

SURFACE GEOLOGIC HAZARD STUDY

EASTWOOD SUBDIVISION LOT 7

WEBER COUNTY, UTAH

PREPARED FOR:

**JEROLD IVIE
6340 BORG CIRCLE
OGDEN, UTAH 84403**

Jerold Ivie
Property Owner
6340 Borg Circle
Ogden, Utah 84403

Mr. Jerold Ivie:

Re: Report
Surface Geologic Hazard Study
Eastwood Subdivision Lot 7
Between Borg Circle and Combe Road
Ogden, Utah

1. INTRODUCTION

1.1 GENERAL

Presented in this report are the results of a surface reconnaissance study which included the determination of potential geologic hazards present or adjacent to the property. The geologic hazards included landslides, active faults, debris flows, and flooding. The location of the site with respect to major topographic features and general conditions, as of 1998, is shown on Figure 1, Vicinity Map. A more detailed layout of the site showing property boundaries is shown on Figure 2, Lot 7 Site Plan.

1.2 OBJECTIVES AND SCOPE

The objectives and scope of this study were planned during telephone discussions between Mr. Jerold Ivie and C. Charles Payton of Payton Geological Services, LLC

The objectives of this study were to:

1. Determine if there are any active landslides on site.
2. Determine if active faults exist within the site area.
3. Determine the general soil conditions present on the site.

In accomplishing these objectives the scope included the following:

1. An initial review of geologic and topographic maps of the site area.
2. A field program consisting of a general reconnaissance of the site.
3. Preparation of this summary report.

2. SITE DESCRIPTION

This report presents the results of a surface geologic hazard study for the planned further development of the site east of the existing home present at 6340 Borg Circle. The approximate elevation of the western portion of the property is 4,820 feet above sea level. The eastern portion of the property consists of an east facing slope ranging in a slope angle of between 25 degrees to approximately 40 degrees. The level portion of the property is approximately 300 feet wide in an east- west direction. The slope is approximately 250 feet in a horizontal direction but drops down eastward to an approximate surface elevation of 4,700 feet above sea level.

The western portion of the property is covered with a single story home and landscaping of small trees and lawn. The eastern portion of the property, which is the southeast facing slope is covered with a thick stand of scrub oak.

3. GEOLOGIC AND SEISMOTECTONIC SETTING

The property is located within the southeastern portion of Ogden, Utah and along the foothills of the Wasatch range and just north of Weber Canyon (Figure 1). The site is also on the eastern margin of the Great Salt Lake Basin which represents a deep, sediment filled structural basin of Cenozoic age between the Wasatch Range on the east and the Lakeside Mountains to the west (Hintze, 1980). The Wasatch Range is the eastern side of the Basin and Range Province which extends westward to the Sierra Mountains in California.

The surface soils, within the western portion of the property (the flat area), are primarily sediments which were deposited by Lake Bonneville within the last 30,000 years (Yonkee and Lowe, 2004). The lacustrine or deltaic deposits (Qd3) as shown on the geologic map (Figure 3) are fine to medium sand and silt with rounded pebble and cobble gravel and gravelly sand. This deposit locally could have a total thickness as much as 100 feet.

The surface soils on the slope portion of the property are older landslide deposits (Qms2) which are unsorted and unstratified mixtures of mostly sand, silt and clay redeposited by single to multiple slides, slumps, and flows. Deposits display hummocky topography but lack fresh scarps and are mostly inactive.

The property site is located approximately 2,000 feet west of the Weber segment of the Wasatch Fault Zone as can be seen on Figure 3. The Wasatch Fault is considered to be made up of several segments, each segment acting relatively independently (Machette and Others, 1987). The Weber segment is one of the longest and most active segments within the Wasatch Fault Zone. The segments extends from north of Ogden to the north end of Salt Lake City, Utah. Nelson and others (2006) report four surface rupturing seismic events since the middle Holocene (about 5,000 years ago) with the most recent event being about 500 years ago with a surface rupture of 1.6 feet. The Weber Segment of the Wasatch Fault may be capable of producing earthquakes with a magnitude as large as 7.5 (Ms). Vertical displacements of 3 to 15 feet have been considered possible during a major earthquake on the Weber segment of the Wasatch Fault (Hecker, 1993).

4. FIELD INVESTIGATION

The field investigation consisted of a reconnaissance of the property. The near level portion of the property was covered primarily with lawn grass. Some small exposures of soil were observed and the soil was composed of fine to medium grained sand, silt, and small rounded gravel up to 2 inches in diameter. The soil was not plastic at natural moisture. This soil is considered to be a portion of the Lake Bonneville deltaic deposits (Qd3). They may have been deposited more than 15,000 years ago.

The southeast facing slope is vegetated with a thick stand of scrub oak. The slope varies slightly in slope angle. No active slumps were noted throughout the slope area. The soils encountered are a mixture of sand, silt, and gravel to small boulder sized rock fragments. Some of the rock fragments are rounded but some of the small boulder sized fragments are irregular shaped weathered fine-grained sandstone. It was concluded that the soils exposed on the slope are older landslide deposits (Qms2) as shown on the geologic map presented in Figure 3.

5. CONCLUSIONS AND RECOMMENDATIONS

Based on field observations and reviews of available geologic literature there is no evidence of any active landslide movement on the property. Geologic hazards considered during this study also included slope stability, alluvial fan flooding/debris flow, stream flooding, rock fall, and fault rupture during earthquakes along the Wasatch Fault Zone. A slope stability analysis was not performed during this geologic hazard assessment. The geologic hazards which were considered likely to not effect the property are alluvial fan flooding or debris flow, stream flooding, and rock fall. However, during a major earthquake on the Wasatch Fault located approximately 2,000 feet east of the property it is likely that ground shaking could be at a moderate intensity.

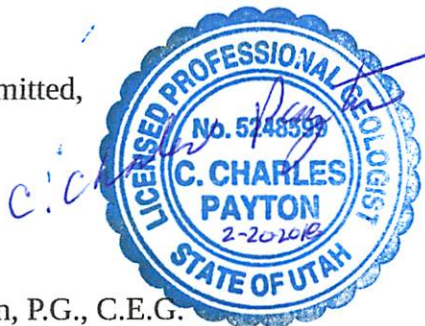
It is concluded based upon this geologic hazards study that the western portion of the property within the nearly flat area where the soils are mapped as Lake Bonneville deposits (Qd3) is suitable for additional residential development. However, the eastern portion of the property, which is the scrub oak covered slope down to Combe Road, should not be planned for any development.

6. LIMITATIONS

The analysis and report findings are based upon published geologic maps and reports, a reconnaissance of the property. The conclusions are based on currently accepted geologic interpretation of this information. The surface reconnaissance does not necessarily reflect geologic conditions at a greater depth. During construction of basements and foundations for any future homes on the property the geologic conditions at depth can be observed. It is therefore recommended that a geologic review be made of the excavations to be certain that geologic features observed are not detrimental to home construction. No attempt has been made to predict earthquake ground motions or to determine the magnitude of earthquakes associated with the Wasatch Fault Zone located a short distance east of the project area.

I appreciate the opportunity to be of service in relation to potential geologic hazards that may effect the further development of the property. Should you have any questions regarding this report or wish to discuss additional services, please do not hesitate to contact me at your convenience. My cell phone number is (80 1) 631-1613. Also you may reach me by email at c2payton.egs@gmail.com.

Respectfully submitted,



C. Charles Payton, P.G., C.E.G.
Professional Engineering Geologist
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Provo, Utah 84604-2247

Enclosures: Figure 1, Vicinity Plan
Figure 2, Lot 7 Site Plan
Figure 3, Geologic Map

REFERENCES CITED

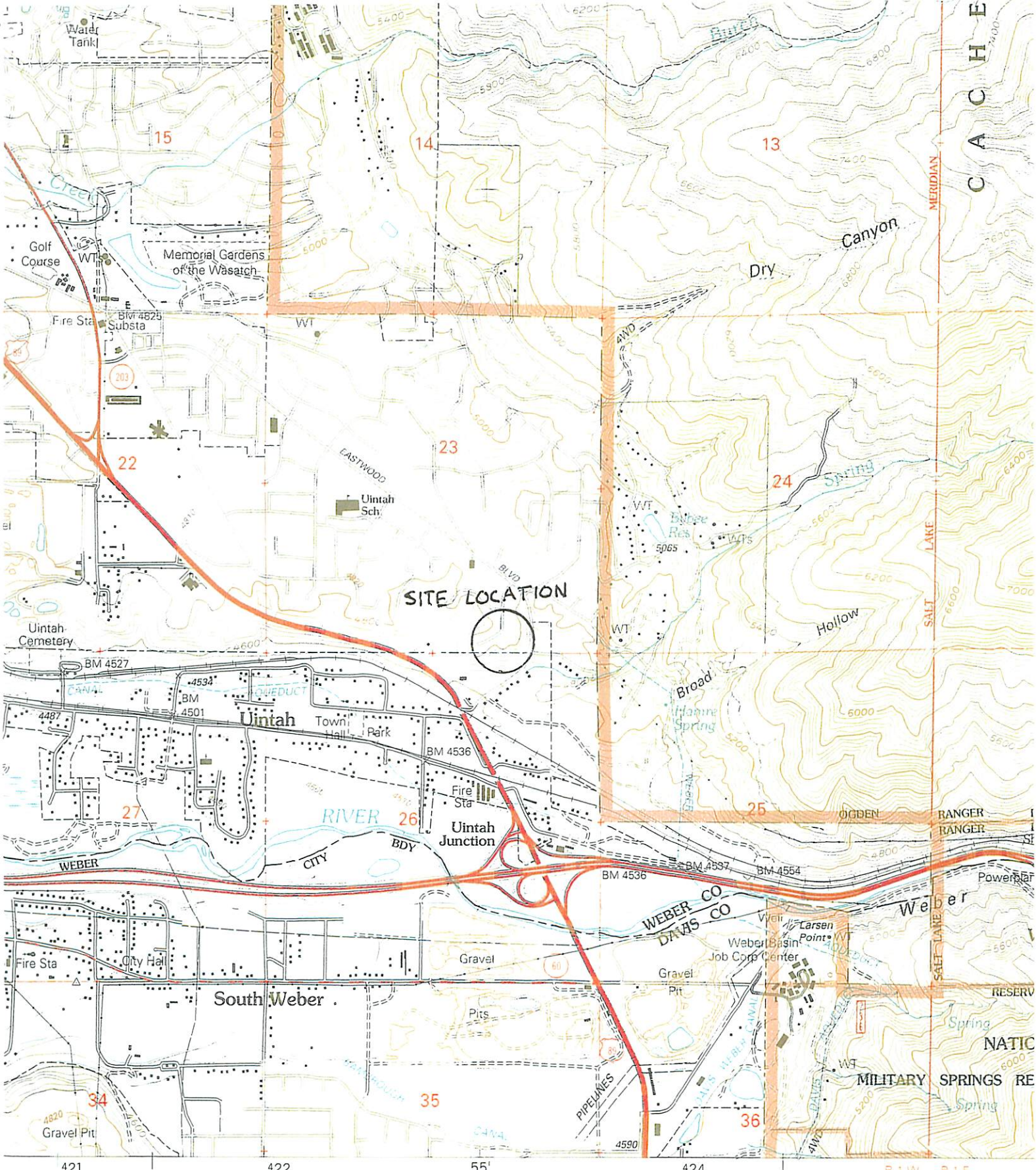
Hecker, S., 1993: Quaternary Tectonics of Utah with Emphasis on Earthquake-Hazard Characterization, Utah Geological Survey, Bulletin 127.

Hintze, L.F., 1998: Geologic Map of Utah: Utah Geological and Mineral Survey Map-A-1, scale 1:500,000.

Machette, M.N. and Personius, S.F. and Nelson, A.R., 1998: Quaternary geology along the Wasatch Fault Zone; segmentation, recent investigations and preliminary conclusions; U.S. Geological Survey open file report 87-585 p. B-1 – B-124.

Nelson, A.R., Lowe, M., Personius, S.F., Bradley, L., Forman, S.L., Izlask, R., and Garr, J., 2006: Holocene earthquake history of the northern Weber segment of the Wasatch Fault Zone, Utah, Paleoseismology of Utah, Volume 13: Utah Geological Survey Miscellaneous Publication 05-8, 39p.

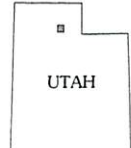
Yonkee, A., and Lowe, M., 2004: Geologic Map of the Ogden 7.5' quadrangle, Weber and Davis Counties, Utah: Utah Geological Survey Map 200.



SCALE 1:24 000 1" = 2,000'



EASTWOOD SUBDIVISION LOT 7



QUADRANGLE LOCATION

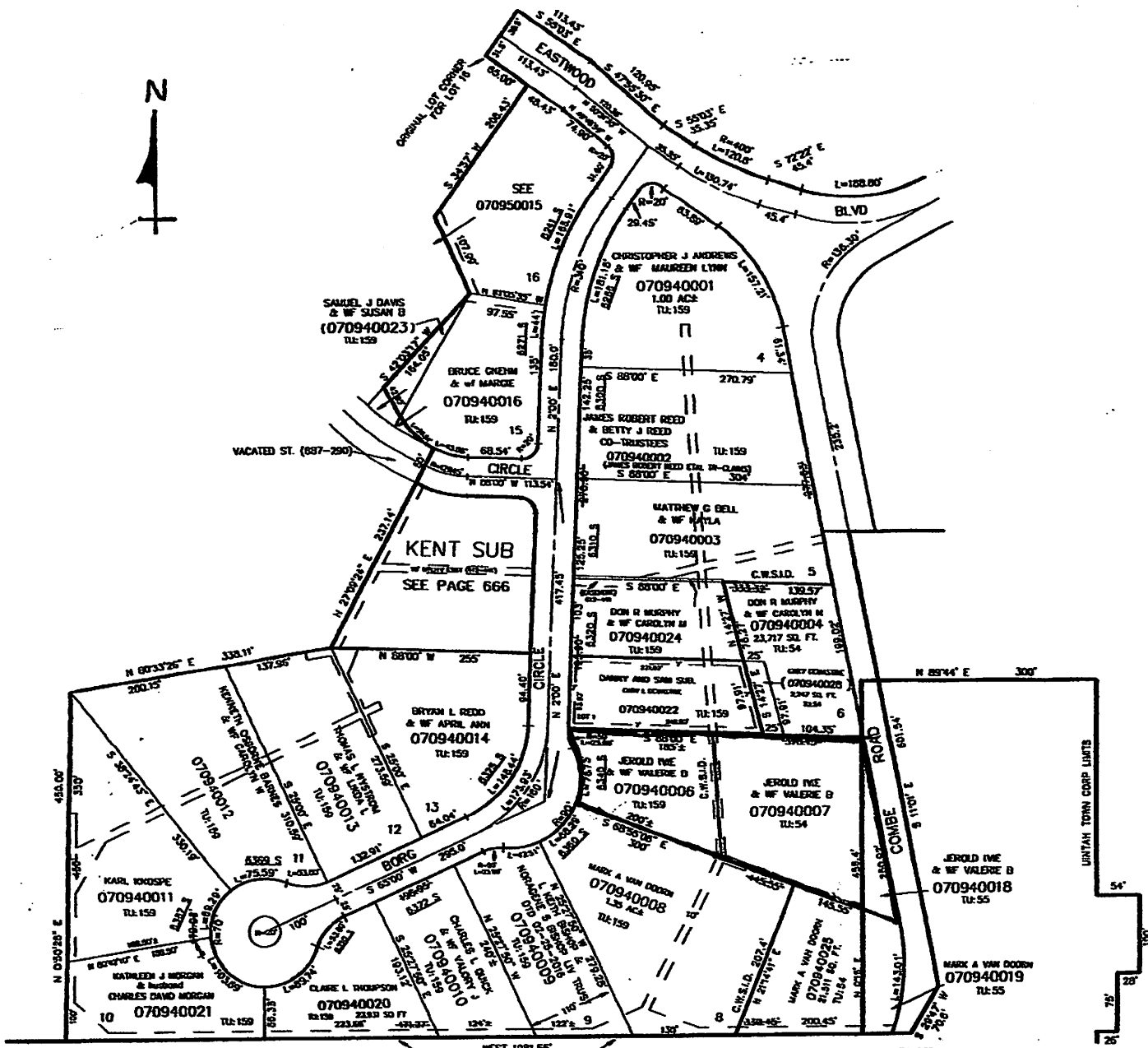
VICINITY PLAN

FIGURE 1

PART OF THE SE 1/4, SEC. 23, T.5N., R.1W., S.L.B. & M.
EASTWOOD SUBDIVISION LOTS 4-16 AND
DANNY AND SAM SUBDIVISION

WEBER COUNTY
UNTAAH DISTRICT & TOWN OF UNTAAH

TAXING UNIT: 54, 55, 159



10' UTILITY & DRAINAGE EASEMENTS EACH
SIDE OF PROPERTY LINES AS INDICATED
BY DASHED LINES EXCEPT AS OTHERWISE
SHOWN.

WEST 1081.55'
UNTAAH TOWN CORP LIMITS

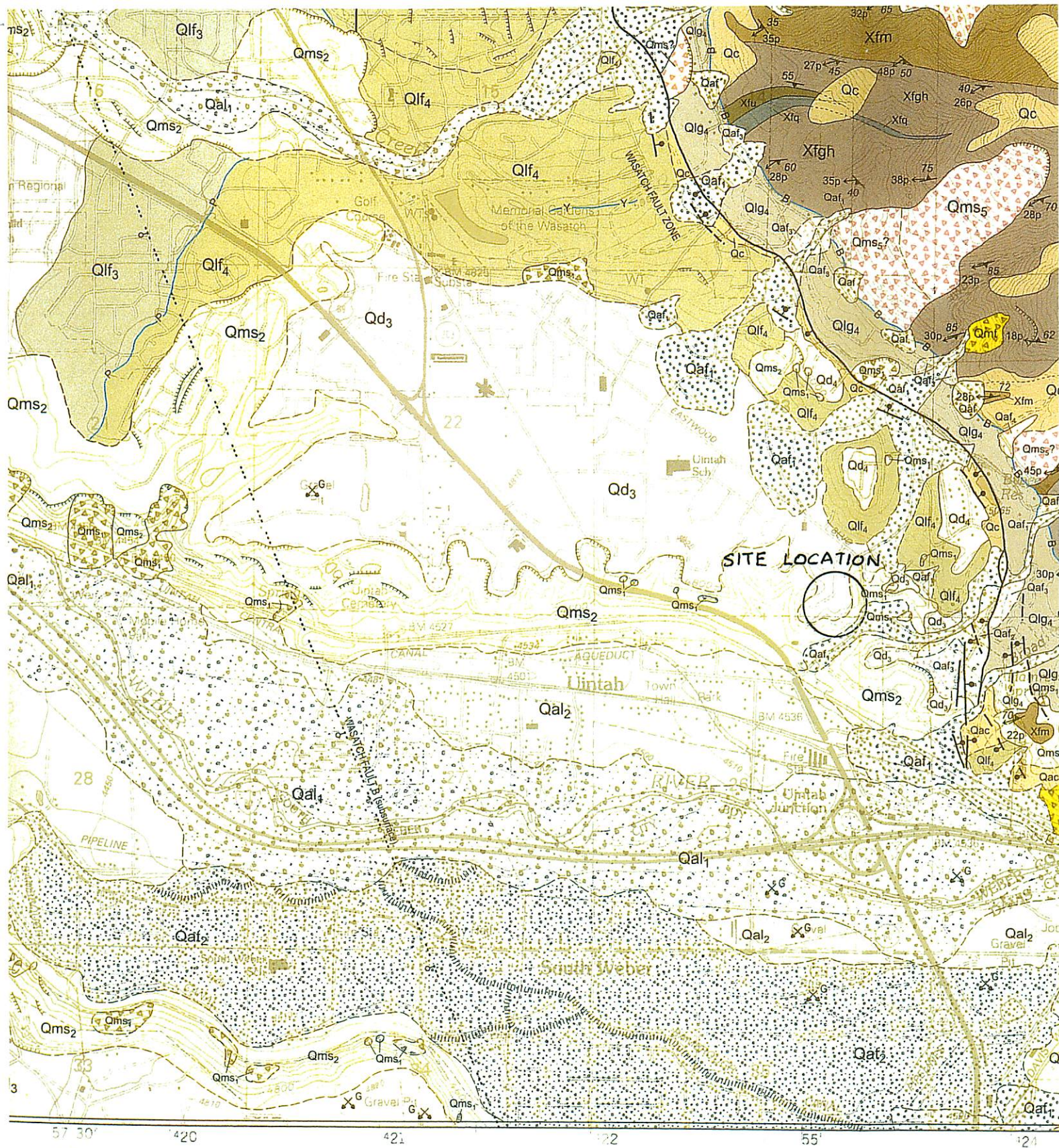
FOR COMPLETE ENG DATA SEE
ORIGINAL DEDICATION PLAT IN
BOOK 11, PAGE 87 OF RECORDS.

KST 8-89

7

SCALE 1" = 200'

LOT 7
SITE PLAN
FIGURE 2



SCALE 1 : 24,000

1 1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 40 FEET
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

MODIFIED FROM YONKEE & LOWE (2004)

GEOLIGIC MAP

FIGURE 3