Appendix G

Preliminary Fault Hazard Analysis

Earth Strata Geotechnical Services, Inc.
Geotechnical, Environmental and Materials Testing Consultants

June 12, 2020

Project No. 192846-10B

Mr. Mark Cooper
R.E.D. CORYDON, LLC
38122 Stone Meadow Drive
Murrieta, CA 92562

Subject: **Preliminary Fault Hazard Analysis, Proposed Commercial Plaza, Assessor's Parcel Number 370-050-026, Located on the Northwest Corner of Corydon Road and Mission Trail Road, City of Lake Elsinore, Riverside County, California**

Earth Strata Geotechnical Services is pleased to present our preliminary fault hazard analysis for the proposed commercial plaza with adjusted lot lines for Assessor's Parcel Number 370-050-026, located on the northwest corner of Corydon Road and Mission Trail Road in the City of Lake Elsinore, Riverside County, California. The purpose of this study is to evaluate the fault hazard potential for the subject site with respect to the northward adjusted lot lines of the parcel and the proposed development.

Earth Strata Geotechnical Services appreciates the opportunity to offer our consultation and advice on this project. In the event that you have any questions, please do not hesitate to contact the undersigned at your earliest convenience.

Respectfully submitted,

EARTH STRATA GEOTECHNICAL SERVICES

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SMP/AGW

Distribution: (2) Addressee

INTRODUCTION

Earth Strata Geotechnical Services is pleased to present our preliminary geotechnical interpretive report for the proposed development. The purpose of this study was to evaluate the nature, distribution, engineering properties, and geologic strata underlying the site with respect to the proposed development, and then provide preliminary grading and foundation design recommendations based on the plans you provided. The general location of the subject property is indicated on the Vicinity Map, Figure 1. The plans you provided were used as the base map to show geologic conditions within the subject site, see Geotechnical Map, Plate 1.

SITE DESCRIPTION

The subject property is located on the northwest corner of Mission Trail Road and Corydon Road in the City of Lake Elsinore, Riverside County, California. The approximate location of the site is shown on the Vicinity Map, Figure 1.

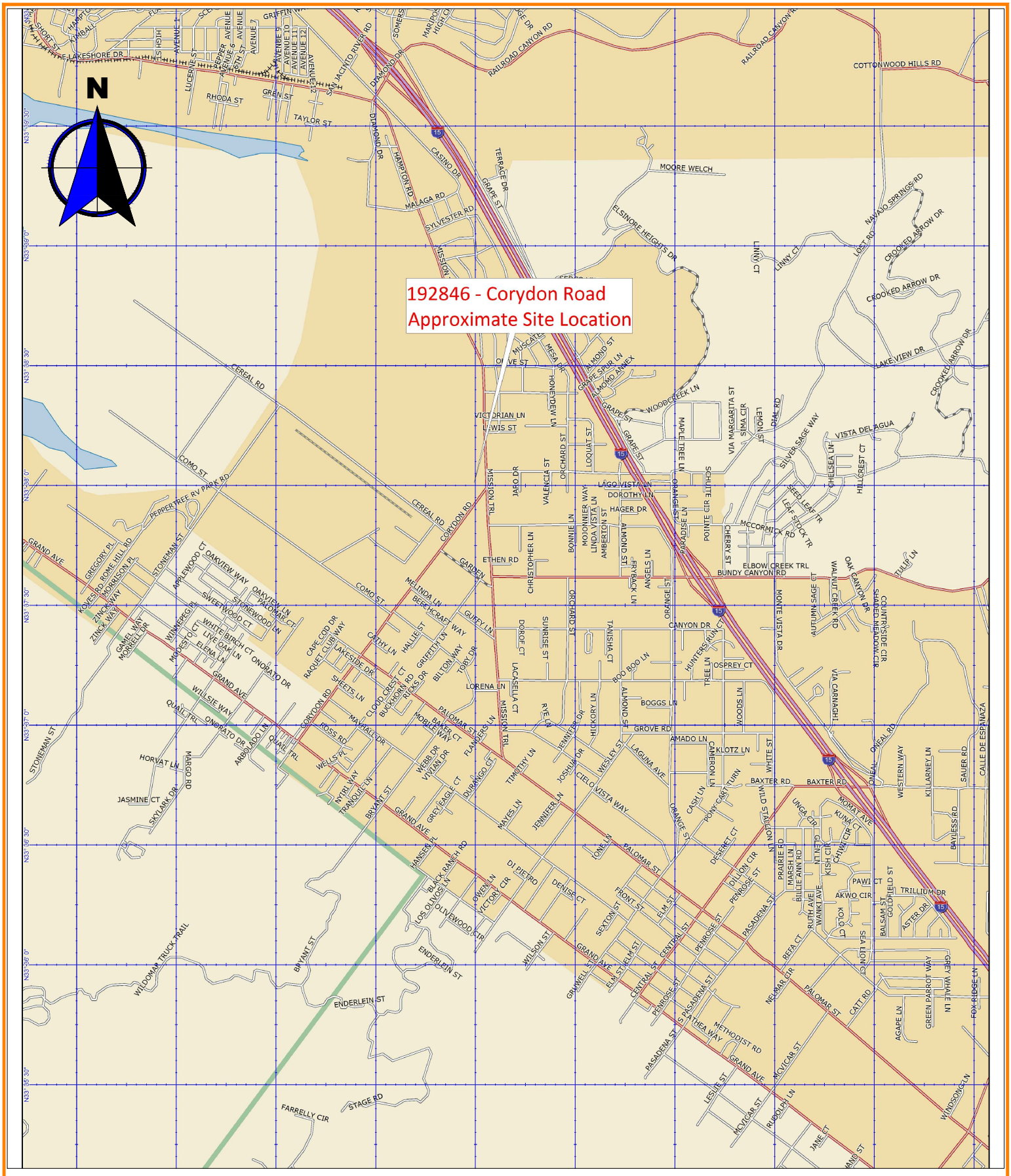
The subject property is comprised of undeveloped land. The site has not been graded. Topographic relief at the subject property is relatively low with the terrain being generally flat. Elevations at the site range from approximately 1,264to 1,280 feet above mean sea level (msl), for a difference of about 16± feet across the entire site. Drainage within the subject property generally flows to the northwest. Current plans call for the existing northern boundary of the subject parcel to be moved northward approximately 120 feet.

The site is currently bordered by commercial development to the east, south, and west, as well as vacant property to the north. Most of the vegetation on the site consists of moderate amounts of annual weeds/grasses.

PROPOSED DEVELOPMENT AND GRADING

The proposed commercial development is expected to consist of concrete, wood or steel framed one- and/or two-story structures utilizing slab on grade construction with associated streets, landscape areas, and utilities. The current development plans include seven (7) structures positioned throughout the site.

The plans provided by you were utilized in our exploration and form the base for our Geotechnical Map, Plate 1.



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CORYDON ROAD | 192846-10A

VICINITY MAP | SCALE 1:40,625 | SEP 2019 | FIGURE 1

FINDINGS

Regional Geology

Regionally, the site is located in the Peninsular Ranges Geomorphic Province of California. The Peninsular Ranges are characterized by northwest trending steep mountain ranges separated by sediment filled elongated valleys. The dominant structural geologic features reflect the northwest trend of the province. Associated with and subparallel to the San Andreas Fault are the San Jacinto Fault, Newport-Inglewood, and the Whittier-Elsinore Fault. The Santa Ana Mountains abut the west side of the Elsinore Fault while the Perris Block forms the other side of the fault zone to the east. The Perris Block is bounded to the east by the San Jacinto Fault. The northern perimeter of the Los Angeles basin forms part of a northerly dipping blind thrust fault at the boundary between the Peninsular Ranges Province and the Transverse Range Province.

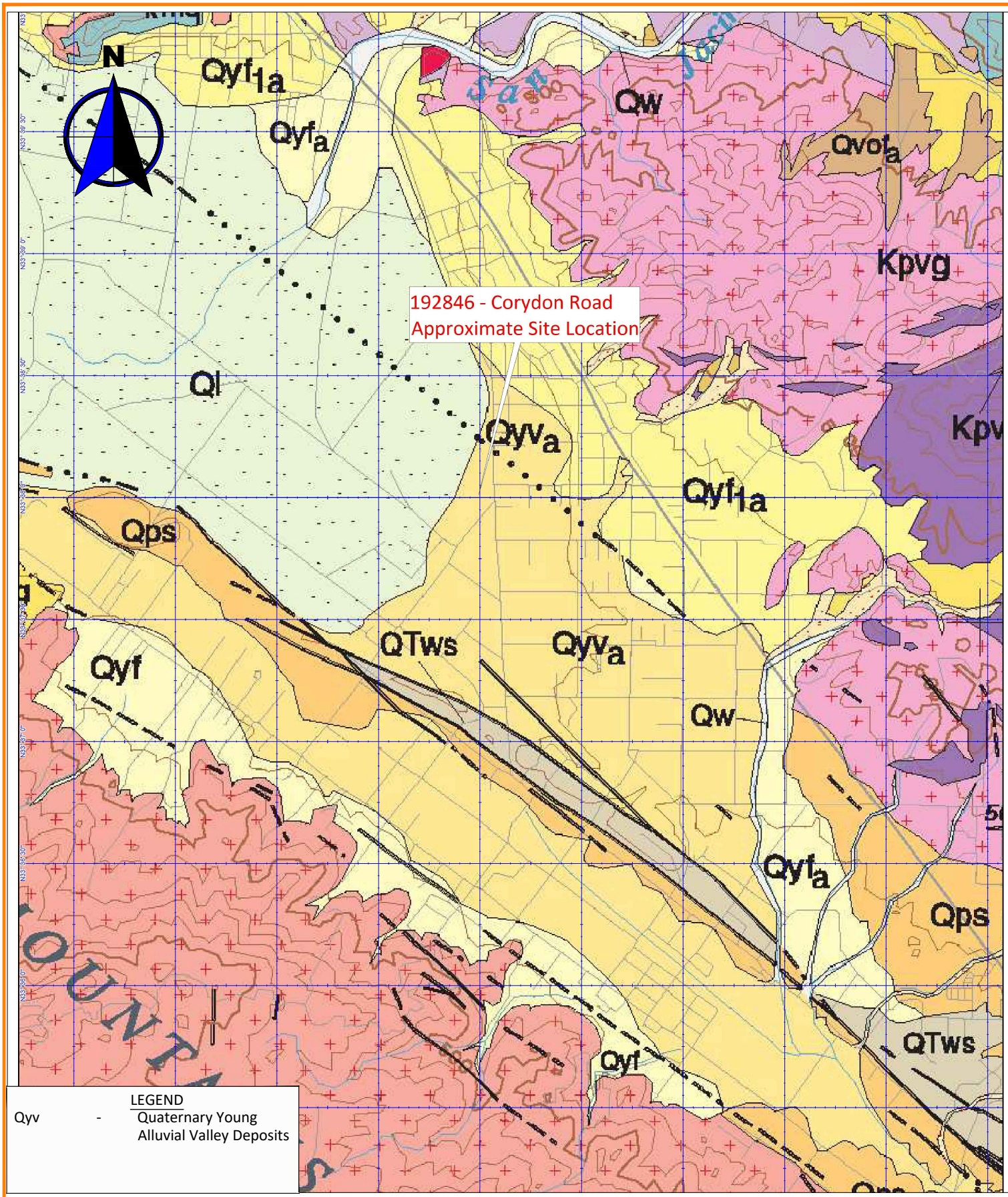
The mountainous regions within the Peninsular Ranges Province are comprised of Pre-Cretaceous, metasedimentary, and metavolcanic rocks along with Cretaceous plutonic rocks of the Southern California Batholith. The low lying areas are primarily comprised of Tertiary and Quaternary non-marine alluvial sediments consisting of alluvial deposits, sandstones, claystones, siltstones, conglomerates, and occasional volcanic units. A map illustrating the regional geology is presented on the Regional Geologic Map, Figure 2.

Local Geology

The earth materials on the site are primarily comprised of artificial fill and Quaternary young alluvial materials. A general description of the dominant earth materials observed on the site is provided below:

- Artificial Fill, Undocumented (map symbol Afu): Undocumented artificial fill materials were encountered throughout the site within the upper 2 feet during exploration. These materials are typically locally derived from the native materials and consist generally of yellowish brown to dark yellowish brown silty sand and clayey sand. These materials are generally inconsistent, poorly consolidated fills.

- Quaternary Young Alluvial Valley Deposits (map symbol Qyv): Quaternary young alluvial deposits were encountered to a maximum depth of 46 ½ feet. These alluvial deposits consist predominately of interlayered yellowish brown to dark yellowish brown, fine to coarse grained silty sand as well as olive brown to light olive gray sandy clay and sandy silt. These deposits were generally noted to be in a slightly moist to moist, medium dense to dense state.



LEGEND

Qyv - Quaternary Young Alluvial Valley Deposits

REFERNCES: Morton, D.M., Hauser, Rachel M., and Ruppert, Kelly R., 2004, Preliminary Digital Geologic Map of the San Bernardino and Santa Ana 30' x 60' Quadrangle, Southern California, Version 2.0: U.S. Geological Survey Open-File Report 99-0172.

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CORYDON ROAD | 192846-10A

REGIONAL GEOLOGIC MAP | SCALE 1:40,625 | SEP 2019 | FIGURE 2

Faulting

The project is located in a seismically active region and as a result, significant ground shaking will likely impact the site within the design life of the proposed project. The geologic structure of the entire southern California area is dominated by northwest-trending faults associated with the San Andreas Fault system, which accommodates for most of the right lateral movement associated with the relative motion between the Pacific and North American tectonic plates. Known active faults within this system include the Newport-Inglewood, Whittier-Elsinore, San Jacinto and San Andreas Faults.

No active faults are known to project through the site and the site is not located within an Alquist-Priolo Earthquake Fault Zone, established by the State of California to restrict the construction of new habitable structures across identifiable traces of known active faults. However the northwestern corner of the adjusted parcel extends into the southwestern portion of the County Fault Zone established for the Glen Ivy North Fault (see County Fault Map – Plate 2). An active fault is defined by the State of California as having surface displacement within the past 11,000 years or during the Holocene geologic time period. Based on our mapping of the subject site, review of current and historical aerial imagery, lack of lineaments indicative of active faulting, and the data compiled during the preparation of this report, it is our interpretation that the potential for surface rupture to adversely impact the proposed structures is very low to remote.

Based on our review of regional geologic maps and applicable computer programs (USGS Seismic Maps, Caltrans ARS online, and USGS Earthquake Hazard Programs), the Elsinore Fault with an approximate source to site distance of 0.38 kilometers is the closest known active fault anticipated to produce the highest ground accelerations, with an anticipated maximum modal magnitude of 7.7. A list of faults as well as a list of significant historical seismic events within a 100km radius of the subject site are included in Appendix D. See the referenced Preliminary Geotechnical Report for seismic design considerations.

CONCLUSIONS AND RECOMMENDATIONS

General

From geotechnical and engineering geologic points of view, the subject property is considered suitable for the proposed development, provided the following conclusions and recommendations of the Preliminary Geotechnical Report incorporated into the plans and are implemented during construction.

Though the Glen Ivy North Fault Zone extends into the northwest corner of the site, the area of the site within the fault zone is very small and no structures are proposed for that area. As such the currently proposed development plan is considered suitable for the subject site and no further site exploration with respect to fault hazard potential is considered necessary.

GRADING PLAN REVIEW AND CONSTRUCTION SERVICES

This report has been prepared for the exclusive use of **Mr. Mark Cooper** and their authorized representative. It likely does not contain sufficient information for other parties or other uses. Earth Strata Geotechnical Services should be engaged to review the final design plans and specifications prior to construction. This is to verify that the recommendations contained in this report have been properly incorporated into the project plans and specifications. Should Earth Strata Geotechnical Services not be accorded the opportunity to review the project plans and specifications, we are not responsibility for misinterpretation of our recommendations.

We recommend that Earth Strata Geotechnical Services be retained to provide geologic and geotechnical engineering services during grading and foundation excavation phases of the work. In order to allow for design changes in the event that the subsurface conditions differ from those anticipated prior to construction.

Earth Strata Geotechnical Services should review any changes in the project and modify and approve in writing the conclusions and recommendations of this report. This report and the drawings contained within are intended for design input purposes only and are not intended to act as construction drawings or specifications. In the event that conditions encountered during grading or construction operations appear to be different than those indicated in this report, this office should be notified immediately, as revisions may be required.

REPORT LIMITATIONS

Our services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable soils engineers and geologists, practicing at the time and location this report was prepared. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report.

Earth materials vary in type, strength, and other geotechnical properties between points of observation and exploration. Groundwater and moisture conditions can also vary due to natural processes or the works of man on this or adjacent properties. As a result, we do not and cannot have complete knowledge of the subsurface conditions beneath the subject property. No practical study can completely eliminate uncertainty with regard to the anticipated geotechnical conditions in connection with a subject property. The conclusions and recommendations within this report are based upon the findings at the points of observation and are subject to confirmation by Earth Strata Geotechnical Services based on the conditions revealed during grading and construction.

This report was prepared with the understanding that it is the responsibility of the owner or their representative, to ensure that the conclusions and recommendations contained herein are brought to the attention of the other project consultants and are incorporated into the plans and specifications. The owners' contractor should properly implement the conclusions and recommendations during grading and construction, and notify the owner if they consider any of the recommendations presented herein to be unsafe or unsuitable.

APPENDIX A

REFERENCES

APPENDIX A

References

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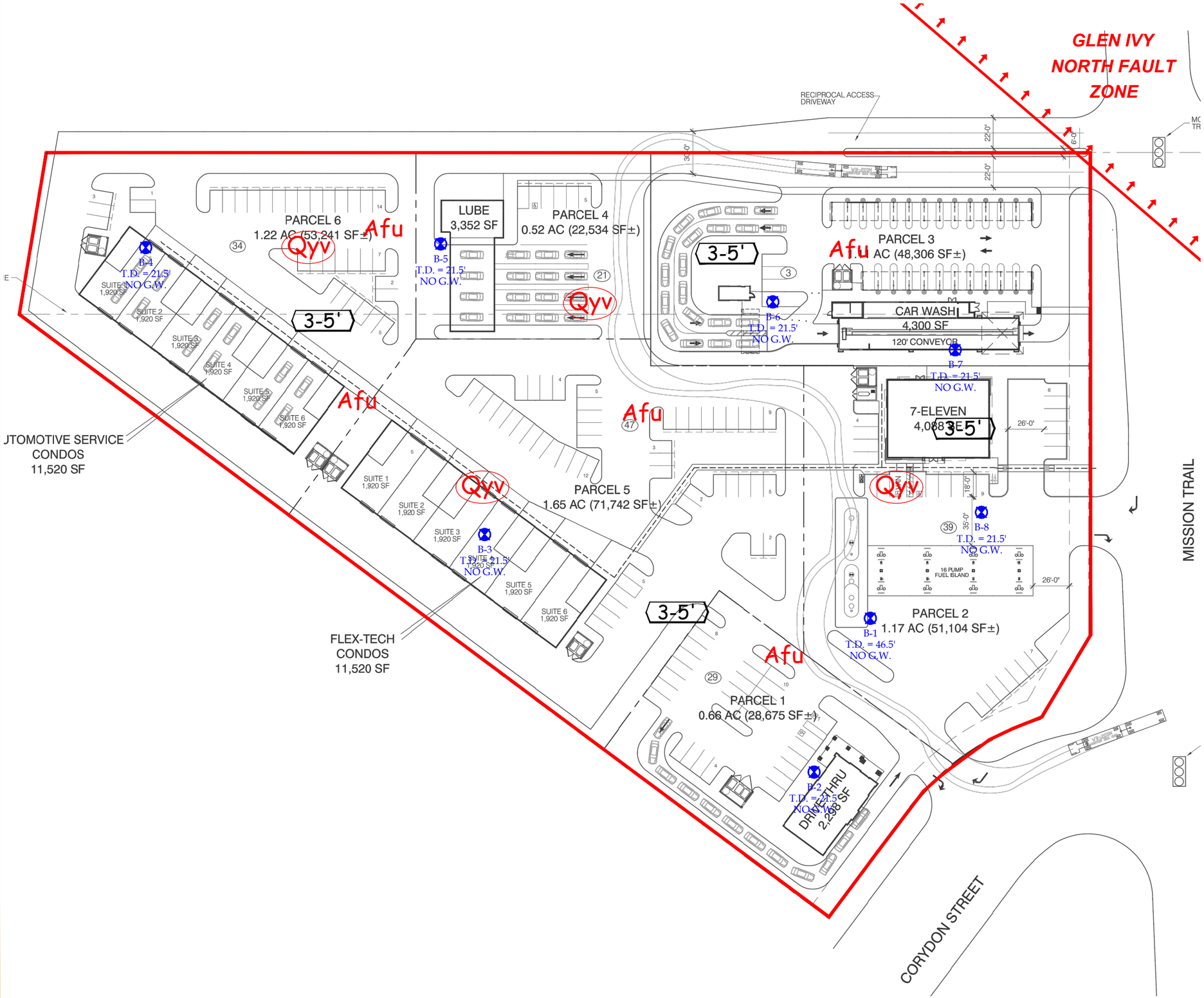

LEGEND

Locations are Approximate

Geologic Units

Afu - Artificial Fill, Undocumented

Qyv - Quaternary Young Alluvial Valley Deposits

Symbols

- Limits of Report
- B-8 T.D. = 21.5' NO G.W. - Boring Location Including Total Depth and Depth to Groundwater
- 3-5' - Recommended Removal Depths
- Glen Ivy North Fault Zone

GEOTECHNICAL MAP

LOCATED NORTHWEST CORNER OF CORYDON ROAD AND MISSION TRAIL ROAD

CITY OF LAKE ELSINORE, RIVERSIDE COUNTY, CALIFORNIA

APN 370-050-026

PROJECT	***PROPOSED COMMERCIAL PLAZA***		
CLIENT	***MR. MARK COOPER***		
PROJECT NO.	***192846-10A***		
DATE	***SEP 2019***		
SCALE	***1:70***		
DWG XREFS			
REVISION			
DRAWN BY	***JDG***	***PLATE***	***1 OF 2***

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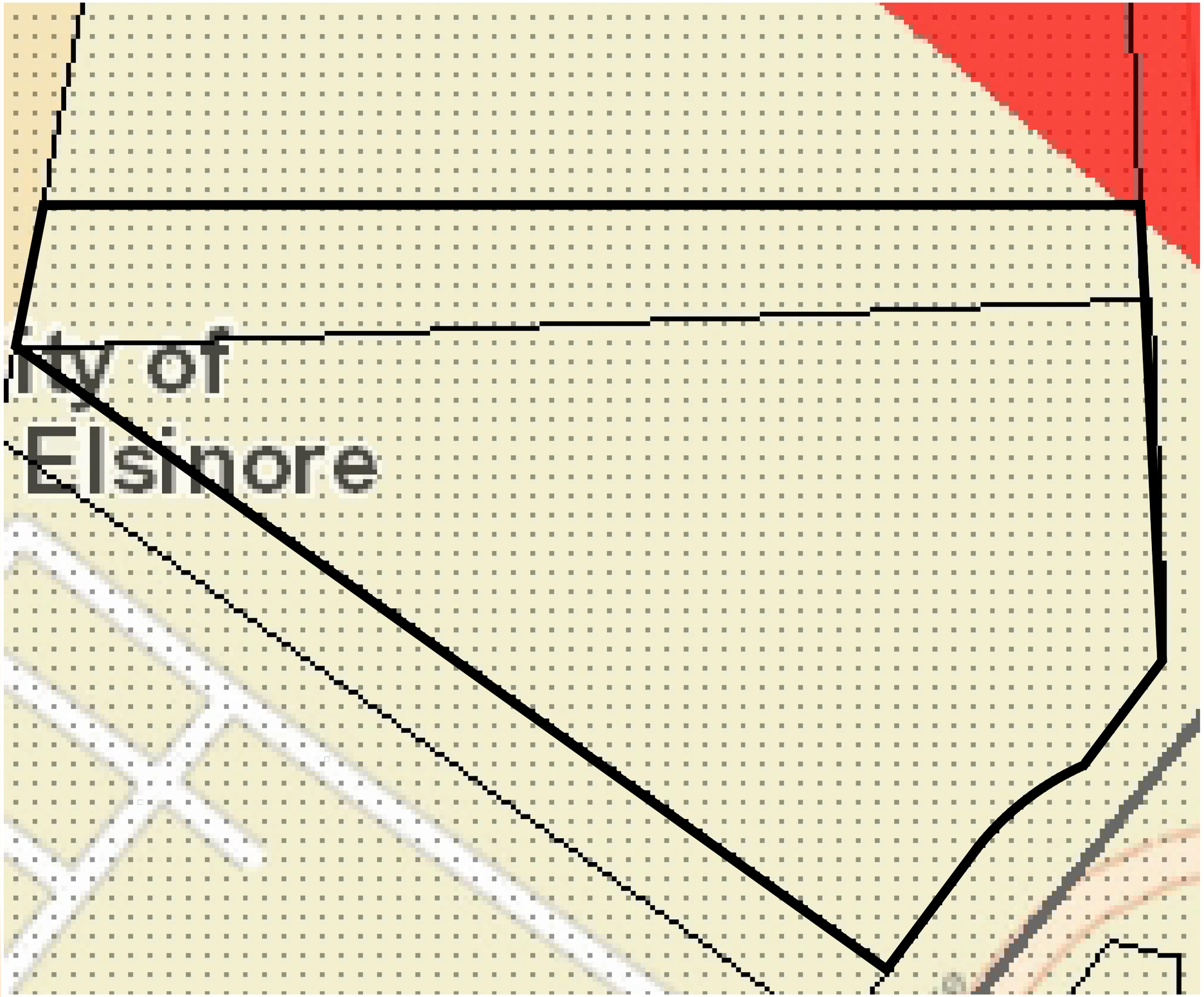

LEGEND

Locations are Approximate

Geologic Units

Afu - Artificial Fill, Undocumented

Qyv - Quaternary Young Alluvial Valley Deposits

Symbols

- Limits of Report

- Glen Ivy North Fault

North

COUNTY FAULT MAP

LOCATED NORTHWEST CORNER OF CORYDON ROAD AND MISSION TRAIL ROAD

CITY OF LAKE ELSINORE, RIVERSIDE COUNTY, CALIFORNIA

APN 370-050-026

PROJECT	*PROPOSED COMMERCIAL PLAZA*		
CLIENT	*MR. MARK COOPER*		
PROJECT NO.	*192846-10A*		
DATE	*SEP 2019*		
SCALE	*1:80*		
DWG XREFS			
REVISION			
DRAWN BY	*JDG*	*PLATE*	*2 OF 2*

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