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**Supplemental Information &
Geotechnical Recommendations**

Proposed New Solar Valley
Location "B" (East of Building No. 7)
Cañada Community College
4200 Farm Hill Boulevard
Redwood City, California

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Submitted to:
Mr. Peter Hempel
Construction Project Manager | Swinerton Management &
Consulting Construction Managers for
San Mateo County Community College District
3401 CSM Drive
San Mateo, California 94402

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File No. 10569-Supplemental
November 2013





ADVANCE SOIL TECHNOLOGY, INC.

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File No. 10569-Supplemental
November 12, 2013

Mr. Peter Hempel
Construction Project Manager | Swinerton Management & Consulting Construction Managers
for San Mateo County Community College District
3401 CSM Drive | San Mateo, CA 94402

Subject: Proposed New Solar Valley
(East of Building No. 7 & South of Parking Lot 6)
Cañada Community College
4200 Farm Hill Boulevard
Redwood City, California
**Supplemental Information for Cañada College Solar Photovoltaic System Project
(Location "B" East of Building No. 7 & South of Parking Lot 6)**

Dear Mr. Hempel -

Pursuant to your request and authorization, Advance Soil Technology, Inc. is pleased to present herein supplemental recommendation for the grading aspect of the project specifically related to Solar Valley Location "B" (East of Building No. 7 and South of Parking Lot 6) to be associated with the Proposed Solar Photovoltaic System Project at Cañada College located at 4200 Farm Hill Boulevard in Redwood City, California.

Based on the review of the conceptual drawings and the information received, it is our understanding that the above-mentioned area will be improved for usage as part of the Solar Photovoltaic System Project. Henceforth, in order to evaluate the site of proposed improvements, additional geotechnical borings were drilled to determine the subsurface soil conditions and provide recommendations for grading and foundation design aspect of the project.

In the proceeding sections of this report, enclosed please find the recommendations for the grading aspect of the project to be used in conjunction with the original geotechnical report prepared for the Solar Valley Project (Location "A" Vacant Parcel, East of Athletic Fields) Titled "Geotechnical Engineering Investigation & Geological Hazard Evaluation" File No. 10569-S Dated May 2011.

Review of these above-mentioned report(s), results of these subsurface exploration, and laboratory testing and analysis, formed the basis of our conclusions and recommendations related to the geotechnical engineering aspects of this project. This supplemental report presents selected elements of our findings and recommendations only for the proposed improvements. It does not present all the details needed for the proper application of our findings and recommendations for the development of the project. Our findings and



recommendations and application options can be related only through the full reading of the original geotechnical report(s) File No. 10569-S dated May 2011 and shall be used in conjunction with this supplemental report.

Grading Recommendations -

Geotechnical Feasibility -

Based on the results of our subsurface exploration, the primary geotechnical concerns for the proposed project include the following: (a) Compressible near surface soils (mostly fill material underlain with bedrock) that are subjected to settlements; (b) potential for lateral movement; (c) moderate to high expansive surficial clayey soils and (e) Subsurface moisture seepage.

Existing Debris and Buried Vegetation -

The site of proposed improvements is underlain with fill material of variable thickness with interbedded layers of buried vegetation, pieces of concrete, unsuitable fill with high organic content and other miscellaneous debris extending to a depth of (10)-feet below the existing elevated ground surface at the overflow parking area and tapering towards south along the property / fence at the top of slope.

Any areas to be graded should initially be cleared of all obstructions, including any existing subsurface structures (if any), underground utility pipes, drainage fields, drain lines, landscape debris, brush, trees not designated to remain, debris, stumps, root balls, rubble and debris at the location of proposed improvements should be removed and hauled off-site. All active or inactive utilities within the construction area should be protected, relocated or abandoned. Any pipes abandoned in place should be filled with sand cement slurry (pressure grout). Holes / excavated areas resulting from the removal of underground obstructions below the proposed grades should be cleared for engineered fill given below.

The contractor should separate all the miscellaneous debris to minimize the organic content (less than 3% by volume) in the soil to be utilized as engineered fill material.

Earthwork – Clearing & Site Preparation -

After clearing, the site shall be stripped to a sufficient depth to remove all the surface vegetation and organically rich topsoil. This material should not be used as engineered fill material; however, it may be stockpiled on-site to be used in the landscape areas or hauled off to a disposal facility.

After the removal of the debris and the stripping operation, all stockpile materials shall be re-located outside the area of proposed improvement to be utilized as a part of the engineered fill material if deemed acceptable by the geotechnical engineer, provided the organic content of less than 3% by volume.

The entire site of proposed improvements and (50)-feet beyond the limits of proposed improvements on the north, east and west shall be excavated to a depth of (10)-feet below

the existing ground surface or/ to an elevation (12) to (18)-inches below the existing ground surface at the location of the fence along the freeway on the south side.

During the excavation, at no time a vertical face shall be maintained along the parking lot / overflow parking side or any other side. The sides of the excavation shall be sloped to a minimum of 2:1 (Horizontal to Vertical). Depending upon the subsurface conditions of the fill material, excavation could extend further inward, if additional fill materials and buried debris are observed during the excavation.

After achieving the desired limits of excavation, the bottom and (10)-feet beyond the limits shall be scarified to a depth of (12)-inches below the excavated bottom; moisture conditioned (2% over optimum) and compacted to a minimum of 95% relative compaction as per ASTM D1557, prior to placement of any additional fill material.

Since the fill is being placed on an existing slope area, to provide slope stability, any required cut and fill slopes at the site shall have a gradient no steeper than 2.5:1 (horizontal to vertical). The fill placed on the slopes with the gradients greater than 5:1 shall be keyed and benched into the supportive material. The cut and fill areas shall be scarified and compacted to a minimum of 95% relative compaction, prior to any fill placement or grading at the site.

Prior to placement of any fill material, a base key and subsurface drainage shall be provided along the length of the slope. The base key and subsurface drainage shall be provided at the toe of the slope. The base key shall be a minimum of 15'-0" wide and shall be placed a minimum of (-3'-0") below the proposed toe of slope and shall be sloped towards the existing slope with a minimum 2% slope. The subsurface drainage at the interlocking slopes shall consist of a rigid heavy duty four-inch perforated pipe (preferably schedule 80) embedded in clean washed drain rock wrapped in a filter fabric (Mirafi 140N). The perforated pipe shall have a minimum of two-inches of gravel at the bottom and a minimum of (18)-inches on the top of the pipe. The base key and the engineered fill material (8-inch lifts) shall be moisture conditioned and compacted to a minimum of 95% relative compaction. The location of the major and the minor keys will be determined during the grading operation. The fill material shall be placed in uniform lifts and each lift shall be compacted to 95% relative compaction as per ASTM D1557.

However, if the above mentioned slope criteria could not be achieved a retaining structure shall be installed to retain the soil mass. The retaining structure shall be designed to hold the soil mass in conformance to the recommendation established the proceeding sections of this report.

The excavation into the underlying bedrock will be required to achieve the desired grades. In our opinion, closed spaced fracturing pattern and the degree of weathering, the bedrock (if encountered) should be excavated with heavy duty excavating equipment. The contractor should anticipate excavations into the bedrock may be uneven and would require additional concrete due to over breaking of rocks. In addition to the above, excavated

material may contain oversized rock fragments, which may require special handling and processing / or breaking into pieces for off-haul from the site.

Fill Materials -

All fill materials under concrete slab-on-construction and behind the walls shall be primarily granular material with low plasticity and expansion potential and shall comply with the following:

- Resistance R-Value Not less than 25
- Plasticity Index 12 or less
- Liquid Limit 30% or less
- Expansion Index 20% or less
- % Passing Sieve #200 between 10 and 20%
- Maximum rock size (3)-inches or less

All material shall be approved by the Project Soil Engineer, prior to hauling it to the site. All grading work shall be observed and approved by the Soil Engineer.

Temporary Slopes and Trench Excavations -

The contractor should be responsible for all temporary excavations, slopes and trenches excavated at the site and the design of any required shoring system. Shoring, bracing and benching shall be performed by the contractor in accordance with the strict governing safety standards. Temporary shoring is usually considered as a construction issue (means and methods) and has to be addressed by the contractor. Shoring and bracing should be provided in accordance with all applicable local, state and federal safety regulations, including but not limited to the current OSHA excavation and trench safety standards.

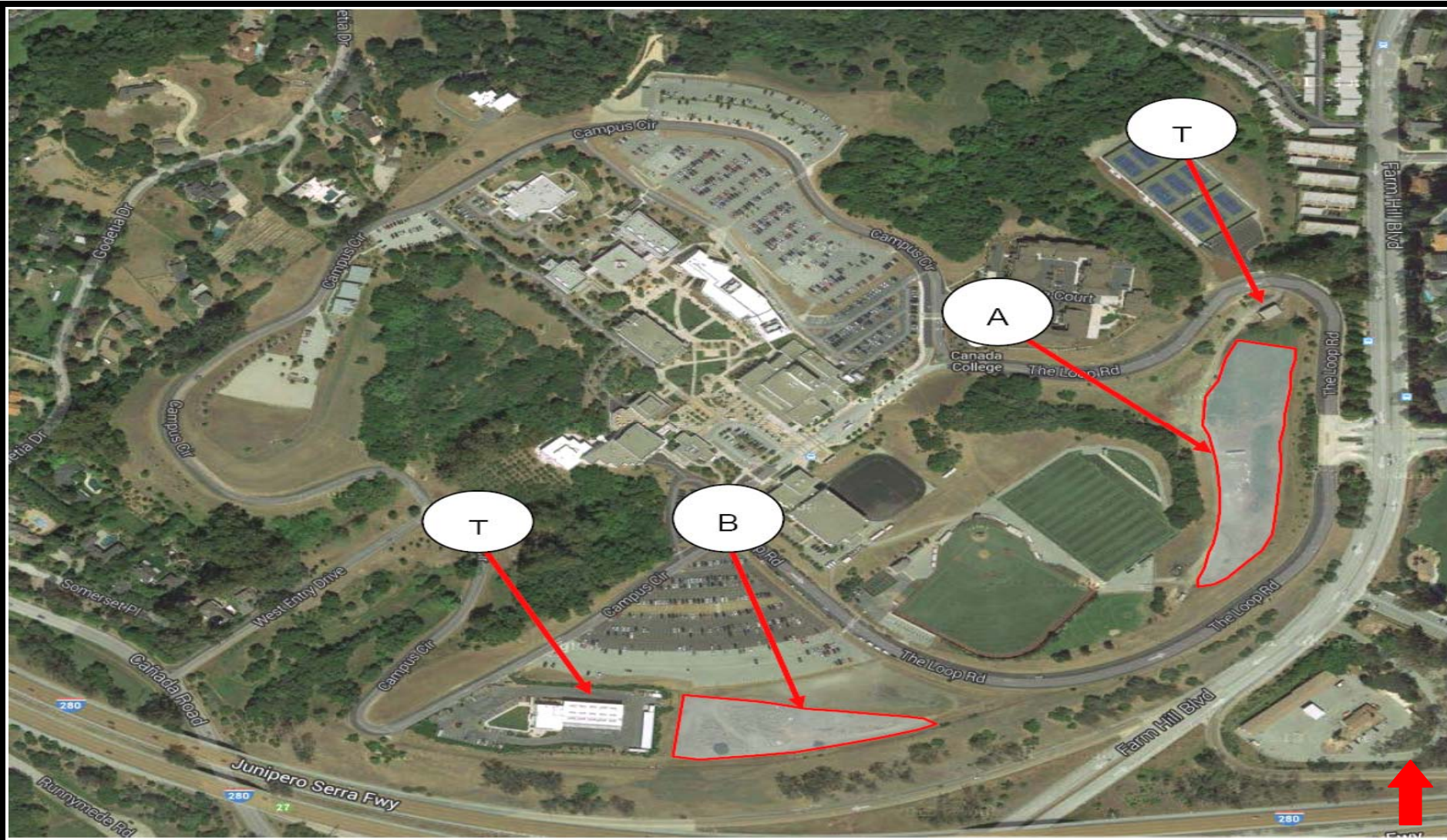
We are pleased to be of service to you in this matter. If you have any questions or require additional information, please feel free to contact us at your convenience.

Very truly yours,
ADVANCE SOIL TECHNOLOGY, INC.

Almirza
Al Mirza
Project Engineer
Am/aak/am/cj
Cc: File
Copies: Enclosed



Alexkassai
Alex A. Kassai PE/REA
Principal Engineer
PE #34882



Site Plan with Solar Valley Locations



Advance Soil Technology, Inc.

Geological, Geotechnical, Environmental
Consulting & Construction Services

Geotechnical Investigation & Geological Hazard Evaluation
Proposed Solar Valley
Cañada College

343 So. Baywood Avenue - San Jose, California

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Date: November 2013

Plate No. 1