

AGREEMENT TO PERFORM ENGINEERING DESIGN AND CONSTRUCTION  
QUALITY ASSURANCE SERVICES FOR THE PHASE 3 EXPANSION AT THE  
CALIFORNIA STREET LANDFILL

This agreement for the provision of services associated with the expansion of the City of Redlands California Street Landfill (“Agreement”) is made and entered into this 18th day of October, 2011 (“Effective Date”), by and between the City of Redlands, a municipal corporation (“City”) and Geo-Logic Associates (“Consultant”). City and Consultant are sometimes individually referred to herein as a “Party” and, together, as the “Parties.” In consideration of the mutual promises contained herein, City and Consultant agree as follows:

ARTICLE 1 - ENGAGEMENT OF CONSULTANT

- 1.1 City hereby engages Consultant to provide engineering design and construction quality assurance services for the Phase 3 Expansion of the City of Redlands California Street Landfill (the "Services").
- 1.2 The Services shall be performed by Consultant in a professional manner, and Consultant represents that it has the skill and the professional expertise necessary to provide the Services to City at a level of competency presently maintained by other practicing professional consultants in the industry providing like and similar types of Services.

ARTICLE 2 - SERVICES OF CONSULTANT

- 2.1 The Services that Consultant shall perform are more particularly described in Exhibit "A," entitled “Scope of Services,” which is attached hereto and incorporated herein by reference.
- 2.2 Consultant shall comply with applicable federal, state and local laws and regulations in the performance of this Agreement including, but not limited to, Title 27 of the California Code of Regulations, California Public Resources Code section 21000 et seq., and State prevailing wage laws.

ARTICLE 3 - RESPONSIBILITIES OF CITY

- 3.1 City shall make available to Consultant information in its possession that may assist Consultant in performing the Services.
- 3.2 City designates Fred Cardenas, Director of City’s Quality of Life Department, as City’s representative with respect to performance of the Services, and such person shall have the authority to transmit instructions, receive information, interpret and define City’s policies and decisions with respect to performance of the Services.

ARTICLE 4 - PERFORMANCE OF SERVICES

- 4.1 Consultant shall perform and complete the Services in a prompt and diligent manner in

accordance with the schedule set forth in Exhibit "B," entitled "Project Schedule," which is attached hereto and incorporated herein by reference. These services shall commence within ten (10) days of the Effective Date of this Agreement.

- 4.2 During the term of this Agreement, City may request that Consultant perform Extra Services. As used herein, "Extra Services" means any work that is determined necessary by City for the proper completion of the Services, but which the Parties did not reasonably anticipate would be necessary at the time of execution of this Agreement. Provided the Extra Services do not exceed twenty percent (20%) of the compensation to be paid by City to Consultant for the Services, such Extra Services may be agreed to by the Parties by written amendment to this Agreement, executed by a duly authorized City official in accordance with Chapter 2.16 of the Redlands Municipal Code. Consultant shall not perform, nor be compensated for, Extra Services without such written authorization from City.

ARTICLE 5 - PAYMENTS TO CONSULTANT

- 5.1 The total compensation for Consultant's performance of the Services shall be in the amount of Four Hundred Ninety Two Thousand Seven Hundred Seventy Eight Dollars (\$492,778). City shall pay Consultant in monthly progress payments for Services performed for each billing period.
- 5.2 Consultant shall submit monthly invoices to City describing the Services performed during the preceding month. Consultant's invoices shall include a brief description of the Services performed, the dates the Services were performed, the number of hours spent and by whom, and a description of reimbursable expenses related to the project. City shall pay Consultant no later than thirty (30) days after receipt and approval by City of Consultant's invoice.
- 5.3 All notices shall be given in writing by personal delivery or by mail. Notices sent by mail should be addressed as follows:

City  
Fred Cardenas, Director  
Quality of Life Department  
City of Redlands  
35 Cajon Street, Suite 222  
P.O. Box 3005 (mailing)  
Redlands, CA 92373

Consultant  
Jake Russell  
Manager of Grass Valley Operations  
Geol-Logic Associates  
143E Spring Hill Drive  
Grass Valley, CA 95945

When so addressed, such notices shall be deemed given upon deposit in the United States Mail. Changes may be made in the names and addresses of the person to whom notices and payments are to be given by giving notice pursuant to this section 5.3.

## ARTICLE 6 - INSURANCE AND INDEMNIFICATION

- 6.1 Insurance required by this Agreement shall be maintained by Consultant for the duration of its performance of the Services. Consultant shall not perform any Services unless and until the required insurance listed below is obtained by Consultant. Consultant shall provide City with certificates of insurance and endorsements evidencing such insurance prior to commencement of the Services. Insurance policies shall include a provision prohibiting cancellation or modification of the policy except upon thirty (30) days prior written notice to City.
- 6.2 Consultant shall secure and maintain Workers' Compensation and Employer's Liability insurance throughout the duration of its performance of the Services in accordance with the laws of the State of California, with an insurance carrier acceptable to City as described in Exhibit "C," entitled "Workers' Compensation Insurance Certification," which is attached hereto and incorporated herein by this reference.
- 6.3 Consultant shall secure and maintain comprehensive general liability insurance with carriers acceptable to City. Minimum coverage of One Million Dollars (\$1,000,000) per occurrence and Two Million Dollars (\$2,000,000) aggregate for public liability, property damage and personal injury is required. City shall be named as an additional insured and such insurance shall be primary and non-contributing to any insurance or self-insurance maintained by City.
- 6.4 Consultant shall secure and maintain professional liability insurance throughout the term of this Agreement in the amount of One Million Dollars (\$1,000,000) per claim made.
- 6.5 Consultant shall have business auto liability coverage, with minimum limits of One Million Dollars (\$1,000,000) per occurrence, combined single limit for bodily injury liability and property damage liability. This coverage shall include all Consultant owned vehicles used in connection with Consultant's provision of the Services, hired and non-owned vehicles, and employee non-ownership vehicles. City shall be named as an additional insured and such insurance shall be primary and non-contributing to any insurance or self insurance maintained by City.
- 6.6 Consultant shall defend, indemnify and hold harmless City and its elected officials, employees and agents from and against any and all claims, losses or liability, including attorneys' fees, arising from injury or death to persons or damage to property occasioned by and negligent act, omission or failure to act by Consultant, its officers, employees and agents in performing the Services.

## ARTICLE 7 - CONFLICTS OF INTEREST

- 7.1 Consultant covenants and represents that it does not have any investment or interest in any real property that may be the subject of this Agreement or any other source of income, interest in real property or investment that would be affected in any manner or

degree by the performance of Consultant's Services. Consultant further covenants and represents that in the performance of its duties hereunder, no person having any such interest shall perform any Services under this Agreement.

7.2 Consultant agrees it is not a designated employee within the meaning of the Political Reform Act because Consultant:

A. Does not make or participate in:

(i) the making or any City governmental decisions regarding approval of a rate, rule or regulation, or the adoption or enforcement of laws;

(ii) the issuance, denial, suspension or revocation of City permits, licenses, applications, certifications, approvals, orders or similar authorizations or entitlements;

(iii) authorizing City to enter into, modify or renew a contract;

(iv) granting City approval to a contract that requires City approval and to which City is a party, or to the specifications for such a contract;

(v) granting City approval to a plan, design, report, study or similar item;

(vi) adopting, or granting City approval of, policies, standards or guidelines for City or for any subdivision thereof.

B. Does not serve in a staff capacity with City and in that capacity, participate in making a governmental decision or otherwise perform the same or substantially the same duties for City that would otherwise be performed by an individual holding a position specified in City's Conflict of Interest Code under Government Code section 87302.

7.3 In the event City officially determines that Consultant must disclose its financial interests, Consultant shall complete and file a Fair Political Practices Commission Form 700, Statement of Economic Interests with the City Clerk's office pursuant to the written instructions provided by the City Clerk.

#### ARTICLE 8 - GENERAL CONSIDERATIONS

8.1 In the event any action is commenced to enforce or interpret any of the terms or conditions of this Agreement the prevailing Party shall, in addition to any costs and other relief, be entitled to the recovery of its reasonable attorneys' fees, including fees for the use of in-house counsel by a Party.

8.2 Consultant shall not assign any of the Services, except with the prior written approval of City and in strict compliance with the terms, and conditions of this Agreement.

8.3 Project related documents, records, drawings, designs, cost estimates, electronic data

files, databases and any other documents developed by Consultant in connection with its performance of the Services, and any copyright interest in such documents, shall become the property of City and shall be delivered to City upon completion of the Services, or upon the request of City. Any reuse of such documents, and any use of incomplete documents, shall be at City's sole risk.

8.4 Consultant is for all purposes under this Agreement an independent contractor and shall perform the Services as an independent contractor. Neither City nor of its agents shall have control over the conduct of Consultant or Consultant's employees, except as herein set forth. Consultant shall supply necessary tools and instrumentalities required to perform the Services. Assigned personnel employed by Consultant are for its account only, and in no event shall Consultant or personnel retained by it be deemed to have been employed by City or engaged by City for the account of, or on behalf of City. Consultant shall have no authority, express or implied, to act on behalf of City in any capacity whatsoever as an agent, nor shall Consultant have any authority, express or implied, to bind City to any obligation.

8.5 Termination.

A. Unless earlier terminated as provided for below, this Agreement shall terminate upon completion and acceptance of the Services by City.

B. This Agreement may be terminated by City, in its sole discretion, by providing thirty (30) days prior written notice to Consultant (delivered by certified mail, return receipt requested) of City's intent to terminate.

C. If this Agreement is terminated by City, an adjustment to Consultant's compensation shall be made, but (1) no amount shall be allowed for anticipated profit or unperformed Services, and (2) any payment due Consultant at the time of termination may be adjusted to the extent of any additional costs to City occasioned by any default by Consultant.

D. Upon receipt of a termination notice, Consultant shall immediately discontinue its provision of the Services and, within five (5) days of the date of the termination notice, deliver or otherwise make available to City, copies (in both hard copy and electronic form, where applicable) of project related data, design calculations, drawings, specifications, reports, estimates, summaries and such other information and materials as may have been accumulated by Consultant in performing the Services. Consultant shall be compensated on a pro-rata basis for Services completed up to the date of termination.

8.6 Consultant shall maintain books, ledgers, invoices, accounts and other records and documents evidencing costs and expenses related to the Services for a period of three (3) years, or for any longer period required by law, from the date of final payment to Consultant pursuant to this Agreement. Such books shall be available at reasonable times for examination by City at the office of Consultant.

8.7 This Agreement, including the Exhibits incorporated herein by reference, represents the

entire agreement and understanding between the Parties as to the matters contained herein, and any prior negotiations, written proposals or verbal agreements relating to such matters are superseded by this Agreement. Except as otherwise provided for herein, an amendment to this Agreement shall be in writing, approved by City and signed by City and Consultant.

8.8 This Agreement shall be governed by and construed in accordance with the laws of the State of California.

8.9 If one or more of the sentences, clauses, paragraphs or sections contained in this Agreement is declared invalid, void or unenforceable by a court of competent jurisdiction, the same shall be deemed severable from the remainder of this Agreement and shall not affect, impair or invalidate the remaining sentences, clauses, paragraphs or sections contained herein, unless to do so would deprive a Party of a material benefit of its bargain under this Agreement.

IN WITNESS WHEREOF, duly authorized representatives of the City and Consultant have signed in confirmation of this Agreement.

CITY OF REDLANDS

GEO-LOGIC ASSOCIATES

By: \_\_\_\_\_  
Pete Aguilar, Mayor

By: \_\_\_\_\_  
Gary Lass, President

Attest:

\_\_\_\_\_  
Sam Irwin, City Clerk

# EXHIBIT "A"

## SCOPE OF SERVICES

The following scope of work was based on the outline provided in the RFP.

### **Task 1: Prepare Phase 3 Liner System Construction Documentation**

Task 1 will consist of preparing a final design report and bid package for the Phase 3 Expansion at the CSL. The bid package will include the Technical Specifications, CQA Plan, and construction drawings. This task has been subdivided into 4 separate subtasks to provide more detail of our work scope.

### **Subtask 1.1 Prepare Phase 3 Design Calculations and Design Report**

In 2008, Vector prepared the "Joint Technical Document for the California Street Landfill". Contained within the Joint Technical Document (JTD) are the design approach, design criteria, and design calculations that were utilized for the Phase 1 and 2 expansions. Many of these design issues will be similar for the Phase 3 expansion. Having previously completed the design work for Phases 1 and 2 will enable Vector to reduce costs and only address specific issues that have changed or are different between the two phases. Vector will prepare or review the calculations for the design of the Phase 3 expansion. It is anticipated that this will include the following tasks:

- ***Leachate Conveyance Capacity Calculations:*** As part of the Module 3 design, Vector will perform leachate modeling. The potential for leachate generation will be evaluated by performing water balance simulations with the Hydraulic Evaluation of Landfill Performance (HELP) model, Version 3.07. Using HELP, we will be able to produce quantitative estimates of the landfill water balance by simulating one-dimensional profiles of the cover, waste, LCRS, and bottom liner materials. Key design variables input into the model include the liner system configuration, drainage layer material/permeability, and LCRS pipe spacing. This information will be calibrated using existing data from leachate quantities pumped from the Phase 1 and Phase 2 sumps.
- ***Leachate Piping Strength and Capacity Calculations.*** Based on the results of the HELP analysis Vector will verify the leachate collection pipe sizing. Vector will also specify the pipe perforation size, pipe perforation frequency, and leachate collection material. Vector will utilize actual leachate generation data from Phases 1 and 2 to assist in the design of the system. The SDR of all of the leachate collection pipes will be specified based on pipe crushing calculations performed assuming the ultimate depth of waste in the Phase 3 area.
- ***Liner Earthwork Calculations.*** AutoCAD Civil 3D 2012 will be used for all earthwork calculations for Phase 3. This will allow us to efficiently and accurately develop quantity estimates of the various grading options for the module. For this proposal, Vector has estimated the earthwork quantities for the grading plan as shown in Figure 2 in Appendix A. We estimate the 107,000 yd<sup>3</sup> of excavation for the construction of the 4 acre phase depicted in the 2008 JTD. Based on the current incoming tonnages we estimate a life of the phase of approximately 3 years as shown on Figure 3. As part of this task, Vector will work with the city to evaluate their current landfill capacity and budgetary needs to determine an appropriate size and configuration for Phase 3. For example, Figures 4 and 5 show preliminary grading and fill plans for Phase 3 which will result in a phase life of approximately 5 years. This configuration increases the excavation to 172,000 yd<sup>3</sup> and the lined area to approximately 6.5 acres. Depending on the needs of the City, constructing a slightly larger phase may be desirable due to design and construction cost savings.
- ***Liner/Refuse Stability Analysis.*** Slope stability analyses will be done based on the final configuration. The stability analyses will include an examination of both static and earthquake loading

conditions. We will evaluate the seismic loading conditions at the site in order to determine the response of the landfill mass and cover to the design earthquake. This work will include the examination of previous studies performed for the site. Vector will utilize the information regarding the seismic hazard analysis, seismic site response analysis, and static limit equilibrium analyses of the cut slopes to perform the static limit equilibrium analyses of the Phase 3 interim waste mass configurations. The results of the liner stability and associated material strength will be incorporated into the Project Specifications and the final analyses will be included in the Design Report.

- **Interim Grading and Surface Water Drainage Plan.** Throughout the design of Phase 3, Vector will consider surface water drainage control and its potential to impact the design of Phase 3 and all future phases. This practice of considering the immediate surface water controls as well as the “big picture” surface water controls at every stage of the design process will help to avoid costly redesigns during the design of Phase 3 and into the future as the landfill is developed.
- **Layout of Construction Staging Areas.** We will work with the City to identify areas on the plans for contractor staging and lay down. This will include temporary stockpile and bentonite admix areas and geosynthetics storage.
- **Incorporate Design Relative to Future Modules.** Our unique and intimate experience with the current JTD will allow us to consider how the configuration of Phase 3 ties into the site development moving forward. Vector will consider how the design of Phase 3 will affect stormwater controls, access, waste filling, and other activities at the site.
- **Prepare the Phase 3 Construction Cost Estimate.** We have considerable experience preparing engineer’s cost estimates. Quantities and the basis for individual unit costs will be submitted to the City for review. We recently prepared the engineer’s cost estimate for several landfill expansions and has an excellent understanding of contracting costs. Our comprehensive earthworks design, construction experience, and access to contractors have allowed us to develop an extensive data base of construction costs for various regions. This knowledge has resulted in accurate engineer’s estimates for our clients. For example, during the design of Phase 2 for the California Street Landfill Expansion our engineer’s estimate was less than 1% off of the average of all of the bids and less than 3% off of the two low bids. We plan to begin working on developing the engineer’s estimate early in the project to reduce costly redesigns and time delays. Starting the development of the construction plans with a schedule of construction unit rates already developed and the beginnings of an engineer’s estimate will guide the team towards a design that meets the construction budget and airspace goals.

All of the design calculations performed or verified as part of the design of Phase 3 will be compiled into a Design Report for submission to the RWQCB for approval. In addition to having appendices that will include the construction specifications, construction drawings, CQA Plan, and technical calculations and output, the Design Report will likely consist of the following sections:

## 1.0 INTRODUCTION/BACKGROUND

- 1.1 Project Overview
- 1.2 Previous Investigations
- 1.3 Permit Authority
- 1.4 Authorization

## 2.0 LINER SYSTEM DESIGN

- 2.1 Liner System Components
- 2.2 Base Grading Plan
- 2.3 Slope Stability Analysis
  - 2.3.1 Configuration
  - 2.3.2 Method of Analysis
  - 2.3.3 Material Properties



- 2.3.4 Results of Landfill Stability Analyses
- 2.3.5 Dynamic Displacement Analyses
- 2.4 Interim Refuse Grades and Phase Capacity

### **3.0 LEACHATE COLLECTION AND REMOVAL SYSTEM (LCRS) DESIGN**

- 3.1 General System Description
- 3.2 Estimation of Leachate Generation Rates and Liner Head Levels
  - 3.2.1 Selection of Initial Waste Moisture Content
  - 3.2.2 Phase 1 and 2 Leachate Pumping Data
  - 3.2.3 Climatological Data
- 3.3 Phases 1 and 2 Analyses and Tie-in
- 3.4 Phase 3 Analyses
- 3.5 Drainage Layer
- 3.6 Removal System and Leachate Generation Rates

### **4.0 SURFACE DRAINAGE SYSTEM DESIGN**

- 4.1 Peak Run-off Determination
  - 4.1.1 Results of the Analyses
  - 4.1.2 Drainage Channel Sizing
  - 4.1.3 Culvert and Drop Inlet Sizing
- 4.2 Peak Run-On Determination
  - 4.2.1 Results of the Analysis
  - 4.2.2 Drainage Channel Sizing

### **5.0 REFERENCES**

Vector will provide the City with two (2) copies of the draft Design Report for review and comment at the 60% and 90% completion levels. Included with the 60% submittal will be material quantity take-offs, design calculations, and our engineer's cost estimate. Following final approval from City, five (5) hard copies of the Design Report along with a PDF digital version on compact disk will be provided. Vector will meet with the RWQCB if necessary to discuss the final design and obtain final approval.

## **Subtask 1.2 Prepare Phase 3 Expansion Construction Drawings**

All of our plans and design details will be prepared using the computer aided design and drafting (CADD) system to enable us to make quick modifications to the drawings based on comments from the City and regulatory agencies regarding changes in the design. We utilize AutoCAD Civil 3D software version 2012 for all drawings work and quantity calculations. Our drawings will follow a typical format and will consist of approximately 15 sheets. These drawings may include the following sheets:

- Project Title Sheet
- Existing Site Conditions / Facility Layout
- Excavation Plans
- Stockpiling Plan
- Subgrade Grading Plan
- Synthetic Liner System Layout
- Leachate Collection System Layout
- Operations Layer Grading
- Stormwater Management Plan

- Cross Sections
- Construction Details (approximately 5 sheets)

The construction drawings will be prepared to a level that will allow contractors (familiar with the installation of landfill liner systems) to prepare a complete and accurate bid. The grading plan will show the required cut and fill sections along with horizontal and vertical survey control points as required to construct the module. Prior to submitting the drawings to the City for review, an internal peer review will be conducted to check for completeness and accuracy, as well as technical issues.

We will submit two (2) copies of the drawings to the City at the sixty (60) and ninety (90) percent level for review and comments. The final drawings will be included as appendices to the Design Report and will also be included in the bid documents. The final drawings will be sealed and signed by a Licensed Civil Engineer registered in the State of California. Vector will provide the final drawings in PDF format on a compact disk to the City.

### **Subtask 1.3 Prepare Phase 3 Expansion Construction Technical Specifications**

Technical Specifications for Phase 3 will be prepared by Vector in a format approved by the City. The Technical Specifications will be prepared in accordance with the Construction Specifications Institute (CSI) format and will include descriptions of the project scope of work, CQA requirements, and required submittals. We have assumed that the CSI format used for both the Phase 1 and Phase 2 design will be acceptable for this project. However, if this is not the case, we will use whatever format the City desires.

It is anticipated that the Specifications for this project will include the following sections:

#### **DIVISION 1 – GENERAL REQUIREMENTS**

01010	Summary of Work
01019	Contract Considerations
01025	Measurements and Payment
01035	Modification Procedures
01050	Field Engineering
01052	Layout of Work and Surveys
01065	Health and Safety Requirements
01200	Project Meetings
01300	Submittals
01310	Construction Schedule
01400	Quality Control
01500	Construction Facilities
01560	Temporary Controls
01600	Material and Equipment
01630	Product Options and Substitutions
01700	Contract Closeout

#### **DIVISION 2 – SITE WORK**

02110	Clearing, Grubbing, and Stripping
02112	Stockpiling and Soil Management
02221	Excavating
02222	Anchor Trench Backfill

02225	Geomembrane Subgrade Preparation
02227	LCRS Drainage Gravel
02228	Engineered Fill
02229	Operations Layer
02230	Surface Water Drainage Systems
02250	Compacted Low Permeability Soil
02270	Erosion Sediment Control
02710	Polyethylene Pipe
02771	Geotextiles
02774	Drainage Geocomposite
02778	High Density Polyethylene Geomembrane
02779	Geosynthetic Clay Liner
02780	Geoelectric Leak Detection

Vector will submit two (2) copies of the Specifications to the City at the 90 percent level for review and comment. Comments received from the City will be addressed and the final Technical Specifications will be incorporated into the Design Report and the bid documents. Final submittal to the City will be a "camera ready" original copy stamped and signed by a Licensed Civil Engineer registered in the State of California. The final Specifications will also be saved or scanned to PDF format and submitted to the City on a compact disk.

#### **Subtask 1.4 Prepare Phase 3 Expansion Construction Quality Assurance (CQA) Plan**

A Construction Quality Assurance (CQA) Plan will be included in the project documents. The overall purpose of the Plan is to define in advance the inspection procedures so the RWQCB can agree, when completed, that the project was properly inspected and built according to the project Specifications and in accordance with accepted industry practices. A thorough CQA Plan will be prepared that will provide the inspection and testing procedures required to verify that the liner system is installed according to the Plans and Specifications. This Plan will include testing, observation, and documentation requirements for all earthen components of the expansion, engineered fill, low permeability soil, geosynthetics, piping and any other materials that may be required.

Vector will submit one (2) copies of the CQA Plan to the City at the 90 percent level for review and comment. Comments received from the City will be addressed and the final Technical Specifications will be incorporated into the Design Report and the bid documents. Final submittal to the City will be five (5) copies stamped and signed by a Licensed Civil Engineer registered in the State of California. The final CQA Plan will also be saved or scanned to PDF format and submitted to the City on a compact disk.

#### **Task 2: Engineering Support during the Bidding and Construction of the Phase 3 Composite Liner System**

Vector will work closely with the City during the bidding of the Phase 3 Expansion. We will provide a list of qualified contractors, assist with distribution of bid documents, respond to bidder inquiries, attend the pre-bid meeting with potential contractors, prepare written responses to any contractor questions, prepare addenda as necessary, review and evaluate bid submittals, and provide a written recommendation to the City for award of the contract.

During the pre-bid conference provided for the prospective bidders, we will provide assistance to City staff to answer technical or administrative questions associated with the proposed construction. We will take minutes of the conference, prepare an attendance list, and submit the information to the City and interested parties. Questions from the bidders during the pre-bid phase that require addenda to the Specifications or drawings will be discussed with the City. Once the potential affect (if any) that the addendum will have on the schedule and construction budget is understood by all parties, Vector will prepare submittals with clarifications or

modifications to the Specifications or drawings for distribution to the prospective bidders. All inquiries by contractors will only be responded to in a written format so that conflicts do not occur.

Vector will assist the City in the review of bids received for Phase 3 construction. The bid documents will require the successful contractor to possess certain minimum, verifiable qualifications. Once the apparent low bidder is identified and agreeable to resolving any pricing conflicts or alternatives, we will contact the applicable references to verify the contractor's qualifications and reputation. Our Project Manager has been responsible for reviewing dozens of construction bids from contractors and is experienced in evaluating documents from contractors. Ausenco Vector will review the bid packages and provide the City with our evaluation and recommendations quickly.

Once the bids have been returned and reviewed for completeness, Vector will contact the references of the apparent low bidder. Vector will review the information regarding the project provided by the contractor within the bid. A pre-prepared ranking and qualification form will be used for each reference and details of the conversations will be logged to provide both reliable reference material and defensible documentation in the case that this bidder is rejected on the basis of qualifications. During our correspondence, we will also inquire as to the nature and level of performance of the contractor's work. Important aspects such as the ability to complete the work on time and within the **original budget**, as well as their ability to work with other parties during project development, will be discussed. If there are any indications that the information provided by the contractor is inaccurate, Vector will contact the contractor and other parties who were involved with the referenced project for clarification. Upon completion of the reference check, Vector will provide comments and recommendations as to the selection of the contractor.

Once the contract is awarded to the winning contractor, Vector will provide engineering services for the duration of the Phase 3 expansion. This will include attendance at the pre-construction meeting, attending progress meetings as necessary, and attending a final job walk. Vector's design team will also be available to review alternatives and change order requests from the contractor as well as Requests for Information (RFIs). In addition, Vector will review and comment on product manufacturer information and contractor submittals if necessary along with the contractors as-built drawings. For proposal purposes, we have assumed that the construction period will extend for 120 days. For budgeting purposes, we have assumed attendance at 6 meetings either at the site or in the City offices.

### **Task 3: CQA Services during the Construction of the Phase 3 Expansion**

Based on Vector's extensive CQA experience as well as our experience during the previous cell construction at the CSL, several CQA issues must be addressed on this project. A listing of the CQA issues that will be handled by our Project Manager and CQA Monitors **specific** to the Phase 3 construction project include the following:

- **Rapid turn-around time for test results.** An on-site field lab for soils and geomembrane destructive testing will be provided. We have over 100 triaxial cells for rapid permeability testing of the subgrade soils and GCL at our Grass Valley laboratory. Precision Laboratories of Garden Grove, California will be conducting the geosynthetics conformance testing. Precision Laboratories was Vector's third party geosynthetics laboratory during the construction of over 100 million square feet of liner systems at other landfills including both the Phase 1 and 2 expansions at the CSL.
- **Seaming of geomembrane.** We will observe that seams are free of moisture and dirt, proper overlap has been obtained, proper grinding procedures are followed for extrusion welding, and proper squeeze-out from double wedge welds is achieved (excessive squeeze-out from too much pressure weakens seams as do the presence of dirt or moisture).

- **Data collection.** Project documentation will be organized in a logical sequence with enough detail to readily identify gaps, failures, and retests in the data set. This will ensure that delivered materials match the manufacturer's certifications along with passing all conformance testing. We will arrange conformance test results and logs of geosynthetic material received in a format that allows rapid identification of materials that are acceptable for placement by the Contractor. This information will include conformance test results, construction daily reports, meeting minutes, and submittal registers.
- **Multiple construction activities.** We have significant experience dealing with multiple construction activities occurring simultaneously at different locations throughout the expansion area. In addition, our CQA Monitors are trained in all aspects of the construction and are not limited to observing only one type of construction component.
- **Covering of geomembrane.** Placement of materials over the geomembrane will be observed. No soils may be placed when wrinkles are present or the material is contracting (trampolining). We will also observe that sand bags or other ballasts are utilized to protect the membrane from high winds.
- **Wrinkling of side-slope geomembrane.** As the geomembrane on the side-slopes is subjected to temperature variations causing expansion and contraction, the gravitational pull on the material can cause wrinkles at the toe of slope. Our CQA Monitors will observe the membrane and make determinations on whether the wrinkles can be worked out early in the morning when the material is contracted or whether the wrinkles should be removed. The use of white surface membrane would help reduce the expansion of the material.
- **Protection of geomembrane.** Our CQA Monitors will observe that all personnel wear proper shoes, no smoking is allowed, and no traffic directly contacts the liner.
- **Geosynthetic materials not corresponding to conformance test or MQC data.** Our CQA Monitor will log in all geosynthetic materials as they arrive and cross check the roll numbers with the conformance test results and MQC data received from the manufacturer. Only materials with passing conformance and MQC test results will be allowed on-site.
- **Communication with Project Personnel.** We will distribute daily reports via e-mail within 24 hours, maintain open files, maintain cellular phones, attend daily meetings, and report directly to the City's representative.

#### **Construction Quality Assurance (CQA) Activities**

As outlined in the City's RFP, our CQA services will include but not be limited to the following tasks:

- Attend the pre-construction meeting
- Mobilize field and laboratory equipment
- Attend weekly, daily, and special meetings
- Prepare daily and weekly construction reports
- Perform certification of subgrade
- Evaluate low permeability on-site materials
- Engineered fill placement CQA
- Low permeability layer CQA
- Leachate collection & removal system CQA

- Operations layer placement CQA
- Geosynthetics installation CQA
- Liner leak detection survey CQA
- Prepare photographic log
- Conduct CQA testing and prepare data reports
- Assist with review of as-built plans
- Prepare final CQA report

As part of our internal quality control program, a CQA Implementation Plan is prepared for all CQA projects, including previous construction projects at the CSL. Experience has taught us that a well-prepared CQA Implementation Plan will result in an effective and efficient execution of the CQA tasks. Since our CQA Implementation Plan describes in detail all the tasks that will be performed by our CQA Monitors, the City can be assured that we have in-depth understanding of the project tasks.

**Project Organization.** The CQA Implementation Plan will include a description of the overall project organization, including names, organizations, project roles, telephone numbers, and e-mail addresses. This section will also contain a detailed organizational structure of the CQA function. This would include identification of CQA personnel and their roles.

**A Schedule of Testing Frequencies:** A table will also be established during review of the project documents, and included with the Implementation Plan. The table outlines the total number of CQA tests to be performed during construction and will list material types, required testing, and testing frequencies established by the Technical Specifications or CQA Manual. Estimated quantities from the bid form or material take-off measurements from the drawings will then be used to determine the actual number of tests to be performed for each material type or unit of construction. The table will also aid in determining what testing will be performed on-site and what testing will be performed off-site. The table will be updated with the actual number of tests performed as the project progresses. A separate, but similar, table will be prepared and maintained for MQC testing of geosynthetics.

**Geosynthetic Materials Manufacturing, Delivery, and Conformance Log.** This log will keep track of all geosynthetic materials manufactured for the project and will list the date of: 1) MQC data submitted, 2) review of MQC data, 3) conformance sample taken, 4) results of conformance testing, 5) release of materials for shipment, and 6) receiving inspection upon arrival on site. The log will be used for tracking and providing a single point of reference for the geosynthetic materials. As part of our CQA services, we will track all lot and roll numbers of materials manufactured for this project. The tracking will begin as soon as the materials are manufactured and slated at the plant sites. Based on the distribution of material lots and roll numbers, we will work with our subcontracted geosynthetics materials testing laboratory to take the appropriate samples. The log will be continuously updated regarding the sampling and testing status (i.e. date samples taken; test results pending, pass, or fail).

The geosynthetic materials control log also documents: 1) roll numbers of materials manufactured for the project, 2) lot numbers associated with each roll, 3) roll numbers actually delivered to the site, 4) square footage of material associated with each roll, 5) status of MQC test data submittal and review, 6) disposition of rolls on site (e.g. installed, or where stored), 7) identification of roll numbers sampled for conformance testing and date sampled, 8) list of conformance tests assigned to each sample, 9) conformance test status (e.g. pending, pass, or fail), and 10) disposition of non-conforming results.

**Master Soils Testing Log.** The Master Soils testing log will keep track of all soil materials sampled and tested for the project. The soils testing log documents: 1) sample numbers (continuous and in order), 2) date sampled, 3) description of material sampled, 4) tests assigned, 5) test status, 6) test result, and 7) disposition of non-conforming results.

**Soils Compaction Testing Log.** This log will keep track of all soil materials tested for compaction on the project, whether by nuclear density gauge or other method. The soils compaction log documents: 1) test numbers (associated with lifts), 2) date tested, 3) description of material tested, 4) test location (reference grid and elevation), 5) test results in terms of moisture and dry density, 6) compaction reference (e.g. Proctor curve), 7) compaction specification requirement, 8) pass or fail designation, and 9) disposition of non-conforming results.

**Destructive Seam Testing Log.** The destructive seam testing log will keep track of all destructive tests performed on geomembrane seams. The destructive seam log documents: 1) test numbers (associated with seams), 2) date tested, 3) peel and shear test results, 4) pass or fail designation, and 5) disposition of non-conforming results.

The following provides a description of the specific CQA tasks outlined above.

## **Mobilize Field and Laboratory Equipment**

Vector will provide and furnish a field office/laboratory trailer. The trailer will be equipped with the appropriate testing equipment to allow our CQA Monitor to perform conformance tests on the soil materials for sieve analysis (D-422), Atterberg limits (D-4318), soil classification (D-2488), moisture-density relationships (D-1557), and moisture content (D-2216), as applicable. The trailer will be used to store our nuclear density gauge that will be used for conformance testing of the required in-place densities (D-2922) and moistures (D-3017). In addition, sand cone density tests (D-1556) will be conducted to correlate the results of the nuclear gauge tests.

We believe that as much on-site testing as possible is important to the success of a project of this size and duration. This enables us to provide fast turn-around time and better feedback to the construction personnel. It should be noted that we are capable of running all of the required earthworks tests on site with the exception of laboratory hydraulic conductivity tests. These tests will be performed at our Grass Valley laboratory.

Our field laboratory will also be equipped with the necessary communication devices such as a fax machine, copy machine, computer, and internet. The trailer will also be utilized to house the weekly progress meetings at the site.

## **Attend Weekly, Daily, and Special Meetings**

Vector's CQA Monitor will attend all daily, weekly, and special meetings that take place at the site. Our CQA Monitor will keep minutes and distribute them to all designated personnel.

## **Prepare Daily and Weekly Construction Reports**

Our CQA Monitor will prepare a daily record of all construction activities at the site. This daily report will be used by our CQA Monitor to prepare weekly reports, which will be submitted to our Project Manager and the City. Along with the daily reports, inspection data sheets will be filled out for any inspection activity or test procedure. In order to visually document the work progress and any problems that may occur, a photographic log will be kept on all activities.

At a minimum, our daily reports will include (if applicable) the following information: time on-site, equipment on-site, weather conditions, problems / solutions, number and results of tests, and results or comments on any other CQA activities. Weekly reports summarizing all CQA functions will be submitted to the Project Manager and the City.

## **Evaluation of Low Permeability On-Site Material**

Prior to placement of the low permeability layer, Vector's CQA Monitor will observe that the material is suitable for a low permeability layer by performing pre-construction testing. All testing will be conducted in accordance with the approved CQA Plan.

## **Engineered Fill Placement CQA**

Engineered fill materials will be tested for moisture and density using a nuclear density gauge. Moisture content tests will be performed adjacent to the nuclear density tests to verify moisture contents of the engineered fill. In addition, modified Proctor tests will be performed to assure that the proper compaction curves are being utilized. Our Monitors will observe the placement of the engineered fill for proper compaction procedures, lift thickness, and material used.

## **Low Permeability Layer Placement CQA**

Prior to constructing the low permeability layer, the Contractor will construct a test pad (approximately 50-feet wide by 100-feet long by 2-feet thick). The purpose of the test pad is to demonstrate that the proposed equipment and construction methodology can achieve the compaction, moisture content, and hydraulic conductivity required by the Specifications. The 2-foot thick clay liner will be constructed in a minimum of five (5) lifts. Upon completion of the test pad and the passing of all CQA testing requirements, the Contractor will then be able to proceed with construction of the low permeability layer, using the same equipment and methodology that was used to construct the test pad.

During construction of the low permeability layer, our CQA Monitors will perform the following CQA tasks:

- Observe that the previously compacted lift is scarified
- Observe that the maximum compacted lift thickness was adhered to by the Contractor
- Observe that the proper amount of bentonite is added to the existing soils
- Observe placement of clay soil and the uniformity of its moisture content
- Observe that the clay liner was constructed using the same methods and equipment that were used for the clay liner test strip
- Perform the tests per the CQA Plan

## **Leachate Collection & Removal System CQA**

Prior to the placement of the LCRS drainage gravel, Vector's CQA Monitor will perform evaluation testing on the material to check that the material is in accordance with the Specifications. During the installation of the drainage material, our CQA Monitor will visually inspect the lift thickness, ensure that traffic is minimized, record any damage to the underlying geosynthetics, and document compliance with the Plans and Specifications.

## **Operations Layer Placement CQA**

Following completion and acceptance of the geomembrane, cushion geotextile, LCRS gravel, and filter geotextile, our CQA Monitor will observe the placement of the operations layer. Our Monitor will visually inspect the operations layer material, measure lift thickness, ensure that traffic is minimized on the operations layer, record any damage to the underlying geosynthetics, and document compliance with the plans and Specifications.



After the operations layer has been placed, our CQA Monitor will inspect the layer for low spots or depressions, areas of damage or improper compaction, areas of excessive erosion, irregularities or protrusions. All testing of the operations layer will follow the requirements of the CQA Plan.

## **Geosynthetic Installation CQA**

**Geosynthetic Clay Liner (GCL) Installation.** Prior to installation, conformance testing of the GCL will be performed. Due to the nature of GCL, the proper sampling and handling of the material is critical to successful test results. With conformance test results meeting the required values, Vector's CQA Monitor will verify acceptability prior to the placement of the GCL. In addition, we will verify in writing that the soil liner or subgrade is acceptable to the installer for placement of liner materials. Our CQA Monitor will also ensure that all surveys have been performed.

During placement, our CQA Monitor will observe that the GCL has not been damaged or deteriorated since previous acceptance. Overlapping of each panel will be continuously monitored and observed by our CQA Monitor. The GCL panels will each have an identification number placed on them by the Contractor or CQA Monitor.

Our CQA Monitor will establish a chart demonstrating correspondence of panel placement, roll numbers, certification reports, and panel numbers. Continuous visual observation in accordance with the CQA Plan will be maintained throughout the placement and installation of the GCL.

**Geomembrane Installation.** Conformance sampling of the geomembrane liner will be performed prior to installation. The liner materials will be tested in accordance with the CQA Plan and Specifications. All geomembrane conformance tests will be conducted by Precision. All testing will be performed in accordance with the project Specifications and appropriate test method.

Following inspection and acceptance of the GCL, receipt of the manufacturer's quality control certificates, and passing conformance tests from Precision, the Contractor may begin deployment of the geomembrane liner. Our CQA Monitors will observe that the liner is deployed according to the Specifications and that the material is not damaged during placement.

Our CQA Monitors will observe the testing of the seaming equipment and the trial welds. No seaming can take place until each welder has passed the trial weld and is approved to begin work. We will ensure that all seaming is in accordance with the Specifications and the CQA Plan and that no seaming takes place above or below the given temperature requirements. In general, the nondestructive testing of seams will be visually observed by our Monitor and all of the results will be recorded on the liner and on the proper documentation form.

For destructive tests, our Monitor will direct the Contractor to take samples every 500 linear feet in locations determined by the Monitors. Additional samples may be necessary if the seam looks suspect, weather conditions change, there is wrinkling in the area, or there are a high number of failures in the shear and peel tests.

Upon completion of the geomembrane installation, our CQA Monitor will complete a final inspection of the liner. The purpose of the inspection is to identify areas that are damaged or have wrinkles or folded material. Once the geomembrane has been accepted, LCRS installation may begin.

**Geotextile and Geocomposite Installation.** As with the geomembrane installation, the inspection activities for the various geotextiles and geocomposite will be divided into categories consisting of delivery, conformance testing, installation, field testing and repairs, and final inspection. Conformance sampling of the geotextile and geocomposite will be performed prior to installation. All conformance tests will be performed by Precision in accordance with the project Specifications and appropriate test method.

Prior to geotextile and geocomposite placement, our CQA Monitor will verify grades and make sure the underlying surface has been prepared and accepted for placement. During installation of the geotextiles and geocomposites, our Monitor will inspect the overlap and seaming process for panels.

Our CQA Monitor will inspect the geotextile and geocomposite for defects, needles, and other foreign materials, which could damage underlying or overlying materials or could result in the improper function of the system. We will also ensure that the Contractor does not partake in any activities which could damage the materials before, during and after deployment.

## **Conduct CQA Testing and Prepare Data Reports**

Inspection data sheets will be filled out for any inspection activity or test procedure. These data sheets will include, but not be limited to, nuclear compaction test data, field density summary, sand cone density summary, sieve analysis, Modified Proctor compaction test, Atterberg limits test data, subgrade acceptance, geosynthetic receiving logs, deployment logs, seaming logs, repair logs, destructive seam test data, and daily construction reports. In order to visually document the work progress and any problems that may occur, a photographic log will be kept on all activities.

## **Liner Leak Detection Survey CQA**

We will conduct a leak detection survey on the geomembrane and over the operations layer. Vector currently provides geoelectric leak detection services and is very familiar with the ASTM and field requirements needed to provide a successful survey. In addition, because of our experience performing the survey, our CQA Monitors can advise the Contractor during construction on items that will help in providing a successful survey (i.e. adequate moisture in the operations layer and leaving the perimeter geomembrane exposed). Vector performed leak location surveys on the Phase 2 liner system at the CSL as part of the regulatory requirements imposed by the Santa Ana RWQCB. Having this capability in-house at Vector streamlined the process and resulted in rapid regulatory approval of the Phase 2 expansion.

## **Preparation of Draft and Final Reports**

At the completion of the construction activities, a final CQA report will be prepared and certified by our Project Manager. The final report will consist of a summary of the construction activities, modifications to the design (if any), project CQA field and laboratory test procedures, and a compilation of the entire project CQA documentation in an organized report format. Vector will provide copies of the draft final construction certification report to the City for review. Following receipt of any comments, copies of the final stamped report along with a digital copy will be provided.

**Exhibit B - Project Schedule**  
Design and CGA of Phase 3  
California Street Landfill

ID	Task Name	Duration	Start	Finish	October	November	December	January	February	March	April	May	June	July	August	September	October	November	D	
1	<b>Project Award</b>	1 day	Tue 10/18/11	Tue 10/18/11	9/25	10/2	10/9	10/16	10/23	10/30	11/6	11/13	11/20	11/27	12/4	12/11	12/18	12/25	1/1	1/8
2	<b>Project Kickoff Meeting</b>	1 day	Thu 10/20/11	Thu 10/20/11																
3																				
4	<b>Task 1 Prepare Phase 3 Liner System Construction Documentation</b>	56 days	Mon 10/17/11	Mon 12/12/11																
5	Prepare Design Basis	8 days	Mon 10/17/11	Wed 10/26/11																
6	Meeting - Initial with City, Vector, RWQCB and LEA	1 day	Thu 10/27/11	Thu 10/27/11																
7	Prepare 60% Construction and Permitting Documentation	21 days	Fri 10/28/11	Fri 11/25/11																
8	Meeting - 60 % Design with City, Vector, RWQCB, and LEA	1 day	Mon 11/28/11	Mon 11/28/11																
9	Prepare 90% Construction and Permitting Documentation	10 days	Mon 11/28/11	Fri 12/9/11																
10	Meeting - 90 % Design with City, Vector, RWQCB, and LEA	1 day	Fri 12/9/11	Fri 12/9/11																
11	Prepare Final Construction and Permitting Documentation	15 days	Mon 12/12/11	Fri 12/30/11																
12	Submit Final Design Report to RWQCB for Approval	1 day	Mon 1/2/12	Mon 1/2/12																
13	Submit Final Construction Documents to City	1 day	Mon 1/2/12	Mon 1/2/12																
14																				
15	<b>Task 2: Engineering Support during the Bidding and Construction</b>	176 days	Tue 12/27/11	Tue 8/28/12																
16	Prepare bid packages	12 days	Tue 12/27/11	Wed 1/11/12																
17	Call for Construction Bids	35 days	Thu 1/12/12	Wed 2/29/12																
18	Pre-Bid Meeting	1 day	Thu 1/19/12	Thu 1/19/12																
19	Award of Construction Contract	21 days	Wed 2/29/12	Wed 3/28/12																
20	Engineering Support During Construction	154 days	Thu 1/26/12	Tue 8/28/12																
21																				
22	<b>Task 3: CQA Services during the Construction of the Phase 3 Expansion</b>	109 days	Wed 3/28/12	Mon 8/27/12																
23	Pre Construction Meeting	1 day	Wed 3/28/12	Wed 3/28/12																
24	Construction Period	80 days	Wed 3/28/12	Tue 7/17/12																
25	Final CQA Report	6 days	Wed 7/18/12	Wed 7/25/12																
26	Regulatory Approval of Construction	23 days	Thu 7/26/12	Mon 8/27/12																
27																				
28	<b>Begin Waste Placement</b>	1 day	Tue 8/28/12	Tue 8/28/12																

**EXHIBIT 'C'**

**WORKERS' COMPENSATION INSURANCE CERTIFICATION TO PERFORM -----**

**-----  
FOR THE CITY OF REDLANDS CALIFORNIA STREET LANDFILL**

Every employer except the State, shall secure the payment of compensation in one or more of the following ways:

- (a) By being insured against liability to pay compensation in one or more insurer duly authorized to write compensation insurance in this State.
- (b) By securing from the Director of Industrial Relations, a certificate of consent to self-insure, either as an individual employer or as one employer in a group of employers, which may be given upon furnishing proof satisfactory to the Director of Industrial Relations of ability to self-insure and to pay any compensation that may become due to his or her employees.

I am aware of the provisions of Section 3700 of the Labor Code which requires every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that Code, and I will comply with such provisions before commencing the performance of the work of this Agreement. (Labor Code §1861).

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By: \_\_\_\_\_

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Date:

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