

### **Thickness and Joint Spacing**

To reduce the potential of unsightly cracking, concrete walkways and patio-type slabs should be at least 4 inches thick and provided with construction joints or expansion joints every 6 feet or less.

### **Reinforcement**

All concrete flatwork having their largest plan-view panel dimension exceeding 10 feet should be reinforced with a minimum of No. 3 bars spaced 24 inches on centers, both ways. Alternatively, the slab reinforcement may consist of welded wire mesh of the sheet type (not rolled) with 6x6/W1.4xW1.4 designation in accordance with the Wire Reinforcement Institute (WRI). The reinforcement should be properly positioned near the middle of the slabs.

*The reinforcement recommendations provided herein are intended as guidelines to achieve adequate performance for anticipated soil conditions. The project architect, civil and/or structural engineer should make appropriate adjustments in reinforcement type, size and spacing to account for concrete internal (e.g., shrinkage and thermal) and external (e.g., applied loads) forces as deemed necessary.*

### **Subgrade Preparation**

To reduce the potential for distress to concrete flatwork, the subgrade soils below concrete flatwork areas to a minimum depth of 12 inches should be moisture conditioned to at least equal to, or slightly greater than, the optimum moisture content and then compacted to a minimum relative compaction of 90 percent.

### **Pre-Moistening**

As a further measure to reduce the potential for concrete flatwork cracking, subgrade soils should be thoroughly moistened prior to placing concrete. The moisture content of the soils should be at least 1.2 times the optimum moisture content and penetrate to a minimum depth of 12 inches into the subgrade.

## **GENERAL CORROSIVITY SCREENING**

The following sections represent an interpretation of current codes and specifications that are commonly used in our industry as they relate to the adverse impact of chemical components of the site soils on various components of the proposed structures. As a screening level study, limited chemical testing was performed on representative samples of onsite soils to identify potential corrosive characteristics of these

soils. A variety of test methods are available to quantify the corrosive potential of soils. The testing procedures referred to herein are considered to be typical for our industry and have been adopted and/or approved by many public or private agencies

**Petra** does not practice corrosion engineering; therefore, the opinion and engineering judgment provided herein should be considered as general guidelines only. Further analyses would be warranted for cases where buried metallic building materials such as copper and ductile iron are planned for the project. For these conditions, we recommend that the project design professionals (i.e., the architect and/or structural engineer) consider recommending a qualified corrosion engineer to conduct additional sampling and testing of near-surface soils during the final stages of site grading to provide a complete assessment of soil corrosivity. Recommendations to mitigate the detrimental effects of corrosive soils on buried metallic and other building materials that may be exposed to corrosive soils should be provided by the corrosion engineer as deemed appropriate.

#### **Concrete in Contact with Site Soils**

Soils containing soluble sulfates beyond certain threshold levels as well as acidic soils are considered to be detrimental to integrity of concrete placed in contact with such soils. For the purpose of this study, soluble sulfates concentration in soils determined in accordance with California Test Method No. 417. Soil acidity, as indicated by hydrogen-ion concentration (pH), was determined in accordance with California Test Method No. 643.

The results of our laboratory tests indicate that on-site soils within the subject site contain water soluble sulfate contents of 0.006 to 0.072 percent. Based on Section 1904.3 of the 2010 CBC, concrete that will be exposed to sulfate-containing soils should comply with the provisions of Section 4.3 of ACI 318.

According to Table 4.2.1 of ACI 318-08 (a precursor to Section 4.3), an exposure class of S0 is appropriate for onsite soils. As such, a **Not Applicable** exposure to sulfate may be expected for concrete placed in contact with the onsite soil materials. As directed by Table 4.3.1 of ACI 318-08, no restriction for cement or maximum water-cement ratio for the fresh concrete would be required for this condition. However, the concrete minimum unconfined compressive strength should not be less than 2,500 psi.



The results of limited in-house testing of representative samples indicate that soils within the subject site are moderately alkaline with respect to pH (pH of 8.0 to 8.3). Based on this finding and according to Section 8.22.2 of Caltrans' 2003 Bridge Design Specifications (2003 BDS) requirements (which consider the combined effects of soluble sulfates and soil pH), a commercially available Type II Modified cement may be used.

These recommendations should be verified by the project structural engineer and the contractor responsible for concrete placement for concrete used in footings and interior slabs-on-ground, foundation walls and concrete exposed to weather.

### **Metals Encased in Concrete**

Soils containing a soluble chloride concentration beyond a certain threshold level are considered corrosive to metallic elements such as reinforcement bars, cables, bolts, etc. that are encased in concrete that, in turn, is in contact with such soils. For the purpose of this study, soluble chlorides in soils were determined in accordance with California Test Method No. 422.

The results of limited screening tests performed indicate that onsite soils contain a water-soluble chloride concentrations of 112 to 362 parts per million (ppm). Section 1904.4 of CBC 2010 requires that reinforcement in concrete be protected from the corrosive effects of chloride exposure in accordance with Section 4.4 of ACI 318. It should be noted that Section 4.4 of ACI 318-08 pertains to freeze-and-thaw conditions that are not applicable to the subject project; however, regardless of the level of chlorides in soils in contact with concrete, Table 4.2.1 of ACI 318-08 assigns an exposure class of C1 for concrete that will be exposed to moisture but not necessarily to external sources of chlorides. As such, a **Moderate** exposure to chloride may be expected for metallic elements encased in concrete, which is, in turn, placed in contact with the onsite soil materials.

One method of protecting reinforcement in concrete where elevated chloride concentrations are present in the soils is to increase the thickness of the concrete cover over the reinforcement. However, Table 8.22.1 of Caltrans BDS 2003 provides no minimum concrete cover when chloride concentration is less than 500 ppm (as is the case for the subject site). This recommendation should be verified by the project structural engineer.

### **Metallic Elements in Contact with Site Soils**

Elevated concentrations of soluble salts in soils tend to induce low level electrical currents in metallic objects in contact with such soils. This process promotes metal corrosion and can lead to distress to building components that are in contact with site soils. The minimum electrical resistivity indicates the relative concentration of soluble salts in the soil and, therefore, can be used to estimate soil corrosivity with regard to metals. For the purpose of this investigation, the minimum resistivity in soils is measured in accordance with California Test Method No. 643.

The minimum electrical resistivity for onsite soils was found to be 480 to 3,700 ohm-cm based on limited testing. This result indicates that on-site soils are moderately to **Severely Corrosive** to ferrous metals and copper. As such, any ferrous metal or copper components of the subject buildings or panel foundations that are expected to be placed in direct contact with site soils should be protected against detrimental effects of severely corrosive soils.

## **POST-GRADING RECOMMENDATIONS**

### **Site Drainage**

Positive-drainage devices, such as sloping flatwork, graded-swales and/or area drains, should be provided around buildings to collect and direct water away from the structures. Neither rain nor excess irrigation water should be allowed to collect or pond against building foundations. Drainage should be directed to an appropriate discharge area. The ground surface adjacent to the structures should also be sloped at a gradient of 2 percent or more away from the foundations for a horizontal distance of 5 feet or more.

### **Utility Trenches**

Utility-trench backfill materials to placed within access roads, utility easements, cable raceways, and under building-floor slabs should be compacted to a relative compaction of 90 percent or more. Where onsite soils are utilized as backfill, mechanical compaction should be used. Density testing, along with probing, should be performed by the project geotechnical consultant or his representative to document adequate compaction.

Utility-trench sidewalls deeper than about 3 feet should be laid back at a ratio of 1:1 (h:v) or flatter or shored. A trench box may be used in lieu of shoring. If shoring is anticipated, the project geotechnical consultant should be contacted to provide design parameters.



For trenches with vertical walls, backfill should be placed in approximately 1- to 2-foot thick loose lifts and then mechanically compacted with a hydra-hammer, pneumatic tampers or similar compaction equipment. For deep trenches with sloped walls, backfill materials should be placed in approximately 8- to 12-inch-thick loose lifts and then compacted by rolling with a sheepsfoot tamper or similar equipment.

Where utility trenches are proposed in a direction that parallels any structural footing (interior and/or exterior trenches), the bottom of the trench should not be located within a 1:1 (h:v) plane projected downward from the outside bottom edge of the adjacent footing.

### **PLAN REVIEW AND CONSTRUCTION SERVICES**

This report has been prepared for the exclusive use of Regenerate Power, LLC, to assist the project team in the design of the proposed development. It is recommended that Petra be engaged to review the final-design drawings and specifications prior to construction. This is to document that the recommendations contained in this report have been properly interpreted and are incorporated into the project specifications. If Petra is not accorded the opportunity to review these documents, we can take no responsibility for misinterpretation of our recommendations.

We recommend that Petra be retained to provide soil-engineering services during grading and construction of the excavation and foundation phases of the work. This is to observe compliance with the design, specifications or recommendations and to allow design changes in the event that subsurface conditions differ from those anticipated prior to start of construction.

If the project plans change significantly (e.g., structural loads or types), we should be retained to review our original design recommendations and their applicability to the revised construction. If conditions are encountered during construction that appears to be different than those indicated in this report, this office should be notified immediately. Design and construction revisions may be required.

### **LIMITATIONS**

This report is based on the project, as described, and the preliminary geologic/geotechnical field data obtained from the limited field tests performed at the locations shown. The materials encountered on the project site and utilized in our laboratory evaluation are believed representative of the total area, and the conclusions and recommendations contained in this report are presented on that basis. However, soil materials and groundwater levels can vary in characteristics between points of excavation, both laterally and vertically.

The conclusions and opinions contained in this report are based on the results of the described geotechnical evaluations and represent our professional judgment. The contents of this report are professional opinions and as such, are not to be considered a guaranty or warranty. The findings, conclusions and opinions contained in this report are to be considered tentative only and subject to confirmation by the undersigned during the construction process. Without this confirmation, this report is to be considered incomplete and Petra or the undersigned professionals assume no responsibility for its use. In addition, this report should be reviewed and updated after a period of 1 year or if the site ownership or project concept changes from that described herein.

The professional opinions contained herein have been derived in accordance with current standards of practice and no warranty is expressed or implied. This report has not been prepared for use by parties or projects other than those named or described herein. This report may not contain sufficient information for other parties or other purposes.

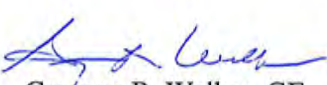
We sincerely appreciate this opportunity to be of service. Please do not hesitate to call the undersigned if you have any questions regarding this report.

Respectfully submitted,

PETRA GEOTECHNICAL, INC.

  
Douglass Johnston, CEG  
Associate Geologist  
CEG 2477



  
Grayson R. Walker, GE  
Principal Engineer  
GE 871





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## FIGURES

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COSTA MESA   TEMECULA   PALM DESERT   SAN DIEGO   SANTA CLARITA

### SITE INDEX MAP

Proposed Seville Solar Site Project  
Allegretti Farms Site  
Ocotillo Wells Area, Imperial County, California

DATE: Dec. 2012

J.N.: 332-12

DWG BY: DLJ

SCALE: None

**Figure 1**



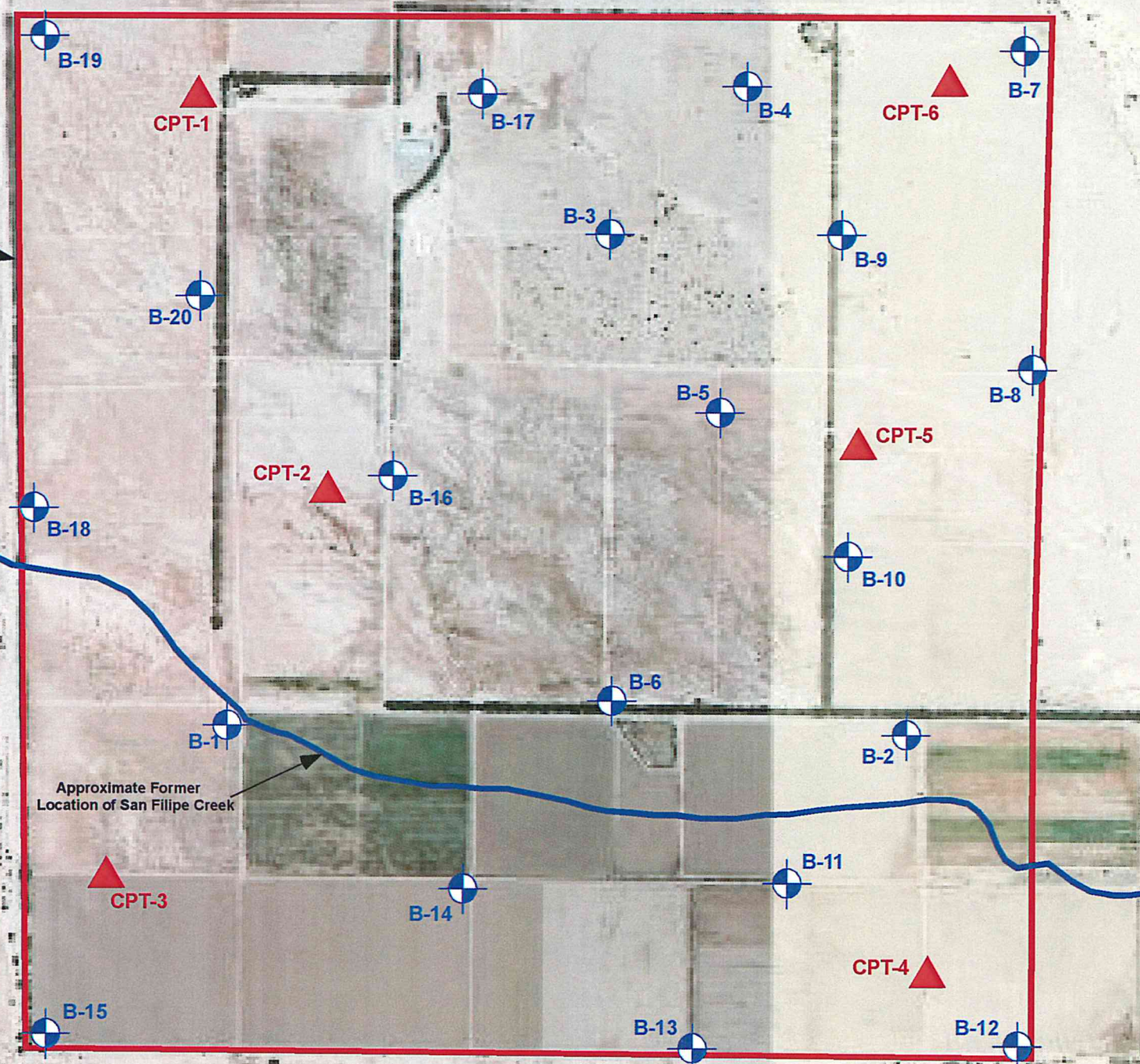


**Explanation**

 Approximate Geotechnical Boring Location  
B-20

 Approximate Cone Penetration Test Location  
CPT-6

Project Boundary



Approximate Former Location of San Filipe Creek

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| EXPLORATION LOCATION MAP                                                                                         |              |          |
|------------------------------------------------------------------------------------------------------------------|--------------|----------|
| Proposed Seville Solar Site Project<br>Allegretii Farms Site<br>Ocotillo Wells Area, Imperial County, California |              |          |
| DATE: Dec. 2012                                                                                                  | J.N.: 332-12 | Figure 2 |
| DWG BY: DLJ                                                                                                      | SCALE: NTS   |          |



# APPENDIX A

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## EXPLORATION LOGS



# EXPLORATION LOG

| Project: Regenerate Power       |                |                                                                                                                                           | Boring No.: B-01      |                      |                  |                  |                            |                         |                       |
|---------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------|------------------|------------------|----------------------------|-------------------------|-----------------------|
| Location: Seville Solar Sites   |                |                                                                                                                                           | Elevation: -23        |                      |                  |                  |                            |                         |                       |
| Job No.: 332-12                 |                | Client: Regenerate Power                                                                                                                  | Date: 11/14/12        |                      |                  |                  |                            |                         |                       |
| Drill Method: Hollow-Stem Auger |                | Driving Weight: 140 lbs / 30 in                                                                                                           | Logged By: SHW        |                      |                  |                  |                            |                         |                       |
| Depth<br>(Feet)                 | Lith-<br>ology | Material Description                                                                                                                      | W<br>a<br>t<br>e<br>r | Samples              |                  |                  | Laboratory Tests           |                         |                       |
|                                 |                |                                                                                                                                           |                       | Blows<br>Per<br>Foot | C<br>o<br>r<br>e | B<br>u<br>l<br>k | Moisture<br>Content<br>(%) | Dry<br>Density<br>(pcf) | Other<br>Lab<br>Tests |
|                                 |                | <b>UNCOMPACTED FILL (afu)</b><br>@ Surface: SAND (SP), light brown, dry, loose, fine grained, with trace medium grained Sand.             |                       |                      |                  |                  |                            |                         |                       |
|                                 |                | <b>ALLUVIUM (Qal)</b><br>@ 2': SAND (SP), light brown, slightly moist, medium dense, with some Silt and increasing fine grained material. |                       | 23                   |                  |                  | 5.3                        | 100.3                   |                       |
| 5                               |                |                                                                                                                                           |                       | 19                   |                  |                  | 26.5                       | 93.6                    |                       |
|                                 |                | @ 6': Silty CLAY (CL), gray and reddish brown, moist, stiff.                                                                              |                       |                      |                  |                  |                            |                         |                       |
|                                 |                | @ 7': SAND (SP), off-white, slightly moist, dense, fine to medium grained.                                                                |                       |                      |                  |                  |                            |                         |                       |
| 10                              |                |                                                                                                                                           |                       | 58                   |                  |                  | 1.7                        | 128.1                   |                       |
| 15                              |                | @ 15': very dense, with few gravel to 3/4".                                                                                               |                       | 64                   |                  |                  | 1.9                        | 114.8                   |                       |
| 20                              |                | @ 20': fine to coarse grained, with some gravel to 3/4".                                                                                  |                       | 61                   |                  |                  | 1.6                        | 112.3                   |                       |
| 25                              |                | @ 25': fine grained, with trace medium to coarse grained Sand and trace gravel to 1/2".                                                   |                       | 95/9"                |                  |                  | 3.7                        | 105.8                   |                       |

EXPLORATION LOG - V2 332-12.GPJ PETRA.GDT 12/10/12

PLATE A-1

Petra Geotechnical, Inc.



# EXPLORATION LOG

| Project: <b>Regenerate Power</b>       |                                                                                    |                                                                                                                   | Boring No.: <b>B-01</b> |                      |                                                                                       |                  |                            |                         |                       |
|----------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------|---------------------------------------------------------------------------------------|------------------|----------------------------|-------------------------|-----------------------|
| Location: <b>Seville Solar Sites</b>   |                                                                                    |                                                                                                                   | Elevation: <b>-23</b>   |                      |                                                                                       |                  |                            |                         |                       |
| Job No.: <b>332-12</b>                 |                                                                                    | Client: <b>Regenerate Power</b>                                                                                   | Date: <b>11/14/12</b>   |                      |                                                                                       |                  |                            |                         |                       |
| Drill Method: <b>Hollow-Stem Auger</b> |                                                                                    | Driving Weight: <b>140 lbs / 30 in</b>                                                                            | Logged By: <b>SHW</b>   |                      |                                                                                       |                  |                            |                         |                       |
| Depth<br>(Feet)                        | Lith-<br>ology                                                                     | Material Description                                                                                              | W<br>a<br>t<br>e<br>r   | Samples              |                                                                                       |                  | Laboratory Tests           |                         |                       |
|                                        |                                                                                    |                                                                                                                   |                         | Blows<br>Per<br>Foot | C<br>o<br>r<br>e                                                                      | B<br>u<br>l<br>k | Moisture<br>Content<br>(%) | Dry<br>Density<br>(pcf) | Other<br>Lab<br>Tests |
|                                        |  | @ 30': off-white and light brown mottled, fine to coarse grained, with few gravel to 1/2".                        |                         | 63                   |    |                  | 3.3                        | 110.6                   |                       |
| 35                                     |                                                                                    | @ 35': dense, with minor cementation.                                                                             |                         | 55                   |    |                  | 2.3                        | 106.2                   |                       |
| 40                                     |                                                                                    | @ 40': very dense, with moderate cementation.                                                                     |                         | 86                   |   |                  | 3.9                        | 112.3                   |                       |
| 45                                     |                                                                                    | @ 45': fine to medium grained, no gravel.                                                                         |                         | 87/11"               |  |                  | 3.2                        | 110.2                   |                       |
| 50                                     |                                                                                    | @ 50': olive gray, moist, fine grained, with some Silt.                                                           |                         | 94/10"               |  |                  | 4.2                        | 106.6                   |                       |
| 55                                     |                                                                                    | Total Depth = 51.3 feet<br>No Groundwater or Seepage Encountered<br>No Caving<br>Boring Backfilled with Cuttings. |                         |                      |                                                                                       |                  |                            |                         |                       |

EXPLORATION LOG - V2 332-12.GPJ PETRA.GDT 12/10/12

PLATE A-2

**Petra Geotechnical, Inc.**



# EXPLORATION LOG

| Project: <b>Regenerate Power</b>       |                |                                                                                                                    | Boring No.: <b>B-02</b> |                      |                  |                  |                            |                         |                       |
|----------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------|------------------|------------------|----------------------------|-------------------------|-----------------------|
| Location: <b>Seville Solar Sites</b>   |                |                                                                                                                    | Elevation: <b>-35</b>   |                      |                  |                  |                            |                         |                       |
| Job No.: <b>332-12</b>                 |                | Client: <b>Regenerate Power</b>                                                                                    | Date: <b>11/14/12</b>   |                      |                  |                  |                            |                         |                       |
| Drill Method: <b>Hollow-Stem Auger</b> |                | Driving Weight: <b>140 lbs / 30 in</b>                                                                             | Logged By: <b>SHW</b>   |                      |                  |                  |                            |                         |                       |
| Depth<br>(Feet)                        | Lith-<br>ology | Material Description                                                                                               | W<br>a<br>t<br>e<br>r   | Samples              |                  |                  | Laboratory Tests           |                         |                       |
|                                        |                |                                                                                                                    |                         | Blows<br>Per<br>Foot | C<br>o<br>r<br>e | B<br>u<br>l<br>k | Moisture<br>Content<br>(%) | Dry<br>Density<br>(pcf) | Other<br>Lab<br>Tests |
|                                        |                | <b>UNCOMPACTED FILL (afu)</b><br>@ Surface: Sandy SILT (ML), light olive gray, slightly moist, soft, fine grained. |                         |                      |                  |                  |                            |                         |                       |
|                                        |                | <b>ALLUVIUM (Qal)</b><br>@ 2': Silty SAND (SM), light gray, slightly moist to moist, medium dense, fine grained.   |                         | 30                   |                  |                  | 9.7                        | 112.3                   |                       |
| 5                                      |                | @ 5': Silty CLAY (CL), light gray and brown mottled, moist, hard.                                                  |                         | 54                   |                  |                  | 16.7                       | 103.9                   |                       |
|                                        |                | @ 7': SAND (SP), off-white, slightly moist, very dense, fine to medium grained.                                    |                         |                      |                  |                  |                            |                         |                       |
| 10                                     |                |                                                                                                                    |                         | 62                   |                  |                  | 1.9                        | 114.2                   |                       |
| 15                                     |                | @ 15': light gray, dense, fine grained, with some Silt.                                                            |                         | 42                   |                  |                  | 3.1                        | 114.2                   |                       |
| 20                                     |                | @ 20': off-white, fine to medium grained, with trace gravel to 3/4".                                               |                         | 48                   |                  |                  | 2.0                        | 108.7                   |                       |
| 25                                     |                | @ 25': very dense, fine to coarse grained.                                                                         |                         | 61                   |                  |                  | 2.0                        | 108.0                   |                       |
|                                        |                | @ 26': light gray, fine grained, with trace coarse grained Sand.                                                   |                         |                      |                  |                  |                            |                         |                       |
|                                        |                | @ 29': Silty SAND (SM), olive gray, moist, dense.                                                                  |                         |                      |                  |                  |                            |                         |                       |

PLATE A-3

Petra Geotechnical, Inc.

EXPLORATION LOG - V2 332-12.GPJ PETRA.GDT 12/10/12



# EXPLORATION LOG

| Project: <b>Regenerate Power</b>       |                |                                                                                                           | Boring No.: <b>B-02</b> |                      |                  |                  |                            |                         |                       |
|----------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------|-------------------------|----------------------|------------------|------------------|----------------------------|-------------------------|-----------------------|
| Location: <b>Seville Solar Sites</b>   |                |                                                                                                           | Elevation: <b>-35</b>   |                      |                  |                  |                            |                         |                       |
| Job No.: <b>332-12</b>                 |                | Client: <b>Regenerate Power</b>                                                                           | Date: <b>11/14/12</b>   |                      |                  |                  |                            |                         |                       |
| Drill Method: <b>Hollow-Stem Auger</b> |                | Driving Weight: <b>140 lbs / 30 in</b>                                                                    | Logged By: <b>SHW</b>   |                      |                  |                  |                            |                         |                       |
| Depth<br>(Feet)                        | Lith-<br>ology | Material Description                                                                                      | W<br>a<br>t<br>e<br>r   | Samples              |                  |                  | Laboratory Tests           |                         |                       |
|                                        |                |                                                                                                           |                         | Blows<br>Per<br>Foot | C<br>o<br>r<br>e | B<br>u<br>l<br>k | Moisture<br>Content<br>(%) | Dry<br>Density<br>(pcf) | Other<br>Lab<br>Tests |
|                                        |                | @ 30.5': Sand (SP), off-white, slightly moist, very dense, fine to coarse grained.                        |                         | 70                   |                  |                  | 4.6                        | 118.9                   |                       |
|                                        |                | @ 31': SILT (ML), brownish gray, moist, hard.                                                             |                         |                      |                  |                  |                            |                         |                       |
|                                        |                | @ 33': SAND (SP), off-white, dry to slightly moist, very dense, fine grained.                             |                         |                      |                  |                  |                            |                         |                       |
| 35                                     |                |                                                                                                           |                         | 70                   |                  |                  | 1.2                        | 103.6                   |                       |
|                                        |                |                                                                                                           |                         |                      |                  |                  |                            |                         |                       |
| 40                                     |                | @ 40': fine to medium grained, slightly moist, dense.                                                     |                         | 51                   |                  |                  | 1.4                        | 102.2                   |                       |
|                                        |                | @ 43': Groundwater Encountered.                                                                           | ▽                       |                      |                  |                  |                            |                         |                       |
| 45                                     |                | @ 45': SAND (SP), gray, wet, very dense, fine grained.                                                    |                         | 86/11"               |                  |                  | 17.2                       | 112.7                   |                       |
|                                        |                |                                                                                                           |                         |                      |                  |                  |                            |                         |                       |
| 50                                     |                | @ 50': light brown, medium dense, fine to medium grained.                                                 |                         | 32                   |                  |                  | 15.9                       | 114.7                   |                       |
|                                        |                | @ 51': fine to coarse grained.                                                                            |                         |                      |                  |                  |                            |                         |                       |
|                                        |                | Total Depth = 51.5 feet<br>Groundwater @ 43 feet<br>Caving to 42 feet<br>Boring Backfilled with Cuttings. |                         |                      |                  |                  |                            |                         |                       |
| 55                                     |                |                                                                                                           |                         |                      |                  |                  |                            |                         |                       |

EXPLORATION LOG - V2 332-12.GPJ PETRA.GDT 12/10/12

PLATE A-4

Petra Geotechnical, Inc.



# EXPLORATION LOG

| Project: <b>Regenerate Power</b>       |                |                                                                                                                                                                             | Boring No.: <b>B-03</b> |                      |                  |                  |                            |                         |                       |
|----------------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------|------------------|------------------|----------------------------|-------------------------|-----------------------|
| Location: <b>Seville Solar Sites</b>   |                |                                                                                                                                                                             | Elevation: <b>-16</b>   |                      |                  |                  |                            |                         |                       |
| Job No.: <b>332-12</b>                 |                | Client: <b>Regenerate Power</b>                                                                                                                                             | Date: <b>11/14/12</b>   |                      |                  |                  |                            |                         |                       |
| Drill Method: <b>Hollow-Stem Auger</b> |                | Driving Weight: <b>140 lbs / 30 in</b>                                                                                                                                      | Logged By: <b>SHW</b>   |                      |                  |                  |                            |                         |                       |
| Depth<br>(Feet)                        | Lith-<br>ology | Material Description                                                                                                                                                        | W<br>a<br>t<br>e<br>r   | Samples              |                  |                  | Laboratory Tests           |                         |                       |
|                                        |                |                                                                                                                                                                             |                         | Blows<br>Per<br>Foot | C<br>o<br>r<br>e | B<br>u<br>l<br>k | Moisture<br>Content<br>(%) | Dry<br>Density<br>(pcf) | Other<br>Lab<br>Tests |
|                                        |                | <b><u>ALLUVIUM (Oal)</u></b><br>@ Surface: SAND (SP), off-white, dry, loose, fine to coarse grained, with trace gravel to 1".<br>@ 2': brown, slightly moist, medium dense. |                         | 25                   |                  |                  | 1.3                        | 114.7                   |                       |
| 5                                      |                | @ 5': same as above.                                                                                                                                                        |                         | 30                   |                  |                  | 1.5                        | 111.7                   |                       |
| 10                                     |                | @ 10': same as above.                                                                                                                                                       |                         | 30                   |                  |                  | 32.1                       | 119.9                   |                       |
|                                        |                | @ 11': Silty CLAY (CL), gray, moist, stiff.<br>@ 11.5': Silty SAND (SM), gray, moist, medium dense, fine grained.                                                           |                         |                      |                  |                  |                            |                         |                       |
| 15                                     |                | @ 13': SAND (SP), off-white, dry to slightly moist, very dense, fine to coarse grained.                                                                                     |                         | 82                   |                  |                  | 1.3                        | 115.4                   |                       |
| 20                                     |                | @ 20': fine grained, with some Silt.<br>@ 21': dry, fine to coarse grained, no Silt.                                                                                        |                         | 79                   |                  |                  | 1.3                        | 109.8                   |                       |
| 25                                     |                | @ 25': fine grained, with some Silt.<br>@ 26': Sandy SILT (ML), gray, moist, very stiff, fine grained.<br>@ 26.5': Silty SAND (SM), brown, moist, dense, fine grained.      |                         | 45                   |                  |                  | 11.0                       | 105.7                   |                       |
|                                        |                | @ 28': SAND (SP), off-white, dry to slightly moist, very dense, fine to coarse grained, with minor cementation.                                                             |                         |                      |                  |                  |                            |                         |                       |

EXPLORATION LOG - V2 332-12.GPJ PETRA.GDT 12/10/12

PLATE A-5

Petra Geotechnical, Inc.

# EXPLORATION LOG

| Project: Regenerate Power       |                |                                                                                                                                                                 |                       | Boring No.: B-03     |                                      |                            |                         |                       |
|---------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------|--------------------------------------|----------------------------|-------------------------|-----------------------|
| Location: Seville Solar Sites   |                |                                                                                                                                                                 |                       | Elevation: -16       |                                      |                            |                         |                       |
| Job No.: 332-12                 |                | Client: Regenerate Power                                                                                                                                        |                       | Date: 11/14/12       |                                      |                            |                         |                       |
| Drill Method: Hollow-Stem Auger |                | Driving Weight: 140 lbs / 30 in                                                                                                                                 |                       | Logged By: SHW       |                                      |                            |                         |                       |
| Depth<br>(Feet)                 | Lith-<br>ology | Material Description                                                                                                                                            | W<br>a<br>t<br>e<br>r | Samples              |                                      | Laboratory Tests           |                         |                       |
|                                 |                |                                                                                                                                                                 |                       | Blows<br>Per<br>Foot | C<br>o<br>r<br>e<br>B<br>u<br>l<br>k | Moisture<br>Content<br>(%) | Dry<br>Density<br>(pcf) | Other<br>Lab<br>Tests |
|                                 |                |                                                                                                                                                                 |                       | 88                   |                                      | 2.5                        | 115.9                   |                       |
| 35                              |                | @ 34': Silty CLAY (CL), brown, moist, stiff.<br>@ 35': SAND (SP), gray, slightly moist, very dense, fine grained, with some Silt.<br>@ 36': off-white, no Silt. |                       | 88/11"               |                                      | 2.4                        | 106.3                   |                       |
| 40                              |                | @ 40': light brown.                                                                                                                                             |                       | 95/10"               |                                      | 1.9                        | 105.8                   |                       |
| 45                              |                | @ 45': dry to slightly moist, fine to medium grained.                                                                                                           |                       | 90/10"               |                                      | 1.8                        | 107.4                   |                       |
| 50                              |                | @ 50': off-white, fine grained.                                                                                                                                 |                       | 90/9"                |                                      | 3.1                        | 104.0                   |                       |
| 55                              |                | Total Depth = 51.3 feet<br>No Groundwater or Seepage Encountered<br>No Caving<br>Boring Backfilled with Cuttings.                                               |                       |                      |                                      |                            |                         |                       |

EXPLORATION LOG - V2 332-12.GPJ PETRA.GDT 12/10/12

PLATE A-6

Petra Geotechnical, Inc.



# EXPLORATION LOG

| Project: Regenerate Power       |                |                                                                                                                                                                                                                                                |                       | Boring No.: B-04     |                  |                  |                            |                         |                       |
|---------------------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------|------------------|------------------|----------------------------|-------------------------|-----------------------|
| Location: Seville Solar Sites   |                |                                                                                                                                                                                                                                                |                       | Elevation: -8        |                  |                  |                            |                         |                       |
| Job No.: 332-12                 |                | Client: Regenerate Power                                                                                                                                                                                                                       |                       | Date: 11/14/12       |                  |                  |                            |                         |                       |
| Drill Method: Hollow-Stem Auger |                | Driving Weight: 140 lbs / 30 in                                                                                                                                                                                                                |                       | Logged By: SHW       |                  |                  |                            |                         |                       |
| Depth<br>(Feet)                 | Lith-<br>ology | Material Description                                                                                                                                                                                                                           | W<br>a<br>t<br>e<br>r | Samples              |                  |                  | Laboratory Tests           |                         |                       |
|                                 |                |                                                                                                                                                                                                                                                |                       | Blows<br>Per<br>Foot | C<br>o<br>r<br>e | B<br>u<br>l<br>k | Moisture<br>Content<br>(%) | Dry<br>Density<br>(pcf) | Other<br>Lab<br>Tests |
|                                 |                | <b>UNCOMPACTED FILL (afu)</b><br>@ Surface: SAND (SP), off-white, dry, loose, fine to medium grained.                                                                                                                                          |                       |                      |                  |                  |                            |                         |                       |
|                                 |                | <b>ALLUVIUM (Qal)</b><br>@ 2': SAND (SP), light brown, slightly moist, medium dense, fine to corase grained, with trace Clay.<br>@ 3': off-white, fine grained, dry to slightly moist.<br>@ 5': slightly moist, dense, fine to medium grained. |                       | 25                   |                  |                  | 2.6                        | 107.5                   |                       |
| 5                               |                |                                                                                                                                                                                                                                                |                       | 47                   |                  |                  | 3.2                        | 112.5                   |                       |
| 10                              |                | @ 10': medium dense, fine to coarse grained.                                                                                                                                                                                                   |                       | 28                   |                  |                  | 4.2                        | 116.4                   |                       |
|                                 |                | @ 11': Silty CLAY (CL), olive gray, moist, stiff.                                                                                                                                                                                              |                       |                      |                  |                  |                            |                         |                       |
|                                 |                | @ 12': Silty SAND (SM), olive gray, moist, medium dense, fine grained.                                                                                                                                                                         |                       |                      |                  |                  |                            |                         |                       |
| 15                              |                | @ 14': SAND (SP), off-white, slightly moist, very dense, fine to medium grained.<br><br>@ 16': fine to coarse grained, dry to slightly moist.                                                                                                  |                       | 76                   |                  |                  | 1.7                        | 110.2                   |                       |
| 20                              |                | @ 20': light gray and light brown mottled, slightly moist, fine grained, very dense.                                                                                                                                                           |                       | 85/11"               |                  |                  | 2.4                        | 105.6                   |                       |
| 25                              |                | @ 25': off-white.                                                                                                                                                                                                                              |                       | 85                   |                  |                  | 2.5                        | 108.3                   |                       |
|                                 |                | Total Depth = 26.5 feet<br>No Groundwater or Seepage Encountered<br>No Caving<br>Boring Backfilled with Cuttings.                                                                                                                              |                       |                      |                  |                  |                            |                         |                       |

EXPLORATION LOG - V2 332-12.GPJ PETRA.GDT 12/10/12

PLATE A-7

Petra Geotechnical, Inc.

# EXPLORATION LOG

| Project: Regenerate Power       |                |                                                                                                                   |                       | Boring No.: B-05     |                  |                  |                            |                         |                       |
|---------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------|------------------|------------------|----------------------------|-------------------------|-----------------------|
| Location: Seville Solar Sites   |                |                                                                                                                   |                       | Elevation: -26       |                  |                  |                            |                         |                       |
| Job No.: 332-12                 |                | Client: Regenerate Power                                                                                          |                       | Date: 11/14/12       |                  |                  |                            |                         |                       |
| Drill Method: Hollow-Stem Auger |                | Driving Weight: 140 lbs / 30 in                                                                                   |                       | Logged By: SHW       |                  |                  |                            |                         |                       |
| Depth<br>(Feet)                 | Lith-<br>ology | Material Description                                                                                              | W<br>a<br>t<br>e<br>r | Samples              |                  |                  | Laboratory Tests           |                         |                       |
|                                 |                |                                                                                                                   |                       | Blows<br>Per<br>Foot | C<br>o<br>r<br>e | B<br>u<br>l<br>k | Moisture<br>Content<br>(%) | Dry<br>Density<br>(pcf) | Other<br>Lab<br>Tests |
|                                 |                | <b>ALLUVIUM (Qal)</b><br>@ Surface: Silty SAND (SM), off-white, dry, loose, fine grained.                         |                       |                      |                  |                  |                            |                         |                       |
|                                 |                | @ 2': medium dense.                                                                                               |                       | 39                   |                  |                  | 3.3                        | 99.2                    |                       |
|                                 |                | @ 3': Sandy SILT (ML), olive brown, slightly moist, very stiff, fine grained.                                     |                       |                      |                  |                  |                            |                         |                       |
| 5                               |                | @ 4': Sand (SP), light brown, dry, dense, fine grained, with some Silt.                                           |                       | 40                   |                  |                  | 1.9                        | 104.2                   |                       |
|                                 |                | @ 5': same as above.                                                                                              |                       |                      |                  |                  |                            |                         |                       |
| 10                              |                | @ 10': slightly moist, medium dense.                                                                              |                       | 35                   |                  |                  | 3.1                        | 106.3                   |                       |
| 15                              |                | @ 15': dense.                                                                                                     |                       | 51                   |                  |                  | 2.9                        | 111.5                   |                       |
| 20                              |                | @ 19': off-white, dry, very dense, fine to medium grained, no Silt.                                               |                       | 76                   |                  |                  | 1.0                        | 104.5                   |                       |
|                                 |                | @ 21': fine grained, with some Silt.                                                                              |                       |                      |                  |                  |                            |                         |                       |
| 25                              |                | @ 25': dry to slightly moist, fine to medium grained, no Silt.                                                    |                       | 70                   |                  |                  | 1.6                        | 105.2                   |                       |
|                                 |                | Total Depth = 26.5 feet<br>No Groundwater or Seepage Encountered<br>No Caving<br>Boring Backfilled with Cuttings. |                       |                      |                  |                  |                            |                         |                       |

EXPLORATION LOG - V2 332-12.GPJ PETRAGDT 12/10/12

PLATE A-8

Petra Geotechnical, Inc.



# EXPLORATION LOG

| Project: <b>Regenerate Power</b>       |                |                                                                                                                   | Boring No.: <b>B-06</b> |                      |                  |                  |                            |                         |                       |
|----------------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------|------------------|------------------|----------------------------|-------------------------|-----------------------|
| Location: <b>Seville Solar Sites</b>   |                |                                                                                                                   | Elevation: <b>-30</b>   |                      |                  |                  |                            |                         |                       |
| Job No.: <b>332-12</b>                 |                | Client: <b>Regenerate Power</b>                                                                                   | Date: <b>11/14/12</b>   |                      |                  |                  |                            |                         |                       |
| Drill Method: <b>Hollow-Stem Auger</b> |                | Driving Weight: <b>140 lbs / 30 in</b>                                                                            | Logged By: <b>SHW</b>   |                      |                  |                  |                            |                         |                       |
| Depth<br>(Feet)                        | Lith-<br>ology | Material Description                                                                                              | W<br>a<br>t<br>e<br>r   | Samples              |                  |                  | Laboratory Tests           |                         |                       |
|                                        |                |                                                                                                                   |                         | Blows<br>Per<br>Foot | C<br>o<br>r<br>e | B<br>u<br>l<br>k | Moisture<br>Content<br>(%) | Dry<br>Density<br>(pcf) | Other<br>Lab<br>Tests |
|                                        |                | <b><u>ALLUVIUM (Qal)</u></b>                                                                                      |                         |                      |                  |                  |                            |                         |                       |
|                                        |                | @ Surface: Silty SAND (SM), off-white, dry, loose, fine grained.                                                  |                         |                      |                  |                  |                            |                         |                       |
|                                        |                | @ 2': slightly moist, dense.                                                                                      |                         | 36                   |                  |                  | 1.5                        | 103.1                   |                       |
| 5                                      |                | @ 5': light gray, with decreasing Silt.                                                                           |                         | 41                   |                  |                  | 4.4                        | 100.1                   |                       |
|                                        |                | @ 9': SAND (SP), off-white, dry, very dense, fine to coarse grained.                                              |                         | 62                   |                  |                  | 1.4                        | 106.7                   |                       |
| 15                                     |                | @ 15': dense, fine to medium grained.                                                                             |                         | 46                   |                  |                  | 0.7                        | 107.2                   |                       |
| 20                                     |                | @ 20': same as above.                                                                                             |                         | 57                   |                  |                  | 1.7                        | 107.7                   |                       |
| 25                                     |                | @ 25': very dense.                                                                                                |                         | 86/11"               |                  |                  | 1.2                        | 98.6                    |                       |
|                                        |                | Total Depth = 26.4 feet<br>No Groundwater or Seepage Encountered<br>No Caving<br>Boring Backfilled with Cuttings. |                         |                      |                  |                  |                            |                         |                       |

EXPLORATION LOG - V2 332-12.GPJ PETRA.GDT 12/10/12

PLATE A-9

**Petra Geotechnical, Inc.**

# EXPLORATION LOG

| Project: <b>Regenerate Power</b>                                                                                  |                |                                                                                                                                                                                                                                                | Boring No.: <b>B-07</b> |                      |                  |                  |                            |                         |                       |
|-------------------------------------------------------------------------------------------------------------------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|----------------------|------------------|------------------|----------------------------|-------------------------|-----------------------|
| Location: <b>Seville Solar Sites</b>                                                                              |                |                                                                                                                                                                                                                                                | Elevation: <b>-6</b>    |                      |                  |                  |                            |                         |                       |
| Job No.: <b>332-12</b>                                                                                            |                | Client: <b>Regenerate Power</b>                                                                                                                                                                                                                | Date: <b>11/14/12</b>   |                      |                  |                  |                            |                         |                       |
| Drill Method: <b>Hollow-Stem Auger</b>                                                                            |                | Driving Weight: <b>140 lbs / 30 in</b>                                                                                                                                                                                                         | Logged By: <b>SHW</b>   |                      |                  |                  |                            |                         |                       |
| Depth<br>(Feet)                                                                                                   | Lith-<br>ology | Material Description                                                                                                                                                                                                                           | W<br>a<br>t<br>e<br>r   | Samples              |                  |                  | Laboratory Tests           |                         |                       |
|                                                                                                                   |                |                                                                                                                                                                                                                                                |                         | Blows<br>Per<br>Foot | C<br>o<br>r<br>e | B<br>u<br>l<br>k | Moisture<br>Content<br>(%) | Dry<br>Density<br>(pcf) | Other<br>Lab<br>Tests |
|                                                                                                                   |                | <b><u>ALLUVIUM (Qal)</u></b><br>@ Surface: SAND (SP), light gray, dry, loose, fine to medium grained.<br>@ 1': light brown.<br>@ 2': dense, fine to coarse grained.                                                                            |                         | 51                   |                  |                  | 0.8                        | 115.1                   |                       |
| 5                                                                                                                 |                | @ 5': off-white and light brown mottled, very dense, fine grained.                                                                                                                                                                             |                         | 70                   |                  |                  | 0.6                        | 114.8                   |                       |
| 10                                                                                                                |                | @ 9': Silty SAND (SM), light brown, slightly moist, very dense, fine grained.<br>@ 10.5': Silty CLAY (CL), off-white and olive brown mottled, slightly moist, hard.<br>@ 11.5': SAND (SP), off-white, dry, very dense, fine to coarse grained. |                         | 77/11"               |                  |                  | 3.2                        | 105.8                   |                       |
| 15                                                                                                                |                | @ 15': same as above.                                                                                                                                                                                                                          |                         | 92/10"               |                  |                  | 0.3                        | 110.1                   |                       |
| 20                                                                                                                |                | @ 19': Sandy SILT (ML), light brown, slightly moist, hard, fine grained.<br>@ 21': with increasing Sand.                                                                                                                                       |                         | 90/11"               |                  |                  | 3.5                        | 108.9                   |                       |
| 25                                                                                                                |                | @ 25.5': CLAY (CL), reddish brown, slightly moist, hard.                                                                                                                                                                                       |                         | 90/11"               |                  |                  | 18.3                       | 109.5                   |                       |
| Total Depth = 26.4 feet<br>No Groundwater or Seepage Encountered<br>No Caving<br>Boring Backfilled with Cuttings. |                |                                                                                                                                                                                                                                                |                         |                      |                  |                  |                            |                         |                       |

EXPLORATION LOG - V2 332-12.GPJ PETRA.GDT 12/10/12

PLATE A-10

**Petra Geotechnical, Inc.**



# EXPLORATION LOG

| Project: Regenerate Power       |                |                                                                                                                       | Boring No.: B-08      |                      |                  |                  |                            |                         |                       |
|---------------------------------|----------------|-----------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------|------------------|------------------|----------------------------|-------------------------|-----------------------|
| Location: Seville Solar Sites   |                |                                                                                                                       | Elevation: -27        |                      |                  |                  |                            |                         |                       |
| Job No.: 332-12                 |                | Client: Regenerate Power                                                                                              | Date: 11/15/12        |                      |                  |                  |                            |                         |                       |
| Drill Method: Hollow-Stem Auger |                | Driving Weight: 140 lbs / 30 in                                                                                       | Logged By: SHW        |                      |                  |                  |                            |                         |                       |
| Depth<br>(Feet)                 | Lith-<br>ology | Material Description                                                                                                  | W<br>a<br>t<br>e<br>r | Samples              |                  |                  | Laboratory Tests           |                         |                       |
|                                 |                |                                                                                                                       |                       | Blows<br>Per<br>Foot | C<br>o<br>r<br>e | B<br>u<br>l<br>k | Moisture<br>Content<br>(%) | Dry<br>Density<br>(pcf) | Other<br>Lab<br>Tests |
|                                 |                | <b><u>ALLUVIUM (Oal)</u></b><br>@ Surface: SAND (SP), off-white, dry, loose, fine to medium grained.                  |                       |                      |                  |                  |                            |                         |                       |
|                                 |                | @ 2': Silty SAND (SM), light brown, slightly moist, medium dense, fine grained.<br>@ 3': with increasing Silt.        |                       | 29                   |                  |                  | 2.3                        | 111.0                   |                       |
| 5                               |                | @ 5': light brown and light gray mottled, dense, fine to medium grained.                                              |                       | 55                   |                  |                  | 1.6                        | 111.8                   |                       |
| 10                              |                | @ 10': Sand (SP), light olive gray, slightly moist, fine grained, with some Silt.                                     |                       | 48                   |                  |                  | 3.4                        | 114.8                   |                       |
| 15                              |                | @ 15': off-white and light brown mottled, dry, no Silt.                                                               |                       | 57                   |                  |                  | 0.9                        | 111.5                   |                       |
| 20                              |                | @ 20': Sandy SILT (ML), light olive brown, slightly moist, hard, fine grained, with alternating Silty SAND (SM) beds. |                       | 66/11"               |                  |                  | 5.6                        | 114.7                   |                       |
| 25                              |                | @ 25': same as above.                                                                                                 |                       | 50                   |                  |                  | 20.6                       | 103.4                   |                       |
|                                 |                | @ 26': SILT (ML), olive brown, moist, very stiff, with alternating Silty SAND (SM) beds.                              |                       |                      |                  |                  |                            |                         |                       |
|                                 |                | Total Depth = 26.5 feet<br>No Groundwater or Seepage Encountered<br>No Caving<br>Boring Backfilled with Cuttings.     |                       |                      |                  |                  |                            |                         |                       |

EXPLORATION LOG - V2 332-12.GPJ PETRAGDT 12/10/12

PLATE A-11

Petra Geotechnical, Inc.

# EXPLORATION LOG

| Project: <b>Regenerate Power</b>       |                                                                                     |                                                                                                                   | Boring No.: <b>B-09</b> |                                                                                       |                  |                  |                            |                         |                       |
|----------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------------------------------------------------------------------------|------------------|------------------|----------------------------|-------------------------|-----------------------|
| Location: <b>Seville Solar Sites</b>   |                                                                                     |                                                                                                                   | Elevation: <b>-18</b>   |                                                                                       |                  |                  |                            |                         |                       |
| Job No.: <b>332-12</b>                 |                                                                                     | Client: <b>Regenerate Power</b>                                                                                   | Date: <b>11/15/12</b>   |                                                                                       |                  |                  |                            |                         |                       |
| Drill Method: <b>Hollow-Stem Auger</b> |                                                                                     | Driving Weight: <b>140 lbs / 30 in</b>                                                                            | Logged By: <b>SHW</b>   |                                                                                       |                  |                  |                            |                         |                       |
| Depth<br>(Feet)                        | Lith-<br>ology                                                                      | Material Description                                                                                              | W<br>a<br>t<br>e<br>r   | Samples                                                                               |                  |                  | Laboratory Tests           |                         |                       |
|                                        |                                                                                     |                                                                                                                   |                         | Blows<br>Per<br>Foot                                                                  | C<br>o<br>r<br>e | B<br>u<br>l<br>k | Moisture<br>Content<br>(%) | Dry<br>Density<br>(pcf) | Other<br>Lab<br>Tests |
| 5                                      |   | <b><u>ALLUVIUM (Qal)</u></b><br>@ Surface: SAND (SP), off-white, dry, loose, fine to medium grained.              |                         |                                                                                       |                  |                  |                            |                         |                       |
|                                        |                                                                                     | @ 2': medium dense, with some Silt and trace cobbles.                                                             | 28                      |    |                  | 1.3              | 114.1                      |                         |                       |
|                                        |                                                                                     | @ 5': light brown, very dense.                                                                                    | 85                      |    |                  | 1.1              | 117.0                      |                         |                       |
|                                        |                                                                                     | @ 10': off-white, dense.                                                                                          | 50                      |   |                  | 0.9              | 107.1                      |                         |                       |
|                                        |                                                                                     | @ 15': very dense, fine to coarse grained.                                                                        | 77                      |  |                  | 0.4              | 97.6                       |                         |                       |
|                                        |                                                                                     | @ 21': Sandy SILT (ML), light olive brown, slightly moist, hard, fine grained.                                    | 60                      |  |                  | 0.9              | 113.6                      |                         |                       |
| 25                                     |  | @ 22': SAND (SP), off-white and light brown mottled, dry, very dense, with some Silt.                             |                         |                                                                                       |                  |                  |                            |                         |                       |
|                                        |                                                                                     | @ 25': same as above.                                                                                             | 84/11"                  |  |                  | 1.0              | 107.3                      |                         |                       |
|                                        |                                                                                     | Total Depth = 26.4 feet<br>No Groundwater or Seepage Encountered<br>No Caving<br>Boring Backfilled with Cuttings. |                         |                                                                                       |                  |                  |                            |                         |                       |

EXPLORATION LOG - V2 332-12.GPJ PETRA.GDT 12/10/12

PLATE A-12

Petra Geotechnical, Inc.



# EXPLORATION LOG

| Project: Regenerate Power       |                |                                                                                                                   |                       | Boring No.: B-10     |                  |                  |                            |                         |                       |
|---------------------------------|----------------|-------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------|------------------|------------------|----------------------------|-------------------------|-----------------------|
| Location: Seville Solar Sites   |                |                                                                                                                   |                       | Elevation: -30       |                  |                  |                            |                         |                       |
| Job No.: 332-12                 |                | Client: Regenerate Power                                                                                          |                       | Date: 11/15/12       |                  |                  |                            |                         |                       |
| Drill Method: Hollow-Stem Auger |                | Driving Weight: 140 lbs / 30 in                                                                                   |                       | Logged By: SHW       |                  |                  |                            |                         |                       |
| Depth<br>(Feet)                 | Lith-<br>ology | Material Description                                                                                              | W<br>a<br>t<br>e<br>r | Samples              |                  |                  | Laboratory Tests           |                         |                       |
|                                 |                |                                                                                                                   |                       | Blows<br>Per<br>Foot | C<br>o<br>r<br>e | B<br>u<br>l<br>k | Moisture<br>Content<br>(%) | Dry<br>Density<br>(pcf) | Other<br>Lab<br>Tests |
|                                 |                | <b>ALLUVIUM (Qal)</b>                                                                                             |                       |                      |                  |                  |                            |                         |                       |
|                                 |                | @ Surface: Silty SAND (SM), light olive brown, dry, loose.                                                        |                       |                      |                  |                  |                            |                         |                       |
|                                 |                | @ 1': SAND (SP), light reddish brown, dry, dense, fine to medium grained.                                         |                       | 36                   |                  |                  | 3.2                        | 109.2                   |                       |
|                                 |                | @ 2.5': Sandy SILT (ML), off-white, dry to slightly moist, very stiff, fine grained.                              |                       |                      |                  |                  |                            |                         |                       |
| 5                               |                | @ 4': SAND (SP), light brown, slightly moist, medium dense, fine grained.                                         |                       | 34                   |                  |                  | 1.8                        | 102.9                   |                       |
|                                 |                | @ 6': fine to medium grained.                                                                                     |                       |                      |                  |                  |                            |                         |                       |
| 10                              |                | @ 10': white, dry, very dense, fine grained.                                                                      |                       | 66                   |                  |                  | 0.5                        | 106.4                   |                       |
| 15                              |                | @ 16': light red, slight cementation.                                                                             |                       | 70/11"               |                  |                  | 0.7                        | 105.1                   |                       |
| 20                              |                | @ 20': dense, with cobbles?.                                                                                      |                       | 60                   |                  |                  |                            |                         |                       |
| 25                              |                | @ 25': off-white, dry, very dense, fine to coarse grained.                                                        |                       | 80                   |                  |                  | 0.6                        | 106.4                   |                       |
|                                 |                | Total Depth = 26.5 feet<br>No Groundwater or Seepage Encountered<br>No Caving<br>Boring Backfilled with Cuttings. |                       |                      |                  |                  |                            |                         |                       |

EXPLORATION LOG - V2 332-12.GPJ PETRA.GDT 12/10/12

PLATE A-13

Petra Geotechnical, Inc.

# EXPLORATION LOG

| Project: Regenerate Power       |                |                                                                                                                                                                     | Boring No.: B-11      |                      |                  |                  |                            |                         |                       |
|---------------------------------|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------|------------------|------------------|----------------------------|-------------------------|-----------------------|
| Location: Seville Solar Sites   |                |                                                                                                                                                                     | Elevation: -37        |                      |                  |                  |                            |                         |                       |
| Job No.: 332-12                 |                | Client: Regenerate Power                                                                                                                                            | Date: 11/15/12        |                      |                  |                  |                            |                         |                       |
| Drill Method: Hollow-Stem Auger |                | Driving Weight: 140 lbs / 30 in                                                                                                                                     | Logged By: SHW        |                      |                  |                  |                            |                         |                       |
| Depth<br>(Feet)                 | Lith-<br>ology | Material Description                                                                                                                                                | W<br>a<br>t<br>e<br>r | Samples              |                  |                  | Laboratory Tests           |                         |                       |
|                                 |                |                                                                                                                                                                     |                       | Blows<br>Per<br>Foot | C<br>o<br>r<br>e | B<br>u<br>l<br>k | Moisture<br>Content<br>(%) | Dry<br>Density<br>(pcf) | Other<br>Lab<br>Tests |
|                                 |                | <b>ALLUVIUM (Qal)</b><br>@ Surface: Sandy SILT (ML), light brown, slight moist, firm, fine grained.<br>@ 2': olive brown, stiff.                                    |                       | 20                   |                  |                  | 7.1                        | 98.3                    |                       |
| 5                               |                | @ 5': SILT (ML), off-white and brown mottled, slightly moist, very stiff, thinly bedded.                                                                            |                       | 31                   |                  |                  | 7.1                        | 101.2                   |                       |
| 10                              |                | @ 9': Silty SAND (SM), light brown, slightly moist, medium dense, fine grained.<br>@ 10.5': Sandy SILT (ML), light brown, slightly moist, very stiff, fine grained. |                       | 33                   |                  |                  | 4.3                        | 97.6                    |                       |
| 15                              |                | @ 13': SAND (SP), light gray, slightly moist, dense, fine grained.                                                                                                  |                       | 40                   |                  |                  | 2.3                        | 104.2                   |                       |
| 20                              |                | @ 20': white, fine to medium grained.                                                                                                                               |                       | 52                   |                  |                  | 2.4                        | 102.7                   |                       |
| 25                              |                | @ 25': medium dense.                                                                                                                                                |                       | 33                   |                  |                  | 1.2                        | 106.9                   |                       |
|                                 |                | Total Depth = 26.5 feet<br>No Groundwater or Seepage Encountered<br>No Caving<br>Boring Backfilled with Cuttings.                                                   |                       |                      |                  |                  |                            |                         |                       |

EXPLORATION LOG - V2 332-12.GPJ PETRA.GDT 12/10/12

PLATE A-14

Petra Geotechnical, Inc.