

**SECTION 46 - SURVEY MONUMENTS  
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## **SECTION 46 SURVEY MONUMENTS**

### **46-1 GENERAL**

This work shall consist of constructing cast-in-place portland cement concrete survey monuments at the locations shown on the Plans or directed by the Agency. Survey monuments shall conform to the requirements in Section 81, "Monuments", of the State Specifications, these Specifications, and the Special Provisions.

The Agency shall show the location and character of all existing survey monuments within the construction area on the construction plans.

Whenever a survey monument not shown on the plan is discovered, the Contractor shall immediately bring it to the attention of the Agency and shall take all precautions necessary to avoid damaging it.

When set forth in the Special Provisions that the Contractor is to provide all surveys, the Contractor shall be responsible for referencing, re-setting, and filing of corner records for all survey monuments disturbed or destroyed by construction activities in accordance with Section 8771 of the Land Surveyors Act.

All survey monuments and references shall be set or re-set by or under the direction of a California Licensed Land Surveyor or a California Registered Civil Engineer authorized to practice Land Surveying.

### **46-2 MATERIALS**

Unless otherwise specified in the Contract, survey monuments shall be Type D, Alternative 1, as detailed on the State Plan A74, except for those to be installed in new bridge deck construction. Survey monuments placed in new bridge deck construction shall be modified Type A, as detailed on State Plan A74, and shall consist of a marker disc placed on the surface of the concrete bridge deck without specific concrete depth, reinforcing or chamfer.

Concrete shall be Class "B-2" concrete as specified in Section 50-5, "Portland Cement Concrete", of these Specifications.

Unless otherwise specified in the Special Provisions, survey marker discs shall be furnished by the Contractor and shall be leaded red or semi-red brass conforming to ASTM Designation: B 584, Copper Alloy UNS No. C84400. The disc shall be two and one-half inches (2-1/2") in diameter and not less than two and one-half inches (2-1/2") long.

Mortar shall be as specified in Section 51-1.135, "Mortar", of the State Specifications.

### **46-3 CONSTRUCTION**

The brass disc shall be imbedded in fresh concrete and centered within the cross ties of the survey point.

Finished monument cases shall be flush with the surrounding area and shall be secured by a concrete or mortar collar as detailed on the State Plan A74. Survey monuments on new deck construction do not have monument cases.

It is essential that the survey monuments be placed in the correct locations. Survey monuments placed in locations unacceptable to the County's Surveyor shall be removed and replaced at the Contractor's expense.

The Contractor shall be responsible for installation of the marker disc in fresh concrete so that it is properly centered within the cross ties of the survey point.

**46-4 MEASUREMENT AND PAYMENT**

The quantities of each type of survey monument will be paid for as survey monuments by units, in place, determined from actual count. The unit prices paid for survey monuments include full compensation for furnishing all labor, materials, tools, equipment, and incidentals, and for doing all the work involved in constructing the survey monuments, complete in place, including monument cases, granular material, excavating and backfilling holes, and disposing of surplus excavated material, as shown or specified in the Contract, specified in these Specifications, and directed by the Agency.