



January 28, 2015

# MEMORANDUM

To: Mark Helper, Brian Hunt, Mark Adams

From: Tom Grimshaw

Subject: Preliminary Photogeologic Mapping of the Q-Bar Tract (South Portion)

Photogeologic mapping of the Q-Bar Tract and surrounding area of the northern Mountain City quadrangle has been accomplished with aerial photo stereo pairs (taken in 1967). In general, the tract is underlain by Cretaceous formations Glen Rose (Kgr), Walnut (Kwa), and Edwards (Ked). The strata are disrupted by faults of the Balcones Fault Zone.

Most of the air photo mapping has been done independently followed by reference to previous geologic mapping of the quadrangle<sup>1, 2</sup> and the Signal Hill quadrangle<sup>3</sup>. The area has also been mapped on Lidar imagery by Mark Helper and his assistant. The two main air photos covering the Q-Bar tract are shown in Attachments A (northern photo) and B (southern photo).

The photogeologic mapping was confirmed and expanded during a field trip hosted by Mark Adams on January 13, 2015. A second visit is planned for January 29 to further clarify the mapping. Major features that have been identified thus far (geologic and cultural) are shown on the photos in Attachments A and B and are described as follows (letters indicate locations on attachments):

Entrance to Q-Bar tract from FM 967 (A)

Unoccupied ranch house (B)

Major Balcones fault traversing the tract from northeast to southwest (C-D-E). Confirmed in Rutherford Ranch south of 967. Consistent with Smith, Kolb and on Lidar maps.

Kwa and Kgr outcrops west of the fault (F). Pre-Ked exposures are indicated in large areas west of the fault by Smith.

Proposed Kwa-Ked contact east of the fault (G).

Proposed cross fault (H).

Other possible Kwa-Ked contacts (J, K, L)

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<sup>1</sup> U.T. Bureau of Economic Geology Report of Investigation 86, 1976

<sup>2</sup> Richard Smith M.A. Thesis, 1978

<sup>3</sup> Richard Kolb M.S. Thesis, 1981



Based on these observations, the following field trip objectives are suggested.

Review Lidar mapping by Mark Helper and his assistant for the tract

Confirm pre-Ked outcrops west of the fault. Find mappable contacts of Kgr, Kwa, and Ked (indicated by Smith) and, if possible, within the Kwa (Bull Creek and Bee Cave).

Confirm Kwa-Ked contact on hill east of fault (all area east of the fault mapped as Ked by Smith). Investigate other proposed Kwa-Ked contacts on air photos east of the fault.

Determine if Kgr crops out east of fault. Find mappable upper contact and, if possible, within the Kwa (Bull Creek and Bee Cave)

Confirm (if feasible) the east-west cross fault. Extreme caution warranted – fenceline fault? Or is Kwa cut off?

You will no doubt have other ideas as well.

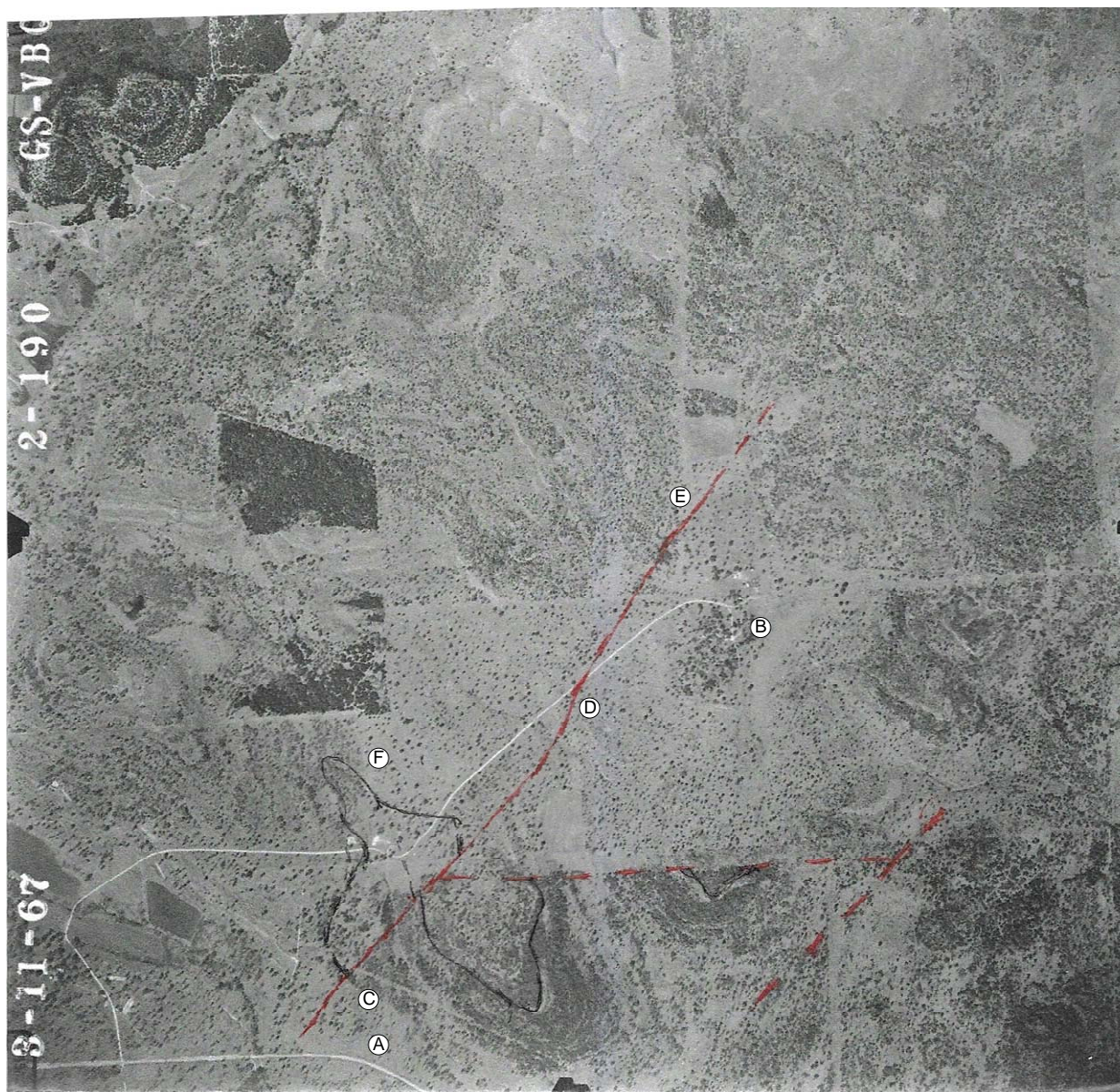
I look forward to our field trip tomorrow morning!



**Barton Springs  
Edwards Aquifer**  
CONSERVATION DISTRICT

Attachment A

Aerial Photo with Photogeology for the Q-Bar Tract (North Photo)







**Barton Springs  
Edwards Aquifer**  
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Attachment B

Aerial Photo with Photogeology for the Q-Bar Tract (South Photo)

