

15 November 2023
Document Id. 23135C-01L1
Serial No. 20561

Mr. Michael Smith and Ms. LC Boros
4012 Higuera Road
San Jose, CA 95148

**SUBJECT: LIMITED ENGINEERING SERVICES
SUMMARY OF ROADWAY CONDITIONS
HIGUERA ROAD
SANTA CLARA COUNTY, CALIFORNIA**

Dear Mr. Smith and Ms. Boros:

INTRODUCTION

As you requested, we have provided engineering observation services of Higuera Road in unincorporated Santa Clara County, California. We understand that the roadway is privately owned and provides egress to dozens of properties. The conditions along the roadway have deteriorated and we understand that roadway improvements are being planned. We have prepared this letter to document our initial observations and findings about the geotechnical aspects of the subject roadway.

This preliminary and limited evaluation is based upon our observations of the roadway and adjacent ground surface conditions in select areas along the roadway, a limited review of geologic maps and literature, and our general familiarity with the area. A more detailed study could result in substantial modifications of these preliminary conclusions. In addition, another consultant with a different background in training and experience could form different opinions about the site. This evaluation has been conducted in accordance with generally accepted geotechnical engineering principles and practices, and we make no other warranty, either expressed or implied.

ROADWAY CONDITIONS

The subject roadway has been informally differentiated into five roadway segments, designated A through E, as illustrated on Figure 1, Roadway Site Plan. On 13 October 2023, our principal engineer/geologist and Mr. Velimir Sulic observed the roadway conditions along several of the roadway segments, and after which we met with you. The majority of the roadways we observed were significantly deteriorated with wide spread alligator type cracking and spalling of the upper asphalt overlay. Examples of the deterioration are shown on Photos 1 and 2.

The roadway does not appear to have been constructed with drainage facilities that meet current standards of practice. We understand that the area in the vicinity of Photo 2 consistently accumulates water during rain events. Drainage improvements are being considered to collect and direct surface runoff into Flint Creek.



We also observed longitudinal cracking and uneven pavement along an approximately 400-foot long section of roadway (on Segment C between the intersection with Sections B and D). From the downhill side of the roadway, the adjacent ground surface descends steeply into Flint Creek. The vertical elevation difference between the roadway and creek is about 50 feet. Based upon the pattern of cracking and the steep terrain, the damage appears to be the result of incipient landsliding. A landslide hazard evaluation is warranted to characterize the subsurface conditions and to develop recommendations to mitigate the potential for further damage or destruction of the roadway.

FINDINGS

Based upon our limited observations, it is our opinion that, from a geotechnical engineering perspective, the proposed roadway improvement project should consider the following:

- The replacement of the roadway subbase and subgrade recompaction;
- improving or replacing the roadway drainage system;
- evaluating and mitigating the landslide hazard to the roadway.

The pervasive presence of alligator cracking and asphalt spalling is indicative of bearing capacity failure of the subbase and/or subgrade material underlying the asphalt. To rectify this condition, the existing asphalt should be removed and the underlying subgrade be scarified and recompacted to at least 90% relative compaction by the Modified Proctor Test method, in general accordance with the ASTM Test Designation D1557 (latest revision). Following recompaction of the subgrade, a minimum of 6 inches of CalTrans Class II baserock should be placed and compacted to 95% relative compaction prior to placing asphalt. The asphalt pavement section should adhere to accepted industry standards and County requirements.

The drainage system along the roadway should be evaluated and redesigned by a civil engineer. In general, collected water can be discharged to Flint Creek, provided that it is done in a manner that does not cause erosion or slope instability.

The landslide affecting the roadway presents an imminent hazard. Landslide movement could damage or destroy the roadway and impede egress to the area, however, we understand that there is an alternative egress route in case of an emergency. We have developed a scope of work and anticipate that evaluating the landslide will cost between about \$18,000.00 to \$22,000.00. Please contact us to prepare a formal agreement when ready to proceed with an evaluation of the landslide.

We appreciate the opportunity to assist with the roadway project. If you have any questions, please contact our office.

Sincerely,
C2Earth, Inc.

Craig N. Reid, Principal
Certified Engineering Geologist 2471
Registered Geotechnical Engineer 3060



THIS DOCUMENT HAS
BEEN DIGITALLY SIGNED

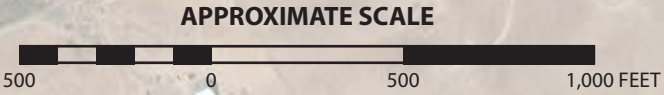
Distribution: Addressees (via e-mail to msmith@purgatory.org and stega@purgatory.org)
Mr. Velimir Sulic (via e-mail to masonsulic@sbcglobal.net)

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EXPLANATION

- A— - Roadway Segment
- █ - Observed Roadway Sections
- 👉 - Observed Landslide (see text)
arrows indicate direction of movement
- ★ - Approximate Photo Location



BASE: Google Earth Image; Accessed 7 November 2023


ROADWAY SITE PLAN				
C2EARTH 		ROADWAY CONDITIONS Higuera Road Santa Clara County, California		
DRAFTED/REVIEWED	SCALE	DOCUMENT ID.	DATE	Figure 1
KK/CR	AS SHOWN	23135C-01L1	November 2023	



PHOTO 1: Typical roadway asphalt deterioration. Note “alligator” crack pattern and spalling of the upper asphalt overlay.



PHOTO 2: Area where water ponds. Also, note deteriorated roadway asphalt.