DIVISION ST

Section P

No. Item

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*DELETE WHEN DONE: To Update Table of Contents Right Click on the index above and choose Update Field. If given a choice choose “Update Entire Table”.*

*DELETE WHEN DONE****:*** *Statements highlighted in yellow are guidelines or instructional in nature. Remove these notes before completing the spec. When appearing at the top left of a provision, it pertains to the paragraph immediately beneath the note, as well as any indented items following it.*

*DELETE WHEN DONE****:*** *Words highlighted in green are fields that may need to be modified or removed before completion of the spec, such as contact information, city names, sign numbers, or charts on the Plans.*

*For provisions containing the descriptor, “For Sign(s) [Type]-XX:”, this descriptor should only be used when the provision applies to specific sign numbers among that type on the Plans. Insert as necessary. Leave out the descriptor if the provision applies to all signs of that type on the Plans.*

I hereby certify that the Special Provisions for traffic sign construction (Division ST) contained in this proposal were prepared by me or under my direct supervision and that I am a duly licensed Professional Engineer under the laws of the State of Minnesota.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Engineer Name

Lic. No. XXXXX Date MM/DD/YY

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**DIVISION ST**

# (2104) REMOVING MISCELLANEOUS STRUCTURES

## DESCRIPTION

The Contractor shall remove and salvage miscellaneous structures according to 2104, “Removing Pavement and Miscellaneous Structures” and these Special Provisions.

## MATERIALS

The Contractor shall use materials according to 2104, “Removing Miscellaneous Structures” and the 2104, “Removing Miscellaneous Structures: Construction Requirements” section of these Special Provisions.

## CONSTRUCTION REQUIREMENTS

### Remove By Others

*Use for projects that include LOGO signs.*

Give at least 14 calendar days advance notice to the General Manager of Minnesota Logos to arrange removal of Logo signs designated on the Plans as “REMOVE BY OTHERS”.

Dave DeSutter

General Manager

Minnesota Logos

952-895-8079

ddesutter@interstatelogos.com

### Remove Delineator/Marker

Remove the delineator/marker panel, mounting hardware, and post.

### Remove Delineator/Marker Panel

Remove the delineator/marker panel and mounting hardware. Leave the sign structure in place.

### Remove Sign

For each sign, remove the sign panels, mounting hardware, and sign structure.

*Use for concrete rail mounted signs*

For each concrete rail mounted sign, remove the sign panels, mounting hardware, and concrete rail mounted sign structure. Fill anchorage holes in concrete with epoxy grout.

*Use for bridge-mounted signs*

For each bridge mounted sign, remove the sign panel, mounting hardware, and bridge mounted sign structure.

After removal of the sign structure,

Fill anchorage holes in concrete with epoxy grout.

Plug holes in steel with galvanized high strength steel bolts, washers, and nuts.

*Use for sign replacement projects.*

Schedule the work so that replacement signs are installed on the same work day that the in-place signs are removed.

### Remove Sign Type Special

Add to the list all equipment included with the sign

Remove sign panels, mounting hardware, sign structure, including any concrete footings.

### Remove Sign Panel

Remove the sign panel and mounting hardware. Leave the sign structure in place.

### Remove Sign Panel Type Special

Add to the list all equipment included with the sign panel

Remove sign panels and mounting hardware. Leave the sign structure in place.

### Contractor Responsibility for Salvaged Sign Panels

To be included for any salvage pay items.

Contractor to inform the Engineer of any damaged or missing in-place sign panels prior to salvaging.

If a sign panel is damaged, lost, or stolen after being salvaged, a new sign panel shall be fabricated according to 2564.2F “Traffic Signs and Devices: Signs and Markers,” and these Special Provisions, at no cost to the Department, City of \_\_\_\_ or \_\_\_\_ County.

To deter theft, store sign panels in a secure area.

Contractor to prevent damage to the bracket assemblies, sign panels, and the sign sheeting materials at all times, including during storage. Methods to prevent damage during storage include but are not limited to:

 Store sign panels so they are not laying on the ground.

 Store sign panels so that the reflective surfaces do not come in contact with dirt, water, or grass.

 Store sign panels so they are not covered with a tarp or plastic.

### Salvage Delineator/Marker

Salvage the sign structure, mounting hardware, and delineator/marker.

Salvaged delineator/marker to be stored for reinstallation.

### Salvage Sign

Use if existing post will be salvaged.

Remove and dispose of the in-ground base for the sign structure.

Use if existing post will not be salvaged.

Remove and dispose of the sign structure and mounting hardware

The salvaged sign to be stored for reinstallation.

### Salvage Sign Type Special

Use if salvaging a street name sign.

Salvage the sign post (if post is MASH-16 crashworthy) and the bracket assembly with street name plates attached.

Remove the sign post if not MASH-16 crashworthy.

If the Contractor damages a sign post, bracket assembly, or street name plate,

Dispose of the damaged sign post, bracket assembly, or street name plate.

Fabricate a new sign post, bracket assembly, or street name plate according to City of \_\_ or \_\_County specifications*,* 2564.2F, “Traffic Signs and Devices: Signs and Markers;” and these Special Provisions, at no cost to the Department, City of \_\_, or \_\_ County.

Salvaged sign special to be stored for reinstallation.

### Salvage Sign Panel

Salvage the sign panel.

Remove mounting hardware.

Salvaged sign panel to be stored for reinstallation.

### Salvage Sign Panel Type Special

Use if salvaging street name sign panels.

Salvage the bracket assembly with street name plates attached.

If the Contractor damages a bracket assembly or street name plates,

 Dispose of the damaged bracket assembly or damaged street name plate.

Fabricate new bracket assembly or street name plate according to City of \_\_ or \_\_County specifications, 2564.2F, “Traffic Signs and Devices: Signs and Markers;” and these Special Provisions, at no cost to the Department, City of \_\_ or \_\_ County.

Salvaged sign panel special to be stored for reinstallation.

## METHOD OF MEASUREMENT & BASIS OF PAYMENT

The Engineer will measure each item according to the Contract and the 2104, “Removing Miscellaneous Structures: Construction Requirements” section of these Special Provisions.

The Department will include all work described in the Contract and the 2104, “Removing Miscellaneous Structures: Construction Requirements” section of these Special Provisions as part of the contract unit price per unit of measure.

The Department will pay for traffic signs and devices on the basis of the following schedule:

*Include only pay items that contain work specified in the special provisions.*

| **Item No.:** | **Item:** | **Unit:** |
| --- | --- | --- |
| 2104.502 | Remove Delineator/Marker | Each |
| 2104.502 | Remove Delineator/Marker Panel | Each |
| 2104.502 | Remove Sign | Each |
| 2104.502 | Remove Sign Type Special | Each |
| 2104.502 | Remove Sign Panel | Each |
| 2104.502 | Remove Sign Panel Type Special | Each |
| 2104.502 | Salvage Delineator/Marker | Each |
| 2104.502 | Salvage Sign | Each |
| 2104.502 | Salvage Sign Type Special | Each |
| 2104.502 | Salvage Sign Panel | Each |
| 2104.502 | Salvage Sign Panel Type Special | Each |

The Department’s payment for each item shall be compensation in full for all work, material, and costs involved in performing the work specified on the Plans and these Special Provisions.

# (2564) TRAFFIC SIGNS AND DEVICES

## DESCRIPTION

The Contractor shall furnish and install traffic signs in accordance with 2564, “Traffic Signs and Devices,” except as modified in these Special Provisions.

## CONSTRUCTION REQUIREMENTS

The provisions of 2564.3A, “Traffic Signs and Devices: Construction Requirements: General” are modified and supplemented as follows:

The following replaces the fourth paragraph of 2564.3A:

Sign locations and sign structure posts lengths indicated on the Plans are approximate. Locate and stake final sign and delineator locations and obtain approval of locations by the Engineer. Determine the final post lengths for signs and delineators in accordance with offsets, mounting heights and clearances detailed on the Plans and field verification of the proposed or inplace slopes. Determine the final post lengths for I-Beam and Overhead signs in accordance with the offsets, mounting heights and clearances detailed on the Plans and by field verification of the proposed or inplace slopes. Provide shop drawings for I-Beam and Overhead signs in accordance with 2564.3, “Construction Requirements, Structural Steel.”

### As-Built Signing Data

***DO NOT INCLUDE*** *provisions in DIV ST to collect sign data for inventory management purposes. Use the Pay Item 2011.601 AS BUILT and follow the directions within DIV S to cover sign inventory management.*

### Warning Stickers

*Use this provision if new sign panels or sign panel overlays are being installed for Type A, Type C and Type D signs (almost all projects) You will need to do a* PIF, the template is at <https://www.dot.state.mn.us/pre-letting/prov/public-interest.html>

Install Department-provided warning stickers on new sign panels according to 2564.3H.2, “Traffic Signs and Devices: Construction Requirements: Sign Panels: Fabrication and Warning Stickers.”

Give 30 days advance notice to the Department prior to picking up the Department-provided warning stickers:

Chris Dochniak *(Metro)-(for other districts, use maintenance area sign supervisor*)

651-755-0316

James Smidt *(for D6 use)*

507-286-7618

*If the project involves I-Beam signs:*

For I-Beam signs and overlays on I-Beam signs,

Affix the warning sticker to each I-Beam extruded panel in the lower right corner of the back of the extruded panel, directly above the fabrication sticker.

### Field Spotting of Signs

*Use this provision when installing signs where location and orientation is critical (i.e. roundabouts, RCUTs, DDI)*

Give the Engineer 14 calendar days advance notice prior to installing signs inside or within 50 feet of roundabouts.

The Engineer will contact the District Traffic Office, which will provide personnel to field spot the installation location and orientation of the signs:

Contact Name

Title

Phone Number

Email@state.mn.us

### Post-Award Data

*Use this provision if requested by the District Traffic Office*

SignCAD panel layout files for panel layouts shown on the Plans are available electronically upon project award. To request these files, please contact:

Contact Name

Title

Phone Number

Email@state.mn.us

### MnDOT believes the electronic data it will provide is accurate, but MnDOT provides no guarantee or warranty, express or implied, concerning the accuracy of the data and the Contractor shall not act in reliance on the data without verifying the data against the contract documents. The documents originally provided with the Contract remain the basis of the Contract, and the electronic data that will be provided at the Request of the Contractor is provided only for the convenience of the Contractor. Therefore, if use of this data causes an error, omission, unacceptable work, or work not in conformance with the contract documents, then any costs to the Contractor to make corrections as a result of this error will not be considered "extra work", and the Contractor will not be entitled to an adjustment of contract time.

### Sign Replacement Projects

*Use this provision on sign replacement projects*

The provisions of 2564.3V, “Traffic Signs and Devices: Construction Requirements: Scheduling of Work” are supplemented as follows:

For signs not detailed in 2564.3V, “Traffic Signs and Devices: Construction Requirements: Scheduling of Work”:

Schedule the work so that replacement signs are installed the same work day that the in-place signs are removed.

### New Posts Installed

Use this provision in all of Districts 1 and 2 and in all counties north of and including for District 3 (Kanabec, Mille Lacs, Morrison, Todd) for District 4 (Douglas, Grant, Traverse).

Base post lengths for ground mounted signs shall be 60 inches instead of 48 inches.

### Post-Installed Adhesive Anchorages

*Use this provision when installing signs to concrete structures*

This section is applicable for any post-installed adhesive anchorage used to facilitate installation of signs to in-place concrete structures.

Except when part of a proprietary anchorage assembly, ensure threaded rods and bolts meet the requirements of 3385, "Anchor Rods," and 3391," Fasteners," respectively.

1. Post-Installed Adhesive Anchorages

Adhesive anchorage installers must hold current ACI Adhesive Anchor Installer Certification credentials. Installers are required to check depth, diameter and condition of the drilled hole, clean the hole, and install the anchorage per the Manufacturer’s Printed Installation Instructions (MPII). Record the name(s) of all certified installers on the *RECORD OF CONTRACTOR/INSTALLER ACI CERTIFICATION* form available on the MnDOT Bridges and Structures website under "Bridge Construction; Construction forms and tools".

Furnish only one of the systems listed on the Department’s "Approved/Qualified Products List for Bridge Products, Concrete Adhesive Anchorages for Structural Applications". Verify that the adhesive has an uncracked characteristic bond strength as specified in the plan. Install all anchors as specified by the MPII. Install in sound concrete to a depth equal to the minimum depth specified in the plan or as specified by the manufacturer, whichever is greater.

Meet the following conditions prior to installation and testing:

* Concrete is greater than 14 days old;
* Concrete surface is free of water prior to drilling;
* The hole is dry, as defined below; and
* Any additional requirements listed in the Manufacturer’s Printed Installation Instructions.

A dry hole is defined as: *a hole with no water present within the hole*. If the hole is filled with water, partially filled with water, or water entered the hole during drilling, blow out the water using compressed air and allow a minimum of 24 hours dry-out time before cleaning the hole and installing the anchorage.

**It is essential that the adhesive material completely fill the hole in the concrete for proper anchorage performance.** Ensure that the hole is completely filled to the top of the concrete surface in which the anchorage is installed. Do not permit the adhesive to overtop the concrete surface in a way that will interfere with the placement of the elements.

1. Testing of Post-Installed Anchorages

Perform all testing by an independent third party testing agency. Testing agent must have current ACI Adhesive Anchor Inspector Certification credentials.

Verify the anchor strength and installation procedures by proof testing anchorages in accordance with this specification. Perform all testing in accordance with ASTM E488, *Standard Test Methods for Strength of Anchors in Concrete Elements*. Set up the tension testing device such that no portion of the device bears on the concrete surface within a distance equal to one and a half times the anchorage embedment depth. Test anchorages to not less than the required proof load as provided in the plan (if no anchor proof load is provided in the plan, contact the Engineer). Failure criteria of an anchorage test are defined in ASTM E488.

Ensure that nothing interferes with the testing apparatus during the proof test. Do not perform any caulk prior to testing.

Verify the anchor strength and installation procedure by demonstrating the anchorage system at the first site of field installation. One passing demonstration is required to be able to move to the remaining production anchorage installations. Include a proof test in each demonstration installation. Failure of a proof test will require a modification of installation procedures or use of a different anchorage system and an additional demonstration of the modified or substituted system. Demonstration anchorages may be used as production anchorages. The Contractor assumes all liability for repairs that may need to be performed as a result of a failed test. Record all demonstration results on the *PRE-PRODUCTION ANCHORAGES QUALIFICATION TEST REPORT* available on the [www.dot.state.mn.us/bridge/construction.html](http://www.dot.state.mn.us/bridge/construction.html) under "Construction forms and tools," and furnish the original of the completed form to the Engineer.

Notify the Engineer immediately after any failure. Provide a non-conformance anchorage replacement plan, to be accepted by the Engineer. Once accepted by the Engineer:

* Remove all anchorages that fail the field test without damage to the surrounding concrete;
* Redrill holes to remove adhesive bonding material;
* Install replacement anchorages in accordance with the MPII; and,
* Test anchors using the method listed above.

Perform replacement of failed anchorages to the satisfaction of the Engineer and at no cost to the Department.

Payment for all costs associated with furnishing, testing, and installing the anchorages are included with the sign installation.

### Install Sign Panel

Install a salvaged or Department provided sign panel with new mounting hardware to sign structure.

Sign panel punching codes, stringer details, and panel joint details have been updated to correspond with new square tube post standards and crashworthy requirements.

Field Punch salvaged sign panels as needed based on the new Punching Codes and Stringer Detail file found on MnDOT’s Standard Signs and Markings Manual (2020) website:

 <http://www.dot.state.mn.us/trafficeng/publ/signsmanual/index.html>

Aluminum stringers shall be extruded aluminum made with 6061-T6 Alloy.  The stringer shape shall be a channel with the legs folded back upon themselves to form an enlarged area for mounting to the post.  The stringer shall be two inches wide with a milled surface that the sign will be mounted upon.  The stringer shall have 3/8 inch holes provided at one inch intervals on center.  The legs of the stringer shall be 7/8 inch long to the folded portion.  The nominal thickness of the stringer shall be 1/8 inch.

The Engineer will measure install sign panel as a complete unit, including new mounting hardware and stringers used to install salvaged or Department provided sign panel.

### Install Sign Panel Type Special

Use if installing salvaged street name bracket assembly.

Install the salvaged bracket assembly with street name plates attached to new square tube sign structure using new mounting hardware as directed by the Engineer.

The Engineer will measure install sign panel Special as a complete unit, including salvaged bracket assembly with street name plates attached, new square tube posts, and new mounting hardware.

### Delineator Type Special

*Use this provision if using Linear Delineation Panels (Waffle Sheeting) – Very Rare.*

This work shall consist of furnishing and installing linear delineation panels upon median barriers and guardrail in accordance with the provisions of MnDOT 2564, the details shown in the Plans, and the following:

 Provide linear delineation panels of sizes and colors identified in Tabulation X on Sheet No. XX of the Plan.

 Only use linear delineation panels listed on MnDOT’s Approved/Qualified Products List under “Signing: Delineation Devices.”

 Remove any inplace linear delineation panels that conflict with the installation of new linear delineation panels shown in the Plan.

*Modify the following as necessary to identify mounting requirements and/or panel spacing (if not identified in Plan).*

 For concrete barrier mounted linear delineation panels:

Place each of the linear delineation panels along the concrete barrier, spaced (edge-to-edge) at the distance apart specified in the Plans.

Vertically space the linear delineation panels 2” below the top edge of concrete barrier to the top edge of the panel.

Prior to installing the linear delineation panels, prepare and clean the concrete surface per

the manufacturer’s detail. Attach the linear delineation panels to concrete barrier surface

 with anchor bolts AND adhesive caulk per the manufacturer’s detail.

 For guardrail mounted linear delineation panels:

 Place each of the linear delineation system panels along the inside vertical surface of the guardrail

trough, spaced (center-to-center) at the distance apart specified in the Plans. Center each panel horizontally between guardrail post bolt heads.

The Contractor may adjust the spacing of panels if the specified panel distance and placement conflicts with guardrail post bolt heads. If spacing is adjusted, the Contractor shall ensure approximately uniform spacing between the panels.

Prior to installing the linear delineation panels, prepare and clean the guardrail surface per

the manufacturer’s detail. Attach the linear delineation system panels to the guardrail surface with

 adhesive tape per the manufacturer’s detail.

### Sign Panels Type Special

Use for new street sign panels.

Fabricate the street sign panels in accordance with 3352, “Signs.”

Package, deliver, store, and install street sign panels in accordance with 1607, “Handling Materials,” 3352, “Signs,” and the retroreflective sheeting manufacturer's recommendations.

Install on inplace post and attach new street sign panels with new brackets and mounting hardware.

The Engineer will measure sign panels type special by square foot based on the nominal dimensions of the street sign panels. Sign panels are considered rectangular for the purpose of measurement except that the Engineer will measure triangular shaped sign panels as the actual area of the triangle. The Engineer will not make deductions for rounded corners. Sign type special includes new street sign panels, new post, new brackets, and new mounting hardware.

### Install Sign Collar

For signs installed in concrete as indicated in the plans, they shall be installed using sign collars supplied by the City. The Contractor shall contact City of Saint Paul Traffic Operations, 651- 266-9778, to obtain sign collars. Sign posts installed in sign collars shall be Schedule 40 aluminum round pipe with an inside diameter of two inches (2"), an outside diameter of two and three eighths inches (2.375"), and a length of ten feet (10').

The Engineer will measure install sign collar as a complete unit, including installing City furnished sign collar.

### Sign Collar

For signs installed in concrete as indicated in the plans, they shall be installed using sign collars. The Contractor shall contact City of Saint Paul Traffic Operations, 651- 266-9778, to obtain information on the sign collars. Sign posts installed in sign collars shall be Schedule 40 aluminum round pipe with an inside diameter of two inches (2"), an outside diameter of two and three eighths inches (2.375"), and a length of ten feet (10').

The Engineer will measure sign collar as a complete unit, including new sign collar.

### Install Sign

Provide and install new in ground base for the sign structure. Install new riser post if post was removed. Install salvaged post to new base. Install salvaged or Department provided sign panel(s) with new stringers and mounting hardware to riser post.

Sign panel punching codes, stringer details, and panel joint details have been updated to correspond with new square tube post standards and crashworthy requirements.

Field Punch salvaged sign panels as needed based on the new Punching Codes and Stringer Detail file found on MnDOT’s Standard Signs and Markings Manual (2020) website:

 <http://www.dot.state.mn.us/trafficeng/publ/signsmanual/index.html>

The Engineer will measure install sign as a complete unit, including new or salvaged post(s), new stringers, and new mounting hardware used to install salvaged or Department provided sign panel(s).

### Install Delineator/Marker

Install new base post. Install salvaged riser post with attached delineator/marker (if square tube) or new riser post and attach salvaged or Department provided delineator/marker with new mounting hardware.

The Engineer will measure install delineator/marker as a complete unit, including new base post, salvaged riser post or new riser post, and salvaged or Department provided delineator/marker attached with new mounting hardware.

### Install Sign Type Special

Use if installing salvaged street name sign.

Install new base post. Install salvaged riser post (if square tube) or new riser post. Install the salvaged bracket assembly with street name plates attached.

The Engineer will measure install sign type special as a complete unit, including new base post, new riser post or salvaged riser post, and salvaged bracket with street name plates attached.

### Delineator/Marker

Provide delineator/marker panel as required by the contract.

Provide and install the post and attach the delineator/marker panel with new mounting hardware required by the contract.

Affix a Department-provided warning sticker to the backside of each marker panel directly above the fabrication sticker. Warning stickers are available at the Department's Transportation District Office specified in the Contract. Provide thirty calendar days advance notice before picking up the stickers.

The Engineer will measure delineator/marker as a complete unit, including new post, new mounting hardware, new delineator/marker panel, and warning sticker.

### Delineator/Marker Panel

Provide delineator/marker panel as required by the contract.

Attach the delineator/marker panel with new mounting hardware required by the contract.

Affix a Department-provided warning sticker to the backside of each marker panel directly above the fabrication sticker. Warning stickers are available at the Department's Transportation District Office specified in the Contract. Provide thirty calendar days advance notice before picking up the stickers.

The Engineer will measure delineator/marker panel as a complete unit, including new delineator/marker panel and new mounting hardware.

### Sign

Fabricate the sign panels in accordance with 3352, “Signs.”

Package, deliver, store, and install sign panels in accordance with 1607, “Handling Materials,” 3352, “Signs,” and the retroreflective sheeting manufacturer's recommendations.

Install new post in accordance with the plans and attach new sign panels with new stringers as needed and mounting hardware.

Affix a Department-provided warning sticker to the backside of each sign panel directly above the fabrication sticker. Warning stickers are available at the Department's Transportation District Office specified in the Contract. Give the Transportation District’s contact person thirty calendar days advance notice before picking up the stickers.

The Engineer will measure sign by square foot based on the nominal dimensions of the sign panels. Sign panels are considered rectangular for the purpose of measurement except that the Engineer will measure triangular shaped sign panels as the actual area of the triangle. The Engineer will not make deductions for rounded corners. Sign includes new sign panels, new posts, new stringers, new mounting hardware, and installing Department provided warning sticker.

### Sign Panel

Fabricate the sign panel in accordance with 3352, “Signs.”

Package, deliver, store, and install sign panels in accordance with 1607, “Handling Materials,” 3352, “Signs,” and the retroreflective sheeting manufacturer's recommendations.

Attach new panel to support structure using new stringers as needed and mounting hardware.

Affix a Department-provided warning sticker to the backside of each sign panel directly above the fabrication sticker. Warning stickers are available at the Department's Transportation District Office specified in the Contract. Give the Transportation District’s contact person thirty calendar days advance notice before picking up the stickers.

The Engineer will measure sign panel by square foot based on the nominal dimensions of the sign panel. Sign panel is considered rectangular for the purpose of measurement except that the Engineer will measure a triangular shaped sign panel as the actual area of the triangle. The Engineer will not make deductions for rounded corners. Sign panel includes new sign panel, new stringers, new mounting hardware, and installing Department provided warning sticker.

### Sign Panel Overlay

Fabricate the sign panels in accordance with 3352, “Signs.”

Package, deliver, store, and install sign panels in accordance with 1607, “Handling Materials,” 3352, “Signs,” and the retroreflective sheeting manufacturer's recommendations.

Remove any inplace sign panel overlays and dispose of them in accordance with 2104, “Removing Pavement and Miscellaneous Structures.”

Attach the sign panel overlay to the extruded aluminum panels or sign panels with 3/16 inch stainless steel rivets.

Tightly butt the sign panel overlays vertically and rivet to the extruded panels on 12 inch vertical and horizontal centers. Rivet the edges and corners of each sign panel overlay. Do not place rivets within 1 inch of the extruded panel joints. Sign panel overlays must be flat after attaching to extruded panels.

If extruded panel is detached from posts to perform the overlay work, reattach extruded panels to sign posts or panel mounting posts with new post clips and torque each post clip between 12 foot•lb and 14 foot•lb.

*Use this provision to add graffiti film to sign panel overlay*

For Sign Panel Overlays indicated in tabulations of the plans,

Apply the graffiti film to the entire sign panel overlay in the shop and according to the manufacturer’s specifications.

The Engineer will measure sign panel overlay by the square foot based on the nominal dimensions of the sign panel. Signs are considered rectangular for the purpose of measurement except that the Engineer will measure triangular shaped sign panels as the actual area of the triangle. The Engineer will not make deductions for rounded corners. Sign panel overlay includes removing any existing sign panel overlays, new mounting hardware, and providing and attaching new sign panel overlay.

The one area where I modified the provisions was for the overlay section.  Again, thought it looked good.  However for historical reasons I thought it might be prudent to add in some of the current language from our specbook provisions for Sign Panel Overlay Type \_, particularly in relation to the sheeting material, to supply new post clips for overlays of existing extruded panels, and from DIV ST to remove inplace overlays:

### Sign Type Special

Use for new street signs.

Fabricate the street sign panels in accordance with 3352, “Signs.”

Package, deliver, store, and install street sign panels in accordance with 1607, “Handling Materials,” 3352, “Signs,” and the retroreflective sheeting manufacturer's recommendations.

Install new post in accordance with the plans and attach new street sign panels with new brackets and mounting hardware.

The Engineer will measure sign type special by square foot based on the nominal dimensions of the street sign panels. Sign panels are considered rectangular for the purpose of measurement except that the Engineer will measure triangular shaped sign panels as the actual area of the triangle. The Engineer will not make deductions for rounded corners. Sign type special includes new street sign panels, new post, new brackets, and new mounting hardware.

## METHOD OF MEASUREMENT AND BASIS OF PAYMENT

The Engineer will measure each item according to the Contract and the 2564, “Traffic Signs and Devices: Construction Requirements” section of these Special Provisions.

The Department will include all work described in the Contract and the 2564, “Traffic Signs and Devices: Construction Requirements” section of these Special Provisions as part of the contract unit price per unit of measure.

The Department will pay for traffic signs and devices on the basis of the following schedule:

*Include only pay items that contain work specified in these special provisions.*

| **Item No.:** | **Item:** | **Unit:** |
| --- | --- | --- |
| 2564.502 | Install Sign Panel | Each |
| 2564.502 | Install Sign Panel Type Special | Each |
| 2564.502 | Delineator Type Special | Each |
| 2564.518 | Sign Panels Type Special | Square Foot |
| 2564.602 | Install Sign Collar | Each |
| 2564.602 | Sign Collar | Each |
| 2564.602 | Install Sign | Each |
| 2564.602 | Install Delineator/Marker | Each |
| 2564.602 | Install Sign Type Special | Each |
| 2564.602 | Delineator/Marker | Each |
| 2564.602 | Delineator/Marker Panel | Each |
| 2564.618 | Sign | Square Foot |
| 2564.618 | Sign Panel | Square Foot |
| 2564.618 | Sign Panel Overlay | Square Foot |
| 2564.618 | Sign Type Special | Square Foot |

The Department’s payment for each item shall be compensation in full for all work, material, and costs involved in performing the work specified on the Plans and these Special Provisions.

# (3352) SIGNS, DELINEATORS, AND MARKERS

## DESCRIPTION

The Contractor shall furnish signs, delineators, and markers in accordance with 3352, “Signs, Delineators, and Markers,” except as modified in these Special Provisions.

### Aluminum Stringers

Add under section 3352.2:

A.7 Aluminum Stringers

Use extruded aluminum alloy 6061-T6 with mill finished surface for stringers used to mount sign panels to square tube posts.

### Stainless Steel Clamp

Add under section3352.2:

A.8 Stainless Steel Clamps

To clamp stringers to square tube posts use 11 gauge Type 304, #2B finished stainless steel with 3/8"-16 x 2" carriage bolt & serrated flange nut.

### Stainless Steel bolts

Add under section 3352.2:

A.6.c Stainless Steel Bolts

Use stainless steel bolts as specified in 3391.2E, “Fasteners: Requirements: Stainless Steel Bolts,” with zinc coated steel nylon insert lock nuts. When used to attach sign panels place a stainless steel washer and nylon washer on the sign sheeting surface.

### Galvanized Steel Screw Anchor Bolts

Add under section 3352.2:

A.6.d Galvanized Steel Screw Anchor Bolts

Use galvanized screw anchor bolts as specified in plans. Galvanize screw ancho bolts in accordance with 3392, “Galvanized Hardware.”

# (3402) SQUARE TUBULAR SIGN POSTS

## DESCRIPTION

The Contractor shall furnish square tubular sign posts in accordance with 3402, “Square Tubular Sign Posts,” except as modified in these Special Provisions.

### Riser post for Square-Tube Three-Wall Sign Base

1 ¾ inch by 1 ¾ inch square tube posts shall be 14 gauge (1.71 lbs/ft).