

December 13, 2015

MEMORANDUM

To: Brian Hunt, BSEACD
From: Tom Grimshaw
Subject: Report for Halifax Ranch Field Trip, December 1, 2015. Attendees: Brian Hunt, Brian Smith, Justin Camp, and Tom Grimshaw

I think our trip to Halifax Ranch earlier this week went very well. The trip started with review of previous geologic map and photo documentation prepared by you (Attachment A).

After we met with Bill Johnson at about 9:30 am, he accompanied us on the first three stops and then led us to a small tributary to the Blanco River for the remaining stops. Activities and accomplishments for each stop are shown below.

1. Stop 1. Fault near the Mouth of Halifax Creek at the Blanco River
 - Started with identification of a chert nodule in a boulder at the mouth of the creek.
 - Examined fault outcrop in creek bed just upstream of Halifax Road bridge over Halifax Creek.
 - Observed “shattered” zone on west bank just below end of competent beds.
 - Observed apparent fault gouge and terra rosa staining associated with the fault, both in Halifax Creek and in small stream flowing in from the west.
 - Observed dipping beds northwest “into” the fault – reverse drag (typical in Balcones Fault Zone).
 - Apparent Edwards outcrop on both sides of the fault in creekbed.
 - Photos of fault zone and outcrop of apparent fault gouge in Attachment B.
2. Stop 2. Blanco River Overlook at the Bend to the Southeast
 - Parked on west side of Halifax Ranch road and hiked to cliff edge on north side of Blanco River, where it bends to the southeast.
 - Outstanding view of the river and gorge. Upstream and downstream photos in Attachment C.
3. Stop 3. Outcrop Check East of Halifax Ranch Road on Upland
 - Traveled in Johnson’s vehicle to outcrops east of Halifax Ranch road on former Moore? Ranch (acquired in 2003).
 - Identified Regional Dense Member (RDM) of Edwards Limestone at several location, including a long-abandoned borrow pit.
 - Also visited Kristie’s Sink at location east of RDM outcrops. Observed abundant spoil piles resulting from excavation of the sink in past years (medium sized trees seen growing in spoil piles).
 - Saw remains of nearby former shack with tin roof and fuel pump for stove near the sink.

4. Stop 4. Fault Outcrop in Small Tributary and on North Bank of Blanco River
 - Went upriver and then up slope to location near small tributary to Blanco. Johnson directed us to creek leading to Blanco and then departed. Hiked down the tributary to the river.
 - Observed apparent fault gouge, terra rosa stain, and dipping beds in bed of tributary in hike down to the river.
 - Found outstanding exposure of major fault with Edwards limestone downthrown to the east against Glen Rose formation. Hunt measured strike and dip of fault with Brunton compass; found N30E and 74SE. Edwards is therefore hanging wall over Glen Rose footwall.
 - Photos of excellent fault exposure on riverbank are shown in Attachment D. Photos of fault gouge and terra rosa stain in bed of tributary also shown in Attachment D.
5. Stop 5. Observation Platform on North Side of Blanco River
 - Excellent views of the Blanco, as in Stop 2.
 - Upriver and downriver photos included in Attachment E.
 - Small apparent fault visible in upriver photo.
6. Stop 6. Massive Beds and Apparent Fault on North Side of Blanco River Near Halifax Ranch
 - Outcrops examined going back downriver to Halifax Ranch home. Massive beds observed most of the distance.
 - At or near home location, massive beds end, indicating a fault, which would be connected to the fault visible near the mouth of Halifax Creek.
 - Disrupted beds also observed on the opposite (south) side of the river.
7. Stop 7. Base of Cliff at Bend of Blanco River (Planned, but Not Made)
 - This stop was intended to confirm the absence of a fault near the base of the cliff (below Stop 2 location), as indicated on photogeologic mapping.
 - Stop not made due to lack of time; may be needed during next visit to this location.

Departure from the field was at about 2:00 pm.

The 1958 air photos with photogeologic mapping prior to the Halifax Ranch field trip are included in Attachment F. This mapping is “second generation” after my previous mapping in this area for my dissertation¹.

In an email the following day, Bill Johnson offered to let us do more outcrop examination in the future. I replied that we would like to visit the Nance Tract (acquired by Johnson in 2012) in a future visit. Bill also provided contact information for the Blanco River Ranch (former GLO) tract (Reyes family member and manager), which adjoins the Halifax Ranch to the east. I plan to make the contact in the next few days.

¹ Grimshaw, T.W., 1976. Environmental Geology of Urban and Urbanizing Areas – Case Study of the San Marcos Area, Texas. The University of Texas at Austin, Department of Geological Sciences, Ph.D. Dissertation.

Attachment A.

Previously Prepared Geologic Map, Measured Sections, and Photos of Blanco River at
Halifax Ranch

Attachment B.

Fault Exposure near Mouth of Halifax Creek

A. Westward view showing fault at location behind tree. Note that the massive limestone beds on the left side of the photo are truncated by the fault.



B. Closer view of the “rubblized” zone associated with the fault, which is on the right side of the photo.



C. Outcrop of apparent fault gouge (pink material in lower part of photo) in small tributary at fault location.



Attachment C.

Views of Blanco River from Clifftop at Bend of River from West to Southeast

A. Upriver (Westward) View. Note boulder deposit at mouth of Halifax Creek in the upper middle of the photo.



B. Downriver (Southeast) View.



Attachment D.

Exposures of Fault Crossing the Blanco River

A. North view from edge of the river. Outcrop on left side of photo is upper Glen Rose dolomite. Limestone outcrop behind the tree (photo center) is Edwards limestone.



B. Closer view of fault exposure. The fault zone is in front of Brian Hunt. Behind him is the Edwards limestone. On the left side of the fault (where his foot is planted) is the Glen Rose formation.



C. Outcrop of apparent fault gouge in the streambed of the small tributary to the Blanco. Note beds dipping to left (west) toward fault gouge.



Attachment E.

Photos of Blanco River from Observation Platform at Stop 5

A. Upriver (Westward) View. Note small falls in riverbed, the apparent location of a small-displacement fault.



B. Downriver (Eastward) View



Attachment F

Photogeologic Mapping for the Area around Halifax Ranch (1958 Photos)