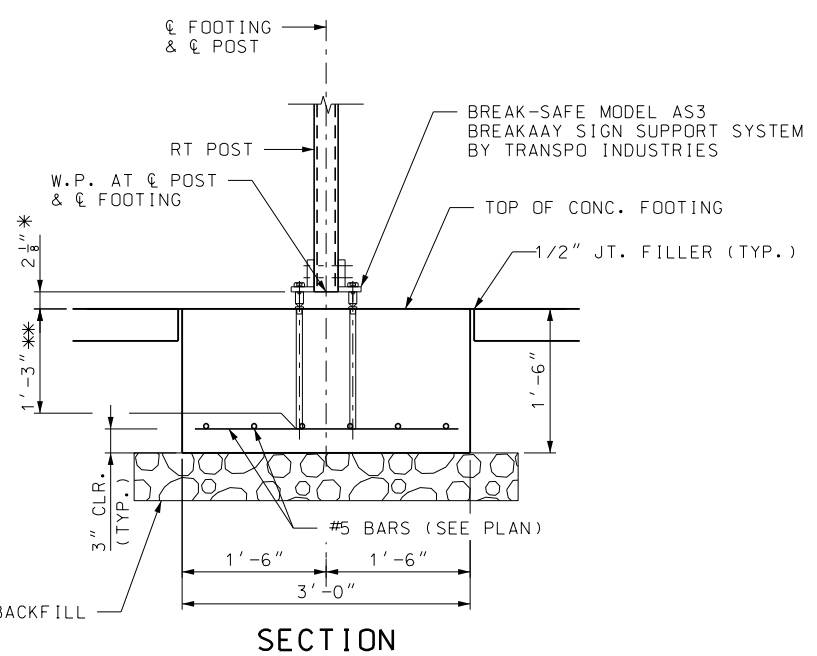
SHEET NO.  
**2 OF 3**

SHEET NO.  
**40**

REV.	DATE	DESCRIPTION	APPROVED

T:\Working\15080 - Wildwood - Strecker Road Bridge\Drawings\Bridge\CDG template.dwg

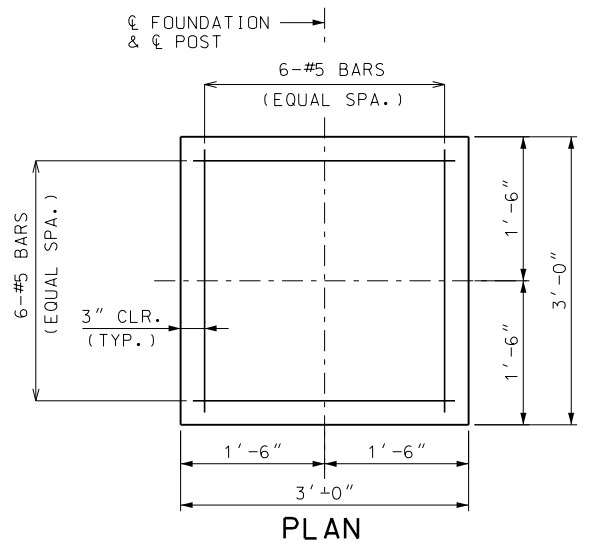




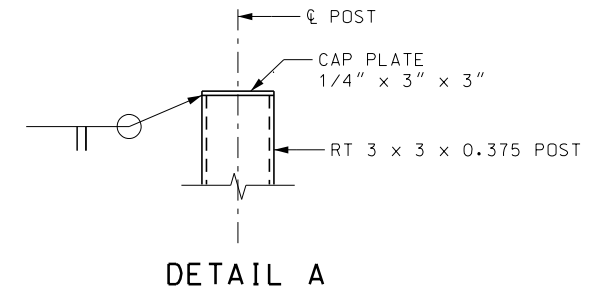
**SECTION**

**DETAILS OF THICKENED SIDEWALK OPTION**

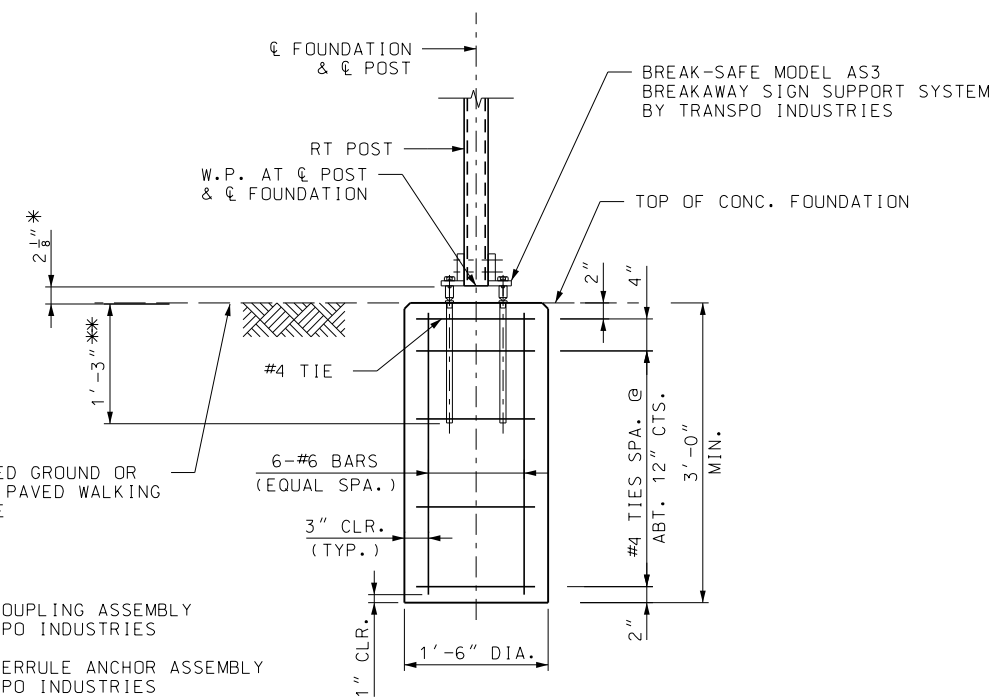
- \* TYPE A COUPLING ASSEMBLY BY TRANSPD INDUSTRIES
- \*\* TYPE A FERRULE ANCHOR ASSEMBLY BY TRANSPD INDUSTRIES



**PLAN**

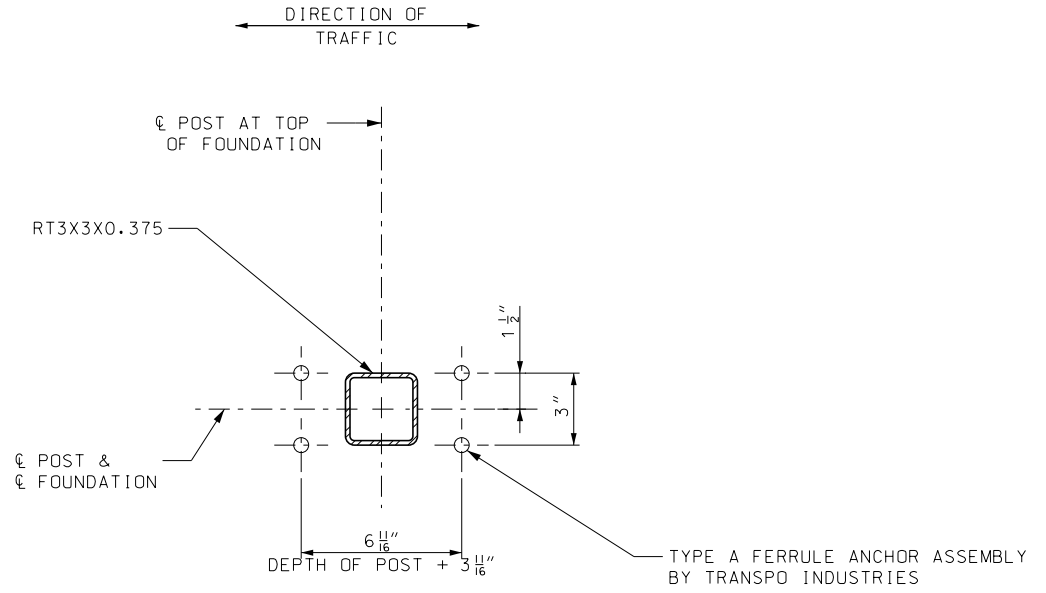


**DETAIL A**



**SECTION THRU CONCRETE FOUNDATION**

- \* TYPE A COUPLING ASSEMBLY BY TRANSPD INDUSTRIES
- \*\* TYPE A FERRULE ANCHOR ASSEMBLY BY TRANSPD INDUSTRIES



**PLAN-ANCHOR ASSEMBLY**

BRACKETS NOT SHOWN FOR CLARITY

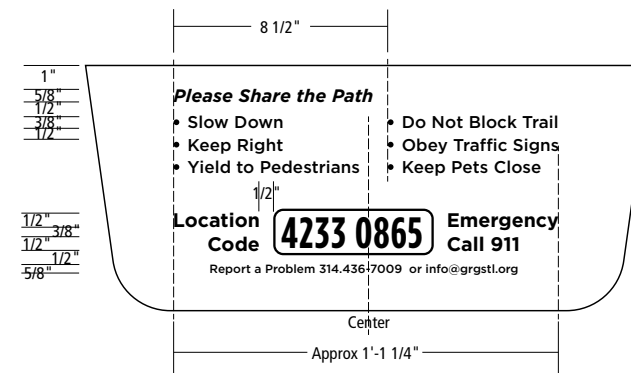
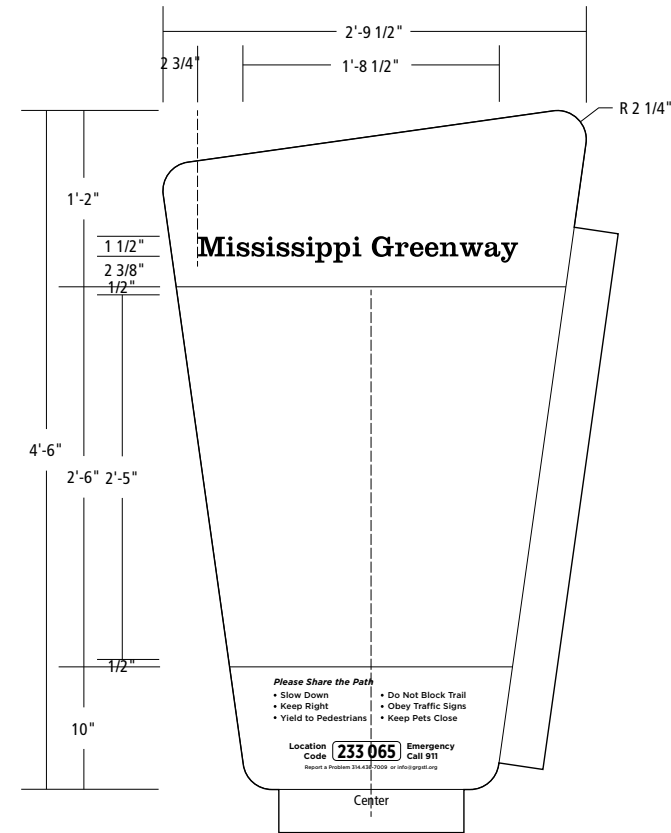
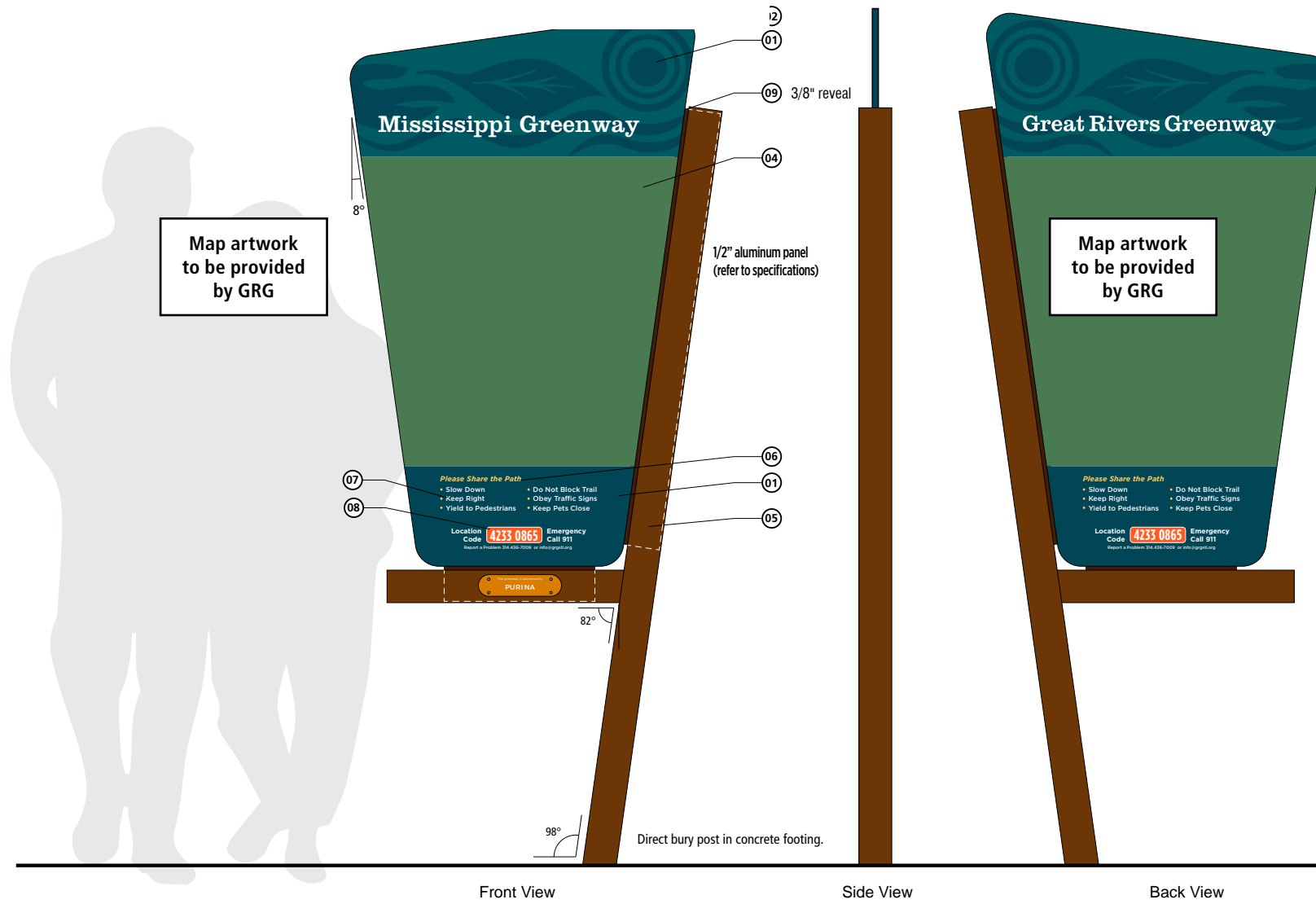
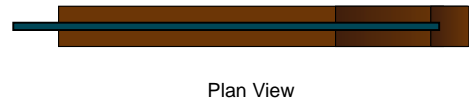
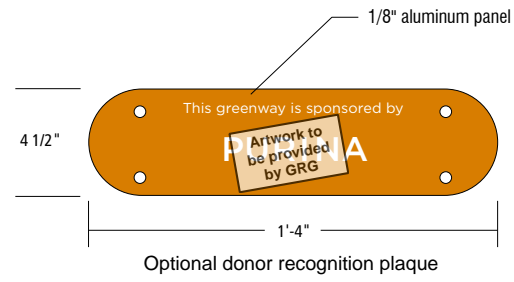
NOTES:  
 FOR SIGN STRUCTURE NOTES FOR THIS OPTION,  
 SEE SHEET NO. 2 OF 3.

**ALUMINUM TUBE WITH BREAKAWAY  
 SUPPORT SYSTEM OPTION**

Note: This drawing is not to scale. Follow dimensions.

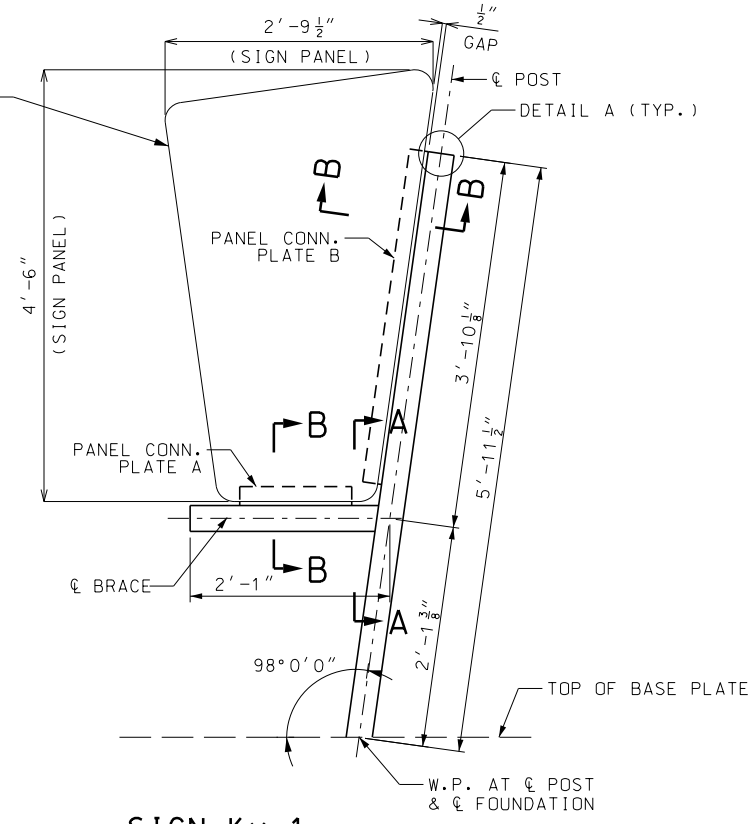
REV.	DATE	DESCRIPTION	APPROVED

Great Rivers Greenway Sign Array: KX-1 Main Trailhead Kiosk - with alternate backs



Download the art template for this sign at:  
<https://greatriversgreenway.sharefile.com/d-s79ebc22d72f24afbb08a953ff202aebf>

REFER TO SHEET NO. 42 IN THE GREAT RIVERS GREENWAY EXTERIOR SIGN DESIGN STANDARDS FOR SIGN PANEL DETAILS NOT SHOWN



SIGN Kx-1

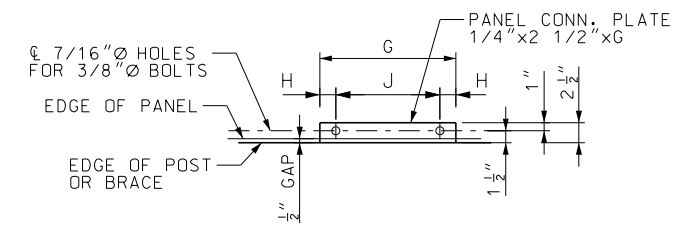


TABLE OF PLATE DIMENSIONS			
PLATE	G	H	J
A	1'-2"	2"	10"
B	3'-6"	3"	3 SPA. @ 12"

PANEL CONNECTION PLATE DETAIL

Note: This drawing is not to scale. Follow dimensions.

GENERAL NOTES:

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS - 2013 (6TH EDITION) AND ALUMINUM ASSOCIATION 2015 ALUMINUM DESIGN MANUAL.

CONCRETE FOR FOUNDATIONS SHALL BE CLASS B CONCRETE, IN ACCORDANCE WITH THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, WITH A COMPRESSIVE STRENGTH OF  $f'c = 4,000$  PSI @ 28 DAYS.

ALL EXPOSED EDGES OF THE CONCRETE SHALL HAVE A 3/4" CHAMFER.

ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615 GRADE 60,  $Fy=60,000$  PSI.

ALL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A775/A775M.

MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1 1/2", UNLESS NOTED OTHERWISE.

ALL CAST-IN-PLACE ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 36 BOLTS WITH 90° BEND UNLESS NOTED OTHERWISE.

ALL CAST-IN-PLACE CONCRETE ANCHORS ARE TO BE TIGHTENED TO A "SNUG-TIGHT" CONDITION.

ALL ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED BY THE HOT-DIP PROCESS IN ACCORDANCE WITH ASTM A153.

NON-SHRINK GROUT SHALL BE NON-METALLIC, PRE-PACKAGED GROUT CONFORMING TO CORPS OF ENGINEERS SPECIFICATION CRD C621, WITH A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS WHEN TESTED ACCORDING TO ASTM C109.

THE STRUCTURAL TUBING MATERIAL SHALL BE ALUMINUM, 6063-T6 IN ACCORDANCE WITH ASTM B429.

THE BASE PLATES AND CAP MATERIAL SHALL BE ALUMINUM, 6061-T6 IN ACCORDANCE WITH ASTM B209.

WELD FILLER MATERIAL SHALL BE ALUMINUM, 5356 AND COMPLY WITH AWS A5.10.

ALL WELDING SHALL COMPLY WITH AWS D1.2 "STRUCTURAL WELDING CODE-ALUMINUM".

ALL EXPOSED WELDED JOINTS SHALL BE FILLED AND GROUND SMOOTH SO THAT NO SEAM IS VISIBLE WHEN PAINTED.

BOLTS, NUTS AND WASHERS SHALL BE 300 SERIES STAINLESS STEEL. WASHERS SHALL BE USED UNDER BOLT HEADS.

ALL HARDWARE AND FASTENERS WITHIN REACH SHALL BE VANDAL RESISTANT.

THE SURFACES OF ALUMINUM MEMBERS IN CONTACT WITH CONCRETE SHALL BE BACK PAINTED WITH BITUMINOUS PAINT OF THE CUT-BACK TYPE CONFORMING TO SPECIFICATION MIL-C-450 B (1) OR TT-C-494 OR METHACRYLATE TYPE LACQUERS CONFORMING TO MIL-L-19537C (2).

PROVIDE DRAIN HOLES IN RT TUBES IN LOCATIONS AS NEEDED TO PREVENT THE ACCUMULATION OF MOISTURE IN THE MEMBERS.

HOLES SHALL BE LOCATED TO BE INCONSPICUOUS AND SUCH THAT DRAINAGE DOES NOT OCCUR ONTO SIGNS OR OTHER SURFACES SUBJECT TO STAINING.

PROVIDE COLOR-COORDINATED STAINLESS STEEL BUG MESH OVER DRAIN HOLES.

FOUNDATIONS SHOWN IN THE PLANS HAVE BEEN DESIGNED BASED ON THE PRESUMPTIVE VALUES FOUND IN IBC-2009, TABLE 1806.2, FOR CLASS 5 SOIL MATERIALS. THE FOUNDATIONS SHOWN ARE SUITABLE FOR CONSTRUCTION IN ANY CLASS 5 SOIL OR BETTER. CONSTRUCTION OF THE FOUNDATIONS IN LESSER SOILS SUCH AS MUD, ORGANIC SOILS OR UNPREPARED SOILS IS NOT COVERED BY THIS STANDARD DESIGN AND WILL REQUIRE FURTHER EVALUATION.

THE FINISH ON THE SIGN STRUCTURE (POSTS, BRACES AND PLATES) SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GREAT RIVERS GREENWAYS EXTERIOR SIGN DESIGN STANDARDS AND SPECIFICATIONS.

PROVIDE 1/2" JOINT FILLER AROUND FOUNDATION AT PAVED WALKING SURFACE LOCATIONS.

NOTES:

FOR SECTION A-A & B-B AND DETAIL A, SEE SHEET NO. 2 OF 2.

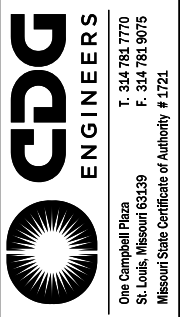
FOR SIGN STRUCTURE DETAILS NOT SHOWN, SEE SHEET NO. 2 OF 2.

SIGN STRUCTURE Kx-1 AS SHOWN IS NOT INTENDED FOR INSTALLATION WITHIN THE ROADWAY CLEAR ZONE OR IN OTHER AREAS WHERE THEY MAY BE SUSCEPTIBLE TO VEHICULAR COLLISION OR ARE OTHERWISE UNPROTECTED.

SIGN STRUCTURE PLACEMENT MAY BE SUBJECT TO OTHER REQUIREMENTS OR RESTRICTIONS ON A CASE-BY-CASE BASIS.

INDIVIDUAL SIGN STRUCTURE LOCATION AND PLACEMENT SHALL BE THE RESPONSIBILITY OF THE ENGINEER OF RECORD FOR EACH SIGN STRUCTURE INSTALLATION.

REV.	DATE	DESCRIPTION	APPROVED



David Burdick, P.E.  
MO# PE-024015

DRAWN BY  
DB

CHECKED BY  
TRN

DATE  
February 3, 2020

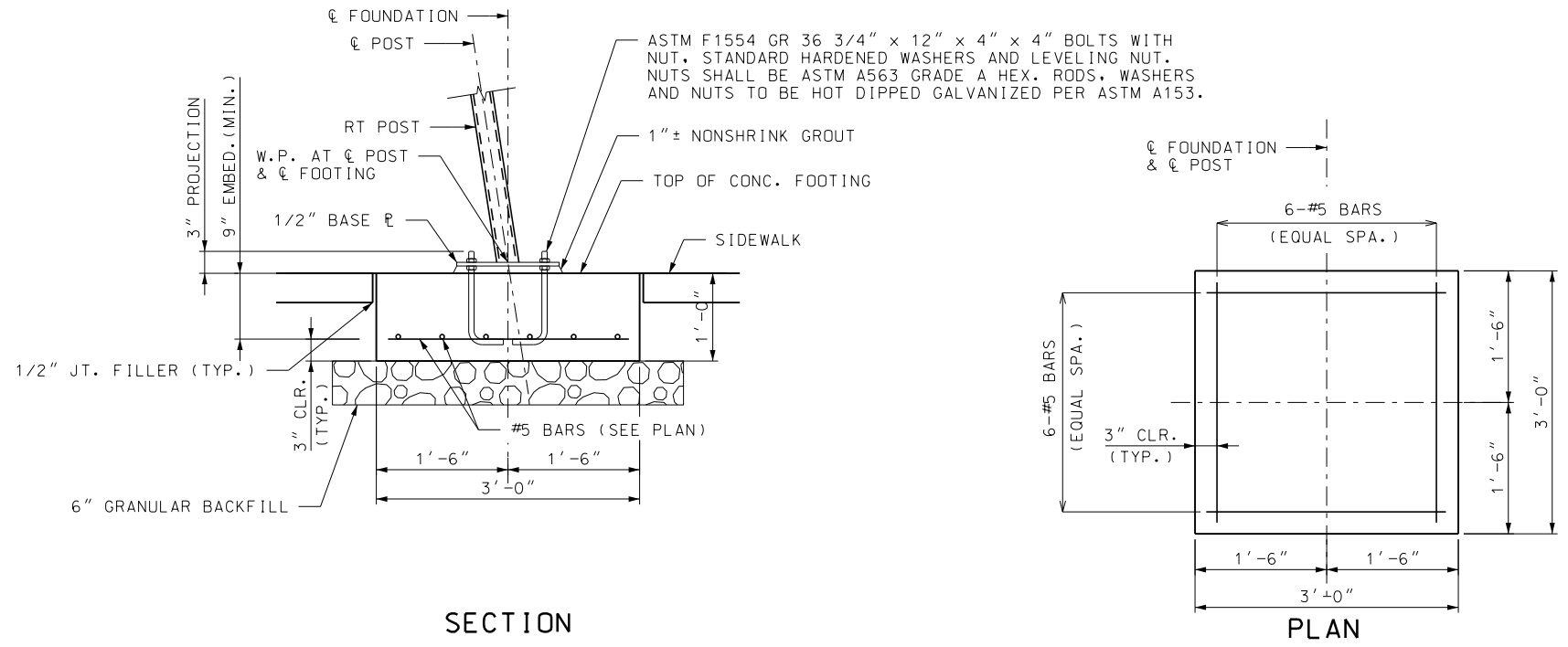
GREAT RIVERS GREENWAY  
SIGN STRUCTURE STANDARDS  
DETAILS OF SIGN STRUCTURE Kx-1

STD NO  
Kx-101

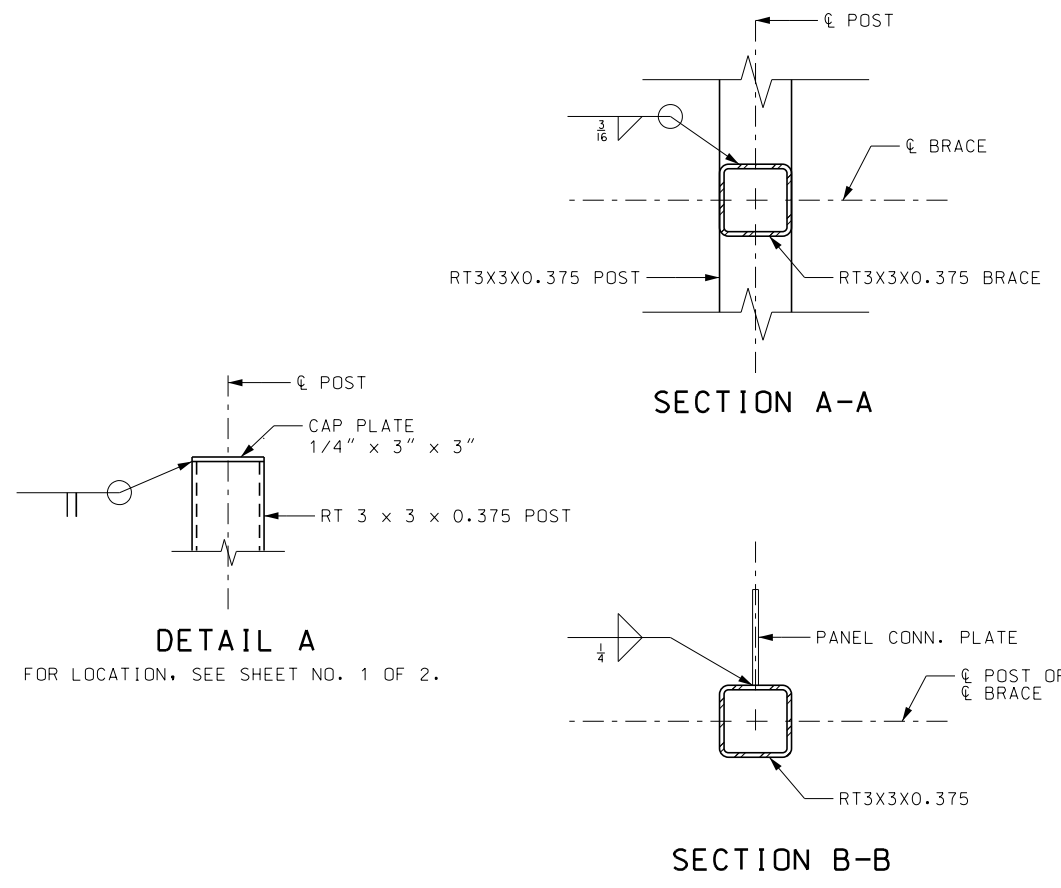
SHEET NO.  
1 OF 2

SHEET NO.  
43

T:\Working\15880 - Widwood - Streeter Road Bridge Drawings\Drawings\Bridge\CDG - Bridge Template.dgn

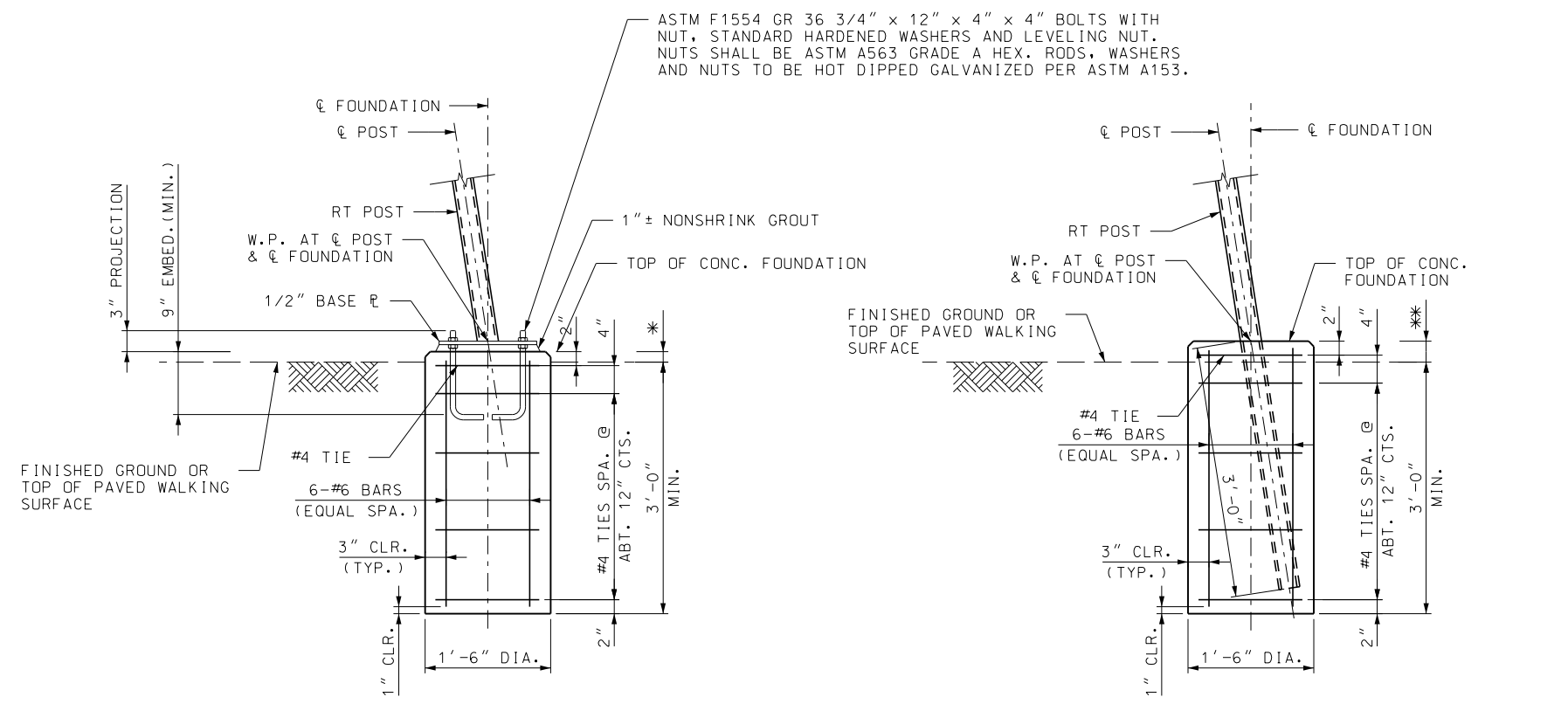


**SECTION**  
**DETAILS OF THICKENED SIDEWALK OPTION**



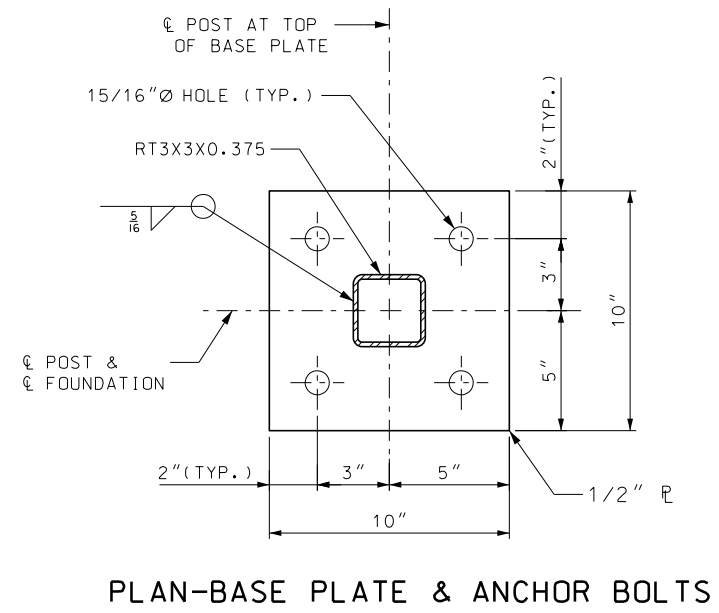
**DETAIL A**  
FOR LOCATION, SEE SHEET NO. 1 OF 2.

**SECTION B-B**



**SECTION THRU CONCRETE FOUNDATION**  
BASE PLATE OPTION

**SECTION THRU CONCRETE FOUNDATION**  
DIRECT BURY OPTION



**PLAN-BASE PLATE & ANCHOR BOLTS**

TABLE OF DIMENSIONS		
SURFACE TYPE	*	**
FINISHED GROUND	1 1/2"	3"
PAVED WALKING SURFACE	3/4"	2 1/4"

REV.	DATE	DESCRIPTION	APPROVED

Note: This drawing is not to scale. Follow dimensions.

T:\Working\15680 - Widened - Streeter Road Bridge Drawings\Bridge\006 - Bridge template.dwg

**CDG ENGINEERS**  
 T. 314.784.7770  
 F. 314.781.9075  
 One Campbell Plaza  
 St. Louis, Missouri 63139  
 Missouri State Certificate of Authority # 1721



David Burdick, P.E.  
MO# PE-024015

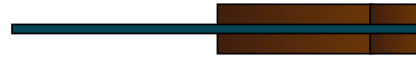
DRAWN BY  
DB  
 CHECKED BY  
TRN  
 DATE  
February 3, 2020

**GREAT RIVERS GREENWAY**  
**SIGN STRUCTURE STANDARDS**  
**DETAILS OF SIGN STRUCTURE Kx-1**

STD NO  
**Kx-102**  
 SHEET NO.  
**2 OF 2**

SHEET NO.  
**44**

Great Rivers Greenway Sign Array: KX-2 Secondary Trailhead Kiosk



Plan View

REFER TO PAGES 47 & 48 FOR STRUCTURAL SIGNAGE DETAILS



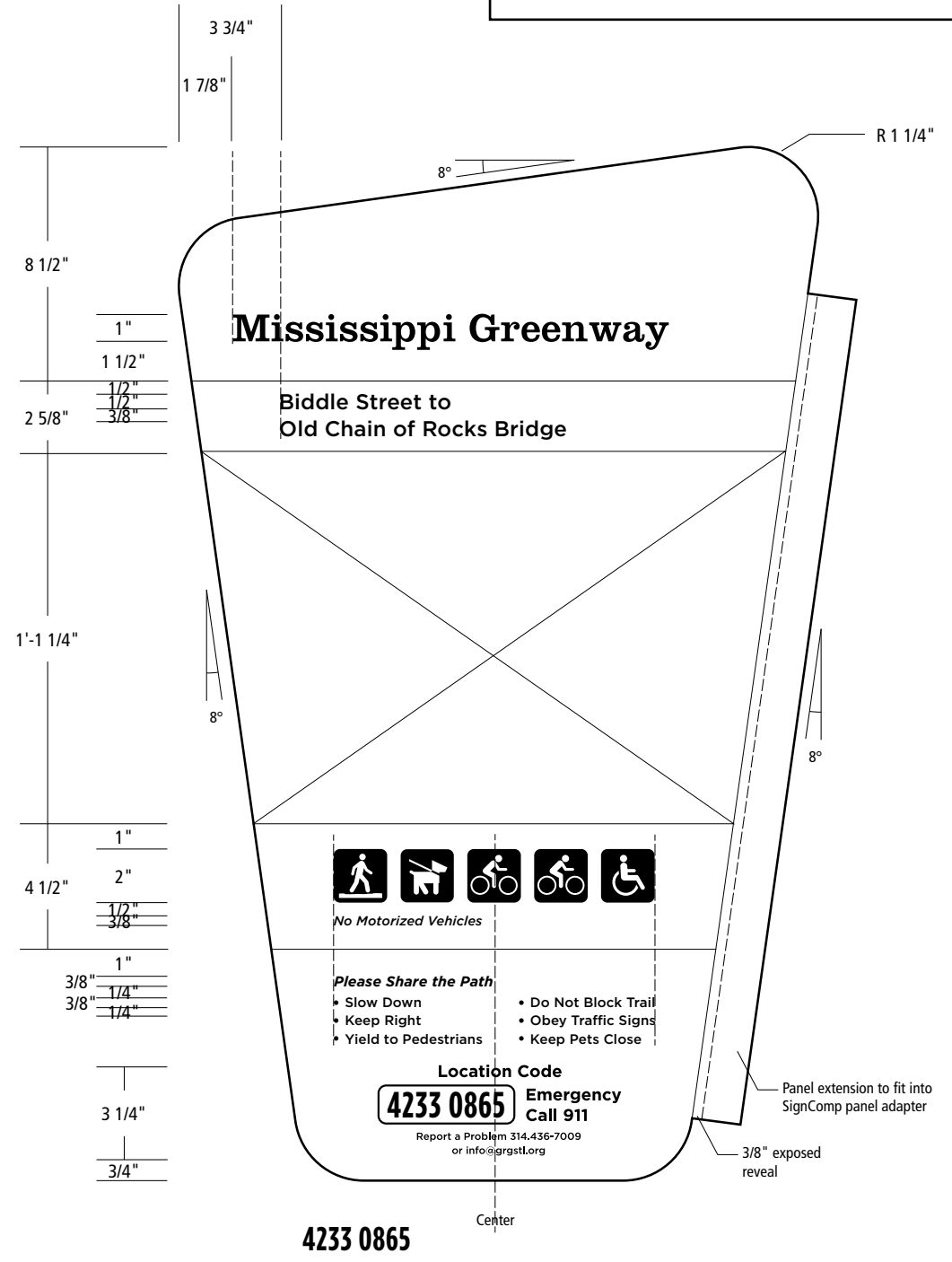
Front View

Side View

Back View

1/2" aluminum panel (refer to specifications)

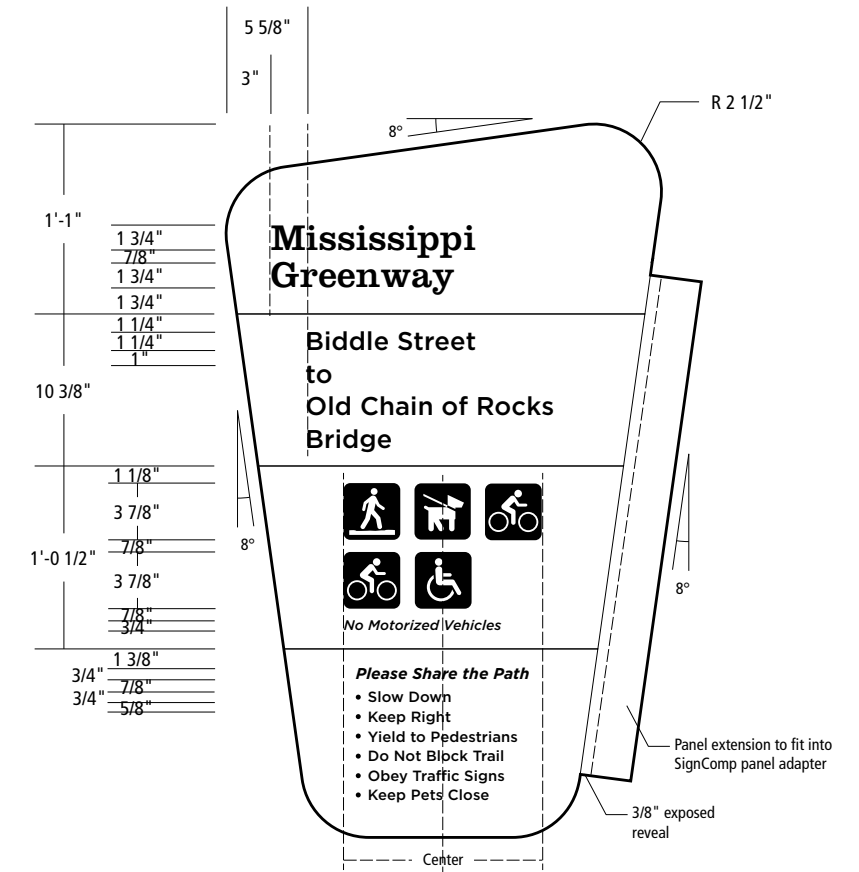
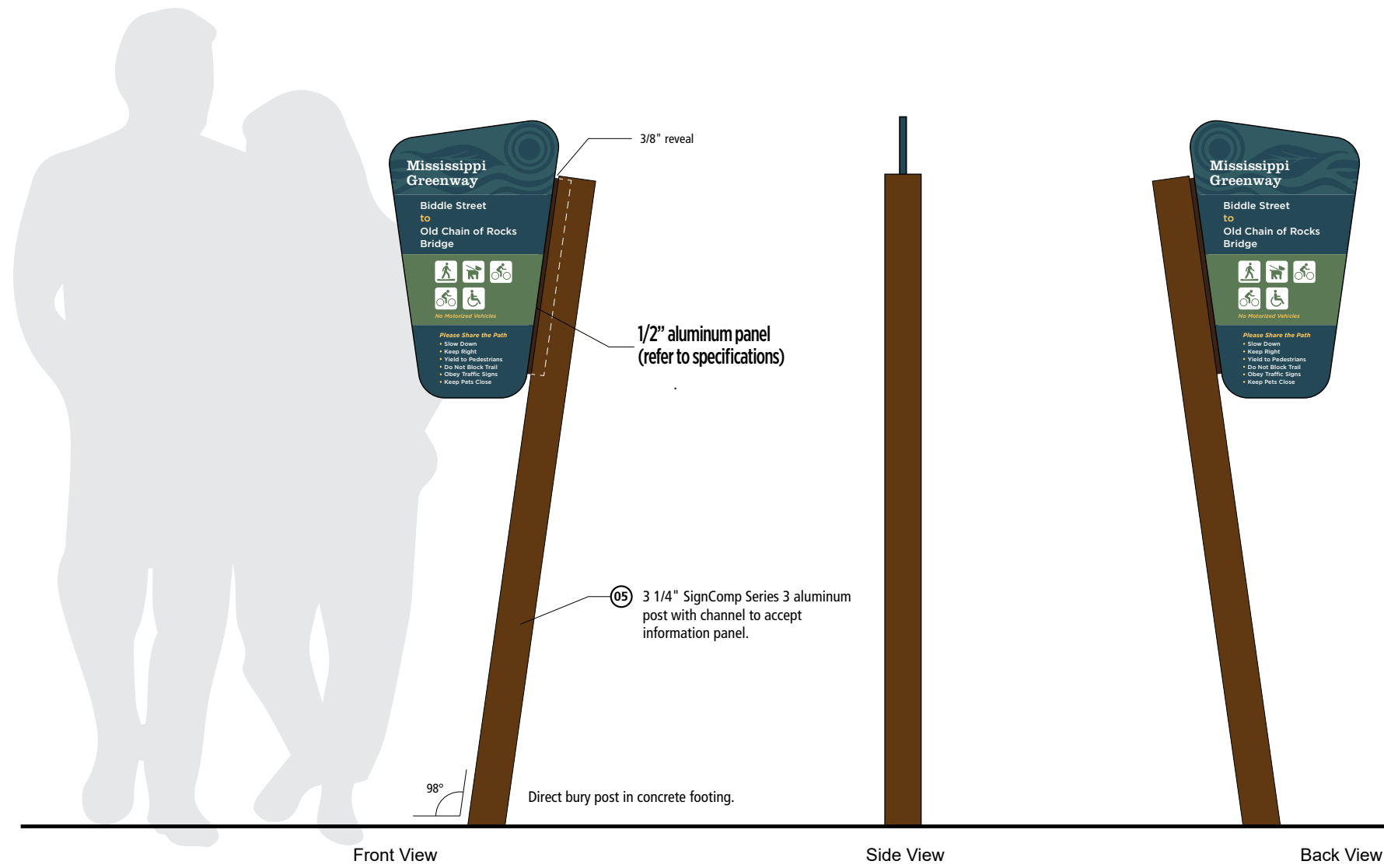
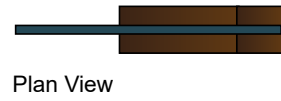
Direct bury post in concrete footing.



Download the art template for this sign at: <https://greativersgreenway.sharefile.com/d-se5896c6b99a44d4a>

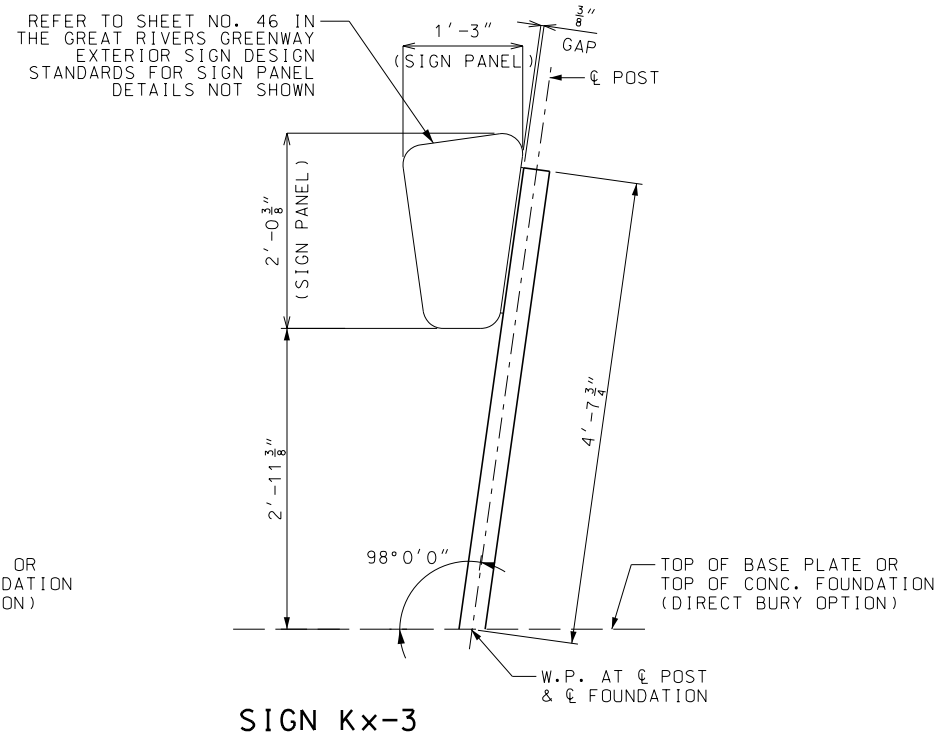
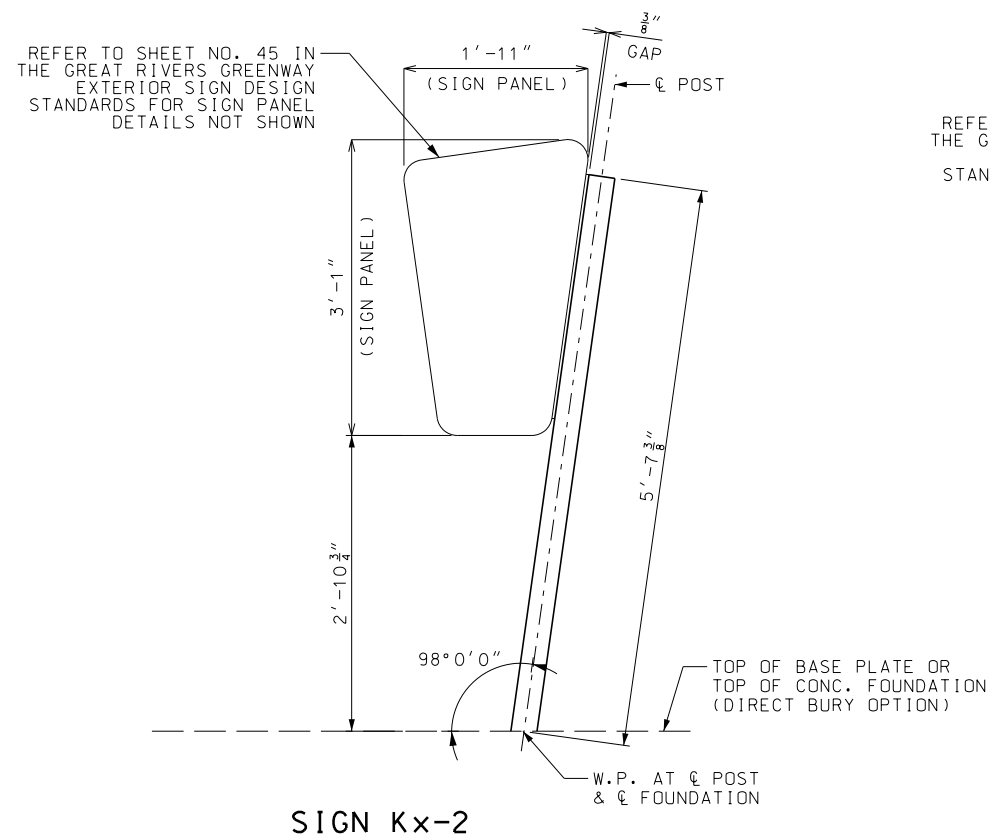
Great Rivers Greenway Sign Array: KX-3 Trail Information

REFER TO PAGES 47 & 48 FOR STRUCTURAL SIGNAGE DETAILS



Download the art template for this sign at: <https://greatriversgreenway.sharefile.com/d-s0606c1d588249b9a>

T:\Working\15680 - Widened - Strecker Road Bridge\Drawings\Bridge\CDG - Bridge - template.dgn



**NOTES:**

FOR SIGN STRUCTURE DETAILS NOT SHOWN AND NOTES, SEE SHEET NO. 2 OF 2.

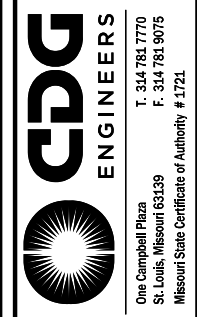
SIGN STRUCTURES Kx-2 AND Kx-3 AS SHOWN ARE NOT INTENDED FOR INSTALLATION WITHIN THE ROADWAY CLEAR ZONE OR IN OTHER AREAS WHERE THEY MAY BE SUSCEPTIBLE TO VEHICULAR COLLISION OR ARE OTHERWISE UNPROTECTED.

SIGN STRUCTURE PLACEMENT MAY BE SUBJECT TO OTHER REQUIREMENTS OR RESTRICTIONS ON A CASE-BY-CASE BASIS.

INDIVIDUAL SIGN STRUCTURE LOCATION AND PLACEMENT SHALL BE THE RESPONSIBILITY OF THE ENGINEER OF RECORD FOR EACH SIGN STRUCTURE INSTALLATION.

Note: This drawing is not to scale. Follow dimensions.

REV.	DATE	DESCRIPTION	APPROVED



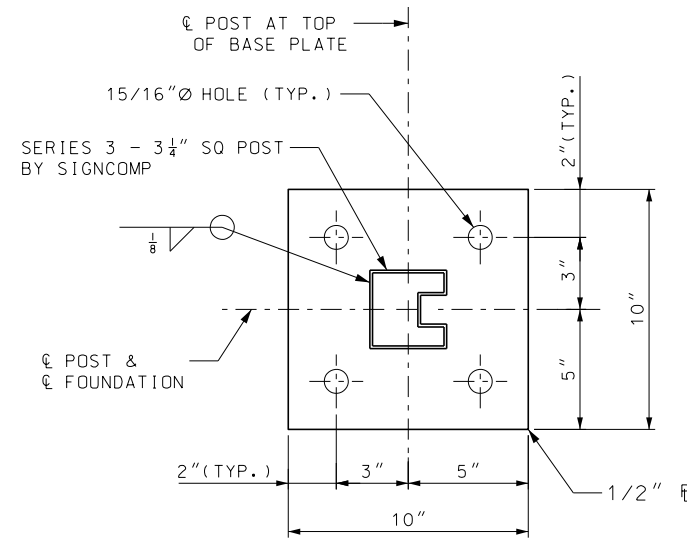
David Burdick, P.E.  
 MO# PE-024015

DRAWN BY  
 DB  
 CHECKED BY  
 TRN  
 DATE  
 February 3, 2020

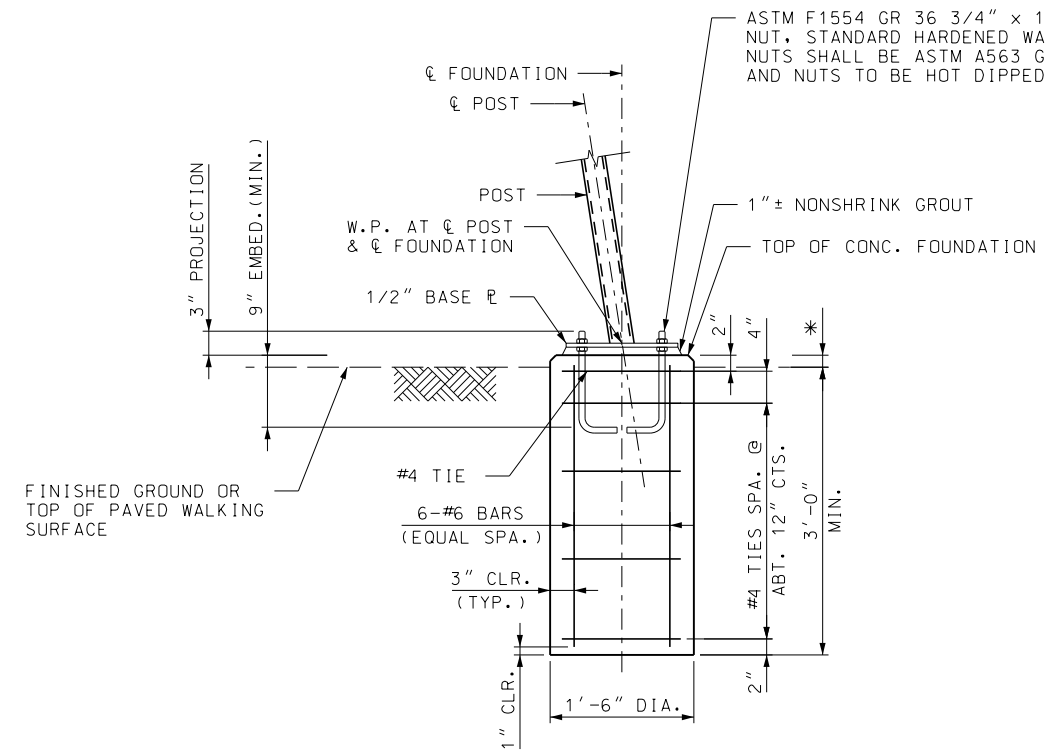
**GREAT RIVERS GREENWAY  
 SIGN STRUCTURE STANDARDS  
 DETAILS OF SIGN STRUCTURES Kx-2 AND Kx-3**

STD NO  
**Kx-2301**  
 SHEET NO.  
**1 OF 2**

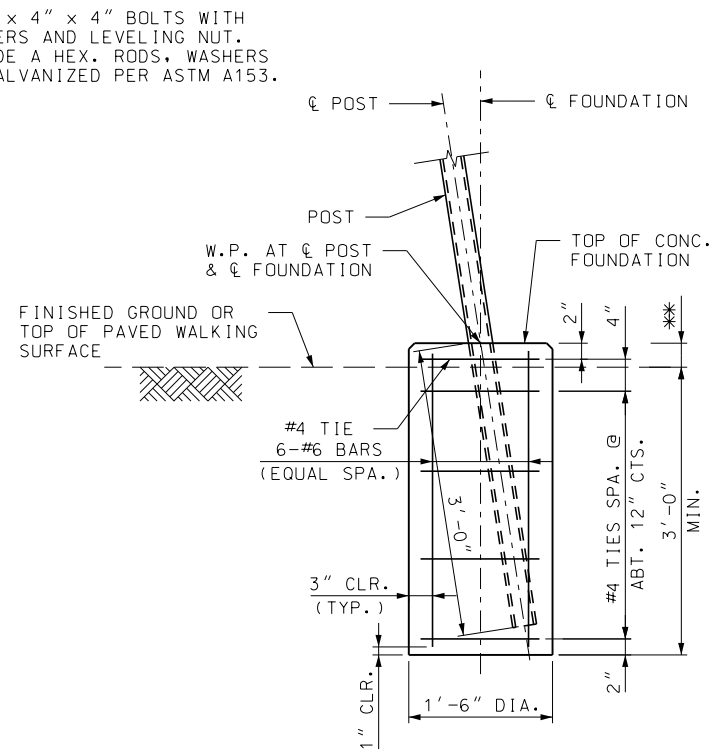
SHEET NO.  
**47**



PLAN-BASE PLATE & ANCHOR BOLTS



SECTION THRU CONCRETE FOUNDATION  
BASE PLATE OPTION



SECTION THRU CONCRETE FOUNDATION  
DIRECT BURY OPTION

GENERAL NOTES:

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS - 2013 (6TH EDITION) AND ALUMINUM ASSOCIATION 2015 ALUMINUM DESIGN MANUAL.

CONCRETE FOR FOUNDATIONS SHALL BE CLASS B CONCRETE, IN ACCORDANCE WITH THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, WITH A COMPRESSIVE STRENGTH OF  $f'c = 4,000$  PSI @ 28 DAYS.

ALL EXPOSED EDGES OF THE CONCRETE SHALL HAVE A 3/4" CHAMFER.

ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615 GRADE 60,  $F_y=60,000$  PSI.

ALL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A775/A775M. MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1 1/2", UNLESS NOTED OTHERWISE.

ALL CAST-IN-PLACE ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 36 BOLTS WITH 90° BEND UNLESS NOTED OTHERWISE.

ALL CAST-IN-PLACE CONCRETE ANCHORS ARE TO BE TIGHTENED TO A "SNUG-TIGHT" CONDITION.

ALL ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED BY THE HOT-DIP PROCESS IN ACCORDANCE WITH ASTM A153.

NON-SHRINK GROUT SHALL BE NON-METALLIC, PRE-PACKAGED GROUT CONFORMING TO CORPS OF ENGINEERS SPECIFICATION CRD C621, WITH A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS WHEN TESTED ACCORDING TO ASTM C109.

THE SIGN STRUCTURE SHALL BE THE SERIES 3 POST AND PANEL SYSTEM BY SIGNCOMP AND SHALL INCLUDE THE SERIES 3-3 1/4" SQ. POST, PANEL ADAPTOR, REVEAL, CAP AND ALL OTHER APPURTENANCES NECESSARY FOR THE COMPLETE INSTALLATION PER THE MANUFACTURER.

THE BASE PLATE MATERIAL SHALL BE ALUMINUM, 6061-T6 IN ACCORDANCE WITH ASTM B209.

WELD FILLER MATERIAL SHALL BE ALUMINUM, 5356 AND COMPLY WITH AWS A5.10.

ALL WELDING SHALL COMPLY WITH AWS D1.2 "STRUCTURAL WELDING CODE-ALUMINUM".

ALL EXPOSED WELDED JOINTS SHALL BE FILLED AND GROUND SMOOTH SO THAT NO SEAM IS VISIBLE WHEN PAINTED.

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ALL HARDWARE AND FASTENERS WITHIN REACH SHALL BE VANDAL RESISTANT.

THE SURFACES OF ALUMINUM MEMBERS IN CONTACT WITH CONCRETE SHALL BE BACK PAINTED WITH BITUMINOUS PAINT OF THE CUT-BACK TYPE CONFORMING TO SPECIFICATION MIL-C-450 B (1) OR TT-C-494 OR METHACRYLATE TYPE LACQUERS CONFORMING TO MIL-L-19537C (2).

PROVIDE DRAIN HOLES IN SIGNCOMP MEMBERS IN LOCATIONS AS NEEDED TO PREVENT THE ACCUMULATION OF MOISTURE IN THE MEMBERS.

HOLES SHALL BE LOCATED TO BE INCONSPICUOUS AND SUCH THAT DRAINAGE DOES NOT OCCUR ONTO SIGNS OR OTHER SURFACES SUBJECT TO STAINING.

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PROVIDE 1/2" JOINT FILLER AROUND FOUNDATION AT PAVED WALKING SURFACE LOCATIONS.

TABLE OF DIMENSIONS		
SURFACE TYPE	*	**
FINISHED GROUND	1 1/2"	3"
PAVED WALKING SURFACE	3/4"	2 1/4"

Note: This drawing is not to scale. Follow dimensions.

REV.	DATE	DESCRIPTION	APPROVED

T:\Working\15680 - Widwood - Streeter Road Bridge Drawings\Bridge\006 - Bridge template.dwg

**CRG ENGINEERS**  
 T. 314.781.7770  
 F. 314.781.9075  
 One Campbell Plaza  
 St. Louis, Missouri 63139  
 Missouri State Certificate of Authority # 1721



David Burdick, P.E.  
 MO# PE-024015

DRAWN BY  
DB  
 CHECKED BY  
TRN  
 DATE  
February 3, 2020

GREAT RIVERS GREENWAY  
 SIGN STRUCTURE STANDARDS  
 DETAILS OF SIGN STRUCTURES Kx-2 AND Kx-3

STD NO  
**Kx-2302**  
 SHEET NO.  
**2 OF 2**

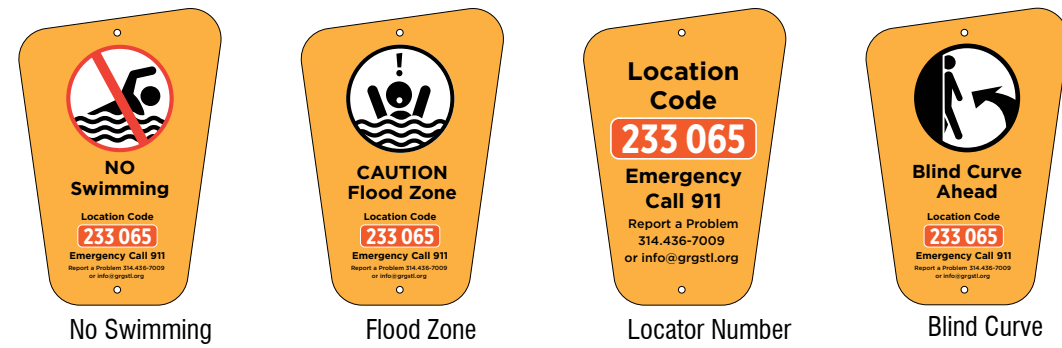
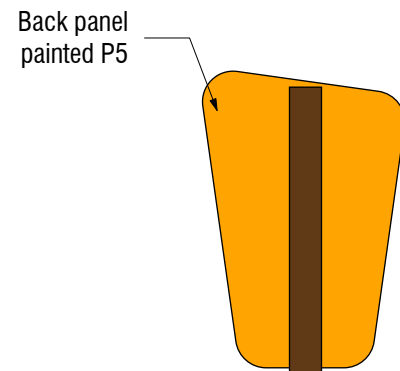
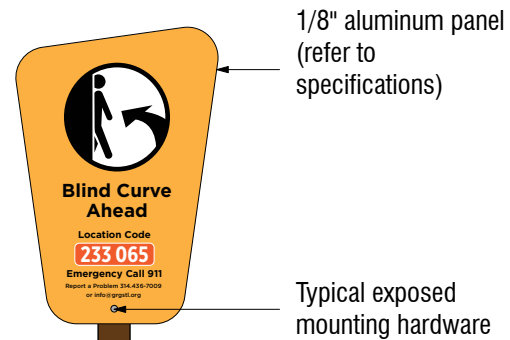
SHEET NO.  
**48**



REFER TO PAGES 52 & 53 FOR  
STRUCTURAL SIGNAGE DETAILS



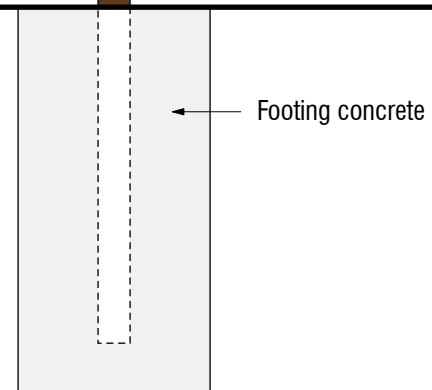
ALTERNATE - DOUBLE SIDED



2 ALTERNATE LAYOUTS  
1" = 1'-0"

SIDE

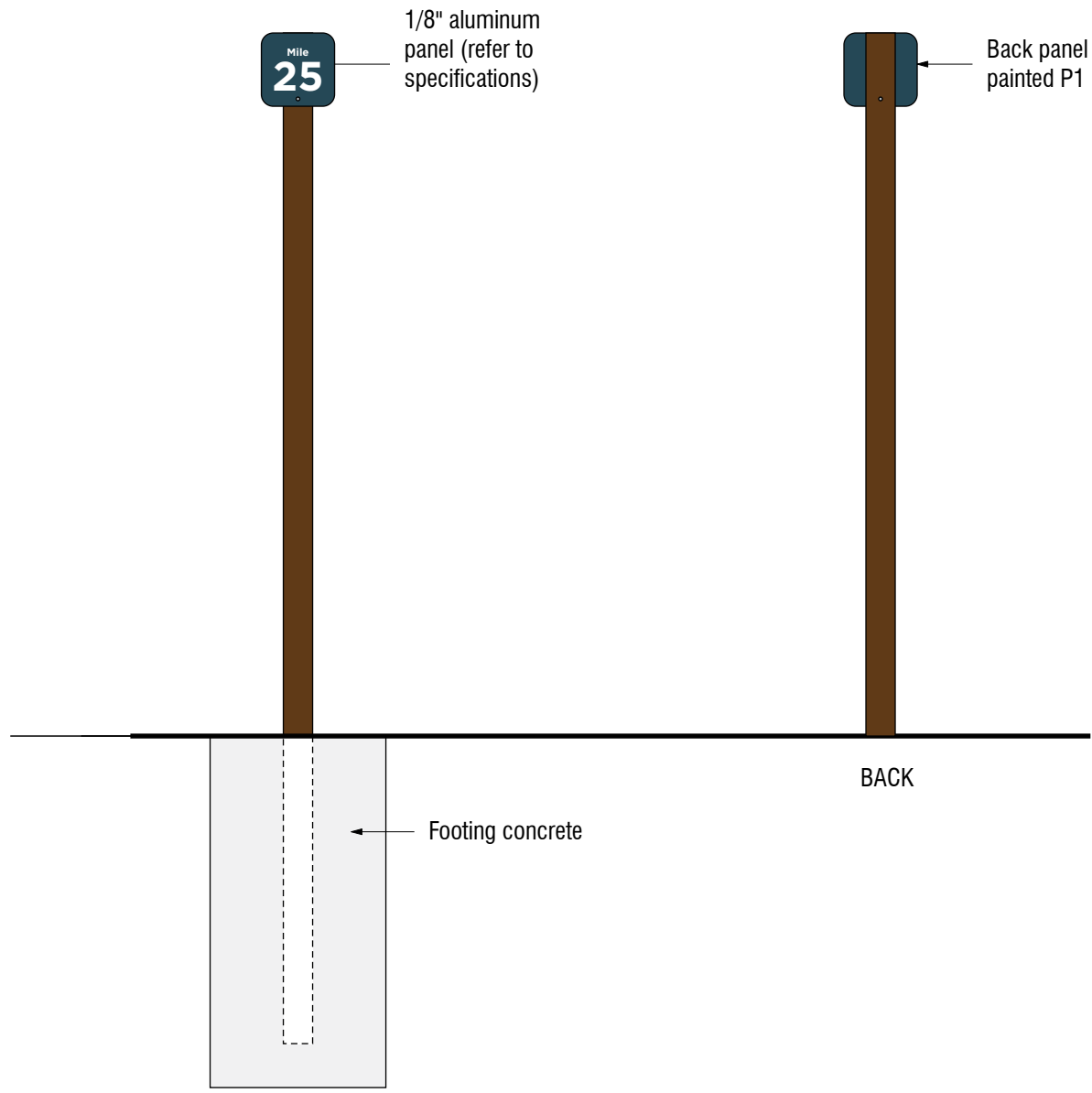
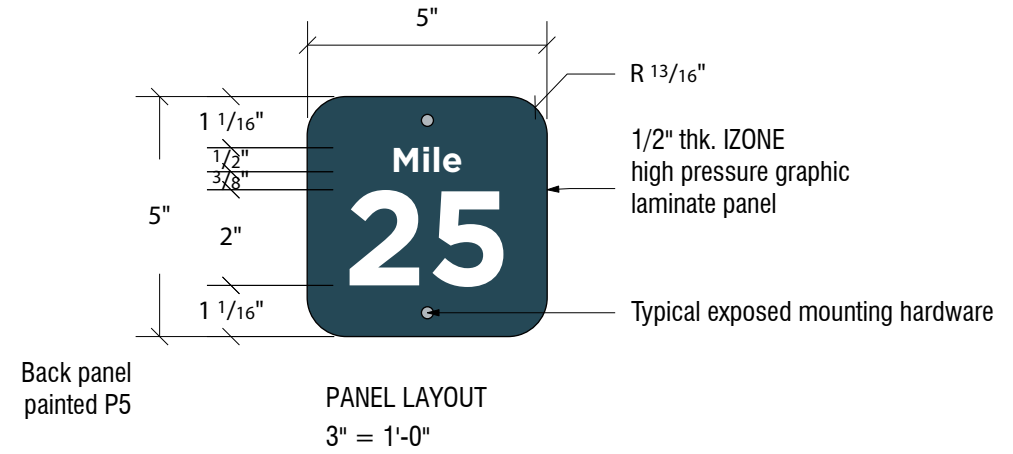
BACK



Great Rivers Greenway Sign Array: RX-2 Mile Marker

REFER TO PAGES 52 & 53 FOR STRUCTURAL SIGNAGE DETAILS

ALTERNATE - DOUBLE SIDED



Great Rivers Greenway Sign Array: RX-3 Mile Marker w/Trail Info and Rescue Locator

REFER TO PAGES 52 & 53 FOR  
STRUCTURAL SIGNAGE DETAILS



ALTERNATE - DOUBLE SIDED

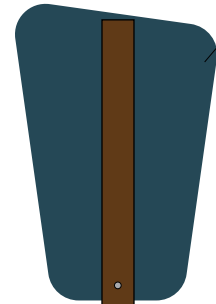


1/2" aluminum panel  
(refer to  
specifications)

Typical exposed  
mounting hardware

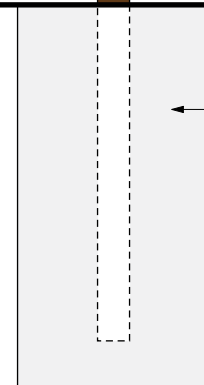


SIDE



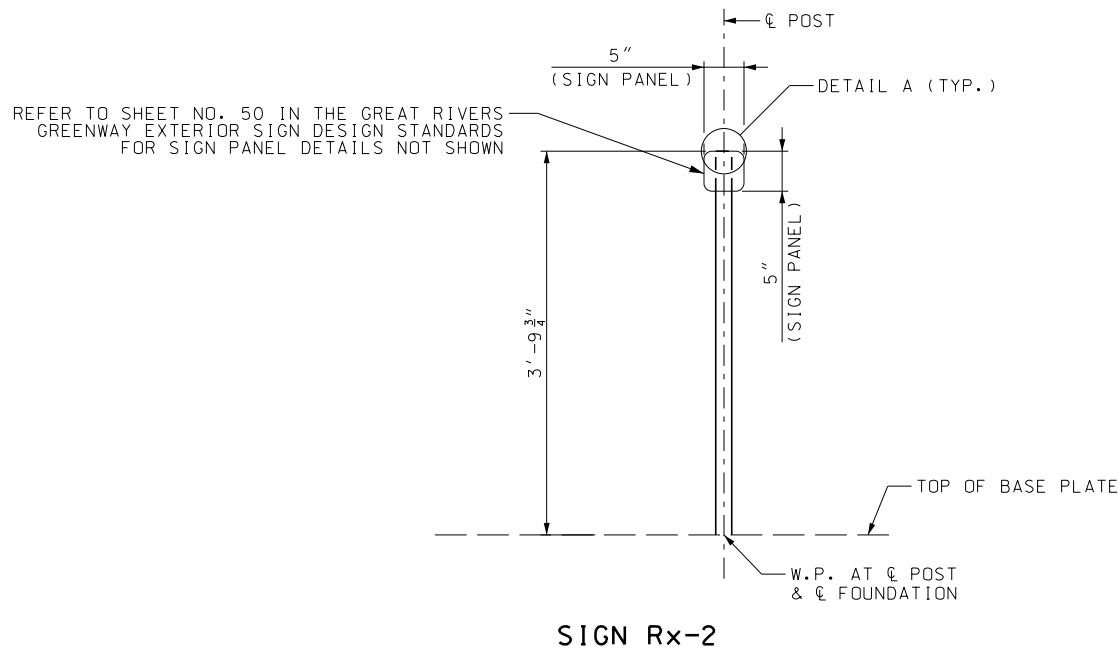
Back panel painted P1

BACK

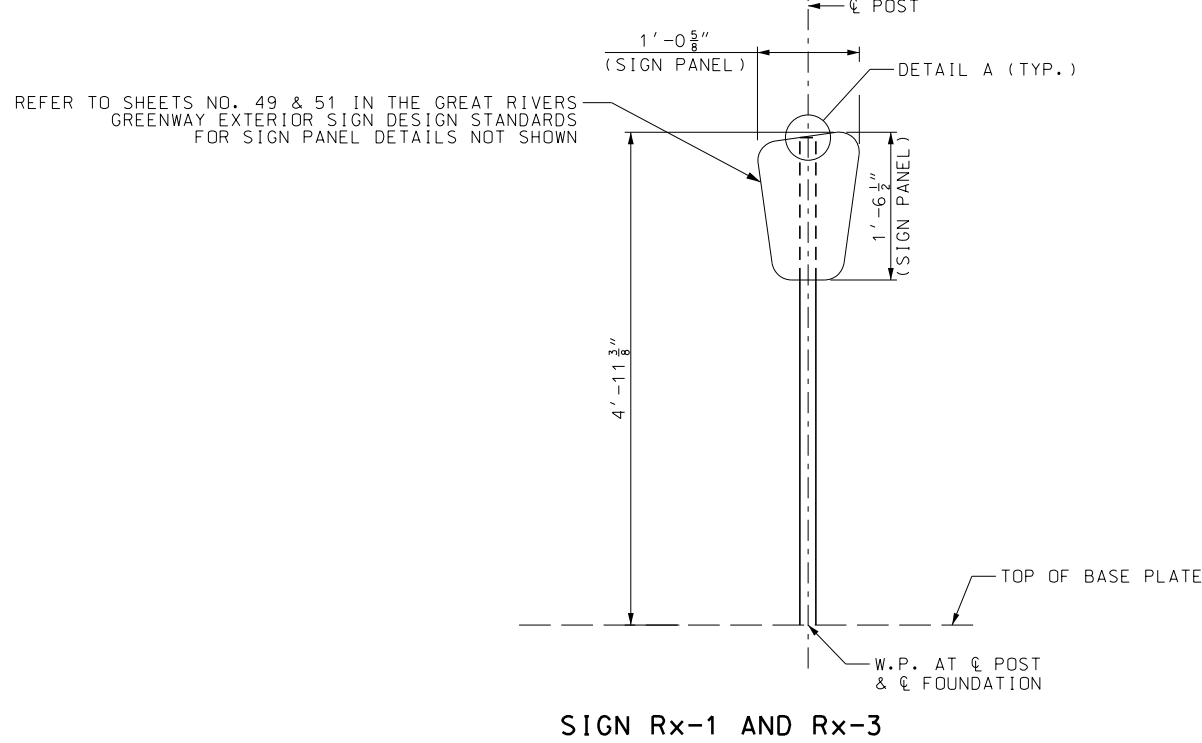


Footing concrete

Download the art template for this sign at: <https://greatriversgreenway.sharefile.com/d-sf53e58970f84a83b>



**SIGN Rx-2**



**SIGN Rx-1 AND Rx-3**

**GENERAL NOTES:**

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS. LUMINAIRES AND TRAFFIC SIGNALS - 2013 (6TH EDITION) AND ALUMINUM ASSOCIATION 2015 ALUMINUM DESIGN MANUAL.

CONCRETE FOR FOUNDATIONS SHALL BE CLASS B CONCRETE, IN ACCORDANCE WITH THE MISSOURI STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, WITH A COMPRESSIVE STRENGTH OF  $f'c = 4,000$  PSI @ 28 DAYS.

ALL EXPOSED EDGES OF THE CONCRETE SHALL HAVE A 3/4" CHAMFER.

ALL REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ASTM A615 GRADE 60,  $Fy=60,000$  PSI.

ALL REINFORCING STEEL SHALL BE EPOXY COATED IN ACCORDANCE WITH ASTM A775/A775M.

MINIMUM CLEARANCE TO REINFORCING STEEL SHALL BE 1 1/2", UNLESS NOTED OTHERWISE.

ALL CAST-IN-PLACE ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 36 BOLTS WITH 90° BEND UNLESS NOTED OTHERWISE.

ALL CAST-IN-PLACE CONCRETE ANCHORS ARE TO BE TIGHTENED TO A "SNUG-TIGHT" CONDITION.

ALL ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED BY THE HOT-DIP PROCESS IN ACCORDANCE WITH ASTM A153.

NON-SHRINK GROUT SHALL BE NON-METALLIC, PRE-PACKAGED GROUT CONFORMING TO CORPS OF ENGINEERS SPECIFICATION CRD C621, WITH A MINIMUM COMPRESSIVE STRENGTH OF 5000 PSI AT 28 DAYS WHEN TESTED ACCORDING TO ASTM C109.

THE STRUCTURAL TUBING MATERIAL SHALL BE ALUMINUM, 6063-T6 IN ACCORDANCE WITH ASTM B429.

THE BASE PLATES AND CAP MATERIAL SHALL BE ALUMINUM, 6061-T6 IN ACCORDANCE WITH ASTM B209.

WELD FILLER MATERIAL SHALL BE ALUMINUM, 5356 AND COMPLY WITH AWS A5.10.

ALL WELDING SHALL COMPLY WITH AWS D1.2 "STRUCTURAL WELDING CODE-ALUMINUM".

ALL EXPOSED WELDED JOINTS SHALL BE FILLED AND GROUND SMOOTH SO THAT NO SEAM IS VISIBLE WHEN PAINTED.

BOLTS, NUTS AND WASHERS SHALL BE 300 SERIES STAINLESS STEEL. WASHERS SHALL BE USED UNDER BOLT HEADS.

ALL HARDWARE AND FASTENERS WITHIN REACH SHALL BE VANDAL RESISTANT.

THE SURFACES OF ALUMINUM MEMBERS IN CONTACT WITH CONCRETE SHALL BE BACK PAINTED WITH BITUMINOUS PAINT OF THE CUT-BACK TYPE CONFORMING TO SPECIFICATION MIL-C-450 B (1) OR TT-C-494 OR METHACRYLATE TYPE LACQUERS CONFORMING TO MIL-L-19537C (2).

PROVIDE DRAIN HOLES IN RT TUBES IN LOCATIONS AS NEEDED TO PREVENT THE ACCUMULATION OF MOISTURE IN THE MEMBERS.

HOLES SHALL BE LOCATED TO BE INCONSPICUOUS AND SUCH THAT DRAINAGE DOES NOT OCCUR ONTO SIGNS OR OTHER SURFACES SUBJECT TO STAINING.

PROVIDE COLOR-COORDINATED STAINLESS STEEL BUG MESH OVER DRAIN HOLES.

FOUNDATIONS SHOWN IN THE PLANS HAVE BEEN DESIGNED BASED ON THE PRESUMPTIVE VALUES FOUND IN IBC-2009, TABLE 1806.2, FOR CLASS 5 SOIL MATERIALS. THE FOUNDATIONS SHOWN ARE SUITABLE FOR CONSTRUCTION IN ANY CLASS 5 SOIL OR BETTER. CONSTRUCTION OF THE FOUNDATIONS IN LESSER SOILS SUCH AS MUD, ORGANIC SOILS OR UNPREPARED SOILS IS NOT COVERED BY THIS STANDARD DESIGN AND WILL REQUIRE FURTHER EVALUATION.

THE FINISH ON THE SIGN STRUCTURE (POSTS AND PLATES) SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GREAT RIVERS GREENWAYS EXTERIOR SIGN DESIGN STANDARDS AND SPECIFICATIONS.

PROVIDE 1/2" JOINT FILLER AROUND FOUNDATION AT PAVED WALKING SURFACE LOCATIONS.

**NOTES:**

FOR DETAIL A, SEE SHEET NO. 2 OF 2.

FOR SIGN STRUCTURE DETAILS NOT SHOWN, SEE SHEET NO. 2 OF 2.

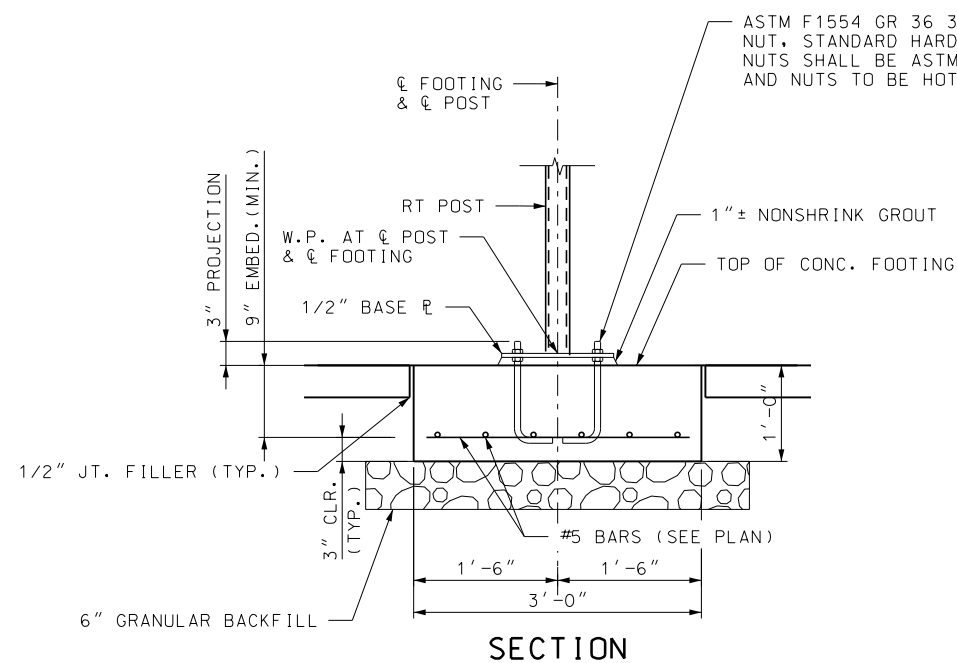
SIGN STRUCTURES Rx-1, Rx-2 AND Rx-3 AS SHOWN ARE NOT INTENDED FOR INSTALLATION WITHIN THE ROADWAY CLEAR ZONE OR IN OTHER AREAS WHERE THEY MAY BE SUSCEPTIBLE TO VEHICULAR COLLISION OR ARE OTHERWISE UNPROTECTED.

SIGN STRUCTURE PLACEMENT MAY BE SUBJECT TO OTHER REQUIREMENTS OR RESTRICTIONS ON A CASE-BY-CASE BASIS.

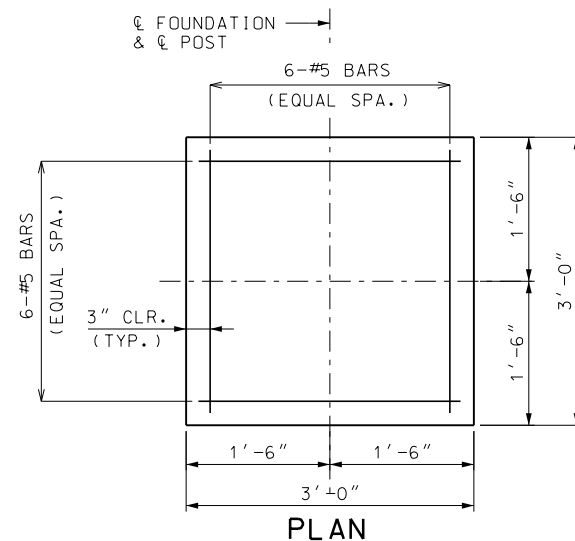
INDIVIDUAL SIGN STRUCTURE LOCATION AND PLACEMENT SHALL BE THE RESPONSIBILITY OF THE ENGINEER OF RECORD FOR EACH SIGN STRUCTURE INSTALLATION.

Note: This drawing is not to scale. Follow dimensions.

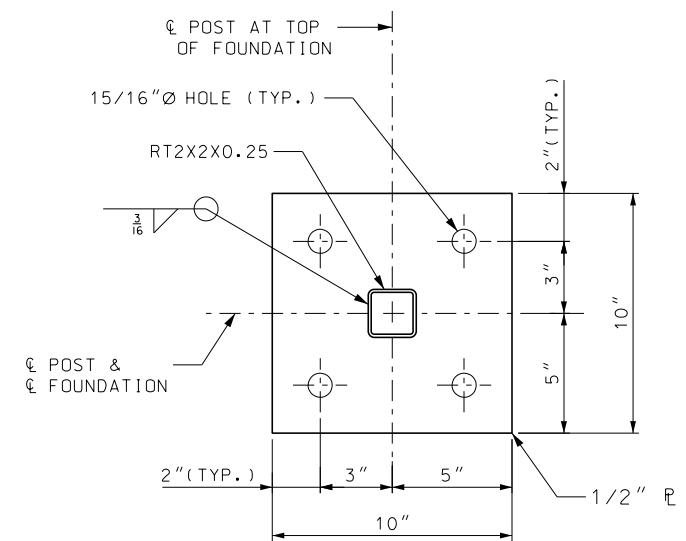
REV.	DATE	DESCRIPTION	APPROVED



SECTION

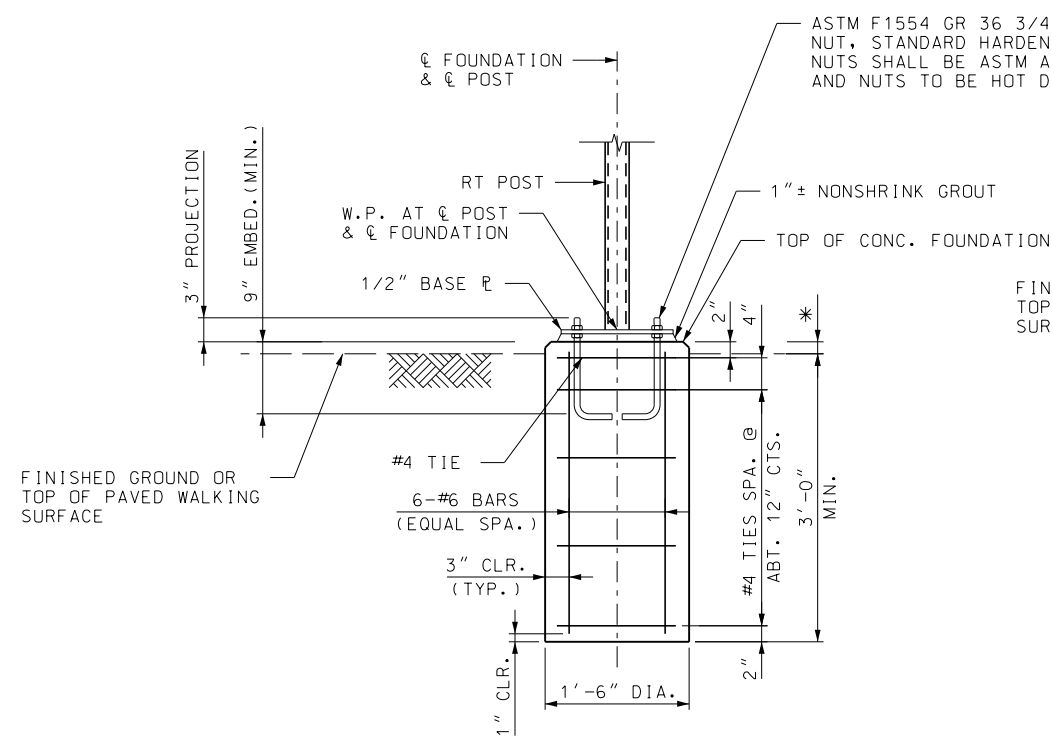


PLAN



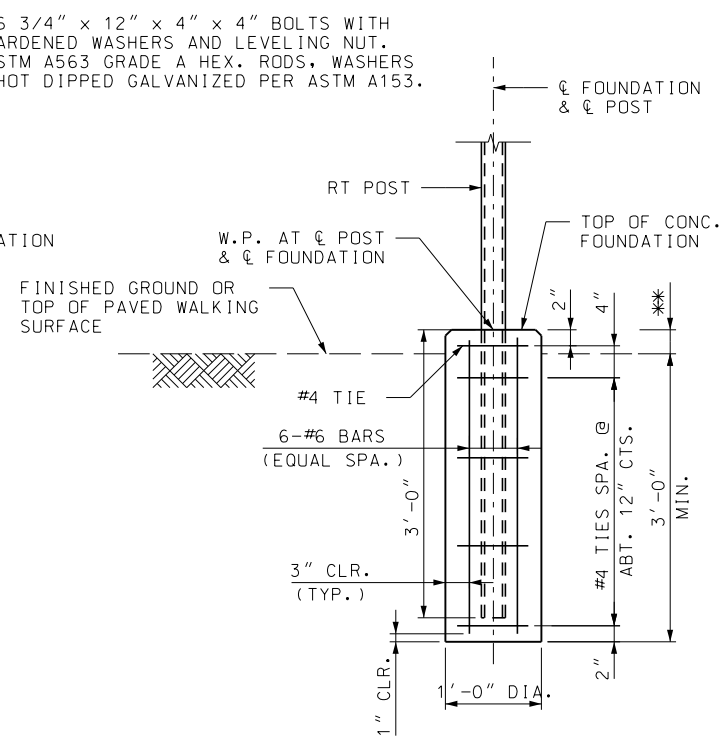
PLAN-BASE PLATE & ANCHOR BOLTS

DETAILS OF THICKENED SIDEWALK OPTION



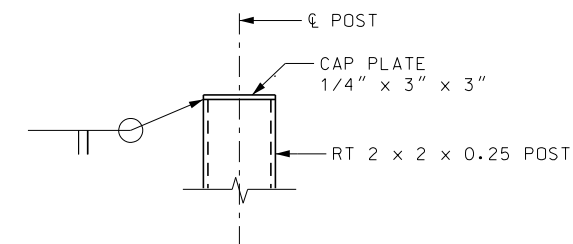
SECTION THRU CONCRETE FOUNDATION

BASE PLATE OPTION



SECTION THRU CONCRETE FOUNDATION

DIRECT BURY OPTION



DETAIL A

FOR LOCATION, SEE SHEET NO. 1 OF 2.

TABLE OF DIMENSIONS		
SURFACE TYPE	*	**
FINISHED GROUND	1 1/2"	3"
PAVED WALKING SURFACE	3/4"	2 1/4"

NOTES:

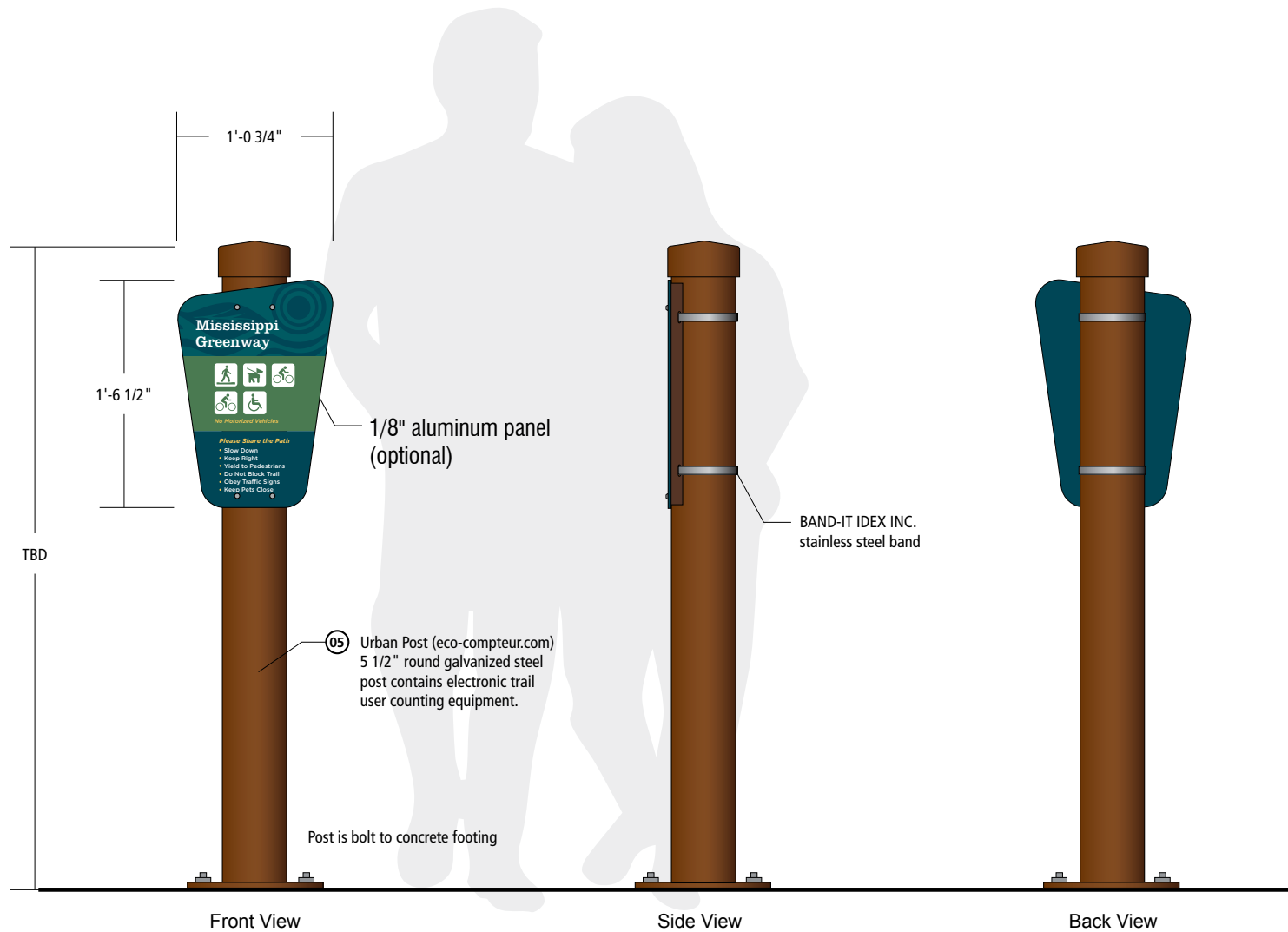
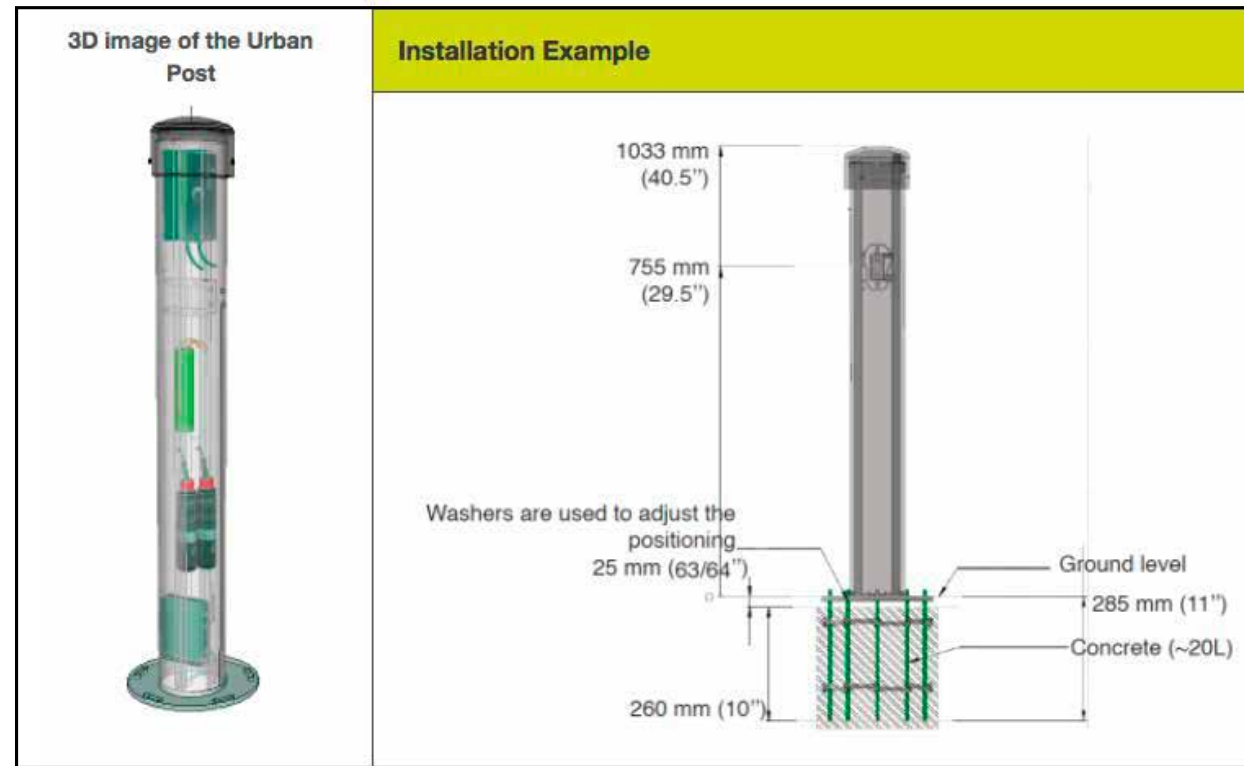
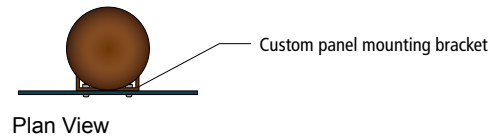
FOR SIGN STRUCTURE NOTES, SEE SHEET NO. 1 OF 2.

Note: This drawing is not to scale. Follow dimensions.

T:\Working\15680 - Widened - Streeter Road Bridge Drawings\Bridge\006 - Bridge Template.dwg

REV.	DATE	DESCRIPTION	APPROVED

Great Rivers Greenway Sign Array: TC-1 Trail Counter-Sign Panel (optional)

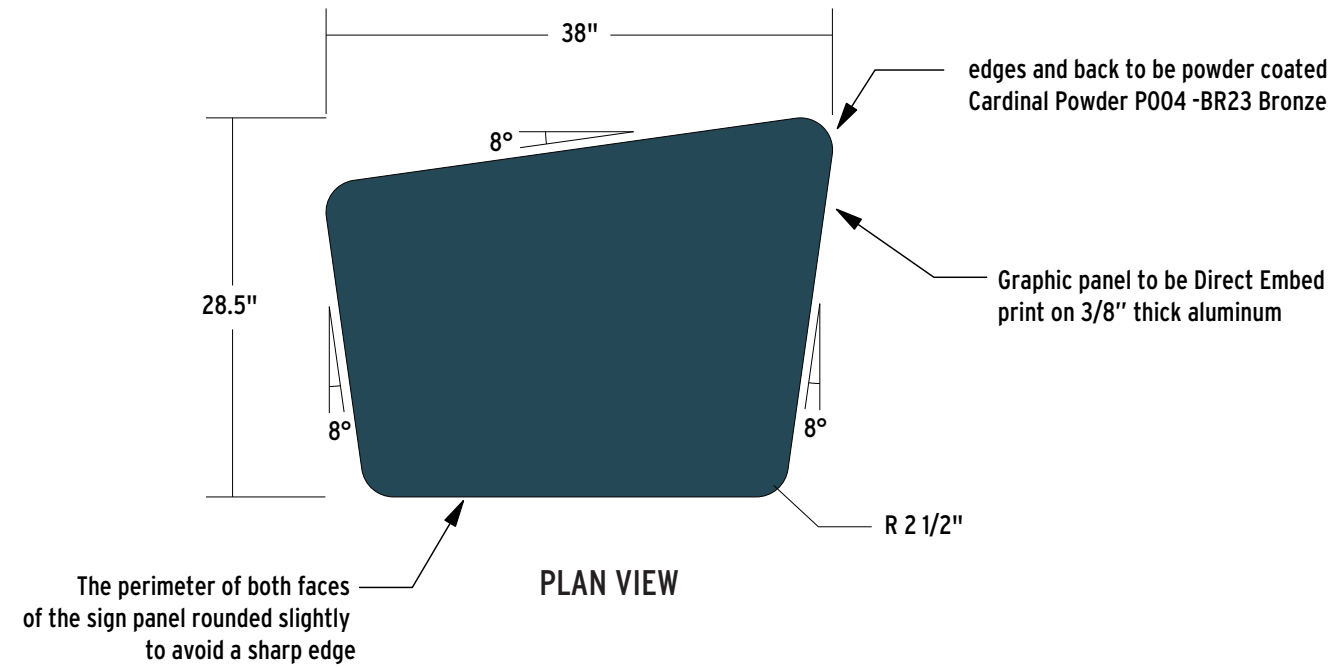


Download the art template for this sign at: <https://greatriversgreenway.sharefile.com/d-s88042125732481d9>

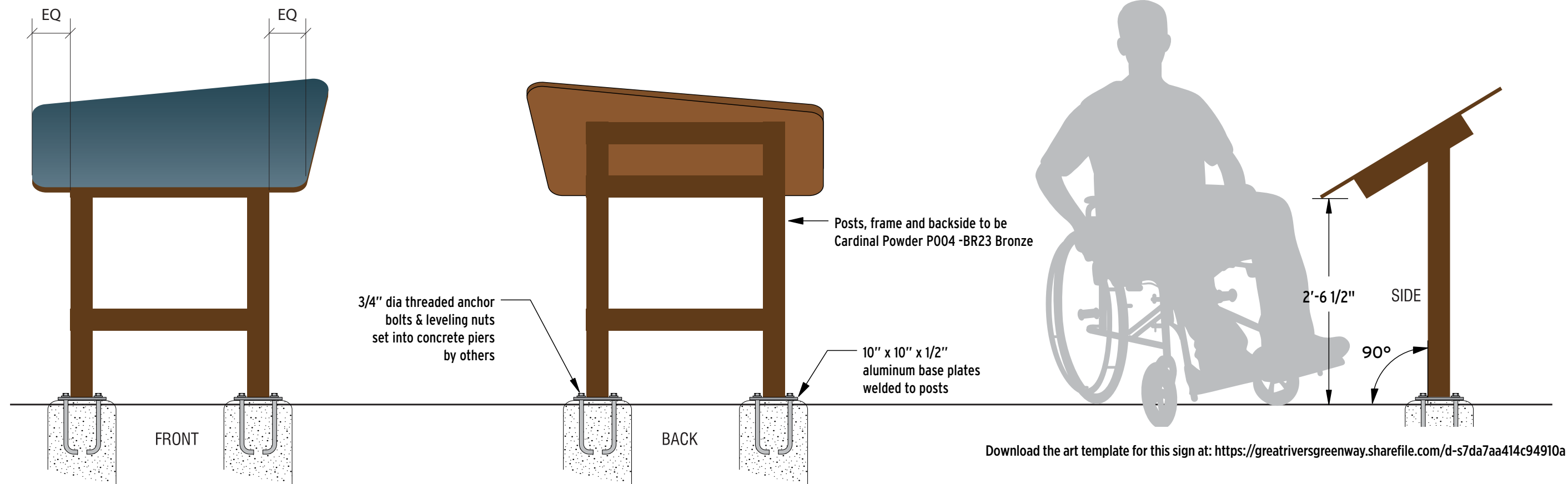
Great Rivers Greenway Sign Array: IN-1 Interpretive

Sign panel: 3/8" thick aluminum  
 Graphic material: Direct Embed print on 3/8" thick aluminum

**REFER TO PAGES 57 & 58 FOR  
 STRUCTURAL SIGNAGE DETAILS**

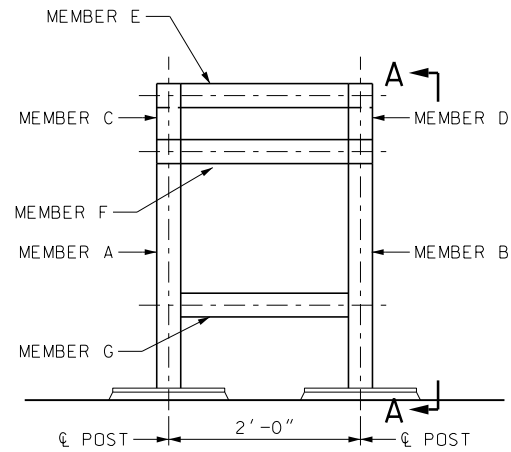


ISOMETRIC BACK VIEW

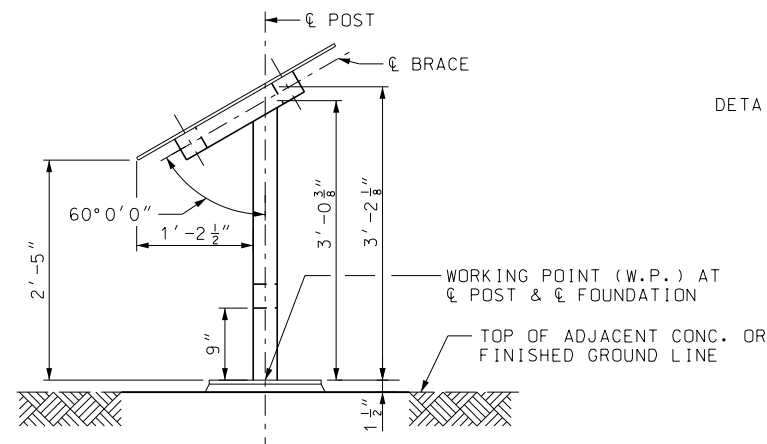


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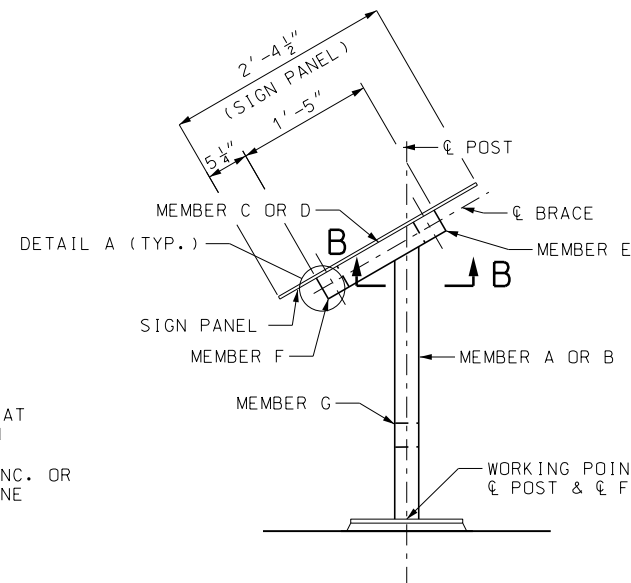




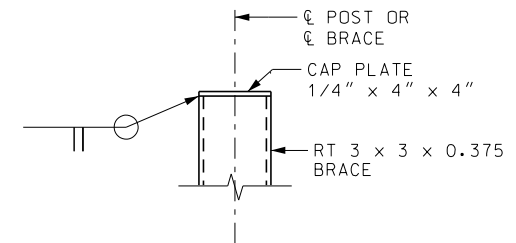
**ELEVATION**  
SIGN PANEL NOT SHOWN FOR CLARITY



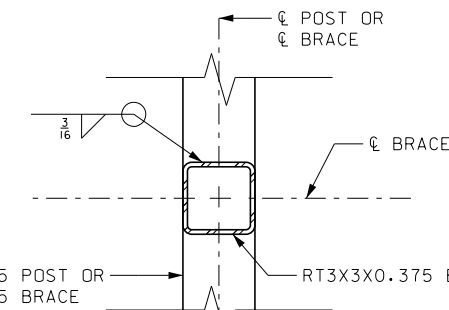
**ELEVATION A-A**  
SHOWING DIMENSIONS



**ELEVATION A-A**  
SHOWING MEMBERS

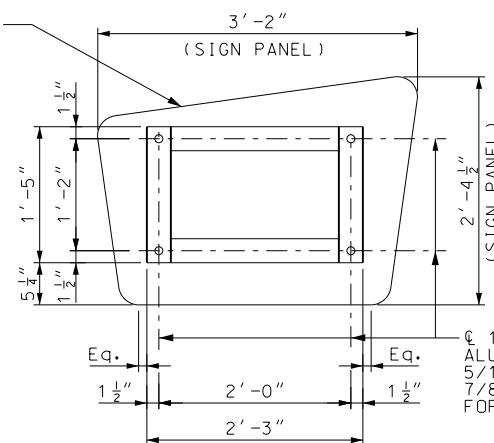


**DETAIL A**



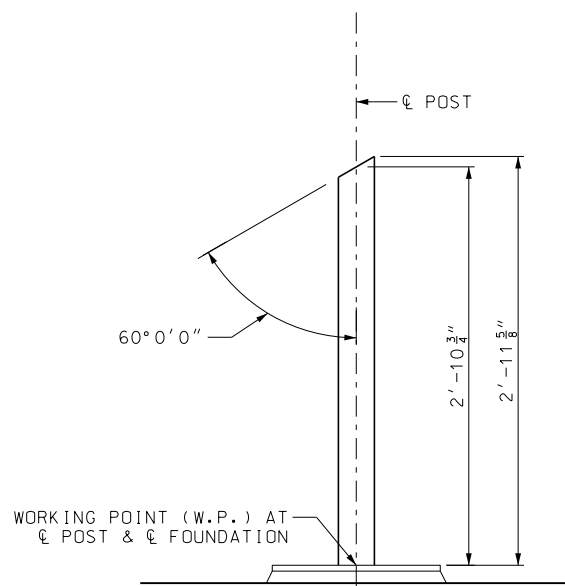
**SECTION B-B**

REFER TO SHEETS NO. 55 & 56  
IN THE GREAT RIVERS GREENWAY  
EXTERIOR SIGN DESIGN  
STANDARDS FOR SIGN  
PANEL DETAILS NOT SHOWN.

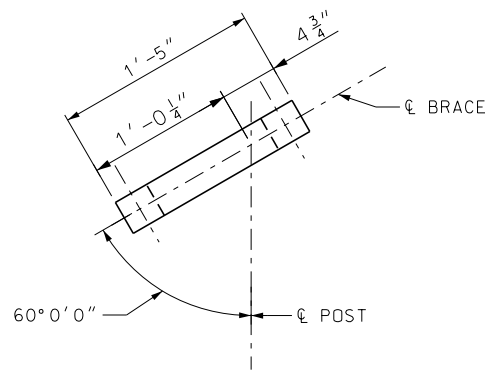


**SIGN PANEL DETAIL**

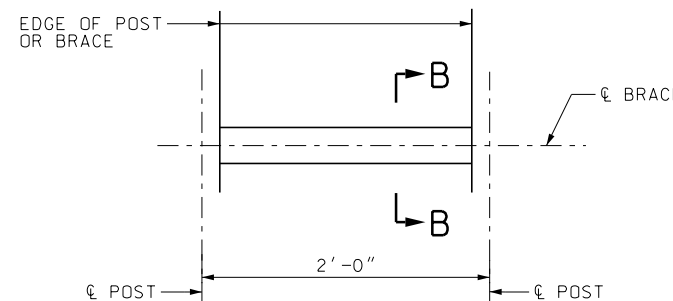
1/4-20 X 1" LONG ALUMINUM STUDS WITH  
ALUMINUM NUTS & WASHERS,  
5/16" Ø HOLES (TOP FACE OF BRACE) AND  
7/8" Ø HOLES (BOTTOM FACE OF BRACE)  
FOR SNAP-IN BLACK PLASTIC PLUGS



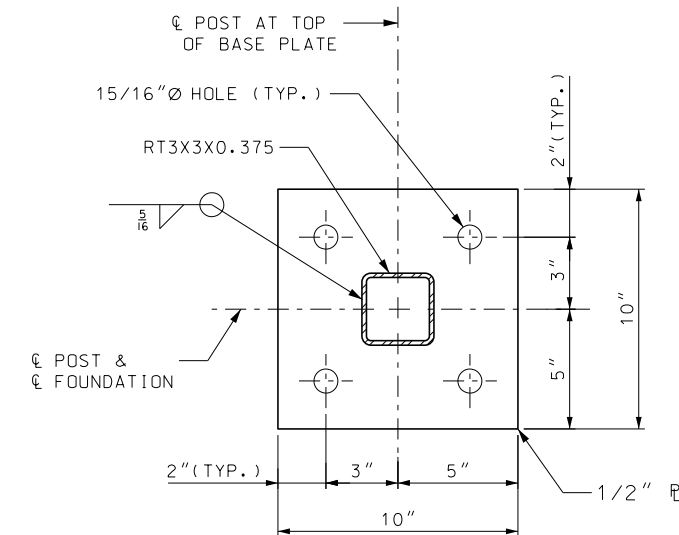
**MEMBER A & B**



**MEMBER C & D**



**MEMBER E, F & G**



**PLAN-BASE PLATE & ANCHOR BOLTS**

NOTES:

FOR DETAILS NOT SHOWN, SEE SHEET NO. 2 OF 2.

SIGN STRUCTURE IN-1 AS SHOWN IS NOT  
INTENDED FOR INSTALLATION WITHIN THE ROADWAY  
CLEAR ZONE OR IN OTHER AREAS WHERE THEY MAY BE  
SUSCEPTIBLE TO VEHICULAR COLLISION OR ARE  
OTHERWISE UNPROTECTED.

SIGN STRUCTURE PLACEMENT MAY BE SUBJECT TO OTHER  
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INDIVIDUAL SIGN STRUCTURE LOCATION AND PLACEMENT  
SHALL BE THE RESPONSIBILITY OF THE ENGINEER OF  
RECORD FOR EACH SIGN STRUCTURE INSTALLATION.

REV.	DATE	DESCRIPTION	APPROVED

Note: This drawing is not to scale. Follow dimensions.

T:\Working\15680 - Wildwood - Streeter Road Bridge\Drawings\Bridge\006 - Bridge Template.dwg

02/07/2022

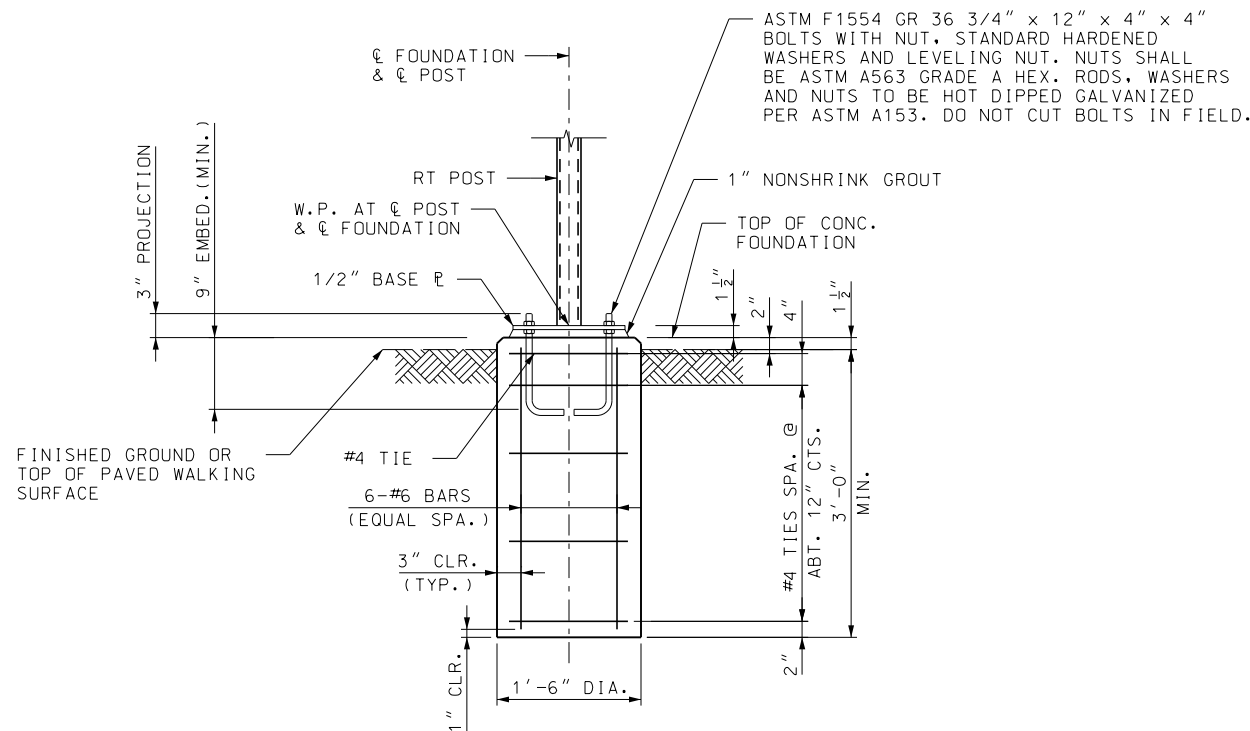
David Burdick, P.E.  
MO# PE-024015

DRAWN BY  
DB  
CHECKED BY  
TRN  
DATE  
February 7, 2022

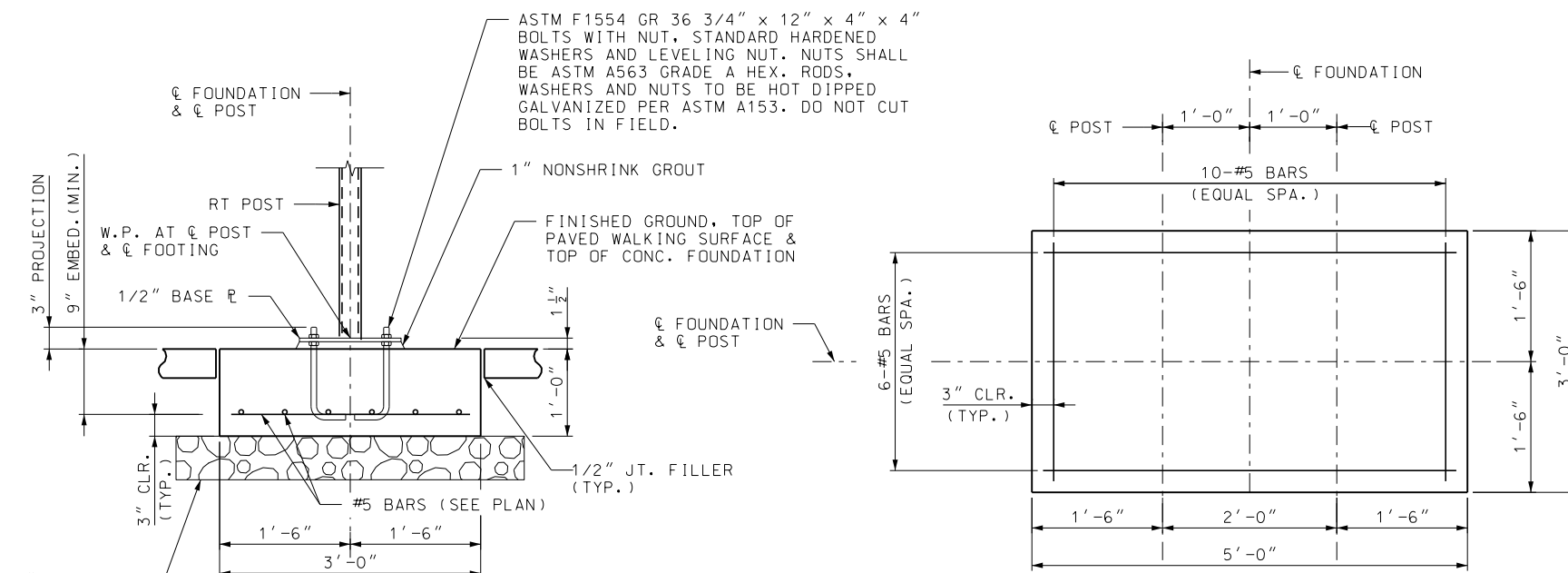
**GREAT RIVERS GREENWAY  
SIGN STRUCTURE STANDARDS  
DETAILS OF SIGN STRUCTURE IN-1**

STD NO  
**IN-101**  
SHEET NO.  
**1 OF 2**

SHEET NO.  
**57**



SECTION THRU CONCRETE FOUNDATION-OPTION 1



SECTION

PLAN VIEW

DETAILS OF THICKENED SIDEWALK OPTION 2

NOTE: POSTS & BASE PLATES NOT SHOWN FOR CLARITY.

Note: This drawing is not to scale. Follow dimensions.

GENERAL NOTES:

DESIGN SPECS: AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS - 2013 (6TH EDITION) AND ALUMINUM ASSOCIATION 2015 ALUMINUM DESIGN MANUAL.

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THE FINISH ON THE SIGN STRUCTURE (POSTS, BRACES AND PLATES) SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GREAT RIVERS GREENWAYS EXTERIOR SIGN DESIGN STANDARDS AND SPECIFICATIONS.

PROVIDE 1/2" JOINT FILLER AROUND FOUNDATION AT PAVED WALKING SURFACE LOCATIONS.

THE FABRICATORS OF THE SIGN PANEL AND STRUCTURAL SUPPORT MEMBERS SHALL COORDINATE THE LOCATION OF THE HOLES IN THE BRACES AND THE ALUMINUM STUDS.

THE CONTRACTOR SHALL TOUCH UP ALL COATINGS WHICH ARE DAMAGED DURING SHIPMENT OR INSTALLATION USING A COMPATIBLE SYSTEM ACCORDING TO THE COATING MANUFACTURER'S RECOMMENDATIONS.



02/07/2022  
David Burdick, P.E.  
MO# PE-024015

DRAWN BY  
DB

CHECKED BY  
TRN

DATE  
February 7, 2022

GREAT RIVERS GREENWAY  
SIGN STRUCTURE STANDARDS  
DETAILS OF SIGN STRUCTURE IN-1

STD NO  
IN-102

SHEET NO.  
2 OF 2

SHEET NO.  
58

REV.	DATE	DESCRIPTION	APPROVED

T:\Working\15580 - Widwood - Streeter Road Bridge Drawings\Bridge\CDG - Bridge template.dgn