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8401 Laguna Palms Way  
Elk Grove, California 95758



## **Modification or Addition to Improvement Standards and Details**

Modification Number: **2015-01**

Effective Date: **February 9, 2015**

### **Modification:**

Modify compaction and materials testing requirements affecting the following sections of the Standard Construction Specifications:

- Section 5-15 Preparation of Testing
- Section 5-16 Materials Sampling and Testing
- Section 18-2 Roadway Excavation
- Section 19-2 Pipe Bedding and Backfilling of Trenches
- Section 22-2 Aggregate Base
- Section 27-3 Concrete in Curbs, Gutters, and Sidewalks
- Section 27-13 Drop Inlets and Catch Basins
- Section 30-7 Placing Concrete

This modification shall only apply to projects in which improvement and landscape plans have not been accepted by the City as of the Effective Date unless otherwise deemed necessary by the Public Works Director, but may be applied to any project if the applicant so elects.

### **Effect of Modification:**

1. Requires project owners to perform their own materials testing with the City reserving the right to perform its own testing, if deemed necessary, at the owner's expense.
2. Clarifies testing procedures and frequencies as noted below:
  - a. Finished subgrade and aggregate base to be compacted to 95% relative compaction with a testing frequency of one (1) test per 150 linear feet.
  - b. Backfilling of trenches to be tested at a frequency of one (1) per 200 linear feet or one (1) per manhole run, whichever occurs first.
  - c. Concrete testing to occur at a minimum of one (1) test per mix design, per project per day in accordance with ACI standards.
  - d. Specialty concrete design requires a quality control plan for review and approval

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Request for Modification Initiated By:

1.23.15

Title: CONSTRUCTION MAINTENANCE  
MANAGER Date

Modification Reviewed for Conformity and  
Consistency to Standards:

1/29/2015

Engineering Services Manager Date

Modification to Improvement Standards Approved:

2/13/15

Public Works Director Date

## **5-15 PREPARATION FOR TESTING**

The Contractor shall maintain proper facilities and provide safe access for inspection by the City to all parts of the Work and to the shops wherein parts of the Work are in preparation. Where the Contract or these Specifications require work to be tested or approved, such work shall not be tested or covered up without at least a five (5) Working Day notice to the City of its readiness for inspection, unless the written approval of the City for such testing or covering is first obtained.

## **5-16 MATERIALS SAMPLING AND TESTING**

Materials to be used in the Work will be subject to sampling and tests as required by the City. The Contractor shall furnish the City with a list of the Contractor's sources of materials and the locations at which such materials will be available for inspection, and shall be furnished to the City in time to permit the inspection and testing of materials in advance of their use.

Testing shall be done to such standards as set forth in the Plans, Specifications, or Special Provisions. References made in these documents to standard methods of testing materials shall make such standards a part of the Specifications.

Whenever a reference is made in the Specifications to a specification or test designation of any recognized national organization or State of California Agency, and the number or other identification representing the year of adoption or the latest revision is omitted, it shall mean the specification or test designation in effect on the date of the original Notice to Contractors for the Work.

When requested by the City, samples or test specimens of the proposed materials shall be prepared at the expense of the Contractor and furnished by the Contractor in such quantities and sizes required for proper examination and tests, and with complete information describing type, kind, or size of material, and its source. All samples shall be submitted in time to permit the making of proper tests, analyses, or examinations before incorporating the materials into the Work. No material shall be used in the Work unless or until it has been approved by the City. All material tests shall be performed by the owner's Geotechnical Engineer. If testing criteria as noted in these Specifications are not met to the satisfaction of the City Engineer, the City reserves the right to perform its own testing using the City's Geotechnical Engineering Consultant at the owner's expense..

## **18-2 ROADWAY EXCAVATION**

### **18-2.05A Subgrade Soils – Roadway, Curb and Gutter, and Sidewalks**

Subgrade soils shall be stable and unyielding, compacted as specified, and graded as designed. All work shall comply with Section 19 of the Caltrans Standard Specifications unless addressed by these specifications.

#### **1. Subgrade Preparation**

All subgrade shall be scarified to a depth of twelve inches (12") and moisture conditioned to between 0 and 3 percent above optimum moisture content as determined by ASTM D3017. If the roadway was undercut by more than twelve inches (12") during mass grading to account for trench spoils scarification will not be necessary. However, all material placed within the undercut shall be compacted to at least ninety-three (93%) percent of the ASTM D1557

maximum dry density and moisture conditioned to between 0 and 3 percent above optimum moisture content.

## 2. Compaction

Prepared subgrade soils shall be compacted to at least 95 percent of the ASTM D1557 maximum dry density and moisture conditioned to between 0 and 3 percent above optimum moisture content. Testing shall conform to ASTM D2922 and D2017 for nuclear density testing. Nuclear density tests shall be performed at intervals no greater than 150 linear feet for each of the following, sidewalk, curb and gutter, and roadway. A minimum of 3 density tests shall be performed on each cul-de-sac. Density tests shall also be performed at all curb returns. All tests shall be plotted on the plan views of the record drawings. The moisture content shall be maintained until the placement of AB. If the moisture content is not maintained then steps 1 and 2 shall repeated prior to placement of AB.

## 3. Subgrade Stability

The finished subgrade shall be proof rolled prior to aggregate base placement to evaluate the load/deflection characteristics of the finished subgrade materials. Proof rolling shall be performed by a fully loaded 4,000 gallon water truck. Proof rolling shall be performed in each lane of the roadway. If the tested surface shows a visible deflection at the time of loading or a visible crack remains after loading, corrective measures shall be implemented. Corrective measures shall be determined on a case-by-case basis. All corrective measures shall be documented and located on the record drawings.

## 4. Finished Subgrade

Finished subgrade shall be compacted in accordance with the Geotechnical Engineer's soils report for the project, with all tests achieving ninety-five percent (95%) of the ASTM D1557 maximum dry density. Finished subgrade will be tested at a frequency of one (1) test per 150 linear feet of roadway. Tests should be located so an even distribution is made across the cross section. For roadways with median islands, the subgrade will be treated as that section between lip of gutter and face of median curb for each side. Where a median exists, each side of the roadway shall be considered as an individual length of road for the purpose of this testing. Sidewalk, curb and gutter sections shall be tested at a frequency of one (1) test per 150 linear feet and be independent of the testing in the roadway section.

## **19-2 PIPE BEDDING AND BACKFILLING OF TRENCHES**

### **19-2.01 Pipe Bedding**

#### **Compaction of Bedding and Pipe Zone Backfill**

Pipe bedding and pipe zone backfill materials shall meet the requirements of the governing Agency. Bedding and backfill shall be placed in loose lifts not exceeding eight (8) inches and mechanically compacted to a minimum of 90 percent of the ASTM D1557 maximum dry density, and be consistent with the typical trench detail. Where clean crushed rock is used and conventional compaction testing is not practical, the material shall be mechanically compacted until no further yielding of the material is observed under the compactor. Sand should be placed at or above the optimum moisture content, not to exceed 5 percentage points

over the optimum moisture content. Tests should be completed at a frequency of one (1) per 200 linear feet or one (1) per manhole run whichever occurs first.

## **22-2 AGGREGATE BASE**

### **22-2.01 Roadway Aggregate Base**

Roadway Aggregate base shall be compacted to a minimum of ninety-five percent (95%) of the ASTM D1557 maximum dry density. Roadway Aggregate Base will be tested at a frequency of one (1) test per 150 linear feet of roadway. Tests should be located so an even distribution is made across the cross section. For roadways with median islands, the roadway will be treated as that section between lip of gutter and face of median curb for each side. Where a median exists, each side of the roadway shall be considered as an individual length of road for the purpose of this testing. Sidewalk, curb and gutter sections shall be tested at a frequency of one (1) test per 150 linear feet and be independent of the testing in the roadway section.

## **27-3 CONCRETE IN CURBS, GUTTERS, AND SIDEWALKS**

### **27-3.06 Concrete Testing**

Concrete sampling and testing for sidewalk, curb and gutter shall be completed at a minimum frequency of one (1) test per mix design, per project per day and be made in accordance with ACI standards. Additional testing may be required at the direction of a representative of the Public Works Department. Compression testing results and load tickets will be submitted to Public Works at the completion of the project. For specialty concrete designs (air-entrained concrete, high-early strength, etc.) the Contractor shall submit a quality control plan for review and approval by the Public Works Department.

## **27-13 DROP INLETS AND CATCH BASINS**

Drop inlets, catch basins, grates, and frame types shall conform to the Standard Drawings and Section 50-31, "Sewer and Storm Drain Castings", of these Specifications.

Concrete for drop inlets and/or catch basins shall be either Class "A" or "B", and shall conform to Section 50-5, "Portland Cement Concrete", of these Specifications. The concrete box portion of the drop inlet and/or catch basin shall be cast to the proper grade in a maximum of one (1) placement of concrete. Use of grout to adjust the drop inlet and/or catch basin frame to the proper grade will not be permitted without written approval of the City.

Concrete used for drop inlets and/or catch basins shall be tested at a minimum frequency of one (1) test per mix design, per project per day and be made in accordance with ACI standards. Additional testing may be required at the direction of a representative of the Public Works Department. Compression testing results and load tickets will be submitted to Public Works at the completion of the project. For specialty concrete designs (air-entrained concrete, high-early strength, etc.) the Contractor shall submit a quality control plan for review and approval by the Public Works Department.

Grate and frame materials and method of placement shall conform to the requirements in Section 75-1.02, "Miscellaneous Iron and Steel", of the State Specifications. Reinforcing bar supports or other approved means shall be used to hold the frame at proper grade during final

placement of concrete. Broken pieces of concrete, or other debris, shall not be used for this purpose.

At the option of the Contractor, drop inlets and/or catch basins may be furnished and installed as precast units, or the units may be combined precast and cast-in-place structures, provided the structures in place substantially conform to cast-in-place construction as specified in these Specifications.

All drop inlet and catch basin installations, whether new or reconstructions, shall include a permanent stormwater quality marking per the City of Elk Grove Improvement Standards, or as directed by City.

## **30-7 PLACING CONCRETE**

### **30-7.04 Concrete Testing**

Concrete used in wall footings and for cast in place manholes will be tested at a minimum frequency of one (1) test per mix design, per project per day and be made in accordance with ACI standards. Additional testing may be required at the direction of a representative of the Public Works Department. Compression testing results and load tickets will be submitted to Public Works at the completion of the project. For specialty concrete designs (air-entrained concrete, high-early strength, etc.) the Contractor shall submit a quality control plan for review and approval by the Public Works Department. Concrete used in Cast-In-Place Concrete Pipe (CIPCP) construction will be tested in accordance with Section 36-12.01, "Placement Tests" of these Specifications. Compression testing results and load tickets will be submitted to Public Works at the completion of the project.

*No changes are proposed to Asphalt Concrete Testing which shall continue to be performed in accordance with Section 23-8, "Asphalt Concrete Placement Acceptance Testing" of the Standard Construction Specifications. Testing for concrete used in Concrete Pavements will continue to be addressed as a special provision in the project specifications.*