

## **Revised Agenda Item No. 6**

### **Board of Directors Metro Valley Study Session**

**August 14, 2014**

**Location**

**SANBAG**

*First Floor Lobby*

1170 W. 3<sup>rd</sup> Street

San Bernardino, CA

### **DISCUSSION ITEM**

**6. Interstate 215 (I-215) Landscaping Replacement Project**

That the following be reviewed and recommended for final approval by the Board of Directors, acting as the San Bernardino County Transportation Commission, at a regularly scheduled Board meeting:

1. Approve the Plans, Specifications, and Estimate, and authorize advertising Invitation for Bids 14171 for construction of the I-215 Segment 3 Landscaping Replacement Project.
2. Approve taking the recommendation for award of the construction contract directly to the Board without prior Board Metro Valley Study Session review.
3. Approve award of Contract No. C14129 with Vali Cooper & Associates, Inc. for I-215 Segments 1, 2, 3 and 5 Landscaping Replacement Project Construction Management Services in an amount not-to-exceed \$2,547,556.38, after receipt of the Caltrans Conformance Letter and correction of any deficiencies noted therein, as required by Caltrans' Local Assistance Procedures Manual.
4. Approve a contingency amount for Contract No. C14129 of \$254,755.00 and authorize the Executive Director or designee to release contingency as necessary for the project.
5. Authorize an exception to Policy 11000 Article V. "Standard Procedures" Item F. for Contract No. C14129 to extend the maximum term from five (5) years to eight (8) years to coordinate with anticipated release of future landscape construction and maintenance contracts.

Note agenda items and contractors/subcontractors, which may require member abstentions due to possible conflicts of interest. **Garry Cohoe**

*This item was revised to include the not-to-exceed amount of \$2,547,556.38 and \$254,755.00 for contingency for Contract No. C14129 with Vali Cooper & Associates, Inc. for I-215 Segments 1, 2, 3 and 5 Landscaping Replacement Project Construction Management Services. Staff negotiations of the scope of services and the contract amount occurred after the printing of the Metro Valley Study Session Agenda.*

REVISED

***Minute Action***

AGENDA ITEM: 6

**Date:** August 14, 2014

***Subject:***

Interstate 215 (I-215) Landscaping Replacement Project

***Recommendation:***

That the following be reviewed and recommended for final approval by the Board of Directors, acting as the San Bernardino County Transportation Commission, at a regularly scheduled Board meeting:

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2. Approve taking the recommendation for award of the construction contract directly to the Board without prior Board Metro Valley Study Session review.
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4. Approve a contingency amount for Contract No. C14129 of \$254,755.00 and authorize the Executive Director or designee to release contingency as necessary for the project.
5. Authorize an exception to Policy 11000 Article V. "Standard Procedures" Item F. for Contract No. C14129 to extend the maximum term from five (5) years to eight (8) years to coordinate with anticipated release of future landscape construction and maintenance contracts.

***Background:***

**This agenda item allows the I-215 Segment 3 Landscaping Replacement Project to proceed to construction and recommends a new professional services contract.**

In January 2012, the San Bernardino County Transportation Authority entered into a contract with the State of California Department of Transportation (Caltrans) whereby Caltrans was the lead agency for performing acquisition of any right-of-way, preparation of the environmental document, and preliminary and final design of landscaping plans for the corridor segments of the I-215. The final design plans were broken into 4 segments: Segments 1, 2, 3, and 5, all within the City of San Bernardino.

***Entity:*** CTC

In May 2014, the Board approved Cooperative Agreement No. C14120 with Caltrans for landscape construction of Segment 3, whereby SANBAG is the sponsor, funding partner, and implementing agency for construction capital and support.

**Recommendation 1 & 2:** The landscape design is complete on Segment 3, the most southerly segment from Orange Show Road Overcrossing north to the Lytle Creek Channel Undercrossing. This recommendation is for the approval of the Plans, Specifications, and Estimate (PS&E) and to authorize the advertising of Invitation for Bids 14171 for construction of the I-215 Segment 3 Landscaping Replacement Project.

This landscape construction contract will be recommended for award based on verification of the lowest responsive/responsible bid in accordance with required criteria. Since the award of the contract is based on the lowest responsive/responsible bidder, it is recommended that the award of the construction contract proceed directly to the Board without prior Metro Valley Study Session review. This will allow the execution of the contract and start of construction to occur at the earliest possible date, and ensure timely use of federal funding. If the bids come in higher than what is programmed, alternatives will be considered and a recommendation brought forward for Board's consideration.

**Recommendation 3, 4 & 5:** On May 7, 2014, the Board authorized the advertisement of Request for Proposal (RFP) 14129 for Construction Management Services for the I-215 Segments 1, 2, 3 and 5 Landscaping Replacement Project with a Notice to Proceed to be issued for each segment when the segment is ready to be advertised for construction.

Procurement Approach: On May 21, 2014, RFP C14129 was released and published on SANBAG's website. Approximately 292 firms were notified of the RFP. A pre-proposal conference was held on June 4, 2014, which was attended by 10 people representing 6 firms.

On July 16, 2014, four proposals were received. The four firms are listed below in alphabetical order:

**Firm & Location**

Caltrop  
Rancho Cucamonga, CA

Hernandez, Kroone & Associates  
San Bernardino, CA

Simon Wong Engineering  
Riverside, CA

Vali Cooper & Associates  
Riverside, CA

An evaluation committee consisting of representatives from the City of San Bernardino, Department of Transportation (Caltrans), and SANBAG evaluated the proposals based on the following evaluation criteria:

- Qualifications of the Firm
- Staffing and Project Organization
- Work Plan

Since the work being performed is considered Architectural & Engineering Services, cost and price is not considered evaluation criteria pursuant to the Brooks Act. The evaluation criteria are consistent with other similar procurements. In developing the criteria, staff put a higher relative importance on the work plan given the challenges and the complexity of the work. Second in importance was the proposed staffing since the qualifications of the key personnel are very important to the overall success of the project.

The evaluation committee reviewed all proposals based on the evaluation criteria and found all four firms to be technically qualified, however based upon the proposal evaluation only three firms were invited to the interview. The three firms are listed below in alphabetical order:

1. Caltrop
2. Simon Wong Engineering
3. Vali Cooper & Associates

On June 30, 2014, the evaluation committee interviewed the three firms listed above. Questions were asked relative the firms' proposed staffing plans, their overall understanding of the project, and each firms' approach to the scope of work. The three firms responded well to the questions asked.

Based on the proposal evaluation and interviews, the evaluation committee recommended Vali Cooper & Associates, Inc. (Vali Cooper) to provide the Construction Management Services for the I-215 Segments 1, 2, 3 and 5 Landscaping Replacement Project. All three firms clearly had experience and knowledge with providing construction management services on a highway project. However, with regards to the work plan, Vali Cooper demonstrated a greater understanding of the I-215 corridor and greater attention to detail and a depth of understanding that was more thorough. It was clear that they had a thorough knowledge of the project. The team proposed by Vali Cooper, including the key personnel and subconsultants, displayed a successful history of having worked together on other similar projects. The proposed project manager/resident engineer and the proposed licensed landscape architect possesses strong experience and demonstrated that experience when responding to questions during the interview. The selection panel unanimously agreed that Vali Cooper & Associates, Inc. was the most qualified to provide the services requested. Staff verified not only the references of the firm and the principal, but also called on and received positive references for the Project Manager/Resident Engineer and the Licensed Landscape Architect.

Staff negotiations of the scope of services and the contract amount occurred after the initial printing of the Metro Valley Study Session Agenda. Negotiations are now complete. Staff recommends approval of Contract No. C14129 with Vali Cooper & Associates, Inc. for I-215

Segments 1, 2, 3 and 5 Landscaping Replacement Project in an amount not-to-exceed \$2,547,556.38; establishment of a contingency amount for Contract No. C14129 of \$254,755.00 and authorization of the Executive Director or designee to release contingency as necessary for the project. Staff is also requesting approval of an exception to Policy 11000 Article. F to extend the maximum term for Contract No. C14129 from five (5) years to eight (8) years to coordinate with anticipated release and durations of future landscape construction and maintenance contracts.

For efficiency, one construction management contract is being recommended to cover all four (4) phases of the I-215 landscape corridor. Currently Cooperative Agreement No. C14120 with Caltrans for landscape construction of Segment 3 has been executed and Caltrans has completed the design. As part of the Contract No. C14129 "Scope of Work", separate Notices to Proceed will be issued for each landscape segment as follow-up cooperative agreements are approved and designs are completed.

The award and execution of the Contract No. C14129 is contingent upon Caltrans' Audits & Investigations (A&I) issuance of a Conformance Letter which indicates that Caltrans has reviewed the proposed contract and the financial information submitted by the consultant and its subconsultants, and has found the contract terms and the consultant's cost and price information compliant with state and federal requirements. This is a new Caltrans' procedure implemented in May 2013, impacting Architects and Engineering Contracts of \$150,000 or more. Authorization to utilize federal funds on this contract is not expected until the end of 2014. To allow the project to move forward while the audit is being completed, a purchase order to Vali Cooper for a not-to-exceed amount of \$25,000.00 for the constructability review and preconstruction services was authorized in May 2014 by the SANBAG Board.

***Financial Impact:***

This item is consistent with the adopted SANBAG Fiscal Year 2014/2015 budget under Task No. 0838b. The funding sources are Projects of National and Regional Significance (PNRS) and Measure I 1990 Traffic Management and Environmental Enhancement (TMEE).

***Reviewed By:***

This item is not scheduled for review by any other policy committee or technical advisory committee. SANBAG General Counsel and Contract Administrator have reviewed this item and a draft contract.

***Responsible Staff:***

Garry Cohoe, Director of Project Delivery



# CONTRACT SUMMARY SHEET

Contract No. C 14129 Amendment No. 0

By and Between

San Bernardino County Transportation Authority and Vali Cooper & Associates Inc

Contract Description Construction Management Services for I-215 Segments 1,2, 3 and 5 Landscape Construction and Establish Existing Planting

**Board of Director's Meeting Date:** 09/03/14  
**Overview of BOD Action:** Award contract for construction management for I-215 Segments 1,2, 3 and 5 Landscape Construction and Establish Existing Planting, approve Contingency and modification to Policy 1000 Article V. F. from 5 to 8 years

Is this a Sole-Source procurement?  Yes  No

### CONTRACT OVERVIEW

Original Contract Amount	\$	2,547,556.38	Original Contingency Amount	\$	254,755.00
Revised Contract Amount <i>Inclusive of prior amendments</i>	\$		Revised Contingency Amount <i>Inclusive of prior amendments</i>	\$	
Current Amendment Amount	\$		Contingency Amendment	\$	
<b>TOTAL CONTRACT VALUE</b>	<b>\$</b>	<b>2,547,556.38</b>	<b>TOTAL CONTINGENCY VALUE</b>	<b>\$</b>	<b>254,755.00</b>
<b>TOTAL BUDGET AUTHORITY (contract value + contingency)</b>					<b>\$ 2,802,311.38</b>

Contract Start Date 09/3/14	Current Contract Expiration Date 09/3/22	Revised Contract Expiration Date
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Has the contract term been amended?  No  Yes - please explain.

### FINANCIAL INFORMATION

Budget authority for this contract currently exists in Task No. 0838.

A Budget Amendment is required.

How are we funding current FY? PNRs, TMEE, MSI 1990 Valley

Federal Funds  State Funds  Local Funds  TDA Funds  Measure I Funds

*Provide Brief Overview of the Overall Funding for the duration of the Contract:*

PNRS and MSI 1990 Valley TMEE, Currently there is funding for Segment 3. Per Scope of Work separate Notices to Proceed will be issued as PSE and funding agreements are approved for each segment.

Payable  Receivable

### CONTRACT MANAGEMENT INFORMATION

**Check all applicable boxes:**

Retention? If yes, indicate % \_\_\_\_\_.

Disadvantaged Business Enterprise (DBE) Goal 2.41 %

\_\_\_\_\_  
Mike Barnum  
Project Manager (Print Name)  
\_\_\_\_\_  
Garry Cohoe  
Task Manager (Print Name)  
\_\_\_\_\_  
Andrea Zureick  
Dir. of Fund Admin. & Programming (Print Name)  
\_\_\_\_\_  
Jeffery Hill  
Contract Administrator (Print Name)  
\_\_\_\_\_  
Bill Stawarski  
Chief Financial Officer (Print Name)

_____ Signature	8/12/14 Date
_____ Signature	8-12-14 Date
_____ Signature	8/12/14 Date
_____ Signature	8/12/14 Date
_____ Signature	8/12/14 Date

**EXHIBIT A - SCOPE OF WORK**  
**CONSTRUCTION MANAGEMENT**

**Construction Management Services for I-215 Segments 1,2, 3 and 5 Landscape  
Construction and Establish Planting Projects in the City of San Bernardino from Orange  
Show Road to north of SR-210**

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A. DESCRIPTION OF SERVICES

The San Bernardino Associated Governments acting as the San Bernardino County Transportation Commission (SANBAG) will utilize the services of CONSULTANT to support highway landscaping construction and maintenance contracts of the Interstate 215 (I-215) Segments 1, 2, 3 and 5 as described by the plans and specifications of I-215 Landscaping for each of the four segments, (note: these plans include previously constructed roadways, bridges, drainage facilities, retaining walls, and sound walls). Construction is anticipated to be for 10 months for each segment followed by a one-year plant establishment period, and then a new four-year establish planting (EEP) contract. The total capital cost for the four segments is estimated to be \$11 million.

SANBAG will issue a Notice to Proceed for each segment as each segment is ready to be advertised for construction. Design plans for these segments are scheduled to be released at 6 month intervals. It is anticipated these segments will be ready to list over the next two years with no more than two segments under construction at any given time.

SANBAG anticipates issuing a Purchase Order to the Consultant to complete a Constructability Review for Segment 3. A full Notice to Proceed (NTP) on Segment 3 will be issued upon receipt of the approved funding agreement from Caltrans and Caltrans Letter of Conformance.

CONSULTANT shall provide qualified landscape inspection personnel to perform a wide variety of maintenance management, inspection and contract administration duties as outlined in this Scope of Services for the Project.

The SANBAG Project Manager (“Designee”) for this contract will be:

Mr. Mike Barnum, SANBAG Construction Manager

The CONSULTANT shall report to and receive direction from SANBAG through the SANBAG Project Manager, or his designees. The SANBAG Project Manager is responsible for oversight of all SANBAG construction activities and for directing the efforts of the total construction team. He/she will be the main contact and primary source of information between SANBAG, Caltrans, cities, outside agencies, supporting consultants and the public.

B. PERFORMANCE REQUIREMENTS

**Landscape Construction/Maintenance Management:** CONSULTANT shall furnish personnel to serve in the following roles: Project Manager, Resident Engineer, licensed Landscape Architect, Office Engineer, Field Inspection, Materials Testing and Land Surveying. Personnel can serve multiple roles. Proven staffing efficiency is critical. The Project Manager shall coordinate CONSULTANT operations with SANBAG. The Project Manager shall be responsible for all matters related to CONSULTANT personnel and operations. The Project Manager may also serve as the Resident Engineer and the licensed landscape architect. The Resident Engineer shall be a civil engineer licensed in the State of California and will be responsible for construction contract administration activities. The Resident Engineer may also serve as the licensed Landscape Architect. The Resident Engineer shall direct and coordinate construction activities under this contract. Other Assistant Resident Engineers may be assigned to each specific project responsibilities as needed. It is desirable that the Project Manager and/or Resident Engineer also be a licensed Landscape Architect.

The number of CONSULTANT personnel assigned to the project will vary throughout the

duration of the contract. CONSULTANT personnel will be assigned, in varying levels of responsibility, as needed by the CONSULTANT to meet the project schedule, project requirements, and construction activities.

Resumes of personnel must be submitted to SANBAG for review and approval prior to assignment to the Project. SANBAG and CONSULTANT will jointly determine the quality and quantity of services that are required by CONSULTANT personnel. Personnel selected for assignment by CONSULTANT shall be made available for personal interviews prior to acceptance by SANBAG. If, in the opinion of SANBAG, an individual lacks adequate experience, the individual may be rejected or may be accepted on a trial basis until such time the individual's ability to perform the required services has been demonstrated. If, at any time, the performance of CONSULTANT personnel is unsatisfactory to SANBAG, SANBAG may release him/her by written notice and may request another qualified person be assigned.

If CONSULTANT personnel are on leave of absence, the Project Manager shall provide approved, equally qualified replacement personnel until the assigned personnel returns to the Project.

The typical workday includes all hours worked by the construction Contractor. If necessary, overtime for CONSULTANT personnel may be required. The construction Contractor's operations may be restricted to specific hours during the week, which shall become the normal workday for CONSULTANT personnel. On days when work is not performed by the construction contractor, such as rainy or unsuitable weather days, CONSULTANT services will not be provided unless authorized by the SANBAG Project Manager. The Project Manager, with concurrence from SANBAG, shall have the authority to increase, decrease, or eliminate CONSULTANT personnel work hours dependent on the schedule and requirements of the construction Contractor. From time to time, overtime may be required. However, all overtime required by CONSULTANT personnel shall be approved and authorized by SANBAG prior to each occurrence.

CONSULTANT personnel shall be knowledgeable of and comply with all applicable local, state, and federal regulations. CONSULTANT personnel shall cooperate and consult with SANBAG, State, and City officials during the course of the Project. CONSULTANT personnel shall perform duties as may be required to assure that construction is being performed in accordance with the Project plans and specifications. CONSULTANT personnel shall keep accurate and timely records and document all work performed by the Contractor and CONSULTANT.

CONSULTANT shall monitor for Contractor's compliance with the labor standards provisions of the projects and the related wage determination decisions of the Secretary of Labor.

CONSULTANT personnel shall assist SANBAG and local agencies in obtaining compliance with the safety and accident prevention provisions of the projects. Local agencies will retain jurisdictional control for traffic control.

All services required herein shall be performed in accordance with California Department of Transportation guidelines, regulations, policies, procedures, manuals, and standards, except as noted in the special provisions.

**C. DUTIES AND RESPONSIBILITIES**

**1. Pre Award Services**

CONSULTANT shall assist SANBAG, as requested, with the following tasks:

**a. Plan Review**

CONSULTANT shall review contract documents prior to beginning of Landscape Construction. Tasks include review of plans, specifications, technical reports, the RE Pending file, and associated items in order to verify completeness and consistency throughout the Project. At minimum, CONSULTANT shall check for potential conflicts, plant adaptability and plant testing specifications and consistency between plans and specifications.

**b. Budget**

CONSULTANT shall review the Project estimate and provide recommendations to SANBAG, as appropriate, to help ensure efficient utilization of funds and control of project costs.

**2. Bid Process**

**a. Bid Documents**

CONSULTANT shall assist SANBAG, as requested, with the following tasks:

1. Review of bid documents
2. Preparation of bid tabulations
3. Preparation and conduction of Pre-bid Meeting

**b. Pre-construction Meetings**

CONSULTANT shall assist SANBAG in conducting one or more, pre-construction meetings with all involved parties on the Project. Parties may include, but are not limited to, the Contractor, Caltrans, cities, utility companies, and developers.

**c. Contract Award**

CONSULTANT shall assist SANBAG, as requested, with the following tasks:

1. Review of bid for completeness and responsiveness
2. Perform bid analysis
3. Development of contractor payment schedules, and other procedural items.
4. Checking Contractor references, licenses, insurance, and sureties.
5. Coordination with prospective Contractor for award of construction contract(s).

All processes will be consistent with procedures outlined by the California Department of Transportation for Special Funded Programs and Local Assistance Procedure Manuals.

3. **Project Administration**

- a. **CONSULTANT shall administer Project Landscape Construction contracts using Caltrans Construction Manual as a guideline.**
- b. **CONSULTANT shall conduct regular Project coordination meetings with Contractor, SANBAG, local agencies, and design engineer, as appropriate. CONSULTANT shall record minutes of these meetings and status/track all resulting action items.**
- c. **CONSULTANT shall prepare Contractor progress payments and maintain payment records and supporting documentation. All progress payments shall be reviewed by SANBAG for approval.**
- d. **CONSULTANT shall provide reports as needed to comply with specific funding requirements.**
- e. **CONSULTANT shall establish and maintain Project records in accordance with the Caltrans Construction Manual. Project record keeping shall include, but are not limited to, correspondence, memoranda, contract documents, change orders, claims, SANBAG and engineer directives, meeting minutes, shop drawings, supplementary drawings, and requests for payment. CONSULTANT shall maintain a record of the names, addresses, and telephone and fax numbers of the Contractors, subcontractors, and principal material suppliers.**
- f. **CONSULTANT shall establish and maintain a filing system following the SANBAG Filing Categories using the Caltrans Construction Manual as a guideline.**
- g. **CONSULTANT shall monitor Contractors' Landscape Construction schedule on an ongoing basis and alert SANBAG to conditions that may lead to delays in completion of the Project.**
- h. **CONSULTANT shall prepare and submit a monthly Activity Summary Report for the Project. The activity report shall include status of SWPPP issues, RFIs, contract change orders, and notice of potential claims; construction activities completed, ongoing, and upcoming; status of Project budget and schedule, and other highlights and critical issues.**
- i. **CONSULTANT shall review and ensure compliance with environmental requirements.**
- j. **CONSULTANT shall participate in partnering sessions with the Contractor, SANBAG, Caltrans and Local Agencies, as required.**
- k. **CONSULTANT shall ensure that the Project meets all provisions of the Caltrans Quality Assurance Program Manual.**
- l. **CONSULTANT shall review Contractors' certified payroll records and ensure compliance with the requirements of the construction contract.**

- m. CONSULTANT shall ensure that the Project meets all provisions of the Storm Water Pollution Prevention Plan (SWPPP).
- n. CONSULTANT shall assure that the Project meets all applicable regulations of the Air Quality Management District (AQMD).
- o. CONSULTANT shall maintain redlined drawings on an ongoing basis throughout the duration of the project. Redlined drawings shall show all changes made to the original contract plans, each change identified with the name of the approver, date of change approval, and CCO number, if applicable.

4. Project Coordination

- a. CONSULTANT shall provide a minimum of one qualified Resident Engineer and as many qualified inspectors needed to effectively manage the Project.
- b. CONSULTANT Resident Engineer shall act as a prime point of contact between Contractor, SANBAG and any affected utility companies. CONSULTANT may, when requested by SANBAG, act as point of contact between design engineers, Caltrans, cities, and the public. CONSULTANT shall ensure coordination with property owners adjacent to project right-of-way to ensure timely communication regarding construction activities and scheduling.
- c. CONSULTANT shall maintain regular contact with SANBAG's Project Manager through daily briefings, in-person and/or by telephone.
- d. CONSULTANT shall coordinate utility relocations with utility companies and their designees, as well as the assigned utility inspector.
- e. CONSULTANT shall proactively review Project plans and special provisions for possible errors and deficiencies prior to start of any specific element and report such findings to SANBAG. Should SANBAG determine that changes are necessary; CONSULTANT shall assist in implementation and processing of change orders in accordance with contract documents and executed Cooperative Agreement with Caltrans.
- f. CONSULTANT shall provide all required monitoring, coordination and tracking of contractor progress to ensure the Project proceeds on schedule and according to the order of work in the plans and special provisions. CONSULTANT shall expedite work, as required, to maintain schedule in conjunction with the overall SANBAG construction program.
- g. CONSULTANT shall coordinate review of shop drawings and Requests for Information (RFI) with the SANBAG Project Manager, or his designee. CONSULTANT shall log and track all submittals and requests.
- h. CONSULTANT shall coordinate the implementation of any changes with the SANBAG Project Manager, or his designee, and the design engineer.  
CONSULTANT shall coordinate all Project construction activities with other on-going projects within and adjacent to the Project limits.
- i. CONSULTANT shall review the project for permit compliance and coordinate with SANBAG and Caltrans Landscape Construction Oversight to ensure that

necessary permits are obtained. CONSULTANT shall assist SANBAG in the coordination, timely processing and verification of approval for all permits. CONSULTANT shall maintain permits and permit documentation on site.

5. **Landscape Construction/Maintenance Inspection**

- a. CONSULTANT shall coordinate all required inspections necessary for the Project. CONSULTANT shall ensure that appropriate State and local agencies are notified and present as required throughout the Project. CONSULTANT shall notify SANBAG immediately regarding any directives, recommendations, notices, etc. received from agencies other than SANBAG.
- b. CONSULTANT shall perform on-site observations of the progress and quality of the Landscape Construction, as needed, to determine if the work being performed is in general conformance with the contract documents applicable laws, codes, and ordinances.
- a. CONSULTANT shall establish and maintain cooperative relations with those contacted during the course of work and be able to communicate effectively, both orally and in writing. Except as otherwise directed by the SANBAG Project Manager, all written, project related correspondence prepared by CONSULTANT shall be issued on CONSULTANT's letterhead and not on SANBAG's letterhead.
- b. CONSULTANT shall exercise reasonable care and diligence to discover and promptly report to SANBAG any and all defects or deficiencies in the materials or workmanship used in the Project.
- c. CONSULTANT personnel assigned to the Project shall be thoroughly familiar with Caltrans Standard Specifications, Caltrans Standard Plans, Caltrans Erosion Control and Highway Planting requirements, and safety standards. CONSULTANT personnel shall have the ability to read and interpret construction plans and specifications. CONSULTANT personnel shall also have knowledge of State of California Construction Safety Orders (CalOSHA) and traffic control practices as specified in the Work Area Traffic Control Handbook (WATCH). In addition, CONSULTANT personnel shall be familiar with the construction requirements of the California State Water Resources Control Board (SWRCB) and the Caltrans' Storm Water Pollution Prevention Program.
- d. Assignments to be performed by CONSULTANT personnel shall include, but are not limited to, the following:
  1. Subgrade inspection, quantity calculations, checking grade and alignment, construction traffic control, soil amendments and plant material identification & quality control, hardscape inspection, trenching & irrigation inspection and duties that may be required to determine that landscape maintenance of the Project is being performed in accordance with the contract documents.
  2. Identifying actual and potential problems associated with the Project and recommending sound solutions. Inspection personnel should be capable of identifying common plant diseases and/or pests together with their respective eradication techniques, directing plant adaptability requirements, and recognizing proper planting and pruning techniques.

3. Schedule sampling and testing of construction materials in accordance with Caltrans procedures.
4. Maintaining awareness of safety and health requirements. Monitoring Contractors' compliance with applicable regulations and construction contract provisions for the protection of the public and Project personnel.
5. Preparing complete and accurate daily reports, calculations, project records, payment quantity documents, reports, and correspondence related to Project activities.
6. Preparing Landscape Construction sketches, drawings, and cross-sections, as necessary, including a registered Landscape Architect seal on drawings as may be required by approving agencies.
7. Assisting in the preparation of as-built plans.
8. Providing inspections for environmental compliance.
9. Maintaining awareness of water discharge requirements. Monitoring Contractors' compliance with applicable regulations and construction contract provisions.
10. Maintaining awareness of water conservation measures and monitoring Contractor's compliance with local ordinances and other regulations regarding water use.
11. Monitoring Contractor's compliance with applicable regulations required by AQMD and SWRCB.
12. Other duties as may be required or reasonably requested.

6. Cost and Schedule

- a. CONSULTANT shall monitor and track the following:
  1. Contract pay item quantities and payments
  2. Contract change orders
  3. Supplemental work items
  4. Agency furnished materials
  5. Contingency balance
  6. Project budget
- b. CONSULTANT shall review and monitor Contractor's schedule and inform SANBAG of any significant changes or deviations in the schedule.
- c. CONSULTANT shall provide and maintain a Project staffing plan of field office personnel based on the Contractor submitted baseline schedule update. In cooperation with SANBAG, the staffing plan shall be periodically updated to reflect Project progress and needs.

**7. Contract Change Orders and Claims**

- a. CONSULTANT shall receive and evaluate requests for changes and/or substitutions by the Contractor. Contract Change Orders submitted to SANBAG shall be accompanied by CONSULTANT recommendations. Where applicable, CONSULTANT shall convey proposed changes to design engineer, or other project consultants. If the requested changes are accepted, CONSULTANT shall negotiate and prepare appropriate Contract Change Orders.
- b. CONSULTANT shall attempt to avoid all unnecessary Contract Change Orders. When a Contract Change Order is necessary, CONSULTANT shall consult with SANBAG prior to its preparation. Unless directed otherwise by SANBAG, the preferred method of payment for Contract Change Orders should be as follows
  - 1. Agreed Price
  - 2. Adjustment in compensation to a bid item
  - 3. Time and materials or Force Account

CONSULTANT shall perform force account analysis to validate cost submitted by the Contractor for contract change orders with agreed unit price, lump sum price, and adjustment in components. Analysis shall be based on realistic production and resource needs to complete the work.

- c. CONSULTANT shall attempt to identify all potential claims, track and monitor unresolved claims. The CONSULTANT shall implement appropriate claims avoidance processes where in the best interests of SANBAG as determined by SANBAG's Construction Manager.
- d. CONSULTANT shall assist SANBAG, as requested, in the identification, resolution, and final disposition of claims filed by the Contractor or third parties against SANBAG or the Project.

**8. Safety**

In addition to the requirements specified elsewhere in this contract, the following shall also apply:

- a. CONSULTANT shall implement and conduct a comprehensive safety program including regular tail-gate safety meetings for CONSULTANT personnel. CONSULTANT shall provide SANBAG with monthly status of safety reports.
- b. CONSULTANT shall comply with State of California Construction Safety Orders and provisions of the Caltrans Construction Manual.
- c. CONSULTANT shall provide appropriate safety training for all CONSULTANT field personnel.
- d. CONSULTANT shall provide all necessary safety equipment as required for CONSULTANT personnel.

**9. Project Close Out**

- a. CONSULTANT shall prepare a list of items to be completed and/or corrected by

the Contractor for final completion of the Project.

- b. CONSULTANT shall oversee the consolidation of all as-built information collected during the course of work on the project for the final preparation and formal submittal to SANBAG, including Irrigation drawings and SWPPP provisions as applicable.
- c. CONSULTANT shall review and certify completeness of as-built drawings to the extent of CONSULTANT's knowledge.
- d. CONSULTANT shall prepare and deliver to SANBAG a complete set of "As-Built" plans (hard copy and electronic formats) in accordance with CALTRANS' then current CADD User's Manual, Plans Preparation Manual, and CALTRANS practice.
- e. CONSULTANT shall conduct a final walk-through with SANBAG, Caltrans Landscape Construction Oversight, Local Agencies, Contractors and Caltrans Maintenance.
- f. CONSULTANT shall prepare final construction reports including the Project Completion Report.
- g. CONSULTANT shall prepare and deliver to SANBAG all project files.
- h. CONSULTANT shall assist SANBAG and Contractor in obtaining final release of all project permits.

**D. DELIVERABLES**

- 1. Inspector daily reports, extra work diaries and Resident Engineer's (and Landscape Architect's) daily diaries.
- 2. Monthly Project Activity Summary Reports.
- 3. Monthly Contractor progress payments, back-up documentation, and Contractor payment records.
- 4. Contractor final payment documents, delivered to SANBAG no later than ten (10) working days after acceptance by SANBAG of the completed construction project.
- 5. Project Completion Report.
- 6. All project files, project reports, correspondence, memoranda, shop drawings, project logs, change order data, claims and claim reports, and Contractor payment records.
- 7. Certified payrolls and fringe benefit statements for all employees, CONSULTANT and Contractor, who are subject to the State and/or Federal prevailing wage rates.

**E. EQUIPMENT AND MATERIALS TO BE PROVIDED BY CONSULTANT**

- 1. CONSULTANT shall provide all necessary equipment including software, materials,

supplies, miscellaneous tools, and safety equipment required for its personnel to perform the services accurately, efficiently, and safely. Only those items listed in Exhibit B, CONSULTANT Cost Proposal, shall be reimbursed by SANBAG.

2. CONSULTANT personnel shall be provided with vehicles suitable for the location and nature of the work involved. Vehicles shall be equipped with locking tool boxes and detachable flashing yellow lights.
3. CONSULTANT personnel shall be provided with a mobile radio, cellular phone, or other means to help assure full-time communication. If a radio system is to be used, CONSULTANT shall provide a base station at the field office.
4. CONSULTANT personnel shall be provided with all applicable project plans, specifications, and appropriate standards (see item G below).
5. CONSULTANT shall provide project Office Complex and necessary supplies and equipment.

**F. MATERIALS TO BE FURNISHED BY SANBAG**

1. SANBAG will provide copies of all Project Landscape Construction documents including plans, special provisions, reports, designer prepared resident engineer files, and contracts.
2. SANBAG will provide copies of all previously secured permits and Project authorizations.
3. SANBAG will provide copies of all electronic design files for use in development of As-built plans.

**G. STANDARDS**

All inspection and contract administration shall be in accordance with the Project bid documents, special provisions, plans, and current Caltrans manuals including:

1. Construction Manual and its revisions
2. Quality Assurance Program Manual
3. Manual of Uniform Traffic Control Devices (MUTCD) and MUTCD California Supplement.
4. Caltrans Standard Specifications and Standard Plans
5. Caltrans Storm Water Pollution Prevention Plan (SWPPP) and Water Pollution Control Program (WPCP) Preparation Manual
6. CALTRANS' CADD User's Manual and Plans Preparation Manual

Work not covered by the manuals shall be performed in accordance with accepted professional standards.

The Resident Engineer and SANBAG will decide all questions which may arise as to the quality or acceptability of deliverables furnished and work performed for this contract. Any CONSULTANT employee who does not perform adequately will be replaced if directed by the SANBAG Project Manager.

#### H. LIMITATIONS TO AUTHORITY

CONSULTANT does not have the authority to:

1. Authorize deviations from the contract documents.
2. Approve substitute materials or equipment; except as authorized in writing by SANBAG.
3. Conduct or participate in tests or third party inspections; except as authorized in writing by SANBAG.
4. Assume any of the responsibilities of the Contractors, Contractors' Superintendent, or subcontractors.
5. Exercise control over or be responsible for construction means, methods, techniques, sequences, procedures, or safety precautions.
6. Communicate directly with subcontractors or material suppliers without the prior consent of the Contractor.
7. Verbally authorize or approve change orders or extra work for the Project.
8. Offer or receive incentives, inducements, or other forms of enumeration to or from the Contractor to perform services or work outside the terms of any executed contracts for this Project.

#### I. THIRD PARTY RELATIONSHIPS

This Contract is intended to provide unique services for a specific project. In the development of the Project, SANBAG has worked closely with various professional consultants, agencies, and others in the preparation of the construction documents and other Project related materials. SANBAG, however, is solely responsible for and will be the sole point of contact for all contractual matters related to the Project. CONSULTANT shall take direction **only** from SANBAG and shall regularly inform **only** SANBAG of Project progress, outstanding issues, and all Project related matters.

During the course of the Project, CONSULTANT may find occasion to meet with Caltrans, City or County representatives, the design engineer, Project consultants, or other third parties who have assisted with the Project. These entities may, from time to time, offer suggestions and/or recommendations regarding the Project or elements of the Project. While SANBAG enjoys a close relationship with and has considerable confidence in the capabilities of these other parties, CONSULTANT shall not act on any suggestions, solicited or unsolicited, without obtaining specific direction from SANBAG. Unless otherwise specifically directed by SANBAG, all oral and written communication with outside agencies or consultants related to the project shall be directed only to SANBAG. Distribution of Project related communication and information shall be at the sole discretion of SANBAG representatives.

**J. PROJECT SITE SAFETY**

In addition to the requirements specified elsewhere in this contract, the following also will apply.

1. CONSULTANT will conform to the safety provisions of the Caltrans Construction Manual.
2. CONSULTANT's field personnel will wear white hard hats with proper suspension, orange vests with reflective tape, sleeved shirt, long pants, and leather boots with ankle support and rubber soled shoes at all times while working in the field.
3. CONSULTANT will provide appropriate safety training for all CONSULTANT's personnel, including work on and near highways.
4. All safety equipment will be provided by CONSULTANT.

**K. PERSONNEL QUALIFICATIONS**

The quantity and qualifications of field personnel to be assigned will be determined by the scope of the Project and the degree of difficulty of required tasks to be performed. All personnel and personnel assignments shall be subject to approval by SANBAG. While some areas of responsibility may overlap, as a guideline, CONSULTANT personnel assigned to the project shall have the following minimum qualifications:

1. Project Manager

Minimum qualifications shall be as follows:

- a. Six (6) years project management experience on similar highway Landscape Construction projects is desired.
- b. Ability to use typical computer software for word processing and preparing spreadsheets.
- b. Licensed landscape architect in the State of California is desired.
- c. Reasonably accessible to SANBAG during normal working hours.
- d. Possess a thorough understanding of Caltrans Construction Contract Administration Procedures, Caltrans Construction Practices and Procedures (for both field and office) and Caltrans Erosion Control & Highway Planting Standards.

The Project Manager will assume the following functional responsibilities:

- a. Review, monitor, train, and provide general direction for CONSULTANT personnel.
- b. Assign personnel to projects on an as-needed basis
- c. Administer personal leave.
- d. Prepare monthly reports for delivery to SANBAG

2. Resident Engineer

Minimum qualifications shall be as follows:

- a. Eight (8) years resident engineer experience on similar highway landscaping construction projects is desired.
- b. Licensed Professional Civil Engineer in the State of California.
- c. Licensed Landscape Architect in the State of California is desired.
- d. Certified as a Qualified SWPPP Developer or Practitioner is desired.
- e. Ability to use appropriate calculations for hydraulic analysis, piping mechanics and strengths of materials as these relate to the design, construction and operation of irrigation systems.
- f. Ability to use typical computer software for word processing and preparing spreadsheets.
- g. Reasonably accessible to SANBAG during normal working hours.
- h. Possess a thorough understanding of Caltrans Construction Contract Administration Procedures, Caltrans Construction Practices and Procedures (for both field and office) and Caltrans Erosion Control & Highway Planting Standards.
- i. Ability to work independently, make effective decisions concerning construction work in progress and solve field problems.
- j. Possess a thorough understanding of all local regulatory requirements pertaining to the Storm Water Pollution Prevention Plan (SWPPP) and the National Pollution Discharge Elimination System (NPDES) as they relate to highway Landscape Construction projects.
- k. Possess a thorough understanding of local ordinances and other regulations regarding water use and water conservation measures as related to landscape irrigation.
- l. Possess general knowledge of common local plant diseases and pests together with respective methods and procedures used in control and eradication.

The Resident Engineer will assume the following functional responsibilities:

- a. Monitor and provide daily direction to CONSULTANT's Assistant Resident Engineers and inspection personnel.
- b. Assign field personnel to specific project tasks.
- c. Monitor and track Contractor progress.
- d. Prepare daily, weekly and monthly reports as required.

- e. Coordinate utility service installations and/or relocations with appropriate agencies and the utility inspector.
- f. Act as prime contact between SANBAG, SANBAG's Project Manager or his designee and various project Contractors.
- g. Prepare monthly reports for delivery to SANBAG.

3. Licensed Landscape Architect

- a. A minimum of four (4) years' experience on similar construction projects is desired.
- b. Licensed Professional Landscape Architect in the State of California
- c. Ability to work independently, make effective decisions concerning construction work in progress and solve field problems.
- d. Accessible to SANBAG at all times including weekends and holidays.
- e. Certified as a Qualified SWPPP Developer or Practitioner is desired.
- f. Ability to use appropriate calculations for hydraulic analysis, piping mechanics and strengths of materials as these relate to the design, construction and operation of irrigation systems.
- g. Ability to use typical computer software for word processing and preparing spreadsheets.
- h. Reasonably accessible to SANBAG during normal working hours.
- i. Possess a thorough understanding of Caltrans Construction Contract Administration Procedures, Caltrans Construction Practices and Procedures (for both field and office) and Caltrans Erosion Control & Highway Planting Standards.
- j. Ability to work independently, make effective decisions concerning construction work in progress and solve field problems.
- k. Possess a thorough understanding of all local regulatory requirements pertaining to the Storm Water Pollution Prevention Plan (SWPPP) and the National Pollution Discharge Elimination System (NPDES) as they relate to highway Landscape Construction projects.
- l. Possess a thorough understanding of local ordinances and other regulations regarding water use and water conservation measures as related to landscape irrigation.
- m. Possess general knowledge of common local plant diseases and pests together with respective methods and procedures used in control and eradication.

The Landscape Architect will assume the following functional responsibilities.

- 1) Monitor and provide direction to CONSULTANT inspection personnel concerning contractor compliance with special provisions and plant maintenance.
- 2) Monitor and track Contractor progress.
- 3) Prepare daily, weekly and monthly reports as required.

4. Field Inspector

Minimum qualifications shall be as follows:

- a. Eight years (8) construction inspection experience as related to Caltrans or other major highway Landscape Construction projects or a four-year degree in the field of civil engineering or landscape architecture and four years of similar construction experience is desired.
- b. Possess general knowledge of Caltrans Erosion Control & Highway Planting Standards and construction practices, physical characteristics and properties of landscaping construction materials, and approved methods and equipment used in making physical tests of Landscape Construction materials.
- c. Possess general knowledge of hydraulic analysis, piping mechanics and strengths of materials as these relate to the design, construction and operation of irrigation systems.
- d. Possess a general understanding of local regulatory requirements pertaining to the Storm Water Pollution Prevention Plan (SWPPP) as they relate to highway Landscape Construction projects.
- e. Possess a general understanding of local ordinances and other regulations regarding water use restrictions and water conservation measures as related to landscape irrigation.
- f. Possess general knowledge of common local plant diseases and pests together with respective methods and procedures used in control and eradication
- g. Ability to work independently, make effective decisions concerning construction work in progress and solve field problems.
- h. Ability to direct the efforts of subordinate inspectors.
- i. Possess a general understanding of Caltrans field and construction office procedures.
- j. Ability to use typical computer programs for word processing and preparing spreadsheets.

The Field Inspector will assume the following functional responsibilities:

- a. Assist in inspections to assure compliance with contract plans, specifications, and special provisions on all phases of construction, including commissioning of electrical irrigation controllers and other types of automatic water coverage and monitoring systems.
- b. Assist in the preparation of contract change orders, contract estimates, progress pay estimates, and other documents or reports required for the Project.
- c. Coordinate field testing of materials to monitor compliance with Project specifications and Caltrans Quality Assurance Program.
- d. Maintain accurate and timely project records. Perform quantity calculations for progress pay estimates.
- e. Perform analytical calculations such as basic earthwork, grading, profiles, and special staking procedures.
- f. Provide input for the redesign of facilities to fit existing field conditions.
- g. Monitor and track Contractor progress. Prepare daily, weekly, and monthly reports as required.

5. Office Engineer

Minimum Qualifications shall be as follows:

- a. Four years (4) construction inspection/office engineering on similar highway Landscape Construction projects is desired.
- b. Knowledge of Caltrans Office of Highway Landscaping Construction forms used to administer construction projects.
- c. Knowledge of Caltrans system of document organization.
- d. Knowledge of construction records and accounting procedures.
- e. Knowledge of documentation, procedures, and reporting for federally funded projects.
- f. Knowledge of laws and regulations governing the payment of prevailing wages.

The Office Engineer will assume the following functional responsibilities:

- a. Process monthly progress pay estimates, monthly status reports, extra work reports, and weekly statements of working days.
- b. Prepare and process contract change orders.
- c. Monitor construction budget and schedule.

- d. Prepare, maintain, and/or file project documents including labor and equipment records, correspondence, memoranda, meeting minutes, claims, personnel records, labor compliance reports, and daily, weekly, and monthly reports.
- e. Perform routine calculations and checking of quantities.
- f. Coordinate all office activities and functions with SANBAG representatives.

6. Materials Testing Project Manager

- a. A minimum four (4) years project management experience on a similar highway/bridge construction project is desired.
- b. Licensed Civil Engineer in the State of California.
- c. Ability to use typical computer programs including word processing and spreadsheets.
- d. The materials testing project manager will assume the following functional responsibilities:
  - 1) Review, monitor, train, and provide general direction for CONSULTANT's laboratory and field personnel.
  - 2) Assign personnel to projects on an as-needed basis in coordination with the Resident Engineer.
  - 3) Administer personal leave, subject to approval of the Resident Engineer.
  - 4) Prepare monthly reports for delivery to the Resident Engineer.
  - 5) Provide direction, administration, and responsibility for Materials Certification per Caltrans Construction Manual, Section 8-01.

Material testing personnel will be certified by a California Registered Civil Engineer as being experienced and competent in the test procedures required for the work involved (and possess a current certificate of proficiency (Form MR-0111) in accordance with Quality Assurance Program Manual (Section 3-5). Independent certification of Caltrans test procedures may be performed at the discretion of the AUTHORITY Construction Manager.

7. Materials Technicians

CONSULTANT personnel provided under this contract will have a variety of skills and experience appropriate for the level of tasks to be assigned. Field personnel shall be certified by Caltrans and should have a minimum of two (2) years' experience in conducting material sampling and testing of the type required for the projects involved and possess the following additional capabilities:

- a. Have the ability to establish specific locations for appropriate tests when construction contract administration personnel are not available.
- b. Be familiar with construction practices and be fully aware of construction activities at the Project site.

- c. Have knowledge of and comply with safety and health regulations and requirements applicable to the Project.
- d. Specific qualifications for technicians are as follows:

1) CONSTRUCTION TECHNICIAN I

- a) Performs a variety of semi-skilled activities. Examples of duties assigned to this classification are:
  - i. Conducting quality control tests such as soil densities, sieve analysis tests, operation scales and inspecting spread operations.
  - ii. Sampling and transporting produced construction materials from point of application or production to testing laboratory.
- b) Knowledge and Skills Required
  - i. Knowledge of tools, equipment and vehicles utilized in construction.
  - ii. Knowledge of standard equipment and materials used for the sampling and testing of construction material.
  - iii. Knowledge of basic mathematics used in the computation of a variety of construction items.
  - iv. Knowledge of record keeping, preparing of documents and reports.

2) CONSTRUCTION TECHNICIAN II

- a) Performs a variety of skilled activities. Examples of duties assigned to this classification are:
  - i. Inspecting minor construction items, sampling and inspection of steel reinforcement, sampling and inspection of concrete placing operation.
  - ii. Collect and analyze soil samples of construction materials to determine compaction and moisture content.
  - iii. Inspection and sampling of all phases of asphalt concrete and PCC paving operation, including plant inspection.
  - iv. Confers with construction engineers and contractors regarding construction in progress and is conformance to specifications and construction plans.
  - v. Answers questions and resolves problems.
  - vi. Inspects construction in progress to ensure conformance with specification, agreements, and established requirements.
  - vii. Keeps daily diary of work progress.
  - viii. Prepares reports on all field inspections and submits project quantities on a daily basis.
  - ix. Keeps accurate documentation for force accounts and possible claims.

**b) Knowledge and Skills Required**

- i. All knowledge and skills required of lower classification.
- ii. Knowledge of currently accepted methods, procedures and techniques used in highway construction inspection, survey, materials testing, and quality control equipment.
- iii. Skill in interpersonal relations as applied to contact with contractors, representatives of other governmental jurisdictions, and other AUTHORITY/Caltrans staff.

**3) CONSTRUCTION TECHNICIAN III**

**a) Exercises considerable independent judgment within general Caltrans standards and guidelines. Examples of duties assigned to this classification are:**

- i. Inspect Project construction on an ongoing basis to assure compliance with contract and in accordance with State and local standards.
- ii. Perform a variety of structural material tests and inspections.
- iii. Reviews construction plans and verified that these are in accordance with designated specifications and other requirements.
- iv. Participates in the preparation of completed work estimates, to calculate compensation due contractor.
- v. Examines and verifies numeric data and material specifications on project cost source documents, utilizing geometry and trigonometry calculations.
- vi. Supervises all work activities involved in construction projects, laboratory, and quality control work.
- vii. Recommends approval of proposed Project changes.

**b) Knowledge and Skills Required**

- i. All knowledge and skills required of lower classifications.
- ii. Knowledge of the principles and practices of Civil Engineering as applied to the construction of state highways.
- iii. Skill in analyzing and evaluating a wide variety of highly technical engineering data, including construction plans, field survey and quality control documents.
- iv. Skill in interpreting and implementing Caltrans standards, policies, procedures and regulations.
- v. Skill in interpersonal relations, as applied to contacts with contractors, representatives of other governmental jurisdictions, and other AUTHORITY/Caltrans staff.

8. Construction Surveying Project Manager

- a. A minimum four (4) years' project management experience on similar construction projects is desired.
- b. Licensed Surveyor or pre-January 1, 1982 Registered Professional Engineer in the State of California.
- c. Accessible to the Resident Engineer and AUTHORITY at all times during normal working hours as specified in this Scope of Services.
- d. Under the direction of the Resident Engineer, the Project Manager will be responsible for:
  - 1) Review, monitor, train, and provide general direction for CONSULTANT survey personnel.
  - 2) Assign personnel to projects on an as-needed basis.
  - 3) Administer personal leave, subject to approval of the Resident Engineer.
  - 4) Prepare monthly reports for delivery to the Resident Engineer.

9. Field Party Chief(s)

- a. The person(s) holding the position of Party Chief shall meet at least one of the following licensing requirements:
  - 1) A licensed Land Surveyor in the State of California.
  - 2) A pre-January 1, 1982, Registered Professional Civil Engineer in the State of California.
  - 3) An experienced surveyor who serves as chief under the direction or supervision of a person who is a licensed Land Surveyor or pre-January 1, 1982 Registered Professional Civil Engineer in the State of California. The direction or supervision shall place the supervisor in "responsible charge" of the work. "Responsible Charge" is defined in Chapter 15 of the Business and Professions Code (the Land Surveyor's Act) and Title 16, Chapter 5, of the California Administrative Code (regulations adopted by the Board of Registration for Professional Engineers and Land Surveyors).
- b. The Party Chief(s) should have a minimum two (2) years' survey experience on similar construction projects and possess the following additional capabilities:
  - 1) Thorough knowledge of construction survey practices and the ability to read and interpret plans and specifications.
  - 2) Ability to make effective decisions concerning field problems and work in progress.
  - 3) Familiarity with typical coordinate geometry computer programs.
  - 4) Familiarity with safety requirements for surveying near traffic.
- c. The Party Chief(s) will assume the following responsibilities:
  - 1) Perform construction staking services for Project construction.
  - 2) Administer day to day activities for the survey party.

- 3) Perform analytical survey calculations for items such as grading, horizontal and vertical control, right of way, and minor in-field design.
- 4) Maintain continuous communication with the Resident Engineer, field personnel, and construction administration staff.

10. Survey Crews

- a. Qualifications for survey crew members should include the following:
  - 1) A minimum of one (1) year of survey experience on similar construction projects is desired.
  - 2) Fundamental knowledge of construction survey practices and the ability to read and interpret plans and specifications.
  - 3) Ability to assist Party Chiefs and office personnel in all required surveying work.
  - 4) One survey crew member must have the ability to assume temporary leadership of the survey party in the absence of the Party Chief.
- b. Under the direction of the Resident Engineer and the Party Chief, the survey crew members will assume the following responsibilities:
  - 1) Perform basic calculations to support construction staking.
  - 2) Maintain continuous communication with Party Chiefs and office personnel.