

Section 902

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**SECTION 902
FOUNDATIONS FOR GROUND MOUNTED SIGNS**

902-1 DESCRIPTION

Construct foundations for sign supports including locating, staking, excavating, shoring, backfilling, forming, landscaping and other necessary tasks as required.

902-2 MATERIALS

Refer to Division 10.

Item	Section
Joint Sealer	1028-2
Organic Non-Aerosol Zinc Repair Paint	1080-9
Portland Cement Concrete Production and Delivery	1000
Reinforcing Steel	1070
Select Material and Borrow Material	1016 and 1018

902-3 CONSTRUCTION METHODS

Establish the proper offset, longitudinal location and foundation elevation of each ground mounted sign support. Provide proper level and orientation of all supports.

Thoroughly compact all backfill in 6" layers. Remove all unneeded excavated material from the site.

Perform all excavation necessary for foundation construction to the elevations and dimensions shown in the contract. Place concrete against undisturbed soil.

Construct concrete sign foundations in accordance with Section 825. Construct either reinforced or plain Class A concrete foundations in accordance with the contract. Shape the tops of the foundations to conform with finished ground elevations such that water will not collect against the supports. No construction joints will be permitted.

Form the top 6" of foundations by approved methods. Center the supports in the foundations, securely brace and hold in proper position and alignment during placement of the concrete. Provide an ordinary surface finish to the concrete.

902-4 MEASUREMENT AND PAYMENT

The quantity of reinforced and plain concrete to be paid will be the actual number of cubic yards of concrete incorporated into the completed and accepted foundation. Computing the number of cubic yards of concrete will be done from the dimensions shown in the contract or from revised dimensions authorized by the Engineer, calculated to the nearest 1/100 of a cubic yard.

Payment will be made under:

Pay Item	Pay Unit
Reinforced Concrete Sign Foundations	Cubic Yard
Plain Concrete Sign Foundations	Cubic Yard

**SECTION 903
GROUND MOUNTED SIGN SUPPORTS**

903-1 DESCRIPTION

Furnish, fabricate, clear for sight distance and install ground mounted and barrier mounted signs supports.

1 The types of supports covered by this section are:

2 (A) Breakaway steel beam sign supports

3 (B) Simple steel beam sign supports

4 (C) 3-lb steel U-channel supports

5 (D) 2-lb steel U-channel supports

6 (E) Barrier sign support assembly

7 (F) Wood supports

8 (G) Steel square tube supports

9 **903-2 MATERIALS**

10 Refer to Division 10.

Item	Section
Breakaway or Simple Steel Beam Sign Supports (W- or S-Shapes)	1094-1(A)
Ground Mounted Signs	1094
Joint Sealer	1028-2
Organic Non-Aerosol Zinc Repair Paint	1080-9
Signing Materials	1092
Steel Square Tube Supports	1094-1
Steel U-Channel Supports	1094-1

11 **903-3 CONSTRUCTION METHODS**

12 **(A) Location and Field Verification**

13 The support lengths and dimensions for steel and wood ground mounted supports shown
14 in the contract are estimated for project bid purposes.

15 The Engineer or contract surveyor will establish the proper offset, longitudinal location;
16 foundation elevation and S-dimension of each ground mounted and barrier mounted sign
17 support. The Signing and Delineation Unit will issue a revision of the Sign Support
18 Chart Sheet following receipt of field-verified S-dimensions.

19 Order supports for ground mounted signs when the revised support lengths, dimensions
20 and sizes have been determined and the appropriate plan revision is completed.

21 Provide the proper vertical plumb, level and orientation of all signs and supports.

22 **(B) Clearing for Sign Sight Distance**

23 Clear vegetation in front of signs where necessary to achieve proper sight distance to the
24 sign. The sight distance area includes the triangular region of land extending from the
25 edge of the travel lane 800 ft in advance of the sign to 4 ft beyond the furthest edge of the
26 sign from the travel lane. The Engineer will determine where clearing is required and the
27 amount of clearing at the sign locations. Perform the clearing in accordance with
28 Section 200.

29 **(C) Breakaway Steel Beam and Simple Steel Beam**

30 Fabricate and install the supports in accordance with the contract. Punch, cut or weld
31 supports before galvanizing. Galvanize each component part in accordance with
32 ASTM A123 before assembly. Provide supports that are uniformly straight to within
33 1/8" tolerance for pieces less than 20 ft in length and 1/4" tolerance for pieces over
34 20 ft in length.

Section 903

1 Cut the upper and middle sections of breakaway supports from the same member. Bolt
2 the hinge joint in the breakaway supports to ensure true alignment of the 2 sections.
3 After bolting of hinge connections make sure that the 2 sections are in the same position
4 relative to each other, as before being cut. Completely assemble breakaway supports
5 before erection.

6 Provide supports that are plumb. Do not shim the supports. Take adequate care during
7 erection of supports to prevent damage to the surface finish. Use 2 coats of an approved
8 organic non-aerosol zinc repair paint in touching up damaged areas on all galvanized
9 materials.

10 (D) Steel Supports

11 (1) General

12 Drive the supports to the required depth, being sure they are plumb. Drive the
13 supports by hand or by mechanical means. Protect the supports with an appropriate
14 driving cap. Concrete foundations are not required. In island applications, cored
15 holes shall be to the soil depth.

16 Replace any support that is bent, or otherwise damaged in driving.

17 Do not weld or cut supports in the field, except for the saw cutting of U-channel
18 support material for the frames and cross braces that may be required for
19 Types D, E and F signs with 2 or more supports.

20 Use 2 coats of an approved organic non-aerosol zinc repair paint in touching up the
21 tops of U-channel supports that may have been damaged in driving. Cut ends of
22 supports, frames, cross bracing and damaged areas on these and all other galvanized
23 materials.

24 Use supports of sufficient length to permit the appropriate sign mounting height.
25 Spliced supports are not permitted on new construction.

26 (2) U-Channel

27 Use 3-lb galvanized steel U-channel supports for Types D, E and F signs. Use
28 2-lb galvanized steel U-channel supports for milemarkers.

29 (3) Perforated Square Tubing

30 Use square tube supports in accordance with the contract.

31 (E) Barrier Supports

32 (1) Small

33 Attach brackets and U-channel supports to the median or shoulder barrier for the
34 erection of Type E or F signs or milemarkers in accordance with the contract.

35 (2) Large

36 Attach brackets, anchorage and pipe supports to the median or shoulder barrier for
37 the erection of Type E signs in accordance with the contract.

38 (F) Wood Supports

39 Use wood supports in accordance with the contract.

40 Replace any support that is damaged during erection.

41 Breakaway wood supports shall be drilled in accordance with the contract. All wood
42 supports larger than 4" x 4" that have not been drilled shall be behind guardrail.

1 **903-4 MEASUREMENT AND PAYMENT**

2 The supports, specified in these *Standard Specifications*, installed and accepted, will be
3 measured for payment as follows:

4 *Supports, Breakaway Steel Beam* and *Supports, Simple Steel Beam* will be measured and paid
5 as the actual number of pounds of structural steel installed and accepted. The computed
6 nominal weights shown in the final revised plans will be used in determining this quantity.
7 Measurement will not be made of the weight of nuts, bolts and washers that are part of the
8 sign support, as they will be incidental to the work.

9 *Supports, 3-lb Steel U-Channel* will be measured and paid as the actual number of linear feet
10 of 3-lb steel U-channel supports incorporated into the completed and accepted supports and
11 assemblies. Measurements of length will be made to the nearest 1/10 of a foot.

12 *Supports, 2-lb Steel U-Channel* will be measured and paid as the actual number of
13 2-lb steel U-channel support installed and accepted.

14 *Supports, Barrier (Small)* will be measured and paid as the actual number of small barrier
15 supports installed and accepted.

16 *Supports, Barrier (Large)* will be measured and paid as the actual number of large barrier
17 supports installed and accepted.

18 *Supports, Wood* will be measured and paid as the actual number of linear feet of wood support
19 incorporated into the completed and accepted supports. Measurements of length will be made
20 to the nearest 1/10 of a linear foot. The computed linear feet of sign supports, as indicated in
21 the final revised plans will be used in determining this quantity.

22 *Supports, Steel Square Tube* will be measured and paid as the actual number of linear feet of
23 steel square tube supports incorporated into the completed and accepted supports and
24 assemblies. Measurements of length will be made to the nearest 1/10 of a foot.

25 Payment will be made under:

Pay Item	Pay Unit
Supports, Breakaway Steel Beam	Pound
Supports, Simple Steel Beam	Pound
Supports, 3-lb Steel U-Channel	Linear Foot
Supports, 2-lb Steel U-Channel	Each
Supports, Barrier (Small)	Each
Supports, Barrier (Large)	Each
Supports, Wood	Linear Foot
Supports, Steel Square Tube	Linear Foot

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**SECTION 904
SIGN ERECTION**

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28 **904-1 DESCRIPTION**

29 Erect existing and proposed ground mounted and overhead signs to existing and proposed
30 supports and furnish mounting hardware. Relocate existing signs in accordance with the
31 contract and Specifications.