

*Southern California Edison*  
**San Joaquin Cross Valley Loop Project A.08-05-039**

**DATA REQUEST SET SJXVL CPUC-ED-03**

**To:** ENERGY DIVISION  
**Prepared by:** Erika Wilder  
**Title:** Environmental Coordinator  
**Dated:** 08/07/2008

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**Question 14:**

**Geology**

Please provide all geologic and/or geotechnical report(s) for the project. During the meeting at Rector Substation on July 9, 2008, SCE staff mentioned that a geotechnical report was available. It was not clear whether the geotechnical report covered only Alternative 1, or also Alternatives 2 and 3. If a geologic/geotechnical report has also been prepared for Alternative 4 (Yokohl Drive area), please provide a copy of the report.

**Response to Question 14:**

SCE typically does not prepare geotechnical reports during the planning stage of a project, and instead conducts detailed geotechnical investigations after locations of facilities have been determined and access to private property can be obtained. However, due to an area on the Alternative 3 route mapped as a landslide hazard by the Natural Resources Conservation Service, SCE requested a geotechnical evaluation of the landslide potential on Stokes Mountain. It is attached below. SCE has not prepared a geotechnical report for Alternatives 1, 2 or 4.



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October 22, 2007

Mr. Esam Abraham  
Southern California Edison  
Civil/Structure Group  
T&D Business Unit  
2131 Walnut Grove Avenue  
Rosemead, California 91770

Subject: **LETTER OF TRANSMITTAL**  
**Report of Geologic Consultation**  
**Proposed Cross Valley Tower Alternate Location, Stokes Mountain**  
**East of Dinuba, Tulare County, California**  
**MACTEC Project No. 4953-07-2011**

Dear Mr. Abraham:

We are pleased to submit the results of our geological consultation for the proposed Cross Valley transmission tower alternate location at Stokes Mountain, located east of Dinuba, California. This consultation was conducted in general accordance with our proposal dated September 21, 2007.



It has been a pleasure to be of professional service to you. Please call if you have any questions or if we can be of further assistance.

Sincerely,

MACTEC Engineering and Consulting, Inc.

  
Rosalind Munro  
Senior Engineering Geologist



  
Marshall Lew, Ph.D.  
Senior Principal Engineer  
Senior Vice President



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(6 copies submitted)

Attachments: Figure 1 – Cross Valley Tower Data  
Figure 2 – Regional Geologic Map  
Figure 3 – Locations of Possible Shallow Failures

## **Introduction**

This report presents the results of our geologic consultation for the proposed Southern California Edison (SCE) Cross Valley transmission tower alternate at Stokes Mountain, located east of Dinuba in Tulare County, California. The location is shown on Figure 1, the Cross Valley Tower Data exhibit dated June 27, 2007 prepared by SCE.

Southern California Edison (SCE) does not own the land and does not have permission to access the property at this time. Therefore our scope of work, as presented in our proposal dated September 21, 2007, consisted of review of aerial stereoscopic photographs available at the Fairchild Collection at Whittier College, review of available existing published literature, and preparation of this report presenting our findings. It is our understanding from you that SCE was not able to obtain any consultant reports for the area.

The assessment of general site environmental conditions for the presence of contaminants in the soils and ground water of the site was beyond the scope of this investigation.

Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical consultants practicing in this or similar localities. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has been prepared for Southern California Edison and their design consultants to be used solely in the design of the proposed Stokes Mountain transmission tower alternate location. The report has not been prepared for use by other parties, and may not contain sufficient information for purpose of other parties or other uses.

## **Findings**

Stokes Mountain is located along the eastern margin of the central San Joaquin Valley in the Great Valley geomorphic province. The Great Valley geomorphic province is an alluvial plain approximately 50 miles wide and 400 miles long. It is bounded by the San Andreas fault zone and the Coast Ranges on the west, the Garlock fault zone on the south, and the Sierra Nevada mountains on the east. The Great Valley is a trough in which sediments have been accumulating for almost 160 million years.

Stokes Mountain is generally unimproved. According to the California Division of Mines and Geology, 1965, Geologic Map of California, Fresno Sheet, Stokes Mountain is underlain by basic intrusive and granitic rocks of Mesozoic age. The geologic conditions presented on the map are generalized and detailed surficial deposits are not shown. For example, no landslides are shown on the map although landslides do exist within the Fresno Sheet. Figure 3 presents the general geologic conditions at Stokes Mountain. A search of the literature did not result in identifying more detailed geologic maps or reports.

The topography of Stokes Mountain is shown on the United States Geological Survey 7.5 Minute Stokes Mtn. Quadrangle, portions of which are included in Figures 1 and 3. The mountain has a distinctive arcuate geomorphology, concave to the north. This type of geomorphology can be characteristic of large scale landsliding.

Stereoscopic aerial photographs from the Fairchild Collection at Whittier College were reviewed. Flights from 1945 and 1946 were available for this area. The prints of stereoscopic pairs needed to view most of the site in three dimensions, however, were not available from the collection.

Our photographic analysis of the site therefore was largely confined to review of Google Earth photography. The date of the photographs is unknown.

There were no obvious recent landslide scarps observed. The geomorphology downslope to the north of the ridgeline could be interpreted as a very large landslide mass, however it would be very old and likely supported by the Pleistocene nonmarine deposits below. Alternatively, the geomorphology could be an erosional manifestation of the geologic structure of the underlying granitic and basic intrusive bedrock.

It is likely that shallow failures have occurred and could occur in the future on the slopes below the ridgeline. Some of the possible locations are shown on Figure 3. The potential for shallow failures should be considered in determining tower locations and foundation depths.

## Conclusions and Recommendations

Although a large, deep-seated landslide may be present downslope to the north of the Stokes Mountain ridgeline, it is anticipated to be stable in its' present condition.

It is likely that shallow failures have occurred and could occur in the future on the slopes below the ridgeline. We recommend that during the field investigation, one boring be drilled for each proposed tower location between points A and B shown on Figure 3, estimated to be 4 to 5 per mile. We recommend that borings on the ridge top be between 50 and 70 feet in depth. We recommend that borings on the slopes in the vicinity of areas indicated on Figure 3 be drilled to approximately 100 feet in depth. The borings should be logged and reviewed by a qualified geologist.

## BIBLIOGRAPHY

California Division of Mines and Geology, 1965, Geologic Map of California, Fresno Sheet.

Google Earth, 2007, latitude 36.5177, longitude -119.1970.

United States Geological Survey, Stokes Mtn. 7.5 Minute Quadrangle.

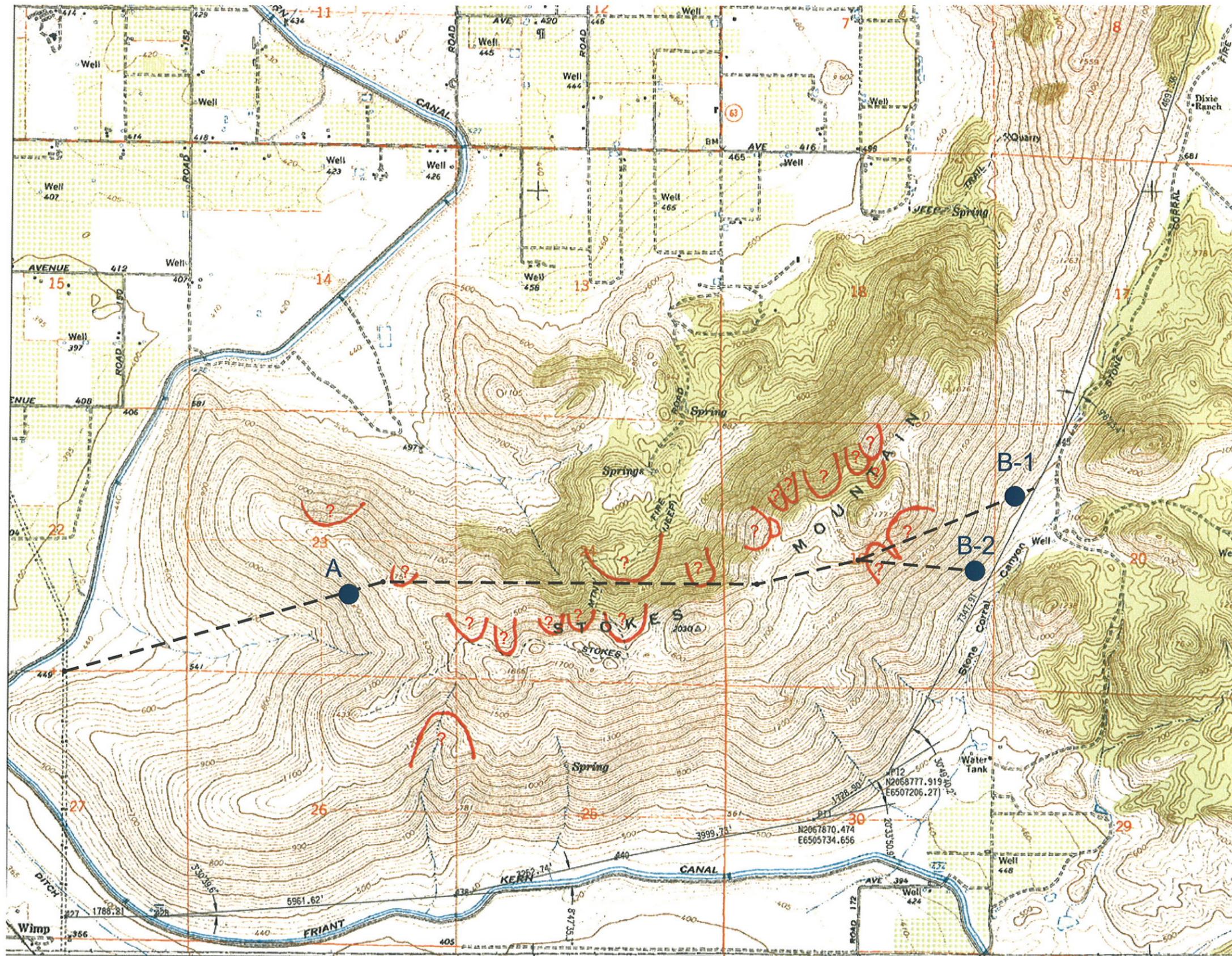
## AERIAL PHOTOGRAPHS REVIEWED FROM FAIRCHILD COLLECTION

<u>Date Flown</u>	<u>Flight Number</u>	<u>Frame Numbers</u>
1946	C-10440	8-129, -130 10-106, -108, -109 10-135,136
1945	C-9283	1:75, :76, :77, :78









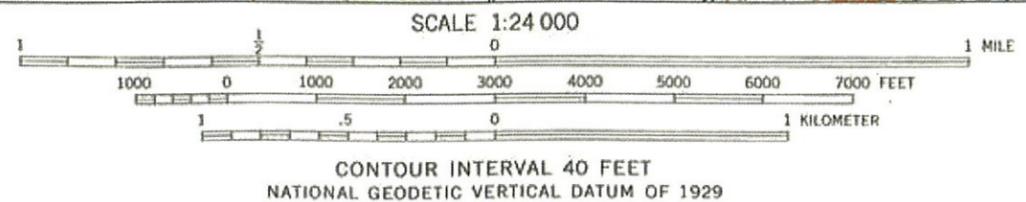
Possible Shallow Failure



Alternate Option



United States Geological Survey, "Stokes Mtn. 7.5 Minute Quadrangle."



**MACTEC** MACTEC ENGINEERING AND CONSULTING, INC.  
5628 E. Stauson Ave., LOS ANGELES, CALIFORNIA 90040  
(323) 889-5300, fax (323) 889-5398

Figure 3. Locations of Possible Shallow Failures Stokes Mountain Cross Valley Tower Alternate Near Dinuba, Tulare County, California			
JOB NO.:	4953-07-2011	REVISIONS:	
DATE:	10/19/07		
SCALE:			
DRAWN BY:	RM		
CHECKED BY:			