

October 12, 2015

MEMORANDUM

To: Brian Hunt, BSEACD
From: Tom Grimshaw
Subject: Report for Field Trip, October 6, 2015

Thank you again for an excellent field trip for clarifying key geologic features of the Mountain City quadrangle. The main objective of the trip was to verify in the field Walnut-Edwards contacts as mapped preliminarily on air photo stereo pairs. The stops were identified in a previous memo (September 18) and during a meeting in your office on that date. We made a total of 8 stops, at many of the locations as set forth in the memo. Activities and accomplishments for each stop are shown below.

1. Stop M4-1. Walnut-Edwards contacts and fault outcrops near the end of Bill Kuykendall Road
 - Made contact with Jamie and Martha Kinscherff. Visited “grotto” and nearby outcrops on east bank of Yorks Creek just upstream of the confluence with Onion Creek. ? (Photo of grotto needed)
 - Made contact with neighbor to the north, who granted permission to view outcrops on his property. TWG and Jamie walked down the Yorks Creek to Onion Creek and then downstream on Onion Creek.
 - BBH examined the outcrops on the east side of the creek and prepared field sketch of measured section (Attachment A, needed). Concluded that the section is Walnut, with a thin cap of Edwards at the hilltop.
 - TWG found no evidence of fault outcrops in bed of Onion Creek. On the way back came up a small tributary with abundant fault evidence – dipping beds, sparry calcite, and terra rosa stained limestone.
 - TWG, BBH and Jamie returned to the upper reaches of the tributary and found fault outcrop previously noted by TWG (photos in Attachment B).
 - Concluded that photo mapping needs to be adjusted on the fault location and to include the Walnut-Edwards contact on the upthrown (west) side of the fault
2. Stop M4-2. Confirmation of Walnut-Edwards contact in field and on air photos
 - Returned to Walnut and Edwards outcrop (previously visited with Mark Helper) on Sierra Drive just west of FM150
 - Confirmed contact in field and on air photos. Mapping ties in with contact as mapped by Collins on the Driftwood quad map.

3. Stop M4-3. Confirmation of Walnut-Edwards contact in field and on air photos
 - Looked for contact on the south side of Yorks Creek
 - Verified at outcrop near home on Moss Rose Drive; consistent with air photo mapping
4. Stop M4-4. Confirmation of Walnut-Edwards contact in field and on air photos (not on planned itinerary)
 - Looked for contact on north side of Yorks Creek
 - Verified Walnut on north side of Yorks Crossing Road, including *Exogyra texana* (old name)
 - Contact should be visible higher up the hill to the north on air photos; current mapping will need to be modified.
5. Stop M4-4A. Verification of Walnut at Barberry Park
 - Crossed Yorks Creek on (aptly named) Yorks Crossing road
 - Examined outcrops on small drainage at Barberry Park (tributary to Yorks Creek); apparent competent limestone layers – possible Bull Creek member of Walnut
 - BBH recorded a small spring just downstream from the bridge at the park.
 - “No rock” was observed going up the hill going out on Barberry Park road, indicating possible Bee Cave member of Walnut.
6. Stop M4-5. Confirmation of Walnut-Edwards contact in field and on air photos
 - Revisited outcrop previously visited with Mark Helper on Grande Street east of FM150
 - Confirmed contact on Grande Street on north side of hill; also confirmed air photo mapping at this location as well as northward
 - Air photo mapping is also consistent with outcrop check by BBH on south side of hill during previous visit to Stop M4-1 (Attachment C, needed)
7. Stop at fault and conglomerate outcrop (not on pre-planned maps)
 - Verified previously visited outcrop of fault in ditch on north side of FM967
 - BBH measured strike and dip on beds in outcrop: (needed)
 - Examined beds of conglomerate on both sides of FM967 (photos in Attachment D)
 - Tentatively concluded the conglomerate is from gravel deposited in old stream channel now located on upland, similar to the better-defined channel observed by Woodruff near Michaelis Ranch on FM150
 - Air photo examination needed for evidence of former stream course
8. Stop M7-2, 3, 4. Confirmation of Walnut-Edwards contact in field and on air photos
 - Drove around new developments north of FM967 in the headwaters of Little Bear Creek looking for evidence of Walnut-Edwards contact
 - Instead found the bedrock is Glen Rose, on the upthrown side of Mt Bonnell fault
 - Examined Glen Rose – Walnut succession on hilltop mapped as contact by Kolb, 1981
 - Departed field about 4:30 pm
9. Stop M1-6 to 10
 - Last planned stops on FM967
 - Stops not made due to lack of time; need to visit in future field trip.

Descriptions of the proposed Stops and their locations on topographic map basemaps as shown in the September 18 memo are provided in Attachment E.

Stops not made and available for possible future field visits are:

M4-2, 7 to 11

M1-1, 2, 3, 8, 9

S8-1, 2, 3

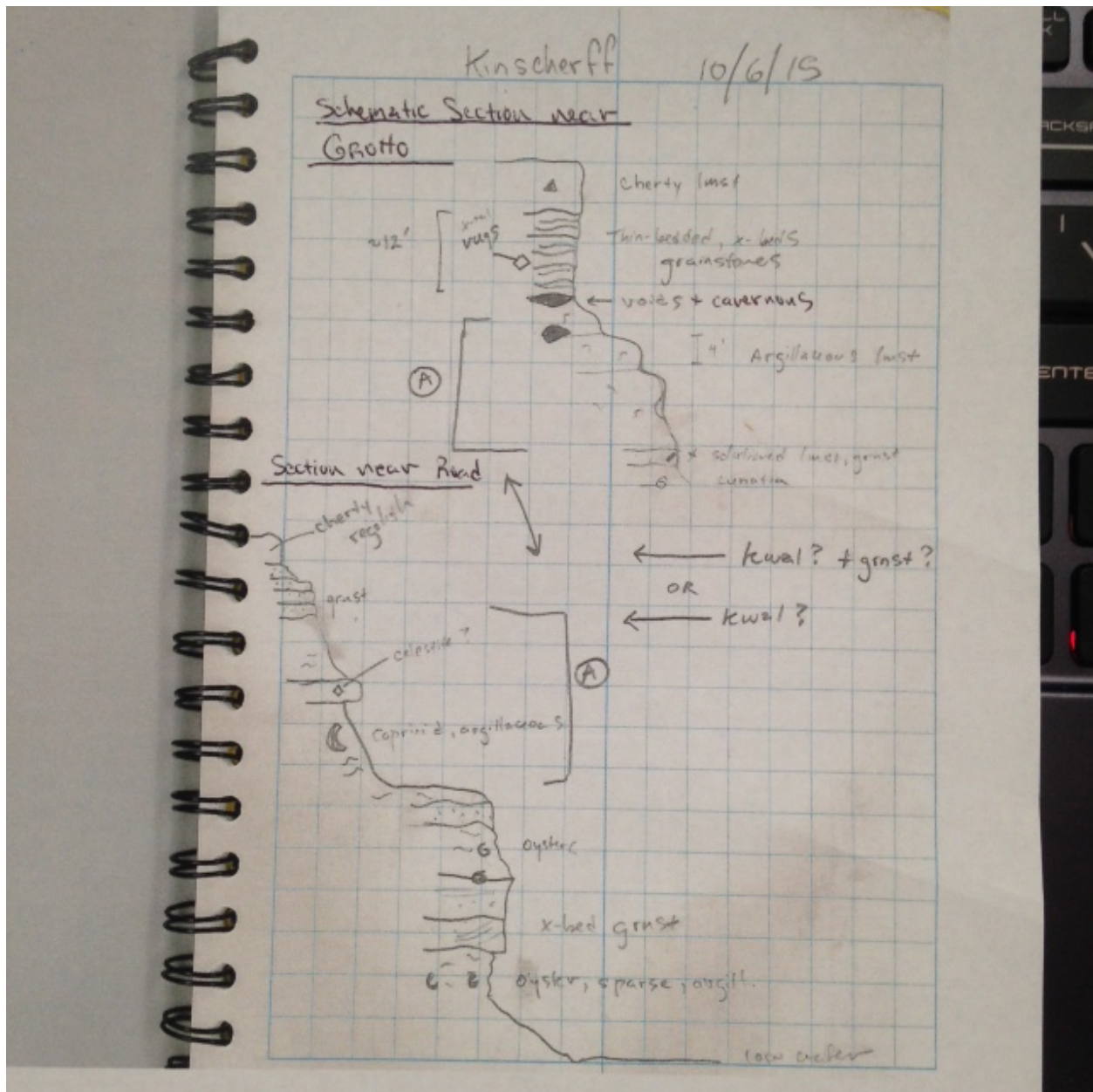
I believe that we have agreed that the next field trip will focus on the former GLO Tract near Kyle and on Halifax Ranch. We can also visit selected stops shown above that were not visited because of lack of time.

Please let me know if I have missed or misconstrued anything, and I will make corrections in the final version of this report.

Our planning session for the next trip is set for 11:00 a.m. on October 12 in your office. I look forward to our next meeting and field trip.

Attachment A.

Measured Section of Walnut-Edwards Succession near End of Bill Kuykendall Road



Attachment B.

Fault Outcrop on Tributary to Onion Creek. Taken near Bill Kuykendall Road during Previous Field Visit

A. Eastward view showing eroded fault outcrop in creekbed



B. Closer view of fault zone showing terra rosa stained fault gouge



Attachment C.

Walnut-Edward Contact Description from Previous BBH Field Visit

(Needed.)

Attachment D.

Conglomerate Outcrop near FM967

A. Conglomerate boulders on north side of road



B. Closer views showing rounded clasts in a sample of the conglomerate



Attachment E

Walnut-Edward Contact Field Trip Stops

Brief descriptions of the Stops proposed in the September 18 memo are shown below followed by maps showing the locations.

<u>Map Segment</u>	<u>Location No</u>	<u>Description (Walnut-Edwards Contact)</u>
M4	1	Outcrops near end of Kuykendall Road. On upthrown side of fault.
	2	Possible contact south of FM 3237. Access?
	3	Revisit contact on W Sierra Dr, previously visited with Helper.
	4	Possible contact on S side of York Creek. Access on York Creek Ranch road.
	5	Possible contact on N side of York Creek. Access on York Creek Ranch road.
	6	Previously identified contact on Grande St and Chica St.
	7	North extension of contact. Needs verification. Access?
	8	North extension of contact. Needs verification. Access?
	9	Mapped contact on NW side of fault. Needs verification. Access?
	10	Mapped contact on NW side of fault. Needs verification. Access?
	11	Mapped contact. Needs verification. Access?
	12	Revisit hilltop contact mapped by Collins for familiarity with sequence. On Driftwood.
M1	1	Check contact S of Rattlesnake Lake. Access?
	2	Check contact E of Rattlesnake Lake. Access?
	3	Check contact on opposite side of hill from M1-1 and M1-2
	4	Confirm contact just S of 967.
	5	Check contact N of 967
	6	Check contact S of 967 near Rutherford Ranch Road.
	7	Check contact S of 967 near Rutherford Ranch Road.
	8	Check contact N of 967 near former ranch access road.
	9	Check contact N of 967 near former ranch access road.
	10	Check contact on W side of hill from O-Bar location visited with Helper
S7	1	Check contact N of 967. Similar to M1-5.
	2	Check contact near Hawthorne Loop on W side of Little Bear Creek.
	3	Check contact near Hawthorne Loop on W side of Little Bear Creek.
	4	Check contact near Bluff Woods Dr on E side of Little Bear Creek.
	5	Check contact on W side of hill from O-Bar location visited with Helper.
	6	Check further up the hill from S7-7. Not likely?
S8	1	Look for contact on hill across Bear Creek on extension of Reunion Blvd.
	2	Look for contact along Crystal Hill Road. E of Mt Bonnell Fault.
M2	1	Check contact on W side of hill from O-Bar location visited with Helper.
	2	Check contact on E side of hill from O-Bar location visited with Helper.
	3	Look for possible contact in valley of Bear Creek.

Topographic Map Segments with Walnut-Edwards Candidate Field Checks
(Pages M4, M1, S7, S8, and M2)

The Mountain City (M), Driftwood (D), and Signal Hill (S) topo quads have been printed in 9 segments, with a ½ inch overlap. The segments of each quad are numbered as follows:

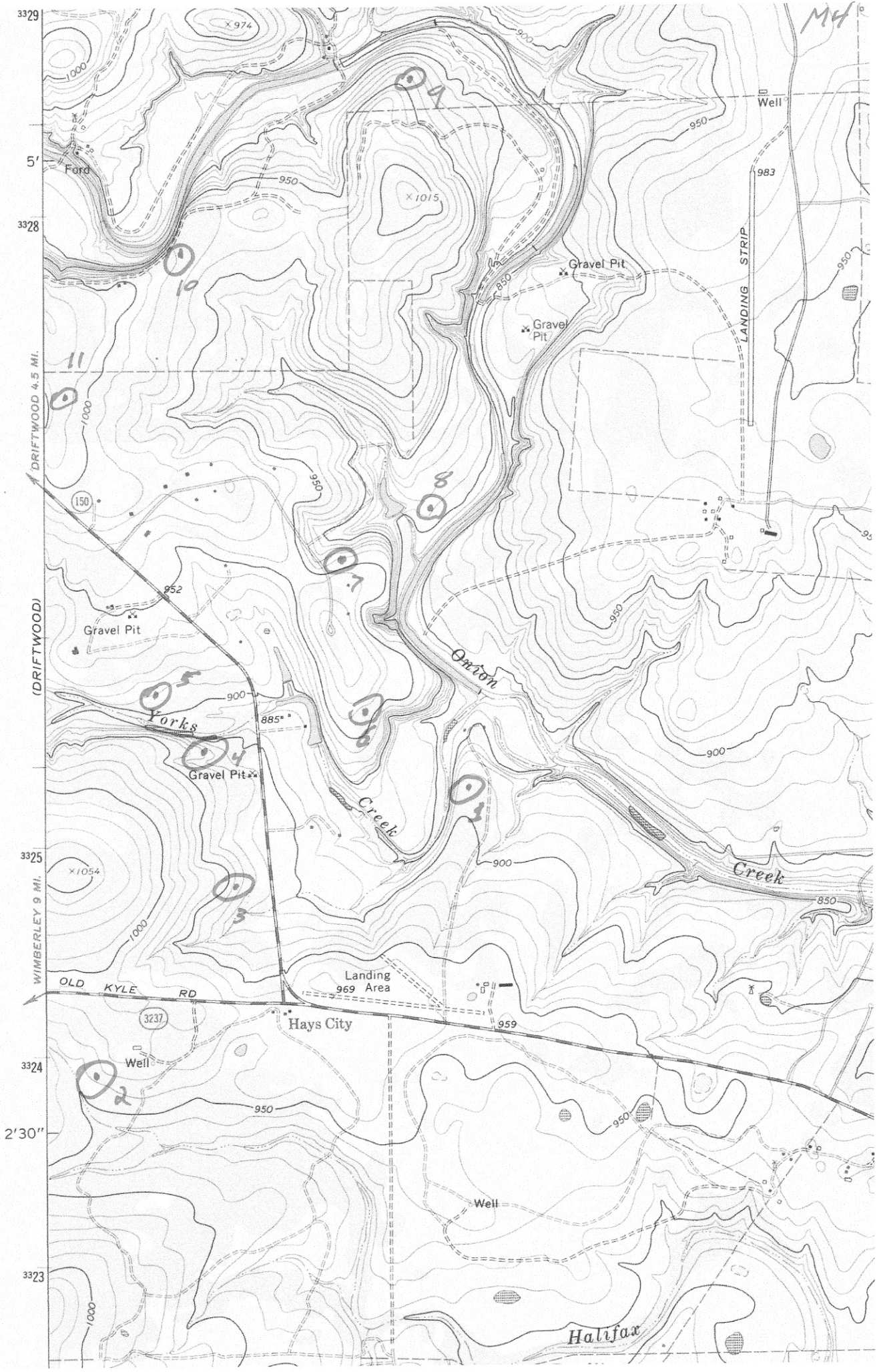
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4 5 6

7 8 9

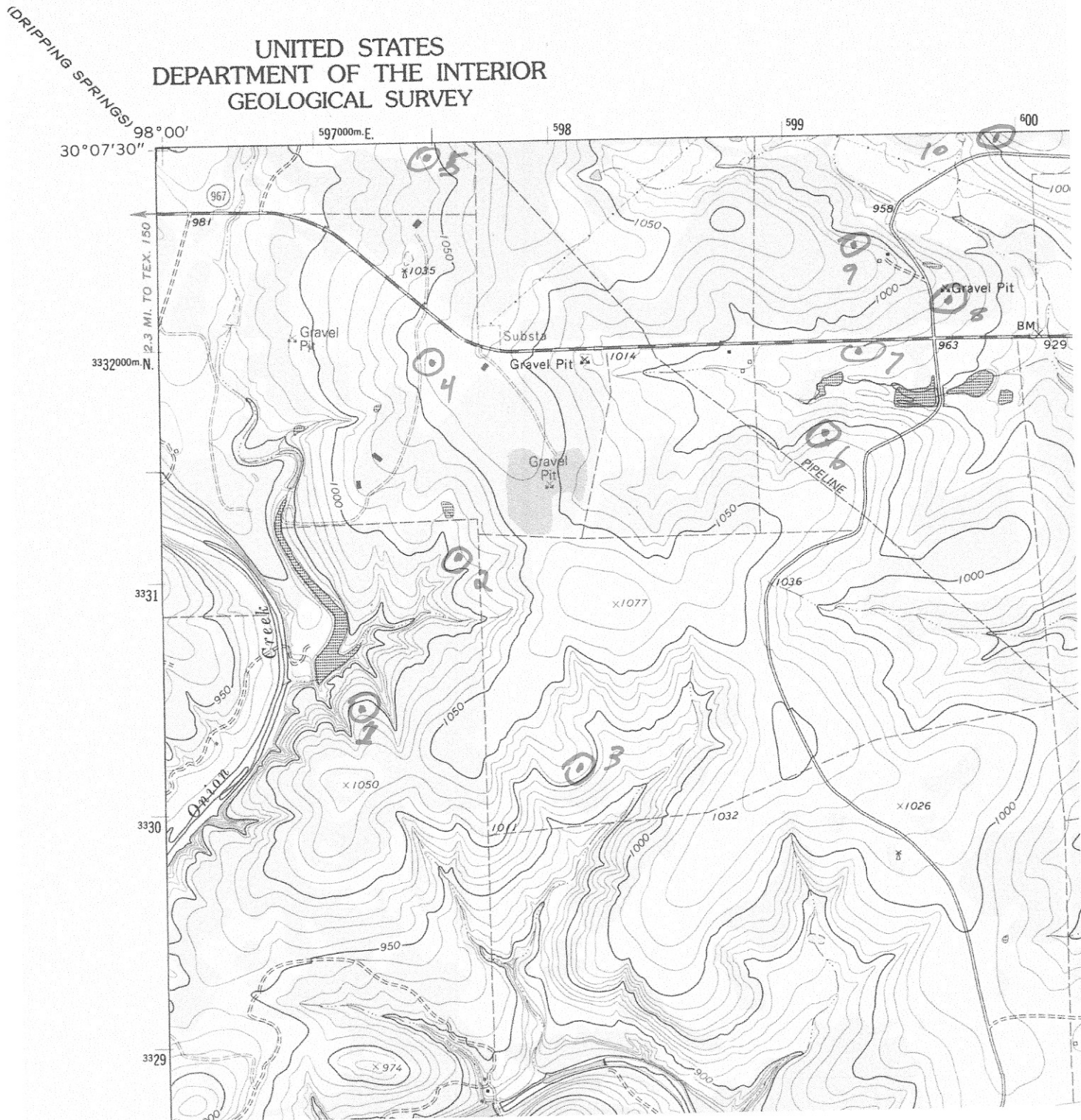
The proposed locations in the following pages are shown in the segment order M4, M1, S7, S8, and M2 (from south to north and then east for the field trip sequence).

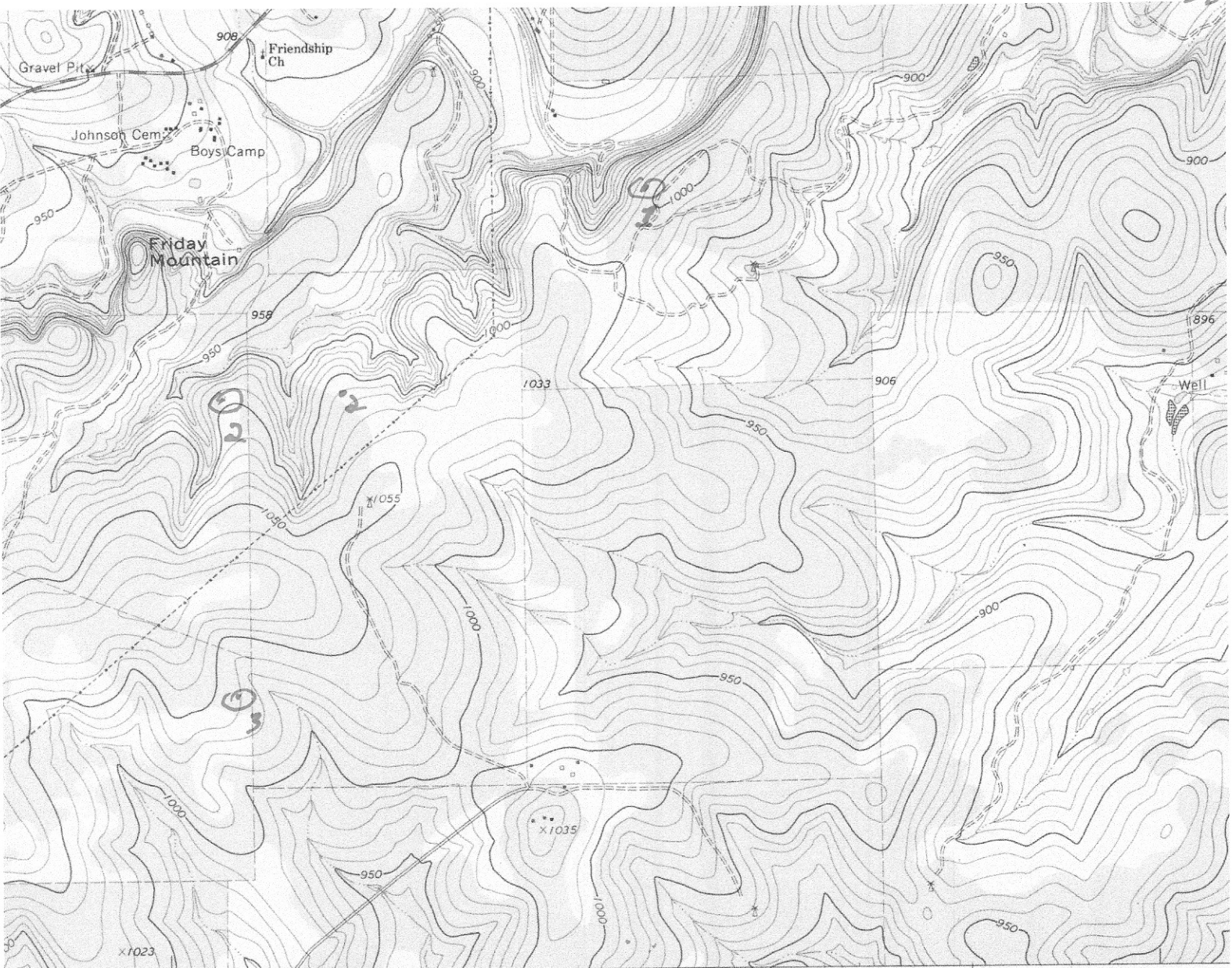
12



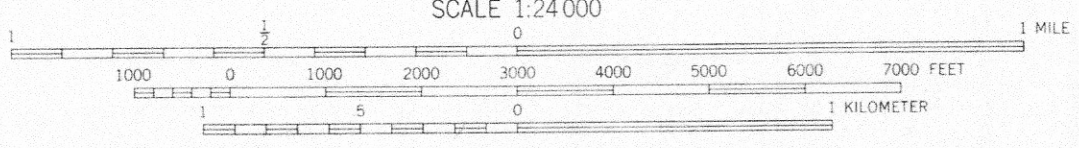
M1

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY





600 57'30" 1.4 MI. TO TEX. 967 602 (MOUNTAIN CITY) 6444 III SW 603 604 55'



CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

TIC NORTH
OF SHEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

This topographic map depicts the Signal Hill area, characterized by dense contour lines indicating elevations ranging from approximately 850 to 1000 feet. A prominent feature is Little Bear Creek, which flows diagonally across the map. Several landmarks are marked, including two wells (one near the top left and one near the bottom center), a benchmark (BM) near the top left, and a gravel pit near the top left. The map also shows various elevation points such as 929, 969, 870, 950, 900, 889, 998, 967, 927, 938, 895, 892, 875, 948, and 850. The map is overlaid with a grid system, with coordinates 600, 57'30" and 601, 55' marked along the top edge.